INTERNATIONAL SYMBOL OF ACCESSIBILITY ON PARKING SIGN SHOWN ON WHITE 6"H x 6"W BLUE FIELD WITH 1/2" RADIUS CORNERS

WHITE RETROREFLECTIVE BACKGROUND SHEETING

WHITE RETROREFLECTIVE BACKGROUND SHEETING

ARS SEC28884

ACCESSIBLE

VAN

ACCESSIBLE

VAN ACCESSIBLE SIGN WHERE APPLICABLE

NOTES:

1 THE ROTTOM OF THE SIGN MILEST RE 6" 4" ABOVE FINISHED CRAPE OR 7" O" MILEST RIAD ACCED IN DEDESTRIAN.

NOTES:

1. THE BOTTOM OF THE SIGN MUST BE 5'-4" ABOVE FINISHED GRADE OR 7'-0" WHEN PLACED IN PEDESTRIAN CIRCULATION PATH.

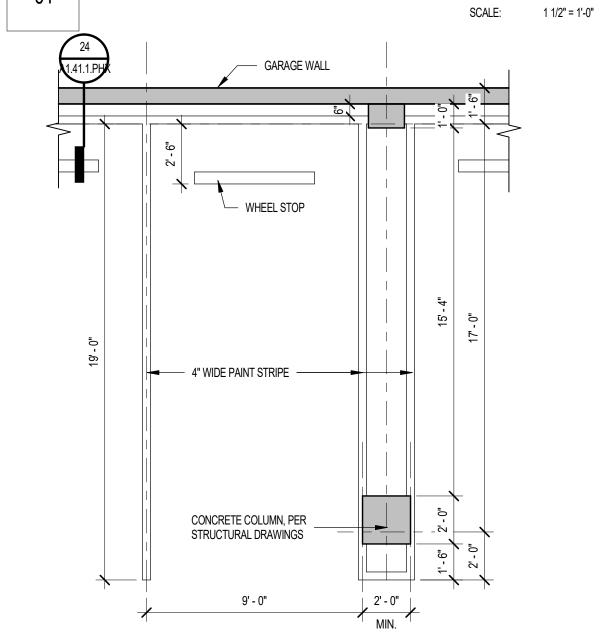
2. SIGN MUST BE CENTERED ON THE PARKING SPACE AND PLACED 2.5 FEET FROM FACE OF CURB. IN PARKING LOT SITUATIONS WITHOUT CURBING, SIGN MAY BE PLACED AT THE END OF THE STALL. 7

3. VAN ACCESSIBLE TAB TO BE USED, AS REQUIRED.

O1 ACCESSIBLE PARKING SIGN (CITY OF CHANDLER)

SCALE:

EXCERPT OF CITY OF CHANDLER DETAIL C-611



TYPICAL PARKING SPACE AT GARAGE (CITY OF CHANDLER)

ACCESSIBLE ROUTE
1:50 MAX.
SLOPE

WHEEL STOP

CURB & SIDEWALK SHALL BE
FLUSH WITH PAVEMENT

4" WIDE PAINTED PARKING
STRIPES DIFFERENT COLOR
THAN STD. PARKING
INTERNATIONAL ACCESSIBLE SYMBOL
BLUE BACKGROUND & YELLOW
SYMBOL / OUTLINE., PER DETAIL 7//A1.40

MANEUVERING AREA TO BE 1
IN 50 IN ANY DIRECTION.

TYPICAL ACCESSIBLE PARKING STALL (CITY OF CHANDLER)

5' - 0"

SCALE: 3/16" = 1'-0"

Notice of alternate billing (or payment) cycle

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WorldHQ@ORBArch.com

**PRELIMINARY** 

**NOT FOR** 

CONSTRUCTION

CLIENT NAME
CLIENT ADDRESS
CLIENT PHONE NUMBER
and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this work

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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

A 1.41.1 CHD

SITE DETAILS CITY OF CHANDLER



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work.

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DATE: SEPTEMBER 11, 2024 ORB #: 00-000 A1.41.1.FLG SITE DETAILS CITY OF FLAGSTAFF

ALL LETTERING SERIES 'C' GREEN
COLOR INTERNATIONAL SYMBOL OF RESERVED ACCESSIBILITY ON PARKING SIGN PARKING SHOWN ON WHITE 6"H x 6"W BLUE FIELD WITH 1/2" RADIUS CORNERS — WHITE
REFLECTIVE
BACKGROUND
(TYP.) HANDICAP PATE OR PERMIT - 3/8" WIDE GREEN COLOR BAND ALL LETTERING SERIES 'D' GREEN COLOR \_ACCESSIBLE\_\_ - 3/8" WIDE GREEN COLOR BAND - VAN ACCESSIBLE SIGN WHERE APPLICABLE

NOTES:

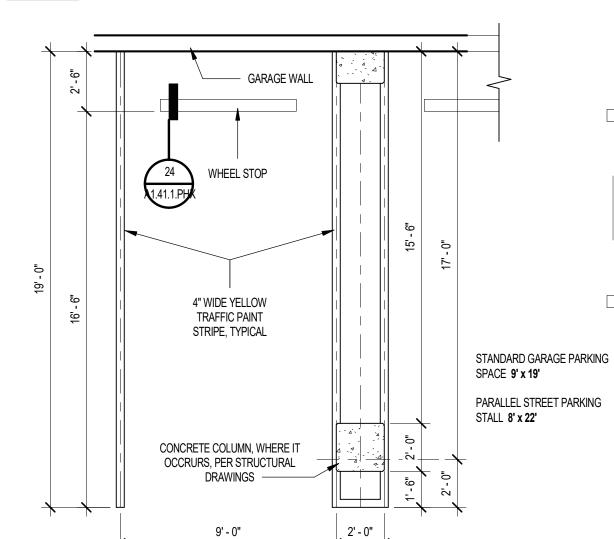
1. THE BOTTOM OF THE SIGN SHALL BE 60" MIN. ABOVE FINISH GRADE.

2. SIGNS SHALL BE PROPERLY CENTERED WITHIN THE PARKING SPACE.

- SIGNS SHALL BE PROPERLY CENTERED WITHIN THE PARKING SPACE.
   THE SIGN FACE SHOULD BE LOCATED NO FARTHER THAN 6 FEET FROM THE FRONT OF EACH PARKING SPACE.
   ALL LETTERING SERIES "C", GREEN COLOR
   INTERNATIONAL SYMBOL OF ACCESSIBILITY SHOWN WHITE ON 6" X "6" BLUE FIELD WIH 1/2" RADIUS CORNERNS.
   THE VAN ACCESSIBLE SIGN SHALL BE CENTERED UNDER THE ACCESSIBLE PARKING SIGN AS SHOWN.

# City, State WorldHQ@ORBArch.com

ACCESSIBLE PARKING SIGN (CITY OF GILBERT) SCALE: 1 1/2" = 1'-0"



**PRELIMINARY NOT FOR** CONSTRUCTION



TYPICAL PARKING SPACE AT GARAGE (CITY OF GILBERT) SCALE: 1/4" = 1'-0"

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request. Contractor must verify all dimensions at project before proceeding with this LIGHT FIXTURE - PER ELECTRICAL, ---- METAL DECK PAINTED RECESS IN CHANNEL -Do not reproduce these drawings and specifications without the expressed written permission of the Architect. The drawings and specifications are instruments of service and shall remain the property of the Architect whether the project for which they are made is executed or not. These drawings and specifications shall not be used by anyone on any other projects, for additions to this project, or for completion of this project by others except by the expressed written permission of the Architect. 19' - 0" © ORB Architecture, LLC 2021 COLUMN - PAINT EXPOSED 6" HIGH FASCIA ELEMENTS TO MATCH ALL AROUND REVISIONS/SUBMITTALS CONC. BUILDINGS CURB/WHEEL STOP WHERE INDICATED ON DLAN

NOTES:
1. DESIGN TO BE COMPATIBLE WITH BUILDING, PAINTED TO MATCH RAILINGS.
2. SHOP DRAWINGS AND CALCULATIONS REQUIRED TO BE DRAWN AND SEALED BY A REGISTERED STRUCTURAL

4'-0" MIN. 2' - 6"

ACCESSIBLE PARKING
ROUTE OVERHANG

CARPORT UNDER SEPARATE PERMIT & REVIEW, DETAIL IS FOR REFERENCE ONLY.
 ALL LIGHT FIXTURES ARE TO BE FLUSH-MOUNTED TO THE UNDERSIDE OF THE CANOPY AND MUST BE SCREENED BY THE CANOPY FASCIA.

CONCRETE FOOTING PER
MANUFACTURER SPECIFICATIONS

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

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SITE DETAILS CITY OF GILBERT

TYPICAL CARPORT DETAIL CITY OF GILBERT



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work.

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DATE: SEPTEMBER 11, 2024 ORB #: 00-000 A1.41.1.GLN SITE DETAILS CITY OF GLENDALE

Street Adress City, State



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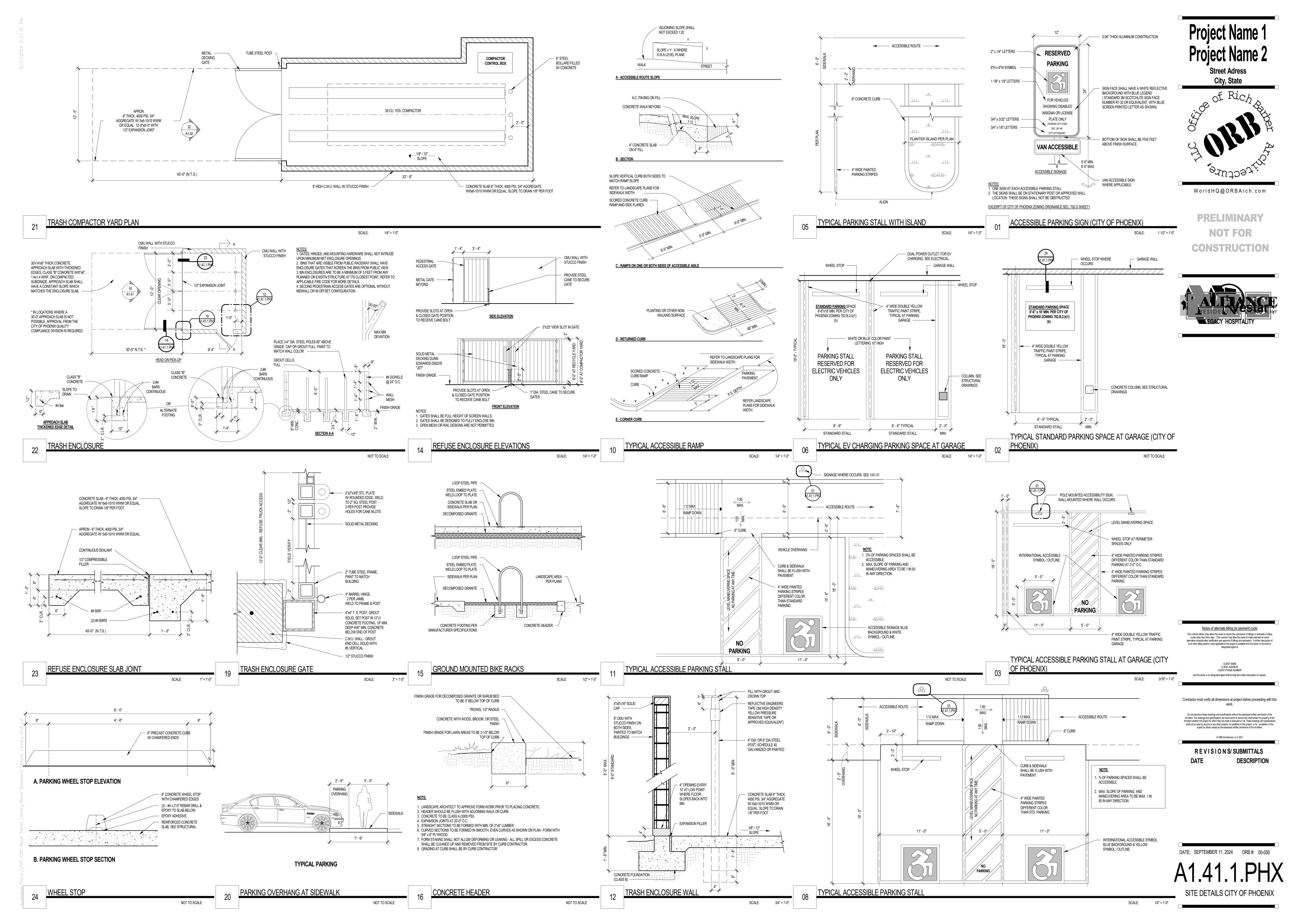
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DATE DESCRIPTION

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A 1 4 1 1 NSA

SITE DETAILS CITY OF MESA



A) FLEXIBLE P.E. POST WITH SURFACE MOUNT BASE - EPOXY TO PAVEMENT SURFACE B) PERFORATED GALVANIZED TUBING PER COS DETAIL 2131. INSTALL IN LANDSCAPE AREAS ONLY. 2" LETTERS — RESERVED **PARKING** C) SURFACE MOUNT TO STRUCTURE D) MOUNT AS DETAILED ON PLANS 6" SYMBOL ROYAL BLUE SOLID WITH WHITE SYMBOL -0.875" LETTERS — FOR VEHICLES SHOWING DISABLED GREEN BORDERS AND TEXT, AND BLUE SYMBOL ON WHITE RETROFLECTIVE INSIGNIA OR LICENSE PLATE ONLY BACKGROUND (TYPICAL). 0.5" LETTERS ----POSTED PURSUANT TO BACKGROUND: ASTM TYPE IV SHEETING COPY: SAME AS ABOVE SCOTTSDALE CITY CODE SUBSTRATE 0.080 GUAGE TREATED SEC. 17-124 VAN ACCESSIBLE BOTTOM OF SIGN SHALL BE FIVE FT. ABOVE FINISH SURFACE FIVE FT. ACCESSIBLE SIGNAGE - VAN ACCESSIBLE SIGN ONE SIGN AT EACH ACCESSIBLE PARKING WHERE APPLICABLE

MOUNTING OPTIONS (SEE PLANS)

City, State

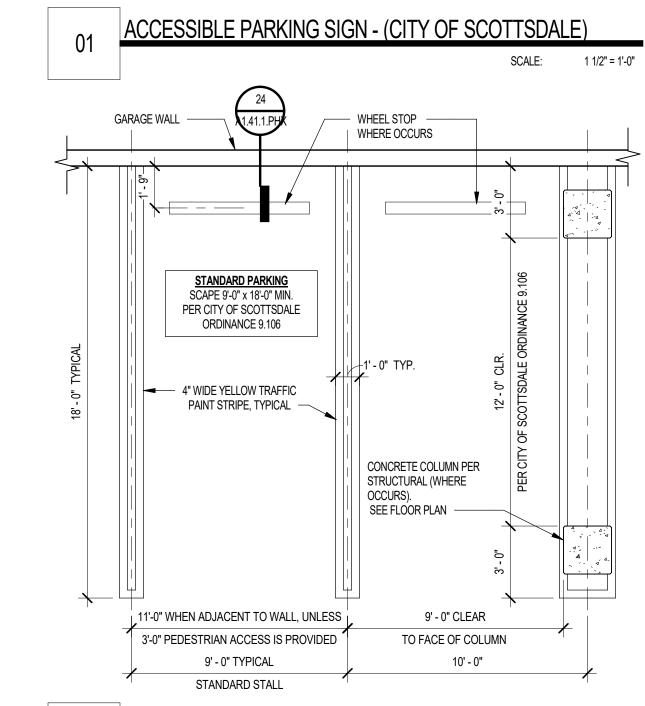
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**PRELIMINARY** 

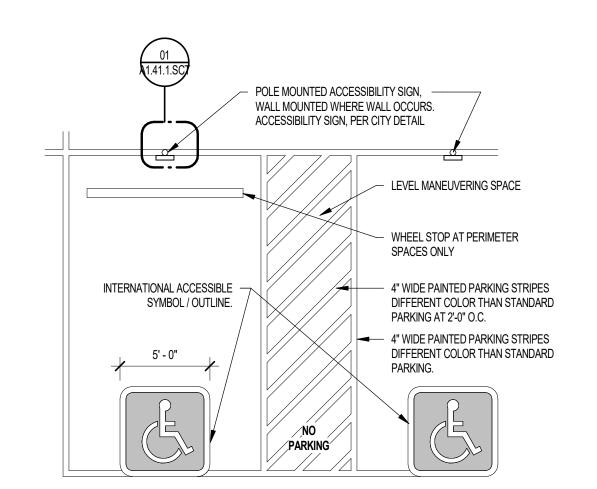
**NOT FOR** 

CONSTRUCTION

# EXCERPT OF DETAIL 2124 OF CITY OF SCOTTSDALE STANDARD DETAILS







# TYPICAL ACCESSIBLE PARKING STALL AT GARAGE (CITY

OF SCOTTSDALE)

SCALE: 3/16" = 1'-0"

SCALE: 1/4" = 1'-0"

Contractor must verify all dimensions at project before proceeding with this

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CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER

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DESCRIPTION

9/11/2024 2:21:32 PM

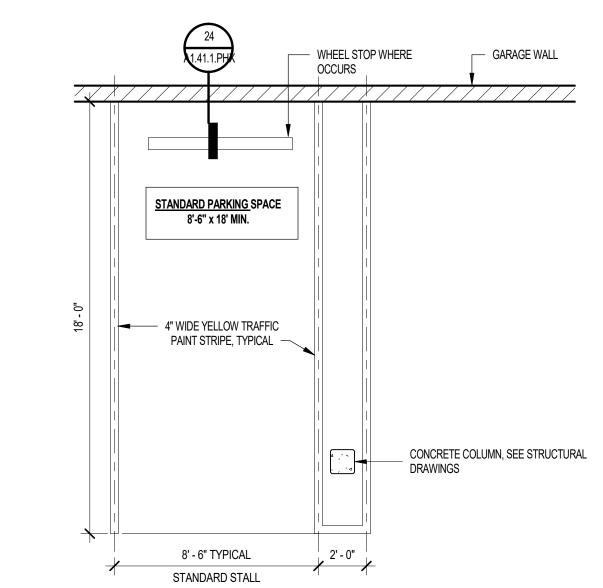
ALL LETTERING SERIES 'C' GREEN
COLOR INTERNATIONAL SYMBOL OF RESERVED ACCESSIBILITY ON PARKING SIGN **PARKING** SHOWN ON WHITE 6"H x 6"W BLUE FIELD WITH 1/2" RADIUS CORNERS -WHITE
REFLECTIVE
BACKGROUND
(TYP.)

ACCESSIBLE
PATE OR PLACARD - 3/8" WIDE GREEN COLOR BAND (TYP.) A.R.S. SEC.28-884 & TEMPE CITY CODE - ALL LETTERING SERIES 'D' GREEN COLOR ACCESSIBLE - 3/8" WIDE GREEN COLOR BAND - VAN ACCESSIBLE SIGN WHERE APPLICABLE NOTES:

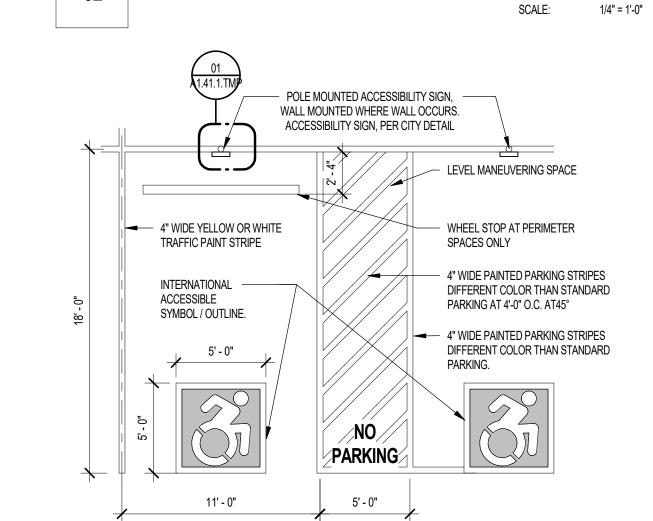
1. THE BOTTOM OF THE SIGN SHALL BE 60" MIN. ABOVE FINISH FLOOR OR GROUND SURFACE.

2. SIGNS SHALL BE PROPERLY CENTERED ON THE PARKING SPACE. THE SIGN FACE SHOULD BE LOCATED NO FARTHER THAN 6 FEET FROM THE FRONT OF EACH PARKING SPACE.
 THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE PLACED ON THE PAVEMENT WITHIN EACH ACCESSIBLE PARKING SPACE. A BLUE BACKGROUND WITH YELLOW OR WHITE BORDER MAY SUPPLEMENT THE WHEELCHAIR PROVIDE ONE SIGN AT EACH ACCESSIBLE PARKING STALL.
 THE SIGNS SHALL BE ON STATIONARY POST OR APPROVED WALL LOCATION. THESE SIGNS SHALL NOT BE OBSTRUCTED.

# ACCESSIBLE PARKING SIGN (CITY OF TEMPE)



# TYPICAL STANDARD PARKING SPACE AT GARAGE (CITY OF



# NOTES: 1. REQUIRED WIDTH DIMENSIONS OF ACCESSIBLE PARKING SPACES AND ACCESS ISLES ARE MEASURED TO

CENTERLINE OF STRIPING.

2. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE PLACED ON THE PAVEMENT WITHIN EACH ACCESSIBLE PARKING SPACE. A BLUE BACKGROUND WITH YELLOW OR WHITE BORDER MAY SUPPLEMENT THE WHEELCHAIR SYMBOI

# TYPICAL ACCESSIBLE PARKING STALL AT GARAGE (CIT' OF TEMPE)

and the owner or its designated agent shall provide this written description on request.

SCALE:

3/16" = 1'-0"

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SCALE: 1 1/2" = 1'-0"

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A 1 4 1 1 TMP

SITE DETAILS CITY OF TEMPE

Street Adress City, State



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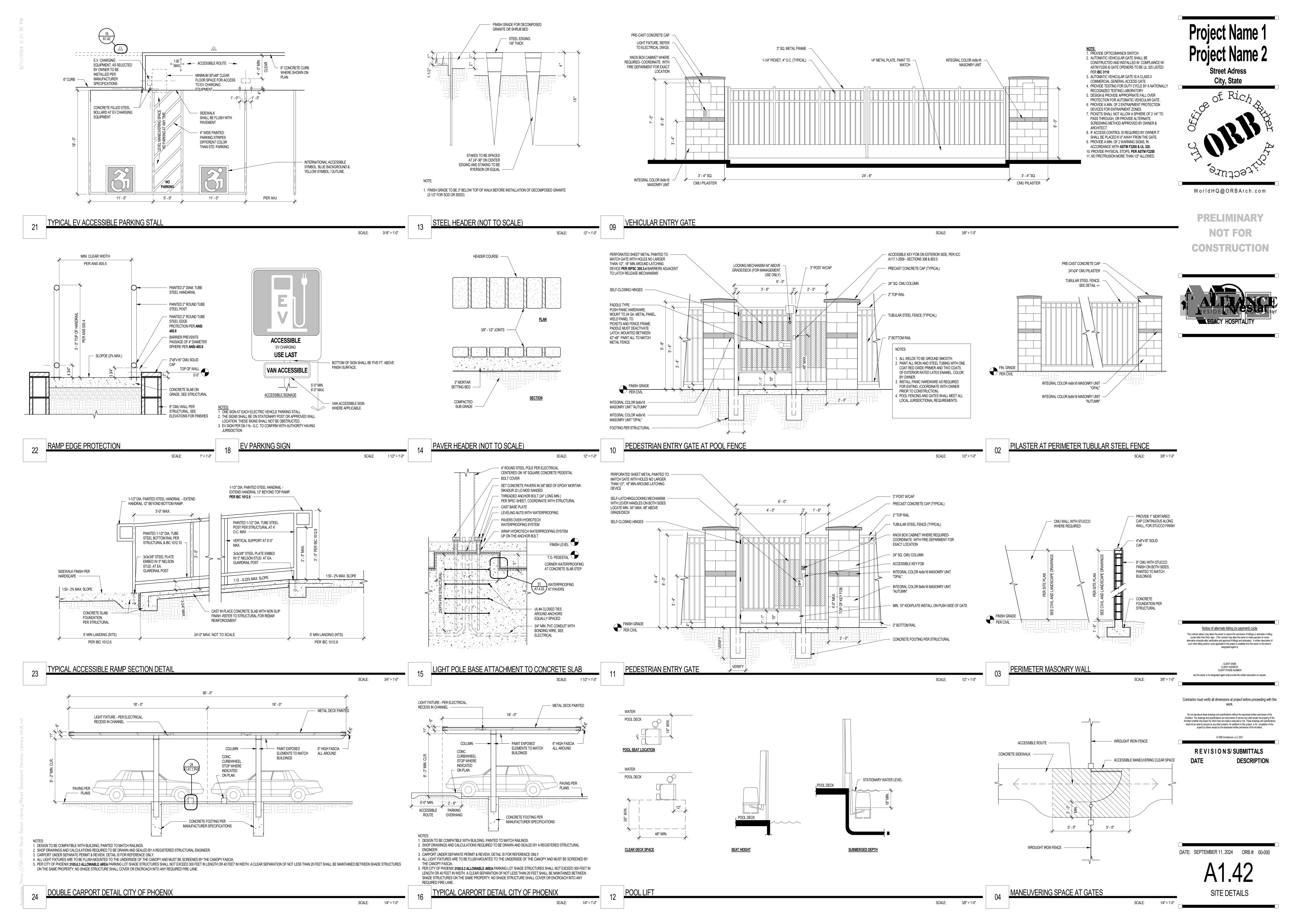
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SITE DETAILS CITY OF TUCSON



- EXTENDED FIRE WALL CONSTRUCTION; PER

 $_{\neg}$  2-HR FIRE WALL @ UNIT/ UNIT EXTENDED 30" ABOVE ROOF  $_{\neg}$ 

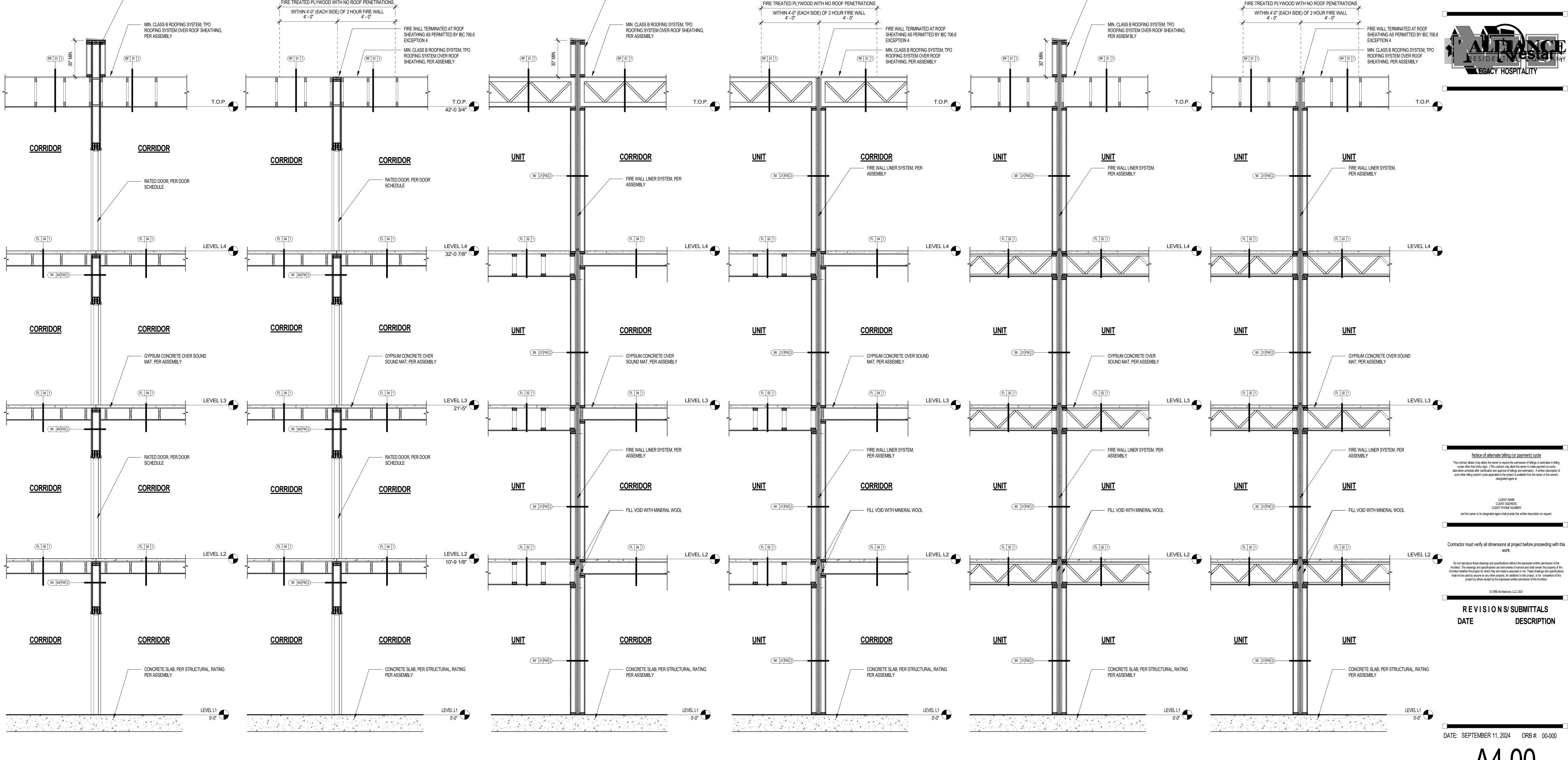
2-HR FIRE WALL @ UNIT / UNIT

SHEATHING



FIRE WALL - WALL SECTIONS

SCALE: 3/8" = 1'-0"



2-HR FIRE WALL @ UNIT / CORRIDOR

EXTENDED FIRE WALL CONSTRUCTION; PER

 $_{\scriptscriptstyle 
m J}$  2-HR FIRE WALL @ UNIT/ CORRIDOR EXTENDED 30" ABOVE

ROOF SHEATHING

- EXTENDED FIRE WALL CONSTRUCTION; PER

2-HR FIRE WALL @ CORRIDOR / CORRIDOR CONNECTION EXTENDED 30" ABOVE ROOF SHEATHING

FIRE TREATED PLYWOOD WITH NO ROOF PENETRATIONS

2-HR FIRE WALL @ CORRIDOR / CORRIDOR

GENERAL FIRE PROTECTION NOTES

GENERAL FIRE PROTECTION NOTES

1. PER IBC SECTION 708.4.2, IN COMBUSTIBLE CONSTRUCTION WHERE FIRE PARTITIONS DO NOT EXTEND TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING, DECK OR SLAB ABOVE, DRAFT STOPPING SHALL BE INSTALLED IN THE SPACE ABOVE AND ALONG THE LINE OF THE FIRE PARTITION PER SECTION 718.3.1 FOR FLOORS AND SECTION 718.4.1 FOR ATTICS (ATTIC AS DEFINED IN IBC CHAPTER 2, IS THE SPACE BETWEEN THE CEILING FRAMING OF THE TOP STORY AND THE UNDERSIDE OF THE ROOF). THE ATTIC SPACE SHALL BE SUBDIVIDED BY DRAFT STOPS INTO AREAS NOT EXCEEDING 3,000 SQUARE FEET OR ABOVE EVERY TWO DWELLING UNITS, WHICHEVER IS SMALLER PER IBC 708.4.2 - EXCEPTION 4

- 2. ALL THROUGH AND MEMBRANE PENETRATIONS OF FIRE RESISTIVE HORIZONTAL ASSEMBLIES AND FIRE RESISTANCE RATED WALL ASSEMBLIES SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORIES LISTINGS FOR FIRESTOP SYSTEMS. REFER TO FIRESTOPPING DETAIL SHEETS FOR ADDITIONAL REQUIREMENTS. THE CONTRACTOR 13. INSULATION TYPES – IN EACH SYSTEM CONTAINING BATT OR BLANKET INSULATION THE INSULATION IS SPECIFIED TO BE SHALL SUBMIT SHOP DRAWING DETAILS FURNISHED BY THE MANUFACTURER OF THE FIRESTOP SYSTEM, WHICH SHOW COMPLETE CONFORMANCE TO THE UL LISTING, TO THE ARCHITECT, AND SUCH DRAWINGS SHALL BE AVAILABLE TO THE CITY INSPECTORS. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED.
- 3. CONCEALED INSTALLATION (2018 IBC SECTION 720.2). INSULATING MATERIALS, WHERE CONCEALED AS INSTALLED IN BUILDINGS OF ANY TYPE OF CONSTRUCTION, SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450 EXCEPTION: CELLULOSIC FIBER LOOSE-FILL INSULATION COMPLYING WITH THE REQUIREMENTS OF SECTION 720.6 SHALL NOT BE REQUIRED TO MEET A FLAME SPREAD INDEX REQUIREMENT BUT SHALL BE REQUIRED TO MEET A SMOKE DEVELOPED INDEX OF NOT MORE THAN 450 WHEN TESTED IN ACCORDANCE WITH CAL/ULC S102.2. 4. FACINGS (2018 IBC SECTION 720.2.1) - WHERE SUCH MATERIALS ARE INSTALLED IN CONCEALED SPACES IN BUILDINGS OF TYPES III,
- IV, OR V CONSTRUCTION, THE FLAME SPREAD AND SMOKE DEVELOPED LIMITATIONS DO NOT APPLY TO FACINGS, COVERINGS, AND LAYERS OF REFLECTIVE FOIL INSULATION THAT ARE INSTALLED BEHIND AND IN SUBSTANTIAL CONTACT WITH THE UNEXPOSED SURFACE OF THE CEILING, WALL OR FLOOR FINISH. 5. LOOSE-FILL INSULATION (2018 IBC SECTION 720.4) – LOOSE-FILL INSULATION MATERIALS THAT CANNOT BE MOUNTED IN THE ASTM
- E84 OR UL 723 APPARATUS WITHOUT A SCREEN OR ARTIFICIAL SUPPORTS SHALL COMPLY WITH THE FLAME SPREAD AND SMOKE-DEVELOPED LIMITS OF SECTIONS 720.2 AND 720.3 WHEN TESTED IN ACCORDANCE WITH CAN/ULC S102.2. 6. CAULKING AND SEALANTS – APPLY A BEAD OF SEALANT AROUND THE PARTITION PERIMETER, AND AT THE INTERFACE BETWEEN WOOD OR STEEL FRAMING AND GYPSUM BOARD PANELS TO CREATE AN AIR BARRIER.

