

Vacant Buildings

Spring 2010

Vacant Buildings

- Code Requirements
 - Building Code
 - Fire Code
- Vacant Buildings
 - Concepts
 - Concern
- Case Study
 - CSP Fire Investigator

Vacant Buildings

- 2009 Amendment to the CT SBC
 - New Section 117 Vacant Buildings
 - 117.1 General
 - 117.1.1 Abandoned premises
 - 117.2 Safeguarding vacant premises
 - 117.2.1 Security
 - 117.2.2 Fire protection

Vacant Buildings

- 2009 Amendment to the CT SBC cont.
 - 117.2.3 Fire Separation
 - 117.3 Removal of combustibles
 - 117.4 Removal of hazardous materials

Vacant Buildings

- 2005 CT Building Code
 - Section 115 Unsafe Structures and Equipment
 - 115.1 Conditions
 - 115.2 Record
 - 115.3 Notice
 - 115.4 Method of service
 - 115.5 Restoration

Vacant Buildings

- 2005 CT Building Code
 - Section 116 Emergency Measures
 - 116.1 Imminent danger
 - 116.2 Temporary safeguards
 - 116.3 Temporary closings
 - 116.4 Emergency work
 - 116.5 Cost of emergency work

Vacant Buildings

- 2009 CT Amendment to the CT SFSC
 - Part V Maintenance & Operational
 - 10.14 Vacant Buildings and Premises
 - 10.14.1 General
 - 10.14.1.1 Abandoned Premises

Vacant Buildings

- 2009 CT Amendment to the CT SFSC
 - 10.14.2 Safeguarding Vacant Premises
 - 10.14.2.1 Security
 - 10.14.2.2 Fire Protection
 - 10.14.2.3 Fire Separation

Vacant Buildings

- 2009 CT Amendment to the CT SFSC
 - 10.14.3 Removal of Combustibles
 - 10.14.4 Removal of Hazardous Materials

Vacant Buildings

- Two categories – CBC & CSFSC
 - Abandoned Premises
 - Vacant Buildings & Premises

Vacant Buildings

- CSBC & CSFSC Requirements
 - General
 - Temporarily unoccupied buildings, structures or portions there of including tenant spaces shall be safeguarded and maintained per this section

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Abandoned Premises
 - Buildings for which a building owner cannot be identified or located by certified mail to last known address
 - Which persistently or repeatedly become unprotected

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Abandoned Premises
 - Which have been occupied by unauthorized persons or for illegal purposes
 - Which present a danger of structural collapse or fire spread to adjacent properties
 - Shall be considered abandoned

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Abandoned Premises
 - Declared unsafe
 - Abated or demolished per these codes

Vacant Buildings

- Abandoned buildings
 - Municipal issue
 - Code officials
 - Corporation Council
 - Other municipal officials/leaders
 - CGS 49-73b Municipalities authorized to recover expenses
 - Due diligence prior to **irreversible actions** being taken

Vacant Buildings

- Abandoned buildings
 - The intent of these codes are to render abandoned buildings safer

 - The following abatement actions apply to abandoned buildings (Mothballing)
 - Safeguarding Vacant Premises
 - Removal of Combustibles
 - Removal of Hazardous Materials

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Safeguarding Vacant Premise (Mothballing)
 - Temporarily unoccupied buildings will be secured and protected
 - Security - exterior and interior openings accessible to other tenants or unauthorized people shall be
 - » boarded
 - » locked
 - » blocked
 - » otherwise protected
 - » to prevent entry by unauthorized individuals

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Fire Protection - fire alarms, sprinklers and standpipe systems shall be operable at all times
 - Exception 1
 - Premise cleared of all combustible materials/debris
 - In the opinion of the code official if the following do not create a fire hazard
 - » Type of construction
 - » Fire separation distance
 - » Security

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Fire Protection
 - Exception 2
 - No heat freezing temp., fire alarm and sprinkler system are permitted to be placed out of service, and standpipes maintained as dry provided building has no contents or storage and windows, doors and other openings secured

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Fire Separation
 - Fire rated partitions, barriers, and fire walls separating vacant space from remainder of the building shall be maintained

