Energy Engineering Analysis Program (EEAP)
Limited Energy Study - LIGHTING
Fort Campbell, Kentucky

Final Report

Volume 2
Section 6 & Appendices A-D

CONTRACT #DACA27-01-94-D-0034
SYSTEMS CORP PROJECT #94013.01
SEPTEMBER 23, 1994

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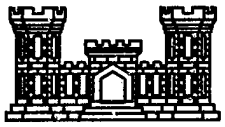

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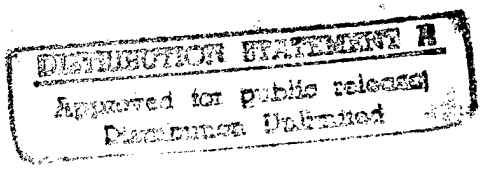

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SYSTEMS ENGINEERING AND MANAGEMENT CORPORATION

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DEPARTMENT OF THE ARMY
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VOLUME II

6. PROJECT IV: INTERIOR LIGHTING AT KOREAN WAR BARRACKS 6-1

APPENDICES

A. SCOPE OF WORK A-1

B. INTERIM REVIEW COMMENTS AND RESPONSES B-1

C. INTERIM REVIEW PRESENTATION C-1

D. MAINTENANCE COSTS CALCULATIONS D-1

6 PROJECT IV: INTERIOR LIGHTING AT KOREAN WAR BARRACKS

This section contains the Project Development Brochures and the DD 1391 Forms for Project IV: Interior Lighting at Korean War Barracks. Following the DD 1391 Forms is a project summary table, the life cycle cost analysis for the total project, and the calculations and cost estimates for each building included in the report. For the purpose of FEMP funding, the barracks were split into two groups to lower the construction cost of each group, so as to separately fund the projects. The barracks were split geographically with one group being the 3200 and 6700 buildings and the second group being the 6900 buildings. A life cycle cost analysis is included for each group of barracks. The project summary table has two subtotals reflecting the 3200/6700 group and the 6900 group. A colored page divides the two sections. Below is a detailed index of the information included in this section. Listed beside each building number area the high efficiency lighting products utilized in that building.

PDBs 6-2
DD1391 Forms 6-18
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Project LCCA 6-28

LCCA for 3200 & 6700 Barracks . . . 6-29

Bldg	Replacements Utilized*	Page
3211	T8 Fluor, LED Exit	6-30
3212	T8 Fluor, LED Exit	6-39
3213	T8 Fluor, LED Exit	6-48
3214	T8 Fluor, CF, LED Exit . . .	6-57
3215	T8 Fluor, CF, LED Exit . . .	6-67
3216	T8 Fluor, CF	6-78
3217	T8 Fluor, CF, LED Exit . . .	6-86
3218	T8 Fluor, CF, LED Exit . . .	6-96
6709	T8 Fluor, CF, LED Exit . . .	6-106
6710	T8 Fluor, CF, LED Exit . . .	6-116
6711	T8 Fluor, CF, LED Exit . . .	6-127
6712	T8 Fluor, CF, LED Exit . . .	6-137
6718	T8 Fluor, CF, LED Exit . . .	6-148
6719	T8 Fluor, CF, LED Exit . . .	6-159
6725	T8 Fluor, CF, LED Exit . . .	6-169
6726	T8 Fluor, CF, LED Exit . . .	6-180
6727	T8 Fluor, CF, LED Exit . . .	6-190
6728	T8 Fluor, CF, LED Exit . . .	6-200
6730	T8 Fluor, CF, LED Exit . . .	6-212
6731	T8 Fluor, CF	6-223
6732	T8 Fluor, CF	6-233
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LCCA for 6900 Barracks 6-253

6909	T8 Fluor, CF	6-254
6910	T8 Fluor, CF	6-264
6911	T8 Fluor, CF	6-273
6912	T8 Fluor, CF	6-282
6917	T8 Fluor, CF	6-290
6918	T8 Fluor, CF	6-299
6919	T8 Fluor, CF	6-303
6920	T8 Fluor, CF	6-319
6923	T8 Fluor, CF	6-328
6927	T8 Fluor, CF, LED Exit . . .	6-337
6928	T8 Fluor, CF	6-347
6929	T8 Fluor, CF	6-357
6930	T8 Fluor, CF	6-366
6931	T8 Fluor, CF	6-376
6936	T8 Fluor, CF	6-385
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6938	T8 Fluor, CF	6-404
6939	T8 Fluor, CF	6-414
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facility

INTERIOR LIGHTING REPLACEMENTS AT KOREAN WAR BARRACKS
Fort Campbell, Kentucky

project coordinator for using service

Arlin Wright

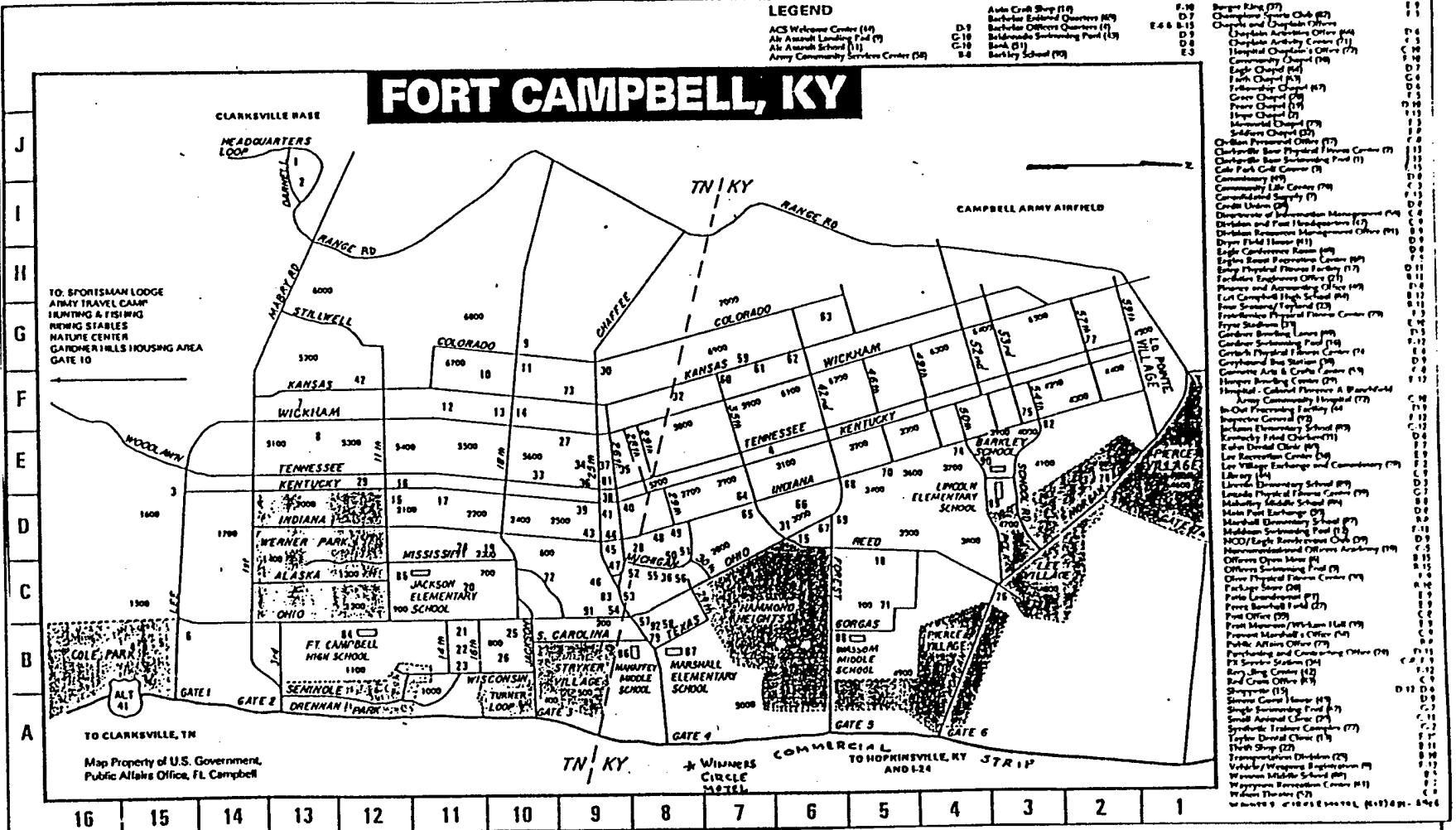
functional requirements summary, PDB-1 | 6-2

OBJECTIVE:

The objective of this project is to replace existing interior lighting with high efficiency fixtures and lamps at the Korean War Barracks. The replacement of the existing lighting will reduce energy consumption and life cycle operating costs for the Barracks in accordance with the Army Energy Resources Management Plan (ERMP) and Executive Order 12759.

functional requirements summary, PDB-1 6-3

facilities requirements sketch, PDB- 1/2



6-4

APPENDIX C
DOCUMENTATION CHECKLIST

A. SPECIAL CONSIDERATIONS

	ITEM	Required or Not Required	To Be Determined *	Comment Attached	Document Attached
A-1	Cost estimates for each primary and supporting facility	R	D		
A-2	Telecommunications system coordination with USACC and authorization for exceptions	NR			
A-3	Coordination with state and local governmental requirements (blind vendors, medical facilities, construction and operating permits, clearinghouse ccoordination, etc.)	R	A		
A-4	Assignment of airspace	NR			
A-5	Economic analysis of alternatives	R	D		
A-6	Approval for new starts	NR			
A-7	International balance of payments (IBOP) coordination with U.S. European command and NATO—overseas cost estimates and comparables (include rate of exchange used in estimates)	NR			
A-8	Impact on historic places—on site survey by authorized archeologist and coordination with state historic preservation officer and advisory council on historic preservation	NR			
A-9	Exceptions to established criteria	NR			
A-10	Coordination with various staff agencies (Provost Marshall-physical security, etc.)	R			
A-11	Identification of related or support projects (so projects can be coordinated)	R			
A-12	Required completion date	R			
	Other Special Considerations (List and number items)				
	1. See Appendix A				

REQUIRED OR NOT REQUIRED – Not relevant or no information to communicate. Enter "R" if item is relevant and is required for this project. Enter "NR" if item is irrelevant and is not required for this project.

TO BE DETERMINED – Information needed but not currently available. Enter code for information source.

COMMENT ATTACHED – Significant information summarized or explained and attached.

DOCUMENT ATTACHED – Significant information is in an existing document which is attached.

* BY WHOM (Check and insert appropriate letter)

A – DFAE
B – Using Service
C – Construction Service
D – Designer
E – Other (Check Comments Attached and explain)

documentation checklist

6-6

DA FORM 5023-A-R, Feb 82

B. SITE DEVELOPMENT

	ITEM	Required or Not Required	To Be Determined *	Comment Attached	Document Attached
B-1	Consultation with the District Office to determine and evaluate flood plain hazards	NR			
B-2	Preparation, submission, and/or approval of new				
(A)	General Site Plan	NR			
(B)	Annotated General Site Plan	NR			
(C)	Sketch Site Plan	NR			
(D)	Facilities Requirements Sketch	R			
B-3	Preparation of				
(A)	Site Survey	NR			
(B)	Subsoil Information	NR			
B-4	Approval by Department of Defense Explosive Safety Board (DDESB) for Safety Site Plan	NR			
	Other Site Development Considerations (List and number items)				

1. See Project Development Brochure, PDB-1/2

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documentation checklist

6-7

DA FORM 5023-B-R, Feb 82

C. ARCHITECTURAL & STRUCTURAL

	ITEM	Required or Not Required	* To Be Determined	Comment Attached	Document Attached
C-1	Reconciliation with troop housing programs and requirements	NR			
C-2	Evaluation of existing facilities (including degree of utilization)	R	D		1
C-3	Approval for removal and relocation of existing useable facilities	NR			
C-4	Evaluation of off-post community facilities	NR			
C-5	Storage and maintenance facilities (including nuclear weapons)	NR			
C-6	Coordination hospitals, medical and dental facilities with Surgeon General	NR			
C-7	Coordination of aviation facilities with FAA	NR			
C-8	Coordination air traffic control and navigational aids with USACC	NR			
C-9	Tabulation of types and numbers of aircraft	NR			
C-10	Evaluation of laboratory, research and development, and technical maintenance facilities	NR			
C-11	Coordination chapels with Chief of Chaplains	NR			
C-12	Review food service facilities by USATSA	NR			
C-13	Automated data processing system or equipment approvals—cost analysis when ADP and/or communication centers not co-located with related facilities	NR			
C-14	Coordination postal facilities with U.S. Postal Service Regional Director	NR			
C-15	Laundry and dry cleaning facilities coordination with ASD(I&L)	NR			
C-16	Tenant facilities coordination with installation where sited	NR			
C-17	Facilities for or exposed to explosions, toxic chemicals, or ammunition—review by DDESB (See also Item B-4)	NR			
C-18	Analysis of deficiencies	R	D		1
C-19	Consideration of alternatives	R	D		2
C-20	Determination whether occupants will include physically handicapped or disabled persons	NR			
C-21	As-build drawings for alterations or additions	R	C		
C-22	Availability of Standard Design or site adaptable designs	NR			
	Other Architectural & Structural (List and number items)				

1. See Supplemental Data
   Detailed Project Justification
   Paragraphs D3.

2. See Supplemental Data
   Detailed Project Justification
   Paragraph D4.

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documentation checklist

6-8

DA FORM 5023-C-R, Feb 82

D. MECHANICAL, ELECTRICAL, & UTILITY SYSTEMS

	ITEM	Required or Not Required	To Be Determined *	Comment Attached	Document Attached
D-1	Fuel considerations and cost comparison analysis	R	D		
D-2	Energy requirements appraisal (ERA)	R	D		1
D-3	Conformance with DOD Energy Reduction requirements	R	D		
D-4	Evaluation of existing and/or proposed utility systems	R	D		
	Other Mechanical and Utility Systems (List and number items)				

1. See Special Requirements, Paragraph 3 (SRP-3)

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documentation checklist

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DA FORM 5023-D-R, Feb 82

E. ENVIRONMENTAL CONSIDERATIONS

	ITEM	Required or Not Required	To Be Determined*	Comment Attached	Document Attached
E-1	Environmental impact assessment	R	D		1
E-2	EIA conclusions require Environmental Impact Statement	NR			
E-3	Determination of health, environmental or related hazards. Assistance to determine existence of any health, environmental or related hazard may be requested from Aberdeen Proving Ground, MD 21010, the Office of the Surgeon General, Attn: DASG-HCH (Army Environmental Hygiene Agency)	NR			
E-4	Air/water pollution permit, coordination with agencies and compliance with standards at Federal, state and local level	NR			
E-5	Corrective measures associated with Environmental Impact Statements or assessment—list separately and evaluate.	NR			
	Other environmental considerations (list and number items)				

1. See Supplemetal Data
   Detailed Project Justification
   Paragraph D9.

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documentation checklist

6-10

DA FORM 5023-E-R, Feb 82

APPENDIX D
TECHNICAL DATA CHECKLIST

A. SPECIAL CONSIDERATIONS

	ITEM	Required or Not Required	To Be Determined *	Comment Attached	Document Attached
A-1	Factors of risk, restriction or unusual circumstance expected to increase costs beyond applicable area averages	NR			
A-2	Construction phasing requirements	R	D		
A-3	Functional support equipment (mechanical, electrical, structural, and security) to be built in	NR			
A-4	Equipment in place and justification	NR			
A-5	Other equipment and furniture (O&MA, OPA) and costs	NR			
A-6	Special studies and tests (hazards analyses, compatibility testing, new technology testing, etc.)	NR			
A-7	Type of construction (permanent, temporary, semi-permanent)	NR			
A-8	Government furnished equipment (quantities, procurement time, availability and special handling and storage requirements). Funds used for procurement.	NR			
	Other special considerations (list and number items)				

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E – Other (Check Comments Attached and explain)

technical data checklist

6-12

DA FORM 5024-A-R, Feb 82

B. SITE DEVELOPMENT

	ITEM	Required or Not Required	To Be Determined*	Comment Attached	Document Attached
B-1	Construction restrictions or guidelines pertaining to				
(A)	site access and preferred construction routes	R	A		
(B)	Airfield clearance, explosive storage, working hours, safety, etc.	NR			
(C)	Facilities and/or functions or adjoining areas (structures, materials, impact)	R	A		
B-2	Real estate actions (acquisition, disposal, lease, right-of-way)	NR			
B-3	Demolition/relocation required (data)				
(A)	Special considerations due to explosives/radioactivity/ chemical contamination/asbestos emissions/toxic gases	R	A	1	
(B)	Restrictions on disposal of demolished/relocated material including hazardous waste	NR			
B-4	Pavement types and requirements (including traffic surveys and MTMC coordination)	NR			
B-5	Landscape considerations				
(A)	Protection of existing vegetation	R	A		
(B)	Stockpile topsoil	NR			
	Other Site Development (List and number items)				

1. There is a possiblility that the existing lighting may contain PCB's in the ballasts.

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technical data checklist

6-13

DA FORM 5024-B-R, Feb 82

C. ARCHITECTURAL & STRUCTURAL

	ITEM	Required or Not Required	* To Be Determined	Comment Attached	Document Attached
C-1	Vibration-producing equipment requiring isolation	R	D		
C-2	Seismic zone and other design load criteria (typhoon, hurricane, earthquake loads, high or low loss potential)	NR			
C-3	Protective shelter evaluation and resistant design criteria (conventional/nuclear blast and radiation, chemical/biological)	NR			
C-4	Unusual foundation requirements (pier, pile, caisson, deep foundations, mat, special treatment, permafrost areas, soil bearing)	NR			
C-5	Designation and strength of units to be accommodated	NR			
C-6	Requirements and data for special design projects	NR			
C-7	Unusual floor and roof loads (safes, equipment)	NR			
C-8	Security features (arms rooms, vaults, interior secure areas)	NR			
	Other Architectural & Structural (List and number items)				

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technical data checklist

6-14

DA FORM 5024-C-R, Feb 82

D. MECHANICAL, ELECTRICAL, & UTILITY SYSTEMS

	ITEM	Required or Not Required	* To Be Determined	Comment Attached	Document Attached
D-1	Special mechanical requirements or considerations (elevator, crane, hoist, etc.)	NR			
D-2	Special peak usage periods and peak leveling techniques	NR			
D-3	Maintenance considerations (accessibility of equipment, compatibility with existing equipment)	R	D		
D-4	Plumbing—availability, general system type and characteristics (proposed and/or existing, incl. compressed air and gas)	NR	D		
D-5	Heating—availability, general system type and characteristics (proposed and/or existing)	NR			
D-6	Ventilating, air condition/refrigeration—availability, general system type and characteristics (proposed and/or existing)	R	D		
D-7	Electrical—availability, general system type and characteristics incl. airfield lighting, communication, etc. (proposed and/or existing)	NR			
D-8	Water supply/waste treatment—availability, general system type and characteristics (proposed and/or existing)	NR			
D-9	Energy requirements/fuel conversion (sources, availability, loads, types of fuel, etc.)	R	D		
D-10	Solar energy evaluation	NR			
	Other Mechanical & Utility Systems (List and number items)				

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technical data checklist

6-15

DA FORM 5024-D-R, Feb 82

E. ENVIRONMENTAL CONSIDERATIONS

	ITEM	Required or Not Required	To Be Determined *	Comment Attached	Document Attached
E-1	Waste water treatment, air quality, and solid waste disposal criteria	NR			
	Other Environmental Considerations (List and number items)				

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technical data checklist

6-16

DA FORM 5024-E-R, Feb 82

F. FIRE PROTECTION

ITEM		Required or Not Required	To Be Determined*	Comment Attached	Document Attached
F-1	Special fire protection systems or features (detection and suppression equipment, hazards, etc.)	NR			
	Other Fire Protection Considerations (List and number items)				

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technical data checklist

6-17

DA FORM 5024-F-R, Feb 82

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
Fort Campbell, Kentucky	Interior Lighting Replacements at Korean War Barracks

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
		ECIP #4	$1,260.72

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
Primary Facility				
Interior Light Fixtures	Lot	1	1,086.36	1,086.36
Subtotal				1,086.36
Contingency (10%)				108.64
Total Contract Cost				1,195.00
Supervision, Inspection and Overhead (5.5%)				65.72
Total Request				1,260.72

10. DESCRIPTION OF PROPOSED CONSTRUCTION

The existing interior lighting is a combination of standard efficiency fluorescent fixtures and incandescents. The proposed project will replace the interior lighting fixtures with T8 fluorescents with high efficiency electronic ballasts and compact fluorescents. The implementation of this project will save 9,572,124 MJ/yr of electrical energy. The first year dollar savings is $148,900 and the Savings to Investment Ratio (SIR) is 1.43.

11. REQUIREMENT

Project: The proposed interior lighting project replaces lighting at the following Korean War Barracks with energy efficient lighting: 3211, 3212, 3213, 3214, 3215, 3216, 3217, 3218, 6709, 6710, 6711, 6712, 6718, 6719, 6725, 6726, 6727, 6728, 6730, 6731, 6732, 6733, 6909, 6910, 6911, 6912, 6917, 6918, 6919, 6920, 6923, 6927, 6928, 6929, 6930, 6931, 6936, 6937, 6938, 6939, 6940, 6943, 6944, 6945.

Requirement: The project is required to reduce the energy consumption of lighting systems and to comply with the Army Energy Resources Management Plan (ERMP) and Executive Order 12759. The proposed project will reduce annual energy consumption by 9,572,124 MJ/yr and annual energy cost by $148,900.

Current Situation: The existing lighting at the above barracks is inefficient fluorescent and incandescent fixtures.

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION	
Fort Campbell, Kentucky	
4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENT AT KOREAN WAR BARRACKS	ECIP #4

Impact if not provided: If the proposed project is not funded, a reduction of 9,572,124 MJ/yr cannot be achieved, and excessive amounts of energy will continue to be used. There will be no contribution to energy reduction goals established for United States Army facilities by Army Headquarters.

Colonel, USA
Commanding

ESTIMATED CONSTRUCTION START:	September 1995	INDEX:
ESTIMATED MIDPOINT OF CONSTRUCTION:	April 1996	INDEX:
ESTIMATED CONSTRUCTION COMPLETION:	November 1996	INDEX:

DETAILED JUSTIFICATIONS

D1. GENERAL

The proposed project encompasses the replacement of lighting at 44 Korean War Barracks. The project will decrease the energy consumption of the lighting system without reducing light levels except where necessary.

D2. ACCOMMODATIONS NOW IN USE:

The existing lighting systems are comprised of standard efficiency fluorescent and incandescent fixtures.

D3. ANALYSIS OF DEFICIENCY:

Currently, the Korean War Barracks are using standard or low efficiency fixtures for lighting. The purpose of this project is to replace the existing lighting with new light fixtures which are much more efficient. The current deficiency results in large amounts of energy usage to maintain adequate lighting.

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION	
Fort Campbell, Kentucky	
4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENT KOREAN WAR BARRACKS	ECIP #4

D4. CONSIDERATION OF ALTERNATIVES:

The only alternatives to the proposed project are to install lower efficiency light fixtures. The disadvantages of using lower efficiency light fixtures is that less energy savings can be realized without significantly reducing the construction cost. If a less efficient light fixture is selected, the project would have a lower SIR.

D5. CRITERIA FOR PROPOSED PROJECT:

The proposed project will conform with all applicable federal and United States Army Regulations.

D6. PROGRAM FOR RELATED EQUIPMENT:

No equipment funded from appropriations other than MCA are required.

D7. DISPOSAL OF PRESENT ASSETS:

Light fixtures at the 44 Korean War Barracks will be disposed.

D8. SURVIVAL FACILITIES:

The proposed project is not suitable for inclusion of protective shelters.

D9. SUMMARY OF ENVIRONMENTAL CONSEQUENCES:

The proposed project has been analyzed and will not adversely impact the environment. Energy savings resulting from the project will conserve natural resources.

D10. EVALUATION OF FLOOD HAZARDS AND ENCROACHMENT ON WETLANDS:

It has been determined that these facilities are not located in a flood plain and they do not encroach on wetlands.

D11. ECONOMIC JUSTIFICATION:

The proposed project qualifies under ECIP Guidelines in AR-415-15. SIR for the project is 1.43 with a simple payback of 8.47 years.
See Economic Analysis, SRP-1

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION	
Fort Campbell, Kentucky	
4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENTS AT KOREAN WAR BARRACKS	ECIP #4

D12. UTILITY AND COMMUNICATION SUPPORT:

A. No related utility support projects are programmed. Adequate utilities are available to support the project.

B. No telecommunication support is required.

D13. PROTECTION OF HISTORIC PLACES AND ARCHEOLOGICAL SITES:

The project involves the replacement of light fixtures and installation of controls in and around existing buildings. Review procedures have been implemented for this project in accordance with 36 CFT 800. The review has established that there will be no effect.

D14. PROJECT DEVELOPMENT BROCHURE (PART 1):

A Project Development Brochure was prepared on 23 September 94 and is attached as a part of the programming documentation.

D15. ENERGY REQUIREMENTS:

The proposed project will reduce present energy consumption by 9,572,124 MJ/yr at the cost savings of $148,900 per year. See Energy Requirements Appraisal (ERA) in Special Requirements, Paragraph 3 (SRP-3).

D16. PROVISION FOR THE HANDICAPPED:

No provisions for the handicapped will be made since the scope of the project is in no way applicable to designing for the handicapped.

D17. REAL PROPERTY MAINTENANCE ACTIVITY (RPMA) ANALYSIS:

A. Physical impact: There will be light fixtures removed and replaced by the same number of light fixtures. No new structures will be added.

B. Operations and Maintenance (O&M) impact:

YEAR	O&M NET CHANGE ($000)
1994	-24.0
1995	-24.0
1996	-24.0

C. Backlog of Maintenance and Repair (BMAR) impact:

There will be no net change in the number of fixtures or in fixture life expectancy. There will be no effect on BMAR.

D18. COMMERCIAL ACTIVITIES:

The proposed project is not a "New Start Expansion" as defined by DA Circular 235-1. The project has been reviewed in light of the requirements of commercial and industrial facilities. It has been determined that whereas the project does not affect commercial facilities, the requirements of DA Circular 235-1 does not apply.

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION
Fort Campbell, Kentucky

4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENTS KOREAN WAR BARRACKS	ECIP #4

Life Cycle Cost Analysis
Project Title: Interior Lighting Replacements
Fiscal Year: 1994
Analysis Date 09/23/94
Economic Life: Fifteen (15) Years

1. INVESTMENT

A. CONSTRUCTION COST	1,146,105
B. SIOH	57,305
C. DESIGN COST	57,305
D. ENERGY CREDIT CALC	-0-
E. SALVAGE VALUE	-0-
F. TOTAL INVESTMENT	1,260,715

2. ENERGY SAVINGS
ANALYSIS DATE ANNUAL SAVINGS, UNIT COST & DISCOUNTED SAVINGS

FUEL	COST $/MBtu (1)	SAVINGS MBtu/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	6.18	9,279	57,344	12.43	$712,789
B. DIST					
C. RESID					
D. NG					
E. DEMAND			67,540	11.85	800,349
F. TOTAL		9,279	124,884		1,513,138

3. NON-ENERGY SAVINGS

A. ANNUAL RECURRING			$24,016
(1)DISCOUNT FACTOR	11.85		
(2)DISCOUNTED SAVINGS			$284,590

B. NON-RECURRING SAVINGS

ITEM	SAVINGS (+) COST(-)(1)	YEAR OF OCCURRENCE	(2) DISCOUNT FACTOR	DISCOUNTED SAVINGS(+) COST (-)(4)
a. Replace Interior				
b. Replace Exterior				
c.				
d. Total				

C. TOTAL NON ENERGY DISCOUNTED SAVINGS (+)/COST(-) 284,590

DD FORM 1391
1 DEC 76

PREVIOUS EDITIONS MAY BE USED INTERNALLY
UNTIL EXHAUSTED

FOR OFFICIAL USE ONLY
(WHEN DATA IS ENTERED)

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION
Fort Campbell, Kentucky

4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENTS AT KOREAN WAR BARRACKS	ECIP #4

SPECIAL REQUIREMENTS PARAGRAPH 1 (SRP-1) (continued)

4. FIRST YEAR DOLLAR SAVINGS	$148,900
5. SIMPLE PAYBACK PERIOD	8.47 Years
6. TOTAL NET DISCOUNTED SAVINGS	$1,797,727
7. DISCOUNTED SAVINGS RATIO	1.43

1. COMPONENT	FY 19 94 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		23 September 94

3. INSTALLATION AND LOCATION	
Fort Campbell, Kentucky	
4. PROJECT TITLE	5. PROJECT NUMBER
INTERIOR LIGHTING REPLACEMENT AT KOREAN WAR BARRACKS	ECIP #4

SPECIAL REQUIREMENTS PARAGRAPH 3 (SRP-3):

Energy Requirements Appraisal (ERA)

1. Project Description: Replace existing lighting systems with more efficient lighting systems without reducing the light levels.

2. Estimated Energy Consumption: The buildings are currently lit by standard efficiency lighting. The existing lighting system consumes 22,801,394 MJ/yr of energy. Replacing the existing lighting with high efficiency lighting will result in 9,572,124 MJ/yr of electrical energy savings, a forty-two percent (42%) reduction in current energy consumption.

3. Energy Sources: No new energy sources are required for the proposed project. The use of solar energy for this project is impractical.

4. Energy Use Impacts: The proposed project will substantially reduce the consumption of electricity for lighting. The burden on the existing base distribution system will be lessened.

5. Energy Conservation: The proposed project will reduce annual energy consumption by 9,572,124 MJ/Yr with annual energy cost savings of $148,900. The project complies with Army Resources Management Plan (ERMP) and Executive Order 12759.

6. Energy Alternatives: The proposed project represents the greatest possible reduction in energy consumption forty-two percent (42%), without reducing the current lighting levels. The current levels do not exceed the levels recommended by ASHRAE.

7. Energy Effects: The proposed project provides positive environmental effects. It reduces the current energy consumption by forty-two percent (42%), effectively reducing the consumption of non-renewable fuel sources. The degrading of environmental standards would not make more efficient energy sources available.

8. Basis of Approval: Total energy requirements and alternative fuel sources have been considered and included in this appraisal or discarded as applicable.

TABLE 6.1
PROJECT SUMMARY: INTERIOR LIGHTING AT KOREAN WAR BARRACKS

ECO NUMBER	BUILDING NUMBER	BASELINE ENERGY (MJ)	ECO ENERGY (MJ)	ENERGY SAVINGS (MJ)	1ST YEAR SAVINGS	INVESTMENT COSTS	ANNUAL RECURRING	SPB (YR)	SIR	MATERIAL COSTS	LABOR COSTS	ADDITIONAL COSTS*	TOTAL COST ESTIMATE
1	3211	461,732	273,528	188,204	$2,628	$28,097	$82	10.69	1.13	$11,896	$8,956	$7,245	$28,097
1	3212	702,374	426,708	275,666	$4,081	$37,104	$164	9.09	1.33	$15,298	$12,237	$9,569	$37,104
1	3213	489,861	289,224	200,637	$2,950	$27,215	$327	9.23	1.31	$11,575	$8,622	$7,018	$27,215
1	3214	519,383	296,898	222,485	$3,426	$27,503	$437	8.03	1.50	$11,228	$9,182	$7,093	$27,503
1	3215	1,021,811	617,636	404,175	$6,095	$53,722	$181	8.81	1.37	$21,769	$18,099	$13,854	$53,722
1	3216	1,063,988	628,952	435,036	$6,108	$42,640	$396	6.98	1.73	$17,230	$14,414	$10,996	$42,640
1	3217	593,772	354,521	239,250	$3,359	$30,531	$230	9.09	1.33	$12,779	$9,878	$7,874	$30,531
1	3218	792,697	451,273	341,423	$5,459	$51,203	$791	9.38	1.29	$20,699	$17,299	$13,205	$51,203
1	6709	525,223	287,510	237,713	$4,001	$32,054	$912	8.01	1.50	$13,755	$10,033	$8,266	$32,054
1	6710	644,985	340,943	304,042	$5,218	$37,909	$1,041	7.26	1.66	$15,397	$12,736	$9,776	$37,909
1	6711	321,530	176,361	145,169	$2,323	$17,975	$478	7.74	1.56	$7,395	$5,944	$4,636	$17,975
1	6712	449,422	238,109	211,313	$3,660	$22,592	$927	6.17	1.95	$9,177	$7,589	$5,826	$22,592
1	6718	267,404	135,898	131,506	$2,342	$16,558	$774	7.07	1.70	$6,999	$5,290	$4,269	$16,558
1	6719	327,441	175,604	151,837	$2,442	$17,390	$657	7.12	1.69	$7,479	$5,426	$4,485	$17,390
1	6725	297,891	155,983	141,908	$2,358	$18,446	$655	7.82	1.54	$7,641	$6,047	$4,758	$18,446
1	6726	295,772	156,864	138,908	$2,424	$15,946	$682	6.58	1.83	$6,752	$5,082	$4,112	$15,946
1	6727	373,547	205,359	168,188	$2,800	$21,177	$682	7.56	1.59	$8,835	$6,881	$5,461	$21,177
1	6728	442,693	327,655	115,038	$6,833	$47,102	$2,080	6.89	1.74	$16,118	$18,837	$12,147	$47,102
1	6730	438,562	241,976	196,586	$3,207	$27,859	$659	8.69	1.39	$11,330	$8,528	$8,001	$27,859
1	6731	494,042	269,867	224,175	$3,465	$23,870	$501	6.89	1.75	$9,615	$8,099	$6,156	$23,870
1	6732	483,056	266,058	216,998	$3,420	$26,948	$559	7.88	1.53	$10,982	$9,017	$6,949	$26,948
1	6733	471,603	264,545	207,058	$3,101	$27,954	$396	9.01	1.34	$11,614	$9,131	$7,209	$27,954
SUBTOTAL		*11,476,790*	*6,581,473*	*4,897,316*	*$81,700*	*$651,795*	*$13,611*	*9.06*	*1.33*	*$285,863*	*$217,327*	*$168,905*	*$651,795*

TABLE 6.1
PROJECT SUMMARY: INTERIOR LIGHTING AT KOREAN WAR BARRACKS

ECO NUMBER	BUILDING NUMBER	BASELINE ENERGY (MJ)	ECO ENERGY (MJ)	ENERGY SAVINGS (MJ)	1ST YEAR SAVINGS	INVESTMENT COSTS	ANNUAL RECURRING	SPB (YR)	SIR	MATERIAL COSTS	LABOR COSTS	ADDITIONAL COSTS*	TOTAL COST ESTIMATE
1	6909	418,778	244,983	173,795	$2,647	$23,058	$455	8.71	1.39	$9,406	$7,707	$5,945	$23,058
1	6910	275,939	156,555	119,384	$1,869	$13,748	$427	7.35	1.64	$5,526	$4,676	$3,546	$13,748
1	6911	525,156	316,406	208,750	$3,203	$32,528	$396	10.16	1.19	$13,390	$10,750	$8,388	$32,528
1	6912	420,325	178,318	242,007	$2,783	$23,484	$528	8.44	1.43	$9,537	$7,891	$6,056	$23,484
1	6917	599,011	362,752	236,259	$3,325	$32,078	$396	9.65	1.25	$13,153	$10,653	$8,272	$32,078
1	6918	554,236	325,936	228,300	$3,260	$26,637	$566	8.17	1.48	$10,819	$8,948	$6,870	$26,637
1	6919	634,674	369,035	265,639	$4,000	$33,657	$678	8.41	1.44	$13,182	$11,795	$8,680	$33,657
1	6920	528,344	307,351	220,993	$3,289	$27,834	$627	8.46	1.43	$11,421	$9,235	$7,178	$27,834
1	6923	555,798	345,262	210,536	$2,779	$29,484	$132	10.61	1.14	$12,198	$9,683	$7,603	$29,484
1	6927	618,515	373,729	244,786	$3,585	$37,359	$478	10.42	1.16	$15,727	$11,998	$9,634	$37,359
1	6928	551,605	320,267	231,338	$3,503	$28,774	$655	8.21	1.47	$11,661	$9,692	$7,421	$28,774
1	6929	471,640	281,413	190,227	$2,732	$25,682	$396	9.40	1.29	$10,628	$8,431	$6,623	$25,682
1	6930	659,472	397,262	262,210	$3,784	$38,184	$455	10.09	1.20	$15,827	$12,510	$9,847	$38,184
1	6931	417,944	246,725	171,219	$2,403	$23,298	$396	9.70	1.25	$9,526	$7,764	$6,008	$23,298
1	6936	381,338	224,018	157,320	$2,226	$18,707	$396	8.40	1.44	$7,710	$6,173	$4,824	$18,707
1	6937	534,601	319,526	215,075	$2,960	$24,481	$427	8.27	1.46	$10,006	$8,161	$6,314	$24,481
1	6938	600,961	352,495	248,466	$3,604	$31,194	$509	8.66	1.40	$12,728	$10,421	$8,045	$31,194
1	6939	489,744	288,904	200,840	$2,877	$25,879	$495	8.99	1.34	$10,615	$8,590	$6,674	$25,879
1	6940	549,808	331,557	218,251	$3,082	$26,137	$408	8.48	1.43	$10,687	$8,709	$6,741	$26,137
1	6943	537,138	310,306	226,832	$3,499	$26,898	$757	7.69	1.57	$10,882	$9,080	$6,936	$26,898
1	6944	547,375	328,904	218,471	$3,129	$33,288	$408	10.64	1.14	$13,816	$10,887	$8,585	$33,288
1	6945	450,202	266,092	184,110	$2,655	$26,531	$420	9.99	1.21	$11,057	$8,631	$6,843	$26,531
SUBTOTAL		*11,322,604*	*6,647,796*	*4,674,808*	*$67,194*	*$608,920*	*$10,405*	*7.98*	*1.51*	*$249,602*	*$202,385*	*$157,033*	*$608,920*
TOTALS		**22,801,394**	**13,229,269**	**9,572,124**	**$148,894**	**$1,260,715**	**$24,016**	**8.47**	**1.43**	**$515,065**	**$419,712**	**$325,938**	**$1,260,715**

*INCLUDES OVERHEAD, PROFIT, BOND, CONTINGENCIES, SIOH, AND DESIGN

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: ECO1KWBT
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID 1.080
INSTALLATION & LOCATION: FORT CAMPBELL REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: ECO1KWBT INTERIOR LIGHTING - BARRACKS TOTAL
FISCAL YEAR 94 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 09-14-94 ECONOMIC LIFE 15 YEARS PREPARED BY: J. HOLLENSBE

1. INVESTMENT

A. CONSTRUCTION COST	$ 1146105.		
B. SIOH	$ 57305.		
C. DESIGN COST	$ 57305.		
D. TOTAL COST (1A+1B+1C)	$ 1260715.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 1260715.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 6.18	9279.	$ 57344.	12.43	$ 712789.
B. DIST	$ .00	0.	$ 0.	13.56	$ 0.
C. RESID	$ .00	0.	$ 0.	15.09	$ 0.
D. NAT G	$ .00	0.	$ 0.	15.86	$ 0.
E. COAL	$ .00	0.	$ 0.	13.61	$ 0.
F. LPG	$ .00	0.	$ 0.	12.64	$ 0.
M. DEMAND SAVINGS			$ 67540.	11.85	$ 800349.
N. TOTAL		9279.	$ 124884.		$ 1513138.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 24016.
(1) DISCOUNT FACTOR (TABLE A)	11.85	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 284590.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-) (3A2+3Bd4)	$ 284590.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 148900.
5. SIMPLE PAYBACK PERIOD (1G/4)	8.47 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 1797727.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	1.43
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):	5.57 %

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: BARRPRT1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID 1.080
INSTALLATION & LOCATION: FORT CAMPBELL REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: KWBPRT1 INTERIOR LIGHTING - 3200 & 6700 BARRACKS
FISCAL YEAR 94 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 09-14-94 ECONOMIC LIFE 15 YEARS PREPARED BY: J. HOLLENSBE

1. INVESTMENT

A. CONSTRUCTION COST	$ 592541.		
B. SIOH	$ 29627.		
C. DESIGN COST	$ 29627.		
D. TOTAL COST (1A+1B+1C)	$ 651795.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 651795.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 6.18	4900.	$ 30282.	12.43	$ 376405.
B. DIST	$ .00	0.	$ 0.	13.56	$ 0.
C. RESID	$ .00	0.	$ 0.	15.09	$ 0.
D. NAT G	$ .00	0.	$ 0.	15.86	$ 0.
E. COAL	$ .00	0.	$ 0.	13.61	$ 0.
F. LPG	$ .00	0.	$ 0.	12.64	$ 0.
M. DEMAND SAVINGS			$ 37812.	11.85	$ 448072.
N. TOTAL		4900.	$ 68094.		$ 824478.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 13611.
(1) DISCOUNT FACTOR (TABLE A)	11.85	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 161290.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 161290.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 81705.
5. SIMPLE PAYBACK PERIOD (1G/4)	7.98 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 985768.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	1.51
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):	5.98 %

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3211
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
5	2 LAMP @	97 W/FIXT =	485 WATTS	5	2 LAMP @	58 W/FIXT =	290.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
8	4 LAMP @	194 W/FIXT =	1,552 WATTS	8	4 LAMP @	118 W/FIXT =	944.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*5,932*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*3,593*	*KWH/YR*
	21,354	*MJ/YR*		*12,936*	*MJ/YR*
BASELINE DEMAND	*2.04*	*KW*	*ECO DEMAND*	*1.23*	*KW*

NET ENERGY SAVINGS	**8,418 MJ/YR**	**NET DEMAND SAVINGS**	**$114 /YR**
NET ENERGY SAVINGS	**8 MBTU/YR**	**NET DOLLAR SAVINGS**	**$163 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3211
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
105 2 LAMP @	97 W/FIXT =	10,185	WATTS	105 2 LAMP @	58 W/FIXT =	6,090.00	WATTS
32 3 LAMP @	153 W/FIXT =	4,896	WATTS	32 3 LAMP @	87 W/FIXT =	2,784.00	WATTS
15 4 LAMP @	194 W/FIXT =	2,910	WATTS	15 4 LAMP @	118 W/FIXT =	1,770.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*78,585*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*46,493*	*KWH/YR*
	282,905	*MJ/YR*		*167,375*	*MJ/YR*
BASELINE DEMAND	*17.99*	*KW*	*ECO DEMAND*	*10.64*	*KW*

NET ENERGY SAVINGS	**115,530 MJ/YR**	**NET DEMAND SAVINGS**	**$1,039 /YR**
NET ENERGY SAVINGS	**109 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,717 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3211
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
51 2 LAMP @	97 W/FIXT =	4,947	WATTS	51 2 LAMP @	58 W/FIXT =	2,958.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*43,217*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*25,841*	*KWH/YR*
	155,581	*MJ/YR*		*93,028*	*MJ/YR*
BASELINE DEMAND	*4.95*	*KW*	*ECO DEMAND*	*2.96*	*KW*

NET ENERGY SAVINGS	**62,553 MJ/YR**	**NET DEMAND SAVINGS**	**$281 /YR**
NET ENERGY SAVINGS	**59 MBTU/YR**	**NET DOLLAR SAVINGS**	**$648 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3211

# EXIT SIGNS	2
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***525.6***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***52.56***	***KWH/YR***
BASELINE DEMAND	***0.06***	***KW***	***ECO DEMAND***	***0.01***	***KW***

NET ENERGY SAVINGS **473 KWH/YR** **NET DOLLAR SAVINGS** **$18**

Estimate:	Bldg. 3211	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				157.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	57.15	$0	$1,570	$0	$0	$1,570
0207082121	DEMO. 2X4' FLUOR FIXTURES				57.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	27.65	$0	$761	$0	$0	$761
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				2.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.64	$0	$18	$0	$0	$18
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				0.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	0.00	$0	$0	$0	$0	$0
U02 SITEWORK	86	$0	$2,349	$0	$0	$2,349

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					2.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		2.00	$370	$55	$0	$0	$425
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					48.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		67.39	$4,224	$1,848	$0	$0	$6,072
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					2.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		3.02	$168	$83	$0	$0	$251
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					32.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		51.20	$2,880	$1,408	$0	$0	$4,288
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					23.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		39.10	$2,162	$1,081	$0	$0	$3,243
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					82.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		93.48	$5,986	$2,583	$0	$0	$8,569
1661309909	SUR FLUOR 1X4' W 2 32W T8					24.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		27.36	$2,064	$756	$0	$0	$2,820
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					2.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		2.28	$180	$63	$0	$0	$243
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	291	$18,301	$7,993	$0	$0	$26,294
	ESTIMATE TOTAL	377	$18,301	$10,342	$0	$0	$28,643
	SALES TAX	5.00%	$915				
	MATL MARKUP	-40.00%	($7,320)				
	LABOR MARKUP	-13.40%		($1,386)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$11,896	$8,956	$0	$0	$20,852
	CONTINGENCY	10.00%					$2,085
	BOND	2.50%					$521
	PROFIT	10.00%					$2,085
	JOB TOTAL						$25,543

Estimate:	Bldg. 3211	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	86	$0	$2,349	$0	$0	$2,349
U16 ELECTRICAL	291	$18,301	$7,993	$0	$0	$26,294
TOTAL	377	$18,301	$10,342	$0	$0	$28,643
SALES TAX	5.00%	$915				
MATL MARKUP	-40.00%	($7,320)				
LABOR MARKUP	-13.40%		($1,386)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,896	$8,956	$0	$0	$20,852
CONTINGENCY	10.00%					$2,085
BOND	2.50%					$521
PROFIT	10.00%					$2,085
JOB TOTAL						$25,543

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3212
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
3 2 LAMP @	97 W/FIXT =	291	WATTS	3 2 LAMP @	58 W/FIXT =	174.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
15 4 LAMP @	194 W/FIXT =	2,910	WATTS	15 4 LAMP @	118 W/FIXT =	1,770.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*9,321*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*5,661*	*KWH/YR*
	33,557	*MJ/YR*		*20,379*	*MJ/YR*
BASELINE DEMAND	*3.20*	*KW*	*ECO DEMAND*	*1.94*	*KW*

NET ENERGY SAVINGS	**13,177 MJ/YR**	**NET DEMAND SAVINGS**	**$178 /YR**
NET ENERGY SAVINGS	**12 MBTU/YR**	**NET DOLLAR SAVINGS**	**$255 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3212
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA					REPLACEMENT FIXTURE DATA				
2 FOOT					**2 FOOT**				
2	2 LAMP U	97	W/FIXT =	194 WATTS	2	2 LAMP U @	58	W/FIXT =	116 WATTS
4 FOOT					**4 FOOT**				
	1 LAMP @	56	W/FIXT =	0 WATTS	0	1 LAMP @	29	W/FIXT =	0 WATTS
28	2 LAMP @	97	W/FIXT =	2,716 WATTS	28	2 LAMP @	58	W/FIXT =	1,624 WATTS
	3 LAMP @	153	W/FIXT =	0 WATTS	0	3 LAMP @	87	W/FIXT =	0 WATTS
148	4 LAMP @	194	W/FIXT =	28,712 WATTS	148	4 LAMP @	118	W/FIXT =	17,464 WATTS
8 FOOT					**8 FOOT**				
	2 LAMP @	180	W/FIXT =	0 WATTS	0	2 LAMP @	125	W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*138,125*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*83,883*	*KWH/YR*
	497,250	*MJ/YR*		*301,979*	*MJ/YR*
BASELINE DEMAND	*31.62*	*KW*	*ECO DEMAND*	*19.20*	*KW*

NET ENERGY SAVINGS	**195,271 MJ/YR**	**NET DEMAND SAVINGS**	**$1,755 /YR**
NET ENERGY SAVINGS	**185 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,902 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3212
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
57 2 LAMP @	97 W/FIXT =	5,529 WATTS	57 2 LAMP @	58 W/FIXT =	3,306.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS
BASELINE ENERGY CONSUMPTION		***48,301 KWH/YR***	***ECO ENERGY CONSUMPTION***		***28,881 KWH/YR***
		173,885 MJ/YR			***103,972 MJ/YR***
BASELINE DEMAND		***5.53 KW***	***ECO DEMAND***		***3.31 KW***

NET ENERGY SAVINGS	**69,912 MJ/YR**	**NET DEMAND SAVINGS**	**$314 /YR**
NET ENERGY SAVINGS	**66 MBTU/YR**	**NET DOLLAR SAVINGS**	**$725 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3212

# EXIT SIGNS	4
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1051***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***105.1***	***KWH/YR***
BASELINE DEMAND	***0.12***	***KW***	***ECO DEMAND***	***0.01***	***KW***
NET ENERGY SAVINGS	**946**	**KWH/YR**	**NET DOLLAR SAVINGS**	**$35**	

Estimate:	Bldg. 3212	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					90.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	32.76	$0	$900	$0	$0	$900
0207082121	DEMO. 2X4' FLUOR FIXTURES					163.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	79.06	$0	$2,176	$0	$0	$2,176
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					4.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	1.03	$0	$28	$0	$0	$28
U02 SITEWORK		113	$0	$3,104	$0	$0	$3,104

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					4.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		4.00	$740	$110	$0	$0	$850
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					57.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		80.03	$5,016	$2,195	$0	$0	$7,211
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					163.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		277.10	$15,322	$7,661	$0	$0	$22,983
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					30.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		34.20	$2,190	$945	$0	$0	$3,135
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	0.00	$0	$0	$0	$0	$0
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	400	$23,535	$11,027	$0	$0	$34,562
	ESTIMATE TOTAL	513	$23,535	$14,131	$0	$0	$37,666
	SALES TAX	5.00%	$1,177				
	MATL MARKUP	-40.00%	($9,414)				
	LABOR MARKUP	-13.40%		($1,894)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$15,298	$12,237	$0	$0	$27,535
	CONTINGENCY	10.00%					$2,754
	BOND	2.50%					$688
	PROFIT	10.00%					$2,754
	JOB TOTAL						$33,731

Estimate:	Bldg. 3212	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	113	$0	$3,104	$0	$0	$3,104
U16 ELECTRICAL	400	$23,535	$11,027	$0	$0	$34,562
TOTAL	513	$23,535	$14,131	$0	$0	$37,666
SALES TAX	5.00%	$1,177				
MATL MARKUP	-40.00%	($9,414)				
LABOR MARKUP	-13.40%		($1,894)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,298	$12,237	$0	$0	$27,535
CONTINGENCY	10.00%					$2,754
BOND	2.50%					$688
PROFIT	10.00%					$2,754
JOB TOTAL						$33,731

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3213
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
8 2 LAMP @	97 W/FIXT =	776	WATTS	8 2 LAMP @	58 W/FIXT =	464.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
23 4 LAMP @	194 W/FIXT =	4,462	WATTS	23 4 LAMP @	118 W/FIXT =	2,714.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS
BASELINE ENERGY CONSUMPTION		*15,253*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*9,254*	*KWH/YR*
		54,911	*MJ/YR*			*33,316*	*MJ/YR*
BASELINE DEMAND		*5.24*	*KW*	*ECO DEMAND*		*3.18*	*KW*

NET ENERGY SAVINGS	**21,595 MJ/YR**	**NET DEMAND SAVINGS**	**$291 /YR**
NET ENERGY SAVINGS	**20 MBTU/YR**	**NET DOLLAR SAVINGS**	**$418 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3213
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
52 2 LAMP @	97 W/FIXT =	5,044	WATTS	52 2 LAMP @	58 W/FIXT =	3,016.00	WATTS
18 3 LAMP @	153 W/FIXT =	2,754	WATTS	18 3 LAMP @	87 W/FIXT =	1,566.00	WATTS
22 4 LAMP @	194 W/FIXT =	4,268	WATTS	22 4 LAMP @	118 W/FIXT =	2,596.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*52,704*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*31,354*	*KWH/YR*
	189,735	*MJ/YR*		*112,873*	*MJ/YR*
BASELINE DEMAND	*12.07*	*KW*	*ECO DEMAND*	*7.18*	*KW*

NET ENERGY SAVINGS	**76,863 MJ/YR**	**NET DEMAND SAVINGS**	**$691 /YR**
NET ENERGY SAVINGS	**73 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,142 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3213
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
78 2 LAMP @	97 W/FIXT =	7,566	WATTS	78 2 LAMP @	58 W/FIXT =	4,524.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*66,097*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*39,522*	*KWH/YR*
	237,948	*MJ/YR*		*142,278*	*MJ/YR*
BASELINE DEMAND	*7.57*	*KW*	*ECO DEMAND*	*4.52*	*KW*

NET ENERGY SAVINGS	**95,670 MJ/YR**	**NET DEMAND SAVINGS**	**$430 /YR**
NET ENERGY SAVINGS	**91 MBTU/YR**	**NET DOLLAR SAVINGS**	**$992 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3213

# EXIT SIGNS	8
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***2102***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***210.2***	***KWH/YR***
BASELINE DEMAND	***0.24***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS **1892 KWH/YR** **NET DOLLAR SAVINGS** **$71**