GYPSUM ASSOCIATION GA 600-2021- GENERAL EXPLANATORY NOTES - FIRE PERFORMANCE OF SYSTEMS 1. NAILS - NAILS SHALL COMPLY WITH ASTM F547 STANDARD TERMINOLOGY OF NAILS FOR USE WITH WOOD AND WOOD-BASED MATERIALS OR ASTM C514 STANDARD SPECIFICATION FOR NAILS FOR THE APPLICATION OF GYPSUM WALLBOARD. OTHER NAILS. SUITABLE FOR THE INTENDED USE, AND HAVING DIMENSIONS NOT LESS THAN THOSE SPECIFIED IN THIS MANUAL, SHALL BE

- 2. FASTENERS FASTENERS INSTALLED ALONG THE EDGES OF GYPSUM PANELS SHALL BE PLACED ALONG THE PAPER BOUND EDGES ON THE LONG DIMENSION OF THE PANEL. FASTENERS AT THE END SHALL BE PLACED ALONG MILL OR FIELD CUT ENDS ON THE SHORT DIMENSION. FASTENERS ON THE PERIMETER OF THE PANEL SHALL BE PLACED ALONG BOTH EDGES AND ENDS. INDICATED FASTENER SPACINGS ARE MAXIMUMS. CLOSER FASTENER SPACING MAY REDUCE THE STC.
- 3. SCREWS SCREWS MEETING ASTM C1002 STANDARD SPECIFICATION FOR STEEL SELF-PIERCING TAPPING SCREWS FOR APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO WOOD STUDS OR STEEL STUDS SHALL BE PERMITTED TO BE SUBSTITUTED FOR THE PRESCRIBED NAILS, ONE FOR ONE, WHEN THE LENGTH AND HEAD DIAMETER OF THE SCREWS EQUAL OR EXCEED THOSE OF THE NAILS SPECIFIED IN THE TESTED SYSTEM, AND THE SCREW SPACING DOES NOT EXCEED THE SPACING SPECIFIED FOR THE NAILS IN THE TESTED SYSTEM.
- 4. SCREW SPACING TOLERANCE SCREWS SHALL BE SPACED AS INDICATED IN THE SYSTEM DETAIL, WITH NO ONE FASTENER EXCEEDING THE SPECIFIED SPACING BY MORE THAN 1 INCH.
- 5. PANEL APPLICATION VERTICALLY APPLIED GYPSUM PANELS SHALL HAVE THE EDGES PARALLEL TO FRAMING MEMBERS. HORIZONTALLY APPLIED GYPSUM PANELS SHALL HAVE THE EDGES AT RIGHT ANGLES TO THE FRAMING MEMBERS. INTERMEDIATE VERTICAL FRAMING MEMBERS ARE THOSE BETWEEN THE VERTICAL EDGES OR ENDS OF THE PANELS. 6. FINISHING - UNLESS OTHERWISE SPECIFIED, THE FACE LAYERS OF ALL SYSTEMS, EXCEPT THOSE WITH PRE-DECORATED OR METAL COVERED SURFACES OR EXTERIOR GYPSUM SHEATHING PANELS, SHALL HAVE JOINTS TAPED WITH EITHER PAPER TAPE OR GLASS FIBER MESH TAPE (MINIMUM LEVEL 1 AS SPECIFIED IN GA-214 RECOMMENDED LEVELS OF FINISH FOR GYPSUM BOARD, GLASS MAT AND FIBER-REINFORCED GYPSUM PANELS) AND FASTENER HEADS TREATED. BASE LAYERS IN MULTI-LAYER SYSTEMS SHALL NOT BE REQUIRED TO HAVE JOINTS OR FASTENERS TAPED OR COVERED WITH JOINT COMPOUND.
- 7. JOINT STAGGERING UNLESS OTHERWISE STATED IN THE DETAILED DESCRIPTION OF THE INDIVIDUAL SYSTEM, JOINTS SHALL BE STAGGERED AS FOLLOWS: a. HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF A PARTITION IN SINGLE-LAYER APPLICATIONS SHALL BE STAGGERED NOT
- LESS THAN 12 INCHES. b. HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS ON THE SAME SIDE OF A PARTITION IN MULTI-LAYER APPLICATIONS SHALL BE STAGGERED NOT LESS THAN 12 INCHES.
- c. VERTICAL JOINTS ON OPPOSITE SIDES OF A PARTITION IN SINGLE LAYER APPLICATIONS SHALL NOT OCCUR ON THE SAME STUD. 8. PARTITIONS EXTENDING ABOVE THE CEILING - WHEN A FIRE-RESISTANCE RATED PARTITION EXTENDS ABOVE THE CEILING, THE GYPSUM PANEL JOINTS OCCURRING ABOVE THE CEILING NEED NOT BE TAPED AND FASTENERS NEED NOT BE COVERED WHEN ALL OF THE FOLLOWING CONDITIONS ARE MET:
- a. THE CEILING IS PART OF A FIRE-RESISTANCE RATED FLOOR-CEILING SYSTEM; b. ALL VERTICAL JOINTS OCCUR OVER FRAMING MEMBERS;
- c. HORIZONTAL JOINTS ARE EITHER STAGGERED 24 INCHES ON CENTER ON OPPOSITE SIDES OF THE PARTITION OR ARE COVERED WITH STRIPS OF GYPSUM PANEL NOT LESS THAN 6 INCHES WIDE; OR THE PARTITION IS A TWO-LAYER SYSTEM WITH JOINTS STAGGERED 16 INCHES OR 24 INCHES ON CENTER: AND d. THE PARTITION IS NOT PART OF A SMOKE OR SOUND CONTROL SYSTEM. WHERE JOINT TREATMENT IS DISCONTINUED AT OR JUST ABOVE THE CEILING LINE, THE VERTICAL JOINT SHALL BE CROSS TAPED AT THIS LOCATION TO REDUCE THE POSSIBILITY OF

JOINT CRACKING. 9. **OUTLET BOXES** – METALLIC OUTLET BOXES SHALL BE PERMITTED TO BE INSTALLED IN WOOD AND STEEL STUD WALLS OR PARTITIONS HAVING GYPSUM PANEL FACINGS AND CLASSIFIED AS TWO-HOURS OR LESS. THE SURFACE AREA OF INDIVIDUAL BOXES SHALL NOT EXCEED 16 SQUARE INCHES. THE AGGREGATE SURFACE AREA OF THE BOXES SHALL NOT EXCEED 100 SQUARE INCHES 28, DISCREPANCIES WITH THE CODE - WHEN DIFFERENCES OCCUR BETWEEN PROVISIONS OF THIS MANUAL AND THE IN ANY 100 SQUARE FEET. BOXES LOCATED ON OPPOSITE SIDES OF WALLS OR PARTITIONS SHALL BE IN SEPARATE STUD CAVITIES AND SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 24 INCHES. APPROVED NON-METALLIC OUTLET BOXES SHALL BE PERMITTED AS ALLOWED BY LOCAL CODE. INSTALLING OUTLET BOXES IN SOUND CONTROL SYSTEM MAY REDUCE THE STC. 10. WATER-RESISTANT PANELS – WATER RESISTANT GYPSUM BACKING PANELS SHALL BE INSTALLED OVER OR AS PART OF THE FIRE RESISTANCE RATED SYSTEM IN AREAS TO RECEIVE CERAMIC OR PLASTIC WALL TILE OR PLASTIC FINISHED WALL PANELS. WHEN FIRE OR SOUND RATINGS ARE NECESSARY, THE GYPSUM PANELS REQUIRED FOR THE RATING SHALL EXTEND DOWN TO THE FLOOR BEHIND FIXTURES SO THAT THE CONSTRUCTION WILL EQUAL THAT OF THE TESTED SYSTEM. NOTE: THE USE OF WATER-RESISTANT GYPSUM BACKING PANELS AS A BASE FOR TILE IN WET AREAS IS REGULATED BY LOCAL

CODES. CONSULT LOCAL BUILDING CODES FOR REQUIREMENTS. 11.INSULATION IN WALLS - WHEN NOT SPECIFIED AS A COMPONENT OF A FIRE TESTED WALL OR PARTITION SYSTEM, EITHER FACED OR UNFACED MINERAL FIBER, GLASS FIBER, OR CELLULOSE FIBER INSULATION OF A THICKNESS NOT EXCEEDING THAT OF THE CAVITY DEPTH SHALL BE PERMITTED TO BE ADDED WITHIN THE STUD CAVITY. ADDING INSULATION MAY IMPROVE THE STC.

12. INSULATION IN CEILINGS - IN FLOOR-CEILING SYSTEM, THE ADDITION OR DELETION OF MINERAL OR GLASS FIBER INSULATION IN CEILING JOIST SPACES COULD POSSIBLY REDUCE THE FIRE RESISTANCE RATING. THE ADDITION OF UP TO 16-3/4 INCHES OF 0.5 PCF GLASS FIBER INSULATION (R-40), EITHER FACED, OR UNFACED BATT, OR LOOSE FILL TO ANY 1 OR 2-HOUR FIRE RESISTANCE FLOOR-CEILING OR ROOF-CEILING SYSTEM HAVING A CAVITY DEEP ENOUGH TO ACCEPT THE INSULATION IS PERMITTED, PROVIDED THAT ONE ADDITIONAL LAYER OF EITHER 1/2 INCH TYPE X OR 5/8 INCH TYPE X GYPSUM PANELS IS APPLIED TO THE CEILING. THE ADDITIONAL LAYER OF GYPSUM PANEL SHALL BE APPLIED AS DESCRIBED FOR THE FACE LAYER OF THE TESTED SYSTEM, EXCEPT THAT THE FASTENER LENGTH SHALL BE INCREASED

- BY NOT LESS THAN THE THICKNESS OF THE ADDITIONAL LAYER OF GYPSUM PANEL. EITHER MINERAL OR GLASS FIBER AND, FOR FIRE RESISTANCE, THE SYSTEM SHALL BE BUILT USING THE TYPE
- SPECIFIED. INSULATION SHALL BE PERMITTED TO BE EITHER FACED OR UNFACED. 14. **VAPOR RETARDERS** – A VAPOR RETARDER SHALL BE PERMITTED TO BE ADDED TO ANY FIRE RESISTANCE RATED SYSTEM. THE LOCATION OF THE VAPOR RETARDER SHALL BE DETERMINED BY THE DESIGN REQUIREMENT. 15. SYSTEM GROUPING – ALTHOUGH THE SYSTEMS ARE ARRANGED IN GENERAL GROUPINGS (I.E. WALLS AND INTERIOR PARTITIONS, FLOOR-CEILING, ROOF-CEILINGS, ETC.), THIS IS NOT INTENDED TO LIMIT THEIR USE ONLY TO THE SPECIFIC CATEGORY IN WHICH THEY APPEAR. FOR EXAMPLE, SYSTEMS LISTED AS SHAFT WALLS SHALL BE PERMITTED TO BE USED AS INTERIOR PARTITIONS. HOWEVER, SYSTEMS TESTED VERTICALLY (WALLS AND PARTITIONS) SHALL NOT BE PERMITTED TO BE ARBITRARILY USED IN A HORIZONTAL ORIENTATION.
- 16. STEEL STUDS AND RUNNERS UNLESS OTHERWISE SPECIFIED IN THE DETAILED DESCRIPTION, THE GENERIC STEEL STUDS AND RUNNERS USED IN NON-LOAD BEARING WALLS AND PARTITIONS IN THIS MANUAL WERE FABRICATED FROM FLAT STEEL HAVING A BASE METAL THICKNESS OF NOT LESS THAN 0.0179 INCH AND HAVE A RETURN LIP DIMENSION OF NOT LESS THAN 3/16 INCH. NOTE: TO ENSURE THAT FIRE PERFORMANCE IS MET. CONSULT THE STEEL STUD MANUFACTURER FOR PERFORMANCE DATA AND RECOMMENDATIONS BEFORE SUBSTITUTING PROPRIETARY STEEL STUDS THAT EITHER ARE FABRICATED
- FROM STEEL HAVING A BASE METAL THICKNESS OF LESS THAN 0.0179 INCH OR HAVING A RETURN LIP DIMENSION LESS THAN 3/16 INCH. 17. **RESILIENT CHANNELS** – SINGLE-FLANGED RESILIENT CHANNELS APPLIED TO CEILINGS SHALL BE ORIENTED WITH THE MOUNTING FLANGES FACING THE SAME DIRECTION. SINGLE-FLANGED RESILIENT CHANNELS APPLIED TO WALLS SHALL BE INSTALLED WITH THE MOUNTING FLANGES DOWN. THE CHANNEL AT THE FLOOR SHALL BE PERMITTED TO BE INVERTED AS NECESSARY TO FACILITATE ATTACHMENT OF THE BASE MOLDING.
- 18. STUD SIZES AND DEPTH GREATER STUD SIZES (DEPTHS) SHALL BE PERMITTED TO BE USED IN METAL OR WOOD STUD SYSTEMS. METAL STUDS OF GREATER MIL THICKNESS THAN THOSE TESTED FOR FIRE PERFORMANCE SHALL BE PERMITTED. THE ASSIGNED FIRE RATING OF ANY LOAD-BEARING SYSTEM SHALL ALSO APPLY TO THE SAME SYSTEM WHEN USED AS A NON-LOAD BEARING SYSTEM. INDICATED STUD SPACINGS ARE MAXIMUMS IN REGARD TO THE FIRE PERFORMANCE OF THE SYSTEM ONLY. GREATER MIL THICKNESS STUDS OR CLOSER STUD SPACING MAY REDUCE THE STC. GREATER STUD DEPTH MAY IMPROVE THE STC.
- 19. TRUSS SIZE AND DEPTHS SPECIFIED FLOOR-CEILING AND ROOF-CEILING FRAMING SIZES OR TRUSS DIMENSIONS ARE MINIMUMS. GREATER JOIST OR TRUSS SIZE (DEPTHS) SHALL BE PERMITTED TO BE USED IN METAL OR WOOD FRAMED SYSTEMS. INDICATED JOIST AND TRUSS SPACINGS ARE MAXIMUMS. CLOSER JOIST OR TRUSS SPACING MAY REDUCE THE STC. GREATER JOIST OR TRUSS DEPTH MAY IMPROVE THE STC. 20. **STUD ROW SPACING** – WITHIN DESIGN LIMITATIONS, THE DISTANCE BETWEEN PARALLEL ROWS OF STUDS, SUCH AS IN A CHASE WALL, SHALL BE PERMITTED TO BE INCREASED BEYOND THAT TESTED. WHEN STUD CAVITIES IN WALLS
- CONSTRUCTED OF PARALLEL ROWS OF STEEL STUDS EXCEED 9-1/2 INCHES AND CROSS BRACING IS REQUIRED, THE CROSS BRACING SHALL BE FABRICATED FROM STEEL STUDS. GREATER WALL DEPTH MAY IMPROVE THE STC, HOWEVER BRACING MAY REDUCE THE STC. 21. **SUSPENDED SYSTEMS** – SYSTEMS TESTED WITH METAL FURRING CHANNELS ATTACHED DIRECTLY TO THE BOTTOM CHORDS OF STEEL BEAMS, BAR JOISTS, OR WOOD TRUSSES OR FRAMING SHALL BE PERMITTED TO BE SUSPENDED.
- GENERALLY, FURRING CHANNELS ARE ATTACHED TO 1-1/2 INCH COLD ROLLED CARRYING CHANNELS 48 INCHES ON CENTER SUSPENDED FROM JOISTS BY 8 GA. WIRE HANGERS SPACED NOT GREATER THAN 48 INCHES ON CENTER. 22. **CEILING SYSTEM DEPTH** – FLOOR-CEILING AND ROOF-CEILING SYSTEMS WHERE FIRE TESTED AT LESS THAN 36 INCHES TOTAL DEPTH. HOWEVER, THE TOTAL DEPTH OF THE SYSTEMS, WITH EITHER DIRECTLY ATTACHED OR SUSPENDED CEILING MEMBRANES, SHALL BE PERMITTED TO EXTEND GREATER THAN 36 INCHES. 3. **LAMINATING COMPOUND** – WHERE LAMINATING COMPOUND IS SPECIFIED, TAPING, ALL-PURPOSE, OR SETTING TYPE JOINT COMPOUNDS SHALL BE PERMITTED AS DICTATED BY THE SYSTEM.
- 24. ADDITIONAL GYPSUM PANEL LAYERS ADDITIONAL LAYERS OF ANY TYPE OF GYPSUM PANELS SHALL BE PERMITTED TO BE ADDED TO ANY SYSTEM. ADDITIONAL LAYERS OF GYPSUM PANELS MAY IMPROVE THE STC. 25. **PANEL THICKNESS** - GYPSUM PANEL AND WOOD STRUCTURAL PANELS OF THE SAME TYPE MAY BE REPLACED BY THICKER PANELS OF THE SAME TYPE. LENGTH OF FASTENERS SHALL BE INCREASED ACCORDINGLY TO ACCOMMODATE THE INCREASED THICKNESS OF THE PANEL. 26. ADDITION OF OTHER PANELS - WHEN NOT SPECIFIED AS A COMPONENT OF A FIRE RESISTANCE RATED WALL OR
- PARTITION SYSTEM. CEMENTITIOUS BACKER UNITS AND/OR WOOD STRUCTURAL PANELS SHALL BE PERMITTED TO BE ADDED TO ONE OR BOTH SIDES. SUCH NON-GYPSUM PANELS SHALL BE PERMITTED TO BE APPLIED EITHER AS A BASE LAYER DIRECTLY TO THE FRAMING (UNDER THE GYPSUM PANELS), AS A FACE LAYER (OVER THE FACE LAYER OF GYPSUM PANELS), OR BETWEEN LAYERS OF GYPSUM PANELS IN MULTI-LAYER SYSTEMS. WHERE SUCH NON-GYPSUM PANELS ARE APPLIED UNDER THE GYPSUM OR BETWEEN LAYERS OF GYPSUM PANELS, THE LENGTH OF THE FASTENERS SPECIFIED FOR THE ATTACHMENT OF THE GYPSUM PANEL APPLIED OVER THE NON-GYPSUM PANELS SHALL BE INCREASED BY NOT LESS THAN THE THICKNESS OF THE NON-GYPSUM PANELS. FASTENER SPACING FOR THE GYPSUM PANEL AND THE NUMBER OF LAYERS OF GYPSUM PANELS SHALL BE AS SPECIFIED IN THE SYSTEM DESCRIPTION. . **PROPRIETARY SYSTEMS** – EACH PROPRIETARY SYSTEM LISTS SPECIFIC PRODUCTS THAT ARE ACCEPTABLE FOR USE IN THE SPECIFIC SYSTEM IN WHICH THEY ARE LISTED. CONSULT THE MANUFACTURER FOR INFORMATION ON ADDITIONAL PROPRIETARY PRODUCTS THAT ARE SUITABLE FOR USE IN SPECIFIC PROPRIETARY SYSTEMS. APPROPRIATE BUILDING CODE OR REGULATION, INCLUDING PROVISIONS OF OTHER STANDARDS REFERENCED IN THE CODE OR REGULATION, THE MOST STRINGENT PROVISION SHALL APPLY.

ACOUSTICAL AND SOUND NOTES: 1. SOUND TRANSMISSION CLASS (STC) - SHOULD BE TESTED IN ACCORDANCE WITH ASTM E90: WHICH IS THE STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS

2. IMPACT INSULATION CLASS (IIC) - SHOULD BE TESTED IN ACCORDANCE WITH ASTM E 492: WHICH IS THE STANDARD TEST METHOD FOR LABORATORY MEASUREMENT UNDER CONTROLLED CONDITIONS, IT PROVIDES AN ESTIMATE OF THE IMPACT SOUND INSULATING PERFORMANCE OF A FLOOR/CEILING ASSEMBLY. THIS IS THE AMOUNT THAT IMPACT SOUND PRODUCED BY A STANDARD TAPPING MACHINE STRIKING THE TOP SURFACE OF A FLOOR/CEILING ASSEMBLY IS REDUCED WHEN IT IS MEASURED IN THE ROOM BELOW.



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REVISIONS/SUBMITTALS

1ST BUILDING SUBMITTAL

ISSUED DATE OCTOBER 14, 2022 REVISED DATE OCTOBER 05, 2023 RENEWAL DATE OCTOBER 31, 2023

DETAINED ON LIS

REPORT HOLDER: OMEGA PRODUCTS INTERNATIONAL

EVALUATION SUBJECT: OMEGA DIAMOND WALL AND DIAMOND WALL PRO CEMENTITIOUS EXTERIOR STUCCO SYSTEMS

COMPLIANCE WITH THE FOLLOWING CODES: 2021 AND 2018 INTERNATIONAL BUILDING CODE (IBC) PROPERTIES EVALUATED: STRUCTURAL, DURABILITY, WEATHER PROTECTION, EXTERIOR WALLS IN TYPE I, II, III, IV AND V CONSTRUCTION, FIRE RESISTANCE RATED CONSTRUCTION AS DESCRIBED IN 5.2.4

2.0 STATEMENT OF COMPLIANCE THE OMEGA DIAMOND WALL AND DIAMOND WALL PRO ONE-COAT STUCCO SYSTEMS COMPLY WITH THE CODES LISTED IN SECTION 1.1, FOR THE PROPERTIES STATED IN SECTION 1.2 AND USES STATED IN SECTION 1.3, WHEN INSTALLED AS DESCRIBED IN THIS REPORT, INCLUDING THE CONDITIONS OF USE STATED IN SECTION 6.0.

3.0 DESCRIPTION 3.1 EXTERIOR WALL COVERING SYSTEM: THE OMEGA DIAMOND WALL AND DIAMOND WALL PRO ONE-COAT STUCCO SYSTEMS ARE PROPRIETARY COATINGS THAT ARE REINFORCED WITH WIRE FABRIC, METAL LATH, PLASTIC LATH, OR GLASS FIBER LATH AND APPLIED TO SUBSTRATES OF FOAM PLASTIC INSULATION BOARD, GYPSUM SHEATHING BOARD, FIBERBOARD, PLYWOOD, OR ORIENTED STRAND BOARD (OSB). THE SYSTEMS MAY ALSO BE APPLIED OVER CONCRETE OR MASONRY UNITS DIRECTLY, WITH OR WITHOUT LATH. WHERE REFERENCE IS MADE IN THIS REPORT TO THE DIAMOND WALL SYSTEM, THE ATTRIBUTE MAY ALSO BE APPLIED TO THE DIAMOND WALL PRO SYSTEM.

3.0 OMEGA DIAMOND WALL CONCENTRATE: DIAMOND WALL CONCENTRATE IS A FACTORY-PREPARED MIXTURE OF PORTLAND CEMENT COMPLYING WITH ASTM C150, CHOPPED FIBERS AND PROPRIETARY ADDITIVES, FOR USE IN THE DIAMOND WALL SYSTEM. THE MIXTURE IS PACKAGED IN 80-POUND BAGS. ONE BAG IS MIXED WITH 4-1/2 TO 7 GALLONS OF WATER AND BETWEEN 160 TO 240 POUNDS OF SAND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

3.10MEGA DIAMOND WALL PRO: DIAMOND WALL PRO CONCENTRATE IS THE POLYMER-MODIFIED VERSION OF DIAMOND WALL CONCENTRATE FOR USE IN THE DIAMOND WALL PRO SYSTEM. THE DIAMOND WALL PRO SYSTEM USES THE SAME COMPONENTS AND MIXING RATIO AS THE DIAMOND WALL SYSTEM.

3.20MEGA DIAMOND WALL SANDED: DIAMOND WALL SANDED IS THE PRE-SANDED VERSION OF DIAMOND WALL. ONE 80- POUND BAG OF DIAMOND WALL SANDED IS MIXED WITH 1 TO 2 GALLONS OF WATER.

SAND MUST BE CLEAN AND FREE FROM DELETERIOUS AMOUNTS OF LOAM, CLAY, SILT, SOLUBLE SALTS AND ORGANIC MATTER. SAMPLING AND TESTING MUST COMPLY WITH ASTM C144 OR C897. SAND MUST BE GRADED IN ACCORDANCE WITH ASTM C144 OR C897 OR WITHIN THE FOLLOWING LIMITS:

WALLBOARD PROTECTION ON EACH SIDE OF WALL
PERCENT RETAINED BY WIGHT +- 2 PERCENT

RETAINED ON U.S.	PERCEINT RETAINED BY	VIGHT +- 2 PERCENT
STANDARD SIEVE	NATURAL SAND MIN./MAX.	MANUFACTURED SAND MIN./MAX.
No. 4 (4.75 mm)	0/0	0/0
No. 8 (2.36 mm)	0/10	0/10
No. 16 (1.18 mm)	10/40	10/40
No. 30 (600 mm)	30/65	30/65
No. 50 (300 mm)	70/90	60/80
No. 100 (150 mm)	95/100	75/90
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3.5 INSULATION BOARD: 3.5.1 FOAM PLASTIC: EXPANDED POLYSTYRENE (EPS) AND EXTRUDED POLYSTYRENE (XPS) INSULATION BOARDS MUST COMPLY WITH ASTM C578. POLYISOCYANURATE INSULATION BOARDS MUST COMPLY WITH ASTM C1289. EXCEPT AS NOTED IN SECTION 3.5.1.3, THE FOAM PLASTIC BOARDS MUST HAVE A FLAME SPREAD INDEX OF 25 OR LESS, AND A SMOKE-DEVELOPED INDEX OF 450 OR LESS. ALL BOARDS MUST BE RECOGNIZED IN A CURRENT RESEARCH REPORT ACCEPTABLE TO THE CODE OFFICIAL. SEE SECTION 8.0 FOR BOARD IDENTIFICATION.

3.5.1.1 EPS: EPS BOARDS MUST HAVE A NOMINAL DENSITY OF 1.5 PCF AND MUST COMPLY WITH ASTM C578 AS TYPE II. BOARDS INSTALLED OVER OPEN FRAMING MUST BE 1 TO 1-1/2-IN. THICK AND MUST HAVE 3/8-IN. TONGUES AND GROOVES ON HORIZONTAL JOINTS. SEE FIGURE 1 FOR JOINT DETAILS.

OVER SOLID SUBSTRATES, MINIMUM 1-1/2-IN. THICK, ASTM C578 TYPE I SQUARE-EDGE FOAM PLASTIC BOARDS MAY BE USED, EXCEPT WHEN USED AS PART OF THE WATER-RESISTIVE BARRIER OVER WOOD- BASED SHEATHING AS DESCRIBED IN SECTION 3.9.1.

3.5.1.2 XPS: XPS BOARDS MUST BE ASTM C578 TYPE IV, V, OR X. BOARDS INSTALLED OVER OPEN FRAMING MUST BE 1 TO 1-1/2-IN. THICK AND MUST HAVE 3/8-IN. TONGUES AND GROOVES ON HORIZONTAL JOINTS. SEE FIGURE 1 FOR JOINT DETAILS. OVER SOLID SUBSTRATES, XPS BOARDS MAY BE SQUARE EDGED, MINIMUM 1-1/2-IN. THICK, MINIMUM 1 PCF DENSITY, EXCEPT WHEN USED AS PART OF THE WATER-RESISTIVE BARRIER OVER WOOD- BASED SHEATHING AS DESCRIBED IN SECTION 3.9.1. AS AN ALTERNATIVE, 1-IN.-THICK, 1.3 PCF DOW STYROFOAM STUCCOMATE BRAND XPS INSULATION BOARDS (SEE ICC-ES ESR-

3.5.1.3 POLYISOCYANURATE: POLYISOCYANURATE FOAM PLASTIC BOARDS MUST COMPLY WITH ASTM C1289 TYPE II AND BE 1- IN. TO 1-1/2 IN. THICK. WHEN GOVERNED BY THE IRC AND NOT BEING USED IN A FIRE-RATED OR NONCOMBUSTIBLE ASSEMBLY, THE INSULATION MAY HAVE A FLAME-SPREAD INDEX OF 75 OR LESS. HORIZONTAL AND VERTICAL BOARD JOINTS MUST BE SUPPORTED BY FRAMING OR BLOCKING AND BE LIMITED TO NONFIRE-RESISTANCE-RATED CONSTRUCTION. OVER SOLID SUBSTRATES, BOARDS HAVING A MINIMUM THICKNESS OF 1/2 IN, MAY BE USED, EXCEPT WHEN USED AS PART OF

THE WATER-RESISTIVE BARRIER OVER WOOD-BASED SHEATHING AS DESCRIBED IN SECTION 3.9.1.

3.6 LATH: 3.6.1 WIRE FABRIC LATH: WIRE FABRIC LATH MUST COMPLY WITH ICC-ES AC191 AND MUST BE MINIMUM NO. 20 GAGE (0.035 IN.), 1-IN. GALVANIZED STEEL, WOVEN-WIRE FABRIC LATH. FURRING MUST COMPLY WITH THE FOLLOWING REQUIREMENTS: WHEN MAXIMUM TOTAL COATING THICKNESS IS 1/2 IN. OR LESS, THE BODY OF THE LATH MUST BE FURRED A MINIMUM OF 1/8 INCH FROM THE SUBSTRATE AFTER INSTALLATION. WHEN TOTAL COATING THICKNESS IS GREATER THAN 1/2 IN., NO. 17 GAGE (0.058 IN.) BY 1-1/2-IN. WOVEN-WIRE FABRIC LATH

MUST BE USED. THE BODY OF THE LATH MUST BE FURRED A MINIMUM OF 1/4 IN. FROM THE SUBSTRATE AFTER

3.6.2 METAL LATH: METAL LATH MUST COMPLY WITH ICC-ES AC191. FURRING REQUIREMENTS ARE AS SET FORTH IN SECTION

3.7.1 GYPSUM BOARD: GYPSUM BOARD AND WATER-RESISTANT CORE GYPSUM SHEATHING MUST COMPLY WITH ASTM C

3.7.2 FIBERBOARD: MINIMUM 1/2-IN.-THICK FIBERBOARD MUST COMPLY AS ASTM C 208, TYPE IV, WALL SHEATHING IN ACCORDANCE WITH IBC SECTION 2303.1.6 3.7.3 WOOD STRUCTURAL PANELS: WOOD STRUCTURAL PANELS MUST COMPLY WITH IBC SECTIONS 2303.1.5, 2304.6.1 OR IRC SECTION R602.3. PLYWOOD MUST BE EXTERIOR GRADE OR

EXPOSURE 1 AND COMPLY WITH DOC PS-1, AND OSB MUST BE EXPOSURE 1 AND COMPLY WITH DOC PS-2.

3.8 CAULKING: ACRYLIC LATEX CAULKING MATERIALS MUST COMPLY WITH ASTM C 834, OR POLYURETHANE, POLYURETHANE MODIFIED, POLYSULFIDE, OR SILYL-TERMINATED POLYETHER ELASTOMERIC SEALANT COMPLYING WITH

3.9 WEATHER PROTECTION: 3.9.1 WATER-RESISTIVE BARRIER: APPLICATION OF THE WATER- RESISTIVE BARRIER MUST COMPLY WITH IBC SECTION 1403.2 OR IRC SECTION R703.2. THE WATER-RESISTIVE BARRIER MUST BE A MINIMUM OF ONE LAYER OF EITHER (1) NO. 15 ASPHALT FELT, COMPLYING WITH ASTM D 226, TYPE I, OR (2) A WATER-RESISTIVE BARRIER RECOGNIZED IN A CURRENT RESEARCH REPORT AS EQUIVALENT TO ASTM D 226, TYPE I OR BETTER.

WHEN APPLIED OVER ANY WOOD-BASED SHEATHING. THE WATER- RESISTIVE BARRIER MUST COMPLY WITH IBC SECTION 2510.6 OR IRC SECTION R703.7.3 OR BE ONE LAYER OF INSULATION BOARD, HAVING HORIZONTAL TONGUE-AND-GROOVE EDGES AS DESCRIBED IN SECTION 3.5, OVER ONE LAYER OF GRADE D KRAFT BUILDING PAPER HAVING A MINIMUM WATER-RESISTANCE RATING OF 60 MINUTES, OR AN EQUIVALENT BARRIER RECOGNIZED IN A CURRENT RESEARCH REPORT. 3.9.2 VAPOR RETARDER: A VAPOR RETARDER COMPLYING WITH IBC SECTION 1404.3 OR IRC SECTION R702.7 MUST BE

PROVIDED, UNLESS ITS OMISSION IS PERMITTED UNDER THE EXCEPTIONS NOTED IN IBC SECTION 1402.2 OR IRC SECTION 3.9.3 FLASHING, TRIM AND ACCESSORIES: ALL FLASHING, TRIM, WEEP SCREEDS AND CORNER REINFORCEMENT SHALL

COMPLY WITH IBC SECTION 1404.4 AND IRC SECTION R703.4. RIGID FLASHING MUST COMPLY WITH SECTION 1404.4 OF THE IBC AND MUST BE SLOPED TOWARDS THE EXTERIOR, WITH AN UPTURNED LEG ON THE INTERIOR SIDE AND AT THE ENDS.

FLASHING MUST EXTEND BEYOND THE SURFACE OF THE EXTERIOR WALL 4.0 PERFORMANCE CHARACTERISTICS

1396 OR GLASS-MAT GYPSUM SHEATHING PER C1177.

4.1 WIND RESISTANCE: ALLOWABLE WIND LOAD FOR INSTALLATION OVER OPEN FRAMING FOR WOOD STUDS (MINIMUM SPECIFIC GRAVITY OF 0.50, SUCH AS DOUGLAS FIR-LARCH) OR MIN. NO. 25 GAGE STEEL STUDS SPACED A MAXIMUM OF 24 INCHES ON CENTER IS 35 PSF ALLOWABLE WIND LOAD FOR INSTALLATION OVER OPEN FRAMING FOR WOOD STUDS (MINIMUM SPECIFIC GRAVITY OF 0.42,

SUCH AS SPRUCE-PINE-FIR) SPACED A MAXIMUM OF 24 INCHES ON CENTER, IS 29 PSF POSITIVE OR NEGATIVE.

ALLOWABLE WIND LOAD FOR INSTALLATION OVER WOOD STRUCTURAL PANEL SHEATHING USING ALTERNATE FASTENER SPACING AND VARIOUS WOOD SPECIES SHOWN IN TABLES 2 AND 3, THE ALLOWABLE WIND LOAD IS 35 PSF POSITIVE OR

LATH MUST BE ATTACHED TO WOOD FRAMING WITH 1-1/2 IN. END AND SIDE LAPS USING NO. 11 GAGE GALVANIZED ROOFING NAILS OR NO. 16 GAGE CORROSION-RESISTANT STAPLES SPACED MAXIMUM 6 IN. ON CENTER, WITH MINIMUM 1-IN, PENETRATION INTO FRAMING EXCEPT WHEN FOLLOWING TABLES 2 OR 3.

LATH MUST BE APPLIED TO STEEL FRAMING WITH 1-1/2 IN. END AND SIDE LAPS USING MINIMUM NO. 8 TYPE S CORROSION-RESISTANT DRYWALL SCREWS WITH 1-IN. DIAMETER WASHERS, OR WITH NO. 8 CORROSION-RESISTANT SCREWS HAVING 3/8-IN. DIAMETER PAN HEADS SPACED AT 7 IN. ON CENTER, WITH MINIMUM 1/2-IN. PENETRATION OF STUDS. SUPPORT FRAMING MUST BE ADEQUATE TO RESIST THE REQUIRED WIND LOAD, WITH A MAXIMUM ALLOWABLE DEFLECTION

ALLOWABLE WIND LOADS ARE APPLICABLE TO WIND DESIGN PRESSURE DERIVED FROM ALLOWABLE STRESS DESIGN WIND SPEED (VASD) PER SECTION 1609.3.1 OF THE IBC.

5.0 INSTALLATION 5.1 GENERAL: THE DIAMOND WALL ONE-COAT STUCCO SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THE APPLICABLE CODE, AND THIS RESEARCH REPORT, A COPY OF THE INSTALLATION INSTRUCTIONS MUST BE AVAILABLE ON THE JOBSITE DURING INSTALLATION.

5.2 APPLICATION:

5.2.1 GENERAL: THE EXTERIOR CEMENTITIOUS COATING MAY BE APPLIED BY HAND-TROWELING OR MACHINE-SPRAYING, IN ONE COAT OR TWO COATS, TO A MINIMUM THICKNESS OF 3/8 IN., UNLESS NOTED OTHERWISE. THE COATING MUST BE BACKED BY FRAMING AROUND PENETRATIONS. THE LATH MUST BE EMBEDDED IN THE MINIMUM COATING THICKNESS AND MAY BE EXPOSED. THE FINISH COAT MUST BE APPLIED IN ACCORDANCE WITH OMEGA PRODUCTS INTERNATIONAL INSTRUCTIONS. FLASHING, CORNER REINFORCEMENT, METAL TRIM AND WEEP SCREEDS MUST BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS. THE COATING MUST BE APPLIED AT AMBIENT AIR TEMPERATURES BETWEEN 40°F AND 120°F.

