

The President's Conference on

**FIRE
PREVENTION**



*Report of the Committee on
Fire Prevention Education*

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“The serious losses in life and property resulting annually from fires cause me deep concern. I am sure that such unnecessary waste can be reduced. The substantial progress made in the science of fire prevention and fire protection in this country during the past forty years convinces me that the means are available for limiting this unnecessary destruction.”

Harry S. Truman

1. A NATIONAL PROBLEM

Faced with a rising fire loss that has been moving relentlessly upward since 1934, this Conference is exploring all the possible solutions to this staggering national problem. In spite of the intense efforts being exerted by all agencies, it appears that the fire loss in 1947 will exceed that of 1946, which amounted to \$561,487,000, the greatest in our recent history.

The Stake of Young People. - The 30 million young people in our schools today have a major interest in the successful reversal of this fire loss trend. They stand to lose even more than our adult population. They rightfully expect us to place in their hands, at maturity, the assets of the richest nation in the world. They do not expect us to destroy these assets by fire. In addition, they are suffering a heavy toll in young lives snuffed out by the thousands of tragic fires, which are rapidly increasing.

Industrial Fire Prevention Education. - While this report is basically an approach to the problem in the field of academic education, great emphasis also needs to be placed upon the importance of adult education as applied to the fields of commerce and industry.

Over 50,000,000 persons who are gainfully employed in the nation are vitally affected by destructive fires which may seriously impair the economy of the country.

It is obvious, therefore, that agencies which represent commerce and industry have a major interest in protecting life and property from the ravages of fire.

An effective community approach to the fire prevention problem should utilize all employee-training facilities of individual industries and community business organizations, and school authorities should cooperate to the fullest extent practical in such action.

The applications of training in the schools, as outlined in this report, are equally effective in industrial education fields, and are especially recommended for study and application by educational directors and administrative officers in those fields.

Basic Approach. - This report is intended to explore ways and means of intensifying instruction in basic fire prevention at all levels of education and in all types of schools – public, private and parochial – and to point up the responsibility we all owe to the youth of the nation. We must not only provide him a safe place in which to study, but must develop safe habits that will enable him successfully to cope with the complexities and hazards of our present civilization.

These activities must apply to rural no less than urban areas. Fire hazards and waste in rural America, it must be borne in mind, present one of our most serious fire problems, because of difficulties of supplying protective apparatus, organizations, building inspections, etc. Any basic educational approach to the fire prevention problem as a whole, therefore, should channel instructions through all school levels, urban and rural, in forms adapted to different levels and to varying conditions. In the some 40 forest States, for example, forest fires are a high hazard, and education in the prevention of forest fires should be part of instructional programs in all schools from elementary to college levels.

Special stress should be laid on providing a continuous program applying to the particular hazards of each season, rather than sporadic outbursts that occur only during fire prevention and clean-up weeks.

2. ADMINSTRATIVE RESPONSIBILITY

The administration of school properties, with respect to fire protection, is a grave responsibility. It is a responsibility directly concerned with the safety of many lives. In addition, it usually concerns property of high value, which the public can ill afford to lose.

Such responsibility definitely is a moral one; and in some instances it is a legal one. Under the program of compulsory education, common to all parts of the United States, parents are justified in expecting public and nonpublic schools to provide a maximum degree of protection for their children.

Parents share a part of the responsibility for maintaining safe conditions; but the responsibility falls principally on those who accept positions of trust in the school system. State officials, and particularly the fire safety specialists of State departments of education, building consultants, county boards of education, and local school boards must accept a heavy share of responsibility for fire protection. Those concerned also range from the board of regents of a university to the teacher of a one-room county school; from public officials in charge of school property to the custodian who tends a furnace.

All who have accepted school stewardship in any degree are obligated by that degree to establish and maintain fire safe conditions within their sphere of influence.

Fire protection is involved in the management of all properties of the educational establishment: the buildings, grounds, and transportation facilities. For all three classes of facilities, good management requires the practice of day-to-day precautions that have long proved essential to reduction of many common fire hazards. In addition, there is presented a continuing challenge to ferret out those special hazards, less generally recognized, but of equal or greater seriousness. Finally, it requires thoughtful planning and frequent drilling to insure, in event of a fire, that building or bus evacuation will be prompt and that extinguishing effort will be effective. Any school building that cannot be made to provide reasonably safe evacuation facilities should be abandoned. If the administrator does not know whether his building can be made safe, he should seek the advice of those who do know.

Experience up to now has shown a dearth of fire safety knowledge among responsible people outside of the fire service or the fire insurance business. Fire prevention education has been of limited effectiveness, due, perhaps, to natural reluctance to study a subject about which there seemed to be no immediate personal concern. More effectively than by any other means so far, the rising tide of losses and the comparatively recent series of holocausts have focused attention on the need for fire safe practices in all places of public assembly, particularly in schools.

School officials and their staffs, in increasing numbers, now realize the gravity of the problem and wish for guidance in a continuing program of fire safety.

It is not within the scope of this report to provide detailed information on all fire safety problems that may be encountered in the administration of school properties. However, it is believed that pursuing each recommendation to its complete conclusion will enable the administrator to discharge his responsibility effectively.

