

**A Summary of the Development of Fire Protection Engineering at The University of Maryland as a Variable of National, Professional and Societal Events 1950 -1995**

By

**Dr. John L. Bryan, Professor Emeritus  
Department of Fire Protection engineering**

For

**ENFP 350 Professional Development Seminar  
Conference Room, Department of Fire Protection Engineering  
3<sup>rd</sup> floor, J. M. Patterson Building, 3:30 PM  
University of Maryland, College Park, MD  
February 8, 2007**

SUMMARY OF BACKGROUND ON ACADEMIC

COURSE IN FIRE PROTECTION AT THE UNIVERSITY OF MARYLAND

1950

- A. Dr. Byrd in a speech to the Maryland State Firemen's Association at Ocean City, Maryland requested closer cooperation between the Training Committee of the Maryland State Firemen's Association and the University. He requested that the training committee meet with a representative of the University in monthly meetings. This request was made on June 21, 1950. The training committee started these meetings in the fall of 1950.
- B. A letter was written from the Chairman of the Training Committee of the Maryland State Firemen's Association to Dr. Byrd on November 4, 1950. This letter is quoted below:

"The Fire Prevention Bureau of this Association has requested that we propose to you the establishment of an accredited Fire Protection at the University of Maryland.

We concur in the recommendation and suggest a course similar to the one offered at the Oklahoma A. and M. College at Stillwater, Oklahoma. Would it be possible to have night classes for this course, for students who work in the daytime?

Am enclosing the bulletin describing the Oklahoma two year residence training course.

Respectfully yours,

(Signed) Irving Wallen Johnson  
Chairman."

1952

At the 1952 Convention of the Maryland State Firemen's Association, the Fire Prevention Bureau reported by Mr. B. W. Poindexter, that they had requested a college course in Fire Prevention or Fire Protection Engineering and they now have the assurance from Dr. Byrd that such a course will be available in the near future.

1953

The Firemen's Training Committee of the Maryland State Firemen's Association reported to the Association that Bob Byrus has been working steadily toward the promised Fire Protection Engineering or Specialist course, and a proposed curriculum has been drawn up.

UNIVERSITY OF MARYLAND  
COLLEGE PARK

*Mr. Byrnes & Mr. B.*

COLLEGE OF ENGINEERING  
GLENN L. MARTIN INSTITUTE OF TECHNOLOGY

COPY

August 15, 1955

President Wilson H. Elkins  
University of Maryland  
Campus

Dear Dr. Elkins:

Enclosed is copy of proposed curriculum for the four-year course in Fire Protection approved by the New Courses Committee as of August 12, 1955.

Please note that the enclosed curriculum supersedes the one I presented to you previously and marked "tentative".

Sincerely yours,

S. S. Steinberg  
Dean

## UNIVERSITY ACTION STRESSES IMPORTANCE OF FIRE PROTECTION

The announcement by Delegate Ira Bird Kirkland (D-Anne Arundel), at the annual banquet of the West Annapolis Fire and Improvement Company, that the University of Maryland is planning a four-year course leading to the degree of Bachelor of Science in Fire Protection is in line with the interest shown by the University in the past in fighting the fire hazard.

For many years volunteer firemen have been attending the Fire School of the University where they are trained in the best and latest techniques of fire fighting. Now the University, at the suggestion of the Maryland State Firemen's Association, is taking another forward step.

Dr. Wilson H. Elkins, president, has made an official request for \$11,064 for the next fiscal year in his budget to finance the new Fire Protection course. According to Delegate Kirkland this proposal has received the backing of State Comptroller J. Millard Tawes and Speaker John C. Lubber of the House of Delegates and Gov. Theodore R. McKeldin has stated he would give the request his "utmost consideration."

The action of the University officials is in itself a recognition that protection from fire and the fighting of fires has become an engineering problem. By providing graduates of this course, trained in fire protection, the University would make a major contribution to the task of cutting down the huge annual fire loss in the United States, a loss counted in lives as well as money.

The tentative curriculum of the proposed Fire Protection Course indicates, as Delegate Kirkland remarked, that it will be "no snap."

For instance, a total of 38 credit hours will be required in the freshman year, covering composition and American literature, general chemistry, public speaking, plane trigonometry, college algebra, analytical geometry, mechanical drawing, introduction to fire protection, Air R.O.T.C., and physical activities.

The sophomore year will require a total of 40 credit hours in composition and world literature or composition and English literature, calculus, general physics, elementary organic chemistry, elementary organic laboratory, Air R.O.T.C., and physical activities.

For the junior year a total of 39 credit hours are proposed. These will cover the history of American civilization, principles of economics, property insurance, industrial safety education, technical writing, thermodynamics, fluid mechanics, elements of physical chemistry, fire protection fundamentals, fire hazards and causes, and fire service hydraulics.

The senior year has a program of 40 credit hours, including nine in electives. The required studies during this final year are sociology of American life, American government, fundamentals of electrical engineering, principles of mechanical engineering, elements of fire protection, tactics of fire control, essentials of fire prevention, fire service organization and fire inspection practices and methods.