Estimate: Bldg. 3213 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					127.00 EA	
Unit values		0.36	0.00	10.00	0.00	0.00	10.00
Totals		46.23	$0	$1,270	$0	$0	$1,270
0207082121	DEMO. 2X4' FLUOR FIXTURES					74.00 EA	
Unit values		0.49	0.00	13.35	0.00	0.00	13.35
Totals		35.89	$0	$988	$0	$0	$988
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
Unit values		0.32	0.00	8.80	0.00	0.00	8.80
Totals		0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					8.00 EA	
Unit values		0.26	0.00	7.10	0.00	0.00	7.10
Totals		2.06	$0	$57	$0	$0	$57
U02 SITEWORK		85	$0	$2,315	$0	$0	$2,315

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					8.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		8.00	$1,480	$220	$0	$0	$1,700
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					2.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		2.81	$176	$77	$0	$0	$253
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					11.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		16.61	$924	$457	$0	$0	$1,381
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					18.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		28.80	$1,620	$792	$0	$0	$2,412
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					45.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		76.50	$4,230	$2,115	$0	$0	$6,345
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					107.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		121.98	$7,811	$3,371	$0	$0	$11,182
1661309909	SUR FLUOR 1X4' W 2 32W T8					12.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		13.68	$1,032	$378	$0	$0	$1,410
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		8.40	$534	$231	$0	$0	$765
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	277	$17,807	$7,641	$0	$0	$25,448
	ESTIMATE TOTAL	362	$17,807	$9,956	$0	$0	$27,763
	SALES TAX	5.00%	$890				
	MATL MARKUP	-40.00%	($7,123)				
	LABOR MARKUP	-13.40%		($1,334)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$11,575	$8,622	$0	$0	$20,196
	CONTINGENCY	10.00%					$2,020
	BOND	2.50%					$505
	PROFIT	10.00%					$2,020
	JOB TOTAL						$24,741

Estimate: Bldg. 3213 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	85	$0	$2,315	$0	$0	$2,315
U16 ELECTRICAL	277	$17,807	$7,641	$0	$0	$25,448
TOTAL	362	$17,807	$9,956	$0	$0	$27,763
SALES TAX	5.00%	$890				
MATL MARKUP	-40.00%	($7,123)				
LABOR MARKUP	-13.40%		($1,334)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,575	$8,622	$0	$0	$20,196
CONTINGENCY	10.00%					$2,020
BOND	2.50%					$505
PROFIT	10.00%					$2,020
JOB TOTAL						$24,741

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3214
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0215 PER KWH
DEMAND CHARGE $12.01 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
11	2 LAMP @	97 W/FIXT =	1,067 WATTS	11	2 LAMP @	58 W/FIXT =	638 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
21	4 LAMP @	194 W/FIXT =	4,074 WATTS	21	4 LAMP @	118 W/FIXT =	2,478 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*14,971*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*9,074* *KWH/YR*
	53,894	*MJ/YR*		*32,666* *MJ/YR*
BASELINE DEMAND	*5.14*	*KW*	*ECO DEMAND*	*3.12* *KW*

NET ENERGY SAVINGS	**21,228 MJ/YR**	**NET DEMAND SAVINGS**	**$292 /YR**
NET ENERGY SAVINGS	**20 MBTU/YR**	**NET DOLLAR SAVINGS**	**$419 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3214
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
32 2 LAMP @	97 W/FIXT =	3,104	WATTS	32 2 LAMP @	58 W/FIXT =	1,856.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
80 4 LAMP @	194 W/FIXT =	15,520	WATTS	80 4 LAMP @	118 W/FIXT =	9,440.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***81,350***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***49,341***	***KWH/YR***
	292,859	***MJ/YR***		***177,627***	***MJ/YR***
BASELINE DEMAND	***18.62***	***KW***	***ECO DEMAND***	***11.30***	***KW***

NET ENERGY SAVINGS	**115,231 MJ/YR**	**NET DEMAND SAVINGS**	**$1,036 /YR**
NET ENERGY SAVINGS	**109 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,713 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3214
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
47 2 LAMP @	97 W/FIXT =	4,559	WATTS	47 2 LAMP @	58 W/FIXT =	2,726.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*39,827*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*23,814*	*KWH/YR*
	143,379	*MJ/YR*		*85,732*	*MJ/YR*
BASELINE DEMAND	*4.56*	*KW*	*ECO DEMAND*	*2.73*	*KW*

NET ENERGY SAVINGS	**57,647 MJ/YR**	**NET DEMAND SAVINGS**	**$259 /YR**
NET ENERGY SAVINGS	**55 MBTU/YR**	**NET DOLLAR SAVINGS**	**$598 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3214-BARRACKS
AREA: STAIRWELL
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3214

# EXIT SIGNS	1
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*262.8*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*26.28*	*KWH/YR*
BASELINE DEMAND	*0.03*	*KW*	*ECO DEMAND*	*0.00*	*KW*
NET ENERGY SAVINGS	**237**	**KWH/YR**	**NET DOLLAR SAVINGS**	**$9**	

Estimate:	Bldg. 3214	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					71.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	25.84	$0	$710	$0	$0	$710
0207082121	DEMO. 2X4' FLUOR FIXTURES					111.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	53.84	$0	$1,482	$0	$0	$1,482
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					9.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	2.88	$0	$79	$0	$0	$79
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					13.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.35	$0	$92	$0	$0	$92
U02 SITEWORK		86	$0	$2,363	$0	$0	$2,363

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					1.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		1.00	$185	$28	$0	$0	$213
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					43.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		60.37	$3,784	$1,656	$0	$0	$5,440
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					10.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		15.10	$840	$415	$0	$0	$1,255
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					101.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		171.70	$9,494	$4,747	$0	$0	$14,241
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					28.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		31.92	$2,044	$882	$0	$0	$2,926
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					9.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		12.60	$801	$347	$0	$0	$1,148
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	299	$17,274	$8,240	$0	$0	$25,514
ESTIMATE TOTAL	385	$17,274	$10,603	$0	$0	$27,877
SALES TAX	5.00%	$864				
MATL MARKUP	-40.00%	($6,910)				
LABOR MARKUP	-13.40%		($1,421)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,228	$9,182	$0	$0	$20,410
CONTINGENCY	10.00%					$2,041
BOND	2.50%					$510
PROFIT	10.00%					$2,041
JOB TOTAL						$25,003

Estimate: Bldg. 3214 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	86	$0	$2,363	$0	$0	$2,363
U16 ELECTRICAL	299	$17,274	$8,240	$0	$0	$25,514
TOTAL	385	$17,274	$10,603	$0	$0	$27,877
SALES TAX	5.00%	$864				
MATL MARKUP	-40.00%	($6,910)				
LABOR MARKUP	-13.40%		($1,421)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,228	$9,182	$0	$0	$20,410
CONTINGENCY	10.00%					$2,041
BOND	2.50%					$510
PROFIT	10.00%					$2,041
JOB TOTAL						$25,003

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3215
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 5

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
2 LAMP @	97 W/FIXT =	0	WATTS	0 2 LAMP @	58 W/FIXT =	0.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
33 4 LAMP @	194 W/FIXT =	6,402	WATTS	33 4 LAMP @	118 W/FIXT =	3,894.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***13,316***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***8,100***	***KWH/YR***
	47,938	***MJ/YR***		***29,158***	***MJ/YR***
BASELINE DEMAND	***6.40***	***KW***	***ECO DEMAND***	***3.89***	***KW***

NET ENERGY SAVINGS	**18,780 MJ/YR**	**NET DEMAND SAVINGS**	**$355 /YR**
NET ENERGY SAVINGS	**18 MBTU/YR**	**NET DOLLAR SAVINGS**	**$465 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3215
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
8 2 LAMP @	97 W/FIXT =	776	WATTS	8 2 LAMP @	58 W/FIXT =	464.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
8 4 LAMP @	194 W/FIXT =	1,552	WATTS	8 4 LAMP @	118 W/FIXT =	944.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*6,779*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*4,100*	*KWH/YR*
	24,405	*MJ/YR*		*14,760*	*MJ/YR*
BASELINE DEMAND	*2.33*	*KW*	*ECO DEMAND*	*1.41*	*KW*

NET ENERGY SAVINGS	**9,645 MJ/YR**	**NET DEMAND SAVINGS**	**$130 /YR**
NET ENERGY SAVINGS	**9 MBTU/YR**	**NET DOLLAR SAVINGS**	**$187 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3215
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
	2 LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
252	4 LAMP @	194 W/FIXT =	48,888 WATTS	252	4 LAMP @	118 W/FIXT =	29,736 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*213,543*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*129,887* *KWH/YR*
	768,754	*MJ/YR*		*467,593* *MJ/YR*
BASELINE DEMAND	*48.89*	*KW*	*ECO DEMAND*	*29.74* *KW*

NET ENERGY SAVINGS	**301,161 MJ/YR**	**NET DEMAND SAVINGS**	**$2,707 /YR**
NET ENERGY SAVINGS	**285 MBTU/YR**	**NET DOLLAR SAVINGS**	**$4,476 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3215
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
58 2 LAMP @	97 W/FIXT =	5,626	WATTS	58 2 LAMP @	58 W/FIXT =	3,364.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*49,149*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*29,388*	*KWH/YR*
	176,935	*MJ/YR*		*105,796*	*MJ/YR*
BASELINE DEMAND	*5.63*	*KW*	*ECO DEMAND*	*3.36*	*KW*

NET ENERGY SAVINGS	**71,139 MJ/YR**	**NET DEMAND SAVINGS**	**$320 /YR**
NET ENERGY SAVINGS	**67 MBTU/YR**	**NET DOLLAR SAVINGS**	**$738 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3215-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @	52	WATTS	0 WATTS	3 LAMPS @	13	WATTS	39 WATTS
3	LAMPS @	60	WATTS	180 WATTS				
	LAMPS @	75	WATTS	0 WATTS	0 LAMPS @	18	WATTS	0 WATTS
	LAMPS @	90	WATTS	0 WATTS	0 LAMPS @	26	WATTS	0 WATTS
	LAMPS @	100	WATTS	0 WATTS				

BASELINE ENERGY CONSUMPTION	***524 KWH***	***ECO ENERGY CONSUMPTION***	***114 KWH***
	1,887 MJ		***409 MJ***
BASELINE DEMAND	***0.18 KW***	***ECO DEMAND***	***0.04 KW***

NET ENERGY SAVINGS	**1,478 MJ/YR**	**NET DEMAND SAVINGS**	**$20 /YR**
NET ENERGY SAVINGS	**1.40 MBTU/YR**	**NET DOLLAR SAVINGS**	**$29 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR/EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: EXIT SIGN REPLACEMENT

BUILDING #: 3215 - BARRACKS

ELECTRIC COSTS:

ENERGY CHARGE	$0.0211	PER KWH
DEMAND CHARGE	$11.78	PER KW

INCANDESCENT EXIT SIGNS		FLUORESCENT EXIT SIGNS		REPLACEMENT FIXTURE	
# EXIT SIGNS	2	# EXIT SIGNS	0	# EXIT SIGNS	2
WATTAGE	30	WATTAGE	18	WATTAGE	3

BASELINE ENERGY CONSUMPTION	*526 KWH/YR*	*ECO ENERGY CONSUMPTION*	*53 KWH/YR*
	1,892 MJ/YR		*189 MJ/YR*
BASELINE DEMAND	*0.06 KW*	*ECO DEMAND*	*0.01 KW*

NET ENERGY SAVINGS	**1,703 MJ/YR**	**NET DEMAND SAVINGS**	**$8 /YR**
NET ENERGY SAVINGS	**1.61 MBTU/YR**	**NET DOLLAR SAVINGS**	**$18 /YR**

Estimate:	Bldg. 3215	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					59.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	21.48	$0	$590	$0	$0	$590
0207082121	DEMO. 2X4' FLUOR FIXTURES					300.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	145.50	$0	$4,005	$0	$0	$4,005
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					5.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	1.29	$0	$36	$0	$0	$36
U02 SITEWORK		169	$0	$4,631	$0	$0	$4,631

Line #	Description	Manhours	Matl	Labor	Equipment	Sub		Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					2.00	EA	
Unit values		1.00	185.00	27.50	0.00	0.00		212.50
Totals		2.00	$370	$55	$0	$0		$425
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					30.00	EA	
Unit values		1.40	88.00	38.50	0.00	0.00		126.50
Totals		42.12	$2,640	$1,155	$0	$0		$3,795
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					7.00	EA	
Unit values		1.51	84.00	41.50	0.00	0.00		125.50
Totals		10.57	$588	$291	$0	$0		$879
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00	EA	
Unit values		1.60	90.00	44.00	0.00	0.00		134.00
Totals		0.00	$0	$0	$0	$0		$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					293.00	EA	
Unit values		1.70	94.00	47.00	0.00	0.00		141.00
Totals		498.10	$27,542	$13,771	$0	$0		$41,313
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					17.00	EA	
Unit values		1.14	73.00	31.50	0.00	0.00		104.50
Totals		19.38	$1,241	$536	$0	$0		$1,777
1661309909	SUR FLUOR 1X4' W 2 32W T8					12.00	EA	
Unit values		1.14	86.00	31.50	0.00	0.00		117.50
Totals		13.68	$1,032	$378	$0	$0		$1,410
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00	EA	
Unit values		1.14	90.00	31.50	0.00	0.00		121.50
Totals		0.00	$0	$0	$0	$0		$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00	EA	
Unit values		1.40	89.00	38.50	0.00	0.00		127.50
Totals		0.00	$0	$0	$0	$0		$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00	EA	
Unit values		0.50	10.50	13.75	0.00	0.00		24.25

Totals	0.00	$0	$0	$0	$0	$0
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				3.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	3.00	$77	$83	$0	$0	$160

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	589	$33,490	$16,269	$0	$0	$49,759
ESTIMATE TOTAL	758	$33,490	$20,900	$0	$0	$54,390
SALES TAX	5.00%	$1,675				
MATL MARKUP	-40.00%	($13,396)				
LABOR MARKUP	-13.40%		($2,801)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$21,769	$18,099	$0	$0	$39,868
CONTINGENCY	10.00%					$3,987
BOND	2.50%					$997
PROFIT	10.00%					$3,987
JOB TOTAL						$48,838

Estimate:	Bldg. 3215	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	169	$0	$4,631	$0	$0	$4,631
U16 ELECTRICAL	589	$33,490	$16,269	$0	$0	$49,759
TOTAL	758	$33,490	$20,900	$0	$0	$54,390
SALES TAX	5.00%	$1,675				
MATL MARKUP	-40.00%	($13,396)				
LABOR MARKUP	-13.40%		($2,801)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$21,769	$18,099	$0	$0	$39,868
CONTINGENCY	10.00%					$3,987
BOND	2.50%					$997
PROFIT	10.00%					$3,987
JOB TOTAL						$48,838

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3216
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
23	2 LAMP U @ 97 W/FIXT =	2,231	WATTS	23	2 LAMP U @ 58 W/FIXT =	1,334	WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @ 56 W/FIXT =	0	WATTS	0	1 LAMP @ 29 W/FIXT =	0	WATTS
	2 LAMP @ 97 W/FIXT =	0	WATTS	0	2 LAMP @ 58 W/FIXT =	0	WATTS
	3 LAMP @ 153 W/FIXT =	0	WATTS	0	3 LAMP @ 87 W/FIXT =	0	WATTS
217	4 LAMP @ 194 W/FIXT =	42,098	WATTS	217	4 LAMP @ 118 W/FIXT =	25,606	WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @ 180 W/FIXT =	0	WATTS	0	2 LAMP @ 125 W/FIXT =	0	WATTS
BASELINE ENERGY CONSUMPTION		*193,629*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*117,674*	*KWH/YR*
		697,065	*MJ/YR*			*423,626*	*MJ/YR*
BASELINE DEMAND		*44.33*	*KW*	*ECO DEMAND*		*26.94*	*KW*

NET ENERGY SAVINGS	**273,439 MJ/YR**	**NET DEMAND SAVINGS**	**$2,458 /YR**
NET ENERGY SAVINGS	**259 MBTU/YR**	**NET DOLLAR SAVINGS**	**$4,064 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3216
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
45 2 LAMP @	97 W/FIXT =	4,365	WATTS	45 2 LAMP @	58 W/FIXT =	2,610.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
33 4 LAMP @	194 W/FIXT =	6,402	WATTS	33 4 LAMP @	118 W/FIXT =	3,894.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*94,061*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*56,819*	*KWH/YR*
	338,618	*MJ/YR*		*204,548*	*MJ/YR*
BASELINE DEMAND	*10.77*	*KW*	*ECO DEMAND*	*6.50*	*KW*

NET ENERGY SAVINGS	**134,070 MJ/YR**	**NET DEMAND SAVINGS**	**$603 /YR**
NET ENERGY SAVINGS	**127 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,390 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3216-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 3216	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					68.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	24.75	$0	$680	$0	$0	$680
0207082121	DEMO. 2X4' FLUOR FIXTURES					217.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	105.25	$0	$2,897	$0	$0	$2,897
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					12.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK		134	$0	$3,662	$0	$0	$3,662

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					68.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		95.47	$5,984	$2,618	$0	$0	$8,602
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					217.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		368.90	$20,398	$10,199	$0	$0	$30,597
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	471	$26,508	$12,982	$0	$0	$39,490
ESTIMATE TOTAL	605	$26,508	$16,644	$0	$0	$43,152
SALES TAX	5.00%	$1,325				
MATL MARKUP	-40.00%	($10,603)				
LABOR MARKUP	-13.40%		($2,230)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$17,230	$14,414	$0	$0	$31,644
CONTINGENCY	10.00%					$3,164
BOND	2.50%					$791
PROFIT	10.00%					$3,164
JOB TOTAL						$38,764

Estimate:	Bldg. 3216	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	134	$0	$3,662	$0	$0	$3,662
U16 ELECTRICAL	471	$26,508	$12,982	$0	$0	$39,490
TOTAL	605	$26,508	$16,644	$0	$0	$43,152
SALES TAX	5.00%	$1,325				
MATL MARKUP	-40.00%	($10,603)				
LABOR MARKUP	-13.40%		($2,230)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$17,230	$14,414	$0	$0	$31,644
CONTINGENCY	10.00%					$3,164
BOND	2.50%					$791
PROFIT	10.00%					$3,164
JOB TOTAL						$38,764

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3217
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
12	2 LAMP @	97 W/FIXT =	1,164 WATTS	12	2 LAMP @	58 W/FIXT =	696.00 WATTS
0	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
23	4 LAMP @	194 W/FIXT =	4,462 WATTS	23	4 LAMP @	118 W/FIXT =	2,714.00 WATTS
8 FOOT				**8 FOOT**			
0	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*16,383*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*9,930* *KWH/YR*
	58,978	*MJ/YR*		*35,748* *MJ/YR*
BASELINE DEMAND	*5.63*	*KW*	*ECO DEMAND*	*3.41* *KW*

NET ENERGY SAVINGS	**23,231 MJ/YR**	**NET DEMAND SAVINGS**	**$313 /YR**
NET ENERGY SAVINGS	**22 MBTU/YR**	**NET DOLLAR SAVINGS**	**$450 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3217
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
37 2 LAMP @	97 W/FIXT =	3,589	WATTS	37 2 LAMP @	58 W/FIXT =	2,146.00	WATTS
4 3 LAMP @	153 W/FIXT =	612	WATTS	4 3 LAMP @	87 W/FIXT =	348.00	WATTS
58 4 LAMP @	194 W/FIXT =	11,252	WATTS	58 4 LAMP @	118 W/FIXT =	6,844.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*67,499*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*40,788*	*KWH/YR*
	242,995	*MJ/YR*		*146,838*	*MJ/YR*
BASELINE DEMAND	*15.45*	*KW*	*ECO DEMAND*	*9.34*	*KW*

NET ENERGY SAVINGS	**96,157 MJ/YR**	**NET DEMAND SAVINGS**	**$864 /YR**
NET ENERGY SAVINGS	**91 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,429 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3217
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
94	2 LAMP @	97 W/FIXT =	9,118 WATTS	94	2 LAMP @	58 W/FIXT =	5,452.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*79,655 KWH/YR*	*ECO ENERGY CONSUMPTION*	*47,629 KWH/YR*
	286,757 MJ/YR		*171,463 MJ/YR*
BASELINE DEMAND	*9.12 KW*	*ECO DEMAND*	*5.45 KW*

NET ENERGY SAVINGS	**115,294 MJ/YR**	**NET DEMAND SAVINGS**	**$518 /YR**
NET ENERGY SAVINGS	**109 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,195 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3217-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	2	LAMPS @	13	WATTS =	26 WATTS
2	LAMPS @	60	WATTS =	120 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***349 KWH***	***ECO ENERGY CONSUMPTION***	***26 KWH***
	1,258 MJ		***94 MJ***
BASELINE DEMAND	***0.12 KW***	***ECO DEMAND***	***0.03 KW***

NET ENERGY SAVINGS	**1,164 MJ/YR**	**NET DEMAND SAVINGS**	**$13 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$20 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3217

# EXIT SIGNS	4
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1051***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***105.1***	***KWH/YR***
BASELINE DEMAND	***0.12***	***KW***	***ECO DEMAND***	***0.01***	***KW***

NET ENERGY SAVINGS **946 KWH/YR** **NET DOLLAR SAVINGS** **$35**

Estimate:	Bldg. 3217	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					125.00 EA	
Unit values		0.36	0.00	10.00	0.00	0.00	10.00
Totals		45.50	$0	$1,250	$0	$0	$1,250
0207082121	DEMO. 2X4' FLUOR FIXTURES					85.00 EA	
Unit values		0.49	0.00	13.35	0.00	0.00	13.35
Totals		41.23	$0	$1,135	$0	$0	$1,135
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					18.00 EA	
Unit values		0.32	0.00	8.80	0.00	0.00	8.80
Totals		5.76	$0	$158	$0	$0	$158
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					6.00 EA	
Unit values		0.26	0.00	7.10	0.00	0.00	7.10
Totals		1.55	$0	$43	$0	$0	$43
U02 SITEWORK		95	$0	$2,586	$0	$0	$2,586

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					4.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		4.00	$740	$110	$0	$0	$850
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					6.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		8.42	$528	$231	$0	$0	$759
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					4.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		6.40	$360	$176	$0	$0	$536
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					81.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		137.70	$7,614	$3,807	$0	$0	$11,421
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					113.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		128.82	$8,249	$3,560	$0	$0	$11,809
1661309909	SUR FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		6.84	$516	$189	$0	$0	$705
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					18.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		25.20	$1,602	$693	$0	$0	$2,295
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	0.00	$0	$0	$0	$0	$0
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				2.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	2.00	$51	$55	$0	$0	$106

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	320	$19,660	$8,821	$0	$0	$28,481
	ESTIMATE TOTAL	415	$19,660	$11,407	$0	$0	$31,067
	SALES TAX	5.00%	$983				
	MATL MARKUP	-40.00%	($7,864)				
	LABOR MARKUP	-13.40%		($1,529)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$12,779	$9,878	$0	$0	$22,657
	CONTINGENCY	10.00%					$2,266
	BOND	2.50%					$566
	PROFIT	10.00%					$2,266
	JOB TOTAL						$27,755

Estimate:	Bldg. 3217	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	95	$0	$2,586	$0	$0	$2,586
U16 ELECTRICAL	320	$19,660	$8,821	$0	$0	$28,481
TOTAL	415	$19,660	$11,407	$0	$0	$31,067
SALES TAX	5.00%	$983				
MATL MARKUP	-40.00%	($7,864)				
LABOR MARKUP	-13.40%		($1,529)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$12,779	$9,878	$0	$0	$22,657
CONTINGENCY	10.00%					$2,266
BOND	2.50%					$566
PROFIT	10.00%					$2,266
JOB TOTAL						$27,755

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3218
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
6 2 LAMP @	97 W/FIXT =	582 WATTS	6 2 LAMP @	58 W/FIXT =	348.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
12 4 LAMP @	194 W/FIXT =	2,328 WATTS	12 4 LAMP @	118 W/FIXT =	1,416.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*8,474*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*5,137*	*KWH/YR*
	30,506	*MJ/YR*		*18,492*	*MJ/YR*
BASELINE DEMAND	*2.91*	*KW*	*ECO DEMAND*	*1.76*	*KW*

NET ENERGY SAVINGS	**12,014 MJ/YR**	**NET DEMAND SAVINGS**	**$162 /YR**
NET ENERGY SAVINGS	**11 MBTU/YR**	**NET DOLLAR SAVINGS**	**$233 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3218
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
206 2 LAMP @	97 W/FIXT =	19,982	WATTS	206 2 LAMP @	58 W/FIXT =	11,948	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
78 4 LAMP @	194 W/FIXT =	15,132	WATTS	78 4 LAMP @	118 W/FIXT =	9,204	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS
BASELINE ENERGY CONSUMPTION		*153,378*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*92,392*	*KWH/YR*
		552,161	*MJ/YR*			*332,611*	*MJ/YR*
BASELINE DEMAND		*35.11*	*KW*	*ECO DEMAND*		*21.15*	*KW*

NET ENERGY SAVINGS	**219,550 MJ/YR**	**NET DEMAND SAVINGS**	**$1,974 /YR**
NET ENERGY SAVINGS	**208 MBTU/YR**	**NET DOLLAR SAVINGS**	**$3,263 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 3218
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
54 2 LAMP @	97 W/FIXT =	5,238	WATTS	54 2 LAMP @	58 W/FIXT =	3,132.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***45,759***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***27,361***	***KWH/YR***
	164,733	***MJ/YR***		***98,500***	***MJ/YR***
BASELINE DEMAND	***5.24***	***KW***	***ECO DEMAND***	***3.13***	***KW***

NET ENERGY SAVINGS	**66,233 MJ/YR**	**NET DEMAND SAVINGS**	**$298 /YR**
NET ENERGY SAVINGS	**63 MBTU/YR**	**NET DOLLAR SAVINGS**	**$687 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 3218-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARG $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @	52	WATTS =	0 WATTS	11 LAMPS	13	WATTS =	143 WATTS
11	LAMPS @	60	WATTS =	660 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*13,628 KWH*	*ECO ENERGY CONSUMPTION*	*359 KWH*
	49,061 MJ		*1,292 MJ*
BASELINE DEMAND	*1.56 KW*	*ECO DEMAND*	*0.36 KW*

NET ENERGY SAVINGS	**47,769 MJ/YR**	**NET DEMAND SAVINGS**	**$170 /YR**
NET ENERGY SAVINGS	**45 MBTU/YR**	**NET DOLLAR SAVINGS**	**$450 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 3218

# EXIT SIGNS	4
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1051***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***105.1***	***KWH/YR***
BASELINE DEMAND	***0.12***	***KW***	***ECO DEMAND***	***0.01***	***KW***

NET ENERGY SAVINGS **946 KWH/YR** **NET DOLLAR SAVINGS** **$35**

Estimate:	Bldg. 3218	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				86.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	31.30	$0	$860	$0	$0	$860
0207082121	DEMO. 2X4' FLUOR FIXTURES				264.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	128.04	$0	$3,524	$0	$0	$3,524
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				6.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	1.92	$0	$53	$0	$0	$53
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				27.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	6.97	$0	$192	$0	$0	$192
U02 SITEWORK	169	$0	$4,629	$0	$0	$4,629

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					4.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		4.00	$740	$110	$0	$0	$850
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					54.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		75.82	$4,752	$2,079	$0	$0	$6,831
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					174.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		262.74	$14,616	$7,221	$0	$0	$21,837
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					90.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		153.00	$8,460	$4,230	$0	$0	$12,690
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					32.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		36.48	$2,336	$1,008	$0	$0	$3,344
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		8.40	$534	$231	$0	$0	$765
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				11.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	11.00	$281	$303	$0	$0	$584

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	558	$31,845	$15,347	$0	$0	$47,192
ESTIMATE TOTAL	727	$31,845	$19,976	$0	$0	$51,821
SALES TAX	5.00%	$1,592				
MATL MARKUP	-40.00%	($12,738)				
LABOR MARKUP	-13.40%		($2,677)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$20,699	$17,299	$0	$0	$37,998
CONTINGENCY	10.00%					$3,800
BOND	2.50%					$950
PROFIT	10.00%					$3,800
JOB TOTAL						$46,548

Estimate:	Bldg. 3218	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	169	$0	$4,629	$0	$0	$4,629
U16 ELECTRICAL	558	$31,845	$15,347	$0	$0	$47,192
TOTAL	727	$31,845	$19,976	$0	$0	$51,821
SALES TAX	5.00%	$1,592				
MATL MARKUP	-40.00%	($12,738)				
LABOR MARKUP	-13.40%		($2,677)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$20,699	$17,299	$0	$0	$37,998
CONTINGENCY	10.00%					$3,800
BOND	2.50%					$950
PROFIT	10.00%					$3,800
JOB TOTAL						$46,548

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6709
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
3 2 LAMP @	97 W/FIXT =	291 WATTS	3 2 LAMP @	58 W/FIXT =	174.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*507*	*KWH/YR*
	3,051	*MJ/YR*		*1,824*	*MJ/YR*
BASELINE DEMAND	*0.29*	*KW*	*ECO DEMAND*	*0.17*	*KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6709
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
46	2 LAMP U	97 W/FIXT =	4,462 WATTS	46	2 LAMP U @	58 W/FIXT =	2,668 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
41	2 LAMP @	97 W/FIXT =	3,977 WATTS	41	2 LAMP @	58 W/FIXT =	2,378 WATTS
50	3 LAMP @	153 W/FIXT =	7,650 WATTS	50	3 LAMP @	87 W/FIXT =	4,350 WATTS
32	4 LAMP @	194 W/FIXT =	6,208 WATTS	32	4 LAMP @	118 W/FIXT =	3,776 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*97,393*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*57,535* *KWH/YR*
	350,616	*MJ/YR*		*207,127* *MJ/YR*
BASELINE DEMAND	*22.30*	*KW*	*ECO DEMAND*	*13.17* *KW*

NET ENERGY SAVINGS	**143,489 MJ/YR**	**NET DEMAND SAVINGS**	**$1,290 /YR**
NET ENERGY SAVINGS	**136 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,133 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6709
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
42	2 LAMP U	97 W/FIXT =	4,074 WATTS	42	2 LAMP U @	58 W/FIXT =	2,436.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
	2 LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*35,590*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*21,281 KWH/YR*
	128,126	*MJ/YR*		*76,611 MJ/YR*
BASELINE DEMAND	*4.07*	*KW*	*ECO DEMAND*	*2.44 KW*

NET ENERGY SAVINGS	**51,514 MJ/YR**	**NET DEMAND SAVINGS**	**$232 /YR**
NET ENERGY SAVINGS	**49 MBTU/YR**	**NET DOLLAR SAVINGS**	**$534 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6709-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS						COMPACT FLUORESCENT REPLACEMENT					
	LAMPS @	52	WATTS =	0	WATTS	0	LAMPS @	13	WATTS =	0	WATTS
	LAMPS @	60	WATTS =	0	WATTS						
14	LAMPS @	75	WATTS =	1050	WATTS	14	LAMPS @	18	WATTS =	252	WATTS
	LAMPS @	90	WATTS =	0	WATTS	0	LAMPS @	26	WATTS =	0	WATTS
	LAMPS @	135	WATTS =	0	WATTS						

BASELINE ENERGY CONSUMPTION	***9,173 KWH***	***ECO ENERGY CONSUMPTION***	***252 KWH***
	33,022 MJ		***907 MJ***
BASELINE DEMAND	***1.05 KW***	***ECO DEMAND***	***0.25 KW***

NET ENERGY SAVINGS	**32,115 MJ/YR**	**NET DEMAND SAVINGS**	**$113 /YR**
NET ENERGY SAVINGS	**30 MBTU/YR**	**NET DOLLAR SAVINGS**	**$301 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6709

# EXIT SIGNS	11
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***2891***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***289.1***	***KWH/YR***
BASELINE DEMAND	***0.33***	***KW***	***ECO DEMAND***	***0.03***	***KW***

NET ENERGY SAVINGS **2602 KWH/YR** **NET DOLLAR SAVINGS** **$97**

Estimate:	Bldg. 6709	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				129.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	46.96	$0	$1,290	$0	$0	$1,290
0207082121	DEMO. 2X4' FLUOR FIXTURES				82.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	39.77	$0	$1,095	$0	$0	$1,095
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				25.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	6.45	$0	$178	$0	$0	$178
U02 SITEWORK	95	$0	$2,589	$0	$0	$2,589

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					11.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		11.00	$2,035	$303	$0	$0	$2,338
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					88.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		123.55	$7,744	$3,388	$0	$0	$11,132
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					50.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		80.00	$4,500	$2,200	$0	$0	$6,700
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					32.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		54.40	$3,008	$1,504	$0	$0	$4,512
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					5.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		5.70	$365	$158	$0	$0	$523
1661309909	SUR FLUOR 1X4' W 2 32W T8					36.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		41.04	$3,096	$1,134	$0	$0	$4,230
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					14.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	7.00	$147	$193	$0	$0	$340
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	327	$21,162	$8,996	$0	$0	$30,158
ESTIMATE TOTAL	422	$21,162	$11,585	$0	$0	$32,747
SALES TAX	5.00%	$1,058				
MATL MARKUP	-40.00%	($8,465)				
LABOR MARKUP	-13.40%		($1,552)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,755	$10,033	$0	$0	$23,788
CONTINGENCY	10.00%					$2,379
BOND	2.50%					$595
PROFIT	10.00%					$2,379
JOB TOTAL						$29,140

Estimate:	Bldg. 6709	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	95	$0	$2,589	$0	$0	$2,589
U16 ELECTRICAL	327	$21,162	$8,996	$0	$0	$30,158
TOTAL	422	$21,162	$11,585	$0	$0	$32,747
SALES TAX	5.00%	$1,058				
MATL MARKUP	-40.00%	($8,465)				
LABOR MARKUP	-13.40%		($1,552)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,755	$10,033	$0	$0	$23,788
CONTINGENCY	10.00%					$2,379
BOND	2.50%					$595
PROFIT	10.00%					$2,379
JOB TOTAL						$29,140

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6710
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
32	2 LAMP @	97 W/FIXT =	3,104 WATTS	32	2 LAMP @	58 W/FIXT =	1,856.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*9,039*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*5,405* *KWH/YR*
	32,540	*MJ/YR*		*19,457* *MJ/YR*
BASELINE DEMAND	*3.10*	*KW*	*ECO DEMAND*	*1.86* *KW*

NET ENERGY SAVINGS	**13,083 MJ/YR**	**NET DEMAND SAVINGS**	**$176 /YR**
NET ENERGY SAVINGS	**12 MBTU/YR**	**NET DOLLAR SAVINGS**	**$253 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6710
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
60 2 LAMP @	97 W/FIXT =	5,820	WATTS	60 2 LAMP @	58 W/FIXT =	3,480.00	WATTS
50 3 LAMP @	153 W/FIXT =	7,650	WATTS	50 3 LAMP @	87 W/FIXT =	4,350.00	WATTS
48 4 LAMP @	194 W/FIXT =	9,312	WATTS	48 4 LAMP @	118 W/FIXT =	5,664.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***99,512***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***58,942***	***KWH/YR***
	358,242	***MJ/YR***		***212,190***	***MJ/YR***
BASELINE DEMAND	***22.78***	***KW***	***ECO DEMAND***	***13.49***	***KW***

NET ENERGY SAVINGS	**146,052 MJ/YR**	**NET DEMAND SAVINGS**	**$1,313 /YR**
NET ENERGY SAVINGS	**138 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,171 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6710
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
50 2 LAMP U	97 W/FIXT =	4,850 WATTS	50 2 LAMP U @	58 W/FIXT =	2,900.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
7 2 LAMP @	97 W/FIXT =	679 WATTS	7 2 LAMP @	58 W/FIXT =	406.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*48,301*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*28,881*	*KWH/YR*
	173,885	*MJ/YR*		*103,972*	*MJ/YR*
BASELINE DEMAND	*5.53*	*KW*	*ECO DEMAND*	*3.31*	*KW*

NET ENERGY SAVINGS	**69,912 MJ/YR**	**NET DEMAND SAVINGS**	**$314 /YR**
NET ENERGY SAVINGS	**66 MBTU/YR**	**NET DOLLAR SAVINGS**	**$725 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6710-BARRACKS
AREA: RESTROOMS & CAGE ROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	17 LAMPS @	13	WATTS =	221 WATTS
17	LAMPS @	60	WATTS =	1020 WATTS				
	LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	34 LAMPS @	26	WATTS =	884 WATTS
34	LAMPS @	100	WATTS =	3400 WATTS				

BASELINE ENERGY CONSUMPTION	***12,871 KWH***	***ECO ENERGY CONSUMPTION***	***1,105 KWH***
	46,336 MJ		***3,978 MJ***
BASELINE DEMAND	***4.42 KW***	***ECO DEMAND***	***1.11 KW***

NET ENERGY SAVINGS	**42,358 MJ/YR**	**NET DEMAND SAVINGS**	**$469 /YR**
NET ENERGY SAVINGS	**40 MBTU/YR**	**NET DOLLAR SAVINGS**	**$717 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6710-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARG $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @ 52	WATTS =	0	WATTS	0 LAMPS	13	WATTS =	0 WATTS
	LAMPS @ 60	WATTS =	0	WATTS				
12	LAMPS @ 75	WATTS =	900	WATTS	12 LAMPS	18	WATTS =	216 WATTS
	LAMPS @ 90	WATTS =	0	WATTS	0 LAMPS	26	WATTS =	0 WATTS
	LAMPS @ 135	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH*	*ECO ENERGY CONSUMPTION*	*216 KWH*
	28,305 MJ		*778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6710

EXIT SIGNS 6

CURRENT WATTAGE 30

REPLACEMENT WATTAG 3

HOURS/YEAR 8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*1577*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*157.7*	*KWH/YR*
BASELINE DEMAND	*0.18*	*KW*	*ECO DEMAND*	*0.02*	*KW*

NET ENERGY SAVINGS 1419 KWH/YR **NET DOLLAR SAVINGS** $53

Estimate:	Bldg. 6710	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				117.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	42.59	$0	$1,170	$0	$0	$1,170
0207082121	DEMO. 2X4' FLUOR FIXTURES				98.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	47.53	$0	$1,308	$0	$0	$1,308
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				32.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	10.24	$0	$282	$0	$0	$282
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				69.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	17.80	$0	$490	$0	$0	$490
U02 SITEWORK	119	$0	$3,250	$0	$0	$3,250

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					6.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		6.00	$1,110	$165	$0	$0	$1,275
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					50.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		70.20	$4,400	$1,925	$0	$0	$6,325
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					50.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		80.00	$4,500	$2,200	$0	$0	$6,700
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					48.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		81.60	$4,512	$2,256	$0	$0	$6,768
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					67.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		76.38	$4,891	$2,111	$0	$0	$7,002
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					32.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		44.80	$2,848	$1,232	$0	$0	$4,080
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				51.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	51.00	$1,301	$1,403	$0	$0	$2,704

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	416	$23,688	$11,457	$0	$0	$35,145
ESTIMATE TOTAL	535	$23,688	$14,707	$0	$0	$38,395
SALES TAX	5.00%	$1,184				
MATL MARKUP	-40.00%	($9,475)				
LABOR MARKUP	-13.40%		($1,971)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,397	$12,736	$0	$0	$28,133
CONTINGENCY	10.00%					$2,813
BOND	2.50%					$703
PROFIT	10.00%					$2,813
JOB TOTAL						$34,463

Estimate:	Bldg. 6710	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	119	$0	$3,250	$0	$0	$3,250
U16 ELECTRICAL	416	$23,688	$11,457	$0	$0	$35,145
TOTAL	535	$23,688	$14,707	$0	$0	$38,395
SALES TAX	5.00%	$1,184				
MATL MARKUP	-40.00%	($9,475)				
LABOR MARKUP	-13.40%		($1,971)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,397	$12,736	$0	$0	$28,133
CONTINGENCY	10.00%					$2,813
BOND	2.50%					$703
PROFIT	10.00%					$2,813
JOB TOTAL						$34,463

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6711
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
12 2 LAMP @	97 W/FIXT =	1,164	WATTS	12 2 LAMP @	58 W/FIXT =	696.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***3,390***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***2,027***	***KWH/YR***
	12,202	***MJ/YR***		***7,296***	***MJ/YR***
BASELINE DEMAND	***1.16***	***KW***	***ECO DEMAND***	***0.70***	***KW***

NET ENERGY SAVINGS	**4,906 MJ/YR**	**NET DEMAND SAVINGS**	**$66 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$95 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6711
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
43 2 LAMP @	97 W/FIXT =	4,171	WATTS	43 2 LAMP @	58 W/FIXT =	2,494.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
38 4 LAMP @	194 W/FIXT =	7,372	WATTS	38 4 LAMP @	118 W/FIXT =	4,484.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*50,420*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*30,480*	*KWH/YR*
	181,511	*MJ/YR*		*109,728*	*MJ/YR*
BASELINE DEMAND	*11.54*	*KW*	*ECO DEMAND*	*6.98*	*KW*

NET ENERGY SAVINGS	**71,784 MJ/YR**	**NET DEMAND SAVINGS**	**$645 /YR**
NET ENERGY SAVINGS	**68 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,067 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6711
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
32 2 LAMP U	97 W/FIXT =	3,104 WATTS	32 2 LAMP U @	58 W/FIXT =	1,856.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
2 LAMP @	97 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*27,117*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*16,214*	*KWH/YR*
	97,620	*MJ/YR*		*58,370*	*MJ/YR*
BASELINE DEMAND	*3.10*	*KW*	*ECO DEMAND*	*1.86*	*KW*

NET ENERGY SAVINGS	**39,249 MJ/YR**	**NET DEMAND SAVINGS**	**$176 /YR**
NET ENERGY SAVINGS	**37 MBTU/YR**	**NET DOLLAR SAVINGS**	**$407 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6711-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6711

# EXIT SIGNS	2
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*525.6*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*52.56*	*KWH/YR*
BASELINE DEMAND	*0.06*	*KW*	*ECO DEMAND*	*0.01*	*KW*

NET ENERGY SAVINGS	**473 KWH/YR**	**NET DOLLAR SAVINGS**	**$18**

Estimate: Bldg. 6711 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line # / Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119 DEMO. 2X2', 1X4' FLUOR FIXTURES					49.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	17.84	$0	$490	$0	$0	$490
0207082121 DEMO. 2X4' FLUOR FIXTURES					64.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	31.04	$0	$854	$0	$0	$854
0207082122 DEMO. STRIP/INDUST FLUOR FIXTURES					12.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	3.84	$0	$106	$0	$0	$106
0207082123 DEMO. INCAND FIXTURES/EXIT LIGHTS					14.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.61	$0	$99	$0	$0	$99
U02 SITEWORK	57	$0	$1,549	$0	$0	$1,549

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					2.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		2.00	$370	$55	$0	$0	$425
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					32.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		44.93	$2,816	$1,232	$0	$0	$4,048
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					26.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		39.26	$2,184	$1,079	$0	$0	$3,263
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					38.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		64.60	$3,572	$1,786	$0	$0	$5,358
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					17.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		19.38	$1,241	$536	$0	$0	$1,777
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					12.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		16.80	$1,068	$462	$0	$0	$1,530
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	193	$11,377	$5,315	$0	$0	$16,692
	ESTIMATE TOTAL	250	$11,377	$6,864	$0	$0	$18,241
	SALES TAX	5.00%	$569				
	MATL MARKUP	-40.00%	($4,551)				
	LABOR MARKUP	-13.40%		($920)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$7,395	$5,944	$0	$0	$13,339
	CONTINGENCY	10.00%					$1,334
	BOND	2.50%					$333
	PROFIT	10.00%					$1,334
	JOB TOTAL						$16,341

Estimate:	Bldg. 6711	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	57	$0	$1,549	$0	$0	$1,549
U16 ELECTRICAL	193	$11,377	$5,315	$0	$0	$16,692
TOTAL	250	$11,377	$6,864	$0	$0	$18,241
SALES TAX	5.00%	$569				
MATL MARKUP	-40.00%	($4,551)				
LABOR MARKUP	-13.40%		($920)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,395	$5,944	$0	$0	$13,339
CONTINGENCY	10.00%					$1,334
BOND	2.50%					$333
PROFIT	10.00%					$1,334
JOB TOTAL						$16,341

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6712
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
3 2 LAMP @	97 W/FIXT =	291	WATTS	3 2 LAMP @	58 W/FIXT =	174.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
8 4 LAMP @	194 W/FIXT =	1,552	WATTS	8 4 LAMP @	118 W/FIXT =	944.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*5,367*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*3,256*	*KWH/YR*
	19,321	*MJ/YR*		*11,720*	*MJ/YR*
BASELINE DEMAND	*1.84*	*KW*	*ECO DEMAND*	*1.12*	*KW*

NET ENERGY SAVINGS	**7,600 MJ/YR**	**NET DEMAND SAVINGS**	**$102 /YR**
NET ENERGY SAVINGS	**7 MBTU/YR**	**NET DOLLAR SAVINGS**	**$147 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6712
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA		
2 FOOT				**2 FOOT**		
3 2 LAMP U	97 W/FIXT =	291 WATTS		3 2 LAMP U @	58 W/FIXT =	174 WATTS
4 FOOT				**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS		0 1 LAMP @	29 W/FIXT =	0 WATTS
8 2 LAMP @	97 W/FIXT =	776 WATTS		8 2 LAMP @	58 W/FIXT =	464 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS		0 3 LAMP @	87 W/FIXT =	0 WATTS
76 4 LAMP @	194 W/FIXT =	14,744 WATTS		76 4 LAMP @	118 W/FIXT =	8,968 WATTS
8 FOOT				**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS		0 2 LAMP @	125 W/FIXT =	0 WATTS
BASELINE ENERGY CONSUMPTION		***69,062 KWH/YR***		***ECO ENERGY CONSUMPTION***		***41,959 KWH/YR***
		248,625 MJ/YR				***151,052 MJ/YR***
BASELINE DEMAND		***15.81 KW***		***ECO DEMAND***		***9.61 KW***

NET ENERGY SAVINGS	**97,572 MJ/YR**	**NET DEMAND SAVINGS**	**$877 /YR**
NET ENERGY SAVINGS	**92 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,450 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6712
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
40	2 LAMP U	97 W/FIXT =	3,880 WATTS	40	2 LAMP U @	58 W/FIXT =	2,320.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
	2 LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*33,896*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*20,268* *KWH/YR*
	122,024	*MJ/YR*		*72,963* *MJ/YR*
BASELINE DEMAND	*3.88*	*KW*	*ECO DEMAND*	*2.32* *KW*

NET ENERGY SAVINGS	**49,061 MJ/YR**	**NET DEMAND SAVINGS**	**$221 /YR**
NET ENERGY SAVINGS	**46 MBTU/YR**	**NET DOLLAR SAVINGS**	**$509 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6712-BARRACKS
AREA: SUPPLY

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	8	LAMPS @	26	WATTS =	208 WATTS
8	LAMPS @	135	WATTS =	1080 WATTS					

BASELINE ENERGY CONSUMPTION	*3,145 KWH* *11,322 MJ*	*ECO ENERGY CONSUMPTION*	*208 KWH* *749 MJ*
BASELINE DEMAND	*1.08 KW*	*ECO DEMAND*	*0.21 KW*

NET ENERGY SAVINGS	**10,573 MJ/YR**	**NET DEMAND SAVINGS**	**$123 /YR**
NET ENERGY SAVINGS	**10 MBTU/YR**	**NET DOLLAR SAVINGS**	**$185 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6712-BARRACKS
AREA: STAIRWELLS & BASEMNT

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
LAMPS @	52	WATTS =	0	WATTS	8 LAMPS @	13	WATTS =	104 WATTS
8 LAMPS @	60	WATTS =	480	WATTS				
12 LAMPS @	75	WATTS =	900	WATTS	12 LAMPS @	18	WATTS =	216 WATTS
LAMPS @	90	WATTS =	0	WATTS	0 LAMPS @	26	WATTS =	0 WATTS
LAMPS @	100	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*12,056 KWH*	*ECO ENERGY CONSUMPTION*	*320 KWH*
	43,400 MJ		*1,152 MJ*
BASELINE DEMAND	*1.38 KW*	*ECO DEMAND*	*0.32 KW*

NET ENERGY SAVINGS	42,248 MJ/YR	NET DEMAND SAVINGS	$150 /YR
NET ENERGY SAVINGS	40 MBTU/YR	NET DOLLAR SAVINGS	$398 /YR

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6712

# EXIT SIGNS	5
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1314***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***131.4***	***KWH/YR***
BASELINE DEMAND	***0.15***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS **1183 KWH/YR** **NET DOLLAR SAVINGS** **$44**

Estimate:	Bldg. 6712	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				54.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	19.66	$0	$540	$0	$0	$540
0207082121	DEMO. 2X4' FLUOR FIXTURES				84.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	40.74	$0	$1,121	$0	$0	$1,121
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				11.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	3.52	$0	$97	$0	$0	$97
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				33.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	8.51	$0	$234	$0	$0	$234
U02 SITEWORK	73	$0	$1,992	$0	$0	$1,992

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					5.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		5.00	$925	$138	$0	$0	$1,063
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					43.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		60.37	$3,784	$1,656	$0	$0	$5,440
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					84.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		142.80	$7,896	$3,948	$0	$0	$11,844
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					11.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		15.40	$979	$424	$0	$0	$1,403
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				16.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	16.00	$408	$440	$0	$0	$848

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	246	$14,118	$6,771	$0	$0	$20,889
ESTIMATE TOTAL	319	$14,118	$8,763	$0	$0	$22,881
SALES TAX	5.00%	$706				
MATL MARKUP	-40.00%	($5,647)				
LABOR MARKUP	-13.40%		($1,174)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,177	$7,589	$0	$0	$16,765
CONTINGENCY	10.00%					$1,677
BOND	2.50%					$419
PROFIT	10.00%					$1,677
JOB TOTAL						$20,538

Estimate:	Bldg. 6712	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	73	$0	$1,992	$0	$0	$1,992
U16 ELECTRICAL	246	$14,118	$6,771	$0	$0	$20,889
TOTAL	319	$14,118	$8,763	$0	$0	$22,881
SALES TAX	5.00%	$706				
MATL MARKUP	-40.00%	($5,647)				
LABOR MARKUP	-13.40%		($1,174)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,177	$7,589	$0	$0	$16,765
CONTINGENCY	10.00%					$1,677
BOND	2.50%					$419
PROFIT	10.00%					$1,677
JOB TOTAL						$20,538

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6718
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
3 2 LAMP @	97 W/FIXT =	291 WATTS	3 2 LAMP @	58 W/FIXT =	174.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*507*	*KWH/YR*
	3,051	*MJ/YR*		*1,824*	*MJ/YR*
BASELINE DEMAND	*0.29*	*KW*	*ECO DEMAND*	*0.17*	*KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6718
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
75	2 LAMP @	97 W/FIXT =	7,275 WATTS	75	2 LAMP @	58 W/FIXT =	4,350.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*31,777*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,001* *KWH/YR*
	114,398	*MJ/YR*		*68,403* *MJ/YR*
BASELINE DEMAND	*7.28*	*KW*	*ECO DEMAND*	*4.35* *KW*

NET ENERGY SAVINGS	**45,995 MJ/YR**	**NET DEMAND SAVINGS**	**$413 /YR**
NET ENERGY SAVINGS	**44 MBTU/YR**	**NET DOLLAR SAVINGS**	**$684 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6718
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
35	2 LAMP U	97 W/FIXT =	3,395 WATTS	35	2 LAMP U @	58 W/FIXT =	2,030.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
4	LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*29,659*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*17,734* *KWH/YR*
	106,771	*MJ/YR*		*63,843* *MJ/YR*
BASELINE DEMAND	*3.40*	*KW*	*ECO DEMAND*	*2.03* *KW*

NET ENERGY SAVINGS	**42,929 MJ/YR**	**NET DEMAND SAVINGS**	**$193 /YR**
NET ENERGY SAVINGS	**41 MBTU/YR**	**NET DOLLAR SAVINGS**	**$445 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6718-BARRACKS
AREA: OFFICES

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
0	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
0	LAMPS @	60	WATTS =	0 WATTS					
5	LAMPS @	75	WATTS =	375 WATTS	5	LAMPS @	18	WATTS =	90 WATTS
0	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
0	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*1,638 KWH* *5,897 MJ*	*ECO ENERGY CONSUMPTION*	*90 KWH* *324 MJ*
BASELINE DEMAND	*0.38 KW*	*ECO DEMAND*	*0.09 KW*

NET ENERGY SAVINGS	**5,573 MJ/YR**	**NET DEMAND SAVINGS**	**$40 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$73 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6718-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
13	LAMPS @	75	WATTS =	975 WATTS	13 LAMPS @	18	WATTS =	234 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***8,518 KWH***	***ECO ENERGY CONSUMPTION***	***234 KWH***
	30,663 MJ		***842 MJ***
BASELINE DEMAND	***0.98 KW***	***ECO DEMAND***	***0.23 KW***

NET ENERGY SAVINGS	**29,821 MJ/YR**	**NET DEMAND SAVINGS**	**$105 /YR**
NET ENERGY SAVINGS	**28 MBTU/YR**	**NET DOLLAR SAVINGS**	**$280 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6718

# EXIT SIGNS	7
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1840***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***184***	***KWH/YR***
BASELINE DEMAND	***0.21***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS 1656 KWH/YR **NET DOLLAR SAVINGS** $62

