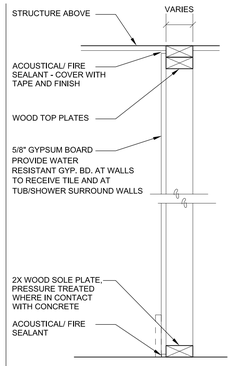
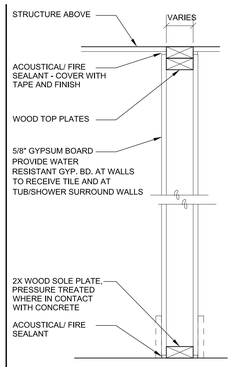


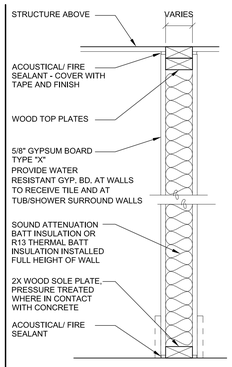
W1-4: WOOD FRAME WALL, 2X4 STUDS (TYPICAL AT NON FIRE RATED CHASE)
W1-6: WOOD FRAME WALL, 2X6 STUDS (TYPICAL AT NON FIRE RATED CHASE AT PLUMBING WALLS)

UNRATED
STC RATING -UNRATED
STUD SPACING SHALL BE 24" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



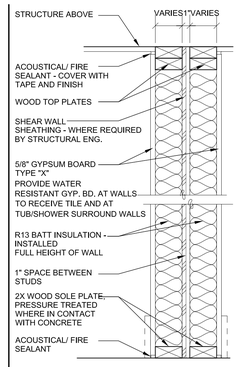
W2-4: WOOD FRAME WALL, 2X4 STUDS (TYPICAL AT INTERIOR WALLS)
W2-6: WOOD FRAME WALL, 2X6 STUDS (TYPICAL AT INTERIOR PLUMBING WALLS)

UNRATED
STC RATING -UNRATED
STUD SPACING SHALL BE 16" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



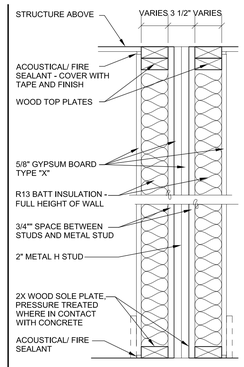
W3-6: WOOD FRAME WALL, 1 HR, 2X6 STUDS (TYPICAL 1HR FIRE RATED CORRIDOR / UNIT WALL)

1 HOUR RATED PER UL U305
STC RATING - 48
STUD SPACING SHALL BE 16" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



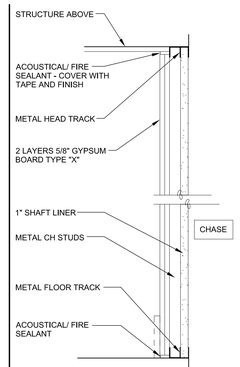
W4-4: WOOD FRAME WALL, 1HR, 2X4 STUDS (TYPICAL 1HR FIRE RATED WALLS BETWEEN UNITS)
W4-6: WOOD FRAME WALL, 1HR, 2X6 STUDS (TYPICAL 1HR FIRE RATED WALLS BETWEEN UNITS WHERE PLUMBING IS PRESENT)

1 HOUR RATED PER UL U341
STC RATING - 58
SOURCE: TL 93-270
STUD SPACING SHALL BE 16" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



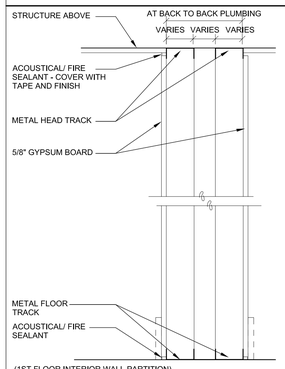
W5-4: WOOD FRAME WALL, 2HR, 2X4 STUDS
W5-6: WOOD FRAME WALL, 2HR, 2X6 STUDS

2 HOUR RATED PER UL U347
STC RATING - 55
SOURCE: NGC-2824
STUD SPACING SHALL BE 24" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



W6: SHAFT WALL, 2HR, 2 1/2" CH STUDS

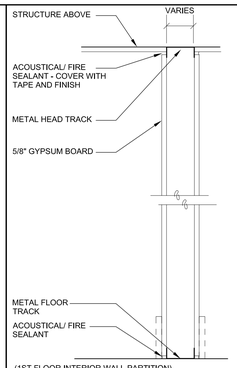
2 HOUR RATED PER UL U438
STC RATING - 38
SOURCE: USG-040917
STUD SPACING SHALL BE 24" ON CENTER
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



(1ST FLOOR INTERIOR WALL PARTITION)

W7-4: METAL STUD WALL, 3 5/8" STUDS (TYPICAL AT NON FIRE RATED CHASE)
W7-6: METAL STUD WALL, 6" STUDS (TYPICAL AT NON FIRE RATED CHASE AT PLUMBING WALLS)

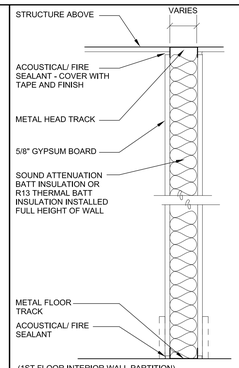
UNRATED
STC RATING -UNRATED
STUD SPACING SHALL BE 24" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING AT ALL LOAD BEARING WALLS
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE



(1ST FLOOR INTERIOR WALL PARTITION)

W8-4: METAL STUD WALL, 3 5/8" STUDS
W8-6: METAL STUD WALL, 6" STUDS

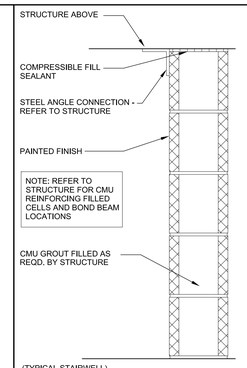
W2-4: WOOD FRAME WALL, 2X4 STUDS (TYPICAL AT INTERIOR WALLS)
W2-6: WOOD FRAME WALL, 2X6 STUDS (TYPICAL AT INTERIOR PLUMBING WALLS)



(1ST FLOOR INTERIOR WALL PARTITION)

W9-4: METAL STUD WALL, 3 5/8" STUDS (TYPICAL 1ST FLOOR WALL PARTITION)
W9-6: METAL STUD WALL, 6" STUDS (TYPICAL 1ST FLOOR WALL PARTITION AT PLUMBING WALLS)

UNRATED
STC RATING-UNRATED
STUD SPACING SHALL BE 24" ON CENTER UNLESS ENGINEER FRAMING SCHEDULE FOR STUD SPACING
GYP BOARD SHALL EXTEND TO STRUCTURE ABOVE

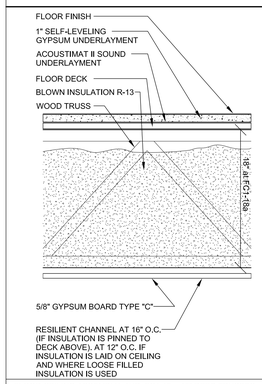


(TYPICAL STAIRWELL)

W10: CMU WALL, 2HR, 8" CMU WALL

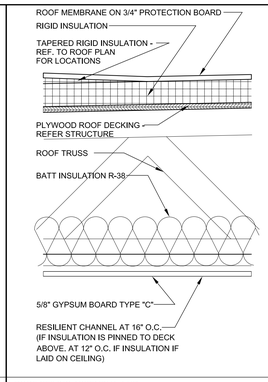
2HR RATED PER UL U905

STC RATING -UNRATED



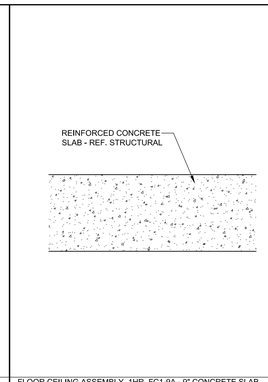
FLOOR CEILING ASSEMBLY, 1HR, FC1-18a -18" DEEP TRUSSES

