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TRAINING FIRE DEPARTMENT PERSONNEL TO MAKE DWELLING FIRE SAFETY SURVEYS 1981

NATIONAL FIRE PROTECTION ASSOCIATION, INC.
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Guide for Training Fire Department Personnel to Make Dwelling Fire Safety Surveys

NFPA 1452-1981

1981 Edition of NFPA 1452

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Origin and Development of NFPA 1452

This text was developed by the Committee on Fire Service Training and processed in accordance with NFPA *Regulations Governing Technical Committees*. This guide is a revision of and replacement for the NFPA booklet entitled, "How to Train Fire Fighters to Make Dwelling Inspections."

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Chapter 1 Introduction

1-1 General.

1-1.1 The intent and purpose of this document is to provide the fire department training officers or other fire service personnel with a guide to the establishment of a Dwelling Fire Safety Program for their own community.

The solution to a particular fire safety problem must be accomplished locally, in order to be effective and adequately deal with the local fire problem. This document is intended to be a basic guide to possible elements for inclusion in a locally developed program.

This document may be applied to both rural and urban communities. Principles contained in this manual may be applied to both single-family dwellings and multi-family dwellings such as apartments, tenements, condominiums, etc., as local conditions dictate.

This document is not intended to be a training manual or a fire inspection manual, but is to be used as a guide to establishing a locally prepared dwelling inspection program geared to address the specific problem(s) faced by the local fire service organization. Specific sections of this manual may be included or eliminated as the local conditions dictate.

1-2 Rationale for Dwelling Fire Safety Surveys.

1-2.1 Fire is one of our nation's major problems. In the home, it is the second most frequent cause of accidental death. Each year roughly two-thirds of the annual fire deaths occur in residences,

generally in the victim's own home. Residential property losses are approximately six billion dollars annually.*

1-2.2 The local fire department is responsible for the protection of life and property. If residential fire deaths are to be reduced significantly, a community effort toward public fire safety education including fire safe behavior, the use of smoke detectors, and the use of a fire escape plan are proving to be very promising ways to reduce this toll. An effective home inspection program is a primary method of fire prevention with proven success in lowering life loss, injury, and property damage from fire.

1-2.3 In addition to reducing loss of life and property damage, other important results will be generated to benefit both the fire department and the entire community.

(a) Home fire safety inspections give the fire department the opportunity to publicize year-round programs and activities which are conducted in the community. The citizens who support the fire department will feel that they are getting "more for their money," in terms of a complete fire service organization.

(b) Home fire safety surveys give the fire department an opportunity to meet with the residents of the comunity on a one-to-one basis for distribution of various fire prevention literature, telephone stickers, invalid markers, and other fire safety information. The fire safety program will also provide the fire department with the opportunity to answer any specific fire protection or fire safety inquiry.

(c) The home fire safety survey program will also provide the fire department with the opportunity to become better acquainted with street names and layout, hydrant and water supply locations, community development, and home construction and pre-fire planning. The fire department may make notes of these items and other useful information for discussion during department training sessions. Using fire apparatus improves driver proficiency. The program will also increase the productivity of the fire department, specifically in fire service related duties. In addition to increasing the level of services to the community, the home fire safety inspection program will lend to the professional development of those fire fighters engaged in the program's activities.

It is important, though, to remember that, while these fringe benefits are helpful, our most important responsibility is in making good fire inspections to reduce fire hazards and fires and to provide effective public fire prevention education throughout the community.

*"Fire in the United States," U.S. Department of Commerce, National Fire Data Center, June 1978.

Chapter 2 Program Benefits

2-1 Material Distribution.

2-1.1 Opportunity to Distribute Fire Prevention Material. Home fire safety surveys provide the fire department with one of the best means of delivering public fire prevention education through direct contact with residents of the community. Maximum effectiveness may be accomplished through the distribution of fire prevention literature directed at the "local" fire problem. The fire fighter can explain specific items included in the literature and answer any question that the homeowner might have on any specific program or campaign that the fire department conducts. Many fire departments find it advantageous to print special cards, certificates, or door stickers to compliment the homeowners when their dwellings are found to be in good fire safe condition.

2-2 Support of Other Programs.

2-2.1 Personal visits by fire department inspection personnel to dwellings for fire safety inspections will generally improve the fire department's public image in the community. The program will enable the fire department to distribute information on smoke detector use and placement; on a home fire escape plan; on safety hints for babysitters; and on a variety of other safety related subjects. The program may also provide the opportunity to supplement the fire inspection by leaving the homeowner telephone stickers or cards showing emergency telephone numbers and procedures for sending a fire alarm.

