



SurvivalRing

Study Yesterday... Prepare Today... Live Tomorrow

This digital document created and presented by Richard Fleetwood. He is the founder, author, producer, and webmaster of the **SurvivalRing** (<http://www.survivalring.org>) and **Civil Defense Now!** (<http://www.survivalring.org/cd-main.htm>) websites.

SurvivalRing has as its goal the ideal of being the leading source of survival, preparedness, and self reliance information on the Internet. Linkage, assistance, and creation of digital content in areas that until now have only been hinted at or impossible to find, is being added to everyday via the SurvivalRing website and email lists.

Thousands of hours of searching, writing, and communications have been spent collecting over 2 gigabytes of digital content, as well as tens of thousands of pages of hard copy original public domain material in the areas of civil defense, survival, training, and preparedness, from all over the globe.

As much as possible is being put online at his website at
<http://www.survivalring.org>

Civil Defense Now!

Part of The SurvivalRing website

The content of THIS file, while created from PUBLIC DOMAIN material, produced by the U.S. (or other) Government at taxpayer expense, is presented in THIS digital format, produced from the ORIGINAL hardcopy document, for the benefit of all mankind, in hoping to help spread the idea of PREPAREDNESS for any and all threats that may come from either natural, extraterrestrial (space based), or manmade sources.

There are too many situations and incidents that can come to pass in everyday life, that when time is taken to learn and skills obtained, can mean the difference between life and death. Sept. 11, 2001 proved to the world that no matter how safe a person thinks they may be, death and injury can come from the most UN-LIKELY place, at any time. The documents presented in this series of digitized works, can help the average person with the knowledge within, to know how to save those persons closest to them in REAL disaster. Help spread this idea of sharing SURVIVAL INFORMATION.

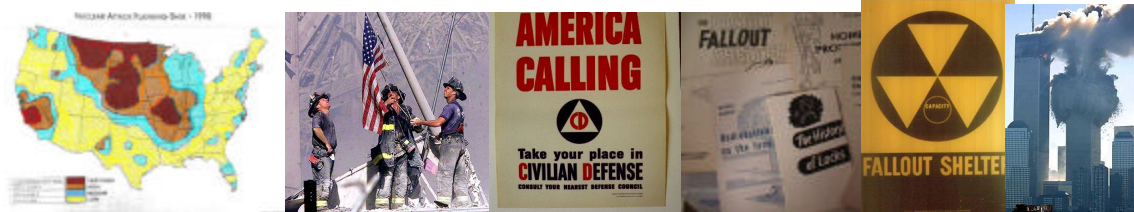
If you have documents from any era, on any disaster or civil defense area, PLEASE contact Richard at his email address of **RAFLEET@AOL.COM**. Check the website for the LATEST additions to the CIVIL DEFENSE NOW online library archive. All data online, and much more, is also available on CD-ROM. Information is available at the website on how to obtain it. Thanks for your support, and enjoy the information contained on the following pages. Share them with those who will learn from them and teach what they know to others.

Donations of U.S. or other civil defense documents, articles, books, videos, digitized ephemera, patches, tools, photos, or anything of this nature is appreciated, as well as cash gifts or donations to support the website costs and bills. Address information is available on the homepage of Civil Defense Now! (URL located above)

- Richard Fleetwood - January 2002 - ALL RIGHTS RESERVED -

This document may NOT be reproduced commercially on any media WITHOUT EXPRESSLY WRITTEN permission from the creator of this digital presentation. Educational Institutions MAY use this material in any way needed.

Permission granted to individuals for PERSONAL USE ONLY.



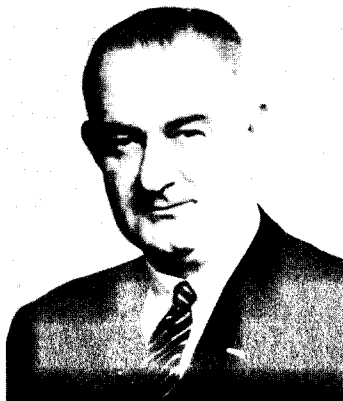
JUNE 1965

TR-29

OFFICE OF CIVIL DEFENSE

HIGHLIGHTS of the ARCHITECT & ENGINEER ACTIVITIES in SHELTER DEVELOPMENT





"An effective Civil Defense Program is an important element of our total defense effort. It aims at the achievement of a nationwide fallout shelter system."

Lyndon B. Johnson
President of United States

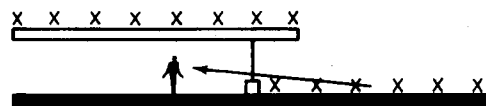
Fallout shelter, because of its life saving potential, is the central core of the Civil Defense Program.

During the National Fallout Shelter Survey, in which existing buildings were examined and evaluated for fallout protection, over 134 million adequate fallout shelter spaces were found. Seventy-three million of these shelter spaces are now being marked and 32 million spaces have been stocked with emergency rations of food, water (if needed), sanitary and medical supplies, and radiation detection instruments. All buildings have shielded areas, affording some degree of protection. This basic protection can be improved in future building construction without appreciably increasing the cost or adversely affecting the esthetics and function for normal use.

Architects and engineers exert the greatest single influence on building design and construction. Thousands of new buildings are being built each year in which the life saving potential could have been increased if attention had been focused on the problem during the initial design phase. Special knowledge is required to accomplish this - knowledge of the nature of radioactive fallout and how to design structures to provide shielding against it.

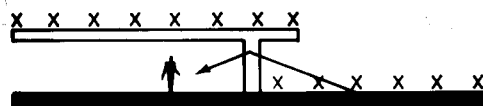
Architectural and engineering colleges and universities are playing an expanded role in disseminating the new technology of radiation shielding analysis and other related subjects to the design professions. Through this means, practicing professionals as well as new graduates can keep abreast of current developments.

Radiation Types and Sources



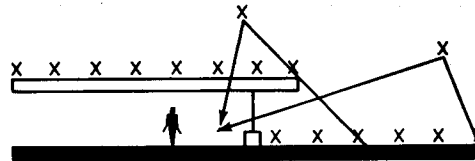
Ground Contribution—Direct

Some radiation comes directly from the ground surface.



Ground Contribution—Wall Scatter

Some radiation is deflected by the wall.



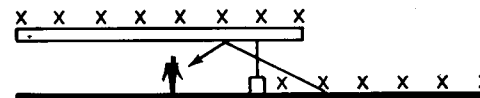
Ground Contribution—Skyshine

Some radiation is reflected from particles in the air.

BASIC CONCEPTS OF PROTECTION

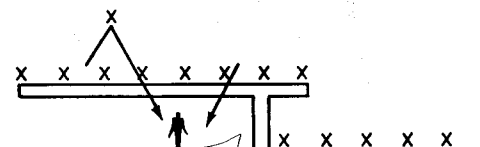
Gamma radiation reaches an individual from several sources: *the roof contribution* refers to radiation initiating from radioactive particles (dust and debris) which may accumulate on an overhead source plane; *the ground contribution* refers to all similar radiation initiating from the ground source plane. The ground contribution is further subdivided into ground direct, wall scatter, ceiling shine and skyshine.

Shelters with high protection factors are achieved by the control and planning of geometric and barrier relationships between the radioactive source and sheltered enclosure. *Geometric shielding* places people out of the direct path of radiation or at some distance from it. *Barrier shielding* places mass between the shelter occupant and the radioactive source.



Ground Contribution—Ceiling Shine

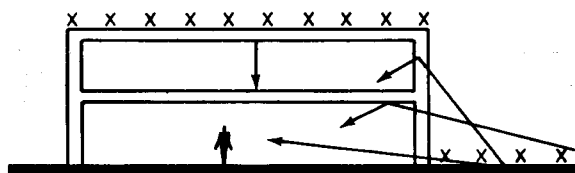
Some radiation is reflected by the ceiling or other horizontal plane.



Roof Contribution

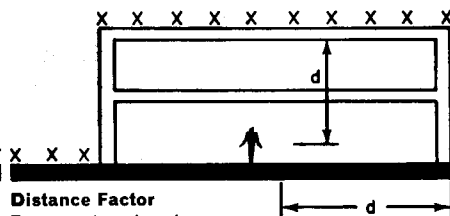
Some radiation comes directly from the roof surface.

Techniques of Exposure Control



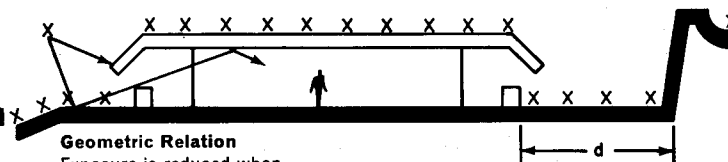
Barrier Shielding

Exposure is reduced by attenuating mass.



Distance Factor

Exposure is reduced as distance from source increases.



Geometric Relation

Exposure is reduced when the source area is limited.

