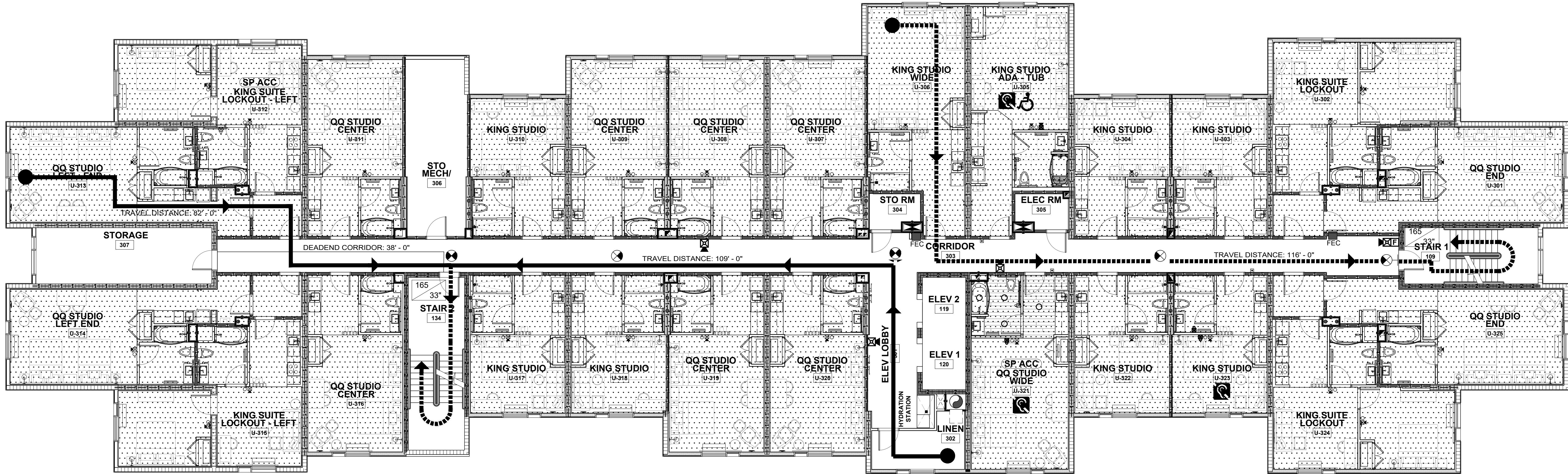


AREA AND OCCUPANCY SCHEDULE											
LEVEL	AREA	SPACE	AREA	% OCC	OCCUPANCY	LEVEL	AREA	SPACE	AREA	% OCC	OCCUPANCY
1ST FLOOR	15,621 SQ FT					TYP. UPPER FLR (4)	14,161 SQ FT				
		GUEST UNITS (R1)	2,742 SQ FT	1/200 SQ FT	14 PERSONS			GUEST UNITS (R1)	10,856 SQ FT	1/200 SQ FT	55 PERSONS
		LOBBY/BKFS/ST/BAR (A2)	2,190 SQ FT	1/15 SQ FT	146 PERSONS			HSKPG/STOR (R/S)	668 SQ FT	1/200 SQ FT	4 PERSONS
		ASSEMBLY AREA (A3)	3,239 SQ FT	1/15 SQ FT	216 PERSONS						
		GUEST LAUNDRY (R/S)	247 SQ FT	1/200 SQ FT	2 PERSONS	TOTAL 59 PERSONS					
		OFFICE (B)	646 SQ FT	1/150 SQ FT	4 PERSONS	TOTAL BLDG AREA: 72,265 SQ FT		MAX OCCUPANCY: 647 PERSONS			
		FITNESS CENTER (A3)	754 SQ FT	1/50 SQ FT	16 PERSONS						
		LAUNDRY (B)	735 SQ FT	1/150 SQ FT	5 PERSONS						
		KITCHEN (B)	334 SQ FT	1/150 SQ FT	4 PERSONS						
		STORAGE/MECH (S1)	1111 SQ FT	1/300 SQ FT	4 PERSONS						
TOTAL 411 PERSONS											

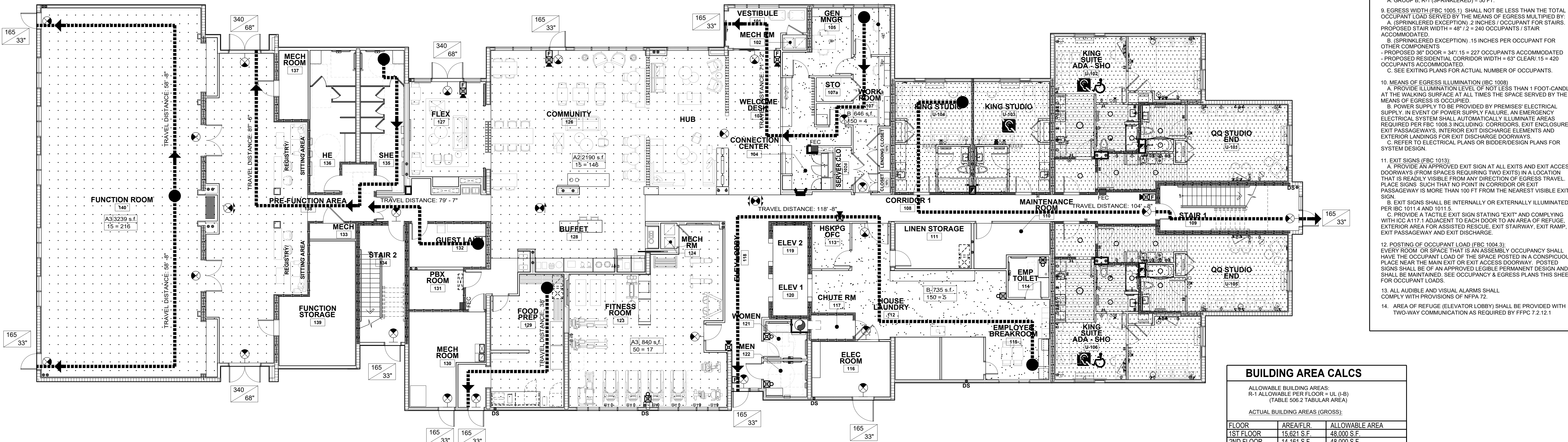
CODES	
ALL CONSTRUCTION SHALL COMPLY WITH CURRENTLY ADOPTED CODES AND GUIDELINES, INCLUDING: FLORIDA BUILDING CODE 7th EDITION (2020) Accessibility Building Energy Conservation Florida Fire Prevention Code 7th EDITION (2020) Fire Code - NFPA 1 - 2018 EDITION The Life Safety Code - NFPA 101 - 2018 EDITION The National Electrical Code - NFPA 70 - 2020 EDITION FAIRFIELD BY MARRIOTT DESIGN GUIDELINE DRAWINGS 2016 (Revised 2019)	
CODE REVIEW	
Florida Building Code: CONSTRUCTION TYPE: II-B TABLE 601 (SPRINKLERED PER SEC. 903.3.1 - NFPA 13) OCCUPANCY: R-1: PRIMARY OCCUPANCY B: NON-SEPARATED 508.3 A-2/3: SEPARATED 1 HR PER 508.4 MAX TRAVEL DISTANCE ALLOWED: R-1 = 250' (TABLE 1016.2) B = 300' (TABLE 1016.2) A = 250' (TABLE 1016.2) BUILDING HEIGHT: ALLOWABLE 75'-0" (TABLE 504.3 TYPE II-B) PROPOSED 68'-2" STORIES: ALLOWABLE R-1: 5 (TABLE 504.4 TYPE II-B) PROPOSED 5	NFPA: CONSTRUCTION TYPE: II-000 SPRINKLERED PER NFPA 13 OCCUPANCY: HOTEL: PRIMARY OCCUPANCY BUSINESS: MIXED USE 6.1.14.1.3 MERCANTILE: MIXED USE 6.1.14.1.3 ASSEMBLY: SEPARATED 1 HR (TABLE 6.1.14.4.1(a)) MAX TRAVEL DISTANCE ALLOWED: R-1 = 250' (TABLE 1016.2) B = 300' (TABLE 1016.2) A = 250' (TABLE 1016.2)

FIRE RATING ANALYSIS			
EXTERIOR BEARING WALLS	0 HOURS	GUESTROOM PARTY WALLS	1 HOUR
STAIRWELL SHAFTS, ELEV SHAFT & LAUNDRY CHUTE SHAFT	2 HOURS	DOORS IN 2 HOUR RATED WALLS	90 MINUTES
HOLLOW CORE FLOOR / CEILING ASSEMBLY BETWEEN FLOORS	1 HOUR	DOORS IN 1 HOUR RATED WALLS	45 MINUTES
SEPARATION WALLS	1 HOUR	GUESTROOM ENTRANCE DOOR	20 MINUTES
NOTE: 1. REFER TO UL DETAILS FOR RATED ASSEMBLY REQUIREMENTS 2. WALL RATINGS ALSO REFLECTED ON FLOOR PLANS 3. PROVIDE SIGNS FOR FIRE RATED WALLS AT 30 FT INTERVALS			
CEILING WALL FIRE RESISTANT CLASS			
EXIT ENCLOSURES	CLASS A	ROOMS AND ENCLOSED SPACES	CLASS A,B,C
LOBBYS AND CORRIDORS	CLASS A, B		
FLOOR FIRE RESISTANT CLASS			
EXITS, CORRIDORS AND NOT ENCLOSED SPACES	CLASS II	ROOMS AND ENCLOSED SPACES	CLASS I, II

LEGEND	
	MEANS OF EGRESS
	EXIT SIGN
	EMERGENCY LIGHTING
	WALL MOUNTED FIRE EXTINGUISHER CABINET
	ONE (1) HOUR WALL
	TWO (2) HOUR WALL
	NUMBER OF OCCUPANTS / EXIT DOOR
	REQUIRED EXIT WIDTH
	OCC. TYPE / FUNCTION AREA
	OCC. LOAD OCC. LOAD FACTOR
	OCCUPANT LOAD TYPES
	RESIDENTIAL (R)
	ASSEMBLY (A)
	BUSINESS (B)
NOTES	
ALL SIGNS INDICATED TO BE PROVIDED AND INSTALLED BY CONTRACTOR PROVIDE FIRE EXTINGUISHERS HAVING A MINIMUM RATING OF 2A-10B-C FOR EVERY 3000 SQUARE FEET OF FLOOR AREA. TRAVEL DISTANCE TO AN EXTINGUISHER SHALL NOT EXCEED 75 FEET. MOUNT AT 33" A.F.F. INSTALLED IN APPROPRIATE LOCATIONS AS DIRECTED BY FIRE MARSHALL TO MEET LOCAL CODES.	



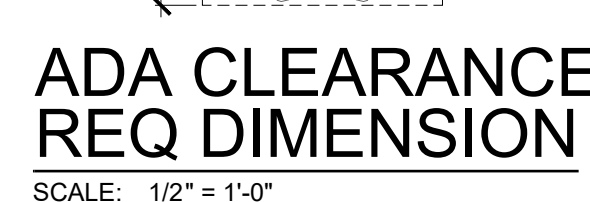
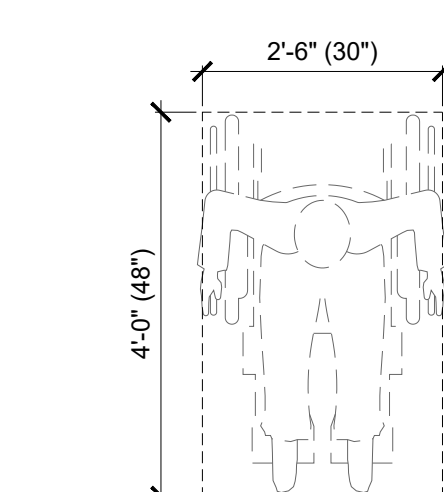
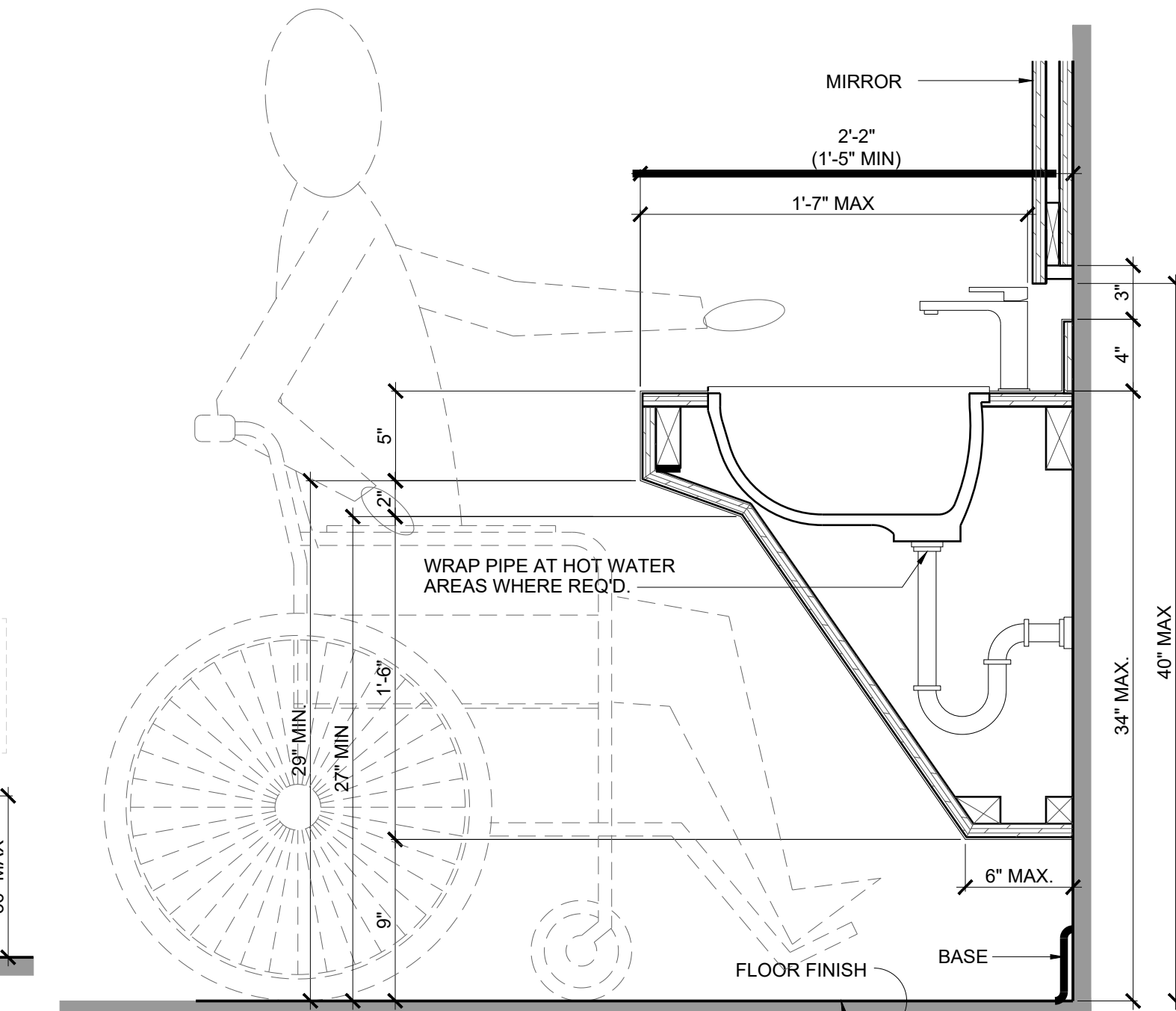
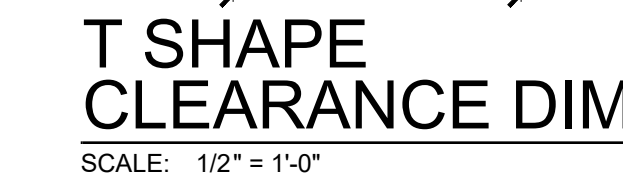
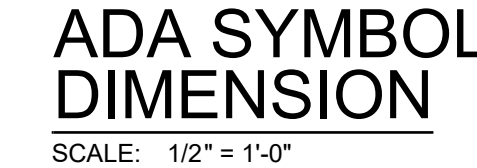
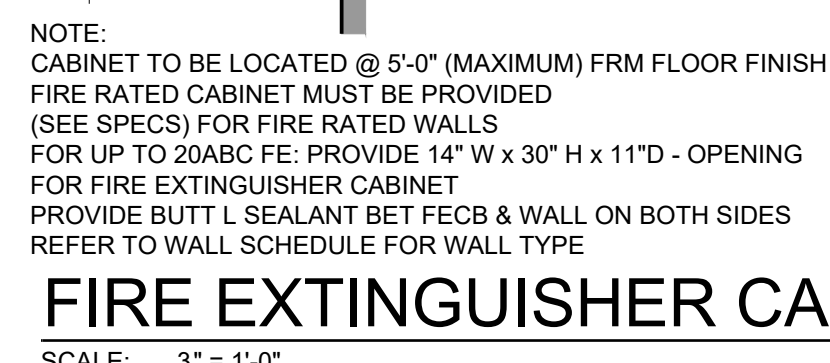
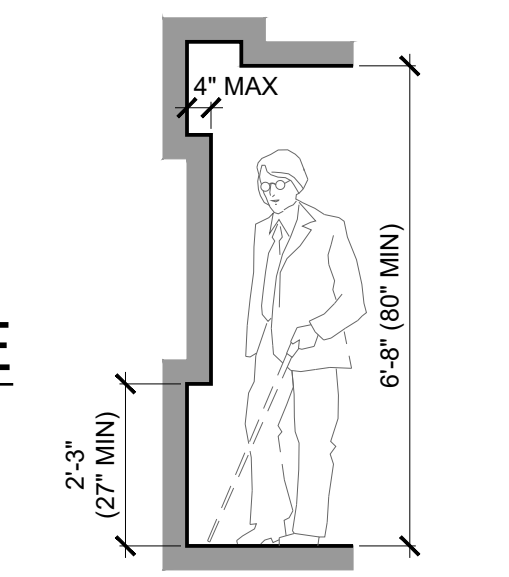
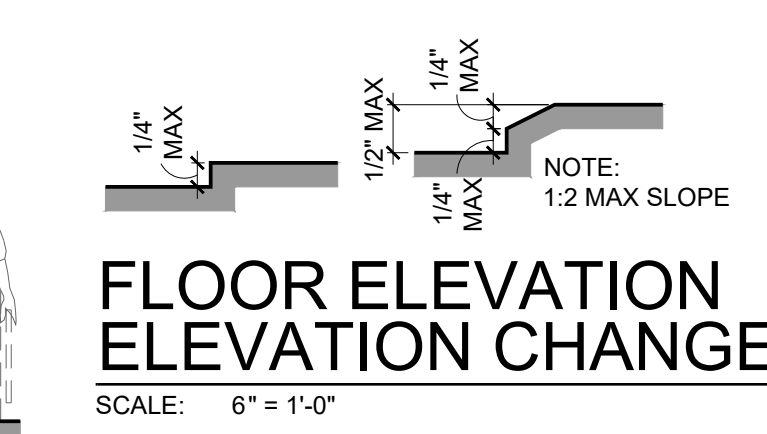
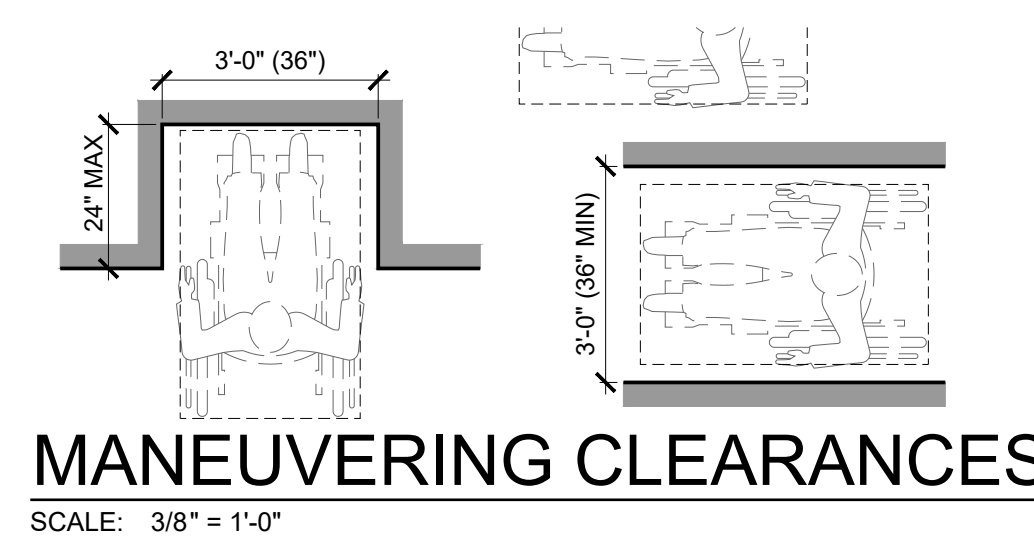
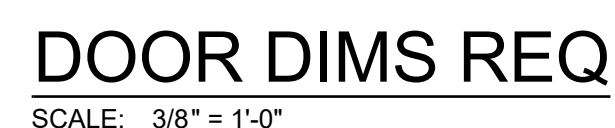
2 2ND - 5TH FLOORS LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