2-3 Continuing Dwelling Inspection Programs.

2-3.1 When a home fire safety survey program is being planned, the fire chief and fire officers should look beyond the immediate short term benefits and anticipate its extension and continuation as a permanent program. While the initial home fire safety survey program may be a resounding success, the fire department must continue to analyze and evaluate the effectiveness of the program and the continued ability to attack the current local fire problem. The fire department must realize that the planning, implementation, and evaluation processes must be a continuous cycle which reacts to the varying needs of the community. The experiences of numerous fire departments who have initiated successful home fire safety programs have led these departments to retain these activities year after year. The success of these programs has, in some communities, resulted in a drastic reduction in life and property loss from fire.

Chapter 3 Planning the Dwelling Inspection Program

3-1 General.

3-1.1 A carefully planned and directed Dwelling Inspection Program is essential if the program is to be successful. Preparations must be made well in advance of the beginning of dwelling inspections.

3-1.2 The chief executive officer of the fire department is of course responsible for the planning and execution of the program. The chief must also sell the program to the people, and the personnel that will make the inspections.

The items for the chief to consider in planning the program are represented in the following sections.

3-2 Publicity.

3-2.1 Dwelling inspections must be sold to the public. The public must be fully informed of the value of an inspection that could possibly save their lives and homes. This can be done by enlisting the aid of radio and television stations and the newspapers to inform the public of the purpose and benefits of the inspection service. Ask your Chamber of Commerce for support and cooperation for the program. Contact women's clubs, men's clubs, church groups, fraternal orders, schools, etc. Generally, all of these organizations will be glad to help. The main thing is to get everybody into the act. This can be done with careful planning.

3-3 Training.

3-3.1 Inspection personnel must be thoroughly trained before being sent out on their own. Training will consist of classroom instructions and field trips. Classroom instructions should cover the following:

(a) Proper introduction to householder

(b) Request permission to inspect (remember that the householder can refuse an inspection)

(c) Fire hazards expected to be found in dwellings (what to look for)

(d) Local fire prevention code. However, inspections should be made as a courtesy and not because of fire prevention laws.

Training officers should take inspection personnel on training trips before inspectors are allowed to make inspections on their own. Guidelines for the field trips include the following:

(a) These field trips should be made to dwellings occupied by inspection personnel.

(b) Field trips should be continued until the training officer is sure that inspectors are at ease and will act in a professional manner when working alone.

Several fire departments across the country have hired civilians to make dwelling inspections.

3-4 Program Duration.

3-4.1 In the larger cities, inspection of dwellings should be on a continuing basis. In some small towns it may not be necessary to have inspection personnel in the field at all times. If the program is not on a continuing, year-round basis, then inspections should start in the spring and be carried on into the summer and fall if necessary.

3-5 Buildings to Be Surveyed.

3-5.1 Every dwelling unit in the fire department's jurisdiction should be surveyed. In large cities it may not be possible to inspect all dwellings each year. In those cities the chief must decide how much of the area will be covered each year. On the other hand, the small volunteer or call department may cover its entire area of protection in one year's inspection program.

3-6 Scheduling.

3-6.1 The hour of the inspection will depend a great deal on whether a department has paid, call or volunteer members, a combination of these, or civilian inspection personnel. During the week the best hours for dwelling inspections are mid-morning and mid-afternoon (9:00 to 11:00 a.m. and 1:00 to 3:30 p.m.), on Monday through Friday, except for holidays. Volunteer fire departments will probably find it necessary to use weekends and evenings, but care should be taken to avoid conflict with meal hours. It is also recommended that Sunday be excluded.

3-7 Inspection Procedures.

3-7.1 Before leaving the station the officer in charge should see that all inspection personnel are in proper uniform, and that they have the necessary equipment. A dress uniform is recommended; however, if one is not available, a clean work uniform with proper insignia or indentification is satisfactory. Fire apparatus carrying the inspecting crews should be neat and clean.

3-7.2 "In-service" apparatus should be taken to a predetermined area and parked so that it will be readily accessible to inspecting fire fighters in case of an alarm. One person should be left with the apparatus to monitor the radio. In the event of an alarm, that person will sound the siren, ring the bell, or call, via walkie-talkie radio, to summon the fire fighters. This individual must also make sure that children are not endangered, but that they do have an opportunity to see the apparatus and ask questions. A sign should be placed on the side of the apparatus explaining that inspections are in progress and the apparatus is not there for a fire.