1 HOUR RATED PER UL L563
STC RATING AT HARD SURFACE WITH ACOUSTIMAT UNDERLAYMENT AND 1" GYPCRETE - 62 PER RAL-OT-O4-01 AND RAL-OT-O4-02
IIC RATING AT HARD SURFACE WITH ACOUSTIMAT UNDERLAYMENT AND 1" GYPCRETE - 53 PER TEST RAL-OT-O4-01 AND RAL-OT-O4-02
GYP BOARD MEMBRANE SHALL BE CONTINUOUS EXCEPT AT STUD WALLS.
PROVIDE FIRE BLOCKING AND FIRE CAULK
STC RATING AT CARPETED SURFACE AND 3/4" GYPCRETE - 55+ PER SOUND TEST TLF-97-079a
IIC RATING AT CARPETED SURFACE AND 3/4" GYPCRETE -65+ PER IMPACT TEST REFERENCE KAL 790-2-69 AND NGC 5033



ROOF CEILING ASSEMBLY, 1 HR

1 HOUR RATED PER UL P522



FLOOR CEILING ASSEMBLY, 1HR, FC1-9A - 9" CONCRETE SLAB
FLOOR CEILING ASSEMBLY, 1HR, FC1-12A - 12" CONCRETE SLAB
FLOOR CEILING ASSEMBLY, 3HR, FC3-14.5B - 14 1/2" CONCRETE SLAB

RATED PER IBC IBC 2012 TABLE 721.1(3)
FOR SILICEOUS AGGREGATE CONCRETE
3.5" MINIMUM THICKNESS = 1HR RATING
5" MINIMUM THICKNESS = 2HR RATING
6.2" MINIMUM THICKNESS = 3HR RATING
7" MINIMUM THICKNESS = 4HR RATING

WALL CONSTRUCTION GENERAL NOTES:

1. Reference structural drawings for location of bearing walls.

Fire Ratings

1. All walls listed as fire rated shall comply with fire resistant construction requirements as listed in chapter 7 of the 2015 International Building Code and with provisions of the referenced UL rated assembly.
2. All penetrations into or through fire rated walls shall be protected to achieve the same rating as the wall. Refer to the mechanical, electrical, and plumbing engineer drawings for fire rated penetration assemblies.
3. Provide markings and identification of fire rated walls per IBC section 703.7 where concealed in an accessible floor ceiling or roof ceiling assembly, R-2 occupancies do not require marking on walls where the walls occur above a fixed gypsum board ceiling.
4. Exterior walls shall conform to requirements listed in IBC Section 705 and as indicated in the drawings.
5. Fire partitions separating dwelling units in the same building shall comply with IBC Section 708 and as indicated in the drawings.
6. Fire rated shafts around stairs and around vertical chases shall be continuous from the slab to the rated roof ceiling assembly. The sheet rock membrane forming the fire rated protection shall not be penetrated without a fire rated penetration assembly.
7. Stair shafts shall not be penetrated by mechanical, electrical, or plumbing lines. Fire sprinkler systems may penetrate the stair shaft with a rated penetration assembly.
8. All recessed devices and penetrations shall have additional layers of gyp board installed behind the device to maintain fire rating.

Acoustics

1. At all walls indicated to have a sound rating, provide continuous installation of insulation and acoustical sealants to maintain the rating across the entire assembly. Conceal the acoustic sealant at the top of wallboard with tape and mud.
2. Provide acoustical or fire-rated caulking around all penetrations in sound rated wall.
3. Provide acoustic putty pads behind all electrical junction box penetrations in sound rated walls.

Exterior Envelope Construction

1. Exterior envelope construction shall be done in a manner to maintain the continuity of weather resistant systems and the air barrier. All penetrations through the air barrier shall be taped and sealed per the air barrier manufacturer's installation instructions and per details in the Construction Documents.
2. All concealed sealant joints shall be done with a silicone based sealant.

- NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION - NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION -

GRG architecture
118 BROADWAY, SUITE 620
SAN ANTONIO, TX. 78205
210.447.7000

ARCHITECT

DOCUMENTS INCOMPLETE:
NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION.

Edward A. Garza
Texas Registration # 15906

CONSULTANT

ISSUANCES

NO	DESCRIPTION	DATE
01	PH 1 – DESIGN PACKAGE	22 JAN 2019
02	80% CONSTRUCTION DOCUMENTS	01 FEB 2019

MUSEUM REACH

1500 N. ST. MARY'S ST.
SAN ANTONIO, TEXAS 78215

ALAMO COMMUNITY GROUP
4100 E PIEDRAS DR. STE 200
SAN ANTONIO, TEXAS 78228

PROJECT TITLE

ALAMO COMMUNITY GROUP
4100 E. PIEDRAS DR., SUITE 200
SAN ANTONIO, TX. 78228

KEY PLAN

DATE	01 FEB. 2019
GRG PROJECT NO.	18025
DRAWN BY	STAFF
REVIEWED BY	EG

SHEET TITLE:

WALL PARTITIONS AND FLOOR-CEILING-ROOF ASSEMBLIES

SHEET NUMBER:

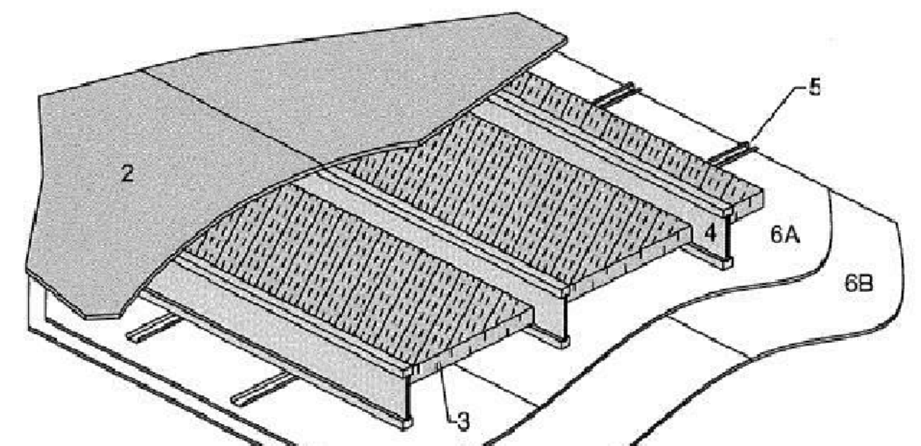
G101

Fri, 01 Feb 2019 – 9:39am

20 FIRE-RATED WOOD-FRAME WALL AND FLOOR/CEILING ASSEMBLIES

WIJ-1.7 One-Hour Fire-Resistive Ceiling Assembly

Floor*/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. **Floor Topping (optional, not shown):** Gypsum concrete, lightweight or normal concrete topping.
2. **Floor Sheathing:** Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements with minimum 8d common nails.
3. **Insulation:** Fiberglass insulation placed between I-joists supported by the resilient channels.
4. **Structural Members:** Wood I-joists spaced a maximum of 24 inches on center.
   Minimum I-joist flange depth: 1-1/2 inches — Minimum I-joist flange area: 2.25 inches[2]
   Minimum I-joist web thickness: 3/8 inch — Minimum I-joist depth: 9-1/2 inches
   See ASTM D 5055-07 for qualification requirements.
5. **Resilient Channels:** Minimum 0.019 inch thick galvanized steel resilient channel attached perpendicular to the bottom flange of the I-joists with one 1-1/4 inch drywall screw. Channels spaced a maximum of 16 inches on center [24 inches on center when I-joists are spaced a maximum of 16 inches on center].
6. **Gypsum Wallboard:** Two layers of minimum 1/2 inch Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels as follows:
   6a. Wallboard Base Layer: Base layer of wallboard attached to resilient channels using 1-1/4 inch Type S drywall screws at 12 inches on center.
   6b. Wallboard Face Layer: Face layer of wallboard attached to resilient channels through base layer using 1-5/8 inch Type S drywall screws spaced 12 inches on center. Edge joints of wallboard face layer offset 24 inches from those of base layer. Additionally, wallboard face layer attached to base layer with 1-1/2 inch Type G drywall screws spaced 8 inches on center, placed 1-1/2 inches from face layer end joints.
7. **Finish System (not shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Research Council of Canada — Report No. A-4219.13.2 March 23, 1998

