AD-740 960

CIVIL DEFENSE SYSTEMS:

SHELTERS

A DDC BIBLIOGRAPHY

DDC-TAS-72-14-I

APRIL 1972

DEFENSE DOCUMENTATION CENTER
DEFENSE SUPPLY AGENCY

UNCLASSIFIED

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Updates AD-704 500	

13 ABSTRACT

This bibliography -- one in a series on Civil Defense Systems -- contains a compilation of references on Civil Defense Systems: Shelters. References included cover such topics as fallout structure evaluation; individual shelter plans for operations within the large shelter; design proce es for shelter entrance structures to resist blast overpressure and radiation effects; air distribution in shelters; storage stability of civil defense shelter rations, etc. Entries were processed into the AD data bank during the period January 1970 through January 1972. This volume updates an earlier bibliography, AD-704 500.

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

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Urban Areas						
Urban Planning						
Underground Structures						
Damage Assessment						
Nuclear Explosion Damage						
Nuclear Radiation						
Blast						
Costs						
Medical Supplies						
Food						
Storage						
Public Opinion						
Acceptability						

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CIVIL DEFENSE SYSTEMS:
SHELTERS

A DDC BIBLIOGRAPHY

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January 1970 - October 1971

APRIL 1972

DEFENSE DOCUMENTATION CENTER
DEFENSE SUPPLY AGENCY
CAMERON STATION
ALEXANDRIA, VIRGINIA 22314

FOREWORD

This bibliography is a compilation of references on *Civil Defense Systems: Shelters*. It is one in a series of bibliographies on Civil Defense Systems. It contains 40 entries processed into the Defense Documentation Center's data bank during the period of January 1970 through January 1972 and updates an earlier bibliography, AD-704 509

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

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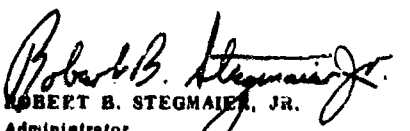

ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

C O N T E N T S

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-701 132 13/1 13/13 15/3
PENNSYLVANIA STATE UNIV UNIVERSITY PARK DEPT OF ARCHITECTURAL ENGINEERING

THE FEASIBILITY OF AUGMENTING BELOW-GRADE SHELTER HABITABILITY WITH CONDITIONED AIR. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 129P EVERETTS,JOHN , JR.;WITT, DONALD R. ;MCLAUGHLIN,EVERETT R. ;
CONTRACT: DAHC20-68-C-0175
PROJ: OCD-12330

UNCLASSIFIED REPORT
PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE.
SUPPLEMENTARY NOTE: LIMITED NUMBER OF COPIES CONTAINING COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK IS EXHAUSTED. REPRODUCTIONS WILL BE MADE IN BLACK AND WHITE ONLY.

DESCRIPTORS: (*FALLOUT SHELTERS, *VENTILATION), (*AIR CONDITIONING EQUIPMENT, FALLOUT SHELTERS), CIVIL DEFENSE SYSTEMS, COOLING, BUILDINGS, HUMIDITY (U)

BELOW-GRADE SHELTERS IN BUILDINGS WITH COMFORT AIR CONDITIONING MAY BE MADE MORE HABITABLE BY UTILIZING THE AIR CONDITIONING EQUIPMENT TO COOL ALL OR PART OF THE VENTILATION AIR. THE VARIOUS TYPES OF AIR CONDITIONING EQUIPMENT ARE CONSIDERED FOR THEIR CHARACTERISTICS PERTINENT TO OPERATING UNDER CONDITIONS OF TEMPERATURE AND HUMIDITY HIGHER THAN NORMAL FOR COMFORT STANDARDS AND HOW THE SYSTEMS MIGHT BE MODIFIED TO SUPPLY THE CONDITIONED AIR TO A BELOW-GRADE SPACE. COMPUTATION PROGRAMS ARE INCLUDED TO EXPEDITE THE CALCULATIONS OF SHELTER CONDITIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOML7

AD-701 763 15/3
OAK RIDGE NATIONAL LAB TENN

SYSTEMS ANALYSIS OF U. S. CIVIL DEFENSE VIA NATIONAL BLAST SHELTER SYSTEMS. (U)

MAR 70 203P HAALAND,CARSTEN M. I
REPT. NO. ORNL-TM-2457
CONTRACT: OCD-PS-64-284

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, SHELTERS), (*SHELTERS, FEASIBILITY STUDIES); BLAST, SURFACE BURST, UNDERGROUND STRUCTURES, REVETMENTS, DOORS, PERFORMANCE(HUMAN), REACTION(PSYCHOLOGY), NUCLEAR EXPLOSION DAMAGE, COSTS, COST EFFECTIVENESS, POPULATION, ALGORITHMS (U)
IDENTIFIERS: COMPUTER ANALYSIS (U)

THEORETICALLY FEASIBLE ALTERNATIVE NATIONAL BLAST SHELTER SYSTEMS, INCLUDING DEPLOYMENT SCHEMES, COSTS, AND EFFECTIVENESS AGAINST NUCLEAR ATTACKS ARE STUDIED. VARIOUS FEASIBLE ALTERNATIVES ARE DESCRIBED WITH A LIST OF INDEPENDENT PARAMETERS OF FUNCTION AND OPERATION. THE USEFUL DOMAIN OF THE PARAMETERS ARE ESTABLISHED BY INVESTIGATION OF THE RANGE OF FEASIBILITY AND PRACTICALITY. VARIOUS KINDS OF SYSTEMS ARE THEN THEORETICALLY CONSTRUCTED WITHIN THE BOUNDARIES ESTABLISHED BY THE IMPOSED LIMITATIONS. THESE SYSTEMS WERE INVESTIGATED FOR COST, AND FOR THE NUMBER OF FATALITIES RESULTING FROM VARIOUS SIZE NUCLEAR ATTACKS. THE COST PER SURVIVOR ADDED WAS USED AS A MEASURE OF EFFECTIVENESS. INVESTIGATIONS WERE PERFORMED ANALYTICALLY AND BY DIGITAL COMPUTER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-703 935 15/3 5/10
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

FURTHER STUDY OF THE ADOPTION-DIFFUSION PROCESSES IN DEVELOPMENT OF SHELTER IN NEW CONSTRUCTION. (U)

FEB 70 13&P WELLISCH,J. B. ;BANCROFT, B. M. ;MANEY,T. P. ;SBORDONE,R. ;
REPT. NO. SDC-TM-4213/005/00
CONTRACT: DAHC20-67-C-0106
PROJ: OCD-4832C

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, SHELTERS), (*POPULATION, ATTITUDES), CALIFORNIA, ARIZONA, QUESTIONNAIRES, STATISTICAL ANALYSIS, BUILDINGS, HOUSING (U)
IDENTIFIERS: COLLECTIVE PROTECTION, HOME MODIFICATION (U)

THE DOCUMENT PRESENTS THE METHODOLOGY AND FINDINGS OF TWO STUDIES OF THE DIRECT MAIL SHELTER DEVELOPMENT PLAN. IN ONE STUDY OCD COMPUTER PRINTOUT DATA ARE ANALYZED; IN THE OTHER, DATA FROM INTERVIEWS WITH OWNERS IN CALIFORNIA AND ARIZONA ARE ANALYZED. FINDINGS FROM THE STUDIES DEMONSTRATE THAT THERE ARE MARKED DIFFERENCES BETWEEN PUBLIC AND PRIVATE OWNERS IN THE DIMENSIONS OF ATTITUDE, INFORMATION LEVEL, AND ACTIONS TAKEN IN RELATION TO THE ADOPTION OF THE INNOVATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDML7

AD-704 500 15/3 13/13
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

CIVIL DEFENSE SYSTEMS: SHELTERS. VOLUME I. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 60-AUG 69.
APR 70 265P
REPT. NO. ODC-TAS-70-36-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-868 250L.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, *BIBLIOGRAPHIES), (*SHELTERS, CIVIL DEFENSE SYSTEMS), FALLOUT SHELTERS, RADIOACTIVE FALLOUT, NUCLEAR EXPLOSIONS, SHIELDING, CONCRETE, FIRE SAFETY, VENTILATION, CIVIL DEFENSE PERSONNEL, UNDERGROUND STRUCTURES, LIFE EXPECTANCY, CONFINED ENVIRONMENTS, FOOD, STRESS(PSYCHOLOGY), TRAINING (U)

THE BIBLIOGRAPHY IS VOLUME I OF A TWO-VOLUME SET ON CIVIL DEFENSE SYSTEMS: SHELTERS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-705 387 13/13 15/3
IIT RESEARCH INST CHICAGO ILL

DISTRIBUTION OF SLANTABLE CONSTRUCTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 70 142P STEPANEK,OTTO J. I
REPT. NO. IITRI-J6151-FR
CONTRACT: DAHC20-68-C-0153
PROJ: OCD-1634A, IITRI-J6151

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, BUILDINGS), (*BUILDINGS, STATISTICAL ANALYSIS), URBAN AREAS, SHELTERS, PREDICTIONS (U)

THE OBJECTIVE OF THE STUDY WAS TO DEVELOP A METHOD OF DETERMINING LOCATIONS AND DESCRIPTIONS OF NEW CONSTRUCTION ANTICIPATED IN A SAMPLE STANDARD METROPOLITAN STATISTICAL AREA (SMSA) OVER THE PERIOD 1970 TO 1980. THE METHOD FIRST ESTABLISHED THE STATE OF EXISTING CONSTRUCTION BY MEANS OF A FIELD INVESTIGATION; THEN PROJECTIONS ARE MADE WITH THE USE OF TREND CURVES DEVELOPED FROM RECORDED DATA. STRUCTURE PLAN AREAS, TOTAL AREAS, AND BASEMENT AREAS ARE PRESENTED FOR VARIOUS CATEGORIES OF BUILDINGS. METHODS ARE ALSO PRESENTED FOR EXTENDING THIS TECHNIQUE TO OTHER SMSA'S OR THE ENTIRE NATION, DEPENDING UPON THE DESIRED DEGREE OF REFINEMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-706 238 15/3 5/11
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