3-7.3 Inspection personnel will be assigned dwellings to inspect by the officer in charge. The question of whether to use one or two inspection personnel per home will have to be decided during the planning stage. Most fire departments rely on the two-person team for the protection of the inspection personnel, and the use of one inspector per home is not recommended. A dwelling should be approached by the walk or path, not by walking on the lawn. Inspectors should not smoke during an inspection. If the occupant is home, the inspectors should introduce themselves, show proper identification, explain the purpose of the visit, and ask permission to enter. If admittance is refused, the inspectors should thank the occupant and leave appropriate fire prevention material. If no one is home, a card should be left explaining that the visit was made and asking the occupant to call the fire station for an appointment. If a publicity campaign has been properly conducted, the householder will know why the inspectors are there.

3-7.4 Once inside, the inspection should begin without delay. Inspection should be courteous and helpful at all times. Do not become involved in unnecessary conversation since this will slow up an inspection and may cause you to miss a potential fire hazard. Above all, inspection personnel should not make mention of other dwellings in the neighborhood. Thorough inspection should be made of items listed on the inspection form. Since fires may occur in any room, the entire home should be inspected. However, if the occupant objects to inspection of certain rooms, his wishes should be respected. Care should also be exercised that closets and cabinets be opened by the building occupant rather than by inspection personnel.

3-7.5 It is important to remember that an inspection is voluntarily accepted by the occupant. The occupant should be asked to accompany the inspector to see any fire hazards and personally hear explanations of these hazards. If the occupant is unable to accompany the inspector, the inspection should be rescheduled at a more conve-

nient time. Hazards should be noted on the inspection form. This form is only a recommendation list, not a list of violations. However, if a hazardous situation which violates a local fire regulation is found, it must be reported to the fire department. For example, many fire departments issue permits for storage and use of fuel oil. If dwelling inspectors find homes where fuel oil is being used without permit, the homeowner should be advised to get one, and notation of the installation should be made. The inspector should not argue the point, but merely make suggestions. The purpose is to eliminate hazards to life and property and all conversations should be directed toward this goal. Conditions found in the inspection of other homes should not be discussed at any time.

3-7.6 Fill out the inspection form completely in duplicate. The fire department should give serious consideration to not including specific name and address information on the inspection sheet. Because information obtained on dwelling inspections may be protected under the Open Records Act, the fire department could be criticized for releasing information regarding a specific inspection. The carbon copy will enable the department to make a tabulation of all hazards in the community. This will aid in planning fire prevention programs in the future. If no hazards are found, compliment the occupants. Sign the form with name and rank, leaving the original copy with the occupant.

Particular attention must be given to the wording of the inspection forms so that the fire department is not exposed to some type of liability by any statement.

3-7.7 Questions about the department that are of general nature should be answered. Questions regarding policy matter must be referred to an officer and should not be answered by inspection personnel. If the answer to any question is not known, inspection personnel should research the matter and advise the asking party as soon as possible. It is important to realize that many persons will base their opinion of the entire fire department on this one contact with the inspector.

3-7.8 If there is an invalid in the home, permission should be asked to place an invalid card where it will be visible from the outside in case of a fire. With the occupant's permission, telephone stickers may be placed on the phone showing the emergency number of the fire department.

3-7.9 Before leaving, make sure that the occupants understand any fire hazards you have found. Literature should be provided and an invitation issued to occupants to visit a fire station with their children. Last, but not least, the occupant should be thanked for giving permission for the inspection.

3-8 Communications.

3-8.1 In the past 25 years, a significant asset to dwelling inspection programs has been the use of two-way radio communications. This permits the inspection teams to maintain contact with fire alarm headquarters so that they can respond quickly to alarms and other emergencies.

In planning dwelling inspection programs, some provision must be made for specific communication between the inspecting teams and headquarters. Usually, drivers of apparatus can handle these communications, but occasionally the fire officer in charge of an inspection team may have to notify headquarters of certain hazardous situations or other important items. All of these details should be spelled out in the initial training for the inspection program.

3-9 General Procedures.

3-9.1 The chief of the department will have certain requirements for the inspection programs. These may include areas of operation for fire companies, schedules of inspections and other matters of general policy. Other essentials include rotation of personnel performing the inspections and fueling and maintenance of fire apparatus involved. General procedures may also need to be developed for utilization of information compiled through the inspection forms and correction and improvement of inspection procedures as the program progresses. Chief officers should also determine when inspections should be discontinued because of inclement weather.

3-10 Uniforms, Apparatus, Routes and Equipment.

3-10.1 Departmental policy should also establish the type of uniforms to be worn for inspections, apparatus to be used, routes to be covered and minor equipment needed for inspections.

