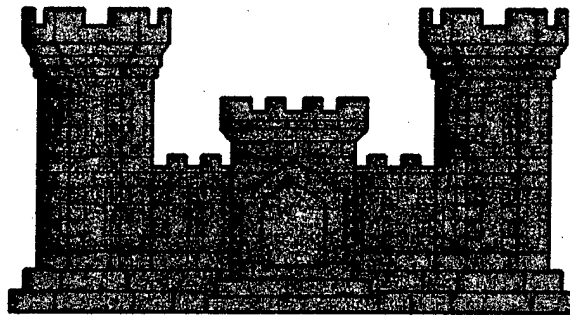


# FINAL REPORT

## FORT GORDON ENERGY SURVEY & ANALYSIS OF BOILER AND CHILLER PLANTS

BUILDING 25910  
BUILDING 25330  
COOLING LOADS



PROPOSED ENERGY CONSERVATION OPPORTUNITIES  
FOR  
SAVANNAH DISTRICT CORPS OF ENGINEERS  
CONTRACT NUMBER: DACA21-93-C-0110

VOLUME II  
OF 3

3 APRIL 1995

19971016 193



**HARRISON AND SPENCER, INC.**  
**ENGINEERS • ARCHITECTS • PLANNERS**

438 COTTON AVENUE  
P.O. BOX 4246

MACON, GEORGIA  
(912) 742-5751

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited.

DTIC QUALITY INSPECTED 2




DEPARTMENT OF THE ARMY  
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS  
P.O. BOX 9005  
CHAMPAIGN, ILLINOIS 61826-9005

REPLY TO  
ATTENTION OF: TR-I Library

17 Sep 1997

Based on SOW, these Energy Studies are unclassified/unlimited.  
Distribution A. Approved for public release.

  
Marie Wakefield,  
Librarian Engineering

PRE FINAL REPORT

FORT GORDON ENERGY SURVEY & ANALYSIS OF  
BOILER AND CHILLER PLANTS  
BUILDING 25910  
BUILDING 25330

PROPOSED ENERGY CONSERVATION OPPORTUNITIES  
FOR  
SAVANNAH DISTRICT CORPS OF ENGINEERS

CONTRACT NUMBER DACA21-93-C-0110

VOLUME II

30 SEPTEMBER 1994



**Harrison and Spencer, Inc.**  
ENGINEERS • ARCHITECTS • PLANNERS

438 Cotton Avenue

Macon, Georgia 31208-4246

Macon (912) 742-5751

Atlanta (404) 577-5746

APPENDIX I  
HEAT LOADS BUILDING 25910



```
*****  
*****  
**                                     **  
**          TRACE 600 ANALYSIS          **  
**                                     **  
**          by          **               **  
**                                     **  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
BON  
BLDG 21604 (SIX BLDGS TOTAL)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12:10:27 8/19/94  
Dataset Name: FGTYPS1A .TM

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*  
 Peaked at Time => Mo/Hr: 8/15 \* Mo/Hr: 9/16 \* Mo/Hr: 13/ 1  
 Outside Air => OADB/WB/HR: 97/ 76/105.0 \* OADB: 93 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)		Space Sensible (Btuh)	Perct Of Tot (%)		Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	41,220	0	41,220	38.01	*	0	0.00	*	0	-22,454	24.53
Glass Solar	22,296	0	0	22,296	20.56	*	29,728	55.08	*	0	0	0.00
Glass Cond	9,329	0	0	9,329	8.60	*	7,655	14.18	*	-23,539	-23,539	25.72
Wall Cond	6,099	1,211	0	7,310	6.74	*	5,927	10.98	*	-9,699	-12,186	13.32
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	7,954	0	0	7,954	7.34	*	3,228	5.98	*	-10,200	-10,200	11.14
Sub Total=>	45,679	42,431	0	88,110	81.25	*	46,538	86.23	*	-43,437	-68,379	74.71
Internal Loads												
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total=>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	9,426	-9,426	0	0	0.00	*	7,432	13.77	*	-5,541	0	0.00
Outside Air	0	0	0	25,550	23.56	*	0	0.00	*	0	-26,210	28.64
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Rec. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Dist. Heat Pkup	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	-5,219	0	-5,219	-4.81	*	0	0.00	*	0	3,068	-3.35
Terminal Bypass	0	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total=>	55,105	27,785	0	108,441	100.00	*	53,970	100.00	*	-48,978	-91,521	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR (Deg F)	Entering DB/WB/HR (Deg F)	Entering DB/WB/HR (Grains)	Leaving DB/WB/HR (Deg F)	Leaving DB/WB/HR (Deg F)	Leaving DB/WB/HR (Grains)
Main Clg	9.0	108.4	3,320	86.0	68.1	75.0	60.3	58.1	69.0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	9.0	108.4	3,320	86.0	68.1	75.0	60.3	58.1	69.0

-----AREAS-----

	Gross Total	Glass (sf)	(%)
Floor	3,320		
Part	400		
ExFlr	0		
Roof	3,320	0	0
Wall	2,043	464	23

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent (Deg F)	Lvg (Deg F)
Main Htg	-91.5	3,320	56.4	81.3
Aux Htg	0.0	0	0.0	0.0
Preheat	-14.4	3,320	56.4	60.3
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-91.5	3,320	56.4	81.3

-----AIRFLOWS (cfm)-----

Type	Cooling	Heating
Vent	525	525
Infil	163	204
Supply	3,320	3,320
Mincfm	0	0
Return	3,320	3,320
Exhaust	525	525
Rm Exh	0	0
Auxil	0	0

-----ENGINEERING CHECKS-----

Clg % OA	15.8
Clg Cfm/Sqft	1.00
Clg Cfm/Ton	367.39
Clg Sqft/Ton	367.39
Clg Btuh/Sqft	32.66
No. People	35
Htg % OA	15.8
Htg Cfm/Sqft	1.00
Htg Btuh/Sqft	-27.57

-----TEMPERATURES (F)-----

Type	Clg	Htg
SADB	60.3	81.3
Plenum	84.0	62.7
Return	84.0	62.7
Ret/OA	86.0	56.4
Runarnd	75.0	68.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

System 2 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****											
Mo/Hr: 8/15					* Mo/Hr: 6/11			* Mo/Hr: 13/ 1			
Outside Air ==> OADB/WB/HR: 97/ 76/105.0					* OADB: 92			* OADB: 23			
	Space	Ret. Air	Ret. Air	Net	Perct		Space	Perct	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot		Sensible	Of Tot	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)		(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Envelope Loads											
Skylite Solr	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Roof Cond	0	31,085	0	31,085	25.13	*	0	0.00	0	-16,771	13.46
Glass Solar	15,015	0	0	15,015	12.14	*	27,027	53.72	0	0	0.00
Glass Cond	5,483	0	0	5,483	4.43	*	4,049	8.05	-13,835	-13,835	11.11
Wall Cond	11,431	1,051	0	12,483	10.09	*	9,627	19.14	-24,613	-28,087	22.55
Partition	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Infiltration	10,948	0	0	10,948	8.85	*	4,038	8.03	-13,519	-13,519	10.85
Sub Total==>	42,878	32,136	0	75,015	60.65	*	44,740	88.93	-51,967	-72,211	57.97
Internal Loads											
Lights	0	0	0	0	0.00	*	0	0.00	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Ceiling Load	7,139	-7,139	0	0	0.00	*	5,568	11.07	-4,497	0	0.00
Outside Air	0	0	0	60,648	49.03	*	0	0.00	0	-59,909	48.09
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Heat PkUp	0	0	0	0	0.00	*	0	0.00	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Exhaust Heat	0	-11,975	0	-11,975	-9.68	*	0	0.00	0	7,544	-6.06
Terminal Bypass	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Grand Total==>	50,017	13,022	0	123,688	100.00	*	50,308	100.00	-56,464	-124,576	100.00

-----COOLING COIL SELECTION-----											-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr	
Main Clg	10.3	123.7	86.0	2,505	90.0	71.2	85.2	56.9	56.2	67.0	2,505	0	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Totals	10.3	123.7	86.0	2,505	90.0	71.2	85.2	56.9	56.2	67.0	2,505	0	
											2,708	273 10	

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--			--TEMPERATURES (F)---		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	47.9	Type	Clg	Htg		
(Mbh)	(cfm)	Deg F	Deg F	Vent	1,200	1,200	Clg Cfm/Sqft	1.00	SADB	56.9	88.3		
Main Htg	-124.6	2,505	43.5	88.3	Infil	217	271	Clg Cfm/Ton	243.02	Plenum	84.0	62.3	
Aux Htg	0.0	0	0.0	0.0	Supply	2,505	2,505	Clg Sqft/Ton	243.02	Return	84.0	62.3	
Preheat	-37.3	2,505	43.5	56.9	Mincfm	0	0	Clg Btuh/Sqft	49.38	Ret/OA	90.0	43.5	
Reheat	0.0	0	0.0	0.0	Return	2,505	2,505	No. People	80	Runarnd	75.0	68.0	
Humidif	0.0	0	0.0	0.0	Exhaust	1,200	1,200	Htg % OA	47.9	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0	
Total	-124.6				Auxil	0	0	Htg Btuh/Sqft	-49.73	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FUELED SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-158,345	0.0	-145,758	0.0	-145,758	0.0	-145,758	0.0	-145,758	0.0
2	32.9	30.7	-149,947	0.0	-149,110	0.0	-149,110	0.0	-149,110	0.0	-149,110	0.0
3	33.1	31.3	-130,892	0.0	-150,954	0.0	-150,954	0.0	-150,954	0.0	-150,954	0.0
4	33.9	32.1	-132,276	0.0	-150,304	0.0	-150,304	0.0	-150,304	0.0	-150,304	0.0
5	35.2	33.5	-126,519	0.0	-149,570	0.0	-149,570	0.0	-149,570	0.0	-149,570	0.0
6	37.0	35.4	-127,166	0.0	-145,592	0.0	-145,592	0.0	-145,592	0.0	-145,592	0.0
7	39.0	37.6	-125,276	0.0	-140,819	0.0	-140,819	0.0	-140,819	0.0	-140,819	0.0
8	41.3	40.1	-121,009	0.0	-135,596	0.0	-135,596	0.0	-135,596	0.0	-135,596	0.0
9	43.7	42.5	-97,260	0.0	-118,417	0.0	-118,417	0.0	-118,417	0.0	-118,417	0.0
10	46.1	44.0	-66,746	0.0	-100,637	0.0	-100,637	0.0	-100,637	0.0	-100,637	0.0
11	48.4	45.0	-36,396	0.0	-81,921	0.0	-81,921	0.0	-81,921	0.0	-81,921	0.0
12	50.5	45.6	-17,648	0.0	-69,787	0.0	-69,787	0.0	-69,787	0.0	-69,787	0.0
13	52.2	46.1	-13,617	0.0	-60,012	0.0	-60,012	0.0	-60,012	0.0	-60,012	0.0
14	53.5	46.4	-10,048	0.0	-50,518	0.0	-50,518	0.0	-50,518	0.0	-50,518	0.0
15	54.3	46.3	-8,871	1.0	-46,684	0.0	-46,684	0.0	-46,684	0.0	-46,684	0.0
16	54.6	46.1	-11,450	2.2	-46,054	0.0	-46,054	0.0	-46,054	0.0	-46,054	0.0
17	54.0	45.9	-15,826	1.6	-51,470	0.0	-51,470	0.0	-51,470	0.0	-51,470	0.0
18	52.5	45.0	-23,570	0.0	-64,900	0.0	-64,900	0.0	-64,900	0.0	-64,900	0.0
19	50.1	44.8	-43,900	0.0	-77,628	0.0	-77,628	0.0	-77,628	0.0	-77,628	0.0
20	47.1	43.3	-38,075	0.0	-89,272	0.0	-89,272	0.0	-89,272	0.0	-89,272	0.0
21	43.7	40.4	-42,163	0.0	-101,933	0.0	-101,933	0.0	-101,933	0.0	-101,933	0.0
22	40.4	37.3	-67,331	0.0	-115,415	0.0	-115,415	0.0	-115,415	0.0	-115,415	0.0
23	37.3	34.9	-88,498	0.0	-126,965	0.0	-126,965	0.0	-126,965	0.0	-126,965	0.0
24	34.9	32.6	-96,626	0.0	-137,606	0.0	-137,606	0.0	-137,606	0.0	-137,606	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-98,105	0.0	-117,148	0.0	-117,148	0.0	-117,148	0.0	-117,148	0.0
2	39.7	37.1	-104,302	0.0	-125,023	0.0	-125,023	0.0	-125,023	0.0	-125,023	0.0
3	37.8	35.1	-111,347	0.0	-132,874	0.0	-132,874	0.0	-132,874	0.0	-132,874	0.0
4	36.3	33.8	-116,096	0.0	-138,626	0.0	-138,626	0.0	-138,626	0.0	-138,626	0.0
5	35.1	32.6	-119,695	0.0	-145,810	0.0	-145,810	0.0	-145,810	0.0	-145,810	0.0
6	34.4	32.0	-121,293	0.0	-149,313	0.0	-149,313	0.0	-149,313	0.0	-149,313	0.0
7	34.1	31.9	-120,200	0.0	-151,962	0.0	-151,962	0.0	-151,962	0.0	-151,962	0.0
8	34.6	32.4	-112,255	0.0	-150,807	0.0	-150,807	0.0	-150,807	0.0	-150,807	0.0
9	36.0	33.8	-85,842	0.0	-135,489	0.0	-135,489	0.0	-135,489	0.0	-135,489	0.0
10	38.2	34.7	-54,068	0.0	-118,799	0.0	-118,799	0.0	-118,799	0.0	-118,799	0.0
11	40.9	36.2	-26,226	0.0	-102,227	0.0	-102,227	0.0	-102,227	0.0	-102,227	0.0
12	43.9	37.4	-11,563	0.0	-87,289	0.0	-87,289	0.0	-87,289	0.0	-87,289	0.0
13	46.9	39.4	-8,563	0.0	-72,328	0.0	-72,328	0.0	-72,328	0.0	-72,328	0.0
14	49.7	41.4	-5,534	0.0	-60,721	0.0	-60,721	0.0	-60,721	0.0	-60,721	0.0
15	51.8	42.8	-4,706	1.7	-51,449	0.0	-51,449	0.0	-51,449	0.0	-51,449	0.0
16	53.2	43.9	-7,543	2.3	-49,832	0.0	-49,832	0.0	-49,832	0.0	-49,832	0.0
17	53.7	44.2	-12,601	1.9	-51,622	0.0	-51,622	0.0	-51,622	0.0	-51,622	0.0
18	53.4	44.4	-19,544	0.8	-58,506	0.0	-58,506	0.0	-58,506	0.0	-58,506	0.0
19	52.7	44.4	-35,878	0.0	-69,443	0.0	-69,443	0.0	-69,443	0.0	-69,443	0.0
20	51.5	45.2	-35,054	0.0	-76,661	0.0	-76,661	0.0	-76,661	0.0	-76,661	0.0
21	50.0	44.6	-39,429	0.0	-83,771	0.0	-83,771	0.0	-83,771	0.0	-83,771	0.0
22	48.1	43.3	-56,564	0.0	-90,996	0.0	-90,996	0.0	-90,996	0.0	-90,996	0.0
23	46.1	41.8	-82,901	0.0	-99,485	0.0	-99,485	0.0	-99,485	0.0	-99,485	0.0
24	43.9	40.1	-90,821	0.0	-107,121	0.0	-107,121	0.0	-107,121	0.0	-107,121	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL SYSTEM

Month	Hour	Design		Weekday		Saturday		Sunday		Monday			
		OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton		
March	1	51.3	46.8	-46,752	0.0	-48,452	0.0	-70,793	0.0	-70,793	0.0	-70,793	0.0
	2	48.7	44.6	-54,191	0.0	-80,934	0.0	-80,922	0.0	-80,922	0.0	-80,922	0.0
	3	46.6	42.9	-61,469	0.0	-89,252	0.0	-89,252	0.0	-89,252	0.0	-89,252	0.0
	4	44.9	41.4	-68,262	0.0	-98,425	0.0	-98,425	0.0	-98,425	0.0	-98,425	0.0
	5	43.9	40.8	-71,398	0.0	-103,295	0.0	-103,295	0.0	-103,295	0.0	-103,295	0.0
	6	43.5	40.8	-72,859	0.0	-107,423	0.0	-107,423	0.0	-107,423	0.0	-107,423	0.0
	7	44.0	41.4	-71,555	0.0	-107,234	0.0	-107,234	0.0	-107,234	0.0	-107,234	0.0
	8	45.4	42.7	-51,832	0.0	-95,956	0.0	-95,956	0.0	-95,956	0.0	-95,956	0.0
	9	47.7	44.3	-21,541	0.0	-77,658	0.0	-77,658	0.0	-77,658	0.0	-77,658	0.0
	10	50.6	45.8	0	0.0	-57,191	0.0	-57,191	0.0	-57,191	0.0	-57,191	0.0
	11	53.9	47.4	0	0.0	-35,336	0.0	-35,336	0.0	-35,336	0.0	-35,336	0.0
	12	57.4	49.0	0	0.1	-16,884	0.0	-16,884	0.0	-16,884	0.0	-16,884	0.0
	13	60.7	50.8	0	4.8	-11,866	0.0	-11,866	0.0	-11,866	0.0	-11,866	0.0
	14	63.6	52.7	0	6.4	-6,675	0.0	-6,675	0.0	-6,675	0.0	-6,675	0.0
	15	65.9	53.7	0	7.0	-4,094	0.0	-4,094	0.0	-4,094	0.0	-4,094	0.0
	16	67.3	54.4	0	6.7	-2,154	0.0	-2,154	0.0	-2,154	0.0	-2,154	0.0
	17	67.8	54.6	0	5.8	-2,973	0.8	-2,973	0.8	-2,973	0.8	-2,973	0.8
	18	67.4	54.8	0	4.0	-5,510	0.7	-5,510	0.7	-5,510	0.7	-5,510	0.7
	19	66.4	55.2	0	1.6	-10,946	0.0	-10,946	0.0	-10,946	0.0	-10,946	0.0
	20	64.7	56.0	0	0.4	-22,001	0.0	-22,001	0.0	-22,001	0.0	-22,001	0.0
	21	62.5	56.0	-3,973	0.0	-17,842	0.0	-17,842	0.0	-17,842	0.0	-17,842	0.0
22	60.0	54.1	-11,798	0.0	-22,928	0.0	-22,928	0.0	-22,928	0.0	-22,928	0.0	
23	57.1	51.9	-6,527	0.0	-27,869	0.0	-27,869	0.0	-27,869	0.0	-27,869	0.0	
24	54.2	49.4	-21,668	0.0	-51,938	0.0	-51,938	0.0	-51,938	0.0	-51,938	0.0	

Month	Hour	Design		Weekday		Saturday		Sunday		Monday			
		OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton		
April	1	61.0	56.5	-2,176	0.0	-655	0.0	-5,624	0.0	-5,624	0.0	-5,624	0.0
	2	58.9	54.9	-9,026	0.0	-1,037	0.0	-19,973	0.0	-19,973	0.0	-19,973	0.0
	3	57.0	53.5	-16,870	0.0	-24,461	0.0	-40,026	0.0	-40,026	0.0	-40,026	0.0
	4	55.4	52.4	-21,587	0.0	-51,545	0.0	-52,432	0.0	-52,432	0.0	-52,432	0.0
	5	54.2	51.4	-25,779	0.0	-58,743	0.0	-58,743	0.0	-58,743	0.0	-58,743	0.0
	6	53.5	50.9	-27,508	0.0	-63,073	0.0	-63,073	0.0	-63,073	0.0	-63,073	0.0
	7	53.2	51.1	-18,348	0.0	-62,693	0.0	-62,693	0.0	-62,693	0.0	-62,693	0.0
	8	53.9	51.5	-4,338	0.0	-51,143	0.0	-51,143	0.0	-51,143	0.0	-51,143	0.0
	9	55.9	52.1	0	0.0	-35,239	0.0	-35,239	0.0	-35,239	0.0	-35,239	0.0
	10	58.9	53.2	0	1.2	-12,167	0.0	-12,167	0.0	-12,167	0.0	-12,167	0.0
	11	62.6	55.2	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
	12	66.5	57.3	0	8.0	0	0.0	0	0.0	0	0.0	0	0.0
	13	70.2	59.6	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
	14	73.2	61.0	0	10.2	0	1.0	0	1.0	0	1.0	0	1.0
	15	75.2	62.2	0	10.6	0	3.8	0	3.8	0	3.8	0	3.8
	16	75.9	62.2	0	10.1	0	4.1	0	4.1	0	4.1	0	4.1
	17	75.6	62.0	0	9.1	0	3.7	0	3.7	0	3.7	0	3.7
	18	74.9	61.7	0	7.6	0	3.0	0	3.0	0	3.0	0	3.0
	19	73.7	62.0	0	5.4	0	1.8	0	1.8	0	1.8	0	1.8
	20	72.1	62.4	0	3.4	0	0.7	0	0.7	0	0.7	0	0.7
	21	70.2	63.3	0	2.1	0	0.1	0	0.1	0	0.1	0	0.1
	22	68.0	62.5	0	1.0	-3,283	0.0	-3,283	0.0	-3,283	0.0	-3,283	0.0
	23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	24	63.4	58.5	-4,490	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL SYSTEM

Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
	Htg	Btuh	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton
1	68.2	63.5	0	0.0	-4,990	0.0	-4,990	0.0	-4,990	0.0	-4,990	0.0
2	65.7	61.5	0	0.0	-502	0.0	-502	0.0	-502	0.0	-502	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	-8,819	0.0	-8,820	0.0	-8,820	0.0	-8,820	0.0
6	59.7	56.5	0	0.0	-29,955	0.0	-29,955	0.0	-29,955	0.0	-29,955	0.0
7	59.4	56.5	0	0.4	-31,151	0.0	-31,151	0.0	-31,151	0.0	-31,151	0.0
8	60.1	56.3	0	2.1	-17,597	0.0	-17,597	0.0	-17,597	0.0	-17,597	0.0
9	62.4	56.3	0	4.0	-3,256	0.0	-3,256	0.0	-3,256	0.0	-3,256	0.0
10	65.7	57.2	0	7.4	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	9.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	11.2	0	1.1	0	1.1	0	1.1	0	1.1
13	78.5	63.7	0	12.8	0	4.8	0	4.8	0	4.8	0	4.8
14	81.9	65.3	0	13.4	0	7.1	0	7.1	0	7.1	0	7.1
15	84.1	66.9	0	14.3	0	7.9	0	7.9	0	7.9	0	7.9
16	84.9	67.1	0	13.7	0	8.0	0	8.0	0	8.0	0	8.0
17	84.6	67.3	0	12.7	0	7.6	0	7.6	0	7.6	0	7.6
18	83.8	67.1	0	11.1	0	7.1	0	7.1	0	7.1	0	7.1
19	82.4	67.5	0	9.0	0	6.0	0	6.0	0	6.0	0	6.0
20	80.6	68.9	0	7.0	0	5.0	0	5.0	0	5.0	0	5.0
21	78.5	71.0	0	5.7	0	4.3	0	4.3	0	4.3	0	4.3
22	76.1	69.9	0	4.5	0	3.1	0	3.1	0	3.1	0	3.1
23	73.4	68.0	0	3.4	0	1.6	0	1.6	0	1.6	0	1.6
24	70.8	65.5	0	2.4	0	0.2	0	0.2	0	0.2	0	0.2

Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
	Htg	Btuh	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton	Htg	Clg Ton
1	74.7	70.1	0	6.2	0	2.7	0	3.1	0	3.1	0	3.1
2	72.6	68.4	0	5.2	0	1.7	0	1.7	0	1.7	0	1.7
3	70.9	67.3	0	4.6	-1,423	0.7	-1,423	0.7	-1,423	0.7	-1,423	0.7
4	69.6	66.5	0	4.0	-4,354	0.1	-4,354	0.1	-4,354	0.1	-4,354	0.1
5	68.7	65.8	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	5.3	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	7.8	0	0.9	0	0.9	0	0.9	0	0.9
9	73.0	67.7	0	10.3	0	2.9	0	2.9	0	2.9	0	2.9
10	76.1	68.1	0	12.6	0	5.9	0	5.9	0	5.9	0	5.9
11	79.5	69.1	0	14.7	0	7.9	0	7.9	0	7.9	0	7.9
12	82.9	70.1	0	16.3	0	9.4	0	9.4	0	9.4	0	9.4
13	86.0	71.0	0	17.4	0	10.6	0	10.6	0	10.6	0	10.6
14	88.4	72.5	0	18.4	0	12.3	0	12.3	0	12.3	0	12.3
15	90.0	74.0	0	18.9	0	13.7	0	13.7	0	13.7	0	13.7
16	90.5	73.7	0	18.7	0	13.1	0	13.1	0	13.1	0	13.1
17	90.3	74.2	0	18.0	0	13.2	0	13.2	0	13.2	0	13.2
18	89.4	73.9	0	16.0	0	12.4	0	12.4	0	12.4	0	12.4
19	88.1	74.5	0	14.0	0	11.2	0	11.2	0	11.2	0	11.2
20	86.4	75.3	0	11.4	0	9.6	0	9.6	0	9.6	0	9.6
21	84.3	76.5	0	10.2	0	9.0	0	9.0	0	9.0	0	9.0
22	81.9	75.7	0	9.0	0	8.0	0	8.0	0	8.0	0	8.0
23	79.5	74.0	0	8.1	0	6.5	0	6.5	0	6.5	0	6.5
24	77.0	72.1	0	7.2	0	4.8	0	4.8	0	4.8	0	4.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL SYSTEM

Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	6.8	0	2.0	0	2.3	0	2.3
2	72.4	69.4	0	5.7	0	1.2	0	1.2	0	1.2
3	71.3	68.4	0	5.0	-2,628	0.5	-2,628	0.5	-2,628	0.5
4	70.5	67.7	0	4.5	-4,047	0.0	-4,047	0.0	-4,047	0.0
5	70.0	67.4	0	4.2	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	4.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	5.7	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	7.9	0	0.9	0	0.9	0	0.9
9	73.7	69.5	0	10.4	0	3.4	0	3.4	0	3.4
10	76.2	70.6	0	12.5	0	6.7	0	6.7	0	6.7
11	78.9	71.8	0	14.4	0	8.7	0	8.7	0	8.7
12	81.4	73.0	0	16.4	0	10.6	0	10.6	0	10.6
13	83.4	74.4	0	17.4	0	11.6	0	11.6	0	11.6
14	84.8	74.8	0	18.1	0	12.3	0	12.3	0	12.3
15	85.2	75.0	0	18.5	0	12.7	0	12.7	0	12.7
16	85.1	75.0	0	18.2	0	12.3	0	12.3	0	12.3
17	84.6	74.7	0	17.6	0	11.5	0	11.5	0	11.5
18	83.8	74.6	0	15.8	0	10.8	0	10.8	0	10.8
19	82.7	74.6	0	13.8	0	9.8	0	9.8	0	9.8
20	81.4	74.4	0	11.5	0	8.2	0	8.2	0	8.2
21	79.9	74.9	0	10.1	0	7.3	0	7.3	0	7.3
22	78.4	74.0	0	8.9	0	6.0	0	6.0	0	6.0
23	76.8	72.7	0	8.1	0	4.5	0	4.5	0	4.5
24	75.2	71.6	0	7.4	0	3.5	0	3.5	0	3.5

Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	6.6	0	2.9	0	3.2	0	3.2
2	73.2	70.3	0	5.2	0	1.8	0	1.8	0	1.8
3	71.7	68.9	0	4.6	-877	0.8	-877	0.8	-877	0.8
4	70.4	67.8	0	4.1	-3,902	0.0	-3,902	0.0	-3,902	0.0
5	69.5	66.8	0	3.5	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	3.5	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	4.3	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	6.9	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	9.6	0	1.7	0	1.7	0	1.7
10	73.2	67.7	0	12.1	0	3.6	0	3.6	0	3.6
11	76.2	68.8	0	14.2	0	6.8	0	6.8	0	6.8
12	79.3	70.3	0	16.0	0	8.8	0	8.8	0	8.8
13	82.3	72.2	0	17.7	0	10.5	0	10.5	0	10.5
14	84.7	73.7	0	18.6	0	11.8	0	11.8	0	11.8
15	86.3	74.6	0	19.0	0	13.0	0	13.0	0	13.0
16	86.8	75.1	0	18.8	0	12.8	0	12.8	0	12.8
17	86.6	75.1	0	17.2	0	12.4	0	12.4	0	12.4
18	86.0	75.3	0	15.7	0	12.0	0	12.0	0	12.0
19	85.1	76.0	0	13.3	0	10.3	0	10.3	0	10.3
20	83.8	76.8	0	11.2	0	9.3	0	9.3	0	9.3
21	82.3	77.2	0	10.5	0	8.6	0	8.6	0	8.6
22	80.6	76.3	0	8.8	0	7.7	0	7.7	0	7.7
23	78.7	75.3	0	7.9	0	6.1	0	6.1	0	6.1
24	76.8	73.7	0	7.0	0	4.7	0	4.7	0	4.7





BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL SYSTEM

Number Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-51,525	0.0	-59,452	0.0	-67,108	0.0	-67,108	0.0
2	49.4	47.3	-60,507	0.0	-77,932	0.0	-77,928	0.0	-77,928	0.0
3	47.2	45.3	-66,464	0.0	-86,825	0.0	-86,825	0.0	-86,825	0.0
4	45.3	43.4	-73,115	0.0	-94,376	0.0	-94,376	0.0	-94,376	0.0
5	43.9	42.2	-76,808	0.0	-102,069	0.0	-102,069	0.0	-102,069	0.0
6	43.0	41.4	-76,967	0.0	-107,098	0.0	-107,098	0.0	-107,098	0.0
7	42.7	41.2	-75,042	0.0	-110,288	0.0	-110,288	0.0	-110,288	0.0
8	43.5	42.0	-64,909	0.0	-107,901	0.0	-107,901	0.0	-107,901	0.0
9	45.9	44.0	-35,369	0.0	-90,355	0.0	-90,355	0.0	-90,355	0.0
10	49.4	46.6	-3,033	0.0	-66,343	0.0	-66,343	0.0	-66,343	0.0
11	53.8	48.6	0	0.0	-45,629	0.0	-45,629	0.0	-45,629	0.0
12	58.4	50.6	0	0.0	-26,206	0.0	-26,206	0.0	-26,206	0.0
13	62.8	52.6	0	2.7	-16,809	0.0	-16,809	0.0	-16,809	0.0
14	66.3	54.5	0	5.6	-10,370	0.0	-10,370	0.0	-10,370	0.0
15	68.7	55.7	0	6.3	-5,660	0.0	-5,660	0.0	-5,660	0.0
16	69.5	56.1	0	5.9	-4,900	0.0	-4,900	0.0	-4,900	0.0
17	69.2	55.8	0	4.5	-5,918	0.3	-5,918	0.3	-5,918	0.3
18	68.3	57.0	0	2.4	-8,855	0.1	-8,855	0.1	-8,855	0.1
19	66.9	59.4	0	0.9	-16,375	0.0	-16,375	0.0	-16,375	0.0
20	65.0	59.4	0	0.1	-14,633	0.0	-14,633	0.0	-14,633	0.0
21	62.8	58.2	-7,234	0.0	-18,193	0.0	-18,193	0.0	-18,193	0.0
22	60.2	56.1	-642	0.0	-22,714	0.0	-22,714	0.0	-22,714	0.0
23	57.5	54.0	-17,477	0.0	-27,884	0.0	-27,884	0.0	-27,884	0.0
24	54.7	51.7	-24,674	0.0	-57,327	0.0	-57,327	0.0	-57,327	0.0

December Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-73,400	0.0	-100,151	0.0	-100,151	0.0	-100,151	0.0
2	43.2	41.1	-80,413	0.0	-108,509	0.0	-108,510	0.0	-108,510	0.0
3	41.8	39.8	-85,622	0.0	-113,850	0.0	-113,850	0.0	-113,850	0.0
4	40.7	38.7	-90,174	0.0	-119,430	0.0	-119,430	0.0	-119,430	0.0
5	40.1	38.4	-94,685	0.0	-123,237	0.0	-123,237	0.0	-123,237	0.0
6	39.9	38.4	-95,284	0.0	-125,529	0.0	-125,529	0.0	-125,529	0.0
7	40.5	39.0	-94,365	0.0	-126,631	0.0	-126,631	0.0	-126,631	0.0
8	42.2	40.7	-88,605	0.0	-123,298	0.0	-123,298	0.0	-123,298	0.0
9	44.9	43.4	-66,104	0.0	-106,404	0.0	-106,404	0.0	-106,404	0.0
10	48.2	45.8	-36,335	0.0	-85,285	0.0	-85,285	0.0	-85,285	0.0
11	51.7	48.3	-11,292	0.0	-63,893	0.0	-63,893	0.0	-63,893	0.0
12	55.0	50.7	-4,313	0.0	-45,224	0.0	-45,224	0.0	-45,224	0.0
13	57.7	52.0	0	0.0	-32,649	0.0	-32,649	0.0	-32,649	0.0
14	59.5	52.6	0	1.4	-26,998	0.0	-26,998	0.0	-26,998	0.0
15	60.1	52.7	0	2.9	-25,668	0.0	-25,668	0.0	-25,668	0.0
16	59.9	52.6	0	2.8	-26,463	0.0	-26,463	0.0	-26,463	0.0
17	59.2	52.1	0	2.0	-29,036	0.0	-29,036	0.0	-29,036	0.0
18	58.2	51.8	-6,225	0.7	-33,905	0.0	-33,905	0.0	-33,905	0.0
19	56.8	52.2	-19,082	0.0	-50,999	0.0	-50,999	0.0	-50,999	0.0
20	55.0	51.4	-32,916	0.0	-58,870	0.0	-58,870	0.0	-58,870	0.0
21	53.1	50.1	-26,754	0.0	-66,582	0.0	-66,582	0.0	-66,582	0.0
22	51.0	48.1	-30,913	0.0	-74,453	0.0	-74,453	0.0	-74,453	0.0
23	48.9	46.2	-40,433	0.0	-83,257	0.0	-83,257	0.0	-83,257	0.0
24	46.9	44.1	-66,771	0.0	-91,995	0.0	-91,995	0.0	-91,995	0.0

01 Card - Job Information

Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: BON  
 Comments: BLDG 21604 (SIX BLDGS TOTAL)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	BUILDING 21604

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	LOW PORTION	83	40	2	2		11.5			

-----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	HIGH PORTION	37	67.7	2	2		16			

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				179			
2	1	YES				179			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	35	10		178	0			
1	2	48	10		47	0			
1	3	13.8	10		178	270			
1	4	24.5	10		47	270			
1	5	16	10		178	180			
1	6	67	10		47	180			
2	1	37	15.5		178	0			
2	2	33	15.5		178	270			
2	3	37	15.5		178	180			
2	4	67.7	15.5		178	90			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	7	3.5	1	1.03	.87					
1	2	3	1	44	1.03	.87					
1	3	7	2	1	1.03	.87					
1	4	6.5	3	6	1.03	.87					

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	6	3	1	59	1.03	.87					
2	4	6.5	3.5	12	1.03	.87					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	35	PEOPLE	255	255	7200	WATTS	SUSFLUOR				
2	80	PEOPLE	255	255	6000	WATTS	SUSFLUOR				

## -----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	ALL P.C.'S	13.8	KW	FGHEAT						
1	2	ALL PRINTERS	2900	BTUH	FGHEAT						
1	3	COPIER	1.78	KW	FGHEAT						
1	4	FRIG, COKE MACN	2665	BTUH	FGHEAT						
2	1	TYPWTR, MICRO	.42	KW	FGHEAT						
2	2	COFFEE POTS	3000	BTUH	FGHEAT						
2	3	SHREDDER	1	HP	FGHEAT						
2	4	COMM. UNITS	1.15	KW	FGHEAT						
2	5	WATER COOLER	469	BTUH	FGHEAT						

## -----CARD 29-- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL  
SZ SINGLE ZONE

System Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Source Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		



System Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Job Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Util Percent

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          TRACE 600 ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
MCGINNIS  
BUILDING 29601 (3 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12:22: 9 8/19/94  
Dataset Name: FGTYPS1B .TM

1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK		
Peaked at Time ==)					Mo/Hr: 8/15					Mo/Hr: 13/ 1		
Outside Air ==)					OADB/WB/HR: 97/ 76/105.0					OADB: 23		
Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)	Space Sens (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads												
Skylite Solr	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Roof Cond	0	41,220	41,220	31.29	0	0.00	0	-22,454	16.69	0	0	0.00
Glass Solar	16,257	0	16,257	12.34	19,973	39.91	0	0	0.00	0	0	0.00
Glass Cond	9,329	0	9,329	7.08	10,573	21.13	-23,539	-23,539	17.50	-23,539	-23,539	17.50
Wall Cond	6,099	1,211	7,310	5.55	6,574	13.13	-9,699	-12,186	9.06	-9,699	-12,186	9.06
Partition	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Infiltration	7,126	0	7,126	5.41	4,207	8.41	-10,200	-10,200	7.58	-10,200	-10,200	7.58
Sub Total==)	38,812	42,431	81,242	61.68	41,327	82.57	-43,437	-68,379	50.84	-43,437	-68,379	50.84
Internal Loads												
Lights	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
People	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Misc	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Sub Total==)	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Ceiling Load	9,426	-9,426	0	0.00	8,722	17.43	-5,541	0	0.00	-5,541	0	0.00
Outside Air	0	0	65,396	49.65	0	0.00	0	-74,886	55.68	0	-74,886	55.68
Solar Fan Heat	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Duct Heat Pkup	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
OV/UNDR Sizing	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00
Exhaust Heat	0	-14,912	-14,912	-11.32	0	0.00	0	8,765	-6.52	0	8,765	-6.52
Terminal Bypass	0	0	0	-0.00	0	0.00	0	0	0.00	0	0	0.00
Grand Total==)	48,238	18,093	0	131,726	100.00	50,049	100.00	-48,978	100.00	-134,500	-134,500	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR		
				Deg F	Deg F	Grains	Deg F	Deg F	Grains
Main Clg	11.0	131.7	3,320	89.7	71.7	88.8	61.4	60.3	77.2
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	11.0	131.7							

-----AREAS-----

	Gross Total	Glass (sf) (%)	
Floor	3,320		
Part	400		
ExFlr	0		
Roof	3,320	0	0
Wall	2,043	464	23

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-134.5	3,320	44.8	81.3
Aux Htg	0.0	0	0.0	0.0
Preheat	-61.3	3,320	44.8	61.4
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-134.5			

-----AIRFLOWS (cfm)-----

Type	Cooling	Heating
Vent	1,500	1,500
Infil	163	204
Supply	3,320	3,320
Mincfm	0	0
Return	3,320	3,320
Exhaust	1,500	1,500
Rm Exh	0	0
Auxil	0	0

-----ENGINEERING CHECKS-----

Clg % OA	45.2
Clg Cfm/Sqft	1.00
Clg Cfm/Ton	302.44
Clg Sqft/Ton	302.44
Clg Btuh/Sqft	39.68
No. People	100
Htg % OA	45.2
Htg Cfm/Sqft	1.00
Htg Btuh/Sqft	-40.51

-----TEMPERATURES (F)-----

Type	Clg	Htg
SAOB	61.4	81.3
Plenum	84.0	62.7
Return	84.0	62.7
Ret/OA	89.7	44.8
Runarnd	75.0	68.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

2 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>	Mo/Hr: 8/15	*	Mo/Hr: 6/15	*	Mo/Hr: 13/ 1					
Outside Air ==>	OADB/WB/HR: 97/ 76/105.0	*	OADB: 100	*	OADB: 23					
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads										
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00
Roof Cond	0	31,085	0	31,085	26.27	0	0.00	0	-16,771	13.46
Glass Solar	13,104	0	0	13,104	11.07	13,104	28.55	0	0	0.00
Glass Cond	5,483	0	0	5,483	4.63	6,411	13.97	-13,835	-13,835	11.11
Wall Cond	11,431	1,051	0	12,483	10.55	12,471	27.17	-24,613	-28,087	22.55
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00
Infiltration	10,423	0	0	10,423	8.81	6,104	13.30	-13,519	-13,519	10.85
Sub Total==>	40,442	32,136	0	72,578	61.33	38,090	83.00	-51,967	-72,211	57.97
Internal Loads										
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00
People	0	0	0	0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	7,139	-7,139	0	0	0.00	7,801	17.00	-4,497	0	0.00
Supply Air	0	0	0	57,738	48.79	0	0.00	0	-59,909	48.09
Supply Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00
Exhaust Heat	0	-11,975	0	-11,975	-10.12	0	0.00	0	7,544	-6.06
Terminal Bypass	0	0	0	0	0.00	0	0.00	0	0	0.00
Grand Total==>	47,581	13,022	0	118,341	100.00	45,891	100.00	-56,464	-124,576	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	9.9	118.3	2,505	90.0	71.5	87.0	58.5	57.5	69.8	Part	2,505	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	2,505	0 0
Totals	9.9	118.3								Wall	2,708	273 10

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----				-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----						
	Capacity (Mbh)	Coil Airfl (cfm)	Ent (Deg F)	Lvg (Deg F)	Type	Cooling	Heating	Clg % OA	Clg Cfm/Sqft	Clg Cfm/Ton	Clg Btuh/Sqft	No. People	Htg % OA	Htg Cfm/Sqft	Htg Btuh/Sqft	Type	Clg	Htg
Main Htg	-124.6	2,505	43.5	88.3	Infil	1,200	1,200	47.9	1.00	254.00	47.24	80	47.9	1,200	-49.73	SAOB	58.5	88.3
Aux Htg	0.0	0	0.0	0.0	Supply	2,505	2,505	1.00	254.00	254.00			47.9	1,200		Plenum	84.0	62.3
Preheat	-41.7	2,505	43.5	58.5	Mincfm	0	0	254.00	254.00	254.00			47.9	1,200		Return	84.0	62.3
Reheat	0.0	0	0.0	0.0	Return	2,505	2,505	47.24	47.24				47.9	1,200		Ret/OA	90.0	43.5
Humidif	0.0	0	0.0	0.0	Exhaust	1,200	1,200	No. People	80				47.9	1,200		Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	47.9				47.9	1,200		Fn MtrTD	0.0	0.0
Total	-124.6				Auxil	0	0	Htg Cfm/Sqft	1.00				47.9	1,200		Fn BldTD	0.0	0.0
								Htg Btuh/Sqft	-49.73				47.9	1,200		Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-180,921	0.0	-182,822	0.0	-182,822	0.0	-182,822	0.0	-182,822	0.0
2	32.9	30.7	-174,787	0.0	-186,567	0.0	-186,567	0.0	-186,567	0.0	-186,567	0.0
3	33.1	31.3	-157,477	0.0	-188,049	0.0	-188,049	0.0	-188,049	0.0	-188,049	0.0
4	33.9	32.1	-160,060	0.0	-186,392	0.0	-186,392	0.0	-186,392	0.0	-186,392	0.0
5	35.2	33.5	-155,129	0.0	-184,240	0.0	-184,240	0.0	-184,240	0.0	-184,240	0.0
6	37.0	35.4	-154,751	0.0	-178,431	0.0	-178,431	0.0	-178,431	0.0	-178,431	0.0
7	39.0	37.6	-151,782	0.0	-171,614	0.0	-171,614	0.0	-171,614	0.0	-171,614	0.0
8	41.3	40.1	-145,446	0.0	-164,022	0.0	-164,022	0.0	-164,022	0.0	-164,022	0.0
9	43.7	42.5	-119,417	0.0	-144,875	0.0	-144,875	0.0	-144,875	0.0	-144,875	0.0
10	46.1	44.0	-86,718	0.0	-125,761	0.0	-125,761	0.0	-125,761	0.0	-125,761	0.0
11	48.4	45.0	-54,750	0.0	-106,191	0.0	-106,191	0.0	-106,191	0.0	-106,191	0.0
12	50.5	45.6	-29,392	0.0	-93,107	0.0	-93,107	0.0	-93,107	0.0	-93,107	0.0
13	52.2	46.1	-13,951	0.0	-82,508	0.0	-82,508	0.0	-82,508	0.0	-82,508	0.0
14	53.5	46.4	-10,292	0.0	-72,282	0.0	-72,282	0.0	-72,282	0.0	-72,282	0.0
15	54.3	46.3	-9,060	0.0	-67,517	0.0	-67,517	0.0	-67,517	0.0	-67,517	0.0
16	54.6	46.1	-11,600	0.0	-65,836	0.0	-65,836	0.0	-65,836	0.0	-65,836	0.0
17	54.0	45.9	-30,370	0.0	-70,950	0.0	-70,950	0.0	-70,950	0.0	-70,950	0.0
18	52.5	45.0	-40,451	0.0	-84,731	0.0	-84,731	0.0	-84,731	0.0	-84,731	0.0
19	50.1	44.8	-62,823	0.0	-99,197	0.0	-99,197	0.0	-99,197	0.0	-99,197	0.0
20	47.1	43.3	-38,719	0.0	-113,629	0.0	-113,629	0.0	-113,629	0.0	-113,629	0.0
21	43.7	40.4	-68,565	0.0	-129,399	0.0	-129,399	0.0	-129,399	0.0	-129,399	0.0
22	40.4	37.3	-100,647	0.0	-146,022	0.0	-146,022	0.0	-146,022	0.0	-146,022	0.0
23	37.3	34.9	-112,422	0.0	-160,504	0.0	-160,504	0.0	-160,504	0.0	-160,504	0.0
24	34.9	32.6	-121,644	0.0	-173,328	0.0	-173,328	0.0	-173,328	0.0	-173,328	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-123,468	0.0	-146,331	0.0	-146,331	0.0	-146,331	0.0	-146,331	0.0
2	39.7	37.1	-130,520	0.0	-156,055	0.0	-156,055	0.0	-156,055	0.0	-156,055	0.0
3	37.8	35.1	-138,095	0.0	-165,659	0.0	-165,659	0.0	-165,659	0.0	-165,659	0.0
4	36.3	33.8	-143,299	0.0	-172,739	0.0	-172,739	0.0	-172,739	0.0	-172,739	0.0
5	35.1	32.6	-146,934	0.0	-181,062	0.0	-181,062	0.0	-181,062	0.0	-181,062	0.0
6	34.4	32.0	-148,054	0.0	-185,168	0.0	-185,168	0.0	-185,168	0.0	-185,168	0.0
7	34.1	31.9	-145,843	0.0	-187,993	0.0	-187,993	0.0	-187,993	0.0	-187,993	0.0
8	34.6	32.4	-136,048	0.0	-186,279	0.0	-186,279	0.0	-186,279	0.0	-186,279	0.0
9	36.0	33.8	-107,918	0.0	-170,191	0.0	-170,191	0.0	-170,191	0.0	-170,191	0.0
10	38.2	34.7	-75,164	0.0	-152,607	0.0	-152,607	0.0	-152,607	0.0	-152,607	0.0
11	40.9	36.2	-47,110	0.0	-135,204	0.0	-135,204	0.0	-135,204	0.0	-135,204	0.0
12	43.9	37.4	-23,970	0.0	-118,918	0.0	-118,918	0.0	-118,918	0.0	-118,918	0.0
13	46.9	39.4	-9,565	0.0	-102,060	0.0	-102,060	0.0	-102,060	0.0	-102,060	0.0
14	49.7	41.4	-6,275	0.0	-88,168	0.0	-88,168	0.0	-88,168	0.0	-88,168	0.0
15	51.8	42.8	-5,282	0.0	-76,762	0.0	-76,762	0.0	-76,762	0.0	-76,762	0.0
16	53.2	43.9	-8,003	0.0	-72,822	0.0	-72,822	0.0	-72,822	0.0	-72,822	0.0
17	53.7	44.2	-12,973	0.0	-72,826	0.0	-72,826	0.0	-72,826	0.0	-72,826	0.0
18	53.4	44.4	-19,847	0.0	-78,766	0.0	-78,766	0.0	-78,766	0.0	-78,766	0.0
19	52.7	44.4	-27,711	0.0	-89,422	0.0	-89,422	0.0	-89,422	0.0	-89,422	0.0
20	51.5	45.2	-57,799	0.0	-97,218	0.0	-97,218	0.0	-97,218	0.0	-97,218	0.0
21	50.0	44.6	-81,900	0.0	-105,528	0.0	-105,528	0.0	-105,528	0.0	-105,528	0.0
22	48.1	43.3	-95,448	0.0	-114,418	0.0	-114,418	0.0	-114,418	0.0	-114,418	0.0
23	46.1	41.8	-106,761	0.0	-124,706	0.0	-124,706	0.0	-124,706	0.0	-124,706	0.0
24	43.9	40.1	-115,478	0.0	-134,378	0.0	-134,378	0.0	-134,378	0.0	-134,378	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-62,918	0.0	-91,371	0.0	-91,372	0.0	-91,372	0.0	-91,372	0.0
2	48.7	44.6	-71,244	0.0	-103,829	0.0	-103,829	0.0	-103,829	0.0	-103,829	0.0
3	46.6	42.9	-79,113	0.0	-114,089	0.0	-114,089	0.0	-114,089	0.0	-114,089	0.0
4	44.9	41.4	-86,540	0.0	-124,647	0.0	-124,647	0.0	-124,647	0.0	-124,647	0.0
5	43.9	40.8	-89,679	0.0	-130,413	0.0	-130,413	0.0	-130,413	0.0	-130,413	0.0
6	43.5	40.8	-90,401	0.0	-134,672	0.0	-134,672	0.0	-134,672	0.0	-134,672	0.0
7	44.0	41.4	-87,742	0.0	-133,902	0.0	-133,902	0.0	-133,902	0.0	-133,902	0.0
8	45.4	42.7	-66,225	0.0	-121,456	0.0	-121,456	0.0	-121,456	0.0	-121,456	0.0
9	47.7	44.3	-34,188	0.0	-101,910	0.0	-101,910	0.0	-101,910	0.0	-101,910	0.0
10	50.6	45.8	-8,985	0.0	-80,790	0.0	-80,790	0.0	-80,790	0.0	-80,790	0.0
11	53.9	47.4	0	0.0	-58,700	0.0	-58,700	0.0	-58,700	0.0	-58,700	0.0
12	57.4	49.0	0	0.0	-38,971	0.0	-38,971	0.0	-38,971	0.0	-38,971	0.0
13	60.7	50.8	0	2.0	-23,645	0.0	-23,645	0.0	-23,645	0.0	-23,645	0.0
14	63.6	52.7	0	5.4	-7,827	0.0	-7,827	0.0	-7,827	0.0	-7,827	0.0
15	65.9	53.7	0	6.0	-4,996	0.0	-4,996	0.0	-4,996	0.0	-4,996	0.0
16	67.3	54.4	0	5.9	-2,875	0.0	-2,875	0.0	-2,875	0.0	-2,875	0.0
17	67.8	54.6	0	5.0	-3,557	0.0	-3,557	0.0	-3,557	0.0	-3,557	0.0
18	67.4	54.8	0	3.2	-5,985	0.0	-5,985	0.0	-5,985	0.0	-5,985	0.0
19	66.4	55.2	0	0.8	-9,872	0.0	-9,872	0.0	-9,872	0.0	-9,872	0.0
20	64.7	56.0	-6,692	0.0	-13,611	0.0	-13,611	0.0	-13,611	0.0	-13,611	0.0
21	62.5	56.0	-17,576	0.0	-32,481	0.0	-32,481	0.0	-32,481	0.0	-32,481	0.0
22	60.0	54.1	-982	0.0	-49,629	0.0	-49,629	0.0	-49,629	0.0	-49,629	0.0
23	57.1	51.9	-6,541	0.0	-62,582	0.0	-62,582	0.0	-62,582	0.0	-62,582	0.0
24	54.2	49.4	-47,561	0.0	-77,579	0.0	-77,579	0.0	-77,579	0.0	-77,579	0.0

April Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-9,018	0.0	-1,075	0.0	-10,844	0.0	-10,844	0.0	-10,844	0.0
2	58.9	54.9	-17,196	0.0	-2,757	0.0	-49,688	0.0	-49,688	0.0	-49,688	0.0
3	57.0	53.5	-25,394	0.0	-60,349	0.0	-60,338	0.0	-60,338	0.0	-60,338	0.0
4	55.4	52.4	-30,509	0.0	-68,645	0.0	-68,654	0.0	-68,654	0.0	-68,654	0.0
5	54.2	51.4	-34,796	0.0	-75,936	0.0	-75,936	0.0	-75,936	0.0	-75,936	0.0
6	53.5	50.9	-35,774	0.0	-80,834	0.0	-80,834	0.0	-80,834	0.0	-80,834	0.0
7	53.2	51.1	-25,609	0.0	-80,727	0.0	-80,727	0.0	-80,727	0.0	-80,727	0.0
8	53.9	51.5	-10,350	0.0	-69,391	0.0	-69,391	0.0	-69,391	0.0	-69,391	0.0
9	55.9	52.1	0	0.0	-53,149	0.0	-53,149	0.0	-53,149	0.0	-53,149	0.0
10	58.9	53.2	0	0.9	-30,076	0.0	-30,076	0.0	-30,076	0.0	-30,076	0.0
11	62.6	55.2	0	3.0	-7,676	0.0	-7,676	0.0	-7,676	0.0	-7,676	0.0
12	66.5	57.3	0	6.5	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	9.6	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	10.1	0	0.6	0	0.6	0	0.6	0	0.6
16	75.9	62.2	0	9.7	0	3.4	0	3.4	0	3.4	0	3.4
17	75.6	62.0	0	8.8	0	3.1	0	3.1	0	3.1	0	3.1
18	74.9	61.7	0	7.3	0	2.5	0	2.5	0	2.5	0	2.5
19	73.7	62.0	0	5.1	0	1.4	0	1.4	0	1.4	0	1.4
20	72.1	62.4	0	3.1	0	0.2	0	0.2	0	0.2	0	0.2
21	70.2	63.3	0	1.6	-4,620	0.0	-4,620	0.0	-4,620	0.0	-4,620	0.0
22	68.0	62.5	0	0.4	-11,273	0.0	-11,273	0.0	-11,273	0.0	-11,273	0.0
23	65.7	60.5	-7,721	0.0	-691	0.0	-691	0.0	-691	0.0	-691	0.0
24	63.4	58.5	-13,436	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	68.2	63.5	0	0.0	-12,149	0.0	-12,149	0.0	-12,149	0.0	-12,149	0.0
2	65.7	61.5	0	0.0	-752	0.0	-752	0.0	-752	0.0	-752	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	-2,102	0.0	-2,102	0.0	-2,102	0.0	-2,102	0.0
5	60.5	57.1	0	0.0	-36,219	0.0	-36,219	0.0	-36,219	0.0	-36,219	0.0
6	59.7	56.5	0	0.0	-47,778	0.0	-47,778	0.0	-47,778	0.0	-47,778	0.0
7	59.4	56.5	0	0.3	-43,585	0.0	-43,585	0.0	-43,585	0.0	-43,585	0.0
8	60.1	56.3	0	2.1	-30,383	0.0	-30,383	0.0	-30,383	0.0	-30,383	0.0
9	62.4	56.3	0	3.2	-14,868	0.0	-14,868	0.0	-14,868	0.0	-14,868	0.0
10	65.7	57.2	0	6.0	-1,842	0.0	-1,842	0.0	-1,842	0.0	-1,842	0.0
11	69.9	58.9	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	11.1	0	0.2	0	0.2	0	0.2	0	0.2
13	78.5	63.7	0	12.9	0	3.0	0	3.0	0	3.0	0	3.0
14	81.9	65.3	0	13.6	0	6.7	0	6.7	0	6.7	0	6.7
15	84.1	66.9	0	14.5	0	7.7	0	7.7	0	7.7	0	7.7
16	84.9	67.1	0	13.9	0	8.0	0	8.0	0	8.0	0	8.0
17	84.6	67.3	0	13.1	0	7.7	0	7.7	0	7.7	0	7.7
18	83.8	67.1	0	11.5	0	7.3	0	7.3	0	7.3	0	7.3
19	82.4	67.5	0	9.4	0	6.2	0	6.2	0	6.2	0	6.2
20	80.6	68.9	0	7.2	0	5.2	0	5.2	0	5.2	0	5.2
21	78.5	71.0	0	5.7	0	4.8	0	4.8	0	4.8	0	4.8
22	76.1	69.9	0	4.4	0	3.1	0	3.1	0	3.1	0	3.1
23	73.4	68.0	0	3.2	0	1.4	0	1.4	0	1.4	0	1.4
24	70.8	65.5	0	2.2	-4,615	0.2	-4,615	0.2	-4,615	0.2	-4,615	0.2

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton
1	74.7	70.1	0	6.4	0	2.8	0	3.1	0	3.1	0	3.1
2	72.6	68.4	0	5.4	0	1.4	0	1.3	0	1.3	0	1.3
3	70.9	67.3	0	4.8	-5,608	0.6	-5,608	0.6	-5,608	0.6	-5,608	0.6
4	69.6	66.5	0	4.2	-9,646	0.1	-9,646	0.1	-9,646	0.1	-9,646	0.1
5	68.7	65.8	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	8.2	0	0.8	0	0.8	0	0.8	0	0.8
9	73.0	67.7	0	10.6	0	2.7	0	2.7	0	2.7	0	2.7
10	76.1	68.1	0	12.9	0	3.8	0	3.8	0	3.8	0	3.8
11	79.5	69.1	0	15.0	0	7.3	0	7.3	0	7.3	0	7.3
12	82.9	70.1	0	17.0	0	9.0	0	9.0	0	9.0	0	9.0
13	86.0	71.0	0	18.6	0	10.6	0	10.6	0	10.6	0	10.6
14	88.4	72.5	0	19.7	0	12.8	0	12.8	0	12.8	0	12.8
15	90.0	74.0	0	20.3	0	14.7	0	14.7	0	14.7	0	14.7
16	90.5	73.7	0	20.2	0	13.9	0	13.9	0	13.9	0	13.9
17	90.3	74.2	0	19.5	0	14.4	0	14.4	0	14.4	0	14.4
18	89.4	73.9	0	17.3	0	13.8	0	13.8	0	13.8	0	13.8
19	88.1	74.5	0	15.2	0	12.6	0	12.6	0	12.6	0	12.6
20	86.4	75.3	0	12.4	0	11.1	0	11.1	0	11.1	0	11.1
21	84.3	76.5	0	11.2	0	10.9	0	10.9	0	10.9	0	10.9
22	81.9	75.7	0	9.8	0	9.6	0	9.6	0	9.6	0	9.6
23	79.5	74.0	0	8.6	0	7.5	0	7.5	0	7.5	0	7.5
24	77.0	72.1	0	7.6	0	5.2	0	5.2	0	5.2	0	5.2



LOADING COOL-HEAT DEMAND - ALTERNATIVE 1

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	7.1	0	1.9	0	2.1	0	2.1	0	2.1
2	72.4	69.4	0	5.9	-1,687	1.0	-1,687	1.0	-1,687	1.0	-1,687	1.0
3	71.3	68.4	0	5.3	-6,264	0.5	-6,264	0.5	-6,264	0.5	-6,264	0.5
4	70.5	67.7	0	4.8	-8,372	0.0	-8,372	0.0	-8,372	0.0	-8,372	0.0
5	70.0	67.4	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	8.5	0	0.9	0	0.9	0	0.9	0	0.9
9	73.7	69.5	0	10.8	0	3.2	0	3.2	0	3.2	0	3.2
10	76.2	70.6	0	12.8	0	4.8	0	4.8	0	4.8	0	4.8
11	78.9	71.8	0	14.7	0	8.4	0	8.4	0	8.4	0	8.4
12	81.4	73.0	0	17.2	0	10.6	0	10.6	0	10.6	0	10.6
13	83.4	74.4	0	18.6	0	12.1	0	12.1	0	12.1	0	12.1
14	84.8	74.8	0	19.4	0	12.9	0	12.9	0	12.9	0	12.9
15	85.2	75.0	0	19.8	0	13.4	0	13.4	0	13.4	0	13.4
16	85.1	75.0	0	19.8	0	13.2	0	13.2	0	13.2	0	13.2
17	84.6	74.7	0	19.2	0	12.5	0	12.5	0	12.5	0	12.5
18	83.8	74.6	0	17.3	0	11.9	0	11.9	0	11.9	0	11.9
19	82.7	74.6	0	15.3	0	11.2	0	11.2	0	11.2	0	11.2
20	81.4	74.4	0	12.7	0	9.5	0	9.5	0	9.5	0	9.5
21	79.9	74.9	0	11.0	0	8.6	0	8.6	0	8.6	0	8.6
22	78.4	74.0	0	9.7	0	6.8	0	6.8	0	6.8	0	6.8
23	76.8	72.7	0	8.8	0	4.9	0	4.9	0	4.9	0	4.9
24	75.2	71.6	0	8.0	0	3.6	0	3.6	0	3.6	0	3.6

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	6.8	0	3.1	0	3.4	0	3.4	0	3.4
2	73.2	70.3	0	5.4	0	1.4	0	1.4	0	1.4	0	1.4
3	71.7	68.9	0	4.8	-4,314	0.8	-4,314	0.8	-4,314	0.8	-4,314	0.8
4	70.4	67.8	0	4.3	-8,425	0.0	-8,425	0.0	-8,425	0.0	-8,425	0.0
5	69.5	66.8	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	7.3	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	10.1	0	1.5	0	1.5	0	1.5	0	1.5
10	73.2	67.7	0	12.5	0	3.1	0	3.1	0	3.1	0	3.1
11	76.2	68.8	0	14.7	0	4.3	0	4.3	0	4.3	0	4.3
12	79.3	70.3	0	16.6	0	8.1	0	8.1	0	8.1	0	8.1
13	82.3	72.2	0	18.8	0	10.4	0	10.4	0	10.4	0	10.4
14	84.7	73.7	0	19.8	0	11.9	0	11.9	0	11.9	0	11.9
15	86.3	74.6	0	20.5	0	13.8	0	13.8	0	13.8	0	13.8
16	86.8	75.1	0	20.5	0	13.9	0	13.9	0	13.9	0	13.9
17	86.6	75.1	0	18.8	0	13.6	0	13.6	0	13.6	0	13.6
18	86.0	75.3	0	17.3	0	13.7	0	13.7	0	13.7	0	13.7
19	85.1	76.0	0	14.7	0	11.9	0	11.9	0	11.9	0	11.9
20	83.8	76.8	0	12.4	0	11.1	0	11.1	0	11.1	0	11.1
21	82.3	77.2	0	11.7	0	10.5	0	10.5	0	10.5	0	10.5
22	80.6	76.3	0	9.6	0	9.4	0	9.4	0	9.4	0	9.4
23	78.7	75.3	0	8.5	0	7.2	0	7.2	0	7.2	0	7.2
24	76.8	73.7	0	7.6	0	5.3	0	5.3	0	5.3	0	5.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	2.8	-9,086	0.0	-9,086	0.0	-9,086	0.0	-9,086	0.0
2	67.6	65.0	0	1.7	-567	0.0	-567	0.0	-567	0.0	-567	0.0
3	65.8	63.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	-2,898	0.6	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	-4,837	0.4	-10,841	0.0	-10,841	0.0	-10,841	0.0	-10,841	0.0
6	62.4	60.3	-4,485	0.4	-33,139	0.0	-33,139	0.0	-33,139	0.0	-33,139	0.0
7	62.2	60.2	-2,765	0.5	-39,446	0.0	-39,446	0.0	-39,446	0.0	-39,446	0.0
8	62.9	60.9	0	2.5	-28,520	0.0	-28,520	0.0	-28,520	0.0	-28,520	0.0
9	64.7	61.8	0	5.4	-11,376	0.0	-11,376	0.0	-11,376	0.0	-11,376	0.0
10	67.6	62.1	0	8.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	11.8	0	0.6	0	0.6	0	0.6	0	0.6
13	78.3	66.7	0	14.0	0	4.3	0	4.3	0	4.3	0	4.3
14	81.2	68.4	0	15.3	0	7.4	0	7.4	0	7.4	0	7.4
15	83.0	70.0	0	16.0	0	8.8	0	8.8	0	8.8	0	8.8
16	83.7	70.5	0	15.8	0	9.3	0	9.3	0	9.3	0	9.3
17	83.4	70.5	0	14.1	0	8.9	0	8.9	0	8.9	0	8.9
18	82.8	70.9	0	11.9	0	8.2	0	8.2	0	8.2	0	8.2
19	81.6	72.7	0	9.9	0	7.2	0	7.2	0	7.2	0	7.2
20	80.1	74.7	0	8.7	0	7.1	0	7.1	0	7.1	0	7.1
21	78.3	74.1	0	7.1	0	6.0	0	6.0	0	6.0	0	6.0
22	76.3	72.4	0	5.4	0	4.1	0	4.1	0	4.1	0	4.1
23	74.1	70.7	0	4.0	0	2.0	0	2.0	0	2.0	0	2.0
24	71.8	68.9	0	3.2	-1,975	0.4	-1,975	0.4	-1,975	0.4	-1,975	0.4

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	-1,135	0.0	-75,448	0.0	-82,089	0.0	-82,089	0.0	-82,089	0.0
2	50.1	48.6	-18,530	0.0	-93,813	0.0	-93,814	0.0	-93,814	0.0	-93,814	0.0
3	48.4	46.9	-66,278	0.0	-102,643	0.0	-102,643	0.0	-102,643	0.0	-102,643	0.0
4	47.1	45.8	-72,520	0.0	-110,716	0.0	-110,716	0.0	-110,716	0.0	-110,716	0.0
5	46.3	44.8	-76,703	0.0	-117,213	0.0	-117,213	0.0	-117,213	0.0	-117,213	0.0
6	46.0	44.5	-76,644	0.0	-121,234	0.0	-121,234	0.0	-121,234	0.0	-121,234	0.0
7	46.8	45.3	-73,313	0.0	-119,612	0.0	-119,612	0.0	-119,612	0.0	-119,612	0.0
8	48.9	47.5	-52,978	0.0	-105,021	0.0	-105,021	0.0	-105,021	0.0	-105,021	0.0
9	52.2	49.9	-21,057	0.0	-80,962	0.0	-80,962	0.0	-80,962	0.0	-80,962	0.0
10	56.2	52.5	0	0.0	-54,775	0.0	-54,775	0.0	-54,775	0.0	-54,775	0.0
11	60.4	54.4	0	0.0	-28,413	0.0	-28,413	0.0	-28,413	0.0	-28,413	0.0
12	64.4	56.0	0	0.2	-6,176	0.0	-6,176	0.0	-6,176	0.0	-6,176	0.0
13	67.7	57.3	0	4.9	-976	0.0	-976	0.0	-976	0.0	-976	0.0
14	69.8	58.2	0	6.7	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	6.9	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	5.7	0	0.5	0	0.5	0	0.5	0	0.5
18	68.2	57.7	0	3.4	-2,424	0.0	-2,424	0.0	-2,424	0.0	-2,424	0.0
19	66.5	60.6	0	1.4	-17,326	0.0	-17,326	0.0	-17,326	0.0	-17,326	0.0
20	64.4	60.8	-888	0.0	-30,410	0.0	-30,410	0.0	-30,410	0.0	-30,410	0.0
21	62.1	59.4	-11,493	0.0	-16,513	0.0	-16,513	0.0	-16,513	0.0	-16,513	0.0
22	59.6	57.3	-20,061	0.0	-20,961	0.0	-20,961	0.0	-20,961	0.0	-20,961	0.0
23	57.0	55.1	-1,057	0.0	-51,541	0.0	-51,541	0.0	-51,541	0.0	-51,541	0.0
24	54.5	52.7	-8,264	0.0	-71,185	0.0	-71,185	0.0	-71,185	0.0	-71,185	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-67,223	0.0	-86,219	0.0	-86,218	0.0	-86,218	0.0	-86,218	0.0
2	49.4	47.3	-77,323	0.0	-99,572	0.0	-99,572	0.0	-99,572	0.0	-99,572	0.0
3	47.2	45.3	-84,310	0.0	-110,576	0.0	-110,576	0.0	-110,576	0.0	-110,576	0.0
4	45.3	43.4	-91,545	0.0	-119,912	0.0	-119,912	0.0	-119,912	0.0	-119,912	0.0
5	43.9	42.2	-95,414	0.0	-128,854	0.0	-128,854	0.0	-128,854	0.0	-128,854	0.0
6	43.0	41.4	-94,906	0.0	-134,591	0.0	-134,591	0.0	-134,591	0.0	-134,591	0.0
7	42.7	41.2	-91,559	0.0	-137,970	0.0	-137,970	0.0	-137,970	0.0	-137,970	0.0
8	43.5	42.0	-79,071	0.0	-134,711	0.0	-134,711	0.0	-134,711	0.0	-134,711	0.0
9	45.9	44.0	-46,748	0.0	-115,449	0.0	-115,449	0.0	-115,449	0.0	-115,449	0.0
10	49.4	46.6	-11,459	0.0	-89,180	0.0	-89,180	0.0	-89,180	0.0	-89,180	0.0
11	53.8	48.6	0	0.0	-65,540	0.0	-65,540	0.0	-65,540	0.0	-65,540	0.0
12	58.4	50.6	0	0.0	-42,628	0.0	-42,628	0.0	-42,628	0.0	-42,628	0.0
13	62.8	52.6	0	1.6	-22,892	0.0	-22,892	0.0	-22,892	0.0	-22,892	0.0
14	66.3	54.5	0	5.2	-10,496	0.0	-10,496	0.0	-10,496	0.0	-10,496	0.0
15	68.7	55.7	0	6.2	-5,758	0.0	-5,758	0.0	-5,758	0.0	-5,758	0.0
16	69.5	56.1	0	5.8	-4,979	0.0	-4,979	0.0	-4,979	0.0	-4,979	0.0
17	69.2	55.8	0	4.4	-5,982	0.0	-5,982	0.0	-5,982	0.0	-5,982	0.0
18	68.3	57.0	0	2.1	-8,907	0.0	-8,907	0.0	-8,907	0.0	-8,907	0.0
19	66.9	59.4	0	0.4	-11,401	0.0	-11,401	0.0	-11,401	0.0	-11,401	0.0
20	65.0	59.4	-7,895	0.0	-14,222	0.0	-14,222	0.0	-14,222	0.0	-14,222	0.0
21	62.8	58.2	-18,863	0.0	-25,837	0.0	-25,837	0.0	-25,837	0.0	-25,837	0.0
22	60.2	56.1	-1,053	0.0	-48,277	0.0	-48,277	0.0	-48,277	0.0	-48,277	0.0
23	57.5	54.0	-17,642	0.0	-61,050	0.0	-61,050	0.0	-61,050	0.0	-61,050	0.0
24	54.7	51.7	-54,277	0.0	-73,959	0.0	-73,959	0.0	-73,959	0.0	-73,959	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-92,502	0.0	-126,005	0.0	-126,005	0.0	-126,005	0.0	-126,005	0.0
2	43.2	41.1	-100,443	0.0	-135,934	0.0	-135,934	0.0	-135,934	0.0	-135,934	0.0
3	41.8	39.8	-106,369	0.0	-142,649	0.0	-142,649	0.0	-142,649	0.0	-142,649	0.0
4	40.7	38.7	-111,426	0.0	-149,155	0.0	-149,155	0.0	-149,155	0.0	-149,155	0.0
5	40.1	38.4	-116,121	0.0	-153,476	0.0	-153,476	0.0	-153,476	0.0	-153,476	0.0
6	39.9	38.4	-116,040	0.0	-155,851	0.0	-155,851	0.0	-155,851	0.0	-155,851	0.0
7	40.5	39.0	-114,030	0.0	-156,299	0.0	-156,299	0.0	-156,299	0.0	-156,299	0.0
8	42.2	40.7	-106,441	0.0	-151,122	0.0	-151,122	0.0	-151,122	0.0	-151,122	0.0
9	44.9	43.4	-81,755	0.0	-131,937	0.0	-131,937	0.0	-131,937	0.0	-131,937	0.0
10	48.2	45.8	-50,254	0.0	-108,384	0.0	-108,384	0.0	-108,384	0.0	-108,384	0.0
11	51.7	48.3	-21,209	0.0	-84,831	0.0	-84,831	0.0	-84,831	0.0	-84,831	0.0
12	55.0	50.7	-4,576	0.0	-64,124	0.0	-64,124	0.0	-64,124	0.0	-64,124	0.0
13	57.7	52.0	0	0.0	-49,638	0.0	-49,638	0.0	-49,638	0.0	-49,638	0.0
14	59.5	52.6	0	0.0	-39,013	0.0	-39,013	0.0	-39,013	0.0	-39,013	0.0
15	60.1	52.7	0	1.2	-35,287	0.0	-35,287	0.0	-35,287	0.0	-35,287	0.0
16	59.9	52.6	0	2.0	-35,803	0.0	-35,803	0.0	-35,803	0.0	-35,803	0.0
17	59.2	52.1	0	1.2	-44,241	0.0	-44,241	0.0	-44,241	0.0	-44,241	0.0
18	58.2	51.8	-9,036	0.0	-56,335	0.0	-56,335	0.0	-56,335	0.0	-56,335	0.0
19	56.8	52.2	-31,716	0.0	-65,824	0.0	-65,824	0.0	-65,824	0.0	-65,824	0.0
20	55.0	51.4	-47,766	0.0	-75,214	0.0	-75,214	0.0	-75,214	0.0	-75,214	0.0
21	53.1	50.1	-27,200	0.0	-84,684	0.0	-84,684	0.0	-84,684	0.0	-84,684	0.0
22	51.0	48.1	-40,680	0.0	-94,539	0.0	-94,539	0.0	-94,539	0.0	-94,539	0.0
23	48.9	46.2	-76,351	0.0	-105,333	0.0	-105,333	0.0	-105,333	0.0	-105,333	0.0
24	46.9	44.1	-85,065	0.0	-115,958	0.0	-115,958	0.0	-115,958	0.0	-115,958	0.0

1 Card - Job Information

Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: MCGINNIS  
 Comments: BUILDING 29601 (3 BUILDINGS)

-----CARD 08-- Climatic Information-----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
BUGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APP	OCT					

-----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	BUILDING 29601

-----CARD 20-- General Room Parameters-----

Room	Reference	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Number	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
							Resistance	Height	Multiplier	Zone	
1	1	LOW PORTION	83	40	2	2		11.5			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	HIGH PORTION	37	67.7	2	2		16			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				179			
2	1	YES				179			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	35	10		178	0			
1	2	48	10		47	0			
1	3	13.8	10		178	270			
1	4	24.5	10		47	270			
1	5	16	10		178	180			
1	6	67	10		47	180			
2	1	37	15.5		178	0			
2	2	33	15.5		178	270			
2	3	37	15.5		178	180			
2	4	67.7	15.5		178	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Transmittance	Inside Visible Reflectance
1	1	7	3.5	1	1.03	.87	3				
1	2	3	1	44	1.03	.87	3				
1	3	7	2	1	1.03	.87	3				
1	4	6.5	3	6	1.03	.87	3				

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	6	3	1	59	1.03	.87	3				
2	4	6.5	3.5	12	1.03	.87	3				

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	100	PEOPLE	255	255	7200	WATTS	SUSFLUOR				
2	80	PEOPLE	255	255	6000	WATTS	SUSFLUOR				

-----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	ALL P.C.'S	25.9	KW	FGHEAT						
1	2	ALL PRINTERS	2.50	KW	FGHEAT						
1	3	COPIER	11.5	KW	FGHEAT						
1	4	FRIG, COKE MACN	2.8	KW	FGHEAT						
2	1	TYPWTR, MICRO	.42	KW	FGHEAT						
2	2	COFFEE POTS	3000	BTUH	FGHEAT						
2	3	OVEN	10.8	KW	FGHEAT						

-----CARD 29-- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL  
SZ SINGLE ZONE



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Sample Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24

Client Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Util Percent

-----  
0 100  
24

```
*****  
*****  
**                                                                 **  
**          TRACE 600 ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
MCGINNIS  
BUILDING 29610 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 19:23:45 8/12/94  
Dataset Name: FGTYPES1C .TM

SYSTEM LOAD PROFILE - ALTERNATIVE 1

Main System 1 SZ SINGLE ZONE

Percent Design Load	---- Cooling Load ----			----- Heating Load -----			---- Cooling Airflow ----			---- Heating Airflow ----		
	Cap. (Ton)	Hours (%)	Hours	Capacity (Btuh)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours
0 - 5	1.6	8	342	-7,450	12	240	1,036.6	0	0	0.0	0	0
5 - 10	3.2	7	288	-14,900	4	75	2,073.2	0	0	0.0	0	0
10 - 15	4.8	10	435	-22,350	3	65	3,109.9	0	0	0.0	0	0
15 - 20	6.5	9	407	-29,799	2	38	4,146.5	0	0	0.0	0	0
20 - 25	8.1	7	302	-37,249	2	31	5,183.1	0	0	0.0	0	0
25 - 30	9.7	6	248	-44,699	2	31	6,219.7	0	0	0.0	0	0
30 - 35	11.3	7	292	-52,149	1	17	7,256.4	0	0	0.0	0	0
35 - 40	12.9	8	358	-59,599	5	98	8,293.0	0	0	0.0	0	0
40 - 45	14.5	5	218	-67,049	8	150	9,329.6	0	0	0.0	0	0
45 - 50	16.2	5	221	-74,498	10	188	10,366.2	0	0	0.0	0	0
50 - 55	17.8	4	193	-81,948	15	285	11,402.9	0	0	0.0	0	0
55 - 60	19.4	5	201	-89,398	10	197	12,439.5	0	0	0.0	0	0
60 - 65	21.0	6	237	-96,848	11	211	13,476.1	0	0	0.0	0	0
65 - 70	22.6	3	129	-104,298	4	73	14,512.7	0	0	0.0	0	0
70 - 75	24.2	6	256	-111,748	8	149	15,549.3	0	0	0.0	0	0
75 - 80	25.8	4	168	-119,198	5	90	16,586.0	0	0	0.0	0	0
80 - 85	27.5	0	0	-126,647	1	14	17,622.6	0	0	0.0	0	0
85 - 90	29.1	0	0	-134,097	0	0	18,659.2	0	0	0.0	0	0
90 - 95	30.7	0	0	-141,547	0	0	19,695.8	0	0	0.0	0	0
95 - 100	32.3	0	0	-148,997	0	0	20,732.5	100	8,760	0.0	0	0
Hours Off	0.0	0	4,465	0	0	6,808	0.0	0	0	0.0	0	8,760

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1

----- SYSTEM LOAD PROFILE -----

System Totals

Percent Design Load	---- Cooling Load ----			----- Heating Load -----			---- Cooling Airflow ----			---- Heating Airflow ----		
	Cap. (Ton)	Hours (%)	Hours	Capacity (Btuh)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours
0 - 5	1.6	8	342	-7,450	12	240	1,036.6	0	0	0.0	0	0
5 - 10	3.2	7	288	-14,900	4	75	2,073.2	0	0	0.0	0	0
10 - 15	4.8	10	435	-22,350	3	65	3,109.9	0	0	0.0	0	0
15 - 20	6.5	9	407	-29,799	2	38	4,146.5	0	0	0.0	0	0
20 - 25	8.1	7	302	-37,249	2	31	5,183.1	0	0	0.0	0	0
25 - 30	9.7	6	248	-44,699	2	31	6,219.7	0	0	0.0	0	0
30 - 35	11.3	7	292	-52,149	1	17	7,256.4	0	0	0.0	0	0
35 - 40	12.9	8	358	-59,599	5	98	8,293.0	0	0	0.0	0	0
40 - 45	14.5	5	218	-67,049	8	150	9,329.6	0	0	0.0	0	0
45 - 50	16.2	5	221	-74,498	10	188	10,366.2	0	0	0.0	0	0
50 - 55	17.8	4	193	-81,948	15	285	11,402.9	0	0	0.0	0	0
55 - 60	19.4	5	201	-89,398	10	197	12,439.5	0	0	0.0	0	0
60 - 65	21.0	6	237	-96,848	11	211	13,476.1	0	0	0.0	0	0
65 - 70	22.6	3	129	-104,298	4	73	14,512.7	0	0	0.0	0	0
70 - 75	24.2	6	256	-111,748	8	149	15,549.3	0	0	0.0	0	0
75 - 80	25.8	4	168	-119,198	5	90	16,586.0	0	0	0.0	0	0
80 - 85	27.5	0	0	-126,647	1	14	17,622.6	0	0	0.0	0	0
85 - 90	29.1	0	0	-134,097	0	0	18,659.2	0	0	0.0	0	0
90 - 95	30.7	0	0	-141,547	0	0	19,695.8	0	0	0.0	0	0
95 - 100	32.3	0	0	-148,997	0	0	20,732.5	100	8,760	0.0	0	0
Hours Off	0.0	0	4,465	0	0	6,808	0.0	0	0	0.0	0	8,760

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-148,997	0.0	-85,375	0.0	-98,538	0.0	-98,889	0.0	-98,856	0.0
2	32.9	30.7	-129,837	0.0	-96,292	0.0	-105,376	0.0	-105,616	0.0	-105,530	0.0
3	33.1	31.3	-117,476	0.0	-104,881	0.0	-111,157	0.0	-111,321	0.0	-111,211	0.0
4	33.9	32.1	-110,610	0.0	-111,197	0.0	-115,540	0.0	-115,653	0.0	-115,534	0.0
5	35.2	33.5	-106,932	0.0	-115,384	0.0	-118,394	0.0	-118,472	0.0	-118,355	0.0
6	37.0	35.4	-104,751	0.0	-117,707	0.0	-119,799	0.0	-119,852	0.0	-119,744	0.0
7	39.0	37.6	-93,415	0.0	-108,686	0.0	-110,599	0.0	-110,635	0.0	-110,081	0.0
8	41.3	40.1	-50,965	0.0	-90,337	0.0	-92,639	0.0	-92,664	0.0	-91,293	0.0
9	43.7	42.5	-2,342	0.0	-49,957	0.0	-61,463	0.0	-61,524	0.0	-52,328	0.0
10	46.1	44.0	0	0.0	0	0.0	-2,983	0.0	-2,983	0.0	0	0.0
11	48.4	45.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	50.5	45.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	52.2	46.1	-936	10.3	0	0.0	0	0.0	0	0.0	0	0.0
14	53.5	46.4	0	12.0	0	0.5	0	0.0	0	0.0	0	0.5
15	54.3	46.3	0	12.4	-917	6.2	-887	5.1	-887	5.1	-917	6.2
16	54.6	46.1	0	11.8	0	5.9	0	5.5	0	5.5	0	5.9
17	54.0	45.9	0	9.9	0	4.7	0	4.3	0	4.3	0	4.7
18	52.5	45.0	0	7.0	0	2.9	0	2.6	0	2.6	0	2.9
19	50.1	44.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	47.1	43.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	43.7	40.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	40.4	37.3	0	0.0	-75,427	0.0	-76,011	0.0	-76,011	0.0	-75,427	0.0
23	37.3	34.9	-13,266	0.0	-82,799	0.0	-83,314	0.0	-83,314	0.0	-82,799	0.0
24	34.9	32.6	-72,231	0.0	-90,772	0.0	-91,219	0.0	-91,219	0.0	-90,772	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-86,027	0.0	-77,889	0.0	-82,641	0.0	-82,773	0.0	-82,740	0.0
2	39.7	37.1	-84,142	0.0	-85,730	0.0	-89,049	0.0	-89,140	0.0	-89,053	0.0
3	37.8	35.1	-84,503	0.0	-93,297	0.0	-95,623	0.0	-95,685	0.0	-95,575	0.0
4	36.3	33.8	-85,964	0.0	-100,238	0.0	-101,875	0.0	-101,917	0.0	-101,798	0.0
5	35.1	32.6	-88,111	0.0	-106,553	0.0	-107,709	0.0	-107,738	0.0	-107,622	0.0
6	34.4	32.0	-90,468	0.0	-112,214	0.0	-113,035	0.0	-113,055	0.0	-112,947	0.0
7	34.1	31.9	-82,264	0.0	-107,356	0.0	-108,398	0.0	-108,412	0.0	-107,858	0.0
8	34.6	32.4	-17,551	0.0	-92,693	0.0	-94,398	0.0	-94,407	0.0	-93,037	0.0
9	36.0	33.8	0	0.0	-58,990	0.0	-69,016	0.0	-69,040	0.0	-59,843	0.0
10	38.2	34.7	0	0.0	-8,412	0.0	-12,406	0.0	-12,406	0.0	-8,412	0.0
11	40.9	36.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	43.9	37.4	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
13	46.9	39.4	0	12.1	0	0.0	0	0.0	0	0.0	0	0.0
14	49.7	41.4	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
15	51.8	42.8	0	14.0	0	4.7	0	3.1	0	3.1	0	4.7
16	53.2	43.9	0	13.4	0	6.1	0	5.8	0	5.8	0	6.1
17	53.7	44.2	0	11.6	0	5.4	0	5.0	0	5.0	0	5.4
18	53.4	44.4	0	8.9	0	4.0	0	3.7	0	3.7	0	4.0
19	52.7	44.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	51.5	45.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	50.0	44.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	48.1	43.3	0	0.0	-27,293	0.0	-29,655	0.0	-29,655	0.0	-27,293	0.0
23	46.1	41.8	0	0.0	-73,037	0.0	-73,087	0.0	-73,087	0.0	-73,037	0.0
24	43.9	40.1	-44,410	0.0	-77,066	0.0	-77,194	0.0	-77,194	0.0	-77,066	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-51,242	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	48.7	44.6	-41,230	0.0	0	0.0	-58,725	0.0	-60,655	0.0	-60,197	0.0
3	46.6	42.9	-46,926	0.0	-65,658	0.0	-72,517	0.0	-72,517	0.0	-72,494	0.0
4	44.9	41.4	-54,225	0.0	-74,329	0.0	-75,639	0.0	-75,639	0.0	-75,581	0.0
5	43.9	40.8	-58,880	0.0	-78,472	0.0	-79,405	0.0	-79,405	0.0	-79,330	0.0
6	43.5	40.8	-62,895	0.0	-82,398	0.0	-83,066	0.0	-83,066	0.0	-82,986	0.0
7	44.0	41.4	0	0.0	-54,869	0.0	-60,188	0.0	-60,188	0.0	-56,328	0.0
8	45.4	42.7	0	0.0	-8,411	0.0	-12,177	0.0	-12,177	0.0	-8,411	0.0
9	47.7	44.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	50.6	45.8	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
11	53.9	47.4	-788	12.2	0	0.0	0	0.0	0	0.0	0	0.0
12	57.4	49.0	0	15.3	0	3.5	0	2.2	0	2.2	0	3.5
13	60.7	50.8	0	17.6	0	10.1	0	9.8	0	9.8	0	10.1
14	63.6	52.7	0	19.2	0	11.3	0	10.9	0	10.9	0	11.3
15	65.9	53.7	0	19.7	0	11.6	0	11.2	0	11.2	0	11.6
16	67.3	54.4	0	19.0	0	11.5	0	11.2	0	11.2	0	11.5
17	67.8	54.6	0	17.3	0	10.7	0	10.4	0	10.3	0	10.7
18	67.4	54.8	0	14.3	0	9.4	0	9.0	0	9.0	0	9.4
19	66.4	55.2	0	4.4	0	1.1	0	1.0	0	1.0	0	1.1
20	64.7	56.0	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-1,261	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	-7,377	0.0	-33,519	0.0	-34,249	0.0	-33,451	0.0
6	53.5	50.9	-22,565	0.0	-59,610	0.0	-59,706	0.0	-59,706	0.0	-59,610	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9	52.1	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
10	58.9	53.2	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	16.8	-886	10.7	-827	9.2	-827	9.1	-886	11.1
12	66.5	57.3	0	19.8	0	13.1	0	12.6	0	12.5	0	13.3
13	70.2	59.6	0	22.0	0	14.6	0	13.9	0	13.9	0	14.6
14	73.2	61.0	0	23.5	0	15.8	0	15.1	0	15.1	0	15.8
15	75.2	62.2	0	23.8	0	16.3	0	15.6	0	15.6	0	16.3
16	75.9	62.2	0	23.0	0	15.9	0	15.2	0	15.2	0	15.9
17	75.6	62.0	0	21.1	0	14.9	0	14.2	0	14.2	0	14.9
18	74.9	61.7	0	18.3	0	13.4	0	12.7	0	12.7	0	13.4
19	73.7	62.0	0	8.3	0	4.7	0	4.5	0	4.5	0	4.7
20	72.1	62.4	0	5.1	0	2.5	0	2.4	0	2.4	0	2.5
21	70.2	63.3	0	3.3	0	1.1	0	1.0	0	1.0	0	1.1
22	68.0	62.5	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	4.2	-1,287	0.0	-1,272	0.0	-1,272	0.0	-1,287	0.0
8	60.1	56.3	0	9.9	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	13.6	0	2.9	0	1.8	0	1.8	0	3.1
10	65.7	57.2	0	17.2	0	11.1	0	11.1	0	11.2	0	11.8
11	69.9	58.9	0	20.8	0	13.1	0	13.1	0	13.1	0	13.6
12	74.3	60.9	0	23.8	0	15.4	0	15.2	0	15.2	0	15.7
13	78.5	63.7	0	26.5	0	17.6	0	17.3	0	17.3	0	17.7
14	81.9	65.3	0	27.8	0	19.4	0	18.9	0	18.9	0	19.4
15	84.1	66.9	0	28.3	0	20.5	0	19.8	0	19.8	0	20.5
16	84.9	67.1	0	27.6	0	20.3	0	19.6	0	19.6	0	20.3
17	84.6	67.3	0	25.7	0	19.4	0	18.7	0	18.7	0	19.4
18	83.8	67.1	0	22.8	0	18.1	0	17.4	0	17.4	0	18.1
19	82.4	67.5	0	12.7	0	9.0	0	8.8	0	8.8	0	9.0
20	80.6	68.9	0	8.9	0	6.3	0	6.2	0	6.2	0	6.3
21	78.5	71.0	0	6.5	0	4.6	0	4.5	0	4.5	0	4.6
22	76.1	69.9	0	4.9	0	3.4	0	3.3	0	3.3	0	3.4
23	73.4	68.0	0	3.8	0	1.9	0	1.9	0	1.9	0	1.9
24	70.8	65.5	0	2.5	0	0.6	0	0.5	0	0.5	0	0.6

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	6.2	0	2.3	0	2.7	0	2.7	0	2.8
2	72.6	68.4	0	5.0	0	1.2	0	1.4	0	1.4	0	1.4
3	70.9	67.3	0	4.3	0	0.3	0	0.3	0	0.3	0	0.3
4	69.6	66.5	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	12.1	0	5.0	0	4.6	0	4.6	0	5.2
8	70.6	66.9	0	15.3	0	11.7	0	11.4	0	11.4	0	12.0
9	73.0	67.7	0	18.6	0	13.7	0	13.1	0	13.1	0	13.7
10	76.1	68.1	0	22.0	0	16.2	0	15.6	0	15.6	0	16.3
11	79.5	69.1	0	25.4	0	18.7	0	18.1	0	18.1	0	18.7
12	82.9	70.1	0	28.4	0	20.8	0	20.2	0	20.2	0	20.8
13	86.0	71.0	0	30.4	0	22.6	0	22.0	0	22.0	0	22.6
14	88.4	72.5	0	31.8	0	24.3	0	23.7	0	23.7	0	24.3
15	90.0	74.0	0	32.2	0	25.5	0	24.8	0	24.8	0	25.5
16	90.5	73.7	0	31.5	0	25.0	0	24.3	0	24.3	0	25.0
17	90.3	74.2	0	30.1	0	24.2	0	23.5	0	23.5	0	24.2
18	89.4	73.9	0	27.5	0	22.8	0	22.1	0	22.1	0	22.8
19	88.1	74.5	0	17.1	0	13.2	0	13.0	0	13.0	0	13.2
20	86.4	75.3	0	13.1	0	10.0	0	9.9	0	9.9	0	10.0
21	84.3	76.5	0	10.4	0	8.0	0	7.9	0	7.9	0	8.0
22	81.9	75.7	0	8.9	0	6.5	0	6.5	0	6.5	0	6.5
23	79.5	74.0	0	7.8	0	5.5	0	5.5	0	5.5	0	5.5
24	77.0	72.1	0	6.7	0	4.2	0	4.1	0	4.1	0	4.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7 70.5	0	6.4	0	1.6	0	1.9	0	1.9	0	1.9
2	72.4 69.4	0	5.3	0	0.9	0	1.0	0	1.0	0	1.0
3	71.3 68.4	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
4	70.5 67.7	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0 67.4	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9 67.5	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3 68.0	0	12.5	0	5.4	0	5.1	0	5.1	0	5.7
8	71.7 69.0	0	15.1	0	12.1	0	11.8	0	11.8	0	12.4
9	73.7 69.5	0	18.5	0	14.0	0	13.4	0	13.4	0	14.0
10	76.2 70.6	0	21.6	0	16.8	0	16.1	0	16.1	0	16.8
11	78.9 71.8	0	24.7	0	19.2	0	18.6	0	18.6	0	19.2
12	81.4 73.0	0	27.7	0	21.5	0	20.8	0	20.8	0	21.5
13	83.4 74.4	0	29.8	0	23.4	0	22.7	0	22.7	0	23.4
14	84.8 74.8	0	31.0	0	24.3	0	23.6	0	23.6	0	24.3
15	85.2 75.0	0	31.4	0	24.7	0	24.0	0	24.0	0	24.7
16	85.1 75.0	0	30.7	0	24.1	0	23.4	0	23.4	0	24.1
17	84.6 74.7	0	29.3	0	23.0	0	22.3	0	22.3	0	23.0
18	83.8 74.6	0	26.7	0	21.3	0	20.6	0	20.6	0	21.3
19	82.7 74.6	0	16.3	0	11.6	0	11.4	0	11.4	0	11.6
20	81.4 74.4	0	12.4	0	8.7	0	8.6	0	8.6	0	8.7
21	79.9 74.9	0	10.1	0	6.8	0	6.7	0	6.7	0	6.8
22	78.4 74.0	0	8.8	0	5.4	0	5.4	0	5.4	0	5.4
23	76.8 72.7	0	7.5	0	4.3	0	4.2	0	4.2	0	4.3
24	75.2 71.6	0	6.8	0	3.0	0	3.0	0	3.0	0	3.0

August		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0 72.0	0	6.3	0	2.1	0	2.5	0	2.5	0	2.5
2	73.2 70.3	0	5.0	0	1.1	0	1.3	0	1.3	0	1.3
3	71.7 68.9	0	4.2	0	0.2	0	0.2	0	0.2	0	0.2
4	70.4 67.8	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5 66.8	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9 66.4	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7 66.4	0	11.3	0	3.7	0	3.3	0	3.3	0	3.9
8	69.2 66.8	0	13.8	0	10.7	0	10.4	0	10.4	0	11.0
9	70.8 67.7	0	17.3	0	12.6	0	12.1	0	12.1	0	12.7
10	73.2 67.7	0	20.8	0	15.2	0	14.6	0	14.6	0	15.3
11	76.2 68.8	0	24.3	0	17.7	0	17.1	0	17.1	0	17.7
12	79.3 70.3	0	27.3	0	20.2	0	19.5	0	19.5	0	20.2
13	82.3 72.2	0	29.7	0	22.3	0	21.6	0	21.6	0	22.3
14	84.7 73.7	0	31.1	0	23.8	0	23.1	0	23.1	0	23.8
15	86.3 74.6	0	31.2	0	24.6	0	23.9	0	23.9	0	24.6
16	86.8 75.1	0	30.6	0	24.3	0	23.6	0	23.6	0	24.3
17	86.6 75.1	0	28.6	0	23.0	0	22.3	0	22.3	0	23.0
18	86.0 75.3	0	25.7	0	21.6	0	20.9	0	20.9	0	21.6
19	85.1 76.0	0	15.0	0	11.4	0	11.2	0	11.2	0	11.4
20	83.8 76.8	0	11.8	0	8.7	0	8.6	0	8.6	0	8.7
21	82.3 77.2	0	9.9	0	7.3	0	7.3	0	7.3	0	7.3
22	80.6 76.3	0	8.7	0	6.3	0	6.2	0	6.2	0	6.3
23	78.7 75.3	0	7.2	0	5.0	0	5.0	0	5.0	0	5.0
24	76.8 73.7	0	6.4	0	3.6	0	3.6	0	3.6	0	3.6

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	7.2	-1,121	0.0	-1,105	0.0	-1,105	0.0	-1,120	0.0
8	62.9	60.9	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	13.3	0	3.7	0	2.4	0	2.4	0	4.1
10	67.6	62.1	0	17.2	0	12.8	0	12.8	0	12.8	0	13.5
11	71.1	63.1	0	20.8	0	14.9	0	14.4	0	14.4	0	15.0
12	74.8	64.6	0	23.6	0	16.3	0	15.7	0	15.7	0	16.3
13	78.3	66.7	0	25.9	0	18.3	0	17.6	0	17.6	0	18.3
14	81.2	68.4	0	27.5	0	19.7	0	19.1	0	19.1	0	19.7
15	83.0	70.0	0	27.7	0	20.6	0	19.9	0	19.9	0	20.6
16	83.7	70.5	0	26.6	0	20.3	0	19.6	0	19.6	0	20.3
17	83.4	70.5	0	24.4	0	19.2	0	18.5	0	18.5	0	19.2
18	82.8	70.9	0	21.1	0	17.2	0	16.6	0	16.6	0	17.2
19	81.6	72.7	0	10.9	0	7.6	0	7.4	0	7.4	0	7.6
20	80.1	74.7	0	8.5	0	6.1	0	6.0	0	6.0	0	6.1
21	78.3	74.1	0	6.9	0	4.8	0	4.7	0	4.7	0	4.8
22	76.3	72.4	0	5.7	0	3.6	0	3.5	0	3.5	0	3.6
23	74.1	70.7	0	4.3	0	2.2	0	2.2	0	2.2	0	2.2
24	71.8	68.9	0	3.2	0	1.0	0	0.9	0	0.9	0	1.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-60,204	0.0	-62,134	0.0	-61,676	0.0
3	48.4	46.9	0	0.0	-42,940	0.0	-70,835	0.0	-70,835	0.0	-70,813	0.0
4	47.1	45.8	0	0.0	-72,573	0.0	-72,763	0.0	-72,763	0.0	-72,705	0.0
5	46.3	44.8	-15,494	0.0	-75,500	0.0	-75,666	0.0	-75,666	0.0	-75,591	0.0
6	46.0	44.5	-53,113	0.0	-78,492	0.0	-78,634	0.0	-78,634	0.0	-78,554	0.0
7	46.8	45.3	0	0.0	-37,189	0.0	-41,203	0.0	-41,203	0.0	-37,343	0.0
8	48.9	47.5	0	0.0	0	0.0	-1,932	0.0	-1,932	0.0	0	0.0
9	52.2	49.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	56.2	52.5	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
11	60.4	54.4	0	14.4	0	0.0	0	0.0	0	0.0	0	0.0
12	64.4	56.0	0	16.8	-824	8.7	0	7.0	0	7.0	-824	8.9
13	67.7	57.3	0	18.3	0	11.8	0	11.2	0	11.1	0	12.0
14	69.8	58.2	0	19.3	0	12.9	0	12.2	0	12.1	0	12.9
15	70.6	58.1	0	19.3	0	13.0	0	12.3	0	12.3	0	13.0
16	70.3	57.5	0	18.1	0	12.3	0	11.7	0	11.7	0	12.3
17	69.5	57.3	0	15.8	0	10.9	0	10.3	0	10.3	0	10.9
18	68.2	57.7	0	12.5	0	8.6	0	8.0	0	8.0	0	8.6
19	66.5	60.6	0	3.8	0	0.4	0	0.4	0	0.4	0	0.4
20	64.4	60.8	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	-15,783	0.0	-18,437	0.0	-18,179	0.0
2	49.4	47.3	-24,919	0.0	-11,217	0.0	-68,892	0.0	-68,892	0.0	-68,680	0.0
3	47.2	45.3	-53,067	0.0	-72,280	0.0	-72,302	0.0	-72,302	0.0	-72,280	0.0
4	45.3	43.4	-58,271	0.0	-75,715	0.0	-75,773	0.0	-75,773	0.0	-75,715	0.0
5	43.9	42.2	-62,914	0.0	-79,844	0.0	-79,918	0.0	-79,918	0.0	-79,844	0.0
6	43.0	41.4	-66,812	0.0	-84,042	0.0	-84,121	0.0	-84,121	0.0	-84,042	0.0
7	42.7	41.2	0	0.0	-62,207	0.0	-66,066	0.0	-66,066	0.0	-62,207	0.0
8	43.5	42.0	0	0.0	-20,078	0.0	-23,845	0.0	-23,845	0.0	-20,078	0.0
9	45.9	44.0	0	0.0	0	0.0	-1,995	0.0	-1,995	0.0	0	0.0
10	49.4	46.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	53.8	48.6	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
12	58.4	50.6	0	13.4	0	0.0	0	0.0	0	0.0	0	0.0
13	62.8	52.6	0	15.6	-810	6.7	0	5.3	0	5.3	-810	6.7
14	66.3	54.5	0	16.8	0	9.4	0	9.1	0	9.1	0	9.4
15	68.7	55.7	0	16.9	0	10.2	0	9.8	0	9.8	0	10.2
16	69.5	56.1	0	15.7	0	10.0	0	9.5	0	9.5	0	10.1
17	69.2	55.8	0	13.4	0	8.7	0	8.2	0	8.2	0	8.7
18	68.3	57.0	0	10.6	0	7.3	0	6.7	0	6.7	0	7.3
19	66.9	59.4	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7	51.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-14,321	0.0	-59,852	0.0	-75,516	0.0	-75,588	0.0	-75,554	0.0
2	43.2	41.1	-64,906	0.0	-76,270	0.0	-79,938	0.0	-79,987	0.0	-79,901	0.0
3	41.8	39.8	-69,192	0.0	-82,386	0.0	-84,951	0.0	-84,984	0.0	-84,873	0.0
4	40.7	38.7	-70,636	0.0	-88,177	0.0	-89,977	0.0	-90,000	0.0	-89,881	0.0
5	40.1	38.4	-72,340	0.0	-93,487	0.0	-94,755	0.0	-94,771	0.0	-94,655	0.0
6	39.9	38.4	-74,011	0.0	-97,982	0.0	-98,880	0.0	-98,891	0.0	-98,782	0.0
7	40.5	39.0	-20,406	0.0	-91,426	0.0	-92,520	0.0	-92,528	0.0	-91,974	0.0
8	42.2	40.7	0	0.0	-56,064	0.0	-64,373	0.0	-64,391	0.0	-57,424	0.0
9	44.9	43.4	0	0.0	-16,000	0.0	-19,891	0.0	-19,891	0.0	-16,000	0.0
10	48.2	45.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	51.7	48.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	55.0	50.7	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
13	57.7	52.0	0	12.1	0	0.0	0	0.0	0	0.0	0	0.0
14	59.5	52.6	0	13.4	-951	7.1	-784	5.5	-784	5.5	-951	7.1
15	60.1	52.7	0	13.6	0	7.8	0	7.3	0	7.3	0	7.7
16	59.9	52.6	0	12.7	0	7.4	0	6.9	0	6.9	0	7.4
17	59.2	52.1	0	10.6	0	5.9	0	5.4	0	5.4	0	5.9
18	58.2	51.8	0	8.0	0	4.5	0	3.9	0	3.9	0	4.4
19	56.8	52.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	55.0	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	53.1	50.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	51.0	48.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	48.9	46.2	0	0.0	-55,969	0.0	-58,592	0.0	-58,592	0.0	-55,969	0.0
24	46.9	44.1	0	0.0	-72,241	0.0	-72,282	0.0	-72,282	0.0	-72,241	0.0

BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1

----- BUILDING TEMPERATURE PROFILES -----

Temperature ----- Room Number -----  
Range 1  
(F)

Max. Temp. 75.0  
Mo./Hr. 1 13  
Day Type 1

..... Number of Hours .....

Above 100 0  
95 - 100 0  
90 - 95 0  
85 - 90 0  
80 - 85 0  
75 - 80 0  
70 - 75 8,746  
65 - 70 14  
60 - 65 0  
55 - 60 0  
50 - 55 0  
Below 50 0

Min. Temp. 69.1  
Mo./Hr. 1 1  
Day Type 1

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: MGINNIS  
 Comments: BUILDING 29610 (1 BUILDING)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	BUILDING 29610

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	1180	10	2	0		13			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				179			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	51	13.5	181	0				
1	2	14	13.5	181	90				
1	3	37	13.5	181	0				
1	4	14	13.5	181	90				
1	5	83	13.5	181	0				
1	6	40	13.5	181	90				
1	7	65	13.5	181	180				
1	8	16	13.5	181	90				
1	9	57	13.5	181	180				
1	10	35.25	13.5	181	90				
1	11	51.25	13.5	181	180				
1	12	117	13.5	181	270				

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	5	3	6.5	18	1.03	.87					
1	7	3	6.5	8	1.03	.87					
1	9	3	6.5	1	1.03	.87					
1	12	3	4.5	8	1.03	.87					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	TYPE1A	TYPE1B	TYPE1C	TYPE1C						





## -----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path

1

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
TYPE1A FT GORDON- PEOPLE  
TYPE1B FT GORDON-LIGHTS  
TYPE1C FT GORDON-VENT./INFIL.

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: TYPE1A  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- TYPE 1A

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util	Percent
0	0	
6	100	
18	0	
24		

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util	Percent
0	0	
6	100	
18	0	
24		

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util	Percent
0	0	
6	50	
18	0	
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		

Schedule Name: TYPE1B  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- LIGHTS

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: TYPE1C  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- VENTILLATIO

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	100
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	100
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



```
*****  
*****  
**                                                                 **  
**          TRACE 600 ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
MCGINNIS  
BUILDING 21606 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 18:59:53 8/12/94  
Dataset Name: FGTYP52 .TM

AIRFLOW - ALTERNATIVE 1  
 ENLISTED SERVICE CLUB

----- S Y S T E M S U M M A R Y -----  
 (Design Airflow Quantities)

System Number	System Type	----- M a i n -----					Auxil. Supply Airflow (Cfm)	Room Exhaust Airflow (Cfm)
		Outside Airflow (Cfm)	Cooling Airflow (Cfm)	Heating Airflow (Cfm)	Return Airflow (Cfm)	Exhaust Airflow (Cfm)		
1	MZ	1,035	9,604	9,604	9,831	1,263	0	0
2	MZ	6,270	20,809	20,809	21,187	6,648	0	0
Totals		7,305	30,413	30,413	31,018	7,911	0	0

CAPACITY - ALTERNATIVE 1  
 ENLISTED SERVICE CLUB

----- S Y S T E M S U M M A R Y -----  
 (Design Capacity Quantities)

System Number	System Type	----- C o o l i n g -----					----- H e a t i n g -----					Heating Totals (Btuh)	
		Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Vent Capacity (Btuh)		
1	MZ	22.2	0.0	0.0	22.2	-102,312	0	0	0	0	0	0	-102,312
2	MZ	88.0	0.0	0.0	88.0	-134,110	0	-12,907	0	0	0	0	-147,017
Totals		110.2	0.0	0.0	110.2	-236,422	0	-12,907	0	0	0	0	-249,329

The building peaked at hour 16 month 8 with a capacity of 109.6 tons

ENGINEERING CHECKS - ALTERNATIVE 1  
 ENLISTED SERVICE CLUB

----- E N G I N E E R I N G C H E C K S -----

System Number	Main/Auxiliary	System Type	Percent Outside Air	----- C o o l i n g -----				--- H e a t i n g ---		Floor Area Sq Ft
				Cfm/ Sq Ft	Cfm/ Ton	Sq Ft /Ton	Btuh/ Sq Ft	Cfm/ Sq Ft	Btuh/ Sq Ft	
1	Main	MZ	10.78	1.07	432.9	404.6	29.66	1.07	-11.40	8,976
2	Main	MZ	30.13	2.13	236.5	111.3	107.85	2.13	-15.01	9,792

System 1 Block MZ - MULTIZONE

***** COOLING COIL PEAK *****					***** CLG SPACE PEAK *****					***** HEATING COIL PEAK *****					
Peaked at Time ==>					Mo/Hr: 6/16					Mo/Hr: 6/16			Mo/Hr: 13/ 1		
Outside Air ==>					OADB/WB/HR: 100/ 75/ 91.0					OADB: 100			OADB: 23		
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)	Space Sens (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)		
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Roof Cond	50,303	0	0	50,303	18.89	50,303	26.10	-26,139	-26,139	25.55	0	0	0.00		
Glass Solar	20,119	0	0	20,119	7.56	20,119	10.44	0	0	0.00	0	0	0.00		
Glass Cond	15,241	0	0	15,241	5.72	15,241	7.91	-32,889	-32,889	32.15	0	0	0.00		
Wall Cond	38,667	0	0	38,667	14.52	38,667	20.06	-43,284	-43,284	42.31	0	0	0.00		
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Infiltration	10,331	0	0	10,331	3.88	6,241	3.24	0	0	0.00	0	0	0.00		
Sub Total=>	134,662	0	0	134,662	50.58	130,571	67.74	-102,312	-102,312	100.00	0	0	0.00		
Internal Loads															
Lights	45,830	0	0	45,830	17.21	45,830	23.78	0	0	0.00	0	0	0.00		
People	38,788	0	0	38,788	14.57	16,363	8.49	0	0	0.00	0	0	0.00		
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Sub Total=>	84,618	0	0	84,618	31.78	62,193	32.26	0	0	0.00	0	0	0.00		
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Outside Air	0	0	0	46,949	17.63	0	0.00	0	0	0.00	0	0	0.00		
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00		
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00	0	0	0.00		
Grand Total=>	219,280	0	0	266,229	100.00	192,765	100.00	-102,312	-102,312	100.00	0	0	0.00		

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains			
Main Clg	22.2	266.2	221.1	9,604	77.7	64.0	68.0	56.9	54.9	61.3	8,976	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	22.2	266.2									8,976	
Part											0	
ExFlr											0	
Roof											8,976	0 0
Wall											2,847	649 23

-----HEATING COIL SELECTION-----				-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--			--TEMPERATURES (F)---		
Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	10.8	Type	Clg	Htg	
Main Htg	-102.3	9,604	68.0	77.6	Vent	1,035	0	Clg Cfm/Sqft	1.07	SADB	56.9	77.6
Aux Htg	0.0	0	0.0	0.0	Infil	228	0	Clg Cfm/Ton	432.88	Plenum	75.0	68.0
Preheat	-0.0	9,604	63.2	56.9	Supply	9,604	9,604	Clg Sqft/Ton	404.58	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	29.66	Ret/OA	77.7	68.0
Humidif	0.0	0	0.0	0.0	Return	9,604	9,604	No. People	69	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	1,035	0	Htg % OA	0.0	Fn MtrTD	0.0	0.0
Total	-102.3				Rm Exh	0	0	Htg Cfm/SqFt	1.07	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/SqFt	-11.40	Fn Frict	0.0	0.0

System 2 Block MZ - MULTIZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****												
Peaked at Time ==>		Mo/Hr: 8/15			*	Mo/Hr: 9/16		*	Mo/Hr: 13/ 1			
Outside Air ==>		OADB/WB/HR: 97/ 76/105.0			*	OADB: 93		*	OADB: 23			
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	51,961	0		51,961	4.92	*	42,203	9.14	*	-28,515	-28,515	21.26
Glass Solar	19,845	0		19,845	1.88	*	26,325	5.70	*	0	0	0.00
Glass Cond	8,134	0		8,134	0.77	*	6,674	1.45	*	-20,524	-20,524	15.30
Wall Cond	93,578	0		93,578	8.86	*	103,976	22.52	*	-85,071	-85,071	63.43
Partition	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	13,991			13,991	1.32	*	7,465	1.62	*	0	0	0.00
Sub Total==>	187,510	0		187,510	17.76	*	186,643	40.42	*	-134,110	-134,110	100.00
Internal Loads						*			*			
Lights	114,965	0		114,965	10.89	*	117,639	25.48	*	0	0	0.00
People	521,497			521,497	49.38	*	157,440	34.10	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	636,462	0	0	636,462	60.27	*	275,078	59.58	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	232,067	21.98	*	0	0.00	*	0	0	0.00
Sup. Fan Heat				0	0.00	*		0.00	*			0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*			0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*			0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*			0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*			0.00
Grand Total==>	823,972	0	0	1,056,039	100.00	*	461,721	100.00	*	-134,110	-134,110	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	88.0	1,056.0	603.5	20,809	81.5	69.9	91.9	55.0	54.2	61.8	9,792	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	88.0	1,056.0									9,792	
											0	
											0	
											9,792	0 0
											4,725	405 9

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS--			-----TEMPERATURES (F)---		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	30.1	Type	Clg	Htg		
(Mbh)	(cfm)	Deg F	Deg F	Vent			Clg Cfm/Sqft	2.13	SADB	55.0	73.8		
Main Htg	-134.1	20,809	68.0	73.8	Infil	378	0	236.46	Plenum	75.0	68.0		
Aux Htg	0.0	0	0.0	0.0	Supply	20,809	20,809	111.27	Return	75.0	68.0		
Preheat	-12.9	20,809	54.4	55.0	Mincfm	0	0	107.85	Ret/OA	81.5	68.0		
Reheat	0.0	0	0.0	0.0	Return	20,809	20,809	No. People	418	Runarnd	75.0		
Humidif	0.0	0	0.0	0.0	Exhaust	6,270	0	Htg % OA	0.0	Fn MtrTD	0.0		
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	2.13	Fn BldTD	0.0		
Total	-147.0				Auxil	0	0	Htg Btuh/Sqft	-15.01	Fn Frict	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

January		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-211,403	0.0	-220,855	0.0	-225,027	0.0	-226,868	0.0	-226,799	0.0
2	32.9	30.7	-212,776	0.0	-226,153	0.0	-235,203	0.0	-241,228	0.0	-240,752	0.0
3	33.1	31.3	-214,396	0.0	-228,862	0.0	-243,232	0.0	-244,454	0.0	-244,232	0.0
4	33.9	32.1	-215,732	0.0	-240,157	0.0	-243,468	0.0	-244,434	0.0	-244,155	0.0
5	35.2	33.5	-216,445	0.0	-239,899	0.0	-241,975	0.0	-242,739	0.0	-242,433	0.0
6	37.0	35.4	-214,903	0.0	-237,076	0.0	-238,791	0.0	-239,395	0.0	-239,083	0.0
7	39.0	37.6	-208,802	0.0	-230,959	0.0	-232,585	0.0	-233,019	0.0	-232,363	0.0
8	41.3	40.1	-197,530	0.0	-207,216	0.0	-222,256	0.0	-222,598	0.0	-209,371	0.0
9	43.7	42.5	-183,812	0.0	-196,191	0.0	-198,850	0.0	-199,119	0.0	-197,059	0.0
10	46.1	44.0	-141,789	0.0	-184,618	0.0	-187,776	0.0	-187,988	0.0	-185,300	0.0
11	48.4	45.0	-40,861	7.3	-172,591	0.0	-176,204	0.0	-176,370	0.0	-173,127	1.6
12	50.5	45.6	0	28.1	-105,767	2.5	-164,987	0.0	-165,118	0.0	-118,985	0.0
13	52.2	46.1	0	31.1	-40,800	22.9	-104,896	0.0	-106,801	0.0	-44,045	21.8
14	53.5	46.4	0	35.5	-23,807	21.8	-48,367	4.0	-49,522	3.6	-24,067	21.9
15	54.3	46.3	0	37.1	-12,504	24.3	-22,804	10.0	-22,867	10.0	-12,709	24.3
16	54.6	46.1	0	39.8	-9,315	24.2	-16,536	9.9	-16,586	9.9	-9,315	24.2
17	54.0	45.9	0	37.3	-12,287	23.8	-20,376	9.5	-20,415	9.5	-12,287	23.8
18	52.5	45.0	0	31.5	-21,370	21.3	-36,204	7.7	-36,235	7.7	-21,370	21.3
19	50.1	44.8	-1,305	1.3	-75,217	0.0	-85,485	0.0	-85,510	0.0	-75,350	0.0
20	47.1	43.3	-32,555	0.0	-127,077	0.0	-142,428	0.0	-142,444	0.0	-127,182	0.0
21	43.7	40.4	-68,276	0.0	-173,714	0.6	-179,983	0.0	-180,001	0.0	-173,775	0.6
22	40.4	37.3	-116,041	0.0	-191,890	0.0	-194,810	0.0	-194,825	0.0	-191,970	0.0
23	37.3	34.9	-156,147	0.0	-205,841	0.0	-208,396	0.0	-208,407	0.0	-205,904	0.0
24	34.9	32.6	-172,993	0.0	-216,983	0.0	-219,201	0.0	-219,210	0.0	-217,032	0.0

February		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-182,374	0.0	-190,684	0.0	-197,805	0.0	-200,408	0.0	-200,344	0.0
2	39.7	37.1	-188,754	0.0	-201,776	0.0	-207,515	0.0	-209,561	0.0	-209,371	0.0
3	37.8	35.1	-194,337	0.0	-211,862	0.0	-216,489	0.0	-218,098	0.0	-217,834	0.0
4	36.3	33.8	-199,137	0.0	-219,986	0.0	-223,718	0.0	-224,983	0.0	-224,681	0.0
5	35.1	32.6	-202,261	0.0	-229,013	0.0	-239,877	0.0	-242,007	0.0	-240,890	0.0
6	34.4	32.0	-203,237	0.0	-243,216	0.0	-245,691	0.0	-246,515	0.0	-246,206	0.0
7	34.1	31.9	-199,160	0.0	-244,680	0.0	-247,002	0.0	-247,616	0.0	-246,962	0.0
8	34.6	32.4	-189,331	0.0	-239,294	0.0	-241,975	0.0	-242,459	0.0	-241,088	0.0
9	36.0	33.8	-177,041	0.0	-217,999	0.0	-233,995	0.0	-234,375	0.0	-219,409	0.0
10	38.2	34.7	-121,955	0.0	-206,366	0.0	-209,863	0.0	-210,162	0.0	-207,475	0.0
11	40.9	36.2	-30,154	11.3	-192,478	0.0	-196,358	0.0	-196,593	0.0	-193,350	0.0
12	43.9	37.4	0	25.3	-175,418	0.7	-181,842	0.0	-182,026	0.0	-175,897	0.8
13	46.9	39.4	0	28.9	-127,111	6.3	-167,081	0.3	-167,199	0.4	-133,005	5.1
14	49.7	41.4	0	32.6	-54,316	19.1	-130,400	0.0	-131,325	0.0	-54,948	19.3
15	51.8	42.8	0	37.9	-31,063	20.0	-60,888	3.5	-61,538	3.4	-31,559	20.0
16	53.2	43.9	0	39.7	-16,898	20.8	-28,792	7.7	-28,878	7.8	-16,898	20.8
17	53.7	44.2	0	37.6	-14,598	20.7	-21,446	7.5	-21,446	7.5	-14,598	20.7
18	53.4	44.4	0	31.1	-16,892	19.7	-24,492	6.7	-24,492	6.7	-16,892	19.7
19	52.7	44.4	-3,075	2.5	-40,647	0.0	-48,863	0.0	-48,912	0.0	-40,647	0.0
20	51.5	45.2	-31,826	0.0	-66,948	0.0	-83,129	0.0	-83,167	0.0	-67,246	0.0
21	50.0	44.6	-60,906	0.0	-104,684	0.0	-121,956	0.0	-121,986	0.0	-104,919	0.0
22	48.1	43.3	-105,237	0.0	-147,506	0.0	-164,049	0.0	-164,073	0.0	-147,691	0.0
23	46.1	41.8	-144,328	0.0	-175,744	0.0	-179,532	0.0	-179,551	0.0	-175,889	0.0
24	43.9	40.1	-167,955	0.0	-187,064	0.0	-190,252	0.0	-190,267	0.0	-187,178	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-92,002	0.0	-107,816	0.0	-120,673	0.0	-128,884	0.0	-127,806	0.0
2	48.7	44.6	-112,726	0.0	-157,049	0.0	-162,534	0.0	-163,534	0.0	-163,334	0.0
3	46.6	42.9	-130,436	0.0	-170,414	0.0	-174,841	0.0	-175,627	0.0	-175,355	0.0
4	44.9	41.4	-147,095	0.0	-181,370	0.0	-184,945	0.0	-185,563	0.0	-185,256	0.0
5	43.9	40.8	-156,036	0.0	-189,107	0.0	-191,994	0.0	-192,481	0.0	-192,162	0.0
6	43.5	40.8	-155,775	0.0	-194,346	0.0	-196,679	0.0	-197,061	0.0	-196,748	0.0
7	44.0	41.4	-125,851	0.0	-193,287	0.0	-195,533	0.0	-195,833	0.0	-195,175	0.0
8	45.4	42.7	-62,625	0.0	-185,727	0.0	-188,348	0.0	-188,584	0.0	-187,211	0.0
9	47.7	44.3	-5,159	0.0	-174,474	0.0	-177,516	0.0	-177,702	0.0	-175,641	0.0
10	50.6	45.8	0	27.1	-113,767	0.0	-157,748	0.0	-158,956	0.0	-116,653	0.0
11	53.9	47.4	0	32.3	-32,679	15.8	-77,096	0.0	-77,958	0.0	-34,341	15.1
12	57.4	49.0	0	40.3	0	21.4	-2,586	1.0	-2,878	0.8	0	21.5
13	60.7	50.8	0	52.1	0	28.0	0	13.2	0	13.2	0	27.9
14	63.6	52.7	0	58.2	0	32.0	0	16.6	0	16.6	0	32.1
15	65.9	53.7	0	60.3	0	38.6	0	18.9	0	18.9	0	38.3
16	67.3	54.4	0	60.7	0	42.2	0	24.5	0	24.4	0	42.2
17	67.8	54.6	0	55.9	0	42.3	0	25.2	0	25.2	0	42.3
18	67.4	54.8	0	50.8	0	40.6	0	23.6	0	23.6	0	40.6
19	66.4	55.2	0	18.3	0	11.1	0	5.4	0	5.4	0	11.1
20	64.7	56.0	0	7.0	0	2.7	0	0.0	0	0.0	0	2.7
21	62.5	56.0	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	-22,646	0.0	-31,886	0.0	-31,886	0.0	-22,646	0.0
24	54.2	49.4	-27,176	0.0	-66,290	0.0	-75,064	0.0	-75,064	0.0	-66,290	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-904	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	-11,483	0.0	-23,217	0.0	-27,481	0.0	-24,671	0.0
3	57.0	53.5	0	0.0	-48,299	0.0	-57,604	0.0	-60,304	0.0	-56,931	0.0
4	55.4	52.4	-5,606	0.0	-77,146	0.0	-85,238	0.0	-87,304	0.0	-83,445	0.0
5	54.2	51.4	-17,369	0.0	-108,018	0.0	-116,350	0.0	-117,685	0.0	-114,064	0.0
6	53.5	50.9	-19,415	0.0	-130,880	0.0	-137,507	0.0	-138,390	0.0	-135,104	0.0
7	53.2	51.1	-3,238	0.0	-124,844	0.0	-135,408	0.0	-135,997	0.0	-127,784	0.0
8	53.9	51.5	-1,875	0.0	-83,351	0.0	-102,874	0.0	-103,271	0.0	-85,503	0.0
9	55.9	52.1	-718	28.1	-26,901	0.0	-54,617	0.0	-54,887	0.0	-28,498	0.0
10	58.9	53.2	0	38.0	0	22.6	-1,716	0.0	-1,737	0.0	-672	22.4
11	62.6	55.2	0	56.1	0	29.0	0	9.4	0	9.3	0	29.1
12	66.5	57.3	0	64.6	0	36.1	0	20.6	0	20.6	0	36.1
13	70.2	59.6	0	70.6	0	47.9	0	26.4	0	26.4	0	47.5
14	73.2	61.0	0	74.6	0	55.3	0	37.1	0	37.1	0	55.3
15	75.2	62.2	0	76.8	0	58.6	0	40.4	0	40.4	0	58.6
16	75.9	62.2	0	74.3	0	59.6	0	41.2	0	41.2	0	59.6
17	75.6	62.0	0	71.9	0	59.2	0	40.7	0	40.7	0	59.2
18	74.9	61.7	0	65.4	0	57.4	0	38.9	0	38.9	0	57.4
19	73.7	62.0	0	30.9	0	24.2	0	17.3	0	17.3	0	24.2
20	72.1	62.4	0	18.1	0	13.8	0	10.2	0	10.2	0	13.8
21	70.2	63.3	0	11.1	0	7.9	0	5.3	0	5.3	0	7.9
22	68.0	62.5	0	6.1	0	2.6	0	0.3	0	0.3	0	2.6
23	65.7	60.5	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	-1,400	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	-18,236	0.0	-23,196	0.0	-23,196	0.0	-18,236	0.0
6	59.7	56.5	0	0.0	-40,289	0.0	-44,288	0.0	-44,288	0.0	-40,289	0.0
7	59.4	56.5	0	10.6	-35,522	0.0	-43,517	0.0	-43,517	0.0	-35,522	0.0
8	60.1	56.3	0	42.8	-3,171	0.0	-17,396	0.0	-17,396	0.0	-3,171	0.0
9	62.4	56.3	0	48.3	0	12.1	-1,019	0.0	-1,019	0.0	0	12.1
10	65.7	57.2	0	58.7	0	31.1	0	6.3	0	6.3	0	31.1
11	69.9	58.9	0	66.6	0	42.6	0	25.0	0	25.0	0	42.7
12	74.3	60.9	0	74.6	0	50.4	0	33.0	0	33.0	0	50.4
13	78.5	63.7	0	83.1	0	58.8	0	41.4	0	41.4	0	58.8
14	81.9	65.3	0	85.0	0	67.5	0	49.0	0	49.0	0	67.5
15	84.1	66.9	0	89.7	0	71.4	0	53.1	0	53.1	0	71.4
16	84.9	67.1	0	87.4	0	72.9	0	54.4	0	54.4	0	72.9
17	84.6	67.3	0	84.9	0	73.0	0	54.4	0	54.4	0	73.0
18	83.8	67.1	0	78.2	0	74.2	0	55.0	0	55.0	0	74.2
19	82.4	67.5	0	44.3	0	38.2	0	31.7	0	31.7	0	38.2
20	80.6	68.9	0	30.1	0	28.3	0	25.4	0	25.4	0	28.3
21	78.5	71.0	0	22.8	0	25.7	0	22.6	0	22.6	0	25.7
22	76.1	69.9	0	17.2	0	18.7	0	16.2	0	16.2	0	18.7
23	73.4	68.0	0	12.2	0	11.4	0	9.4	0	9.4	0	11.4
24	70.8	65.5	0	7.9	0	4.4	0	2.7	0	2.7	0	4.4

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	20.8	0	11.1	0	10.7	0	10.8	0	12.6
2	72.6	68.4	0	16.5	0	6.0	0	4.8	0	4.8	0	6.1
3	70.9	67.3	0	14.0	0	0.5	0	0.4	0	0.4	0	0.5
4	69.6	66.5	0	12.0	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	10.5	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	47.6	0	12.6	0	0.0	0	0.0	0	12.6
8	70.6	66.9	0	64.9	0	49.3	-782	31.9	-782	31.9	0	49.3
9	73.0	67.7	0	70.7	0	54.3	0	36.6	0	36.6	0	54.3
10	76.1	68.1	0	80.5	0	62.7	0	45.1	0	45.1	0	62.7
11	79.5	69.1	0	87.6	0	69.0	0	51.2	0	51.2	0	69.0
12	82.9	70.1	0	95.4	0	75.7	0	56.9	0	56.9	0	75.7
13	86.0	71.0	0	100.1	0	81.0	0	62.3	0	62.3	0	81.0
14	88.4	72.5	0	103.6	0	88.0	0	68.6	0	68.6	0	88.0
15	90.0	74.0	0	106.2	0	94.2	0	74.5	0	74.5	0	94.2
16	90.5	73.7	0	106.2	0	92.5	0	73.1	0	73.1	0	92.5
17	90.3	74.2	0	104.5	0	95.2	0	75.1	0	75.1	0	95.2
18	89.4	73.9	0	98.6	0	94.3	0	74.2	0	74.2	0	94.3
19	88.1	74.5	0	58.3	0	54.3	0	48.1	0	48.1	0	54.3
20	86.4	75.3	0	43.7	0	43.3	0	40.7	0	40.7	0	43.3
21	84.3	76.5	0	39.1	0	41.1	0	37.9	0	37.9	0	41.1
22	81.9	75.7	0	32.9	0	34.3	0	31.8	0	31.8	0	34.3
23	79.5	74.0	0	28.0	0	27.2	0	25.0	0	25.0	0	27.2
24	77.0	72.1	0	24.2	0	19.2	0	17.4	0	17.4	0	19.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

July		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	23.4	0	8.6	0	7.9	0	8.0	0	9.8
2	72.4	69.4	0	18.4	0	4.6	0	3.2	0	3.2	0	4.7
3	71.3	68.4	0	16.4	0	0.2	0	0.0	0	0.0	0	0.2
4	70.5	67.7	0	14.6	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	12.9	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	50.6	0	20.7	0	5.8	0	5.8	0	20.7
8	71.7	69.0	0	66.7	0	53.2	0	36.6	0	36.6	0	53.3
9	73.7	69.5	0	72.5	0	59.1	0	41.9	0	41.9	0	59.1
10	76.2	70.6	0	81.2	0	68.4	0	48.7	0	48.7	0	68.4
11	78.9	71.8	0	87.7	0	74.8	0	55.5	0	55.5	0	74.8
12	81.4	73.0	0	96.8	0	82.9	0	63.6	0	63.6	0	82.9
13	83.4	74.4	0	101.6	0	88.1	0	68.3	0	68.3	0	88.1
14	84.8	74.8	0	104.6	0	91.0	0	71.2	0	71.2	0	91.0
15	85.2	75.0	0	106.9	0	92.8	0	72.8	0	72.8	0	92.8
16	85.1	75.0	0	106.7	0	93.0	0	72.9	0	72.9	0	93.0
17	84.6	74.7	0	105.6	0	91.9	0	71.6	0	71.6	0	91.9
18	83.8	74.6	0	99.4	0	90.4	0	70.0	0	70.0	0	90.4
19	82.7	74.6	0	58.7	0	50.9	0	44.2	0	44.2	0	50.9
20	81.4	74.4	0	44.3	0	38.9	0	35.9	0	35.9	0	38.9
21	79.9	74.9	0	39.1	0	34.3	0	30.8	0	30.8	0	34.3
22	78.4	74.0	0	33.0	0	26.9	0	24.2	0	24.2	0	26.9
23	76.8	72.7	0	28.9	0	20.2	0	18.0	0	18.0	0	20.2
24	75.2	71.6	0	25.4	0	14.6	0	12.6	0	12.6	0	14.6

August		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	22.4	0	11.6	0	11.2	0	11.3	0	13.2
2	73.2	70.3	0	17.2	0	7.0	0	5.6	0	5.7	0	7.1
3	71.7	68.9	0	15.1	0	2.1	0	0.4	0	0.4	0	2.1
4	70.4	67.8	0	13.1	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	11.0	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	10.7	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	47.1	0	14.0	0	1.2	0	1.2	0	14.0
8	69.2	66.8	0	63.3	0	46.0	-729	27.9	-729	27.9	0	46.0
9	70.8	67.7	0	70.8	0	53.1	0	35.0	0	35.0	0	53.1
10	73.2	67.7	0	80.3	0	59.4	0	41.6	0	41.6	0	59.4
11	76.2	68.8	0	88.2	0	66.1	0	48.1	0	48.1	0	66.1
12	79.3	70.3	0	95.4	0	75.8	0	56.4	0	56.4	0	75.8
13	82.3	72.2	0	103.7	0	84.2	0	64.7	0	64.7	0	84.2
14	84.7	73.7	0	107.5	0	89.0	0	69.2	0	69.2	0	89.0
15	86.3	74.6	0	109.4	0	94.5	0	74.5	0	74.5	0	94.5
16	86.8	75.1	0	109.6	0	96.1	0	76.0	0	76.0	0	96.1
17	86.6	75.1	0	105.1	0	95.0	0	74.8	0	74.8	0	95.0
18	86.0	75.3	0	100.5	0	96.1	0	75.5	0	75.5	0	96.1
19	85.1	76.0	0	58.4	0	53.6	0	47.1	0	47.1	0	53.6
20	83.8	76.8	0	43.9	0	42.6	0	39.6	0	39.6	0	42.6
21	82.3	77.2	0	40.2	0	39.6	0	36.1	0	36.1	0	39.6
22	80.6	76.3	0	32.8	0	32.5	0	30.8	0	30.8	0	33.5
23	78.7	75.3	0	28.0	0	26.4	0	24.0	0	24.0	0	26.4
24	76.8	73.7	0	24.4	0	19.4	0	17.4	0	17.4	0	19.4



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	10.8	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.0	-698	0.0	-6,012	0.0	-6,012	0.0	-698	0.0
7	62.2	60.2	0	28.1	-3,027	0.0	-9,142	0.0	-9,142	0.0	-3,027	0.0
8	62.9	60.9	0	46.1	-1,386	0.0	-815	0.0	-815	0.0	-1,386	0.0
9	64.7	61.8	0	56.1	0	24.3	-1,239	0.0	-1,239	0.0	0	24.3
10	67.6	62.1	0	68.3	0	39.3	0	18.1	0	18.1	0	39.3
11	71.1	63.1	0	74.3	0	55.0	0	34.3	0	34.3	0	55.0
12	74.8	64.6	0	82.0	0	62.3	0	43.7	0	43.7	0	62.3
13	78.3	66.7	0	90.7	0	67.8	0	49.1	0	49.1	0	67.8
14	81.2	68.4	0	95.1	0	74.9	0	55.9	0	55.9	0	74.9
15	83.0	70.0	0	97.2	0	80.9	0	61.6	0	61.6	0	80.9
16	83.7	70.5	0	96.9	0	82.6	0	63.2	0	63.2	0	82.6
17	83.4	70.5	0	91.4	0	81.8	0	62.3	0	62.3	0	81.8
18	82.8	70.9	0	86.3	0	82.0	0	62.0	0	62.0	0	82.0
19	81.6	72.7	0	46.9	0	42.5	0	36.0	0	36.0	0	42.5
20	80.1	74.7	0	34.3	0	33.7	0	30.5	0	30.5	0	33.7
21	78.3	74.1	0	29.0	0	29.1	0	25.6	0	25.6	0	29.1
22	76.3	72.4	0	22.0	0	21.5	0	18.8	0	18.8	0	21.5
23	74.1	70.7	0	15.8	0	13.8	0	11.5	0	11.5	0	13.8
24	71.8	68.9	0	11.7	0	7.0	0	5.0	0	5.0	0	7.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-85,579	0.0	-110,170	0.0	-118,566	0.0	-117,488	0.0
2	50.1	48.6	-26,598	0.0	-135,710	0.0	-154,776	0.0	-160,044	0.0	-157,506	0.0
3	48.4	46.9	-54,133	0.0	-163,254	0.0	-169,853	0.0	-170,639	0.0	-170,367	0.0
4	47.1	45.8	-73,925	0.0	-173,167	0.0	-178,449	0.0	-179,067	0.0	-178,760	0.0
5	46.3	44.8	-94,836	0.0	-180,573	0.0	-184,803	0.0	-185,289	0.0	-184,970	0.0
6	46.0	44.5	-101,990	0.0	-185,755	0.0	-189,144	0.0	-189,526	0.0	-189,213	0.0
7	46.8	45.3	-76,204	0.0	-183,738	0.0	-186,814	0.0	-187,115	0.0	-186,456	0.0
8	48.9	47.5	-16,892	0.0	-173,991	0.0	-177,264	0.0	-177,501	0.0	-176,128	0.0
9	52.2	49.9	0	5.9	-109,271	0.0	-144,831	0.0	-146,066	0.0	-113,874	0.0
10	56.2	52.5	0	34.7	-22,007	8.0	-59,319	0.0	-60,130	0.0	-24,639	6.6
11	60.4	54.4	0	37.7	0	31.0	-1,251	0.0	-1,254	0.0	0	31.3
12	64.4	56.0	0	48.7	0	34.5	0	20.9	0	20.7	0	34.4
13	67.7	57.3	0	60.5	0	40.2	0	23.3	0	23.3	0	40.3
14	69.8	58.2	0	64.5	0	46.0	0	26.5	0	26.5	0	45.3
15	70.6	58.1	0	66.4	0	52.8	0	32.4	0	32.4	0	52.9
16	70.3	57.5	0	66.0	0	49.6	0	32.3	0	32.3	0	49.6
17	69.5	57.3	0	60.5	0	47.7	0	30.0	0	30.0	0	47.7
18	68.2	57.7	0	56.4	0	46.1	0	28.0	0	28.0	0	46.1
19	66.5	60.6	0	22.3	0	12.8	0	6.2	0	6.2	0	12.8
20	64.4	60.8	0	10.0	0	3.2	0	0.0	0	0.0	0	3.2
21	62.1	59.4	0	3.3	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	-24,267	0.0	-33,967	0.0	-33,967	0.0	-24,267	0.0
24	54.5	52.7	0	0.0	-63,424	0.0	-72,490	0.0	-72,490	0.0	-63,424	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-62,641	0.0	-101,862	0.0	-113,205	0.0	-121,563	0.0	-120,485	0.0
2	49.4 47.3	-95,040	0.0	-154,152	0.0	-161,939	0.0	-162,940	0.0	-162,740	0.0
3	47.2 45.3	-122,618	0.0	-170,737	0.0	-174,405	0.0	-175,192	0.0	-174,920	0.0
4	45.3 43.4	-144,306	0.0	-181,956	0.0	-184,934	0.0	-185,552	0.0	-185,245	0.0
5	43.9 42.2	-158,041	0.0	-190,609	0.0	-193,027	0.0	-193,513	0.0	-193,195	0.0
6	43.0 41.4	-158,919	0.0	-197,031	0.0	-198,995	0.0	-199,377	0.0	-199,064	0.0
7	42.7 41.2	-129,380	0.0	-198,180	0.0	-200,136	0.0	-200,436	0.0	-199,778	0.0
8	43.5 42.0	-65,722	0.0	-192,463	0.0	-194,856	0.0	-195,092	0.0	-193,720	0.0
9	45.9 44.0	-5,246	0.0	-181,403	1.0	-184,267	0.0	-184,453	0.0	-182,392	1.4
10	49.4 46.6	0	27.9	-139,519	0.0	-169,513	0.0	-169,659	0.0	-142,385	0.0
11	53.8 48.6	0	36.4	-39,200	16.2	-86,700	0.0	-87,792	0.0	-40,875	15.4
12	58.4 50.6	0	44.3	0	25.5	0	1.4	0	1.1	0	25.6
13	62.8 52.6	0	51.9	0	30.8	0	16.6	0	16.6	0	30.8
14	66.3 54.5	0	60.5	0	34.7	0	19.0	0	19.0	0	34.8
15	68.7 55.7	0	61.8	0	39.6	0	23.3	0	23.3	0	39.4
16	69.5 56.1	0	61.3	0	47.0	0	25.1	0	25.0	0	46.9
17	69.2 55.8	0	57.6	0	43.4	0	26.3	0	26.3	0	43.4
18	68.3 57.0	0	51.0	0	41.7	0	24.2	0	24.2	0	41.7
19	66.9 59.4	0	17.8	0	10.9	0	4.6	0	4.6	0	10.9
20	65.0 59.4	0	6.4	0	3.0	0	0.0	0	0.0	0	3.0
21	62.8 58.2	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5 54.0	0	0.0	-18,432	0.0	-28,038	0.0	-28,038	0.0	-18,432	0.0
24	54.7 51.7	-31,609	0.0	-61,127	0.0	-70,134	0.0	-70,134	0.0	-61,127	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-114,096	0.0	-177,240	0.0	-183,369	0.0	-187,301	0.0	-187,267	0.0
2	43.2 41.1	-143,222	0.0	-187,812	0.0	-192,772	0.0	-195,863	0.0	-195,697	0.0
3	41.8 39.8	-165,708	0.0	-196,589	0.0	-200,603	0.0	-203,034	0.0	-202,788	0.0
4	40.7 38.7	-172,434	0.0	-203,806	0.0	-207,056	0.0	-208,967	0.0	-208,680	0.0
5	40.1 38.4	-177,427	0.0	-208,968	0.0	-211,599	0.0	-213,102	0.0	-212,800	0.0
6	39.9 38.4	-179,201	0.0	-212,450	0.0	-214,582	0.0	-215,763	0.0	-215,463	0.0
7	40.5 39.0	-175,982	0.0	-210,072	0.0	-212,160	0.0	-213,089	0.0	-212,441	0.0
8	42.2 40.7	-130,085	0.0	-201,107	0.0	-203,603	0.0	-204,334	0.0	-202,969	0.0
9	44.9 43.4	-65,231	0.0	-189,037	0.0	-191,982	0.0	-192,556	0.0	-190,501	0.0
10	48.2 45.8	-7,841	10.9	-174,615	0.8	-177,998	0.0	-178,449	0.0	-175,766	0.9
11	51.7 48.3	0	29.0	-104,162	0.0	-157,836	0.0	-160,018	0.0	-108,573	0.0
12	55.0 50.7	0	35.5	-22,333	23.4	-68,941	0.0	-70,367	0.0	-24,220	22.3
13	57.7 52.0	0	41.8	0	27.8	-1,367	4.7	-1,586	4.3	0	28.0
14	59.5 52.6	0	42.4	0	31.4	0	16.2	0	16.2	0	31.3
15	60.1 52.7	0	51.3	0	32.6	0	16.4	0	16.4	0	32.6
16	59.9 52.6	0	50.6	0	32.7	0	16.5	0	16.5	0	32.7
17	59.2 52.1	0	47.3	0	31.2	0	15.0	0	15.0	0	31.2
18	58.2 51.8	0	41.0	0	28.5	0	12.0	0	12.0	0	28.1
19	56.8 52.2	0	7.1	0	0.0	-4,410	0.0	-4,410	0.0	0	0.0
20	55.0 51.4	0	0.0	-26,198	0.0	-36,155	0.0	-36,155	0.0	-26,198	0.0
21	53.1 50.1	0	0.0	-56,415	0.0	-76,257	0.0	-76,369	0.0	-56,415	0.0
22	51.0 48.1	-30,511	0.0	-102,013	0.0	-121,290	0.0	-121,377	0.0	-102,013	0.0
23	48.9 46.2	-59,415	0.0	-146,363	0.0	-163,533	0.0	-163,602	0.0	-146,363	0.0
24	46.9 44.1	-92,805	0.0	-172,429	0.0	-177,308	0.0	-177,362	0.0	-172,429	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: MCGINNIS  
 Comments: BUILDING 21606 (1 BUILDING)

## -----CARD 08-- Climatic Information -----

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

## -----CARD 09-- Load Simulation Periods-----

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR						OCT

## -----CARD 10 -- Load Simulation Parameters-----

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

## ----- Load Section Alternative #1 -----

## ---- Load Alternative ----

Number	Description
1	ENLISTED SERVICE CLUB

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	LOW PORTION	8976		3	0		10.4			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	HIGH PORTION	9792		3	0		16.5			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				195			
2	1	YES				195			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance
1	1	44	9.75			270			
1	2	204	9.75			0			
1	3	44	9.75			90			
2	1	48	15.75			90			
2	2	204	15.75			180			
2	3	48	15.75			270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	7.95	10	1	1.03	.7					
1	2	48.7	10	1	1.03	.7					
1	3	3.75	2	11	1.03	.7					
2	1	3.75	2	10	1.03	.7					
2	2	33	10	1	1.03	.7					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	TYPE1A	TYPE1B	TYPE1C	TYPE1C						
2	TYPE1A	TYPE1B	TYPE1C	TYPE1C						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	69	PEOPLE	255	325	1.7	WATT-SF	ASHRAE2				
2	418	PEOPLE	405	875	4	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	10	KW	TYPE1D						
2	1	MISS.	8.8	KW	TYPE1D						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	MZ



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
TYPE1A FT GORDON- PEOPLE  
TYPE1B FT GORDON-LIGHTS  
TYPE1C FT GORDON-VENT./INFIL.  
TYPE1D FORT GORDON ENERGY STUDY

System:

MZ MULTIZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: TYPE1A  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- TYPE 1A

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
6	50
18	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: TYPE1B  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- LIGHTS

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: TYPE1C  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: BN HQ & CLASSROOM- VENTILLATIO

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util	Percent
0		100
24		

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util	Percent
0		100
24		

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: TYPE1D  
Project: FORT GORDON ENERGY STUDY  
Location: AUGUSTA, GA.  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: SCHEDULE FOR EQUIPMENT UTILIZA

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

```
*****>>>*****  
*****>>>*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****>>>*****  
*****>>>*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
BON  
BUILDING 21714 (9 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 11:43:21 8/15/94  
Dataset Name: FGTYP3A .TM

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK									
Peaked at Time ==>					Mo/Hr: 6/17					Mo/Hr: 13/ 1									
Outside Air ==>					OADB/WB/HR: 98/ 74/ 91.0					OADB: 98					OADB: 23				
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	Space Sensible (Btuh)	Percent Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)									
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00									
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00									
Roof Cond	31,432	0	0	31,432	21.81	31,432	29.36	-18,041	-18,041	12.39									
Glass Solar	24,900	0	0	24,900	17.27	24,900	23.26	0	0	0.00									
Glass Cond	5,668	0	0	5,668	3.93	5,668	5.29	-12,618	-12,618	8.67									
Wall Cond	38,849	0	0	38,849	26.95	38,849	36.29	-62,436	-62,436	42.89									
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00									
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00									
Infiltration	10,519	0	0	10,519	7.30	6,196	5.79	-15,022	-15,022	10.32									
Sub Total==>	111,368	0	0	111,368	77.26	107,045	100.00	-108,118	-108,118	74.28									
Internal Loads																			
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00									
People	0	0	0	0	0.00	0	0.00	0	0	0.00									
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00									
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00									
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00									
Outside Air	0	0	0	32,773	22.74	0	0.00	0	-37,443	25.72									
Sup. Fan Heat				0	0.00		0.00		0	0.00									
Ret. Fan Heat		0	0	0	0.00		0.00		0	0.00									
Duct Heat Pkqp		0	0	0	0.00		0.00		0	0.00									
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00									
Exhaust Heat		0	0	0	0.00		0.00		0	0.00									
Terminal Bypass		0	0	0	-0.00		0.00		0	0.00									
Grand Total==>	111,368	0	0	144,140	100.00	107,045	100.00	-108,118	-145,561	100.00									

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS		
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf)	(%)
Main Clg	12.0	144.1	5,913	77.9	64.2	68.5	58.7	56.3	64.2	4,342		
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	12.0	144.1								3,009	249	8

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	AIRFLOWS (cfm)		--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
					Type	Cooling	Heating	Clg % OA	12.7	Type	Clg	Htg
Main Htg	-145.6	5,913	62.3	84.5	Vent	750	750	Clg Cfm/Sqft	1.36	SADB	58.7	84.5
Aux Htg	0.0	0	0.0	0.0	Infil	241	301	Clg Cfm/Ton	492.29	Plenum	75.0	68.0
Preheat	-0.0	5,913	62.3	58.7	Supply	5,913	5,913	Clg Sqft/Ton	361.48	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	33.20	Ret/OA	77.9	62.3
Humidif	0.0	0	0.0	0.0	Return	5,913	5,913	No. People	50	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	750	750	Htg % OA	12.7	Fn MtrTD	0.0	0.0
Total	-145.6				Rm Exh	0	0	Htg Cfm/Sqft	1.36	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-33.52	Fn Frict	0.0	0.0

System 2 Block UH - UNIT HEATERS

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>	Mo/Hr: 0/ 0	*	Mo/Hr: 0/ 0	*	Mo/Hr: 13/ 1							
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0	*	OADB: 0	*	OADE: 23							
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0	0	0	0.00	*	0	0.00	*	-30,431	-30,431	31.25
Glass Solar	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0	0	0	0.00	*	0	0.00	*	-14,189	-14,189	14.57
Wall Cond	0	0	0	0	0.00	*	0	0.00	*	-24,806	-24,806	25.47
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0	0	0	0	0.00	*	0	0.00	*	-16,730	-16,730	17.18
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	-86,155	-86,155	88.47
Internal Loads												
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	-11,233	11.53
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkup	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	0	0	0	0	0.00	*	0	0.00	*	-86,155	-97,388	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total		Glass (sf) (%)
					Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	7,324	
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	0	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	7,324	
Totals	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Wall	3,351	
												280 8	

