

FCIA Apprenticeship Manual

Bob Hasting, FCIA Apprenticeship Chair

FCIA Apprenticeship Manual

**Creating a reproducible education for the
Firestop/Containment Worker**

**We are looking for volunteer contractors to
contribute step by step photos of firestop
systems installation**

**Each contributing contractor will receive
recognition for their work**

Please watermark your contributions



Provide beginning to end photos of real conditions

For this example
measure the wrap strip
for the tuck-in





Cut the wrap strip to fit
the circumference of the
pipe

Apply 3 mil foil tape to the
wrap strip





Insert the wrap strip into the opening

Ensure that the foil tape secures the wrap strip in place





Confirm the annular space

Verify the recess depth of the wrap strip tuck-in





Apply the sealant to the depth required by the system details

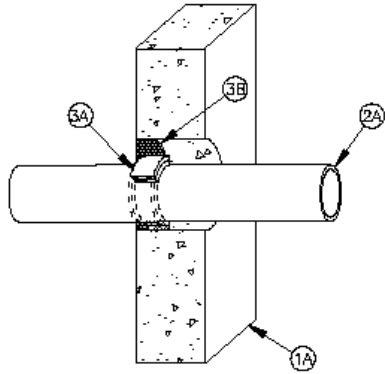
Tool the sealant to ensure proper adhesion and to eliminate gaps, bubbles, pin-holes, etc.



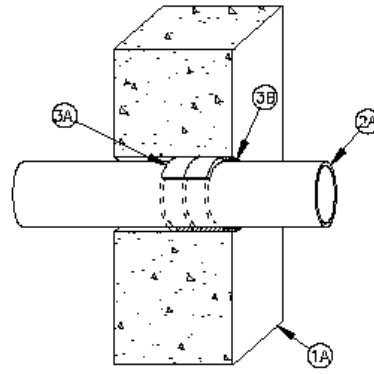
SUBJECT: 2in PVC in 4in Opening Hollow Core Precast

Date: 4-7-2010

| IMAGE | TITLE | CAPTION | DESCRIPTION |
|---------------------|-----------------------------|--|---|
| IMG 1 | 2" PVC pipe | typical 2"pvc pipe penetration | Penetrations in precast hollow core decks must be firestopped with specific systems designed for precast hollow core units or as stated in the UL directory. Where not specified, firestop systems utilizing caulk, sealant, putty, or spray materials installed over a mineral wool or ceramic blanket may be installed in hollow core floors, provided that (1) the thickness of the hollow core floor is equal to or greater than the minimum concrete thickness specified in the system (2) the maximum size of the opening is 7" in diameter or 7" by 7" and (3) any cores of the precast concrete units penetrated as a result of the firestop system are sealed with a minimum of 4" of firmly packed 4pcf mineral wool or ceramic fiber blanket, concrete, mortar, or grout. Additionally firestop systems using a firestop device or wrap strips/ steel collar installed around penetrant beneath the floor may be installed in hollow core floor provided that (1) the thickness of the hollow core floor is equal or greater than the minimum thickness specified in the system, and (2) the maximum size of the opening is 7" in diameter or 7" by 7" |
| IMG 2 | Wrap strip | C-AJ-2351 requires 1 layer of wrap strip | Manufacturer requires 1 layer of wrap strip around this 2" pipe. Place wrap strip around pipe to determine length of wrap strip needed. |
| IMG 3 | Wrap strip | cut to length | While holding wrap strip in place around pipe cut to desired length to fit the circumference of the pipe. |
| IMG 4 | Secure wrap strip | Wrap strip held in place with aluminum foil tape. | Wrap strip to be installed around outer circumference of penetrant with ends butted and held in place with aluminum foil tape. |
| IMG 5 | Install wrap strip | Install wrap strip | Place wrap strip around pipe and secure with tape. In this application the 90° elbow provides a minor obstacle during insertion. This process is slightly more difficult. Here the installer wraps the pipe as he inserts the wrap strip once he has it in he butts the ends and secures the tape. |
| IMG 6 | Wrap strip installed | Wrap strip installed | Completed wrap strip installation. |
| IMG 7 | Confirm annular space | measure annulus | By measuring the annular space to confirm that system requirements are met you insure the quality of the installation. |
| IMG 8 | Confirm depth of wrap strip | Measure the recessed depth of the inserted wrap strip. | By measuring the depth of the inserted wrap strip recessed into the opening you can insure the systems requirement of ½". |
| IMG 9 | Sealant | Sealant and tooling required | System C-AJ-2351 specifies ½" depth of sealant. Sealant must be tooled to insure adequate adhesion to the penetrant and the adjacent sub-straight and to eliminate air pockets. |
| IMG 10 | Completed application | finished install | Completed installation of C-AJ-2351 Flamesafe firestop assembly. |
| IMG 11 | UL System # C-AJ-2351 | Firestop assembly guide UL C-AJ-2351 | UL Classified system C-AJ-2351 used in this application. |
| IMG 12 | Label & Verification forms | Quality control documentation. | When installing labels make sure to fill out labels completely and accurately. Affix label as close to penetration as possible. Verification forms are used to help installer clearly record information about specific penetrations to provide evidentiary documentation relating to proper application. |
| | | | |
| Prepared By: | Gary Hamilton | | |



