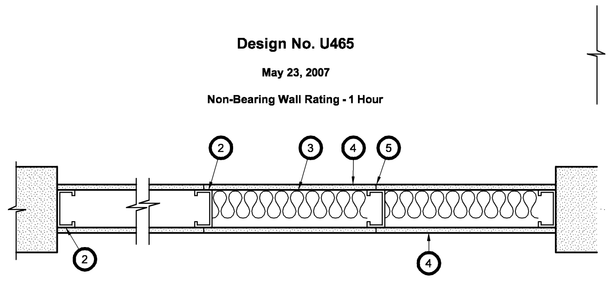
Design No. U465

May 23, 2007

Non-Bearing Wall Rating - 1 Hour



1. **Floor and Ceiling Runners (not shown)** Channel shaped runners, 3-5/8"in. wide (min.), 1-1/4"in. legs, formed from min. No. 25 MSG galvanized. steel, attached to floor and ceiling with fasteners spaced 24" in. O.C. max.
2. **Steel Studs** - Channel shaped, 3-5/8" in. wide (min.), 1-1/4" in. legs, 3/8" in. folded back returns, formed from min. No. 25 MSG galvanized steel spaced at 24" in. O.C. max.
3. **Batts and Blankets*** - (Optional) - Mineral wool or glass fiber batts partially or completely filled stud cavity.

   See Batts and Blankets (BZJZ) category for names of Classified companies.

   3A. Fiber, Sprayed* - As an alternate to Batts and Blankets (item 3) - Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 3.0 lb./ft3. Alternate application method: The fiber is applied with the U.S. Greenfiber LLC Type AD100 hot melt adhesive at a nominal ratio of one part adhesive to 6.6 parts fiber to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 2.5 lb./ft3.

   U.S. Greenfiber LLC - Cocoon2 Stabilized or Cocoon-FRM (Fire Rated Material)

   3B. Fiber, Sprayed* - As an alternate to Batts and Blankets (item 3 and 3A) - Spray applied cellulose insulation material. The fiber is applied with water to the interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 lb./ft3.

   NU-WOOL CO Inc... - Cellulose Insulation
4. **Gypsum Board*** 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1" in. long Type S steel screws spaced 8 in. OC along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to item 6 (resilient channels) or 6A (furring channels), wallboard is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

   AMERICAN GYPSUM CO - Types AG-C, AGX-1

   BEIJING NEW BUILDING MATERIALS PUBLIC LTD - Type DBX-1

   CERTAINTEED GYPSUM INC... - Types 1, EGRG, ProRoc Type X, ProRoc Type C

   CERTAINTEED GYPSUM CANADA Inc... ProRoc Type C, ProRoc Type X, ProRoc Type Abuse-Resistant

   CANADIAN GYPSUM COMPANY - Types AR, C IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX

   G-P GYPSUM CORP.., SUB OF GEORGIA PACIFIC CORP.. - Types 5, 9, C, DAP, DD, DA, DGG, DS, GPFS6

   LAFARGE NORTH AMERICA INC... - Types LGFC2, LGFC2A, LGFC6, LGFC6A, LGFC-C, LGFC-C/A

   NATIONAL GYPSUM CO - Types FSK, FSK-C, FSK-G, FSW-C, FSW-G, FSW, FSW-3, FSW-5

   PABCO BUILDING PRODUCTS LLC, D.B.A. PABCO GYPSUM - Type PG-C or PG-9

   PANEL REY SA - Type PRX

   SIAM GYPSUM INDUSTRY (SARABURI) CO LTD. - Type EX-1

   TEMPLE-INLAND FOREST PRODUCTS CORP.. - Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C

   UNITED STATES GYPSUM CO - Type AR, C, FRX-G,IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC OR WRX

   USG MEXICO S A DE C V - Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC OR WRX

   4A. Gypsum Board* (As Alternate to Item 4) Nominal 5/8 in. thick gypsum with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered of backed. Panels attached to steel studs and floor runners with 1" in. long Type S steel screws spaced 8" in. OC when applied horizontally, or 8" in. OC along vertical and bottom edges and 12" in. OC in the field when panels are applied vertically. When used in widths other than 48" in., gypsum panels to be installed horizontally.