Recommendations for Action

We recommend:

1. That each State department of education take the lead in its jurisdiction in developing fire safe school properties and designate responsibility for successful completion of this task.
2. That the school administrator seek the advice of fire protection authorities and obtain as much authoritative literature as possible, so as to develop an alertness to fire hazards.
3. That vital records of the school be properly safeguarded in a fireproof safe or vault, and a designated member of the faculty be assigned the responsibility for their proper storage.
4. That the school administrator take every action necessary to insure that safe escape, in event of a fire, is a virtual certainty. This requires that the following features be provided in accordance with current, recognized codes:
 - (a) Elimination of unprotected vertical openings, with special attention to open stairways.
 - (b) Provisions of smoke-proof and fireproof escape towers.
 - (c) Adequate exit doors equipped with panic hardware.
 - (d) Effective exit drills, carefully planned with provisions for shutting down hazardous operations and obtaining an accurate roll call.
5. That the school administrator should organize and develop the local program of school plant and fire protection.
 - (a) A committee is suggested with a broad representation of the faculty, which will study and list all existing hazards with the aid of local fire inspection authorities.
 - (b) Particular attention should be devoted to the following features:
 - (1) Heating, ventilating, and air conditioning systems: A prolific source of fire, particularly in old buildings.
 - (2) Electrical systems: Thorough inspection and elimination of overfusing are key points.
 - (3) Storage arrangements: Elimination of unnecessary storage wherever possible; particular attention should be given to the removal of unused or damaged equipment, and all storage beneath stairways or in stair shafts should be prohibited. The remainder of the storage should be confined to incombustible areas.
 - (4) Shops: High-temperature devices and inflammable liquids require special handling.

- (5) Home economics and laboratories: Good housekeeping and proper storage equipment are of paramount importance.
- (6) Cafeterias and kitchens: Grease accumulation and isolation of eating areas from kitchen are key points.
- (7) Auditoriums: Flame proofing of curtains and scenery, and adequate exit facilities, are major factors.

3. ELEMENTARY EDUCATION

The modern elementary school curriculum should include instruction in fire prevention; for though fire is necessary to our living, we must learn how to respect its value and to prevent the disasters that occur when it is uncontrolled. The elementary school child may be subjected to fire hazards both at school, at home, and in all places where children assemble. He must be made cognizant of these fire hazards, and he should be trained in the methods by which he and his associates can develop a fire safety consciousness for the good of all. He should be taught in such a way that he will develop habits and skills of safe action in the presence of destructive fires, because safety from fire hazards in the future depends, to a great extent, on the kind of instruction that is given *now* to the elementary school children.

Objectives. - The purpose of education and promotional material in fire prevention in elementary schools is to help to educate the elementary school child. The following five aims of safety education, stated in Fire Prevention Education, National Board of Fire Underwriters, 1942, pages 42 and 43, contain fundamental justifications for the inclusion of fire prevention education in a scheme of general education for the benefit of the individual and the community:

To develop safety consciousness which will reduce accidents to a minimum.

To teach fundamental facts (physical, mental, and emotional) which are related to accident prevention.

To develop for the development of safety habits, attitudes, and skills.

To develop character traits which will result in proper attitudes toward law enforcement and good citizenship.

To give to each individual freedom from fear and from conditions which may restrict his enjoyment of life.

In order to reach these educational results with a degree of effectiveness, certain requirements fall upon the elementary school teacher, which may be stated as follows:

1. The elementary school teacher should secure, interpret, organize, and convert for teaching purposes all pertinent school and community elements and experiences that will help elementary school children to develop knowledges, attitudes, and habits of fire prevention.

2. The elementary school teacher should develop ways and means of activating, in elementary pupils, the information on fire prevention that the school has had an opportunity to introduce.
3. The elementary school teacher should understand that one of the functions of fire prevention education is ultimately to produce changes in community attitudes toward fire safety, preservation of life, and conservation of resources and property.
4. The elementary school teacher should recognize the potentially hazardous fire situations of the school plant and school living, and work toward eliminating such situations, as far as possible, by emphasizing good housekeeping habits.
5. The teacher in a small rural elementary school has a special responsibility laid upon him for the protection of his life and the lives of the children under his charge, and should, therefore, receive special guidance and instructions on fire safety.

Specific Problems Involved. - It is apparent that if safety education in the field of fire prevention had been adequately presented in the elementary schools during the past fifteen or twenty years, the loss of children's lives from this cause would be greatly reduced today. This is a very difficult problem for the administrator and teachers of the elementary school to solve; for the responsibility is not on the elementary school alone, but is a task for the entire community. Instruction in the elementary school, nevertheless, can be given in an allotment of time, or it can be related to the teaching of subjects already a part of the curriculum. But regardless of how it is done, it should be done. It is high time that this subject be given more emphasis in the elementary school. "Fire safety is not a problem that can be pushed aside until a convenient time arrives for rethinking the curriculum."¹

Recommendations for Action

Instruction

1. Local and county elementary school systems can do much in the education of our children in fire prevention by stressing (or including) it as an integral part of the curriculum. This subject can be studied throughout the school at points or places where immediate needs and problems are present. The elementary school curriculum has such a varied program that the subject of fire prevention can be woven into such subjects as elementary school science, social studies, English, or art, using audio-visual aids when possible.
2. The material to be presented should be two-fold: (a) positive information and (b) preventive information – depending on the age and learning of the elementary school child. Frequent check-ups should be made to see if the child has become conscious of fire prevention and of the need for fire safety.
3. With fire hazards increasing rapidly, there has been a lag in giving the child sufficient instruction to enable him to meet these hazardous situations competently. For example, a few safeguards against common fire hazards are:
 - a. Place oily rags and ashes in metal containers.
 - b. Keep heating appliances away from kitchen curtains.

¹ Federal Security Agency, U. S. Office of Education, *A Curriculum Guide to Fire Safety*, Bulletin 1946, No. 8, Washington, D. C.

