



Fire Inspector I & II

CHAPTER FIVE PERFORMING AN INSPECTION

Part 3



<p>Slide 1</p>	<p>Welcome to Part 3 of Chapter 5 - Performing the Inspection. In this part we will look at:</p> <ul style="list-style-type: none"> • Commercial Kitchens • Laundry and garbage chutes • Hazard recognition • Portable fire extinguishers • Code violations • Closure Orders • Fire Pre-plans • New construction considerations • Remodeling Considerations • Post inspection meeting • Documentation • Improving the inspection process
<p>Slide 2</p>	<p>Kitchen fires are a significant problem which can be reduced by proper construction, installation and maintenance of commercial cooking systems. The accumulation of grease laden vapors is one of the most serious hazards to a commercial kitchen, but proper management can greatly reduce the risk of fire.</p> <p>NFPA 96 is the “Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations”. It provides the minimum fire safety requirements for commercial cooking operations. It addresses the capture and removal of grease-laden vapors and requires that exhaust hoods be equipped with listed grease removal devices and fire suppression systems.</p> <p>This chapter provides basic information about commercial cooking systems, identifies some of the common system components and hazards and provides information on system maintenance.</p>
<p>Slide 3</p>	<p>In this chapter we will discuss hood systems required over commercial cooking equipment, the purpose of grease filters and the various types, fusible links that melt to cause activation of the automatic fire suppression system, manual pull stations to activate the system, the exhaust duct and the exhaust fan and the “K” class portable fire extinguisher that is required in the kitchen.</p> <p>Though make up air is not required to be in the hood, most modern installations incorporate make up air inside the hood rather than from the room.</p>

<p>Slide 4</p>	<p>Fire inspectors will encounter two types of hood systems as follows:</p> <p>Type 1 hoods are used in systems that produce grease laden vapors from cooking operations. They are built with thicker metal, must be vapor tight, and have continuous welded seams or have approved mechanical joints. There are very specific requirements when the hood or duct penetrates a combustible spaces.</p> <p>Type 2 hoods are designed to collect steam and hot air from a variety of processes. They are thinner walled and have less stringent installation requirements.</p> <p>Primarily for cost reasons, some building owners will try to use a Type 2 hood where a Type 1 hood is required. This is prohibited.</p> <p>A Type 1 hood can be used in place of a Type 2 hood; however, the reverse is not true.</p>
<p>Slide 5</p>	<p>NFPA 96 requires that exhaust hoods be equipped with listed grease removal devices such as baffles or filters. There are many types of devices used in restaurant kitchen ventilation systems depending on the size of the kitchen, the types of cooking appliances used and the amount of food preparation. For kitchens that use greasy cooking methods like frying and grilling, special filters are required that will remove smoke, heat, fumes, odors, vapors, moisture and grease as part of the ventilation system.</p> <p>There are a variety of grease removal devices and grease filters on the market. In the last few years disposable filters have been introduced which claim to be more efficient and provide “green” technology. Whether the filter is disposable, like a charcoal filter, or re-usable like the aluminum mesh filter, they must be regularly inspected and either replaced or cleaned properly. When the filters are properly maintained, the life of the entire commercial kitchen ventilation system will be extended.</p>
<p>Slide 6</p>	<p>Grease removal devices must be listed for use with the cooking appliances. A regular schedule of cleaning should be established based on the accumulation of grease. The filters should be easily accessible and removable for cleaning and installed at an angle not less than 45 degrees from the horizontal. Any solutions used for cleaning must be non-flammable.</p>

Slide 7	<p>At least 18 inches of clearance is required between the grease filter and the cooking surface.</p> <p>In addition, the hoods over the cooking appliances must be constructed of steel and be fire and corrosion resistant. All joints and penetrations must be liquid tight continuous external weld.</p>
Slide 8	<p>Exhaust systems must be operating whenever the cooking appliances are on.</p> <p>All exhaust system components including the fan must be accessible or have removable access panels for cleaning and inspection. Hinge kits allow the fan assembly to swing freely away from the duct to allow access to the duct and the fan for cleaning.</p> <p>The exhaust system should never be operated with the filters removed or broken. This may be an indication of excessive grease in the filters or a lack of makeup air.</p> <p>Exhaust fans must also be located so the exhausted grease-laden air does not create a hazard on the exterior of the building or to other buildings in close proximity.</p>
Slide 9	<p>All deep fat fryers must be separated from flames from adjacent cooking equipment by at least 16". If a steel or tempered glass baffle with a minimum height of 8" is installed between the fryer and the adjacent appliance the requirement for the 16" separation is waved.</p>
Slide 10	<p>Another component of the system is the fuel and electric power shutoff. Upon activation of the fire extinguishing system the fuel supply and electric power to the cooking appliances must automatically shut off. The shutoff device must be manually reset after each activation.</p>

