

# Evaluating Vacant and Abandoned Buildings

## Building Evaluation Presentation Support Slides

Developed as part of the:

**IAAI/USFA Abandoned  
Building Project**



This presentation is intended to support presentations to public safety personnel assigned to evaluate vacant and abandoned buildings using the IAAI/USFA evaluation form. Additional information related to the presentation is found in the project background package and lesson plan that accompanies the presentation.

# Evaluating Vacant and Abandoned Buildings

## Evaluating Vacant and Abandoned Buildings



### IAAI/USFA Abandoned Building Project

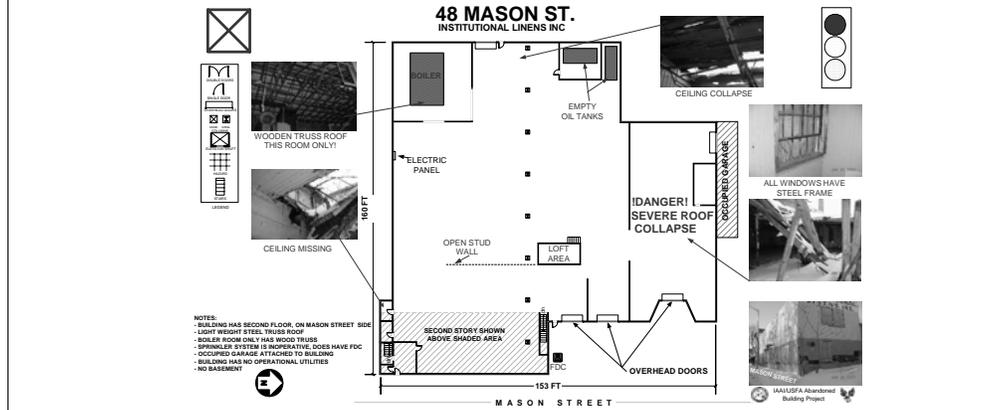


Additional information regarding the evaluation of vacant and abandoned properties can be found in the IAAI Field Manual, Evaluation of Vacant and Abandoned Properties. The instructor may want to provide copies to participants to use during field exercises and in actual practice once the training is completed.

# Evaluating Vacant and Abandoned Buildings

## Inspection and Evaluation

- Determine just what the hazards are
- Document the findings
- Use data to determine the proper action for the building



Once a building becomes vacant it should be evaluated to identify potential hazards and to provide emergency responders with vital information they can use in the event of fire. The evaluation data can also be used in the decision making process when limited funds must be allocated to address the most significant problems.

Lack of information about the Worcester Cold Storage building was a factor in the loss of the six fire fighters.

# Evaluating Vacant and Abandoned Buildings

## Vacant or Abandoned?

### ➤ Vacant buildings

- ✓ Owner is known
- ✓ Taxes are current
- ✓ Building is “unoccupied”



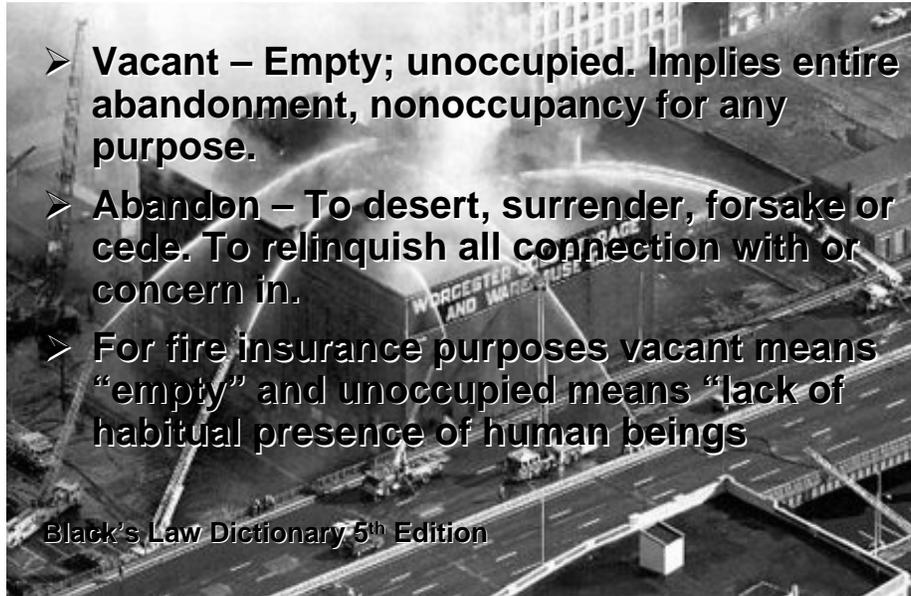
### ➤ Abandoned buildings

- ✓ No viable owner
- ✓ Taxes not paid
- ✓ Building is not legally occupied



# Evaluating Vacant and Abandoned Buildings

## Vacant or Abandoned?



The terms “vacant” and “abandoned” are often used interchangeably when talking about these buildings. There is, however, a subtle difference in the terms. Black’s Law Dictionary defines **vacant** as “empty; unoccupied”. The word **abandon** is defined as “to desert, surrender, forsake or cede. To relinquish or give up with intent of never again resuming one’s right or interest.” For buildings, the difference between vacant and abandoned is primarily related to the availability of an owner. Unoccupied buildings where there is a viable owner, i.e. one that is interested in the property and easily contacted, are considered vacant. Where there is no viable owner or an absentee landlord, the property is generally considered abandoned. Unoccupied properties that are secure and well maintained do not pose the threat to public safety that properties that are unoccupied and open to unauthorized access do. Where there is no viable owner, the property is considered abandoned.