   CANADIAN GYPSUM COMPANY - Types AR, C IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX

   UNITED STATES GYPSUM CO - Type AR, C,FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC OR WRX

   USG MEXICO S A DE C V - Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC OR WRX

   4B. Gypsum Board* (As Alternate to Item 4 or 4A) Nominal 3/4 in. thick 4 ft. wide, installed as described in item 4A with screw length increased to 1-1/4" in.

   CANADIAN GYPSUM COMPANY - Types AR, IP-AR

   UNITED STATES GYPSUM CO - Type AR, IP-AR

   USG MEXICO S A DE C V - Type AR, IP-AR
5. **Joint Tape and Compound** - Vinyl, dry or premixed compound applied in two coats to joints and screw heads; paper tape, 2" in. wide embedded in first layer of compound over all joints. As an alternate, nominal 3/32" in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.
6. **Resilient Channel - (Optional-Not Shown)** - 25 MSG galvanized steel resilient channels spaced vertically max. 24" in. OC, flange portion attached to each intersecting stud with 1/2" in. long type S-12 panhead steel screws.

   6A. Steel Framing Members (Not Shown)* - As Alternate to Item 3, furring channels and resilient sound isolation clip as described below:

   a. Furring Channels - Formed of No. 25 MSG galvanized steel. 2-3/8" in. by 7/8" in deep, spaced 24"in. OC perpendicular to studs. Channels secured to studs as described in Item B. Ends of adjoining channels are overlapped 6"in. and tied together with double strand #18 SWG galvanized steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6"in. abd secured together with (2) two self-tapping #6 framing screws, min. 7/16 long at the midpoint of the overlap. with one screw on each flange of the channel.

   b. Steel Framing Members* - Used to attach furring channels (Item a) to to studs (Item 1). clips spaced 48"in. OC and secured to studs with 1-5/8"in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips.

   PAC INTERNATIONAL INC... - Type RSIC-1
7. **Wall and Partition Facing and Accessories* - (Optional, Not Shown)** Nominal 1/2" thick, 4 ft. wide panels for optional use as an additional layer on one or both sides of assembly. Panels attached in accordance with manufacturers recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except the required fastener length shall be increased by a minimum of 1/2". Not evaluated or intended as a substitute for the required layers of UL Classified Gypsum Board.

   QUIET SOLUTION INC... - Type QuietRock QR-510

   * Bearing the UL Classification Mark

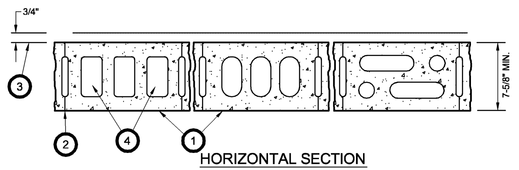
1 / L82.1 **U.L. DESIGN No. U465**
SCALE: NONE

Design No. U905

March 17, 2004

Bearing Wall Rating - 2 HR.

Non-Bearing Wall Rating - 2HR.



HORIZONTAL SECTION

1. **Concrete Blocks*** - Various designs. Classification D-2 (2 hr.)

   See Concrete Blocks category for list of eligible manufacturers.
2. **Mortar** - Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4" and not more than 3-1/2 parts of clean sharp sand to one part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.
3. **Portland Cement Stucco or Gypsum Plaster -** Add 1/2 hr. to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. attached to concrete blocks (Item 1).
4. **Loose Masonry Fill** - If all core spaces are filled with loose dry expanded slag, expanded clay or shale (rotary kiln process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr. to classification.
5. **Foamed Plastic*** - (optional not shown) - 1-1/2 in. thick max., 4 ft. wide sheathing attached to concrete blocks (item 1).

   The DOW Chemical Co. - Type Thermax.

   * Bearing the UL Classification Mark.

2 / L82.1 **U.L. DESIGN No. U905**
SCALE: NONE

System No. W-L-2098

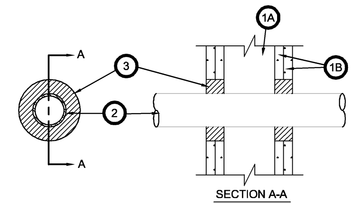
January 9, 2003

F Ratings - 1 and 2 Hr (See Item 1)

T Ratings - 1 and 2 Hr (see Item 1)

L Rating At Ambient - Less Than 1 CFM/Sq Ft

L Rating At 400 F - 4 CFM/Sq Ft



SECTION A-A

1. **Wall Assembly –** The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs –** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board* –** 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diameter of opening is 4-3/8 in.