LAYERED WRAP STRIP INSTALLATION



STACKED WRAP STRIP INSTALLATION

1. Wall assembly

1A. Min. 4-1/2 in. NW or LW concrete or block wall capable of a 2 hr. rating. Max. diameter of penetrant opening is 4 or 5 in.

1B. Optional 1/10 (or heavier) steel sleeve (not shown) max. 4 or 5 in. diameter.

2. Penetrant

2A. Max. 3 in. PVC, cc-PVC, CPVC, ABS, cc-ABS, or rigid nonmetallic conduit as an open (vented) or closed system.

3. Firestopping - FlameSafe® FS 1900 Series Sealant.

FlameSafe® FSWS 150 Wrap Strip.

3A. At wall surface, wrap FSWS 150 around penetrant either layered or stacked (see table). recess beyond wall surface to the required depth of sealant.

3B. At wall surface, apply FS 1900 into annular space to the required depth (see table).

| Pipe Size | Max. Opening | Annular Space | No. of Wrap strip | Wrap Strip Installation | Sealant Thickness |
|-----------|--------------|---------------|-------------------|-------------------------|-------------------|
| 3" PVC | 4" | 1/4 - 5/16 | 2 | Stacked | 1/2 in. |
| 2" PVC | 4" | 1/4 - 1 5/8 | 1 | --- | 1/2 in. |
| 2" PVC | 3" | 1/4 - 3/8 | 1 | --- | 1/2 in. |
| 3" ABS | 5" | 1/2 - 1 3/16 | 2 | Layered | 1/2 in. |
| 3" ABS | 4" | 1/4 - 5/16 | 2 | Stacked | 1/4 in. |

(Firestopping may be installed on one side of the wall)

NOTES

- This system drawing is provided to aid in the installation and selection of the UL listed design. The user shall refer back to the UL listed design for complete information required for submittal and approval purposes.
- System design evaluated to the UL 1479 (ASTM E814) Fire Tests of Through-Penetration Firestops.
- Please refer to the UL Fire Resistance Directory for components requiring UL classification.

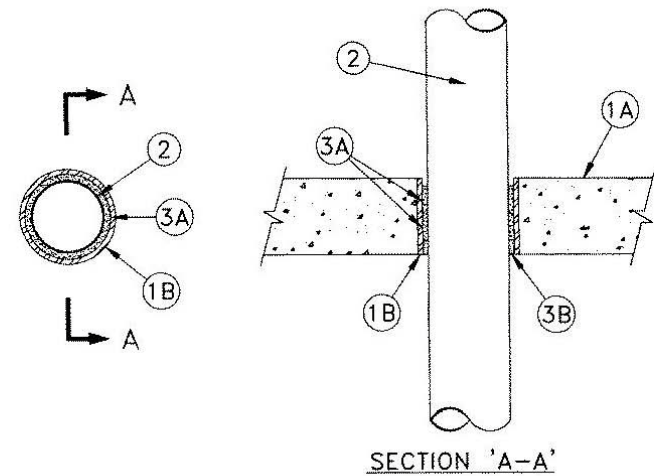
Flamesafe® Firestopping Products

| | |
|--|-------------|
| Firestop Assembly | Project: |
| Product: FlameSafe FSWS 150 Wrap Strip FlameSafe FS 1900 Series Sealant | Installer: |
| Rating: 2 HOUR | Approval: |
| UL System: CAJ2351 | Date: |
| RS Dwg #: CAJ2351-Wr2 | Rev. #: 007 |

2-031

Redwood
2601 Spangwick
Houston, TX 77065
Phone: 713-263-8081 or 800-251-3345
Fax: 713-263-7877 or 800-441-0881
E-mail: techservice@redwood.com

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SECTION 'A-A'

1A. Floor or Wall Assembly - Min 4-1/2 in. (114 mm) thick reinforced light weight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Floor may also be constructed of any 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units. Max. diam of opening is 4 or 5 in. (102 or 127 mm) (see table below).