THE COATING MUST BE APPLIED BY APPLICATORS APPROVED BY OMEGA PRODUCTS INTERNATIONAL.

AN INSTALLATION CARD, AS SHOWN IN FIGURES 2 AND 3 OF THIS REPORT, MUST BE ON THE JOBSITE WITH THE NAME OF THE APPLICATOR AND THE PRODUCT TO BE USED BEFORE ANY WATER- RESISTIVE BARRIER OR EXTERIOR SHEATHING IS

FOR INSTALLATION DETAILS, SEE THE OMEGA PRODUCTS INTERNATIONAL WEBSITE AT HYPERLINK "HTTP://WWW.OMEGA-PRODUCTS.COM/"WWW.OMEGA-PRODUCTS.COM. 5.2.2 APPLICATION ON FRAMED WALLS: INSUI ATED SYSTEMS MAY BE INSTALLED OVER OPEN FRAMING AND OVER SOLID

ACCORDANCE WITH THE CODE EXCEPT WHERE MORE RESTRICTIVE REQUIREMENTS ARE SPECIFIED IN SECTION 5.2.5 OR 5.2.6 OF THIS REPORT. WALL FRAMING MUST BE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODE. 5.2.3 APPLICATION OVER CONCRETE AND MASONRY:

SHEATHING. UNINSULATED SYSTEMS MUST BE INSTALLED OVER SOLID SHEATHING. SHEATHING MUST BE INSTALLED IN

6.4 AN INSTALLATION CARD, AS SHOWN IN FIGURE 2, MUST BE LEFT AT THE JOBSITE FOR THE OWNER, AND A COPY MUST BE FILED WITH THE BUILDING DEPARTMENT. 6.5 FOAM PLASTIC MUST NOT BE PLACED ON EXTERIOR WALLS OF WOOD CONSTRUCTION LOCATED WITHIN 6 INCHES OF

THE GROUND IN AREAS WHERE HAZARD OF TERMITE DAMAGE IS VERY HEAVY IN ACCORDANCE WITH IBC SECTION 2603.8 OR IRC SECTION R318.4 OF THE IRC. 6.6 THE DIAMOND WALL ONE-COAT STUCCO SYSTEM COMPONENTS ARE MANUFACTURED UNDER A QUALITY CONTROL

PROGRAM WITH INSPECTIONS BY INTERTEK TESTING SERVICES NA, INC.

COATINGS (AC11), JANUARY 2013 (EDITORIALLY REVISED MAY 2018). 7.2 REPORTS OF TESTS IN ACCORDANCE WITH ASTM E119, ASTM E136 AND NFPA 285.

7.3 DOCUMENTATION OF AN INTERTEK APPROVED QUALITY CONTROL SYSTEM FOR THE MANUFACTURING OF PRODUCTS RECOGNIZED IN THIS REPORT.

7.1 REPORTS OF TESTS IN ACCORDANCE WITH THE ICC-ES ACCEPTANCE CRITERIA FOR CEMENTITIOUS EXTERIOR WALL

THE OMEGA DIAMOND WALL AND DIAMOND WALL PRO ONE-COAT STUCCO SYSTEMS ARE IDENTIFIED WITH THE MANUFACTURER'S NAME (OMEGA PRODUCTS INTERNATIONAL) AND ADDRESS, WEIGHT OF PACKAGED MIX, STORAGE INSTRUCTIONS MAXIMUM AMOUNT OF WATER AND OTHER COMPONENTS THAT MAY BE ADDED AND CONDITIONS THAT MUST BE CONSIDERED IN DETERMINING ACTUAL AMOUNT, CURING INSTRUCTIONS, THE PRODUCT NAME, THE INTERTEK MARK AS SHOWN BELOW, THE INTERTEK CONTROL NUMBER AND THE CODE COMPLIANCE RESEARCH REPORT NUMBER (CCRR-0467).

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

INSULATION BOARDS MUST BE LABELED IN ACCORDANCE WITH THEIR RESPECTIVE RESEARCH REPORT

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek

10.3 Reference to the <a href="https://bpdirectory.intertek.com">https://bpdirectory.intertek.com</a> is recommended to ascertain the current version and status of this report.

# TABLE 1 - PROPERTIES EVALUATED

PROPERTIES	2021 INTERNATIONAL BUILDING CODE	2021 INTERNATIONAL RESIDENTIAL CODE
WIND RESISTANCE	1609	R301.2.1
INSTALLATION	2512	R703.3
FIRE-RESISTANCE-RATED CONSTRUCTION	703.2	R302
WEATHER PROTECTION	1402.2 2512	R703.2 R703.7.3
EXTERIOR WALLS OF TYPES I, II, III AND IV CONSTRUCTION	2603.5	NOT APPLICABLE

Section numbers in earlier codes may differ.

TABLE 2 - LATH ATTACHMENT - WOOD STRUCTURAL PANEL SHEATHING OVER WOOD FRAMING WITH HALF-INCH FOAM PLASTIC INSULATION

WOOD SPECIES	ODEOJEJO	FASTENER SPACING (INCHES) STAPLE GAGE					
	SPECIFIC GRAVITY						
	GRAVIII	16	15	14	13	12	
DOUGLAS FIR-LARCH	0.50	6	6	6	6	6	
DOUGLAS FIR-SOUTH	0.46	6	6	6	6	6	
WESTERN HEMLOCK OR WESTERN HEMLOCK-SOUTH	0.47	6	6	6	6	6	
HEM-FIR-SOUTH	0.46	6	6	6	6	6	
HEM-FIR	0.43	5	6	6	6	6	
SPRUCE-PINE-FIR	0.42	4	5	6	6	6	
WESTERN WOODS	0.36	4	4	4	5	5	

<sup>1</sup>Wood structural panel sheathing must be fastened to framing with fasteners at 6 inches on center. <sup>2</sup>Fasteners must penetrate 1 inch into sheathing and framing. <sup>3</sup>No. 11 gage roofing nails may be used as an alternative to No. 16 gage staples.

# TABLE 3 - LATH ATTACHMENT - WOOD STRUCTURAL PANEL SHEATHING OVER WOOD FRAMING WITH ONE-INCH FOAM PLASTIC INSULATION

WOOD SPECIES	22222		FASTENE	R SPACING (INC	HES)		
	SPECIFIC GRAVITY	STAPLE GAGE					
	GRAVIIT	16	15	14	13	12	
Western hemlock	0.46	4	4	4	5	6	
Western hemlock-South	0.47	4	4	5	6	6	
Hem-fir-South	0.46	4	4	4	5	6	
Hem-fir	0.43	4	4	4	5	6	
Spruce-pine-fir	0.42	4	4	5	5	6	
Western woods	0.36	3	3	3	3	4	

<sup>1</sup>Wood structural panel sheathing must be fastened to framing with fasteners at 6 inches on center. <sup>2</sup>Fasteners must penetrate 1 inch into sheathing and framing. <sup>3</sup>No. 11 gage roofing nails may be used as an alternative to No. 16 gage staples

# TABLE 4 - ONE-HOUR FIRE-RESISTANCE-RATED ASSEMBLIES

	System	Interior	Framing		Exterior F	inish	
<ul><li>5.2.3 APPLICATION OVER CONCRETE AND MASONRY:</li><li>5.2.3.1 GENERAL: THE WATER-RESISTIVE BARRIER MAY BE OMITTED WHEN THE STUCCO IS INSTALLED DIRECTLY OVER</li></ul>	No.	finish	-	Sheathing	Insulation	Coating	Axial Loads
<ul> <li>CONCRETE OR UNIT MASONRY SUBSTRATES.</li> <li>5.2.3.2 APPLICATION WITHOUT LATH: SURFACE PREPARATION OF CONCRETE AND MASONRY MUST BE IN ACCORDANCE WITH IBC SECTION 2510.7. THE COATING MUST BE APPLIED DIRECTLY TO THE PREPARED SURFACE AT A MINIMUM NOMINAL THICKNESS OF 3/8 INCH IN ACCORDANCE WITH SECTION 5.2 OF THIS REPORT.</li> <li>5.2.3.3 APPLICATION WITH LATH: LATHING AND FURRING USED TO RECEIVE STUCCO MUST BE INSTALLED AND CONFORM WITH THE OMEGA PRODUCTS INTERNATIONAL INSTALLATION GUIDE. FASTENERS USED TO INSTALL THE LATH MUST BE APPROVED. THE LATH MUST BE FASTENED IN VERTICAL ROWS, A MAXIMUM OF 24 INCHES ON CENTER. FASTENER SPACING IN EACH ROW MUST BE A MAXIMUM OF 7 INCHES. THE COATING MUST BE APPLIED IN ACCORDANCE WITH SECTION 5.2 OF THIS</li> </ul>	1	5/8-in. Type X gypsum board, vertical or horizontal, all joints must be backed; attached with 1- 7/8-inlong, galvanized steel nails (ASTM C514) having a 1/4- in. head, spaced at 7-in. o.c.; joints and nail heads must be treated <sup>1</sup>	Min. 2 x 4 wood framing, max. 24 in. oc	5/8-in. Type X gypsum sheathing, vertical; attached to framing No. 11 gage galvanized roofing nails with min. 7/16-in. heads, spaced 4-in. o.c. on the perimeter and 7-in. o.c. at intermediate framing	None	Min. 3/8-inthick Diamond Wall one-coat stucco with metal lath attached per 5.2	See No 2
5.2.4 FIRE-RESISTANCE-RATED WALL ASSEMBLIES: SEE TABLE 4. 5.2.5 EXTERIOR WALLS OF TYPE I, II, ILL, OR IV CONSTRUCTION: SEE TABLE 5. 5.2.6 DRAINAGE: 5.2.6.1 UNBACKED EPS: A WATER-RESISTIVE BARRIER DESCRIBED IN SECTION 3.9.1 IS REQUIRED AND MUST BE APPLIED BETWEEN THE EPS AND FRAMING.	2	5/8-in. Type X gypsum board, horizontal, all joints must be backed; attached with 5d gypsum wallboard nails, spaced at 6-in. o.c.; joints and nail heads must be treated <sup>1</sup>	Min. 2 x 4 wood framing 16 in. oc; R-13 mineral wool insulation in stud cavities. Framing covered with water- resistive barrier.	None	Min. 1-in. EPS		See Note 3
<ul> <li>5.2.6.2 SOLID SHEATHING: DRAINAGE IS PROVIDED EITHER BY EITHER OF THE FOLLOWING METHODS:</li> <li>EPS INSULATION HAVING VERTICAL GROOVES, 1/4-INWIDE BY 1/8-INDEEP, SPACED AT A MAXIMUM OF 12 IN. ON THE BACK FACE OF THE BOARDS AS SHOWN IN FIGURE 1, TOGETHER WITH A WATER-RESISTIVE BARRIER DESCRIBED IN SECTION 3.9.1.</li> <li>TYVEK® STUCCO WRAP® OR TYVEK® DRAIN WRAP (ICC-ES ESR-2375), INSTALLED BETWEEN THE FLAT EPS BOARDS AND THE SHEATHING.</li> <li>5.2.7 MISCELLANEOUS:</li> <li>5.2.7.1 INSPECTIONS: LATH INSPECTIONS SHALL BE MADE IN ACCORDANCE WITH IBC SECTION 110.3.5 AND IRC SECTION R109.1.5.1.</li> <li>5.2.7.2 CONTROL JOINTS: CONTROL JOINTS MUST BE INSTALLED AS SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL, DESIGNER, OR BUILDER, IN THAT ORDER.</li> </ul>	3	5/8-in. Type X gypsum board, vertical or horizontal, vertical joints must be backed; attached with 1-5/8-inlong, 0.100-in. steel- cup-head nails or No. 6 bugle-head screws (0.300-in. head), spaced at 8-in. o.c.; joints and nail heads must be treated1	2 x 4 or 2 x 6 wood framing, max. 24 in. oc; R-11 fiberglass (2 x 4 walls) or R-19 fiberglass (2 x 6 walls) insulation in stud cavities; framing covered with water- resistive barrier.	None		Min. 3/8-inthick Diamond Wall one-coat stucco with min. 1 x 20 ga. wire fabric lath attached with 2-in. No. 16 gage staple having 15/16-in. crowns, or 2-1/4-in. nails having 0.125-in. shanks and 0.355-in. heads, spaced at 6 in. oc.	
<ul> <li>5.2.7.3 CURING: CURING MUST BE IN ACCORDANCE WITH OMEGA PRODUCTS INTERNATIONAL APPLICATION INSTRUCTIONS.</li> <li>5.2.7.4 SOFFITS: FOR APPLICATION OF THE SYSTEM TO SOFFITS, THE COATING MUST BE APPLIED OVER METAL LATH COMPLYING WITH SECTION 3.6.2. METAL LATH FASTENING MUST COMPLY WITH ASTM C1063 OR IRC SECTION R703.7, EXCEPT THE FASTENER LENGTH MUST BE INCREASED BY THE THICKNESS OF ANY SUBSTRATE. LATH SELECTION MUST BE BASED ON ASTM C1063, TABLE 1.</li> <li>5.2.7.5 SILLS: FOR APPLICATION OF THE SYSTEM TO WINDOW SILLS AND OTHER SIMILAR AREAS, SILLS WITH DEPTHS OF 6 INCHES OR LESS MAY HAVE THE COATING AND LATH APPLIED TO ANY SUBSTRATE PERMITTED IN THIS REPORT, PROVIDED THE COATING, LATH, WATER- RESISTIVE BARRIER AND SUBSTRATE ARE INSTALLED AS REQUIRED IN THIS REPORT. SILLS WITH DEPTHS EXCEEDING 6 INCHES MUST HAVE SUBSTRATES OF SOLID WOOD OR PLYWOOD. THE SUBSTRATE MUST BE</li> </ul>	4	5/8-in. Type X gypsum board, vertical or horizontal, vertical joints must be backed; attached with 1-5/8-inlong, 0.100-in. steel- cup-head nails or No. 6 bugle-head screws (0.300-in. head), spaced at 8-in. o.c.; joints and nail heads must be treated1	framing, max. 24 in. oc; R-11 fiberglass (2 x 4 walls) or R-19 fiberglass (2 x 6 walls) insulation in stud cavities; framing covered	Min. 7/16-in. OSB, 15/32-in. plywood or 1/2-in. water-resistant-core gypsum sheathing installed vertically with 2-3/8-in. sinker nails (0.113-in shaft, 0.266-in. head) spaced at 8-in. oc. Vertical joints must be backed. Water- resistive barrier over sheathing.		Min. 3/8-inthick Diamond Wall one-coat stucco with min. 1 x 20 ga. wire fabric lath attached to studs with 2- in. No. 16 gage staples having 15/16-in. crowns, or 1-1/4-in. nails having 0.125-in. shanks and 0.355-in. heads, spaced at 6 in. oc.	See No. 4
FASTENED IN ACCORDANCE WITH THE CODE AND MUST BE COVERED WITH TWO LAYERS OF AN APPROVED WATER-RESISTIVE BARRIER. THE COATING, LATH, AND OPTIONAL EPS BOARD MUST BE APPLIED IN ACCORDANCE WITH SECTION 5.2.2 OF THIS REPORT  6.0 CONDITIONS OF USE 6.1 INSTALLATION MUST COMPLY WITH THIS RESEARCH REPORT, THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, AND THE APPLICABLE CODE. IN THE EVENT OF A CONFLICT, THIS REPORT GOVERNS.  6.2 INSTALLATION MUST BE BY QUALIFIED CONTRACTORS ACCEPTABLE TO OMEGA PRODUCTS INTERNATIONAL.  6.3 FOR WALLS WITH FOAM PLASTIC INSULATION, THE INTERIOR OF THE BUILDING MUST BE SEPARATED FROM THE EPS BOARD WITH A THERMAL BARRIER COMPLYING WITH IBC SECTION 2603.4 OR IRC SECTION R316.4, SUCH AS 1/2-INTHICK REGULAR GYPSUM WALLBOARD APPLIED IN ACCORDANCE WITH THE APPLICABLE CODE.  6.4 AN INSTALLATION CARD, AS SHOWN IN FIGURE 2, MUST BE LEFT AT THE JOBSITE FOR THE OWNER, AND A COPY MUST	5	5/8-in. Type X gypsum board, vertical or horizontal, vertical joints must be backed; attached with 1-5/8-inlong, 0.100-in. steel- cup-head nails or No. 6 bugle-head screws (0.300-in. head), spaced at 8-in. o.c.; joints and nail heads must be treated1	oc; R-11 fiberglass (2 x 4 walls) or R-19 fiberglass (2 x 6 walls) insulation in stud cavities;		or Dow Stuccomate XPS (see ICC- ES ESR-2142), vertical over		See Note 4
BE FILED WITH THE BUILDING DEPARTMENT.	Note 1:	All gypsum board joints must b	e taped and treated wi	th joint compound in accordan	ce with ASTM C	840. Fastener heads must b	oe

Note 1: All gypsum board joints must be taped and treated with joint compound in accordance with ASTM C 840. Fastener heads must be treated with joint compound in accordance with ASTM C 840.

Note 2: Axial loads applied to the wall assembly must be limited by the lesser of the following: • Design stress of 0. 78 F'c calculated in accordance with Sections 3.6 and 3. 7 of the NDS

1,100 pounds per stud

 Design stress of 0.78 F'c at a maximum slenderness ratio (le/d) of 33 calculated in accordance with Sections 3.6 and 3.7 of the NDS Note 3: Axial loads applied to the wall assembly must be limited by the lesser of the following:

 Maximum 58 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS Design stress of 0, 78 F'c calculated in accordance with Sections 3.6 and 3, 7 of the NDS Design stress of 0.78 F'c at a maximum slenderness ratio (le/d) of 33 calculated in accordance with Sections 3.6 and 3.7 of the NDS

Note 4: Axial loads applied to the wall assembly must be limited by the lesser of the following: 1,100 pounds per 2 x 4 stud; 3,000 pounds per 2 x 6 stud

For 2 x 4 construction, a maximum of 51.3 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS

 For 2 x 6 construction, a maximum of 44.7 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS • Design stress of 0. 78 F'c calculated in accordance with Sections 3.6 and 3. 7 of the NDS Design stress of 0.78 F'c at a maximum slenderness ratio (le/d) of 33 calculated in accordance with Sections 3.6 and 3.7 of the NDS

# TABLE 5 - NFPA 285-COMPLYING ASSEMBLIES

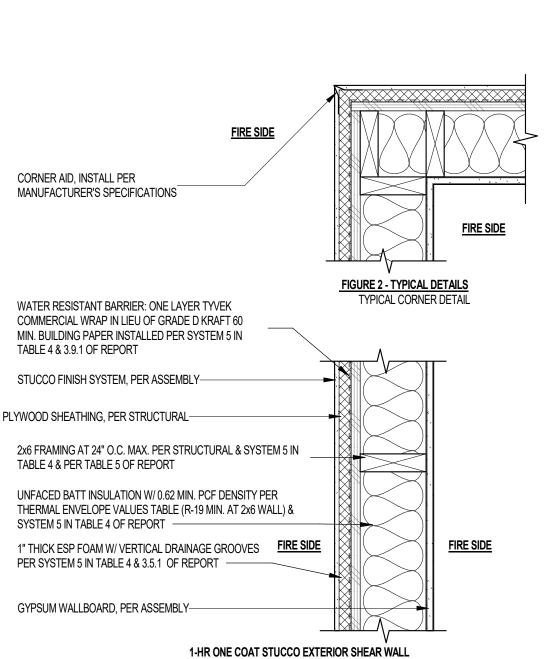
**Material Options** 

Interior Sheathing	5/8-inch Type X gypsum wallboard
Base Wall System (Select One)	<ol> <li>Fire Retardant-Treated (FRT) wood studs: min. 2x4, max. 24 in. on center spacing.</li> <li>Steel Stud Framing: min. 3-5%-in. depth, min. 20 ga., max. 24 in. on center spacing, with lateral bracing every 4 ft. vertically.</li> <li>Concrete: cast-in-place or pre-cast, min. 2 in. thick.</li> <li>Concrete Masonry Units: min. 4 in. thick</li> </ol>
Floor Line Firestopping (Sele One)	If a fire-resistant-rated floor or floor/ceiling assembly is required, install an ASTM E2307 rated fire stop joint ct assembly.     Install 4 in., 4 pcf density mineral wool fire stop friction fit or installed with Z-clips or equivalent, continuously at each floor line and/or in each stud cavity if the stud framing is continuous past the floor line.
Cavity Insulation (Select One)	<ol> <li>None</li> <li>Use any noncombustible cavity insulation (faced or unfaced) complying with the applicable code, including mineral fiber or fiberglass batt insulation.</li> </ol>
Exterior Sheathing (Select One)	<ol> <li>Minimum 1/2-in. exterior grade gypsum sheathing complying with the applicable code.</li> <li>5/8-in. Type X exterior grade gypsum sheathing complying with the applicable code.</li> <li>Min. 1/2-in. Fire Retardant-Treated (FRT) plywood sheathing complying with the applicable code. Note: A layer of Fire-retardant-treated (FRT) wood sheathing may be used between the gypsum sheathing and studs.</li> </ol>
Water-Resistive Barrier (Select One)	<ol> <li>Omega AkroGuard Air and Water-Resistive Barrier System. See CCRR-0465.</li> <li>Any water-resistive barrier complying with IBC Section 1403.2 or IRC Section 703.2 and shown to have both of the following:         <ul> <li>a peak heat release rate of less than 150 W/m2, a total heat release of less than 20 MJ/m2 and an effective hear of combustion of less than 18 MJ/kg when tested on specimens at the thickness intended for use, in accordance with ASTM E1354, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m2</li> </ul> </li> <li>a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 of UL 723, with test specimen preparation in accordance with ASTM E2404</li> </ol>
Rigid Foam Board (Select One)	<ol> <li>None</li> <li>EPS board with a nominal density of 1.5 pcf, a flame-spread index of 25 or less and a smoke- developed index of 450 or less when tested in accordance with ASTM E84 or UL 723; and must comply with ASTM C578 as Type II. A boards must be recognized in a current third-party evaluation report. Board thickness shall be 1/2- to 2-in.</li> <li>XPS board with a nominal density of 1.5 pcf, a flame-spread index of 25 or less and a smoke- developed index of 450 or less when tested in accordance with ASTM E84 or UL 723; and must comply with ASTM C578 as Type IV, V, or X. All boards must be recognized in a current third-party evaluation report. Board thickness shall be 1/2- to 2-in.</li> <li>Polyisocyanurate foam plastic board must comply with ASTM C1289 as Type II, have a nominal density of 2 pcf, a maximum flame-spread index of 25 or less, and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL7 23. All boards must be recognized in a current third-party evaluation report. Board thickness shall be 1/2- to 2-in.</li> </ol>
Lath (Select One)	Lath Specifications:  1. Woven Wire (20-gauge): Nominal No. 20 gauge [0.035 inch], 1-in. opening, galvanized steel per ASTM C1032.  2. Woven Wire (17-gauge): Nominal No. 17 gauge [0.058 inch], 1-1/2-in. opening, galvanized steel per ASTM C1032.  3. Welded Wire: Nominal No. 16 gauge [0.065 inch], 2-inby-2-in. opening, galvanized steel per ASTM C933.  4. Metal Lath: Per ASTM C847 (IBC or IRC) or with Table 25-B of the UBC as applicable.  Lath fastener for wood framing:  1. No. 10 woodscrews with a minimum 0.43-in. diameter head or washer.  2. No. 11 gauge galvanized roofing nails.  3. No. 16 gauge corrosion-resistant staples with a minimum crown width of 7/16 in.  Fasteners shall be spaced a maximum of 6 in. on center with min. 1-in. penetration into the studs  Lath fastener for steel studs:  1. No. 10 self-tapping screws with a minimum 0.43-in. diameter head or washer.  Screw length shall be sufficient to penetrate the framing member a minimum of 1/2-in
Stucco	Min. 3/8-in. Diamond Wall stucco system

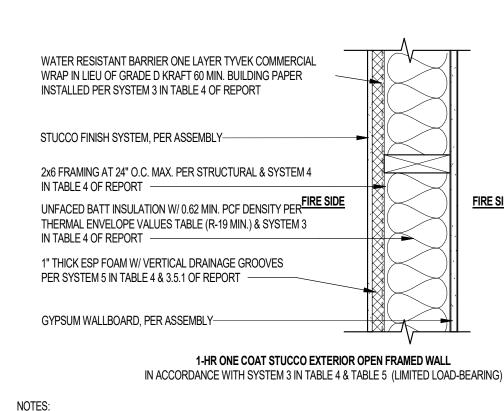
The rigid foam board must be terminated with a minimum 25-gauge steel casing bead to encapsulate the foam board. The perimeter of the opening must be covered with min. 25-gauge steel flashing, or equivalent, covering the entire

Any acrylic or cement-based finish

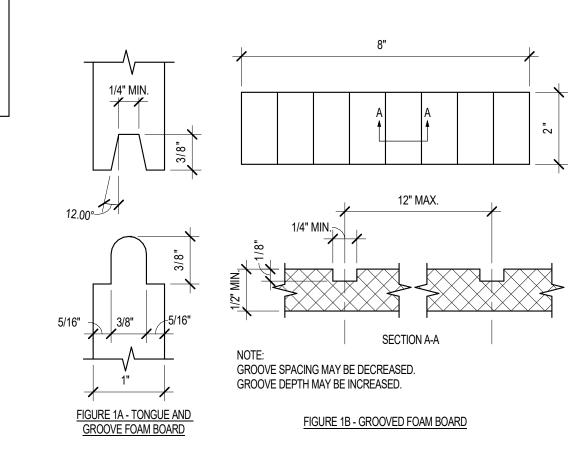
width of the opening with a 2-in. leg on the interior side of the assembly.

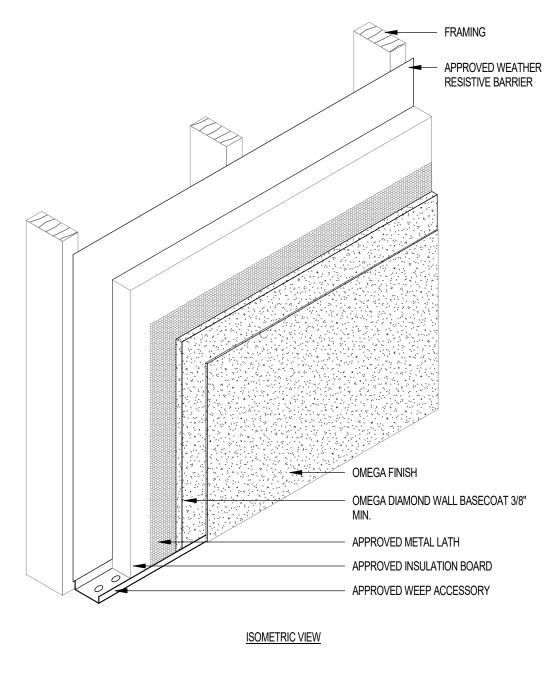


IN ACCORDANCE W/ SYSTEM 5 IN TABLE 4 (LIMITED LOAD-BEARING)



1. REFER TO UES EVALUATION REPORT NO. 382 FOR COMPLETE INFORMATION ON MATERIALS AND ASSEMBLIES. 2. CAULK ALL PENETRATIONS TO SEAL WATERTIGHT. 3. BLOCKING SHALL BE PER UES EVALUATION REPORT NO. 382 & IBC 718.2.







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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

UES EVALUATION REPORT NO. 382

UNFACED FIBERGLASS BATT INSULATION COMPLYING WITH

IBC SECTION 720.1 AND 720.2, PLACED BETWEEN THE STUDS.

EXTERIOR SHEATHING/ SHEAR PER STRUCTURAL, ATTACHED

WEATHER RESISTIVE BARRIER TYVEK (POLYOLEFIN SHEET

WEATHER-RESISTIVE BARRIER) INSTALLED IN ACCORDANCE WITH

ONE LAYER OF 5/8" THICK TYPE X GYPSUM WALLBOARD APPLIED

WITH THE LONG DIMENSION VERTICALLY AND FASTENED WITH No.

HAVING A 19/64" DIAMETER HEAD SPACED 8" ON CENTER TO STUDS AND PLATES. NAIL HEADS AND BOARD JOINTS SHALL BE TAPED AND TREATED WITH JOINT COMPOUND IN ACCORDANCE WITH

UES EVALUATION REPORT NUMBER: 382 ISSUED: 02/20/2015 VALID THRU: 02/28/2024

13 BY 1-5/8" LONG CYPPED-HEAD GYPSUM WALLBOARD NAILS

WESTERN 1-KOTE EXTERIOR STUCCO SYSTEM

2x WOOD FRAMING, PER STRUCTURAL

WATER RESISTANT BARRIER

WESTERN 1-KOTE BASE COAT

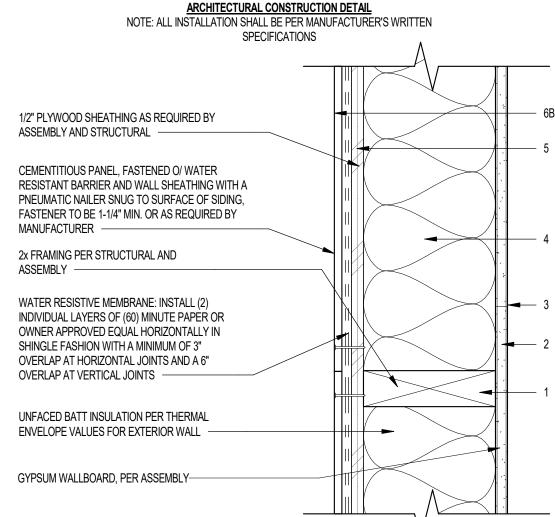
FINISH COAT

ASTM C840 OR GA-216

IN ACCORDANCE WITH THE IBC SECTION 2304.6.1.

MANUFACTURER'S AIR BARRIER REQUIREMENTS

FOAM BOARD T&G WITH VERTICAL DRAINAGE OVER —



#### DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

**1. FRAMING MEMBERS** - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL..

2. GYPSUM WALLBOARD\* - ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD. WHEN ITEM STEEL FRAMING MEMBERS\* (ITEM 7 OR ANY ALTERNATE CLIPS), IS USED, GYPSUM IGIPANELS ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SISPACED 12 IN. OC - ANSI/UL 263 CERTIFIED FOR UNITED

21. GYPSUM BOARD\* - AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED. SQUARE, OR APERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED

AMERICAN GYPSUM CO — TYPES AGX-1 (FINISH RATING 25 MIN.), M-GLASS (FINISH RATING 25 MIN.), AG-C (FINISH RATING 25 MIN.), LIGHTROC (FINISH RATING 25 MIN.) NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* - MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT  $\,\,$  PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING) SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

5. WOOD STRUCTURAL PANEL SHEATHING - MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

6. EXTERIOR FACING - INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING:

B. PARTICLE BOARD SIDING - HARDBOARD EXTERIOR SIDINGS INCLUDING PATTERNED PANEL OR LAP SIDING.

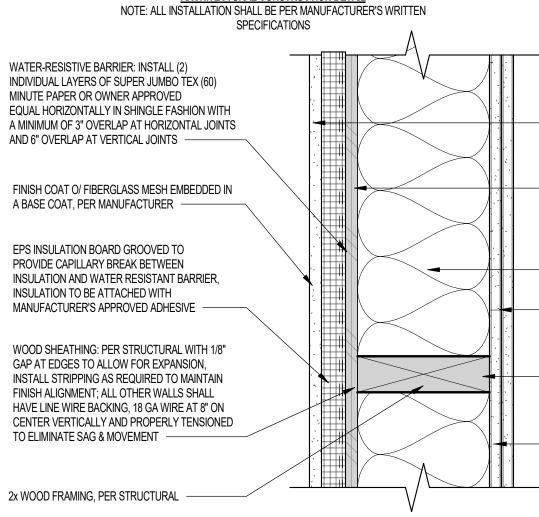
(  $EW \, | \, 42 \, | \,$  same as EW 41, BUT NO RATING REQUIRED AND 3KS STUCCO IN THE INSIDE

CEMENTITIOUS BOARD AT 1-HR RATED EXTERIOR WALL -

ANSI/UL 263 DESIGN NO U356

SCALE: 3" = 1'-0"

2-HR EFIS EXTERIOR WALI PROPRIETARY ASSEMBLY - May 25, 2022 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



# BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN. . SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE- RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK

NATIONAL GYPSUM CO - Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C, 3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED

AMERICAN GYPSUM CO - Type AGX-1, AG-C, LightRoc

(EW | 24) Same as EW 23, BUT NO RATING REQUIRED AND EFIS BOTH SIDE.

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314

2-HR CEMENTITIOUS BOARD SIDING - EXTERIOR WALL

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

PROPRIETARY ASSEMBLY - May 25, 2022

2x FRAMING PER STRUCTURAL AND

BY ASSEMBLY AND STRUCTURAL

MANUFACTURER

1/2" TREATED PLYWOOD SHEATHING AS REQUIRED

RESISTANT BARRIER AND WALL SHEATHING WITH A

PNEUMATIC NAILER SNUG TO SURFACE OF SIDING;

FASTENER TO BE 1-1/4" MIN. OR AS REQUIRED BY

CEMENTITIOUS PANEL, FASTENED O/ WATER

WATER RESISTIVE MEMBRANE: INSTALL (2)

SHINGLE FASHION WITH A MINIMUM OF 3"

OVERLAP AT VERTICAL JOINTS -

OVERLAP AT HORIZONTAL JOINTS AND A 6"

UNFACED BATT INSULATION PER THERMAL

ENVELOPE VALUES FOR EXTERIOR WALL

GYPSUM WALLBOARD, PER ASSEMBLY-

SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED.

WITH JOINT COMPOUND.

BY 15/32 IN. THICK

MANUFACTURER.

TO ACHIEVE FINAL THICKNESS.

INDIVIDUAL LAYERS OF (60) MINUTE PAPER OR

OWNER APPROVED EQUAL HORIZONTALLY IN

TO ACHIEVE FINAL THICKNESS.

4. BATTS AND BLANKETS\* - FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS. 5. BUILDING UNITS\* - PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG

HOOVER TREATED WOOD PRODUCTS INC — PYRO-GUARD TREATED PLYWOOD 6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR

6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF- FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM.