If the budget of Dr. Elkins is approved by the Legislature, so that the course can be instituted, it was stated that it will enable Maryland to offer more in a fire training program than any other State.

Certainly, it would be an opportunity for the many young men who join volunteer fire departments throughout the State. It would give many of them an opportunity to secure fine training in a profession that interests them.

# Fire Protection Course Offered by University

The University of Maryland will inaugurate a 4-year course in fire protection next fall. It will lead to a bachelor of science degree in the College of Engineering.

Dean S. S. Steinberg, of the College of Engineering, said, "Specifically, we plan to offer a collegiate course for those young men who desire to make their career that of fire protection and prevention."

The new course is designed to emphasize "the scientific and technical basis of fire prevention, its humanitarian aspects and the development of the individual," he said.

Entrance requirements will be the same as for the College of Engineering and the first two years' course work will be similar to engineering requirements. Some liberal arts and fire protection and control courses, however, will be added to the curriculum.

The course will be the only educational program of its type east of the Mississippi.

The first similar course in fire protection engineering was set up in 1903 at the Illinois Institute of Technology in Chicago.

Interest in education for firemen at the University of Maryland goes back to 1930 when the first short course for volunteer firemen was inaugurated. Seven years later, a Fire Service Extension Department was started and administered under the College of Engineering.

Last year, for the first time in the country, a short course was given in radiological monitoring for fire service.

According to Dean Steinberg, the curriculum has been approved by the faculty of the College of Engineering, the University New Courses Committee, President Wilson H. Elkins, the Board of Regents, the budget director, Maryland's Gov. Theodore R. McKeldin and the Maryland Legislature.

John L. Bryan, a senior instructor in the Fire Service Extension Department, will head the new program.

Advertisement

UNIVERSITY OF MARYLAND

COLLEGE OF ENGINEERING

GLENN L. MARTIN INSTITUTE OF TECHNOLOGY

College Park, Maryland



ANNOUNCING A NEW CURRICULUM IN

FIRE PROTECTION

LEADING TO THE BACHELOR OF SCIENCE DEGREE

# CURRICULUM IN FIRE PROTECTION AT THE UNIVERSITY OF MARYLAND

## FRESHMAN YEAR

		<i>Semester</i>	
		I	II
Eng. 1, 2	Composition and American Literature.....	3	3
Chem. 1, 3	General Chemistry .....	4	4
Speech 7	Public Speaking .....	—	2
Math. 18, 19	Elementary Mathematical Analysis .....	5	5
Dr. 1, 2	Engineering Drawing .....	2	2
F.P. 1	Introduction to Fire Protection .....	0	—
A.S. 1, 2	Basic Air Force ROTC .....	3	3
Physical Activities .....		1	1
Total.....		18	20

## SOPHOMORE YEAR

		<i>Semester</i>	
		I	II
G. & P. 1	American Government .....	3	—
Soc. 1	Sociology of American Life .....	—	3
Math. 20, 21	Calculus .....	4	4
Phys. 20, 21	General Physics .....	5	5
Chem. 35, 37	Elementary Organic Chemistry .....	2	2
Chem. 36, 38	Elementary Organic Laboratory .....	2	2
A. S. 3, 4	Basic Air Force ROTC .....	3	3
Physical Activities.....		1	1
Total.....		20	20

## JUNIOR YEAR

		<i>Semester</i>	
		I	II
*Eng. 3, 4	Composition and World Literature; or .....	3	3
*Eng. 5, 6	Composition and English Literature .....	3	3
Econ. 37	Fundamentals of Economics .....	3	—
B. A. 191	Property Insurance .....	—	3
I.Ed. 143, 144	Industrial Safety Education .....	2	2
Eng. 7	Technical Writing .....	2	—
M. E. 50	Principles of Mechanical Engineering .....	—	3
C. E. 49	Elements of Hydraulics .....	3	—
Chem. 19	Elements of Quantitative Analysis .....	—	4
F.P. 21, 22	Fire Protection Fundamentals .....	3	3
F.P. 13	Fire Causes and Hazards .....	3	—
F.P. 110	Fire Hydraulics Applications .....	—	2
Total.....		19	20

## SENIOR YEAR

		<i>Semester</i>	
		I	II
*Hist. 5, 6	History of American Civilization .....	3	3
E. E. 50	Fundamentals of Electrical Engineering .....	3	—
M. E. 100	Thermodynamics .....	—	3
F.P. 124, 125	Elements of Fire Protection .....	3	3
F.P. 112	Tactics of Fire Control .....	3	—
F.P. 115	Essentials of Fire Prevention .....	—	3
F.P. 117	Fire Service Organization .....	3	—
F.P. 17, 18	Fire Inspection Practices and Methods .....	2	2
	Electives .....	3	6
Total.....		20	20

\*A. S. 101, 102, 103, 104—Advanced Air Force R. O. T. C.—3 credits per semester, may be substituted.