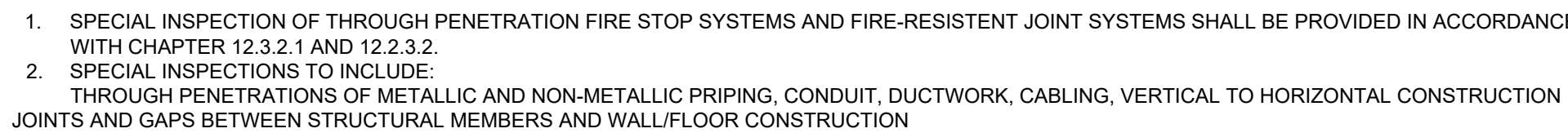


1 1ST FLOOR LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

BUILDING AREA CALCCS		
ALLOWABLE BUILDING AREAS: R-1 ALLOWABLE PER FLOOR = UL (I-B) (TABLE 506.2 TABULAR AREA)		
ACTUAL BUILDING AREAS (GROSS):		
FLOOR	AREA/FLR	ALLOWABLE AREA
1ST FLOOR	15,621 S.F.	48,000 S.F.
2ND FLOOR	14,161 S.F.	48,000 S.F.
3RD FLOOR	14,161 S.F.	48,000 S.F.
4TH FLOOR	14,161 S.F.	48,000 S.F.
5TH FLOOR	14,161 S.F.	48,000 S.F.
TOTAL	72,265 S.F.	240,000 S.F.

HARTER - ADAMS P.A. ARCHITECTS AND PLANNERS 377 MAINTAINANCE BLVD., SUITE 200, LAKE CITY, FL 32810 PHONE 407.447.7575 FAX 407.447.2002	AA C000606
	TOWNEPLACE SUITES® BY MARRIOTT
	TOWNEPLACE SUITES HOTEL LAKE CITY HOTELS, INC. NW COMMERCE DRIVE, LAKE CITY, FLORIDA
	REVISION JOB NO. DATE SHEET LS1.1 OF

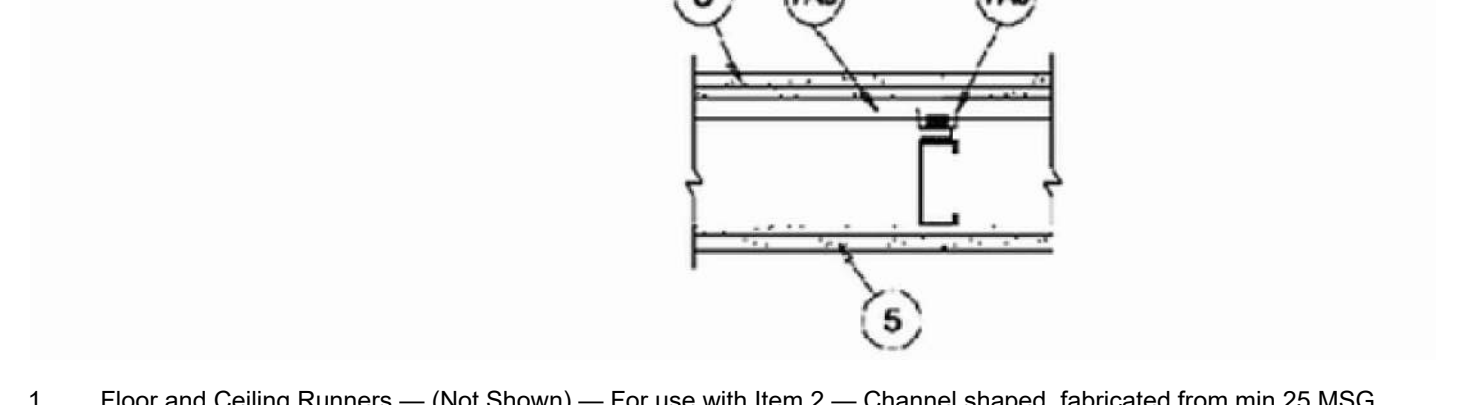
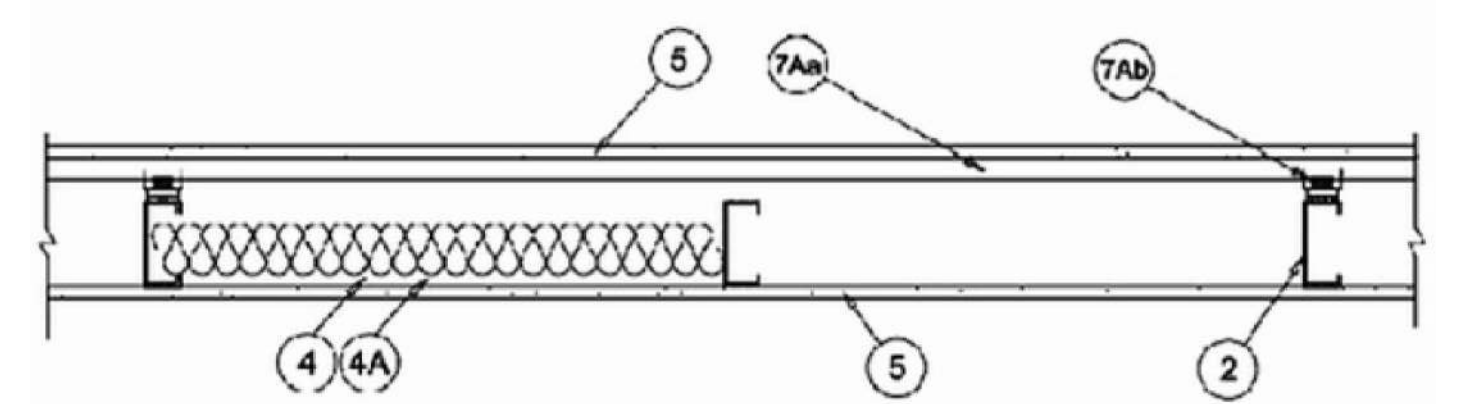
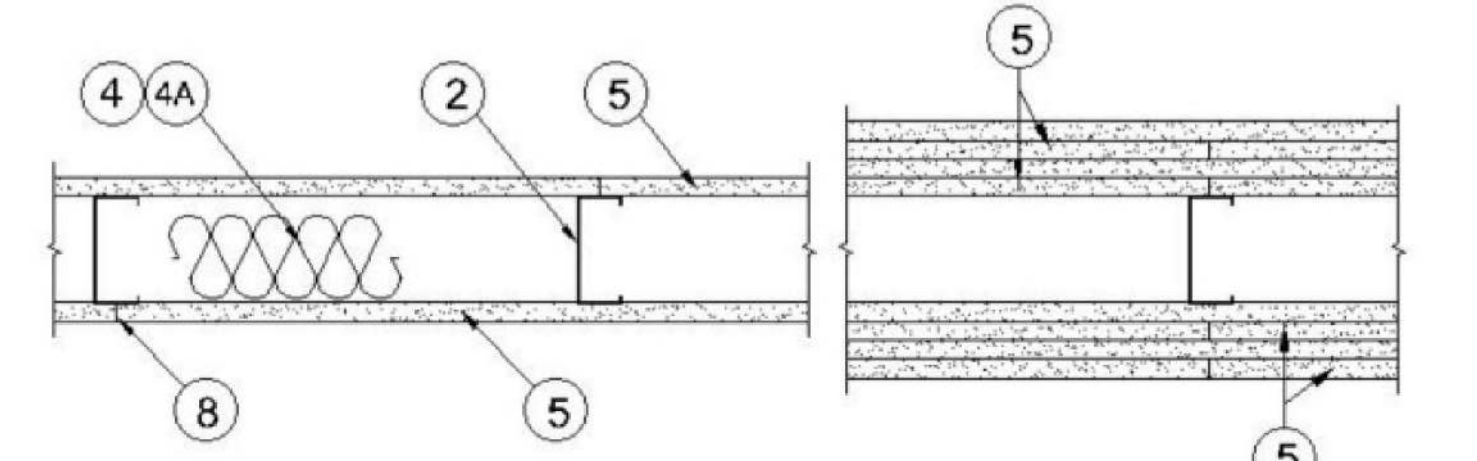




Design No. U419

September 13, 2019

NONBEARING WALL RATINGS — 1, 2, 3 OR 4 HR (SEE ITEMS 4 & 5 THROUGH 5K)
* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.



1. Floor and Ceiling Runners — (Not Shown) — For use with Item 2 — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track

CRACO MFG INC — SmartTrack25™

MARINOWARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

FUSION BUILDING PRODUCTS — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1B. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track

MARINOWARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. Framing Members* — Floor and Ceiling Runners — (Not Shown) — In lieu of Item 1 — Channel shaped, attached to floor and ceiling with fasteners 24 in. OC max.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP. BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1D. Floor and Ceiling Runners — (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. Framing Members* — Floor and Ceiling Runners — (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max.

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1F. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

SUPER STUD BUILDING PRODUCTS — The Edge

1G. Framing Members* — Floor and Ceiling Runner — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.

STUDDO BUILDING SYSTEMS — CROCSUTD

1H. Floor and Ceiling Runners — (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

MARINOWARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. Framing Members* — Floor and Ceiling Runners — (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max.

TELLING INDUSTRIES L L C — TRUE-TRACK™

1J. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — Viper25™ Track

1K. Framing Members* — Floor and Ceiling Runners — (Not Shown) — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — Viper20™ Track

1L. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2K, proprietary channel

shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

STEEL INVESTMENT GROUP L L C — AlphaTRAK

1M. Framing Members* — Floor and Ceiling Runners — (Not Shown) — As an alternate to Item 1 — For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

RONDO BUILDING SERVICES PTY LTD — Rondo Wall Track

1N. Framing Members* — Floor and Ceiling Runners — (Not Shown) — As an alternate to Item 1 — For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

OEG BUILDING MATERIALS — OEG Track

1O. Framing Members* — Floor and Ceiling Runner — (Not Shown) — In lieu of Item 1 — For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

2. Steel Studs — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. Steel Studs — (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J and 5K) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. Framing Members* - Steel Studs — (As an alternate to Item 2, For use with Items 5C, 5I or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™

CRACO MFG INC — SmartStud25™

MARINOWARE, DIV OF WARE INDUSTRIES INC — Viper25™

FUSION BUILDING PRODUCTS — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

MARINOWARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2D. Framing Members* — Steel Studs — In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP. BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2E. Framing Members* — Steel Studs — (Not Shown, As an alternate to Item 2) — For use with Items 5F or 5G or 5I or 5K only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2F. Framing Members* — Steel Studs — (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

TELLING INDUSTRIES L L C — TRUE-STUD™

2I. Framing Members* — Steel Studs — (As an alternate to Item 2) — For use with Items 5C or 5L or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

TELLING INDUSTRIES L L C — Viper25™

2J. Framing Members* — Steel Studs — (Not Shown) — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

TELLING INDUSTRIES L L C — Viper20™

2K. Framing Members* — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

EB METAL INC — NITROSTUD

2L. Framing Members* — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

OLMAR SUPPLY INC — PRIMESTUD

2M. Framing Members* — Steel Studs — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

MARINOWARE, DIV OF WARE INDUSTRIES INC — StudRite™

2N. Framing Members* — Steel Studs — (As an alternate to Item 2) — proprietary channel shaped steel studs, min depth 3-1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly height.

STEEL INVESTMENT GROUP L L C — AlphaSTUD

2O. Framing Members* — Steel Studs — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.

RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud

2P. Framing Members* — Steel Studs — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.

OEG BUILDING MATERIALS — OEG Stud

2Q. Framing Members* — Steel Studs — (Not Shown) — In lieu of Item 2 — For use with Item 1O, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

3. Wood Structural Panel Sheathing — (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wall-board joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. Batts and Blankets* — (Required as indicated) — (Not Shown) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.

See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4A. Batts and Blankets* — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4B. Batts and Blankets* — For use with Item 5K. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4C. Fiber, Sprayed* — (Optional) and as an alternate to Batts and Blankets (Item 4B) where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).

AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. Gypsum Board* — Gypsum panels 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. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall					
Rating, Hr	Min Stud Depth, In. Item 2E	Min Stud Depth, In. Item 2E	No. of Layers & Thickness of Panel	Min Thickness of Insulation (Item 4E)	
1	3-1/2	1-1/2	1 layer, 5/8 in. thick	Optional	
2	3-1/2	1-1/2	1 layer, 1/2 in. thick	Optional	
2	1-5/8	1-1/2	1 layer, 3/4 in. thick	Optional	
2	1-5/8	1-1/2	2 layers, 1/2 in. thick	Optional	
2	1-5/8	1-1/2	2 layers, 5/8 in. thick	Optional	
2	3-1/2	1-1/2	1 layer, 3/4 in. thick	Optional	
2	1-5/8	1-1/2	3 layers, 1/2 in. thick	Optional	
2	1-5/8	1-1/2	2 layers, 3/4 in. thick	Optional	
2	1-5/8	1-1/2	3 layers, 5/8 in. thick	Optional	
4	1-5/8	1-1/2	4 layers, 5/8 in. thick	Optional	
4	1-5/8	1-1/2	4 layers, 1/2 in. thick	Optional	
4	2-1/2	2	2 layers, 3/4 in. thick	Optional	

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC, 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, FRX-G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, Steel Framing Members*, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6.

5A. Gypsum Board* — (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.

CGC INC — Type SHX.

UNITED STATES GYPSUM CO — Type FRX-G, SHX.

USG MEXICO S A DE C V — Type SHX.

5B. Gypsum Board* — (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in. or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).

RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. Gypsum Board* — (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide. Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) — The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 6 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) — The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 6 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under Section VI of Volume 1 in the Fire Resistive Directory.

CGC INC — Type SCX.

UNITED STATES GYPSUM CO — Type SCX, SGX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. Gypsum Board* — (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.

CGC INC — Type USGX.

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. Gypsum Board* — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in. thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6) by 1-1/4 in. long bugle head fine drill) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5F. Gypsum Board* — (As an alternate to Item 5) — For use with Items 1E and 2E and limited to 1 Hour Rating only. Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.

UNITED STATES GYPSUM CO — 5/8 in. thick Type SCX, SGX.

USG BORAL DRYWALL SFZ LLC — 5/8 in. thick Type SCX, SGX

5G. Gypsum Board* — (As an alternate to Item 5) — For use with Items 1E and 2E only. Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall					
Rating, Hr	Min Stud Depth, In. Item 2E	Min Stud Depth, In. Item 2E	No. of Layers & Thickness of Panel	Min Thickness of Insulation (Item 4E)	
2	1-5/8	1-5/8	2 layers, 1/2 in. thick	Optional	
2	1-5/8	1-5/8	2 layers, 5/8 in. thick	Optional	
2	1-5/8	1-5/8	3 layers, 1/2 in. thick	Optional	
2	1-5/8	1-5/8	3 layers, 5/8 in. thick	Optional	
4	1-5/8	1-5/8	4 layers, 5/8 in. thick	Optional	
4	1-5/8	1-5/8	4 layers, 1/2 in. thick	Optional	

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, FRX-G, IP-AR, IP-X2, IP-AR, ULIX, 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or 3/4 in. thick Types IP-X3 or ULTRACODE

5H. Gypsum Board* — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in. or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in.

thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).

5I. Gypsum Board* — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.

CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

5J. Gypsum Board* — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in. thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max. thickness of 0.14 in., placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5K. Gypsum Board* — (Not Shown) — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels 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. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) need not be staggered. The number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall					
Rating, Hr	Min Stud Depth, In. Item 2E	Min Stud Depth, In. Item 2E	No. of Layers & Thickness of Panel	Min Thickness of Insulation (Item 4E)	
1	3-5/8	1-1/2	1 layer, 5/8 in. thick	Optional	
2	1-5/8	1-1/2	2 layers, 5/8 in. thick	Optional	
2	1-5/8	1-1/2	3 layers, 5/8 in. thick	Optional	
2	1-5/8	1-1/2	4 layers, 5/8 in. thick	Optional	

UNITED STATES GYPSUM CO — 5/8 in. thick Type ULIX

6. Fasteners — (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). Single layer systems: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels. Two layer systems: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels. Spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for

CONTINUED:
Design No. U419

11. Lead Batten Strips — (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.
- 11A. Lead Batten Strips — (Not Shown, For Use With Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-2011, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.
12. Lead Discs or Tabs — (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations — Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".
- 12A. Lead Discs — (Not Shown, for use with Item 5H) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-2011, Grades "B, C or D".
13. Lead Batten Strips — (Not Shown, For Use With Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.
14. Lead Tabs — (Not Shown, For Use With Item 5E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.
15. Barrier Mesh — (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 16 SWG wire ties spaced a maximum 12 in. on center.
- CLARKDIEDRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

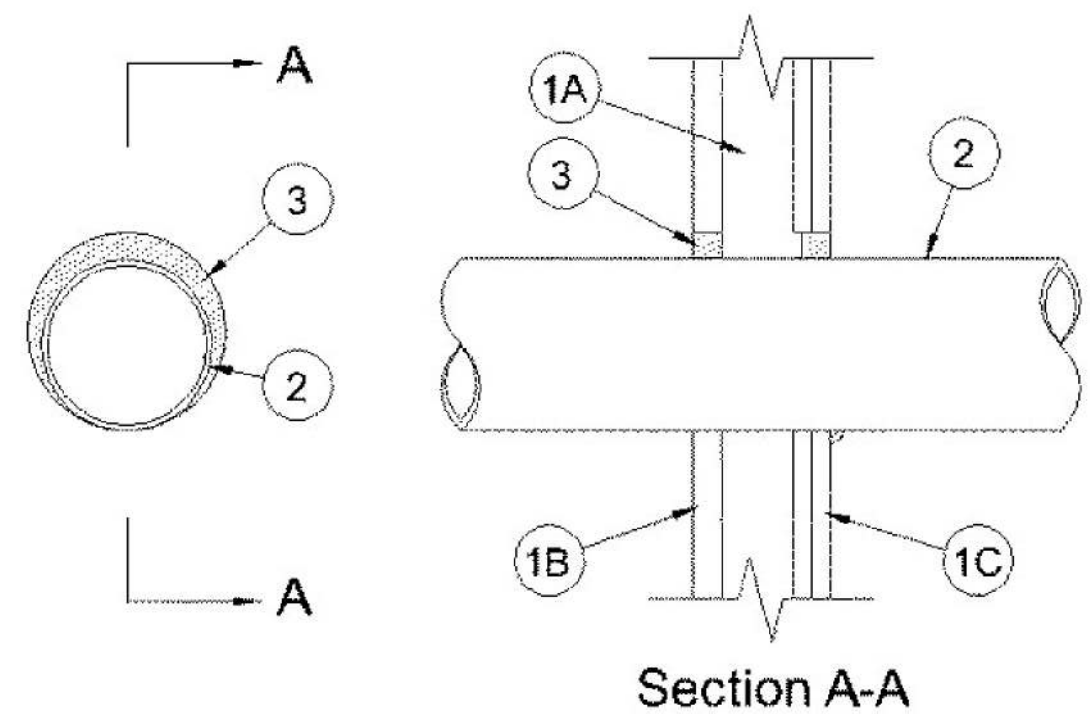
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

A

System No. W-L-1380

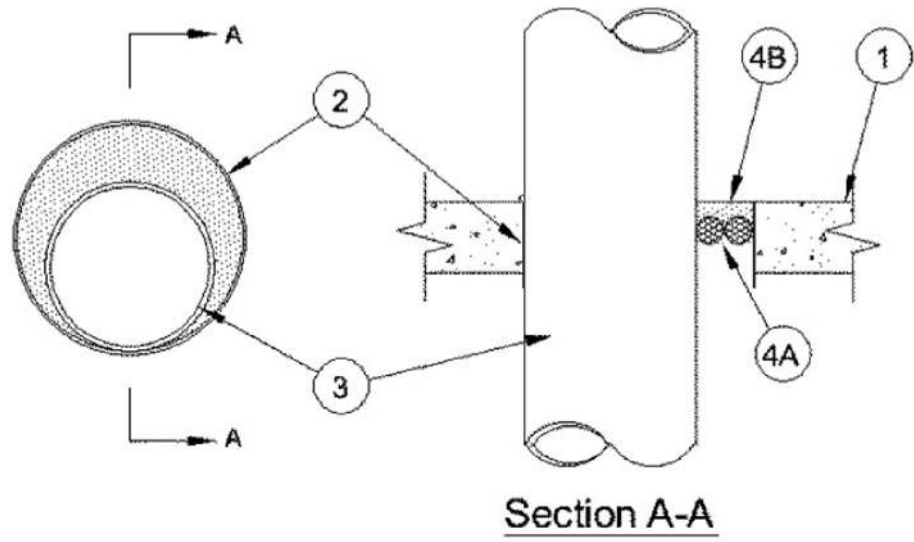
THROUGH-PENETRATION FIRESTOP SYSTEM
January 22, 2015

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 2 Hr
	FTH Rating — 0 Hr



System No. C-AJ-1015

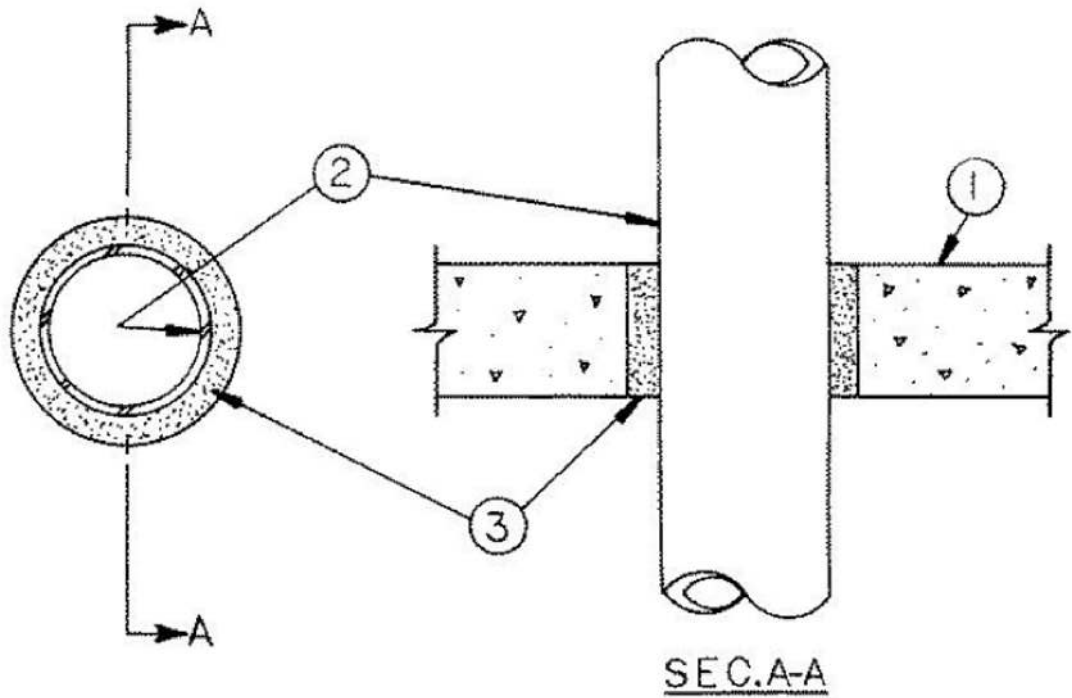
August 12, 2008
F Rating — 2 Hr; FT Rating — 0 Hr



1. FLOOR OR WALL ASSEMBLY — MIN 64 MM (2-1/2 IN.) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (1600-2400 KG/CU METER (100-150 PCF)) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 602 MM (27-5/8 IN.).
- SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. STEEL SLEEVE — (OPTIONAL) - CYLINDRICAL SLEEVE FABRICATED FROM 0.4 MM (0.016 IN.) THICK (30 GA) (OR HEAVIER) GALV STEEL AND HAVING A MIN 25 MM (1 IN.) LAP ALONG THE LONGITUDINAL SEAM. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING, AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUT IN THE FLOOR OR WALL. ENDS OF SLEEVE TO BE FLUSH WITH FLOOR OR WALL SURFACES. AS AN OPTION, END OF SLEEVE MAY EXTEND MAX OF 13 MM (1/2 IN.) FROM BOTTOM SURFACE OF FLOOR.
3. THROUGH PENETRANT — ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. AN ANNULAR SPACE OF MIN 0 MM (POINT CONTACT) TO MAX 48 MM (1-7/8 IN.) IS REQUIRED WITHIN THE FIRESTOP SYSTEM. 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 610 MM (24 IN.) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE — NOM 610 MM (24 IN.) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT — NOM 102 MM (4 IN.) DIAM (OR SMALLER) ELECTRICAL METALLIC TUBING OR RIGID STEEL CONDUIT.
D. COPPER TUBING — NOM 152 MM (6 IN.) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER PIPE — NOM 152 MM (6 IN.) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
4. 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 OR FROM BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- B. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 13 MM (1/2 IN.) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL ASSEMBLY. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 10 MM (3/8 IN.) DIAM BEAD OF SEALANT SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL ASSEMBLY.
- TREMCO INC — TREMSTOP INTUMESCENT ACRYLIC OR TREMSTOP IA+
*BEARING THE UL CLASSIFICATION MARK

System No. C-AJ-1041

June 18, 1994
F Rating — 2 Hr
T Rating — 0 Hr

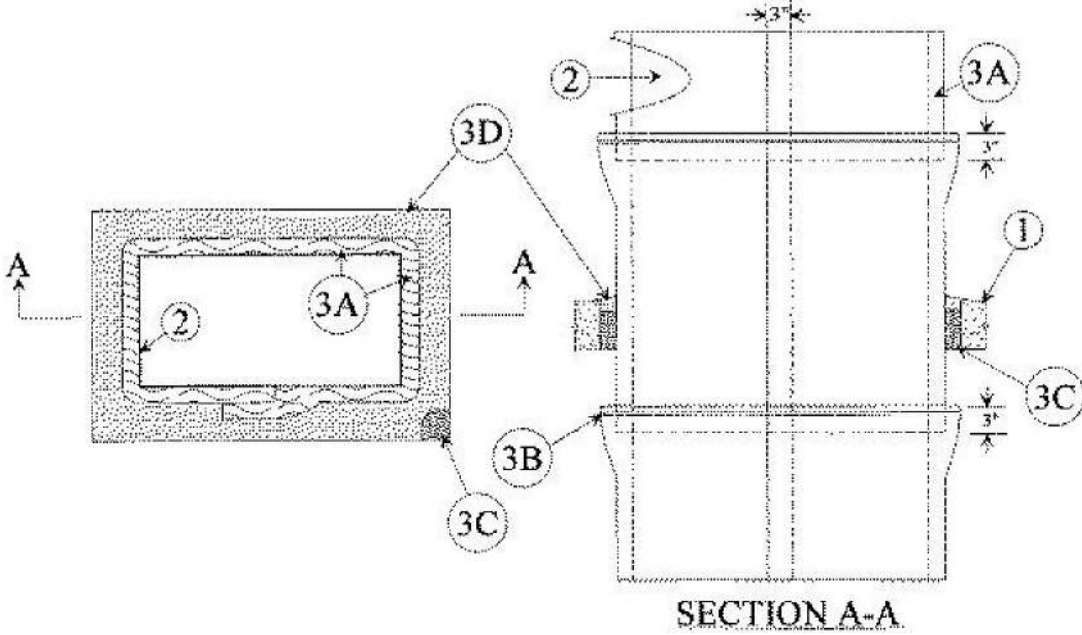


1. FLOOR OR WALL ASSEMBLY — MIN 3-1/4 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 6 IN.
- SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. THROUGH PENETRANTS — ONE METALLIC PIPE, CONDUIT OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. A NOM ANNULAR SPACE OF 3/4 IN. IS REQUIRED WITHIN THE FIRESTOP SYSTEM. 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 4 IN. DIAM (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE.
B. CONDUIT — NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
3. FILL, VOID OR CAVITY MATERIAL* — PUTTY — MIN 3-1/4 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF FLOOR OR WALL.
- EGS NELSON FIRESTOP — TYPE FSP PUTTY
*BEARING THE UL CLASSIFICATION MARK

System No. C-AJ-7012

THROUGH-PENETRATION FIRESTOP SYSTEM
MARCH 24, 2017
F RATING — 3 HR
T RATING — 0 HR

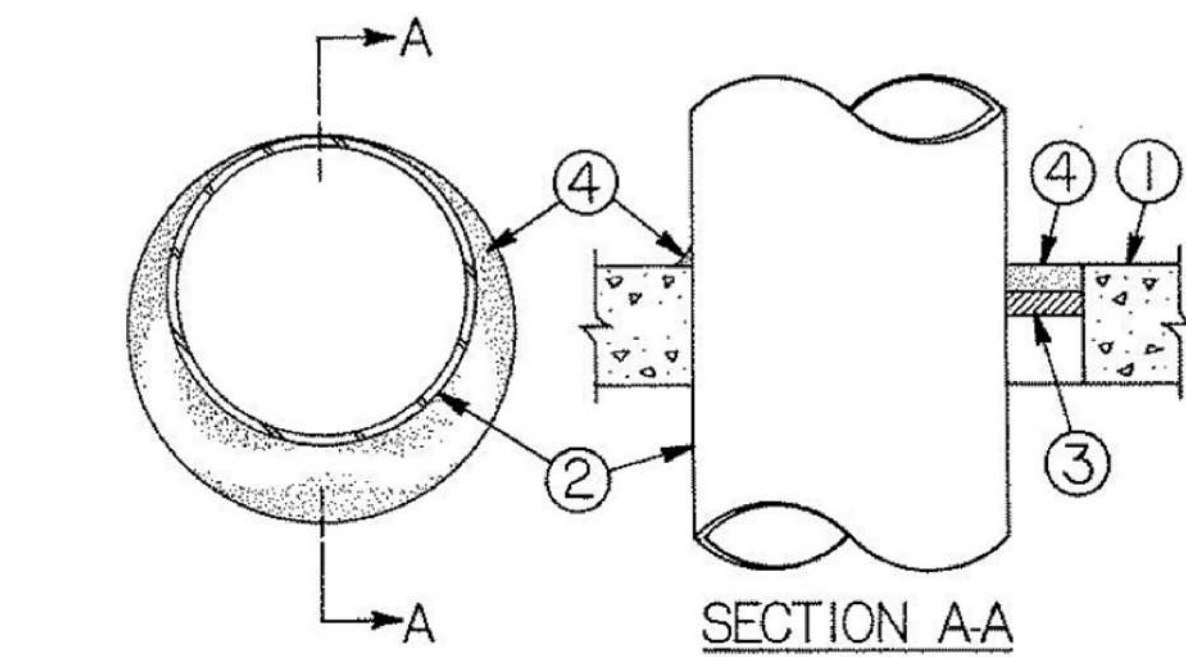
ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 2 Hr	F Rating — 2 Hr
	FH Rating - 2 Hr
T Rating - 2 Hr	FT Rating - 2 Hr
	FTH Rating - 2 Hr



1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK REINFORCED NORMAL WEIGHT (140-150 PCF OR 2240-2400 KG/M3) CONCRETE FLOOR OR MIN 4-3/4 IN. (121 MM) THICK REINFORCED NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX AREA OF OPENING IS 21.3 FT2 (1.98 M2) WITH MAX DIMENSION OF 93 IN. (2.36 M). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. THROUGH-PENETRANT — ONE STEEL DUCT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES OF THROUGH-PENETRANTS MAY BE USED:
- A. STEEL AIR DUCT — MIN 26 GAUGE (0.021 IN. OR 0.53 MM) THICK CARBON STEEL DUCT HAVING A MAX PERIMETER DIMENSION OF 216 IN. (5.5 M) AND A MAX INDIVIDUAL DIMENSION OF 84 IN. (2.13 M). DUCTS WITH ANY DIMENSION GREATER THAN 39 IN. (0.99 M) SHALL BE PROVIDED WITH INTERMEDIATE REINFORCEMENT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- REINFORCEMENT TO CONSIST OF MIN 1-1/2 IN. (38 MM) BY 1-1/2 IN. (38 MM) BY 18 IN. (3 MM) THICK TRANSVERSE STIFFENING ANGLES, APPROXIMATELY 2 IN. (51 MM) LESS IN LENGTH THAN THE MAX DIMENSION. SCREW ATTACHED 8 IN. (203 MM) OC TO THE DUCT 3 IN. (76 MM) BEYOND THE TOP SURFACE OF THE FLOOR AND BOTH SURFACES OF THE WALL.
3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
- A. DUCT WRAP MATERIALS* — NOM 1-1/2 IN (38 MM) THICK, 6 PCF (96 KG/M3) CERAMIC BLANKET TOTALLY ENCAPSULATED WITHIN FOL-SCRM FACERS. THE STEEL DUCT SHALL BE WRAPPED WITH ONE LAYER OF DUCT WRAP INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, MAINTAINING MIN 3 IN. (76 MM) TRANSVERSE AND LONGITUDINAL OVERLAPS. ALL CUT EDGES AND ENDS SHALL BE SEALED WITH 3 IN. (76 MM) WIDE PRESSURE SENSITIVE ALUMINUM FOIL TAPE. A NOM ANNULAR SPACE OF 3 IN. (76 MM) IS REQUIRED BETWEEN THE INSULATED DUCT AND THE PERIPHERY OF THE OPENING.
- THERMAL CERAMICS INC — FIREMASTER FASTWRAP XL, FIREMASTER FASTWRAP+ OR PYROSCAT DUCT WRAP XL.
- B. STEEL BANDING STRAPS* — MIN 1/2 IN. (13 MM) WIDE BY 0.015 IN. (0.38 MM) THICK CARBON STEEL BANDING STRAPS USED IN CONJUNCTION WITH MIN 1 IN. (25 MM) LONG STAINLESS STEEL CRIMP CLIPS. BANDING STRAPS SPACED A MAX 12 IN. (305 MM) OC AND 1-1/2 IN. (38 MM) FROM TRANSVERSE JOINTS OF DUCT WRAP.
- C. PACKING MATERIAL — MIN 4 IN. (102 MM) THICKNESS OF UNFACED SCRAP DUCT WRAP MATERIAL OR MIN 3 PCF (48 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- D. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 1/2 IN. (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.
- SPECIFIED TECHNOLOGIES INC — SPECSEAL SERIES SSS, SPECSEAL LC150, SPECSEAL LCI OR PENISIL 300 SEALANTS
- TREMCO INC — FYRE-SIL SEALANT OR FYRE-SIL SIL SEALANT (FOR FLOOR ASSEMBLIES ONLY)
- DAP PRODUCTS INC — DAP FIRE STOP FIRE-RATED SILICONE SEALANT
- * INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

System No. C-AJ-1001

THROUGH-PENETRATION FIRESTOP SYSTEM
March 05, 2007
F Rating — 3 Hr
T Rating — 0 Hr