PROFESSIONAL DEVELOPMENT PROGRAM

With the cooperation of architectural and engineering educational institutions and their faculty members, a unique professional development program for practicing architects and engineers was initiated in 1961.

The Office of Civil Defense sponsors continuing education courses for practicing architects and engineers.

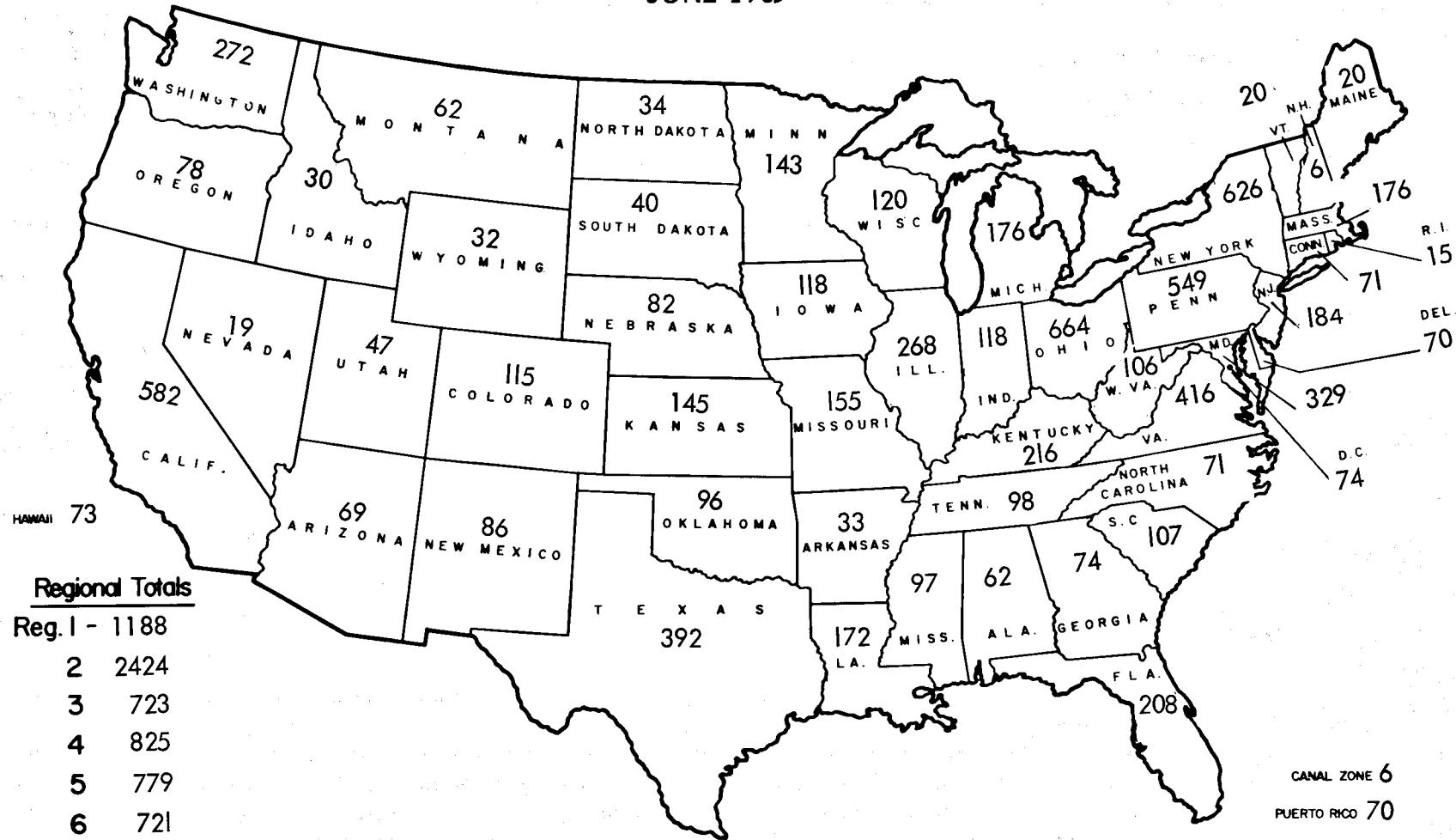
- a. Fallout Shelter Analysis Courses are offered as intensive two-week sessions, on a semester type basis (one night a week for 15 weeks) or as a correspondence course. The courses acquaint architects and engineers with nuclear weapon effects and shielding methodology and design techniques. Thirty-nine courses were conducted in 1961; 57 courses in 1962; 122 courses in 1963 and 158 courses in 1964. Architects and engineers who successfully complete the course are certified as Fallout Shelter Analysts and are periodically apprised of the latest developments including research reports.
- b. Protective Construction Courses on a two-week or semester type basis are offered. These courses are primarily concerned with structural dynamics and response of structures to the immediate effects of a nuclear detonation. One course was conducted in 1962, 10 courses were conducted in 1963 and 31 courses were conducted in 1964.
- c. Environmental Engineering Courses are offered to acquaint the mechanical engineer with the unique problems associated with shelter environment control and the procedures for solving these problems. Six pilot courses were conducted in 1963 and 35 courses were conducted in 1964.
- d. Other courses such as Disaster Engineering and Shelter Planning are now being developed for future presentation.

The immediate objective of this professional development program was to survey and locate potential public fallout shelter space in existing structures - a type of post-design analysis. But the program also provided, and provides today, the orientation that architects and engineers must have if fallout protection is to be considered at the critical point in the creation of a building - the design stage.

ARCHITECTS AND ENGINEERS QUALIFIED IN FALLOUT SHELTER ANALYSIS

ALASKA 28

JUNE 1965



Regional Totals

Reg. I - 1188

- 2 2424
- 3 723
- 4 825
- 5 779
- 6 721
- 7 791
- 8 470

CANAL ZONE 6
PUERTO RICO 70
GUAM 1
FOREIGN 39

FACULTY DEVELOPMENT - SUMMER INSTITUTES

The summer institute program was initiated in 1961 at the Pennsylvania State University to develop a teaching capability in radiation shielding analysis and design and protective construction, among faculty members of various schools and universities. The institutes offer a comprehensive educational program for full-time architectural and engineering faculty which prepares them to offer similar instruction at their own institutions.

Nuclear Defense Design Summer Institutes have been arranged for at the following educational institutions:

<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Worcester Polytechnic Institute	Worcester Polytechnic Institute	Univ. of Illinois	George Washington Univ.
Univ. of Illinois	Univ. of Michigan	Univ. of Colorado	Univ. of Hawaii
Univ. of Colorado	Univ. of Colorado	Univ. of California	Montana State College
Univ. of California	Univ. of California	Montana State College	Pennsylvania State Univ.
			Worcester Polytechnic Institute
			Aspen Inst., Colorado

At the Kansas State University, a special summer institute on "Fundamental Radiation Shielding Problems as Applied to Nuclear Defense Design Planning" is conducted for faculty in Nuclear Engineering and Applied Mathematics and Physics.

The Summer Institute at the Montana State College, conducted for the first time in 1964, is designed to acquaint faculty in architecture, mechanical and agricultural engineering and city planning with the environmental considerations and ventilation requirements for shelters.

The Summer Institute at the George Washington University is designed to accommodate both architectural and engineering faculty and practicing professionals by conducting special courses in radiation shielding, environmental engineering, and protective construction.

The various activities of the Faculty Development Program have benefit of the enthusiastic cooperation of the: The Consulting Engineers Council, The American Institute of Architects, The American Society of Civil Engineers, The National Society of Professional Engineers, The American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc., The American Nuclear Society Shielding Division, The National Academy of Sciences Subcommittee on Radiation Shielding, Engineers Joint Council, The American Society of Mechanical Engineers, The American Institute of Planners, The American Society of Planning Officials, and The American Society of Agricultural Engineers.

This program is being co-sponsored by the American Society for Engineering Education, the Association of Collegiate Schools of Architecture, and the Office of Civil Defense, Office Secretary of the Army.

LIST OF QUALIFIED FSA INSTRUCTORS AND THEIR INSTITUTIONS

ALABAMA
Auburn Univ.
William T. Cox
William A. Stewart

ALASKA
Univ. of Alaska
John L. Burdick

ARIZONA
Univ. of Arizona
Jerome Q. Burns
Terrill C. Ewbank
Howard P. Harrenstien
Ralph Richard
Alan R. Turk
S. Wayne Williams

Arizona State Univ.
Jeffrey R. Cook
Harry R. Lundgren

CALIFORNIA
Calif. Inst. of Tech.
Arthur G. Brady

Calif. State Poly.
William H. Brown
Hans L. Mager
William J. Phaklides

Fresno State College
Wayne Dominick

San Jose State College
Franklin J. Agardy
Robert F. Clothier

Stanford Univ.
C. Allin Corneli

U. S. Navy Civil Engineer Corps
Officers School
Robert L. Carter
George M. Gans, Jr.
Malcolm John MacDonald

Sacramento State College
George N. Beaumariage, Jr.

