



IAAI/USFA Abandoned Building Project Securing Abandoned Building Presentation Outline



Introduction

Building security is essential to the prevention of unauthorized entry into vacant and abandoned buildings. Properly securing vacant and abandoned buildings is a key to the prevention of crime, fire and deterioration due to exposure to the elements. This lesson is intended to introduce the principals of building security to participants. A PowerPoint presentation designed to support this lesson is also available from the IAAI and USFA.

Objectives

At the completion of this program, participants will be able to:

1. Describe the purpose of securing vacant and abandoned buildings.
2. Describe the methods available for securing buildings based on the potential threat to security.
3. Explain the pros and cons of the HUD reinforced board up process.
4. Evaluate a vacant/abandoned building and determine the proper method for securing the structure and actions necessary to make the structure safe prior to the board up.
5. Develop a materials list for a reinforced board up, given a vacant or abandoned structure and a board up checklist.

LESSON PLAN – Securing Vacant and Abandoned Buildings

Lesson Plan

Time Required: Presentation – 1.5 Hours; Activity – 4 hours

Materials:

- ✓ Board-up specifications and drawings as handouts
- ✓ Support slides or slides of board ups of vacant/abandoned buildings in community

References:

- ✓ *IAAI/USFA managing Vacant and Abandoned Properties in Your Community*
- ✓ *Fixing Broken Windows: Restoring Order and Reducing Crime in Our Communities*, George L. Kelling and Catherine M. Coles. 1996, Touchstone Books, New York, NY.
- ✓ *Tricks of the Trade: Removing HUD Window Covers*, Daniel M. Troxell. Fire Engineering, July 2001.
- ✓ *Mothballing Historic Buildings*, U.S. Park Service Manual, <http://www2.cr.nps.gov/tps/briefs/breif31.htm>
- ✓ *U.S. Fire Admin. Board-up Procedures*

Overview:

- ✓ Introduction – Why secure vacant/abandoned buildings?
- ✓ Objectives
- ✓ Methods
- ✓ What doesn't work
- ✓ The HUD/USFA Reinforced Method
- ✓ Monitoring the property

Methodology

- ✓ Lecture/discussion
- ✓ Optional field activity

Program Outline

I. Introduction – Why secure vacant/abandoned buildings?

- A. Vacant or abandoned – What is the difference? – Discuss the difference between a vacant and an abandoned property and the importance of early intervention in the vacancy progression to deal with the properties while a viable property owner is still available.
- B. The magnitude of the problem – Discuss the statistics provided in the background section above regarding the magnitude of the problem in our cities and towns. Review the issues and statistics in your community.
- C. Discuss the impact that vacant and abandoned buildings have on the community
 - a. Crime
 - b. Community image
 - c. Blight
- D. Do you have the authority to secure vacant and abandoned properties? – Discuss the codes and ordinances that provide the authority to order the securing of properties the jurisdiction and the process that must be followed.

II. Security Objectives

- A. Prevent unauthorized access
- B. Reduce deterioration due to vandalism and exposure to weather
- C. Discuss the need to accomplish the task well so that the objectives can be met.
- D. Discuss the pros and cons of building security

III. Building Security and Marking

- A. What methods can be used to properly secure vacant or abandoned properties?
- B. Discuss the requirements of the jurisdiction.
- C. Discuss how the proper level of security is determined.
- D. Discuss alternative security methods
 - a. Intensive surveillance
 - b. On-site security guards
 - c. Intrusion alarm system
- E. Evaluating the building prior to securing it
- F. Preparation for security
 - a. Remove combustible
 - b. Remove hazardous materials
 - c. Disconnect utilities
 - d. What materials will be needed to complete the job
 - e. Are there hazards that require immediate attention prior to securing?
- G. What materials are suitable for board-up – Not particle board
- H. Searching buildings prior to board-up