See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.

1B. Metallic Sleeve (optional) - Nom 5 in. (127 mm) (or smaller - see table below), Schedule 10 (or heavier) steel pipe sleeve, cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

2. Through Penetrants - One nonmetallic pipe to be installed either concentrically or eccentrically within the firestop system. The annular space shall be as specified in the table below. Pipe to be rigidly supported on both sides of floor or wall assembly. The following type and sizes of nonmetallic pipes may be used (see table below):

- A. Acrylonitrile Butadiene Styrene (ABS) Pipe - Nom 3 in. (76 mm) diam (or smaller) Schedule 40, cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- B. Polyvinyl Chloride (PVC) Pipe - Nom 3 in. (76 mm) diam (or smaller) Schedule 40, cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- C. Rigid Nonmetallic Conduit (RNC)+ - Nom 3 in. (76 mm) diam (or smaller) Schedule 40, PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
- D. Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 3 in. (76 mm) diam (or smaller) SDR 19.5 CPVC pipe for use in closed (process or supply) piping systems.

3. Firestop System - The firestop system shall consist of the following:

A. Fill, Void, or Cavity Materials* - Wrap Strip - Nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. One or two pieces of wrap strips shall be used. The first piece installed around the outer circumference of the through penetrant with ends butted and held in place with masking tape. The second piece, where required, is either wrapped over the first piece (layered), or wrapped around the penetrant, stacked immediately above the first piece. The ends of the second piece shall be butted and held in place with masking tape, and offset from the taped joint of first piece. The mode of application of

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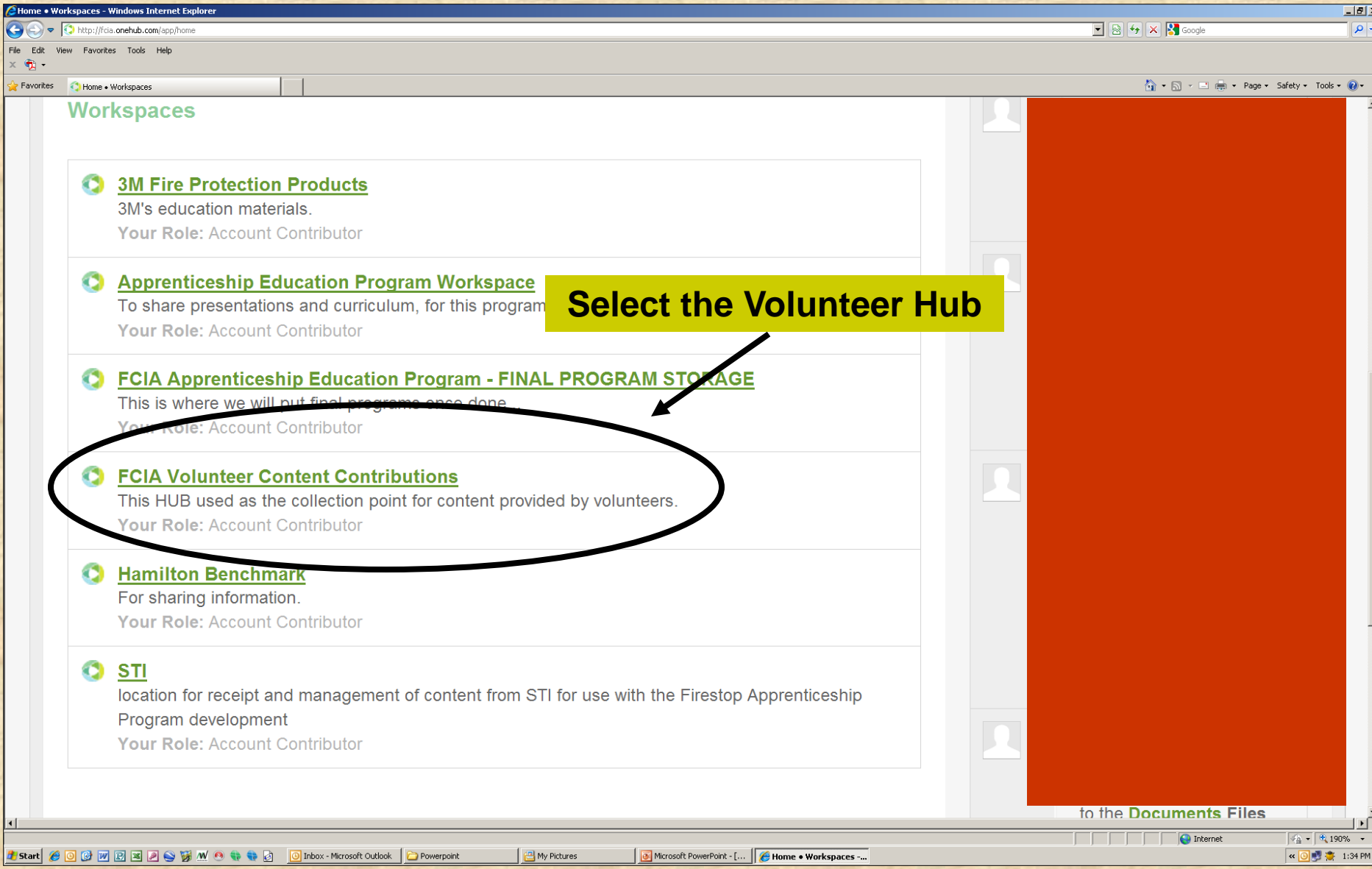
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3M's education materials.
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Apprenticeship Education Program Workspace