<p>Slide 11</p>	<p>Lighting used for hoods must be listed, approved and installed in accordance with the listing and manufacturer’s instructions. Lighting units should be equipped with tight fitting protective globe lights with steel enclosures that are mounted on the outer surface of the hood. All electrical equipment should be installed in accordance with the electrical code by a licensed electrician with a permit from the electrical authority.</p> <p>Lighting should be made of greaseproof, waterproof and heatproof construction with thermal and shock resistant tempered glass globes to eliminate hot spot browning and discoloration.</p> <p>After market lights may be acceptable provided, they are listed and approved for use with the hood. In many cases however unapproved lights are installed without due consideration of the hazards they present.</p>
<p>Slide 12</p>	<p>The most common method for automatic actuation of wet chemical fire protection systems in commercial cooking equipment is fusible links which are made of metal alloy materials. These devices are installed in the cooking equipment hoods and ducts subjecting them to contamination from grease that could adversely affect their operation unless periodic maintenance or replacement is performed. NFPA 96 and NFPA 17A, Standard for Wet Chemical Extinguishing Systems, requires metal alloy fusible links to be replaced at least every 6 months. It is common practice for the date of manufacture to be marked on the fusible metal alloy links. The manufacture date does not relate to the replacement date as the links have unlimited shelf life. The year of manufacture on the link and the date of installation are used for enforcement as these dates are required to be marked on the system inspection tag and the inspection report by the installer.</p> <p>NFPA 17A allows fixed temperature-sensing elements other than the fusible metal alloy type (bulb type) to remain continuously in service, provided they are inspected and cleaned every 12 months. Replacement is only necessary if they are damaged.</p>
<p>Slide 13</p>	<p>Manual activation of the automatic fire extinguishing systems must also be possible. At least one activation device must be located a minimum of 12’ and a maximum of 20’ feet from the kitchen appliance being protected. It must be readily accessible and should be located along the path of travel to an exit to prevent a person being trapped. Instruction must be provided to employees on the use of the manual activation device for the fire extinguishing system.</p>
<p>Slide 14</p>	<p>If the building is equipped with a fire alarm system, activation of the kitchen fire extinguishing system must automatically activate the fire alarm. In</p>

	buildings without a fire alarm system an audible alarm or visual indicator must provide notification that the system has activated.
Slide 15	<p>The automatic kitchen fire suppression system protects the hood, duct, and appliances from fire. The combination of the kitchen fire suppression system and a Class “K” wet chemical extinguisher provides additional protection against a fire that could result in temporary or permanent loss of business. When a fire starts, either the fusible link will melt or the manual pull station can be used to release the wet chemical extinguishing agent throughout the hood, duct, and onto the appliances. Either method of actuation will shut off the gas and/or electrical power to the appliances. The wet chemical agent quickly extinguishes the fire by forming a foam layer on the surface which holds in the vapors and hot gasses, cools the fuel and smothers the fire. Most people are familiar with ABC class portable fire extinguishers. These extinguishers have proven to be very effective in extinguishing the types of fires they are designed for, but they are not designed to be used on kitchen grease fires.</p>
Slide 16	<p>Only the Class “K” fire extinguisher is compatible with the wet chemical agent found in automatic kitchen fire suppression systems. Every commercial kitchen should have a class “K” portable fire extinguisher located in it to supplement the automatic fire suppression system. A sign must be conspicuously located near the portable extinguisher directing them to activate the automatic extinguishing system prior to using the portable fire extinguisher. The public area of the restaurant should have portable fire extinguishers which provide protection against fires in ordinary combustibles. These can be “A” class extinguishers or the more common multi-purpose ABC dry chemical units.</p>
Slide 17	<p>This video shows how a basic commercial cooking kitchen fire suppression system works. It is important to understand that this is in no way an endorsement of a specific product or manufacturer but is used solely to show how kitchen fire suppression systems work.</p>
Slide 18	Video.
Slide 19	<p>Some of the common issues found in commercial kitchen inspections include:</p> <p>The owner doesn't think NFPA 96 should apply to them because of the nature of the food they are preparing or the equipment they are using. In fact, NFPA 96 applies to all public and private cooking operations including mobile units and temporary concessions but does not apply to single dwelling units.</p> <p>There are situations in which the authority having jurisdiction may determine adequate fire and life safety can be established without applying all the requirements of NFPA 96. A good example would be where a hotel or motel has a small cafeteria that offers a continental breakfast (coffee, juice, toast,</p>