Estimate:	Bldg. 6718	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				75.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	27.30	$0	$750	$0	$0	$750
0207082121	DEMO. 2X4' FLUOR FIXTURES				35.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	16.98	$0	$467	$0	$0	$467
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				25.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	6.45	$0	$178	$0	$0	$178
U02 SITEWORK	52	$0	$1,421	$0	$0	$1,421

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE				7.00 EA	
Unit values	1.00	185.00	27.50	0.00	0.00	212.50
Totals	7.00	$1,295	$193	$0	$0	$1,488
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS				35.00 EA	
Unit values	1.40	88.00	38.50	0.00	0.00	126.50
Totals	49.14	$3,080	$1,348	$0	$0	$4,428
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS				35.00 EA	
Unit values	1.51	84.00	41.50	0.00	0.00	125.50
Totals	52.85	$2,940	$1,453	$0	$0	$4,393
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS				0.00 EA	
Unit values	1.60	90.00	44.00	0.00	0.00	134.00
Totals	0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS				0.00 EA	
Unit values	1.70	94.00	47.00	0.00	0.00	141.00
Totals	0.00	$0	$0	$0	$0	$0
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS				40.00 EA	
Unit values	1.14	73.00	31.50	0.00	0.00	104.50
Totals	45.60	$2,920	$1,260	$0	$0	$4,180
1661309909	SUR FLUOR 1X4' W 2 32W T8				0.00 EA	
Unit values	1.14	86.00	31.50	0.00	0.00	117.50
Totals	0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR				0.00 EA	
Unit values	1.14	90.00	31.50	0.00	0.00	121.50
Totals	0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8				3.00 EA	
Unit values	1.40	89.00	38.50	0.00	0.00	127.50
Totals	4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD				13.00 EA	
Unit values	0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.50	$137	$179	$0	$0	$316
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				5.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	5.00	$128	$138	$0	$0	$266

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	171	$10,767	$4,687	$0	$0	$15,454
ESTIMATE TOTAL	223	$10,767	$6,108	$0	$0	$16,875
SALES TAX	5.00%	$538				
MATL MARKUP	-40.00%	($4,307)				
LABOR MARKUP	-13.40%		($818)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$6,999	$5,290	$0	$0	$12,288
CONTINGENCY	10.00%					$1,229
BOND	2.50%					$307
PROFIT	10.00%					$1,229
JOB TOTAL						$15,053

Estimate:	Bldg. 6718	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	52	$0	$1,421	$0	$0	$1,421
U16 ELECTRICAL	171	$10,767	$4,687	$0	$0	$15,454
TOTAL	223	$10,767	$6,108	$0	$0	$16,875
SALES TAX	5.00%	$538				
MATL MARKUP	-40.00%	($4,307)				
LABOR MARKUP	-13.40%		($818)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$6,999	$5,290	$0	$0	$12,288
CONTINGENCY	10.00%					$1,229
BOND	2.50%					$307
PROFIT	10.00%					$1,229
JOB TOTAL						$15,053

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6719
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
3 2 LAMP @	97 W/FIXT =	291	WATTS	3 2 LAMP @	58 W/FIXT =	174.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*507* *KWH/YR*
	3,051	*MJ/YR*		*1,824* *MJ/YR*
BASELINE DEMAND	*0.29*	*KW*	*ECO DEMAND*	*0.17* *KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6719
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
30	2 LAMP @	97 W/FIXT =	2,910 WATTS	30	2 LAMP @	58 W/FIXT =	1,740.00 WATTS
30	3 LAMP @	153 W/FIXT =	4,590 WATTS	30	3 LAMP @	87 W/FIXT =	2,610.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*32,760*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,001* *KWH/YR*
	117,936	*MJ/YR*		*68,403* *MJ/YR*
BASELINE DEMAND	*7.50*	*KW*	*ECO DEMAND*	*4.35* *KW*

NET ENERGY SAVINGS	**49,533 MJ/YR**	**NET DEMAND SAVINGS**	**$445 /YR**
NET ENERGY SAVINGS	**47 MBTU/YR**	**NET DOLLAR SAVINGS**	**$736 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6719
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
48	2 LAMP U	97 W/FIXT =	4,656 WATTS	48	2 LAMP U @	58 W/FIXT =	2,784.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
6	3 LAMP @	153 W/FIXT =	918 WATTS	6	3 LAMP @	87 W/FIXT =	522.00 WATTS
4	LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	***48,694***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***28,881 KWH/YR***
	175,300	***MJ/YR***		***103,972 MJ/YR***
BASELINE DEMAND	***5.57***	***KW***	***ECO DEMAND***	***3.31 KW***

NET ENERGY SAVINGS	**71,328 MJ/YR**	**NET DEMAND SAVINGS**	**$321 /YR**
NET ENERGY SAVINGS	**68 MBTU/YR**	**NET DOLLAR SAVINGS**	**$739 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6719-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
10	LAMPS @	75	WATTS =	750 WATTS	10	LAMPS @	18	WATTS =	180 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*6,552 KWH* *23,587 MJ*	*ECO ENERGY CONSUMPTION*	*180 KWH* *648 MJ*
BASELINE DEMAND	*0.75 KW*	*ECO DEMAND*	*0.18 KW*

NET ENERGY SAVINGS	22,939 MJ/YR	NET DEMAND SAVINGS	$81 /YR
NET ENERGY SAVINGS	22 MBTU/YR	NET DOLLAR SAVINGS	$215 /YR

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6719

# EXIT SIGNS	8
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***2102***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***210.2***	***KWH/YR***
BASELINE DEMAND	***0.24***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS	**1892 KWH/YR**	**NET DOLLAR SAVINGS**	**$71**

Estimate:	Bldg. 6719	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					78.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	28.39	$0	$780	$0	$0	$780
0207082121	DEMO. 2X4' FLUOR FIXTURES					36.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	17.46	$0	$481	$0	$0	$481
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					3.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					18.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.64	$0	$128	$0	$0	$128
U02 SITEWORK		52	$0	$1,415	$0	$0	$1,415

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					8.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		8.00	$1,480	$220	$0	$0	$1,700
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					48.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		67.39	$4,224	$1,848	$0	$0	$6,072
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					36.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		57.60	$3,240	$1,584	$0	$0	$4,824
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		0.00	$0	$0	$0	$0	$0
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					30.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		34.20	$2,190	$945	$0	$0	$3,135
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					10.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	5.00	$105	$138	$0	$0	$243
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	177	$11,506	$4,851	$0	$0	$16,357
ESTIMATE TOTAL	229	$11,506	$6,266	$0	$0	$17,772
SALES TAX	5.00%	$575				
MATL MARKUP	-40.00%	($4,602)				
LABOR MARKUP	-13.40%		($840)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,479	$5,426	$0	$0	$12,905
CONTINGENCY	10.00%					$1,291
BOND	2.50%					$323
PROFIT	10.00%					$1,291
JOB TOTAL						$15,809

Estimate:	Bldg. 6719	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	52	$0	$1,415	$0	$0	$1,415
U16 ELECTRICAL	177	$11,506	$4,851	$0	$0	$16,357
TOTAL	229	$11,506	$6,266	$0	$0	$17,772
SALES TAX	5.00%	$575				
MATL MARKUP	-40.00%	($4,602)				
LABOR MARKUP	-13.40%		($840)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,479	$5,426	$0	$0	$12,905
CONTINGENCY	10.00%					$1,291
BOND	2.50%					$323
PROFIT	10.00%					$1,291
JOB TOTAL						$15,809

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6725
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
3 2 LAMP @	97 W/FIXT =	291 WATTS	3 2 LAMP @	58 W/FIXT =	174.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*507*	*KWH/YR*
	3,051	*MJ/YR*		*1,824*	*MJ/YR*
BASELINE DEMAND	*0.29*	*KW*	*ECO DEMAND*	*0.17*	*KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6725
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
71 2 LAMP @	97 W/FIXT =	6,887	WATTS	71 2 LAMP @	58 W/FIXT =	4,118.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
8 4 LAMP @	194 W/FIXT =	1,552	WATTS	8 4 LAMP @	118 W/FIXT =	944.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*36,862*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*22,111*	*KWH/YR*
	132,702	*MJ/YR*		*79,599*	*MJ/YR*
BASELINE DEMAND	*8.44*	*KW*	*ECO DEMAND*	*5.06*	*KW*

NET ENERGY SAVINGS	**53,103 MJ/YR**	**NET DEMAND SAVINGS**	**$477 /YR**
NET ENERGY SAVINGS	**50 MBTU/YR**	**NET DOLLAR SAVINGS**	**$789 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6725
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
38	2 LAMP U	97 W/FIXT =	3,686 WATTS	38	2 LAMP U @	58 W/FIXT =	2,204.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	2 LAMP @	97 W/FIXT =	194 WATTS	2	2 LAMP @	58 W/FIXT =	116.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*33,896*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*20,268* *KWH/YR*
	122,024	*MJ/YR*		*72,963* *MJ/YR*
BASELINE DEMAND	*3.88*	*KW*	*ECO DEMAND*	*2.32* *KW*

NET ENERGY SAVINGS	**49,061 MJ/YR**	**NET DEMAND SAVINGS**	**$221 /YR**
NET ENERGY SAVINGS	**46 MBTU/YR**	**NET DOLLAR SAVINGS**	**$509 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6725-BARRACKS
AREA: DAYROOM

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	4 LAMPS @	13	WATTS =	52 WATTS
4	LAMPS @	60	WATTS =	240 WATTS				
	LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*1,048 KWH*	*ECO ENERGY CONSUMPTION*	*52 KWH*
	3,774 MJ		*187 MJ*
BASELINE DEMAND	*0.24 KW*	*ECO DEMAND*	*0.05 KW*

NET ENERGY SAVINGS	**3,587 MJ/YR**	**NET DEMAND SAVINGS**	**$27 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$48 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6725-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
13	LAMPS @	75	WATTS =	975 WATTS	13 LAMPS @	18	WATTS =	234 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*8,518 KWH*	*ECO ENERGY CONSUMPTION*	*234 KWH*
	30,663 MJ		*842 MJ*
BASELINE DEMAND	*0.98 KW*	*ECO DEMAND*	*0.23 KW*

NET ENERGY SAVINGS	**29,821 MJ/YR**	**NET DEMAND SAVINGS**	**$105 /YR**
NET ENERGY SAVINGS	**28 MBTU/YR**	**NET DOLLAR SAVINGS**	**$280 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6725

# EXIT SIGNS	6
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*1577*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*157.7*	*KWH/YR*
BASELINE DEMAND	*0.18*	*KW*	*ECO DEMAND*	*0.02*	*KW*

NET ENERGY SAVINGS 1419 KWH/YR **NET DOLLAR SAVINGS** $53

Estimate:	Bldg. 6725	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				46.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	16.74	$0	$460	$0	$0	$460
0207082121	DEMO. 2X4' FLUOR FIXTURES				73.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	35.41	$0	$975	$0	$0	$975
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				23.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	5.93	$0	$163	$0	$0	$163
U02 SITEWORK	60	$0	$1,624	$0	$0	$1,624

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					6.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		6.00	$1,110	$165	$0	$0	$1,275
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					38.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		53.35	$3,344	$1,463	$0	$0	$4,807
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					65.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		98.15	$5,460	$2,698	$0	$0	$8,158
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					8.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		13.60	$752	$376	$0	$0	$1,128
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					8.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		9.12	$584	$252	$0	$0	$836
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					13.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.50	$137	$179	$0	$0	$316
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				4.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	4.00	$102	$110	$0	$0	$212

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	195	$11,756	$5,359	$0	$0	$17,115
ESTIMATE TOTAL	255	$11,756	$6,983	$0	$0	$18,739
SALES TAX	5.00%	$588				
MATL MARKUP	-40.00%	($4,702)				
LABOR MARKUP	-13.40%		($936)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,641	$6,047	$0	$0	$13,689
CONTINGENCY	10.00%					$1,369
BOND	2.50%					$342
PROFIT	10.00%					$1,369
JOB TOTAL						$16,769

Estimate: Bldg. 6725 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	60	$0	$1,624	$0	$0	$1,624
U16 ELECTRICAL	195	$11,756	$5,359	$0	$0	$17,115
TOTAL	255	$11,756	$6,983	$0	$0	$18,739
SALES TAX	5.00%	$588				
MATL MARKUP	-40.00%	($4,702)				
LABOR MARKUP	-13.40%		($936)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,641	$6,047	$0	$0	$13,689
CONTINGENCY	10.00%					$1,369
BOND	2.50%					$342
PROFIT	10.00%					$1,369
JOB TOTAL						$16,769

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6726
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
6 2 LAMP @	97 W/FIXT =	582 WATTS	6 2 LAMP @	58 W/FIXT =	348.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	***1,695***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***1,013***	***KWH/YR***
	6,101	***MJ/YR***		***3,648***	***MJ/YR***
BASELINE DEMAND	***0.58***	***KW***	***ECO DEMAND***	***0.35***	***KW***

NET ENERGY SAVINGS	**2,453 MJ/YR**	**NET DEMAND SAVINGS**	**$33 /YR**
NET ENERGY SAVINGS	**2 MBTU/YR**	**NET DOLLAR SAVINGS**	**$47 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6726
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
2 LAMP @	97 W/FIXT =	0	WATTS	0 2 LAMP @	58 W/FIXT =	0.00	WATTS
44 3 LAMP @	153 W/FIXT =	6,732	WATTS	44 3 LAMP @	87 W/FIXT =	3,828.00	WATTS
12 4 LAMP @	194 W/FIXT =	2,328	WATTS	12 4 LAMP @	118 W/FIXT =	1,416.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	***39,574***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***22,906***	***KWH/YR***
	142,467	***MJ/YR***		***82,461***	***MJ/YR***
BASELINE DEMAND	***9.06***	***KW***	***ECO DEMAND***	***5.24***	***KW***

NET ENERGY SAVINGS	**60,006 MJ/YR**	**NET DEMAND SAVINGS**	**$539 /YR**
NET ENERGY SAVINGS	**57 MBTU/YR**	**NET DOLLAR SAVINGS**	**$892 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6726
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
38	2 LAMP U	97 W/FIXT =	3,686 WATTS	38	2 LAMP U @	58 W/FIXT =	2,204.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
4	LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*32,201*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,254* *KWH/YR*
	115,923	*MJ/YR*		*69,315* *MJ/YR*
BASELINE DEMAND	*3.69*	*KW*	*ECO DEMAND*	*2.20* *KW*

NET ENERGY SAVINGS	**46,608 MJ/YR**	**NET DEMAND SAVINGS**	**$209 /YR**
NET ENERGY SAVINGS	**44 MBTU/YR**	**NET DOLLAR SAVINGS**	**$483 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6726-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS						COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0	WATTS	0 LAMPS @	13	WATTS =	0	WATTS
	LAMPS @	60	WATTS =	0	WATTS					
12	LAMPS @	75	WATTS =	900	WATTS	12 LAMPS @	18	WATTS =	216	WATTS
	LAMPS @	90	WATTS =	0	WATTS	0 LAMPS @	26	WATTS =	0	WATTS
	LAMPS @	135	WATTS =	0	WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6726

# EXIT SIGNS	7
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*1840*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*184*	*KWH/YR*
BASELINE DEMAND	*0.21*	*KW*	*ECO DEMAND*	*0.02*	*KW*
NET ENERGY SAVINGS	**1656**	**KWH/YR**	**NET DOLLAR SAVINGS**	**$62**	

Estimate:	Bldg. 6726	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					38.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	13.83	$0	$380	$0	$0	$380
0207082121	DEMO. 2X4' FLUOR FIXTURES					56.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	27.16	$0	$748	$0	$0	$748
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					6.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	1.92	$0	$53	$0	$0	$53
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					19.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.90	$0	$135	$0	$0	$135
U02 SITEWORK		48	$0	$1,316	$0	$0	$1,316

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					7.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		7.00	$1,295	$193	$0	$0	$1,488
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					38.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		53.35	$3,344	$1,463	$0	$0	$4,807
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					44.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		70.40	$3,960	$1,936	$0	$0	$5,896
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					12.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		20.40	$1,128	$564	$0	$0	$1,692
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		8.40	$534	$231	$0	$0	$765
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	166	$10,387	$4,552	$0	$0	$14,939
ESTIMATE TOTAL	214	$10,387	$5,868	$0	$0	$16,255
SALES TAX	5.00%	$519				
MATL MARKUP	-40.00%	($4,155)				
LABOR MARKUP	-13.40%		($786)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$6,752	$5,082	$0	$0	$11,833
CONTINGENCY	10.00%					$1,183
BOND	2.50%					$296
PROFIT	10.00%					$1,183
JOB TOTAL						$14,496

Estimate:	Bldg. 6726	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	48	$0	$1,316	$0	$0	$1,316
U16 ELECTRICAL	166	$10,387	$4,552	$0	$0	$14,939
TOTAL	214	$10,387	$5,868	$0	$0	$16,255
SALES TAX	5.00%	$519				
MATL MARKUP	-40.00%	($4,155)				
LABOR MARKUP	-13.40%		($786)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$6,752	$5,082	$0	$0	$11,833
CONTINGENCY	10.00%					$1,183
BOND	2.50%					$296
PROFIT	10.00%					$1,183
JOB TOTAL						$14,496

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6727
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
3	2 LAMP @	97 W/FIXT =	291 WATTS	3	2 LAMP @	58 W/FIXT =	174.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*507* *KWH/YR*
	3,051	*MJ/YR*		*1,824* *MJ/YR*
BASELINE DEMAND	*0.29*	*KW*	*ECO DEMAND*	*0.17* *KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6727
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
52 2 LAMP @	97 W/FIXT =	5,044 WATTS	52 2 LAMP @	58 W/FIXT =	3,016.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
46 4 LAMP @	194 W/FIXT =	8,924 WATTS	46 4 LAMP @	118 W/FIXT =	5,428.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*61,012*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*36,883*	*KWH/YR*
	219,644	*MJ/YR*		*132,780*	*MJ/YR*
BASELINE DEMAND	*13.97*	*KW*	*ECO DEMAND*	*8.44*	*KW*

NET ENERGY SAVINGS	**86,864 MJ/YR**	**NET DEMAND SAVINGS**	**$781 /YR**
NET ENERGY SAVINGS	**82 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,291 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6727
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
38	2 LAMP U	97 W/FIXT =	3,686 WATTS	38	2 LAMP U @	58 W/FIXT =	2,204.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
	2 LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*32,201*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,254* *KWH/YR*
	115,923	*MJ/YR*		*69,315* *MJ/YR*
BASELINE DEMAND	*3.69*	*KW*	*ECO DEMAND*	*2.20* *KW*

NET ENERGY SAVINGS	**46,608 MJ/YR**	**NET DEMAND SAVINGS**	**$209 /YR**
NET ENERGY SAVINGS	**44 MBTU/YR**	**NET DOLLAR SAVINGS**	**$483 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6727-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6727

# EXIT SIGNS	7
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1840***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***184***	***KWH/YR***
BASELINE DEMAND	***0.21***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS **1656 KWH/YR** **NET DOLLAR SAVINGS** **$62**

Estimate:	Bldg. 6727	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				50.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	18.20	$0	$500	$0	$0	$500
0207082121	DEMO. 2X4' FLUOR FIXTURES				86.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	41.71	$0	$1,148	$0	$0	$1,148
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				19.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	4.90	$0	$135	$0	$0	$135
U02 SITEWORK	66	$0	$1,809	$0	$0	$1,809

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					7.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		7.00	$1,295	$193	$0	$0	$1,488
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					38.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		53.35	$3,344	$1,463	$0	$0	$4,807
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		60.40	$3,360	$1,660	$0	$0	$5,020
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					46.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		78.20	$4,324	$2,162	$0	$0	$6,486
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					12.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		13.68	$876	$378	$0	$0	$1,254
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	223	$13,592	$6,137	$0	$0	$19,729
ESTIMATE TOTAL	289	$13,592	$7,946	$0	$0	$21,538
SALES TAX	5.00%	$680				
MATL MARKUP	-40.00%	($5,437)				
LABOR MARKUP	-13.40%		($1,065)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$8,835	$6,881	$0	$0	$15,716
CONTINGENCY	10.00%					$1,572
BOND	2.50%					$393
PROFIT	10.00%					$1,572
JOB TOTAL						$19,252

Estimate: Bldg. 6727 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	66	$0	$1,809	$0	$0	$1,809
U16 ELECTRICAL	223	$13,592	$6,137	$0	$0	$19,729
TOTAL	289	$13,592	$7,946	$0	$0	$21,538
SALES TAX	5.00%	$680				
MATL MARKUP	-40.00%	($5,437)				
LABOR MARKUP	-13.40%		($1,065)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$8,835	$6,881	$0	$0	$15,716
CONTINGENCY	10.00%					$1,572
BOND	2.50%					$393
PROFIT	10.00%					$1,572
JOB TOTAL						$19,252

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6728
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
3 2 LAMP @	97 W/FIXT =	291	WATTS	3 2 LAMP @	58 W/FIXT =	174.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS
BASELINE ENERGY CONSUMPTION		*847*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*507*	*KWH/YR*
		3,051	*MJ/YR*			*1,824*	*MJ/YR*
BASELINE DEMAND		*0.29*	*KW*	*ECO DEMAND*		*0.17*	*KW*

NET ENERGY SAVINGS	**1,227 MJ/YR**	**NET DEMAND SAVINGS**	**$17 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$24 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6728
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
46 2 LAMP U	97 W/FIXT =	4,462 WATTS	46 2 LAMP U @	58 W/FIXT =	2,668 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
93 2 LAMP @	97 W/FIXT =	9,021 WATTS	93 2 LAMP @	58 W/FIXT =	5,394 WATTS
60 3 LAMP @	153 W/FIXT =	9,180 WATTS	60 3 LAMP @	87 W/FIXT =	5,220 WATTS
18 4 LAMP @	194 W/FIXT =	3,492 WATTS	18 4 LAMP @	118 W/FIXT =	2,124 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*114,245*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*67,293*	*KWH/YR*
	411,282	*MJ/YR*		*242,256*	*MJ/YR*
BASELINE DEMAND	*26.16*	*KW*	*ECO DEMAND*	*15.41*	*KW*

NET ENERGY SAVINGS	**169,026 MJ/YR**	**NET DEMAND SAVINGS**	**$1,519 /YR**
NET ENERGY SAVINGS	**160 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,512 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6728
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
42	2 LAMP U	97 W/FIXT =	4,074 WATTS	42	2 LAMP U @	58 W/FIXT =	2,436.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
4	LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*35,590*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*21,281* *KWH/YR*
	128,126	*MJ/YR*		*76,611* *MJ/YR*
BASELINE DEMAND	*4.07*	*KW*	*ECO DEMAND*	*2.44* *KW*

NET ENERGY SAVINGS	**51,514 MJ/YR**	**NET DEMAND SAVINGS**	**$232 /YR**
NET ENERGY SAVINGS	**49 MBTU/YR**	**NET DOLLAR SAVINGS**	**$534 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6728-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	6	LAMPS @	13	WATTS =	78 WATTS
6	LAMPS @	60	WATTS =	360 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*1,048 KWH* *3,774 MJ*	*ECO ENERGY CONSUMPTION*	*78 KWH* *281 MJ*
BASELINE DEMAND	*0.36 KW*	*ECO DEMAND*	*0.08 KW*

NET ENERGY SAVINGS	**3,493 MJ/YR**	**NET DEMAND SAVINGS**	**$40 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$60 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6728-BARRACKS
AREA: DINING AREA
LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	108 LAMPS @	13	WATTS =	1404 WATTS	
108	LAMPS @	60	WATTS =	6480 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS	
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS	
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*28,305 KWH* *101,897 MJ*	*ECO ENERGY CONSUMPTION*	*1,404 KWH* *5,054 MJ*
BASELINE DEMAND	*6.48 KW*	*ECO DEMAND*	*1.40 KW*

NET ENERGY SAVINGS	**96,842 MJ/YR**	**NET DEMAND SAVINGS**	**$718 /YR**
NET ENERGY SAVINGS	**92 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,286 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6728-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS						COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0	WATTS	0 LAMPS @	13	WATTS =	0	WATTS
	LAMPS @	60	WATTS =	0	WATTS					
12	LAMPS @	75	WATTS =	900	WATTS	12 LAMPS @	18	WATTS =	216	WATTS
	LAMPS @	90	WATTS =	0	WATTS	0 LAMPS @	26	WATTS =	0	WATTS
	LAMPS @	135	WATTS =	0	WATTS					

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6728

# EXIT SIGNS	9
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	*2365*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*236.5*	*KWH/YR*
BASELINE DEMAND	*0.27*	*KW*	*ECO DEMAND*	*0.03*	*KW*
NET ENERGY SAVINGS	**2129**	**KWH/YR**	**NET DOLLAR SAVINGS**	**$79**	

Estimate: Bldg. 6728 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				135.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	49.14	$0	$1,350	$0	$0	$1,350
0207082121	DEMO. 2X4' FLUOR FIXTURES				124.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	60.14	$0	$1,655	$0	$0	$1,655
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				135.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	34.83	$0	$959	$0	$0	$959
U02 SITEWORK	146	$0	$3,990	$0	$0	$3,990

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					9.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		9.00	$1,665	$248	$0	$0	$1,913
1661308803	COMP FLUOR, 9" ROUND REC, 26W QT OPEN REFLECTOR					108.00 EA	
Unit values		2.29	0.00	63.00	0.00	0.00	63.00
Totals		247.32	$0	$6,804	$0	$0	$6,804
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					88.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		123.55	$7,744	$3,388	$0	$0	$11,132
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					46.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		69.46	$3,864	$1,909	$0	$0	$5,773
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					60.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		96.00	$5,400	$2,640	$0	$0	$8,040
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					18.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		30.60	$1,692	$846	$0	$0	$2,538
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					12.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		13.68	$876	$378	$0	$0	$1,254
1661309909	SUR FLUOR 1X4' W 2 32W T8					35.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		39.90	$3,010	$1,103	$0	$0	$4,113
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50

Totals	4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD				12.00 EA	
Unit values	0.50	10.50	13.75	0.00	0.00	24.25
Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				6.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	6.00	$153	$165	$0	$0	$318

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	646	$24,797	$17,762	$0	$0	$42,559
ESTIMATE TOTAL	792	$24,797	$21,752	$0	$0	$46,549
SALES TAX	5.00%	$1,240				
MATL MARKUP	-40.00%	($9,919)				
LABOR MARKUP	-13.40%		($2,915)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$16,118	$18,837	$0	$0	$34,955
CONTINGENCY	10.00%					$3,496
BOND	2.50%					$874
PROFIT	10.00%					$3,496
JOB TOTAL						$42,820

Estimate: Bldg. 6728 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	146	$0	$3,990	$0	$0	$3,990
U16 ELECTRICAL	646	$24,797	$17,762	$0	$0	$42,559
TOTAL	792	$24,797	$21,752	$0	$0	$46,549
SALES TAX	5.00%	$1,240				
MATL MARKUP	-40.00%	($9,919)				
LABOR MARKUP	-13.40%		($2,915)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$16,118	$18,837	$0	$0	$34,955
CONTINGENCY	10.00%					$3,496
BOND	2.50%					$874
PROFIT	10.00%					$3,496
JOB TOTAL						$42,820

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6730
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
9 2 LAMP @	97 W/FIXT =	873	WATTS	9 2 LAMP @	58 W/FIXT =	522.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
4 LAMP @	194 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*2,542*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,520* *KWH/YR*
	9,152	*MJ/YR*		*5,472* *MJ/YR*
BASELINE DEMAND	*0.87*	*KW*	*ECO DEMAND*	*0.52* *KW*

NET ENERGY SAVINGS	**3,680 MJ/YR**	**NET DEMAND SAVINGS**	**$50 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$71 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6730
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
53 2 LAMP U	97 W/FIXT =	5,141 WATTS	53 2 LAMP U @	58 W/FIXT =	3,074 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
35 2 LAMP @	97 W/FIXT =	3,395 WATTS	35 2 LAMP @	58 W/FIXT =	2,030 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
46 4 LAMP @	194 W/FIXT =	8,924 WATTS	46 4 LAMP @	118 W/FIXT =	5,428 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS
BASELINE ENERGY CONSUMPTION		***76,265 KWH/YR***	***ECO ENERGY CONSUMPTION***		***46,004 KWH/YR***
		274,555 MJ/YR			***165,614 MJ/YR***
BASELINE DEMAND		***17.46 KW***	***ECO DEMAND***		***10.53 KW***

NET ENERGY SAVINGS	**108,941 MJ/YR**	**NET DEMAND SAVINGS**	**$979 /YR**
NET ENERGY SAVINGS	**103 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,619 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6730
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
38	2 LAMP U	97 W/FIXT =	3,686 WATTS	38	2 LAMP U @	58 W/FIXT =	2,204.00 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
2	LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
3	LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
4	LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*32,201*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,254* *KWH/YR*
	115,923	*MJ/YR*		*69,315* *MJ/YR*
BASELINE DEMAND	*3.69*	*KW*	*ECO DEMAND*	*2.20* *KW*

NET ENERGY SAVINGS	**46,608 MJ/YR**	**NET DEMAND SAVINGS**	**$209 /YR**
NET ENERGY SAVINGS	**44 MBTU/YR**	**NET DOLLAR SAVINGS**	**$483 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6730-BARRACKS
AREA: KITCHEN HALLWAY

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
5	LAMPS @	75	WATTS =	375 WATTS	5	LAMPS @	18	WATTS =	90 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*1,638 KWH* *5,897 MJ*	*ECO ENERGY CONSUMPTION*	*90 KWH* *324 MJ*
BASELINE DEMAND	*0.38 KW*	*ECO DEMAND*	*0.09 KW*

NET ENERGY SAVINGS	**5,573 MJ/YR**	**NET DEMAND SAVINGS**	**$40 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$73 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6730-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
0	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
0	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
0	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
0	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR LIGHTING

19 AUGUST 1994

EXIT SIGN REPLACEMENT - INCANDESCENT TO LED

BUILDING #: BARRACKS - 6730

# EXIT SIGNS	5
CURRENT WATTAGE	30
REPLACEMENT WATTAG	3
HOURS/YEAR	8760

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH

DEMAND CHARGE $11.78 PER KW

BASELINE ENERGY CONSUMPTION	***1314***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***131.4***	***KWH/YR***
BASELINE DEMAND	***0.15***	***KW***	***ECO DEMAND***	***0.02***	***KW***

NET ENERGY SAVINGS	**1183 KWH/YR**	**NET DOLLAR SAVINGS**	**$44**

Estimate:	Bldg. 6730	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				91.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	33.12	$0	$910	$0	$0	$910
0207082121	DEMO. 2X4' FLUOR FIXTURES				46.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	22.31	$0	$614	$0	$0	$614
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				44.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	14.08	$0	$387	$0	$0	$387
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				22.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	5.68	$0	$156	$0	$0	$156
U02 SITEWORK	76	$0	$2,067	$0	$0	$2,067

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					5.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		5.00	$925	$138	$0	$0	$1,063
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					91.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		127.76	$8,008	$3,504	$0	$0	$11,512
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					46.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		78.20	$4,324	$2,162	$0	$0	$6,486
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					3.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		3.42	$270	$95	$0	$0	$365
1661309919	PEND FLUOR 1X4' W 2 32W T8					41.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		57.40	$3,649	$1,579	$0	$0	$5,228
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				5.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	5.00	$128	$138	$0	$0	$266

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	283	$17,430	$7,781	$0	$0	$25,211
ESTIMATE TOTAL	359	$17,430	$9,848	$0	$0	$27,278
SALES TAX	5.00%	$872				
MATL MARKUP	-40.00%	($6,972)				
LABOR MARKUP	-13.40%		($1,320)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,330	$8,528	$0	$0	$19,858
CONTINGENCY	10.00%					$1,986
BOND	2.50%					$496
PROFIT	10.00%					$1,986
JOB TOTAL						$24,326

Estimate:	Bldg. 6730	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	76	$0	$2,067	$0	$0	$2,067
U16 ELECTRICAL	283	$17,430	$7,781	$0	$0	$25,211
TOTAL	359	$17,430	$9,848	$0	$0	$27,278
SALES TAX	5.00%	$872				
MATL MARKUP	-40.00%	($6,972)				
LABOR MARKUP	-13.40%		($1,320)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,330	$8,528	$0	$0	$19,858
CONTINGENCY	10.00%					$1,986
BOND	2.50%					$496
PROFIT	10.00%					$1,986
JOB TOTAL						$24,326

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6731
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
22 2 LAMP @	97 W/FIXT =	2,134	WATTS	22 2 LAMP @	58 W/FIXT =	1,276.00	WATTS
3 LAMP @	153 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0.00	WATTS
1 4 LAMP @	194 W/FIXT =	194	WATTS	1 4 LAMP @	118 W/FIXT =	118.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*6,779*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*4,059* *KWH/YR*
	24,405	*MJ/YR*		*14,614* *MJ/YR*
BASELINE DEMAND	*2.33*	*KW*	*ECO DEMAND*	*1.39* *KW*

NET ENERGY SAVINGS	**9,791 MJ/YR**	**NET DEMAND SAVINGS**	**$132 /YR**
NET ENERGY SAVINGS	**9 MBTU/YR**	**NET DOLLAR SAVINGS**	**$190 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6731
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
34 2 LAMP @	97 W/FIXT =	3,298	WATTS	34 2 LAMP @	58 W/FIXT =	1,972.00	WATTS
80 3 LAMP @	153 W/FIXT =	12,240	WATTS	80 3 LAMP @	87 W/FIXT =	6,960.00	WATTS
18 4 LAMP @	194 W/FIXT =	3,492	WATTS	18 4 LAMP @	118 W/FIXT =	2,124.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*83,123*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*48,293*	*KWH/YR*
	299,243	*MJ/YR*		*173,853*	*MJ/YR*
BASELINE DEMAND	*19.03*	*KW*	*ECO DEMAND*	*11.06*	*KW*

NET ENERGY SAVINGS	**125,390 MJ/YR**	**NET DEMAND SAVINGS**	**$1,127 /YR**
NET ENERGY SAVINGS	**119 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,864 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6731
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
39	2 LAMP U	97 W/FIXT =	3,783 WATTS	39	2 LAMP U @	58 W/FIXT =	2,262.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
5	2 LAMP @	97 W/FIXT =	485 WATTS	5	2 LAMP @	58 W/FIXT =	290.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*37,285*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*22,294* *KWH/YR*
	134,227	*MJ/YR*		*80,259* *MJ/YR*
BASELINE DEMAND	*4.27*	*KW*	*ECO DEMAND*	*2.55* *KW*

NET ENERGY SAVINGS	**53,968 MJ/YR**	**NET DEMAND SAVINGS**	**$243 /YR**
NET ENERGY SAVINGS	**51 MBTU/YR**	**NET DOLLAR SAVINGS**	**$559 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6731-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @	52	WATTS =	0 WATTS	5 LAMPS @	13	WATTS =	65 WATTS
5	LAMPS @	60	WATTS =	300 WATTS				
	LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*874 KWH* *3,145 MJ*	*ECO ENERGY CONSUMPTION*	*65 KWH* *234 MJ*
BASELINE DEMAND	*0.30 KW*	*ECO DEMAND*	*0.07 KW*

NET ENERGY SAVINGS	**2,911 MJ/YR**	**NET DEMAND SAVINGS**	**$33 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$50 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6731-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARG $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @ 52	WATTS =	0	WATTS	0 LAMPS 13	WATTS =	0	WATTS
	LAMPS @ 60	WATTS =	0	WATTS				
14	LAMPS @ 75	WATTS =	1050	WATTS	14 LAMPS 18	WATTS =	252	WATTS
	LAMPS @ 90	WATTS =	0	WATTS	0 LAMPS 26	WATTS =	0	WATTS
	LAMPS @ 135	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*9,173 KWH*	*ECO ENERGY CONSUMPTION*	*252 KWH*
	33,022 MJ		*907 MJ*
BASELINE DEMAND	*1.05 KW*	*ECO DEMAND*	*0.25 KW*

NET ENERGY SAVINGS	**32,115 MJ/YR**	**NET DEMAND SAVINGS**	**$113 /YR**
NET ENERGY SAVINGS	**30 MBTU/YR**	**NET DOLLAR SAVINGS**	**$301 /YR**

Estimate:	Bldg. 6731	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				66.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	24.02	$0	$660	$0	$0	$660
0207082121	DEMO. 2X4' FLUOR FIXTURES				102.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	49.47	$0	$1,362	$0	$0	$1,362
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				3.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.96	$0	$26	$0	$0	$26
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				19.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	4.90	$0	$135	$0	$0	$135
U02 SITEWORK	80	$0	$2,183	$0	$0	$2,183

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					11.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		15.44	$968	$424	$0	$0	$1,392
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					3.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		4.53	$252	$125	$0	$0	$377
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					80.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		128.00	$7,200	$3,520	$0	$0	$10,720
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					19.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		32.30	$1,786	$893	$0	$0	$2,679
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					55.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		62.70	$4,015	$1,733	$0	$0	$5,748
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					3.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		4.20	$267	$116	$0	$0	$383
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				7.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	7.00	$179	$193	$0	$0	$372

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	261	$14,793	$7,169	$0	$0	$21,962
ESTIMATE TOTAL	341	$14,793	$9,352	$0	$0	$24,145
SALES TAX	5.00%	$740				
MATL MARKUP	-40.00%	($5,917)				
LABOR MARKUP	-13.40%		($1,253)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,615	$8,099	$0	$0	$17,714
CONTINGENCY	10.00%					$1,771
BOND	2.50%					$443
PROFIT	10.00%					$1,771
JOB TOTAL						$21,700

Estimate:	Bldg. 6731	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	80	$0	$2,183	$0	$0	$2,183
U16 ELECTRICAL	261	$14,793	$7,169	$0	$0	$21,962
TOTAL	341	$14,793	$9,352	$0	$0	$24,145
SALES TAX	5.00%	$740				
MATL MARKUP	-40.00%	($5,917)				
LABOR MARKUP	-13.40%		($1,253)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,615	$8,099	$0	$0	$17,714
CONTINGENCY	10.00%					$1,771
BOND	2.50%					$443
PROFIT	10.00%					$1,771
JOB TOTAL						$21,700

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6732
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	97 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
20	2 LAMP @	97 W/FIXT =	1,940 WATTS	20	2 LAMP @	58 W/FIXT =	1,160.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	***5,649***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***3,378 KWH/YR***
	20,337	***MJ/YR***		***12,161 MJ/YR***
BASELINE DEMAND	***1.94***	***KW***	***ECO DEMAND***	***1.16 KW***

NET ENERGY SAVINGS	**8,177 MJ/YR**	**NET DEMAND SAVINGS**	**$110 /YR**
NET ENERGY SAVINGS	**8 MBTU/YR**	**NET DOLLAR SAVINGS**	**$158 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6732
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	97 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0.00	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	56 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0.00	WATTS
51 2 LAMP @	97 W/FIXT =	4,947	WATTS	51 2 LAMP @	58 W/FIXT =	2,958.00	WATTS
35 3 LAMP @	153 W/FIXT =	5,355	WATTS	35 3 LAMP @	87 W/FIXT =	3,045.00	WATTS
47 4 LAMP @	194 W/FIXT =	9,118	WATTS	47 4 LAMP @	118 W/FIXT =	5,546.00	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0.00	WATTS

BASELINE ENERGY CONSUMPTION	*84,827*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*50,446*	*KWH/YR*
	305,376	*MJ/YR*		*181,606*	*MJ/YR*
BASELINE DEMAND	*19.42*	*KW*	*ECO DEMAND*	*11.55*	*KW*

NET ENERGY SAVINGS	**123,770 MJ/YR**	**NET DEMAND SAVINGS**	**$1,113 /YR**
NET ENERGY SAVINGS	**117 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,839 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6732
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
38 2 LAMP U	97 W/FIXT =	3,686 WATTS	38 2 LAMP U @	58 W/FIXT =	2,204.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
1 2 LAMP @	97 W/FIXT =	97 WATTS	1 2 LAMP @	58 W/FIXT =	58.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*33,048*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,761*	*KWH/YR*
	118,974	*MJ/YR*		*71,139*	*MJ/YR*
BASELINE DEMAND	*3.78*	*KW*	*ECO DEMAND*	*2.26*	*KW*

NET ENERGY SAVINGS	**47,835 MJ/YR**	**NET DEMAND SAVINGS**	**$215 /YR**
NET ENERGY SAVINGS	**45 MBTU/YR**	**NET DOLLAR SAVINGS**	**$496 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6732-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
LAMPS @	52	WATTS =	0	WATTS	4 LAMPS @	13	WATTS =	52 WATTS
4 LAMPS @	60	WATTS =	240	WATTS				
LAMPS @	75	WATTS =	0	WATTS	0 LAMPS @	18	WATTS =	0 WATTS
LAMPS @	90	WATTS =	0	WATTS	0 LAMPS @	26	WATTS =	0 WATTS
LAMPS @	135	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*699 KWH*	*ECO ENERGY CONSUMPTION*	*52 KWH*
	2,516 MJ		*187 MJ*
BASELINE DEMAND	*0.24 KW*	*ECO DEMAND*	*0.05 KW*

NET ENERGY SAVINGS	**2,329 MJ/YR**	**NET DEMAND SAVINGS**	**$27 /YR**
NET ENERGY SAVINGS	**2 MBTU/YR**	**NET DOLLAR SAVINGS**	**$40 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6732-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS				COMPACT FLUORESCENT REPLACEMENT			
LAMPS @ 52	WATTS =	0	WATTS	4 LAMPS @ 13	WATTS =	52	WATTS
4 LAMPS @ 60	WATTS =	240	WATTS				
12 LAMPS @ 75	WATTS =	900	WATTS	12 LAMPS @ 18	WATTS =	216	WATTS
LAMPS @ 90	WATTS =	0	WATTS	0 LAMPS @ 26	WATTS =	0	WATTS
LAMPS @ 135	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*9,959 KWH*	*ECO ENERGY CONSUMPTION*	*268 KWH*
	35,853 MJ		*965 MJ*
BASELINE DEMAND	*1.14 KW*	*ECO DEMAND*	*0.27 KW*

NET ENERGY SAVINGS	**34,888 MJ/YR**	**NET DEMAND SAVINGS**	**$123 /YR**
NET ENERGY SAVINGS	**33 MBTU/YR**	**NET DOLLAR SAVINGS**	**$328 /YR**

Estimate:	Bldg. 6732	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				83.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	30.21	$0	$830	$0	$0	$830
0207082121	DEMO. 2X4' FLUOR FIXTURES				89.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	43.17	$0	$1,188	$0	$0	$1,188
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				20.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	6.40	$0	$176	$0	$0	$176
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				20.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	5.16	$0	$142	$0	$0	$142
U02 SITEWORK	85	$0	$2,336	$0	$0	$2,336

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					38.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		53.35	$3,344	$1,463	$0	$0	$4,807
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					7.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		10.57	$588	$291	$0	$0	$879
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					35.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		56.00	$3,150	$1,540	$0	$0	$4,690
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					47.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		79.90	$4,418	$2,209	$0	$0	$6,627
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					45.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		51.30	$3,285	$1,418	$0	$0	$4,703
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					20.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		28.00	$1,780	$770	$0	$0	$2,550
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				8.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	8.00	$204	$220	$0	$0	$424

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	294	$16,895	$8,076	$0	$0	$24,971
ESTIMATE TOTAL	379	$16,895	$10,412	$0	$0	$27,307
SALES TAX	5.00%	$845				
MATL MARKUP	-40.00%	($6,758)				
LABOR MARKUP	-13.40%		($1,395)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,982	$9,017	$0	$0	$19,999
CONTINGENCY	10.00%					$2,000
BOND	2.50%					$500
PROFIT	10.00%					$2,000
JOB TOTAL						$24,498

Estimate:	Bldg. 6732	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	85	$0	$2,336	$0	$0	$2,336
U16 ELECTRICAL	294	$16,895	$8,076	$0	$0	$24,971
TOTAL	379	$16,895	$10,412	$0	$0	$27,307
SALES TAX	5.00%	$845				
MATL MARKUP	-40.00%	($6,758)				
LABOR MARKUP	-13.40%		($1,395)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,982	$9,017	$0	$0	$19,999
CONTINGENCY	10.00%					$2,000
BOND	2.50%					$500
PROFIT	10.00%					$2,000
JOB TOTAL						$24,498

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6733
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	97 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0.00 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	56 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0.00 WATTS
6 2 LAMP @	97 W/FIXT =	582 WATTS	6 2 LAMP @	58 W/FIXT =	348.00 WATTS
3 LAMP @	153 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0.00 WATTS
4 LAMP @	194 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*1,695*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,013*	*KWH/YR*
	6,101	*MJ/YR*		*3,648*	*MJ/YR*
BASELINE DEMAND	*0.58*	*KW*	*ECO DEMAND*	*0.35*	*KW*

NET ENERGY SAVINGS	**2,453 MJ/YR**	**NET DEMAND SAVINGS**	**$33 /YR**
NET ENERGY SAVINGS	**2 MBTU/YR**	**NET DOLLAR SAVINGS**	**$47 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6733
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
49	2 LAMP U	97 W/FIXT =	4,753 WATTS	49	2 LAMP U @	58 W/FIXT =	2,842 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
30	2 LAMP @	97 W/FIXT =	2,910 WATTS	30	2 LAMP @	58 W/FIXT =	1,740 WATTS
34	3 LAMP @	153 W/FIXT =	5,202 WATTS	34	3 LAMP @	87 W/FIXT =	2,958 WATTS
35	4 LAMP @	194 W/FIXT =	6,790 WATTS	35	4 LAMP @	118 W/FIXT =	4,130 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*85,853*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*50,975*	*KWH/YR*
	309,071	*MJ/YR*		*183,508*	*MJ/YR*
BASELINE DEMAND	*19.66*	*KW*	*ECO DEMAND*	*11.67*	*KW*

NET ENERGY SAVINGS	**125,563 MJ/YR**	**NET DEMAND SAVINGS**	**$1,129 /YR**
NET ENERGY SAVINGS	**119 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,866 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6733
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
42	2 LAMP U	97 W/FIXT =	4,074 WATTS	42	2 LAMP U @	58 W/FIXT =	2,436.00 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	56 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0.00 WATTS
	2 LAMP @	97 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0.00 WATTS
	3 LAMP @	153 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0.00 WATTS
	4 LAMP @	194 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0.00 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0.00 WATTS

BASELINE ENERGY CONSUMPTION	*35,590*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*21,281* *KWH/YR*
	128,126	*MJ/YR*		*76,611* *MJ/YR*
BASELINE DEMAND	*4.07*	*KW*	*ECO DEMAND*	*2.44* *KW*

NET ENERGY SAVINGS	**51,514 MJ/YR**	**NET DEMAND SAVINGS**	**$232 /YR**
NET ENERGY SAVINGS	**49 MBTU/YR**	**NET DOLLAR SAVINGS**	**$534 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6733-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6733	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				91.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	33.12	$0	$910	$0	$0	$910
0207082121	DEMO. 2X4' FLUOR FIXTURES				71.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	34.44	$0	$948	$0	$0	$948
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				36.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	11.52	$0	$317	$0	$0	$317
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				12.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK	83	$0	$2,260	$0	$0	$2,260

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					91.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		127.76	$8,008	$3,504	$0	$0	$11,512
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					36.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		57.60	$3,240	$1,584	$0	$0	$4,824
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					35.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		59.50	$3,290	$1,645	$0	$0	$4,935
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					36.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		50.40	$3,204	$1,386	$0	$0	$4,590
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	302	$17,868	$8,284	$0	$0	$26,152
ESTIMATE TOTAL	385	$17,868	$10,544	$0	$0	$28,412
SALES TAX	5.00%	$893				
MATL MARKUP	-40.00%	($7,147)				
LABOR MARKUP	-13.40%		($1,413)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,614	$9,131	$0	$0	$20,745
CONTINGENCY	10.00%					$2,075
BOND	2.50%					$519
PROFIT	10.00%					$2,075
JOB TOTAL						$25,413

Estimate: Bldg. 6733 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	83	$0	$2,260	$0	$0	$2,260
U16 ELECTRICAL	302	$17,868	$8,284	$0	$0	$26,152
TOTAL	385	$17,868	$10,544	$0	$0	$28,412
SALES TAX	5.00%	$893				
MATL MARKUP	-40.00%	($7,147)				
LABOR MARKUP	-13.40%		($1,413)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,614	$9,131	$0	$0	$20,745
CONTINGENCY	10.00%					$2,075
BOND	2.50%					$519
PROFIT	10.00%					$2,075
JOB TOTAL						$25,413

DIVIDER PAGE

PREVIOUS SECTION 3200 & 6700

NEXT SECTION 6900 BARRACKS

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: BARRPRT2
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID 1.080
INSTALLATION & LOCATION: FORT CAMPBELL REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: KWBPRT2 INTERIOR LIGHTING - 6900 BARRACKS
FISCAL YEAR 94 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 09-14-94 ECONOMIC LIFE 15 YEARS PREPARED BY: J. HOLLENSBE

1. INVESTMENT

A. CONSTRUCTION COST	$ 553564.		
B. SIOH	$ 27678.		
C. DESIGN COST	$ 27678.		
D. TOTAL COST (1A+1B+1C)	$ 608920.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 608920.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 6.18	4379.	$ 27062.	12.43	$ 336383.
B. DIST	$ .00	0.	$ 0.	13.56	$ 0.
C. RESID	$ .00	0.	$ 0.	15.09	$ 0.
D. NAT G	$ .00	0.	$ 0.	15.86	$ 0.
E. COAL	$ .00	0.	$ 0.	13.61	$ 0.
F. LPG	$ .00	0.	$ 0.	12.64	$ 0.
M. DEMAND SAVINGS			$ 29730.	11.85	$ 352301.
N. TOTAL		4379.	$ 56792.		$ 688684.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)			$ 10405.
(1) DISCOUNT FACTOR (TABLE A)		11.85	
(2) DISCOUNTED SAVING/COST (3A X 3A1)			$ 123299.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 123299.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 67197.