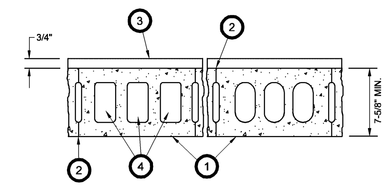
   The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrants –** One nonmetallic pipe installed within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly. The space between pipe and periphery of opening shall be min 3/4 in. to max 1-1/4 in. Pipe to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. **Polyvinyl Chloride (PVC) Pipe –** Nom 2 in. diam. (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) piping system.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe –** Nom 2 in. diameter (or smaller) SDR17 CPVC pipe for use in closed (process or supply) piping systems.
3. **Fill, Void or Cavity Materials* – Sealant –** Installed to completely fill the annular space between the pipes and gypsum wallboard on both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC -- FS-One Sealant

   *Bearing the UL Classification Mark

3 / L82.1 **UL Rating # W-L-2098**
NOT TO SCALE

Design No. U901

October 26, 1998



Bearing Wall Rating — 4 HR.
Nonbearing Wall Rating — 4 HR.

1. **Concrete Blocks*** — Various designs. Classification B-4 (4 hr). See Concrete Blocks category for lists of eligible manufacturers.
2. **Mortar** — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.
3. Portland Cement Stucco or Gypsum Plaster — If used, add 1/2 hr. to Classification.
4. **Loose Masonry Fill** — If all core spaces are filled with loose dry expanded slag, burned clay or shale (rotary kiln process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation, Class D-2 (2 hr) or C-3 (3 hr) concrete blocks will provide a 4 hr fire resistance rating.

   *Bearing the UL Classification Mark

4 / L82.1 **UL DESIGN No. U901**
NOT TO SCALE

Firestopping Notes

1. FIRESTOPPING: MATERIAL OR COMBINATION OF MATERIALS USED TO RETAIN INTEGRITY OF FIRE-RATED CONSTRUCTION BY MAINTAINING AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND HOT GASES THROUGH PENETRATIONS IN OR CONSTRUCTION JOINTS BETWEEN, FIRE RATED WALL AND FLOOR ASSEMBLIES.
2. ONLY TESTED FIRESTOP SYSTEMS SHALL BE USED.
3. FIRESTOP SYSTEM INSTALLATION MUST MEET REQUIREMENTS OF ASTM E 814, UL 1479 OR UL 2079 TESTED ASSEMBLIES THAT PROVIDE A FIRE RATING EQUAL TO THAT OF CONSTRUCTION BEING PENETRATED.
4. SUBMIT PRODUCT DATA: MANUFACTURER'S SPECIFICATIONS AND TECHNICAL DATA FOR EACH MATERIAL INCLUDING THE COMPOSITION AND LIMITATIONS, DOCUMENTATION OF UL FIRESTOP SYSTEM TO BE USED AND MANUFACTURER'S INSTALLATION INSTRUCTIONS TO COMPLY WITH SECTION 13010.
5. ENGAGE AN EXPERIENCED INSTALLER WHO IS CERTIFIED, LICENSED, OR OTHERWISE QUALIFIED BY THE FIRESTOPPING MANUFACTURER AS HAVING BEEN PROVIDED THE NECESSARY TRAINING TO INSTALL MANUFACTURER'S PRODUCTS PER SPECIFIED REQUIREMENTS. A MANUFACTURER'S WILLINGNESS TO SELL, ITS FIRESTOPPING PRODUCTS TO THE CONTRACTOR OR TO AN INSTALLER BY THE CONTRACTOR DOES NOT IN ITSELF CONFER QUALIFICATION ON THE BUYER.
6. PROVIDE FIRESTOPPING COMPOSED OF COMPONENTS THAT ARE COMPATIBLE WITH EACH OTHER, THE SUBSTRATES FORMING OPENINGS, AND THE ITEMS, IF ANY, PENETRATING THE FIRESTOPPING UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY THE FIRESTOPPING MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.
7. PROVIDE COMPONENTS FOR EACH FIRESTOPPING SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIAL. USE ONLY COMPONENTS SPECIFIED BY THE FIRESTOPPING MANUFACTURER AND APPROVED BY THE QUALIFIED TESTING AGENCY FOR THE DESIGNATED FIRE-RESISTANCE-RATED SYSTEMS.
8. USE ONLY FIRESTOP PRODUCTS THAT HAVE BEEN UL 1479, ASTM E 814, OR UL 2079 TESTED FOR SPECIFIC FIRE-RATED CONSTRUCTION CONDITIONS CONFORMING TO CONSTRUCTION ASSEMBLY TYPE, PENETRATING ITEM TYPE, ANNULAR SPACE REQUIREMENTS, AND FIRE-RATING FOR EACH SEPARATE INSTANCE.
9. VERIFICATION OF CONDITIONS: EXAMINE AREAS AND CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED AND IDENTIFY CONDITIONS DETRIMENTAL TO PROPER OR TIMELY COMPLETION.
   9A. VERIFY PENETRATIONS ARE PROPERLY SIZED AND IN SUITABLE CONDITION FOR APPLICATION OF MATERIALS.
   9B. SURFACES TO WHICH FIRESTOP MATERIALS WILL BE APPLIED SHALL BE FREE OF DIRT, GREASE, OIL, RUST, LAITANCE, RELEASE AGENTS, WATER REPELLENTS, AND ANY OTHER SUBSTANCES THAT MAY AFFECT PROPER ADHESION
   9C. PROVIDE MASKING AND TEMPORARY COVERING TO PREVENT SOILING OF ADJACENT SURFACES BY FIRESTOPPING MATERIALS.
   9D. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS FOR TEMPERATURE AN HUMIDITY CONDITIONS BEFORE, DURING AND AFTER INSTALLATION OF FIRESTOPPING.
   9E. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
10. REGULATORY REQUIREMENTS: INSTALL FIRESTOP MATERIALS IN ACCORDANCE WITH UL FIRE RESISTANCE DIRECTORY.
11. MANUFACTURER'S INSTRUCTIONS: COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF THROUGH-PENETRATION AND CONSTRUCTION JOINT MATERIALS.
   11A. SEAL ALL HOLES OR VOIDS MADE BY PENETRATIONS TO ENSURE AN AIR AND WATER RESISTANT SEAL.
   11B. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECTED TO TRAFFIC.
12. ACCEPTABLE MANUFACTURERS:
   HILTI USA / (866) 448-8877 / WWW.HILTI.COM
   3M / (888)-364-3577 / SOLUTIONS.3M.COM
   TREMCO / 866-209-2404 / WWW.TREMCOFIRESTOP.COM
   OR ARCHITECTURAL APPROVED EQUAL