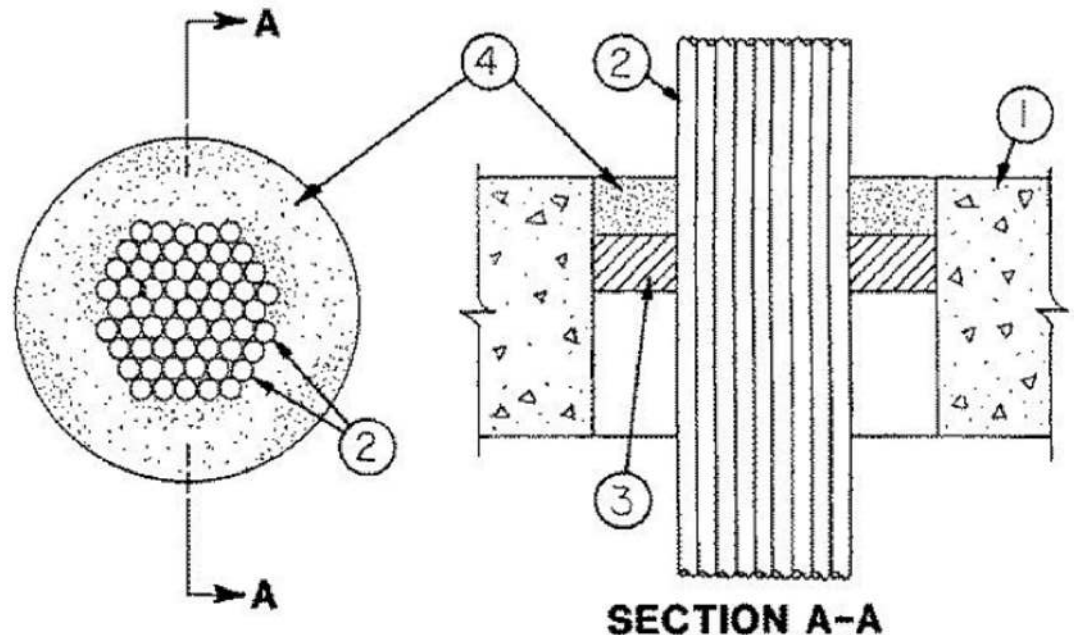


1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF CIRCULAR THROUGH OPENING IS 32-1/2 IN. (826 MM).
- SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- 1A. STEEL SLEEVE — (OPTIONAL, NOT SHOWN) — NOM 12 IN. (305 MM) DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. (51 MM) FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL. AS AN ALTERNATE, NOM 12 IN. (305 MM) DIAM (OR SMALLER) SLEEVE FABRICATED FROM NOM 0.019 IN. (0.48 MM) THICK GALV STEEL CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY FLUSH WITH FLOOR OR WALL SURFACES.
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 1-3/8 IN. (35 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 30 IN. (762 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
A1. IRON PIPE — NOM 30 IN. (762 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
B. CONDUIT — NOM 6 IN. (152 MM) DIAM (OR SMALLER) RIGID STEEL CONDUIT.
C. CONDUIT — NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
3. PACKING MATERIAL — POLYETHYLENE BACKER ROD OR NOM 1 IN. (25 MM) THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL WOOL BATT OR GLASS FIBER INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF SOLID CONCRETE OR CONCRETE BLOCK WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4). AS AN ALTERNATE WHEN MAX PIPE SIZE IS 10 IN. (254 MM) DIAM AND WHEN MAX ANNULAR SPACE IS 1 IN. (25 MM), A MIN 1 IN. (25 MM) THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OR MINERAL WOOL BATT PACKING MATERIAL MAY BE RECESSED MIN 1 1/2 IN. (13 MM) FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF SOLID CONCRETE WALL.
4. FILL, VOID OR CAVITY MATERIALS* — CAULK — APPLIED TO FILL THE ANNULAR SPACE TO THE MIN THICKNESS SHOWN IN THE FOLLOWING TABLE:
- | MAX PIPE DIAM IN. | MAX ANNULAR SPACE IN. | PACKING MTL TYPE (A) | MIN CAULK THKNS IN. |
|-------------------|-----------------------|----------------------|---------------------|
| 10 (254) | 1 (25) | BR, CF, GF or MW | 1/2 (13) (b) |
| 10 (254) | 1 (25) | CF or MW | 1/2 (13) (c) |
| 30 (762) | 2-1/2 (64) | CF or MW | 1 (25) (b) |
- (A) BR=POLYETHYLENE BACKER ROD.
CF=CERAMIC FIBER BLANKET.
GF=GLASS FIBER INSULATION.
MW=MINERAL-WOOL BATT.
- (B) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL
- (C) CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF SOLID (NON-CONCRETE BLOCK) WALL
- 3M COMPANY — TYPE CP 25WB+ OR FB-3000 WT
(NOTE - W RATING APPLIES ONLY WHEN FB-3000 WT IS USED ON TOP SURFACE OF FLOOR AND WHEN IT LAPS ONTO CONCRETE FOR SLEEVED OPENING.)
*BEARING THE UL CLASSIFICATION MARK

System No. C-AJ-3021

THROUGH-PENETRATION FIRESTOP SYSTEM
March 28, 2012
F Rating — 3 Hr
T Rating — 0 Hr

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 2 Hr
	FTH Rating — 0 Hr



1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 6-1/4 IN. (159 MM).
- SEE CONCRETE BLOCKS* (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- 1A. STEEL SLEEVE — (OPTIONAL, NOT SHOWN) — NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO FLOOR OR WALL ASSEMBLY. SLEEVE TO BE FLUSH WITH FLOOR OR WALL SURFACES.
2. CABLES — MIN 12 PERCENT TO MAX 40 PERCENT FILL AREA PER MAX 4 IN. (102 MM) DIAM STEEL SLEEVED THROUGH OPENING. MIN 20 PERCENT TO MAX 40 PERCENT FILL AREA PER MAX 6-1/4 IN. (159 MM) DIAM NON-SLEEVED THROUGH OPENING. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:
- A. MAX 7/C NO. 12 AWG MULTIPLE COPPER CONDUCTOR POWER AND CONTROL CABLES WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET MATERIALS.
- B. MULTIPLE FIBER OPTICAL COMMUNICATION CABLES JACKETED WITH PVC AND HAVING A MAX OUTSIDE DIAM OF 3/4 IN.
- C. MAX 200 PAIR NO. 24 AWG COPPER CONDUCTOR TELEPHONE CABLES WITH PVC INSULATION AND JACKET MATERIALS.
- D. MAX 350 KCMIL POWER CABLES WITH PVC INSULATION AND JACKET MATERIAL.
3. PACKING MATERIAL — NOM 1 IN. (25 MM) THICKNESS OF CERAMIC (ALUMINUM SILICA) FIBER BLANKET OR MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED MIN 1 IN. (25 MM) FROM TOP SURFACE OF FLOOR OR SLEEVE OR FROM BOTH SURFACES OF WALL.
- 3A. FORMING MATERIAL* — AS AN ALTERNATE TO THE PACKING MATERIAL IN ITEM 3, NOM 4 IN. (102 MM) WIDE STRIPS OF MIN 1/2 IN (13 MM) THICK COMPRESSIBLE MAT TO BE STACKED TO A THICKNESS GREATER THAN THE WIDTH OF THE ANNULAR SPACE AND COMPRESSION-FITTED, EDGE-FIRST, TO FILL THE ANNULAR SPACE TO A MIN 4 IN. (102 MM) DEPTH. AS AN OPTION, THE STRIPS OF MIN 1/2 IN. (13MM) THICK COMPRESSIBLE MAT MAY BE FOLDED IN HALF, LENGTHWISE, AND STACKED TO A THICKNESS GREATER THAN THE WIDTH OF THE ANNULAR SPACE AND COMPRESSION-FITTED, EDGE-FIRST, TO FILL THE ANNULAR SPACE TO A MIN 2 IN. (51 MM) DEPTH. TOP OF FORMING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS NECESSARY TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL.
- 3M COMPANY 3M FIRE PROTECTION PRODUCTS — FIRE BARRIER PACKING MATERIAL
4. FILL, VOID, OR CAVITY MATERIALS* — PUTTY — MOLDABLE PUTTY MATERIAL KNEADED BY HAND AND APPLIED TO FILL ANNULAR SPACE (AND INTERSTICES BETWEEN CABLES TO MAX EXTENT POSSIBLE) TO A MIN DEPTH OF 1 IN. (25 MM), FLUSH WITH TOP SURFACE OF FLOOR OR SLEEVE IN WALL ASSEMBLIES. REQUIRED PUTTY DEPTH TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL.
- 3M COMPANY 3M FIRE PROTECTION PRODUCTS — TYPE MPS-2+
*BEARING THE UL CLASSIFICATION MARK

AA C00066

HARTER - ADAMS P.A.
ARCHITECTS AND PLANNERS
577 MATLAIN AVE., SUITE 500, LAKE CITY, FLORIDA 32701
PHONE 407.647.7575 FAX 407.647.2602

TOWNEPLACE
SUITES®
BY MARRIOTT

TOWNEPLACE SUITES HOTEL
LAKE CITY HOTELS, INC.
NW COMMERCE DRIVE, LAKE CITY, FLORIDA

REVISION

JOB NO.

DATE

SHEET

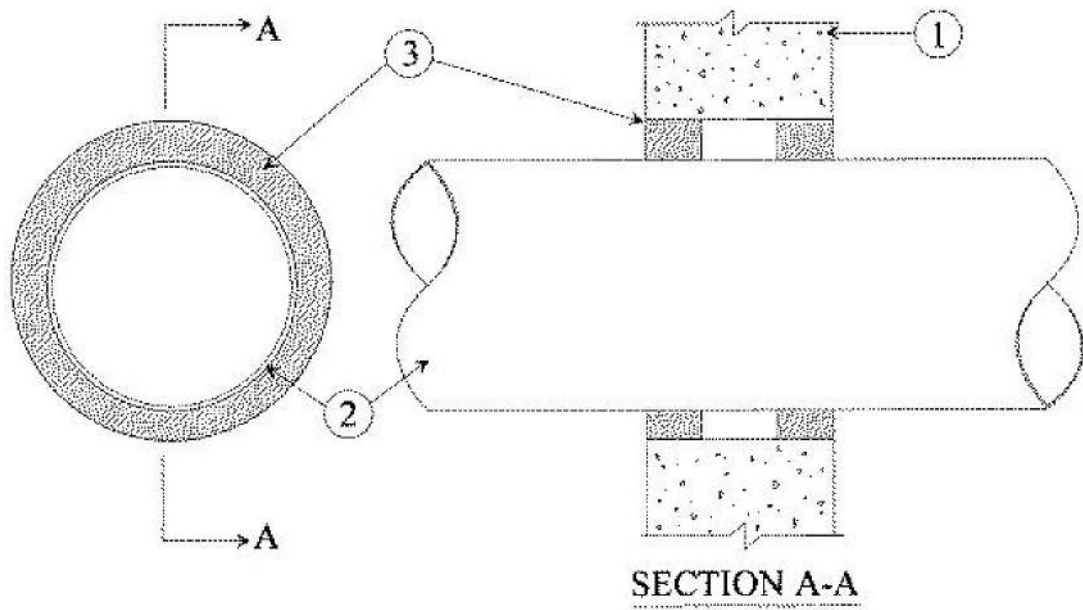
LS1.7

OF

System No. W-J-1028

THROUGH-PENETRATION FIRESTOP SYSTEM
JANUARY 21, 2015

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
1 & 2 Hr (See Item 3)	F Rating — 1 & 2 Hr (See Item 3)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 & 2 Hr (See Item 3)
	FTH Rating — 0 Hr



1. WALL ASSEMBLY — MIN 2-1/2 IN. (64 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 12-1/2 IN. (318 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

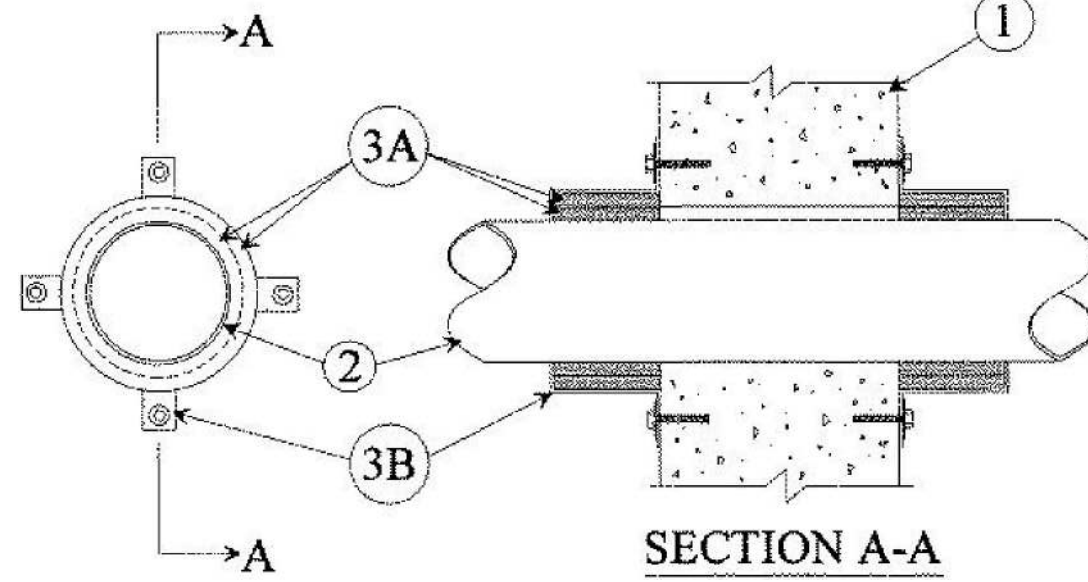
2. THROUGH-PENETRANTS — ONE METALLIC PIPE, CONDUIT OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPES, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN 1/2 IN. (13 MM) TO MAX 7/8 IN. (22 MM). PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

- A. STEEL PIPE — NOM 10 IN. (254 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. CONDUIT — NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOM 6 IN. (152 MM) DIAM (OR SMALLER) STEEL CONDUIT.
C. COPPER TUBING — NOM 4 IN. (102 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
D. COPPER PIPE — NOM 4 IN. (102 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 5/8 IN. (16 MM) OR 1-1/4 IN. (32 MM) THICKNESS OF FILL MATERIAL, APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL FOR 1 HR AND 2 HR FIRE-RATED WALLS, RESPECTIVELY.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 601S, CFS-S-SIL GG OR FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT 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 2015-01-21

System No. W-J-2022

THROUGH-PENETRATION FIRESTOP SYSTEM
February 15, 2006
F Rating — 2 Hr T Rating — 1-1/2 Hr



1. WALL ASSEMBLY — MIN 5 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 5 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. THROUGH PENETRANTS — ONE NONMETALLIC PIPE OR CONDUIT TO BE EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1/2 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES OR CONDUIT MAY BE USED:

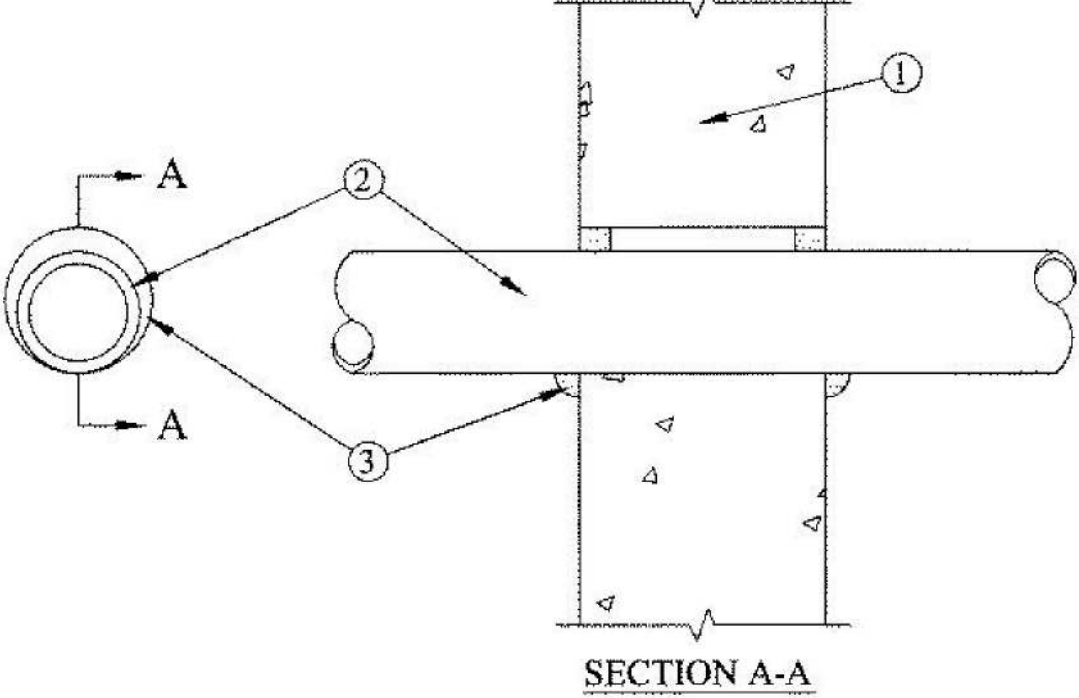
- A. POLYVINYL CHLORIDE (PVC) PIPE — NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 CELLULAR OR SOLID CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE, OR VENT) PIPING SYSTEMS.
B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE — NOM 4 IN. DIAM (OR SMALLER) SDR 13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
C. RIGID NONMETALLIC CONDUIT* — NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NATIONAL ELECTRICAL CODE (NFPA 70).
3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. FILL, VOID OR CAVITY MATERIAL* — WRAP STRIP — NOM 1/4 IN. THICK INTUMESCENT MATERIAL FACED ON BOTH SIDES WITH A PLASTIC FILM, SUPPLIED IN 1-1/2 IN. WIDE STRIPS. THE LAYERS OF WRAP STRIPS ARE INDIVIDUALLY WRAPPED AROUND THE THROUGH PENETRANT WITH ENDS BUTTED AND HELD IN PLACE WITH MASKING TAPE. BUTTED ENDS IN SUCCESSIVE LAYERS MAY BE ALIGNED OR OFFSET. THE EDGE OF THE WRAP STRIPS SHALL ABUT EACH SURFACE OF THE WALL. THE LAYERS OF WRAP STRIPS ARE INSTALLED ON EACH SIDE OF THE WALL. THE NUMBER OF LAYERS OF WRAP STRIP ARE DEPENDENT ON THE DIAM OF THE PIPE OR CONDUIT AS TABULATED BELOW.