	<p>muffins etc.). When the only “cooking” that takes place involves toasting bread or re-heating buns and pastries the risk of fire is substantially reduced. In this case, the Authority Having Jurisdiction may wave the requirements of NFPA 96, but this should be done in writing.</p>
<p>Slide 20</p>	<p>Occasionally tags and records showing when the required inspection, testing, and maintenance of the fire extinguishing system are not available, and it is unknown when the last maintenance was performed. In this case, the owner should be asked for the records but if they are not available the required maintenance should be performed without delay.</p> <p>There is a noticeable accumulation of grease and dirt around and under the cooking appliances. In this case cleaning of the kitchen should be a priority. The grease filters should be cleaned on a regular schedule and many restaurants do them daily or weekly.</p> <p>Some of the exits are obstructed by restaurant supplies and equipment because there is a lack of proper storage areas. It is important to provide a clear path of exit travel so occupants can easily get out of the building in the event of a fire. New codes require emergency lighting in kitchens to illuminate the exits in the event of an emergency or power failure. Depending on the jurisdiction this may be applied retroactively but, in any case, emergency lighting and exit signs in kitchens is a good idea.</p>
<p>Slide 21</p>	<p>New codes require emergency lighting in kitchens to illuminate the exits in the event of an emergency or power failure. Depending on the jurisdiction this may be applied retroactively but, in any case, emergency lighting and exit signs in kitchens are a good idea.</p> <p>It should be noted that EXITS from kitchens are a special situation. The fire code prohibits including kitchens in the egress pathways from areas open to the public, something known as exit through an intervening space. So, doors in kitchens are typically not permitted to be part of the building exiting plan.</p> <p>Only doors that are part of the required egress pathway require exit signs. If there is an EXIT sign above a door the door must provide free and unobstructed access to the exit.</p>

<p>Slide 22</p>	<p>Not all commercial kitchens develop grease buildup at the same rate, so they need to be regularly inspected. Solid fuel fire appliances should be inspected monthly. High volume cooking operations, like systems that are operated 24 hours per day, need to be inspected every three months. Moderate volume operations need to be inspected every 6 months and low volume operations like those found in churches and community halls and seasonal businesses need annual inspection.</p> <p>Whenever there is an accumulation of grease the contaminated portions of the system must be cleaned. The use of flammable solvents or other flammable cleaning agents is not permitted. The cleaning chemical should not be applied to the fusible links or other detection devices for the automatic extinguishing system.</p>
<p>Slide 23</p>	<p>Kitchen duct systems vent directly above the roof or through non-combustible side walls. If the duct is not straight inspection panels must be installed at each change in direction and at each floor level. The inspection panels should be marked “Access Panel-Do Not Obstruct” and be large enough to allow for proper cleaning. When the cleaning company removes access panels for cleaning a label or tag with the company name and date must be provided near the affected access panel.</p> <p>When the hood is cleaned by a service company a certificate showing the name of the company, person performing the work and the date of cleaning must be available upon request. In many cases the service company will place a sticker on the hood with the date of service and when the next service is due. The service company must also provide the owner with a written report that specifies areas of the hood, duct or fan that were inaccessible or not cleaned. The AHJ may ask for copies of the report to be sent to them.</p>
<p>Slide 24</p>	<p>This video shows the proper inspection and cleaning of a kitchen ventilation system.</p>
<p>Slide 25</p>	<p>It is important that when you are conducting your inspection you are confirming:</p> <ul style="list-style-type: none"> • That the proper nozzles are installed at the proper locations • That there are nozzles in the hood and duct work • That there is no buildup of grease • That new fusible links have been installed every 6 months • That regular inspections, testing, and maintenance has been performed and documented in conformance with NFPA 96 which is the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