DIFFUSION OF FALLOUT SHELTER INNOVATIONS. A STUDY OF PUBLIC AND HOME FALLOUT SHELTER ADOPTION IN THE U. S. A. 1964, 1966, 1968. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 70 124P KLONGLAN,GERALD E. ;
YARBROUGH,PAUL ;LUTZ,GENE M. ;
REPT. NO. RURAL SOCIOLOGY-81
CONTRACT: DAHC20-69-C-0103
PROJ: OCD-4811M

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), (*FALLOUT SHELTERS, PUBLIC OPINION), STATISTICAL DATA, ATTITUDES (U)
IDENTIFIERS: COLLECTIVE PROTECTION, HOME MODIFICATION, TRANSFER OF TECHNOLOGY (U)

THE STUDY ANALYZES THE U.S. POPULATION'S ADOPTION AND DIFFUSION OF PUBLIC AND HOME FALLOUT SHELTER INNOVATIONS. THE ANALYSIS IS BASED ON DATA COLLECTED IN THE 1968 NATIONAL CIVIL DEFENSE STUDY AND COMPARED TO THE [illegible] AND 1964 NATIONAL STUDIES, EACH SAMPLING 1500 RESPONDENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZONL7

AD-706 849 13/1 13/13 15/3
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

VENTILATION KIT APPLICATION STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-FEB 70.
FEB 70 124P WRIGHT,MILTON D. IHILL, EDWARD L. ISAWYER,CARL T. I
REPT. NO. RTI-R-OU-400-F
CONTRACT: DAHC20-68-C-0166
PROJ: OCD-12338, RTI-OU-400

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), (*FALLOUT SHELTERS, *COOLING + VENTILATING EQUIPMENT), VENTILATION, PUMPS, BUILDINGS, COSTS, DEPLOYMENT (U)

THE REPORT DESCRIBES THE DEVELOPMENT AND FIELD TESTING OF A METHODOLOGY FOR ALLOCATING AND DEPLOYING EMERGENCY VENTILATION EQUIPMENT TO FALLOUT SHELTERS. THE METHODOLOGY DEVELOPED IS BASED ON SIX BASIC SHELTER CONFIGURATIONS INTO WHICH NFSS STRUCTURES WHICH REQUIRE ADDITIONAL VENTILATION MAY BE CATEGORIZED. DEVELOPMENT OF THE METHODOLOGY CONSISTED OF USING NFSS DATA FOR BUILDINGS AND DEFINING A STANDARD SET OF VENTILATION EQUIPMENT DEPLOYMENT PLANS FOR EACH COMBINATION OF SHELTER AND APERTURE CONFIGURATION. THE VENTILATION EQUIPMENT CONSIDERED IN THIS METHODOLOGY INCLUDED A 30-INCH MANUALLY-POWERED PVK, A 36-INCH KEARNY PUMP, AND A 72-INCH KEARNY PUMP. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-708 574 13/1 13/13 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

VENTILATING AND MIXING PROCESSES IN NONUNIFORM SHELTER ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 126P ALLEN,FRANK C. I
CONTRACT: DAHC20-68-C-0155
PROJ: OCD-1236A, SRI-MU-7327

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), (*FALLOUT SHELTERS, VENTILATION), MATHEMATICAL MODELS, MOISTURE, COOLING + VENTILATING EQUIPMENT, ENVIRONMENT, EQUATIONS (U)
IDENTIFIERS: COLLECTIVE PROTECTION (U)

VENTILATING SYSTEMS FOR SHELTERS CAN BE SIMULATED BY EITHER OF TWO ANALYTICAL MODELS. THE FIRST, THE 'ISOSTATE' MODEL, IS BASED ON THE ASSUMPTION THAT THE ENVIRONMENT IS SPATIALLY UNIFORM. THIS STATE OF UNIFORMITY CAN BE APPROACHED ONLY WITH A SYSTEM THAT INCLUDES DISTRIBUTION DUCTWORK AND DIFFUSION OUTLETS. THE SECOND, THE NONISOSTATE OR 'VARISTATE' MODEL, IS BASED ON THE INCREMENTAL TRANSFER OF METABOLIC HEAT AND MOISTURE TO THE AIR AS IT STREAMS THROUGH AN OCCUPIED SPACE. THE VARISTATE MODEL IS ASSOCIATED WITH NONUNIFORM ENVIRONMENTS AND SYSTEMS THAT DO NOT DISTRIBUTE AIR. EQUATIONS ARE DERIVED FOR VENTILATING AND MIXING PROCESSES AND FOR VARIABLE PARAMETERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-711 118 15/3 5/11
PITTSBURGH UNIV PA DEPT OF SOCIOLOGY

THE PUBLIC'S PERCEPTION OF LOCAL CIVILIAN DEFENSE EFFORTS AND FACILITIES. (U)

MAR 70 41P COHEN,PEARL B. I
CONTRACT: DAHC20-67-C-0122
PROJ: OCD-48128

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ONE IN A SERIES OF REPORTS ON AMERICAN'S VIEWS ABOUT CIVIL DEFENSE ISSUES.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS; *PUBLIC OPINION), QUESTIONNAIRES, REVIEWS, FALLOUT SHELTERS, NUCLEAR WARFARE (U)

AN OVERWHELMING MAJORITY OF AMERICANS INDICATED IN JUNE 1968 THAT THE COUNTRY WOULD NOT BE ENGAGED IN A NUCLEAR WAR WITHIN THE NEXT FIVE YEARS. THE HIGHER THE SOCIO-ECONOMIC CLASS, THE MORE OPTIMISM PREVAILED. CONSEQUENTLY PUBLIC INTEREST IN CIVIL DEFENSE AND RELEVANT INDIVIDUAL ACTIVITY WAS LOW. ALTHOUGH PEOPLE WERE MORE CERTAIN OF WHERE SHELTER WOULD BE SOUGHT IF A NUCLEAR ATTACK OCCURRED WHILE AT WORK RATHER THAN AT HOME, FEW PEOPLE HAD GIVEN THE MATTER SERIOUS THOUGHT. MOST CITIZENS KNEW NOTHING OF WHAT WAS BEING ACCOMPLISHED BY CIVIL DEFENSE OFFICERS ON THE LOCAL LEVEL. PEOPLE APPEARED UNCONCERNED AND REFUSED GENERALLY TO EVALUATE LOCAL CIVIL DEFENSE PROGRAMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOML7

AD-712 365 6/8 15/3
GEORGIA EXPERIMENT STATION EXPERIMENT

STORAGE STABILITY OF CIVIL DEFENSE SHELTER RATIONS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 8, 1 JUL 69-30 JUN 70,
JUN 70 105P CECIL,SAM R. ;
REPT. NO. 153-VIII-GES
CONTRACT: DAHC20-69-C-0415
PROJ: UCD-1312C, UGA-ST-1-53

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 7, AD-690 209.

DESCRIPTORS: (*FOOD, STORAGE), (*FALLOUT SHELTERS, FOOD), CIVIL DEFENSE SYSTEMS, CEREALS, CARBOHYDRATES, STABILITY, TEMPERATURE, MOISTURE, CONTAINERS, PH, ODORS, ACCEPTABILITY (U)
IDENTIFIERS: *SHELTER RATIONS, FLAVOR (U)

A STORAGE STUDY WAS CONDUCTED OVER A SEVEN-YEAR PERIOD TO DETERMINE THE STABILITY OF REPRESENTATIVE TYPES OF CIVIL DEFENSE SHELTER RATIONS. AT THE BEGINNING OF THIS PERIOD, 10 CEREAL ITEMS WERE DEPOSITED IN STORAGE OVER AN INTERVAL OF FOUR MONTHS, AND 3 CARBOHYDRATE SUPPLEMENTS WERE STORED ABOUT A YEAR LATER. DETERMINATIONS WERE ALSO MADE OF THE STABILITY OF PACKAGING MATERIALS IN WHICH THE RATIONS WERE STORED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-713 017 13/13 13/12 15/3
IIT RESEARCH INST CHICAGO ILL

FIRE LABORATORY TESTS. PHASE I. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 44P WATERMAN,THOMAS E. I
CONTRACT: DAHC20-70-C-0206
PROJ: OCD-1135A, IITRI-J6183

UNCLASSIFIED REPORT

DESCRIPTORS: (*FALLOUT SHELTERS, *FIRE SAFETY), (*TEST FACILITIES, CONSTRUCTION), CIVIL DEFENSE SYSTEMS, PANELS(STRUCTURAL), REINFORCED CONCRETE, CONSTRUCTION MATERIALS, GASES, HEAT, TEMPERATURE SENSITIVE ELEMENTS, VENTS, TEST METHODS (U)