DIAM OF THROUGH PENETRANT IN.	NUMBER OF WRAP STRIPS
4	2
3	2
2	1

- A. SPECIFIED TECHNOLOGIES INC — SPECSEAL RED WRAP STRIP
B.
C.
D. C. STEEL COLLAR — COLLAR FABRICATED FROM COILS OF PRECUT 0.016 IN. THICK (NO. 30 MSG) GALV SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. COLLAR SHALL BE NOM 1-1/2 IN. DEEP WITH MIN FOUR 1 IN. WIDE BY 2 IN. LONG ANCHOR TABS FOR ATTACHMENT TO THE WALL. RETAINER TABS, 3/4 IN. WIDE TAPERING DOWN TO 1/4 IN. WIDE AND LOCATED OPPOSITE THE ANCHOR TABS, ARE FOLDED 90 DEGREE TOWARD THROUGH PENETRANT SURFACE TO MAINTAIN THE ANNULAR SPACE AROUND THE THROUGH PENETRANT AND TO RETAIN THE WRAP STRIPS. STEEL COLLAR WRAPPED AROUND WRAP STRIPS AND THROUGH PENETRANT WITH A 1 IN. WIDE OVERLAP ALONG ITS PERIMETER JOINT. STEEL COLLAR TIGHTENED AROUND WRAP STRIPS AND THROUGH PENETRANT USING MIN 1/2 IN. WIDE BY 0.008 IN. THICK STAINLESS STEEL HOSE CLAMP AT MIDHEIGHT OF 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. LONG. FOR STEEL COLLARS INCORPORATING TWO OR MORE LAYERS OF WRAP STRIP, THE LENGTH OF THE STEEL SCREWS SHALL BE 3/8 IN. LONG. COLLAR SECURED TO WALL WITH 1/4 IN. DIAM BY MIN 1-1/4 IN. LONG STEEL CONCRETE ANCHORS IN CONJUNCTION WITH MIN 1 IN. DIAM STEEL FENDER WASHERS. STEEL COLLARS ARE INSTALLED ON EACH SIDE OF WALL.
E. *BEARING THE UL LISTING MARK
F.
G. *BEARING THE UL CLASSIFICATION MARKING

System No. W-J-2072

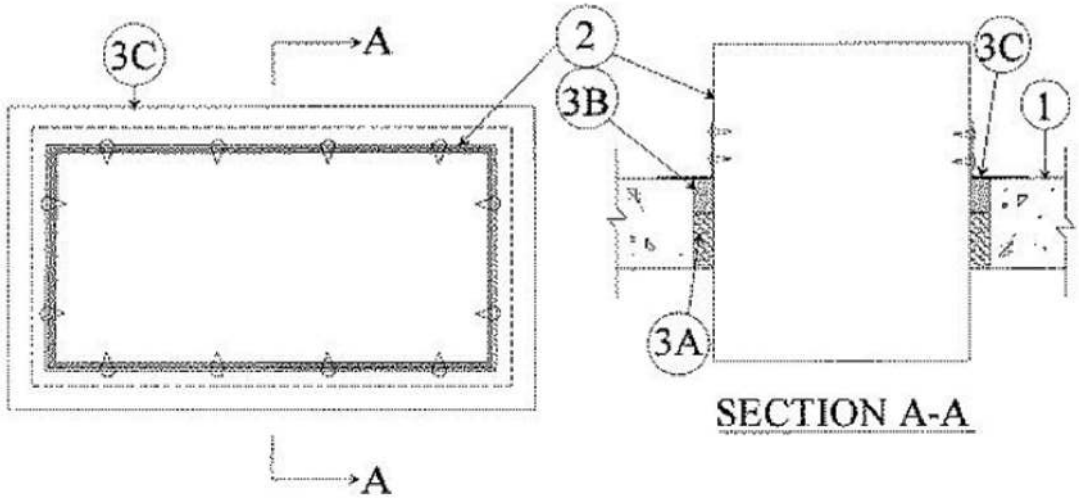
THROUGH-PENETRATION FIRESTOP SYSTEM
January 21, 2015
F Rating — 2 Hr
T Rating — 2 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft
L Rating at 400 F - 2 CFM/sq ft



- A. 1. WALL ASSEMBLY — MIN 5 IN. (127 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 3 IN. (76 MM).
B. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
C. 2. THROUGH PENETRANTS — ONE NONMETALLIC PIPE TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE AND THE PERIPHERY OF THE OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO A MAX 5/8 IN. (16 MM). THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES MAY BE USED:
D. A. POLYVINYL CHLORIDE (PVC) PIPE — NOM 2 IN. (51 MM) DIAM (OR SMALLER) CELLULAR OR SOLID CORE SCHEDULE 40 (OR HEAVIER) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
E. B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE — NOM 2 IN. (51 MM) DIAM (OR SMALLER) SDR 13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
F. C. CROSSLINKED POLYETHYLENE (PEX) TUBING — NOM 2 IN. (51 MM) DIAM (OR SMALLER) SDR 9 PEX TUBING FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
G. D. RIGID NONMETALLIC CONDUIT (RNC) — NOM 2 IN. DIAM (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
H. 3. FILL, VOID OR CAVITY MATERIAL* — SEALANT — MIN 5/8 IN. (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT POINT CONTACT LOCATION, A MIN 1/2 IN. (13 MM) DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED TO THE WALL/PENETRANT INTERFACE ON BOTH SURFACES OF THE WALL.
I. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT
J. * INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.
K. * BEARING THE UL LISTING MARK

System No. C-AJ-7010

THROUGH-PENETRATION FIRESTOP SYSTEM
April 13, 1995
F Rating — 3 Hr
T Rating — 0 Hr



1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE FLOOR OR MIN 6 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX AREA OF OPENING IS 325 SQ IN. WITH MAX DIMENSIONS OF 25 IN.

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. STEEL DUCT — NOM 24 BY 12 IN. (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) STEEL DUCT. ONE DUCT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM WITH A NOM 1/2 IN. ANNULAR SPACE. STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. PACKING MATERIAL — MIN 3 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR AND FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

B. FILL, VOID OR CAVITY MATERIAL* — PUTTY — MIN 1-1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL.

EGS NELSON FIRESTOP — FSP PUTTY.

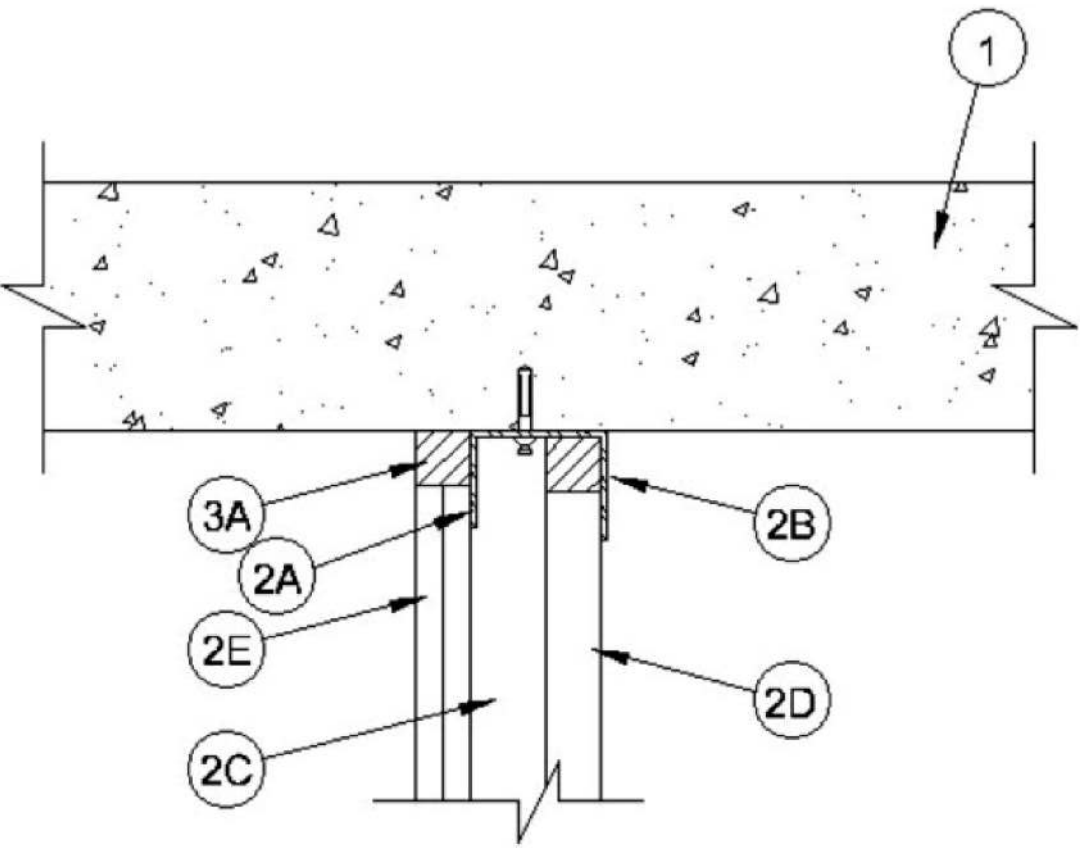
C. STEEL ANGLE — MIN 1-1/2 IN. WIDE BY 1-1/2 IN. HIGH BY 0.030 IN. (NO. 22 MSG) THICK GALV STEEL ANGLES CUT TO FIT THE CONTOUR OF THE DUCT WITH A 1 IN. LAP ON THE TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. LEGS OF ANGLES SECURED TO DUCT WITH MIN NO. 12 SHEET METAL SCREWS, SPACED A MAX 4 IN. OC.

*BEARING THE UL CLASSIFICATION MARK

System No. HW-D-0342

JOINT SYSTEM
May 09, 2019

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
Assembly Rating — 2 Hr	F Rating — 2 Hr
Nominal Joint Width - 1 In.	FT Rating — 2 Hr
Class II Movement Capabilities — 8% Compression and Extension	FH Rating — 2 Hr
L Rating At Ambient — Less Than 1 CFM/in ft	FTH Rating — 2 Hr
L Rating At 400 F — Less Than 1 CFM/in ft	Nominal Joint Width - 1 In.
	Class II Movement Capabilities — 8% Compression and Extension
	L Rating At Ambient — Less Than 1 CFM/in ft
	L Rating At 400 F — Less Than 1 CFM/in ft



1. Floor Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) structural concrete. Floor may also be constructed of any 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units*.
See Precast Concrete Units category in the Fire Resistance Directory for names of manufactures.

2. Shaft Wall Assembly — The 2 hr fire-rated gypsum board /steel stud shaft wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. Floor and Ceiling Runners — J-shaped runner, 2-1/2 in. (64 mm) wide with unequal legs of min 1-1/4 in. (32 mm) and 2 in. (51 mm), fabricated from min 24 MSG galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. (51 mm) from ends and not greater than 24 in. (610 mm) OC.
B. Light Gauge Framing* - Slotted Ceiling Track — (Optional) Slotted ceiling track shall consist of galv steel channels with slotted flanges. Slotted ceiling track sized to accommodate steel "C-H" studs (Items 2C). Attached to concrete at ceiling with steel fasteners spaced max 24 in. (610 mm) OC.
CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK
MARINOWARE, DIV OF WARE INDUSTRIES INC — Type SLT

B1. Light Gauge Framing Members* — (Optional Not Shown) - As an option, the steel studs (Item 2C) may incorporate vertical deflection clips for attachment to the ceiling runner (Item 2A) in accordance with the manufacturer's instructions. THE STEEL NETWORK INC — VertiClip SLD 150.

C. Steel Studs — C-H-shaped studs, 2-1/2 in. (64 mm) wide by 1-1/2 in. (38 mm) deep, fabricated from min 25 MSG galv steel, cut to lengths 3/8 to 1/2 in. (10 to 13 mm) less than floor to ceiling height and spaced 24 in. (610 mm) OC. Studs nest in floor runner at bottom and J runner or slotted ceiling track at top. After installation of gypsum board liner panels (Item 2D), studs secured to flange of floor runner on finished side of wall only with No. 6 by 1/2 in. (13 mm) long self-drilling, self-tapping steel screws. Studs secured to flange of slotted ceiling track on finished side of wall only with No. 8 by 1/2 in. (13 mm) long self-drilling, self-tapping water head steel screws at slot midheight.

D. Gypsum Board* — 1 in. (25 mm) thick by 24 in. (610 mm) wide gypsum board liner panels as specified in the individual U400 or V400-Series design. Panels cut 1 in. (25 mm) less in length than floor to ceiling height. Vertical edges inserted in "H"-shaped section of "C-H" studs. At the ends of the assembly, the free edge of the end panels are attached to the long leg of vertical J-runners (Item 2A) with 1-5/8 in. (41 mm) long Type 5 steel screws spaced max 12 in. (305 mm) OC.

E. Gypsum Board* — Gypsum board sheets, 1/2 or 5/8 in. (13 or 16 mm) thick, applied vertically or horizontally in two layers on finished side of wall as specified in the individual U400 or V400-Series design. A max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the concrete floor. The screws attaching the gypsum board layers to the C-H studs shall be located 1 in. (25 mm) below the bottom of the J-runner or slotted ceiling track. No gypsum board attachment screws are to penetrate the ceiling J-runner and slotted ceiling track.

3. Joint System — Max separation between top of liner panel (Item 2D) and between top of gypsum board sheets (Item 2E) at time of installation of joint system is 1 in. (25 mm). The joint system is designed to accommodate a maximum 8 percent compression and extension from its installed width. The joint system consists of the following:

- A. Fill Void or Cavity Material* - Sealant — Min 1 in. (25 mm) depth of sealant to be installed to fill linear gap between top of gypsum board sheets (Item 2E) and bottom of concrete floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606, CFS-S SIL GG

AA C00066

HARTER - ADAMS P.A.
ARCHITECTS AND PLANNERS
377 MATLACK AVE., SUITE 200, LAKE CITY, FLORIDA 32701
PHONE 407.647.3757 FAX 407.647.2602

TOWNEPLACE
SUITES®
BY MARRIOTT

TOWNEPLACE SUITES HOTEL
LAKE CITY HOTELS, INC.
NW COMMERCE DRIVE, LAKE CITY, FLORIDA

REVISION

JOB NO.

DATE

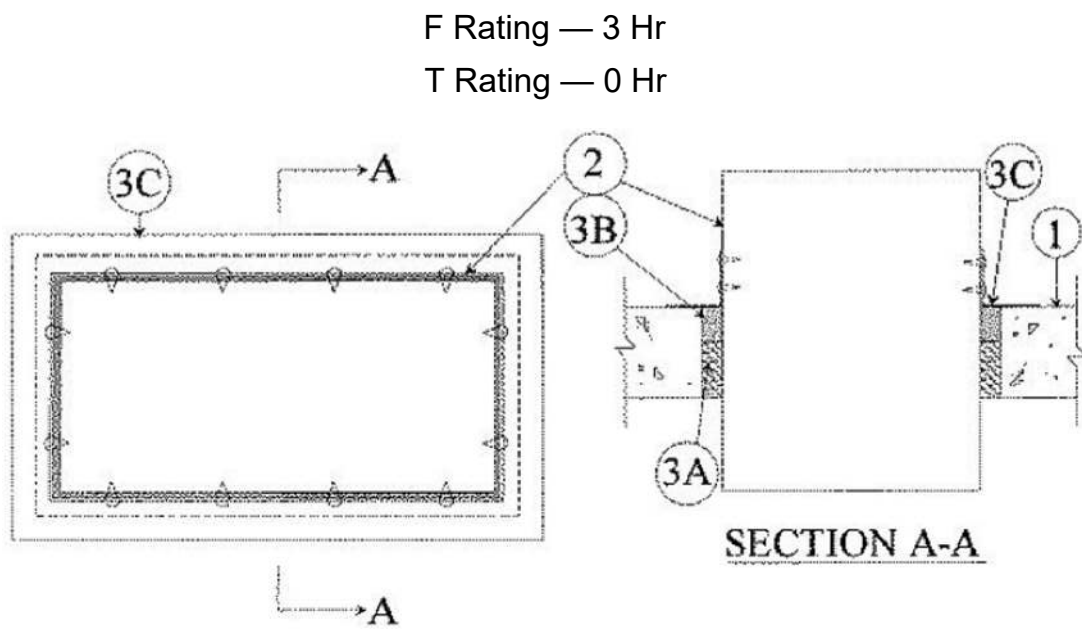
SHEET

LS1.8

OF

System No. C-AJ-7010

April 13, 1995



1. FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE FLOOR OR MIN 8 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS* MAX AREA OF OPENING IS 325 SQ IN. WITH MAX DIMENSIONS OF 25 IN.

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. STEEL DUCT — NOM 24 BY 12 IN. (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) STEEL DUCT. ONE DUCT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM WITH A NOM 1/2 IN. ANNULAR SPACE. STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. PACKING MATERIAL* — MIN 3 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR AND FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
B. FILL, VOID OR CAVITY MATERIAL* — PUTTY — MIN 1-1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL.
EGS NELSON FIRESTOP — FSP PUTTY.

C. STEEL ANGLE — MIN 1-1/2 IN. WIDE BY 1-1/2 IN. HIGH BY 0.030 IN. (NO. 22 MSG) THICK GALV STEEL ANGLES CUT TO FIT THE CONTOUR OF THE DUCT WITH A 1 IN. LAP ON THE TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. LEGS OF ANGLES SECURED TO DUCT WITH MIN NO. 12 SHEET METAL SCREWS, SPACED A MAX 4 IN. OC.

*BEARING THE UL CLASSIFICATION MARK

Design No. U905

MARCH 02, 2020

BEARING WALL RATING — 2 HR
NONBEARING WALL RATING — 2 HR
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

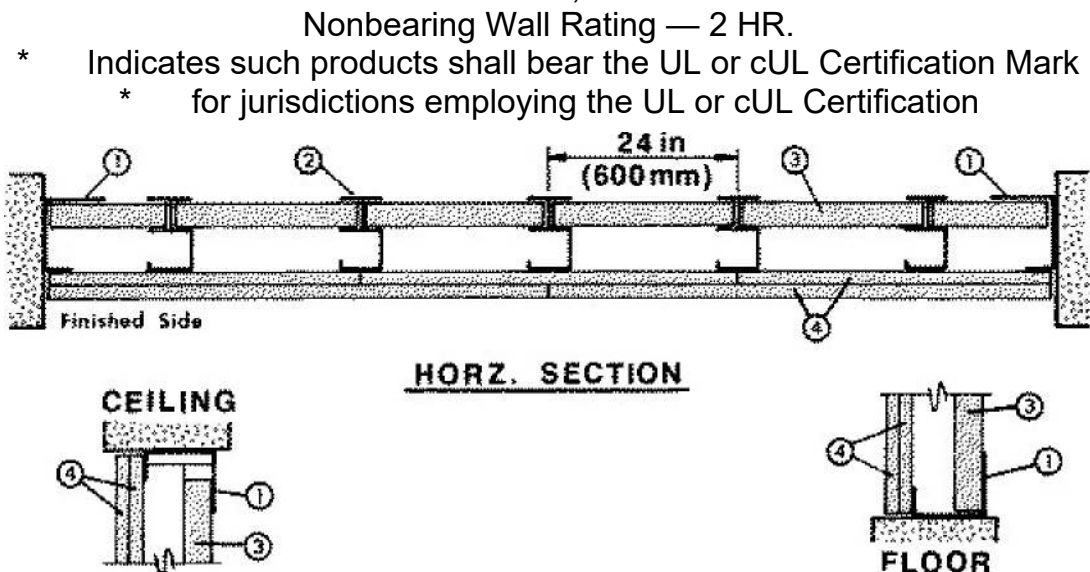
* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

- CONCRETE BLOCKS* — VARIOUS DESIGNS. CLASSIFICATION D-2 (2 HR). SEE CONCRETE BLOCKS CATEGORY FOR LIST OF ELIGIBLE MANUFACTURERS.
- 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.
- 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).
- 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.
- FOAMED PLASTIC* — (OPTIONAL-NOT SHOWN) — 1-1/2 IN. THICK MAX. 4 FT WIDE SHEATHING ATTACHED TO CONCRETE BLOCKS (ITEM 1).
ATLAS ROOFING CORP. — "ENERGYSHIELD PRO WALL INSULATION", "ENERGYSHIELD PRO 2 WALL INSULATION", "ENERGYSHIELD CGF PRO AND ENERGYSHIELD PLY PRO
CARLISLE COATINGS & WATERPROOFING INC. — TYPE R2+ SHEATH
- DUPONT DE NEMOURS, INC. — TYPES THERMAX SHEATHING, THERMAX LIGHT DUTY INSULATION, THERMAX HEAVY DUTY INSULATION, THERMAX METAL BUILDING BOARD, THERMAX WHITE FINISH INSULATION, THERMAX CI EXTERIOR INSULATION, THERMAX XARMOR CI EXTERIOR INSULATION, THERMAX HI INSULATION, THERMAX PLUS LINER PANEL, THERMAX HEAVY DUTY PLUS (HP), TUFF-RM CI INSULATION, THERMAX BUTLER STYLWALL INSULATION BOARD AND THERMAX MORTON HEAVY DUTY INSULATION BOARD
- FIRESTONE BUILDING PRODUCTS CO L L C — "ENVERGE™ CI FOIL EXTERIOR WALL INSULATION" AND "ENVERGE™ CI GLASS EXTERIOR WALL INSULATION"
- HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — TYPES "XCI-CLASS A", "XCI FOIL (CLASS A)", "XCI 280"
- RMAX OPERATING L L C — TYPES "TXS-8500", "ECOMAXCI FR", "TXS-8510", "ECOMAX XI FR WHITE", "ECOMAXCI", "ECOMAXCI FR AIR BARRIER", "THERMASHEATH-XPI", "THERMASHEATH", "DURASHEATH", "THERMASHEATH-S", "DURASHEATH-S"
- 5A. BUILDING UNITS — AS AN ALTERNATE TO ITEMS 5, MIN. 1-IN THICK POLYISOCYANURATE COMPOSITE FOAMED PLASTIC INSULATION BOARDS, NOM. 48 BY 48 OR 96 IN.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "XCI NB", "XCI PLY"
- RMAX OPERATING L L C — "THERMASHEATH-SR", "ECOBASECI", "THERMABASE-CI", "ECOMAXCI FR PLY", "ECOMAXCI PLY"

* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

Design No. U438

March 12, 2020



- FLOOR AND CEILING RUNNERS — "J"-SHAPED RUNNER, 2-1/2 IN. WIDE WITH UNEQUAL LEGS OF 1 IN. AND 2 IN., FABRICATED FROM 24 MSG GALV STEEL. (MIN 20 MSG WHEN ITEM 4B IS USED). RUNNERS POSITIONED WITH SHORT LEG TOWARD FINISHED SIDE OF WALL. RUNNERS ATTACHED TO STRUCTURAL SUPPORTS WITH STEEL FASTENERS LOCATED NOT GREATER THAN 2 IN. FROM ENDS AND NOT GREATER THAN 24 IN. OC.
- STEEL STUDS — "C"-H"-SHAPED STUDS, 2-1/2 IN. WIDE BY 1-1/2 IN. DEEP. FABRICATED FROM 25 MSG GALV STEEL (MIN 20 MSG WHEN ITEM 4B, 4D, OR 4E IS USED). CUT TO LENGTHS 3/8 TO 1/2 IN. LESS THAN FLOOR TO CEILING HEIGHT AND SPACED 24 IN. OR 600 MM OC (MAX 16 IN. OC WHEN ITEMS 4B, 4D, 4E IS USED).
- STEEL STUDS — (NOT SHOWN) "E"-SHAPED STUDS INSTALLED IN PLACE OF "C"-H"-SHAPED STUDS (ITEM 2) TO SECURE THE CLOSURE LINER PANELS AT THE ENDS OF WALLS. FABRICATED FROM 25 MSG GALV STEEL (MIN 20 MSG WHEN ITEM 4B, 4D, OR 4E IS USED). 2-1/2 IN. WIDE, WITH ONE LEG 1 IN. LONG AND TWO LEGS 3/4 IN. LONG. SHORTER LEGS 1 IN. APART TO ENGAGE GYPSUM LINER PANELS. CUT TO LENGTHS 3/8 IN. LESS THAN FLOOR TO CEILING HEIGHT. SILL AND LINTEL OF OPENING FORMED WITH "J"-SHAPED RUNNERS (ITEM 1) SECURED TO "E"-SHAPED STUDS WITH ANGLE CLIPS AND STEEL SCREWS.
- GYPSUM BOARD* — 1 IN. THICK GYPSUM WALLBOARD LINER PANELS, SUPPLIED IN NOM 24 IN. OR 600 MM FOR METRIC SPACING) WIDTHS. PANELS CUT 1 IN. LESS IN LENGTH THAN FLOOR TO CEILING HEIGHT. VERTICAL EDGES INSERTED IN "J"-SHAPED SECTION OF "C"-H" STUDS. FREE EDGE OF END PANELS ATTACHED TO LONG LEG OF "J"-RUNNERS WITH 1-5/8 IN. LONG TYPE S STEEL SCREWS SPACED NOT GREATER THAN 12 IN. OC.
CGC INC. — TYPE SLX.

UNITED STATES GYPSUM CO — TYPE SLX.
USG BORAL DRYWALL SFZ LLC — TYPE SLX
USG MEXICO S A DE CV — TYPE SLX.

4. GYPSUM BOARD* — 1/2 IN. THICK, 4 FT. OR 1200 MM (FOR METRIC SPACING) WIDE WALLBOARD APPLIED VERTICALLY IN TWO LAYERS. INNER OR BASE LAYER ATTACHED TO STUDS WITH 1 IN. LONG TYPE S STEEL SCREWS SPACED 24 IN. OC ALONG THE EDGES AND IN THE FIELD OF THE BOARDS. OUTER OR FACE LAYER ATTACHED TO STUDS AND "J"-RUNNERS WITH 1-5/8 IN. LONG TYPE S STEEL SCREWS SPACED 12 IN. ALONG THE EDGES AND IN THE FIELD OF THE BOARDS. STAGGERED FROM SCREWS IN INNER LAYER. JOINTS BETWEEN INNER AND OUTER LAYERS STAGGERED. OUTER LAYER JOINTS COVERED WITH PAPER TAPE AND JOINT COMPOUND. EXPOSED SCREW HEADS COVERED WITH JOINT COMPOUND.

AS AN ALTERNATE METHOD, INNER WALLBOARD LAYER APPLIED VERTICALLY. OUTER WALLBOARD LAYER APPLIED HORIZONTALLY. INNER LAYER ATTACHED TO STUDS WITH 1 IN. TYPE S STEEL SCREWS SPACED 24 IN. OC ALONG VERTICAL EDGES AND IN THE FIELD. OUTER LAYER ATTACHED TO THE STUDS AND "J"-RUNNERS OVER THE INNER LAYER WITH 1-5/8 IN. LONG TYPE S STEEL SCREWS SPACED 12 IN. OC IN THE FIELD ALONG THE VERTICAL EDGES AND TO THE FLOOR AND CEILING RUNNERS. OUTER LAYER SECURED TO INNER LAYER WALLBOARD WITH 1-1/2 IN. LONG TYPE S STEEL SCREWS LOCATED MIDWAY BETWEEN STUDS AND 1 IN. FROM THE HORIZONTAL JOINT.

AMERICAN GYPSUM CO — TYPES AG-C, CABOT MANUFACTURING ULC — TYPE C
CERTAINTED GYPSUM INC. — TYPE C
CGC INC. — TYPE C, IP-X2, OR WRX
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — TYPE LGFC-C/A
GEORGIA-PACIFIC GYPSUM L L C — TYPES S, DAPC, TG-C
NATIONAL GYPSUM CO — TYPES EX-C, FSK-C, FSW-C, FSR-C
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — TYPES PG-C.

SAINT-OBAIN GYPROC MIDDLE EAST FZE — TYPE GYPROC FIRESTOP, GYPROC FIRESTOP MR, GYPROC FIRESTOP M2TECH, GYPROC FIRESTOP ACTIVAIR, GYPROC FIRESTOP MR ACTIVAIR, GYPROC FIRESTOP M2TECH ACTIVAIR

THAI GYPSUM PRODUCTS PCL — TYPE C
UNITED STATES GYPSUM CO — TYPE C, IP-X2 OR WRX
USG BORAL DRYWALL SFZ LLC — TYPE C
USG MEXICO S A DE CV — TYPE C, IP-X2 OR WRX.

4A. GYPSUM BOARD* — (AS AN ALTERNATE TO ITEM 4) — 5/8 IN. THICK GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. APPLIED VERTICALLY OR HORIZONTALLY. INNER OR BASE LAYER ATTACHED TO STUDS WITH 1 IN. LONG TYPE S OR S-12 STEEL SCREWS SPACED 24 IN. OC WHEN INSTALLED VERTICALLY OR 16 IN. OC WHEN INSTALLED HORIZONTALLY. OUTER OR FACE LAYER ATTACHED TO STUDS WITH 1-5/8 IN. LONG TYPE S OR S-12 STEEL SCREWS SPACED 12 IN. OC WHEN INSTALLED VERTICALLY AND STAGGERED 12 IN. FROM BASE LAYER SCREWS OR 8 IN. OC WHEN INSTALLED HORIZONTALLY AND STAGGERED 8 IN. FROM BASE LAYER SCREWS. HORIZONTAL JOINTS BETWEEN INNER AND OUTER LAYERS STAGGERED A MIN OF 12 IN. HORIZONTAL JOINTS NEED NOT BE BACKED BY STEEL FRAMING. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED 24 IN. OUTER LAYER JOINTS COVERED WITH PAPER TAPE AND JOINT COMPOUND. EXPOSED SCREW HEADS COVERED WITH JOINT COMPOUND. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY.
CGC INC. — TYPE AR, IP-AR, IP-X1, SCX, ULX OR WRX.

UNITED STATES GYPSUM CO — TYPE AR, FRX-G, IP-AR, IP-X1, SCX, ULX OR WRX.
USG BORAL DRYWALL SFZ LLC — TYPE SCX
USG MEXICO S A DE CV — TYPE AR, IP-AR, IP-X1, SCX, ULX OR WRX.

4B. GYPSUM BOARD* — (NOT SHOWN) — MAY BE USED IN LIEU OF ITEMS 4 OR 4A FOR THE BASE LAYER - NOM 5/8 IN. THICK LEAD BACKED GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. APPLIED VERTICALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED MIN 1 STUD CAVITY ON OPPOSITE SIDES OF STUDS. WALLBOARD SECURED TO STUDS WITH 1-1/4 IN. LONG TYPE S-12 STEEL SCREWS SPACED 8 IN. OC AT PERIMETER AND 12 IN. OC IN THE FIELD. LEAD BATTEN STRIPS (ITEM 6) REQUIRED BEHIND VERTICAL JOINTS.
RAY-BAR ENGINEERING CORP. — TYPE RB-LBG

4C. GYPSUM BOARD* — (AS AN ALTERNATE TO ITEM 4, 4A, 4B) — 5/8 IN. THICK. TWO LAYERS INSTALLED AS DESCRIBED IN ITEM 4.
NATIONAL GYPSUM CO — TYPE FSRM-C.

4D. GYPSUM BOARD* — (NOT SHOWN) — MAY BE USED IN LIEU OF ITEMS 4 FOR THE BASE LAYER - NOM 5/8 IN. THICK LEAD BACKED GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. APPLIED VERTICALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED MIN 1 STUD CAVITY ON OPPOSITE SIDES OF STUDS. WALLBOARD SECURED TO STUDS WITH 1-1/4 IN. LONG TYPE S-12 STEEL SCREWS SPACED 8 IN. OC AT PERIMETER AND 12 IN. OC IN THE FIELD. LEAD BATTEN STRIPS REQUIRED BEHIND VERTICAL JOINTS. TO BE USED WITH LEAD BATTEN STRIPS (SEE ITEM 6B) OR LEAD DISCS (SEE ITEM 6C).
MAYCO INDUSTRIES INC. — TYPE X-RAY SHIELDED GYPSUM

4E. GYPSUM BOARD* — (NOT SHOWN) — MAY BE USED IN LIEU OF ITEMS 4 FOR THE BASE LAYER. NOM 5/8 IN. THICK LEAD BACKED GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. APPLIED VERTICALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED MIN 1 STUD CAVITY ON OPPOSITE SIDES OF STUDS.

STUDS. WALLBOARD SECURED TO STUDS WITH 1-1/4 IN. LONG TYPE S-12 STEEL SCREWS GYPSUM PANEL STEEL SCREWS SPACED 8 IN. OC AT PERIMETER AND 12 IN. OC IN THE FIELD. LEAD BATTEN STRIPS REQUIRED BEHIND VERTICAL JOINTS OF LEAD BACKED GYPSUM WALLBOARD AND OPTIONAL AT REMAINING STUD LOCATIONS. LEAD BATTEN STRIPS, MIN 2 IN. WIDE, MAX 8 FT LONG WITH A MAX THICKNESS OF 0.14 IN. PLACED ON THE FACE OF STUDS AND ATTACHED TO THE STUD WITH CONSTRUCTION ADHESIVE AND TWO 1 IN. LONG TYPE S-12 PAN HEAD STEEL SCREWS, ONE AT THE TOP OF THE STRIP AND ONE AT THE BOTTOM OF THE STRIP. LEAD DISCS, NOMINAL 3/8 IN. DIAM BY MAX 0.085 IN. THICK. COMPRESSION FITTED OR ADHERED OVER THE SCREW HEADS. LEAD BATTEN STRIPS AND DISCS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QO-L-201F, GRADE "C".
RADIATION PROTECTION PRODUCTS INC. — TYPE RPP - LEAD LINED DRYWALL.

4F. GYPSUM BOARD* — (AS AN ALTERNATE TO ITEM 4) — 5/8 IN. THICK GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. APPLIED VERTICALLY OR HORIZONTALLY. INNER OR BASE LAYER ATTACHED TO STUDS WITH 1 IN. LONG TYPE S OR S-12 STEEL SCREWS SPACED 24 IN. OC WHEN INSTALLED VERTICALLY OR 16 IN. OC WHEN INSTALLED HORIZONTALLY. OUTER OR FACE LAYER ATTACHED TO STUDS WITH 1-5/8 IN. LONG TYPE S OR S-12 STEEL SCREWS SPACED 8 IN. OC WHEN INSTALLED VERTICALLY AND STAGGERED MIN. 8 IN. FROM BASE LAYER SCREWS OR 8 IN. OC WHEN INSTALLED HORIZONTALLY AND STAGGERED MIN. 8 IN. FROM BASE LAYER SCREWS. HORIZONTAL JOINTS BETWEEN INNER AND OUTER LAYERS NEED NOT BE STAGGERED. HORIZONTAL JOINTS NEED NOT BE BACKED BY STEEL FRAMING. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED 24 IN. OUTER LAYER JOINTS COVERED WITH PAPER TAPE AND JOINT COMPOUND. EXPOSED SCREW HEADS COVERED WITH JOINT COMPOUND. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY.
UNITED STATES GYPSUM CO — TYPE ULIX.

5. BATTS AND BLANKETS* — (OPTIONAL) — (NOT SHOWN) — MINERAL WOOL OR GLASS FIBER BATTS PARTIALLY OR COMPLETELY FILLING STUD CAVITY. ANY MINERAL WOOL OR GLASS FIBER BATT MATERIAL BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE.
5A. FIBER, SPRAYED* — AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) — (100% BORATE FORMULATION) — 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, INS750LD FOR USE WITH WET OR DRY APPLICATION. INS765LD AND INS773LD ARE TO BE USED FOR DRY APPLICATION ONLY.

5B. FIBER, SPRAYED* — AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) — SPRAY APPLIED CELLULOSE INSULATION MATERIAL. THE FIBER IS APPLIED WITH WATER TO 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 POUNDS PER CUBIC FT.
NU-WOOL CO INC. — CELLULOSE INSULATION

5C. FIBER, SPRAYED* — AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) — 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 LB/FT3.
INTERNATIONAL CELLULOSE CORP. — CELBAR-RL

5D. FIBER, SPRAYED* — AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) — 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. TO FACILITATE THE INSTALLATION OF THE MATERIAL, ANY THIN, WOVEN OR NON-WOVEN NETTING MAY BE ATTACHED BY ANY MEANS POSSIBLE TO THE OUTER FACE OF THE STUDS. THE MATERIAL SHALL REACH EQUILIBRIUM MOISTURE CONTENT BEFORE THE INSTALLATION OF MATERIALS ON EITHER FACE OF THE STUDS. THE MINIMUM DRY DENSITY SHALL BE 5.79 LB/FT3.
APPLEGATE HOLDINGS L L C — APPLGATE ADVANCED STABILIZED CELLULOSE INSULATION

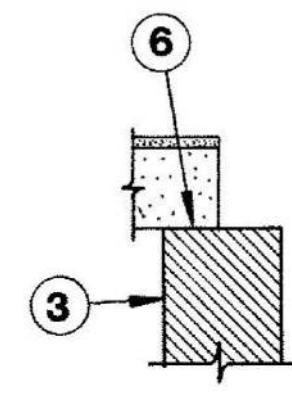
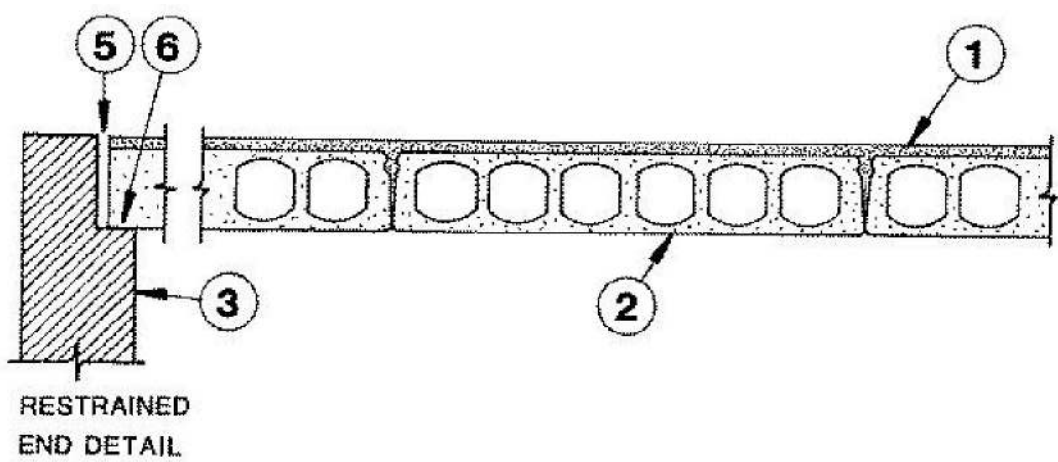
6. LEAD BATTEN STRIPS — FOR USE WITH ITEM 4B - (NOT SHOWN) - LEAD BATTEN STRIPS REQUIRED BEHIND VERTICAL JOINTS OF LEAD BACKED GYPSUM WALLBOARD (ITEM 4A) AND OPTIONAL AT REMAINING STUD LOCATIONS. STRIPS, MIN 1-1/2 IN. WIDE, MAX 10 FT LONG WITH A MAX THICKNESS OF 0.125 IN. STRIPS PLACED ON THE INTERIOR FACE OF STUDS AND ATTACHED FROM THE EXTERIOR FACE OF THE STUD WITH TWO 1 IN. LONG TYPE S-12 PAN HEAD STEEL SCREWS, ONE AT THE TOP OF THE STRIP AND ONE AT THE BOTTOM OF THE STRIP. LEAD BATTEN STRIPS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QO-L-201F, GRADE "C".

6A. LEAD DISCS OR TABS — (NOT SHOWN) - USED IN LIEU OF OR IN ADDITION TO THE LEAD BATTEN STRIPS (ITEM 6) OR OPTIONAL AT OTHER LOCATIONS. MAX 3/4 IN. DIAM BY MAX 0.125 IN. THICK LEAD DISCS COMPRESSION FITTED OR ADHERED OVER STEEL SCREW HEADS OR MAX 1/2 IN. BY 1-1/4 IN. BY MAX 0.125 IN. THICK LEAD TABS PLACED ON GYPSUM BOARDS (ITEM 5) UNDERNEATH SCREW LOCATIONS PRIOR TO THE INSTALLATION OF THE SCREWS. LEAD DISCS OR TABS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QO-L-201F, GRADE "C".
6B. LEAD BATTEN STRIPS — (NOT SHOWN, FOR USE WITH ITEM 4D) LEAD BATTEN STRIPS, 2 IN. WIDE, MAX 10 FT LONG WITH A MAX THICKNESS OF 0.140 IN. STRIPS PLACED ON THE FACE OF STUDS AND ATTACHED TO THE STUD WITH TWO MIN. 1 IN. LONG MIN. TYPE S-8 PAN HEAD STEEL SCREWS, ONE AT THE TOP OF THE STRIP AND ONE AT THE BOTTOM OF THE STRIP OR WITH ONE MIN. 1 IN. LONG MIN. TYPE S-8 PAN HEAD STEEL SCREW AT THE TOP OF THE STRIP. LEAD BATTEN STRIPS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QO-L-201F, GRADES "B, C OR D". LEAD BATTEN STRIPS REQUIRED BEHIND VERTICAL JOINTS OF LEAD BACKED GYPSUM WALLBOARD AND OPTIONAL AT REMAINING STUD LOCATIONS.
6C. LEAD DISCS — (NOT SHOWN, FOR USE WITH ITEM 4D) MAX 5/16 IN. DIAM BY MAX 0.140 IN. THICK LEAD DISCS COMPRESSION FITTED OR ADHERED OVER STEEL SCREW HEADS. LEAD DISCS TO HAVE A PURITY OF 99.9% MEETING THE FEDERAL SPECIFICATION QO-L-201F, GRADES "B, C OR D".
INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

DESIGN No. J995

MARCH 05, 2018

Restrained Assembly Ratings — 2, 3 and 4 Hr.
Unrestrained Assembly Rating — 2 Hr.