Slide 26	<p>The Fire Code says:</p> <ul style="list-style-type: none">• Commercial cooking equipment exhaust and fire protection systems shall be designed and installed in conformance with the building code.• The use, inspection and maintenance of commercial cooking equipment exhaust and fire protection systems shall be in conformance with NFPA 96, “Ventilation Control and Fire Protection of Commercial Cooking Operations.”• Hoods, grease removal devices, fans, ducts, and other appurtenances shall be cleaned at frequent intervals to prevent surfaces from becoming heavily contaminated with grease or other residues. <p><i>References:</i> NFPA 96 BCBC 6.3.1.7 BCFC 2.6.1.9</p>
Slide 27	<ul style="list-style-type: none">• Flammable cleaning materials or solvents shall not be used for the cleaning of exhaust systems.• Instructions for manually operating the fire protection systems shall be posted conspicuously in the kitchen as part of the fire safety plan.• Commercial cooking equipment that is certified shall be installed and maintained in conformance with its certification.• Uncertified commercial cooking equipment shall be installed and maintained so as not to create a fire hazard. <p><i>References:</i> NFPA 96 BCBC 6.3.1.7 BCFC 2.6.1.9</p>

<p>Slide 28</p>	<p>When a new kitchen ventilation and fire suppression system is installed, the requirement for permits from the local building department should be determined. Normally the permit process would include the need for engineered drawings and a Letter of Assurance or other document sealed by a registered professional certifying substantial compliance with the building code and NFPA 96 the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. In this case the registered professional would be a mechanical engineer.</p> <p>Prior to charging the system with the wet chemical extinguishing agent the system is charged with an inert gas like nitrogen to check for leaks and to ensure the operation of the automatic shutoff devices required for the fuel supply. During a test, the system should be activated by a fusible link, and by the manual pull station. For the test, the fusible link can be removed from the system by the technician.</p>
<p>Slide 29</p>	<p>Finally, the IMC requires a final test of the hood and exhaust system commonly referred to as a capture and contain test. This test is done to verify the exhaust system generates enough negative pressure to remove a predetermined amount of smoke under the hood.</p> <p>Again, the building official may administer this test, or rely on the fire code official to do it, but the fire code official should insure it has been completed and passed.</p> <p>For efficiencies sake the capture test can be conducted immediately prior to the acceptance test for the wet chemical system.</p>
<p>Slide 30</p>	<p>When the system has be activated, insure the following:</p> <p>Any gas supply to the equipment is automatically shut off, Any electrical service to the equipment is automatically shut off, That the fire alarm sounds, and That every nozzle has test gas coming out of it.</p> <p>Gas burners should be on during the test to check for proper operation of the gas shutoff valve as a faulty valve could be in the closed position but still allow gas to flow.</p> <p>Finally, the make up air fan must shut off, however the exhaust fan MUST continue to operate.</p>
<p>Slide 31</p>	<p>As discussed in Chapter 2 Building Construction, many residential and institutional buildings are equipped with refuse or laundry chutes for the convenience of the occupants.</p>

	<p>Some of the more common problems found during inspections of refuse and laundry chutes include:</p> <ul style="list-style-type: none"> • Access doors that do not close and positively latch, • Access doors not located in a fire separated room • Obstructions in the chute can cause a material buildup • The required sprinklers are inaccessible for inspection, testing, and maintenance • Waste materials are allowed to accumulate in the garbage room to the point of obstructing the intended operation of the safety systems.
<p>Slide 32</p>	<p>The goal of a fire inspection is to make sure a building is as safe as possible for the occupants. During the inspection this is achieved by ensuring:</p> <ul style="list-style-type: none"> • The possibility of a fire starting is reduced as much as possible • If a fire does start, it will not spread throughout the building • occupants and the fire department are notified of the fire as soon as possible • Once notified of the fire the occupants can exit the building as quickly and safely as possible. <p>To accomplish the overall goal of building safety it is important to be able to recognize the hazards that may compromise this goal. Some routine hazards that you might find are:</p> <p>Electrical – Including but not limited to improper wiring, improper use of extension cords, overloaded circuits, splicing of electrical cords, uncovered electrical boxes and or outlets etc. Electrical hazards will be discussed in detail in Chapter 11.</p>
<p>Slide 33</p>	<p>Emergency Lights must be working and located as intended and must not be obstructed. In this case the tag on the emergency light unit states that it is not working and requires immediate repair or replacement.</p> <p>Exiting signs and exit doors must be operational and unobstructed and must be installed correctly. In this case the exit sign is burned out and the exit door swings in the wrong direction and the access to the exit is obstructed by shelving.</p>

