Performing an Inspection

CHAPTER

5

NFPA 1031 Standard

Fire Inspector I

4.2.4 Investigate common complaints, given a reported situation or condition, so that complaint information is recorded, the AHJ-approved process is initiated, and the complaint is resolved. (p 95)

(A) Requisite Knowledge. Applicable codes and standards adopted by the jurisdiction and policies of the jurisdiction. (p 95)

(B) Requisite Skills. The ability to apply codes and standards, communicate orally and in writing, recognize problems, and resolve complaints. (p 95)

4.3 Field Inspection. This duty involves fire safety inspections of new and existing structures and properties for construction, occupancy, fire protection, and exposures, according to the following job performance requirements. (pp 79–93)

4.3.1 Identify the occupancy classification of a single-use occupancy, given a description of the occupancy and its use, so that the classification is made according to the applicable codes and standards. (p 81)

(A) Requisite Knowledge. Occupancy classification types; applicable codes, regulations, and standards adopted by the jurisdiction; operational features; and fire hazards presented by various occupancies. (p 81)

(B) Requisite Skills. The ability to make observations and correct decisions. (p 81)

4.3.4 Verify the type of construction for an addition or remodeling project, given field observations or a description of the project and the materials being used, so that the construction type is identified and recorded in accordance with the applicable codes and standards and the policies of the jurisdiction. (pp 86–93)

(A) Requisite Knowledge. Applicable codes and standards adopted by the jurisdiction, types of construction, rated construction components, and accepted building construction methods and materials. (pp 86–93)

(B) Requisite Skills. The ability to read plans, make decisions, and apply codes and standards. (pp 86–93)

4.3.11 Inspect emergency access for an existing site, given field observations, so that the required access for emergency responders is maintained and deficiencies are identified, documented, and corrected in accordance with the applicable codes, standards, and policies of the jurisdiction. (p 87)

(A) Requisite Knowledge. Applicable codes and standards, the policies of the jurisdiction, and emergency access and accessibility requirements. (p 87)

(B) Requisite Skills. The ability to identify the emergency access requirements contained in the applicable codes and standards, observe, make decisions, and use measuring tools. (p 87)

4.3.14 Recognize a hazardous fire growth potential in a building or space, given field observations, so that the hazardous conditions are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction. (pp 88–92)

(A) Requisite Knowledge. Basic fire behavior; flame spread and smoke development ratings of contents, interior finishes, building construction elements, decorations, decorative materials, and furnishings; and safe housekeeping practices.

(B) Requisite Skills. The ability to observe, communicate, apply codes and standards, recognize hazardous conditions, and make decisions. (pp 88–92)

4.3.15 Determine code compliance, given the codes, standards, and policies of the jurisdiction and a fire protection issue, so that the applicable codes, standards, and policies are identified and compliance is determined. (pp 79–95)

(A) Requisite Knowledge. Basic fire behavior; flame spread and smoke development ratings of contents, interior finishes, building construction elements, life safety systems, decorations, decorative materials, and furnishings; and safe housekeeping practices. (pp 79–95)

(B) Requisite Skills. The ability to observe, communicate, apply codes and standards, recognize hazardous conditions, and make decisions. (pp 79–95)

Fire Inspector II

5.2.3 Investigate complex complaints, given a reported situation or condition, so that complaint information is recorded, the investigation process is initiated, and the complaint is resolved in accordance with the applicable codes and standards and the policies of the jurisdiction. (pp 94–95)

(A) Requisite Knowledge. Applicable codes and standards adopted by the jurisdiction and policies of the jurisdiction. (pp 94–95)

(B) Requisite Skills. The ability to interpret codes and standards, recognize problems, and refer complaints to other agencies when required. (pp 94–95)

5.2.5 Recommend policies and procedures for the delivery of inspection services, given management objectives, so that inspections are conducted in accordance with the policies of the jurisdiction and due process of the law is followed. (p 95)

(A) Requisite Knowledge. Policies and procedures of the jurisdiction related to code enforcement as well as sources of detailed and technical information relating to fire protection and life safety. (p 95)

(B) Requisite Skills. The ability to identify approved construction methods and materials related to fire safety, read and interpret construction plans and specifications, educate, conduct research, make decisions, recognize problems, and resolve conflicts. (p 95)

5.3 Field Inspection. This duty involves code enforcement inspections and analyses of new and existing structures and properties for construction, occupancy, fire protection, and exposures, according to the following job performance requirements. (pp 79–93)

5.3.2 Identify the occupancy classifications of a mixed-use building, given a description of the uses, so that each area is classified in accordance with applicable codes and standards. (p 81)

(A) Requisite Knowledge. Occupancy classification, applicable codes and standards, operational features, and fire hazards presented by various occupancies. (p 81)

(B) Requisite Skills. The ability to interpret code requirements and recognize building uses that fall into each occupancy classification. (p 81)

5.3.10 Determine fire growth potential in a building or space, given field observations or plans, so that the contents, interior finish, and construction elements are evaluated for compliance, and deficiencies are identified, documented, and corrected in accordance with the applicable codes and standards and the policies of the jurisdiction. (pp 79–95)

(A) Requisite Knowledge. Basic fire behavior; flame spread and smoke development ratings of contents, interior finishes, building construction elements, decorations, decorative materials, and furnishings; and safe housekeeping practices. (pp 79–95)

(B) Requisite Skills. The ability to observe, communicate, interpret codes and standards, recognize hazardous conditions, and make decisions. (pp 79–95)

5.3.12 Verify code compliance of heating, ventilation, air conditioning, and other building service equipment and operations, given field observations, so that the systems and other equipment are maintained in accordance with applicable codes and standards and deficiencies are identified, documented, and reported in accordance with the policies of the jurisdiction. (p 91)

(A) Requisite Knowledge. Types, installation, maintenance, and use of building service equipment; operation of smoke and heat vents; installation of kitchen cooking equipment (including hoods and ducts), laundry chutes, elevators, and escalators; and applicable codes and standards adopted by the jurisdiction. (p 91)

(B) Requisite Skills. The ability to observe, recognize problems, interpret codes and standards, and write reports. (p 91)

Additional NFPA Standards

NFPA 13 *Standard for the Installation of Sprinkler Systems*
NFPA 101 *Life Safety Code*
NFPA 220 *Standard on Types of Building Construction*
NFPA 520 *Standard on Subterranean Space*
NFPA 555 *Guide on Methods for Evaluating Potential for Room Flashover*

FESHE Objectives

Principles of Code Enforcement

1. Describe the differences in how codes apply to new and existing structures. (p 92)
2. Identify appropriate codes and their relationship to other requirements for the built environment. (pp 79–95)

Knowledge Objectives

1. Describe the types of fire inspections.
2. Describe when the fire inspector should begin to inspect a building.
3. Describe the pre-inspection process.
4. Describe the fire inspection process.
5. Describe how to verify the proper installation and maintenance of heat, ventilation, and air conditioning systems; kitchen cooking equipment; laundry chutes; elevators; and escalators.
6. Describe how to verify that a new construction project meets all applicable codes, standards, and polices.
7. Describe how to verify that a remodeling project meets all applicable codes, standards, and polices.
8. Describe when and how to cite code violations.
9. Describe how to ensure that code violations are corrected.
10. Describe how to investigate a complaint against an occupancy and ensure that the complaint is resolved.
11. Describe the role of the Fire Inspector II in improving the inspection process.

Skills Objectives

1. Perform a fire inspection of a structure.

You Are the Fire Inspector

You receive a complaint from the manager of a jewelry store in your town. The business rents the property and the manager's complaint is that he recently observed the floor in the rear of the building to be sagging. You go to the building and observe three large safes in the rear of the store. The manager indicates that the safes have been in the business for the last ten years, and there have been no problems.

He also tells you that three months ago, he moved the safes from the side wall of the building to their present location in the rear of the business. Shortly after this move, he noticed what appeared to be sagging in the floor. The building is ordinary construction with the load-bearing walls on the left and right sides.

1. What is your legal and moral obligation now that you are aware of this hazardous condition?
2. What can you do immediately to protect life and property loss should the floor collapse?

Introduction

A fire inspection can reasonably ensure that a building will be safe for the occupants. The fire inspection is the primary objective of the fire inspector. The fire inspection process is performed to correct installation or construction problems. There are many points along the way that you, as the fire inspector, should be inspecting the building prior to its opening for business.

Before the building is constructed, many communities will have meetings where a potential developer will meet with the various departments of the municipality—such as building, fire, and zoning—to see if their project is even feasible. If it is, then some of the basic requirements for building a structure that meets the local codes and standards can be discussed. This type of informational meeting can lessen the chance that the building plans to be submitted will not meet local codes and standards.