# Evaluating Vacant and Abandoned Buildings

## Target Properties

- **Secure and well maintained properties are not the problem**
- **Problem properties**
  - ✓ Vacant
  - ✓ No viable owner
  - ✓ Unsecured
  - ✓ Accessible



Properties that are secure and well maintained even though they are unoccupied are not the problem. Communities should monitor all vacant properties, but those that have no viable owner are unsecured and accessible to unauthorized entry are the properties that require immediate attention to prevent fires and other criminal activity.

# Evaluating Vacant and Abandoned Buildings

## Vacant Properties



**It is estimated that 18% of urban structures in the United States are unused**

**The ISO estimates that there are more than 21000 idle properties of over 15000 square feet in the United States**



# Evaluating Vacant and Abandoned Buildings

## The Problem

- **Thousands of fires annually**
- **Fire Fighters are more likely to be injured fighting fires in vacant properties than any other property type**
  - ✓ **More than 6000 fire fighters injuries every year**
  - ✓ **From 1990 to 1999 - 23 fire fighters died while operating at fires in vacant/idle properties**



Every fire fire fighter knows that vacant or abandoned buildings are a significant public safety issue. Vacant or abandoned structures are unsightly, attract criminal activity, and are a threat to public safety where ever they exist. The National Fire Protection Association (NFPA) estimates that several thousand fire fighters are injured while fighting fires in these properties every year. NFPA statistics show that more fire fighters are injured while operating at fires involving vacant or abandoned properties than in any other property classification. In the period from 1998 to 2002, the NFPA reports that the highest death rate was in special structures, the category that includes vacant buildings. The rate of firefighter fatalities in these structures is reported as 19.9 per 100,000 fires. This is compared to a rate of 4.2 fatalities per 100,000 fires in residential properties.

The loss of six fire fighters operating in a vacant property in Worcester, Massachusetts, in December of 1999 was a tragic example of the hazards these buildings pose in communities.

As part of the discussion for this slide, the instructor should ask the participants why these buildings are more dangerous than occupied buildings. The point should be made that the injuries to fire fighters can be linked to the hazards that are inherent to vacant and abandoned properties that are not secure. Building deterioration due to elements, urban mining, accumulation of combustible materials (trash), etc., are all reasons for the dangerous conditions. Stress that unsecured vacant or abandoned structures are inherently more dangerous than occupied structures.

## Evaluating Vacant and Abandoned Buildings

### The "Broken Windows" Theory of Social Disorder



***From one broken window, you  
can lose a street***

George Kelling and Catherine Coles describe the relationship between abandonment and crime as the “Broken Windows theory of social disorder” in their publication *Fixing Broken Windows: Restoring Order and Reducing Crime in Our Communities*<sup>1</sup>. The following quote is from the book Forward written by James Wilson

“If a factory or office window is broken, passersby observing it will conclude that no one cares or no one is in charge. In time, a few will begin throwing rocks to break more windows. Soon all the windows will be broken, and now passersby will think that, not only is no one in charge of the building, no one is in charge of the street on which it faces. Only the young, the criminal, or the foolhardy have any business on an unprotected avenue, and so more and more citizens will abandon the street to those they assume prowl it. Small disorders lead to larger and larger ones, and perhaps even to crime.”

<sup>1</sup> Kelling, George L. and Catherine M. Coles. *Fixing Broken Windows: Restoring Order and Reducing Crime in Our Communities*. New York: Touchstone, 1996.

# Evaluating Vacant and Abandoned Buildings

## The Impact on the Community

- **Crime**
- **Safety**
- **Community image**

**Abandonment is a contagious phenomenon**



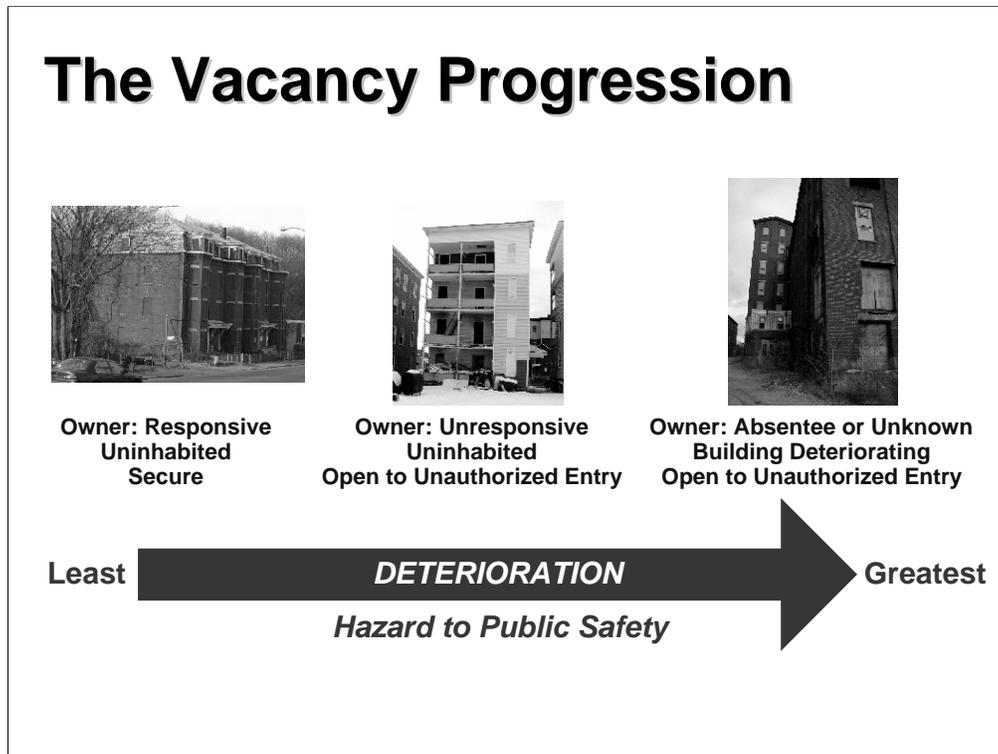
“Abandonment of property is the most striking indication of neighborhood decline. Large-scale abandonment threatens the stability of neighborhoods and undermines the value of investments made by other property owners. The literature indicates that abandonment and decline of property can be considered as a contagious phenomenon. Fire is intertwined with abandonment as both a cause and an undesired side effect.