LESSON PLAN – Evaluating Abandoned Buildings

IV. HUD Security Methods

- A. The HUD method
- B. The HUD Reinforced method, also known as the USFA National Arson Prevention Initiative method
- C. Discuss each method and list the benefits and potential applications for each

V. Installing a Reinforced Board Up

- A. Review Board-up specifications
- B. Review Board-up diagrams or drawings
- C. Discuss the role of the interior crew
- D. Discuss the role of the exterior crew
- E. Review methods for securing large openings
- F. Review methods used to provide a means of allowing authorized access to the structure.
- G. Why install a No Trespassing sign?
- H. Discuss the use of placards to identify properties for exterior firefighting operations only

VI. Questions and discussion

VII. Optional group activity

LESSON PLAN – Securing Vacant and Abandoned Buildings

Attachment A – Board Up Specifications and Drawings

USFA National Arson Prevention Initiative Board Up Procedures

Materials List and Specifications

Security Measures

1. All openings in the basement, first floor doors and windows, and any point of entry accessible from a porch, fire escape or other potential climbing point shall be barricaded with plywood, 2x4 braces, carriage bolt sets, and nails. Particle board, wafer board, Masonite, or other similar material shall not be used for purposes of boarding-up a building.
2. Openings that are at least 10' from ground level which are not accessible from a porch, fire escape, roof, or other climbing point can be secured with nails in each brace, and every 12" around the perimeter. For all openings, the plywood should be fitted so that it rests snugly against the exterior frame, butting up to the siding on wood frame buildings and up to the brick molding edge on brick buildings. It may be necessary to remove the staff bead so this fit can be flush and tight.
3. The structure shall be posted with a NO TRESPASSING sign at the completion of the board-up.

Materials

1. Plywood, 1/2" (4 ply) exterior grade CDX
2. Braces - 2" by 4" by 8' construction grade lumber
3. 3/8" (coarse thread) by 12" carriage bolts (rounded head on weather side)
4. 3/8" (coarse thread) construction grade nuts
5. 1/2" (USS Standard) Flat washers with an inside diameter large enough to bypass the wrench neck inside the carriage bolt head so no lift edge is available beneath an installed carriage bolt head.
6. 3/8" (USS Standard) diameter flat washers for installation beneath the nut inside the building
7. 1-5/8" (6d) galvanized or stainless steel ring-shank nails or comparable deck nails.