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	AIRFLOWS (cfm)		--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
					Vent	Cooling	Heating	Clg % OA	0.0	Type	Clg	Htg
Main Htg	-97.4	7,324	66.6	78.6	Infil	0	225	Clg Cfm/Sqft	0.00	SADB	0.0	78.6
Aux Htg	0.0	0	0.0	0.0	Supply	0	7,324	Clg Cfm/Ton	0.00	Plenum	0.0	68.0
Preheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	0.00	Return	0.0	68.0
Reheat	0.0	0	0.0	0.0	Return	0	7,324	No. People	0	Runarnd	0.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	0	225	Htg % OA	3.1	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-97.4				Auxil	0	0	Htg Btuh/Sqft	-13.30	Fn Frict	0.0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-207,681	0.0	-99,924	0.0	-149,506	0.0	-149,506	0.0	-149,506	0.0
2	32.9	30.7	-188,797	0.0	-153,496	0.0	-153,496	0.0	-153,496	0.0	-153,496	0.0
3	33.1	31.3	-155,129	0.0	-159,283	0.0	-159,283	0.0	-159,283	0.0	-159,283	0.0
4	33.9	32.1	-149,463	0.0	-159,906	0.0	-159,906	0.0	-159,906	0.0	-159,906	0.0
5	35.2	33.5	-148,853	0.0	-162,195	0.0	-162,195	0.0	-162,195	0.0	-162,195	0.0
6	37.0	35.4	-144,466	0.0	-160,416	0.0	-160,416	0.0	-160,416	0.0	-160,416	0.0
7	39.0	37.6	-136,929	0.0	-159,403	0.0	-159,403	0.0	-159,403	0.0	-159,403	0.0
8	41.3	40.1	-134,567	0.0	-152,908	0.0	-152,908	0.0	-152,908	0.0	-152,908	0.0
9	43.7	42.5	-120,768	0.0	-142,300	0.0	-142,300	0.0	-142,300	0.0	-142,300	0.0
10	46.1	44.0	-95,393	0.0	-127,560	0.0	-127,560	0.0	-127,560	0.0	-127,560	0.0
11	48.4	45.0	-62,398	0.0	-107,599	0.0	-107,599	0.0	-107,599	0.0	-107,599	0.0
12	50.5	45.6	-45,555	0.0	-89,074	0.0	-89,074	0.0	-89,074	0.0	-89,074	0.0
13	52.2	46.1	-34,696	0.0	-73,632	0.0	-73,632	0.0	-73,632	0.0	-73,632	0.0
14	53.5	46.4	-24,504	0.0	-59,557	0.0	-59,557	0.0	-59,557	0.0	-59,557	0.0
15	54.3	46.3	-15,205	0.0	-50,624	0.0	-50,624	0.0	-50,624	0.0	-50,624	0.0
16	54.6	46.1	-8,737	0.0	-46,712	0.0	-46,712	0.0	-46,712	0.0	-46,712	0.0
17	54.0	45.9	-8,721	0.0	-52,181	0.0	-52,181	0.0	-52,181	0.0	-52,181	0.0
18	52.5	45.0	-20,422	0.0	-65,222	0.0	-65,222	0.0	-65,222	0.0	-65,222	0.0
19	50.1	44.8	-31,208	0.0	-78,751	0.0	-78,751	0.0	-78,751	0.0	-78,751	0.0
20	47.1	43.3	-40,743	0.0	-91,105	0.0	-91,105	0.0	-91,105	0.0	-91,105	0.0
21	43.7	40.4	-46,738	0.0	-103,284	0.0	-103,284	0.0	-103,284	0.0	-103,284	0.0
22	40.4	37.3	-55,009	0.0	-116,962	0.0	-116,962	0.0	-116,962	0.0	-116,962	0.0
23	37.3	34.9	-60,798	0.0	-127,286	0.0	-127,286	0.0	-127,286	0.0	-127,286	0.0
24	34.9	32.6	-65,533	0.0	-137,822	0.0	-137,822	0.0	-137,822	0.0	-137,822	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-100,162	0.0	-78,249	0.0	-122,478	0.0	-122,478	0.0	-122,478	0.0
2	39.7	37.1	-109,751	0.0	-103,033	0.0	-130,446	0.0	-130,446	0.0	-130,446	0.0
3	37.8	35.1	-117,254	0.0	-138,549	0.0	-138,549	0.0	-138,549	0.0	-138,549	0.0
4	36.3	33.8	-123,060	0.0	-144,825	0.0	-144,825	0.0	-144,825	0.0	-144,825	0.0
5	35.1	32.6	-127,938	0.0	-152,761	0.0	-152,761	0.0	-152,761	0.0	-152,761	0.0
6	34.4	32.0	-131,569	0.0	-156,807	0.0	-156,807	0.0	-156,807	0.0	-156,807	0.0
7	34.1	31.9	-132,907	0.0	-162,941	0.0	-162,941	0.0	-162,941	0.0	-162,941	0.0
8	34.6	32.4	-129,253	0.0	-162,993	0.0	-162,993	0.0	-162,993	0.0	-162,993	0.0
9	36.0	33.8	-113,301	0.0	-155,645	0.0	-155,645	0.0	-155,645	0.0	-155,645	0.0
10	38.2	34.7	-86,123	0.0	-141,422	0.0	-141,422	0.0	-141,422	0.0	-141,422	0.0
11	40.9	36.2	-51,679	0.0	-124,859	0.0	-124,859	0.0	-124,859	0.0	-124,859	0.0
12	43.9	37.4	-40,231	0.0	-108,880	0.0	-108,880	0.0	-108,880	0.0	-108,880	0.0
13	46.9	39.4	-29,180	0.0	-87,139	0.0	-87,139	0.0	-87,139	0.0	-87,139	0.0
14	49.7	41.4	-19,582	0.0	-70,601	0.0	-70,601	0.0	-70,601	0.0	-70,601	0.0
15	51.8	42.8	-9,447	0.0	-59,411	0.0	-59,411	0.0	-59,411	0.0	-59,411	0.0
16	53.2	43.9	-1,855	0.0	-53,338	0.0	-53,338	0.0	-53,338	0.0	-53,338	0.0
17	53.7	44.2	0	0.0	-54,909	0.0	-54,909	0.0	-54,909	0.0	-54,909	0.0
18	53.4	44.4	-8,425	0.0	-60,772	0.0	-60,772	0.0	-60,772	0.0	-60,772	0.0
19	52.7	44.4	-22,056	0.0	-74,518	0.0	-74,518	0.0	-74,518	0.0	-74,518	0.0
20	51.5	45.2	-33,958	0.0	-82,487	0.0	-82,487	0.0	-82,487	0.0	-82,487	0.0
21	50.0	44.6	-42,533	0.0	-90,136	0.0	-90,136	0.0	-90,136	0.0	-90,136	0.0
22	48.1	43.3	-49,548	0.0	-97,856	0.0	-97,856	0.0	-97,856	0.0	-97,856	0.0
23	46.1	41.8	-55,688	0.0	-105,734	0.0	-105,734	0.0	-105,734	0.0	-105,734	0.0
24	43.9	40.1	-60,957	0.0	-112,505	0.0	-112,505	0.0	-112,505	0.0	-112,505	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-41,537	0.0	-27,473	0.0	-42,976	0.0	-42,976	0.0	-42,976	0.0
2	48.7	44.6	-50,796	0.0	-50,372	0.0	-56,416	0.0	-56,416	0.0	-56,416	0.0
3	46.6	42.9	-60,025	0.0	-55,205	0.0	-88,128	0.0	-88,128	0.0	-88,128	0.0
4	44.9	41.4	-66,109	0.0	-61,145	0.0	-97,145	0.0	-97,145	0.0	-97,145	0.0
5	43.9	40.8	-73,643	0.0	-64,598	0.0	-103,216	0.0	-103,216	0.0	-103,216	0.0
6	43.5	40.8	-75,964	0.0	-69,332	0.0	-110,572	0.0	-110,572	0.0	-110,572	0.0
7	44.0	41.4	-76,902	0.0	-70,717	0.0	-113,065	0.0	-113,065	0.0	-113,065	0.0
8	45.4	42.7	-69,444	0.0	-83,507	0.0	-109,250	0.0	-109,250	0.0	-109,250	0.0
9	47.7	44.3	-48,462	0.0	-97,503	0.0	-97,503	0.0	-97,503	0.0	-97,503	0.0
10	50.6	45.8	-23,720	0.0	-78,171	0.0	-78,171	0.0	-78,171	0.0	-78,171	0.0
11	53.9	47.4	-9,823	0.0	-55,183	0.0	-55,183	0.0	-55,183	0.0	-55,183	0.0
12	57.4	49.0	0	0.0	-37,604	0.0	-37,604	0.0	-37,604	0.0	-37,604	0.0
13	60.7	50.8	0	0.0	-29,721	0.0	-29,721	0.0	-29,721	0.0	-29,721	0.0
14	63.6	52.7	0	0.0	-19,537	0.0	-19,537	0.0	-19,537	0.0	-19,537	0.0
15	65.9	53.7	0	0.0	-11,102	0.0	-11,102	0.0	-11,102	0.0	-11,102	0.0
16	67.3	54.4	0	3.0	-5,363	0.0	-5,363	0.0	-5,363	0.0	-5,363	0.0
17	67.8	54.6	0	3.3	-733	0.0	-733	0.0	-733	0.0	-733	0.0
18	67.4	54.8	0	2.8	-1,559	0.0	-1,559	0.0	-1,559	0.0	-1,559	0.0
19	66.4	55.2	0	1.3	-9,028	0.0	-9,028	0.0	-9,028	0.0	-9,028	0.0
20	64.7	56.0	0	0.2	-13,962	0.0	-13,962	0.0	-13,962	0.0	-13,962	0.0
21	62.5	56.0	-7,929	0.0	-19,140	0.0	-19,140	0.0	-19,140	0.0	-19,140	0.0
22	60.0	54.1	-966	0.0	-25,825	0.0	-25,825	0.0	-25,825	0.0	-25,825	0.0
23	57.1	51.9	0	0.0	-30,408	0.0	-30,408	0.0	-30,408	0.0	-30,408	0.0
24	54.2	49.4	0	0.0	-36,985	0.0	-36,985	0.0	-36,985	0.0	-36,985	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	-3,973	0.0	0	0.0	-12,548	0.0	-12,548	0.0	-12,548	0.0
4	55.4	52.4	-10,083	0.0	-24,517	0.0	-30,127	0.0	-30,127	0.0	-30,127	0.0
5	54.2	51.4	-15,080	0.0	-33,844	0.0	-33,844	0.0	-33,844	0.0	-33,844	0.0
6	53.5	50.9	-16,597	0.0	-38,384	0.0	-38,384	0.0	-38,384	0.0	-38,384	0.0
7	53.2	51.1	-16,658	0.0	-40,329	0.0	-40,329	0.0	-40,329	0.0	-40,329	0.0
8	53.9	51.5	-10,924	0.0	-39,438	0.0	-39,438	0.0	-39,438	0.0	-39,438	0.0
9	55.9	52.1	0	0.0	-33,048	0.0	-33,048	0.0	-33,048	0.0	-33,048	0.0
10	58.9	53.2	0	0.0	-24,768	0.0	-24,768	0.0	-24,768	0.0	-24,768	0.0
11	62.6	55.2	0	0.0	-14,293	0.0	-14,293	0.0	-14,293	0.0	-14,293	0.0
12	66.5	57.3	0	0.0	-4,768	0.0	-4,768	0.0	-4,768	0.0	-4,768	0.0
13	70.2	59.6	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	5.4	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	6.1	0	0.7	0	0.7	0	0.7	0	0.7
18	74.9	61.7	0	5.7	0	1.8	0	1.8	0	1.8	0	1.8
19	73.7	62.0	0	4.4	0	1.3	0	1.3	0	1.3	0	1.3
20	72.1	62.4	0	3.1	0	0.7	0	0.7	0	0.7	0	0.7
21	70.2	63.3	0	2.1	0	0.2	0	0.2	0	0.2	0	0.2
22	68.0	62.5	0	1.4	-5,022	0.0	-5,022	0.0	-5,022	0.0	-5,022	0.0
23	65.7	60.5	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	-1,145	0.0	0	0.1	0	0.1	0	0.1	0	0.1
2	65.7	61.5	0	1.3	-4,151	0.0	-4,151	0.0	-4,151	0.0	-4,151	0.0
3	63.6	59.7	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	-2,683	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	-1,502	0.0	-5,808	0.0	-5,808	0.0	-5,808	0.0	-5,808	0.0
8	60.1	56.3	0	0.5	-16,912	0.0	-16,912	0.0	-16,912	0.0	-16,912	0.0
9	62.4	56.3	0	1.5	-10,375	0.0	-10,375	0.0	-10,375	0.0	-10,375	0.0
10	65.7	57.2	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	7.0	0	1.2	0	1.2	0	1.2	0	1.2
15	84.1	66.9	0	7.9	0	3.8	0	3.8	0	3.8	0	3.8
16	84.9	67.1	0	8.6	0	4.3	0	4.3	0	4.3	0	4.3
17	84.6	67.3	0	8.8	0	4.5	0	4.5	0	4.5	0	4.5
18	83.8	67.1	0	8.3	0	4.5	0	4.5	0	4.5	0	4.5
19	82.4	67.5	0	7.2	0	4.0	0	4.0	0	4.0	0	4.0
20	80.6	68.9	0	5.8	0	3.2	0	3.2	0	3.2	0	3.2
21	78.5	71.0	0	4.7	0	2.8	0	2.8	0	2.8	0	2.8
22	76.1	69.9	0	3.9	0	2.2	0	2.2	0	2.2	0	2.2
23	73.4	68.0	0	3.1	0	1.4	0	1.4	0	1.4	0	1.4
24	70.8	65.5	0	2.5	0	0.8	0	0.8	0	0.8	0	0.8

June			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	4.8	0	2.0	0	2.6	0	2.6	0	2.6
2	72.6	68.4	0	3.7	0	1.6	0	1.6	0	1.6	0	1.6
3	70.9	67.3	0	3.2	0	1.0	0	1.0	0	1.0	0	1.0
4	69.6	66.5	0	2.7	0	0.5	0	0.5	0	0.5	0	0.5
5	68.7	65.8	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	2.2	-2,086	0.0	-2,086	0.0	-2,086	0.0	-2,086	0.0
7	69.0	66.3	0	2.2	-3,951	0.0	-3,951	0.0	-3,951	0.0	-3,951	0.0
8	70.6	66.9	0	3.0	0	0.2	0	0.2	0	0.2	0	0.2
9	73.0	67.7	0	4.4	0	0.9	0	0.9	0	0.9	0	0.9
10	76.1	68.1	0	5.6	0	1.9	0	1.9	0	1.9	0	1.9
11	79.5	69.1	0	7.0	0	2.9	0	2.9	0	2.9	0	2.9
12	82.9	70.1	0	8.2	0	4.0	0	4.0	0	4.0	0	4.0
13	86.0	71.0	0	9.3	0	4.8	0	4.8	0	4.8	0	4.8
14	88.4	72.5	0	10.3	0	6.1	0	6.1	0	6.1	0	6.1
15	90.0	74.0	0	11.3	0	7.3	0	7.3	0	7.3	0	7.3
16	90.5	73.7	0	11.8	0	7.6	0	7.6	0	7.6	0	7.6
17	90.3	74.2	0	12.0	0	7.9	0	7.9	0	7.9	0	7.9
18	89.4	73.9	0	11.6	0	7.9	0	7.9	0	7.9	0	7.9
19	88.1	74.5	0	10.4	0	7.3	0	7.3	0	7.3	0	7.3
20	86.4	75.3	0	8.7	0	6.3	0	6.3	0	6.3	0	6.3
21	84.3	76.5	0	7.7	0	5.9	0	5.9	0	5.9	0	5.9
22	81.9	75.7	0	6.7	0	5.4	0	5.4	0	5.4	0	5.4
23	79.5	74.0	0	5.9	0	4.5	0	4.5	0	4.5	0	4.5
24	77.0	72.1	0	5.1	0	3.4	0	3.4	0	3.4	0	3.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	4.7	0	1.3	0	1.7	0	1.7	0	1.7
2	72.4	69.4	0	3.5	0	1.1	0	1.2	0	1.2	0	1.2
3	71.3	68.4	0	3.2	0	0.7	0	0.7	0	0.7	0	0.7
4	70.5	67.7	0	2.7	0	0.2	0	0.2	0	0.2	0	0.2
5	70.0	67.4	0	2.4	-1,526	0.0	-1,526	0.0	-1,526	0.0	-1,526	0.0
6	69.9	67.5	0	2.2	-3,918	0.0	-3,918	0.0	-3,918	0.0	-3,918	0.0
7	70.3	68.0	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	4.3	0	0.8	0	0.8	0	0.8	0	0.8
10	76.2	70.6	0	5.5	0	2.3	0	2.3	0	2.3	0	2.3
11	78.9	71.8	0	6.5	0	3.2	0	3.2	0	3.2	0	3.2
12	81.4	73.0	0	8.0	0	4.3	0	4.3	0	4.3	0	4.3
13	83.4	74.4	0	9.0	0	5.3	0	5.3	0	5.3	0	5.3
14	84.8	74.8	0	9.7	0	5.9	0	5.9	0	5.9	0	5.9
15	85.2	75.0	0	10.7	0	6.7	0	6.7	0	6.7	0	6.7
16	85.1	75.0	0	11.2	0	7.1	0	7.1	0	7.1	0	7.1
17	84.6	74.7	0	11.5	0	6.8	0	6.8	0	6.8	0	6.8
18	83.8	74.6	0	10.9	0	6.8	0	6.8	0	6.8	0	6.8
19	82.7	74.6	0	9.7	0	6.3	0	6.3	0	6.3	0	6.3
20	81.4	74.4	0	8.3	0	5.3	0	5.3	0	5.3	0	5.3
21	79.9	74.9	0	7.2	0	4.9	0	4.9	0	4.9	0	4.9
22	78.4	74.0	0	6.2	0	4.0	0	4.0	0	4.0	0	4.0
23	76.8	72.7	0	5.6	0	3.2	0	3.2	0	3.2	0	3.2
24	75.2	71.6	0	4.9	0	2.4	0	2.4	0	2.4	0	2.4

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	4.4	0	1.6	0	2.1	0	2.1	0	2.1
2	73.2	70.3	0	3.4	0	1.4	0	1.4	0	1.4	0	1.4
3	71.7	68.9	0	2.7	0	0.9	0	0.9	0	0.9	0	0.9
4	70.4	67.8	0	2.4	0	0.4	0	0.4	0	0.4	0	0.4
5	69.5	66.8	0	2.1	-2,210	0.0	-2,210	0.0	-2,210	0.0	-2,210	0.0
6	68.9	66.4	0	1.9	-5,047	0.0	-5,047	0.0	-5,047	0.0	-5,047	0.0
7	68.7	66.4	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	4.7	0	0.3	0	0.3	0	0.3	0	0.3
11	76.2	68.8	0	6.1	0	2.1	0	2.1	0	2.1	0	2.1
12	79.3	70.3	0	7.1	0	3.1	0	3.1	0	3.1	0	3.1
13	82.3	72.2	0	8.4	0	4.1	0	4.1	0	4.1	0	4.1
14	84.7	73.7	0	9.5	0	5.3	0	5.3	0	5.3	0	5.3
15	86.3	74.6	0	10.4	0	6.3	0	6.3	0	6.3	0	6.3
16	86.8	75.1	0	11.2	0	6.9	0	6.9	0	6.9	0	6.9
17	86.6	75.1	0	11.0	0	7.0	0	7.0	0	7.0	0	7.0
18	86.0	75.3	0	10.5	0	7.1	0	7.1	0	7.1	0	7.1
19	85.1	76.0	0	9.0	0	6.2	0	6.2	0	6.2	0	6.2
20	83.8	76.8	0	7.7	0	5.5	0	5.5	0	5.5	0	5.5
21	82.3	77.2	0	6.9	0	5.2	0	5.2	0	5.2	0	5.2
22	80.6	76.3	0	5.8	0	4.6	0	4.6	0	4.6	0	4.6
23	78.7	75.3	0	5.1	0	3.7	0	3.7	0	3.7	0	3.7
24	76.8	73.7	0	4.3	0	2.9	0	2.9	0	2.9	0	2.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	1.2	-4,696	0.0	-4,696	0.0	-4,696	0.0	-4,696	0.0
3	65.8	63.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	0.4	-16,627	0.0	-16,627	0.0	-16,627	0.0	-16,627	0.0
9	64.7	61.8	0	1.1	-11,433	0.0	-11,433	0.0	-11,433	0.0	-11,433	0.0
10	67.6	62.1	0	2.1	-3,175	0.0	-3,175	0.0	-3,175	0.0	-3,175	0.0
11	71.1	63.1	0	3.3	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	6.7	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0	70.0	0	7.7	0	3.1	0	3.1	0	3.1	0	3.1
16	83.7	70.5	0	8.4	0	3.9	0	3.9	0	3.9	0	3.9
17	83.4	70.5	0	8.1	0	4.3	0	4.3	0	4.3	0	4.3
18	82.8	70.9	0	7.3	0	4.0	0	4.0	0	4.0	0	4.0
19	81.6	72.7	0	5.8	0	3.1	0	3.1	0	3.1	0	3.1
20	80.1	74.7	0	4.9	0	3.2	0	3.2	0	3.2	0	3.2
21	78.3	74.1	0	4.1	0	2.8	0	2.8	0	2.8	0	2.8
22	76.3	72.4	0	3.3	0	2.0	0	2.0	0	2.0	0	2.0
23	74.1	70.7	0	2.7	0	1.4	0	1.4	0	1.4	0	1.4
24	71.8	68.9	0	2.1	0	0.7	0	0.7	0	0.7	0	0.7

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-15,303	0.0	-40,183	0.0	-40,183	0.0	-40,183	0.0
2	50.1	48.6	0	0.0	-44,944	0.0	-44,944	0.0	-44,944	0.0	-44,944	0.0
3	48.4	46.9	-17,553	0.0	-49,076	0.0	-49,076	0.0	-49,076	0.0	-49,076	0.0
4	47.1	45.8	-36,148	0.0	-54,799	0.0	-54,799	0.0	-54,799	0.0	-54,799	0.0
5	46.3	44.8	-39,283	0.0	-58,315	0.0	-58,315	0.0	-89,890	0.0	-89,890	0.0
6	46.0	44.5	-40,622	0.0	-63,026	0.0	-72,512	0.0	-98,669	0.0	-98,669	0.0
7	46.8	45.3	-40,978	0.0	-63,714	0.0	-99,723	0.0	-99,723	0.0	-99,723	0.0
8	48.9	47.5	-38,605	0.0	-60,966	0.0	-94,435	0.0	-94,435	0.0	-94,435	0.0
9	52.2	49.9	-30,293	0.0	-56,002	0.0	-79,500	0.0	-79,500	0.0	-79,500	0.0
10	56.2	52.5	-17,668	0.0	-45,449	0.0	-55,411	0.0	-55,411	0.0	-55,411	0.0
11	60.4	54.4	-2,946	0.0	-34,677	0.0	-34,677	0.0	-34,677	0.0	-34,677	0.0
12	64.4	56.0	0	0.0	-25,081	0.0	-25,081	0.0	-25,081	0.0	-25,081	0.0
13	67.7	57.3	0	0.0	-15,302	0.0	-15,302	0.0	-15,302	0.0	-15,302	0.0
14	69.8	58.2	0	0.0	-6,142	0.0	-6,142	0.0	-6,142	0.0	-6,142	0.0
15	70.6	58.1	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	3.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.1	-10,997	0.0	-10,997	0.0	-10,997	0.0	-10,997	0.0
21	62.1	59.4	-6,922	0.0	-17,510	0.0	-17,510	0.0	-17,510	0.0	-17,510	0.0
22	59.6	57.3	-893	0.0	-23,449	0.0	-23,449	0.0	-23,449	0.0	-23,449	0.0
23	57.0	55.1	0	0.0	-27,596	0.0	-27,596	0.0	-27,596	0.0	-27,596	0.0
24	54.5	52.7	0	0.0	-33,132	0.0	-33,132	0.0	-33,132	0.0	-33,132	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-33,405	0.0	-42,583	0.0	-42,583	0.0	-42,583	0.0	-42,583	0.0
2	49.4	47.3	-37,855	0.0	-48,195	0.0	-49,807	0.0	-49,807	0.0	-49,807	0.0
3	47.2	45.3	-43,225	0.0	-54,534	0.0	-83,777	0.0	-83,777	0.0	-83,777	0.0
4	45.3	43.4	-46,931	0.0	-58,980	0.0	-92,362	0.0	-92,362	0.0	-92,362	0.0
5	43.9	42.2	-52,961	0.0	-62,731	0.0	-98,950	0.0	-98,950	0.0	-98,950	0.0
6	43.0	41.4	-79,743	0.0	-67,814	0.0	-106,832	0.0	-106,832	0.0	-106,832	0.0
7	42.7	41.2	-79,594	0.0	-70,234	0.0	-111,076	0.0	-111,076	0.0	-111,076	0.0
8	43.5	42.0	-74,712	0.0	-75,800	0.0	-114,035	0.0	-114,035	0.0	-114,035	0.0
9	45.9	44.0	-55,018	0.0	-101,612	0.0	-101,612	0.0	-101,612	0.0	-101,612	0.0
10	49.4	46.6	-30,474	0.0	-82,250	0.0	-82,250	0.0	-82,250	0.0	-82,250	0.0
11	53.8	48.6	-16,864	0.0	-60,571	0.0	-60,571	0.0	-60,571	0.0	-60,571	0.0
12	58.4	50.6	-2,794	0.0	-43,083	0.0	-43,083	0.0	-43,083	0.0	-43,083	0.0
13	62.8	52.6	0	0.0	-32,757	0.0	-32,757	0.0	-32,757	0.0	-32,757	0.0
14	66.3	54.5	0	0.0	-22,621	0.0	-22,621	0.0	-22,621	0.0	-22,621	0.0
15	68.7	55.7	0	0.0	-13,277	0.0	-13,277	0.0	-13,277	0.0	-13,277	0.0
16	69.5	56.1	0	0.4	-8,253	0.0	-8,253	0.0	-8,253	0.0	-8,253	0.0
17	69.2	55.8	0	1.9	-7,150	0.0	-7,150	0.0	-7,150	0.0	-7,150	0.0
18	68.3	57.0	0	0.9	-12,505	0.0	-12,505	0.0	-12,505	0.0	-12,505	0.0
19	66.9	59.4	0	0.0	-15,819	0.0	-15,819	0.0	-15,819	0.0	-15,819	0.0
20	65.0	59.4	0	0.0	-19,900	0.0	-19,900	0.0	-19,900	0.0	-19,900	0.0
21	62.8	58.2	0	0.0	-21,920	0.0	-21,920	0.0	-21,920	0.0	-21,920	0.0
22	60.2	56.1	0	0.0	-27,823	0.0	-27,823	0.0	-27,823	0.0	-27,823	0.0
23	57.5	54.0	0	0.0	-31,340	0.0	-31,340	0.0	-31,340	0.0	-31,340	0.0
24	54.7	51.7	-16,428	0.0	-37,158	0.0	-37,158	0.0	-37,158	0.0	-37,158	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-49,969	0.0	-66,425	0.0	-101,485	0.0	-101,485	0.0	-101,485	0.0
2	43.2	41.1	-58,124	0.0	-70,520	0.0	-109,373	0.0	-109,373	0.0	-109,373	0.0
3	41.8	39.8	-87,377	0.0	-74,202	0.0	-115,927	0.0	-115,927	0.0	-115,927	0.0
4	40.7	38.7	-93,817	0.0	-91,093	0.0	-122,223	0.0	-122,223	0.0	-122,223	0.0
5	40.1	38.4	-98,705	0.0	-126,843	0.0	-126,843	0.0	-126,843	0.0	-126,843	0.0
6	39.9	38.4	-100,941	0.0	-131,020	0.0	-131,020	0.0	-131,020	0.0	-131,020	0.0
7	40.5	39.0	-101,327	0.0	-134,832	0.0	-134,832	0.0	-134,832	0.0	-134,832	0.0
8	42.2	40.7	-99,307	0.0	-133,434	0.0	-133,434	0.0	-133,434	0.0	-133,434	0.0
9	44.9	43.4	-84,286	0.0	-123,229	0.0	-123,229	0.0	-123,229	0.0	-123,229	0.0
10	48.2	45.8	-58,771	0.0	-105,319	0.0	-105,319	0.0	-105,319	0.0	-105,319	0.0
11	51.7	48.3	-38,068	0.0	-82,936	0.0	-82,936	0.0	-82,936	0.0	-82,936	0.0
12	55.0	50.7	-25,725	0.0	-61,642	0.0	-61,642	0.0	-61,642	0.0	-61,642	0.0
13	57.7	52.0	-17,166	0.0	-48,341	0.0	-48,341	0.0	-48,341	0.0	-48,341	0.0
14	59.5	52.6	-7,330	0.0	-40,207	0.0	-40,207	0.0	-40,207	0.0	-40,207	0.0
15	60.1	52.7	0	0.0	-34,111	0.0	-34,111	0.0	-34,111	0.0	-34,111	0.0
16	59.9	52.6	0	0.0	-30,494	0.0	-30,494	0.0	-30,494	0.0	-30,494	0.0
17	59.2	52.1	0	0.0	-31,658	0.0	-31,658	0.0	-31,658	0.0	-31,658	0.0
18	58.2	51.8	0	0.0	-36,691	0.0	-36,691	0.0	-36,691	0.0	-36,691	0.0
19	56.8	52.2	-12,486	0.0	-41,250	0.0	-41,250	0.0	-41,250	0.0	-41,250	0.0
20	55.0	51.4	-23,107	0.0	-45,003	0.0	-45,003	0.0	-45,003	0.0	-45,003	0.0
21	53.1	50.1	-29,971	0.0	-61,069	0.0	-61,069	0.0	-61,069	0.0	-61,069	0.0
22	51.0	48.1	-36,181	0.0	-74,767	0.0	-74,767	0.0	-74,767	0.0	-74,767	0.0
23	48.9	46.2	-41,313	0.0	-83,850	0.0	-83,850	0.0	-83,850	0.0	-83,850	0.0
24	46.9	44.1	-45,820	0.0	-92,019	0.0	-92,019	0.0	-92,019	0.0	-92,019	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 21714 (9 BUILDINGS)

-----CARD 08-- Climatic Information -----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	BUILDING 21714

-----CARD 20-- General Room Parameters -----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	OFFICE AREA	209.25	20.75	2	0		13			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	STORAGE	209.25	35	2	0		13			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50					HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				182			
2	1	YES				182			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	20.75	12		8	270			
1	2	209.25	12		8	0			
1	3	20.75	12		6	90			
2	1	35	12		6	90			
2	2	209.25	12		6	180			
2	3	35	12		6	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	54.2	10	1	1.03	.87					
2	2	4	3.5	20	1.03	.87					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						



-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
2	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	50	PEOPLE	255	255	8600	WATTS	SUSFLUOR				
2	15	PEOPLE	315	435	11000	WATTS	SUSFLUOR				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	ALL P.C.'S	19.2	KW	FGHEAT						
1	2	ALL PRINTERS	2.4	KW	FGHEAT						
1	3	COPIER	2.4	KW	FGHEAT						
1	4	FRIG	4.8	KW	FGHEAT						
1	5	MISS.	11.4	KW	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

## -----CARD 40--- System Type -----

```

-----OPTIONAL VENTILATION SYSTEM-----
System      Ventil      Fan
Set System  Deck   Cooling Heating Cooling Heating Static
Number Type  Location SADBvh SADEVh Schedule Schedule Pressure
1          FC
2          UH

```

## -----CARD 41-- Zone Assignment -----

```

System
Set      Ref #1      Ref #2      Ref #3      Ref #4      Ref #5      Ref #6
Number   Begin  End    Begin  End    Begin  End    Begin  End    Begin  End    Begin  End
1         1     1
2         2     2

```

## -----CARD 42--- Fan SP and Duct Parameters-----

```

System Cool Heat Return Mn Exh Aux Rm Exh Cool Return Supply Supply Return
Set Fan Fan Fan Fan Fan Fan Fan Mtr Fan Mtr Duct Duct Air
Number SP SP SP SP SP SP Loc Loc Ht Gn Loc Path

```

1  
2

## -----CARD 48-- Cooling Capacity Overrides -----

```

System      Misc      -----MAIN COOLING----- ---AUX COOLING---
Set People Lights Loads Capacity Capacity Capacity Capacity Capacity Capacity
Number Variance Variance Variance Value Units Sizing Location Value Units
1          75
2          75

```

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHO FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL  
UH UNIT HEATERS

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHO FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Perçent
0		100
24		

```
*****  
*****  
**  
**          TRACE    600    ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORPS OF ENGINEERS  
BON  
BUILDING 29719 (4 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12: 6:19 8/15/94  
Dataset Name: FGTYP3B .TM



System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK		
Peaked at Time ==> Mo/Hr: 6/17					Mo/Hr: 6/17					Mo/Hr: 13/ 1		
Outside Air ==> OADB/WB/HR: 98/ 74/ 91.0					OADB: 98					OADB: 23		
Envelope Loads	Space Sens.#Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)		
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00		
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00		
Roof Cond	31,432	0	0	31,432	25.12	31,432	29.36	-18,041	-18,041	14.57		
Glass Solar	24,900	0	0	24,900	19.90	24,900	23.26	0	0	0.00		
Glass Cond	5,668	0	0	5,668	4.53	5,668	5.29	-12,618	-12,618	10.19		
Wall Cond	38,849	0	0	38,849	31.05	38,849	36.29	-62,436	-62,436	50.42		
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00		
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00		
Infiltration	10,519	0	0	10,519	8.41	6,196	5.79	-15,022	-15,022	12.13		
Sub Total==>	111,368	0	0	111,368	89.00	107,045	100.00	-108,118	-108,118	87.30		
Internal Loads												
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00		
People	0	0	0	0	0.00	0	0.00	0	0	0.00		
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00		
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00		
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00		
Outside Air	0	0	0	13,765	11.00	0	0.00	0	-15,726	12.70		
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00		
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00		
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00		
Grand Total==>	111,368	0	0	125,132	100.00	107,045	100.00	-108,118	-123,844	100.00		

-----COOLING COIL SELECTION-----									-----AREAS-----			
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	10.4	125.1	6,409	76.1	63.2	66.5	59.9	56.8	64.3	4,342		
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	10.4	125.1								4,342	0	0
										3,009	249	8

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg	
Main Htg	-123.8	6,409	65.8	83.2	Vent	315	315	4.9	1.48	SADB	59.9	83.2	
Aux Htg	0.0	0	0.0	0.0	Infly	241	301	Clg Cfm/Sqft	614.60	Plenum	75.0	68.0	
Preheat	-0.0	6,409	65.8	59.9	Supply	6,409	6,409	Clg Sqft/Ton	416.39	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	28.82	Ret/OA	76.1	65.8	
Humidif	0.0	0	0.0	0.0	Return	6,409	6,409	No. People	21	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Exhaust	315	315	Htg % OA	4.9	Fn MtrTD	0.0	0.0	
Total	-123.8				Rm Exh	0	0	Htg Cfm/Sqft	1.48	Fn BldTD	0.0	0.0	
					Auxil	0	0	Htg Btuh/Sqft	-28.52	Fn Frict	0.0	0.0	

System 2 Block UH - UNIT HEATERS

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==> Mo/Hr: 0/ 0 \* Mo/Hr: 0/ 0 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 0/ 0/ 0.0 \* OADB: 0 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0	0	0	0.00	*	0	0.00	*	-30,431	-30,431	35.32
Glass Solar	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0	0	0	0.00	*	0	0.00	*	-14,189	-14,189	16.47
Wall Cond	0	0	0	0	0.00	*	0	0.00	*	-24,806	-24,806	28.79
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0	0	0	0	0.00	*	0	0.00	*	-16,730	-16,730	19.42
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	-86,155	-86,155	100.00
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0	0.00	*		0.00	*		0	0.00
Duct Heat PkUp		0	0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==>	0	0	0	0	0.00	*	0	0.00	*	-86,155	-86,155	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Part		
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Totals	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	7,324	0 0
										Wall	3,351	280 8

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg
Main Htg	-86.2	7,324	68.0	78.6	Vent	0	0	0.0	0.0	SADB	0.0	78.6
Aux Htg	0.0	0	0.0	0.0	Infil	0	335	0.0	0.0	Plenum	0.0	68.0
Preheat	0.0	0	0.0	0.0	Supply	0	7,324	0.0	0.0	Return	0.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	0.0	0.0	Ret/OA	0.0	68.0
Humidif	0.0	0	0.0	0.0	Return	0	7,324	0.0	0	Runarnd	0.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	0	0	0.0	0.0	Fn MtrTD	0.0	0.0
Total	-86.2				Rm Exh	0	0	1.00	1.00	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-11.76	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-189,622	0.0	-76,297	0.0	-121,242	0.0	-121,242	0.0	-121,242	0.0
2	32.9	30.7	-167,889	0.0	-78,639	0.0	-124,866	0.0	-124,866	0.0	-124,866	0.0
3	33.1	31.3	-135,874	0.0	-127,834	0.0	-130,799	0.0	-130,799	0.0	-130,799	0.0
4	33.9	32.1	-127,981	0.0	-132,008	0.0	-132,008	0.0	-132,008	0.0	-132,008	0.0
5	35.2	33.5	-127,044	0.0	-135,249	0.0	-135,249	0.0	-135,249	0.0	-135,249	0.0
6	37.0	35.4	-122,959	0.0	-134,788	0.0	-134,788	0.0	-134,788	0.0	-134,788	0.0
7	39.0	37.6	-116,207	0.0	-135,240	0.0	-135,240	0.0	-135,240	0.0	-135,240	0.0
8	41.3	40.1	-115,236	0.0	-130,429	0.0	-130,429	0.0	-130,429	0.0	-130,429	0.0
9	43.7	42.5	-103,488	0.0	-121,578	0.0	-121,578	0.0	-121,578	0.0	-121,578	0.0
10	46.1	44.0	-80,529	0.0	-108,596	0.0	-108,596	0.0	-108,596	0.0	-108,596	0.0
11	48.4	45.0	-50,243	0.0	-90,318	0.0	-90,318	0.0	-90,318	0.0	-90,318	0.0
12	50.5	45.6	-39,233	0.0	-73,332	0.0	-73,332	0.0	-73,332	0.0	-73,332	0.0
13	52.2	46.1	-29,629	0.0	-59,134	0.0	-59,134	0.0	-59,134	0.0	-59,134	0.0
14	53.5	46.4	-20,257	0.0	-47,803	0.0	-47,803	0.0	-47,803	0.0	-47,803	0.0
15	54.3	46.3	-11,248	0.0	-41,527	0.0	-41,527	0.0	-41,527	0.0	-41,527	0.0
16	54.6	46.1	-4,490	0.0	-37,754	0.0	-37,754	0.0	-37,754	0.0	-37,754	0.0
17	54.0	45.9	-3,750	0.0	-37,305	0.0	-37,305	0.0	-37,305	0.0	-37,305	0.0
18	52.5	45.0	-14,293	0.0	-44,088	0.0	-44,088	0.0	-44,088	0.0	-44,088	0.0
19	50.1	44.8	-23,728	0.0	-62,715	0.0	-62,715	0.0	-62,715	0.0	-62,715	0.0
20	47.1	43.3	-31,911	0.0	-72,873	0.0	-72,873	0.0	-72,873	0.0	-72,873	0.0
21	43.7	40.4	-36,748	0.0	-82,562	0.0	-82,562	0.0	-82,562	0.0	-82,562	0.0
22	40.4	37.3	-43,958	0.0	-93,824	0.0	-93,824	0.0	-93,824	0.0	-93,824	0.0
23	37.3	34.9	-48,927	0.0	-101,877	0.0	-101,877	0.0	-101,877	0.0	-101,877	0.0
24	34.9	32.6	-53,033	0.0	-110,656	0.0	-110,656	0.0	-110,656	0.0	-110,656	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-81,051	0.0	-63,626	0.0	-100,291	0.0	-100,291	0.0	-100,291	0.0
2	39.7	37.1	-89,907	0.0	-67,263	0.0	-106,795	0.0	-106,795	0.0	-106,795	0.0
3	37.8	35.1	-96,825	0.0	-70,991	0.0	-113,507	0.0	-113,507	0.0	-113,507	0.0
4	36.3	33.8	-102,192	0.0	-118,685	0.0	-118,685	0.0	-118,685	0.0	-118,685	0.0
5	35.1	32.6	-106,923	0.0	-125,742	0.0	-125,742	0.0	-125,742	0.0	-125,742	0.0
6	34.4	32.0	-110,847	0.0	-129,276	0.0	-129,276	0.0	-129,276	0.0	-129,276	0.0
7	34.1	31.9	-112,918	0.0	-135,190	0.0	-135,190	0.0	-135,190	0.0	-135,190	0.0
8	34.6	32.4	-110,581	0.0	-135,608	0.0	-135,608	0.0	-135,608	0.0	-135,608	0.0
9	36.0	33.8	-96,460	0.0	-129,285	0.0	-129,285	0.0	-129,285	0.0	-129,285	0.0
10	38.2	34.7	-71,479	0.0	-116,673	0.0	-116,673	0.0	-116,673	0.0	-116,673	0.0
11	40.9	36.2	-43,620	0.0	-102,086	0.0	-102,086	0.0	-102,086	0.0	-102,086	0.0
12	43.9	37.4	-33,668	0.0	-88,305	0.0	-88,305	0.0	-88,305	0.0	-88,305	0.0
13	46.9	39.4	-23,775	0.0	-68,760	0.0	-68,760	0.0	-68,760	0.0	-68,760	0.0
14	49.7	41.4	-14,900	0.0	-54,562	0.0	-54,562	0.0	-54,562	0.0	-54,562	0.0
15	51.8	42.8	-5,055	0.0	-48,001	0.0	-48,001	0.0	-48,001	0.0	-48,001	0.0
16	53.2	43.9	0	0.0	-42,156	0.0	-42,156	0.0	-42,156	0.0	-42,156	0.0
17	53.7	44.2	0	0.0	-39,707	0.0	-39,707	0.0	-39,707	0.0	-39,707	0.0
18	53.4	44.4	0	0.0	-43,247	0.0	-43,247	0.0	-43,247	0.0	-43,247	0.0
19	52.7	44.4	-10,251	0.0	-60,386	0.0	-60,386	0.0	-60,386	0.0	-60,386	0.0
20	51.5	45.2	-25,126	0.0	-67,476	0.0	-67,476	0.0	-67,476	0.0	-67,476	0.0
21	50.0	44.6	-32,688	0.0	-74,027	0.0	-74,027	0.0	-74,027	0.0	-74,027	0.0
22	48.1	43.3	-38,738	0.0	-80,356	0.0	-80,356	0.0	-80,356	0.0	-80,356	0.0
23	46.1	41.8	-44,106	0.0	-86,769	0.0	-86,769	0.0	-86,769	0.0	-86,769	0.0
24	43.9	40.1	-48,844	0.0	-91,930	0.0	-91,930	0.0	-91,930	0.0	-91,930	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	51.3 46.8	-29,894 0.0	0 0.0	-32,986 0.0	-32,986 0.0	-32,986 0.0	-32,986 0.0				
2	48.7 44.6	-38,275 0.0	-39,127 0.0	-39,127 0.0	-39,127 0.0	-39,127 0.0	-39,127 0.0				
3	46.6 42.9	-46,844 0.0	-42,947 0.0	-42,947 0.0	-42,947 0.0	-42,947 0.0	-42,947 0.0				
4	44.9 41.4	-52,343 0.0	-48,066 0.0	-66,768 0.0	-72,863 0.0	-72,863 0.0	-72,863 0.0				
5	43.9 40.8	-59,730 0.0	-51,037 0.0	-82,641 0.0	-82,641 0.0	-82,641 0.0	-82,641 0.0				
6	43.5 40.8	-62,418 0.0	-55,578 0.0	-89,704 0.0	-89,704 0.0	-89,704 0.0	-89,704 0.0				
7	44.0 41.4	-64,234 0.0	-57,204 0.0	-92,562 0.0	-92,562 0.0	-92,562 0.0	-92,562 0.0				
8	45.4 42.7	-58,387 0.0	-56,984 0.0	-89,772 0.0	-89,772 0.0	-89,772 0.0	-89,772 0.0				
9	47.7 44.3	-39,676 0.0	-52,953 0.0	-79,710 0.0	-79,710 0.0	-79,710 0.0	-79,710 0.0				
10	50.6 45.8	-19,714 0.0	-46,689 0.0	-62,502 0.0	-62,502 0.0	-62,502 0.0	-62,502 0.0				
11	53.9 47.4	-7,796 0.0	-40,014 0.0	-41,930 0.0	-41,930 0.0	-41,930 0.0	-41,930 0.0				
12	57.4 49.0	0 0.0	-30,558 0.0	-30,558 0.0	-30,558 0.0	-30,558 0.0	-30,558 0.0				
13	60.7 50.8	0 0.0	-24,268 0.0	-24,268 0.0	-24,268 0.0	-24,268 0.0	-24,268 0.0				
14	63.6 52.7	0 0.0	-15,484 0.0	-15,484 0.0	-15,484 0.0	-15,484 0.0	-15,484 0.0				
15	65.9 53.7	0 0.0	-8,158 0.0	-8,158 0.0	-8,158 0.0	-8,158 0.0	-8,158 0.0				
16	67.3 54.4	0 2.7	-3,095 0.0	-3,095 0.0	-3,095 0.0	-3,095 0.0	-3,095 0.0				
17	67.8 54.6	0 3.3	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
18	67.4 54.8	0 3.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
19	66.4 55.2	0 1.6	-4,653 0.0	-4,653 0.0	-4,653 0.0	-4,653 0.0	-4,653 0.0				
20	64.7 56.0	0 0.6	-10,439 0.0	-10,439 0.0	-10,439 0.0	-10,439 0.0	-10,439 0.0				
21	62.5 56.0	-2,234 0.0	-14,556 0.0	-14,556 0.0	-14,556 0.0	-14,556 0.0	-14,556 0.0				
22	60.0 54.1	0 0.0	-20,033 0.0	-20,033 0.0	-20,033 0.0	-20,033 0.0	-20,033 0.0				
23	57.1 51.9	0 0.0	-23,217 0.0	-23,217 0.0	-23,217 0.0	-23,217 0.0	-23,217 0.0				
24	54.2 49.4	0 0.0	-28,395 0.0	-28,395 0.0	-28,395 0.0	-28,395 0.0	-28,395 0.0				

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	61.0 56.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
2	58.9 54.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
3	57.0 53.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
4	55.4 52.4	0 0.0	0 0.0	-10,691 0.0	-10,691 0.0	-10,691 0.0	-10,691 0.0				
5	54.2 51.4	-10,640 0.0	-24,143 0.0	-25,253 0.0	-25,253 0.0	-25,253 0.0	-25,253 0.0				
6	53.5 50.9	-12,398 0.0	-29,456 0.0	-29,456 0.0	-29,456 0.0	-29,456 0.0	-29,456 0.0				
7	53.2 51.1	-12,991 0.0	-31,256 0.0	-31,256 0.0	-31,256 0.0	-31,256 0.0	-31,256 0.0				
8	53.9 51.5	-8,269 0.0	-30,703 0.0	-30,703 0.0	-30,703 0.0	-30,703 0.0	-30,703 0.0				
9	55.9 52.1	0 0.0	-25,278 0.0	-25,278 0.0	-25,278 0.0	-25,278 0.0	-25,278 0.0				
10	58.9 53.2	0 0.0	-18,446 0.0	-18,446 0.0	-18,446 0.0	-18,446 0.0	-18,446 0.0				
11	62.6 55.2	0 0.0	-9,756 0.0	-9,756 0.0	-9,756 0.0	-9,756 0.0	-9,756 0.0				
12	66.5 57.3	0 0.0	-2,114 0.0	-2,114 0.0	-2,114 0.0	-2,114 0.0	-2,114 0.0				
13	70.2 59.6	0 2.2	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
14	73.2 61.0	0 4.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
15	75.2 62.2	0 5.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
16	75.9 62.2	0 5.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
17	75.6 62.0	0 5.8	0 0.6	0 0.6	0 0.6	0 0.6	0 0.6				
18	74.9 61.7	0 5.5	0 1.8	0 1.8	0 1.8	0 1.8	0 1.8				
19	73.7 62.0	0 4.3	0 1.3	0 1.3	0 1.3	0 1.3	0 1.3				
20	72.1 62.4	0 3.1	0 0.8	0 0.8	0 0.8	0 0.8	0 0.8				
21	70.2 63.3	0 2.2	0 0.4	0 0.4	0 0.4	0 0.4	0 0.4				
22	68.0 62.5	0 1.6	-1,643 0.0	-1,643 0.0	-1,643 0.0	-1,643 0.0	-1,643 0.0				
23	65.7 60.5	0 0.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				
24	63.4 58.5	0 0.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0				

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.7	0	0.4	0	0.4	0	0.4	0	0.4
2	65.7	61.5	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	-126	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	5.4	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	6.2	0	0.9	0	0.9	0	0.9	0	0.9
15	84.1	66.9	0	7.0	0	3.4	0	3.4	0	3.4	0	3.4
16	84.9	67.1	0	7.7	0	3.9	0	3.9	0	3.9	0	3.9
17	84.6	67.3	0	8.0	0	4.1	0	4.1	0	4.1	0	4.1
18	83.8	67.1	0	7.7	0	4.1	0	4.1	0	4.1	0	4.1
19	82.4	67.5	0	6.8	0	3.7	0	3.7	0	3.7	0	3.7
20	80.6	68.9	0	5.5	0	3.0	0	3.0	0	3.0	0	3.0
21	78.5	71.0	0	4.5	0	2.4	0	2.4	0	2.4	0	2.4
22	76.1	69.9	0	3.8	0	1.9	0	1.9	0	1.9	0	1.9
23	73.4	68.0	0	3.1	0	1.4	0	1.4	0	1.4	0	1.4
24	70.8	65.5	0	2.5	0	1.0	0	1.0	0	1.0	0	1.0

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	4.3	0	2.0	0	2.3	0	2.3	0	2.3
2	72.6	68.4	0	3.4	0	1.5	0	1.6	0	1.6	0	1.6
3	70.9	67.3	0	3.0	0	1.0	0	1.0	0	1.0	0	1.0
4	69.6	66.5	0	2.6	0	0.7	0	0.8	0	0.8	0	0.8
5	68.7	65.8	0	2.2	0	0.3	0	0.3	0	0.3	0	0.3
6	68.5	65.7	0	2.0	0	0.1	0	0.1	0	0.1	0	0.1
7	69.0	66.3	0	2.0	-1,055	0.0	-1,055	0.0	-1,055	0.0	-1,055	0.0
8	70.6	66.9	0	2.6	0	0.4	0	0.4	0	0.4	0	0.4
9	73.0	67.7	0	3.8	0	1.0	0	1.0	0	1.0	0	1.0
10	76.1	68.1	0	4.9	0	1.8	0	1.8	0	1.8	0	1.8
11	79.5	69.1	0	6.1	0	2.6	0	2.7	0	2.7	0	2.7
12	82.9	70.1	0	7.0	0	3.6	0	3.6	0	3.6	0	3.6
13	86.0	71.0	0	7.9	0	4.2	0	4.2	0	4.2	0	4.2
14	88.4	72.5	0	8.8	0	5.2	0	5.2	0	5.2	0	5.2
15	90.0	74.0	0	9.7	0	6.2	0	6.2	0	6.2	0	6.2
16	90.5	73.7	0	10.2	0	6.6	0	6.6	0	6.6	0	6.6
17	90.3	74.2	0	10.4	0	6.7	0	6.7	0	6.7	0	6.7
18	89.4	73.9	0	10.2	0	6.7	0	6.7	0	6.7	0	6.7
19	88.1	74.5	0	9.2	0	6.2	0	6.2	0	6.2	0	6.2
20	86.4	75.3	0	7.7	0	5.2	0	5.2	0	5.2	0	5.2
21	84.3	76.5	0	6.7	0	4.7	0	4.7	0	4.7	0	4.7
22	81.9	75.7	0	5.9	0	4.2	0	4.2	0	4.2	0	4.2
23	79.5	74.0	0	5.2	0	3.6	0	3.6	0	3.6	0	3.6
24	77.0	72.1	0	4.6	0	2.9	0	2.9	0	2.9	0	2.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	4.2	0	1.3	0	1.6	0	1.6	0	1.6
2	72.4	69.4	0	3.2	0	1.0	0	1.2	0	1.2	0	1.2
3	71.3	68.4	0	2.8	0	0.8	0	0.8	0	0.8	0	0.8
4	70.5	67.7	0	2.4	0	0.3	0	0.4	0	0.4	0	0.4
5	70.0	67.4	0	2.2	0	0.1	0	0.1	0	0.1	0	0.1
6	69.9	67.5	0	2.0	-1,457	0.0	-1,457	0.0	-1,457	0.0	-1,457	0.0
7	70.3	68.0	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	2.8	-392	0.0	-392	0.0	-392	0.0	-392	0.0
9	73.7	69.5	0	3.8	0	1.1	0	1.1	0	1.1	0	1.1
10	76.2	70.6	0	4.7	0	2.0	0	2.0	0	2.0	0	2.0
11	78.9	71.8	0	5.6	0	2.8	0	2.8	0	2.8	0	2.8
12	81.4	73.0	0	6.7	0	3.6	0	3.6	0	3.6	0	3.6
13	83.4	74.4	0	7.6	0	4.5	0	4.5	0	4.5	0	4.5
14	84.8	74.8	0	8.1	0	5.0	0	5.0	0	5.0	0	5.0
15	85.2	75.0	0	9.2	0	5.7	0	5.7	0	5.7	0	5.7
16	85.1	75.0	0	9.5	0	6.0	0	6.0	0	6.0	0	6.0
17	84.6	74.7	0	9.8	0	5.8	0	5.8	0	5.8	0	5.8
18	83.8	74.6	0	9.5	0	5.8	0	5.8	0	5.8	0	5.8
19	82.7	74.6	0	8.4	0	5.3	0	5.3	0	5.3	0	5.3
20	81.4	74.4	0	7.2	0	4.3	0	4.3	0	4.3	0	4.3
21	79.9	74.9	0	6.2	0	3.8	0	3.8	0	3.8	0	3.8
22	78.4	74.0	0	5.4	0	3.3	0	3.3	0	3.3	0	3.3
23	76.8	72.7	0	4.9	0	2.7	0	2.7	0	2.7	0	2.7
24	75.2	71.6	0	4.2	0	2.0	0	2.0	0	2.0	0	2.0

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	4.0	0	1.4	0	1.8	0	1.8	0	1.8
2	73.2	70.3	0	3.2	0	1.1	0	1.3	0	1.3	0	1.3
3	71.7	68.9	0	2.4	0	0.8	0	0.9	0	0.9	0	0.9
4	70.4	67.8	0	2.2	0	0.5	0	0.5	0	0.5	0	0.5
5	69.5	66.8	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	1.7	-2,103	0.0	-2,103	0.0	-2,103	0.0	-2,103	0.0
7	68.7	66.4	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	4.1	0	0.9	0	0.9	0	0.9	0	0.9
11	76.2	68.8	0	5.2	0	2.1	0	2.1	0	2.1	0	2.1
12	79.3	70.3	0	6.0	0	2.8	0	2.8	0	2.8	0	2.8
13	82.3	72.2	0	7.0	0	3.5	0	3.5	0	3.5	0	3.5
14	84.7	73.7	0	7.9	0	4.5	0	4.5	0	4.5	0	4.5
15	86.3	74.6	0	8.8	0	5.3	0	5.3	0	5.3	0	5.3
16	86.8	75.1	0	9.5	0	5.8	0	5.8	0	5.8	0	5.8
17	86.6	75.1	0	9.5	0	5.9	0	5.9	0	5.9	0	5.9
18	86.0	75.3	0	9.1	0	5.9	0	5.9	0	5.9	0	5.9
19	85.1	76.0	0	7.8	0	5.1	0	5.1	0	5.1	0	5.1
20	83.8	76.8	0	6.5	0	4.2	0	4.2	0	4.2	0	4.2
21	82.3	77.2	0	5.9	0	3.9	0	3.9	0	3.9	0	3.9
22	80.6	76.3	0	5.0	0	3.5	0	3.5	0	3.5	0	3.5
23	78.7	75.3	0	4.4	0	2.9	0	2.9	0	2.9	0	2.9
24	76.8	73.7	0	3.8	0	2.3	0	2.3	0	2.3	0	2.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

September		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6 67.4	0	1.9	0	0.2	0	0.3	0	0.3	0	0.3
2	67.6 65.0	0	1.3	-1,125	0.0	-1,125	0.0	-1,125	0.0	-1,125	0.0
3	65.8 63.4	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3 62.2	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1 61.1	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4 60.3	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2 60.2	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9 60.9	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7 61.8	0	0.9	-2,530	0.0	-2,530	0.0	-2,530	0.0	-2,530	0.0
10	67.6 62.1	0	1.8	-1,051	0.0	-1,051	0.0	-1,051	0.0	-1,051	0.0
11	71.1 63.1	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8 64.6	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3 66.7	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2 68.4	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0 70.0	0	6.7	0	2.3	0	2.3	0	2.3	0	2.3
16	83.7 70.5	0	7.4	0	3.3	0	3.3	0	3.3	0	3.3
17	83.4 70.5	0	7.3	0	3.8	0	3.8	0	3.8	0	3.8
18	82.8 70.9	0	6.6	0	3.4	0	3.4	0	3.4	0	3.4
19	81.6 72.7	0	5.2	0	2.6	0	2.6	0	2.6	0	2.6
20	80.1 74.7	0	4.3	0	2.4	0	2.4	0	2.4	0	2.4
21	78.3 74.1	0	3.7	0	2.2	0	2.2	0	2.2	0	2.2
22	76.3 72.4	0	3.1	0	1.6	0	1.6	0	1.6	0	1.6
23	74.1 70.7	0	2.6	0	1.2	0	1.2	0	1.2	0	1.2
24	71.8 68.9	0	2.1	0	0.8	0	0.8	0	0.8	0	0.8

October		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2 50.5	0	0.0	0	0.0	-30,627	0.0	-30,627	0.0	-30,627	0.0
2	50.1 48.6	0	0.0	-26,365	0.0	-34,375	0.0	-34,375	0.0	-34,375	0.0
3	48.4 46.9	0	0.0	-37,687	0.0	-37,687	0.0	-37,687	0.0	-37,687	0.0
4	47.1 45.8	-25,737	0.0	-42,782	0.0	-42,782	0.0	-42,782	0.0	-42,782	0.0
5	46.3 44.8	-31,320	0.0	-45,912	0.0	-45,912	0.0	-45,912	0.0	-45,912	0.0
6	46.0 44.5	-32,901	0.0	-50,479	0.0	-50,479	0.0	-50,479	0.0	-58,975	0.0
7	46.8 45.3	-33,884	0.0	-51,553	0.0	-51,553	0.0	-78,950	0.0	-81,271	0.0
8	48.9 47.5	-32,573	0.0	-49,818	0.0	-49,818	0.0	-77,520	0.0	-77,520	0.0
9	52.2 49.9	-25,805	0.0	-46,447	0.0	-46,447	0.0	-65,002	0.0	-65,002	0.0
10	56.2 52.5	-14,965	0.0	-37,824	0.0	-37,824	0.0	-43,841	0.0	-43,841	0.0
11	60.4 54.4	-2,223	0.0	-29,079	0.0	-29,079	0.0	-29,079	0.0	-29,079	0.0
12	64.4 56.0	0	0.0	-21,413	0.0	-21,413	0.0	-21,413	0.0	-21,413	0.0
13	67.7 57.3	0	0.0	-13,227	0.0	-13,227	0.0	-13,227	0.0	-13,227	0.0
14	69.8 58.2	0	0.0	-5,080	0.0	-5,080	0.0	-5,080	0.0	-5,080	0.0
15	70.6 58.1	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3 57.5	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5 57.3	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2 57.7	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5 60.6	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4 60.8	0	0.4	-984	0.0	-984	0.0	-984	0.0	-984	0.0
21	62.1 59.4	-2,531	0.0	-12,732	0.0	-12,732	0.0	-12,732	0.0	-12,732	0.0
22	59.6 57.3	0	0.0	-17,465	0.0	-17,465	0.0	-17,465	0.0	-17,465	0.0
23	57.0 55.1	0	0.0	-20,357	0.0	-20,357	0.0	-20,357	0.0	-20,357	0.0
24	54.5 52.7	0	0.0	-24,687	0.0	-24,687	0.0	-24,687	0.0	-24,687	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-25,539	0.0	-25,177	0.0	-32,931	0.0	-32,931	0.0	-32,931	0.0
2	49.4	47.3	-29,361	0.0	-37,288	0.0	-37,288	0.0	-37,288	0.0	-37,288	0.0
3	47.2	45.3	-34,201	0.0	-42,566	0.0	-42,566	0.0	-42,566	0.0	-42,566	0.0
4	45.3	43.4	-37,520	0.0	-46,094	0.0	-53,013	0.0	-63,654	0.0	-63,654	0.0
5	43.9	42.2	-40,036	0.0	-49,170	0.0	-78,374	0.0	-78,374	0.0	-78,374	0.0
6	43.0	41.4	-41,890	0.0	-53,818	0.0	-85,598	0.0	-85,598	0.0	-85,598	0.0
7	42.7	41.2	-49,679	0.0	-56,094	0.0	-89,622	0.0	-89,622	0.0	-89,622	0.0
8	43.5	42.0	-63,363	0.0	-59,244	0.0	-93,167	0.0	-93,167	0.0	-93,167	0.0
9	45.9	44.0	-46,232	0.0	-56,001	0.0	-82,501	0.0	-82,501	0.0	-82,501	0.0
10	49.4	46.6	-26,613	0.0	-50,137	0.0	-65,702	0.0	-65,702	0.0	-65,702	0.0
11	53.8	48.6	-15,223	0.0	-44,051	0.0	-47,245	0.0	-47,245	0.0	-47,245	0.0
12	58.4	50.6	-3,229	0.0	-36,519	0.0	-36,519	0.0	-36,519	0.0	-36,519	0.0
13	62.8	52.6	0	0.0	-28,317	0.0	-28,317	0.0	-28,317	0.0	-28,317	0.0
14	66.3	54.5	0	0.0	-19,870	0.0	-19,870	0.0	-19,870	0.0	-19,870	0.0
15	68.7	55.7	0	0.0	-11,685	0.0	-11,685	0.0	-11,685	0.0	-11,685	0.0
16	69.5	56.1	0	0.0	-7,046	0.0	-7,046	0.0	-7,046	0.0	-7,046	0.0
17	69.2	55.8	0	1.6	-5,799	0.0	-5,799	0.0	-5,799	0.0	-5,799	0.0
18	68.3	57.0	0	1.0	-10,719	0.0	-10,719	0.0	-10,719	0.0	-10,719	0.0
19	66.9	59.4	0	0.2	-13,358	0.0	-13,358	0.0	-13,358	0.0	-13,358	0.0
20	65.0	59.4	0	0.0	-16,522	0.0	-16,522	0.0	-16,522	0.0	-16,522	0.0
21	62.8	58.2	0	0.0	-17,480	0.0	-17,480	0.0	-17,480	0.0	-17,480	0.0
22	60.2	56.1	0	0.0	-22,128	0.0	-22,128	0.0	-22,128	0.0	-22,128	0.0
23	57.5	54.0	0	0.0	-24,342	0.0	-24,342	0.0	-24,342	0.0	-24,342	0.0
24	54.7	51.7	0	0.0	-28,809	0.0	-28,809	0.0	-28,809	0.0	-28,809	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-40,268	0.0	-53,347	0.0	-81,641	0.0	-81,641	0.0	-81,641	0.0
2	43.2	41.1	-43,437	0.0	-56,621	0.0	-88,284	0.0	-88,284	0.0	-88,284	0.0
3	41.8	39.8	-46,789	0.0	-59,627	0.0	-93,814	0.0	-93,814	0.0	-93,814	0.0
4	40.7	38.7	-73,191	0.0	-62,582	0.0	-99,304	0.0	-99,304	0.0	-99,304	0.0
5	40.1	38.4	-82,010	0.0	-64,951	0.0	-103,485	0.0	-103,485	0.0	-103,485	0.0
6	39.9	38.4	-84,613	0.0	-99,300	0.0	-107,515	0.0	-107,515	0.0	-107,515	0.0
7	40.5	39.0	-85,731	0.0	-111,767	0.0	-111,767	0.0	-111,767	0.0	-111,767	0.0
8	42.2	40.7	-85,029	0.0	-111,613	0.0	-111,613	0.0	-111,613	0.0	-111,613	0.0
9	44.9	43.4	-71,912	0.0	-103,386	0.0	-103,386	0.0	-103,386	0.0	-103,386	0.0
10	48.2	45.8	-48,593	0.0	-87,892	0.0	-87,892	0.0	-87,892	0.0	-87,892	0.0
11	51.7	48.3	-33,048	0.0	-68,072	0.0	-68,072	0.0	-68,072	0.0	-68,072	0.0
12	55.0	50.7	-22,250	0.0	-49,195	0.0	-49,195	0.0	-49,195	0.0	-49,195	0.0
13	57.7	52.0	-14,850	0.0	-41,440	0.0	-41,440	0.0	-41,440	0.0	-41,440	0.0
14	59.5	52.6	-5,786	0.0	-34,175	0.0	-34,175	0.0	-34,175	0.0	-34,175	0.0
15	60.1	52.7	0	0.0	-28,368	0.0	-28,368	0.0	-28,368	0.0	-28,368	0.0
16	59.9	52.6	0	0.0	-24,655	0.0	-24,655	0.0	-24,655	0.0	-24,655	0.0
17	59.2	52.1	0	0.0	-25,481	0.0	-25,481	0.0	-25,481	0.0	-25,481	0.0
18	58.2	51.8	0	0.0	-30,031	0.0	-30,031	0.0	-30,031	0.0	-30,031	0.0
19	56.8	52.2	-818	0.0	-33,915	0.0	-33,915	0.0	-33,915	0.0	-33,915	0.0
20	55.0	51.4	-17,316	0.0	-36,799	0.0	-36,799	0.0	-36,799	0.0	-36,799	0.0
21	53.1	50.1	-23,070	0.0	-39,363	0.0	-39,363	0.0	-39,363	0.0	-39,363	0.0
22	51.0	48.1	-28,314	0.0	-43,520	0.0	-43,520	0.0	-43,520	0.0	-43,520	0.0
23	48.9	46.2	-32,674	0.0	-66,935	0.0	-66,935	0.0	-66,935	0.0	-66,935	0.0
24	46.9	44.1	-36,602	0.0	-73,640	0.0	-73,640	0.0	-73,640	0.0	-73,640	0.0



## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORPS OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29719 (4 BUILDINGS)

-----CARD 08-- Climatic Information -----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	YES

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	BUILDING 29719

-----CARD 20-- General Room Parameters -----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	OFFICE AREA	209.25	20.75	2	0		13			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	STORAGE	209.25	35	2	0		13			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50					HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				182			
2	1	YES				182			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	20.75	12		8	270			
1	2	209.25	12		8	0			
1	3	20.75	12		6	90			
2	1	35	12		6	90			
2	2	209.25	12		6	180			
2	3	35	12		6	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	54.2	10	1	1.03	.87					
2	2	4	3.5	20	1.03	.87					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	21	PEOPLE	255	255	8600	WATTS	SUSFLUOR				
2		PEOPLE	315	435	11000	WATTS	SUSFLUOR				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	ALL P.C.'S	18.2	KW	FGHEAT						
1	2	ALL PRINTERS	1.5	KW	FGHEAT						
1	3	COPIER	3.8	KW	FGHEAT						
1	4	FRIG	2.6	KW	FGHEAT						
1	5	MISS.	6	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

## -----CARD 40--- System Type -----

```

-----OPTIONAL VENTILATION SYSTEM-----
System          Ventil          Fan
Set   System   Deck    Cooling Heating Cooling Heating Static
Number Type    Location SADBvh  SADBvh  Schedule Schedule Pressure
1     FC
2     UH

```

## -----CARD 41-- Zone Assignment -----

```

System
Set           Ref #1           Ref #2           Ref #3           Ref #4           Ref #5           Ref #6
Number      Begin   End   Begin   End   Begin   End   Begin   End   Begin   End   Begin   End
1           1       1
2           2       2

```

## -----CARD 42--- Fan SP and Duct Parameters-----

```

System Cool Heat Return Mn Exh Aux Rm Exh Cool Return Supply Supply Return
Set   Fan  Fan  Fan  Fan  Fan  Fan  Fan  Fan Mtr Fan Mtr Duct Duct Air
Number SP  SP  SP  SP  SP  SP  SP  Loc  Loc  Ht Gn  Loc  Path

```

1  
2

## -----CARD 48-- Cooling Capacity Overrides -----

```

System          Misc          -----MAIN COOLING-----          ---AUX COOLING---
Set   People   Lights   Loads   Capacity Capacity Capacity Capacity Capacity Capacity
Number Variance Variance Variance Value  Units  Sizing  Location Value  Units
1
2

```

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL  
UH UNIT HEATERS

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	



Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                     **  
**          TRACE  600  ANALYSIS      **  
**                                     **  
**          by          **             **  
**                                     **  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 21707 (17 BUILDINGS)

Weather File Code: AUGUSTA.  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 20:52:19 8/12/94  
Dataset Name: FGTYPS4A .TM

AIRFLOW - ALTERNATIVE 1  
 ENLISTED BARRACKS

----- S Y S T E M S U M M A R Y -----  
 (Design Airflow Quantities)

System Number	System Type	Main					Auxil.	Room
		Outside Airflow (Cfm)	Cooling Airflow (Cfm)	Heating Airflow (Cfm)	Return Airflow (Cfm)	Exhaust Airflow (Cfm)	Supply Airflow (Cfm)	Exhaust Airflow (Cfm)
1	FC	1,710	61,167	61,167	63,206	3,749	0	0
Totals		1,710	61,167	61,167	63,206	3,749	0	0

ENGINEERING CHECKS - ALTERNATIVE 1  
 ENLISTED BARRACKS

----- E N G I N E E R I N G C H E C K S -----

System Number	Main/Auxiliary	System Type	Percent Outside Air	Cooling				Heating		Floor Area Sq Ft
				Cfm/Sq Ft	Cfm/Ton	Sq Ft/Ton	Btuh/Sq Ft	Cfm/Sq Ft	Btuh/Sq Ft	
1	Main	FC	2.80	1.46	649.9	446.3	26.89	1.46	-25.05	42,000

CAPACITY - ALTERNATIVE 1  
 ENLISTED BARRACKS

----- S Y S T E M S U M M A R Y -----  
 (Design Capacity Quantities)

System Number	System Type	Cooling					Heating							
		Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Capacity (Tons)	Vent Capacity (Tons)	Cooling Totals (Tons)	Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Capacity (Btuh)	Vent Capacity (Btuh)	Heating Totals (Btuh)
1	FC	94.1	0.0	0.0	0.0	94.1	-1,051,929	0	0	0	0	0	0	-1,051,929
Totals		94.1	0.0	0.0	0.0	94.1	-1,051,929	0	0	0	0	0	0	-1,051,929

The building peaked at hour 19 month 6 with a capacity of 94.1 tons

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==)		Mo/Hr: 6/19		*	Mo/Hr: 6/19		*	Mo/Hr: 13/ 1			
Outside Air ==)		OADB/WB/HR: 93/ 72/ 84.0		*	OADB: 93		*	OADB: 23			
	Space	Ret. Air	Ret. Air	Net	Percnt		Space	Percnt	Space Peak	Coil Peak	Percnt
	Sens.+Lat.	Sensible	Latent	Total	Of Tot		Sensible	Of Tot	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)		(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Envelope Loads											
Skylite Solr	0	0		0	0.00	*	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	0	0	0.00
Roof Cond	267,004	0		267,004	23.64	*	267,004	26.31	-265,823	-265,823	25.27
Glass Solar	101,850	0		101,850	9.02	*	101,850	10.04	0	0	0.00
Glass Cond	78,050	0		78,050	6.91	*	78,050	7.69	-206,454	-206,454	19.63
Wall Cond	297,436	0		297,436	26.34	*	297,436	29.31	-392,511	-392,511	37.31
Partition	0			0	0.00	*	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	0	0	0.00
Infiltration	53,708			53,708	4.76	*	32,386	3.19	-101,771	-101,771	9.67
Sub Total==>	798,048	0		798,048	70.66	*	776,725	76.55	-966,558	-966,558	91.88
Internal Loads						*					
Lights	100,916	0		100,916	8.94	*	100,916	9.95	0	0	0.00
People	57,980			57,980	5.13	*	20,930	2.06	0	0	0.00
Misc	116,110	0	0	116,110	10.28	*	116,110	11.44	0	0	0.00
Sub Total==>	275,006	0	0	275,006	24.35	*	237,956	23.45	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	0	0	0.00
Outside Air	0	0	0	56,316	4.99	*	0	0.00	0	-85,371	8.12
Sup. Fan Heat				0	0.00	*		0.00		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00		0	0.00
Grand Total==>	1,073,054	0	0	1,129,370	100.00	*	1,014,682	100.00	-966,558	-1,051,929	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	94.1	1,129.4	1,048.6	61,167	75.5	62.8	65.8	60.0	56.7	63.9	42,000	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	94.1	1,129.4									14,000	0 0
											20,385	4,074 20

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS--		-----TEMPERATURES (F)---		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	2.8	Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent			Clg Cfm/Sqft	1.46	SADB	60.0	82.2
Main Htg	-1,051.9	61,167	66.7	82.2	Infil	1,710	1,710	Clg Cfm/Ton	649.93	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	61,167	61,167	Clg Sqft/Ton	446.27	Return	75.0	68.0
Preheat	-0.0	61,167	66.7	60.0	Mincfm	0	0	Clg Btuh/Sqft	26.89	Ret/OA	75.5	66.7
Reheat	0.0	0	0.0	0.0	Return	61,167	61,167	No. People	114	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,710	1,710	Htg % OA	2.8	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.46	Fn BldTD	0.0	0.0
Total	-1,051.9				Auxil	0	0	Htg Btuh/Sqft	-25.05	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-918,579	0.0	-280,210	0.0	-174,014	0.0	-174,014	0.0	-484,294	0.0
2	32.9	30.7	-574,920	0.0	-522,704	0.0	-206,018	0.0	-206,018	0.0	-522,704	0.0
3	33.1	31.3	-338,484	0.0	-549,330	0.0	-227,378	0.0	-227,378	0.0	-549,330	0.0
4	33.9	32.1	-380,766	0.0	-581,064	0.0	-254,703	0.0	-254,703	0.0	-581,064	0.0
5	35.2	33.5	-413,447	0.0	-605,266	0.0	-275,178	0.0	-275,178	0.0	-605,266	0.0
6	37.0	35.4	-263,281	0.0	-432,139	0.0	-284,310	0.0	-284,310	0.0	-432,139	0.0
7	39.0	37.6	-244,394	0.0	-411,383	0.0	-285,759	0.0	-285,759	0.0	-411,383	0.0
8	41.3	40.1	-246,940	0.0	-396,476	0.0	-286,761	0.0	-286,761	0.0	-396,476	0.0
9	43.7	42.5	-291,740	0.0	-474,913	0.0	-263,585	0.0	-263,585	0.0	-474,913	0.0
10	46.1	44.0	-244,809	0.0	-449,116	0.0	-222,336	0.0	-222,336	0.0	-449,116	0.0
11	48.4	45.0	-201,397	0.0	-409,273	0.0	-168,961	0.0	-168,961	0.0	-409,273	0.0
12	50.5	45.6	-134,181	0.0	-381,945	0.0	-132,270	0.0	-132,270	0.0	-381,945	0.0
13	52.2	46.1	-71,813	0.0	-341,590	0.0	-80,380	0.0	-80,380	0.0	-341,590	0.0
14	53.5	46.4	-17,786	0.0	-295,066	0.0	-24,651	0.0	-24,651	0.0	-295,066	0.0
15	54.3	46.3	0	0.0	-255,134	0.0	0	0.0	0	0.0	-255,134	0.0
16	54.6	46.1	0	0.0	-217,778	0.0	0	0.0	0	0.0	-217,778	0.0
17	54.0	45.9	0	0.0	-188,250	0.0	0	0.0	0	0.0	-188,250	0.0
18	52.5	45.0	0	0.0	-77,659	0.0	0	0.0	0	0.0	-77,659	0.0
19	50.1	44.8	0	0.0	-62,725	0.0	0	0.0	0	0.0	-62,725	0.0
20	47.1	43.3	0	3.1	-85,217	0.0	0	0.0	0	0.0	-85,217	0.0
21	43.7	40.4	0	7.0	-95,948	0.0	0	0.0	0	0.0	-95,948	0.0
22	40.4	37.3	0	0.0	-327,534	0.0	0	0.0	0	0.0	-327,534	0.0
23	37.3	34.9	0	0.0	-380,253	0.0	0	0.0	0	0.0	-380,253	0.0
24	34.9	32.6	0	0.0	-435,188	0.0	-57,014	0.0	-57,014	0.0	-435,188	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-209,460	0.0	-104,490	0.0	-96,348	0.0	-76,740	0.0	-387,020	0.0
2	39.7	37.1	-256,564	0.0	-439,168	0.0	-122,481	0.0	-122,481	0.0	-439,168	0.0
3	37.8	35.1	-306,725	0.0	-484,116	0.0	-162,166	0.0	-162,166	0.0	-484,116	0.0
4	36.3	33.8	-335,659	0.0	-504,190	0.0	-177,830	0.0	-177,830	0.0	-504,190	0.0
5	35.1	32.6	-380,491	0.0	-548,226	0.0	-218,137	0.0	-218,137	0.0	-548,226	0.0
6	34.4	32.0	-223,443	0.0	-391,054	0.0	-243,224	0.0	-243,224	0.0	-391,054	0.0
7	34.1	31.9	-204,739	0.0	-390,100	0.0	-264,475	0.0	-264,475	0.0	-390,100	0.0
8	34.6	32.4	-201,553	0.0	-389,025	0.0	-279,313	0.0	-279,313	0.0	-389,025	0.0
9	36.0	33.8	-253,338	0.0	-462,739	0.0	-274,056	0.0	-274,056	0.0	-462,739	0.0
10	38.2	34.7	-222,147	0.0	-449,580	0.0	-248,708	0.0	-248,708	0.0	-449,580	0.0
11	40.9	36.2	-175,367	0.0	-437,010	0.0	-225,752	0.0	-225,752	0.0	-437,010	0.0
12	43.9	37.4	-131,672	0.0	-416,218	0.0	-194,231	0.0	-194,231	0.0	-416,218	0.0
13	46.9	39.4	-86,283	0.0	-386,948	0.0	-147,139	0.0	-147,139	0.0	-386,948	0.0
14	49.7	41.4	-24,982	0.0	-343,395	0.0	-90,271	0.0	-90,271	0.0	-343,395	0.0
15	51.8	42.8	0	0.0	-308,715	0.0	-46,284	0.0	-46,284	0.0	-308,715	0.0
16	53.2	43.9	0	0.0	-274,227	0.0	-7,196	0.0	-7,196	0.0	-274,227	0.0
17	53.7	44.2	0	0.0	-242,929	0.0	0	0.0	0	0.0	-242,929	0.0
18	53.4	44.4	0	0.0	-106,115	0.0	0	0.0	0	0.0	-106,115	0.0
19	52.7	44.4	0	0.0	-84,228	0.0	0	0.0	0	0.0	-84,228	0.0
20	51.5	45.2	0	5.0	-81,723	0.0	0	0.0	0	0.0	-81,723	0.0
21	50.0	44.6	0	10.6	-79,802	0.0	0	0.0	0	0.0	-79,802	0.0
22	48.1	43.3	0	0.0	-273,351	0.0	0	0.0	0	0.0	-273,351	0.0
23	46.1	41.8	0	0.0	-324,866	0.0	0	0.0	0	0.0	-324,866	0.0
24	43.9	40.1	0	0.0	-362,859	0.0	0	0.0	0	0.0	-362,859	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	0	0.0	0	0.0	0	0.0	0	9.5	0	0.0
2	48.7 44.6	0	0.0	0	0.0	0	0.0	0	6.1	0	0.0
3	46.6 42.9	0	0.0	0	0.0	0	0.0	0	3.1	0	0.0
4	44.9 41.4	-14,848	0.0	-166,540	0.0	0	0.0	-6,156	0.0	-166,540	0.0
5	43.9 40.8	-107,007	0.0	-293,335	0.0	0	0.0	-27,431	0.0	-293,335	0.0
6	43.5 40.8	0	0.0	-151,185	0.0	0	0.0	0	0.0	-151,185	0.0
7	44.0 41.4	0	0.0	-144,870	0.0	0	0.0	0	0.0	-144,870	0.0
8	45.4 42.7	0	0.0	-143,037	0.0	0	0.0	0	0.0	-143,037	0.0
9	47.7 44.3	0	0.0	-240,209	0.0	0	0.0	0	0.0	-240,209	0.0
10	50.6 45.8	0	0.0	-239,147	0.0	0	0.0	0	0.0	-239,147	0.0
11	53.9 47.4	0	0.0	-211,993	0.0	0	0.0	0	0.0	-211,993	0.0
12	57.4 49.0	0	0.0	-189,021	0.0	0	0.0	0	0.0	-189,021	0.0
13	60.7 50.8	0	0.0	-144,601	0.0	0	0.0	0	0.0	-144,601	0.0
14	63.6 52.7	0	0.0	-113,707	0.0	0	0.0	0	0.0	-113,707	0.0
15	65.9 53.7	0	0.0	-75,199	0.0	0	6.4	0	9.6	-75,199	0.0
16	67.3 54.4	0	8.1	-33,836	0.0	0	18.1	0	18.1	-33,836	0.0
17	67.8 54.6	0	21.8	0	0.0	0	21.0	0	21.0	0	0.0
18	67.4 54.8	0	38.9	0	0.0	0	22.3	0	22.3	0	0.0
19	66.4 55.2	0	37.7	0	0.0	0	23.0	0	23.0	0	0.0
20	64.7 56.0	0	36.7	0	0.0	0	21.9	0	21.9	0	0.0
21	62.5 56.0	0	34.4	0	0.0	0	19.8	0	19.8	0	0.0
22	60.0 54.1	0	15.2	0	0.0	0	18.0	0	18.0	0	0.0
23	57.1 51.9	0	10.5	0	0.0	0	16.1	0	16.2	0	0.0
24	54.2 49.4	0	4.5	0	0.0	0	12.4	0	12.4	0	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.7	0	26.5	0	26.6	0	0.7
2	58.9 54.9	0	9.6	-22,807	0.0	0	24.5	0	24.6	-22,807	0.0
3	57.0 53.5	0	11.3	0	0.0	0	20.9	0	20.9	0	0.0
4	55.4 52.4	0	8.4	0	0.0	0	18.9	0	18.9	0	0.0
5	54.2 51.4	0	4.8	0	0.0	0	15.5	0	15.5	0	0.0
6	53.5 50.9	0	17.4	0	0.0	0	13.7	0	13.8	0	0.0
7	53.2 51.1	0	18.2	0	0.0	0	10.8	0	10.9	0	0.0
8	53.9 51.5	0	20.4	0	0.0	0	10.4	0	10.4	0	0.0
9	55.9 52.1	0	9.3	0	0.0	0	10.6	0	10.6	0	0.0
10	58.9 53.2	0	10.9	0	0.0	0	12.8	0	12.8	0	0.0
11	62.6 55.2	0	12.5	0	0.0	0	15.5	0	15.5	0	0.0
12	66.5 57.3	0	15.9	0	0.0	0	19.3	0	19.3	0	0.0
13	70.2 59.6	0	19.8	0	0.0	0	24.0	0	24.0	0	0.0
14	73.2 61.0	0	24.5	0	0.0	0	28.4	0	28.4	0	0.0
15	75.2 62.2	0	29.1	0	0.0	0	32.3	0	32.3	0	0.0
16	75.9 62.2	0	32.6	0	0.0	0	35.0	0	35.0	0	0.0
17	75.6 62.0	0	35.0	0	0.0	0	38.3	0	38.6	0	0.0
18	74.9 61.7	0	55.1	0	22.0	0	39.6	0	39.9	0	22.0
19	73.7 62.0	0	55.2	0	28.5	0	39.8	0	39.9	0	28.5
20	72.1 62.4	0	54.2	0	29.5	0	40.0	0	40.0	0	29.6
21	70.2 63.3	0	51.9	0	28.5	0	38.3	0	38.3	0	28.6
22	68.0 62.5	0	33.8	0	12.4	0	37.0	0	37.1	0	12.5
23	65.7 60.5	0	28.7	0	8.6	0	34.0	0	34.0	0	8.6
24	63.4 58.5	0	24.2	0	4.7	0	30.2	0	30.2	0	4.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	35.4	0	15.8	0	46.9	0	44.5	0	15.8
2	65.7	61.5	0	31.1	0	12.4	0	41.5	0	41.2	0	12.4
3	63.6	59.7	0	26.4	0	8.6	0	36.9	0	36.8	0	8.6
4	61.8	58.4	0	23.5	0	4.7	0	32.6	0	32.5	0	4.7
5	60.5	57.1	0	19.8	0	1.1	0	28.7	0	28.7	0	1.1
6	59.7	56.5	0	32.5	0	13.9	0	26.3	0	26.3	0	13.9
7	59.4	56.5	0	34.2	0	13.5	0	24.1	0	24.1	0	13.6
8	60.1	56.3	0	36.1	0	14.6	0	23.8	0	23.8	0	14.6
9	62.4	56.3	0	23.3	0	3.3	0	23.5	0	23.5	0	3.3
10	65.7	57.2	0	24.6	0	4.0	0	26.0	0	26.0	0	4.0
11	69.9	58.9	0	26.3	0	5.8	0	29.8	0	29.8	0	5.8
12	74.3	60.9	0	30.3	0	8.7	0	34.8	0	34.8	0	8.7
13	78.5	63.7	0	34.2	0	11.1	0	39.0	0	39.0	0	11.1
14	81.9	65.3	0	38.7	0	14.3	0	43.8	0	43.8	0	14.3
15	84.1	66.9	0	43.4	0	18.4	0	51.1	0	51.1	0	18.4
16	84.9	67.1	0	47.1	0	20.8	0	54.3	0	54.3	0	20.8
17	84.6	67.3	0	49.8	0	22.6	0	56.5	0	56.5	0	22.7
18	83.8	67.1	0	79.9	0	42.5	0	58.3	0	58.3	0	42.6
19	82.4	67.5	0	77.0	0	45.7	0	60.2	0	60.2	0	45.8
20	80.6	68.9	0	73.8	0	45.7	0	58.9	0	58.9	0	46.0
21	78.5	71.0	0	71.3	0	46.7	0	59.2	0	59.2	0	47.2
22	76.1	69.9	0	50.9	0	28.2	0	57.4	0	57.4	0	28.2
23	73.4	68.0	0	45.7	0	24.2	0	53.0	0	53.0	0	24.2
24	70.8	65.5	0	40.1	0	20.1	0	48.9	0	48.9	0	20.1

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	58.9	0	29.1	0	67.5	0	61.4	0	29.1
2	72.6	68.4	0	49.2	0	24.7	0	55.3	0	56.4	0	24.7
3	70.9	67.3	0	46.7	0	21.0	0	52.9	0	52.8	0	21.0
4	69.6	66.5	0	41.5	0	18.2	0	49.8	0	49.8	0	18.2
5	68.7	65.8	0	38.8	0	14.4	0	45.3	0	45.3	0	14.4
6	68.5	65.7	0	56.3	0	28.8	0	43.1	0	43.1	0	28.6
7	69.0	66.3	0	56.0	0	29.3	0	42.3	0	42.3	0	29.3
8	70.6	66.9	0	59.5	0	31.5	0	43.5	0	43.5	0	31.5
9	73.0	67.7	0	36.8	0	17.5	0	45.2	0	45.2	0	17.5
10	76.1	68.1	0	37.8	0	18.0	0	49.3	0	49.3	0	18.0
11	79.5	69.1	0	40.3	0	19.9	0	53.0	0	53.0	0	19.9
12	82.9	70.1	0	44.2	0	22.3	0	57.6	0	57.6	0	22.3
13	86.0	71.0	0	49.0	0	25.4	0	62.5	0	62.5	0	25.4
14	88.4	72.5	0	52.5	0	29.0	0	68.6	0	68.6	0	29.0
15	90.0	74.0	0	55.9	0	31.6	0	72.8	0	72.8	0	31.6
16	90.5	73.7	0	59.5	0	34.9	0	75.5	0	75.5	0	34.9
17	90.3	74.2	0	61.0	0	36.0	0	76.9	0	76.9	0	36.0
18	89.4	73.9	0	94.1	0	64.7	0	79.3	0	79.3	0	64.7
19	88.1	74.5	0	94.1	0	65.6	0	80.0	0	80.0	0	65.6
20	86.4	75.3	0	94.1	0	65.3	0	77.7	0	77.7	0	65.3
21	84.3	76.5	0	90.6	0	64.5	0	75.8	0	75.8	0	64.5
22	81.9	75.7	0	66.8	0	43.5	0	73.8	0	73.8	0	43.5
23	79.5	74.0	0	65.4	0	40.2	0	70.2	0	70.2	0	40.2
24	77.0	72.1	0	59.9	0	36.9	0	66.9	0	66.9	0	36.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

July		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7 70.5	0	57.5	0	24.0	0	61.7	0	56.1	0	24.0
2	72.4 69.4	0	47.9	0	21.3	0	53.3	0	53.9	0	21.3
3	71.3 68.4	0	45.2	0	17.4	0	49.1	0	49.1	0	17.4
4	70.5 67.7	0	39.9	0	15.2	0	47.0	0	47.0	0	15.2
5	70.0 67.4	0	37.4	0	12.6	0	44.2	0	44.2	0	12.6
6	69.9 67.5	0	56.4	0	28.6	0	42.1	0	42.1	0	28.4
7	70.3 68.0	0	56.2	0	28.0	0	41.2	0	41.2	0	28.0
8	71.7 69.0	0	59.3	0	30.7	0	43.0	0	43.0	0	30.7
9	73.7 69.5	0	35.7	0	15.3	0	45.0	0	45.0	0	15.3
10	76.2 70.6	0	36.0	0	15.9	0	48.7	0	48.7	0	15.9
11	78.9 71.8	0	38.0	0	18.2	0	53.1	0	53.1	0	18.2
12	81.4 73.0	0	40.7	0	20.7	0	58.0	0	58.0	0	20.7
13	83.4 74.4	0	45.5	0	23.9	0	62.9	0	62.9	0	23.9
14	84.8 74.8	0	48.8	0	26.2	0	65.9	0	65.9	0	26.2
15	85.2 75.0	0	52.8	0	29.6	0	70.4	0	70.4	0	29.6
16	85.1 75.0	0	54.7	0	30.9	0	72.4	0	72.4	0	30.9
17	84.6 74.7	0	57.0	0	32.5	0	73.4	0	73.4	0	32.5
18	83.8 74.6	0	90.0	0	61.5	0	75.5	0	75.5	0	61.5
19	82.7 74.6	0	90.9	0	61.0	0	75.2	0	75.2	0	61.0
20	81.4 74.4	0	88.9	0	61.2	0	73.7	0	73.7	0	61.2
21	79.9 74.9	0	87.7	0	60.1	0	71.6	0	71.6	0	60.1
22	78.4 74.0	0	64.1	0	36.5	0	67.3	0	67.3	0	36.5
23	76.8 72.7	0	61.9	0	34.5	0	64.6	0	64.6	0	34.5
24	75.2 71.6	0	57.9	0	31.5	0	61.5	0	61.5	0	31.5

August		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0 72.0	0	55.9	0	26.4	0	66.2	0	59.9	0	26.4
2	73.2 70.3	0	45.8	0	22.1	0	52.9	0	54.1	0	22.1
3	71.7 68.9	0	41.4	0	19.8	0	52.2	0	52.2	0	19.7
4	70.4 67.8	0	38.5	0	15.9	0	47.4	0	47.4	0	15.8
5	69.5 66.8	0	35.5	0	13.7	0	45.4	0	45.4	0	13.7
6	68.9 66.4	0	54.2	0	29.9	0	42.4	0	42.4	0	29.5
7	68.7 66.4	0	51.6	0	25.9	0	38.6	0	38.6	0	25.9
8	69.2 66.8	0	55.0	0	27.8	0	40.1	0	40.1	0	27.8
9	70.8 67.7	0	32.9	0	13.7	0	41.3	0	41.3	0	13.7
10	73.2 67.7	0	33.0	0	14.5	0	44.0	0	44.0	0	14.5
11	76.2 68.8	0	35.5	0	16.3	0	48.2	0	48.2	0	16.3
12	79.3 70.3	0	39.5	0	18.7	0	52.7	0	52.7	0	18.7
13	82.3 72.2	0	43.6	0	21.6	0	58.4	0	58.4	0	21.6
14	84.7 73.7	0	47.2	0	25.2	0	63.6	0	63.6	0	25.2
15	86.3 74.6	0	51.9	0	28.7	0	68.3	0	68.3	0	28.7
16	86.8 75.1	0	56.0	0	31.1	0	71.8	0	71.8	0	31.1
17	86.6 75.1	0	57.3	0	33.4	0	73.7	0	73.7	0	33.4
18	86.0 75.3	0	88.6	0	62.1	0	76.1	0	76.1	0	62.1
19	85.1 76.0	0	88.9	0	61.4	0	75.5	0	75.5	0	61.4
20	83.8 76.8	0	87.7	0	61.7	0	74.2	0	74.2	0	61.7
21	82.3 77.2	0	86.0	0	61.3	0	72.9	0	72.9	0	61.3
22	80.6 76.3	0	62.4	0	39.3	0	70.8	0	70.8	0	39.3
23	78.7 75.3	0	59.8	0	36.6	0	66.3	0	66.3	0	36.6
24	76.8 73.7	0	55.6	0	33.1	0	63.0	0	63.0	0	33.1



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	37.8	0	14.8	0	50.7	0	45.0	0	14.8
2	67.6	65.0	0	31.0	0	10.3	0	39.7	0	39.9	0	10.3
3	65.8	63.4	0	26.4	0	7.6	0	37.2	0	37.3	0	7.6
4	64.3	62.2	0	23.5	0	4.2	0	33.6	0	33.6	0	4.2
5	63.1	61.1	0	19.9	0	1.8	0	31.2	0	31.2	0	1.8
6	62.4	60.3	0	34.3	0	13.5	0	26.7	0	26.7	0	13.5
7	62.2	60.2	0	33.9	0	13.8	0	25.3	0	25.3	0	13.8
8	62.9	60.9	0	38.4	0	14.0	0	24.3	0	24.3	0	14.0
9	64.7	61.8	0	22.0	0	3.4	0	25.6	0	25.6	0	3.5
10	67.6	62.1	0	24.2	0	3.8	0	28.2	0	28.2	0	3.8
11	71.1	63.1	0	26.0	0	6.3	0	33.1	0	33.1	0	6.3
12	74.8	64.6	0	29.1	0	8.6	0	37.2	0	37.2	0	8.6
13	78.3	66.7	0	36.3	0	12.0	0	44.0	0	44.0	0	12.0
14	81.2	68.4	0	41.2	0	14.7	0	48.3	0	48.3	0	14.7
15	83.0	70.0	0	45.2	0	18.5	0	54.5	0	54.5	0	18.5
16	83.7	70.5	0	48.8	0	21.5	0	58.4	0	58.4	0	21.5
17	83.4	70.5	0	50.7	0	23.3	0	60.4	0	60.4	0	23.3
18	82.8	70.9	0	78.4	0	46.3	0	61.5	0	61.5	0	46.5
19	81.6	72.7	0	75.1	0	48.7	0	62.6	0	62.6	0	48.7
20	80.1	74.7	0	74.2	0	48.4	0	61.1	0	61.1	0	48.4
21	78.3	74.1	0	72.3	0	48.4	0	60.0	0	60.0	0	48.4
22	76.3	72.4	0	48.8	0	26.1	0	56.8	0	56.8	0	26.1
23	74.1	70.7	0	44.6	0	21.8	0	51.8	0	51.8	0	21.8
24	71.8	68.9	0	40.1	0	18.7	0	48.9	0	48.9	0	18.7

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	3.0	0	0.0	-13,546	0.0	0	12.2	0	0.0
2	50.1	48.6	-18,309	0.0	0	0.0	0	8.8	0	8.9	0	0.0
3	48.4	46.9	0	0.0	0	0.0	0	6.8	0	6.9	0	0.0
4	47.1	45.8	0	0.0	-24,247	0.0	0	3.6	0	3.7	-24,247	0.0
5	46.3	44.8	0	0.0	-259,138	0.0	0	0.6	0	0.6	-259,138	0.0
6	46.0	44.5	0	0.0	-120,462	0.0	-36,513	0.0	-36,513	0.0	-120,462	0.0
7	46.8	45.3	0	0.0	-113,705	0.0	-51,666	0.0	-51,666	0.0	-113,705	0.0
8	48.9	47.5	0	0.0	-92,216	0.0	-46,171	0.0	-46,171	0.0	-92,216	0.0
9	52.2	49.9	0	0.0	-194,500	0.0	-25,430	0.0	-25,430	0.0	-194,500	0.0
10	56.2	52.5	0	0.0	-170,910	0.0	0	1.7	0	1.7	-170,910	0.0
11	60.4	54.4	0	0.0	-143,507	0.0	0	5.6	0	5.6	-143,507	0.0
12	64.4	56.0	0	0.0	-98,547	0.0	0	10.8	0	10.8	-98,547	0.0
13	67.7	57.3	0	11.1	-55,198	0.0	0	15.6	0	15.6	-55,198	0.0
14	69.8	58.2	0	17.2	-12,635	0.0	0	20.1	0	20.1	-12,635	0.0
15	70.6	58.1	0	22.1	0	0.0	0	24.9	0	24.9	0	0.0
16	70.3	57.5	0	26.9	0	0.0	0	28.1	0	28.1	0	0.0
17	69.5	57.3	0	28.2	0	0.0	0	29.3	0	29.3	0	0.0
18	68.2	57.7	0	43.9	0	0.0	0	29.3	0	29.3	0	0.0
19	66.5	60.6	0	41.7	0	0.0	0	28.7	0	28.8	0	0.0
20	64.4	60.8	0	39.5	0	9.7	0	26.9	0	26.9	0	9.8
21	62.1	59.4	0	36.4	0	15.7	0	24.1	0	24.2	0	15.8
22	59.6	57.3	0	18.0	-10,855	0.0	0	22.1	0	22.1	-10,855	0.0
23	57.0	55.1	0	11.6	0	0.0	0	19.0	0	19.1	0	0.0
24	54.5	52.7	0	7.1	0	0.0	0	15.6	0	15.6	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	0	0.0	0	0.0	0	0.0	0	8.7	0	0.0
2	49.4 47.3	0	0.0	0	0.0	0	0.0	0	5.2	0	0.0
3	47.2 45.3	0	0.0	0	0.0	0	0.0	0	1.9	0	0.0
4	45.3 43.4	0	0.0	-196,194	0.0	0	0.0	-3,696	0.0	-196,196	0.0
5	43.9 42.2	0	0.0	-306,320	0.0	0	0.0	-39,655	0.0	-306,320	0.0
6	43.0 41.4	0	0.0	-159,722	0.0	0	0.0	0	0.0	-159,722	0.0
7	42.7 41.2	0	0.0	-158,224	0.0	0	0.0	0	0.0	-158,224	0.0
8	43.5 42.0	0	0.0	-168,154	0.0	0	0.0	0	0.0	-168,154	0.0
9	45.9 44.0	-12,314	0.0	-258,116	0.0	0	0.0	0	0.0	-258,116	0.0
10	49.4 46.6	-11,053	0.0	-241,010	0.0	0	0.0	0	0.0	-241,010	0.0
11	53.8 48.6	0	0.0	-212,462	0.0	0	0.0	0	0.0	-212,462	0.0
12	58.4 50.6	0	0.0	-168,593	0.0	0	0.0	0	0.0	-168,593	0.0
13	62.8 52.6	0	0.0	-126,119	0.0	0	0.0	0	0.0	-126,119	0.0
14	66.3 54.5	0	0.0	-77,468	0.0	0	0.0	0	0.0	-77,468	0.0
15	68.7 55.7	0	0.6	-29,714	0.0	0	13.4	0	18.5	-29,714	0.0
16	69.5 56.1	0	24.3	0	0.0	0	23.1	0	23.1	0	0.0
17	69.2 55.8	0	25.8	0	0.0	0	23.9	0	23.9	0	0.0
18	68.3 57.0	0	39.2	0	0.0	0	23.6	0	23.6	0	0.0
19	66.9 59.4	0	36.6	0	0.0	0	22.5	0	22.5	0	0.0
20	65.0 59.4	0	33.6	0	0.0	0	20.6	0	20.6	0	0.0
21	62.8 58.2	0	30.3	0	0.0	0	18.8	0	18.8	0	0.0
22	60.2 56.1	0	10.7	0	0.0	0	16.6	0	16.6	0	0.0
23	57.5 54.0	0	5.6	0	0.0	0	14.7	0	14.7	0	0.0
24	54.7 51.7	0	0.9	0	0.0	0	11.6	0	11.6	0	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	0	0.0	0	0.0	0	0.0	-55,829	0.0	0	0.0
2	43.2 41.1	0	0.0	-158,244	0.0	-25,352	0.0	-6,871	0.0	0	0.0
3	41.8 39.8	-132,018	0.0	-385,119	0.0	-63,167	0.0	0	0.0	-353,819	0.0
4	40.7 38.7	-250,246	0.0	-412,394	0.0	-86,033	0.0	0	0.0	-412,394	0.0
5	40.1 38.4	-276,991	0.0	-450,688	0.0	-120,600	0.0	0	0.0	-450,688	0.0
6	39.9 38.4	-113,884	0.0	-289,215	0.0	-141,386	0.0	0	0.0	-289,215	0.0
7	40.5 39.0	-114,225	0.0	-287,831	0.0	-162,206	0.0	-51,072	0.0	-287,831	0.0
8	42.2 40.7	-97,748	0.0	-274,185	0.0	-164,471	0.0	-164,471	0.0	-274,185	0.0
9	44.9 43.4	-166,925	0.0	-358,712	0.0	-144,355	0.0	-144,355	0.0	-358,712	0.0
10	48.2 45.8	-130,743	0.0	-338,308	0.0	-103,947	0.0	-103,947	0.0	-338,308	0.0
11	51.7 48.3	-72,450	0.0	-299,965	0.0	-48,644	0.0	-48,644	0.0	-299,965	0.0
12	55.0 50.7	0	0.0	-258,397	0.0	0	0.0	0	0.0	-258,397	0.0
13	57.7 52.0	0	0.0	-207,726	0.0	0	0.0	0	0.0	-207,726	0.0
14	59.5 52.6	0	0.0	-170,743	0.0	0	0.0	0	0.0	-170,743	0.0
15	60.1 52.7	0	0.0	-129,588	0.0	0	0.0	0	0.0	-129,588	0.0
16	59.9 52.6	0	0.0	-90,899	0.0	0	0.0	0	0.0	-90,899	0.0
17	59.2 52.1	0	0.0	-91,043	0.0	0	0.0	0	0.0	-91,043	0.0
18	58.2 51.8	0	19.7	0	0.0	0	4.1	0	4.1	0	0.0
19	56.8 52.2	0	22.7	0	0.0	0	11.1	0	11.1	0	0.0
20	55.0 51.4	0	19.9	0	0.0	0	8.1	0	8.1	0	0.0
21	53.1 50.1	0	17.2	0	0.0	0	6.0	0	6.0	0	0.0
22	51.0 48.1	-13,824	0.0	0	0.0	0	3.8	0	3.8	0	0.0
23	48.9 46.2	0	0.0	-219,744	0.0	0	0.6	0	0.6	-219,744	0.0
24	46.9 44.1	0	0.0	-265,634	0.0	-27,244	0.0	-27,244	0.0	-265,634	0.0

```
*****  
*****  
**  
**          TRACE 600 ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF COOLING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 25721 (10 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12:35:21 8/19/94  
Dataset Name: FGTYPS4B .TM

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 6/17		*	Mo/Hr: 6/19		*	Mo/Hr: 13/1			
Outside Air ==>		OADB/WB/HR: 98/ 74/ 91.0		*	OADB: 93		*	OADB: 23			
Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Perct Of Tot	*	Space Sensible	Perct Of Tot	*	Space Peak Spoce Sens	Coil Peak Tot Sens	Perct Of Tot
(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads											
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	166,413	0	166,413	22.60	*	194,364	28.61	*	-193,504	-193,504	22.30
Glass Solar	118,146	0	118,146	16.05	*	105,924	15.59	*	0	0	0.00
Glass Cond	58,523	0	58,523	7.95	*	49,255	7.25	*	-126,050	-126,050	14.53
Wall Cond	274,758	0	274,758	37.32	*	297,436	43.78	*	-392,511	-392,511	45.23
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	71,261	0	71,261	9.68	*	32,386	4.77	*	-101,771	-101,771	11.73
Sub Total==>	689,101	0	689,101	93.59	*	679,364	100.00	*	-813,835	-813,835	93.79
Internal Loads											
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	47,193	6.41	*	0	0.00	*	0	-53,918	6.21
Sup. Fan Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkup	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	689,101	0	736,294	100.00	*	679,364	100.00	*	-813,835	-867,753	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
			Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor			
Main Clg	61.4	736.3	75.6	62.9	65.9	60.9	57.3	64.9	30,574			
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Part	0		
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0		
Totals	61.4	736.3							Roof	10,191	0 0	
									Wall	20,385	4,074 20	

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg	
Main Htg	-867.8	66.9	84.9	Vent	1,080	1,080	2.5	1.42	SADB	60.9	84.9	
Aux Htg	0.0	0.0	0.0	Infil	1,631	2,038	Clg Cfm/Sqft	705.96	Plenum	75.0	68.0	
Preheat	-0.0	66.9	60.9	Supply	43,316	43,316	Clg Cfm/Ton	498.28	Return	75.0	68.0	
Reheat	0.0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	24.08	Ret/OA	75.6	66.9	
Humidif	0.0	0.0	0.0	Return	43,316	43,316	No. People	72	Runarnd	75.0	68.0	
Opt Vent	0.0	0.0	0.0	Exhaust	1,080	1,080	Htg % OA	2.5	Fn MtrTD	0.0	0.0	
Total	-867.8			Rm Exh	0	0	Htg Cfm/Sqft	1.42	Fn BldTD	0.0	0.0	
				Auxil	0	0	Htg Btuh/Sqft	-28.38	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-770,525	0.0	-416,236	0.0	-416,236	0.0	-416,236	0.0	-416,236	0.0
2	32.9	30.7	-431,570	0.0	-443,402	0.0	-443,402	0.0	-443,402	0.0	-443,402	0.0
3	33.1	31.3	-318,013	0.0	-461,922	0.0	-461,922	0.0	-461,922	0.0	-461,922	0.0
4	33.9	32.1	-351,308	0.0	-485,247	0.0	-485,247	0.0	-485,247	0.0	-485,247	0.0
5	35.2	33.5	-375,734	0.0	-503,593	0.0	-503,593	0.0	-503,593	0.0	-503,593	0.0
6	37.0	35.4	-403,840	0.0	-522,235	0.0	-522,235	0.0	-522,235	0.0	-522,235	0.0
7	39.0	37.6	-417,990	0.0	-523,554	0.0	-523,554	0.0	-523,554	0.0	-523,554	0.0
8	41.3	40.1	-421,888	0.0	-524,622	0.0	-524,622	0.0	-524,622	0.0	-524,622	0.0
9	43.7	42.5	-375,603	0.0	-499,830	0.0	-499,830	0.0	-499,830	0.0	-499,830	0.0
10	46.1	44.0	-308,989	0.0	-471,601	0.0	-471,601	0.0	-471,601	0.0	-471,601	0.0
11	48.4	45.0	-239,892	0.0	-409,811	0.0	-409,811	0.0	-409,811	0.0	-409,811	0.0
12	50.5	45.6	-156,338	0.0	-377,043	0.0	-377,043	0.0	-377,043	0.0	-377,043	0.0
13	52.2	46.1	-83,097	0.0	-330,449	0.0	-330,449	0.0	-330,449	0.0	-330,449	0.0
14	53.5	46.4	-11,437	0.0	-281,400	0.0	-281,400	0.0	-281,400	0.0	-281,400	0.0
15	54.3	46.3	0	0.0	-231,980	0.0	-231,980	0.0	-231,980	0.0	-231,980	0.0
16	54.6	46.1	0	0.0	-196,387	0.0	-196,387	0.0	-196,387	0.0	-196,387	0.0
17	54.0	45.9	0	0.0	-173,047	0.0	-173,047	0.0	-173,047	0.0	-173,047	0.0
18	52.5	45.0	0	0.0	-191,992	0.0	-191,992	0.0	-191,992	0.0	-191,992	0.0
19	50.1	44.8	0	0.0	-202,710	0.0	-202,710	0.0	-202,710	0.0	-202,710	0.0
20	47.1	43.3	0	0.0	-227,567	0.0	-227,567	0.0	-227,567	0.0	-227,567	0.0
21	43.7	40.4	0	0.0	-260,812	0.0	-260,812	0.0	-260,812	0.0	-260,812	0.0
22	40.4	37.3	0	0.0	-299,588	0.0	-299,588	0.0	-299,588	0.0	-299,588	0.0
23	37.3	34.9	-126,535	0.0	-331,250	0.0	-331,250	0.0	-331,250	0.0	-331,250	0.0
24	34.9	32.6	-202,858	0.0	-380,635	0.0	-380,635	0.0	-380,635	0.0	-380,635	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-209,140	0.0	-353,858	0.0	-353,858	0.0	-353,858	0.0	-353,858	0.0
2	39.7	37.1	-245,204	0.0	-375,650	0.0	-375,650	0.0	-375,650	0.0	-375,650	0.0
3	37.8	35.1	-283,861	0.0	-409,475	0.0	-409,475	0.0	-409,475	0.0	-409,475	0.0
4	36.3	33.8	-316,695	0.0	-422,684	0.0	-422,684	0.0	-422,684	0.0	-422,684	0.0
5	35.1	32.6	-351,769	0.0	-457,564	0.0	-457,564	0.0	-457,564	0.0	-457,564	0.0
6	34.4	32.0	-372,840	0.0	-477,495	0.0	-477,495	0.0	-477,495	0.0	-477,495	0.0
7	34.1	31.9	-387,087	0.0	-506,830	0.0	-506,830	0.0	-506,830	0.0	-506,830	0.0
8	34.6	32.4	-384,732	0.0	-518,660	0.0	-518,660	0.0	-518,660	0.0	-518,660	0.0
9	36.0	33.8	-342,967	0.0	-498,322	0.0	-498,322	0.0	-498,322	0.0	-498,322	0.0
10	38.2	34.7	-292,243	0.0	-484,286	0.0	-484,286	0.0	-484,286	0.0	-484,286	0.0
11	40.9	36.2	-223,408	0.0	-462,028	0.0	-462,028	0.0	-462,028	0.0	-462,028	0.0
12	43.9	37.4	-163,988	0.0	-433,498	0.0	-433,498	0.0	-433,498	0.0	-433,498	0.0
13	46.9	39.4	-97,832	0.0	-379,557	0.0	-379,557	0.0	-379,557	0.0	-379,557	0.0
14	49.7	41.4	-44,296	0.0	-342,006	0.0	-342,006	0.0	-342,006	0.0	-342,006	0.0
15	51.8	42.8	0	0.0	-292,316	0.0	-292,316	0.0	-292,316	0.0	-292,316	0.0
16	53.2	43.9	0	0.0	-260,505	0.0	-260,505	0.0	-260,505	0.0	-260,505	0.0
17	53.7	44.2	0	0.0	-229,917	0.0	-229,917	0.0	-229,917	0.0	-229,917	0.0
18	53.4	44.4	0	0.0	-219,494	0.0	-219,494	0.0	-219,494	0.0	-219,494	0.0
19	52.7	44.4	0	0.0	-224,548	0.0	-224,548	0.0	-224,548	0.0	-224,548	0.0
20	51.5	45.2	0	0.0	-240,219	0.0	-240,219	0.0	-240,219	0.0	-240,219	0.0
21	50.0	44.6	0	0.0	-262,086	0.0	-262,086	0.0	-262,086	0.0	-262,086	0.0
22	48.1	43.3	0	0.0	-279,875	0.0	-279,875	0.0	-279,875	0.0	-279,875	0.0
23	46.1	41.8	-46,022	0.0	-299,727	0.0	-299,727	0.0	-299,727	0.0	-299,727	0.0
24	43.9	40.1	-167,521	0.0	-322,480	0.0	-322,480	0.0	-322,480	0.0	-322,480	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	51.3 46.8	0 0.0	0 0.0	0 0.0	-131,641 0.0	-131,641 0.0	-131,641 0.0	-131,641 0.0	-131,641 0.0		
2	48.7 44.6	0 0.0	0 0.0	0 0.0	-166,063 0.0	-166,063 0.0	-166,063 0.0	-166,063 0.0	-166,063 0.0		
3	46.6 42.9	-57,010 0.0	-57,010 0.0	-26,299 0.0	-196,623 0.0	-196,623 0.0	-196,623 0.0	-196,623 0.0	-196,623 0.0		
4	44.9 41.4	-93,819 0.0	-93,819 0.0	-232,447 0.0	-232,447 0.0	-232,447 0.0	-232,447 0.0	-232,447 0.0	-232,447 0.0		
5	43.9 40.8	-128,062 0.0	-128,062 0.0	-250,089 0.0	-250,089 0.0	-250,089 0.0	-250,089 0.0	-250,089 0.0	-250,089 0.0		
6	43.5 40.8	-148,109 0.0	-148,109 0.0	-283,679 0.0	-283,679 0.0	-283,679 0.0	-283,679 0.0	-283,679 0.0	-283,679 0.0		
7	44.0 41.4	-165,406 0.0	-165,406 0.0	-296,824 0.0	-296,824 0.0	-296,824 0.0	-296,824 0.0	-296,824 0.0	-296,824 0.0		
8	45.4 42.7	-163,618 0.0	-163,618 0.0	-306,534 0.0	-306,534 0.0	-306,534 0.0	-306,534 0.0	-306,534 0.0	-306,534 0.0		
9	47.7 44.3	-123,953 0.0	-123,953 0.0	-305,923 0.0	-305,923 0.0	-305,923 0.0	-305,923 0.0	-305,923 0.0	-305,923 0.0		
10	50.6 45.8	-77,563 0.0	-77,563 0.0	-283,505 0.0	-283,505 0.0	-283,505 0.0	-283,505 0.0	-283,505 0.0	-283,505 0.0		
11	53.9 47.4	-17,162 0.0	-17,162 0.0	-242,813 0.0	-242,813 0.0	-242,813 0.0	-242,813 0.0	-242,813 0.0	-242,813 0.0		
12	57.4 49.0	0 0.0	0 0.0	-208,761 0.0	-208,761 0.0	-208,761 0.0	-208,761 0.0	-208,761 0.0	-208,761 0.0		
13	60.7 50.8	0 0.0	0 0.0	-159,525 0.0	-159,525 0.0	-159,525 0.0	-159,525 0.0	-159,525 0.0	-159,525 0.0		
14	63.6 52.7	0 0.0	0 0.0	-120,231 0.0	-120,231 0.0	-120,231 0.0	-120,231 0.0	-120,231 0.0	-120,231 0.0		
15	65.9 53.7	0 0.0	0 0.0	-79,491 0.0	-79,491 0.0	-79,491 0.0	-79,491 0.0	-79,491 0.0	-79,491 0.0		
16	67.3 54.4	0 9.9	0 9.9	-38,156 0.0	-38,156 0.0	-38,156 0.0	-38,156 0.0	-38,156 0.0	-38,156 0.0		
17	67.8 54.6	0 20.1	0 20.1	-9,374 0.0	-9,374 0.0	-9,374 0.0	-9,374 0.0	-9,374 0.0	-9,374 0.0		
18	67.4 54.8	0 20.4	0 20.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
19	66.4 55.2	0 17.9	0 17.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
20	64.7 56.0	0 15.4	0 15.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
21	62.5 56.0	0 11.1	0 11.1	-13,052 0.0	-13,052 0.0	-13,052 0.0	-13,052 0.0	-13,052 0.0	-13,052 0.0		
22	60.0 54.1	0 7.8	0 7.8	-43,283 0.0	-43,283 0.0	-43,283 0.0	-43,283 0.0	-43,283 0.0	-43,283 0.0		
23	57.1 51.9	0 4.7	0 4.7	-63,139 0.0	-63,139 0.0	-63,139 0.0	-63,139 0.0	-63,139 0.0	-63,139 0.0		
24	54.2 49.4	-614 0.0	-614 0.0	-101,403 0.0	-101,403 0.0	-101,403 0.0	-101,403 0.0	-101,403 0.0	-101,403 0.0		

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	61.0 56.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
2	58.9 54.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
3	57.0 53.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
4	55.4 52.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
5	54.2 51.4	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
6	53.5 50.9	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
7	53.2 51.1	0 0.0	0 0.0	-15,275 0.0	-15,275 0.0	-15,275 0.0	-15,275 0.0	-15,275 0.0	-15,275 0.0		
8	53.9 51.5	0 0.0	0 0.0	-135,315 0.0	-135,315 0.0	-135,315 0.0	-135,315 0.0	-135,315 0.0	-135,315 0.0		
9	55.9 52.1	0 0.0	0 0.0	-131,008 0.0	-131,008 0.0	-131,008 0.0	-131,008 0.0	-131,008 0.0	-131,008 0.0		
10	58.9 53.2	0 0.0	0 0.0	-104,362 0.0	-104,362 0.0	-104,362 0.0	-104,362 0.0	-104,362 0.0	-104,362 0.0		
11	62.6 55.2	0 6.0	0 6.0	-74,899 0.0	-74,899 0.0	-74,899 0.0	-74,899 0.0	-74,899 0.0	-74,899 0.0		
12	66.5 57.3	0 13.0	0 13.0	-22,063 0.0	-22,063 0.0	-22,063 0.0	-22,063 0.0	-22,063 0.0	-22,063 0.0		
13	70.2 59.6	0 17.8	0 17.8	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
14	73.2 61.0	0 22.7	0 22.7	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
15	75.2 62.2	0 27.0	0 27.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
16	75.9 62.2	0 31.0	0 31.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
17	75.6 62.0	0 32.6	0 32.6	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
18	74.9 61.7	0 33.0	0 33.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0		
19	73.7 62.0	0 31.7	0 31.7	0 7.2	0 7.2	0 7.2	0 7.2	0 7.2	0 7.2		
20	72.1 62.4	0 29.1	0 29.1	0 9.4	0 9.4	0 9.4	0 9.4	0 9.4	0 9.4		
21	70.2 63.3	0 25.8	0 25.8	0 7.5	0 7.5	0 7.5	0 7.5	0 7.5	0 7.5		
22	68.0 62.5	0 22.5	0 22.5	0 6.0	0 6.0	0 6.0	0 6.0	0 6.0	0 6.0		
23	65.7 60.5	0 18.2	0 18.2	0 2.9	0 2.9	0 2.9	0 2.9	0 2.9	0 2.9		
24	63.4 58.5	0 15.1	0 15.1	0 1.3	0 1.3	0 1.3	0 1.3	0 1.3	0 1.3		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	25.7	0	11.7	0	11.7	0	11.7	0	11.7
2	65.7	61.5	0	22.4	0	8.4	0	8.5	0	8.5	0	8.5
3	63.6	59.7	0	18.9	0	5.6	0	5.6	0	5.6	0	5.6
4	61.8	58.4	0	15.8	0	2.6	0	2.6	0	2.6	0	2.6
5	60.5	57.1	0	12.9	-1,829	0.0	-1,829	0.0	-1,829	0.0	-1,829	0.0
6	59.7	56.5	0	10.9	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	12.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	14.3	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	18.0	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	21.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	26.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	31.6	0	5.6	0	5.6	0	5.6	0	5.6
14	81.9	65.3	0	36.2	0	13.3	0	13.3	0	13.3	0	13.3
15	84.1	66.9	0	40.0	0	16.9	0	16.9	0	16.9	0	16.9
16	84.9	67.1	0	43.7	0	20.1	0	20.2	0	20.2	0	20.2
17	84.6	67.3	0	45.3	0	21.6	0	21.7	0	21.7	0	21.7
18	83.8	67.1	0	46.6	0	23.5	0	23.5	0	23.5	0	23.5
19	82.4	67.5	0	45.9	0	23.3	0	23.3	0	23.3	0	23.3
20	80.6	68.9	0	43.7	0	22.5	0	22.6	0	22.6	0	22.6
21	78.5	71.0	0	40.2	0	20.6	0	20.6	0	20.6	0	20.6
22	76.1	69.9	0	36.8	0	18.9	0	19.0	0	19.0	0	19.0
23	73.4	68.0	0	32.3	0	16.7	0	16.7	0	16.7	0	16.7
24	70.8	65.5	0	29.1	0	13.9	0	13.9	0	13.9	0	13.9

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	44.6	0	21.7	0	22.9	0	22.9	0	22.9
2	72.6	68.4	0	35.8	0	18.4	0	19.1	0	19.1	0	19.1
3	70.9	67.3	0	32.4	0	16.6	0	17.2	0	17.2	0	17.2
4	69.6	66.5	0	28.7	0	13.7	0	13.8	0	13.8	0	13.8
5	68.7	65.8	0	27.1	0	10.7	0	10.8	0	10.8	0	10.8
6	68.5	65.7	0	23.9	0	8.9	0	9.0	0	9.0	0	9.0
7	69.0	66.3	0	24.8	0	8.5	0	8.6	0	8.6	0	8.6
8	70.6	66.9	0	28.0	0	8.3	0	8.3	0	8.3	0	8.3
9	73.0	67.7	0	30.7	0	9.6	0	9.7	0	9.7	0	9.7
10	76.1	68.1	0	34.3	0	12.1	0	12.2	0	12.2	0	12.2
11	79.5	69.1	0	38.5	0	16.1	0	16.3	0	16.3	0	16.3
12	82.9	70.1	0	42.3	0	20.8	0	20.9	0	20.9	0	20.9
13	86.0	71.0	0	48.5	0	25.4	0	25.5	0	25.5	0	25.5
14	88.4	72.5	0	51.9	0	30.5	0	30.5	0	30.5	0	30.5
15	90.0	74.0	0	55.4	0	34.0	0	34.0	0	34.0	0	34.0
16	90.5	73.7	0	58.9	0	36.3	0	36.3	0	36.3	0	36.3
17	90.3	74.2	0	61.4	0	38.4	0	38.4	0	38.4	0	38.4
18	89.4	73.9	0	61.4	0	39.7	0	39.7	0	39.7	0	39.7
19	88.1	74.5	0	61.4	0	39.0	0	39.0	0	39.0	0	39.0
20	86.4	75.3	0	59.6	0	37.9	0	37.9	0	37.9	0	37.9
21	84.3	76.5	0	54.3	0	35.5	0	35.5	0	35.5	0	35.5
22	81.9	75.7	0	50.9	0	33.5	0	33.5	0	33.5	0	33.5
23	79.5	74.0	0	47.9	0	30.2	0	30.2	0	30.2	0	30.2
24	77.0	72.1	0	44.0	0	27.7	0	27.7	0	27.7	0	27.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	41.6	0	17.4	0	18.5	0	18.5	0	18.5
2	72.4	69.4	0	33.4	0	15.6	0	16.8	0	16.8	0	16.8
3	71.3	68.4	0	31.8	0	12.6	0	13.1	0	13.1	0	13.1
4	70.5	67.7	0	28.0	0	11.1	0	11.3	0	11.3	0	11.3
5	70.0	67.4	0	26.0	0	9.2	0	9.4	0	9.4	0	9.4
6	69.9	67.5	0	24.0	0	7.5	0	7.6	0	7.6	0	7.6
7	70.3	68.0	0	24.2	0	6.8	0	6.8	0	6.8	0	6.8
8	71.7	69.0	0	26.5	0	7.6	0	8.0	0	8.0	0	8.0
9	73.7	69.5	0	29.0	0	8.5	0	8.8	0	8.8	0	8.8
10	76.2	70.6	0	33.3	0	13.3	0	13.4	0	13.4	0	13.4
11	78.9	71.8	0	36.8	0	16.1	0	16.1	0	16.1	0	16.1
12	81.4	73.0	0	41.1	0	20.5	0	20.5	0	20.5	0	20.5
13	83.4	74.4	0	45.7	0	25.2	0	25.2	0	25.2	0	25.2
14	84.8	74.8	0	49.3	0	29.4	0	29.4	0	29.4	0	29.4
15	85.2	75.0	0	53.3	0	31.5	0	31.5	0	31.5	0	31.5
16	85.1	75.0	0	56.2	0	34.5	0	34.5	0	34.5	0	34.5
17	84.6	74.7	0	57.9	0	34.7	0	34.7	0	34.7	0	34.7
18	83.8	74.6	0	58.4	0	35.2	0	35.2	0	35.2	0	35.2
19	82.7	74.6	0	57.4	0	36.0	0	36.0	0	36.0	0	36.0
20	81.4	74.4	0	55.0	0	33.9	0	33.9	0	33.9	0	33.9
21	79.9	74.9	0	51.2	0	31.7	0	31.7	0	31.7	0	31.7
22	78.4	74.0	0	47.6	0	29.3	0	29.3	0	29.3	0	29.3
23	76.8	72.7	0	45.2	0	25.5	0	25.5	0	25.5	0	25.5
24	75.2	71.6	0	41.6	0	23.1	0	23.1	0	23.1	0	23.1

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	40.6	0	19.5	0	21.8	0	21.8	0	21.8
2	73.2	70.3	0	31.8	0	16.3	0	17.1	0	17.1	0	17.1
3	71.7	68.9	0	28.9	0	14.7	0	15.5	0	15.5	0	15.5
4	70.4	67.8	0	26.8	0	11.8	0	11.9	0	11.9	0	11.9
5	69.5	66.8	0	24.5	0	10.2	0	10.3	0	10.3	0	10.3
6	68.9	66.4	0	21.4	0	7.4	0	7.5	0	7.5	0	7.5
7	68.7	66.4	0	21.5	0	5.9	0	6.0	0	6.0	0	6.0
8	69.2	66.8	0	22.3	0	5.2	0	5.2	0	5.2	0	5.2
9	70.8	67.7	0	26.1	0	6.9	0	7.0	0	7.0	0	7.0
10	73.2	67.7	0	29.0	0	8.5	0	8.6	0	8.6	0	8.6
11	76.2	68.8	0	34.9	0	12.1	0	12.3	0	12.3	0	12.3
12	79.3	70.3	0	38.6	0	16.5	0	16.7	0	16.7	0	16.7
13	82.3	72.2	0	44.1	0	21.3	0	21.4	0	21.4	0	21.4
14	84.7	73.7	0	49.7	0	26.1	0	26.1	0	26.1	0	26.1
15	86.3	74.6	0	52.8	0	31.4	0	31.4	0	31.4	0	31.4
16	86.8	75.1	0	56.7	0	32.6	0	32.6	0	32.6	0	32.6
17	86.6	75.1	0	58.1	0	35.5	0	35.5	0	35.5	0	35.5
18	86.0	75.3	0	58.0	0	36.8	0	36.8	0	36.8	0	36.8
19	85.1	76.0	0	56.6	0	35.8	0	35.8	0	35.8	0	35.8
20	83.8	76.8	0	53.7	0	34.3	0	34.3	0	34.3	0	34.3
21	82.3	77.2	0	50.8	0	32.6	0	32.6	0	32.6	0	32.6
22	80.6	76.3	0	47.2	0	30.8	0	30.8	0	30.8	0	30.8
23	78.7	75.3	0	43.1	0	28.3	0	28.3	0	28.3	0	28.3
24	76.8	73.7	0	39.7	0	24.1	0	24.1	0	24.1	0	24.1



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	26.6	0	10.2	0	10.4	0	10.4	0	10.4
2	67.6	65.0	0	21.3	0	7.8	0	8.1	0	8.1	0	8.1
3	65.8	63.4	0	18.2	0	5.0	0	5.2	0	5.2	0	5.2
4	64.3	62.2	0	16.2	0	2.4	0	2.6	0	2.6	0	2.6
5	63.1	61.1	0	13.3	0	0.7	0	0.8	0	0.8	0	0.8
6	62.4	60.3	0	11.6	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	10.5	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	13.8	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	18.3	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	22.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	27.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	33.1	0	8.2	0	8.2	0	8.2	0	8.2
14	81.2	68.4	0	37.8	0	14.8	0	14.8	0	14.8	0	14.8
15	83.0	70.0	0	43.4	0	17.8	0	17.8	0	17.8	0	17.8
16	83.7	70.5	0	48.7	0	20.6	0	21.0	0	21.0	0	21.0
17	83.4	70.5	0	49.7	0	24.3	0	24.8	0	24.8	0	24.8
18	82.8	70.9	0	47.5	0	24.9	0	24.9	0	24.9	0	24.9
19	81.6	72.7	0	45.8	0	24.0	0	24.0	0	24.0	0	24.0
20	80.1	74.7	0	42.6	0	23.7	0	23.7	0	23.7	0	23.7
21	78.3	74.1	0	39.6	0	22.3	0	22.3	0	22.3	0	22.3
22	76.3	72.4	0	35.8	0	19.9	0	19.9	0	19.9	0	19.9
23	74.1	70.7	0	31.6	0	15.8	0	15.8	0	15.8	0	15.8
24	71.8	68.9	0	27.4	0	13.4	0	13.4	0	13.4	0	13.4

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	-17,966	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-102,969	0.0	-102,969	0.0	-102,969	0.0
3	48.4	46.9	0	0.0	0	0.0	-166,635	0.0	-166,635	0.0	-166,635	0.0
4	47.1	45.8	0	0.0	-135,263	0.0	-187,929	0.0	-187,929	0.0	-187,929	0.0
5	46.3	44.8	0	0.0	-218,942	0.0	-218,942	0.0	-218,942	0.0	-218,942	0.0
6	46.0	44.5	0	0.0	-256,098	0.0	-256,098	0.0	-256,098	0.0	-256,098	0.0
7	46.8	45.3	-99,472	0.0	-269,025	0.0	-269,025	0.0	-269,025	0.0	-269,025	0.0
8	48.9	47.5	-118,531	0.0	-272,115	0.0	-272,115	0.0	-272,115	0.0	-272,115	0.0
9	52.2	49.9	-73,612	0.0	-250,171	0.0	-250,171	0.0	-250,171	0.0	-250,171	0.0
10	56.2	52.5	-13,467	0.0	-207,190	0.0	-207,190	0.0	-207,190	0.0	-207,190	0.0
11	60.4	54.4	0	0.0	-163,120	0.0	-163,120	0.0	-163,120	0.0	-163,120	0.0
12	64.4	56.0	0	0.0	-107,073	0.0	-107,073	0.0	-107,073	0.0	-107,073	0.0
13	67.7	57.3	0	0.0	-57,096	0.0	-57,096	0.0	-57,096	0.0	-57,096	0.0
14	69.8	58.2	0	0.8	-11,075	0.0	-11,075	0.0	-11,075	0.0	-11,075	0.0
15	70.6	58.1	0	22.3	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	26.4	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	27.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	24.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	21.4	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	17.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	13.9	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	9.4	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	-133,099	0.0	-133,099	0.0	-133,099	0.0
2	49.4	47.3	0	0.0	0	0.0	-168,813	0.0	-168,813	0.0	-168,813	0.0
3	47.2	45.3	-51,495	0.0	-62,552	0.0	-202,542	0.0	-202,542	0.0	-202,542	0.0
4	45.3	43.4	-129,726	0.0	-235,687	0.0	-235,687	0.0	-235,687	0.0	-235,687	0.0
5	43.9	42.2	-165,265	0.0	-254,802	0.0	-254,802	0.0	-254,802	0.0	-254,802	0.0
6	43.0	41.4	-192,815	0.0	-285,235	0.0	-285,235	0.0	-285,235	0.0	-285,235	0.0
7	42.7	41.2	-210,402	0.0	-314,033	0.0	-314,033	0.0	-314,033	0.0	-314,033	0.0
8	43.5	42.0	-197,136	0.0	-323,975	0.0	-323,975	0.0	-323,975	0.0	-323,975	0.0
9	45.9	44.0	-140,483	0.0	-310,897	0.0	-310,897	0.0	-310,897	0.0	-310,897	0.0
10	49.4	46.6	-67,927	0.0	-273,689	0.0	-273,689	0.0	-273,689	0.0	-273,689	0.0
11	53.8	48.6	0	0.0	-231,612	0.0	-231,612	0.0	-231,612	0.0	-231,612	0.0
12	58.4	50.6	0	0.0	-176,420	0.0	-176,420	0.0	-176,420	0.0	-176,420	0.0
13	62.8	52.6	0	0.0	-125,837	0.0	-125,837	0.0	-125,837	0.0	-125,837	0.0
14	66.3	54.5	0	0.0	-58,206	0.0	-58,206	0.0	-58,206	0.0	-58,206	0.0
15	68.7	55.7	0	14.9	-17,843	0.0	-17,843	0.0	-17,843	0.0	-17,843	0.0
16	69.5	56.1	0	25.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	21.6	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	17.8	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	9.4	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	1.3	-69,708	0.0	-69,708	0.0	-69,708	0.0	-69,708	0.0
24	54.7	51.7	0	0.0	-103,056	0.0	-103,056	0.0	-103,056	0.0	-103,056	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-132,348	0.0	-28,723	0.0	-264,025	0.0	-264,025	0.0	-264,025	0.0
2	43.2	41.1	-169,045	0.0	-299,295	0.0	-299,295	0.0	-299,295	0.0	-299,295	0.0
3	41.8	39.8	-208,219	0.0	-325,748	0.0	-325,748	0.0	-325,748	0.0	-325,748	0.0
4	40.7	38.7	-230,108	0.0	-344,844	0.0	-344,844	0.0	-344,844	0.0	-344,844	0.0
5	40.1	38.4	-261,575	0.0	-374,418	0.0	-374,418	0.0	-374,418	0.0	-374,418	0.0
6	39.9	38.4	-278,287	0.0	-392,014	0.0	-392,014	0.0	-392,014	0.0	-392,014	0.0
7	40.5	39.0	-297,065	0.0	-410,185	0.0	-410,185	0.0	-410,185	0.0	-410,185	0.0
8	42.2	40.7	-307,722	0.0	-423,447	0.0	-423,447	0.0	-423,447	0.0	-423,447	0.0
9	44.9	43.4	-257,496	0.0	-400,132	0.0	-400,132	0.0	-400,132	0.0	-400,132	0.0
10	48.2	45.8	-178,220	0.0	-359,902	0.0	-359,902	0.0	-359,902	0.0	-359,902	0.0
11	51.7	48.3	-107,710	0.0	-308,506	0.0	-308,506	0.0	-308,506	0.0	-308,506	0.0
12	55.0	50.7	-22,629	0.0	-253,920	0.0	-253,920	0.0	-253,920	0.0	-253,920	0.0
13	57.7	52.0	0	0.0	-199,490	0.0	-199,490	0.0	-199,490	0.0	-199,490	0.0
14	59.5	52.6	0	0.0	-147,330	0.0	-147,330	0.0	-147,330	0.0	-147,330	0.0
15	60.1	52.7	0	0.0	-118,886	0.0	-118,886	0.0	-118,886	0.0	-118,886	0.0
16	59.9	52.6	0	0.0	-70,567	0.0	-70,567	0.0	-70,567	0.0	-70,567	0.0
17	59.2	52.1	0	10.8	-72,910	0.0	-72,910	0.0	-72,910	0.0	-72,910	0.0
18	58.2	51.8	0	10.4	-82,725	0.0	-82,725	0.0	-82,725	0.0	-82,725	0.0
19	56.8	52.2	0	6.7	-93,487	0.0	-93,487	0.0	-93,487	0.0	-93,487	0.0
20	55.0	51.4	0	2.5	-127,734	0.0	-127,734	0.0	-127,734	0.0	-127,734	0.0
21	53.1	50.1	-16,211	0.0	-151,342	0.0	-151,342	0.0	-151,342	0.0	-151,342	0.0
22	51.0	48.1	0	0.0	-174,976	0.0	-174,976	0.0	-174,976	0.0	-174,976	0.0
23	48.9	46.2	0	0.0	-208,871	0.0	-208,871	0.0	-208,871	0.0	-208,871	0.0
24	46.9	44.1	0	0.0	-239,755	0.0	-239,755	0.0	-239,755	0.0	-239,755	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF COOLING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 25721 (10 BUILDINGS)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	ENLISTED BARRACKS

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	ALL THREE FLOORS	10191.2		4	0		11	3		

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				10			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	169.25	10	8	8	0			
1	2	6	10	8	8	90			
1	3	57.25	10	8	8	0			
1	4	34	10	8	8	90			
1	5	57.25	10	8	8	180			
1	6	16	10	8	8	90			
1	7	169.25	10	8	8	180			
1	8	16	10	8	8	270			
1	9	57.25	10	8	8	180			
1	10	34	10	8	8	270			
1	11	57.25	10	8	8	0			
1	12	6	10	8	8	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	3.75	1	112	.65	.88	3				
1	3	3.75	1	40	.65	.88	3				
1	4	3.75	1	8	.65	.88	3				
1	5	3.75	1	32	.65	.88	3				
1	6	2	2	1	.65	.88	3				
1	7	3.75	1	128	.65	.88	3				
1	8	2	2	1	.65	.88	3				
1	9	3.75	1	32	.65	.88	3				
1	10	3.75	1	8	.65	.88	3				

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	24	PEOPLE	255	325	2.2	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	REFRIG	1.2	KW	FGHEAT						
1	2	DRYER	7	KW	FGHEAT						
1	3	WASHER	.5	KW	FGHEAT						
1	4	MISS	20.3	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	1	CFM-SF	1	CFM-SF						

## -----CARD 33-- External Shading -----

Shading Type	-----OVERHANG-----				-----VERTICAL FINS-----				
	Glass Height	Above Glass	Projection Out	Projection Width	Left Projection	Left Projection Out	Right Projection	Right Projection Out	Adjacent Building Flag
3	4		3						



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHO FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC (Utility file not found)

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	



Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 21707 (17 BUILDINGS)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	ENLISTED BARRACKS

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	ALL THREE FLOORS	14000		4	0		11	3		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location	T'stat Flag	Mass / No. Hrs	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				10			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	169.25	10		8	0			
1	2	6	10		8	90			
1	3	57.25	10		8	0			
1	4	34	10		8	90			
1	5	57.25	10		8	180			
1	6	16	10		8	90			
1	7	169.25	10		8	180			
1	8	16	10		8	270			
1	9	57.25	10		8	180			
1	10	34	10		8	270			
1	11	57.25	10		8	0			
1	12	6	10		8	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	3.75	1	112	1.03	.82	3				
1	3	3.75	1	40	1.03	.82	3				
1	4	3.75	1	8	1.03	.82	3				
1	5	3.75	1	32	1.03	.82	3				
1	6	2	2	1	1.03	.82	3				
1	7	3.75	1	128	1.03	.82	3				
1	8	2	2	1	1.03	.82	3				
1	9	3.75	1	32	1.03	.82	3				
1	10	3.75	1	8	1.03	.82	3				

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	TYPE4A	TYPE4B								

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	38	PEOPLE	255	325	2.2	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	REFRIG	11.4	KW	TYPE4B						
1	2	DRYER	7	KW	TYPE4B						
1	3	WASHER	.5	KW	TYPE4B						
1	4	MISS	13.5	KW	TYPE4B						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## -----CARD 33-- External Shading -----

Shading Type	-----OVERHANG-----				-----VERTICAL FINS-----				Adjacent Building Flag
	Glass Height	Above Glass	Projection Out	Glass Width	Projection Left	Projection Out	Projection Right	Projection Out	
3	4		3						



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

TYPE4A PEOPLE LOAD

TYPE4B LIGHTING LOAD

System:

FC (Utility file not found)



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: TYPE4A  
Project: FT GORDON ENERGY STUDY  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: PEOPLE, VENTILLATION, INFILTRA

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	100
8	10
17	100
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: TYPE4B  
Project: FORT GORDON ENERGY STUDY  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments: LIGHTING SCHEDULE

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
5	50
8	0
17	50
21	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	50
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 21709 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12:35: 0 8/15/94  
Dataset Name: FGTYP55A .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==) Mo/Hr: 6/17 \* Mo/Hr: 6/17 \* Mo/Hr: 12/1  
 Outside Air ==) OADB/WB/HR: 98/ 74/ 91.0 \* OADB: 98 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads										
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00
Roof Cond	22,967	0	0	22,967	11.76	22,967	13.15	-12,031	-12,031	8.65
Glass Solar	97,200	0	0	97,200	49.78	97,200	55.67	0	0	0.00
Glass Cond	30,730	0	0	30,730	15.74	30,730	17.60	-68,413	-68,413	49.18
Wall Cond	17,575	0	0	17,575	9.00	17,575	10.07	-25,108	-25,108	18.05
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00
Infiltration	10,392	0	0	10,392	5.32	6,121	3.51	-14,841	-14,841	10.67
Sub Total==>	178,864	0	0	178,864	91.61	174,593	100.00	-120,393	-120,393	86.54
Internal Loads										
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00
People	0	0	0	0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	16,386	8.39	0	0.00	0	-18,722	13.46
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00
Grand Total==>	178,864	0	0	195,250	100.00	174,593	100.00	-120,393	-139,114	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf) (%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Part	
Main Clg	16.3	195.3	11,056	75.8	63.0	66.1	60.8	57.2	64.7	1,776	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	16.3	195.3	11,056							2,973	1,350 45

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
					Vent			Clg % OA	3.4	Type	Clg	Htg	
Main Htg	-139.1	11,056	66.5	77.8	Infil	238	297	Clg Cfm/Sqft	1.52	SADB	60.8	77.8	
Aux Htg	0.0	0	0.0	0.0	Supply	11,056	11,056	Clg Cfm/Ton	679.49	Plenum	75.0	68.0	
Preheat	-0.0	11,056	66.5	60.8	Mincfm	0	0	Clg Sqft/Ton	447.67	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Return	11,056	11,056	Clg Btuh/Sqft	26.81	Ret/OA	75.8	66.5	
Humidif	0.0	0	0.0	0.0	Exhaust	375	375	No. People	25	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	3.4	Fn MtrTD	0.0	0.0	
Total	-139.1	11,056	66.5	77.8	Auxil	0	0	Htg Cfm/Sqft	1.52	Fn BldTD	0.0	0.0	
								Htg Btuh/Sqft	-19.10	Fn Frict	0.0	0.0	

System 2 Block UH - UNIT HEATERS

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==) Mo/Hr: 0/ 0 \* Mo/Hr: 0/ 0 \* Mo/Hr: 13/ 1  
 Outside Air ==) OADB/WB/HR: 0/ 0/ 0.0 \* OADB: 0 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0		0	0.00	*	0	0.00	*	-6,346	-6,346	12.61
Glass Solar	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0		0	0.00	*	0	0.00	*	-11,402	-11,402	22.65
Wall Cond	0	0		0	0.00	*	0	0.00	*	-23,792	-23,792	47.26
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0			0	0.00	*	0	0.00	*	-8,800	-8,800	17.48
Sub Total==>	0	0		0	0.00	*	0	0.00	*	-50,341	-50,341	100.00
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0			0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==>	0	0	0	0	0.00	*	0	0.00	*	-50,341	-50,341	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	3,842	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	0	0
Totals	0.0	0.0								Wall	3,842	225 13

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--	
								Clg % OA	0.0	Type	Clg Htg
Main Htg	-50.3	3,842	68.0	79.8	Vent	0	0	Clg Cfm/Sqft	0.00	SADB	0.0 79.8
Aux Htg	0.0	0	0.0	0.0	Infil	0	176	Clg Cfm/Ton	0.00	Plenum	0.0 68.0
Preheat	0.0	0	0.0	0.0	Supply	0	3,842	Clg Sqft/Ton	0.00	Return	0.0 68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	0.00	Ret/OA	0.0 68.0
Humidif	0.0	0	0.0	0.0	Return	0	3,842	No. People	0	Runarnd	0.0 68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	0	0	Htg % OA	0.0	Fn MtrTD	0.0 0.0
Total	-50.3				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0 0.0
					Auxil	0	0	Htg Btuh/Sqft	-13.10	Fn Frict	0.0 0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-114,067	0.0	-85,278	0.0	-97,683	0.0	-97,685	0.0	-97,685	0.0
2	32.9	30.7	-104,795	0.0	-92,606	0.0	-101,217	0.0	-101,219	0.0	-101,219	0.0
3	33.1	31.3	-99,406	0.0	-97,151	0.0	-103,131	0.0	-103,132	0.0	-103,132	0.0
4	33.9	32.1	-96,342	0.0	-97,806	0.0	-101,959	0.0	-101,959	0.0	-101,959	0.0
5	35.2	33.5	-94,721	0.0	-98,474	0.0	-101,358	0.0	-101,358	0.0	-101,358	0.0
6	37.0	35.4	-87,262	0.0	-96,547	0.0	-98,550	0.0	-98,550	0.0	-98,550	0.0
7	39.0	37.6	-84,384	0.0	-94,443	0.0	-95,834	0.0	-95,834	0.0	-95,834	0.0
8	41.3	40.1	-79,918	0.0	-90,495	0.0	-91,461	0.0	-91,461	0.0	-91,461	0.0
9	43.7	42.5	-68,167	0.0	-82,488	0.0	-83,159	0.0	-83,159	0.0	-83,159	0.0
10	46.1	44.0	-49,518	0.0	-73,577	0.0	-74,043	0.0	-74,043	0.0	-74,043	0.0
11	48.4	45.0	-27,316	0.0	-61,132	0.0	-61,455	0.0	-61,455	0.0	-61,455	0.0
12	50.5	45.6	-13,193	0.0	-50,219	0.0	-50,443	0.0	-50,443	0.0	-50,443	0.0
13	52.2	46.1	-9,608	0.0	-40,905	0.0	-41,060	0.0	-41,060	0.0	-41,060	0.0
14	53.5	46.4	-5,959	0.0	-32,060	0.0	-32,168	0.0	-32,168	0.0	-32,168	0.0
15	54.3	46.3	-3,233	0.0	-25,234	0.0	-25,308	0.0	-25,308	0.0	-25,308	0.0
16	54.6	46.1	-1,270	3.9	-19,666	0.0	-19,718	0.0	-19,718	0.0	-19,718	0.0
17	54.0	45.9	-812	5.4	-17,646	0.0	-17,682	0.0	-17,682	0.0	-17,682	0.0
18	52.5	45.0	-3,384	3.1	-20,729	0.0	-20,754	0.0	-20,754	0.0	-20,754	0.0
19	50.1	44.8	-6,600	1.2	-29,664	0.0	-29,681	0.0	-29,681	0.0	-29,681	0.0
20	47.1	43.3	-10,166	0.0	-42,464	0.0	-42,476	0.0	-42,476	0.0	-42,476	0.0
21	43.7	40.4	-12,253	0.0	-55,403	0.0	-55,412	0.0	-55,412	0.0	-55,412	0.0
22	40.4	37.3	-14,639	0.0	-69,039	0.0	-69,045	0.0	-69,045	0.0	-69,045	0.0
23	37.3	34.9	-17,449	0.0	-80,443	0.0	-80,447	0.0	-80,447	0.0	-80,447	0.0
24	34.9	32.6	-31,194	0.0	-90,134	0.0	-90,137	0.0	-90,137	0.0	-90,137	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-51,204	0.0	-50,510	0.4	-71,139	0.0	-71,146	0.0	-71,146	0.0
2	39.7	37.1	-57,542	0.0	-66,630	0.0	-79,788	0.0	-79,792	0.0	-79,792	0.0
3	37.8	35.1	-63,682	0.0	-78,771	0.0	-87,905	0.0	-87,908	0.0	-87,908	0.0
4	36.3	33.8	-68,946	0.0	-87,898	0.0	-94,238	0.0	-94,241	0.0	-94,241	0.0
5	35.1	32.6	-72,832	0.0	-96,638	0.0	-101,041	0.0	-101,042	0.0	-101,042	0.0
6	34.4	32.0	-75,077	0.0	-101,016	0.0	-104,071	0.0	-104,072	0.0	-104,072	0.0
7	34.1	31.9	-75,059	0.0	-104,840	0.0	-106,962	0.0	-106,963	0.0	-106,963	0.0
8	34.6	32.4	-70,692	0.0	-105,251	0.0	-106,724	0.0	-106,725	0.0	-106,725	0.0
9	36.0	33.8	-58,199	0.0	-99,421	0.0	-100,443	0.0	-100,444	0.0	-100,444	0.0
10	38.2	34.7	-38,593	0.0	-88,667	0.0	-89,377	0.0	-89,377	0.0	-89,377	0.0
11	40.9	36.2	-15,916	0.0	-75,056	0.0	-75,548	0.0	-75,548	0.0	-75,548	0.0
12	43.9	37.4	-10,209	0.0	-61,288	0.0	-61,629	0.0	-61,629	0.0	-61,629	0.0
13	46.9	39.4	-6,773	0.0	-47,814	0.0	-48,051	0.0	-48,051	0.0	-48,051	0.0
14	49.7	41.4	-3,089	0.0	-35,029	0.0	-35,192	0.0	-35,192	0.0	-35,192	0.0
15	51.8	42.8	0	2.5	-24,903	0.0	-25,016	0.0	-25,016	0.0	-25,016	0.0
16	53.2	43.9	0	6.0	-16,903	0.0	-16,981	0.0	-16,981	0.0	-16,981	0.0
17	53.7	44.2	0	6.4	-14,498	0.0	-14,498	0.0	-14,498	0.0	-14,498	0.0
18	53.4	44.4	0	5.4	-14,118	0.0	-14,118	0.0	-14,118	0.0	-14,118	0.0
19	52.7	44.4	0	2.6	-15,348	0.0	-15,348	0.0	-15,348	0.0	-15,348	0.0
20	51.5	45.2	-3,710	0.8	-21,720	0.0	-21,762	0.0	-21,762	0.0	-21,762	0.0
21	50.0	44.6	-9,834	0.0	-31,143	0.0	-31,172	0.0	-31,172	0.0	-31,172	0.0
22	48.1	43.3	-12,528	0.0	-41,401	0.0	-41,421	0.0	-41,421	0.0	-41,421	0.0
23	46.1	41.8	-14,856	0.0	-51,722	0.0	-51,736	0.0	-51,736	0.0	-51,736	0.0
24	43.9	40.1	-19,736	0.0	-61,160	0.0	-61,170	0.0	-61,170	0.0	-61,170	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-8,499	0.0	0	0.0	-10,909	0.0	-10,909	0.0	-10,909	0.0
2	48.7	44.6	-14,307	0.0	0	0.0	-17,876	0.0	-17,876	0.0	-17,876	0.0
3	46.6	42.9	-20,631	0.0	-11,499	0.0	-32,942	0.0	-32,942	0.0	-32,942	0.0
4	44.9	41.4	-26,405	0.0	-24,679	0.0	-45,904	0.0	-45,904	0.0	-45,904	0.0
5	43.9	40.8	-30,307	0.0	-33,606	0.0	-54,299	0.0	-54,299	0.0	-54,299	0.0
6	43.5	40.8	-32,031	0.0	-43,095	0.0	-59,907	0.0	-59,907	0.0	-59,907	0.0
7	44.0	41.4	-31,931	0.0	-60,323	0.0	-62,115	0.0	-62,115	0.0	-62,115	0.0
8	45.4	42.7	-23,367	0.0	-57,257	0.0	-58,501	0.0	-58,501	0.0	-58,501	0.0
9	47.7	44.3	-7,623	0.0	-47,666	0.0	-48,531	0.0	-48,531	0.0	-48,531	0.0
10	50.6	45.8	-3,236	0.0	-34,118	0.0	-34,718	0.0	-34,718	0.0	-34,718	0.0
11	53.9	47.4	0	0.0	-16,967	0.0	-17,383	0.0	-17,383	0.0	-17,383	0.0
12	57.4	49.0	0	0.0	-8,366	0.0	-8,366	0.0	-8,366	0.0	-8,366	0.0
13	60.7	50.8	0	6.2	-6,319	0.0	-6,319	0.0	-6,319	0.0	-6,319	0.0
14	63.6	52.7	0	7.1	-3,102	0.0	-3,102	0.0	-3,102	0.0	-3,102	0.0
15	65.9	53.7	0	8.4	-1,395	0.0	-1,395	0.0	-1,395	0.0	-1,395	0.0
16	67.3	54.4	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	10.1	0	3.6	0	3.6	0	3.6	0	3.6
18	67.4	54.8	0	9.5	0	3.5	0	3.5	0	3.5	0	3.5
19	66.4	55.2	0	6.4	0	2.1	0	2.1	0	2.1	0	2.1
20	64.7	56.0	0	4.3	0	0.8	0	0.8	0	0.8	0	0.8
21	62.5	56.0	0	2.7	-796	0.0	-796	0.0	-796	0.0	-796	0.0
22	60.0	54.1	0	1.4	-5,035	0.0	-5,035	0.0	-5,035	0.0	-5,035	0.0
23	57.1	51.9	0	0.0	-6,783	0.0	-6,783	0.0	-6,783	0.0	-6,783	0.0
24	54.2	49.4	0	0.0	-8,626	0.0	-8,626	0.0	-8,626	0.0	-8,626	0.0

April Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	-2,073	0.0	-2,475	0.0	-2,475	0.0	-2,475	0.0
8	53.9	51.5	0	0.0	-3,950	0.0	-4,184	0.0	-4,184	0.0	-4,184	0.0
9	55.9	52.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	58.9	53.2	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	7.1	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	9.4	0	3.1	0	3.0	0	3.0	0	3.0
15	75.2	62.2	0	10.6	0	5.6	0	5.6	0	5.6	0	5.6
16	75.9	62.2	0	11.5	0	5.8	0	5.8	0	5.8	0	5.8
17	75.6	62.0	0	12.0	0	6.3	0	6.3	0	6.3	0	6.3
18	74.9	61.7	0	11.6	0	6.1	0	6.1	0	6.1	0	6.1
19	73.7	62.0	0	9.2	0	5.0	0	5.0	0	5.0	0	5.0
20	72.1	62.4	0	6.8	0	3.4	0	3.4	0	3.4	0	3.4
21	70.2	63.3	0	5.0	0	2.5	0	2.5	0	2.5	0	2.5
22	68.0	62.5	0	3.7	0	1.5	0	1.5	0	1.5	0	1.5
23	65.7	60.5	0	2.5	0	0.6	0	0.6	0	0.6	0	0.6
24	63.4	58.5	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	2.4	0	0.9	0	1.1	0	1.1	0	1.1
2	65.7	61.5	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	9.2	0	2.6	0	2.7	0	2.7	0	2.7
12	74.3	60.9	0	9.9	0	4.6	0	4.7	0	4.7	0	4.7
13	78.5	63.7	0	10.2	0	5.3	0	5.4	0	5.4	0	5.4
14	81.9	65.3	0	11.3	0	6.4	0	6.5	0	6.5	0	6.5
15	84.1	66.9	0	12.6	0	7.7	0	7.7	0	7.7	0	7.7
16	84.9	67.1	0	13.4	0	8.2	0	8.3	0	8.3	0	8.3
17	84.6	67.3	0	13.9	0	8.7	0	8.7	0	8.7	0	8.7
18	83.8	67.1	0	13.6	0	8.6	0	8.6	0	8.6	0	8.6
19	82.4	67.5	0	11.8	0	7.7	0	7.7	0	7.7	0	7.7
20	80.6	68.9	0	9.2	0	5.9	0	5.9	0	5.9	0	5.9
21	78.5	71.0	0	7.3	0	5.0	0	5.0	0	5.0	0	5.0
22	76.1	69.9	0	5.9	0	3.9	0	3.9	0	3.9	0	3.9
23	73.4	68.0	0	4.5	0	2.9	0	2.9	0	2.9	0	2.9
24	70.8	65.5	0	3.4	0	1.9	0	1.9	0	1.9	0	1.9

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	5.6	0	2.8	0	3.1	0	3.1	0	3.1
2	72.6	68.4	0	4.6	0	2.1	0	2.3	0	2.3	0	2.3
3	70.9	67.3	0	3.9	0	1.1	0	1.2	0	1.2	0	1.2
4	69.6	66.5	0	3.2	0	0.8	0	0.9	0	0.9	0	0.9
5	68.7	65.8	0	3.0	0	0.2	0	0.2	0	0.2	0	0.2
6	68.5	65.7	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	4.5	0	0.6	0	0.7	0	0.7	0	0.7
8	70.6	66.9	0	7.0	0	2.7	0	2.7	0	2.7	0	2.7
9	73.0	67.7	0	9.1	0	4.3	0	4.3	0	4.3	0	4.3
10	76.1	68.1	0	10.6	0	6.1	0	6.1	0	6.1	0	6.1
11	79.5	69.1	0	11.9	0	7.0	0	7.0	0	7.0	0	7.0
12	82.9	70.1	0	12.3	0	7.7	0	7.7	0	7.7	0	7.7
13	86.0	71.0	0	12.8	0	8.2	0	8.2	0	8.2	0	8.2
14	88.4	72.5	0	13.5	0	9.3	0	9.3	0	9.3	0	9.3
15	90.0	74.0	0	14.7	0	10.9	0	10.9	0	10.9	0	10.9
16	90.5	73.7	0	15.5	0	10.8	0	10.8	0	10.8	0	10.8
17	90.3	74.2	0	16.1	0	11.3	0	11.3	0	11.3	0	11.3
18	89.4	73.9	0	15.9	0	11.2	0	11.2	0	11.2	0	11.2
19	88.1	74.5	0	14.3	0	10.3	0	10.3	0	10.3	0	10.3
20	86.4	75.3	0	11.8	0	8.3	0	8.3	0	8.3	0	8.3
21	84.3	76.5	0	10.0	0	7.2	0	7.2	0	7.2	0	7.2
22	81.9	75.7	0	8.2	0	6.1	0	6.1	0	6.1	0	6.1
23	79.5	74.0	0	7.0	0	5.0	0	5.0	0	5.0	0	5.0
24	77.0	72.1	0	6.0	0	4.1	0	4.1	0	4.1	0	4.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July Hour	OAOB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	5.7	0	2.0	0	2.3	0	2.3	0	2.3
2	72.4	69.4	0	4.6	0	1.7	0	1.9	0	1.9	0	1.9
3	71.3	68.4	0	4.1	0	1.1	0	1.1	0	1.1	0	1.1
4	70.5	67.7	0	3.5	0	0.5	0	0.5	0	0.5	0	0.5
5	70.0	67.4	0	3.3	0	0.2	0	0.2	0	0.2	0	0.2
6	69.9	67.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	4.4	0	0.4	0	0.4	0	0.4	0	0.4
8	71.7	69.0	0	7.0	0	2.8	0	2.8	0	2.8	0	2.8
9	73.7	69.5	0	8.8	0	4.6	0	4.7	0	4.7	0	4.7
10	76.2	70.6	0	10.4	0	6.5	0	6.5	0	6.5	0	6.5
11	78.9	71.8	0	11.7	0	7.4	0	7.4	0	7.4	0	7.4
12	81.4	73.0	0	12.2	0	7.9	0	7.9	0	7.9	0	7.9
13	83.4	74.4	0	12.4	0	8.2	0	8.2	0	8.2	0	8.2
14	84.8	74.8	0	13.1	0	9.0	0	9.0	0	9.0	0	9.0
15	85.2	75.0	0	14.3	0	10.1	0	10.1	0	10.1	0	10.1
16	85.1	75.0	0	15.1	0	10.0	0	10.0	0	10.0	0	10.0
17	84.6	74.7	0	15.7	0	10.2	0	10.2	0	10.2	0	10.2
18	83.8	74.6	0	15.5	0	10.2	0	10.2	0	10.2	0	10.2
19	82.7	74.6	0	14.2	0	8.9	0	8.9	0	8.9	0	8.9
20	81.4	74.4	0	11.4	0	7.3	0	7.3	0	7.3	0	7.3
21	79.9	74.9	0	9.5	0	6.0	0	6.0	0	6.0	0	6.0
22	78.4	74.0	0	8.1	0	5.1	0	5.1	0	5.1	0	5.1
23	76.8	72.7	0	7.1	0	4.0	0	4.0	0	4.0	0	4.0
24	75.2	71.6	0	6.2	0	3.1	0	3.1	0	3.1	0	3.1

August Hour	OAOB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	5.6	0	2.5	0	2.8	0	2.8	0	2.8
2	73.2	70.3	0	4.4	0	1.9	0	2.0	0	2.0	0	2.0
3	71.7	68.9	0	4.0	0	1.5	0	1.6	0	1.6	0	1.6
4	70.4	67.8	0	3.3	0	0.9	0	0.9	0	0.9	0	0.9
5	69.5	66.8	0	2.7	0	0.2	0	0.2	0	0.2	0	0.2
6	68.9	66.4	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	6.0	0	1.8	0	1.8	0	1.8	0	1.8
9	70.8	67.7	0	8.4	0	3.6	0	3.7	0	3.7	0	3.7
10	73.2	67.7	0	10.1	0	5.6	0	5.6	0	5.6	0	5.6
11	76.2	68.8	0	11.6	0	6.6	0	6.6	0	6.6	0	6.6
12	79.3	70.3	0	12.1	0	7.1	0	7.1	0	7.1	0	7.1
13	82.3	72.2	0	12.7	0	7.9	0	7.9	0	7.9	0	7.9
14	84.7	73.7	0	13.6	0	8.8	0	8.8	0	8.8	0	8.8
15	86.3	74.6	0	14.6	0	10.1	0	10.1	0	10.1	0	10.1
16	86.8	75.1	0	15.7	0	10.7	0	10.7	0	10.7	0	10.7
17	86.6	75.1	0	16.0	0	10.8	0	10.8	0	10.8	0	10.8
18	86.0	75.3	0	15.6	0	10.9	0	10.9	0	10.9	0	10.9
19	85.1	76.0	0	13.4	0	9.6	0	9.6	0	9.6	0	9.6
20	83.8	76.8	0	11.2	0	7.7	0	7.7	0	7.7	0	7.7
21	82.3	77.2	0	9.5	0	6.8	0	6.8	0	6.8	0	6.8
22	80.6	76.3	0	8.1	0	5.7	0	5.7	0	5.7	0	5.7
23	78.7	75.3	0	6.9	0	4.7	0	4.7	0	4.7	0	4.7
24	76.8	73.7	0	5.9	0	3.7	0	3.7	0	3.7	0	3.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	3.7	0	0.9	0	1.1	0	1.1	0	1.1
2	67.6	65.0	0	2.7	0	0.2	0	0.2	0	0.2	0	0.2
3	65.8	63.4	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	9.4	0	3.0	0	3.2	0	3.2	0	3.2
12	74.8	64.6	0	10.1	0	5.7	0	6.0	0	6.0	0	6.0
13	78.3	66.7	0	10.8	0	6.3	0	6.4	0	6.4	0	6.4
14	81.2	68.4	0	11.9	0	7.5	0	7.5	0	7.5	0	7.5
15	83.0	70.0	0	13.3	0	8.4	0	8.4	0	8.4	0	8.4
16	83.7	70.5	0	14.4	0	9.2	0	9.2	0	9.2	0	9.2
17	83.4	70.5	0	14.5	0	9.2	0	9.2	0	9.2	0	9.2
18	82.8	70.9	0	13.3	0	8.5	0	8.5	0	8.5	0	8.5
19	81.6	72.7	0	10.6	0	6.9	0	6.9	0	6.9	0	6.9
20	80.1	74.7	0	8.8	0	5.9	0	5.9	0	5.9	0	5.9
21	78.3	74.1	0	7.3	0	4.8	0	4.8	0	4.8	0	4.8
22	76.3	72.4	0	6.0	0	3.8	0	3.8	0	3.8	0	3.8
23	74.1	70.7	0	4.9	0	2.8	0	2.8	0	2.8	0	2.8
24	71.8	68.9	0	3.9	0	1.9	0	1.9	0	1.9	0	1.9

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-8,926	0.0	-8,926	0.0	-8,926	0.0
2	50.1	48.6	0	0.0	0	0.0	-10,377	0.0	-10,377	0.0	-10,377	0.0
3	48.4	46.9	0	0.0	-3,198	0.0	-23,992	0.0	-23,992	0.0	-23,992	0.0
4	47.1	45.8	0	0.0	-16,131	0.0	-35,739	0.0	-35,739	0.0	-35,739	0.0
5	46.3	44.8	0	0.0	-24,922	0.0	-43,987	0.0	-43,987	0.0	-43,987	0.0
6	46.0	44.5	0	0.0	-30,622	0.0	-49,770	0.0	-49,770	0.0	-49,770	0.0
7	46.8	45.3	0	0.0	-32,228	0.0	-51,219	0.0	-51,219	0.0	-51,219	0.0
8	48.9	47.5	0	0.0	-28,142	0.0	-46,268	0.0	-46,268	0.0	-46,268	0.0
9	52.2	49.9	0	0.0	-25,872	0.0	-33,950	0.0	-33,950	0.0	-33,950	0.0
10	56.2	52.5	0	0.0	-16,338	0.0	-16,997	0.0	-16,997	0.0	-16,997	0.0
11	60.4	54.4	0	0.0	-8,773	0.0	-8,773	0.0	-8,773	0.0	-8,773	0.0
12	64.4	56.0	0	2.8	-6,085	0.0	-6,085	0.0	-6,085	0.0	-6,085	0.0
13	67.7	57.3	0	6.6	-3,057	0.0	-3,057	0.0	-3,057	0.0	-3,057	0.0
14	69.8	58.2	0	7.8	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	9.1	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	10.1	0	3.9	0	3.8	0	3.8	0	3.8
17	69.5	57.3	0	10.0	0	4.5	0	4.5	0	4.5	0	4.5
18	68.2	57.7	0	7.5	0	3.1	0	3.1	0	3.1	0	3.1
19	66.5	60.6	0	5.4	0	1.7	0	1.7	0	1.7	0	1.7
20	64.4	60.8	0	3.7	0	0.9	0	0.9	0	0.9	0	0.9
21	62.1	59.4	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.2	-3,330	0.0	-3,330	0.0	-3,330	0.0	-3,330	0.0
24	54.5	52.7	0	0.0	-7,444	0.0	-7,444	0.0	-7,444	0.0	-7,444	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	QAQB	QAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-8,013	0.0	0	0.0	-10,719	0.0	-10,719	0.0	-10,719	0.0
2	49.4	47.3	-9,509	0.0	0	0.0	-18,423	0.0	-18,423	0.0	-18,423	0.0
3	47.2	45.3	-10,929	0.0	-12,690	0.0	-33,468	0.0	-33,468	0.0	-33,468	0.0
4	45.3	43.4	-16,498	0.0	-39,485	0.0	-46,415	0.0	-46,415	0.0	-46,415	0.0
5	43.9	42.2	-25,677	0.0	-52,029	0.0	-55,559	0.0	-55,559	0.0	-55,559	0.0
6	43.0	41.4	-30,491	0.0	-59,521	0.0	-61,975	0.0	-61,975	0.0	-61,975	0.0
7	42.7	41.2	-31,236	0.0	-64,080	0.0	-65,785	0.0	-65,785	0.0	-65,785	0.0
8	43.5	42.0	-27,329	0.0	-64,516	0.0	-65,701	0.0	-65,701	0.0	-65,701	0.0
9	45.9	44.0	-12,962	0.0	-56,817	0.0	-57,640	0.0	-57,640	0.0	-57,640	0.0
10	49.4	46.6	-7,183	0.0	-42,266	0.0	-42,838	0.0	-42,838	0.0	-42,838	0.0
11	53.8	48.6	-3,293	0.0	-24,646	0.0	-25,043	0.0	-25,043	0.0	-25,043	0.0
12	58.4	50.6	0	0.0	-12,370	0.0	-12,370	0.0	-12,370	0.0	-12,370	0.0
13	62.8	52.6	0	0.1	-9,431	0.0	-9,431	0.0	-9,431	0.0	-9,431	0.0
14	66.3	54.5	0	6.7	-6,970	0.0	-6,970	0.0	-6,970	0.0	-6,970	0.0
15	68.7	55.7	0	8.0	-4,071	0.0	-4,071	0.0	-4,071	0.0	-4,071	0.0
16	69.5	56.1	0	8.9	-2,480	0.0	-2,480	0.0	-2,480	0.0	-2,480	0.0
17	69.2	55.8	0	8.3	-1,339	0.0	-1,339	0.0	-1,339	0.0	-1,339	0.0
18	68.3	57.0	0	6.0	-2,297	1.1	-2,297	1.1	-2,297	1.1	-2,297	1.1
19	66.9	59.4	0	4.1	-3,802	1.0	-3,802	1.0	-3,802	1.0	-3,802	1.0
20	65.0	59.4	0	2.5	-4,265	0.1	-4,265	0.1	-4,265	0.1	-4,265	0.1
21	62.8	58.2	0	1.3	-5,884	0.0	-5,884	0.0	-5,884	0.0	-5,884	0.0
22	60.2	56.1	0	0.3	-6,705	0.0	-6,705	0.0	-6,705	0.0	-6,705	0.0
23	57.5	54.0	0	0.0	-8,065	0.0	-8,065	0.0	-8,065	0.0	-8,065	0.0
24	54.7	51.7	0	0.0	-9,546	0.0	-9,546	0.0	-9,546	0.0	-9,546	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	QAQB	QAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-14,125	0.0	-32,611	0.2	-58,165	0.0	-58,190	0.0	-58,190	0.0
2	43.2	41.1	-18,138	0.0	-48,658	0.0	-66,146	0.0	-66,164	0.0	-66,164	0.0
3	41.8	39.8	-30,211	0.0	-60,496	0.0	-72,641	0.0	-72,653	0.0	-72,653	0.0
4	40.7	38.7	-39,644	0.0	-69,730	0.0	-78,166	0.0	-78,174	0.0	-78,174	0.0
5	40.1	38.4	-46,586	0.0	-75,937	0.0	-81,796	0.0	-81,802	0.0	-81,802	0.0
6	39.9	38.4	-50,062	0.0	-80,348	0.0	-84,418	0.0	-84,422	0.0	-84,422	0.0
7	40.5	39.0	-50,887	0.0	-81,440	0.0	-84,267	0.0	-84,270	0.0	-84,270	0.0
8	42.2	40.7	-49,033	0.0	-79,496	0.0	-81,459	0.0	-81,461	0.0	-81,461	0.0
9	44.9	43.4	-38,269	0.0	-71,200	0.0	-72,564	0.0	-72,565	0.0	-72,565	0.0
10	48.2	45.8	-22,678	0.0	-57,793	0.0	-58,740	0.0	-58,741	0.0	-58,741	0.0
11	51.7	48.3	-10,324	0.0	-42,693	0.0	-43,350	0.0	-43,350	0.0	-43,350	0.0
12	55.0	50.7	-7,211	0.0	-28,245	0.0	-28,701	0.0	-28,701	0.0	-28,701	0.0
13	57.7	52.0	-3,860	0.0	-15,784	0.0	-16,100	0.0	-16,100	0.0	-16,100	0.0
14	59.5	52.6	0	0.0	-12,648	0.0	-12,648	0.0	-12,648	0.0	-12,648	0.0
15	60.1	52.7	0	2.9	-10,867	0.0	-10,867	0.0	-10,867	0.0	-10,867	0.0
16	59.9	52.6	0	6.4	-9,188	0.0	-9,188	0.0	-9,188	0.0	-9,188	0.0
17	59.2	52.1	0	5.9	-8,977	0.0	-8,977	0.0	-8,977	0.0	-8,977	0.0
18	58.2	51.8	0	3.7	-9,774	0.0	-9,774	0.0	-9,774	0.0	-9,774	0.0
19	56.8	52.2	0	2.0	-11,127	0.0	-11,127	0.0	-11,127	0.0	-11,127	0.0
20	55.0	51.4	0	0.7	-12,401	0.0	-12,401	0.0	-12,401	0.0	-12,401	0.0
21	53.1	50.1	-3,250	0.0	-14,940	0.0	-15,073	0.0	-15,074	0.0	-15,074	0.0
22	51.0	48.1	-9,145	0.0	-27,518	0.0	-27,595	0.0	-27,595	0.0	-27,595	0.0
23	48.9	46.2	-10,976	0.0	-38,795	0.0	-38,849	0.0	-38,849	0.0	-38,849	0.0
24	46.9	44.1	-12,666	0.0	-48,083	0.0	-48,120	0.0	-48,120	0.0	-48,120	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 21709 (1 BUILDING)

-----CARD 08-- Climatic Information -----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	DINNING FACILITY

-----CARD 20-- General Room Parameters -----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	DINNING ROOM	7284		2	0		12			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	KITCHEN	3842.25		2	0		12			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50					HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				4			
2	1	YES				4			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	86.25	11		196	180			
1	2	92	11		196	270			
1	3	92	11		196	90			
2	1	37	11		196	270			
2	2	86.25	11		196	0			
2	3	37	11		196	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	20.25	10	1	1.03	.94					
1	2	3.75	1.5	102	1.03	.94					
1	3	3.75	1.5	102	1.03	.94					
2	1	3.75	1.5	9	1.03	.94					
2	2	3.75	1.5	22	1.03	.94					
2	3	3.75	1.5	9	1.03	.94					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	25	PEOPLE	255	325	1.8	WATT-SF	ASHRAE2				
2	375	PEOPLE	255	325	1.5	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
2	1	MISS.	51.8	KW	FGHEAT						
2	2	MISS.GAS	280	MBH	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2					.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## -----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	148	12	.61					2





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE  
UH UNIT HEATERS

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: EGN  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                     **  
**          T R A C E   6 0 0   A N A L Y S I S          **  
**                                     **  
**          by                **  
**                                     **  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29717 (1 BUILDING) (TYPE 5B)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13: 9:55 8/15/94  
Dataset Name: FGTYP55B .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==> Mo/Hr: 6/17 \* Mo/Hr: 6/17 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 98/ 74/ 91.0 \* OADB: 98 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	22,967	0	0	22,967	11.65	*	22,967	13.15	*	-12,031	-12,031	8.51
Glass Solar	97,200	0	0	97,200	49.29	*	97,200	55.67	*	0	0	0.00
Glass Cond	30,730	0	0	30,730	15.58	*	30,730	17.60	*	-68,413	-68,413	48.40
Wall Cond	17,575	0	0	17,575	8.91	*	17,575	10.07	*	-25,108	-25,108	17.76
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	10,392	0	0	10,392	5.27	*	6,121	3.51	*	-14,841	-14,841	10.50
Sub Total==>	178,864	0	0	178,864	90.69	*	174,593	100.00	*	-120,393	-120,393	85.17
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	18,353	9.31	*	0	0.00	*	0	-20,968	14.83
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkup	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	178,864	0	0	197,217	100.00	*	174,593	100.00	*	-120,393	-141,361	100.00

-----COOLING COIL SELECTION-----

-----AREAS-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf) (%)
Main Clg	16.4	197.2	185.4	75.9	63.1	66.2	60.6	57.1	64.7	7,284	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,776	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	16.4	197.2	185.4	75.9	63.1	66.2	60.6	57.1	64.7	7,284	0 0
										2,973	1,350 45

-----HEATING COIL SELECTION-----

-----AIRFLOWS (cfm)-----

-----ENGINEERING CHECKS-----

-----TEMPERATURES (F)-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	3.8	Type	Clg	Htg
Main Htg	-141.4	10,935	66.3	77.9	Vent	420	420	Clg Cfm/Sqft	1.50	SADB	60.6	77.9
Aux Htg	0.0	0	0.0	0.0	Infil	238	297	Clg Cfm/Ton	665.36	Plenum	75.0	68.0
Preheat	-0.0	10,935	66.3	60.6	Supply	10,935	10,935	Clg Sqft/Ton	443.21	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	27.08	Ret/OA	75.9	66.3
Humidif	0.0	0	0.0	0.0	Return	10,935	10,935	No. People	28	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	420	420	Htg % OA	3.8	Fn MtrTD	0.0	0.0
Total	-141.4	10,935	66.3	77.9	Rm Exh	0	0	Htg Cfm/Sqft	1.50	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-19.41	Fn Frict	0.0	0.0



System 2 Block UH - UNIT HEATERS

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==)		Mo/Hr: 0/ 0		*	Mo/Hr: 0/ 0		*	Mo/Hr: 13/ 1				
Outside Air ==)		OADB/WB/HR: 0/ 0/ 0.0		*	OADB: 0		*	OADB: 23				
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0		0	0.00	*	0	0.00	*	-6,346	-6,346	1.76
Glass Solar	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0		0	0.00	*	0	0.00	*	-11,402	-11,402	3.17
Wall Cond	0	0		0	0.00	*	0	0.00	*	-23,792	-23,792	6.62
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0			0	0.00	*	0	0.00	*	-8,800	-8,800	2.45
Sub Total==)	0	0		0	0.00	*	0	0.00	*	-50,341	-50,341	14.00
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0			0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0		0	0	0.00	*	0	0.00	*	0	-309,281	86.00
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==)	0	0	0	0	0.00	*	0	0.00	*	-50,341	-359,623	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	3,842	0	0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	3,842	0	0
Totals	0.0	0.0								1,763	225	13

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
								Clg % OA	0.0	Type	Clg	Htg
Main Htg	-359.6	6,195	23.0	75.3	Vent	0	6,195	Clg Cfm/Sqft	0.00	SADB	0.0	75.3
Aux Htg	0.0	0	0.0	0.0	Infil	0	176	Clg Cfm/Ton	0.00	Plenum	0.0	68.0
Preheat	0.0	0	0.0	0.0	Supply	0	6,195	Clg Sqft/Ton	0.00	Return	0.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	0.00	Ret/OA	0.0	23.0
Humidif	0.0	0	0.0	0.0	Return	0	6,195	No. People	0	Runarnd	0.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	0	6,195	Htg % OA	100.0	Fn MtrTD	0.0	0.0
Total	-359.6				Rm Exh	0	0	Htg Cfm/Sqft	1.61	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-93.60	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-276,134	0.0	-349,014	0.0	-360,446	0.0	-360,448	0.0	-360,448	0.0
2	32.9	30.7	-279,523	0.0	-358,495	0.0	-366,457	0.0	-366,458	0.0	-366,458	0.0
3	33.1	31.3	-284,080	0.0	-360,253	0.0	-365,800	0.0	-365,801	0.0	-365,801	0.0
4	33.9	32.1	-287,860	0.0	-355,419	0.0	-359,284	0.0	-359,284	0.0	-359,284	0.0
5	35.2	33.5	-290,229	0.0	-345,791	0.0	-348,484	0.0	-348,485	0.0	-348,485	0.0
6	37.0	35.4	-285,547	0.0	-331,314	0.0	-333,190	0.0	-333,190	0.0	-333,190	0.0
7	39.0	37.6	-275,485	0.0	-314,646	0.0	-315,953	0.0	-315,953	0.0	-315,953	0.0
8	41.3	40.1	-258,144	0.0	-294,952	0.0	-295,863	0.0	-295,863	0.0	-295,863	0.0
9	43.7	42.5	-229,664	0.0	-272,663	0.0	-273,298	0.0	-273,298	0.0	-273,298	0.0
10	46.1	44.0	-191,878	0.0	-248,052	0.0	-248,494	0.0	-248,494	0.0	-248,494	0.0
11	48.4	45.0	-147,920	0.0	-222,892	0.0	-223,200	0.0	-223,200	0.0	-223,200	0.0
12	50.5	45.6	-103,374	0.0	-199,432	0.0	-199,646	0.0	-199,646	0.0	-199,646	0.0
13	52.2	46.1	-81,774	0.0	-180,429	0.0	-180,578	0.0	-180,578	0.0	-180,578	0.0
14	53.5	46.4	-66,440	0.0	-164,127	0.0	-164,250	0.0	-164,250	0.0	-164,250	0.0
15	54.3	46.3	-59,591	0.0	-147,845	0.0	-147,917	0.0	-147,917	0.0	-147,917	0.0
16	54.6	46.1	-61,752	3.7	-140,232	0.0	-140,282	0.0	-140,282	0.0	-140,282	0.0
17	54.0	45.9	-71,603	5.3	-142,395	0.0	-142,430	0.0	-142,430	0.0	-142,430	0.0
18	52.5	45.0	-90,670	3.0	-155,875	0.0	-155,900	0.0	-155,900	0.0	-155,900	0.0
19	50.1	44.8	-113,131	1.1	-181,405	0.0	-181,422	0.0	-181,422	0.0	-181,422	0.0
20	47.1	43.3	-135,940	0.0	-214,944	0.0	-214,956	0.0	-214,956	0.0	-214,956	0.0
21	43.7	40.4	-154,522	0.0	-251,399	0.0	-251,407	0.0	-251,407	0.0	-251,407	0.0
22	40.4	37.3	-172,029	0.0	-287,868	0.0	-287,873	0.0	-287,873	0.0	-287,873	0.0
23	37.3	34.9	-188,085	0.0	-320,311	0.0	-320,315	0.0	-320,315	0.0	-320,315	0.0
24	34.9	32.6	-211,657	0.2	-344,840	0.0	-344,843	0.0	-344,843	0.0	-344,843	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-233,697	0.0	-261,139	0.3	-280,995	0.0	-281,000	0.0	-281,000	0.0
2	39.7	37.1	-245,176	0.0	-289,740	0.0	-302,515	0.0	-302,519	0.0	-302,519	0.0
3	37.8	35.1	-256,830	0.0	-313,523	0.0	-322,420	0.0	-322,422	0.0	-322,422	0.0
4	36.3	33.8	-265,698	0.0	-331,952	0.0	-338,149	0.0	-338,150	0.0	-338,150	0.0
5	35.1	32.6	-269,849	0.0	-346,632	0.0	-350,948	0.0	-350,950	0.0	-350,950	0.0
6	34.4	32.0	-268,208	0.0	-355,652	0.0	-358,658	0.0	-358,659	0.0	-358,659	0.0
7	34.1	31.9	-260,576	0.0	-360,353	0.0	-362,446	0.0	-362,447	0.0	-362,447	0.0
8	34.6	32.4	-244,473	0.0	-356,730	0.0	-358,188	0.0	-358,189	0.0	-358,189	0.0
9	36.0	33.8	-217,820	0.0	-341,989	0.0	-343,005	0.0	-343,005	0.0	-343,005	0.0
10	38.2	34.7	-180,302	0.0	-317,124	0.0	-317,831	0.0	-317,831	0.0	-317,831	0.0
11	40.9	36.2	-131,667	0.0	-286,813	0.0	-287,305	0.0	-287,305	0.0	-287,305	0.0
12	43.9	37.4	-103,681	0.0	-254,195	0.0	-254,537	0.0	-254,537	0.0	-254,537	0.0
13	46.9	39.4	-83,750	0.0	-222,472	0.0	-222,710	0.0	-222,710	0.0	-222,710	0.0
14	49.7	41.4	-69,756	0.0	-193,281	0.0	-193,446	0.0	-193,446	0.0	-193,446	0.0
15	51.8	42.8	-62,721	2.3	-166,816	0.0	-166,931	0.0	-166,931	0.0	-166,931	0.0
16	53.2	43.9	-64,758	5.9	-147,211	0.0	-147,290	0.0	-147,290	0.0	-147,290	0.0
17	53.7	44.2	-72,850	6.3	-140,272	0.0	-140,272	0.0	-140,272	0.0	-140,272	0.0
18	53.4	44.4	-89,206	5.3	-141,955	0.0	-141,955	0.0	-141,955	0.0	-141,955	0.0
19	52.7	44.4	-110,759	2.6	-147,995	0.0	-147,995	0.0	-147,995	0.0	-147,995	0.0
20	51.5	45.2	-132,111	0.7	-164,437	0.0	-164,468	0.0	-164,468	0.0	-164,468	0.0
21	50.0	44.6	-150,041	0.0	-183,987	0.0	-184,008	0.0	-184,008	0.0	-184,008	0.0
22	48.1	43.3	-166,481	0.0	-207,216	0.0	-207,231	0.0	-207,231	0.0	-207,231	0.0
23	46.1	41.8	-179,806	0.0	-231,259	0.0	-231,269	0.0	-231,269	0.0	-231,269	0.0
24	43.9	40.1	-195,046	0.0	-255,842	0.0	-255,849	0.0	-255,849	0.0	-255,849	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-118,676	0.0	-153,179	0.0	-153,179	0.0	-153,179	0.0	-153,179	0.0
2	48.7 44.6	-132,767	0.0	-172,594	0.0	-180,454	0.0	-180,454	0.0	-180,454	0.0
3	46.6 42.9	-145,291	0.0	-202,368	0.2	-209,686	0.0	-209,686	0.0	-209,686	0.0
4	44.9 41.4	-156,570	0.0	-229,292	0.0	-234,102	0.0	-234,102	0.0	-234,102	0.0
5	43.9 40.8	-161,827	0.0	-245,858	0.0	-249,208	0.0	-249,208	0.0	-249,208	0.0
6	43.5 40.8	-160,062	0.0	-255,110	0.0	-257,444	0.0	-257,444	0.0	-257,444	0.0
7	44.0 41.4	-151,622	0.0	-254,464	0.0	-256,090	0.0	-256,090	0.0	-256,090	0.0
8	45.4 42.7	-127,836	0.0	-241,598	0.0	-242,731	0.0	-242,731	0.0	-242,731	0.0
9	47.7 44.3	-90,098	0.0	-216,046	0.0	-216,835	0.0	-216,835	0.0	-216,835	0.0
10	50.6 45.8	-60,281	0.0	-182,420	0.0	-182,969	0.0	-182,969	0.0	-182,969	0.0
11	53.9 47.4	-26,997	0.0	-142,442	0.0	-142,824	0.0	-142,824	0.0	-142,824	0.0
12	57.4 49.0	0	0.0	-108,711	0.0	-108,711	0.0	-108,711	0.0	-108,711	0.0
13	60.7 50.8	0	6.2	-83,983	0.0	-83,983	0.0	-83,983	0.0	-83,983	0.0
14	63.6 52.7	0	7.1	-60,834	0.0	-60,834	0.0	-60,834	0.0	-60,834	0.0
15	65.9 53.7	0	8.4	-43,320	0.0	-43,320	0.0	-43,320	0.0	-43,320	0.0
16	67.3 54.4	0	9.7	-31,274	0.0	-31,274	0.0	-31,274	0.0	-31,274	0.0
17	67.8 54.6	0	10.1	-26,910	3.5	-26,910	3.5	-26,910	3.5	-26,910	3.5
18	67.4 54.8	0	9.5	-29,749	3.5	-29,749	3.5	-29,749	3.5	-29,749	3.5
19	66.4 55.2	0	6.4	-38,197	2.0	-38,197	2.0	-38,197	2.0	-38,197	2.0
20	64.7 56.0	0	4.3	-51,937	0.8	-51,937	0.8	-51,937	0.8	-51,937	0.8
21	62.5 56.0	-40,817	2.6	-68,786	0.0	-68,786	0.0	-68,786	0.0	-68,786	0.0
22	60.0 54.1	-73,980	1.3	-87,510	0.0	-87,510	0.0	-87,510	0.0	-87,510	0.0
23	57.1 51.9	-91,141	0.0	-109,189	0.0	-109,189	0.0	-109,189	0.0	-109,189	0.0
24	54.2 49.4	-102,890	0.0	-130,964	0.0	-130,964	0.0	-130,964	0.0	-130,964	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	-36,504	0.0	-51,787	0.0	-76,351	0.0	-76,351	0.0	-76,351	0.0
2	58.9 54.9	-46,586	0.0	-92,209	0.0	-92,209	0.0	-92,209	0.0	-92,209	0.0
3	57.0 53.5	-55,090	0.0	-106,715	0.0	-106,715	0.0	-106,715	0.0	-106,715	0.0
4	55.4 52.4	-60,652	0.0	-119,751	0.0	-119,751	0.0	-119,751	0.0	-119,751	0.0
5	54.2 51.4	-64,042	0.0	-129,282	0.0	-129,282	0.0	-129,282	0.0	-129,282	0.0
6	53.5 50.9	-61,595	0.0	-135,243	0.0	-135,243	0.0	-135,243	0.0	-135,243	0.0
7	53.2 51.1	-53,519	0.0	-142,153	0.0	-142,564	0.0	-142,564	0.0	-142,564	0.0
8	53.9 51.5	-36,040	0.0	-138,356	0.0	-138,654	0.0	-138,654	0.0	-138,654	0.0
9	55.9 52.1	-12,620	0.0	-117,347	0.0	-117,347	0.0	-117,347	0.0	-117,347	0.0
10	58.9 53.2	0	5.4	-92,839	0.0	-92,839	0.0	-92,839	0.0	-92,839	0.0
11	62.6 55.2	0	7.1	-64,146	0.0	-64,146	0.0	-64,146	0.0	-64,146	0.0
12	66.5 57.3	0	8.0	-34,702	0.0	-34,702	0.0	-34,702	0.0	-34,702	0.0
13	70.2 59.6	0	8.3	-6,230	0.0	-6,230	0.0	-6,230	0.0	-6,230	0.0
14	73.2 61.0	0	9.4	0	2.9	0	2.8	0	2.8	0	2.8
15	75.2 62.2	0	10.7	0	5.6	0	5.6	0	5.6	0	5.6
16	75.9 62.2	0	11.5	0	5.8	0	5.8	0	5.8	0	5.8
17	75.6 62.0	0	12.0	0	6.3	0	6.4	0	6.4	0	6.4
18	74.9 61.7	0	11.6	0	6.1	0	6.1	0	6.1	0	6.1
19	73.7 62.0	0	9.2	0	5.0	0	5.0	0	5.0	0	5.0
20	72.1 62.4	0	6.8	0	3.4	0	3.4	0	3.4	0	3.4
21	70.2 63.3	0	5.0	0	2.5	0	2.5	0	2.5	0	2.5
22	68.0 62.5	0	3.6	0	1.5	0	1.5	0	1.5	0	1.5
23	65.7 60.5	0	2.5	-32,414	0.5	-32,414	0.5	-32,414	0.5	-32,414	0.5
24	63.4 58.5	0	1.6	-58,241	0.0	-58,241	0.0	-58,241	0.0	-58,241	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	2.4	0	0.9	0	1.0	0	1.0	0	1.0
2	65.7	61.5	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	1.2	0	0.0	-39,857	0.0	-39,857	0.0	-39,857	0.0
4	61.8	58.4	0	0.8	-7,909	0.0	-67,836	0.0	-67,836	0.0	-67,836	0.0
5	60.5	57.1	-9,571	0.3	-78,131	0.0	-78,131	0.0	-78,131	0.0	-78,131	0.0
6	59.7	56.5	-8,680	0.2	-85,578	0.0	-85,578	0.0	-85,578	0.0	-85,578	0.0
7	59.4	56.5	0	1.8	-87,121	0.0	-87,121	0.0	-87,121	0.0	-87,121	0.0
8	60.1	56.3	0	3.9	-81,436	0.0	-81,436	0.0	-81,436	0.0	-81,436	0.0
9	62.4	56.3	0	6.1	-63,246	0.0	-63,246	0.0	-63,246	0.0	-63,246	0.0
10	65.7	57.2	0	7.9	-36,921	0.0	-36,921	0.0	-36,921	0.0	-36,921	0.0
11	69.9	58.9	0	9.3	-5,069	2.3	-5,069	2.4	-5,069	2.4	-5,069	2.4
12	74.3	60.9	0	10.0	0	4.6	0	4.7	0	4.7	0	4.7
13	78.5	63.7	0	10.3	0	5.3	0	5.4	0	5.4	0	5.4
14	81.9	65.3	0	11.4	0	6.5	0	6.6	0	6.6	0	6.6
15	84.1	66.9	0	12.7	0	7.8	0	7.8	0	7.8	0	7.8
16	84.9	67.1	0	13.5	0	8.3	0	8.3	0	8.3	0	8.3
17	84.6	67.3	0	14.0	0	8.8	0	8.8	0	8.8	0	8.8
18	83.8	67.1	0	13.7	0	8.6	0	8.7	0	8.7	0	8.7
19	82.4	67.5	0	11.9	0	7.7	0	7.7	0	7.7	0	7.7
20	80.6	68.9	0	9.2	0	6.0	0	6.0	0	6.0	0	6.0
21	78.5	71.0	0	7.4	0	5.1	0	5.1	0	5.1	0	5.1
22	76.1	69.9	0	5.9	0	4.0	0	4.0	0	4.0	0	4.0
23	73.4	68.0	0	4.5	0	2.9	0	2.9	0	2.9	0	2.9
24	70.8	65.5	0	3.5	0	1.9	0	1.9	0	1.9	0	1.9

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	5.7	0	2.8	0	3.2	0	3.2	0	3.2
2	72.6	68.4	0	4.7	0	2.2	0	2.3	0	2.3	0	2.3
3	70.9	67.3	0	3.9	0	1.1	0	1.2	0	1.2	0	1.2
4	69.6	66.5	0	3.3	0	0.8	0	0.8	0	0.8	0	0.8
5	68.7	65.8	0	3.0	0	0.2	0	0.2	0	0.2	0	0.2
6	68.5	65.7	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	4.5	0	0.6	0	0.6	0	0.6	0	0.6
8	70.6	66.9	0	7.1	0	2.7	0	2.8	0	2.8	0	2.8
9	73.0	67.7	0	9.2	0	4.3	0	4.4	0	4.4	0	4.4
10	76.1	68.1	0	10.7	0	6.1	0	6.1	0	6.1	0	6.1
11	79.5	69.1	0	12.0	0	7.1	0	7.1	0	7.1	0	7.1
12	82.9	70.1	0	12.4	0	7.8	0	7.8	0	7.8	0	7.8
13	86.0	71.0	0	12.9	0	8.3	0	8.3	0	8.3	0	8.3
14	88.4	72.5	0	13.7	0	9.5	0	9.5	0	9.5	0	9.5
15	90.0	74.0	0	14.8	0	11.0	0	11.0	0	11.0	0	11.0
16	90.5	73.7	0	15.7	0	11.0	0	11.0	0	11.0	0	11.0
17	90.3	74.2	0	16.2	0	11.5	0	11.5	0	11.5	0	11.5
18	89.4	73.9	0	16.0	0	11.3	0	11.3	0	11.3	0	11.3
19	88.1	74.5	0	14.5	0	10.4	0	10.4	0	10.4	0	10.4
20	86.4	75.3	0	11.9	0	8.4	0	8.4	0	8.4	0	8.4
21	84.3	76.5	0	10.1	0	7.4	0	7.4	0	7.4	0	7.4
22	81.9	75.7	0	8.3	0	6.2	0	6.2	0	6.2	0	6.2
23	79.5	74.0	0	7.1	0	5.2	0	5.2	0	5.2	0	5.2
24	77.0	72.1	0	6.1	0	4.2	0	4.2	0	4.2	0	4.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	5.8	0	2.0	0	2.3	0	2.3	0	2.3
2	72.4	69.4	0	4.7	0	1.8	0	1.9	0	1.9	0	1.9
3	71.3	68.4	0	4.2	0	1.1	0	1.1	0	1.1	0	1.1
4	70.5	67.7	0	3.6	0	0.4	0	0.5	0	0.5	0	0.5
5	70.0	67.4	0	3.3	0	0.2	0	0.2	0	0.2	0	0.2
6	69.9	67.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	4.5	0	0.4	0	0.4	0	0.4	0	0.4
8	71.7	69.0	0	7.2	0	2.9	0	2.9	0	2.9	0	2.9
9	73.7	69.5	0	8.9	0	4.7	0	4.7	0	4.7	0	4.7
10	76.2	70.6	0	10.5	0	6.6	0	6.6	0	6.6	0	6.6
11	78.9	71.8	0	11.8	0	7.5	0	7.5	0	7.5	0	7.5
12	81.4	73.0	0	12.3	0	8.0	0	8.0	0	8.0	0	8.0
13	83.4	74.4	0	12.6	0	8.4	0	8.4	0	8.4	0	8.4
14	84.8	74.8	0	13.3	0	9.1	0	9.1	0	9.1	0	9.1
15	85.2	75.0	0	14.4	0	10.2	0	10.2	0	10.2	0	10.2
16	85.1	75.0	0	15.3	0	10.1	0	10.1	0	10.1	0	10.1
17	84.6	74.7	0	15.9	0	10.4	0	10.4	0	10.4	0	10.4
18	83.8	74.6	0	15.7	0	10.3	0	10.3	0	10.3	0	10.3
19	82.7	74.6	0	14.4	0	9.1	0	9.1	0	9.1	0	9.1
20	81.4	74.4	0	11.6	0	7.5	0	7.5	0	7.5	0	7.5
21	79.9	74.9	0	9.7	0	6.1	0	6.1	0	6.1	0	6.1
22	78.4	74.0	0	8.2	0	5.2	0	5.2	0	5.2	0	5.2
23	76.8	72.7	0	7.2	0	4.1	0	4.1	0	4.1	0	4.1
24	75.2	71.6	0	6.3	0	3.2	0	3.2	0	3.2	0	3.2

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	5.7	0	2.5	0	2.9	0	2.9	0	2.9
2	73.2	70.3	0	4.5	0	1.9	0	2.1	0	2.1	0	2.1
3	71.7	68.9	0	4.0	0	1.5	0	1.6	0	1.6	0	1.6
4	70.4	67.8	0	3.4	0	0.9	0	0.9	0	0.9	0	0.9
5	69.5	66.8	0	2.8	0	0.2	0	0.2	0	0.2	0	0.2
6	68.9	66.4	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	3.5	0	0.0	-3,171	0.0	-3,171	0.0	-3,171	0.0
8	69.2	66.8	0	6.1	0	1.8	-13,668	1.8	-13,668	1.8	-13,668	1.8
9	70.8	67.7	0	8.5	0	3.7	0	3.7	0	3.7	0	3.7
10	73.2	67.7	0	10.2	0	5.7	0	5.7	0	5.7	0	5.7
11	76.2	68.8	0	11.7	0	6.6	0	6.6	0	6.6	0	6.6
12	79.3	70.3	0	12.2	0	7.2	0	7.2	0	7.2	0	7.2
13	82.3	72.2	0	12.9	0	8.0	0	8.0	0	8.0	0	8.0
14	84.7	73.7	0	13.8	0	9.0	0	9.0	0	9.0	0	9.0
15	86.3	74.6	0	14.8	0	10.3	0	10.3	0	10.3	0	10.3
16	86.8	75.1	0	15.9	0	10.8	0	10.8	0	10.8	0	10.8
17	86.6	75.1	0	16.2	0	10.9	0	10.9	0	10.9	0	10.9
18	86.0	75.3	0	15.8	0	11.1	0	11.1	0	11.1	0	11.1
19	85.1	76.0	0	13.5	0	9.7	0	9.7	0	9.7	0	9.7
20	83.8	76.8	0	11.3	0	7.9	0	7.9	0	7.9	0	7.9
21	82.3	77.2	0	9.6	0	6.9	0	6.9	0	6.9	0	6.9
22	80.6	76.3	0	8.2	0	5.9	0	5.9	0	5.9	0	5.9
23	78.7	75.3	0	7.0	0	4.8	0	4.8	0	4.8	0	4.8
24	76.8	73.7	0	6.0	0	3.8	0	3.8	0	3.8	0	3.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	3.8	0	0.9	0	1.0	0	1.0	0	1.0
2	67.6	65.0	0	2.8	0	0.2	0	0.2	0	0.2	0	0.2
3	65.8	63.4	0	2.0	0	0.0	-15,010	0.0	-15,010	0.0	-15,010	0.0
4	64.3	62.2	0	1.3	0	0.0	-50,954	0.0	-50,954	0.0	-50,954	0.0
5	63.1	61.1	0	1.1	-60,367	0.0	-60,367	0.0	-60,367	0.0	-60,367	0.0
6	62.4	60.3	0	0.6	-66,321	0.0	-66,321	0.0	-66,321	0.0	-66,321	0.0
7	62.2	60.2	0	0.6	-69,428	0.0	-69,428	0.0	-69,428	0.0	-69,428	0.0
8	62.9	60.9	0	3.4	-63,270	0.0	-63,270	0.0	-63,270	0.0	-63,270	0.0
9	64.7	61.8	0	5.9	-49,890	0.0	-49,890	0.0	-49,890	0.0	-49,890	0.0
10	67.6	62.1	0	8.3	-26,960	0.0	-26,960	0.0	-26,960	0.0	-26,960	0.0
11	71.1	63.1	0	9.4	0	2.7	0	2.9	0	2.9	0	2.9
12	74.8	64.6	0	10.2	0	5.8	0	6.1	0	6.1	0	6.1
13	78.3	66.7	0	10.9	0	6.4	0	6.4	0	6.4	0	6.4
14	81.2	68.4	0	12.1	0	7.5	0	7.6	0	7.6	0	7.6
15	83.0	70.0	0	13.4	0	8.5	0	8.5	0	8.5	0	8.5
16	83.7	70.5	0	14.6	0	9.3	0	9.3	0	9.3	0	9.3
17	83.4	70.5	0	14.6	0	9.3	0	9.3	0	9.3	0	9.3
18	82.8	70.9	0	13.4	0	8.6	0	8.6	0	8.6	0	8.6
19	81.6	72.7	0	10.7	0	7.0	0	7.0	0	7.0	0	7.0
20	80.1	74.7	0	8.9	0	6.0	0	6.0	0	6.0	0	6.0
21	78.3	74.1	0	7.4	0	4.9	0	4.9	0	4.9	0	4.9
22	76.3	72.4	0	6.1	0	3.9	0	3.9	0	3.9	0	3.9
23	74.1	70.7	0	4.9	0	2.8	0	2.8	0	2.8	0	2.8
24	71.8	68.9	0	3.9	0	1.9	0	1.9	0	1.9	0	1.9

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-145,010	0.0	-145,010	0.0	-145,010	0.0	-145,010	0.0
2	50.1	48.6	-105,468	0.0	-160,894	0.0	-160,894	0.0	-160,894	0.0	-160,894	0.0
3	48.4	46.9	-113,928	0.0	-180,258	0.0	-188,751	0.0	-188,751	0.0	-188,751	0.0
4	47.1	45.8	-119,947	0.0	-203,012	0.0	-209,033	0.0	-209,033	0.0	-209,033	0.0
5	46.3	44.8	-124,009	0.0	-218,308	0.0	-222,507	0.0	-222,507	0.0	-222,507	0.0
6	46.0	44.5	-121,490	0.0	-227,226	0.0	-230,153	0.0	-230,153	0.0	-230,153	0.0
7	46.8	45.3	-112,535	0.0	-223,873	0.0	-225,913	0.0	-225,913	0.0	-225,913	0.0
8	48.9	47.5	-95,853	0.0	-204,910	0.0	-206,332	0.0	-206,332	0.0	-206,332	0.0
9	52.2	49.9	-69,887	0.0	-170,144	0.0	-171,135	0.0	-171,135	0.0	-171,135	0.0
10	56.2	52.5	-40,404	0.0	-125,797	0.0	-126,487	0.0	-126,487	0.0	-126,487	0.0
11	60.4	54.4	-7,479	0.0	-88,499	0.0	-88,499	0.0	-88,499	0.0	-88,499	0.0
12	64.4	56.0	0	2.5	-58,319	0.0	-58,319	0.0	-58,319	0.0	-58,319	0.0
13	67.7	57.3	0	6.6	-32,610	0.0	-32,610	0.0	-32,610	0.0	-32,610	0.0
14	69.8	58.2	0	7.8	-15,127	0.0	-15,127	0.0	-15,127	0.0	-15,127	0.0
15	70.6	58.1	0	9.1	-7,572	0.0	-7,572	0.0	-7,572	0.0	-7,572	0.0
16	70.3	57.5	0	10.1	-8,306	3.8	-8,306	3.7	-8,306	3.7	-8,306	3.7
17	69.5	57.3	0	10.0	-13,386	4.4	-13,386	4.4	-13,386	4.4	-13,386	4.4
18	68.2	57.7	0	7.5	-23,611	3.0	-23,611	3.0	-23,611	3.0	-23,611	3.0
19	66.5	60.6	0	5.4	-36,594	1.7	-36,594	1.7	-36,594	1.7	-36,594	1.7
20	64.4	60.8	0	3.7	-52,836	0.8	-52,836	0.8	-52,836	0.8	-52,836	0.8
21	62.1	59.4	0	2.2	-70,772	0.0	-70,772	0.0	-70,772	0.0	-70,772	0.0
22	59.6	57.3	-43,785	1.1	-89,710	0.0	-89,710	0.0	-89,710	0.0	-89,710	0.0
23	57.0	55.1	-72,783	0.1	-109,096	0.0	-109,096	0.0	-109,096	0.0	-109,096	0.0
24	54.5	52.7	-84,245	0.0	-127,720	0.0	-127,720	0.0	-127,720	0.0	-127,720	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-120,041	0.0	-148,178	0.0	-148,178	0.0	-148,178	0.0	-148,178	0.0
2	49.4 47.3	-130,472	0.0	-167,531	0.0	-176,162	0.0	-176,162	0.0	-176,162	0.0
3	47.2 45.3	-139,453	0.0	-199,200	0.0	-206,041	0.0	-206,041	0.0	-206,041	0.0
4	45.3 43.4	-152,958	0.0	-227,064	0.0	-231,833	0.0	-231,833	0.0	-231,833	0.0
5	43.9 42.2	-163,707	0.0	-247,141	0.0	-250,466	0.0	-250,466	0.0	-250,466	0.0
6	43.0 41.4	-164,010	0.0	-260,660	0.0	-262,978	0.0	-262,978	0.0	-262,978	0.0
7	42.7 41.2	-155,510	0.0	-267,159	0.0	-268,775	0.0	-268,775	0.0	-268,775	0.0
8	43.5 42.0	-134,822	0.0	-261,963	0.0	-263,090	0.0	-263,090	0.0	-263,090	0.0
9	45.9 44.0	-96,152	0.0	-237,605	0.0	-238,390	0.0	-238,390	0.0	-238,390	0.0
10	49.4 46.6	-62,166	0.0	-198,820	0.0	-199,367	0.0	-199,367	0.0	-199,367	0.0
11	53.8 48.6	-26,661	0.0	-150,742	0.0	-151,124	0.0	-151,124	0.0	-151,124	0.0
12	58.4 50.6	0	0.0	-105,842	0.0	-105,842	0.0	-105,842	0.0	-105,842	0.0
13	62.8 52.6	0	0.1	-72,662	0.0	-72,662	0.0	-72,662	0.0	-72,662	0.0
14	66.3 54.5	0	6.7	-46,145	0.0	-46,145	0.0	-46,145	0.0	-46,145	0.0
15	68.7 55.7	0	8.0	-26,752	0.0	-26,752	0.0	-26,752	0.0	-26,752	0.0
16	69.5 56.1	0	8.9	-19,663	0.0	-19,663	0.0	-19,663	0.0	-19,663	0.0
17	69.2 55.8	0	8.3	-20,583	0.0	-20,583	0.0	-20,583	0.0	-20,583	0.0
18	68.3 57.0	0	6.0	-27,727	1.0	-27,727	1.0	-27,727	1.0	-27,727	1.0
19	66.9 59.4	0	4.1	-38,854	1.0	-38,854	1.0	-38,854	1.0	-38,854	1.0
20	65.0 59.4	0	2.4	-52,375	0.0	-52,375	0.0	-52,375	0.0	-52,375	0.0
21	62.8 58.2	-44,374	1.2	-69,115	0.0	-69,115	0.0	-69,115	0.0	-69,115	0.0
22	60.2 56.1	-78,629	0.2	-87,805	0.0	-87,805	0.0	-87,805	0.0	-87,805	0.0
23	57.5 54.0	-95,873	0.0	-107,722	0.0	-107,722	0.0	-107,722	0.0	-107,722	0.0
24	54.7 51.7	-108,665	0.0	-128,447	0.0	-128,447	0.0	-128,447	0.0	-128,447	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-152,270	0.0	-221,547	0.3	-245,991	0.0	-246,018	0.0	-246,018	0.0
2	43.2 41.1	-165,679	0.0	-249,214	0.0	-265,663	0.0	-265,683	0.0	-265,683	0.0
3	41.8 39.8	-182,606	0.0	-270,336	0.0	-281,797	0.0	-281,810	0.0	-281,810	0.0
4	40.7 38.7	-195,889	0.0	-286,913	0.0	-294,899	0.0	-294,908	0.0	-294,908	0.0
5	40.1 38.4	-204,706	0.0	-296,550	0.0	-302,116	0.0	-302,122	0.0	-302,122	0.0
6	39.9 38.4	-204,581	0.0	-301,125	0.0	-305,004	0.0	-305,009	0.0	-305,009	0.0
7	40.5 39.0	-198,381	0.0	-297,628	0.0	-300,331	0.0	-300,334	0.0	-300,334	0.0
8	42.2 40.7	-183,996	0.0	-283,165	0.0	-285,048	0.0	-285,050	0.0	-285,050	0.0
9	44.9 43.4	-155,214	0.0	-257,368	0.0	-258,680	0.0	-258,682	0.0	-258,682	0.0
10	48.2 45.8	-118,901	0.0	-223,198	0.0	-224,112	0.0	-224,113	0.0	-224,113	0.0
11	51.7 48.3	-81,803	0.0	-185,345	0.0	-185,981	0.0	-185,982	0.0	-185,982	0.0
12	55.0 50.7	-56,696	0.0	-145,977	0.0	-146,420	0.0	-146,421	0.0	-146,421	0.0
13	57.7 52.0	-36,850	0.0	-114,832	0.0	-115,141	0.0	-115,141	0.0	-115,141	0.0
14	59.5 52.6	-22,203	0.0	-98,560	0.0	-98,560	0.0	-98,560	0.0	-98,560	0.0
15	60.1 52.7	-15,478	2.9	-92,655	0.0	-92,655	0.0	-92,655	0.0	-92,655	0.0
16	59.9 52.6	-17,946	6.4	-92,350	0.0	-92,350	0.0	-92,350	0.0	-92,350	0.0
17	59.2 52.1	-27,749	5.9	-96,950	0.0	-96,950	0.0	-96,950	0.0	-96,950	0.0
18	58.2 51.8	-45,286	3.7	-104,620	0.0	-104,620	0.0	-104,620	0.0	-104,620	0.0
19	56.8 52.2	-66,070	2.0	-115,595	0.0	-115,595	0.0	-115,595	0.0	-115,595	0.0
20	55.0 51.4	-87,040	0.6	-129,240	0.0	-129,240	0.0	-129,240	0.0	-129,240	0.0
21	53.1 50.1	-105,294	0.0	-146,970	0.0	-147,081	0.0	-147,081	0.0	-147,081	0.0
22	51.0 48.1	-121,173	0.0	-173,655	0.0	-173,736	0.0	-173,736	0.0	-173,736	0.0
23	48.9 46.2	-134,001	0.0	-199,216	0.0	-199,273	0.0	-199,273	0.0	-199,273	0.0
24	46.9 44.1	-143,939	0.0	-222,178	0.0	-222,218	0.0	-222,218	0.0	-222,218	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29717 (1 BUILDING) (TYPE 5B)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TAI	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	DINNING FACILITY

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	DINNING ROOM	7284		2	0		12			



## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	KITCHEN	3842.25		2	0		12			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50					HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				4			
2	1	YES				4			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	86.25	11		196	180			
1	2	92	11		196	270			
1	3	92	11		196	90			
2	1	37	11		196	270			
2	2	86.25	11		196	0			
2	3	37	11		196	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	20.25	10	1	1.03	.94					
1	2	3.75	1.5	102	1.03	.94					
1	3	3.75	1.5	102	1.03	.94					
2	1	3.75	1.5	9	1.03	.94					
2	2	3.75	1.5	22	1.03	.94					
2	3	3.75	1.5	9	1.03	.94					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	28	PEOPLE	255	325	1.8	WATT-SF	ASHRAE2				
2	413	PEOPLE	255	325	1.5	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Energy Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
2	1	MISS.	57	KW	FGHEAT						
2	2	MISS.GAS	308	MBH	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## -----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	148	12	.61					2



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHO FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE  
UH UNIT HEATERS

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	



```
*****  
*****  
**  
**          TRACE    600  ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29709 (1 BUILDING) (TYPE 5C)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:29:45 8/15/94  
Dataset Name: FGTYP55C .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 6/17		Mo/Hr: 6/17		Mo/Hr: 13/ 1			
Outside Air ==>		OADB/WB/HR: 98/ 74/ 91.0		OADB: 98		OADB: 23			
Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	Space Sensible (Btuh)	Percent Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)
Envelope Loads									
Skylite Solr	0	0	0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0.00	0	0.00	0	0	0.00
Roof Cond	22,967	0	22,967	12.34	22,967	13.15	-12,031	-12,031	9.35
Glass Solar	97,200	0	97,200	52.24	97,200	55.67	0	0	0.00
Glass Cond	30,730	0	30,730	16.51	30,730	17.60	-68,413	-68,413	53.19
Wall Cond	17,575	0	17,575	9.45	17,575	10.07	-25,108	-25,108	19.52
Partition	0	0	0	0.00	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0.00	0	0.00	0	0	0.00
Infiltration	10,392	0	10,392	5.58	6,121	3.51	-14,841	-14,841	11.54
Sub Total==>	178,864	0	178,864	96.13	174,593	100.00	-120,393	-120,393	93.60
Internal Loads									
Lights	0	0	0	0.00	0	0.00	0	0	0.00
People	0	0	0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0	0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	7,210	3.87	0	0.00	0	-8,238	6.40
Sup. Fan Heat			0	0.00		0.00		0	0.00
Ret. Fan Heat		0	0	0.00		0.00		0	0.00
Duct Heat Pkup		0	0	0.00		0.00		0	0.00
OV/UNDR Sizing	0		0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	-0.00		0.00		0	0.00
Grand Total==>	178,864	0	186,074	100.00	174,593	100.00	-120,393	-128,630	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)
Main Clg	15.5	186.1	11,647	75.3	62.7	65.6	61.5	57.5	64.7	Floor 7,284	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part 1,776	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr 0	
Totals	15.5	186.1								Roof 7,284	0 0
										Wall 2,973	1,350 45

-----HEATING COIL SELECTION-----

Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
Main Htg	-128.6	11,647	67.4	77.3	165	165	Clg % OA	1.4	Type	Clg	Htg
Aux Htg	0.0	0	0.0	0.0	238	297	Clg Cfm/Sqft	1.60	SADB	61.5	77.3
Preheat	-0.0	11,647	67.4	61.5	0	0	Clg Cfm/Ton	751.14	Plenum	75.0	68.0
Reheat	0.0	0	0.0	0.0	11,647	11,647	Clg Sqft/Ton	469.75	Return	75.0	68.0
Humidif	0.0	0	0.0	0.0	0	0	Clg Btuh/Sqft	25.55	Ret/OA	75.3	67.4
Opt Vent	0.0	0	0.0	0.0	165	165	No. People	11	Runarnd	75.0	68.0
Total	-128.6				0	0	Htg % OA	1.4	Fn MtrTD	0.0	0.0
					0	0	Htg Cfm/Sqft	1.60	Fn BldTD	0.0	0.0
					0	0	Htg Btuh/Sqft	-17.66	Fn Frict	0.0	0.0

System 2 Block UH - UNIT HEATER

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 0/ 0		*	Mo/Hr: 0/ 0		*	Mo/Hr: 13/ 1				
Outside Air ==>		OADB/WB/HR: 0/ 0/ 0.0		*	OADB: 0		*	OADB: 23				
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0	0	0	0.00	*	0	0.00	*	-6,346	-6,346	2.41
Glass Solar	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0	0	0	0.00	*	0	0.00	*	-11,402	-11,402	4.34
Wall Cond	0	0	0	0	0.00	*	0	0.00	*	-23,792	-23,792	9.05
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0	0	0	0	0.00	*	0	0.00	*	-8,800	-8,800	3.35
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	-50,341	-50,341	19.14
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	-212,678	80.86
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==>	0	0	0	0	0.00	*	0	0.00	*	-50,341	-263,019	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	3,842	0	0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	3,842	0	0
Totals	0.0	0.0	0							1,763	225	13

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent (Deg F)	Lvg (Deg F)	Type	Cooling	Heating	Clg % OA	0.0	Type	Clg	Htg
					Vent	0	4,260	Clg Cfm/Sqft	0.00	SADB	0.0	78.7
Main Htg	-263.0	4,260	23.0	78.7	Infil	0	176	Clg Cfm/Ton	0.00	Plenum	0.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	0	4,260	Clg Sqft/Ton	0.00	Return	0.0	68.0
Preheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	0.00	Ret/OA	0.0	23.0
Reheat	0.0	0	0.0	0.0	Return	0	4,260	No. People	0	Runarnd	0.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	0	4,260	Htg % OA	100.0	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.11	Fn BldTD	0.0	0.0
Total	-263.0				Auxil	0	0	Htg Btuh/SqFt	-68.45	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4 31.1	-219,890	0.0	-253,031	0.2	-270,916	0.0	-270,918	0.0	-270,918	0.0
2	32.9 30.7	-220,017	0.0	-265,220	0.0	-276,756	0.0	-276,758	0.0	-276,758	0.0
3	33.1 31.3	-222,158	0.0	-269,964	0.0	-277,847	0.0	-277,848	0.0	-277,848	0.0
4	33.9 32.1	-224,457	0.0	-267,768	0.0	-273,155	0.0	-273,156	0.0	-273,156	0.0
5	35.2 33.5	-226,186	0.0	-263,146	0.0	-266,829	0.0	-266,830	0.0	-266,830	0.0
6	37.0 35.4	-222,591	0.0	-253,556	0.0	-256,073	0.0	-256,073	0.0	-256,073	0.0
7	39.0 37.6	-211,792	0.0	-242,776	0.0	-244,495	0.0	-244,496	0.0	-244,496	0.0
8	41.3 40.1	-198,933	0.0	-228,738	0.0	-229,914	0.0	-229,914	0.0	-229,914	0.0
9	43.7 42.5	-174,578	0.0	-210,043	0.0	-210,846	0.0	-210,846	0.0	-210,846	0.0
10	46.1 44.0	-140,780	0.0	-190,266	0.0	-190,815	0.0	-190,815	0.0	-190,815	0.0
11	48.4 45.0	-101,531	0.0	-167,317	0.0	-167,691	0.0	-167,692	0.0	-167,692	0.0
12	50.5 45.6	-75,106	0.0	-146,805	0.0	-147,061	0.0	-147,061	0.0	-147,061	0.0
13	52.2 46.1	-59,233	0.0	-129,749	0.0	-129,924	0.0	-129,924	0.0	-129,924	0.0
14	53.5 46.4	-47,549	0.0	-114,969	0.0	-115,088	0.0	-115,088	0.0	-115,088	0.0
15	54.3 46.3	-41,987	0.0	-104,430	0.0	-104,511	0.0	-104,511	0.0	-104,511	0.0
16	54.6 46.1	-42,861	4.6	-97,368	0.0	-97,424	0.0	-97,424	0.0	-97,424	0.0
17	54.0 45.9	-49,492	5.6	-98,809	0.0	-98,809	0.0	-98,809	0.0	-98,809	0.0
18	52.5 45.0	-63,406	3.4	-107,413	0.0	-107,445	0.0	-107,445	0.0	-107,445	0.0
19	50.1 44.8	-79,856	1.5	-127,312	0.0	-127,335	0.0	-127,335	0.0	-127,335	0.0
20	47.1 43.3	-96,655	0.0	-153,791	0.0	-153,807	0.0	-153,807	0.0	-153,807	0.0
21	43.7 40.4	-110,085	0.0	-182,154	0.0	-182,164	0.0	-182,164	0.0	-182,164	0.0
22	40.4 37.3	-122,869	0.0	-210,697	0.0	-210,704	0.0	-210,704	0.0	-210,704	0.0
23	37.3 34.9	-133,713	0.0	-236,078	0.0	-236,083	0.0	-236,083	0.0	-236,083	0.0
24	34.9 32.6	-141,612	0.0	-256,590	0.0	-256,594	0.0	-256,594	0.0	-256,594	0.0

February		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7 38.6	-168,289	0.0	-180,381	0.7	-206,549	0.0	-206,560	0.0	-206,560	0.0
2	39.7 37.1	-179,219	0.0	-208,328	0.0	-224,466	0.0	-224,473	0.0	-224,473	0.0
3	37.8 35.1	-189,073	0.0	-230,279	0.0	-241,303	0.0	-241,308	0.0	-241,308	0.0
4	36.3 33.8	-197,137	0.0	-246,967	0.0	-254,498	0.0	-254,502	0.0	-254,502	0.0
5	35.1 32.6	-202,011	0.0	-261,641	0.0	-266,788	0.0	-266,790	0.0	-266,790	0.0
6	34.4 32.0	-202,558	0.0	-269,516	0.0	-273,032	0.0	-273,033	0.0	-273,033	0.0
7	34.1 31.9	-198,140	0.0	-274,926	0.0	-277,328	0.0	-277,329	0.0	-277,329	0.0
8	34.6 32.4	-185,743	0.0	-273,250	0.0	-274,891	0.0	-274,892	0.0	-274,892	0.0
9	36.0 33.8	-161,839	0.0	-261,109	0.0	-262,230	0.0	-262,231	0.0	-262,231	0.0
10	38.2 34.7	-128,293	0.0	-240,299	0.0	-241,065	0.0	-241,065	0.0	-241,065	0.0
11	40.9 36.2	-92,569	0.0	-214,377	0.0	-214,899	0.0	-214,900	0.0	-214,900	0.0
12	43.9 37.4	-74,485	0.0	-187,019	0.0	-187,375	0.0	-187,375	0.0	-187,375	0.0
13	46.9 39.4	-59,707	0.0	-160,029	0.0	-160,271	0.0	-160,271	0.0	-160,271	0.0
14	49.7 41.4	-48,933	0.0	-134,655	0.0	-134,820	0.0	-134,821	0.0	-134,821	0.0
15	51.8 42.8	-43,186	3.2	-115,055	0.0	-115,168	0.0	-115,168	0.0	-115,168	0.0
16	53.2 43.9	-43,935	6.2	-104,506	0.0	-104,506	0.0	-104,506	0.0	-104,506	0.0
17	53.7 44.2	-49,236	6.6	-100,987	0.0	-100,987	0.0	-100,987	0.0	-100,987	0.0
18	53.4 44.4	-60,869	5.7	-102,025	0.0	-102,025	0.0	-102,025	0.0	-102,025	0.0
19	52.7 44.4	-77,055	3.0	-106,563	0.0	-106,563	0.0	-106,563	0.0	-106,563	0.0
20	51.5 45.2	-92,825	1.2	-113,659	0.0	-113,659	0.0	-113,659	0.0	-113,659	0.0
21	50.0 44.6	-106,247	0.0	-125,823	0.0	-125,871	0.0	-125,871	0.0	-125,871	0.0
22	48.1 43.3	-118,394	0.0	-146,018	0.0	-146,053	0.0	-146,053	0.0	-146,053	0.0
23	46.1 41.8	-128,284	0.0	-166,285	0.0	-166,309	0.0	-166,309	0.0	-166,309	0.0
24	43.9 40.1	-135,324	0.0	-186,257	0.0	-186,273	0.0	-186,273	0.0	-186,273	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-80,317	0.0	-108,741	0.0	-108,741	0.0	-108,741	0.0	-108,741	0.0
2	48.7 44.6	-90,262	0.0	-122,574	0.0	-122,574	0.0	-122,574	0.0	-122,574	0.0
3	46.6 42.9	-100,953	0.0	-133,764	0.0	-141,407	0.0	-141,407	0.0	-141,407	0.0
4	44.9 41.4	-110,594	0.0	-158,098	0.0	-163,971	0.0	-163,971	0.0	-163,971	0.0
5	43.9 40.8	-115,611	0.0	-174,187	0.0	-178,200	0.0	-178,200	0.0	-178,200	0.0
6	43.5 40.8	-115,275	0.0	-183,748	0.0	-186,490	0.0	-186,490	0.0	-186,490	0.0
7	44.0 41.4	-109,969	0.0	-185,195	0.0	-187,069	0.0	-187,069	0.0	-187,069	0.0
8	45.4 42.7	-91,503	0.0	-176,222	0.0	-177,502	0.0	-177,502	0.0	-177,502	0.0
9	47.7 44.3	-64,337	0.0	-156,389	0.0	-157,264	0.0	-157,264	0.0	-157,264	0.0
10	50.6 45.8	-42,463	0.0	-129,752	0.0	-130,349	0.0	-130,349	0.0	-130,349	0.0
11	53.9 47.4	-17,980	0.0	-97,364	0.0	-98,040	0.0	-98,040	0.0	-98,040	0.0
12	57.4 49.0	0	0.1	-77,368	0.0	-77,368	0.0	-77,368	0.0	-77,368	0.0
13	60.7 50.8	0	6.3	-59,724	0.0	-59,724	0.0	-59,724	0.0	-59,724	0.0
14	63.6 52.7	0	7.1	-42,802	0.0	-42,802	0.0	-42,802	0.0	-42,802	0.0
15	65.9 53.7	0	8.4	-30,225	0.0	-30,225	0.0	-30,225	0.0	-30,225	0.0
16	67.3 54.4	0	9.6	-21,184	0.5	-21,184	0.5	-21,184	0.5	-21,184	0.5
17	67.8 54.6	0	10.1	-17,894	3.8	-17,894	3.8	-17,894	3.8	-17,894	3.8
18	67.4 54.8	0	9.6	-19,874	3.6	-19,874	3.6	-19,874	3.6	-19,874	3.6
19	66.4 55.2	0	6.6	-26,175	2.2	-26,175	2.2	-26,175	2.2	-26,175	2.2
20	64.7 56.0	0	4.5	-36,266	1.0	-36,266	1.0	-36,266	1.0	-36,266	1.0
21	62.5 56.0	0	2.9	-48,392	0.3	-48,392	0.3	-48,392	0.3	-48,392	0.3
22	60.0 54.1	-47,627	1.6	-61,749	0.0	-61,749	0.0	-61,749	0.0	-61,749	0.0
23	57.1 51.9	-62,804	0.4	-77,203	0.0	-77,203	0.0	-77,203	0.0	-77,203	0.0
24	54.2 49.4	-71,547	0.0	-92,752	0.0	-92,752	0.0	-92,752	0.0	-92,752	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	-23,194	0.0	0	0.0	-52,737	0.0	-52,737	0.0	-52,737	0.0
2	58.9 54.9	-30,700	0.0	-50,862	0.0	-64,086	0.0	-64,086	0.0	-64,086	0.0
3	57.0 53.5	-37,272	0.0	-74,514	0.0	-74,514	0.0	-74,514	0.0	-74,514	0.0
4	55.4 52.4	-41,545	0.0	-84,115	0.0	-84,115	0.0	-84,115	0.0	-84,115	0.0
5	54.2 51.4	-44,292	0.0	-91,070	0.0	-91,070	0.0	-91,070	0.0	-91,070	0.0
6	53.5 50.9	-42,918	0.0	-95,528	0.0	-95,528	0.0	-95,528	0.0	-95,528	0.0
7	53.2 51.1	-37,204	0.0	-97,379	0.0	-97,379	0.0	-97,379	0.0	-97,379	0.0
8	53.9 51.5	-24,233	0.0	-93,747	0.0	-93,747	0.0	-93,747	0.0	-93,747	0.0
9	55.9 52.1	-7,039	1.5	-82,785	0.0	-82,785	0.0	-82,785	0.0	-82,785	0.0
10	58.9 53.2	0	5.7	-64,717	0.0	-64,717	0.0	-64,717	0.0	-64,717	0.0
11	62.6 55.2	0	7.1	-43,967	0.0	-43,967	0.0	-43,967	0.0	-43,967	0.0
12	66.5 57.3	0	7.8	-22,895	0.0	-22,895	0.0	-22,895	0.0	-22,895	0.0
13	70.2 59.6	0	8.1	-2,366	0.3	-2,366	0.3	-2,366	0.3	-2,366	0.3
14	73.2 61.0	0	9.2	0	4.5	0	4.5	0	4.5	0	4.5
15	75.2 62.2	0	10.4	0	5.6	0	5.6	0	5.6	0	5.6
16	75.9 62.2	0	11.3	0	5.8	0	5.8	0	5.8	0	5.8
17	75.6 62.0	0	11.8	0	6.3	0	6.3	0	6.3	0	6.3
18	74.9 61.7	0	11.5	0	6.1	0	6.1	0	6.1	0	6.1
19	73.7 62.0	0	9.2	0	5.0	0	5.0	0	5.0	0	5.0
20	72.1 62.4	0	6.8	0	3.4	0	3.4	0	3.4	0	3.4
21	70.2 63.3	0	5.1	0	2.5	0	2.5	0	2.5	0	2.5
22	68.0 62.5	0	3.8	0	1.5	0	1.6	0	1.6	0	1.6
23	65.7 60.5	0	2.7	0	0.7	0	0.7	0	0.7	0	0.7
24	63.4 58.5	0	1.8	-39,779	0.0	-39,779	0.0	-39,779	0.0	-39,779	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	2.6	0	1.0	0	1.1	0	1.1	0	1.1
2	65.7	61.5	0	1.9	0	0.2	0	0.2	0	0.2	0	0.2
3	63.6	59.7	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	1.0	0	0.0	-30,121	0.0	-30,121	0.0	-30,121	0.0
5	60.5	57.1	0	0.5	0	0.0	-53,444	0.0	-53,444	0.0	-53,444	0.0
6	59.7	56.5	0	0.3	-51,401	0.0	-59,173	0.0	-59,173	0.0	-59,173	0.0
7	59.4	56.5	0	1.9	-60,072	0.0	-60,072	0.0	-60,072	0.0	-60,072	0.0
8	60.1	56.3	0	3.9	-55,890	0.0	-55,890	0.0	-55,890	0.0	-55,890	0.0
9	62.4	56.3	0	5.9	-42,638	0.0	-42,638	0.0	-42,638	0.0	-42,638	0.0
10	65.7	57.2	0	7.7	-23,396	0.0	-23,396	0.0	-23,396	0.0	-23,396	0.0
11	69.9	58.9	0	9.0	0	4.1	0	4.3	0	4.3	0	4.3
12	74.3	60.9	0	9.6	0	4.5	0	4.7	0	4.7	0	4.7
13	78.5	63.7	0	9.8	0	5.2	0	5.3	0	5.3	0	5.3
14	81.9	65.3	0	10.9	0	6.2	0	6.3	0	6.3	0	6.3
15	84.1	66.9	0	12.1	0	7.4	0	7.5	0	7.5	0	7.5
16	84.9	67.1	0	13.0	0	8.0	0	8.0	0	8.0	0	8.0
17	84.6	67.3	0	13.5	0	8.4	0	8.4	0	8.4	0	8.4
18	83.8	67.1	0	13.3	0	8.3	0	8.3	0	8.3	0	8.3
19	82.4	67.5	0	11.6	0	7.4	0	7.4	0	7.4	0	7.4
20	80.6	68.9	0	9.0	0	5.6	0	5.6	0	5.6	0	5.6
21	78.5	71.0	0	7.2	0	4.7	0	4.7	0	4.7	0	4.7
22	76.1	69.9	0	5.8	0	3.6	0	3.6	0	3.6	0	3.6
23	73.4	68.0	0	4.4	0	2.7	0	2.7	0	2.7	0	2.7
24	70.8	65.5	0	3.4	0	1.9	0	1.9	0	1.9	0	1.9

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	5.2	0	2.6	0	2.8	0	2.8	0	2.8
2	72.6	68.4	0	4.3	0	2.0	0	2.1	0	2.1	0	2.1
3	70.9	67.3	0	3.6	0	1.1	0	1.2	0	1.2	0	1.2
4	69.6	66.5	0	3.0	0	0.9	0	0.9	0	0.9	0	0.9
5	68.7	65.8	0	2.8	0	0.3	0	0.3	0	0.3	0	0.3
6	68.5	65.7	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	4.1	0	0.8	0	0.9	0	0.9	0	0.9
8	70.6	66.9	0	6.6	0	2.5	0	2.5	0	2.5	0	2.5
9	73.0	67.7	0	8.6	0	4.0	0	4.0	0	4.0	0	4.0
10	76.1	68.1	0	10.1	0	5.7	0	5.7	0	5.7	0	5.7
11	79.5	69.1	0	11.3	0	6.6	0	6.6	0	6.6	0	6.6
12	82.9	70.1	0	11.6	0	7.3	0	7.3	0	7.3	0	7.3
13	86.0	71.0	0	12.0	0	7.7	0	7.7	0	7.7	0	7.7
14	88.4	72.5	0	12.7	0	8.7	0	8.7	0	8.7	0	8.7
15	90.0	74.0	0	13.8	0	10.1	0	10.1	0	10.1	0	10.1
16	90.5	73.7	0	14.7	0	10.2	0	10.2	0	10.2	0	10.2
17	90.3	74.2	0	15.3	0	10.6	0	10.6	0	10.6	0	10.6
18	89.4	73.9	0	15.2	0	10.4	0	10.4	0	10.4	0	10.4
19	88.1	74.5	0	13.8	0	9.6	0	9.6	0	9.6	0	9.6
20	86.4	75.3	0	11.3	0	7.6	0	7.6	0	7.6	0	7.6
21	84.3	76.5	0	9.5	0	6.5	0	6.5	0	6.5	0	6.5
22	81.9	75.7	0	7.8	0	5.4	0	5.4	0	5.4	0	5.4
23	79.5	74.0	0	6.6	0	4.5	0	4.5	0	4.5	0	4.5
24	77.0	72.1	0	5.6	0	3.6	0	3.6	0	3.6	0	3.6

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	5.1	0	1.9	0	2.1	0	2.1	0	2.1
2	72.4	69.4	0	4.2	0	1.6	0	1.7	0	1.7	0	1.7
3	71.3	68.4	0	3.8	0	1.0	0	1.1	0	1.1	0	1.1
4	70.5	67.7	0	3.2	0	0.5	0	0.5	0	0.5	0	0.5
5	70.0	67.4	0	3.0	0	0.3	0	0.3	0	0.3	0	0.3
6	69.9	67.5	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	4.0	0	0.6	0	0.6	0	0.6	0	0.6
8	71.7	69.0	0	6.5	0	2.5	0	2.5	0	2.5	0	2.5
9	73.7	69.5	0	8.2	0	4.1	0	4.2	0	4.2	0	4.2
10	76.2	70.6	0	9.8	0	6.0	0	6.0	0	6.0	0	6.0
11	78.9	71.8	0	11.0	0	6.9	0	6.9	0	6.9	0	6.9
12	81.4	73.0	0	11.4	0	7.3	0	7.3	0	7.3	0	7.3
13	83.4	74.4	0	11.6	0	7.6	0	7.6	0	7.6	0	7.6
14	84.8	74.8	0	12.3	0	8.3	0	8.3	0	8.3	0	8.3
15	85.2	75.0	0	13.4	0	9.4	0	9.4	0	9.4	0	9.4
16	85.1	75.0	0	14.3	0	9.3	0	9.3	0	9.3	0	9.3
17	84.6	74.7	0	14.9	0	9.5	0	9.5	0	9.5	0	9.5
18	83.8	74.6	0	14.8	0	9.5	0	9.5	0	9.5	0	9.5
19	82.7	74.6	0	13.5	0	8.3	0	8.3	0	8.3	0	8.3
20	81.4	74.4	0	10.8	0	6.7	0	6.7	0	6.7	0	6.7
21	79.9	74.9	0	9.0	0	5.4	0	5.4	0	5.4	0	5.4
22	78.4	74.0	0	7.5	0	4.6	0	4.6	0	4.6	0	4.6
23	76.8	72.7	0	6.6	0	3.6	0	3.6	0	3.6	0	3.6
24	75.2	71.6	0	5.7	0	2.8	0	2.8	0	2.8	0	2.8

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	5.1	0	2.3	0	2.5	0	2.5	0	2.5
2	73.2	70.3	0	4.1	0	1.7	0	1.8	0	1.8	0	1.8
3	71.7	68.9	0	3.7	0	1.4	0	1.5	0	1.5	0	1.5
4	70.4	67.8	0	3.1	0	0.9	0	0.9	0	0.9	0	0.9
5	69.5	66.8	0	2.5	0	0.3	0	0.3	0	0.3	0	0.3
6	68.9	66.4	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	3.1	0	0.1	0	0.1	0	0.1	0	0.1
8	69.2	66.8	0	5.5	0	1.9	0	1.9	0	1.9	0	1.9
9	70.8	67.7	0	7.8	0	3.3	0	3.3	0	3.3	0	3.3
10	73.2	67.7	0	9.5	0	5.2	0	5.3	0	5.3	0	5.3
11	76.2	68.8	0	10.9	0	6.2	0	6.2	0	6.2	0	6.2
12	79.3	70.3	0	11.4	0	6.7	0	6.7	0	6.7	0	6.7
13	82.3	72.2	0	11.9	0	7.4	0	7.4	0	7.4	0	7.4
14	84.7	73.7	0	12.7	0	8.2	0	8.2	0	8.2	0	8.2
15	86.3	74.6	0	13.7	0	9.4	0	9.4	0	9.4	0	9.4
16	86.8	75.1	0	14.8	0	9.9	0	9.9	0	9.9	0	9.9
17	86.6	75.1	0	15.2	0	10.0	0	10.0	0	10.0	0	10.0
18	86.0	75.3	0	14.9	0	10.1	0	10.1	0	10.1	0	10.1
19	85.1	76.0	0	12.7	0	8.8	0	8.8	0	8.8	0	8.8
20	83.8	76.8	0	10.6	0	7.0	0	7.0	0	7.0	0	7.0
21	82.3	77.2	0	8.9	0	6.0	0	6.0	0	6.0	0	6.0
22	80.6	76.3	0	7.6	0	5.0	0	5.0	0	5.0	0	5.0
23	78.7	75.3	0	6.4	0	4.1	0	4.1	0	4.1	0	4.1
24	76.8	73.7	0	5.5	0	3.2	0	3.2	0	3.2	0	3.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	3.4	0	0.9	0	1.1	0	1.1	0	1.1
2	67.6	65.0	0	2.6	0	0.3	0	0.4	0	0.4	0	0.4
3	65.8	63.4	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	1.3	0	0.0	-8,782	0.0	-8,782	0.0	-8,782	0.0
5	63.1	61.1	0	1.1	0	0.0	-41,261	0.0	-41,261	0.0	-41,261	0.0
6	62.4	60.3	0	0.7	-29,992	0.0	-45,712	0.0	-45,712	0.0	-45,712	0.0
7	62.2	60.2	0	0.6	-48,390	0.0	-48,390	0.0	-48,390	0.0	-48,390	0.0
8	62.9	60.9	0	3.3	-43,735	0.0	-43,735	0.0	-43,735	0.0	-43,735	0.0
9	64.7	61.8	0	5.6	-34,219	0.0	-34,219	0.0	-34,219	0.0	-34,219	0.0
10	67.6	62.1	0	7.8	-17,514	0.0	-17,514	0.0	-17,514	0.0	-17,514	0.0
11	71.1	63.1	0	9.0	0	4.2	0	4.3	0	4.3	0	4.3
12	74.8	64.6	0	9.7	0	5.4	0	5.5	0	5.5	0	5.5
13	78.3	66.7	0	10.3	0	6.1	0	6.1	0	6.1	0	6.1
14	81.2	68.4	0	11.3	0	7.2	0	7.2	0	7.2	0	7.2
15	83.0	70.0	0	12.7	0	8.0	0	8.0	0	8.0	0	8.0
16	83.7	70.5	0	13.8	0	8.7	0	8.7	0	8.7	0	8.7
17	83.4	70.5	0	14.0	0	8.8	0	8.8	0	8.8	0	8.8
18	82.8	70.9	0	12.9	0	8.1	0	8.1	0	8.1	0	8.1
19	81.6	72.7	0	10.2	0	6.4	0	6.4	0	6.4	0	6.4
20	80.1	74.7	0	8.4	0	5.4	0	5.4	0	5.4	0	5.4
21	78.3	74.1	0	7.0	0	4.4	0	4.4	0	4.4	0	4.4
22	76.3	72.4	0	5.7	0	3.4	0	3.4	0	3.4	0	3.4
23	74.1	70.7	0	4.7	0	2.5	0	2.5	0	2.5	0	2.5
24	71.8	68.9	0	3.8	0	1.8	0	1.8	0	1.8	0	1.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-102,504	0.0	-102,504	0.0	-102,504	0.0	-102,504	0.0
2	50.1	48.6	-31,835	0.0	-113,880	0.0	-113,880	0.0	-113,880	0.0	-113,880	0.0
3	48.4	46.9	-80,653	0.0	-123,824	0.0	-123,824	0.0	-123,824	0.0	-123,824	0.0
4	47.1	45.8	-85,170	0.0	-135,980	0.0	-142,724	0.0	-142,724	0.0	-142,724	0.0
5	46.3	44.8	-88,588	0.0	-151,579	0.0	-156,294	0.0	-156,294	0.0	-156,294	0.0
6	46.0	44.5	-87,142	0.0	-161,357	0.0	-164,581	0.0	-164,581	0.0	-164,581	0.0
7	46.8	45.3	-80,978	0.0	-161,037	0.0	-163,241	0.0	-163,241	0.0	-163,241	0.0
8	48.9	47.5	-69,019	0.0	-147,836	0.0	-149,343	0.0	-149,343	0.0	-149,343	0.0
9	52.2	49.9	-49,922	0.0	-121,356	0.0	-122,386	0.0	-122,386	0.0	-122,386	0.0
10	56.2	52.5	-28,382	0.0	-87,306	0.0	-87,306	0.0	-87,306	0.0	-87,306	0.0
11	60.4	54.4	-4,259	0.0	-63,597	0.0	-63,597	0.0	-63,597	0.0	-63,597	0.0
12	64.4	56.0	0	4.4	-42,004	0.0	-42,004	0.0	-42,004	0.0	-42,004	0.0
13	67.7	57.3	0	6.5	-23,379	0.0	-23,379	0.0	-23,379	0.0	-23,379	0.0
14	69.8	58.2	0	7.7	-10,404	0.0	-10,404	0.0	-10,404	0.0	-10,404	0.0
15	70.6	58.1	0	9.0	-4,566	0.0	-4,566	0.0	-4,566	0.0	-4,566	0.0
16	70.3	57.5	0	10.1	-4,657	4.2	-4,657	4.1	-4,657	4.1	-4,657	4.1
17	69.5	57.3	0	9.9	-8,019	4.6	-8,019	4.6	-8,019	4.6	-8,019	4.6
18	68.2	57.7	0	7.5	-15,454	3.2	-15,454	3.2	-15,454	3.2	-15,454	3.2
19	66.5	60.6	0	5.5	-24,787	1.9	-24,787	1.9	-24,787	1.9	-24,787	1.9
20	64.4	60.8	0	3.9	-36,521	1.1	-36,521	1.1	-36,521	1.1	-36,521	1.1
21	62.1	59.4	0	2.4	-49,519	0.2	-49,519	0.2	-49,519	0.2	-49,519	0.2
22	59.6	57.3	0	1.3	-63,091	0.0	-63,091	0.0	-63,091	0.0	-63,091	0.0
23	57.0	55.1	-47,757	0.5	-76,895	0.0	-76,895	0.0	-76,895	0.0	-76,895	0.0
24	54.5	52.7	-58,484	0.0	-90,152	0.0	-90,152	0.0	-90,152	0.0	-90,152	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-85,049	0.0	-105,243	0.0	-105,243	0.0	-105,243	0.0	-105,243	0.0
2	49.4 47.3	-92,689	0.0	-119,015	0.0	-119,015	0.0	-119,015	0.0	-119,015	0.0
3	47.2 45.3	-99,309	0.0	-130,799	0.0	-139,291	0.0	-139,291	0.0	-139,291	0.0
4	45.3 43.4	-105,182	0.0	-157,174	0.0	-162,746	0.0	-162,746	0.0	-162,746	0.0
5	43.9 42.2	-107,669	0.0	-175,667	0.0	-179,477	0.0	-179,477	0.0	-179,477	0.0
6	43.0 41.4	-112,835	0.0	-188,177	0.0	-190,784	0.0	-190,784	0.0	-190,784	0.0
7	42.7 41.2	-109,274	0.0	-194,724	0.0	-196,506	0.0	-196,506	0.0	-196,506	0.0
8	43.5 42.0	-95,631	0.0	-191,993	0.0	-193,212	0.0	-193,212	0.0	-193,212	0.0
9	45.9 44.0	-67,666	0.0	-173,703	0.0	-174,536	0.0	-174,536	0.0	-174,536	0.0
10	49.4 46.6	-44,992	0.0	-143,430	0.0	-143,999	0.0	-143,999	0.0	-143,999	0.0
11	53.8 48.6	-19,362	0.0	-106,012	0.0	-106,401	0.0	-106,401	0.0	-106,401	0.0
12	58.4 50.6	0	0.0	-76,646	0.0	-76,646	0.0	-76,646	0.0	-76,646	0.0
13	62.8 52.6	0	0.2	-52,912	0.0	-52,912	0.0	-52,912	0.0	-52,912	0.0
14	66.3 54.5	0	6.7	-33,909	0.0	-33,909	0.0	-33,909	0.0	-33,909	0.0
15	68.7 55.7	0	8.0	-19,668	0.0	-19,668	0.0	-19,668	0.0	-19,668	0.0
16	69.5 56.1	0	8.8	-14,296	0.0	-14,296	0.0	-14,296	0.0	-14,296	0.0
17	69.2 55.8	0	8.2	-14,572	0.0	-14,572	0.0	-14,572	0.0	-14,572	0.0
18	68.3 57.0	0	6.0	-19,784	1.6	-19,784	1.6	-19,784	1.6	-19,784	1.6
19	66.9 59.4	0	4.2	-27,906	1.2	-27,906	1.2	-27,906	1.2	-27,906	1.2
20	65.0 59.4	0	2.6	-37,348	0.3	-37,348	0.3	-37,348	0.3	-37,348	0.3
21	62.8 58.2	-6,531	1.5	-49,365	0.0	-49,365	0.0	-49,365	0.0	-49,365	0.0
22	60.2 56.1	-54,585	0.5	-62,474	0.0	-62,474	0.0	-62,474	0.0	-62,474	0.0
23	57.5 54.0	-67,106	0.0	-76,594	0.0	-76,594	0.0	-76,594	0.0	-76,594	0.0
24	54.7 51.7	-76,464	0.0	-91,308	0.0	-91,308	0.0	-91,308	0.0	-91,308	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-109,121	0.0	-147,006	0.0	-178,205	0.0	-178,251	0.0	-178,251	0.0
2	43.2 41.1	-115,266	0.0	-173,444	0.0	-194,436	0.0	-194,466	0.0	-194,466	0.0
3	41.8 39.8	-122,247	0.0	-193,289	0.0	-207,635	0.0	-207,656	0.0	-207,656	0.0
4	40.7 38.7	-136,904	0.0	-208,586	0.0	-218,392	0.0	-218,406	0.0	-218,406	0.0
5	40.1 38.4	-146,695	0.0	-218,209	0.0	-224,912	0.0	-224,922	0.0	-224,922	0.0
6	39.9 38.4	-148,937	0.0	-223,995	0.0	-228,577	0.0	-228,584	0.0	-228,584	0.0
7	40.5 39.0	-145,985	0.0	-222,738	0.0	-225,870	0.0	-225,875	0.0	-225,875	0.0
8	42.2 40.7	-136,528	0.0	-213,419	0.0	-215,560	0.0	-215,563	0.0	-215,563	0.0
9	44.9 43.4	-114,263	0.0	-193,112	0.0	-194,575	0.0	-194,577	0.0	-194,577	0.0
10	48.2 45.8	-85,032	0.0	-164,805	0.0	-165,804	0.0	-165,806	0.0	-165,806	0.0
11	51.7 48.3	-59,477	0.0	-133,855	0.0	-134,538	0.0	-134,539	0.0	-134,539	0.0
12	55.0 50.7	-41,239	0.0	-104,483	0.0	-104,949	0.0	-104,949	0.0	-104,949	0.0
13	57.7 52.0	-26,546	0.0	-82,304	0.0	-82,304	0.0	-82,304	0.0	-82,304	0.0
14	59.5 52.6	-15,333	0.0	-71,725	0.0	-71,725	0.0	-71,725	0.0	-71,725	0.0
15	60.1 52.7	-9,897	3.3	-67,109	0.0	-67,109	0.0	-67,109	0.0	-67,109	0.0
16	59.9 52.6	-11,076	6.5	-66,375	0.0	-66,375	0.0	-66,375	0.0	-66,375	0.0
17	59.2 52.1	-17,874	6.0	-69,472	0.0	-69,472	0.0	-69,472	0.0	-69,472	0.0
18	58.2 51.8	-30,688	3.9	-74,995	0.0	-74,995	0.0	-74,995	0.0	-74,995	0.0
19	56.8 52.2	-45,890	2.3	-82,965	0.0	-82,965	0.0	-82,965	0.0	-82,965	0.0
20	55.0 51.4	-61,279	1.0	-92,745	0.0	-92,745	0.0	-92,745	0.0	-92,745	0.0
21	53.1 50.1	-74,596	0.0	-102,568	0.0	-102,568	0.0	-102,568	0.0	-102,568	0.0
22	51.0 48.1	-86,181	0.0	-115,710	0.0	-115,882	0.0	-115,882	0.0	-115,882	0.0
23	48.9 46.2	-95,575	0.0	-138,583	0.0	-138,680	0.0	-138,680	0.0	-138,680	0.0
24	46.9 44.1	-102,936	0.0	-158,224	0.0	-158,290	0.0	-158,290	0.0	-158,290	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29709 (1 BUILDING) (TYPE 5C)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	DINNING FACILITY

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	DINNING ROOM	7284		2	0		12			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	KITCHEN	3842.25		2	0		12			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50					HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				4			
2	1	YES				4			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	86.25	11		196	180			
1	2	92	11		196	270			
1	3	92	11		196	90			
2	1	37	11		196	270			
2	2	86.25	11		196	0			
2	3	37	11		196	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	20.25	10	1	1.03	.94					
1	2	3.75	1.5	102	1.03	.94					
1	3	3.75	1.5	102	1.03	.94					
2	1	3.75	1.5	9	1.03	.94					
2	2	3.75	1.5	22	1.03	.94					
2	3	3.75	1.5	9	1.03	.94					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	11	PEOPLE	255	325	1.8	WATT-SF	ASHRAE2				
2	284	PEOPLE	255	325	1.5	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
2	1	MISS.	29	KW	FGHEAT						
2	2	MISS.GAS	280	MBH	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## -----CARD 31-- Partition Parameters -----

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	148	12	.61					2



Utility Description Reference Table  
-----

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE  
UH UNIT HEATERS

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FCHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGH Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                                                 **  
**          TRACE 600 ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29603 (2 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:47:57 8/15/94  
Dataset Name: FGTYPES6 .TM

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==> Mo/Hr: 8/16 \* Mo/Hr: 6/17 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 96/ 76/105.0 \* OADB: 98 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	51,294	0	0	51,294	15.11	*	57,969	21.26	*	-31,619	-31,619	9.46
Glass Solar	99,690	0	0	99,690	29.36	*	92,213	33.82	*	0	0	0.00
Glass Cond	50,057	0	0	50,057	14.74	*	56,731	20.80	*	-126,297	-126,297	37.79
Wall Cond	45,585	0	0	45,585	13.42	*	50,265	18.43	*	-77,998	-77,998	23.34
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	30,817	0	0	30,817	9.08	*	15,512	5.69	*	-37,610	-37,610	11.25
Sub Total==>	277,443	0	0	277,443	81.70	*	272,690	100.00	*	-273,524	-273,524	81.85
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	62,128	18.30	*	0	0.00	*	0	-60,658	18.15
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkqp	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	277,443	0	0	339,571	100.00	*	272,690	100.00	*	-273,524	-334,182	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	28.3	339.6	289.2	76.6	63.7	68.3	59.4	56.7	64.9	9,872	0	0
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,291	0	0
Totals	28.3	339.6								7,533	2,492	33

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
								Clg % OA	7.7	Type	Clg	Htg	
Main Htg	-334.2	15,795	64.5	83.6	Vent	1,215	1,215	Clg Cfm/Sqft	1.60	SADB	59.4	83.6	
Aux Htg	0.0	0	0.0	0.0	Infil	603	753	Clg Cfm/Ton	558.17	Plenum	75.0	68.0	
Preheat	-0.0	15,795	64.5	59.4	Supply	15,795	15,795	Clg Sqft/Ton	348.85	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	34.40	Ret/OA	76.6	64.5	
Humidif	0.0	0	0.0	0.0	Return	15,795	15,795	No. People	81	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Exhaust	1,215	1,215	Htg % OA	7.7	Fn MtrTD	0.0	0.0	
Total	-334.2				Rm Exh	0	0	Htg Cfm/Sqft	1.60	Fn BldTD	0.0	0.0	
					Auxil	0	0	Htg Btuh/Sqft	-33.85	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-282,423	0.0	-198,708	0.0	-198,708	0.0	-198,708	0.0	-198,708	0.0
2	32.9	30.7	-207,241	0.0	-206,329	0.0	-206,329	0.0	-206,329	0.0	-206,329	0.0
3	33.1	31.3	-159,101	0.0	-214,192	0.0	-214,192	0.0	-214,192	0.0	-214,192	0.0
4	33.9	32.1	-168,578	0.0	-213,977	0.0	-213,977	0.0	-213,977	0.0	-213,977	0.0
5	35.2	33.5	-176,952	0.0	-214,881	0.0	-214,881	0.0	-214,881	0.0	-214,881	0.0
6	37.0	35.4	-182,510	0.0	-213,783	0.0	-213,783	0.0	-213,783	0.0	-213,783	0.0
7	39.0	37.6	-182,157	0.0	-211,131	0.0	-211,131	0.0	-211,131	0.0	-211,131	0.0
8	41.3	40.1	-179,812	0.0	-203,768	0.0	-203,768	0.0	-203,768	0.0	-203,768	0.0
9	43.7	42.5	-145,065	0.0	-180,273	0.0	-180,273	0.0	-180,273	0.0	-180,273	0.0
10	46.1	44.0	-99,756	0.0	-159,829	0.0	-159,829	0.0	-159,829	0.0	-159,829	0.0
11	48.4	45.0	-56,876	0.0	-133,858	0.0	-133,858	0.0	-133,858	0.0	-133,858	0.0
12	50.5	45.6	-14,768	0.0	-112,717	0.0	-112,717	0.0	-112,717	0.0	-112,717	0.0
13	52.2	46.1	0	0.0	-91,322	0.0	-91,322	0.0	-91,322	0.0	-91,322	0.0
14	53.5	46.4	0	0.0	-71,101	0.0	-71,101	0.0	-71,101	0.0	-71,101	0.0
15	54.3	46.3	0	0.0	-57,518	0.0	-57,518	0.0	-57,518	0.0	-57,518	0.0
16	54.6	46.1	0	1.1	-47,816	0.0	-47,816	0.0	-47,816	0.0	-47,816	0.0
17	54.0	45.9	0	4.8	-46,826	0.0	-46,826	0.0	-46,826	0.0	-46,826	0.0
18	52.5	45.0	0	1.7	-59,126	0.0	-59,126	0.0	-59,126	0.0	-59,126	0.0
19	50.1	44.8	-15,665	0.0	-79,695	0.0	-79,695	0.0	-79,695	0.0	-79,695	0.0
20	47.1	43.3	-1,938	0.0	-99,608	0.0	-99,608	0.0	-99,608	0.0	-99,608	0.0
21	43.7	40.4	0	0.0	-122,380	0.0	-122,380	0.0	-122,380	0.0	-122,380	0.0
22	40.4	37.3	-12,457	0.0	-145,059	0.0	-145,059	0.0	-145,059	0.0	-145,059	0.0
23	37.3	34.9	-98,531	0.0	-163,896	0.0	-163,896	0.0	-163,896	0.0	-163,896	0.0
24	34.9	32.6	-118,312	0.0	-182,607	0.0	-182,607	0.0	-182,607	0.0	-182,607	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-121,554	0.0	-157,193	0.0	-157,193	0.0	-157,193	0.0	-157,193	0.0
2	39.7	37.1	-138,567	0.0	-168,160	0.0	-168,160	0.0	-168,160	0.0	-168,160	0.0
3	37.8	35.1	-150,091	0.0	-184,067	0.0	-184,067	0.0	-184,067	0.0	-184,067	0.0
4	36.3	33.8	-159,860	0.0	-192,604	0.0	-192,604	0.0	-192,604	0.0	-192,604	0.0
5	35.1	32.6	-167,553	0.0	-207,243	0.0	-207,243	0.0	-207,243	0.0	-207,243	0.0
6	34.4	32.0	-174,227	0.0	-214,099	0.0	-214,099	0.0	-214,099	0.0	-214,099	0.0
7	34.1	31.9	-174,253	0.0	-217,058	0.0	-217,058	0.0	-217,058	0.0	-217,058	0.0
8	34.6	32.4	-166,676	0.0	-218,610	0.0	-218,610	0.0	-218,610	0.0	-218,610	0.0
9	36.0	33.8	-130,137	0.0	-201,149	0.0	-201,149	0.0	-201,149	0.0	-201,149	0.0
10	38.2	34.7	-87,286	0.0	-184,652	0.0	-184,652	0.0	-184,652	0.0	-184,652	0.0
11	40.9	36.2	-46,004	0.0	-162,580	0.0	-162,580	0.0	-162,580	0.0	-162,580	0.0
12	43.9	37.4	-9,760	0.0	-137,982	0.0	-137,982	0.0	-137,982	0.0	-137,982	0.0
13	46.9	39.4	0	0.0	-109,639	0.0	-109,639	0.0	-109,639	0.0	-109,639	0.0
14	49.7	41.4	0	0.0	-87,105	0.0	-87,105	0.0	-87,105	0.0	-87,105	0.0
15	51.8	42.8	0	0.0	-65,934	0.0	-65,934	0.0	-65,934	0.0	-65,934	0.0
16	53.2	43.9	0	1.6	-53,713	0.0	-53,713	0.0	-53,713	0.0	-53,713	0.0
17	53.7	44.2	0	5.4	-49,787	0.0	-49,787	0.0	-49,787	0.0	-49,787	0.0
18	53.4	44.4	0	3.5	-52,868	0.0	-52,868	0.0	-52,868	0.0	-52,868	0.0
19	52.7	44.4	0	0.4	-71,237	0.0	-71,237	0.0	-71,237	0.0	-71,237	0.0
20	51.5	45.2	0	0.0	-85,524	0.0	-85,524	0.0	-85,524	0.0	-85,524	0.0
21	50.0	44.6	0	0.0	-97,885	0.0	-97,885	0.0	-97,885	0.0	-97,885	0.0
22	48.1	43.3	0	0.0	-113,467	0.0	-113,467	0.0	-113,467	0.0	-113,467	0.0
23	46.1	41.8	-70,940	0.0	-127,038	0.0	-127,038	0.0	-127,038	0.0	-127,038	0.0
24	43.9	40.1	-107,212	0.0	-144,147	0.0	-144,147	0.0	-144,147	0.0	-144,147	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-43,923	0.0	0	0.0	-85,118	0.0	-85,118	0.0	-85,118	0.0
2	48.7 44.6	-61,177	0.0	-89,303	0.0	-102,382	0.0	-102,382	0.0	-102,382	0.0
3	46.6 42.9	-72,757	0.0	-118,199	0.0	-118,199	0.0	-118,199	0.0	-118,199	0.0
4	44.9 41.4	-83,535	0.0	-128,787	0.0	-128,787	0.0	-128,787	0.0	-128,787	0.0
5	43.9 40.8	-91,822	0.0	-136,932	0.0	-136,932	0.0	-136,932	0.0	-136,932	0.0
6	43.5 40.8	-98,190	0.0	-149,493	0.0	-149,493	0.0	-149,493	0.0	-149,493	0.0
7	44.0 41.4	-97,707	0.0	-150,051	0.0	-150,051	0.0	-150,051	0.0	-150,051	0.0
8	45.4 42.7	-76,513	0.0	-138,569	0.0	-138,569	0.0	-138,569	0.0	-138,569	0.0
9	47.7 44.3	-42,494	0.0	-122,926	0.0	-122,926	0.0	-122,926	0.0	-122,926	0.0
10	50.6 45.8	0	0.0	-100,071	0.0	-100,071	0.0	-100,071	0.0	-100,071	0.0
11	53.9 47.4	0	0.0	-64,392	0.0	-64,392	0.0	-64,392	0.0	-64,392	0.0
12	57.4 49.0	0	0.0	-33,815	0.0	-33,815	0.0	-33,815	0.0	-33,815	0.0
13	60.7 50.8	0	2.2	-8,567	0.0	-8,567	0.0	-8,567	0.0	-8,567	0.0
14	63.6 52.7	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9 53.7	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	11.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	8.1	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	-2,998	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1 51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2 49.4	0	0.0	-45,351	0.0	-45,351	0.0	-45,351	0.0	-45,351	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	-3,346	0.0	-31,861	0.0	-49,274	0.0	-49,274	0.0	-49,274	0.0
5	54.2 51.4	-25,238	0.0	-73,482	0.0	-73,482	0.0	-73,482	0.0	-73,482	0.0
6	53.5 50.9	-31,506	0.0	-81,191	0.0	-81,191	0.0	-81,191	0.0	-81,191	0.0
7	53.2 51.1	-21,729	0.0	-83,354	0.0	-83,354	0.0	-83,354	0.0	-83,354	0.0
8	53.9 51.5	0	0.0	-74,667	0.0	-74,667	0.0	-74,667	0.0	-74,667	0.0
9	55.9 52.1	0	0.0	-63,932	0.0	-63,932	0.0	-63,932	0.0	-63,932	0.0
10	58.9 53.2	0	0.0	-34,085	0.0	-34,085	0.0	-34,085	0.0	-34,085	0.0
11	62.6 55.2	0	0.1	-2,966	0.0	-2,966	0.0	-2,966	0.0	-2,966	0.0
12	66.5 57.3	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	16.1	0	3.9	0	3.9	0	3.9	0	3.9
16	75.9 62.2	0	17.0	0	7.0	0	7.0	0	7.0	0	7.0
17	75.6 62.0	0	17.1	0	7.3	0	7.3	0	7.3	0	7.3
18	74.9 61.7	0	16.1	0	6.7	0	6.7	0	6.7	0	6.7
19	73.7 62.0	0	13.2	0	5.4	0	5.4	0	5.4	0	5.4
20	72.1 62.4	0	10.2	0	3.8	0	3.8	0	3.8	0	3.8
21	70.2 63.3	0	7.3	0	2.2	0	2.2	0	2.2	0	2.2
22	68.0 62.5	0	4.9	0	0.6	0	0.6	0	0.6	0	0.6
23	65.7 60.5	0	3.1	-9,448	0.0	-9,448	0.0	-9,448	0.0	-9,448	0.0
24	63.4 58.5	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	2.4	0	0.8	0	0.8	0	0.8	0	0.8
2	65.7	61.5	0	2.9	-8,568	0.0	-8,568	0.0	-8,568	0.0	-8,568	0.0
3	63.6	59.7	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	-2,887	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.3	-3,330	0.0	-3,330	0.0	-3,330	0.0	-3,330	0.0
8	60.1	56.3	0	3.3	-24,451	0.0	-24,451	0.0	-24,451	0.0	-24,451	0.0
9	62.4	56.3	0	5.9	-13,968	0.0	-13,968	0.0	-13,968	0.0	-13,968	0.0
10	65.7	57.2	0	8.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	11.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	14.1	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	16.6	0	2.2	0	2.2	0	2.2	0	2.2
14	81.9	65.3	0	18.7	0	9.2	0	9.2	0	9.2	0	9.2
15	84.1	66.9	0	20.5	0	11.2	0	11.2	0	11.2	0	11.2
16	84.9	67.1	0	21.6	0	11.9	0	11.9	0	11.9	0	11.9
17	84.6	67.3	0	21.9	0	12.2	0	12.2	0	12.2	0	12.2
18	83.8	67.1	0	20.7	0	11.9	0	11.9	0	11.9	0	11.9
19	82.4	67.5	0	18.7	0	11.0	0	11.0	0	11.0	0	11.0
20	80.6	68.9	0	15.1	0	8.8	0	8.8	0	8.8	0	8.8
21	78.5	71.0	0	12.5	0	7.0	0	7.0	0	7.0	0	7.0
22	76.1	69.9	0	9.8	0	5.7	0	5.7	0	5.7	0	5.7
23	73.4	68.0	0	7.6	0	3.8	0	3.8	0	3.8	0	3.8
24	70.8	65.5	0	6.1	0	2.1	0	2.1	0	2.1	0	2.1

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	10.7	0	4.3	0	5.2	0	5.2	0	5.2
2	72.6	68.4	0	8.5	0	3.3	0	3.7	0	3.7	0	3.7
3	70.9	67.3	0	6.9	0	2.0	0	2.1	0	2.1	0	2.1
4	69.6	66.5	0	6.0	0	1.2	0	1.2	0	1.2	0	1.2
5	68.7	65.8	0	5.3	-1,339	0.0	-1,339	0.0	-1,339	0.0	-1,339	0.0
6	68.5	65.7	0	5.1	-4,291	0.0	-4,291	0.0	-4,291	0.0	-4,291	0.0
7	69.0	66.3	0	6.4	0	0.3	0	0.3	0	0.3	0	0.3
8	70.6	66.9	0	9.4	0	1.4	0	1.4	0	1.4	0	1.4
9	73.0	67.7	0	12.2	0	3.0	0	3.0	0	3.0	0	3.0
10	76.1	68.1	0	15.2	0	5.6	0	5.6	0	5.6	0	5.6
11	79.5	69.1	0	17.8	0	8.3	0	8.5	0	8.5	0	8.5
12	82.9	70.1	0	20.7	0	10.6	0	10.6	0	10.6	0	10.6
13	86.0	71.0	0	22.9	0	13.0	0	13.0	0	13.0	0	13.0
14	88.4	72.5	0	25.1	0	15.7	0	15.7	0	15.7	0	15.7
15	90.0	74.0	0	26.6	0	18.7	0	18.7	0	18.7	0	18.7
16	90.5	73.7	0	27.9	0	18.3	0	18.3	0	18.3	0	18.3
17	90.3	74.2	0	27.9	0	19.1	0	19.1	0	19.1	0	19.1
18	89.4	73.9	0	27.0	0	18.8	0	18.8	0	18.8	0	18.8
19	88.1	74.5	0	25.0	0	17.6	0	17.6	0	17.6	0	17.6
20	86.4	75.3	0	21.0	0	15.1	0	15.1	0	15.1	0	15.1
21	84.3	76.5	0	18.1	0	13.6	0	13.6	0	13.6	0	13.6
22	81.9	75.7	0	15.8	0	11.8	0	11.8	0	11.8	0	11.8
23	79.5	74.0	0	13.4	0	9.6	0	9.6	0	9.6	0	9.6
24	77.0	72.1	0	11.8	0	7.6	0	7.6	0	7.6	0	7.6

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	10.6	0	3.2	0	4.0	0	4.0	0	4.0
2	72.4	69.4	0	8.1	0	2.5	0	2.9	0	2.9	0	2.9
3	71.3	68.4	0	7.2	0	1.7	0	1.7	0	1.7	0	1.7
4	70.5	67.7	0	6.4	0	0.8	0	0.8	0	0.8	0	0.8
5	70.0	67.4	0	5.6	-847	0.0	-847	0.0	-847	0.0	-847	0.0
6	69.9	67.5	0	5.4	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	9.7	0	1.1	0	1.1	0	1.1	0	1.1
9	73.7	69.5	0	12.3	0	3.8	0	3.8	0	3.8	0	3.8
10	76.2	70.6	0	14.7	0	6.6	0	6.6	0	6.6	0	6.6
11	78.9	71.8	0	17.5	0	8.5	0	8.5	0	8.5	0	8.5
12	81.4	73.0	0	20.2	0	11.4	0	11.4	0	11.4	0	11.4
13	83.4	74.4	0	21.9	0	13.7	0	13.7	0	13.7	0	13.7
14	84.8	74.8	0	24.1	0	15.3	0	15.3	0	15.3	0	15.3
15	85.2	75.0	0	25.7	0	16.8	0	16.8	0	16.8	0	16.8
16	85.1	75.0	0	26.8	0	17.0	0	17.0	0	17.0	0	17.0
17	84.6	74.7	0	26.9	0	16.6	0	16.6	0	16.6	0	16.6
18	83.8	74.6	0	25.9	0	16.8	0	16.8	0	16.8	0	16.8
19	82.7	74.6	0	24.0	0	15.5	0	15.5	0	15.5	0	15.5
20	81.4	74.4	0	20.2	0	12.9	0	12.9	0	12.9	0	12.9
21	79.9	74.9	0	17.5	0	11.1	0	11.1	0	11.1	0	11.1
22	78.4	74.0	0	15.3	0	9.7	0	9.7	0	9.7	0	9.7
23	76.8	72.7	0	12.8	0	7.0	0	7.0	0	7.0	0	7.0
24	75.2	71.6	0	11.2	0	5.6	0	5.6	0	5.6	0	5.6

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	11.1	0	4.0	0	5.1	0	5.1	0	5.1
2	73.2	70.3	0	8.5	0	3.4	0	3.6	0	3.6	0	3.6
3	71.7	68.9	0	6.9	0	2.4	0	2.4	0	2.4	0	2.4
4	70.4	67.8	0	5.6	0	0.9	0	0.9	0	0.9	0	0.9
5	69.5	66.8	0	5.2	-989	0.0	-989	0.0	-989	0.0	-989	0.0
6	68.9	66.4	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	5.3	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	11.0	0	0.5	0	0.5	0	0.5	0	0.5
10	73.2	67.7	0	13.9	0	4.2	0	4.2	0	4.2	0	4.2
11	76.2	68.8	0	17.2	0	7.2	0	7.2	0	7.2	0	7.2
12	79.3	70.3	0	20.2	0	10.1	0	10.1	0	10.1	0	10.1
13	82.3	72.2	0	22.9	0	12.6	0	12.6	0	12.6	0	12.6
14	84.7	73.7	0	25.1	0	15.2	0	15.2	0	15.2	0	15.2
15	86.3	74.6	0	27.3	0	17.2	0	17.2	0	17.2	0	17.2
16	86.8	75.1	0	28.2	0	18.4	0	18.4	0	18.4	0	18.4
17	86.6	75.1	0	27.4	0	18.3	0	18.3	0	18.3	0	18.3
18	86.0	75.3	0	26.0	0	18.1	0	18.1	0	18.1	0	18.1
19	85.1	76.0	0	23.4	0	16.2	0	16.2	0	16.2	0	16.2
20	83.8	76.8	0	20.0	0	14.4	0	14.4	0	14.4	0	14.4
21	82.3	77.2	0	17.4	0	12.7	0	12.7	0	12.7	0	12.7
22	80.6	76.3	0	15.0	0	11.2	0	11.2	0	11.2	0	11.2
23	78.7	75.3	0	12.3	0	9.1	0	9.1	0	9.1	0	9.1
24	76.8	73.7	0	10.9	0	7.3	0	7.3	0	7.3	0	7.3



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADE	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	5.9	0	1.2	0	1.4	0	1.4	0	1.4
2	67.6	65.0	0	4.0	-2,219	0.0	-2,219	0.0	-2,219	0.0	-2,219	0.0
3	65.8	63.4	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	9.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	13.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	16.6	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	19.4	0	6.7	0	6.7	0	6.7	0	6.7
14	81.2	68.4	0	21.7	0	11.4	0	11.5	0	11.5	0	11.5
15	83.0	70.0	0	24.0	0	13.2	0	13.2	0	13.2	0	13.2
16	83.7	70.5	0	24.8	0	14.5	0	14.5	0	14.5	0	14.5
17	83.4	70.5	0	24.0	0	14.4	0	14.4	0	14.4	0	14.4
18	82.8	70.9	0	21.6	0	13.2	0	13.2	0	13.2	0	13.2
19	81.6	72.7	0	17.9	0	11.3	0	11.3	0	11.3	0	11.3
20	80.1	74.7	0	15.6	0	10.4	0	10.4	0	10.4	0	10.4
21	78.3	74.1	0	13.0	0	8.9	0	8.9	0	8.9	0	8.9
22	76.3	72.4	0	10.2	0	6.9	0	6.9	0	6.9	0	6.9
23	74.1	70.7	0	8.2	0	4.4	0	4.4	0	4.4	0	4.4
24	71.8	68.9	0	6.5	0	2.8	0	2.8	0	2.8	0	2.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADE	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-63,936	0.0	-63,936	0.0	-63,936	0.0
2	50.1	48.6	0	0.0	-26,180	0.0	-85,019	0.0	-85,019	0.0	-85,019	0.0
3	48.4	46.9	0	0.0	-99,772	0.0	-99,772	0.0	-99,772	0.0	-99,772	0.0
4	47.1	45.8	-64,680	0.0	-110,192	0.0	-110,192	0.0	-110,192	0.0	-110,192	0.0
5	46.3	44.8	-77,922	0.0	-123,007	0.0	-123,007	0.0	-123,007	0.0	-123,007	0.0
6	46.0	44.5	-83,430	0.0	-131,639	0.0	-131,639	0.0	-131,639	0.0	-131,639	0.0
7	46.8	45.3	-82,600	0.0	-131,016	0.0	-131,016	0.0	-131,016	0.0	-131,016	0.0
8	48.9	47.5	-60,379	0.0	-117,893	0.0	-117,893	0.0	-117,893	0.0	-117,893	0.0
9	52.2	49.9	-18,139	0.0	-93,802	0.0	-93,802	0.0	-93,802	0.0	-93,802	0.0
10	56.2	52.5	0	0.0	-67,551	0.0	-67,551	0.0	-67,551	0.0	-67,551	0.0
11	60.4	54.4	0	0.0	-28,922	0.0	-28,922	0.0	-28,922	0.0	-28,922	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	9.5	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	14.3	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	15.0	0	2.1	0	2.1	0	2.1	0	2.1
17	69.5	57.3	0	14.3	0	4.2	0	4.2	0	4.2	0	4.2
18	68.2	57.7	0	11.2	0	2.9	0	2.9	0	2.9	0	2.9
19	66.5	60.6	0	8.2	0	1.0	0	1.0	0	1.0	0	1.0
20	64.4	60.8	0	5.2	-3,584	0.0	-3,584	0.0	-3,584	0.0	-3,584	0.0
21	62.1	59.4	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	-18,287	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	-2,368	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COILS SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-41,356	0.0	0	0.0	-79,791	0.0	-79,791	0.0	-79,791	0.0
2	49.4 47.3	-67,365	0.0	-86,180	0.0	-92,524	0.0	-92,524	0.0	-92,524	0.0
3	47.2 45.3	-82,563	0.0	-108,322	0.0	-108,322	0.0	-108,322	0.0	-108,322	0.0
4	45.3 43.4	-92,298	0.0	-122,814	0.0	-122,814	0.0	-122,814	0.0	-122,814	0.0
5	43.9 42.2	-100,525	0.0	-132,182	0.0	-132,182	0.0	-132,182	0.0	-132,182	0.0
6	43.0 41.4	-106,446	0.0	-144,598	0.0	-144,598	0.0	-144,598	0.0	-144,598	0.0
7	42.7 41.2	-105,559	0.0	-151,504	0.0	-151,504	0.0	-151,504	0.0	-151,504	0.0
8	43.5 42.0	-95,273	0.0	-148,670	0.0	-148,670	0.0	-148,670	0.0	-148,670	0.0
9	45.9 44.0	-49,629	0.0	-128,579	0.0	-128,579	0.0	-128,579	0.0	-128,579	0.0
10	49.4 46.6	-4,626	0.0	-102,685	0.0	-102,685	0.0	-102,685	0.0	-102,685	0.0
11	53.8 48.6	0	0.0	-73,274	0.0	-73,274	0.0	-73,274	0.0	-73,274	0.0
12	58.4 50.6	0	0.0	-40,266	0.0	-40,266	0.0	-40,266	0.0	-40,266	0.0
13	62.8 52.6	0	2.6	-14,328	0.0	-14,328	0.0	-14,328	0.0	-14,328	0.0
14	66.3 54.5	0	10.8	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7 55.7	0	12.8	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	13.8	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	9.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	6.3	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	-14,601	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5 54.0	-1,853	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7 51.7	0	0.0	-53,057	0.0	-53,057	0.0	-53,057	0.0	-53,057	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-88,842	0.0	-129,669	0.0	-129,668	0.0	-129,668	0.0	-129,668	0.0
2	43.2 41.1	-100,121	0.0	-144,880	0.0	-144,880	0.0	-144,880	0.0	-144,880	0.0
3	41.8 39.8	-110,346	0.0	-153,735	0.0	-153,735	0.0	-153,735	0.0	-153,735	0.0
4	40.7 38.7	-119,629	0.0	-162,123	0.0	-162,123	0.0	-162,123	0.0	-162,123	0.0
5	40.1 38.4	-127,844	0.0	-169,648	0.0	-169,648	0.0	-169,648	0.0	-169,648	0.0
6	39.9 38.4	-133,272	0.0	-176,527	0.0	-176,527	0.0	-176,527	0.0	-176,527	0.0
7	40.5 39.0	-133,031	0.0	-182,139	0.0	-182,139	0.0	-182,139	0.0	-182,139	0.0
8	42.2 40.7	-129,736	0.0	-180,514	0.0	-180,514	0.0	-180,514	0.0	-180,514	0.0
9	44.9 43.4	-94,574	0.0	-156,943	0.0	-156,943	0.0	-156,943	0.0	-156,943	0.0
10	48.2 45.8	-55,083	0.0	-131,114	0.0	-131,114	0.0	-131,114	0.0	-131,114	0.0
11	51.7 48.3	-13,235	0.0	-101,548	0.0	-101,548	0.0	-101,548	0.0	-101,548	0.0
12	55.0 50.7	0	0.0	-73,483	0.0	-73,483	0.0	-73,483	0.0	-73,483	0.0
13	57.7 52.0	0	0.0	-49,639	0.0	-49,639	0.0	-49,639	0.0	-49,639	0.0
14	59.5 52.6	0	0.0	-27,337	0.0	-27,337	0.0	-27,337	0.0	-27,337	0.0
15	60.1 52.7	0	5.7	-12,114	0.0	-12,114	0.0	-12,114	0.0	-12,114	0.0
16	59.9 52.6	0	8.4	-2,653	0.0	-2,653	0.0	-2,653	0.0	-2,653	0.0
17	59.2 52.1	0	7.2	-7,902	0.0	-7,902	0.0	-7,902	0.0	-7,902	0.0
18	58.2 51.8	0	4.1	-26,588	0.0	-26,588	0.0	-26,588	0.0	-26,588	0.0
19	56.8 52.2	0	1.5	-41,079	0.0	-41,079	0.0	-41,079	0.0	-41,079	0.0
20	55.0 51.4	-10,458	0.0	-58,020	0.0	-58,020	0.0	-58,020	0.0	-58,020	0.0
21	53.1 50.1	0	0.0	-73,182	0.0	-73,182	0.0	-73,182	0.0	-73,182	0.0
22	51.0 48.1	0	0.0	-88,159	0.0	-88,159	0.0	-88,159	0.0	-88,159	0.0
23	48.9 46.2	0	0.0	-101,745	0.0	-101,745	0.0	-101,745	0.0	-101,745	0.0
24	46.9 44.1	-47,280	0.0	-117,509	0.0	-117,509	0.0	-117,509	0.0	-117,509	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29603 (2 BUILDINGS)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR						OCT

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	OFFICES

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BASEMENT	80.75	40.75	3	0		10.5	3		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				11			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	80.75	10		196	0			
1	2	40.75	10.5		196	90			
1	3	80.75	10.5		196	180			
1	4	40.75	10.5		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	25.6	10	1	1.03	.7					
1	2	3.75	2.5	17	1.03	.7					
1	3	25.6	10	1	1.03	.7					
1	4	3.75	2.5	17	1.03	.7					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting Reference Point 1	--- Daylighting Reference Point 2
1	27	PEOPLE	255	325	1.9	WATT-SF	ASHRAE2				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

FC FAN COIL

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	



Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	0	
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**  
**          TRACE   6 0 0   A N A L Y S I S          **  
**  
**          by           **  
**  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29604 ( 2 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13: 9:27 8/19/94  
Dataset Name: FGTYP57 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==) Mo/Hr: 8/15 \* Mo/Hr: 6/16 \* Mo/Hr: 13/ 1  
 Outside Air ==) OADB/WB/HR: 97/ 76/105.0 \* OADB: 100 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	29,093	0		29,093	16.50	*	30,584	34.80	*	-15,966	-15,966	8.67
Glass Solar	8,959	0		8,959	5.08	*	8,092	9.21	*	0	0	0.00
Glass Cond	5,805	0		5,805	3.29	*	6,787	7.72	*	-14,645	-14,645	7.95
Wall Cond	31,271	0		31,271	17.74	*	34,398	39.14	*	-52,118	-52,118	28.31
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	15,124			15,124	8.58	*	8,018	9.12	*	-18,260	-18,260	9.92
Sub Total==)	90,252	0		90,252	51.19	*	87,879	100.00	*	-100,989	-100,989	54.85
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0			0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	86,062	48.81	*	0	0.00	*	0	-83,124	45.15
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
Grand Total==)	90,252	0	0	176,314	100.00	*	87,879	100.00	*	-100,989	-184,113	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cao. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains	Gross Total Floor	AREAS Glass (sf) (%)
Main Clg	14.7	176.3	122.0	83.9	68.7	81.7	55.3	54.6	62.7	3,842	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	14.7	176.3								3,842	289 8

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	AIRFLOWS (cfm) Cooling	AIRFLOWS (cfm) Heating	ENGINEERING CHECKS Clg % OA	ENGINEERING CHECKS Clg Cfm/Saft	ENGINEERING CHECKS Clg Cfm/Ton	ENGINEERING CHECKS Clg Btuh/Saft	ENGINEERING CHECKS No. People	ENGINEERING CHECKS Htg % OA	ENGINEERING CHECKS Htg Cfm/Saft	TEMPERATURES (F) Type	TEMPERATURES (F) Cla	TEMPERATURES (F) Htg
Main Htg	-157.6	4,026	55.3	90.6	Vent	1,665	1,665	41.4	1.05	273.98	45.89	111	41.4	1.05	SADB	55.3	90.6
Aux Htg	0.0	0	0.0	0.0	Infil	293	366			261.52					Plenum	75.0	68.0
Preheat	-26.5	4,026	49.4	55.3	Supply	4,026	4,026								Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0								Ret/OA	83.9	49.4
Humidif	0.0	0	0.0	0.0	Return	4,026	4,026								Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	1,665	1,665								Fn MtrTD	0.0	0.0
Total	-184.1				Rm Exh	0	0								Fn RldTD	0.0	0.0
					Auxil	0	0								Fn Frict	0.0	0.0

System 2 Block UH - UNIT HEATERS

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****											
Peaked at Time ==)		Mo/Hr: 0/ 0		*	Mo/Hr: 0/ 0		*	Mo/Hr: 13/ 1			
Outside Air ==)		OADB/WB/HR: 0/ 0/ 0.0		*	OADB: 0		*	OADB: 23			
Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)
Envelope Loads					*			*			
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	0	0	0	0.00	*	0	0.00	*	-1,817	-1,817	9.31
Glass Solar	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Glass Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Wall Cond	0	0	0	0.00	*	0	0.00	*	-13,376	-13,376	68.56
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0	0	0	0.00	*	0	0.00	*	-4,316	-4,316	22.12
Sub Total==)	0	0	0	0.00	*	0	0.00	*	-19,509	-19,509	100.00
Internal Loads					*			*			
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sup. Fan Heat			0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0		0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0.00	*		0.00	*		0	0.00
Grand Total==)	0	0	0	0.00	*	0	0.00	*	-19,509	-19,509	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----	
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	
Main Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	437
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0
Oot Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	437
Totals	0.0	0.0								Wall	865

-----HEATING COIL SELECTION-----				-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
Capacity (Mbh)	Coil Airfl (cfm)	Ent (Deg F)	Lvg (Deg F)	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg	
Main Htg	-19.5	437	68.0	108.2	0	0	0.0	0.00	SADB	0.0	108.2	
Aux Htg	0.0	0	0.0	0.0	0	437	0.0	0.00	Plenum	0.0	68.0	
Preheat	0.0	0	0.0	0.0	0	0	0.0	0.00	Return	0.0	68.0	
Reheat	0.0	0	0.0	0.0	0	437	0.0	0.00	Ret/OA	0.0	68.0	
Humidif	0.0	0	0.0	0.0	0	0	0.0	0.00	No. People	0	68.0	
Oot Vent	0.0	0	0.0	0.0	0	0	0.0	1.00	Htg % OA	0.0	68.0	
Total	-19.5				0	0	0.0	-44.62	Htg Cfm/SaFt	0.0	0.0	
									Fn MtrTD	0.0	0.0	
									Fn BldTD	0.0	0.0	
									Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWR	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-108,315	0.0	-130,057	0.0	-129,764	0.0	-129,764	0.0	-129,764	0.0
2	32.9	30.7	-101,831	0.0	-133,989	0.0	-133,989	0.0	-133,989	0.0	-133,989	0.0
3	33.1	31.3	-104,839	0.0	-136,325	0.0	-136,325	0.0	-136,325	0.0	-136,325	0.0
4	33.9	32.1	-106,798	0.0	-135,943	0.0	-135,943	0.0	-135,943	0.0	-135,943	0.0
5	35.2	33.5	-108,219	0.0	-133,918	0.0	-133,918	0.0	-133,918	0.0	-133,918	0.0
6	37.0	35.4	-106,703	0.0	-127,275	0.0	-127,275	0.0	-127,275	0.0	-127,275	0.0
7	39.0	37.6	-102,678	0.0	-120,455	0.0	-120,455	0.0	-120,455	0.0	-120,455	0.0
8	41.3	40.1	-95,606	0.0	-112,053	0.0	-112,053	0.0	-112,053	0.0	-112,053	0.0
9	43.7	42.5	-84,805	0.0	-103,511	0.0	-103,511	0.0	-103,511	0.0	-103,511	0.0
10	46.1	44.0	-71,450	0.0	-94,527	0.0	-94,527	0.0	-94,527	0.0	-94,527	0.0
11	48.4	45.0	-55,507	0.0	-85,129	0.0	-85,129	0.0	-85,129	0.0	-85,129	0.0
12	50.5	45.6	-39,577	0.0	-76,194	0.0	-76,194	0.0	-76,194	0.0	-76,194	0.0
13	52.2	46.1	-26,821	0.0	-68,383	0.0	-68,383	0.0	-68,383	0.0	-68,383	0.0
14	53.5	46.4	-17,637	0.0	-62,114	0.0	-62,114	0.0	-62,114	0.0	-62,114	0.0
15	54.3	46.3	-13,192	0.0	-57,731	0.0	-57,731	0.0	-57,731	0.0	-57,731	0.0
16	54.6	46.1	-13,456	0.0	-55,126	0.0	-55,126	0.0	-55,126	0.0	-55,126	0.0
17	54.0	45.9	-17,790	0.0	-56,543	0.0	-56,543	0.0	-56,543	0.0	-56,543	0.0
18	52.5	45.0	-26,335	0.1	-61,923	0.0	-61,923	0.0	-61,923	0.0	-61,923	0.0
19	50.1	44.8	-36,805	0.2	-70,933	0.0	-70,933	0.0	-70,933	0.0	-70,933	0.0
20	47.1	43.3	-49,049	0.1	-82,949	0.0	-82,949	0.0	-82,949	0.0	-82,949	0.0
21	43.7	40.4	-59,229	0.1	-96,308	0.0	-96,308	0.0	-96,308	0.0	-96,308	0.0
22	40.4	37.3	-69,343	0.0	-109,546	0.0	-109,546	0.0	-109,546	0.0	-109,546	0.0
23	37.3	34.9	-77,261	0.0	-115,285	0.0	-115,285	0.0	-115,285	0.0	-115,285	0.0
24	34.9	32.6	-84,197	0.0	-123,070	0.0	-123,070	0.0	-123,070	0.0	-123,070	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWR	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-85,170	0.0	-104,486	0.0	-106,914	0.0	-106,915	0.0	-106,915	0.0
2	39.7	37.1	-89,920	0.0	-113,121	0.0	-114,955	0.0	-114,955	0.0	-114,955	0.0
3	37.8	35.1	-94,257	0.0	-120,287	0.0	-122,601	0.0	-122,601	0.0	-122,601	0.0
4	36.3	33.8	-97,813	0.0	-125,992	0.0	-128,509	0.0	-128,509	0.0	-128,509	0.0
5	35.1	32.6	-99,796	0.0	-132,173	0.0	-133,925	0.0	-133,925	0.0	-133,925	0.0
6	34.4	32.0	-99,430	0.0	-135,209	0.0	-136,772	0.0	-136,772	0.0	-136,772	0.0
7	34.1	31.9	-96,351	0.0	-138,126	0.0	-138,240	0.0	-138,241	0.0	-138,241	0.0
8	34.6	32.4	-90,356	0.0	-136,780	0.0	-136,865	0.0	-136,865	0.0	-136,865	0.0
9	36.0	33.8	-80,916	0.0	-131,472	0.0	-131,536	0.0	-131,536	0.0	-131,536	0.0
10	38.2	34.7	-68,357	0.0	-123,026	0.0	-123,074	0.0	-123,074	0.0	-123,074	0.0
11	40.9	36.2	-53,868	0.0	-112,105	0.0	-112,141	0.0	-112,141	0.0	-112,141	0.0
12	43.9	37.4	-39,424	0.0	-99,850	0.0	-99,877	0.0	-99,877	0.0	-99,877	0.0
13	46.9	39.4	-27,569	0.0	-86,815	0.0	-86,835	0.0	-86,835	0.0	-86,835	0.0
14	49.7	41.4	-19,095	0.0	-74,660	0.0	-74,675	0.0	-74,675	0.0	-74,675	0.0
15	51.8	42.8	-14,176	0.0	-65,642	0.0	-65,654	0.0	-65,654	0.0	-65,654	0.0
16	53.2	43.9	-14,558	0.0	-59,599	0.0	-59,607	0.0	-59,607	0.0	-59,607	0.0
17	53.7	44.2	-18,062	0.0	-57,143	0.0	-57,150	0.0	-57,150	0.0	-57,150	0.0
18	53.4	44.4	-26,195	0.0	-58,001	0.0	-58,006	0.0	-58,006	0.0	-58,006	0.0
19	52.7	44.4	-34,266	0.2	-60,966	0.0	-60,970	0.0	-60,970	0.0	-60,970	0.0
20	51.5	45.2	-41,754	0.5	-66,078	0.0	-66,081	0.0	-66,081	0.0	-66,081	0.0
21	50.0	44.6	-52,077	0.3	-72,554	0.0	-72,557	0.0	-72,557	0.0	-72,557	0.0
22	48.1	43.3	-65,449	0.1	-80,499	0.0	-80,501	0.0	-80,501	0.0	-80,501	0.0
23	46.1	41.8	-73,031	0.0	-88,874	0.0	-88,875	0.0	-88,875	0.0	-88,875	0.0
24	43.9	40.1	-80,194	0.0	-97,882	0.0	-97,883	0.0	-97,883	0.0	-97,883	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-40,619	0.0	-46,202	0.6	-63,196	0.0	-63,196	0.0	-63,196	0.0
2	48.7	44.6	-45,139	0.0	-63,697	0.2	-73,543	0.0	-73,543	0.0	-73,543	0.0
3	46.6	42.9	-49,810	0.0	-75,030	0.0	-82,041	0.0	-82,041	0.0	-82,041	0.0
4	44.9	41.4	-53,786	0.0	-82,026	0.1	-89,024	0.0	-89,024	0.0	-89,024	0.0
5	43.9	40.8	-55,490	0.0	-90,606	0.0	-92,951	0.0	-92,951	0.0	-92,951	0.0
6	43.5	40.8	-54,433	0.0	-94,127	0.0	-94,163	0.0	-94,163	0.0	-94,163	0.0
7	44.0	41.4	-50,647	0.0	-93,641	0.0	-93,641	0.0	-93,641	0.0	-93,641	0.0
8	45.4	42.7	-42,468	0.0	-88,353	0.0	-88,353	0.0	-88,353	0.0	-88,353	0.0
9	47.7	44.3	-30,182	0.0	-79,826	0.0	-79,826	0.0	-79,826	0.0	-79,826	0.0
10	50.6	45.8	-14,782	0.0	-67,992	0.0	-67,992	0.0	-67,992	0.0	-67,992	0.0
11	53.9	47.4	-1,217	0.0	-54,567	0.0	-54,567	0.0	-54,567	0.0	-54,567	0.0
12	57.4	49.0	-238	0.0	-39,497	0.0	-39,497	0.0	-39,497	0.0	-39,497	0.0
13	60.7	50.8	0	0.4	-25,405	0.0	-25,405	0.0	-25,405	0.0	-25,405	0.0
14	63.6	52.7	0	0.5	-12,958	0.0	-12,958	0.0	-12,958	0.0	-12,958	0.0
15	65.9	53.7	0	2.3	-3,182	0.0	-3,182	0.0	-3,182	0.0	-3,182	0.0
16	67.3	54.4	0	3.5	-2,212	0.0	-2,212	0.0	-2,212	0.0	-2,212	0.0
17	67.8	54.6	0	2.9	-1,474	0.0	-1,474	0.0	-1,474	0.0	-1,474	0.0
18	67.4	54.8	0	2.0	-861	0.0	-861	0.0	-861	0.0	-861	0.0
19	66.4	55.2	0	0.7	-678	0.0	-678	0.0	-678	0.0	-678	0.0
20	64.7	56.0	0	0.0	-6,774	0.0	-6,774	0.0	-6,774	0.0	-6,774	0.0
21	62.5	56.0	-2,584	0.0	-16,543	0.0	-16,543	0.0	-16,543	0.0	-16,543	0.0
22	60.0	54.1	-13,651	0.0	-27,259	0.0	-27,259	0.0	-27,259	0.0	-27,259	0.0
23	57.1	51.9	-22,869	0.0	-39,445	0.0	-39,445	0.0	-39,445	0.0	-39,445	0.0
24	54.2	49.4	-29,433	0.0	-51,495	0.0	-51,495	0.0	-51,495	0.0	-51,495	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-1,562	0.0	-12,232	0.0	-16,241	0.0	-16,241	0.0	-16,241	0.0
2	58.9	54.9	-6,074	0.0	-22,771	0.0	-25,515	0.0	-25,515	0.0	-25,515	0.0
3	57.0	53.5	-9,583	0.0	-30,998	0.1	-33,592	0.1	-33,592	0.1	-33,592	0.1
4	55.4	52.4	-12,060	0.0	-35,941	0.4	-41,133	0.0	-41,133	0.0	-41,133	0.0
5	54.2	51.4	-13,510	0.0	-44,698	0.1	-46,198	0.0	-46,198	0.0	-46,198	0.0
6	53.5	50.9	-11,842	0.0	-48,966	0.0	-49,241	0.0	-49,241	0.0	-49,241	0.0
7	53.2	51.1	-7,881	0.0	-50,436	0.0	-50,644	0.0	-50,644	0.0	-50,644	0.0
8	53.9	51.5	0	0.0	-47,840	0.0	-49,694	0.0	-49,694	0.0	-49,694	0.0
9	55.9	52.1	0	0.0	-39,926	0.0	-42,469	0.0	-42,469	0.0	-42,469	0.0
10	58.9	53.2	0	0.0	-27,827	0.0	-29,810	0.0	-29,810	0.0	-29,810	0.0
11	62.6	55.2	0	0.7	-12,755	0.0	-14,450	0.0	-14,450	0.0	-14,450	0.0
12	66.5	57.3	0	1.1	-632	0.0	-834	0.0	-834	0.0	-834	0.0
13	70.2	59.6	0	4.6	-420	0.0	-420	0.0	-420	0.0	-420	0.0
14	73.2	61.0	0	6.4	0	0.1	0	0.1	0	0.1	0	0.1
15	75.2	62.2	0	6.8	0	0.3	0	0.3	0	0.3	0	0.3
16	75.9	62.2	0	6.4	0	0.3	0	0.3	0	0.3	0	0.3
17	75.6	62.0	0	5.8	0	1.6	0	1.6	0	1.6	0	1.6
18	74.9	61.7	0	4.8	0	1.4	0	1.4	0	1.4	0	1.4
19	73.7	62.0	0	3.5	0	0.9	0	0.9	0	0.9	0	0.9
20	72.1	62.4	0	2.3	0	0.2	0	0.2	0	0.2	0	0.2
21	70.2	63.3	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	-4,937	0.0	-4,937	0.0	-4,937	0.0	-4,937	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	-2,720	0.0	-2,720	0.0	-2,720	0.0	-2,720	0.0
4	61.8	58.4	0	0.0	-11,548	0.0	-11,548	0.0	-11,548	0.0	-11,548	0.0
5	60.5	57.1	0	0.0	-17,969	0.0	-17,969	0.0	-17,969	0.0	-17,969	0.0
6	59.7	56.5	0	0.0	-22,173	0.0	-22,173	0.0	-22,173	0.0	-22,173	0.0
7	59.4	56.5	0	0.0	-24,020	0.0	-24,020	0.0	-24,020	0.0	-24,020	0.0
8	60.1	56.3	0	0.0	-21,866	0.0	-21,866	0.0	-21,866	0.0	-21,866	0.0
9	62.4	56.3	0	1.8	-12,805	0.0	-12,805	0.0	-12,805	0.0	-12,805	0.0
10	65.7	57.2	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	7.1	0	0.2	0	0.2	0	0.2	0	0.2
13	78.5	63.7	0	8.7	0	0.8	0	0.8	0	0.8	0	0.8
14	81.9	65.3	0	9.2	0	3.4	0	3.4	0	3.4	0	3.4
15	84.1	66.9	0	10.1	0	5.4	0	5.4	0	5.4	0	5.4
16	84.9	67.1	0	9.7	0	5.5	0	5.5	0	5.5	0	5.5
17	84.6	67.3	0	9.0	0	5.4	0	5.4	0	5.4	0	5.4
18	83.8	67.1	0	7.8	0	5.4	0	5.4	0	5.4	0	5.4
19	82.4	67.5	0	6.6	0	4.7	0	4.7	0	4.7	0	4.7
20	80.6	68.9	0	5.6	0	4.3	0	4.3	0	4.3	0	4.3
21	78.5	71.0	0	4.9	0	4.1	0	4.1	0	4.1	0	4.1
22	76.1	69.9	0	4.0	0	3.0	0	3.0	0	3.0	0	3.0
23	73.4	68.0	0	3.1	0	1.6	0	1.6	0	1.6	0	1.6
24	70.8	65.5	0	2.2	0	0.3	0	0.3	0	0.3	0	0.3

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	6.1	0	3.0	0	3.2	0	3.2	0	3.2
2	72.6	68.4	0	5.2	0	2.0	0	2.0	0	2.0	0	2.0
3	70.9	67.3	0	4.6	0	0.7	0	0.7	0	0.7	0	0.7
4	69.6	66.5	0	4.2	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	7.0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	8.7	0	3.3	0	3.3	0	3.3	0	3.3
11	79.5	69.1	0	10.3	0	5.2	0	5.2	0	5.2	0	5.2
12	82.9	70.1	0	12.0	0	6.8	0	6.8	0	6.8	0	6.8
13	86.0	71.0	0	13.1	0	7.9	0	7.9	0	7.9	0	7.9
14	88.4	72.5	0	14.0	0	9.5	0	9.5	0	9.5	0	9.5
15	90.0	74.0	0	14.5	0	10.6	0	10.6	0	10.6	0	10.6
16	90.5	73.7	0	14.4	0	10.3	0	10.3	0	10.3	0	10.3
17	90.3	74.2	0	13.9	0	10.6	0	10.6	0	10.6	0	10.6
18	89.4	73.9	0	12.5	0	10.1	0	10.1	0	10.1	0	10.1
19	88.1	74.5	0	11.3	0	9.5	0	9.5	0	9.5	0	9.5
20	86.4	75.3	0	9.9	0	8.8	0	8.8	0	8.8	0	8.8
21	84.3	76.5	0	9.3	0	8.4	0	8.4	0	8.4	0	8.4
22	81.9	75.7	0	8.4	0	7.7	0	7.7	0	7.7	0	7.7
23	79.5	74.0	0	7.7	0	6.3	0	6.3	0	6.3	0	6.3
24	77.0	72.1	0	6.9	0	4.6	0	4.6	0	4.6	0	4.6

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	6.5	0	2.1	0	2.3	0	2.3	0	2.3
2	72.4	69.4	0	5.4	0	1.1	0	1.1	0	1.1	0	1.1
3	71.3	68.4	0	5.1	0	0.3	0	0.3	0	0.3	0	0.3
4	70.5	67.7	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	8.5	0	3.5	0	3.5	0	3.5	0	3.5
11	78.9	71.8	0	10.1	0	5.7	0	5.7	0	5.7	0	5.7
12	81.4	73.0	0	12.0	0	7.4	0	7.4	0	7.4	0	7.4
13	83.4	74.4	0	13.3	0	8.7	0	8.7	0	8.7	0	8.7
14	84.8	74.8	0	13.9	0	9.6	0	9.6	0	9.6	0	9.6
15	85.2	75.0	0	14.4	0	10.0	0	10.0	0	10.0	0	10.0
16	85.1	75.0	0	14.3	0	9.9	0	9.9	0	9.9	0	9.9
17	84.6	74.7	0	13.8	0	9.4	0	9.4	0	9.4	0	9.4
18	83.8	74.6	0	12.3	0	8.8	0	8.8	0	8.8	0	8.8
19	82.7	74.6	0	11.3	0	8.4	0	8.4	0	8.4	0	8.4
20	81.4	74.4	0	10.2	0	7.4	0	7.4	0	7.4	0	7.4
21	79.9	74.9	0	9.2	0	6.8	0	6.8	0	6.8	0	6.8
22	78.4	74.0	0	8.4	0	5.6	0	5.6	0	5.6	0	5.6
23	76.8	72.7	0	7.6	0	4.4	0	4.4	0	4.4	0	4.4
24	75.2	71.6	0	7.1	0	3.4	0	3.4	0	3.4	0	3.4

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	6.4	0	3.0	0	3.3	0	3.3	0	3.3
2	73.2	70.3	0	5.1	0	2.0	0	2.0	0	2.0	0	2.0
3	71.7	68.9	0	4.8	0	0.8	0	0.8	0	0.8	0	0.8
4	70.4	67.8	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	9.9	0	3.7	0	3.7	0	3.7	0	3.7
12	79.3	70.3	0	11.5	0	5.9	0	5.9	0	5.9	0	5.9
13	82.3	72.2	0	13.3	0	7.8	0	7.8	0	7.8	0	7.8
14	84.7	73.7	0	14.2	0	8.8	0	8.8	0	8.8	0	8.8
15	86.3	74.6	0	14.7	0	10.1	0	10.1	0	10.1	0	10.1
16	86.8	75.1	0	14.6	0	10.2	0	10.2	0	10.2	0	10.2
17	86.6	75.1	0	13.4	0	10.0	0	10.0	0	10.0	0	10.0
18	86.0	75.3	0	12.5	0	9.9	0	9.9	0	9.9	0	9.9
19	85.1	76.0	0	11.3	0	9.2	0	9.2	0	9.2	0	9.2
20	83.8	76.8	0	10.2	0	8.4	0	8.4	0	8.4	0	8.4
21	82.3	77.2	0	9.5	0	8.0	0	8.0	0	8.0	0	8.0
22	80.6	76.3	0	8.3	0	7.2	0	7.2	0	7.2	0	7.2
23	78.7	75.3	0	7.6	0	5.8	0	5.8	0	5.8	0	5.8
24	76.8	73.7	0	6.8	0	4.5	0	4.5	0	4.5	0	4.5

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADR	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.6	-7,100	0.0	-7,100	0.0	-7,100	0.0	-7,100	0.0
6	62.4	60.3	0	0.4	-11,283	0.0	-11,283	0.0	-11,283	0.0	-11,283	0.0
7	62.2	60.2	0	0.6	-13,289	0.0	-13,289	0.0	-13,289	0.0	-13,289	0.0
8	62.9	60.9	0	1.2	-11,454	0.0	-11,454	0.0	-11,454	0.0	-11,454	0.0
9	64.7	61.8	0	3.0	-4,908	0.0	-4,908	0.0	-4,908	0.0	-4,908	0.0
10	67.6	62.1	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	8.0	0	0.5	0	0.5	0	0.5	0	0.5
13	78.3	66.7	0	9.9	0	1.0	0	1.0	0	1.0	0	1.0
14	81.2	68.4	0	11.1	0	4.7	0	4.7	0	4.7	0	4.7
15	83.0	70.0	0	11.5	0	6.6	0	6.6	0	6.6	0	6.6
16	83.7	70.5	0	11.3	0	7.0	0	7.0	0	7.0	0	7.0
17	83.4	70.5	0	10.1	0	6.7	0	6.7	0	6.7	0	6.7
18	82.8	70.9	0	9.1	0	6.3	0	6.3	0	6.3	0	6.3
19	81.6	72.7	0	8.3	0	6.0	0	6.0	0	6.0	0	6.0
20	80.1	74.7	0	7.6	0	5.6	0	5.6	0	5.6	0	5.6
21	78.3	74.1	0	6.5	0	4.9	0	4.9	0	4.9	0	4.9
22	76.3	72.4	0	5.3	0	3.5	0	3.5	0	3.5	0	3.5
23	74.1	70.7	0	4.0	0	2.1	0	2.1	0	2.1	0	2.1
24	71.8	68.9	0	3.4	0	0.8	0	0.8	0	0.8	0	0.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADR	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	-20,729	0.0	-44,172	0.5	-56,390	0.0	-56,390	0.0	-56,390	0.0
2	50.1	48.6	-27,546	0.0	-53,151	0.4	-64,354	0.0	-64,354	0.0	-64,354	0.0
3	48.4	46.9	-32,352	0.1	-66,108	0.1	-68,920	0.1	-68,920	0.1	-68,920	0.1
4	47.1	45.8	-34,792	0.3	-72,155	0.1	-75,429	0.1	-75,429	0.1	-75,429	0.1
5	46.3	44.8	-40,489	0.0	-78,349	0.0	-80,996	0.0	-80,996	0.0	-80,996	0.0
6	46.0	44.5	-39,415	0.0	-84,351	0.0	-84,351	0.0	-84,351	0.0	-84,351	0.0
7	46.8	45.3	-35,219	0.0	-81,409	0.0	-81,409	0.0	-81,409	0.0	-81,409	0.0
8	48.9	47.5	-27,450	0.0	-73,810	0.0	-73,810	0.0	-73,810	0.0	-73,810	0.0
9	52.2	49.9	-17,890	0.0	-61,023	0.0	-61,023	0.0	-61,023	0.0	-61,023	0.0
10	56.2	52.5	-1,741	0.0	-44,916	0.0	-44,916	0.0	-44,916	0.0	-44,916	0.0
11	60.4	54.4	-445	0.0	-27,797	0.0	-27,797	0.0	-27,797	0.0	-27,797	0.0
12	64.4	56.0	0	0.4	-11,046	0.0	-11,046	0.0	-11,046	0.0	-11,046	0.0
13	67.7	57.3	0	0.7	-2,879	0.0	-2,879	0.0	-2,879	0.0	-2,879	0.0
14	69.8	58.2	0	1.7	-2,025	0.0	-2,025	0.0	-2,025	0.0	-2,025	0.0
15	70.6	58.1	0	4.3	-1,394	0.0	-1,394	0.0	-1,394	0.0	-1,394	0.0
16	70.3	57.5	0	4.2	-634	0.0	-634	0.0	-634	0.0	-634	0.0
17	69.5	57.3	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.3	-3,960	0.0	-3,960	0.0	-3,960	0.0	-3,960	0.0
21	62.1	59.4	0	0.0	-14,218	0.0	-14,218	0.0	-14,218	0.0	-14,218	0.0
22	59.6	57.3	-2,037	0.0	-24,879	0.0	-24,879	0.0	-24,879	0.0	-24,879	0.0
23	57.0	55.1	-11,571	0.0	-35,587	0.0	-35,587	0.0	-35,587	0.0	-35,587	0.0
24	54.5	52.7	-18,384	0.0	-45,978	0.0	-45,978	0.0	-45,978	0.0	-45,978	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-41,212	0.0	-44,534	0.5	-60,044	0.0	-60,044	0.0	-60,044	0.0
2	49.4	47.3	-47,222	0.0	-61,125	0.2	-70,645	0.0	-70,645	0.0	-70,645	0.0
3	47.2	45.3	-52,543	0.0	-72,486	0.1	-79,256	0.0	-79,256	0.0	-79,256	0.0
4	45.3	43.4	-56,529	0.0	-82,018	0.1	-86,317	0.0	-86,317	0.0	-86,317	0.0
5	43.9	42.2	-58,808	0.0	-88,715	0.1	-88,715	0.1	-88,715	0.1	-88,715	0.1
6	43.0	41.4	-57,447	0.0	-94,516	0.0	-94,516	0.0	-94,516	0.0	-94,516	0.0
7	42.7	41.2	-53,406	0.0	-97,093	0.0	-97,093	0.0	-97,093	0.0	-97,093	0.0
8	43.5	42.0	-44,614	0.0	-96,172	0.0	-96,172	0.0	-96,172	0.0	-96,172	0.0
9	45.9	44.0	-31,033	0.0	-86,674	0.0	-86,674	0.0	-86,674	0.0	-86,674	0.0
10	49.4	46.6	-14,505	0.0	-72,642	0.0	-72,642	0.0	-72,642	0.0	-72,642	0.0
11	53.8	48.6	-2,260	0.0	-54,738	0.0	-54,738	0.0	-54,738	0.0	-54,738	0.0
12	58.4	50.6	-1,025	0.0	-36,005	0.0	-36,005	0.0	-36,005	0.0	-36,005	0.0
13	62.8	52.6	0	0.7	-17,975	0.0	-17,975	0.0	-17,975	0.0	-17,975	0.0
14	66.3	54.5	0	0.8	-3,947	0.0	-3,947	0.0	-3,947	0.0	-3,947	0.0
15	68.7	55.7	0	1.7	-3,188	0.0	-3,188	0.0	-3,188	0.0	-3,188	0.0
16	69.5	56.1	0	3.4	-2,274	0.0	-2,274	0.0	-2,274	0.0	-2,274	0.0
17	69.2	55.8	0	2.8	-1,633	0.0	-1,633	0.0	-1,633	0.0	-1,633	0.0
18	68.3	57.0	0	1.6	-1,328	0.0	-1,328	0.0	-1,328	0.0	-1,328	0.0
19	66.9	59.4	0	0.5	-939	0.0	-939	0.0	-939	0.0	-939	0.0
20	65.0	59.4	0	0.0	-6,561	0.0	-6,561	0.0	-6,561	0.0	-6,561	0.0
21	62.8	58.2	-1,577	0.0	-16,157	0.0	-16,157	0.0	-16,157	0.0	-16,157	0.0
22	60.2	56.1	-14,008	0.0	-27,039	0.0	-27,039	0.0	-27,039	0.0	-27,039	0.0
23	57.5	54.0	-23,999	0.0	-38,191	0.0	-38,191	0.0	-38,191	0.0	-38,191	0.0
24	54.7	51.7	-30,856	0.1	-49,303	0.0	-49,303	0.0	-49,303	0.0	-49,303	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-61,792	0.0	-89,645	0.0	-90,673	0.0	-90,673	0.0	-90,673	0.0
2	43.2	41.1	-66,329	0.0	-96,041	0.0	-97,608	0.0	-97,608	0.0	-97,608	0.0
3	41.8	39.8	-69,986	0.0	-100,786	0.0	-103,284	0.0	-103,284	0.0	-103,284	0.0
4	40.7	38.7	-73,255	0.0	-105,739	0.0	-106,947	0.0	-106,947	0.0	-106,947	0.0
5	40.1	38.4	-75,063	0.0	-110,263	0.0	-110,263	0.0	-110,263	0.0	-110,263	0.0
6	39.9	38.4	-73,924	0.0	-112,361	0.0	-112,361	0.0	-112,361	0.0	-112,361	0.0
7	40.5	39.0	-70,601	0.0	-110,572	0.0	-110,572	0.0	-110,572	0.0	-110,572	0.0
8	42.2	40.7	-64,196	0.0	-104,433	0.0	-104,433	0.0	-104,433	0.0	-104,433	0.0
9	44.9	43.4	-54,364	0.0	-94,373	0.0	-94,373	0.0	-94,373	0.0	-94,373	0.0
10	48.2	45.8	-42,310	0.0	-81,796	0.0	-81,796	0.0	-81,796	0.0	-81,796	0.0
11	51.7	48.3	-27,027	0.0	-67,800	0.0	-67,800	0.0	-67,800	0.0	-67,800	0.0
12	55.0	50.7	-12,498	0.0	-53,972	0.0	-53,972	0.0	-53,972	0.0	-53,972	0.0
13	57.7	52.0	-2,882	0.0	-42,557	0.0	-42,557	0.0	-42,557	0.0	-42,557	0.0
14	59.5	52.6	-1,932	0.0	-34,399	0.0	-34,399	0.0	-34,399	0.0	-34,399	0.0
15	60.1	52.7	-943	0.0	-31,204	0.0	-31,204	0.0	-31,204	0.0	-31,204	0.0
16	59.9	52.6	-310	0.0	-30,992	0.0	-30,992	0.0	-30,992	0.0	-30,992	0.0
17	59.2	52.1	0	0.0	-33,252	0.0	-33,252	0.0	-33,252	0.0	-33,252	0.0
18	58.2	51.8	0	0.0	-36,607	0.0	-36,607	0.0	-36,607	0.0	-36,607	0.0
19	56.8	52.2	-9,632	0.0	-42,163	0.0	-42,163	0.0	-42,163	0.0	-42,163	0.0
20	55.0	51.4	-20,708	0.0	-49,516	0.0	-49,516	0.0	-49,516	0.0	-49,516	0.0
21	53.1	50.1	-29,305	0.2	-57,133	0.0	-57,133	0.0	-57,133	0.0	-57,133	0.0
22	51.0	48.1	-38,734	0.2	-65,832	0.0	-65,832	0.0	-65,832	0.0	-65,832	0.0
23	48.9	46.2	-48,654	0.0	-74,461	0.0	-74,461	0.0	-74,461	0.0	-74,461	0.0
24	46.9	44.1	-54,223	0.0	-82,536	0.0	-82,536	0.0	-82,536	0.0	-82,536	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29604 ( 2 BUILDINGS)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TAI	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	EXCHANGE

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	STORE	384.25	10	3	0		14.5			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone	Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2		2	STORAGE AREA	39.75	11	3	0		14.5			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50					HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				182			
2	1	YES				182			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	57.5	14		196	0			
1	2	49	14		196	90			
1	3	28.75	14		196	0			
1	4	39.75	14		196	90			
1	5	86.25	14		196	180			
2	1	11	14		196	180			
2	2	39.75	14		196	270			
2	3	11	14		196	0			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	18	10	1	1.03	.82	3				
1	5	10.9	10	1	1.03	.82	3				

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	Percent Daylighting Reference Point 1	Percent Daylighting Reference Point 2
1	111	PEOPLE	255	325	1.5	WATT-SF	ASHRAE2				
2			315	435	1.5	WATT-SF	ASHRAE2				

## -----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS	134	KW	FGHEAT						
1	2	GAS	35	MBH	FGHEAT						

## -----CARD 29-- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2			15	CFM-P			.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2			1	CFM-SF						

## -----CARD 33-- External Shading -----

Shading Type	-----OVERHANG-----				-----VERTICAL FINS-----				
	Glass Height	Above Glass	Projection Out	Projection Width	Left Projection Out	Left Projection Right	Right Projection Out	Right Projection	Adjacent Building Flag
3	6	3.25	3						





Utility Description Reference Table  
-----

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ (Utility file not found)  
UH (Utility file not found)

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**                                                                 **  
**          TRACE 600 ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

FORT GORDON ENERGY STUDY  
AUGUSTA, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29605 (2 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 14: 0:24 8/15/94  
Dataset Name: FGTYPES8 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*  
 Peaked at Time ==> Mo/Hr: 8/16 \* Mo/Hr: 6/17 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 96/ 76/105.0 \* OADB: 98 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	14,543	0	0	14,543	13.36	*	15,581	32.36	*	-8,337	-8,337	9.87
Glass Solar	13,680	0	0	13,680	17.27	*	13,984	29.04	*	0	0	0.00
Glass Cond	6,106	0	0	6,106	7.71	*	6,920	14.37	*	-15,406	-15,406	18.23
Wall Cond	4,546	0	0	4,546	5.74	*	5,173	10.74	*	-11,301	-11,301	13.38
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	10,973	0	0	10,973	13.86	*	6,495	13.49	*	-15,748	-15,748	18.64
Sub Total==>	49,848	0	0	49,848	62.94	*	48,153	100.00	*	-50,792	-50,792	60.12
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	29,352	37.06	*	0	0.00	*	0	-33,699	39.88
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkqp	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	49,848	0	0	79,200	100.00	*	48,153	100.00	*	-50,792	-84,491	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Part		
Main Clg	6.6	79.2	3,644	78.9	67.1	81.6	63.1	60.6	75.7	ExFlr	0	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	3,643	0 0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Wall	3,154	304 10
Totals	6.6	79.2										

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--		--TEMPERATURES (F)---		
Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	18.5	Type	Clg	Htg	
				Vent	675	675	Clg Cfm/Sqft	1.00	SADB	63.1	80.6	
Main Htg	-70.6	63.1	80.6	Infil	252	315	Clg Cfm/Ton	552.05	Plenum	75.0	68.0	
Aux Htg	0.0	0.0	0.0	Supply	3,644	3,644	Clg Sqft/Ton	552.05	Return	75.0	68.0	
Preheat	-13.8	59.7	63.1	Mincfm	0	0	Clg Btuh/Sqft	21.74	Ret/OA	78.9	59.7	
Reheat	0.0	0.0	0.0	Return	3,644	3,644	No. People	45	Runarnd	75.0	68.0	
Humidif	0.0	0.0	0.0	Exhaust	675	675	Htg % OA	18.5	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0.0	0.0	Rm Exh	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0	
Total	-84.5			Auxil	0	0	Htg Btuh/SqFt	-23.19	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-42,508	0.0	-56,057	0.0	-54,696	0.0	-54,690	0.0	-54,690	0.0
2	32.9	30.7	-43,393	0.0	-56,348	0.0	-55,262	0.0	-55,257	0.0	-55,257	0.0
3	33.1	31.3	-44,203	0.0	-55,497	0.0	-54,629	0.0	-54,625	0.0	-54,625	0.0
4	33.9	32.1	-44,687	0.0	-53,712	0.0	-53,019	0.0	-53,016	0.0	-53,016	0.0
5	35.2	33.5	-44,854	0.0	-51,229	0.0	-50,675	0.0	-50,673	0.0	-50,673	0.0
6	37.0	35.4	-43,727	0.0	-48,103	0.0	-47,661	0.0	-47,659	0.0	-47,659	0.0
7	39.0	37.6	-41,640	0.0	-44,820	0.0	-44,467	0.0	-44,465	0.0	-44,465	0.0
8	41.3	40.1	-38,250	0.0	-41,136	0.0	-40,854	0.0	-40,853	0.0	-40,853	0.0
9	43.7	42.5	-33,204	0.0	-37,294	0.0	-37,069	0.0	-37,068	0.0	-37,068	0.0
10	46.1	44.0	-26,955	0.0	-33,406	0.0	-33,226	0.0	-33,225	0.0	-33,225	0.0
11	48.4	45.0	-19,632	0.0	-29,542	0.0	-29,399	0.0	-29,398	0.0	-29,398	0.0
12	50.5	45.6	-12,401	0.0	-25,860	0.0	-25,746	0.0	-25,746	0.0	-25,746	0.0
13	52.2	46.1	-6,669	0.0	-22,789	0.0	-22,699	0.0	-22,698	0.0	-22,698	0.0
14	53.5	46.4	-2,480	0.0	-20,255	0.0	-20,183	0.0	-20,183	0.0	-20,183	0.0
15	54.3	46.3	0	0.0	-18,536	0.0	-18,478	0.0	-18,478	0.0	-18,478	0.0
16	54.6	46.1	0	0.0	-17,677	0.0	-17,631	0.0	-17,631	0.0	-17,631	0.0
17	54.0	45.9	-1,587	0.0	-18,488	0.0	-18,452	0.0	-18,452	0.0	-18,452	0.0
18	52.5	45.0	-5,438	0.0	-21,126	0.0	-21,097	0.0	-21,096	0.0	-21,096	0.0
19	50.1	44.8	-10,693	0.0	-25,558	0.0	-25,535	0.0	-25,535	0.0	-25,535	0.0
20	47.1	43.3	-16,280	0.0	-31,072	0.0	-31,054	0.0	-31,054	0.0	-31,054	0.0
21	43.7	40.4	-21,219	0.0	-37,213	0.0	-37,198	0.0	-37,198	0.0	-37,198	0.0
22	40.4	37.3	-25,835	0.0	-43,054	0.0	-43,043	0.0	-43,043	0.0	-43,043	0.0
23	37.3	34.9	-29,501	0.0	-48,389	0.0	-48,379	0.0	-48,379	0.0	-48,379	0.0
24	34.9	32.6	-32,358	0.0	-52,341	0.0	-52,333	0.0	-52,333	0.0	-52,333	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-31,747	0.0	-39,783	0.0	-41,449	0.0	-41,457	0.0	-41,457	0.0
2	39.7	37.1	-34,293	0.0	-43,644	0.0	-44,973	0.0	-44,979	0.0	-44,979	0.0
3	37.8	35.1	-36,394	0.0	-47,155	0.0	-48,216	0.0	-48,220	0.0	-48,220	0.0
4	36.3	33.8	-38,058	0.0	-49,828	0.0	-50,675	0.0	-50,678	0.0	-50,678	0.0
5	35.1	32.6	-38,980	0.0	-51,942	0.0	-52,618	0.0	-52,621	0.0	-52,621	0.0
6	34.4	32.0	-38,777	0.0	-53,176	0.0	-53,715	0.0	-53,718	0.0	-53,718	0.0
7	34.1	31.9	-37,464	0.0	-53,691	0.0	-54,122	0.0	-54,124	0.0	-54,124	0.0
8	34.6	32.4	-34,680	0.0	-52,764	0.0	-53,108	0.0	-53,109	0.0	-53,109	0.0
9	36.0	33.8	-30,445	0.0	-50,145	0.0	-50,420	0.0	-50,421	0.0	-50,421	0.0
10	38.2	34.7	-24,910	0.0	-46,047	0.0	-46,265	0.0	-46,266	0.0	-46,266	0.0
11	40.9	36.2	-18,413	0.0	-41,096	0.0	-41,270	0.0	-41,271	0.0	-41,271	0.0
12	43.9	37.4	-11,975	0.0	-35,617	0.0	-35,756	0.0	-35,756	0.0	-35,756	0.0
13	46.9	39.4	-6,617	0.0	-30,055	0.0	-30,164	0.0	-30,165	0.0	-30,165	0.0
14	49.7	41.4	-2,781	0.0	-24,779	0.0	-24,866	0.0	-24,867	0.0	-24,867	0.0
15	51.8	42.8	-460	0.0	-20,787	0.0	-20,856	0.0	-20,856	0.0	-20,856	0.0
16	53.2	43.9	0	0.0	-18,166	0.0	-18,221	0.0	-18,221	0.0	-18,221	0.0
17	53.7	44.2	-1,473	0.0	-17,317	0.0	-17,360	0.0	-17,361	0.0	-17,361	0.0
18	53.4	44.4	-4,705	0.0	-17,962	0.0	-17,996	0.0	-17,997	0.0	-17,997	0.0
19	52.7	44.4	-9,109	0.0	-19,536	0.0	-19,563	0.0	-19,563	0.0	-19,563	0.0
20	51.5	45.2	-14,283	0.0	-22,247	0.0	-22,269	0.0	-22,269	0.0	-22,269	0.0
21	50.0	44.6	-18,810	0.0	-25,501	0.0	-25,519	0.0	-25,519	0.0	-25,519	0.0
22	48.1	43.3	-23,216	0.0	-29,393	0.0	-29,407	0.0	-29,407	0.0	-29,407	0.0
23	46.1	41.8	-26,863	0.0	-33,312	0.0	-33,323	0.0	-33,323	0.0	-33,323	0.0
24	43.9	40.1	-29,574	0.0	-37,436	0.0	-37,445	0.0	-37,445	0.0	-37,445	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-14,576	0.0	-16,228	0.0	-23,149	0.0	-23,244	0.0	-23,246	0.0
2	48.7 44.6	-17,025	0.0	-22,773	0.0	-28,062	0.0	-28,138	0.0	-28,139	0.0
3	46.6 42.9	-18,934	0.0	-27,659	0.0	-31,877	0.0	-31,938	0.0	-31,939	0.0
4	44.9 41.4	-20,667	0.0	-31,497	0.0	-34,863	0.0	-34,912	0.0	-34,913	0.0
5	43.9 40.8	-21,347	0.0	-33,818	0.0	-36,505	0.0	-36,543	0.0	-36,544	0.0
6	43.5 40.8	-20,780	0.0	-34,928	0.0	-37,073	0.0	-37,104	0.0	-37,104	0.0
7	44.0 41.4	-19,005	0.0	-34,370	0.0	-36,083	0.0	-36,108	0.0	-36,108	0.0
8	45.4 42.7	-15,352	0.0	-32,143	0.0	-33,511	0.0	-33,530	0.0	-33,531	0.0
9	47.7 44.3	-9,814	0.0	-28,258	0.0	-29,350	0.0	-29,366	0.0	-29,366	0.0
10	50.6 45.8	-2,896	0.0	-23,245	0.0	-24,116	0.0	-24,129	0.0	-24,129	0.0
11	53.9 47.4	0	0.0	-17,343	0.0	-18,037	0.0	-18,047	0.0	-18,047	0.0
12	57.4 49.0	0	0.0	-10,880	0.0	-11,433	0.0	-11,441	0.0	-11,441	0.0
13	60.7 50.8	0	0.0	-4,753	0.0	-5,192	0.0	-5,198	0.0	-5,199	0.0
14	63.6 52.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9 53.7	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.0	-5,141	0.0	-5,330	0.0	-5,333	0.0	-5,333	0.0
23	57.1 51.9	0	0.0	-11,450	0.0	-11,601	0.0	-11,603	0.0	-11,603	0.0
24	54.2 49.4	-3,085	0.0	-17,434	0.0	-17,554	0.0	-17,555	0.0	-17,555	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	-532	0.0	-532	0.0	-532	0.0
3	57.0 53.5	0	0.0	-3,963	0.0	-6,024	0.0	-6,024	0.0	-6,024	0.0
4	55.4 52.4	-1,801	0.0	-8,811	0.0	-10,459	0.0	-10,459	0.0	-10,459	0.0
5	54.2 51.4	-2,847	0.0	-12,493	0.0	-13,811	0.0	-13,811	0.0	-13,811	0.0
6	53.5 50.9	-2,413	0.0	-14,922	0.0	-15,976	0.0	-15,976	0.0	-15,976	0.0
7	53.2 51.1	-859	0.0	-16,358	0.0	-17,201	0.0	-17,201	0.0	-17,201	0.0
8	53.9 51.5	0	0.0	-15,754	0.0	-16,428	0.0	-16,428	0.0	-16,428	0.0
9	55.9 52.1	0	0.0	-12,632	0.0	-13,170	0.0	-13,170	0.0	-13,170	0.0
10	58.9 53.2	0	0.0	-7,529	0.0	-7,959	0.0	-7,959	0.0	-7,959	0.0
11	62.6 55.2	0	0.0	-955	0.0	-1,298	0.0	-1,298	0.0	-1,298	0.0
12	66.5 57.3	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	3.2	0	0.2	0	0.2	0	0.2	0	0.2
16	75.9 62.2	0	3.4	0	0.2	0	0.2	0	0.2	0	0.2
17	75.6 62.0	0	3.2	0	0.1	0	0.1	0	0.1	0	0.1
18	74.9 61.7	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7 62.0	0	2.1	0	0.1	0	0.0	0	0.0	0	0.0
20	72.1 62.4	0	1.4	0	0.3	0	0.3	0	0.3	0	0.3
21	70.2 63.3	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0 62.5	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7 60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	-2,686	0.0	-2,686	0.0	-2,686	0.0	-2,686	0.0
8	60.1	56.3	0	0.0	-2,707	0.0	-2,707	0.0	-2,707	0.0	-2,707	0.0
9	62.4	56.3	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	3.1	0	0.1	0	0.1	0	0.1	0	0.1
13	78.5	63.7	0	3.7	0	0.4	0	0.4	0	0.4	0	0.4
14	81.9	65.3	0	4.1	0	0.5	0	0.5	0	0.5	0	0.5
15	84.1	66.9	0	4.5	0	0.6	0	0.6	0	0.6	0	0.6
16	84.9	67.1	0	4.6	0	2.5	0	2.5	0	2.5	0	2.5
17	84.6	67.3	0	4.5	0	2.6	0	2.6	0	2.6	0	2.6
18	83.8	67.1	0	4.1	0	2.6	0	2.6	0	2.6	0	2.6
19	82.4	67.5	0	3.5	0	2.3	0	2.3	0	2.3	0	2.3
20	80.6	68.9	0	2.7	0	1.9	0	1.9	0	1.9	0	1.9
21	78.5	71.0	0	2.0	0	1.7	0	1.7	0	1.7	0	1.7
22	76.1	69.9	0	1.6	0	1.2	0	1.2	0	1.2	0	1.2
23	73.4	68.0	0	1.1	0	0.6	0	0.6	0	0.6	0	0.6
24	70.8	65.5	0	0.8	0	0.1	0	0.1	0	0.1	0	0.1

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	2.4	0	1.0	0	1.2	0	1.2	0	1.2
2	72.6	68.4	0	1.9	0	0.6	0	0.6	0	0.6	0	0.6
3	70.9	67.3	0	1.7	0	0.2	0	0.2	0	0.2	0	0.2
4	69.6	66.5	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	3.7	0	1.2	0	1.2	0	1.2	0	1.2
11	79.5	69.1	0	4.4	0	2.2	0	2.2	0	2.2	0	2.2
12	82.9	70.1	0	5.0	0	2.8	0	2.8	0	2.8	0	2.8
13	86.0	71.0	0	5.5	0	3.3	0	3.3	0	3.3	0	3.3
14	88.4	72.5	0	5.9	0	4.1	0	4.1	0	4.1	0	4.1
15	90.0	74.0	0	6.3	0	4.8	0	4.8	0	4.8	0	4.8
16	90.5	73.7	0	6.4	0	4.7	0	4.7	0	4.7	0	4.7
17	90.3	74.2	0	6.3	0	4.8	0	4.8	0	4.8	0	4.8
18	89.4	73.9	0	5.8	0	4.7	0	4.7	0	4.7	0	4.7
19	88.1	74.5	0	5.2	0	4.3	0	4.3	0	4.3	0	4.3
20	86.4	75.3	0	4.4	0	3.7	0	3.7	0	3.7	0	3.7
21	84.3	76.5	0	3.9	0	3.4	0	3.4	0	3.4	0	3.4
22	81.9	75.7	0	3.4	0	3.1	0	3.1	0	3.1	0	3.1
23	79.5	74.0	0	3.0	0	2.4	0	2.4	0	2.4	0	2.4
24	77.0	72.1	0	2.6	0	1.8	0	1.8	0	1.8	0	1.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	2.7	0	0.7	0	0.8	0	0.8	0	0.8
2	72.4	69.4	0	2.1	0	0.3	0	0.4	0	0.4	0	0.4
3	71.3	68.4	0	1.9	0	0.1	0	0.1	0	0.1	0	0.1
4	70.5	67.7	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	3.6	0	1.4	0	1.4	0	1.4	0	1.4
11	78.9	71.8	0	4.2	0	2.5	0	2.5	0	2.5	0	2.5
12	81.4	73.0	0	5.0	0	3.1	0	3.1	0	3.1	0	3.1
13	83.4	74.4	0	5.5	0	3.6	0	3.6	0	3.6	0	3.6
14	84.8	74.8	0	5.8	0	4.0	0	4.0	0	4.0	0	4.0
15	85.2	75.0	0	6.2	0	4.4	0	4.4	0	4.4	0	4.4
16	85.1	75.0	0	6.3	0	4.4	0	4.4	0	4.4	0	4.4
17	84.6	74.7	0	6.3	0	4.3	0	4.3	0	4.3	0	4.3
18	83.8	74.6	0	5.8	0	4.1	0	4.1	0	4.1	0	4.1
19	82.7	74.6	0	5.2	0	3.8	0	3.8	0	3.8	0	3.8
20	81.4	74.4	0	4.5	0	3.3	0	3.3	0	3.3	0	3.3
21	79.9	74.9	0	3.9	0	2.9	0	2.9	0	2.9	0	2.9
22	78.4	74.0	0	3.4	0	2.3	0	2.3	0	2.3	0	2.3
23	76.8	72.7	0	3.0	0	1.7	0	1.7	0	1.7	0	1.7
24	75.2	71.6	0	2.8	0	1.3	0	1.3	0	1.3	0	1.3

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	2.7	0	0.9	0	1.2	0	1.2	0	1.2
2	73.2	70.3	0	2.0	0	0.6	0	0.6	0	0.6	0	0.6
3	71.7	68.9	0	1.8	0	0.3	0	0.3	0	0.3	0	0.3
4	70.4	67.8	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	4.2	0	1.4	0	1.4	0	1.4	0	1.4
12	79.3	70.3	0	4.8	0	2.6	0	2.6	0	2.6	0	2.6
13	82.3	72.2	0	5.5	0	3.1	0	3.1	0	3.1	0	3.1
14	84.7	73.7	0	6.0	0	3.7	0	3.7	0	3.7	0	3.7
15	86.3	74.6	0	6.4	0	4.4	0	4.4	0	4.4	0	4.4
16	86.8	75.1	0	6.5	0	4.6	0	4.6	0	4.6	0	4.6
17	86.6	75.1	0	6.1	0	4.6	0	4.6	0	4.6	0	4.6
18	86.0	75.3	0	5.7	0	4.6	0	4.6	0	4.6	0	4.6
19	85.1	76.0	0	5.1	0	4.1	0	4.1	0	4.1	0	4.1
20	83.8	76.8	0	4.3	0	3.7	0	3.7	0	3.7	0	3.7
21	82.3	77.2	0	3.9	0	3.4	0	3.4	0	3.4	0	3.4
22	80.6	76.3	0	3.4	0	2.9	0	2.9	0	2.9	0	2.9
23	78.7	75.3	0	2.9	0	2.3	0	2.3	0	2.3	0	2.3
24	76.8	73.7	0	2.6	0	1.8	0	1.8	0	1.8	0	1.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	3.5	0	0.2	0	0.2	0	0.2	0	0.2
13	78.3	66.7	0	4.2	0	0.4	0	0.4	0	0.4	0	0.4
14	81.2	68.4	0	4.8	0	0.5	0	0.5	0	0.5	0	0.5
15	83.0	70.0	0	5.2	0	2.8	0	2.8	0	2.8	0	2.8
16	83.7	70.5	0	5.2	0	3.3	0	3.3	0	3.3	0	3.3
17	83.4	70.5	0	4.9	0	3.2	0	3.2	0	3.2	0	3.2
18	82.8	70.9	0	4.3	0	3.1	0	3.1	0	3.1	0	3.1
19	81.6	72.7	0	3.6	0	2.7	0	2.7	0	2.7	0	2.7
20	80.1	74.7	0	3.1	0	2.5	0	2.5	0	2.5	0	2.5
21	78.3	74.1	0	2.7	0	2.0	0	2.0	0	2.0	0	2.0
22	76.3	72.4	0	2.0	0	1.5	0	1.5	0	1.5	0	1.5
23	74.1	70.7	0	1.5	0	0.9	0	0.9	0	0.9	0	0.9
24	71.8	68.9	0	1.1	0	0.3	0	0.3	0	0.3	0	0.3

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-13,275	0.0	-19,057	0.0	-19,161	0.0	-19,163	0.0
2	50.1	48.6	-939	0.0	-17,820	0.1	-23,211	0.0	-23,294	0.0	-23,296	0.0
3	48.4	46.9	-5,474	0.0	-22,194	0.1	-26,473	0.0	-26,539	0.0	-26,541	0.0
4	47.1	45.8	-8,958	0.0	-26,361	0.0	-28,931	0.0	-28,984	0.0	-28,985	0.0
5	46.3	44.8	-11,313	0.0	-28,432	0.0	-30,467	0.0	-30,530	0.0	-30,531	0.0
6	46.0	44.5	-11,911	0.0	-29,558	0.0	-31,201	0.0	-31,235	0.0	-31,236	0.0
7	46.8	45.3	-10,870	0.0	-28,639	0.0	-29,953	0.0	-29,980	0.0	-29,980	0.0
8	48.9	47.5	-7,915	0.0	-25,295	0.0	-26,344	0.0	-26,366	0.0	-26,367	0.0
9	52.2	49.9	-2,695	0.0	-19,751	0.0	-20,590	0.0	-20,607	0.0	-20,608	0.0
10	56.2	52.5	0	0.0	-12,914	0.0	-13,584	0.0	-13,598	0.0	-13,598	0.0
11	60.4	54.4	0	0.0	-5,580	0.0	-6,114	0.0	-6,125	0.0	-6,125	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-2,922	0.0	-3,124	0.0	-3,129	0.0	-3,129	0.0
23	57.0	55.1	0	0.0	-8,926	0.0	-9,088	0.0	-9,091	0.0	-9,091	0.0
24	54.5	52.7	0	0.0	-14,340	0.0	-14,469	0.0	-14,472	0.0	-14,472	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OA0B OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-12,863	0.0	-15,641	0.0	-21,874	0.0	-21,962	0.0	-21,963	0.0
2	49.4 47.3	-16,077	0.0	-21,935	0.0	-26,607	0.0	-26,678	0.0	-26,679	0.0
3	47.2 45.3	-18,829	0.0	-26,738	0.0	-30,475	0.0	-30,532	0.0	-30,532	0.0
4	45.3 43.4	-20,950	0.0	-30,729	0.0	-33,717	0.0	-33,762	0.0	-33,763	0.0
5	43.9 42.2	-22,063	0.0	-33,622	0.0	-36,012	0.0	-36,048	0.0	-36,048	0.0
6	43.0 41.4	-21,482	0.0	-35,514	0.0	-37,425	0.0	-37,454	0.0	-37,454	0.0
7	42.7 41.2	-19,664	0.0	-36,287	0.0	-37,815	0.0	-37,838	0.0	-37,839	0.0
8	43.5 42.0	-15,828	0.0	-35,047	0.0	-36,269	0.0	-36,287	0.0	-36,288	0.0
9	45.9 44.0	-9,762	0.0	-30,843	0.0	-31,820	0.0	-31,835	0.0	-31,835	0.0
10	49.4 46.6	-2,406	0.0	-24,583	0.0	-25,364	0.0	-25,376	0.0	-25,376	0.0
11	53.8 48.6	0	0.0	-16,699	0.0	-17,322	0.0	-17,332	0.0	-17,332	0.0
12	58.4 50.6	0	0.0	-8,532	0.0	-9,029	0.0	-9,037	0.0	-9,037	0.0
13	62.8 52.6	0	0.0	-825	0.0	-1,220	0.0	-1,226	0.0	-1,226	0.0
14	66.3 54.5	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7 55.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	0.0	-5,351	0.0	-5,523	0.0	-5,526	0.0	-5,526	0.0
23	57.5 54.0	0	0.0	-11,137	0.0	-11,275	0.0	-11,277	0.0	-11,277	0.0
24	54.7 51.7	-4,879	0.0	-16,739	0.0	-16,850	0.0	-16,851	0.0	-16,851	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OA0B OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-22,434	0.0	-34,008	0.0	-35,490	0.0	-35,496	0.0	-35,496	0.0
2	43.2 41.1	-24,748	0.0	-37,219	0.0	-38,402	0.0	-38,407	0.0	-38,407	0.0
3	41.8 39.8	-26,649	0.0	-39,807	0.0	-40,752	0.0	-40,756	0.0	-40,756	0.0
4	40.7 38.7	-28,183	0.0	-41,756	0.0	-42,511	0.0	-42,514	0.0	-42,514	0.0
5	40.1 38.4	-29,125	0.0	-42,755	0.0	-43,358	0.0	-43,361	0.0	-43,361	0.0
6	39.9 38.4	-28,593	0.0	-43,101	0.0	-43,583	0.0	-43,585	0.0	-43,585	0.0
7	40.5 39.0	-27,206	0.0	-42,093	0.0	-42,478	0.0	-42,480	0.0	-42,480	0.0
8	42.2 40.7	-24,393	0.0	-39,205	0.0	-39,512	0.0	-39,514	0.0	-39,514	0.0
9	44.9 43.4	-19,949	0.0	-34,535	0.0	-34,781	0.0	-34,782	0.0	-34,782	0.0
10	48.2 45.8	-14,373	0.0	-28,757	0.0	-28,953	0.0	-28,954	0.0	-28,954	0.0
11	51.7 48.3	-7,496	0.0	-22,592	0.0	-22,749	0.0	-22,749	0.0	-22,749	0.0
12	55.0 50.7	-901	0.0	-16,696	0.0	-16,820	0.0	-16,821	0.0	-16,821	0.0
13	57.7 52.0	0	0.0	-11,810	0.0	-11,910	0.0	-11,910	0.0	-11,910	0.0
14	59.5 52.6	0	0.0	-8,484	0.0	-8,563	0.0	-8,563	0.0	-8,563	0.0
15	60.1 52.7	0	0.0	-7,294	0.0	-7,357	0.0	-7,358	0.0	-7,358	0.0
16	59.9 52.6	0	0.0	-7,455	0.0	-7,505	0.0	-7,505	0.0	-7,505	0.0
17	59.2 52.1	0	0.0	-8,519	0.0	-8,559	0.0	-8,559	0.0	-8,559	0.0
18	58.2 51.8	0	0.0	-10,402	0.0	-10,434	0.0	-10,434	0.0	-10,434	0.0
19	56.8 52.2	0	0.0	-13,252	0.0	-13,277	0.0	-13,278	0.0	-13,278	0.0
20	55.0 51.4	-504	0.0	-16,881	0.0	-16,901	0.0	-16,901	0.0	-16,901	0.0
21	53.1 50.1	-6,325	0.0	-20,613	0.0	-20,629	0.0	-20,629	0.0	-20,629	0.0
22	51.0 48.1	-11,317	0.0	-24,587	0.0	-24,600	0.0	-24,600	0.0	-24,600	0.0
23	48.9 46.2	-15,376	0.0	-28,454	0.0	-28,465	0.0	-28,465	0.0	-28,465	0.0
24	46.9 44.1	-18,544	0.0	-32,016	0.0	-32,025	0.0	-32,025	0.0	-32,025	0.0

## 01 Card - Job Information

-----  
 Project: FORT GORDON ENERGY STUDY  
 Location: AUGUSTA, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29605 (2 BUILDINGS)

-----CARD 08-- Climatic Information-----  

Weather	Summer Clearness Code	Winter Clearness Code	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating	Ventilation	Airflow Input	Airflow Output	Room Circulation	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	DISPENSARY

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	86.75	42	2	0		12			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				197			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	86.75	12.25		14	0			
1	2	42	12.25		14	90			
1	3	86.75	12.25		14	180			
1	4	42	12.25		14	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	3.25	2.5	12	1.03	.82	3				
1	2	3.2	10	1	1.03	.82					
1	3	3.25	2.5	12	1.03	.82	3				
1	4	3.5	5.5	4	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	45	PEOPLE	255	325	2	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS	41	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	Value	Units	Value	Units	Value	Units	Value	Units		
1	1	CFM-SF	1	CFM-SF						

## -----CARD 33-- External Shading -----

Shading Type	-----OVERHANG-----				-----VERTICAL FINS-----				
	Glass Height	Projection Above Glass	Projection Out	Glass Width	Projection Left	Projection Out	Projection Right	Projection Out	Adjacent Building Flag
3	6.5	7.5	5.5						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	MULTI-ZONE SYSTEMS

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----					
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	MZ						





Utility Description Reference Table  
-----

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ (Utility file not found)

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                                                 **  
**          TRACE    600    ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29607 ( 3 BUILDINGS )

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:19: 2 8/19/94  
Dataset Name: FGTYP99 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK						CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 8/16					*	Mo/Hr: 6/18	*	Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 96/ 76/105.0					*	OADB: 96	*	OADB: 23		
	Space	Ret. Air	Ret. Air	Net	Percent	*	Space	Percent	Space Peak	Coil Peak	Percent
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Envelope Loads						*					
Skylite Solr	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Roof Cond	60,869	0	0	60,869	6.62	*	69,789	8.22	-50,352	-50,352	5.00
Glass Solar	118,509	0	0	118,509	12.88	*	119,754	14.10	0	0	0.00
Glass Cond	38,021	0	0	38,021	4.13	*	39,654	4.67	-95,930	-95,930	9.57
Wall Cond	487,767	0	0	487,767	53.01	*	544,964	64.17	-603,455	-603,455	60.18
Partition	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Infiltration	100,409	0	0	100,409	10.91	*	42,789	5.04	-122,542	-122,542	12.22
Sub Total==>	805,576	0	0	805,576	87.56	*	816,950	96.19	-872,278	-872,278	86.99
Internal Loads						*					
Lights	31,045	0	0	31,045	3.37	*	31,045	3.66	0	0	0.00
People	2,900	0	0	2,900	0.32	*	1,275	0.15	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Sub Total==>	33,945	0	0	33,945	3.69	*	32,320	3.81	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	0	0	0.00
Outside Air	0	0	0	80,537	8.75	*	0	0.00	0	-78,631	7.84
Sup. Fan Heat				0	0.00	*		0.00		0	0.00
Ret. Fan Heat		0	0	0	0.00	*		0.00		0	0.00
Duct Heat Pkup		0	0	0	0.00	*		0.00		0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	-51,824	-51,824	5.17
Exhaust Heat		0	0	0	0.00	*		0.00		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00		0	0.00
Grand Total==>	839,521	0	0	920,058	100.00	*	849,269	100.00	-924,102	-1,002,733	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----	
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part
Main Clg	76.7	920.1	820.3	75.6	63.0	66.4	60.7	57.4	65.5	15,918	0
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Totals	76.7	920.1	820.3							15,918	0
										0	0
										15,918	0
										24,545	1,893

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg
	(Mbh)	(cfm)	Deg F	Deg F	Vent			Clg Cfm/Saft		SADB	60.7	83.6
Main Htg	-1,002.7	53,415	66.7	83.6	Infil	1,964	2,455	696.67	3.36	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Suply	53,415	53,415	207.61	3.36	Return	75.0	68.0
Preheat	-0.0	53,415	66.7	60.7	Mincfm	0	0	57.80	3.36	Ret/OA	75.6	66.7
Reheat	0.0	0	0.0	0.0	Return	53,415	53,415	105	3.36	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	1,575	1,575	105	3.36	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	3.36	3.36	Fn BldTD	0.0	0.0
Total	-1,002.7	53,415	66.7	83.6	Auxil	0	0	-62.99	-62.99	Fn Frict	0.0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADR	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-470,378	0.0	-544,953	1.4	-527,592	1.7	-527,592	1.7	-527,592	1.7
2	32.9	30.7	-414,870	0.0	-552,403	1.0	-549,765	1.0	-549,765	1.0	-549,765	1.0
3	33.1	31.3	-412,292	0.0	-563,457	0.0	-562,917	0.0	-562,917	0.0	-562,917	0.0
4	33.9	32.1	-423,103	0.0	-556,802	0.0	-556,694	0.0	-556,694	0.0	-556,694	0.0
5	35.2	33.5	-436,921	0.0	-546,426	0.0	-546,404	0.0	-546,404	0.0	-546,404	0.0
6	37.0	35.4	-439,727	0.0	-531,384	0.0	-531,380	0.0	-531,380	0.0	-531,380	0.0
7	39.0	37.6	-432,331	0.0	-514,513	0.0	-514,512	0.0	-514,512	0.0	-514,512	0.0
8	41.3	40.1	-409,327	0.0	-491,229	0.0	-491,229	0.0	-491,229	0.0	-491,229	0.0
9	43.7	42.5	-367,706	0.0	-460,759	0.0	-460,759	0.0	-460,759	0.0	-460,759	0.0
10	46.1	44.0	-300,809	0.0	-416,630	0.0	-416,630	0.0	-416,630	0.0	-416,630	0.0
11	48.4	45.0	-201,512	0.0	-354,968	0.0	-354,968	0.0	-354,968	0.0	-354,968	0.0
12	50.5	45.6	-94,971	0.0	-287,686	0.0	-287,686	0.0	-287,686	0.0	-287,686	0.0
13	52.2	46.1	-8,118	0.0	-229,010	0.0	-229,010	0.0	-229,010	0.0	-229,010	0.0
14	53.5	46.4	-5,807	0.0	-179,459	0.0	-179,459	0.0	-179,459	0.0	-179,459	0.0
15	54.3	46.3	0	1.9	-140,379	0.0	-140,379	0.0	-140,379	0.0	-140,379	0.0
16	54.6	46.1	-5,648	6.4	-114,457	0.9	-114,457	0.9	-114,457	0.9	-114,457	0.9
17	54.0	45.9	-5,055	16.7	-109,506	1.0	-109,506	1.0	-109,506	1.0	-109,506	1.0
18	52.5	45.0	0	9.7	-128,048	1.4	-128,048	1.4	-128,048	1.4	-128,048	1.4
19	50.1	44.8	0	1.0	-175,972	0.0	-175,972	0.0	-175,972	0.0	-175,972	0.0
20	47.1	43.3	0	0.0	-237,389	0.0	-237,389	0.0	-237,389	0.0	-237,389	0.0
21	43.7	40.4	-50,048	1.4	-303,781	1.3	-303,781	1.3	-303,781	1.3	-303,781	1.3
22	40.4	37.3	-148,061	4.4	-371,994	1.8	-371,994	1.8	-371,994	1.8	-371,994	1.8
23	37.3	34.9	-232,094	0.7	-437,870	1.9	-437,870	1.9	-437,870	1.9	-437,870	1.9
24	34.9	32.6	-276,467	0.0	-489,449	2.0	-489,449	2.0	-489,449	2.0	-489,449	2.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-275,503	0.0	-381,212	0.0	-395,667	0.0	-395,667	0.0	-395,667	0.0
2	39.7	37.1	-323,805	0.0	-428,061	0.0	-434,705	0.0	-434,705	0.0	-434,705	0.0
3	37.8	35.1	-359,595	0.0	-470,575	0.0	-473,637	0.0	-473,637	0.0	-473,637	0.0
4	36.3	33.8	-389,238	0.0	-502,818	0.0	-504,230	0.0	-504,230	0.0	-504,230	0.0
5	35.1	32.6	-407,958	0.0	-529,842	0.0	-530,494	0.0	-530,494	0.0	-530,494	0.0
6	34.4	32.0	-413,994	0.0	-552,757	0.0	-553,058	0.0	-553,058	0.0	-553,058	0.0
7	34.1	31.9	-409,346	0.0	-569,528	0.0	-569,668	0.0	-569,668	0.0	-569,668	0.0
8	34.6	32.4	-387,791	0.0	-569,031	0.0	-569,094	0.0	-569,094	0.0	-569,094	0.0
9	36.0	33.8	-348,160	0.0	-549,365	0.0	-549,394	0.0	-549,394	0.0	-549,394	0.0
10	38.2	34.7	-281,044	0.0	-507,505	0.0	-507,519	0.0	-507,519	0.0	-507,519	0.0
11	40.9	36.2	-187,035	0.0	-446,619	0.0	-446,626	0.0	-446,626	0.0	-446,626	0.0
12	43.9	37.4	-85,178	0.0	-376,083	0.0	-376,087	0.0	-376,087	0.0	-376,087	0.0
13	46.9	39.4	-6,325	0.0	-307,537	0.0	-307,538	0.0	-307,538	0.0	-307,538	0.0
14	49.7	41.4	-5,851	0.0	-243,252	0.0	-243,254	0.0	-243,254	0.0	-243,254	0.0
15	51.8	42.8	-5,149	1.3	-192,278	0.0	-192,278	0.0	-192,278	0.0	-192,278	0.0
16	53.2	43.9	0	7.8	-152,333	0.0	-152,334	0.0	-152,334	0.0	-152,334	0.0
17	53.7	44.2	0	17.3	-131,729	0.0	-131,729	0.0	-131,729	0.0	-131,729	0.0
18	53.4	44.4	0	13.3	-127,099	0.0	-127,099	0.0	-127,099	0.0	-127,099	0.0
19	52.7	44.4	0	5.1	-140,195	0.0	-140,195	0.0	-140,195	0.0	-140,195	0.0
20	51.5	45.2	0	0.0	-175,613	0.0	-175,613	0.0	-175,613	0.0	-175,613	0.0
21	50.0	44.6	-18,344	1.1	-217,444	0.0	-217,444	0.0	-217,444	0.0	-217,444	0.0
22	48.1	43.3	-118,630	2.7	-265,608	0.0	-265,608	0.0	-265,608	0.0	-265,608	0.0
23	46.1	41.8	-194,926	3.3	-310,943	0.0	-310,943	0.0	-310,943	0.0	-310,943	0.0
24	43.9	40.1	-258,113	0.0	-354,331	0.0	-354,331	0.0	-354,331	0.0	-354,331	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-77,421	0.0	-92,852	1.7	-164,069	0.0	-164,069	0.0	-164,069	0.0
2	48.7	44.6	-109,122	0.0	-204,361	0.5	-228,122	0.0	-228,122	0.0	-228,122	0.0
3	46.6	42.9	-142,493	0.0	-265,031	0.0	-273,125	0.0	-273,125	0.0	-273,125	0.0
4	44.9	41.4	-174,716	0.0	-307,080	0.0	-310,647	0.0	-310,647	0.0	-310,647	0.0
5	43.9	40.8	-193,355	0.0	-334,094	0.0	-335,708	0.0	-335,708	0.0	-335,708	0.0
6	43.5	40.8	-200,142	0.0	-353,907	0.0	-354,646	0.0	-354,646	0.0	-354,646	0.0
7	44.0	41.4	-193,138	0.0	-360,289	0.0	-360,629	0.0	-360,629	0.0	-360,629	0.0
8	45.4	42.7	-165,352	0.0	-349,812	0.0	-349,970	0.0	-349,970	0.0	-349,970	0.0
9	47.7	44.3	-112,775	0.0	-314,947	0.0	-315,019	0.0	-315,019	0.0	-315,019	0.0
10	50.6	45.8	-28,415	0.0	-258,446	0.0	-258,479	0.0	-258,479	0.0	-258,479	0.0
11	53.9	47.4	0	0.0	-186,695	0.0	-186,711	0.0	-186,711	0.0	-186,711	0.0
12	57.4	49.0	-6,681	0.8	-105,858	0.0	-105,866	0.0	-105,866	0.0	-105,866	0.0
13	60.7	50.8	-6,516	1.5	-31,288	0.0	-31,292	0.0	-31,292	0.0	-31,292	0.0
14	63.6	52.7	-7,313	24.1	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9	53.7	0	31.5	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	36.8	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	38.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	36.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	27.2	0	4.5	0	4.5	0	4.5	0	4.5
20	64.7	56.0	0	17.7	0	1.0	0	1.0	0	1.0	0	1.0
21	62.5	56.0	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.9	-65,303	0.8	-65,303	0.8	-65,303	0.8	-65,303	0.8

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-5,888	0.0	0	0.0	0	0.4	0	0.4	0	0.4
2	58.9	54.9	0	1.0	0	0.6	0	0.9	0	0.9	0	0.9
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	-63,271	0.0	-71,212	0.0	-71,212	0.0	-71,212	0.0
5	54.2	51.4	0	0.0	-123,509	0.0	-126,551	0.0	-126,551	0.0	-126,551	0.0
6	53.5	50.9	0	0.0	-156,427	0.0	-157,708	0.0	-157,708	0.0	-157,708	0.0
7	53.2	51.1	0	0.0	-173,841	0.0	-174,410	0.0	-174,410	0.0	-174,410	0.0
8	53.9	51.5	-5,676	0.0	-165,434	0.0	-165,693	0.0	-165,693	0.0	-165,693	0.0
9	55.9	52.1	0	0.0	-124,646	0.0	-124,764	0.0	-124,764	0.0	-124,764	0.0
10	58.9	53.2	-5,198	0.0	-63,795	0.0	-63,849	0.0	-63,849	0.0	-63,849	0.0
11	62.6	55.2	-6,228	3.3	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	-5,116	21.2	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	30.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	37.2	-5,912	0.7	-5,912	0.7	-5,912	0.7	-5,912	0.7
15	75.2	62.2	0	43.6	0	6.8	0	6.8	0	6.8	0	6.8
16	75.9	62.2	0	47.5	0	18.1	0	18.2	0	18.2	0	18.2
17	75.6	62.0	0	49.0	0	20.5	0	20.7	0	20.7	0	20.7
18	74.9	61.7	0	47.5	0	20.6	0	20.8	0	20.8	0	20.8
19	73.7	62.0	0	41.1	0	18.3	0	18.4	0	18.4	0	18.4
20	72.1	62.4	0	32.6	0	13.9	0	13.9	0	13.9	0	13.9
21	70.2	63.3	0	24.6	0	9.9	0	9.9	0	9.9	0	9.9
22	68.0	62.5	0	17.1	0	5.8	0	5.8	0	5.8	0	5.8
23	65.7	60.5	0	10.7	0	2.0	0	2.0	0	2.0	0	2.0
24	63.4	58.5	0	6.3	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	13.3	0	6.1	0	6.9	0	6.9	0	6.9
2	65.7	61.5	0	11.7	0	1.6	0	1.8	0	1.8	0	1.8
3	63.6	59.7	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	2.0	0	0.6	0	0.6	0	0.6	0	0.6
6	59.7	56.5	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	5.3	-5,956	0.0	-5,956	0.0	-5,956	0.0	-5,956	0.0
9	62.4	56.3	0	12.6	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	20.6	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	27.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	36.0	0	1.5	0	1.6	0	1.6	0	1.6
13	78.5	63.7	0	42.9	0	7.7	0	7.8	0	7.8	0	7.8
14	81.9	65.3	0	49.8	0	20.9	0	21.2	0	21.2	0	21.2
15	84.1	66.9	0	56.1	0	28.0	0	28.3	0	28.3	0	28.3
16	84.9	67.1	0	60.1	0	32.8	0	32.9	0	32.9	0	32.9
17	84.6	67.3	0	61.6	0	34.9	0	34.9	0	34.9	0	34.9
18	83.8	67.1	0	61.3	0	36.8	0	36.8	0	36.8	0	36.8
19	82.4	67.5	0	56.9	0	35.6	0	35.6	0	35.6	0	35.6
20	80.6	68.9	0	48.7	0	32.2	0	32.2	0	32.2	0	32.2
21	78.5	71.0	0	39.9	0	27.2	0	27.2	0	27.2	0	27.2
22	76.1	69.9	0	32.4	0	23.2	0	23.2	0	23.2	0	23.2
23	73.4	68.0	0	26.5	0	16.9	0	16.9	0	16.9	0	16.9
24	70.8	65.5	0	20.2	0	12.2	0	12.2	0	12.2	0	12.2

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	33.2	0	18.9	0	20.6	0	20.6	0	20.6
2	72.6	68.4	0	28.1	0	14.6	0	15.2	0	15.2	0	15.2
3	70.9	67.3	0	24.0	0	10.6	0	10.9	0	10.9	0	10.9
4	69.6	66.5	0	21.7	0	6.6	0	6.7	0	6.7	0	6.7
5	68.7	65.8	0	19.1	0	2.6	0	2.7	0	2.7	0	2.7
6	68.5	65.7	0	17.4	0	1.1	0	1.1	0	1.1	0	1.1
7	69.0	66.3	0	18.8	0	1.1	0	1.1	0	1.1	0	1.1
8	70.6	66.9	0	25.1	0	5.8	0	5.8	0	5.8	0	5.8
9	73.0	67.7	0	33.3	0	13.2	0	13.2	0	13.2	0	13.2
10	76.1	68.1	0	40.7	0	18.9	0	18.9	0	18.9	0	18.9
11	79.5	69.1	0	46.9	0	23.8	0	23.8	0	23.8	0	23.8
12	82.9	70.1	0	53.1	0	29.4	0	29.4	0	29.4	0	29.4
13	86.0	71.0	0	59.6	0	34.2	0	34.2	0	34.2	0	34.2
14	88.4	72.5	0	64.9	0	41.1	0	41.1	0	41.1	0	41.1
15	90.0	74.0	0	70.5	0	47.1	0	47.1	0	47.1	0	47.1
16	90.5	73.7	0	75.0	0	49.7	0	49.7	0	49.7	0	49.7
17	90.3	74.2	0	76.7	0	52.4	0	52.4	0	52.4	0	52.4
18	89.4	73.9	0	75.4	0	53.7	0	53.7	0	53.7	0	53.7
19	88.1	74.5	0	73.8	0	53.1	0	53.1	0	53.1	0	53.1
20	86.4	75.3	0	66.7	0	47.5	0	47.5	0	47.5	0	47.5
21	84.3	76.5	0	57.0	0	41.6	0	41.6	0	41.6	0	41.6
22	81.9	75.7	0	49.8	0	36.0	0	36.0	0	36.0	0	36.0
23	79.5	74.0	0	42.4	0	31.1	0	31.1	0	31.1	0	31.1
24	77.0	72.1	0	37.5	0	25.4	0	25.4	0	25.4	0	25.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	33.3	0	14.2	0	15.6	0	15.6	0	15.6
2	72.4	69.4	0	27.8	0	11.6	0	12.2	0	12.2	0	12.2
3	71.3	68.4	0	25.2	0	7.5	0	7.8	0	7.8	0	7.8
4	70.5	67.7	0	23.0	0	5.2	0	5.3	0	5.3	0	5.3
5	70.0	67.4	0	21.0	0	2.8	0	2.8	0	2.8	0	2.8
6	69.9	67.5	0	19.2	0	1.2	0	1.2	0	1.2	0	1.2
7	70.3	68.0	0	20.8	0	1.3	0	1.3	0	1.3	0	1.3
8	71.7	69.0	0	26.0	0	5.5	0	5.5	0	5.5	0	5.5
9	73.7	69.5	0	32.6	0	13.5	0	13.6	0	13.6	0	13.6
10	76.2	70.6	0	39.1	0	20.1	0	20.2	0	20.2	0	20.2
11	78.9	71.8	0	44.9	0	24.6	0	24.6	0	24.6	0	24.6
12	81.4	73.0	0	51.5	0	31.0	0	31.0	0	31.0	0	31.0
13	83.4	74.4	0	58.5	0	35.9	0	35.9	0	35.9	0	35.9
14	84.8	74.8	0	62.2	0	39.9	0	39.9	0	39.9	0	39.9
15	85.2	75.0	0	67.2	0	45.0	0	45.0	0	45.0	0	45.0
16	85.1	75.0	0	71.3	0	46.8	0	46.8	0	46.8	0	46.8
17	84.6	74.7	0	73.1	0	47.6	0	47.6	0	47.6	0	47.6
18	83.8	74.6	0	72.2	0	47.7	0	47.7	0	47.7	0	47.7
19	82.7	74.6	0	69.4	0	46.2	0	46.2	0	46.2	0	46.2
20	81.4	74.4	0	61.7	0	41.6	0	41.6	0	41.6	0	41.6
21	79.9	74.9	0	53.9	0	35.2	0	35.2	0	35.2	0	35.2
22	78.4	74.0	0	46.3	0	29.7	0	29.7	0	29.7	0	29.7
23	76.8	72.7	0	40.4	0	24.1	0	24.1	0	24.1	0	24.1
24	75.2	71.6	0	36.3	0	19.6	0	19.6	0	19.6	0	19.6

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	33.1	0	17.4	0	18.8	0	18.8	0	18.8
2	73.2	70.3	0	27.5	0	13.5	0	14.1	0	14.1	0	14.1
3	71.7	68.9	0	24.1	0	10.1	0	10.4	0	10.4	0	10.4
4	70.4	67.8	0	21.0	0	6.9	0	7.1	0	7.1	0	7.1
5	69.5	66.8	0	18.7	0	2.8	0	2.8	0	2.8	0	2.8
6	68.9	66.4	0	16.9	0	1.2	0	1.2	0	1.2	0	1.2
7	68.7	66.4	0	17.4	0	0.8	0	0.8	0	0.8	0	0.8
8	69.2	66.8	0	21.1	0	2.4	0	2.4	0	2.4	0	2.4
9	70.8	67.7	0	28.7	0	6.8	0	6.8	0	6.8	0	6.8
10	73.2	67.7	0	36.5	0	12.4	0	12.5	0	12.5	0	12.5
11	76.2	68.8	0	44.9	0	20.6	0	20.7	0	20.7	0	20.7
12	79.3	70.3	0	52.3	0	27.5	0	27.5	0	27.5	0	27.5
13	82.3	72.2	0	59.5	0	33.3	0	33.3	0	33.3	0	33.3
14	84.7	73.7	0	66.3	0	39.4	0	39.4	0	39.4	0	39.4
15	86.3	74.6	0	72.0	0	45.9	0	45.9	0	45.9	0	45.9
16	86.8	75.1	0	75.6	0	49.4	0	49.4	0	49.4	0	49.4
17	86.6	75.1	0	76.7	0	50.6	0	50.6	0	50.6	0	50.6
18	86.0	75.3	0	74.4	0	51.4	0	51.4	0	51.4	0	51.4
19	85.1	76.0	0	68.5	0	48.0	0	48.0	0	48.0	0	48.0
20	83.8	76.8	0	60.6	0	42.5	0	42.5	0	42.5	0	42.5
21	82.3	77.2	0	53.2	0	37.5	0	37.5	0	37.5	0	37.5
22	80.6	76.3	0	46.3	0	33.2	0	33.2	0	33.2	0	33.2
23	78.7	75.3	0	40.0	0	28.3	0	28.3	0	28.3	0	28.3
24	76.8	73.7	0	35.2	0	23.5	0	23.5	0	23.5	0	23.5

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	21.2	0	7.3	0	8.4	0	8.4	0	8.4
2	67.6	65.0	0	15.6	0	3.3	0	3.7	0	3.7	0	3.7
3	65.8	63.4	0	11.7	0	0.9	0	1.0	0	1.0	0	1.0
4	64.3	62.2	0	8.7	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	5.8	0	0.5	0	0.6	0	0.6	0	0.6
6	62.4	60.3	0	4.8	0	1.0	0	1.0	0	1.0	0	1.0
7	62.2	60.2	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	13.7	-5,583	0.0	-5,583	0.0	-5,583	0.0	-5,583	0.0
10	67.6	62.1	0	24.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	34.4	0	1.2	0	1.2	0	1.2	0	1.2
12	74.8	64.6	0	43.1	0	3.2	0	3.3	0	3.3	0	3.3
13	78.3	66.7	0	51.3	-5,650	25.4	-5,650	25.9	-5,650	25.9	-5,650	25.9
14	81.2	68.4	0	59.5	0	31.4	0	31.6	0	31.6	0	31.6
15	83.0	70.0	0	65.4	0	36.1	0	36.1	0	36.1	0	36.1
16	83.7	70.5	0	69.6	0	40.1	0	40.1	0	40.1	0	40.1
17	83.4	70.5	0	69.3	0	42.7	0	42.7	0	42.7	0	42.7
18	82.8	70.9	0	65.1	0	41.4	0	41.4	0	41.4	0	41.4
19	81.6	72.7	0	56.8	0	37.1	0	37.1	0	37.1	0	37.1
20	80.1	74.7	0	49.7	0	31.7	0	31.7	0	31.7	0	31.7
21	78.3	74.1	0	41.7	0	28.4	0	28.4	0	28.4	0	28.4
22	76.3	72.4	0	34.6	0	23.0	0	23.0	0	23.0	0	23.0
23	74.1	70.7	0	28.7	0	18.0	0	18.0	0	18.0	0	18.0
24	71.8	68.9	0	23.5	0	13.2	0	13.2	0	13.2	0	13.2

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-33,445	0.0	-118,374	1.4	-118,374	1.4	-118,374	1.4
2	50.1	48.6	0	0.0	-147,804	3.0	-185,922	0.0	-185,922	0.0	-185,922	0.0
3	48.4	46.9	-30,212	0.0	-223,038	0.0	-225,914	0.0	-225,914	0.0	-225,914	0.0
4	47.1	45.8	-91,901	0.0	-257,206	0.0	-258,209	0.0	-258,209	0.0	-258,209	0.0
5	46.3	44.8	-130,548	0.0	-283,776	0.0	-284,173	0.0	-284,173	0.0	-284,173	0.0
6	46.0	44.5	-140,994	0.0	-303,584	0.0	-303,754	0.0	-303,754	0.0	-303,754	0.0
7	46.8	45.3	-136,408	0.0	-303,440	0.0	-303,517	0.0	-303,517	0.0	-303,517	0.0
8	48.9	47.5	-111,616	0.0	-279,060	0.0	-279,094	0.0	-279,094	0.0	-279,094	0.0
9	52.2	49.9	-52,009	0.0	-227,507	0.0	-227,522	0.0	-227,522	0.0	-227,522	0.0
10	56.2	52.5	0	0.0	-149,452	0.0	-149,460	0.0	-149,460	0.0	-149,460	0.0
11	60.4	54.4	-7,243	0.0	-58,495	0.0	-58,497	0.0	-58,497	0.0	-58,497	0.0
12	64.4	56.0	-10,096	1.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	-5,113	18.6	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	33.1	-5,262	0.7	-5,262	0.7	-5,262	0.7	-5,262	0.7
15	70.6	58.1	0	40.1	0	2.0	0	2.0	0	2.0	0	2.0
16	70.3	57.5	0	43.6	0	7.9	0	7.9	0	7.9	0	7.9
17	69.5	57.3	0	43.2	0	15.9	0	15.9	0	15.9	0	15.9
18	68.2	57.7	0	36.8	0	12.5	0	12.5	0	12.5	0	12.5
19	66.5	60.6	0	27.4	0	7.3	0	7.3	0	7.3	0	7.3
20	64.4	60.8	0	18.9	0	2.9	0	2.9	0	2.9	0	2.9
21	62.1	59.4	0	11.4	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.7	0	0.4	0	0.4	0	0.4	0	0.4
24	54.5	52.7	0	0.4	-27,850	0.0	-27,850	0.0	-27,850	0.0	-27,850	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI-ZONE SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OA08 OA08	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-44,633	0.0	-83,869	1.6	-143,925	0.0	-143,925	0.0	-143,925	0.0
2	49.4 47.3	-105,324	0.0	-188,807	0.4	-208,149	0.0	-208,149	0.0	-208,149	0.0
3	47.2 45.3	-151,488	0.0	-248,710	0.0	-255,069	0.0	-255,069	0.0	-255,069	0.0
4	45.3 43.4	-185,648	0.0	-293,338	0.0	-296,120	0.0	-296,120	0.0	-296,120	0.0
5	43.9 42.2	-206,777	0.0	-325,742	0.0	-326,998	0.0	-326,998	0.0	-326,998	0.0
6	43.0 41.4	-210,818	0.0	-351,051	0.0	-351,627	0.0	-351,627	0.0	-351,627	0.0
7	42.7 41.2	-204,521	0.0	-367,536	0.0	-367,801	0.0	-367,801	0.0	-367,801	0.0
8	43.5 42.0	-178,657	0.0	-364,552	0.0	-364,675	0.0	-364,675	0.0	-364,675	0.0
9	45.9 44.0	-121,669	0.0	-328,702	0.0	-328,758	0.0	-328,758	0.0	-328,758	0.0
10	49.4 46.6	-33,654	0.0	-262,119	0.0	-262,145	0.0	-262,145	0.0	-262,145	0.0
11	53.8 48.6	-5,431	0.0	-169,961	0.0	-169,973	0.0	-169,973	0.0	-169,973	0.0
12	58.4 50.6	-9,125	0.9	-73,700	0.0	-73,706	0.0	-73,706	0.0	-73,706	0.0
13	62.8 52.6	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
14	66.3 54.5	0	26.4	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7 55.7	0	36.4	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	40.7	0	1.2	0	1.2	0	1.2	0	1.2
17	69.2 55.8	0	38.9	0	3.0	0	3.0	0	3.0	0	3.0
18	68.3 57.0	0	31.9	0	2.8	0	2.8	0	2.8	0	2.8
19	66.9 59.4	0	22.5	0	3.6	0	3.6	0	3.6	0	3.6
20	65.0 59.4	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5 54.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7 51.7	0	0.5	-51,154	0.4	-51,154	0.4	-51,154	0.4	-51,154	0.4

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OA08 OA08	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-154,456	0.0	-313,381	0.0	-317,460	0.0	-317,460	0.0	-317,460	0.0
2	43.2 41.1	-204,841	0.0	-350,396	0.0	-353,222	0.0	-353,222	0.0	-353,222	0.0
3	41.8 39.8	-239,708	0.0	-381,457	0.0	-382,952	0.0	-382,952	0.0	-382,952	0.0
4	40.7 38.7	-268,719	0.0	-409,435	0.0	-410,165	0.0	-410,165	0.0	-410,165	0.0
5	40.1 38.4	-288,533	0.0	-428,586	0.0	-428,931	0.0	-428,931	0.0	-428,931	0.0
6	39.9 38.4	-291,244	0.0	-440,527	0.0	-440,689	0.0	-440,689	0.0	-440,689	0.0
7	40.5 39.0	-287,709	0.0	-441,867	0.0	-441,942	0.0	-441,942	0.0	-441,942	0.0
8	42.2 40.7	-269,206	0.0	-424,902	0.0	-424,937	0.0	-424,937	0.0	-424,937	0.0
9	44.9 43.4	-230,095	0.0	-389,281	0.0	-389,297	0.0	-389,297	0.0	-389,297	0.0
10	48.2 45.8	-165,609	0.0	-335,380	0.0	-335,388	0.0	-335,388	0.0	-335,388	0.0
11	51.7 48.3	-68,004	0.0	-259,592	0.0	-259,596	0.0	-259,596	0.0	-259,596	0.0
12	55.0 50.7	0	0.0	-176,339	0.0	-176,341	0.0	-176,341	0.0	-176,341	0.0
13	57.7 52.0	-7,733	0.0	-104,493	0.0	-104,494	0.0	-104,494	0.0	-104,494	0.0
14	59.5 52.6	0	4.3	-51,583	0.0	-51,584	0.0	-51,584	0.0	-51,584	0.0
15	60.1 52.7	0	14.3	-21,171	0.0	-21,171	0.0	-21,171	0.0	-21,171	0.0
16	59.9 52.6	0	25.4	-6,448	0.0	-6,448	0.0	-6,448	0.0	-6,448	0.0
17	59.2 52.1	0	24.3	0	0.0	0	0.0	0	0.0	0	0.0
18	58.2 51.8	0	16.9	0	0.0	0	0.0	0	0.0	0	0.0
19	56.8 52.2	0	8.6	-36,070	0.0	-36,070	0.0	-36,070	0.0	-36,070	0.0
20	55.0 51.4	0	0.6	-87,949	0.0	-87,949	0.0	-87,949	0.0	-87,949	0.0
21	53.1 50.1	0	0.0	-138,233	0.0	-138,233	0.0	-138,233	0.0	-138,233	0.0
22	51.0 48.1	0	0.0	-185,774	0.0	-185,774	0.0	-185,774	0.0	-185,774	0.0
23	48.9 46.2	-37,571	0.0	-230,674	0.0	-230,674	0.0	-230,674	0.0	-230,674	0.0
24	46.9 44.1	-112,153	0.0	-273,286	0.0	-273,286	0.0	-273,286	0.0	-273,286	0.0

01 Card - Job Information

Project: ENERGY STUDY OF HEATING PLANT
Location: FORT GORDON, GEORGIA
Client: U. S. ARMY CORP OF ENGINEERS
Program User: BON
Comments: BUILDING 29607 ( 3 BUILDINGS )

Table with 10 columns: Summer Clearness, Winter Clearness, Summer Design, Summer Design, Winter Design, Building Orientation, Summer Ground Reflect, Winter Ground Reflect. Row 1: AUGUSTA

Table with 8 columns: 1st Month Cooling Simulation, Last Month Cooling Simulation, Peak Cooling Load Hr, 1st Month Summer Period, Last Month Summer Period, 1st Month Daylight Savings, Last Month Daylight Savings. Row 1: APR, OCT

Table with 7 columns: Cooling Load Method, Heating Load Method, Ventilation Method, Airflow Input Units, Airflow Output Units, Room Circulation Rate, Put Wall RA Load to Room. Row 1: CLTD-CLF, TETD-TA1, OAHIGH, ACTUAL, ACTUAL, MED-RCR, NO

----- Load Section Alternative #1 -----

Table with 2 columns: Number, Description. Row 1: 1, GYM

Table with 12 columns: Room Number, Reference Number, Room Description, Floor Length, Floor Width, Const Type, Plenum Height, Acoustic Ceiling Resistance, Floor to Ceiling Height, Duplicate Floors Multiplier, Duplicate Rooms per Zone, Perimeter Depth. Row 1: 1, 1, GYM, 120, 94.75, 2, 0, 32

## -----CARD 20-- General Room Parameters -----

Room Number	Zone	Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2		1	OFFICES	48	94.75	2	0		10.5			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Flag	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			
2	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	163	29		178	180			
1	2	94.75	29		15	270			
1	3	163	29		15	0			
1	4	98.75	29		15	90			
2	1	48	98.75		15	180			
2	2	48	98.75		15	0			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	3	8.5	35	1.03	.82					
1	2	3	8.5	35	1.03	.82					
2	2	3	2	18	1.03	.82					



## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	100	PEOPLE	255	325	2	WATT-SF	ASHRAE2				
2	5	PEOPLE	255	325	2	WATT-SF	ASHRAE2				

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	MULTI-ZONE SYSTEMS

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						
		Ventil		Cooling		Heating		Fan
		Deck	Location	SADBvh	SADBvh	Schedule	Schedule	Static Pressure
1	MZ							

## -----CARD 41-- Zone Assignment -----

System Set Number	Ref #1	Ref #2	Ref #3	Ref #4	Ref #5	Ref #6
	Begin	End	Begin	End	Begin	End
1	1	1				

-----CARD 42--- Fan SP and Duct Parameters-----

System	Cool	Heat	Return	Mn Exh	Aux	Rm Exh	Cool	Return	Supply	Supply	Return
Set	Fan	Fan	Fan	Fan	Fan	Fan	Fan Mtr	Fan Mtr	Duct	Duct	Air
Number	SP	SP	SP	SP	SP	SP	Loc	Loc	Ht Gn	Loc	Path

1

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

MZ (Utility file not found)

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Util Percent

-----  
0 100  
24