Abandonment usually signals the end of a building’s productive life. Real estate market conditions, difficulty in obtaining financing for renovation or repair, withdrawal of fire insurance, and declining economic fortunes of tenants all contribute to abandonment. In declining areas, the use value of a building will frequently exceed its market value. Any damage to the building sufficient to vacate it can lead to abandonment by the owner.”<sup>1</sup>

The issues that Charles Jennings describes in the quote above are those that resulted in significant fire problems in cities such as Detroit; Houston; New Haven, Connecticut; Utica, New York; and Lawrence, Massachusetts. For commercial or industrial properties, the issue may be that the building has reached the end of its useful lifecycle and that it would cost more than the building is worth to improve it for continued use. Many industrial buildings in the Northeast fit this category. Environmental pollution and the high cost of mitigation are also factors in the abandonment of commercial properties. Whatever the cause, these rapidly deteriorating buildings in communities become havens for the homeless and vandals as well as magnets for criminal activity.

<sup>1</sup> Urban Residential Fires: An Empirical Analysis of Building Stock and Socioeconomic Characteristics for Memphis, Tennessee. Dissertation by Charles R. Jennings, Cornell University, August 1996.

# Evaluating Vacant and Abandoned Buildings



Discuss the progression shown on this slide. Point out that deterioration of buildings results from age, vandalism, and being open to the weather. The more deterioration the more dangerous and unsightly the building becomes. This condition is made worse if the building is also occupied or used by unauthorized occupants to provide shelter, to hide or play in, or to conduct criminal activity.

# Evaluating Vacant and Abandoned Buildings

## Can you inspect the building?

- **Authority to inspect comes from**
  - ✓ Fire Prevention code
  - ✓ Local ordinances
- **For private buildings get permission from the owner prior to entry**



Discuss the authority to inspect and where it comes from in the codes and ordinances adopted by the jurisdiction.

Based on department policy, what does the inspector have to do to enter a legally property? Review the departmental procedures and notifications required prior to an inspection.

# Evaluating Vacant and Abandoned Buildings

## Right of Entry

- **Do you have the right to enter the property to conduct the evaluation?**
- **Where permission to enter is not available conduct evaluation from a public way**



Under non-emergency conditions the evaluator must have permission from the owner prior to entering the property to conduct the inspection. The authority to inspect is typically outlined in the codes and ordinances adopted by the jurisdiction. The evaluator should know the right of entry procedures applicable to the jurisdiction and carefully follow them. Where permission can not be obtained from an owner, many jurisdictions have the ability to obtain administrative warrants that allow legal entry to properties.

Where permission to enter a property has not been granted, and an evaluation is deemed necessary, basic information should be collected without trespassing, by making observations from the public way, or from adjacent properties that the evaluator has been granted entry.

# Evaluating Vacant and Abandoned Buildings

## Safety

### Potential hazards

- ✓ Unstable structure
- ✓ Fall and trip hazards
- ✓ Standing water in basements
- ✓ Vermin
- ✓ Hazardous materials on property
- ✓ Unauthorized occupants
- ✓ Ongoing criminal activity

**Evaluate the safety of the structure from the outside before entering**



This slide provides an overview of the potential safety issues that face personnel assigned to inspect vacant or abandoned buildings. The inspectors should use extreme caution when entering and moving about these structures. Prior to entering a building to conduct an evaluation the team should use information from the exterior survey to identify potentially dangerous areas that should be avoided during the interior survey. While in the structure, the team should constantly evaluate its stability and safety. Any area that appears to be unstable should be avoided. If the stability of the structure is questionable, the team should not enter the building.

# Evaluating Vacant and Abandoned Buildings

## PPE

- **Hard hat/helmet**
- **Safety shoes/boots**
- **Gloves**
- **Flashlight**
- **Radio**



Personnel conducting evaluations of vacant and abandoned properties should be aware that these structures are inherently more dangerous than occupied properties. Evaluators should use extreme caution while working in and around these properties. Personnel should wear proper protective clothing and carry a radio and flashlight when operating in these buildings. It is always good practice to inform dispatch when you are entering and leaving a building with no occupants so that they can account for your location should you need assistance.