**SPECIFICATIONS** 

**DESIGN NO. V314** 

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC

EFFECTIVELY FIRE STOPPED, AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN.,

2. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO

WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND

1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING

NATIONAL GYPSUM CO - Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-

3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED

4. BATTS AND BLANKETS\* - FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT

IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS

5. BUILDING UNITS\* - PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD

FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL

6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND

THROUGH THE BUILDING UNITS, ITEM 5, WITH NAILS OR SCREWS, AT THE LOCATIONS SPECIFIED BY THE

INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR

**6F. FIBER CEMENT SIDING** — FIBER CEMENT LAP OR VERTICAL SIDING. MINIMUM 5/16 IN. THICK, FASTENED TO STUDS

SAME AS EW 43, EXCEPT USE 1/2 INCH STUCCO SYSTEM. OVER 1/2 INCH SHEATHING INSTEAD OF INTERIOR

CEMENTITIOUS BOARD AT 2-HR RATED EXTERIOR WALL -

AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES:

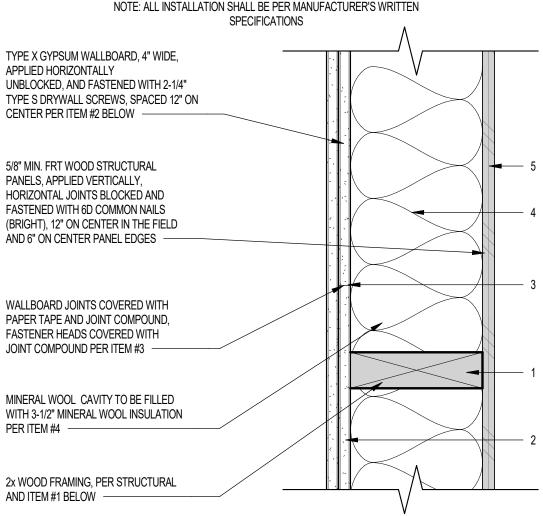
GYPSUM WALLBOARD. NO RATING REQUIRED.

ANSI/UL 263 DESIGN NO V314

PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32

HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2-HR WRAP PROJECT GARAGE EXTERIOR WALL PROPRIETARY ASSEMBLY - May 25, 2022 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



# DESIGN NO. V314 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. WOOD STUDS -PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED.

HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* —NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN.

3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS. 5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD 5. BUILDING UNITS - BUILDING UNITS PLACED WITH THE LAMINATE FACE AGAINST OR LAMINATE FACE AWAY FROM, AND NAILED TO. THE WOOD FRAMING WITH 1-7/8 IN. LONG. 6D NAILS. SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL THE FIELD. WHEN STEEL FRAMING IS SUBSTITUTED FOR WOOD FRAMING, TYPE S STEEL SCREWS ARE USED IN LIEU OF AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG NAILS WITH A MINIMUM PENETRATION LENGTH THROUGH THE STEEL STUD OF 3/8 IN.

> LOUISIANA-PACIFIC CORP — TYPE LP FLAMEBLOCK 1-SIDE 8. EXTERIOR FACINGS — (NOT SHOWN) — REQUIRED FOR 1 HOUR RATING ON THE EXTERIOR FACE. THE FOLLOWING EXTERIOR FACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS

LOUISIANA-PACIFIC CORP — TYPE BLAZEGUARD 1-SIDE

1-HR STUCCO EXTERIOR WALL - RATED BOTH SIDES

INDIVIDUAL LAYERS OF SUPER JUMBO TEX (60) MINUTE

MINIMUM OF 3" OVERLAP AT HORIZONTAL JOINTS AND 6"

EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A

SELF-FURRING LATH: 17 GAUGE x 1-1/2" WOVEN WIRE,

ATTACH WITH STAPLES AT 6" ON CENTER ALONG

1-1/4" LEGS FOR 3/8" RIB LATH WITH MINIMUM

LESS THAN THREE STRANDS OF LATH —

WOOD SHEATHING PER ASSEMBLY

3 COAT STUCCO SYSTEM, PER ASSEMBLY

2x WOOD FRAMING, PER STRUCTURAL

OF 2 BY 4 STUDS AND PLATES. STUDS EFFECTIVELY FIRE STOPPED.

AMERICAN GYPSUM CO — CKNX.R14196

UNITED STATES GYPSUM — CKNX.R1319

NATIONAL GYPSUM CO — CKNX.R3501

WITH JOINT COMPOUND.

LAPS SHALL BE A MINIMUM OF 1-1/2" AT SIDES AND ENDS,

FRAMING MEMBER ONLY; ROUND OR FLATTENED 0.054"Ø

(16GA) WIRE, 3/4" CROWN; 7/8" LEGS FOR FLAT LATHS OR

PENETRATION INTO SUPPORT OF 3/4" ENGAGING NOT

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

FIRE TEST: BXUV.U348 - FIRE-RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO. U348

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - NOM 2 BY 4 IN., SPACED 16 IN. OC IN WITH TWO 2 BY 4 TOP AND ONE 2 BY 4 BOTTOM PLATES. AS

AN OPTION, NOM 2 BY 6 IN., SPACED 24 IN. OC WITH TWO 2 BY 6 TOP AND ONE 2 BY 6 BOTTOM PLATES MAY BE USED IN LIEU

2. GYPSUM WALLBOARD\* - ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS.

L501, G512 OR U305. NOM. 5/8 IN. THICK, 4 FT. WIDE, APPLIED VERTICALLY, AND NAILED TO STUDS AND BEARING PLATES 7

3. JOINTS AND NAILHEADS - WALLBOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED

4. BATTS AND BLANKETS\* - FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT

IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. IF 2 BY 6 IN. STUDS (ITEM 1) ARE USED, MIN. 5-1/2 IN.

OF UNFACED MINERAL FIBER INSULATION, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES,

8B. CEMENTITIOUS STUCCO — PORTLAND CEMENT WITH SELF-FURRING METAL LATH. MINIMUM THICKNESS OF 3/4 IN.

WITH A MIX RATIO OF 1:4 FOR SCRATCH COAT AND 1:5 FOR BROWN COAT, BY VOLUME, CEMENT TO SAND

AND CROSS BRACING, INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS.

IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. WHEN STEEL

FRAMING IS SUBSTITUTED FOR WOOD FRAMING, 1 IN. LONG TYPE S STEEL SCREWS ARE USED IN LIEU OF NAILS.

SPECIFICATIONS,

PROPRIETARY ASSEMBLY - August 4, 2023

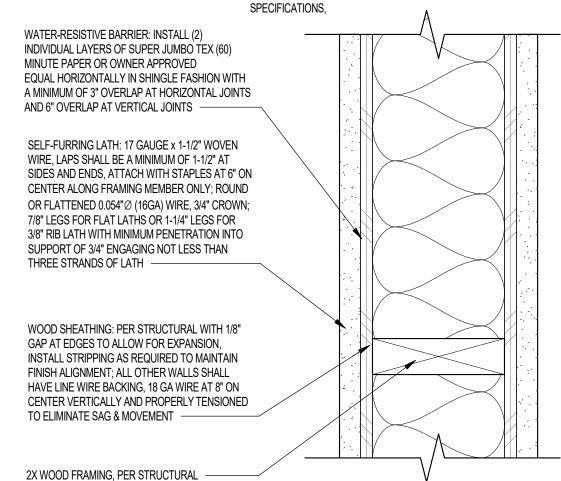
WATER-RESISTIVE BARRIER: INSTALL (2)

PAPER OR OWNER APPROVED

OVERLAP AT VERTICAL JOINTS -

1-HR STUCCO BOTH SIDES, EXTERIOR WALL GENERIC ASSEMBLY FIRE TEST - IBC 2018 TABLE 721.1(2) ITEM 15-1.2. NO SOUND RATING REQUIRED AT EXTERIOR WALLS REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



# IBC TABLE 721.1 (2) ITEM 15-1.2.

THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1 (2) ITEM15-1.2.

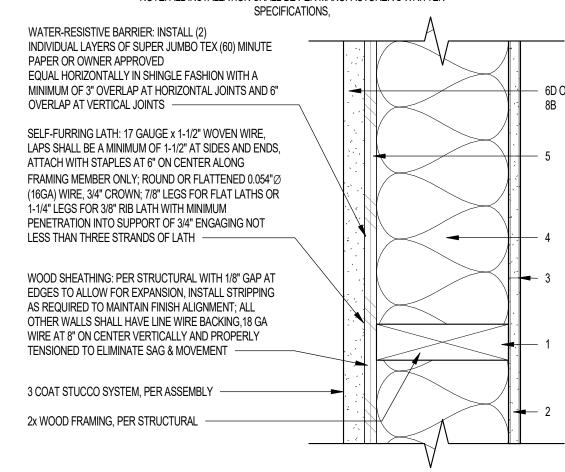
CONSTRUCTION:
2x4 WOOD STUDS 16" ON CENTER WITH 3/4" CEMENT PLASTER ON EACH SIDE LATH ATTACHED WITH 6D COMMON NAILS 7" ON CENTER DRIVEN TO 1" MINIMUM PENETRATION AND BENT OVER. PLASTER MIX 1:4 FOR SCRATCH COAT AND 1:5 FOR BROWN COAT, BY VOLUME, CEMENT TO SAND.

A. WOOD STRUCTURAL PANELS SHALL BE PERMITTED TO BE INSTALLED BETWEEN THE FIRE PROTECTION AND THE WOOD STUDS ON EITHER THE INTERIOR OR EXTERIOR SIDE OF THE WOOD FRAME ASSEMBLIES IN THIS TABLE. PROVIDED THAT THE LENGTH OF THE FASTENERS USED TO ATTACH THE FIRE PROTECTION IS INCREASED BY AN AMOUNT NOT LESS THAN THE THICKNESS OF THE WOOD STRUCTURAL PANEL B. FOR STUDS WITH A SLENDERNESS RATIO, LE/D, GREATER THAN 33, THE DESIGN STRESS SHALL BE REDUCED TO 78 PERCENT OF ALLOWABLE F'C. FOR STUDS WITH A SLENDERNESS RATIO, LE/D, NOT EXCEEDING 33, THE DESIGN STRESS SHALL BE REDUCED TO 78 PERCENT OF THE ADJUSTED STRESS F'C CALCULATED FOR STUDS HAVING A SLENDERNESS RATIO LE/D OF 33

1-HR STUCCO EXTERIOR WALL

PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

#### ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



#### DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD.

21. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc

3. **JOINTS AND FASTENER HEADS —** (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

Type FSMR-C, Type FSW-6, Type FSL

4. BATTS AND BLANKETS\* — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C

WOOD STRUCTURAL PANEL SHEATHING — MIN 7/16 IN. THICK. 4 FT WIDE WOOD STRUCTURAL PANELS. MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS

BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

6. EXTERIOR FACINGS — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING:

6D. CEMENTITIOUS STUCCO — PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 TO 3/4 IN., DEPENDING ON SYSTEM



WorldHQ@ORBArch.com



# 1-HR STUCCO EXTERIOR WALL RATED FROM BOTH SIDES -

HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated Plywood

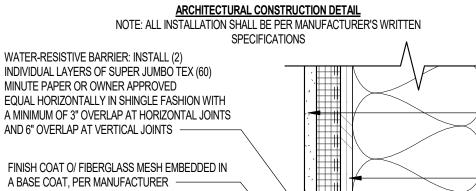
1-HR EIFS EXTERIOR WALL -

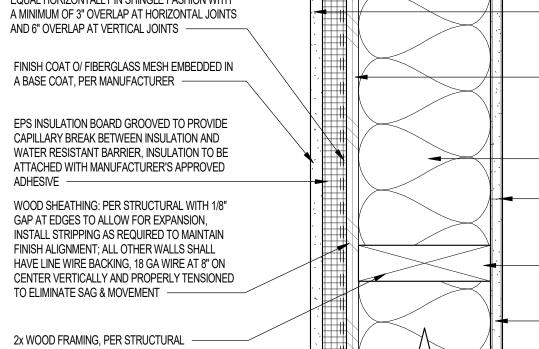
REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356

PROPRIETARY ASSEMBLY - January 29, 2024

SCALE: 3" = 1'-0"





# DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD. WHEN ITEM STEEL FRAMING MEMBERS\* (ITEM 7 OR ANY ALTERNATE CLIPS), IS USED, GYPSUM PANELS ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. 21. GYPSUM BOARD\* - (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4

2. GYPSUM WALLBOARD\* - ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS.

IN LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN OC. WITH LAST SCREW 1 IN FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED HORIZONTALLY AMERICAN GYPSUM CO — TYPES AGX-1 (FINISH RATING 25 MIN.), M-GLASS (FINISH RATING 25 MIN.), AG-C (FINISH RATING 25 MIN.) LIGHTROC (FINISH RATING 25 MIN.) NATIONAL GYPSUM CO — TYPE FSK, TYPE FSK-G, TYPE FSW, TYPE FSW-3, TYPE FSW-5, TYPE FSW-G, TYPE FSK-C, TYPE

3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

FSW-C, TYPE FSMR-C, TYPE FSW-6, TYPE FSL

FW 22 | SAME AS EW 21, BUT NO RATING REQUIRED AND EIFS BOTH SIDE.

4, BATTS AND BLANKETS\* - MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

5, WOOD STRUCTURAL PANEL SHEATHING - MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS, VERTICAL JOINTS CENTERED ON STUDS, HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

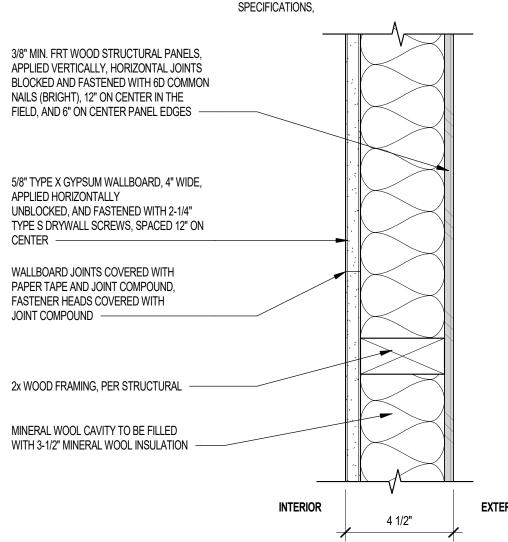
6. EXTERIOR FACING - INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, ONE OF

THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING: D. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 TO 3/4 IN., DEPENDING ON SYSTEM.

1-HR WRAP PROJECT GARAGE EXTERIOR WALL GENERIC ASSEMBLY FIRE TEST - IBC TABLE 721.1(2) ITEM 16-1.1

ANSI/UL 263 DESIGN NO U348

# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



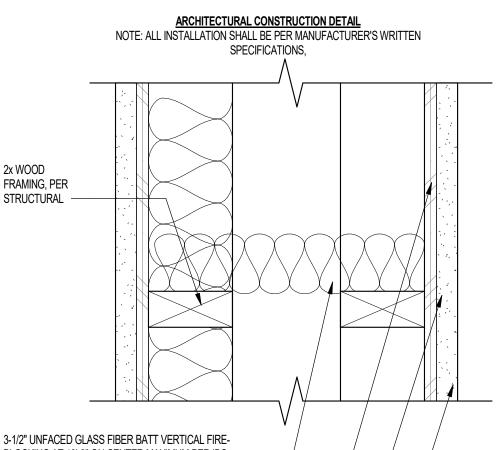
#### IBC TABLE 721.1(2) ITEM 16-1.1 THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) ITEM 16-1.1. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED WALL ASSEMBLY PER OWNER'S REQUEST

X4 WOOD STUDS 16" ON CENTER WITH DOUBLE OP PLATES. SINGLE BOTTOM PLATE. INTERIOR SIDE COVERED WITH 5/8" TYPE X GYPSUM DESNSGLASS SHEATHING, 4" WIDE, APPLIED HORIZONTALLY UNBLOCKED, AND FASTENED WITH 2-1/4" TYPE S DRYWALL SCREWS, SPACED 12" ON CENTER. WALLBOARD JOINTS COVERED WITH PAPER TAPE AND JOINT COMPOUND, FASTENER HEADS COVERED WITH JOINT COMPOUND. EXTERIOR COVERED WITH 3/8" MIN. FRT WOOD STRUCTURAL PANELS, APPLIED VERTICALLY, HORIZONTAL JOINTS BLOCKED AND FASTENED WITH 6D COMMON NAILS (BRIGHT), 12" ON CENTER IN THE FIELD, AND 6" ON CENTER PANEL CAVITY TO BE FILLED WITH 3-1/2" MINERAL WOOL INSULATION.

 THE DESIGN STRESS OF STUDS SHALL BE EQUAL TO NOT MORE THAN 100 PERCENT OF THE ALLOWABLE F'C CALCULATED IN ACCORDANCE WITH SECTION 2306. RAITING ESTABLISHED FROM THE INTERIOR SIDE ONLY WHEN NON-FRT WOOD STRUCTURAL PANEL IS PROVED.

# 1-HR UNIT DEMISING WALL, EXTERIOR WALL GENERIC ASSEMBLY

FIRE TEST - IBC TABLE 721.1(2) ITEM 15-1.2.



BLOCKING AT 10'-0" ON CENTER MAXIMUM PER IBC 718.2.1.5 & 718.2.2 WOOD SHEATHING: PER STRUCTURAL WITH 1/8" GAP AT EDGES TO ALLOW FOR EXPANSION, INSTALL STRIPPING AS

REQUIRED TO MAINTAIN FINISH ALIGNMENT; ALL OTHER WALLS SHALL HAVE LINE WIRE BACKING, 18 GA WIRE AT 8" ON

CENTER VERTICALLY AND PROPERLY TENSIONED TO

ELIMINATE SAG & MOVEMENT -

WATER-RESISTIVE BARRIER: INSTALL (2) INDIVIDUAL LAYERS OF SUPER JUMBO TEX (60) MINUTE PAPER OR OWNER APPROVED EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A MINIMUM OF 3" OVERLAP AT HORIZONTAL JOINTS AND 6" OVERLAP AT VERTICAL JOINTS

SELF-FURRING LATH: 17 GAUGE x 1-1/2" WOVEN WIRE, LAPS SHALL BE A MINIMUM OF 1-1/2" AT SIDES AND ENDS, ATTACH WITH STAPLES AT 6" ON CENTER ALONG FRAMING MEMBER ONLY: ROUND OR FLATTENED 0.054" Ø (16GA) WIRE. 3/4" CROWN: 7/8" LEGS FOR FLAT LATHS OR 1-1/4" LEGS FOR 3/8" RIB LATH WITH MINIMUM PENETRATION INTO SUPPORT OF 3/4" ENGAGING NOT LESS THAN THREE STRANDS OF LATH —

#### IBC TABLE 721.1 (2) ITEM 15-1.2. THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1 (2) ITEM15-1.2. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED WALL ASSEMBLY PER OWNER'S REQUEST

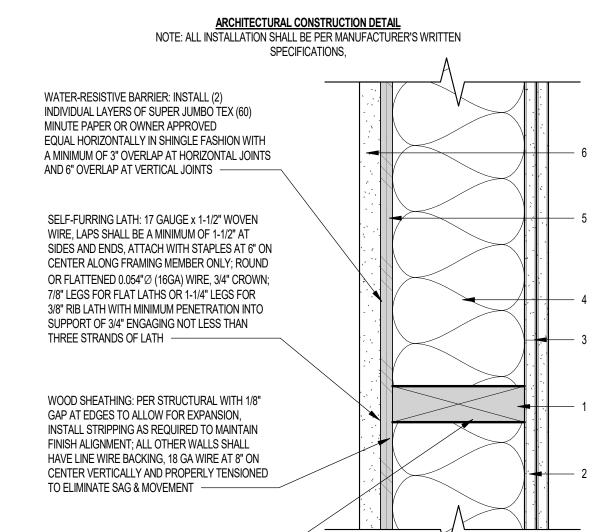
" x 4" WOOD STUDS 16" ON CENTER WITH 7/8" CEMENT PLASTER (MEASURED FROM THE FACE OF STUDS) ON EXTERIOR SURFACE WITH INTERIOR SURFACE TREATMENT AS REQUIRED FOR INTERIOR, NON-BEARING, NON-COMBUSTIBLE STUDS PARTITIONS IN THIS TABLE. PLASTER MIX 1:4 FOR SCRATCH COAT AND 1:5 FOR BROWN COAT, BY VOLUME, CEMENT TO SAND.

INSTALL ACOUSTICAL SEALANT BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL

# ANSI/UL 263 DESIGN NO U356 SCALE: 3" = 1'-0"

1-HR STUCCO EXTERIOR WALL - RATED BOTH SIDES PROPRIETARY ASSEMBLY - May 25, 2022 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314

# REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



# DESIGN NO. V314 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED.

# HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2x WOOD FRAMING, PER STRUCTURAL

2. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM.

NATIONAL GYPSUM CO - TYPE FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, TYPE FSW-G, TYPE FSW-5, TYPE FSW-6, TYPE FSK-C, TYPE FSW-C, EXP-C AMERICAN GYPSUM CO - TYPE AGX-1, AG-C, LIGHTROC

3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND

4. BATTS AND BLANKETS\* - FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS. 5. BUILDING UNITS\* - PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG BY

HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING. AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES::

6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF- FURRING

# 1-HR UNIT SEPARATION WALL AT EXTERIOR STUCCO

SCALE: 3" = 1'-0"

# HR STUCCO EXTERIOR WALL - WOOD FRAMING

# METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM.

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing

cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

CLIENT PHONE NUMBER

Contractor must verify all dimensions at project before proceeding with this

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Architect whether the project for which they are made is executed or not. These drawings and specifications

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REVISIONS/SUBMITTALS

and the owner or its designated agent shall provide this written description on request

2-HR CMU VENEER - EXTERIOR WALL

PROPRIETARY ASSEMBLY - May 25, 2022

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

#### DESIGN NO. V314 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

1. WOOD STUDS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* -NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN. DIAM. HEAD. AMERICAN GYPSUM CO — TYPE AGX-1, AG-C, LIGHTROC NATIONAL GYPSUM CO — Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C,

3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION. 3-1/2 IN. THICK. NOM 3.0 PCF. PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG. 6D NAILS. SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING, PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG BY 15/32 IN. THICK. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING. AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES

6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM. 7. EXTERIOR FACING - ONE OF THE FOLLOWING EXTERIOR FACINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS:

7A. BRICK - BRICK VENEER, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO THE STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH 8D CEMENT COATED NAILS, EVERY SIXTH COURSE OF BRICKS.

SAME AS EW 63 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM

CMU VENEER AT 2-HR RATED EXTERIOR WALL - WOOD

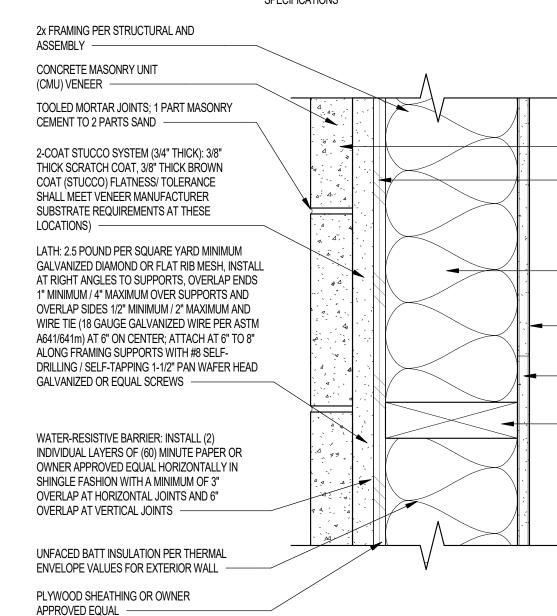
SCALE: 3" = 1'-0"

WALLBOARD; NO RATING REQUIRED

J ANSI/UL 263 DESIGN NO V314

1-HR CMU VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

# NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN **SPECIFICATIONS**



# DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. 1. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN **MINERAL AND FIBER** BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

2. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD.

2I. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN, LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN, OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED HORIZONTALLY  $\textbf{AMERICAN GYPSUM CO} - \textbf{Types AGX-1 (finish rating 25 min.)}, \textbf{M-Glass (finish rating 25 min.)}, \textbf{AG-C (finish rating 25 min.)}, \textbf{AG-C (finish rating 25 min.)}, \textbf{M-Glass (finish rating 25 min.)}, \textbf{M-Gl$ NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW

3. **JOINTS AND FASTENER HEADS —** (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT

C, Type FSMR-C, Type FSW-6, Type FSL

 $^{-\!\!-\!\!-}$  ANSI/UL 263 DESIGN NO U356

4. BATTS AND BLANKETS\* — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND

BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

 WOOD STRUCTURAL PANEL SHEATHING — MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS. MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN, WOOD BLOCKING, ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

6. EXTERIOR FACINGS — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, ONE OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING:

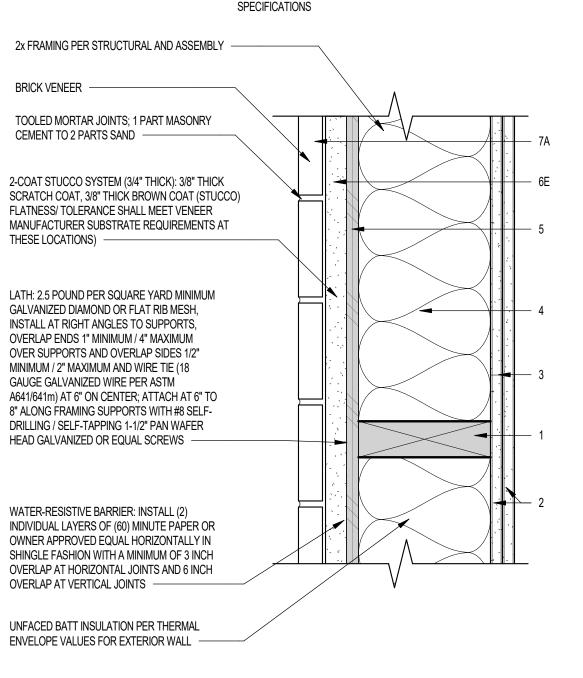
J. CEMENTITIOUS BACKER UNITS — 1/2 IN. OR 5/8 IN., MIN. 32 IN. WIDE.- APPLIED VERTICALLY OR HORIZONTALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. FASTENED TO STUDS AND RUNNERS WITH CEMENT BOARD SCREWS OF ADEQUATE LENGTH TO PENETRATE STUD BY A MINIMUM 3/4 IN., SPACED A MAX OF 8 IN. OC. HORIZONTAL JOINTS NEED NOT BE BACKED BY FRAMING. WHEN CEMENTITIOUS BACKER UNITS ARE USED. THE RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. CEMENTITIOUS BACKER UNITS FOR USE AS SUBSTRATE FOR EXTERIOR FINISHES SUCH AS CERAMIC TILE, SLATE, MARBLE, NATURAL STONE, MANUFACTURED STONE, THIN BRICK, OR PORTLAND CEMENT **NATIONAL GYPSUM CO** — Type PermaBase

EW 62 SAME AS EW 61 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD: NO RATING REQUIRED

CMU VENEER AT 1-HR RATED EXTERIOR WALL - WOOD

SCALE: 3" = 1'-0"

2-HR BRICK VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - May 25, 2022 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



# BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. WOOD STUDS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* --NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM, AND 1/4 IN, DIAM, HEAD, THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER. 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN. DIAM. HEAD.

AMERICAN GYPSUM CO — TYPE AGX-1, AG-C, LIGHTROC NATIONAL GYPSUM CO — Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C Type FSW-C, eXP-C

3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS

4. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG. 6D NAILS. SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG BY 15/32 IN. THICK. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES

6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM. 7. EXTERIOR FACING - ONE OF THE FOLLOWING EXTERIOR FACINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE

MANUFACTURER'S INSTALLATION INSTRUCTIONS: 7A. BRICK - BRICK VENEER, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO THE STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH 8D CEMENT COATED NAILS, EVERY

EW 59 SAME AS EW 58 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

ANSI/UL 263 DESIGN NO V314

BRICK VENEER AT EXTERIOR 2-HR RATED WALL - WOOD

1-HR BRICK VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

# **SPECIFICATIONS** 2x FRAMING PER STRUCTURAL AND ASSEMBLY BRICK VENEER -TOOLED MORTAR JOINTS; 1 PART MASONRY CEMENT TO 2 PARTS SAND — 2-COAT STUCCO SYSTEM (3/4" THICK): 3/8" THICK SCRATCH COAT, 3/8" THICK BROWN COAT (STUCCO) FLATNESS/ TOLERANCE SHALL MEET VENEER MANUFACTURER SUBSTRATE REQUIREMENTS AT THESE LOCATIONS) -LATH: 2.5 POUND PER SQUARE YARD MINIMUM GALVANIZED DIAMOND OR FLAT RIB MESH, INSTALL AT RIGHT ANGLES TO SUPPORTS, OVERLAP ENDS 1" MINIMUM / 4" MAXIMUM OVER SUPPORTS AND OVERLAP SIDES 1/2" MINIMUM / 2" MAXIMUM AND WIRE TIE (18 GAUGE GALVANIZED WIRE PER ASTM A641/641m) AT 6" ON CENTER; ATTACH AT 6" TO 8" ALONG FRAMING SUPPORTS WITH #8 SELF-DRILLING / SELF-TAPPING 1-1/2" PAN WAFER HEAD GALVANIZED OR EQUAL SCREWS -WATER-RESISTIVE BARRIER: INSTALL (2) INDIVIDUAL LAYERS OF (60) MINUTE PAPER OR OWNER APPROVED EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A MINIMUM OF 3" OVERLAP AT HORIZONTAL JOINTS AND 6" OVERLAP AT VERTICAL JOINTS -

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

#### DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

UNFACED BATT INSULATION PER THERMAL

ENVELOPE VALUES FOR EXTERIOR WALL

PLYWOOD SHEATHING OR OWNER

. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN **MINERAL AND FIBER** BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD.

21. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY, GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED

AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

3. JOINTS AND FASTENER HEADS — (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

5. WOOD STRUCTURAL PANEL SHEATHING — MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

6. EXTERIOR FACINGS — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING: E. BRICK VENEER - ANY TYPE ON NOM 4 IN. WIDE BRICK VENEER, WHEN BRICK VENEER IS USED, THE RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. BRICK VENEER FASTENED WITH CORRUGATED METAL WALL TIES

ATTACHED OVER SHEATHING TO WOOD STUDS WITH 8D NAIL PER TIE: TIES SPACED NOT MORE THAN EACH SIXTH COURSE OF BRICK AND MAX 32 IN. OC HORIZONTALLY. ONE IN. AIR SPACE PROVIDED BETWEEN BRICK VENEER AND

(EW | 57 | SAME AS EW 56 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM

BRICK VENEER AT EXTERIOR 1-HR RATED WALL - WOOD

WALLBOARD; NO RATING REQUIRED

ANSI/UL 263 DESIGN NO U356

1/2" TREATED PLYWOOD SHEATHING AS REQUIRED BY ASSEMBLY AND STRUCTURAL GYPSUM WALLBOARD PER ASSEMBLY

2-HR METAL SIDING EXTERIOR WALL

PROPRIETARY ASSEMBLY - May 25, 2022

2x FRAMING PER STRUCTURAL AND ASSEMBLY

TYVEK COMMERCIAL WRAP AIR AND MOISTURE

18 GAUGE GALVANIZED HAT-CHANNEL AT

UNFACED BATT INSULATION PER THERMAL

COVERED WITH JOINT COMPOUND.

ENVELOPE VALUES TABLE, INSTALL IN EXTERIOR

24" ON CENTER VERTICALLY —

METAL SIDING SYSTEM, INSTALL PER

MANUFACTURER REQUIREMENTS

BARRIER SYSTEM -

WALL CAVITY -

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

SPECIFICATIONS

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

#### **DESIGN NO. V314** BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. WOOD STUDS -PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* —NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN. AMERICAN GYPSUM CO - Type AGX-1, AG-C, LightRoc

NATIONAL GYPSUM CO - Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C, 3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS

I. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING, PANELS PROVIDED IN NOMINAL SIZE OF 48 IN, WIDE BY 96 IN, LONG BY 15/32 IN. THICK. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated Plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES

EW 54 SAME AS EW 53, EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD: NO RATING REQUIRED

METAL SIDING AT 2-HR RATED EXTERIOR WALL - WOOD

WALLBOARD; NO RATING REQUIRED

ANSI/UL 263 DESIGN NO V314

3" = 1'-0"

1-HR METAL SIDING EXTERIOR WALL PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

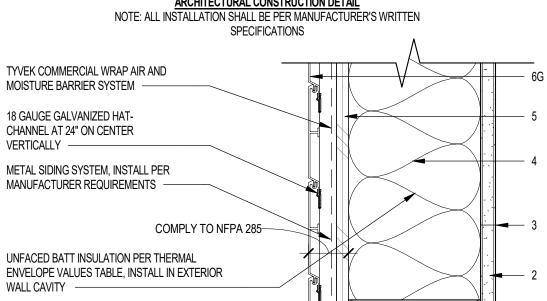
PLYWOOD SHEATHING OR OWNER

2x6 STUDS AT 16" ON CENTER PER

GYPSUM WALLBOARD PER ASSEMBLY

APPROVED EQUAL

STRUCTURAL -



# DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5), WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

2. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD.

21. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED

AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc (finish rating 25 min.) NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

3. JOINTS AND FASTENER HEADS — (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND

BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.

. WOOD STRUCTURAL PANEL SHEATHING — MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING 6G. **SIDING** - ALUMINUM OR STEEL SIDING ATTACHED OVER SHEATHING TO STUDS.

EW 52 SAME AS EW 51, EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

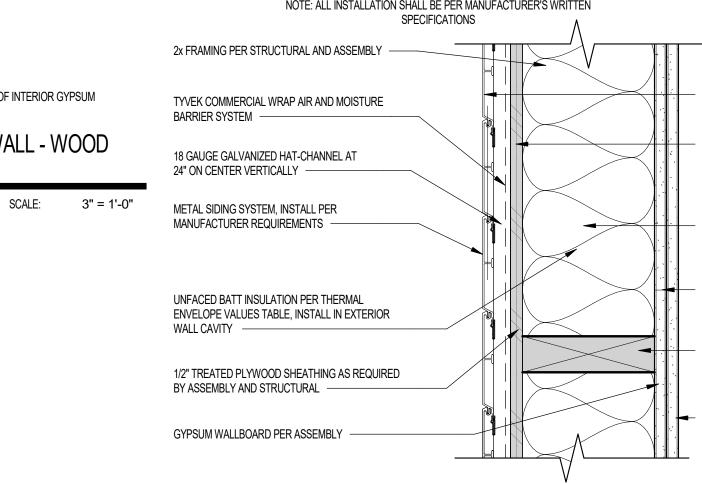
METAL SIDING AT 1-HR RATED EXTERIOR WALL - WOOD

ANSI/UL 263 DESIGN NO U356 SCALE: 3" = 1'-0"

# 1-HR METAL SIDING EXTERIOR WALL PROPRIETARY ASSEMBLY

FIRE TEST: GA WP8130 **NO SOUND RATING REQUIRED AT EXTERIOR WALLS** 

> RCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



# GYPSUM WALLBOARD, GLASS MAT GYPSUM SUBSTRATE, WOOD STUDS

EXTERIOR SIDE: ONE LAYER 5/8" PROPRIETARY TYPE X GLASS MAT THICKNESS: 4-3/4" (Fire) GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL OR AT RIGHT ANGLES TO 2 X 4 WOOD STUDS 16" O.C. WITH GALVANIZED ROOFING NAILS, 13/4" LONG, 0.128" SHANK, 7/16" HEAD, 7" O.C. EXTERIOR SURFACE COVERED WITH WEATHER EXPOSED CLADDING OR FINISH SYSTEM.

INTERIOR SIDE: ONE LAYER 5/8" PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE, GLASS MAT WATER-RESISTANT GYPSUM BACKING BOARD, GYPSLIM WALLBOARD, WATER-RESISTANT GYPSUM BACKING BOARD, OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO STUDS WITH 6D COATED NAILS, 17/8" LONG, 0.0915" SHANK, 1/4" HEADS, 7" O.C.