THE PROGRAM REPORTED HEREIN HAS THE OBJECTIVE OF PROVIDING A VERSATILE, REUSEABLE FIRE TEST FACILITY FOR EVALUATING THE FLOW OF HEAT AND FIRE GASES INTO UNSEALED BASEMENT SHELTERS. INCLUDED IN THE FIRST YEAR OF EFFORT WERE THE CONSTRUCTION AND GENERAL INSTRUMENTATION OF THE FACILITY AS WELL AS THE CONDUCT OF AN INITIAL PROGRAM OF TESTS. BY PROVIDING A FULL-SCALE STRUCTURE HAVING MANY OF THE CONTROLLED FEATURES OF LABORATORY EXPERIMENTATION, THE FACILITY IS ADAPTABLE TO SYSTEMATIC STUDY OF VARIOUS PARAMETERS, AS WELL AS FOR SPOT CHECKING RESULTS OF THEORETICAL OR SMALL-SCALE LABORATORY STUDIES. LIMITED RESULTS TO DATE INDICATE THAT DEBRIS FIRES CONTAINED WITHIN THE STRUCTURAL INTERIOR DO NOT TEND TO DIRECT TOXIC GASES TOWARD NEARGROUND VENT LOCATIONS. HOWEVER, THE HEATING CAUSED BY THE DEBRIS FIRE OF A LIGHTLY PARTITIONED RESIDENTIAL OCCUPANCY ADDED A HEAT LOAD THROUGH 12 IN. OF CONCRETE TO THE BASEMENT SHELTER EQUAL TO THAT PRODUCED BY THE OCCUPANTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-714 304 5/3 13/6 15/3
URS RESEARCH CO SAN MATEO CALIF

DAMAGE TO THE DRUG INDUSTRY FROM NUCLEAR ATTACK AND RESULTING REQUIREMENTS FOR REPAIR AND RECLAMATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 70 182P STAACKMANN,MILTON ;VAN HORN, WILLIAM H. ;FOGET,CARL R. ;
REPT. NO. URS-796-4
CONTRACT: DAHC20-70-C-0268
PROJ: OCD-3311D

UNCLASSIFIED REPORT

DESCRIPTORS: (*INDUSTRIAL PLANTS, NUCLEAR EXPLOSION DAMAGE), (*NUCLEAR WARFARE, *INDUSTRIES), (*DRUGS, INDUSTRIAL PLANTS), MATHEMATICAL MODELS, CIVIL DEFENSE SYSTEMS, RECOVERY, MAINTENANCE, COSTS, PENICILLINS, SULFUR COMPOUNDS, MANAGEMENT PLANNING (U)
IDENTIFIERS: DRUG INDUSTRY, POST ATTACK OPERATIONS, PREATTACK PLANNING (U)

THE STUDY IDENTIFIES THE PROCESSES AND EQUIPMENT COMMONLY USED BY INDUSTRIES OF THE DRUG GROUP, SELECTS DRUGS REPRESENTATIVE OF THOSE DEEMED TO BE LIFESAVING IN THE POSTATTACK PERIOD, ESTIMATES DAMAGE TO DRUG INDUSTRY EQUIPMENT RESULTING FROM NUCLEAR WEAPON ATTACK, AND ESTIMATES THE CONSEQUENT REPAIR REQUIREMENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-714 306 13/1 13/13 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

SHELTER OCCUPANCY STUDIES OF VENTILATOR UTILIZATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-JUN 69,
JUL 70 229P ANDERSON,J. A. (JAGO,A. G. (FRIEDMAN,R. C. (
REPT. NO. GARD-1480-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-15228

UNCLASSIFIED REPORT

DESCRIPTONS: (*FALLOUT SHELTERS, VENTILATION), (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), COOLING + VENTILATING EQUIPMENT, INSTRUCTION MANUALS, MANAGEMENT ENGINEERING, PERFORMANCE(HUMAN), ASSEMBLING, CONFINED ENVIRONMENTS (U)
IDENTIFIERS: *SHELTER MANAGEMENT (U)

THE REPORT DESCRIBES THREE SHELTER OCCUPANCY EXPERIMENTS DESIGNED TO INVESTIGATE SHELTER MANAGEMENT PROBLEMS INVOLVING SHELTEREE NEEDS AND RESPONSES, CONTROL OF THE SHELTER ENVIRONMENT, SHELTER ORGANIZATION, AND THE OPERATION OF SHELTER VENTILATION EQUIPMENT. RECOMMENDATIONS FROM THE THREE HABITABILITY STUDIES MODIFIED BOTH VENTILATOR DESIGN AND INSTRUCTION MATERIAL. THE FINAL VERSION OF THE ASSEMBLY, DEPLOYMENT AND OPERATING INSTRUCTIONS ARE INCLUDED IN THE REPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-715 405 13/1 13/13 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

AIR DISTRIBUTION IN SHELTERS DUE TO KEARNY PUMPS AND PEDAL VENTILATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JAN 69-28 FEB 70,
AUG 70 101P KATHMANN,CARL E. I
REPT. NO. GARD-1476-1-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-1217C

UNCLASSIFIED REPORT

DESCRIPTORS: (• COOLING • VENTILATING EQUIPMENT, PUMPS), (•FALLOUT SHELTERS, VENTILATION), CIVIL DEFENSE SYSTEMS, GAS FLOW, AIR, TESTS (U)
IDENTIFIERS: •KEARNEY PUMPS, •PEDAL VENTILATORS, EVALUATION (U)

THE REPORT DESCRIBES THE RESULTS OF EVALUATING THE AIR-MOVING CAPABILITIES OF THE KEARNY PUMPS IN BOTH FLOW-THROUGH AND DEAD-END ROOM APPLICATION. SPECIFIC RECOMMENDATIONS FOR THE UTILIZATION OF THE PUMP ARE INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-715 416 13/13 15/3
APPLIED PARKING TECHNIQUES INC RESTON VA

SHELTER POTENTIAL IN PARKING GARAGES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 70 211P MCGAVIN,CHARLES T. ;
REPT. NO. APT-1170
CONTRACT: DAHC20-69-C-0414
PROJ: OCD-1624B

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, URBAN AREAS), (*CIVIL DEFENSE SYSTEMS, FEASIBILITY STUDIES), SITE SELECTION, CONSTRUCTION, DESIGN, DISTRICT OF COLUMBIA, LOUISIANA, CALIFORNIA, RHODE ISLAND, FALLOUT SHELTERS (U)
IDENTIFIERS: *PARKING GARAGES, NEW ORLEANS(LOUISIANA), SAN JOSE(CALIFORNIA), PROVIDENCE(RHODE ISLAND) (U)

THE OBJECTIVE OF THE STUDY WAS TO PRESENT PERTINENT FACTUAL DATA ON FIVE SELECTED CITIES WHICH WILL PERMIT THE OFFICE OF CIVIL DEFENSE TO EVALUATE PARKING GARAGES AS POTENTIAL SHELTER SYSTEMS. IN EACH CITY AN INVESTIGATION WAS MADE OF THE PARKING CAPACITY GAINS OF THE PAST BY TYPE OF FACILITY; A STUDY WAS MADE OF THE FORCES OF CHANGE WHICH WILL AFFECT THE RATE OF PARKING DEVELOPMENT DURING THE DECADE 1970 TO 1980; A PROJECTION WAS MADE OF THE NUMBER OF SQUARE FEET OF PARKING SPACE WHICH CAN FEASIBLY BE BUILT BY 1980 IN THE CENTRAL AREAS OF THE CITIES STUDIED; AND A BREAKDOWN WAS MADE OF THE DIVISION OF SPACE BETWEEN ABOVE-GROUND AND BELOW-GROUND PARKING FACILITIES. INCLUDED IN THE STUDY WAS AN INVESTIGATION OF NEW TECHNIQUES OF DESIGN, LOCATION, CONSTRUCTION AND OPERATION WHICH MAY BE USED TO SLANT FUTURE PARKING DEVELOPMENT TO DUAL PURPOSE SHELTER ADVANTAGE. THE AUTHOR MAKES ECONOMIC FEASIBILITY STUDIES OF SEVERAL FACILITIES AND ESTIMATES THE DAYTIME AND NIGHTTIME POPULATION LOCATED WITHIN 3/4 MILE OF THE GARAGES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUML7

AD-715 422 18/6 18/8 15/3
ILLINOIS UNIV URBANA

A STUDY OF THE PENETRATION OF GAMMA RADIATION THROUGH THIN SLABS ORIENTED AT RIGHT ANGLES TO EACH OTHER. (U)

SEP 70 126P MORRIS,E. E. ;
REPT. NO. NRSS-14
CONTRACT: DAHC20-70-C-0203
PROJ: OCD-1113A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON NUCLEAR RADIATION SHIELDING STUDIES.