Prior to the start of construction, many different building plans will have to be submitted and approved by the various departments of the municipality. The fire inspector and/or the plan reviewer will look at the plans submitted to that they submitted meet the local codes. Plan review is covered in detail in the chapter *Reading Plans*. While all of the information on the entire set of plans is important, some items of particular interest to you as a fire inspector are the occupant loads, travel distances to exits, number of exits, proper door swing, fire alarm protection, and fire sprinkler protection.

Fire Inspector Tips

The fire inspector has to evaluate the building's from preconstruction to as long as it is standing. Once the building is occupied the fire inspection process is really just a few steps—be prepared, be professional, be thorough, document, and follow up.

Types of Inspections

There are a number or basic or routine inspections that a fire inspector must perform. These include annual inspections, reinspections, complaint inspections, construction or final inspections, business license or change of occupancy inspections, and self-inspection. **Annual inspections** are inspections where you inspect the building because its turn has come up in the inspection cycle Figure 1. Many agencies divide their jurisdiction into smaller inspection areas on a grid. Each area may be assigned a month, so when a month begins, the fire inspectors know that the buildings in that area must be inspected. Some states may also require biannual and quarterly inspections of certain occupancies.

Reinspections occur when code violations have been noted and you are checking to see if the owner is now compliant with the code. **Complaint inspections** occur when someone registers a concern of a possible code violation. You must then investigate the complaint to determine if it is valid. The immediacy of a complaint inspection is determined by the type of complaint. A locked exit door should be investigated and corrected immediately, while concerns about a fire extinguisher do not have the same urgency.

Construction or **final inspections** ensure compliance with fire code during and at the end of a building construction. These

Figure 1 Annual inspections are performed yearly.

Figure 2 Construction or final inspections are conducted as a building is being constructed on specific building components including sprinkler systems.

Fire Inspector Tips

You should have a thorough knowledge of your agency's inspection schedule.

inspections evaluate elements including sprinkler systems, fire alarm systems, and fire pumps Figure 2. **Business license** or **change of occupancy** inspections occur when the building department is notified of a new business requesting permission to open. Prior to issuing a business license or certificate of occupancy, the building department will work with the fire inspection agency to ensure that the occupancy is code compliant.

Finally there are **self-inspections**. These are not performed by a fire inspector but by the business owner. Self-inspections are usually performed on smaller buildings or when there are not enough fire inspectors to inspect all of the buildings in the jurisdiction. Many fire inspection agencies ask that a self-inspection form be submitted to the agency. Even if a self-inspection is performed annually, every a fire inspector must perform a professional inspection per the inspection schedule every few years.

When is the Best Time to Inspect?

You should become involved before the construction phase, long before the occupancy is scheduled to be opened. Inspections conducted during construction ensure that the portion(s) of the building being worked on are being constructed properly. For example, these inspections will verify that the sprinkler heads are actually connected to the sprinkler piping. Once the building is occupied, routine inspections are conducted to determine code compliance, as many circumstances can change after the occupancy is given final approval, such as locked exit doors, stock stored on the floor blocking the means of egress, or improper use of extension cords.

If the first inspection is conducted only days or hours before an opening of a new occupancy, considerable consternation between fire inspectors and building owners/occupants can occur, especially when violations are found that cannot be readily fixed. If a building owner or occupant is unable to comply with the code prior to the projected opening, the fire inspector has two options: one is to deny the opening until all violations are complied; the second is to open with a **conditional approval** which allows the business with minor, non-hazardous violations to open but requires that those violations be addressed. The issue of last minute violations can be avoided by performing various inspections as the building is being constructed. Even if an official inspection is not conducted during construction, walking through the job site just to become familiar with how the building is progressing is beneficial. You may be able to find and address future problems when they can be easily corrected.

Pre-Inspection Process

Before a fire inspection, you should review any previous fire inspection reports, correspondence, building modifications, and building plans and specifications, along with appropriate building department records and permits Figure 3. Most of these items should be found in the building's inspection file and will give you an idea of what to expect prior to walking through the door. The building owner or the building department may be of assistance in providing as built diagrams or blue prints of the occupancy if they are not in the building's files. **As built diagrams** show how the final installation was actually completed. For example, it is common for a building owner to receive approval on a set of plans for a sprinkler system only to have a contractor make field adjustments during the installation process. When the contractor has completed his work, he should draw as built diagrams for the fire inspector showing the how the sprinkler system was actually installed.

You may also want to review the past occupancy records to develop a list of items that you should be especially aware of during your inspection. This may show a dangerous trend within the business, such as consistently locking the rear exit doors or blocking a means of egress with poor storage practices. Also perform a quick review of local codes and various reference books to refresh your memory on the specific occupancy-related hazards of the building you are going to inspect.

Figure 3 Before a fire inspection, you should review any previous fire inspection reports, correspondence, building modifications, and building plans and specifications, along with appropriate building department records and permits.

Fire Inspector Tips

Once the building has been approved for occupancy and is open for business, the building plans are filed in the event construction questions about the building come up during routine inspections that cannot be easily answered.

Classification of Construction and Occupancy

The type of building construction is critical in determining specific inspection requirements Figure 4. NFPA 220, *Standard on Types of Building Construction*, is the most widely used document to determine building construction. NFPA 220 lists five major categories of building construction. Each of these categories has hourly fire ratings given to various structural components such as exterior bearing walls, interior bearing walls, columns, beams, girders, trusses, floor-ceiling assemblies, roof-ceiling assemblies, and interior and exterior nonbearing walls. Each of these components has a fire rating between four hours to no rating needed. The chapter *Building Construction* discusses these categories in detail.

A Type I constructed building has structural members that are noncombustible or that contain limited combustible materials. Type II construction is also noncombustible. Type III construction allows for exterior member to be noncombustible, and interior members can contain combustible materials where allowed by the code. Type IV construction is typically known a heavy timber. This is where the lumber has dimensional sizes exceeding 4″(102 mm). Lastly Type V construction is ordinary wood frame—the typical single-family house.

Occupancies are easier to classify. Occupancy classification describes how the space is actually being used. Occupancy types are identified in the model codes, and the criteria for classifying an occupancy accompany the occupancy classifications. The occupancy identification of a particular building also may be included in previous fire inspection reports or citations.

Figure 4 Just looking at a building is no way to tell its construction materials or construction method. A building may have a fake brick façade.

However, if you rely on past fire inspection reports, make sure that the occupancy type has not changed since that report was written. Businesses within a building can change over years, changing the occupancy type. A greeting card store would be a mercantile occupancy, however if the space becomes a restaurant, then the occupancy becomes an assembly occupancy. Checking the building's reports will only tell you what occupancy type was last in the space.

Codes

It is critical to know which codes you can legally enforce in your jurisdiction. The mere fact that there are sets of model codes available does not give you the right to enforce those codes. The local jurisdiction must legally adopt a specific set of codes. This adoption is known as **enabling legislation**. It is the law that gives you the right to note any violations of the code and have them corrected.

Once a set of codes has been adopted, only those codes must be enforced. For example, if the 2006 edition of NFPA 1, *Life Code*, was adopted by your jurisdiction, you must use that edition until the ordinance is changed. You would not be able to apply the 2009 edition of NFPA 1 simply because it is newer.

Fire Inspector Tips

Having a copy of the local codes in your office for reference and for a building owner to review is imperative.

Fire Inspector Tips

When checking on overcrowding in a place of assembly, the safety issue at hand trumps the owner's or occupant's wishes. The only way to verify overcrowding is during actual business operation. Advanced notice that there will be routine non-scheduled inspections for overcrowding and exiting related issues may go a long way to minimizing conflicts with owners.

When looking at the model codes, the first chapter is very important as it usually gives the scope of the code, lists the authority and responsibility of the fire inspector, discusses the appeals process, etc. Model codes are applied differently to existing buildings. Generally speaking, unless a building is renovated or modified, building codes are not applied retroactively.

Another item that should be considered is authority to inspect. Some states will require that to inspect public schools you must be certified by the state. There may also be state or local requirements that you must hold a minimum state or national certification to perform fire inspections. If that is the case, there are often requirements that your certification must be renewed every few years, which usually requires showing documentation of continuing education hours.