- c. Keep matches out of the reach of small children.
 - d. Disconnect electrical appliances when not in use.
 - e. Use non-inflammable substances for cleaning.
 - f. Keep burning rubbish and leaves away from buildings, fences, or foliage.
 - g. Flammable liquids should never be used for starting fires in the stove.
 - h. Use of gasoline for any kind of cleaning is dangerous.
 - i. Party and holiday decorations must be of fire-retardant materials, and any decorative materials should be kept away from stoves or open flames.
 - j. Paraffine for “home canning” should not be melted on the stove, unless in a vessel of water.
 - k. Fill lanterns or stove fuel tanks outside of closed buildings.
 - l. Flammable liquids should be carried in sealed metal containers, preferably safety cans.
4. The types of fire prevention instruction should be determined by
- a. The type of community (rural or urban).
 - b. The present needs for presenting such materials – this depending on the age and mental readiness of the child.

Such a study, to be most effective, calls for close cooperation between teacher and child; the teacher to guide the learning and the child to offer suggestions as well as to follow those he has received. Observing, taking excursions, and interviewing are a few of the ways by which elementary school fire prevention instruction can be given.

Cooperation With the Home and Community

5. To be most effective, an elementary school program of fire safety must extend beyond the limits of the school building and grounds.
- a. Lessons on fire prevention should be given in Sunday schools, motion picture theatres, and all other public places in which children assemble.

In this way full cooperation may be secured in bringing a knowledge of fire hazards to individual homes. The program, if well planned, will enlist the enthusiastic support of all elementary school children. It is these children who more than their older brothers and sisters will bring home the information they gain about the dangers of fire. These elementary school children are also at the impressionable age. The proper information they acquire at this age in preventing and controlling fires will prove of lasting value to home and community.

- b. Fire safety programs should be conducted by church societies, parent-teacher organizations, Boy Scouts, Girls Scouts, Camp Fire Girls, Future Farmers of America, 4-H Clubs, and other groups that are concerned with the welfare of all.

These meetings should feature the work of the local fire department and should explain how the community may help in preventing fires. Local clean-up weeks should be made opportunities to acquaint the entire community with the relationship between cleanliness and fire prevention.

Dissemination of Information

6. Children should be urged to take home for their parents simple instructions on the removal of fire hazards. Such instructions may be obtained from the sources noted at the back of this pamphlet.
7. Service organizations using the activities of children in the elementary schools, such as the American Junior Red Cross, should be requested to give prominence to this subject in their program literature.

Administration

8. Committees should be organized for the study and revision of the curriculum in order that fire safety instruction will be up to date at all times.
9. The school administrator should demonstrate active interest, to stimulate teachers and students to greater participation in the fire safety programs.

4. SECONDARY EDUCATION

Education for fire prevention is a sound and defensible addition to the program of the secondary school. If one purpose of the school is to teach pupils to do better those desirable things they are likely to do anyway, then education for fire prevention deserves a place in the program. If common learnings are to be based on practical problems of living, education for fire prevention has ample defense for inclusion. All pupils in the secondary school should have a significant program in fire prevention.

The People to be Reached. - For this program to be effective, it must be kept before the pupils and emphasized every year in grades 7 through 12. In addition, every citizen should have his attention called to fire prevention periodically, if not continuously; for hazardous conditions in the homes, factories, business places, forests, and other land areas must be skillfully corrected if destruction by fire is to be reduced and ultimately eliminated. The program must be community-wide to have its greatest effectiveness.

Program Development. - It is natural for various public and private groups, interested in fire prevention, to develop instructional materials and attempt to introduce these into the schools. These outside agencies are well able to develop valuable aids, as they are in possession of the facts and have a thorough knowledge of problems and conditions. The school policy should be to appraise various proposed programs that are developed by out-of-school agencies and allocate time and emphasis to them according to their relative value. The school authorities should secure a list of the agencies, both local and national, that have prepared worthwhile materials which may be adopted for the instructional program of the school. Attention in this connection is called to the sources of reference material on page 22.

The responsibility for preparing courses of study lies alike with the local, State, and national authorities. State and city departments of education should obtain from every possible source – from educational organizations of insurance companies, from educational directors in industry, and especially from practical fire protection and firefighting – all available material, and from that material organize course material and action procedures. After this material has been placed

in the hands of local schools and other educational authorities and teachers, it will be the responsibility of local authorities to adapt and apply these courses and procedures in a way best fitted to their community needs. Teachers and other educational authorities in local communities should also effect the closest kind of liaison with their local firefighting and protection agencies, especially the fire companies, fire brigades, and any other such groups.

Type of Materials Needed by Schools. - Complete units of instruction, which are closely evaluated in terms of professional requirements, should be skillfully prepared. Without the aid of sound educational advice, no outside agency should attempt to prepare instructional units for even their suggestive value. If this policy is not followed, materials cannot be effectively and widely used. There is need for stimulating sound films of a general character that will arouse and hold the interest of secondary school pupils. Such films may be developed under the best technical conditions, with contents and organization meeting best educational standards. Under no stretch of the imagination should general films be expected to carry the major part of the educational program. Too often, a general film shown in assembly is considered the major means of education, instead of a stimulating introduction for an area of study. Unless a sufficiently large number of prints of a general film are available, the majority of schools cannot use it satisfactorily. For results in instruction, slides and filmstrips are exceptionally effective. The reasonable costs of slides and filmstrips make it possible for every school system to have the supply needed for local use. Slides and filmstrips have distinct advantages, because of the flexible and easy way in which they can be used. Pamphlets that are written for pupils have great value. Care should be taken to write them in terms of youth interests and at appropriate reading levels for those who are to use them. Charts and statistical data should be prepared for pupils also. Statistics and charts are increasing in importance as pupils are taught how to study them and use them.