System No. W-L-1175

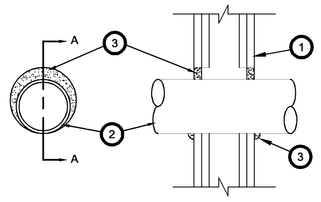
Feburary 8, 2006

F Ratings - 1 and 2 Hr (See Item 1)

T Rating - 0 Hr

L Rating at Ambient - Less Than 1 CFM/sq.ft.

L Rating at 400 F - Less Than 1 CFM/sq.ft.



SECTION A-A

1. **Wall Assembly** The 1 or 2 hr fire rated wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.
   A. **Studs** Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. **Gypsum Board*** Nom 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the Fire Resistance Directory. Max diameter of opening is 5-1/2 in.

   The hourly F and T Ratings of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant** One metallic tubing or conduit installed concentrically or eccentrically within the firestop system. Tube or conduit to be rigidly supported on both sides of wall assembly. The annular space between the tube or conduit and periphery of the steel sleeve shall be min 0 in. (point contact) to max 1 in. The following types and sizes of metallic tube or conduit may be used:
   A. Conduit Nom 4 in. diam. (or smaller) steel electrical metallic tubing or steel conduit.
3. **Fill Void or Cavity Material*** - Putty Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and wall, a 1/4 in. crown of fill material shall be applied at the conduit/wall interface on both sides of the assembly, lapping 1/4 in. on the conduit and 1/4 in. beyond the periphery of the opening.
   HILTI INC - CP618 Putty Stick

   *Bearing the UL Classification Marking

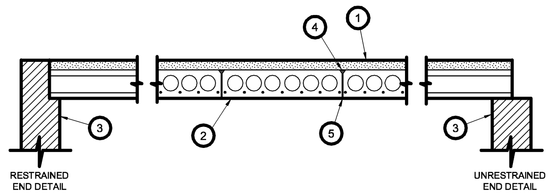
6 / L82.1 **UL Rating # W-L-1175**
NOT TO SCALE

Design No. J905

April 12, 1997

Restrained Assembly Ratings - 1 1/2 and 2 hour

Unrestrained Assembly Rating - 1 hour



1. **Concrete Topping** - 3000 psi compressive strength, 150 + or - 3 pcf unit weight.