1. CONCRETE TOPPING — 3000 PSI COMPRESSIVE STRENGTH, 110 TO 153 PCF UNIT WEIGHT.

ASSEMBLY RATING HR	MIN. TOPPING THKNKNSS IN.
2	0
3	1-1/2
4	2-5/8

2. PRECAST CONCRETE UNITS* — NOM 8, 10 OR 12 IN. DEEP BY 4 FT WIDE UNITS. CARBONATE AGGREGATE, CROSS-SECTION SIMILAR TO ABOVE ILLUSTRATION.
CORESLAB STRUCTURES INC

CORESLAB STRUCTURES (ONT) INC
COUNTY MATERIALS CORP
ENCON UNITED CO
GAGE BROS CONCRETE PRODUCTS INC
KERKSTRA PRECAST INC
LARRY E KNIGHT INC
OLDCASTLE PRECAST INC
SAY-CORE INC

3. END DETAIL — RESTRAINED AND UNRESTRAINED.
4. JOINT (NOT SHOWN) — GROUTED FULL LENGTH WITH SAND-CEMENT GROUT UNLESS CONCRETE TOPPING IS USED.
NOTE: A 3/8 IN. WIDE LATERAL EXPANSION JOINT TO BE PROVIDED THE FULL LENGTH AND DEPTH OF THE SLABS FOR EACH 14 FT OF WIDTH. EXPANSION OBTAINED WITH NONCOMBUSTIBLE, COMPRESSIBLE MATERIAL, FOR EXAMPLE 6 SHEETS OF 1/8 IN. THICK CERAMIC FIBER PAPER.

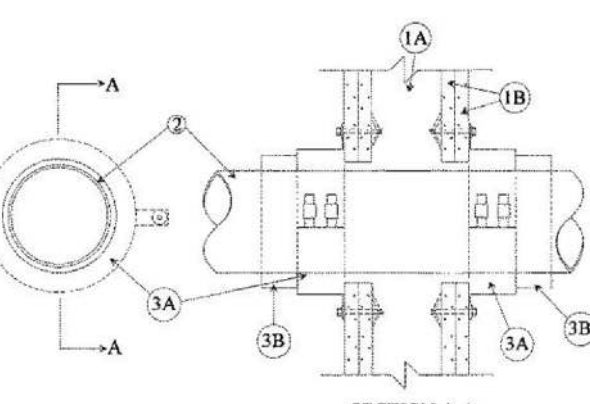
6. END CLEARANCE — CLEARANCE FOR EXPANSION AT EACH END OF SLAB SHALL BE EQUAL TO (L/17) X (1/4 WIDR/116) IN. WHERE "L" IS EQUAL TO LENGTH OF SPAN IN FT.
7. MIN BEARING — 1-1/2 IN. FOR ASSEMBLY RATING OF 3 HR, OR LESS AND 3 IN. FOR ASSEMBLY RATING OF 4 HR.
INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

System No. W-L-2081

January 26, 2015

F Ratings — 1 & 2 Hr (See Item 1B)

T Rating — 1 Hr



1. Wall Assembly — The 1 or 2 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 Design 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 with nom 2 by 4 in. lumber end plates and cross braces. 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 U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 3 in.

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. Nonmetallic Pipe — Nom 2 in. diam (or smaller) Schedule 40 flame retardant polypropylene (FRPP) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. One pipe to be centered within the firestop system. A nom annular space of 5/16 in. is required within the firestop system. Pipe to be rigidly supported on both sides of the wall assembly.

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

A. Firestop Device* — Galv steel collar lined with an intumescent material sized to fit specific diam of the nonmetallic pipe. Device to be installed in accordance with accompanying installation instructions. Device incorporates anchor tabs for securement to both surfaces of wall by means of 1/8 in. diam by 1-3/4 in. long steel toggle bolts in conjunction with 1/4 in. by 3/4 in. diam and 1/4 in. by 1-1/4 in. diam steel washers.
EGS NELSON FIRESTOP — PCS Device
B. Pipe Covering* — Nom 1 in. thick by 7-1/2 in. long hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket wrapped around outer circumference of pipe on both surfaces of wall. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Pipe covering slid along pipe until it abuts the firestop device.

See Pipe and Equipment Covering — Materials (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
C. Steel Wire (Not Shown) — After installation of the pipe covering (Item 3B), min No. 18 AWG steel wire shall be wrapped around the outer circumference of the pipe covering once.

*Bearing the UL Classification Mark

AA C00066

HARTER - ADAMS P.A.
ARCHITECTS AND PLANNERS
377 MATLACK AVE., SUITE 200, LAKE CITY, FLORIDA 32701
PHONE 407.647.3707 FAX 407.647.3802

TOWNEPLACE
SUITES®
BY MARRIOTT

TOWNEPLACE SUITES HOTEL
LAKE CITY HOTELS, INC.
NW COMMERCE DRIVE, LAKE CITY, FLORIDA

REVISION

JOB NO.

DATE

SHEET

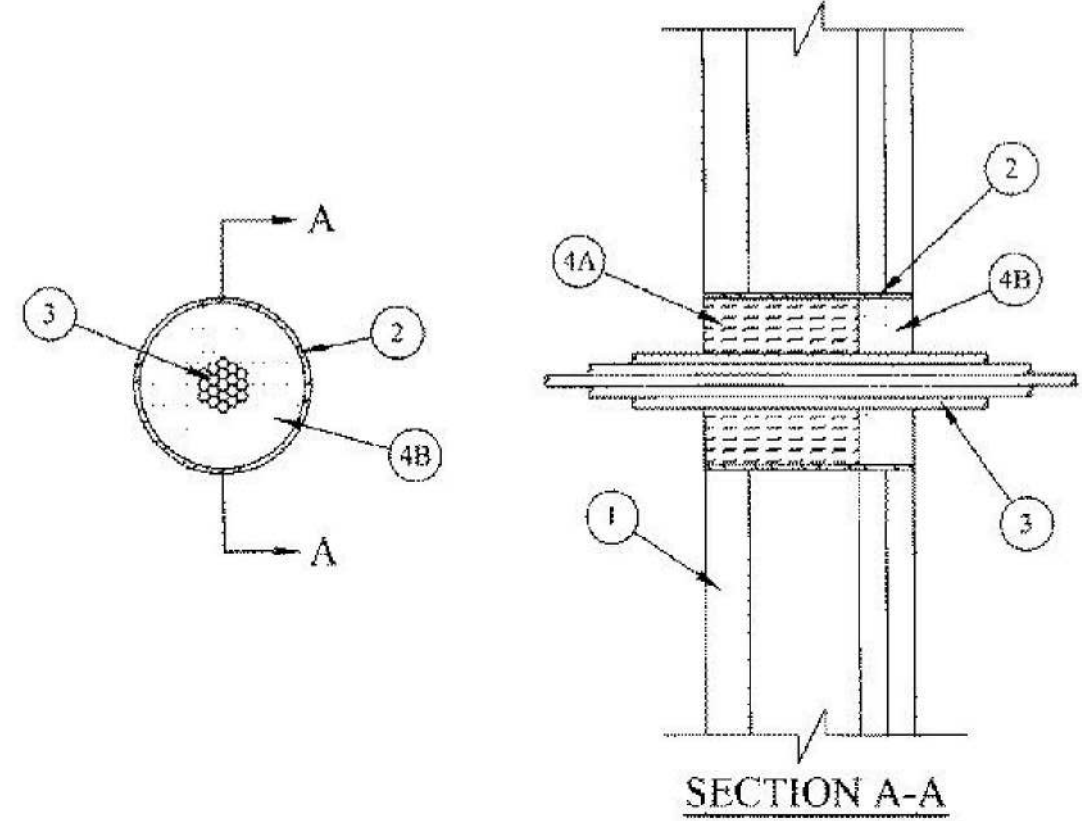
LS1.9

OF

System No. W-L-3161

THROUGH-PENETRATION FIRESTOP SYSTEM
January 27, 2015

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Items 1 and 4)	F Rating — 1 and 2 Hr (See Items 1 and 4)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 and 2 Hr (See Items 1 and 4)
	FTH Rating — 0 Hr

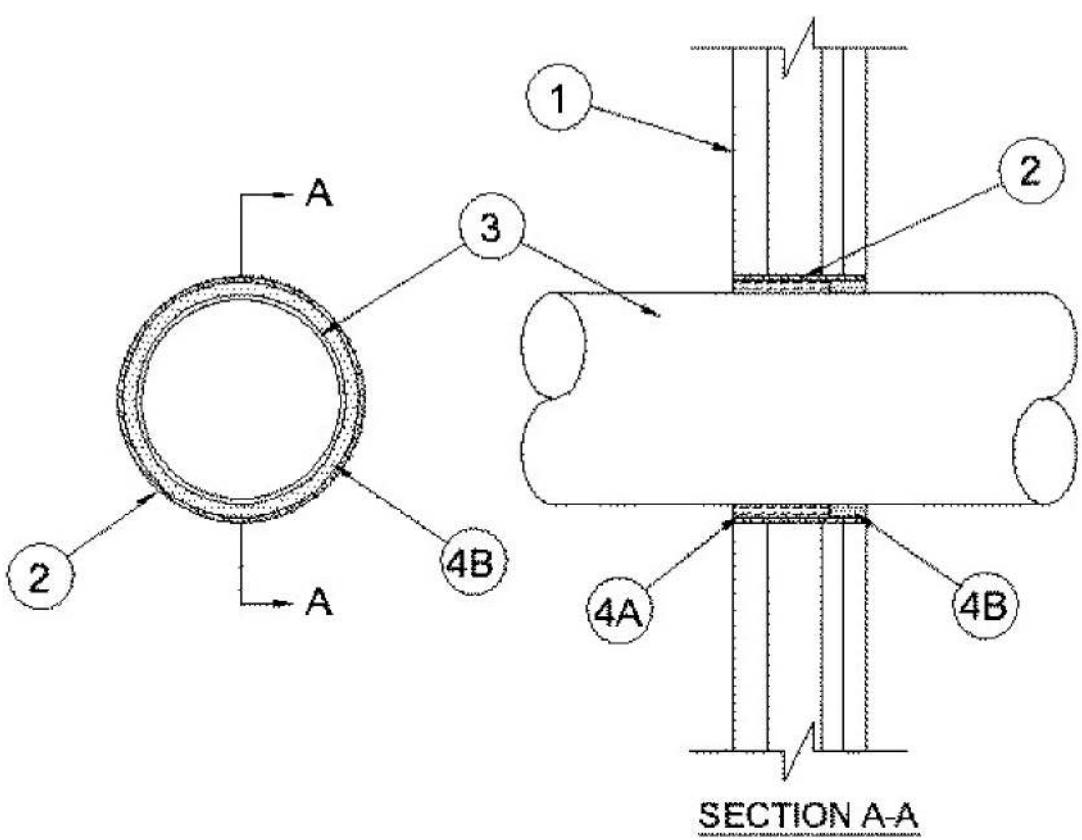


- A. 1. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400, V400 OR V400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- B. A. STUDS — "C-T" SHAPED STUDS 1-5/8 IN. (41 MM) WIDE BY 2-1/2 IN. (64 MM) DEEP, FABRICATED FROM 25 MSG GALV STEEL, SPACED MAX 24 IN. (610 MM) OC.
- C. B. GYPSUM BOARD* — ONE LAYER OF NOM 1 IN. (25 MM) THICK, 24 IN. (610 MM) WIDE GYPSUM LINER AND ONE OR TWO LAYERS OF NOM 5/8 IN. (16 MM) THICK, 4 FT. (1.2 M) WIDE GYPSUM BOARD WITH SQUARE OR TAPERED EDGES. THE 5/8 IN. (16 MM) THICK GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN, MAX DIAM OF OPENING IS 4 IN. (102 MM).
- D. 1A. WALL ASSEMBLY — AS AN ALTERNATE TO THE ABOVE 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, V400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- E. A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (61 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC.
- F. B. GYPSUM BOARD* — THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN, MAX DIAM OF OPENING IS 4 IN. (102 MM).
- G. THE HOURLY F, FH RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
- H. 2. METALLIC SLEEVE — MAX 4 IN. (102 MM) DIAM CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.016 IN. (0.41 MM) THICK (28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 1 IN. (25 MM) LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM BOARD LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. (25 MM) LAP ALONG THE LONGITUDINAL SEAM.
- I. 3. CABLES — AGGREGATE CROSS-SECTIONAL AREA OF CABLE IN OPENING TO BE MAX 33 PERCENT OF THE CROSS-SECTIONAL AREA OF THE OPENING. THE ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE OPENING TO BE MIN 1/4 IN. (6.4 MM) TO MAX 3/4 IN. (19 MM). CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR CABLES MAY BE USED:
- J. A. MAX 1/2 NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.
- K. B. MAX 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.
- L. C. TYPE RG 59U COAXIAL CABLE WITH POLYETHYLENE (PE) INSULATION AND PVC JACKET.
- M. D. MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAX OD OF 5/8 IN. (16 MM).
- N. E. MAX 3/4 NO. 12 AWG COPPER CONDUCTOR STEEL CLAD CABLE.
- O. G. FIRE RESISTIVE CABLES* - MAX 1-1/4 IN. (32 MM) DIAM SINGLE CONDUCTOR OR MULTI CONDUCTOR TYPE MI CABLE. A MIN 1/8 IN. (3 MM) SEPARATION SHALL BE MAINTAINED BETWEEN MI CABLES AND ANY OTHER TYPES OF CABLE.
- P. 4. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
- Q. A. PACKING MATERIAL — MIN 2-1/8 IN. (64 MM) OR 2-3/4 IN. (70 MM) THICKNESS OF MIN 4 PCF (64KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING ON ONE SIDE OF THE WALL AS PERMANENT FORM FOR 1 AND 2 HR FIRE RATED WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. IN ALTERNATE WALL ASSEMBLY, PACKING MATERIAL TO BE FLUSH WITH EITHER SIDE OF THE WALL AND RECESSED FROM THE OTHER SIDE OF THE WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- R. B. FILL, VOID OR CAVITY MATERIAL — SEALANT* — MIN 1 IN. (25 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN SLEEVE, FLUSH WITH SURFACE OF WALL.
- S. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.
- T. U. * INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

System No. W-L-7068

THROUGH-PENETRATION FIRESTOP SYSTEM
January 27, 2015

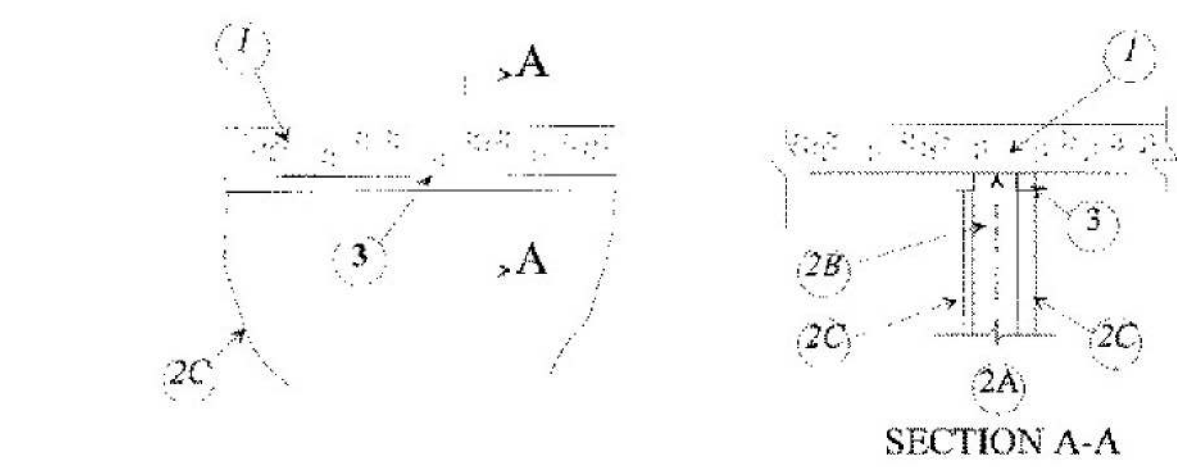
ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Items 1 and 4)	F Ratings - 1 and 2 Hr (See Items 1 and 4)
T Rating - 0 Hr	FT Rating - 0 Hr
	FH Ratings - 1 and 2 Hr (See Items 1 and 4)
	FTH Rating - 0 Hr



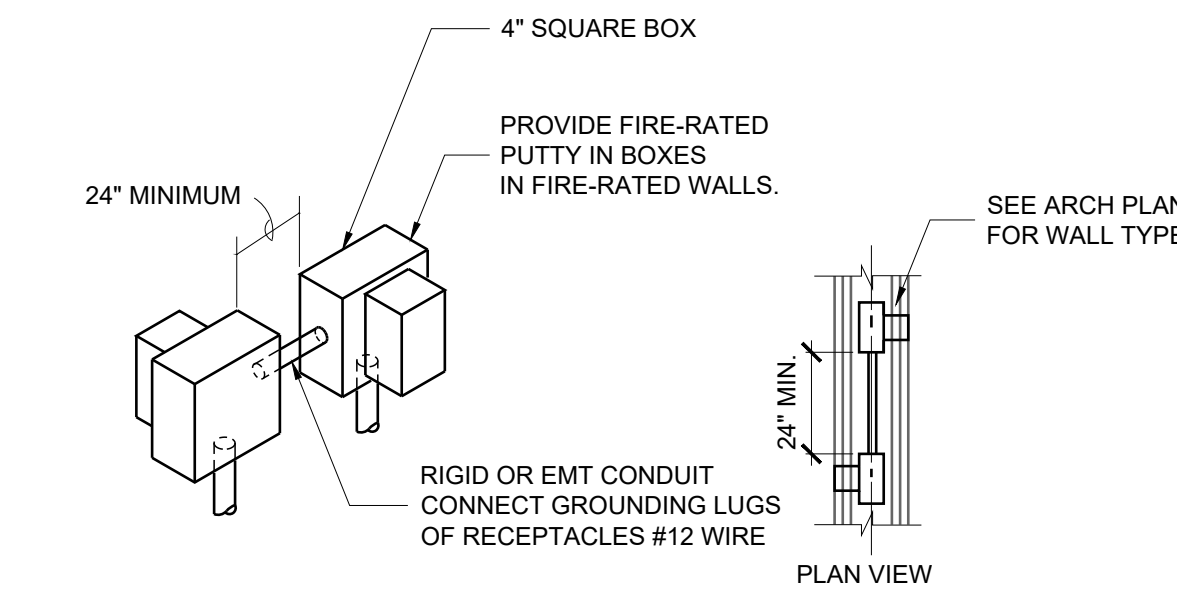
- A. 1. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400, V400 OR V400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- B. A. STUDS — "C-T" SHAPED STUDS 1-5/8 IN. (41 MM) WIDE BY 2-1/2 IN. (64 MM) DEEP, FABRICATED FROM 25 MSG GALV STEEL, SPACED MAX 24 IN. (610 MM) OC.
- C. B. GYPSUM BOARD* — ONE LAYER OF NOM 1 IN. (25 MM) THICK, 24 IN. (610 MM) WIDE GYPSUM LINER AND ONE OR TWO LAYERS OF NOM 5/8 IN. (16 MM) THICK, 4 FT. (1.2 M) WIDE GYPSUM BOARD WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN, MAX DIAM OF OPENING IS 7 IN. (178 MM).
- D. 1A. WALL ASSEMBLY — AS AN ALTERNATE TO THE ABOVE 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:
- E. A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (61 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC.
- F. B. GYPSUM BOARD* — THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN, MAX DIAM OF OPENING IS 7 IN. (178 MM).
- G. THE HOURLY F AND FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
- H. I. 2. METALLIC SLEEVE — MAX 7 IN. (178 MM) DIAM CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.016 IN. (0.41 MM) THICK (28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 1 IN. (25 MM) LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM BOARD LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. (25 MM) LAP ALONG THE LONGITUDINAL SEAM.
- J. 3. STEEL DUCT — NOM 6 IN. DIAM (152 MM) (OR SMALLER) NO. 28 GAUGE (0.41 MM) (OR HEAVIER) GALV STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MIN 1/4 IN. (6 MM) TO MAX 3/4 IN. (19 MM). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY.
- K. 4. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
- L. A. PACKING MATERIAL — MIN 2-1/8 OR 2-3/4 IN. (64 OR 70 MM) THICKNESS OF MIN 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO SLEEVE ON ONE SIDE OF THE WALL AS A PERMANENT FORM FOR 1 AND 2 HR WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- M. B. FILL, VOID OR CAVITY MATERIAL — SEALANT* — MIN 1 IN. (25 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN OPENING, FLUSH WITH ONE SURFACE OF WALL.
- N. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.
- O. P. * INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