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Removal of Combustibles
 - Persons in charge of a vacant building or portion of shall remove all combustible materials and flammable/combustible rubbish from space and secure openings to prevent entry by unauthorized persons

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Removal of Combustibles
 - Exception 1 - buildings undergoing repair, alteration, or addition under a valid permit per this code
 - Exception 2 - seasonally occupied buildings

Vacant Buildings

- CSBC & CSFSC Requirements cont.
 - Removal of Hazardous Materials – owner/ person in charge of a vacant building or portion of remove all accumulations of hazardous materials as defined by this code

Inspection and Evaluation

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

Target Properties

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



Greyfields – An Emerging Problem

- Vacant or under utilized commercial structures
- Former Big Box type stores that are left vacant when the retailer moves to a larger or more modern property
- Typically are protected by sprinklers – that may not be maintained during vacancy
- Large unused parking area
- Large loading dock area that is not visible from street



The Problem

- 2003-2006 Vacant Building Fires (NFPA)
 - 31,000/yr
 - 50 civilian deaths/yr
 - 141 civilian injuries/yr
 - \$642 million in direct property damage/yr

The Problem

- Fire Fighters are more likely to be injured fighting fires in vacant properties than any other property type

- More than 4500 fire fighters injuries every year
- From 1998 to 2007 - 15 fire fighters died while operating at fires in vacant/idle properties



The Impact on the Community

- Crime
- Safety
- Community image

Abandonment is a contagious phenomenon



The Vacancy Progression



Owner: Responsive
Uninhabited
Secure



Owner: Unresponsive
Uninhabited
Open to Unauthorized Entry



Owner: Absentee or Unknown
Building Deteriorating
Open to Unauthorized Entry

Least

DETERIORATION
Hazard to Public Safety

Greatest



Early Warning Signs

- Previous fires
- A history of back taxes
- Unabated housing code violations
- Unreleased liens and attachments
- Building owners with a history of abandoning other properties
- Decreasing utility usage
- Increasing vacancy in multi-tenant properties



Dealing with the Problem

- Interdepartmental cooperation
- Determine the magnitude of the problem
- Identify properties with a potential for abandonment
- Evaluate vacant and abandoned structures
- Aggressive code enforcement to prevent deterioration



Interdepartmental Cooperation

- City Manager/Mayor
- Community Development
- City Solicitor
- Building Inspector
- Fire Department
- Police Department
- Assessors
- Treasurer



Without the involvement of these departments or individuals, at a minimum, it will be difficult to deal with the problem

Why Building Security is Essential?

- Of the more than 31,000 fires in vacant structures every year
 - Nearly 43% are intentionally set
 - 4% are caused by children playing with matches



Short Term Solutions

- Provide building security
- Surveillance to monitor security
- Remove combustibles
 - Interior
 - Exterior



Securing Buildings

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



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



Property Data

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

Is the Building Secure?

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



Secured or Unsecured

- What method was used to secure the building?
- Are security measures monitored periodically and repaired when necessary?
- Has the fire department pre-planned the building and its access points?
- Does the security inhibit detection and discovery of the fire?
- Once inside can fire department escape?





Signs of Recent Entry

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



Building Use

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



Occupancy

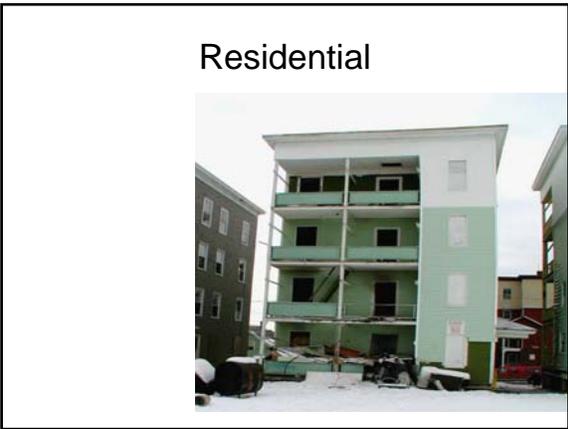
- What was the occupancy used for prior to its abandonment?
- Has the occupancy now been used for storage?