All of these materials have to be financed. We suggest that this is an appropriate service that interested public and private agencies may offer to schools. However, it should be repeated that the contents and organization of such materials should have the appraisal of competent educators while in process of preparation.

Recommendations for Action

1. The superintendent of schools is the key educational leader in the community and should provide the leadership for developing and instituting a program of education for fire prevention.

There are many pressures on the schools today, and unless the educational leaders keep them in balance, important elements, such as education for fire prevention, may be neglected, while less worthy elements may receive more than their share of attention.

2. Pupils should have a working understanding of State laws and local ordinances that control various agencies and give them responsibility for fire protection.
3. Each student should participate in a survey for fire hazards either in the home, school, or other public building. School authorities should refrain from attempting more than one survey at a time. For example, if a survey of homes were the project selected, it should

tie in preliminary instructions as to hazards in the home, danger spots, pictures of fires, how to extinguish fires in the home in their early stages, escape methods for the home, and a few interesting statistics on home fires. These features, in addition to the completion of an inspection blank with the development of recommendations, will give the students a sound basis for coping with the fire problems of his environment.

4. Careful attention should be given to acquiring the habit of safety in doing common things that the student will be faced with for the remainder of his life. For example, the dangers of smoking in bed should be thoroughly discussed and the safe method of lighting gas appliances should be described and analyzed.

Relationship to Adult Education

5. Education in fire prevention is needed continuously by the entire community. If properly organized on the needs of the community, every person, whether he is in school or not, is going to take part in many activities. When young people survey their homes, when fire prevention week is launched, and when demonstrations by the fire department are given, all the people of the community will learn. The school should definitely and deliberately plan activities that will involve the effort and attention of the entire community. If this is done, all the people will be alerted periodically to work for fire prevention. Education for fire prevention fits well into the program of the community school.

5. FIRE SAFETY INSTRUCTION IN TEACHERS' COLLEGES

The ultimate success of the fire prevention education program will depend largely upon the effectiveness of the teachers. The modern curriculum in teachers' colleges is becoming more and more concerned with those essential factors that treat formal instruction and every day living as an inseparable whole. Instruction in fire safety in our schools today is more than ever concerned with the protection of life and property against fire, rather than with the mere acquisition of fire facts. The instructional program in fire safety should provide learning experiences for pupil that will aid them in developing superior knowledge and skills in the elimination of fire hazards and the protection of themselves and others against fire. It should be equally concerned with the development of desirable attitudes that will guide children and youths in their daily activities for the reduction of fire waste.

Instruction in fire prevention and protection should be planned primarily to develop in children behavior that is purposeful and safe in the use of fire and the elimination of fire hazards. If the modern teachers' college is to meet this particular need of child development, its administrators and instructors must keep abreast of the changes that are taking place in the field of fire safety. Education of teachers in fire prevention and fire protection must rest on (1) a knowledge of the significant local conditions; (2) an awareness of the events, organizations, and persons responsible for important changes; and (3) an understanding of the function of the school as a means of developing desirable practices and accomplishing significant changes in the community.

The objectives of fire prevention instruction are identical to those of the general school curriculum. Any process that concerns the well-being of the people likewise concerns the teachers' education curriculum.

The development of a coordinated program of fire prevention education in the curriculum of teachers' colleges does not require the introduction of new subject-matter courses. It requires, however, that the curriculum include all educational materials and activities that will prepare teaching personnel to conduct learning experiences in which pupils learn to live the most efficient and wholesome life possible.

Some items that tend to justify the place of fire prevention education in the curriculum of a teachers' college are as follows:

1. School fires occur at the rate of more than five a day in the United States and Canada.
2. Education in fire prevention and control occupies a central position with respect to two other equally important divisions in this field – Engineering and Enforcement.
3. The greatest cause of destructive fire is carelessness. Only people can be careless. Only people can be educated.
4. The average yearly death toll due to fire is placed at approximately 10,000 persons; and on the average, in 1 year fire takes the lives of 1,673 children under 5 years of age and 591 children between the ages of 5 and 9.
5. Destructive fire can be prevented through the use of superior knowledge, skills, and desirable attitudes.
6. Fire prevention education contributes directly to successful child growth, in that most valuable experiences are secured in the wholesome, efficient, and contented living that comes from security.

Recommendations for Action

1. An administrative committee for leadership training in fire prevention and protection should be organized, consisting of department heads and other staff members who have a unique contribution to make in the conduct and development of the program. The current college health committee, with some additions, could serve as this administrative committee and be known as the College Committee on Health and Safety.
2. This administrative committee should be acquainted with the basic material, content, objectives, and expected outcome of programs in fire prevention education by such procedures as:
 - a. Outlining and discussing its value as a major phase of the total process of instruction.
 - b. Considering the program as a means of training for effective and joyful living in modern society.
 - c. Recognizing the program as a means of serving the institution and the community, by protecting the health and conserving the lives of human beings.
 - d. Employing the program as an instrument of public relations to work with other community agencies in serving the college and community.