# Education Programs

## Undergraduate Program

The Fire Protection Engineering Curriculum begins with the fundamental engineering education required by the Clark School of Engineering for all engineering majors. With the start of the sophomore year, the student begins taking the initial fire protection engineering courses along with the remainder of the basic engineering requirements. The opportunity to select technical and non-technical electives is available as the student progresses into the junior and senior years. During the junior and senior year each fire protection engineering student specializes in acquiring the knowledge needed to understand and predict fire; to determine its effects on materials, structures, and people; to design for life safety and detection and suppression of fire; and to complete an engineering design and research project, sometimes working as a team with other students.

The Bachelor of Science program continues to be the only one of its kind in North America that is recognized and engineering accredited by the Accreditation Board for Engineering and Technology (ABET).

The typical course breakdown through the four year undergraduate program is:

**Common First Year**

CORE Program Requirements	3
General Chemistry	4
Analysis I	4
Introduction to Engineering Design	3
<b>TOTAL Credits</b>	<b>14</b>

CORE Program Requirements	6
Analysis II	4
Statics	2
General Physics I	3
<b>TOTAL Credits</b>	<b>15</b>

**Sophomore Year, Semester 3**

CORE Program Requirements	3
Linear Algebra or Analysis III	4
General Physics	4
Dynamics/Mechanics of Materials	3
Introduction to Fire Protection Engineering	3
<b>TOTAL Credits</b>	<b>17</b>

**Sophomore Year, Semester 4**

CORE Program Requirements	3
Differential Equations	3
General Physics	4
Dynamics/Mechanics of Materials	3
Fire Alarm and Special Hazards Design	3
<b>TOTAL Credits</b>	<b>16</b>

**Junior Year, Semester 5**

CORE Program Requirements	3
Thermodynamics	3
Fire Protection Fluid Mechanics	3
Fire Assessment Methods and Laboratory	4
Technical Elective	3
<b>TOTAL Credits</b>	<b>16</b>

**Junior Year, Semester 6**

CORE Program Requirements	6
Water Based Fire Protection System Design	3
Heat Transfer Applications in Fire Protection	3
Technical Elective	3
Professional Development Seminar	1
<b>TOTAL Credits</b>	<b>16</b>

**Senior Year, Semester 7**

CORE Program Requirements	3
Fire and Combustion Phenomena	3
Life Safety and Risk Analysis	3
Technical Electives	6
<b>TOTAL Credits</b>	<b>15</b>

**Senior Year, Semester 8**

Structural Fire Protection	3
Fire Protection Hazard Analysis	3
Problem Synthesis and Design	3
Fire Modeling	3
<b>TOTAL Credits</b>	<b>12</b>

Total 4 year credits: 121-125



# **Fire - School**

## **Has 1st Grad**

The University of Maryland became the second accredited college in the nation to graduate a student in Fire Protection Engineering.

Orville M. Slye, Jr., became the first student to successfully complete the required course in Fire Protection as part of the College of Engineering this past semester.

A graduate of Northwestern High School and a member of the College Park Fire Department, Slye studied the past two years under a grant in aid given him by the Prince George County Volunteer Firemen's Association.

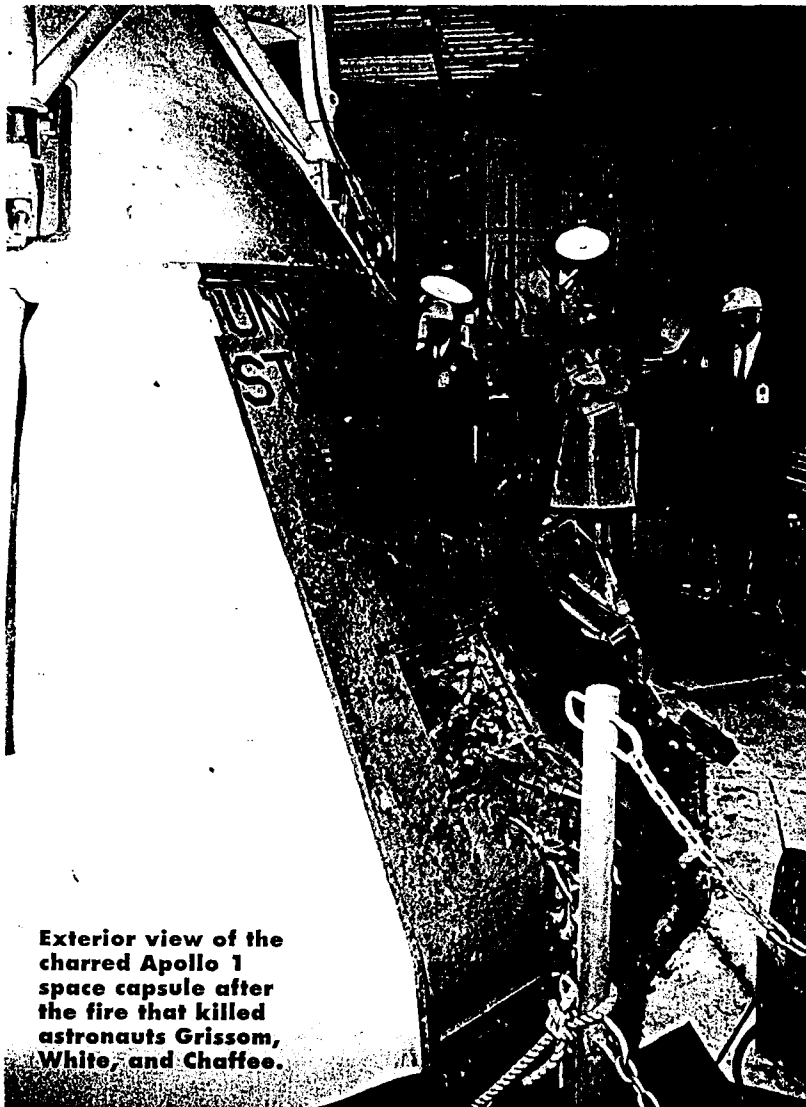
According to Professor John L. Bryan, head of the Fire Protection Department, Mr. Slye worked summers with the Potomac River Naval Command in Washington as a student trainee. Upon graduation, he accepted a position as Fire Marshal for the same organization. He is now responsible for naval installations in D.C. and parts of Maryland, including the Naval Academy.