```
*****  
*****  
**                                     **  
**          TRACE 600 ANALYSIS          **  
**                                     **  
**          by          **               **  
**                                     **  
*****  
*****
```

ACADEMIC TRAINING BUILDING  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 24701 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:37:16 8/19/94  
Dataset Name: FGTYP510 .TM



System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==> Mo/Hr: 7/17 \* Mo/Hr: 6/19 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 94/ 75/105.0 \* OADB: 93 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	1,249,498	0	0	1,249,498	53.81	*	1,398,560	77.14	*	-986,445	-986,445	43.21
Glass Solar	89,216	0	0	89,216	3.84	*	82,688	4.56	*	0	0	0.00
Glass Cond	39,671	0	0	39,671	1.71	*	41,688	2.30	*	-110,271	-110,271	4.83
Wall Cond	192,536	0	0	192,536	8.29	*	235,877	13.01	*	-375,069	-375,069	16.43
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	131,709	0	0	131,709	5.67	*	54,209	2.99	*	-170,350	-170,350	7.46
Sub Total==>	1,702,629	0	0	1,702,629	73.32	*	1,813,022	100.00	*	-1,642,136	-1,642,136	71.92
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	619,528	26.68	*	0	0.00	*	0	-641,028	28.08
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0	0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==>	1,702,629	0	0	2,322,157	100.00	*	1,813,022	100.00	*	-1,642,136	-2,283,164	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	193.5	2,322.2	1,890.5	77.3	64.4	70.2	59.1	57.1	66.8	81,096	0	0
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40,548	0	0
Totals	193.5	2,322.2								Wall	34,122	2,176 6

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
	(Mbh)	(cfm)	Deg F	Deg F	Vent	12,840	12,840	Clg % OA	12.5	Type	Clg	Htg
Main Htg	-2,283.2	102,499	62.4	82.4	Infil	2,730	3,412	Clg Cfm/Sqft	1.26	SADB	59.1	82.4
Aux Htg	0.0	0	0.0	0.0	Supply	102,499	102,499	Clg Cfm/Ton	529.67	Plenum	75.0	68.0
Preheat	-0.0	102,499	62.4	59.1	Mincfm	0	0	Clg Sqft/Ton	419.07	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Return	102,499	102,499	Clg Btuh/Sqft	28.63	Ret/OA	77.3	62.4
Humidif	0.0	0	0.0	0.0	Exhaust	12,840	12,840	No. People	856	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	12.5	Fn MtrTD	0.0	0.0
Total	-2,283.2				Auxil	0	0	Htg Cfm/Sqft	1.26	Fn BldTD	0.0	0.0
								Htg Btuh/Sqft	-28.15	Fn Frict	0.0	0.0

ZONE PSYCHROMETRICS - ALTERNATIVE 1  
 CLASSROOMS

----- PSYCHROMETRIC STATE POINTS -----

Zone 1

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.5	50.0	65.3	28.2	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	62.5	50.0	65.3	28.2	
Outdoor Air	95.0	76.0	42.3	105.7	39.5	
Return/Outdoor Air Mix	77.5	64.5	49.5	70.3	29.6	
Blow through Fan						0.0
Entering Coil	77.5	64.5	49.5	70.3	29.6	
Leaving Coil	59.1	56.7	86.6	65.2	24.3	
Draw Through Fan						0.0
Duct Frictional Heat						0.0
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	59.1	56.7	86.6	65.2	24.3	
Supply Air	59.1	56.7	86.6	65.2	24.3	
Percent Outside Air			12.53 (%)			
Sensible Heat Ratio (SHR)			0.981			
Percent Supply Air Bypassing Coil			0.00 (%)			
Coil Airflow			102,499 (Cfm)			

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-1,854,205	0.0	-1,292,309	0.0	-1,292,309	0.0	-1,292,309	0.0	-1,292,309	0.0
2	32.9	30.7	-1,668,790	0.0	-1,371,557	0.0	-1,371,557	0.0	-1,371,557	0.0	-1,371,557	0.0
3	33.1	31.3	-1,028,274	0.0	-1,436,079	0.0	-1,436,079	0.0	-1,436,079	0.0	-1,436,079	0.0
4	33.9	32.1	-1,087,452	0.0	-1,472,199	0.0	-1,472,199	0.0	-1,472,199	0.0	-1,472,199	0.0
5	35.2	33.5	-1,159,968	0.0	-1,513,315	0.0	-1,513,315	0.0	-1,513,315	0.0	-1,513,315	0.0
6	37.0	35.4	-1,207,100	0.0	-1,541,947	0.0	-1,541,947	0.0	-1,541,947	0.0	-1,541,947	0.0
7	39.0	37.6	-1,253,675	0.0	-1,543,731	0.0	-1,543,731	0.0	-1,543,731	0.0	-1,543,731	0.0
8	41.3	40.1	-1,274,988	0.0	-1,541,637	0.0	-1,541,637	0.0	-1,541,637	0.0	-1,541,637	0.0
9	43.7	42.5	-1,222,572	0.0	-1,490,515	0.0	-1,490,515	0.0	-1,490,515	0.0	-1,490,515	0.0
10	46.1	44.0	-1,144,766	0.0	-1,460,161	0.0	-1,460,161	0.0	-1,460,161	0.0	-1,460,161	0.0
11	48.4	45.0	-1,009,573	0.0	-1,368,191	0.0	-1,368,191	0.0	-1,368,191	0.0	-1,368,191	0.0
12	50.5	45.6	-862,606	0.0	-1,268,830	0.0	-1,268,830	0.0	-1,268,830	0.0	-1,268,830	0.0
13	52.2	46.1	-661,066	0.0	-1,136,690	0.0	-1,136,690	0.0	-1,136,690	0.0	-1,136,690	0.0
14	53.5	46.4	-466,857	0.0	-1,001,072	0.0	-1,001,072	0.0	-1,001,072	0.0	-1,001,072	0.0
15	54.3	46.3	-294,338	0.0	-866,936	0.0	-866,936	0.0	-866,936	0.0	-866,936	0.0
16	54.6	46.1	-171,538	0.0	-751,643	0.0	-751,643	0.0	-751,643	0.0	-751,643	0.0
17	54.0	45.9	-98,053	0.0	-702,264	0.0	-702,264	0.0	-702,264	0.0	-702,264	0.0
18	52.5	45.0	-130,444	0.0	-679,110	0.0	-679,110	0.0	-679,110	0.0	-679,110	0.0
19	50.1	44.8	-181,181	0.0	-699,915	0.0	-699,915	0.0	-699,915	0.0	-699,915	0.0
20	47.1	43.3	-279,889	0.0	-796,798	0.0	-796,798	0.0	-796,798	0.0	-796,798	0.0
21	43.7	40.4	-400,254	0.0	-864,423	0.0	-864,423	0.0	-864,423	0.0	-864,423	0.0
22	40.4	37.3	-514,591	0.0	-1,000,082	0.0	-1,000,082	0.0	-1,000,082	0.0	-1,000,082	0.0
23	37.3	34.9	-618,162	0.0	-1,090,448	0.0	-1,090,448	0.0	-1,090,448	0.0	-1,090,448	0.0
24	34.9	32.6	-723,740	0.0	-1,187,475	0.0	-1,187,475	0.0	-1,187,475	0.0	-1,187,475	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-696,929	0.0	-1,063,898	0.0	-1,063,898	0.0	-1,063,898	0.0	-1,063,898	0.0
2	39.7	37.1	-817,427	0.0	-1,150,139	0.0	-1,150,139	0.0	-1,150,139	0.0	-1,150,139	0.0
3	37.8	35.1	-922,206	0.0	-1,236,798	0.0	-1,236,798	0.0	-1,236,798	0.0	-1,236,798	0.0
4	36.3	33.8	-990,253	0.0	-1,310,713	0.0	-1,310,713	0.0	-1,310,713	0.0	-1,310,713	0.0
5	35.1	32.6	-1,083,077	0.0	-1,391,355	0.0	-1,391,355	0.0	-1,391,355	0.0	-1,391,355	0.0
6	34.4	32.0	-1,132,161	0.0	-1,452,971	0.0	-1,452,971	0.0	-1,452,971	0.0	-1,452,971	0.0
7	34.1	31.9	-1,170,088	0.0	-1,524,422	0.0	-1,524,422	0.0	-1,524,422	0.0	-1,524,422	0.0
8	34.6	32.4	-1,176,900	0.0	-1,568,808	0.0	-1,568,808	0.0	-1,568,808	0.0	-1,568,808	0.0
9	36.0	33.8	-1,150,026	0.0	-1,565,191	0.0	-1,565,191	0.0	-1,565,191	0.0	-1,565,191	0.0
10	38.2	34.7	-1,058,567	0.0	-1,529,706	0.0	-1,529,706	0.0	-1,529,706	0.0	-1,529,706	0.0
11	40.9	36.2	-932,924	0.0	-1,474,215	0.0	-1,474,215	0.0	-1,474,215	0.0	-1,474,215	0.0
12	43.9	37.4	-773,450	0.0	-1,381,854	0.0	-1,381,854	0.0	-1,381,854	0.0	-1,381,854	0.0
13	46.9	39.4	-567,042	0.0	-1,219,558	0.0	-1,219,558	0.0	-1,219,558	0.0	-1,219,558	0.0
14	49.7	41.4	-366,323	0.0	-1,071,923	0.0	-1,071,923	0.0	-1,071,923	0.0	-1,071,923	0.0
15	51.8	42.8	-172,009	0.0	-914,877	0.0	-914,877	0.0	-914,877	0.0	-914,877	0.0
16	53.2	43.9	-26,367	0.0	-801,385	0.0	-801,385	0.0	-801,385	0.0	-801,385	0.0
17	53.7	44.2	0	0.0	-707,933	0.0	-707,933	0.0	-707,933	0.0	-707,933	0.0
18	53.4	44.4	0	0.0	-661,367	0.0	-661,367	0.0	-661,367	0.0	-661,367	0.0
19	52.7	44.4	0	0.0	-664,076	0.0	-664,076	0.0	-664,076	0.0	-664,076	0.0
20	51.5	45.2	-31,826	0.0	-699,644	0.0	-699,644	0.0	-699,644	0.0	-699,644	0.0
21	50.0	44.6	-226,332	0.0	-748,664	0.0	-748,664	0.0	-748,664	0.0	-748,664	0.0
22	48.1	43.3	-359,943	0.0	-816,309	0.0	-816,309	0.0	-816,309	0.0	-816,309	0.0
23	46.1	41.8	-462,401	0.0	-893,403	0.0	-893,403	0.0	-893,403	0.0	-893,403	0.0
24	43.9	40.1	-586,833	0.0	-982,231	0.0	-982,231	0.0	-982,231	0.0	-982,231	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

March Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-37,174	0.0	0	0.0	-440,777	0.0	-440,777	0.0	-440,777	0.0
2	48.7	44.6	-160,952	0.0	0	0.0	-559,629	0.0	-559,629	0.0	-559,629	0.0
3	46.6	42.9	-289,183	0.0	-426,275	0.0	-644,274	0.0	-644,274	0.0	-644,274	0.0
4	44.9	41.4	-393,116	0.0	-747,807	0.0	-747,807	0.0	-747,807	0.0	-747,807	0.0
5	43.9	40.8	-475,177	0.0	-849,353	0.0	-849,353	0.0	-849,353	0.0	-849,353	0.0
6	43.5	40.8	-554,811	0.0	-911,679	0.0	-911,679	0.0	-911,679	0.0	-911,679	0.0
7	44.0	41.4	-589,009	0.0	-977,068	0.0	-977,068	0.0	-977,068	0.0	-977,068	0.0
8	45.4	42.7	-599,466	0.0	-1,002,501	0.0	-1,002,501	0.0	-1,002,501	0.0	-1,002,501	0.0
9	47.7	44.3	-544,596	0.0	-993,361	0.0	-993,361	0.0	-993,361	0.0	-993,361	0.0
10	50.6	45.8	-445,520	0.0	-949,586	0.0	-949,586	0.0	-949,586	0.0	-949,586	0.0
11	53.9	47.4	-287,830	0.0	-839,977	0.0	-839,977	0.0	-839,977	0.0	-839,977	0.0
12	57.4	49.0	-62,879	0.0	-686,353	0.0	-686,353	0.0	-686,353	0.0	-686,353	0.0
13	60.7	50.8	0	0.0	-509,946	0.0	-509,946	0.0	-509,946	0.0	-509,946	0.0
14	63.6	52.7	0	0.0	-333,197	0.0	-333,197	0.0	-333,197	0.0	-333,197	0.0
15	65.9	53.7	0	0.0	-182,411	0.0	-182,411	0.0	-182,411	0.0	-182,411	0.0
16	67.3	54.4	0	17.6	-52,299	0.0	-52,299	0.0	-52,299	0.0	-52,299	0.0
17	67.8	54.6	0	58.7	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	58.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	52.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	44.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	32.6	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	19.2	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	5.6	-142,118	0.0	-142,118	0.0	-142,118	0.0	-142,118	0.0
24	54.2	49.4	0	0.0	-318,442	0.0	-318,442	0.0	-318,442	0.0	-318,442	0.0

April Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	-280,069	0.0	-280,069	0.0	-280,069	0.0	-280,069	0.0
7	53.2	51.1	0	0.0	-511,166	0.0	-511,166	0.0	-511,166	0.0	-511,166	0.0
8	53.9	51.5	0	0.0	-550,512	0.0	-550,512	0.0	-550,512	0.0	-550,512	0.0
9	55.9	52.1	0	0.0	-529,227	0.0	-529,227	0.0	-529,227	0.0	-529,227	0.0
10	58.9	53.2	0	0.0	-456,964	0.0	-456,964	0.0	-456,964	0.0	-456,964	0.0
11	62.6	55.2	0	0.0	-323,382	0.0	-323,382	0.0	-323,382	0.0	-323,382	0.0
12	66.5	57.3	0	0.0	-156,518	0.0	-156,518	0.0	-156,518	0.0	-156,518	0.0
13	70.2	59.6	0	17.7	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	69.4	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	85.5	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	97.8	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	102.4	0	1.2	0	1.2	0	1.2	0	1.2
18	74.9	61.7	0	105.0	0	41.8	0	41.8	0	41.8	0	41.8
19	73.7	62.0	0	99.9	0	39.7	0	39.7	0	39.7	0	39.7
20	72.1	62.4	0	89.5	0	36.5	0	36.5	0	36.5	0	36.5
21	70.2	63.3	0	78.5	0	31.3	0	31.3	0	31.3	0	31.3
22	68.0	62.5	0	63.4	0	23.5	0	23.5	0	23.5	0	23.5
23	65.7	60.5	0	50.2	0	12.8	0	12.8	0	12.8	0	12.8
24	63.4	58.5	0	40.4	0	1.1	0	1.1	0	1.1	0	1.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	70.1	0	28.2	0	32.5	0	32.5	0	32.5
2	65.7	61.5	0	54.8	0	18.4	0	19.5	0	19.5	0	19.5
3	63.6	59.7	0	42.6	0	6.9	0	7.1	0	7.1	0	7.1
4	61.8	58.4	0	32.2	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	23.6	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	15.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	13.8	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	14.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	19.2	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	31.5	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	47.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	66.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	89.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	108.2	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	127.3	0	51.0	0	51.0	0	51.0	0	51.0
16	84.9	67.1	0	137.2	0	73.1	0	73.1	0	73.1	0	73.1
17	84.6	67.3	0	144.0	0	80.5	0	80.5	0	80.5	0	80.5
18	83.8	67.1	0	143.7	0	85.9	0	85.9	0	85.9	0	85.9
19	82.4	67.5	0	138.4	0	87.2	0	87.2	0	87.2	0	87.2
20	80.6	68.9	0	130.5	0	86.4	0	86.4	0	86.4	0	86.4
21	78.5	71.0	0	121.2	0	87.6	0	87.6	0	87.6	0	87.6
22	76.1	69.9	0	109.1	0	78.3	0	78.3	0	78.3	0	78.3
23	73.4	68.0	0	94.2	0	61.7	0	61.7	0	61.7	0	61.7
24	70.8	65.5	0	79.2	0	46.9	0	46.9	0	46.9	0	46.9

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	118.9	0	71.8	0	78.9	0	78.9	0	78.9
2	72.6	68.4	0	101.2	0	60.9	0	61.5	0	61.5	0	61.5
3	70.9	67.3	0	91.1	0	49.8	0	49.9	0	49.9	0	49.9
4	69.6	66.5	0	79.9	0	36.9	0	36.9	0	36.9	0	36.9
5	68.7	65.8	0	70.5	0	26.0	0	26.0	0	26.0	0	26.0
6	68.5	65.7	0	63.0	0	16.7	0	16.7	0	16.7	0	16.7
7	69.0	66.3	0	61.6	0	9.8	0	9.8	0	9.8	0	9.8
8	70.6	66.9	0	65.3	0	10.2	0	10.2	0	10.2	0	10.2
9	73.0	67.7	0	70.7	0	14.9	0	14.9	0	14.9	0	14.9
10	76.1	68.1	0	83.6	0	28.7	0	28.7	0	28.7	0	28.7
11	79.5	69.1	0	99.1	0	43.6	0	43.6	0	43.6	0	43.6
12	82.9	70.1	0	119.5	0	61.4	0	61.4	0	61.4	0	61.4
13	86.0	71.0	0	137.8	0	77.8	0	77.8	0	77.8	0	77.8
14	88.4	72.5	0	156.8	0	99.8	0	99.8	0	99.8	0	99.8
15	90.0	74.0	0	175.2	0	118.1	0	118.1	0	118.1	0	118.1
16	90.5	73.7	0	186.4	0	127.1	0	127.1	0	127.1	0	127.1
17	90.3	74.2	0	193.5	0	134.5	0	134.5	0	134.5	0	134.5
18	89.4	73.9	0	193.5	0	141.1	0	141.1	0	141.1	0	141.1
19	88.1	74.5	0	191.6	0	138.4	0	138.4	0	138.4	0	138.4
20	86.4	75.3	0	180.9	0	134.8	0	134.8	0	134.8	0	134.8
21	84.3	76.5	0	171.8	0	134.0	0	134.0	0	134.0	0	134.0
22	81.9	75.7	0	158.6	0	126.9	0	126.9	0	126.9	0	126.9
23	79.5	74.0	0	145.6	0	111.1	0	111.1	0	111.1	0	111.1
24	77.0	72.1	0	130.5	0	93.1	0	93.1	0	93.1	0	93.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	118.6	0	61.2	0	67.7	0	67.7	0	67.7
2	72.4	69.4	0	98.8	0	52.6	0	53.4	0	53.4	0	53.4
3	71.3	68.4	0	89.2	0	41.3	0	41.4	0	41.4	0	41.4
4	70.5	67.7	0	81.4	0	30.3	0	30.3	0	30.3	0	30.3
5	70.0	67.4	0	72.6	0	22.7	0	22.7	0	22.7	0	22.7
6	69.9	67.5	0	65.7	0	12.5	0	12.5	0	12.5	0	12.5
7	70.3	68.0	0	65.5	0	6.9	0	6.9	0	6.9	0	6.9
8	71.7	69.0	0	65.9	0	7.3	0	7.3	0	7.3	0	7.3
9	73.7	69.5	0	70.2	0	12.6	0	12.6	0	12.6	0	12.6
10	76.2	70.6	0	79.8	0	28.5	0	28.5	0	28.5	0	28.5
11	78.9	71.8	0	96.7	0	44.9	0	44.9	0	44.9	0	44.9
12	81.4	73.0	0	116.2	0	66.7	0	66.7	0	66.7	0	66.7
13	83.4	74.4	0	136.1	0	86.7	0	86.7	0	86.7	0	86.7
14	84.8	74.8	0	155.8	0	100.2	0	100.2	0	100.2	0	100.2
15	85.2	75.0	0	170.9	0	115.0	0	115.0	0	115.0	0	115.0
16	85.1	75.0	0	182.8	0	123.6	0	123.6	0	123.6	0	123.6
17	84.6	74.7	0	191.8	0	131.0	0	131.0	0	131.0	0	131.0
18	83.8	74.6	0	189.9	0	131.6	0	131.6	0	131.6	0	131.6
19	82.7	74.6	0	185.8	0	133.2	0	133.2	0	133.2	0	133.2
20	81.4	74.4	0	178.1	0	129.1	0	129.1	0	129.1	0	129.1
21	79.9	74.9	0	166.6	0	121.6	0	121.6	0	121.6	0	121.6
22	78.4	74.0	0	151.8	0	108.8	0	108.8	0	108.8	0	108.8
23	76.8	72.7	0	139.8	0	93.9	0	93.9	0	93.9	0	93.9
24	75.2	71.6	0	128.1	0	80.7	0	80.7	0	80.7	0	80.7

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	114.6	0	66.8	0	74.4	0	74.4	0	74.4
2	73.2	70.3	0	94.4	0	56.3	0	56.9	0	56.9	0	56.9
3	71.7	68.9	0	83.4	0	44.8	0	44.9	0	44.9	0	44.9
4	70.4	67.8	0	75.3	0	35.1	0	35.1	0	35.1	0	35.1
5	69.5	66.8	0	64.3	0	23.2	0	23.2	0	23.2	0	23.2
6	68.9	66.4	0	58.2	0	11.6	0	11.6	0	11.6	0	11.6
7	68.7	66.4	0	56.4	0	4.1	0	4.1	0	4.1	0	4.1
8	69.2	66.8	0	57.7	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	64.6	0	1.0	0	1.0	0	1.0	0	1.0
10	73.2	67.7	0	75.8	0	12.3	0	12.3	0	12.3	0	12.3
11	76.2	68.8	0	90.6	0	29.8	0	29.8	0	29.8	0	29.8
12	79.3	70.3	0	109.4	0	51.4	0	51.4	0	51.4	0	51.4
13	82.3	72.2	0	131.1	0	74.2	0	74.2	0	74.2	0	74.2
14	84.7	73.7	0	152.5	0	93.4	0	93.4	0	93.4	0	93.4
15	86.3	74.6	0	168.6	0	110.1	0	110.1	0	110.1	0	110.1
16	86.8	75.1	0	180.2	0	123.2	0	123.2	0	123.2	0	123.2
17	86.6	75.1	0	185.0	0	128.6	0	128.6	0	128.6	0	128.6
18	86.0	75.3	0	184.3	0	137.6	0	137.6	0	137.6	0	137.6
19	85.1	76.0	0	180.6	0	137.8	0	137.8	0	137.8	0	137.8
20	83.8	76.8	0	172.4	0	133.3	0	133.3	0	133.3	0	133.3
21	82.3	77.2	0	163.8	0	127.9	0	127.9	0	127.9	0	127.9
22	80.6	76.3	0	147.9	0	120.5	0	120.5	0	120.5	0	120.5
23	78.7	75.3	0	133.7	0	104.2	0	104.2	0	104.2	0	104.2
24	76.8	73.7	0	123.0	0	89.1	0	89.1	0	89.1	0	89.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	74.4	0	25.6	0	30.8	0	30.8	0	30.8
2	67.6	65.0	0	55.1	0	15.2	0	16.4	0	16.4	0	16.4
3	65.8	63.4	0	43.2	0	4.6	0	4.8	0	4.8	0	4.8
4	64.3	62.2	0	34.1	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	20.9	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	17.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	17.5	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	23.5	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	36.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	49.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	67.8	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	88.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	109.2	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0	70.0	0	126.1	0	44.6	0	44.6	0	44.6	0	44.6
16	83.7	70.5	0	138.1	0	80.0	0	80.1	0	80.1	0	80.1
17	83.4	70.5	0	141.9	0	82.8	0	82.8	0	82.8	0	82.8
18	82.8	70.9	0	140.7	0	88.6	0	88.6	0	88.6	0	88.6
19	81.6	72.7	0	138.2	0	89.1	0	89.1	0	89.1	0	89.1
20	80.1	74.7	0	132.9	0	91.1	0	91.1	0	91.1	0	91.1
21	78.3	74.1	0	121.8	0	83.7	0	83.7	0	83.7	0	83.7
22	76.3	72.4	0	104.8	0	72.9	0	72.9	0	72.9	0	72.9
23	74.1	70.7	0	89.5	0	58.0	0	58.0	0	58.0	0	58.0
24	71.8	68.9	0	76.8	0	45.0	0	45.0	0	45.0	0	45.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-421,460	0.0	-421,460	0.0	-421,460	0.0
2	50.1	48.6	0	0.0	0	0.0	-532,131	0.0	-532,131	0.0	-532,131	0.0
3	48.4	46.9	0	0.0	-358,280	0.0	-612,189	0.0	-612,189	0.0	-612,189	0.0
4	47.1	45.8	0	0.0	-722,526	0.0	-722,522	0.0	-722,522	0.0	-722,522	0.0
5	46.3	44.8	-139,007	0.0	-791,815	0.0	-791,815	0.0	-791,815	0.0	-791,815	0.0
6	46.0	44.5	-489,027	0.0	-868,938	0.0	-868,938	0.0	-868,938	0.0	-868,938	0.0
7	46.8	45.3	-521,342	0.0	-907,926	0.0	-907,926	0.0	-907,926	0.0	-907,926	0.0
8	48.9	47.5	-519,277	0.0	-921,756	0.0	-921,756	0.0	-921,756	0.0	-921,756	0.0
9	52.2	49.9	-446,560	0.0	-892,886	0.0	-892,886	0.0	-892,886	0.0	-892,886	0.0
10	56.2	52.5	-333,793	0.0	-799,773	0.0	-799,773	0.0	-799,773	0.0	-799,773	0.0
11	60.4	54.4	-174,941	0.0	-676,803	0.0	-676,803	0.0	-676,803	0.0	-676,803	0.0
12	64.4	56.0	0	0.0	-513,105	0.0	-513,105	0.0	-513,105	0.0	-513,105	0.0
13	67.7	57.3	0	0.0	-335,494	0.0	-335,494	0.0	-335,494	0.0	-335,494	0.0
14	69.8	58.2	0	0.0	-147,037	0.0	-147,037	0.0	-147,037	0.0	-147,037	0.0
15	70.6	58.1	0	0.0	-11,935	0.0	-11,935	0.0	-11,935	0.0	-11,935	0.0
16	70.3	57.5	0	36.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	56.6	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	55.4	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	48.1	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	37.6	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	26.3	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	15.5	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	-301,490	0.0	-301,490	0.0	-301,490	0.0	-301,490	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 VAV SYSTEMS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-243,335	0.0	0	0.0	-535,161	0.0	-535,161	0.0	-535,161	0.0
2	49.4	47.3	-357,259	0.0	-273,103	0.0	-632,262	0.0	-632,262	0.0	-632,262	0.0
3	47.2	45.3	-445,018	0.0	-721,814	0.0	-721,814	0.0	-721,814	0.0	-721,814	0.0
4	45.3	43.4	-538,165	0.0	-817,836	0.0	-817,836	0.0	-817,836	0.0	-817,836	0.0
5	43.9	42.2	-610,530	0.0	-893,155	0.0	-893,155	0.0	-893,155	0.0	-893,155	0.0
6	43.0	41.4	-666,297	0.0	-962,628	0.0	-962,628	0.0	-962,628	0.0	-962,628	0.0
7	42.7	41.2	-698,585	0.0	-1,032,899	0.0	-1,032,899	0.0	-1,032,899	0.0	-1,032,899	0.0
8	43.5	42.0	-704,286	0.0	-1,073,998	0.0	-1,073,998	0.0	-1,073,998	0.0	-1,073,998	0.0
9	45.9	44.0	-645,007	0.0	-1,075,670	0.0	-1,075,670	0.0	-1,075,670	0.0	-1,075,670	0.0
10	49.4	46.6	-523,422	0.0	-1,021,258	0.0	-1,021,258	0.0	-1,021,258	0.0	-1,021,258	0.0
11	53.8	48.6	-374,423	0.0	-925,778	0.0	-925,778	0.0	-925,778	0.0	-925,778	0.0
12	58.4	50.6	-193,772	0.0	-781,417	0.0	-781,417	0.0	-781,417	0.0	-781,417	0.0
13	62.8	52.6	0	0.0	-611,892	0.0	-611,892	0.0	-611,892	0.0	-611,892	0.0
14	66.3	54.5	0	0.0	-428,365	0.0	-428,365	0.0	-428,365	0.0	-428,365	0.0
15	68.7	55.7	0	0.0	-276,394	0.0	-276,394	0.0	-276,394	0.0	-276,394	0.0
16	69.5	56.1	0	0.0	-154,413	0.0	-154,413	0.0	-154,413	0.0	-154,413	0.0
17	69.2	55.8	0	2.3	-114,328	0.0	-114,328	0.0	-114,328	0.0	-114,328	0.0
18	68.3	57.0	0	32.2	-80,515	0.0	-80,515	0.0	-80,515	0.0	-80,515	0.0
19	66.9	59.4	0	25.1	-101,056	0.0	-101,056	0.0	-101,056	0.0	-101,056	0.0
20	65.0	59.4	0	16.0	-148,580	0.0	-148,580	0.0	-148,580	0.0	-148,580	0.0
21	62.8	58.2	0	5.4	-199,109	0.0	-199,109	0.0	-199,109	0.0	-199,109	0.0
22	60.2	56.1	0	0.0	-265,332	0.0	-265,332	0.0	-265,332	0.0	-265,332	0.0
23	57.5	54.0	0	0.0	-350,727	0.0	-350,727	0.0	-350,727	0.0	-350,727	0.0
24	54.7	51.7	0	0.0	-450,522	0.0	-450,522	0.0	-450,522	0.0	-450,522	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-561,202	0.0	-900,943	0.0	-900,943	0.0	-900,943	0.0	-900,943	0.0
2	43.2	41.1	-637,234	0.0	-986,082	0.0	-986,082	0.0	-986,082	0.0	-986,082	0.0
3	41.8	39.8	-719,583	0.0	-1,060,684	0.0	-1,060,684	0.0	-1,060,684	0.0	-1,060,684	0.0
4	40.7	38.7	-787,214	0.0	-1,120,374	0.0	-1,120,374	0.0	-1,120,374	0.0	-1,120,374	0.0
5	40.1	38.4	-859,579	0.0	-1,184,259	0.0	-1,184,259	0.0	-1,184,259	0.0	-1,184,259	0.0
6	39.9	38.4	-906,581	0.0	-1,242,622	0.0	-1,242,622	0.0	-1,242,622	0.0	-1,242,622	0.0
7	40.5	39.0	-922,361	0.0	-1,292,465	0.0	-1,292,465	0.0	-1,292,465	0.0	-1,292,465	0.0
8	42.2	40.7	-945,031	0.0	-1,299,394	0.0	-1,299,394	0.0	-1,299,394	0.0	-1,299,394	0.0
9	44.9	43.4	-905,541	0.0	-1,276,195	0.0	-1,276,195	0.0	-1,276,195	0.0	-1,276,195	0.0
10	48.2	45.8	-832,941	0.0	-1,213,587	0.0	-1,213,587	0.0	-1,213,587	0.0	-1,213,587	0.0
11	51.7	48.3	-701,654	0.0	-1,136,982	0.0	-1,136,982	0.0	-1,136,982	0.0	-1,136,982	0.0
12	55.0	50.7	-528,178	0.0	-996,962	0.0	-996,962	0.0	-996,962	0.0	-996,962	0.0
13	57.7	52.0	-374,142	0.0	-874,350	0.0	-874,350	0.0	-874,350	0.0	-874,350	0.0
14	59.5	52.6	-192,201	0.0	-720,390	0.0	-720,390	0.0	-720,390	0.0	-720,390	0.0
15	60.1	52.7	-42,732	0.0	-613,079	0.0	-613,079	0.0	-613,079	0.0	-613,079	0.0
16	59.9	52.6	0	0.0	-525,110	0.0	-525,110	0.0	-525,110	0.0	-525,110	0.0
17	59.2	52.1	0	0.0	-469,036	0.0	-469,036	0.0	-469,036	0.0	-469,036	0.0
18	58.2	51.8	0	0.0	-455,198	0.0	-455,198	0.0	-455,198	0.0	-455,198	0.0
19	56.8	52.2	0	0.0	-474,131	0.0	-474,131	0.0	-474,131	0.0	-474,131	0.0
20	55.0	51.4	0	0.0	-519,433	0.0	-519,433	0.0	-519,433	0.0	-519,433	0.0
21	53.1	50.1	0	0.0	-585,274	0.0	-585,274	0.0	-585,274	0.0	-585,274	0.0
22	51.0	48.1	-263,876	0.0	-644,570	0.0	-644,570	0.0	-644,570	0.0	-644,570	0.0
23	48.9	46.2	-359,101	0.0	-736,228	0.0	-736,228	0.0	-736,228	0.0	-736,228	0.0
24	46.9	44.1	-462,450	0.0	-812,380	0.0	-812,380	0.0	-812,380	0.0	-812,380	0.0



## 01 Card - Job Information

-----  
 Project: ACADEMIC TRAINING BUILDING  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 24701 (1 BUILDING)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR						OCT

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETO-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	CLASSROOMS

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	327	124	3	0		13	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				17			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	292.5	13.5		178	0			
1	2	124	13.5		178	90			
1	3	292.5	13.5		178	180			
1	4	124	13.5		178	270			
1	5	55	13.5		178	180			
1	6	52	13.6		178	270			
1	7	55	13.6		178	0			
1	8	52	13.6		178	90			
1	9	55	13.6		178	180			
1	10	52	13.6		178	270			
1	11	55	13.6		178	0			
1	12	52	13.6		178	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	3	5	10	1.03	.82					
1	2	2	5	8	1.03	.82					
1	3	3	5	10	1.03	.82					
1	4	2	5	8	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24



Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          TRACE 600 ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ACADEMIC TRAINING BUILDING  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 24801 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 13:59:21 8/19/94  
Dataset Name: FGTYP511 .TM

1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK									
Peaked at Time ==)					Mo/Hr: 6/17					Mo/Hr: 6/18					Mo/Hr: 13/ 1				
Outside Air ==)					OADB/WB/HR: 98/ 74/ 91.0					OADB: 96					OADB: 23				
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)						
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Roof Cond	1,330,605	0	0	1,330,605	45.11	1,391,984	56.62	-986,445	-986,445	35.58	0	0	0.00						
Glass Solar	89,216	0	0	89,216	3.02	89,216	3.63	0	0	0.00	0	0	0.00						
Glass Cond	49,532	0	0	49,532	1.68	46,170	1.88	-110,271	-110,271	3.98	0	0	0.00						
Wall Cond	853,680	0	0	853,680	28.94	868,080	35.31	-925,678	-925,678	33.39	0	0	0.00						
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Infiltration	119,281	0	0	119,281	4.04	62,992	2.56	-170,350	-170,350	6.14	0	0	0.00						
Sub Total==>	2,442,315	0	0	2,442,315	82.80	2,458,442	100.00	-2,192,744	-2,192,744	79.09	0	0	0.00						
Internal Loads																			
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
People	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Outside Air	0	0	0	507,322	17.20	0	0.00	0	-579,621	20.91	0	0	0.00						
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00						
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00	0	0	0.00						
Grand Total==>	2,442,315	0	0	2,949,637	100.00	2,458,442	100.00	-2,192,744	-2,772,366	100.00	0	0	0.00						

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR		
				Deg F	Deg F	Grains	Deg F	Deg F	Grains
Main Clg	245.8	2,949.6	147,200	76.8	63.6	67.3	59.9	57.1	65.4
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Jpt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	245.8	2,949.6							

-----AREAS-----

	Gross Total	Glass (sf) (%)
Floor	81,096	
Part	0	
ExFlr	0	
Roof	40,548	0 0
Wall	34,122	2,176 6

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-2,772.4	147,200	64.5	81.4
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	147,200	64.5	59.9
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Terminal	0.0	0	0.0	0.0
Totals	-2,772.4			

-----AIRFLOWS (cfm)-----

Type	Cooling	Heating
Vent	11,610	11,610
Infil	2,730	3,412
Supply	147,200	147,200
Mincfm	0	0
Return	147,200	147,200
Exhaust	11,610	11,610
Rm Exh	0	0
Auxil	0	0

-----ENGINEERING CHECKS-----

	7.9
Clg % OA	7.9
Clg Cfm/Sqft	1.82
Clg Cfm/Ton	598.85
Clg Sqft/Ton	329.92
Clg Btuh/Sqft	36.37
No. People	774
Htg % OA	7.9
Htg Cfm/Sqft	1.82
Htg Btuh/Sqft	-34.19

-----TEMPERATURES (F)-----

Type	Clg	Htg
SADB	59.9	81.4
Plenum	75.0	68.0
Return	75.0	68.0
Ret/OA	76.8	64.5
Runarnd	75.0	68.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

LOADING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-1,354,554	0.0	-1,643,357	0.0	-1,633,655	0.0	-1,633,655	0.0	-1,633,655	0.0
2	32.9	30.7	-1,320,647	0.0	-1,687,454	0.0	-1,681,218	0.0	-1,681,218	0.0	-1,681,218	0.0
3	33.1	31.3	-1,326,376	0.0	-1,707,250	0.0	-1,703,242	0.0	-1,703,242	0.0	-1,703,242	0.0
4	33.9	32.1	-1,343,767	0.0	-1,704,398	0.0	-1,701,823	0.0	-1,701,823	0.0	-1,701,823	0.0
5	35.2	33.5	-1,362,163	0.0	-1,683,964	0.0	-1,682,308	0.0	-1,682,308	0.0	-1,682,308	0.0
6	37.0	35.4	-1,349,787	0.0	-1,645,673	0.0	-1,644,610	0.0	-1,644,610	0.0	-1,644,610	0.0
7	39.0	37.6	-1,320,318	0.0	-1,601,166	0.0	-1,600,482	0.0	-1,600,482	0.0	-1,600,482	0.0
8	41.3	40.1	-1,259,431	0.0	-1,539,227	0.0	-1,538,786	0.0	-1,538,786	0.0	-1,538,786	0.0
9	43.7	42.5	-1,149,956	0.0	-1,464,069	0.0	-1,463,788	0.0	-1,463,788	0.0	-1,463,788	0.0
10	46.1	44.0	-998,177	0.0	-1,369,671	0.0	-1,369,489	0.0	-1,369,489	0.0	-1,369,489	0.0
11	48.4	45.0	-793,637	0.0	-1,251,325	0.0	-1,251,207	0.0	-1,251,207	0.0	-1,251,207	0.0
12	50.5	45.6	-571,055	0.0	-1,115,447	0.0	-1,115,372	0.0	-1,115,372	0.0	-1,115,372	0.0
13	52.2	46.1	-377,653	0.0	-982,568	0.0	-982,519	0.0	-982,519	0.0	-982,519	0.0
14	53.5	46.4	-210,768	0.0	-857,884	0.0	-857,853	0.0	-857,853	0.0	-857,853	0.0
15	54.3	46.3	-84,918	0.0	-751,841	0.0	-751,821	0.0	-751,821	0.0	-751,821	0.0
16	54.6	46.1	-14,952	0.0	-666,108	0.0	-666,097	0.0	-666,097	0.0	-666,097	0.0
17	54.0	45.9	0	0.0	-632,759	0.0	-632,752	0.0	-632,752	0.0	-632,752	0.0
18	52.5	45.0	-34,925	0.0	-657,876	0.0	-657,870	0.0	-657,870	0.0	-657,870	0.0
19	50.1	44.8	-140,687	0.0	-749,140	0.0	-749,137	0.0	-749,137	0.0	-749,137	0.0
20	47.1	43.3	-283,019	0.0	-895,176	0.0	-895,175	0.0	-895,175	0.0	-895,175	0.0
21	43.7	40.4	-433,374	0.0	-1,074,213	0.0	-1,074,210	0.0	-1,074,210	0.0	-1,074,210	0.0
22	40.4	37.3	-585,290	0.0	-1,250,169	0.0	-1,250,169	0.0	-1,250,169	0.0	-1,250,169	0.0
23	37.3	34.9	-717,092	0.0	-1,417,217	0.0	-1,417,217	0.0	-1,417,217	0.0	-1,417,217	0.0
24	34.9	32.6	-836,239	0.0	-1,545,226	0.0	-1,545,226	0.0	-1,545,226	0.0	-1,545,226	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-871,600	0.0	-1,095,089	0.0	-1,274,781	0.0	-1,274,783	0.0	-1,274,783	0.0
2	39.7	37.1	-965,119	0.0	-1,277,322	0.0	-1,392,770	0.0	-1,392,772	0.0	-1,392,772	0.0
3	37.8	35.1	-1,056,876	0.0	-1,431,915	0.0	-1,506,090	0.0	-1,506,092	0.0	-1,506,092	0.0
4	36.3	33.8	-1,136,802	0.0	-1,550,506	0.0	-1,598,166	0.0	-1,598,166	0.0	-1,598,166	0.0
5	35.1	32.6	-1,192,232	0.0	-1,648,085	0.0	-1,678,711	0.0	-1,678,713	0.0	-1,678,713	0.0
6	34.4	32.0	-1,216,691	0.0	-1,715,455	0.0	-1,735,132	0.0	-1,735,134	0.0	-1,735,134	0.0
7	34.1	31.9	-1,211,860	0.0	-1,762,922	0.0	-1,775,567	0.0	-1,775,567	0.0	-1,775,567	0.0
8	34.6	32.4	-1,164,550	0.0	-1,769,110	0.0	-1,777,235	0.0	-1,777,237	0.0	-1,777,237	0.0
9	36.0	33.8	-1,072,086	0.0	-1,721,692	0.0	-1,726,914	0.0	-1,726,914	0.0	-1,726,914	0.0
10	38.2	34.7	-928,965	0.0	-1,619,343	0.0	-1,622,697	0.0	-1,622,697	0.0	-1,622,697	0.0
11	40.9	36.2	-736,155	0.0	-1,477,194	0.0	-1,479,346	0.0	-1,479,346	0.0	-1,479,346	0.0
12	43.9	37.4	-529,139	0.0	-1,310,008	0.0	-1,311,388	0.0	-1,311,388	0.0	-1,311,388	0.0
13	46.9	39.4	-339,411	0.0	-1,133,351	0.0	-1,134,236	0.0	-1,134,236	0.0	-1,134,236	0.0
14	49.7	41.4	-177,558	0.0	-958,360	0.0	-958,927	0.0	-958,927	0.0	-958,927	0.0
15	51.8	42.8	-46,246	0.0	-816,130	0.0	-816,493	0.0	-816,493	0.0	-816,493	0.0
16	53.2	43.9	0	0.0	-703,306	0.0	-703,540	0.0	-703,540	0.0	-703,540	0.0
17	53.7	44.2	0	0.0	-633,662	0.0	-633,811	0.0	-633,811	0.0	-633,811	0.0
18	53.4	44.4	0	0.0	-609,026	0.0	-609,123	0.0	-609,123	0.0	-609,123	0.0
19	52.7	44.4	0	0.0	-620,296	0.0	-620,358	0.0	-620,358	0.0	-620,358	0.0
20	51.5	45.2	-100,591	0.0	-682,065	0.0	-682,105	0.0	-682,105	0.0	-682,105	0.0
21	50.0	44.6	-245,733	0.0	-772,087	0.0	-772,114	0.0	-772,114	0.0	-772,114	0.0
22	48.1	43.3	-397,464	8.2	-888,197	0.0	-888,213	0.0	-888,213	0.0	-888,213	0.0
23	46.1	41.8	-558,877	8.2	-1,011,015	0.0	-1,011,025	0.0	-1,011,025	0.0	-1,011,025	0.0
24	43.9	40.1	-718,307	0.0	-1,144,127	0.0	-1,144,136	0.0	-1,144,136	0.0	-1,144,136	0.0

SHOWING COOL-HEAT DEMAND - ALTERNATIVE 1  
 HEATING SYSTEMS

March Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-357,971	0.0	-141,569	0.0	-524,531	0.0	-524,623	0.0	-524,623	0.0
2	48.7	44.6	-384,957	0.0	-441,457	11.0	-698,972	0.0	-699,032	0.0	-699,032	0.0
3	46.6	42.9	-433,315	0.0	-711,111	0.0	-834,673	0.0	-834,713	0.0	-834,713	0.0
4	44.9	41.4	-500,525	0.0	-868,989	0.0	-948,381	0.0	-948,406	0.0	-948,406	0.0
5	43.9	40.8	-544,754	0.0	-979,772	0.0	-1,030,790	0.0	-1,030,805	0.0	-1,030,805	0.0
6	43.5	40.8	-559,050	0.0	-1,053,331	0.0	-1,086,118	0.0	-1,086,127	0.0	-1,086,127	0.0
7	44.0	41.4	-543,977	0.0	-1,077,020	0.0	-1,098,090	0.0	-1,098,096	0.0	-1,098,096	0.0
8	45.4	42.7	-475,281	0.0	-1,053,107	0.0	-1,066,653	0.0	-1,066,657	0.0	-1,066,657	0.0
9	47.7	44.3	-347,179	0.0	-972,260	0.0	-980,964	0.0	-980,967	0.0	-980,967	0.0
10	50.6	45.8	-164,424	0.0	-844,770	0.0	-850,361	0.0	-850,363	0.0	-850,363	0.0
11	53.9	47.4	0	0.0	-680,057	0.0	-683,650	0.0	-683,650	0.0	-683,650	0.0
12	57.4	49.0	0	0.0	-487,044	0.0	-489,349	0.0	-489,349	0.0	-489,349	0.0
13	60.7	50.8	0	0.0	-291,530	0.0	-293,009	0.0	-293,009	0.0	-293,009	0.0
14	63.6	52.7	0	6.2	-107,871	0.0	-108,819	0.0	-108,819	0.0	-108,819	0.0
15	65.9	53.7	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	54.3	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	98.6	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	95.4	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	83.1	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	60.5	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	39.1	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	16.4	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.0	-95,193	0.0	-95,421	0.0	-95,421	0.0	-95,421	0.0
24	54.2	49.4	0	0.0	-321,304	0.0	-321,449	0.0	-321,449	0.0	-321,449	0.0

April Hour	OADB OAWB		Design		Weekday		Saturday		Sunday		Monday	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	-70,283	0.0	-80,732	0.0	-80,732	0.0	-80,732	0.0
5	54.2	51.4	0	0.0	-256,273	0.0	-263,456	0.0	-263,456	0.0	-263,456	0.0
6	53.5	50.9	0	0.0	-387,359	0.0	-391,980	0.0	-391,980	0.0	-391,980	0.0
7	53.2	51.1	0	0.0	-478,547	0.0	-481,519	0.0	-481,519	0.0	-481,519	0.0
8	53.9	51.5	0	0.0	-497,741	0.0	-499,653	0.0	-499,653	0.0	-499,653	0.0
9	55.9	52.1	0	0.0	-424,403	0.0	-425,632	0.0	-425,632	0.0	-425,632	0.0
10	58.9	53.2	0	0.0	-279,581	0.0	-280,370	0.0	-280,370	0.0	-280,370	0.0
11	62.6	55.2	0	5.0	-83,347	0.0	-83,854	0.0	-83,854	0.0	-83,854	0.0
12	66.5	57.3	0	7.8	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	25.8	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	102.8	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	122.8	0	4.1	0	4.1	0	4.1	0	4.1
16	75.9	62.2	0	137.6	0	3.6	0	3.6	0	3.6	0	3.6
17	75.6	62.0	0	145.4	0	8.5	0	8.4	0	8.4	0	8.4
18	74.9	61.7	0	144.9	0	62.3	0	62.4	0	62.4	0	62.4
19	73.7	62.0	0	133.5	0	57.5	0	57.5	0	57.5	0	57.5
20	72.1	62.4	0	115.0	0	47.6	0	47.6	0	47.6	0	47.6
21	70.2	63.3	0	92.0	0	38.6	0	38.6	0	38.6	0	38.6
22	68.0	62.5	0	69.6	0	24.3	0	24.3	0	24.3	0	24.3
23	65.7	60.5	0	49.9	0	10.2	0	10.2	0	10.2	0	10.2
24	63.4	58.5	0	34.6	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MONTHLY DEMANDS

May Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	61.6	0	24.4	0	28.1	0	28.1
2	65.7	61.5	0	49.4	0	11.5	0	12.5	0	12.5
3	63.6	59.7	0	35.2	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	22.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	11.6	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	2.7	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	2.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	8.7	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	24.1	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	43.6	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	69.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	93.5	0	2.7	0	2.7	0	2.7
13	78.5	63.7	0	121.7	0	6.3	0	6.3	0	6.3
14	81.9	65.3	0	145.2	0	8.9	0	8.9	0	8.9
15	84.1	66.9	0	167.7	0	67.4	0	67.5	0	67.5
16	84.9	67.1	0	183.0	0	97.5	0	97.5	0	97.5
17	84.6	67.3	0	190.0	0	105.7	0	105.7	0	105.7
18	83.8	67.1	0	189.7	0	113.9	0	113.9	0	113.9
19	82.4	67.5	0	181.9	0	114.5	0	114.5	0	114.5
20	80.6	68.9	0	165.4	0	108.6	0	108.6	0	108.6
21	78.5	71.0	0	145.1	0	102.5	0	102.5	0	102.5
22	76.1	69.9	0	123.7	0	87.3	0	87.3	0	87.3
23	73.4	68.0	0	101.6	0	65.5	0	65.5	0	65.5
24	70.8	65.5	0	81.1	0	48.6	0	48.6	0	48.6

June Hour	Design		Weekday		Saturday		Sunday		Monday	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	124.1	0	72.6	0	80.1	0	80.1
2	72.6	68.4	0	102.3	0	56.7	0	58.0	0	58.0
3	70.9	67.3	0	88.9	0	43.0	0	43.3	0	43.3
4	69.6	66.5	0	77.9	0	28.5	0	28.6	0	28.6
5	68.7	65.8	0	65.3	0	13.9	0	13.9	0	13.9
6	68.5	65.7	0	57.9	0	2.8	0	2.8	0	2.8
7	69.0	66.3	0	56.9	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	68.4	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	85.6	0	17.7	0	17.7	0	17.7
10	76.1	68.1	0	105.5	0	40.7	0	40.7	0	40.7
11	79.5	69.1	0	126.6	0	60.3	0	60.3	0	60.3
12	82.9	70.1	0	152.7	0	81.7	0	81.7	0	81.7
13	86.0	71.0	0	175.3	0	99.3	0	99.3	0	99.3
14	88.4	72.5	0	198.5	0	121.7	0	121.7	0	121.7
15	90.0	74.0	0	218.4	0	142.5	0	142.5	0	142.5
16	90.5	73.7	0	234.6	0	154.5	0	154.5	0	154.5
17	90.3	74.2	0	243.8	0	164.2	0	164.2	0	164.2
18	89.4	73.9	0	244.1	0	171.9	0	171.9	0	171.9
19	88.1	74.5	0	235.8	0	168.2	0	168.2	0	168.2
20	86.4	75.3	0	221.0	0	161.7	0	161.7	0	161.7
21	84.3	76.5	0	200.7	0	153.4	0	153.4	0	153.4
22	81.9	75.7	0	177.5	0	140.3	0	140.3	0	140.3
23	79.5	74.0	0	157.0	0	119.7	0	119.7	0	119.7
24	77.0	72.1	0	137.3	0	97.6	0	97.6	0	97.6

HEATING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MONTHLY DEMANDS

July Hour	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	121.5	0	59.1	0	65.8	0	65.8
2	72.4	69.4	0	99.6	0	46.9	0	48.3	0	48.3
3	71.3	68.4	0	88.6	0	32.9	0	33.3	0	33.3
4	70.5	67.7	0	77.6	0	21.0	0	21.1	0	21.1
5	70.0	67.4	0	69.1	0	8.8	0	8.8	0	8.8
6	69.9	67.5	0	63.4	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	63.6	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	69.7	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	84.1	0	9.8	0	9.8	0	9.8
10	76.2	70.6	0	101.5	0	47.2	0	47.2	0	47.2
11	78.9	71.8	0	124.2	0	67.1	0	67.1	0	67.1
12	81.4	73.0	0	150.2	0	89.6	0	89.6	0	89.6
13	83.4	74.4	0	173.9	0	109.2	0	109.2	0	109.2
14	84.8	74.8	0	194.4	0	124.4	0	124.4	0	124.4
15	85.2	75.0	0	212.3	0	141.6	0	141.6	0	141.6
16	85.1	75.0	0	226.8	0	151.2	0	151.2	0	151.2
17	84.6	74.7	0	236.8	0	159.5	0	159.5	0	159.5
18	83.8	74.6	0	234.0	0	159.0	0	159.0	0	159.0
19	82.7	74.6	0	226.8	0	156.7	0	156.7	0	156.7
20	81.4	74.4	0	212.7	0	150.2	0	150.2	0	150.2
21	79.9	74.9	0	191.6	0	134.0	0	134.0	0	134.0
22	78.4	74.0	0	169.3	0	115.3	0	115.3	0	115.3
23	76.8	72.7	0	149.7	0	98.5	0	98.5	0	98.5
24	75.2	71.6	0	132.4	0	81.2	0	81.2	0	81.2

August Hour	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	118.2	0	65.0	0	73.2	0	73.2
2	73.2	70.3	0	94.5	0	51.7	0	53.2	0	53.2
3	71.7	68.9	0	80.9	0	37.3	0	37.6	0	37.6
4	70.4	67.8	0	71.9	0	27.1	0	27.2	0	27.2
5	69.5	66.8	0	61.6	0	11.1	0	11.1	0	11.1
6	68.9	66.4	0	53.8	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	50.5	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	57.3	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	74.6	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	95.8	0	3.9	0	3.9	0	3.9
11	76.2	68.8	0	119.7	0	53.2	0	53.2	0	53.2
12	79.3	70.3	0	143.4	0	73.9	0	73.9	0	73.9
13	82.3	72.2	0	170.8	0	97.6	0	97.6	0	97.6
14	84.7	73.7	0	194.1	0	117.7	0	117.7	0	117.7
15	86.3	74.6	0	213.7	0	139.0	0	139.0	0	139.0
16	86.8	75.1	0	230.2	0	154.6	0	154.6	0	154.6
17	86.6	75.1	0	235.5	0	160.9	0	160.9	0	160.9
18	86.0	75.3	0	231.9	0	166.8	0	166.8	0	166.8
19	85.1	76.0	0	223.7	0	164.4	0	164.4	0	164.4
20	83.8	76.8	0	204.9	0	151.9	0	151.9	0	151.9
21	82.3	77.2	0	185.2	0	141.3	0	141.3	0	141.3
22	80.6	76.3	0	163.0	0	129.2	0	129.2	0	129.2
23	78.7	75.3	0	143.0	0	107.4	0	107.4	0	107.4
24	76.8	73.7	0	127.5	0	90.4	0	90.4	0	90.4

BLU... NG COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ... TEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	71.6	0	20.8	0	25.4	0	25.4	0	25.4
2	67.6	65.0	0	49.8	0	6.8	0	7.6	0	7.6	0	7.6
3	65.8	63.4	0	36.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	25.8	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	14.9	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	9.1	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	6.8	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	24.3	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	51.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	76.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	103.2	0	4.4	0	4.4	0	4.4	0	4.4
13	78.3	66.7	0	129.5	0	8.2	0	8.2	0	8.2	0	8.2
14	81.2	68.4	0	153.2	0	10.8	0	10.9	0	10.9	0	10.9
15	83.0	70.0	0	175.5	0	92.3	0	92.6	0	92.6	0	92.6
16	83.7	70.5	0	189.3	0	108.8	0	108.8	0	108.8	0	108.8
17	83.4	70.5	0	194.3	0	115.7	0	115.7	0	115.7	0	115.7
18	82.8	70.9	0	189.4	0	119.2	0	119.2	0	119.2	0	119.2
19	81.6	72.7	0	177.5	0	114.7	0	114.7	0	114.7	0	114.7
20	80.1	74.7	0	159.6	0	106.2	0	106.2	0	106.2	0	106.2
21	78.3	74.1	0	139.3	0	93.1	0	93.1	0	93.1	0	93.1
22	76.3	72.4	0	115.5	0	79.1	0	79.1	0	79.1	0	79.1
23	74.1	70.7	0	93.1	0	60.7	0	60.7	0	60.7	0	60.7
24	71.8	68.9	0	77.7	0	42.6	0	42.6	0	42.6	0	42.6

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-92,824	0.0	-444,855	0.0	-445,025	0.0	-445,025	0.0
2	50.1	48.6	0	0.0	-381,007	7.5	-612,010	0.0	-612,120	0.0	-612,120	0.0
3	48.4	46.9	0	0.0	-619,808	0.0	-743,860	0.0	-743,931	0.0	-743,931	0.0
4	47.1	45.8	-168,756	0.0	-769,089	0.0	-848,915	0.0	-848,961	0.0	-848,961	0.0
5	46.3	44.8	-298,887	0.0	-876,617	0.0	-927,972	0.0	-928,002	0.0	-928,002	0.0
6	46.0	44.5	-363,606	0.0	-947,111	0.0	-980,142	0.0	-980,162	0.0	-980,162	0.0
7	46.8	45.3	-372,343	0.0	-951,729	0.0	-972,967	0.0	-972,980	0.0	-972,980	0.0
8	48.9	47.5	-320,063	0.0	-887,273	0.0	-900,930	0.0	-900,939	0.0	-900,939	0.0
9	52.2	49.9	-193,346	0.0	-753,389	0.0	-762,172	0.0	-762,179	0.0	-762,179	0.0
10	56.2	52.5	0	0.0	-567,322	0.0	-572,968	0.0	-572,971	0.0	-572,971	0.0
11	60.4	54.4	0	0.0	-356,587	0.0	-360,214	0.0	-360,215	0.0	-360,215	0.0
12	64.4	56.0	0	0.0	-141,425	0.0	-143,754	0.0	-143,756	0.0	-143,756	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	8.3	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	97.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	100.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	92.6	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	73.4	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	51.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	29.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	12.5	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	-15,514	0.0	-16,022	0.0	-16,022	0.0	-16,022	0.0
24	54.5	52.7	0	0.0	-252,672	0.0	-252,936	0.0	-252,936	0.0	-252,936	0.0



LOADING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-233,501	0.0	-255,430	0.0	-641,835	0.0	-641,926	0.0	-641,926	0.0
2	49.4 47.3	-363,692	0.0	-539,295	0.0	-789,011	0.0	-789,070	0.0	-789,070	0.0
3	47.2 45.3	-476,323	0.0	-752,308	0.0	-912,953	0.0	-912,989	0.0	-912,989	0.0
4	45.3 43.4	-569,500	0.0	-920,504	0.0	-1,023,838	0.0	-1,023,863	0.0	-1,023,863	0.0
5	43.9 42.2	-635,996	0.0	-1,042,463	0.0	-1,108,931	0.0	-1,108,946	0.0	-1,108,946	0.0
6	43.0 41.4	-651,784	0.0	-1,129,705	0.0	-1,172,463	0.0	-1,172,473	0.0	-1,172,473	0.0
7	42.7 41.2	-630,829	0.0	-1,181,565	0.0	-1,209,070	0.0	-1,209,075	0.0	-1,209,075	0.0
8	43.5 42.0	-552,479	0.0	-1,173,526	0.0	-1,191,218	0.0	-1,191,220	0.0	-1,191,220	0.0
9	45.9 44.0	-411,017	0.0	-1,080,747	0.0	-1,092,128	0.0	-1,092,128	0.0	-1,092,128	0.0
10	49.4 46.6	-222,308	0.0	-921,703	0.0	-929,020	0.0	-929,022	0.0	-929,022	0.0
11	53.8 48.6	0	0.0	-697,863	0.0	-702,565	0.0	-702,567	0.0	-702,567	0.0
12	58.4 50.6	0	0.0	-454,474	0.0	-457,492	0.0	-457,494	0.0	-457,494	0.0
13	62.8 52.6	0	0.0	-216,288	0.0	-218,226	0.0	-218,226	0.0	-218,226	0.0
14	66.3 54.5	0	0.0	-22,613	0.0	-23,855	0.0	-23,855	0.0	-23,855	0.0
15	68.7 55.7	0	8.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	5.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	73.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	66.4	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	46.8	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	27.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	8.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	0.0	-125,037	0.0	-125,377	0.0	-125,377	0.0	-125,377	0.0
23	57.5 54.0	0	0.0	-306,596	0.0	-306,817	0.0	-306,817	0.0	-306,817	0.0
24	54.7 51.7	0	0.0	-481,375	0.0	-481,515	0.0	-481,515	0.0	-481,515	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-659,174	0.0	-960,488	0.0	-1,078,997	0.0	-1,079,002	0.0	-1,079,002	0.0
2	43.2 41.1	-736,936	0.0	-1,106,867	0.0	-1,183,046	0.0	-1,183,049	0.0	-1,183,049	0.0
3	41.8 39.8	-807,130	0.0	-1,224,277	0.0	-1,273,244	0.0	-1,273,245	0.0	-1,273,245	0.0
4	40.7 38.7	-869,857	0.0	-1,316,824	0.0	-1,348,307	0.0	-1,348,307	0.0	-1,348,307	0.0
5	40.1 38.4	-920,262	0.0	-1,376,410	0.0	-1,396,650	0.0	-1,396,651	0.0	-1,396,651	0.0
6	39.9 38.4	-928,297	0.0	-1,415,521	0.0	-1,428,534	0.0	-1,428,536	0.0	-1,428,536	0.0
7	40.5 39.0	-912,046	0.0	-1,415,740	0.0	-1,424,109	0.0	-1,424,109	0.0	-1,424,109	0.0
8	42.2 40.7	-854,541	0.0	-1,363,750	0.0	-1,369,127	0.0	-1,369,127	0.0	-1,369,127	0.0
9	44.9 43.4	-753,704	0.0	-1,259,421	0.0	-1,262,881	0.0	-1,262,881	0.0	-1,262,881	0.0
10	48.2 45.8	-615,012	0.0	-1,114,722	0.0	-1,116,946	0.0	-1,116,946	0.0	-1,116,946	0.0
11	51.7 48.3	-416,440	0.0	-943,459	0.0	-944,885	0.0	-944,885	0.0	-944,885	0.0
12	55.0 50.7	-205,650	0.0	-763,777	0.0	-764,693	0.0	-764,693	0.0	-764,693	0.0
13	57.7 52.0	-20,131	0.0	-600,895	0.0	-601,485	0.0	-601,485	0.0	-601,485	0.0
14	59.5 52.6	0	0.0	-472,509	0.0	-472,886	0.0	-472,886	0.0	-472,886	0.0
15	60.1 52.7	0	0.0	-395,434	0.0	-395,677	0.0	-395,677	0.0	-395,677	0.0
16	59.9 52.6	0	0.0	-349,621	0.0	-349,775	0.0	-349,775	0.0	-349,775	0.0
17	59.2 52.1	0	0.0	-324,956	0.0	-325,057	0.0	-325,057	0.0	-325,057	0.0
18	58.2 51.8	0	0.0	-326,682	0.0	-326,747	0.0	-326,747	0.0	-326,747	0.0
19	56.8 52.2	0	0.0	-377,186	0.0	-377,225	0.0	-377,225	0.0	-377,225	0.0
20	55.0 51.4	0	0.0	-473,683	0.0	-473,712	0.0	-473,712	0.0	-473,712	0.0
21	53.1 50.1	0	0.0	-586,400	0.0	-586,416	0.0	-586,416	0.0	-586,416	0.0
22	51.0 48.1	-60,850	0.0	-712,777	0.0	-712,788	0.0	-712,788	0.0	-712,788	0.0
23	48.9 46.2	-253,795	0.0	-838,916	0.0	-838,922	0.0	-838,922	0.0	-838,922	0.0
24	46.9 44.1	-405,757	0.0	-958,783	0.0	-958,788	0.0	-958,788	0.0	-958,788	0.0

1 Card - Job Information

Project: ACADEMIC TRAINING BUILDING  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 24801 (1 BUILDING)

-----CARD 08-- Climatic Information-----

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
UGUSTA								

-----CARD 09-- Load Simulation Periods-----

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR						OCT

-----CARD 10 -- Load Simulation Parameters-----

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----

Number	Description
1	DIXON HALL

-----CARD 20-- General Room Parameters-----

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	327	124	3	0		13	2		

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs	Carpet On Average Floor
		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
	1	YES				17			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	292.5	13.5		16	0			
1	2	124	13.5		15	90			
1	3	292.5	13.5		15	180			
1	4	124	13.5		15	270			
1	5	55	13.5		15	180			
1	6	52	13.6		15	270			
1	7	55	13.6		15	0			
1	8	52	13.6		15	90			
1	9	55	13.6		15	180			
1	10	52	13.6		15	270			
1	11	55	13.6		15	0			
1	12	52	13.6		15	90			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	3	5	10	1.03	.82					
1	2	2	5	8	1.03	.82					
1	3	3	5	10	1.03	.82					
1	4	2	5	8	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

-----CARD 26--- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
	FGHEAT	FGHEAT	YES	YES						

-----CARD 27--- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	387	PEOPLE	255	325	1.7	WATT-SF	ASHRAE2				

-----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	200	KW	FGHEAT						

-----CARD 29--- Room Airflows -----

Room Number	Ventilation				Infiltration				--Reheat Minimum--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

-----CARD 30- Fan Airflows -----

Room Number	Main				Auxiliary				--Room Exhaust--	
	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

-----CARD 39-- System Alternative -----

Number	Description
1	MZ SYSTEMS

-----CARD 40--- System Type -----

-----OPTIONAL VENTILATION SYSTEM-----

System Set Number	Type	Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	MZ						



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

MZ MULTIZONE

Circle Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 75  
24

System Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



File Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 72  
24

Job Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Util Percent

-----  
0 100  
24

```
*****  
*****  
**  
**          TRACE 600 ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY OF HEATING PLANT  
CHAPEL-FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29608 (2 BUILDINGS)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 10: 4:29 8/17/94  
Dataset Name: FGTYPS12 .TM

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK		
Mo/Hr: 7/17					Mo/Hr: 6/19					Mo/Hr: 13/ 1		
OADB/WB/HR: 93/ 75/104.9					OADB: 93					OADB: 23		
Peaked at Time ==>												
Outside Air ==>												
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)		
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00		
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00		
Roof Cond	299,062	0	0	299,062	44.15	334,198	68.85	-236,102	-236,102	35.52		
Glass Solar	30,694	0	0	30,694	4.53	31,162	6.42	0	0	0.00		
Glass Cond	11,609	0	0	11,609	1.71	13,163	2.71	-32,268	-32,268	4.85		
Wall Cond	79,338	0	0	79,338	11.71	91,735	18.90	-121,740	-121,740	18.31		
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00		
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00		
Infiltration	32,759	0	0	32,759	4.84	15,167	3.12	-42,461	-42,461	6.39		
Sub Total==>	453,463	0	0	453,463	66.95	485,425	100.00	-432,570	-432,570	65.08		
Internal Loads												
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00		
People	0	0	0	0	0.00	0	0.00	0	0	0.00		
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00		
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00		
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00		
Outside Air	0	0	0	223,884	33.05	0	0.00	0	-232,148	34.92		
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00		
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00		
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00		
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00		
Grand Total==>	453,463	0	0	677,347	100.00	485,425	100.00	-432,570	-664,718	100.00		

-----COOLING COIL SELECTION-----

	Total Capacity		Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS	
	(Tons)	(Mbh)			Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf) (%)
Main Clg	56.4	677.3	529.9	28,827	78.0	64.9	71.7	59.8	57.4	66.9	9,525	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	56.4	677.3									9,705	0 0
											8,505	637 7

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	AIRFLOWS (cfm)			--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
					Type	Cooling	Heating	Clg % OA	16.1	Type	Clg	Htg	
Main Htg	-664.7	28,827	60.7	81.5	Vent	4,650	4,650	Clg Cfms/Sqft	3.03	SADB	59.8	81.5	
Aux Htg	0.0	0	0.0	0.0	Infil	680	851	Clg Cfms/Ton	510.70	Plenum	75.0	68.0	
Preheat	-0.0	28,827	60.7	59.8	Supply	28,827	28,827	Clg Sqft/Ton	168.75	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	71.11	Ret/OA	78.0	60.7	
Humidif	0.0	0	0.0	0.0	Return	28,827	28,827	No. People	310	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Exhaust	4,650	4,650	Htg % OA	16.1	Fn MtrTD	0.0	0.0	
Total	-664.7				Rm Exh	0	0	Htg Cfms/Sqft	3.03	Fn BldTD	0.0	0.0	
					Auxil	0	0	Htg Btuh/Sqft	-69.79	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-452,010	0.0	-404,469	0.0	-404,469	0.0	-404,469	0.0	-404,469	0.0
2	32.9	30.7	-309,704	0.0	-427,533	0.0	-427,533	0.0	-427,533	0.0	-427,533	0.0
3	33.1	31.3	-319,098	0.0	-440,860	0.0	-440,860	0.0	-440,860	0.0	-440,860	0.0
4	33.9	32.1	-337,112	0.0	-449,613	0.0	-449,613	0.0	-449,613	0.0	-449,613	0.0
5	35.2	33.5	-356,565	0.0	-453,023	0.0	-453,023	0.0	-453,023	0.0	-453,023	0.0
6	37.0	35.4	-367,702	0.0	-454,434	0.0	-454,434	0.0	-454,434	0.0	-454,434	0.0
7	39.0	37.6	-375,116	0.0	-452,083	0.0	-452,083	0.0	-452,083	0.0	-452,083	0.0
8	41.3	40.1	-377,598	0.0	-445,286	0.0	-445,286	0.0	-445,286	0.0	-445,286	0.0
9	43.7	42.5	-358,237	0.0	-430,357	0.0	-430,357	0.0	-430,357	0.0	-430,357	0.0
10	46.1	44.0	-328,430	0.0	-417,362	0.0	-417,362	0.0	-417,362	0.0	-417,362	0.0
11	48.4	45.0	-287,774	0.0	-392,344	0.0	-392,344	0.0	-392,344	0.0	-392,344	0.0
12	50.5	45.6	-240,367	0.0	-365,816	0.0	-365,816	0.0	-365,816	0.0	-365,816	0.0
13	52.2	46.1	-184,380	0.0	-329,001	0.0	-329,001	0.0	-329,001	0.0	-329,001	0.0
14	53.5	46.4	-135,060	0.0	-285,557	0.0	-285,557	0.0	-285,557	0.0	-285,557	0.0
15	54.3	46.3	-91,041	0.0	-251,241	0.0	-251,241	0.0	-251,241	0.0	-251,241	0.0
16	54.6	46.1	-58,994	0.0	-220,826	0.0	-220,826	0.0	-220,826	0.0	-220,826	0.0
17	54.0	45.9	-49,108	0.0	-210,026	0.0	-210,026	0.0	-210,026	0.0	-210,026	0.0
18	52.5	45.0	-61,261	0.0	-202,163	0.0	-202,163	0.0	-202,163	0.0	-202,163	0.0
19	50.1	44.8	-79,691	0.0	-215,965	0.0	-215,965	0.0	-215,965	0.0	-215,965	0.0
20	47.1	43.3	-102,636	0.0	-246,654	0.0	-246,654	0.0	-246,654	0.0	-246,654	0.0
21	43.7	40.4	-128,166	0.0	-271,909	0.0	-271,909	0.0	-271,909	0.0	-271,909	0.0
22	40.4	37.3	-173,957	0.0	-313,397	0.0	-313,397	0.0	-313,397	0.0	-313,397	0.0
23	37.3	34.9	-208,442	0.0	-344,454	0.0	-344,454	0.0	-344,454	0.0	-344,454	0.0
24	34.9	32.6	-239,137	0.0	-375,166	0.0	-375,166	0.0	-375,166	0.0	-375,166	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-229,675	0.0	-316,241	0.0	-329,913	0.0	-329,913	0.0	-329,913	0.0
2	39.7	37.1	-264,432	0.0	-354,851	0.0	-354,851	0.0	-354,851	0.0	-354,851	0.0
3	37.8	35.1	-290,007	0.0	-379,744	0.0	-379,744	0.0	-379,744	0.0	-379,744	0.0
4	36.3	33.8	-310,696	0.0	-401,646	0.0	-401,646	0.0	-401,646	0.0	-401,646	0.0
5	35.1	32.6	-331,535	0.0	-426,473	0.0	-426,473	0.0	-426,473	0.0	-426,473	0.0
6	34.4	32.0	-344,190	0.0	-443,220	0.0	-443,220	0.0	-443,220	0.0	-443,220	0.0
7	34.1	31.9	-352,288	0.0	-456,608	0.0	-456,608	0.0	-456,608	0.0	-456,608	0.0
8	34.6	32.4	-347,161	0.0	-462,733	0.0	-462,733	0.0	-462,733	0.0	-462,733	0.0
9	36.0	33.8	-336,679	0.0	-458,678	0.0	-458,678	0.0	-458,678	0.0	-458,678	0.0
10	38.2	34.7	-303,682	0.0	-448,234	0.0	-448,234	0.0	-448,234	0.0	-448,234	0.0
11	40.9	36.2	-263,230	0.0	-429,494	0.0	-429,494	0.0	-429,494	0.0	-429,494	0.0
12	43.9	37.4	-213,447	0.0	-403,192	0.0	-403,192	0.0	-403,192	0.0	-403,192	0.0
13	46.9	39.4	-161,789	0.0	-361,985	0.0	-361,985	0.0	-361,985	0.0	-361,985	0.0
14	49.7	41.4	-106,263	0.0	-313,667	0.0	-313,667	0.0	-313,667	0.0	-313,667	0.0
15	51.8	42.8	-57,002	0.0	-270,651	0.0	-270,651	0.0	-270,651	0.0	-270,651	0.0
16	53.2	43.9	-37,893	0.0	-236,815	0.0	-236,815	0.0	-236,815	0.0	-236,815	0.0
17	53.7	44.2	-29,060	0.0	-213,316	0.0	-213,316	0.0	-213,316	0.0	-213,316	0.0
18	53.4	44.4	-35,414	0.0	-197,468	0.0	-197,468	0.0	-197,468	0.0	-197,468	0.0
19	52.7	44.4	-53,455	0.0	-203,614	0.0	-203,614	0.0	-203,614	0.0	-203,614	0.0
20	51.5	45.2	-76,292	0.6	-213,286	0.0	-213,286	0.0	-213,286	0.0	-213,286	0.0
21	50.0	44.6	-106,055	0.0	-227,536	0.0	-227,536	0.0	-227,536	0.0	-227,536	0.0
22	48.1	43.3	-129,243	0.0	-252,057	0.0	-252,057	0.0	-252,057	0.0	-252,057	0.0
23	46.1	41.8	-152,579	0.0	-277,300	0.0	-277,300	0.0	-277,300	0.0	-277,300	0.0
24	43.9	40.1	-172,966	0.0	-303,172	0.0	-303,172	0.0	-303,172	0.0	-303,172	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