DESCRIPTORS: (•GAMMA EMISSION, •SHIELDING), (•RADIOACTIVE FALLOUT, FALLOUT SHELTERS), CONCRETE, ATTENUATION, GAMMA COUNTERS, MONTE CARLO METHOD, PROGRAMMING(COMPUTERS), CIVIL DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS (U)
IDENTIFIERS: RASP 2 COMPUTER CODE (U)

THE REPORT FIRST MAKES A THEORETICAL ANALYSIS OF THE PENETRATION OF GAMMA RADIATION THROUGH A SHIELD CONSISTING OF TWO SLABS AT RIGHT ANGLES TO ONE ANOTHER AND THEN APPLIES THE RESULTS OF SUCH AN ANALYSIS TO THE PROBLEM OF FALLOUT RADIATION PENETRATION IN-AND-DOWN THROUGH THE WALLS AND FLOOR OF A BLOCKHOUSE INTO A BASEMENT. CERTAIN ASSUMPTIONS ARE MADE TO SIMPLIFY THE BASIC CALCULATIONS TO BE CONSIDERED. COMPARISONS ARE MADE WITH THEORETICAL RESULTS OF OTHER WORKERS; AND AN EFFORT IS MADE TO REPRODUCE DATA AVAILABLE FROM EXPERIMENTAL BLOCKHOUSE WORK. DISCREPANCIES BETWEEN RESULTS ARE DISCUSSED. COMPARISONS WITH THE ENGINEERING MANUAL APPROACH TO OVERHEAD BARRIER FACTOR PREDICTIONS ARE MADE. EFFECT OF WALL HEIGHT AND STRUCTURE ECCENTRICITY ON THIS BARRIER FACTOR ARE PREDICTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /Z0ML7

AD-716 360 13/1 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

LIGHTING KIT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 59P JAGO,ARTHUR G. IKAPIL,AJIT L. ;
REPT. NO. GARD-1508-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-14278

UNCLASSIFIED REPORT

DESCRIPTORS: (*LIGHTING EQUIPMENT, *FALLOUT SHELTERS), (*CIVIL DEFENSE SYSTEMS, LIGHTING EQUIPMENT), GENERATORS, DRIVES, GEARS, ELECTRICAL EQUIPMENT, TESTS (U)
IDENTIFIERS: AC GENERATORS, *PEDAL POWERED LIGHTING KITS (U)

THE REPORT DESCRIBES THE RESEARCH, DEVELOPMENT, FABRICATION AND TESTING OF A PEDAL-POWERED LIGHTING KIT. THE UNIT USES A NOTCHED V-BELT TRANSMISSION TO DRIVE AN ALTERNATOR (WITH FLYWHEEL) AND POWER TWO 20-WATT FLUORESCENT BULBS. IT CAN ALSO POWER INCANDESCENT LIGHTING AND OTHER ELECTRICAL ACCESSORIES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-71. 256 5/10 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

SYSTEM AND PERSONAL VARIABLES AS PREDICTORS OF INDIVIDUAL ADOPTION BEHAVIOR. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 133P YARBROUGH,PAUL (KLONGLAN, GERALD E. ;LUTZ,GENE M.)
REPT. NO. RURAL SOCIOLOGY-86
CONTRACT: DAHC20-69-C-0103

UNCLASSIFIED REPORT

DESCRIPTORS: (*BEHAVIOR, *CIVIL DEFENSE SYSTEMS), (*FALLOUT SHELTERS, BEHAVIOR), ATTITUDES, SOCIOLOGY, REGRESSION ANALYSIS (U)
IDENTIFIERS: COLLECTIVE PROTECTION (U)

THE STUDY ATTEMPTS TO PREDICT INDIVIDUAL ADOPTION BEHAVIOR RELATED TO FALLOUT SHELTER INNOVATIONS USING SYSTEM VARIABLES AND PERSONAL VARIABLES. SYSTEM VARIABLES INCLUDE THE GENERAL SITUATION AND CIVIL DEFENSE AGENCY ACTIVITY. PERSONAL VARIABLES INCLUDE INDIVIDUAL STATUS-ROLES, INDIVIDUAL GENERAL ORIENTATIONS, AND INDIVIDUAL CIVIL DEFENSE ORIENTATIONS. DATA IS UTILIZED FROM THE INTEGRATED MANAGEMENT INFORMATION SYSTEM AND THE 1968 NATIONAL CIVIL DEFENSE SURVEY. THREE ANALYSIS PROCEDURES WERE USED IN THE PREDICTION: ZERO-ORDER CORRELATION AND REGRESSION, MULTI-VARIABLE CORRELATION AND REGRESSION, AND NETWORK (PATH) ANALYSIS. EACH ANALYSIS YIELDS ITS PARTICULAR PREDICTIONS OF INDIVIDUAL ADOPTION BEHAVIOR. OVERALL FINDINGS INDICATE THE RELATIVELY LARGER INFLUENCE OF PERSONAL STATUS-ROLES AND INDIVIDUAL ORIENTATIONS IN THE PREDICTIONS COMPARED TO OTHERS. CIVIL DEFENSE ACTIVITY IS ESPECIALLY NON-INFLUENTIAL IN PREDICTING ADOPTION BEHAVIOR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-718 924 5/11 15/3
MICHIGAN STATE UNIV EAST LANSING DEPT OF COMMUNICATION

THE HOME FALLOUT PROTECTION SURVEY IN MICHIGAN: ITS IMPACT ON THE GENERAL PUBLIC. (U)

APR 70 12P BERLO,DAVID K. ;

REPT. NO. MFPS-3
CONTRACT: DAHC20-67-C-0119

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON THE PUBLIC OPINION ON SHARING HOME BASEMENTS DURING STORM OR RADIOACTIVE FALLOUT DISASTERS.

DESCRIPTORS: (*DISASTERS, ATTITUDES); (*SHELTERS, PUBLIC OPINION); STORMS, RADIOACTIVE FALLOUT, CIVIL DEFENSE SYSTEMS, SOCIAL COMMUNICATION, STATISTICAL ANALYSIS (U)
IDENTIFIERS: SHELTER OCCUPANCY; HOME BASEMENTS, EMERGENCY HOME SHARING, INTERVIEWS (U)

THE REPORT FOCUSES ON THE RESPONSES MADE BY A STATE-WIDE PROBABILITY SAMPLE OF MICHIGAN RESIDENTS TO QUESTIONS DEALING WITH THEIR WILLINGNESS TO SHARE THEIR HOME BASEMENTS--IN THE EVENT OF NATURAL DISASTER, OR NUCLEAR ATTACK, WITH EITHER FRIENDS, NEIGHBORS, OR STRANGERS. SUBGROUPS OF THE POPULATION WERE STUDIED IN RESPONSE TO THESE QUESTIONS; A WIDE VARIETY OF SUBGROUPS WERE EXAMINED ALONG DIFFERING LEVELS OF CIVIL DEFENSE ATTITUDES AND INFORMATION, COMMUNICATIONS WITH RESPECT TO CIVIL DEFENSE, AND DEMOGRAPHIC FACTORS. THE FINDINGS WERE THEN COMPARED WITH SIMILAR QUESTIONS ASKED IN OTHER MID-WEST URBAN AND RURAL AREAS, AND IN A NATION-WIDE PROBABILITY SAMPLE; ALL THREE SETS OF RESULTS CONSISTENTLY SHOWED HIGH LEVELS OF PUBLIC SUPPORT FOR HOMESHARING IN THE EVENT OF NUCLEAR ATTACK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-719 306 13/13 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

EXISTING STRUCTURES EVALUATION. PART IV.
TWO-WAY ACTION WALLS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 70 256P WIEHLE,CARL K. IBOCKHOLT,
JAMES L. ;
CONTRACT: DAHC20-67-C-0136
PROJ: OCD-1154F, SRI-6300

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 3, AD-701 088.

DESCRIPTORS: (*WALLS, VULNERABILITY), (*NUCLEAR EXPLOSION DAMAGE, BLAST), (*CIVIL DEFENSE SYSTEMS, SHELTERS), DAMAGE ASSESSMENT, LOADING(MECHANICS), STRUCTURAL PROPERTIES, TRANSPARENT PANELS, REINFORCED CONCRETE, BRICK, MATHEMATICAL MODELS, STATISTICAL ANALYSIS (U)
IDENTIFIERS: BLAST LOADING, NFSS(NATIONAL FALLOUT SHELTER SURVEYS), NATIONAL FALLOUT SHELTER SURVEYS, OVERPRESSURE, WINDOWS, COMPUTER ANALYSIS, *BLAST SHELTERS (U)

THE OBJECTIVE OF THE INVESTIGATION WAS TO DEVELOP AN EVALUATION PROCEDURE APPLICABLE TO EXISTING NFSS-TYPE STRUCTURES AND PRIVATE HOMES FOR DETERMINING THE BLAST PROTECTION AFFORDED AND THE COST OF STRUCTURE MODIFICATIONS TO IMPROVE THE BLAST PROTECTION. THE APPROACH ADOPTED WAS TO FORMULATE A PROCEDURE THAT WOULD PERMIT EXAMINING THE RESPONSE OF A STRUCTURE OVER A RANGE OF INCIDENT OVERPRESSURE LEVELS TO DETERMINE THE PRESSURE AT WHICH FAILURE OF THE VARIOUS ELEMENTS OCCURS. PAST EFFORTS IN THIS PROGRAM HAVE BEEN CONCERNED WITH EXAMINING EXTERIOR WALLS, WINDOW GLASS, AND STEEL FRAME CONNECTIONS. THE PHASE OF THE WORK PRESENTED IN THIS REPORT EXTENDED THE EXTERIOR WALL RESPONSE MODELS PREVIOUSLY DEVELOPED BY INCLUDING EXTERIOR WALLS WITH TWO-WAY ACTION AND WINDOW OPENINGS. THE EVALUATION PROCEDURE WAS ALSO EXTENDED TO INCLUDE A PROBABILITY DISTRIBUTION FOR EACH OF THE VARIOUS 'UNKNOWN' WALL AND LOAD PARAMETERS. USING THE WALL EVALUATION PROCEDURE, A LIMITED SENSITIVITY ANALYSIS WAS PERFORMED AND A COMPARISON WAS MADE OF THE AVAILABLE EXPERIMENTAL INFORMATION ON DYNAMICALLY LOADED WALL ELEMENTS WITH THEORETICAL PREDICTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZONL7

AD-720 219 13/4 16/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

NON-CORRODIBLE DUAL-PURPOSE WATER CONTAINER. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-FEB 70,
FEB 70 87P KAPIL,AJIT L. ;
REPT. NO. GARD-1479-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-1433F