LESSON PLAN – Securing Vacant and Abandoned Buildings

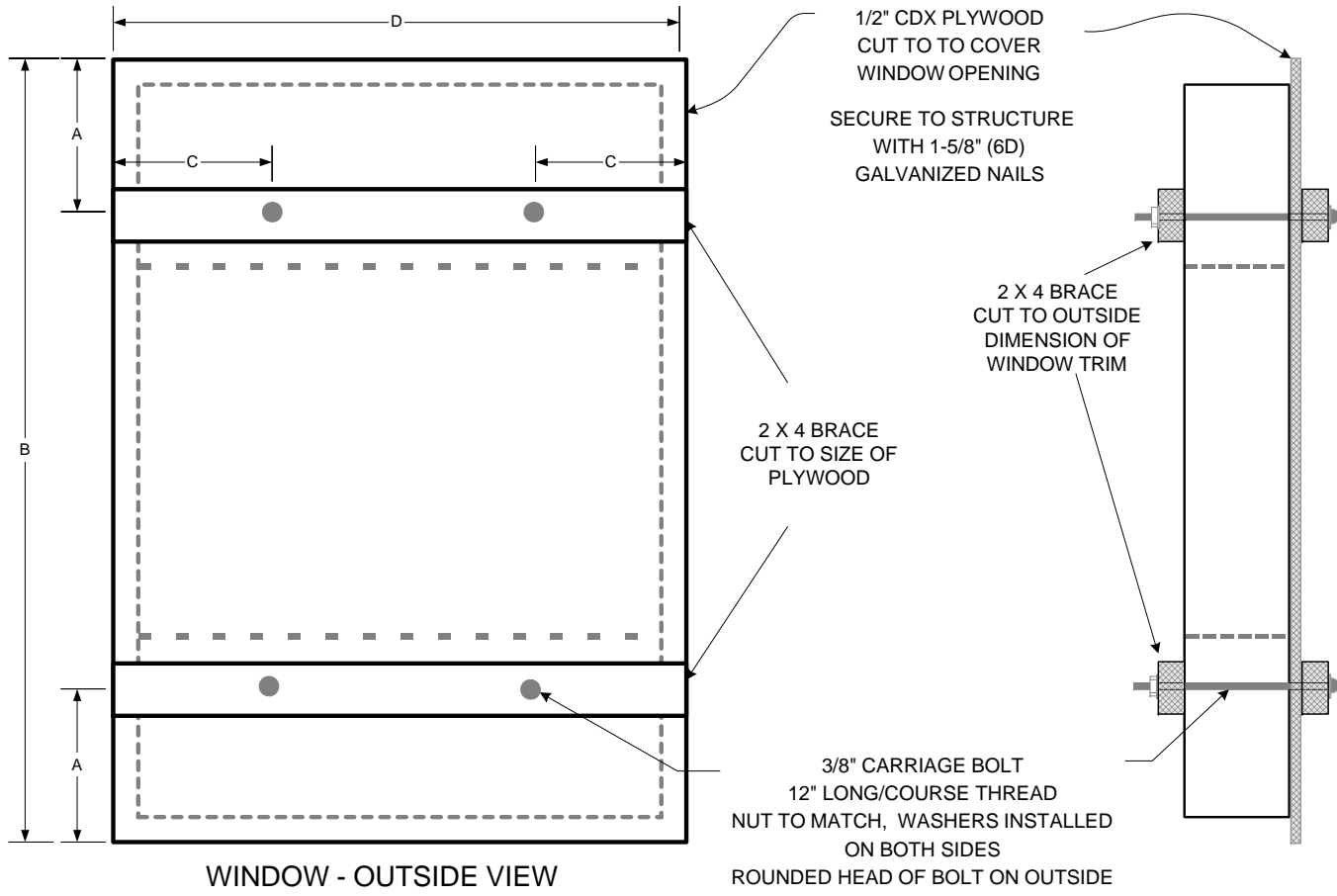
Barrier Assembly

1. Applying barriers is accomplished with a inside and outside carpenter with appropriate tools and supplies. The inside carpenter will need a light. Exit is made over a ladder when the last window is boarded.
2. Plywood shall be cut to fit over the window and door openings, flush with outside of the molding/trimmer stud. Application of barriers shall be completed so that all lift or pry points are avoided.
3. The 2x4 braces shall be cut to fit the horizontal dimension of the plywood. Two exterior and two interior 2x4 braces shall be provided for each window and three sets for each door.
4. Window Assembly – Braces are located horizontally approximately 1/3 of the distance from the top and the bottom of the window. Bolt holes are located 1/3 of the length of the brace from the outside edge of the window jams. Prior to installation, the assembly should be pre-assembled and 3/8” holes drilled through all of the components.
5. Door Assembly – Door braces will be placed horizontally; one in the center of the doorway and one 1/2 the distance from the center to the top and one 1/2 distance from the center to the bottom of the doorway. Bolt holes are located 1/3 of the length of the brace from the outside edge of the door frame. Prior to installation, the assembly should be pre-assembled and 3/8” holes drilled through all of the components.
6. Plywood used to cover exterior openings shall be nailed every 12" along the perimeter to the window or door frame.
7. The 2x4 braces on the interior and exterior of the assemblies shall be secured using 3/8” by 12” carriage bolt assemblies. Bolts shall be inserted through the pre-drilled holes from the exterior with a 1/2” washer place against the exterior brace, a 3/8” washer is placed against the interior brace. The bolt is tightened from the inside so that it slightly compresses the interior brace.
8. The exterior surfaces of barriers shall be painted or stained the same color as the structure to minimize the appearance.