Univ. of California
John S. Fisher

COLORADO
Univ. of Colorado
Robert W. Kindig
Leo C. Navak
Robert E. Rathburn
Gale K. Vetter

CONNECTICUT
Univ. of Connecticut
Joseph J. Breen

DELAWARE
Univ. of Delaware
Thomas W. Brockenbrough

D. C.
George Washington Univ.
Raymond R. Fox

FLORIDA
Brevard Eng'g. College
James A. Lasater

FLORIDA
Univ. of Florida
William J. Grantham, Jr.
Elwyn S. Holmes
McMillan H. Johnson
King Royer
Donald A. Sawyer
Bryon D. Spangler
William G. Wagner

Univ. of Miami
James E. Branch
John E. Sweet
James P. Sampson

GEORGIA
Georgia Inst. of Tech.
James R. Fincher
James T. S. Wang

HAWAII
Univ. of Hawaii
James Chia San Chou
Mateo L. P. Go

ILLINOIS
Univ. of Illinois
John W. Briscoe
Paul H. Coy
Earl M. Farnham
William J. Hall
John D. Hiltiwanger
Harold L. Hornbeak
Carlos T. Marfort
Joseph P. Murtha
William C. Schnobrich
Jerome J. Steeman
Richard N. Wright

INDIANA
Indiana Inst. of Tech.
Ivan A. Plancik

Purdue Univ.
Robert E. Bailey
Lowell B. Jackson
Charles D. Sutton

Rose Polytechnic Inst.
Dennis H. Sapp

IOWA
Iowa State Univ.
Harvey J. Hirming
Ti Ta Lee
Benjamin M. Ma

KANSAS
Kansas State Univ.
Morris H. Beckman
Frederick G. Bergstrud
Carrol D. Claycamp
John O. Mingle

Univ. of Kansas
Walter E. George, Jr.
Robert F. Guenter
Nicolaas Willems

KENTUCKY
Univ. of Kentucky
John W. Hill
Kermit C. Mills
Samuel A. Mory, Jr.

LOUISIANA
Louisiana Polytechnic Inst.
James S. Tarbutton

Louisiana State Univ.
Vincen W. Hatlen
Troy M. McQueen
Franklin E. Metz

Southern Univ.
Henry L. Thurman, Jr.
Julian T. White

Tulane Univ.
Robert N. Bruce
Hugh A. Thompson

Univ. of Southwestern Louisiana
Joseph S. Olivier
James W. Reeves
Wayne P. Wallace

MAINE
Univ. of Maine
Roger A. Pellerin
George K. Waldin, Jr.

MARYLAND
Univ. of Maryland
Kenneth E. Felton

MASSACHUSETTS
Univ. of Mass.
Charles R. Bissey

Tufts Univ.
Arthur H. Mallon

Wentworth Inst.
Stanley M. Ball
William C. Bassett

Worcester Poly. Inst.
Ronald A. Carlson
A. Fattah Chalabi
Frank D. Defalco
Robert W. Fitzgerald
Carl H. Koontz
Joseph D. Sage

Worcester Jr. College
David C. Bartlett

MICHIGAN
Lansing Community College
Ralph B. Johnson

Michigan College M&T
Donald L. Schaible
P. Damoder Reddy
Clyde E. Work

Univ. of Michigan
Martin D. Gehner
Harold W. Himes
Glenn G. Mastin
Norbert J. Pointner

MINNESOTA
Univ. of Minnesota
John Thomas Hanley
Richard D. Springer

MISSOURI
Univ. of Missouri
John R. Salmons
Robert F. Davidson

Washington University
Louis E. Alfeld
Alvin Lever
Kenneth E. Taylor

MONTANA
Montana State College
Richard E. Alberts
George J. Herman
Owen A. Kubal
George S. McClure, Jr.
Elmira S. Smyrl

NEBRASKA
Univ. of Omaha
Francis G. McLean

NEVADA
Univ. of Nevada
Arnold De Angelis

NEW HAMPSHIRE
Dartmouth College
Carl F. Long

NEW JERSEY
Princeton Univ.
Robert J. Brungaber

NEW MEXICO
Univ. of New Mexico
Bob J. Donham
Larry M. Younklin

NEW YORK
Cornell Univ.
Francis W. Saul
Stanley Benben

Manhattan College
Francis X. McKelvey

State Univ. of New York
David F. Conde
William G. Sylvester

NORTH CAROLINA
Duke Univ.
Van L. Kenyon

N. C. Agric. & Tech. College
Gerald E. Gray
John H. Morris
William A. Streat, Jr.

N. C. State Univ.
Richard L. Jewett

Univ. of North Carolina
Vernon F. Shogren

NORTH DAKOTA
Univ. of North Dakota
C. E. Dahlgren

North Dakota State Univ.
Thomas M. Sakshaug

OHIO
Fenn College
Frank J. Gallo

Miami Univ.
Willis W. Wertz

Ohio State Univ.
Richard W. Bletzacker
George M. Clark
Ellis O. Davis
John F. Lindley
Charles F. Sepsy

Univ. of Toledo
John D. Hansell

OKLAHOMA
Univ. of Oklahoma
Palmer J. Boggs
Keun Poo Chuang

Oklahoma State Univ.
W. G. Chamberlain

OREGON
Oregon State Univ.
Thomas J. McClellan
John Peterson
Robert J. Schultz

PENNSYLVANIA
Carnegie Inst. Tech.
Tung Au
Harold J. Day
James H. Poellot
Thomas E. Stelson

Drexel Inst. Tech.
Richard E. Woodring

Penn. State Univ.
Albert Knott
Joseph E. Bruno
Larry O. Degelman
Melvin Isenberg

Univ. of Pittsburgh
Francis J. Bradley

Villanova Univ.
Charles G. Etter, Jr.

RHODE ISLAND
Univ. of Rhode Island
Phillip H. Wilson

R. I. School of Design
Wesley H. Randig

SOUTH CAROLINA
Clemson College
Emery A. Gunnin

Univ. of South Carolina
Harran Miklofsky

SOUTH DAKOTA
South Dakota State College
Charles N. Hinkle
Emory E. Johnson

TENNESSEE
Tenn. Poly. Inst.
Francis R. Toline

Univ. of Tennessee
Stuart R. Daniels

TEXAS
Southern Meth. Univ.
Jack W. Harkey
Sophus Thompson
Texas A&M
William M. Lyle
James H. Marsh, 3rd
Willard Strode

Texas Tech. College
Carl J. Childers, Jr.
Richard Duran
Cliff H. Keho
Robert L. Mason