<p>Slide 34</p>	<p>Fire Extinguishers must be proper rating for the hazard being protected, be properly mounted in wall cabinets or on approved hangers for easy access and have a current inspection tag. In this case the portable extinguisher is missing from the wall cabinet. When questioned, the owner said people keep stealing the extinguishers, but that does not take away from the code requirement to have them. A possible solution is to have break glass cabinets and/or visual monitoring. Another possible solution is to purchase a Fire Extinguisher Theft Stopper device that sounds an alarm if the extinguisher is removed. These devices can be found online, or the owner could consult the fire extinguisher technician to see if they have similar products available. Fire extinguishers will be discussed in detail in Chapter 10.</p>
<p>Slide 35</p>	<p>A critical part of the inspection process is to determine if fire detection and suppression systems are in normal operating condition. This starts with a visual check of the systems but also a looking at the inspection and maintenance records to ensure the systems are being properly maintained. In this photo the annunciator panel shows that the fire alarm system is in trouble mode so you will have to determine why or have the building representative call their fire alarm maintenance company right away. Once the system has been returned to normal operation a re-inspection should be scheduled. An in-depth look at fire alarm and fire sprinkler systems is provided in other Chapters later in this course.</p> <p>In this photo the inspection tag on the kitchen fire suppression system is marked as condemned so you should take immediate action to correct this deficiency. In this case the fire inspector contacted the technician who placed the tag on the system and was assured that the system was still fully operational, but he was waiting for replacement parts that should arrive and be installed within a week. The inspector documented the conversation in the inspection file and scheduled a re-inspection.</p>
<p>Slide 36</p>	<p>During your inspection there are many general hazards that must be considered on both the inside and outside of a building. One of the most important factors is housekeeping which Chapter 13 of this program is devoted to.</p> <p>Heating Appliances are also a significant fire concern which are looked at in Chapter 11. Combustibles must be kept thirty-six inches or 914 millimetres away from heating appliances unless they are rated for reduced clearances and are in good repair and accessible. This photo shows an electric baseboard heater that has obvious heat damage based on the staining of the wall above it. The inspector requested the baseboard be replaced and the owner complied right away.</p>

	<p>Openings that allow fire to travel from one space to another such as pipe chases, ceiling tiles, holes in drywall must be intact, in place, repaired or filled. All fire doors must work properly and close securely. The floor under the door in this photo has heaved and prevents the door from closing.</p>
<p>Slide 37</p>	<p>Interior finishes can affect the development of smoke and toxic gases and the spread of fire in the compartment. Interior finish includes the exposed surface of the floors, walls, and ceilings. In the design and plan review phase, the interior finish should have been reviewed and the required flame spread rating confirmed.</p> <p>Flame spread is the surface burning characteristic of materials, and a flame-spread rating is a way to compare how rapid flame spreads across the surface of one material compared to another.</p> <p>Flame-spread rating requirements are contained in the building code primarily to regulate interior finishes. Any material that forms part of the building interior and is directly exposed is considered to be an interior finish.</p> <p><i>Reference:</i> <i>NFC 2.3.1</i></p>
<p>Slide 38</p>	<p>Interior finish includes interior claddings, flooring, carpeting, doors, trim, windows, and lighting elements.</p> <p>If no cladding is installed on the interior side of an exterior wall of a building, then the interior surfaces of the wall assembly are considered to be the interior finish, for example, unfinished post and beam construction. Similarly, if no ceiling is installed beneath a floor or roof assembly, the unfinished exposed deck and structural members are considered to be the interior ceiling finish.</p> <p>The standard test method that the building code references for the determination of flame spread ratings is CAN/ULC-S102, published by ULC Standards.</p> <p>Appendix D-3 of the building code, Division B, provides information related to generic flame-spread ratings and smoke developed classifications of a variety of building materials.</p>