## Evaluating Vacant and Abandoned Buildings

### Why Building Security is Essential?

- **Of the more than 12000 fires in vacant structures every year**
  - ✓ **Nearly 72% are of incendiary or suspicious origin**
  - ✓ **More than 5% are caused by children playing with matches**



# Evaluating Vacant and Abandoned Buildings

## Securing Buildings

- **The objective is to prevent unauthorized access**
- **Must be done well**
- **Slows down deterioration of the structure**
- **Security = Fire Prevention**



It is critical that unauthorized access to Vacant and abandoned building is prevented either by proper security or high visibility surveillance. Where physical security is required, it must be done well to be effective. Once secured, the building must be patrolled with some frequency to make sure it remains secure.

An added benefit to boarding up an entire structure, or “mothballing” it, is that deterioration due to weather exposure is also reduced.

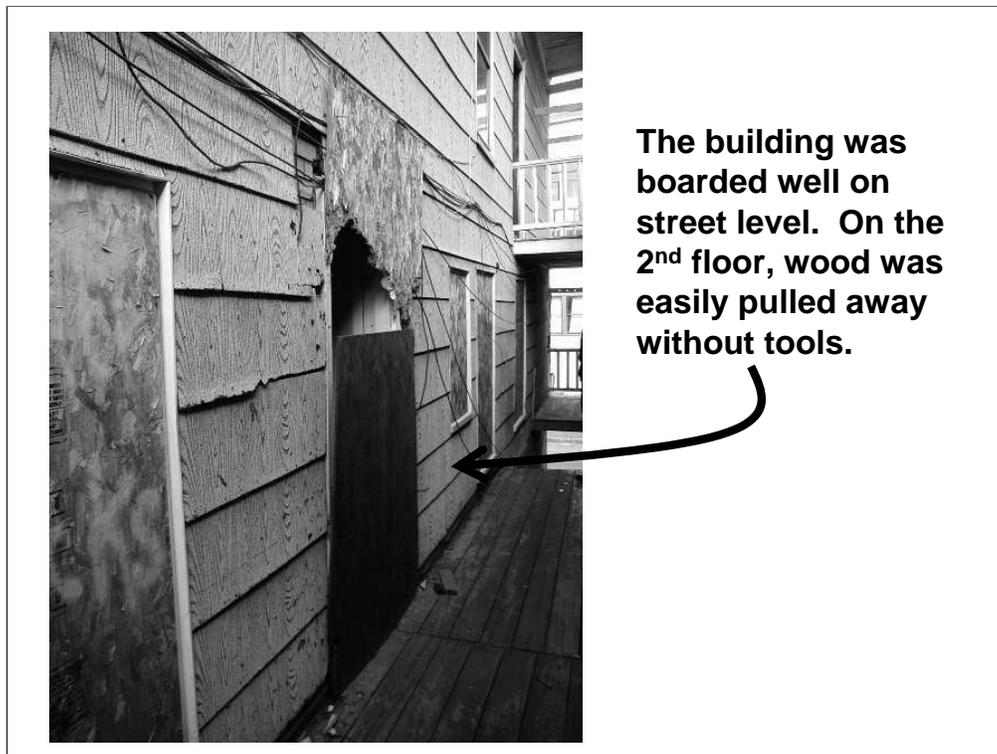
## Evaluating Vacant and Abandoned Buildings

### Particle Board Doesn't Work!



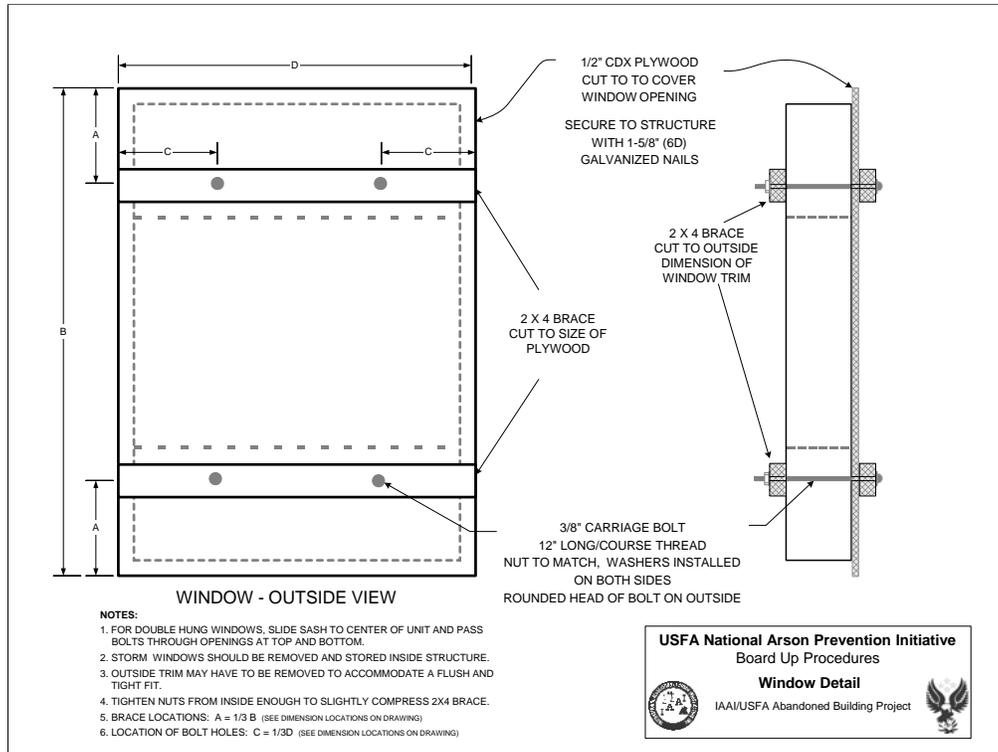
This slide shows the importance of doing the job well with the proper materials. Particle board is ineffective as a security measure.