Tools and Equipment

In preparation for conducting a fire inspection, you should have a set of basic equipment. Additional specialty tools and equipment should be available for shared use by all fire inspectors in the agency. A list of the typical tools you should have access to includes:

- Writing tools—Pens, pencils, markers, and a clipboard to use as a writing surface and for form storage.
- Forms—A sufficient number of the various forms used should be carried, as you will never know what situation you may encounter. In recent years, more departments have been making a move away from paper reports and have been using handheld computers. These computers can allow the inspection to automatically sync up to the database at the department.
- Flashlight—A flashlight is used to check areas behind appliances, rooms where the lighting does not function, and spaces above ceilings Figure 5.
- Measuring device—This can be used to determine room size, which is needed for determining proper occupant load. It will also be helpful to determine exiting concerns.
- Step ladder—Often the business will have shelving or machines which make observing all areas difficult. A small ladder may give you enough extra height to check these areas out.
- Pitot tube—A pitot tube is used on fire hydrants to determine the amount of water that is available for a building Figure 6. This is a crucial piece of information fire sprinkler contractors need in order to design their systems. The local water department should be consulted prior to performing any of these tests. Many locales will state they must perform or witness the test, as shutting down a hydrant too quickly could rupture a water main.
- Calculator—This can be used to determine the size of the room, and to determine the occupant load.
- Camera—This tool is helpful to document some of the violations that are found. It verifies the violation, and documented examples can be used to train other fire inspectors. Additionally, many departments are taking pictures of all sides of the building and attaching them to the computer files. This is very helpful for the fire department during the preplanning phase. When computers are placed inside vehicles, pictures can be another resource for the incident commander. In addition, if the fire inspection report goes to court, pictures are proof of the condition of the building at the time the picture was taken.

Figure 5 A flashlight is used to check areas behind appliances, rooms where the lighting does not function, and spaces above ceilings.

Figure 6 A pitot tube is used on fire hydrants to determine the amount of water that is available for a building.

Fire Inspector Tips

Tools and equipment such as sound meters, light meters, and Pitot tubes should be professionally calibrated by trained technicians.

Fire Inspector Tips

Some tools are not necessary to carry on a daily basis. For example, a pitot tube is used to measure the water flow from a fire hydrant. This is not a test that will be performed at every inspection. Pitot tubes may be available in the office for use by several fire inspectors to share on an as needed basis.

Some tools, especially those that are more expensive to purchase or to maintain, such as gas monitors that require periodic calibration, are usually kept in the office for all to use. In most departments, fire inspectors return to the office on a daily basis making tool sharing quite feasible. However, in a state or county agency, fire inspectors may only return to a central office once or twice a week. This makes coordinating your inspection needs with the other fire inspectors in the office very important.

- Safety gear—Most work sites will require contractors to wear hard hats. Other sites may suggest gloves, goggles, or hearing protection. The fact that you are a fire inspector does not preclude you from following this common sense requirement.
- Electronic devices—Electronic tools may help you communicate, collect data, or reference codes or regulations.
- Coveralls—A layer of durable clothing will protect your work uniform from dust and dirt in areas such as commercial kitchens and woodworking facilities.

Standard Forms

The forms used during an inspection will vary from agency to agency. A set of standard forms should be used by all fire inspectors in the office. Some of the basics forms are:

- Inspection forms
- Final or construction inspection forms
- Complaint forms
- Stop work orders

An inspection form is used to note any violations found on the inspection or to note if no violations were found. The inspection form should consist of the following elements:

- A section showing the business name, address, and phone number.
- A section showing the date of the inspection.
- A section showing the area being inspected if the complex is large, if there are multiple buildings, or you are just inspecting one specific section.
- A section for listing any code violations with the specific code citations.
- A section for listing the reinspection date to remind the owner when you will be returning to check on code compliance.
- Areas for the signatures of the fire inspector and a representative of the owner. It is a good idea to also have a place where the names could be printed beneath the signatures.
- A section with a short legal statement stating the fire inspector's authority for the fire inspection is optional. The legal statement should be reviewed by your agency's legal staff.

There are two primary styles of inspection forms. One form is primarily blank lines on which you must write in a detailed description of any code violations. The second type of form is a checklist Figure 7. The checklist is an organized way to verify compliance with certain codes and list violations, but this alone may not give the owner enough information to locate and correct problems. Ample space should be provided for you to provide additional details on the code violation. Another downside of a checklist is it encourages the tendency to only look for the items on the list, potentially missing other code violations.

A **complaint form** lists in detail any complaint that is lodged with the fire inspection agency and is investigated. This form should contain the date, time, and location of the business; signature spaces; and a record of the alleged violation. When possible, it should also state the name of person making the complaint and the person's contact information; however, the person may remain anonymous. There needs to be a section to indicate what was noted by the fire inspector when the complaint was investigated, as well as the date and time the inspection was performed. It should also provide a section to advise what corrective action was taken or recommended, and the date the complaint was closed.

Final or **construction inspection forms** are used when inspecting specialized systems such as fire alarm, sprinkler, hood and duct suppression systems, as well as for other types of construction phase inspections, such as a ceiling inspection or a final inspection. A standard inspection form can be used to note the needed details and whether or not the inspection passed; however, some agencies will utilize a form for these specialized inspections to denote that these inspections are different from a routine fire inspection. On the final or construction inspection forms there may be a series of check boxes to indicate the type of inspection being performed or there may be a specific inspection form for each type of inspection. Specific inspection forms will contain certain items that must be examined during the inspection, including the gauge pressures and gas valves functionality.

The **stop work order** is not used frequently and it must be used judicially. It should be used when contractors do not have the clearance for performing the work, or when the work is not correct and must be corrected prior to performing additional work. It is generally wise to consult with the building official and your supervisor about the stop work order, as the owner will not be happy and probably will seek to have it removed.

All of the forms should be in triplicate—one copy for the owner, one for the occupancy file, and the original for the

Inspection Checklist
Inspection Procedures

PREINSPECTION CHECKLIST

Equipment: _____

_____

General

❑ Identification (photo ID) ❑ Business work hours

Clothing

❑ Coveralls ❑ Overshoes ❑ Boots

Personal Protective Equipment (PPE)

❑ Hard hat ❑ Safety shoes ❑ Safety glasses
❑ Gloves ❑ Ear protection ❑ Respiratory protection

Tools

❑ Flashlight ❑ Tape measure(s)
❑ Pad (graph paper) and pen or pencil ❑ Magnifying glass

Test gauges

❑ Combustible gas detector ❑ Pressure gauges ❑ Pitot tube or flow meter

Plans and Reports

❑ Previous reports ❑ Violation notices ❑ Previous surveys
❑ Applicable codes and standards

Notes: _____

_____

_____

SITE INSPECTION

Property Name: _____

Address: _____

_____

Occupancy Classification

❑ Assembly ❑ Educational ❑ Day care
❑ Health care ❑ Ambulatory health care ❑ Detention and correctional
❑ One- and two-family dwelling ❑ Lodging and rooming ❑ Hotel/MotellDormitory
❑ Apartment ❑ Residential board and care ❑ Mercantile
❑ Business ❑ Industrial ❑ Storage
❑ Mixed

 (Page 1 of 2)

Figure 7 A standard inspection form in the checklist format.

Hazard of Contents

❑ Light (low) ❑ Ordinary (moderate) ❑ Extra (high)
❑ Mixed ❑ Special hazards

Exterior Survey

❑ Housekeeping and maintenance

Building construction type

❑ Type I (fire resistive) ❑ Type II (noncombustible) ❑ Type III (ordinary)
❑ Type IV (heavy timber) ❑ Type V (wood frame) ❑ Mixed

Construction problems

Building height _____ feet _____ stories
❑ Potential exposures ❑ Outdoor storage ❑ Hydrants

Fire department connection

❑ Vehicle access ❑ Is it obstructed? ❑ Is it identified?
❑ Drainage (flammable liquid and contaminated runoff)
❑ Fire lanes marked

Building Facilities

❑ HVAC systems ❑ Electrical systems
❑ Gas distribution systems ❑ Refuse handling systems
❑ Conveyor systems ❑ Elevators

Fire Detection and Alarm Systems

See Form A-8.

Fire Suppresion Systems

See Form A-10.

Closing Interview

❑ Imminent fire safety hazards ❑ Maintenance issues
❑ Housekeeping issues ❑ Overall evaluation

Items to be researched:

❑ _____
❑ _____
❑ _____

Report

❑ Draft ❑ Review ❑ Final

Notes: _____

Figure 7 A standard inspection form in the checklist format (*Continued*).

Safety Tips

Fires can grow due to many hazardous conditions. While fires can start from many things, fire growth often times is related to housekeeping issues. Some of the more common issues include:

- Storing stock too close to the sprinkler heads
- Garbage cans overflowing
- An accumulation of materials in furnace and water heater rooms
- Storing boxes and mops too close to pilot lights on furnaces and water heaters
- Storing flammable materials incorrectly

resinspection(s). The original is used to note the date on which the various code violations become compliant. It can also be used to document any conversations you had with the owner regarding the inspection and the related reinspections.