STC and IIC Sound Ratings for Listed Assembly							
Without Gypsum Concrete				With Gypsum Concrete			
Cushioned Vinyl		Carpet & Pad		Cushioned Vinyl		Carpet & Pad	
STC	IIC	STC	IIC	STC	IIC	STC	IIC
59	50	55 [b]	68 [b]	65	51	63 [b]	65 [b]

[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.
[b] STC and IIC values estimated by David L. Adams Associates, Inc

 January 2009

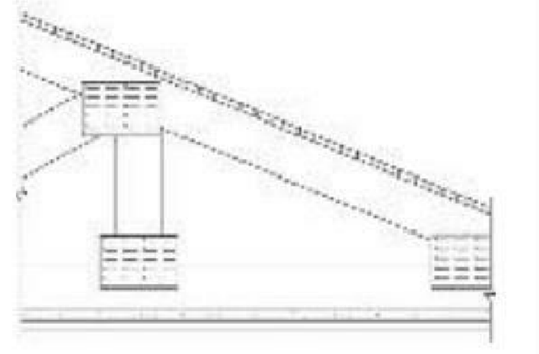
FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

ROOF-CEILING SYSTEMS

GA FILE NO. RC 2602 | GENERIC | 1 HOUR FIRE

WOOD TRUSSES, GYPSUM WALLBOARD

Base layer 5/8" type X gypsum wallboard applied at right angles to wood roof trusses 24" o.c. with 1 1/4" Type W or S drywall screws 24" o.c. **Face** layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to trusses with 1 7/8" Type W or S drywall screws 12" o.c. at joints and intermediate trusses and 1 1/2" Type G drywall screws 12" o.c. placed 2" back on either side of end joints. Joints offset 24" from base layer joints. Wood trusses supporting 1/2" wood structural panels applied at right angles to trusses with 8d nails. Appropriate roof covering. **Ceiling provides one hour fire resistance protection for trusses.**



Approx. Ceiling Weight: 5 psf
Fire Test: FM FC 172, 2-25-72; ITS, 8-6-98

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

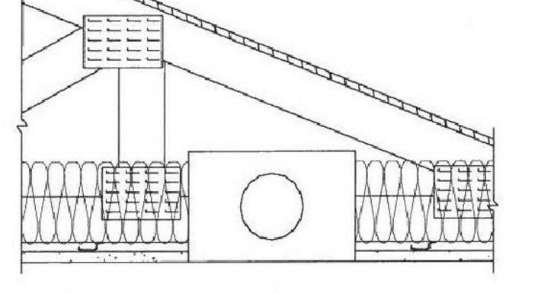
ROOF-CEILING SYSTEMS

GA FILE NO. RC 2603 | PROPRIETARY* | 1 HOUR FIRE

WOOD ROOF TRUSSES, RESILIENT CHANNELS, GLASS OR MINERAL FIBER INSULATION, CEILING DAMPER, GYPSUM WALLBOARD

One layer 5/8" proprietary type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 12" o.c. with 1 1/8" Type S drywall screws 8" o.c. Gypsum board end joints attached with screws 8" o.c. to additional pieces of channel 60" long located 3" back on either side of end joint. Resilient channels applied at right angles to bottom chord of pitched wood trusses 24" o.c. with 1 1/4" Type S or W screws. Glass fiber or mineral fiber batt or loose fill insulation applied directly over gypsum board. Trusses supporting 15/32" plywood or OSB roof sheathing applied at right angles to trusses with construction adhesive and 6d ring shank nails 12" o.c. Optional ceiling damper (refer to manufacturer for information on the type of damper).

PROPRIETARY GYPSUM BOARD
National Gypsum Company - 5/8" Gold Bond® Brand FIRE-SHIELD C™ Gypsum Wallboard



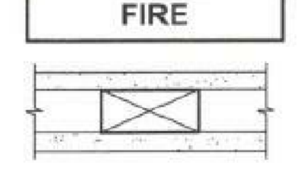
Approx. Ceiling Weight: 3 psf
Fire Test: UL R3501, 00NK42686, 8-16-01, UL Design P533

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

GA FILE NO. WP 3640 | GENERIC | 1 HOUR FIRE

GYPSUM WALLBOARD, WOOD STUDS

One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side of either 2 x 3 or 2 x 4 wood studs, turned flatwise, 24" o.c. with 6d cement-coated nails, 1 7/8" long, 0.0915" shank, 1/4" heads, 7" o.c. **(NLB)**



Thickness: 2 7/8"
Approx. Weight: 7 psf
Fire Test: UL, 9-12-96, UL Design U338

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

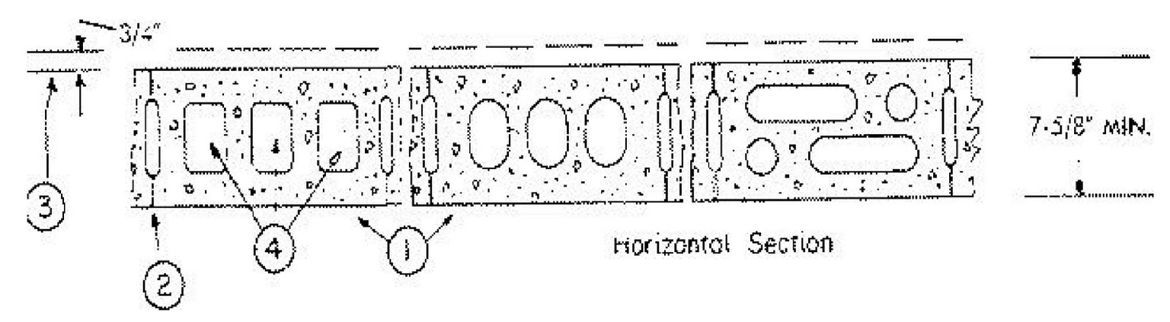
Design No. U905

September 30, 2010

Bearing Wall Rating — 2 HR.

Nonbearing Wall Rating — 2 HR

Load Restricted for Canadian Applications — See Guide BXUV7



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 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** — 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 Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

*Bearing the UL Classification Mark

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

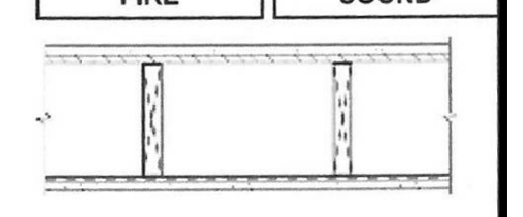
GA FILE NO. FC 5107 | PROPRIETARY* | 1 HOUR FIRE | 55 to 59 FSTC SOUND

GYPSUM WALLBOARD, RESILIENT CHANNELS, WOOD JOISTS, GYPSUM FLOOR UNDERLAYMENT

One layer 1/2" proprietary type X gypsum wallboard or gypsum veneer base applied at right angles to resilient furring channels 24" o.c. with 1" Type S drywall screws 12" o.c. Gypsum board end joints located midway between continuous channels and attached to additional pieces of channel 54" long with screws at 12" o.c. Resilient furring channels applied at right angles to 2 x 10 wood joists 16" o.c. with 1 1/4" Type W screws. Wood joists supporting 19/32" plywood subfloor and 3/4" 1000 psi sanded gypsum floor underlayment.