<p>Slide 39</p>	<p>The furnishing of a building also plays a significant role in the development and spread of a fire. This is an entrance lobby to a 1700 bed construction camp facility. The lobby is approximately 30 feet wide by 120 feet long. It contains 42 polyurethane easy chairs and 4 polyurethane three seat sofas. Using the heat release rate table from NFPA 921 Guide for Fire and Explosion Investigations, each chair has a potential heat release rate of around 1500 kilowatts and each sofa has a potential heat release rate of around 3000 kilowatts. The chairs and sofas combined have a potential heat release rate of 72,000 kilowatts or 7.2 mega Watts. This is an extra ordinarily high fuel load.</p> <p>The building is equipped with an ordinary hazard sprinkler system which could potentially be overcome if the furniture were to ignite as one fuel package. In order to overcome the potential for a devastating fire, the fire inspector required that the number of furnishings be reduced, and the remaining furnishings separated into smaller groupings spaced further apart.</p>
<p>Slide 40</p>	<p>Elevators and escalators should not be inspected by fire inspectors. A fire inspectors' role is to ensure that the elevator technicians inspection certificate is present and posted. Having said that, you will want to check the elevator room to make sure that it is not used for storage of any combustible materials and is equipped with a smoke detector as required by the building code. Also check that signs are posted indicating that the elevator is not to be used in case of fire.</p> <p><i>Reference:</i> <i>BCBC 3.2.4.11</i></p>
<p>Slide 41</p>	<p>NFPA 1620 is the Standard for Pre-Incident Planning. The 2020 edition says that floor plans should be developed that identify rooms and what they are used for. A Preplan Sketch can be drawn during a fire inspection, but it is preferable to book a second visit as the preplan process takes time. Taking photographs of the building and obtaining a building plan will assist in the Preplan process. If as-build drawings are not available, there are many different apps that can assist you in quickly drawing floor plans. They are easy to use and will make professional quality drawings quickly. They can also help with performing occupant load calculations. Some of the brand names available include Blueprint Maker, RoomScan and MagicPlan. These are available for your iPhone, iPad and some are available for Android devices.</p>

Slide 42	<p>Although the fire inspector traditionally does not have much involvement with the physical construction of the building, except reviewing the construction fire safety plan, they should be involved beginning with the plan review process. The earlier in the process that needed modifications to the building are identified, the sooner corrections can be made which is better for everyone involved.</p> <p>Special attention should be given by the inspector to fire department access routes and the installation of the fire protection systems such as fire alarms, sprinklers, fire pumps, and kitchen hood and duct suppression systems.</p> <p>After installation the fire protection systems must be commissioned to insure, they work as designed. When required by your jurisdiction, you should witness the full acceptance test of each system. A copy of the approved system plans should be used to compare types and locations of approved devices to the actual devices and locations.</p>
Slide 43	<p>Where life safety and fire protection systems are installed the commissioning of these integrated systems must be performed as a whole to ensure proper operation and inter-relationship between the systems. Section 901.6.2 of the IFC requires integrated testing when two or more life safety systems are interconnected. For example, integrated testing is required when a sprinkler system activates and sets off the fire alarms system.</p> <p>The IFC also adopts sister codes and NFPA standards by reference, which means acceptance testing and system commissioning may be prescribed in several different places. For example, acceptance testing for fire alarms is described in NPFA 72, the National Fire Alarm and Signaling Code, while the capture and contain test for a kitchen hood is in the International Mechanical Code. The inspector should become familiar with all of the applicable standards.</p>

Slide 44	<p>NFPA also has commissioning documents. NFPA 3 is the Standard for Commissioning of Fire Protection and Life Safety Systems and NFPA 4 is the Standard for Integrated Fire Protection and Life Safety System Testing. These documents can be used as best practices in the Commissioning of new fire protection systems which should be signed off by a registered professional through a letter of Assurance. Registered professionals are usually involved with overseeing the work to ensure that the project is being constructed in accordance with the plans, specifications and applicable building codes or ordinances.</p> <p>FireWise created a checklist entitled Commissioning Active and Passive Fire Protection Systems which is included in the additional materials section of this Chapter. This document can be amended to meet local jurisdictional requirements as necessary.</p>
Slide 45	<p>The inspection process for the remodeling or renovating of a building is no different than the inspection process of a new construction project. It is possible that a renovation, depending on the scope, may trigger compliance to current code standards the same as are required for new construction.</p> <p>Remodeling or renovating occupied buildings will require greater attention be given to safety requirements for the occupants as fire hazards may be increased and safety features such as means of egress may be changed or compromised requiring significant signage, lighting etc. Fire separation will also have to be maintained between the occupied side and the construction site.</p>
Slide 46	<p>At the completion of the inspection, it is important to have a conversation with the building owner or representative in regard to your findings during the inspection. If they have not accompanied you on the inspection, this is your opportunity to educate them about fire safety in general and their building in particular.</p> <p>There may be occasions during these conversations that owners or representatives become emotional due to the fact that what you are asking may cost them money. It is important to always take the high ground, be firm in your requirements, while at the same time listening to, and showing empathy towards, their concerns.</p>