Scheduling and Introductions

There are two ways to begin the inspection—scheduled and unannounced. Each has its pluses and minuses. Scheduled inspections ensure that you will be able to fully conduct the fire inspection; however, it also allows the business to conduct its own pre-inspection and correct any usage violations prior to your arrival. The unannounced inspection allows you to get a "real" look at the business and understand how the business operates daily. A drawback to this inspection is the risk of being turned away due to an inability of the business to accommodate you at the specific time, wasting your trip.

While the codes give you the authority to conduct fire inspections, you are not allowed to do so without permission of the owner. Performing a fire inspection without permission is trespassing. The exception to this is an **exigent circumstance**, meaning an immediate life safety issue which requires immediate actions to be taken. Non-operating emergency lights or fire extinguishers with inspection tags out of date are not exigent circumstances. Locking emergency exits in a mall during the Christmas season is an exigent circumstance.

If permission to conduct the fire inspection is denied multiple times without valid explanation, then, as a last resort, you should request a court order to conduct the fire inspection. At times, working with the municipality provides the owner motivation to allow the fire inspection because the municipality often issues business licenses and often require compliance with the local codes.

Upon arrival, you must first seek permission from the owner, manager, or other individual with the authority to allow you to inspect the occupancy. A teenager working as a cashier may not have the authority to grant permission. Obtaining permission can be as simple as walking in to the business and asking to speak to the owner or manger. Often, the owner or manager will accompany you during the inspection. If not, he or she will typically assign another individual to assist you. It is always best to have a representative of the business along with you during the inspection. He or she can quickly answer any questions and can give you access to locked areas. Having a representative witness your inspection also lessens the possibility of you being falsely accused of an action.

Fire Inspector Tips

Inspecting some occupancies during your normal business hours may not provide a true picture of what the business is like when fully operational. This is especially true of assembly occupancies such as nightclubs. Performing a full inspection of a nightclub at 11:00 pm might be difficult so it would be more prudent to conduct the full inspection during the day. Inspections should not disrupt business more than is absolutely necessary. This will allow for time to conduct a detailed inspection without disturbing the business operation; however, it may still be necessary to do a spot check during their normal business hours. Those spot checks should focus on occupant loads, visible exits, that the unlocked exit doors, and the clear means of egress.

Fire Inspector Tips

With few exceptions, inspection timetables are subject to each agency's policy. Some may state once a year, with target hazards being inspected twice a year. Local ordinances may specify the frequency of inspections. Additionally, occupancies such as schools, hospitals, and daycare centers may, through state law, require more frequent inspections. The best plan is to go through each building once a year. If that is not possible, begin with known life or high value target hazards in the community.

Asking for permission, as opposed to demanding to make an inspection, will help develop good rapport with the owner. When permission is not granted, most often the occupancy will simply ask if you can come back at a time more convenient for them. This should be honored.

The Fire Inspection Process

The process of inspecting a building will vary with the occupancy. Occupancies vary in size and scope. Although some will be single-story buildings, others may have multiple buildings or multiple floors. Before the onsite inspection, it is important to verify that you have current information about the occupancy. Check your forms to see if there are any documents you will need to request of the owner. If your forms show a specific occupancy type, you should confirm that the occupancy class has not changed.

Presentation

First impressions count! Your first few minutes with the property or occupancy representative will set the stage for your entire professional relationship with that person. You will be judged on your appearance, your attitude toward your work, and the way you interact with others Figure 8. Wearing a uniform generally makes it easy to see what agency you are representing. In spite of the ease of recognition a uniform brings, many agencies require the fire inspector to have an ID card visible. You should never hesitate to show any form of identification when asked and should even compliment the person for asking. This shows

Figure 8 You will be judged first upon your appearance, your attitude toward your work, and towards those with whom you interact.

that you realize that others may misrepresent themselves for unscrupulous reasons. It also shows that you approach your job as a fire inspector seriously and professionally.

If your jurisdiction does not have uniforms, consider wearing appropriate professional attire. In many cases this could be a dress shirt, tie, badge, and nametag. During hot summer months, a short sleeve shirt with a collar may be appropriate. Having the name of the organization you represent on the shirt when possible, will connect you with an agency. When that is not possible, ID cards become much more important.

When working at job sites, safety concerns change dress code expectations. Boots and jeans may be appropriate. It should not be forgotten that when at a job site most workers are required to wear hard hats. You are not immune to hard hat or eye protection requirements.

Once you have arrived with the appropriate uniform, show the appropriate professional attitude and mannerisms. You can show professionalism by waiting your turn to speak and thanking people for their assistance. Do not smoke, chew gum, make loud noises, or walk around while waiting for the owner. Your mannerisms outwardly demonstrate your mental attitude. For instance, when first meeting with the property or occupancy representative, make eye contact and firmly shake hands. Introduce yourself by stating your name, title, and the reason you are there—to seek permission to inspect the property. Do not forget that you represent the fire inspection agency and the fire department.

In the event that the owner shows some hostility towards you, remain professional. Ask the owner if another fire inspector can perform the inspection. When you return to the office, make sure your supervisor is notified of the problem. If there has been a pattern of this, it may be appropriate to ask another fire inspector to accompany you on the next inspection.

Conducting the Exterior Inspection

Prior to actually meeting the building owner, certain observations can be made regarding the building Figure 9. From the exterior you can observe vehicle access, fire lanes, fire hydrant access, caps missing on fire hydrants, sprinkler connection visibility and access, and exterior building issues. These include broken windows, tilting walls, and missing or falling bricks Figure 10. Other things to note would be ponds, gates, and fences or other barriers. If this is a large complex it may be helpful if you have a site plan of the property.

Before conducting an exterior inspection, notify building personnel of your presence and intentions. This is more professional than explaining your presence and behavior to security guards or other personnel.

Figure 9 As you drive up, take note of the exterior of the building.

Figure 10 From the exterior you can observe vehicle access, fire lanes, fire hydrant access, or caps missing on fire hydrants.

Conducting the Interior Inspection

Adequate time should be allotted to perform a thorough inspection of the building's interior and complete required documentation. If this is your first time at the building, additional time should be allotted to learn the building layout. If you have inspected the building before, it may be a good idea to rotate other fire inspectors through the buildings. Different eyes see different things.

When conducting the fire inspection, follow a predetermined and structured order so that no areas of the building are missed. You may begin at the top floor and work down, or start at the front and work toward the rear, or start by going left, or right, and continuing that direction until you arrive back at the starting point. It is important that the inspection be systematic, thorough, and well-documented. It is important to look into every room.

In the cases of large, complex occupancies and properties, you may need to break the inspection into sections or buildings in order to make sure nothing is overlooked. This may entail conducting the fire inspection over multiple days. You must also remember that the person who is accompanying you has other job duties that are not being performed while he or she is escorting you.

Having the owner along helps you gain access to locked or restricted areas. Just because a door is locked does not mean that it is exempt from the inspection. There may be restricted areas that require signing into a log in order to access them. In rare cases there may be areas that contain trade secrets of the business and entry may be refused. Documenting those areas where access is not fully gained is important. Rapport with the owner is crucial. Try to determine information by asking the following:

- "How large is the area?"
- "Can I just step inside the door for a quick once over?"
- "Could someone from a safety committee provide some documentation of the hazards?"

Ask questions about the building during the inspection. The answers may give some insight to some possible hazards you have not previously noticed. Be thorough and do not rush. Often the owner will escort you to where he or she thinks you want to go. Do not be afraid to stop and look at areas along the way.

Code Violations

When documenting code violations, it helps to be specific about the problem and the needed steps toward code compliance. The owner will need to fix the violation, and you or another fire inspector must be able to relocate the problem area when it is time for reinspection. Rather than simply stating the issue, you should indicate what is necessary in order to reach compliance. For example, if a fire extinguisher is out of date, state that the fire extinguisher requires a current inspection tag. This provides the owner with direction, increasing the likelihood of compliance during reinspection.

On rare occasions, you may encounter a process or hazard that is extremely dangerous to the occupants. This is considered an exigent circumstance and may warrant closing a business. This action needs to be considered with extreme care. Some fire inspectors feel that have a right to close a business if violations are not corrected. Businesses can be closed, but unless it is an exigent circumstance, it must be done through the legal system. The fire inspector, in court, would need to present evidence that the business is too dangerous to stay open. It is entirely possible that the judge may feel that the list of code violations are not emergent enough to warrant closing the business. At that point, the judge can fine or impose other sanctions upon the business owner to advance compliance. Continued non-compliance would mean possible contempt of court with possible additional sanctions of fines, jail time, or ordering the business closed.