The only other college in the U.S. to offer a four year course leading to a B.S. degree in Fire Protection is the Illinois Institute of Technology. These two colleges are unique in that the Fire Protection curriculum is directly under the College of Engineering.



# Fire Onboard!

*A fire inside the cabin of the Apollo 1 spacecraft killed three astronauts in the first fatal accident of the U.S. space program.*



Exterior view of the charred Apollo 1 space capsule after the fire that killed astronauts Grissom, White, and Chaffee.

us Grissom, Ed White, and Roger Chaffee were supposed to be the first Americans on the moon. They were part of the Apollo space program started in 1961 by President John F. Kennedy, the main goal of which was to put an American on the moon by 1970. Their craft, Apollo 1, was scheduled for its first liftoff in February 1966, then the date was moved to November, and then to January 1967.

## The simulation exercises

Before any space launch, a series of simulations is run to ensure that everything is working as it should. For several days before the scheduled launch, the National Aeronautics and Space Administration (NASA) personnel conducted a number of trial liftoffs.

The final simulation began at 1:00 p.m. on January 27, 1967, when the three astronauts, dressed in their space suits, climbed into the spacecraft and started checking the instruments in the cockpit. Two hours later, they signaled that they were ready for the hatch to be closed and locked over their heads.

The next phase of simulation was what is known as a "plugs out" imitation of the countdown, blastoff, and first three hours of space flight. "Plugs out" means that the spacecraft operates on its own power, with all outside electrical and life support connections shut off.

## Trouble in the cabin

At 6:31 p.m., after they'd been in the cabin for five and a half hours, Commander Chaffee radioed that there was a fire in the spacecraft.

"Fire—I smell fire," he said.

Eight seconds later, Colonel White repeated that there was a fire, and Chaffee added, "It's a bad one."

Twelve to 15 seconds after the first indication of fire, all communication with the astronauts was cut off. At 14 seconds, the pressure inside the cabin became so great that the Apollo's shell ruptured.

Part of Colonel Grissom's suit was later found outside of the spacecraft. Apparently, it had been blown out when the shell ruptured.

According to the accident board's official report, the rupture of the inner shell resulted in three things. First, it released the pressure on the hatch. Second, it fanned the fire. And, finally, it drove away the crews on the outside who ran in to help.

The report concluded that when the floor cracked, it created wind currents in the cabin, which fueled the fire. The resulting burst of black

## DID YOU KNOW?

### 1970

A high-rise fire at One New York Plaza in New York City leads to a new systems approach, which addresses fire safety in tall buildings and related changes in fire and building codes.

The first single-station, battery-operated smoke detectors are available for residential use.

Congressional hearings held on nursing home fire safety lead to the adoption of the *Life Safety Code*® by the Social Security Administration.

### 1971

The SFPE becomes an independent professional society.

NFPA begins its Fire Incident Data Organization (FIDO).

# *Fire at Dale's Penthouse Restaurant*

ERNEST E. JUILLERAT,  
*Manager,*  
*Fire Record Department, NFPA,*  
and ROBERT E. GAUDET,  
*Fire Investigator, NFPA*



*As fire apparatus was still arriving and aerial ladders were being raised, the penthouse was ablaze from end to end. Despite the remarkable speed with which the Montgomery Fire Department responded to the telephoned alarm, nothing could be done to rescue the victims inside.*

WIDE WORLD PHOTO

**D**URING the late evening of February 7, 1967, fire swept through Dale's Penthouse Restaurant atop the Walter Bragg Smith Apartment Building in Montgomery, Alabama, killing 25 persons. It was the largest loss-of-life restaurant fire in the United States since the Cocoanut Grove fire, which killed 492 persons in Boston, Massachusetts, on November 28, 1942. The two fires had three factors in common: inadequate exits, combustible interior finish, and lack of a sprinkler system.