JOINTS STAGGERED ON OPPOSITE SIDES. (LOAD-BEARING)

WEIGHT: 7.5 PSF (Fire) FIRE TEST: WHI-495-0702, 8-7-85; WHI-495-0703, 8-8-85; UL R2717, 89NK3419, 8-29-89; UL R3501, 07NK17992, 12-12-07; UL R6937, 06NK17692, 9-19-08; UL R15187, 02NK31412, 7-17-02; UL R14196, 11NK04002, 3-3-11 UL R1319, 4786554784, 1-30-15

UL Designs U337 & U305

SCALE: 3" = 1'-0"

# PROPRIETARY GYPSUM PANEL PRODUCTS

AMERICAN GYPSUM COMPANY LLC -5/8" FireBloc® Type X Gypsum Board 5/8" M-Glass® Type X Exterior Gypsum Sheathing CERTAINTEED GYPSUM INC. 5/8" Certain Teed® Type X Gypsum Board 5/8" GlasRoc® Sheathing Type X Gypsum Panels CONTINENTAL BUILDING PRODUCTS 5/8" Firecheck® Type X OPERATING COMPANY, LLC 5/8" Weather Defense® Sheathing Type X GEORGIA-PACIFIC GYPSUM LLC 5/8" DensArmor Plus® Fireguard® Interior Panel 5/8" DensGlass® Fireguard® Sheathing NATIONAL GYPSUM COMPANY 5/8" Gold Bond® Brand FIRE-SHIELD® Gypsum Board 5/8" Gold Bond® Brand eXP® FIRE-SHIELD® Gypsum Sheathing PABCO® GYPSUM -5/8" FLAME CURB® Type X 5/8" PABCO® GLASS® Sheathing Type X

5/8" Sheetrock® Brand EcoSmart Panels Firecode® X UNITED STATES GYPSUM COMPANY -5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

GYPSUM ASSOCIATION GA FILE NO. WP 8130

EW 52 SAME AS EW 53, EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

METAL SIDING AT 1-HR RATED EXTERIOR WALL - WOOD

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

WorldHQ@ORBArch.com

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

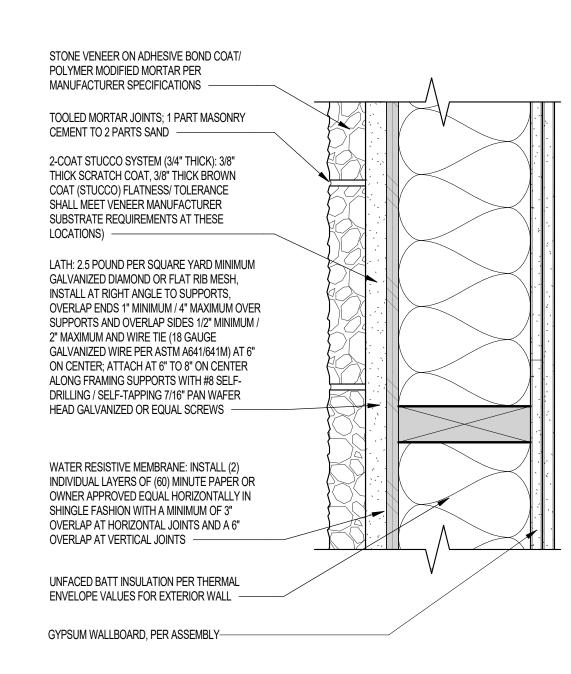
Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

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# ARCHITECTURAL CONSTRUCTION DETAIL SPECIFICATIONS



#### DESIGN NO. V314 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. WOOD STUDS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED. . HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* —NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER. WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN. DIAM. HEAD.

AMERICAN GYPSUM CO — TYPE AGX-1, AG-C, LIGHTROC NATIONAL GYPSUM CO — Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C, Type FSW-C, eXP-C

3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG BY 15/32 IN. THICK. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES

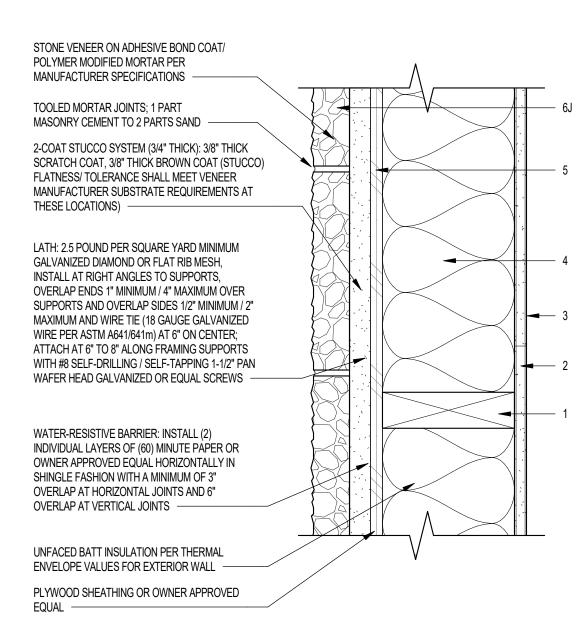
6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM.

7. EXTERIOR FACING - ONE OF THE FOLLOWING EXTERIOR FACINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS:

7A. BRICK - BRICK VENEER, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO THE STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH 8D CEMENT COATED NAILS, EVERY SIXTH COURSE OF BRICKS.

1-HR STONE VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

#### ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



# DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

2. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD. 21. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES. APPLIED EITHER HORIZONTALLY OR VERTICALLY, GYPSUM PANELS FASTENED TO FRAMING WITH

1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1

IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc (finish rating 25 min.) NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-

C, Type FSMR-C, Type FSW-6, Type FSL

3. JOINTS AND FASTENER HEADS — (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND

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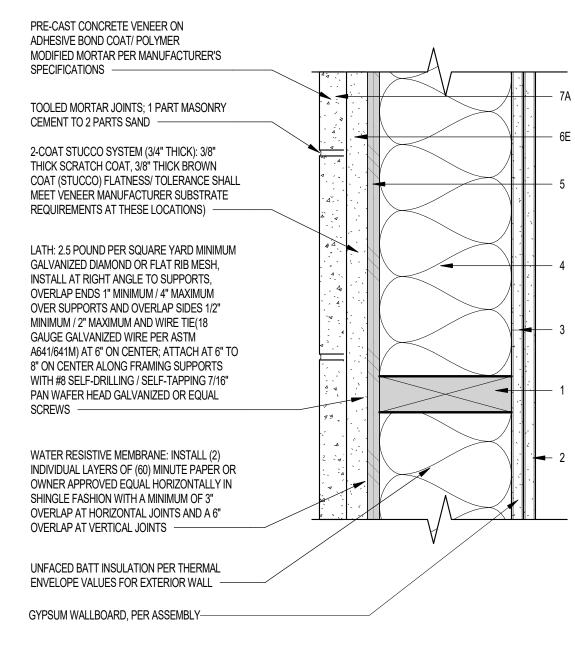
6. EXTERIOR FACINGS — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE

BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING: J. CEMENTITIOUS BACKER UNITS - 1/2 IN. OR 5/8 IN., MIN. 32 IN. WIDE.- APPLIED VERTICALLY OR HORIZONTALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. FASTENED TO STUDS AND RUNNERS WITH CEMENT BOARD SCREWS OF ADEQUATE LENGTH TO PENETRATE STUD BY A MINIMUM 3/4 IN.. SPACED A MAX OF 8 IN. OC. HORIZONTAL JOINTS NEED NOT BE BACKED BY FRAMING. WHEN CEMENTITIOUS BACKER UNITS ARE USED, THE RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. CEMENTITIOUS BACKER UNITS FOR USE AS SUBSTRATE FOR EXTERIOR FINISHES SUCH AS CERAMIC TILE, SLATE, MARBLE, NATURAL STONE, MANUFACTURED STONE, THIN BRICK, OR PORTLAND CEMENT OR SYNTHETIC STUCCO.

2-HR CONCRETE VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - May 25, 2022 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO V314 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

#### ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



#### DESIGN NO. V314 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. WOOD STUDS - PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS - NOMINAL 2 BY 4 IN., SPACED 16 IN. OC EFFECTIVELY FIRE STOPPED. AS AN OPTION, PRESSURE-TREATED, FIRE-RETARDANT WOOD STUDS NOMINAL 2 BY 6 IN., SPACED 24 IN. OC EFFECTIVELY FIRE-STOPPED. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard® treated lumber

2. GYPSUM WALLBOARD\* —NOM 5/8 IN. THICK, 4 FT. WIDE, TWO LAYERS APPLIED VERTICALLY. BASE LAYER NAILED TO WOOD STUDS AND BEARING PLATES 6 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. THE FACE LAYER, WITH JOINTS STAGGERED FROM BASE LAYER, NAILED TO THE STUDS AND BEARING PLATES OVER THE BASE LAYER, 8 IN. OC WITH 8D CEMENT COATED NAILS, 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM. 9/32 IN. DIAM. HEAD.

AMERICAN GYPSUM CO — TYPE AGX-1, AG-C, LIGHTROC NATIONAL GYPSUM CO — Type FSW, FSK, FSMR-C, FSL, FSLX, FSK-G, Type FSW-G, Type FSW-5, Type FSW-6, Type FSK-C, Type FSW-C, eXP-C

3. JOINTS AND NAILHEADS — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN. THICK, NOM 3.0 PCF. PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL THICKNESS. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS\* — PRESSURE-TREATED, FIRE-RETARDANT PLYWOOD INSTALLED VERTICALLY NAILED TO THE WOOD FRAMING WITH 1-7/8 IN. LONG. 6D NAILS. SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. VERTICAL AND HORIZONTAL JOINTS ARE BACKED BY FRAMING. PANELS PROVIDED IN NOMINAL SIZE OF 48 IN. WIDE BY 96 IN. LONG BY 15/32 IN. THICK. HOOVER TREATED WOOD PRODUCTS INC — Pyro-Guard treated plywood

6. EXTERIOR FACING - ANY EXTERIOR FACING, AS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS ARE ALLOWED. EXTERIOR FACINGS MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING EXAMPLES

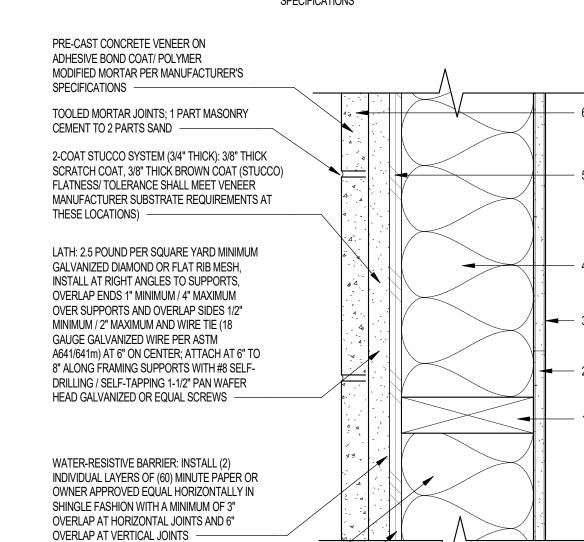
6E. CEMENTITIOUS STUCCO - PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS (E.G. EIFS) WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 IN. TO 3/4 IN. DEPENDING ON SYSTEM.

7. EXTERIOR FACING - ONE OF THE FOLLOWING EXTERIOR FACINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS:

7A. BRICK - BRICK VENEER, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO THE STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH 8D CEMENT COATED NAILS, EVERY SIXTH COURSE OF BRICKS.

1-HR CONCRETE VENEER - EXTERIOR WALL PROPRIETARY ASSEMBLY - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U356 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

> NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



#### DESIGN NO. U356 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

UNFACED BATT INSULATION PER THERMAL

PLYWOOD SHEATHING OR OWNER APPROVED

ENVELOPE VALUES FOR EXTERIOR WALL

1. FRAMING MEMBERS - NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY-BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 76% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.

2. GYPSUM BOARD\* — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD.

21. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 2) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY, GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.),

LightRoc (finish rating 25 min.) NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

3. JOINTS AND FASTENER HEADS — (NOT SHOWN) — GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND

BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES. 5. WOOD STRUCTURAL PANEL SHEATHING — MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING". INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED

6. EXTERIOR FACINGS — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE

BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.

OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING: J. CEMENTITIOUS BACKER UNITS — 1/2 IN. OR 5/8 IN., MIN. 32 IN. WIDE.- APPLIED VERTICALLY OR HORIZONTALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. FASTENED TO STUDS AND RUNNERS WITH CEMENT BOARD SCREWS OF ADEQUATE LENGTH TO PENETRATE STUD BY A MINIMUM 3/4 IN., SPACED A MAX OF 8 IN. OC. HORIZONTAL JOINTS NEED NOT BE BACKED BY FRAMING. WHEN CEMENTITIOUS BACKER UNITS ARE USED, THE RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. CEMENTITIOUS BACKER UNITS FOR USE AS SUBSTRATE FOR EXTERIOR FINISHES SUCH AS CERAMIC TILE, SLATE, MARBLE, NATURAL STONE, MANUFACTURED STONE, THIN BRICK, OR PORTLAND CEMENT OR SYNTHETIC STUCCO.

WorldHQ@ORBArch.com



EW 69 SAME AS EW 68 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

CONCRETE VENEER AT 2-HR RATED EXTERIOR WALL -

WOOD FRAMING

ANSI/UL 263 DESIGN NO V314

SCALE: 3" = 1'-0"

EW 67 SAME AS EW 66 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

→ ANSI/UL 263 DESIGN NO U356

CONCRETE VENEER AT 1-HR RATED EXTERIOR WALL

SCALE: 3" = 1'-0"

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

FIRE ASSEMBLIES - EXTERIOR

SAME AS EW 73 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED STONE VENEER AT 2-HR RATED EXTERIOR WALL - WOOD

ANSI/UL 263 DESIGN NO V314

STONE VENEER AT 1-HR RATED EXTERIOR WALL - WOOD

SCALE: 3" = 1'-0"

ANSI/UL 263 DESIGN NO U356

EW 72 SAME AS EW 71 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

SCALE: 3" = 1'-0"

DENSGLASS SHEATHING PER ASSEMBLY

Manufacturer -

ASSEMBLY -

CEMENTITIOUS PANEL. FASTENED O/ WATER

RESISTANT BARRIER AND WALL SHEATHING WITH A

PNEUMATIC NAILER SNUG TO SURFACE OF SIDING,

FASTENER TO BE 1-1/4" MIN. OR AS REQUIRED BY

STEEL STUD FRAMING PER STRUCTURAL AND

WATER RESISTIVE MEMBRANE: INSTALL (2)

INDIVIDUAL LAYERS OF (60) MINUTE PAPER OR

OWNER APPROVED EQUAL HORIZONTALLY IN

SHINGLE FASHION WITH A MINIMUM OF 3"

OVERLAP AT HORIZONTAL JOINTS AND A 6"

UNFACED BATT INSULATION PER THERMAL

ENVELOPE VALUES FOR EXTERIOR WALL

OVERLAP AT VERTICAL JOINTS

1-HR EIFS BOARD SIDING EXTERIOR WALL

4-3/4: (FIRE)

UL R3660, 01NK21103, 012-4-02;

UL R2717, 07NK08079, 9-19-08;

UL R1319, 4786832806, 4-29-15

SCALE: 3" = 1'-0"

UL DESIGN U425

APPROX. WEIGHT: 6 PSF (FIRE)

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED

RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND

CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER

PARALLEL TO 3-1/2 INCH. 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12. SELF-DRILLING. CORROSION

INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH

BRACING - 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

SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS

SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE LOCAL CODE AGENCIES. WHERE REQUIRED FOR LATERAL

AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD.

#### DESIGN NO. WP 8006 GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS STEEL STUDS, INSULATION GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS STEEL STUDS, INSULATION THICKNESS:

1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

PROPRIETARY GYPSUM PANEL PRODUCTS

5/8" Certain Teed® Type X Gypsum Board

5/8" ThoughRock® Fireguard® Gypsum Board

5/8" DensGlass® Fireguard® Sheathing

5/8" PABCO® GLASS® Sheathing Type X

5/8" Sheetrock® Brand EcoSmart Panels Firecode® X

5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels

CERTAINTEED GYPSUM INC.

GEORGIA-PACIFIC GYPSUM LLC

5/8" FLAME CURB® Type X

UNITED STATES GYPSUM COMPANY

PABCO® GYPSUM

(LOAD-BEARING)

THICKNESS: APPROX. WEIGHT: 6 PSF (FIRE) UL R3660, 01NK21103, 012-4-02 UL R2717, 07NK08079, 9-19-08; UL R1319, 4786832806, 4-29-15 UL DESIGN U425

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL TO 3-1/2 INCH, 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12, SELF-DRILLING, CORROSION RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH 1INCH TYPE S-12 SCREWS 12 INCH ON CENTER

BRACING - 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. WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD. (LOAD-BEARING)

# PROPRIETARY GYPSUM PANEL PRODUCTS

- **CERTAINTEED GYPSUM INC.** 5/8" Certain Teed® Type X Gypsum Board
- 5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels GEORGIA-PACIFIC GYPSUM LLC 5/8" ThoughRock® Fireguard® Gypsum Board 5/8" DensGlass® Fireguard® Sheathing
- PABCO® GYPSUM 5/8" FLAME CURB® Type X
- 5/8" PABCO® GLASS® Sheathing Type X
- UNITED STATES GYPSUM COMPANY 5/8" Sheetrock® Brand EcoSmart Panels Firecode® X

5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

EM 42 | SAME AS EM 41 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

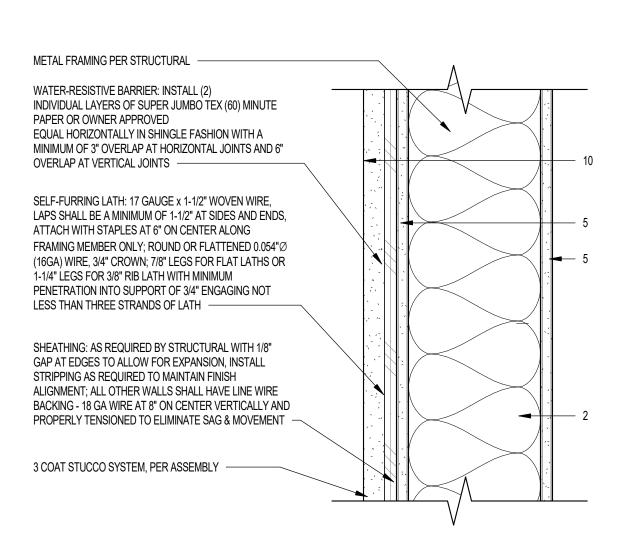
CEMENTITIOUS BOARD AT 1-HR RATED EXTERIOR WALL

EM 22 | SAME AS EM 21 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

1-HR EIFIS RATED EXTERIOR WALL - METAL FRAMING

1-HR STUCCO EXTERIOR WALL - RATED BOTH SIDES PROPRIETARY ASSEMBLY - August 4, 2023 FIRE TEST: BXUV.U348 - FIRE-RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO. U348 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



# DESIGN NO. U348 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1A. STEEL STUDS AND FLOOR AND CEILING TRACKS — TOP AND BOTTOM TRACKS OF WALL ASSEMBLIES SHALL CONSIST OF STEEL MEMBERS, MIN NO. 20 MSG (0.0329 IN., MIN BARE METAL THICKNESS) STEEL OR MIN NO. 20 MSG (0.036 IN. THICK) GALV STEEL OR NO. 20 MSG (0.033 IN. THICK) PRIMED 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. STEEL STUDS MIN 3-1/2 IN. WIDE, NO. 20 MSG (0.0329 IN., MIN BARE METAL THICKNESS) CORROSION PROTECTED COLD FORMED STEEL STUDS 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 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI SPECIFICATIONS.

2. GYPSUM WALLBOARD\* - ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS L501, G512 OR U305, NOM. 5/8 IN. THICK, 4 FT. WIDE, APPLIED VERTICALLY, AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC. WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM. AND 1/4 IN. DIAM. HEAD. WHEN STEEL FRAMING IS SUBSTITUTED FOR WOOD FRAMING, 1 IN. LONG TYPE S STEEL SCREWS ARE USED IN LIEU OF NAILS. AMERICAN GYPSUM CO — CKNX.R14196 NATIONAL GYPSUM CO — CKNX.R3501

UNITED STATES GYPSUM — CKNX.R1319

ANSI/UL 263 DESIGN NO U348

3. JOINTS AND NAILHEADS - WALLBOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.

4. BATTS AND BLANKETS\* - FACED OR UNFACED MINERAL FIBER INSULATION, 3-1/2 IN, THICK, NOM 3.0 PCF. PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD. PLATES, AND CROSS BRACING, IF 2 BY 6 IN. STUDS (ITEM 1) ARE USED, MIN. 5-1/2 IN. OF UNFACED MINERAL FIBER INSULATION, NOM 3.0 PCF, PRESSURE FIT IN THE WALL CAVITY BETWEEN STUD, PLATES, AND CROSS BRACING. INSULATION MAY BE APPLIED IN MULTIPLE LAYERS TO ACHIEVE FINAL SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED MANUFACTURERS.

5. BUILDING UNITS - BUILDING UNITS PLACED WITH THE LAMINATE FACE AGAINST OR LAMINATE FACE AWAY FROM, AND NAILED TO, THE WOOD FRAMING WITH 1-7/8 IN. LONG, 6D NAILS, SPACED 6 IN. OC. ON THE PERIMETER AND 12 IN. OC. IN THE FIELD. WHEN STEEL FRAMING IS SUBSTITUTED FOR WOOD FRAMING, TYPE S STEEL SCREWS ARE USED IN LIEU OF NAILS WITH A MINIMUM PENETRATION LENGTH THROUGH THE STEEL STUD OF 3/8 IN. LOUISIANA-PACIFIC CORP — TYPE BLAZEGUARD 1-SIDE LOUISIANA-PACIFIC CORP — TYPE LP FLAMEBLOCK 1-SIDE

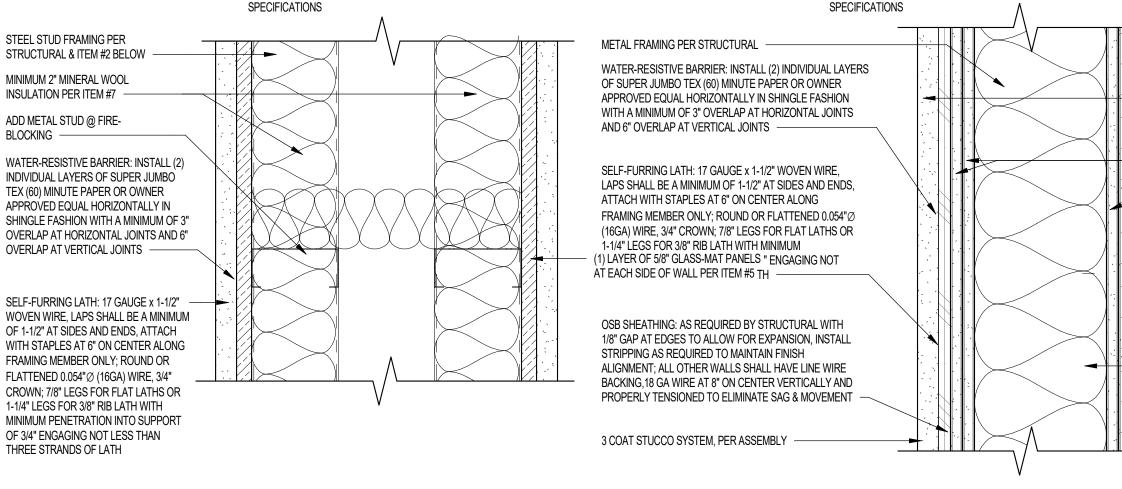
8. EXTERIOR FACINGS — REQUIRED FOR 1 HOUR RATING ON THE EXTERIOR FACE. THE FOLLOWING EXTERIOR FACING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS:

8B. CEMENTITIOUS STUCCO — PORTLAND CEMENT WITH SELF-FURRING METAL LATH. MINIMUM THICKNESS OF 3/4 IN. WITH A MIX RATIO OF 1:4 FOR SCRATCH COAT AND 1:5 FOR BROWN COAT, BY VOLUME, CEMENT TO SAND.

1-HR STUCCO EXTERIOR WALL RATED FROM BOTH SIDES -

1-HR UNIT SEPARATION EXTERIOR WALL PROPRIETARY ASSEMBLY - PROPRIETARY ASSEMBLY - February 16, 2024 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U423 SOUND RATING: NOT REQUIRED AT EXTERIOR WALLS REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



2-HR STUCCO EXTERIOR WALL

PROPRIETARY ASSEMBLY - February 16, 2024

SOUND RATING: NOT REQUIRED AT EXTERIOR WALLS

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U423

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

#### DESIGN NO. U423 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

I. FLOOR AND CEILING RUNNERS - (NOT SHOWN) — CHANNEL SHAPED, FABRICATED FROM MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL. THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC. 2. STEEL STUDS - MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS, MIN 3-1/2 IN. WIDE, COLD FORMED, 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 (AISI). 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 SHAL MEET THE REQUIREMENTS OF ALL APPLICABLE LOCAL CODE AGENCIES. THE MAX STUD SPACING SHALL NOT EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) — WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT SHALL BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM. 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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX STUD CAPACITY, WHEN LOAD IS AT 100 PERCENT, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2

HR, AND 2 HR RATINGS ARE AS FOLLOWS:

COURSE OF BRICK.

ANSI/UL 263 DESIGN NO U423

UNITED STATRAITING; UM CONO. OF LAYERS & THICKNESS OF PANELS EACH SIDE IPC-AF% OF DESIGN LOADULIX, ULX. WRX, or WRC; 3/4 in. thick Types AR, IP-AR or IP-X3, \_\_ULTRACODE\_

1 HR 1 LAYERS, 5/8 IN. THICK 6. FASTENERS - (NOT SHOWN) —FOR USE WITH ITEM 5 - TYPE S-12 STEEL SCREWS USED TO ATTACH —PANELS TO RUNNERS (ITEM 1 OR 1A) AND STUDS (ITEM 2 OR 2A) OR FURRING CHANNELS (ITEM 8). 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, SPACED 8 IN. OC WHEN PANELS ARE APPLIED HORIZONTALLY, OR 12 IN. OC WHEN PANELS ARE APPLIED VERTICALLY. SINGLE LAYER SYSTEM WITH TYPE ULIX: 1 IN. LONG, SPACED 12 IN. OC ALONG THE PERIMETER AND IN THE FIELD WHEN PANELS ARE APPLIED HORIZONTALLY OR 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. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. THREE-LAYER SYSTEMS: FIRST LAYER- 1 IN. LONG FOR 1/2 IN. THICK PANELS. SPACED 24 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. THIRD LAYER- 2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 12 IN. OC. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. 7. BATTS AND BLANKETS\* - (REQUIRED AS INDICATED UNDER ITEM 5) — NOM 2 IN. THICK MINERAL WOOL BATTS. FRICTION FITTED BETWEEN STUDS AND RUNNERS. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES.

9. JOINT TAPE AND COMPOUND - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES. 10.SIDING, BRICK, OR STUCCO - (OPTIONAL, NOT SHOWN) — ALUMINUM, VINYL OR STEEL SIDING, BRICK VENEER OR STUCCO, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH

1-HR STUCCO UNIT SEPARATION EXTERIOR WALL- METAL

# DESIGN NO. U423 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FLOOR AND CEILING RUNNERS — (NOT SHOWN) — CHANNEL SHAPED, FABRICATED FROM MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC. 2. STEEL STUDS - MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS, MIN 3-1/2 IN. WIDE, COLD FORMED, 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 (AISI) 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 SHALL NOT EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI SPECIFICATIONS.

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) - WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT SHALL BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM. 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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX STUD CAPACITY, WHEN LOAD IS AT 100 PERCENT, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2 HR, AND 2 HR RATINGS ARE AS FOLLOWS:

UNITED STATRAITINGSUM CONO. OF LAYERS & THICKNESS OF PANELS EACH SIDE IPC-AI% OF DESIGN LOAD, ULIX, ULX, WRX, or WRC; 3/4 in. thick Types AR, IP-AR or IP-X3, \_\_ULTRACODE\_ 2 HR 2 LAYERS, 5/8 IN. THICK

6. FASTENERS--(INOT SHOWN) - FOR USE WITH HEIN'S - LITTE 3-12 STEEL SCREWS USED TO ATTACH -PANELS TO RUNNERS (ITEM 1) AND STUDS (ITEM 2) OR FURRING CHANNELS (ITEM 8). 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. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. THREE-LAYER SYSTEMS: FIRST LAYER-1 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. THIRD LAYER-2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 12 IN. OC. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. 7. BATTS AND BLANKETS\* - (REQUIRED AS INDICATED UNDER ITEM 5) — NOM 2 IN. THICK MINERAL WOOL BATTS, FRICTION FITTED BETWEEN STUDS AND RUNNERS. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES. 9. JOINT TAPE AND COMPOUND - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES.

10. SIDING, BRICK, OR STUCCO - (OPTIONAL, NOT SHOWN) — ALUMINUM, VINYL OR STEEL SIDING, BRICK VENEER OR

STUCCO, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO STUDS WITH

CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH

COURSE OF BRICK.

SCALE: 3" = 1'-0"

ANSI/UL 263 DESIGN NO U423

# 2-HR EXTERIOR WALL W/ STUCCO FINISH - METAL

THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC. 3-1/2 IN. WIDE, COLD FORMED, 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 (AISI). 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 SHALL NOT EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) — WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT

DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM. 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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX STUD CAPACITY. WHEN LOAD IS AT 100 PERCENT, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2

RUNNERS (ITEM 1 OR 1A) AND STUDS (ITEM 2 OR 2A) OR FURRING CHANNELS (ITEM 8). 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, SPACED 8 IN. OC WHEN PANELS ARE APPLIED HORIZONTALLY, OR 12 IN. OC WHEN PANELS ARE APPLIED VERTICALLY. SINGLE LAYER SYSTEM WITH TYPE ULIX: 1 IN. LONG, SPACED 12 IN. OC ALONG THE PERIMETER AND IN THE FIELD WHEN PANELS ARE APPLIED HORIZONTALLY OR VERTICALLY, TWO LAYER SYSTEMS: FIRST LAYER- 1 IN LONG FOR 1/2 AND 5/8 IN THICK PANELS OF 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. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. THREE-LAYER SYSTEMS: FIRST LAYER- 1 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. THIRD LAYER- 2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 12 IN. OC. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. 7. BATTS AND BLANKETS\* - (REQUIRED AS INDICATED UNDER ITEM 5) — NOM 2 IN. THICK MINERAL WOOL BATTS. FRICTION FITTED BETWEEN STUDS AND RUNNERS. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES. 9. JOINT TAPE AND COMPOUND - VINYL OR CASEIN. DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing

cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

designated agent at

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



WorldHQ@ORBArch.com

**PRELIMINARY** 



SCALE: 3" = 1'-0"

DIAMETER OF THE SCREWS EQUAL OR EXCEED THOSE OF THE NAILS SPECIFIED IN THE TESTED SYSTEM AND THE SCREW SPACING SPECIFIED FOR THE NAILS IN THE TESTED SYSTEM

1HR STUCCO EXTERIOR WALL

FIRE TEST - IBC 721.1(2) 15-1.4

WATER-RESISTIVE BARRIER: INSTALL (2)

PAPER OR OWNER APPROVED

OVERLAP AT VERTICAL JOINTS -

SOUND RATING: NOT REQUIRED AT EXTERIOR WALLS

INDIVIDUAL LAYERS OF SUPER JUMBO TEX (60) MINUTE

MINIMUM OF 3" OVERLAP AT HORIZONTAL JOINTS AND 6"

SELF-FURRING LATH: 17 GAUGE x 1-1/2" WOVEN WIRE,

ATTACH WITH STAPLES AT 6" ON CENTER ALONG

1-1/4" LEGS FOR 3/8" RIB LATH WITH MINIMUM

LESS THAN THREE STRANDS OF LATH —

LAPS SHALL BE A MINIMUM OF 1-1/2" AT SIDES AND ENDS.

FRAMING MEMBER ONLY: ROUND OR FLATTENED 0.054"Ø

(16GA) WIRE, 3/4" CROWN; 7/8" LEGS FOR FLAT LATHS OR

PENETRATION INTO SUPPORT OF 3/4" ENGAGING NOT

WOOD SHEATHING: PER STRUCTURAL WITH 1/8" GAP AT

EDGES TO ALLOW FOR EXPANSION, INSTALL STRIPPING

OTHER WALLS SHALL HAVE LINE WIRE BACKING - 18 GA

AS REQUIRED TO MAINTAIN FINISH ALIGNMENT; ALL

WIRE AT 8" ON CENTER VERTICALLY AND PROPERLY

TENSIONED TO ELIMINATE SAG & MOVEMENT -

INSTALLATION INSTRUCTIONS -

METAL FRAMING PER STRUCTURAL

EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A

GENERIC ASSEMBLY

WALLBOARD; NO RATING REQUIRED

1-HR STUCCO EXTERIOR WALL - METAL FRAMING

1-HR UNIT SEPARATION EXTERIOR WALL PROPRIETARY ASSEMBLY - PROPRIETARY ASSEMBLY - February 16, 2024

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS STUCCO SYSTEM PER ITEM #10 BELOW -SELF-FURRING LATH: 17 GAUGE x 1-1/2" WOVEN WIRE, LAPS SHALL BE A MINIMUM OF 1-1/2" AT SIDES AND ENDS, ATTACH WITH STAPLES AT 6" ON CENTER ALONG FRAMING MEMBER ONLY; ROUND OR FLATTENED 0.054"Ø (16GA) WIRE, 3/4" CROWN; 7/8" LEGS FOR FLAT LATHS OR 1-1/4" LEGS FOR 3/8" RIB LATH WITH MINIMUM PENETRATION INTO SUPPORT OF 3/4" ENGAGING NOT LESS THAN THREE STRANDS WATER-RESISTIVE BARRIER: INSTALL (2) INDIVIDUAL LAYERS OF SUPER JUMBO TEX (60) MINUTE PAPER OR OWNER APPROVED EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A MINIMUM OF 3" OVERLAP AT HORIZONTAL JOINTS AND 6" OVERLAP AT VERTICAL JOINTS — (1) LAYER OF 5/8" GLASS-MAT PANELS AT EACH SIDE OF WALL PER ITEM #5 MINIMUM 2" MINERAL WOOL INSULATION PER ITEM STEEL STUD FRAMING PER STRUCTURAL & ITEM

# BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI

SHALL BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE

HR, AND 2 HR RATINGS ARE AS FOLLOWS:

UNITED STATRAITING: UM CONO. OF LAYERS & THICKNESS OF PANELS EACH SIDE IPC-AR% OF DESIGN LOADULIX. ULX. WRX, or WRC; 3/4 in. thick Types AR, IP-AR or IP-X3, \_\_ULTRACODE\_\_

1 LAYERS, 5/8 IN. THICK 6. FASTENERS - (NOT SHOWN) — FOR USE WITH ITEM 5 - TYPE S-12 STEEL SCREWS USED TO ATTACH — PANELS TO

COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES. 10.SIDING, BRICK, OR STUCCO - (OPTIONAL) — ALUMINUM, VINYL OR STEEL SIDING, BRICK VENEER OR STUCCO,

MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH COURSE OF BRICK.