Commercial



Residential



Churches





Common Problems

- Known or suspected abandoned
- Length of time abandoned
- Known to fire department
- Systems in place or disconnected
- Building Contents, equipment / machinery / storage
- Deterioration due to weather exposure
- Unsecured buildings

Known Abandoned

- Pre-fire planning by companies
- Records from city or town offices
- Fire prevention inspection records
- Request for termination and shut down of systems and equipment

Length of Time Abandoned

- Will have an impact on structural deterioration
- Will have an impact on the accessibility and frequency of vandalism
- Security measures will begin to fail
- Economic incentives for the building may shift and change

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

Construction Features

- In addition to all normal construction considerations consider
Deterioration
 - ✓ Due to vandalism and weather exposure
 - ✓ Openings or holes in structural elements that will allow abnormal fire travel
 - ✓ Removal of structural elements that reduce stability and create fall hazards

Structural Collapse



- Weakened structural components
 - Weather
 - Age
- Exposed structural members

Exterior Walls

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



Exterior Walls

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



Structural Members

- Determine the materials used in the structural framing
 - Steel
 - Concrete
 - Wood
 - Mixed – Where more than one material is used

Truss Construction

- Truss construction
 - Wood
 - Steel
- Roof framing
- Floor framing



Exposed Structural Members

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



Ceiling Type

- Type of ceiling system
- Condition



Condition of Structure

- Interior Walls, Floors and Ceilings
 - Deterioration
 - Penetrations that would allow fire spread



Condition of Structure

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



Condition of Structure

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



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



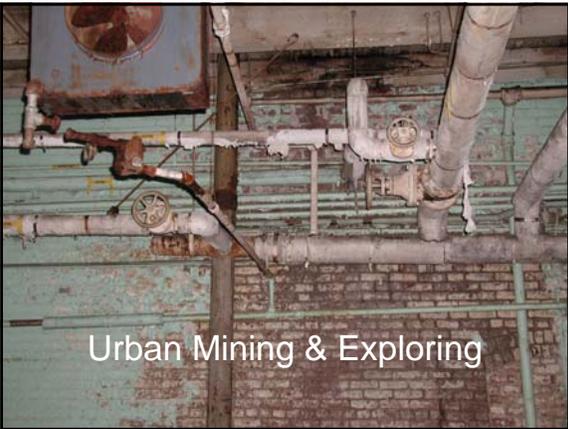












Urban Mining & Exploring

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



Fuel Packages

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





What is left behind?

Fuel Packages

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



Room Size

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



Abandoned but has Storage

- Are large pieces of machinery and equipment still in place?
- Are there large open holes where machinery once was?
- Is there neglected material storage still in place?
- Was the structural integrity compromised during the removal of large machinery?











Exposures

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



Exposures

- Flame damage beyond structure (NFPA)
 - 9% of fires in secured vacant
 - 12% of fires in unsecured vacant
 - Only 3% of structure fires overall

Hazardous Materials





Fix It

Are there conditions that should be remedied ?