UNCLASSIFIED REPORT

DESCRIPTORS: (*CONTAINERS, WATER), (*FALLOUT SHELTERS, WATER SUPPLIES), LIFE SUPPORT, SANITARY ENGINEERING, TOILET FACILITIES, POLYETHYLENE PLASTICS, CONFIGURATION, FIRE RESISTANT MATERIALS, PUMPS, COSTS, TEST METHODS, CIVIL DEFENSE SYSTEMS (U)
IDENTIFIERS: *WATER CONTAINERS, NONCORRODIBLE CONTAINERS, EVALUATION (U)

THE REPORT DESCRIBES THE DESIGN, FABRICATION AND EVALUATION OF A NON-CORRODIBLE, DUAL-PURPOSE WATER CONTAINER FOR USE IN FALLOUT SHELTERS. THE DESIGN ALLOWS AN EMPTY CONTAINER TO BE CONVERTED INTO A COMMODE FOR IN-SHELTER USE. TESTS ON PROTOTYPES SHOW THE DESIGN MEETS ALL REQUIREMENTS ESTABLISHED FOR SUCH A CONTAINER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-722 242 15/3 13/4
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

COLLAPSIBLE WATER CONTAINER KIT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-NOV 69, JAN 71 83P GORECKI,EDWARD A. ;JAGO, ARTHUR G. ;
REPT. NO. GARD-1478-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-1433E

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, WATER TANKS), (*WATER TANKS, *FALLOUT SHELTERS), WATER SUPPLIES, TESTS, STEEL, PLASTICS, EXTENDABLE STRUCTURES (U)
IDENTIFIERS: COLLAPSIBLE WATER CONTAINERS, EVALUATION, POTABLE WATER (U)

THE REPORT DESCRIBES THE DESIGN AND TEST EVALUATION OF THREE COLLAPSIBLE, LARGE-CAPACITY WATER CONTAINERS FOR USE IN FALLOUT SHELTERS. A 350-GALLON, STEEL-WALL CONTAINER WITH A POLYVINYL CHLORIDE LINER AND NECESSARY ACCESSORIES WAS CHOSEN AS THE MOST ACCEPTABLE DESIGN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-722 243 15/3 15/5
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

BUNKING SYSTEM CONCEPTS. (U)

DESCRIPTIVE NOTE: SUMMARY OF FINAL REPT.,
DEC 70 113P RATHMANN,CARL E. ;
REPT. NO. GARD-1509-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCD-1427C

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, BEDDIN..),
(*BEDDING, *FALLOUT SHELTERS), COSTS,
VENTILATION, POPULATION, TESTS (U)
IDENTIFIERS: *BUNK BEDS, BUNKING SYSTEMS (U)

ECONOMIC INVESTIGATIONS OF REDUCING SHELTER COSTS PER OCCUPANT AND INCREASING SHELTER OCCUPANCY VIA THE INCLUSION OF BUNKING SYSTEMS ARE ITEMIZED.
(AUTHOR) (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-722 856 15/3 13/13 18/6
KANSAS STATE UNIV MANHATTAN ENGINEERING EXPERIMENT STATION

A UNIVERSITY DESIGN STUDY OF REDUCTION FACTORS IN TYPICAL AMERICAN HOUSES WITH FALLOUT SHELTERS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 71 68P REYNOLDS,R. S. ;FAW,R. E. ;ROBINSON,M. J. ;
REPT. NO. KEES-SR-92
CONTRACT: DAHC20-69-C-0412

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), (*SHIELDING, RADIOACTIVE FALLOUT), (*FALLOUT SHELTERS, DESIGN), SIMULATION, RADIOACTIVE ISOTOPES, COBALT, CONCRETE, CONSTRUCTION MATERIALS, SPECIFICATIONS, COSTS, REGRESSION ANALYSIS (U)

THE PURPOSE OF THIS WORK WAS TO MEASURE THE FALLOUT-RADIATION PROTECTION PROVIDED IN A TYPICAL RESIDENTIAL STRUCTURE BY FALLOUT SHELTERS DESIGNED BY THE NATIONAL ASSOCIATION OF HOME BUILDERS (NAHB). NAHB DESIGNS SPECIFIED DIMENSIONS AND MATERIALS OF CONSTRUCTION ALONG WITH TABLES OF EXPECTED MASS THICKNESSES. OUR CALCULATIONS CONFIRMED THAT SHELTERS WITH WALLS AND OVERHEAD OF THE EXPECTED MASS THICKNESSES WOULD INDEED PROVIDE PROTECTION FACTORS OF AT LEAST 40. HOWEVER, IT WAS FOUND THAT CONSTRUCTION ACCORDING TO MATERIALS SPECIFICATIONS DID NOT YIELD THE EXPECTED MASS THICKNESSES. IN SOME INSTANCES, THE SHELTERS WERE OF OVERLY CONSERVATIVE DESIGN YIELDING PROTECTION FACTORS AS HIGH AS 116. THIS WAS TYPICAL OF BASEMENT SHELTERS. ON THE OTHER HAND, ABOVE-GRADE SHELTERS WERE TYPICALLY UNDER-DESIGNED WITH PROTECTION FACTORS AS LOW AS 20. IT IS RECOMMENDED THAT NAHB DESIGNS BE REVISED WITH MASS THICKNESS AS THE CONTROLLING SPECIFICATION. INSTRUCTIONS SHOULD THEN BE GIVEN AS TO HOW THESE MASS THICKNESSES COULD BE ACHIEVED WITH VARIOUS BUILDING MATERIALS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOHL7

AD-723 045 13/5 13/13 15/3
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS

DYNAMIC TESTS OF LARGE REINFORCING BAR SPLICES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 71 183P FLATHAU,WILLIAM J. ;
REPT. NO. AEWES-TR-N-71-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*METAL JOINTS, STRUCTURAL PROPERTIES), (*REINFORCING MATERIALS, JOINING), (*SHELTERS, REINFORCED CONCRETE), BLAST, DEFORMATION, STRAIN(MECHANICS), WELDING, WELDS, STRESSES, TEST METHODS, CIVIL DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS (U)
IDENTIFIERS: HARDENED INSTALLATIONS, BLAST RESISTANT STRUCTURES (U)

DYNAMIC TENSILE TESTS WERE CONDUCTED AT RAPID, INTERMEDIATE, AND SLOW RATES OF STRAIN ON SPECIMENS OF NO. 11 REINFORCING BARS OF GRADES 60 AND 75 A615 BILLET STEEL. AS-ROLLED BARS, MACHINED BARS, BUTT-WELDED SPLICES, THERMIT SPLICES, AND CADWELD SPLICES WERE PREPARED. THE AS-ROLLED AND MACHINED SPECIMENS WERE TESTED PRIMARILY TO DETERMINE THE TENSILE STRENGTH CHARACTERISTICS OF THE GRADES 60 AND 75 BARS FOR USE WHEN ASSESSING HOW EFFECTIVE THE VARIOUS SPLICED SPECIMENS WERE WHEN TESTED. ALL TESTS WERE CONDUCTED IN A 200,000-POUND-CAPACITY DYNAMIC LOADER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /20ML7

AD-724 164 15/3
MICHIGAN STATE UNIV EAST LANSING DEPT OF COMMUNICATION

THE HOME FALLOUT PROTECTION SURVEY AND COMMUNITY SHELTER PLANS IN MICHIGAN: THEIR IMPACT ON THE GENERAL PUBLIC. FAMILY COMMUNICATION ABOUT CIVIL DEFENSE TOPICS: A REPORT OF TWO PILOT STUDIES. (U)

DESCRIPTIVE NOTE: PILOT STUDY REPT. NO. 4,
JAN 71 19P BERLO,DAVID K. IMACKMAN,
DANIEL B. IERICSON,PHILIP M. I
CONTRACT: DAHC20-67-C-0119

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, PUBLIC OPINION), (*FALLOUT SHELTERS, CIVIL DEFENSE SYSTEMS), REACTION(PSYCHOLOGY), EDUCATION, ATTITUDES, QUESTIONNAIRES, NUCLEAR RADIATION, NUCLEAR WARFARE (U)
IDENTIFIERS: HOME FALLOUT PROTECTION SURVEYS (U)

THE REPORT SUMMARIZES TWO PILOT RESEARCH STUDIES WHICH EXPLORED HOW AMERICAN FAMILIES PROCESS AND UTILIZE CIVIL DEFENSE INFORMATION. THE FIRST STUDY COMPARED PUBLIC REACTIONS TO COMMUNITY SHELTER PLAN INFORMATION TO HOME FALLOUT PROTECTION SURVEY INFORMATION) AND FOUND THEM SIMILAR IN AWARENESS, PROCESSING, USE IN PLANNING, AND EVALUATION OF THE INFORMATION. THE STRENGTHS AND WEAKNESS OF CSP INFORMATION ARE NOTED. THE SECOND STUDY EXAMINED HOW A SAMPLE OF 30 LOWER AND MIDDLE CLASS COUPLES INTERACTED ABOUT CIVIL DEFENSE TOPICS. THE FINDINGS INDICATED NUCLEAR ROLE ASSIGNMENT FOR CIVIL DEFENSE IN THE FAMILIES, LOW PRIORITY TO ITS IMPORTANCE, BUT USE OF THE SAME BASIC INTERACTION STYLE IN DISCUSSING IT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /20ML7

AD-724 710 13/13 18/3 15/3
URS RESEARCH CO SAN MATEO CALIF

ANALYSIS OF THE EFFECT OF SHELTER OPENINGS ON BLAST PROTECTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 197P MELICHAR,JOSEPH F. !
REPT. NO. URS-773-6
CONTRACT: DAHC20-67-C-0136