Univ. of Houston
Herman F. P. Goeters

Univ. of Texas
Richard H. Gunderson

Texas Western College
Paul C. Hassler

UTAH
Univ. of Utah
Stanley W. Crawley
A. Peten Opperman
Delbert B. Ward

VERMONT
Univ. of Vermont
Stephen C. Knight
James A. Root
Arthur F. Tuhill

VIRGINIA
Virginia Military Inst.
William A. Vaughan
Donald K. Jamison

Virginia Polytechnic Inst.
Oscar J. Blake
George R. Buchanan
John H. Hunter

U. S. Army Engineer School
Richard Adler
Robt. P. Kennedy

Univ. of Virginia
Henry L. Kinnier
C. N. Gaylord

WASHINGTON
St. Martins College
Richard Cebula
Charles D. McDaniel

Univ. of Washington
William M. Miller
T. Kenneth Tang

Washington State Univ.
Loren B. Almy
Roger H. Nelson
Eric B. Wilson

WEST VIRGINIA
Marshall Univ.
Samuel T. Stinson

West Virginia Univ.
Za Lee Moh

WISCONSIN
Univ. of Wisconsin
William C. Dries

Wisc. State College & Inst. of Tech.
Marius P. Gronbeck

PUERTO RICO
Univ. of Puerto Rico
Gregorio Hernandez
Jaime V. Zeno

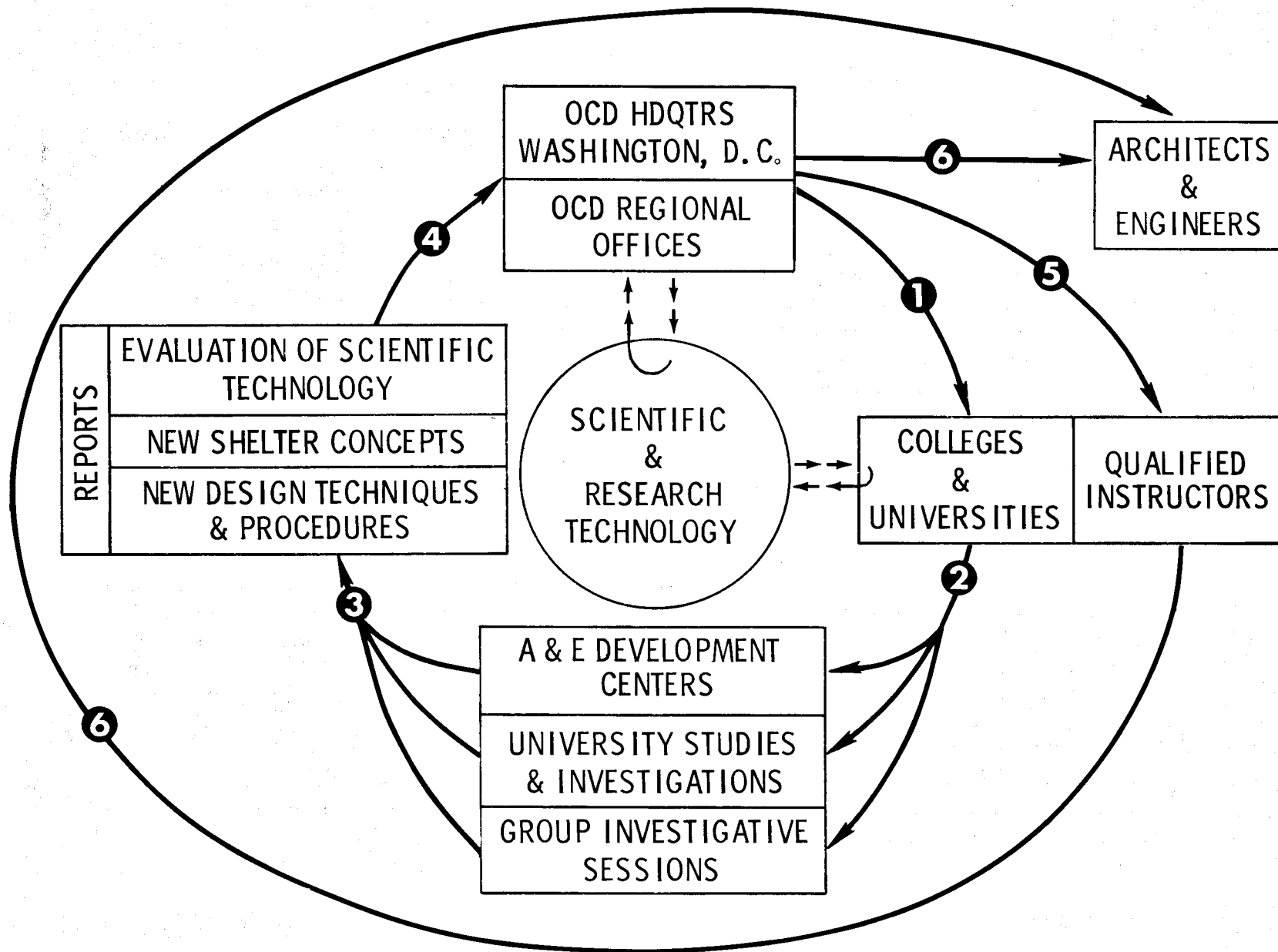
ARCHITECTURAL AND ENGINEERING DEVELOPMENT CENTERS

Eight Regional Architectural and Engineering Development Centers* (selected universities and colleges) will study, analyze, evaluate and report on available scientific and technical information as it applies to specified areas of Civil Defense. Due to the extremely rapid growth of research and scientific information pertaining to protective construction during the past few years, it is deemed necessary to place emphasis on the evaluation and publication of information from a highly scientific or theoretical presentation to a form more readily usable by a practicing architect or engineer.

Through this program, the findings of current research endeavors in many technical fields will become available to schools of architecture and engineering soon after research results are reported. All schools of architecture and engineering will be provided an opportunity to share in the benefits of this new technology.

Concurrent with the A&E Development Centers, design study investigation projects and group investigative programs are being conducted at selected universities and colleges to the mutual benefit of the institution, the design professions, and civil defense. Bonus benefits will also accrue by the university or college sharing the newly acquired information with their students in appropriate curricula.

- * Worcester Polytechnic Institute
- Pennsylvania State University
- University of Florida
- Purdue University
- Texas A&M
- University of Colorado
- San Jose State College
- University of Washington



THE SPIRAL OF SCIENTIFIC & TECHNICAL INFORMATION

DESIGN COMPETITIONS AND ACTUAL BUILDINGS

The National School Fallout Shelter Design Competition conducted by the American Institute of Architects produced excellent fallout protected school designs. These designs are now being used to demonstrate to professional architects, engineers, and educators how shelter can be incorporated into school.

The results of the competition clearly indicate that shelter can be economically incorporated into elementary schools without interfering with the educational function of the school or adversely affecting the esthetics of the building. Various types of aboveground and belowground solutions appear as winning entries. A brochure illustrating the winning school designs was prepared and distributed to emphasize that fallout protection and educational facilities are compatible in dual use space.

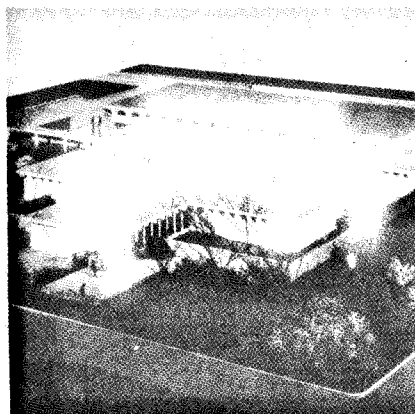
A second design competition for a community complex including a shopping center incorporating community fallout shelter facilities has produced similar results.

The Rice University, Department of Architecture conducted a design study on the subject of an industrial building with fallout protection. The results were well designed factory buildings with fallout protection included as dual use shelter space, providing once again that fallout protection can be included in buildings without adversely affecting function or esthetics and at little additional cost.

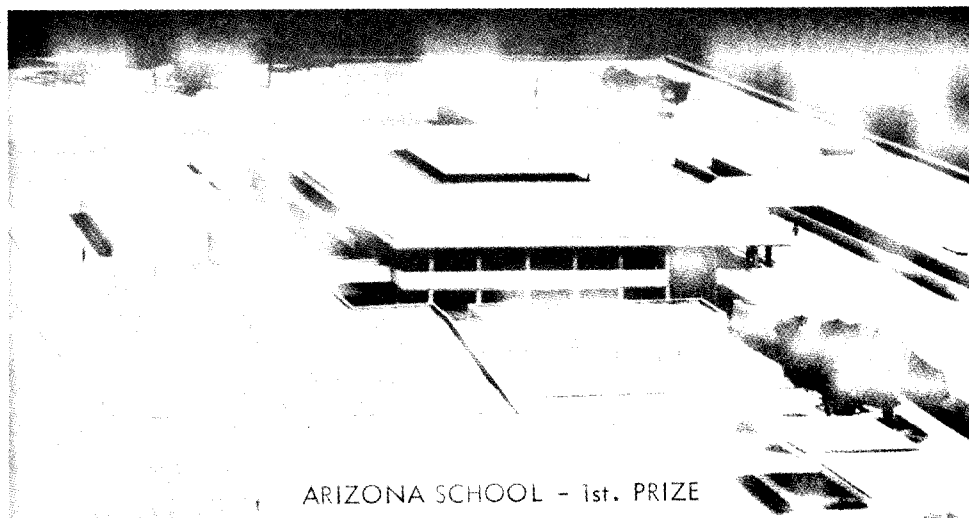
BUT THIS WAS THEORY

Recently the Office of Civil Defense collected a number of projects from Fallout Shelter Analysts involved in the design of actual structures that included dual purpose fallout protection. These projects including actual construction cost data were published in a technical report which was given widespread distribution to various architectural, engineering and educational groups.

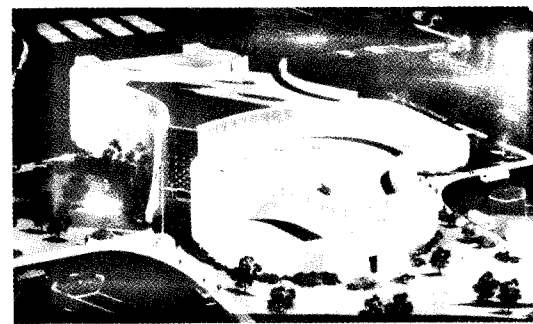
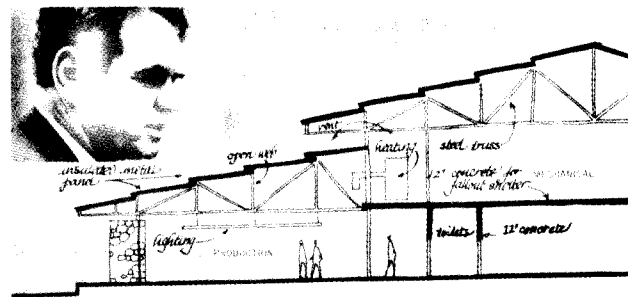
In this report "TR-27, New Buildings with Fallout Protection" the THEORY BECOMES FACT.