Slide 47	<p>Explain the code violations noted during the inspection and why they are hazards. For example, this photo shows tires stored in an un-sprinklered building. The fire code requires a clearance of not less than 1m between the top of storage and the underside of the floor or roof deck to be maintained so access can be gained for firefighting hose streams. In this case not enough clearance is provided.</p> <p>The first step towards compliance should always be education. If an owner knows why they need to correct something they may be more inclined to comply.</p> <p>If the code violations noted during the inspection are serious enough to warrant a reinspection, explain to the owner when you will be in contact with them or when you will be returning and what your expectations are for that return visit.</p>
Slide 48	<p>Every inspection should be recorded, and every code violation noted during the inspection should be documented. An inspection report is the primary method of documenting fire inspections and may be called upon months or even years after it was produced. Inspection reports can be paper based or electronic, checklist or free form writing formats or a combination of both.</p> <p>If the building or complex is large, or the list of infractions is long, the inspection form may be supplemented with an appendix or formal letter. The standard inspection form should be completed with the building and owner information but verbiage such as “See attached letter” should be written on the inspection form.</p> <p>How to write an inspection report is covered in more detail in Chapter 14 “Writing Reports and Keeping Records”.</p>
Slide 49	<p>Legally it is very important to document and inform the owner of the scheduled reinspection date if required and just as important for you or another inspector to keep that timeline. There have been cases where the inspector identified deficiencies but never followed up and a fire took place. Questions arose about the due diligence of the fire inspector and their employer.</p> <p>It is recommended that the inspection report be delivered in person, but you should follow the established procedures of your organization. Mail or email are the standard delivery method of some jurisdictions, but if the deficiencies are critical or the owner has a history of non-compliance an exception will probably be made.</p>

Slide 50	<p>When identifying code violations, it is important to remember to state “what” the owner must do to correct the issue but not “how” the owner should correct it. Only offer guidance based on the applicable code or standard.</p> <p>It is also imperative that an inspector understand that inspection reports are legal documents and are subject to the Freedom of Information Act and therefore must be kept for a pre-determined length of time based on your organizations FOI policy. Write every report as professionally as possible with the thought that someone is going to read it and you, and your organization would not be embarrassed if it appeared on the front page of the local paper.</p>
Slide 51	<p>While performing an inspection it is important to document all code violations that are identified. In this case, the address was not posted and there was a problem with egress.</p> <p>Although the intention is that all violations or deficiencies be corrected as soon as possible, it will be up the inspectors experience, and agency policies, when deciding on follow up action. Timelines for corrective action required should be clear and reasonable.</p> <p>If questioned in regard to a long-term violation, that has not been noted during previous inspections, it is acceptable to explain that you or your co-workers did not notice or did not realize that the situation was an infraction.</p> <p>Any code violations corrected during the inspection should be noted on the inspection form with a comment such as “complied on-site”.</p> <p>When faced with a complex code violation during an inspection, or a situation you are not sure about, you should advise the owner that you’re not positive in regard to the code requirements and you will do some research before finalizing your report.</p>

Slide 52	<p>When documenting the code violations, it is best practice to cite the code reference in question. This will allow an owner to reference the code themselves if they question the violation. If agency policy is not to cite the code reference on the inspection report, then the inspector should still be able to advise the owner of the code reference in question.</p> <p>Reinspection dates will be based on agency policies and procedures with the understanding that large ticket corrections may require months or years to complete. It is important to understand that the reinspection date may be the date expected for full compliance but can also be a date for the owner to explain their action plan and schedule for compliance.</p> <p>If non-compliance by the owner continues after repeated attempts by the inspector, enforcement action may be required. Enforcement policies should be set by your agency or other legal statute. Enforcement may be outside your authority as an inspector, so the best practice is to know, understand, and follow the policies of your agency.</p>
Slide 53	<p>ALL Code Violations no matter how severe should be documented as specifically as possible to ensure the building representative as well as future inspectors know what and where the infraction is.</p> <p>While explaining and documenting what the requirements for code compliance are, you may be able to provide simple solutions on how to correct the problem like in the case of this portable fire extinguisher. It is simply overdue for annual inspection, testing and maintenance. Advising the property rep to have the extinguisher serviced will overcome the problem.</p> <p>In more involved situations it may be best to leave it to the building owner to come up with an acceptable solution. For example, the use of the building has changed, and you determine the building now requires a fire alarm system based on occupant load. The building owner disagrees and says that they can't afford the installation cost of a system. In this case, you may decide to recommend that the owner contact an expert like a building code consultant, or a fire protection engineer to review the code requirements and offer an opinion.</p>