March		----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton					
1	51.3	46.8	-60,800	0.0	-62,641	0.0	-132,472	0.0	-132,472	0.0	-132,472	0.0	-132,472	0.0							
2	48.7	44.6	-81,298	0.0	-156,999	0.0	-161,532	0.0	-161,532	0.0	-161,532	0.0	-161,532	0.0							
3	46.6	42.9	-102,713	0.0	-190,416	0.0	-212,962	0.0	-212,962	0.0	-212,962	0.0	-212,962	0.0							
4	44.9	41.4	-128,839	0.0	-244,132	0.0	-244,132	0.0	-244,132	0.0	-244,132	0.0	-244,132	0.0							
5	43.9	40.8	-161,686	0.0	-269,319	0.0	-269,319	0.0	-269,319	0.0	-269,319	0.0	-269,319	0.0							
6	43.5	40.8	-178,200	0.0	-288,340	0.0	-288,340	0.0	-288,340	0.0	-288,340	0.0	-288,340	0.0							
7	44.0	41.4	-185,931	0.0	-303,915	0.0	-303,915	0.0	-303,915	0.0	-303,915	0.0	-303,915	0.0							
8	45.4	42.7	-177,865	0.0	-305,902	0.0	-305,902	0.0	-305,902	0.0	-305,902	0.0	-305,902	0.0							
9	47.7	44.3	-156,888	0.0	-296,135	0.0	-296,135	0.0	-296,135	0.0	-296,135	0.0	-296,135	0.0							
10	50.6	45.8	-119,929	0.0	-275,059	0.0	-275,059	0.0	-275,059	0.0	-275,059	0.0	-275,059	0.0							
11	53.9	47.4	-67,802	0.0	-241,078	0.0	-241,078	0.0	-241,078	0.0	-241,078	0.0	-241,078	0.0							
12	57.4	49.0	-10,091	0.0	-194,502	0.0	-194,502	0.0	-194,502	0.0	-194,502	0.0	-194,502	0.0							
13	60.7	50.8	0	0.0	-147,427	0.0	-147,427	0.0	-147,427	0.0	-147,427	0.0	-147,427	0.0							
14	63.6	52.7	0	1.1	-97,728	0.0	-97,728	0.0	-97,728	0.0	-97,728	0.0	-97,728	0.0							
15	65.9	53.7	0	7.4	-52,856	0.0	-52,856	0.0	-52,856	0.0	-52,856	0.0	-52,856	0.0							
16	67.3	54.4	0	13.8	-23,292	0.0	-23,292	0.0	-23,292	0.0	-23,292	0.0	-23,292	0.0							
17	67.8	54.6	0	15.8	-5,239	0.0	-5,239	0.0	-5,239	0.0	-5,239	0.0	-5,239	0.0							
18	67.4	54.8	0	15.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0							
19	66.4	55.2	0	13.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0							
20	64.7	56.0	0	10.8	-13,388	0.0	-13,388	0.0	-13,388	0.0	-13,388	0.0	-13,388	0.0							
21	62.5	56.0	0	7.1	-33,809	0.0	-33,809	0.0	-33,809	0.0	-33,809	0.0	-33,809	0.0							
22	60.0	54.1	-13,222	4.0	-53,816	0.0	-53,816	0.0	-53,816	0.0	-53,816	0.0	-53,816	0.0							
23	57.1	51.9	-44,385	2.7	-79,778	0.0	-79,778	0.0	-79,778	0.0	-79,778	0.0	-79,778	0.0							
24	54.2	49.4	-69,196	1.7	-106,605	0.0	-106,605	0.0	-106,605	0.0	-106,605	0.0	-106,605	0.0							

April		----- Design -----				----- Weekday -----				----- Saturday-----				----- Sunday -----				----- Monday -----			
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton					
1	61.0	56.5	0	1.1	-59,203	0.8	-59,203	0.8	-59,203	0.8	-59,203	0.8	-59,203	0.8							
2	58.9	54.9	-34,571	3.0	-76,382	0.0	-76,382	0.0	-76,382	0.0	-76,382	0.0	-76,382	0.0							
3	57.0	53.5	-24,787	1.9	-7,775	0.0	-7,775	0.0	-7,775	0.0	-7,775	0.0	-7,775	0.0							
4	55.4	52.4	-44,512	1.0	-91,609	0.0	-91,609	0.0	-91,609	0.0	-91,609	0.0	-91,609	0.0							
5	54.2	51.4	-57,216	0.0	-110,790	0.0	-110,790	0.0	-110,790	0.0	-110,790	0.0	-110,790	0.0							
6	53.5	50.9	-9,874	0.0	-122,345	0.0	-122,345	0.0	-122,345	0.0	-122,345	0.0	-122,345	0.0							
7	53.2	51.1	0	0.0	-155,751	0.0	-155,751	0.0	-155,751	0.0	-155,751	0.0	-155,751	0.0							
8	53.9	51.5	-18,493	0.0	-171,650	0.0	-171,650	0.0	-171,650	0.0	-171,650	0.0	-171,650	0.0							
9	55.9	52.1	0	0.0	-159,866	0.0	-159,866	0.0	-159,866	0.0	-159,866	0.0	-159,866	0.0							
10	58.9	53.2	0	0.0	-130,419	0.0	-130,419	0.0	-130,419	0.0	-130,419	0.0	-130,419	0.0							
11	62.6	55.2	0	0.0	-88,988	0.0	-88,988	0.0	-88,988	0.0	-88,988	0.0	-88,988	0.0							
12	66.5	57.3	0	7.2	-40,721	0.0	-40,721	0.0	-40,721	0.0	-40,721	0.0	-40,721	0.0							
13	70.2	59.6	0	14.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0							
14	73.2	61.0	0	19.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0							
15	75.2	62.2	0	23.7	0	0.4	0	0.4	0	0.4	0	0.4	0	0.4							
16	75.9	62.2	0	26.9	0	6.3	0	6.3	0	6.3	0	6.3	0	6.3							
17	75.6	62.0	0	28.5	0	9.9	0	9.9	0	9.9	0	9.9	0	9.9							
18	74.9	61.7	0	28.8	0	10.7	0	10.7	0	10.7	0	10.7	0	10.7							
19	73.7	62.0	0	27.1	0	10.1	0	10.2	0	10.2	0	10.2	0	10.2							
20	72.1	62.4	0	23.9	0	9.0	0	9.0	0	9.0	0	9.0	0	9.0							
21	70.2	63.3	0	20.3	0	6.8	0	6.8	0	6.8	0	6.8	0	6.8							
22	68.0	62.5	0	15.8	0	4.3	0	4.3	0	4.3	0	4.3	0	4.3							
23	65.7	60.5	0	12.0	-9,735	2.4	-9,735	2.4	-9,735	2.4	-9,735	2.4	-9,735	2.4							
24	63.4	58.5	0	8.9	-35,749	1.5	-35,749	1.5	-35,749	1.5	-35,749	1.5	-35,749	1.5							

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 HZ SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	62.7	63.5	0	15.8	-22,585	2.4	-22,585	2.4	-22,585	2.4	-22,585	2.4
2	61.4	61.5	0	12.4	-45,282	1.4	-45,282	1.4	-45,282	1.4	-45,282	1.4
3	60.4	59.7	0	9.5	-61,733	0.6	-61,733	0.6	-61,733	0.6	-61,733	0.6
4	59.7	58.4	0	6.8	-11,849	0.0	-11,849	0.0	-11,849	0.0	-11,849	0.0
5	59.4	57.1	0	4.7	-35,610	0.0	-35,610	0.0	-35,610	0.0	-35,610	0.0
6	59.9	56.5	0	2.9	-70,869	0.0	-70,869	0.0	-70,869	0.0	-70,869	0.0
7	61.2	56.5	0	2.9	-67,523	0.0	-67,523	0.0	-67,523	0.0	-67,523	0.0
8	63.5	56.3	0	3.6	-56,843	0.0	-56,843	0.0	-56,843	0.0	-56,843	0.0
9	66.8	56.3	0	5.9	-35,270	0.0	-35,270	0.0	-35,270	0.0	-35,270	0.0
10	70.6	57.2	0	9.9	-8,028	0.0	-8,028	0.0	-8,028	0.0	-8,028	0.0
11	75.0	58.9	0	14.8	0	0.0	0	0.0	0	0.0	0	0.0
12	79.0	60.9	0	20.1	0	1.3	0	1.3	0	1.3	0	1.3
13	82.1	63.7	0	25.5	0	7.4	0	7.4	0	7.4	0	7.4
14	84.1	65.3	0	30.6	0	12.0	0	12.0	0	12.0	0	12.0
15	84.9	66.9	0	35.5	0	17.7	0	17.7	0	17.7	0	17.7
16	84.1	67.1	0	38.3	0	19.8	0	19.8	0	19.8	0	19.8
17	82.3	67.3	0	40.4	0	20.5	0	20.5	0	20.5	0	20.5
18	79.5	67.1	0	40.2	0	20.2	0	20.2	0	20.2	0	20.2
19	76.2	67.5	0	38.5	0	19.0	0	19.0	0	19.0	0	19.0
20	72.9	68.9	0	35.5	0	16.2	0	16.2	0	16.2	0	16.2
21	70.1	71.0	0	31.8	0	13.2	0	13.2	0	13.2	0	13.2
22	67.6	69.9	0	27.4	0	9.8	0	9.8	0	9.8	0	9.8
23	65.5	68.0	0	23.0	0	6.4	0	6.4	0	6.4	0	6.4
24	64.0	65.5	0	19.3	0	3.4	0	3.4	0	3.4	0	3.4

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	71.4	70.1	0	27.1	0	11.0	0	11.8	0	11.8	0	11.8
2	70.3	68.4	0	24.8	0	8.2	0	8.1	0	8.1	0	8.1
3	69.4	67.3	0	21.2	0	5.8	0	5.9	0	5.9	0	5.9
4	68.7	66.5	0	18.3	0	2.9	0	3.0	0	3.0	0	3.0
5	68.5	65.8	0	15.4	-1,090	1.6	-1,090	1.6	-1,090	1.6	-1,090	1.6
6	68.9	65.7	0	13.8	-9,631	0.8	-9,631	0.8	-9,631	0.8	-9,631	0.8
7	70.0	66.3	0	14.0	-7,461	0.4	-7,461	0.4	-7,461	0.4	-7,461	0.4
8	72.0	66.9	0	15.7	0	0.5	0	0.6	0	0.6	0	0.6
9	74.9	67.7	0	18.0	0	2.6	0	2.6	0	2.6	0	2.6
10	78.2	68.1	0	22.0	0	7.1	0	7.1	0	7.1	0	7.1
11	81.9	69.1	0	26.9	0	12.0	0	12.0	0	12.0	0	12.0
12	85.4	70.1	0	33.6	0	17.2	0	17.3	0	17.3	0	17.3
13	88.1	71.0	0	39.4	0	21.6	0	21.8	0	21.8	0	21.8
14	89.8	72.5	0	45.2	0	27.9	0	28.0	0	28.0	0	28.0
15	90.5	74.0	0	50.4	0	33.2	0	33.2	0	33.2	0	33.2
16	89.8	73.7	0	54.2	0	33.5	0	33.5	0	33.5	0	33.5
17	88.3	74.2	0	56.0	0	35.1	0	35.1	0	35.1	0	35.1
18	85.9	73.9	0	56.0	0	33.9	0	33.9	0	33.9	0	33.9
19	83.0	74.5	0	53.8	0	31.2	0	31.2	0	31.2	0	31.2
20	80.2	75.3	0	50.8	0	28.6	0	28.6	0	28.6	0	28.6
21	77.7	76.5	0	47.5	0	27.0	0	27.0	0	27.0	0	27.0
22	75.5	75.7	0	42.5	0	23.5	0	23.5	0	23.5	0	23.5
23	73.8	74.0	0	37.9	0	19.1	0	19.1	0	19.1	0	19.1
24	72.5	72.1	0	33.2	0	15.2	0	15.2	0	15.2	0	15.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

July Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	71.9	70.5	0	28.5	0	10.1	0	11.1	0	11.1	0	11.1
2	71.1	69.4	0	23.8	0	8.4	0	8.2	0	8.2	0	8.2
3	70.5	68.4	0	20.9	0	5.1	0	5.2	0	5.2	0	5.2
4	70.1	67.7	0	18.6	0	3.5	0	3.6	0	3.6	0	3.6
5	69.9	67.4	0	16.5	0	1.4	0	1.4	0	1.4	0	1.4
6	70.2	67.5	0	14.4	-5,887	0.9	-5,887	0.9	-5,887	0.9	-5,887	0.9
7	71.0	68.0	0	14.9	-6,472	0.4	-6,472	0.5	-6,472	0.5	-6,472	0.5
8	72.3	69.0	0	15.9	-109	0.0	-109	0.0	-109	0.0	-109	0.0
9	74.3	69.5	0	17.9	0	3.3	0	3.3	0	3.3	0	3.3
10	76.6	70.6	0	21.0	0	6.8	0	6.8	0	6.8	0	6.8
11	79.2	71.8	0	26.3	0	11.2	0	11.3	0	11.3	0	11.3
12	81.7	73.0	0	33.0	0	17.1	0	17.3	0	17.3	0	17.3
13	83.5	74.4	0	38.8	0	21.6	0	21.6	0	21.6	0	21.6
14	84.7	74.8	0	44.6	0	26.4	0	26.4	0	26.4	0	26.4
15	85.2	75.0	0	48.9	0	30.7	0	30.7	0	30.7	0	30.7
16	84.7	75.0	0	52.7	0	32.5	0	32.5	0	32.5	0	32.5
17	83.7	74.7	0	55.3	0	32.9	0	32.9	0	32.9	0	32.9
18	82.0	74.6	0	54.0	0	32.8	0	32.8	0	32.8	0	32.8
19	80.0	74.6	0	52.6	0	31.9	0	31.9	0	31.9	0	31.9
20	78.0	74.4	0	49.6	0	29.4	0	29.4	0	29.4	0	29.4
21	76.3	74.9	0	45.9	0	26.4	0	26.4	0	26.4	0	26.4
22	74.8	74.0	0	40.7	0	21.5	0	21.5	0	21.5	0	21.5
23	73.6	72.7	0	36.8	0	17.0	0	17.0	0	17.0	0	17.0
24	72.7	71.6	0	32.5	0	14.0	0	14.0	0	14.0	0	14.0

August Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	71.1	72.0	0	27.3	0	9.2	0	9.9	0	9.9	0	9.9
2	70.1	70.3	0	21.7	0	6.7	0	6.6	0	6.6	0	6.6
3	69.4	68.9	0	19.2	0	4.1	0	4.1	0	4.1	0	4.1
4	68.9	67.8	0	16.5	0	1.6	0	1.7	0	1.7	0	1.7
5	68.7	66.8	0	13.8	-8,109	1.1	-8,109	1.1	-8,109	1.1	-8,109	1.1
6	69.1	66.4	0	12.5	-14,209	0.6	-14,209	0.6	-14,209	0.6	-14,209	0.6
7	70.0	66.4	0	12.1	-18,570	0.0	-18,570	0.0	-18,570	0.0	-18,570	0.0
8	71.6	66.8	0	13.3	-10,636	0.0	-10,636	0.0	-10,636	0.0	-10,636	0.0
9	73.9	67.7	0	16.0	0	1.4	0	1.4	0	1.4	0	1.4
10	76.7	67.7	0	19.2	0	4.8	0	4.8	0	4.8	0	4.8
11	79.7	68.8	0	24.2	0	9.3	0	9.4	0	9.4	0	9.4
12	82.6	70.3	0	29.9	0	15.3	0	15.4	0	15.4	0	15.4
13	84.8	72.2	0	37.3	0	21.6	0	21.7	0	21.7	0	21.7
14	86.3	73.7	0	43.4	0	26.2	0	26.2	0	26.2	0	26.2
15	86.8	74.6	0	48.1	0	31.0	0	31.0	0	31.0	0	31.0
16	86.3	75.1	0	52.1	0	33.3	0	33.3	0	33.3	0	33.3
17	85.0	75.1	0	52.7	0	33.6	0	33.6	0	33.6	0	33.6
18	83.0	75.3	0	52.6	0	33.9	0	33.9	0	33.9	0	33.9
19	80.6	76.0	0	51.2	0	31.3	0	31.3	0	31.3	0	31.3
20	78.3	76.8	0	47.7	0	28.4	0	28.4	0	28.4	0	28.4
21	76.3	77.2	0	45.2	0	25.9	0	25.9	0	25.9	0	25.9
22	74.5	76.3	0	39.0	0	22.1	0	22.1	0	22.1	0	22.1
23	73.0	75.3	0	34.3	0	16.9	0	16.9	0	16.9	0	16.9
24	72.0	73.7	0	31.1	0	13.8	0	13.8	0	13.8	0	13.8





BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-90,938	0.0	-142,537	0.0	-175,405	0.0	-175,405	0.0	-175,405	0.0
2	49.4 47.3	-111,852	0.0	-172,252	0.0	-206,506	0.0	-206,506	0.0	-206,506	0.0
3	47.2 45.3	-140,266	0.0	-232,561	0.0	-232,561	0.0	-232,561	0.0	-232,561	0.0
4	45.3 43.4	-180,934	0.0	-257,946	0.0	-257,946	0.0	-257,946	0.0	-257,946	0.0
5	43.9 42.2	-197,000	0.0	-281,740	0.0	-281,740	0.0	-281,740	0.0	-281,740	0.0
6	43.0 41.4	-208,324	0.0	-301,561	0.0	-301,561	0.0	-301,561	0.0	-301,561	0.0
7	42.7 41.2	-214,501	0.0	-319,713	0.0	-319,713	0.0	-319,713	0.0	-319,713	0.0
8	43.5 42.0	-210,868	0.0	-328,562	0.0	-328,562	0.0	-328,562	0.0	-328,562	0.0
9	45.9 44.0	-187,322	0.0	-324,744	0.0	-324,744	0.0	-324,744	0.0	-324,744	0.0
10	49.4 46.6	-148,268	0.0	-300,872	0.0	-300,872	0.0	-300,872	0.0	-300,872	0.0
11	53.8 48.6	-100,838	0.0	-269,219	0.0	-269,219	0.0	-269,219	0.0	-269,219	0.0
12	58.4 50.6	-46,817	0.0	-222,033	0.0	-222,033	0.0	-222,033	0.0	-222,033	0.0
13	62.8 52.6	-7,304	0.0	-172,145	0.0	-172,145	0.0	-172,145	0.0	-172,145	0.0
14	66.3 54.5	0	0.0	-118,424	0.0	-118,424	0.0	-118,424	0.0	-118,424	0.0
15	68.7 55.7	0	2.5	-75,784	0.0	-75,784	0.0	-75,784	0.0	-75,784	0.0
16	69.5 56.1	0	5.4	-44,289	0.0	-44,289	0.0	-44,289	0.0	-44,289	0.0
17	69.2 55.8	0	9.4	-29,914	0.0	-29,914	0.0	-29,914	0.0	-29,914	0.0
18	68.3 57.0	0	8.4	-24,536	0.0	-24,536	0.0	-24,536	0.0	-24,536	0.0
19	66.9 59.4	0	5.9	-30,646	0.0	-30,646	0.0	-30,646	0.0	-30,646	0.0
20	65.0 59.4	-813	2.8	-47,553	0.0	-47,553	0.0	-47,553	0.0	-47,553	0.0
21	62.8 58.2	-29,101	1.9	-65,779	0.0	-65,779	0.0	-65,779	0.0	-65,779	0.0
22	60.2 56.1	-55,996	1.0	-89,348	0.0	-89,348	0.0	-89,348	0.0	-89,348	0.0
23	57.5 54.0	-76,376	0.0	-116,869	0.0	-116,869	0.0	-116,869	0.0	-116,869	0.0
24	54.7 51.7	-9,644	0.0	-146,365	0.0	-146,365	0.0	-146,365	0.0	-146,365	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-186,434	0.0	-283,980	0.0	-283,980	0.0	-283,980	0.0	-283,980	0.0
2	43.2 41.1	-207,869	0.0	-308,090	0.0	-308,090	0.0	-308,090	0.0	-308,090	0.0
3	41.8 39.8	-229,685	0.0	-329,936	0.0	-329,936	0.0	-329,936	0.0	-329,936	0.0
4	40.7 38.7	-247,642	0.0	-346,906	0.0	-346,906	0.0	-346,906	0.0	-346,906	0.0
5	40.1 38.4	-264,506	0.0	-364,012	0.0	-364,012	0.0	-364,012	0.0	-364,012	0.0
6	39.9 38.4	-278,146	0.0	-379,110	0.0	-379,110	0.0	-379,110	0.0	-379,110	0.0
7	40.5 39.0	-280,893	0.0	-390,810	0.0	-390,810	0.0	-390,810	0.0	-390,810	0.0
8	42.2 40.7	-280,474	0.0	-390,250	0.0	-390,250	0.0	-390,250	0.0	-390,250	0.0
9	44.9 43.4	-265,946	0.0	-376,666	0.0	-376,666	0.0	-376,666	0.0	-376,666	0.0
10	48.2 45.8	-237,647	0.0	-356,126	0.0	-356,126	0.0	-356,126	0.0	-356,126	0.0
11	51.7 48.3	-196,206	0.0	-327,873	0.0	-327,873	0.0	-327,873	0.0	-327,873	0.0
12	55.0 50.7	-149,112	0.0	-286,446	0.0	-286,446	0.0	-286,446	0.0	-286,446	0.0
13	57.7 52.0	-104,499	0.0	-250,966	0.0	-250,966	0.0	-250,966	0.0	-250,966	0.0
14	59.5 52.6	-55,329	0.0	-207,617	0.0	-207,617	0.0	-207,617	0.0	-207,617	0.0
15	60.1 52.7	-15,713	0.0	-176,217	0.0	-176,217	0.0	-176,217	0.0	-176,217	0.0
16	59.9 52.6	0	0.0	-155,649	0.0	-155,649	0.0	-155,649	0.0	-155,649	0.0
17	59.2 52.1	0	0.0	-138,131	0.0	-138,131	0.0	-138,131	0.0	-138,131	0.0
18	58.2 51.8	0	0.0	-137,475	0.0	-137,475	0.0	-137,475	0.0	-137,475	0.0
19	56.8 52.2	-25,660	0.0	-145,619	0.0	-145,619	0.0	-145,619	0.0	-145,619	0.0
20	55.0 51.4	-49,650	0.0	-161,735	0.0	-161,735	0.0	-161,735	0.0	-161,735	0.0
21	53.1 50.1	-71,697	0.0	-186,382	0.0	-186,382	0.0	-186,382	0.0	-186,382	0.0
22	51.0 48.1	-97,056	0.0	-204,835	0.0	-204,835	0.0	-204,835	0.0	-204,835	0.0
23	48.9 46.2	-114,756	0.0	-231,100	0.0	-231,100	0.0	-231,100	0.0	-231,100	0.0
24	46.9 44.1	-135,202	0.0	-258,564	0.0	-258,564	0.0	-258,564	0.0	-258,564	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY OF HEATING PLANT  
 Location: CHAPEL-FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29608 (2 BUILDINGS)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA	.9	.9	95	76	23	0	.2	.2

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR						OCT

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TAI	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	CHAPEL_OFFS

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	CHAPEL	102.75	46.25	2	0		24			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	1	CHAPEL	129	37	2	0		9.75			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design	Room DB RH	Cooling T'stat Driftpoint	Room T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs	Carpet On
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	NO	102.75	48		17			
2	1	YES				17			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	46.25	24.75		196	0			
1	2	102.75	24.75		196	90			
1	3	46.25	24.75		196	180			
1	4	65.75	24.75		196	270			
2	1	57.25	13.5		196	0			
2	2	37	13.5		196	180			
2	3	57.25	13.5		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	15.3	10	1	1.03	.82					
1	2	2.5	1.5	56	1.03	.82					
1	4	2.5	1.5	28	1.03	.82					
2	1	2.5	1.5	18	1.03	.82					
2	2	2.5	1.5	15	1.03	.82					
2	3	2.5	1.5	12	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	300	PEOPLE	255	325	1.2	WATT-SF	ASHRAE2				
2	10	PEOPLE	255	325	1.4	WATT-SF	ASHRAE2				

## -----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
2	1	MISS.	17	KW	FGHEAT						

## -----CARD 29-- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						
2	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 32-- System Alternative -----

Number	Description
1	MZ SYSTEMS

```

-----CARD 40--- System Type -----
-----OPTIONAL VENTILATION SYSTEM-----
System      Ventil      Fan
Set         System    Deck      Cooling Heating Cooling Heating Static
Number     Type      Location  SADBvh   SADBvh   Schedule Schedule Pressure
1          FC

```

```

-----CARD 41-- Zone Assignment -----
System
Set         Ref #1      Ref #2      Ref #3      Ref #4      Ref #5      Ref #6
Number     Begin  End  Begin  End  Begin  End  Begin  End  Begin  End
1          1      1

```

```

-----CARD 42--- Fan SP and Duct Parameters-----
System Cool Heat Return Mn Exh Aux Rm Exh Cool Return Supply Supply Return
Set     Fan Fan Fan Fan Fan Fan Fan Mtr Fan Mtr Duct Duct Air
Number SP SP SP SP SP SP SP Loc Loc Ht Gn Loc Path
1

```

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	



Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

ACADEMIC TRAINING BUILDING  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 24801 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 15: 3:45 8/15/94  
Dataset Name: FGTYPES13 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==)		Mo/Hr: 8/16		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1				
Outside Air ==)		OADB/WB/HR: 96/ 76/105.0		*	OADB: 96		*	OADB: 23				
	Space	Ret. Air	Ret. Air	Net	Percnt	*	Space	Percnt	*	Space Peak	Coil Peak	Percnt
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	242,315	0		242,315	12.50	*	308,976	22.47	*	-218,959	-218,959	10.82
Glass Solar	97,920	0		97,920	5.05	*	89,216	6.49	*	0	0	0.00
Glass Cond	43,705	0		43,705	2.25	*	46,170	3.36	*	-110,271	-110,271	5.45
Wall Cond	824,524	0		824,524	42.52	*	867,704	63.10	*	-925,277	-925,277	45.72
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	135,378			135,378	6.98	*	62,967	4.58	*	-170,282	-170,282	8.41
Sub Total==)	1,343,842	0		1,343,842	69.30	*	1,375,033	100.00	*	-1,424,789	-1,424,789	70.40
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	595,361	30.70	*	0	0.00	*	0	-599,092	29.60
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
Grand Total==)	1,343,842	0	0	1,939,203	100.00	*	1,375,033	100.00	*	-1,424,789	-2,023,881	100.00

-----COOLING COIL SELECTION-----

	Total Capacity			Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total		Glass (sf) (%)
	(Tons)	(Mbh)	(Mbh)		Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	81,096	
Main Clg	161.6	1,939.2	1,553.2	81,096	78.1	65.2	73.0	59.7	57.6	68.1	Part	0	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	40,548	
Totals	161.6	1,939.2									Wall	34,108	

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity		Coil Airfl	Ent	Lvg	Type	Cooling		Heating		ENGINEERING CHECKS--		TEMPERATURES (F)---		
	(Mbh)	(Mbh)					Deg F	Deg F	Vent	12,000	12,000	Clg % OA	14.8	Type	Clg
Main Htg	-2,023.9		81,096	61.3	83.8	Infil	2,729	3,411	Clg Cfm/Sqft	1.00	SADB	59.7	83.8		
Aux Htg	0.0		0	0.0	0.0	Supply	81,096	81,096	Clg Cfm/Ton	501.83	Plenum	75.0	68.0		
Preheat	-0.0		81,096	61.3	59.7	Mincfm	0	0	Clg Sqft/Ton	501.83	Return	75.0	68.0		
Reheat	0.0		0	0.0	0.0	Return	81,096	81,096	Clg Btuh/Sqft	23.91	Ret/OA	78.1	61.3		
Humidif	0.0		0	0.0	0.0	Exhaust	12,000	12,000	No. People	800	Runarnd	75.0	68.0		
Opt Vent	0.0		0	0.0	0.0	Rm Exh	0	0	Htg % OA	14.8	Fn MtrTD	0.0	0.0		
Total	-2,023.9					Auxil	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0		
									Htg Btuh/Sqft	-24.96	Fn Frict	0.0	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-1,015,271	0.0	-1,292,743	0.0	-1,290,946	0.0	-1,290,940	0.0	-1,290,940	0.0
2	32.9	30.7	-1,032,491	0.0	-1,319,111	0.0	-1,317,704	0.0	-1,317,701	0.0	-1,317,701	0.0
3	33.1	31.3	-1,052,573	0.0	-1,320,460	0.0	-1,319,361	0.0	-1,319,357	0.0	-1,319,357	0.0
4	33.9	32.1	-1,067,349	0.0	-1,300,689	0.0	-1,299,829	0.0	-1,299,828	0.0	-1,299,828	0.0
5	35.2	33.5	-1,074,474	0.0	-1,264,005	0.0	-1,263,333	0.0	-1,263,332	0.0	-1,263,332	0.0
6	37.0	35.4	-1,052,236	0.0	-1,210,328	0.0	-1,209,801	0.0	-1,209,800	0.0	-1,209,800	0.0
7	39.0	37.6	-1,010,855	0.0	-1,151,037	0.0	-1,150,626	0.0	-1,150,625	0.0	-1,150,625	0.0
8	41.3	40.1	-940,714	0.0	-1,079,967	0.0	-1,079,646	0.0	-1,079,645	0.0	-1,079,645	0.0
9	43.7	42.5	-832,184	0.0	-1,002,412	0.0	-1,002,161	0.0	-1,002,159	0.0	-1,002,159	0.0
10	46.1	44.0	-694,754	0.0	-916,039	0.0	-915,843	0.0	-915,843	0.0	-915,843	0.0
11	48.4	45.0	-525,428	0.0	-819,974	0.0	-819,819	0.0	-819,819	0.0	-819,819	0.0
12	50.5	45.6	-351,102	0.0	-720,279	0.0	-720,159	0.0	-720,159	0.0	-720,159	0.0
13	52.2	46.1	-208,506	0.0	-630,021	0.0	-629,927	0.0	-629,927	0.0	-629,927	0.0
14	53.5	46.4	-98,788	0.0	-552,246	0.0	-552,174	0.0	-552,174	0.0	-552,174	0.0
15	54.3	46.3	-30,547	0.0	-493,983	0.0	-493,926	0.0	-493,926	0.0	-493,926	0.0
16	54.6	46.1	-11,226	0.0	-456,040	0.0	-455,994	0.0	-455,994	0.0	-455,994	0.0
17	54.0	45.9	-31,057	0.0	-456,737	0.0	-456,702	0.0	-456,702	0.0	-456,702	0.0
18	52.5	45.0	-96,954	0.0	-498,481	0.0	-498,454	0.0	-498,454	0.0	-498,454	0.0
19	50.1	44.8	-196,141	0.0	-586,239	0.0	-586,216	0.0	-586,216	0.0	-586,216	0.0
20	47.1	43.3	-298,933	4.3	-708,187	0.0	-708,171	0.0	-708,171	0.0	-708,171	0.0
21	43.7	40.4	-418,384	3.0	-852,203	0.0	-852,189	0.0	-852,189	0.0	-852,189	0.0
22	40.4	37.3	-547,268	0.0	-992,768	0.0	-992,758	0.0	-992,758	0.0	-992,758	0.0
23	37.3	34.9	-635,348	0.0	-1,123,824	0.0	-1,123,816	0.0	-1,123,816	0.0	-1,123,816	0.0
24	34.9	32.6	-711,160	0.0	-1,225,036	0.0	-1,225,028	0.0	-1,225,028	0.0	-1,225,028	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-736,317	0.0	-908,607	0.0	-989,962	0.0	-990,180	0.0	-990,180	0.0
2	39.7	37.1	-799,247	0.0	-1,014,999	0.0	-1,078,608	0.0	-1,078,778	0.0	-1,078,778	0.0
3	37.8	35.1	-854,995	0.0	-1,112,999	0.0	-1,162,734	0.0	-1,162,868	0.0	-1,162,868	0.0
4	36.3	33.8	-901,591	0.0	-1,190,720	0.0	-1,229,612	0.0	-1,229,715	0.0	-1,229,715	0.0
5	35.1	32.6	-929,519	0.0	-1,254,966	0.0	-1,285,379	0.0	-1,285,460	0.0	-1,285,460	0.0
6	34.4	32.0	-931,834	0.0	-1,296,902	0.0	-1,320,682	0.0	-1,320,746	0.0	-1,320,746	0.0
7	34.1	31.9	-910,177	0.0	-1,322,442	0.0	-1,341,037	0.0	-1,341,087	0.0	-1,341,087	0.0
8	34.6	32.4	-855,313	0.0	-1,314,038	0.0	-1,328,580	0.0	-1,328,620	0.0	-1,328,620	0.0
9	36.0	33.8	-765,822	0.0	-1,264,403	0.0	-1,275,775	0.0	-1,275,805	0.0	-1,275,805	0.0
10	38.2	34.7	-641,906	0.0	-1,175,130	0.0	-1,184,019	0.0	-1,184,043	0.0	-1,184,043	0.0
11	40.9	36.2	-489,182	0.0	-1,058,193	0.0	-1,065,135	0.0	-1,065,155	0.0	-1,065,155	0.0
12	43.9	37.4	-333,386	0.0	-924,373	0.0	-929,791	0.0	-929,806	0.0	-929,806	0.0
13	46.9	39.4	-200,606	0.0	-788,453	0.0	-792,680	0.0	-792,691	0.0	-792,691	0.0
14	49.7	41.4	-101,213	0.0	-660,497	0.0	-663,795	0.0	-663,804	0.0	-663,804	0.0
15	51.8	42.8	-36,221	0.0	-563,109	0.0	-565,681	0.0	-565,689	0.0	-565,689	0.0
16	53.2	43.9	-18,744	0.0	-494,371	0.0	-496,377	0.0	-496,383	0.0	-496,383	0.0
17	53.7	44.2	-29,104	0.0	-461,562	0.0	-463,126	0.0	-463,131	0.0	-463,131	0.0
18	53.4	44.4	-83,328	0.0	-462,847	0.0	-464,067	0.0	-464,072	0.0	-464,072	0.0
19	52.7	44.4	-162,266	0.0	-486,321	0.0	-487,273	0.0	-487,276	0.0	-487,276	0.0
20	51.5	45.2	-263,403	0.0	-539,674	0.0	-540,418	0.0	-540,421	0.0	-540,421	0.0
21	50.0	44.6	-344,160	5.1	-610,331	0.0	-610,912	0.0	-610,914	0.0	-610,914	0.0
22	48.1	43.3	-421,232	9.7	-699,094	0.0	-699,549	0.0	-699,551	0.0	-699,551	0.0
23	46.1	41.8	-588,740	0.0	-791,603	0.0	-791,958	0.0	-791,959	0.0	-791,959	0.0
24	43.9	40.1	-655,329	0.0	-891,561	0.0	-891,839	0.0	-891,839	0.0	-891,839	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 HZ SYSTEMS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-340,496	0.0	-333,525	3.4	-523,109	0.0	-524,142	0.0	-524,151	0.0
2	48.7	44.6	-392,065	0.0	-443,624	10.6	-640,840	0.0	-641,648	0.0	-641,655	0.0
3	46.6	42.9	-436,183	0.0	-656,368	0.0	-733,986	0.0	-734,618	0.0	-734,623	0.0
4	44.9	41.4	-480,866	0.0	-750,199	0.0	-810,889	0.0	-811,383	0.0	-811,387	0.0
5	43.9	40.8	-501,861	0.0	-813,063	0.0	-860,524	0.0	-860,910	0.0	-860,914	0.0
6	43.5	40.8	-494,792	0.0	-850,217	0.0	-887,333	0.0	-887,635	0.0	-887,638	0.0
7	44.0	41.4	-461,251	0.0	-849,355	0.0	-878,386	0.0	-878,622	0.0	-878,624	0.0
8	45.4	42.7	-385,313	0.0	-809,959	0.0	-832,668	0.0	-832,852	0.0	-832,854	0.0
9	47.7	44.3	-264,736	0.0	-728,173	0.0	-745,932	0.0	-746,076	0.0	-746,077	0.0
10	50.6	45.8	-107,397	0.0	-613,805	0.0	-627,687	0.0	-627,800	0.0	-627,801	0.0
11	53.9	47.4	0	0.0	-475,613	0.0	-486,459	0.0	-486,546	0.0	-486,548	0.0
12	57.4	49.0	0	0.0	-323,936	0.0	-332,406	0.0	-332,474	0.0	-332,476	0.0
13	60.7	50.8	0	0.0	-179,305	0.0	-185,916	0.0	-185,971	0.0	-185,971	0.0
14	63.6	52.7	0	5.5	-50,860	0.0	-56,020	0.0	-56,060	0.0	-56,060	0.0
15	65.9	53.7	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	59.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	54.2	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	41.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	21.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	0.0	-111,754	0.0	-113,921	0.0	-113,939	0.0	-113,939	0.0
23	57.1	51.9	0	0.0	-252,996	0.0	-254,689	0.0	-254,704	0.0	-254,704	0.0
24	54.2	49.4	-22,285	0.0	-389,826	0.0	-391,149	0.0	-391,161	0.0	-391,161	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	-84,624	0.0	-116,881	0.0	-116,881	0.0	-116,881	0.0
4	55.4	52.4	0	0.0	-203,217	0.0	-228,368	0.0	-228,368	0.0	-228,368	0.0
5	54.2	51.4	-28,568	0.0	-296,223	0.0	-316,104	0.0	-316,104	0.0	-316,104	0.0
6	53.5	50.9	-29,248	0.0	-361,974	0.0	-377,657	0.0	-377,657	0.0	-377,657	0.0
7	53.2	51.1	0	0.0	-406,500	0.0	-418,777	0.0	-418,777	0.0	-418,777	0.0
8	53.9	51.5	0	0.0	-401,294	0.0	-410,904	0.0	-410,904	0.0	-410,904	0.0
9	55.9	52.1	0	0.0	-331,576	0.0	-339,095	0.0	-339,095	0.0	-339,095	0.0
10	58.9	53.2	0	0.0	-212,080	0.0	-217,959	0.0	-217,959	0.0	-217,959	0.0
11	62.6	55.2	0	0.0	-57,699	0.0	-62,295	0.0	-62,295	0.0	-62,295	0.0
12	66.5	57.3	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	20.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	81.0	0	3.9	0	4.0	0	4.0	0	4.0
16	75.9	62.2	0	85.2	0	3.9	0	4.0	0	4.0	0	4.0
17	75.6	62.0	0	87.6	0	2.7	0	2.8	0	2.8	0	2.8
18	74.9	61.7	0	82.7	0	1.0	0	1.0	0	1.0	0	1.0
19	73.7	62.0	0	71.2	0	11.7	0	10.4	0	10.4	0	10.4
20	72.1	62.4	0	56.9	0	20.1	0	20.1	0	20.1	0	20.1
21	70.2	63.3	0	39.5	0	13.0	0	13.0	0	13.0	0	13.0
22	68.0	62.5	0	25.6	0	1.5	0	1.5	0	1.5	0	1.5
23	65.7	60.5	0	12.9	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	2.9	0	3.6	0	3.6	0	3.6
2	65.7	61.5	0	16.3	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	-50,313	0.0	-50,313	0.0	-50,313	0.0	-50,313	0.0
8	60.1	56.3	0	0.0	-58,404	0.0	-58,404	0.0	-58,404	0.0	-58,404	0.0
9	62.4	56.3	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	35.3	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	53.6	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	69.7	0	2.8	0	2.8	0	2.8	0	2.8
13	78.5	63.7	0	86.7	0	6.9	0	6.9	0	6.9	0	6.9
14	81.9	65.3	0	98.4	0	10.3	0	10.3	0	10.3	0	10.3
15	84.1	66.9	0	109.9	0	12.3	0	12.3	0	12.3	0	12.3
16	84.9	67.1	0	116.3	0	45.4	0	45.4	0	45.4	0	45.4
17	84.6	67.3	0	116.6	0	66.1	0	66.1	0	66.1	0	66.1
18	83.8	67.1	0	111.9	0	71.4	0	71.4	0	71.4	0	71.4
19	82.4	67.5	0	104.3	0	69.4	0	69.4	0	69.4	0	69.4
20	80.6	68.9	0	90.4	0	64.8	0	64.8	0	64.8	0	64.8
21	78.5	71.0	0	76.6	0	60.0	0	60.0	0	60.0	0	60.0
22	76.1	69.9	0	61.8	0	47.8	0	47.8	0	47.8	0	47.8
23	73.4	68.0	0	48.2	0	31.3	0	31.3	0	31.3	0	31.3
24	70.8	65.5	0	34.3	0	18.5	0	18.5	0	18.5	0	18.5

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	71.7	0	38.5	0	43.9	0	43.9	0	43.9
2	72.6	68.4	0	56.5	0	26.3	0	27.2	0	27.2	0	27.2
3	70.9	67.3	0	48.5	0	15.7	0	15.9	0	15.9	0	15.9
4	69.6	66.5	0	43.2	0	4.8	0	4.9	0	4.9	0	4.9
5	68.7	65.8	0	36.3	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	33.2	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	37.1	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	50.6	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	68.0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	83.5	0	23.9	0	23.9	0	23.9	0	23.9
11	79.5	69.1	0	99.1	0	50.1	0	50.1	0	50.1	0	50.1
12	82.9	70.1	0	115.4	0	62.3	0	62.3	0	62.3	0	62.3
13	86.0	71.0	0	128.0	0	73.3	0	73.3	0	73.3	0	73.3
14	88.4	72.5	0	140.0	0	87.2	0	87.2	0	87.2	0	87.2
15	90.0	74.0	0	148.5	0	101.9	0	101.9	0	101.9	0	101.9
16	90.5	73.7	0	156.4	0	105.1	0	105.1	0	105.1	0	105.1
17	90.3	74.2	0	158.4	0	112.5	0	112.5	0	112.5	0	112.5
18	89.4	73.9	0	154.6	0	114.6	0	114.6	0	114.6	0	114.6
19	88.1	74.5	0	146.5	0	111.9	0	111.9	0	111.9	0	111.9
20	86.4	75.3	0	131.8	0	106.8	0	106.8	0	106.8	0	106.8
21	84.3	76.5	0	118.7	0	100.7	0	100.7	0	100.7	0	100.7
22	81.9	75.7	0	103.4	0	90.1	0	90.1	0	90.1	0	90.1
23	79.5	74.0	0	89.8	0	74.6	0	74.6	0	74.6	0	74.6
24	77.0	72.1	0	78.5	0	58.1	0	58.1	0	58.1	0	58.1



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	72.0	0	28.2	0	32.5	0	32.5	0	32.5
2	72.4	69.4	0	57.6	0	20.3	0	21.2	0	21.2	0	21.2
3	71.3	68.4	0	52.0	0	8.7	0	8.9	0	8.9	0	8.9
4	70.5	67.7	0	45.1	0	1.2	0	1.2	0	1.2	0	1.2
5	70.0	67.4	0	41.0	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	40.2	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	43.9	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	53.6	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	68.2	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	82.2	0	25.1	0	25.1	0	25.1	0	25.1
11	78.9	71.8	0	97.1	0	57.4	0	57.4	0	57.4	0	57.4
12	81.4	73.0	0	115.5	0	70.6	0	70.6	0	70.6	0	70.6
13	83.4	74.4	0	128.8	0	81.6	0	81.6	0	81.6	0	81.6
14	84.8	74.8	0	138.2	0	91.4	0	91.4	0	91.4	0	91.4
15	85.2	75.0	0	146.4	0	99.5	0	99.5	0	99.5	0	99.5
16	85.1	75.0	0	152.5	0	103.8	0	103.8	0	103.8	0	103.8
17	84.6	74.7	0	155.2	0	105.5	0	105.5	0	105.5	0	105.5
18	83.8	74.6	0	149.3	0	104.6	0	104.6	0	104.6	0	104.6
19	82.7	74.6	0	142.4	0	102.2	0	102.2	0	102.2	0	102.2
20	81.4	74.4	0	130.6	0	96.0	0	96.0	0	96.0	0	96.0
21	79.9	74.9	0	114.7	0	82.9	0	82.9	0	82.9	0	82.9
22	78.4	74.0	0	100.8	0	69.5	0	69.5	0	69.5	0	69.5
23	76.8	72.7	0	87.5	0	56.3	0	56.3	0	56.3	0	56.3
24	75.2	71.6	0	77.0	0	44.4	0	44.4	0	44.4	0	44.4

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	72.1	0	34.7	0	40.1	0	40.1	0	40.1
2	73.2	70.3	0	55.3	0	25.6	0	26.7	0	26.7	0	26.7
3	71.7	68.9	0	47.1	0	14.3	0	14.6	0	14.6	0	14.6
4	70.4	67.8	0	42.3	0	5.6	0	5.7	0	5.7	0	5.7
5	69.5	66.8	0	36.4	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	33.7	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	33.3	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	44.3	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	61.7	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	79.6	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	97.2	0	31.2	0	31.2	0	31.2	0	31.2
12	79.3	70.3	0	112.8	0	62.3	0	62.3	0	62.3	0	62.3
13	82.3	72.2	0	130.9	0	74.4	0	74.4	0	74.4	0	74.4
14	84.7	73.7	0	142.3	0	85.8	0	85.8	0	85.8	0	85.8
15	86.3	74.6	0	152.5	0	101.2	0	101.2	0	101.2	0	101.2
16	86.8	75.1	0	160.5	0	109.1	0	109.1	0	109.1	0	109.1
17	86.6	75.1	0	158.2	0	111.3	0	111.3	0	111.3	0	111.3
18	86.0	75.3	0	152.1	0	114.7	0	114.7	0	114.7	0	114.7
19	85.1	76.0	0	143.5	0	109.5	0	109.5	0	109.5	0	109.5
20	83.8	76.8	0	127.1	0	100.8	0	100.8	0	100.8	0	100.8
21	82.3	77.2	0	114.0	0	92.4	0	92.4	0	92.4	0	92.4
22	80.6	76.3	0	98.0	0	83.3	0	83.3	0	83.3	0	83.3
23	78.7	75.3	0	85.4	0	67.4	0	67.4	0	67.4	0	67.4
24	76.8	73.7	0	75.0	0	53.4	0	53.4	0	53.4	0	53.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	38.5	0	3.4	0	4.5	0	4.5	0	4.5
2	67.6	65.0	0	24.9	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	14.8	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	9.0	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	6.3	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	23.8	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	47.5	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	66.8	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	85.2	0	3.9	0	3.9	0	3.9	0	3.9
13	78.3	66.7	0	102.5	0	8.1	0	8.1	0	8.1	0	8.1
14	81.2	68.4	0	116.0	0	11.3	0	11.4	0	11.4	0	11.4
15	83.0	70.0	0	128.5	0	41.2	0	41.4	0	41.4	0	41.4
16	83.7	70.5	0	133.8	0	82.0	0	82.0	0	82.0	0	82.0
17	83.4	70.5	0	131.7	0	83.7	0	83.7	0	83.7	0	83.7
18	82.8	70.9	0	124.3	0	84.3	0	84.3	0	84.3	0	84.3
19	81.6	72.7	0	113.2	0	79.6	0	79.6	0	79.6	0	79.6
20	80.1	74.7	0	98.8	0	71.3	0	71.3	0	71.3	0	71.3
21	78.3	74.1	0	83.6	0	61.2	0	61.2	0	61.2	0	61.2
22	76.3	72.4	0	66.5	0	48.7	0	48.7	0	48.7	0	48.7
23	74.1	70.7	0	49.7	0	34.6	0	34.6	0	34.6	0	34.6
24	71.8	68.9	0	40.4	0	18.1	0	18.1	0	18.1	0	18.1

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-284,982	0.0	-430,914	0.0	-432,077	0.0	-432,091	0.0
2	50.1	48.6	-30,801	0.0	-390,168	7.2	-538,081	0.0	-538,991	0.0	-539,003	0.0
3	48.4	46.9	-138,341	0.0	-527,702	3.5	-624,569	0.0	-625,282	0.0	-625,291	0.0
4	47.1	45.8	-222,531	0.0	-644,220	0.0	-692,755	0.0	-693,314	0.0	-693,320	0.0
5	46.3	44.8	-281,841	0.0	-702,370	0.0	-740,365	0.0	-740,802	0.0	-740,808	0.0
6	46.0	44.5	-302,138	0.0	-737,737	0.0	-767,471	0.0	-767,814	0.0	-767,817	0.0
7	46.8	45.3	-283,991	0.0	-724,811	0.0	-748,077	0.0	-748,345	0.0	-748,348	0.0
8	48.9	47.5	-221,953	0.0	-656,800	0.0	-675,008	0.0	-675,217	0.0	-675,220	0.0
9	52.2	49.9	-107,083	0.0	-533,999	0.0	-548,246	0.0	-548,408	0.0	-548,410	0.0
10	56.2	52.5	0	0.0	-373,910	0.0	-385,051	0.0	-385,179	0.0	-385,180	0.0
11	60.4	54.4	0	0.0	-199,289	0.0	-207,998	0.0	-208,099	0.0	-208,100	0.0
12	64.4	56.0	0	0.0	-27,986	0.0	-34,789	0.0	-34,867	0.0	-34,869	0.0
13	67.7	57.3	0	6.5	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	7.4	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	63.7	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	69.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	58.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	40.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	22.5	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	6.8	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-35,218	0.0	-37,643	0.0	-37,671	0.0	-37,672	0.0
23	57.0	55.1	0	0.0	-179,291	0.0	-181,189	0.0	-181,212	0.0	-181,212	0.0
24	54.5	52.7	0	0.0	-311,987	0.0	-313,473	0.0	-313,490	0.0	-313,490	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MZ SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-277,649	0.0	-328,607	4.2	-505,013	0.0	-506,301	0.0	-506,314	0.0
2	49.4 47.3	-355,947	0.0	-474,252	4.8	-621,311	0.0	-622,319	0.0	-622,329	0.0
3	47.2 45.3	-424,711	0.0	-638,413	0.0	-719,073	0.0	-719,860	0.0	-719,869	0.0
4	45.3 43.4	-480,441	0.0	-741,276	0.0	-804,410	0.0	-805,028	0.0	-805,034	0.0
5	43.9 42.2	-515,546	0.0	-818,637	0.0	-868,053	0.0	-868,536	0.0	-868,542	0.0
6	43.0 41.4	-512,371	0.0	-873,251	0.0	-911,932	0.0	-912,310	0.0	-912,315	0.0
7	42.7 41.2	-479,313	0.0	-901,553	0.0	-931,830	0.0	-932,127	0.0	-932,130	0.0
8	43.5 42.0	-399,424	0.0	-882,753	0.0	-906,450	0.0	-906,682	0.0	-906,684	0.0
9	45.9 44.0	-269,284	0.0	-795,328	0.0	-813,874	0.0	-814,055	0.0	-814,057	0.0
10	49.4 46.6	-107,001	0.0	-655,856	0.0	-670,368	0.0	-670,510	0.0	-670,512	0.0
11	53.8 48.6	0	0.0	-469,713	0.0	-481,062	0.0	-481,173	0.0	-481,175	0.0
12	58.4 50.6	0	0.0	-271,273	0.0	-280,142	0.0	-280,229	0.0	-280,230	0.0
13	62.8 52.6	0	0.0	-81,549	0.0	-88,477	0.0	-88,545	0.0	-88,545	0.0
14	66.3 54.5	0	7.3	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7 55.7	0	6.7	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	6.8	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	60.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	46.5	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	28.2	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	11.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	0.0	-112,126	0.0	-114,811	0.0	-114,837	0.0	-114,837	0.0
23	57.5 54.0	0	0.0	-246,515	0.0	-248,617	0.0	-248,638	0.0	-248,638	0.0
24	54.7 51.7	-71,651	0.0	-379,969	0.0	-381,613	0.0	-381,630	0.0	-381,630	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-517,350	0.0	-764,005	0.0	-833,791	0.0	-833,981	0.0	-833,982	0.0
2	43.2 41.1	-576,893	0.0	-856,584	0.0	-911,173	0.0	-911,323	0.0	-911,323	0.0
3	41.8 39.8	-627,326	0.0	-933,512	0.0	-976,214	0.0	-976,331	0.0	-976,331	0.0
4	40.7 38.7	-669,318	0.0	-996,206	0.0	-1,029,614	0.0	-1,029,705	0.0	-1,029,705	0.0
5	40.1 38.4	-699,212	0.0	-1,036,077	0.0	-1,062,214	0.0	-1,062,286	0.0	-1,062,286	0.0
6	39.9 38.4	-694,663	0.0	-1,057,741	0.0	-1,078,192	0.0	-1,078,248	0.0	-1,078,248	0.0
7	40.5 39.0	-669,421	0.0	-1,046,101	0.0	-1,062,101	0.0	-1,062,146	0.0	-1,062,146	0.0
8	42.2 40.7	-610,425	0.0	-991,154	0.0	-1,003,669	0.0	-1,003,703	0.0	-1,003,703	0.0
9	44.9 43.4	-515,358	0.0	-894,181	0.0	-903,971	0.0	-903,999	0.0	-903,999	0.0
10	48.2 45.8	-393,817	0.0	-767,002	0.0	-774,658	0.0	-774,679	0.0	-774,679	0.0
11	51.7 48.3	-234,373	0.0	-623,113	0.0	-629,098	0.0	-629,115	0.0	-629,115	0.0
12	55.0 50.7	-74,553	0.0	-479,123	0.0	-483,800	0.0	-483,813	0.0	-483,813	0.0
13	57.7 52.0	0	0.0	-354,347	0.0	-358,002	0.0	-358,013	0.0	-358,013	0.0
14	59.5 52.6	0	0.0	-264,030	0.0	-266,886	0.0	-266,894	0.0	-266,894	0.0
15	60.1 52.7	0	0.0	-221,780	0.0	-224,010	0.0	-224,016	0.0	-224,016	0.0
16	59.9 52.6	0	0.0	-208,692	0.0	-210,434	0.0	-210,439	0.0	-210,439	0.0
17	59.2 52.1	0	0.0	-214,523	0.0	-215,885	0.0	-215,889	0.0	-215,889	0.0
18	58.2 51.8	0	0.0	-237,630	0.0	-238,694	0.0	-238,697	0.0	-238,697	0.0
19	56.8 52.2	0	0.0	-289,164	0.0	-289,996	0.0	-289,999	0.0	-289,999	0.0
20	55.0 51.4	0	0.0	-368,849	0.0	-369,501	0.0	-369,502	0.0	-369,502	0.0
21	53.1 50.1	-58,462	0.0	-456,772	0.0	-457,282	0.0	-457,283	0.0	-457,283	0.0
22	51.0 48.1	-182,209	0.0	-554,180	0.0	-554,579	0.0	-554,580	0.0	-554,580	0.0
23	48.9 46.2	-279,229	3.0	-651,697	0.0	-652,009	0.0	-652,011	0.0	-652,011	0.0
24	46.9 44.1	-379,743	0.0	-743,137	0.0	-743,381	0.0	-743,381	0.0	-743,381	0.0

## 01 Card - Job Information

-----  
 Project: ACADEMIC TRAINING BUILDING  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 24801 (1 BUILDING)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	COBB HALL_OFFS

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	327	124	3	0		13	2		

## -----CARD 21-- Thermostat Parameters-----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters-----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES			.12	17			

## -----CARD 24-- Wall Parameters-----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	292.5	13.5		16	0			
1	2	123.75	13.5		15	90			
1	3	292.5	13.5		15	180			
1	4	123.75	13.5		15	270			
1	5	55	13.5		15	180			
1	6	52	13.6		15	270			
1	7	55	13.6		15	0			
1	8	52	13.6		15	90			
1	9	55	13.6		15	180			
1	10	52	13.6		15	270			
1	11	55	13.6		15	0			
1	12	52	13.6		15	90			

## -----CARD 25-- Wall/Glass Parameters-----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	3	5	10	1.03	.82					
1	2	2	5	8	1.03	.82					
1	3	3	5	10	1.03	.82					
1	4	2	5	8	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

```

-----CARD 26-- Schedules -----
Room          Reheat   Cooling   Heating   Auxiliary   Room   Daylighting
Number People  Lights   Ventilation Infiltration Minimum Fans     Fan       Fan       Exhaust Controls
1      FGHEAT  FGHEAT   YES       YES

```

```

-----CARD 27-- People and Lights -----
Room          Lighting   Percent   --- Daylighting ---
Number People  People  People  People  Lighting Lighting Fixture Ballast Lights to Reference Reference
Value Units  Sensible Latent Value Units  Type     Factor Ret. Air Point 1 Point 2
1      400    PEOPLE  255     325    1.7    WATT-SF ASHRAE2

```

```

-----CARD 28--- Miscellaneous Equipment -----
Room          Misc      Energy   Energy   Energy   Percent   Percent   Percent
Number Equipment Equipment  Consump Consump Schedule Meter     of Load Misc. Load Misc. Sens Radiant Optional
Value Number  Descrip  Value  Units  Code    Code     Sensible to Room to Ret. Air Fraction Air Path
1      1      MISS.    120    KW     FGHEAT

```

```

-----CARD 29--- Room Airflows -----
Room          Ventilation Infiltration
Number Cooling Heating Cooling Heating Reheat Minimum
Value Units Value Units Value Units Value Units Value Units
1      15    CFM-P  15    CFM-P .08    CFM-SF .1     CFM-SF

```

```

-----CARD 30- Fan Airflows -----
Room          Main Auxiliary
Number Cooling Heating Cooling Heating Room Exhaust
Value Units Value Units Value Units Value Units Value Units
1      1     CFM-SF  1     CFM-SF

```

----- System Section Alternative #1 -----

```

-----CARD 39-- System Alternative -----
Number Description
1      MZ SYSTEMS

```

```

-----CARD 40--- System Type -----
System          Ventil Fan
Set System Deck Cooling Heating Cooling Heating Static
Number Type Location SADBvh SADBvh Schedule Schedule Pressure
1      MZ

```



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

NZ MULTIZONE



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**                                                                 **  
**          TRACE   6 0 0   A N A L Y S I S          **  
**                                                                 **  
**          by           **                                                                 **  
**                                                                 **  
*****  
*****
```

SIGNAL SCHOOL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 25810 ( 1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 10 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 16:46:34 8/19/94  
Dataset Name: FGTYPES14 .TM

AIRFLOW - ALTERNATIVE 1  
 SCHOOL\_OFFS

----- S Y S T E M   S U M M A R Y -----  
 (Design Airflow Quantities)

System Number	System Type	----- M a i n -----					Auxil.	Room
		Outside Airflow (Cfm)	Cooling Airflow (Cfm)	Heating Airflow (Cfm)	Return Airflow (Cfm)	Exhaust Airflow (Cfm)	Supply Airflow (Cfm)	Exhaust Airflow (Cfm)
1	FC	13,020	69,014	69,014	75,155	19,161	0	0
2	SZ	1,500	17,875	17,875	19,179	2,804	0	0
Totals		14,520	86,889	86,889	94,335	21,965	0	0

CAPACITY - ALTERNATIVE 1  
 SCHOOL\_OFFS

----- S Y S T E M   S U M M A R Y -----  
 (Design Capacity Quantities)

System Number	System Type	----- C o o l i n g -----					----- H e a t i n g -----						
		Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Vent Capacity (Btuh)	Heating Totals (Btuh)	
1	FC	160.7	0.0	0.0	160.7	-2,663,237	0	-75,321	0	0	0	0	-2,663,237
2	SZ	31.1	0.0	0.0	31.1	-515,027	0	0	0	0	0	0	-515,027
Totals		191.7	0.0	0.0	191.7	-3,178,264	0	-75,321	0	0	0	0	-3,178,264

The building peaked at hour 17 month 6 with a capacity of 191.7 tons

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 8/16		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1				
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*	OADB: 96		*	OADB: 10				
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	282,972	0	0	282,972	14.68	*	362,037	27.88	*	-301,698	-301,698	11.33
Glass Solar	316,480	0	0	316,480	16.42	*	316,480	24.37	*	0	0	0.00
Glass Cond	138,185	0	0	138,185	7.17	*	145,980	11.24	*	-449,278	-449,278	16.87
Wall Cond	315,046	0	0	315,046	16.34	*	379,461	29.22	*	-679,282	-679,282	25.51
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	209,359	0	0	209,359	10.86	*	94,480	7.28	*	-395,182	-395,182	14.84
Sub Total==>	1,262,042	0	0	1,262,042	65.47	*	1,298,438	100.00	*	-1,825,440	-1,825,440	68.54
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	665,769	34.53	*	0	0.00	*	0	-837,797	31.46
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0	0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	-0.00	*		0.00	*		0	0.00
Grand Total==>	1,262,042	0	0	1,927,811	100.00	*	1,298,438	100.00	*	-1,825,440	-2,663,236	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	160.7	1,927.8	1,453.3	79.0	65.4	72.8	58.0	56.5	66.1	148,000		
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	160.7	1,927.8								74,000	0	0
										40,943	6,880	17

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
					Vent			Clg % OA	18.9	Type	Clg Htg	
Main Htg	-2,663.2	69,014	57.1	91.8	Infil	13,020	13,020	Clg Cfm/Sqft	0.47	SADB	58.0	91.8
Aux Htg	0.0	0	0.0	0.0	Supply	4,094	6,141	Clg Cfm/Ton	429.59	Plenum	75.0	68.0
Preheat	-75.3	69,014	57.1	58.0	Mincfm	0	0	Clg Sqft/Ton	921.25	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Return	69,014	69,014	Clg Btuh/Sqft	13.03	Ret/OA	79.0	57.1
Humidif	0.0	0	0.0	0.0	Exhaust	13,020	13,020	No. People	868	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	18.9	Fn MtrTD	0.0	0.0
Total	-2,663.2				Auxil	0	0	Htg Cfm/Sqft	0.47	Fn BldTD	0.0	0.0
								Htg Btuh/Sqft	-17.99	Fn Frict	0.0	0.0

System 2 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK						CLG SPACE PEAK						HEATING COIL PEAK		
Peaked at Time ==)						Mo/Hr: 7/17						Mo/Hr: 13/ 1		
Outside Air ==)						OADB/WB/HR: 94/ 75/105.0						OADB: 10		
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	Space Sensible (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)	
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Roof Cond	167,912	0	0	167,912	45.00	187,793	60.52	-155,823	-155,823	30.26	0	0	0.00	
Glass Solar	5,640	0	0	5,640	1.51	4,800	1.55	0	0	0.00	0	0	0.00	
Glass Cond	2,188	0	0	2,188	0.59	2,299	0.74	-7,836	-7,836	1.52	0	0	0.00	
Wall Cond	83,117	0	0	83,117	22.27	98,148	31.63	-170,949	-170,949	33.19	0	0	0.00	
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Infiltration	41,940	0	0	41,940	11.24	17,262	5.56	-83,899	-83,899	16.29	0	0	0.00	
Sub Total==>	300,797	0	0	300,797	80.61	310,303	100.00	-418,507	-418,507	81.26	0	0	0.00	
Internal Loads														
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
People	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Outside Air	0	0	0	72,375	19.39	0	0.00	0	-96,520	18.74	0	0	0.00	
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Terminal Bypass	0	0	0	0	0.00	0	0.00	0	0	0.00	0	0	0.00	
Grand Total==>	300,797	0	0	373,172	100.00	310,303	100.00	-418,507	-515,027	100.00	0	0	0.00	

-----COOLING COIL SELECTION-----

	Total Capacity			Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS		
	(Tons)	(Mbh)	Sens Cap. (Mbh)		Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf)	(%)
Main Clg	31.1	373.2	307.5	17,875	76.6	63.8	68.6	59.4	57.0	66.0	38,220		
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	31.1	373.2									38,220	0	0

-----HEATING COIL SELECTION-----

	Capacity				AIRFLOWS (cfm)				--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
	(Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	8.4	Type	Clg	Htg		
Main Htg	-515.0	17,875	63.1	89.1	Vent	1,500	1,500	Clg Cfms/Sqft	0.47	SADB	59.4	89.1		
Aux Htg	0.0	0	0.0	0.0	Infil	869	1,304	Clg Cfms/Ton	574.81	Plenum	75.0	68.0		
Preheat	-0.0	17,875	63.1	59.4	Supply	17,875	17,875	Clg Sqft/Ton	1229.03	Return	75.0	68.0		
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	9.76	Ret/OA	76.6	63.1		
Humidif	0.0	0	0.0	0.0	Return	17,875	17,875	No. People	100	Runarnd	75.0	68.0		
Opt Vent	0.0	0	0.0	0.0	Exhaust	1,500	1,500	Htg % OA	8.4	Fn MtrTD	0.0	0.0		
Total	-515.0				Rm Exh	0	0	Htg Cfms/Sqft	0.47	Fn BldTD	0.0	0.0		
					Auxil	0	0	Htg Btuh/Sqft	-13.48	Fn Frict	0.0	0.0		



ENGINEERING CHECKS - ALTERNATIVE 1  
 SCHOOL\_OFFS

----- ENGINEERING CHECKS -----

System Number	Main/ Auxiliary	System Type	Percent Outside Air	----- Cooling -----				--- Heating ---		Floor Area Sq Ft
				Cfm/ Sq Ft	Cfm/ Ton	Sq Ft /Ton	Btuh/ Sq Ft	Cfm/ Sq Ft	Btuh/ Sq Ft	
1	Main	FC	18.87	0.47	429.6	921.3	13.03	0.47	-17.99	148,000
2	Main	SZ	8.39	0.47	574.8	1,229.0	9.76	0.47	-13.48	38,220

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

January		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4 31.1	-2,553,092	0.0	-1,413,208	0.0	-1,413,208	0.0	-1,413,208	0.0	-1,413,208	0.0
2	32.9 30.7	-2,456,914	0.0	-1,477,798	0.0	-1,477,798	0.0	-1,477,798	0.0	-1,477,798	0.0
3	33.1 31.3	-2,375,510	0.0	-1,529,510	0.0	-1,529,510	0.0	-1,529,510	0.0	-1,529,510	0.0
4	33.9 32.1	-1,339,380	0.0	-1,524,412	0.0	-1,524,412	0.0	-1,524,412	0.0	-1,524,412	0.0
5	35.2 33.5	-1,317,535	0.0	-1,553,253	0.0	-1,553,253	0.0	-1,553,253	0.0	-1,553,253	0.0
6	37.0 35.4	-1,351,039	0.0	-1,562,215	0.0	-1,562,215	0.0	-1,562,215	0.0	-1,562,215	0.0
7	39.0 37.6	-1,365,944	0.0	-1,536,604	0.0	-1,536,604	0.0	-1,536,604	0.0	-1,536,604	0.0
8	41.3 40.1	-1,333,923	0.0	-1,506,956	0.0	-1,506,956	0.0	-1,506,956	0.0	-1,506,956	0.0
9	43.7 42.5	-1,206,570	0.0	-1,412,600	0.0	-1,412,600	0.0	-1,412,600	0.0	-1,412,600	0.0
10	46.1 44.0	-1,032,944	0.0	-1,343,380	0.0	-1,343,380	0.0	-1,343,380	0.0	-1,343,380	0.0
11	48.4 45.0	-817,930	0.0	-1,206,706	0.0	-1,206,706	0.0	-1,206,706	0.0	-1,206,706	0.0
12	50.5 45.6	-595,163	0.0	-1,106,222	0.0	-1,106,222	0.0	-1,106,222	0.0	-1,106,222	0.0
13	52.2 46.1	-367,500	0.0	-963,164	0.0	-963,164	0.0	-963,164	0.0	-963,164	0.0
14	53.5 46.4	-189,059	0.0	-827,864	0.0	-827,864	0.0	-827,864	0.0	-827,864	0.0
15	54.3 46.3	-49,421	0.0	-725,129	0.0	-725,129	0.0	-725,129	0.0	-725,129	0.0
16	54.6 46.1	-23,310	0.0	-637,052	0.0	-637,052	0.0	-637,052	0.0	-637,052	0.0
17	54.0 45.9	-8,851	0.0	-617,334	0.0	-617,334	0.0	-617,334	0.0	-617,334	0.0
18	52.5 45.0	-6,657	0.0	-650,227	0.0	-650,227	0.0	-650,227	0.0	-650,227	0.0
19	50.1 44.8	-187,016	0.0	-713,638	0.0	-713,638	0.0	-713,638	0.0	-713,638	0.0
20	47.1 43.3	-365,076	0.0	-805,592	0.0	-805,592	0.0	-805,592	0.0	-805,592	0.0
21	43.7 40.4	-528,302	0.0	-945,899	0.0	-945,899	0.0	-945,899	0.0	-945,899	0.0
22	40.4 37.3	-664,014	0.0	-1,074,648	0.0	-1,074,648	0.0	-1,074,648	0.0	-1,074,648	0.0
23	37.3 34.9	-798,229	0.0	-1,196,668	0.0	-1,196,668	0.0	-1,196,668	0.0	-1,196,668	0.0
24	34.9 32.6	-903,096	0.0	-1,323,183	0.0	-1,323,183	0.0	-1,323,183	0.0	-1,323,183	0.0

February		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7 38.6	-927,920	0.0	-1,148,530	0.0	-1,148,530	0.0	-1,148,530	0.0	-1,148,530	0.0
2	39.7 37.1	-1,021,294	0.0	-1,227,608	0.0	-1,227,608	0.0	-1,227,608	0.0	-1,227,608	0.0
3	37.8 35.1	-1,118,417	0.0	-1,338,488	0.0	-1,338,488	0.0	-1,338,488	0.0	-1,338,488	0.0
4	36.3 33.8	-1,190,001	0.0	-1,397,517	0.0	-1,397,517	0.0	-1,397,517	0.0	-1,397,517	0.0
5	35.1 32.6	-1,239,355	0.0	-1,475,472	0.0	-1,475,472	0.0	-1,475,472	0.0	-1,475,472	0.0
6	34.4 32.0	-1,283,800	0.0	-1,522,292	0.0	-1,522,292	0.0	-1,522,292	0.0	-1,522,292	0.0
7	34.1 31.9	-1,301,653	0.0	-1,578,114	0.0	-1,578,114	0.0	-1,578,114	0.0	-1,578,114	0.0
8	34.6 32.4	-1,251,751	0.0	-1,588,244	0.0	-1,588,244	0.0	-1,588,244	0.0	-1,588,244	0.0
9	36.0 33.8	-1,117,132	0.0	-1,531,994	0.0	-1,531,994	0.0	-1,531,994	0.0	-1,531,994	0.0
10	38.2 34.7	-958,080	0.0	-1,484,352	0.0	-1,484,352	0.0	-1,484,352	0.0	-1,484,352	0.0
11	40.9 36.2	-766,180	0.0	-1,394,887	0.0	-1,394,887	0.0	-1,394,887	0.0	-1,394,887	0.0
12	43.9 37.4	-549,338	0.0	-1,279,112	0.0	-1,279,112	0.0	-1,279,112	0.0	-1,279,112	0.0
13	46.9 39.4	-346,013	0.0	-1,092,628	0.0	-1,092,628	0.0	-1,092,628	0.0	-1,092,628	0.0
14	49.7 41.4	-150,982	0.0	-962,148	0.0	-962,148	0.0	-962,148	0.0	-962,148	0.0
15	51.8 42.8	-33,770	0.0	-825,489	0.0	-825,489	0.0	-825,489	0.0	-825,489	0.0
16	53.2 43.9	-7,457	0.0	-735,894	0.0	-735,894	0.0	-735,894	0.0	-735,894	0.0
17	53.7 44.2	0	0.0	-681,854	0.0	-681,854	0.0	-681,854	0.0	-681,854	0.0
18	53.4 44.4	0	0.0	-651,149	0.0	-651,149	0.0	-651,149	0.0	-651,149	0.0
19	52.7 44.4	0	0.0	-684,550	0.0	-684,550	0.0	-684,550	0.0	-684,550	0.0
20	51.5 45.2	-176,936	0.0	-732,432	0.0	-732,432	0.0	-732,432	0.0	-732,432	0.0
21	50.0 44.6	-395,013	0.0	-790,826	0.0	-790,826	0.0	-790,826	0.0	-790,826	0.0
22	48.1 43.3	-560,462	0.0	-887,500	0.0	-887,500	0.0	-887,500	0.0	-887,500	0.0
23	46.1 41.8	-702,917	0.0	-971,395	0.0	-971,395	0.0	-971,395	0.0	-971,395	0.0
24	43.9 40.1	-812,953	0.0	-1,058,917	0.0	-1,058,917	0.0	-1,058,917	0.0	-1,058,917	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-291,325	0.0	0	0.0	-591,953	0.0	-591,953	0.0	-591,953	0.0
2	48.7 44.6	-416,151	0.0	0	0.0	-712,447	0.0	-712,447	0.0	-712,447	0.0
3	46.6 42.9	-504,708	0.0	0	0.0	-797,471	0.0	-797,471	0.0	-797,471	0.0
4	44.9 41.4	-599,891	0.0	-445,994	0.0	-897,249	0.0	-897,249	0.0	-897,249	0.0
5	43.9 40.8	-660,139	0.0	-828,821	0.0	-964,075	0.0	-964,075	0.0	-964,075	0.0
6	43.5 40.8	-702,101	0.0	-940,056	0.0	-1,021,926	0.0	-1,021,926	0.0	-1,021,926	0.0
7	44.0 41.4	-722,925	0.0	-1,047,081	0.0	-1,047,081	0.0	-1,047,081	0.0	-1,047,081	0.0
8	45.4 42.7	-611,653	0.0	-1,018,832	0.0	-1,018,832	0.0	-1,018,832	0.0	-1,018,832	0.0
9	47.7 44.3	-467,957	0.0	-963,000	0.0	-963,000	0.0	-963,000	0.0	-963,000	0.0
10	50.6 45.8	-274,674	0.0	-863,822	0.0	-863,822	0.0	-863,822	0.0	-863,822	0.0
11	53.9 47.4	-55,670	0.0	-720,651	0.0	-720,651	0.0	-720,651	0.0	-720,651	0.0
12	57.4 49.0	-20,656	0.0	-541,677	0.0	-541,677	0.0	-541,677	0.0	-541,677	0.0
13	60.7 50.8	0	0.0	-393,404	0.0	-393,404	0.0	-393,404	0.0	-393,404	0.0
14	63.6 52.7	0	0.0	-214,585	0.0	-214,585	0.0	-214,585	0.0	-214,585	0.0
15	65.9 53.7	0	0.0	-101,073	0.0	-101,073	0.0	-101,073	0.0	-101,073	0.0
16	67.3 54.4	0	0.0	-12,488	0.0	-12,488	0.0	-12,488	0.0	-12,488	0.0
17	67.8 54.6	0	8.3	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	43.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	31.1	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	24.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	-75,193	3.0	-199,324	0.0	-199,324	0.0	-199,324	0.0	-199,324	0.0
23	57.1 51.9	-190,490	0.9	-308,612	0.0	-308,612	0.0	-308,612	0.0	-308,612	0.0
24	54.2 49.4	0	0.0	-452,338	0.0	-452,338	0.0	-452,338	0.0	-452,338	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2 51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5 50.9	-170,906	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2 51.1	-122,497	0.0	-111,053	0.0	-106,188	0.0	-106,188	0.0	-106,188	0.0
8	53.9 51.5	0	0.0	-457,495	0.0	-457,495	0.0	-457,495	0.0	-457,495	0.0
9	55.9 52.1	0	0.0	-410,734	0.0	-410,734	0.0	-410,734	0.0	-410,734	0.0
10	58.9 53.2	0	0.0	-300,986	0.0	-335,113	0.0	-335,113	0.0	-335,113	0.0
11	62.6 55.2	0	0.0	-213,430	0.0	-223,378	0.0	-223,378	0.0	-223,378	0.0
12	66.5 57.3	0	0.0	-31,841	0.0	-31,841	0.0	-31,841	0.0	-31,841	0.0
13	70.2 59.6	0	0.0	-4,266	0.0	-4,266	0.0	-4,266	0.0	-4,266	0.0
14	73.2 61.0	0	14.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	73.0	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	86.1	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	97.9	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9 61.7	0	95.8	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7 62.0	0	84.6	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1 62.4	0	69.7	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2 63.3	0	55.6	-64,965	0.0	-64,965	0.0	-64,965	0.0	-64,965	0.0
22	68.0 62.5	0	40.9	0	4.3	0	4.3	0	4.3	0	4.3
23	65.7 60.5	0	28.9	-49,311	0.0	-49,311	0.0	-49,311	0.0	-49,311	0.0
24	63.4 58.5	0	16.3	-140,500	0.0	-140,500	0.0	-140,500	0.0	-140,500	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	36.9	0	11.1	0	11.9	0	11.9	0	11.9
2	65.7	61.5	0	31.0	-9,963	2.6	-9,963	3.0	-9,963	3.0	-9,963	3.0
3	63.6	59.7	0	23.5	-110,742	1.0	-110,742	1.1	-110,742	1.1	-110,742	1.1
4	61.8	58.4	0	14.3	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	9.1	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	18.8	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	31.0	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	46.1	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	62.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	78.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	95.4	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	110.0	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	121.9	0	26.3	0	26.3	0	26.3	0	26.3
16	84.9	67.1	0	131.7	0	64.9	0	65.0	0	65.0	0	65.0
17	84.6	67.3	0	135.6	0	73.3	0	73.4	0	73.4	0	73.4
18	83.8	67.1	0	133.1	0	74.9	0	75.0	0	75.0	0	75.0
19	82.4	67.5	0	123.1	0	70.7	0	70.7	0	70.7	0	70.7
20	80.6	68.9	0	107.4	0	63.3	0	63.4	0	63.4	0	63.4
21	78.5	71.0	0	93.9	0	61.1	0	61.1	0	61.1	0	61.1
22	76.1	69.9	0	79.8	0	50.3	0	50.3	0	50.3	0	50.3
23	73.4	68.0	0	65.8	0	35.5	0	35.5	0	35.5	0	35.5
24	70.8	65.5	0	53.2	0	23.6	0	23.6	0	23.6	0	23.6

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	94.5	0	41.8	0	53.0	0	53.0	0	53.0
2	72.6	68.4	0	78.1	0	33.2	0	36.2	0	36.2	0	36.2
3	70.9	67.3	0	64.3	0	25.0	0	26.4	0	26.4	0	26.4
4	69.6	66.5	0	54.2	0	14.3	0	14.7	0	14.7	0	14.7
5	68.7	65.8	0	47.5	0	7.9	0	8.0	0	8.0	0	8.0
6	68.5	65.7	0	43.7	0	2.2	0	2.3	0	2.3	0	2.3
7	69.0	66.3	0	49.1	0	3.1	0	3.2	0	3.2	0	3.2
8	70.6	66.9	0	63.0	0	7.5	0	7.5	0	7.5	0	7.5
9	73.0	67.7	0	78.7	0	14.3	0	14.3	0	14.3	0	14.3
10	76.1	68.1	0	96.7	0	29.1	0	29.2	0	29.2	0	29.2
11	79.5	69.1	0	114.6	0	45.9	0	46.1	0	46.1	0	46.1
12	82.9	70.1	0	131.8	0	63.8	0	64.0	0	64.0	0	64.0
13	86.0	71.0	0	148.3	0	81.5	0	81.6	0	81.6	0	81.6
14	88.4	72.5	0	163.7	0	100.6	0	100.7	0	100.7	0	100.7
15	90.0	74.0	0	178.9	0	121.2	0	121.3	0	121.3	0	121.3
16	90.5	73.7	0	187.7	0	124.1	0	124.2	0	124.2	0	124.2
17	90.3	74.2	0	191.7	0	132.0	0	132.0	0	132.0	0	132.0
18	89.4	73.9	0	185.9	0	133.1	0	133.1	0	133.1	0	133.1
19	88.1	74.5	0	176.0	0	127.3	0	127.3	0	127.3	0	127.3
20	86.4	75.3	0	157.9	0	117.0	0	117.0	0	117.0	0	117.0
21	84.3	76.5	0	147.1	0	114.2	0	114.2	0	114.2	0	114.2
22	81.9	75.7	0	129.4	0	104.1	0	104.1	0	104.1	0	104.1
23	79.5	74.0	0	113.0	0	88.3	0	88.3	0	88.3	0	88.3
24	77.0	72.1	0	101.4	0	68.4	0	68.4	0	68.4	0	68.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	96.0	0	31.5	0	40.5	0	40.5	0	40.5
2	72.4	69.4	0	74.7	0	28.3	0	31.5	0	31.5	0	31.5
3	71.3	68.4	0	65.8	0	19.8	0	20.8	0	20.8	0	20.8
4	70.5	67.7	0	58.1	0	13.0	0	13.4	0	13.4	0	13.4
5	70.0	67.4	0	52.3	0	6.8	0	7.0	0	7.0	0	7.0
6	69.9	67.5	0	47.7	-6,691	1.3	-6,691	1.4	-6,691	1.4	-6,691	1.4
7	70.3	68.0	0	54.0	0	0.4	0	0.4	0	0.4	0	0.4
8	71.7	69.0	0	66.3	0	9.2	0	9.3	0	9.3	0	9.3
9	73.7	69.5	0	80.7	0	18.7	0	18.8	0	18.8	0	18.8
10	76.2	70.6	0	95.0	0	37.5	0	37.5	0	37.5	0	37.5
11	78.9	71.8	0	110.8	0	51.3	0	51.4	0	51.4	0	51.4
12	81.4	73.0	0	129.3	0	71.8	0	72.0	0	72.0	0	72.0
13	83.4	74.4	0	146.3	0	86.7	0	86.8	0	86.8	0	86.8
14	84.8	74.8	0	161.4	0	101.9	0	102.0	0	102.0	0	102.0
15	85.2	75.0	0	173.2	0	113.4	0	113.4	0	113.4	0	113.4
16	85.1	75.0	0	182.8	0	120.0	0	120.1	0	120.1	0	120.1
17	84.6	74.7	0	187.7	0	118.4	0	118.4	0	118.4	0	118.4
18	83.8	74.6	0	183.5	0	121.0	0	121.0	0	121.0	0	121.0
19	82.7	74.6	0	172.9	0	116.5	0	116.5	0	116.5	0	116.5
20	81.4	74.4	0	156.0	0	106.8	0	106.8	0	106.8	0	106.8
21	79.9	74.9	0	141.5	0	101.1	0	101.1	0	101.1	0	101.1
22	78.4	74.0	0	127.5	0	85.8	0	85.8	0	85.8	0	85.8
23	76.8	72.7	0	111.7	0	68.3	0	68.3	0	68.3	0	68.3
24	75.2	71.6	0	100.1	0	57.2	0	57.2	0	57.2	0	57.2

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	91.1	0	42.0	0	53.3	0	53.3	0	53.3
2	73.2	70.3	0	72.1	0	33.7	0	36.6	0	36.6	0	36.6
3	71.7	68.9	0	60.0	0	25.6	0	26.6	0	26.6	0	26.6
4	70.4	67.8	0	52.9	0	16.1	0	16.5	0	16.5	0	16.5
5	69.5	66.8	0	45.0	0	6.7	0	6.9	0	6.9	0	6.9
6	68.9	66.4	0	41.4	-14,097	2.2	-14,097	2.2	-14,097	2.2	-14,097	2.2
7	68.7	66.4	0	43.1	-37,596	0.4	-37,596	0.4	-37,596	0.4	-37,596	0.4
8	69.2	66.8	0	56.3	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	72.4	0	7.6	0	7.6	0	7.6	0	7.6
10	73.2	67.7	0	88.9	0	18.2	0	18.2	0	18.2	0	18.2
11	76.2	68.8	0	106.1	0	32.0	0	32.1	0	32.1	0	32.1
12	79.3	70.3	0	125.3	0	52.2	0	52.3	0	52.3	0	52.3
13	82.3	72.2	0	146.7	0	72.6	0	72.8	0	72.8	0	72.8
14	84.7	73.7	0	165.6	0	92.2	0	92.3	0	92.3	0	92.3
15	86.3	74.6	0	176.2	0	112.2	0	112.3	0	112.3	0	112.3
16	86.8	75.1	0	188.1	0	120.6	0	120.7	0	120.7	0	120.7
17	86.6	75.1	0	186.3	0	125.8	0	125.8	0	125.8	0	125.8
18	86.0	75.3	0	180.6	0	131.8	0	131.8	0	131.8	0	131.8
19	85.1	76.0	0	170.3	0	122.2	0	122.2	0	122.2	0	122.2
20	83.8	76.8	0	152.3	0	119.1	0	119.1	0	119.1	0	119.1
21	82.3	77.2	0	142.4	0	111.3	0	111.3	0	111.3	0	111.3
22	80.6	76.3	0	124.1	0	100.1	0	100.1	0	100.1	0	100.1
23	78.7	75.3	0	108.2	0	83.2	0	83.2	0	83.2	0	83.2
24	76.8	73.7	0	96.6	0	68.0	0	68.0	0	68.0	0	68.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	49.8	0	10.7	0	13.5	0	13.5	0	13.5
2	67.6	65.0	0	36.0	0	2.7	0	3.1	0	3.1	0	3.1
3	65.8	63.4	0	28.0	-73,510	1.0	-73,510	1.2	-73,510	1.2	-73,510	1.2
4	64.3	62.2	0	20.2	-151,228	0.0	-151,228	0.0	-151,228	0.0	-151,228	0.0
5	63.1	61.1	0	15.3	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	11.3	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	18.6	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	30.9	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	43.9	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	61.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	80.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	104.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	123.2	0	5.7	0	5.7	0	5.7	0	5.7
15	83.0	70.0	0	138.1	0	53.0	0	53.1	0	53.1	0	53.1
16	83.7	70.5	0	145.1	0	73.1	0	73.4	0	73.4	0	73.4
17	83.4	70.5	0	142.8	0	81.5	0	81.7	0	81.7	0	81.7
18	82.8	70.9	0	135.4	0	83.8	0	84.0	0	84.0	0	84.0
19	81.6	72.7	0	122.9	0	80.1	0	80.2	0	80.2	0	80.2
20	80.1	74.7	0	111.4	0	77.1	0	77.2	0	77.2	0	77.2
21	78.3	74.1	0	99.4	0	70.9	0	70.9	0	70.9	0	70.9
22	76.3	72.4	0	80.0	0	56.5	0	56.5	0	56.5	0	56.5
23	74.1	70.7	0	64.3	0	40.6	0	40.6	0	40.6	0	40.6
24	71.8	68.9	0	53.0	0	27.1	0	27.1	0	27.1	0	27.1

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-462,198	0.0	-462,198	0.0	-462,198	0.0
2	50.1	48.6	0	0.0	0	0.0	-602,346	0.0	-602,346	0.0	-602,346	0.0
3	48.4	46.9	0	0.0	0	0.0	-698,688	0.0	-698,688	0.0	-698,688	0.0
4	47.1	45.8	0	0.0	-43,684	0.0	-780,165	0.0	-780,165	0.0	-780,165	0.0
5	46.3	44.8	0	0.0	-738,559	0.0	-861,182	0.0	-861,182	0.0	-861,182	0.0
6	46.0	44.5	-83,484	0.0	-792,600	0.0	-929,517	0.0	-929,517	0.0	-929,517	0.0
7	46.8	45.3	-518,286	0.0	-942,687	0.0	-949,222	0.0	-949,222	0.0	-949,222	0.0
8	48.9	47.5	-414,673	0.0	-895,041	0.0	-895,041	0.0	-895,041	0.0	-895,041	0.0
9	52.2	49.9	-273,745	0.0	-810,176	0.0	-810,176	0.0	-810,176	0.0	-810,176	0.0
10	56.2	52.5	-165,727	0.0	-681,562	0.0	-681,562	0.0	-681,562	0.0	-681,562	0.0
11	60.4	54.4	-37,797	0.0	-498,549	0.0	-498,549	0.0	-498,549	0.0	-498,549	0.0
12	64.4	56.0	0	0.0	-291,281	0.0	-291,281	0.0	-291,281	0.0	-291,281	0.0
13	67.7	57.3	0	0.0	-114,364	0.0	-114,364	0.0	-114,364	0.0	-114,364	0.0
14	69.8	58.2	0	0.0	-29,485	0.0	-29,485	0.0	-29,485	0.0	-29,485	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	11.5	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	54.5	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	45.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	35.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	27.6	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	-29,256	2.9	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	-155,041	0.9	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	-286,621	0.0	-286,621	0.0	-286,621	0.0	-286,621	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-357,960	0.0	0	0.0	-566,611	0.0	-566,611	0.0	-566,611	0.0
2	49.4 47.3	-500,659	0.0	0	0.0	-681,825	0.0	-681,825	0.0	-681,825	0.0
3	47.2 45.3	-590,742	0.0	0	0.0	-772,306	0.0	-772,306	0.0	-772,306	0.0
4	45.3 43.4	-684,527	0.0	-637,363	0.0	-872,069	0.0	-872,069	0.0	-872,069	0.0
5	43.9 42.2	-738,191	0.0	-886,938	0.0	-961,877	0.0	-961,877	0.0	-961,877	0.0
6	43.0 41.4	-773,706	0.0	-1,022,635	0.0	-1,022,635	0.0	-1,022,635	0.0	-1,022,635	0.0
7	42.7 41.2	-786,513	0.0	-1,067,842	0.0	-1,067,842	0.0	-1,067,842	0.0	-1,067,842	0.0
8	43.5 42.0	-721,150	0.0	-1,087,891	0.0	-1,087,891	0.0	-1,087,891	0.0	-1,087,891	0.0
9	45.9 44.0	-549,060	0.0	-1,017,718	0.0	-1,017,718	0.0	-1,017,718	0.0	-1,017,718	0.0
10	49.4 46.6	-361,100	0.0	-929,243	0.0	-929,243	0.0	-929,243	0.0	-929,243	0.0
11	53.8 48.6	-115,203	0.0	-770,510	0.0	-770,510	0.0	-770,510	0.0	-770,510	0.0
12	58.4 50.6	-35,439	0.0	-585,744	0.0	-585,744	0.0	-585,744	0.0	-585,744	0.0
13	62.8 52.6	0	0.0	-401,139	0.0	-401,139	0.0	-401,139	0.0	-401,139	0.0
14	66.3 54.5	0	0.0	-221,704	0.0	-221,704	0.0	-221,704	0.0	-221,704	0.0
15	68.7 55.7	0	0.0	-62,659	0.0	-62,659	0.0	-62,659	0.0	-62,659	0.0
16	69.5 56.1	0	0.0	-22,128	0.0	-22,128	0.0	-22,128	0.0	-22,128	0.0
17	69.2 55.8	0	8.5	-9,084	0.0	-9,084	0.0	-9,084	0.0	-9,084	0.0
18	68.3 57.0	0	32.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	20.6	-3,254	0.0	-3,254	0.0	-3,254	0.0	-3,254	0.0
20	65.0 59.4	0	8.3	-9,985	0.0	-9,985	0.0	-9,985	0.0	-9,985	0.0
21	62.8 58.2	-49,140	0.0	-187,279	0.0	-187,279	0.0	-187,279	0.0	-187,279	0.0
22	60.2 56.1	-188,016	0.0	-283,014	0.0	-283,014	0.0	-283,014	0.0	-283,014	0.0
23	57.5 54.0	0	0.0	-373,662	0.0	-373,662	0.0	-373,662	0.0	-373,662	0.0
24	54.7 51.7	0	0.0	-478,545	0.0	-478,545	0.0	-478,545	0.0	-478,545	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-684,504	0.0	-957,543	0.0	-957,543	0.0	-957,543	0.0	-957,543	0.0
2	43.2 41.1	-759,876	0.0	-1,041,255	0.0	-1,041,255	0.0	-1,041,255	0.0	-1,041,255	0.0
3	41.8 39.8	-836,389	0.0	-1,121,946	0.0	-1,121,946	0.0	-1,121,946	0.0	-1,121,946	0.0
4	40.7 38.7	-917,404	0.0	-1,183,397	0.0	-1,183,397	0.0	-1,183,397	0.0	-1,183,397	0.0
5	40.1 38.4	-967,992	0.0	-1,233,495	0.0	-1,233,495	0.0	-1,233,495	0.0	-1,233,495	0.0
6	39.9 38.4	-1,001,128	0.0	-1,280,454	0.0	-1,280,454	0.0	-1,280,454	0.0	-1,280,454	0.0
7	40.5 39.0	-991,480	0.0	-1,317,631	0.0	-1,317,631	0.0	-1,317,631	0.0	-1,317,631	0.0
8	42.2 40.7	-968,411	0.0	-1,298,468	0.0	-1,298,468	0.0	-1,298,468	0.0	-1,298,468	0.0
9	44.9 43.4	-846,952	0.0	-1,219,739	0.0	-1,219,739	0.0	-1,219,739	0.0	-1,219,739	0.0
10	48.2 45.8	-678,896	0.0	-1,113,994	0.0	-1,113,994	0.0	-1,113,994	0.0	-1,113,994	0.0
11	51.7 48.3	-484,255	0.0	-975,213	0.0	-975,213	0.0	-975,213	0.0	-975,213	0.0
12	55.0 50.7	-264,308	0.0	-806,083	0.0	-806,083	0.0	-806,083	0.0	-806,083	0.0
13	57.7 52.0	-64,265	0.0	-653,617	0.0	-653,617	0.0	-653,617	0.0	-653,617	0.0
14	59.5 52.6	-30,236	0.0	-510,714	0.0	-510,714	0.0	-510,714	0.0	-510,714	0.0
15	60.1 52.7	0	0.0	-419,617	0.0	-419,617	0.0	-419,617	0.0	-419,617	0.0
16	59.9 52.6	0	0.0	-355,042	0.0	-355,042	0.0	-355,042	0.0	-355,042	0.0
17	59.2 52.1	0	0.0	-347,786	0.0	-347,786	0.0	-347,786	0.0	-347,786	0.0
18	58.2 51.8	0	0.0	-377,795	0.0	-377,795	0.0	-377,795	0.0	-377,795	0.0
19	56.8 52.2	0	0.0	-425,198	0.0	-425,198	0.0	-425,198	0.0	-425,198	0.0
20	55.0 51.4	0	0.0	-493,308	0.0	-493,308	0.0	-493,308	0.0	-493,308	0.0
21	53.1 50.1	0	0.0	-577,635	0.0	-577,635	0.0	-577,635	0.0	-577,635	0.0
22	51.0 48.1	0	0.0	-676,517	0.0	-676,517	0.0	-676,517	0.0	-676,517	0.0
23	48.9 46.2	-186,167	0.0	-766,589	0.0	-766,589	0.0	-766,589	0.0	-766,589	0.0
24	46.9 44.1	-583,211	0.0	-846,920	0.0	-846,920	0.0	-846,920	0.0	-846,920	0.0

```
*****  
*****  
**  
**          TRACE    600  ANALYSIS  
**  
**          by          **  
**  
*****  
*****
```

CONRAD HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29807 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8:42:25 8/16/94  
Dataset Name: FGTYPS18 .TM



System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==)		Mo/Hr: 6/17		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1			
Outside Air ==)		OADB/WB/HR: 98/ 74/ 91.0		*	OADB: 96		*	OADB: 23			
Space Sens.+Lat.	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads					*			*			
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	55,076	0	55,076	33.23	*	57,730	38.96	*	-37,326	-37,326	20.76
Glass Solar	18,900	0	18,900	11.40	*	19,845	13.39	*	0	0	0.00
Glass Cond	9,189	0	9,189	5.55	*	8,565	5.78	*	-20,208	-20,208	11.24
Wall Cond	49,421	0	49,421	29.82	*	52,366	35.34	*	-73,640	-73,640	40.97
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	15,967	0	15,967	9.63	*	9,659	6.52	*	-26,120	-26,120	14.53
Sub Total==>	148,553	0	148,553	89.64	*	148,166	100.00	*	-157,294	-157,294	87.50
Internal Loads					*			*			
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	17,166	10.36	*	0	0.00	*	0	-22,466	12.50
Sup. Fan Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkup	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	148,553	0	165,719	100.00	*	148,166	100.00	*	-157,294	-179,760	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf) (%)
Main Clg	13.8	165.7	11,800	75.9	64.6	73.9	63.7	60.3	73.2	11,800	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	13.8	165.7								11,800	
										0	
										0	
										11,800	0 0
										5,232	472 9

-----AREAS-----

-----HEATING COIL SELECTION-----

Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
Main Htg	-179.8	11,800	66.3	80.0	450	450	Clg % OA	3.8	Type	Clg	Htg	
Aux Htg	0.0	0	0.0	0.0	419	523	Clg Cfm/Sqft	1.00	SADB	63.7	80.0	
Preheat	-0.0	11,800	66.3	63.7	11,800	11,800	Clg Cfm/Ton	854.46	Plenum	75.0	68.0	
Reheat	0.0	0	0.0	0.0	0	0	Clg Sqft/Ton	854.46	Return	75.0	68.0	
Humidif	0.0	0	0.0	0.0	0	0	Clg Btuh/Sqft	14.04	Ret/OA	75.9	66.3	
Opt Vent	0.0	0	0.0	0.0	11,800	11,800	No. People	30	Runarnd	75.0	68.0	
Total	-179.8				450	450	Htg % OA	3.8	Fn MtrTD	0.0	0.0	
					0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0	
					0	0	Htg Btuh/Sqft	-15.23	Fn Frict	0.0	0.0	

-----AIRFLOWS (cfm)-----

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-158,991	0.0	-89,999	0.0	-89,999	0.0	-89,999	0.0	-89,999	0.0
2	32.9	30.7	-142,333	0.0	-96,205	0.0	-96,205	0.0	-96,205	0.0	-96,205	0.0
3	33.1	31.3	-130,415	0.0	-101,018	0.0	-101,018	0.0	-101,018	0.0	-101,018	0.0
4	33.9	32.1	-113,056	0.0	-103,277	0.0	-103,277	0.0	-103,277	0.0	-103,277	0.0
5	35.2	33.5	-86,420	0.0	-107,144	0.0	-107,144	0.0	-107,144	0.0	-107,144	0.0
6	37.0	35.4	-91,915	0.0	-109,939	0.0	-109,939	0.0	-109,939	0.0	-109,939	0.0
7	39.0	37.6	-94,660	0.0	-111,483	0.0	-111,483	0.0	-111,483	0.0	-111,483	0.0
8	41.3	40.1	-93,620	0.0	-110,889	0.0	-110,889	0.0	-110,889	0.0	-110,889	0.0
9	43.7	42.5	-89,586	0.0	-107,782	0.0	-107,782	0.0	-107,782	0.0	-107,782	0.0
10	46.1	44.0	-79,725	0.0	-104,823	0.0	-104,823	0.0	-104,823	0.0	-104,823	0.0
11	48.4	45.0	-68,841	0.0	-95,918	0.0	-95,918	0.0	-95,918	0.0	-95,918	0.0
12	50.5	45.6	-53,747	0.0	-88,157	0.0	-88,157	0.0	-88,157	0.0	-88,157	0.0
13	52.2	46.1	-40,892	0.0	-78,045	0.0	-78,045	0.0	-78,045	0.0	-78,045	0.0
14	53.5	46.4	-25,587	0.0	-67,125	0.0	-67,125	0.0	-67,125	0.0	-67,125	0.0
15	54.3	46.3	-12,736	0.0	-59,677	0.0	-59,677	0.0	-59,677	0.0	-59,677	0.0
16	54.6	46.1	-1,616	0.0	-50,229	0.0	-50,229	0.0	-50,229	0.0	-50,229	0.0
17	54.0	45.9	0	0.0	-44,385	0.0	-44,385	0.0	-44,385	0.0	-44,385	0.0
18	52.5	45.0	0	0.0	-43,036	0.0	-43,036	0.0	-43,036	0.0	-43,036	0.0
19	50.1	44.8	0	0.0	-45,593	0.0	-45,593	0.0	-45,593	0.0	-45,593	0.0
20	47.1	43.3	-11,982	0.0	-50,403	0.0	-50,403	0.0	-50,403	0.0	-50,403	0.0
21	43.7	40.4	-24,267	0.0	-57,886	0.0	-57,886	0.0	-57,886	0.0	-57,886	0.0
22	40.4	37.3	-33,421	0.0	-65,987	0.0	-65,987	0.0	-65,987	0.0	-65,987	0.0
23	37.3	34.9	-43,803	0.0	-74,510	0.0	-74,510	0.0	-74,510	0.0	-74,510	0.0
24	34.9	32.6	-53,542	0.0	-83,605	0.0	-83,605	0.0	-83,605	0.0	-83,605	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-52,996	0.0	-75,592	0.0	-75,592	0.0	-75,592	0.0	-75,592	0.0
2	39.7	37.1	-62,229	0.0	-80,855	0.0	-80,855	0.0	-80,855	0.0	-80,855	0.0
3	37.8	35.1	-68,229	0.0	-87,172	0.0	-87,172	0.0	-87,172	0.0	-87,172	0.0
4	36.3	33.8	-75,957	0.0	-91,375	0.0	-91,375	0.0	-91,375	0.0	-91,375	0.0
5	35.1	32.6	-80,283	0.0	-99,160	0.0	-99,160	0.0	-99,160	0.0	-99,160	0.0
6	34.4	32.0	-84,718	0.0	-102,816	0.0	-102,816	0.0	-102,816	0.0	-102,816	0.0
7	34.1	31.9	-89,667	0.0	-107,856	0.0	-107,856	0.0	-107,856	0.0	-107,856	0.0
8	34.6	32.4	-87,791	0.0	-109,932	0.0	-109,932	0.0	-109,932	0.0	-109,932	0.0
9	36.0	33.8	-83,549	0.0	-110,167	0.0	-110,167	0.0	-110,167	0.0	-110,167	0.0
10	38.2	34.7	-74,318	0.0	-108,461	0.0	-108,461	0.0	-108,461	0.0	-108,461	0.0
11	40.9	36.2	-62,093	0.0	-103,671	0.0	-103,671	0.0	-103,671	0.0	-103,671	0.0
12	43.9	37.4	-48,122	0.0	-97,281	0.0	-97,281	0.0	-97,281	0.0	-97,281	0.0
13	46.9	39.4	-34,973	0.0	-85,796	0.0	-85,796	0.0	-85,796	0.0	-85,796	0.0
14	49.7	41.4	-19,248	0.0	-76,789	0.0	-76,789	0.0	-76,789	0.0	-76,789	0.0
15	51.8	42.8	-5,496	0.0	-64,973	0.0	-64,973	0.0	-64,973	0.0	-64,973	0.0
16	53.2	43.9	0	0.0	-55,937	0.0	-55,937	0.0	-55,937	0.0	-55,937	0.0
17	53.7	44.2	0	0.0	-50,427	0.0	-50,427	0.0	-50,427	0.0	-50,427	0.0
18	53.4	44.4	0	0.0	-44,066	0.0	-44,066	0.0	-44,066	0.0	-44,066	0.0
19	52.7	44.4	0	0.0	-47,130	0.0	-47,130	0.0	-47,130	0.0	-47,130	0.0
20	51.5	45.2	0	0.0	-47,860	0.0	-47,860	0.0	-47,860	0.0	-47,860	0.0
21	50.0	44.6	0	0.0	-51,310	0.0	-51,310	0.0	-51,310	0.0	-51,310	0.0
22	48.1	43.3	-5,120	0.0	-58,034	0.0	-58,034	0.0	-58,034	0.0	-58,034	0.0
23	46.1	41.8	-35,112	0.0	-63,559	0.0	-63,559	0.0	-63,559	0.0	-63,559	0.0
24	43.9	40.1	-43,601	0.0	-69,734	0.0	-69,734	0.0	-69,734	0.0	-69,734	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-3,993	0.0	0	0.0	-30,180	0.0	-30,180	0.0	-30,180	0.0
2	48.7	44.6	-14,287	0.0	0	0.0	-38,982	0.0	-38,982	0.0	-38,982	0.0
3	46.6	42.9	-23,291	0.0	0	0.0	-44,678	0.0	-44,678	0.0	-44,678	0.0
4	44.9	41.4	-29,194	0.0	0	0.0	-52,625	0.0	-52,625	0.0	-52,625	0.0
5	43.9	40.8	-36,410	0.0	-41,746	0.0	-57,763	0.0	-57,763	0.0	-57,763	0.0
6	43.5	40.8	-40,746	0.0	-64,928	0.0	-64,928	0.0	-64,928	0.0	-64,928	0.0
7	44.0	41.4	-46,315	0.0	-67,828	0.0	-67,828	0.0	-67,828	0.0	-67,828	0.0
8	45.4	42.7	-41,643	0.0	-68,940	0.0	-68,940	0.0	-68,940	0.0	-68,940	0.0
9	47.7	44.3	-35,340	0.0	-69,789	0.0	-69,789	0.0	-69,789	0.0	-69,789	0.0
10	50.6	45.8	-25,229	0.0	-64,279	0.0	-64,279	0.0	-64,279	0.0	-64,279	0.0
11	53.9	47.4	-11,095	0.0	-55,486	0.0	-55,486	0.0	-55,486	0.0	-55,486	0.0
12	57.4	49.0	0	0.0	-45,703	0.0	-45,703	0.0	-45,703	0.0	-45,703	0.0
13	60.7	50.8	0	0.0	-35,048	0.0	-35,048	0.0	-35,048	0.0	-35,048	0.0
14	63.6	52.7	0	0.0	-21,290	0.0	-21,290	0.0	-21,290	0.0	-21,290	0.0
15	65.9	53.7	0	0.0	-10,726	0.0	-10,726	0.0	-10,726	0.0	-10,726	0.0
16	67.3	54.4	0	0.0	-2,739	0.0	-2,739	0.0	-2,739	0.0	-2,739	0.0
17	67.8	54.6	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	0.4	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	0.0	-19,993	0.0	-19,993	0.0	-19,993	0.0	-19,993	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9	52.1	0	0.0	-25,958	0.0	-25,958	0.0	-25,958	0.0	-25,958	0.0
10	58.9	53.2	0	0.0	-26,648	0.0	-26,648	0.0	-26,648	0.0	-26,648	0.0
11	62.6	55.2	0	0.0	-18,119	0.0	-18,119	0.0	-18,119	0.0	-18,119	0.0
12	66.5	57.3	0	0.0	-7,653	0.0	-7,653	0.0	-7,653	0.0	-7,653	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	6.4	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	7.3	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	6.7	0	1.1	0	1.1	0	1.1	0	1.1
21	70.2	63.3	0	5.7	0	2.0	0	2.0	0	2.0	0	2.0
22	68.0	62.5	0	4.8	0	1.5	0	1.5	0	1.5	0	1.5
23	65.7	60.5	0	3.7	0	0.7	0	0.7	0	0.7	0	0.7
24	63.4	58.5	0	2.6	0	0.1	0	0.1	0	0.1	0	0.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	4.5	0	1.8	0	2.1	0	2.1	0	2.1
2	65.7	61.5	0	3.7	0	1.2	0	1.3	0	1.3	0	1.3
3	63.6	59.7	0	2.9	0	0.6	0	0.6	0	0.6	0	0.6
4	61.8	58.4	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	1.1	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	7.8	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	9.0	0	3.5	0	3.5	0	3.5	0	3.5
16	84.9	67.1	0	9.9	0	4.9	0	4.9	0	4.9	0	4.9
17	84.6	67.3	0	10.6	0	5.5	0	5.6	0	5.6	0	5.6
18	83.8	67.1	0	10.8	0	5.9	0	5.9	0	5.9	0	5.9
19	82.4	67.5	0	10.6	0	5.9	0	5.9	0	5.9	0	5.9
20	80.6	68.9	0	9.6	0	5.4	0	5.4	0	5.4	0	5.4
21	78.5	71.0	0	8.7	0	5.1	0	5.1	0	5.1	0	5.1
22	76.1	69.9	0	7.6	0	4.7	0	4.7	0	4.7	0	4.7
23	73.4	68.0	0	6.4	0	3.8	0	3.8	0	3.8	0	3.8
24	70.8	65.5	0	5.4	0	3.0	0	3.0	0	3.0	0	3.0

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	8.0	0	4.4	0	4.9	0	4.9	0	4.9
2	72.6	68.4	0	6.9	0	3.8	0	4.1	0	4.1	0	4.1
3	70.9	67.3	0	6.2	0	3.0	0	3.2	0	3.2	0	3.2
4	69.6	66.5	0	5.4	0	2.4	0	2.5	0	2.5	0	2.5
5	68.7	65.8	0	4.8	0	1.7	0	1.7	0	1.7	0	1.7
6	68.5	65.7	0	4.3	0	1.2	0	1.2	0	1.2	0	1.2
7	69.0	66.3	0	4.3	0	1.0	0	1.0	0	1.0	0	1.0
8	70.6	66.9	0	4.8	0	0.9	0	0.9	0	0.9	0	0.9
9	73.0	67.7	0	5.5	0	1.5	0	1.5	0	1.5	0	1.5
10	76.1	68.1	0	6.4	0	2.5	0	2.5	0	2.5	0	2.5
11	79.5	69.1	0	7.6	0	3.5	0	3.5	0	3.5	0	3.5
12	82.9	70.1	0	8.9	0	4.6	0	4.6	0	4.6	0	4.6
13	86.0	71.0	0	10.1	0	5.8	0	5.8	0	5.8	0	5.8
14	88.4	72.5	0	11.1	0	6.9	0	7.0	0	7.0	0	7.0
15	90.0	74.0	0	12.3	0	8.2	0	8.2	0	8.2	0	8.2
16	90.5	73.7	0	13.3	0	8.8	0	8.8	0	8.8	0	8.8
17	90.3	74.2	0	13.8	0	9.3	0	9.3	0	9.3	0	9.3
18	89.4	73.9	0	13.8	0	9.5	0	9.5	0	9.5	0	9.5
19	88.1	74.5	0	13.8	0	9.5	0	9.5	0	9.5	0	9.5
20	86.4	75.3	0	12.7	0	9.0	0	9.0	0	9.0	0	9.0
21	84.3	76.5	0	12.0	0	8.5	0	8.5	0	8.5	0	8.5
22	81.9	75.7	0	10.9	0	7.8	0	7.8	0	7.8	0	7.8
23	79.5	74.0	0	9.9	0	7.0	0	7.0	0	7.0	0	7.0
24	77.0	72.1	0	8.8	0	6.0	0	6.0	0	6.0	0	6.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

July		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7 70.5	0	7.9	0	3.8	0	4.2	0	4.2	0	4.2
2	72.4 69.4	0	6.9	0	3.1	0	3.3	0	3.3	0	3.3
3	71.3 68.4	0	6.0	0	2.5	0	2.6	0	2.6	0	2.6
4	70.5 67.7	0	5.4	0	2.0	0	2.0	0	2.0	0	2.0
5	70.0 67.4	0	4.9	0	1.4	0	1.5	0	1.5	0	1.5
6	69.9 67.5	0	4.5	0	0.9	0	1.0	0	1.0	0	1.0
7	70.3 68.0	0	4.5	0	0.7	0	0.7	0	0.7	0	0.7
8	71.7 69.0	0	4.7	0	0.8	0	0.8	0	0.8	0	0.8
9	73.7 69.5	0	5.5	0	1.4	0	1.5	0	1.5	0	1.5
10	76.2 70.6	0	6.3	0	2.5	0	2.5	0	2.5	0	2.5
11	78.9 71.8	0	7.2	0	3.6	0	3.6	0	3.6	0	3.6
12	81.4 73.0	0	8.5	0	4.7	0	4.7	0	4.7	0	4.7
13	83.4 74.4	0	9.7	0	6.0	0	6.0	0	6.0	0	6.0
14	84.8 74.8	0	10.9	0	7.0	0	7.0	0	7.0	0	7.0
15	85.2 75.0	0	11.9	0	7.9	0	7.9	0	7.9	0	7.9
16	85.1 75.0	0	12.7	0	8.5	0	8.5	0	8.5	0	8.5
17	84.6 74.7	0	13.5	0	8.8	0	8.8	0	8.8	0	8.8
18	83.8 74.6	0	13.6	0	9.0	0	9.0	0	9.0	0	9.0
19	82.7 74.6	0	13.1	0	8.9	0	8.9	0	8.9	0	8.9
20	81.4 74.4	0	12.4	0	8.3	0	8.3	0	8.3	0	8.3
21	79.9 74.9	0	11.5	0	7.7	0	7.7	0	7.7	0	7.7
22	78.4 74.0	0	10.5	0	6.9	0	6.9	0	6.9	0	6.9
23	76.8 72.7	0	9.4	0	5.9	0	5.9	0	5.9	0	5.9
24	75.2 71.6	0	8.5	0	5.1	0	5.1	0	5.1	0	5.1

August		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0 72.0	0	7.8	0	4.2	0	4.7	0	4.7	0	4.7
2	73.2 70.3	0	6.7	0	3.6	0	3.9	0	3.9	0	3.9
3	71.7 68.9	0	5.8	0	2.8	0	2.9	0	2.9	0	2.9
4	70.4 67.8	0	5.2	0	2.2	0	2.3	0	2.3	0	2.3
5	69.5 66.8	0	4.5	0	1.6	0	1.7	0	1.7	0	1.7
6	68.9 66.4	0	4.1	0	1.0	0	1.0	0	1.0	0	1.0
7	68.7 66.4	0	3.9	0	0.5	0	0.5	0	0.5	0	0.5
8	69.2 66.8	0	4.4	0	0.4	0	0.4	0	0.4	0	0.4
9	70.8 67.7	0	4.9	0	0.7	0	0.7	0	0.7	0	0.7
10	73.2 67.7	0	5.9	0	1.6	0	1.6	0	1.6	0	1.6
11	76.2 68.8	0	7.0	0	2.6	0	2.6	0	2.6	0	2.6
12	79.3 70.3	0	8.3	0	4.0	0	4.0	0	4.0	0	4.0
13	82.3 72.2	0	9.5	0	5.1	0	5.1	0	5.1	0	5.1
14	84.7 73.7	0	10.7	0	6.4	0	6.4	0	6.4	0	6.4
15	86.3 74.6	0	11.9	0	7.5	0	7.5	0	7.5	0	7.5
16	86.8 75.1	0	12.9	0	8.5	0	8.5	0	8.5	0	8.5
17	86.6 75.1	0	13.3	0	9.0	0	9.0	0	9.0	0	9.0
18	86.0 75.3	0	13.5	0	9.4	0	9.4	0	9.4	0	9.4
19	85.1 76.0	0	12.9	0	9.1	0	9.1	0	9.1	0	9.1
20	83.8 76.8	0	12.1	0	8.6	0	8.6	0	8.6	0	8.6
21	82.3 77.2	0	11.2	0	8.1	0	8.1	0	8.1	0	8.1
22	80.6 76.3	0	10.2	0	7.3	0	7.3	0	7.3	0	7.3
23	78.7 75.3	0	9.1	0	6.4	0	6.4	0	6.4	0	6.4
24	76.8 73.7	0	8.3	0	5.5	0	5.5	0	5.5	0	5.5

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	5.4	0	1.9	0	2.3	0	2.3	0	2.3
2	67.6	65.0	0	4.2	0	1.1	0	1.3	0	1.3	0	1.3
3	65.8	63.4	0	3.4	0	0.5	0	0.6	0	0.6	0	0.6
4	64.3	62.2	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	2.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	3.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	6.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	8.3	0	0.5	0	0.5	0	0.5	0	0.5
15	83.0	70.0	0	9.5	0	4.9	0	5.0	0	5.0	0	5.0
16	83.7	70.5	0	10.5	0	5.5	0	5.6	0	5.6	0	5.6
17	83.4	70.5	0	11.0	0	6.2	0	6.2	0	6.2	0	6.2
18	82.8	70.9	0	10.8	0	6.4	0	6.4	0	6.4	0	6.4
19	81.6	72.7	0	10.1	0	6.2	0	6.2	0	6.2	0	6.2
20	80.1	74.7	0	9.5	0	5.9	0	5.9	0	5.9	0	5.9
21	78.3	74.1	0	8.7	0	5.5	0	5.5	0	5.5	0	5.5
22	76.3	72.4	0	7.5	0	4.7	0	4.7	0	4.7	0	4.7
23	74.1	70.7	0	6.5	0	3.8	0	3.8	0	3.8	0	3.8
24	71.8	68.9	0	5.5	0	3.1	0	3.1	0	3.1	0	3.1

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-30,055	0.0	-30,055	0.0	-30,055	0.0
3	48.4	46.9	0	0.0	0	0.0	-38,614	0.0	-38,614	0.0	-38,614	0.0
4	47.1	45.8	0	0.0	0	0.0	-46,633	0.0	-46,633	0.0	-46,633	0.0
5	46.3	44.8	0	0.0	-12,346	0.0	-51,298	0.0	-51,298	0.0	-51,298	0.0
6	46.0	44.5	0	0.0	-59,262	0.0	-59,262	0.0	-59,262	0.0	-59,262	0.0
7	46.8	45.3	0	0.0	-61,969	0.0	-61,969	0.0	-61,969	0.0	-61,969	0.0
8	48.9	47.5	-24,146	0.0	-62,683	0.0	-62,683	0.0	-62,683	0.0	-62,683	0.0
9	52.2	49.9	-27,350	0.0	-59,527	0.0	-59,527	0.0	-59,527	0.0	-59,527	0.0
10	56.2	52.5	-17,051	0.0	-52,634	0.0	-52,634	0.0	-52,634	0.0	-52,634	0.0
11	60.4	54.4	-3,776	0.0	-43,502	0.0	-43,502	0.0	-43,502	0.0	-43,502	0.0
12	64.4	56.0	0	0.0	-31,103	0.0	-31,103	0.0	-31,103	0.0	-31,103	0.0
13	67.7	57.3	0	0.0	-17,160	0.0	-17,160	0.0	-17,160	0.0	-17,160	0.0
14	69.8	58.2	0	0.0	-5,761	0.0	-5,761	0.0	-5,761	0.0	-5,761	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

## 01 Card - Job Information

-----  
 Project: SINGAL SCHOOL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 25810 ( 1 BUILDING)

## -----CARD 08-- Climatic Information-----

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA						10		

## -----CARD 09-- Load Simulation Periods-----

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

## -----CARD 10 -- Load Simulation Parameters-----

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	YES

## ----- Load Section Alternative #1 -----

## ---- Load Alternative ----

Number	Description
1	SCHOOL_OFFS

## -----CARD 20-- General Room Parameters-----

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Room	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number	Descrip					Resistance	Height	Multiplier	Zone	
1	1	BLOCK	7400	10	3	0		11.3	2		

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	2	BLOCK	3822	10	3	0		24.7			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO
2		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			
2	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	86	11.75		196	225			
1	2	61.75	11.75		196	315			
1	3	285.25	11.75		196	45			
1	4	61.75	11.75		196	135			
1	5	86	11.75		196	225			
1	6	86	11.75		196	0			
1	7	61.75	11.75		196	90			
1	8	285.25	11.75		196	180			
1	9	61.75	11.75		196	270			
1	10	86	11.75		196	0			
1	11	86	11.75		196	135			
1	12	61.75	11.75		196	225			
1	13	285.25	11.75		196	315			
1	14	61.75	11.75		196	45			
1	15	86	11.75		196	135			
2	1	114.75	25.25		196	0			
2	2	114.75	25.25		196	135			
2	3	114.75	25.25		196	225			



## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	8	9	1.03	.82					
1	2	2.5	8	4	1.03	.82					
1	3	2.5	8	39	1.03	.82					
1	4	2.5	8	4	1.03	.82					
1	5	2.5	8	9	1.03	.82					
1	6	2.5	8	9	1.03	.82					
1	7	2.5	8	4	1.03	.82					
1	8	2.5	8	31	1.03	.82					
1	9	2.5	8	4	1.03	.82					
1	10	2.5	8	9	1.03	.82					
1	11	2.5	8	9	1.03	.82					
1	12	2.5	8	4	1.03	.82					
1	13	2.5	8	24	1.03	.82					
1	14	2.5	8	4	1.03	.82					
1	15	2.5	8	9	1.03	.82					
2	1	2.5	8	2	1.03	.82					
2	2	2.5	8	2	1.03	.82					
2	3	2.5	8	2	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	TYPE10	TYPE10	YES	YES						
2	TYPE10	TYPE10	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	434	PEOPLE	255	325	2	WATT-SF	ASHRAE2				
2	100	PEOPLE	345	435	2.6	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	40315	BTUH	TYPE10						
2	1	MISS.	30	KW	TYPE10						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
	Value	Units	Value	Units	Value	Units	Value	Units		
1	15	CFM-P	15	CFM-P	.1	CFM-SF	.15	CFM-SF		

```

-----CARD 29--- Room Airflows -----
-----Ventilation-----
Room  ----Cooling----  ----Heating----
Number Value  Units  Value  Units  Value  Units  Value  Units  --Reheat Minimum--
2      15    CFM-P   15    CFM-P   .1     CFM-SF  .15    CFM-SF  Value  Units

```

```

----- System Section Alternative #1 -----

```

```

-----CARD 39-- System Alternative -----

```

```

Number  Description
1       FAN COIL UNITS

```

```

-----CARD 40--- System Type -----

```

```

-----OPTIONAL VENTILATION SYSTEM-----
System  Ventil  Fan
Set  System  Deck  COOLing  Heating  Cooling  Heating  Static
Number Type  Location  SADBvh  SADBvh  Schedule  Schedule  Pressure
1     FC
2     SZ

```

```

-----CARD 41-- Zone Assignment -----

```

```

System
Set      Ref #1      Ref #2      Ref #3      Ref #4      Ref #5      Ref #6
Number  Begin  End  Begin  End  Begin  End  Begin  End  Begin  End  Begin  End
1       1      1
2       2      2

```

```

-----CARD 42--- Fan SP and Duct Parameters-----

```

```

System  Cool  Heat  Return  Mn Exh  Aux  Rm Exh  Cool  Return  Supply  Supply  Return
Set     Fan  Fan  Fan  Fan  Fan  Fan  Fan Mtr  Fan Mtr  Duct  Duct  Air
Number SP  SP  SP  SP  SP  SP  Loc  Loc  Ht Gn  Loc  Path
1
2

```

```

-----CARD 48-- Cooling Capacity Overrides -----

```

```

System  Misc  -----MAIN COOLING-----  ---AUX COOLING---
Set  People  Lights  Loads  Capacity  Capacity  Capacity  Capacity  Capacity  Capacity
Number Variance  Variance  Variance  Value  Units  Sizing  Location  Value  Units
1      80

```

-----CARD 48-- Cooling Capacity Overrides -----

System	People	Lights	Misc	Capacity	Capacity	Capacity	Capacity	Capacity	Capacity
Set	Variance	Variance	Loads	Value	Units	Sizing	Location	Value	Units
Number			Variance						
2			80						

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

TYPE10 FT GORDON

YES AVAILABLE (100%)

System:

FC FAN COIL

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: TYPE10  
Project: FT GORDON  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: DSGN

Hour	Util Percent
0	100
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	0
6	100
18	0
24	

Starting Month: JAN Ending Month: DEC  
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	



```
*****  
*****  
**                                     **  
**          TRACE  600  ANALYSIS      **  
**                                     **  
**          by          **             **  
**                                     **  
*****  
*****
```

NELSON HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29801

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8:13:58 8/15/94  
Dataset Name: FGTYPS15 .TM

AIRFLOW - ALTERNATIVE 1  
 TV STUDIO

----- SYSTEM SUMMARY -----  
 (Design Airflow Quantities)

System Number	System Type	Main					Auxil. Supply	Room Exhaust
		Outside Airflow (Cfm)	Cooling Airflow (Cfm)	Heating Airflow (Cfm)	Return Airflow (Cfm)	Exhaust Airflow (Cfm)	Airflow (Cfm)	Airflow (Cfm)
1	SZ	1,620	37,700	37,700	40,013	3,933	0	0
Totals		1,620	37,700	37,700	40,013	3,933	0	0

CAPACITY - ALTERNATIVE 1  
 TV STUDIO

----- SYSTEM SUMMARY -----  
 (Design Capacity Quantities)

System Number	System Type	Cooling				Cooling Totals (Tons)	Heating						Heating Totals (Btuh)		
		Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Capacity (Tons)	Vent Capacity (Tons)		Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Capacity (Btuh)		Vent Capacity (Btuh)	
1	SZ	47.0	0.0	0.0	0.0	47.0	-698,828	0	0	0	0	0	0	0	-698,828
Totals		47.0	0.0	0.0	0.0	47.0	-698,828	0	0	0	0	0	0	0	-698,828

The building peaked at hour 16 month 8 with a capacity of 47.0 tons

ENGINEERING CHECKS - ALTERNATIVE 1  
 TV STUDIO

----- ENGINEERING CHECKS -----

System Number	Main/Auxiliary	System Type	Percent Outside Air	Cooling				Heating		Floor Area Sq Ft
				Cfm/ Sq Ft	Cfm/ Ton	Sq Ft /Ton	Btuh/ Sq Ft	Cfm/ Sq Ft	Btuh/ Sq Ft	
1	Main	SZ	4.30	1.00	802.5	802.5	14.95	1.00	-18.54	37,700

System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 8/16		*		Mo/Hr: 6/18		*		Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*		OADB: 96		*		OADB: 23		
	Space	Ret. Air	Ret. Air	Net	Percent	*	Space	Percent	*	Space Peak	Coil Peak	Percent
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	72,081	0	0	72,081	12.79	*	92,222	19.35	*	-59,626	-59,626	8.53
Glass Solar	106,260	0	0	106,260	18.85	*	84,525	17.74	*	0	0	0.00
Glass Cond	48,505	0	0	48,505	8.60	*	51,241	10.75	*	-122,383	-122,383	17.51
Wall Cond	180,179	0	0	180,179	31.96	*	205,817	43.19	*	-320,477	-320,477	45.86
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	83,568	0	0	83,568	14.82	*	42,696	8.96	*	-115,465	-115,465	16.52
Sub Total==>	490,594	0	0	490,594	87.02	*	476,502	100.00	*	-617,950	-617,950	88.43
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	73,169	12.98	*	0	0.00	*	0	-80,877	11.57
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0	0.00	*		0.00	*		0	0.00
Duct Heat Pkqp		0	0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==>	490,594	0	0	563,763	100.00	*	476,502	100.00	*	-617,950	-698,828	100.00

-----COOLING COIL SELECTION-----

	COOLING COIL SELECTION			Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total		Glass (sf) (%)
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	
Main Clg	47.0	563.8	37,700	75.9	64.9	75.2	63.6	60.3	73.3	37,700	0	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	18,850	0	
Totals	47.0	563.8								23,128	2,415 10	

-----AREAS-----

-----HEATING COIL SELECTION-----

	HEATING COIL SELECTION				AIRFLOWS (cfm)				ENGINEERING CHECKS--			TEMPERATURES (F)---		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	4.3	Type	Clg	Htg		
Main Htg	-698.8	37,700	66.1	82.8	Vent	1,620	1,620	Clg Cfm/Sqft	1.00	SADB	63.6	82.8		
Aux Htg	0.0	0	0.0	0.0	Infil	1,850	2,313	Clg Cfm/Ton	802.46	Plenum	75.0	68.0		
Preheat	-0.0	37,700	66.1	63.6	Supply	37,700	37,700	Clg Sqft/Ton	802.46	Return	75.0	68.0		
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	14.95	Ret/OA	75.9	66.1		
Humidif	0.0	0	0.0	0.0	Return	37,700	37,700	No. People	108	Runarnd	75.0	68.0		
Opt Vent	0.0	0	0.0	0.0	Exhaust	1,620	1,620	Htg % OA	4.3	Fn MtrTD	0.0	0.0		
Total	-698.8				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0		
					Auxil	0	0	Htg Btuh/Sqft	-18.54	Fn Frict	0.0	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-620,093	0.0	-331,745	0.0	-331,745	0.0	-331,745	0.0	-331,745	0.0
2	32.9	30.7	-553,296	0.0	-354,099	0.0	-354,099	0.0	-354,099	0.0	-354,099	0.0
3	33.1	31.3	-404,835	0.0	-369,847	0.0	-369,847	0.0	-369,847	0.0	-369,847	0.0
4	33.9	32.1	-297,680	0.0	-376,737	0.0	-376,737	0.0	-376,737	0.0	-376,737	0.0
5	35.2	33.5	-324,800	0.0	-390,805	0.0	-390,805	0.0	-390,805	0.0	-390,805	0.0
6	37.0	35.4	-337,020	0.0	-400,232	0.0	-400,232	0.0	-400,232	0.0	-400,232	0.0
7	39.0	37.6	-346,233	0.0	-406,471	0.0	-406,471	0.0	-406,471	0.0	-406,471	0.0
8	41.3	40.1	-340,701	0.0	-402,762	0.0	-402,762	0.0	-402,762	0.0	-402,762	0.0
9	43.7	42.5	-313,113	0.0	-382,152	0.0	-382,152	0.0	-382,152	0.0	-382,152	0.0
10	46.1	44.0	-254,468	0.0	-355,262	0.0	-355,262	0.0	-355,262	0.0	-355,262	0.0
11	48.4	45.0	-193,886	0.0	-318,301	0.0	-318,301	0.0	-318,301	0.0	-318,301	0.0
12	50.5	45.6	-117,937	0.0	-282,914	0.0	-282,914	0.0	-282,914	0.0	-282,914	0.0
13	52.2	46.1	-49,500	0.0	-242,068	0.0	-242,068	0.0	-242,068	0.0	-242,068	0.0
14	53.5	46.4	0	0.0	-203,352	0.0	-203,352	0.0	-203,352	0.0	-203,352	0.0
15	54.3	46.3	0	0.0	-172,938	0.0	-172,938	0.0	-172,938	0.0	-172,938	0.0
16	54.6	46.1	0	0.0	-146,256	0.0	-146,256	0.0	-146,256	0.0	-146,256	0.0
17	54.0	45.9	0	0.0	-133,191	0.0	-133,191	0.0	-133,191	0.0	-133,191	0.0
18	52.5	45.0	0	0.0	-138,693	0.0	-138,693	0.0	-138,693	0.0	-138,693	0.0
19	50.1	44.8	0	0.0	-154,345	0.0	-154,345	0.0	-154,345	0.0	-154,345	0.0
20	47.1	43.3	0	0.0	-183,249	0.0	-183,249	0.0	-183,249	0.0	-183,249	0.0
21	43.7	40.4	0	0.0	-211,518	0.0	-211,518	0.0	-211,518	0.0	-211,518	0.0
22	40.4	37.3	0	0.0	-241,941	0.0	-241,941	0.0	-241,941	0.0	-241,941	0.0
23	37.3	34.9	-148,758	0.0	-274,378	0.0	-274,378	0.0	-274,378	0.0	-274,378	0.0
24	34.9	32.6	-191,537	0.0	-309,265	0.0	-309,265	0.0	-309,265	0.0	-309,265	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-205,612	0.0	-282,292	0.0	-282,292	0.0	-282,292	0.0	-282,292	0.0
2	39.7	37.1	-229,848	0.0	-301,634	0.0	-301,634	0.0	-301,634	0.0	-301,634	0.0
3	37.8	35.1	-260,588	0.0	-332,751	0.0	-332,751	0.0	-332,751	0.0	-332,751	0.0
4	36.3	33.8	-289,717	0.0	-347,263	0.0	-347,263	0.0	-347,263	0.0	-347,263	0.0
5	35.1	32.6	-305,561	0.0	-368,538	0.0	-368,538	0.0	-368,538	0.0	-368,538	0.0
6	34.4	32.0	-319,619	0.0	-390,338	0.0	-390,338	0.0	-390,338	0.0	-390,338	0.0
7	34.1	31.9	-329,329	0.0	-406,386	0.0	-406,386	0.0	-406,386	0.0	-406,386	0.0
8	34.6	32.4	-329,202	0.0	-414,063	0.0	-414,063	0.0	-414,063	0.0	-414,063	0.0
9	36.0	33.8	-292,794	0.0	-397,551	0.0	-397,551	0.0	-397,551	0.0	-397,551	0.0
10	38.2	34.7	-239,591	0.0	-383,065	0.0	-383,065	0.0	-383,065	0.0	-383,065	0.0
11	40.9	36.2	-183,962	0.0	-364,736	0.0	-364,736	0.0	-364,736	0.0	-364,736	0.0
12	43.9	37.4	-119,528	0.0	-324,475	0.0	-324,475	0.0	-324,475	0.0	-324,475	0.0
13	46.9	39.4	-53,100	0.0	-280,412	0.0	-280,412	0.0	-280,412	0.0	-280,412	0.0
14	49.7	41.4	0	0.0	-239,961	0.0	-239,961	0.0	-239,961	0.0	-239,961	0.0
15	51.8	42.8	0	0.0	-202,971	0.0	-202,971	0.0	-202,971	0.0	-202,971	0.0
16	53.2	43.9	0	0.0	-181,228	0.0	-181,228	0.0	-181,228	0.0	-181,228	0.0
17	53.7	44.2	0	0.0	-162,366	0.0	-162,366	0.0	-162,366	0.0	-162,366	0.0
18	53.4	44.4	0	0.0	-158,356	0.0	-158,356	0.0	-158,356	0.0	-158,356	0.0
19	52.7	44.4	0	0.0	-166,583	0.0	-166,583	0.0	-166,583	0.0	-166,583	0.0
20	51.5	45.2	0	0.0	-179,698	0.0	-179,698	0.0	-179,698	0.0	-179,698	0.0
21	50.0	44.6	0	0.0	-202,158	0.0	-202,158	0.0	-202,158	0.0	-202,158	0.0
22	48.1	43.3	0	0.0	-217,347	0.0	-217,347	0.0	-217,347	0.0	-217,347	0.0
23	46.1	41.8	-76,027	0.0	-238,711	0.0	-238,711	0.0	-238,711	0.0	-238,711	0.0
24	43.9	40.1	-170,653	0.0	-260,176	0.0	-260,176	0.0	-260,176	0.0	-260,176	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

March Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-37,974	0.0	0	0.0	-134,487	0.0	-134,487	0.0	-134,487	0.0
2	48.7	44.6	-73,329	0.0	0	0.0	-157,513	0.0	-157,513	0.0	-157,513	0.0
3	46.6	42.9	-95,661	0.0	0	0.0	-185,559	0.0	-185,559	0.0	-185,559	0.0
4	44.9	41.4	-125,203	0.0	-126,064	0.0	-204,925	0.0	-204,925	0.0	-204,925	0.0
5	43.9	40.8	-141,997	0.0	-230,755	0.0	-230,755	0.0	-230,755	0.0	-230,755	0.0
6	43.5	40.8	-164,920	0.0	-247,033	0.0	-247,033	0.0	-247,033	0.0	-247,033	0.0
7	44.0	41.4	-174,832	0.0	-256,182	0.0	-256,182	0.0	-256,182	0.0	-256,182	0.0
8	45.4	42.7	-154,428	0.0	-258,582	0.0	-258,582	0.0	-258,582	0.0	-258,582	0.0
9	47.7	44.3	-121,439	0.0	-247,126	0.0	-247,126	0.0	-247,126	0.0	-247,126	0.0
10	50.6	45.8	-70,040	0.0	-227,045	0.0	-227,045	0.0	-227,045	0.0	-227,045	0.0
11	53.9	47.4	-13,542	0.0	-184,076	0.0	-184,076	0.0	-184,076	0.0	-184,076	0.0
12	57.4	49.0	0	0.0	-141,080	0.0	-141,080	0.0	-141,080	0.0	-141,080	0.0
13	60.7	50.8	0	0.0	-95,423	0.0	-95,423	0.0	-95,423	0.0	-95,423	0.0
14	63.6	52.7	0	0.0	-46,432	0.0	-46,432	0.0	-46,432	0.0	-46,432	0.0
15	65.9	53.7	0	0.0	-21,002	0.0	-21,002	0.0	-21,002	0.0	-21,002	0.0
16	67.3	54.4	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	18.3	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	16.8	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	13.4	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	2.2	-19,993	0.0	-19,993	0.0	-19,993	0.0	-19,993	0.0
23	57.1	51.9	0	0.0	-72,813	0.0	-72,813	0.0	-72,813	0.0	-72,813	0.0
24	54.2	49.4	0	0.0	-100,284	0.0	-100,284	0.0	-100,284	0.0	-100,284	0.0

April Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	-6,734	0.0	-22,796	0.0	-22,796	0.0	-22,796	0.0
8	53.9	51.5	0	0.0	-133,585	0.0	-133,585	0.0	-133,585	0.0	-133,585	0.0
9	55.9	52.1	0	0.0	-127,214	0.0	-127,214	0.0	-127,214	0.0	-127,214	0.0
10	58.9	53.2	0	0.0	-100,873	0.0	-100,873	0.0	-100,873	0.0	-100,873	0.0
11	62.6	55.2	0	0.0	-63,516	0.0	-63,516	0.0	-63,516	0.0	-63,516	0.0
12	66.5	57.3	0	0.0	-23,280	0.0	-23,280	0.0	-23,280	0.0	-23,280	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	13.1	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	23.0	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	24.9	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	26.0	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	24.6	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	22.8	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	19.2	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	15.9	0	1.9	0	1.9	0	1.9	0	1.9
22	68.0	62.5	0	12.9	0	2.4	0	2.4	0	2.4	0	2.4
23	65.7	60.5	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	6.8	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	11.3	0	4.2	0	5.0	0	5.0	0	5.0
2	65.7	61.5	0	11.0	0	2.2	0	2.6	0	2.6	0	2.6
3	63.6	59.7	0	8.4	0	0.3	0	0.3	0	0.3	0	0.3
4	61.8	58.4	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	7.5	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	11.5	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	15.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	23.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	28.4	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	31.5	0	8.6	0	8.6	0	8.6	0	8.6
16	84.9	67.1	0	32.9	0	16.1	0	16.2	0	16.2	0	16.2
17	84.6	67.3	0	34.4	0	17.1	0	17.1	0	17.1	0	17.1
18	83.8	67.1	0	33.7	0	17.7	0	17.7	0	17.7	0	17.7
19	82.4	67.5	0	32.6	0	17.5	0	17.5	0	17.5	0	17.5
20	80.6	68.9	0	28.7	0	16.0	0	16.1	0	16.1	0	16.1
21	78.5	71.0	0	26.3	0	15.3	0	15.3	0	15.3	0	15.3
22	76.1	69.9	0	22.3	0	13.3	0	13.3	0	13.3	0	13.3
23	73.4	68.0	0	19.5	0	11.4	0	11.4	0	11.4	0	11.4
24	70.8	65.5	0	16.2	0	8.6	0	8.6	0	8.6	0	8.6

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	26.9	0	14.3	0	16.1	0	16.1	0	16.1
2	72.6	68.4	0	23.8	0	12.5	0	13.3	0	13.3	0	13.3
3	70.9	67.3	0	20.7	0	9.6	0	9.9	0	9.9	0	9.9
4	69.6	66.5	0	18.8	0	7.7	0	7.8	0	7.8	0	7.8
5	68.7	65.8	0	17.3	0	5.8	0	5.9	0	5.9	0	5.9
6	68.5	65.7	0	15.2	0	3.3	0	3.3	0	3.3	0	3.3
7	69.0	66.3	0	17.1	0	3.1	0	3.1	0	3.1	0	3.1
8	70.6	66.9	0	18.5	0	4.2	0	4.2	0	4.2	0	4.2
9	73.0	67.7	0	21.7	0	5.6	0	5.6	0	5.6	0	5.6
10	76.1	68.1	0	24.9	0	9.4	0	9.4	0	9.4	0	9.4
11	79.5	69.1	0	28.4	0	13.1	0	13.1	0	13.1	0	13.1
12	82.9	70.1	0	32.8	0	16.8	0	16.8	0	16.8	0	16.8
13	86.0	71.0	0	36.7	0	21.1	0	21.1	0	21.1	0	21.1
14	88.4	72.5	0	40.2	0	24.8	0	24.8	0	24.8	0	24.8
15	90.0	74.0	0	43.3	0	29.2	0	29.2	0	29.2	0	29.2
16	90.5	73.7	0	44.8	0	29.8	0	29.8	0	29.8	0	29.8
17	90.3	74.2	0	46.6	0	30.8	0	30.8	0	30.8	0	30.8
18	89.4	73.9	0	45.4	0	31.4	0	31.4	0	31.4	0	31.4
19	88.1	74.5	0	44.2	0	31.2	0	31.2	0	31.2	0	31.2
20	86.4	75.3	0	40.4	0	28.4	0	28.4	0	28.4	0	28.4
21	84.3	76.5	0	38.4	0	27.0	0	27.0	0	27.0	0	27.0
22	81.9	75.7	0	35.7	0	24.6	0	24.6	0	24.6	0	24.6
23	79.5	74.0	0	32.0	0	22.1	0	22.1	0	22.1	0	22.1
24	77.0	72.1	0	29.5	0	19.1	0	19.1	0	19.1	0	19.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	26.7	0	11.1	0	12.4	0	12.4	0	12.4
2	72.4	69.4	0	22.9	0	9.7	0	10.2	0	10.2	0	10.2
3	71.3	68.4	0	20.8	0	7.7	0	8.0	0	8.0	0	8.0
4	70.5	67.7	0	19.1	0	5.9	0	6.0	0	6.0	0	6.0
5	70.0	67.4	0	17.6	0	4.1	0	4.2	0	4.2	0	4.2
6	69.9	67.5	0	16.4	0	2.5	0	2.5	0	2.5	0	2.5
7	70.3	68.0	0	17.2	0	2.0	0	2.1	0	2.1	0	2.1
8	71.7	69.0	0	19.3	0	3.6	0	3.6	0	3.6	0	3.6
9	73.7	69.5	0	21.3	0	5.4	0	5.4	0	5.4	0	5.4
10	76.2	70.6	0	24.3	0	9.7	0	9.7	0	9.7	0	9.7
11	78.9	71.8	0	27.5	0	13.7	0	13.8	0	13.8	0	13.8
12	81.4	73.0	0	32.4	0	17.6	0	17.6	0	17.6	0	17.6
13	83.4	74.4	0	35.7	0	22.1	0	22.1	0	22.1	0	22.1
14	84.8	74.8	0	39.2	0	24.7	0	24.7	0	24.7	0	24.7
15	85.2	75.0	0	42.3	0	27.1	0	27.1	0	27.1	0	27.1
16	85.1	75.0	0	43.8	0	29.3	0	29.3	0	29.3	0	29.3
17	84.6	74.7	0	44.7	0	28.4	0	28.4	0	28.4	0	28.4
18	83.8	74.6	0	44.5	0	29.0	0	29.0	0	29.0	0	29.0
19	82.7	74.6	0	42.5	0	27.8	0	27.8	0	27.8	0	27.8
20	81.4	74.4	0	39.6	0	25.8	0	25.8	0	25.8	0	25.8
21	79.9	74.9	0	36.5	0	24.0	0	24.0	0	24.0	0	24.0
22	78.4	74.0	0	33.6	0	21.2	0	21.2	0	21.2	0	21.2
23	76.8	72.7	0	31.0	0	19.0	0	19.0	0	19.0	0	19.0
24	75.2	71.6	0	28.5	0	16.3	0	16.3	0	16.3	0	16.3

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	27.7	0	13.9	0	15.5	0	15.5	0	15.5
2	73.2	70.3	0	22.3	0	12.1	0	12.7	0	12.7	0	12.7
3	71.7	68.9	0	20.3	0	9.0	0	9.3	0	9.3	0	9.3
4	70.4	67.8	0	18.6	0	7.1	0	7.2	0	7.2	0	7.2
5	69.5	66.8	0	16.8	0	5.2	0	5.2	0	5.2	0	5.2
6	68.9	66.4	0	15.5	0	3.5	0	3.6	0	3.6	0	3.6
7	68.7	66.4	0	15.4	0	2.2	0	2.2	0	2.2	0	2.2
8	69.2	66.8	0	16.7	0	1.9	0	1.9	0	1.9	0	1.9
9	70.8	67.7	0	20.3	0	3.4	0	3.4	0	3.4	0	3.4
10	73.2	67.7	0	23.2	0	6.2	0	6.3	0	6.3	0	6.3
11	76.2	68.8	0	28.0	0	10.5	0	10.5	0	10.5	0	10.5
12	79.3	70.3	0	31.8	0	15.6	0	15.6	0	15.6	0	15.6
13	82.3	72.2	0	36.6	0	19.5	0	19.5	0	19.5	0	19.5
14	84.7	73.7	0	41.9	0	24.0	0	24.0	0	24.0	0	24.0
15	86.3	74.6	0	44.8	0	27.9	0	27.9	0	27.9	0	27.9
16	86.8	75.1	0	46.2	0	29.3	0	29.3	0	29.3	0	29.3
17	86.6	75.1	0	46.8	0	31.0	0	31.0	0	31.0	0	31.0
18	86.0	75.3	0	45.0	0	31.9	0	31.9	0	31.9	0	31.9
19	85.1	76.0	0	42.7	0	30.0	0	30.0	0	30.0	0	30.0
20	83.8	76.8	0	40.1	0	28.1	0	28.1	0	28.1	0	28.1
21	82.3	77.2	0	37.4	0	26.6	0	26.6	0	26.6	0	26.6
22	80.6	76.3	0	34.3	0	24.2	0	24.2	0	24.2	0	24.2
23	78.7	75.3	0	30.5	0	21.2	0	21.2	0	21.2	0	21.2
24	76.8	73.7	0	28.1	0	18.3	0	18.3	0	18.3	0	18.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	20.3	0	6.6	0	7.9	0	7.9	0	7.9
2	67.6	65.0	0	15.6	0	3.8	0	4.3	0	4.3	0	4.3
3	65.8	63.4	0	12.0	0	1.7	0	1.8	0	1.8	0	1.8
4	64.3	62.2	0	9.9	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	10.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	14.9	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	20.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	25.2	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	29.9	0	1.8	0	1.9	0	1.9	0	1.9
14	81.2	68.4	0	35.2	0	17.8	0	18.0	0	18.0	0	18.0
15	83.0	70.0	0	38.6	0	20.2	0	20.3	0	20.3	0	20.3
16	83.7	70.5	0	40.5	0	22.4	0	22.4	0	22.4	0	22.4
17	83.4	70.5	0	40.5	0	23.8	0	23.8	0	23.8	0	23.8
18	82.8	70.9	0	38.5	0	23.6	0	23.6	0	23.6	0	23.6
19	81.6	72.7	0	35.8	0	21.9	0	21.9	0	21.9	0	21.9
20	80.1	74.7	0	33.2	0	20.8	0	20.8	0	20.8	0	20.8
21	78.3	74.1	0	30.5	0	19.5	0	19.5	0	19.5	0	19.5
22	76.3	72.4	0	26.3	0	16.7	0	16.7	0	16.7	0	16.7
23	74.1	70.7	0	22.8	0	13.5	0	13.5	0	13.5	0	13.5
24	71.8	68.9	0	19.2	0	10.7	0	10.7	0	10.7	0	10.7

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-33,553	0.0	-33,553	0.0	-33,553	0.0
3	48.4	46.9	0	0.0	0	0.0	-143,082	0.0	-143,082	0.0	-143,082	0.0
4	47.1	45.8	0	0.0	0	0.0	-163,119	0.0	-163,119	0.0	-163,119	0.0
5	46.3	44.8	0	0.0	-128,108	0.0	-189,436	0.0	-189,436	0.0	-189,436	0.0
6	46.0	44.5	0	0.0	-209,416	0.0	-209,416	0.0	-209,416	0.0	-209,416	0.0
7	46.8	45.3	-59,009	0.0	-217,939	0.0	-217,939	0.0	-217,939	0.0	-217,939	0.0
8	48.9	47.5	-108,594	0.0	-216,206	0.0	-216,206	0.0	-216,206	0.0	-216,206	0.0
9	52.2	49.9	-67,561	0.0	-195,253	0.0	-195,253	0.0	-195,253	0.0	-195,253	0.0
10	56.2	52.5	-10,827	0.0	-169,137	0.0	-169,137	0.0	-169,137	0.0	-169,137	0.0
11	60.4	54.4	0	0.0	-114,847	0.0	-114,847	0.0	-114,847	0.0	-114,847	0.0
12	64.4	56.0	0	0.0	-57,300	0.0	-57,300	0.0	-57,300	0.0	-57,300	0.0
13	67.7	57.3	0	0.0	-11,623	0.0	-11,623	0.0	-11,623	0.0	-11,623	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	11.7	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	22.7	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	22.7	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	19.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	15.9	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	8.8	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 AHU'S

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	0	0.0	0	0.0	-108,642	0.0	-108,642	0.0	-108,642	0.0
2	49.4 47.3	0	0.0	0	0.0	-140,204	0.0	-140,204	0.0	-140,204	0.0
3	47.2 45.3	-52,138	0.0	0	0.0	-161,291	0.0	-161,291	0.0	-161,291	0.0
4	45.3 43.4	-134,460	0.0	-70,471	0.0	-190,058	0.0	-190,058	0.0	-190,058	0.0
5	43.9 42.2	-150,443	0.0	-207,460	0.0	-207,460	0.0	-207,460	0.0	-207,460	0.0
6	43.0 41.4	-172,992	0.0	-232,997	0.0	-232,997	0.0	-232,997	0.0	-232,997	0.0
7	42.7 41.2	-181,195	0.0	-246,911	0.0	-246,911	0.0	-246,911	0.0	-246,911	0.0
8	43.5 42.0	-166,447	0.0	-255,279	0.0	-255,279	0.0	-255,279	0.0	-255,279	0.0
9	45.9 44.0	-119,787	0.0	-242,652	0.0	-242,652	0.0	-242,652	0.0	-242,652	0.0
10	49.4 46.6	-58,623	0.0	-218,150	0.0	-218,150	0.0	-218,150	0.0	-218,150	0.0
11	53.8 48.6	0	0.0	-181,527	0.0	-181,527	0.0	-181,527	0.0	-181,527	0.0
12	58.4 50.6	0	0.0	-133,217	0.0	-133,217	0.0	-133,217	0.0	-133,217	0.0
13	62.8 52.6	0	0.0	-77,953	0.0	-77,953	0.0	-77,953	0.0	-77,953	0.0
14	66.3 54.5	0	0.0	-31,834	0.0	-31,834	0.0	-31,834	0.0	-31,834	0.0
15	68.7 55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	16.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	13.3	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	8.8	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	5.4	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5 54.0	0	0.0	-6,740	0.0	-6,740	0.0	-6,740	0.0	-6,740	0.0
24	54.7 51.7	0	0.0	-88,490	0.0	-88,490	0.0	-88,490	0.0	-88,490	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-124,316	0.0	0	0.0	-210,973	0.0	-210,973	0.0	-210,973	0.0
2	43.2 41.1	-155,045	0.0	-124,882	0.0	-241,489	0.0	-241,489	0.0	-241,489	0.0
3	41.8 39.8	-185,407	0.0	-257,399	0.0	-257,399	0.0	-257,399	0.0	-257,399	0.0
4	40.7 38.7	-203,294	0.0	-282,679	0.0	-282,679	0.0	-282,679	0.0	-282,679	0.0
5	40.1 38.4	-219,322	0.0	-297,289	0.0	-297,289	0.0	-297,289	0.0	-297,289	0.0
6	39.9 38.4	-231,412	0.0	-311,179	0.0	-311,179	0.0	-311,179	0.0	-311,179	0.0
7	40.5 39.0	-239,629	0.0	-325,489	0.0	-325,489	0.0	-325,489	0.0	-325,489	0.0
8	42.2 40.7	-244,993	0.0	-332,718	0.0	-332,718	0.0	-332,718	0.0	-332,718	0.0
9	44.9 43.4	-206,361	0.0	-310,526	0.0	-310,526	0.0	-310,526	0.0	-310,526	0.0
10	48.2 45.8	-157,604	0.0	-285,755	0.0	-285,755	0.0	-285,755	0.0	-285,755	0.0
11	51.7 48.3	-87,983	0.0	-247,170	0.0	-247,170	0.0	-247,170	0.0	-247,170	0.0
12	55.0 50.7	-23,310	0.0	-198,141	0.0	-198,141	0.0	-198,141	0.0	-198,141	0.0
13	57.7 52.0	0	0.0	-147,110	0.0	-147,110	0.0	-147,110	0.0	-147,110	0.0
14	59.5 52.6	0	0.0	-106,944	0.0	-106,944	0.0	-106,944	0.0	-106,944	0.0
15	60.1 52.7	0	0.0	-81,025	0.0	-81,025	0.0	-81,025	0.0	-81,025	0.0
16	59.9 52.6	0	0.0	-53,938	0.0	-53,938	0.0	-53,938	0.0	-53,938	0.0
17	59.2 52.1	0	0.0	-46,325	0.0	-46,325	0.0	-46,325	0.0	-46,325	0.0
18	58.2 51.8	0	0.0	-56,720	0.0	-56,720	0.0	-56,720	0.0	-56,720	0.0
19	56.8 52.2	0	1.9	-71,676	0.0	-71,676	0.0	-71,676	0.0	-71,676	0.0
20	55.0 51.4	0	0.7	-97,186	0.0	-97,186	0.0	-97,186	0.0	-97,186	0.0
21	53.1 50.1	0	0.0	-110,380	0.0	-110,380	0.0	-110,380	0.0	-110,380	0.0
22	51.0 48.1	0	0.0	-145,110	0.0	-145,110	0.0	-145,110	0.0	-145,110	0.0
23	48.9 46.2	0	0.0	-168,292	0.0	-168,292	0.0	-168,292	0.0	-168,292	0.0
24	46.9 44.1	0	0.0	-188,513	0.0	-188,513	0.0	-188,513	0.0	-188,513	0.0

## 01 Card - Job Information

-----  
 Project: NELSON HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29801

-----CARD 08-- Climatic Information-----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	YES

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	TV STUDIO

-----CARD 20-- General Room Parameters-----  

Room	Zone		Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Room	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number	Descrip					Resistance	Height	Multiplier	Zone	
1	1	BLOCK	1885	10	3	0		13.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	344.5	14		196	0			
1	2	57.5	14		196	90			
1	3	366.5	14		196	180			
1	4	57.5	14		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	10.5	17	1.03	.82					
1	2	2.5	10.5	4	1.03	.82					
1	3	2.5	10.5	21	1.03	.82					
1	4	2.5	10.5	4	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	54	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				



-----CARD 42--- Fan SP and Duct Parameters-----  
System Cool Heat Return Mn Exh Aux Rm Exh Cool Return Supply Supply Return  
Set Fan Fan Fan Fan Fan Fan Fan Mtr Fan Mtr Duct Duct Air  
Number SP SP SP SP SP SP SP Loc Loc Ht Gn Loc Path  
1

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHO FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature  
-----  
0 72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                                                 **  
**          TRACE    600  ANALYSIS                               **  
**                                                                 **  
**          by          **                                       **  
**                                                                 **  
*****  
*****
```