Should the through-bolt compression method be impossible due to the size or condition of the opening, the opening shall be covered with plywood and secured with a minimum of 3-inch-long deck or wood screws installed on 4-inch centers around the circumference of the opening.

For buildings that require access by authorized personnel, a single door that is visible from the street may be secured using a solid core wood or steel door. There shall be no windows or other openings in this door. The door shall be securely locked using a padlock and hasp assembly that is bolted through the door. The lock loop portion of the hasp is attached to the door frame using a minimum of 3-inch-long wood screws.

LESSON PLAN – Securing Vacant and Abandoned Buildings





NOTES:

1. FOR DOUBLE HUNG WINDOWS, SLIDE SASH TO CENTER OF UNIT AND PASS BOLTS THROUGH OPENINGS AT TOP AND BOTTOM.
2. STORM WINDOWS SHOULD BE REMOVED AND STORED INSIDE STRUCTURE.
3. OUTSIDE TRIM MAY HAVE TO BE REMOVED TO ACCOMMODATE A FLUSH AND TIGHT FIT.
4. TIGHTEN NUTS FROM INSIDE ENOUGH TO SLIGHTLY COMPRESS 2X4 BRACE.
5. BRACE LOCATIONS: $A = 1/3 B$ (SEE DIMENSION LOCATIONS ON DRAWING)
6. LOCATION OF BOLT HOLES: $C = 1/3D$ (SEE DIMENSION LOCATIONS ON DRAWING)

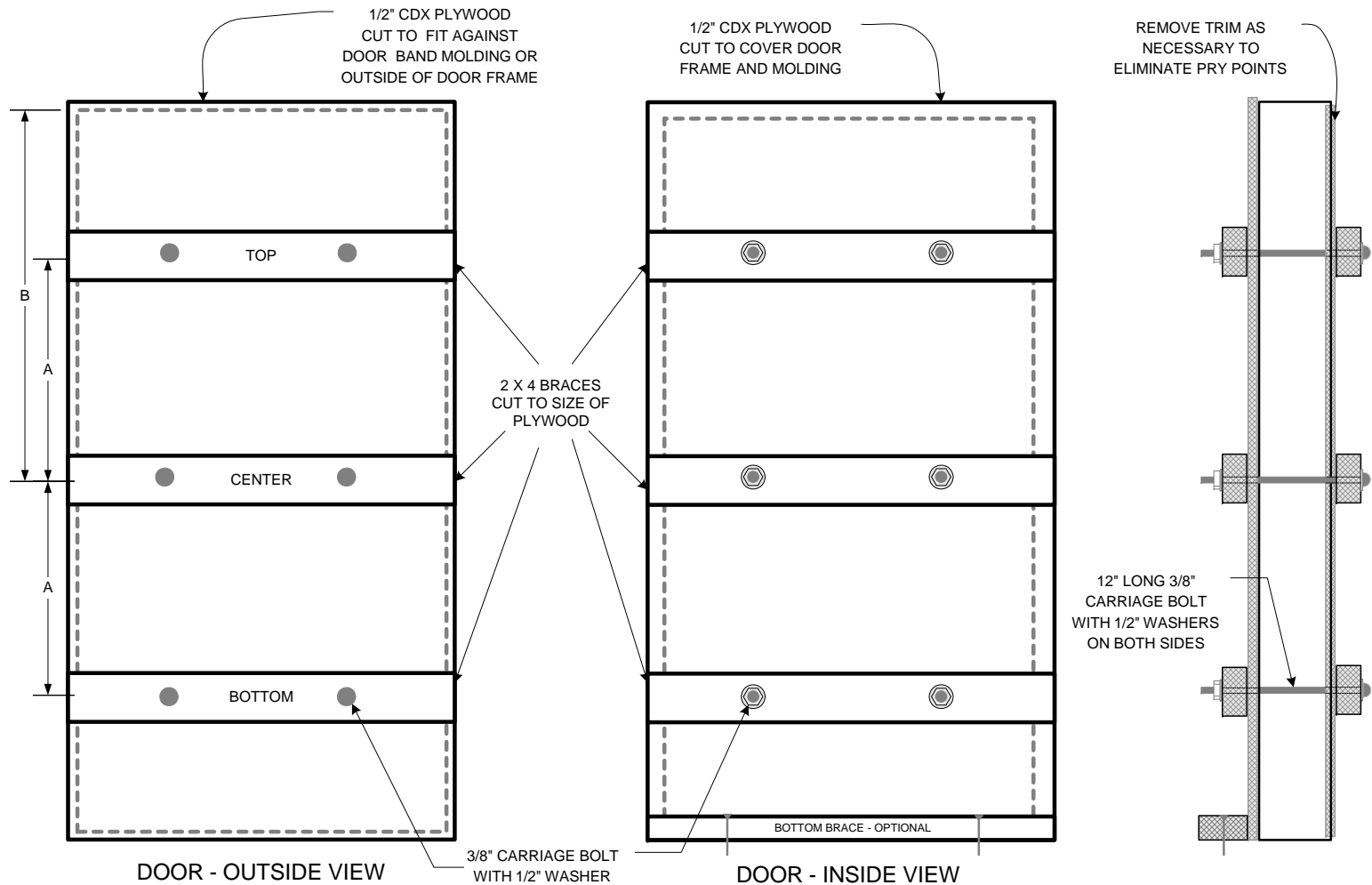
USFA National Arson Prevention Initiative
Board Up Procedures