Chapter 4 Common Hazards Found in Dwellings

4-1 General.

4-1.1 One of the most important phases of any training program results in the practical application of the information the trainee has received. The trainee should be able to recognize hazards of all types and to explain and make proper recommendations for correction. The trainee should also be prepared to offer explanations and reasons for the corrections that he suggests. For example, he must be prepared to recommend installation of safety devices, such as fire extinguishers and smoke detectors, and to specify proper locations for installation.

In short, fire department personnel must be knowledgeable in recognition of fire hazards and informed technically in the necessity for removing those hazards. They should project an image and attitude which will leave a positive and lasting impression.

To achieve these aims in training fire department inspection personnel, visual and mechanical training aids are extremely useful. Color slides showing typical hazards and installation faults will help fire department inspection personnel to understand exactly how these hazards look. It is suggested that training officers seek the aid of technically qualified individuals, such as building and electrical inspectors, to assist in teaching fire department inspection personnel in the use and application of local codes and building regulations pertaining to fire prevention and protection. *Training officers must instruct fire department inspection personnel in public relations and in their responsibility to promote good public relations.*

4-1.2 The explanations of hazards in this section should be adapted to local regulations and codes and should be included in an inspection report form designed to appraise the householder of the hazards found, corrective measures required, and other recommendations of the inspector. Other hazards which may be a problem in the specific community should also be described in the form.

4-1.3 Informative pamphlets should be carried by the inspectors for distribution at the completion of the inspection along with a copy of the inspection report form.

4-2 Careless Use of Smoking Materials and Matches.

4-2.1 Careless smoking and the improper disposal of matches and other items that can cause ignition are two of the major causes of fire. Fire fighters making dwelling inspections should ascertain if there are smokers in the household and suggest the use of adequate ashtrays and proper disposal of smoking materials and ashes.

Explain the dangers associated with smoking in bed, when extremely fatigued, or after socializing. Suggest that furniture upholstery be checked after a party and before retiring for the evening.

4-2.2 Items to note during the inspection include:

(a) An ashtray located in bedrooms, especially located on night tables or within arm's reach of the bed.

(b) Burn marks on table tops or furniture upholstery, rugs, etc.

(c) Seek information about the location and storage of matches and whether they are secure from small children living in the household. Recommend that they be stored in metal containers, such as an old coffee can.

(d) Explain how ornamental cigarette lighters on coffee tables or pocket lighters left lying around are attractive to children and could present a fire hazard.

4-2.3 A common fire occurrence deserves special warning. Many householders have extinguished fires in upholstery or mattresses without calling the fire department and then retired for the night thinking the fire was out. This type of fire also emits potentially harmful levels of carbon monoxide, which may be undetected. Because of the deep-seated nature of these fires, total extinguishment is extremely difficult and, when sufficient oxygen is provided, sometimes hours later, the upholstery reignites, resulting in a serious fire and loss of life.

4-3 Electrical Installation.

4-3.1 Problems associated with electrical installation and equipment are generally associated with several types of violations or misunderstandings of the design features of these items.

While a great deal of technical knowledge is required for recognition of improper design features or the hazards may be hidden from view by the building's configuration, there are certain tell-tale signs of problem areas recognizable to the trained inspector.

4-3.2 Overcurrent Protection.

4-3.2.1 Commonly used items for protection against electrical overloading in dwellings are the glass fuse, circuit breaker, or cartridge-type fuse. These devices range in capacity for normal home use from 15 amps to 60 amps.

Basically, the purpose of the fuse, circuit breaker, or fuse cartridge is the same, that is, to open the circuit if the electrical current reaches a value which will cause an excessive or dangerous temperature in the conductor.

This safety feature is negated when a fuse or circuit breaker of a higher rated capacity is used to replace one of a lower rating, i.e., replacing a 15-amp fuse with a 30-amp fuse, or bridging the circuit by placing a conductor behind the fuse.

It may be difficult to determine this overloading unless the inspector knows the gage of wire used in the circuit and the electrical devices it feeds. Normally, the only way to determine improper overcurrent protection is to remove the fuse and examine for excessive heat at the fuse base. Also, note for the presence of metallic bridging. Overheating may also be the result of a loose fuse holder or the fuse may be shorted.

4-3.2.2 Edison-type fuses are designed for ease of replacement and will account for the most abuse. Type S fuses are designed so that tampering or bridging is extremely difficult. They offer far more protection against overfusing.