RICE UNIVERSITY DESIGN STUDY



ARIZONA SCHOOL - 1st. PRIZE

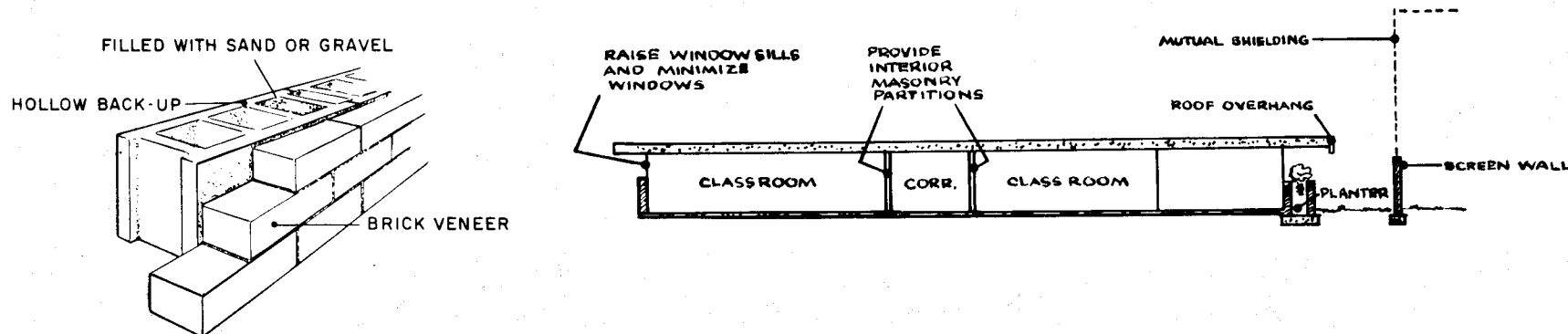


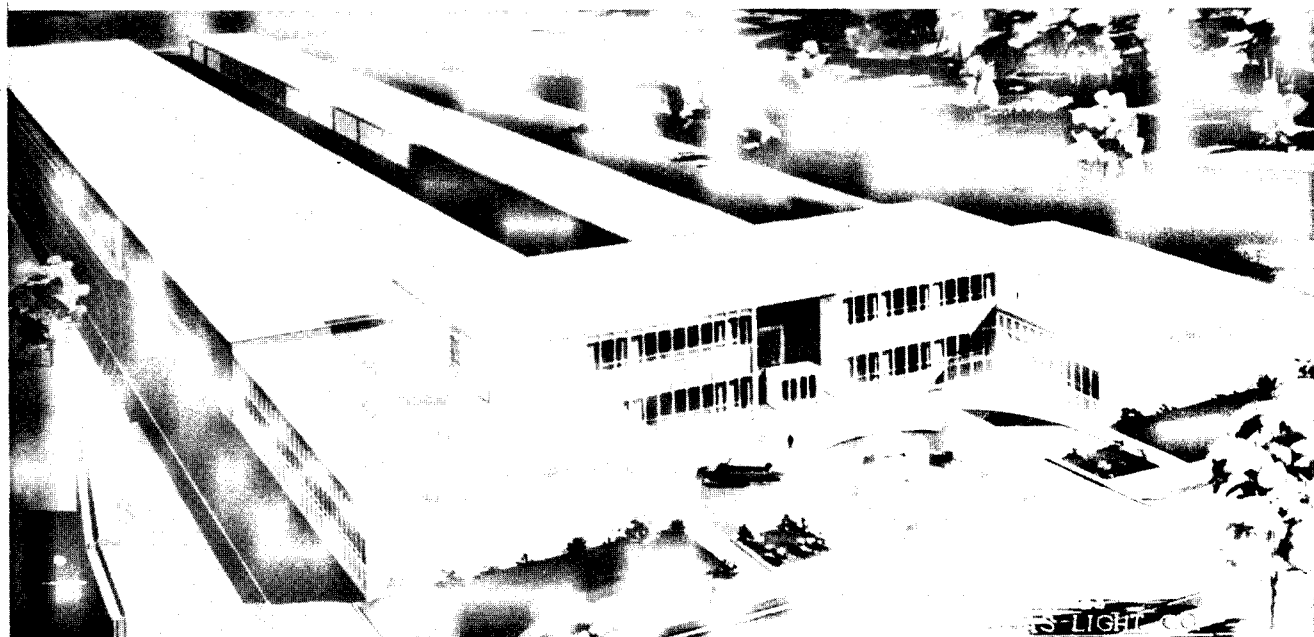
"SLANTING" IN DESIGN AND CONSTRUCTION

"Slanting" is defined as the incorporation, at little or no increase in cost or reduction in efficiency, of certain architectural and engineering features into all new structures, to protect personnel from fallout gamma radiation in event of an emergency. The slanting features may provide immediate improvement or may be of such nature as to facilitate later conversion of the structure for protective purposes. Thus, "Slanting" adds the protective function to the other criteria normally considered in the design of structures.

Every building is a natural shield against fallout radiation. Some buildings, however, are better than others. The National Fallout Shelter Survey located millions of shelter spaces in existing buildings where shelter was not considered in the initial design. Many other buildings would have provided reasonably adequate protection, but they had weak points which nullified otherwise good protection. If these weak points could have been detected by someone knowledgeable in radiation shielding analysis during the initial design phase of the project, then no-cost design changes could have been incorporated to maximize the protection without exceeding budget limitations.

EXAMPLES OF SLANTING & LOW COST TECHNIQUES

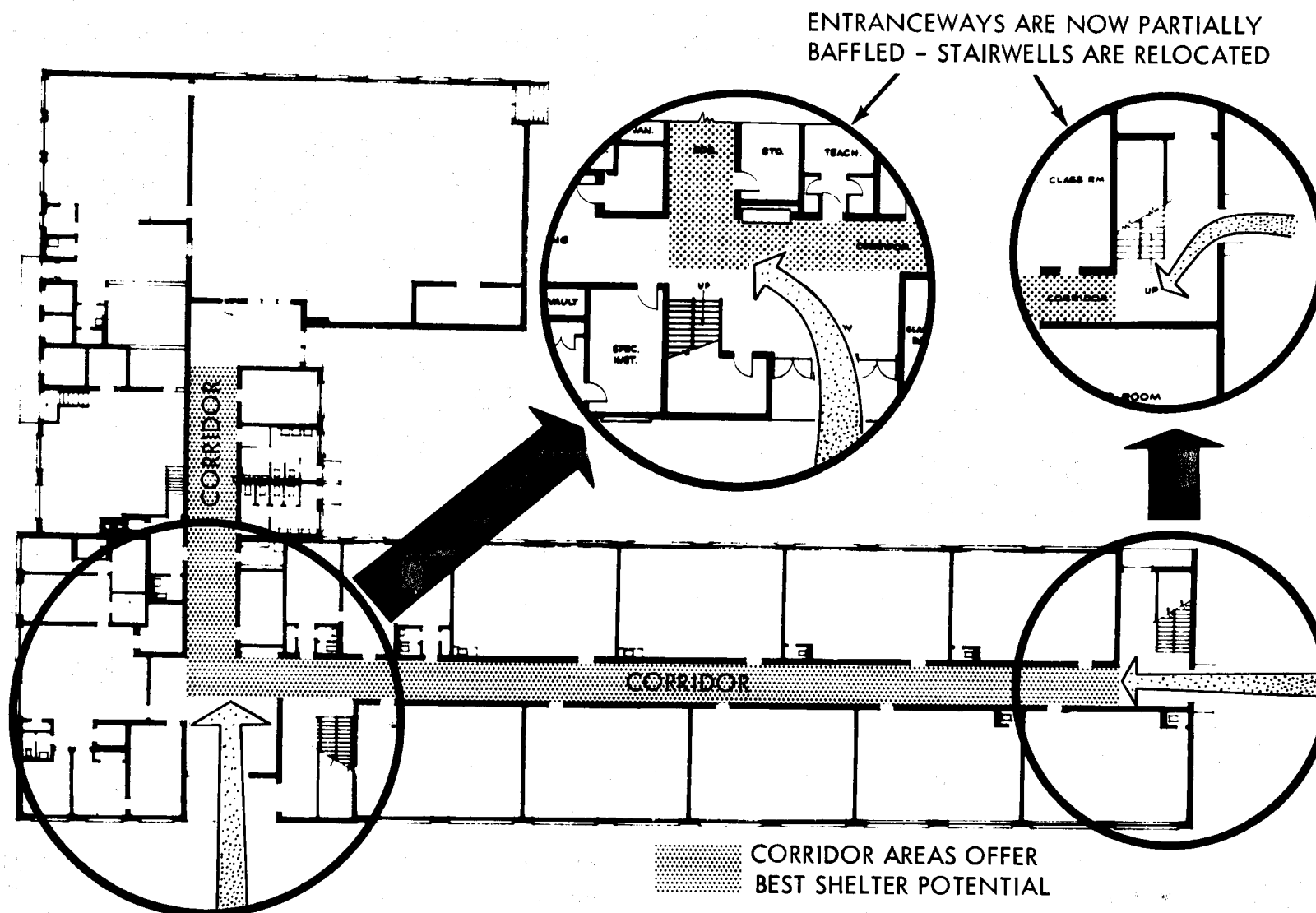




The Springfield Gas Light Co.* initiated construction on new plant facilities. A partial basement would have been necessary for record storage, etc. The company had used all available record storage space and was renting additional space. The architect persuaded the owners of practicality of incorporating full basement which would provide additional storage space and also serve as fallout shelter area. In this facility approximately 30,000 sq. ft. of shelter space was incorporated without any increase in cost since shelter features were inherent in basic design.