<p>Slide 54</p>	<p>Closing a building due to an extremely dangerous process or hazard should be considered with care and consultation with others.</p> <p>When deficiencies are encountered that pose an immediate risk to life safety most Provincial and Territorial fire legislation, and local government bylaws contain the power to take immediate action. When a fire poses an Immediate Threat to Life most legislation allows the fire marshal, fire commissioner, or fire chief to enter the land or premises, without a warrant, for the purpose of removing or reducing the threat. When believed necessary they can take measures to mitigate the situation. These measures are generally temporary, readily implementable, and limited in scope but can include:</p> <ul style="list-style-type: none"> • Evacuating the building or area • Posting a fire watch • Removing combustible or explosive material • Eliminate ignition sources <p>or</p> <ul style="list-style-type: none"> • Do any other thing that they have reasonable grounds to believe is urgently required to remove or reduce the threat <p>These are tremendous powers and must only be used when extreme circumstances dictate. Our advice to the fire inspector is to contact a higher authority such as the Fire Marshal or Fire Commissioners Office for advice and direction.</p>
<p>Slide 55</p>	<p>The fire inspector should investigate all public complaints of fire hazards in a timely manner.</p> <p>It is important when receiving the complaint to clarify specifically what the complaint is regarding. Being asked to inspect a building because the person lodging the complaint thinks it a “fire trap” may simply be a disgruntled person making waves, but it could also be a serious concern.</p> <p>Depending on the nature of the complaint and the history of the building you may not want to schedule an appointment or let the owner know you will be attending. You may not want to provide the owner with the opportunity to correct the issue before you arrive. If the owner is not on site during the inspection, then upon completion they should be notified that there was a complaint and the outcome of the complaint investigation.</p>
<p>Slide 56</p>	<p>The complaint should be documented like any other inspection would be including the name and contact information of the complainant. In some cases</p>

	<p>it may be wise to get the complaint in writing as it could be motivated by circumstances not related to fire safety. Asking for the complaint in writing may eliminate the complaint altogether.</p> <p>If the complaint is found to be warranted, then corrective actions should be taken. In this case, the complaint was that there was not enough space in the aisle for exiting in this community theatre. During the inspection the building representative quickly removed one chair from each row of seats making the aisle meet minimum code requirements, as can be seen in this photograph.</p> <p>If the deficiency is not corrected immediately, a reinspection date should be arranged to ensure issues are corrected. If other code violations are noticed in addition to the complaint, then a follow up complete inspection should be conducted as soon as possible.</p> <p>All complaint inspections should be documented even if there are no violations noted during the investigation.</p>
<p>Slide 57</p>	<p>Every fire inspector should continue to improve over time with experience and knowledge. The more inspections you do the better you will get. The more you work with codes and standards the better you will understand what is required within different building occupancies.</p> <p>As a fire inspector it is your responsibility to keep up to date with changing codes, new ideas, new equipment and new trends in fire inspection. The best way to accomplish this is to join a local fire inspectors association. Local associations can provide training more specific to your jurisdiction and meeting other fire inspectors will give you contacts to discuss any issues that may arise in your community</p>
<p>Slide 58</p>	<p>In Part 3 we discussed:</p> <ul style="list-style-type: none"> • The inspection of commercial kitchens including typical components, grease removal devices, filters, hood, duct, exhaust systems, fixed pipe fire extinguishing systems, manual activation, fusible links, and hood lighting • We also talked about cleaning kitchens and Class K portable fire extinguishers • Laundry and garbage chutes and the common problems they create. • Hazard recognition, interior finishes, and building furnishings that can contribute to the fuel load in the building • We touched on elevators and escalators and Pre-incident planning • New construction and renovation inspections and closure orders due to extremely dangerous processes or hazards • New construction renovation considerations

Fire Inspector Level I & II

Chapter 5 – Performing an Inspection – Part 3

	<ul style="list-style-type: none">• The post inspection meeting• Documentation
Slide 59	Chapter quiz.
Slide 60	<p>That's the end of Chapter 5 Performing an Inspection. You are now ready to move on to Chapter 6 which deals with Reading Plans but please complete the quiz for Chapter 5 first.</p> <p>If you have any questions now is a good time to contact your instructor.</p>