4-3.2.3 Circuit breaker overloading will be more difficult to determine without tracing the circuit that it protects. Explaining the design features of fusing to the householder may be the best way of determining an unintentional violation. Any difference in the physical appearance between circuit breakers in a panel should be suspect.

4-3.2.4 Many residences will have one or more pull-out fuseholders commonly called ring pulls. One such ring pull will always be marked MAIN and probably will require a 60-amp or higher cartridge fuse. Another ring pull may be marked RANGE for an electric cooking range and will require a 35-amp fuse. If the home does not have an electric range, but the ring pull marked RANGE is fused, it should be determined what device is being fed and the size of fuse necessary. Cartridge fuse-holders are designed to prevent, or to make extremely difficult, inserting a fuse other than that for which the fuse-holder was intended. Renewable-link cartridge fuses have the following disadvantages:

(a) The links can be doubled or tripled, etc., thereby defeating their purpose and usefulness.

(b) The links, upon replacement, can be left with loose connections.

4-3.3 All electric service must be grounded. The grounding requirements may vary according to local codes. Local electrical inspectors can be very helpful in explaining these codes in fire department training sessions.

4-3.4 Electrical main service coming into the dwelling should be inspected. Cables which are too close to trees, downspouts, gutters, or cables not securely attached to the building may present a fire hazard.

4-3.5 Other Common Electrical Hazards Found in the Home.

4-3.5.1 Heat buildup occurs in wiring when resistance to flow is experienced. Loose wire nuts or cable connections (especially in aluminum wiring), wiring run through doorways or under carpeting, and furniture or other heavy objects resting on wires can produce this condition.

4-3.5.2 Unusual wear exposing wiring can result from cables not properly secured, objects hanging on cables, or, as mentioned in 4-3.5.1 above, wires run through doorways or under carpeting.

4-3.5.3 Dirty, poorly maintained electric motors or missing covers on junction boxes may eventually result in a short circuit and could result in fire.

4-3.5.4 Extension cords (even though UL approved) may be too small for certain electrical loads, such as irons and air conditioners. Extension cords should never be used for permanent connections, but only for temporary use. If the inspector is to provide worthwhile guidance to the homeowner, he should be trained to match the current-carrying capability of the extention cord with the current demand of the electrical loads connected to it.

4-3.5.5 "Octopus" fittings consist of excessive electrical devices connected to one outlet causing excessive current flow with resultant heat buildup from high resistance. This condition is especially prevalent when extension cords are joined in a series.

4-3.5.6 All frayed wiring must be replaced as it has outlived its safe life and breakdown is imminent.

4-3.5.7 Electrical outlets or fuse panels should not be located adjacent to a gas meter or gas diaphragm to avoid possible spark-producing ignition should a gas leak occur.

4-3.5.8 Appliances, fixtures, and wiring which are not listed by a testing laboratory should be discouraged.

4-4 Flammable Liquids.

4-4.1 General. Dwelling fires caused by flammable liquids usually result from improper storage and use of flammable liquids. There is also a general misunderstanding of the properties of these materials. Common areas of concern to inspectors should include the following items.

4-4.2 Improper Storage and Dispensing Practices.

4-4.2.1 Flammable liquids such as gasoline should be stored only in listed safety cans of substantial design and construction of a type approved by the local authority having jurisdiction. Glass jars, plastic jugs, or open pails and buckets which may leak during pouring or break if struck or dropped should not be used.

The handling and dispensing of flammable liquids should be done only in well-ventilated areas free from sources of ignition, and the container spout should provide a bonding between the dispensing container and the container being filled.

4-4.2.2 Excessive quantities of flammable liquids also create a hazard and this practice should be discouraged. Householders have frequently been known to keep excessive amounts of flammable liquids stored in basements and garages, especially during shortages of such materials. Even when stored in approved containers, exposure to heat may result in the escape of vapors through vent holes, etc. Storage of flammable liquids in heated basements or near sources of ignition should not occur. Devices using gasoline engines should be stored outside, or in unheated garages.

Partly used cans of paint should be kept in metal lockers in tightly sealed cans to prevent vapors from escaping.

4-4.2.3 The use of flammable liquids as solvents for removing grease, oil, or paint is extremely dangerous. These practices should be discouraged, but when used should be done only in well-vented areas free from any source of ignition. Most flammable liquids used in the home produce vapors heavier than air and will sink to the floor and spread. If a source of ignition is reached, often at considerable

distances, an explosion and fire may result. A simple light switch can produce a spark capable of ignition of vapors in the proper flammability range.

4-4.2.4 Greasy or paint-soaked rags and brushes may also cause fire from spontaneous ignition. They should be cleaned after each use, disposed of safely, or stored in tightly closed metal containers.