## THE WALTER BRAGG SMITH BUILDING

**T**HE Walter Bragg Smith Apartment Building was completed in 1951 and in later years the penthouse was extensively remodeled twice, at which times the penthouse restaurant was enlarged to almost double its original size. Mercantiles occupied the first story; 122 apartments, the second to tenth stories. The apartments

were occupied by approximately 200 persons. The ten-story-with-penthouse basement-and-sub-basement building was of fire-resistive construction of protected steel frame with brick and clay tile panel walls and a concrete roof. The penthouse was constructed of a mixture of tile, glass, and insulated panel surfaced with cement asbestos board. The original section of the penthouse had an eight-inch-thick reinforced-concrete roof supported by protected steel columns. The additions had a roof of noncombustible roof planking on unprotected steel.

The dining-room lounge and bar covered about 2,800 square feet of the approximately 4,700-square-foot penthouse. The partition separating the bar and lounge from the dining room (see the diagram, next page) was prefinished plywood on wood studs. Other partitions were gypsumboard on wood stud or masonry. The ceiling in the penthouse was of combustible fiberboard tiles. Most of the furnishings and decorations were made of combustible materials. The elevator machinery house and two 5,000-gallon water tanks were located above the penthouse.

Two self-service passenger elevators ran from the basement to the penthouse. The shafts were equipped with conventional self-closing metal doors (not fire-

The information for this report was obtained by Mr. Gaudet, who visited the scene of the fire. The NFPA gratefully acknowledges the cooperation of Chief W. T. Mallory, Montgomery Fire Department, and Alabama Deputy State Fire Marshal Roy L. Thornell.

# FIRE RESEARCH AND SAFETY ACT OF 1967

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Professor John L. Bryan  
University of Maryland

HEARINGS  
BEFORE THE  
SUBCOMMITTEE ON  
SCIENCE, RESEARCH, AND DEVELOPMENT  
OF THE  
COMMITTEE ON  
SCIENCE AND ASTRONAUTICS  
U.S. HOUSE OF REPRESENTATIVES  
NINETIETH CONGRESS  
FIRST SESSION  
ON  
H.R. 6637

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MAY 18, 23, 24, AND JUNE 8, 1967

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[No. 4]

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U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1967

Professor John L. Bryan  
University of Maryland

A PROGRAM FOR THE  
FIRE RESEARCH AND SAFETY ACT

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REPORT

OF THE

SUBCOMMITTEE ON THE NATIONAL  
BUREAU OF STANDARDS

OF THE

COMMITTEE ON SCIENCE AND ASTRONAUTICS

U.S. HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

SECOND SESSION

Serial P



JULY 1, 1970

Printed for the use of the Committee on Science and Astronautics

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U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1970

*See pages 12, 14*

# ONE NEW YORK PLAZA FIRE

*New York, N. Y.*

AUGUST 5, 1970



REPORT BY

THE NEW YORK BOARD OF FIRE UNDERWRITERS

BUREAU OF FIRE PREVENTION AND PUBLIC RELATIONS

85 JOHN STREET, NEW YORK, N. Y., 10038

Price 75¢

# OFFICE BUILDING FIRE

## 919 Third Avenue

### New York City

W. ROBERT POWERS

*Superintendent*

*New York Board of Fire Underwriters*



THE FIRE on Friday, December 4, 1970, at 919 Third Avenue was not an "instant replay" of the fire at One New York Plaza<sup>1</sup> a few months earlier, as some articles have indicated. First, this fire, which occurred on the fifth floor, was fought from ground level. Of even more importance is the fact that the Third Avenue building was constructed according to the new Building Code of New York City, adopted in 1968.

The building at 919 Third Avenue is a subbasement-basement-47-story fire-resistive skyscraper occupied principally for display rooms and offices by carpet manufacturers and carpet wholesalers. It was structurally completed last spring, but finishing work was still in progress on various floors for tenants who were just moving in. The basements and first six floors were of an irregular shape that can best be likened to a distorted T. The maximum dimensions of the first six floors were 233 feet by 208 feet. The tower section above the sixth floor was 225 feet by 115 feet. The building consisted of a reinforced concrete core containing stairs, elevators, utilities, and air conditioning equipment. The steel beams and columns were protected with sprayed asbestos. The floors were of 4½-inch lightweight concrete on corrugated steel form units, which were not required to have — and did not have — fireproofing on the underside. A hung ceiling of Class A acoustical board was provided throughout the tenant area. The exterior walls were of panel construction with fixed windows. There were no masonry barriers at the outer walls to prevent vertical fire spread, but the aluminum skin was tight against the edge of the concrete floor. Foil-backed glass-fiber insulation was attached to the aluminum skin. The interior finish of exterior walls was gypsumboard on steel studs.

There were two separate enclosed stairways arranged in scissors fashion in the tower section and a separate third enclosed stairway at the east end for the

six-story section.<sup>2</sup> Proper doors and enclosures were provided for stairs, utility rooms, and shafts. Three elevator banks served Floors 2 to 19, 19 to 33, and 33 to 47, respectively. In addition, two service elevators served all the floors.