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



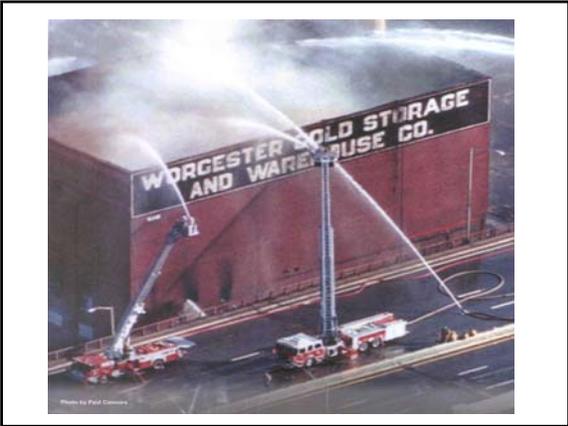
Pulling it All Together

- 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

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



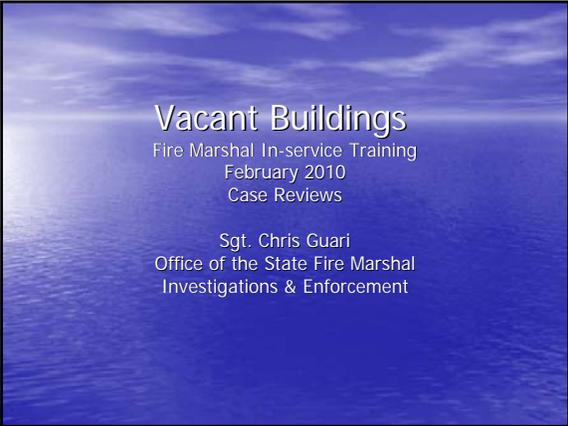


Vacant Buildings

- NFPA
 - 43% of vacant building fires were intentionally set
 - In unsecured properties 57% of these fires were intentional
 - In secured properties 31% of fires were intentional
 - Vacant buildings accounted for 25% of all intentionally set structure fires

Vacant Buildings

- Case Study - CSP







1995 States Attorney's Probe

- 06-10-1995, Fire at 322 Main St. Willimantic.
- 07-05-1995, Fatal Fire at 700 Riverside Dr. Thompson. 11 year old runaway dies in Mill Fire.
- 08-28-1995, Windham County S/A requests a special investigation into vacant building fires in Windham County.

Windham Mills Fire

- Willimantic Fire Marshal, Willimantic P.D. and OSFM investigation into the fire.
- Building involved is a 2 ½ story masonry structure detached from what was a multi-story Mill Renovation.
- Three Juveniles go into the mill building and over multiple entries start small fires in the papers within the structure.

- During one of the entries they light a fire in a foam chair and watch it burn. It goes out and they leave thinking that the fire is out.
- Approx 0146 hrs. there is a multi alarm response for a structure fire.
- Through investigative efforts the three juveniles are arrested for Arson 1st.

Issues regarding the structure

- Poor site security.
- Undetected criminal activity.
- Accumulation of debris and combustible materials.
- Unknown Hazardous Materials?







Thompson Mill Fire - Fatality

- Fire Investigation by the Thompson Fire Marshal/OSFM. Troop D and Eastern District Major Crime for the Untimely Death of a Juvenile.
- Building is a masonry structure that previously housed a furniture manufacturing operation.
- Fire Marshal originally called for A-K-9 due to similarities to a mill fire in the area 2 months earlier.



- Building was not used for years prior to the fire.
- A family friend was supposed to check on the building regularly.
- Electricity to the building.
- Numerous containers of unmarked materials remained in the structure.

- 1022 hours while conducting an interior examination the OSFM troopers locate the body of the 11 year old juvenile.
- The juvenile and his friends were known to enter the mill through the back door and hang out inside.
- Juvenile was also known to play with firecrackers etc...

- Fire determination showed that more than one area was ignited in the C&O.
- Some of the same issues exist with scene security, prior criminal activity as well as the known and unknown contents of the mill building.