4-4.3 Other Flammable Liquid Hazards.

4-4.3.1 Use of flammable liquids in the home for drycleaning purposes should be discouraged.

4-4.3.2 Smoking when using flammable liquids should be pointed out as a serious hazard.

4-4.3.3 Use of flammable liquids for starting fires in stoves or fireplaces should be emphasized as a dangerous practice.

4-5 Heating Equipment.

4-5.1 General. Types of heating systems vary in different climates. Dwellings built in recent years will usually have gas or oil fired furnaces, or electrical heating. Older homes may use coal or wood heating plants. Room heaters and portable heaters are also common in some areas. Fireplaces are used for heating in addition to being decorative, and with the increasing fuel shortage situation, there is an increase in the installation and use of wood burning appliances in dwellings.

A common hazard is the storage of combustible material where it may be ignited by heat radiated from a furnace or stove. The area around any heating plant must be kept free of these combustibles. Heating plants also need sufficient space around them to provide adequate ventilation for proper combustion.

Flues and smokepipes may constitute a hazard. They should be in good condition and should have adequate clearance from any combustibles. These pipes should be as short as possible. If they are over 3 ft (1 m) long, they must be supported by hangers. Flues should be cleaned annually and should be inspected for damage or holes. In addition, frequent checks for creosote buildup in the flue pipe and chimney connected to coal and wood burning appliances should be made throughout the heating season. The system should be cleaned when a buildup is evident. Care should also be given to inspect chimneys and flues, where they pass through attic areas.

Where flues pass through partitions, they should have sufficient clearance or be protected by any approved ventilated metal thimble. Steam pipes or steam heating appliances improperly spaced from wood surfaces can result in lower ignition temperatures over long periods of exposure. In some cases, ignition at temperatures as low as 150°F (65°C) has resulted because of pyrolitic decomposition of the wood fibers.

4-5.2 Types of Heating Systems.

4-5.2.1 Gas Fueled. These systems may be supplied by natural, manufactured, or liquefied petroleum gas. Piping should be in good condition with the burner properly adjusted. A hazard will result from loose connections or poor piping. Inspectors should check for any odor of gas. Where individual gas heaters are distributed throughout the home, a check should be made to see that they are properly secured and vented. All piping shall be of the approved type.

4-5.2.2 Oil Fired Systems. A number of types of heating devices use oil. Some homes with central heating have an oil burner to heat hot water which is then distributed to radiators or baseboard systems. Large oil tanks may be located in basements. If properly installed, with tight connections, they will be satisfactory. A quick check will show if there are any leaks, or if the tank is unsecured. If there is a leak, sand should be spread to confine the leak, an emergency patch should be placed on the leak, and the owner should replace the tank immediately.

In some climates, where heat is only occasionally required, small oil or kerosene fired heaters may be in use. Condition of the flue pipe, tank and security of installation should be inspected. These devices should be mounted on metal trays to prevent overflow of liquid onto the floor. Portable oil fired heaters are not allowed in some areas.

4-5.2.3 Coal and Wood Furnaces. These solid fuel furnaces, still used in some areas, radiate a lot of heat. It is important that the flues have at least 18 in. (45 cm) clearance from any combustible. Solid fuel may also cause more damage to smokepipes than other types of fuel. Some installations have asbestos-covered pipes which should be inspected. Where this covering is loose or missing, a fire may occur.

Improper storage of fuel and/or ashes may result in a fire. Fuels should be stored in bins. Ashes should be placed in metal containers and removed from the house.

4-5.2.4 Fireplaces. Factory-built fireplaces, fireplace stoves, and masonry fireplaces have enjoyed a resurgence in popularity both as heating devices and for enjoyment. Spark screens should always be provided for a fireplace, and dampers, if any, should be of a type which may be operated from outside the fireplace.

Factory-built fireplaces and fireplace stoves that have been laboratory tested are designed to be placed directly upon and adjacent to combustible building construction. These installations should be strictly in accordance with the terms of the listing and manufacturer's instructions. NFPA 211, *Standard on Chimneys, Fireplaces, and Venting Systems*, should be discussed in training sessions.

Masonry fireplaces should be checked to ensure that linings are free from cracks and flues should be cleaned annually.

4-5.3 Other Heating Devices.

4-5.3.1 Gas heaters should be of an approved type. Gas appliances should display the American Gas Association (AGA) seal.

4-5.3.2 Portable electric heaters should be of an approved type and should be located away from combustibles. These devices should also be equipped with tilt switch, which will shut down the heater if it is overturned. Care should be exercised to avoid overloading of electrical circuits.