OLMSTEAD HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29805 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 8:19:56 8/16/94  
Dataset Name: FGTYP517 .TM

System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==> Mo/Hr: 8/16 \* Mo/Hr: 6/19 \* Mo/Hr: 13/ 1  
 Outside Air ==> OADB/WB/HR: 96/ 76/105.0 \* OADB: 93 \* OADB: 23

	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	84,509	0	0	84,509	13.95	*	108,588	48.87	*	-69,906	-69,906	11.33
Glass Solar	25,800	0	0	25,800	4.26	*	27,600	12.42	*	0	0	0.00
Glass Cond	10,296	0	0	10,296	1.70	*	9,821	4.42	*	-25,661	-25,661	4.16
Wall Cond	62,805	0	0	62,805	10.37	*	76,194	34.29	*	-109,544	-109,544	17.75
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	183,410	0	0	183,410	30.27	*	222,202	100.00	*	-205,111	-205,111	33.24
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	422,449	69.73	*	0	0.00	*	0	-411,876	66.76
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkqp	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Grand Total==>	183,410	0	0	605,860	100.00	*	222,202	100.00	*	-205,111	-616,986	100.00

-----COOLING COIL SELECTION-----AREAS-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains	Gross Total Floor	Glass (sf) (%)
Main Clg	50.5	605.9	22,100	82.9	68.1	80.0	65.9	59.9	67.9	22,100	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	50.5	605.9								22,100	
										0	0
										0	0
										22,100	0 0
										7,680	600 8

-----HEATING COIL SELECTION-----AIRFLOWS (cfm)-----ENGINEERING CHECKS-----TEMPERATURES (F)-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	37.3	Type	Clg	Htg
Main Htg	-617.0	22,100	51.2	76.4	Vent	8,250	8,250	Clg Cfm/Sqft	1.00	SADB	65.9	76.4
Aux Htg	0.0	0	0.0	0.0	Infil	0	0	Clg Cfm/Ton	437.73	Plenum	75.0	68.0
Preheat	-361.3	22,100	51.2	65.9	Supply	22,100	22,100	Clg Sqft/Ton	437.73	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	27.41	Ret/OA	82.9	51.2
Humidif	0.0	0	0.0	0.0	Return	22,100	22,100	No. People	1,100	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	8,250	8,250	Htg % OA	37.3	Fn MtrTD	0.0	0.0
Total	-617.0				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-27.92	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-406,593	0.0	-451,075	0.0	-451,075	0.0	-451,075	0.0	-451,075	0.0
2	32.9	30.7	-400,715	0.0	-464,996	0.0	-464,996	0.0	-464,996	0.0	-464,996	0.0
3	33.1	31.3	-397,322	0.0	-463,726	0.0	-463,726	0.0	-463,726	0.0	-463,726	0.0
4	33.9	32.1	-394,401	0.0	-457,748	0.0	-457,748	0.0	-457,748	0.0	-457,748	0.0
5	35.2	33.5	-391,302	0.0	-447,740	0.0	-447,740	0.0	-447,740	0.0	-447,740	0.0
6	37.0	35.4	-382,941	0.0	-433,433	0.0	-433,433	0.0	-433,433	0.0	-433,433	0.0
7	39.0	37.6	-370,495	0.0	-417,282	0.0	-417,282	0.0	-417,282	0.0	-417,282	0.0
8	41.3	40.1	-351,773	0.0	-398,285	0.0	-398,285	0.0	-398,285	0.0	-398,285	0.0
9	43.7	42.5	-325,077	0.0	-378,094	0.0	-378,094	0.0	-378,094	0.0	-378,094	0.0
10	46.1	44.0	-292,190	0.0	-357,073	0.0	-357,073	0.0	-357,073	0.0	-357,073	0.0
11	48.4	45.0	-238,292	0.0	-336,006	0.0	-336,006	0.0	-336,006	0.0	-336,006	0.0
12	50.5	45.6	-191,780	0.0	-315,845	0.0	-315,845	0.0	-315,845	0.0	-315,845	0.0
13	52.2	46.1	-154,728	0.0	-298,359	0.0	-298,359	0.0	-298,359	0.0	-298,359	0.0
14	53.5	46.4	-119,164	0.0	-283,463	0.0	-283,463	0.0	-283,463	0.0	-283,463	0.0
15	54.3	46.3	-91,036	0.0	-272,150	0.0	-272,150	0.0	-272,150	0.0	-272,150	0.0
16	54.6	46.1	-73,313	0.0	-225,630	0.0	-225,630	0.0	-225,630	0.0	-225,630	0.0
17	54.0	45.9	-71,650	0.0	-212,667	0.0	-212,667	0.0	-212,667	0.0	-212,667	0.0
18	52.5	45.0	-92,968	0.0	-222,668	0.0	-222,668	0.0	-222,668	0.0	-222,668	0.0
19	50.1	44.8	-123,803	0.0	-246,657	0.0	-246,657	0.0	-246,657	0.0	-246,657	0.0
20	47.1	43.3	-156,514	0.0	-278,521	0.0	-278,521	0.0	-278,521	0.0	-278,521	0.0
21	43.7	40.4	-192,405	0.0	-318,214	0.0	-318,214	0.0	-318,214	0.0	-318,214	0.0
22	40.4	37.3	-223,102	0.0	-359,738	0.0	-359,738	0.0	-359,738	0.0	-359,738	0.0
23	37.3	34.9	-251,904	0.0	-396,318	0.0	-396,318	0.0	-396,318	0.0	-396,318	0.0
24	34.9	32.6	-276,833	0.0	-429,340	0.0	-429,340	0.0	-429,340	0.0	-429,340	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-279,472	0.0	-360,566	0.0	-360,566	0.0	-360,566	0.0	-360,566	0.0
2	39.7	37.1	-298,636	0.0	-388,371	0.0	-388,371	0.0	-388,371	0.0	-388,371	0.0
3	37.8	35.1	-317,225	0.0	-413,765	0.0	-413,765	0.0	-413,765	0.0	-413,765	0.0
4	36.3	33.8	-330,897	0.0	-433,796	0.0	-433,796	0.0	-433,796	0.0	-433,796	0.0
5	35.1	32.6	-342,215	0.0	-445,114	0.0	-445,114	0.0	-445,114	0.0	-445,114	0.0
6	34.4	32.0	-346,549	0.0	-452,601	0.0	-452,601	0.0	-452,601	0.0	-452,601	0.0
7	34.1	31.9	-343,770	0.0	-457,105	0.0	-457,105	0.0	-457,105	0.0	-457,105	0.0
8	34.6	32.4	-330,003	0.0	-454,529	0.0	-454,529	0.0	-454,529	0.0	-454,529	0.0
9	36.0	33.8	-300,776	0.0	-443,570	0.0	-443,570	0.0	-443,570	0.0	-443,570	0.0
10	38.2	34.7	-267,986	0.0	-424,826	0.0	-424,826	0.0	-424,826	0.0	-424,826	0.0
11	40.9	36.2	-226,516	0.0	-400,759	0.0	-400,759	0.0	-400,759	0.0	-400,759	0.0
12	43.9	37.4	-183,859	0.0	-373,145	0.0	-373,145	0.0	-373,145	0.0	-373,145	0.0
13	46.9	39.4	-147,581	0.0	-344,625	0.0	-344,625	0.0	-344,625	0.0	-344,625	0.0
14	49.7	41.4	-112,626	0.0	-317,021	0.0	-317,021	0.0	-317,021	0.0	-317,021	0.0
15	51.8	42.8	-85,813	0.0	-294,780	0.0	-294,780	0.0	-294,780	0.0	-294,780	0.0
16	53.2	43.9	-67,698	0.0	-245,784	0.0	-245,784	0.0	-245,784	0.0	-245,784	0.0
17	53.7	44.2	-61,482	0.0	-221,388	0.0	-221,388	0.0	-221,388	0.0	-221,388	0.0
18	53.4	44.4	-76,947	0.0	-216,805	0.0	-216,805	0.0	-216,805	0.0	-216,805	0.0
19	52.7	44.4	-103,432	0.0	-223,945	0.0	-223,945	0.0	-223,945	0.0	-223,945	0.0
20	51.5	45.2	-138,595	0.0	-238,575	0.0	-238,575	0.0	-238,575	0.0	-238,575	0.0
21	50.0	44.6	-171,193	0.0	-256,893	0.0	-256,893	0.0	-256,893	0.0	-256,893	0.0
22	48.1	43.3	-202,229	0.0	-283,027	0.0	-283,027	0.0	-283,027	0.0	-283,027	0.0
23	46.1	41.8	-232,138	0.0	-305,321	0.0	-305,321	0.0	-305,321	0.0	-305,321	0.0
24	43.9	40.1	-257,160	0.0	-333,788	0.0	-333,788	0.0	-333,788	0.0	-333,788	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

March Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-124,901	0.0	-135,370	0.0	-213,382	0.0	-213,382	0.0	-213,382	0.0
2	48.7	44.6	-150,558	0.0	-248,318	0.0	-248,318	0.0	-248,318	0.0	-248,318	0.0
3	46.6	42.9	-171,737	0.0	-275,613	0.0	-275,613	0.0	-275,613	0.0	-275,613	0.0
4	44.9	41.4	-187,337	0.0	-302,127	0.0	-302,127	0.0	-302,127	0.0	-302,127	0.0
5	43.9	40.8	-200,289	0.0	-319,204	0.0	-319,204	0.0	-319,204	0.0	-319,204	0.0
6	43.5	40.8	-203,775	0.0	-333,698	0.0	-333,698	0.0	-333,698	0.0	-333,698	0.0
7	44.0	41.4	-203,736	0.0	-335,393	0.0	-335,393	0.0	-335,393	0.0	-335,393	0.0
8	45.4	42.7	-177,926	0.0	-324,294	0.0	-324,294	0.0	-324,294	0.0	-324,294	0.0
9	47.7	44.3	-146,916	0.0	-305,010	0.0	-305,010	0.0	-305,010	0.0	-305,010	0.0
10	50.6	45.8	-104,108	0.0	-272,844	0.0	-272,844	0.0	-272,844	0.0	-272,844	0.0
11	53.9	47.4	-53,008	0.0	-235,441	0.0	-235,441	0.0	-235,441	0.0	-235,441	0.0
12	57.4	49.0	-3,653	0.0	-190,314	0.0	-190,314	0.0	-190,314	0.0	-190,314	0.0
13	60.7	50.8	0	0.0	-148,152	0.0	-148,152	0.0	-148,152	0.0	-148,152	0.0
14	63.6	52.7	0	0.0	-107,322	0.0	-107,322	0.0	-107,322	0.0	-107,322	0.0
15	65.9	53.7	0	0.0	-70,660	0.0	-70,660	0.0	-70,660	0.0	-70,660	0.0
16	67.3	54.4	0	0.0	-42,829	0.0	-42,829	0.0	-42,829	0.0	-42,829	0.0
17	67.8	54.6	0	1.1	-24,990	0.0	-24,990	0.0	-24,990	0.0	-24,990	0.0
18	67.4	54.8	0	6.5	-21,345	0.0	-21,345	0.0	-21,345	0.0	-21,345	0.0
19	66.4	55.2	0	3.4	-30,262	0.0	-30,262	0.0	-30,262	0.0	-30,262	0.0
20	64.7	56.0	0	0.0	-48,414	0.0	-48,414	0.0	-48,414	0.0	-48,414	0.0
21	62.5	56.0	0	0.0	-76,361	0.0	-76,361	0.0	-76,361	0.0	-76,361	0.0
22	60.0	54.1	0	0.0	-106,778	0.0	-106,778	0.0	-106,778	0.0	-106,778	0.0
23	57.1	51.9	0	0.0	-141,985	0.0	-141,985	0.0	-141,985	0.0	-141,985	0.0
24	54.2	49.4	0	0.0	-176,987	0.0	-176,987	0.0	-176,987	0.0	-176,987	0.0

April Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	-12,462	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	-37,132	0.0	-9,083	0.0	-132,081	0.0	-132,081	0.0	-132,081	0.0
4	55.4	52.4	-55,512	0.0	-163,266	0.0	-163,266	0.0	-163,266	0.0	-163,266	0.0
5	54.2	51.4	-68,049	0.0	-182,276	0.0	-182,276	0.0	-182,276	0.0	-182,276	0.0
6	53.5	50.9	-74,559	0.0	-199,598	0.0	-199,598	0.0	-199,598	0.0	-199,598	0.0
7	53.2	51.1	-67,241	0.0	-206,813	0.0	-206,813	0.0	-206,813	0.0	-206,813	0.0
8	53.9	51.5	-43,406	0.0	-204,212	0.0	-204,212	0.0	-204,212	0.0	-204,212	0.0
9	55.9	52.1	-10,859	0.0	-184,501	0.0	-184,501	0.0	-184,501	0.0	-184,501	0.0
10	58.9	53.2	0	0.0	-149,191	0.0	-149,191	0.0	-149,191	0.0	-149,191	0.0
11	62.6	55.2	0	0.0	-106,243	0.0	-106,243	0.0	-106,243	0.0	-106,243	0.0
12	66.5	57.3	0	0.0	-59,266	0.0	-59,266	0.0	-59,266	0.0	-59,266	0.0
13	70.2	59.6	0	0.0	-11,688	0.0	-11,688	0.0	-11,688	0.0	-11,688	0.0
14	73.2	61.0	0	10.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	16.5	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	17.7	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	18.0	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	16.8	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	14.0	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	10.8	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	-44,429	0.0	-44,429	0.0	-44,429	0.0	-44,429	0.0
7	59.4	56.5	0	0.0	-116,447	0.0	-116,447	0.0	-116,447	0.0	-116,447	0.0
8	60.1	56.3	0	0.0	-111,884	0.0	-111,884	0.0	-111,884	0.0	-111,884	0.0
9	62.4	56.3	0	1.4	-88,750	0.0	-88,750	0.0	-88,750	0.0	-88,750	0.0
10	65.7	57.2	0	8.1	-48,236	0.0	-48,236	0.0	-48,236	0.0	-48,236	0.0
11	69.9	58.9	0	12.4	-3,982	0.0	-3,982	0.0	-3,982	0.0	-3,982	0.0
12	74.3	60.9	0	16.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	20.7	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	24.1	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	26.6	0	1.6	0	1.6	0	1.6	0	1.6
16	84.9	67.1	0	27.8	0	14.0	0	14.0	0	14.0	0	14.0
17	84.6	67.3	0	27.9	0	14.8	0	14.8	0	14.8	0	14.8
18	83.8	67.1	0	26.6	0	15.0	0	15.0	0	15.0	0	15.0
19	82.4	67.5	0	24.0	0	14.4	0	14.4	0	14.4	0	14.4
20	80.6	68.9	0	20.4	0	14.3	0	14.3	0	14.3	0	14.3
21	78.5	71.0	0	17.1	0	14.8	0	14.8	0	14.8	0	14.8
22	76.1	69.9	0	13.6	0	11.3	0	11.3	0	11.3	0	11.3
23	73.4	68.0	0	10.4	0	6.2	0	6.2	0	6.2	0	6.2
24	70.8	65.5	0	7.7	0	1.8	0	1.8	0	1.8	0	1.8

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	17.9	0	9.9	0	11.4	0	11.4	0	11.4
2	72.6	68.4	0	15.3	0	5.9	0	6.0	0	6.0	0	6.0
3	70.9	67.3	0	13.1	0	2.3	0	2.4	0	2.4	0	2.4
4	69.6	66.5	0	11.6	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	10.2	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	11.4	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	14.1	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	17.1	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	20.9	0	0.0	0	0.0	0	0.0	0	0.0
11	79.5	69.1	0	25.0	0	5.6	0	5.6	0	5.6	0	5.6
12	82.9	70.1	0	29.3	0	13.9	0	13.9	0	13.9	0	13.9
13	86.0	71.0	0	33.1	0	17.9	0	17.9	0	17.9	0	17.9
14	88.4	72.5	0	36.2	0	22.4	0	22.4	0	22.4	0	22.4
15	90.0	74.0	0	38.8	0	27.4	0	27.4	0	27.4	0	27.4
16	90.5	73.7	0	39.9	0	28.1	0	28.1	0	28.1	0	28.1
17	90.3	74.2	0	40.4	0	30.3	0	30.3	0	30.3	0	30.3
18	89.4	73.9	0	37.5	0	30.6	0	30.6	0	30.6	0	30.6
19	88.1	74.5	0	34.9	0	29.8	0	29.8	0	29.8	0	29.8
20	86.4	75.3	0	31.8	0	30.2	0	30.2	0	30.2	0	30.2
21	84.3	76.5	0	30.0	0	32.2	0	32.2	0	32.2	0	32.2
22	81.9	75.7	0	27.1	0	29.0	0	29.0	0	29.0	0	29.0
23	79.5	74.0	0	24.2	0	23.1	0	23.1	0	23.1	0	23.1
24	77.0	72.1	0	21.3	0	17.0	0	17.0	0	17.0	0	17.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	20.1	0	7.0	0	8.1	0	8.1	0	8.1
2	72.4	69.4	0	16.6	0	4.7	0	4.8	0	4.8	0	4.8
3	71.3	68.4	0	14.9	0	1.3	0	1.3	0	1.3	0	1.3
4	70.5	67.7	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	11.6	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	13.2	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	15.2	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	17.7	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	20.8	0	0.0	0	0.0	0	0.0	0	0.0
11	78.9	71.8	0	24.2	0	7.5	0	7.5	0	7.5	0	7.5
12	81.4	73.0	0	29.6	0	17.3	0	17.3	0	17.3	0	17.3
13	83.4	74.4	0	33.2	0	21.1	0	21.1	0	21.1	0	21.1
14	84.8	74.8	0	35.8	0	23.9	0	23.9	0	23.9	0	23.9
15	85.2	75.0	0	38.4	0	26.0	0	26.0	0	26.0	0	26.0
16	85.1	75.0	0	39.8	0	27.2	0	27.2	0	27.2	0	27.2
17	84.6	74.7	0	40.6	0	27.6	0	27.6	0	27.6	0	27.6
18	83.8	74.6	0	37.7	0	27.7	0	27.7	0	27.7	0	27.7
19	82.7	74.6	0	35.8	0	28.8	0	28.8	0	28.8	0	28.8
20	81.4	74.4	0	33.0	0	27.0	0	27.0	0	27.0	0	27.0
21	79.9	74.9	0	30.5	0	26.3	0	26.3	0	26.3	0	26.3
22	78.4	74.0	0	27.6	0	21.8	0	21.8	0	21.8	0	21.8
23	76.8	72.7	0	24.7	0	16.3	0	16.3	0	16.3	0	16.3
24	75.2	71.6	0	22.4	0	12.7	0	12.7	0	12.7	0	12.7

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	20.2	0	10.2	0	11.7	0	11.7	0	11.7
2	73.2	70.3	0	16.2	0	6.4	0	6.6	0	6.6	0	6.6
3	71.7	68.9	0	13.8	0	2.6	0	2.7	0	2.7	0	2.7
4	70.4	67.8	0	12.0	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	10.8	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	13.4	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	16.5	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	20.2	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	23.8	0	0.0	0	0.0	0	0.0	0	0.0
12	79.3	70.3	0	27.9	0	3.1	0	3.1	0	3.1	0	3.1
13	82.3	72.2	0	32.8	0	17.2	0	17.2	0	17.2	0	17.2
14	84.7	73.7	0	36.7	0	21.2	0	21.2	0	21.2	0	21.2
15	86.3	74.6	0	39.1	0	26.2	0	26.2	0	26.2	0	26.2
16	86.8	75.1	0	40.8	0	28.8	0	28.8	0	28.8	0	28.8
17	86.6	75.1	0	39.4	0	29.8	0	29.8	0	29.8	0	29.8
18	86.0	75.3	0	38.2	0	32.1	0	32.1	0	32.1	0	32.1
19	85.1	76.0	0	35.8	0	31.6	0	31.6	0	31.6	0	31.6
20	83.8	76.8	0	32.9	0	31.6	0	31.6	0	31.6	0	31.6
21	82.3	77.2	0	31.5	0	31.5	0	31.5	0	31.5	0	31.5
22	80.6	76.3	0	27.0	0	28.2	0	28.2	0	28.2	0	28.2
23	78.7	75.3	0	24.1	0	22.5	0	22.5	0	22.5	0	22.5
24	76.8	73.7	0	21.4	0	17.0	0	17.0	0	17.0	0	17.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	9.0	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	3.3	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	1.0	-47,833	0.0	-47,833	0.0	-47,833	0.0	-47,833	0.0
8	62.9	60.9	0	2.8	-83,943	0.0	-83,943	0.0	-83,943	0.0	-83,943	0.0
9	64.7	61.8	0	5.9	-67,997	0.0	-67,997	0.0	-67,997	0.0	-67,997	0.0
10	67.6	62.1	0	9.4	-38,151	0.0	-38,151	0.0	-38,151	0.0	-38,151	0.0
11	71.1	63.1	0	13.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	16.6	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	21.3	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	24.9	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0	70.0	0	27.8	0	0.0	0	0.0	0	0.0	0	0.0
16	83.7	70.5	0	29.1	0	16.0	0	16.0	0	16.0	0	16.0
17	83.4	70.5	0	27.8	0	17.1	0	17.1	0	17.1	0	17.1
18	82.8	70.9	0	26.2	0	18.4	0	18.4	0	18.4	0	18.4
19	81.6	72.7	0	24.5	0	19.0	0	19.0	0	19.0	0	19.0
20	80.1	74.7	0	23.2	0	20.8	0	20.8	0	20.8	0	20.8
21	78.3	74.1	0	20.5	0	18.0	0	18.0	0	18.0	0	18.0
22	76.3	72.4	0	15.9	0	13.6	0	13.6	0	13.6	0	13.6
23	74.1	70.7	0	11.5	0	8.1	0	8.1	0	8.1	0	8.1
24	71.8	68.9	0	9.2	0	3.0	0	3.0	0	3.0	0	3.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-59,465	0.0	-202,923	0.0	-202,923	0.0	-202,923	0.0
2	50.1	48.6	0	0.0	-230,210	0.0	-230,210	0.0	-230,210	0.0	-230,210	0.0
3	48.4	46.9	-27,595	0.0	-256,719	0.0	-256,719	0.0	-256,719	0.0	-256,719	0.0
4	47.1	45.8	-159,983	0.0	-276,536	0.0	-276,536	0.0	-276,536	0.0	-276,536	0.0
5	46.3	44.8	-169,186	0.0	-293,133	0.0	-293,133	0.0	-293,133	0.0	-293,133	0.0
6	46.0	44.5	-175,513	0.0	-306,662	0.0	-306,662	0.0	-306,662	0.0	-306,662	0.0
7	46.8	45.3	-169,943	0.0	-305,572	0.0	-305,572	0.0	-305,572	0.0	-305,572	0.0
8	48.9	47.5	-148,192	0.0	-288,738	0.0	-288,738	0.0	-288,738	0.0	-288,738	0.0
9	52.2	49.9	-113,915	0.0	-256,160	0.0	-256,160	0.0	-256,160	0.0	-256,160	0.0
10	56.2	52.5	-71,750	0.0	-212,768	0.0	-212,768	0.0	-212,768	0.0	-212,768	0.0
11	60.4	54.4	-22,900	0.0	-165,592	0.0	-165,592	0.0	-165,592	0.0	-165,592	0.0
12	64.4	56.0	0	0.0	-116,001	0.0	-116,001	0.0	-116,001	0.0	-116,001	0.0
13	67.7	57.3	0	0.0	-71,674	0.0	-71,674	0.0	-71,674	0.0	-71,674	0.0
14	69.8	58.2	0	0.0	-33,590	0.0	-33,590	0.0	-33,590	0.0	-33,590	0.0
15	70.6	58.1	0	0.0	-7,528	0.0	-7,528	0.0	-7,528	0.0	-7,528	0.0
16	70.3	57.5	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	7.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	4.8	-13,963	0.0	-13,963	0.0	-13,963	0.0	-13,963	0.0
20	64.4	60.8	0	1.6	-44,225	0.0	-44,225	0.0	-44,225	0.0	-44,225	0.0
21	62.1	59.4	0	0.0	-74,232	0.0	-74,232	0.0	-74,232	0.0	-74,232	0.0
22	59.6	57.3	0	0.0	-105,772	0.0	-105,772	0.0	-105,772	0.0	-105,772	0.0
23	57.0	55.1	0	0.0	-139,572	0.0	-139,572	0.0	-139,572	0.0	-139,572	0.0
24	54.5	52.7	0	0.0	-170,745	0.0	-170,745	0.0	-170,745	0.0	-170,745	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-143,306	0.0	-212,973	0.0	-212,973	0.0	-212,973	0.0	-212,973	0.0
2	49.4	47.3	-166,349	0.0	-246,136	0.0	-246,136	0.0	-246,136	0.0	-246,136	0.0
3	47.2	45.3	-187,459	0.0	-274,169	0.0	-274,169	0.0	-274,169	0.0	-274,169	0.0
4	45.3	43.4	-205,740	0.0	-300,815	0.0	-300,815	0.0	-300,815	0.0	-300,815	0.0
5	43.9	42.2	-214,861	0.0	-321,435	0.0	-321,435	0.0	-321,435	0.0	-321,435	0.0
6	43.0	41.4	-220,204	0.0	-338,854	0.0	-338,854	0.0	-338,854	0.0	-338,854	0.0
7	42.7	41.2	-214,580	0.0	-347,791	0.0	-347,791	0.0	-347,791	0.0	-347,791	0.0
8	43.5	42.0	-195,348	0.0	-348,429	0.0	-348,429	0.0	-348,429	0.0	-348,429	0.0
9	45.9	44.0	-158,143	0.0	-325,525	0.0	-325,525	0.0	-325,525	0.0	-325,525	0.0
10	49.4	46.6	-114,327	0.0	-292,493	0.0	-292,493	0.0	-292,493	0.0	-292,493	0.0
11	53.8	48.6	-63,408	0.0	-245,440	0.0	-245,440	0.0	-245,440	0.0	-245,440	0.0
12	58.4	50.6	-8,886	0.0	-196,612	0.0	-196,612	0.0	-196,612	0.0	-196,612	0.0
13	62.8	52.6	0	0.0	-140,503	0.0	-140,503	0.0	-140,503	0.0	-140,503	0.0
14	66.3	54.5	0	0.0	-92,287	0.0	-92,287	0.0	-92,287	0.0	-92,287	0.0
15	68.7	55.7	0	0.0	-54,629	0.0	-54,629	0.0	-54,629	0.0	-54,629	0.0
16	69.5	56.1	0	0.0	-31,851	0.0	-31,851	0.0	-31,851	0.0	-31,851	0.0
17	69.2	55.8	0	0.0	-24,222	0.0	-24,222	0.0	-24,222	0.0	-24,222	0.0
18	68.3	57.0	0	3.5	-29,761	0.0	-29,761	0.0	-29,761	0.0	-29,761	0.0
19	66.9	59.4	0	1.2	-41,489	0.0	-41,489	0.0	-41,489	0.0	-41,489	0.0
20	65.0	59.4	0	0.0	-61,749	0.0	-61,749	0.0	-61,749	0.0	-61,749	0.0
21	62.8	58.2	0	0.0	-88,944	0.0	-88,944	0.0	-88,944	0.0	-88,944	0.0
22	60.2	56.1	0	0.0	-116,624	0.0	-116,624	0.0	-116,624	0.0	-116,624	0.0
23	57.5	54.0	0	0.0	-148,026	0.0	-148,026	0.0	-148,026	0.0	-148,026	0.0
24	54.7	51.7	-15,118	0.0	-181,782	0.0	-181,782	0.0	-181,782	0.0	-181,782	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-208,567	0.0	-315,912	0.0	-315,912	0.0	-315,912	0.0	-315,912	0.0
2	43.2	41.1	-227,260	0.0	-337,825	0.0	-337,825	0.0	-337,825	0.0	-337,825	0.0
3	41.8	39.8	-245,582	0.0	-356,941	0.0	-356,941	0.0	-356,941	0.0	-356,941	0.0
4	40.7	38.7	-257,483	0.0	-376,232	0.0	-376,232	0.0	-376,232	0.0	-376,232	0.0
5	40.1	38.4	-266,577	0.0	-387,949	0.0	-387,949	0.0	-387,949	0.0	-387,949	0.0
6	39.9	38.4	-271,259	0.0	-395,976	0.0	-395,976	0.0	-395,976	0.0	-395,976	0.0
7	40.5	39.0	-266,807	0.0	-395,418	0.0	-395,418	0.0	-395,418	0.0	-395,418	0.0
8	42.2	40.7	-256,443	0.0	-380,215	0.0	-380,215	0.0	-380,215	0.0	-380,215	0.0
9	44.9	43.4	-228,226	0.0	-356,077	0.0	-356,077	0.0	-356,077	0.0	-356,077	0.0
10	48.2	45.8	-195,942	0.0	-326,313	0.0	-326,313	0.0	-326,313	0.0	-326,313	0.0
11	51.7	48.3	-153,016	0.0	-294,190	0.0	-294,190	0.0	-294,190	0.0	-294,190	0.0
12	55.0	50.7	-112,564	0.0	-259,840	0.0	-259,840	0.0	-259,840	0.0	-259,840	0.0
13	57.7	52.0	-73,952	0.0	-214,949	0.0	-214,949	0.0	-214,949	0.0	-214,949	0.0
14	59.5	52.6	-40,154	0.0	-179,698	0.0	-179,698	0.0	-179,698	0.0	-179,698	0.0
15	60.1	52.7	-14,811	0.0	-159,326	0.0	-159,326	0.0	-159,326	0.0	-159,326	0.0
16	59.9	52.6	0	0.0	-145,406	0.0	-145,406	0.0	-145,406	0.0	-145,406	0.0
17	59.2	52.1	0	0.0	-144,646	0.0	-144,646	0.0	-144,646	0.0	-144,646	0.0
18	58.2	51.8	-19,732	0.0	-149,148	0.0	-149,148	0.0	-149,148	0.0	-149,148	0.0
19	56.8	52.2	-48,852	0.0	-163,550	0.0	-163,550	0.0	-163,550	0.0	-163,550	0.0
20	55.0	51.4	-82,277	0.0	-187,210	0.0	-187,210	0.0	-187,210	0.0	-187,210	0.0
21	53.1	50.1	-112,455	0.0	-208,548	0.0	-208,548	0.0	-208,548	0.0	-208,548	0.0
22	51.0	48.1	-144,076	0.0	-236,051	0.0	-236,051	0.0	-236,051	0.0	-236,051	0.0
23	48.9	46.2	-167,286	0.0	-261,870	0.0	-261,870	0.0	-261,870	0.0	-261,870	0.0
24	46.9	44.1	-191,171	0.0	-286,672	0.0	-286,672	0.0	-286,672	0.0	-286,672	0.0

## 01 Card - Job Information

-----  
 Project: OLMSTEAD HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29805 (1 BLDG)

-----CARD 08-- Climatic Information-----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	YES

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	AUDITORIUM

-----CARD 20-- General Room Parameters-----  

Room	Zone		Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Room	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number	Descrip					Resistance	Height	Multiplier	Zone	
1	1	BLOCK	2210	10	3	0		22			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	220	12		196	0			
1	2	100	12		196	90			
1	3	220	12		196	180			
1	4	100	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	2			25	.88	.58					
1	4			25	.88	.58					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	1100	PEOPLE	255	255	2.0	WATT-SF	SUSFLUOR				



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0 75  
24

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	-31,772	0.0	-31,772	0.0	-31,772	0.0
2	49.4	47.3	-9,884	0.0	0	0.0	-37,657	0.0	-37,657	0.0	-37,657	0.0
3	47.2	45.3	-30,908	0.0	0	0.0	-45,939	0.0	-45,939	0.0	-45,939	0.0
4	45.3	43.4	-36,691	0.0	-908	0.0	-53,265	0.0	-53,265	0.0	-53,265	0.0
5	43.9	42.2	-43,087	0.0	-58,657	0.0	-58,657	0.0	-58,657	0.0	-58,657	0.0
6	43.0	41.4	-47,233	0.0	-65,218	0.0	-65,218	0.0	-65,218	0.0	-65,218	0.0
7	42.7	41.2	-49,747	0.0	-69,236	0.0	-69,236	0.0	-69,236	0.0	-69,236	0.0
8	43.5	42.0	-49,096	0.0	-72,189	0.0	-72,189	0.0	-72,189	0.0	-72,189	0.0
9	45.9	44.0	-41,651	0.0	-71,797	0.0	-71,797	0.0	-71,797	0.0	-71,797	0.0
10	49.4	46.6	-33,463	0.0	-68,771	0.0	-68,771	0.0	-68,771	0.0	-68,771	0.0
11	53.8	48.6	-19,241	0.0	-59,589	0.0	-59,589	0.0	-59,589	0.0	-59,589	0.0
12	58.4	50.6	-2,915	0.0	-51,340	0.0	-51,340	0.0	-51,340	0.0	-51,340	0.0
13	62.8	52.6	0	0.0	-40,019	0.0	-40,019	0.0	-40,019	0.0	-40,019	0.0
14	66.3	54.5	0	0.0	-24,862	0.0	-24,862	0.0	-24,862	0.0	-24,862	0.0
15	68.7	55.7	0	0.0	-13,329	0.0	-13,329	0.0	-13,329	0.0	-13,329	0.0
16	69.5	56.1	0	0.0	-3,563	0.0	-3,563	0.0	-3,563	0.0	-3,563	0.0
17	69.2	55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	1.9	-2,646	0.0	-2,646	0.0	-2,646	0.0	-2,646	0.0
21	62.8	58.2	0	1.1	-7,840	0.0	-7,840	0.0	-7,840	0.0	-7,840	0.0
22	60.2	56.1	0	0.1	-13,991	0.0	-13,991	0.0	-13,991	0.0	-13,991	0.0
23	57.5	54.0	0	0.0	-19,544	0.0	-19,544	0.0	-19,544	0.0	-19,544	0.0
24	54.7	51.7	0	0.0	-26,342	0.0	-26,342	0.0	-26,342	0.0	-26,342	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-39,301	0.0	-61,610	0.0	-61,609	0.0	-61,609	0.0	-61,609	0.0
2	43.2	41.1	-44,640	0.0	-67,164	0.0	-67,164	0.0	-67,164	0.0	-67,164	0.0
3	41.8	39.8	-52,545	0.0	-71,609	0.0	-71,609	0.0	-71,609	0.0	-71,609	0.0
4	40.7	38.7	-57,271	0.0	-76,012	0.0	-76,012	0.0	-76,012	0.0	-76,012	0.0
5	40.1	38.4	-61,606	0.0	-82,215	0.0	-82,215	0.0	-82,215	0.0	-82,215	0.0
6	39.9	38.4	-65,023	0.0	-86,193	0.0	-86,193	0.0	-86,193	0.0	-86,193	0.0
7	40.5	39.0	-67,026	0.0	-90,212	0.0	-90,212	0.0	-90,212	0.0	-90,212	0.0
8	42.2	40.7	-68,896	0.0	-92,034	0.0	-92,034	0.0	-92,034	0.0	-92,034	0.0
9	44.9	43.4	-62,976	0.0	-88,817	0.0	-88,817	0.0	-88,817	0.0	-88,817	0.0
10	48.2	45.8	-55,593	0.0	-85,795	0.0	-85,795	0.0	-85,795	0.0	-85,795	0.0
11	51.7	48.3	-43,029	0.0	-78,402	0.0	-78,402	0.0	-78,402	0.0	-78,402	0.0
12	55.0	50.7	-30,451	0.0	-68,196	0.0	-68,196	0.0	-68,196	0.0	-68,196	0.0
13	57.7	52.0	-17,729	0.0	-58,748	0.0	-58,748	0.0	-58,748	0.0	-58,748	0.0
14	59.5	52.6	-3,117	0.0	-47,480	0.0	-47,480	0.0	-47,480	0.0	-47,480	0.0
15	60.1	52.7	0	0.0	-38,262	0.0	-38,262	0.0	-38,262	0.0	-38,262	0.0
16	59.9	52.6	0	0.0	-28,694	0.0	-28,694	0.0	-28,694	0.0	-28,694	0.0
17	59.2	52.1	0	0.0	-25,639	0.0	-25,639	0.0	-25,639	0.0	-25,639	0.0
18	58.2	51.8	0	0.0	-25,745	0.0	-25,745	0.0	-25,745	0.0	-25,745	0.0
19	56.8	52.2	0	0.0	-25,905	0.0	-25,905	0.0	-25,905	0.0	-25,905	0.0
20	55.0	51.4	0	0.0	-31,802	0.0	-31,802	0.0	-31,802	0.0	-31,802	0.0
21	53.1	50.1	0	0.0	-35,255	0.0	-35,255	0.0	-35,255	0.0	-35,255	0.0
22	51.0	48.1	0	0.0	-41,985	0.0	-41,985	0.0	-41,985	0.0	-41,985	0.0
23	48.9	46.2	0	0.0	-47,864	0.0	-47,864	0.0	-47,864	0.0	-47,864	0.0
24	46.9	44.1	-6,153	0.0	-53,156	0.0	-53,156	0.0	-53,156	0.0	-53,156	0.0

## 01 Card - Job Information

-----  
 Project: CONRAD HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29807 (1 BLDG)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	YES

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	LIBRARY

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	1180	10	3	0		20			

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	118	12		196	0			
1	2	100	12		196	90			
1	3	118	12		196	180			
1	4	100	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	10.5	4	.88	.62					
1	2	2.5	10.5	4	.88	.62					
1	3	2.5	10.5	4	.88	.62					
1	4	2.5	10.5	6	.88	.62					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	30	PEOPLE	255	255	2.0	WATT-SF	SUSFLUOR				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**                                     **  
**          TRACE 600 ANALYSIS        **  
**                                     **  
**          by          **             **  
**                                     **  
*****  
*****
```

OLMSTEAD HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29805 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 9:12:55 8/16/94  
Dataset Name: FGTYP519 .TM

System 1 Block FC - FAN COIL

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****												
Peaked at Time ==>		Mo/Hr: 8/16		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1				
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*	OADB: 96		*	OADB: 23				
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Perct Of Tot (%)
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	45,887	0	0	45,887	1.27	*	58,709	3.90	*	-37,958	-37,958	0.91
Glass Solar	646,800	0	0	646,800	17.92	*	633,600	42.08	*	0	0	0.00
Glass Cond	265,122	0	0	265,122	7.35	*	280,078	18.60	*	-668,923	-668,923	16.00
Wall Cond	366,259	0	0	366,259	10.15	*	435,698	28.94	*	-612,701	-612,701	14.65
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	171,483	0	0	171,483	4.75	*	97,474	6.47	*	-263,600	-263,600	6.30
Sub Total=>	1,495,551	0	0	1,495,551	41.44	*	1,505,558	100.00	*	-1,583,183	-1,583,183	37.86
Internal Loads												
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total=>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	2,113,088	58.56	*	0	0.00	*	0	-2,598,561	62.14
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Duct Heat Pkqp	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Terminal Bypass	0	0	0	0	-0.00	*	0	0.00	*	0	0	0.00
Grand Total=>	1,495,551	0	0	3,608,639	100.00	*	1,505,558	100.00	*	-1,583,183	-4,181,744	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----			
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf)	(%)	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains				
Main Clg	300.7	3,608.6	2,641.4	120,000	84.2	70.5	90.8	63.7	61.9	80.5	120,000		
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	300.7	3,608.6									12,000	0 0	
											Wall	52,800 13,200 25	

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	43.4	Type	Clg	Htg
					Vent	52,050	52,050	Clg Cfm/Sqft	1.00	SADB	63.7	79.9
Main Htg	-4,181.7	120,000	48.5	79.9	Infil	4,224	5,280	Clg Cfm/Ton	399.04	Plenum	75.0	68.0
Aux Htg	0.0	0	0.0	0.0	Supply	120,000	120,000	Clg Sqft/Ton	399.04	Return	75.0	68.0
Preheat	-2,024.9	120,000	48.5	63.7	Mincfm	0	0	Clg Btuh/Sqft	30.07	Ret/OA	84.2	48.5
Reheat	0.0	0	0.0	0.0	Return	120,000	120,000	No. People	3,470	Runarnd	75.0	68.0
Humidif	0.0	0	0.0	0.0	Exhaust	52,050	52,050	Htg % OA	43.4	Fn MtrTD	0.0	0.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
Total	-4,181.7				Auxil	0	0	Htg Btuh/Sqft	-34.85	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-2,855,395	0.0	-2,995,015	0.0	-2,995,015	0.0	-2,995,015	0.0	-2,995,015	0.0
2	32.9	30.7	-2,819,686	0.0	-3,055,622	0.0	-3,055,622	0.0	-3,055,622	0.0	-3,055,622	0.0
3	33.1	31.3	-2,798,346	0.0	-3,084,448	0.0	-3,084,448	0.0	-3,084,448	0.0	-3,084,448	0.0
4	33.9	32.1	-2,778,357	0.0	-3,062,158	0.0	-3,062,158	0.0	-3,062,158	0.0	-3,062,158	0.0
5	35.2	33.5	-2,466,710	0.0	-3,001,502	0.0	-3,001,502	0.0	-3,001,502	0.0	-3,001,502	0.0
6	37.0	35.4	-2,446,582	0.0	-2,902,827	0.0	-2,902,827	0.0	-2,902,827	0.0	-2,902,827	0.0
7	39.0	37.6	-2,413,686	0.0	-2,787,846	0.0	-2,787,846	0.0	-2,787,846	0.0	-2,787,846	0.0
8	41.3	40.1	-2,300,366	0.0	-2,655,603	0.0	-2,655,603	0.0	-2,655,603	0.0	-2,655,603	0.0
9	43.7	42.5	-1,939,539	0.0	-2,392,307	0.0	-2,392,307	0.0	-2,392,307	0.0	-2,392,307	0.0
10	46.1	44.0	-1,528,867	0.0	-2,156,071	0.0	-2,156,071	0.0	-2,156,071	0.0	-2,156,071	0.0
11	48.4	45.0	-1,104,165	0.0	-1,905,597	0.0	-1,905,597	0.0	-1,905,597	0.0	-1,905,597	0.0
12	50.5	45.6	-715,095	0.0	-1,704,549	0.0	-1,704,549	0.0	-1,704,549	0.0	-1,704,549	0.0
13	52.2	46.1	-444,321	0.0	-1,523,614	0.0	-1,523,614	0.0	-1,523,614	0.0	-1,523,614	0.0
14	53.5	46.4	-222,667	0.0	-1,360,683	0.0	-1,360,683	0.0	-1,360,683	0.0	-1,360,683	0.0
15	54.3	46.3	-61,852	0.0	-1,256,796	0.0	-1,256,796	0.0	-1,256,796	0.0	-1,256,796	0.0
16	54.6	46.1	0	0.0	-1,189,715	0.0	-1,189,715	0.0	-1,189,715	0.0	-1,189,715	0.0
17	54.0	45.9	-94,315	0.0	-1,214,091	0.0	-1,214,091	0.0	-1,214,091	0.0	-1,214,091	0.0
18	52.5	45.0	-434,731	0.0	-1,350,818	0.0	-1,350,818	0.0	-1,350,818	0.0	-1,350,818	0.0
19	50.1	44.8	-767,141	0.0	-1,551,558	0.0	-1,551,558	0.0	-1,551,558	0.0	-1,551,558	0.0
20	47.1	43.3	-1,062,340	0.0	-1,803,407	0.0	-1,803,407	0.0	-1,803,407	0.0	-1,803,407	0.0
21	43.7	40.4	-1,311,404	0.0	-2,094,110	0.0	-2,094,110	0.0	-2,094,110	0.0	-2,094,110	0.0
22	40.4	37.3	-1,560,777	0.0	-2,380,412	0.0	-2,380,412	0.0	-2,380,412	0.0	-2,380,412	0.0
23	37.3	34.9	-1,768,104	0.0	-2,635,850	0.0	-2,635,850	0.0	-2,635,850	0.0	-2,635,850	0.0
24	34.9	32.6	-1,914,937	0.0	-2,829,998	0.0	-2,829,998	0.0	-2,829,998	0.0	-2,829,998	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-1,963,422	0.0	-2,371,095	0.0	-2,371,095	0.0	-2,371,095	0.0	-2,371,095	0.0
2	39.7	37.1	-2,083,229	0.0	-2,531,549	0.0	-2,531,549	0.0	-2,531,549	0.0	-2,531,549	0.0
3	37.8	35.1	-2,184,787	0.0	-2,715,138	0.0	-2,715,138	0.0	-2,715,138	0.0	-2,715,138	0.0
4	36.3	33.8	-2,297,019	0.0	-2,835,050	0.0	-2,835,050	0.0	-2,835,050	0.0	-2,835,050	0.0
5	35.1	32.6	-2,352,635	0.0	-2,953,328	0.0	-2,953,328	0.0	-2,953,328	0.0	-2,953,328	0.0
6	34.4	32.0	-2,341,170	0.0	-3,023,242	0.0	-3,023,242	0.0	-3,023,242	0.0	-3,023,242	0.0
7	34.1	31.9	-2,315,829	0.0	-3,077,662	0.0	-3,077,662	0.0	-3,077,662	0.0	-3,077,662	0.0
8	34.6	32.4	-2,171,841	0.0	-3,057,490	0.0	-3,057,490	0.0	-3,057,490	0.0	-3,057,490	0.0
9	36.0	33.8	-1,811,184	0.0	-2,871,710	0.0	-2,871,710	0.0	-2,871,710	0.0	-2,871,710	0.0
10	38.2	34.7	-1,433,563	0.0	-2,666,622	0.0	-2,666,622	0.0	-2,666,622	0.0	-2,666,622	0.0
11	40.9	36.2	-1,046,697	0.0	-2,422,126	0.0	-2,422,126	0.0	-2,422,126	0.0	-2,422,126	0.0
12	43.9	37.4	-721,303	0.0	-2,156,620	0.0	-2,156,620	0.0	-2,156,620	0.0	-2,156,620	0.0
13	46.9	39.4	-448,527	0.0	-1,867,147	0.0	-1,867,147	0.0	-1,867,147	0.0	-1,867,147	0.0
14	49.7	41.4	-246,865	0.0	-1,647,868	0.0	-1,647,868	0.0	-1,647,868	0.0	-1,647,868	0.0
15	51.8	42.8	-85,148	0.0	-1,429,797	0.0	-1,429,797	0.0	-1,429,797	0.0	-1,429,797	0.0
16	53.2	43.9	-46,073	0.0	-1,296,015	0.0	-1,296,015	0.0	-1,296,015	0.0	-1,296,015	0.0
17	53.7	44.2	-98,742	0.0	-1,245,471	0.0	-1,245,471	0.0	-1,245,471	0.0	-1,245,471	0.0
18	53.4	44.4	-335,777	0.0	-1,270,474	0.0	-1,270,474	0.0	-1,270,474	0.0	-1,270,474	0.0
19	52.7	44.4	-670,029	0.0	-1,380,402	0.0	-1,380,402	0.0	-1,380,402	0.0	-1,380,402	0.0
20	51.5	45.2	-972,746	0.0	-1,507,380	0.0	-1,507,380	0.0	-1,507,380	0.0	-1,507,380	0.0
21	50.0	44.6	-1,216,148	0.0	-1,665,157	0.0	-1,665,157	0.0	-1,665,157	0.0	-1,665,157	0.0
22	48.1	43.3	-1,462,339	0.0	-1,841,627	0.0	-1,841,627	0.0	-1,841,627	0.0	-1,841,627	0.0
23	46.1	41.8	-1,670,643	0.0	-2,013,786	0.0	-2,013,786	0.0	-2,013,786	0.0	-2,013,786	0.0
24	43.9	40.1	-1,810,661	0.0	-2,191,765	0.0	-2,191,765	0.0	-2,191,765	0.0	-2,191,765	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-977,670	0.0	-362,850	0.0	-1,489,107	0.0	-1,489,107	0.0	-1,489,107	0.0
2	48.7 44.6	-1,137,702	0.0	-1,688,761	0.0	-1,688,761	0.0	-1,688,761	0.0	-1,688,761	0.0
3	46.6 42.9	-1,246,012	0.0	-1,876,698	0.0	-1,876,698	0.0	-1,876,698	0.0	-1,876,698	0.0
4	44.9 41.4	-1,370,589	0.0	-2,043,981	0.0	-2,043,981	0.0	-2,043,981	0.0	-2,043,981	0.0
5	43.9 40.8	-1,426,749	0.0	-2,138,240	0.0	-2,138,240	0.0	-2,138,240	0.0	-2,138,240	0.0
6	43.5 40.8	-1,435,889	0.0	-2,199,559	0.0	-2,199,559	0.0	-2,199,559	0.0	-2,199,559	0.0
7	44.0 41.4	-1,371,252	0.0	-2,197,779	0.0	-2,197,779	0.0	-2,197,779	0.0	-2,197,779	0.0
8	45.4 42.7	-1,112,474	0.0	-2,046,480	0.0	-2,046,480	0.0	-2,046,480	0.0	-2,046,480	0.0
9	47.7 44.3	-741,202	0.0	-1,832,316	0.0	-1,832,316	0.0	-1,832,316	0.0	-1,832,316	0.0
10	50.6 45.8	-348,086	0.0	-1,559,132	0.0	-1,559,132	0.0	-1,559,132	0.0	-1,559,132	0.0
11	53.9 47.4	0	0.0	-1,232,522	0.0	-1,232,522	0.0	-1,232,522	0.0	-1,232,522	0.0
12	57.4 49.0	0	0.0	-912,522	0.0	-912,522	0.0	-912,522	0.0	-912,522	0.0
13	60.7 50.8	0	0.0	-636,707	0.0	-636,707	0.0	-636,707	0.0	-636,707	0.0
14	63.6 52.7	0	0.0	-358,387	0.0	-358,387	0.0	-358,387	0.0	-358,387	0.0
15	65.9 53.7	0	56.5	-184,279	0.0	-184,279	0.0	-184,279	0.0	-184,279	0.0
16	67.3 54.4	0	76.3	-44,438	0.0	-44,438	0.0	-44,438	0.0	-44,438	0.0
17	67.8 54.6	0	70.3	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	51.3	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	17.4	-160,821	0.0	-160,821	0.0	-160,821	0.0	-160,821	0.0
20	64.7 56.0	-134,917	0.0	-333,006	0.0	-333,006	0.0	-333,006	0.0	-333,006	0.0
21	62.5 56.0	-416,360	0.0	-537,846	0.0	-537,846	0.0	-537,846	0.0	-537,846	0.0
22	60.0 54.1	-687,825	0.0	-758,653	0.0	-758,653	0.0	-758,653	0.0	-758,653	0.0
23	57.1 51.9	-921,480	0.0	-985,135	0.0	-985,135	0.0	-985,135	0.0	-985,135	0.0
24	54.2 49.4	-51,996	0.0	-1,242,762	0.0	-1,242,762	0.0	-1,242,762	0.0	-1,242,762	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	-109,568	0.0	-29,262	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	-268,912	0.0	0	0.0	-89,455	0.0	-89,455	0.0	-89,455	0.0
3	57.0 53.5	-376,646	0.0	-565,910	0.0	-961,646	0.0	-961,646	0.0	-961,646	0.0
4	55.4 52.4	-461,659	0.0	-1,123,573	0.0	-1,123,573	0.0	-1,123,573	0.0	-1,123,573	0.0
5	54.2 51.4	-524,631	0.0	-1,230,057	0.0	-1,230,057	0.0	-1,230,057	0.0	-1,230,057	0.0
6	53.5 50.9	-533,452	0.0	-1,307,113	0.0	-1,307,113	0.0	-1,307,113	0.0	-1,307,113	0.0
7	53.2 51.1	-436,165	0.0	-1,325,732	0.0	-1,325,732	0.0	-1,325,732	0.0	-1,325,732	0.0
8	53.9 51.5	-175,165	0.0	-1,255,961	0.0	-1,255,961	0.0	-1,255,961	0.0	-1,255,961	0.0
9	55.9 52.1	0	0.0	-1,091,849	0.0	-1,091,849	0.0	-1,091,849	0.0	-1,091,849	0.0
10	58.9 53.2	0	0.0	-777,200	0.0	-777,200	0.0	-777,200	0.0	-777,200	0.0
11	62.6 55.2	0	0.0	-434,930	0.0	-434,930	0.0	-434,930	0.0	-434,930	0.0
12	66.5 57.3	0	17.9	-111,855	0.0	-111,855	0.0	-111,855	0.0	-111,855	0.0
13	70.2 59.6	0	99.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	117.3	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	129.6	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	131.8	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	126.7	0	3.4	0	3.4	0	3.4	0	3.4
18	74.9 61.7	0	111.1	0	35.4	0	35.4	0	35.4	0	35.4
19	73.7 62.0	0	84.9	0	23.8	0	23.8	0	23.8	0	23.8
20	72.1 62.4	0	57.1	0	8.9	0	8.9	0	8.9	0	8.9
21	70.2 63.3	0	32.5	-60,310	0.0	-60,310	0.0	-60,310	0.0	-60,310	0.0
22	68.0 62.5	0	12.8	-262,436	0.0	-262,436	0.0	-262,436	0.0	-262,436	0.0
23	65.7 60.5	-66,908	0.0	-491,728	0.0	-491,728	0.0	-491,728	0.0	-491,728	0.0
24	63.4 58.5	-253,255	0.0	-32,335	0.0	-32,335	0.0	-32,335	0.0	-32,335	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	-251,981	0.0	-251,981	0.0	-251,981	0.0	-251,981	0.0
2	65.7	61.5	-149,144	0.0	-448,239	0.0	-448,239	0.0	-448,239	0.0	-448,239	0.0
3	63.6	59.7	-30,296	0.0	-646,420	0.0	-646,420	0.0	-646,420	0.0	-646,420	0.0
4	61.8	58.4	-128,704	0.0	-38,872	0.0	-38,872	0.0	-38,872	0.0	-38,872	0.0
5	60.5	57.1	-184,864	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	-195,623	0.0	-178,432	0.0	-178,432	0.0	-178,432	0.0	-178,432	0.0
7	59.4	56.5	-28,345	0.0	-766,642	0.0	-766,642	0.0	-766,642	0.0	-766,642	0.0
8	60.1	56.3	0	22.2	-656,902	0.0	-656,902	0.0	-656,902	0.0	-656,902	0.0
9	62.4	56.3	0	49.5	-487,799	0.0	-487,799	0.0	-487,799	0.0	-487,799	0.0
10	65.7	57.2	0	79.8	-146,115	0.0	-146,115	0.0	-146,115	0.0	-146,115	0.0
11	69.9	58.9	0	110.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	139.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	160.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	178.3	0	21.2	0	21.2	0	21.2	0	21.2
15	84.1	66.9	0	191.3	0	97.3	0	97.3	0	97.3	0	97.3
16	84.9	67.1	0	192.9	0	103.6	0	103.6	0	103.6	0	103.6
17	84.6	67.3	0	188.1	0	104.6	0	104.6	0	104.6	0	104.6
18	83.8	67.1	0	173.6	0	101.8	0	101.8	0	101.8	0	101.8
19	82.4	67.5	0	150.2	0	89.6	0	89.6	0	89.6	0	89.6
20	80.6	68.9	0	118.9	0	72.1	0	72.1	0	72.1	0	72.1
21	78.5	71.0	0	92.4	0	78.7	0	78.7	0	78.7	0	78.7
22	76.1	69.9	0	71.3	0	50.5	0	50.5	0	50.5	0	50.5
23	73.4	68.0	0	51.2	0	17.6	0	17.6	0	17.6	0	17.6
24	70.8	65.5	0	35.1	-15,334	0.0	-15,334	0.0	-15,334	0.0	-15,334	0.0

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	90.0	0	42.4	0	48.8	0	48.8	0	48.8
2	72.6	68.4	0	75.5	0	19.1	0	18.0	0	18.0	0	18.0
3	70.9	67.3	0	66.3	0	0.0	0	0.0	0	0.0	0	0.0
4	69.6	66.5	0	56.4	-150,861	0.0	-150,861	0.0	-150,861	0.0	-150,861	0.0
5	68.7	65.8	0	51.6	-245,207	0.0	-245,207	0.0	-245,207	0.0	-245,207	0.0
6	68.5	65.7	0	50.2	-294,922	0.0	-294,922	0.0	-294,922	0.0	-294,922	0.0
7	69.0	66.3	0	67.8	-220,874	0.0	-220,874	0.0	-220,874	0.0	-220,874	0.0
8	70.6	66.9	0	95.9	-53,444	0.0	-53,444	0.0	-53,444	0.0	-53,444	0.0
9	73.0	67.7	0	125.6	0	15.1	0	15.1	0	15.1	0	15.1
10	76.1	68.1	0	158.6	0	41.3	0	41.3	0	41.3	0	41.3
11	79.5	69.1	0	190.4	0	70.1	0	70.1	0	70.1	0	70.1
12	82.9	70.1	0	221.2	0	97.1	0	97.1	0	97.1	0	97.1
13	86.0	71.0	0	242.5	0	122.5	0	122.5	0	122.5	0	122.5
14	88.4	72.5	0	262.4	0	156.8	0	156.8	0	156.8	0	156.8
15	90.0	74.0	0	275.7	0	194.6	0	194.6	0	194.6	0	194.6
16	90.5	73.7	0	281.6	0	182.7	0	182.7	0	182.7	0	182.7
17	90.3	74.2	0	281.7	0	200.0	0	200.0	0	200.0	0	200.0
18	89.4	73.9	0	254.4	0	199.2	0	199.2	0	199.2	0	199.2
19	88.1	74.5	0	230.4	0	184.9	0	184.9	0	184.9	0	184.9
20	86.4	75.3	0	192.8	0	173.5	0	173.5	0	173.5	0	173.5
21	84.3	76.5	0	176.1	0	183.0	0	183.0	0	183.0	0	183.0
22	81.9	75.7	0	150.4	0	162.0	0	162.0	0	162.0	0	162.0
23	79.5	74.0	0	130.3	0	123.4	0	123.4	0	123.4	0	123.4
24	77.0	72.1	0	111.0	0	81.5	0	81.5	0	81.5	0	81.5

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	102.1	0	29.1	0	33.4	0	33.4	0	33.4
2	72.4	69.4	0	83.2	0	11.6	0	11.4	0	11.4	0	11.4
3	71.3	68.4	0	72.9	-44,844	0.0	-44,844	0.0	-44,844	0.0	-44,844	0.0
4	70.5	67.7	0	65.8	-133,014	0.0	-133,014	0.0	-133,014	0.0	-133,014	0.0
5	70.0	67.4	0	60.1	-202,738	0.0	-202,738	0.0	-202,738	0.0	-202,738	0.0
6	69.9	67.5	0	57.5	-245,131	0.0	-245,131	0.0	-245,131	0.0	-245,131	0.0
7	70.3	68.0	0	79.9	-167,024	0.0	-167,024	0.0	-167,024	0.0	-167,024	0.0
8	71.7	69.0	0	105.6	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	131.4	0	31.2	0	31.2	0	31.2	0	31.2
10	76.2	70.6	0	156.9	0	62.8	0	62.8	0	62.8	0	62.8
11	78.9	71.8	0	184.9	0	87.7	0	87.7	0	87.7	0	87.7
12	81.4	73.0	0	224.4	0	125.4	0	125.4	0	125.4	0	125.4
13	83.4	74.4	0	239.9	0	148.0	0	148.0	0	148.0	0	148.0
14	84.8	74.8	0	257.5	0	162.2	0	162.2	0	162.2	0	162.2
15	85.2	75.0	0	270.3	0	175.5	0	175.5	0	175.5	0	175.5
16	85.1	75.0	0	277.3	0	175.9	0	175.9	0	175.9	0	175.9
17	84.6	74.7	0	279.7	0	170.5	0	170.5	0	170.5	0	170.5
18	83.8	74.6	0	255.1	0	171.2	0	171.2	0	171.2	0	171.2
19	82.7	74.6	0	233.7	0	172.2	0	172.2	0	172.2	0	172.2
20	81.4	74.4	0	197.4	0	152.5	0	152.5	0	152.5	0	152.5
21	79.9	74.9	0	172.3	0	145.2	0	145.2	0	145.2	0	145.2
22	78.4	74.0	0	150.8	0	112.6	0	112.6	0	112.6	0	112.6
23	76.8	72.7	0	133.8	0	79.0	0	79.0	0	79.0	0	79.0
24	75.2	71.6	0	119.9	0	58.7	0	58.7	0	58.7	0	58.7

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	99.4	0	49.5	0	55.5	0	55.5	0	55.5
2	73.2	70.3	0	77.7	0	28.0	0	27.3	0	27.3	0	27.3
3	71.7	68.9	0	63.9	0	0.0	0	0.0	0	0.0	0	0.0
4	70.4	67.8	0	56.0	-107,778	0.0	-107,778	0.0	-107,778	0.0	-107,778	0.0
5	69.5	66.8	0	49.4	-201,092	0.0	-201,092	0.0	-201,092	0.0	-201,092	0.0
6	68.9	66.4	0	48.5	-272,192	0.0	-272,192	0.0	-272,192	0.0	-272,192	0.0
7	68.7	66.4	0	57.5	-290,801	0.0	-290,801	0.0	-290,801	0.0	-290,801	0.0
8	69.2	66.8	0	88.4	-212,836	0.0	-212,836	0.0	-212,836	0.0	-212,836	0.0
9	70.8	67.7	0	122.4	-22,893	0.0	-22,893	0.0	-22,893	0.0	-22,893	0.0
10	73.2	67.7	0	151.5	0	24.5	0	24.5	0	24.5	0	24.5
11	76.2	68.8	0	185.0	0	48.1	0	48.1	0	48.1	0	48.1
12	79.3	70.3	0	213.0	0	83.0	0	83.0	0	83.0	0	83.0
13	82.3	72.2	0	249.8	0	123.0	0	123.0	0	123.0	0	123.0
14	84.7	73.7	0	273.2	0	150.3	0	150.3	0	150.3	0	150.3
15	86.3	74.6	0	289.5	0	183.4	0	183.4	0	183.4	0	183.4
16	86.8	75.1	0	296.3	0	190.7	0	190.7	0	190.7	0	190.7
17	86.6	75.1	0	274.5	0	191.6	0	191.6	0	191.6	0	191.6
18	86.0	75.3	0	261.9	0	206.5	0	206.5	0	206.5	0	206.5
19	85.1	76.0	0	232.7	0	188.7	0	188.7	0	188.7	0	188.7
20	83.8	76.8	0	198.4	0	184.9	0	184.9	0	184.9	0	184.9
21	82.3	77.2	0	188.2	0	181.7	0	181.7	0	181.7	0	181.7
22	80.6	76.3	0	148.2	0	166.2	0	166.2	0	166.2	0	166.2
23	78.7	75.3	0	128.7	0	122.8	0	122.8	0	122.8	0	122.8
24	76.8	73.7	0	111.2	0	87.8	0	87.8	0	87.8	0	87.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	36.5	-143,374	0.0	-143,374	0.0	-143,374	0.0	-143,374	0.0
2	67.6	65.0	0	23.6	-338,764	0.0	-338,764	0.0	-338,764	0.0	-338,764	0.0
3	65.8	63.4	0	14.7	-492,666	0.0	-492,666	0.0	-492,666	0.0	-492,666	0.0
4	64.3	62.2	0	5.5	-30,078	0.0	-30,078	0.0	-30,078	0.0	-30,078	0.0
5	63.1	61.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	4.6	-341,761	0.0	-341,761	0.0	-341,761	0.0	-341,761	0.0
8	62.9	60.9	0	25.8	-528,420	0.0	-528,420	0.0	-528,420	0.0	-528,420	0.0
9	64.7	61.8	0	54.9	-339,301	0.0	-339,301	0.0	-339,301	0.0	-339,301	0.0
10	67.6	62.1	0	86.8	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	118.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	144.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	177.9	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	202.5	0	55.5	0	55.5	0	55.5	0	55.5
15	83.0	70.0	0	219.5	0	107.1	0	107.1	0	107.1	0	107.1
16	83.7	70.5	0	223.2	0	119.7	0	119.7	0	119.7	0	119.7
17	83.4	70.5	0	204.5	0	118.6	0	118.6	0	118.6	0	118.6
18	82.8	70.9	0	180.1	0	119.6	0	119.6	0	119.6	0	119.6
19	81.6	72.7	0	156.8	0	114.5	0	114.5	0	114.5	0	114.5
20	80.1	74.7	0	135.2	0	126.3	0	126.3	0	126.3	0	126.3
21	78.3	74.1	0	111.7	0	106.7	0	106.7	0	106.7	0	106.7
22	76.3	72.4	0	78.4	0	71.6	0	71.6	0	71.6	0	71.6
23	74.1	70.7	0	61.1	0	38.1	0	38.1	0	38.1	0	38.1
24	71.8	68.9	0	46.4	0	6.2	0	6.2	0	6.2	0	6.2

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	-35,535	0.0	-40,862	0.0	-1,332,903	0.0	-1,332,903	0.0	-1,332,903	0.0
2	50.1	48.6	0	0.0	-1,528,431	0.0	-1,528,431	0.0	-1,528,431	0.0	-1,528,431	0.0
3	48.4	46.9	-871,654	0.0	-1,667,112	0.0	-1,667,112	0.0	-1,667,112	0.0	-1,667,112	0.0
4	47.1	45.8	-1,133,131	0.0	-1,813,713	0.0	-1,813,713	0.0	-1,813,713	0.0	-1,813,713	0.0
5	46.3	44.8	-1,220,433	0.0	-1,899,922	0.0	-1,899,922	0.0	-1,899,922	0.0	-1,899,922	0.0
6	46.0	44.5	-1,201,063	0.0	-1,991,035	0.0	-1,991,035	0.0	-1,991,035	0.0	-1,991,035	0.0
7	46.8	45.3	-1,155,376	0.0	-1,944,114	0.0	-1,944,114	0.0	-1,944,114	0.0	-1,944,114	0.0
8	48.9	47.5	-894,879	0.0	-1,750,793	0.0	-1,750,793	0.0	-1,750,793	0.0	-1,750,793	0.0
9	52.2	49.9	-499,100	0.0	-1,463,118	0.0	-1,463,118	0.0	-1,463,118	0.0	-1,463,118	0.0
10	56.2	52.5	-68,434	0.0	-1,093,356	0.0	-1,093,356	0.0	-1,093,356	0.0	-1,093,356	0.0
11	60.4	54.4	0	0.0	-705,584	0.0	-705,584	0.0	-705,584	0.0	-705,584	0.0
12	64.4	56.0	0	0.0	-345,067	0.0	-345,067	0.0	-345,067	0.0	-345,067	0.0
13	67.7	57.3	0	0.0	-41,424	0.0	-41,424	0.0	-41,424	0.0	-41,424	0.0
14	69.8	58.2	0	59.4	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	97.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	100.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	90.5	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	60.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	31.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	-234,442	0.0	-281,272	0.0	-281,272	0.0	-281,272	0.0	-281,272	0.0
22	59.6	57.3	-503,167	0.0	-719,185	0.0	-719,185	0.0	-719,185	0.0	-719,185	0.0
23	57.0	55.1	-730,027	0.0	-927,051	0.0	-927,051	0.0	-927,051	0.0	-927,051	0.0
24	54.5	52.7	-42,013	0.0	-1,150,034	0.0	-1,150,034	0.0	-1,150,034	0.0	-1,150,034	0.0



## 01 Card - Job Information

-----  
 Project: OLMSTEAD HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29805 (1 BLDG)

-----CARD 08-- Climatic Information -----  
 Summer Winter Summer Summer Winter Summer Winter  
 Weather Clearness Clearness Design Design Design Building Ground Ground  
 Code Number Number Dry Bulb Wet Bulb Dry Bulb Orientation Reflect Reflect  
 AUGUSTA

-----CARD 09-- Load Simulation Periods-----  
 1st Month Last Month Peak 1st Month Last Month 1st Month Last Month  
 Cooling Cooling Cooling Summer Summer Daylight Daylight  
 Simulation Simulation Load Hr Period Period Savings Savings  
 APR OCT

-----CARD 10 -- Load Simulation Parameters-----  
 Cooling Heating Airflow Airflow Room Put Wall  
 Load Load Ventilation Input Output Circulation RA Load  
 Method Method Method Units Units Rate to Room  
 CLTD-CLF TETD-TA1 OAHIGH ACTUAL ACTUAL MED-RCR YES

----- Load Section Alternative #1 -----

---- Load Alternative ----  
 Number Description  
 1 OFFICES

-----CARD 20-- General Room Parameters -----  
 Zone  
 Room Reference Room Floor Floor Const Plenum Acoustic Floor to Duplicate Duplicate Perimeter  
 Number Number Descrip Length Width Type Height Resistance Height Multiplier Zone Depth  
 1 1 BLOCK 120 100 7 0 11.6 10

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	120	12		196	0			
1	2	100	12		196	90			
1	3	120	12		196	180			
1	4	100	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1			25	1.03	.82					
1	2			25	1.03	.82					
1	3			25	1.03	.82					
1	4			25	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	347	PEOPLE	255	255	2.0	WATT-SF	SUSFLUOR				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISC OFF EQUIP	57000	BTUH	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	FAN COIL UNITS

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						Fan Static Pressure
		Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule		
1	FC							

## -----CARD 41-- Zone Assignment -----

System Set Number	Ref #1	Ref #2	Ref #3	Ref #4	Ref #5	Ref #6
	Begin	End	Begin	End	Begin	End
1	1	1				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

MORGAN HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29803

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 15:28:56 8/15/94  
Dataset Name: FGTYPS16 .TM

```
*****  
*****  
**                                                                 **  
**          TRACE    600  ANALYSIS                               **  
**                                                                 **  
**          by          **                                       **  
**                                                                 **  
*****  
*****
```

BURKHART HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29810 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 11:31:22 8/16/94  
Dataset Name: FGTYP521 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 8/16		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1			
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*	OADB: 96		*	OADB: 23			
Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Perct Of Tot	*	Space Sensible	Perct Of Tot	*	Space Peak Space Sens	Coil Peak Tot Sens	Perct Of Tot
(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads											
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	87,672	0	87,672	11.67	*	112,169	24.22	*	-72,523	-72,523	7.48
Glass Solar	96,800	0	96,800	12.89	*	77,440	16.72	*	0	0	0.00
Glass Cond	48,606	0	48,606	6.47	*	51,348	11.09	*	-122,636	-122,636	12.65
Wall Cond	160,288	0	160,288	21.34	*	183,730	39.67	*	-285,098	-285,098	29.41
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	63,614	0	63,614	8.47	*	38,484	8.31	*	-104,074	-104,074	10.74
Sub Total==>	456,980	0	456,980	60.84	*	463,170	100.00	*	-584,331	-584,331	60.29
Internal Loads					*			*			
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	294,092	39.16	*	0	0.00	*	0	-384,917	39.71
Sup. Fan Heat			0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0	0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0	0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0		0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	-0.00	*		0.00	*		0	0.00
Grand Total==>	456,980	0	751,072	100.00	*	463,170	100.00	*	-584,331	-969,247	100.00

-----COOLING COIL SELECTION-----

	Total Capacity		Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total		Glass (sf) (%)	
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	Roof	Wall
Main Clg	62.6	751.1	612.9	45,854	78.5	68.2	87.4	65.9	63.4	84.2	45,854	0	0	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0
Totals	62.6	751.1									22,927	0	20,846	2,420 12

-----AREAS-----

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
	(Mbh)	(cfm)	Deg F	Deg F	Vent	7,710	7,710	Clg % OA	16.8	Type	Clg	Htg
Main Htg	-691.4	45,854	65.9	79.5	Infil	1,668	2,085	Clg Cfm/Sqft	1.00	SADB	65.9	79.5
Aux Htg	0.0	0	0.0	0.0	Supply	45,854	45,854	Clg Cfm/Ton	732.62	Plenum	75.0	68.0
Preheat	-277.9	45,854	60.4	65.9	Mincfm	0	0	Clg Sqft/Ton	732.62	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Return	45,854	45,854	Clg Btuh/Sqft	16.38	Ret/OA	78.5	60.4
Humidif	0.0	0	0.0	0.0	Exhaust	7,710	7,710	No. People	514	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	16.8	Fn MtrTD	0.0	0.0
Total	-969.2				Auxil	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
								Htg Btuh/Sqft	-21.14	Fn Frict	0.0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-482,932	0.0	-607,775	0.0	-612,375	0.0	-612,394	0.0	-612,395	0.0
2	32.9	30.7	-485,014	0.0	-614,283	0.0	-617,949	0.0	-617,965	0.0	-617,965	0.0
3	33.1	31.3	-488,852	0.0	-608,847	0.0	-611,770	0.0	-611,783	0.0	-611,784	0.0
4	33.9	32.1	-491,173	0.0	-593,935	0.0	-596,266	0.0	-596,276	0.0	-596,276	0.0
5	35.2	33.5	-491,327	0.0	-571,343	0.0	-573,202	0.0	-573,210	0.0	-573,210	0.0
6	37.0	35.4	-477,776	0.0	-541,015	0.0	-542,497	0.0	-542,504	0.0	-542,504	0.0
7	39.0	37.6	-454,961	0.0	-508,981	0.0	-510,162	0.0	-510,167	0.0	-510,167	0.0
8	41.3	40.1	-418,692	0.0	-472,827	0.0	-473,769	0.0	-473,773	0.0	-473,773	0.0
9	43.7	42.5	-364,921	0.0	-435,158	0.0	-435,909	0.0	-435,912	0.0	-435,912	0.0
10	46.1	44.0	-299,332	0.0	-396,547	0.0	-397,146	0.0	-397,148	0.0	-397,148	0.0
11	48.4	45.0	-223,489	0.0	-358,014	0.0	-358,491	0.0	-358,493	0.0	-358,493	0.0
12	50.5	45.6	-149,515	0.0	-321,149	0.0	-321,528	0.0	-321,530	0.0	-321,530	0.0
13	52.2	46.1	-91,167	0.0	-289,845	0.0	-290,147	0.0	-290,149	0.0	-290,149	0.0
14	53.5	46.4	-48,941	0.0	-263,692	0.0	-263,933	0.0	-263,933	0.0	-263,933	0.0
15	54.3	46.3	-27,130	0.0	-245,357	0.0	-245,549	0.0	-245,549	0.0	-245,549	0.0
16	54.6	46.1	-27,370	0.0	-235,294	0.0	-235,446	0.0	-235,447	0.0	-235,447	0.0
17	54.0	45.9	-45,368	0.0	-242,395	0.0	-242,516	0.0	-242,517	0.0	-242,517	0.0
18	52.5	45.0	-84,266	0.0	-267,994	0.0	-268,090	0.0	-268,091	0.0	-268,091	0.0
19	50.1	44.8	-133,968	0.0	-311,760	0.0	-311,836	0.0	-311,837	0.0	-311,837	0.0
20	47.1	43.3	-185,574	0.0	-366,866	0.0	-366,928	0.0	-366,928	0.0	-366,928	0.0
21	43.7	40.4	-230,565	0.0	-429,804	0.0	-429,853	0.0	-429,854	0.0	-429,854	0.0
22	40.4	37.3	-273,530	0.0	-490,366	0.0	-490,405	0.0	-490,405	0.0	-490,405	0.0
23	37.3	34.9	-308,344	0.0	-546,431	0.0	-546,462	0.0	-546,462	0.0	-546,462	0.0
24	34.9	32.6	-336,441	0.0	-587,830	0.0	-587,854	0.0	-587,855	0.0	-587,855	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-346,662	0.0	-426,838	0.0	-475,239	0.0	-475,442	0.0	-475,443	0.0
2	39.7	37.1	-370,184	0.0	-474,497	0.0	-513,830	0.0	-513,992	0.0	-513,993	0.0
3	37.8	35.1	-391,438	0.0	-519,208	0.0	-549,951	0.0	-550,081	0.0	-550,081	0.0
4	36.3	33.8	-409,480	0.0	-552,914	0.0	-577,419	0.0	-577,521	0.0	-577,522	0.0
5	35.1	32.6	-419,402	0.0	-580,108	0.0	-599,640	0.0	-599,722	0.0	-599,722	0.0
6	34.4	32.0	-417,457	0.0	-597,184	0.0	-612,751	0.0	-612,817	0.0	-612,817	0.0
7	34.1	31.9	-404,259	0.0	-606,153	0.0	-618,562	0.0	-618,614	0.0	-618,614	0.0
8	34.6	32.4	-375,663	0.0	-599,222	0.0	-609,113	0.0	-609,154	0.0	-609,154	0.0
9	36.0	33.8	-332,170	0.0	-573,685	0.0	-581,569	0.0	-581,602	0.0	-581,602	0.0
10	38.2	34.7	-275,867	0.0	-532,375	0.0	-538,656	0.0	-538,683	0.0	-538,683	0.0
11	40.9	36.2	-210,815	0.0	-481,864	0.0	-486,864	0.0	-486,885	0.0	-486,885	0.0
12	43.9	37.4	-147,336	0.0	-425,116	0.0	-429,093	0.0	-429,110	0.0	-429,110	0.0
13	46.9	39.4	-94,929	0.0	-367,133	0.0	-370,295	0.0	-370,308	0.0	-370,308	0.0
14	49.7	41.4	-57,408	0.0	-311,634	0.0	-314,148	0.0	-314,158	0.0	-314,158	0.0
15	51.8	42.8	-35,621	0.0	-269,975	0.0	-271,975	0.0	-271,983	0.0	-271,983	0.0
16	53.2	43.9	-36,962	0.0	-242,224	0.0	-243,813	0.0	-243,819	0.0	-243,819	0.0
17	53.7	44.2	-51,315	0.0	-233,208	0.0	-234,469	0.0	-234,475	0.0	-234,475	0.0
18	53.4	44.4	-84,962	0.0	-239,816	0.0	-240,819	0.0	-240,824	0.0	-240,824	0.0
19	52.7	44.4	-127,151	0.0	-254,210	0.0	-255,008	0.0	-255,011	0.0	-255,011	0.0
20	51.5	45.2	-174,229	0.0	-279,574	0.0	-280,209	0.0	-280,211	0.0	-280,211	0.0
21	50.0	44.6	-213,191	0.0	-310,512	0.0	-311,018	0.0	-311,020	0.0	-311,020	0.0
22	48.1	43.3	-252,251	0.0	-349,427	0.0	-349,830	0.0	-349,831	0.0	-349,831	0.0
23	46.1	41.8	-285,099	0.0	-389,425	0.0	-389,746	0.0	-389,747	0.0	-389,747	0.0
24	43.9	40.1	-310,108	0.0	-432,353	0.0	-432,609	0.0	-432,610	0.0	-432,610	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-162,927	0.0	-128,269	0.0	-266,373	0.0	-267,718	0.0	-267,733	0.0
2	48.7 44.6	-181,775	0.0	-207,243	0.0	-317,177	0.0	-318,250	0.0	-318,261	0.0
3	46.6 42.9	-197,983	0.0	-236,146	1.3	-356,931	0.0	-357,785	0.0	-357,795	0.0
4	44.9 41.4	-214,451	0.0	-325,054	0.0	-388,505	0.0	-389,186	0.0	-389,193	0.0
5	43.9 40.8	-220,220	0.0	-355,754	0.0	-406,331	0.0	-406,874	0.0	-406,879	0.0
6	43.5 40.8	-213,589	0.0	-372,473	0.0	-412,790	0.0	-413,223	0.0	-413,228	0.0
7	44.0 41.4	-194,368	0.0	-370,016	0.0	-402,159	0.0	-402,504	0.0	-402,508	0.0
8	45.4 42.7	-155,275	0.0	-349,340	0.0	-374,970	0.0	-375,245	0.0	-375,248	0.0
9	47.7 44.3	-97,363	0.0	-311,380	0.0	-331,810	0.0	-332,029	0.0	-332,031	0.0
10	50.6 45.8	-26,370	0.0	-261,538	0.0	-277,816	0.0	-277,990	0.0	-277,993	0.0
11	53.9 47.4	0	0.0	-202,062	0.0	-215,025	0.0	-215,164	0.0	-215,166	0.0
12	57.4 49.0	0	0.0	-136,969	0.0	-147,288	0.0	-147,398	0.0	-147,400	0.0
13	60.7 50.8	0	0.0	-74,824	0.0	-83,032	0.0	-83,121	0.0	-83,121	0.0
14	63.6 52.7	0	0.0	-19,258	0.0	-25,786	0.0	-25,855	0.0	-25,856	0.0
15	65.9 53.7	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	2.9	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	0.0	-33,498	0.0	-36,841	0.0	-36,877	0.0	-36,878	0.0
22	60.0 54.1	0	0.0	-88,241	0.0	-90,904	0.0	-90,933	0.0	-90,933	0.0
23	57.1 51.9	0	0.0	-148,975	0.0	-151,096	0.0	-151,119	0.0	-151,120	0.0
24	54.2 49.4	0	0.0	-208,234	0.0	-209,924	0.0	-209,942	0.0	-209,942	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	-5,975	0.0	-6,109	0.0
3	57.0 53.5	0	0.0	0	0.0	-61,505	0.0	-63,910	0.0	-64,007	0.0
4	55.4 52.4	0	0.0	-62,083	0.0	-109,503	0.0	-111,422	0.0	-111,499	0.0
5	54.2 51.4	-7,693	0.0	-108,495	0.0	-146,325	0.0	-147,857	0.0	-147,918	0.0
6	53.5 50.9	0	0.0	-140,250	0.0	-170,436	0.0	-171,658	0.0	-171,707	0.0
7	53.2 51.1	0	0.0	-160,780	0.0	-184,870	0.0	-185,845	0.0	-185,884	0.0
8	53.9 51.5	0	0.0	-158,658	0.0	-177,879	0.0	-178,657	0.0	-178,688	0.0
9	55.9 52.1	0	0.0	-128,932	0.0	-144,260	0.0	-144,880	0.0	-144,906	0.0
10	58.9 53.2	0	0.0	-77,973	0.0	-90,190	0.0	-90,684	0.0	-90,705	0.0
11	62.6 55.2	0	0.0	-11,753	0.0	-21,473	0.0	-21,867	0.0	-21,883	0.0
12	66.5 57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	8.3	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	8.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	19.4	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	29.2	0	2.5	0	2.6	0	2.6	0	2.6
18	74.9 61.7	0	27.2	0	1.7	0	1.8	0	1.8	0	1.8
19	73.7 62.0	0	23.2	0	0.6	0	0.6	0	0.6	0	0.6
20	72.1 62.4	0	18.9	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2 63.3	0	14.3	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0 62.5	0	9.4	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7 60.5	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.4	0	0.5	0	0.5	0	0.5
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	19.7	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	26.5	0	1.7	0	1.7	0	1.7	0	1.7
13	78.5	63.7	0	32.5	0	4.5	0	4.5	0	4.5	0	4.5
14	81.9	65.3	0	38.2	0	6.6	0	6.6	0	6.6	0	6.6
15	84.1	66.9	0	41.7	0	7.7	0	7.7	0	7.7	0	7.7
16	84.9	67.1	0	42.7	0	7.9	0	7.9	0	7.9	0	7.9
17	84.6	67.3	0	43.1	0	7.2	0	7.2	0	7.2	0	7.2
18	83.8	67.1	0	41.0	0	19.5	0	19.5	0	19.5	0	19.5
19	82.4	67.5	0	37.4	0	21.5	0	21.5	0	21.5	0	21.5
20	80.6	68.9	0	32.6	0	20.3	0	20.3	0	20.3	0	20.3
21	78.5	71.0	0	27.9	0	20.8	0	20.8	0	20.8	0	20.8
22	76.1	69.9	0	23.3	0	16.7	0	16.7	0	16.7	0	16.7
23	73.4	68.0	0	18.6	0	10.6	0	10.6	0	10.6	0	10.6
24	70.8	65.5	0	15.2	0	5.3	0	5.3	0	5.3	0	5.3

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	31.2	0	16.3	0	19.1	0	19.1	0	19.1
2	72.6	68.4	0	25.6	0	11.9	0	12.3	0	12.3	0	12.3
3	70.9	67.3	0	22.9	0	8.0	0	8.1	0	8.1	0	8.1
4	69.6	66.5	0	20.7	0	4.3	0	4.3	0	4.3	0	4.3
5	68.7	65.8	0	18.2	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	17.2	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	19.5	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	23.4	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	28.0	0	1.1	0	1.1	0	1.1	0	1.1
10	76.1	68.1	0	33.0	0	10.3	0	10.3	0	10.3	0	10.3
11	79.5	69.1	0	38.8	0	16.1	0	16.1	0	16.1	0	16.1
12	82.9	70.1	0	45.3	0	22.0	0	22.0	0	22.0	0	22.0
13	86.0	71.0	0	51.0	0	28.3	0	28.3	0	28.3	0	28.3
14	88.4	72.5	0	55.7	0	35.6	0	35.6	0	35.6	0	35.6
15	90.0	74.0	0	59.3	0	41.6	0	41.6	0	41.6	0	41.6
16	90.5	73.7	0	60.5	0	42.0	0	42.0	0	42.0	0	42.0
17	90.3	74.2	0	60.7	0	43.7	0	43.7	0	43.7	0	43.7
18	89.4	73.9	0	57.6	0	44.3	0	44.3	0	44.3	0	44.3
19	88.1	74.5	0	53.7	0	43.5	0	43.5	0	43.5	0	43.5
20	86.4	75.3	0	49.4	0	41.0	0	41.0	0	41.0	0	41.0
21	84.3	76.5	0	47.3	0	42.0	0	42.0	0	42.0	0	42.0
22	81.9	75.7	0	42.8	0	38.8	0	38.8	0	38.8	0	38.8
23	79.5	74.0	0	38.7	0	32.5	0	32.5	0	32.5	0	32.5
24	77.0	72.1	0	34.4	0	25.5	0	25.5	0	25.5	0	25.5

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	33.3	0	12.0	0	14.2	0	14.2	0	14.2
2	72.4	69.4	0	27.1	0	9.8	0	10.2	0	10.2	0	10.2
3	71.3	68.4	0	24.8	0	6.0	0	6.1	0	6.1	0	6.1
4	70.5	67.7	0	22.8	0	2.8	0	2.8	0	2.8	0	2.8
5	70.0	67.4	0	21.1	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	20.0	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	22.0	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	25.1	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	28.1	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	32.7	0	12.4	0	12.4	0	12.4	0	12.4
11	78.9	71.8	0	37.6	0	18.5	0	18.5	0	18.5	0	18.5
12	81.4	73.0	0	45.5	0	25.2	0	25.2	0	25.2	0	25.2
13	83.4	74.4	0	50.7	0	31.9	0	31.9	0	31.9	0	31.9
14	84.8	74.8	0	55.2	0	35.6	0	35.6	0	35.6	0	35.6
15	85.2	75.0	0	58.8	0	38.4	0	38.4	0	38.4	0	38.4
16	85.1	75.0	0	60.1	0	40.7	0	40.7	0	40.7	0	40.7
17	84.6	74.7	0	60.5	0	39.5	0	39.5	0	39.5	0	39.5
18	83.8	74.6	0	57.6	0	39.8	0	39.8	0	39.8	0	39.8
19	82.7	74.6	0	54.4	0	39.6	0	39.6	0	39.6	0	39.6
20	81.4	74.4	0	50.5	0	37.1	0	37.1	0	37.1	0	37.1
21	79.9	74.9	0	46.4	0	35.5	0	35.5	0	35.5	0	35.5
22	78.4	74.0	0	42.4	0	30.5	0	30.5	0	30.5	0	30.5
23	76.8	72.7	0	38.9	0	24.0	0	24.0	0	24.0	0	24.0
24	75.2	71.6	0	34.8	0	19.4	0	19.4	0	19.4	0	19.4

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	32.9	0	16.6	0	19.8	0	19.8	0	19.8
2	73.2	70.3	0	26.0	0	12.4	0	12.8	0	12.8	0	12.8
3	71.7	68.9	0	23.5	0	8.4	0	8.4	0	8.4	0	8.4
4	70.4	67.8	0	20.5	0	4.3	0	4.3	0	4.3	0	4.3
5	69.5	66.8	0	18.0	0	0.8	0	0.8	0	0.8	0	0.8
6	68.9	66.4	0	17.2	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	18.8	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	21.5	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	25.9	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	31.5	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	38.2	0	8.2	0	8.2	0	8.2	0	8.2
12	79.3	70.3	0	44.1	0	20.1	0	20.1	0	20.1	0	20.1
13	82.3	72.2	0	52.7	0	26.8	0	26.8	0	26.8	0	26.8
14	84.7	73.7	0	58.7	0	33.6	0	33.6	0	33.6	0	33.6
15	86.3	74.6	0	61.9	0	39.8	0	39.8	0	39.8	0	39.8
16	86.8	75.1	0	62.6	0	42.0	0	42.0	0	42.0	0	42.0
17	86.6	75.1	0	61.2	0	42.7	0	42.7	0	42.7	0	42.7
18	86.0	75.3	0	58.1	0	44.9	0	44.9	0	44.9	0	44.9
19	85.1	76.0	0	54.9	0	43.9	0	43.9	0	43.9	0	43.9
20	83.8	76.8	0	50.9	0	42.7	0	42.7	0	42.7	0	42.7
21	82.3	77.2	0	48.5	0	41.1	0	41.1	0	41.1	0	41.1
22	80.6	76.3	0	42.2	0	38.7	0	38.7	0	38.7	0	38.7
23	78.7	75.3	0	37.9	0	32.1	0	32.1	0	32.1	0	32.1
24	76.8	73.7	0	34.7	0	25.8	0	25.8	0	25.8	0	25.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	20.1	0	2.4	0	3.2	0	3.2	0	3.2
2	67.6	65.0	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	9.6	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	7.2	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	6.4	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	10.9	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	17.6	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	24.6	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	31.1	0	1.5	0	1.5	0	1.5	0	1.5
13	78.3	66.7	0	38.4	0	3.9	0	3.9	0	3.9	0	3.9
14	81.2	68.4	0	44.9	0	5.9	0	5.9	0	5.9	0	5.9
15	83.0	70.0	0	48.5	0	7.5	0	7.5	0	7.5	0	7.5
16	83.7	70.5	0	50.0	0	24.9	0	24.9	0	24.9	0	24.9
17	83.4	70.5	0	48.1	0	29.9	0	29.9	0	29.9	0	29.9
18	82.8	70.9	0	44.9	0	30.1	0	30.1	0	30.1	0	30.1
19	81.6	72.7	0	40.6	0	29.2	0	29.2	0	29.2	0	29.2
20	80.1	74.7	0	39.3	0	29.9	0	29.9	0	29.9	0	29.9
21	78.3	74.1	0	34.6	0	27.0	0	27.0	0	27.0	0	27.0
22	76.3	72.4	0	28.8	0	22.3	0	22.3	0	22.3	0	22.3
23	74.1	70.7	0	22.3	0	15.6	0	15.6	0	15.6	0	15.6
24	71.8	68.9	0	18.7	0	8.5	0	8.5	0	8.5	0	8.5

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-87,972	0.0	-212,088	0.0	-214,129	0.0	-214,165	0.0
2	50.1	48.6	0	0.0	-157,351	0.0	-256,419	0.0	-258,048	0.0	-258,076	0.0
3	48.4	46.9	-17,048	0.0	-211,203	0.0	-291,793	0.0	-293,093	0.0	-293,116	0.0
4	47.1	45.8	-58,531	0.0	-230,553	1.1	-318,971	0.0	-320,008	0.0	-320,026	0.0
5	46.3	44.8	-87,992	0.0	-286,319	0.0	-336,493	0.0	-337,322	0.0	-337,336	0.0
6	46.0	44.5	-97,630	0.0	-310,269	0.0	-345,114	0.0	-345,774	0.0	-345,786	0.0
7	46.8	45.3	-89,116	0.0	-304,880	0.0	-332,671	0.0	-333,198	0.0	-333,207	0.0
8	48.9	47.5	-60,485	0.0	-272,034	0.0	-294,205	0.0	-294,626	0.0	-294,633	0.0
9	52.2	49.9	-8,676	0.0	-215,044	0.0	-232,727	0.0	-233,062	0.0	-233,068	0.0
10	56.2	52.5	0	0.0	-144,568	0.0	-158,664	0.0	-158,931	0.0	-158,936	0.0
11	60.4	54.4	0	0.0	-69,020	0.0	-80,251	0.0	-80,463	0.0	-80,467	0.0
12	64.4	56.0	0	0.0	0	0.0	-4,546	0.0	-4,722	0.0	-4,726	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	18.3	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	13.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-47,497	0.0	-51,509	0.0	-51,579	0.0	-51,581	0.0
23	57.0	55.1	0	0.0	-107,137	0.0	-110,339	0.0	-110,395	0.0	-110,396	0.0
24	54.5	52.7	0	0.0	-162,540	0.0	-165,097	0.0	-165,141	0.0	-165,142	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	52.0 49.2	-139,249 0.0	-117,406 0.0	-243,012 0.0	-244,453 0.0	-244,472 0.0					
2	49.4 47.3	-167,707 0.0	-193,680 0.0	-293,922 0.0	-295,072 0.0	-295,087 0.0					
3	47.2 45.3	-193,601 0.0	-229,588 1.1	-336,458 0.0	-337,376 0.0	-337,388 0.0					
4	45.3 43.4	-214,093 0.0	-307,885 0.0	-372,662 0.0	-373,395 0.0	-373,404 0.0					
5	43.9 42.2	-225,038 0.0	-353,254 0.0	-398,761 0.0	-399,345 0.0	-399,353 0.0					
6	43.0 41.4	-218,548 0.0	-379,139 0.0	-415,451 0.0	-415,917 0.0	-415,923 0.0					
7	42.7 41.2	-199,042 0.0	-392,173 0.0	-421,146 0.0	-421,519 0.0	-421,523 0.0					
8	43.5 42.0	-158,139 0.0	-382,848 0.0	-405,964 0.0	-406,261 0.0	-406,265 0.0					
9	45.9 44.0	-93,608 0.0	-340,016 0.0	-358,458 0.0	-358,695 0.0	-358,698 0.0					
10	49.4 46.6	-16,948 0.0	-274,838 0.0	-289,547 0.0	-289,736 0.0	-289,738 0.0					
11	53.8 48.6	0 0.0	-192,241 0.0	-203,965 0.0	-204,116 0.0	-204,118 0.0					
12	58.4 50.6	0 0.0	-106,313 0.0	-115,652 0.0	-115,772 0.0	-115,774 0.0					
13	62.8 52.6	0 0.0	-24,154 0.0	-31,588 0.0	-31,684 0.0	-31,685 0.0					
14	66.3 54.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0					
15	68.7 55.7	0 4.8	0 0.0	0 0.0	0 0.0	0 0.0					
16	69.5 56.1	0 3.6	0 0.0	0 0.0	0 0.0	0 0.0					
17	69.2 55.8	0 1.7	0 0.0	0 0.0	0 0.0	0 0.0					
18	68.3 57.0	0 0.6	0 0.0	0 0.0	0 0.0	0 0.0					
19	66.9 59.4	0 9.2	0 0.0	0 0.0	0 0.0	0 0.0					
20	65.0 59.4	0 3.6	0 0.0	0 0.0	0 0.0	0 0.0					
21	62.8 58.2	0 0.0	-10,293 0.0	-13,850 0.0	-13,896 0.0	-13,896 0.0					
22	60.2 56.1	0 0.0	-70,690 0.0	-73,527 0.0	-73,564 0.0	-73,564 0.0					
23	57.5 54.0	0 0.0	-130,026 0.0	-132,289 0.0	-132,319 0.0	-132,319 0.0					
24	54.7 51.7	0 0.0	-188,745 0.0	-190,550 0.0	-190,574 0.0	-190,574 0.0					

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton	Htg Btuh Clg Ton		
1	44.9 42.5	-247,868 0.0	-357,389 0.0	-393,098 0.0	-393,253 0.0	-393,253 0.0					
2	43.2 41.1	-267,247 0.0	-397,217 0.0	-425,690 0.0	-425,813 0.0	-425,814 0.0					
3	41.8 39.8	-284,329 0.0	-429,840 0.0	-452,544 0.0	-452,643 0.0	-452,643 0.0					
4	40.7 38.7	-298,917 0.0	-455,709 0.0	-473,815 0.0	-473,893 0.0	-473,894 0.0					
5	40.1 38.4	-308,642 0.0	-469,303 0.0	-485,117 0.0	-485,180 0.0	-485,180 0.0					
6	39.9 38.4	-303,163 0.0	-477,721 0.0	-489,239 0.0	-489,289 0.0	-489,289 0.0					
7	40.5 39.0	-288,703 0.0	-469,269 0.0	-478,455 0.0	-478,494 0.0	-478,494 0.0					
8	42.2 40.7	-258,716 0.0	-439,988 0.0	-447,311 0.0	-447,343 0.0	-447,344 0.0					
9	44.9 43.4	-211,615 0.0	-391,316 0.0	-397,156 0.0	-397,181 0.0	-397,181 0.0					
10	48.2 45.8	-154,350 0.0	-331,006 0.0	-335,659 0.0	-335,680 0.0	-335,680 0.0					
11	51.7 48.3	-83,827 0.0	-267,011 0.0	-270,720 0.0	-270,736 0.0	-270,736 0.0					
12	55.0 50.7	-16,717 0.0	-206,111 0.0	-209,066 0.0	-209,079 0.0	-209,079 0.0					
13	57.7 52.0	0 0.0	-155,460 0.0	-157,813 0.0	-157,824 0.0	-157,824 0.0					
14	59.5 52.6	0 0.0	-121,049 0.0	-122,923 0.0	-122,931 0.0	-122,931 0.0					
15	60.1 52.7	0 0.0	-109,541 0.0	-111,033 0.0	-111,039 0.0	-111,039 0.0					
16	59.9 52.6	0 0.0	-111,868 0.0	-113,055 0.0	-113,060 0.0	-113,060 0.0					
17	59.2 52.1	0 0.0	-122,748 0.0	-123,693 0.0	-123,697 0.0	-123,697 0.0					
18	58.2 51.8	0 0.0	-139,942 0.0	-140,696 0.0	-140,699 0.0	-140,699 0.0					
19	56.8 52.2	0 0.0	-165,802 0.0	-166,402 0.0	-166,404 0.0	-166,404 0.0					
20	55.0 51.4	-9,246 0.0	-199,935 0.0	-200,414 0.0	-200,416 0.0	-200,416 0.0					
21	53.1 50.1	-63,119 0.0	-235,987 0.0	-236,369 0.0	-236,370 0.0	-236,370 0.0					
22	51.0 48.1	-110,541 0.0	-276,462 0.0	-276,767 0.0	-276,768 0.0	-276,768 0.0					
23	48.9 46.2	-149,562 0.0	-316,837 0.0	-317,080 0.0	-317,081 0.0	-317,081 0.0					
24	46.9 44.1	-180,517 0.0	-354,748 0.0	-354,942 0.0	-354,943 0.0	-354,943 0.0					

## 01 Card - Job Information

-----  
 Project: BURKHART HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29810 (1 BLDG)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Simulation	Last Month Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	BURKHART HATLL

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	372.8	61.5	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	372.8	12		196	0			
1	2	61.5	12		196	90			
1	3	372.8	12		196	180			
1	4	61.5	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	43	1.03	.83					
1	2	2.5	5.5	4	1.03	.83					
1	3	2.5	5.5	37	1.03	.83					
1	4	2.5	5.5	4	1.03	.83					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	257	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				







Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHO FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

SALTZMAN HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29811 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 11:44:19 8/16/94  
Dataset Name: FGTYP522 .TM



System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>		Mo/Hr: 8/16		*		Mo/Hr: 6/18		*		Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 96/ 76/105.0		*		OADB: 96		*		OADB: 23		
	Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct
	Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot
	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Envelope Loads						*			*			
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	148,997	0	0	148,997	16.62	*	190,628	30.95	*	-123,251	-123,251	10.71
Glass Solar	128,982	0	0	128,982	14.39	*	104,414	16.95	*	0	0	0.00
Glass Cond	61,681	0	0	61,681	6.88	*	65,160	10.58	*	-155,626	-155,626	13.53
Wall Cond	181,181	0	0	181,181	20.21	*	213,315	34.63	*	-307,666	-307,666	26.74
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	63,685	0	0	63,685	7.10	*	42,379	6.88	*	-114,606	-114,606	9.96
Sub Total==>	584,526	0	0	584,526	65.19	*	615,897	100.00	*	-701,149	-701,149	60.94
Internal Loads						*			*			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	312,099	34.81	*	0	0.00	*	0	-449,319	39.06
Sup. Fan Heat				0	0.00	*			*		0	0.00
Ret. Fan Heat		0	0	0	0.00	*			*		0	0.00
Duct Heat Pkup		0	0	0	0.00	*			*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*			*		0	0.00
Terminal Bypass		0	0	0	-0.00	*			*		0	0.00
Grand Total==>	584,526	0	0	896,625	100.00	*	615,897	100.00	*	-701,149	-1,150,468	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)	
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr
Main Clg	74.7	896.6	77,929	77.4	68.4	90.7	67.9	65.2	89.5	77,928	0	0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Totals	74.7	896.6	77,929							38,964	0	0
										22,956	3,071	13

-----HEATING COIL SELECTION-----				-----AIRFLOWS (cfm)-----			--ENGINEERING CHECKS--			--TEMPERATURES (F)---		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	11.5	Type	Clg	Htg	
(Mbh)	(cfm)	Deg F	Deg F	Vent	9,000	9,000	Clg Cfm/Sqft	1.00	SADB	67.9	76.1	
Main Htg	-711.9	77,929	67.9	67.9	1,836	2,296	Clg Cfm/Ton	1042.96	Plenum	75.0	68.0	
Aux Htg	0.0	0	0.0	0.0	77,929	77,929	Clg Sqft/Ton	1042.96	Return	75.0	68.0	
Preheat	-438.6	77,929	62.8	67.9	0	0	Clg Btuh/Sqft	11.51	Ret/OA	77.4	62.8	
Reheat	0.0	0	0.0	0.0	77,929	77,929	No. People	600	Runarnd	75.0	68.0	
Humidif	0.0	0	0.0	0.0	9,000	9,000	Htg % OA	11.5	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0	0.0	0.0	0	0	Htg Cfm/SqFt	1.00	Fn BldTD	0.0	0.0	
Total	-1,150.5				0	0	Htg Btuh/SqFt	-14.76	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-572,430	0.0	-701,411	0.0	-714,446	0.0	-714,520	0.0	-714,520	0.0
2	32.9	30.7	-573,516	0.0	-710,200	0.0	-720,713	0.0	-720,773	0.0	-720,774	0.0
3	33.1	31.3	-577,074	0.0	-705,063	0.0	-713,544	0.0	-713,593	0.0	-713,593	0.0
4	33.9	32.1	-579,177	0.0	-688,217	0.0	-695,060	0.0	-695,099	0.0	-695,100	0.0
5	35.2	33.5	-579,083	0.0	-661,900	0.0	-667,422	0.0	-667,453	0.0	-667,453	0.0
6	37.0	35.4	-563,153	0.0	-627,677	0.0	-632,131	0.0	-632,156	0.0	-632,156	0.0
7	39.0	37.6	-536,659	0.0	-591,775	0.0	-595,369	0.0	-595,389	0.0	-595,389	0.0
8	41.3	40.1	-493,909	0.0	-550,495	0.0	-553,394	0.0	-553,411	0.0	-553,411	0.0
9	43.7	42.5	-429,718	0.0	-507,501	0.0	-509,840	0.0	-509,853	0.0	-509,853	0.0
10	46.1	44.0	-351,933	0.0	-463,049	0.0	-464,935	0.0	-464,947	0.0	-464,947	0.0
11	48.4	45.0	-261,590	0.0	-418,217	0.0	-419,738	0.0	-419,747	0.0	-419,747	0.0
12	50.5	45.6	-172,414	0.0	-374,973	0.0	-376,199	0.0	-376,206	0.0	-376,206	0.0
13	52.2	46.1	-102,282	0.0	-337,955	0.0	-338,943	0.0	-338,948	0.0	-338,948	0.0
14	53.5	46.4	-50,660	0.0	-306,456	0.0	-307,253	0.0	-307,257	0.0	-307,257	0.0
15	54.3	46.3	-22,372	0.0	-284,324	0.0	-284,965	0.0	-284,969	0.0	-284,969	0.0
16	54.6	46.1	-20,810	0.0	-272,059	0.0	-272,576	0.0	-272,580	0.0	-272,580	0.0
17	54.0	45.9	-39,477	0.0	-280,288	0.0	-280,704	0.0	-280,706	0.0	-280,706	0.0
18	52.5	45.0	-82,265	0.0	-310,190	0.0	-310,526	0.0	-310,528	0.0	-310,528	0.0
19	50.1	44.8	-138,666	0.0	-361,591	0.0	-361,861	0.0	-361,863	0.0	-361,863	0.0
20	47.1	43.3	-198,068	0.0	-426,476	0.0	-426,694	0.0	-426,696	0.0	-426,696	0.0
21	43.7	40.4	-251,069	0.0	-499,948	0.0	-500,124	0.0	-500,125	0.0	-500,125	0.0
22	40.4	37.3	-302,194	0.0	-570,770	0.0	-570,912	0.0	-570,913	0.0	-570,913	0.0
23	37.3	34.9	-343,342	0.0	-637,116	0.0	-637,230	0.0	-637,231	0.0	-637,231	0.0
24	34.9	32.6	-377,800	0.0	-686,090	0.0	-686,181	0.0	-686,183	0.0	-686,183	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-398,696	0.0	-477,929	0.0	-548,082	0.0	-548,478	0.0	-548,480	0.0
2	39.7	37.1	-425,617	0.0	-537,035	0.0	-593,613	0.0	-593,933	0.0	-593,933	0.0
3	37.8	35.1	-449,856	0.0	-591,428	0.0	-637,059	0.0	-637,316	0.0	-637,317	0.0
4	36.3	33.8	-470,953	0.0	-634,163	0.0	-670,967	0.0	-671,175	0.0	-671,176	0.0
5	35.1	32.6	-483,683	0.0	-668,066	0.0	-697,751	0.0	-697,919	0.0	-697,919	0.0
6	34.4	32.0	-482,680	0.0	-689,104	0.0	-713,046	0.0	-713,182	0.0	-713,182	0.0
7	34.1	31.9	-468,709	0.0	-700,723	0.0	-720,035	0.0	-720,145	0.0	-720,145	0.0
8	34.6	32.4	-435,913	0.0	-693,585	0.0	-709,161	0.0	-709,249	0.0	-709,249	0.0
9	36.0	33.8	-384,448	0.0	-664,903	0.0	-677,466	0.0	-677,538	0.0	-677,538	0.0
10	38.2	34.7	-317,362	0.0	-617,067	0.0	-627,198	0.0	-627,254	0.0	-627,254	0.0
11	40.9	36.2	-239,612	0.0	-557,221	0.0	-565,385	0.0	-565,432	0.0	-565,432	0.0
12	43.9	37.4	-162,663	0.0	-489,911	0.0	-496,486	0.0	-496,524	0.0	-496,524	0.0
13	46.9	39.4	-98,518	0.0	-421,032	0.0	-426,327	0.0	-426,357	0.0	-426,357	0.0
14	49.7	41.4	-52,990	0.0	-354,916	0.0	-359,181	0.0	-359,204	0.0	-359,204	0.0
15	51.8	42.8	-25,065	0.0	-304,837	0.0	-308,271	0.0	-308,290	0.0	-308,290	0.0
16	53.2	43.9	-23,537	0.0	-271,578	0.0	-274,343	0.0	-274,358	0.0	-274,358	0.0
17	53.7	44.2	-37,469	0.0	-260,294	0.0	-262,519	0.0	-262,530	0.0	-262,530	0.0
18	53.4	44.4	-74,115	0.0	-267,414	0.0	-269,206	0.0	-269,216	0.0	-269,216	0.0
19	52.7	44.4	-121,513	0.0	-284,008	0.0	-285,452	0.0	-285,459	0.0	-285,459	0.0
20	51.5	45.2	-175,598	0.0	-313,294	0.0	-314,458	0.0	-314,464	0.0	-314,464	0.0
21	50.0	44.6	-220,945	0.0	-349,614	0.0	-350,553	0.0	-350,556	0.0	-350,556	0.0
22	48.1	43.3	-267,239	0.0	-395,752	0.0	-396,507	0.0	-396,511	0.0	-396,511	0.0
23	46.1	41.8	-306,835	0.0	-444,087	0.0	-444,696	0.0	-444,699	0.0	-444,699	0.0
24	43.9	40.1	-337,738	0.0	-496,588	0.0	-497,079	0.0	-497,081	0.0	-497,081	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-177,224	0.0	-21,839	0.0	-280,463	0.0	-285,360	0.0	-285,447	0.0
2	48.7 44.6	-198,308	0.0	-135,144	0.0	-343,509	0.0	-347,458	0.0	-347,529	0.0
3	46.6 42.9	-216,294	0.0	-224,955	0.0	-392,983	0.0	-396,166	0.0	-396,224	0.0
4	44.9 41.4	-236,007	0.0	-296,921	0.0	-432,443	0.0	-435,010	0.0	-435,057	0.0
5	43.9 40.8	-243,450	0.0	-346,113	0.0	-455,425	0.0	-457,497	0.0	-457,534	0.0
6	43.5 40.8	-235,886	0.0	-377,445	0.0	-465,622	0.0	-467,292	0.0	-467,322	0.0
7	44.0 41.4	-214,026	0.0	-384,611	0.0	-456,193	0.0	-457,540	0.0	-457,565	0.0
8	45.4 42.7	-168,688	0.0	-368,625	0.0	-426,011	0.0	-427,098	0.0	-427,118	0.0
9	47.7 44.3	-100,636	0.0	-329,549	0.0	-375,836	0.0	-376,714	0.0	-376,729	0.0
10	50.6 45.8	-16,762	0.0	-275,405	0.0	-312,727	0.0	-313,435	0.0	-313,447	0.0
11	53.9 47.4	0	0.0	-208,764	0.0	-238,847	0.0	-239,417	0.0	-239,427	0.0
12	57.4 49.0	0	0.0	-133,684	0.0	-157,927	0.0	-158,387	0.0	-158,394	0.0
13	60.7 50.8	0	0.0	-60,764	0.0	-80,293	0.0	-80,663	0.0	-80,669	0.0
14	63.6 52.7	0	0.0	0	0.0	-10,877	0.0	-11,175	0.0	-11,181	0.0
15	65.9 53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.0	-57,019	0.0	-66,365	0.0	-66,533	0.0	-66,535	0.0
23	57.1 51.9	0	0.0	-133,902	0.0	-141,435	0.0	-141,571	0.0	-141,572	0.0
24	54.2 49.4	0	0.0	-208,178	0.0	-214,252	0.0	-214,360	0.0	-214,362	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	-15,905	0.0	-25,057	0.0	-25,947	0.0
5	54.2 51.4	0	0.0	0	0.0	-77,412	0.0	-84,808	0.0	-85,535	0.0
6	53.5 50.9	0	0.0	-37,115	0.0	-120,905	0.0	-126,875	0.0	-127,462	0.0
7	53.2 51.1	0	0.0	-82,684	0.0	-150,372	0.0	-155,190	0.0	-155,664	0.0
8	53.9 51.5	0	0.0	-97,597	0.0	-152,230	0.0	-156,119	0.0	-156,500	0.0
9	55.9 52.1	0	0.0	-76,661	0.0	-120,740	0.0	-123,877	0.0	-124,187	0.0
10	58.9 53.2	0	0.0	-27,761	0.0	-63,312	0.0	-65,842	0.0	-66,091	0.0
11	62.6 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5 57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	10.3	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	9.0	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	19.7	0	3.1	0	0.0	0	0.0	0	0.0
18	74.9 61.7	0	37.1	0	2.2	0	2.4	0	2.4	0	2.4
19	73.7 62.0	0	32.2	0	0.9	0	1.1	0	1.1	0	1.1
20	72.1 62.4	0	26.7	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2 63.3	0	20.8	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0 62.5	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7 60.5	0	8.7	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	2.4	0	2.9	0	2.9	0	2.9
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	12.6	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	34.6	0	1.2	0	1.2	0	1.2	0	1.2
13	78.5	63.7	0	42.0	0	4.5	0	4.5	0	4.5	0	4.5
14	81.9	65.3	0	48.4	0	7.1	0	7.1	0	7.1	0	7.1
15	84.1	66.9	0	53.2	0	8.5	0	8.5	0	8.5	0	8.5
16	84.9	67.1	0	55.0	0	8.8	0	8.8	0	8.8	0	8.8
17	84.6	67.3	0	56.0	0	14.1	0	14.1	0	14.1	0	14.1
18	83.8	67.1	0	53.7	0	29.7	0	29.7	0	29.7	0	29.7
19	82.4	67.5	0	50.3	0	28.3	0	28.3	0	28.3	0	28.3
20	80.6	68.9	0	43.3	0	24.8	0	24.8	0	24.8	0	24.8
21	78.5	71.0	0	37.3	0	24.8	0	24.8	0	24.8	0	24.8
22	76.1	69.9	0	31.3	0	21.2	0	21.2	0	21.2	0	21.2
23	73.4	68.0	0	25.3	0	14.5	0	14.5	0	14.5	0	14.5
24	70.8	65.5	0	20.8	0	8.4	0	8.4	0	8.4	0	8.4

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	38.2	0	18.9	0	23.0	0	23.0	0	23.0
2	72.6	68.4	0	32.3	0	15.2	0	16.2	0	16.2	0	16.2
3	70.9	67.3	0	27.3	0	9.6	0	9.9	0	9.9	0	9.9
4	69.6	66.5	0	24.2	0	5.4	0	5.5	0	5.5	0	5.5
5	68.7	65.8	0	21.9	0	1.8	0	1.9	0	1.9	0	1.9
6	68.5	65.7	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	22.7	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	27.3	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	32.1	0	2.4	0	2.4	0	2.4	0	2.4
10	76.1	68.1	0	39.3	0	13.1	0	13.2	0	13.2	0	13.2
11	79.5	69.1	0	47.2	0	20.0	0	20.0	0	20.0	0	20.0
12	82.9	70.1	0	55.2	0	27.0	0	27.0	0	27.0	0	27.0
13	86.0	71.0	0	62.3	0	34.4	0	34.4	0	34.4	0	34.4
14	88.4	72.5	0	67.3	0	42.7	0	42.7	0	42.7	0	42.7
15	90.0	74.0	0	72.1	0	49.9	0	49.9	0	49.9	0	49.9
16	90.5	73.7	0	74.7	0	51.4	0	51.4	0	51.4	0	51.4
17	90.3	74.2	0	74.7	0	53.4	0	53.4	0	53.4	0	53.4
18	89.4	73.9	0	73.3	0	54.2	0	54.2	0	54.2	0	54.2
19	88.1	74.5	0	69.0	0	53.3	0	53.3	0	53.3	0	53.3
20	86.4	75.3	0	62.6	0	50.1	0	50.1	0	50.1	0	50.1
21	84.3	76.5	0	57.9	0	50.9	0	50.9	0	50.9	0	50.9
22	81.9	75.7	0	52.3	0	47.3	0	47.3	0	47.3	0	47.3
23	79.5	74.0	0	47.2	0	40.1	0	40.1	0	40.1	0	40.1
24	77.0	72.1	0	41.8	0	31.8	0	31.8	0	31.8	0	31.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	41.4	0	15.3	0	18.5	0	18.5	0	18.5
2	72.4	69.4	0	33.6	0	12.7	0	13.8	0	13.8	0	13.8
3	71.3	68.4	0	28.9	0	7.3	0	7.6	0	7.6	0	7.6
4	70.5	67.7	0	26.1	0	3.7	0	3.8	0	3.8	0	3.8
5	70.0	67.4	0	24.0	0	0.4	0	0.4	0	0.4	0	0.4
6	69.9	67.5	0	22.5	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	24.6	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	28.4	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	33.5	0	2.9	0	2.9	0	2.9	0	2.9
10	76.2	70.6	0	39.1	0	16.2	0	16.2	0	16.2	0	16.2
11	78.9	71.8	0	45.1	0	23.5	0	23.5	0	23.5	0	23.5
12	81.4	73.0	0	54.3	0	31.2	0	31.2	0	31.2	0	31.2
13	83.4	74.4	0	61.8	0	39.1	0	39.1	0	39.1	0	39.1
14	84.8	74.8	0	66.7	0	43.7	0	43.7	0	43.7	0	43.7
15	85.2	75.0	0	71.5	0	47.3	0	47.3	0	47.3	0	47.3
16	85.1	75.0	0	73.7	0	49.1	0	49.1	0	49.1	0	49.1
17	84.6	74.7	0	74.5	0	49.1	0	49.1	0	49.1	0	49.1
18	83.8	74.6	0	71.7	0	49.4	0	49.4	0	49.4	0	49.4
19	82.7	74.6	0	67.4	0	49.0	0	49.0	0	49.0	0	49.0
20	81.4	74.4	0	62.4	0	46.1	0	46.1	0	46.1	0	46.1
21	79.9	74.9	0	57.2	0	43.9	0	43.9	0	43.9	0	43.9
22	78.4	74.0	0	52.0	0	38.1	0	38.1	0	38.1	0	38.1
23	76.8	72.7	0	47.4	0	30.3	0	30.3	0	30.3	0	30.3
24	75.2	71.6	0	42.2	0	24.7	0	24.7	0	24.7	0	24.7

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	41.8	0	19.2	0	23.9	0	23.9	0	23.9
2	73.2	70.3	0	33.3	0	15.7	0	17.0	0	17.0	0	17.0
3	71.7	68.9	0	27.8	0	9.9	0	10.2	0	10.2	0	10.2
4	70.4	67.8	0	24.7	0	5.3	0	5.4	0	5.4	0	5.4
5	69.5	66.8	0	21.7	0	1.3	0	1.3	0	1.3	0	1.3
6	68.9	66.4	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	21.0	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	24.2	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	30.5	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	37.5	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	45.6	0	14.2	0	14.2	0	14.2	0	14.2
12	79.3	70.3	0	53.8	0	24.9	0	24.9	0	24.9	0	24.9
13	82.3	72.2	0	62.6	0	32.9	0	32.9	0	32.9	0	32.9
14	84.7	73.7	0	70.5	0	40.9	0	40.9	0	40.9	0	40.9
15	86.3	74.6	0	74.1	0	47.3	0	47.3	0	47.3	0	47.3
16	86.8	75.1	0	74.7	0	51.7	0	51.7	0	51.7	0	51.7
17	86.6	75.1	0	74.7	0	52.6	0	52.6	0	52.6	0	52.6
18	86.0	75.3	0	74.7	0	55.2	0	55.2	0	55.2	0	55.2
19	85.1	76.0	0	69.2	0	54.1	0	54.1	0	54.1	0	54.1
20	83.8	76.8	0	62.5	0	52.4	0	52.4	0	52.4	0	52.4
21	82.3	77.2	0	59.0	0	50.2	0	50.2	0	50.2	0	50.2
22	80.6	76.3	0	51.7	0	45.9	0	45.9	0	45.9	0	45.9
23	78.7	75.3	0	46.2	0	38.5	0	38.5	0	38.5	0	38.5
24	76.8	73.7	0	40.9	0	31.0	0	31.0	0	31.0	0	31.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	24.6	0	3.3	0	4.5	0	4.5	0	4.5
2	67.6	65.0	0	16.7	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	11.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	8.0	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	4.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.5	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	12.5	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	20.0	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	28.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	37.1	0	1.2	0	1.2	0	1.2	0	1.2
13	78.3	66.7	0	46.2	0	3.9	0	3.9	0	3.9	0	3.9
14	81.2	68.4	0	53.4	0	6.1	0	6.1	0	6.1	0	6.1
15	83.0	70.0	0	58.5	0	7.7	0	7.7	0	7.7	0	7.7
16	83.7	70.5	0	60.8	0	28.6	0	28.6	0	28.6	0	28.6
17	83.4	70.5	0	58.8	0	34.7	0	34.8	0	34.8	0	34.8
18	82.8	70.9	0	54.9	0	36.0	0	36.0	0	36.0	0	36.0
19	81.6	72.7	0	50.3	0	34.6	0	34.6	0	34.6	0	34.6
20	80.1	74.7	0	46.9	0	35.0	0	35.0	0	35.0	0	35.0
21	78.3	74.1	0	41.3	0	32.0	0	32.0	0	32.0	0	32.0
22	76.3	72.4	0	34.9	0	26.9	0	26.9	0	26.9	0	26.9
23	74.1	70.7	0	27.6	0	19.1	0	19.1	0	19.1	0	19.1
24	71.8	68.9	0	22.2	0	10.8	0	10.8	0	10.8	0	10.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-213,735	0.0	-222,321	0.0	-222,578	0.0
2	50.1	48.6	0	0.0	-38,030	0.0	-270,360	0.0	-277,291	0.0	-277,499	0.0
3	48.4	46.9	0	0.0	-128,077	0.0	-315,757	0.0	-321,354	0.0	-321,521	0.0
4	47.1	45.8	0	0.0	-199,522	0.0	-351,037	0.0	-355,555	0.0	-355,690	0.0
5	46.3	44.8	0	0.0	-252,196	0.0	-374,497	0.0	-378,144	0.0	-378,253	0.0
6	46.0	44.5	0	0.0	-288,521	0.0	-387,221	0.0	-390,163	0.0	-390,252	0.0
7	46.8	45.3	-4,038	0.0	-294,554	0.0	-374,197	0.0	-376,573	0.0	-376,644	0.0
8	48.9	47.5	0	0.0	-266,782	0.0	-331,053	0.0	-332,970	0.0	-333,027	0.0
9	52.2	49.9	0	0.0	-208,467	0.0	-260,326	0.0	-261,872	0.0	-261,919	0.0
10	56.2	52.5	0	0.0	-131,812	0.0	-173,641	0.0	-174,889	0.0	-174,926	0.0
11	60.4	54.4	0	0.0	-47,872	0.0	-81,600	0.0	-82,606	0.0	-82,636	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	17.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	-16,679	0.0	-17,167	0.0	-17,183	0.0
23	57.0	55.1	0	0.0	-78,757	0.0	-91,930	0.0	-92,324	0.0	-92,336	0.0
24	54.5	52.7	0	0.0	-150,192	0.0	-160,827	0.0	-161,145	0.0	-161,156	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-133,381	0.0	-29,744	0.0	-268,621	0.0	-273,764	0.0	-273,876	0.0
2	49.4	47.3	-170,257	0.0	-138,009	0.0	-330,907	0.0	-335,059	0.0	-335,149	0.0
3	47.2	45.3	-203,859	0.0	-226,460	0.0	-382,161	0.0	-385,511	0.0	-385,585	0.0
4	45.3	43.4	-230,894	0.0	-300,097	0.0	-425,767	0.0	-428,471	0.0	-428,530	0.0
5	43.9	42.2	-246,475	0.0	-355,944	0.0	-457,377	0.0	-459,559	0.0	-459,607	0.0
6	43.0	41.4	-241,389	0.0	-395,991	0.0	-477,861	0.0	-479,623	0.0	-479,661	0.0
7	42.7	41.2	-221,018	0.0	-419,325	0.0	-485,403	0.0	-486,825	0.0	-486,857	0.0
8	43.5	42.0	-174,545	0.0	-414,222	0.0	-467,553	0.0	-468,701	0.0	-468,726	0.0
9	45.9	44.0	-99,694	0.0	-369,158	0.0	-412,197	0.0	-413,123	0.0	-413,143	0.0
10	49.4	46.6	-9,952	0.0	-296,646	0.0	-331,376	0.0	-332,123	0.0	-332,139	0.0
11	53.8	48.6	0	0.0	-201,999	0.0	-230,008	0.0	-230,612	0.0	-230,624	0.0
12	58.4	50.6	0	0.0	-102,984	0.0	-125,566	0.0	-126,053	0.0	-126,064	0.0
13	62.8	52.6	0	0.0	-8,825	0.0	-26,948	0.0	-27,341	0.0	-27,349	0.0
14	66.3	54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	-54,948	0.0	-64,730	0.0	-64,941	0.0	-64,944	0.0
23	57.5	54.0	0	0.0	-129,073	0.0	-136,966	0.0	-137,137	0.0	-137,141	0.0
24	54.7	51.7	0	0.0	-201,786	0.0	-208,158	0.0	-208,296	0.0	-208,298	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-277,722	0.0	-400,451	0.0	-456,924	0.0	-457,248	0.0	-457,250	0.0
2	43.2	41.1	-302,455	0.0	-450,235	0.0	-495,796	0.0	-496,057	0.0	-496,059	0.0
3	41.8	39.8	-324,450	0.0	-490,405	0.0	-527,159	0.0	-527,370	0.0	-527,372	0.0
4	40.7	38.7	-342,753	0.0	-522,445	0.0	-552,101	0.0	-552,270	0.0	-552,272	0.0
5	40.1	38.4	-355,426	0.0	-542,268	0.0	-566,197	0.0	-566,333	0.0	-566,334	0.0
6	39.9	38.4	-350,270	0.0	-552,586	0.0	-571,894	0.0	-572,004	0.0	-572,005	0.0
7	40.5	39.0	-333,947	0.0	-544,525	0.0	-560,103	0.0	-560,192	0.0	-560,193	0.0
8	42.2	40.7	-299,601	0.0	-511,125	0.0	-523,693	0.0	-523,765	0.0	-523,765	0.0
9	44.9	43.4	-245,655	0.0	-454,740	0.0	-464,879	0.0	-464,937	0.0	-464,937	0.0
10	48.2	45.8	-178,177	0.0	-384,420	0.0	-392,599	0.0	-392,645	0.0	-392,645	0.0
11	51.7	48.3	-93,738	0.0	-308,819	0.0	-315,413	0.0	-315,450	0.0	-315,450	0.0
12	55.0	50.7	-13,139	0.0	-236,821	0.0	-242,137	0.0	-242,167	0.0	-242,167	0.0
13	57.7	52.0	0	0.0	-177,571	0.0	-181,857	0.0	-181,880	0.0	-181,880	0.0
14	59.5	52.6	0	0.0	-137,741	0.0	-141,196	0.0	-141,216	0.0	-141,216	0.0
15	60.1	52.7	0	0.0	-124,241	0.0	-127,025	0.0	-127,042	0.0	-127,042	0.0
16	59.9	52.6	0	0.0	-126,369	0.0	-128,613	0.0	-128,626	0.0	-128,626	0.0
17	59.2	52.1	0	0.0	-138,173	0.0	-139,981	0.0	-139,992	0.0	-139,992	0.0
18	58.2	51.8	0	0.0	-157,602	0.0	-159,060	0.0	-159,068	0.0	-159,068	0.0
19	56.8	52.2	0	0.0	-187,604	0.0	-188,780	0.0	-188,787	0.0	-188,787	0.0
20	55.0	51.4	0	0.0	-227,666	0.0	-228,614	0.0	-228,619	0.0	-228,619	0.0
21	53.1	50.1	-39,272	0.0	-270,230	0.0	-270,996	0.0	-271,000	0.0	-271,000	0.0
22	51.0	48.1	-98,505	0.0	-318,237	0.0	-318,853	0.0	-318,858	0.0	-318,858	0.0
23	48.9	46.2	-147,714	0.0	-366,222	0.0	-366,720	0.0	-366,724	0.0	-366,724	0.0
24	46.9	44.1	-187,297	0.0	-411,279	0.0	-411,681	0.0	-411,684	0.0	-411,684	0.0

## 01 Card - Job Information

-----  
 Project: SALTZMAN HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29811 (1 BLDG)

-----CARD 08-- Climatic Information -----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	SCHOOL_OFFS

-----CARD 20-- General Room Parameters -----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Room	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number	Descrip					Resistance	Height	Multiplier	Zone	
1	1	BLOCK	315.5	123.5	3	0		11.6	2		



## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	202.75	12		196	0			
1	2	61.5	12		196	90			
1	3	202.75	12		196	180			
1	4	61.5	12		196	270			
1	5	55	12		196	0			
1	6	52	12		196	90			
1	7	55	12		196	180			
1	8	52	12		196	270			
1	9	55	12		196	0			
1	10	52	12		196	90			
1	11	55	12		196	180			
1	12	52	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	30	1.03	.82					
1	2	2.5	5.5	4	1.03	.82					
1	3	2.5	5.5	30	1.03	.82					
1	4	2.5	5.5	2	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting Reference Point 1	--- Daylighting Reference Point 2
1	300	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	411	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	MULTI ZONE SYSTEM

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						Fan Static Pressure
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule		
1	MZ							



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHO FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		



```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

GREENY HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29809 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 16:32:21 8/15/94  
Dataset Name: FGTYP520 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==)		Mo/Hr: 8/16		*	Mo/Hr: 6/18		*	Mo/Hr: 13/ 1		
Outside Air ==)		OADB/WB/HR: 96/ 76/105.0		*	OADB: 96		*	OADB: 23		
Space Sens.+Lat.	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	*	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads					*					
Skylite Solr	0	0	0	0.00	*	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0.00	*	0	0.00	0	0	0.00
Roof Cond	148,997	0	148,997	16.62	*	190,628	30.95	-123,251	-123,251	10.71
Glass Solar	128,982	0	128,982	14.39	*	104,414	16.95	0	0	0.00
Glass Cond	61,681	0	61,681	6.88	*	65,160	10.58	-155,626	-155,626	13.53
Wall Cond	181,181	0	181,181	20.21	*	213,315	34.63	-307,666	-307,666	26.74
Partition	0	0	0	0.00	*	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0.00	*	0	0.00	0	0	0.00
Infiltration	63,685	0	63,685	7.10	*	42,379	6.88	-114,606	-114,606	9.96
Sub Total==>	584,526	0	584,526	65.19	*	615,897	100.00	-701,149	-701,149	60.94
Internal Loads					*					
Lights	0	0	0	0.00	*	0	0.00	0	0	0.00
People	0	0	0	0.00	*	0	0.00	0	0	0.00
Misc	0	0	0	0.00	*	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0.00	*	0	0.00	0	0	0.00
Ceiling Load	0	0	0	0.00	*	0	0.00	0	0	0.00
Outside Air	0	0	312,099	34.81	*	0	0.00	0	-449,319	39.06
Sup. Fan Heat			0	0.00	*		0.00		0	0.00
Ret. Fan Heat		0	0	0.00	*		0.00		0	0.00
Duct Heat Pkup		0	0	0.00	*		0.00		0	0.00
OV/UNDR Sizing	0		0	0.00	*	0	0.00	0	0	0.00
Exhaust Heat		0	0	0.00	*		0.00		0	0.00
Terminal Bypass		0	0	-0.00	*		0.00		0	0.00
Grand Total==>	584,526	0	896,625	100.00	*	615,897	100.00	-701,149	-1,150,468	100.00

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains			
Main Clg	74.7	896.6	774.5	77,929	77.4	68.4	90.7	67.9	65.2	89.5	77,928	
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	74.7	896.6									38,964	0 0
											22,956	3,071 13

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----		-----TEMPERATURES (F)-----		
Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	11.5	Type	Clg	Htg	
Main Htg	-711.9	77,929	67.9	76.1	9,000	9,000	Clg Cfms/Sqft	1.00	SADB	67.9	76.1	
Aux Htg	0.0	0	0.0	0.0	1,836	2,296	Clg Cfms/Ton	1042.96	Plenum	75.0	68.0	
Preheat	-438.6	77,929	62.8	67.9	77,929	77,929	Clg Sqft/Ton	1042.96	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	0	0	Clg Btuh/Sqft	11.51	Ret/OA	77.4	62.8	
Humidif	0.0	0	0.0	0.0	77,929	77,929	No. People	600	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	9,000	9,000	Htg % OA	11.5	Fn MtrTD	0.0	0.0	
Total	-1,150.5				0	0	Htg Cfms/SqFt	1.00	Fn BldTD	0.0	0.0	
					Auxil	0	Htg Btuh/SqFt	-14.76	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-572,430	0.0	-701,411	0.0	-714,446	0.0	-714,520	0.0	-714,520	0.0
2	32.9	30.7	-573,516	0.0	-710,200	0.0	-720,713	0.0	-720,773	0.0	-720,774	0.0
3	33.1	31.3	-577,074	0.0	-705,063	0.0	-713,544	0.0	-713,593	0.0	-713,593	0.0
4	33.9	32.1	-579,177	0.0	-688,217	0.0	-695,060	0.0	-695,099	0.0	-695,100	0.0
5	35.2	33.5	-579,083	0.0	-661,900	0.0	-667,422	0.0	-667,453	0.0	-667,453	0.0
6	37.0	35.4	-563,153	0.0	-627,677	0.0	-632,131	0.0	-632,156	0.0	-632,156	0.0
7	39.0	37.6	-536,659	0.0	-591,775	0.0	-595,369	0.0	-595,389	0.0	-595,389	0.0
8	41.3	40.1	-493,909	0.0	-550,495	0.0	-553,394	0.0	-553,411	0.0	-553,411	0.0
9	43.7	42.5	-429,718	0.0	-507,501	0.0	-509,840	0.0	-509,853	0.0	-509,853	0.0
10	46.1	44.0	-351,933	0.0	-463,049	0.0	-464,935	0.0	-464,947	0.0	-464,947	0.0
11	48.4	45.0	-261,590	0.0	-418,217	0.0	-419,738	0.0	-419,747	0.0	-419,747	0.0
12	50.5	45.6	-172,414	0.0	-374,973	0.0	-376,199	0.0	-376,206	0.0	-376,206	0.0
13	52.2	46.1	-102,282	0.0	-337,955	0.0	-338,943	0.0	-338,948	0.0	-338,948	0.0
14	53.5	46.4	-50,660	0.0	-306,456	0.0	-307,253	0.0	-307,257	0.0	-307,257	0.0
15	54.3	46.3	-22,372	0.0	-284,324	0.0	-284,965	0.0	-284,969	0.0	-284,969	0.0
16	54.6	46.1	-20,810	0.0	-272,059	0.0	-272,576	0.0	-272,580	0.0	-272,580	0.0
17	54.0	45.9	-39,477	0.0	-280,288	0.0	-280,704	0.0	-280,706	0.0	-280,706	0.0
18	52.5	45.0	-82,265	0.0	-310,190	0.0	-310,526	0.0	-310,528	0.0	-310,528	0.0
19	50.1	44.8	-138,666	0.0	-361,591	0.0	-361,861	0.0	-361,863	0.0	-361,863	0.0
20	47.1	43.3	-198,068	0.0	-426,476	0.0	-426,694	0.0	-426,696	0.0	-426,696	0.0
21	43.7	40.4	-251,069	0.0	-499,948	0.0	-500,124	0.0	-500,125	0.0	-500,125	0.0
22	40.4	37.3	-302,194	0.0	-570,770	0.0	-570,912	0.0	-570,913	0.0	-570,913	0.0
23	37.3	34.9	-343,342	0.0	-637,116	0.0	-637,230	0.0	-637,231	0.0	-637,231	0.0
24	34.9	32.6	-377,800	0.0	-686,090	0.0	-686,181	0.0	-686,183	0.0	-686,183	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-398,696	0.0	-477,929	0.0	-548,082	0.0	-548,478	0.0	-548,480	0.0
2	39.7	37.1	-425,617	0.0	-537,035	0.0	-593,613	0.0	-593,933	0.0	-593,933	0.0
3	37.8	35.1	-449,856	0.0	-591,428	0.0	-637,059	0.0	-637,316	0.0	-637,317	0.0
4	36.3	33.8	-470,953	0.0	-634,163	0.0	-670,967	0.0	-671,175	0.0	-671,176	0.0
5	35.1	32.6	-483,683	0.0	-668,066	0.0	-697,751	0.0	-697,919	0.0	-697,919	0.0
6	34.4	32.0	-482,680	0.0	-689,104	0.0	-713,046	0.0	-713,182	0.0	-713,182	0.0
7	34.1	31.9	-468,709	0.0	-700,723	0.0	-720,035	0.0	-720,145	0.0	-720,145	0.0
8	34.6	32.4	-435,913	0.0	-693,585	0.0	-709,161	0.0	-709,249	0.0	-709,249	0.0
9	36.0	33.8	-384,448	0.0	-664,903	0.0	-677,466	0.0	-677,538	0.0	-677,538	0.0
10	38.2	34.7	-317,362	0.0	-617,067	0.0	-627,198	0.0	-627,254	0.0	-627,254	0.0
11	40.9	36.2	-239,612	0.0	-557,221	0.0	-565,385	0.0	-565,432	0.0	-565,432	0.0
12	43.9	37.4	-162,663	0.0	-489,911	0.0	-496,486	0.0	-496,524	0.0	-496,524	0.0
13	46.9	39.4	-98,518	0.0	-421,032	0.0	-426,327	0.0	-426,357	0.0	-426,357	0.0
14	49.7	41.4	-52,990	0.0	-354,916	0.0	-359,181	0.0	-359,204	0.0	-359,204	0.0
15	51.8	42.8	-25,065	0.0	-304,837	0.0	-308,271	0.0	-308,290	0.0	-308,290	0.0
16	53.2	43.9	-23,537	0.0	-271,578	0.0	-274,343	0.0	-274,358	0.0	-274,358	0.0
17	53.7	44.2	-37,469	0.0	-260,294	0.0	-262,519	0.0	-262,530	0.0	-262,530	0.0
18	53.4	44.4	-74,115	0.0	-267,414	0.0	-269,206	0.0	-269,216	0.0	-269,216	0.0
19	52.7	44.4	-121,513	0.0	-284,008	0.0	-285,452	0.0	-285,459	0.0	-285,459	0.0
20	51.5	45.2	-175,598	0.0	-313,294	0.0	-314,458	0.0	-314,464	0.0	-314,464	0.0
21	50.0	44.6	-220,945	0.0	-349,614	0.0	-350,553	0.0	-350,556	0.0	-350,556	0.0
22	48.1	43.3	-267,239	0.0	-395,752	0.0	-396,507	0.0	-396,511	0.0	-396,511	0.0
23	46.1	41.8	-306,835	0.0	-444,087	0.0	-444,696	0.0	-444,699	0.0	-444,699	0.0
24	43.9	40.1	-337,738	0.0	-496,588	0.0	-497,079	0.0	-497,081	0.0	-497,081	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-177,224	0.0	-21,839	0.0	-280,463	0.0	-285,360	0.0	-285,447	0.0
2	48.7 44.6	-198,308	0.0	-135,144	0.0	-343,509	0.0	-347,458	0.0	-347,529	0.0
3	46.6 42.9	-216,294	0.0	-224,955	0.0	-392,983	0.0	-396,166	0.0	-396,224	0.0
4	44.9 41.4	-236,007	0.0	-296,921	0.0	-432,443	0.0	-435,010	0.0	-435,057	0.0
5	43.9 40.8	-243,450	0.0	-346,113	0.0	-455,425	0.0	-457,497	0.0	-457,534	0.0
6	43.5 40.8	-235,886	0.0	-377,445	0.0	-465,622	0.0	-467,292	0.0	-467,322	0.0
7	44.0 41.4	-214,026	0.0	-384,611	0.0	-456,193	0.0	-457,540	0.0	-457,565	0.0
8	45.4 42.7	-168,688	0.0	-368,625	0.0	-426,011	0.0	-427,098	0.0	-427,118	0.0
9	47.7 44.3	-100,636	0.0	-329,549	0.0	-375,836	0.0	-376,714	0.0	-376,729	0.0
10	50.6 45.8	-16,762	0.0	-275,405	0.0	-312,727	0.0	-313,435	0.0	-313,447	0.0
11	53.9 47.4	0	0.0	-208,764	0.0	-238,847	0.0	-239,417	0.0	-239,427	0.0
12	57.4 49.0	0	0.0	-133,684	0.0	-157,927	0.0	-158,387	0.0	-158,394	0.0
13	60.7 50.8	0	0.0	-60,764	0.0	-80,293	0.0	-80,663	0.0	-80,669	0.0
14	63.6 52.7	0	0.0	0	0.0	-10,877	0.0	-11,175	0.0	-11,181	0.0
15	65.9 53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.0	-57,019	0.0	-66,365	0.0	-66,533	0.0	-66,535	0.0
23	57.1 51.9	0	0.0	-133,902	0.0	-141,435	0.0	-141,571	0.0	-141,572	0.0
24	54.2 49.4	0	0.0	-208,178	0.0	-214,252	0.0	-214,360	0.0	-214,362	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	-15,905	0.0	-25,057	0.0	-25,947	0.0
5	54.2 51.4	0	0.0	0	0.0	-77,412	0.0	-84,808	0.0	-85,535	0.0
6	53.5 50.9	0	0.0	-37,115	0.0	-120,905	0.0	-126,875	0.0	-127,462	0.0
7	53.2 51.1	0	0.0	-82,684	0.0	-150,372	0.0	-155,190	0.0	-155,664	0.0
8	53.9 51.5	0	0.0	-97,597	0.0	-152,230	0.0	-156,119	0.0	-156,500	0.0
9	55.9 52.1	0	0.0	-76,661	0.0	-120,740	0.0	-123,877	0.0	-124,187	0.0
10	58.9 53.2	0	0.0	-27,761	0.0	-63,312	0.0	-65,842	0.0	-66,091	0.0
11	62.6 55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5 57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	10.3	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	9.0	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6 62.0	0	19.7	0	3.1	0	0.0	0	0.0	0	0.0
18	74.9 61.7	0	37.1	0	2.2	0	2.4	0	2.4	0	2.4
19	73.7 62.0	0	32.2	0	0.9	0	1.1	0	1.1	0	1.1
20	72.1 62.4	0	26.7	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2 63.3	0	20.8	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0 62.5	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7 60.5	0	8.7	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	2.4	0	2.9	0	2.9	0	2.9
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	12.6	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	34.6	0	1.2	0	1.2	0	1.2	0	1.2
13	78.5	63.7	0	42.0	0	4.5	0	4.5	0	4.5	0	4.5
14	81.9	65.3	0	48.4	0	7.1	0	7.1	0	7.1	0	7.1
15	84.1	66.9	0	53.2	0	8.5	0	8.5	0	8.5	0	8.5
16	84.9	67.1	0	55.0	0	8.8	0	8.8	0	8.8	0	8.8
17	84.6	67.3	0	56.0	0	14.1	0	14.1	0	14.1	0	14.1
18	83.8	67.1	0	53.7	0	29.7	0	29.7	0	29.7	0	29.7
19	82.4	67.5	0	50.3	0	28.3	0	28.3	0	28.3	0	28.3
20	80.6	68.9	0	43.3	0	24.8	0	24.8	0	24.8	0	24.8
21	78.5	71.0	0	37.3	0	24.8	0	24.8	0	24.8	0	24.8
22	76.1	69.9	0	31.3	0	21.2	0	21.2	0	21.2	0	21.2
23	73.4	68.0	0	25.3	0	14.5	0	14.5	0	14.5	0	14.5
24	70.8	65.5	0	20.8	0	8.4	0	8.4	0	8.4	0	8.4

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	38.2	0	18.9	0	23.0	0	23.0	0	23.0
2	72.6	68.4	0	32.3	0	15.2	0	16.2	0	16.2	0	16.2
3	70.9	67.3	0	27.3	0	9.6	0	9.9	0	9.9	0	9.9
4	69.6	66.5	0	24.2	0	5.4	0	5.5	0	5.5	0	5.5
5	68.7	65.8	0	21.9	0	1.8	0	1.9	0	1.9	0	1.9
6	68.5	65.7	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	22.7	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	27.3	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	32.1	0	2.4	0	2.4	0	2.4	0	2.4
10	76.1	68.1	0	39.3	0	13.1	0	13.2	0	13.2	0	13.2
11	79.5	69.1	0	47.2	0	20.0	0	20.0	0	20.0	0	20.0
12	82.9	70.1	0	55.2	0	27.0	0	27.0	0	27.0	0	27.0
13	86.0	71.0	0	62.3	0	34.4	0	34.4	0	34.4	0	34.4
14	88.4	72.5	0	67.3	0	42.7	0	42.7	0	42.7	0	42.7
15	90.0	74.0	0	72.1	0	49.9	0	49.9	0	49.9	0	49.9
16	90.5	73.7	0	74.7	0	51.4	0	51.4	0	51.4	0	51.4
17	90.3	74.2	0	74.7	0	53.4	0	53.4	0	53.4	0	53.4
18	89.4	73.9	0	73.3	0	54.2	0	54.2	0	54.2	0	54.2
19	88.1	74.5	0	69.0	0	53.3	0	53.3	0	53.3	0	53.3
20	86.4	75.3	0	62.6	0	50.1	0	50.1	0	50.1	0	50.1
21	84.3	76.5	0	57.9	0	50.9	0	50.9	0	50.9	0	50.9
22	81.9	75.7	0	52.3	0	47.3	0	47.3	0	47.3	0	47.3
23	79.5	74.0	0	47.2	0	40.1	0	40.1	0	40.1	0	40.1
24	77.0	72.1	0	41.8	0	31.8	0	31.8	0	31.8	0	31.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	41.4	0	15.3	0	18.5	0	18.5	0	18.5
2	72.4	69.4	0	33.6	0	12.7	0	13.8	0	13.8	0	13.8
3	71.3	68.4	0	28.9	0	7.3	0	7.6	0	7.6	0	7.6
4	70.5	67.7	0	26.1	0	3.7	0	3.8	0	3.8	0	3.8
5	70.0	67.4	0	24.0	0	0.4	0	0.4	0	0.4	0	0.4
6	69.9	67.5	0	22.5	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	24.6	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	28.4	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	33.5	0	2.9	0	2.9	0	2.9	0	2.9
10	76.2	70.6	0	39.1	0	16.2	0	16.2	0	16.2	0	16.2
11	78.9	71.8	0	45.1	0	23.5	0	23.5	0	23.5	0	23.5
12	81.4	73.0	0	54.3	0	31.2	0	31.2	0	31.2	0	31.2
13	83.4	74.4	0	61.8	0	39.1	0	39.1	0	39.1	0	39.1
14	84.8	74.8	0	66.7	0	43.7	0	43.7	0	43.7	0	43.7
15	85.2	75.0	0	71.5	0	47.3	0	47.3	0	47.3	0	47.3
16	85.1	75.0	0	73.7	0	49.1	0	49.1	0	49.1	0	49.1
17	84.6	74.7	0	74.5	0	49.1	0	49.1	0	49.1	0	49.1
18	83.8	74.6	0	71.7	0	49.4	0	49.4	0	49.4	0	49.4
19	82.7	74.6	0	67.4	0	49.0	0	49.0	0	49.0	0	49.0
20	81.4	74.4	0	62.4	0	46.1	0	46.1	0	46.1	0	46.1
21	79.9	74.9	0	57.2	0	43.9	0	43.9	0	43.9	0	43.9
22	78.4	74.0	0	52.0	0	38.1	0	38.1	0	38.1	0	38.1
23	76.8	72.7	0	47.4	0	30.3	0	30.3	0	30.3	0	30.3
24	75.2	71.6	0	42.2	0	24.7	0	24.7	0	24.7	0	24.7