SCALE: 3" = 1'-0

1-HR STUCCO EXTERIOR WALL STUCCO ON BOTH SIDES -

3 COAT STUCCO SYSTEM, FOLLOW MANUFACTURER

SPECIFICATIONS

3-5/8" NO. 16 GA NON-COMBUSTIBLE STUDS 16" ON CENTER WITH 7/8" CEMENT PLASTER (MEASURED FROM THE FACE OF STUDS) ON EXTERIOR SURFACE WITH INTERIOR SURFACE TREATMENT AS REQUIRED FOR INTERIOR, NON-BEARING, NON-COMBUSTIBLE STUDS PARTITIONS IN THIS TABLE. PLASTER MIX 1:4 FOR SCRATCH COAT AND 1:5 FOR BROWN COAT, BY VOLUME, CEMENT TO SAND.

PER GENERAL EXPLANATORY NOTES NO. 11 OF THE GYPSUM ASSOCIATION RESISTANCE DESIGN MANUAL, WHEN

NOT SPECIFIED AS A COMPONENT OF A FIRE TESTED WALL OR PARTITION SYSTEM, MINERAL FIBER, GLASS FIBER, OR

IBC TABLE 721.1 (2) ITEM 15-1.4.

THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1 (2) ITEM15-1.4.

CELLULOSE FIBER INSULATION OF A THICKNESS NOT EXCEEDING THAT OF THE STUD DEPTH SHALL BE PERMITTED TO BE ADDED WITHIN THE STUD CAVITY INSTALL SEALANT BETWEEN BASE OF GYPSUM BOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL NOTE: PER GYPSUM ASSOCIATION, GENERAL EXPLANATORY NOTES ITEM 4: SCREWS MEETING ASTM C 1002 SHALL BE PERMITTED TO BE SUBSTITUTED FOR THE PRESCRIBED NAILS, ONE FOR ONE, WHEN THE LENGTH AND HEAD

EM 12 | SAME AS EM 11 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM

─ IBC 721.1(2) 15-1.4

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U423 SOUND RATING: NOT REQUIRED AT EXTERIOR WALLS REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

**DESIGN NO. U423** 

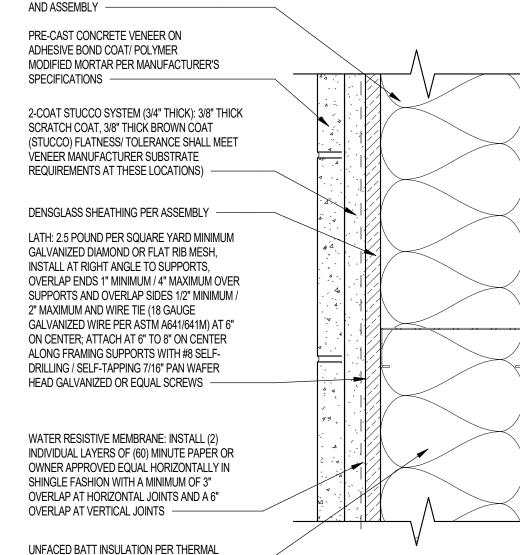
#2 BELOW -

SCALE: 3" = 1'-0"

 FLOOR AND CEILING RUNNERS - (NOT SHOWN) — CHANNEL SHAPED, FABRICATED FROM MIN 0.0329 IN., BARE METAL . STEEL STUDS - MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS, MIN

# **SPECIFICATIONS**

STEEL STUD FRAMING PER STRUCTURAL



GYPSUM ASSOC. FILE NO. WP 8006 GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS, STEEL STUDS, INSULATION

> THICKNESS: 4-3/4: (FIRE) APPROX. WEIGHT: 6 PSF (FIRE) UL R3660, 01NK21103, 012-4-02 UL R2717, 07NK08079, 9-19-08; UL R1319, 4786832806, 4-29-15 UL DESIGN U425

ENVELOPE VALUES FOR EXTERIOR WALL

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL TO 3-1/2 INCH, 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12, SELF-DRILLING, CORROSION RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH 1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

BRACING - 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. WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD. (LOAD-BEARING)

# PROPRIETARY GYPSUM PANEL PRODUCTS

- **CERTAINTEED GYPSUM INC.** 5/8" Certain Teed® Type X Gypsum Board
- 5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels GEORGIA-PACIFIC GYPSUM LLC 5/8" ThoughRock® Fireguard® Gypsum Board
- 5/8" DensGlass® Fireguard® Sheathing PABCO® GYPSUM 5/8" FLAME CURB® Type X
- 5/8" PABCO® GLASS® Sheathing Type X UNITED STATES GYPSUM COMPANY
- 5/8" Sheetrock® Brand EcoSmart Panels Firecode® X 5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X
- EM 67 | SAME AS EM 66, EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

CONCRETE VENEER AT 1-HR RATED EXTERIOR WALL -

SCALE: 3" = 1'-0"

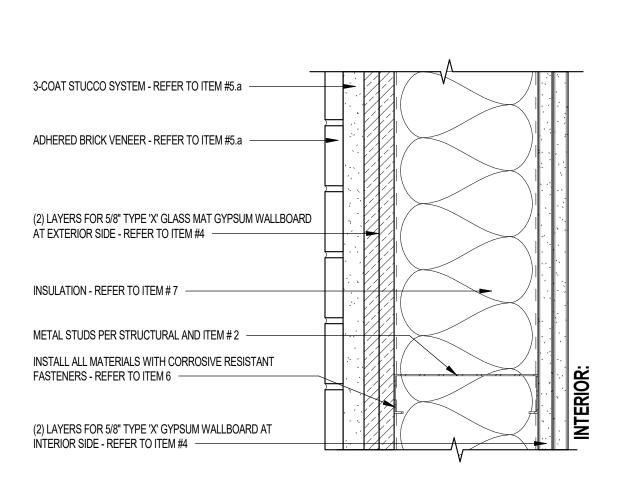
2-HR BRICK VENEER EXTERIOR WALL PROPRIETARY ASSEMBLY - February 16, 2024 FIRE TEST: BXUV.U425 - FIRE-RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO. U425

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY. ARCHITECTURAL CONSTRUCTION DETAIL

SPECIFICATIONS,

BEARING WALL RATING — 3/4 HR., 1, 1-1/2 OR 2 HR. (SEE ITEMS 2, 4 AND 5) 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

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



- . STEEL FLOOR AND CEILING TRACKS (NOT SHOWN) TOP AND BOTTOM TRACKS OF WALL ASSEMBLIES SHALL CONSIST OF STEEL MEMBERS, MINIMUM NO. 20 MSG (0.0329 INCH, MINIMUM BARE METAL THICKNESS) STEEL OR MINIMUM NO. 20 MSG (0.036 INCH THICK) GALVANIZED STEEL OR NO. 20 MSG (0.033 INCH THICK) PRIMED 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 INCH ON CENTER.
- 2. STEEL STUDS MINIMUM 3-1/2 INCH WIDE, NO. 20 MSG (0.0329 INCH, MINIMUM BARE METAL THICKNESS) CORROSION PROTECTED COLD-FORMED STEEL STUDS 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 MAXIMUM STUD SPACING OF WALL ASSEMBLIES SHALL NOT EXCEED 24 INCH ON CENTER (OR 16 INCH ON CENTER WHEN ITEM 5 IS USED). STUDS ATTACHED TO FLOOR AND CEILING TRACKS WITH 1/2 INCH LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI SPECIFICATIONS.
- 3. LATERAL SUPPORT MEMBERS (NOT SHOWN) WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM.
- 4. GYPSUM WALLBOARD\* ANY 1/2 INCH THICK UL CLASSIFIED GYPSUM WALLBOARD THAT IS ELIGIBLE FOR USE IN DESIGN NO. X515. ANY 5/8 INCH THICK UL CLASSIFIED GYPSUM WALLBOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512, OR U305, GYPSUM WALLBOARD BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE. APPLIED HORIZONTALLY UNLESS SPECIFIED BELOW. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MINUTES, 1-HOUR, 1-1/2-HOUR AND 2-HOUR RATINGS ARE AS FOLLOWS:

IN	INTERIOR OR EXTERIOR WALLS (FIRE FROM EITHER SIDE)					
-	WALLBOARD PROTECTION ON INTERIOR SIDE OF WALL - NO. OF LAYERS & THICKNESS OWED FOOF BOARD IN. EACH LAYERS'O ALL	% OF DESIGN LOAD OWED TO BE INSTALLED ON	ONE SIDE OF			
THE ABOVE WALLS. ———————————————————————————————————	2 LAYERS, 5/8 IN. THICK	80%	1			
	AMERICAN GYPSUM CO—CKNX.R14196—					
CERTAINTEED GYPSUM INC GEORGIA-PACIFIC GYPSUM						
	EW CLASSIFICATION) — CKNX.R3501					

5. GYPSUM WALLBOARDS — ONE OF THE FOLLOWING EXTERIOR FACINGS ARE TO BE APPLIED OVER THE GYPSUM WALLBOARD. SIDING, BRICK, OR STUCCO — ALUMINUM SIDING, STEEL SIDING, BRICK VENEER. OR STUCCO ATTACHED TO STUDS OVER GYPSUM SHEATHING AND MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. WHEN A MINIMUM 3-3/4 INCH THICK BRICK VENEER FACING IS USED. THE EXTERIOR WALL RATING IS APPLICABLE WITH EXPOSURE ON EITHER FACE. BRICK VENEER WALL ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH COURSE OF BRICK. WHEN A MINIMUM 3-3/4 INCH THICK BRICK VENEER FACING IS USED, FOAMED PLASTIC (ITEM 10) MAY BE USED.

PABCO BUILDING PRODUCTS LLC, DBA PABCO GYPSUM — CKNX.R7094

**UNITED STATES GYPSUM CO** — CKNX.R1319

6. FASTENERS — (NOT SHOWN) — SCREWS USED TO ATTACH WALLBOARD TO STUDS: SELF-TAPPING BUGLE HEAD SHEET STEEL TYPE, SPACED 12 INCH ON CENTER FIRST LAYER TYPE S-12 BY 1 INCH LONG FOR 1/2 AND 5/8 INCH THICK WALLBOARDS AND 1-1/4 INCH LONG FOR 3/4 INCH THICK WALLBOARD. SECOND LAYER TYPE S-12 BY 1-5/8 INCH LONG FOR 1/2 AND 5/8 INCH THICK WALLBOARDS AND 2-1/4 INCH LONG FOR 3/4 INCH THICK WALLBOARD. THIRD LAYER TYPE S-12 BY 1-7/8 INCH LONG. FASTENERS WHEN ITEM 4G IS USED: FIRST LAYER #6 X 2 INCH LONG DRYWALL SCREW SPACED 8 INCH ON CENTER ALONG THE PERIMETER AND 12 INCH ON CENTER IN THE FIELD. SECOND LAYER #6 X 4 INCH LONG DRYWALL SCREW SPACED 8 INCH ON CENTER ALONG THE PERIMETER AND 12 INCH ON CENTER IN THE FIELD. HORIZONTAL JOINTS TO BE STAGGERED 12 INCH BETWEEN LAYERS.

7. BATTS AND BLANKETS\* — PLACED IN STUD CAVITIES OF ALL EXTERIOR WALLS. MAY OR MAY NOT BE USED IN INTERIOR WALLS. ANY GLASS FIBER OR MINERAL WOOL BATT MATERIAL BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE, OF A THICKNESS TO COMPLETELY FILL STUD CAVITY. SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED COMPANIES.

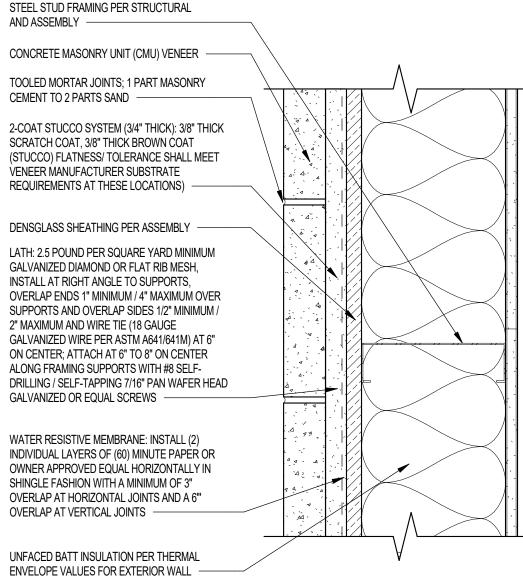
8. JOINT TAPE AND COMPOUND — (NOT SHOWN) — VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYER. PERFORATED PAPER TAPE, 2 INCH WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYER.

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

1-HR CMU VENEER EXTERIOR WALL PROPRIETARY ASSEMBLY - UNITED STATES GYPSUM CO March 16, 2023

FIRE TEST: GA WP 8006

SPECIFICATIONS



#### GYPSUM ASSOC. FILE NO. WP 8006 GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS, STEEL STUDS, INSULATION

THICKNESS:	4-3/4: (FIRE)
APPROX. WEIGHT:	6 PSF (FIRE)
FIRE TEST:	UL R3660, 01NK21103, 012-4-02 UL R2717, 07NK08079, 9-19-08; UL R1319, 4786832806, 4-29-15 UL DESIGN U425

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL TO 3-1/2 INCH, 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12, SELF-DRILLING, CORROSION RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH 1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

BRACING - 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. WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS. SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS. CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD. (LOAD-BEARING)

# PROPRIETARY GYPSUM PANEL PRODUCTS

- CERTAINTEED GYPSUM INC. 5/8" Certain Teed® Type X Gypsum Board 5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels GEORGIA-PACIFIC GYPSUM LLC 5/8" ThoughRock® Fireguard® Gypsum Board 5/8" DensGlass® Fireguard® Sheathing PABCO® GYPSUM 5/8" FLAME CURB® Type X 5/8" PABCO® GLASS® Sheathing Type X
- UNITED STATES GYPSUM COMPANY 5/8" Sheetrock® Brand EcoSmart Panels Firecode® X 5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

EM 62 | SAME AS EM 61 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED BRICK VENEER AT 1-HR RATED EXTERIOR WALL - METAL

☐ GA WP 8006

EM 57 | SAME AS EM 56 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED CMU VENEER AT 1-HR RATED EXTERIOR WALL - METAL

GA WP 8006 SCALE: 3" = 1'-0"

1-HR BRICK VENEER EXTERIOR WALL

STEEL STUD FRAMING PER STRUCTURAL

TOOLED MORTAR JOINTS; 1 PART MASONRY

2-COAT STUCCO SYSTEM (3/4" THICK): 3/8"

VENEER MANUFACTURER SUBSTRATE

REQUIREMENTS AT THESE LOCATIONS) -

THICK SCRATCH COAT, 3/8" THICK BROWN COAT

(STUCCO) FLATNESS/ TOLERANCE SHALL MEET

LATH: 2.5 POUND PER SQUARE YARD MINIMUM

OVERLAP ENDS 1" MINIMUM / 4" MAXIMUM OVER

SUPPORTS AND OVERLAP SIDES 1/2" MINIMUM /

GALVANIZED WIRE PER ASTM A641/641M) AT 6" ON CENTER: ATTACH AT 6" TO 8" ON CENTER

ALONG FRAMING SUPPORTS WITH #8 SELF-

DRILLING / SELF-TAPPING 7/16" PAN WAFER

WATER RESISTIVE MEMBRANE: INSTALL (2)

SHINGLE FASHION WITH A MINIMUM OF 3"

OVERLAP AT VERTICAL JOINTS -

OVERLAP AT HORIZONTAL JOINTS AND A 6"

UNFACED BATT INSULATION PER THERMAL

1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

PROPRIETARY GYPSUM PANEL PRODUCTS

5/8" Certain Teed® Type X Gypsum Board

5/8" ThoughRock® Fireguard® Gypsum Board

5/8" DensGlass® Fireguard® Sheathing

5/8" PABCO® GLASS® Sheathing Type X

5/8" Sheetrock® Brand EcoSmart Panels Firecode® X

**UNITED STATES GYPSUM COMPANY** 

5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels

5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

CERTAINTEED GYPSUM INC.

GEORGIA-PACIFIC GYPSUM LLC

5/8" FLAME CURB® Type X

PABCO® GYPSUM

(LOAD-BEARING)

ENVELOPE VALUES FOR EXTERIOR WALL

INDIVIDUAL LAYERS OF (60) MINUTE PAPER OR

OWNER APPROVED EQUAL HORIZONTALLY IN

HEAD GALVANIZED OR EQUAL SCREWS -

GALVANIZED DIAMOND OR FLAT RIB MESH,

INSTALL AT RIGHT ANGLE TO SUPPORTS,

2" MAXIMUM AND WIRE TIE (18 GAUGE

CEMENT TO 2 PARTS SAND -

DENSGLASS SHEATHING -

FIRE TEST: GA WP 8006

AND ASSEMBLY -

BRICK VENEER

PROPRIETARY ASSEMBLY - UNITED STATES GYPSUM CO - June 2021

**SPECIFICATIONS** 

GYPSUM ASSOC. FILE NO. WP 8006

GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS, STEEL STUDS, INSULATION

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED

RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND

CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER

PARALLEL TO 3-1/2 INCH. 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12. SELF-DRILLING, CORROSION

INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH

BRACING - 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

SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS

SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE LOCAL CODE AGENCIES. WHERE REQUIRED FOR LATERAL

AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD.

THICKNESS:

4-3/4: (FIRE)

UL R3660, 01NK21103, 012-4-02;

UL R2717, 07NK08079, 9-19-08;

UL R1319, 4786832806, 4-29-15

UL DESIGN U425

APPROX. WEIGHT: 6 PSF (FIRE)

SCALE: 3" = 1'-0"

COURSE OF BRICK.

WALLBOARD; NO RATING REQUIRED

<sup>⊥</sup> ANSI/UL 263 DESIGN NO U423

PANHEAD STEEL SCREWS. NOT FOR USE WITH TYPE FRX-G GYPSUM PANELS AND ITEM 5A, 5C, 5D, OR 5E. JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF

# 2-HR METAL SIDING EXTERIOR WALL

PROPRIETARY ASSEMBLY - February 16, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U423 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS

# TYVEK COMMERCIAL WRAP AIR AND MOISTURE BARRIER SYSTEM -18 GAUGE GALVANIZED HAT-CHANNEL AT 24" ON CENTER VERTICALLY — METAL SIDING SYSTEM, INSTALL PER MANUFACTURER REQUIREMENTS 2 IN. THICK MINERAL WOOL BATTS PER ITEM #7 AND THERMAL ENVELOPE VALUES TABLE, INSTALL IN EXTERIOR WALL CAVITY — 1/2" TREATED PLYWOOD SHEATHING AS REQUIRED BY ASSEMBLY AND STRUCTURAL STEEL STUD FRAMING PER STRUCTURAL AND ASSEMBLY GYPSUM WALLBOARD PER ASSEMBLY

# BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. FLOOR AND CEILING RUNNERS — (NOT SHOWN) — CHANNEL SHAPED, FABRICATED FROM MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC. STEEL STUDS - MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS, MIN 3-1/2 IN. WIDE, COLD FORMED, 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 (AISI). 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 SHALL NOT EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) - WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT SHALL BE PROVIDED BY MEANS OF STEEL STRAPS. CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE

DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM. 4. 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 WALLBOARD 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 THE MAXIMUM LOADING ON THE STEEL STUDS WAS EVALUATED WITH THE STEEL STUDS BRACED AT MID-HEIGHT AND NOT BRACED BY THE PLYWOOD SHEATHING.

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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX STUD CAPACITY. WHEN LOAD IS AT 100 PERCENT. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN. 1 HR, 1-1/2 HR, AND 2 HR RATINGS ARE AS FOLLOWS:

UNITED STATES CVPSUM CO - 1/2 in thick Type C ID Y2 IDC AP or 1/4/10 in thick Type ND C EDY C ID AR, IP-X1, IP-X2, IPC-AR, SUA, OUG, SHX, ULIA, OUG, VVIVA, OF VVIVA, OF VIVA, 6. FASTENERS - (NIOT SHOWN) - FOR USE WITH ITEM 5 TYDE S 42 STEEL SCREWS USED TO ATTACH PANELS TO RUNNERS (ITEM) OR 1A) AND STUDS (ITEM) 2 OR 2A) OR FUNDING CHANNELS (ITEM 8). 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, SPACED 8 IN. OC WHEN PANELS ARE APPLIED HORIZONTALLY, OR 12 IN. OC 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. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. BATTS AND BLANKETS\* - (REQUIRED AS INDICATED UNDER ITEM 5) — NOM 2 IN. THICK MINERAL WOOL BATTS. FRICTION FITTED BETWEEN STUDS AND RUNNERS. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR

NAMES OF CLASSIFIED COMPANIES. 8. FURRING CHANNELS - (OPTIONAL ON ONE OR BOTH SIDES, NOT SHOWN, FOR SINGLE OR DOUBLE LAYER SYSTEMS) RESILIENT FURRING CHANNELS FABRICATED FROM MIN 25 MSG CORROSION-PROTECTED STEEL, SPACED VERTICALLY A MAX OF 24 IN. OC. FLANGE PORTION ATTACHED TO EACH INTERSECTING STUD WITH 1/2 IN. LONG TYPE S-12 JOINT TAPE AND COMPOUND - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES.

10. SIDING, BRICK, OR STUCCO - (OPTIONAL, NOT SHOWN) — ALUMINUM, VINYL OR STEEL SIDING, BRICK VENEER OR STUCCO, MEETING THE REQUIREMENTS OF LOCAL CODE AGENCIES. BRICK VENEER ATTACHED TO STUDS WITH CORRUGATED METAL WALL TIES ATTACHED TO EACH STUD WITH STEEL SCREWS, NOT MORE THAN EACH SIXTH

EM 54 SAME AS EW 53, EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM

METAL SIDING AT 2-HR RATED EXTERIOR WALL - METTAL

SCALE: 3" = 1'-0"

1-HR METAL SIDING EXTERIOR WALL PROPRIETARY ASSEMBLY - UNITED STATES GYPSUM CO - June 2021 FIRE TEST: GA WP 8006

DENSGLASS SHEATHING PER ASSEMBLY

TYVEK COMMERCIAL WRAP AIR AND

18 GAUGE GALVANIZED HAT-CHANNEL AT

MOISTURE BARRIER SYSTEM -

24" ON CENTER VERTICALLY —

METAL SIDING SYSTEM, INSTALL PER

MANUFACTURER REQUIREMENTS

STEEL STUD FRAMING PER

STRUCTURAL AND ASSEMBLY

UNFACED BATT INSULATION PER THERMAL

ENVELOPE VALUES FOR EXTERIOR WALL

**SPECIFICATIONS** 



WorldHQ@ORBArch.com



THICKNESS:

APPROX. WEIGHT: 6 PSF (FIRE) UL R3660, 01NK21103, 012-4-02;

UL R2717, 07NK08079, 9-19-08; UL R1319, 4786832806, 4-29-15 UL DESIGN U425

4-3/4: (FIRE)

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL TO 3-1/2 INCH. 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12. SELF-DRILLING, CORROSION RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

GYPSUM ASSOC. FILE NO. WP 8006

GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS, STEEL STUDS, INSULATION

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH 1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

BRACING - 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. WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD. (LOAD-BEARING)

# PROPRIETARY GYPSUM PANEL PRODUCTS

CERTAINTEED GYPSUM INC. 5/8" Certain Teed® Type X Gypsum Board 5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels

GEORGIA-PACIFIC GYPSUM LLC 5/8" ThoughRock® Fireguard® Gypsum Board 5/8" DensGlass® Fireguard® Sheathing

PABCO® GYPSUM 5/8" FLAME CURB® Type X

5/8" PABCO® GLASS® Sheathing Type X UNITED STATES GYPSUM COMPANY 5/8" Sheetrock® Brand EcoSmart Panels Firecode® X 5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

EM 52 SAME AS EM 51 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

METAL SIDING AT 1-HR RATED EXTERIOR WALL - METAL

☐ GA WP 8006

SCALE: 3" = 1'-0"

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

> CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

designated agent at

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

DATE: SEPTEMBER 11, 2024 ORB #: 00-00

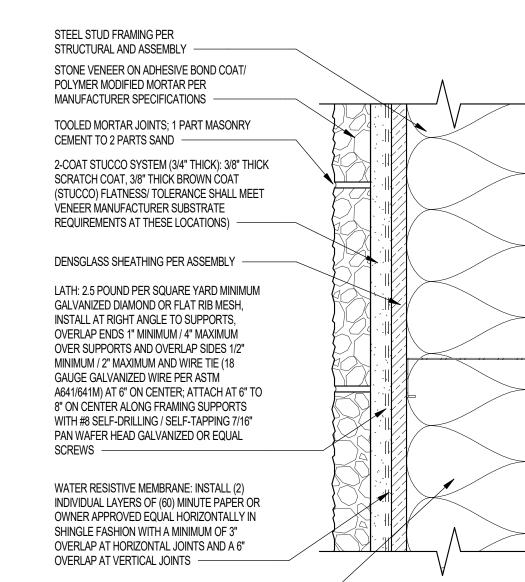
FIRE ASSEMBLIES - EXTERIOR

BRICK VENEER AT 2-HR EXTERIOR WALL - METAL FRAMING

UL DESIGN NO. U425 SCALE: 3" = 1'-0"

1-HR STONE VENEER EXTERIOR WALL PROPRIETARY ASSEMBLY - UNITED STATES GYPSUM CO - June 2021 FIRE TEST: GA WP 8006

# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN **SPECIFICATIONS**



#### GYPSUM ASSOC. FILE NO. WP 8006 GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS, STEEL STUDS, INSULATION

THICKNESS: 4-3/4: (FIRE)

APPROX. WEIGHT: 6 PSF (FIRE) UL R3660, 01NK21103, 012-4-02;

UL R2717, 07NK08079, 9-19-08; UL R1319, 4786832806, 4-29-15 UL DESIGN U425

SCALE: 3" = 1'-0"

FIRE DESIGN:

UNFACED BATT INSULATION PER THERMAL ENVELOPE VALUES FOR EXTERIOR WALL

EXTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GLASS MAT GYPSUM SUBSTRATE (SHEATHING) APPLIED PARALLEL TO 3-1/2 INCH, 33 MIL STEEL STUDS 24 INCH ON CENTER WITH 1INCH TYPE S-12, SELF-DRILLING, CORROSION RESISTANT, BUGLE HEAD, SCREWS 12 INCH ON CENTER STUDS ATTACHED TO BOTH VERTICAL LEGS OF FLOOR AND CEILING RUNNERS EITHER BY WELDING OR WITH 1/2 INCH TYPE S-2 PAN HEAD SCREWS. MINERAL OR GLASS FIBER INSULATION FRICTION FIT INTO THE STUD SPACE. EXTERIOR CLADDING TO BE ATTACHED THROUGH GLASS MAT GYPSUM

INTERIOR SIDE - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD APPLIED PARALLEL TO STUDS WITH 1INCH TYPE S-12 SCREWS 12 INCH ON CENTER.

BRACING - 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. WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT MAY BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE STRUCTURAL DESIGN. TESTED AT 100 PERCENT OF DESIGN LOAD. (LOAD-BEARING)

# PROPRIETARY GYPSUM PANEL PRODUCTS

CERTAINTEED GYPSUM INC. 5/8" Certain Teed® Type X Gypsum Board

5/8" Certain Teed® GlasRoc® Sheathing Type X Gypsum Panels GEORGIA-PACIFIC GYPSUM LLC 5/8" ThoughRock® Fireguard® Gypsum Board

5/8" DensGlass® Fireguard® Sheathing PABCO® GYPSUM

5/8" FLAME CURB® Type X 5/8" PABCO® GLASS® Sheathing Type X

UNITED STATES GYPSUM COMPANY 5/8" Sheetrock® Brand EcoSmart Panels Firecode® X

5/8" Securock® Brand UltraLight Glass-Mat Sheathing Firecode® X

EM 72 SAME AS EM 71 EXCEPT USE 1/2" STUCCO SYSTEM OVER 1/2" SHEATHING INSTEAD OF INTERIOR GYPSUM WALLBOARD; NO RATING REQUIRED

STONE VENEER AT 1-HR RATED EXTERIOR WALL - METAL

GA WP 8006

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

WorldHQ@ORBArch.com

**PRELIMINARY** 

**NOT FOR** 

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER

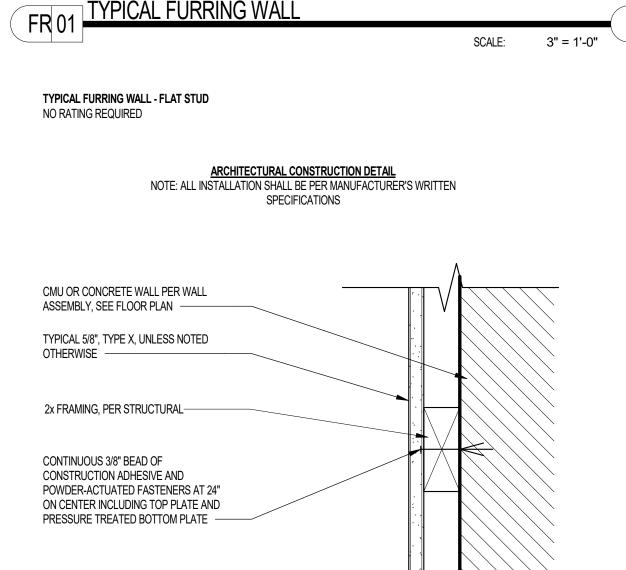
and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

Do not reproduce these drawings and specifications without the expressed written permission of the Architect. The drawings and specifications are instruments of service and shall remain the property of the Architect whether the project for which they are made is executed or not. These drawings and specifications shall not be used by anyone on any other projects, for additions to this project, or for completion of this

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REVISIONS/SUBMITTALS



SPECIFICATIONS

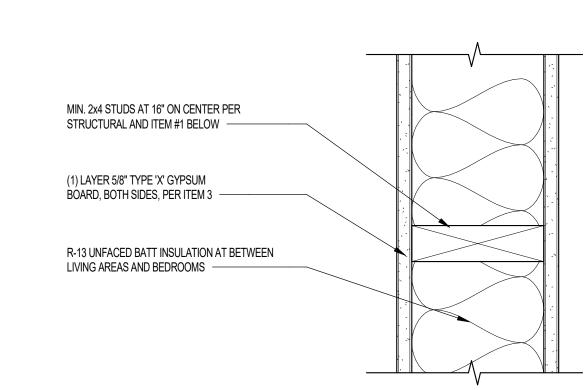
SPECIFICATIONS

FLAT WOOD STUD FURRING AT EXPOSED CMU/CONCRETE

SCALE: 3" = 1'-0"

1HR TYPICAL WALL - WOOD FRAMING PROPRIETARY ASSEMBLY - February 8, 2024 FIRE TEST - UL DESIGN U305 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

**SPECIFICATIONS** 



BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

. WOOD STUDS - NOMINAL 2X4 INCH SPACED 16 INCH ON CENTER MAXIMUM, EFFECTIVELY FIRESTOPPED. 2. **JOINTS AND NAIL-HEADS** - JOINTS COVERED WITH JOINT COMPOUND AND PAPER TAPE. JOINT COMPOUND AND PAPER TAPE MAY BE OMITTED WHEN SQUARE EDGE BOARDS ARE USED. AS AN ALTERNATE, NOM 3/32 IN. THICK GYPSUM VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF CLASSIFIED VENEER BASEBOARD WITH THE JOINTS REINFORCED WITH PAPER TAPE. NAILHEADS EXPOSED OR COVERED WITH JOINT COMPOUND.

3. GYPSUM WALLBOARD\* - 5/8 IN. THICK PAPER OR VINYL SURFACED, WITH BEVELED, SQUARE, OR TAPERED EDGES APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS NAILED 7 IN. OC WITH 6D CEMENT COATED NAILS 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 15/64 IN. DIAM HEADS. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS ARE TO BE INSTALLED HORIZONTALLY. AMERICAN GYPSUM CO — Types AGX-1(finish rating 23 min.), Type AGX-11 (finish rating 26 min),

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — PG-11 **UNITED STATES GYPSUM CO** — Type AR (finish rating 24 min), **GEORGIA-PACIFIC GYPSUM L L C** — Type X, Type DS

3A. GYPSUM BOARD\* — (AS AN ALTERNATE TO ITEM 3) — 5/8 IN. THICK GYPSUM PANELS, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS FASTENED TO FRAMING WITH 1-1/4 IN. LONG TYPE W COARSE THREAD GYPSUM PANEL STEEL SCREWS SPACED A MAX 8 IN. OC, WITH LAST SCREW 1 IN. FROM EDGE OF BOARD. WHEN USED IN WIDTHS OF OTHER THAN 48 IN., GYPSUM BOARDS ARE TO BE INSTALLED

5. BATTS AND BLANKETS\* - (OPTIONAL) - GLASS FIBER OR MINERAL WOOL INSULATION. PLACED TO COMPLETELY OR PARTIALLY FILL THE STUD CAVITIES. CERTAINTEED CORP

JOHNS MANVILLE KNAUF INSULATION LLC

PROPRIETARY ASSEMBLY - February 16, 2024

FIRE TEST - UL DESIGN U301

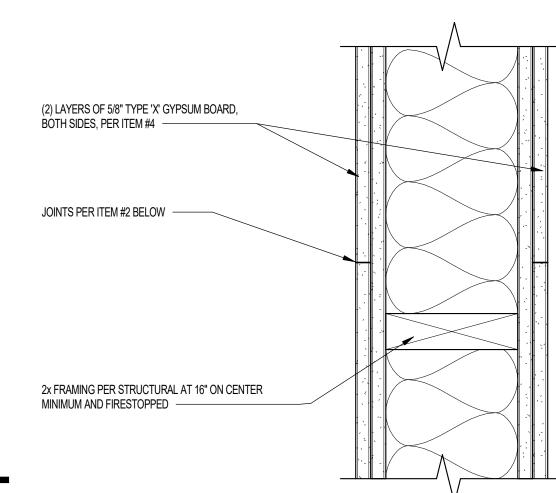
ROCKWOOL — TYPES ACOUSTICAL FIRE BATTS AND TYPE AFB, MIN. DENSITY 1.69 PCF / 27.0 KG/M3 ROCK WOOL MANUFACTURING CO — DELTA BOARD THERMAFIBER INC — TYPE SAFB, SAFB FF

12. NON-BEARING WALL PARTITION INTERSECTION - (OPTIONAL) - TWO NOMINAL 2 BY 4 IN, STUDS OR NOMINAL 2 BY 6 IN. STUDS NAILED TOGETHER WITH TWO 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY AND FASTENED TO ONE SIDE OF THE MINIMUM 2 BY 4 IN. STUD WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. INTERSECTION BETWEEN PARTITION WOOD STUDS TO BE FLUSH WITH THE 2 BY 4 IN. STUDS. THE WALL PARTITION WOOD STUDS ARE TO BE FRAMED BY WITH A SECOND 2 BY 4 IN. WOOD STUD FASTENED WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NON-BEARING WALL PARTITION STUD DEPTH SHALL BE AT A MINIMUM EQUAL TO THE DEPTH OF THE BEARING

SCALE: 3" = 1'-0"

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

**SPECIFICATIONS** 



**UL DESIGN U301** BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

NOTE:
THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN NO. U301. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED INTERIOR WALL PER OWNER'S REQUEST

WOOD STUDS - INTERIOR PARTITION WITH GYPSUM WALLBOARD EACH SIDE.

1. NAILHEADS - EXPOSED OR COVERED WITH JOINT COMPOUND.

2. JOINTS - EXPOSED JOINTS COVERED WITH JOINT COMPOUND AND PAPER TAPE. JOINT COMPOUND AND PAPER TAPE MAY BE OMITTED WHEN SQUARE EDGE BOARDS ARE USED. AS AN ALTERNATE, NOM 3/32 IN. THICK GYPSUM VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF CLASSIFIED VENEER BASEBOARD WITH THE JOINTS REINFORCED WITH PAPER TAPE.