4-5.3.3 Charcoal should not be burned in confined areas or in devices other than those of an approved nature.

4-5.3.4 Gas appliance cooking ranges should not be used to heat rooms.

4-5.3.5 Gas and oil fired water heaters and furnaces found in closets or other rooms present hazards which might otherwise go unnoticed.

4-6 Housekeeping, Storage, and Rubbish Hazards.

4-6.1 Unfortunately, many homeowners are reluctant to throw anything away. This may result in quantities of old clothes, magazines, newspapers, rags and junk being stored in the home. Since a collection of these items is unsightly, the homeowner will store them in the attic, basement, closet, or garage. Often the storage is around furnaces. These useless combustibles make it easier for a fire to start and should be removed.

Trash and leaves in large quantities around the home are also a hazard which may spread a fire to the house.

If the community provides for pickup of household trash, such trash should be stored in metal containers with tight-fitting metal lids until such time as pickups are made. If household trash is burned on premises by occupants, check the place of burning, type of incinerator, and its condition and use with respect to local burning regulations.

4-6.2 The various hazards present in many garages should be noted and corrected.

4-6.3 During the course of the inspection, the inspector should ask about the use of furniture waxes and polishes, and especially about the storage of the rags used to apply these products. Inquiry should also be made about the use and storage of matches.

4-6.4 Use and storage of portable home barbecue grills should be restricted to the out of doors. Charcoal briquettes should always be allowed to cool naturally, and then be properly discarded. Storage of charcoal should be in a dry area since damp or wet charcoal is sensitive to spontaneous heating once dried.

4-6.5 If the occupancy has a swimming pool, the inspector should survey the type and method of storage of chemicals used to maintain the pool. The inspector should also note the accessibility and capacity for possible fire fighting use.

4-6.6 Home workshops should be checked for possible hazards during the inspection. These shops often contain conditions which permit fire propagation.

4-6.7 Inspection of the outside of the home should be made to locate rubbish accumulations, defective electrical equipment, flammable liquids storage, or other hazards.

4-6.8 Inspectors should be prepared to direct the householder to specific information on home fire extinguishers and fire detection systems which conform to nationally accepted standards.

4-7 Exits and Escape Routes.

4-7.1 One of the fire protection weaknesses that occurs in the average dwelling is the lack of sufficient exits from all parts of the building. Rooms on the second or third story may be served by only the interior stairway, so, if a fire starts on the first floor, persons in upper rooms may be trapped.

The fire fighter should explain the need for the householder to determine at least two routes of escape from all parts of his home.

Particular attention should be directed to the windows in the home which may be designated as secondary escape routes. Windows which are blocked by air conditioning units or are too small or too high above the floor for quick egress from the room are a potential for trouble in the event of a fire. Windows designated as secondary escape routes should be no less than 20 in. (50 cm) in clear open width and the bottom should be no more than 44 in. (110 cm) above the floor.

If room heaters are near or blocking doorways, these should be noted since such items are a common cause of fire deaths in dwellings. Doors or windows which are blocked or nailed shut should not serve as exits. Fire inspectors should check escape routes with the householders.

Barred windows and doors with key-operated dead bolt locks should be particularly noted and inspection personnel should be sure that means are provided to open these for escape under emergency conditions.

4-8 Fire Exit Drill Plans.

4-8.1 The householder should also be encouraged to develop a fire exit drill program. In particular, members of the family should be instructed in how to escape from second-story windows, porches and other parts of the upper floors. Removal of windows and screens in emergencies and the directing of young children to escape routes are essentials of a good home fire exit drill plan.

The fundamental point is that all persons should know the best route of escape from parts of the house. A predetermined, safe meeting place should be selected so all family members can meet in the event of evacuation.

4-9 Invalids/Children.

4-9.1 Many fire departments have found success with an invalid marker program. Dwellings where invalids or elderly people reside are marked by a special symbol or other identification so that in an emergency these persons can be rescued promptly. Some fire departments have used a metal strip shaped like an "I" and painted with reflective colors. Commercial stickers and decals are also available for this purpose. These stickers have also been used to mark the outside of windows where infant children sleep in an attempt to draw attention of fire fighters to these areas.

4-10 Smoke Detectors and Other Early Warning Devices.