3. From the administrative committee, a subcommittee should be appointed, of probably three to five members, to work out the details of the program. The chairman of this subcommittee should serve as coordinator of the program. It is probably most desirable to have the chairman of the department of education and an appropriate staff member serve as co-chairmen of the working safety committee, the former giving detailed attention to the teacher education phase of the program and the latter to specific course content in the program and to the practical fire prevention work to be done in the college.
4. A general faculty meeting should be called for the purpose of critically evaluating and approving the plans formulated and recommended by the Committee on Safety of the College Health and Safety Committee.
5. The coordinators of the program should have their specific duties outlined. The following factors are valuable in promoting a successful leadership training program in fire prevention and protection and in conducting a practical safety program in the college environment:
 - a. The determination of an adequate amount of time to be allotted for teacher education in fire prevention.
 - b. The determination of whether or not fire prevention shall be an integrated phase of the teacher education program, a separate course of study, or a combination of these two methods of teacher preparation.
 - c. The allocation of practical and theoretical work in fire prevention education to the several departmental courses of study.
 - d. The determination of the fire prevention content of special courses and recommendations concerning fire prevention materials that may be treated in other courses.
 - e. Recommendations concerning the amount of credit in safety education necessary for graduation.
 - f. Recommendations concerning the type and nature of courses in safety education in a teacher education curriculum with respect to purpose, objective, content, status, and outcomes.
 - g. The compilation of courses, materials, and recommendations concerning instructional aids and devices in fire prevention; the construction of teaching units and lesson plans for use in courses where fire prevention may be treated through integration.
 - h. The proposal and direction of research in fire prevention in terms of community surveys, program needs, methods and techniques of instruction, and related factors.
6. There should be a well-coordinated program of fire prevention in the physical plant of the institution. The following suggestions are concerned with the practical application of these fire prevention procedures:
 - a. Development of an inspection and fire prevention reporting system for the institution.
 - b. Appointment of a safety council or committee, composed of advanced students, to work with the administrative committee in promoting local and practical fire prevention program.

- c. Organization of clubs, fraternities, sororities, departments of instruction, and other agencies within the institution and community for cooperation in the fire prevention program.
7. The coordinator or the head of the department of education, or other department head, should be responsible for the supervision and motivation of the program of teacher preparation in fire prevention. He should delegate supervisory responsibility for the local and practical phase of the program to a person recommended as capable of conducting this phase of the work.
8. Teachers should be encouraged to participate in community fire prevention activities. This will tend to point out the particular fire problems that need the greatest attention in the local area and will enable the teacher to select the most productive fire safety demonstration material for his classes.
9. Outside authorities should be invited at frequent intervals to present information on local fires, unusual fires, fire loss data and other pertinent material. This will provide another point of view and also furnish an experience background that can be called upon later for reference in maintaining interest in the fire material to be presented to the students.

6. COLLEGES AND UNIVERSITIES

A recent report of the U. S. Office of Education shows that there are more than 1,260 colleges and universities in the country, besides 436 junior colleges. Their total property is valued at more than 4 billion dollars. The present registration of students is more than 2 million, by far the highest figure in history, due to the remarkable influx of war veterans.

In addition, the problem of organization and supervision by college administration is highly complex. Many of the colleges have large numbers of temporary structures, such as trailers, GI barracks, cabins, and quonset huts, that are being used as dormitories, classrooms, laboratories, and shops. Many are constructed of wood and located too close together, with consequent fire hazards. Some universities have as many as five off-campus centers, often in temporary buildings sometimes several hundred miles away from the college campus.

With this great mushroom growth of our colleges since the war, the responsibility of college administrators for the protection of the great army of young people seeking higher education has increased manyfold. The protection of college properties from fire has also become a more serious problem. Efforts must be redoubled to prevent serious fire losses and conflagrations.

There are three primary responsibilities of the colleges with regard to fire prevention and protection. The first is the protection of the student body and the buildings that make up the college plant and its off-campus centers. The second is the education of all students regarding the causes and prevention of fire, not only in college buildings but also in homes and public places. The student body is potentially a very influential part of the general public. There is an urgent need for the public to realize that fire is preventable, rather than that it is to be expected. There is sufficient experience available to encourage the belief that fire safety can become a primary consideration of students in an effective and interesting manner within the scope of present courses of study. The third is the responsibility for providing specialized training in fire

safety in the curriculum for chemists, engineers, architects, and forestry majors. In addition, a university can do much by integrating fire safety into other courses and by providing short courses, institutes, radio programs and the like, for fire department personnel, inspectors, fire wardens, farmers, miners, and others.

The protection of life and property is a serious national problem. We can look to our institutions of higher learning for leadership in education and research.

7. ENGINEERING AND ARCHITECTURAL SCHOOLS

Scope of Report. - It is the purpose of this report to present material that should be utilized in existing courses for engineers and architects. The report is a product of deliberation based upon previous studies of the educational needs of engineers, architects, and executives; the review of plans of structures and of water systems intended for fire protection; and from wide experience in fire hazard surveys, which resulted in improvements in management procedures from the standpoints of safety to life and protection of property.

The Problem. – The nation’s fire loss experience has shown that men responsible for the design, construction, and operation of buildings, and those concerned with governmental functions, are not sufficiently familiar with recommended fire protection standards. The recent war accentuated the need for continuity of production and the importance of protecting strategic materials. The same principles are applicable in time of peace to avoid loss of life and to conserve the nation’s resources.

It is recognized that some colleges now have programs, such as vocational training in firefighting. The Illinois Institute of Technology has a full 4-year course leading to the degree of Bachelor of Science in Fire Protection Engineering. However, the intent of this report is to present a plan to enrich the knowledge of all engineering and architectural graduates so that they will be aware of existing standards and apply them when necessary; it is not the intent, in this report, to cover courses for the education of fire protection engineers or courses of vocational types.