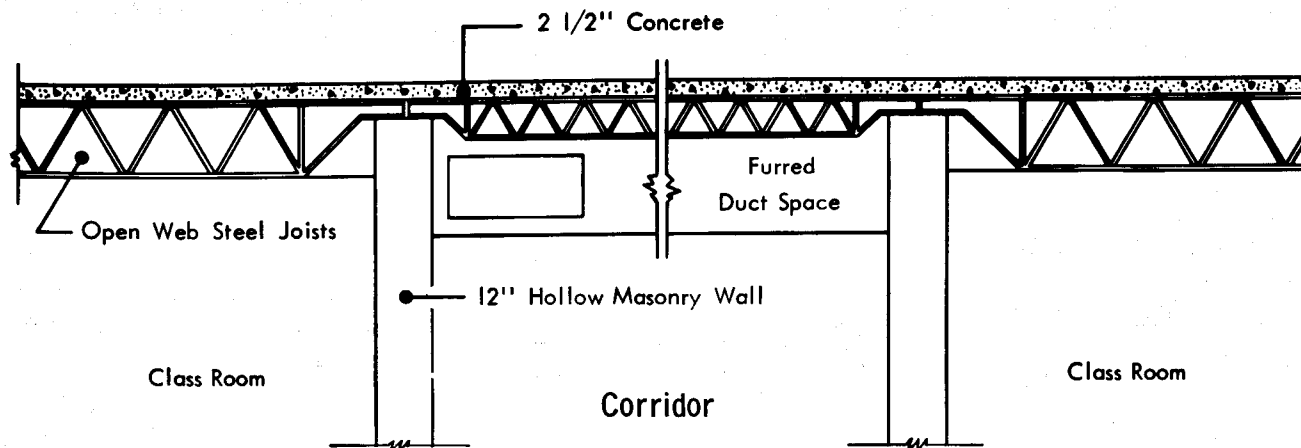
* Location: Springfield, Mass., Architect-Engineer: Munson & Mallis, Inc.

WHAT COULD BE DONE TO ENHANCE SHELTER?

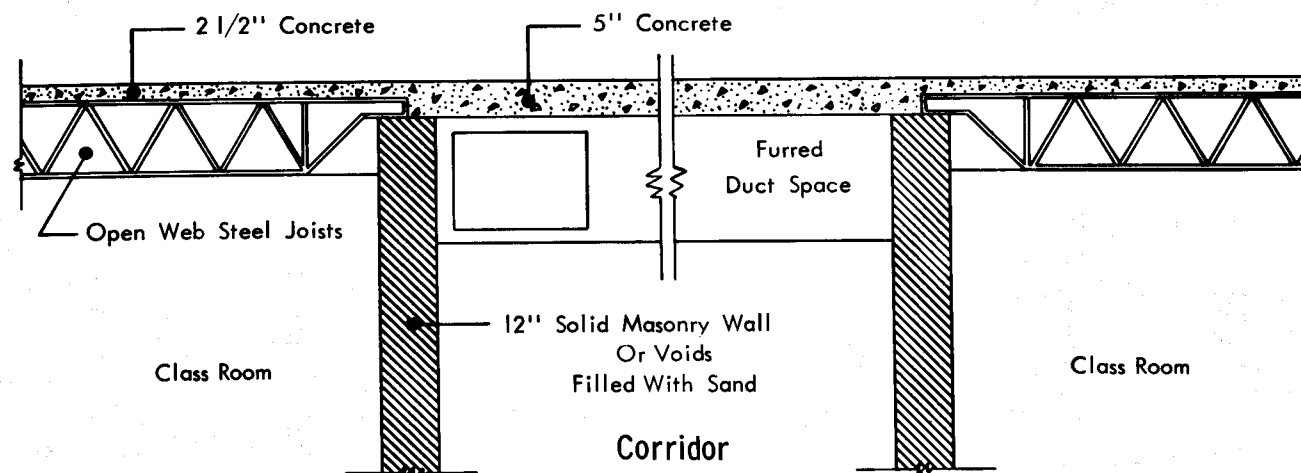


FIRST FLOOR PLAN - TYPICAL ELEMENTARY SCHOOL

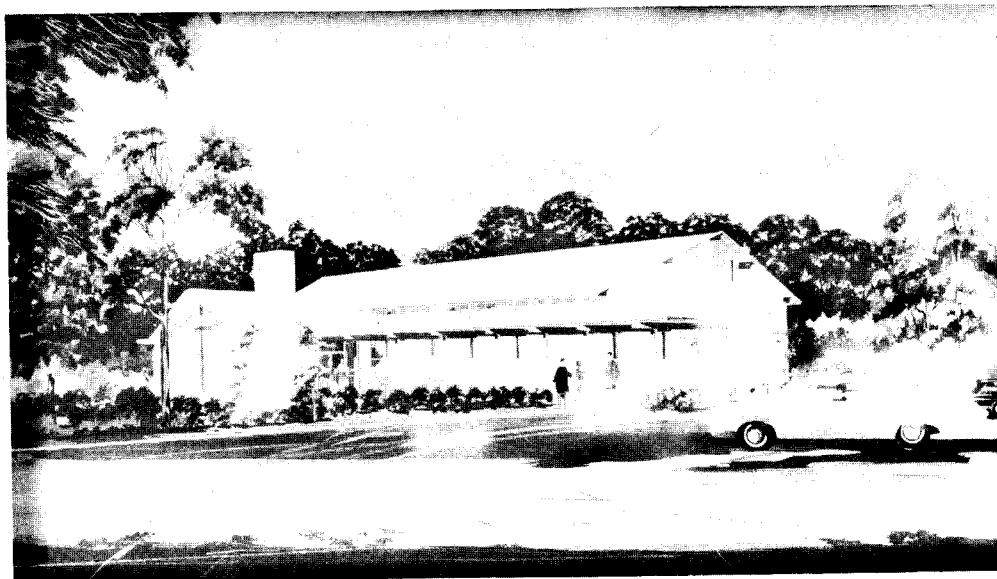
SECTION THROUGH CORRIDOR OF SCHOOL



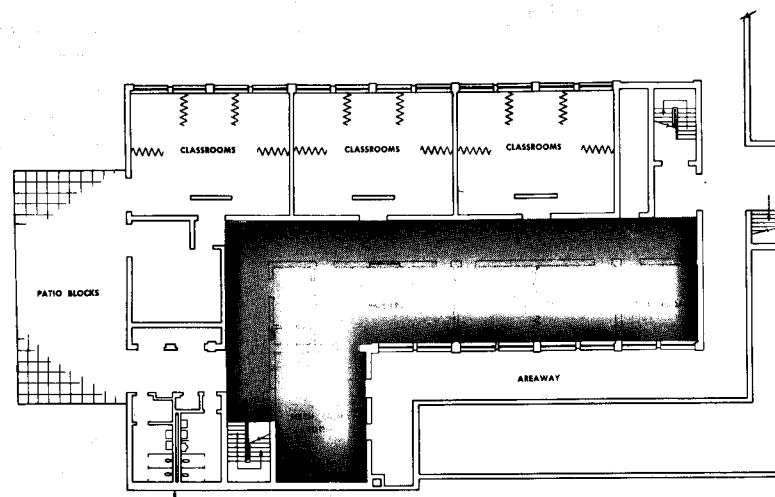
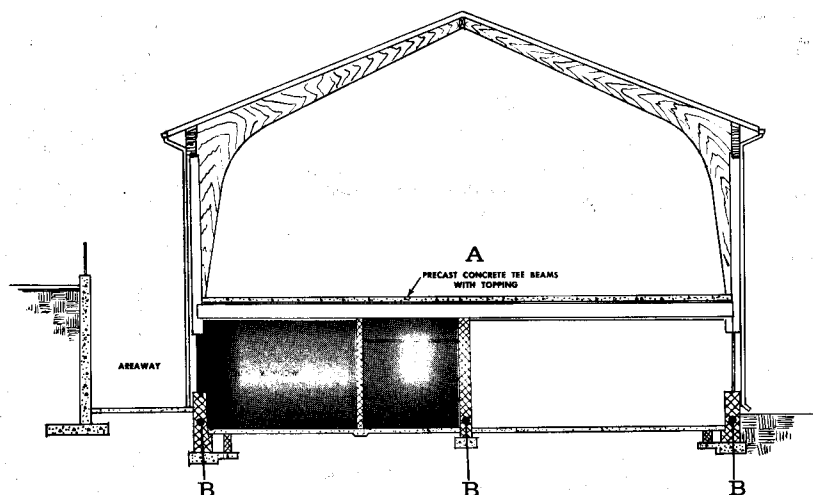
NORMAL CONSTRUCTION ROOF MASS = 31 #/S.F.