5. SIMPLE PAYBACK PERIOD (1G/4) 9.06 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 811983.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= 1.33
(IF < 1 PROJECT DOES NOT QUALIFY)

8. ADJUSTED INTERNAL RATE OF RETURN (AIRR): 5.10 %

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6909
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
11 2 LAMP @	92 W/FIXT =	1,012	WATTS	11 2 LAMP @	58 W/FIXT =	638	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
4 LAMP @	184 W/FIXT =	0	WATTS	0 4 LAMP @	118 W/FIXT =	0	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION		***2,947***	***KWH/YR***	***ECO ENERGY CONSUMPTION***		***1,858***	***KWH/YR***
		10,609	***MJ/YR***			***6,688***	***MJ/YR***
BASELINE DEMAND		***1.01***	***KW***	***ECO DEMAND***		***0.64***	***KW***

NET ENERGY SAVINGS	**3,921 MJ/YR**	**NET DEMAND SAVINGS**	**$53 /YR**
NET ENERGY SAVINGS	**4 MBTU/YR**	**NET DOLLAR SAVINGS**	**$76 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6909
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
52	2 LAMP @	92 W/FIXT =	4784 WATTS	52	2 LAMP @	58 W/FIXT =	3016 WATTS
38	3 LAMP @	137 W/FIXT =	5206 WATTS	38	3 LAMP @	87 W/FIXT =	3306 WATTS
23	4 LAMP @	184 W/FIXT =	4232 WATTS	23	4 LAMP @	118 W/FIXT =	2714 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*62,122*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*39,469* *KWH/YR*
	223,638	*MJ/YR*		*142,089* *MJ/YR*
BASELINE DEMAND	*14.22*	*KW*	*ECO DEMAND*	*9.04* *KW*

NET ENERGY SAVINGS	**81,549 MJ/YR**	**NET DEMAND SAVINGS**	**$733 /YR**
NET ENERGY SAVINGS	**77.29 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,211 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6909
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
35 2 LAMP U	92 W/FIXT =	3,220 WATTS	35 2 LAMP U @	58 W/FIXT =	2,030 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
3 2 LAMP @	92 W/FIXT =	276 WATTS	3 2 LAMP @	58 W/FIXT =	174 WATTS
4 3 LAMP @	137 W/FIXT =	548 WATTS	4 3 LAMP @	87 W/FIXT =	348 WATTS
4 4 LAMP @	184 W/FIXT =	736 WATTS	4 4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*41,758*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*26,418*	*KWH/YR*
	150,329	*MJ/YR*		*95,104*	*MJ/YR*
BASELINE DEMAND	*4.78*	*KW*	*ECO DEMAND*	*3.02*	*KW*

NET ENERGY SAVINGS	**55,225 MJ/YR**	**NET DEMAND SAVINGS**	**$248 /YR**
NET ENERGY SAVINGS	**52 MBTU/YR**	**NET DOLLAR SAVINGS**	**$573 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6909-BARRACKS
AREA: OFFICES

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
5	LAMPS @	75	WATTS =	375 WATTS	5 LAMPS @	18	WATTS =	90 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*1,638 KWH* *5,897 MJ*	*ECO ENERGY CONSUMPTION*	*90 KWH* *324 MJ*
BASELINE DEMAND	*0.38 KW*	*ECO DEMAND*	*0.09 KW*

NET ENERGY SAVINGS	**5,573 MJ/YR**	**NET DEMAND SAVINGS**	**$40 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$73 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6909-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6909	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					101.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	36.76	$0	$1,010	$0	$0	$1,010
0207082121	DEMO. 2X4' FLUOR FIXTURES					69.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	33.47	$0	$921	$0	$0	$921
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					17.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.39	$0	$121	$0	$0	$121
U02 SITEWORK		75	$0	$2,052	$0	$0	$2,052

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					35.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		49.14	$3,080	$1,348	$0	$0	$4,428
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					42.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		67.20	$3,780	$1,848	$0	$0	$5,628
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					27.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		45.90	$2,538	$1,269	$0	$0	$3,807
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					66.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		75.24	$4,818	$2,079	$0	$0	$6,897
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				5.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	5.00	$128	$138	$0	$0	$266

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	249	$14,470	$6,847	$0	$0	$21,317
ESTIMATE TOTAL	324	$14,470	$8,899	$0	$0	$23,369
SALES TAX	5.00%	$724				
MATL MARKUP	-40.00%	($5,788)				
LABOR MARKUP	-13.40%		($1,192)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,406	$7,707	$0	$0	$17,112
CONTINGENCY	10.00%					$1,711
BOND	2.50%					$428
PROFIT	10.00%					$1,711
JOB TOTAL						$20,962

Estimate:	Bldg. 6909	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	75	$0	$2,052	$0	$0	$2,052
U16 ELECTRICAL	249	$14,470	$6,847	$0	$0	$21,317
TOTAL	324	$14,470	$8,899	$0	$0	$23,369
SALES TAX	5.00%	$724				
MATL MARKUP	-40.00%	($5,788)				
LABOR MARKUP	-13.40%		($1,192)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,406	$7,707	$0	$0	$17,112
CONTINGENCY	10.00%					$1,711
BOND	2.50%					$428
PROFIT	10.00%					$1,711
JOB TOTAL						$20,962

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6910
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
11 2 LAMP @	92 W/FIXT =	1,012	WATTS	11 2 LAMP @	58 W/FIXT =	638	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
40 4 LAMP @	184 W/FIXT =	7,360	WATTS	40 4 LAMP @	118 W/FIXT =	4,720	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	***36,569***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***23,404***	***KWH/YR***
	131,648	***MJ/YR***		***84,253***	***MJ/YR***
BASELINE DEMAND	***8.37***	***KW***	***ECO DEMAND***	***5.36***	***KW***

NET ENERGY SAVINGS	**47,395 MJ/YR**	**NET DEMAND SAVINGS**	**$426 /YR**
NET ENERGY SAVINGS	**45 MBTU/YR**	**NET DOLLAR SAVINGS**	**$704 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6910
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
35 2 LAMP U	92 W/FIXT =	3,220 WATTS	35 2 LAMP U @	58 W/FIXT =	2,030 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
2 4 LAMP @	184 W/FIXT =	368 WATTS	2 4 LAMP @	118 W/FIXT =	236 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*31,345*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*19,796*	*KWH/YR*
	112,841	*MJ/YR*		*71,265*	*MJ/YR*
BASELINE DEMAND	*3.59*	*KW*	*ECO DEMAND*	*2.27*	*KW*

NET ENERGY SAVINGS	**41,576 MJ/YR**	**NET DEMAND SAVINGS**	**$187 /YR**
NET ENERGY SAVINGS	**39 MBTU/YR**	**NET DOLLAR SAVINGS**	**$431 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6910-BARRACKS
AREA: SUPPLY ROOM

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
4	LAMPS @	75	WATTS =	300 WATTS	4	LAMPS @	18	WATTS =	72 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*874 KWH*	*ECO ENERGY CONSUMPTION*	*72 KWH*
	3,145 MJ		*259 MJ*
BASELINE DEMAND	*0.30 KW*	*ECO DEMAND*	*0.07 KW*

NET ENERGY SAVINGS	**2,886 MJ/YR**	**NET DEMAND SAVINGS**	**$32 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$49 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6910-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate: Bldg. 6910 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					40.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	14.56	$0	$400	$0	$0	$400
0207082121	DEMO. 2X4' FLUOR FIXTURES					52.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	25.22	$0	$694	$0	$0	$694
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					16.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.13	$0	$114	$0	$0	$114
U02 SITEWORK		44	$0	$1,208	$0	$0	$1,208

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					35.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		49.14	$3,080	$1,348	$0	$0	$4,428
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					6.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		9.06	$504	$249	$0	$0	$753
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					46.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		78.20	$4,324	$2,162	$0	$0	$6,486
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					5.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		5.70	$365	$158	$0	$0	$523
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				4.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	4.00	$102	$110	$0	$0	$212

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	153	$8,501	$4,192	$0	$0	$12,693
ESTIMATE TOTAL	197	$8,501	$5,400	$0	$0	$13,901
SALES TAX	5.00%	$425				
MATL MARKUP	-40.00%	($3,400)				
LABOR MARKUP	-13.40%		($724)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$5,526	$4,676	$0	$0	$10,202
CONTINGENCY	10.00%					$1,020
BOND	2.50%					$255
PROFIT	10.00%					$1,020
JOB TOTAL						$12,498

Estimate: Bldg. 6910 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	44	$0	$1,208	$0	$0	$1,208
U16 ELECTRICAL	153	$8,501	$4,192	$0	$0	$12,693
TOTAL	197	$8,501	$5,400	$0	$0	$13,901
SALES TAX	5.00%	$425				
MATL MARKUP	-40.00%	($3,400)				
LABOR MARKUP	-13.40%		($724)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$5,526	$4,676	$0	$0	$10,202
CONTINGENCY	10.00%					$1,020
BOND	2.50%					$255
PROFIT	10.00%					$1,020
JOB TOTAL						$12,498

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6911
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @ 58 W/FIXT =		0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @ 29 W/FIXT =		0 WATTS
	2 LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @ 58 W/FIXT =		0 WATTS
8	3 LAMP @	137 W/FIXT =	1,096 WATTS	8	3 LAMP @ 87 W/FIXT =		696 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @ 118 W/FIXT =		0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @ 125 W/FIXT =		0 WATTS

BASELINE ENERGY CONSUMPTION	*3,192*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*2,027* *KWH/YR*
	11,490	*MJ/YR*		*7,296* *MJ/YR*
BASELINE DEMAND	*1.10*	*KW*	*ECO DEMAND*	*0.70* *KW*

NET ENERGY SAVINGS	**4,193 MJ/YR**	**NET DEMAND SAVINGS**	**$57 /YR**
NET ENERGY SAVINGS	**4 MBTU/YR**	**NET DOLLAR SAVINGS**	**$81 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6911
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
79 2 LAMP @	92 W/FIXT =	7,268	WATTS	79 2 LAMP @	58 W/FIXT =	4,582	WATTS
46 3 LAMP @	137 W/FIXT =	6,302	WATTS	46 3 LAMP @	87 W/FIXT =	4,002	WATTS
60 4 LAMP @	184 W/FIXT =	11,040	WATTS	60 4 LAMP @	118 W/FIXT =	7,080	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*107,496*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*68,420*	*KWH/YR*
	386,987	*MJ/YR*		*246,313*	*MJ/YR*
BASELINE DEMAND	*24.61*	*KW*	*ECO DEMAND*	*15.66*	*KW*

NET ENERGY SAVINGS	**140,674 MJ/YR**	**NET DEMAND SAVINGS**	**$1,265 /YR**
NET ENERGY SAVINGS	**133 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,091 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6911
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
34	2 LAMP U	92 W/FIXT =	3,128 WATTS	34	2 LAMP U @	58 W/FIXT =	1,972 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
2	LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*27,326*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*17,227* *KWH/YR*
	98,374	*MJ/YR*		*62,019* *MJ/YR*
BASELINE DEMAND	*3.13*	*KW*	*ECO DEMAND*	*1.97* *KW*

NET ENERGY SAVINGS	**36,356 MJ/YR**	**NET DEMAND SAVINGS**	**$163 /YR**
NET ENERGY SAVINGS	**34 MBTU/YR**	**NET DOLLAR SAVINGS**	**$377 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6911-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6911	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				83.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	30.21	$0	$830	$0	$0	$830
0207082121	DEMO. 2X4' FLUOR FIXTURES				114.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	55.29	$0	$1,522	$0	$0	$1,522
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				30.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	9.60	$0	$264	$0	$0	$264
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				12.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK	99	$0	$2,701	$0	$0	$2,701

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					83.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		116.53	$7,304	$3,196	$0	$0	$10,500
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					54.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		86.40	$4,860	$2,376	$0	$0	$7,236
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					60.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		102.00	$5,640	$2,820	$0	$0	$8,460
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					30.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		42.00	$2,670	$1,155	$0	$0	$3,825
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	353	$20,600	$9,712	$0	$0	$30,312
ESTIMATE TOTAL	452	$20,600	$12,413	$0	$0	$33,013
SALES TAX	5.00%	$1,030				
MATL MARKUP	-40.00%	($8,240)				
LABOR MARKUP	-13.40%		($1,663)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,390	$10,750	$0	$0	$24,140
CONTINGENCY	10.00%					$2,414
BOND	2.50%					$603
PROFIT	10.00%					$2,414
JOB TOTAL						$29,571

Estimate:	Bldg. 6911	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	99	$0	$2,701	$0	$0	$2,701
U16 ELECTRICAL	353	$20,600	$9,712	$0	$0	$30,312
TOTAL	452	$20,600	$12,413	$0	$0	$33,013
SALES TAX	5.00%	$1,030				
MATL MARKUP	-40.00%	($8,240)				
LABOR MARKUP	-13.40%		($1,663)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,390	$10,750	$0	$0	$24,140
CONTINGENCY	10.00%					$2,414
BOND	2.50%					$603
PROFIT	10.00%					$2,414
JOB TOTAL						$29,571

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6912
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
6 2 LAMP @	92 W/FIXT =	552 WATTS	6 2 LAMP @	58 W/FIXT =	348 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*1,607*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,013*	*KWH/YR*
	5,787	*MJ/YR*		*3,648*	*MJ/YR*
BASELINE DEMAND	*0.55*	*KW*	*ECO DEMAND*	*0.35*	*KW*

NET ENERGY SAVINGS	**2,139 MJ/YR**	**NET DEMAND SAVINGS**	**$29 /YR**
NET ENERGY SAVINGS	**2 MBTU/YR**	**NET DOLLAR SAVINGS**	**$41 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6912
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
34 2 LAMP @	92 W/FIXT =	3,128 WATTS	34 2 LAMP @	58 W/FIXT =	1,972 WATTS
50 3 LAMP @	137 W/FIXT =	6,850 WATTS	50 3 LAMP @	87 W/FIXT =	4,350 WATTS
40 4 LAMP @	184 W/FIXT =	7,360 WATTS	40 4 LAMP @	118 W/FIXT =	4,720 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*75,732*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*48,231*	*KWH/YR*
	272,637	*MJ/YR*		*173,633*	*MJ/YR*
BASELINE DEMAND	*17.34*	*KW*	*ECO DEMAND*	*11.04*	*KW*

NET ENERGY SAVINGS	**99,003 MJ/YR**	**NET DEMAND SAVINGS**	**$890 /YR**
NET ENERGY SAVINGS	**94 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,471 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6912-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
16	LAMPS @	75	WATTS =	1200 WATTS	16	LAMPS @	18	WATTS =	288 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*10,483 KWH* *37,740 MJ*	*ECO ENERGY CONSUMPTION*	*288 KWH* *1,037 MJ*
BASELINE DEMAND	*1.20 KW*	*ECO DEMAND*	*0.29 KW*

NET ENERGY SAVINGS	**36,703 MJ/YR**	**NET DEMAND SAVINGS**	**$129 /YR**
NET ENERGY SAVINGS	**35 MBTU/YR**	**NET DOLLAR SAVINGS**	**$344 /YR**

Estimate:	Bldg. 6912	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					70.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	25.48	$0	$700	$0	$0	$700
0207082121	DEMO. 2X4' FLUOR FIXTURES					90.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	43.65	$0	$1,202	$0	$0	$1,202
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					6.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	1.92	$0	$53	$0	$0	$53
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					16.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.13	$0	$114	$0	$0	$114
U02 SITEWORK		76	$0	$2,069	$0	$0	$2,069

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					36.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		50.54	$3,168	$1,386	$0	$0	$4,554
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					50.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		80.00	$4,500	$2,200	$0	$0	$6,700
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		68.00	$3,760	$1,880	$0	$0	$5,640
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					34.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		38.76	$2,482	$1,071	$0	$0	$3,553
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		8.40	$534	$231	$0	$0	$765
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				4.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	4.00	$102	$110	$0	$0	$212

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	256	$14,672	$7,043	$0	$0	$21,715
ESTIMATE TOTAL	332	$14,672	$9,112	$0	$0	$23,784
SALES TAX	5.00%	$734				
MATL MARKUP	-40.00%	($5,869)				
LABOR MARKUP	-13.40%		($1,221)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,537	$7,891	$0	$0	$17,428
CONTINGENCY	10.00%					$1,743
BOND	2.50%					$436
PROFIT	10.00%					$1,743
JOB TOTAL						$21,349

Estimate:	Bldg. 6912	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	76	$0	$2,069	$0	$0	$2,069
U16 ELECTRICAL	256	$14,672	$7,043	$0	$0	$21,715
TOTAL	332	$14,672	$9,112	$0	$0	$23,784
SALES TAX	5.00%	$734				
MATL MARKUP	-40.00%	($5,869)				
LABOR MARKUP	-13.40%		($1,221)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,537	$7,891	$0	$0	$17,428
CONTINGENCY	10.00%					$1,743
BOND	2.50%					$436
PROFIT	10.00%					$1,743
JOB TOTAL						$21,349

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6917
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
2 LAMP @	92 W/FIXT =	0	WATTS	0 2 LAMP @	58 W/FIXT =	0	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
8 4 LAMP @	184 W/FIXT =	1,472	WATTS	8 4 LAMP @	118 W/FIXT =	944	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS
BASELINE ENERGY CONSUMPTION		*4,286*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*2,749*	*KWH/YR*
		15,431	*MJ/YR*			*9,896*	*MJ/YR*
BASELINE DEMAND		*1.47*	*KW*	*ECO DEMAND*		*0.94*	*KW*

NET ENERGY SAVINGS	**5,535 MJ/YR**	**NET DEMAND SAVINGS**	**$75 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$107 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6917
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
28 2 LAMP U	92 W/FIXT =	2,576 WATTS	28 2 LAMP U @	58 W/FIXT =	1,624 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
16 3 LAMP @	137 W/FIXT =	2,192 WATTS	16 3 LAMP @	87 W/FIXT =	1,392 WATTS
51 4 LAMP @	184 W/FIXT =	9,384 WATTS	51 4 LAMP @	118 W/FIXT =	6,018 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	***77,890***	***KWH/YR***	***ECO ENERGY CONSUMPTION***	***49,594***	***KWH/YR***
	280,405	***MJ/YR***		***178,539***	***MJ/YR***
BASELINE DEMAND	***17.83***	***KW***	***ECO DEMAND***	***11.35***	***KW***

NET ENERGY SAVINGS	**101,865 MJ/YR**	**NET DEMAND SAVINGS**	**$916 /YR**
NET ENERGY SAVINGS	**97 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,514 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6917
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
37	2 LAMP U	92 W/FIXT =	3,404 WATTS	37	2 LAMP U @	58 W/FIXT =	2,146 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
50	2 LAMP @	92 W/FIXT =	4,600 WATTS	50	2 LAMP @	58 W/FIXT =	2,900 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	4 LAMP @	184 W/FIXT =	736 WATTS	4	4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*76,353*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*48,205* *KWH/YR*
	274,870	*MJ/YR*		*173,539* *MJ/YR*
BASELINE DEMAND	*8.74*	*KW*	*ECO DEMAND*	*5.52* *KW*

NET ENERGY SAVINGS	**101,331 MJ/YR**	**NET DEMAND SAVINGS**	**$455 /YR**
NET ENERGY SAVINGS	**96 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,050 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6917-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6917	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				127.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	46.23	$0	$1,270	$0	$0	$1,270
0207082121	DEMO. 2X4' FLUOR FIXTURES				107.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	51.90	$0	$1,428	$0	$0	$1,428
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				0.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				12.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK	102	$0	$2,783	$0	$0	$2,783

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					75.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		105.30	$6,600	$2,888	$0	$0	$9,488
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					28.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		42.28	$2,352	$1,162	$0	$0	$3,514
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					16.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		25.60	$1,440	$704	$0	$0	$2,144
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					63.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		107.10	$5,922	$2,961	$0	$0	$8,883
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					52.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		59.28	$3,796	$1,638	$0	$0	$5,434
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	346	$20,236	$9,518	$0	$0	$29,754
ESTIMATE TOTAL	448	$20,236	$12,301	$0	$0	$32,537
SALES TAX	5.00%	$1,012				
MATL MARKUP	-40.00%	($8,094)				
LABOR MARKUP	-13.40%		($1,648)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,153	$10,653	$0	$0	$23,806
CONTINGENCY	10.00%					$2,381
BOND	2.50%					$595
PROFIT	10.00%					$2,381
JOB TOTAL						$29,162

Estimate:	Bldg. 6917	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	102	$0	$2,783	$0	$0	$2,783
U16 ELECTRICAL	346	$20,236	$9,518	$0	$0	$29,754
TOTAL	448	$20,236	$12,301	$0	$0	$32,537
SALES TAX	5.00%	$1,012				
MATL MARKUP	-40.00%	($8,094)				
LABOR MARKUP	-13.40%		($1,648)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,153	$10,653	$0	$0	$23,806
CONTINGENCY	10.00%					$2,381
BOND	2.50%					$595
PROFIT	10.00%					$2,381
JOB TOTAL						$29,162

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6918
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
5	2 LAMP @	92 W/FIXT =	460 WATTS	5	2 LAMP @	58 W/FIXT =	290 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
5	4 LAMP @	184 W/FIXT =	920 WATTS	5	4 LAMP @	118 W/FIXT =	590 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*4,019*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*2,563* *KWH/YR*
	14,467	*MJ/YR*		*9,225* *MJ/YR*
BASELINE DEMAND	*1.38*	*KW*	*ECO DEMAND*	*0.88* *KW*

NET ENERGY SAVINGS	**5,242 MJ/YR**	**NET DEMAND SAVINGS**	**$71 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$101 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6918
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
41 2 LAMP @	92 W/FIXT =	3,772	WATTS	41 2 LAMP @	58 W/FIXT =	2,378	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
37 4 LAMP @	184 W/FIXT =	6,808	WATTS	37 4 LAMP @	118 W/FIXT =	4,366	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*46,213*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*29,458*	*KWH/YR*
	166,368	*MJ/YR*		*106,048*	*MJ/YR*
BASELINE DEMAND	*10.58*	*KW*	*ECO DEMAND*	*6.74*	*KW*

NET ENERGY SAVINGS	**60,320 MJ/YR**	**NET DEMAND SAVINGS**	**$542 /YR**
NET ENERGY SAVINGS	**57 MBTU/YR**	**NET DOLLAR SAVINGS**	**$896 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6918
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
50	2 LAMP U	92 W/FIXT =	4,600 WATTS	50	2 LAMP U @	58 W/FIXT =	2,900 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
11	3 LAMP @	137 W/FIXT =	1,507 WATTS	11	3 LAMP @	87 W/FIXT =	957 WATTS
4	4 LAMP @	184 W/FIXT =	736 WATTS	4	4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*91,929*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*58,086*	*KWH/YR*
	330,944	*MJ/YR*		*209,108*	*MJ/YR*
BASELINE DEMAND	*10.52*	*KW*	*ECO DEMAND*	*6.65*	*KW*

NET ENERGY SAVINGS	**121,836 MJ/YR**	**NET DEMAND SAVINGS**	**$548 /YR**
NET ENERGY SAVINGS	**115 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,263 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6918-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
9	LAMPS @	75	WATTS =	675 WATTS	9	LAMPS @	18	WATTS =	162 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*1,966 KWH* *7,076 MJ*	*ECO ENERGY CONSUMPTION*	*162 KWH* *583 MJ*
BASELINE DEMAND	*0.68 KW*	*ECO DEMAND*	*0.16 KW*

NET ENERGY SAVINGS	**6,493 MJ/YR**	**NET DEMAND SAVINGS**	**$73 /YR**
NET ENERGY SAVINGS	**6 MBTU/YR**	**NET DOLLAR SAVINGS**	**$111 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6918-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
15	LAMPS @	75	WATTS =	1125 WATTS	15	LAMPS @	18	WATTS =	270 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*9,828 KWH* *35,381 MJ*	*ECO ENERGY CONSUMPTION*	*270 KWH* *972 MJ*
BASELINE DEMAND	*1.13 KW*	*ECO DEMAND*	*0.27 KW*

NET ENERGY SAVINGS	34,409 MJ/YR	NET DEMAND SAVINGS	$121 /YR
NET ENERGY SAVINGS	33 MBTU/YR	NET DOLLAR SAVINGS	$323 /YR

Estimate: Bldg. 6918 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line # / Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119 DEMO. 2X2', 1X4' FLUOR FIXTURES					116.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	42.22	$0	$1,160	$0	$0	$1,160
0207082121 DEMO. 2X4' FLUOR FIXTURES					77.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	37.35	$0	$1,028	$0	$0	$1,028
0207082122 DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.00	$0	$0	$0	$0	$0
0207082123 DEMO. INCAND FIXTURES/EXIT LIGHTS					24.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	6.19	$0	$170	$0	$0	$170
U02 SITEWORK	86	$0	$2,358	$0	$0	$2,358

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					50.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		70.20	$4,400	$1,925	$0	$0	$6,325
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					20.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		30.20	$1,680	$830	$0	$0	$2,510
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					11.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		17.60	$990	$484	$0	$0	$1,474
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					46.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		78.20	$4,324	$2,162	$0	$0	$6,486
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					66.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		75.24	$4,818	$2,079	$0	$0	$6,897
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				12.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	12.00	$306	$330	$0	$0	$636

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	290	$16,644	$7,975	$0	$0	$24,619
ESTIMATE TOTAL	376	$16,644	$10,333	$0	$0	$26,977
SALES TAX	5.00%	$832				
MATL MARKUP	-40.00%	($6,658)				
LABOR MARKUP	-13.40%		($1,385)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,819	$8,948	$0	$0	$19,767
CONTINGENCY	10.00%					$1,977
BOND	2.50%					$494
PROFIT	10.00%					$1,977
JOB TOTAL						$24,215

Estimate:	Bldg. 6918	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	86	$0	$2,358	$0	$0	$2,358
U16 ELECTRICAL	290	$16,644	$7,975	$0	$0	$24,619
TOTAL	376	$16,644	$10,333	$0	$0	$26,977
SALES TAX	5.00%	$832				
MATL MARKUP	-40.00%	($6,658)				
LABOR MARKUP	-13.40%		($1,385)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,819	$8,948	$0	$0	$19,767
CONTINGENCY	10.00%					$1,977
BOND	2.50%					$494
PROFIT	10.00%					$1,977
JOB TOTAL						$24,215

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6919
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0 WATTS		0 2 LAMP U @	58 W/FIXT =	0 WATTS	
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0 WATTS		0 1 LAMP @	29 W/FIXT =	0 WATTS	
2 LAMP @	92 W/FIXT =	0 WATTS		0 2 LAMP @	58 W/FIXT =	0 WATTS	
4 3 LAMP @	137 W/FIXT =	548 WATTS		4 3 LAMP @	87 W/FIXT =	348 WATTS	
9 4 LAMP @	184 W/FIXT =	1,656 WATTS		9 4 LAMP @	118 W/FIXT =	1,062 WATTS	
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0 WATTS		0 2 LAMP @	125 W/FIXT =	0 WATTS	
BASELINE ENERGY CONSUMPTION		*6,418*	*KWH/YR*	*ECO ENERGY CONSUMPTION*		*4,106*	*KWH/YR*
		23,105	*MJ/YR*			*14,781*	*MJ/YR*
BASELINE DEMAND		*2.20*	*KW*	*ECO DEMAND*		*1.41*	*KW*

NET ENERGY SAVINGS	**8,324 MJ/YR**	**NET DEMAND SAVINGS**	**$112 /YR**
NET ENERGY SAVINGS	**8 MBTU/YR**	**NET DOLLAR SAVINGS**	**$161 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6919
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
52 2 LAMP @	92 W/FIXT =	4,784	WATTS	52 2 LAMP @	58 W/FIXT =	3,016	WATTS
36 3 LAMP @	137 W/FIXT =	4,932	WATTS	36 3 LAMP @	87 W/FIXT =	3,132	WATTS
42 4 LAMP @	184 W/FIXT =	7,728	WATTS	42 4 LAMP @	118 W/FIXT =	4,956	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*76,195*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*48,502*	*KWH/YR*
	274,303	*MJ/YR*		*174,608*	*MJ/YR*
BASELINE DEMAND	*17.44*	*KW*	*ECO DEMAND*	*11.10*	*KW*

NET ENERGY SAVINGS	**99,695 MJ/YR**	**NET DEMAND SAVINGS**	**$896 /YR**
NET ENERGY SAVINGS	**94 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,482 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6919
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
35	2 LAMP U	92 W/FIXT =	3,220 WATTS	35	2 LAMP U @	58 W/FIXT =	2,030 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
50	2 LAMP @	92 W/FIXT =	4,600 WATTS	50	2 LAMP @	58 W/FIXT =	2,900 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
6	4 LAMP @	184 W/FIXT =	1,104 WATTS	6	4 LAMP @	118 W/FIXT =	708 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS
BASELINE ENERGY CONSUMPTION			***77,960 KWH/YR***	***ECO ENERGY CONSUMPTION***			***49,254 KWH/YR***
			280,656 MJ/YR				***177,313 MJ/YR***
BASELINE DEMAND			***8.92 KW***	***ECO DEMAND***			***5.64 KW***

NET ENERGY SAVINGS	**103,343 MJ/YR**	**NET DEMAND SAVINGS**	**$465 /YR**
NET ENERGY SAVINGS	**98 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,071 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6919-BARRACKS
AREA: DINING AREA
LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
24	LAMPS @	75	WATTS =	1800 WATTS	24	LAMPS @	18	WATTS =	432 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*432 KWH* *1,555 MJ*
BASELINE DEMAND	*1.80 KW*	*ECO DEMAND*	*0.43 KW*

NET ENERGY SAVINGS	26,749 MJ/YR	NET DEMAND SAVINGS	$193 /YR
NET ENERGY SAVINGS	25 MBTU/YR	NET DOLLAR SAVINGS	$350 /YR

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6919-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
0	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
0	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
0	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
0	LAMPS @	135	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6919	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					97.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	35.31	$0	$970	$0	$0	$970
0207082121	DEMO. 2X4' FLUOR FIXTURES					97.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	47.05	$0	$1,295	$0	$0	$1,295
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					40.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	12.80	$0	$352	$0	$0	$352
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					36.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	9.29	$0	$256	$0	$0	$256
U02 SITEWORK		105	$0	$2,873	$0	$0	$2,873

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661308803	COMP FLUOR, 9" ROUND REC, 2 26W QT OPEN REFLECTOR					24.00 EA	
Unit values		2.29	0.00	63.00	0.00	0.00	63.00
Totals		54.96	$0	$1,512	$0	$0	$1,512
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					45.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		63.18	$3,960	$1,733	$0	$0	$5,693
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		64.00	$3,600	$1,760	$0	$0	$5,360
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					57.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		96.90	$5,358	$2,679	$0	$0	$8,037
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					52.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		59.28	$3,796	$1,638	$0	$0	$5,434
1661309909	SUR FLUOR 1X4' W 2 32W T8					40.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		45.60	$3,440	$1,260	$0	$0	$4,700
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50

Totals	0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD				12.00 EA	
Unit values	0.50	10.50	13.75	0.00	0.00	24.25
Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	390	$20,280	$10,747	$0	$0	$31,027
ESTIMATE TOTAL	495	$20,280	$13,620	$0	$0	$33,900
SALES TAX	5.00%	$1,014				
MATL MARKUP	-40.00%	($8,112)				
LABOR MARKUP	-13.40%		($1,825)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,182	$11,795	$0	$0	$24,977
CONTINGENCY	10.00%					$2,498
BOND	2.50%					$624
PROFIT	10.00%					$2,498
JOB TOTAL						$30,597

Estimate:	Bldg. 6919	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	105	$0	$2,873	$0	$0	$2,873
U16 ELECTRICAL	390	$20,280	$10,747	$0	$0	$31,027
TOTAL	495	$20,280	$13,620	$0	$0	$33,900
SALES TAX	5.00%	$1,014				
MATL MARKUP	-40.00%	($8,112)				
LABOR MARKUP	-13.40%		($1,825)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,182	$11,795	$0	$0	$24,977
CONTINGENCY	10.00%					$2,498
BOND	2.50%					$624
PROFIT	10.00%					$2,498
JOB TOTAL						$30,597

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6920
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
12	2 LAMP @	92 W/FIXT =	1,104 WATTS	12	2 LAMP @	58 W/FIXT =	696 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
5	4 LAMP @	184 W/FIXT =	920 WATTS	5	4 LAMP @	118 W/FIXT =	590 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*5,894*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*3,745* *KWH/YR*
	21,218	*MJ/YR*		*13,481* *MJ/YR*
BASELINE DEMAND	*2.02*	*KW*	*ECO DEMAND*	*1.29* *KW*

NET ENERGY SAVINGS	**7,737 MJ/YR**	**NET DEMAND SAVINGS**	**$104 /YR**
NET ENERGY SAVINGS	**7 MBTU/YR**	**NET DOLLAR SAVINGS**	**$150 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6920
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
36 2 LAMP @	92 W/FIXT =	3,312 WATTS	36 2 LAMP @	58 W/FIXT =	2,088 WATTS
40 3 LAMP @	137 W/FIXT =	5,480 WATTS	40 3 LAMP @	87 W/FIXT =	3,480 WATTS
25 4 LAMP @	184 W/FIXT =	4,600 WATTS	25 4 LAMP @	118 W/FIXT =	2,950 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*58,496*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*37,207*	*KWH/YR*
	210,587	*MJ/YR*		*133,944*	*MJ/YR*
BASELINE DEMAND	*13.39*	*KW*	*ECO DEMAND*	*8.52*	*KW*

NET ENERGY SAVINGS	**76,643 MJ/YR**	**NET DEMAND SAVINGS**	**$689 /YR**
NET ENERGY SAVINGS	**73 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,139 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6920
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
47	2 LAMP U	92 W/FIXT =	4,324 WATTS	47	2 LAMP U @	58 W/FIXT =	2,726 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*69,923*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,082* *KWH/YR*
	251,723	*MJ/YR*		*158,695* *MJ/YR*
BASELINE DEMAND	*8.00*	*KW*	*ECO DEMAND*	*5.05* *KW*

NET ENERGY SAVINGS	**93,028 MJ/YR**	**NET DEMAND SAVINGS**	**$418 /YR**
NET ENERGY SAVINGS	**88 MBTU/YR**	**NET DOLLAR SAVINGS**	**$964 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6920-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
19	LAMPS @	75	WATTS =	1425 WATTS	19 LAMPS @	18	WATTS =	342 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	135	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*12,449 KWH* *44,816 MJ*	*ECO ENERGY CONSUMPTION*	*342 KWH* *1,231 MJ*
BASELINE DEMAND	*1.43 KW*	*ECO DEMAND*	*0.34 KW*

NET ENERGY SAVINGS	**43,584 MJ/YR**	**NET DEMAND SAVINGS**	**$153 /YR**
NET ENERGY SAVINGS	**41 MBTU/YR**	**NET DOLLAR SAVINGS**	**$409 /YR**

Estimate:	Bldg. 6920	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					115.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	41.86	$0	$1,150	$0	$0	$1,150
0207082121	DEMO. 2X4' FLUOR FIXTURES					78.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	37.83	$0	$1,041	$0	$0	$1,041
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					12.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	3.84	$0	$106	$0	$0	$106
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					19.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.90	$0	$135	$0	$0	$135
U02 SITEWORK		89	$0	$2,432	$0	$0	$2,432

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					47.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		65.99	$4,136	$1,810	$0	$0	$5,946
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					8.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		12.08	$672	$332	$0	$0	$1,004
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		64.00	$3,600	$1,760	$0	$0	$5,360
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					30.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		51.00	$2,820	$1,410	$0	$0	$4,230
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					68.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		77.52	$4,964	$2,142	$0	$0	$7,106
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					6.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		6.84	$540	$189	$0	$0	$729
1661309919	PEND FLUOR 1X4' W 2 32W T8					6.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		8.40	$534	$231	$0	$0	$765
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				7.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	7.00	$179	$193	$0	$0	$372

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	299	$17,571	$8,232	$0	$0	$25,803
ESTIMATE TOTAL	388	$17,571	$10,664	$0	$0	$28,235
SALES TAX	5.00%	$879				
MATL MARKUP	-40.00%	($7,028)				
LABOR MARKUP	-13.40%		($1,429)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,421	$9,235	$0	$0	$20,656
CONTINGENCY	10.00%					$2,066
BOND	2.50%					$516
PROFIT	10.00%					$2,066
JOB TOTAL						$25,304

Estimate:	Bldg. 6920	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	89	$0	$2,432	$0	$0	$2,432
U16 ELECTRICAL	299	$17,571	$8,232	$0	$0	$25,803
TOTAL	388	$17,571	$10,664	$0	$0	$28,235
SALES TAX	5.00%	$879				
MATL MARKUP	-40.00%	($7,028)				
LABOR MARKUP	-13.40%		($1,429)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,421	$9,235	$0	$0	$20,656
CONTINGENCY	10.00%					$2,066
BOND	2.50%					$516
PROFIT	10.00%					$2,066
JOB TOTAL						$25,304

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6923
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
22 2 LAMP @	92 W/FIXT =	2,024 WATTS	22 2 LAMP @	58 W/FIXT =	1,276 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*5,894*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*3,716*	*KWH/YR*
	21,218	*MJ/YR*		*13,377*	*MJ/YR*
BASELINE DEMAND	*2.02*	*KW*	*ECO DEMAND*	*1.28*	*KW*

NET ENERGY SAVINGS	**7,841 MJ/YR**	**NET DEMAND SAVINGS**	**$106 /YR**
NET ENERGY SAVINGS	**7 MBTU/YR**	**NET DOLLAR SAVINGS**	**$152 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6923
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
25 2 LAMP @	92 W/FIXT =	2,300	WATTS	25 2 LAMP @	58 W/FIXT =	1,450	WATTS
16 3 LAMP @	137 W/FIXT =	2,192	WATTS	16 3 LAMP @	87 W/FIXT =	1,392	WATTS
62 4 LAMP @	184 W/FIXT =	11,408	WATTS	62 4 LAMP @	118 W/FIXT =	7,316	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*69,451*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,370*	*KWH/YR*
	250,024	*MJ/YR*		*159,733*	*MJ/YR*
BASELINE DEMAND	*15.90*	*KW*	*ECO DEMAND*	*10.16*	*KW*

NET ENERGY SAVINGS	**90,292 MJ/YR**	**NET DEMAND SAVINGS**	**$812 /YR**
NET ENERGY SAVINGS	**86 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,342 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6923
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
34 2 LAMP U	92 W/FIXT =	3,128 WATTS	34 2 LAMP U @	58 W/FIXT =	1,972 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
50 2 LAMP @	92 W/FIXT =	4,600 WATTS	50 2 LAMP @	58 W/FIXT =	2,900 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
5 4 LAMP @	184 W/FIXT =	920 WATTS	5 4 LAMP @	118 W/FIXT =	590 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*75,549*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*47,716*	*KWH/YR*
	271,976	*MJ/YR*		*171,778*	*MJ/YR*
BASELINE DEMAND	*8.65*	*KW*	*ECO DEMAND*	*5.46*	*KW*

NET ENERGY SAVINGS	**100,198 MJ/YR**	**NET DEMAND SAVINGS**	**$450 /YR**
NET ENERGY SAVINGS	**95 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,039 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6923-BARRACKS
AREA: HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	4	LAMPS @	26	WATTS =	104 WATTS
4	LAMPS @	100	WATTS =	400 WATTS					

BASELINE ENERGY CONSUMPTION	*3,494 KWH* *12,580 MJ*	*ECO ENERGY CONSUMPTION*	*104 KWH* *374 MJ*
BASELINE DEMAND	*0.40 KW*	*ECO DEMAND*	*0.10 KW*

NET ENERGY SAVINGS	**12,205 MJ/YR**	**NET DEMAND SAVINGS**	**$42 /YR**
NET ENERGY SAVINGS	**12 MBTU/YR**	**NET DOLLAR SAVINGS**	**$114 /YR**

Estimate:	Bldg. 6923	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					113.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	41.13	$0	$1,130	$0	$0	$1,130
0207082121	DEMO. 2X4' FLUOR FIXTURES					87.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	42.20	$0	$1,161	$0	$0	$1,161
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					14.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	4.48	$0	$123	$0	$0	$123
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					4.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	1.03	$0	$28	$0	$0	$28
U02 SITEWORK		89	$0	$2,442	$0	$0	$2,442

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					73.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		102.49	$6,424	$2,811	$0	$0	$9,235
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					4.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		6.04	$336	$166	$0	$0	$502
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					16.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		25.60	$1,440	$704	$0	$0	$2,144
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					67.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		113.90	$6,298	$3,149	$0	$0	$9,447
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		45.60	$2,920	$1,260	$0	$0	$4,180
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					14.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		19.60	$1,246	$539	$0	$0	$1,785
1661388040	COMP FLUOR LAMP, 26 W QUAD					0.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	0.00	$0	$0	$0	$0	$0
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				4.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	4.00	$102	$110	$0	$0	$212

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	318	$18,766	$8,739	$0	$0	$27,505
ESTIMATE TOTAL	407	$18,766	$11,181	$0	$0	$29,947
SALES TAX	5.00%	$938				
MATL MARKUP	-40.00%	($7,506)				
LABOR MARKUP	-13.40%		($1,498)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$12,198	$9,683	$0	$0	$21,881
CONTINGENCY	10.00%					$2,188
BOND	2.50%					$547
PROFIT	10.00%					$2,188
JOB TOTAL						$26,804

Estimate:	Bldg. 6923	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	89	$0	$2,442	$0	$0	$2,442
U16 ELECTRICAL	318	$18,766	$8,739	$0	$0	$27,505
TOTAL	407	$18,766	$11,181	$0	$0	$29,947
SALES TAX	5.00%	$938				
MATL MARKUP	-40.00%	($7,506)				
LABOR MARKUP	-13.40%		($1,498)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$12,198	$9,683	$0	$0	$21,881
CONTINGENCY	10.00%					$2,188
BOND	2.50%					$547
PROFIT	10.00%					$2,188
JOB TOTAL						$26,804

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6927
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
2 4 LAMP @	184 W/FIXT =	368 WATTS	2 4 LAMP @	118 W/FIXT =	236 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*1,072*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*687*	*KWH/YR*
	3,858	*MJ/YR*		*2,474*	*MJ/YR*
BASELINE DEMAND	*0.37*	*KW*	*ECO DEMAND*	*0.24*	*KW*

NET ENERGY SAVINGS	**1,384 MJ/YR**	**NET DEMAND SAVINGS**	**$19 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$27 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6927
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
53	2 LAMP U	92 W/FIXT =	4,876 WATTS	53	2 LAMP U @	58 W/FIXT =	3,074 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
77	2 LAMP @	92 W/FIXT =	7,084 WATTS	77	2 LAMP @	58 W/FIXT =	4,466 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
58	4 LAMP @	184 W/FIXT =	10,672 WATTS	58	4 LAMP @	118 W/FIXT =	6,844 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*98,857*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*62,829*	*KWH/YR*
	355,884	*MJ/YR*		*226,186*	*MJ/YR*
BASELINE DEMAND	*22.63*	*KW*	*ECO DEMAND*	*14.38*	*KW*

NET ENERGY SAVINGS	**129,698 MJ/YR**	**NET DEMAND SAVINGS**	**$1,166 /YR**
NET ENERGY SAVINGS	**123 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,928 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6927
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
29	2 LAMP U	92 W/FIXT =	2,668 WATTS	29	2 LAMP U @	58 W/FIXT =	1,682 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
50	2 LAMP @	92 W/FIXT =	4,600 WATTS	50	2 LAMP @	58 W/FIXT =	2,900 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*63,493*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*40,028*	*KWH/YR*
	228,576	*MJ/YR*		*144,102*	*MJ/YR*
BASELINE DEMAND	*7.27*	*KW*	*ECO DEMAND*	*4.58*	*KW*

NET ENERGY SAVINGS	**84,474 MJ/YR**	**NET DEMAND SAVINGS**	**$380 /YR**
NET ENERGY SAVINGS	**80 MBTU/YR**	**NET DOLLAR SAVINGS**	**$876 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6927-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR/EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: EXIT SIGN REPLACEMENT

BUILDING #: 6927 - BARRACKS

ELECTRIC COSTS:

ENERGY CHARGE	$0.0211	PER KWH
DEMAND CHARGE	$11.78	PER KW

INCANDESCENT EXIT SIGNS		FLUORESCENT EXIT SIGNS		REPLACEMENT FIXTURE	
# EXIT SIGNS	2	# EXIT SIGNS	0	# EXIT SIGNS	2
WATTAGE	30	WATTAGE	18	WATTAGE	3

BASELINE ENERGY CONSUMPTION	*526 KWH/YR*	*ECO ENERGY CONSUMPTION*	*53 KWH/YR*
	1,892 MJ/YR		*189 MJ/YR*
BASELINE DEMAND	*0.06 KW*	*ECO DEMAND*	*0.01 KW*

NET ENERGY SAVINGS	**1,703 MJ/YR**	**NET DEMAND SAVINGS**	**$8 /YR**
NET ENERGY SAVINGS	**1.61 MBTU/YR**	**NET DOLLAR SAVINGS**	**$18 /YR**

Estimate:	Bldg. 6927	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					102.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	37.13	$0	$1,020	$0	$0	$1,020
0207082121	DEMO. 2X4' FLUOR FIXTURES					94.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	45.59	$0	$1,255	$0	$0	$1,255
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					73.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	23.36	$0	$642	$0	$0	$642
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					14.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.61	$0	$99	$0	$0	$99
U02 SITEWORK		110	$0	$3,016	$0	$0	$3,016

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					2.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		2.00	$370	$55	$0	$0	$425
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					92.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		129.17	$8,096	$3,542	$0	$0	$11,638
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					34.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		51.34	$2,856	$1,411	$0	$0	$4,267
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					60.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		102.00	$5,640	$2,820	$0	$0	$8,460
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					10.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		11.40	$730	$315	$0	$0	$1,045
1661309909	SUR FLUOR 1X4' W 2 32W T8					40.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		45.60	$3,440	$1,260	$0	$0	$4,700
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					33.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		46.20	$2,937	$1,271	$0	$0	$4,208
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	394	$24,195	$10,839	$0	$0	$35,034
	ESTIMATE TOTAL	504	$24,195	$13,855	$0	$0	$38,050
	SALES TAX	5.00%	$1,210				
	MATL MARKUP	-40.00%	($9,678)				
	LABOR MARKUP	-13.40%		($1,857)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$15,727	$11,998	$0	$0	$27,725
	CONTINGENCY	10.00%					$2,773
	BOND	2.50%					$693
	PROFIT	10.00%					$2,773
	JOB TOTAL						$33,963

Estimate: Bldg. 6927 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	110	$0	$3,016	$0	$0	$3,016
U16 ELECTRICAL	394	$24,195	$10,839	$0	$0	$35,034
TOTAL	504	$24,195	$13,855	$0	$0	$38,050
SALES TAX	5.00%	$1,210				
MATL MARKUP	-40.00%	($9,678)				
LABOR MARKUP	-13.40%		($1,857)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,727	$11,998	$0	$0	$27,725
CONTINGENCY	10.00%					$2,773
BOND	2.50%					$693
PROFIT	10.00%					$2,773
JOB TOTAL						$33,963

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6928
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
	2 LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
8	3 LAMP @	137 W/FIXT =	1,096 WATTS	8	3 LAMP @	87 W/FIXT =	696 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*3,192*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*2,027* *KWH/YR*
	11,490	*MJ/YR*		*7,296* *MJ/YR*
BASELINE DEMAND	*1.10*	*KW*	*ECO DEMAND*	*0.70* *KW*

NET ENERGY SAVINGS	**4,193 MJ/YR**	**NET DEMAND SAVINGS**	**$57 /YR**
NET ENERGY SAVINGS	**4 MBTU/YR**	**NET DOLLAR SAVINGS**	**$81 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6928
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
1 2 LAMP U	92 W/FIXT =	92 WATTS	1 2 LAMP U @	58 W/FIXT =	58 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
36 2 LAMP @	92 W/FIXT =	3,312 WATTS	36 2 LAMP @	58 W/FIXT =	2,088 WATTS
42 3 LAMP @	137 W/FIXT =	5,754 WATTS	42 3 LAMP @	87 W/FIXT =	3,654 WATTS
34 4 LAMP @	184 W/FIXT =	6,256 WATTS	34 4 LAMP @	118 W/FIXT =	4,012 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*67,328*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*42,859*	*KWH/YR*
	242,382	*MJ/YR*		*154,292*	*MJ/YR*
BASELINE DEMAND	*15.41*	*KW*	*ECO DEMAND*	*9.81*	*KW*

NET ENERGY SAVINGS	**88,090 MJ/YR**	**NET DEMAND SAVINGS**	**$792 /YR**
NET ENERGY SAVINGS	**83 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,309 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6928
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
46 2 LAMP U	92 W/FIXT =	4,232 WATTS	46 2 LAMP U @	58 W/FIXT =	2,668 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*69,119*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*43,575*	*KWH/YR*
	248,829	*MJ/YR*		*156,871*	*MJ/YR*
BASELINE DEMAND	*7.91*	*KW*	*ECO DEMAND*	*4.99*	*KW*

NET ENERGY SAVINGS	**91,959 MJ/YR**	**NET DEMAND SAVINGS**	**$413 /YR**
NET ENERGY SAVINGS	**87 MBTU/YR**	**NET DOLLAR SAVINGS**	**$953 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6928-BARRACKS
AREA: SUPPLY ROOM & RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
LAMPS @	52	WATTS =	0	WATTS	4 LAMPS @	13	WATTS =	52 WATTS
4 LAMPS @	60	WATTS =	240	WATTS				
8 LAMPS @	75	WATTS =	600	WATTS	8 LAMPS @	18	WATTS =	144 WATTS
LAMPS @	90	WATTS =	0	WATTS	0 LAMPS @	26	WATTS =	0 WATTS
LAMPS @	100	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*2,446 KWH* *8,806 MJ*	*ECO ENERGY CONSUMPTION*	*196 KWH* *706 MJ*
BASELINE DEMAND	*0.84 KW*	*ECO DEMAND*	*0.20 KW*

NET ENERGY SAVINGS	8,100 MJ/YR	NET DEMAND SAVINGS	$91 /YR
NET ENERGY SAVINGS	8 MBTU/YR	NET DOLLAR SAVINGS	$139 /YR

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6928-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
17	LAMPS @	75	WATTS =	1275 WATTS	17 LAMPS @	18	WATTS =	306 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***11,138 KWH***	***ECO ENERGY CONSUMPTION***	***306 KWH***
	40,098 MJ		***1,102 MJ***
BASELINE DEMAND	***1.28 KW***	***ECO DEMAND***	***0.31 KW***

NET ENERGY SAVINGS	**38,997 MJ/YR**	**NET DEMAND SAVINGS**	**$137 /YR**
NET ENERGY SAVINGS	**37 MBTU/YR**	**NET DOLLAR SAVINGS**	**$366 /YR**

Estimate:	Bldg. 6928	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					123.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	44.77	$0	$1,230	$0	$0	$1,230
0207082121	DEMO. 2X4' FLUOR FIXTURES					84.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	40.74	$0	$1,121	$0	$0	$1,121
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					29.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	7.48	$0	$206	$0	$0	$206
U02 SITEWORK		93	$0	$2,557	$0	$0	$2,557

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					47.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		65.99	$4,136	$1,810	$0	$0	$5,946
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					50.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		80.00	$4,500	$2,200	$0	$0	$6,700
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					34.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		57.80	$3,196	$1,598	$0	$0	$4,794
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					76.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		86.64	$5,548	$2,394	$0	$0	$7,942
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				17.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	17.00	$434	$468	$0	$0	$902

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	314	$17,940	$8,635	$0	$0	$26,575
ESTIMATE TOTAL	407	$17,940	$11,192	$0	$0	$29,132
SALES TAX	5.00%	$897				
MATL MARKUP	-40.00%	($7,176)				
LABOR MARKUP	-13.40%		($1,500)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,661	$9,692	$0	$0	$21,353
CONTINGENCY	10.00%					$2,135
BOND	2.50%					$534
PROFIT	10.00%					$2,135
JOB TOTAL						$26,158

Estimate: Bldg. 6928 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	93	$0	$2,557	$0	$0	$2,557
U16 ELECTRICAL	314	$17,940	$8,635	$0	$0	$26,575
TOTAL	407	$17,940	$11,192	$0	$0	$29,132
SALES TAX	5.00%	$897				
MATL MARKUP	-40.00%	($7,176)				
LABOR MARKUP	-13.40%		($1,500)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,661	$9,692	$0	$0	$21,353
CONTINGENCY	10.00%					$2,135
BOND	2.50%					$534
PROFIT	10.00%					$2,135
JOB TOTAL						$26,158

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6929
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
4	2 LAMP U	92 W/FIXT =	368 WATTS	4	2 LAMP U @	58 W/FIXT =	232 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
30	2 LAMP @	92 W/FIXT =	2,760 WATTS	30	2 LAMP @	58 W/FIXT =	1,740 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
9	4 LAMP @	184 W/FIXT =	1,656 WATTS	9	4 LAMP @	118 W/FIXT =	1,062 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*13,931*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*8,835 KWH/YR*
	50,152	*MJ/YR*		*31,806 MJ/YR*
BASELINE DEMAND	*4.78*	*KW*	*ECO DEMAND*	*3.03 KW*

NET ENERGY SAVINGS	**18,346 MJ/YR**	**NET DEMAND SAVINGS**	**$247 /YR**
NET ENERGY SAVINGS	**17 MBTU/YR**	**NET DOLLAR SAVINGS**	**$355 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6929
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
18	2 LAMP @	92 W/FIXT =	1,656 WATTS	18	2 LAMP @	58 W/FIXT =	1,044 WATTS
20	3 LAMP @	137 W/FIXT =	2,740 WATTS	20	3 LAMP @	87 W/FIXT =	1,740 WATTS
24	4 LAMP @	184 W/FIXT =	4,416 WATTS	24	4 LAMP @	118 W/FIXT =	2,832 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*38,491*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*24,531* *KWH/YR*
	138,567	*MJ/YR*		*88,310* *MJ/YR*
BASELINE DEMAND	*8.81*	*KW*	*ECO DEMAND*	*5.62* *KW*

NET ENERGY SAVINGS	**50,256 MJ/YR**	**NET DEMAND SAVINGS**	**$452 /YR**
NET ENERGY SAVINGS	**48 MBTU/YR**	**NET DOLLAR SAVINGS**	**$747 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6929
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
48	2 LAMP U	92 W/FIXT =	4,416 WATTS	48	2 LAMP U @	58 W/FIXT =	2,784 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*70,727*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,589* *KWH/YR*
	254,616	*MJ/YR*		*160,519* *MJ/YR*
BASELINE DEMAND	*8.10*	*KW*	*ECO DEMAND*	*5.10* *KW*

NET ENERGY SAVINGS	**94,097 MJ/YR**	**NET DEMAND SAVINGS**	**$423 /YR**
NET ENERGY SAVINGS	**89 MBTU/YR**	**NET DOLLAR SAVINGS**	**$976 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6929-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH* *28,305 MJ*	*ECO ENERGY CONSUMPTION*	*216 KWH* *778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6929	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				118.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	42.95	$0	$1,180	$0	$0	$1,180
0207082121	DEMO. 2X4' FLUOR FIXTURES				59.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	28.62	$0	$788	$0	$0	$788
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				16.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	5.12	$0	$141	$0	$0	$141
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				12.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK	80	$0	$2,194	$0	$0	$2,194

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					52.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		73.01	$4,576	$2,002	$0	$0	$6,578
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					6.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		9.06	$504	$249	$0	$0	$753
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					20.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		32.00	$1,800	$880	$0	$0	$2,680
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					33.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		56.10	$3,102	$1,551	$0	$0	$4,653
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					66.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		75.24	$4,818	$2,079	$0	$0	$6,897
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					16.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		22.40	$1,424	$616	$0	$0	$2,040
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	274	$16,350	$7,542	$0	$0	$23,892
	ESTIMATE TOTAL	354	$16,350	$9,736	$0	$0	$26,086
	SALES TAX	5.00%	$818				
	MATL MARKUP	-40.00%	($6,540)				
	LABOR MARKUP	-13.40%		($1,305)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$10,628	$8,431	$0	$0	$19,059
	CONTINGENCY	10.00%					$1,906
	BOND	2.50%					$476
	PROFIT	10.00%					$1,906
	JOB TOTAL						$23,347