PROPRIETARY GYPSUM BOARD

American Gypsum Company LLC	-	1/2" FireBloc® Type C
CertainTeed Gypsum Inc.	-	1/2" ProRoc® Type C Gypsum Panels
CertainTeed Gypsum Canada Inc.	-	1/2" ProRoc® Type C Gypsum Panels
Georgia-Pacific Gypsum LLC	-	1/2" ToughRock® Fireguard C™
Lafarge North America Inc.	-	1/2" Firecheck® Type C
National Gypsum Company	-	1/2" Gold Bond® Brand FIRE-SHIELD C™ Gypsum Board
PABCO Gypsum	-	1/2" FLAME CURB® Super 'C'™ 1/2" TG-C
Temple-Inland	-	
United States Gypsum Company	-	1/2" SHEETROCK® Brand FIRECODE® C Core Gypsum Panels

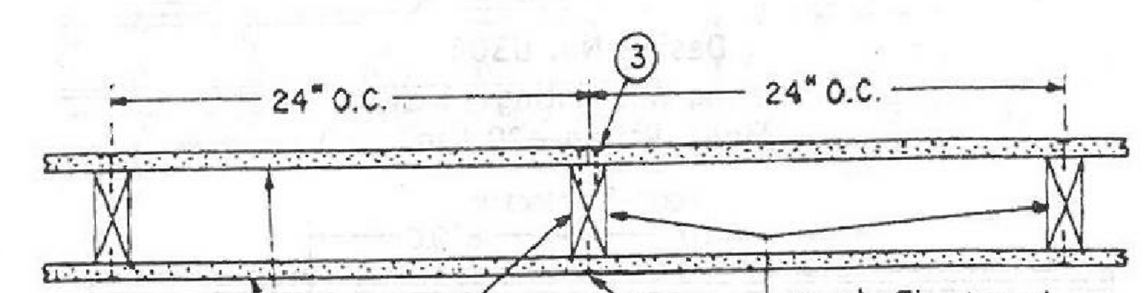


Approx. Ceiling Weight: 3 psf
Fire Test: UL R1319-65, 11-16-64, UL Design L514
Field Sound Test: INTEST 5-761-3, 12-5-77

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

Design No. U309

Bearing Wall Rating—1 HR.
Finish Rating—27 Min.



1. **Wood Studs**—Nom 2 by 4 in., spaced 24 in. OC effectively firestopped.
2. **Wallboard, Gypsum***—5/8 in. thick, 4 ft wide, nailed to studs and bearing plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads spaced 7 in. OC.
   Boral Gypsum Inc.—Type BG-C or DDN1.
   Continental Gypsum Company—Type CG-C.
   Eagle-Gypsum Products—Type EG-C.
   G-P Gypsum Corp.—Types 5, 9, DGG, GPFS6, GPFS-C.
   National Gypsum Co., Charlotte, NC—Types FSW, FSW-G.
   Pabco Gypsum Co.—Type C or PG-C.
   Republic Gypsum Co.—Type RG-C.
   Standard Gypsum Corp.—Type SG-C, SGC or SGC-G.
   Temple-Inland Forest Products Corp.—Type TP-5.
3. **Joints and Nailheads**—Wallboard joints covered with paper tape and joint compound. Nailheads covered with joint compound. Gypsum plaster not more than 1/8 in. thick may be applied over the wallboard in addition to the specified joint treatment.
4. **Batts and Blankets***—(Not Shown)—Optional glass fiber insulation.
   Certainteed Corp.
   Manville Sales Corp.
   Owens-Corning Fiberglas Corp.

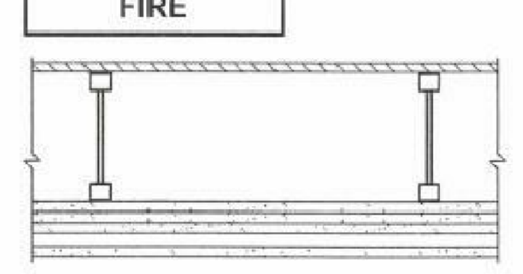
*Bearing the UL Classification Marking

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

GA FILE NO. FC 5750 | GENERIC | 2 HOUR FIRE

WOOD FLOOR, WOOD I-JOISTS, GYPSUM WALLBOARD, RIGID FURRING CHANNELS

Base layer 5/8" type X gypsum wallboard applied at right angles to 9 1/2" deep wood I-joists 24" o.c. with 1 1/4" Type W drywall screws 12" o.c. **Second** layer 5/8" type X gypsum wallboard applied at right angles to I-joists with 2" Type W drywall screws 12" o.c. Second layer joints offset 24" from base layer joints. **Third** layer 5/8" type X gypsum wallboard applied at right angles to I-joists with 2 1/2" Type W drywall screws 12" o.c. Third layer joints offset 12" from second layer joints. Hat-shaped rigid furring channels 24" o.c. applied at right angles to I-joists over third layer with two 2 1/2" long Type W drywall screws at each I-joist. **Face** layer 5/8" type X gypsum wallboard applied at right angles to furring channels with 1 1/8" Type S drywall screws 12" o.c. Wood I-joists supporting 3/4" T & G edge plywood floor applied at right angles to I-joists with 8d nails 6" o.c. at joints and 12" at intermediate I-joists. **Ceiling provides two-hour fire-resistance protection for wood framing.**



Approx. Ceiling Weight: 12 psf
Fire Test: UL R4024, 00NK26545, 4-27-01, UL Design L556, ULC Design M514

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

Design No. U344

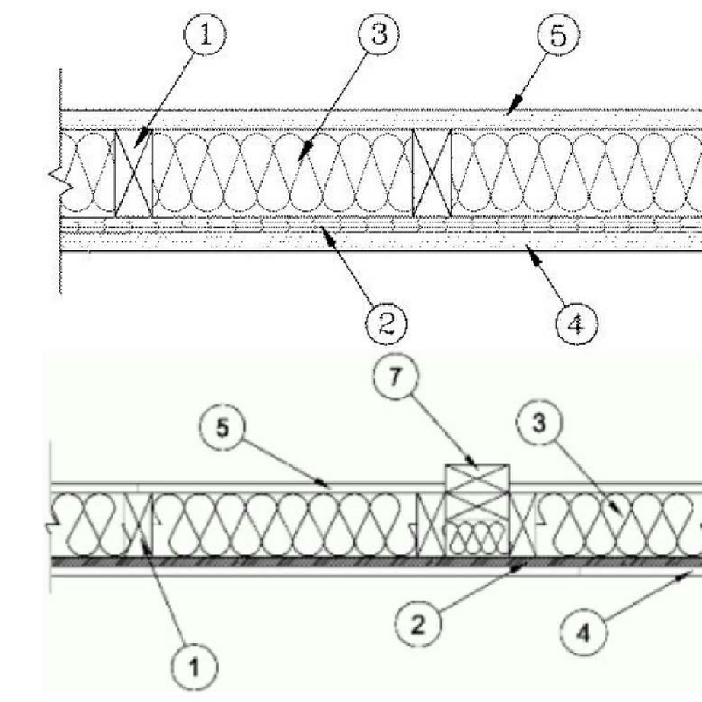
September 21, 2015

Bearing Wall Rating — 1 Hr.

Finish Rating — 26 Min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs** — Nom 2 by 4 in., spaced 24 in. OC, laterally braced, and effectively fire stopped at top and bottom.

2. **Wood Structural Panel Sheathing** — Nom 15/32 in. thick, 4 ft wide APA Rated Sheathing 32/16, Exposure 1, plywood or oriented strand board (OSB) per PS1, PS2 or APA Standard PRP-108. Installed with long dimension of sheet (strength axis) or face grain of plywood, parallel with studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Horizontal joints backed with nom 2 by 4 in. wood backing. Attached to studs on exterior side of wall with 6d cement coated steel box nails spaced 12 in. OC along interior studs and 6 in. OC at perimeter of panels.

3. **Batts and Blankets*** — 3-1/2 in. thick foil-faced glass fiber batts. Supplied in rolls 23 in. wide. Density to be nom 0.70 pcf. Friction-fitted to completely fill the 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 with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735 & INS745 for use with wet or dry application. INS510LD, INS515LD, INS541LD, INS735, INS745, INS765LD, and INS770LD are to be used for dry application only.