Fire Protection Features

Fire alarm systems and automatic fire sprinkler systems should be a top priority when evaluating the building's fire protection features **Figure 11**. In addition, fire hydrants on or close to the property should be routinely inspected to ensure working order. If the department or municipal water purveyor inspects the hydrants regularly, you may only want to check that the caps are in place and that they are not stuck or painted closed. If the hydrant is not maintained, then permission should be gained from the proper authorities to open the caps and flow the hydrant to see that there is good water supply and that all parts of the hydrant work properly.

Fire detection systems can detect the presence of smoke and fire, alert occupants, notify the fire department, activate fire suppression systems, close fire doors, open smoke vents, and control the building's heating, ventilation, and air conditioning (HVAC) systems. You should have a working knowledge of how these components perform. All of the features of a fire detection system must be inspected; however, it should not be your responsibility to do more than a visual inspection of the fire detection system components. Besides being very time consuming, you could be held liable if a piece breaks or the system cannot be reset. You should note on the inspection form that a recent full fire detection system inspection report must be submitted by the owner showing what devices were tested and if they passed inspection.

It is important to note which type of devices are installed. If heat detectors are installed where smoke detectors should be

Figure 11 Fire alarm systems and automatic fire sprinkler systems should be at the top of your list when taking into account the building's fire protection features.

Figure 12 A kitchen may call for a specialized fire suppression system.

installed per the code, this is a violation of the code. A smoke detector should be located in an area best suited to smoke detection, for example, in a foyer, lobby, or conference room. A smoke detector located in a machine shop or garage may not achieve the same intended goal and will cause unintended alarms.

The same logic holds true for a fire sprinkler system. While there are typically not many parts that need to be tested, a sprinkler inspection report should be provided by the owner. You are obligated to check for closed valves, proper pressures on various gauges, missing sprinkler coverage, and that heads are installed properly.

A kitchen may call for a specialized fire suppression system Figure 12. As with other fire suppression systems, you should witness the initial installation to be certain that gas valves close, electricity and fans shut off, and all other components of the system function properly. Following the final inspection, a minimum of an annual inspection should occur. A visual inspection of the fire suppression system during the fire inspection would include looking for caps on the nozzles, accumulations of grease, missing nozzle coverage, and grease filters turned the wrong direction.

Hazard Recognition

The role of the fire inspector is to ensure a safe building for all occupants. During the fire inspection you should be on the lookout for various hazards. There are a few hazard violations that routinely appear, including:

- **Electrical**—Electrical cords cannot be spliced; circuit breakers must be identified; extension cords cannot be used in place of permanent wiring, openings are not allowed in electrical panels; clear access to the electric panel must be maintained; cover plates are needed for junction boxes, switches, and outlets; and no multi-plug adapters are allowed.
- **Exit/emergency lights**—Lights must function properly and must not be obstructed.
- **Exiting**—Exit doors must be operational and unobstructed, doors must close and latch but may not use deadbolt locks, storage is not allowed in halls or stairwells, exit doors must swing outward, and exit signage is required.
- **Fire extinguishers**—Fire extinguishers must have current inspection tags and a minimum of 2A10BC rating; extinguishers must be mounted properly, unobstructed, and operational, indicated by proper signage where appropriate; extinguishers should be properly spaced for minimal travel distance; they should be of the proper type for the hazard; and there should be enough extinguishers to comply with fire codes.
- **Fire detection and suppression systems**—This equipment must be accessible and kept in a normal status, fire department connections must be capped and accessible, storage cannot be too close to sprinklers, and rooms must be properly labeled. Specialized annual inspections are required on these systems.
- **General**—A key box containg proper keys is required, good housekeeping must be maintained, address numbers on the building must be visible, high pressure cylinders must be secured to the wall, gas meters must be protected, fire hydrants must be visible and accessible, no excessive amounts of flammable liquids may be stored, flammable materials must be kept in the proper containers, ashtrays should be provided in smoking areas, no smoking signs must be provided where smoking is not permitted, emergency vehicle access must be unobstructed, and fire lanes must be identified.
- **Heating appliances**—All combustibles must be kept 36″ (914 mm) away from a heat source. The heating appliance must be in good repair and easily accessible.
- **Openings**—All pipe chases must be filled, ceiling tiles must be intact and in place, any holes in drywall must be patched, any openings in fire walls must be repaired, and fire doors must work properly.

Contents

It makes no sense to inspect a building but not inspect its contents. On January 16, 1967, Chicago's McCormick Place, a large convention center thought to be fire proof due to its steel and concrete construction, burned to the ground. The fire protection needs to match the hazards within. The size or construction of a building is not the determining factor when classifying a content hazard. A 50,000 square foot (4645 m^2) building with storage of aluminum canoes is less hazardous than a 5,000 square foot (465 m^2) building storing plastic cups. This is because the amount of heat released with plastic cups is significantly greater than the canoe.

In the NFPA 101, *Life Safety Code*, content hazards are classified as low, ordinary, or high. **High hazard contents** are classified as those that are likely to burn with extreme rapidity and from which explosion is likely. High hazard contents include but are not limited to flammable liquids, grain dust, wood flour, plastic dust, aluminum or magnesium dust, hazardous chemicals, and explosives Figure 13.

Ordinary hazard contents are classified as those that are likely to burn with moderate rapidity and give off a considerable volume of smoke Figure 14. Most buildings contain ordinary hazard contents, such as wood and metal furnishings, paper and

Figure 13 High hazard contents include but are not limited to flammable liquids, grain dust, wood flour, plastic dust, aluminum or magnesium dust, hazardous chemicals, and explosives.

Figure 14 Ordinary hazard contents are those that are likely to burn with moderate rapidity and give off a considerable volume of smoke.

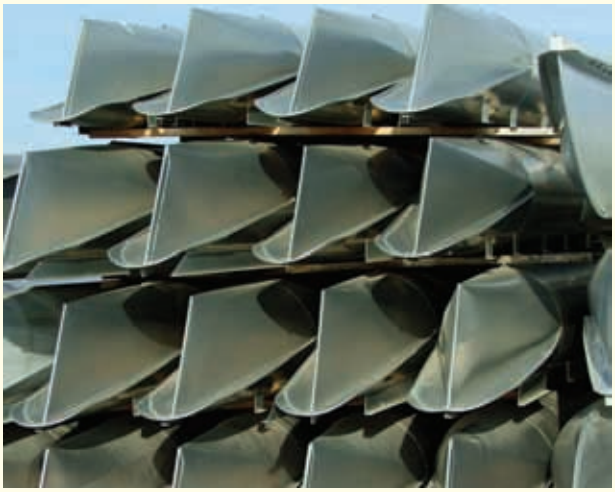

Figure 15 Low hazard contents are those of such low combustibility that no self-propagating fire therein can occur.

office supplies, machine shop and mechanical equipment. **Low hazard contents** are classified as those of such low combustibility that no self-propagating fire therein can occur **Figure 15**. The storage of noncombustible materials is considered low hazard. Places originally classified as low hazard, more often than not become ordinary or even high hazard as business practices and storage of materials change. For instance, the storage of aluminum canoes is a low hazard. Removing the canoes and storing fiberglass or wooden canoes changes the hazard and the hazard designation.

Having the building and fire protection features meet the contents hazard is a must. When the building has an automatic fire sprinkler system, you must make sure the system is designed for the contents hazard present. NFPA 13, *Standard for the Installation of Sprinkler Systems*, has seven different commodity, or hazard, classifications, each of those requiring a certain sprinkler design density. Any changes in contents or occupancy should be investigated to make sure the fire protection features still match the contents and occupancy.

All sprinkler systems are not created equal. An automatic fire sprinkler system designed for a warehouse storing aluminum canoes is not sufficient when the warehouse is converted to a plastics workshop. Determining the proper sprinkler coverage on an initial visit is extremely difficult. A hydraulic placard should be attached to the sprinkler riser. This placard will tell how the system was designed. By comparing the placard and the building contents, you may be able to determine the proper sprinkler protection. If there is any doubt, a sprinkler contractor should be brought in to evaluate the sprinkler design for the given hazard. If you are familiar with the building, a change in the contents may be noted. Through questioning the owner and comparing known current and past contents, a decision may be made about adequate fire protection.