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	41.8	0	19.2	0	23.9	0	23.9	0	23.9
2	73.2	70.3	0	33.3	0	15.7	0	17.0	0	17.0	0	17.0
3	71.7	68.9	0	27.8	0	9.9	0	10.2	0	10.2	0	10.2
4	70.4	67.8	0	24.7	0	5.3	0	5.4	0	5.4	0	5.4
5	69.5	66.8	0	21.7	0	1.3	0	1.3	0	1.3	0	1.3
6	68.9	66.4	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	21.0	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	24.2	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	30.5	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	37.5	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	45.6	0	14.2	0	14.2	0	14.2	0	14.2
12	79.3	70.3	0	53.8	0	24.9	0	24.9	0	24.9	0	24.9
13	82.3	72.2	0	62.6	0	32.9	0	32.9	0	32.9	0	32.9
14	84.7	73.7	0	70.5	0	40.9	0	40.9	0	40.9	0	40.9
15	86.3	74.6	0	74.1	0	47.3	0	47.3	0	47.3	0	47.3
16	86.8	75.1	0	74.7	0	51.7	0	51.7	0	51.7	0	51.7
17	86.6	75.1	0	74.7	0	52.6	0	52.6	0	52.6	0	52.6
18	86.0	75.3	0	74.7	0	55.2	0	55.2	0	55.2	0	55.2
19	85.1	76.0	0	69.2	0	54.1	0	54.1	0	54.1	0	54.1
20	83.8	76.8	0	62.5	0	52.4	0	52.4	0	52.4	0	52.4
21	82.3	77.2	0	59.0	0	50.2	0	50.2	0	50.2	0	50.2
22	80.6	76.3	0	51.7	0	45.9	0	45.9	0	45.9	0	45.9
23	78.7	75.3	0	46.2	0	38.5	0	38.5	0	38.5	0	38.5
24	76.8	73.7	0	40.9	0	31.0	0	31.0	0	31.0	0	31.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	24.6	0	3.3	0	4.5	0	4.5	0	4.5
2	67.6	65.0	0	16.7	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	11.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	8.0	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	4.2	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.5	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	12.5	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	20.0	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	28.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	37.1	0	1.2	0	1.2	0	1.2	0	1.2
13	78.3	66.7	0	46.2	0	3.9	0	3.9	0	3.9	0	3.9
14	81.2	68.4	0	53.4	0	6.1	0	6.1	0	6.1	0	6.1
15	83.0	70.0	0	58.5	0	7.7	0	7.7	0	7.7	0	7.7
16	83.7	70.5	0	60.8	0	28.6	0	28.6	0	28.6	0	28.6
17	83.4	70.5	0	58.8	0	34.7	0	34.8	0	34.8	0	34.8
18	82.8	70.9	0	54.9	0	36.0	0	36.0	0	36.0	0	36.0
19	81.6	72.7	0	50.3	0	34.6	0	34.6	0	34.6	0	34.6
20	80.1	74.7	0	46.9	0	35.0	0	35.0	0	35.0	0	35.0
21	78.3	74.1	0	41.3	0	32.0	0	32.0	0	32.0	0	32.0
22	76.3	72.4	0	34.9	0	26.9	0	26.9	0	26.9	0	26.9
23	74.1	70.7	0	27.6	0	19.1	0	19.1	0	19.1	0	19.1
24	71.8	68.9	0	22.2	0	10.8	0	10.8	0	10.8	0	10.8

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-213,735	0.0	-222,321	0.0	-222,578	0.0
2	50.1	48.6	0	0.0	-38,030	0.0	-270,360	0.0	-277,291	0.0	-277,499	0.0
3	48.4	46.9	0	0.0	-128,077	0.0	-315,757	0.0	-321,354	0.0	-321,521	0.0
4	47.1	45.8	0	0.0	-199,522	0.0	-351,037	0.0	-355,555	0.0	-355,690	0.0
5	46.3	44.8	0	0.0	-252,196	0.0	-374,497	0.0	-378,144	0.0	-378,253	0.0
6	46.0	44.5	0	0.0	-288,521	0.0	-387,221	0.0	-390,163	0.0	-390,252	0.0
7	46.8	45.3	-4,038	0.0	-294,554	0.0	-374,197	0.0	-376,573	0.0	-376,644	0.0
8	48.9	47.5	0	0.0	-266,782	0.0	-331,053	0.0	-332,970	0.0	-333,027	0.0
9	52.2	49.9	0	0.0	-208,467	0.0	-260,326	0.0	-261,872	0.0	-261,919	0.0
10	56.2	52.5	0	0.0	-131,812	0.0	-173,641	0.0	-174,889	0.0	-174,926	0.0
11	60.4	54.4	0	0.0	-47,872	0.0	-81,600	0.0	-82,606	0.0	-82,636	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	17.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	11.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	4.3	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	-16,679	0.0	-17,167	0.0	-17,183	0.0
23	57.0	55.1	0	0.0	-78,757	0.0	-91,930	0.0	-92,324	0.0	-92,336	0.0
24	54.5	52.7	0	0.0	-150,192	0.0	-160,827	0.0	-161,145	0.0	-161,156	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	-133,381	0.0	-29,744	0.0	-268,621	0.0	-273,764	0.0	-273,876	0.0
2	49.4 47.3	-170,257	0.0	-138,009	0.0	-330,907	0.0	-335,059	0.0	-335,149	0.0
3	47.2 45.3	-203,859	0.0	-226,460	0.0	-382,161	0.0	-385,511	0.0	-385,585	0.0
4	45.3 43.4	-230,894	0.0	-300,097	0.0	-425,767	0.0	-428,471	0.0	-428,530	0.0
5	43.9 42.2	-246,475	0.0	-355,944	0.0	-457,377	0.0	-459,559	0.0	-459,607	0.0
6	43.0 41.4	-241,389	0.0	-395,991	0.0	-477,861	0.0	-479,623	0.0	-479,661	0.0
7	42.7 41.2	-221,018	0.0	-419,325	0.0	-485,403	0.0	-486,825	0.0	-486,857	0.0
8	43.5 42.0	-174,545	0.0	-414,222	0.0	-467,553	0.0	-468,701	0.0	-468,726	0.0
9	45.9 44.0	-99,694	0.0	-369,158	0.0	-412,197	0.0	-413,123	0.0	-413,143	0.0
10	49.4 46.6	-9,952	0.0	-296,646	0.0	-331,376	0.0	-332,123	0.0	-332,139	0.0
11	53.8 48.6	0	0.0	-201,999	0.0	-230,008	0.0	-230,612	0.0	-230,624	0.0
12	58.4 50.6	0	0.0	-102,984	0.0	-125,566	0.0	-126,053	0.0	-126,064	0.0
13	62.8 52.6	0	0.0	-8,825	0.0	-26,948	0.0	-27,341	0.0	-27,349	0.0
14	66.3 54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7 55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	0.0	-54,948	0.0	-64,730	0.0	-64,941	0.0	-64,944	0.0
23	57.5 54.0	0	0.0	-129,073	0.0	-136,966	0.0	-137,137	0.0	-137,141	0.0
24	54.7 51.7	0	0.0	-201,786	0.0	-208,158	0.0	-208,296	0.0	-208,298	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-277,722	0.0	-400,451	0.0	-456,924	0.0	-457,248	0.0	-457,250	0.0
2	43.2 41.1	-302,455	0.0	-450,235	0.0	-495,796	0.0	-496,057	0.0	-496,059	0.0
3	41.8 39.8	-324,450	0.0	-490,405	0.0	-527,159	0.0	-527,370	0.0	-527,372	0.0
4	40.7 38.7	-342,753	0.0	-522,445	0.0	-552,101	0.0	-552,270	0.0	-552,272	0.0
5	40.1 38.4	-355,426	0.0	-542,268	0.0	-566,197	0.0	-566,333	0.0	-566,334	0.0
6	39.9 38.4	-350,270	0.0	-552,586	0.0	-571,894	0.0	-572,004	0.0	-572,005	0.0
7	40.5 39.0	-333,947	0.0	-544,525	0.0	-560,103	0.0	-560,192	0.0	-560,193	0.0
8	42.2 40.7	-299,601	0.0	-511,125	0.0	-523,693	0.0	-523,765	0.0	-523,765	0.0
9	44.9 43.4	-245,655	0.0	-454,740	0.0	-464,879	0.0	-464,937	0.0	-464,937	0.0
10	48.2 45.8	-178,177	0.0	-384,420	0.0	-392,599	0.0	-392,645	0.0	-392,645	0.0
11	51.7 48.3	-93,738	0.0	-308,819	0.0	-315,413	0.0	-315,450	0.0	-315,450	0.0
12	55.0 50.7	-13,139	0.0	-236,821	0.0	-242,137	0.0	-242,167	0.0	-242,167	0.0
13	57.7 52.0	0	0.0	-177,571	0.0	-181,857	0.0	-181,880	0.0	-181,880	0.0
14	59.5 52.6	0	0.0	-137,741	0.0	-141,196	0.0	-141,216	0.0	-141,216	0.0
15	60.1 52.7	0	0.0	-124,241	0.0	-127,025	0.0	-127,042	0.0	-127,042	0.0
16	59.9 52.6	0	0.0	-126,369	0.0	-128,613	0.0	-128,626	0.0	-128,626	0.0
17	59.2 52.1	0	0.0	-138,173	0.0	-139,981	0.0	-139,992	0.0	-139,992	0.0
18	58.2 51.8	0	0.0	-157,602	0.0	-159,060	0.0	-159,068	0.0	-159,068	0.0
19	56.8 52.2	0	0.0	-187,604	0.0	-188,780	0.0	-188,787	0.0	-188,787	0.0
20	55.0 51.4	0	0.0	-227,666	0.0	-228,614	0.0	-228,619	0.0	-228,619	0.0
21	53.1 50.1	-39,272	0.0	-270,230	0.0	-270,996	0.0	-271,000	0.0	-271,000	0.0
22	51.0 48.1	-98,505	0.0	-318,237	0.0	-318,853	0.0	-318,858	0.0	-318,858	0.0
23	48.9 46.2	-147,714	0.0	-366,222	0.0	-366,720	0.0	-366,724	0.0	-366,724	0.0
24	46.9 44.1	-187,297	0.0	-411,279	0.0	-411,681	0.0	-411,684	0.0	-411,684	0.0



## 01 Card - Job Information

-----  
 Project: GREENY HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29809 (1 BLDG)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	GREENY HALL

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	315.5	123.5	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	202.75	12		196	0			
1	2	61.5	12		196	90			
1	3	202.75	12		196	180			
1	4	61.5	12		196	270			
1	5	55	12		196	0			
1	6	52	12		196	90			
1	7	55	12		196	180			
1	8	52	12		196	270			
1	9	55	12		196	0			
1	10	52	12		196	90			
1	11	55	12		196	180			
1	12	52	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	30	1.03	.82					
1	2	2.5	5.5	4	1.03	.82					
1	3	2.5	5.5	30	1.03	.82					
1	4	2.5	5.5	2	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting Reference Point 1	--- Daylighting Reference Point 2
1	300	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	200	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				-----Reheat Minimum-----	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				-----Room Exhaust-----	
	-----Cooling-----		-----Heating-----		-----Cooling-----		-----Heating-----		Value	Units
1	1	CFM-SF	1	CFM-SF						

----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	MULTI ZONE SYSTEM

## -----CARD 40--- System Type -----

System Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						Fan
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Static Pressure	
	MZ							



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHO FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	



Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

ALLEN HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29813 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 12:30:51 8/16/94  
Dataset Name: FGTYP523 .TM

System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK									
Peaked at Time ==>					Mo/Hr: 6/18					Mo/Hr: 13/ 1									
Outside Air ==>					OADB/WB/HR: 96/ 73/ 84.0					OADB: 96					OADB: 23				
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Percent Of Tot (%)							
Skylite Solr	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Skylite Cond	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Roof Cond	190,628	0	0	190,628	27.37	*	190,628	27.37	*	-123,251	-123,251	16.66							
Glass Solar	131,942	0	0	131,942	18.94	*	131,942	18.94	*	0	0	0.00							
Glass Cond	75,663	0	0	75,663	10.86	*	75,663	10.86	*	-180,711	-180,711	24.43							
Wall Cond	298,233	0	0	298,233	42.82	*	298,233	42.82	*	-435,729	-435,729	58.91							
Partition	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Exposed Floor	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Infiltration	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Sub Total==>	696,466	0	0	696,466	100.00	*	696,466	100.00	*	-739,691	-739,691	100.00							
Internal Loads																			
Lights	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
People	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Sub Total==>	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Ceiling Load	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Outside Air	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Sup. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Ret. Fan Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Duct Heat Pkup	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
OV/UNDR Sizing	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Exhaust Heat	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Terminal Bypass	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00							
Grand Total==>	696,467	0	0	696,467	100.00	*	696,467	100.00	*	-739,691	-739,691	100.00							

-----COOLING COIL SELECTION-----

	Total Capacity			Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS		
	(Tons)	(Mbh)	Sens Cap. (Mbh)		Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf)	(%)
Main Clg	58.0	696.5	696.5	77,929	75.0	62.5	65.2	66.9	59.6	65.2	77,928		
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	58.0	696.5									31,728	3,566	11

-----HEATING COIL SELECTION-----

	Capacity				AIRFLOWS (cfm)				--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
	(Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg		
Main Htg	-739.7	77,929	68.0	76.6	Infil	0	0	0	1.00	SADB	66.9	76.6		
Aux Htg	0.0	0	0.0	0.0	Supply	77,929	77,929	0	1342.69	Plenum	75.0	68.0		
Preheat	-0.0	77,929	68.0	66.9	Mincfm	0	0	0	1342.69	Return	75.0	68.0		
Reheat	0.0	0	0.0	0.0	Return	77,929	77,929	0	8.94	Ret/OA	75.0	68.0		
Humidif	0.0	0	0.0	0.0	Exhaust	0	0	0	724	Runarnd	75.0	68.0		
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	0	0.0	Fn MtrTD	0.0	0.0		
Total	-739.7				Auxil	0	0	0	1.00	Fn BldTD	0.0	0.0		
									-9.49	Fn Frict	0.0	0.0		

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

January		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4 31.1	-686,922	0.0	-44,770	0.0	-354,513	0.0	-354,513	0.0	-354,513	0.0
2	32.9 30.7	-593,811	0.0	-392,797	0.0	-392,797	0.0	-392,797	0.0	-392,797	0.0
3	33.1 31.3	-524,842	0.0	-395,780	0.0	-395,780	0.0	-395,780	0.0	-395,780	0.0
4	33.9 32.1	-474,803	0.0	-401,015	0.0	-401,015	0.0	-401,015	0.0	-401,015	0.0
5	35.2 33.5	-439,823	0.0	-408,697	0.0	-408,697	0.0	-408,697	0.0	-408,697	0.0
6	37.0 35.4	-415,679	0.0	-418,280	0.0	-418,280	0.0	-418,280	0.0	-418,280	0.0
7	39.0 37.6	-399,529	0.0	-428,011	0.0	-428,011	0.0	-428,011	0.0	-428,011	0.0
8	41.3 40.1	-353,935	0.0	-436,460	0.0	-436,460	0.0	-436,460	0.0	-436,460	0.0
9	43.7 42.5	-319,311	0.0	-441,919	0.0	-441,919	0.0	-441,919	0.0	-441,919	0.0
10	46.1 44.0	-258,386	0.0	-441,473	0.0	-441,473	0.0	-441,473	0.0	-441,473	0.0
11	48.4 45.0	-196,775	0.0	-433,991	0.0	-433,991	0.0	-433,991	0.0	-433,991	0.0
12	50.5 45.6	-111,909	0.0	-420,027	0.0	-420,027	0.0	-420,027	0.0	-420,027	0.0
13	52.2 46.1	-43,706	0.0	-375,475	0.0	-375,475	0.0	-375,475	0.0	-375,475	0.0
14	53.5 46.4	0	0.0	-229,965	0.0	-229,965	0.0	-229,965	0.0	-229,965	0.0
15	54.3 46.3	0	0.0	-183,433	0.0	-183,433	0.0	-183,433	0.0	-183,433	0.0
16	54.6 46.1	0	0.0	-156,012	0.0	-156,012	0.0	-156,012	0.0	-156,012	0.0
17	54.0 45.9	0	0.0	-129,963	0.0	-129,963	0.0	-129,963	0.0	-129,963	0.0
18	52.5 45.0	0	0.0	-136,241	0.0	-136,241	0.0	-136,241	0.0	-136,241	0.0
19	50.1 44.8	0	0.0	-155,116	0.0	-155,116	0.0	-155,116	0.0	-155,116	0.0
20	47.1 43.3	0	0.0	-186,979	0.0	-186,979	0.0	-186,979	0.0	-186,979	0.0
21	43.7 40.4	0	0.0	-218,404	0.0	-218,404	0.0	-218,404	0.0	-218,404	0.0
22	40.4 37.3	0	0.0	-247,723	0.0	-247,723	0.0	-247,723	0.0	-247,723	0.0
23	37.3 34.9	0	0.0	-288,868	0.0	-288,868	0.0	-288,868	0.0	-288,868	0.0
24	34.9 32.6	0	0.0	-328,836	0.0	-328,836	0.0	-328,836	0.0	-328,836	0.0

February		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7 38.6	-136,570	0.0	0	0.0	-310,736	0.0	-310,736	0.0	-310,736	0.0
2	39.7 37.1	-181,118	0.0	-34,367	0.0	-333,541	0.0	-333,541	0.0	-333,541	0.0
3	37.8 35.1	-221,671	0.0	-358,359	0.0	-358,359	0.0	-358,359	0.0	-358,359	0.0
4	36.3 33.8	-247,841	0.0	-379,848	0.0	-379,848	0.0	-379,848	0.0	-379,848	0.0
5	35.1 32.6	-270,436	0.0	-395,541	0.0	-395,541	0.0	-395,541	0.0	-395,541	0.0
6	34.4 32.0	-295,086	0.0	-400,300	0.0	-400,300	0.0	-400,300	0.0	-400,300	0.0
7	34.1 31.9	-316,436	0.0	-407,754	0.0	-407,754	0.0	-407,754	0.0	-407,754	0.0
8	34.6 32.4	-327,366	0.0	-416,745	0.0	-416,745	0.0	-416,745	0.0	-416,745	0.0
9	36.0 33.8	-291,012	0.0	-423,565	0.0	-423,565	0.0	-423,565	0.0	-423,565	0.0
10	38.2 34.7	-235,270	0.0	-425,416	0.0	-425,416	0.0	-425,416	0.0	-425,416	0.0
11	40.9 36.2	-177,761	0.0	-422,619	0.0	-422,619	0.0	-422,619	0.0	-422,619	0.0
12	43.9 37.4	-91,108	0.0	-413,825	0.0	-413,825	0.0	-413,825	0.0	-413,825	0.0
13	46.9 39.4	-23,523	0.0	-375,136	0.0	-375,136	0.0	-375,136	0.0	-375,136	0.0
14	49.7 41.4	0	0.0	-255,625	0.0	-255,625	0.0	-255,625	0.0	-255,625	0.0
15	51.8 42.8	0	0.0	-205,746	0.0	-205,746	0.0	-205,746	0.0	-205,746	0.0
16	53.2 43.9	0	0.0	-171,116	0.0	-171,116	0.0	-171,116	0.0	-171,116	0.0
17	53.7 44.2	0	0.0	-159,233	0.0	-159,233	0.0	-159,233	0.0	-159,233	0.0
18	53.4 44.4	0	0.0	-154,559	0.0	-154,559	0.0	-154,559	0.0	-154,559	0.0
19	52.7 44.4	0	0.0	-166,271	0.0	-166,271	0.0	-166,271	0.0	-166,271	0.0
20	51.5 45.2	0	0.0	-185,049	0.0	-185,049	0.0	-185,049	0.0	-185,049	0.0
21	50.0 44.6	0	0.0	-202,436	0.0	-202,436	0.0	-202,436	0.0	-202,436	0.0
22	48.1 43.3	0	0.0	-233,268	0.0	-233,268	0.0	-233,268	0.0	-233,268	0.0
23	46.1 41.8	0	0.0	-246,135	0.0	-246,135	0.0	-246,135	0.0	-246,135	0.0
24	43.9 40.1	0	0.0	-273,685	0.0	-273,685	0.0	-273,685	0.0	-273,685	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	0	0.0	0	0.0	-8,554	0.0	-8,554	0.0	-8,554	0.0
2	48.7	44.6	0	0.0	0	0.0	-135,796	0.0	-135,796	0.0	-135,796	0.0
3	46.6	42.9	0	0.0	0	0.0	-173,809	0.0	-173,809	0.0	-173,809	0.0
4	44.9	41.4	-41,366	0.0	0	0.0	-197,906	0.0	-197,906	0.0	-197,906	0.0
5	43.9	40.8	-89,767	0.0	0	0.0	-234,898	0.0	-234,898	0.0	-234,898	0.0
6	43.5	40.8	-127,430	0.0	0	0.0	-258,161	0.0	-258,161	0.0	-258,161	0.0
7	44.0	41.4	-151,250	0.0	-161,588	0.0	-278,376	0.0	-278,376	0.0	-278,376	0.0
8	45.4	42.7	-133,976	0.0	-285,211	0.0	-285,211	0.0	-285,211	0.0	-285,211	0.0
9	47.7	44.3	-105,581	0.0	-272,016	0.0	-272,016	0.0	-272,016	0.0	-272,016	0.0
10	50.6	45.8	-55,364	0.0	-251,575	0.0	-251,575	0.0	-251,575	0.0	-251,575	0.0
11	53.9	47.4	0	0.0	-198,037	0.0	-198,037	0.0	-198,037	0.0	-198,037	0.0
12	57.4	49.0	0	0.0	-134,897	0.0	-134,897	0.0	-134,897	0.0	-134,897	0.0
13	60.7	50.8	0	0.0	-78,833	0.0	-78,833	0.0	-78,833	0.0	-78,833	0.0
14	63.6	52.7	0	0.0	-19,677	0.0	-19,677	0.0	-19,677	0.0	-19,677	0.0
15	65.9	53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	27.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	24.5	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	20.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	16.6	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	11.9	0	0.0	0	0.0	0	0.0	0	0.0
23	57.1	51.9	0	8.5	0	0.0	0	0.0	0	0.0	0	0.0
24	54.2	49.4	0	4.1	0	0.0	0	0.0	0	0.0	0	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	53.2	51.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	53.9	51.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	55.9	52.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	58.9	53.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	20.5	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	30.6	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	34.4	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	36.2	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	36.9	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	34.7	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	31.8	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	27.9	0	9.3	0	9.3	0	9.3	0	9.3
22	68.0	62.5	0	24.4	0	6.7	0	6.7	0	6.7	0	6.7
23	65.7	60.5	0	19.7	0	3.9	0	3.9	0	3.9	0	3.9
24	63.4	58.5	0	15.3	0	1.4	0	1.4	0	1.4	0	1.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	22.5	0	10.4	0	10.4	0	10.4	0	10.4
2	65.7	61.5	0	19.6	0	8.1	0	8.1	0	8.1	0	8.1
3	63.6	59.7	0	16.1	0	4.7	0	4.7	0	4.7	0	4.7
4	61.8	58.4	0	12.5	0	2.5	0	2.5	0	2.5	0	2.5
5	60.5	57.1	0	10.4	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	11.5	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	14.6	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	19.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	24.2	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	30.2	0	4.1	0	4.1	0	4.1	0	4.1
14	81.9	65.3	0	35.2	0	13.8	0	13.8	0	13.8	0	13.8
15	84.1	66.9	0	39.9	0	18.0	0	18.0	0	18.0	0	18.0
16	84.9	67.1	0	43.0	0	21.1	0	21.1	0	21.1	0	21.1
17	84.6	67.3	0	46.5	0	22.8	0	22.8	0	22.8	0	22.8
18	83.8	67.1	0	48.3	0	24.2	0	24.2	0	24.2	0	24.2
19	82.4	67.5	0	47.0	0	24.6	0	24.6	0	24.6	0	24.6
20	80.6	68.9	0	43.7	0	22.6	0	22.6	0	22.6	0	22.6
21	78.5	71.0	0	39.9	0	20.9	0	20.9	0	20.9	0	20.9
22	76.1	69.9	0	34.7	0	18.1	0	18.1	0	18.1	0	18.1
23	73.4	68.0	0	31.2	0	15.3	0	15.3	0	15.3	0	15.3
24	70.8	65.5	0	26.7	0	12.8	0	12.8	0	12.8	0	12.8

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	33.4	0	19.8	0	19.8	0	19.8	0	19.8
2	72.6	68.4	0	30.6	0	16.4	0	16.4	0	16.4	0	16.4
3	70.9	67.3	0	26.9	0	14.1	0	14.1	0	14.1	0	14.1
4	69.6	66.5	0	23.5	0	10.8	0	10.8	0	10.8	0	10.8
5	68.7	65.8	0	21.2	0	8.8	0	8.8	0	8.8	0	8.8
6	68.5	65.7	0	19.2	0	6.9	0	6.9	0	6.9	0	6.9
7	69.0	66.3	0	19.6	0	6.4	0	6.4	0	6.4	0	6.4
8	70.6	66.9	0	21.4	0	6.0	0	6.0	0	6.0	0	6.0
9	73.0	67.7	0	24.0	0	8.0	0	8.0	0	8.0	0	8.0
10	76.1	68.1	0	26.9	0	11.1	0	11.1	0	11.1	0	11.1
11	79.5	69.1	0	31.4	0	14.1	0	14.1	0	14.1	0	14.1
12	82.9	70.1	0	36.1	0	17.2	0	17.2	0	17.2	0	17.2
13	86.0	71.0	0	39.6	0	21.8	0	21.8	0	21.8	0	21.8
14	88.4	72.5	0	44.4	0	24.8	0	24.8	0	24.8	0	24.8
15	90.0	74.0	0	49.1	0	29.1	0	29.1	0	29.1	0	29.1
16	90.5	73.7	0	52.3	0	31.0	0	31.0	0	31.0	0	31.0
17	90.3	74.2	0	56.1	0	32.7	0	32.7	0	32.7	0	32.7
18	89.4	73.9	0	57.8	0	34.1	0	34.1	0	34.1	0	34.1
19	88.1	74.5	0	57.2	0	34.7	0	34.7	0	34.7	0	34.7
20	86.4	75.3	0	53.9	0	32.7	0	32.7	0	32.7	0	32.7
21	84.3	76.5	0	49.8	0	30.9	0	30.9	0	30.9	0	30.9
22	81.9	75.7	0	45.9	0	27.9	0	27.9	0	27.9	0	27.9
23	79.5	74.0	0	40.9	0	25.0	0	25.0	0	25.0	0	25.0
24	77.0	72.1	0	37.5	0	22.3	0	22.3	0	22.3	0	22.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	30.4	0	15.5	0	15.5	0	15.5	0	15.5
2	72.4	69.4	0	27.7	0	13.4	0	13.4	0	13.4	0	13.4
3	71.3	68.4	0	25.3	0	11.1	0	11.1	0	11.1	0	11.1
4	70.5	67.7	0	23.0	0	9.1	0	9.1	0	9.1	0	9.1
5	70.0	67.4	0	19.8	0	7.2	0	7.2	0	7.2	0	7.2
6	69.9	67.5	0	17.8	0	5.3	0	5.3	0	5.3	0	5.3
7	70.3	68.0	0	19.0	0	4.7	0	4.7	0	4.7	0	4.7
8	71.7	69.0	0	19.4	0	4.5	0	4.5	0	4.5	0	4.5
9	73.7	69.5	0	22.1	0	6.6	0	6.6	0	6.6	0	6.6
10	76.2	70.6	0	25.2	0	9.6	0	9.6	0	9.6	0	9.6
11	78.9	71.8	0	28.6	0	12.7	0	12.7	0	12.7	0	12.7
12	81.4	73.0	0	33.5	0	16.1	0	16.1	0	16.1	0	16.1
13	83.4	74.4	0	38.2	0	20.4	0	20.4	0	20.4	0	20.4
14	84.8	74.8	0	41.9	0	23.7	0	23.7	0	23.7	0	23.7
15	85.2	75.0	0	46.7	0	26.8	0	26.8	0	26.8	0	26.8
16	85.1	75.0	0	49.8	0	28.4	0	28.4	0	28.4	0	28.4
17	84.6	74.7	0	52.0	0	29.7	0	29.7	0	29.7	0	29.7
18	83.8	74.6	0	53.6	0	31.1	0	31.1	0	31.1	0	31.1
19	82.7	74.6	0	52.6	0	30.3	0	30.3	0	30.3	0	30.3
20	81.4	74.4	0	49.3	0	29.3	0	29.3	0	29.3	0	29.3
21	79.9	74.9	0	46.6	0	26.3	0	26.3	0	26.3	0	26.3
22	78.4	74.0	0	42.7	0	23.6	0	23.6	0	23.6	0	23.6
23	76.8	72.7	0	38.0	0	20.6	0	20.6	0	20.6	0	20.6
24	75.2	71.6	0	34.6	0	18.1	0	18.1	0	18.1	0	18.1

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	29.9	0	16.9	0	16.9	0	16.9	0	16.9
2	73.2	70.3	0	27.2	0	14.6	0	14.6	0	14.6	0	14.6
3	71.7	68.9	0	23.7	0	12.3	0	12.3	0	12.3	0	12.3
4	70.4	67.8	0	21.6	0	10.3	0	10.3	0	10.3	0	10.3
5	69.5	66.8	0	19.6	0	7.2	0	7.2	0	7.2	0	7.2
6	68.9	66.4	0	17.6	0	5.5	0	5.5	0	5.5	0	5.5
7	68.7	66.4	0	16.6	0	4.1	0	4.1	0	4.1	0	4.1
8	69.2	66.8	0	18.0	0	3.6	0	3.6	0	3.6	0	3.6
9	70.8	67.7	0	19.7	0	4.8	0	4.8	0	4.8	0	4.8
10	73.2	67.7	0	23.4	0	8.0	0	8.0	0	8.0	0	8.0
11	76.2	68.8	0	28.4	0	11.7	0	11.7	0	11.7	0	11.7
12	79.3	70.3	0	33.8	0	16.5	0	16.5	0	16.5	0	16.5
13	82.3	72.2	0	38.9	0	20.1	0	20.1	0	20.1	0	20.1
14	84.7	73.7	0	44.2	0	24.6	0	24.6	0	24.6	0	24.6
15	86.3	74.6	0	47.7	0	27.8	0	27.8	0	27.8	0	27.8
16	86.8	75.1	0	51.8	0	30.7	0	30.7	0	30.7	0	30.7
17	86.6	75.1	0	53.5	0	32.2	0	32.2	0	32.2	0	32.2
18	86.0	75.3	0	54.3	0	32.9	0	32.9	0	32.9	0	32.9
19	85.1	76.0	0	52.2	0	32.6	0	32.6	0	32.6	0	32.6
20	83.8	76.8	0	49.3	0	30.7	0	30.7	0	30.7	0	30.7
21	82.3	77.2	0	45.4	0	27.7	0	27.7	0	27.7	0	27.7
22	80.6	76.3	0	41.6	0	25.8	0	25.8	0	25.8	0	25.8
23	78.7	75.3	0	37.2	0	22.9	0	22.9	0	22.9	0	22.9
24	76.8	73.7	0	34.0	0	20.4	0	20.4	0	20.4	0	20.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	23.6	0	10.6	0	10.6	0	10.6	0	10.6
2	67.6	65.0	0	20.0	0	7.3	0	7.3	0	7.3	0	7.3
3	65.8	63.4	0	16.5	0	5.3	0	5.3	0	5.3	0	5.3
4	64.3	62.2	0	14.3	0	3.2	0	3.2	0	3.2	0	3.2
5	63.1	61.1	0	12.3	0	0.4	0	0.4	0	0.4	0	0.4
6	62.4	60.3	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	11.7	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	15.9	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	21.8	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	27.5	0	3.6	0	3.6	0	3.6	0	3.6
13	78.3	66.7	0	34.0	0	14.9	0	14.9	0	14.9	0	14.9
14	81.2	68.4	0	39.4	0	19.7	0	19.7	0	19.7	0	19.7
15	83.0	70.0	0	44.4	0	21.6	0	21.6	0	21.6	0	21.6
16	83.7	70.5	0	48.0	0	24.2	0	24.2	0	24.2	0	24.2
17	83.4	70.5	0	50.2	0	26.2	0	26.2	0	26.2	0	26.2
18	82.8	70.9	0	49.4	0	26.3	0	26.3	0	26.3	0	26.3
19	81.6	72.7	0	46.2	0	24.3	0	24.3	0	24.3	0	24.3
20	80.1	74.7	0	42.2	0	22.5	0	22.5	0	22.5	0	22.5
21	78.3	74.1	0	38.6	0	20.6	0	20.6	0	20.6	0	20.6
22	76.3	72.4	0	33.9	0	18.0	0	18.0	0	18.0	0	18.0
23	74.1	70.7	0	30.5	0	15.3	0	15.3	0	15.3	0	15.3
24	71.8	68.9	0	26.4	0	13.0	0	13.0	0	13.0	0	13.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	48.4	46.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	47.1	45.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	46.3	44.8	0	0.0	0	0.0	-173,659	0.0	-173,659	0.0	-173,659	0.0
6	46.0	44.5	0	0.0	0	0.0	-234,064	0.0	-234,064	0.0	-234,064	0.0
7	46.8	45.3	0	0.0	0	0.0	-254,301	0.0	-254,301	0.0	-254,301	0.0
8	48.9	47.5	0	0.0	-228,809	0.0	-245,001	0.0	-245,001	0.0	-245,001	0.0
9	52.2	49.9	0	0.0	-223,519	0.0	-223,519	0.0	-223,519	0.0	-223,519	0.0
10	56.2	52.5	0	0.0	-196,547	0.0	-196,547	0.0	-196,547	0.0	-196,547	0.0
11	60.4	54.4	0	0.0	-133,477	0.0	-133,477	0.0	-133,477	0.0	-133,477	0.0
12	64.4	56.0	0	0.0	-65,702	0.0	-65,702	0.0	-65,702	0.0	-65,702	0.0
13	67.7	57.3	0	0.0	-11,119	0.0	-11,119	0.0	-11,119	0.0	-11,119	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	17.5	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	29.7	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	31.1	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	28.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	25.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	21.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	17.1	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	13.7	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	9.4	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SZ SYSTEMS

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0 49.2	0	0.0	0	0.0	-63,680	0.0	-63,680	0.0	-63,680	0.0
2	49.4 47.3	0	0.0	0	0.0	-134,209	0.0	-134,209	0.0	-134,209	0.0
3	47.2 45.3	0	0.0	0	0.0	-172,075	0.0	-172,075	0.0	-172,075	0.0
4	45.3 43.4	0	0.0	0	0.0	-193,311	0.0	-193,311	0.0	-193,311	0.0
5	43.9 42.2	0	0.0	0	0.0	-230,207	0.0	-230,207	0.0	-230,207	0.0
6	43.0 41.4	0	0.0	0	0.0	-250,648	0.0	-250,648	0.0	-250,648	0.0
7	42.7 41.2	-46,492	0.0	-149,798	0.0	-284,152	0.0	-284,152	0.0	-284,152	0.0
8	43.5 42.0	-167,573	0.0	-298,050	0.0	-298,050	0.0	-298,050	0.0	-298,050	0.0
9	45.9 44.0	-124,469	0.0	-275,937	0.0	-275,937	0.0	-275,937	0.0	-275,937	0.0
10	49.4 46.6	-64,843	0.0	-250,866	0.0	-250,866	0.0	-250,866	0.0	-250,866	0.0
11	53.8 48.6	0	0.0	-208,315	0.0	-208,315	0.0	-208,315	0.0	-208,315	0.0
12	58.4 50.6	0	0.0	-155,523	0.0	-155,523	0.0	-155,523	0.0	-155,523	0.0
13	62.8 52.6	0	0.0	-101,789	0.0	-101,789	0.0	-101,789	0.0	-101,789	0.0
14	66.3 54.5	0	0.0	-34,795	0.0	-34,795	0.0	-34,795	0.0	-34,795	0.0
15	68.7 55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5 56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2 55.8	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3 57.0	0	24.1	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9 59.4	0	19.9	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0 59.4	0	16.3	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8 58.2	0	12.8	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2 56.1	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5 54.0	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
24	54.7 51.7	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9 42.5	-26,159	0.0	0	0.0	-230,660	0.0	-230,660	0.0	-230,660	0.0
2	43.2 41.1	-112,512	0.0	0	0.0	-266,305	0.0	-266,305	0.0	-266,305	0.0
3	41.8 39.8	-139,042	0.0	0	0.0	-287,969	0.0	-287,969	0.0	-287,969	0.0
4	40.7 38.7	-175,289	0.0	-49,806	0.0	-309,116	0.0	-309,116	0.0	-309,116	0.0
5	40.1 38.4	-197,439	0.0	-329,845	0.0	-329,842	0.0	-329,842	0.0	-329,842	0.0
6	39.9 38.4	-218,985	0.0	-363,581	0.0	-363,581	0.0	-363,581	0.0	-363,581	0.0
7	40.5 39.0	-237,295	0.0	-383,679	0.0	-383,679	0.0	-383,679	0.0	-383,679	0.0
8	42.2 40.7	-244,035	0.0	-387,121	0.0	-387,121	0.0	-387,121	0.0	-387,121	0.0
9	44.9 43.4	-220,066	0.0	-365,732	0.0	-365,732	0.0	-365,732	0.0	-365,732	0.0
10	48.2 45.8	-158,195	0.0	-339,309	0.0	-339,309	0.0	-339,309	0.0	-339,309	0.0
11	51.7 48.3	-83,210	0.0	-294,779	0.0	-294,779	0.0	-294,779	0.0	-294,779	0.0
12	55.0 50.7	-12,400	0.0	-239,932	0.0	-239,932	0.0	-239,932	0.0	-239,932	0.0
13	57.7 52.0	0	0.0	-187,561	0.0	-187,561	0.0	-187,561	0.0	-187,561	0.0
14	59.5 52.6	0	0.0	-132,902	0.0	-132,902	0.0	-132,902	0.0	-132,902	0.0
15	60.1 52.7	0	0.0	-93,466	0.0	-93,466	0.0	-93,466	0.0	-93,466	0.0
16	59.9 52.6	0	0.0	-51,565	0.0	-51,565	0.0	-51,565	0.0	-51,565	0.0
17	59.2 52.1	0	0.0	-48,890	0.0	-48,890	0.0	-48,890	0.0	-48,890	0.0
18	58.2 51.8	0	0.0	-61,268	0.0	-61,268	0.0	-61,268	0.0	-61,268	0.0
19	56.8 52.2	0	0.0	-65,595	0.0	-65,595	0.0	-65,595	0.0	-65,595	0.0
20	55.0 51.4	0	0.0	-97,340	0.0	-97,340	0.0	-97,340	0.0	-97,340	0.0
21	53.1 50.1	0	0.0	-112,776	0.0	-112,776	0.0	-112,776	0.0	-112,776	0.0
22	51.0 48.1	0	0.0	-142,260	0.0	-142,260	0.0	-142,260	0.0	-142,260	0.0
23	48.9 46.2	0	0.0	-180,829	0.0	-180,829	0.0	-180,829	0.0	-180,829	0.0
24	46.9 44.1	0	0.0	-204,855	0.0	-204,855	0.0	-204,855	0.0	-204,855	0.0

## 01 Card - Job Information

-----  
 Project: ALLEN HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29813 (1 BUILDING)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	ALLEN HALL_OFFICES

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	315.5	123.5	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location	Mass / No. Hrs On Average Floor	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	338.5	12		196	0			
1	2	108.5	12		196	90			
1	3	338.5	12		196	180			
1	4	108.5	12		196	270			
1	5	55	12		196	180			
1	6	52	12		196	270			
1	7	55	12		196	0			
1	8	52	12		196	90			
1	9	55	12		196	180			
1	10	52	12		196	270			
1	11	55	12		196	0			
1	12	52	12		196	90			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	34	1.03	.82					
1	2	2.5	5.5	8	1.03	.82					
1	3	2.5	5.5	34	1.03	.82					
1	4	2.5	5.5	8	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	FGHEAT	FGHEAT						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	362	PEOPLE	255	325	1.7	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	75	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	SZ SYSTEMS

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----					
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	SZ						



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

```
*****  
*****  
**                                     **  
**          TRACE 600 ANALYSIS          **  
**                                     **  
**          by          **               **  
**                                     **  
*****  
*****
```

ENERGY STUDY-HAZEN HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29815 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 16:54:13 8/19/94  
Dataset Name: FGTYPS24 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK ***** CLG SPACE PEAK ***** HEATING COIL PEAK *****												
Peaked at Time ==)					Mo/Hr: 8/16	*	Mo/Hr: 6/18	*	Mo/Hr: 13/ 1			
Outside Air ==)					OADB/WB/HR: 96/ 76/105.0	*	OADB: 96	*	OADB: 23			
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Perct Of Tot (%)	*	Space Sensible (Btuh)	Perct Of Tot (%)	*	Space Peak (Btuh)	Coil Peak (Btuh)	Perct Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	110,921	0		110,921	11.05	*	141,914	24.25	*	-91,755	-91,755	7.14
Glass Solar	121,770	0		121,770	12.13	*	92,070	15.73	*	0	0	0.00
Glass Cond	59,652	0		59,652	5.94	*	63,017	10.77	*	-150,508	-150,508	11.72
Wall Cond	208,300	0		208,300	20.75	*	238,175	40.70	*	-373,446	-373,446	29.08
Partition	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Infiltration	84,915			84,915	8.46	*	50,041	8.55	*	-135,327	-135,327	10.54
Sub Total==)	585,559	0		585,559	58.34	*	585,218	100.00	*	-751,036	-751,036	58.48
Internal Loads						*			*			
Lights	0	0		0	0.00	*	0	0.00	*	0	0	0.00
People	0			0	0.00	*	0	0.00	*	0	0	0.00
Misc	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Sub Total==)	0	0	0	0	0.00	*	0	0.00	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	418,209	41.66	*	0	0.00	*	0	-533,192	41.52
Sup. Fan Heat				0	0.00	*		0.00	*		0	0.00
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	0.00	*	0	0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
Grand Total==)	585,559	0	0	1,003,768	100.00	*	585,218	100.00	*	-751,036	-1,284,228	100.00

-----COOLING COIL SELECTION-----

	Total Capacity		Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)
	(Tons)	(Mbh)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part
Main Clg	83.6	1,003.8	801.4	58,014	78.9	68.1	86.6	65.9	63.1	82.6	58,014	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Totals	83.6	1,003.8									29,007	2,970 11

-----HEATING COIL SELECTION-----

	Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	--ENGINEERING CHECKS--			--TEMPERATURES (F)--		
	(Mbh)	(cfm)	Deg F	Deg F				Clg % OA	18.4	Type	Clg	Htg	
Main Htg	-1,284.2	58,014	59.7	79.7	Vent	10,680	10,680	Clg Cfm/Sqft	1.00	SADB	65.9	79.7	
Aux Htg	0.0	0	0.0	0.0	Infil	2,169	2,711	Clg Cfm/Ton	693.56	Plenum	75.0	68.0	
Preheat	-398.5	58,014	59.7	65.9	Supply	58,014	58,014	Clg Sqft/Ton	693.56	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	17.30	Ret/OA	78.9	59.7	
Humidif	0.0	0	0.0	0.0	Return	58,014	58,014	No. People	712	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Exhaust	10,680	10,680	Htg % OA	18.4	Fn MtrTD	0.0	0.0	
Total	-1,284.2				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0	
					Auxil	0	0	Htg Btuh/Sqft	-22.14	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-983,380	0.0	-789,453	0.0	-789,453	0.0	-789,453	0.0	-789,453	0.0
2	32.9	30.7	-924,977	0.0	-810,912	0.0	-810,912	0.0	-810,912	0.0	-810,912	0.0
3	33.1	31.3	-883,327	0.0	-840,416	0.0	-840,416	0.0	-840,416	0.0	-840,416	0.0
4	33.9	32.1	-802,246	0.0	-841,828	0.0	-841,828	0.0	-841,828	0.0	-841,828	0.0
5	35.2	33.5	-685,349	0.0	-846,775	0.0	-846,775	0.0	-846,775	0.0	-846,775	0.0
6	37.0	35.4	-695,956	0.0	-830,042	0.0	-830,042	0.0	-830,042	0.0	-830,042	0.0
7	39.0	37.6	-697,178	0.0	-818,486	0.0	-818,486	0.0	-818,486	0.0	-818,486	0.0
8	41.3	40.1	-684,088	0.0	-792,246	0.0	-792,246	0.0	-792,246	0.0	-792,246	0.0
9	43.7	42.5	-615,028	0.0	-745,992	0.0	-745,992	0.0	-745,992	0.0	-745,992	0.0
10	46.1	44.0	-513,460	0.0	-690,159	0.0	-690,159	0.0	-690,159	0.0	-690,159	0.0
11	48.4	45.0	-402,777	0.0	-621,816	0.0	-621,816	0.0	-621,816	0.0	-621,816	0.0
12	50.5	45.6	-273,261	0.0	-556,240	0.0	-556,240	0.0	-556,240	0.0	-556,240	0.0
13	52.2	46.1	-171,507	0.0	-487,034	0.0	-487,034	0.0	-487,034	0.0	-487,034	0.0
14	53.5	46.4	-78,142	0.0	-424,942	0.0	-424,942	0.0	-424,942	0.0	-424,942	0.0
15	54.3	46.3	-10,844	0.0	-379,364	0.0	-379,364	0.0	-379,364	0.0	-379,364	0.0
16	54.6	46.1	0	0.0	-343,909	0.0	-343,909	0.0	-343,909	0.0	-343,909	0.0
17	54.0	45.9	0	0.0	-334,426	0.0	-334,426	0.0	-334,426	0.0	-334,426	0.0
18	52.5	45.0	-35,012	0.0	-355,157	0.0	-355,157	0.0	-355,157	0.0	-355,157	0.0
19	50.1	44.8	-137,019	0.0	-397,215	0.0	-397,215	0.0	-397,215	0.0	-397,215	0.0
20	47.1	43.3	-218,303	0.0	-461,700	0.0	-461,700	0.0	-461,700	0.0	-461,700	0.0
21	43.7	40.4	-290,402	0.0	-529,770	0.0	-529,770	0.0	-529,770	0.0	-529,770	0.0
22	40.4	37.3	-367,325	0.0	-610,705	0.0	-610,705	0.0	-610,705	0.0	-610,705	0.0
23	37.3	34.9	-422,847	0.0	-669,393	0.0	-669,393	0.0	-669,393	0.0	-669,393	0.0
24	34.9	32.6	-481,760	0.0	-735,459	0.0	-735,459	0.0	-735,459	0.0	-735,459	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-500,861	0.0	-636,950	0.0	-636,950	0.0	-636,950	0.0	-636,950	0.0
2	39.7	37.1	-552,462	0.0	-691,574	0.0	-691,574	0.0	-691,574	0.0	-691,574	0.0
3	37.8	35.1	-586,621	0.0	-736,885	0.0	-736,885	0.0	-736,885	0.0	-736,885	0.0
4	36.3	33.8	-628,294	0.0	-769,602	0.0	-769,602	0.0	-769,602	0.0	-769,602	0.0
5	35.1	32.6	-649,911	0.0	-818,676	0.0	-818,676	0.0	-818,676	0.0	-818,676	0.0
6	34.4	32.0	-664,067	0.0	-840,873	0.0	-840,873	0.0	-840,873	0.0	-840,873	0.0
7	34.1	31.9	-666,795	0.0	-864,174	0.0	-864,174	0.0	-864,174	0.0	-864,174	0.0
8	34.6	32.4	-650,633	0.0	-869,449	0.0	-869,449	0.0	-869,449	0.0	-869,449	0.0
9	36.0	33.8	-586,418	0.0	-838,831	0.0	-838,831	0.0	-838,831	0.0	-838,831	0.0
10	38.2	34.7	-494,569	0.0	-800,317	0.0	-800,317	0.0	-800,317	0.0	-800,317	0.0
11	40.9	36.2	-393,796	0.0	-750,633	0.0	-750,633	0.0	-750,633	0.0	-750,633	0.0
12	43.9	37.4	-280,855	0.0	-681,466	0.0	-681,466	0.0	-681,466	0.0	-681,466	0.0
13	46.9	39.4	-171,462	0.0	-583,910	0.0	-583,910	0.0	-583,910	0.0	-583,910	0.0
14	49.7	41.4	-80,584	0.0	-505,646	0.0	-505,646	0.0	-505,646	0.0	-505,646	0.0
15	51.8	42.8	-23,073	0.0	-439,446	0.0	-439,446	0.0	-439,446	0.0	-439,446	0.0
16	53.2	43.9	0	0.0	-399,473	0.0	-399,473	0.0	-399,473	0.0	-399,473	0.0
17	53.7	44.2	0	0.0	-384,205	0.0	-384,205	0.0	-384,205	0.0	-384,205	0.0
18	53.4	44.4	-40,426	0.0	-371,117	0.0	-371,117	0.0	-371,117	0.0	-371,117	0.0
19	52.7	44.4	-118,881	0.0	-398,492	0.0	-398,492	0.0	-398,492	0.0	-398,492	0.0
20	51.5	45.2	-187,085	0.0	-426,050	0.0	-426,050	0.0	-426,050	0.0	-426,050	0.0
21	50.0	44.6	-268,698	0.0	-456,756	0.0	-456,756	0.0	-456,756	0.0	-456,756	0.0
22	48.1	43.3	-333,617	0.0	-505,966	0.0	-505,966	0.0	-505,966	0.0	-505,966	0.0
23	46.1	41.8	-401,216	0.0	-540,271	0.0	-540,271	0.0	-540,271	0.0	-540,271	0.0
24	43.9	40.1	-459,300	0.0	-588,478	0.0	-588,478	0.0	-588,478	0.0	-588,478	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-197,174	0.0	0	0.0	-362,272	0.0	-362,272	0.0	-362,272	0.0
2	48.7	44.6	-252,803	0.0	-250,423	0.0	-416,111	0.0	-416,111	0.0	-416,111	0.0
3	46.6	42.9	-301,036	0.0	-471,061	0.0	-471,061	0.0	-471,061	0.0	-471,061	0.0
4	44.9	41.4	-333,662	0.0	-511,855	0.0	-511,855	0.0	-511,855	0.0	-511,855	0.0
5	43.9	40.8	-368,139	0.0	-553,503	0.0	-553,503	0.0	-553,503	0.0	-553,503	0.0
6	43.5	40.8	-380,369	0.0	-578,016	0.0	-578,016	0.0	-578,016	0.0	-578,016	0.0
7	44.0	41.4	-381,806	0.0	-584,924	0.0	-584,924	0.0	-584,924	0.0	-584,924	0.0
8	45.4	42.7	-340,657	0.0	-577,408	0.0	-577,408	0.0	-577,408	0.0	-577,408	0.0
9	47.7	44.3	-274,713	0.0	-555,377	0.0	-555,377	0.0	-555,377	0.0	-555,377	0.0
10	50.6	45.8	-177,709	0.0	-492,153	0.0	-492,153	0.0	-492,153	0.0	-492,153	0.0
11	53.9	47.4	-67,164	0.0	-406,618	0.0	-406,618	0.0	-406,618	0.0	-406,618	0.0
12	57.4	49.0	0	0.0	-316,539	0.0	-316,539	0.0	-316,539	0.0	-316,539	0.0
13	60.7	50.8	0	0.0	-225,028	0.0	-225,028	0.0	-225,028	0.0	-225,028	0.0
14	63.6	52.7	0	0.0	-134,645	0.0	-134,645	0.0	-134,645	0.0	-134,645	0.0
15	65.9	53.7	0	0.0	-80,813	0.0	-80,813	0.0	-80,813	0.0	-80,813	0.0
16	67.3	54.4	0	0.0	-36,988	0.0	-36,988	0.0	-36,988	0.0	-36,988	0.0
17	67.8	54.6	0	20.9	-12,585	0.0	-12,585	0.0	-12,585	0.0	-12,585	0.0
18	67.4	54.8	0	17.6	-15,487	0.0	-15,487	0.0	-15,487	0.0	-15,487	0.0
19	66.4	55.2	0	11.2	-31,816	0.0	-31,816	0.0	-31,816	0.0	-31,816	0.0
20	64.7	56.0	0	5.2	-68,883	0.0	-68,883	0.0	-68,883	0.0	-68,883	0.0
21	62.5	56.0	0	0.0	-121,226	0.0	-121,226	0.0	-121,226	0.0	-121,226	0.0
22	60.0	54.1	0	0.0	-171,644	0.0	-171,644	0.0	-171,644	0.0	-171,644	0.0
23	57.1	51.9	0	0.0	-229,890	0.0	-229,890	0.0	-229,890	0.0	-229,890	0.0
24	54.2	49.4	0	0.0	-303,197	0.0	-303,197	0.0	-303,197	0.0	-303,197	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	-61,631	0.0	0	0.0	-184,386	0.0	-184,386	0.0	-184,386	0.0
5	54.2	51.4	-102,462	0.0	-204,150	0.0	-294,818	0.0	-294,818	0.0	-294,818	0.0
6	53.5	50.9	-114,235	0.0	-321,559	0.0	-321,559	0.0	-321,559	0.0	-321,559	0.0
7	53.2	51.1	-108,143	0.0	-337,744	0.0	-337,744	0.0	-337,744	0.0	-337,744	0.0
8	53.9	51.5	-69,393	0.0	-343,554	0.0	-343,554	0.0	-343,554	0.0	-343,554	0.0
9	55.9	52.1	-11,981	0.0	-318,244	0.0	-318,244	0.0	-318,244	0.0	-318,244	0.0
10	58.9	53.2	0	0.0	-258,139	0.0	-258,139	0.0	-258,139	0.0	-258,139	0.0
11	62.6	55.2	0	0.0	-175,547	0.0	-175,547	0.0	-175,547	0.0	-175,547	0.0
12	66.5	57.3	0	0.0	-84,716	0.0	-84,716	0.0	-84,716	0.0	-84,716	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	15.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	36.9	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	38.7	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	37.7	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	34.9	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	29.6	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	23.9	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	17.9	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	11.4	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	6.5	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	3.6	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	9.4	-140,065	0.0	-140,065	0.0	-140,065	0.0	-140,065	0.0
10	65.7	57.2	0	16.4	-80,490	0.0	-80,490	0.0	-80,490	0.0	-80,490	0.0
11	69.9	58.9	0	25.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	34.7	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	42.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	49.1	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	54.6	0	0.0	0	0.0	0	0.0	0	0.0
16	84.9	67.1	0	55.7	0	17.0	0	17.0	0	17.0	0	17.0
17	84.6	67.3	0	55.1	0	28.6	0	28.6	0	28.6	0	28.6
18	83.8	67.1	0	53.0	0	28.6	0	28.6	0	28.6	0	28.6
19	82.4	67.5	0	48.2	0	27.8	0	27.8	0	27.8	0	27.8
20	80.6	68.9	0	41.9	0	26.4	0	26.4	0	26.4	0	26.4
21	78.5	71.0	0	35.8	0	27.1	0	27.1	0	27.1	0	27.1
22	76.1	69.9	0	29.8	0	21.6	0	21.6	0	21.6	0	21.6
23	73.4	68.0	0	23.6	0	13.4	0	13.4	0	13.4	0	13.4
24	70.8	65.5	0	19.2	0	6.2	0	6.2	0	6.2	0	6.2

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	40.4	0	21.1	0	24.7	0	24.7	0	24.7
2	72.6	68.4	0	33.1	0	16.6	0	17.0	0	17.0	0	17.0
3	70.9	67.3	0	29.7	0	9.8	0	9.8	0	9.8	0	9.8
4	69.6	66.5	0	26.9	0	4.9	0	4.9	0	4.9	0	4.9
5	68.7	65.8	0	23.6	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	22.4	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	25.3	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	30.3	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	36.3	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	43.0	0	11.2	0	11.2	0	11.2	0	11.2
11	79.5	69.1	0	50.7	0	20.8	0	20.8	0	20.8	0	20.8
12	82.9	70.1	0	59.5	0	28.7	0	28.7	0	28.7	0	28.7
13	86.0	71.0	0	67.1	0	37.0	0	37.0	0	37.0	0	37.0
14	88.4	72.5	0	73.2	0	45.6	0	45.6	0	45.6	0	45.6
15	90.0	74.0	0	77.8	0	54.8	0	54.8	0	54.8	0	54.8
16	90.5	73.7	0	79.2	0	55.0	0	55.0	0	55.0	0	55.0
17	90.3	74.2	0	79.3	0	57.4	0	57.4	0	57.4	0	57.4
18	89.4	73.9	0	74.9	0	58.1	0	58.1	0	58.1	0	58.1
19	88.1	74.5	0	69.7	0	56.9	0	56.9	0	56.9	0	56.9
20	86.4	75.3	0	64.1	0	53.9	0	53.9	0	53.9	0	53.9
21	84.3	76.5	0	60.5	0	55.8	0	55.8	0	55.8	0	55.8
22	81.9	75.7	0	55.7	0	51.2	0	51.2	0	51.2	0	51.2
23	79.5	74.0	0	50.3	0	42.8	0	42.8	0	42.8	0	42.8
24	77.0	72.1	0	44.8	0	33.4	0	33.4	0	33.4	0	33.4

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

July Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	
1	73.7	70.5	0	43.3	0	0	15.3	0	18.3	0	18.3	0	18.3
2	72.4	69.4	0	35.3	0	0	12.4	0	12.9	0	12.9	0	12.9
3	71.3	68.4	0	32.3	0	0	7.3	0	7.3	0	7.3	0	7.3
4	70.5	67.7	0	29.7	0	0	3.0	0	3.0	0	3.0	0	3.0
5	70.0	67.4	0	27.6	0	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	26.2	0	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	28.7	0	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	32.7	0	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	36.7	0	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	42.7	0	0	12.3	0	12.3	0	12.3	0	12.3
11	78.9	71.8	0	49.3	0	0	24.2	0	24.2	0	24.2	0	24.2
12	81.4	73.0	0	59.9	0	0	33.0	0	33.0	0	33.0	0	33.0
13	83.4	74.4	0	66.8	0	0	42.0	0	42.0	0	42.0	0	42.0
14	84.8	74.8	0	72.7	0	0	46.9	0	46.9	0	46.9	0	46.9
15	85.2	75.0	0	77.3	0	0	50.5	0	50.5	0	50.5	0	50.5
16	85.1	75.0	0	78.8	0	0	52.2	0	52.2	0	52.2	0	52.2
17	84.6	74.7	0	79.2	0	0	52.0	0	52.0	0	52.0	0	52.0
18	83.8	74.6	0	75.1	0	0	52.1	0	52.1	0	52.1	0	52.1
19	82.7	74.6	0	70.7	0	0	52.0	0	52.0	0	52.0	0	52.0
20	81.4	74.4	0	65.8	0	0	48.8	0	48.8	0	48.8	0	48.8
21	79.9	74.9	0	60.5	0	0	46.8	0	46.8	0	46.8	0	46.8
22	78.4	74.0	0	55.4	0	0	40.0	0	40.0	0	40.0	0	40.0
23	76.8	72.7	0	50.8	0	0	31.3	0	31.3	0	31.3	0	31.3
24	75.2	71.6	0	45.5	0	0	25.2	0	25.2	0	25.2	0	25.2

August Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	Htg	Btuh	Clg	Ton	
1	75.0	72.0	0	42.8	0	0	21.5	0	25.8	0	25.8	0	25.8
2	73.2	70.3	0	33.7	0	0	16.0	0	16.4	0	16.4	0	16.4
3	71.7	68.9	0	30.7	0	0	10.5	0	10.5	0	10.5	0	10.5
4	70.4	67.8	0	26.8	0	0	4.9	0	4.9	0	4.9	0	4.9
5	69.5	66.8	0	23.4	0	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	22.5	0	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	24.6	0	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	28.2	0	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	33.9	0	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	41.3	0	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	50.3	0	0	7.5	0	7.5	0	7.5	0	7.5
12	79.3	70.3	0	58.1	0	0	24.8	0	24.8	0	24.8	0	24.8
13	82.3	72.2	0	68.5	0	0	35.4	0	35.4	0	35.4	0	35.4
14	84.7	73.7	0	76.5	0	0	44.2	0	44.2	0	44.2	0	44.2
15	86.3	74.6	0	80.7	0	0	52.5	0	52.5	0	52.5	0	52.5
16	86.8	75.1	0	83.2	0	0	55.5	0	55.5	0	55.5	0	55.5
17	86.6	75.1	0	79.2	0	0	56.1	0	56.1	0	56.1	0	56.1
18	86.0	75.3	0	76.1	0	0	59.4	0	59.4	0	59.4	0	59.4
19	85.1	76.0	0	71.7	0	0	57.9	0	57.9	0	57.9	0	57.9
20	83.8	76.8	0	66.5	0	0	56.6	0	56.6	0	56.6	0	56.6
21	82.3	77.2	0	63.7	0	0	54.6	0	54.6	0	54.6	0	54.6
22	80.6	76.3	0	56.4	0	0	51.3	0	51.3	0	51.3	0	51.3
23	78.7	75.3	0	49.4	0	0	42.4	0	42.4	0	42.4	0	42.4
24	76.8	73.7	0	45.4	0	0	33.9	0	33.9	0	33.9	0	33.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	25.8	0	2.6	0	3.4	0	3.4	0	3.4
2	67.6	65.0	0	18.3	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	12.0	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	8.9	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	8.1	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	14.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	23.1	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	31.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	41.1	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	50.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	59.4	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0	70.0	0	64.0	0	17.9	0	17.9	0	17.9	0	17.9
16	83.7	70.5	0	65.7	0	38.3	0	38.3	0	38.3	0	38.3
17	83.4	70.5	0	62.9	0	37.7	0	37.7	0	37.7	0	37.7
18	82.8	70.9	0	58.5	0	38.4	0	38.4	0	38.4	0	38.4
19	81.6	72.7	0	54.1	0	38.5	0	38.5	0	38.5	0	38.5
20	80.1	74.7	0	51.4	0	39.8	0	39.8	0	39.8	0	39.8
21	78.3	74.1	0	45.2	0	35.7	0	35.7	0	35.7	0	35.7
22	76.3	72.4	0	37.3	0	29.3	0	29.3	0	29.3	0	29.3
23	74.1	70.7	0	28.7	0	20.2	0	20.2	0	20.2	0	20.2
24	71.8	68.9	0	24.0	0	12.1	0	12.1	0	12.1	0	12.1

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-305,514	0.0	-305,514	0.0	-305,514	0.0
2	50.1	48.6	0	0.0	0	0.0	-364,187	0.0	-364,187	0.0	-364,187	0.0
3	48.4	46.9	0	0.0	-377,226	0.0	-404,117	0.0	-404,117	0.0	-404,117	0.0
4	47.1	45.8	0	0.0	-453,213	0.0	-453,213	0.0	-453,213	0.0	-453,213	0.0
5	46.3	44.8	-248,293	0.0	-481,685	0.0	-481,685	0.0	-481,685	0.0	-481,685	0.0
6	46.0	44.5	-308,662	0.0	-520,959	0.0	-520,959	0.0	-520,959	0.0	-520,959	0.0
7	46.8	45.3	-306,663	0.0	-524,240	0.0	-524,240	0.0	-524,240	0.0	-524,240	0.0
8	48.9	47.5	-270,562	0.0	-492,904	0.0	-492,904	0.0	-492,904	0.0	-492,904	0.0
9	52.2	49.9	-192,808	0.0	-437,304	0.0	-437,304	0.0	-437,304	0.0	-437,304	0.0
10	56.2	52.5	-88,411	0.0	-366,476	0.0	-366,476	0.0	-366,476	0.0	-366,476	0.0
11	60.4	54.4	0	0.0	-258,114	0.0	-258,114	0.0	-258,114	0.0	-258,114	0.0
12	64.4	56.0	0	0.0	-145,463	0.0	-145,463	0.0	-145,463	0.0	-145,463	0.0
13	67.7	57.3	0	0.0	-54,468	0.0	-54,468	0.0	-54,468	0.0	-54,468	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	9.5	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	31.4	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	30.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	23.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	17.3	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	10.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.0	-191,492	0.0	-191,492	0.0	-191,492	0.0	-191,492	0.0
24	54.5	52.7	0	0.0	-255,163	0.0	-255,163	0.0	-255,163	0.0	-255,163	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-216,873	0.0	0	0.0	-326,637	0.0	-326,637	0.0	-326,637	0.0
2	49.4	47.3	-270,369	0.0	-217,993	0.0	-390,229	0.0	-390,229	0.0	-390,229	0.0
3	47.2	45.3	-308,561	0.0	-438,019	0.0	-438,019	0.0	-438,019	0.0	-438,019	0.0
4	45.3	43.4	-352,857	0.0	-491,476	0.0	-491,476	0.0	-491,476	0.0	-491,476	0.0
5	43.9	42.2	-387,035	0.0	-538,485	0.0	-538,485	0.0	-538,485	0.0	-538,485	0.0
6	43.0	41.4	-397,990	0.0	-567,035	0.0	-567,035	0.0	-567,035	0.0	-567,035	0.0
7	42.7	41.2	-396,072	0.0	-587,368	0.0	-587,368	0.0	-587,368	0.0	-587,368	0.0
8	43.5	42.0	-356,505	0.0	-602,177	0.0	-602,177	0.0	-602,177	0.0	-602,177	0.0
9	45.9	44.0	-268,905	0.0	-554,128	0.0	-554,128	0.0	-554,128	0.0	-554,128	0.0
10	49.4	46.6	-168,087	0.0	-490,943	0.0	-490,943	0.0	-490,943	0.0	-490,943	0.0
11	53.8	48.6	-32,236	0.0	-402,123	0.0	-402,123	0.0	-402,123	0.0	-402,123	0.0
12	58.4	50.6	0	0.0	-296,356	0.0	-296,356	0.0	-296,356	0.0	-296,356	0.0
13	62.8	52.6	0	0.0	-183,880	0.0	-183,880	0.0	-183,880	0.0	-183,880	0.0
14	66.3	54.5	0	0.0	-92,273	0.0	-92,273	0.0	-92,273	0.0	-92,273	0.0
15	68.7	55.7	0	0.0	-12,817	0.0	-12,817	0.0	-12,817	0.0	-12,817	0.0
16	69.5	56.1	0	20.4	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	19.5	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	11.6	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	4.2	-40,068	0.0	-40,068	0.0	-40,068	0.0	-40,068	0.0
21	62.8	58.2	0	0.0	-110,142	0.0	-110,142	0.0	-110,142	0.0	-110,142	0.0
22	60.2	56.1	0	0.0	-165,583	0.0	-165,583	0.0	-165,583	0.0	-165,583	0.0
23	57.5	54.0	0	0.0	-218,238	0.0	-218,238	0.0	-218,238	0.0	-218,238	0.0
24	54.7	51.7	0	0.0	-275,515	0.0	-275,515	0.0	-275,515	0.0	-275,515	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-357,003	0.0	-532,011	0.0	-532,011	0.0	-532,011	0.0	-532,011	0.0
2	43.2	41.1	-392,787	0.0	-574,276	0.0	-574,276	0.0	-574,276	0.0	-574,276	0.0
3	41.8	39.8	-437,996	0.0	-607,735	0.0	-607,735	0.0	-607,735	0.0	-607,735	0.0
4	40.7	38.7	-466,024	0.0	-649,331	0.0	-649,331	0.0	-649,331	0.0	-649,331	0.0
5	40.1	38.4	-500,275	0.0	-673,439	0.0	-673,439	0.0	-673,439	0.0	-673,439	0.0
6	39.9	38.4	-510,742	0.0	-692,794	0.0	-692,794	0.0	-692,794	0.0	-692,794	0.0
7	40.5	39.0	-511,292	0.0	-704,833	0.0	-704,833	0.0	-704,833	0.0	-704,833	0.0
8	42.2	40.7	-489,856	0.0	-697,390	0.0	-697,390	0.0	-697,390	0.0	-697,390	0.0
9	44.9	43.4	-420,476	0.0	-646,003	0.0	-646,003	0.0	-646,003	0.0	-646,003	0.0
10	48.2	45.8	-332,968	0.0	-584,626	0.0	-584,626	0.0	-584,626	0.0	-584,626	0.0
11	51.7	48.3	-213,087	0.0	-502,426	0.0	-502,426	0.0	-502,426	0.0	-502,426	0.0
12	55.0	50.7	-99,614	0.0	-408,544	0.0	-408,544	0.0	-408,544	0.0	-408,544	0.0
13	57.7	52.0	0	0.0	-317,835	0.0	-317,835	0.0	-317,835	0.0	-317,835	0.0
14	59.5	52.6	0	0.0	-249,364	0.0	-249,364	0.0	-249,364	0.0	-249,364	0.0
15	60.1	52.7	0	0.0	-211,617	0.0	-211,617	0.0	-211,617	0.0	-211,617	0.0
16	59.9	52.6	0	0.0	-180,769	0.0	-180,769	0.0	-180,769	0.0	-180,769	0.0
17	59.2	52.1	0	0.0	-190,017	0.0	-190,017	0.0	-190,017	0.0	-190,017	0.0
18	58.2	51.8	0	0.0	-212,026	0.0	-212,026	0.0	-212,026	0.0	-212,026	0.0
19	56.8	52.2	0	0.0	-232,396	0.0	-232,396	0.0	-232,396	0.0	-232,396	0.0
20	55.0	51.4	0	0.0	-281,340	0.0	-281,340	0.0	-281,340	0.0	-281,340	0.0
21	53.1	50.1	0	0.0	-328,003	0.0	-328,003	0.0	-328,003	0.0	-328,003	0.0
22	51.0	48.1	0	0.0	-379,750	0.0	-379,750	0.0	-379,750	0.0	-379,750	0.0
23	48.9	46.2	-172,745	0.0	-428,685	0.0	-428,685	0.0	-428,685	0.0	-428,685	0.0
24	46.9	44.1	-306,591	0.0	-473,131	0.0	-473,131	0.0	-473,131	0.0	-473,131	0.0

01 Card - Job Information

-----  
 Project: ENERGY STUDY-HAZEN HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29815 (1 BUILDING)

-----CARD 08-- Climatic Information-----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling Simulation	Cooling Simulation	Cooling Load Hr	Summer Period	Summer Period	Daylight Savings	Daylight Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	SCHOOL_OFFICES

-----CARD 20-- General Room Parameters-----  

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	469.75	61.75	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	469.75	12.75		196	0			
1	2	61.75	12.75		196	90			
1	3	469.75	12.75		196	180			
1	4	61.75	12.75		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	48	1.03	.82					
1	2	2.5	5.5	4	1.03	.82					
1	3	2.5	5.5	52	1.03	.82					
1	4	2.5	5.5	4	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	356	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature  
-----  
0 75  
24

Schedule Name: FGHEAT  
Project: SCHO FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature

-----  
0        72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**  
**          TRACE  600  ANALYSIS          **  
**  
**          by          **  
**  
*****  
*****
```

ENERGY STUDY- FISHER HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29816 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 17:18: 3 8/19/94  
Dataset Name: FGTYPS25 .TM

AIRFLOW - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- S Y S T E M S U M M A R Y -----  
 (Design Airflow Quantities)

System Number	System Type	Main					Auxil. Supply	Room Exhaust
		Outside Airflow (Cfm)	Cooling Airflow (Cfm)	Heating Airflow (Cfm)	Return Airflow (Cfm)	Exhaust Airflow (Cfm)	Airflow (Cfm)	Airflow (Cfm)
1	FC	4,110	24,938	24,938	26,207	5,378	0	0
Totals		4,110	24,938	24,938	26,207	5,378	0	0

CAPACITY - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- S Y S T E M S U M M A R Y -----  
 (Design Capacity Quantities)

System Number	System Type	Cooling					Heating							
		Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Capacity (Tons)	Vent Capacity (Tons)	Cooling Totals (Tons)	Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Capacity (Btuh)	Vent Capacity (Btuh)	Heating Totals (Btuh)
1	FC	40.5	0.0	0.0	0.0	40.5	-550,674	0	-69,158	0	0	0	0	-550,674
Totals		40.5	0.0	0.0	0.0	40.5	-550,674	0	-69,158	0	0	0	0	-550,674

The building peaked at hour 17 month 7 with a capacity of 40.5 tons

ENGINEERING CHECKS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- E N G I N E E R I N G C H E C K S -----

System Number	Main/Auxiliary	System Type	Percent Outside Air	Cooling				Heating		Floor Area Sq Ft
				Cfm/ Sq Ft	Cfm/ Ton	Sq Ft /Ton	Btuh/ Sq Ft	Cfm/ Sq Ft	Btuh/ Sq Ft	
1	Main	FC	16.48	1.00	616.4	616.4	19.47	1.00	-22.08	24,938

System 1 Block FC - FAN COIL

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK				
Peaked at Time ==> Mo/Hr: 8/16					Mo/Hr: 6/18					Mo/Hr: 13/ 1				
Outside Air ==> OADB/WB/HR: 96/ 76/105.0					OADB: 96					OADB: 23				
Envelope Loads	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	Space Sensible (Btuh)	Percent Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)				
Skylite Solr	0	0	0	0	0.00	0	0.00	0	0	0.00				
Skylite Cond	0	0	0	0	0.00	0	0.00	0	0	0.00				
Roof Cond	47,681	0	0	47,681	9.82	61,004	18.50	-39,442	-39,442	7.16				
Glass Solar	73,920	0	0	73,920	15.23	80,520	24.42	0	0	0.00				
Glass Cond	26,512	0	0	26,512	5.46	28,008	8.49	-66,892	-66,892	12.15				
Wall Cond	111,357	0	0	111,357	22.94	136,754	41.48	-175,827	-175,827	31.93				
Partition	0	0	0	0	0.00	0	0.00	0	0	0.00				
Exposed Floor	0	0	0	0	0.00	0	0.00	0	0	0.00				
Infiltration	44,758	0	0	44,758	9.22	23,416	7.10	-63,324	-63,324	11.50				
Sub Total==>	304,228	0	0	304,228	62.66	329,702	100.00	-345,485	-345,485	62.74				
Internal Loads														
Lights	0	0	0	0	0.00	0	0.00	0	0	0.00				
People	0	0	0	0	0.00	0	0.00	0	0	0.00				
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00				
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00				
Ceiling Load	0	0	0	0	0.00	0	0.00	0	0	0.00				
Outside Air	0	0	0	181,285	37.34	0	0.00	0	-205,189	37.26				
Sup. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00				
Ret. Fan Heat	0	0	0	0	0.00	0	0.00	0	0	0.00				
Duct Heat Pkup	0	0	0	0	0.00	0	0.00	0	0	0.00				
OV/UNDR Sizing	0	0	0	0	0.00	0	0.00	0	0	0.00				
Exhaust Heat	0	0	0	0	0.00	0	0.00	0	0	0.00				
Terminal Bypass	0	0	0	0	-0.00	0	0.00	0	0	0.00				
Grand Total==>	304,228	0	0	485,513	100.00	329,702	100.00	-345,485	-550,674	100.00				

-----COOLING COIL SELECTION-----

-----AREAS-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr	
Main Clg	40.5	485.5	379.4	24,938	78.5	66.7	79.9	63.1	60.8	76.6	24,938	0	0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	12,469	0	0
Totals	40.5	485.5									12,684	1,320	10

-----HEATING COIL SELECTION-----

-----AIRFLOWS (cfm)-----

-----ENGINEERING CHECKS-----

-----TEMPERATURES (F)-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA	16.5	Type	Clg	Htg
Main Htg	-550.7	24,938	60.6	80.5	Vent	4,110	4,110	Clg Cfm/Sqft	1.00	SADB	63.1	80.5
Aux Htg	0.0	0	0.0	0.0	Infil	1,015	1,268	Clg Cfm/Ton	616.38	Plenum	75.0	68.0
Preheat	-69.2	24,938	60.6	63.1	Supply	24,938	24,938	Clg Sqft/Ton	616.38	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft	19.47	Ret/OA	78.5	60.6
Humidif	0.0	0	0.0	0.0	Return	24,938	24,938	No. People	274	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	4,110	4,110	Htg % OA	16.5	Fn MtrTD	0.0	0.0
Total	-550.7				Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft	-22.08	Fn Frict	0.0	0.0

MAIN SYSTEM COOLING - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- P E A K C O O L I N G L O A D S -----  
 (Main System)

Room Number	Description	Peak Time Mo/Hr	Space				Coil										
			OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Space Lat. Load (Btuh)	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)	Coil Lat. Load (Btuh)		
1	BLOCK	6/18	96	73	75	63.1	24,938	329,702	6,138	8/16	96	76	75	64.8	24,938	379,435	106,079
Zone	1 Total/Ave.		96	73	75	63.1	24,938	329,702	6,138		96	76	75	64.8	24,938	379,435	106,079
Zone	1 Block	6/18	96	73	75	63.1	24,938	329,702	6,138	8/16	96	76	75	64.8	24,938	379,435	106,079
System	1 Total/Ave.		96	73	75	63.1	24,938	329,702	6,138		96	76	75	64.8	24,938	379,435	106,079
System	1 Block	6/18	96	73	75	63.1	24,938	329,702	6,138	8/16	96	76	75	64.8	24,938	379,435	106,079

MAIN SYSTEM HEATING - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- P E A K H E A T I N G L O A D S -----  
 (Main System)

Room Number	Description	Floor Area (Sq Ft)	Space				Coil									
			Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)		
1	BLOCK	24,938	13/ 1	23	19	68	80.5	24,938	-345,485	13/ 1	23	19	68	80.5	24,938	-550,674
Zone	1 Total/Ave.	24,938		23	19	68	80.5	24,938	-345,485		23	19	68	80.5	24,938	-550,674
Zone	1 Block	24,938	13/ 1	23	19	68	80.5	24,938	-345,485	13/ 1	23	19	68	80.5	24,938	-550,674
System	1 Total/Ave.	24,938		23	19	68	80.5	24,938	-345,485		23	19	68	80.5	24,938	-550,674
System	1 Block	24,938	13/ 1	23	19	68	80.5	24,938	-345,485	13/ 1	23	19	68	80.5	24,938	-550,674

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- INTERNAL COOLING LOADS -----  
 (At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Sensible (Btuh)	Lights CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	BLOCK	0	0	0.000	0	0	0.000	0	0	0	0.000	0
Zone	1 Total/Ave.	0	0	0.000	0	0	0.000	0	0	0	0.000	0
Zone	1 Block	0	0	0.000	0	0	0.000	0	0	0	0.000	0
System	1 Total/Ave.	0	0	0.000	0	0	0.000	0	0	0	0.000	0
System	1 Block	0	0	0.000	0	0	0.000	0	0	0	0.000	0

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- INTERNAL COOLING LOADS -----  
 (At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Sensible (Btuh)	Lights CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	BLOCK	0	0	0.000	0	0	0.000	0	0	0	0.000	0
Zone	1 Total/Ave.	0	0	0.000	0	0	0.000	0	0	0	0.000	0
Zone	1 Block	0	0	0.000	0	0	0.000	0	0	0	0.000	0
System	1 Total/Ave.	0	0	0.000	0	0	0.000	0	0	0	0.000	0
System	1 Block	0	0	0.000	0	0	0.000	0	0	0	0.000	0

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- INTERNAL HEATING LOADS -----  
 (At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Ret. Air Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	BLOCK	0	0	0.000	0	0.000	0	0	0.000	0
Zone	1 Total/Ave.	0	0	0.000	0	0.000	0	0	0.000	0
Zone	1 Block	0	0	0.000	0	0.000	0	0	0.000	0
System	1 Total/Ave.	0	0	0.000	0	0.000	0	0	0.000	0
System	1 Block	0	0	0.000	0	0.000	0	0	0.000	0

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- INTERNAL HEATING LOADS -----  
 (At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Ret. Air Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	BLOCK	0	0	0.000	0	0.000	0	0	0.000	0
Zone	1 Total/Ave.	0	0	0.000	0	0.000	0	0	0.000	0
Zone	1 Block	0	0	0.000	0	0.000	0	0	0.000	0
System	1 Total/Ave.	0	0	0.000	0	0.000	0	0	0.000	0
System	1 Block	0	0	0.000	0	0.000	0	0	0.000	0



COOLING LOADS AT COIL PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Roof - Skylight)  
 (At time of Coil Peak)

Room Number	Description	Roof		Roof		Skylight		Skylight		Skylight		
		Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Space Sensible Load (Btuh)	Space CLTD (F)	Return Air Solar (Btuh)	Space Solar (Btuh)	Skylt Solar CLF	Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Space Conduction Load (Btuh)	Skylt CLTD (F)
1	BLOCK	0	0.0	47,681	54.4	0	0	0.000	0	0.0	0	0.0
Zone	1 Total/Ave.	0	0.0	47,681	54.4	0	0	0.000	0	0.0	0	0.0
Zone	1 Block	0	0.0	47,681	54.4	0	0	0.000	0	0.0	0	0.0
System	1 Total/Ave.	0	0.0	47,681	54.4	0	0	0.000	0	0.0	0	0.0
System	1 Block	0	0.0	47,681	54.4	0	0	0.000	0	0.0	0	0.0

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Wall - Window)  
 (At time of Coil Peak)

Room Number	Description	Wall		Wall		Glass		Glass		Glass		
		Plenum Load (Btuh)	Plenm CLTD (F)	Space Load (Btuh)	Space CLTD (F)	Space Solar (Btuh)	Return Air Solar (Btuh)	Glass Solar CLF	Space Conduction (Btuh)	Space CLTD (F)	Return Air Conduction (Btuh)	R.A. CLTD (F)
1	BLOCK	0	0.0	111,357	28.5	73,920	0	0.380	26,512	19.5	0	0.0
Zone	1 Total/Ave.	0	0.0	111,357	28.5	73,920	0	0.380	26,512	19.5	0	0.0
Zone	1 Block	0	0.0	111,357	28.5	73,920	0	0.380	26,512	19.5	0	0.0
System	1 Total/Ave.	0	0.0	111,357	28.5	73,920	0	0.380	26,512	19.5	0	0.0
System	1 Block	0	0.0	111,357	28.5	73,920	0	0.380	26,512	19.5	0	0.0

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Exposed Floor - Partitions - Infiltration)  
 (At time of Coil Peak)

Room Number	Description	Exposed Floor		Expsd Floor		Partition		Part.		Infilt.		Infilt.		Infilt.		Plenm		Ceiling	
		Sensible (Btuh)	CLTD (F)	Sensible (Btuh)	CLTD (F)	Sensible (Btuh)	CLTD (F)	Sensible (Btuh)	CLTD (F)	Airflow (Cfm)	Sensible (Btuh)	Latent (Btuh)	Temp. (F)	Dry B (F)	Sensible Load (Btuh)	Envelope Total (Btuh)			
1	BLOCK	0	0.0	0	0.0	0	0.0	1,015	23,754	21,004	75.0	0	304,228						
Zone	1 Total/Ave.	0	0.0	0	0.0	1,015	23,754	21,004	75.0	0	304,228								
Zone	1 Block	0	0.0	0	0.0	1,015	23,754	21,004	75.0	0	304,228								
System	1 Total/Ave.	0	0.0	0	0.0	1,015	23,754	21,004	75.0	0	304,228								
System	1 Block	0	0.0	0	0.0	1,015	23,754	21,004	75.0	0	304,228								

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Roof - Skylight)  
 (At time of Space Peak)

Room Number	Description	Roof				Skylight			Skylight		Skylight	
		Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	BLOCK	0	0.0	61,004	69.6	0	0	0.000	0	0.0	0	0.0
Zone	1 Total/Ave.	0	0.0	61,004	69.6	0	0	0.000	0	0.0	0	0.0
Zone	1 Block	0	0.0	61,004	69.6	0	0	0.000	0	0.0	0	0.0
System	1 Total/Ave.	0	0.0	61,004	69.6	0	0	0.000	0	0.0	0	0.0
System	1 Block	0	0.0	61,004	69.6	0	0	0.000	0	0.0	0	0.0

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Wall - Window)  
 (At time of Space Peak)

Room Number	Description	Wall		Wall		Glass			Glass		Glass	
		Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	BLOCK	0	0.0	136,754	35.0	80,520	0	0.420	28,008	20.6	0	0.0
Zone	1 Total/Ave.	0	0.0	136,754	35.0	80,520	0	0.420	28,008	20.6	0	0.0
Zone	1 Block	0	0.0	136,754	35.0	80,520	0	0.420	28,008	20.6	0	0.0
System	1 Total/Ave.	0	0.0	136,754	35.0	80,520	0	0.420	28,008	20.6	0	0.0
System	1 Block	0	0.0	136,754	35.0	80,520	0	0.420	28,008	20.6	0	0.0

----- BUILDING ENVELOPE COOLING LOADS -----  
 (Exposed Floor - Partitions - Infiltration)  
 (At time of Space Peak)

Room Number	Description	Exposed Floor		Partitions		Infiltration			Plenum		Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
		Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Infilt. Dry B Temp. (F)			
1	BLOCK	0	0.0	0	0.0	1,015	23,416	6,138	75.0	0	335,839	
Zone	1 Total/Ave.	0	0.0	0	0.0	1,015	23,416	6,138	75.0	0	335,839	
Zone	1 Block	0	0.0	0	0.0	1,015	23,416	6,138	75.0	0	335,839	
System	1 Total/Ave.	0	0.0	0	0.0	1,015	23,416	6,138	75.0	0	335,839	
System	1 Block	0	0.0	0	0.0	1,015	23,416	6,138	75.0	0	335,839	

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Roof - Skylight)  
 (At time of Coil Peak)

Room Number	Description	Roof				Skylight			Skylight		Skylight	
		Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	BLOCK	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
Zone	1 Total/Ave.	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
Zone	1 Block	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
System	1 Total/Ave.	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
System	1 Block	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Wall - Window)  
 (At time of Coil Peak)

Room Number	Description	Wall		Wall		Glass			Glass		Glass	
		Plenum Load (Btuh)	Wall CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Space Solar (Btuh)	Return Air Solar (Btuh)	Glass Solar CLF	Space Conduction (Btuh)	Space CLTD (F)	Return Air Conduction (Btuh)	R.A. CLTD (F)
1	BLOCK	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
Zone	1 Total/Ave.	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
Zone	1 Block	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
System	1 Total/Ave.	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
System	1 Block	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Exposed Floor - Partitions - Infiltration)  
 (At time of Coil Peak)

Room Number	Description	Exposed Floor		Expsd Floor		Partition		Infilt.		Infilt.		Infilt.		Plenn		Ceiling		Envelope Total (Btuh)
		Sensible (Btuh)	CLTD (F)	Sensible (Btuh)	CLTD (F)	Sensible (Btuh)	CLTD (F)	Airflow (Cfm)	Sensible (Btuh)	Sensible (Btuh)	Latent (Btuh)	Temp. (F)	Dry B (F)	Sensible Load (Btuh)				
1	BLOCK	0	0.0	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	68.0	0	-345,485			
Zone	1 Total/Ave.	0	0.0	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	68.0	0	-345,485			
Zone	1 Block	0	0.0	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	68.0	0	-345,485			
System	1 Total/Ave.	0	0.0	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	68.0	0	-345,485			
System	1 Block	0	0.0	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	68.0	0	-345,485			

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Roof - Skylight)  
 (At time of Space Peak)

Room Number	Description	Roof				Skylight			Skylight			
		Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Space Sensible Load (Btuh)	Space CLTD (F)	Return Air Solar (Btuh)	Space Solar (Btuh)	Skylt Solar CLF	Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	BLOCK	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
Zone	1 Total/Ave.	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
Zone	1 Block	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
System	1 Total/Ave.	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0
System	1 Block	0	0.0	-39,442	-45.0	0	0	0.000	0	0.0	0	0.0

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Wall - Window)  
 (At time of Space Peak)

Room Number	Description	Wall				Glass			Glass			
		Plenum Load (Btuh)	Wall CLTD (F)	Space Load (Btuh)	Space CLTD (F)	Space Solar (Btuh)	Return Air Solar (Btuh)	Glass CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	BLOCK	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
Zone	1 Total/Ave.	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
Zone	1 Block	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
System	1 Total/Ave.	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0
System	1 Block	0	0.0	-175,827	-45.0	0	0	0.000	-66,892	-45.0	0	0.0

----- BUILDING ENVELOPE HEATING LOADS -----  
 (Exposed Floor - Partitions - Infiltration)  
 (At time of Space Peak)

Room Number	Description	Exposed Floor		Partitions		Infiltration		Plenum		Ceiling		Envelope Total (Btuh)
		Sensible (Btuh)	Expsd Floor CLTD (F)	Sensible (Btuh)	Part. CLTD (F)	Airflow (Cfm)	Infiltr. Sensible (Btuh)	Infiltr. Latent (Btuh)	Dry B Temp. (F)	Sensible Load (Btuh)		
1	BLOCK	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	-345,485	
Zone	1 Total/Ave.	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	-345,485	
Zone	1 Block	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	-345,485	
System	1 Total/Ave.	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	-345,485	
System	1 Block	0	0.0	0	0.0	1,268	-63,324	0	68.0	0	-345,485	



COOLING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- AIRFLOW HEAT GAIN AND LOSS -----  
 (At time of Coil Peak)

Room Number	Description	Duct Heat Pickup (Btuh)	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Cooling							
						Total (Btuh)	System Exhaust (Cfm)	Room Exhaust (Cfm)	Ducted (Cfm)	Plenum (Cfm)	Run Around (Cfm)	Corridor (Cfm)	System Return (Cfm)
1	BLOCK	0	0	0	0	0	4,110	0	24,938	0	0	0	24,938
Zone	1 Total/Ave.	0	0	0	0	0	4,110	0	24,938	0	0	0	24,938
Zone	1 Block	0	0	0	0	0	4,110	0	24,938	0	0	0	24,938
System	1 Total/Ave.	0	0	0	0	0	4,110	0	24,938	0	0	0	24,938
System	1 Block	0	0	0	0	0	4,110	0	24,938	0	0	0	24,938

HEATING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- AIRFLOW HEAT GAIN AND LOSS -----  
 (At time of Coil Peak)

Room Number	Description	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Heating							
					Total (Btuh)	System Exhaust (Cfm)	Room Exhaust (Cfm)	Ducted (Cfm)	Plenum (Cfm)	Run Around (Cfm)	Corridor (Cfm)	System Return (Cfm)
1	BLOCK	0	0	0	0	4,110	0	24,938	0	0	0	24,938
Zone	1 Total/Ave.	0	0	0	0	4,110	0	24,938	0	0	0	24,938
Zone	1 Block	0	0	0	0	4,110	0	24,938	0	0	0	24,938
System	1 Total/Ave.	0	0	0	0	4,110	0	24,938	0	0	0	24,938
System	1 Block	0	0	0	0	4,110	0	24,938	0	0	0	24,938

ROOM PSYCHROMETRICS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- PSYCHROMETRIC STATE POINTS -----

Room	1						
		Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space		75.0	64.6	57.3	75.0	29.7	
Main System							
Return Air Heat Pickup							0.0
Return Fan							0.0
Return Air		75.0	64.6	57.3	75.0	29.7	
Outdoor Air		95.0	76.0	42.3	105.7	39.5	
Return/Outdoor Air Mix		78.3	66.7	54.8	80.1	31.3	
Blow through Fan							0.0
Entering Coil		78.3	66.7	54.8	80.1	31.3	
Leaving Coil		63.1	60.4	86.2	75.0	26.8	
Draw Through Fan							0.0
Duct Frictional Heat							0.0
Supply Duct Heat Gain							0.0
Cold Deck Supply Air		63.1	60.4	86.2	75.0	26.8	
Supply Air		63.1	60.4	86.2	75.0	26.8	
Percent Outside Air			16.48 (%)				
Sensible Heat Ratio (SHR)			0.982				
Percent Supply Air Bypassing Coil			0.00 (%)				
Coil Airflow			24,938 (Cfm)				

BUILDING U-VALUES - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- BUILDING U - VALUES -----

Room Number	Description	Room U-Values (Btu/hr/sqft/F)										Room Mass (lb/ sqft)	Room Capac. (Btu/ sqft/F)
		Part.	ExFlr	Summr Skylt	Wintr Skylt	Roof	Summr Windo	Wintr Windo	Wall	Ceil.			
1	BLOCK	0.000	0.000	0.000	0.000	0.070	1.030	1.126	0.344	0.000	124.8	24.93	
Zone	1 Total/Ave.	0.000	0.000	0.000	0.000	0.070	1.030	1.126	0.344	0.000	124.8	24.93	
System	1 Total/Ave.	0.000	0.000	0.000	0.000	0.070	1.030	1.126	0.344	0.000	124.8	24.93	
Building		0.000	0.000	0.000	0.000	0.070	1.030	1.126	0.344	0.000	124.8	24.93	

BUILDING AREAS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- B U I L D I N G   A R E A S -----

Room Number	Description	Number of Duplicate Flr	Rm	Floor Area/Dupl Room (sqft)	Total Floor Area (sqft)	Partition Area (sqft)	Exposed Floor Area (sqft)	Skylight Area (sqft)	Skl /Rf (%)	Net Roof Area (sqft)	Window Area (sqft)	Win /Wl (%)	Net Wall Area (sqft)
1	BLOCK	2	1	12,469	24,938	0	0	0	0	12,469	1,320	10	11,364
Zone	1 Total/Ave.				24,938	0	0	0	0	12,469	1,320	10	11,364
System	1 Total/Ave.				24,938	0	0	0	0	12,469	1,320	10	11,364
Building					24,938	0	0	0	0	12,469	1,320	10	11,364

ASHRAE 90 ANALYSIS - ALTERNATIVE 1  
 SCHOOL\_OFFICES

----- A S H R A E   9 0   A N A L Y S I S -----

Overall Roof U-Value = 0.070 (Btu/Hr/Sq Ft/F)  
 Overall Wall U-Value = 0.415 (Btu/Hr/Sq Ft/F)  
 Overall Building U-Value = 0.244 (Btu/Hr/Sq Ft/F)

Roof Overall Thermal Transfer Value (OTTvr) = 4.12 (Btu/Hr/Sq Ft)  
 Wall Overall Thermal Transfer Value (OTTvw) = 20.13 (Btu/Hr/Sq Ft)



SYSTEM LOAD PROFILE - ALTERNATIVE 1  
 FAN COIL UNITS

Main System 1 FC FAN COIL

Percent Design Load	---- Cooling Load ----			----- Heating Load -----			---- Cooling Airflow ----			---- Heating Airflow ----		
	Cap. (Ton)	Hours (%)	Hours	Capacity (Btuh)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours
0 - 5	2.0	8	244	-30,992	11	510	1,246.9	0	0	0.0	0	0
5 - 10	4.0	10	306	-61,983	9	411	2,493.8	0	0	0.0	0	0
10 - 15	6.1	11	335	-92,975	7	325	3,740.7	0	0	0.0	0	0
15 - 20	8.1	6	168	-123,966	10	443	4,987.6	0	0	0.0	0	0
20 - 25	10.1	6	176	-154,958	6	255	6,234.6	0	0	0.0	0	0
25 - 30	12.1	5	146	-185,950	11	488	7,481.5	0	0	0.0	0	0
30 - 35	14.2	7	215	-216,941	12	528	8,728.4	0	0	0.0	0	0
35 - 40	16.2	13	397	-247,933	12	546	9,975.3	0	0	0.0	0	0
40 - 45	18.2	3	91	-278,924	6	271	11,222.2	0	0	0.0	0	0
45 - 50	20.2	5	154	-309,916	7	298	12,469.1	0	0	0.0	0	0
50 - 55	22.3	2	61	-340,908	5	208	13,716.0	0	0	0.0	0	0
55 - 60	24.3	6	185	-371,899	7	298	14,963.0	0	0	0.0	0	0
60 - 65	26.3	12	368	-402,891	0	0	16,209.9	0	0	0.0	0	0
65 - 70	28.3	5	152	-433,882	0	0	17,456.8	0	0	0.0	0	0
70 - 75	30.3	0	0	-464,874	0	0	18,703.7	0	0	0.0	0	0
75 - 80	32.4	0	0	-495,866	0	0	19,950.6	0	0	0.0	0	0
80 - 85	34.4	0	0	-526,857	0	0	21,197.5	0	0	0.0	0	0
85 - 90	36.4	0	0	-557,849	0	0	22,444.4	0	0	0.0	0	0
90 - 95	38.4	0	0	-588,841	0	0	23,691.3	0	0	0.0	0	0
95 - 100	40.5	0	0	-619,832	0	0	24,938.3	100	8,760	0.0	0	0
Hours Off	0.0	0	5,762	0	0	4,179	0.0	0	0	0.0	0	8,760

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1  
 FAN COIL UNITS

----- SYSTEM LOAD PROFILE -----

System Totals

Percent Design Load	---- Cooling Load ----			----- Heating Load -----			---- Cooling Airflow ----			---- Heating Airflow ----		
	Cap. (Ton)	Hours (%)	Hours	Capacity (Btuh)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours	Cap. (Cfm)	Hours (%)	Hours
0 - 5	2.0	8	244	-30,992	11	510	1,246.9	0	0	0.0	0	0
5 - 10	4.0	10	306	-61,983	9	411	2,493.8	0	0	0.0	0	0
10 - 15	6.1	11	335	-92,975	7	325	3,740.7	0	0	0.0	0	0
15 - 20	8.1	6	168	-123,966	10	443	4,987.6	0	0	0.0	0	0
20 - 25	10.1	6	176	-154,958	6	255	6,234.6	0	0	0.0	0	0
25 - 30	12.1	5	146	-185,950	11	488	7,481.5	0	0	0.0	0	0
30 - 35	14.2	7	215	-216,941	12	528	8,728.4	0	0	0.0	0	0
35 - 40	16.2	13	397	-247,933	12	546	9,975.3	0	0	0.0	0	0
40 - 45	18.2	3	91	-278,924	6	271	11,222.2	0	0	0.0	0	0
45 - 50	20.2	5	154	-309,916	7	298	12,469.1	0	0	0.0	0	0
50 - 55	22.3	2	61	-340,908	5	208	13,716.0	0	0	0.0	0	0
55 - 60	24.3	6	185	-371,899	7	298	14,963.0	0	0	0.0	0	0
60 - 65	26.3	12	368	-402,891	0	0	16,209.9	0	0	0.0	0	0
65 - 70	28.3	5	152	-433,882	0	0	17,456.8	0	0	0.0	0	0
70 - 75	30.3	0	0	-464,874	0	0	18,703.7	0	0	0.0	0	0
75 - 80	32.4	0	0	-495,866	0	0	19,950.6	0	0	0.0	0	0
80 - 85	34.4	0	0	-526,857	0	0	21,197.5	0	0	0.0	0	0
85 - 90	36.4	0	0	-557,849	0	0	22,444.4	0	0	0.0	0	0
90 - 95	38.4	0	0	-588,841	0	0	23,691.3	0	0	0.0	0	0
95 - 100	40.5	0	0	-619,832	0	0	24,938.3	100	8,760	0.0	0	0
Hours Off	0.0	0	5,762	0	0	4,179	0.0	0	0	0.0	0	8,760

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-432,143	0.0	-335,916	0.0	-335,916	0.0	-335,916	0.0	-335,916	0.0
2	32.9	30.7	-405,128	0.0	-344,783	0.0	-344,783	0.0	-344,783	0.0	-344,783	0.0
3	33.1	31.3	-385,854	0.0	-352,860	0.0	-352,860	0.0	-352,860	0.0	-352,860	0.0
4	33.9	32.1	-334,294	0.0	-353,836	0.0	-353,836	0.0	-353,836	0.0	-353,836	0.0
5	35.2	33.5	-295,730	0.0	-357,007	0.0	-357,007	0.0	-357,007	0.0	-357,007	0.0
6	37.0	35.4	-300,617	0.0	-355,881	0.0	-355,881	0.0	-355,881	0.0	-355,881	0.0
7	39.0	37.6	-301,768	0.0	-346,903	0.0	-346,903	0.0	-346,903	0.0	-346,903	0.0
8	41.3	40.1	-291,876	0.0	-336,692	0.0	-336,692	0.0	-336,692	0.0	-336,692	0.0
9	43.7	42.5	-256,002	0.0	-313,605	0.0	-313,605	0.0	-313,605	0.0	-313,605	0.0
10	46.1	44.0	-218,184	0.0	-296,066	0.0	-296,066	0.0	-296,066	0.0	-296,066	0.0
11	48.4	45.0	-174,119	0.0	-266,740	0.0	-266,740	0.0	-266,740	0.0	-266,740	0.0
12	50.5	45.6	-138,447	0.0	-246,059	0.0	-246,059	0.0	-246,059	0.0	-246,059	0.0
13	52.2	46.1	-105,506	0.0	-229,416	0.0	-229,416	0.0	-229,416	0.0	-229,416	0.0
14	53.5	46.4	-77,363	0.0	-206,115	0.0	-206,115	0.0	-206,115	0.0	-206,115	0.0
15	54.3	46.3	-50,297	0.0	-190,236	0.0	-190,236	0.0	-190,236	0.0	-190,236	0.0
16	54.6	46.1	-35,271	0.0	-170,144	0.0	-170,144	0.0	-170,144	0.0	-170,144	0.0
17	54.0	45.9	-27,425	0.0	-165,189	0.0	-165,189	0.0	-165,189	0.0	-165,189	0.0
18	52.5	45.0	-51,407	0.0	-170,530	0.0	-170,530	0.0	-170,530	0.0	-170,530	0.0
19	50.1	44.8	-74,958	0.0	-181,005	0.0	-181,005	0.0	-181,005	0.0	-181,005	0.0
20	47.1	43.3	-107,166	0.0	-206,677	0.0	-206,677	0.0	-206,677	0.0	-206,677	0.0
21	43.7	40.4	-135,929	0.0	-233,804	0.0	-233,804	0.0	-233,804	0.0	-233,804	0.0
22	40.4	37.3	-167,519	0.0	-261,936	0.0	-261,936	0.0	-261,936	0.0	-261,936	0.0
23	37.3	34.9	-189,971	0.0	-285,329	0.0	-285,329	0.0	-285,329	0.0	-285,329	0.0
24	34.9	32.6	-214,626	0.0	-312,950	0.0	-312,950	0.0	-312,950	0.0	-312,950	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-208,798	0.0	-266,811	0.0	-266,811	0.0	-266,811	0.0	-266,811	0.0
2	39.7	37.1	-231,293	0.0	-289,964	0.0	-289,964	0.0	-289,964	0.0	-289,964	0.0
3	37.8	35.1	-245,995	0.0	-308,862	0.0	-308,862	0.0	-308,862	0.0	-308,862	0.0
4	36.3	33.8	-264,400	0.0	-322,365	0.0	-322,365	0.0	-322,365	0.0	-322,365	0.0
5	35.1	32.6	-273,974	0.0	-338,527	0.0	-338,527	0.0	-338,527	0.0	-338,527	0.0
6	34.4	32.0	-280,594	0.0	-353,204	0.0	-353,204	0.0	-353,204	0.0	-353,204	0.0
7	34.1	31.9	-282,556	0.0	-363,462	0.0	-363,462	0.0	-363,462	0.0	-363,462	0.0
8	34.6	32.4	-272,610	0.0	-363,869	0.0	-363,869	0.0	-363,869	0.0	-363,869	0.0
9	36.0	33.8	-234,287	0.0	-344,356	0.0	-344,356	0.0	-344,356	0.0	-344,356	0.0
10	38.2	34.7	-193,591	0.0	-328,066	0.0	-328,066	0.0	-328,066	0.0	-328,066	0.0
11	40.9	36.2	-152,772	0.0	-307,171	0.0	-307,171	0.0	-307,171	0.0	-307,171	0.0
12	43.9	37.4	-118,951	0.0	-287,269	0.0	-287,269	0.0	-287,269	0.0	-287,269	0.0
13	46.9	39.4	-87,946	0.0	-257,436	0.0	-257,436	0.0	-257,436	0.0	-257,436	0.0
14	49.7	41.4	-66,452	0.0	-233,345	0.0	-233,345	0.0	-233,345	0.0	-233,345	0.0
15	51.8	42.8	-38,462	0.0	-203,205	0.0	-203,205	0.0	-203,205	0.0	-203,205	0.0
16	53.2	43.9	-17,309	0.0	-185,929	0.0	-185,929	0.0	-185,929	0.0	-185,929	0.0
17	53.7	44.2	-9,727	0.0	-172,894	0.0	-172,894	0.0	-172,894	0.0	-172,894	0.0
18	53.4	44.4	-16,861	0.0	-161,274	0.0	-161,274	0.0	-161,274	0.0	-161,274	0.0
19	52.7	44.4	-44,939	0.0	-168,941	0.0	-168,941	0.0	-168,941	0.0	-168,941	0.0
20	51.5	45.2	-79,187	0.0	-180,367	0.0	-180,367	0.0	-180,367	0.0	-180,367	0.0
21	50.0	44.6	-109,133	0.0	-192,758	0.0	-192,758	0.0	-192,758	0.0	-192,758	0.0
22	48.1	43.3	-136,636	0.0	-213,278	0.0	-213,278	0.0	-213,278	0.0	-213,278	0.0
23	46.1	41.8	-165,772	0.0	-226,887	0.0	-226,887	0.0	-226,887	0.0	-226,887	0.0
24	43.9	40.1	-191,011	0.0	-246,726	0.0	-246,726	0.0	-246,726	0.0	-246,726	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

March Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-69,143	0.0	-7,669	0.0	-142,275	0.0	-142,275	0.0	-142,275	0.0
2	48.7	44.6	-88,727	0.0	0	0.0	-164,784	0.0	-164,784	0.0	-164,784	0.0
3	46.6	42.9	-110,403	0.0	-85,442	0.0	-188,228	0.0	-188,228	0.0	-188,228	0.0
4	44.9	41.4	-130,193	0.0	-205,464	0.0	-205,464	0.0	-205,464	0.0	-205,464	0.0
5	43.9	40.8	-140,798	0.0	-223,726	0.0	-223,726	0.0	-223,726	0.0	-223,726	0.0
6	43.5	40.8	-152,217	0.0	-234,590	0.0	-234,590	0.0	-234,590	0.0	-234,590	0.0
7	44.0	41.4	-153,966	0.0	-243,435	0.0	-243,435	0.0	-243,435	0.0	-243,435	0.0
8	45.4	42.7	-120,676	0.0	-226,099	0.0	-226,099	0.0	-226,099	0.0	-226,099	0.0
9	47.7	44.3	-81,464	0.0	-211,019	0.0	-211,019	0.0	-211,019	0.0	-211,019	0.0
10	50.6	45.8	-38,842	0.0	-183,717	0.0	-183,717	0.0	-183,717	0.0	-183,717	0.0
11	53.9	47.4	0	0.0	-151,699	0.0	-151,699	0.0	-151,699	0.0	-151,699	0.0
12	57.4	49.0	0	0.0	-119,401	0.0	-119,401	0.0	-119,401	0.0	-119,401	0.0
13	60.7	50.8	0	0.0	-92,513	0.0	-92,513	0.0	-92,513	0.0	-92,513	0.0
14	63.6	52.7	0	0.0	-63,643	0.0	-63,643	0.0	-63,643	0.0	-63,643	0.0
15	65.9	53.7	0	0.0	-36,865	0.0	-36,865	0.0	-36,865	0.0	-36,865	0.0
16	67.3	54.4	0	1.3	-12,037	0.0	-12,037	0.0	-12,037	0.0	-12,037	0.0
17	67.8	54.6	0	11.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	10.3	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	7.4	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	4.7	-10,325	0.0	-10,325	0.0	-10,325	0.0	-10,325	0.0
21	62.5	56.0	0	1.7	-35,290	0.0	-35,290	0.0	-35,290	0.0	-35,290	0.0
22	60.0	54.1	-18,111	0.0	-61,842	0.0	-61,842	0.0	-61,842	0.0	-61,842	0.0
23	57.1	51.9	-51,061	0.0	-86,288	0.0	-86,288	0.0	-86,288	0.0	-86,288	0.0
24	54.2	49.4	-79,402	0.0	-112,387	0.0	-112,387	0.0	-112,387	0.0	-112,387	0.0

April Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	-60,643	0.0	-60,643	0.0	-60,643	0.0	-60,643	0.0
2	58.9	54.9	0	0.0	-5,285	0.0	-5,285	0.0	-5,285	0.0	-5,285	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	53.5	50.9	0	0.0	-75,543	0.0	-75,543	0.0	-75,543	0.0	-75,543	0.0
7	53.2	51.1	-19,684	0.0	-127,896	0.0	-127,896	0.0	-127,896	0.0	-127,896	0.0
8	53.9	51.5	0	0.0	-122,550	0.0	-122,550	0.0	-122,550	0.0	-122,550	0.0
9	55.9	52.1	0	0.0	-107,114	0.0	-107,114	0.0	-107,114	0.0	-107,114	0.0
10	58.9	53.2	0	0.0	-71,230	0.0	-71,230	0.0	-71,230	0.0	-71,230	0.0
11	62.6	55.2	0	0.0	-34,745	0.0	-34,745	0.0	-34,745	0.0	-34,745	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	8.9	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	15.7	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	18.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	19.8	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	20.3	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	20.1	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	17.3	0	4.3	0	4.3	0	4.3	0	4.3
20	72.1	62.4	0	14.3	0	4.9	0	4.9	0	4.9	0	4.9
21	70.2	63.3	0	11.4	0	2.9	0	2.9	0	2.9	0	2.9
22	68.0	62.5	0	8.7	0	0.9	0	0.9	0	0.9	0	0.9
23	65.7	60.5	0	6.0	-15,286	0.0	-15,286	0.0	-15,286	0.0	-15,286	0.0
24	63.4	58.5	0	3.5	-38,822	0.0	-38,822	0.0	-38,822	0.0	-38,822	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	9.2	0	2.1	0	2.2	0	2.2	0	2.2
2	65.7	61.5	0	6.9	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	5.1	-24,580	0.0	-24,580	0.0	-24,580	0.0	-24,580	0.0
4	61.8	58.4	0	3.7	-48,242	0.0	-48,242	0.0	-48,242	0.0	-48,242	0.0
5	60.5	57.1	0	2.4	-65,108	0.0	-65,108	0.0	-65,108	0.0	-65,108	0.0
6	59.7	56.5	0	1.3	-5,175	0.0	-5,175	0.0	-5,175	0.0	-5,175	0.0
7	59.4	56.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	8.8	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	12.4	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	15.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	18.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	21.9	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	24.5	0	5.1	0	5.1	0	5.1	0	5.1
15	84.1	66.9	0	26.5	0	13.0	0	13.0	0	13.0	0	13.0
16	84.9	67.1	0	28.2	0	14.4	0	14.4	0	14.4	0	14.4
17	84.6	67.3	0	28.6	0	15.5	0	15.5	0	15.5	0	15.5
18	83.8	67.1	0	28.5	0	15.7	0	15.7	0	15.7	0	15.7
19	82.4	67.5	0	26.6	0	15.3	0	15.3	0	15.3	0	15.3
20	80.6	68.9	0	23.2	0	13.2	0	13.2	0	13.2	0	13.2
21	78.5	71.0	0	20.1	0	12.8	0	12.8	0	12.8	0	12.8
22	76.1	69.9	0	16.8	0	10.9	0	10.9	0	10.9	0	10.9
23	73.4	68.0	0	13.9	0	7.3	0	7.3	0	7.3	0	7.3
24	70.8	65.5	0	11.4	0	4.8	0	4.8	0	4.8	0	4.8

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	20.0	0	9.1	0	11.6	0	11.6	0	11.6
2	72.6	68.4	0	16.2	0	7.7	0	7.8	0	7.8	0	7.8
3	70.9	67.3	0	13.7	0	5.8	0	5.8	0	5.8	0	5.8
4	69.6	66.5	0	12.3	0	3.3	0	3.3	0	3.3	0	3.3
5	68.7	65.8	0	10.9	0	1.9	0	1.9	0	1.9	0	1.9
6	68.5	65.7	0	10.3	0	0.6	0	0.6	0	0.6	0	0.6
7	69.0	66.3	0	11.7	0	1.1	0	1.1	0	1.1	0	1.1
8	70.6	66.9	0	15.5	0	2.6	0	2.6	0	2.6	0	2.6
9	73.0	67.7	0	18.6	0	4.3	0	4.3	0	4.3	0	4.3
10	76.1	68.1	0	22.7	0	7.5	0	7.5	0	7.5	0	7.5
11	79.5	69.1	0	26.4	0	11.0	0	11.0	0	11.0	0	11.0
12	82.9	70.1	0	29.5	0	14.3	0	14.3	0	14.3	0	14.3
13	86.0	71.0	0	32.1	0	16.7	0	16.7	0	16.7	0	16.7
14	88.4	72.5	0	35.0	0	21.1	0	21.1	0	21.1	0	21.1
15	90.0	74.0	0	37.9	0	25.2	0	25.2	0	25.2	0	25.2
16	90.5	73.7	0	39.3	0	25.7	0	25.7	0	25.7	0	25.7
17	90.3	74.2	0	40.5	0	27.9	0	27.9	0	27.9	0	27.9
18	89.4	73.9	0	39.6	0	28.2	0	28.2	0	28.2	0	28.2
19	88.1	74.5	0	37.4	0	27.4	0	27.4	0	27.4	0	27.4
20	86.4	75.3	0	33.1	0	25.1	0	25.1	0	25.1	0	25.1
21	84.3	76.5	0	30.8	0	26.1	0	26.1	0	26.1	0	26.1
22	81.9	75.7	0	28.3	0	23.8	0	23.8	0	23.8	0	23.8
23	79.5	74.0	0	24.8	0	20.1	0	20.1	0	20.1	0	20.1
24	77.0	72.1	0	21.8	0	16.0	0	16.0	0	16.0	0	16.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	20.4	0	7.0	0	9.1	0	9.1	0	9.1
2	72.4	69.4	0	16.4	0	7.1	0	7.2	0	7.2	0	7.2
3	71.3	68.4	0	14.4	0	4.9	0	5.0	0	5.0	0	5.0
4	70.5	67.7	0	13.1	0	2.8	0	2.8	0	2.8	0	2.8
5	70.0	67.4	0	11.5	0	1.7	0	1.7	0	1.7	0	1.7
6	69.9	67.5	0	10.8	0	0.8	0	0.8	0	0.8	0	0.8
7	70.3	68.0	0	12.6	0	1.1	0	1.1	0	1.1	0	1.1
8	71.7	69.0	0	16.0	0	3.4	0	3.4	0	3.4	0	3.4
9	73.7	69.5	0	19.5	0	6.0	0	6.0	0	6.0	0	6.0
10	76.2	70.6	0	22.5	0	9.7	0	9.7	0	9.7	0	9.7
11	78.9	71.8	0	25.8	0	12.9	0	12.9	0	12.9	0	12.9
12	81.4	73.0	0	29.6	0	16.7	0	16.7	0	16.7	0	16.7
13	83.4	74.4	0	32.3	0	19.0	0	19.0	0	19.0	0	19.0
14	84.8	74.8	0	34.2	0	21.0	0	21.0	0	21.0	0	21.0
15	85.2	75.0	0	36.6	0	23.3	0	23.3	0	23.3	0	23.3
16	85.1	75.0	0	39.1	0	24.3	0	24.3	0	24.3	0	24.3
17	84.6	74.7	0	40.0	0	24.6	0	24.6	0	24.6	0	24.6
18	83.8	74.6	0	38.6	0	25.0	0	25.0	0	25.0	0	25.0
19	82.7	74.6	0	36.7	0	25.3	0	25.3	0	25.3	0	25.3
20	81.4	74.4	0	33.2	0	23.2	0	23.2	0	23.2	0	23.2
21	79.9	74.9	0	30.8	0	22.3	0	22.3	0	22.3	0	22.3
22	78.4	74.0	0	27.1	0	19.1	0	19.1	0	19.1	0	19.1
23	76.8	72.7	0	24.8	0	15.2	0	15.2	0	15.2	0	15.2
24	75.2	71.6	0	21.9	0	12.8	0	12.8	0	12.8	0	12.8

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	20.7	0	9.3	0	11.6	0	11.6	0	11.6
2	73.2	70.3	0	16.1	0	8.5	0	8.5	0	8.5	0	8.5
3	71.7	68.9	0	13.7	0	6.3	0	6.4	0	6.4	0	6.4
4	70.4	67.8	0	11.8	0	3.6	0	3.6	0	3.6	0	3.6
5	69.5	66.8	0	10.3	0	2.1	0	2.1	0	2.1	0	2.1
6	68.9	66.4	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	10.0	-3,019	0.0	-3,019	0.0	-3,019	0.0	-3,019	0.0
8	69.2	66.8	0	13.7	0	1.2	0	1.2	0	1.2	0	1.2
9	70.8	67.7	0	17.4	0	3.2	0	3.2	0	3.2	0	3.2
10	73.2	67.7	0	21.7	0	5.8	0	5.8	0	5.8	0	5.8
11	76.2	68.8	0	25.1	0	8.3	0	8.3	0	8.3	0	8.3
12	79.3	70.3	0	28.0	0	11.7	0	11.7	0	11.7	0	11.7
13	82.3	72.2	0	31.5	0	16.0	0	16.0	0	16.0	0	16.0
14	84.7	73.7	0	35.1	0	19.0	0	19.0	0	19.0	0	19.0
15	86.3	74.6	0	37.1	0	22.9	0	22.9	0	22.9	0	22.9
16	86.8	75.1	0	39.7	0	25.4	0	25.4	0	25.4	0	25.4
17	86.6	75.1	0	39.0	0	26.1	0	26.1	0	26.1	0	26.1
18	86.0	75.3	0	38.2	0	28.1	0	28.1	0	28.1	0	28.1
19	85.1	76.0	0	35.8	0	26.8	0	26.8	0	26.8	0	26.8
20	83.8	76.8	0	32.6	0	25.7	0	25.7	0	25.7	0	25.7
21	82.3	77.2	0	30.5	0	25.4	0	25.4	0	25.4	0	25.4
22	80.6	76.3	0	26.9	0	23.1	0	23.1	0	23.1	0	23.1
23	78.7	75.3	0	23.3	0	19.3	0	19.3	0	19.3	0	19.3
24	76.8	73.7	0	21.3	0	15.7	0	15.7	0	15.7	0	15.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	10.5	0	2.3	0	3.0	0	3.0	0	3.0
2	67.6	65.0	0	7.6	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	5.8	-17,635	0.0	-17,635	0.0	-17,635	0.0	-17,635	0.0
4	64.3	62.2	0	4.7	-39,031	0.0	-39,031	0.0	-39,031	0.0	-39,031	0.0
5	63.1	61.1	0	3.4	-53,754	0.0	-53,754	0.0	-53,754	0.0	-53,754	0.0
6	62.4	60.3	0	2.9	-4,262	0.0	-4,262	0.0	-4,262	0.0	-4,262	0.0
7	62.2	60.2	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	5.5	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	8.4	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	11.6	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	15.4	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	18.1	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	20.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	24.1	0	5.5	0	5.5	0	5.5	0	5.5
15	83.0	70.0	0	27.2	0	11.8	0	11.8	0	11.8	0	11.8
16	83.7	70.5	0	29.3	0	13.7	0	13.7	0	13.7	0	13.7
17	83.4	70.5	0	28.7	0	15.6	0	15.6	0	15.6	0	15.6
18	82.8	70.9	0	27.7	0	16.1	0	16.1	0	16.1	0	16.1
19	81.6	72.7	0	24.6	0	15.8	0	15.8	0	15.8	0	15.8
20	80.1	74.7	0	23.5	0	16.8	0	16.8	0	16.8	0	16.8
21	78.3	74.1	0	20.8	0	15.6	0	15.6	0	15.6	0	15.6
22	76.3	72.4	0	16.7	0	12.2	0	12.2	0	12.2	0	12.2
23	74.1	70.7	0	13.3	0	8.5	0	8.5	0	8.5	0	8.5
24	71.8	68.9	0	11.5	0	5.4	0	5.4	0	5.4	0	5.4

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-7,320	0.0	-123,817	0.0	-123,817	0.0	-123,817	0.0
2	50.1	48.6	0	0.0	0	0.0	-148,676	0.0	-148,676	0.0	-148,676	0.0
3	48.4	46.9	0	0.0	-30,603	0.0	-165,240	0.0	-165,240	0.0	-165,240	0.0
4	47.1	45.8	0	0.0	-186,470	0.0	-186,470	0.0	-186,470	0.0	-186,470	0.0
5	46.3	44.8	-81,548	0.0	-198,691	0.0	-198,691	0.0	-198,691	0.0	-198,691	0.0
6	46.0	44.5	-128,043	0.0	-216,355	0.0	-216,355	0.0	-216,355	0.0	-216,355	0.0
7	46.8	45.3	-128,086	0.0	-218,402	0.0	-218,402	0.0	-218,402	0.0	-218,402	0.0
8	48.9	47.5	-102,666	0.0	-199,286	0.0	-199,286	0.0	-199,286	0.0	-199,286	0.0
9	52.2	49.9	-58,526	0.0	-173,087	0.0	-173,087	0.0	-173,087	0.0	-173,087	0.0
10	56.2	52.5	-17,143	0.0	-140,910	0.0	-140,910	0.0	-140,910	0.0	-140,910	0.0
11	60.4	54.4	0	0.0	-102,341	0.0	-102,341	0.0	-102,341	0.0	-102,341	0.0
12	64.4	56.0	0	0.0	-67,535	0.0	-67,535	0.0	-67,535	0.0	-67,535	0.0
13	67.7	57.3	0	0.0	-37,260	0.0	-37,260	0.0	-37,260	0.0	-37,260	0.0
14	69.8	58.2	0	0.0	-14,621	0.0	-14,621	0.0	-14,621	0.0	-14,621	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	9.8	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	7.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	4.8	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	-9,120	0.0	-19,623	0.0	-19,623	0.0	-19,623	0.0	-19,623	0.0
23	57.0	55.1	-39,933	0.0	-76,345	0.0	-76,345	0.0	-76,345	0.0	-76,345	0.0
24	54.5	52.7	-65,537	0.0	-103,050	0.0	-103,050	0.0	-103,050	0.0	-103,050	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 FAN COIL UNITS

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-94,502	0.0	0	0.0	-139,757	0.0	-139,757	0.0	-139,757	0.0
2	49.4	47.3	-117,205	0.0	-51,615	0.0	-166,270	0.0	-166,270	0.0	-166,270	0.0
3	47.2	45.3	-133,123	0.0	-185,832	0.0	-185,832	0.0	-185,832	0.0	-185,832	0.0
4	45.3	43.4	-152,251	0.0	-208,436	0.0	-208,436	0.0	-208,436	0.0	-208,436	0.0
5	43.9	42.2	-162,035	0.0	-223,221	0.0	-223,221	0.0	-223,221	0.0	-223,221	0.0
6	43.0	41.4	-167,149	0.0	-235,298	0.0	-235,298	0.0	-235,298	0.0	-235,298	0.0
7	42.7	41.2	-167,064	0.0	-249,425	0.0	-249,425	0.0	-249,425	0.0	-249,425	0.0
8	43.5	42.0	-153,403	0.0	-250,001	0.0	-250,001	0.0	-250,001	0.0	-250,001	0.0
9	45.9	44.0	-111,781	0.0	-227,320	0.0	-227,320	0.0	-227,320	0.0	-227,320	0.0
10	49.4	46.6	-67,757	0.0	-203,816	0.0	-203,816	0.0	-203,816	0.0	-203,816	0.0
11	53.8	48.6	-21,040	0.0	-173,989	0.0	-173,989	0.0	-173,989	0.0	-173,989	0.0
12	58.4	50.6	0	0.0	-139,587	0.0	-139,587	0.0	-139,587	0.0	-139,587	0.0
13	62.8	52.6	0	0.0	-105,284	0.0	-105,284	0.0	-105,284	0.0	-105,284	0.0
14	66.3	54.5	0	0.0	-68,345	0.0	-68,345	0.0	-68,345	0.0	-68,345	0.0
15	68.7	55.7	0	0.0	-36,176	0.0	-36,176	0.0	-36,176	0.0	-36,176	0.0
16	69.5	56.1	0	0.0	-18,629	0.0	-18,629	0.0	-18,629	0.0	-18,629	0.0
17	69.2	55.8	0	3.5	-9,130	0.0	-9,130	0.0	-9,130	0.0	-9,130	0.0
18	68.3	57.0	0	6.5	-16,365	0.0	-16,365	0.0	-16,365	0.0	-16,365	0.0
19	66.9	59.4	0	3.8	-23,319	0.0	-23,319	0.0	-23,319	0.0	-23,319	0.0
20	65.0	59.4	0	0.8	-37,377	0.0	-37,377	0.0	-37,377	0.0	-37,377	0.0
21	62.8	58.2	-22,015	0.0	-52,907	0.0	-52,907	0.0	-52,907	0.0	-52,907	0.0
22	60.2	56.1	-56,272	0.0	-75,121	0.0	-75,121	0.0	-75,121	0.0	-75,121	0.0
23	57.5	54.0	-4,934	0.0	-96,109	0.0	-96,109	0.0	-96,109	0.0	-96,109	0.0
24	54.7	51.7	0	0.0	-119,227	0.0	-119,227	0.0	-119,227	0.0	-119,227	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-156,405	0.0	-228,299	0.0	-228,299	0.0	-228,299	0.0	-228,299	0.0
2	43.2	41.1	-176,329	0.0	-245,673	0.0	-245,673	0.0	-245,673	0.0	-245,673	0.0
3	41.8	39.8	-190,364	0.0	-259,317	0.0	-259,317	0.0	-259,317	0.0	-259,317	0.0
4	40.7	38.7	-202,081	0.0	-277,096	0.0	-277,096	0.0	-277,096	0.0	-277,096	0.0
5	40.1	38.4	-217,071	0.0	-287,295	0.0	-287,295	0.0	-287,295	0.0	-287,295	0.0
6	39.9	38.4	-221,856	0.0	-295,717	0.0	-295,717	0.0	-295,717	0.0	-295,717	0.0
7	40.5	39.0	-217,376	0.0	-301,545	0.0	-301,545	0.0	-301,545	0.0	-301,545	0.0
8	42.2	40.7	-213,811	0.0	-294,097	0.0	-294,097	0.0	-294,097	0.0	-294,097	0.0
9	44.9	43.4	-179,979	0.0	-275,592	0.0	-275,592	0.0	-275,592	0.0	-275,592	0.0
10	48.2	45.8	-140,143	0.0	-246,835	0.0	-246,835	0.0	-246,835	0.0	-246,835	0.0
11	51.7	48.3	-104,066	0.0	-218,658	0.0	-218,658	0.0	-218,658	0.0	-218,658	0.0
12	55.0	50.7	-65,905	0.0	-188,299	0.0	-188,299	0.0	-188,299	0.0	-188,299	0.0
13	57.7	52.0	-38,301	0.0	-163,337	0.0	-163,337	0.0	-163,337	0.0	-163,337	0.0
14	59.5	52.6	-10,001	0.0	-142,254	0.0	-142,254	0.0	-142,254	0.0	-142,254	0.0
15	60.1	52.7	0	0.0	-122,265	0.0	-122,265	0.0	-122,265	0.0	-122,265	0.0
16	59.9	52.6	0	0.0	-108,434	0.0	-108,434	0.0	-108,434	0.0	-108,434	0.0
17	59.2	52.1	0	0.0	-101,158	0.0	-101,158	0.0	-101,158	0.0	-101,158	0.0
18	58.2	51.8	0	0.0	-107,521	0.0	-107,521	0.0	-107,521	0.0	-107,521	0.0
19	56.8	52.2	0	0.0	-118,641	0.0	-118,641	0.0	-118,641	0.0	-118,641	0.0
20	55.0	51.4	0	0.0	-132,472	0.0	-132,472	0.0	-132,472	0.0	-132,472	0.0
21	53.1	50.1	-63,697	0.0	-150,771	0.0	-150,771	0.0	-150,771	0.0	-150,771	0.0
22	51.0	48.1	-96,256	0.0	-166,187	0.0	-166,187	0.0	-166,187	0.0	-166,187	0.0
23	48.9	46.2	-122,059	0.0	-191,117	0.0	-191,117	0.0	-191,117	0.0	-191,117	0.0
24	46.9	44.1	-140,500	0.0	-208,956	0.0	-208,956	0.0	-208,956	0.0	-208,956	0.0



BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1  
 FAN COIL UNITS

----- B U I L D I N G   T E M P E R A T U R E   P R O F I L E S -----

Temperature	----- Room Number -----
Range (F)	1
Max. Temp.	75.0
Mo./Hr.	3 16
Day Type	1
	..... Number of Hours .....
Above 100	0
95 - 100	0
90 - 95	0
85 - 90	0
80 - 85	0
75 - 80	0
70 - 75	8,760
65 - 70	0
60 - 65	0
55 - 60	0
50 - 55	0
Below 50	0
Min. Temp.	69.6
Mo./Hr.	1 1
Day Type	1

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY- FISHER HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29816 (1 BUILDING)

-----CARD 08-- Climatic Information-----  

Weather	Summer	Winter	Summer	Summer	Winter	Summer	Winter
Code	Clearness	Clearness	Design	Design	Design	Building	Ground
Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA							

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	SCHOOL_OFFICES

-----CARD 20-- General Room Parameters-----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	BLOCK	202.75	61.5	3	0		11.6	2		

-----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

-----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				196			

-----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	61.5	12		196	0			
1	2	202.75	12		196	90			
1	3	61.5	12		196	180			
1	4	202.75	12		196	270			

-----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	4	1.03	.82					
1	2	2.5	5.5	22	1.03	.82					
1	3	2.5	5.5	4	1.03	.82					
1	4	2.5	5.5	18	1.03	.82					

-----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

-----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	137	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

FC FAN COIL

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	



Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**                                                                 **  
**          TRACE 600 ANALYSIS          **  
**                                                                 **  
**          by          **  
**                                                                 **  
*****  
*****
```

ENERGY STUDY-ALLISON HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29817 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 17:52:58 8/19/94  
Dataset Name: FGTYPES26 .TM

System 1 Peak SZ - SINGLE ZONE

***** COOLING COIL PEAK *****					***** CLG SPACE PEAK *****					***** HEATING COIL PEAK *****		
Peaked at Time ==> Mo/Hr: 8/16					* Mo/Hr: 6/18 *					* Mo/Hr: 13/ 1		
Outside Air ==> OADB/WB/HR: 96/ 76/105.0					* OADB: 96 *					* OADB: 23		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)		Space Sensible (Btuh)	Percent Of Tot (%)	Space Peak (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)	
Envelope Loads												
Skylite Solr	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Skylite Cond	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Roof Cond	148,997	0	0	148,997	21.07	*	190,628	30.95	-123,251	-123,251	14.54	
Glass Solar	128,982	0	0	128,982	18.24	*	104,414	16.95	0	0	0.00	
Glass Cond	61,681	0	0	61,681	8.72	*	65,160	10.58	-155,626	-155,626	18.35	
Wall Cond	181,181	0	0	181,181	25.63	*	213,315	34.63	-307,666	-307,666	36.28	
Partition	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Exposed Floor	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Infiltration	71,591	0	0	71,591	10.13	*	42,379	6.88	-114,606	-114,606	13.52	
Sub Total==>	592,432	0	0	592,432	83.79	*	615,897	100.00	-701,149	-701,149	82.69	
Internal Loads												
Lights	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
People	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Misc	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Sub Total==>	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Ceiling Load	0	0	0	0	0.00	*	0	0.00	0	0	0.00	
Outside Air	0	0	0	114,609	16.21	*	0	0.00	0	-146,777	17.31	
Sup. Fan Heat				0	0.00	*		0.00		0	0.00	
Ret. Fan Heat				0	0.00	*		0.00		0	0.00	
Duct Heat Pkup				0	0.00	*		0.00		0	0.00	
OV/UNDR Sizing	0			0	0.00	*	0	0.00	0	0	0.00	
Exhaust Heat				0	0.00	*		0.00		0	0.00	
Terminal Bypass				0	0.00	*		0.00		0	0.00	
Grand Total==>	592,432	0	0	707,041	100.00	*	615,897	100.00	-701,149	-847,927	100.00	

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total Floor	Glass (sf) (%)	
Main Clg	58.9	707.0	77,929	75.8	66.5	83.5	67.9	63.9	83.2	77,928		
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	58.9	707.0								38,964	0	0
										22,956	3,071	13

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type Vent	Cooling	Heating	Clg % OA	3.8	Type SADB	Clg	Htg	
Main Htg	-847.9	77,929	66.3	76.1	Infil	2,940	2,940	Clg Cfm/Sqft	1.00	Plenum	67.9	76.1	
Aux Htg	0.0	0	0.0	0.0	Supply	1,836	2,296	Clg Cfm/Ton	1322.61	Return	75.0	68.0	
Preheat	-136.1	77,929	66.3	67.9	Mincfm	0	0	Clg Sqft/Ton	1322.61	Ret/OA	75.8	66.3	
Reheat	0.0	0	0.0	0.0	Return	77,929	77,929	Clg Btuh/Sqft	9.07	Runarnd	75.0	68.0	
Humidif	0.0	0	0.0	0.0	Exhaust	2,940	2,940	No. People	196	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	3.8	Fn BldTD	0.0	0.0	
Total	-847.9				Auxil	0	0	Htg Cfm/SqFt	1.00	Fn Frict	0.0	0.0	
								Htg Btuh/SqFt	-10.88				

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-732,071	0.0	-448,121	0.0	-448,121	0.0	-448,121	0.0	-448,121	0.0
2	32.9	30.7	-657,864	0.0	-466,707	0.0	-466,707	0.0	-466,707	0.0	-466,707	0.0
3	33.1	31.3	-603,268	0.0	-483,393	0.0	-483,393	0.0	-483,393	0.0	-483,393	0.0
4	33.9	32.1	-563,486	0.0	-483,111	0.0	-483,111	0.0	-483,111	0.0	-483,111	0.0
5	35.2	33.5	-535,182	0.0	-482,478	0.0	-482,478	0.0	-482,478	0.0	-482,478	0.0
6	37.0	35.4	-513,146	0.0	-482,412	0.0	-482,412	0.0	-482,412	0.0	-482,412	0.0
7	39.0	37.6	-495,694	0.0	-482,029	0.0	-482,029	0.0	-482,029	0.0	-482,029	0.0
8	41.3	40.1	-479,523	0.0	-479,784	0.0	-479,784	0.0	-479,784	0.0	-479,784	0.0
9	43.7	42.5	-459,461	0.0	-474,905	0.0	-474,905	0.0	-474,905	0.0	-474,905	0.0
10	46.1	44.0	-432,985	0.0	-465,760	0.0	-465,760	0.0	-465,760	0.0	-465,760	0.0
11	48.4	45.0	-257,692	0.0	-451,739	0.0	-451,739	0.0	-451,739	0.0	-451,739	0.0
12	50.5	45.6	-153,664	0.0	-433,268	0.0	-433,268	0.0	-433,268	0.0	-433,268	0.0
13	52.2	46.1	-78,415	0.0	-309,523	0.0	-309,523	0.0	-309,523	0.0	-309,523	0.0
14	53.5	46.4	0	0.0	-253,799	0.0	-253,799	0.0	-253,799	0.0	-253,799	0.0
15	54.3	46.3	0	0.0	-223,903	0.0	-223,903	0.0	-223,903	0.0	-223,903	0.0
16	54.6	46.1	0	0.0	-189,360	0.0	-189,360	0.0	-189,360	0.0	-189,360	0.0
17	54.0	45.9	0	0.0	-183,727	0.0	-183,727	0.0	-183,727	0.0	-183,727	0.0
18	52.5	45.0	0	0.0	-191,530	0.0	-191,530	0.0	-191,530	0.0	-191,530	0.0
19	50.1	44.8	0	0.0	-213,139	0.0	-213,139	0.0	-213,139	0.0	-213,139	0.0
20	47.1	43.3	0	0.0	-241,349	0.0	-241,349	0.0	-241,349	0.0	-241,349	0.0
21	43.7	40.4	0	0.0	-280,517	0.0	-280,517	0.0	-280,517	0.0	-280,517	0.0
22	40.4	37.3	-102,710	0.0	-331,390	0.0	-331,390	0.0	-331,390	0.0	-331,390	0.0
23	37.3	34.9	-215,645	0.0	-374,221	0.0	-374,221	0.0	-374,221	0.0	-374,221	0.0
24	34.9	32.6	-262,643	0.0	-408,294	0.0	-408,294	0.0	-408,294	0.0	-408,294	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-266,802	0.0	-368,264	0.0	-368,264	0.0	-368,264	0.0	-368,264	0.0
2	39.7	37.1	-309,436	0.0	-394,276	0.0	-394,276	0.0	-394,276	0.0	-394,276	0.0
3	37.8	35.1	-337,098	0.0	-433,616	0.0	-433,616	0.0	-433,616	0.0	-433,616	0.0
4	36.3	33.8	-372,724	0.0	-453,908	0.0	-453,908	0.0	-453,908	0.0	-453,908	0.0
5	35.1	32.6	-392,571	0.0	-476,058	0.0	-476,058	0.0	-476,058	0.0	-476,058	0.0
6	34.4	32.0	-411,090	0.0	-480,174	0.0	-480,174	0.0	-480,174	0.0	-480,174	0.0
7	34.1	31.9	-422,907	0.0	-485,420	0.0	-485,420	0.0	-485,420	0.0	-485,420	0.0
8	34.6	32.4	-411,082	0.0	-489,668	0.0	-489,668	0.0	-489,668	0.0	-489,668	0.0
9	36.0	33.8	-366,338	0.0	-490,261	0.0	-490,261	0.0	-490,261	0.0	-490,261	0.0
10	38.2	34.7	-301,988	0.0	-485,698	0.0	-485,698	0.0	-485,698	0.0	-485,698	0.0
11	40.9	36.2	-232,677	0.0	-475,559	0.0	-475,559	0.0	-475,559	0.0	-475,559	0.0
12	43.9	37.4	-140,227	0.0	-459,809	0.0	-459,809	0.0	-459,809	0.0	-459,809	0.0
13	46.9	39.4	-66,307	0.0	-396,580	0.0	-396,580	0.0	-396,580	0.0	-396,580	0.0
14	49.7	41.4	0	0.0	-295,645	0.0	-295,645	0.0	-295,645	0.0	-295,645	0.0
15	51.8	42.8	0	0.0	-245,903	0.0	-245,903	0.0	-245,903	0.0	-245,903	0.0
16	53.2	43.9	0	0.0	-225,576	0.0	-225,576	0.0	-225,576	0.0	-225,576	0.0
17	53.7	44.2	0	0.0	-202,812	0.0	-202,812	0.0	-202,812	0.0	-202,812	0.0
18	53.4	44.4	0	0.0	-197,235	0.0	-197,235	0.0	-197,235	0.0	-197,235	0.0
19	52.7	44.4	0	0.0	-209,234	0.0	-209,234	0.0	-209,234	0.0	-209,234	0.0
20	51.5	45.2	0	0.0	-227,607	0.0	-227,607	0.0	-227,607	0.0	-227,607	0.0
21	50.0	44.6	0	0.0	-247,051	0.0	-247,051	0.0	-247,051	0.0	-247,051	0.0
22	48.1	43.3	0	0.0	-280,477	0.0	-280,477	0.0	-280,477	0.0	-280,477	0.0
23	46.1	41.8	-114,536	0.0	-308,964	0.0	-308,964	0.0	-308,964	0.0	-308,964	0.0
24	43.9	40.1	-232,851	0.0	-339,078	0.0	-339,078	0.0	-339,078	0.0	-339,078	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

May Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	1.7	0	6.2	0	6.7	0	6.7	0	6.7
2	65.7	61.5	0	13.6	0	2.5	0	2.7	0	2.7	0	2.7
3	63.6	59.7	0	10.1	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	7.5	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	4.1	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	9.7	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	14.0	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	19.9	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	26.9	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	32.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	37.9	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	42.2	0	11.5	0	11.5	0	11.5	0	11.5
16	84.9	67.1	0	44.4	0	22.8	0	22.9	0	22.9	0	22.9
17	84.6	67.3	0	46.4	0	24.0	0	24.1	0	24.1	0	24.1
18	83.8	67.1	0	45.7	0	24.7	0	24.7	0	24.7	0	24.7
19	82.4	67.5	0	44.1	0	24.2	0	24.2	0	24.2	0	24.2
20	80.6	68.9	0	39.0	0	21.4	0	21.4	0	21.4	0	21.4
21	78.5	71.0	0	34.6	0	19.0	0	19.1	0	19.1	0	19.1
22	76.1	69.9	0	30.0	0	16.7	0	16.9	0	16.9	0	16.9
23	73.4	68.0	0	25.1	0	13.2	0	13.3	0	13.3	0	13.3
24	70.8	65.5	0	21.4	0	10.0	0	10.0	0	10.0	0	10.0

June Hour	OADB OAWB		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	32.4	0	16.7	0	19.5	0	19.5	0	19.5
2	72.6	68.4	0	27.9	0	14.2	0	15.7	0	15.7	0	15.7
3	70.9	67.3	0	24.0	0	10.7	0	11.4	0	11.4	0	11.4
4	69.6	66.5	0	21.5	0	8.1	0	8.5	0	8.5	0	8.5
5	68.7	65.8	0	19.4	0	5.8	0	5.9	0	5.9	0	5.9
6	68.5	65.7	0	17.8	0	2.8	0	2.8	0	2.8	0	2.8
7	69.0	66.3	0	18.9	0	2.5	0	2.6	0	2.6	0	2.6
8	70.6	66.9	0	21.8	0	3.7	0	3.8	0	3.8	0	3.8
9	73.0	67.7	0	24.6	0	5.6	0	5.6	0	5.6	0	5.6
10	76.1	68.1	0	29.8	0	11.4	0	11.5	0	11.5	0	11.5
11	79.5	69.1	0	35.7	0	16.0	0	16.1	0	16.1	0	16.1
12	82.9	70.1	0	41.6	0	20.9	0	21.0	0	21.0	0	21.0
13	86.0	71.0	0	47.0	0	26.5	0	26.6	0	26.6	0	26.6
14	88.4	72.5	0	51.1	0	32.4	0	32.4	0	32.4	0	32.4
15	90.0	74.0	0	55.4	0	36.7	0	36.8	0	36.8	0	36.8
16	90.5	73.7	0	58.6	0	38.5	0	38.5	0	38.5	0	38.5
17	90.3	74.2	0	58.9	0	40.0	0	40.0	0	40.0	0	40.0
18	89.4	73.9	0	58.9	0	40.7	0	40.7	0	40.7	0	40.7
19	88.1	74.5	0	58.3	0	40.6	0	40.6	0	40.6	0	40.6
20	86.4	75.3	0	53.2	0	37.5	0	37.5	0	37.5	0	37.5
21	84.3	76.5	0	48.8	0	35.8	0	35.8	0	35.8	0	35.8
22	81.9	75.7	0	44.1	0	32.8	0	32.8	0	32.8	0	32.8
23	79.5	74.0	0	40.0	0	29.2	0	29.2	0	29.2	0	29.2
24	77.0	72.1	0	35.5	0	24.9	0	24.9	0	24.9	0	24.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
			Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	73.7	70.5	0	0	33.6	0	0	14.0	0	0	16.1	0	0	16.1	0	0	16.1
2	72.4	69.4	0	0	28.4	0	0	12.2	0	0	13.2	0	0	13.2	0	0	13.2
3	71.3	68.4	0	0	24.5	0	0	8.5	0	0	9.0	0	0	9.0	0	0	9.0
4	70.5	67.7	0	0	22.0	0	0	6.2	0	0	6.5	0	0	6.5	0	0	6.5
5	70.0	67.4	0	0	20.0	0	0	4.0	0	0	4.1	0	0	4.1	0	0	4.1
6	69.9	67.5	0	0	18.3	0	0	1.9	0	0	1.9	0	0	1.9	0	0	1.9
7	70.3	68.0	0	0	19.0	0	0	1.4	0	0	1.5	0	0	1.5	0	0	1.5
8	71.7	69.0	0	0	21.5	0	0	3.2	0	0	3.3	0	0	3.3	0	0	3.3
9	73.7	69.5	0	0	25.1	0	0	6.7	0	0	6.8	0	0	6.8	0	0	6.8
10	76.2	70.6	0	0	29.2	0	0	11.9	0	0	12.1	0	0	12.1	0	0	12.1
11	78.9	71.8	0	0	33.7	0	0	17.1	0	0	17.1	0	0	17.1	0	0	17.1
12	81.4	73.0	0	0	40.1	0	0	22.4	0	0	22.4	0	0	22.4	0	0	22.4
13	83.4	74.4	0	0	45.8	0	0	28.4	0	0	28.4	0	0	28.4	0	0	28.4
14	84.8	74.8	0	0	49.9	0	0	32.3	0	0	32.3	0	0	32.3	0	0	32.3
15	85.2	75.0	0	0	54.3	0	0	35.5	0	0	35.5	0	0	35.5	0	0	35.5
16	85.1	75.0	0	0	56.7	0	0	37.1	0	0	37.1	0	0	37.1	0	0	37.1
17	84.6	74.7	0	0	58.0	0	0	37.5	0	0	37.5	0	0	37.5	0	0	37.5
18	83.8	74.6	0	0	57.8	0	0	38.1	0	0	38.1	0	0	38.1	0	0	38.1
19	82.7	74.6	0	0	55.2	0	0	36.7	0	0	36.7	0	0	36.7	0	0	36.7
20	81.4	74.4	0	0	51.2	0	0	34.2	0	0	34.2	0	0	34.2	0	0	34.2
21	79.9	74.9	0	0	46.9	0	0	31.8	0	0	31.8	0	0	31.8	0	0	31.8
22	78.4	74.0	0	0	42.7	0	0	28.2	0	0	28.2	0	0	28.2	0	0	28.2
23	76.8	72.7	0	0	38.9	0	0	23.7	0	0	23.7	0	0	23.7	0	0	23.7
24	75.2	71.6	0	0	34.4	0	0	20.1	0	0	20.1	0	0	20.1	0	0	20.1

August Hour	OADB	OAWB	----- Design -----			----- Weekday -----			----- Saturday-----			----- Sunday -----			----- Monday -----		
			Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton	Htg	Btuh	Clg Ton
1	75.0	72.0	0	0	33.3	0	0	16.4	0	0	19.1	0	0	19.1	0	0	19.1
2	73.2	70.3	0	0	26.7	0	0	13.8	0	0	15.1	0	0	15.1	0	0	15.1
3	71.7	68.9	0	0	23.6	0	0	10.1	0	0	10.7	0	0	10.7	0	0	10.7
4	70.4	67.8	0	0	21.2	0	0	7.5	0	0	7.8	0	0	7.8	0	0	7.8
5	69.5	66.8	0	0	18.9	0	0	5.0	0	0	5.2	0	0	5.2	0	0	5.2
6	68.9	66.4	0	0	17.2	0	0	3.0	0	0	3.0	0	0	3.0	0	0	3.0
7	68.7	66.4	0	0	16.9	0	0	1.2	0	0	1.2	0	0	1.2	0	0	1.2
8	69.2	66.8	0	0	18.3	0	0	0.9	0	0	0.9	0	0	0.9	0	0	0.9
9	70.8	67.7	0	0	22.4	0	0	2.8	0	0	2.9	0	0	2.9	0	0	2.9
10	73.2	67.7	0	0	27.6	0	0	7.5	0	0	7.6	0	0	7.6	0	0	7.6
11	76.2	68.8	0	0	33.8	0	0	12.9	0	0	13.0	0	0	13.0	0	0	13.0
12	79.3	70.3	0	0	40.2	0	0	19.4	0	0	19.5	0	0	19.5	0	0	19.5
13	82.3	72.2	0	0	46.4	0	0	24.8	0	0	24.9	0	0	24.9	0	0	24.9
14	84.7	73.7	0	0	52.5	0	0	30.7	0	0	30.8	0	0	30.8	0	0	30.8
15	86.3	74.6	0	0	55.9	0	0	35.0	0	0	35.0	0	0	35.0	0	0	35.0
16	86.8	75.1	0	0	58.9	0	0	38.2	0	0	38.2	0	0	38.2	0	0	38.2
17	86.6	75.1	0	0	58.9	0	0	39.4	0	0	39.4	0	0	39.4	0	0	39.4
18	86.0	75.3	0	0	58.3	0	0	40.5	0	0	40.5	0	0	40.5	0	0	40.5
19	85.1	76.0	0	0	54.8	0	0	39.5	0	0	39.5	0	0	39.5	0	0	39.5
20	83.8	76.8	0	0	51.1	0	0	37.2	0	0	37.2	0	0	37.2	0	0	37.2
21	82.3	77.2	0	0	47.3	0	0	34.2	0	0	34.2	0	0	34.2	0	0	34.2
22	80.6	76.3	0	0	42.1	0	0	31.0	0	0	31.0	0	0	31.0	0	0	31.0
23	78.7	75.3	0	0	38.1	0	0	26.9	0	0	26.9	0	0	26.9	0	0	26.9
24	76.8	73.7	0	0	33.7	0	0	23.0	0	0	23.0	0	0	23.0	0	0	23.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	23.0	0	6.3	0	7.7	0	7.7	0	7.7
2	67.6	65.0	0	17.2	0	3.7	0	4.4	0	4.4	0	4.4
3	65.8	63.4	0	13.5	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	7.9	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	7.4	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	10.9	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	16.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	23.0	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	29.5	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	36.6	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	42.4	0	12.9	0	13.3	0	13.3	0	13.3
15	83.0	70.0	0	47.0	0	23.9	0	24.3	0	24.3	0	24.3
16	83.7	70.5	0	49.7	0	26.8	0	27.1	0	27.1	0	27.1
17	83.4	70.5	0	49.2	0	27.8	0	27.9	0	27.9	0	27.9
18	82.8	70.9	0	47.0	0	28.6	0	28.7	0	28.7	0	28.7
19	81.6	72.7	0	43.3	0	26.7	0	26.7	0	26.7	0	26.7
20	80.1	74.7	0	40.4	0	25.6	0	25.7	0	25.7	0	25.7
21	78.3	74.1	0	35.8	0	22.8	0	22.8	0	22.8	0	22.8
22	76.3	72.4	0	31.4	0	20.5	0	20.5	0	20.5	0	20.5
23	74.1	70.7	0	26.1	0	16.2	0	16.2	0	16.2	0	16.2
24	71.8	68.9	0	21.7	0	11.5	0	11.5	0	11.5	0	11.5