4-10.1 The use of approved smoke detectors and other early warning devices can not be emphasized too much in dwelling inspections. Statistics have proven their worth many times over as life saving devices when combined with good escape practices. Many jurisdictions now require smoke detectors, by laws, to be installed in all new construction and, in some cases, existing structures. The trainee should become familiar with local laws and should be able to answer questions pertaining to these devices, such as: purchase — what kind, type of power supply, how much do they cost, how many are necessary; installation — where to place them, how they are installed; maintenance — how they are tested, etc.

Chapter 5 Dwelling Inspection Forms

5-1 General Information. In order to have a clear understanding of the types of fire hazards located in dwellings, and in order to ensure complete coverage of the community, a system of reports and records should be established for the dwelling survey program. Should an existing fire inspection program for other properties be available, provision may be made to expand the system to include the dwelling survey program.

The information system may be as simple or as comprehensive as the local problem and situation dictate. The information which should be collected includes the number and types of fire hazards discovered and those locations inspected. The information collected should be gathered for specific reasons if it is to be meaningful; e.g., the number and type of fire hazards may be analyzed to determine the direction of public education efforts. Care should be exercised that the results of individual inspections be retained as confidential to the fire department. Specific information relative to an inspection at a particular location should not be released to news media, insurance agents, or commercial concerns, etc.

Reports and inspection forms used in the program may be developed in the jurisdiction or may be obtained from other sources. Sample dwelling inspection forms are included in the Appendix. The report should be filled out completely and should follow a logical sequence from start to finish. The inspection report should be filled out in duplicate with the original given to the homeowner and the carbon copy retained for department use to tabulate hazards located in the community.

Another useful item which can be employed in a dwelling inspection program is an introductory letter from the community's mayor, city manager, or equivalent high official recommending cooperation with the fire department.

Every effort should be made to provide information and assistance to establish an escape plan for the particular dwelling along with encouragement to practice it regularly. The department may want to include such information during the dwelling survey (example included).

Appendix

Fire Safety Survey

D.C. Fire Department **Fire Safety Education Program**

Yes	*No*	*General*
_____	_____	Home has smoke detector
_____	_____	Smoke detector is in working order
_____	_____	Family has and practices an exit plan
_____	_____	House numbers are visible from street
		All Household Areas
_____	_____	Extension cords used for permanent wiring
_____	_____	Electrical cords in good shape
_____	_____	No overloaded outlets
_____	_____	Windows easily opened
_____	_____	Wastepaper properly disposed of
_____	_____	Household chemicals stored away from children
_____	_____	Matches out of reach of minors
_____	_____	Large ashtrays in every room
		Basement
_____	_____	Combustibles removed from heating areas
_____	_____	Filters on furnace clean and in good shape
_____	_____	Fuse box does not have pennies

Yes	*No*	
_____	_____	Washer and dryer properly grounded
_____	_____	Clothes dryer lint collector clean
_____	_____	Basement door closed
		Kitchen
_____	_____	Combustibles removed from cooking areas
_____	_____	Small appliances unplugged when not in use
_____	_____	Kitchen hood vent clean and maintained
		Living Area
_____	_____	Fireplace has proper screen and hearth
_____	_____	Chimney clean, ashes properly disposed of
		Attic
_____	_____	Clear of all combustible materials
_____	_____	Heating ducts properly maintained
		Garage
_____	_____	Solid core door between garage and residence
_____	_____	Power mower properly stored
_____	_____	Flammable liquids properly stored

Remarks: _____

With your consent, the Fire Safety Survey Team has made a Fire Safety Survey of your home. The items checked may cause a fire and are hazardous to you and your family. You are urged to correct these at once for your own safety. If all items have been checked "Yes," you are to be complimented on your personal fire prevention effort.

If you wish to discuss any hazard, or have any questions, please call the D.C. Fire Department, Fire Safety Education Center at 745-2347. Know what to do in case of emergency.

For All Emergencies Call "911"

Home Safety Survey Sheet

Check to see if any hazards exist in your home.

Yes	*No*	
_____	_____	No more than two appliances being used with outlet or extension cord.
_____	_____	Outlets that are not cracked or uncovered.
_____	_____	Extension cords used for permanent wiring.
_____	_____	Electrical cords not under rugs.
_____	_____	Small appliances unplugged when not in use.
_____	_____	Combustibles removed from cooking areas.
_____	_____	Electrical cords in good shape.
_____	_____	Wastepaper properly disposed of.
_____	_____	Household chemicals stored away from children.
_____	_____	Matches out of reach of minors.
_____	_____	Large ashtrays in every room.
_____	_____	Flammable liquids properly stored.
_____	_____	Home has a smoke detector.

The items checked "No" may cause a fire and are hazardous to you and your family. You are urged to correct these at once for your own safety.