Estimate:	Bldg. 6929	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	80	$0	$2,194	$0	$0	$2,194
U16 ELECTRICAL	274	$16,350	$7,542	$0	$0	$23,892
TOTAL	354	$16,350	$9,736	$0	$0	$26,086
SALES TAX	5.00%	$818				
MATL MARKUP	-40.00%	($6,540)				
LABOR MARKUP	-13.40%		($1,305)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,628	$8,431	$0	$0	$19,059
CONTINGENCY	10.00%					$1,906
BOND	2.50%					$476
PROFIT	10.00%					$1,906
JOB TOTAL						$23,347

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6930
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
2 4 LAMP @	184 W/FIXT =	368 WATTS	2 4 LAMP @	118 W/FIXT =	236 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*1,072*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*687*	*KWH/YR*
	3,858	*MJ/YR*		*2,474*	*MJ/YR*
BASELINE DEMAND	*0.37*	*KW*	*ECO DEMAND*	*0.24*	*KW*

NET ENERGY SAVINGS	**1,384 MJ/YR**	**NET DEMAND SAVINGS**	**$19 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$27 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6930
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
52	2 LAMP U	92 W/FIXT =	4,784 WATTS	52	2 LAMP U @	58 W/FIXT =	3,016 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
47	2 LAMP @	92 W/FIXT =	4,324 WATTS	47	2 LAMP @	58 W/FIXT =	2,726 WATTS
42	3 LAMP @	137 W/FIXT =	5,754 WATTS	42	3 LAMP @	87 W/FIXT =	3,654 WATTS
48	4 LAMP @	184 W/FIXT =	8,832 WATTS	48	4 LAMP @	118 W/FIXT =	5,664 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*103,495*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*65,782*	*KWH/YR*
	372,583	*MJ/YR*		*236,815*	*MJ/YR*
BASELINE DEMAND	*23.69*	*KW*	*ECO DEMAND*	*15.06*	*KW*

NET ENERGY SAVINGS	**135,768 MJ/YR**	**NET DEMAND SAVINGS**	**$1,221 /YR**
NET ENERGY SAVINGS	**129 MBTU/YR**	**NET DOLLAR SAVINGS**	**$2,018 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6930
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
46 2 LAMP U	92 W/FIXT =	4,232 WATTS	46 2 LAMP U @	58 W/FIXT =	2,668 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*69,119*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*43,575*	*KWH/YR*
	248,829	*MJ/YR*		*156,871*	*MJ/YR*
BASELINE DEMAND	*7.91*	*KW*	*ECO DEMAND*	*4.99*	*KW*

NET ENERGY SAVINGS	**91,959 MJ/YR**	**NET DEMAND SAVINGS**	**$413 /YR**
NET ENERGY SAVINGS	**87 MBTU/YR**	**NET DOLLAR SAVINGS**	**$953 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6930-BARRACKS
AREA: OFFICES
LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
5	LAMPS @	75	WATTS =	375 WATTS	5	LAMPS @	18	WATTS =	90 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***1,638 KWH***	***ECO ENERGY CONSUMPTION***	***90 KWH***
	5,897 MJ		***324 MJ***
BASELINE DEMAND	***0.38 KW***	***ECO DEMAND***	***0.09 KW***

NET ENERGY SAVINGS	**5,573 MJ/YR**	**NET DEMAND SAVINGS**	**$40 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$73 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6930-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH*	*ECO ENERGY CONSUMPTION*	*216 KWH*
	28,305 MJ		*778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6930	Date:	8 July 1994	
Description:	Hammerhead Barracks			
Project:	Lighting Study	Bid Date:		
Location:	Ft. Campbell	Job #:		
Sq. footage:		City indx:		

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					145.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	52.78	$0	$1,450	$0	$0	$1,450
0207082121	DEMO. 2X4' FLUOR FIXTURES					92.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	44.62	$0	$1,228	$0	$0	$1,228
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					40.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	12.80	$0	$352	$0	$0	$352
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					17.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.39	$0	$121	$0	$0	$121
U02 SITEWORK		115	$0	$3,151	$0	$0	$3,151

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					98.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		137.59	$8,624	$3,773	$0	$0	$12,397
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					42.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		67.20	$3,780	$1,848	$0	$0	$5,628
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					50.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		85.00	$4,700	$2,350	$0	$0	$7,050
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					47.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		53.58	$3,431	$1,481	$0	$0	$4,912
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					40.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		56.00	$3,560	$1,540	$0	$0	$5,100
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				5.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	5.00	$128	$138	$0	$0	$266

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	411	$24,349	$11,295	$0	$0	$35,644
ESTIMATE TOTAL	526	$24,349	$14,446	$0	$0	$38,795
SALES TAX	5.00%	$1,217				
MATL MARKUP	-40.00%	($9,740)				
LABOR MARKUP	-13.40%		($1,936)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,827	$12,510	$0	$0	$28,337
CONTINGENCY	10.00%					$2,834
BOND	2.50%					$708
PROFIT	10.00%					$2,834
JOB TOTAL						$34,713

Estimate:	Bldg. 6930	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	115	$0	$3,151	$0	$0	$3,151
U16 ELECTRICAL	411	$24,349	$11,295	$0	$0	$35,644
TOTAL	526	$24,349	$14,446	$0	$0	$38,795
SALES TAX	5.00%	$1,217				
MATL MARKUP	-40.00%	($9,740)				
LABOR MARKUP	-13.40%		($1,936)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$15,827	$12,510	$0	$0	$28,337
CONTINGENCY	10.00%					$2,834
BOND	2.50%					$708
PROFIT	10.00%					$2,834
JOB TOTAL						$34,713

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6931
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
7 4 LAMP @	184 W/FIXT =	1,288 WATTS	7 4 LAMP @	118 W/FIXT =	826 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*3,751*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*2,405*	*KWH/YR*
	13,502	*MJ/YR*		*8,659*	*MJ/YR*
BASELINE DEMAND	*1.29*	*KW*	*ECO DEMAND*	*0.83*	*KW*

NET ENERGY SAVINGS	**4,843 MJ/YR**	**NET DEMAND SAVINGS**	**$65 /YR**
NET ENERGY SAVINGS	**5 MBTU/YR**	**NET DOLLAR SAVINGS**	**$94 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6931
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
80 2 LAMP @	92 W/FIXT =	7,360	WATTS	80 2 LAMP @	58 W/FIXT =	4,640	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
5 4 LAMP @	184 W/FIXT =	920	WATTS	5 4 LAMP @	118 W/FIXT =	590	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*36,167*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*22,845* *KWH/YR*
	130,201	*MJ/YR*		*82,241* *MJ/YR*
BASELINE DEMAND	*8.28*	*KW*	*ECO DEMAND*	*5.23* *KW*

NET ENERGY SAVINGS	**47,961 MJ/YR**	**NET DEMAND SAVINGS**	**$431 /YR**
NET ENERGY SAVINGS	**45 MBTU/YR**	**NET DOLLAR SAVINGS**	**$713 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6931
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
45	2 LAMP U	92 W/FIXT =	4,140 WATTS	45	2 LAMP U @	58 W/FIXT =	2,610 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*68,316*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*43,068* *KWH/YR*
	245,936	*MJ/YR*		*155,047* *MJ/YR*
BASELINE DEMAND	*7.82*	*KW*	*ECO DEMAND*	*4.93* *KW*

NET ENERGY SAVINGS	**90,889 MJ/YR**	**NET DEMAND SAVINGS**	**$409 /YR**
NET ENERGY SAVINGS	**86 MBTU/YR**	**NET DOLLAR SAVINGS**	**$942 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6931-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6931	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					103.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	37.49	$0	$1,030	$0	$0	$1,030
0207082121	DEMO. 2X4' FLUOR FIXTURES					74.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	35.89	$0	$988	$0	$0	$988
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					12.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK		77	$0	$2,103	$0	$0	$2,103

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					45.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		63.18	$3,960	$1,733	$0	$0	$5,693
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					62.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		93.62	$5,208	$2,573	$0	$0	$7,781
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					12.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		20.40	$1,128	$564	$0	$0	$1,692
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					58.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		66.12	$4,234	$1,827	$0	$0	$6,061
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	250	$14,656	$6,862	$0	$0	$21,518
	ESTIMATE TOTAL	327	$14,656	$8,965	$0	$0	$23,621
	SALES TAX	5.00%	$733				
	MATL MARKUP	-40.00%	($5,862)				
	LABOR MARKUP	-13.40%		($1,201)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$9,526	$7,764	$0	$0	$17,290
	CONTINGENCY	10.00%					$1,729
	BOND	2.50%					$432
	PROFIT	10.00%					$1,729
	JOB TOTAL						$21,180

Estimate:	Bldg. 6931	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	77	$0	$2,103	$0	$0	$2,103
U16 ELECTRICAL	250	$14,656	$6,862	$0	$0	$21,518
TOTAL	327	$14,656	$8,965	$0	$0	$23,621
SALES TAX	5.00%	$733				
MATL MARKUP	-40.00%	($5,862)				
LABOR MARKUP	-13.40%		($1,201)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$9,526	$7,764	$0	$0	$17,290
CONTINGENCY	10.00%					$1,729
BOND	2.50%					$432
PROFIT	10.00%					$1,729
JOB TOTAL						$21,180

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6936
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
	2 LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
	3 LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	4 LAMP @	184 W/FIXT =	736 WATTS	4	4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*2,143*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,374* *KWH/YR*
	7,716	*MJ/YR*		*4,948* *MJ/YR*
BASELINE DEMAND	*0.74*	*KW*	*ECO DEMAND*	*0.47* *KW*

NET ENERGY SAVINGS	**2,768 MJ/YR**	**NET DEMAND SAVINGS**	**$37 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$54 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6936
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
31 2 LAMP @	92 W/FIXT =	2,852	WATTS	31 2 LAMP @	58 W/FIXT =	1,798	WATTS
28 3 LAMP @	137 W/FIXT =	3,836	WATTS	28 3 LAMP @	87 W/FIXT =	2,436	WATTS
6 4 LAMP @	184 W/FIXT =	1,104	WATTS	6 4 LAMP @	118 W/FIXT =	708	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*34,035*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*21,587*	*KWH/YR*
	122,528	*MJ/YR*		*77,712*	*MJ/YR*
BASELINE DEMAND	*7.79*	*KW*	*ECO DEMAND*	*4.94*	*KW*

NET ENERGY SAVINGS	**44,816 MJ/YR**	**NET DEMAND SAVINGS**	**$403 /YR**
NET ENERGY SAVINGS	**42 MBTU/YR**	**NET DOLLAR SAVINGS**	**$666 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6936
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
33 2 LAMP U	92 W/FIXT =	3,036 WATTS	33 2 LAMP U @	58 W/FIXT =	1,914 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
2 4 LAMP @	184 W/FIXT =	368 WATTS	2 4 LAMP @	118 W/FIXT =	236 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*61,886*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*39,050*	*KWH/YR*
	222,789	*MJ/YR*		*140,580*	*MJ/YR*
BASELINE DEMAND	*7.08*	*KW*	*ECO DEMAND*	*4.47*	*KW*

NET ENERGY SAVINGS	**82,209 MJ/YR**	**NET DEMAND SAVINGS**	**$370 /YR**
NET ENERGY SAVINGS	**78 MBTU/YR**	**NET DOLLAR SAVINGS**	**$852 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6936-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
0	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
0	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
0	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
0	LAMPS @	100	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6936	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					104.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	37.86	$0	$1,040	$0	$0	$1,040
0207082121	DEMO. 2X4' FLUOR FIXTURES					40.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	19.40	$0	$534	$0	$0	$534
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					12.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.10	$0	$85	$0	$0	$85
U02 SITEWORK		61	$0	$1,659	$0	$0	$1,659

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					33.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		46.33	$2,904	$1,271	$0	$0	$4,175
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					28.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		44.80	$2,520	$1,232	$0	$0	$3,752
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					12.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		20.40	$1,128	$564	$0	$0	$1,692
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					71.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		80.94	$5,183	$2,237	$0	$0	$7,420
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				0.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	0.00	$0	$0	$0	$0	$0

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	199	$11,861	$5,469	$0	$0	$17,330
ESTIMATE TOTAL	260	$11,861	$7,128	$0	$0	$18,989
SALES TAX	5.00%	$593				
MATL MARKUP	-40.00%	($4,744)				
LABOR MARKUP	-13.40%		($955)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,710	$6,173	$0	$0	$13,882
CONTINGENCY	10.00%					$1,388
BOND	2.50%					$347
PROFIT	10.00%					$1,388
JOB TOTAL						$17,006

Estimate:	Bldg. 6936	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	61	$0	$1,659	$0	$0	$1,659
U16 ELECTRICAL	199	$11,861	$5,469	$0	$0	$17,330
TOTAL	260	$11,861	$7,128	$0	$0	$18,989
SALES TAX	5.00%	$593				
MATL MARKUP	-40.00%	($4,744)				
LABOR MARKUP	-13.40%		($955)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$7,710	$6,173	$0	$0	$13,882
CONTINGENCY	10.00%					$1,388
BOND	2.50%					$347
PROFIT	10.00%					$1,388
JOB TOTAL						$17,006

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6937
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 4 LAMP @	184 W/FIXT =	736 WATTS	4 4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*2,143*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,374*	*KWH/YR*
	7,716	*MJ/YR*		*4,948*	*MJ/YR*
BASELINE DEMAND	*0.74*	*KW*	*ECO DEMAND*	*0.47*	*KW*

NET ENERGY SAVINGS	**2,768 MJ/YR**	**NET DEMAND SAVINGS**	**$37 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$54 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6937
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
2 LAMP @	92 W/FIXT =	0	WATTS	0 2 LAMP @	58 W/FIXT =	0	WATTS
24 3 LAMP @	137 W/FIXT =	3,288	WATTS	24 3 LAMP @	87 W/FIXT =	2,088	WATTS
42 4 LAMP @	184 W/FIXT =	7,728	WATTS	42 4 LAMP @	118 W/FIXT =	4,956	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*48,118*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*30,768* *KWH/YR*
	173,224	*MJ/YR*		*110,765* *MJ/YR*
BASELINE DEMAND	*11.02*	*KW*	*ECO DEMAND*	*7.04* *KW*

NET ENERGY SAVINGS	**62,459 MJ/YR**	**NET DEMAND SAVINGS**	**$561 /YR**
NET ENERGY SAVINGS	**59 MBTU/YR**	**NET DOLLAR SAVINGS**	**$928 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6937
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
49 2 LAMP U	92 W/FIXT =	4,508 WATTS	49 2 LAMP U @	58 W/FIXT =	2,842 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
56 2 LAMP @	92 W/FIXT =	5,152 WATTS	56 2 LAMP @	58 W/FIXT =	3,248 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
3 4 LAMP @	184 W/FIXT =	552 WATTS	3 4 LAMP @	118 W/FIXT =	354 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*89,212*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*56,295*	*KWH/YR*
	321,163	*MJ/YR*		*202,661*	*MJ/YR*
BASELINE DEMAND	*10.21*	*KW*	*ECO DEMAND*	*6.44*	*KW*

NET ENERGY SAVINGS	**118,502 MJ/YR**	**NET DEMAND SAVINGS**	**$533 /YR**
NET ENERGY SAVINGS	**112 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,229 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6937-BARRACKS
AREA: STORAGE
LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS				COMPACT FLUORESCENT REPLACEMENT			
LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
LAMPS @	60	WATTS =	0 WATTS				
LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS
LAMPS @	90	WATTS =	0 WATTS	4 LAMPS @	26	WATTS =	104 WATTS
4 LAMPS @	100	WATTS =	400 WATTS				

BASELINE ENERGY CONSUMPTION	*1,165 KWH* *4,193 MJ*	*ECO ENERGY CONSUMPTION*	*104 KWH* *374 MJ*
BASELINE DEMAND	*0.40 KW*	*ECO DEMAND*	*0.10 KW*

NET ENERGY SAVINGS	**3,819 MJ/YR**	**NET DEMAND SAVINGS**	**$42 /YR**
NET ENERGY SAVINGS	**4 MBTU/YR**	**NET DOLLAR SAVINGS**	**$64 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6937-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
12	LAMPS @	75	WATTS =	900 WATTS	12	LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6937	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				105.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	38.22	$0	$1,050	$0	$0	$1,050
0207082121	DEMO. 2X4' FLUOR FIXTURES				73.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	35.41	$0	$975	$0	$0	$975
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				0.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				16.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	4.13	$0	$114	$0	$0	$114
U02 SITEWORK	78	$0	$2,139	$0	$0	$2,139

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					49.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		68.80	$4,312	$1,887	$0	$0	$6,199
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					24.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		38.40	$2,160	$1,056	$0	$0	$3,216
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					49.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		83.30	$4,606	$2,303	$0	$0	$6,909
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					56.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		63.84	$4,088	$1,764	$0	$0	$5,852
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				4.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	4.00	$102	$110	$0	$0	$212

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	265	$15,394	$7,285	$0	$0	$22,679
	ESTIMATE TOTAL	343	$15,394	$9,424	$0	$0	$24,818
	SALES TAX	5.00%	$770				
	MATL MARKUP	-40.00%	($6,158)				
	LABOR MARKUP	-13.40%		($1,263)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$10,006	$8,161	$0	$0	$18,167
	CONTINGENCY	10.00%					$1,817
	BOND	2.50%					$454
	PROFIT	10.00%					$1,817
	JOB TOTAL						$22,255

Estimate:	Bldg. 6937	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	78	$0	$2,139	$0	$0	$2,139
U16 ELECTRICAL	265	$15,394	$7,285	$0	$0	$22,679
TOTAL	343	$15,394	$9,424	$0	$0	$24,818
SALES TAX	5.00%	$770				
MATL MARKUP	-40.00%	($6,158)				
LABOR MARKUP	-13.40%		($1,263)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,006	$8,161	$0	$0	$18,167
CONTINGENCY	10.00%					$1,817
BOND	2.50%					$454
PROFIT	10.00%					$1,817
JOB TOTAL						$22,255

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6938
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0	WATTS	0 2 LAMP U @	58 W/FIXT =	0	WATTS
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0	WATTS	0 1 LAMP @	29 W/FIXT =	0	WATTS
12 2 LAMP @	92 W/FIXT =	1,104	WATTS	12 2 LAMP @	58 W/FIXT =	696	WATTS
3 LAMP @	137 W/FIXT =	0	WATTS	0 3 LAMP @	87 W/FIXT =	0	WATTS
5 4 LAMP @	184 W/FIXT =	920	WATTS	5 4 LAMP @	118 W/FIXT =	590	WATTS
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0	WATTS	0 2 LAMP @	125 W/FIXT =	0	WATTS

BASELINE ENERGY CONSUMPTION	*5,894*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*3,745*	*KWH/YR*
	21,218	*MJ/YR*		*13,481*	*MJ/YR*
BASELINE DEMAND	*2.02*	*KW*	*ECO DEMAND*	*1.29*	*KW*

NET ENERGY SAVINGS	**7,737 MJ/YR**	**NET DEMAND SAVINGS**	**$104 /YR**
NET ENERGY SAVINGS	**7 MBTU/YR**	**NET DOLLAR SAVINGS**	**$150 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6938
AREA: BARRACKS

AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
1 2 LAMP @	92 W/FIXT =	92 WATTS	1 2 LAMP @	58 W/FIXT =	58 WATTS
80 3 LAMP @	137 W/FIXT =	10,960 WATTS	80 3 LAMP @	87 W/FIXT =	6,960 WATTS
36 4 LAMP @	184 W/FIXT =	6,624 WATTS	36 4 LAMP @	118 W/FIXT =	4,248 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*77,209*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*49,210*	*KWH/YR*
	277,952	*MJ/YR*		*177,156*	*MJ/YR*
BASELINE DEMAND	*17.68*	*KW*	*ECO DEMAND*	*11.27*	*KW*

NET ENERGY SAVINGS	**100,796 MJ/YR**	**NET DEMAND SAVINGS**	**$906 /YR**
NET ENERGY SAVINGS	**96 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,498 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6938
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
48 2 LAMP U	92 W/FIXT =	4,416 WATTS	48 2 LAMP U @	58 W/FIXT =	2,784 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*70,727*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,589*	*KWH/YR*
	254,616	*MJ/YR*		*160,519*	*MJ/YR*
BASELINE DEMAND	*8.10*	*KW*	*ECO DEMAND*	*5.10*	*KW*

NET ENERGY SAVINGS	**94,097 MJ/YR**	**NET DEMAND SAVINGS**	**$423 /YR**
NET ENERGY SAVINGS	**89 MBTU/YR**	**NET DOLLAR SAVINGS**	**$976 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6938-BARRACKS
AREA: OFFICES
LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	4	LAMPS @	26	WATTS =	104 WATTS
4	LAMPS @	150	WATTS =	600 WATTS					

BASELINE ENERGY CONSUMPTION	*2,621 KWH* *9,435 MJ*	*ECO ENERGY CONSUMPTION*	*104 KWH* *374 MJ*
BASELINE DEMAND	*0.60 KW*	*ECO DEMAND*	*0.10 KW*

NET ENERGY SAVINGS	**9,060 MJ/YR**	**NET DEMAND SAVINGS**	**$70 /YR**
NET ENERGY SAVINGS	**9 MBTU/YR**	**NET DOLLAR SAVINGS**	**$123 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6938-BARRACKS
AREA: STAIRWELLS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS				COMPACT FLUORESCENT REPLACEMENT			
LAMPS @	52 WATTS =	0	WATTS	0 LAMPS @	13 WATTS =	0	WATTS
LAMPS @	60 WATTS =	0	WATTS				
12 LAMPS @	75 WATTS =	900	WATTS	12 LAMPS @	18 WATTS =	216	WATTS
LAMPS @	90 WATTS =	0	WATTS	2 LAMPS @	26 WATTS =	52	WATTS
2 LAMPS @	150 WATTS =	300	WATTS				

BASELINE ENERGY CONSUMPTION	***10,483 KWH***	***ECO ENERGY CONSUMPTION***	***268 KWH***
	37,740 MJ		***965 MJ***
BASELINE DEMAND	***1.20 KW***	***ECO DEMAND***	***0.27 KW***

NET ENERGY SAVINGS	**36,775 MJ/YR**	**NET DEMAND SAVINGS**	**$132 /YR**
NET ENERGY SAVINGS	**35 MBTU/YR**	**NET DOLLAR SAVINGS**	**$348 /YR**

Estimate:	Bldg. 6938	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					89.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	32.40	$0	$890	$0	$0	$890
0207082121	DEMO. 2X4' FLUOR FIXTURES					121.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	58.69	$0	$1,615	$0	$0	$1,615
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					12.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	3.84	$0	$106	$0	$0	$106
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					18.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	4.64	$0	$128	$0	$0	$128
U02 SITEWORK		100	$0	$2,739	$0	$0	$2,739

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					48.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		67.39	$4,224	$1,848	$0	$0	$6,072
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					80.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		128.00	$7,200	$3,520	$0	$0	$10,720
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					41.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		69.70	$3,854	$1,927	$0	$0	$5,781
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					41.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		46.74	$2,993	$1,292	$0	$0	$4,285
1661309909	SUR FLUOR 1X4' W 2 32W T8					12.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		13.68	$1,032	$378	$0	$0	$1,410
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				6.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	6.00	$153	$165	$0	$0	$318

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	338	$19,582	$9,295	$0	$0	$28,877
	ESTIMATE TOTAL	438	$19,582	$12,034	$0	$0	$31,616
	SALES TAX	5.00%	$979				
	MATL MARKUP	-40.00%	($7,833)				
	LABOR MARKUP	-13.40%		($1,613)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$12,728	$10,421	$0	$0	$23,150
	CONTINGENCY	10.00%					$2,315
	BOND	2.50%					$579
	PROFIT	10.00%					$2,315
	JOB TOTAL						$28,358

Estimate: Bldg. 6938 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	100	$0	$2,739	$0	$0	$2,739
U16 ELECTRICAL	338	$19,582	$9,295	$0	$0	$28,877
TOTAL	438	$19,582	$12,034	$0	$0	$31,616
SALES TAX	5.00%	$979				
MATL MARKUP	-40.00%	($7,833)				
LABOR MARKUP	-13.40%		($1,613)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$12,728	$10,421	$0	$0	$23,150
CONTINGENCY	10.00%					$2,315
BOND	2.50%					$579
PROFIT	10.00%					$2,315
JOB TOTAL						$28,358

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6939
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
	2 LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
	3 LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	4 LAMP @	184 W/FIXT =	736 WATTS	4	4 LAMP @	118 W/FIXT =	472 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*2,143*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,374* *KWH/YR*
	7,716	*MJ/YR*		*4,948* *MJ/YR*
BASELINE DEMAND	*0.74*	*KW*	*ECO DEMAND*	*0.47* *KW*

NET ENERGY SAVINGS	**2,768 MJ/YR**	**NET DEMAND SAVINGS**	**$37 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$54 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6939
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
21	2 LAMP @	92 W/FIXT =	1,932 WATTS	21	2 LAMP @	58 W/FIXT =	1,218 WATTS
24	3 LAMP @	137 W/FIXT =	3,288 WATTS	24	3 LAMP @	87 W/FIXT =	2,088 WATTS
37	4 LAMP @	184 W/FIXT =	6,808 WATTS	37	4 LAMP @	118 W/FIXT =	4,366 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*52,538*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*33,511* *KWH/YR*
	189,138	*MJ/YR*		*120,641* *MJ/YR*
BASELINE DEMAND	*12.03*	*KW*	*ECO DEMAND*	*7.67* *KW*

NET ENERGY SAVINGS	**68,497 MJ/YR**	**NET DEMAND SAVINGS**	**$616 /YR**
NET ENERGY SAVINGS	**65 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,018 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6939
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
49 2 LAMP U	92 W/FIXT =	4,508 WATTS	49 2 LAMP U @	58 W/FIXT =	2,842 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
40 2 LAMP @	92 W/FIXT =	3,680 WATTS	40 2 LAMP @	58 W/FIXT =	2,320 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
4 LAMP @	184 W/FIXT =	0 WATTS	0 4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*71,530*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*45,095*	*KWH/YR*
	257,509	*MJ/YR*		*162,343*	*MJ/YR*
BASELINE DEMAND	*8.19*	*KW*	*ECO DEMAND*	*5.16*	*KW*

NET ENERGY SAVINGS	**95,166 MJ/YR**	**NET DEMAND SAVINGS**	**$428 /YR**
NET ENERGY SAVINGS	**90 MBTU/YR**	**NET DOLLAR SAVINGS**	**$987 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6939-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
15	LAMPS @	75	WATTS =	1125 WATTS	15	LAMPS @	18	WATTS =	270 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*9,828 KWH*	*ECO ENERGY CONSUMPTION*	*270 KWH*
	35,381 MJ		*972 MJ*
BASELINE DEMAND	*1.13 KW*	*ECO DEMAND*	*0.27 KW*

NET ENERGY SAVINGS	**34,409 MJ/YR**	**NET DEMAND SAVINGS**	**$121 /YR**
NET ENERGY SAVINGS	**33 MBTU/YR**	**NET DOLLAR SAVINGS**	**$323 /YR**

Estimate:	Bldg. 6939	Date:	8 July 1994		
Description:	Hammerhead Barracks				
Project:	Lighting Study	Bid Date:			
Location:	Ft. Campbell	Job #:			
Sq. footage:		City indx:			

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				89.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	32.40	$0	$890	$0	$0	$890
0207082121	DEMO. 2X4' FLUOR FIXTURES				86.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	41.71	$0	$1,148	$0	$0	$1,148
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				13.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	4.16	$0	$114	$0	$0	$114
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				15.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	3.87	$0	$107	$0	$0	$107
U02 SITEWORK	83	$0	$2,259	$0	$0	$2,259

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					49.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		68.80	$4,312	$1,887	$0	$0	$6,199
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					21.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		31.71	$1,764	$872	$0	$0	$2,636
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					24.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		38.40	$2,160	$1,056	$0	$0	$3,216
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					41.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		69.70	$3,854	$1,927	$0	$0	$5,781
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		45.60	$2,920	$1,260	$0	$0	$4,180
1661309909	SUR FLUOR 1X4' W 2 32W T8					13.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		14.82	$1,118	$410	$0	$0	$1,528
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				3.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	3.00	$77	$83	$0	$0	$160

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	279	$16,331	$7,660	$0	$0	$23,991
	ESTIMATE TOTAL	362	$16,331	$9,919	$0	$0	$26,250
	SALES TAX	5.00%	$817				
	MATL MARKUP	-40.00%	($6,532)				
	LABOR MARKUP	-13.40%		($1,329)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$10,615	$8,590	$0	$0	$19,205
	CONTINGENCY	10.00%					$1,921
	BOND	2.50%					$480
	PROFIT	10.00%					$1,921
	JOB TOTAL						$23,526

Estimate: Bldg. 6939 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	83	$0	$2,259	$0	$0	$2,259
U16 ELECTRICAL	279	$16,331	$7,660	$0	$0	$23,991
TOTAL	362	$16,331	$9,919	$0	$0	$26,250
SALES TAX	5.00%	$817				
MATL MARKUP	-40.00%	($6,532)				
LABOR MARKUP	-13.40%		($1,329)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,615	$8,590	$0	$0	$19,205
CONTINGENCY	10.00%					$1,921
BOND	2.50%					$480
PROFIT	10.00%					$1,921
JOB TOTAL						$23,526

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6940
AREA: BARRACKS

AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
2	LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
5	4 LAMP @	184 W/FIXT =	920 WATTS	5	4 LAMP @	118 W/FIXT =	590 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*2,679*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*1,718* *KWH/YR*
	9,645	*MJ/YR*		*6,185* *MJ/YR*
BASELINE DEMAND	*0.92*	*KW*	*ECO DEMAND*	*0.59* *KW*

NET ENERGY SAVINGS	**3,459 MJ/YR**	**NET DEMAND SAVINGS**	**$47 /YR**
NET ENERGY SAVINGS	**3 MBTU/YR**	**NET DOLLAR SAVINGS**	**$67 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6940
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
9	2 LAMP U	92 W/FIXT =	828 WATTS	9	2 LAMP U @	58 W/FIXT =	522 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
	2 LAMP @	92 W/FIXT =	0 WATTS	0	2 LAMP @	58 W/FIXT =	0 WATTS
	3 LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
82	4 LAMP @	184 W/FIXT =	15,088 WATTS	82	4 LAMP @	118 W/FIXT =	9,676 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*69,521*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,545* *KWH/YR*
	250,276	*MJ/YR*		*160,362* *MJ/YR*
BASELINE DEMAND	*15.92*	*KW*	*ECO DEMAND*	*10.20* *KW*

NET ENERGY SAVINGS	**89,914 MJ/YR**	**NET DEMAND SAVINGS**	**$808 /YR**
NET ENERGY SAVINGS	**85 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,336 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6940
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
50	2 LAMP U	92 W/FIXT =	4,600 WATTS	50	2 LAMP U @	58 W/FIXT =	2,900 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*72,334*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*45,602* *KWH/YR*
	260,403	*MJ/YR*		*164,167* *MJ/YR*
BASELINE DEMAND	*8.28*	*KW*	*ECO DEMAND*	*5.22* *KW*

NET ENERGY SAVINGS	**96,236 MJ/YR**	**NET DEMAND SAVINGS**	**$433 /YR**
NET ENERGY SAVINGS	**91 MBTU/YR**	**NET DOLLAR SAVINGS**	**$998 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6940-BARRACKS
AREA: OFFICE

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
1	LAMPS @	75	WATTS =	75 WATTS	1	LAMPS @	18	WATTS =	18 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*328 KWH* *1,179 MJ*	*ECO ENERGY CONSUMPTION*	*18 KWH* *65 MJ*
BASELINE DEMAND	*0.08 KW*	*ECO DEMAND*	*0.02 KW*

NET ENERGY SAVINGS	**1,115 MJ/YR**	**NET DEMAND SAVINGS**	**$8 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$15 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6940-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate: Bldg. 6940 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					99.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	36.04	$0	$990	$0	$0	$990
0207082121	DEMO. 2X4' FLUOR FIXTURES					87.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	42.20	$0	$1,161	$0	$0	$1,161
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					0.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					13.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.35	$0	$92	$0	$0	$92
U02 SITEWORK		82	$0	$2,243	$0	$0	$2,243

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					59.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		82.84	$5,192	$2,272	$0	$0	$7,464
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					87.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		147.90	$8,178	$4,089	$0	$0	$12,267
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					40.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		45.60	$2,920	$1,260	$0	$0	$4,180
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				1.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	1.00	$26	$28	$0	$0	$54

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	284	$16,442	$7,814	$0	$0	$24,256
	ESTIMATE TOTAL	366	$16,442	$10,057	$0	$0	$26,499
	SALES TAX	5.00%	$822				
	MATL MARKUP	-40.00%	($6,577)				
	LABOR MARKUP	-13.40%		($1,348)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$10,687	$8,709	$0	$0	$19,397
	CONTINGENCY	10.00%					$1,940
	BOND	2.50%					$485
	PROFIT	10.00%					$1,940
	JOB TOTAL						$23,761

Estimate: Bldg. 6940 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	82	$0	$2,243	$0	$0	$2,243
U16 ELECTRICAL	284	$16,442	$7,814	$0	$0	$24,256
TOTAL	366	$16,442	$10,057	$0	$0	$26,499
SALES TAX	5.00%	$822				
MATL MARKUP	-40.00%	($6,577)				
LABOR MARKUP	-13.40%		($1,348)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,687	$8,709	$0	$0	$19,397
CONTINGENCY	10.00%					$1,940
BOND	2.50%					$485
PROFIT	10.00%					$1,940
JOB TOTAL						$23,761

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6943
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
2	2 LAMP @	92 W/FIXT =	184 WATTS	2	2 LAMP @	58 W/FIXT =	116 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*536*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*338 KWH/YR*
	1,929	*MJ/YR*		*1,216 MJ/YR*
BASELINE DEMAND	*0.18*	*KW*	*ECO DEMAND*	*0.12 KW*

NET ENERGY SAVINGS	**713 MJ/YR**	**NET DEMAND SAVINGS**	**$10 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$14 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6943
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
	2 LAMP U	92 W/FIXT =	0 WATTS	0	2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
26	2 LAMP @	92 W/FIXT =	2,392 WATTS	26	2 LAMP @	58 W/FIXT =	1,508 WATTS
36	3 LAMP @	137 W/FIXT =	4,932 WATTS	36	3 LAMP @	87 W/FIXT =	3,132 WATTS
48	4 LAMP @	184 W/FIXT =	8,832 WATTS	48	4 LAMP @	118 W/FIXT =	5,664 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*70,569*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*45,008* *KWH/YR*
	254,050	*MJ/YR*		*162,028* *MJ/YR*
BASELINE DEMAND	*16.16*	*KW*	*ECO DEMAND*	*10.30* *KW*

NET ENERGY SAVINGS	**92,022 MJ/YR**	**NET DEMAND SAVINGS**	**$827 /YR**
NET ENERGY SAVINGS	**87 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,368 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6943
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
40	2 LAMP U	92 W/FIXT =	3,680 WATTS	40	2 LAMP U @	58 W/FIXT =	2,320 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
3	LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
4	LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*64,297*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*40,535*	*KWH/YR*
	231,469	*MJ/YR*		*145,926*	*MJ/YR*
BASELINE DEMAND	*7.36*	*KW*	*ECO DEMAND*	*4.64*	*KW*

NET ENERGY SAVINGS	**85,543 MJ/YR**	**NET DEMAND SAVINGS**	**$384 /YR**
NET ENERGY SAVINGS	**81 MBTU/YR**	**NET DOLLAR SAVINGS**	**$887 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6943-BARRACKS
AREA: RESTROOMS

LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	4	LAMPS @	13	WATTS =	52 WATTS
4	LAMPS @	60	WATTS =	240 WATTS					
	LAMPS @	75	WATTS =	0 WATTS	0	LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	***699 KWH***	***ECO ENERGY CONSUMPTION***	***52 KWH***
	2,516 MJ		***187 MJ***
BASELINE DEMAND	***0.24 KW***	***ECO DEMAND***	***0.05 KW***

NET ENERGY SAVINGS	**2,329 MJ/YR**	**NET DEMAND SAVINGS**	**$27 /YR**
NET ENERGY SAVINGS	**2 MBTU/YR**	**NET DOLLAR SAVINGS**	**$40 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6943-BARRACKS
AREA: STAIRWELLS & HALLWAYS

LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS				COMPACT FLUORESCENT REPLACEMENT			
LAMPS @ 52	WATTS =	0	WATTS	10 LAMPS @ 13	WATTS =	130	WATTS
10 LAMPS @ 60	WATTS =	600	WATTS				
12 LAMPS @ 75	WATTS =	900	WATTS	12 LAMPS @ 18	WATTS =	216	WATTS
LAMPS @ 90	WATTS =	0	WATTS	0 LAMPS @ 26	WATTS =	0	WATTS
LAMPS @ 150	WATTS =	0	WATTS				

BASELINE ENERGY CONSUMPTION	*13,104 KWH*	*ECO ENERGY CONSUMPTION*	*346 KWH*
	47,174 MJ		*1,246 MJ*
BASELINE DEMAND	*1.50 KW*	*ECO DEMAND*	*0.35 KW*

NET ENERGY SAVINGS	45,928 MJ/YR	NET DEMAND SAVINGS	$163 /YR
NET ENERGY SAVINGS	44 MBTU/YR	NET DOLLAR SAVINGS	$433 /YR

Estimate:	Bldg. 6943		Date:	8 July 1994		
Description:	Hammerhead Barracks					
Project:	Lighting Study		Bid Date:			
Location:	Ft. Campbell		Job #:			
Sq. footage:			City indx:			

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES				106.00 EA	
Unit values	0.36	0.00	10.00	0.00	0.00	10.00
Totals	38.58	$0	$1,060	$0	$0	$1,060
0207082121	DEMO. 2X4' FLUOR FIXTURES				86.00 EA	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	41.71	$0	$1,148	$0	$0	$1,148
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES				0.00 EA	
Unit values	0.32	0.00	8.80	0.00	0.00	8.80
Totals	0.00	$0	$0	$0	$0	$0
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS				26.00 EA	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	6.71	$0	$185	$0	$0	$185
U02 SITEWORK	87	$0	$2,393	$0	$0	$2,393

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					40.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		56.16	$3,520	$1,540	$0	$0	$5,060
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					2.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		3.02	$168	$83	$0	$0	$251
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					36.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		57.60	$3,240	$1,584	$0	$0	$4,824
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					48.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		81.60	$4,512	$2,256	$0	$0	$6,768
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					66.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		75.24	$4,818	$2,079	$0	$0	$6,897
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		0.00	$0	$0	$0	$0	$0
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				14.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	14.00	$357	$385	$0	$0	$742

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	294	$16,741	$8,092	$0	$0	$24,833
	ESTIMATE TOTAL	381	$16,741	$10,485	$0	$0	$27,226
	SALES TAX	5.00%	$837				
	MATL MARKUP	-40.00%	($6,696)				
	LABOR MARKUP	-13.40%		($1,405)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$10,882	$9,080	$0	$0	$19,962
	CONTINGENCY	10.00%					$1,996
	BOND	2.50%					$499
	PROFIT	10.00%					$1,996
	JOB TOTAL						$24,453

Estimate: Bldg. 6943 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	87	$0	$2,393	$0	$0	$2,393
U16 ELECTRICAL	294	$16,741	$8,092	$0	$0	$24,833
TOTAL	381	$16,741	$10,485	$0	$0	$27,226
SALES TAX	5.00%	$837				
MATL MARKUP	-40.00%	($6,696)				
LABOR MARKUP	-13.40%		($1,405)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$10,882	$9,080	$0	$0	$19,962
CONTINGENCY	10.00%					$1,996
BOND	2.50%					$499
PROFIT	10.00%					$1,996
JOB TOTAL						$24,453

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6944
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
2 LAMP U	92 W/FIXT =	0 WATTS	0 2 LAMP U @	58 W/FIXT =	0 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
2 LAMP @	92 W/FIXT =	0 WATTS	0 2 LAMP @	58 W/FIXT =	0 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
13 4 LAMP @	184 W/FIXT =	2,392 WATTS	13 4 LAMP @	118 W/FIXT =	1,534 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*6,966*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*4,467*	*KWH/YR*
	25,076	*MJ/YR*		*16,081*	*MJ/YR*
BASELINE DEMAND	*2.39*	*KW*	*ECO DEMAND*	*1.53*	*KW*

NET ENERGY SAVINGS	**8,995 MJ/YR**	**NET DEMAND SAVINGS**	**$121 /YR**
NET ENERGY SAVINGS	**9 MBTU/YR**	**NET DOLLAR SAVINGS**	**$174 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6944
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
29	2 LAMP U	92 W/FIXT =	2,668 WATTS	29	2 LAMP U @	58 W/FIXT =	1,682 WATTS
4 FOOT				**4 FOOT**			
1	LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
30	2 LAMP @	92 W/FIXT =	2,760 WATTS	30	2 LAMP @	58 W/FIXT =	1,740 WATTS
32	3 LAMP @	137 W/FIXT =	4,384 WATTS	32	3 LAMP @	87 W/FIXT =	2,784 WATTS
31	4 LAMP @	184 W/FIXT =	5,704 WATTS	31	4 LAMP @	118 W/FIXT =	3,658 WATTS
8 FOOT				**8 FOOT**			
2	LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*67,774*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*43,086* *KWH/YR*
	243,986	*MJ/YR*		*155,109* *MJ/YR*
BASELINE DEMAND	*15.52*	*KW*	*ECO DEMAND*	*9.86* *KW*

NET ENERGY SAVINGS	**88,877 MJ/YR**	**NET DEMAND SAVINGS**	**$799 /YR**
NET ENERGY SAVINGS	**84 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,321 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6944
AREA: BARRACKS

AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
46	2 LAMP U	92 W/FIXT =	4,232 WATTS	46	2 LAMP U @	58 W/FIXT =	2,668 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
	3 LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*69,119*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*43,575*	*KWH/YR*
	248,829	*MJ/YR*		*156,871*	*MJ/YR*
BASELINE DEMAND	*7.91*	*KW*	*ECO DEMAND*	*4.99*	*KW*

NET ENERGY SAVINGS	**91,959 MJ/YR**	**NET DEMAND SAVINGS**	**$413 /YR**
NET ENERGY SAVINGS	**87 MBTU/YR**	**NET DOLLAR SAVINGS**	**$953 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6944-BARRACKS
AREA: OFFICES

LAMP USE:
HOURS/DAY 12
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
1	LAMPS @	75	WATTS =	75 WATTS	1 LAMPS @	18	WATTS =	18 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***328 KWH***	***ECO ENERGY CONSUMPTION***	***18 KWH***
	1,179 MJ		***65 MJ***
BASELINE DEMAND	***0.08 KW***	***ECO DEMAND***	***0.02 KW***

NET ENERGY SAVINGS	**1,115 MJ/YR**	**NET DEMAND SAVINGS**	**$8 /YR**
NET ENERGY SAVINGS	**1 MBTU/YR**	**NET DOLLAR SAVINGS**	**$15 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6944-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS @	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	***7,862 KWH***	***ECO ENERGY CONSUMPTION***	***216 KWH***
	28,305 MJ		***778 MJ***
BASELINE DEMAND	***0.90 KW***	***ECO DEMAND***	***0.22 KW***

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate: Bldg. 6944 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					141.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	51.32	$0	$1,410	$0	$0	$1,410
0207082121	DEMO. 2X4' FLUOR FIXTURES					76.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	36.86	$0	$1,015	$0	$0	$1,015
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					30.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	9.60	$0	$264	$0	$0	$264
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					13.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.35	$0	$92	$0	$0	$92
U02 SITEWORK		102	$0	$2,781	$0	$0	$2,781

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					75.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		105.30	$6,600	$2,888	$0	$0	$9,488
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					32.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		51.20	$2,880	$1,408	$0	$0	$4,288
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					44.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		74.80	$4,136	$2,068	$0	$0	$6,204
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					66.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		75.24	$4,818	$2,079	$0	$0	$6,897
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					30.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		42.00	$2,670	$1,155	$0	$0	$3,825
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				1.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	1.00	$26	$28	$0	$0	$54

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16	ELECTRICAL	356	$21,256	$9,791	$0	$0	$31,047
	ESTIMATE TOTAL	458	$21,256	$12,572	$0	$0	$33,828
	SALES TAX	5.00%	$1,063				
	MATL MARKUP	-40.00%	($8,502)				
	LABOR MARKUP	-13.40%		($1,685)			
	EQUIPT MARKUP	0.00%			$0		
	SUB MARKUP	0.00%				$0	
	TOTAL BEFORE CONTINGENC		$13,816	$10,887	$0	$0	$24,704
	CONTINGENCY	10.00%					$2,470
	BOND	2.50%					$618
	PROFIT	10.00%					$2,470
	JOB TOTAL						$30,262

Estimate: Bldg. 6944 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	102	$0	$2,781	$0	$0	$2,781
U16 ELECTRICAL	356	$21,256	$9,791	$0	$0	$31,047
TOTAL	458	$21,256	$12,572	$0	$0	$33,828
SALES TAX	5.00%	$1,063				
MATL MARKUP	-40.00%	($8,502)				
LABOR MARKUP	-13.40%		($1,685)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$13,816	$10,887	$0	$0	$24,704
CONTINGENCY	10.00%					$2,470
BOND	2.50%					$618
PROFIT	10.00%					$2,470
JOB TOTAL						$30,262

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6945
AREA: BARRACKS
AREA USE:
HOURS/DAY 8
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
2 LAMP U	92 W/FIXT =	0 WATTS		0 2 LAMP U @	58 W/FIXT =	0 WATTS	
4 FOOT				**4 FOOT**			
1 LAMP @	45 W/FIXT =	0 WATTS		0 1 LAMP @	29 W/FIXT =	0 WATTS	
36 2 LAMP @	92 W/FIXT =	3,312 WATTS		36 2 LAMP @	58 W/FIXT =	2,088 WATTS	
3 LAMP @	137 W/FIXT =	0 WATTS		0 3 LAMP @	87 W/FIXT =	0 WATTS	
3 4 LAMP @	184 W/FIXT =	552 WATTS		3 4 LAMP @	118 W/FIXT =	354 WATTS	
8 FOOT				**8 FOOT**			
2 LAMP @	180 W/FIXT =	0 WATTS		0 2 LAMP @	125 W/FIXT =	0 WATTS	
BASELINE ENERGY CONSUMPTION		*11,252 KWH/YR*		*ECO ENERGY CONSUMPTION*		*7,111 KWH/YR*	
		40,507 MJ/YR				*25,600 MJ/YR*	
BASELINE DEMAND		*3.86 KW*		*ECO DEMAND*		*2.44 KW*	

NET ENERGY SAVINGS	**14,907 MJ/YR**	**NET DEMAND SAVINGS**	**$201 /YR**
NET ENERGY SAVINGS	**14 MBTU/YR**	**NET DOLLAR SAVINGS**	**$289 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6945
AREA: BARRACKS
AREA USE:
HOURS/DAY 12
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA			REPLACEMENT FIXTURE DATA		
2 FOOT			**2 FOOT**		
8 2 LAMP U	92 W/FIXT =	736 WATTS	8 2 LAMP U @	58 W/FIXT =	464 WATTS
4 FOOT			**4 FOOT**		
1 LAMP @	45 W/FIXT =	0 WATTS	0 1 LAMP @	29 W/FIXT =	0 WATTS
42 2 LAMP @	92 W/FIXT =	3,864 WATTS	42 2 LAMP @	58 W/FIXT =	2,436 WATTS
3 LAMP @	137 W/FIXT =	0 WATTS	0 3 LAMP @	87 W/FIXT =	0 WATTS
18 4 LAMP @	184 W/FIXT =	3,312 WATTS	18 4 LAMP @	118 W/FIXT =	2,124 WATTS
8 FOOT			**8 FOOT**		
2 LAMP @	180 W/FIXT =	0 WATTS	0 2 LAMP @	125 W/FIXT =	0 WATTS
BASELINE ENERGY CONSUMPTION		***34,560 KWH/YR***	***ECO ENERGY CONSUMPTION***		***21,945 KWH/YR***
		124,415 MJ/YR			***79,001 MJ/YR***
BASELINE DEMAND		***7.91 KW***	***ECO DEMAND***		***5.02 KW***

NET ENERGY SAVINGS	**45,413 MJ/YR**	**NET DEMAND SAVINGS**	**$408 /YR**
NET ENERGY SAVINGS	**43 MBTU/YR**	**NET DOLLAR SAVINGS**	**$675 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 6945
AREA: BARRACKS
AREA USE:
HOURS/DAY 24
DAYS/WEEK 7

BUILDING VOLTAGE: 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				**2 FOOT**			
48	2 LAMP U	92 W/FIXT =	4,416 WATTS	48	2 LAMP U @	58 W/FIXT =	2,784 WATTS
4 FOOT				**4 FOOT**			
	1 LAMP @	45 W/FIXT =	0 WATTS	0	1 LAMP @	29 W/FIXT =	0 WATTS
40	2 LAMP @	92 W/FIXT =	3,680 WATTS	40	2 LAMP @	58 W/FIXT =	2,320 WATTS
	3 LAMP @	137 W/FIXT =	0 WATTS	0	3 LAMP @	87 W/FIXT =	0 WATTS
	4 LAMP @	184 W/FIXT =	0 WATTS	0	4 LAMP @	118 W/FIXT =	0 WATTS
8 FOOT				**8 FOOT**			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @	125 W/FIXT =	0 WATTS

BASELINE ENERGY CONSUMPTION	*70,727*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*44,589* *KWH/YR*
	254,616	*MJ/YR*		*160,519* *MJ/YR*
BASELINE DEMAND	*8.10*	*KW*	*ECO DEMAND*	*5.10* *KW*

NET ENERGY SAVINGS	**94,097 MJ/YR**	**NET DEMAND SAVINGS**	**$423 /YR**
NET ENERGY SAVINGS	**89 MBTU/YR**	**NET DOLLAR SAVINGS**	**$976 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6945-BARRACKS
AREA: RESTROOMS
LAMP USE:
HOURS/DAY 8
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	0	LAMPS @	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS					
3	LAMPS @	75	WATTS =	225 WATTS	3	LAMPS @	18	WATTS =	54 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0	LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS					

BASELINE ENERGY CONSUMPTION	*655 KWH* *2,359 MJ*	*ECO ENERGY CONSUMPTION*	*54 KWH* *194 MJ*
BASELINE DEMAND	*0.23 KW*	*ECO DEMAND*	*0.05 KW*

NET ENERGY SAVINGS	2,164 MJ/YR	NET DEMAND SAVINGS	$24 /YR
NET ENERGY SAVINGS	2 MBTU/YR	NET DOLLAR SAVINGS	$37 /YR

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 6945-BARRACKS
AREA: STAIRWELLS
LAMP USE:
HOURS/DAY 24
DAYS/WEEK 7
PEAK USE 1 (1-YES, 2-NO)

BUILDING VOLTAGE: 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARG $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT			
	LAMPS @	52	WATTS =	0 WATTS	0 LAMPS	13	WATTS =	0 WATTS
	LAMPS @	60	WATTS =	0 WATTS				
12	LAMPS @	75	WATTS =	900 WATTS	12 LAMPS	18	WATTS =	216 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS	26	WATTS =	0 WATTS
	LAMPS @	150	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*7,862 KWH*	*ECO ENERGY CONSUMPTION*	*216 KWH*
	28,305 MJ		*778 MJ*
BASELINE DEMAND	*0.90 KW*	*ECO DEMAND*	*0.22 KW*

NET ENERGY SAVINGS	**27,527 MJ/YR**	**NET DEMAND SAVINGS**	**$97 /YR**
NET ENERGY SAVINGS	**26 MBTU/YR**	**NET DOLLAR SAVINGS**	**$258 /YR**

Estimate:	Bldg. 6945	Date:	8 July 1994
Description:	Hammerhead Barracks		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
0207082119	DEMO. 2X2', 1X4' FLUOR FIXTURES					152.00 EA	
	Unit values	0.36	0.00	10.00	0.00	0.00	10.00
	Totals	55.33	$0	$1,520	$0	$0	$1,520
0207082121	DEMO. 2X4' FLUOR FIXTURES					31.00 EA	
	Unit values	0.49	0.00	13.35	0.00	0.00	13.35
	Totals	15.04	$0	$414	$0	$0	$414
0207082122	DEMO. STRIP/INDUST FLUOR FIXTURES					22.00 EA	
	Unit values	0.32	0.00	8.80	0.00	0.00	8.80
	Totals	7.04	$0	$194	$0	$0	$194
0207082123	DEMO. INCAND FIXTURES/EXIT LIGHTS					15.00 EA	
	Unit values	0.26	0.00	7.10	0.00	0.00	7.10
	Totals	3.87	$0	$107	$0	$0	$107
U02 SITEWORK		82	$0	$2,235	$0	$0	$2,235