To share presentations and curriculum, for this program
Your Role: Account Contributor

FCIA Apprenticeship Education Program - FINAL PROGRAM STORAGE

This is where we will put final programs once done
Your Role: Account Contributor

FCIA Volunteer Content Contributions

This HUB used as the collection point for content provided by volunteers.
Your Role: Account Contributor

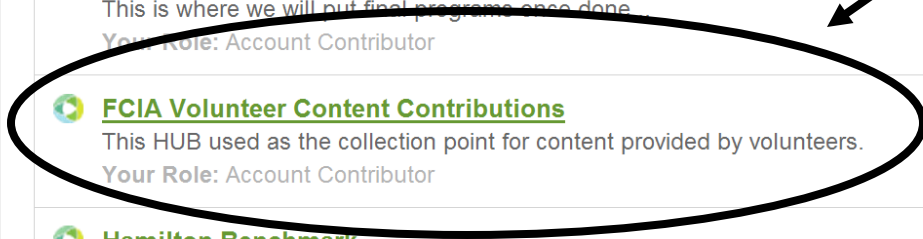
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location for receipt and management of content from STI for use with the Firestop Apprenticeship Program development
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| <input type="checkbox"/> | Folder | ADMIN (1) | 16 KB | 01/11 09:24 AM | Gary Beimers |
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| <input type="checkbox"/> | Folder | Aedan Gleeson (0) | | | |
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| <input type="checkbox"/> | Folder | Don Sabrsula (0) | empty | 12/18 09:22 AM | Gary Beimers |
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| <input type="checkbox"/> | Folder | Mike Pautsch (0) | empty | 12/18 08:58 AM | Gary Beimers |
| <input type="checkbox"/> | Folder | Pat Tesch (0) | empty | 12/18 09:18 AM | Gary Beimers |
| <input type="checkbox"/> | Folder | Randy Perry (0) | empty | 12/07 09:38 AM | Gary Beimers |
| <input type="checkbox"/> | Folder | Rob Hlady (0) | empty | 12/18 09:20 AM | Gary Beimers |
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| <input type="checkbox"/> | Folder | EMat W-L-7168 (27) | 17 MB | 04/13 12:53 PM | Bob Hasting |
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* indicates required fields

Type in Title and Description and 'Create Folder'