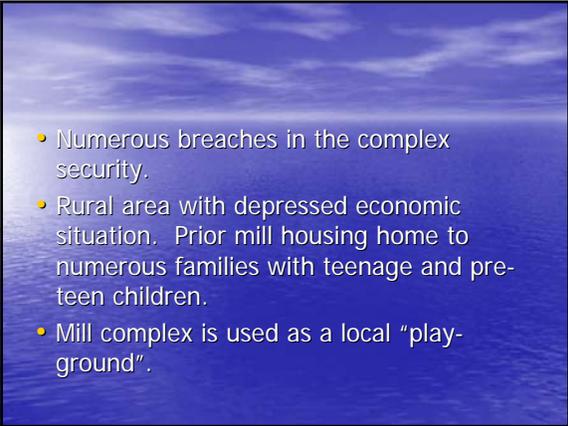


States Attorney requests

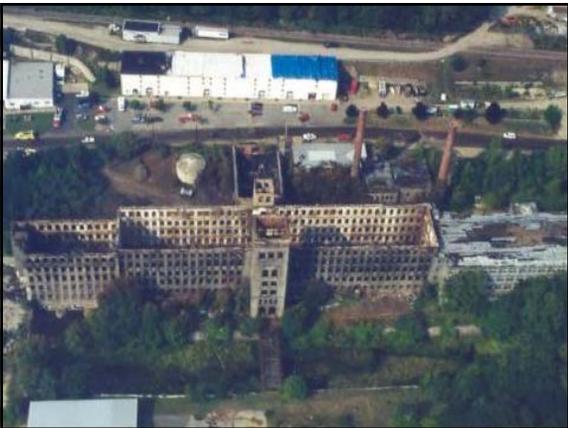
- S/A's Office requests and inquiry into whether or not there were any code violations regarding the Thompson Fatal Fire. 10-11-1995.
- Review of the site was conducted by the OSFM and OSBI. It was determined that the site did not violate any codes at that point however, it was sited post-fire to be secured under the building code.

Baltic Mill Fire

- Large turn of the century stone mill complex.
- Majority of the building is vacant. Some small business or light industry application prior to the fire in portions of the mill.
- Building is owned by a group of conservationists that wish to maintain the integrity of the mill.
- Group dwindles down to one individual that is left as the sole owner after Haz-Mat analysis is done on Mill Complex.

















































Inter-Royal Mill Fire, Plainfield

- 04-26-2005, 6 Community Ave. Plainfield.
- Fire comes in at 1911 hrs. Reported to be in the area of the main tower as light colored smoke.
- Mill was the subject of investigation for illegal demolition, as well as questions about previous contamination.
- Mill building and complex had numerous open doors, broken windows and broken fence lines due to the demolition work that was being done and years of illegal activity by area youths, etc...

- Information was developed regarding two juveniles and one teenager that had been in the mill approx. 30 minutes prior to the fire. One was identified as a 911 caller.
- Interviews were conducted and they admitted to being in the mill giving information about locations in the mill that were later identified.

- At this point one of the juveniles admits that the other two left her outside and they re-entered the building, "to retrieve an item left inside".
- After further questioning they admit to being in the area of origin but never admit to lighting the fire.







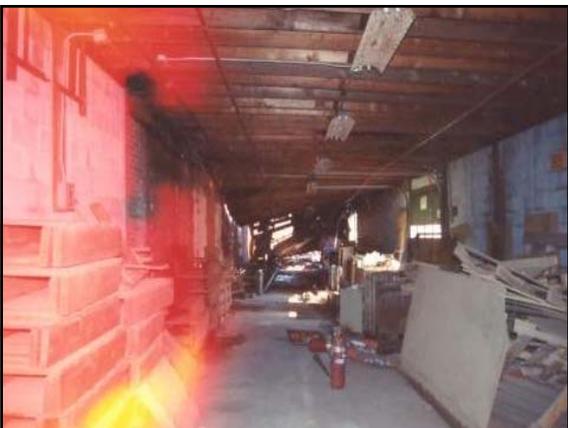










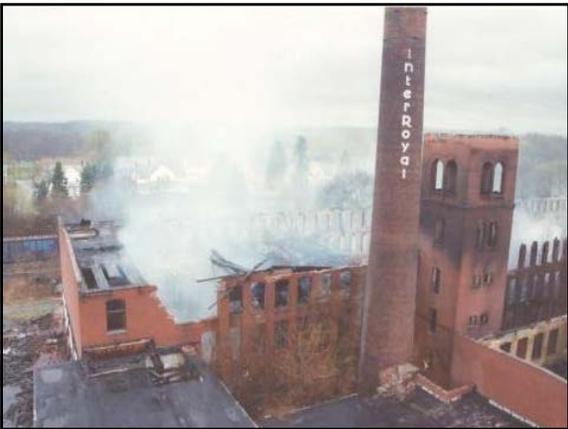






















Re-occurring Themes

- Building left vacant and in dis-repair.
- Poor Scene security.
- Evidence of prior criminal activity.
- Accumulation of ordinary combustibles
- Juvenile hang out.