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661307777	L.E.D. EXIT SIGN SINGLE FACE					0.00 EA	
Unit values		1.00	185.00	27.50	0.00	0.00	212.50
Totals		0.00	$0	$0	$0	$0	$0
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					56.00 EA	
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		78.62	$4,928	$2,156	$0	$0	$7,084
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.51	84.00	41.50	0.00	0.00	125.50
Totals		0.00	$0	$0	$0	$0	$0
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					0.00 EA	
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					31.00 EA	
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		52.70	$2,914	$1,457	$0	$0	$4,371
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					96.00 EA	
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		109.44	$7,008	$3,024	$0	$0	$10,032
1661309909	SUR FLUOR 1X4' W 2 32W T8					0.00 EA	
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDUSTRIAL FLUOR 1X4' W 2 32W T8 TWO-PIECE REFLECTOR					0.00 EA	
Unit values		1.14	90.00	31.50	0.00	0.00	121.50
Totals		0.00	$0	$0	$0	$0	$0
1661309919	PEND FLUOR 1X4' W 2 32W T8					22.00 EA	
Unit values		1.40	89.00	38.50	0.00	0.00	127.50
Totals		30.80	$1,958	$847	$0	$0	$2,805
1661388040	COMP FLUOR LAMP, 26 W QUAD					12.00 EA	
Unit values		0.50	10.50	13.75	0.00	0.00	24.25

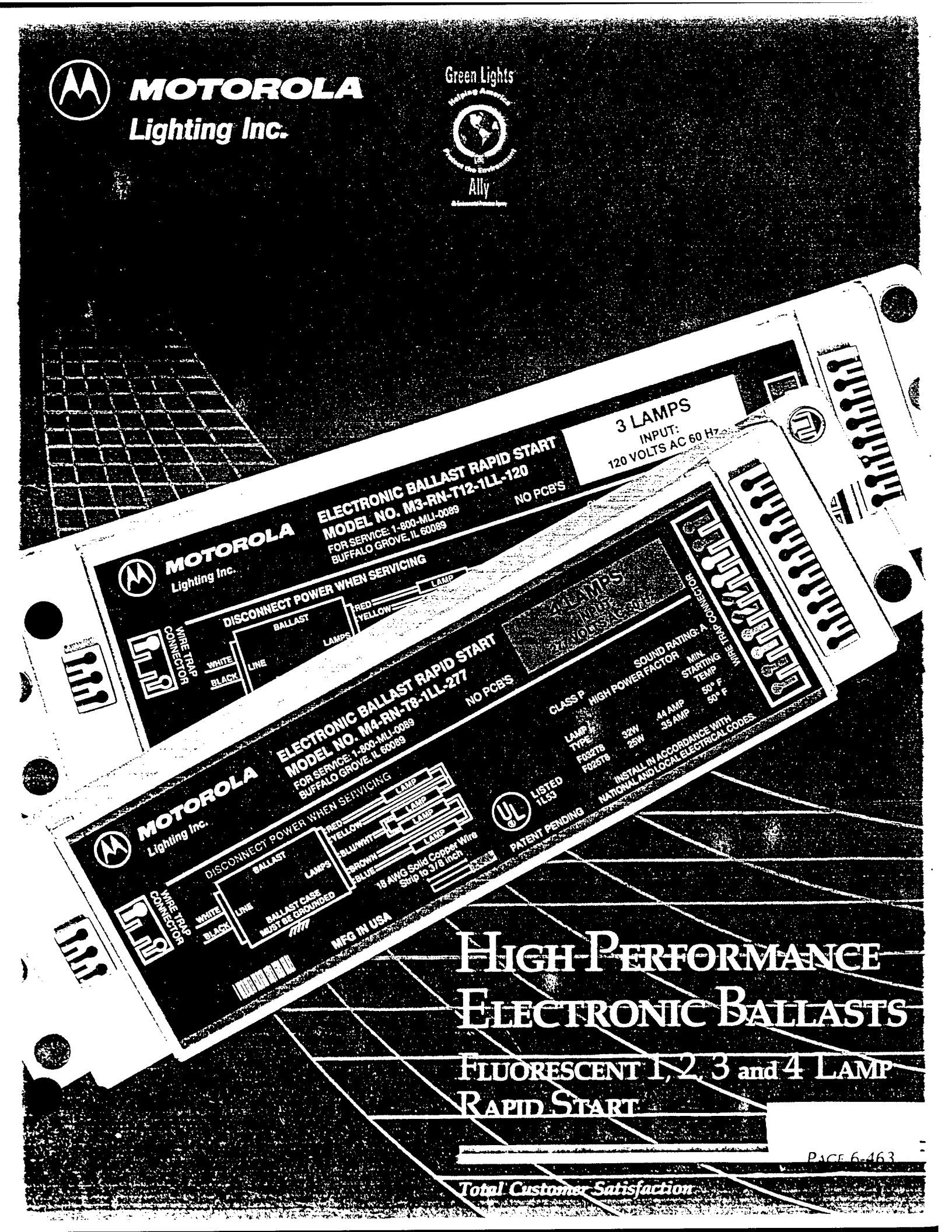
Totals	6.00	$126	$165	$0	$0	$291
1661388042	COMP FLUOR FIX, 2 13 W PL WALL/CEILING				3.00 EA	
Unit values	1.00	25.50	27.50	0.00	0.00	53.00
Totals	3.00	$77	$83	$0	$0	$160

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	281	$17,011	$7,732	$0	$0	$24,743
ESTIMATE TOTAL	363	$17,011	$9,967	$0	$0	$26,978
SALES TAX	5.00%	$851				
MATL MARKUP	-40.00%	($6,804)				
LABOR MARKUP	-13.40%		($1,336)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,057	$8,631	$0	$0	$19,689
CONTINGENCY	10.00%					$1,969
BOND	2.50%					$492
PROFIT	10.00%					$1,969
JOB TOTAL						$24,119

Estimate: Bldg. 6945 Date: 8 July 1994
Description: Hammerhead Barracks
Project: Lighting Study Bid Date:
Location: Ft. Campbell Job #:
Sq. footage: City indx:

SUMMARY

	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	82	$0	$2,235	$0	$0	$2,235
U16 ELECTRICAL	281	$17,011	$7,732	$0	$0	$24,743
TOTAL	363	$17,011	$9,967	$0	$0	$26,978
SALES TAX	5.00%	$851				
MATL MARKUP	-40.00%	($6,804)				
LABOR MARKUP	-13.40%		($1,336)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$11,057	$8,631	$0	$0	$19,689
CONTINGENCY	10.00%					$1,969
BOND	2.50%					$492
PROFIT	10.00%					$1,969
JOB TOTAL						$24,119



High Performance Electronic Ballasts

Fluorescent 1, 2, 3 and 4 Lamp Rapid Start

Total Customer Satisfaction

Customer Support
1-800-MLI-0089

High Performance Features

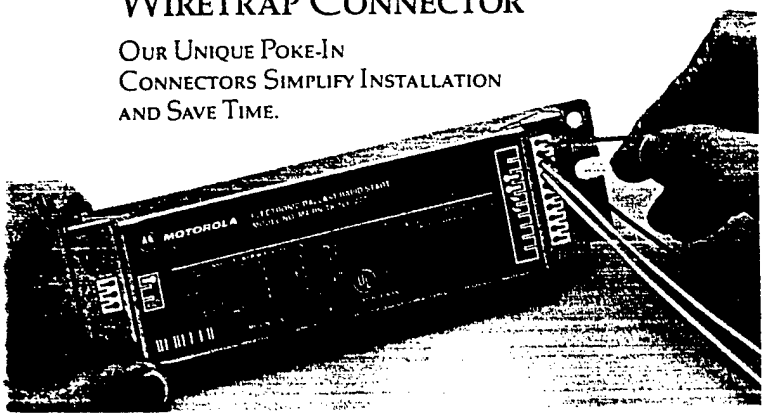
Power Factor:	Greater than .99
Total Harmonic Distortion:	Less than 10%
Third Harmonic Distortion:	Less than 6%
Lamp Current Crest Factor:	Less than 1.5
Lamp Current Frequency:	Greater than 25 KHz
Lamp Configuration:	Series
Lamp Flicker:	Less than 2%, Not Visible
Sound Rating:	Class A
Projected Life:	20 years plus
Connector:	Poke-in wire trap for 18 gauge (solid wire)
Weight:	1.2 lbs.
EMI:	Meets FCC Part 18, Subpart C

CODES

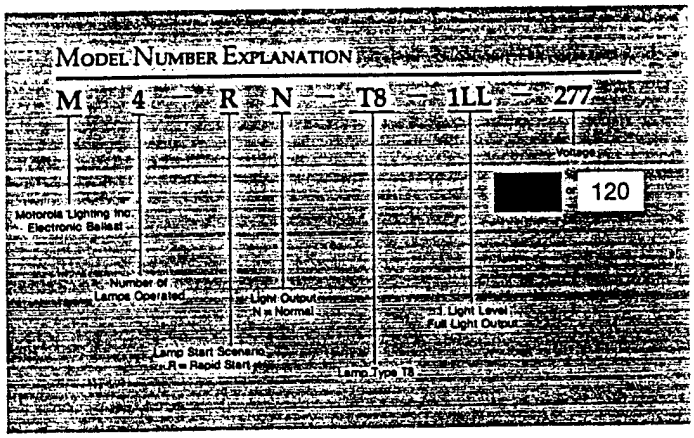
UL Listed:	Class P
Transient Protection:	Meets ANSI C62.41, Cat. A (Formerly IEEE 587)

Wiretrap Connector

Our Unique Poke-In Connectors Simplify Installation and Save Time.



Part Number Description



Quality

Motorola's goal of acceptable quality is at Six Sigma or no more than 3.4 defects per million opportunities. Motorola Lighting Inc. designed its electronic ballast to meet the most rigorous performance standards at world class levels. This translates into a highly robust product that goes through extensive environmental stress testing to assure our customers of very low initial defect levels (less than 0.1%) and high reliability (greater than 500,000 hours Mean Time to Failure—MTTF).

The economic ballast life is 20 years when operated at 45°C ambient temperature. Operation of MLI's ballast at 50°C may derate life expectancy by 25%.

Six Sigma Quality means "world class" in all that we do at Motorola Lighting Inc., which is part of our commitment to TOTAL CUSTOMER SATISFACTION.

SIX SIGMA 6σ MOTOROLA

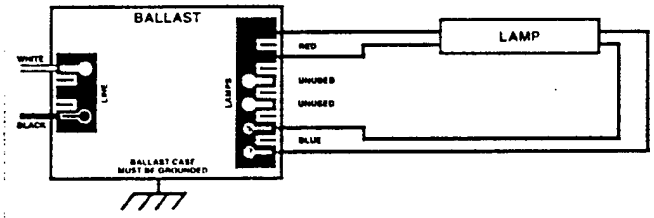
Rapid Start Ballasts

Lamp Type	Rated Lamp Wattage (W)	Lamp Length (FT)	Model No.	Line Voltage (V)	Max Line Current (A)	Typical Line Current (A)	Typical Input Power (W) Open	Typical Input Power (W) Enclosed	Min. Starting Temp (F)
1 LAMP T8									
F32T8	32	4	M1-RN-T8-1LL-120	120	.31	.24	29	28	50°
F32T8	32	4	M1-RN-T8-1LL-277	277	.13	.11	29	28	50°
F25T8	25	3	M1-RN-T8-1LL-120	120	.24	.19	23	22	50°
F25T8	25	3	M1-RN-T8-1LL-277	277	.10	.08	23	22	50°
F17T8	17	2	M1-RN-T8-1LL-120	120	.17	.13	16	15	50°
F17T8	17	2	M1-RN-T8-1LL-277	277	.07	.08	16	15	50°
2 LAMP T8									
F32T8	32	4	M2-RN-T8-1LL-120	120	.55	.51	61	58	50°
F32T8	32	4	M2-RN-T8-1LL-277	277	.24	.21	59	56	50°
F25T8	25	3	M2-RN-T8-1LL-120	120	.42	.40	48	45	50°
F25T8	25	3	M2-RN-T8-1LL-277	277	.18	.17	46	44	50°
F17T8	17	2	M2-RN-T8-1LL-120	120	.27	.24	32	29	50°
F17T8	17	2	M2-RN-T8-1LL-277	277	.12	.10	34	31	50°
2 LAMP T12									
F40T12	40	4	M2-RN-T12-1LL-120	120	.64	.59	71	69	50°
F40T12	40	4	M2-RN-T12-1LL-277	277	.27	.25	69	67	50°
F40T12	34	4	M2-RN-T12-1LL-120	120	.54	.50	60	59	60°
F40T12	34	4	M2-RN-T12-1LL-277	277	.23	.21	58	57	60°
F40T10	40	4	M2-RN-T12-1LL-120	120	.64	.60	72	71	50°
F40T10	40	4	M2-RN-T12-1LL-277	277	.27	.25	70	69	50°
F30T12	30	3	M2-RN-T12-1LL-120	120	.48	.44	53	52	50°
F30T12	30	3	M2-RN-T12-1LL-277	277	.21	.19	52	50	50°
F30T12	25	3	M2-RN-T12-1LL-120	120	.40	.37	44	43	60°
F30T12	25	3	M2-RN-T12-1LL-277	277	.17	.16	43	42	60°
3 LAMP T8									
F32T8	32	4	M3-RN-T8-1LL-120	120	.78	.76	90	87	50°
F32T8	32	4	M3-RN-T8-1LL-277	277	.33	.32	89	85	50°
F25T8	25	3	M3-RN-T8-1LL-120	120	.61	.59	70	67	50°
F25T8	25	3	M3-RN-T8-1LL-277	277	.26	.25	69	66	50°
F17T8	17	2	M3-RN-T8-1LL-120	120	.39	.35	47	44	50°
F17T8	17	2	M3-RN-T8-1LL-277	277	.16	.14	44	41	50°
3 LAMP T12									
F40T12	40	4	M3-RN-T12-1LL-120	120	.92	.90	107	105	50°
F40T12	40	4	M3-RN-T12-1LL-277	277	.45	.38	105	103	50°
F40T12	34	4	M3-RN-T12-1LL-120	120	.84	.77	91	89	60°
F40T12	34	4	M3-RN-T12-1LL-277	277	.41	.33	90	88	60°
F40T10	40	4	M3-RN-T12-1LL-120	120	.99	.92	109	107	50°
F40T10	40	4	M3-RN-T12-1LL-277	277	.48	.39	107	105	50°
F30T12	30	3	M3-RN-T12-1LL-120	120	.76	.67	80	78	50°
F30T12	30	3	M3-RN-T12-1LL-277	277	.37	.29	78	76	50°
F30T12	25	3	M3-RN-T12-1LL-120	120	.71	.57	67	65	60°
F30T12	25	3	M3-RN-T12-1LL-277	277	.35	.24	66	64	60°
4 LAMP T8									
F32T8	32	4	M4-RN-T8-1LL-120	120	1.04	1.02	121	118	50°
F32T8	32	4	M4-RN-T8-1LL-277	277	.44	.43	118	115	50°
F25T8	25	3	M4-RN-T8-1LL-120	120	.81	.80	95	91	50°
F25T8	25	3	M4-RN-T8-1LL-277	277	.35	.34	93	90	50°
F17T8	17	2	M4-RN-T8-1LL-120	120	.55	.49	67	64	50°
F17T8	17	2	M4-RN-T8-1LL-277	277	.22	.19	61	58	50°

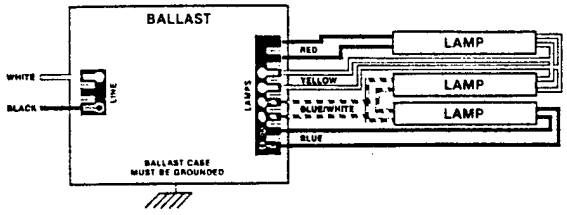
Ballast Will Operate the U-Shaped Equivalents of the Above Lamps. Test Data from Independent Test Lab Available on Request from Factory.

Wiring Diagrams And Ballast Dimensions

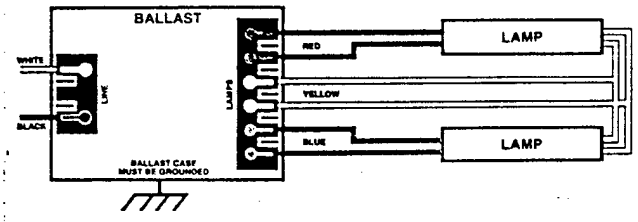
Wiring Diagrams



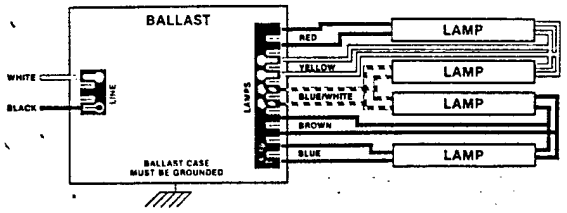
1 LAMP



3 LAMP

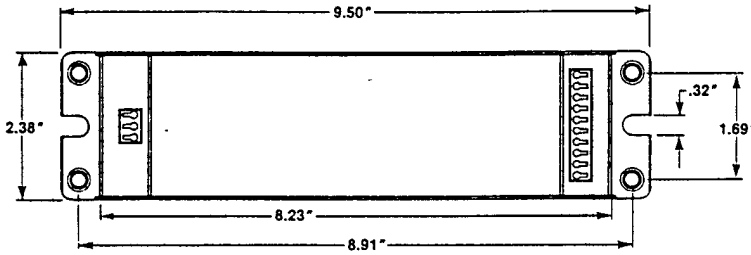


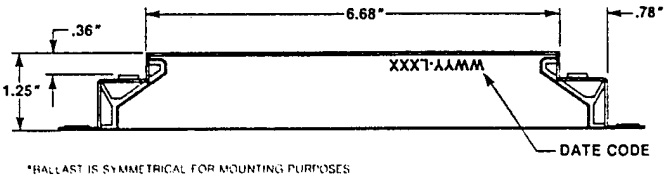
2 LAMP



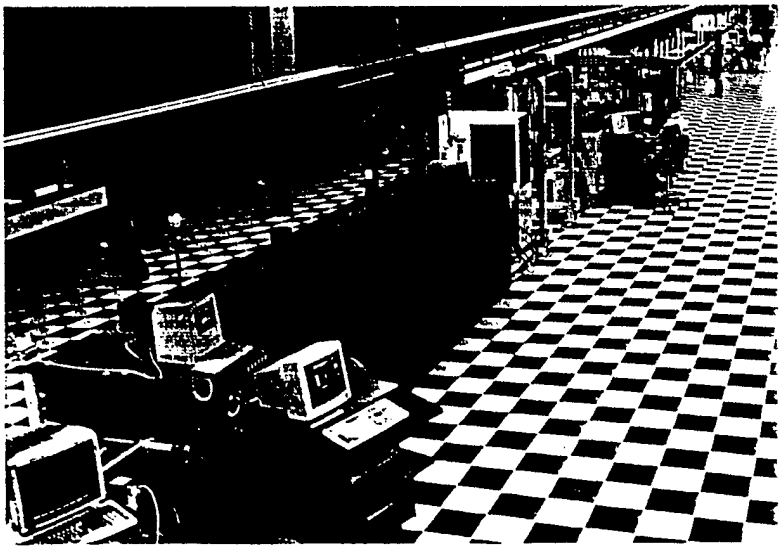
4 LAMP

Ballast Dimensions*





*BALLAST IS SYMMETRICAL FOR MOUNTING PURPOSES



Our state-of-the-art manufacturing facility in Buffalo Grove, Illinois—in the U.S.A.

MOTOROLA
Lighting Inc.

887 Deerfield Parkway
Buffalo Grove, IL 60089
1-800-MLI-0089

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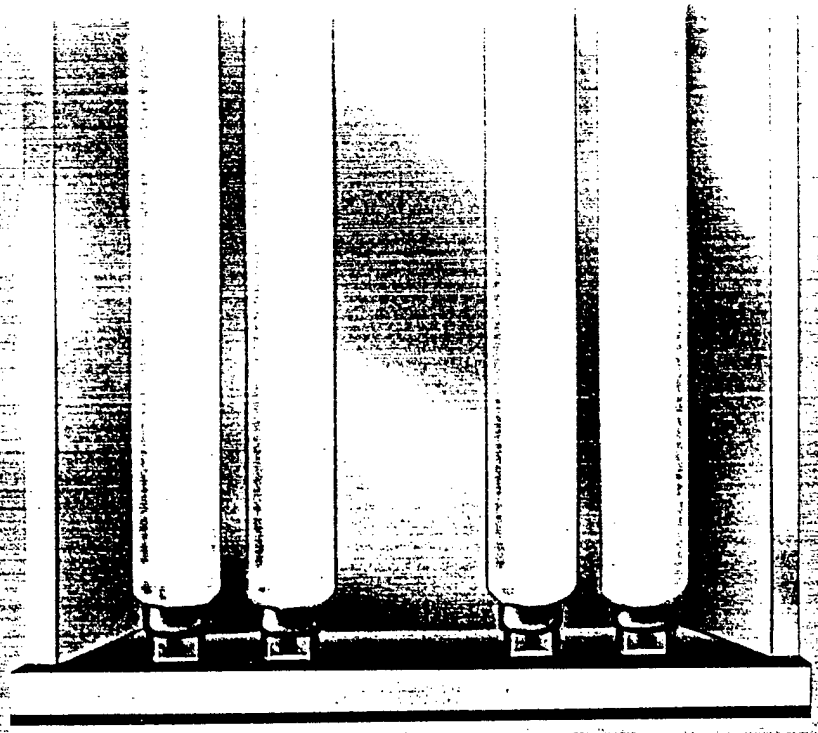
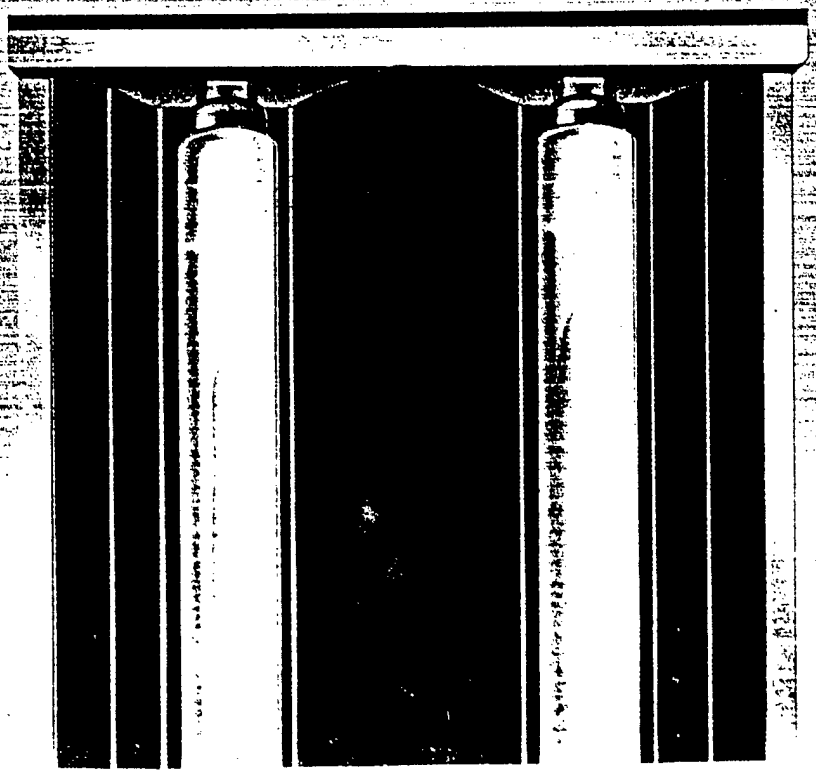


SILVERLUX™ REFLECTORS CUT YOUR LIGHTING ENERGY COSTS IN HALF.



NOT YOUR LIGHTING LEVELS.

The energy-saving outlook is bright.

Silverlux reflectors let you remove as many as half your fluorescent lamps, while maintaining optimum lighting levels and a "fully-lamped" look. And when you cut the number of fluorescent lamps in half, you can also cut your energy costs in half.

Or **Silverlux** reflectors can actually deliver more light out of the same lamps—improving lighting levels dramatically—without increasing energy, lamp or ballast costs.

The payback—short, usually less than two years.

Direct savings in the form of lower lighting energy costs pay off quickly. Additional indirect savings such as fewer lamps and ballasts, lower maintenance costs, and lower air conditioning costs can accelerate payback even more.

Payback Table

Years to pay back reflector cost

Energy Cost $/kWh	2500 hours per year (10 hours/day, 5 days/week)			5000 hours per year (14 hours/day, 7 days/week)			8736 hours per year (24 hours/day, 7 days/week)		
	Reflector cost								
	$35	$45	$55	$35	$45	$55	$35	$45	$55
.04	14	18	22	7	9	11	4	5	6
.06	9	12	14	5	6	7	3	3	4
.08	7	9	11	3	5	5	2	3	3
.10	5	7	8	3	4	4	2	2	2
.12	4	5	6	2	3	3	1	2	2
.14	3	4	5	2	2	3	1	1	2
.16	3	3	4	1	2	2	1	1	1
.18	2	3	3	1	2	2	1	1	1

Reflectivity and efficiency—the highest available.

After determining your exact lighting requirements, 3M computer-aided-design software is used to custom-engineer your reflectors for highest performance.

Part of that performance stems from a unique silver film made by 3M that has 95% specular reflectivity—the highest reflectivity on the market. This film is then laminated to specified, pre-tested metal substrates. Laminated with proven 3M adhesives. This adhesive expertise provides a strong film-to-substrate bonding, uniform appearance and exceptional performance year after year.

Reflector Surface	Specular Reflectivity	Total Reflectivity
3M [illegible]	95%	96%
[illegible]	87% x 87%	70% x 90%
[illegible]	5%	60% x 88%

Finally, sophisticated computer control ensures the accuracy and quality of your reflectors during the entire fabrication process.

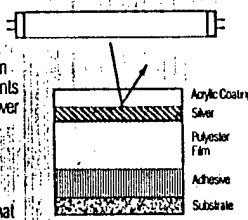
The higher the reflectivity, the greater the light delivery. The more light reflected into the work space, the more efficient the lighting system. And maximum efficiency means lower costs, both now and in the future.

In short, the **Silverlux** reflector design and construction, coupled with our silver film and proven adhesives, deliver today's most efficient fixture.

Front reflectivity maximizes lighting even more.

Our patented front reflective surface construction allows light to be reflected more directly from the surface of the reflector for greatest lighting efficiency.

What's more, a special non-yellowing acrylic coating protects the film from degradation due to ultraviolet light. A second similar coating prevents the silver from oxidizing or corroding. Result? Maximum performance over a longer life.



Silverlux reflectors are easy to install and maintain.

Lamps can be removed and fixtures retrofitted with no rewiring.

All fluorescent reflectors become dirty over time. Yet tests indicate that even without cleaning, **Silverlux** reflectors lose less than 3% of their reflectivity over a four-year period in normal office environments. Superior reflectivity can be maintained simply by cleaning reflectors with a mist of 2% liquid detergent in warm water and wiping with a soft cloth or sponge. After cleaning, reflectors return to 99% of their original reflectivity.

We'll even help finance your program.

Minnesco—a division of 3M—provides financing for customers who invest in 3M products such as **Silverlux** reflectors. Because Minnesco's primary function is to make it easier for customers to buy 3M products, financing rates are kept as low as possible.

EXAMPLE ONLY*

Installed Value:

4717 reflectors @ $53/unit installed = $250,000

Minnesco Financing:

Amount financed	$250,000
Term of agreement	36 months
Payment period	Monthly
Monthly payment	$8,110
Monthly energy savings	$14,743
Net monthly savings	**$6,633**

Lease-purchase plans are available at fixed monthly charges, for periods ranging from one to three years. In effect, you're using your energy savings to pay for the installation.

Just as important, your entire purchase—**Silverlux** reflectors, installation and financing—can be handled by one person, your 3M representative.

*Note: Based on 11% finance rate. Savings depend on your actual operation, usage and power rates.

AD 86

SILVERLUX FLUORESCENT REFLECTORS

- Cut energy costs in half or enhance lighting levels
- Pay for themselves in two years or less
- Install and maintain easily
- Warranted for 5 years
- Attractive low-rate financing available
- Available from nationwide dealer network

For more information just call.

3M is a part of the Green Lights Program—a voluntary, non-regulatory program organized by the Environmental Protection Agency (EPA). This program encourages corporations to take advantage of new lighting technologies and design principles that benefit the environment. 3M is a unique member of the program because it participates as both a consumer of electrical lighting energy and as a developer of electrical lighting products. Silverlux reflectors demonstrate 3M's commitment to energy-efficient lighting technologies that reduce energy consumption and pollution while delivering the same or better lighting.

Cut costs, not lighting.

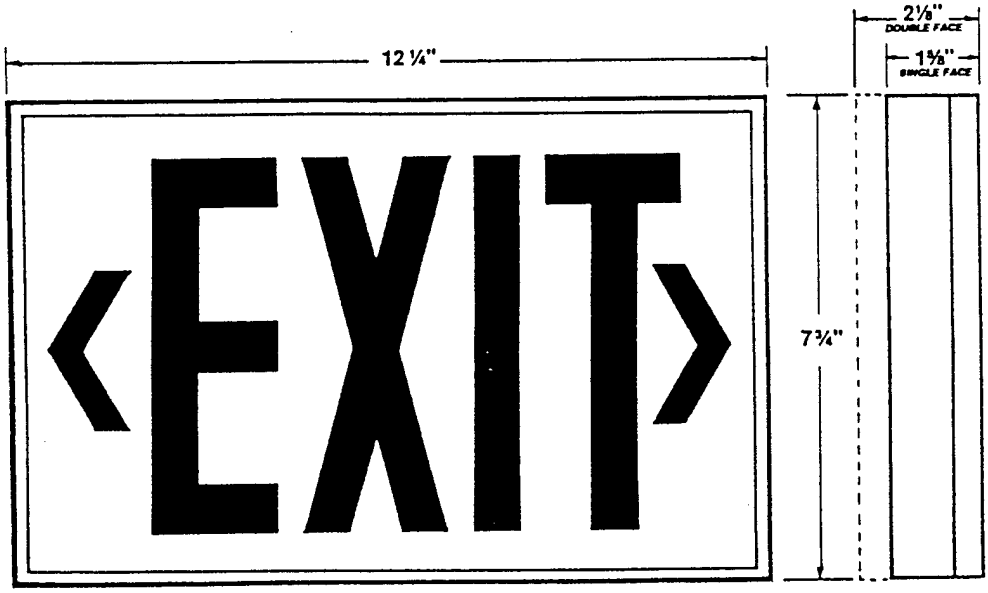
Innovation working for you

3M Construction Markets
3M Center Bldg. 225-4S-08
St. Paul, MN 55144-1000
612-736-2388

Evenlite LED Exit Lights

EV SERIES

The LED of the 21st Century



No Ifs, Ands or Buts.

This is exactly how the EVENLITE 2000 appears! Perfectly even illumination is produced by indirect lighting, so that the LED's are invisible, with no hot spots. All this is provided in the slimmest sign on the market with integral charger and battery.

No competitor comes close to these combined specifications:

- **Less than 3 watts total power per face**
- **Perfect light distribution across face**
- **Single face only 1⅝ " thick**
- **Double face only 2⅛" thick**
- **Remote unit only ½" thick**
- **Multiple LED lamps with 20 year unconditional guarantee**
- **NICAD batteries with 5 year guarantee**
- **Aluminum housing for light weight and strength**
- **Universal mount**
- **Baked enamel, vinyl clad or satin anodized finishes**
- **Polycarbonate faceplate**

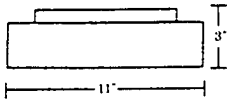
Patent Pending

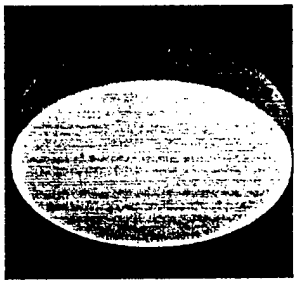
SHIELD SOURCE INCORPORATED
220 VFW Avenue, Grasonville, Maryland 21638
Tel.: (410) 827-6022 Fax: (410) 827-9657

PIONEER

1011 Series

Economy!





STANDARD FEATURES
- White translucent acrylic lens.
- White enamel finished steel pan.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS
- High power factor ballast.
- 277 volt ballast.
- Theft proof screws.

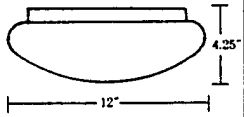
UL Listed

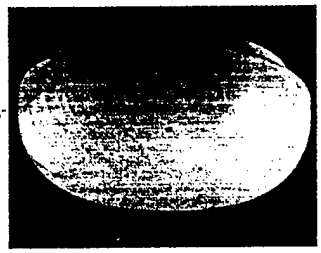
MODEL#	WATTAGE	L	D
PI 1011	13,22,2X9,2X13	11"	3"
PI 1014	2X13,3X13,32,54	14"	3"

ECLIPSE

5012 Series

New!





STANDARD FEATURES
- White translucent acrylic lens.
- White enamel finished steel pan.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS
- High power factor ballast.
- 277 volt ballast.
- Theft proof screws.

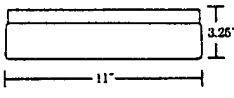
UL Listed

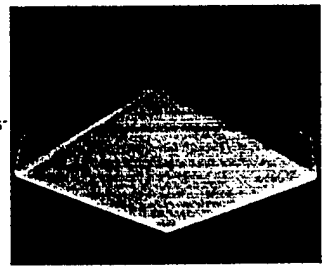
MODEL#	WATTAGE	L	D
EC 5012	13,22,2X9,2X13	12"	4.25"
EC 5015	2X13,3X13,32,54	15"	4.25"

DISCOVERY

3011 Series

Traditional Square!





STANDARD FEATURES
- White translucent acrylic lens.
- White enamel finished steel pan.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS
- High power factor ballast.
- 277 volt ballast.
- Theft proof screws.

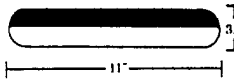
UL Listed

MODEL#	WATTAGE	L	D
DS 3011	13,2X9,22,2X13	11"	3.25"
DS 3014	2X13,3X13,32,54	14"	3.25"

EXPLORER

910 Series

Low Profile!



STANDARD FEATURES
- White vandal resistant lexan lens.
- Black lexan housing.
- 120 volt class "P" ballast.
- White powder coated reflector.
- Lamp(s) included.

OPTIONS
- High power factor ballast.
- 277 volt ballast.
- White lexan housing.

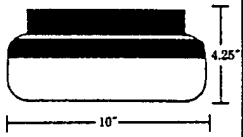
UL Listed

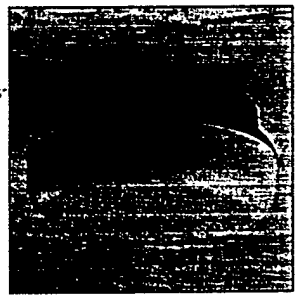
MODEL#	WATTAGE	L	D
EP 910	13, 2X9, 2X13	11"	3.5"

PLUTO

1303 Series

Vandal!





STANDARD FEATURES
- White heavy gauged lexan lens.
- Corrosion-proof lexan base.
- White powder coated reflector.
- Lamp(s) included.
- 120 volt class "P" ballast.

OPTIONS
- High power factor ballast.
- 277 volt ballast.

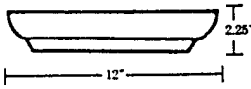
UL Listed

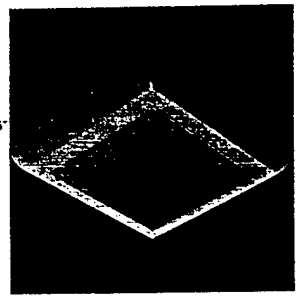
MODEL#	WATTAGE	L	D
PLU 1303	13,22,2X9,2X13	10"	4.25"

COSMO

1400 Series

Low Profile!



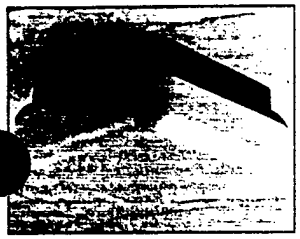


STANDARD FEATURES
- White lexan lens.
- White vandal-proof lexan lens.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS
- High power factor ballast.
- 277 volt ballast.

UL Listed

MODEL#	WATTAGE	L	D
CS 1400	13, 2X9, 2X13	12"	2.25"

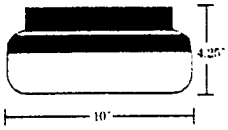


UL Listed

ARMSTRONG

1302 Series

Vandal-Lite!



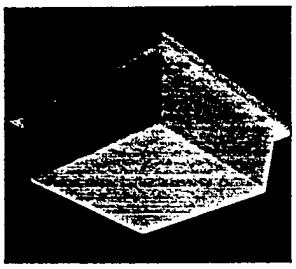
STANDARD FEATURES

- White heavy gauged lexan lens.
- Corrosion-proof lexan base.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS

- High power factor ballast.
- 277 volt ballast.

MODEL#	WATTAGE	L	D
AR 1302	13,2X9,22,2X13	10"	4.25"

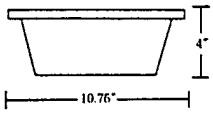


UL Listed

CENTURY

1010 Series

Vandal-Lite!



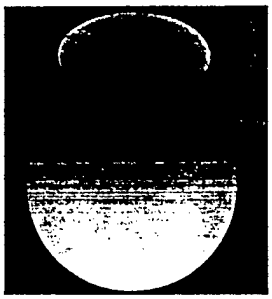
STANDARD FEATURES

- White extra strong lexan lens.
- White enamel finished steel pan.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS

- High power factor ballast.
- 277 volt ballast.
- Theft proof screws.

MODEL#	WATTAGE	L	D
CE 1010	13, 22, 2X13	10.75"	4"

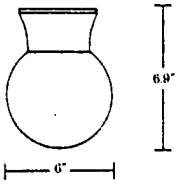


UL Listed

HALO

333 Series

Economy!



STANDARD FEATURES

- Durable polycarbonate base.
- Available in white or black.
- White 6" acrylic globe.
- 120 volt class "P" ballast.
- Lamp included.

OPTIONS

- Clear prismatic jar.
- White acrylic jar.
- HPF module.

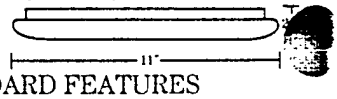
MODEL#	WATTAGE	L	D
HL 333 Globe	5, 7, 9Q, 13Q	6.9"	6"
HL 334 Jar	5, 7, 9	7.9"	4"
HL 334 Jar	13	8.9"	4"

UL Listed

STRATUS

2011 Series

Low Profile Square!



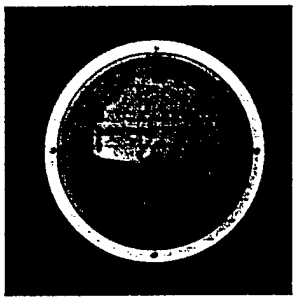
STANDARD FEATURES

- White translucent acrylic lens.
- White enamel finished steel pan.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS

- High power factor ballast.
- 277 volt ballast.
- Theft proof screws.

MODEL#	WATTAGE	L	D
ST 2011	13,2X9,22,2X13	11"	2.75"
ST 2014	2X13,3X13,32,54	14"	2.75"

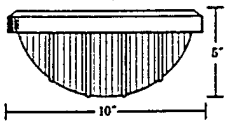


UL Listed

NOVA

200 Series

Euro-Lite!



STANDARD FEATURES

- Opal polycarbonate diffuser.
- White corrosion-proof lexan base.
- White powder coated reflector.
- 120 volt class "P" ballast.
- Lamp(s) included.

OPTIONS

- Black or white cage.
- Black lexan housing.
- Theft proof screws.

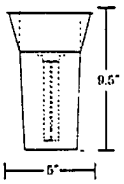
MODEL#	WATTAGE	L	D
NV 200	9, 13, 2X9	10"	5"

UL Listed

KENNEDY

030 Series

Vandal-Lite!



STANDARD FEATURES

- Brushed satin cast aluminum housing.
- Durable white lexan jar.
- 120 volt class "P" ballast.
- Lamp included.

OPTIONS

- Clear prismatic jar.
- 6" round globe.
- High power factor ballast.
- Pull chain.

MODEL#	WATTAGE	L	D
KD 030 Jar	5, 7, 9, 13	9.5"	5"
KD 031 Globe	7, 9Q, 13Q	9.5"	5"

CESAM-EN-CM
CEORL-ED-M-S

January 1993
February 15, 1994

GENERAL SCOPE OF WORK

FOR A

LIGHTING ENERGY STUDY

FORT CAMPBELL, KY- a. 52 Airfield Buildings
b. Blanchfield Army Community Hospital
c. 47 Korean War Barracks

Performed as part of the

ENERGY ENGINEERING ANALYSIS PROGRAM (EEAP)

FORT CAMPBELL, KY
SCOPE OF WORK
FOR A
LIGHTING ENERGY STUDY

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    5.2 Non-ECIP Projects
    5.3 Nonfeasible ECOs

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    7.2 Perform a Lighting Site Energy Survey
    7.3 Reevaluate Selected Projects
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    7.5 Combine ECOs into Recommended Projects
    7.6 Submittals, Presentations and Reviews

ANNEXES

A - DETAILED SCOPE OF WORK

B - EXECUTIVE SUMMARY GUIDELINE

C - REQUIRED DD FORM 1391 DATA

GLOSSARY OF ACCRONYMS

1. BRIEF DESCRIPTION OF WORK: The Architect-Engineer (A/E) shall:

1.1 Review previously completed Energy Engineering Analysis Program (EEAP) study which applies to the specific building, system, or energy conservation opportunity (ECO) covered by this study, if any had been done.

1.2 Perform a lighting site survey of specific buildings or areas to collect all data required to evaluate the specific ECOs included in this study.

1.3 Reevaluate the specific project or ECO from the previous study, if any were done, to determine its economic feasibility based on revised criteria, current site conditions and technical applicability.

1.4 Evaluate specific ECOs to determine their energy savings potential and economic feasibility.

1.5 Provide project documentation for recommended ECOs as detailed herein.

1.6 Prepare a comprehensive report to document all work performed, the results and all recommendations.

2. GENERAL

2.1 This study is limited to the evaluation of the specific buildings, systems, or ECOs listed in Annex A, DETAILED SCOPE OF WORK.

2.2 The information and analysis outlined herein are considered to be minimum requirements for adequate performance of this study.

2.3 For the buildings, systems or ECOs listed in Annex A, all methods of energy conservation which are reasonable and practical shall be considered, including improvements of operational methods and procedures as well as the physical facilities. All energy conservation opportunities which produce energy or dollar savings shall be documented in this report. Any energy conservation opportunity considered infeasible shall also be documented in the report with reasons for elimination.

2.4 The study shall consider the use of all energy sources applicable to each building, system, or ECO.

2.5 The "Energy Conservation Investment Program (ECIP) Guidance", described in letter from AFPI-ENO, dated 20 JAN 1994 and the latest revision from CEHSC-FU establishes criteria for ECIP projects and shall be used for performing the economic analyses

of all ECOs and projects. The program, Life Cycle Cost In Design (LCCID), has been developed for performing life cycle cost calculations in accordance with ECIP guidelines and is referenced in the ECIP Guidance. If any program other than LCCID is proposed for life cycle cost analysis (LCCA), it must use the mode of calculation specified in the ECIP Guidance. The output must be in the format of the ECIP LCCA summary sheet, and it must be submitted for approval to the Contracting Officer.

2.6 Energy conservation opportunities determined to be technically and economically feasible shall be developed into projects acceptable to installation personnel. This may involve combining similar ECOs into larger packages which will qualify for ECIP, MCA, or PCIP funding, and determining in coordination with installation personnel the appropriate packaging and implementation approach for all feasible ECOs.

2.6.1 Projects which qualify for ECIP funding shall be identified, separately listed, and prioritized by the Savings to Investment Ratio (SIR).

2.6.2 All feasible non-ECIP projects shall be ranked in order of highest to lowest SIR.

2.6.3 At some installations Energy Conservation and Management (ECAM) funding will be used instead of ECIP funding. The criteria for each program is the same. The Director of Engineering and Housing will indicate which program is used at this installation. This Scope of Work mentions only ECIP, however, ECAM is also meant.

3. PROJECT MANAGEMENT

3.1 Project Managers. The A/E shall designate a project manager to serve as a point of contact and liaison for work required under this contract. Upon award of this contract, the individual shall be immediately designated in writing. The A/E's designated project manager shall be approved by the Contracting Officer prior to commencement of work. This designated individual shall be responsible for coordination of work required under this contract. The Contracting Officer will designate a project manager to serve as the Government's point of contact and liaison for all work required under this contract.

3.2 Installation Assistance. The Commanding Officer or authorized representative at the installation will designate an individual to assist the A/E in obtaining information and establishing contacts necessary to accomplish the work required under this contract. This individual will be the installation representative.

3.3 Public Disclosures. The A/E shall make no public

announcements or disclosures relative to information contained or developed in this contract, except as authorized by the Contracting Officer.

3.4 Meetings. Meetings will be scheduled whenever requested by the AE or the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The A/E's project manager and the Government's representative shall be required to attend and participate in all meetings pertinent to the work required under this contract as directed by the Contracting Officer. These meetings, if necessary, are in addition to the presentation and review conferences.

3.5 Site Visits, Inspections, and Investigations. The A/E shall visit and inspect/investigate the site of the project as necessary and required during the preparation and accomplishment of the work.

3.6 Records

3.6.1 The A/E shall provide a record of all significant conferences, meetings, discussions, verbal directions, telephone conversations, etc., with Government representative(s) relative to this contract in which the A/E and/or designated representative(s) thereof participated. These records shall be dated and shall identify the contract number, and modification number if applicable, participating personnel, subject discussed and conclusions reached. The A/E shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the records.

3.6.2 The A/E shall provide a record of requests for and/or receipt of Government-furnished material, data, documents, information, etc., which if not furnished in a timely manner, would significantly impair the normal progression of the work under this contract. The records shall be dated and shall identify the contract number and modification number, if applicable. The A/E shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the record of request or receipt of material.

3.7 Interviews. The A/E and the Government's representative shall conduct entry and exit interviews with the Department of Public Works (DPW) before starting work at the installation and after completion of the field work. The Government's representative shall schedule the interviews at least one week in advance.

3.7.1 Entry. The entry interview shall describe the intended procedures for the survey and shall be conducted prior to commencing work at the facility. As a minimum, the interview shall cover the following points:

a. Schedules.

b. Names of energy analysts who will be conducting the site survey.

c. Proposed working hours.

d. Support requirements from the Department of Public Works.

3.7.2 Exit. The exit interview shall briefly describe the items surveyed and probable areas of energy conservation. The interview shall also solicit input and advice from the DPW.

4. SERVICES AND MATERIALS. All services, materials (except those specifically enumerated to be furnished by the Government), plant, labor, supervision and travel necessary to perform the work and render the data required under this contract are included in the lump sum price of the contract.

5. PROJECT DOCUMENTATION. All ECOs which the A/E has considered shall be included in one of the following categories and presented in the report as such:

5.1 ECIP Projects. To qualify as an ECIP project, an ECO, or several ECOs which have been combined, must have a construction cost estimate greater than $300,000, a Savings to Investment Ratio (SIR) greater than one and a simple payback period of less than ten years. For ECAM projects, the $300,000 limitation may not apply; in such cases, the AE shall check with the installation for guidance. The overall project and each discrete part of the project shall have an SIR greater than one. All projects meeting the above criteria shall be arranged as specified in paragraph 2.7.1 and shall be provided with programming documentation. Programming documentation shall consist of a DD Form 1391, life cycle cost analysis (LCCA) summary sheet(s) (with necessary backup data to verify the numbers presented), and a Project Development Brochure (PDB). A LCCA summary sheet shall be developed for each ECO and for the overall project when more than one ECO are combined. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs. For projects and ECOs reevaluated from previous studies, the backup data shall consist of copies of the original calculations and analysis, with new pages revising the original calculations and analysis. In addition, the backup data shall include as much of the following as is available: the increment of work under which the project or ECO was developed in the previous study, title(s) of the project(s), the energy to cost (E/C) ratio, the benefit to cost (B/C) ratio, the current working estimate (CWE), and the payback period. The purpose of this information is to provide a means to prevent duplication of projects in any future reports.

5.2 Non-ECIP Projects. Projects which do not meet ECIP criteria with regard to cost estimate or payback period, but which have an SIR greater than one shall be documented. Projects or ECOs in this category shall be arranged as specified in paragraph 2.6.2 and shall be provided with the following documentation: the LCCA summary sheet completely filled out, a description of the work to be accomplished, backup data for the LCCA, ie, energy savings calculations and cost estimate(s), and the simple payback period. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs. In addition these projects shall have the necessary documentation prepared, as required by the Government's representative, for one of the following categories:

a. Quick Return on Investment Program (QRIP). This program is for projects which have a total cost greater than $3,000 but less than $100,000 and a simple payback period of two years or less.

b. Productivity Enhancing Capital Investment Program (PE-CIP). This program is for projects which have a total cost of greater than $3,000 but lees than $100,000 and a simple payback period of four years or less.

c. OSD Productivity Investment Funding (OSD PIF). This program is for projects which have a total cost of more than $100,000 and a simple payback period of four years or less.

The above programs and the required documentation forms are all described in detail in AR 5-4, Change No. 1.

d. Regular Military Construction Army (MCA) Program. This program is for projects which have a total cost greater than $300,000 and a simple payback period of four to twenty-five years. Documentation shall consist of DD Form 1391 and a PDB.

e. Low Cost/No Cost Projects. These are projects which the DEH can perform using his resources. Documentation shall be as required by the DEH.

5.3 Nonfeasible ECOs. All ECOs which the AE has considered but which are not feasible, shall be documented in the report with reasons and justifications showing why they were rejected.

6. DETAILED SCOPE OF WORK. The Detailed Scope of Work is contained in Annex A.

7. WORK TO BE ACCOMPLISHED.

7.1 Review Previous Studies. Review the previous EEAP study which applies to the specific building, system, or ECO covered by

this study. This review should acquaint the AE with the work that has been performed previously. Much of the information the AE may need to develop the ECOs in this study may be contained in the previous study.

7.2 Perform a Lighting Site Survey. The A/E shall obtain all necessary data to evaluate the ECOs or projects by conducting a site survey. However, the A/E is encouraged to use any data that may have been documented in any previous study. The A/E shall document his site survey on forms developed for the survey, or standard forms, and submit these completed forms as part of the report. All test and/or measurement equipment shall be properly calibrated prior to its use.

7.3 Reevaluate Selected Projects. The A/E shall reevaluate the projects and ECOs listed in Annex A. These are projects and ECOs that the previous study has identified but that have not been accomplished or only parts have been accomplished. If the project or ECO is acceptable as is, that is, there are no changes to the basic project or ECO, the energy savings shown in the previous project may be accepted as accurate but the energy cost and construction cost estimates shall be updated based on the most current data available. With the above information the project shall then be analyzed based on current ECIP criteria. If the project or ECO is basically acceptable but some of the buildings in the original project have been deleted or new buildings can be added, the necessary changes shall be made to the energy savings, the energy costs and construction costs shall be updated, and the revised project or ECO shall then be analyzed using current ECIP guidance. If the original project or ECO has had numerous changes made to it so that all of the numbers are suspected of being inaccurate, but the project or ECO is still considered feasible, the AE shall develop the project from the beginning and analyze it with the current ECIP guidance. These projects shall be separately listed in the report.

7.4 Evaluate Selected ECOs. The A/E shall analyze the ECOs listed in Annex A. These ECOs shall be analyzed in detail to determine their feasibility. SIRs shall be determined using current ECIP guidance. The A/E shall provide all data and calculations needed to support the recommended ECO. All assumptions and engineering equations shall be clearly stated. Calculations shall be prepared showing how all numbers in the ECO were figured. Calculations shall be an orderly step-by-step progression from the first assumption to the final number. Descriptions of the products, manufacturers catalog cuts, pertinent drawings and sketches shall also be included. A LCCA summary sheet shall be prepared for each ECO and included as part of the supporting data.

7.5 Combine ECOs Into Recommended Projects. During the Interim Review Conference, as outlined in paragraph 7.6.1, the

A/E will be advised of the DEH's preferred packaging of recommended ECOs into projects for implementation. Some projects may be a combination of several ECOs, and others may contain only one. These projects will be evaluated and arranged as outlined in paragraphs 5.1, 5.2, and 5.3. Energy savings calculations shall take into account the synergistic effects of multiple ECOs within a project and the effects of one project upon another. The results of this effort will be reported in the Final Submittal per paragraph 7.6.2.

7.6 Submittals, Presentations and Reviews. The work accomplished shall be fully documented by a comprehensive report. The report shall have a table of contents and shall be indexed. Tabs and dividers shall clearly and distinctly divide sections, subsections, and appendices. All pages shall be numbered. Names of the persons primarily responsible for the project shall be included. The A/E shall give a formal presentation of the interim submittal to installation, command, and other Government personnel. Slides or view graphs showing the results of the study to date shall be used during the presentation. During the presentation, the personnel in attendance shall be given ample opportunity to ask questions and discuss any changes deemed necessary to the study. A review conference will be conducted the same day, following the presentation. Each comment presented at the review conference will be discussed and resolved or action items assigned. It is anticipated that the presentation and review conference will require approximately one working day. The presentation and review conference will be at the installation on the date agreeable to the DPW, the A/E and the Government's representative. The Contracting Officer may require a resubmittal of any document(s), if such document(s) are not approved because they are determined by the Contracting Officer to be inadequate for the intended purpose.