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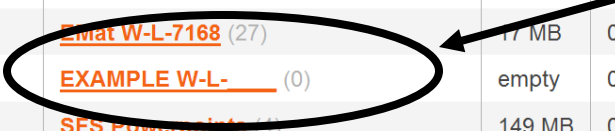
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| <input type="checkbox"/> | Folder | EMat W-L-7168 (27) | 17 MB | 04/13 12:53 PM | Bob Hasting |
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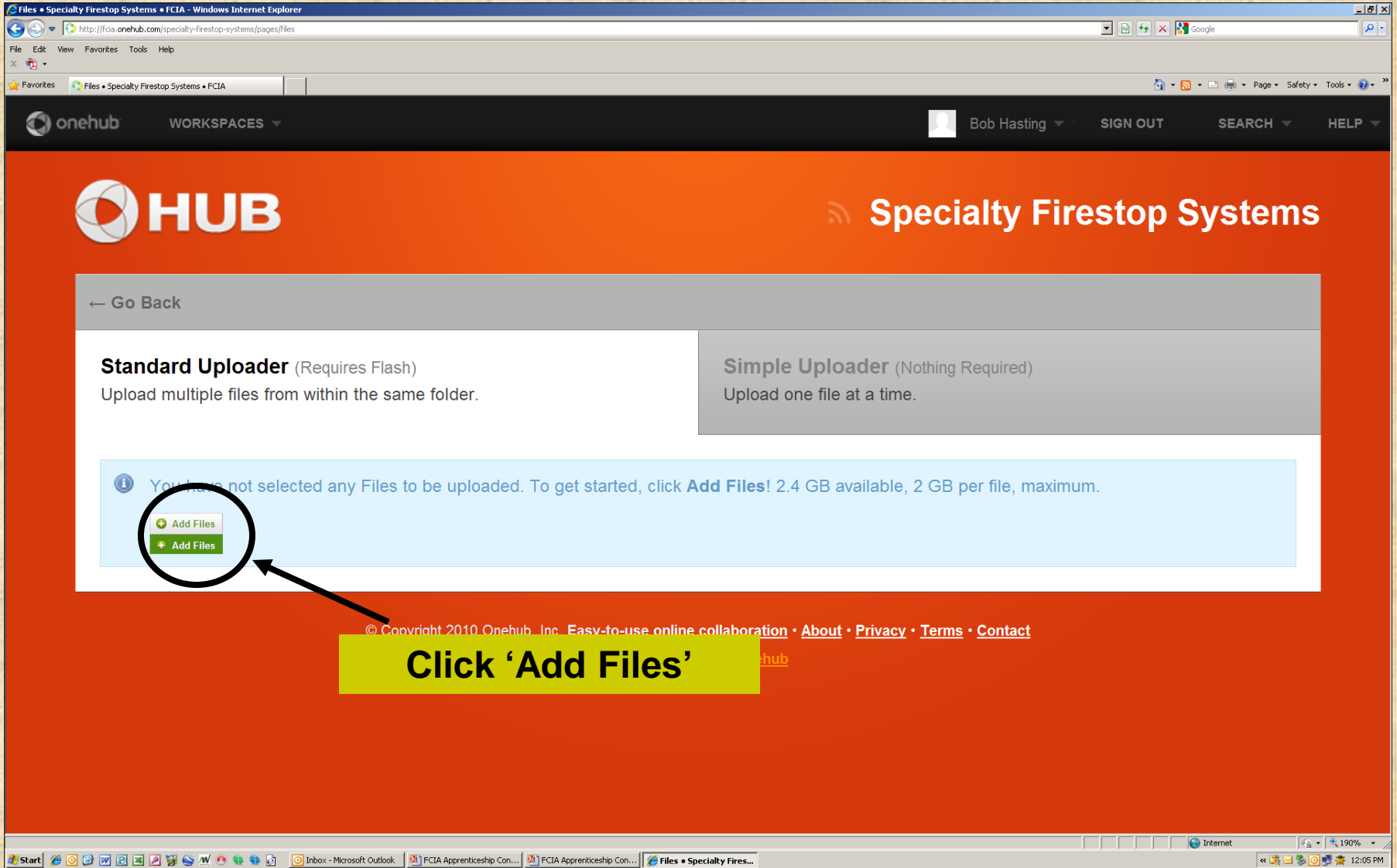
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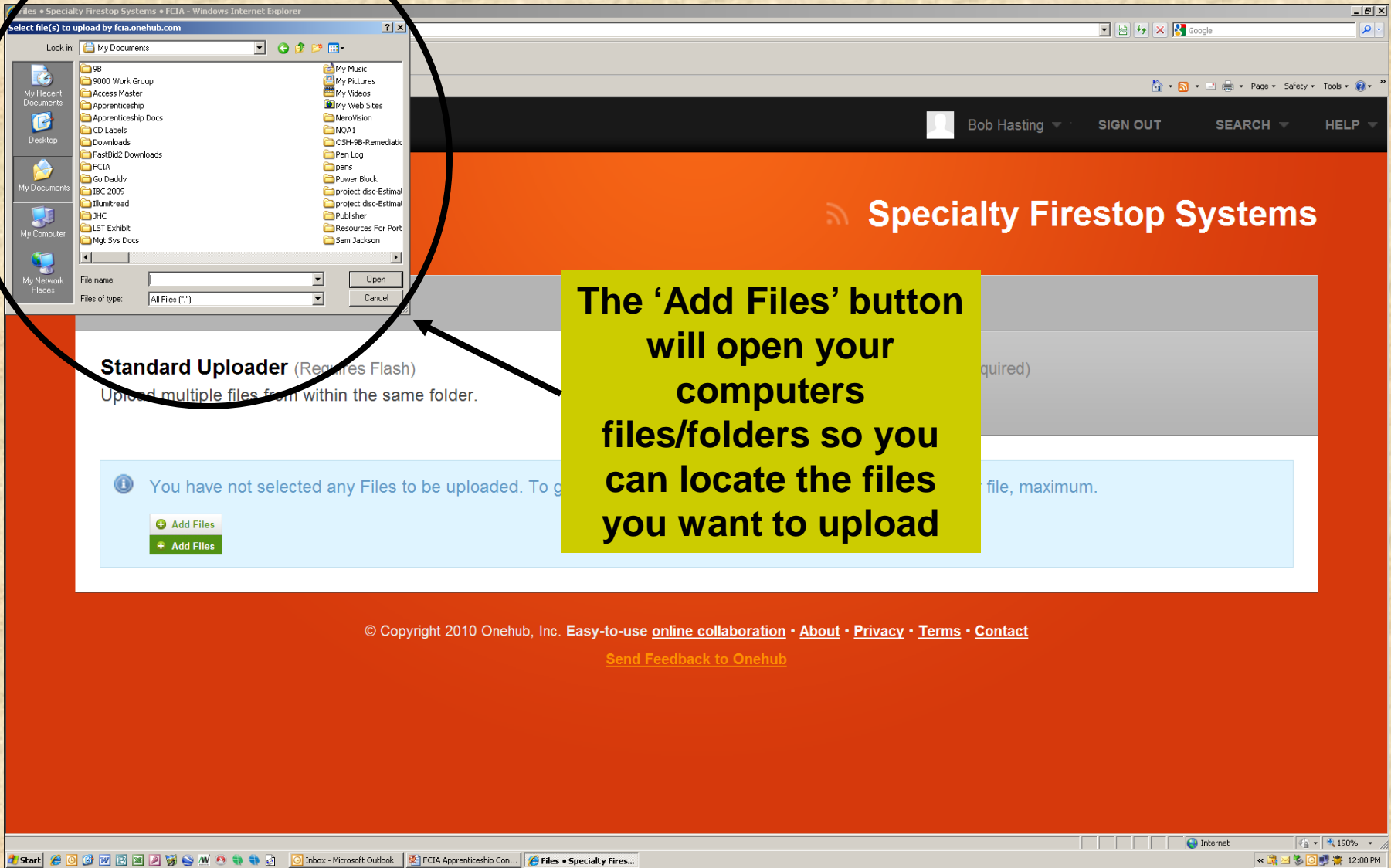
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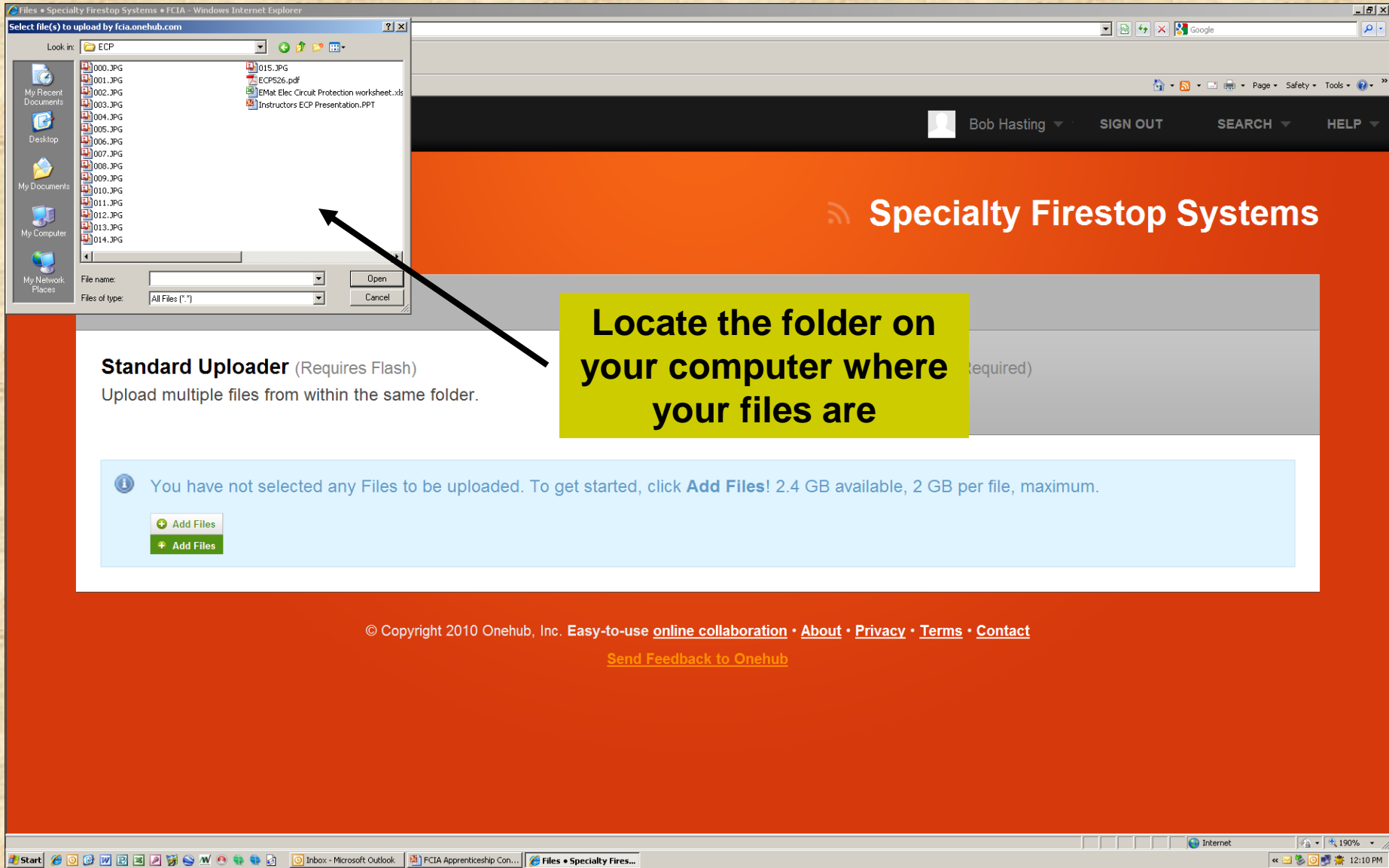
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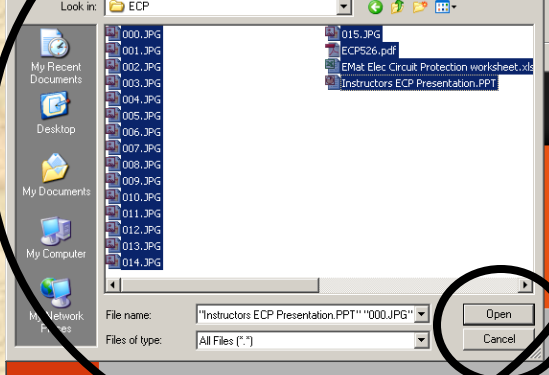


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FCIA Apprenticeship Manual

Bob Hasting, FCIA Apprenticeship Chair

Want to submit step by step pictures?

**Email: rhasting@specialtyfirestop.com
bill@fcia.org**