When evaluating the contents, pay attention to the configuration. Contents left in hallways, on floors, and strewn throughout an occupancy indicates a disregard for occupancy safety. It also will have the potential to spread fire, should one occur. For example, rack storage is required to have a certain number of feet between racks. Having stock on the floor will increase the potential that a fire will quickly catch additional rack storage on fire. Contents stacked too high may impede proper sprinkler operation. If there are no sprinklers, space must be given to provide room for streams from a fire hose. These distances can be found in NFPA 13.

Building Features

Means of egress, fire doors, fire walls, staircase enclosures, smoke ventilation systems, hung ceiling systems, emergency lighting, and exit lighting should be inspected **Figure 16**. Look for the following items:

- Check the means of egress including stairway enclosures.
- Make certain that doors swing in the right direction.
- Travel distances and the common paths of travel are not exceeded.
- Doors close and latch.
- Exit doors are not locked.
- Fire doors should close and latch. If there are automatic devices used to operate and release the door, those pieces must function smoothly.

Figure 16 Means of egress must be inspected.

Figure 17 Buildings built long before the fire inspector was born may be renovated multiple times hiding a multitude of construction and fire protection problems. Checking for vertical openings and hidden shafts is a must in older buildings.

- Smoke evacuation systems and systems designed to pressurize a stairwell or floor are complicated and should be tested by a professional company.
- Ceiling tiles missing from the area around the sprinkler head are a deterrent to its operation.
- Exit lighting requires looking to see if the lights are illuminated.
- Emergency lighting will require some type of testing. In most cases this can be as easy as pushing the test button to see if the lights illuminate. It gets more difficult when those lights are more than 15′(457 cm) off the floor. Often times those units will have a separate circuit breaker and the lights will come on simply by turning it off. Never do that yourself. Let the building owner do that, as you will have no idea what else may be tied into the breaker. There have been instances where a breaker was turned off and computers also shut down, causing the loss of many hours of work.
- More mundane features such as carpeting and interior finishes must also be checked for compliance. In certain public buildings, the furniture needs to have a tag indicating that it will not promote flame spread.

Many areas of a building are obscured from normal view and you may need to enter concealed spaces, voids, and areas above the hung ceiling and the true ceiling of an occupied space. Visual inspections ensure the existence and integrity of fire protection features Figure 17. Since these are void areas, the prime reason to look behind these areas is to ensure that there are no breaches in the walls or ceilings to ensure that a fire cannot pass into another area. Look for adequate fire stopping of penetrations and that walls are tight to ceilings.

Heating, Ventilation, and Air Conditioning

You must evaluate HVAC, and other building service equipment and operations, to ensure the systems and other equipment are designed in accordance with the local codes and standards. Contractors install this equipment and should inspect it regularly. Ask the building owner for an HVAC inspection report from the contractor. One of the items to check during your inspection is the presence of smoke or fire dampers when fire walls are penetrated by HVAC components. Additionally, some HVAC units will need duct smoke detectors and carbon monoxide detectors.

Kitchen Cooking Equipment

Cooking equipment generally does not require much in regards to special inspections. The contractor will install and test the equipment. Your role will be to see that the device is secure, meaning will not fall or tip; proper gas and electric lines are in place; and fans work as designed. You will also ensure that the grease hoods are being cleaned and maintained properly. Many kitchens require a fire suppression system. These systems require specialized testing by a contractor. Ask the building owner for the current inspection report from the contractor.

Laundry/Garbage Chutes

Chutes penetrate multiple floors of a building and can act as a flue to spread smoke and fire. Chutes should be inspected to ensure the integrity of the chute is still intact. Where sprinkler heads are present, they should be inspected to see that nothing is blocking them from proper operation. At the bottom of the chute, a door is typically seen. The chute should have fire-rated doors with spring closures and held open by a fusible link. Nothing should its closing, and the fusible link must be in place; a common hazard is to see the door held open by a solid wire. Ensure that there is nothing blocking the chute. Chutes should also be in separated from corridors by a room that is non-combustible.

Elevators and Escalators

Elevators and escalators are intricate devices and you should not be involved in their actual testing. Most municipalities and states will require a licensed elevator and escalator inspector to test and certify these devices every six to twelve months. Your role is to see that the inspection certificate is current and posted.

Interior Finish

As a fire inspector, it is important to understand the impact various interior finishes have on the potential to help or hinder fire's movement. The interior finish is the exposed surface of the floor, walls, and ceiling. Anything attached to them will help to control the speed at which fire would spread. Drapery, curtains, and the like would not be counted as an interior finish unless it is attached to the wall. As building plans are submitted there should be listing of what the interior finishes are and rated for in the various areas within the building. The model code specify the interior flame spread rating for various buildings. Class A is the highest rating and has a flame spread of 0–25. The other classes are B and C, and the flame spread goes to 200. After that, there is no rating given.

As you conduct your inspection, evaluating the interior finish includes examining finishes on walls, floors, and ceilings. It is important to ensure that combustible interior finishes, (e.g. plywood paneling, cloth, or decorative wood) meet code requirements. This is determined initially through the plan review process and confirmed during inspections prior to occupancy of the building.

Some occupancies may have stage curtains or a foam type product on the wall. Copies of the certificates indicating that the product is fire rated and approved for its intended use are good to place in inspection files. These certificates may also list a flameproofing material that must be reapplied every number of years. Carpets placed on walls lose their flame rating unless they have been tested and listed for wall use.

Preplan Sketch

Often times a preplan sketch for the fire department will be drawn during the inspection process. This process takes time, so it may be easier to conduct the inspection and return at a later date for the preplan sketch Figure 18. If that is the case, when asking permission to walk the building for the preplan sketch, make it clear that you are not there to conduct a fire inspection, but just to draw a floor plan for the fire department's use in case of an emergency. Also consider taking pictures of the property and obtaining a building plan.

New Construction Considerations

During the plan review process, it is determined that the proper size, height, and occupancy of the building is acceptable. Typically, fire inspectors do not have much involvement with the physical construction of the building. The building department will require various inspections along the building process. Some of those inspections may be a footing or foundation inspection; various electric, plumbing, and carpentry inspections; and open ceiling inspections. Performing inspections with the other inspectors helps to ensure that construction is performed correctly. In addition, it gives you great insight to the roles of the other inspectors and makes you much more informed in how the various roles interact, resulting in more thorough future inspections.

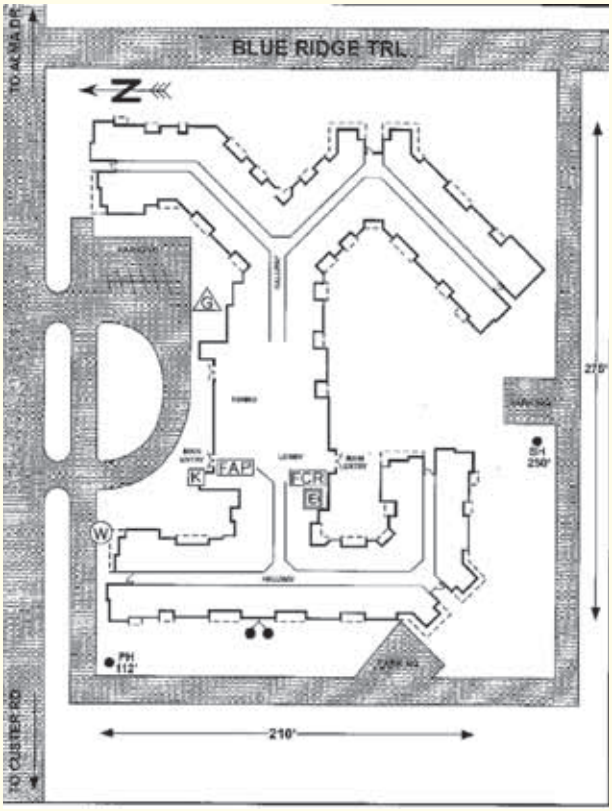

Figure 18 A sample preplan sketch.

When fire protection systems are installed such as fire alarms, sprinklers, fire pumps, and kitchen hood and duct suppression systems, you need to see the installation as it is progressing. Catching a mistake at this stage is much easier to correct than trying to fix the problem after the walls and ceiling have been installed and finished. When a system is completely installed, you need to witness a full acceptance test of each system conducted by the contractor. You should know what is required during the final inspection and should ask the contractor to perform those things if they have not been done. Those requirements can be found in specific codes such as the Fire Alarm Code and the Sprinkler Code. Additionally, many reputable companies have check sheets that you can use as a guide during the test. A company's safety representative is often a wealth of knowledge you can access at no cost.

When conducting the final inspections of the various fire protection features, a copy of the plans that were approved should be taken to the job site. There you will compare types of devices approved, and their locations, against the actual installation.