System No. HW-D-0083

JOINT SYSTEM
September 01, 2016
Assembly Rating — 1 and 2 Hr (See Items 2 and 3)
Nominal Joint Width — 3/4 In.
L Rating At Ambient — Less Than 1 CFM/Lin Ft
L Rating At 400°F — Less Than 1 CFM/Lin Ft
Class II Movement Capabilities — 17 % Compression or Extension



- A. 1. FLOOR ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2000 KG/M3) STRUCTURAL CONCRETE. FLOOR MAY ALSO BE CONSTRUCTED OF ANY 6 IN. (152 MM) THICK UL CLASSIFIED HOLLOW-CORE PRECAST CONCRETE UNITS*.
- B. SEE PRECAST CONCRETE UNITS CATEGORY IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- C. D. 2. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD /STEEL STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 OR V400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- E. A. STEEL FLOOR AND CEILING RUNNERS — FLOOR AND CEILING RUNNERS OF WALL ASSEMBLY SHALL CONSIST OF MIN NO. 25 GAUGE GALV STEEL CHANNELS SIZED TO ACCOMMODATE STEEL STUDS (ITEM 2B). FLANGE HEIGHT OF CEILING RUNNER SHALL BE MIN 1/4 IN. (6 MM) GREATER THAN MAX EXTENDED JOINT WIDTH. CEILING RUNNER SECURED TO CONCRETE FLOOR SLAB WITH STEEL MASONRY ANCHORS. STEEL FASTENERS SPACED 24 IN. (610 MM) OC.
- F. A1. LIGHT GAUGE FRAMING* SLOTTED CEILING RUNNER — AS AN ALTERNATE TO THE CEILING RUNNER IN ITEM 2A, SLOTTED CEILING RUNNER TO CONSIST OF GALV STEEL CHANNEL WITH SLOTTED FLANGES SIZED TO ACCOMMODATE STEEL STUDS (ITEM 2B). SLOTTED CEILING RUNNER SECURED TO CONCRETE FLOOR SLAB WITH STEEL MASONRY ANCHORS OR STEEL FASTENERS SPACED MAX 24 IN. (610 MM) OC.
- G. BRADY CONSTRUCTION INNOVATIONS INC. DBA SLP/TRACK SYSTEMS — SLP-TRK
- H. CALIFORNIA EXPANDED METAL PRODUCTS CO — CST
- I. CLARKDIETRICH BUILDING SYSTEMS — TYPE SLT, SLT-H
- J. MARINOWARE, DIV OF WARE INDUSTRIES INC — TYPE SLT
- K. METAL-LITE INC — THE SYSTEM
- L. RAM SALES L L C — RAM SLOTTED TRACK
- M. SCAFCO STEEL STUD MANUFACTURING CO
- N. TELLING INDUSTRIES L L C — TRUE-ACTION DEFLECTION TRACK
- O. A2. LIGHT GAUGE FRAMING* VERTICAL DEFLECTION CEILING RUNNER — AS AN ALTERNATE TO THE CEILING RUNNERS IN ITEMS 2A AND 2A1, VERTICAL DEFLECTION CEILING RUNNER TO CONSIST OF GALV STEEL CHANNEL WITH SLOTTED VERTICAL DEFLECTION CLIPS MECHANICALLY FASTENED WITHIN RUNNER. SLOTTED CLIPS, PROVIDED WITH STEP BUSHINGS, FOR PERMANENT FASTENING OF STEEL STUDS. FLANGES SIZED TO ACCOMMODATE STEEL STUDS (ITEM 2B). VERTICAL DEFLECTION CEILING RUNNER SECURED TO CONCRETE FLOOR SLAB WITH STEEL FASTENERS OR STEEL MASONRY ANCHORS SPACED MAX 24 IN. (610 MM) OC.
- P. THE STEEL NETWORK INC — VERTITRACK VTD250, VTD362, VTD400, VTD600 AND VTD800
- Q. A3. LIGHT GAUGE FRAMING* NOTCHED CEILING RUNNER — AS AN ALTERNATE TO THE CEILING RUNNERS IN ITEMS 2A THROUGH 2A3, NOTCHED CEILING RUNNERS TO CONSIST OF C-SHAPED GALV STEEL CHANNEL WITH NOTCHED RETURN FLANGES SIZED TO ACCOMMODATE STEEL STUDS (ITEM 2B). NOTCHED CEILING RUNNER SECURED TO CONCRETE FLOOR SLAB WITH STEEL MASONRY ANCHORS OR STEEL FASTENERS SPACED MAX 24 IN. (610 MM) OC.
- R. OLMAR SUPPLY INC — TYPE SCR
- B. STUDS — STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE. STUDS CUT 1/2 TO 3/4 IN. (13 TO 19 MM) LESS IN LENGTH THAN ASSEMBLY HEIGHT WITH BOTTOM NESTING IN AND RESTING ON FLOOR RUNNER AND WITH TOP NESTING IN CEILING RUNNER WITHOUT ATTACHMENT. WHEN SLOTTED CEILING RUNNER (ITEM 2A1) IS USED, STEEL STUDS SECURED TO SLOTTED CEILING RUNNER WITH NO. 8 BY 1/2 IN. (13 MM) LONG WAFER HEAD STEEL SCREWS AT MIDHEIGHT OF SLOT ON EACH SIDE OF WALL. STUD SPACING NOT TO EXCEED 24 IN. (610 MM) OC. WHEN VERTICAL DEFLECTION CEILING RUNNER (ITEM 2A2) IS USED, STEEL STUDS SECURED TO SLOTTED VERTICAL DEFLECTION CLIPS, THROUGH THE BUSHINGS, WITH STEEL SCREWS AT MIDHEIGHT OF EACH SLOT. STUD SPACING NOT TO EXCEED 24 IN. (610 MM) OC.
- S. C. GYPSUM BOARD* — FOR 1 HR ASSEMBLY, ONE LAYER OF 5/8 IN. (16 MM) THICK GYPSUM BOARD IS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. FOR 2 HR ASSEMBLY, TWO LAYERS OF 5/8 IN. (16 MM) THICK GYPSUM BOARD IS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. FOR BOTH HOURLY RATINGS, A NOMINAL 3/4 IN. (19 MM) GAP SHALL BE MAINTAINED BETWEEN THE TOP OF GYPSUM BOARD AND THE BOTTOM OF SURFACE OF THE CONCRETE FLOOR. THE SCREWS ATTACHING THE GYPSUM BOARD TO STUDS AT THE TOP OF THE WALL SHALL BE LOCATED 1 IN. (25 MM) BELOW THE BOTTOM EDGE OF THE CEILING RUNNER. THE HOURLY FIRE RATING OF THE JOINT SYSTEM IS DEPENDENT ON THE HOURLY RATING OF THE WALL.
- T. 3. FILL, VOID OR CAVITY MATERIAL* - SEALANT — MAX SEPARATION BETWEEN THE BOTTOM OF FLOOR AND TOP OF WALL IS 3/4 IN. (19 MM). THE JOINT SYSTEM IS DESIGNED TO ACCOMMODATE A MAX 17 PERCENT COMPRESSION OR EXTENSION FROM ITS INSTALLED WIDTH. MIN 5/8 IN. (16 MM) OR 1-1/4 IN. (32 MM) THICKNESS OF FILL MATERIAL FOR 1 AND 2 HR RATED WALL ASSEMBLIES, RESPECTIVELY. INSTALLED ON EACH SIDE OF THE WALL BETWEEN THE TOP OF THE GYPSUM BOARD AND THE BOTTOM OF THE CONCRETE FLOOR, FLUSH WITH THE SURFACE OF THE WALL.
- U. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 FLEXIBLE FIRESTOP SEALANT
- V. INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.



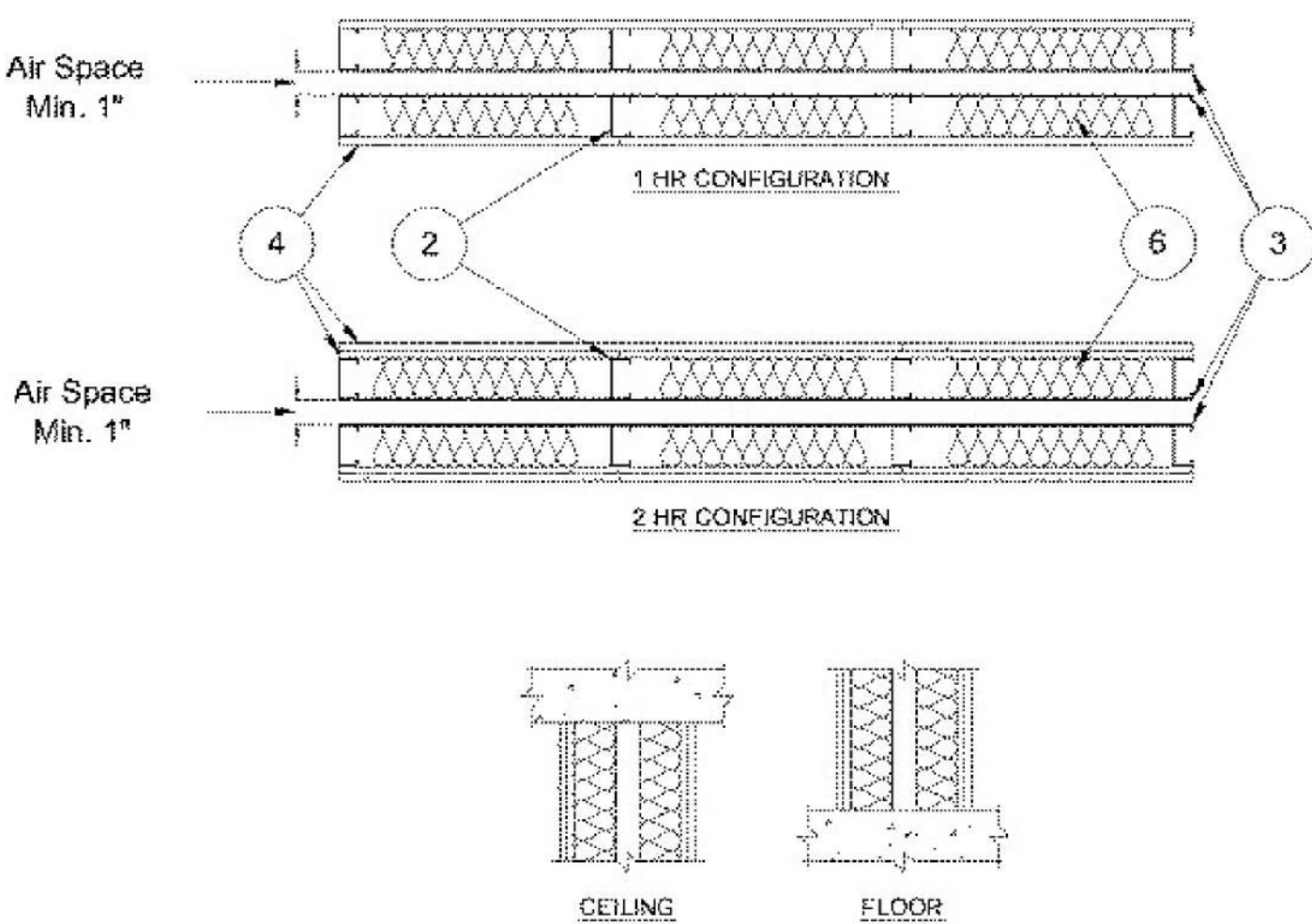
BACK TO BACK ELECTRICAL OUTLETS DETAIL
N.T.S.

- NOTE:
1. BACK-TO-BACK OUTLET BOXES ON RATED WALLS AND PARTY WALLS SHALL BE SEPARATED BY A MINIMUM 24"
2. ASSURE SOUND ATTENUATION BATTS ARE PROVIDED BETWEEN UNITS

Design No. V446

August 18, 2015

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States



1. Steel Floor and Ceiling Tracks — (Not Shown) - Top and bottom tracks of wall assemblies shall consist of steel members, min 0.034 in. thick galv steel (0.033 in. min bare metal thickness, 350T125-33) steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.
2. Steel Studs — Corrosion protected steel studs, min 3-1/2 in. wide by min 1-5/8 in. deep with min 1/2 in. stiffeners, min 0.034 in. thick galv steel (0.033 in. min bare metal thickness, 350S162-33), cold formed, shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC. Studs attached to floor and ceiling tracks with four min 1/2 in. long No. 8 pan head screws, one through each face. Studs may be offset in adjacent rows.
3. Bracing — A min 1-1/2 in. wide by min 33 mil steel strap, fastened to the interior side of the steel studs at the mid-height with one min 1/2 in. long No. 8 pan head screw at each stud. Solid bracing cut from steel runners or studs placed between outer studs and at each end of the steel strap at mid-height. Solid bracing is screw-attached with one min 1/2 in. long No. 8 pan head screw per flange or two min 1/2 in. long No. 8 pan head screws per web. As an alternate, any bracing method in accordance with the Cold-Formed Steel Framing Design Guide by the American Iron and Steel Institute shall be acceptable.
4. Gypsum Board* — Spacing between adjacent rows of studs is a minimum of 1 in. Min. 5/8 in. thick gypsum wallboard 4 ft wide. Applied vertically with joints centered over studs and staggered 24 in. OC on opposite sides of studs on each exterior side of the assembly. The thickness and number of layers and percent of design load for the 1 hr. and 2 hr ratings are as follows:

Rating	Wallboard Protection Exterior Sides of Wall - No. of Layers & Thkns of Board in. Each Layer	% of Design Load
1 hr	1 layer, 5/8 in. thick	80
2 hr	2 layers, 5/8 in. thick	100

CGC INC — TYPE AR, IP-AR OR SCX.

UNITED STATES GYPSUM CO — TYPE AR, FRX-G, IP-AR OR SCX.

USG MEXICO S A DE CV — TYPE AR, IP-AR OR SCX.

5. FASTENERS — (NOT SHOWN) - SCREWS USED TO ATTACH WALLBOARD TO STUDS. SELF-TAPPING BUGLE HEAD SHEET PEE TYPE, SPACED 12 IN. OC. ALONG THE PERIMETER AND IN THE FIELD. FIRST LAYER OF WALLBOARD FASTENED WITH MIN 1-1/4 IN. LONG NO. 6 SCREWS. SECOND LAYER OF WALLBOARD FASTENED WITH MIN 1-5/8 IN. LONG NO. 6 SCREWS.
6. BATTS AND BLANKETS* — PLACED IN STUD CAVITIES. ANY GLASS FIBER INSULATION BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING CHARACTERISTICS AND/OR FIRE RESISTANCE, HAVING A MIN DENSITY OF 0.5 PCF. SEE BATTS AND BLANKETS (BKNV AND/OR BZJ2) CATEGORIES FOR NAMES OF CLASSIFIED COMPONENTS.
7. JOINT TAPE AND COMPOUND — (NOT SHOWN) - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYER. PAPER TAPE, 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYER.
8. MINERAL AND FIBER BOARD* — (OPTIONAL, NOT SHOWN) — FOR OPTIONAL USE AS AN ADDITIONAL LAYER ON ONE OR BOTH SIDES OF THE WALL. NOM 1/2 IN. THICK, 4 FT WIDE WITH LONG DIMENSION PARALLEL AND CENTERED OVER STUDS. ATTACHED TO STUDS AND FLOOR AND CEILING RUNNERS WITH 1-5/8 IN. LONG TYPE S STEEL SCREWS, SPACED 12 IN. OC. THE REQUIRED UL CLASSIFIED GYPSUM BOARD LAYERS(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.
- HOMASOTE CO — HOMASOTE TYPE 440-32

* 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 2015-08-18

THE APPEARANCE OF A COMPANY'S NAME OR PRODUCT IN THIS DATABASE DOES NOT IN ITSELF ASSURE THAT PRODUCTS SO IDENTIFIED HAVE BEEN MANUFACTURED UNDER UL'S FOLLOW-UP SERVICE. ONLY THOSE PRODUCTS BEARING THE UL MARK SHOULD BE CONSIDERED TO BE CERTIFIED AND COVERED UNDER UL'S FOLLOW-UP SERVICE. ALWAYS LOOK FOR THE MARK ON THE PRODUCT.

UL PERMITS THE REPRODUCTION OF THE MATERIAL CONTAINED IN THE ONLINE CERTIFICATION DIRECTORY SUBJECT TO THE FOLLOWING CONDITIONS: 1. THE GUIDE INFORMATION, ASSEMBLIES, CONSTRUCTIONS, DESIGNS, SYSTEMS, AND/OR CERTIFICATIONS (FILES) MUST BE PRESENTED IN THEIR ENTIRETY AND IN A NON-MISLEADING MANNER, WITHOUT ANY MANIPULATION OF THE DATA (OR DRAWINGS). 2. THE STATEMENT "REPRINTED FROM THE ONLINE CERTIFICATIONS DIRECTORY WITH PERMISSION FROM UL" MUST APPEAR ADJACENT TO THE EXTRACTED MATERIAL. IN ADDITION, THE REPRINTED MATERIAL MUST INCLUDE A COPYRIGHT NOTICE IN THE FOLLOWING FORMAT: "© 2019 UL LLC".

AA C00066

HARTER - ADAMS P.A.
ARCHITECTS AND PLANNERS
377 MAULDIN AVE., SUITE 200, LAKE CITY, FLORIDA 32701
PHONE 407.647.7577 FAX 407.647.2602

TOWNEPLACE
SUITES®
BY MARRIOTT

TOWNEPLACE SUITES HOTEL
LAKE CITY HOTELS, INC.
NW COMMERCIAL DRIVE, LAKE CITY, FLORIDA

REVISION

JOB NO.

DATE

SHEET

LS1.10

OF