3B. **Fiber, Sprayed*** — As an alternate to Item 3 and 3A — 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 4.58 lb/ft³.

NU-WOOL CO INC — Cellulose Insulation

3C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

4. **Gypsum Board*** — 5/8 in. thick, 4 ft wide, applied horizontally or vertically. Attached to studs through plywood sheathing with 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam head nails spaced 7 in. OC along studs and at perimeter of panels. When used in widths other than 48 in., wallboard is to be installed horizontally. Joints exposed or covered with tape and compound.

When Item 6, **Steel Framing Members***, is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

ACADIA DRYWALL SUPPLIES LTD — 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C.

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1 (Finished Rating is 23 minutes); Type EGRG, Type GlasRoc.

CGC INC — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC6, LGFC6A, LGFC-C, LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C — Types TG-C, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, GreenGlas Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W, Type DGG, Type DAP, Type DS.

NATIONAL GYPSUM CO — Types FSK, FSK-G, FSW, FSW-3, FSW-5, FSW-G, FSK-C, FSW-C, FSMR-C, FSW-6, FSL, FSW-8

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-X2, IPC-AR, WRC, SCX, SHX, ULIX, ULX, USGX or WRX.

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC or WRX.

4A. **Gypsum Board*** — (As an alternate to Item 4) - 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically and secured as described in Item 4.

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min).

4B. **Gypsum Board*** — (As an alternate to Items 4, 4A) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

4C. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 4, 4A, 4B) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

4D. **Gypsum Board*** — (As an alternate to Item 4) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

5. **Gypsum Board*** — 5/8 in. thick, 4 ft wide applied horizontally or vertically. Attached to studs or blocking at 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads. When used in widths other than 48 in., wallboard to be installed horizontally. Joints exposed or covered with tape and compound.

When Item 6-6B, **Steel Framing Members***, is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

ACADIA DRYWALL SUPPLIES LTD — 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C.

CGC INC — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX, WRX.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC6, LGFC6A, LGFC-C, LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Type TG-C, GreenGlass Type X, Type DGG

NATIONAL GYPSUM CO — Types FSK, FSK-G, FSW, FSW-3, FSW-5, FSW-G, FSK-C, FSW-C, FSMR-C, FSW-6, FSL, FSW-8

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS.

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULIX, ULX, USGX or WRX.

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX.

5A. **Gypsum Board*** — As an alternate to Item 5 - (not shown) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally. Joints exposed or covered with tape and compound.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C (Finished Rating is 25 minutes).

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1 (Finished Rating is 23 minutes); Type EGRG, Type GlasRoc.

CGC INC — Type AR, C, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC or WRX, (Finished Rating is 24 minutes).

THAI GYPSUM PRODUCTS PCL — Type C or Type X

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX. (Finished Rating is 24 minutes).

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-X1, IP-X2, IPC-AR, SCX, ULX, USGX or WRX. (Finished Rating is 24 minutes).

5B. **Gypsum Board*** — (As an alternate to Items 5 and 5A) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 5. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.

GEORGIA-PACIFIC GYPSUM L L C — GreenGlas Type X, Type DGG.

5C. **Gypsum Board*** — (As an alternate to Items 5 through 5B) - 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically and secured as described in Item 5.

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min).

5D. **Gypsum Board*** — (As an alternate to Items 5 through 5C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

5E. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 5 through 5D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

5F. **Gypsum Board*** — (As an alternate to Items 5 through 5E) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

NATIONAL GYPSUM CO — SoundBreak XP Type X Gypsum Board

5G. **Gypsum Board*** — (As an alternate to Item 5) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

6. **Steel Framing Members** — (Optional, Not Shown)* — Furring Channels and Steel Framing Members as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide 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 of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Items 4 and 5.

   b. **Steel Framing Members*** — Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

   PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

6A. **Steel Framing Members*** — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide 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 of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 5.

   b. **Steel Framing Members*** — Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

   PLITEQ INC — Type Genie Clip

6B. **Steel Framing Members** — (Optional, Not Shown)* — Furring channels and resilient sound isolation clip as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached to furring channels as described in Item 5. Side joint furring channels shall be attached to studs with RESILMOUNT Sound Isolation Clips - Type A237R located approximately 2 in. from each end of length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge.

   b. **Steel Framing Members*** — Resilient sound isolation clip used to attach furring channels (Item 6Ba) to studs. Clips spaced 24 in. OC., and secured to studs with No. 10 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

   STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7. **Non-Bearing Wall Partition Intersection** — (Optional) Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3-1/2 in. long 10d nails spaced a max. 16 in. OC, vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

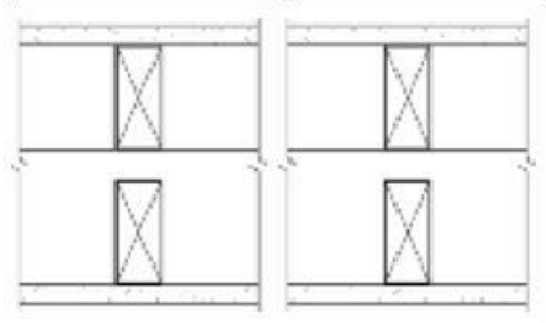
FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

GA FILE NO. WP 3370 | GENERIC | 1 HOUR FIRE | 45 to 49 STC SOUND

GYPSUM WALLBOARD, WOOD STUDS

One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side of double row of 2 x 4 wood studs 16" o.c. on separate plates 1" apart with 6d coated nails, 1 7/8" long, 0.0915" shank, 1/4" heads, 7" o.c.

Joints staggered 16" on opposite sides. Horizontal bracing required at mid-height. **(LOAD-BEARING)**



Thickness: 9 1/2"
Approx. Weight: 8 psf
Fire Test: See WP 3605 (UL R1319-4, 6, 6-17-52; UL R2717-39, 1-20-66; UL R3501-52, 3-15-66, UL Design U305; ULC Design W301); UL R4024, 10-31-68
Sound Test: NRCC TL-93-261, IRC-IR-761, 3/98

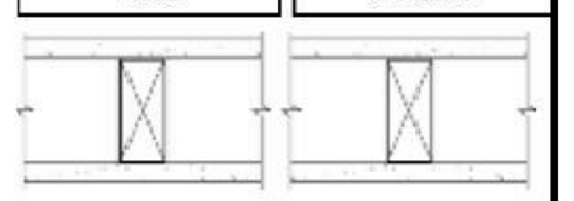
FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

GA FILE NO. WP 3510 | GENERIC | 1 HOUR FIRE | 35 to 39 STC SOUND

GYPSUM WALLBOARD, WOOD STUDS

One layer 5/8" type X gypsum wallboard or gypsum veneer base applied parallel or at right angles to each side of 2 x 4 wood studs 24" o.c. with 6d coated nails, 1 7/8" long, 0.0915" shank, 1/4" heads, 7" o.c.

Joints staggered 24" on opposite sides. **(LOAD-BEARING)**



Thickness: 4 7/8"
Approx. Weight: 7 psf
Fire Test: UL R3501-47, -48, 9-17-65, UL Design U309; UL R1319-129, 7-22-70, UL Design U314
Sound Test: NGC 2404, 10-14-70

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

Design No. U334

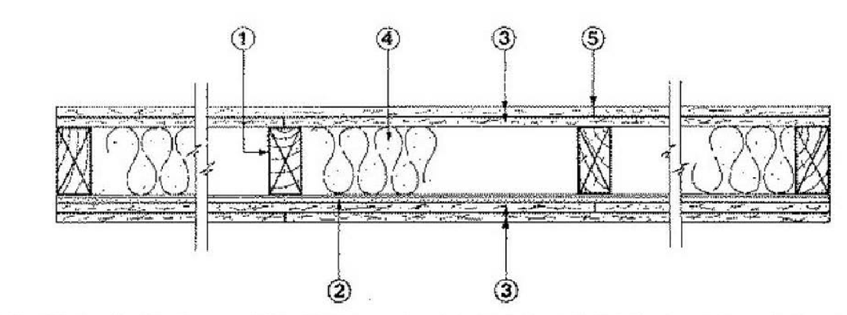
August 28, 2015

Bearing Wall Rating — 2 HR.