Remodeling Considerations

A remodeling of a building is no different from an inspection viewpoint than a new building. Plans must be submitted and approved, and inspections are required at various times of the construction by many different inspectors. Any difficulties may

come from the fact that the contractor is starting with an existing building, not a clean slate. Often remodeling an existing building will activate requirements that the area being worked on, or in some cases the entire building, must be brought to the current codes for new construction. This could mean such things a requiring a full sprinkler system.

If the building is not vacant, more attention is needed as there are general safety concerns to the occupants during the construction process. Additionally, at times the means of egress may be reduced or need to be temporarily relocated, requiring significant signage.

Post-Inspection Meeting

It is important to have a conversation with the owner regarding the findings of the inspection Figure 19. You must always take the high road. It is common that many building owners do not like to see the fire inspector show up. To them, the fire inspector may just be someone that costs them money. When talking with the owner about the inspection, be firm in your needs, while at the same time listen and be empathetic to his or her concerns. When there are disagreements, understanding the owner's viewpoint can often create a middle ground for compliance.

Hopefully the owner has accompanied you on the inspection and items noted were explained at that time. If not, you may need to take the owner to some locations to explain the code violations noted. It is important that you fully explain the reason behind any code violations. To just say that "because the code says so" will not help your cause. If the owner can be educated about the hazards, hopefully their reoccurrence will be lessened.

You should also take this time to note any other concerns that may not be actual code violations, but would be of interest to the owner such as fire extinguishers due for inspection in two months, making sure the sidewalks are kept clear of snow, etc. This can be noted on the inspection form for documentation. A copy of the inspection form should be left with the owner. If there are code violations, you should state when you will return to reinspect. As a final act, thank the building occupant or representative for their cooperation, even if it was lacking. This shows your professional attitude.

Figure 19 It is important to have a conversation with the owner regarding the findings of the inspection.

Fire Inspector Tips

You should be aware of your local appeal process and inform the owner of his or her right to appeal.

Documentation

Documenting the inspection and code violations in writing and in a prescribed format is the best way to attest to the findings of your inspection. Legal requirements and lawsuits have changed the way fire inspectors must document each and every element of their inspections. Inspection records could be recalled many years after an inspection has occurred. Two prime reasons for that would be a lawsuit or if there were a fire and people are looking to see what was noted in previous years' inspections.

The inspection is documented in the inspection report. The inspection report can be a check list, free form, or a combination of both. How to write an inspection report is covered in detail in the chapter *Writing Reports and Keeping Records*. When there are a great many issues or the issues are complex, it may be best to forgo the standard inspection form and to create a formal letter documenting the violations and the expectations. Any noncompliance or code violation noticed during the inspection must be documented in the written report of the inspection. A copy of the inspection form and a date for a return inspection should be left with the building owner. If necessary, mailing the form is acceptable; however, the only way to document if it was received is by certified mail.

Noting the date for the reinspection is important because by documenting a violation, you are stating you are aware of fire or life safety code violations. In Adams v. State of Alaska, October 1, 1976, the State undertook a fire inspection in a hotel and noted hazards, some of which were extreme life hazards. The State advised the hotel of the hazards, but did not take additional action. Several months later, a fire killed and injured many people As a result of the inspection, the State owed a duty to exercise reasonable care to abate the hazards. By failing to return and have the hazards abated, the State breached their duty by their inaction.

Generally, the inspection report is best delivered in person. This way the owner may ask questions. A few extra minutes explaining why an item is a code violation provides guidance and understanding to the owner, and may lessen the chance of its reoccurrence. Issues that may seem clear to you may be unfamiliar to the owner, so extra time must be spent to explain those issues. When appropriate, ask if the owner would like a copy of the section of the code noting the violation. Upon returning to the office, simply copy and that section of the code and fax or email it to the owner.

At no time should you become the agent of the owner. Only offer guidance based on the code. It is not your job to fix the code violation. Attempting to do so could lead to you assuming responsibility for the fix, which could become legally problematic.

When documenting an inspection, keep in mind that the information must be easily retrievable and easily readable by other fire inspectors and the occupancy owner. An inspection

report stored on your PDA is great for you but is of no value to anyone else.

Records should be available in the office. While documentation is moving towards a paperless system, hard copies are readily available and not dependent upon a computer. The file should indicate if the inspection is ongoing or has been completed. If a new business moves in to an old space, the old records should be maintained as they show the history of the occupancy, regardless of the specific business. If, however, the building is destroyed, the files should still be maintained, although not necessarily in an active file. Those records could be moved to a dead file, in the event there are future questions about the property.

Destroying any records should only be done after proper approval has been given. Typically this is given at the state level. Fire inspection records are public documents and can be requested through the Freedom of Information Act. When a request is received, gather the documents requested and forward those to the appropriate authority in the organization for review so that any confidential information can be removed.

Code Violations

Code violations are not always black and white in nature. There is the letter of the code and the intent of the code, and you should consider both. Much of this wisdom comes with experience. For example, if the code states a fire extinguisher cannot be mounted more than five feet from the floor, and you inspect a well-kept building with an owner conscientious of safety concerns; however, you note the fire extinguisher is six feet from the ground and has been located there for a number of years. Is this a violation of the code or have they met the intent of the code? How about a small building where the only exit signage you find is a sign above the front door that is not internally illuminated? These types of issues are the judgment calls an inspector must routinely make. Would you be completely in the right if you chose to cite those as code violations? Absolutely.

All noted code violations must be corrected as soon as possible. Some items, such as locked exit doors, must be corrected immediately; others, such as unlit exit signs, do not have the same degree of urgency. If you note violations that have been overlooked for years, the owner may question the violation. This can be a tough situation. The only thing that can really be said is that for some reason this was missed on previous inspections but must now be changed to comply with the code.

When an owner or occupant receives an inspection report, it constitutes an important part of their business and business protection. The purpose of the inspection and the subsequent report is compliance with applicable codes. Follow-up dates are necessary when code violations have been found, providing the timetable for corrective action on the owner or occupant's part. Code violations should have reasonable timetables for compliance. Remember: what is reasonable to you may not be reasonable to the person receiving the report. When assigning the correction time to each violation, consider many factors including the seriousness of the violation, financial cost to correct the violation, and the ability to get the violation corrected. Replacing light bulbs in exit signs is not difficult or expensive, but adding a sprinkler system is much more involved, not to mention more costly.

Any code violations that are corrected during the inspection must also be noted in the final report. Document the fact that a code violation was actually noted during the inspection, by marking the violation with "complied on-site." Keep in mind that easy-to-fix code violations generally reappear once you leave.

When there are complex code violations, more research into the appropriate codes and standards may be necessary. In this situation, advise the owner that you are not certain about a specific item and you want to make certain of the code requirement before finalizing the report. You would not want to cite a violation when one does not exist. For example, if you encounter a chemical and are not certain how much can be stored, if it must be separated from other chemicals, or if it should be in its own room, referencing the code may be required.

When noting code violations, citing the code reference adds legitimacy to your assessment and allows the owner to look up the specific area themselves, should he or she choose. The vast majority of the time, the owner will not question the violation and will be more concerned about time frames or costs. For those owners who question a violation, you should be able to furnish the reference quickly if you elected to not cite code directly. That may mean having a master list of common violations with the associated code reference(s) or knowing where to look in the codes for the answer.

Reinspection dates are at your discretion and agency policy. Many fire inspectors routinely give 30 days prior to their return; however, some agencies have found that shorter time frames, such as two weeks, keep the violations more in the forefront of the owners' priorities. If items are severe a day or two may be appropriate. Large ticket items it may require months or years to complete, but more frequent follow-ups will ensure that the owner is taking some action, such as getting bids for the work.

The reinspection date is not when the code violations must be complied; instead, code violations must be corrected as soon as possible. The reinspection date is just an approximation of when you will return to check on code compliance. If you are allowing multiple dates for compliance, the inspection form should note that.

As a last resort, if there is non-compliance following repeated efforts, the municipality may need to be called in. They typically have the leverage of issuing fines and revoking business licenses when appropriate. When all else fails, going to court may be needed. It is unfortunate and time consuming, but it shows the seriousness of the inspection process. If after a legal proceeding, a violation is allowed to exist, the judge is the one that has allowed it, not the fire inspector.

Fire Inspector Tips

When returning to check on compliance, only look for those items in question.

Fire Inspector Tips

Save pertinent notes from an inspection as part of the file. Don't throw away something today that you feel is irrelevant. In the future, you may be wish you had those scribbled notes to clarify something you have put in your formal report.