Window Detail

IAAI/USFA Abandoned Building Project

LESSON PLAN – Securing Vacant and Abandoned Buildings





NOTES:

1. DOOR IS REMOVED AND STORED INSIDE BUILDING.
2. USE 3/8" X 12" CARRIAGE BOLTS - ROUNDED HEAD ON OUTSIDE OF BUILDING
3. TIGHTEN NUTS FROM INSIDE ENOUGH TO SLIGHTLY COMPRESS 2X4 BRACE.
4. IF PLYWOOD CAN NOT BE BUTTED AGAINST BAND MOLDING, CUT TO COVER OUTSIDE EDGE OF DOOR FRAME.
5. BOLT HOLES ARE LOCATED AS THEY ARE FOR WINDOWS (SEE WINDOW DETAIL)
6. CENTER BRACE LOCATED IN CENTER OF DOORWAY OPENING. TOP AND BOTTOM BRACES ARE POSITIONED WHERE $A = 1/2B$ (SEE DIMENSION LOCATIONS ON DRAWING)

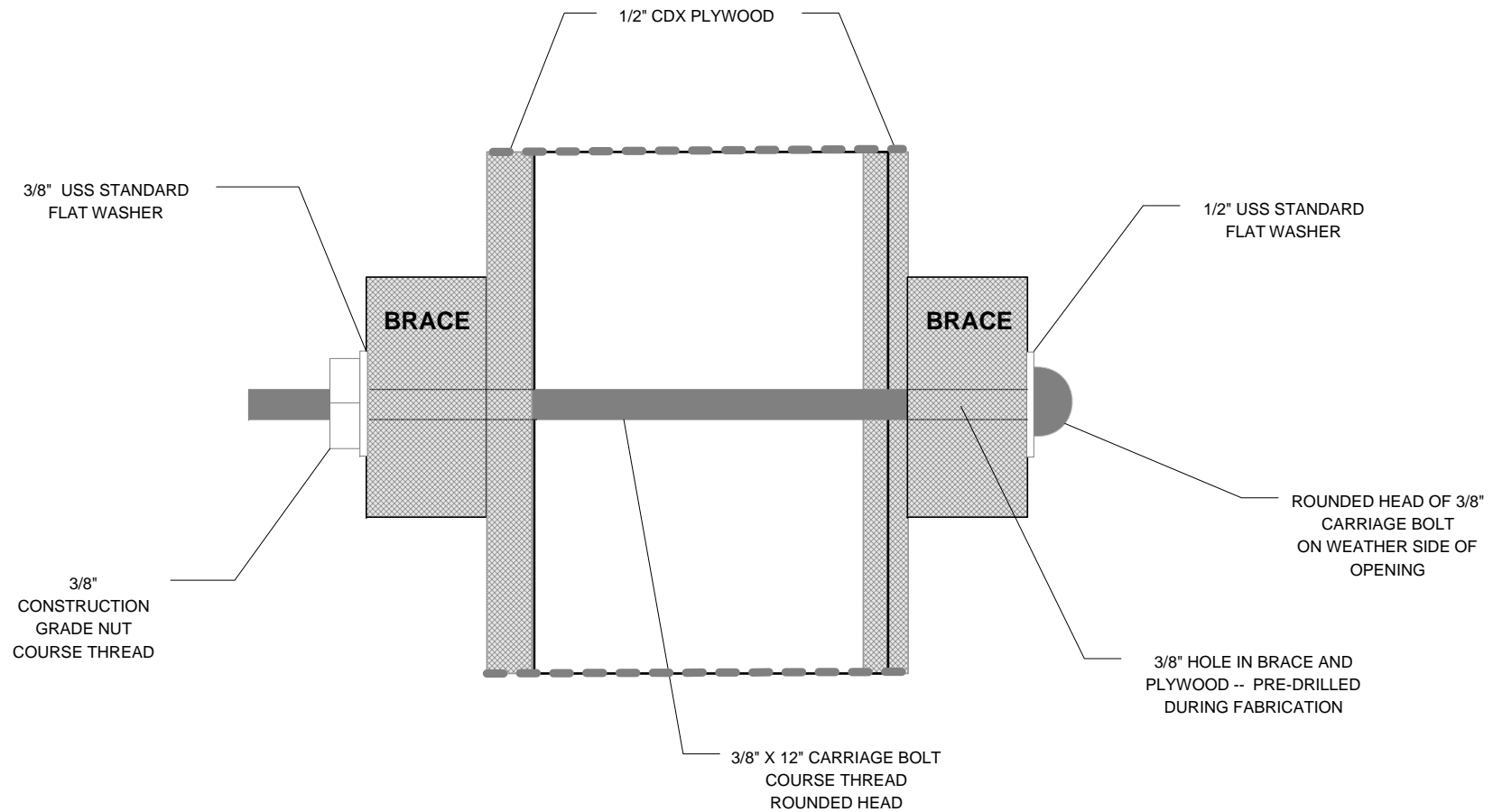
USFA National Arson Prevention Initiative
Board Up Procedures

Door Detail

IAAI/USFA Abandoned Building Project

LESSON PLAN – Securing Vacant and Abandoned Buildings



NOTES:

1. USE 3/8" X 12" CARRIAGE BOLTS - ROUNDED HEAD ON OUTSIDE OF BUILDING
2. TIGHTEN NUTS FROM INSIDE ENOUGH TO SLIGHTLY COMPRESS WASHER INTO 2X4 BRACE.
3. USE 1/2" WASHER ON WEATHER SIDE TO ACCOMMODATE THE THE WRENCH NECK OF BOLT AND ELIMINATE PRY POINTS.

USFA National Arson Prevention Initiative
Board Up Procedures



Bolt Assembly Detail
IAAI/USFA Abandoned Building Project



LESSON PLAN – Securing Vacant and Abandoned Buildings

WINDOW ASSEMBLY

MATERIALS REQUIRED PER WINDOW

- 1 1/2" CDX PLYWOOD SHEET - CUT TO DIMENSIONS OF WINDOW FRAME (WEATHER SIDE)
- 4 2X4 BRACES - CUT TO WIDTH OF PLYWOOD
- 4 CARRIAGE BOLT ASSEMBLIES