The public is entitled to tangible evidence of a more realistic approach than periodic admonitions to “be careful.” Important as the latter may be in many cases, such admonitions are likely to result in an apathetic attitude on the part of the public, unless there is positive evidence that safe practice standards are not followed in the design, construction, and operation of facilities. Given a safe building and a safe operation, enforcement agencies will be in a much stronger position to ask and obtain public cooperation.

Numerous examples might be cited to illustrate the points brought out in the foregoing paragraphs, but the hotel fires in Chicago and Atlanta, and the nightclub fire in Boston, have resulted in a demand for more adequate fire safety.

The recommendations in this report include a long-range program of education for engineers, architects, and others, which may be expected to result not only in safer structures, but also in a

professional group that may be expected to contribute to future building code revisions and improved standards.

Amplification of Engineering Textbooks and Bulletins. - The objectives in this report can be attained only when available texts are amplified to include pertinent information on fire protection, such as texts on hydraulics, building materials and design, industrial chemistry, electrical, aeronautical and agricultural engineering, and business administration.

The Program. - While no complete educational course, program, or action procedure can be devised in this report that will be applicable in every respect to every school and community, there are in almost every case certain fundamental factors to be considered. Some of these are outlined as follows:

Suggestions for Units in a Recommended Course in Fire Protection

1. Economic Consideration of Losses.
2. Public Interest.
3. Relations of Architects, Engineers, Management and Regulatory Authorities to Owners and the Public.
 - a. Planning and Engineering.
 - b. Fire Protection Organizations.
4. Principles of Loss Prevention.
 - a. General Considerations.
 - b. Construction.
 - c. Building Equipment and Appurtenances.
 - d. Special Considerations.
 - e. Management.
5. Fire Protection.
6. Fire Hazards During Construction.
7. The Fire Problem Other Than in Buildings.

Recommendations for Action

We recommend:

1. That existing courses for engineering and architectural students include fundamentals of fire protection where applicable.
2. That as an alternate plan, suitable for some institutions of learning, a 32-hour course covering the management aspects of fire loss prevention be given to those enrolled in classes in engineering and business administration. Experience with such a course indicates that it can be interesting and effective.
3. That engineering, architectural, and economics textbooks be amplified as soon as possible to include fire protection subjects.
4. That where applicable in existing courses, fire protection codes and accepted practices be used as supplementary texts.

8. INTEGRATION OF FIRE SAFETY INTO OTHER COLLEGE COURSES

Fire safety materials have direct application in many other college courses and materials, both in institutions granting the bachelor and higher degrees and in junior colleges. As an example, there are many opportunities for stressing this in college chemistry. While it is true that many fires have their origin in laboratories, this is not the only reason for studying fire safety. A basic understanding of the chemistry of fire and fire extinguishment is valuable for all students. Everything that the college can do to improve the knowledge, skills, and attitudes of students with regard to fire safety should be done.

There are also applications of fire safety in household arts, industrial arts, and physics. The same is true in certain courses in agriculture, mining, and industrial safety, as well as in transportation. A large percentage of the great number of fires in our homes each year can be traced to unsafe practices, equipment, and poor housekeeping. Thousands of farm buildings and quantities of produce go up in smoke each year because of the lack of simple precautions and practices that should be given greater emphasis in agriculture courses and institutes.

Another phase of this subject can be stressed in schools of business administration and in insurance courses. Proper management in business and commerce includes emphasis on fire prevention and protection. Likewise fire insurance courses should include emphasis on loss prevention methods. When textbooks do not include fire safety materials, instructors can secure a variety of booklets, pamphlets, and visual aids from public and private agencies. For example, the Forest Service, the U. S. Department of Agriculture, and other Federal and State departments have a variety of useful publications in this field. The same is true of private organizations.

Recommendations for Action

We recommend:

1. That fire safety materials be integrated into college courses such as chemistry and physics.
2. That the curriculum for majors in household arts, agriculture, industrial arts, and mining include more stress on fire safety.
3. That greater attention be given to this subject in certain courses in schools of business administration and in insurance, economics, and transportation.

9. PREPARING INSTRUCTIONS FOR FIREMEN'S SCHOOLS

Amplifying the course of firemen's training outlined elsewhere in this report, special consideration should be given to the preparation of instructors in auxiliary fire schools conducted throughout the different States.

A central college course and a series of specially designed auxiliary programs in fire prevention and protection, as adapted to firemen's training, will prove one of the most valuable services rendered by a college or university to the State. Particular consideration should be given in auxiliary schools to meeting the problems of fire control in both urban and rural districts. Rural and agricultural areas have problems of their own in securing legislation necessary for organization of rural fire departments; supplying sufficient water for fire control; providing legal authority for such organization; and for meeting possible accident liability.

Recommendations for Action

We recommend:

1. That a fire college, if one does not already exist, should be organized in each State under the control of a leading college or university.
2. That plans for auxiliary regional fire schools be made, and that specially trained leaders be provided for urban, rural, and agricultural districts.

10. SPECIAL LECTURES AND DEMONSTRATIONS

In addition to the prescribed course of study of fire prevention and protection, many schools of higher education have taken advantage of special lectures on unusual hazards, or demonstrations of common fire dangers which are liable to be overlooked or underestimated. These serve to stimulate the interest of students, enhanced as they are by visual or dramatic presentation. Qualified leaders, because of their close contact with new fire hazards as they are developed in rapidly changing home practices and manufacturing processes, are available to amplify the regular teaching program.