UNCLASSIFIED REPORT

DESCRIPTORS: (*FALLOUT SHELTERS, BLAST), (*CIVIL DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS), NUCLEAR EXPLOSION DAMAGE, SURVIVAL, SHELTERS, DESIGN, REVETMENTS, DAMAGE ASSESSMENT, KILL PROBABILITIES (U)
IDENTIFIERS: *BLAST SLANTED SHELTERS, OPENINGS (U)

THE TRANSLATION OF SHELTERED PERSONS IN BLAST SLANTED BASEMENT CIVIL DEFENSE SHELTERS WAS STUDIED. ANALYTICAL AND NUMERICAL AND EXPERIMENTAL SIMULATIONS WERE USED TO DEVELOP SUPPORTIVE DATA. JUDGMENTS ON TRANSLATION POTENTIAL ARE PRESENTED AND THE DIFFICULTIES OF MAKING PREDICTIONS FOR THE GENERAL CASE ARE SUMMARIZED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 727 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

THE HOME FALLOUT PROTECTION SURVEY AND RESULTING CHANGES IN SHELTER ADOPTION. SUMMARY REPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 56P YARBROUGH,PAUL ;KLONGLAN, GERALD E. ;
REPT. NO. RURAL SOCIOLOGY-85A
CONTRACT: DAHC20-67-C-0123
PROJ: OCD-4811E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA AGRICULTURAL AND HOME ECONOMICS EXPERIMENT STATION, PROJECT 1529. SEE ALSO APPENDICES, AD-724 726.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES), QUESTIONNAIRES, REVIEWS, IOWA (U)
IDENTIFIERS: SURVEYS, HOME FALLOUT PROTECTION (U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN DES MOINES, IOWA, TO THE HOME FALLOUT PROTECTION SURVEY (HFPS). A PANEL OF 308 PERSONS WERE INTERVIEWED BEFORE AND AFTER HFPS. THE AUDIENCE WAS FOUND TO HAVE RESPONDED QUITE FAVORABLY IN TERMS OF ATTENTION GIVEN HFPS MESSAGES, ATTITUDINAL ACCEPTANCE OF THE PROGRAM AND CHANGE IN ADOPTION OF PUBLIC AND HOME FALLOUT SHELTERS. OVER 66 PERCENT WERE AWARE OF THE PROGRAM AND NEARLY 30 PERCENT READ AT LEAST SOME OF THE HFPS BOOKLET. COMBINED ADOPTION OF HOME AND PUBLIC SHELTERS INCREASED FROM 26 PERCENT OF ALL HOUSEHOLDS BEFORE HFPS TO 44 PERCENT AFTERWARDS. HOWEVER, COMPREHENSION OF SUCH KEY CONCEPTS AS 'PROTECTION FACTOR' AND 'ADDED WEIGHT' WAS QUITE LOW AND CONSTITUTED ONE OF THE WEAKEST LINKS IN THE PROGRAM. THE DISPOSITIONAL MODEL DID NOT HOLD WELL IN PREDICTING ATTENTION TO HFPS, BUT DID HOLD IN PREDICTING COMPREHENSION AND ACCEPTANCE RESPONSES. THE USE OF PANEL METHODOLOGY WAS FOUND TO CONTRIBUTE SIGNIFICANT BIAS TO THE OBSERVED RESPONSE TO HFPS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 728 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

THE HOME FALLOUT PROTECTION SURVEY AND RESULTING CHANGES IN SHELTER ADOPTION. APPENDICES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 378P YARBROUGH,PAUL ;KLONGLAN, GERALD E. ;
REPT. NO. RURAL SOCIOLOGY-858
CONTRACT: DAHC20-67-C-0123
PROJ: OCD-4811E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA AGRICULTURAL EXPERIMENT STATION, PROJECT 1529. SEE ALSO SUMMARY REPORT, AD-724 727.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES), (*FALLOUT SHELTERS, CIVIL DEFENSE SYSTEMS), QUESTIONNAIRES, REVIEWS, IOWA (U)
IDENTIFIERS: SURVEYS, HOME FALLOUT PROTECTIO, (U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN DES MOINES, IOWA, TO THE HOME FALLOUT PROTECTION SURVEY (HFPS). A PANEL OF 308 PERSONS WERE INTERVIEWED BEFORE AND AFTER HFPS. THE AUDIENCE WAS FOUND TO HAVE RESPONDED QUITE FAVORABLY IN TERMS OF ATTENTION GIVEN HFPS MESSAGES, ATTITUDINAL ACCEPTANCE OF THE PROGRAM AND CHANGE IN ADOPTION OF PUBLIC AND HOME FALLOUT SHELTERS. THIS VOLUME PRESENTS APPENDICES GIVING THE DETAILED METHODOLOGY AND ANALYSIS OF EACH VARIABLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-726 456 15/2 5/10
AMERICAN INSTITUTES FOR RESEARCH PITTSBURGH PA

AN EXPLORATORY STUDY TO DETERMINE THE EFFECTS OF PHYSICAL HAZARD ON SHELTER MANAGEMENT BEHAVIOR. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1969-1970,
APR 71 62P SMITH,ROBERT M. (COLLINS, ROBERT A. (MEAGLEY,DONALD E. (
REPT. NO. AIR-77802-4/71-FR
CONTRACT: DAHC20-68-C-0122

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS), (*BEHAVIOR, THREAT EVALUATION), (*FALLOUT SHELTERS, *MANAGEMENT ENGINEERING), PERFORMANCE(HUMAN), REACTION(PSYCHOLOGY), STRESS(PSYCHOLOGY), ADJUSTMENT(PSYCHOLOGY), ANXIETY
IDENTIFIERS: THREAT, MANAGEMENT PERFORMANCE (U)

(U)

THE OBJECTIVE OF THE STUDY WAS TO GENERATE A PERCEPTION OF ENVIRONMENTAL THREAT IN SUBJECTS UNDER CONTROLLED CONDITIONS AND TO ASSESS ITS EFFECT ON PERFORMANCE THAT COULD BE RELATED TO FALLOUT SHELTER MANAGEMENT RESPONSIBILITIES. OF THE TEN TEST SUBJECTS, FIVE APPEARED TO PERCEIVE THREAT AS EVIDENCED BY NONCOMMITTAL REACTIONS TO CONCERNS EXPRESSED BY THEIR COMPANIONS, OVERT SYMPTOMS OF ANXIETY, RELATIVELY FREQUENT ATTEMPTS TO COMMUNICATE WITH THE RESEARCH STAFF, AND SUBSEQUENT VERBAL ACKNOWLEDGEMENT OF PERCEIVED THREAT. CLEAR RELATIONSHIPS EXISTED BETWEEN THE PERCEPTION OF THREAT AND MANAGEMENT PERFORMANCE, PARTICULARLY IN THE AREA OF SOCIAL BEHAVIOR. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-726 965 6/8 15/3
GEORGIA UNIV EXPERIMENT DIV OF FOOD SCIENCE

STORAGE STABILITY OF CIVIL DEFENSE SHELTER RATIONS. (U)

DESCRIPTIVE NOTE: FINAL SUMMARY REPT. (PART 1), 1 JUL 69-30 JUN 71,
MAY 71 131P CECIL,SAM R. I
REPT. NO. TR-153-9-FS
CONTRACT: DAHC20-69-C-0415
PROJ: OCD-1312C, UGA-01-0053

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 8 DATED JUN 70, AD-712 365. SUMMARY INSERTED.

DESCRIPTORS: (*FOOD, STORAGE), (*FALLOUT SHELTERS, FOOD), CIVIL DEFENSE SYSTEMS, CEREALS, CARBOHYDRATES, STABILITY, TEMPERATURE, MOISTURE, CONTAINERS, PH, ODORS, ACCEPTABILITY (U)
IDENTIFIERS: *SHELTER RATIONS, FLAVOR (U)

THIS IS THE FINAL SUMMARY REPORT IN A STUDY OF THE STABILITY OF REPRESENTATIVE TYPES OF CIVIL DEFENSE SHELTER FOODS AND THEIR CONTAINERS WHEN STORED FOR EXTENDED PERIODS. THE PURPOSE OF THE STUDY WAS TO MAINTAIN CONTROLLED STORAGE CONDITIONS COVERING THE RANGE OF CONDITIONS LIKELY TO EXIST IN WAREHOUSES AND SHELTERS IN WHICH, BEGINNING IN 1962, LARGE QUANTITIES OF FOOD WERE STORED UNDER THE CIVIL DEFENSE PROGRAM. THESE INCLUDED TYPES OF FOOD NOT PREVIOUSLY PROCURED, REPRESENTING NEW FORMULATIONS, PROCESSES AND CONTAINERS ON WHICH LITTLE OR NO LONG-TERM STORAGE INFORMATION WAS AVAILABLE. DURING THE COURSE OF THE STUDY, SAMPLES OF RATIONS WERE DRAWN FROM VARIOUS ESTABLISHED SHELTERS AND STORAGE DEPOTS FOR COMPARISONS WITH THE ITEMS HELD IN CONTROLLED STORAGE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-728 139 15/6 15/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM ANALYSIS DIV

A SENSITIVITY ANALYSIS OF URBAN BLAST FATALITY CALCULATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH PAPER,
JAN 71 21&P SCHMIDT,LEO A. ;
REPT. NO. RP-P-762
CONTRACT: DAHC20-70-C-0287