Rating (hours)	Topping Thickness (inches)
1 hr	0"
1-1/2 hr	0"
2 hr	1"

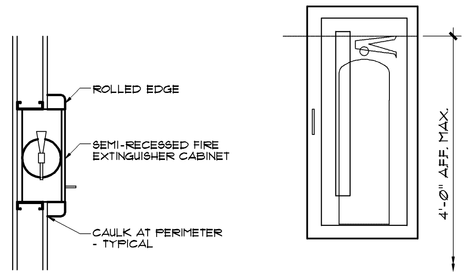
2. **Precast Concrete Units*** - Silliceous aggregate, cross-section similar to the above illustration.

   See Precast Concrete Units category for names of manufacturers.
3. **Minimum Bearing** - 1-1/2 in.
4. **Grout** - Sand cement grout, 3500 psi. Grout stop used to keep grout from bottom 3-1/8 in. of joint. Weld tie plates instead of or in conjuction with grout.
5. **Clearences** - Between slabs at bottom full length of joint, 1/16 in. min., 1/4 in. max.

   * Bearing the UL Classification Mark.

5 / L82.1 **U.L. Design No. J905**
SCALE: NONE

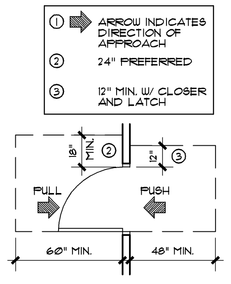
Fire Extinguisher Mounting Detail



SEE LIFE SAFETY FLOOR PLANS LS2.1 THRU LS2.6 FOR LOCATION OF FIRE EXTINGUISHERS

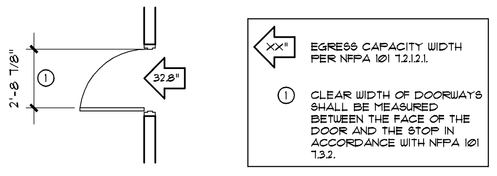
8 / L82.1
SCALE: NONE

ADA Door Clearance Detail



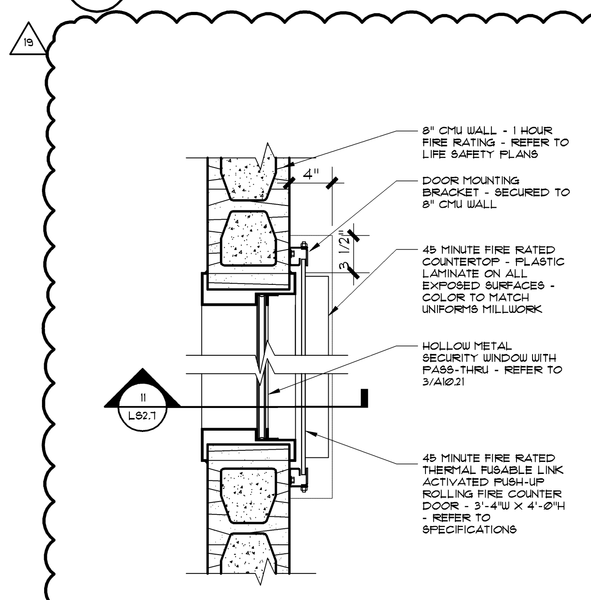
7 / L82.1
SCALE 1/4" = 1'-0"