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	50.1	48.6	0	0.0	0	0.0	-101,022	0.0	-101,022	0.0	-101,022	0.0
3	48.4	46.9	0	0.0	0	0.0	-206,173	0.0	-206,173	0.0	-206,173	0.0
4	47.1	45.8	0	0.0	0	0.0	-233,076	0.0	-233,076	0.0	-233,076	0.0
5	46.3	44.8	0	0.0	0	0.0	-264,445	0.0	-264,445	0.0	-264,445	0.0
6	46.0	44.5	0	0.0	-90,183	0.0	-289,695	0.0	-289,695	0.0	-289,695	0.0
7	46.8	45.3	0	0.0	-300,477	0.0	-300,477	0.0	-300,477	0.0	-300,477	0.0
8	48.9	47.5	0	0.0	-296,499	0.0	-296,499	0.0	-296,499	0.0	-296,499	0.0
9	52.2	49.9	0	0.0	-268,370	0.0	-268,370	0.0	-268,370	0.0	-268,370	0.0
10	56.2	52.5	0	0.0	-221,352	0.0	-221,352	0.0	-221,352	0.0	-221,352	0.0
11	60.4	54.4	0	0.0	-151,782	0.0	-151,782	0.0	-151,782	0.0	-151,782	0.0
12	64.4	56.0	0	0.0	-76,654	0.0	-76,654	0.0	-76,654	0.0	-76,654	0.0
13	67.7	57.3	0	0.0	-15,373	0.0	-15,373	0.0	-15,373	0.0	-15,373	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	23.5	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	19.5	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	14.7	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
23	57.0	55.1	0	0.6	0	0.0	0	0.0	0	0.0	0	0.0
24	54.5	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	0	0.0	0	0.0	-160,713	0.0	-160,713	0.0	-160,713	0.0
2	49.4	47.3	0	0.0	0	0.0	-200,154	0.0	-200,154	0.0	-200,154	0.0
3	47.2	45.3	-159,430	0.0	0	0.0	-229,475	0.0	-229,475	0.0	-229,475	0.0
4	45.3	43.4	-187,763	0.0	0	0.0	-264,942	0.0	-264,942	0.0	-264,942	0.0
5	43.9	42.2	-217,833	0.0	-9,293	0.0	-289,289	0.0	-289,289	0.0	-289,289	0.0
6	43.0	41.4	-234,896	0.0	-319,956	0.0	-319,960	0.0	-319,960	0.0	-319,960	0.0
7	42.7	41.2	-244,729	0.0	-337,705	0.0	-337,705	0.0	-337,705	0.0	-337,705	0.0
8	43.5	42.0	-226,638	0.0	-347,335	0.0	-347,335	0.0	-347,335	0.0	-347,335	0.0
9	45.9	44.0	-169,432	0.0	-330,268	0.0	-330,268	0.0	-330,268	0.0	-330,268	0.0
10	49.4	46.6	-95,289	0.0	-287,955	0.0	-287,955	0.0	-287,955	0.0	-287,955	0.0
11	53.8	48.6	-4,466	0.0	-238,256	0.0	-238,256	0.0	-238,256	0.0	-238,256	0.0
12	58.4	50.6	0	0.0	-175,735	0.0	-175,735	0.0	-175,735	0.0	-175,735	0.0
13	62.8	52.6	0	0.0	-113,999	0.0	-113,999	0.0	-113,999	0.0	-113,999	0.0
14	66.3	54.5	0	0.0	-42,389	0.0	-42,389	0.0	-42,389	0.0	-42,389	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	16.8	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	14.6	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	8.9	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	57.5	54.0	0	0.0	-99,088	0.0	-99,088	0.0	-99,088	0.0	-99,088	0.0
24	54.7	51.7	0	0.0	-132,800	0.0	-132,800	0.0	-132,800	0.0	-132,800	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-185,046	0.0	0	0.0	-298,919	0.0	-298,919	0.0	-298,919	0.0
2	43.2	41.1	-221,638	0.0	-305,269	0.0	-325,975	0.0	-325,975	0.0	-325,975	0.0
3	41.8	39.8	-248,836	0.0	-347,536	0.0	-347,536	0.0	-347,536	0.0	-347,536	0.0
4	40.7	38.7	-271,344	0.0	-378,350	0.0	-378,350	0.0	-378,350	0.0	-378,350	0.0
5	40.1	38.4	-301,468	0.0	-397,308	0.0	-397,308	0.0	-397,308	0.0	-397,308	0.0
6	39.9	38.4	-316,414	0.0	-414,916	0.0	-414,916	0.0	-414,916	0.0	-414,916	0.0
7	40.5	39.0	-315,286	0.0	-431,716	0.0	-431,716	0.0	-431,716	0.0	-431,716	0.0
8	42.2	40.7	-321,422	0.0	-428,361	0.0	-428,361	0.0	-428,361	0.0	-428,361	0.0
9	44.9	43.4	-274,461	0.0	-410,034	0.0	-410,034	0.0	-410,034	0.0	-410,034	0.0
10	48.2	45.8	-204,261	0.0	-367,564	0.0	-367,564	0.0	-367,564	0.0	-367,564	0.0
11	51.7	48.3	-119,844	0.0	-316,961	0.0	-316,961	0.0	-316,961	0.0	-316,961	0.0
12	55.0	50.7	-39,516	0.0	-255,346	0.0	-255,346	0.0	-255,346	0.0	-255,346	0.0
13	57.7	52.0	0	0.0	-201,538	0.0	-201,538	0.0	-201,538	0.0	-201,538	0.0
14	59.5	52.6	0	0.0	-148,133	0.0	-148,133	0.0	-148,133	0.0	-148,133	0.0
15	60.1	52.7	0	0.0	-114,031	0.0	-114,031	0.0	-114,031	0.0	-114,031	0.0
16	59.9	52.6	0	0.0	-79,735	0.0	-79,735	0.0	-79,735	0.0	-79,735	0.0
17	59.2	52.1	0	0.0	-80,894	0.0	-80,894	0.0	-80,894	0.0	-80,894	0.0
18	58.2	51.8	0	0.0	-94,608	0.0	-94,608	0.0	-94,608	0.0	-94,608	0.0
19	56.8	52.2	0	0.0	-113,928	0.0	-113,928	0.0	-113,928	0.0	-113,928	0.0
20	55.0	51.4	0	0.0	-136,997	0.0	-136,997	0.0	-136,997	0.0	-136,997	0.0
21	53.1	50.1	0	0.0	-167,116	0.0	-167,116	0.0	-167,116	0.0	-167,116	0.0
22	51.0	48.1	0	0.0	-200,993	0.0	-200,993	0.0	-200,993	0.0	-200,993	0.0
23	48.9	46.2	0	0.0	-231,293	0.0	-231,293	0.0	-231,293	0.0	-231,293	0.0
24	46.9	44.1	0	0.0	-258,353	0.0	-258,353	0.0	-258,353	0.0	-258,353	0.0

## 01 Card - Job Information

-----  
 Project: ENERGY STUDY-ALLISON HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29817 (1 BUILDING)

-----CARD 08-- Climatic Information-----  
 Summer Winter Summer Winter Summer Winter  
 Weather Clearness Clearness Design Design Design Building Ground Ground  
 Code Number Number Dry Bulb Wet Bulb Dry Bulb Orientation Reflect Reflect  
 AUGUSTA

-----CARD 09-- Load Simulation Periods-----  
 1st Month Last Month Peak 1st Month Last Month 1st Month Last Month  
 Cooling Cooling Cooling Summer Summer Daylight Daylight  
 Simulation Simulation Load Hr Period Period Savings Savings  
 APR OCT

-----CARD 10 -- Load Simulation Parameters-----  
 Cooling Heating Airflow Airflow Room Put Wall  
 Load Load Ventilation Input Output Circulation RA Load  
 Method Method Method Units Units Rate to Room  
 CLTD-CLF TETD-TA1 OAHIGH ACTUAL ACTUAL MED-RCR NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  
 Number Description  
 1 SCHOOL\_OFFICES

-----CARD 20-- General Room Parameters-----  
 Zone  
 Room Reference Room Floor Floor Const Plenum Acoustic Floor to Duplicate Duplicate Perimeter  
 Number Number Descrip Length Width Type Height Resistance Height Floors Rooms per  
 Multiplier Zone  
 1 1 BLOCK 315.5 123.5 3 0 11.6 2

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	202.75	12		196	0			
1	2	61.5	12		196	90			
1	3	202.75	12		196	180			
1	4	61.5	12		196	270			
1	5	55	12		196	0			
1	6	52	12		196	90			
1	7	55	12		196	180			
1	8	52	12		196	270			
1	9	55	12		196	0			
1	10	52	12		196	90			
1	11	55	12		196	180			
1	12	52	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	30	1.03	.82					
1	2	2.5	5.5	4	1.03	.82					
1	3	2.5	5.5	30	1.03	.82					
1	4	2.5	5.5	2	1.03	.82					
1	5	11.5	10	1	1.03	.82					
1	6	4.2	10	1	1.03	.82					
1	7	11.5	10	1	1.03	.82					
1	8	4.2	10	1	1.03	.82					
1	9	11.5	10	1	1.03	.82					
1	10	4.2	10	1	1.03	.82					
1	11	11.5	10	1	1.03	.82					
1	12	4.2	10	1	1.03	.82					

## -----CARD 26--- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27--- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	98	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	15	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	SINGLE ZONE SYSTEM

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----					
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	SZ						



Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	



Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		100
24		

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

JOHNSON HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29818 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 14:32:12 8/16/94  
Dataset Name: FGTYPS27 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

Peaked at Time ==>	Mo/Hr: 7/17	*	Mo/Hr: 6/18	*	Mo/Hr: 13/ 1				
Outside Air ==>	OADB/WB/HR: 94/ 75/105.0	*	OADB: 96	*	OADB: 23				
Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads									
Skylite Solr	0	0	0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0.00	0	0.00	0	0	0.00
Roof Cond	58,023	0	58,023	13.57	64,614	18.91	-41,777	-41,777	8.85
Glass Solar	79,200	0	79,200	18.52	80,520	23.56	0	0	0.00
Glass Cond	24,065	0	24,065	5.63	28,008	8.20	-66,892	-66,892	14.17
Wall Cond	126,431	0	126,431	29.56	144,082	42.17	-184,720	-184,720	39.14
Partition	0	0	0	0.00	0	0.00	0	0	0.00
Exposed Floor	0	0	0	0.00	0	0.00	0	0	0.00
Infiltration	44,844	0	44,844	10.49	24,477	7.16	-66,194	-66,194	14.03
Sub Total==>	332,563	0	332,563	77.76	341,701	100.00	-359,583	-359,583	76.20
Internal Loads									
Lights	0	0	0	0.00	0	0.00	0	0	0.00
People	0	0	0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0	0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	95,125	22.24	0	0.00	0	-112,330	23.80
Sup. Fan Heat	0	0	0	0.00	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0.00	0	0.00	0	0	0.00
Duct Heat Pkup	0	0	0	0.00	0	0.00	0	0	0.00
OV/UNDR Sizing	0	0	0	0.00	0	0.00	0	0	0.00
Exhaust Heat	0	0	0	0.00	0	0.00	0	0	0.00
Terminal Bypass	0	0	0	-0.00	0	0.00	0	0	0.00
Grand Total==>	332,563	0	427,688	100.00	341,701	100.00	-359,583	-471,912	100.00

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf) (%)
Main Clg	35.6	427.7	26,414	76.6	65.4	76.5	63.3	60.4	74.4	26,414	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Totals	35.6	427.7								13,207	0 0
										13,259	1,320 10

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	AIRFLOWS (cfm)		--ENGINEERING CHECKS--		--TEMPERATURES (F)--	
					Vent	Cooling	Heating	Clg % OA		Type	Clg Htg
Main Htg	-471.9	26,414	64.2	80.3	Infil	2,250	2,250	8.5	1.00	SADB	63.3 80.3
Aux Htg	0.0	0	0.0	0.0	Supply	1,061	1,326	1.00	741.13	Plenum	75.0 68.0
Preheat	-0.0	26,414	64.2	63.3	Mincfm	26,414	26,414	16.19	741.13	Return	75.0 68.0
Reheat	0.0	0	0.0	0.0	Return	0	0	16.19	16.19	Ret/OA	76.6 64.2
Humidif	0.0	0	0.0	0.0	Exhaust	26,414	26,414	150	150	Runarnd	75.0 68.0
Opt Vent	0.0	0	0.0	0.0	Auxil	2,250	2,250	8.5	8.5	Fn MtrTD	0.0 0.0
Total	-471.9					0	0	1.00	1.00	Fn BldTD	0.0 0.0
						0	0	-17.87	-17.87	Fn Frict	0.0 0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-233,569	0.0	-285,066	0.0	-283,364	0.0	-283,357	0.0	-283,357	0.0
2	32.9	30.7	-231,475	0.0	-285,616	0.0	-284,263	0.0	-284,258	0.0	-284,258	0.0
3	33.1	31.3	-231,081	0.0	-280,832	0.0	-279,757	0.0	-279,752	0.0	-279,752	0.0
4	33.9	32.1	-230,681	0.0	-271,994	0.0	-271,139	0.0	-271,135	0.0	-271,135	0.0
5	35.2	33.5	-229,859	0.0	-260,356	0.0	-259,676	0.0	-259,673	0.0	-259,673	0.0
6	37.0	35.4	-223,320	0.0	-246,224	0.0	-245,683	0.0	-245,681	0.0	-245,681	0.0
7	39.0	37.6	-212,776	0.0	-231,909	0.0	-231,479	0.0	-231,477	0.0	-231,477	0.0
8	41.3	40.1	-195,841	0.0	-215,728	0.0	-215,386	0.0	-215,384	0.0	-215,384	0.0
9	43.7	42.5	-169,844	0.0	-198,840	0.0	-198,568	0.0	-198,566	0.0	-198,566	0.0
10	46.1	44.0	-138,084	0.0	-181,723	0.0	-181,507	0.0	-181,506	0.0	-181,506	0.0
11	48.4	45.0	-101,914	0.0	-164,871	0.0	-164,700	0.0	-164,699	0.0	-164,699	0.0
12	50.5	45.6	-67,969	0.0	-148,900	0.0	-148,763	0.0	-148,763	0.0	-148,763	0.0
13	52.2	46.1	-43,350	0.0	-136,566	0.0	-136,458	0.0	-136,458	0.0	-136,458	0.0
14	53.5	46.4	-26,933	0.0	-127,044	0.0	-126,958	0.0	-126,957	0.0	-126,957	0.0
15	54.3	46.3	-19,646	0.0	-120,839	0.0	-120,771	0.0	-120,771	0.0	-120,771	0.0
16	54.6	46.1	-21,863	0.0	-117,658	0.0	-117,604	0.0	-117,604	0.0	-117,604	0.0
17	54.0	45.9	-30,565	0.0	-121,648	0.0	-121,605	0.0	-121,605	0.0	-121,605	0.0
18	52.5	45.0	-47,616	0.0	-133,555	0.0	-133,521	0.0	-133,521	0.0	-133,521	0.0
19	50.1	44.8	-69,222	0.0	-153,190	0.0	-153,163	0.0	-153,163	0.0	-153,163	0.0
20	47.1	43.3	-91,389	0.0	-177,880	0.0	-177,858	0.0	-177,858	0.0	-177,858	0.0
21	43.7	40.4	-110,630	0.0	-206,128	0.0	-206,111	0.0	-206,111	0.0	-206,111	0.0
22	40.4	37.3	-128,902	0.0	-232,716	0.0	-232,703	0.0	-232,703	0.0	-232,703	0.0
23	37.3	34.9	-143,413	0.0	-256,726	0.0	-256,715	0.0	-256,715	0.0	-256,715	0.0
24	34.9	32.6	-155,239	0.0	-273,833	0.0	-273,824	0.0	-273,824	0.0	-273,824	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-154,247	0.0	-185,792	0.0	-217,079	0.0	-217,203	0.0	-217,203	0.0
2	39.7	37.1	-164,551	0.0	-208,995	0.0	-233,861	0.0	-233,959	0.0	-233,959	0.0
3	37.8	35.1	-173,991	0.0	-230,229	0.0	-249,993	0.0	-250,070	0.0	-250,071	0.0
4	36.3	33.8	-182,359	0.0	-246,693	0.0	-262,404	0.0	-262,466	0.0	-262,466	0.0
5	35.1	32.6	-187,529	0.0	-259,584	0.0	-272,073	0.0	-272,122	0.0	-272,122	0.0
6	34.4	32.0	-187,223	0.0	-267,760	0.0	-277,686	0.0	-277,726	0.0	-277,726	0.0
7	34.1	31.9	-181,830	0.0	-272,575	0.0	-280,466	0.0	-280,497	0.0	-280,497	0.0
8	34.6	32.4	-169,067	0.0	-269,707	0.0	-275,980	0.0	-276,004	0.0	-276,004	0.0
9	36.0	33.8	-148,135	0.0	-257,308	0.0	-262,295	0.0	-262,314	0.0	-262,314	0.0
10	38.2	34.7	-120,050	0.0	-236,758	0.0	-240,719	0.0	-240,735	0.0	-240,735	0.0
11	40.9	36.2	-87,838	0.0	-212,268	0.0	-215,413	0.0	-215,425	0.0	-215,425	0.0
12	43.9	37.4	-57,523	0.0	-186,112	0.0	-188,605	0.0	-188,616	0.0	-188,616	0.0
13	46.9	39.4	-34,260	0.0	-160,721	0.0	-162,698	0.0	-162,706	0.0	-162,706	0.0
14	49.7	41.4	-19,221	0.0	-137,503	0.0	-139,071	0.0	-139,077	0.0	-139,077	0.0
15	51.8	42.8	-11,610	0.0	-120,814	0.0	-122,056	0.0	-122,061	0.0	-122,061	0.0
16	53.2	43.9	-13,446	0.0	-109,973	0.0	-110,958	0.0	-110,962	0.0	-110,962	0.0
17	53.7	44.2	-19,070	0.0	-107,217	0.0	-107,997	0.0	-107,999	0.0	-107,999	0.0
18	53.4	44.4	-32,376	0.0	-110,615	0.0	-111,233	0.0	-111,235	0.0	-111,235	0.0
19	52.7	44.4	-49,448	0.0	-116,855	0.0	-117,345	0.0	-117,347	0.0	-117,347	0.0
20	51.5	45.2	-69,394	0.0	-128,221	0.0	-128,609	0.0	-128,611	0.0	-128,611	0.0
21	50.0	44.6	-86,112	0.0	-142,257	0.0	-142,566	0.0	-142,567	0.0	-142,567	0.0
22	48.1	43.3	-103,441	0.0	-160,142	0.0	-160,387	0.0	-160,389	0.0	-160,389	0.0
23	46.1	41.8	-118,305	0.0	-178,426	0.0	-178,620	0.0	-178,621	0.0	-178,621	0.0
24	43.9	40.1	-129,583	0.0	-197,939	0.0	-198,094	0.0	-198,094	0.0	-198,094	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-64,023	0.0	-6,021	0.0	-102,535	0.0	-103,555	0.0	-103,571	0.0
2	48.7	44.6	-69,720	0.0	-50,673	0.0	-127,114	0.0	-127,925	0.0	-127,937	0.0
3	46.6	42.9	-75,354	0.0	-81,115	1.2	-146,081	0.0	-146,725	0.0	-146,735	0.0
4	44.9	41.4	-82,362	0.0	-100,716	2.6	-161,024	0.0	-161,536	0.0	-161,544	0.0
5	43.9	40.8	-84,796	0.0	-133,945	0.8	-169,402	0.0	-169,809	0.0	-169,815	0.0
6	43.5	40.8	-81,831	0.0	-151,975	0.0	-172,870	0.0	-173,193	0.0	-173,199	0.0
7	44.0	41.4	-73,724	0.0	-151,674	0.0	-168,287	0.0	-168,544	0.0	-168,548	0.0
8	45.4	42.7	-55,075	0.0	-142,135	0.0	-155,346	0.0	-155,551	0.0	-155,553	0.0
9	47.7	44.3	-25,581	0.0	-123,607	0.0	-134,110	0.0	-134,272	0.0	-134,275	0.0
10	50.6	45.8	0	0.0	-99,390	0.0	-107,735	0.0	-107,864	0.0	-107,866	0.0
11	53.9	47.4	0	0.0	-70,646	0.0	-77,273	0.0	-77,375	0.0	-77,377	0.0
12	57.4	49.0	0	0.0	-40,086	0.0	-45,346	0.0	-45,427	0.0	-45,428	0.0
13	60.7	50.8	0	0.0	-12,629	0.0	-16,802	0.0	-16,866	0.0	-16,867	0.0
14	63.6	52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9	53.7	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	0.2	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	6.3	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5	56.0	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0	54.1	0	1.0	-13,162	0.0	-15,197	0.0	-15,228	0.0	-15,229	0.0
23	57.1	51.9	0	0.0	-44,502	0.0	-46,119	0.0	-46,144	0.0	-46,144	0.0
24	54.2	49.4	0	0.0	-74,027	0.0	-75,311	0.0	-75,331	0.0	-75,332	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	54.2	51.4	0	0.0	0	0.0	-2,803	0.0	-2,803	0.0	-2,803	0.0
6	53.5	50.9	0	0.0	-21,586	0.0	-22,937	0.0	-22,937	0.0	-22,937	0.0
7	53.2	51.1	0	0.0	-35,644	0.0	-36,720	0.0	-36,720	0.0	-36,720	0.0
8	53.9	51.5	0	0.0	-37,695	0.0	-38,551	0.0	-38,551	0.0	-38,551	0.0
9	55.9	52.1	0	0.0	-24,816	0.0	-25,496	0.0	-25,496	0.0	-25,496	0.0
10	58.9	53.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	62.6	55.2	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	13.4	0	0.3	0	0.3	0	0.3	0	0.3
15	75.2	62.2	0	16.7	0	0.6	0	0.6	0	0.6	0	0.6
16	75.9	62.2	0	18.6	0	0.7	0	0.7	0	0.7	0	0.7
17	75.6	62.0	0	19.4	0	0.5	0	0.5	0	0.5	0	0.5
18	74.9	61.7	0	19.6	0	0.2	0	0.2	0	0.2	0	0.2
19	73.7	62.0	0	17.8	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	15.2	0	1.4	0	1.3	0	1.3	0	1.3
21	70.2	63.3	0	12.7	0	3.9	0	3.9	0	3.9	0	3.9
22	68.0	62.5	0	9.9	0	2.7	0	2.7	0	2.7	0	2.7
23	65.7	60.5	0	7.4	0	0.9	0	0.9	0	0.9	0	0.9
24	63.4	58.5	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	9.4	0	3.6	0	4.3	0	4.3	0	4.3
2	65.7	61.5	0	8.4	0	2.1	0	2.3	0	2.3	0	2.3
3	63.6	59.7	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	5.9	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	11.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	17.3	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	19.4	0	0.8	0	0.8	0	0.8	0	0.8
14	81.9	65.3	0	21.8	0	7.2	0	7.2	0	7.2	0	7.2
15	84.1	66.9	0	23.7	0	11.7	0	11.7	0	11.7	0	11.7
16	84.9	67.1	0	25.6	0	13.6	0	13.6	0	13.6	0	13.6
17	84.6	67.3	0	26.9	0	14.5	0	14.5	0	14.5	0	14.5
18	83.8	67.1	0	26.8	0	15.0	0	15.0	0	15.0	0	15.0
19	82.4	67.5	0	25.4	0	15.2	0	15.2	0	15.2	0	15.2
20	80.6	68.9	0	22.6	0	14.0	0	14.0	0	14.0	0	14.0
21	78.5	71.0	0	19.9	0	13.9	0	13.9	0	13.9	0	13.9
22	76.1	69.9	0	17.5	0	12.1	0	12.1	0	12.1	0	12.1
23	73.4	68.0	0	15.0	0	9.5	0	9.5	0	9.5	0	9.5
24	70.8	65.5	0	12.6	0	7.0	0	7.0	0	7.0	0	7.0

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	19.8	0	11.3	0	12.7	0	12.7	0	12.7
2	72.6	68.4	0	17.5	0	10.0	0	10.4	0	10.4	0	10.4
3	70.9	67.3	0	15.5	0	7.8	0	7.9	0	7.9	0	7.9
4	69.6	66.5	0	13.7	0	5.6	0	5.6	0	5.6	0	5.6
5	68.7	65.8	0	12.2	0	4.2	0	4.2	0	4.2	0	4.2
6	68.5	65.7	0	11.5	0	2.4	0	2.4	0	2.4	0	2.4
7	69.0	66.3	0	13.1	0	3.0	0	3.0	0	3.0	0	3.0
8	70.6	66.9	0	16.1	0	4.7	0	4.7	0	4.7	0	4.7
9	73.0	67.7	0	19.0	0	6.5	0	6.5	0	6.5	0	6.5
10	76.1	68.1	0	21.5	0	10.2	0	10.2	0	10.2	0	10.2
11	79.5	69.1	0	24.3	0	12.5	0	12.5	0	12.5	0	12.5
12	82.9	70.1	0	27.1	0	15.0	0	15.0	0	15.0	0	15.0
13	86.0	71.0	0	29.1	0	16.8	0	16.8	0	16.8	0	16.8
14	88.4	72.5	0	30.8	0	20.2	0	20.2	0	20.2	0	20.2
15	90.0	74.0	0	33.2	0	23.3	0	23.3	0	23.3	0	23.3
16	90.5	73.7	0	34.6	0	23.9	0	23.9	0	23.9	0	23.9
17	90.3	74.2	0	35.6	0	25.5	0	25.5	0	25.5	0	25.5
18	89.4	73.9	0	35.6	0	25.9	0	25.9	0	25.9	0	25.9
19	88.1	74.5	0	34.5	0	25.4	0	25.4	0	25.4	0	25.4
20	86.4	75.3	0	31.2	0	24.0	0	24.0	0	24.0	0	24.0
21	84.3	76.5	0	29.6	0	22.7	0	22.7	0	22.7	0	22.7
22	81.9	75.7	0	27.0	0	21.1	0	21.1	0	21.1	0	21.1
23	79.5	74.0	0	24.3	0	18.7	0	18.7	0	18.7	0	18.7
24	77.0	72.1	0	21.9	0	16.0	0	16.0	0	16.0	0	16.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	21.1	0	9.7	0	10.9	0	10.9	0	10.9
2	72.4	69.4	0	17.3	0	8.2	0	8.6	0	8.6	0	8.6
3	71.3	68.4	0	15.5	0	6.7	0	6.8	0	6.8	0	6.8
4	70.5	67.7	0	14.4	0	4.6	0	4.7	0	4.7	0	4.7
5	70.0	67.4	0	13.4	0	3.3	0	3.4	0	3.4	0	3.4
6	69.9	67.5	0	12.1	0	2.2	0	2.2	0	2.2	0	2.2
7	70.3	68.0	0	13.6	0	2.6	0	2.6	0	2.6	0	2.6
8	71.7	69.0	0	16.3	0	4.9	0	4.9	0	4.9	0	4.9
9	73.7	69.5	0	19.1	0	7.1	0	7.1	0	7.1	0	7.1
10	76.2	70.6	0	21.4	0	11.3	0	11.3	0	11.3	0	11.3
11	78.9	71.8	0	23.9	0	13.5	0	13.5	0	13.5	0	13.5
12	81.4	73.0	0	26.6	0	16.2	0	16.2	0	16.2	0	16.2
13	83.4	74.4	0	28.7	0	17.9	0	17.9	0	17.9	0	17.9
14	84.8	74.8	0	30.2	0	20.3	0	20.3	0	20.3	0	20.3
15	85.2	75.0	0	32.1	0	22.2	0	22.2	0	22.2	0	22.2
16	85.1	75.0	0	34.1	0	23.3	0	23.3	0	23.3	0	23.3
17	84.6	74.7	0	35.1	0	23.6	0	23.6	0	23.6	0	23.6
18	83.8	74.6	0	34.5	0	24.1	0	24.1	0	24.1	0	24.1
19	82.7	74.6	0	33.4	0	23.2	0	23.2	0	23.2	0	23.2
20	81.4	74.4	0	31.2	0	22.1	0	22.1	0	22.1	0	22.1
21	79.9	74.9	0	28.8	0	20.2	0	20.2	0	20.2	0	20.2
22	78.4	74.0	0	26.6	0	18.0	0	18.0	0	18.0	0	18.0
23	76.8	72.7	0	24.1	0	15.3	0	15.3	0	15.3	0	15.3
24	75.2	71.6	0	21.8	0	13.2	0	13.2	0	13.2	0	13.2

August			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	20.4	0	11.2	0	12.7	0	12.7	0	12.7
2	73.2	70.3	0	16.3	0	9.2	0	9.6	0	9.6	0	9.6
3	71.7	68.9	0	14.9	0	7.7	0	7.8	0	7.8	0	7.8
4	70.4	67.8	0	13.3	0	5.4	0	5.4	0	5.4	0	5.4
5	69.5	66.8	0	11.9	0	3.9	0	3.9	0	3.9	0	3.9
6	68.9	66.4	0	11.3	0	2.7	0	2.7	0	2.7	0	2.7
7	68.7	66.4	0	11.9	0	1.3	0	1.3	0	1.3	0	1.3
8	69.2	66.8	0	14.4	0	3.1	0	3.1	0	3.1	0	3.1
9	70.8	67.7	0	17.9	0	5.1	0	5.1	0	5.1	0	5.1
10	73.2	67.7	0	20.6	0	8.1	0	8.1	0	8.1	0	8.1
11	76.2	68.8	0	23.2	0	10.2	0	10.2	0	10.2	0	10.2
12	79.3	70.3	0	25.4	0	12.8	0	12.8	0	12.8	0	12.8
13	82.3	72.2	0	27.9	0	15.7	0	15.7	0	15.7	0	15.7
14	84.7	73.7	0	30.6	0	18.2	0	18.2	0	18.2	0	18.2
15	86.3	74.6	0	32.4	0	21.0	0	21.0	0	21.0	0	21.0
16	86.8	75.1	0	34.5	0	23.2	0	23.2	0	23.2	0	23.2
17	86.6	75.1	0	34.4	0	24.1	0	24.1	0	24.1	0	24.1
18	86.0	75.3	0	34.6	0	25.2	0	25.2	0	25.2	0	25.2
19	85.1	76.0	0	33.0	0	24.3	0	24.3	0	24.3	0	24.3
20	83.8	76.8	0	30.6	0	23.4	0	23.4	0	23.4	0	23.4
21	82.3	77.2	0	28.9	0	21.9	0	21.9	0	21.9	0	21.9
22	80.6	76.3	0	25.8	0	20.1	0	20.1	0	20.1	0	20.1
23	78.7	75.3	0	22.9	0	17.6	0	17.6	0	17.6	0	17.6
24	76.8	73.7	0	21.3	0	15.1	0	15.1	0	15.1	0	15.1

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	13.4	0	4.0	0	5.0	0	5.0	0	5.0
2	67.6	65.0	0	10.0	0	2.0	0	2.3	0	2.3	0	2.3
3	65.8	63.4	0	8.0	0	0.2	0	0.3	0	0.3	0	0.3
4	64.3	62.2	0	6.0	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	9.0	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	12.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	15.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	17.3	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	19.6	0	0.9	0	0.9	0	0.9	0	0.9
14	81.2	68.4	0	22.4	0	7.9	0	7.9	0	7.9	0	7.9
15	83.0	70.0	0	25.1	0	13.1	0	13.1	0	13.1	0	13.1
16	83.7	70.5	0	27.0	0	14.6	0	14.6	0	14.6	0	14.6
17	83.4	70.5	0	27.0	0	16.1	0	16.1	0	16.1	0	16.1
18	82.8	70.9	0	26.4	0	16.5	0	16.5	0	16.5	0	16.5
19	81.6	72.7	0	24.3	0	15.9	0	15.9	0	15.9	0	15.9
20	80.1	74.7	0	23.0	0	15.5	0	15.5	0	15.5	0	15.5
21	78.3	74.1	0	21.0	0	14.5	0	14.5	0	14.5	0	14.5
22	76.3	72.4	0	17.9	0	12.2	0	12.2	0	12.2	0	12.2
23	74.1	70.7	0	14.8	0	9.6	0	9.6	0	9.6	0	9.6
24	71.8	68.9	0	12.8	0	7.2	0	7.2	0	7.2	0	7.2

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-80,610	0.0	-81,898	0.0	-81,926	0.0
2	50.1	48.6	0	0.0	-32,652	0.0	-101,622	0.0	-102,648	0.0	-102,671	0.0
3	48.4	46.9	0	0.0	-63,201	0.0	-118,233	0.0	-119,049	0.0	-119,067	0.0
4	47.1	45.8	0	0.0	-81,997	1.5	-130,980	0.0	-131,630	0.0	-131,644	0.0
5	46.3	44.8	0	0.0	-94,819	2.5	-139,264	0.0	-139,781	0.0	-139,793	0.0
6	46.0	44.5	-11,924	0.0	-125,118	0.0	-143,618	0.0	-144,030	0.0	-144,039	0.0
7	46.8	45.3	-12,903	0.0	-123,097	0.0	-137,813	0.0	-138,141	0.0	-138,148	0.0
8	48.9	47.5	-2,679	0.0	-108,050	0.0	-119,760	0.0	-120,020	0.0	-120,026	0.0
9	52.2	49.9	0	0.0	-81,123	0.0	-90,437	0.0	-90,644	0.0	-90,649	0.0
10	56.2	52.5	0	0.0	-47,782	0.0	-55,187	0.0	-55,351	0.0	-55,355	0.0
11	60.4	54.4	0	0.0	-12,947	0.0	-18,830	0.0	-18,961	0.0	-18,964	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	1.5	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	2.3	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	10.3	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	3.4	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	1.3	0	0.0	-2,949	0.0	-3,006	0.0	-3,007	0.0
23	57.0	55.1	0	0.0	-30,143	0.0	-32,174	0.0	-32,220	0.0	-32,221	0.0
24	54.5	52.7	0	0.0	-56,938	0.0	-58,555	0.0	-58,591	0.0	-58,592	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-46,210	0.0	-22,249	0.0	-112,315	0.0	-113,323	0.0	-113,336	0.0
2	49.4	47.3	-60,953	0.0	-62,061	0.3	-134,309	0.0	-135,111	0.0	-135,121	0.0
3	47.2	45.3	-74,082	0.0	-86,923	2.0	-152,162	0.0	-152,801	0.0	-152,809	0.0
4	45.3	43.4	-85,070	0.0	-124,068	0.5	-167,301	0.0	-167,809	0.0	-167,815	0.0
5	43.9	42.2	-91,488	0.0	-147,275	0.0	-177,924	0.0	-178,328	0.0	-178,334	0.0
6	43.0	41.4	-89,236	0.0	-160,058	0.0	-184,450	0.0	-184,772	0.0	-184,777	0.0
7	42.7	41.2	-81,020	0.0	-166,766	0.0	-186,179	0.0	-186,434	0.0	-186,438	0.0
8	43.5	42.0	-62,632	0.0	-162,870	0.0	-178,318	0.0	-178,522	0.0	-178,524	0.0
9	45.9	44.0	-32,718	0.0	-142,685	0.0	-154,976	0.0	-155,139	0.0	-155,141	0.0
10	49.4	46.6	0	0.0	-112,059	0.0	-121,837	0.0	-121,966	0.0	-121,967	0.0
11	53.8	48.6	0	0.0	-74,199	0.0	-81,972	0.0	-82,074	0.0	-82,075	0.0
12	58.4	50.6	0	0.0	-36,161	0.0	-42,335	0.0	-42,417	0.0	-42,417	0.0
13	62.8	52.6	0	0.0	0	0.0	-6,284	0.0	-6,348	0.0	-6,348	0.0
14	66.3	54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	-7,845	0.0	-10,357	0.0	-10,391	0.0	-10,392	0.0
22	60.2	56.1	0	0.0	-35,289	0.0	-37,287	0.0	-37,314	0.0	-37,314	0.0
23	57.5	54.0	0	0.0	-62,037	0.0	-63,627	0.0	-63,648	0.0	-63,649	0.0
24	54.7	51.7	0	0.0	-88,322	0.0	-89,588	0.0	-89,605	0.0	-89,605	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-115,424	0.0	-169,210	0.0	-183,923	0.0	-183,983	0.0	-183,983	0.0
2	43.2	41.1	-123,758	0.0	-186,140	0.0	-197,840	0.0	-197,887	0.0	-197,888	0.0
3	41.8	39.8	-131,387	0.0	-199,558	0.0	-208,862	0.0	-208,899	0.0	-208,899	0.0
4	40.7	38.7	-137,755	0.0	-210,146	0.0	-217,546	0.0	-217,576	0.0	-217,576	0.0
5	40.1	38.4	-141,778	0.0	-216,255	0.0	-222,141	0.0	-222,165	0.0	-222,165	0.0
6	39.9	38.4	-138,557	0.0	-218,902	0.0	-223,584	0.0	-223,603	0.0	-223,603	0.0
7	40.5	39.0	-131,550	0.0	-214,551	0.0	-218,275	0.0	-218,290	0.0	-218,290	0.0
8	42.2	40.7	-117,897	0.0	-200,364	0.0	-203,325	0.0	-203,338	0.0	-203,338	0.0
9	44.9	43.4	-96,139	0.0	-177,186	0.0	-179,541	0.0	-179,551	0.0	-179,551	0.0
10	48.2	45.8	-68,735	0.0	-148,795	0.0	-150,667	0.0	-150,675	0.0	-150,675	0.0
11	51.7	48.3	-35,584	0.0	-119,133	0.0	-120,621	0.0	-120,627	0.0	-120,627	0.0
12	55.0	50.7	-5,470	0.0	-92,086	0.0	-93,267	0.0	-93,272	0.0	-93,272	0.0
13	57.7	52.0	0	0.0	-71,188	0.0	-72,127	0.0	-72,130	0.0	-72,130	0.0
14	59.5	52.6	0	0.0	-58,889	0.0	-59,634	0.0	-59,637	0.0	-59,637	0.0
15	60.1	52.7	0	0.0	-56,897	0.0	-57,488	0.0	-57,490	0.0	-57,490	0.0
16	59.9	52.6	0	0.0	-60,147	0.0	-60,617	0.0	-60,619	0.0	-60,619	0.0
17	59.2	52.1	0	0.0	-65,888	0.0	-66,261	0.0	-66,262	0.0	-66,262	0.0
18	58.2	51.8	0	0.0	-73,369	0.0	-73,665	0.0	-73,666	0.0	-73,666	0.0
19	56.8	52.2	0	0.0	-84,715	0.0	-84,950	0.0	-84,951	0.0	-84,951	0.0
20	55.0	51.4	-13,637	0.0	-99,812	0.0	-100,000	0.0	-100,000	0.0	-100,000	0.0
21	53.1	50.1	-36,572	0.0	-115,686	0.0	-115,835	0.0	-115,836	0.0	-115,836	0.0
22	51.0	48.1	-56,467	0.0	-133,282	0.0	-133,400	0.0	-133,400	0.0	-133,400	0.0
23	48.9	46.2	-72,461	0.0	-150,472	0.0	-150,566	0.0	-150,566	0.0	-150,566	0.0
24	46.9	44.1	-85,193	0.0	-167,000	0.0	-167,075	0.0	-167,075	0.0	-167,075	0.0

## 01 Card - Job Information

-----  
 Project: JOHNSON HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29818 (1 BLDG)

-----CARD 08-- Climatic Information -----  

	Summer	Winter	Summer	Summer	Winter		Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Building	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb	Orientation	Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR						
	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	JOHNSON HALL

-----CARD 20-- General Room Parameters -----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	BLOCK	214.75	61.5	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	61.5	12		196	0			
1	2	214.75	12		196	90			
1	3	61.5	12		196	180			
1	4	214.7	12		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	2.5	5.5	4	1.03	.82					
1	2	2.5	5.5	22	1.03	.82					
1	3	2.5	5.5	4	1.03	.82					
1	4	2.5	5.5	18	1.03	.82					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	Daylighting Reference Point 1	Daylighting Reference Point 2
1	75	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

STANSELL HALL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 29818 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 14:47:28 8/16/94  
Dataset Name: FGTYPES28 .TM

System 1 Block MZ - MULTIZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==> Mo/Hr: 8/16					Mo/Hr: 6/19			Mo/Hr: 13/ 1		
Outside Air ==> OADB/WB/HR: 96/ 76/105.0					OADB: 93			OADB: 23		
Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)	
Envelope Loads										
Skylite Solr	0	0	0	0.00	0	0.00	0	0	0.00	
Skylite Cond	0	0	0	0.00	0	0.00	0	0	0.00	
Roof Cond	67,377	0	67,377	18.39	86,574	30.03	-55,735	-55,735	10.18	
Glass Solar	0	0	0	0.00	0	0.00	0	0	0.00	
Glass Cond	0	0	0	0.00	0	0.00	0	0	0.00	
Wall Cond	145,880	0	145,880	39.81	175,171	60.76	-258,448	-258,448	47.22	
Partition	0	0	0	0.00	0	0.00	0	0	0.00	
Exposed Floor	0	0	0	0.00	0	0.00	0	0	0.00	
Infiltration	47,213	0	47,213	12.88	26,538	9.21	-83,394	-83,394	15.24	
Sub Total==>	260,469	0	260,469	71.08	288,283	100.00	-397,577	-397,577	72.64	
Internal Loads										
Lights	0	0	0	0.00	0	0.00	0	0	0.00	
People	0	0	0	0.00	0	0.00	0	0	0.00	
Misc	0	0	0	0.00	0	0.00	0	0	0.00	
Sub Total==>	0	0	0	0.00	0	0.00	0	0	0.00	
Ceiling Load	0	0	0	0.00	0	0.00	0	0	0.00	
Outside Air	0	0	105,991	28.92	0	0.00	0	-149,773	27.36	
Sup. Fan Heat			0	0.00		0.00		0	0.00	
Ret. Fan Heat		0	0	0.00		0.00		0	0.00	
Duct Heat Pkup		0	0	0.00		0.00		0	0.00	
OV/UNDR Sizing	0		0	0.00	0	0.00	0	0	0.00	
Exhaust Heat		0	0	0.00		0.00		0	0.00	
Terminal Bypass		0	0	-0.00		0.00		0	0.00	
Grand Total==>	260,470	0	366,461	100.00	288,283	100.00	-397,577	-547,349	100.00	

-----COOLING COIL SELECTION-----

	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			AREAS	
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Glass (sf) (%)
Main Clg	30.5	366.5	35,240	76.8	68.0	89.4	67.6	65.0	89.1	35,239	0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	17,620	0
Totals	30.5	366.5								16,704	0

-----HEATING COIL SELECTION-----

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	AIRFLOWS (cfm)		--ENGINEERING CHECKS--		--TEMPERATURES (F)--		
					Type	Cooling	Heating	Clg % OA	Type	Clg	Htg
Main Htg	-412.2	35,240	67.6	78.2	Vent	3,000	3,000	Clg Cfm/Sqft 8.5	SADB	67.6	78.2
Aux Htg	0.0	0	0.0	0.0	Infil	1,336	1,670	Clg Cfm/Ton 1.00	Plenum	75.0	68.0
Preheat	-135.2	35,240	64.2	67.6	Supply	35,240	35,240	Clg Sqft/Ton 1153.94	Return	75.0	68.0
Reheat	0.0	0	0.0	0.0	Mincfm	0	0	Clg Btuh/Sqft 10.40	Ret/OA	76.8	64.2
Humidif	0.0	0	0.0	0.0	Return	35,240	35,240	No. People 200	Runarnd	75.0	68.0
Opt Vent	0.0	0	0.0	0.0	Exhaust	3,000	3,000	Htg % OA 8.5	Fn MtrTD	0.0	0.0
Total	-547.3				Rm Exh	0	0	Htg Cfm/Sqft 1.00	Fn BldTD	0.0	0.0
					Auxil	0	0	Htg Btuh/Sqft -15.53	Fn Frict	0.0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-269,914	0.0	-328,610	0.0	-321,626	0.0	-321,593	0.0	-321,593	0.0
2	32.9	30.7	-265,935	0.0	-326,293	0.0	-320,699	0.0	-320,672	0.0	-320,672	0.0
3	33.1	31.3	-263,881	0.0	-319,043	0.0	-314,562	0.0	-314,540	0.0	-314,540	0.0
4	33.9	32.1	-261,807	0.0	-307,647	0.0	-304,056	0.0	-304,038	0.0	-304,038	0.0
5	35.2	33.5	-259,733	0.0	-293,441	0.0	-290,562	0.0	-290,548	0.0	-290,548	0.0
6	37.0	35.4	-251,416	0.0	-276,728	0.0	-274,422	0.0	-274,411	0.0	-274,411	0.0
7	39.0	37.6	-238,798	0.0	-260,125	0.0	-258,277	0.0	-258,268	0.0	-258,268	0.0
8	41.3	40.1	-219,039	0.0	-242,098	0.0	-240,618	0.0	-240,611	0.0	-240,611	0.0
9	43.7	42.5	-191,203	0.0	-224,926	0.0	-223,740	0.0	-223,734	0.0	-223,734	0.0
10	46.1	44.0	-159,792	0.0	-209,164	0.0	-208,079	0.0	-208,079	0.0	-208,079	0.0
11	48.4	45.0	-124,835	0.0	-194,210	0.0	-193,449	0.0	-193,445	0.0	-193,445	0.0
12	50.5	45.6	-92,222	0.0	-179,937	0.0	-179,329	0.0	-179,327	0.0	-179,327	0.0
13	52.2	46.1	-68,653	0.0	-168,268	0.0	-167,781	0.0	-167,778	0.0	-167,778	0.0
14	53.5	46.4	-52,833	0.0	-158,619	0.0	-158,230	0.0	-158,228	0.0	-158,228	0.0
15	54.3	46.3	-46,691	0.0	-151,926	0.0	-151,615	0.0	-151,614	0.0	-151,614	0.0
16	54.6	46.1	-50,976	0.0	-148,313	0.0	-148,064	0.0	-148,063	0.0	-148,063	0.0
17	54.0	45.9	-61,959	0.0	-152,986	0.0	-152,787	0.0	-152,786	0.0	-152,786	0.0
18	52.5	45.0	-80,448	0.0	-165,456	0.0	-165,297	0.0	-165,296	0.0	-165,296	0.0
19	50.1	44.8	-101,811	0.0	-186,096	0.0	-185,969	0.0	-185,968	0.0	-185,968	0.0
20	47.1	43.3	-123,149	0.0	-212,293	0.0	-212,191	0.0	-212,191	0.0	-212,191	0.0
21	43.7	40.4	-140,983	0.0	-242,177	0.0	-242,096	0.0	-242,095	0.0	-242,095	0.0
22	40.4	37.3	-157,883	0.0	-270,408	0.0	-270,342	0.0	-270,342	0.0	-270,342	0.0
23	37.3	34.9	-170,694	0.0	-295,945	0.0	-295,893	0.0	-295,893	0.0	-295,893	0.0
24	34.9	32.6	-181,150	0.0	-313,275	0.0	-313,233	0.0	-313,233	0.0	-313,233	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-173,122	0.0	-225,060	0.0	-259,060	0.0	-259,221	0.0	-259,221	0.0
2	39.7	37.1	-184,905	0.0	-248,883	0.0	-276,112	0.0	-276,241	0.0	-276,242	0.0
3	37.8	35.1	-195,783	0.0	-270,894	0.0	-292,701	0.0	-292,805	0.0	-292,806	0.0
4	36.3	33.8	-205,564	0.0	-287,756	0.0	-305,224	0.0	-305,306	0.0	-305,307	0.0
5	35.1	32.6	-211,334	0.0	-300,830	0.0	-314,823	0.0	-314,889	0.0	-314,889	0.0
6	34.4	32.0	-211,003	0.0	-308,679	0.0	-319,886	0.0	-319,939	0.0	-319,939	0.0
7	34.1	31.9	-204,978	0.0	-312,815	0.0	-321,792	0.0	-321,835	0.0	-321,835	0.0
8	34.6	32.4	-190,610	0.0	-308,534	0.0	-315,726	0.0	-315,760	0.0	-315,760	0.0
9	36.0	33.8	-169,536	0.0	-295,330	0.0	-301,089	0.0	-301,117	0.0	-301,117	0.0
10	38.2	34.7	-143,934	0.0	-275,488	0.0	-280,100	0.0	-280,122	0.0	-280,122	0.0
11	40.9	36.2	-115,190	0.0	-252,067	0.0	-255,756	0.0	-255,774	0.0	-255,774	0.0
12	43.9	37.4	-87,904	0.0	-226,070	0.0	-229,019	0.0	-229,032	0.0	-229,032	0.0
13	46.9	39.4	-66,532	0.0	-200,202	0.0	-202,558	0.0	-202,569	0.0	-202,569	0.0
14	49.7	41.4	-52,556	0.0	-175,784	0.0	-177,667	0.0	-177,675	0.0	-177,675	0.0
15	51.8	42.8	-45,649	0.0	-157,724	0.0	-159,655	0.0	-159,662	0.0	-159,662	0.0
16	53.2	43.9	-49,230	0.0	-146,965	0.0	-148,165	0.0	-148,171	0.0	-148,171	0.0
17	53.7	44.2	-57,661	0.0	-144,679	0.0	-145,637	0.0	-145,642	0.0	-145,642	0.0
18	53.4	44.4	-74,185	0.0	-149,320	0.0	-150,086	0.0	-150,090	0.0	-150,090	0.0
19	52.7	44.4	-92,442	0.0	-156,128	0.0	-156,741	0.0	-156,744	0.0	-156,744	0.0
20	51.5	45.2	-111,519	0.0	-167,614	0.0	-168,104	0.0	-168,106	0.0	-168,106	0.0
21	50.0	44.6	-125,756	0.0	-181,725	0.0	-182,116	0.0	-182,118	0.0	-182,118	0.0
22	48.1	43.3	-141,150	0.0	-199,739	0.0	-200,052	0.0	-200,054	0.0	-200,054	0.0
23	46.1	41.8	-154,275	0.0	-218,353	0.0	-218,604	0.0	-218,605	0.0	-218,605	0.0
24	43.9	40.1	-163,432	0.0	-239,069	0.0	-239,270	0.0	-239,271	0.0	-239,271	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-82,409	0.0	-37,436	0.0	-143,051	0.0	-144,222	0.0	-144,235	0.0
2	48.7	44.6	-88,020	0.0	-80,263	0.0	-165,915	0.0	-166,852	0.0	-166,863	0.0
3	46.6	42.9	-93,294	0.0	-115,944	0.0	-183,220	0.0	-183,971	0.0	-183,979	0.0
4	44.9	41.4	-100,014	0.0	-142,745	0.0	-196,629	0.0	-197,230	0.0	-197,237	0.0
5	43.9	40.8	-101,397	0.0	-159,883	0.0	-203,046	0.0	-203,527	0.0	-203,533	0.0
6	43.5	40.8	-96,504	0.0	-169,681	0.0	-204,258	0.0	-204,644	0.0	-204,648	0.0
7	44.0	41.4	-86,065	0.0	-169,267	0.0	-196,969	0.0	-197,278	0.0	-197,281	0.0
8	45.4	42.7	-66,112	0.0	-159,569	0.0	-181,768	0.0	-182,015	0.0	-182,018	0.0
9	47.7	44.3	-37,696	0.0	-141,329	0.0	-159,111	0.0	-159,309	0.0	-159,311	0.0
10	50.6	45.8	-3,620	0.0	-118,525	0.0	-132,762	0.0	-132,920	0.0	-132,922	0.0
11	53.9	47.4	0	0.0	-92,235	0.0	-103,628	0.0	-103,755	0.0	-103,757	0.0
12	57.4	49.0	0	0.0	-63,521	0.0	-72,634	0.0	-72,735	0.0	-72,737	0.0
13	60.7	50.8	0	0.0	-36,534	0.0	-43,819	0.0	-43,900	0.0	-43,901	0.0
14	63.6	52.7	0	0.0	-13,132	0.0	-18,953	0.0	-19,018	0.0	-19,019	0.0
15	65.9	53.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7	56.0	0	0.0	-12,030	0.0	-15,595	0.0	-15,635	0.0	-15,635	0.0
21	62.5	56.0	0	0.0	-35,238	0.0	-38,092	0.0	-38,124	0.0	-38,124	0.0
22	60.0	54.1	0	0.0	-60,526	0.0	-62,810	0.0	-62,836	0.0	-62,836	0.0
23	57.1	51.9	0	0.0	-89,019	0.0	-90,847	0.0	-90,868	0.0	-90,868	0.0
24	54.2	49.4	0	0.0	-116,258	0.0	-117,721	0.0	-117,737	0.0	-117,738	0.0

April			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4	52.4	0	0.0	0	0.0	-15,384	0.0	-22,570	0.0	-23,196	0.0
5	54.2	51.4	0	0.0	0	0.0	-38,186	0.0	-43,947	0.0	-44,449	0.0
6	53.5	50.9	0	0.0	0	0.0	-53,822	0.0	-58,443	0.0	-58,845	0.0
7	53.2	51.1	0	0.0	-21,357	0.0	-64,267	0.0	-67,973	0.0	-68,294	0.0
8	53.9	51.5	0	0.0	-28,477	0.0	-62,886	0.0	-65,857	0.0	-66,116	0.0
9	55.9	52.1	0	0.0	-20,009	0.0	-47,584	0.0	-49,965	0.0	-50,172	0.0
10	58.9	53.2	0	0.0	0	0.0	-22,108	0.0	-24,014	0.0	-24,180	0.0
11	62.6	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	6.5	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	14.0	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	12.3	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	10.6	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	8.1	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	6.1	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	2.9	0	3.4	0	3.4	0	3.4
2	65.7	61.5	0	0.0	0	1.2	0	1.4	0	1.4	0	1.4
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	8.5	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	11.5	0	0.3	0	0.3	0	0.3	0	0.3
13	78.5	63.7	0	14.6	0	1.5	0	1.5	0	1.5	0	1.5
14	81.9	65.3	0	17.4	0	2.3	0	2.3	0	2.3	0	2.3
15	84.1	66.9	0	20.1	0	2.9	0	2.9	0	2.9	0	2.9
16	84.9	67.1	0	21.5	0	3.0	0	3.0	0	3.0	0	3.0
17	84.6	67.3	0	22.4	0	2.8	0	2.8	0	2.8	0	2.8
18	83.8	67.1	0	22.6	0	5.4	0	5.4	0	5.4	0	5.4
19	82.4	67.5	0	21.8	0	11.0	0	11.0	0	11.0	0	11.0
20	80.6	68.9	0	20.5	0	10.4	0	10.4	0	10.4	0	10.4
21	78.5	71.0	0	18.4	0	10.5	0	10.5	0	10.5	0	10.5
22	76.1	69.9	0	16.1	0	10.0	0	10.0	0	10.0	0	10.0
23	73.4	68.0	0	14.1	0	7.4	0	7.4	0	7.4	0	7.4
24	70.8	65.5	0	11.8	0	5.6	0	5.6	0	5.6	0	5.6

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	20.3	0	11.0	0	12.9	0	12.9	0	12.9
2	72.6	68.4	0	17.3	0	9.2	0	9.7	0	9.7	0	9.7
3	70.9	67.3	0	15.7	0	7.5	0	7.6	0	7.6	0	7.6
4	69.6	66.5	0	13.9	0	5.8	0	5.8	0	5.8	0	5.8
5	68.7	65.8	0	12.4	0	3.7	0	3.7	0	3.7	0	3.7
6	68.5	65.7	0	11.7	0	2.6	0	2.6	0	2.6	0	2.6
7	69.0	66.3	0	11.7	0	1.2	0	1.2	0	1.2	0	1.2
8	70.6	66.9	0	12.2	0	1.5	0	1.5	0	1.5	0	1.5
9	73.0	67.7	0	13.7	0	1.9	0	1.9	0	1.9	0	1.9
10	76.1	68.1	0	15.5	0	4.4	0	4.4	0	4.4	0	4.4
11	79.5	69.1	0	18.3	0	6.6	0	6.6	0	6.6	0	6.6
12	82.9	70.1	0	21.7	0	9.6	0	9.6	0	9.6	0	9.6
13	86.0	71.0	0	24.2	0	12.3	0	12.3	0	12.3	0	12.3
14	88.4	72.5	0	26.9	0	15.5	0	15.5	0	15.5	0	15.5
15	90.0	74.0	0	29.1	0	18.9	0	18.9	0	18.9	0	18.9
16	90.5	73.7	0	30.5	0	20.0	0	20.0	0	20.0	0	20.0
17	90.3	74.2	0	30.5	0	21.6	0	21.6	0	21.6	0	21.6
18	89.4	73.9	0	30.5	0	22.1	0	22.1	0	22.1	0	22.1
19	88.1	74.5	0	30.5	0	22.1	0	22.1	0	22.1	0	22.1
20	86.4	75.3	0	29.8	0	21.6	0	21.6	0	21.6	0	21.6
21	84.3	76.5	0	28.6	0	21.4	0	21.4	0	21.4	0	21.4
22	81.9	75.7	0	25.9	0	21.0	0	21.0	0	21.0	0	21.0
23	79.5	74.0	0	23.9	0	19.1	0	19.1	0	19.1	0	19.1
24	77.0	72.1	0	22.1	0	15.9	0	15.9	0	15.9	0	15.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	21.2	0	8.9	0	10.3	0	10.3	0	10.3
2	72.4	69.4	0	17.3	0	8.0	0	8.5	0	8.5	0	8.5
3	71.3	68.4	0	15.9	0	5.7	0	5.9	0	5.9	0	5.9
4	70.5	67.7	0	14.1	0	4.3	0	4.4	0	4.4	0	4.4
5	70.0	67.4	0	13.2	0	3.0	0	3.0	0	3.0	0	3.0
6	69.9	67.5	0	12.5	0	1.9	0	1.9	0	1.9	0	1.9
7	70.3	68.0	0	12.5	0	1.1	0	1.1	0	1.1	0	1.1
8	71.7	69.0	0	12.8	0	0.9	0	0.9	0	0.9	0	0.9
9	73.7	69.5	0	13.9	0	2.2	0	2.2	0	2.2	0	2.2
10	76.2	70.6	0	15.9	0	4.2	0	4.2	0	4.2	0	4.2
11	78.9	71.8	0	17.6	0	7.3	0	7.3	0	7.3	0	7.3
12	81.4	73.0	0	21.3	0	10.6	0	10.6	0	10.6	0	10.6
13	83.4	74.4	0	24.0	0	13.6	0	13.6	0	13.6	0	13.6
14	84.8	74.8	0	26.6	0	16.4	0	16.4	0	16.4	0	16.4
15	85.2	75.0	0	28.8	0	18.0	0	18.0	0	18.0	0	18.0
16	85.1	75.0	0	30.4	0	20.1	0	20.1	0	20.1	0	20.1
17	84.6	74.7	0	30.5	0	20.2	0	20.2	0	20.2	0	20.2
18	83.8	74.6	0	30.5	0	20.6	0	20.6	0	20.6	0	20.6
19	82.7	74.6	0	30.5	0	21.1	0	21.1	0	21.1	0	21.1
20	81.4	74.4	0	30.4	0	20.4	0	20.4	0	20.4	0	20.4
21	79.9	74.9	0	27.3	0	19.6	0	19.6	0	19.6	0	19.6
22	78.4	74.0	0	25.5	0	17.5	0	17.5	0	17.5	0	17.5
23	76.8	72.7	0	23.2	0	15.1	0	15.1	0	15.1	0	15.1
24	75.2	71.6	0	21.5	0	12.8	0	12.8	0	12.8	0	12.8

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	21.0	0	10.6	0	12.5	0	12.5	0	12.5
2	73.2	70.3	0	16.7	0	9.2	0	9.8	0	9.8	0	9.8
3	71.7	68.9	0	15.2	0	7.5	0	7.7	0	7.7	0	7.7
4	70.4	67.8	0	13.5	0	5.8	0	5.8	0	5.8	0	5.8
5	69.5	66.8	0	12.2	0	3.5	0	3.5	0	3.5	0	3.5
6	68.9	66.4	0	11.6	0	2.3	0	2.3	0	2.3	0	2.3
7	68.7	66.4	0	10.9	0	1.0	0	1.0	0	1.0	0	1.0
8	69.2	66.8	0	11.3	0	0.3	0	0.3	0	0.3	0	0.3
9	70.8	67.7	0	12.8	0	0.3	0	0.3	0	0.3	0	0.3
10	73.2	67.7	0	14.6	0	1.6	0	1.6	0	1.6	0	1.6
11	76.2	68.8	0	17.0	0	4.3	0	4.4	0	4.4	0	4.4
12	79.3	70.3	0	20.2	0	7.5	0	7.5	0	7.5	0	7.5
13	82.3	72.2	0	23.7	0	10.7	0	10.7	0	10.7	0	10.7
14	84.7	73.7	0	27.0	0	14.3	0	14.3	0	14.3	0	14.3
15	86.3	74.6	0	29.7	0	17.0	0	17.0	0	17.0	0	17.0
16	86.8	75.1	0	30.5	0	19.6	0	19.6	0	19.6	0	19.6
17	86.6	75.1	0	30.5	0	21.2	0	21.2	0	21.2	0	21.2
18	86.0	75.3	0	30.5	0	22.5	0	22.5	0	22.5	0	22.5
19	85.1	76.0	0	30.5	0	22.5	0	22.5	0	22.5	0	22.5
20	83.8	76.8	0	30.5	0	22.1	0	22.1	0	22.1	0	22.1
21	82.3	77.2	0	30.5	0	21.9	0	21.9	0	21.9	0	21.9
22	80.6	76.3	0	25.8	0	21.0	0	21.0	0	21.0	0	21.0
23	78.7	75.3	0	23.2	0	18.1	0	18.1	0	18.1	0	18.1
24	76.8	73.7	0	21.5	0	15.2	0	15.2	0	15.2	0	15.2

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	14.4	0	3.8	0	4.9	0	4.9	0	4.9
2	67.6	65.0	0	10.6	0	2.3	0	2.7	0	2.7	0	2.7
3	65.8	63.4	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	5.1	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	3.7	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	5.0	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	6.6	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	9.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	12.2	0	0.3	0	0.4	0	0.4	0	0.4
13	78.3	66.7	0	15.7	0	1.3	0	1.3	0	1.3	0	1.3
14	81.2	68.4	0	18.6	0	2.1	0	2.1	0	2.1	0	2.1
15	83.0	70.0	0	21.4	0	2.7	0	2.7	0	2.7	0	2.7
16	83.7	70.5	0	23.4	0	3.0	0	3.0	0	3.0	0	3.0
17	83.4	70.5	0	23.8	0	9.0	0	9.0	0	9.0	0	9.0
18	82.8	70.9	0	23.7	0	14.1	0	14.1	0	14.1	0	14.1
19	81.6	72.7	0	23.3	0	14.5	0	14.5	0	14.5	0	14.5
20	80.1	74.7	0	22.6	0	14.6	0	14.6	0	14.6	0	14.6
21	78.3	74.1	0	21.1	0	14.4	0	14.4	0	14.4	0	14.4
22	76.3	72.4	0	18.2	0	12.2	0	12.2	0	12.2	0	12.2
23	74.1	70.7	0	15.6	0	9.9	0	9.9	0	9.9	0	9.9
24	71.8	68.9	0	13.2	0	7.3	0	7.3	0	7.3	0	7.3

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-108,467	0.0	-111,678	0.0	-111,751	0.0
2	50.1	48.6	0	0.0	-8,169	0.0	-128,354	0.0	-130,929	0.0	-130,988	0.0
3	48.4	46.9	0	0.0	-47,543	0.0	-143,878	0.0	-145,945	0.0	-145,991	0.0
4	47.1	45.8	0	0.0	-78,235	0.0	-155,510	0.0	-157,167	0.0	-157,205	0.0
5	46.3	44.8	0	0.0	-94,781	0.6	-162,894	0.0	-164,222	0.0	-164,253	0.0
6	46.0	44.5	0	0.0	-116,373	0.0	-166,027	0.0	-167,093	0.0	-167,117	0.0
7	46.8	45.3	0	0.0	-120,429	0.0	-158,068	0.0	-158,922	0.0	-158,941	0.0
8	48.9	47.5	0	0.0	-107,212	0.0	-137,386	0.0	-138,071	0.0	-138,087	0.0
9	52.2	49.9	0	0.0	-81,752	0.0	-105,937	0.0	-106,486	0.0	-106,498	0.0
10	56.2	52.5	0	0.0	-50,251	0.0	-69,625	0.0	-70,064	0.0	-70,074	0.0
11	60.4	54.4	0	0.0	-17,486	0.0	-32,991	0.0	-33,343	0.0	-33,351	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	2.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.0	-6,198	0.0	-13,954	0.0	-14,129	0.0	-14,134	0.0
22	59.6	57.3	0	0.0	-33,689	0.0	-39,908	0.0	-40,050	0.0	-40,053	0.0
23	57.0	55.1	0	0.0	-61,149	0.0	-66,138	0.0	-66,251	0.0	-66,254	0.0
24	54.5	52.7	0	0.0	-86,365	0.0	-90,367	0.0	-90,457	0.0	-90,460	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-69,347	0.0	-37,663	0.0	-132,586	0.0	-133,878	0.0	-133,895	0.0
2	49.4	47.3	-79,801	0.0	-79,437	0.0	-155,570	0.0	-156,605	0.0	-156,619	0.0
3	47.2	45.3	-89,952	0.0	-113,085	0.0	-174,138	0.0	-174,969	0.0	-174,981	0.0
4	45.3	43.4	-98,414	0.0	-140,918	0.0	-189,875	0.0	-190,541	0.0	-190,550	0.0
5	43.9	42.2	-102,685	0.0	-161,373	0.0	-200,630	0.0	-201,163	0.0	-201,171	0.0
6	43.0	41.4	-98,254	0.0	-175,346	0.0	-206,826	0.0	-207,254	0.0	-207,260	0.0
7	42.7	41.2	-87,948	0.0	-182,351	0.0	-207,593	0.0	-207,937	0.0	-207,941	0.0
8	43.5	42.0	-66,699	0.0	-177,828	0.0	-198,067	0.0	-198,342	0.0	-198,346	0.0
9	45.9	44.0	-34,641	0.0	-156,655	0.0	-172,881	0.0	-173,102	0.0	-173,105	0.0
10	49.4	46.6	0	0.0	-125,204	0.0	-138,209	0.0	-138,387	0.0	-138,389	0.0
11	53.8	48.6	0	0.0	-85,938	0.0	-96,356	0.0	-96,498	0.0	-96,500	0.0
12	58.4	50.6	0	0.0	-46,046	0.0	-54,386	0.0	-54,500	0.0	-54,501	0.0
13	62.8	52.6	0	0.0	-8,737	0.0	-15,338	0.0	-15,429	0.0	-15,430	0.0
14	66.3	54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.0	0	0.0	-5,904	0.0	-5,957	0.0	-5,957	0.0
21	62.8	58.2	0	0.0	-26,806	0.0	-29,931	0.0	-29,974	0.0	-29,974	0.0
22	60.2	56.1	0	0.0	-54,162	0.0	-56,668	0.0	-56,702	0.0	-56,702	0.0
23	57.5	54.0	0	0.0	-80,901	0.0	-82,909	0.0	-82,937	0.0	-82,937	0.0
24	54.7	51.7	0	0.0	-107,779	0.0	-109,389	0.0	-109,411	0.0	-109,411	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-135,939	0.0	-194,686	0.0	-207,047	0.0	-207,107	0.0	-207,107	0.0
2	43.2	41.1	-142,241	0.0	-211,475	0.0	-221,380	0.0	-221,428	0.0	-221,428	0.0
3	41.8	39.8	-148,567	0.0	-225,097	0.0	-233,034	0.0	-233,072	0.0	-233,073	0.0
4	40.7	38.7	-154,198	0.0	-235,697	0.0	-242,058	0.0	-242,088	0.0	-242,089	0.0
5	40.1	38.4	-157,722	0.0	-241,284	0.0	-246,382	0.0	-246,407	0.0	-246,407	0.0
6	39.9	38.4	-153,335	0.0	-243,502	0.0	-247,588	0.0	-247,608	0.0	-247,608	0.0
7	40.5	39.0	-144,903	0.0	-238,101	0.0	-241,376	0.0	-241,391	0.0	-241,392	0.0
8	42.2	40.7	-129,061	0.0	-222,142	0.0	-224,766	0.0	-224,779	0.0	-224,779	0.0
9	44.9	43.4	-105,743	0.0	-196,960	0.0	-199,063	0.0	-199,073	0.0	-199,073	0.0
10	48.2	45.8	-79,377	0.0	-167,601	0.0	-169,286	0.0	-169,293	0.0	-169,293	0.0
11	51.7	48.3	-47,698	0.0	-137,733	0.0	-139,082	0.0	-139,088	0.0	-139,088	0.0
12	55.0	50.7	-19,141	0.0	-110,738	0.0	-111,818	0.0	-111,823	0.0	-111,823	0.0
13	57.7	52.0	0	0.0	-89,804	0.0	-90,668	0.0	-90,672	0.0	-90,672	0.0
14	59.5	52.6	0	0.0	-77,233	0.0	-77,925	0.0	-77,928	0.0	-77,928	0.0
15	60.1	52.7	0	0.0	-75,705	0.0	-76,258	0.0	-76,260	0.0	-76,260	0.0
16	59.9	52.6	0	0.0	-79,821	0.0	-80,263	0.0	-80,265	0.0	-80,265	0.0
17	59.2	52.1	0	0.0	-86,525	0.0	-86,880	0.0	-86,881	0.0	-86,881	0.0
18	58.2	51.8	0	0.0	-94,356	0.0	-94,640	0.0	-94,641	0.0	-94,641	0.0
19	56.8	52.2	-19,096	0.0	-105,270	0.0	-105,497	0.0	-105,498	0.0	-105,498	0.0
20	55.0	51.4	-41,147	0.0	-119,871	0.0	-120,053	0.0	-120,054	0.0	-120,054	0.0
21	53.1	50.1	-59,892	0.0	-135,486	0.0	-135,632	0.0	-135,633	0.0	-135,633	0.0
22	51.0	48.1	-76,548	0.0	-153,771	0.0	-153,887	0.0	-153,888	0.0	-153,888	0.0
23	48.9	46.2	-90,396	0.0	-172,241	0.0	-172,334	0.0	-172,335	0.0	-172,335	0.0
24	46.9	44.1	-101,009	0.0	-189,549	0.0	-189,623	0.0	-189,624	0.0	-189,624	0.0

## 01 Card - Job Information

-----  
 Project: STANSELL HALL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 29818 (1 BLDG)

## -----CARD 08-- Climatic Information-----

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

## -----CARD 09-- Load Simulation Periods-----

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR	OCT					

## -----CARD 10 -- Load Simulation Parameters-----

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	YES

## ----- Load Section Alternative #1 -----

## ----- Load Alternative -----

Number	Description
1	STANSELL HALL

## -----CARD 20-- General Room Parameters-----

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	286.5	61.5	3	0		11.6	2		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				199			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	286.5	12		196	0			
1	2	61.5	12		196	90			
1	3	286.5	12		196	180			
1	4	61.5	12		196	270			

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	100	PEOPLE	255	325	2.3	WATT-SF	SUSFLUOR				

## -----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	20	KW	FGHEAT						

```

-----CARD 29--- Room Airflows -----
-----Ventilation-----
Room   Cooling-----Heating-----
Number Value  Units  Value  Units  Value  Units  Value  Units  --Reheat Minimum--
1      15    CFM-P  15    CFM-P  .08   CFM-SF .1    CFM-SF  Value  Units

```

```

-----CARD 30- Fan Airflows -----
-----Main-----
Room   Cooling-----Heating-----
Number Value  Units  Value  Units  Value  Units  Value  Units  --Room Exhaust--
1      1    CFM-SF  1    CFM-SF  Value  Units  Value  Units  Value  Units

```

```

----- System Section Alternative #1 -----

```

```

-----CARD 39-- System Alternative -----
Number  Description
1      MULTI ZONE SYSTEM

```

```

-----CARD 40--- System Type -----
-----OPTIONAL VENTILATION SYSTEM-----
System  Ventil  Fan
Set     System Deck  Cooling Heating Cooling Heating Static
Number Type  Location SADBvh SADBvh Schedule Schedule Pressure
1      MZ

```

```

-----CARD 41-- Zone Assignment -----
System
Set     Ref #1      Ref #2      Ref #3      Ref #4      Ref #5      Ref #6
Number  Begin  End  Begin  End  Begin  End  Begin  End  Begin  End
1      1      1

```

```

-----CARD 42--- Fan SP and Duct Parameters-----
System Cool Heat Return Mn Exh Aux Rm Exh Cool Return Supply Supply Return
Set     Fan Fan Fan Fan Fan Fan Fan Mtr Fan Mtr Duct Duct Air
Number SP SP SP SP SP SP SP Loc Loc Ht Gn Loc Path
1

```

Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHO FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE



Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0	100	
24		

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

SOLDIER SERVICE CENTER  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 33720 (1 BUILDING)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 16:44:50 8/16/94  
Dataset Name: FGTYP530 .TM

System 1 Peak SZ - SINGLE ZONE

\*\*\*\*\* COOLING COIL PEAK \*\*\*\*\* CLG SPACE PEAK \*\*\*\*\* HEATING COIL PEAK \*\*\*\*\*

COOLING COIL PEAK						CLG SPACE PEAK						HEATING COIL PEAK					
Peaked at Time ==)						Mo/Hr: 8/15						Mo/Hr: 6/15			Mo/Hr: 13/ 1		
Outside Air ==)						OADB/WB/HR: 97/ 76/105.0						OADB: 100			OADB: 23		
Space	Ret. Air	Ret. Air	Net	Perct	*	Space	Perct	*	Space Peak	Coil Peak	Perct						
Sens.+Lat.	Sensible	Latent	Total	Of Tot	*	Sensible	Of Tot	*	Space Sens	Tot Sens	Of Tot						
(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)						
Envelope Loads					*			*									
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Roof Cond	274,087	0	274,087	21.26	*	298,822	40.73	*	-150,414	-150,414	9.30						
Glass Solar	148,239	0	148,239	11.50	*	133,035	18.13	*	0	0	0.00						
Glass Cond	76,343	0	76,343	5.92	*	89,263	12.17	*	-192,619	-192,619	11.90						
Wall Cond	92,957	0	92,957	7.21	*	101,700	13.86	*	-207,081	-207,081	12.80						
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Infiltration	134,498	0	134,498	10.43	*	110,911	15.12	*	-245,620	-245,620	15.18						
Sub Total==>	726,124	0	726,124	56.33	*	733,731	100.00	*	-795,735	-795,735	49.18						
Internal Loads					*			*									
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Sub Total==>	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Outside Air	0	0	562,818	43.67	*	0	0.00	*	0	-822,254	50.82						
Sup. Fan Heat			0	0.00	*		0.00	*		0	0.00						
Ret. Fan Heat		0	0	0.00	*		0.00	*		0	0.00						
Duct Heat Pkup		0	0	0.00	*		0.00	*		0	0.00						
OV/UNDR Sizing	0		0	0.00	*	0	0.00	*	0	0	0.00						
Exhaust Heat		0	0	0.00	*		0.00	*		0	0.00						
Terminal Bypass		0	0	0.00	*		0.00	*		0	0.00						
Grand Total==>	726,124	0	0	1,288,942	100.00	*	733,731	100.00	*	-795,735	-1,617,989	100.00					

-----COOLING COIL SELECTION-----											-----AREAS-----		
	Total Capacity	Sens Cap.	Coil Airfl	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf) (%)		
	(Tons)	(Mbh)	(cfm)	Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor	Part	ExFlr	
Main Clg	107.4	1,288.9	1,080.6	78.3	69.0	92.6	68.9	65.7	90.6	108,600	0	0	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36,200	0	0	
Totals	107.4	1,288.9								49,198	3,801	8	

-----HEATING COIL SELECTION-----				-----AIRFLOWS (cfm)-----				-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
Capacity	Coil Airfl	Ent	Lvg	Type	Cooling	Heating	Clg % OA	15.2	Type	Clg	Htg		
(Mbh)	(cfm)	Deg F	Deg F	Vent	16,470	16,470	Clg Cfm/Sqft	1.00	SADB	68.9	74.6		
Main Htg	-1,618.0	108,600	61.2	74.6	Infil	3,936	4,920	Clg Cfm/Ton	1011.06	Plenum	75.0	68.0	
Aux Htg	0.0	0	0.0	0.0	Supply	108,600	108,600	Clg Sqft/Ton	1011.06	Return	75.0	68.0	
Preheat	-931.9	108,600	61.2	68.9	Mincfm	0	0	Clg Btuh/Sqft	11.87	Ret/OA	78.3	61.2	
Reheat	0.0	0	0.0	0.0	Return	108,600	108,600	No. People	1,098	Runarnd	75.0	68.0	
Humidif	0.0	0	0.0	0.0	Exhaust	16,470	16,470	Htg % OA	15.2	Fn MtrTD	0.0	0.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg Cfm/Sqft	1.00	Fn BldTD	0.0	0.0	
Total	-1,618.0				Auxil	0	0	Htg Btuh/Sqft	-14.90	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

January		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4 31.1	-1,179,261	0.0	-1,026,574	0.0	-1,038,641	0.0	-1,038,641	0.0	-1,038,641	0.0
2	32.9 30.7	-1,133,886	0.0	-1,047,416	0.0	-1,057,228	0.0	-1,057,228	0.0	-1,057,228	0.0
3	33.1 31.3	-1,100,223	0.0	-1,054,405	0.0	-1,062,388	0.0	-1,062,388	0.0	-1,062,388	0.0
4	33.9 32.1	-1,072,922	0.0	-1,048,857	0.0	-1,055,351	0.0	-1,055,351	0.0	-1,055,351	0.0
5	35.2 33.5	-1,049,987	0.0	-1,032,295	0.0	-1,037,580	0.0	-1,037,580	0.0	-1,037,580	0.0
6	37.0 35.4	-1,019,285	0.0	-1,005,181	0.0	-1,009,479	0.0	-1,009,479	0.0	-1,009,479	0.0
7	39.0 37.6	-981,698	0.0	-972,245	0.0	-975,742	0.0	-975,742	0.0	-975,742	0.0
8	41.3 40.1	-931,713	0.0	-932,031	0.0	-934,875	0.0	-934,875	0.0	-934,875	0.0
9	43.7 42.5	-862,352	0.0	-885,739	0.0	-888,054	0.0	-888,054	0.0	-888,054	0.0
10	46.1 44.0	-776,076	0.0	-833,957	0.0	-835,838	0.0	-835,838	0.0	-835,838	0.0
11	48.4 45.0	-673,783	0.0	-779,140	0.0	-780,670	0.0	-780,670	0.0	-780,670	0.0
12	50.5 45.6	-508,609	0.0	-723,598	0.0	-724,840	0.0	-724,840	0.0	-724,840	0.0
13	52.2 46.1	-157,144	0.0	-577,425	0.0	-584,334	0.0	-584,334	0.0	-584,334	0.0
14	53.5 46.4	-64,800	0.0	-479,919	0.0	-479,919	0.0	-479,919	0.0	-479,919	0.0
15	54.3 46.3	-21,468	0.0	-447,593	0.0	-447,593	0.0	-447,593	0.0	-447,593	0.0
16	54.6 46.1	-40,918	0.0	-443,578	0.0	-443,578	0.0	-443,578	0.0	-443,578	0.0
17	54.0 45.9	-112,303	0.0	-483,296	0.0	-483,296	0.0	-483,296	0.0	-483,296	0.0
18	52.5 45.0	-260,513	0.0	-543,624	0.0	-543,624	0.0	-543,624	0.0	-543,624	0.0
19	50.1 44.8	-400,589	0.0	-631,091	0.0	-631,091	0.0	-631,091	0.0	-631,091	0.0
20	47.1 43.3	-509,045	0.0	-717,694	0.0	-717,694	0.0	-717,694	0.0	-717,694	0.0
21	43.7 40.4	-595,916	0.0	-809,803	0.0	-809,803	0.0	-809,803	0.0	-809,803	0.0
22	40.4 37.3	-679,653	0.0	-892,512	0.0	-892,512	0.0	-892,512	0.0	-892,512	0.0
23	37.3 34.9	-740,440	0.0	-952,511	0.0	-952,511	0.0	-952,511	0.0	-952,511	0.0
24	34.9 32.6	-787,604	0.0	-1,002,225	0.0	-1,002,225	0.0	-1,002,225	0.0	-1,002,225	0.0

February		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7 38.6	-804,242	0.0	-868,975	0.0	-869,255	0.0	-869,255	0.0	-869,255	0.0
2	39.7 37.1	-822,565	0.0	-909,739	0.0	-909,965	0.0	-909,965	0.0	-909,965	0.0
3	37.8 35.1	-840,058	0.0	-950,937	0.0	-951,122	0.0	-951,122	0.0	-951,122	0.0
4	36.3 33.8	-855,868	0.0	-985,544	0.0	-985,694	0.0	-985,694	0.0	-985,694	0.0
5	35.1 32.6	-865,382	0.0	-1,015,615	0.0	-1,015,737	0.0	-1,015,737	0.0	-1,015,737	0.0
6	34.4 32.0	-864,256	0.0	-1,037,635	0.0	-1,037,733	0.0	-1,037,733	0.0	-1,037,733	0.0
7	34.1 31.9	-851,658	0.0	-1,051,654	0.0	-1,051,735	0.0	-1,051,735	0.0	-1,051,735	0.0
8	34.6 32.4	-821,690	0.0	-1,049,556	0.0	-1,049,623	0.0	-1,049,623	0.0	-1,049,623	0.0
9	36.0 33.8	-771,148	0.0	-1,026,617	0.0	-1,026,671	0.0	-1,026,671	0.0	-1,026,671	0.0
10	38.2 34.7	-699,724	0.0	-983,175	0.0	-983,218	0.0	-983,218	0.0	-983,218	0.0
11	40.9 36.2	-454,275	0.0	-925,868	0.0	-925,904	0.0	-925,904	0.0	-925,904	0.0
12	43.9 37.4	-250,243	0.0	-858,965	0.0	-858,995	0.0	-858,995	0.0	-858,995	0.0
13	46.9 39.4	-132,119	0.0	-786,958	0.0	-786,982	0.0	-786,982	0.0	-786,982	0.0
14	49.7 41.4	-58,348	0.0	-592,048	0.0	-592,175	0.0	-592,175	0.0	-592,175	0.0
15	51.8 42.8	-11,913	0.0	-508,188	0.0	-508,188	0.0	-508,188	0.0	-508,188	0.0
16	53.2 43.9	-26,491	0.0	-482,134	0.0	-482,134	0.0	-482,134	0.0	-482,134	0.0
17	53.7 44.2	-90,388	0.0	-480,167	0.0	-480,167	0.0	-480,167	0.0	-480,167	0.0
18	53.4 44.4	-212,186	0.0	-509,919	0.0	-509,919	0.0	-509,919	0.0	-509,919	0.0
19	52.7 44.4	-360,888	0.0	-571,040	0.0	-571,040	0.0	-571,040	0.0	-571,040	0.0
20	51.5 45.2	-479,008	0.0	-612,161	0.0	-612,161	0.0	-612,161	0.0	-612,161	0.0
21	50.0 44.6	-573,303	0.0	-658,301	0.0	-658,301	0.0	-658,301	0.0	-658,301	0.0
22	48.1 43.3	-645,611	0.0	-719,074	0.0	-719,074	0.0	-719,074	0.0	-719,074	0.0
23	46.1 41.8	-705,380	0.0	-769,403	0.0	-769,403	0.0	-769,403	0.0	-769,403	0.0
24	43.9 40.1	-759,523	0.0	-827,402	0.0	-827,402	0.0	-827,402	0.0	-827,402	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

March Hour	----- Design -----				----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3	46.8	-425,200	0.0	-101,121	0.0	-566,864	0.0	-566,864	0.0	-566,864	0.0
2	48.7	44.6	-473,000	0.0	-641,017	0.0	-641,017	0.0	-641,017	0.0	-641,017	0.0
3	46.6	42.9	-505,965	0.0	-698,553	0.0	-698,553	0.0	-698,553	0.0	-698,553	0.0
4	44.9	41.4	-540,841	0.0	-749,254	0.0	-749,254	0.0	-749,254	0.0	-749,254	0.0
5	43.9	40.8	-555,567	0.0	-774,878	0.0	-774,878	0.0	-774,878	0.0	-774,878	0.0
6	43.5	40.8	-554,911	0.0	-800,675	0.0	-800,675	0.0	-800,675	0.0	-800,675	0.0
7	44.0	41.4	-528,639	0.0	-789,426	0.0	-789,426	0.0	-789,426	0.0	-789,426	0.0
8	45.4	42.7	-435,629	0.0	-735,161	0.0	-735,161	0.0	-735,161	0.0	-735,161	0.0
9	47.7	44.3	-281,946	0.0	-650,768	0.0	-650,768	0.0	-650,768	0.0	-650,768	0.0
10	50.6	45.8	-104,582	0.0	-531,984	0.0	-531,984	0.0	-531,984	0.0	-531,984	0.0
11	53.9	47.4	0	0.0	-409,644	0.0	-409,644	0.0	-409,644	0.0	-409,644	0.0
12	57.4	49.0	0	0.0	-285,109	0.0	-285,109	0.0	-285,109	0.0	-285,109	0.0
13	60.7	50.8	0	0.0	-179,731	0.0	-179,731	0.0	-179,731	0.0	-179,731	0.0
14	63.6	52.7	0	0.0	-80,022	0.0	-80,022	0.0	-80,022	0.0	-80,022	0.0
15	65.9	53.7	0	0.0	-24,110	0.0	-24,110	0.0	-24,110	0.0	-24,110	0.0
16	67.3	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8	54.6	0	19.9	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4	54.8	0	15.0	-14,583	0.0	-14,583	0.0	-14,583	0.0	-14,583	0.0
19	66.4	55.2	0	0.0	-108,957	0.0	-108,957	0.0	-108,957	0.0	-108,957	0.0
20	64.7	56.0	0	0.0	-179,904	0.0	-179,904	0.0	-179,904	0.0	-179,904	0.0
21	62.5	56.0	0	0.0	-247,659	0.0	-247,659	0.0	-247,659	0.0	-247,659	0.0
22	60.0	54.1	0	0.0	-321,861	0.0	-321,861	0.0	-321,861	0.0	-321,861	0.0
23	57.1	51.9	0	0.0	-401,397	0.0	-401,397	0.0	-401,397	0.0	-401,397	0.0
24	54.2	49.4	0	0.0	-488,321	0.0	-488,321	0.0	-488,321	0.0	-488,321	0.0

April Hour	----- Design -----				----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0	56.5	-85,126	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9	54.9	-134,455	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0	53.5	-167,111	0.0	0	0.0	-88,705	0.0	-88,705	0.0	-88,705	0.0
4	55.4	52.4	-196,981	0.0	0	0.0	-414,609	0.0	-414,609	0.0	-414,609	0.0
5	54.2	51.4	-213,871	0.0	-271,971	0.0	-452,358	0.0	-452,358	0.0	-452,358	0.0
6	53.5	50.9	-213,042	0.0	-469,753	0.0	-469,753	0.0	-469,753	0.0	-469,753	0.0
7	53.2	51.1	-167,937	0.0	-475,363	0.0	-475,363	0.0	-475,363	0.0	-475,363	0.0
8	53.9	51.5	-60,484	0.0	-433,044	0.0	-433,044	0.0	-433,044	0.0	-433,044	0.0
9	55.9	52.1	0	0.0	-348,540	0.0	-348,540	0.0	-348,540	0.0	-348,540	0.0
10	58.9	53.2	0	0.0	-217,016	0.0	-217,016	0.0	-217,016	0.0	-217,016	0.0
11	62.6	55.2	0	0.0	-91,200	0.0	-91,200	0.0	-91,200	0.0	-91,200	0.0
12	66.5	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2	59.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2	61.0	0	45.4	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2	62.2	0	57.1	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9	62.2	0	55.9	0	0.0	0	0.0	0	0.0	0	0.0
17	75.6	62.0	0	50.4	0	0.0	0	0.0	0	0.0	0	0.0
18	74.9	61.7	0	39.9	0	0.0	0	0.0	0	0.0	0	0.0
19	73.7	62.0	0	27.1	0	0.0	0	0.0	0	0.0	0	0.0
20	72.1	62.4	0	14.6	0	0.0	0	0.0	0	0.0	0	0.0
21	70.2	63.3	0	5.7	0	0.0	0	0.0	0	0.0	0	0.0
22	68.0	62.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7	60.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

May		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	65.7	61.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	0.0	0	0.0	-37,563	0.0	-37,563	0.0	-37,563	0.0
9	62.4	56.3	0	0.0	-131,090	0.0	-131,090	0.0	-131,090	0.0	-131,090	0.0
10	65.7	57.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	50.3	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	62.6	0	0.0	0	0.0	0	0.0	0	0.0
13	78.5	63.7	0	72.0	0	0.0	0	0.0	0	0.0	0	0.0
14	81.9	65.3	0	78.7	0	0.0	0	0.0	0	0.0	0	0.0
15	84.1	66.9	0	82.2	0	0.0	0	0.0	0	0.0	0	0.0
16	84.9	67.1	0	80.0	0	38.3	0	38.3	0	38.3	0	38.3
17	84.6	67.3	0	74.4	0	42.8	0	42.8	0	42.8	0	42.8
18	83.8	67.1	0	64.4	0	38.6	0	38.6	0	38.6	0	38.6
19	82.4	67.5	0	52.1	0	31.5	0	31.5	0	31.5	0	31.5
20	80.6	68.9	0	38.5	0	23.4	0	23.4	0	23.4	0	23.4
21	78.5	71.0	0	28.6	0	18.5	0	18.5	0	18.5	0	18.5
22	76.1	69.9	0	20.4	0	12.3	0	12.3	0	12.3	0	12.3
23	73.4	68.0	0	14.4	0	3.1	0	3.1	0	3.1	0	3.1
24	70.8	65.5	0	9.3	0	0.0	0	0.0	0	0.0	0	0.0

June		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	29.8	0	10.6	0	14.9	0	14.9	0	14.9
2	72.6	68.4	0	29.1	0	3.9	0	4.6	0	4.6	0	4.6
3	70.9	67.3	0	24.6	0	0.0	0	0.0	0	0.0	0	0.0
4	69.6	66.5	0	22.3	0	0.0	0	0.0	0	0.0	0	0.0
5	68.7	65.8	0	20.2	0	0.0	0	0.0	0	0.0	0	0.0
6	68.5	65.7	0	20.4	0	0.0	0	0.0	0	0.0	0	0.0
7	69.0	66.3	0	27.4	0	0.0	0	0.0	0	0.0	0	0.0
8	70.6	66.9	0	39.4	0	0.0	0	0.0	0	0.0	0	0.0
9	73.0	67.7	0	52.2	0	0.0	0	0.0	0	0.0	0	0.0
10	76.1	68.1	0	65.6	0	8.5	0	8.6	0	8.6	0	8.6
11	79.5	69.1	0	78.3	0	38.5	0	38.7	0	38.7	0	38.7
12	82.9	70.1	0	89.3	0	48.2	0	48.2	0	48.2	0	48.2
13	86.0	71.0	0	97.9	0	56.5	0	56.5	0	56.5	0	56.5
14	88.4	72.5	0	103.9	0	68.3	0	68.3	0	68.3	0	68.3
15	90.0	74.0	0	107.1	0	76.9	0	76.9	0	76.9	0	76.9
16	90.5	73.7	0	105.3	0	76.7	0	76.7	0	76.7	0	76.7
17	90.3	74.2	0	100.3	0	75.9	0	75.9	0	75.9	0	75.9
18	89.4	73.9	0	89.4	0	72.5	0	72.5	0	72.5	0	72.5
19	88.1	74.5	0	76.8	0	65.5	0	65.5	0	65.5	0	65.5
20	86.4	75.3	0	63.4	0	57.6	0	57.6	0	57.6	0	57.6
21	84.3	76.5	0	54.0	0	53.9	0	53.9	0	53.9	0	53.9
22	81.9	75.7	0	48.3	0	48.8	0	48.8	0	48.8	0	48.8
23	79.5	74.0	0	42.4	0	38.4	0	38.4	0	38.4	0	38.4
24	77.0	72.1	0	38.2	0	26.9	0	26.9	0	26.9	0	26.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	44.5	0	6.2	0	8.3	0	8.3	0	8.3
2	72.4	69.4	0	35.0	0	1.4	0	1.6	0	1.6	0	1.6
3	71.3	68.4	0	29.8	0	0.0	0	0.0	0	0.0	0	0.0
4	70.5	67.7	0	27.1	0	0.0	0	0.0	0	0.0	0	0.0
5	70.0	67.4	0	25.7	0	0.0	0	0.0	0	0.0	0	0.0
6	69.9	67.5	0	24.8	0	0.0	0	0.0	0	0.0	0	0.0
7	70.3	68.0	0	31.3	0	0.0	0	0.0	0	0.0	0	0.0
8	71.7	69.0	0	42.0	0	0.0	0	0.0	0	0.0	0	0.0
9	73.7	69.5	0	53.8	0	0.0	0	0.0	0	0.0	0	0.0
10	76.2	70.6	0	65.6	0	15.5	0	15.6	0	15.6	0	15.6
11	78.9	71.8	0	75.6	0	48.9	0	48.9	0	48.9	0	48.9
12	81.4	73.0	0	88.4	0	58.0	0	58.0	0	58.0	0	58.0
13	83.4	74.4	0	97.7	0	66.7	0	66.7	0	66.7	0	66.7
14	84.8	74.8	0	103.0	0	71.0	0	71.0	0	71.0	0	71.0
15	85.2	75.0	0	105.1	0	74.3	0	74.3	0	74.3	0	74.3
16	85.1	75.0	0	103.3	0	72.4	0	72.4	0	72.4	0	72.4
17	84.6	74.7	0	99.2	0	67.9	0	67.9	0	67.9	0	67.9
18	83.8	74.6	0	88.3	0	63.0	0	63.0	0	63.0	0	63.0
19	82.7	74.6	0	76.5	0	57.9	0	57.9	0	57.9	0	57.9
20	81.4	74.4	0	64.7	0	49.6	0	49.6	0	49.6	0	49.6
21	79.9	74.9	0	55.6	0	43.0	0	43.0	0	43.0	0	43.0
22	78.4	74.0	0	49.4	0	34.1	0	34.1	0	34.1	0	34.1
23	76.8	72.7	0	44.9	0	25.0	0	25.0	0	25.0	0	25.0
24	75.2	71.6	0	41.3	0	16.9	0	16.9	0	16.9	0	16.9

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	43.9	0	11.9	0	16.2	0	16.2	0	16.2
2	73.2	70.3	0	33.5	0	4.8	0	5.6	0	5.6	0	5.6
3	71.7	68.9	0	27.8	0	0.0	0	0.0	0	0.0	0	0.0
4	70.4	67.8	0	24.9	0	0.0	0	0.0	0	0.0	0	0.0
5	69.5	66.8	0	21.3	0	0.0	0	0.0	0	0.0	0	0.0
6	68.9	66.4	0	21.8	0	0.0	0	0.0	0	0.0	0	0.0
7	68.7	66.4	0	25.4	0	0.0	0	0.0	0	0.0	0	0.0
8	69.2	66.8	0	35.8	0	0.0	0	0.0	0	0.0	0	0.0
9	70.8	67.7	0	49.9	0	0.0	0	0.0	0	0.0	0	0.0
10	73.2	67.7	0	63.8	0	0.0	0	0.0	0	0.0	0	0.0
11	76.2	68.8	0	75.6	0	14.5	0	14.6	0	14.6	0	14.6
12	79.3	70.3	0	86.3	0	43.4	0	43.5	0	43.5	0	43.5
13	82.3	72.2	0	97.9	0	54.8	0	54.8	0	54.8	0	54.8
14	84.7	73.7	0	106.3	0	64.7	0	64.7	0	64.7	0	64.7
15	86.3	74.6	0	107.4	0	74.0	0	74.0	0	74.0	0	74.0
16	86.8	75.1	0	107.4	0	75.2	0	75.2	0	75.2	0	75.2
17	86.6	75.1	0	100.9	0	73.0	0	73.0	0	73.0	0	73.0
18	86.0	75.3	0	87.4	0	72.2	0	72.2	0	72.2	0	72.2
19	85.1	76.0	0	75.3	0	64.1	0	64.1	0	64.1	0	64.1
20	83.8	76.8	0	63.7	0	58.0	0	58.0	0	58.0	0	58.0
21	82.3	77.2	0	57.1	0	53.7	0	53.7	0	53.7	0	53.7
22	80.6	76.3	0	49.8	0	48.7	0	48.7	0	48.7	0	48.7
23	78.7	75.3	0	43.8	0	37.3	0	37.3	0	37.3	0	37.3
24	76.8	73.7	0	38.6	0	27.0	0	27.0	0	27.0	0	27.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	17.1	0	0.0	0	0.0	0	0.0	0	0.0
2	67.6	65.0	0	8.5	0	0.0	0	0.0	0	0.0	0	0.0
3	65.8	63.4	0	4.6	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	10.0	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	22.2	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	35.7	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	49.2	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	60.4	0	0.0	0	0.0	0	0.0	0	0.0
13	78.3	66.7	0	70.8	0	0.0	0	0.0	0	0.0	0	0.0
14	81.2	68.4	0	78.6	0	0.0	0	0.0	0	0.0	0	0.0
15	83.0	70.0	0	82.0	0	8.8	0	8.2	0	8.2	0	8.2
16	83.7	70.5	0	80.1	0	47.3	0	47.4	0	47.4	0	47.4
17	83.4	70.5	0	72.6	0	45.1	0	45.1	0	45.1	0	45.1
18	82.8	70.9	0	61.6	0	40.7	0	40.7	0	40.7	0	40.7
19	81.6	72.7	0	49.5	0	35.2	0	35.2	0	35.2	0	35.2
20	80.1	74.7	0	40.1	0	33.6	0	33.6	0	33.6	0	33.6
21	78.3	74.1	0	33.8	0	28.5	0	28.5	0	28.5	0	28.5
22	76.3	72.4	0	25.6	0	19.4	0	19.4	0	19.4	0	19.4
23	74.1	70.7	0	19.2	0	7.4	0	7.4	0	7.4	0	7.4
24	71.8	68.9	0	13.9	0	0.0	0	0.0	0	0.0	0	0.0

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	0	0.0	-505,293	0.0	-505,293	0.0	-505,293	0.0
2	50.1	48.6	0	0.0	-290,658	0.0	-565,335	0.0	-565,335	0.0	-565,335	0.0
3	48.4	46.9	0	0.0	-605,222	0.0	-605,222	0.0	-605,222	0.0	-605,222	0.0
4	47.1	45.8	0	0.0	-651,312	0.0	-651,312	0.0	-651,312	0.0	-651,312	0.0
5	46.3	44.8	-356,409	0.0	-686,203	0.0	-686,203	0.0	-686,203	0.0	-686,203	0.0
6	46.0	44.5	-464,494	0.0	-714,916	0.0	-714,916	0.0	-714,916	0.0	-714,916	0.0
7	46.8	45.3	-444,154	0.0	-694,521	0.0	-694,521	0.0	-694,521	0.0	-694,521	0.0
8	48.9	47.5	-344,777	0.0	-631,433	0.0	-631,433	0.0	-631,433	0.0	-631,433	0.0
9	52.2	49.9	-199,110	0.0	-512,203	0.0	-512,203	0.0	-512,203	0.0	-512,203	0.0
10	56.2	52.5	-23,743	0.0	-378,693	0.0	-378,693	0.0	-378,693	0.0	-378,693	0.0
11	60.4	54.4	0	0.0	-229,840	0.0	-229,840	0.0	-229,840	0.0	-229,840	0.0
12	64.4	56.0	0	0.0	-84,016	0.0	-84,016	0.0	-84,016	0.0	-84,016	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	28.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	29.5	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	15.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	3.8	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	0.0	-175,370	0.0	-175,370	0.0	-175,370	0.0	-175,370	0.0
22	59.6	57.3	0	0.0	-302,737	0.0	-302,737	0.0	-302,737	0.0	-302,737	0.0
23	57.0	55.1	0	0.0	-367,690	0.0	-367,690	0.0	-367,690	0.0	-367,690	0.0
24	54.5	52.7	0	0.0	-437,600	0.0	-437,600	0.0	-437,600	0.0	-437,600	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 SINGLE ZONE SYSTEM

November		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-443,946	0.0	-206,403	0.0	-529,266	0.0	-529,266	0.0	-529,266	0.0
2	49.4	47.3	-495,206	0.0	-603,495	0.0	-603,495	0.0	-603,495	0.0	-603,495	0.0
3	47.2	45.3	-537,428	0.0	-664,395	0.0	-664,395	0.0	-664,395	0.0	-664,395	0.0
4	45.3	43.4	-566,582	0.0	-720,045	0.0	-720,045	0.0	-720,045	0.0	-720,045	0.0
5	43.9	42.2	-588,408	0.0	-753,710	0.0	-753,710	0.0	-753,710	0.0	-753,710	0.0
6	43.0	41.4	-579,841	0.0	-788,599	0.0	-788,599	0.0	-788,599	0.0	-788,599	0.0
7	42.7	41.2	-559,413	0.0	-807,394	0.0	-807,394	0.0	-807,394	0.0	-807,394	0.0
8	43.5	42.0	-478,906	0.0	-789,703	0.0	-789,703	0.0	-789,703	0.0	-789,703	0.0
9	45.9	44.0	-337,014	0.0	-703,922	0.0	-703,922	0.0	-703,922	0.0	-703,922	0.0
10	49.4	46.6	-156,667	0.0	-576,615	0.0	-576,615	0.0	-576,615	0.0	-576,615	0.0
11	53.8	48.6	0	0.0	-437,962	0.0	-437,962	0.0	-437,962	0.0	-437,962	0.0
12	58.4	50.6	0	0.0	-296,839	0.0	-296,839	0.0	-296,839	0.0	-296,839	0.0
13	62.8	52.6	0	0.0	-170,108	0.0	-170,108	0.0	-170,108	0.0	-170,108	0.0
14	66.3	54.5	0	0.0	-65,595	0.0	-65,595	0.0	-65,595	0.0	-65,595	0.0
15	68.7	55.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	9.6	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	8.2	-36,511	0.0	-36,511	0.0	-36,511	0.0	-36,511	0.0
19	66.9	59.4	0	0.0	-126,710	0.0	-126,710	0.0	-126,710	0.0	-126,710	0.0
20	65.0	59.4	0	0.0	-184,807	0.0	-184,807	0.0	-184,807	0.0	-184,807	0.0
21	62.8	58.2	0	0.0	-243,137	0.0	-243,137	0.0	-243,137	0.0	-243,137	0.0
22	60.2	56.1	0	0.0	-319,753	0.0	-319,753	0.0	-319,753	0.0	-319,753	0.0
23	57.5	54.0	0	0.0	-380,298	0.0	-380,298	0.0	-380,298	0.0	-380,298	0.0
24	54.7	51.7	0	0.0	-457,982	0.0	-457,982	0.0	-457,982	0.0	-457,982	0.0

December		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----		
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-602,103	0.0	-767,528	0.0	-767,528	0.0	-767,528	0.0	-767,528	0.0
2	43.2	41.1	-642,871	0.0	-819,823	0.0	-819,823	0.0	-819,823	0.0	-819,823	0.0
3	41.8	39.8	-672,775	0.0	-852,439	0.0	-852,439	0.0	-852,439	0.0	-852,439	0.0
4	40.7	38.7	-702,337	0.0	-885,960	0.0	-885,960	0.0	-885,960	0.0	-885,960	0.0
5	40.1	38.4	-715,628	0.0	-897,689	0.0	-897,689	0.0	-897,689	0.0	-897,689	0.0
6	39.9	38.4	-714,600	0.0	-903,250	0.0	-903,250	0.0	-903,250	0.0	-903,250	0.0
7	40.5	39.0	-692,758	0.0	-895,444	0.0	-895,444	0.0	-895,444	0.0	-895,444	0.0
8	42.2	40.7	-642,533	0.0	-867,227	0.0	-867,227	0.0	-867,227	0.0	-867,227	0.0
9	44.9	43.4	-533,520	0.0	-816,868	0.0	-816,868	0.0	-816,868	0.0	-816,868	0.0
10	48.2	45.8	-381,256	0.0	-718,688	0.0	-718,688	0.0	-718,688	0.0	-718,688	0.0
11	51.7	48.3	-224,404	0.0	-554,414	0.0	-554,414	0.0	-554,414	0.0	-554,414	0.0
12	55.0	50.7	-75,688	0.0	-432,138	0.0	-432,138	0.0	-432,138	0.0	-432,138	0.0
13	57.7	52.0	0	0.0	-334,685	0.0	-334,685	0.0	-334,685	0.0	-334,685	0.0
14	59.5	52.6	0	0.0	-274,125	0.0	-274,125	0.0	-274,125	0.0	-274,125	0.0
15	60.1	52.7	0	0.0	-251,733	0.0	-251,733	0.0	-251,733	0.0	-251,733	0.0
16	59.9	52.6	0	0.0	-257,499	0.0	-257,499	0.0	-257,499	0.0	-257,499	0.0
17	59.2	52.1	0	0.0	-304,314	0.0	-304,314	0.0	-304,314	0.0	-304,314	0.0
18	58.2	51.8	0	0.0	-363,093	0.0	-363,093	0.0	-363,093	0.0	-363,093	0.0
19	56.8	52.2	0	0.0	-419,386	0.0	-419,386	0.0	-419,386	0.0	-419,386	0.0
20	55.0	51.4	-166,269	0.0	-474,360	0.0	-474,360	0.0	-474,360	0.0	-474,360	0.0
21	53.1	50.1	-381,789	0.0	-527,073	0.0	-527,073	0.0	-527,073	0.0	-527,073	0.0
22	51.0	48.1	-459,679	0.0	-591,420	0.0	-591,420	0.0	-591,420	0.0	-591,420	0.0
23	48.9	46.2	-513,901	0.0	-647,033	0.0	-647,033	0.0	-647,033	0.0	-647,033	0.0
24	46.9	44.1	-565,353	0.0	-704,287	0.0	-704,287	0.0	-704,287	0.0	-704,287	0.0

## 01 Card - Job Information

-----  
 Project: SOLDIER SERVICE CENTER  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 33720 (1 BUILDING)

-----CARD 08-- Climatic Information -----  

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
APR			OCT			

-----CARD 10 -- Load Simulation Parameters-----  

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
CLTD-CLF	TETD-TA1	OAHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	CENTER_OFFICES

-----CARD 20-- General Room Parameters -----  

Room Number	Zone Reference Number	Room Description	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Ceiling Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	BLOCK	3620	10	3	0		14	3		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs	Carpet On Floor
1		50		CLGCONST			HTGCONST		LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				182			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	248.75	14.5		3	0			
1	2	53.75	14.5		3	90			
1	3	74.5	14.5		3	45			
1	4	53.75	14.5		3	0			
1	5	134.75	14.5		3	90			
1	6	90.75	14.5		3	180			
1	7	97.75	14.5		3	270			
1	8	74.5	14.5		3	225			
1	9	211.75	14.5		3	180			
1	10	90.75	14.5		3	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar Ret.	Visible Air Transmittance	Inside Visible Reflectance
1	1	2.5	2.5	56	1.03	.7					
1	2	2.5	2.5	4	1.03	.7					
1	3	2.5	2.5	16	1.03	.7					
1	5	2.5	2.5	36	1.03	.7					
1	6	2.5	2.5	12	1.03	.7					
1	7	2.5	2.5	16	1.03	.7					
1	8	4	4	12	1.03	.7					
1	9	2.5	2.5	32	1.03	.7					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	366	PEOPLE	255	325	1.8	WATT-SF	ASHRAE2				

## -----CARD 28--- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISS.	200	KW	FGHEAT						

## -----CARD 29--- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		

## -----CARD 30- Fan Airflows -----

Room Number	-----Main-----				-----Auxiliary-----				--Room Exhaust--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	1	CFM-SF	1	CFM-SF						

## ----- System Section Alternative #1 -----

## -----CARD 39-- System Alternative -----

Number	Description
1	SINGLE ZONE SYSTEM

## -----CARD 40--- System Type -----

System Set Number	System Type	-----OPTIONAL VENTILATION SYSTEM-----						Fan
		Ventil Deck Location	Cooling SADBvh	Heating SADBvh	Cooling Schedule	Heating Schedule	Static Pressure	
1	SZ							





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE

FGHEAT SCHD FOR HEAT LOAD CALCS

HTGCONST SAMPLE HEATING TSTAT SCHEDULE

YES AVAILABLE (100%)

System:

SZ SINGLE ZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHD FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util	Percent
0		0
24		

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

```
*****  
*****  
**  
**          T R A C E    6 0 0    A N A L Y S I S          **  
**  
**          by          **  
**  
*****  
*****
```

CHILD CARE HOSPITAL  
FORT GORDON, GEORGIA  
U. S. ARMY CORP OF ENGINEERS  
BON  
BUILDING 33800 (1 BLDG)

Weather File Code: AUGUSTA  
Location: FORT GORDON, GEORGIA  
Latitude: 33.0 (deg)  
Longitude: 82.0 (deg)  
Time Zone: 5  
Elevation: 143 (ft)  
Barometric Pressure: 29.8 (in. Hg)

Summer Clearness Number: 0.90  
Winter Clearness Number: 0.90  
Summer Design Dry Bulb: 95 (F)  
Summer Design Wet Bulb: 76 (F)  
Winter Design Dry Bulb: 23 (F)  
Summer Ground Relectance: 0.20  
Winter Ground Relectance: 0.20

Air Density: 0.0756 (Lbm/cuft)  
Air Specific Heat: 0.2444 (Btu/lbm/F)  
Density-Specific Heat Prod: 1.1094 (Btu-min./hr/cuft/F)  
Latent Heat Factor: 4,883.6 (Btu-min./hr/cuft)  
Enthalpy Factor: 4.5387 (Lb-min./hr/cuft)

Design Simulation Period: April To October  
System Simulation Period: January To December  
Cooling Load Methodology: CLTD/CLF (Transfer Function Method)

Time/Date Program was Run: 15:16:30 8/16/94  
Dataset Name: FGTYPES29 .TM

System 1 Block MZ - MULTIZONE

***** COOLING COIL PEAK *****						***** CLG SPACE PEAK *****						***** HEATING COIL PEAK *****					
Peaked at Time ==>						Mo/Hr: 8/16						Mo/Hr: 6/18			Mo/Hr: 13/ 1		
Outside Air ==>						OADB/WB/HR: 96/ 76/105.0						OADB: 96			OADB: 23		
Space Sens.+Lat.	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percent Of Tot (%)	*	Space Sensible (Btuh)	Percent Of Tot (%)	*	Space Peak (Btuh)	Coil Peak Tot Sens (Btuh)	Percent Of Tot (%)						
Envelope Loads					*			*									
Skylite Solr	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Skylite Cond	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Roof Cond	42,411	0	42,411	7.67	*	42,253	10.10	*	-23,827	-23,827	3.89						
Glass Solar	89,681	0	89,681	16.23	*	98,446	23.52	*	0	0	0.00						
Glass Cond	38,578	0	38,578	6.98	*	40,754	9.74	*	-97,336	-97,336	15.89						
Wall Cond	143,195	0	143,195	25.91	*	166,231	39.72	*	-236,211	-236,211	38.56						
Partition	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Exposed Floor	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Infiltration	61,489	0	61,489	11.13	*	31,730	7.58	*	-85,807	-85,807	14.01						
Sub Total==>	375,354	0	375,354	67.92	*	379,413	90.66	*	-443,181	-443,181	72.34						
Internal Loads					*			*									
Lights	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
People	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Misc	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Sub Total==>	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Ceiling Load	0	0	0	0.00	*	0	0.00	*	0	0	0.00						
Outside Air	0	0	138,182	25.01	*	0	0.00	*	0	-154,266	25.18						
Sup. Fan Heat			0	0.00	*		0.00	*		0	0.00						
Ret. Fan Heat		0	0	0.00	*		0.00	*		0	0.00						
Duct Heat Pkup		0	0	0.00	*		0.00	*		0	0.00						
OV/UNDR Sizing	39,078		39,078	7.07	*	39,078	9.34	*	-15,148	-15,148	2.47						
Exhaust Heat		0	0	0.00	*		0.00	*		0	0.00						
Terminal Bypass		0	0	-0.00	*		0.00	*		0	0.00						
Grand Total==>	414,432	0	552,614	100.00	*	418,492	100.00	*	-458,329	-612,595	100.00						

-----COOLING COIL SELECTION-----										-----AREAS-----		
	Total Capacity (Tons)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR			Leaving DB/WB/HR			Gross Total	Glass (sf)	(%)
				Deg F	Deg F	Grains	Deg F	Deg F	Grains	Floor		
Main Clg	46.1	552.6	32,125	77.0	65.7	77.4	63.3	60.4	74.7	29,125		
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0		
Totals	46.1	552.6								14,425	0	0
										17,188	1,921	11

-----HEATING COIL SELECTION-----					-----AIRFLOWS (cfm)-----			-----ENGINEERING CHECKS-----			-----TEMPERATURES (F)-----		
	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F	Type	Cooling	Heating	Clg % OA		Type	Clg	Htg	
Main Htg	-590.0	32,125	64.3	80.9	Infil	3,090	3,090	9.6	1.10	SADB	63.3	80.9	
Aux Htg	0.0	0	0.0	0.0	Supply	1,375	1,719	Clg Cfm/Sqft	697.59	Plenum	75.0	68.0	
Preheat	-0.0	32,125	63.7	63.3	Mincfm	0	0	Clg Cfm/Ton	632.45	Return	75.0	68.0	
Reheat	0.0	0	0.0	0.0	Return	32,125	32,125	Clg Btuh/Sqft	18.97	Ret/OA	77.0	63.7	
Humidif	0.0	0	0.0	0.0	Exhaust	3,090	3,090	No. People	206	Runarnd	75.0	68.0	
Opt Vent	0.0	0	0.0	0.0	Rm Exh	0	0	Htg % OA	9.6	Fn MtrTD	0.0	0.0	
Total	-590.0				Auxil	0	0	Htg Cfm/Sqft	1.10	Fn BldTD	0.0	0.0	
								Htg Btuh/Sqft	-20.26	Fn Frict	0.0	0.0	

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

January			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	33.4	31.1	-302,611	0.0	-369,250	0.0	-363,361	0.0	-363,344	0.0	-363,344	0.0
2	32.9	30.7	-298,970	0.0	-369,268	0.0	-364,728	0.0	-364,715	0.0	-364,715	0.0
3	33.1	31.3	-297,926	0.0	-362,808	0.0	-359,300	0.0	-359,290	0.0	-359,290	0.0
4	33.9	32.1	-296,968	0.0	-350,997	0.0	-348,282	0.0	-348,274	0.0	-348,274	0.0
5	35.2	33.5	-295,568	0.0	-335,527	0.0	-333,421	0.0	-333,415	0.0	-333,415	0.0
6	37.0	35.4	-286,736	0.0	-316,603	0.0	-314,967	0.0	-314,962	0.0	-314,962	0.0
7	39.0	37.6	-272,538	0.0	-297,628	0.0	-296,357	0.0	-296,352	0.0	-296,352	0.0
8	41.3	40.1	-250,465	0.0	-276,535	0.0	-275,544	0.0	-275,541	0.0	-275,541	0.0
9	43.7	42.5	-217,511	0.0	-254,571	0.0	-253,798	0.0	-253,796	0.0	-253,796	0.0
10	46.1	44.0	-177,014	0.0	-232,008	0.0	-231,404	0.0	-231,402	0.0	-231,402	0.0
11	48.4	45.0	-130,093	0.0	-209,705	0.0	-209,234	0.0	-209,232	0.0	-209,232	0.0
12	50.5	45.6	-84,877	0.0	-188,486	0.0	-188,118	0.0	-188,116	0.0	-188,116	0.0
13	52.2	46.1	-50,620	0.0	-170,728	0.0	-170,440	0.0	-170,438	0.0	-170,438	0.0
14	53.5	46.4	-26,124	0.0	-156,071	0.0	-155,846	0.0	-155,845	0.0	-155,845	0.0
15	54.3	46.3	-13,490	0.0	-145,922	0.0	-145,745	0.0	-145,744	0.0	-145,744	0.0
16	54.6	46.1	-14,038	0.0	-140,186	0.0	-140,047	0.0	-140,046	0.0	-140,046	0.0
17	54.0	45.9	-24,319	0.0	-144,790	0.0	-144,681	0.0	-144,681	0.0	-144,681	0.0
18	52.5	45.0	-47,186	0.0	-160,586	0.0	-160,500	0.0	-160,500	0.0	-160,500	0.0
19	50.1	44.8	-77,483	0.0	-187,548	0.0	-187,481	0.0	-187,481	0.0	-187,481	0.0
20	47.1	43.3	-109,281	0.0	-221,286	0.0	-221,233	0.0	-221,233	0.0	-221,233	0.0
21	43.7	40.4	-136,898	0.0	-258,987	0.0	-258,945	0.0	-258,945	0.0	-258,945	0.0
22	40.4	37.3	-163,178	0.0	-294,810	0.0	-294,777	0.0	-294,777	0.0	-294,777	0.0
23	37.3	34.9	-184,003	0.0	-327,405	0.0	-327,378	0.0	-327,378	0.0	-327,378	0.0
24	34.9	32.6	-200,599	0.0	-350,610	0.0	-350,589	0.0	-350,589	0.0	-350,589	0.0

February			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	41.7	38.6	-197,603	0.0	-252,498	0.0	-283,513	0.0	-283,606	0.0	-283,606	0.0
2	39.7	37.1	-213,443	0.0	-281,591	0.0	-305,698	0.0	-305,772	0.0	-305,773	0.0
3	37.8	35.1	-227,191	0.0	-307,574	0.0	-326,341	0.0	-326,399	0.0	-326,400	0.0
4	36.3	33.8	-238,872	0.0	-327,209	0.0	-341,841	0.0	-341,888	0.0	-341,888	0.0
5	35.1	32.6	-245,729	0.0	-342,967	0.0	-354,391	0.0	-354,428	0.0	-354,428	0.0
6	34.4	32.0	-245,579	0.0	-352,289	0.0	-361,218	0.0	-361,247	0.0	-361,247	0.0
7	34.1	31.9	-238,453	0.0	-356,726	0.0	-363,714	0.0	-363,737	0.0	-363,737	0.0
8	34.6	32.4	-221,845	0.0	-351,556	0.0	-357,032	0.0	-357,050	0.0	-357,050	0.0
9	36.0	33.8	-195,324	0.0	-335,191	0.0	-339,485	0.0	-339,500	0.0	-339,500	0.0
10	38.2	34.7	-159,885	0.0	-309,160	0.0	-312,529	0.0	-312,541	0.0	-312,541	0.0
11	40.9	36.2	-118,647	0.0	-277,779	0.0	-280,422	0.0	-280,431	0.0	-280,431	0.0
12	43.9	37.4	-78,707	0.0	-243,522	0.0	-245,595	0.0	-245,602	0.0	-245,602	0.0
13	46.9	39.4	-46,752	0.0	-209,378	0.0	-211,004	0.0	-211,010	0.0	-211,010	0.0
14	49.7	41.4	-25,097	0.0	-177,053	0.0	-178,330	0.0	-178,335	0.0	-178,335	0.0
15	51.8	42.8	-12,551	0.0	-153,153	0.0	-154,156	0.0	-154,159	0.0	-154,159	0.0
16	53.2	43.9	-12,552	0.0	-137,876	0.0	-138,664	0.0	-138,667	0.0	-138,667	0.0
17	53.7	44.2	-19,679	0.0	-133,454	0.0	-134,073	0.0	-134,075	0.0	-134,075	0.0
18	53.4	44.4	-38,260	0.0	-137,869	0.0	-138,355	0.0	-138,357	0.0	-138,357	0.0
19	52.7	44.4	-62,831	0.0	-147,180	0.0	-147,564	0.0	-147,565	0.0	-147,565	0.0
20	51.5	45.2	-92,128	0.0	-163,252	0.0	-163,555	0.0	-163,556	0.0	-163,556	0.0
21	50.0	44.6	-115,416	0.3	-183,051	0.0	-183,290	0.0	-183,291	0.0	-183,291	0.0
22	48.1	43.3	-142,033	0.0	-207,398	0.0	-207,587	0.0	-207,588	0.0	-207,588	0.0
23	46.1	41.8	-164,261	0.0	-231,945	0.0	-232,094	0.0	-232,095	0.0	-232,095	0.0
24	43.9	40.1	-179,684	0.0	-258,194	0.0	-258,312	0.0	-258,313	0.0	-258,313	0.0



BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

March		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	51.3 46.8	-86,671	0.0	-40,576	0.0	-149,696	0.0	-150,615	0.0	-150,624	0.0
2	48.7 44.6	-97,661	0.0	-92,917	0.8	-180,239	0.0	-180,958	0.0	-180,965	0.0
3	46.6 42.9	-106,986	0.0	-127,229	2.2	-203,506	0.0	-204,069	0.0	-204,075	0.0
4	44.9 41.4	-116,770	0.0	-163,676	1.8	-221,613	0.0	-222,054	0.0	-222,059	0.0
5	43.9 40.8	-120,609	0.0	-202,388	0.0	-231,244	0.0	-231,591	0.0	-231,594	0.0
6	43.5 40.8	-117,004	0.0	-211,975	0.0	-234,536	0.0	-234,808	0.0	-234,811	0.0
7	44.0 41.4	-105,569	0.0	-210,219	0.0	-227,881	0.0	-228,095	0.0	-228,097	0.0
8	45.4 42.7	-81,612	0.0	-197,537	0.0	-211,381	0.0	-211,550	0.0	-211,552	0.0
9	47.7 44.3	-45,240	0.0	-173,349	0.0	-184,208	0.0	-184,341	0.0	-184,342	0.0
10	50.6 45.8	0	0.0	-141,308	0.0	-149,828	0.0	-149,932	0.0	-149,934	0.0
11	53.9 47.4	0	0.0	-103,722	0.0	-110,409	0.0	-110,491	0.0	-110,492	0.0
12	57.4 49.0	0	0.0	-63,226	0.0	-68,475	0.0	-68,540	0.0	-68,541	0.0
13	60.7 50.8	0	0.0	-25,845	0.0	-29,966	0.0	-30,018	0.0	-30,018	0.0
14	63.6 52.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	65.9 53.7	0	1.7	0	0.0	0	0.0	0	0.0	0	0.0
16	67.3 54.4	0	2.4	0	0.0	0	0.0	0	0.0	0	0.0
17	67.8 54.6	0	5.6	0	0.0	0	0.0	0	0.0	0	0.0
18	67.4 54.8	0	4.7	0	0.0	0	0.0	0	0.0	0	0.0
19	66.4 55.2	0	4.4	0	0.0	0	0.0	0	0.0	0	0.0
20	64.7 56.0	0	4.5	0	0.0	0	0.0	0	0.0	0	0.0
21	62.5 56.0	0	1.2	0	0.0	0	0.0	0	0.0	0	0.0
22	60.0 54.1	0	0.0	-35,556	0.0	-37,493	0.0	-37,513	0.0	-37,513	0.0
23	57.1 51.9	0	0.0	-75,465	0.0	-76,973	0.0	-76,988	0.0	-76,989	0.0
24	54.2 49.4	0	0.0	-113,330	0.0	-114,507	0.0	-114,519	0.0	-114,519	0.0

April		----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.0 56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	58.9 54.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	57.0 53.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	55.4 52.4	0	0.0	0	0.0	-21,218	0.0	-22,385	0.0	-22,451	0.0
5	54.2 51.4	0	0.0	-33,560	0.0	-50,137	0.0	-51,050	0.0	-51,101	0.0
6	53.5 50.9	0	0.0	-56,983	0.0	-69,951	0.0	-70,666	0.0	-70,706	0.0
7	53.2 51.1	0	0.0	-72,322	0.0	-82,465	0.0	-83,026	0.0	-83,058	0.0
8	53.9 51.5	0	0.0	-72,112	0.0	-80,049	0.0	-80,490	0.0	-80,514	0.0
9	55.9 52.1	0	0.0	-53,777	0.0	-60,001	0.0	-60,348	0.0	-60,367	0.0
10	58.9 53.2	0	0.0	-21,844	0.0	-26,727	0.0	-26,999	0.0	-27,015	0.0
11	62.6 55.2	0	1.3	0	0.0	0	0.0	0	0.0	0	0.0
12	66.5 57.3	0	2.1	0	0.0	0	0.0	0	0.0	0	0.0
13	70.2 59.6	0	4.2	0	0.0	0	0.0	0	0.0	0	0.0
14	73.2 61.0	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
15	75.2 62.2	0	14.5	0	0.0	0	0.0	0	0.0	0	0.0
16	75.9 62.2	0	21.9	0	1.2	0	1.3	0	1.3	0	1.3
17	75.6 62.0	0	22.2	0	1.2	0	1.3	0	1.3	0	1.3
18	74.9 61.7	0	21.2	0	1.3	0	1.2	0	1.2	0	1.2
19	73.7 62.0	0	17.8	0	2.4	0	2.3	0	2.2	0	2.2
20	72.1 62.4	0	14.4	0	1.2	0	1.2	0	1.2	0	1.2
21	70.2 63.3	0	10.9	0	0.5	0	0.4	0	0.4	0	0.4
22	68.0 62.5	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
23	65.7 60.5	0	5.3	0	0.0	0	0.0	0	0.0	0	0.0
24	63.4 58.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

May Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.2	63.5	0	0.0	0	2.1	0	2.6	0	2.6	0	2.6
2	65.7	61.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
3	63.6	59.7	0	5.4	0	0.0	0	0.0	0	0.0	0	0.0
4	61.8	58.4	0	3.5	0	0.0	0	0.0	0	0.0	0	0.0
5	60.5	57.1	0	2.6	0	0.0	0	0.0	0	0.0	0	0.0
6	59.7	56.5	0	1.6	0	0.0	0	0.0	0	0.0	0	0.0
7	59.4	56.5	0	2.8	0	0.0	0	0.0	0	0.0	0	0.0
8	60.1	56.3	0	5.2	0	0.0	0	0.0	0	0.0	0	0.0
9	62.4	56.3	0	8.6	0	0.0	0	0.0	0	0.0	0	0.0
10	65.7	57.2	0	12.1	0	0.0	0	0.0	0	0.0	0	0.0
11	69.9	58.9	0	16.1	0	0.0	0	0.0	0	0.0	0	0.0
12	74.3	60.9	0	19.9	0	0.3	0	0.3	0	0.3	0	0.3
13	78.5	63.7	0	23.4	0	1.2	0	1.2	0	1.2	0	1.2
14	81.9	65.3	0	26.3	0	4.4	0	4.4	0	4.4	0	4.4
15	84.1	66.9	0	29.0	0	7.4	0	7.4	0	7.4	0	7.4
16	84.9	67.1	0	30.3	0	15.6	0	15.7	0	15.7	0	15.7
17	84.6	67.3	0	30.9	0	16.8	0	16.8	0	16.8	0	16.8
18	83.8	67.1	0	30.2	0	17.2	0	17.2	0	17.2	0	17.2
19	82.4	67.5	0	27.5	0	16.0	0	16.0	0	16.0	0	16.0
20	80.6	68.9	0	23.4	0	14.8	0	14.8	0	14.8	0	14.8
21	78.5	71.0	0	19.9	0	14.2	0	14.2	0	14.2	0	14.2
22	76.1	69.9	0	16.6	0	11.8	0	11.8	0	11.8	0	11.8
23	73.4	68.0	0	14.2	0	8.5	0	8.5	0	8.5	0	8.5
24	70.8	65.5	0	11.5	0	5.5	0	5.5	0	5.5	0	5.5

June Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	74.7	70.1	0	21.8	0	11.2	0	12.9	0	12.9	0	12.9
2	72.6	68.4	0	18.3	0	9.4	0	9.8	0	9.8	0	9.8
3	70.9	67.3	0	16.6	0	7.5	0	7.6	0	7.6	0	7.6
4	69.6	66.5	0	14.6	0	4.7	0	4.8	0	4.8	0	4.8
5	68.7	65.8	0	13.6	0	3.0	0	3.0	0	3.0	0	3.0
6	68.5	65.7	0	12.9	0	1.2	0	1.2	0	1.2	0	1.2
7	69.0	66.3	0	15.0	0	1.8	0	1.8	0	1.8	0	1.8
8	70.6	66.9	0	17.8	0	4.0	0	4.0	0	4.0	0	4.0
9	73.0	67.7	0	21.4	0	6.4	0	6.4	0	6.4	0	6.4
10	76.1	68.1	0	25.4	0	10.5	0	10.5	0	10.5	0	10.5
11	79.5	69.1	0	28.8	0	14.7	0	14.7	0	14.7	0	14.7
12	82.9	70.1	0	32.7	0	17.5	0	17.5	0	17.5	0	17.5
13	86.0	71.0	0	35.6	0	20.8	0	20.8	0	20.8	0	20.8
14	88.4	72.5	0	37.8	0	24.7	0	24.7	0	24.7	0	24.7
15	90.0	74.0	0	40.4	0	29.0	0	29.0	0	29.0	0	29.0
16	90.5	73.7	0	42.0	0	29.0	0	29.0	0	29.0	0	29.0
17	90.3	74.2	0	42.7	0	30.2	0	30.2	0	30.2	0	30.2
18	89.4	73.9	0	41.2	0	30.6	0	30.6	0	30.6	0	30.6
19	88.1	74.5	0	38.6	0	29.4	0	29.4	0	29.4	0	29.4
20	86.4	75.3	0	34.5	0	26.6	0	26.6	0	26.6	0	26.6
21	84.3	76.5	0	31.8	0	25.6	0	25.6	0	25.6	0	25.6
22	81.9	75.7	0	29.1	0	23.3	0	23.3	0	23.3	0	23.3
23	79.5	74.0	0	25.9	0	20.4	0	20.4	0	20.4	0	20.4
24	77.0	72.1	0	23.9	0	16.8	0	16.8	0	16.8	0	16.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

July Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	73.7	70.5	0	22.9	0	9.0	0	10.5	0	10.5	0	10.5
2	72.4	69.4	0	18.8	0	7.9	0	8.3	0	8.3	0	8.3
3	71.3	68.4	0	17.0	0	5.4	0	5.5	0	5.5	0	5.5
4	70.5	67.7	0	15.8	0	3.7	0	3.8	0	3.8	0	3.8
5	70.0	67.4	0	14.8	0	2.2	0	2.2	0	2.2	0	2.2
6	69.9	67.5	0	14.0	0	0.9	0	0.9	0	0.9	0	0.9
7	70.3	68.0	0	15.7	0	1.2	0	1.2	0	1.2	0	1.2
8	71.7	69.0	0	18.8	0	4.0	0	4.0	0	4.0	0	4.0
9	73.7	69.5	0	21.5	0	6.9	0	6.9	0	6.9	0	6.9
10	76.2	70.6	0	25.1	0	11.6	0	11.6	0	11.6	0	11.6
11	78.9	71.8	0	28.0	0	15.9	0	15.9	0	15.9	0	15.9
12	81.4	73.0	0	32.1	0	19.0	0	19.0	0	19.0	0	19.0
13	83.4	74.4	0	35.3	0	22.5	0	22.5	0	22.5	0	22.5
14	84.8	74.8	0	37.6	0	24.5	0	24.5	0	24.5	0	24.5
15	85.2	75.0	0	39.6	0	26.6	0	26.6	0	26.6	0	26.6
16	85.1	75.0	0	40.9	0	27.4	0	27.4	0	27.4	0	27.4
17	84.6	74.7	0	41.6	0	27.4	0	27.4	0	27.4	0	27.4
18	83.8	74.6	0	40.1	0	27.6	0	27.6	0	27.6	0	27.6
19	82.7	74.6	0	37.8	0	26.3	0	26.3	0	26.3	0	26.3
20	81.4	74.4	0	34.2	0	23.8	0	23.8	0	23.8	0	23.8
21	79.9	74.9	0	31.4	0	22.0	0	22.0	0	22.0	0	22.0
22	78.4	74.0	0	28.1	0	19.1	0	19.1	0	19.1	0	19.1
23	76.8	72.7	0	25.7	0	15.9	0	15.9	0	15.9	0	15.9
24	75.2	71.6	0	23.9	0	13.2	0	13.2	0	13.2	0	13.2

August Hour	OADB	OAWB	----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
			Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	75.0	72.0	0	22.9	0	11.0	0	12.9	0	12.9	0	12.9
2	73.2	70.3	0	18.2	0	9.4	0	9.9	0	9.9	0	9.9
3	71.7	68.9	0	16.4	0	7.5	0	7.6	0	7.6	0	7.6
4	70.4	67.8	0	14.9	0	4.8	0	4.8	0	4.8	0	4.8
5	69.5	66.8	0	13.3	0	3.0	0	3.0	0	3.0	0	3.0
6	68.9	66.4	0	12.2	0	1.3	0	1.3	0	1.3	0	1.3
7	68.7	66.4	0	13.7	0	0.7	0	0.7	0	0.7	0	0.7
8	69.2	66.8	0	16.1	0	1.0	0	1.0	0	1.0	0	1.0
9	70.8	67.7	0	19.8	0	3.8	0	3.9	0	3.9	0	3.9
10	73.2	67.7	0	24.0	0	8.0	0	8.0	0	8.0	0	8.0
11	76.2	68.8	0	27.4	0	11.5	0	11.5	0	11.5	0	11.5
12	79.3	70.3	0	31.4	0	15.2	0	15.2	0	15.2	0	15.2
13	82.3	72.2	0	35.1	0	19.0	0	19.0	0	19.0	0	19.0
14	84.7	73.7	0	38.6	0	23.0	0	23.0	0	23.0	0	23.0
15	86.3	74.6	0	40.4	0	26.6	0	26.6	0	26.6	0	26.6
16	86.8	75.1	0	42.4	0	28.4	0	28.4	0	28.4	0	28.4
17	86.6	75.1	0	41.5	0	28.8	0	28.8	0	28.8	0	28.8
18	86.0	75.3	0	40.3	0	29.9	0	29.9	0	29.9	0	29.9
19	85.1	76.0	0	37.4	0	28.5	0	28.5	0	28.5	0	28.5
20	83.8	76.8	0	34.0	0	26.2	0	26.2	0	26.2	0	26.2
21	82.3	77.2	0	31.7	0	24.2	0	24.2	0	24.2	0	24.2
22	80.6	76.3	0	28.5	0	22.1	0	22.1	0	22.1	0	22.1
23	78.7	75.3	0	25.2	0	19.0	0	19.0	0	19.0	0	19.0
24	76.8	73.7	0	23.2	0	15.8	0	15.8	0	15.8	0	15.8

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

September			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	69.6	67.4	0	14.8	0	3.1	0	4.1	0	4.1	0	4.1
2	67.6	65.0	0	11.4	0	1.0	0	1.1	0	1.1	0	1.1
3	65.8	63.4	0	8.2	0	0.0	0	0.0	0	0.0	0	0.0
4	64.3	62.2	0	6.5	0	0.0	0	0.0	0	0.0	0	0.0
5	63.1	61.1	0	4.9	0	0.0	0	0.0	0	0.0	0	0.0
6	62.4	60.3	0	4.0	0	0.0	0	0.0	0	0.0	0	0.0
7	62.2	60.2	0	3.9	0	0.0	0	0.0	0	0.0	0	0.0
8	62.9	60.9	0	5.8	0	0.0	0	0.0	0	0.0	0	0.0
9	64.7	61.8	0	9.9	0	0.0	0	0.0	0	0.0	0	0.0
10	67.6	62.1	0	14.2	0	0.0	0	0.0	0	0.0	0	0.0
11	71.1	63.1	0	18.3	0	0.0	0	0.0	0	0.0	0	0.0
12	74.8	64.6	0	21.6	0	0.4	0	0.4	0	0.4	0	0.4
13	78.3	66.7	0	25.7	0	1.7	0	1.7	0	1.7	0	1.7
14	81.2	68.4	0	29.3	0	6.9	0	6.9	0	6.9	0	6.9
15	83.0	70.0	0	32.0	0	17.1	0	17.2	0	17.2	0	17.2
16	83.7	70.5	0	33.8	0	19.5	0	19.5	0	19.5	0	19.5
17	83.4	70.5	0	33.4	0	20.1	0	20.1	0	20.1	0	20.1
18	82.8	70.9	0	31.3	0	20.1	0	20.1	0	20.1	0	20.1
19	81.6	72.7	0	28.3	0	18.9	0	18.9	0	18.9	0	18.9
20	80.1	74.7	0	25.9	0	18.1	0	18.1	0	18.1	0	18.1
21	78.3	74.1	0	23.3	0	16.3	0	16.3	0	16.3	0	16.3
22	76.3	72.4	0	19.4	0	13.9	0	13.9	0	13.9	0	13.9
23	74.1	70.7	0	16.3	0	10.3	0	10.3	0	10.3	0	10.3
24	71.8	68.9	0	13.4	0	6.7	0	6.7	0	6.7	0	6.7

October			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.2	50.5	0	0.0	-16,354	0.0	-113,833	0.0	-114,888	0.0	-114,907	0.0
2	50.1	48.6	0	0.0	-64,965	0.0	-140,958	0.0	-141,784	0.0	-141,799	0.0
3	48.4	46.9	0	0.0	-98,484	1.3	-162,087	0.0	-162,735	0.0	-162,747	0.0
4	47.1	45.8	0	0.0	-125,570	1.8	-178,017	0.0	-178,525	0.0	-178,534	0.0
5	46.3	44.8	-26,313	0.0	-148,337	1.6	-188,152	0.0	-188,552	0.0	-188,559	0.0
6	46.0	44.5	-36,515	0.0	-175,148	0.0	-193,123	0.0	-193,437	0.0	-193,442	0.0
7	46.8	45.3	-35,002	0.0	-170,899	0.0	-184,948	0.0	-185,195	0.0	-185,200	0.0
8	48.9	47.5	-19,468	0.0	-150,102	0.0	-161,098	0.0	-161,293	0.0	-161,296	0.0
9	52.2	49.9	0	0.0	-114,501	0.0	-123,115	0.0	-123,269	0.0	-123,272	0.0
10	56.2	52.5	0	0.0	-70,787	0.0	-77,538	0.0	-77,659	0.0	-77,662	0.0
11	60.4	54.4	0	0.0	-24,679	0.0	-29,972	0.0	-30,068	0.0	-30,069	0.0
12	64.4	56.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	67.7	57.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	69.8	58.2	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
15	70.6	58.1	0	3.0	0	0.0	0	0.0	0	0.0	0	0.0
16	70.3	57.5	0	6.9	0	0.0	0	0.0	0	0.0	0	0.0
17	69.5	57.3	0	8.8	0	0.0	0	0.0	0	0.0	0	0.0
18	68.2	57.7	0	12.9	0	0.0	0	0.0	0	0.0	0	0.0
19	66.5	60.6	0	9.6	0	0.0	0	0.0	0	0.0	0	0.0
20	64.4	60.8	0	6.2	0	0.0	0	0.0	0	0.0	0	0.0
21	62.1	59.4	0	2.7	0	0.0	0	0.0	0	0.0	0	0.0
22	59.6	57.3	0	0.0	-7,162	0.0	-9,373	0.0	-9,414	0.0	-9,415	0.0
23	57.0	55.1	0	0.0	-47,331	0.0	-49,056	0.0	-49,088	0.0	-49,088	0.0
24	54.5	52.7	0	0.0	-82,881	0.0	-84,229	0.0	-84,253	0.0	-84,254	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1  
 MULTI ZONE SYSTEM

November			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	52.0	49.2	-67,935	0.0	-40,933	0.0	-141,374	0.0	-142,277	0.0	-142,289	0.0
2	49.4	47.3	-86,348	0.0	-90,292	0.9	-171,207	0.0	-171,914	0.0	-171,924	0.0
3	47.2	45.3	-102,940	0.0	-126,906	1.8	-195,292	0.0	-195,847	0.0	-195,854	0.0
4	45.3	43.4	-116,419	0.0	-164,694	1.3	-215,682	0.0	-216,119	0.0	-216,124	0.0
5	43.9	42.2	-123,886	0.0	-201,618	0.0	-229,958	0.0	-230,301	0.0	-230,306	0.0
6	43.0	41.4	-120,385	0.0	-216,547	0.0	-238,701	0.0	-238,971	0.0	-238,974	0.0
7	42.7	41.2	-109,412	0.0	-223,771	0.0	-241,110	0.0	-241,323	0.0	-241,325	0.0
8	43.5	42.0	-84,780	0.0	-216,934	0.0	-230,519	0.0	-230,686	0.0	-230,689	0.0
9	45.9	44.0	-45,317	0.0	-190,004	0.0	-200,658	0.0	-200,790	0.0	-200,792	0.0
10	49.4	46.6	0	0.0	-150,199	0.0	-158,562	0.0	-158,666	0.0	-158,668	0.0
11	53.8	48.6	0	0.0	-100,039	0.0	-106,604	0.0	-106,685	0.0	-106,687	0.0
12	58.4	50.6	0	0.0	-48,425	0.0	-53,578	0.0	-53,643	0.0	-53,644	0.0
13	62.8	52.6	0	0.0	0	0.0	-4,652	0.0	-4,708	0.0	-4,709	0.0
14	66.3	54.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	68.7	55.7	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
16	69.5	56.1	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
17	69.2	55.8	0	4.1	0	0.0	0	0.0	0	0.0	0	0.0
18	68.3	57.0	0	3.2	0	0.0	0	0.0	0	0.0	0	0.0
19	66.9	59.4	0	1.8	0	0.0	0	0.0	0	0.0	0	0.0
20	65.0	59.4	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
21	62.8	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	60.2	56.1	0	0.0	-36,329	0.0	-38,221	0.0	-38,245	0.0	-38,245	0.0
23	57.5	54.0	0	0.0	-73,446	0.0	-74,922	0.0	-74,941	0.0	-74,941	0.0
24	54.7	51.7	0	0.0	-109,137	0.0	-110,291	0.0	-110,306	0.0	-110,306	0.0

December			----- Design -----		----- Weekday -----		----- Saturday-----		----- Sunday -----		----- Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	44.9	42.5	-145,123	0.0	-214,098	0.0	-232,731	0.0	-232,791	0.0	-232,791	0.0
2	43.2	41.1	-156,584	0.0	-236,853	0.0	-251,385	0.0	-251,433	0.0	-251,433	0.0
3	41.8	39.8	-166,860	0.0	-254,857	0.0	-266,205	0.0	-266,242	0.0	-266,242	0.0
4	40.7	38.7	-175,784	0.0	-268,775	0.0	-277,650	0.0	-277,680	0.0	-277,680	0.0
5	40.1	38.4	-181,317	0.0	-276,710	0.0	-283,660	0.0	-283,684	0.0	-283,684	0.0
6	39.9	38.4	-177,612	0.0	-280,161	0.0	-285,609	0.0	-285,629	0.0	-285,629	0.0
7	40.5	39.0	-168,818	0.0	-274,244	0.0	-278,519	0.0	-278,534	0.0	-278,534	0.0
8	42.2	40.7	-150,628	0.0	-255,922	0.0	-259,279	0.0	-259,291	0.0	-259,291	0.0
9	44.9	43.4	-122,096	0.0	-226,188	0.0	-228,827	0.0	-228,836	0.0	-228,836	0.0
10	48.2	45.8	-87,144	0.0	-189,671	0.0	-191,746	0.0	-191,754	0.0	-191,754	0.0
11	51.7	48.3	-44,177	0.0	-151,154	0.0	-152,786	0.0	-152,792	0.0	-152,792	0.0
12	55.0	50.7	-4,012	0.0	-114,877	0.0	-116,161	0.0	-116,166	0.0	-116,166	0.0
13	57.7	52.0	0	0.0	-85,863	0.0	-86,874	0.0	-86,878	0.0	-86,878	0.0
14	59.5	52.6	0	0.0	-67,393	0.0	-68,189	0.0	-68,192	0.0	-68,192	0.0
15	60.1	52.7	0	0.0	-62,391	0.0	-63,017	0.0	-63,020	0.0	-63,020	0.0
16	59.9	52.6	0	0.0	-65,014	0.0	-65,508	0.0	-65,510	0.0	-65,510	0.0
17	59.2	52.1	0	0.0	-71,930	0.0	-72,319	0.0	-72,321	0.0	-72,321	0.0
18	58.2	51.8	0	0.0	-82,136	0.0	-82,444	0.0	-82,445	0.0	-82,445	0.0
19	56.8	52.2	0	0.0	-97,913	0.0	-98,156	0.0	-98,157	0.0	-98,157	0.0
20	55.0	51.4	0	0.0	-118,710	0.0	-118,902	0.0	-118,903	0.0	-118,903	0.0
21	53.1	50.1	-29,563	0.0	-140,358	0.0	-140,511	0.0	-140,512	0.0	-140,512	0.0
22	51.0	48.1	-60,029	0.0	-164,465	0.0	-164,586	0.0	-164,586	0.0	-164,586	0.0
23	48.9	46.2	-84,639	0.0	-188,304	0.0	-188,400	0.0	-188,400	0.0	-188,400	0.0
24	46.9	44.1	-103,873	0.0	-210,499	0.0	-210,575	0.0	-210,576	0.0	-210,576	0.0

## 01 Card - Job Information

-----  
 Project: CHILD CARE HOSPITAL  
 Location: FORT GORDON, GEORGIA  
 Client: U. S. ARMY CORP OF ENGINEERS  
 Program User: BON  
 Comments: BUILDING 33800 (1 BLDG)

-----CARD 08-- Climatic Information-----  

	Summer	Winter	Summer	Summer	Winter	Building	Summer	Winter
Weather	Clearness	Clearness	Design	Design	Design	Orientation	Ground	Ground
Code	Number	Number	Dry Bulb	Wet Bulb	Dry Bulb		Reflect	Reflect
AUGUSTA								

-----CARD 09-- Load Simulation Periods-----  

1st Month	Last Month	Peak	1st Month	Last Month	1st Month	Last Month
Cooling	Cooling	Cooling	Summer	Summer	Daylight	Daylight
Simulation	Simulation	Load Hr	Period	Period	Savings	Savings
APR	OCT					

-----CARD 10 -- Load Simulation Parameters-----  

Cooling	Heating		Airflow	Airflow	Room	Put Wall
Load	Load	Ventilation	Input	Output	Circulation	RA Load
Method	Method	Method	Units	Units	Rate	to Room
CLTD-CLF	TETD-TA1	0AHIGH	ACTUAL	ACTUAL	MED-RCR	NO

----- Load Section Alternative #1 -----

---- Load Alternative ----  

Number	Description
1	CLINIC

-----CARD 20-- General Room Parameters-----  

Room	Zone	Room	Floor	Floor	Const	Plenum	Acoustic	Floor to	Duplicate	Duplicate	Perimeter
Number	Reference	Descrip	Length	Width	Type	Height	Ceiling	Floor	Floors	Rooms per	Depth
	Number						Resistance	Height	Multiplier	Zone	
1	1	BLOCK	707.5	10	3	0		9.5			

## -----CARD 20-- General Room Parameters -----

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
2	1	BLOCK	735	10	3	0		9.5	3		

## -----CARD 21-- Thermostat Parameters -----

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	Heating T'stat Location Flag	T'stat Location	Mass / No. Hrs Average	Carpet On Floor
1		50		CLGCONST			HTGCONST			LIGHT30	NO
2		50		CLGCONST			HTGCONST			LIGHT30	NO

## -----CARD 22-- Roof Parameters -----

Room Number	Roof Number	Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	YES				4			
2	1	YES				4			

## -----CARD 24-- Wall Parameters -----

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	100	10		196	0			
1	2	39.25	10		196	90			
1	3	69.25	10		196	180			
1	4	50	10		196	90			
1	5	50.8	10		196	180			
1	6	132.8	10		196	270			
2	1	130	10		196	0			
2	2	40.75	10		196	90			
2	3	96.75	10		196	180			
2	4	61.25	10		196	90			
2	5	33.8	10		196	180			
2	6	63	10		196	270			

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	1	3.5	4.5	11	1.03	.83					
1	3	3.5	4.5	3	1.03	.83					

## -----CARD 25-- Wall/Glass Parameters -----

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
1	4	3	7	9	1.03	.83					
1	5	3.5	4.5	3	1.03	.83					
1	6	3	7	14	1.03	.83					
2	1	3	5	13	1.03	.83					
2	3	3	5	4	1.03	.83					
2	4	3	5	4	1.03	.83					
2	6	3	5	5	1.03	.83					

## -----CARD 26-- Schedules -----

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	FGHEAT	FGHEAT	YES	YES						
2	FGHEAT	FGHEAT	YES	YES						

## -----CARD 27-- People and Lights -----

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
1	101	PEOPLE	255	325	2	WATT-SF	ASHRAE2				
2	35	PEOPLE	255	325	2	WATT-SF	ASHRAE2				

## -----CARD 28-- Miscellaneous Equipment -----

Room Number	Misc Equipment Number	Misc Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
1	1	MISC	23	KW	FGHEAT						
2	1	MISC.	64	KW	FGHEAT						

## -----CARD 29-- Room Airflows -----

Room Number	-----Ventilation-----				-----Infiltration-----				--Reheat Minimum--	
	----Cooling----		----Heating----		----Cooling----		----Heating----		Value	Units
1	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		
2	15	CFM-P	15	CFM-P	.08	CFM-SF	.1	CFM-SF		





Utility Description Reference Table

---

Schedules:

CLGCONST SAMPLE COOLING TSTAT SCHEDULE  
FGHEAT SCHD FOR HEAT LOAD CALCS  
HTGCONST SAMPLE HEATING TSTAT SCHEDULE  
YES AVAILABLE (100%)

System:

MZ MULTIZONE

Schedule Name: CLGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: FGHEAT  
Project: SCHED FOR HEAT LOAD CALCS  
Location: AUGUSTA, GEORGIA  
Client: CORP OF ENGINEERS  
Program User: BON  
Comments:

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: HTG Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: HTGCONST  
Project: SAMPLE HEATING TSTAT SCHEDULE  
Location: SAMPLE  
Client:  
Program User:  
Comments: HEATING THERMOSTAT

Starting Month: JAN Ending Month: DEC  
Starting Day Type: DSGN Ending Day Type: SUN

Hour Temperature  
-----  
0 72  
24

Schedule Name: YES  
Project: AVAILABLE (100)  
Location:  
Client:  
Program User:  
Comments:

Starting Month: JAN Ending Month: HTG  
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	