## Evaluating Vacant and Abandoned Buildings



This slide shows more problems found with security. Problems like this one demonstrate the need for regular patrol to determine the integrity of the security measures. When problem are found, they must be repaired.

# Evaluating Vacant and Abandoned Buildings



While there are many methods available for securing properties the USFA National Arson Prevention Initiative Board Up system is one of the most effective. Done correctly and coupled with a surveillance program, buildings secured using this method are very difficult to enter. The system is also resistant to deterioration due to weather or the elements.

## Evaluating Vacant and Abandoned Buildings

**Security = Crime Prevention**  
**Fire Prevention**



Keeping unauthorized occupants out of vacant and abandoned buildings is a key method of preventing fires in the properties. Boarding a building up is one of the most effective ways to accomplish this objective. Another method might include high visibility police patrols. Whatever methods are selected by your jurisdiction, the effectiveness of the measures should be evaluated during the inspection. Any indications of unauthorized entry should be noted on the form.

# Evaluating Vacant and Abandoned Buildings

## Marking Buildings



- Severe structural or interior deficiencies
- Operations should be conducted from outside except for life safety
- If interior operations are required:
  - ✓ Approved by Incident Commander
  - ✓ Tactics modified
  - ✓ Examined before units are committed
- Time of any interior operations must be limited

This is an example of the marking system established in Worcester, Massachusetts, after the loss of the six fire fighters in the Cold Storage building. This system is an adaptation of the one used in New York City and other major metropolitan cities. Marking systems are intended to provide fire fighters responding to a fire a visual cue that the property is vacant and that it has been evaluated and found to contain hazards to fire fighters.

# Evaluating Vacant and Abandoned Buildings

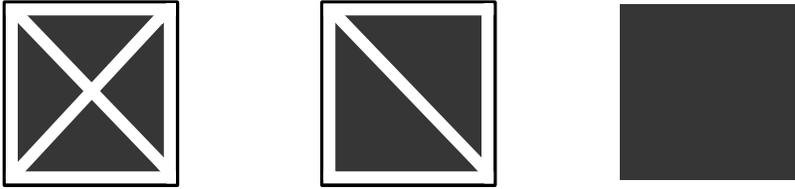
## Identification Process

- **Used to alert fire fighters of the potential hazards in a vacant/abandoned building**
- **Makes public aware of problem properties**
- **Allows for increased surveillance**



# Evaluating Vacant and Abandoned Buildings

## Vacant Building Markings



Exterior operations Enter for known life hazard    Interior operations with extreme caution    Normal stability at time of marking

These markings are based on the system used by FDNY in New York City. Other jurisdictions may utilize different marking systems. In Massachusetts the **X** and **\** markings are used and the blank was not included in the modifications to the fire prevention code.

# Evaluating Vacant and Abandoned Buildings

## Building Evaluation

### Objectives

- ✓ Determine that the building is secure
- ✓ Identify hazards that require immediate corrective action
- ✓ Evaluate the fire growth potential
  - Exposure fires
  - Available fuel packages
  - Compromised fire barriers
  - Location and type of hazardous materials on site
- ✓ Evaluate the potential for structural collapse
- ✓ Identify conditions that will be hazardous to fire fighters in the event of a fire



The evaluator should keep in mind that the purpose of the inspection is to obtain basic information about a vacant property that can be used by emergency responders and in the decision making process regarding the disposition of a specific property. The *IAAI/USFA Vacant/Abandoned Building Evaluation Form* provided as part of this Tool Box is designed to serve as a guide to the collection of essential information regarding the vacant property. The amount of time required to complete the evaluation will depend on the size and complexity of the structure. The evaluation process outlined in this manual is primarily a survey of the property. It is not intended to provide an engineering analysis of the structure. **The evaluator is looking for obvious indications of problems involving the site, the building and it's contents.**

This slide provides an overview of the objectives of the building evaluation. Review them with the group – Each point will be discussed in greater detail on the slides that follow.

Direct the participants to follow along using a copy of the evaluation form.

The discussion regarding the slides that follow will track with the elements found on the form.

## Evaluating Vacant and Abandoned Buildings

### Property Data

- **Owner information**
- **Is the building secure?**
- **Status of utilities**
- **Property use**
  - ✓ **Original**
  - ✓ **When last occupied**

Obtain as much information about the property as possible.

# Evaluating Vacant and Abandoned Buildings

## Owner Information

- **Property name**
- **Owner**
  - ✓ **Name**
  - ✓ **Address**
  - ✓ **Telephone**
- **This information is essential for developing an accurate contact list for vacant properties**

Knowing who the owner is and how to contact him is critical information if problems that require correction are found during the inspection or at a later time. Obtaining this information at the time of the inspection may save a significant amount of research in the future.

# Evaluating Vacant and Abandoned Buildings

## Is the Building Secure?

- **Secure means not open to unauthorized access**
- **Do the security measures meet the requirements of the jurisdiction**

Hole in outside wall



# Evaluating Vacant and Abandoned Buildings

## Signs of Recent Entry

- Trash/litter
- Furnishings in an otherwise empty building
- Signs of recent fires for heat or cooking



Date on milk container was within a month of the inspection.