7.6.1 Interim Submittal. An interim report shall be submitted for review after the field survey has been completed and an analysis has been performed on all of the ECOs. The report shall indicate the work which has been accomplished to date, illustrate the methods and justifications of the approaches taken and contain a plan of the work remaining to complete the study. Calculations showing energy and dollar savings, SIR, and simple payback period of all the ECOs shall be included. The results of the ECO analyses shall be summarized by lists as follows:

a. All ECOs eliminated from consideration shall be grouped into one listing with reasons for their elimination as discussed in par 5.3.

b. All ECOs which were analyzed shall be grouped into two listings, recommended and non-recommended, each arranged in dessending order SIR. These lists may be subdivided by building or area as appropriate for the study.

The A/E shall submit the Scope of Work and any modifications to the Scope of Work as an appendix to the report. A narrative summary describing the work and results to date shall be a part of this submittal. At the Interim Submittal and Review Conference, the Government's and A/E's representatives shall coordinate with the DPW to provide the A/E with direction for packaging or combining ECOs for programming purposes and also indicate the fiscal year for which the programming or implementation documentation shall be prepared. The survey forms completed during this audit shall be submitted with this report. The survey forms only may be submitted in final form with this submittal. They should be clearly marked at the time of submission that they are to be retained. They shall be bound in a standard three-ring binder which will allow repeated disassembly and reassembly of the material contained within.

7.6.2 Final Submittal. The A/E shall prepare and submit the final report when all sections of the report are 100% complete and all comments from the interim submittal have been resolved. The A/E shall submit the Scope of Work for the study and any modifications to the Scope of Work as an appendix to the submittal. The report shall contain a narrative summary of conclusions and recommendations, together with all raw and supporting data, methods used, and sources of information. The report shall integrate all aspects of the study. The recommended projects, as determined in accordance with paragraph 5, shall be presented in order of priority by SIR. The lists of ECOs specified in paragraph 7.6.1 shall also be included for continuity. The final report and all appendices shall be bound in standard three-ring binders which will allow repeated disassembly and reassembly. The final report shall be arranged to include:

a. An Executive Summary to give a brief overview of what was accomplished and the results of this study using graphs, tables and charts as much as possible (see Annex B for minimum requirements).

b. The narrative report describing the problem to be studied, the approach to be used, and the results of this study.

c. Documentation for the recommended projects (includes LCCA Summary Sheets).

d. Appendices to include as a minimum:

1) Energy cost development and backup data

2) Detailed calculations

3) Cost estimates

4) Computer printouts (where applicable)

5) Scope of Work

LOUISVILLE DISTRICT CORPS OF ENGINEERS
ENGINEERING DIVISION, A/E MANAGEMENT BRANCH (CEORL-ED-M)

ANNEX A
DETAILED SCOPE OF WORK
FORT CAMPBELL, KY
February 15, 1994

1. PROJECT NAME & LOCATION: This is a FY94 EEAP Lighting Energy Study, which includes a lighting survey in varicus buildings and areas that are summarized below in a. b. and c., as located in Figure A-1.1, and listed in Figure A-1.2.

Other ECOs that are to be considered in addition to lighting efficiency are exit lights, occupancy sensor controls, photocells, controls on lights in zones, smart control devices for shut down when foot candle level exceeds above certain levels, attached exterior lights, and EMCS control of lights.

a. Lighting survey for 52 Airfield Buildings that are located adjacent and in the vicinity of the Campbell Army Airfield.

b. Blanchfield Army Community Hospital, Building 650, a 5-story structure, having 455,469 square feet, however, only approximately 227,785, or about ½ of the building area which are the clinics, labs, rest rooms, and hallways. The hospital is located between Indiana Ave/Ohio Ave. and Jackson Road/25th Street, near Gate No.4.

c. Lighting survey for 47 Korean War Barracks in Blocks 3200, 6700, 6900, and the Airfield Barracks, consisting of only the administration rooms, day rooms, rest rooms, dining areas, and hallways, stairs, and equipment rooms, excluding billet rooms.

2. GENERAL SOW vs. DETAILED SOW: The General Scope of Work (GSOW) will apply to contract efforts as modified by the Detailed SOW. Should conflicts occur between the GSOW and the Detailed SOW, the Detailed SOW shall govern.

3. RESPECTIVE POC's for this study:

Louisville District COE- Charles (Chuck) Lockman/CEORL-ED-M
(502) 582-6041, fax# 6763, or 5281

Fort Campbell, KY DPW- Arlin Wright/Supv. DPW-MESB
(502) 798-8895, fax# 7840

Architect/Engineer(A/E)- Ned W. (Chuck) Belt, P/M
Systems Corp.,Suite 306,Cherokee Pl
2200 Sutherland Avenue
Knoxville, TN 37919
(615) 521-6536, or FAX# 524 7514

4. SCOPE:

4.1 The A/E shall provide all work necessary to complete the

Lighting Energy Study as defined by the GSOW including the Annexes. Information and instructions contained within the SOW are provided as a means for the A/E Project Manager to expand or modify the GSOW as may be needed to suit the study for the three project areas listed in par. 1. above. This study is much more flexible than the standard EEAP ESOS type study, and is meant to address specific opportunities, buildings or systems that the installation feels have high and low potential for energy or dollar savings.

4.2 The study will analyze all lighting survey ECOs as listed in par. 1. above and as listed in Figure A-1.2.

4.3 The study will consider new designs for energy trends that make these facilities more cost effective and energy saving.

4.4 If metering of a facility is required, the A/E shall assist the DPW in arranging for the installation of electrical metering, however, existing data is available at the installation, and by other studies/ surveys.

5. DETAILED REQUIREMENTS: All detail requirements selected at Fort Campbell for the purpose of this study, shall specifically include the specific facilities listed in par, 1. above and projects identified by the DPW staff.

In general, the facilities and projects, when investigated relative to the ECO's provided as follows:

The contractor will review existing building drawings, survey and monitor existing lights, and analyze the listed ECO's, and analyze additional ECO's readily discovered during the field survey.

6. PERFORMANCE: The total time required for completion of the study and the performance of all work shall not be more than 180 calendar days from the Notice to Proceed (NTP) on the contract. If the study takes the A/E less time than scheduled to achieve, a shortened schedule for submittal and coordination of review and interim review meeting at the installation may be coordinated by the A/E with all parties involved in the review process. Figure A-6.1 is a schedule of pertinent events and milestone dates for acceptable performance of thc study at Fort Campbell. Changes or adjustments made to the SOW during the term of the project study shall be make by the COE.

7. SUBMITTAL: The A/E's Project Manager shall provide direct distribution of all required submittal and documents in the numbers as listed in Figure A-7.1.

8. GOVERNMENT-FURNISHED INFORMATION: The following list of reference documents will be furnished to the A/E:

a. Energy Conservation Investment Program (ECIP) Guidance,

dated 20 Jan 1994,

b. TM 5-785, Engineering Weather Data.

c. AR 5-4, Change No. 1, Department of the Army Productivity Improvement Program.

d. AR 415-15, 1 Jan 84, Military Construction, Army (MCA) Program Development.

e. The latest MCP Index.

f. Drawings at the DPW of each facility, if available.

9. LCCID FROM BLAST: A computer program titled Life Cycle Costing in Design (LCCID) will be used and is available from the BLAST Support Office in Urbana, Illinois for a nominal fee. This computer program will be used for performing the economic calculations for ECIP and non-ECIP ECOs. The A/E is encouraged to obtain and use this computer program. The BLAST Support Office can be contacted at 144 Mechanical Engineering Building, 1206 West Green Street, Urbana, Illinois 61801. The telephone number is (217) 333-3977, or (800) 842-5478.

10. If it is possible that the buildings in this study will be subject to the computer modeling requirements of paragraph 2.6 of the GSOW, then the simulation programs acceptable to the office doing the technical review should be listed in the detailed scope of work. Some acceptable simulation programs follow:

a. Building Loads and System Thermodynamics (BLAST) *

b. DOE 2.1B *

c. Carrier E20 or Hourly Analysis Program (HAP) **

d. Trane Air-Conditioning Economics (TRACE) **

* Very accurate, but requires a lot of time for input; therefore it is rather expensive for straightforward projects.
** Adequate for load determination, equipment selection, and energy performance for most projects.

FIGURE A-1.2 BUILDING LIST:

ENERGY ENGINEERING ANALYSIS PROGRAM (EEAP) FY94:
FY94 FORT CAMPBELL LIGHTING STUDY
a. 52 Airfield Buildings, b. Blanchfield Army Community Hospital,
& c. 47 Korean War Barracks

BUILDINGS LIST

a. **Airfield Buildings-** Lighting, occupancy sensors controls, exit signs, and exterior lights of buildings.

No.	Cat C	Short Title	User	Gr □'	
7109	13320	Nav Aids Bldg	CAAF(NAV Mnt/AID	192	
7110	72111	ENL BKS w/o D	AV REGT(6/101Bn)	23628	
7112	72111	ENL BKS w/o D	AV REGT(6/101Bn)	25625	
7114	72210	UPH Dining Fa	DISCOM(8thAVDin)	7173	
7116	72210	UPH Dining Fa	DISCOM(8thAV A)	6909	
7118	72111	ENL BKS w/o D	DISCOM(8thAVBN)	25625	
7120	72111	ENL BKS w/o D	DISCOM(8thAVBN)	25625	
7131	14185	Co Hq Bldg	DISCOM(8thAVA&S)	15404	
7133	14185	Co Hq Bldg	AV REST(ADM&SUP)	5135	
7133	14185	Co Hq Bldg	DISCOM(8thADMSP)	5134	
7133	14185	Co Hq Bldg	DISCOM(8thADMSP)	5135	
7134	72335	BnStor. Bldg	DISCOM(8thBNSTG)	17950	
7141	87235	Dispatch Bld	DISCOM(8thDISPA)	192	
7141	21410	VehMnt Sh Org	DISCOM(8thAVVMS)	5077	
7145	14183	Bn Hq Bldg	AV REGT(BDE REUP)	2581	
7149	55010	Clinic w/o Bds	MEDDAC(TMC5Airf)	9248	
7150	21120	AcCompMntShp	DOL(Repair/Stge)	9237	
7152	21110	MntHangarAVUM	AV REGT(OLRHgr#4)	20511	
7154	21110	MntHangarAVUM	AV REGT(Hgr#3)	36677	
7155	14112	Avn Ops Bldg	AV REGT(6/101AV)	4518	
7156	21112	MntHangarComb	DISCOM(Hgr#2)	34785	
7157	14112	Avn Ops Bldg	AV REGT(HQS BLDG)	6649	
7158	87230	Sentry Sta	CAAF(Sentry Sta)	100	
7159	17110	AC Trainer B	AV REGT(S4)	4259	
7160	14111	AfFire Rsq Sta	DEH(AfFldFireRes)	12516	
7161	21110	MntHangarAVUM	CAAF(AVNMntHgr#1)	11218	
7162	13310	FltCon TowHD	CAAF(AVNFltContT)	1256	
7163	14110	Flt Ops Bldg	CAAF(AVNSecAfAOp)	11756	
7164	13340	Radar Bldg	CAAF(AVNSecRadar)	3105	
7165	14132	Ready Bldg	CAAF(AlliedMTAF)	. 954	
7170	14131	Ops Gen Purp	USAF(OL-A436/701	8400	
7176	21140	AcEngTest Fac	DISCOM(ACEngTest)	3230	
7177	44210	AcPtsStr Bldg	DISCOM(8AVBNAirSt	5512	
7179	14132	Ops Gen Purp	101CSG(29TCBNDACG)	9300	
7187	13160	XmtrBldgRadio	CAAF(AVNTransmRad)	1734	
7202	13170	ReceiverBldg	CAAF(AVNReceiverB)	1392	
7206	21110	MntHangarAVUM	DISCOM(50AmbStg)	24178	
7208	61050	AdminGen Purp	AVRegtAdminHgr#6	1560	
7208	14112	AC Trainer B	AVRegtAdminHgr#6	1560	(36 buildings)

(CONTINUED-Airfield Buildings)

No.	Cat C	Short Title	User	Gr □'
7208	21110	MntHangarAVUM	AVRegtAVUMHgr#6	38792
7210	21111	MntHangarAVIM	DISCOM(8AVIMHgr7)	32611
7212	13310	FltCon TowHD	CAAF(AVNFltContT)	1849
7214	21110	MntHangarAVUM	AV REGT Hgr8AVUM	41860
7218	21110	MntHangarAVUM	AV REGT Hgr9AVUM	41860
7223	82150	SteamPlPower	DEH Steam Plant	2530
7243	21110	MntHangarAVUM	AV REGTBnHgr10	41117
7245	21110	MntHangarAVUM	AV REGTBnHgr11	49139
7262	21111	MntHangarAVIM	160SPOpnsAV Hgr15	69243
7264	21111	MntHangarAVIM	160SPOpnsAV Hgr16	60000
7267	17112	FlgtSim Bldg	160SPOpnsFltSimB	28744
7268	21110	MntHangarAVUM	160SPOpnsGpHgr17	60400
7272	21110	MntHangarAVUM	160SPOpnsGpHgr18	40548
7273	44270	GenStorehouse	160SPOpnsAVSP	4987
7281	61050	AdminGen Purp	160SPOpnsAVGPMAd	468
7281	44210	AcPts StrBldg	160SPOpnsACPtsStg	10802
7281	21740	AvMnt Shop	160SPOpnsMaintShp	1230
7294	14180	Scale House	160SPOpnsScaleHse	72

(16 buildings)=

Total 52 Airfield Buildings @ Estm'd □' 921K, whereby 8 Bldgs are over 40K each, and 11 Bldgs are over 20K each.

b. **Hospital-** Clinics, labs, rest rooms, and hallway lighting of Hospital, the exit signs, occupancy sensor controls, exterior lights of building, and EMCS controlling.

No.	Cat C	Short Title	User	Gr □'
0650	51010	Hospital	MEDDAC(BACH ABC)	455469
				Estm'd □'
				227785

(01 building)= Total 1 Building

c. **Korean War Barracks-** Admin Rooms, Day Rooms, Rest Rooms, Dining areas, Hallways, Stairs, & Equipment Rooms lighting, occupancy sensor controls, exit lights, & exterior lights of buildings (bullit rooms not included). Note: Buildings are typical by nature of their function, square footage (□'), and Cat. Code.

No.	Cat C	Short Title	User	Gr □'
3211	72110	ENL BKS w/Din	SOC(5TH SFG)	39722
3212	72110	ENL BKS w/Din	SOC(5TH SFG/HHC)	39722
3213	72111	ENL BKS w/o D	SOC(2/5th SFG)	42627
3214	72111	ENL BKS w/o D	SOC(SPT BN SFG)	42627
3215	14131	OPS Gen Purp	SOC(1/5th SFG)	39809
3216	14131	OPS Gen Purp	SOC(1/5th SFG)	39809
3217	72111	ENL BKS w/o D	SOC(1/5th SFGwC)	39722
3218	14131	OPS Gen Purp	SOC(1/5th SFG)	39722
(8)				
6709	72110	ENL BKS w/Din	DISCOM(HHC/101FC	38145
6710	72111	ENL BKS w/o D	DISCOM(526 FWD)	38406
6711	72110	ENL BKS w/Din	DISCOM(801 MSB)	38329

No.	Cat C	Short Title	User	Gr □′
6712	72111	ENL BKS w/o D	DISCOM(801MSBHQ)	38585
6718	72111	ENL BKS w/o D	DISCOM(101PSC/FB	31869
6719	72111	ENL BKS w/o D	DISCOM(626FWDSPT	31779
6725	72110	ENL BKS w/Din	501st SIG	38241
6726	72111	ENL BKS w/o D	501st SIG	38160
6727	72110	ENL BKS w/Din	101 CSG(HHD HQ)	38312
6728	72110	ENL BKS w/Din	DISCOM(426 FSB)	38285
6730	72110	ENL BKS w/Din	PMO(101 MP CO)	38138
6731	72111	ENL BKS w/o D	HHC(101ABN D/LEC	38208
6732	72111	ENL BKS w/o D	101 CSG(QM/TC)	38442
6733	72110	ENL BKS w/Din	101 CSG(LMT CO)	37977
(14)				
6936	72110	ENL BKS w/Din	DIVARTY(1/320FA)	31735
6937	72110	ENL BKS w/Din	DIVARTY(3/320FA)	37900
6938	72111	ENL BKS w/o D	DIVARTY(3/320FA)	38039
6939	72110	ENL BKS w/Din	2/44th ADA	38137
6040	72110	ENL BKS w/Din	2/44th ADA	38127
6942	72110	ENL BKS w/Din	326th EN	38098
6943	72111	ENL BKS w/o D	326th EN	38049
6944	72110	ENL BKS w/Din	326th EN	38063
6945	72110	ENL BKS w/Din	DIVARTY(1/320FA)	31685
(9)= Total of 31 Barrack Buildings outside of CAAF				
CAAF Barracks:				
6909	72111	ENL BKS w/o D	AV REGT(7/101)	31758
6910	72110	ENL BKS w/Din	AV REGT(7/101)	38089
6911	72110	ENL BKS w/Din	AV REGT(9/101)	38280
6912	72111	ENL BKS w/o D	AV REGT(4/101)	38310
6917	72110	ENL BKS w/Din	AV REGT(3/101)	38480
6918	72111	ENL BKS w/o D	AV REGT(2/101)	38646
6919	72110	ENL BKS w/Din	AV REGT(2/101)	38711
6920	72111	ENL BKS w/o D	AV REGT(5/101)	38649
6921	72111	ENL BKS w/o D	160SPOpnsAVGPw/A	38512
6922	72110	ENL BKS w/Din	160SPOpnsAVGPw/A	38691
6923	72110	ENL BKS w/Din	160SPOpnsAVGPw/A	38465
6927	72110	ENL BKS w/Din	311MI(HHOC/BCo)	38118
6928	72111	ENL BKS w/o D	311MI(A&C Co)	38120
6929	72111	ENL BKS w/o D	DIVARTY(HHB/5/8)	38281
6930	72110	ENL BKS w/Din	DIVARTY(2/320FA)	38196
6931	72110	ENL BKS w/Din	DIVARTY(2/320FA)	31713
(16 CCAF)=				
Total of 47 Barrack Buildings @ Estm'd □′= 1.8M				

FIGURE A-6.1. SCHEDULE for Lighting Energy Study, FY94 EEAP, Fort Campbell, KY is as follows:

Item	Calendar	ActualDate
1. RFP LETTER TO A/E	TBD	..
2. RFP LETTER RECEIVED BY A/E (COE, MACOM, DPW, and A/E coordinates date)	TBD	..
3.a A/E SUBMITS PROPOSAL/NEG'Ns BEGIN	TBD	..
b Negotiations begin/ends, SAF	TBD	..
4. AWARD OF CONTRACT-START/NTP (field analysis can begin by A/E)	1	..
5. ENTRY INTERVIEW @ Fort Campbell, KY (formal SOW Mtg. w/DPW, COE, and MACOM at FC)	14	..
6. INTERIM SUBMITTAL @ 60% (all field work completed/ECO's analyzed)	100	..
7. REVIEW PERIOD OF 60% INTERIM SUBMITTAL ends(COE gathers comments from IN-HOUSE/DPW/MACOM)	120	..
8. INTERIM REVIEW MEETING @ FC (COE, MACOM, DPW, A/E, & others)	130	..
9. EXIT INTERVIEW MTG. @ FC	130	..
10. FINAL SUBMITTAL (A/E sends directly to as listed, herein)	180	..
16. DPW may require to have input on the DD Form 1391 from A/E	180	..
17. DPW submits DD Form 1391's	TBD	..

FIGURE A-7.1. Distribution of Submittals: The A/E shall make direct submittal and responses to comments as indicated by the following schedule:

Organization	Correspondence	Executive Summary Reports		Fieldnotes
COMMANDER,US Army Engineer District,Louisville ATTN: CEORL-ED-M/Charles Lockman P.O. Box 59 (express-600 Dr.Martin King Place) Louisville, KY 40201-0059 tel. (502) 582-6041, or fax# 6763, or 5281	1	1	1	1*
HQ 101 Abn Div (AASLT) & Ft.Campbell ATTN: AFZB-DE-R-M/Arlin E. Wright 16th & Ohio St.,Bldg. T-865 (DPW) Fort Campbell, KY 42223-1291 tel. (502) 798-8895, or fax# 7840	1	1	1	1*
Headquarters FORSCOM (MACOM) ATTN: FCEN-RDF/Naresh Kapur Fort McPherson, GA 30330-6000 tel. (404) 669-6731, or fax# 6122, or 7751	1	1	1	1*
COMMANDER, US Army Engineer District,Mobile ATTN: CESAM-EN-CC/Tony Battaglia (EEAP TCX) P.O. Box 2288 Mobile, AL 36628-0001 tel. 205-690-2618, or fax# 2424	1	1**	1	0
COMMANDER, US Army Engineer Div.,Ohio River ATTN: CEORD-DL-M/Joe Semrad P.O. Box 1159 Cincinnati, OH 45201-1159 tel. 513-684-3975	0	1**	0	0
COMMANDER, US Army Corps of Engineers ATTN: CEMP-ET/Dan Gentil (EEAP Mgr.) 20 Massachusetts Avenue Washington, D.C. 20314-1000 tel. 202-272-0430	0	1**	0	0
COMMANDER, US Army Logistics Evaluation Agency ATTN: LOEA-PL/Mr. Keath New Cumberland Army Depot New Cumberland, Pa. 17070-5006	0	1**	0	0

* Field Notes submitted in final at Interim submittal.
** Submit copies of the final Executive Summary Only

ANNEX B

EXECUTIVE SUMMARY GUIDELINE

1. Introduction.

2. Building Data (types, number of similar buildings, sizes, etc.)

3. Present Energy Consumption of Buildings or Systems Studied.

   o Total Annual Energy Used.

   o Source Energy Consumption.
   Electricity - KWH, Dollars, BTU
   Fuel Oil - GALS, Dollars, BTU
   Natural Gas - THERMS, Dollars, BTU
   Propane - GALS, Dollars, BTU
   Other - QTY, Dollars, BTU

4. Reevaluated Projects Results.

5. Energy Conservation Analysis.

   o ECOs Investigated.

   o ECOs Recommended.

   o ECOs Rejected. (Provide economics or reasons)

   o ECIP Projects Developed. (Provide list)*

   o Non-ECIP Projects Developed. (Provide list)*

   o Operational or Policy Change Recommendations.

* Include the following data from the life cycle cost analysis summary sheet: the cost (construction plus SIOH), the annual energy savings (type and amount), the annual dollar savings, the SIR, the simple payback period and the analysis date.

6. Energy and Cost Savings.

   o Total Potential Energy and Cost Savings.

   o Percentage of Energy Conserved.

   o Energy Use and Cost Before and After the Energy Conservation Opportunities are Implemented.

ANNEX C

REQUIRED DD FORM 1391 DATA

To facilitate ECIP project approval, the following supplemental data shall be provided:

a. In title block clearly identify projects as "ECIP."

b. Complete description of each item of work to be accomplished including quantity, square footage, etc.

c. A comprehensive list of buildings, zones, or areas including building numbers, square foot floor area, designated temporary or permanent, and usage (administration, patient treatment, etc.).

d. List references, and assumptions, and provide calculations to support dollar and energy savings, and indicate any added costs.

(1) If a specific building, zone, or area is used for sample calculations, identify building, zone or area, category, orientation, square footage, floor area, window and wall area for each exposure.

(2) Identify weather data source.

(3) Identify infiltration assumptions before and after improvements.

(4) Include source of expertise and demonstrate savings claimed. Identify any special or critical environmental conditions such as pressure relationships, exhaust or outside air quantities, temperatures, humidity, etc.

e. Claims for boiler efficiency improvements must identify data to support present properly adjusted boiler operation and future expected efficiency. If full replacement of boilers is indicated, explain rejection of alternatives such as replace burners, nonfunctioning controls, etc. Assessment of the complete existing installation is required to make accurate determinations of required retrofit actions.

f. Lighting retrofit projects must identify number and type of fixtures, and wattage of each fixture being deleted and installed. New lighting shall be only of the level to meet current criteria. Lamp changes in existing fixtures is not considered an ECIP type project.

g. An ECIP life cycle cost analysis summary sheet as shown in the ECIP Guidance shall be provided for the complete project and for each discrete part included in the project. The SIR is applicable to all segments of the project. Supporting documentation consisting of basic engineering and economic calculations showing how savings were

determined shall be included.

h. The DD Form 1391 face sheet shall include, for the complete project, the annual dollar and MBTU savings, SIR, simple amortization period and a statement attesting that all buildings and retrofit actions will be in active use throughout the amortization period.

i. The calendar year in which the cost was calculated shall be clearly shown on the DD Form 1391.

j. For each temporary building included in a project, separate documentation is required showing (1) a minimum 10-year continuing need, based on the installation's annual real property utilization survey, for active building retention after retrofit, (2) the specific retrofit action applicable and (3) an economic analysis supporting the specific retrofit.

k. Nonappropriated funded facilities will not be included in an ECIP project without an accompanying statement certifying that utility costs are not reimbursable.

l. Any requirements required by ECIP guidance dated 4 Nov 1992 and any revisions thereto. Note that unescalated costs/savings are to be used in the economic analyses.

m. The five digit category number for all ECIP projects except for Family Housing is 80000. The category code number for Family Housing projects is 71100.

GLOSSARY OF ACRONYMS

A/E	Architect Engineer
AR	Army Regulation
B/C	Benefit to Cost
COE	Corps of Engineers
CWE	Current Working Estimate
DPW	Director of Public Works
DOD	Department of Defense
DSOW	Detailed Scope of Work
E/C	Energy to Cost
ECAM	Energy Conservation and Management
ECIP	Energy Conservation Investment Program
ECO	Energy Conservation Opportunity
EEAP	Energy Engineering Analysis Program
EHSC	Engineering and Housing Support
EMCS	Energy Monitoring Analysis Program
ESOS	Energy Savings Opportunity Survey
GSOW	General Scope of Work
HQUSACE	Headquarters US Army Corps of Engineers
LCCA	Life Cycle Cost Analysis
LCCID	Life Cycle Cost In Design
MACOM	Major Army Command
MCA	Military Construction Army
NECPA	National Energy Conservation Policy Act
OSD PIF	OSD Productivity Capital Investment Funding
PCIP	Productivity Capital Investment Program
PDB	Project Document Brochure
PECIP	Productivity Enhancing Capital Investment Program
POC	Point of Contact
QRIP	Quick Return on Investment Program
SIR	Savings Investment Ratios
TCX	Technical Center of Expertise

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study Pre-Final O Location: Fort Campbell, KY Final O Year: P.N.	Reviewer: Louisville District COE Name: Charles Lockman Organization: CEORL-ED-MS	Pg 1 of 2 8/31/94

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
1	1	1	1-1	CEORL-ED-N Charles Lockman should be CEORL-ED-MS Charles Lockman	A	This will be incorporated into the Final Report	
2	1	2	2-1	2.1.1 Airfield Bldgs represent nine (9) not eight (8) as reported in the second section.	N	The Airfield represents eight (8) functional types: barracks, airfield support facilities, hangars, dining facilities, admin, storage, medical clinic and fir station.	
3	1	2	2-5	Dining facilities - shouldn't bldg 7116 have been reported here because in 2-14 Bldg 7114 was to be closed, thereby leaving 7116 to be evaluated as reported.	A	Bldg 7116 was left off Table 2.1.1.1. Its current function has changed from dining facility to administrative.	
4	3	10	Table 1	6906 should be 6909, or is my list not correct?	A	You are correct. Bldg 6909 was evaluated.	
5	3	9	A-8	Change out page provided by fax with change of address for AFPI-ENO/Naresh Kapur	A	This will be incorporated into the Final Report.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study	Reviewer: Louisville District COE	Pg 2 of 2
	Pre-Final O Location: Fort Campbell, KY	Name: Tom Allred, Ron Pepper	8/31/94
	Final O Year: P.N.	Organization: CEORL-ED-DE	

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
6	1&3	5	5-6	Data between "Interior Lighting Survey Forms" (Vol.3) and ECO-1 Calculations (Vol.1) does not agree. Example: Bldg 7109 - for a 4 lamp fixture wattage is calculated at 226 watts per survey form but is shown as 180 watts on calculation sheet 5-6.	N	The existing fixture wattages were determined by multiplying the voltage by the amps by the number of ballasts per fixture. Example: Bldg 7109 = 120V x .75A x 2 = 180 watts	
7	1	5	5-6	It appears that fixture wattages for replacement fixtures on calculation sheets is too low. Example: Bldg 7109 - for a 4-lamp fixture wattage is shown as 118 watts. This value is lower than the sum of the individual lamp wattages (approx. 30 watts each) not counting the ballast. Therefore, it appears savings are exaggerated!	N	The replacement fixture wattages are consistent with manufacturer's information. This information will be included in the Final Report.	Catalog cut-sheets sections 3, 5, 6
8	-	-	-	It appear, based on comments 6 & 7 that any calculations of savings would be unreliable.	N	The responses to comments 6 & 7 clarifies any concerns with the reliability of Systems Corp analysis.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments				
	Interim ● Project: EEAP-Lighting Energy Study		Reviewer: Warren E. Neiden, Jr. P.E.	Pg 1 of 4
	Pre-Final O Location: Fort Campbell, KY		Organization: Mobile District	09/01/94
	Final O Year: P.N.		COE - Electrical Branch	

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
1	-	-	-	Lighting levels that are being reduced in various proposed areas shall be closely coordinated with the user. This is necessary so as to actually determine the necessary illumination in each area based on actual usage and not by the room name or description alone.	A	The areas surveyed, as detailed in the field survey notes - Volume 3, have the recommended light levels or less. All areas were evaluated to maintain or increase the light levels. The field survey notes reflect the actual function and operating hrs of each area. The Final Report will explain this in further detail.	Section 2
2	-	-	-	No technical data or lighting calculations were provided to back proposals or substantiate actions taken. This is especially so where the lighting level is being questioned, reflectors being proposed, light level is being lowered, and less than one-to-one replacement of lamps will be utilized.	A	The Final Report will include manufacturers' cut sheets on all proposed products. These cut sheets will be included in the 1391 and Project Development Brochures. Sample calculations will be provided in the Final Report to substantiate lamp reductions.	Sections 2,3,5,6
3	-	-	-	It is not clear as to whether or not all existing light fixtures under consideration will have the lens and reflectors cleaned. Also, has this cost been included? This is important to achieve maximum lighting output especially in areas where the light level seems a bit low.	N	This project proposes fixture replacement, not fixture retrofits. New and clean fixtures will replace the old fixtures. Therefore, lens and reflector cleaning costs were not included.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study	Reviewer: Warren E. Neiden, Jr. P.E.	Pg 2 of 4
	Pre-Final O Location: Fort Campbell, KY	Organization: Mobile District	09/01/94
	Final O Year: P.N.	COE - Electrical Branch	

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
4	-	-	-	I could find no field data that indicated how the existing light levels were obtained and what were the conditions of the existing fixtures (dirting.....)	N	The field survey notes in Volume 3 detail the lighting levels measured in the surveyed areas. These measurements were taken at the level of the work space and on the floor in the corridors. The field survey notes, also, detail any unique appearances in the fixture other than normal wear and tear.	
5	-	-	-	Ballast replacement is not clear. Are all ballasts throughout this proposal replaced one-for-one? If not, how does this affect the flexibility of multi-level switching of lights. This is especially noticed where a 4-lamp fixture is being replaced with a 2-lamp w/ reflectors. If the proposal considers rewiring of fixtures, has this also been included in the cost analysis?	A	The ballast/fixture configuration was proposed as follows: a 4-lamp fixture has 2-2 lamps ballasts, a 3-lamp fixture has 1-3 lamp ballast, a 2 lamp fixture has 1-2 lamp ballast and a 1 lamp fixture has a 2 lamp ballast tandem wired to the adjacent fixture and include the necessary additional labor and material.	
6	-	-	-	This submittal should include data and manufacturers names on the reflectors being proposed. Reflectance values used in this analysis are unknown, therefore hard to determine if propos-als are valid and consider all factors.	A	The Final Report will include manufacturers' cut sheets on all proposed products. These cut sheets will be included in the 1391 and Project Development Brochures.	Sections 3, 5, 6

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

B-4

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study	Reviewer: Warren E. Neiden, Jr. P.E.	Pg 3 of 4
-	Pre-Final O Location: Fort Campbell, KY	Organization: Mobile District	09/01/94
	Final O Year: P.N.	COE - Electrical Branch	

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
7	-	-	-	It is noticed that the proposals are considering air-conditioning savings for the cooling months, but did not consider the extra heating cost during the winter months due to the reduction in heat loads in the more efficient lighting proposals. All cost as well as savings should be included in the analysis.	A	The Hospital was the only building evaluated for cooling savings. It was determined all other facilities would break even between the cooling and heating systems. The hospital has a year round cooling load with perimeter reheat. The hospital was designed to use the load w/i the areas to heat the space. By reducing the heat load with the efficient lighting systems, the supply temperature of the cooling system can be reduced.	
8	-	-	-	The analysis should consider average footcandles not initial. By merely replacing lamps, ballasts and cleaning the fixture will increase the illumination well above present conditions. That's why lighting calculations are a must in comparing the present lighting system to a new proposed one.	A	The analysis does considered lamp lumen deterioration. The analysis is to replace the fixtures, not to retrofit them. The Final Report will include a sample calculation to verify the light levels in the proposed systems.	Section 2
9	1	5	5-2	The index of buildings should reflect page 5-57 in lieu of 5-51 for building #7131.	A	This will be corrected for the Final Report.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study	Reviewer: Warren E. Neiden, Jr. P.E.	Pg 4 of 4
	Pre-Final O Location: Fort Campbell, KY	Organization: Mobile District	09/01/94
	Final O Year: P.N.	COE - Electrical Branch	

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
10	-	-	-	When considering occupancy sensors, close coordination with the user is a must to determine what will be actually saved over a period of time. Area or room names can be misleading.	A	The Field Survey Forms located in Vol.3 reflect the actual area function, operating hours and amount of area utilization. This information was then used to determine the potential savings for installing occupancy sensors.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study Pre-Final O Location: Fort Campbell, KY Final O Year: P.N.	Reviewer: Naresh Kapur Organization: FORSCOM	Pg 1 of 4 09/02/94

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
1	-	-	-	Systems Corp has aggressively pursued this EEAP study for a quick submission of the Interim Report. Thanks.	-		
2	1	2	2-12	Delamping is not mentioned in the ECO description. Was there any opportunities based on field work?	A	Delamping was considered in the type of replacement fixture used. For example, if an area slightly exceeded recommended fc levels, Systems Corp replaced the 4-lamp fixture with a 2-lamp fixture w/ reflectors. Delamping as a separate ECO was not included in the Scope of Work and can not be funded by ECIP money.	
3	-	-	-	Many building corridors have significant amounts of lighting. Some corridors are overlit especially in the Hospital floors near the elevators. We'd like to see a discussion on this.	N	All corridor areas were at or below recommended fc levels. Systems Corp did not survey the elevator areas at the Hospital. This area was not included in the scope.	
4	1	3	3-9	In Table 3.4.2.1, maintenance and replacement costs against fluorescent EXIT signs, material & labor costs are $8. What does this include?	A	The $8 represents the material & labor required over a 10 yr life of the sign. This would be lamp and labor replacement costs. Costs were calculated using manufac-turer's quotes and labor estimates from Means for Lotus.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study Pre-Final O Location: Fort Campbell, KY Final O Year: P.N.	Reviewer: Naresh Kapur Organization: FORSCOM	Pg 2 of 4 09/02/94

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
5	1	5	-	All the ECO, data & field notes are very well organized. The cost estimates, savings & LCCA are also computerized. For ECOs related to each Bldg there is need for a little bit of explanation as to what is being done & why. Also need to mention what is not being done & why. This can be done in the beginning of Section 5. Otherwise it would not be so easy to follow ECOs without doing a whole lot of research.	A	A more detailed description will be included in the Final Report.	Sections 2-6
6	1-2	5	-	In LCCA, the non-energy savings values in 3A & 3B are used. How do we know the source of these savings? Where to look for verification of these numbers?	A	These numbers were calculated using the material and labor replacement costs shown in Table 3.4.2.1. This information multiplied by the number of fixtures shown on the calculation forms will give you the total non-energy savings.	Section 2
7	1	5	5-14	For 2 lamp fixture, wattage including ballast is shown as 84 watts. How was this calculated? Per field notes, existing lamps are 34 watt each.	A	Please refer to the resolution to comment #6.	
8	1-2	-	-	For many bldgs, overall SIR & PB don't meet ECIP criteria. Can we just select those items which do meet the ECIP criteria?	A	The buildings with a payback of more than 11 years will be removed from the total project.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study Pre-Final O Location: Fort Campbell, KY Final O Year: P.N.	Reviewer: Naresh Kapur Organization: FORSCOM	Pg 3 of 4 09/02/94

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
9	-	-	-	For hangar bay areas, the light levels should be taken both during daylight and at night to get a better feel for ECO possibilities.	N	The light levels were taken during the day with the lights on and off. This accomplishes the same thing. These readings will show the amount of daylight contributing to the areas.	
10	3	-	-	In many barracks area, the light levels are not provided. These lights remain on most of the time. Request to provide the information. Use this information to further develop the ECOs.	A	The areas without recorded light level readings were estimated to be at or below the recommend-ed light level or consistent with the same areas in the other barracks.	
11	1	5	5-39 5-48	LCCA for bldgs 7118 & 7120 (each 25,625) enlisted barracks yields ECO with cost estimates of $703 each, SIR = 3.15 & PB=3.79. Discuss.	A	The hallways, latrines and laundry rooms in these bldgs have already been switched to T8 lamps. The dayroom is the only room included in the scope that has not been converted. This is noted on the field notes.	
12	1	5	5-57	LCCA for bldg 7131, investment $18,520, SIR=1.24, PB=9.70. Can we delete unproductive parts of this ECO and make it meet ECIP criteria? Similar situation exist for other buildings also.	A	This will be grouped with more favorable bldgs to inprove overall project payback. Bldgs with a payback of more than 11 yrs will be pulled out of project.	
13	1	5	5-256	Bldg 7206 Maintenance Hangar, hours of operation is 10 hr/dy, 5 dy/wk. Check.	N	The operating hours reflect the operation during the field survey. This was also double checked during the Interim Review.	

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

Project Review Comments	Interim ● Project: EEAP-Lighting Energy Study Pre-Final O Location: Fort Campbell, KY Final O Year: P.N.	Reviewer: Naresh Kapur Organization: FORSCOM	Pg 4 of 4 09/02/94

Comment No.	Vol.	Section	Page	COMMENTS	Action Code	RESOLUTIONS (include location of documents)	Ref.
14	1	5	5-345	Bldg 7262 Hangar, investment $42,180, SIR=.55. PB=21.68 yrs. What can be done to improve the economies. Please take another look at it.	A	This will be re-evlauated to only replace the lamps and ballasts. This bldg is only a couple of years old.	Section 8
15	2	5-3	-	Was delamping considered in areas where the light fixtures may be redundant or contributing to overlighting or otherwise not needed. Please discuss.	A	Delamping was considered in the type of replacement fixture used.	
16	2	5-3	-	Please discuss why retrofit kits can't be used other installations have used.	A	The retrofit kits can't be used due to the type of existing fluorescent EXIT sign. The current sign is not the box type. Please refer to Section 2.3.1 paragraph 2.	
17	3	-	bldg 7112	The field notes indicate one EXIT sign. Please check, This bldg has 25,625 sf.	A	Many of the barracks surveyed use the EXIT signs without lamps. These can not be retrofitted or replaced without adding to the electrical consumption.	
18	2	7.3.2	7-4	ECO-2 Lighting Controls need to beef up this write-up on lighting controls. Give examples/sketches on how it works.	A	This will be expanded in the Final Report. Sketches of lay-out are included in the field survey notes.	Sections 2 & 4

ACTION CODES: A - Accepted/Concur D - Action Deferred N - Non-concur W - withdraw

THIS PAGE AND THE PAGE FOLLOWING DETAIL THE ANALYSIS CONCERNING THE RETROFITTED BARRACKS; CHANGING EXISTING T8 MAGNETIC BALLASTS TO T8 ELECTRONIC BALLASTS. AS THE FOLLOWING WILL SHOW, THE RETROFIT WILL NOT PAYBACK WITHIN 10 YEARS. THESE CALCULATIONS ARE IN RESPONSE TO INTERIM REVIEW COMMENTS.

LIFE CYCLE COST ANALYSIS FOR BARRACKS' LATRINES

EXAMPLE CALCULATION
T8 MAGNETIC TO T8 ELECTRONIC BALLAST
1 FOR 1 BALLAST CHANGE; NO LAMP CHANGES

ENERGY SAVINGS CALCULATIONS (FOR 1 FIXTURE):
(12 HR/DAY, 7 DAY/WEEK)

ENERGY CHARGE: $0.0211 /KWH
DEMAND CHARGE: $11.78 /KW

BASELINE ENERGY CONSUMPTION:

71 WATTS/FIXTURE X 4368 HR/YR = 310 KWH

PROPOSED ENERGY CONSUMPTION:

58 WATTS/FIXTURE X 4368 HR/YR = 253 KWH

ENERGY SAVINGS = 57 KWH
ENERGY SAVINGS = $1.20 /YR DEMAND SAVINGS = $1.84 /YR

TOTAL SAVINGS = $3.04 /YR

TOTAL INVESTMENT	**$60**	
FIRST YEAR SAVINGS	**$3**	
SIMPLE PAYBACK	**19.49**	**YEARS**
SIR	**0.62**	

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: T8BALLST
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID 1.080
INSTALLATION & LOCATION: FORT CAMPBELL REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: 9401301 T8 BALLAST RETRO LATRINES
FISCAL YEAR 94 DISCRETE PORTION NAME: LIGHTING
ANALYSIS DATE: 09-19-94 ECONOMIC LIFE 15 YEARS PREPARED BY: J. HOLLENSBE

1. INVESTMENT

A. CONSTRUCTION COST	$ 55.		
B. SIOH	$ 3.		
C. DESIGN COST	$ 3.		
D. TOTAL COST (1A+1B+1C)	$ 60.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 60.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 6.18	0.	$ 1.	12.43	$ 15.
B. DIST	$ .00	0.	$ 0.	13.56	$ 0.
C. RESID	$ .00	0.	$ 0.	15.09	$ 0.
D. NAT G	$ .00	0.	$ 0.	15.86	$ 0.
E. COAL	$ .00	0.	$ 0.	13.61	$ 0.
F. LPG	$ .00	0.	$ 0.	12.64	$ 0.
M. DEMAND SAVINGS			$ 2.	11.85	$ 22.
N. TOTAL		0.	$ 3.		$ 37.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	11.85	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 3.
5. SIMPLE PAYBACK PERIOD (1G/4)	19.49 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 37.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	.62
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):	-.14 %

THE FOLLOWING PAGES ARE THE LIFE CYCLE COST ANALYSIS, THE CALCULATIONS, AND THE COST ESTIMATE REWORKED FOR BUILDING 7262. THE COST ESTIMATE WAS CHANGED TO REFLECT A BALLAST AND LAMP CHANGE ONLY FOR FLUORESCENT FIXTURES, NO TOTAL FIXTURE CHANGES. THE FOLLOWING TABLE LISTS THE PREVIOUS LCCA RESULTS AND THE LCCA RESULTS WITH THE COST ESTIMATE CHANGE. THE RETROFIT HAD POORER ECONOMIC RESULTS DUE TO HIGHER LABOR COSTS.

BUILDING 7262 LCCA
FIXTURE CHANGEOUT VS BALLAST/LAMP RETROFIT

	COMPLETE FIXTURE RETROFIT	BALLAST & LAMP REPLACEMENT
INVESTMENT COSTS	$42,180	$46,104
FIRST YEAR SAVINGS	$1,945	$1,945
SIMPLE PAYBACK	21.68	23.70
SIR	0.55	0.51

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: ECO17262
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID 1.080
INSTALLATION & LOCATION: FT CAMPBELL REGION NOS. 4 CENSUS: 3
PROJECT NO. & TITLE: ECO17262 LIGHTING BLDG 7262
FISCAL YEAR 94 DISCRETE PORTION NAME: LIGHT
ANALYSIS DATE: 09-19-94 ECONOMIC LIFE 15 YEARS PREPARED BY: JULIE HOLLENS

1. INVESTMENT

A. CONSTRUCTION COST	$ 41913.		
B. SIOH	$ 2096.		
C. DESIGN COST	$ 2096.		
D. TOTAL COST (1A+1B+1C)	$ 46104.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 46104.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1993

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 6.18	88.	$ 544.	12.43	$ 6761.
B. DIST	$ .00	0.	$ 0.	13.56	$ 0.
C. RESID	$ .00	0.	$ 0.	15.09	$ 0.
D. NAT G	$ .00	0.	$ 0.	15.86	$ 0.
E. COAL	$ .00	0.	$ 0.	13.61	$ 0.
F. LPG	$ .00	0.	$ 0.	12.64	$ 0.
M. DEMAND SAVINGS			$ 1395.	11.85	$ 16531.
N. TOTAL		88.	$ 1939.		$ 23291.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 6.
(1) DISCOUNT FACTOR (TABLE A)	11.85	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 76.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 76.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 1945.
5. SIMPLE PAYBACK PERIOD (1G/4)	23.70 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 23367.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	.51
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):	-1.47 %

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: FLUORESCENT FIXTURE REPLACEMENT

BUILDING #: 7262
AREA: ENTIRE BLDG
AREA USE:
HOURS/DAY 10
DAYS/WEEK 5

BUILDING VOLTAGE 277

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARGE $11.78 PER KW

EXISTING FIXTURE DATA				REPLACEMENT FIXTURE DATA			
2 FOOT				2 FOOT			
	2 LAMP U	96 W/FIXT =	0 WATTS	0	2 LAMP U @ 58 W/FIXT =		0 WATTS
4 FOOT				4 FOOT			
	1 LAMP @	48 W/FIXT =	0 WATTS	0	1 LAMP @ 29 W/FIXT =		0 WATTS
308	2 LAMP @	90 W/FIXT =	27720 WATTS	308	2 LAMP @ 58 W/FIXT =		17864 WATTS
	3 LAMP @	144 W/FIXT =	0 WATTS	0	3 LAMP @ 87 W/FIXT =		0 WATTS
	4 LAMP @	192 W/FIXT =	0 WATTS	0	4 LAMP @ 118 W/FIXT =		0 WATTS
8 FOOT				8 FOOT			
	2 LAMP @	180 W/FIXT =	0 WATTS	0	2 LAMP @ 125 W/FIXT =		0 WATTS

BASELINE ENERGY CONSUMPTION	*72,072*	*KWH/YR*	*ECO ENERGY CONSUMPTION*	*46,446*	*KWH/YR*
	259,459	*MJ/YR*		*167,207*	*MJ/YR*
BASELINE DEMAND	*27.72*	*KW*	*ECO DEMAND*	*17.86*	*KW*

NET ENERGY SAVINGS	**92,252 MJ/YR**	**NET DEMAND SAVINGS**	**$1,393 /YR**
NET ENERGY SAVINGS	**87.43 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1,934 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR / EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: INCANDESCENT LAMP REPLACEMENT

BUILDING #: 7262
AREA: RESTROOM

LAMP USE:
HOURS/DAY 3
DAYS/WEEK 5
PEAK USE 2 (1-YES, 2-NO)

BUILDING VOLTAG 120

ELECTRIC COSTS:
ENERGY CHARGE $0.0211 PER KWH
DEMAND CHARG $11.78 PER KW

EXISTING INCANDESCENTS					COMPACT FLUORESCENT REPLACEMENT				
	LAMPS @	52	WATTS =	0 WATTS	1 LAMPS @	13	WATTS =	13 WATTS
1	LAMPS @	60	WATTS =	60 WATTS				
	LAMPS @	75	WATTS =	0 WATTS	0 LAMPS @	18	WATTS =	0 WATTS
	LAMPS @	90	WATTS =	0 WATTS	0 LAMPS @	26	WATTS =	0 WATTS
	LAMPS @	100	WATTS =	0 WATTS				

BASELINE ENERGY CONSUMPTION	*47 KWH*	*ECO ENERGY CONSUMPTION*	*10 KWH*
	168 MJ		*37 MJ*
BASELINE DEMAND	*0.06 KW*	*ECO DEMAND*	*0.01 KW*

NET ENERGY SAVINGS	**132 MJ/YR**	**NET DEMAND SAVINGS**	**$0 /YR**
NET ENERGY SAVINGS	**0.13 MBTU/YR**	**NET DOLLAR SAVINGS**	**$1 /YR**

FORT CAMPBELL LIGHTING SURVEY

ECO 1: INTERIOR/EXTERIOR LIGHTING

19 AUGUST 1994

INTERIOR LIGHTING: EXIT SIGN REPLACEMENT

BUILDING #: 7262

ELECTRIC COSTS:

ENERGY CHARGE	$0.0211	PER KWH
DEMAND CHARGE	$11.78	PER KW

INCANDESCENT EXIT SIGNS		FLUORESCENT EXIT SIGNS		REPLACEMENT FIXTURE	
# EXIT SIGNS		# EXIT SIGNS	1	# EXIT SIGNS	1
WATTAGE	30	WATTAGE	18	WATTAGE	3

BASELINE ENERGY CONSUMPTION	*158 KWH/YR* *568 MJ/YR*	*ECO ENERGY CONSUMPTION*	*26 KWH/YR* *95 MJ/YR*
BASELINE DEMAND	*0.02 KW*	*ECO DEMAND*	*0.00 KW*

NET ENERGY SAVINGS	**473 MJ/YR**	**NET DEMAND SAVINGS**	**$2 /YR**
NET ENERGY SAVINGS	**0.45 MBTU/YR**	**NET DOLLAR SAVINGS**	**$5 /YR**

Estimate:	Bldg. 7262	Date:	8 July 1994
Description:	Hangar		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

Line #	Description					
	Manhours	Matl	Labor	Equipment	Sub	Total
0207082121	DEMO, 2x4 FLUOR FIXTURES				308.00	
Unit values	0.49	0.00	13.35	0.00	0.00	13.35
Totals	149.38	$0	$4,112	$0	$0	$4,112
0207082123	DEMO, INCAND FIXTURES / EXIT SIGNS				2.00	
Unit values	0.26	0.00	7.10	0.00	0.00	7.10
Totals	0.52	$0	$14	$0	$0	$14
U02 SITEWORK	150	$0	$4,126	$0	$0	$4,126

Line #	Description	Manhours	Matl	Labor	Equipment	Sub	Total
1661302200	SUR FLUOR STRIP 4' W 1 40W LAMP R S					(qty)	Ea.
Unit values		0.94	26.74	22.52	0.00	0.00	49.26
Totals		0.00	$0	$0	$0	$0	$0
1661302300	SUR FLUOR STRIP 4' W 2 40W LAMP R S					(qty)	Ea.
Unit values		1.00	28.65	23.82	0.00	0.00	52.47
Totals		0.00	$0	$0	$0	$0	$0
1661307777	L.E.D. EXIT SIGN RETROFIT KIT SINGLE FACE					1.00	EA
Unit values		1.00	50.00	27.50	0.00	0.00	77.50
Totals		1.00	$50	$28	$0	$0	$78
1661309801	REC FLUOR TROFFER 2X2' W 2 31W T8-U ACRYLIC LENS					(qty)	EA
Unit values		1.40	88.00	38.50	0.00	0.00	126.50
Totals		0.00	$0	$0	$0	$0	$0
1661309802	REC FLUOR TROFFER 2X4' W 2 32W T8, BALLAST CHANGEOUT/PIN CONNECTOR REPLACEMNT					222.00	EA
Unit values		1.51	42.00	83.00	0.00	0.00	125.00
Totals		335.22	$9,324	$18,426	$0	$0	$27,750
1661309803	REC FLUOR TROFFER 2X4' W 3 32W T8 ACRYLIC LENS					(qty)	EA
Unit values		1.60	90.00	44.00	0.00	0.00	134.00
Totals		0.00	$0	$0	$0	$0	$0
1661309804	REC FLUOR TROFFER 2X4' W 4 32W T8 ACRYLIC LENS					(qty)	EA
Unit values		1.70	94.00	47.00	0.00	0.00	141.00
Totals		0.00	$0	$0	$0	$0	$0
1661309807	REC FLUOR TROFFER 1X4' W 2 32W T8 ACRYLIC LENS					(qty)	EA
Unit values		1.14	73.00	31.50	0.00	0.00	104.50
Totals		0.00	$0	$0	$0	$0	$0
1661309909	SUR FLUOR 1X4' W 2 32W T8					(qty)	EA
Unit values		1.14	86.00	31.50	0.00	0.00	117.50
Totals		0.00	$0	$0	$0	$0	$0
1661309910	INDSTL FLUOR 1X4' W 2 32W T8, BALLAST CHANGEOUT/PIN CONNECTOR REPLACEMNT					16.00	EA
Unit values		3.02	42.00	83.00	0.00	0.00	125.00