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, VULNERABILITY), (*NUCLEAR EXPLOSION DAMAGE, *MATHEMATICAL MODELS), (*URBAN AREAS, *KILL PROBABILITIES), (*NUCLEAR WARFARE, URBAN AREAS), CASUALTIES, SURVIVAL, PROGRAMMING(COMPUTERS), STATISTICAL DISTRIBUTIONS, CORRELATION TECHNIQUES, MONTE CARLO METHOD, CIVIL DEFENSE SYSTEMS, MATHEMATICAL PROGRAMMING, CURVE FITTING (U)
IDENTIFIERS: *SENSITIVITY ANALYSIS (U)

THE PAPER ATTEMPTS TO PROVIDE A BASIS FOR IMPROVING THE ANALYSIS OF STRATEGIC WARFARE BY STUDYING IN DETAIL THE SENSITIVITY OF URBAN BLAST FATALITY CALCULATIONS. IT EXAMINES THE EFFECTS OF VARIOUS ASSUMPTIONS ON THE RESULTING ESTIMATES OF FATALITIES AND ATTEMPTS TO UNCOVER AREAS WHERE ERRORS ARE MADE. TWO BASIC TOOLS ARE USED: A COMPUTER PROGRAM THAT COMPUTES SURVIVORS IN A CITY UNDER AN OPTIMIZED ATTACK WITH A GIVEN NUMBER OF WEAPONS, AND A QUASI-ANALYTICAL DAMAGE LAW--THE SQUARE ROOT DAMAGE LAW. THE COMPUTER PROGRAM IS USED TO STUDY SUCH EFFECTS AS SENSITIVITY OF FATALITIES TO WEAPON YIELD, RELIABILITY, OR TARGET VULNERABILITY; AND THE SQUARE ROOT DAMAGE LAW IS USED TO CORRELATE THE RESULTS. A FEW METROPOLITAN AREAS ARE STUDIED IN DETAIL. WHERE POSSIBLE A RATIONALE IS DEVELOPED TO EXPLAIN THE RESULTS OBTAINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-728 849 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

PUBLIC RESPONSE TO COMMUNITY SHELTER PLANNING: DES MOINES AND POLK COUNTY, IOWA. SUMMARY REPORT.
(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 50P YARBROUGH,PAUL (KLONGLAN, GERALD E. (PADGITT,STEVE ;
REPT. NO. SOCIOLOGY-87A
CONTRACT: DAHC20-69-C-0103
PROJ: OCD-4811G

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA AGRICULTURAL AND HOME ECONOMICS EXPERIMENT STATION, PROJECT 1754. SEE ALSO APPENDICES, AD-728 849.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES), (*FALLOUT SHELTERS, *ATTITUDES), QUESTIONNAIRES, SOCIOLOGY
(U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN DES MOINES, IOWA, TO A COMMUNITY SHELTER PLAN (CSP) AND ALSO TO AN OFFICE OF CIVIL DEFENSE BOOKLET ENTITLED, 'IN TIME OF EMERGENCY' (H-14). A TOTAL OF 938 INTERVIEWS WERE COMPLETED DURING THE STUDY. THE DETAILED METHODOLOGY AND ANALYSIS FOR EACH VARIABLE INVESTIGATED, IS PRESENTED IN A SEPARATE VOLUME--SEE AD-728 849. (AUTHOR)
(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-728 849 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY

PUBLIC RESPONSE TO COMMUNITY SHELTER PLANNING: DES MOINES AND POLK COUNTY, IOWA. APPENDICES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 344P YARBROUGH,PAUL (KLONGLAN, GERALD E. (PADGITT,STEVE ;
REPT. NO. SOCIOLOGY-878
CONTRACT: DAHC20-69-C-0103
PROJ: OCD-4811G

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA AGRICULTURAL AND HOME ECONOMICS EXPERIMENT STATION; PROJECT 1754. SEE ALSO SUMMARY REPORT, AD-728 848.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES), (*FALLOUT SHELTERS, *ATTITUDES), QUESTIONNAIRES, SOCIOLOGY (U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN DES MOINES, IOWA, TO THE COMMUNITY SHELTER PLAN (CSP). A TOTAL OF 938 INTERVIEWS WERE COMPLETED DURING THE STUDY. THIS INCLUDED ADEQUATE CONTROL SAMPLES BEFORE AND AFTER PUBLICATION OF CSP AS WELL AS PANELS. ONE PANEL WAS INITIATED BEFORE CSP, OTHER WERE CONTINUED FROM THE RESEARCHERS' EARLIER HOME FALLOUT PROTECTION SURVEY STUDY. THE CSP MESSAGE INCLUDED A PLAN ALLOCATING PUBLIC FALLOUT SHELTERS TO RESIDENTS BASED ON PLACE OF RESIDENCE. IT WAS PUBLISHED IN THE FORM OF A 12-PAGE SUNDAY NEWSPAPER ADVERTISING SUPPLEMENT. ATTENTION GIVEN THE MESSAGE WAS ABOUT AVERAGE WITH SIMILAR SUPPLEMENTS (SLIGHTLY LESS THAN HALF OF THE TOTAL AUDIENCE), BUT COMPREHENSION OF THE PLAN WAS LOW. ONLY SEVEN PERCENT OF OUR CONTROL SAMPLE COULD RECALL THE NAME OR LOCATION OF A SHELTER ALLOCATED FOR HIS USE AND ONLY FOUR PERCENT COULD RECALL HOW THEY WERE INSTRUCTED TO TRAVEL TO THE SHELTER. ACCEPTANCE RESPONSES WERE LOW. A SLIGHT INCREASE WAS OBSERVED IN LEVEL OF KNOWLEDGE ABOUT A LOCAL CIVIL DEFENSE PROGRAM AND IN THE ANTICIPATORY DECISION TO CONCURRENTLY ADOPT PUBLIC OR HOME SHELTER PROTECTION ALTERNATIVES. THE DISPOSITIONAL MODEL DID NOT HOLD WELL IN PREDICTING ATTENTION TO CSP. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-732 359 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

DESIGN PROCEDURES FOR SHELTER ENTRANCE STRUCTURES TO RESIST BLAST OVERPRESSURE AND RADIATION EFFECTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NOV 69-JUN 70, SEP 71 164P FERRITTO,JOHN M. ;
REPT. NO. NCEL-TR-736
PROJ: YF38.534.006.001.01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOORS, STRUCTURAL PROPERTIES), (*SHELTERS, NUCLEAR EXPLOSIONS), (*CIVIL DEFENSE SYSTEMS, SHELTERS), LOADING(MECHANICS), PRESSURE, RADIATION HAZARDS, SHIELDING, CONCRETE (U)
IDENTIFIERS: OVERPRESSURE, HARDENED ENTRANCE STRUCTURES, PLUMBBOB OPERATION (U)

THE REPORT PRESENTS ENGINEERING METHODS TO DESIGN HARDENED ENTRANCE STRUCTURES OF NUCLEAR WARFARE SHELTERS TO RESIST THE EFFECTS OF BOTH BLAST OVERPRESSURE AND RADIATION. THE DESIGN OVERPRESSURE LEVEL CAN BE DETERMINED FROM PROBABILITY DATA, AND THE ENTRANCE CAN BE SIZED TO ACCOMMODATE THE REQUIRED TRAFFIC FLOW. METHODS ARE PRESENTED TO CALCULATE THE REFLECTED PRESSURE ON THE ENTRANCE DOOR FOR VARIOUS ENTRANCE CONFIGURATIONS; PROCEDURES ARE GIVEN TO DESIGN THE DOOR STRUCTURALLY TO RESIST THE APPLIED LOADS. RADIATION ATTENUATION METHODS ARE PRESENTED TO EVALUATE THE REQUIREMENT FOR ADDITIONAL SHIELDING. VARIOUS MATERIALS ARE CONSIDERED TO PROVIDE MORE EFFECTIVE ECONOMICAL SHIELDS. SUMMARIES OF DOOR TESTS PERFORMED IN THE OPERATION PLUMBBOB TEST SERIES ARE GIVEN.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOML7

AD-732 360 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

COST-OPTIMIZATION STUDY OF SHELTER ENTRANCE STRUCTURES TO RESIST BLAST OVERPRESSURE AND RADIATION EFFECTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 69-DEC 70, SEP 71 36P FERRITTO,JOHN M. ;
REPT. NO. NCEL-TR-737
PROJ: YF38.534.001.01.011

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOORS, STRUCTURAL PROPERTIES), (*SHELTERS, NUCLEAR EXPLOSIONS), (*CIVIL DEFENSE SYSTEMS, SHELTERS), PRESSURE, PROTECTION, COST EFFECTIVENESS, STEEL, REINFORCED CONCRETE, PROGRAMMING(COMPUTERS), RADIATION HAZARDS (U)
IDENTIFIERS: OVERPRESSURE, BLAST DOORS, BLAST RESISTANT SHELTERS (U)

THE BLAST DOOR IS AN IMPORTANT PART OF THE NUCLEAR BLAST RESISTANT SHELTER. THE BLAST DOOR MUST BE A MOVABLE ELEMENT REQUIRING A SUPPORT SYSTEM WITH A COST VERY SENSITIVE TO THE WEIGHT AND DIMENSIONS OF THE DOOR. A COMPUTER PROGRAM HAS BEEN DEVELOPED AND IS AVAILABLE TO STUDY 96 DOOR-ENTRANCE COMBINATIONS FOR VARIOUS DOOR SIZES AND RADIATION-OVERPRESSURE LEVELS. THE RELATIVE COSTS OF VARIOUS DOORS, ENTRANCES, AND DOOR-ENTRANCE COMBINATIONS HAVE BEEN EVALUATED TO OBTAIN THE MOST COST-EFFECTIVE COMBINATIONS. STEEL TENSION MEMBRANE DOORS AND REINFORCED CONCRETE SLAB DOORS ARE THE MOST ECONOMICAL. AERODYNAMIC TRIANGULAR OBSTRUCTIONS PLACED IN FRONT OF A DOOR, SLOPED DOORS, AND UNPROTECTED DOORS ARE THE MOST COST-EFFECTIVE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-732 362 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