STC Rating - 62 (See Item 7)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs** — Nom 2 by 4 in., spaced 16 in. OC. Studs cross braced at mid-height and effectively fire stopped at top and bottom of wall.

2. **Resilient Channel** — 25 MSG galv steel, nom 2-1/2 in. wide by 1/2 in. deep. Resilient channels placed perpendicular to studs, spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1 in. long Type S steel screws.

2A. **Steel Framing Members (Optional, Not Shown)*** — As an alternate to Item 2, furring channels and resilient sound isolation clip as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide 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 of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel.

   b. **Steel Framing Members*** — Resilient sound isolation clip used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

   PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

2B. **Steel Framing Members*** — (Optional, Not Shown) - Furring channels and Steel Framing Members as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide 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 of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

   b. **Steel Framing Members*** — Used to attach furring channels (Item 5Aa) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

   PLITEQ INC — Type Genie Clip

2C. **Steel Framing Members** — (Optional, Not Shown)* — Furring channels and resilient sound isolation clip as described below:

   a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached to furring channels as described in Item 3. Side joint furring channels shall be attached to studs with RESILMOUNT Sound Isolation Clips - Type A237R located approximately 2 in. from each end of length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge.

   b. **Steel Framing Members*** — Resilient sound isolation clip used to attach furring channels (Item 2Ca) to studs. Clips spaced 16 in. OC., and secured to studs with No. 10 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

   STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

3. **Gypsum Board*** — 5/8 in. thick, 4 ft wide. Attached to furring channels: base layer with 1 in. long Type S steel screws spaced max 24 in. OC, face layer with 1-5/8 in. long Type S steel screws spaced max 12 in. OC. Attached to wood studs: base layer with 1-7/8 in. long 6d coated nails spaced max 14 in. OC, face layer with 2-3/8 in. long 8d coated nails spaced max 7 in. OC. Base layers installed vertically. Face layers installed horizontally with butt joints offset 16 in. from base layers.

AMERICAN GYPSUM CO — Types AG-C

CERTAINTEED GYPSUM INC — Type C.

CGC INC — Types C, IP-X2, IPC-AR.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C.

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C, FSW-G.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type C or PG-C.

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C.

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR.

USG BORAL ZAWAWI DRYWALL L L C SFZ — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR.

4. **Batts and Blankets*** — Nom 2 in. thick mineral wool insulation, 96 in. long, cut to 15 in. widths, friction fitted between studs in wall cavity.

ROXUL INC — Type AFB

THERMAFIBER INC — Type SAFB.

4A.. **Batts and Blankets*** — Glass fiber insulation. The cavities formed by the studs friction fit with R-19 unfaced fiberglass insulation batts measuring 6-1/4 in. thick and 15-1/4 in. wide. See Batts and Blankets* (BZJZ) category for names of Classified Companies.

5. **Joint Tape and Compound** — Vinyl, dry or premixed joint compound, applied to joints, screw heads, and nail heads (two applications); paper tape embedded in first layer of compound over all joints.

6. **Caulking and Sealants** — (not shown, optional) A bead of acoustical sealant applied around the partition perimeter for sound control

7. **STC Rating** — The STC Rating of the wall assembly is 62 when it is constructed as described by Items 1 through 5, except:

   a. Item 2A, above — **Steel Framing Members*** Shall be used to attach wallboard to studs on either the acoustical source or receiving side of the wall assembly.

   b. Item 4a above — **Batts and Blankets*** As described above, fiberglass insulation shall be used.

   c. Item 6, above — **Caulking and Sealants** (not shown) A bead of acoustical sealant shall be applied around the partition perimeter for sound control.

8. **Wall and Partition Facings and Accessories*** — (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

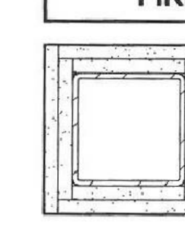
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

GA FILE NO. CM 1450 | GENERIC | 1 HOUR FIRE

GYPSUM WALLBOARD, STEEL COLUMN COVER

Base layer 1/2" type X gypsum wallboard applied around TS4x4x0.188 tube steel column and held in place with paper masking tape. **Second** layer 1/2" type X gypsum wallboard applied around column and held in place with paper masking tape. **Face** layer either No. 24 MSG galvanized steel column cover consisting of two L-shaped sections with snap-lock sheet steel joints or No. 22 MSG galvanized steel column covers consisting of two L-shaped sections with lap joints fastened with No.8x1/2" sheet metal screws 12" o.c.



Fire Test: UL NC505-(1-6), 71NK2639, 12-23-75; UL NC505, 77NK1518; UL Design X526

FIRE RATED ASSEMBLY DETAIL
SCALE: NONE

- NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION - NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION -

GRG architecture
118 BROADWAY, SUITE 620
SAN ANTONIO, TX. 78205
210.447.7000

ARCHITECT

DOCUMENTS INCOMPLETE:
NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION.

Edward A. Garza
Texas Registration # 15906

CONSULTANT

ISSUANCES

NO	DESCRIPTION	DATE
01	PH 1 – DESIGN PACKAGE	22 JAN 2019
02	80% CONSTRUCTION DOCUMENTS	01 FEB 2019

MUSEUM REACH LOFTS

1500 N. ST. MARY'S ST.
SAN ANTONIO, TEXAS 78215

ALAMO COMMUNITY GROUP
4100 E PIEDRAS DR. STE 200
SAN ANTONIO, TEXAS 78228

PROJECT TITLE

ALAMO COMMUNITY GROUP
4100 E. PIEDRAS DR., SUITE 200
SAN ANTONIO, TX. 78228

KEY PLAN

DATE	01 FEB. 2019
GRG PROJECT NO.	18025
DRAWN BY	STAFF
REVIEWED BY	EG

SHEET TITLE:

FIRE-RATED WALL AND FLOOR/CEILING ASSEMBLIES

SHEET NUMBER:

G102

Fri, 01 Feb 2019 – 9:38am

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. F-C-2158

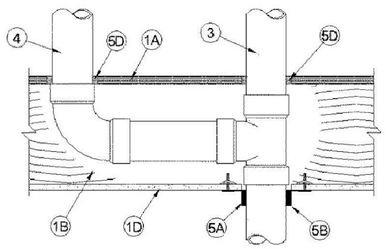
November 26, 2012

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 — Less Than 1 CFM/sq ft



1. **Floor-Ceiling Assembly —** The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. **The F and T Ratings of the firestop system are equal to the rating of the floor-ceiling assembly.** The general construction features of the floor-ceiling assembly are summarized below:

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or **Floor Topping Mixture*** as specified in the individual Floor-Ceiling Design. Diam of opening hole-sawed in flooring shall be max 1 in. (25 mm) larger than diam of through penetrant (Item 3) or branch piping (Item 4). As an option, the opening for the branch piping (Item 4) may be rectangular, 8 in. by 12 in. (204 by 305 mm) max, for 1 hr-rated assemblies only. Cutout to be patched on underside of subfloor using one layer of min 3/4 in. (19 mm) thick plywood or min 5/8 in. (16 mm) thick gypsum wallboard (Item 5C) sized to lap min 2 in. (51 mm) beyond each edge of rectangular cutout. Diam of opening hole sawed through patch to accommodate branch piping (Item 4) to be max 1 in. (25 mm) larger than diam of branch piping. Patch split into two pieces at opening hole-sawed for branch piping. Two pieces positioned around branch piping with cut edges tightly-butted, and screw attached to the underside of subfloor using 1-1/4 in. (32 mm) long Type S steel screws spaced max 6 in. (152 mm) OC.