# Evaluating Vacant and Abandoned Buildings

## Utilities

- **Make note of all utilities that are still provided in building**
  - ✓ **Gas**
  - ✓ **Electricity**
  - ✓ **Water**
  - ✓ **Oil – for heat**



Determine the status of utilities connected to the building. Observe the status of utility meters and valves on the outside of the building during the exterior survey. During the evaluation of the interior, the status of the remaining utilities should be determined.

The importance of collecting information regarding utilities is to determine if these are potential sources of ignition in the building from heating or power distribution systems and to document the location of devices that emergency responders can use to control the utilities. Additionally, if fire detection and suppression systems are provided, it is important to know if there is electricity and water available and if the building is heated to prevent freezing.

The point of entry of each utility provided should be noted on the building sketch.

# Evaluating Vacant and Abandoned Buildings

## Building Use

- **What was the original use of the building?**
- **Was it used for other purposes before becoming vacant?**



The use of a structure will provide the evaluator with clues to potential hazards that may be present. Industrial buildings like the one shown on this slide may have pits and shafts for machinery as well as potential hazardous materials including asbestos, PCB's in transformers, or oil contamination.

Other uses prior to becoming vacant should alert the evaluator to look for modifications to the structure or interior finish that could create a hazard, such as removal of fire barriers and walls, removal of equipment that creates unprotected pits or fall hazards, addition of combustible interior finish, or the storage of materials that could be hazardous in the event of a fire.

### **Building Construction**

- **Evaluate the construction of the building and determine potential for fire impingement on structural members and collapse**
- **Document the height and type of construction**
- **This is a cursory review – Not a complete structural analysis**

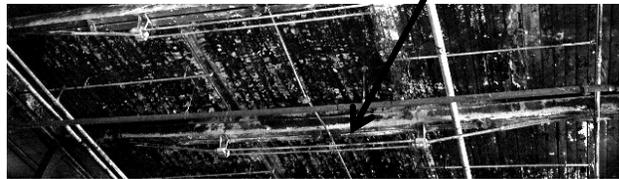
# Evaluating Vacant and Abandoned Buildings

## Exterior Walls

- Type of construction
- Indications of instability
  - ✓ Cracks
  - ✓ Use of metal ties and stars or plates on the exterior



Tie rods and turnbuckles



Cracks in exterior walls are an indicator that the wall is deteriorating. Stars or plates on the exterior are an indicator that metal tie rods have been installed in the building to assist in stabilizing the walls. This system is very sensitive to increased heat. The rods lose strength when the temperature approaches 1100°F. When this occurs the walls no longer have the support they were intended to have from the system, thus increasing the potential for wall collapse.

# Evaluating Vacant and Abandoned Buildings

## Exterior Walls

- **Number and type of openings in the walls**
  - ✓ **Potential for exposure fires**
  - ✓ **Cause for delay in alarm**



## Evaluating Vacant and Abandoned Buildings

### **Structural Members**

- **Determine the materials used in the structural framing**
  - ✓ **Steel**
  - ✓ **Concrete**
  - ✓ **Wood**
  - ✓ **Mixed – Where more than one material is used, describe in detail**

# Evaluating Vacant and Abandoned Buildings

## Truss Construction

- **Truss construction**
  - ✓ Wood
  - ✓ Steel
- **Roof framing**
- **Floor framing**
- **Explain where multiple types are used**



The issue with any type of truss construction is the potential for structural collapse early in the progression of a fire. By their nature truss elements are constructed of lighter weight materials than other types of structural components and fail more rapidly than heavier weight components. This problem is even more serious with vacant or abandoned buildings because of potential deterioration due to vandalism or exposure to the elements. Truss construction in a vacant or abandoned building is an indicator of reduced structural integrity and an increased potential for early structural failure and collapse.

# Evaluating Vacant and Abandoned Buildings

## Exposed Structural Members

- **Identify locations where structural members are exposed**
  - ✓ **By design**
  - ✓ **Due to deterioration**
  - ✓ **Intentional damage**
  - ✓ **From previous fire**



Where structural components are exposed, either by design or as a result of deterioration or vandalism, they will be exposed very early in the progression of a fire in the structure. This is also an indicator that structural failure and collapse could occur early in the development of a fire in the building.

# Evaluating Vacant and Abandoned Buildings

## Ceiling Type

- Type of ceiling system
- Condition



# Evaluating Vacant and Abandoned Buildings

## Condition of Structure

### ➤ Interior Walls, Floors and Ceilings

- ✓ Deterioration
- ✓ Penetrations that would allow fire spread



# Evaluating Vacant and Abandoned Buildings

## Condition of Structure

### ➤ Roof system

- ✓ Deterioration that would make it unsafe to operate on during a fire



# Evaluating Vacant and Abandoned Buildings

## Condition of Structure

- **General condition of structure**
  - ✓ **Will it fail rapidly when exposed to fire**
  - ✓ **Is there a potential for unexpected collapse**



Look for indicators such as deformed walls or obvious deterioration in structural members such as seen in both of these photos.

Should fire impinge on either of these structures, the buildings will in all probability fail very rapidly. Discuss the length of time the participants use as an estimate of how long a building will hold up under fire conditions. Then ask them to think about what would happen to these buildings were they to have a fire.

# Evaluating Vacant and Abandoned Buildings

## Fire Protection Systems

- **If there are fire detection or suppression systems, are they operational**
- **Could a drained sprinkler system be fed using the fire department connection**



Determine the operational readiness of any installed systems. If a building is provided with a sprinkler system, is the piping intact even though it may be drained with the valves off? Where piping is intact, there may be an option to feed the system via the fire department connection in the event of a fire. Point out the ice coming from the 2 inch drain valve in the photo above.