The building had two independent air conditioning systems, one supplying the second through the twenty-first floor and the other the twenty-second through the forty-seventh floor. The fan rooms were located on the twelfth and the thirty-fifth floor. Air to perimeter rooms was blown through vertical ducts installed at the outside walls. At each story branch ducts extended laterally from the vertical ducts to air-handling units located beneath the two windows to the right and the two to the left of the vertical duct. Gypsumboard-on-steel-stud partitions enclosed the vertical and branch ducts on each floor. Except for the vertical ducts there was no penetration of the floor construction. Air to the interior sections of the building was supplied from two central supply shafts in the core by way of ducts to various openings in the hung ceiling. Return air passed into the plenum between the hung ceiling and the floor construction and thence to vertical return air shafts. All openings in the shafts were protected by dampers held open by fusible links. Since the new Building Code requires a fire separation between tenants of at least one-hour rating, the plenum was subdivided by a continuation of the tenant wall or partition through the concealed space. Generally, separate ducts ran from the plenum above each tenant to the return air shaft. Since corridor walls on the periphery of the core are required to have a one-hour rating, air to the corridors was supplied from the interior air supply ducts; corridor air was vented through the washrooms. All return air fans were equipped with thermal fire detectors and all supply air fans with smoke detectors.

<sup>1</sup> W. Robert Powers, "New York Office Building Fire," *FIRE JOURNAL*, Vol. 65, No. 1 (January 1971), p. 18.

The photo on this page is by United Press International.

<sup>2</sup> The Building Code in use before 1968 called for one of the required exits to be a smokeproof tower. The new Code does not contain this requirement.



THE CITY OF NEW YORK

JOHN V. LINDSAY, *Mayor*

**LOCAL LAW No. 5**  
**FIRE SAFETY REQUIREMENTS**  
**AND CONTROLS**

*Approved January 18, 1973*



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*Published by*  
**THE CITY RECORD**

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# AMERICA BURNING



The Report of The National Commission on Fire Prevention and Control

**FIRE PREVENTION AND CONTROL**

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**HEARINGS**  
**BEFORE THE**  
**SUBCOMMITTEE ON**  
**SCIENCE, RESEARCH, AND DEVELOPMENT**  
**OF THE**  
**COMMITTEE ON**  
**SCIENCE AND ASTRONAUTICS**  
**U.S. HOUSE OF REPRESENTATIVES**  
**NINETY-THIRD CONGRESS**  
**FIRST SESSION**

**JULY 25, 26, 31; AUGUST 1, 2, 1973**

**[No. 15]**

**Printed for the use of the**  
**Committee on Science and Astronautics**





## An Act

88 STAT. 1535

To reduce losses of life and property, through better fire prevention and control, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Federal Fire Prevention and Control Act of 1974".*

Federal Fire  
Prevention and  
Control Act of  
1974.

15 USC 2201  
note.

15 USC 2201.

15 USC 278f  
notes.

### FINDINGS

SEC. 2. The Congress finds that—

(1) The National Commission on Fire Prevention and Control, established pursuant to Public Law 90-259, has made an exhaustive and comprehensive examination of the Nation's fire problem, has made detailed findings as to the extent of this problem in terms of human suffering and loss of life and property, and has made ninety thoughtful recommendations.

(2) The United States today has the highest per capita rate of death and property loss from fire of all the major industrialized nations in the world.

(3) Fire is an undue burden affecting all Americans, and fire also constitutes a public health and safety problem of great dimensions. Fire kills 12,000 and scars and injures 300,000 Americans each year, including 50,000 individuals who require extended hospitalization. Almost \$3 billion worth of property is destroyed annually by fire, and the total economic cost of destructive fire in the United States is estimated conservatively to be \$11,000,000,000 per year. Firefighting is the Nation's most hazardous profession.

(4) Such losses of life and property from fire are unacceptable to the Congress.

(5) While fire prevention and control is and should remain a State and local responsibility, the Federal Government must help if a significant reduction in fire losses is to be achieved.

(6) The fire service and the civil defense program in each locality would both benefit from closer cooperation.

(7) The Nation's fire problem is exacerbated by (A) the indifference with which some Americans confront the subject; (B) the Nation's failure to undertake enough research and development into fire and fire-related problems; (C) the scarcity of reliable data and information; (D) the fact that designers and purchasers of buildings and products generally give insufficient attention to fire safety; (E) the fact that many communities lack adequate building and fire prevention codes; and (F) the fact that local fire departments spend about 95 cents of every dollar appropriated to the fire services on efforts to extinguish fires and only about 5 cents on fire prevention.

(8) There is a need for improved professional training and education oriented toward improving the effectiveness of the fire services, including an increased emphasis on preventing fires and on reducing injuries to firefighters.

(9) A national system for the collection, analysis, and dissemination of fire data is needed to help local fire services establish research and action priorities.