B. Wood Joists* — For 1 hr fire-rated floor-ceiling assemblies nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped. For 2 hr fire-rated floor-ceiling assembly, nom 2 by 10 in. (51 by 254 mm) lumber joists spaced 16 in. (406 mm) OC with nom 1 by 3 in. (25 by 76 mm) lumber bridging with ends firestopped.

C. Furring Channels — Not Shown)—Resilient galv steel furring installed perpendicular to wood joists between first and second layers of gypsum board (Item 1D) in 2 hr fire-rated assembly.

D. Gypsum Board* — Nom 4 ft (1.2 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. First layer of gypsum board nailed to wood joists. Second layer of gypsum board (2 hr fire-rated assembly) screw-attached to furring channels. Diam of opening shall be max 1 in. (25 mm) larger than nom diam of through penetrant (Item 3).

2. **Chase Wall —** (Optional, not shown)—The through-penetrant (Item 3) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and which includes the following construction features:

A. Studs — Nom 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.

B. Sole Plate — Nom 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening hole-sawed in sole plate to be max 1 in. (25 mm) larger than diam of through penetrant (Item 3).

C. Top Plate — The double top plate shall consist of two nom 2 by 5 in. (51 by 152 mm) or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening shall be max 1 in. (25 mm) larger than diam of through penetrant (Item 3).

D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall or Partition Design.

3. **Through—Penetrant —** One nonmetallic pipe to be centered within the firestop system. Pipe to be rigidly supported on both sides of floor-ceiling assembly. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Pipe may be installed with continuous joint contact where it passes through gypsum board ceiling. The following types and sizes of nonmetallic pipes may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom 4 in. (102 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 system.

B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 4 in. (102 mm) diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

C. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 4 in. (102 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 system.

4. **Branch Piping —** (Optional)—One nonmetallic pipe with or without nom 4 in. (102 mm) diam (or smaller) toilet flange (not shown) connected to through penetrant (Item 3) within concealed space above ceiling and centered within opening in subfloor. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (0 to 13 mm). Branch piping may terminate in a max 4 in. (102 mm) diam toilet flange that corresponds to the type of branch piping. The following types and sizes of nonmetallic pipes may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom 4 in. (102 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 system.

B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 4 in. (102 mm) diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

C. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 4 in. (102 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 system.

5. **Firestop System —** The details of the firestop system shall be as follows:

A. Fill, Void or Cavity Material* — Wrap Strip — Nom 1/8 or 1/4 in. (3.2 or 6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. or 2 in. (38 or 51 mm) wide strips. Nom 1-1/2 in. or 2 in. (38 or 51 mm) wide strips tightly wrapped around through penetrant (Item 3) with the edges butted against the underside of the gypsum board ceiling (Item 1D) or top plate of chase wall (Item 2C) around the entire perimeter of the hole-sawed opening. For nom 1/2 in. to 2 in. (13 to 51 mm) diam pipes, a min of one layer of wrap strip is required. For nom 3-1/2 in. to nom 4 in. (64 to 102 mm) diam pipes, a min of two layers of wrap strip is required. Each layer of wrap strip to be installed with butted seams, butted seams in successive layers to be staggered or aligned. Wrap strip layer(s) secured together with masking tape.

SPECIFIED TECHNOLOGIES INC — SpecSeal RED Wrap Strip, SpecSeal RED2, SpecSeal BLU Wrap Strip or SpecSeal BLU2 Wrap Strip

B. Steel Collar — Collar fabricated from coils of precut 0.016 in. (0.4 mm) thick (30 MSG) galv sheet steel available from wrap strip manufacturers. Collar shall be nom 3-1/2 in. or 2 in. (38 or 51 mm) deep dependent upon wrap strip width with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for attachment to underside of ceiling or top plate. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, folded 90 degrees toward through penetrant surface to maintain the annular space and to retain the wrap strips. Collar wrapped around wrap strips and through-penetrant with a 1 in. (25 mm) wide overlap along its perimeter joint and secured with a min 1/2 in. (13 mm) wide by 0.028 in. (0.7 mm) thick stainless steel hose clamp at the mid-height of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 steel sheet metal screws. The length of the steel screws is dependent upon the number of layers of wrap strip used within the steel collar. For steel collars incorporating a single layer of wrap strip, the length of the steel screws shall be 1/4 in. (6 mm) long. For steel collars incorporating two or more layers of wrap strip, the length of the steel screws shall be 5/8 in. (10 mm) long. Collar secured to the bottom of ceiling with min 3/16 in. (4.8 mm) diam by 2 in. (51 mm) long toggle bolts in conjunction with min 1/4 in. by 1-1/4 in. (6 by 32 mm) steel fender washers. Collar secured to bottom of chase wall top plate with min 3/4 in. (19 mm) long steel wood screws in conjunction with min 1/4 in. by 1 in. (6 by 25 mm) steel fender washers, respectively. The number of screws is dependent upon the nom diam of the through penetrant. Two screws, symmetrically located, are required for nom 1/2 in. through 2 in. (13 to 51 mm) diam through-penetrants. Three screws, symmetrically located, are required for nom 2-1/2 in. and 3 in. (64 to 76 mm) diam through-penetrants. Four screws, symmetrically located, are required for nom 3-1/2 in. and 4 in. (89 to 102 mm) diam through-penetrants. Steel collar is not required to be installed around branch piping at the underside of the flooring.

C. Firestop Device* — (Not Shown)—As an alternate to Items 5A and 5B for through-penetrant (Item 3), a firestop device consisting of a steel collar lined with intumescent material and sized to fit the specific diam of the nonmetallic pipe may be used. Firestop device to be installed on underside of ceiling or top plate in accordance with the accompanying installation instructions.

SPECIFIED TECHNOLOGIES INC — SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar

D. Fill, Void or Cavity Material* —Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within annular space around perimeter of through penetrant (Item 3) and branch piping (Item 4), flush with top surface of floor or top of chase wall side plate. Min 1/2 in. (13 mm) diam bead applied at point contact locations at pipe/floor interface and the pipe/plate interface.

SPECIFIED TECHNOLOGIES INC — SpecSeal Series Sealant or SpecSeal LCI Sealant

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2013-11-26

THROUGH-PENETRATION FIRESTOP DETAIL
SCALE: NONE

XHEZ - Through-penetration Firestop Systems

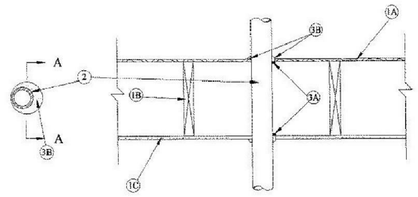
See General Information for Through-penetration Firestop Systems

System No. F-C-1069

December 06, 2001

F Rating — 1 Hr

T Rating — 1/4 Hr



SECTON A-A

1. **Floor-Ceiling Assembly —** The fire-rated wood joist floor- ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 series Floor-Ceiling Designs in the UL Fire Resistance Directory, as summarized below:

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or **Floor Topping Mixture*** as specified in the individual Floor-Ceiling Design. Max diam of floor opening is 9-7/8 in.

B. Wood Joists — Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required with ends firestopped.

C. Gypsum Board* — Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design, gypsum board nailed to wood joists. Max diam of ceiling opening is 9-7/8 in.

2. **Through Penetrants —** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The space between pipes, conduits or tubing and periphery of opening shall be min 0 in. (point contact) to max 7/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe — Nom 8 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.

B. Iron Pipe — Nom 8 in. diam (or smaller) cast or ductile iron pipe.

C. Conduit — Nom 4 in. diam (or smaller) steel electrical metallic tubing or nom 6 in. diam (or smaller) steel conduit.

D. Copper Tubing — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

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

A. Packing Material* — (Optional) — Foam backer rod firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor and bottom surface of ceiling as required to accomodate the required thickness of fill material.