# Evaluating Vacant and Abandoned Buildings

## Fire Potential

- **One of the critical factors that should be evaluated is the potential for a significant fire in a vacant building due to the available fuels**
  - ✓ **Accumulations of trash and debris**
  - ✓ **Storage in the building**
  - ✓ **Combustible interior finish**

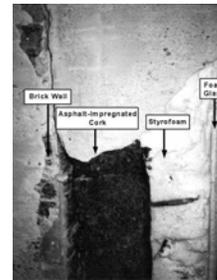


This is an introduction slide to a discussion on fire growth and development.

# Evaluating Vacant and Abandoned Buildings

## Fuel Packages

- What is in the building that will burn and how is it arranged



The term “fuel package” is one that may be new to many fire fighters. For many years the term fire load was used to describe the potential fuel in a room or building. Today the fire protection community talks about the packages of fuel that are available in a space. A fuel package is a discreet unit of fuel that will generate energy in the form of heat and light, as well as smoke and fire gasses, if it is ignited.

A typical fuel package in a living room would be a sofa. In a compartment fire where the sofa is the first item ignited, the material it is constructed of, where it is located, and the proximity of other fuel packages will determine the fire growth in the space.

This slide shows several fuel packages that are found in vacant or abandoned buildings. The mattress and other combustibles in the stairway constitute a significant fuel package due to the configuration – vertical rather than horizontal, and location – in the stairway with plenty of available oxygen. This is not the normal configuration for these fuels and ignition will very rapidly lead to a significant fire.

The trash accumulation, including tires, in the compartment is again not a normal arrangement of fuels in a compartment. Fire growth and development in this room would be again more rapid and larger than normally expected.

The last photo shows the interior finish configuration of the cold storage building in Worcester, Massachusetts. This configuration is thought to be the reason that the fire developed so rapidly after interior operations were initiated. Interior finish is a fuel package that the evaluator should carefully consider in vacant and abandoned buildings.

# Evaluating Vacant and Abandoned Buildings

## Fuel Packages

- **Trash accumulations outside of the building**
  - ✓ **Unsightly**
  - ✓ **Easy to ignite**



Trash accumulations on the exterior of structures are simple to ignite. This fuel package would more than likely result in a significant fire that extends to the entire structure. This is the type of finding that requires immediate attention.

# Evaluating Vacant and Abandoned Buildings

## Room Size

- **Room size**
  - ✓ Large
  - ✓ Medium
  - ✓ Small
- **Confusing layout**
- **Determine the potential impact on fire growth and development**



Room size is a factor on the fire growth and development potential of a building. For residential fires one attack line per involved room is a common rule of thumb. Where larger rooms are involved, additional lines or large diameter lines may be required for knock down. Thus, where larger room sizes are involved, the potential for larger fires requiring more resources for interior attack is present. The rooms shown in the top photo on this slide has been enlarged by removal of a large portion of the interior wall separating the rooms. A fire anywhere in this space will involve the entire space early in its development.

The large room on the bottom of the slide contains a number of significant fuel packages. Ignition of any available fuel in this space would result in a very large fire in a short period of time. A large commitment of resources would be necessary to mount an interior attack on this fire.

# Evaluating Vacant and Abandoned Buildings

## Fire Potential

➤ **Is there a potential for a significant delay in discovery once a fire is started?**

- ✓ **No neighbors**
- ✓ **No windows**



As part of the evaluation of fire growth potential the evaluator is asked to estimate the potential for a delay in the notification of the fire department in the event of a fire. Time is a critical factor in fire growth and development. The longer a fire is allowed to burn, the more fuel it will consume. Delays in alarm often result in large fires that challenge the ability of the fire department to control and may require significant resources to fight.

Conditions that lead to a delays in the discovery of fires in vacant and abandoned properties include:

- The size of the building
- Buildings located in remote areas
- Buildings located in high crime areas
- Lack of functioning fire detection and alarm systems
- Security measures including boarded up windows and fences
- Buildings that are surrounded by other vacant or abandoned properties

Based on observations of the building and its surroundings, the potential for a fire to grow undetected should be estimated by the evaluator.

# Evaluating Vacant and Abandoned Buildings

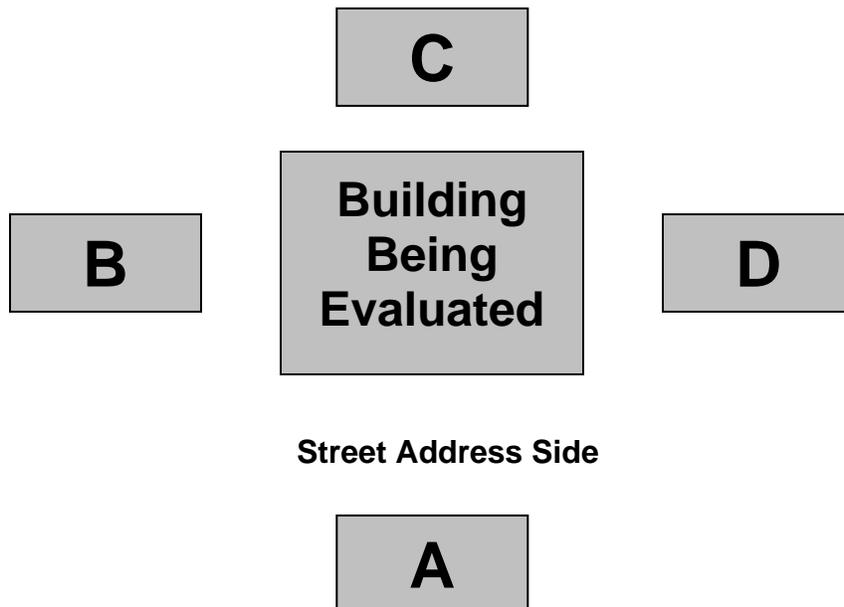
## Exposures

- Hazard increases when exposures are also uninhabited
- Distance between buildings