(10) The number of specialized medical centers which are properly equipped and staffed for the treatment of burns and the rehabilitation of victims of fires is inadequate.

(11) The unacceptably high rates of death, injury, and property loss from fire can be reduced if the Federal Government establishes a



# ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT

INCORPORATED

345 EAST FORTY-SEVENTH STREET / NEW YORK, N.Y. 10017 / (212) 644-7685

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W. P. KIMBALL, SECRETARY  
DARTMOUTH COLLEGE

DAVID R. REYES-GUERRA  
EXECUTIVE DIRECTOR

September 24, 1976

RECEIVED

SEP 27 1976

COLLEGE OF ENGINEERING

Dr. Robert L. Gluckstern  
Chancellor  
University of Maryland  
College Park, MD 20742

Dear Dr. Gluckstern:

The Engineers' Council for Professional Development at a closed meeting of the Board of Directors held on July 20, 1976 at the United Engineering Center, took the following action on the engineering programs submitted by your institution for consideration by ECPD for the academic year 1975-76:

Aerospace Engineering	)	
Agricultural Engineering	)	
Chemical Engineering	)	To reaccredit for 6 years to 1982
Civil Engineering	)	and Visit*
Electrical Engineering	)	
Mechanical Engineering	)	

Engineering (Option in Engineering))		
Fire Engineering	)	To accredit for 6 years to 1982
Nuclear Engineering (Option in	)	and Visit*
Engineering	)	

The policy of ECPD is to accredit programs for a limited period of time, extension beyond that period requiring a re-evaluation at the request of the institution. Accreditation is based on conditions existing at the time of the campus visit. A program is accredited only when conditions are considered as currently meeting overall criteria requirements.

A list of accredited programs is published annually by ECPD. However, information concerning the periods of accreditation is only released to the institution involved. ECPD requests that you do not publicly disclose any information concerning periods for which programs are accredited. For your further guidance, please refer to the attached excerpt entitled "Public Announcement of Accreditation."

Participating Bodies:  
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National Council of Engineering Examiners  
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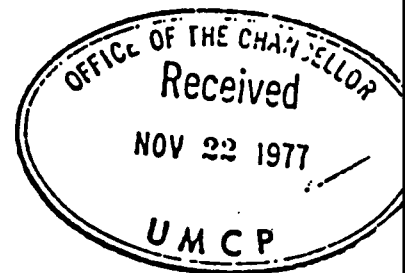
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UNIVERSITY OF MARYLAND  
COLLEGE PARK 20742

OFFICE OF THE PRESIDENT

November 19 1977




Dr. Robert L. Gluckstern  
Chancellor  
College Park  
Main Administration Building  
Campus

Dear Dr. Gluckstern:

This is to inform you officially that at a meeting of the Board of Regents on November 18, 1977 approval was given for a change in the name of the Fire Protection Curriculum to the Department of Fire Protection Engineering.