B. Fill, Void or Cavity Material* — Caulk — Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of the floor and bottom surface of the ceiling. Additional fill material to be installed such that a min 1/2 in. crown is formed around the penetrating item and lapping 1-1/4 in. beyond the periphery of the opening.

UNITED STATES GYPSUM CO — Type IA

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2001-12-06

THROUGH-PENETRATION FIRESTOP DETAIL
SCALE: NONE

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. W-L-1001

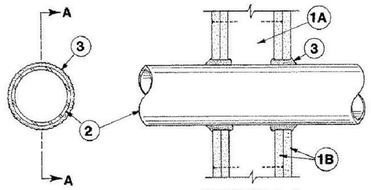
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

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, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or 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 (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. Gypsum Board* — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) 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 UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. **Through-Penetrant —** One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm), (point contact) to max 2 in. (51 mm) Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing

D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing

E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Product* — Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal-gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal-gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITEFLEX

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal-gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG LLC

3. **Fill, Void or Cavity Material* — Caulk or Sealant —** Min 5/8, , 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below.

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2009-06-15

THROUGH-PENETRATION FIRESTOP DETAIL
SCALE: NONE

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. W-L-2145

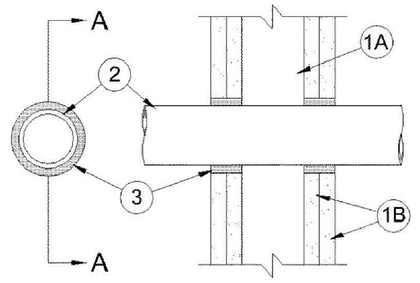
May 13, 2009

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

T Ratings - 0, 1, 1-1/2 and 2 Hr (See Item 2)

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

L Rating at 400 F- 5 CFM/sq ft



Section A-A

1. **Wall Assembly —** The 1 or 2 Hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 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. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.

B. Wallboard, Gypsum* — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max diam of opening is 3 in. (76 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through-Penetrants —** One nonmetallic pipe, conduit or tubing to be centered within the firestop system. A nom annular space of 5/16 in. (8 mm) is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. Rigid Nonmetallic Conduit+ — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

D. Crosslinked Polyethylene (PEX) Tubing — Nom 2 in. (51 mm) diam (or smaller) SDR 7.3 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

E. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

F. Electrical Nonmetallic Tubing (ENT)+ — Nom 2 in. (51 mm) diam (or smaller) corrugated-wall electrical nonmetallic tubing (ENT) constructed of PVC and installed in accordance with the National Electrical Code (NFPA 70).

See **Electrical Nonmetallic Tubing** (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.

G. Flexible Nonmetallic Conduit, Liquid-Tight (FNMC)+ — Nom 2 in. (51 mm) diam (or smaller) corrugated-wall flexible nonmetallic conduit (FNMC) constructed of PVC and installed in accordance with the National Electrical Code (NFPA 70).

See **Flexible Nonmetallic Conduit, Liquid-Tight** (DXOQ) category in the Electrical Construction Materials Directory for names of manufacturers.

H. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDR11 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

IPEX INC — AquaRise

The T Rating is 0 hr and 1-1/2 hr for 1 and 2 hr rated assemblies, respectively, for Penetrants A, B and C. The T Rating is 0 hr and 2 hr for 1 and 2 hr rated assemblies, respectively, for Penetrants D, F and G. The T Rating is 0 hr for Penetrant E. The T Rating is 1 hr for Penetrant I.

3. **Fill, Void or Cavity Material* - Sealant —** Min 5/8 in. (16 mm) and 1-1/4 in. (32 mm) thicknesses of fill material required for 1 and 2 Hr rated assemblies, respectively, applied within the annulus, flush with both surfaces of wall.

NUCO INC — Self Seal GG-266

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

+Bearing the UL Listing Mark

Last Updated on 2009-05-13

THROUGH-PENETRATION FIRESTOP DETAIL
SCALE: NONE

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. F-C-2200

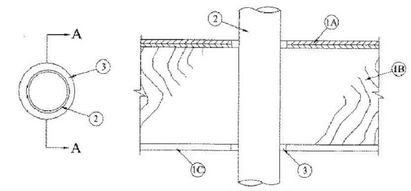
March 30, 2007

F Rating — 1 Hr

T Rating — 1 Hr

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

L Rating At 400 F — 5 CFM/Sq Ft



SECTION A-A

1. **Floor Assembly —** The 1 hr fire rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction details of the floor-ceiling assembly are summarized below:

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or **Floor Topping Mixture*** as specified in the individual Floor-Ceiling Design. Diam of opening to be 1 in. (25 mm) larger than nom size of penetrant.

B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** - with bridging as required and with ends firestopped.

C. Gypsum Board* — Nom 4 ft (122 cm) wide by 5/8 in. (16 mm) thick, as specified in the individual Floor-Ceiling Design. Diam of opening to be 1 in. (25 mm) larger than nom size of penetrant.

1.1. Chase Wall — (Optional, not shown) — The through penetrants (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Nom 2 by 4 in. (51 by 102 mm) (or larger) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.

B. Sole Plate — Nom 2 by 4 in. (51 by 102 mm) (or larger) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening to be 1 in. (25 mm) larger than nom size of penetrant.

C. Top Plate — The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm) (or larger) or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening to be 1 in. (25 mm) larger than nom size of penetrant.

D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

2. **Through—Penetrant —** One nonmetallic pipe, conduit or tubing to be centered within the firestop system. Annular spaces between pipe and edge of opening to be min 1/4 in. (6 mm) and max 3/8 in. (10 mm). Pipe to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDR11 or SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

D. Rigid Nonmetallic Conduit+ — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

E. Electrical Nonmetallic Tubing (ENT)+ — Nom 2 in. (51 mm) diam (or smaller) corrugated-wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC) and installed in accordance with the National Electrical Code (NFPA No. 70).

See **Electrical Nonmetallic Tubing** (FKHU) category in the Electrical Construction Materials Directory for names of manufacturers.

F. Flexible Nonmetallic Conduit, Liquid-Tight (FNMC)+ — Nom 2 in. (51 mm) diam (or smaller) corrugated-wall flexible nonmetallic conduit, liquid-tight (FNMC) constructed of polyvinyl chloride (PVC) and installed in accordance with the National Electrical Code (NFPA No. 70).

See **Flexible Nonmetallic Conduit, Liquid-Tight** (DXOQ) category in the Electrical Construction Materials Directory for names of manufacturers.

G. Crosslinked Polyethylene (PEX) Tubing — Nom 2 in. (51 mm) diam (or smaller) SDR 7.3 for use in closed (process or supply) piping systems or nom 2 in. (51 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. **Fill, Void or Cavity Materials* — Sealant —** Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with top surface of floor or side plate. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with bottom surface of ceiling or lower top plate.

NUCO INC — GG-266 caulk

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

+ Bearing the UL Listing Mark

Last Updated on 2007-03-30

THROUGH-PENETRATION FIRESTOP DETAIL
SCALE: NONE

- NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION -

MUSEUM REACH LOFTS

1500 N. ST. MARY'S ST.
SAN ANTONIO, TEXAS 78215

ALAMO COMMUNITY GROUP
4100 E PIEDRAS DR. STE 200
SAN ANTONIO, TEXAS 78228

GRG architecture
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ARCHITECT

Edward A. Garza
Texas Registration # 15906

CONSULTANT

ISSUANCES

NO	DESCRIPTION	DATE
01	PH 1 - DESIGN PACKAGE	22 JAN 2019
02	80% CONSTRUCTION DOCUMENTS	01 FEB 2019

PROJECT TITLE

ALAMO COMMUNITY GROUP
4100 E. PIEDRAS DR., SUITE 200
SAN ANTONIO, TX. 78228

KEY PLAN

DATE	01 FEB. 2019
GRG PROJECT NO.	18025
DRAWN BY	STAFF
REVIEWED BY	EG

SHEET TITLE:

THROUGH-WALL PENETRATION DETAILS

SHEET NUMBER:

G103

Fri, 01 Feb 2019 - 9:36am