Swinging Door Egress Capacity Width

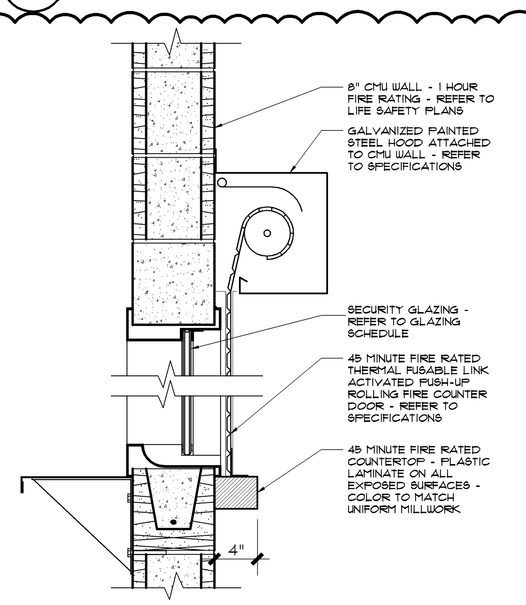


NOTE:
WHEN DETERMINING THE EGRESS CAPACITY WIDTH FOR SWINGING DOORS, MEASURE THE CLEAR WIDTH OF THE DOORWAY WHEN THE DOOR IS OPEN 90 DEGREES.

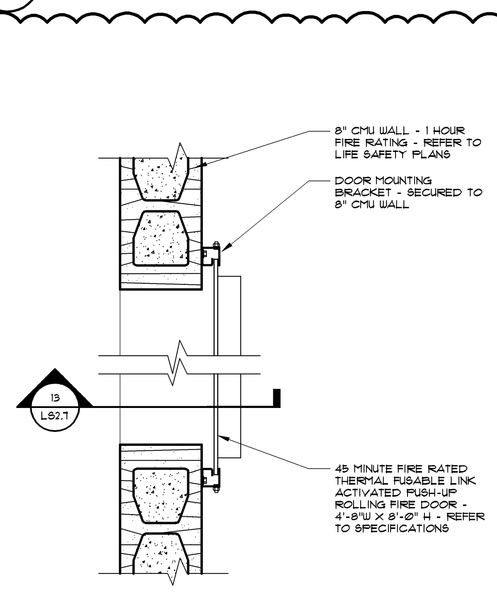
9 / L82.1
SCALE 1/4" = 1'-0"



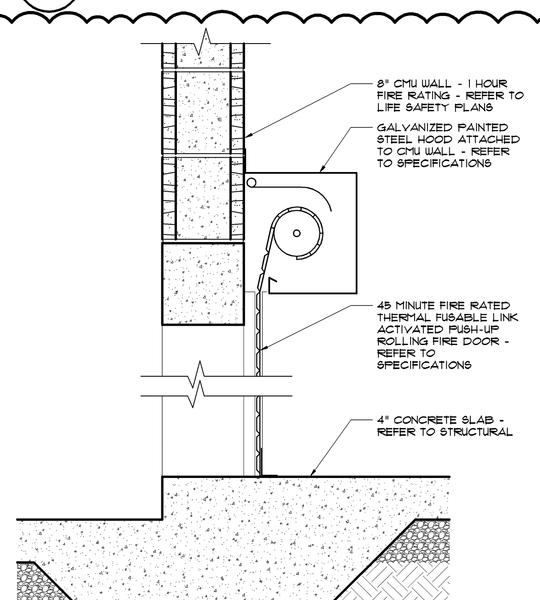
10 / L82.1 **Plan Section at Rolling Fire Counter Door**
SCALE 1 1/2" = 1'-0"



11 / L82.1 **Section at Rolling Fire Counter Door**
SCALE 1 1/2" = 1'-0"



12 / L82.1 **Plan Section at Rolling Fire Door**
SCALE 1 1/2" = 1'-0"



13 / L82.1 **Section at Rolling Fire Door**
SCALE 1 1/2" = 1'-0"

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Lawrenceville, GA 30046-2210
(770) 338-8000 or (770) 962-8000
(Fax) (770) 822-5990

PROJECT

JACKSON COUNTY JAIL
555 GENERAL JACKSON DRIVE
JEFFERSON, GEORGIA 30549

SHEET TITLE

LIFE SAFETY DETAILS

DESIGN	DRAWN	CHECKED
LGD	DMM	LGD

RELEASE

DATE	NO	DESCRIPTION
12/21/07		MECHANICAL/ELECTRICAL BID PACKAGE RELEASE
1-04-08	A	MECHANICAL/ ELECTRICAL BID PACKAGE RELEASE
03/28/08		BALANCE OF REMAINING BID PACKAGES
04/18/08	B	RFI #073 FIRE RATED WALLS

03-28-08 DATE

A06136 PROJ. NUMBER

136LS2-7.dwg CAD FILE NAME

FILE NUMBER

LS2.7

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