Sincerely,

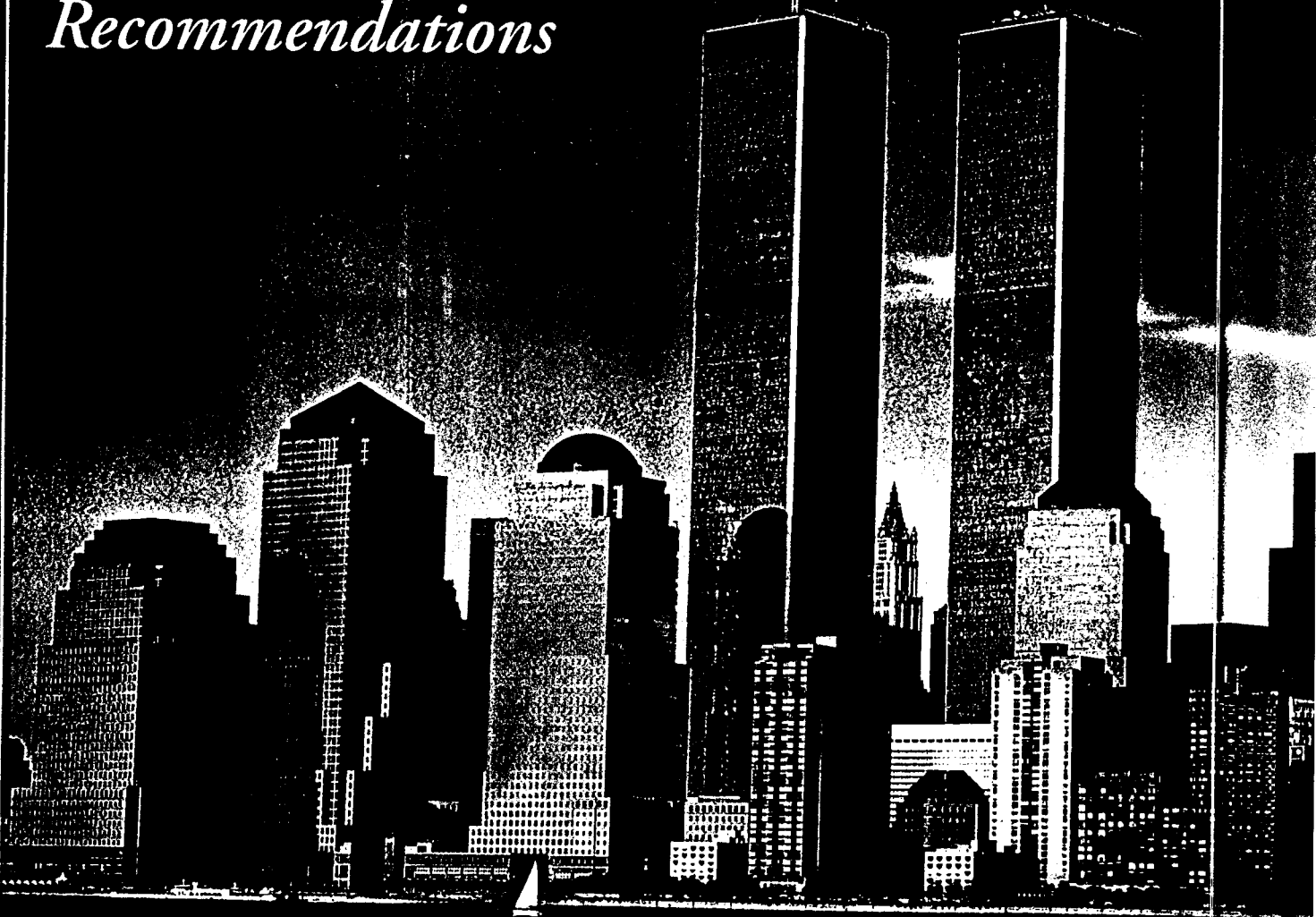
  
Wilson H. Elkins  
President

WHE/ew

*[Faint handwritten notes and a date stamp, possibly '12/1/77', are visible in the bottom right corner.]*

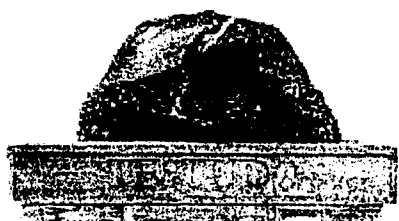
# World Trade Center Building Performance Study:

*Data Collection, Preliminary  
Observations, and  
Recommendations*



**Federal Emergency Management Agency**  
Federal Insurance and Mitigation Administration,  
Washington, DC

**FEMA Region II,**  
New York, New York



# THE DIAMONDBACK

THE UNIVERSITY OF MARYLAND'S INDEPENDENT STUDENT NEWS

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Dec 1, 2004

### The 96th floor

**Students build, burn model of World Trade Center level**

By Tom Howell Jr.  
Staff writer

Yesterday afternoon, 45 fire protection engineering students watched an entire semester's work go up in flames.

It was their effort to build a bridge between tragedy and science as they lit a scale model of the 96th floor of the North Tower of the World Trade Center ablaze and studied the destruction of the materials inside. The floor is suspected to have sustained the most serious damage after American Airlines Flight 11 hit the tower Sept. 11, 2001.

"This gives students an opportunity to look at the large picture," said Andre Marshall, assistant professor of the class. "They actually see fire in its full complexity."

Gas-scented smoke billowed, and flames shot out of the model during the students' experiment in professor James Quintiere's ENFP 320: Fire Assessment Methods and Laboratory class. The \$3,000 project was conducted at the Maryland Fire and Rescue Institute.

The 10-foot-by-10-foot, 6-inch-deep square model was a one-twentieth scale model of the Trade Center floor, which was 200 feet by 200 feet and 10 feet deep. It was constructed of low-budget materials such as angle-iron, chicken wire, wire mesh and wooden cribs to represent office furniture weight. Students designed sensing instruments to measure temperature, heat flux, smoke concentration and burning rate.

Junior Paul Macknis and other students sprayed the inside of the model with kerosene and inserted pans of gas to represent pools of jet fuel on the Trade Center floor. His group burned smaller scale materials in the lab to prepare while his classmates built the model.

"They build it, and we destroy it," Macknis said.

The amount of fuel was scaled to the Sept. 11 attack, Macknis said. Using cloth as a wick, a Prince George's Fire Department professional lit a flame, and the inside quickly filled with smoke. Observers could see the inside of the model as fire consumed it, serving as a solemn reminder of the catastrophic conditions in the Twin Towers' workspace.



A wet vacuum collects soot samples as students watch the burning model of the World Trade Center's 96th floor at the Maryland Fire and Rescue Institute near the campus. The demonstration was part of an engineering class project. POUYA DIANAT - THE DIAMONDBACK

### Today's Top Stories

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As Senate debates evaluations, some schools go forward

By Heather Keels  
Senior staff writer

#### High-tech arcade to open doors on Rte. 1

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By Matt Santoni  
Senior staff writer

#### Remaining teams familiar to Terps

By Evan Millar  
Senior staff writer