When evaluating this factor, the concern is the probability of an exposure fire resulting from the building being studied. The most significant factor here is the separation between the buildings and the type and number of openings. Buildings with vacant structures as exposures present the potential of a delay in alarm as no one may observe the fire for a significant period of time.

## Building/Exposure Identification



# Evaluating Vacant and Abandoned Buildings

## Hazards to Fire Fighters

Evaluate the potential hazards to fire fighters who might enter to attack a fire in the building

- ✓ Look for maze like room layouts
- ✓ Unusual layouts



This is an overview slide leading into a discussion on potential hazards to fire fighting operations. Refer participants to the NIOSH report on the Worcester fire for additional information.

# Evaluating Vacant and Abandoned Buildings

## Potential Hazards

- **Open shafts/pits**
  - ✓ Stairs removed
  - ✓ Removal of equipment
  - ✓ Urban mining
- **Serious fall hazards when smoke is present**



Fall and trip hazards are common problems in vacant/abandoned buildings. These hazards may be the result of equipment removal, urban mining ( the removal of items of value by vandals), or vandalism as in the removal of stairs or stair railings. In some instances, holes are purposely cut into floors in an attempt to cause injury to those entering the building – including fire fighters.

# Evaluating Vacant and Abandoned Buildings

## Fire Department Operations

- **What type of access does the fire department have?**
- **Is there adequate water to fight a fire?**



Many older mill buildings were built on rivers – the result is a significant reduction in access should a fire occur.

The evaluator should also determine if there is an adequate supply of water available to fight a fire in the building and protect exposures.

# Evaluating Vacant and Abandoned Buildings

## Hazardous Materials



Vacant and abandoned properties are frequently used as a dumping spot for hazardous materials. Additionally, when a property is vacated the owner or former occupants may leave behind potentially hazardous materials. Should potentially hazardous or dangerous materials be observed during the evaluation the findings should be documented so that corrective action can be taken.

Evaluators should expect to find potentially hazardous materials in these buildings and operate accordingly during the evaluation process. That includes the use of proper personal protective clothing, adequate lighting during the evaluation, and avoiding contact with any material that could prove hazardous.

# Evaluating Vacant and Abandoned Buildings

## Fix it Now

**Are there conditions that should be remedied immediately?**

- ✓ **Significant fire hazards**
- ✓ **Lack of security**
- ✓ **Trash accumulations**
- ✓ **Life safety hazards**
- ✓ **Potential for collapse**



As with any inspection the evaluator should identify any areas found that may require immediate action. Trash accumulations in or near the structure, unsecured openings into the building that could be used for unauthorized access, and serious collapse potential are all examples of items that would require immediate attention..

## Evaluating Vacant and Abandoned Buildings

### **Pulling it All Together**

- **Analysis – based on your knowledge and experience**
- **Explain your findings – documentation of what you found**
- **Draw a sketch – will assist in interpreting your observations**
- **Make sure report is readable**

# Evaluating Vacant and Abandoned Buildings

## Your Analysis

- Evaluate the fire growth potential
  - ✓ Exposure fires
  - ✓ Available fuel packages
  - ✓ Compromised fire barriers
  - ✓ Location and type of hazardous materials on site
- Evaluate the potential for structural collapse
- Identify conditions that will be hazardous to fire fighters in the event of a fire

The analysis section of the form provides the evaluator with the opportunity to use the information collected to rate the building. The ratings of **HIGH**, **MODERATE** and **LOW** are assigned to each of the listed conditions based on the knowledge and experience of the evaluator. A **HIGH** potential assigned to any of the conditions should trigger an in-depth review of the property and implementation of precautions to reduce the threat to the safety of emergency responders and the public.

See the Evaluation Manual for an in-depth discussion of the evaluation process.

# Evaluating Vacant and Abandoned Buildings

## Posting Recommendation



Based on the information collected and the analysis of the building, a recommendation for posting of the building should be made. Posting should be in accordance with the procedures established by the jurisdiction. Slide 24 above provides an example of a system used to alert emergency responders to hazardous conditions in a structure. Jurisdictions should also consider requiring the buildings to be posted with **No Trespassing** signs to assist law enforcement officials in managing unauthorized access.

If the analysis of the building indicates that there is a significant hazard to fire fighters or other emergency responders, it should be posted. A **HIGH** risk rating in any of the items in the Analysis Section should cause the building to be posted for exterior operations only.

# Evaluating Vacant and Abandoned Buildings

## Activity



**As a team complete the evaluation form for the assigned building.  
Develop a report for the group and discuss your findings with other teams who evaluated the same structure.  
Identify areas where the groups disagree and come to a consensus.**

The Lesson Plan for this Module contains additional information on this activity.

# Evaluating Vacant and Abandoned Buildings

## Questions