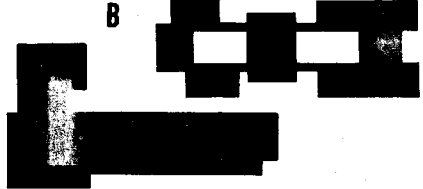
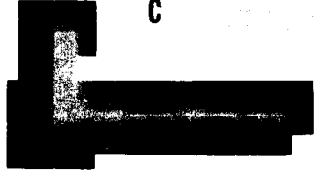
ENHANCED SHELTER IN CORRIDOR ROOF MASS = 62 #/S.F.



This attractive church building incorporating fallout protection was recently completed in McLean, Virginia. Shelter features were included in original design with option of eliminating these features as deductive bid items if project cost exceeded budget allocation. The three elements which enhanced shelter were increasing concrete topping over precast first floor (Mark "A"); increasing concrete block size from 8" to 12" (Mark "B") and filling cores of concrete block around shelter with sand. The contractor submitting lowest bid would allow only \$900 decrease for these shelter features. Shelter capacity is 300.



SHELTER TECHNIQUES

S T R U C T U R E	A  CONVENTIONAL (No emphasis on protection)	B  SLANTED (Maximize protection at no increase in cost)	C  SLANTED (Maximize protection with nominal cost increase)
C O S T P F	\$ 500,000 250 Spaces @ PF 10 250 Spaces @ PF 25	\$ 500,000 325 Spaces @ PF 40 250 Spaces @ PF 20	\$ 510,000 ⁺₋ 625 Spaces @ PF 40 or More
C O N S T R U C T I O N	Large Window Area Hollow Block Walls Entrances Directly Off Corridors Panel Walls Lightweight Partitions Lightweight Roof Construction	Increase Sill Height Offset Entrances Stagger Doors & Windows Masonry Partitions Smaller Window Areas	All Slanting Techniques Fill Hollow Blocks w/ Sand Screen Walls Roof Fill Planter Boxes Roof Overhangs Increase Wall Mass Precast Roofs Depress Building Shields for Openings

SHELTER DEVELOPMENT - ARCHITECT & ENGINEER ACTIVITIES

As evidenced by the Fallout Shelter Survey, many existing buildings afforded excellent protection from fallout gamma radiation. In future building design, it is imperative to achieve optimum protection without significantly expending additional funds. By taking this approach, construction dollars will be ultimately saved should it become necessary to modify existing buildings to overcome the anticipated shelter deficit.

Since building committees, property owners, and others initiating construction projects rely heavily on the nation's architects and engineers for design, it is of prime importance to create sound professional competence within these professions to plan for and design effective shelters.

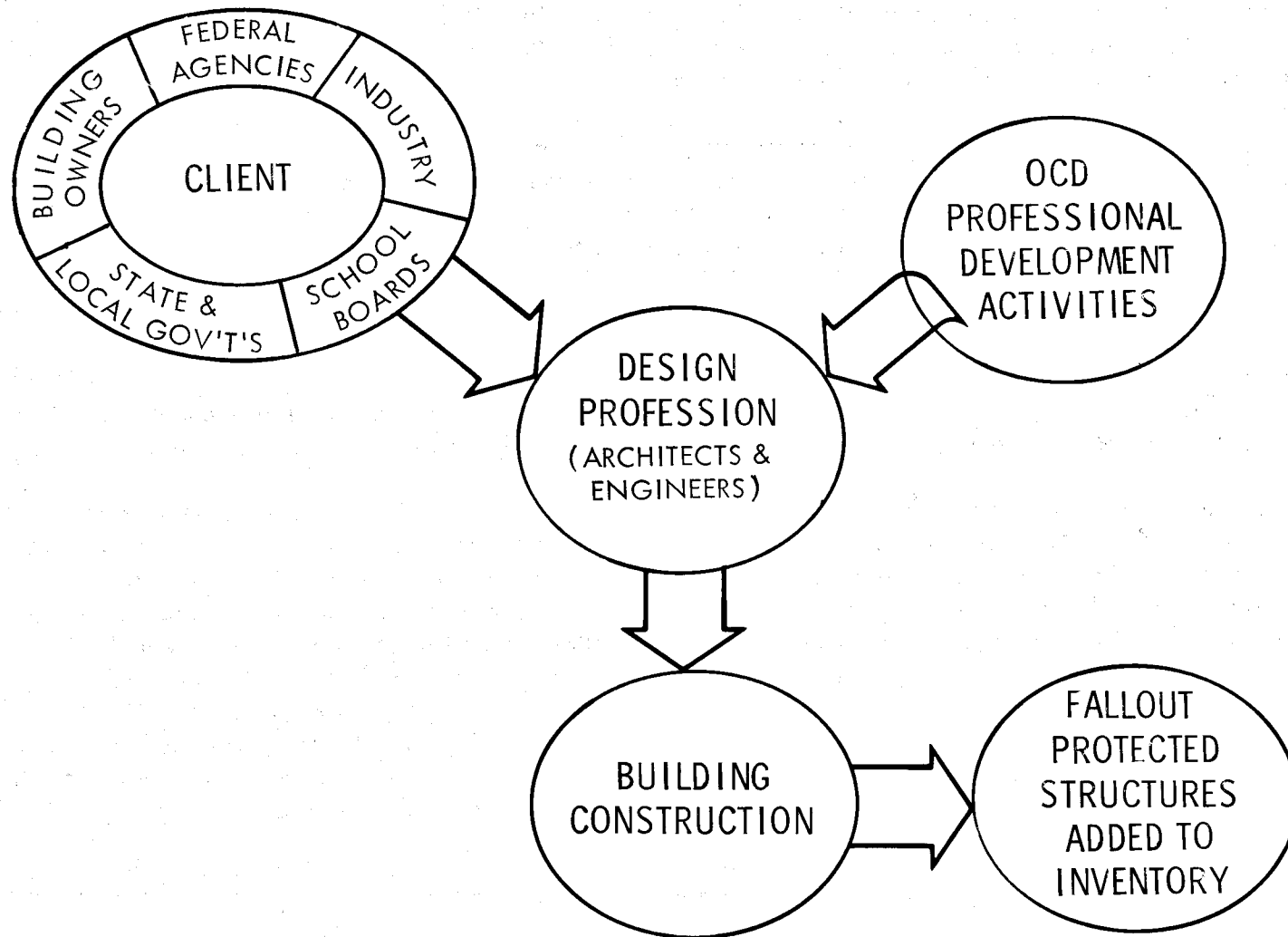
Traditionally, universities and colleges are called upon to keep practicing professionals abreast of the state-of-the-art in their respective fields. Academic institutions are being provided with the resources to study, evaluate, and promulgate scientific and technical materials related to the areas of Civil Defense interest. The institutions will thus be able to disseminate newly published information and design techniques to the design profession as well as their students through means of seminars, courses, lectures, and on-the-job training sessions.

The shelter development program is intended to:

1. provide national leadership without domination.
2. provide Federal assistance without interference.
3. fill gaps in required areas of information and services.
4. stimulate ideas and appropriate action.

These activities, while not sufficient to overcome the total shelter deficit, will do much toward alleviating the problem.

SHELTER DEVELOPMENT A & E ACTIVITIES



PROFESSIONAL DEVELOPMENT SERVICES AND CASE STUDIES

As an extension of the on-going A-E Development Program and in order to assist in obtaining a greater number of shelter spaces utilizing slanting and low cost shielding techniques, a nationwide professional development service is being established for A-E firms engaged in building design. It is anticipated that colleges and universities with appropriate technical capabilities will play a major role in the dissemination of theory and applications of these techniques.