3. NAILS - 6D CEMENT COATED NAILS 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM, 1/4 IN. DIAM HEADS, AND 8D CEMENT COATED NAILS 2-3/8 IN. LONG, 0.113 IN. SHANK DIAM, 9/32 IN. DIAM HEADS.

4 GYPSUM WALLBOARD\* - 5/8 IN THICK TWO LAYERS APPLIED EITHER HORIZONTALLY OR VERTICALLY INNER LAYER ATTACHED TO STUDS WITH THE 1-7/8 IN. NAILS SPACED 6 IN. OC. OUTER LAYER ATTACHED TO STUDS OVER INNER LAYER WITH THE 2-3/8 IN. LONG NAILS SPACED 8 IN. OC. VERTICAL JOINTS LOCATED OVER STUDS. ALL JOINTS IN FACE LAYERS STAGGERED WITH JOINTS IN BASE LAYERS. JOINTS OF EACH BASE LAYER OFFSET WITH JOINTS OF BASE LAYER ON OPPOSITE SIDE. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM BOARD TO BE INSTALLED HORIZONTALLY.

**AMERICAN GYPSUM CO** — Types AGX-1, M-Glass, AG-C, AGX-11, LightRoc NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSW-C, FSW-G, FSMR-C, FSL, RSX PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2, PG-3, PG-3W, PG-4, PG-5, PG-5W, PG-5WS, PG-9, PG-11, PG-C, PGS-WRS, PGI

INSTALL 3/8 INCH BEAD OF SEALANT PRIOR TO TAPING TO SEAL PERIMETER OF WALL AND INTERSECTIONS.

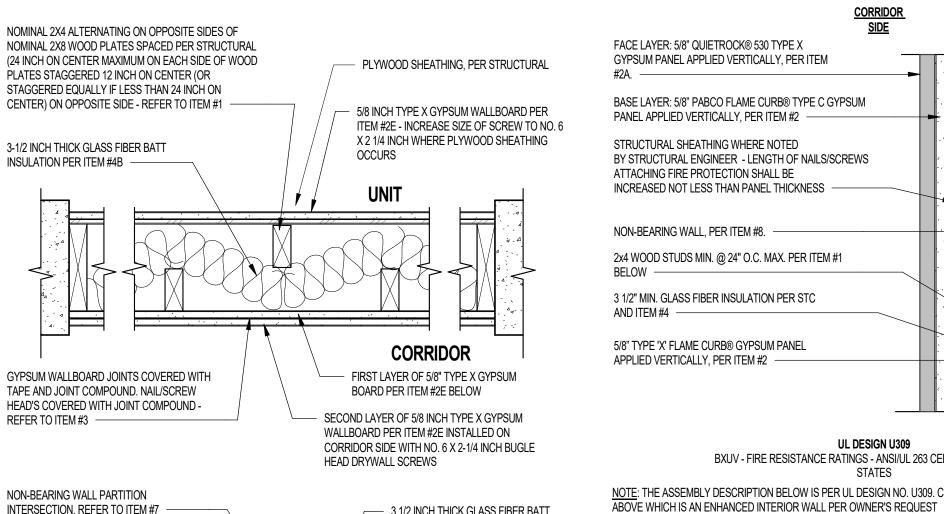
2-HR INTERIOR WALL - WOOD FRAMING

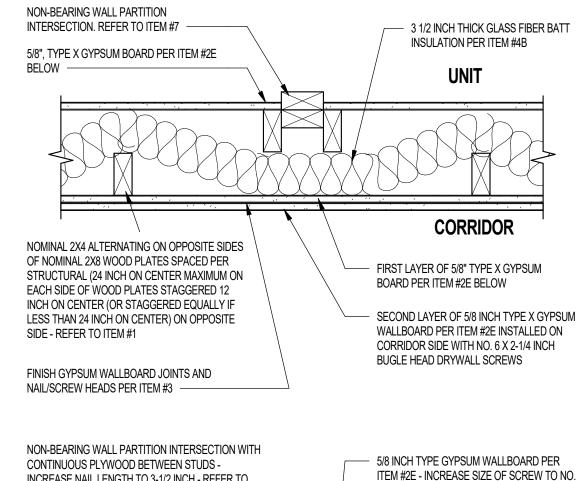
ANSI/UL 263 DESIGN NO U301

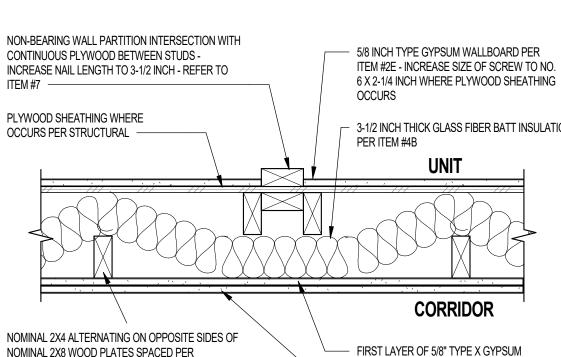
1HR CORRIDOR WALL WITH QUIETROCK - WOOD FRAMING PROPRIETARY ASSEMBLY - January 30, 2024

FIRE TEST - Design No. U340 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

> NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS







NOMINAL 2X8 WOOD PLATES SPACED PER BOARD PER ITEM #2E BELOW STRUCTURAL (24 INCH ON CENTER MAXIMUM ON EACH SIDE OF WOOD PLATES STAGGERED 12 INCH SECOND LAYER OF 5/8 INCH TYPE 'X' ON CENTER (OR STAGGERED EQUALLY IF LESS THAN GYPSUM WALLBOARD PER ITEM #2E 24 INCH ON CENTER) ON OPPOSITE SIDE - REFER TO INSTALLED ON CORRIDOR SIDE WITH NO. 6 X 2-1/4 INCH BUGLE HEAD DRYWALL SCREWS

HORIZONTAL SECTION

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN NO. U340. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED INTERIOR WALL PER OWNER'S REQUEST

THIS DESIGN WAS EVALUATED USING A LOAD DESIGN METHOD OTHER THAN THE LIMIT STATED DESIGN METHOD (E.G., WORKING STRESS DESIGN METHOD). FOR JURISDICTIONS EMPLOYING THE LIMIT STATED DESIGN METHOD, SUCH AS CANADA, A LOAD RESTRICTION FACTOR SHALL BE USED, SEE GUIDE BXUV OR BXUV7

I. WOOD STUDS - NOM 2 BY 4 IN. ALTERNATING ON OPPOSITE SIDES OF NOM 2 BY 6 IN. WOOD PLATES. SPACED 24 IN. OC MAX ON EACH SIDE OF WOOD PLATES, STAGGERED 12 IN. OC (OR STAGGERED EQUALLY IF LESS THAN 24 IN. OC)

2. GYPSUM BOARD\* - 5/8 IN. THICK GYPSUM BOARD, PAPER OR VINYL FACED WITH BEVELED, SQUARE, TAPERED OR ROUNDED EDGES. GYPSUM BOARD NAILED TO EACH STUD 7 IN. OC WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 1/4 IN. DIAM HEAD. AS AN ALTERNATE, NO. 6 BUGLE HEAD DRYWALL SCREWS, 1-7/8 IN. LONG, MAY BE SUBSTITUTED FOR THE 6D CEMENT COATED NAILS. WHEN USED IN WIDTHS OTHER THAN 48 IN., SYPSUM BOARD TO BE INSTALLED HORIZONTALLY. 2E. GYPSUM WALLBOARD\* - ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305 — NOM. 5/8 IN. THICK GYPSUM BOARD, PAPER OR VINYL FACED WITH BEVELED, SQUARE, TAPERED OR ROUNDED EDGES. GYPSUM BOARD NAILED TO EACH STUD 7 IN. OC WITH 6D CEMENT COATED NAILS, 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 1/4 IN. DIAM HEAD. AS AN ALTERNATE, NO. 6 BUGLE HEAD DRYWALL

SCREWS, 1-7/8 IN. LONG, MAY BE SUBSTITUTED FOR THE 6D CEMENT COATED NAILS. WHEN USED IN WIDTHS OTHER

HAN 48 IN., GYPSUM BOARD TO BE  $\,$  INSTALLED HORIZONTALLY. BATTS AND BLANKETS PLACED IN STUD CAVITY AS DESCRIBED IN ITEM 4B. WHEN STEEL FRAMING MEMBERS\* (ITEM 5) ARE USED, GYPSUM BOARD ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. AMERICAN GYPSUM CO - CKNX.R14196: 5/8" FIREBLOC TYPE X.

CERTAINTEED GYPSUM INC - CKNX.R3660: 5/8" CERTAINTEED TYPE X. GEORGIA-PACIFIC GYPSUM L L C - CKNX.R2717: 5/8" TOUGHROCK FIREGUARD X.

TO ENTIRE SURFACE OF CLASSIFIED VENEER BASEBOARD. JOINTS REINFORCED.

NATIONAL GYPSUM CO- CKNX.R3501: 5/8" GOLD BOND BRAND FIRE-SHIELD GYPSUM BOARD, TYPE X. PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - CKNX.R7094: 5/8" PABCO GYPSUM SHEATHING TYPE

3. JOINTS AND NAILHEADS - GYPSUM BOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND. AS AN ALTERNATE, NOM 3/32 IN. THICK GYPSUM VENEER PLASTER MAY BE APPLIED

UNITED STATES GYPSUM CO- CKNX.R1319: SHEETROCK BRAND FIRECODE X PANELS - 5/8".

4B. BATTS AND BLANKETS\* - (REQUIRED FOR USE WITH WALL AND PARTITION FACINGS AND ACCESSORIES, ITEM 2A AND GYPSUM BOARD ITEM 2E) — GLASS FIBER INSULATION, NOM 3-1/2 IN. THICK, MIN. DENSITY OF 0.80 PCF, WITH A FLAME SPREAD OF 25 OR LESS AND A SMOKE DEVELOPED OF 50 OR LESS, FRICTION-FITTED TO COMPLETELY FILL THE STUD CAVITIES, SEE BATTS AND BLANKETS CATEGORY (BKNV) FOR NAMES OF MANUFACTURERS.

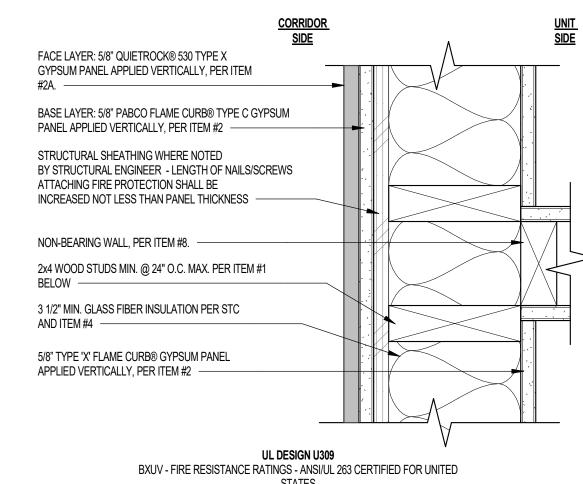
7. NON-BEARING WALL PARTITION INTERSECTION - (OPTIONAL) — TWO NOMINAL 2 BY 4 IN. STUD OR NOMINAL 2 BY 6 IN. STUD NAILED TOGETHER WITH TWO 3IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY AND FASTENED TO ONE SIDE OF THE MINIMUM 2 BY 4 IN. STUD WITH 3 IN. LONG 10D NAILS SPACED A MAX 16 IN. OC. VERTICALLY. INTERSECTION BETWEEN PARTITION WOOD STUDS TO BE FLUSH WITH THE 2 BY 4 IN. STUDS. THE WALL PARTITION WOOD STUDS ARE TO BE FRAMED BY WITH A SECOND 2 BY 4 IN. WOOD STUD FASTENED WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NON- BEARING WALL PARTITION STUD DEPTH SHALL BE AT A MINIMUM EQUAL TO THE DEPTH OF THE BEARING

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

1HR CORRIDOR WALL WITH QUIETROCK - WOOD FRAMING PROPRIETARY ASSEMBLY - PABCO- January 30, 2024

FIRE TEST - Design No. U309 **SOUND RATING: 53 STC** PER NRCC TLA-04-051 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN NO. U309. CONSTRUCTION SHALL BE PER THE DETAIL

. WOOD STUDS - NOM 2 BY 4 IN., SPACED 24 IN. OC EFFECTIVELY FIRESTOPPED. 2. GYPSUM WALLBOARD\* - 5/8 IN. THICK, 4 FT WIDE, APPLIED EITHER HORIZONTALLY OR VERTICALLY, NAILED TO STUDS AND BEARING PLATES WITH 6D CEMENT COATED NAILS MIN. 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 1/4 IN. DIAM HEADS SPACED 7 IN. OC. FINISH RATING 27 MIN. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM BOARD TO BE

WHEN STEEL FRAMING MEMBERS\* (ITEMS 5 OR ANY ALTERNATE CLIPS) ARE USED, WALLBOARD ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — TYPE C, PG-9, PG-11, PG-C, PGS-WRS, PGI **UNIT SIDE:** PABCO BUILDING PRODUCTS LLC 5/8" FLAME CURB TYPE X CORRIDOR SIDE: PABCO BUILDING PRODUCTS LLC 5/8" FLAME CURB TYPE C

2A. GYPSUM BOARD\* - CORRIDOR SIDE — (AS AN ALTERNATE TO ITEM 2) — NOMINAL 5/8 IN. THICK, 4 FT WIDE PANELS APPLIED VERTICALLY TO STUDS AND BEARING PLATES ON ONE SIDE OF THE ASSEMBLY WITH 1-5/8 IN. LONG TYPE S SCREWS SPACED 12 IN. OC AT PERIMETER OF PANELS AND 8 IN. OC IN THE FIELD. HORIZONTAL JOINTS OF VERTICALLY APPLIED PANELS NEED NOT BE BACKED BY STUDS. PANEL JOINTS COVERED WITH PAPER TAPE AND TWO LAYERS OF JOINT COMPOUND. SCREWHEADS COVERED WITH TWO LAYERS OF JOINT COMPOUND. BATTS AND BLANKETS PLACED IN STUD CAVITY AS DESCRIBED IN ITEM 4E. NOT EVALUATED FOR USE WITH STEEL FRAMING MEMBERS, FURRING

CORRIDOR SIDE: PABCO BUILDING PRODUCTS LLC, DBA PABCO GYPSUM - TYPE QUIETROCK 530 (FINISH RATING 3. **JOINTS AND FASTENER HEADS** - WALLBOARD JOINTS COVERED WITH PAPER TAPE AND JOINT COMPOUND. FASTENER HEADS COVERED WITH JOINT COMPOUND. GYPSUM PLASTER NOT MORE THAN 1/8 IN. THICK MAY BE APPLIED OVER THE WALLBOARD IN ADDITION TO THE SPECIFIED JOINT TREATMENT.

4. BATTS AND BLANKETS\* - (NOT SHOWN) — OPTIONAL GLASS FIBER INSULATION. 8. NON-BEARING WALL PARTITION INTERSECTION - (OPTIONAL) — TWO NOMINAL 2 BY 4 IN. STUD OR NOMINAL 2 BY 6 IN. STUD NAILED TOGETHER WITH TWO 3IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY AND FASTENED TO ONE SIDE OF THE MINIMUM 2 BY 4 IN. STUD WITH 3 IN. LONG 10D NAILS SPACED A MAX 16 IN. OC. VERTICALLY. INTERSECTION BETWEEN PARTITION WOOD STUDS TO BE FLUSH WITH THE 2 BY 4 IN. STUDS. THE WALL PARTITION WOOD STUDS ARE TO BE FRAMED BY WITH A SECOND 2 BY 4 IN. WOOD STUD FASTENED WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NON- BEARING WALL PARTITION STUD DEPTH SHALL BE AT A MINIMUM EQUAL TO THE DEPTH OF THE BEARING

CHANNELS OR FIBER, SPRAYED.

NOTES: INSTALL 3/8 INCH BEAD OF SEALANT PRIOR TO TAPING TO SEAL PERIMETER OF WALL AND INTERSECTIONS.

1-HR CORRIDOR WALL WITH QUIETROCK - WOOD FRAMING
ALT 2 ANSI/UL 263 DESIGN NO U309

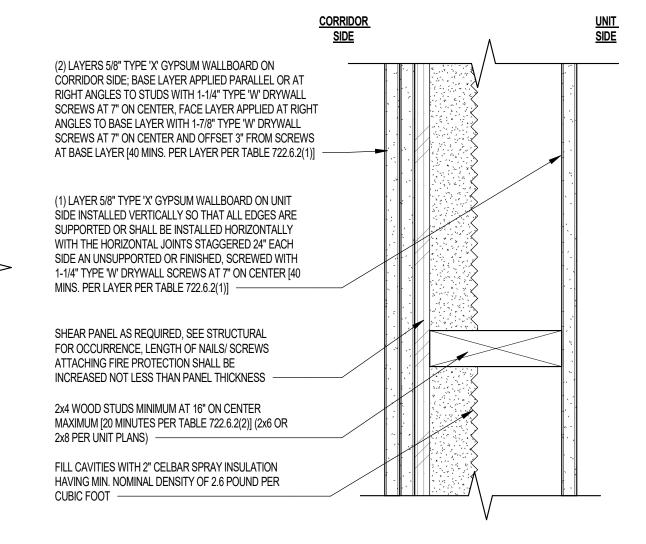
SCALE: 3" = 1'-0"

1-HR CORRIDOR WALL - WOOD FRAMING
IN 02 IBC TABLE 7722.2 1.4(2)

1HR CORRIDOR WALL - WOOD FRAMING GENERIC ASSEMBLY

FIRE TEST - IBC TABLE 722.2.1.4(2) SOUND RATING: 50-STC - RAL-TL90-42 BY RIVERBANK ACOUSTICAL LABORATORIES

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL TO SEAL PERIMETER OF WALL AND INTERSECTIONS.

IBC TABLE 722.2.1.4(2) TIME ASSIGNED O FINISH MATERIALS ON FIRE-EXPOSED SIDE OF WALL FINISH DESCRIPTION TIME ( MINUTES) TYPE X GYPSUM WALL BOARD 40 MIN 5/8 INCH

IBC TABLE 722.6.2(2)

TIME ASSIGNED FOR CONTRIBUTION OF WOOD FRAME FINISH DESCRIPTION TIME ( MINUTES) WOOD STUDS 16 INCHES ON CENTER 20 MIN

a. THIS TABLE DOES NOT APPLY TO STUDS OR JOIST SPACED MORE THAN 16 INCHES ON b. ALL STUDS SHALL BE NOMINAL 2x4 AND ALL JOISTS SHALL HAVE A NOMINAL THICKNESS OF NOT LESS THAN 2 INCHES.

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

**SPECIFICATIONS** 

GYPSUM ASSOC. FILE NO. WP 3242

GYPSUM WALLBOARD, RESILIENT CHANNELS, INSULATION, WOOD STUDS

RESILIENT CHANNELS 16 INCH ON CENTER ATTACHED AT RIGHT ANGLES TO ONE SIDE OF 2 x 4 WOOD STUDS AT 24 INCH

ON CENTER WITH 1-1/4 INCH TYPE S DRYWALL SCREWS. ONE LAYER 5/8 INCH TYPE X GYPSUM WALLBOARD OR GYPSUM

ON LAYER 5/8 INCH. TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES

VENEER BASE APPLIED PARALLEL TO CHANNELS WITH 1 INCH TYPE S SCREWS 8 INCH ON CENTER WITH VERTICAL

JOINTS LOCATED MIDWAY BETWEEN STUDS 3 INCH MINERAL OR GLASS FIBER INSULATION IN STUD CAVITY.

TO STUDS WITH 6d CEMENT COATED NAILS, 1 7/8 INCH LONG, 0.0915" SHANK, 15/64" HEADS, 7 INCH ON CENTER.

SOUND TEST:

5-3/8" (FIRE AND SOUND)

7 PSF (FIRE AND SOUND)

UL DESIGN U309

NRCC TL-93-098,

IRC-IR-761, 3-98

BASED ON UL R14196, 05NK05371,

CORRIDOR

1HR CORRIDOR WALL WITH RESILIENT CLIPS - WOOD FRAMING

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

GENERIC ASSEMBLY - June 2021

FIRE TEST - GA FILE NO. WP 3242

SOUND RATING: 50-54 STC

RESILIENT CHANNELS -

BY STRUCTURAL ENGINEER -

MINIMUM 2x4 WOOD STUDS

3" MINERAL FIBER INSULATION

5/8" TYPE X GYPSUM WALLBOARD, PER ASSEMBLY

STRUCTURAL SHEATHING WHERE NOTED

1-HR UNIT DEMISING WALL - WOOD FRAMING PROPRIETARY ASSEMBLY: UNITED STATES GYPSUM CO - June 2021 FIRE TEST - GYPSUM ASSOC. FILE NO. WP 5512 **SOUND RATING: 56 STC PER TL-93-266** 

> REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY ARCHITECTURAL CONSTRUCTION DETAIL

GYPSUM WALLBOARD, PER ASSEMBLY,

PLYWOOD SHEATHING, PER STRUCTURAL

EACH SIDE

EACH SIDE -

2x4 STAGGERED WOOD

MINERAL WOOL BATT VERTICAL FIRE BLOCKING AT

10'-0" ON CENTER MAXIMUM -

ADD 2x4 WOOD STUD AT

3-1/2 INCH UNFACED BATT

SIDES OF THE WALL -

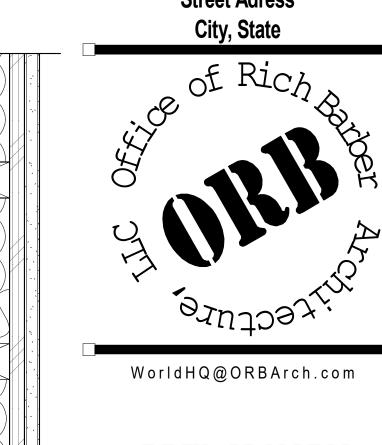
INSULATION SHALL BE INSTALLED

IN EACH STUD CAVITY, BOTH

FIRE BLOCKING -

STUDS AT 16" ON CENTER,

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN **SPECIFICATIONS** 





DESIGN NO. WP 5512

GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS STEEL STUDS, INSULATION

APPROX. WEIGHT: 7.1 PSF (FIRE AND SOUND) UL DESIGN U341 UL R4024, 10-31-68 SOUND TEST: NOAL 17-0837, 8-25-17

THICKNESS:

9-1/4" (FIRE AND SOUND)

AIR SPACE

ABSORPTIVE MATERIAL TEST NUMBER STC GYPSUM WALLBOARD 15.9 MM TYPE X (C) TL-93-266 GLASS FIBER (G1) 89 MM BATT

SOUND TRANSMISSION THROUGH GYPSUM WALLBOARD WALLS: SOUND TRANSMISSION RESULTS

ONE LAYER 5/8 INCH TYPE 'X' GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF DOUBLE ROW OF 2 X 4 WOOD STUDS 16 INCH ON CENTER ON SEPARATE PLATES 1 INCH MINIMUM APART (SEE DETAIL ABOVE) WITH 2 INCH TYPE W SCREWS 7 INCHES ON CENTER. TWO LAYERS 3-1/2 INCH UNFACED GLASS FIBER INSULATION FRICTION FIT IN STUD CAVITY.

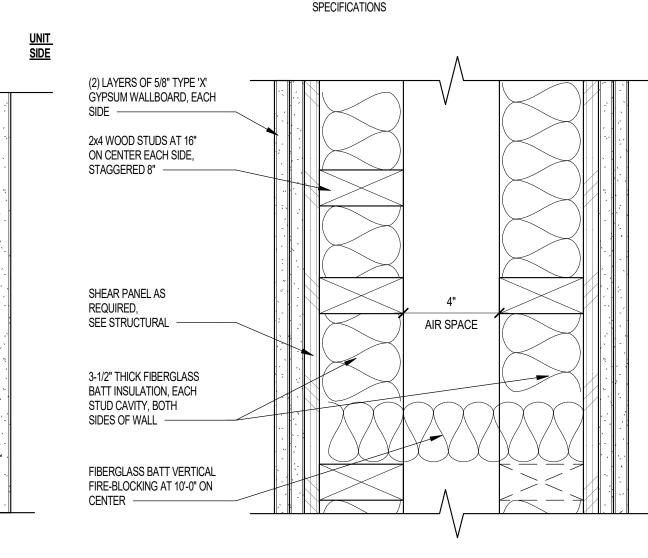
JOINTS STAGGERED 16 INCHES ON OPPOSITE SIDES. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (LOAD BEARING

SOUND TESTED AS CONSTRUCTED FOR FIRE PER WP 8512

NOTE: INSTALL CONTINUOUS 3/8 INCH BEAD OF SEALANT ALL AROUND PERIMETER AND WALL INTERSECTIONS, BOTH

1-HR UNIT DEMISING WALL - WOOD FRAMING; ENHANCED STC GENERIC ASSEMBLY - February 2024 FIRE TEST - LEGACY REPORT NO. ESR-1338 **SOUND RATING: 67 STC** PER TL-93-269

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



LEGACY REPORT NO. ESR-1338 THE ASSEMBLY DESCRIPTION BELOW IS PER LEGACY REPORT NO. ESR-1338. CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST AREA

ONE-HOUR GYPSUM WALLBOARD STAGGERED STUD BEARING PARTITION: THE FRAMING CONSISTS OF TWO ROWS OF NOMINAL 2 X 3 INCH WOOD STUDS SPACED AT 16 INCHES (406 MM) ON CENTER OR NOMINAL 2 X 4 INCH WOOD STUDS SPACED AT 24 INCHES (610 MM) ON CENTER, WITH BLOCKING OF THE SAME SIZE AT MID-HEIGHT. STUDS IN OPPOSITE ROWS ARE STAGGERED 8 INCHES (203 MM) OR 12 INCHES (305 MM) ON CENTER, AND THE ROWS ARE SPACED A MINIMUM OF 1 INCH (25.4 MM) APART. THE PLATES FOR EACH ROW MAY BE OF THE SAME SIZE AND MATERIAL, OR COMMON PLATES MAY BE USED FOR THE TWO ROWS. THE EXTERIOR FACE OF EACH ROW IS THEN COVERED WITH 5/8 INCH THICK (15.9 MM), TYPE X GYPSUM WALLBOARD APPLIED HORIZONTALLY OR VERTICALLY USING 6D CEMENT COATED COOLER NAILS AT 7 INCHES (178 MM) ON CENTER, WITH END JOINTS ON NAILING MEMBERS. FIRE BLOCKS, WHEN RECLURED. MAY BE OF MINERAL WOOL BATTS 2 INCHES (51 MM) THICK IN THE INTERVENING SPACES RETWEEN THE TWO ROWS OF STUDS, OR 1/2 INCH THICK (12.7 MM) GYPSUM WALLBOARD. WHERE NOMINAL 2 X 3 STUDS ARE USED, THEY MUST

BE STRESS GRADED LUMBER AS SET FORTH IN TABLE 4C OF THE SUPPLEMENT OF THE NDS.

c) Two layers of gypsum board on each side:

ABSORPTIVE MATERIAL GYPSUM WALLBOARD TEST NUMBER BOTH SIDES 15.9 MM TYPE X (C) GLASS FIBER (G1) 89 MM BATT

ICC-ES EVALUATION REPORT NUMBER: 1338 ISSUED: February 2024 RENEWAL DATE: February 2025

1-HR UNIT SEPARATION WALL - WOOD FRAMING -

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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Architect. The drawings and specifications are instruments of service and shall remain the property of the

Architect whether the project for which they are made is executed or not. These drawings and specifications

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REVISIONS/SUBMITTALS

cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of

TW02 1-HR CORRIDOR WALL - WOOD FRAMING - BEARING SCALE: 1 1/2" = 1'-0" IF RESILIENT CHANNEL SOLUTION IS CHOSEN, SHEAR WALLS MUST BE REMOVED FROM CORRIDORS OR STC RATING WILL BE GREATLY DIMISHED

SOUND TESTED AS CONSTRUCTED FOR FIRE

(LOAD BEARING)

SOUND DESIGN:

VERTICAL JOINTS STAGGERED 24 INCH ON OPPOSITE SIDE.

1-HR CORRIDOR WALL WITH RESILIENT CHANNEL - WOOD

**ALT** GA WP 3242

SCALE: 3" = 1'-0"

ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2 HR, AND 2 HR RATINGS ARE AS FOLLOWS: SET-OUT WALL CONSTRUCTION-METAL FRAMING SCALE: 3" = 1'-0" FURRING AT EXPOSED CMU/ CONCRETE WALL - METAL FRAMING NO RATING REQUIRED UNITED STATE2 HOURUM CO - 5/8 INCH THICK TYP2 LAYER, 5/8 INCH THICK L6.-FASTENERS--(INOT SHOWN) -- FOR USE WITH I LEWID -- I TEE 3-12 STEEL SCREWS USED TO ATTACH -- ANELS TO -ARCHITECTURAL CONSTRUCTION DETAIL RUNNERS (ITEM 1 OR 1A) AND STUDS (ITEM 2 OR 2A) OR FURRING CHANNELS (ITEM 8). NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN 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. SPECIFICATIONS THICK PANELS, SPACED 16 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. THREE-LAYER SYSTEMS: FIRST LAYER- 1 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. THIRD LAYER- 2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 12 IN. OC. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW. CMU OR CONCRETE WALL, PER WALL ASSEMBLY 7A. BATTS AND BLANKETS\* — 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. 5/8" TYPE 'X' GYPSUM WALLBOARD SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES. 9. JOINT TAPE AND COMPOUND - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF 3-1/2" UNFACED BATT INSULATION -COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN 3-5/8" X 20 GAUGE METAL STUDS AT 16" ON CENTER SUPPORT AT 8'-0" ON CENTER VERTICALLY MAXIMUM -

SAME AS FW 01, EXCEPT USE 2 GYPSUM LAYERS INSTEAD

GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES.. \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL CERTIFICATION MARK. M | 0.5 | SAME AS IM 04, EXCEPT 3-HOUR RATED; SEE TABLE ABOVE 2HR METAL FRAME PARTITION SCALE: 3" = 1'-0" ANSI/UL 263 DESIGN NO U423

2HR/3HR WALL - METAL FRAMING

(2) LAYER 5/8" TYPE "X" GYPSUM

R-13 UNFACED BATT INSULATION AT WALLS

BETWEEN LIVING AREAS AND BEDROOMS

METAL STUD FRAMING, PER STRUCTURAL

WALLBOARD, BOTH SIDES -

SPECIFICATIONS.

FIRE TEST - UL DESIGN U423

SOUND RATING: 46 STC

PROPRIETARY ASSEMBLY: UNITED STATES GYPSUM CO - December 28, 2023

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

SPECIFICATIONS

DESIGN GA FILE NO. U423

STATES

. FLOOR AND CEILING RUNNERS - (NOT SHOWN) — CHANNEL SHAPED, FABRICATED FROM MIN 0.0329 IN., BARE METAL

BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED

THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION

2. STEEL STUDS - MINIMUM 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS,

MIN 3-1/2 IN. WIDE, COLD FORMED, DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE SPECIFICATION

(AISI). ALL DESIGN DETAILS ENHANCING THE STRUCTURAL INTEGRITY OF THE WALL ASSEMBLY, INCLUDING THE AXIAL

FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE

DESIGN LOAD OF THE STUDS, SHALL BE AS SPECIFIED BY THE STEEL STUD DESIGNER AND/OR PRODUCER, AND

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) — WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT

SHALL BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE

5. GYPSUM WALLBOARD\* - GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES, APPLIED VERTICALLY OR

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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX

OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS

INTERIOR OR EXTERIOR WALLS (FIRE FROM EITHER SIDE)

WALLBOARD PROTECTION

BOTH SIDES OF WALL -

OF BOARD IN EACH LAYERS

NUMBER OF LAYERS AND THICKNESS

PERCENT OF

**DESIGN LOAD** 

100

SCALE: 3" = 1'-0"

STUD CAPACITY. WHEN LOAD IS AT 100 PERCENT, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON

OF STUDS. VERTICAL JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED ONE STUD CAVITY.

HORIZONTALLY. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES

SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE LOCAL CODE AGENCIES. THE MAX STUD SPACING SHALL NOT

EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS

ON BOTH SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI

TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC.

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U423.

CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST AREA

DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM.

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

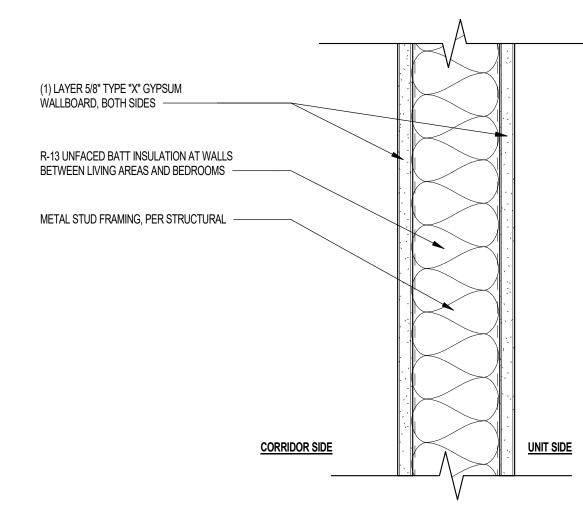
TYPICAL ONE SIDED WALL - METAL FRAMING FURRING AT EXPOSED CMU/ CONCRETE WALL - FLAT STUD NO RATING REQUIRED NO-RATING REQUIRED <u>ARCHITECTURAL CONSTRUCTION DETAIL</u> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN **SPECIFICATIONS** SPECIFICATIONS CMU OR CONCRETE WALL, PER WALL ASSEMBLY -5/8" TYPE 'X' GYPSUM WALLBOARD NO FIRE RATING REQUIRED -3-1/2" UNFACED BATT INSULATION — R-13 UNFACED BATT INSULATION AT WALLS BETWEEN LIVING AREAS AND BEDROOMS 3-5/8" X 20 GAUGE METAL STUDS AT 16" ON CENTER SUPPORT AT 8'-0" ON CENTER VERTICALLY MAXIMUM — METAL STUD FRAMING, PER ASSEMBLY-

 $\lceil \mathsf{FR} \, | \, \mathsf{04} \, 
vert$  same as FW 04, EXCEPT USE 2 GYPSUM LAYERS INSTEAD

1HR TYPICAL WALL - METAL FRAMING PROPRIETARY ASSEMBLY: UNITED STATES GYPSUM CO - December 28, 2023 FIRE TEST - UL DESIGN U423 SOUND RATING: 46 STC

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



DESIGN GA FILE NO. U423 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U423. CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST AREA

. FLOOR AND CEILING RUNNERS - (NOT SHOWN) — CHANNEL SHAPED. FABRICATED FROM MIN 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL, THAT PROVIDE A SOUND STRUCTURAL CONNECTION BETWEEN STEEL STUDS AND ADJACENT ASSEMBLIES SUCH AS FLOORS, CEILINGS AND/OR OTHER WALLS. ATTACHED TO FLOOR AND CEILING ASSEMBLIES WITH STEEL FASTENERS SPACED NOT GREATER THAN 24 IN. OC.

2. STEEL STUDS - MINIMUM 0.0329 IN., BARE METAL THICKNESS (NO. 20 MSG) CORROSION-PROTECTED STEEL STUDS MIN 3-1/2 IN. WIDE, COLD FORMED, 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 (AISI). 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 SHALL NOT EXCEED 24 IN. OC. STUDS ATTACHED TO FLOOR AND CEILING RUNNERS WITH 1/2 IN. LONG TYPE S-12 STEEL SCREWS ON BOTH SIDES OF THE STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH THE AISI SPECIFICATIONS.