Totals	48.32	$672	$1,328	$0	$0	$2,000
1661309911	SUR FLUOR 2X4' W 2 32W T8, BALLAST CHANGEOUT/PIN CONNECTOR REPLACEMNT				70.00 EA	
Unit values	3.02	42.00	83.00	0.00	0.00	125.00
Totals	211.40	$2,940	$5,810	$0	$0	$8,750
1661388041	COMP FLUOR LAMP, 18 W TWIN TUBE GLOBE ASSEMBLY				(qty) EA	
Unit values	0.13	14.50	3.44	0.00	0.00	17.94
Totals	0.00	$0	$0	$0	$0	$0
1661388042	COMP FLUOR FIX, 1 13 W PL WALL / CEILING MOUNT				1.00 EA	
Unit values	1.00	20.50	27.50	0.00	0.00	48.00
Totals	1.00	$21	$28	$0	$0	$49

Line # Description	Manhours	Matl	Labor	Equipment	Sub	Total
U16 ELECTRICAL	597	$13,007	$25,620	$0	$0	$38,627
ESTIMATE TOTAL	747	$13,007	$29,746	$0	$0	$42,753
SALES TAX	5.00%	$650				
MATL MARKUP	-40.00%	($5,203)				
LABOR MARKUP	-13.40%		($3,986)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$8,455	$25,760	$0	$0	$34,215
CONTINGENCY	10.00%					$3,421
BOND	2.50%					$855
PROFIT	10.00%					$3,421
JOB TOTAL						$41,913

Estimate:	Bldg. 7262	Date:	8 July 1994
Description:	Hangar		
Project:	Lighting Study	Bid Date:	
Location:	Ft. Campbell	Job #:	
Sq. footage:		City indx:	

SUMMARY

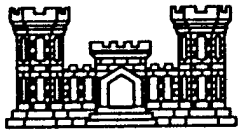
	Manhours	Matl	Labor	Equipment	Sub	Total
U02 SITEWORK	150	$0	$4,126	$0	$0	$4,126
U16 ELECTRICAL	597	$13,007	$25,620	$0	$0	$38,627
TOTAL	747	$13,007	$29,746	$0	$0	$42,753
SALES TAX	5.00%	$650				
MATL MARKUP	-40.00%	($5,203)				
LABOR MARKUP	-13.40%		($3,986)			
EQUIPT MARKUP	0.00%			$0		
SUB MARKUP	0.00%				$0	
TOTAL BEFORE CONTINGENC		$8,455	$25,760	$0	$0	$34,215
CONTINGENCY	10.00%					$3,421
BOND	2.50%					$855
PROFIT	10.00%					$3,421
JOB TOTAL						$41,913

Energy Engineering Analysis Program (EEAP)

Lighting Energy Study

Fort Campbell, Kentucky

Interim Review



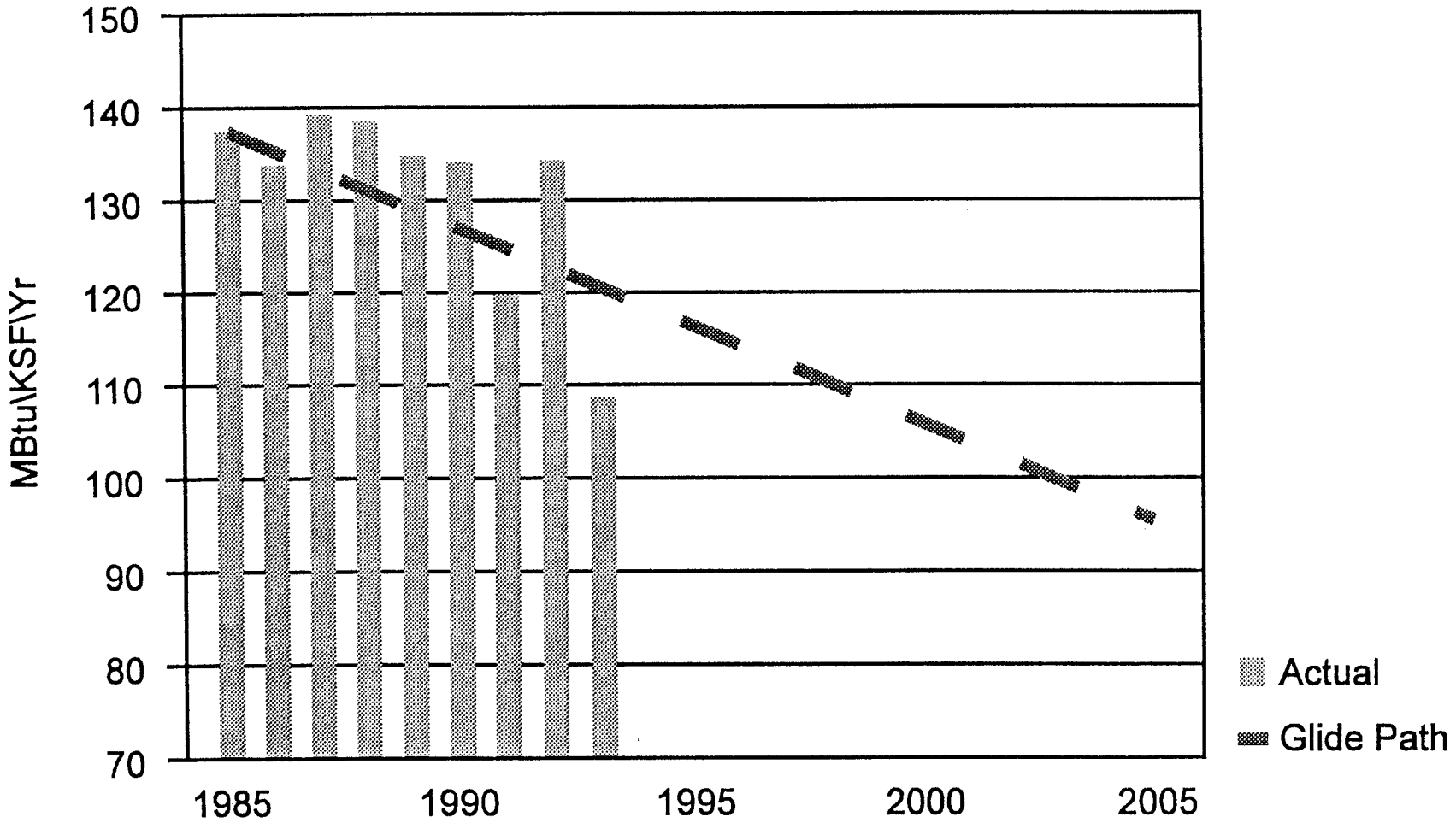
Louisville District-
US Army Corp
of Engineers

SYSTEMS*corp*

SYSTEMS ENGINEERING AND MANAGEMENT CORPORATION

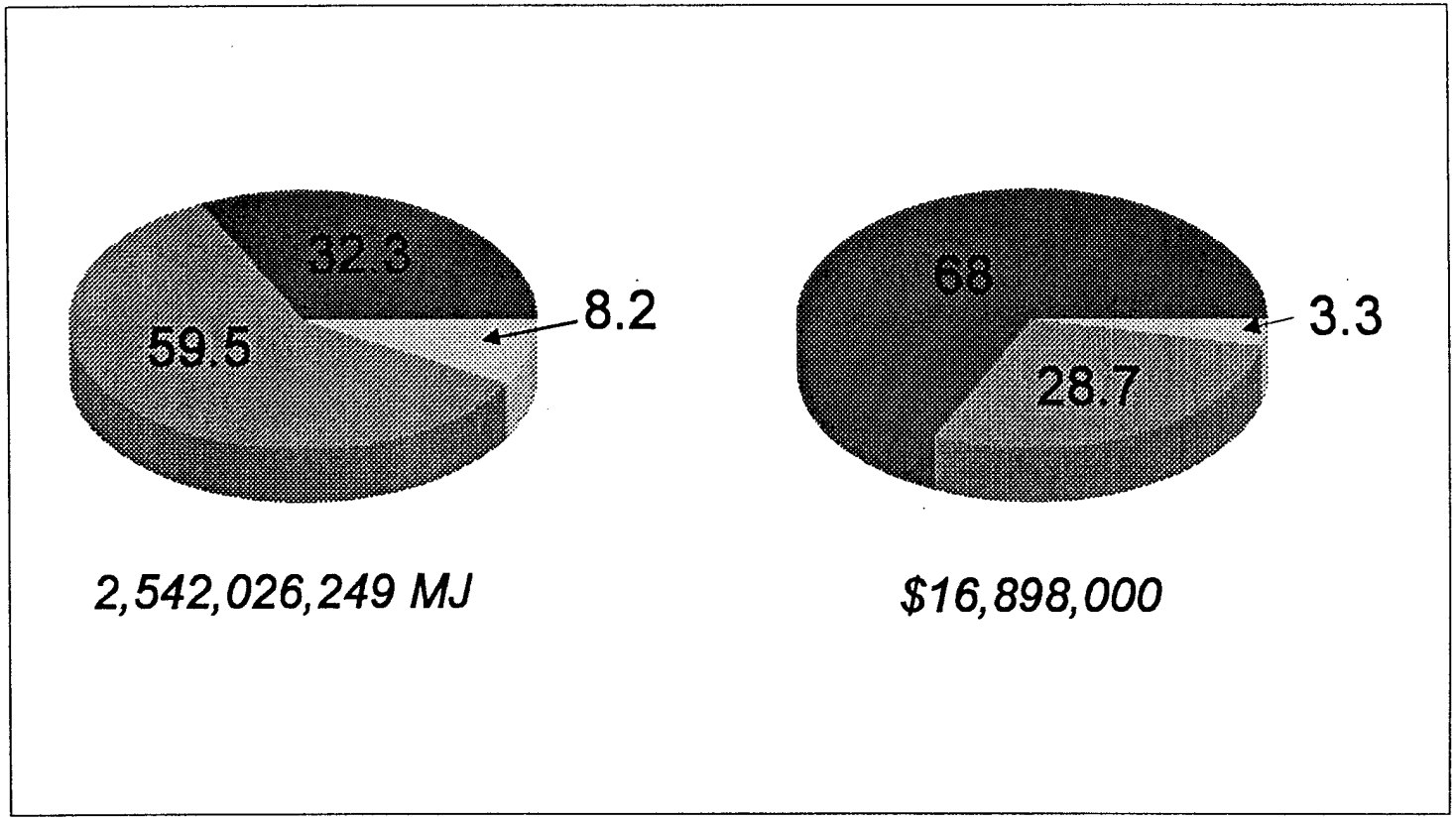
Energy Consumption

Fort Campbell



Fort Campbell

FY93



Fort Campbell Lighting Energy Study

Electric Costs

Energy Charge	$0.02114/KWH $6.18/MBtu (No Demand)
Demand Charge	$11.78/KW/Mo

Fort Campbell Lighting Energy Study

Work Accomplished to Date

- Field Surveys for 95 Buildings
- Evaluation of 109 Energy Conservation Opportunities
- Preparation and Completion of all Field Notes
- Completion of Interim Report

Fort Campbell Lighting Energy Study

Energy Conservation Opportunities Evaluated

- ECO-1: High Efficiency Interior/Exterior Lighting
- ECO-2: Lighting Controls

Fort Campbell Lighting Energy Study

ECO - 1

Buildings Evaluated

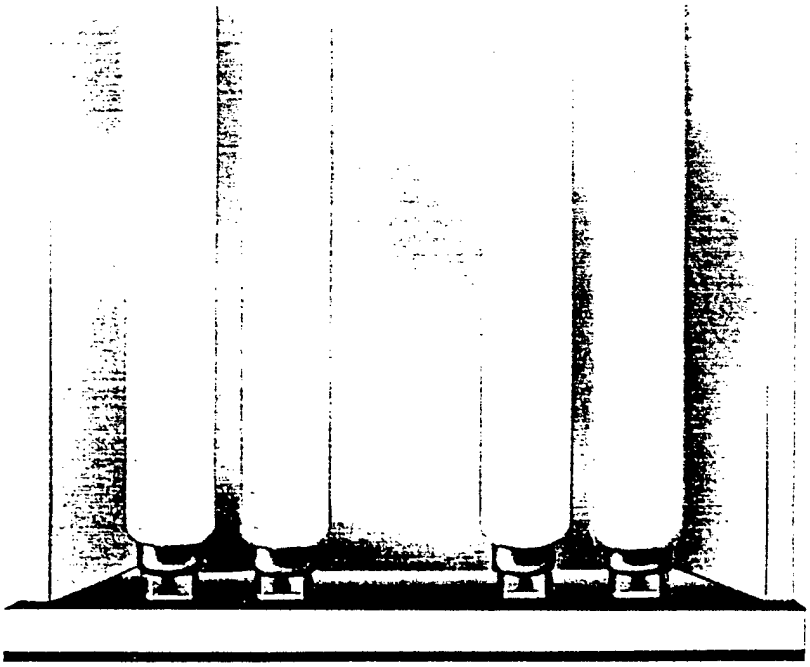
- Airfield Bldgs
- Korean War Barracks
- Hospital

Fort Campbell Lighting Energy Study

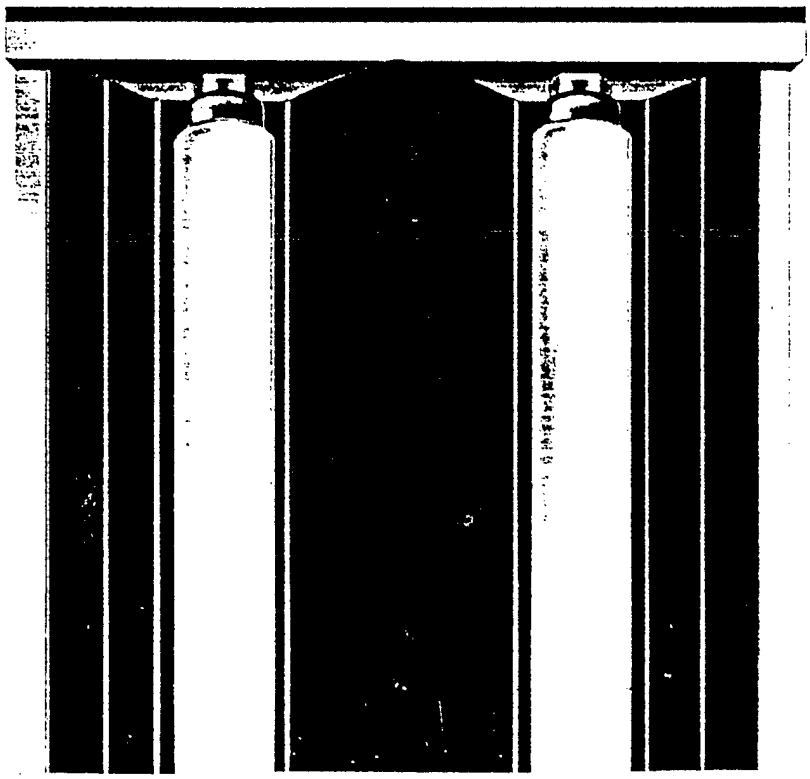
ECO - 1

Retrofits

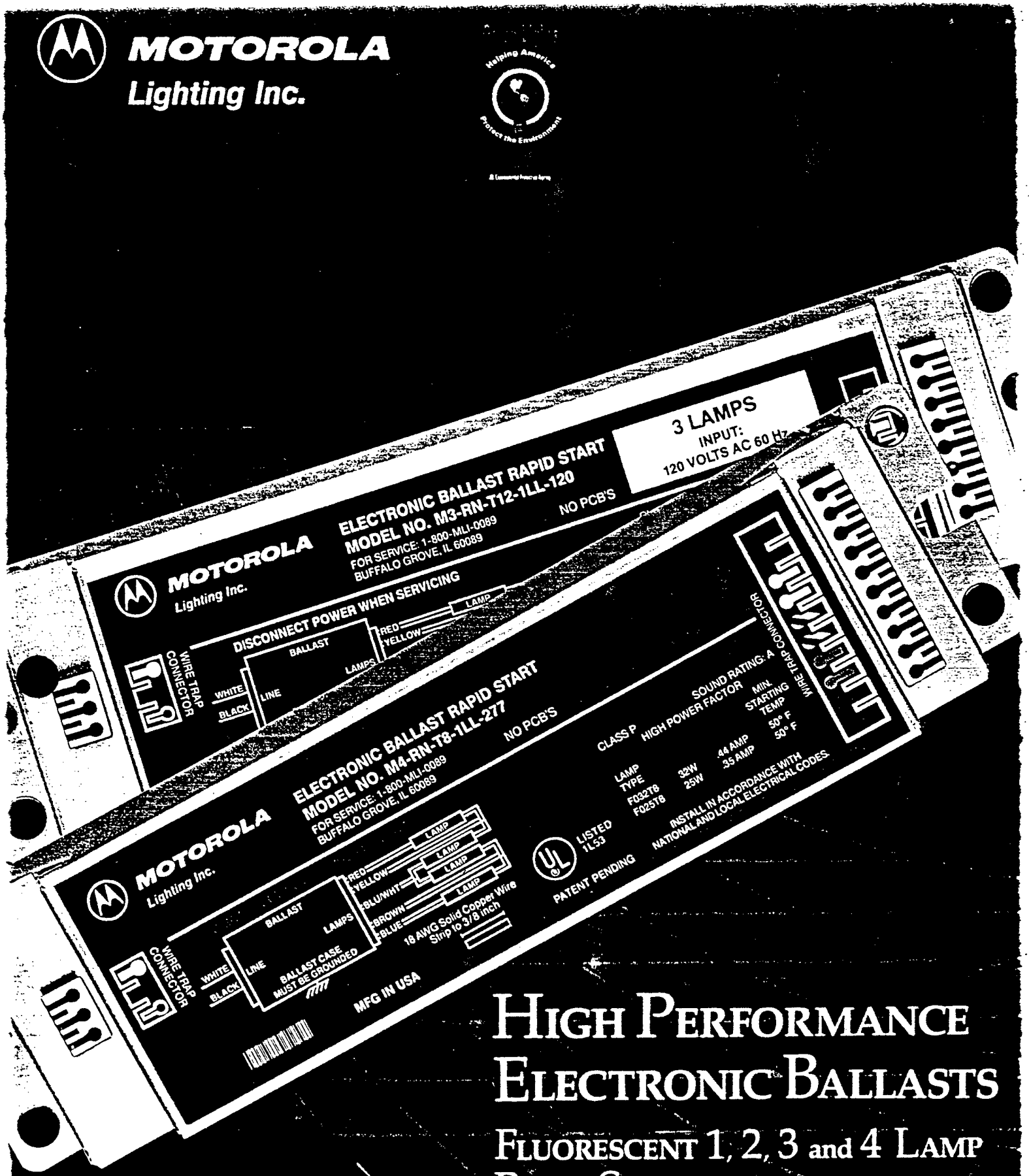
- T12 Fluorescents → T8 Fluorescent w/Electronic Ballasts
  Reflectors used in Hospital and Administrative Bldgs @ Airfield
- Incandescent → Compact Fluorescent
- Incan/Fluor Exit Signs → LED Exit Signs
- Mercury Vapor → Metal Halide or High Pressure Sodium
  (MH used in all Hangars)
- Exterior Lights → High Pressure Sodium



SILVERLUX™ REFLECTORS CUT YOUR LIGHTING ENERGY COSTS IN HALF.



MOTOROLA
Lighting Inc.



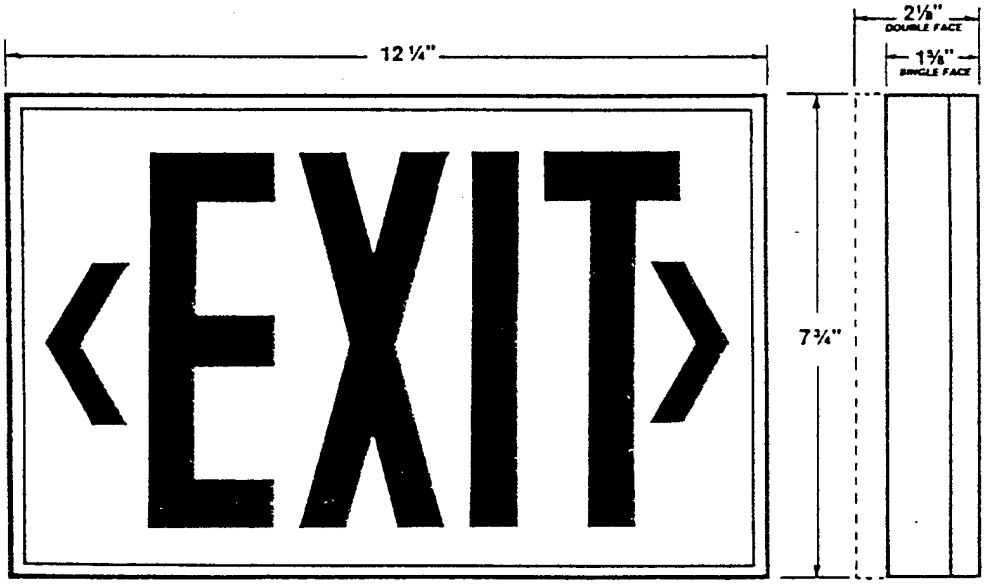
HIGH PERFORMANCE ELECTRONIC BALLASTS

FLUORESCENT 1, 2, 3 and 4 LAMP RAPID START

Total Customer Satisfaction

Evenlite LED Exit Lights — EV SERIES

The LED of the 21st Century



No Ifs, Ands or Buts.

This is exactly how the EVENLITE 2000 appears! Perfectly even illumination is produced by indirect lighting, so that the LED's are invisible, with no hot spots. All this is provided in the slimmest sign on the market with integral charger and battery.

No competitor comes close to these combined specifications:

- **Less than 3 watts total power per face**
- **Perfect light distribution across face**
- **Single face only 1⅝ " thick**
- **Double face only 2⅛" thick**
- **Remote unit only ½" thick**
- **Multiple LED lamps with 20 year unconditional guarantee**
- **NICAD batteries with 5 year guarantee**
- **Aluminum housing for light weight and strength**
- **Universal mount**
- **Baked enamel, vinyl clad or satin anodized finishes**
- **Polycarbonate faceplate**

Patent Pending

SHIELD SOURCE INCORPORATED
220 VFW Avenue, Grasonville, Maryland 21638
Tel.: (410) 827-6022 Fax: (410) 827-9657

Fort Campbell Lighting Energy Study

Maintenance and Replacement Costs

Product Description	*Product Life (Hrs)*	*Material & Labor Costs*
Incandescent < 100 Watts	750	$3.50
Incandescent 100-300 Watts	750	$5.25
Incandescent > 300 Watts	1,000	$26.00
Quartz - 200 Watts	2,000	$32.50
4 Ft Fluorescent Tube	20,000	$5.00
Fluorescent Exit Sign	20,000	$8.00
Compact Fluorescent	10,000	$18.00
Mercury Vapor - 250 Watts	12,000	$50.00
Mercury Vapor - 400 Watts	16,000	$50.00
Mercury Vapor - 1000 Watts	24,000	$70.00
Metal Halide - 250 Watts	10,000	$41.00
Metal Haldie - 400 Watts	20,000	$47.00
High Pressure Sodium - 50 Watts	24,000	$25.00
High Pressure Sodium - 150 Watts	24,000	$38.00

Fort Campbell Lighting Energy Study

ECO - 1: Results (All Buildings)

Area	*Total Investment*	*First Year Savings*	*Simple Payback*	*SIR*	*AIRR*
Airfield	$961,777	$148,593	6.47	1.86	7.45%
Barracks	$1,316,203	$153,671	8.57	1.41	5.49%
Hospital	$412,135	$75,908	5.43	2.22	8.74%
TOTAL	*$2,690,115*	*$378,176*	*7.11*	*1.69*	*6.79%*

Fort Campbell Lighting Energy Study

ECO - 2

Buildings Evaluated

- Airfield Bldgs (Hangars)
- Hospital (Exam Rooms and Offices)

Fort Campbell Lighting Energy Study

ECO - 2

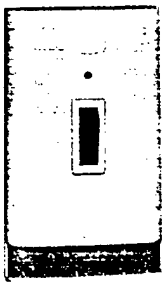
Controls Evaluated

- Occupancy Sensors
- On/Off Photocell Control for Daylighting

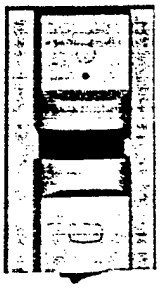
Switchomat™

The world's best investment in automatic light switching ....with a 6-year proven track record!

$50.00 invested now will earn a $500 to $1,400 return by 1999.



Turns the lights on automatically when you enter....and off after you leave.



Model SOM-500
Automatic wall switch replacement for private offices, conference rooms, restrooms, etc. Takes only minutes to install utilizing the existing wires.

Model SOM-1000
Automatic wall switch replacement for large rooms and classrooms.Takes only minutes to install utilizing the existing wires.

Special Features

Manual lights off switch • Built-in safety neon night light • Shortened recycle time delay during installation • Convenient visible logic key bypass provision in the unlikely event of sensor failure • Vandal resistant design.

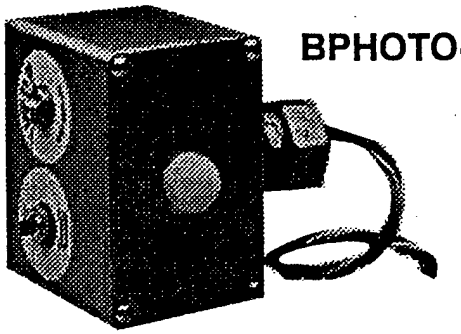
Ultrasafe

The ***Switchomat***™ is equipped with a metal safety shield in compliance with the highest fire rating standards. Unit is automatically grounded for safety when mounted on an existing metal switch box.

- Universal Energy Control, Inc. is able to offer smaller sized, esthetic, moderately priced devices because of our exclusive patent #4,874,962.
- Universal Energy Control, Inc. does not use ungrounded, potentially dangerous, bulky heat sinks, triacs or other costly trouble prone components.
- Universal Energy Control, Inc. devices provide superior operating capabilities and switching even with electronic ballast, a 90 day money back guarantee and 3 to 5 years warranty.

Photo Switches

BPHOTO-4 This unit is used to shed artificial lighting in interior daylit spaces. It monitors outside light levels through a perimeter window or skylight to provide the switching input of a Master Sequencer or Telephone Override. The photo switch will turn loads OFF when the exterior light level reaches the set footcandle level and remains there for 15 minutes. When the light level decreases to approximately 15% less than this setting and remains there for 15 minutes, loads will be turned ON. (See the wiring diagram on page 25.)



BPHOTO-4

BPHOTO-5 This unit is designed to shed exterior lighting.

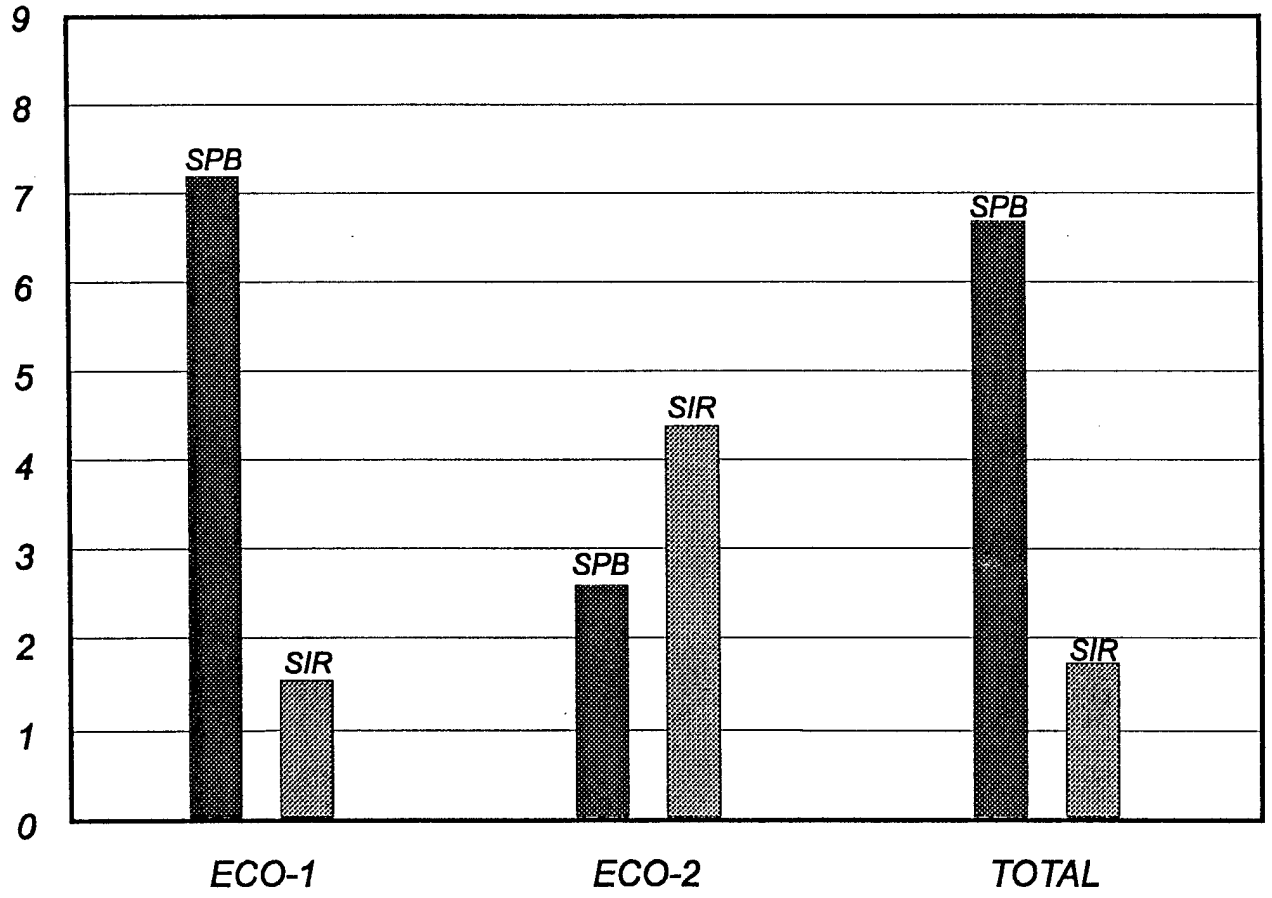
Specifications	
Catalog Number	BPHOTO-4 (indoor use only) BPHOTO-5 (indoor/outdoor use)
Foot Candle Range	BPHOTO-4 50-500 fc adjustable BPHOTO-5, 5-10 fc fixed
Power Requirement	No external source needed
Environment	18 to 55°C (0 to 131°F), non-corrsive atmoshere 0-85% RH non-condensing (BPHOTO-4) 0-100% RH (BPHOTO-5)
RFI Environment	Less than 15 v/m
Immediate Response Feature	BPHOTO-4 - Yes BPHOTO-5 - No
Hysteresis	15% typ. @ 100 fc 20% typ. @ 300 fc 25% typ. @ 500 fc

Fort Campbell Lighting Energy Study

ECO - 2: Results (All Buildings)

Area	*Total Investment*	*First Year Savings*	*Simple Payback*	*SIR*	*AIRR*
Airfield	$63,245	$26,291	2.41	4.96	14.72%
Hospital	$11,868	$1,174	10.11	1.23	4.53%
TOTAL	*$75,112*	*$27,465*	*2.73*	*4.37*	*13.76%*

Fort Campbell Lighting Energy Study



Fort Campbell Lighting Energy Study

Project Results

ECO	*Total Investment*	*First Year Savings*	*Simple Payback*	*SIR*	*AIRR*
ECO-1	$2,690,115	$378,176	7.11	1.69	6.79%
ECO-2	$75,112	$27,465	2.73	4.37	13.76%
TOTAL	*$2,765,227*	*$405,641*	*7.11*	*1.77*	*7.09%*

Fort Campbell Lighting Energy Study

Remaining Phases

- Response to Interim Review Comments
- Preparation of Programming and Implementation Documents
- Final Report - Sept. 21,1994

ANNUAL RECURRING MAINTENANCE COST DIFFERENTIAL FOR BARRACK FACILITIES

ANNUAL MAINTENANCE COST/FIXTURE = #HR OPER./YR x 1/#HR OF LIFE x MAINTENANCE COST/FIXTURE
DIFFERENTIAL MAINT. COST = #HR OPER./YR x (MAINT. COST 1 /LAMP LIFE1 - MAINT. COST 2/LAMP LIFE 2) x # LAMP
CALCULATION BASED ON ONE-FOR- ONE REPLACEMENT

Fixture Type	Lamp Life HRS	Maintenance Cost/Life of Lamp Lamp cost + Labor cost
Fluor. T-12 Lamp Magnetic Ballast	20000	$20.00 (4-LAMP)
Fluor. T-8 Lamp Electronic Ballast	20000	$20.00 (4-LAMP)
* no significant cost differential		
Incandescent	750	$3.50
Compact Fluorescent	20000	$18.00
Incandescent Exit Sign	750	$3.50
L.E.D Exit Sign	200000	$0.00

BLDG. #	Incandescent to Comp. Fluorescent			Incandescent Exit to L.E.D. Exit			
	# Fixture	Operation Hrs/Yr	Differential Maint. Cost $/YR	# Fixture	Operation Hrs/Yr	Differential Maint. Cost $/YR	Total Recurring Annual Maintenance Cost
3211	0	0	$0.00	2	8760	$81.76	**$81.76**
3212	0	0	$0.00	4	8760	$163.52	**$163.52**
3213	0	0	$0.00	8	8760	$327.04	**$327.04**
3214	12	8760	$395.95	1	8760	$40.88	**$436.83**
3215	3	8760	$98.99	2	8760	$81.76	**$180.75**
3216	12	8760	$395.95	0	0	$0.00	**$395.95**
3217	2	8760	$65.99	4	8760	$163.52	**$229.51**
3218	23	8760	$758.91	4	8760	$163.52	**$922.43**
6709	14	8760	$461.94	11	8760	$449.68	**$911.62**
6710	12	8760	$395.95	6	8760	$245.28	$641.23
	51	2080	$399.57	0	8760	$0.00	$399.57
							$1,040.80
6711	12	8760	$395.95	2	8760	$81.76	**$477.71**
6712	20	8760	$659.92	5	8760	$204.40	$864.32
	8	2080	$62.68	0	8760	$0.00	$62.68
							$927.00
6718	13	8760	$428.95	7	8760	$286.16	$715.11
	5	3120	$58.76	0	8760	$0.00	$58.76
							$773.87
6719	10	8760	$329.96	8	8760	$327.04	**$657.00**
6725	13	8760	$428.95	6	8760	$245.28	$674.23
	4	3120	$47.01	0	8760	$0.00	$47.01
							$721.24
6726	12	8760	$395.95	7	8760	$286.16	**$682.11**
6727	12	8760	$395.95	7	8760	$286.16	**$682.11**
6728	13	8760	$428.95	9	8760	$367.92	$796.87
	109	3120	$1,280.97	0	8760	$0.00	$1,280.97
							$2,077.84
6730	12	8760	$395.95	5	8760	$204.40	$600.35
	5	3120	$58.76	0	8760	$0.00	$58.76
							$659.11
6731	14	8760	$461.94	0	8760	$0.00	$461.94
	5	2080	$39.17	0	8760	$0.00	$39.17
							$501.12
6732	16	8760	$527.94	0	8760	$0.00	$527.94
	4	2080	$31.34	0	8760	$0.00	$31.34
							$559.27
6733	12	8760	$395.95	0	8760	$0.00	**$395.95**

ANNUAL RECURRING MAINTENANCE COST DIFFERENTIAL FOR BARRACK FACILITIES

ANNUAL MAINTENANCE COST/FIXTURE = #HR OPER./YR x 1/#HR OF LIFE x MAINTENANCE COST/FIXTURE
DIFFERENTIAL MAINT. COST = #HR OPER./YR x (MAINT. COST 1 /LAMP LIFE1 - MAINT. COST 2/LAMP LIFE 2) x # LAMP
CALCULATION BASED ON ONE-FOR- ONE REPLACEMENT

Fixture Type	Lamp Life HRS	Maintenance Cost/Life of Lamp Lamp cost + Labor cost
Fluor. T-12 Lamp Magnetic Ballast	20000	$20.00 (4-LAMP)
Fluor. T-8 Lamp Electronic Ballast	20000	$20.00 (4-LAMP)
* no significant cost differential		
Incandescent	750	$3.50
Compact Fluorescent	20000	$18.00
Incandescent Exit Sign	750	$3.50
L.E.D Exit Sign	200000	$0.00

BLDG. #	Incandescent to Comp. Fluorescent			Incandescent Exit to L.E.D. Exit			
	# Fixture	Operation Hrs/Yr	Differential Maint. Cost $/YR	# Fixture	Operation Hrs/Yr	Differential Maint. Cost $/YR	Total Recurring Annual Maintenance Cost
6909	12	8760	$395.95	0	8760	$0.00	$395.95
	5	3120	$58.76	0	8760	$0.00	$58.76
							$454.71
6910	12	8760	$395.95	0	8760	$0.00	$395.95
	4	2080	$31.34	0	8760	$0.00	$31.34
							$427.29
6911	12	8760	$395.95	0	8760	$0.00	**$395.95**
6912	16	8760	$527.94	0	8760	$0.00	**$527.94**
6917	12	8760	$395.95	0	8760	$0.00	**$395.95**
6918	15	8760	$494.94	0	8760	$0.00	$494.94
	9	2080	$70.51	0	8760	$0.00	$70.51
							$565.45
6919	12	8760	$395.95	0	8760	$0.00	$395.95
	24	3120	$282.05	0	8760	$0.00	$282.05
							$678.00
6920	19	8760	$626.92	0	8760	$0.00	**$626.92**
6923	4	8760	$131.98	0	8760	$0.00	**$131.98**
6927	12	8760	$395.95	2	8760	$81.76	**$477.71**
6928	17	8760	$560.93	0	8760	$0.00	$560.93
	12	2080	$94.02	0	8760	$0.00	$94.02
							$654.95
6929	12	8760	$395.95	0	8760	$0.00	**$395.95**
6930	12	8760	$395.95	0	8760	$0.00	$395.95
	5	3120	$58.76	0	8760	$0.00	$58.76
							$454.71
6931	12	8760	$395.95	0	8760	$0.00	**$395.95**
6936	12	8760	$395.95	0	8760	$0.00	**$395.95**
6937	12	8760	$395.95	0	8760	$0.00	$395.95
	4	2080	$31.34	0	8760	$0.00	$31.34
							$427.29
6938	14	8760	$461.94	0	8760	$0.00	$461.94
	4	3120	$47.01	0	8760	$0.00	$47.01
							$508.95
6939	15	8760	$494.94	0	8760	$0.00	**$494.94**
6940	12	8760	$395.95	0	8760	$0.00	$395.95
	1	3120	$11.75	0	8760	$0.00	$11.75
							$407.70
6943	22	8760	$725.91	0	8760	$0.00	$725.91
	4	2080	$31.34	0	8760	$0.00	$31.34
							$757.25
6944	12	8760	$395.95	0	8760	$0.00	$395.95
	1	3120	$11.75	0	8760	$0.00	$11.75
							$407.70
6945	12	8760	$395.95	0	8760	$0.00	$395.95
	3	2080	$23.50	0	8760	$0.00	$23.50
							$419.46

BLDG # 7109

EXISTING

$$(2\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{2000\ \text{HR}}\right)\left(\frac{\$32.50}{\text{LAMP}}\right) = \$143.00/\text{YR}$$

PROPOSED

$$(2\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$25.00}{\text{LAMP}}\right) = \$9.17/\text{YR}$$

SAVINGS = $143.00/YR − $9.17/YR = $133.83/YR

BLDG # 7110

EXISTING

$$(4\ \text{LAMPS})\left(\frac{3500\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$65.33/\text{YR}$$

$$(3\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$122.64/\text{YR}$$

$187.97/YR

PROPOSED

$$(4\ \text{LAMPS})\left(\frac{3500\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$12.60/\text{YR}$$

SAVINGS = 187.97 − 12.60 = $175.37 YR

BLDG # 7112

EXISTING

$$(3\ \text{LAMPS})\left(\frac{5096\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$71.34/\text{YR}$$

$$(1\ \text{SIGN})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$40.88/\text{YR}$$

$112.42/YR

PROPOSED

$$(3\ \text{LAMPS})\left(\frac{5096\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$13.76/\text{YR}$$

SAVINGS = $112.42/YR − $13.76/YR = $98.46/YR

Title: MAINTENANCE SAVINGS DUE TO RETROFIT AT THE AIRFIELD - ECO 1	Checked By:	Date: 4 AUG 94
	Prepared By: T.Y. DAFFRON	
Project: FT CAMPBELL LIGHTING STUDY	Job No.: 94013.01	Sheet No.: 1/11

BLDG 7118

EXISTING

$(3\ \text{LAMPS})\left(\frac{5096\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$71.34/\text{YR}$

$(1\ \text{SIGN})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$40.88/\text{YR}$

$\$112.42/\text{YR}$

PROPOSED

$(3\ \text{LAMPS})\left(\frac{5096\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$13.76/\text{YR}$

SAVINGS = $\$112.42/\text{YR} - \$13.76/\text{YR} = \$98.46/\text{YR}$

BLDG 7120

EXISTING

$(3\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$50.96/\text{YR}$

$(1\ \text{SIGN})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$40.88/\text{YR}$

$\$91.84/\text{YR}$

PROPOSED

$(3\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$9.82/\text{YR}$

SAVINGS = $\$91.84/\text{YR} - \$9.82/\text{YR} = \$82.02/\text{YR}$

BLDG 7131

EXISTING

$(3\ \text{LAMPS})\left(\frac{1040\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$14.56/\text{YR}$

PROPOSED

$(3\ \text{LAMPS})\left(\frac{1040\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$2.81/\text{YR}$

SAVINGS = $\$14.56 - \$2.81 = \$11.75/\text{YR}$

Title: MAINTENANCE SAVINGS DUE TO RETROFIT AT THE AIRFIELD - ECO1	Checked By:	Date: 4 AUG 94
	Prepared By: J. Y. DAFFRON	
Project: FT CAMPBELL LIGHTING STUDY	Job No.: 94013.01	Sheet No.: 2/11

BLDG 7133

EXISTING

$(2\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$7.28/\text{YR}$

PROPOSED

$(2\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$1.40/\text{YR}$

SAVINGS = $\$7.28/\text{YR} - \$1.40/\text{YR} = \$5.88/\text{YR}$

BLDG 7149

EXISTING

$(3\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$10.92/\text{YR}$

$(6\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$245.28/\text{YR}$

$\$256.20/\text{YR}$

PROPOSED

$(3\text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$2.11/\text{YR}$

SAVINGS = $\$256.20/\text{YR} - \$2.11/\text{YR} = \$254.09/\text{YR}$

BLDG 7154

EXISTING

$(69\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$1{,}004.64/\text{YR}$

$(3\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$16.38/\text{YR}$

$\$1{,}021.02/\text{YR}$

PROPOSED

$(46\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000}\right)\left(\frac{\$5.00}{\text{LAMP}}\right) = \$23.92/\text{YR}$

$(3\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$2.11/\text{YR}$

$\$26.03$

SAVINGS = $\$1021.02/\text{YR} - \$26.03/\text{YR} = \$994.99/\text{YR}$

Title: MAINTENANCE SAVINGS DUE TO RETROFIT AT THE AIRFIELD - ECO1	Checked By:	Date: 4 AUG 94
	Prepared By: T.Y. DAFFRON	
Project: FT CAMPBELL LIGHTING STUDY	Job No.: 94013.01	Sheet No.: 3/11

BLDG 7155

EXISTING

$$(7\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$25.48/\text{YR}$$

PROPOSED

$$(7\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$4.91/\text{YR}$$

SAVINGS = $25.48/YR - $4.91/YR = $20.57/YR

BLDG 7156

EXISTING

$$(89\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$1{,}295.84/\text{YR}$$

$$(3\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$16.38/\text{YR}$$

$$\$1312.22/\text{YR}$$

PROPOSED

$$(60\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$5.00}{\text{LAMP}}\right) = \$31.20/\text{YR}$$

$$(3\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = 2.11/\text{YR}$$

$$\$33.31/\text{YR}$$

SAVINGS = $1312.22/YR - $33.31/YR = $1278.91/YR

BLDG 7159

EXISTING

$$(10\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$97.07/\text{YR}$$

PROPOSED

$$(10\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$18.72/\text{YR}$$

SAVINGS = $97.07/YR - $18.72/YR = $78.35/YR

Title: MAINTENANCE SAVINGS DUE TO RETROFIT AT THE AIRFIELD - ELO1	Checked By:	Date: 4 AUG 94
	Prepared By: J.Y. DAFFRON	
Project: FT CAMPBELL LIGHTING STUDY	Job No.: 94013.01	Sheet No.: 4/11

BLDG 7160

EXISTING

$(8\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$77.65/\text{YR}$

$(23\ \text{LAMPS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$1410.36/\text{YR}$

$\$1488.01/\text{YR}$

PROPOSED

$(8\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$14.99/\text{YR}$

$(23\ \text{LAMPS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24,000\ \text{HR}}\right)\left(\frac{\$25.00}{\text{LAMP}}\right) = \$209.85/\text{YR}$

$\$224.86/\text{YR}$

SAVINGS = $\$1488.01 - \$224.86/\text{YR} = \$1263.15/\text{YR}$

BLDG 7164

EXISTING

$(2\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$81.76/\text{YR}$

SAVINGS = $\$81.76/\text{YR}$

BLDG 7165

NO SAVINGS

BLDG 7170

EXISTING

$(10\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$408.80$

SAVINGS = $\$408.80/\text{YR}$

BLDG 7176

EXISTING

$(3\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$122.64/\text{YR}$

$(38\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{12,000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$329.33/\text{YR}$

$\$451.97/\text{YR}$

PROPOSED

$(38\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24,000\ \text{HR}}\right)\left(\frac{\$38.00}{\text{LAMP}}\right) = \$125.15/\text{YR}$

SAVINGS = $\$451.97/\text{YR} - \$125.15/\text{YR} = \$326.82$

Title MAINTENANCE SAVINGS DUE TO RETROFIT AT THE AIRFIELD -ECO1	**Checked By**	**Date** 4 AUG 94
	Prepared By J.Y. DAFFRON	**Sheet No.** 5/11
Project FT CAMPBELL LIGHTING STUDY	**Job No.** 94013.01	

BLDG 7179

EXISTING

$(4\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$163.52/\text{YR}$

SAVINGS = $163.52/YR

BLDG 7206

EXISTING

$(10\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$35.04/\text{YR}$

$(20\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{16{,}000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$162.50/\text{YR}$

$(42\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$318.50/\text{YR}$

$516.04/YR

PROPOSED

$(20\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{10{,}000\ \text{HR}}\right)\left(\frac{\$41.00}{\text{LAMP}}\right) = \$213.20/\text{YR}$

$(42\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$256.62/\text{YR}$

$469.82/YR

SAVINGS = $516.04/YR − $469.82/YR = $46.23/YR

BLDG 7208

EXISTING

$(4\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$14.56/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{1000\ \text{HR}}\right)\left(\frac{\$26.00}{\text{LAMP}}\right) = \$135.20/\text{YR}$

$(28\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{16{,}000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$227.50/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$728.00/\text{YR}$

$1,105.20/YR

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BLDG 7208 CONT.

PROPOSED

$(4\ \text{LAMPS})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$2.51/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$4.68/\text{YR}$

$(28\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{10{,}000\ \text{HR}}\right)\left(\frac{\$41.00}{\text{LAMP}}\right) = \$298.48/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$586.56/\text{YR}$

$\$892.53/\text{YR}$

SAVINGS = $\$1105.20/\text{YR} - \$892.53/\text{YR} = \$212.67/\text{YR}$

BLDG 7210

EXISTING

$(1\ \text{LAMP})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$12.13/\text{YR}$

$(10\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$35.04/\text{YR}$

$(39\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{16{,}000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$316.88/\text{YR}$

$(50\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$379.17/\text{YR}$

$(6\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$123.24/\text{YR}$

$\$866.42/\text{YR}$

PROPOSED

$(1\ \text{LAMP})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$2.34/\text{YR}$

$(39\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{10{,}000\ \text{HR}}\right)\left(\frac{\$41.00}{\text{LAMP}}\right) = \$415.74/\text{YR}$

$(50\ \text{LAMPS})\left(\frac{2600\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$305.50/\text{YR}$

$(6\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$23.00}{\text{LAMP}}\right) = \$27.50/\text{YR}$

$\$751.08$

SAVINGS = $\$866.42/\text{YR} - \$751.08/\text{YR} = \$115.34/\text{YR}$

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BLDG 7212

EXISTING

$(7\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$118.91/\text{YR}$

PROPOSED

$(7\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$22.97/\text{YR}$

SAVINGS = $\$118.91/\text{YR} - \$22.97/\text{YR} = \$95.98/\text{YR}$

BLDG 7214

EXISTING

$(1\ \text{LAMP})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$3.64/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{1000\ \text{HR}}\right)\left(\frac{\$26.00}{\text{LAMP}}\right) = \$108.16/\text{YR}$

$(1\ \text{SIGN})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$3.50/\text{YR}$

$(23\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{16{,}000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$261.63/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$1019.20/\text{YR}$

$\$1396.13/\text{YR}$

PROPOSED

$(1\ \text{LAMP})\left(\frac{280\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$0.72/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$3.74/\text{YR}$

$(23\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{10{,}000\ \text{HR}}\right)\left(\frac{\$41.00}{\text{LAMP}}\right) = \$343.35/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$821.18/\text{YR}$

$\$1{,}168.82/\text{YR}$

SAVINGS = $\$1396.13/\text{YR} - \$1168.87/\text{YR} = \$227.26/\text{YR}$

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BLDG 7218

EXISTING

$(1\ \text{LAMP})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{LAMP}}\right) = \$3.64/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{1000\ \text{HR}}\right)\left(\frac{\$26.00}{\text{LAMP}}\right) = \$108.16/\text{YR}$

$(3\ \text{SIGNS})\left(\frac{760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{SIGN}}\right) = \$10.26/\text{YR}$

$(28\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{16,000\ \text{HR}}\right)\left(\frac{\$50.00}{\text{LAMP}}\right) = \$318.50/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24,000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$1019.20/\text{YR}$

$\$1459.55/\text{YR}$

PROPOSED

$(1\ \text{LAMP})\left(\frac{780\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$0.70/\text{YR}$

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$3.74/\text{YR}$

$(28\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{10,000\ \text{HR}}\right)\left(\frac{\$41.00}{\text{LAMP}}\right) = \$417.82/\text{YR}$

$(96\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$821.18/\text{YR}$

$\$1243.49/\text{YR}$

SAVINGS = $\$1459.95/\text{YR} - \$1243.49/\text{YR} = \$216.46/\text{YR}$

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BLDG 7243

EXISTING

$(2\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$7.01/\text{YR}$

$(120\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$1274.00/\text{YR}$

$(9\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$5.25}{\text{LAMP}}\right) = \$277.20/\text{YR}$

$\$1558.21/\text{YR}$

PROPOSED

$(120\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$1026.48/\text{YR}$

$(9\ \text{LAMPS})\left(\frac{4400\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24,000\ \text{HR}}\right)\left(\frac{\$25.00}{\text{LAMP}}\right) = \$41.25/\text{YR}$

$\$1067.73/\text{YR}$

SAVINGS = $\$1558.21/\text{YR} - \$1067.73/\text{YR} = \$490.48/\text{YR}$

BLDG 7245

EXISTING

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{1000\ \text{HR}}\right)\left(\frac{\$26.00}{\text{LAMP}}\right) = \$108.16/\text{YR}$

$(11\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$38.54/\text{YR}$

$(70\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24,000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$743.17/\text{YR}$

$\$889.82/\text{YR}$

PROPOSED

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$3.74/\text{YR}$

$(70\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20,000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$598.78/\text{YR}$

$\$602.52/\text{YR}$

SAVINGS = $\$889.82/\text{YR} - \$602.52/\text{YR} = \$287.33/\text{YR}$

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BLDG 7247

EXISTING

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{1000\ \text{HR}}\right)\left(\frac{\$26.00}{\text{LAMP}}\right) = \$108.16/\text{YR}$

$(11\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$8.00}{\text{SIGN}}\right) = \$38.54/\text{YR}$

$(70\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{24{,}000\ \text{HR}}\right)\left(\frac{\$70.00}{\text{LAMP}}\right) = \$743.17/\text{YR}$

$\$889.87/\text{YR}$

PROPOSED

$(2\ \text{LAMPS})\left(\frac{2080\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$18.00}{\text{LAMP}}\right) = \$3.24/\text{YR}$

$(70\ \text{LAMPS})\left(\frac{3640\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{20{,}000\ \text{HR}}\right)\left(\frac{\$47.00}{\text{LAMP}}\right) = \$598.78/\text{YR}$

$\$602.52/\text{YR}$

SAVINGS = $\$889.87/\text{YR} - \$602.52/\text{YR} = \$287.35/\text{YR}$

BLDG 7281

EXISTING

$(5\ \text{SIGNS})\left(\frac{8760\ \text{HR}}{\text{YR}}\right)\left(\frac{1}{750\ \text{HR}}\right)\left(\frac{\$3.50}{\text{SIGN}}\right) = \$204.40/\text{YR}$

SAVINGS = $\$204.40/\text{YR}$

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