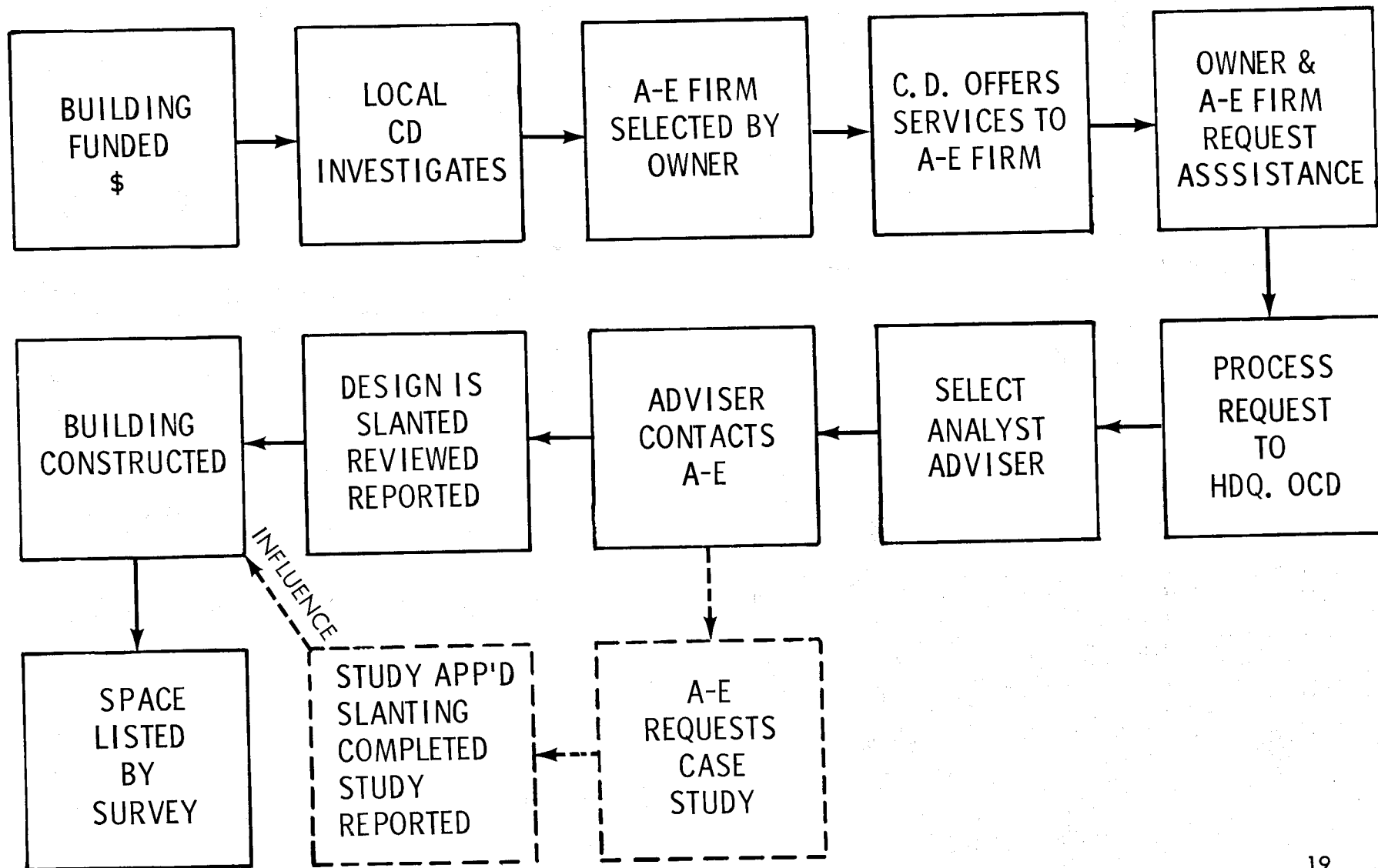
Local and State civil defense directors upon learning of plans for a new structure will contact the building owner and designer and promote the incorporation of shelter into the design. Should the designer require additional information on how this can be accomplished, qualified Fallout Shelter Analysts and Instructors are being made available to provide the following services:

1. Conduct seminars, courses, lectures, and on-the-job training sessions in fallout shelter analysis, design, construction techniques and criteria for A-E firms.
2. Review building designs to evaluate potentials for fallout protection and recommend design techniques and other appropriate methods to integrate or improve shelter in the design.

The program will be implemented in two phases. Under Phase I, approximately 25 Qualified Instructors in Fallout Shelter Analysis will provide the professional development services. As the program expands, it is envisioned under Phase II that contracts with selected universities or colleges will provide the appropriate means of administering the activities of the expanded program. Ultimately, at least one college or university will be selected from each State to administer the professional development services program.

Those wishing to avail themselves of this service can do so by contacting their local, State, or Regional Civil Defense Office. These offices will then make the necessary arrangements to obtain the qualified Fallout Shelter Analyst or Instructor. Addresses of the State and Regional Offices are shown on page 20.

PROFESSIONAL DEVELOPMENT SERVICES & CASE STUDIES



ADDRESSES OF REGIONAL & STATE CD OFFICES

OCD Region 1

Oak Hill Road
Harvard, Massachusetts 01451
Connecticut
State Armory, 360 Broad Street
Hartford, Connecticut 06115
Maine
State House
Augusta, Maine 04330
Massachusetts
400 Worcester Road
Framingham, Massachusetts 01706
New Hampshire
New Hampshire Military Reservation
Airport Road
Concord, New Hampshire 03301
New Jersey
The Armory-Armory Drive
P.O. Box 979
Trenton, New Jersey 08625
New York
State Office Building Campus
Albany, New York 12226
Rhode Island
State House
Providence, Rhode Island 02903
Vermont
Redstone
Montpelier, Vermont 05601
Puerto Rico
P.O. Box 5125
Puerta de Tierra Station
San Juan, Puerto Rico 00906

OCD Region 2

Olney, Maryland 20832
Delaware
Delaware City, Delaware 19706
District of Columbia
4820 Howard Street, N.W.
Washington, D.C. 20016
Kentucky
The Capitol
Frankfort, Kentucky 40601
Maryland
Pikesville, Maryland 21208
Ohio
Building 101, Fort Hayes
Columbus, Ohio 43216

Distribution:

OCD Regions, Staff College
State and Local CD Directors
Defense Coordinators of Federal Agencies
Qualified Fallout Shelter Analysts

OCD Region 2 (con't.)

Pennsylvania
Main Capitol Building
Harrisburg, Pennsylvania 17120
Virginia
P.O. Box 9016, Forest Hill Station
Richmond, Virginia 23225
West Virginia
806 Greenbrier Street
Charleston, West Virginia 25311

OCD Region 3

Thomasville, Georgia 31792
Alabama
304 Dexter Avenue
Montgomery, Alabama 36104
Florida
1045 Riverside Avenue
Jacksonville, Florida 32204
Georgia
959 E. Confederate Avenue, S.E.
P.O. Box 4839
Atlanta, Georgia 30302
Mississippi
State Office Building
P.O. Box 1228
Jackson, Mississippi 39201
North Carolina
Jefferson & Dale Streets
P.O. Box 12347
Raleigh, North Carolina 27605
South Carolina
Rutledge Building
1429 Senate Street
Columbia, South Carolina 29201
Tennessee
National Guard Armory -- Sidco Drive
Nashville, Tennessee 37204

OCD Region 4

Federal Center
Battle Creek, Michigan 49016
Illinois
57th Street & South Shore Drive
Chicago, Illinois 60637

OCD Region 4 (con't.)

Indiana
100 North Senate Avenue
Indianapolis, Indiana 46204
Michigan
714 S. Harrison Road
East Lansing, Michigan 48824
Minnesota
Veterans Service Building
Capitol Approach
St. Paul, Minnesota 55101
Wisconsin
4802 Sheboygan Avenue
Madison, Wisconsin 53702

OCD Region 5

Federal Center
Denton, Texas 76202
Arkansas
P.O. Box 845
Conway, Arkansas 72032
Louisiana
Building 309-A, Area B
Jackson Barracks
New Orleans, Louisiana 70140
New Mexico
P.O. Box 4277
Santa Fe, New Mexico 87502
Oklahoma
Sequoyah-Will Rogers Buildings
P.O. Box 3365
Oklahoma City, Oklahoma 73105
Texas
P.O. Box 4087 - North Austin Station
Austin, Texas 78761

OCD Region 6

Denver Federal Center, Building 50
Denver, Colorado 80225
Colorado
1525 Sherman Street
Denver, Colorado 80203
Iowa
State Office Building, Room B-33
Des Moines, Iowa 50319
Kansas
State Capitol Building, Basement
Topeka, Kansas 66612
Missouri
100 East Capitol Avenue
Jefferson City, Missouri 65101

OCD Region 6 (con't.)

Nebraska
1300 Military Road
Lincoln, Nebraska 68508
North Dakota
State Capitol Building
Bismarck, North Dakota 58501
South Dakota
Camp Rapid
Rapid City, South Dakota 57701
Wyoming
P.O. Box 1709
Cheyenne, Wyoming 82001

OCD Region 7

Federal Center
Santa Rosa, California 95402
Arizona
1623 West Washington Street
Phoenix, Arizona 85007
California
P.O. Box 9577
Sacramento, California 95823
Hawaii
Building 24 -- Fort Ruger
Honolulu, Hawaii 96816
Nevada
State Capitol Building
Carson City, Nevada 89701
Utah
P.O. Box 2771
Fort Douglas, Utah 84113

OCD Region 8

Everett, Washington 98201
Alaska
1111 East Fifth Avenue
Anchorage, Alaska 99501
Idaho
Box 1098
Boise, Idaho 83701
Montana
State Arsenal Building
P.O. Box 1157
Helena, Montana 59601
Oregon
Room 5, State Capitol
Salem, Oregon 97310
Washington
P.O. Box 1519
Olympia, Washington 98501

CE-BuDocs Field Offices (District
Engineers and Public Works Offices)
Universities Participating in CD
Extension Program