Recommendations for Action

We recommend:

1. That colleges and universities obtain and, if possible, use a listing of available personnel from the various associations, or from organized business and industry, who are qualified to amplify the general study of fire prevention and protection as applied to present day public economy.
2. That such lectures and demonstrations on fire control should be a part of the program of special and regular institutes and seminars.

11. FOREST FIRE PREVENTION

Forests constitute a high fire risk throughout the United States. The magnitude of the risk is indicated by the fact that forest growth covers one-third of land area of the country and constitutes a natural resource upon which cities, towns, and rural communities depend for maintenance of supplies of raw wood for industry and employment; water essential for home and municipal uses, generation of electricity and irrigation for the growing of crops; opportunities for wholesome outdoor travel and recreation; and taxable revenue for local and State governments, including highways and schools.

The high fire risks is understood by the fact that an average of 175,000 forest fires occur yearly, in consequence of which forests are not insurable today. The 175,000 annual fires destroy productive growth, property, and resources on 25,000,000 acres. Nine out of ten of these fires are man-caused, due in large measure to human carelessness and ignorance on the part of urban people who flock to forested areas during the summer seasons. There is urgent need of developing through education an enlightened citizenry throughout the nation, having a sense of individual responsibility for the prevention of forest fires.

Recommendations for Action

We recommend:

1. That lectures, films, and other visual presentations of the subject be made a part of classroom and general courses and programs on fire prevention; and that the subject be integrated by means of reading assignments or otherwise in the teaching of the biological sciences, economics, chemistry, geology, engineering, citizenship, and the like.
2. That short courses in forest protection and conservation, emphasizing forest fire prevention, be included in summer schools, particularly those held at summer camps.
3. That all agricultural colleges which do not now provide courses in farm forestry either do so or give special emphasis to the prevention of woodland fires as a part of farm management.
4. That during the academic year, the faculties of forest schools be drawn on for chapel talks and general university lectures on forest fire prevention and its social and economic implications.
5. That college authorities establish and maintain contact with their State forest protection agencies, encouraging the organization and training of student groups for summer work in forest fire prevention and suppression. Rallies could also be held at colleges near forest areas at the beginning of the fire season.

12. TRAINING OF INSPECTORS

Federal, State and municipal departments, insurance companies, and industries employ a large number of fire protection inspectors. In many cases an engineering degree is not a prerequisite

for these positions. Colleges can aid by providing service courses that will help upgrade the work of inspectors.

Recommendations for Action

We recommend:

1. That universities, especially those in or near urban centers, provide courses for training inspectors. These courses should cover various phases of the inspector's job, be at least 32 hours in length, and include such units as: the Nature and Causes of Fires; Elimination of Causes; Preventive Measures; Types of Building Construction; Method of Conducting Inspection; Reports and Recommendations for Corrective Action.

13. VISUAL AID DEPOSITORIES

Many universities provide a useful public service through the loan of fire safety films, sound-film slides, and other visual materials. Visual methods have been found valuable for teaching in the schools, as well as for the education of adult groups.

Recommendations for Action

We recommend:

1. That university extension departments include selected fire safety visual aids in their depositories. Help in the selection of such aids may be secured from lists that are available through various underwriting organizations.

14. AUDIO-VISUAL AIDS IN FIRE PREVENTION EDUCATION

Sound motion pictures and radio broadcasting are well established as rapid and forceful media for public enlightenment. To make a program of fire prevention and fire protection of greatest value, it is essential that full use be made of these and all related audio and visual aids.

We are familiar with the motion picture chiefly as a medium of entertainment, yet by reason of its ability to dramatize and visualize, because of its strong appeal to the human "eye-gate," it can be a medium of enlightenment and instruction unlike any other ever dreamed of. In no area is that enlightenment and instruction more sorely needed today than in the field of fire prevention.

There can be little doubt that the motion picture, through the "eye-gate," offers one of the finest of teaching avenues. There can be equally little doubt that the time is ripe for an early and

permanent alliance in education among the fire prevention interests in this country, business enterprise, and the motion picture industry. It is the recommendation of this committee that these interests and facilities be enlisted to their farthest limits.

As a practical, first step suggestion, we propose the creation within the next few months of a fire prevention "library" of a dozen or more carefully produced, entertainingly narrated films on such subjects as "Home Fire Prevention," "Transmission of Fire Alarms," "The Chemistry of Fire," "Forest Fires," "Fire Department Organization and Operation," "Industrial Fires," "Great Fires of History," etc. Such a library could be prepared for use on the various educational levels, i.e., the grade school, the high school, the college and university, the women's organization, the business group, and so on.

Almost as valuable an educational "gate" is the medium of radio, and attention drawn to the increasingly important role that might be played in fire prevention and protection by our national radio networks. The dramatic possibilities inherent in fire causes and fire prevention are too apparent to require description, and the President's Conference is most strongly urged to approach the national radio networks in this regard. Half-hour dramas could be so written and produced as to offer most effective entertainment and education in fire prevention.

Recommendations for Action

1. We urge that the conference authorize means of effecting a working liaison with the Motion Picture Association of America for the purpose of immediate planning for production and distribution of 16 mm. film library covering all important phases of fire prevention and fire protection.

It is suggested that the expense of production of this library could be contributed to by the nationally known associations interested in safety to life and fire prevention.

2. We urge that an effort be made to simulate the production and use of other and less costly visual aids, such as filmstrips, slides, pictographs and similar media. These devices, by virtue of their low cost, would permit even the smallest organizations to share in their general program of fire prevention education.
3. We urge that the executives of all major radio broadcasting networks be contacted, in an effort to secure their cooperation in planning their participation, coast-to-coast, in the general program of fire prevention education.