DOOR ASSEMBLIES

MATERIALS REQUIRED PER DOOR

- 1 1/2" CDX PLYWOOD SHEET - CUT TO DIMENSIONS OF DOOR FRAME (WEATHER SIDE)
- 1 1/2" CDX PLYWOOD SHEET - CUT TO OUTSIDE DIMENSIONS OF DOOR FRAME TRIM (INSIDE)
- 6 2X4 BRACES - 3 CUT TO WIDTH OF OUTSIDE PLYWOOD, 3 CUT TO WIDTH OF INSIDE PLYWOOD
- 1 2X4 BOTTOM BRACE - CUT TO WIDTH OF DOOR TRIM (OPTIONAL)
- 6 CARRIAGE BOLT ASSEMBLIES

CARRIAGE BOLT ASSEMBLY

- 1 12' X 3/8" CARRIAGE BOLT - COURSE THREAD
- 1 1/2" USS STANDARD FLAT WASHER (WEATHER SIDE)
- 1 3/8" USS STANDARD FLAT WASHER (INSIDE)
- 1 3/8" CONSTRUCTION GRADE NUT - COURSE THREAD

NUMBER OF WINDOWS TO BE SECURED (N_w): _____

NUMBER OF WINDOWS BRACES REQUIRED: ($N_w \times 4$) _____

CARRIAGE BOLT ASSEMBLIES REQUIRED (B_w): ($N_w \times 4$) _____

NUMBER OF DOORS TO BE SECURED (N_d): _____

NUMBER OF DOOR BRACES REQUIRED: ($N_d \times 6$) _____

NUMBER OF BOTTOM BRACES REQUIRED: (N_d) _____

CARRIAGE BOLT ASSEMBLIES REQUIRED (B_d): ($N_d \times 6$) _____

TOTAL CARRIAGE BOLT ASSEMBLIES REQUIRED: ($B_w + B_d$) _____

USFA National Arson Prevention Initiative
Board Up Procedures



MATERIALS LIST

IAAI/USFA Abandoned Building Project



Attachment B – Board Up Activity

Board Up Activity

This activity is provided as an optional element of the IAAI/USFA Vacant/Abandoned Building Security program. It is intended to provide participants with hands on experience in securing vacant or abandoned structures using the USFA National Arson Prevention Initiative method.

Materials and Equipment

- Personal protective clothing
- Flashlight
- Radio
- Board-up diagrams and materials list
- Pen or pencil
- Tape Measure
- Power tools – Saw, drill
- Plywood
- 2 X 4's
- Carriage bolts

Preparation and Safety

Locate a vacant or abandoned building that is available for the activity. Permission from the owner should be obtained prior to the exercise. The lead instructor should inspect each property prior to assigning teams to them. Buildings with significant hazards should **NOT** be used for this activity. An instructor equipped with a portable radio should act as safety officer while participants are operating in the building.

Activity

- Divide the group into teams of 4 to 6 participants.
- Assign each group an opening to secure using the reinforced board-up procedure using the materials provided.
- Teams may want to divide into interior and exterior teams.

At the completion of the activity the instructor should inspect the opening and verify that the procedure was followed and that the opening is properly secured and there are potential pry points.

As an option, the instructor may want to arrange for a fire company to demonstrate forcing entry through secured openings using hand and power tools.

LESSON PLAN – Securing Vacant and Abandoned Buildings

Using the PowerPoint Support Slides

The PowerPoint support slides provided with this lesson plan are intended to provide a graphical element to this presentation. While the talk can be delivered without the slides, seeing examples of what is being discussed will make a lasting impression on the audience.

The PowerPoint file can be projected using a computer and projector or the slides can be printed as transparencies. The presenter can use the features provided with PowerPoint to provide handouts to the participants by printing the Handout view from the file. Presenters should also review the Notes view of the file as additional information regarding most of the slides is provided.

For those with the capability photos of buildings and issues from the local community can be easily added to the program to customize the program.