Fire Inspector Tips

Make sure you know the occupancy classification of what you are inspecting, and that you are using the correct edition of the appropriate code as a reference. Just because a new code had been adopted, it does not automatically mean existing occupancies must meet the new requirements.

Investigating Complaints

When the fire inspection is the result of a complaint, you must have the information regarding the specific problem that needs to be addressed. A complaint that an occupancy is "dangerous" provides little direction to the inspector. Whenever possible, gather additional information about the nature of the risk, such as exit issues, overcrowding, or a specific dangerous situation. While a "fire trap" is not very specific, the complaint must be evaluated. How soon depends on the urgency of the complaint.

When responding to a complaint, the owner should not know that you plan to inspect because it is important that you see the condition as it exists, not after there has been an opportunity to repair it. Once the complaint is investigated, the building owner should be advised of the results. If there are code violations, a time frame should be given for compliance. Some items, such as locked exit doors, should be corrected prior to your leaving. Once on-site for the investigation, additional problems may be found, necessitating a complete fire inspection in the immediate future.

When documenting a complaint, the form needs to state the alleged violation. When possible, it should also state the name of person making the complaint. You need to state the date, time, and results of your investigation. If a violation exists, the form should state what corrective action was taken or recommended. The complaint stays open until the violation is repaired. You must return to see that the corrective action has in fact been taken. When repaired, the repair date should be noted. At that point the form is satisfied and can be filed.

If a complaint is received, and the investigation finds no violation, the complaint form should still be completed, indicating that the complaint was unfounded.

Improving the Inspection Process

Knowledge and experience must go hand in hand. You can have all of the knowledge in the world, but knowing when and how to apply that takes some time. Conversely, going and conducting inspections without knowing what to look for wastes everyone's time.

Knowledge can be gained from reading books and attending classes, but it cannot stop there. As you progress in the career of a fire inspector, new ideas, equipment, and trends emerge. It is your responsibility to stay abreast of the changes. The easiest way is to talk to contractors who should be experts in their field. If you show a willingness to learn, most are eager to help. You can also call manufacturer. Tell them that you would like some additional information about certain equipment or processes.

One of the best ways to stay informed is to join a local fire inspectors association. Here, common problems are discussed, vendors talk about new products, and there is the opportunity to meet other fire inspectors. The ability to call another fire inspector to discuss a problem is invaluable.

Gaining experience takes time. The more you go into the same buildings, the more familiar you will become, and the quicker you can conduct the inspection. Additionally, the personnel at the building will be accustomed to seeing you and will know what to expect. While still being professional, the initial formality begins to become a little more informal and relaxed. Combining knowledge and experience will make you a more confident fire inspector. You will also be able to see the building and possible violations on a different level than just black and white.

Wrap-Up

Chief Concepts

- A fire inspection will reasonably ensure that a building will be safe for the occupants.
- There are a number or basic or routine inspections including annual inspections, reinspections, complaint inspections, construction or final inspections, business license or change of occupancy, and self-inspection.
- The fire inspection process begins before the construction phase, long before the occupancy is scheduled to be opened.
- It is critical to know which codes you can legally enforce in your jurisdiction. The mere fact that there are sets of model codes available does not give you the right to enforce those codes. The local jurisdiction must legally adopt a specific set of codes.
- The forms used during an inspection will vary from agency to agency. A set of standard forms should be used by all fire inspectors in the office. Some of the basics forms are:
  - Inspection form
  - Final or construction inspection form
  - Complaint form
  - Stop work order
- While the codes give you the authority to conduct fire inspections, you are not allowed to do so without permission of the owner. Performing a fire inspection without permission is trespassing. The exception to this is exigent circumstances.
- The process of inspecting a building will vary with the occupancy. Some occupancies may have multiple buildings, others will be multiple floors, others will be very small buildings, and another could be a massive one story building.
- The exterior inspection includes vehicle access, fire lanes, fire hydrant access, caps missing on fire hydrants, sprinkler connection visibility and access, and exterior building issues. These include broken windows, tilting walls, and missing or falling bricks.
- When conducting the interior inspection, follow a predetermined and structured order. You may begin at the top floor and work down, or start at the front and work toward the rear, or start by going left, or right, and continuing that direction until you arrive back at the starting point. It is important to look into every room.
- Often times a preplan sketch for the fire department will be drawn during the inspection process. This process takes time, so it may be easier to conduct the inspection and return at a later date for the preplan sketch.
- A post-inspection meeting should be the last step in the physical inspection of the building. When talking with the

Wrap-Up

owner about the inspection, be firm in your needs, while at the same time listen and be empathetic to his or her concerns. When there are disagreements, understanding the owner's viewpoint can allow for a middle ground for compliance.

- Documenting the inspection and code violations in writing and in a prescribed format is the best way to attest to the findings of your inspection. Inspection records could be recalled many years after an inspection has occurred. Two prime reasons for that would be a lawsuit or if there were a fire and people are looking to see what was noted in previous years' inspections.
- Code violations are not always black and white in nature. There is the letter of the code and the intent of the code, and you should consider both.
- When the fire inspection is the result of a complaint, you must have the information regarding the specific problem that needs to be addressed.

Hot Terms

Annual inspections Inspections performed as part of the regular inspection cycle

As built diagrams A set of drawings provided by a contractor showing how a system was actually installed, which may be different from the approved plans

Business license or **change of occupancy inspections** Inspections that occur when the building department is notified of a new business requesting permission to open

Complaint inspections Inspections that occur when someone registers a concern of a possible code violation

Complaint form Form that lists in detail any complaint that is lodged with the fire inspection agency and is investigated

Wrap-Up

Construction or **final inspections** Inspections that are conducted as a building is being constructed, including sprinkler systems, fire alarm systems, and fire pumps

Conditional approval Grants partial approval for work being done, often issued for the final certificate of occupancy when violations are minor and do not pose a hazard

Enabling legislation Legislation in which local jurisdiction adopt a specific set of codes

Exigent circumstance An immediate life safety issue which requires that immediate actions be taken

Final or **construction inspection form** A form used when inspecting specialized systems such as fire alarm, sprinkler, hood, and duct suppression systems, as well as for other types of construction phase inspections, such as a ceiling inspection or a final inspection prior to issuance of a certificate of occupancy

High hazard contents Contents that are likely to burn with extreme rapidity or from which explosions are likely (NFPA 520)

Low hazard contents Contents of such low combustibility that no self-propagating fire therein can occur (NFPA 520)

Ordinary hazard contents Those contents likely to burn with moderate rapidity and give off a considerable volume of smoke

Reinspection An inspection performed to determine if code violations have been corrected

Self inspections Inspection performed by the building owner or occupant

Stop work order A form used when contractors do not have the clearance for performing the work, or when work must be corrected prior to performing additional work

Fire Inspector *in Action*

There is a commercial building being constructed in your area that you have been watching for some time. The building inspector has been performing the construction inspections and tells you that the building is almost ready for occupancy. It is now your responsibility to conduct the occupancy inspection required before a business license is issued. You drive by the building and see a new sign in front of the building. Apparently a local toy company is relocating from a location close by.

1. What do you plan to do in preparation for making the initial inspection?

- **A.** Visit the property and look around on your off hours.
- **B.** Look in the file of the old location for past history of violations and the degree of compliance.
- **C.** Go to the property and introduce yourself as soon as they take occupancy.
- **D.** Wait until you get the inspection request then make the inspection.

2. Before you get a request to inspect the building, the owner invites you to visit the old location and meet with him to discuss code compliance in the new building.

- **A.** Don't go, this would be a warrantless search and therefore illegal as you do not have an inspection request nor court order.
- **B.** Meet with the owner and tour the building to find out what you will have to address when they move.
- **C.** This would be a wasted trip as the new building would be code compliant as it is brand new.
- **D.** Meet with the owner and immediately put him on notice that you will not tolerate violating your fire code.

3. You learn that manufacturing toys requires vast amounts of different kinds of chemicals, some of which react with each other. How do you feel is the best way to handle this?

- **A.** Take a chemistry course at the local community college.
- **B.** Talk to other inspectors and see what they know about chemistry.
- **C.** Learn who the chemical supplier is and ask for assistance.
- **D.** Allow the owner to do as he feels is right; he has been in business before.

4. It appears that this inspection is going to be very complex and confusing, so the best format to use for the inspection report would be:

- **A.** a check off sheet with items and check boxes.
- **B.** a verbal interview with the owner stating what is required with nothing in writing that can be used against the inspector.
- **C.** a detailed report in essay form with attachments received from suppliers.
- **D.** all that is needed is to refer the owner to comply with the code and set a date for compliance.