15. IMPLEMENTATION OF A PROGRAM OF EDUCATION FOR FIRE PREVENTION

The superintendent of schools, who is the executive officer of the board of education, is the key person in the community concerned with the initiation and development of a program of education for fire prevention. He deals with a large number of agencies and people in this process of initiation and development. Besides the local board of education, the elementary and secondary school principals, teachers, and local government officials, fire departments and other

firefighting agencies, parents, service clubs, youth serving agencies, elementary and high school pupils, business and industrial organizations and others, have a part in a program of education for fire prevention.

The following techniques have been found helpful in getting the program under way:

1. For the Community:

- a. Secure the appointment of a planning committee, to be composed of important groups and persons from the various areas of the community.
- b. Arrange for a speaker's bureau, through which speakers may be prepared to appear before community groups, to explain the seriousness of fire losses and hazards and to focus attention on a constructive program of prevention.
- c. Confer with youth-serving agencies, such as Boy and Girl Scouts, to develop projects mutually helpful to these groups, the schools, the homes and other organizations.
- d. Secure the cooperation of fire departments and other firefighting agencies to stage demonstration of best firefighting techniques, to offer expert advice on projects to be undertaken by the schools and to conduct home and other types of surveys for the purpose of eliminating fire hazards.
- e. Through conference and study, find distinctive contributions that may be made by service clubs, business and industrial organizations and other community groups.

2. For the Schools:

- a. Select a representative faculty committee to plan and exercise supervision over the school program of education for fire prevention.
- b. Prepare a course of study for the entire school, including:
 - (1) Appropriate units, projects and activities.
 - (2) Suggestions for placement in the school, so that it may be scheduled in the program of every pupil.
 - (3) Suggestions for evaluating the effectiveness of the program.
- c. Under pupil activities, provide opportunity and encouragement for junior fire protection and study organizations, with suitable program and insignia.
- d. Under the direction of the superintendent of schools and board of education, a rigid program of inspection and prompt elimination of fire and safety hazards should be maintained.
- e. Provide a program of adult education, including lectures, institutes, and courses for parents, businessmen, industrialists, and others.
- f. Develop a program of publicity, to keep the citizens informed and interested in education for fire prevention.
- g. The program plans should include both immediate and long-term phases. What should be attempted in 1947-48? What can be accomplished next year, 1948-49? Careful planning will assure a sound and gradual development.

16. SUGGESTIONS FOR STATE DEPARTMENTS OF EDUCATION AND COUNTY SUPERINTENDENTS

1. Plan a series of regional meetings for teachers and administrators in State or county.
2. Prepare packets of materials to be distributed upon request to local faculties working on programs. These should be assembled from the wealth of free materials.
3. Provide consultant services to local committees and groups.
4. Assist in providing speakers for promotional purposes.
5. Call attention to special projects, through circular letters and newspapers.
6. Help organize State, county and regional conferences for young people who are taking the lead in fire prevention and education.
7. Help organize and conduct institutes and other public service training activities for fire companies, fire marshals, and fire brigades in industry.
8. Help arrange and conduct in-service, extension, and summer school programs for teachers with assigned responsibilities in education for fire prevention.
9. Help conduct surveys and evaluations locally to find basic needs and best ways for introducing or improving educational programs.
10. Maintain close liaison with fire departments and county farm agents and farm groups.

Suggestions for Teacher-Training Institutions

1. Help students (teachers in training) gain a broad knowledge of materials, activities and methods appropriate to age levels of the pupils whom they are preparing to teach.
2. Schedule students to do practice teaching in this area.
3. Give students practice in developing units of work and activities to be tried with groups of pupils.

17. SUGGESTIONS FOR ENGINEERS AND ARCHITECTURAL SCHOOLS

The Subcommittee on Engineering and Architectural Schools has suggested that colleges and universities call upon committees of engineers and architects qualified in fire protection engineering for liaison or consulting purposes. Such committees should maintain liaison with groups interested in fire protection, textbook authors, and publishing houses; and should review texts for publishers for fire protection engineering content.

The committees might be used to interest and inform faculty members in matters of fire protection by regional seminars, by distribution of informative materials, and also by giving occasional lectures at colleges and universities, particularly in the formative stages, in developing more adequate instruction.

To be most effective, the committees should include a civil, mechanical, electrical, chemical, and an aeronautical engineer, and an architect, all working under competent leadership. Each of the

engineers and the architect should be competent not only in his profession but also in fire protection engineering.

Use of This Report

This report was prepared for use by colleges and schools; and where colleges and schools can cooperate and assist them, it was prepared also for industries and other organizations, groups, and individuals interested in fire prevention education. It is designed to create a desire for further information which will lead to the inclusion of more fire prevention material in all school and other educational programs.

We hope this report will reach the hands of all groups and people, as well as educators, to the end that losses in life and property may be decreased, and life be made thereby more secure.

Firefighting and fire protection are community problems; and we hope this report will help emphasize the necessity for the community to act as a unit in meeting them; and, further, that it will indicate methods by which this unity of action may be achieved.

Sources of Reference Material

University of the State of New York, Albany, N.Y.

Center for Safety Education, New York University, 8 Fifth Avenue, New York 11, N.Y.

National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

National Board of Fire Underwriters, 85 John Street, New York 7, N.Y.

Associated Factory Mutual Fire Insurance Companies, Inspection Department, 184 High Street, Boston, Mass.

Government Printing Office, Superintendent of Documents, Washington 25, D.C.

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