USE OF AN AERODYNAMIC OBSTRUCTION TO SHIELD A BLAST DOOR--RESULTS OF AN EXPERIMENTAL MODEL TEST. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 70-APR 71,
OCT 71 34P FERRITTO,J. M. ;
REPT. NO. NCEL-TR-739
PROJ: YF38-534-001-01-011

UNCLASSIFIED REPORT

DESCRIPTORS: (*REVETMENTS, EFFECTIVENESS), (*DOORS, BLAST), (*SHELTERS, NUCLEAR EXPLOSIONS), CIVIL DEFENSE SYSTEMS, PROTECTION, AERODYNAMIC CONFIGURATIONS, PRISMATIC BODIES, SHIELDING, MODELS(SIMULATIONS), TEST METHODS (U)
IDENTIFIERS: *BLAST RESISTANT STRUCTURES, *BLAST DOORS (U)

TRIANGULAR PRISMATIC AERODYNAMIC OBSTRUCTIONS CAN BE USED TO SHIELD A BLAST DOOR. THE OBJECTIVES OF THIS PROJECT WERE TO EVALUATE THE PROTECTION AFFORDED BY AN OBSTRUCTION AND TO DETERMINE THE RELATIVE WIDTH OF OBSTRUCTION REQUIRED TO PROTECT A GIVEN WIDTH OF ENTRANCE. A STUDY WAS PERFORMED FROM WHICH SIMILITUDE RELATIONSHIPS WERE DEVELOPED. A SERIES OF TESTS WAS CONDUCTED IN WHICH A PROTECTED AND AN UNPROTECTED MODEL STRUCTURE WERE SUBJECTED TO BLAST WAVES FROM EXPLOSIVE CHARGES. A 45-DEGREE TRIANGULAR PRISMATIC OBSTRUCTION WAS USED TO SHIELD THE PROTECTED STRUCTURE. FIFTEEN VARIATIONS OF WIDTH AND POSITION OF OBSTRUCTION WERE EVALUATED. RESULTS SHOW THAT AT THE 100-PSI OVERPRESSURE LEVEL AN OBSTRUCTION 1 DOOR-HEIGHT HIGH AND 2 DOOR-WIDTHS WIDE PLACED FROM 1 TO 2 DOOR-HEIGHTS AWAY FROM A STRUCTURE CAN REDUCE THE PEAK REFLECTED PRESSURE BY 50%. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-732 514 13/13 15/3
AMERICAN INSTITUTES FOR RESEARCH PITTSBURGH PA

MODEL LARGE INDIVIDUAL SHELTER PLANS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 70-30 SEP 71,
JUL 71 49P COLLINS,ROBERT J. ;MANN,
SHEILA B. ;
REPT. NO. AIR-77804-7/71-FR
CONTRACT: DAHC20-68-C-0122
PROJ: OCD-1519F

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, *CIVIL DEFENSE SYSTEMS),
MANAGEMENT PLANNING, PENNSYLVANIA (U)
IDENTIFIERS: PITTSBURGH(PENNSYLVANIA) (U)

THE GOALS OF THE PROJECT WERE TO DEVELOP AN INDIVIDUAL SHELTER PLAN (ISP) FOR OPERATIONS WITHIN THE LARGE SHELTER, AND A REPORT DESCRIPTIVE OF THE PROCESSES OF PLAN DEVELOPMENT. A 'MODEL' STRUCTURE, SATISFYING THE CRITERIA DESCRIPTIVE OF 'LARGE' SHELTERS WAS SELECTED. THIS BUILDING WAS SURVEYED IN TERMS OF STRUCTURE, SUPPLIES, FACILITIES, AND EQUIPMENT PERTINENT TO ITS FUNCTION AS A SHELTER. UTILIZING THIS INFORMATION, AND LEVELS OF FIRE AND RADIATION AS ENVIRONMENTAL DESCRIPTORS, SHELTER MANAGEMENT ACTIONS WERE GENERATED FOR CRITICAL SHELTER SERVICES. THESE ACTIONS WERE FORMATTED IN A SMALL FLIP CHART ARRANGED FOR EASY ACCESS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-733 343 15/3 13/13
STANFORD RESEARCH INST MENLO PARK CALIF

EXISTING STRUCTURES EVALUATION. PART V: APPLICATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 71 103P WIEHLE,CARL K. ;BOCKHOLT, JAMES L. ;
CONTRACT: DAHC20-67-C-0136
PROJ: OCD-1154F; SRI-6300

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 4, AD-719 306.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, SHELTERS), (*WALLS, VULNERABILITY), (*NUCLEAR EXPLOSION DAMAGE, BUILDINGS), PROTECTION, PREDICTIONS, STRUCTURES, LOADING(MECHANICS), MATHEMATICAL MODELS, GLASS, STEEL, REINFORCED CONCRETE, SHELTERS (U)
IDENTIFIERS: PRIVATE RESIDENCES, BLAST PROTECTION, EVALUATION, OVERPRESSURE, COLLAPSE-OVERPRESSURE (U)

THE OBJECTIVE OF THE OVERALL RESEARCH PROGRAM IS TO DEVELOP AN EVALUATION PROCEDURE FOR DETERMINING THE BLAST PROTECTION AFFORDED BY EXISTING (NATIONAL FALLOUT SHELTER SURVEYS)-TYPE STRUCTURES AND PRIVATE RESIDENCES. THE PURPOSE OF THE APPLICATION PHASE OF THE RESEARCH WAS TO USE THE INTERIM EVALUATION TECHNIQUE TO PREDICT THE DAMAGE TO ACTUAL NATIONAL FALLOUT SHELTER SURVEYS STRUCTURES. PREVIOUSLY DEVELOPED MATHEMATICAL MODELS FOR EXTERIOR WALLS WERE USED TO PREDICT THE COLLAPSE OVERPRESSURE FOR SELECTED STRUCTURES. THE REPORT PRESENTS THE RESULTS OF THE DYNAMIC ANALYSIS OF THE EXTERIOR WALLS OF ONE STRUCTURE LOCATED ON THE STANFORD UNIVERSITY CAMPUS, AND FIVE STRUCTURES LOCATED IN DETROIT, MICHIGAN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /40ML7

AD-733 944 8/13 13/13 15/3
NATIONAL BUREAU OF STANDARDS WASHINGTON D C BUILDING RESEARCH DIV

EARTH TEMPERATURES BENEATH FIVE DIFFERENT SURFACES. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 69-FEB 70, FEB 71 146P KUSUDA,T. ;
PROJ: NBS-4212436, OCD-12114
MONITOR: NBS 10373

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOILS, TEMPERATURE) (*FALLOUT SHELTERS, THERMAL PROPERTIES), HEAT TRANSFER, UNDERGROUND STRUCTURES, DESIGN, MATHEMATICAL PREDICTION, MEASUREMENT, MOISTURE, SURFACE TEMPERATURES, PROBES, CIVIL DEFENSE SYSTEMS, THERMOCOUPLES, GRASSES, SOLAR RADIATION, PAVEMENTS, TABLES (U)
IDENTIFIERS: SOIL PROPERTIES, SOIL MOISTURE (U)

THE REPORT COVERS THE EXPERIMENTAL EFFORT OF MEASURING, PROCESSING AND ANALYZING EARTH TEMPERATURE DATA BENEATH FIVE DIFFERENT SURFACE. SINCE THE INSTRUMENTATION AND DATA PROCESSING PHASES OF THE ENDEAVOR HAVE BEEN DESCRIBED IN THE PREVIOUS NBS REPORT 10423 ENTITLED 'AUTOMATED EARTH TEMPERATURE STATION', ONLY THE ANALYSIS OF THE DATA IS GIVEN IN THIS REPORT. ANNUAL AND TYPICAL DAILY PLOTS OF EARTH TEMPERATURE UNDER BLACK, WHITE, BARE, SHORT GRASS, AND LONG GRASS SURFACES ARE PRESENTED TOGETHER WITH THE SURFACE WEATHER CONDITIONS AND SOIL MOISTURE CONTENT. (AUTHOR) (U)

CORPORATE AUTHOR - MONITORING AGENCY

*AMERICAN INSTITUTES FOR RESEARCH PITTSBURGH PA

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AN EXPLORATORY STUDY TO DETERMINE THE EFFECTS OF PHYSICAL HAZARD ON SHELTER MANAGEMENT BEHAVIOR.
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*DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

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*GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL AMERICAN RESEARCH DIV

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*KANSAS STATE UNIV MANHATTAN ENGINEERING EXPERIMENT STATION

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DESIGN PROCEDURES FOR SHELTER ENTRANCE STRUCTURES TO RESIST BLAST OVERPRESSURE AND RADIATION EFFECTS.
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*RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND ECONOMICS DIV

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*DAHC20-70-C-0207
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13. ABSTRACT

This bibliography -- one in a series on Civil Defense Systems -- contains a compilation of references on Civil Defense Systems: Shelters. References included cover such topics as fallout structure evaluation; individual shelter plans for operations within the large shelter; design procedures for shelter entrance structures to resist blast overpressure and radiation effects; air distribution in shelters; storage stability of civil defense shelter rations, etc. Entries were processed into the AD data bank during the period January 1970 through January 1972. This volume updates an earlier bibliography, AD-704 500.

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*Shelters						
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