3. LATERAL SUPPORT MEMBERS - (NOT SHOWN) — WHERE REQUIRED FOR LATERAL SUPPORT OF STUDS, SUPPORT SHALL BE PROVIDED BY MEANS OF STEEL STRAPS, CHANNELS OR OTHER SIMILAR MEANS AS SPECIFIED IN THE DESIGN OF A PARTICULAR STEEL STUD WALL SYSTEM.

5. GYPSUM WALLBOARD\* - 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 WHEN LOAD IS REDUCED TO 90 PERCENT OF MAX STUD CAPACITY. WHEN LOAD IS AT 100 PERCENT, HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED AT 100 PERCENT LOAD WITH TYPE ULIX. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) STAGGERED A MIN OF 12 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (MULTILAYER SYSTEMS) WITH TYPE ULIX NEED NOT BE STAGGERED. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY. THE THICKNESS AND NUMBER OF LAYERS AND PERCENT OF DESIGN LOAD FOR THE 45 MIN, 1 HR, 1-1/2 HR, AND 2 HR RATINGS ARE AS FOLLOWS:

INTERIOR OR EXTERIOR WALLS (FIRE FROM EITHER SIDE)

WALLBOARD PROTECTION **BOTH SIDES OF WALL -**NUMBER OF LAYERS AND THICKNESS PERCENT OF RATING OF BOARD I UNITED STATES GYPSUM CO.-5/8 INCH THICK TYPE AK, SGA OF BOARD IN EACH LAYERS DESIGN LOAD

6. FASTENERS 1 HOUR SHOWN) — FOR USE WITH LAYER, 5/8 INCH THICKL SCREWS USED TO ATTACH 100 NELS TO RUNNERS (ITEM 1 OR 1A) AND STUDS (ITEM 2 OR 2A) OR FURRING CHANNELS (ITEM 8). "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, SPACED 8 IN. OC WHEN PANELS ARE APPLIED HORIZONTALLY, OR 12 IN. OC WHEN PANELS ARE APPLIED VERTICALLY. SINGLE LAYER SYSTEM WITH TYPE ULIX: 1 IN. LONG, SPACED 12 IN. OC ALONG THE PERIMETER AND IN THE FIELD WHEN PANELS ARE APPLIED HORIZONTALLY OR 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. AND 5/8 IN. THICK PANELS OR 2-1/4 IN. LONG FOR 3/4 IN. THICK PANELS, SPACED 16 IN. OC WITH SCREWS OFFSET 8 IN. FROM FIRST LAYER. THREE-LAYER SYSTEMS: FIRST LAYER- 1 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. SECOND LAYER- 1-5/8 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 24 IN. OC. THIRD LAYER- 2-1/4 IN. LONG FOR 1/2 IN. THICK PANELS, SPACED 12 IN. OC. SCREWS OFFSET MIN 6 IN. FROM LAYER BELOW.

7A. BATTS AND BLANKETS\* — 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.

9. **JOINT TAPE AND COMPOUND** - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS OF OUTER LAYERS. PAPER TAPE, NOM 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYERS. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES.

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL CERTIFICATION MARK.

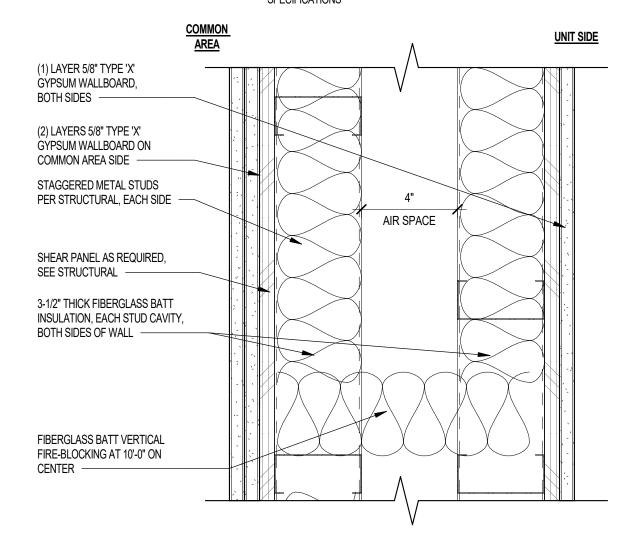
I-HR INTERIOR WALL - METAL FRAMING

SCALE: 3" = 1'-0" ANSI/UL 263 DESIGN NO U423

1-HR UNIT DEMISING WALL AT COMMON AREAS - METAL STUD WALL; ENHANCED STO PROPRIETARY ASSEMBLY: CERTAINTEED - June 2021 FIRE TEST: GA FILE NO. WP 0953

SOUND RATING: 60-64 STC

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



DESIGN NO. WP 0953 WALLS AND INTERIOR PARTITIONS, NON COMBUSTIBLE

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER GA WP 0953. CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST

GYPSUM WALLBOARD, STEEL STUDS FIRE DESIGN - ONE LAYER 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED

PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF A DOUBLE ROW OF 2-1/2 INCH, 15 MIL STEEL STUDS STAGGERED 24 INCH ON CENTER AND NOT LESS THAN 1 INCH APART WITH 1 INCH TYPE S SCREWS 8 INCH ON CENTER. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. HORIZONTAL JOINTS ON OPPOSITE SIDES NEED NOT BE STAGGERED OR BACKED. LATERAL BRACING ON BOTH SIDES OF THE WALL NOT MORE THAN 5 FEET ON CENTER VERTICALLY. (NLB)

PROPRIETARY GYPSUM PANEL PRODUCTS **CERTAINTEED GYPSUM INC** - 5/8" CERTAINTEED® TYPE X GYPSUM BOARD

SOUND DESIGN - SOUND TESTED WITH A SECOND LAYER OF 5/8 INCH PROPRIETARY TYPE X GYPSUM WALLBOARD ON ONE SIDE AND 3-1/2 INCH GLASS FIBER INSULATION ON BOTH SIDES IN CAVITY.

7-1/4 INCH (FIRE) 7-7/8 INCH (SOUND) APPROXIMATE. WEIGHT: 5 PSF (FIRE) 7.5 PSF (SOUND) FIRE TEST: UL R3660, 07NK21428, 2-14-08 UL DESIGN V469 SOUND TEST: NGC 2017063, 6-6-17

> 1-HR INTERIOR UNIT SEPARATION WALL - METAL FRAMING-ENHANCED ACOUSTICS

> > SCALE: 3" = 1'-0"

1HR CORRIDOR WALL - METAL FRAMING GENERIC ASSEMBLY FIRE TEST - GA FILE NO. WP 1052 SOUND RATING: 50-54 STC

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS

(2) LAYERS 5/8" TYPE 'X' GYPSUM WALLBOARD ON CORRIDOR SIDE 3-1/2" UNFACED FIBERGLASS INSULATION, FRICTION BETWEEN STUDS -METAL STUD FRAMING (1) LAYER 5/8" TYPE 'X' GYPSUM WALLBOARD ON UNIT SIDE -CORRIDOR SIDE

> DESIGN GA FILE NO. WP 1052 WALLS AND INTERIOR PARTITIONS, NON COMBUSTIBLE

GYPSUM WALLBOARD, STEEL STUDS

FIRE DESIGN - ONE LAYER 5/8 INCH TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF 3-5/8 INCH. 18 MIL STEEL STUDS 24 INCH ON CENTER WITH 1 INCH TYPE S SCREWS 8 INCH ON CENTER AT VERTICAL JOINTS AND 12 INCH ON CENTER AT WALL PERIMETER AND INTERMEDIATE STUDS. FACE LAYER 5/8 INCH TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO ONE SIDE WITH 1-5/8 INCH TYPE S SCREWS 12 INCH ON CENTER.

JOINTS STAGGERED 24 INCH EACH LAYER AND SIDE. (NLB)

SOUND DESIGN: SOUND TESTED WITH 3-1/2 INCH GLASS FIBER FRICTION FIT IN STUD SPACE. THICKNESS: 5-1/2 INCH (FIRE AND SOUND)

8 PSF (FIRE) 8.2 PSF (SOUND)

SEE WP 1350 (FM WP-45, 6-19-68; OSU T-1770, 8-61; ULC 79T484, 79T500, 79T497, 8-21-81, ULC DESIGN W415)

RAL-TL11-075, 3-23-11

1-HR UNIT DEMISING WALL - METAL STUD WALL PROPRIETARY ASSEMBLY: November 14, 2023 FIRE TEST: UL DESIGN NO. U493 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY. ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN



WorldHQ@ORBArch.com

 FLOOR AND CEILING RUNNERS - (FOR USE WITH ITEM 5 AND 5A) — CHANNEL SHAPED, ATTACHED TO FLOOR AND CEILING IN TWO ROWS, A MIN 1 IN. APART, WITH STEEL FASTENERS SPACED 24 IN. OC. RUNNERS FABRICATED FROM MIN NO. 25 MSG GALV STEEL, 1-1/4 IN. WIDE AND 2-1/2 IN. DEEP.

**SOUND RATING**: 54 STC

1) LAYER 5/8" TYPE 'X'

GYPSUM WALLBOARD, BOTH

STAGGERED METAL STUDS

PER STRUCTURAL EACH SIDE -

SHEAR PANEL AS REQUIRED,

3-1/2" THICK FIBERGLASS BATT

FIBERGLASS BATT VERTICAL

FIRE-BLOCKING AT 10'-0" ON

INSULATION, EACH STUD CAVITY,

SEE STRUCTURAL -

ONE SIDE OF WALL -

2. **STEEL STUDS** - (FOR USE WITH ITEM 5 AND 5A) — CHANNEL SHAPED, SUPPLIED WITH CUTOUTS, FRICTION -FITTEI INTO FLOOR AND CEILING RUNNERS AND SPACED A MAX 24 IN. OC. STUDS CUT 1/2 IN. LESS THAN ASSEMBLY HEIGHT AND EVENLY STAGGERED BETWEEN THE TWO ROWS OF FLOOR AND CEILING RUNNERS. STUDS FABRICATED FROM MIN NO. 25 MSG GALV STEEL, MIN 2-1/2 IN. DEEP BY 1-1/4 IN. WIDE WITH 3/16 IN. FOLDED BACK RETURN FLANGE LEGS.

NONBEARING WALL RATING — 1 OR 2 HOUR (SEE ITEMS 5, 5A, 5B)

\* 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. U493

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

STATES

SPECIFICATIONS

AIR SPACE

3. LATERAL BRACING - THE BRACING SHALL BE IN ACCORDANCE WITH THE SSMA TECHNICAL NOTE DATED MARCH 2000 REFERENCING UNSHEATHED FLANGE BRACING.

4. BATTS AND BLANKETS -OPTIONAL — GLASS FIBER BATTS MAY BE FRICTION-FITTED TO COMPLETELY FILL THE STUD CAVITIES ON ONE OR BOTH ROWS OF STUDS. SEE BATTS AND BLANKETS CATEGORY (BZJZ) FOR NAMES OF MANUFACTURERS.

5. GYPSUM BOARD\* - NOM 5/8 IN. THICK, 4 FT. WIDE, GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES, APPLIED VERTICALLY OR HORIZONTALLY. SINGLE LAYER INSTALLED ON EACH SIDE OF THE STEEL STUDS FOR THE 1-HR SYSTEM, TWO LAYERS INSTALLED ON EACH SIDE OF THE STUDS FOR THE 2-HR SYSTEM. VERTICAL JOINTS CENTERED OVER STUDS AND STAGGERED ONE STUD CAVITY ON OPPOSITE SIDES OF STUDS. VERTICAL JOINTS IN ADJACENT LAYERS (2-HR SYSTEM) STAGGERED ONE STUD CAVITY. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS NEED NOT BE BACKED BY 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 (2-HR SYSTEM) STAGGERED A MINIMUM OF 6 IN. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUTT JOINTS IN ADJACENT LAYERS (2-HR SYSTEM) NEED NOT BE STAGGERED WITH TYPE ULIX. FOR THE SINGLE LAYER SYSTEM: PANELS ATTACHED TO STEEL STUDS AND FLOOR RUNNER WITH 1 IN. LONG TYPE S STEEL SCREWS SPACED 8 IN. OC WHEN APPLIED HORIZONTALLY, OR 8 IN. OC ALONG VERTICAL AND BOTTOM EDGES AND 12 IN. OC IN THE FIELD WHEN APPLIED VERTICALLY. FOR THE SINGLE LAYER SYSTEM WITH ULIX, PANELS ATTACHED TO STEEL STUDS AND FLOOR RUNNERS WITH 1 IN. LONG TYPE S SCREWS SPACED 12 IN. OC WHEN APPLIED VERTICALLY OR HORIZONTALLY. HORIZONTAL JOINTS NEED NOT BE STAGGERED ON OPPOSITE SIDES OF STUDS FOR THE DOUBLE LAYER SYSTEM: BASE LAYER PANELS ATTACHED TO STEEL STUDS AND FLOOR RUNNER WITH 1 IN. LONG TYPE S STEEL SCREWS SPACED 16 IN., FACE LAYER PANELS ATTACHED TO STEEL STUDS AND FLOOR RUNNER WITH 1-5/8 IN. LONG TYPE S STEEL SCREWS SPACED 12 IN. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS TO BE INSTALLED HORIZONTALLY.

UNITED STATES GYPSUM CO — TYPE SCX- USG SHEETROCK® BRAND FIRECODE® X PANELS

6. JOINT TAPE AND COMPOUND - (NOT SHOWN) — OUTER LAYER JOINTS COVERED WITH JOINT COMPOUND AND PAPER OR MESH TAPE. SCREW HEADS COVERED WITH JOINT COMPOUND. PAPER TAPE AND JOINT COMPOUND MAY BE OMITTED WHEN GYPSUM BOARDS ARE SUPPLIED WITH SQUARE EDGES.

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

1-HR UNIT SEPARATION WALL-METAL FRAMING

ANSI/UL 263 DESIGN NO U493

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

SCALE: 3" = 1'-0"

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

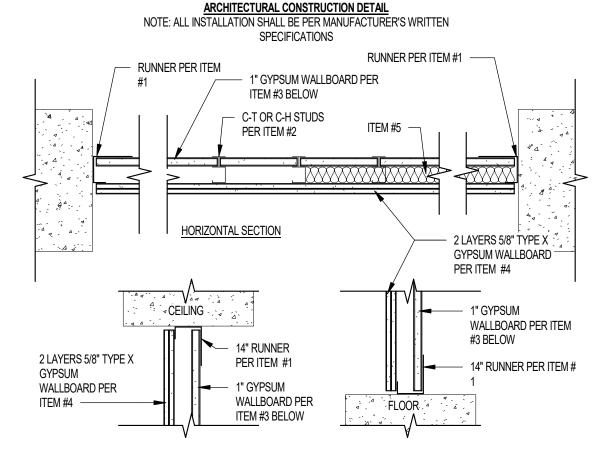
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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

1-HR CORRIDOR WALL - METAL FRAMING

SOUND RATING - 47 STC REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



DESIGN NO. U428 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

2-HOUR SHAFT WALL - NON-BEARING \*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 RUNNER - "J" -SHAPED RUNNERS. MIN. 2-1/2 IN. WIDE WITH UNEQUAL LEGS OF 1 IN. AND 2-1/4 IN.

FABRICATED FROM MIN. 25 MSG GALV STEEL. RUNNERS POSITIONED WITH SHORT LEG TOWARD FINISHED SIDE OF WALL. RUNNERS ATTACHED TO STRUCTURAL SUPPORTS WITH STEEL FASTENERS LOCATED NOT MORE THAN 2 IN. FROM ENDS AND NOT MORE THAN 24 IN. OC. 2. STEEL STUDS - "C-T" OR "C-H" SHAPED STUDS 1-5/8 IN. WIDE BY MIN. 2-1/2 IN. DEEP, FABRICATED FROM MIN. 25 MSG GALV STEEL. CUT TO LENGTHS 3/4 IN. LESS THAN FLOOR TO CEILING HEIGHT AND SPACED 24 IN. OR 600 MM OC. 3. GYPSUM WALLBOARD — 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 THE FLOOR TO CEILING HEIGHT. VERTICAL EDGES OF THE PANELS INSERTED INTO "T" SHAPED SECTION OF C-T STUDS OR THE "H" SECTION OF THE C-H STUDS.

FREE EDGE OF END PANELS SECURED TO LONG LEG OF J RUNNER WITH TABS IN RUNNER OR 1-5/8 IN. LONG TYPE S SELF-TAPPING BUGLE HEAD STEEL SCREWS SPACED NOT MORE THAN 12 IN. OC. WHEN J-SHAPED RUNNERS (ITEM 1B) ARE SUPPLIED WITH SECUREMENT TABS, FREE EDGE OF END PANELS MAY BE SECURED BY BENDING THE SECUREMENT TABS, MAX 12 IN. OC, TO A 90 DEGREE ANGLE TO SECURELY FRICTION-FIT PANELS INTO J-SHAPED

AMERICAN GYPSUM CO - TYPES AG-S, M-GLASS GEORGIA-PACIFIC GYPSUM L L C - TYPES TP-6, DGUSL, AND TRSL NATIONAL GYPSUM CO - TYPES FSW, FSW-B, FSW-7, FSW-9

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - TYPES PG-10 AND PG-10G 4. GYPSUM WALLBOARD -1/2 OR 5/8 IN. THICK, 4 FT WIDE, APPLIED IN TWO LAYERS. BASE LAYER ATTACHED HORIZONTALLY TO STUDS AND SIDE "J" RUNNERS WITH 1 IN. LONG TYPE S SELF-TAPPING STEEL SCREWS STARTING AT 2 IN. FROM THE FLOOR AND CEILING RUNNERS AND SPACED A MAXIMUM 24 IN. OC ALONG THE VERTICAL EDGES AND IN THE FIELD OF THE BOARDS.

FACE LAYER INSTALLED VERTICALLY TO STUDS AND SIDE "J" RUNNERS AND ATTACHED WITH 1-5/8 IN. LONG TYPE S SELF-TAPPING STEEL SCREWS, STARTING AT 3 IN. FROM THE FLOOR AND CEILING RUNNERS AND SPACED A MAXIMUM 12 IN. OC ALONG THE VERTICAL EDGES AND IN THE FIELD OF THE BOARDS. FACE LAYER JOINTS COVERED WITH PAPER TAPE AND TWO COATS OF JOINT COMPOUND. EXPOSED SCREW HEADS COVERED WITH TWO COATS OF JOINT COMPOUND. **AMERICAN GYPSUM CO - TYPES AG-C** 

GEORGIA-PACIFIC GYPSUM LLC - TYPES DAPC, TG-C. NATIONAL GYPSUM CO - TYPES EXP-C, FSK, FSL, FSMR-C, FSW-3, FSW-8, FSW-C, FSW-G. PABCO BUILDING PRODUCTS LLC, DBA PABCO GYPSUM - TYPES PG-C, 5/8 IN. TYPE C.

BATTS AND BLANKETS - (OPTIONAL) — 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.

SH | 04 | 2-HOUR SHAFT WALL - NON-BEARING - SAME AS SH 02 EXCEPT USING 4" STUDS IN LIEU OF 2-1/2" STUDS

GYPSUM ASSOC. FILE NO. ASW 0998

GYPSUM WALLBOARD, STEEL H STUDS FRAMING

2 INCH FLOOR AND CEILING RUNNERS WITH 2 INCH STEEL H STUDS BETWEEN ADJACENT PAIRS OF GYPSUM PANELS.

A 3/4 INCH MINIMUM AIR SPACE MUST BE MAINTAINED BETWEEN STEEL COMPONENTS AND ADJACENT FRAMING

(INDICATED BY DASHED LINES IN SKETCH). AS AN ALTERNATE, THE STEEL COMPONENTS MAY BE COVERED WITH 6

SOUND DESIGN - SOUND TESTED WITH 2X4 STUD WALL FACED WITH 1/2 INCH GYPSUM WALLBOARD EACH SIDE OF

FIRE DESIGN - TWO LAYERS 1 x24 INCH PROPRIETARY TYPE 'X' GYPSUM PANELS INSERTED BETWEEN

INCH WIDE BATTENS OR FULL SHEETS OF 1/2 INCH TYPE 'X' GYPSUM WALLBOARD.

REFER TO MANUFACTURER FOR THE THERMAL PROTECTION OF THE FRAMING

NATIONAL GYPSUM COMPANY - 1" GOLD BOND BRAND FIRE-SHIELD SHAFTLINER

FIRE TEST - UL R3501, 92NKZ28896, 6-7-93, UL DESIGN U347; WHI 694-0200.6, 10-12 & 24-85

SYSTEM AND 3-1/2 INCH GLASS FIBER INSULATION IN STUD SPACE

THICKNESS - 3-1/2 INCH (FIRE); 11-3/4 INCH (SOUND)

**APPROXIMATE WEIGHT** - 9 PSF (FIRE & SOUND)

**SOUND TEST -** RAL TL05-199, 11-17-05

2-HR FIRE SHAFT WALL - NONBEARING

ACOUSTICS - STC 48 ESTIMATED FOR SH 02 BASED ON USG - 170427

2-HR FIRE WALL - INTERIOR METAL WALL

GYPSUM WALLBOARD, PER ASSEMBLY-

3-5/8 INCH x 25 GAUGE METAL STUDS OR

3/4 INCH MINIMUM; 1 INCH MAXIMUM AIR SPACE - REFER TO BUILDING PLANS

GYPSUM LINER PANEL, PER ASSEMBLY-

HEIGHT LIMITATION 66 FEET (NLB)

PROPRIETARY GYPSUM BOARD

2 INCH STEEL 'H' STUDS

2X4 WOOD STUDS AT 24 INCH ON CENTER

FIRE TEST: GA ASW 0998

PROPRIETARY ASSEMBLY - CERTAINTEED - June 2021

2-HR FIRE WALL - METAL WALL PROPRIETARY ASSEMBLY - UL SOLUTIONS - January 29, 2024 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U347 - OPTION B SOUND RATING - 50 STC MIN.

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS 2 LAYERS 1" GYPSUM LINER INSULATION BOTH SIDES, PER ALUMINUM BREAK-AWAY

STEEL STUD FRAMING, PER ITEM BOARD PER ITEM 3 -3-1/2" UNFACED BATT ITEM 6B -METAL 'H' STUDS PER ITEM 2 CLIPS PER ITEM 7 — PLYWOOD SHEATHING, PER STRUCTURAL. GYPSUM WALLBOARD, PER ASSEMBLY-STEEL STUD FRAMING AS REQUIRED FOR CLIP SPACING/ INSTALLATION -DESIGN NO. U347 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U347. CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST

#### 'INSTALL AS DESCRIBED IN ASSEMBLY UL U347 OPTION A FOR SHAFT CONFIGURATION \* \*INSTALL AS DESCRIBED IN ASSEMBLY UL U347 OPTION B FOR FIRE WALL CONFIGURATIONS\*

**SEPARATION WALL:** (NON-BEARING, MAXIMUM HEIGHT - 66 FEET, SEE ITEM 6) 1. STEEL TRACK - FLOOR, SIDEWALL OR TOP WALL TRACK. NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1 IN. LONG LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC. 2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF

APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN. 3. GYPSUM WALLBOARD\* - TWO LAYERS OF 1 IN. THICK GYPSUM WALLBOARD LINER PANELS, SUPPLIED IN NOM 24 IN. WIDTHS. VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS. NATIONAL GYPSUM CO — TYPES FSW, FSW-B, FSW-7, FSW-9

NATIONAL GYPSUM CO — TYPES FSW - 1" GOLD BOND BRAND FIRE-SHIELD SHAFTLINER. PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEMS 5, 5A, AND 5B. WHEN BEARING, LOAD RESTRICTED FOR CANADIAN APPLICATIONS — SEE GUIDE BXUV7. 4. **AIR SPACE:** MINIMUM 3/4-IN. AIR SPACE.

5B.WOOD STUDS - (AS AN ALTERNATE TO ITEMS 5 AND 5A, FOR USE IN CONFIGURATION B ONLY, NOT SHOWN) — FOR NONBEARING WALL RATING — CHANNEL SHAPED, FABRICATED FROM MIN 25 MSG CORROSION-PROTECTED STEEL, MIN 3-1/2 IN. WIDE, MIN 1-1/4 IN. FLANGES AND 1/4 IN. RETURN, SPACED A MAX OF 24 IN. OC. STUDS TO BE CUT 3/8 TO 3/4 IN. LESS THAN ASSEMBLY HEIGHT. TOP AND BOTTOM TRACKS SHALL BE CHANNEL SHAPED. FABRICATED FROM MIN 25 MSG CORROSION-PROTECTED STEEL, MIN WIDTH TO ACCOMMODATE STUD SIZE, WITH MIN 1 IN. LONG LEGS, ATTACHED TO FLOOR AND CEILING WITH FASTENERS 24 IN. OC MAX. STUDS CROSS-BRACED WITH STUD FRAMING AT MIDHEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. MIN 3/4 IN. SEPARATION BETWEEN STEEL FRAMING AND AREA

SEPARATION WALL. FINISH RATING HAS NOT BEEN EVALUATED FOR STEEL STUDS. 6B. BATTS AND BLANKETS\* - AS AN ALTERNATE TO ITEMS 6 AND 6A, GLASS FIBER OR MINERAL WOOL INSULATION, MIN 3-1/2 IN. THICK, PLACED TO COMPLETELY FILL THE WOOD OR STEEL STUD CAVITIES. WHEN BATTS AND BLANKETS ARE USED IN PLACE OF ITEMS 6 AND 6A, THE MAX HEIGHT IS 54 FT AND THE ALUMINUM CLIPS (ITEM 7) SHALL BE SPACED A MAX OF 5 FT OC VERTICALLY. MIN 3/4 IN. SEPARATION BETWEEN INSULATION AND AREA SEPARATION WALL. SEE BATTS AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAME OF CLASSIFIED COMPANIES.

7. ALUMINUM CLIPS - ALUMINUM ANGLE, 0.049 IN. THICK, 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH TYPE S SCREWS 3/8 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING OR STEEL FRAMING THROUGH HOLES PROVIDED IN CLIP. NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL.

2-HR FIRE WALL AND SHAFTS - METAL FRAMING

ARCHITECTURAL CONSTRUCTION DETAIL

NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

**SPECIFICATIONS** 

DESIGN NO. U347

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U347. CONSTRUCTION SHALL BE PER DETAIL WHICH IS

1. STEEL TRACK - FLOOR, SIDEWALL OR TOP WALL TRACK, NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1 IN. LONG

3. GYPSUM WALLBOARD\* - TWO LAYERS OF 1 IN. THICK GYPSUM WALLBOARD LINER PANELS, SUPPLIED IN NOM 24 IN.

PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEMS 5, 5A, AND 5B. WHEN BEARING, LOAD

5. WOOD STUDS - FOR BEARING OR NONBEARING WALL RATING — NOM 2 BY 4 IN. MAX SPACING 24 IN. OC. STUDS CROSS

BRACED AT MID-HEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. MIN 3/4 IN. SEPARATION BETWEEN WOOD

6B. BATTS AND BLANKETS\* - AS AN ALTERNATE TO ITEMS 6 AND 6A, GLASS FIBER OR MINERAL WOOL INSULATION, MIN

3-1/2 IN. THICK, PLACED TO COMPLETELY FILL THE WOOD OR STEEL STUD CAVITIES. WHEN BATTS AND BLANKETS ARE

MAX OF 5 FT OC VERTICALLY. MIN 3/4 IN. SEPARATION BETWEEN INSULATION AND AREA SEPARATION WALL. SEE

THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS (BZJZ) CATEGORY IN THE FIRE RESISTANCE

7. ALUMINUM CLIPS - ALUMINUM ANGLE, 0.049 IN. THICK, 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH

TYPE S SCREWS 3/8 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING OR STEEL FRAMING

NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE

USED IN PLACE OF ITEMS 6 AND 6A. THE MAX HEIGHT IS 54 FT AND THE ALUMINUM CLIPS (ITEM 7) SHALL BE SPACED A

LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC.

2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF

AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST AREA

WIDTHS. VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS.

NATIONAL GYPSUM CO - TYPES FSW - 1" GOLD BOND BRAND FIRE-SHIELD SHAFTLINER.

FRAMING AND FIRE SEPARATION WALL. FINISH RATING EVALUATED FOR WOOD STUDS ONLY.

**SEPARATION WALL: (NON-BEARING, MAXIMUM HEIGHT - 66 FEET, SEE ITEM 6)** 

APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN.

4. AIR SPACE: MINIMUM 3/4-IN, AIR SPACE.

BATTS AND BLANKETS (BKNV) CATEGORY IN

THROUGH HOLES PROVIDED IN CLIP.

SLAB AT BOTH SIDES OF WALL.

DIRECTORY FOR NAME OF CLASSIFIED COMPANIES.

NATIONAL GYPSUM CO — TYPES FSW. FSW-B. FSW-7. FSW-9

ANSI/UL 263 DESIGN NO U347

PROPRIETARY ASSEMBLY - UL SOLUTIONS - January 29, 2024

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U347

2-HR FIRE WALL - EXTERIOR METAL WALL

SOUND RATING - 50 STC MIN.

STEEL STUD FRAMING, PER ITEM

2 LAYERS 1" GYPSUM LINER

INSULATION BOTH SIDES, PER

METAL 'H' STUDS PER ITEM 2

ALUMINUM BREAK-AWAY

PLYWOOD SHEATHING, PER STRUCTURAL.

STUCCO SYSTEM, PER EM-11

INSTALLATION INSTRUCTIONS -

CLIP SPACING/ INSTALLATION -

STEEL STUD FRAMING AS REQUIRED FOR

CLIPS PER ITEM 7 —

BOARD PER ITEM 3 -

3-1/2" UNFACED BATT

3-HR FIRE WALL PROPRIETARY ASSEMBLY - UL SOLUTIONS - October 07, 2019 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO W454 SOUND RATING - 50 STC MIN. REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

ARCHITECTURAL CONSTRUCTION DETAIL RCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS SPECIFICATIONS 3/4" AIR SPACE MINIMUM, PER GYPSUM WALLBOARD, PER 2x Framing, PER ITEM 5 2 LAYERS 1" GYPSUM LINER BOARD PER ITEM 3 -2 LAYERS 1" GYPSUM LINER BOARD PER ITEM 3 -3-1/2" UNFACED BATT 3-1/2" UNFACED BATT INSULATION BOTH SIDES -INSULATION BOTH SIDES, PER ITEM 6B ---METAL 'H' STUDS PER ITEM 2 -METAL 'H' STUDS PER ITEM 2 -ALUMINUM BREAK-AWAY CLIPS ALUMINUM BREAK-AWAY CLIPS PER ITEM 7 -PLYWOOD SHEATHING, PER STRUCTURAL PLYWOOD SHEATHING, PER STRUCTURAL. GYPSUM WALLBOARD, PER ASSEMBLY-

2-HR FIRE WALL

SOUND RATING - 50 STC MIN.

GYPSUM WALLBOARD, PER ASSEMBLY—

2x4 BLOCKING AS REQUIRED FOR CLIP

SPACING/INSTALLATION -

PROPRIETARY ASSEMBLY - UL SOLUTIONS - January 29, 2024

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U347

DESIGN NO. U347

WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST

**SEPARATION WALL:** (NON-BEARING, MAXIMUM HEIGHT - 66 FEET, SEE ITEM 6) 1. STEEL TRACK - FLOOR, SIDEWALL OR TOP WALL TRACK. NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1 IN. LONG LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC.

VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS. 3. **GYPSUM WALLBOARD\*** - TWO LAYERS OF 1 IN. THICK GYPSUM WALLBOARD LINER PANELS, SUPPLIED IN NOM 24 II WIDTHS. VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS. 4. GYPSUM WALLBOARD\* - 5/8 IN. THICK GYPSUM PANELS WITH BEVELED, SQUARE OR TAPERED EDGES. GYPSUM NATIONAL GYPSUM CO - TYPES FSW, FSW-B, FSW-7, FSW-9 PANELS APPLIED HORIZONTALLY OR VERTICALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. SECURED TO STUDS (ITEM 2) WITH 1 IN. LONG TYPE S SCREWS, SPACED 16 IN. OC. HORIZONTAL EDGE JOINTS AND HORIZONTAL

BUT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGERED. RESTRICTED FOR CANADIAN APPLICATIONS — SEE GUIDE BXUV7.) NATIONAL GYPSUM CO — TYPES FSW-C, FSK-C, EXP-C, AND FSW-G. 4. **AIR SPACE:** MINIMUM 3/4-IN. AIR SPACE. PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEM 5. WHEN BEARING, LOAD RESTRICTED FOR CANADIAN APPLICATIONS — SEE GUIDE BXUV7):

5. WOOD STUDS - FOR BEARING OR NONBEARING WALL RATING — NOM 2 BY 4 IN. MAX SPACING 24 IN. OC. STUDS CROSS BRACED AT MID-HEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. NO SEPARATION REQUIRED BETWEEN WOOD FRAMING AND FIRE SEPARATION WALL. FINISH RATING EVALUATED FOR WOOD STUDS ONLY. 6. GYPSUM BOARD - APPLIED HORIZONTALLY OR VERTICALLY, FASTENED TO STUDS WITH NAILS OR SCREWS OF

SUFFICIENT LENGTH, SPACED 12 IN. OC. JOINTS AND FASTENER HEADS ARE NOT REQUIRED TO BE TREATED. VERTICAL JOINTS LOCATED OVER STUDS. 7. ATTACHMENT CLIPS - ALUMINUM ANGLE, 0.049 IN. THICK, 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH TYPE S SCREWS 1 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING THROUGH

DESIGN NO. W454

1. STEEL TRACK - NOT SHOWN - FLOOR, SIDEWALL OR TOP WALL TRACK. NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1

IN. LONG LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC

3. GYPSUM WALLBOARD\* - TWO LAYERS OF 1 IN. THICK GYPSUM BOARD LINER PANELS, SUPPLIED IN NOM 24 IN. WIDTHS.

2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

SOUND RATING WITH 3-1/2" (88.9MM) GLASS FIBER INSULATION IN STUDY CAVITY ON EACH SIDE

HOLES PROVIDED IN CLIP. CLIPS SPACED A MAXIMUM OF 5FT OC VERTICALLY. 8. BATTS AND BLANKETS - (OPTIONAL, NOT SHOWN) — GLASS FIBER OR MINERAL WOOL INSULATION, PLACED TO COMPLETELY FILL THE WOOD STUD CAVITIES

\*BEARING THE UL CLASSIFICATION MARK NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL.

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U347 CONFIGURATION D. CONSTRUCTION SHALL BE PER DETAIL

2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN.

NATIONAL GYPSUM CO - TYPES FSW - 1" GOLD BOND BRAND FIRE-SHIELD SHAFTLINER. PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEMS 5, 5A, AND 5B. WHEN BEARING, LOAD

5. WOOD STUDS - FOR BEARING OR NONBEARING WALL RATING — NOM 2 BY 4 IN. MAX SPACING 24 IN. OC. STUDS CROSS BRACED AT MID-HEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. MIN 3/4 IN. SEPARATION BETWEEN WOOD FRAMING AND FIRE SEPARATION WALL. FINISH RATING EVALUATED FOR WOOD STUDS ONLY. 6B. BATTS AND BLANKETS\* - AS AN ALTERNATE TO ITEMS 6 AND 6A, GLASS FIBER OR MINERAL WOOL INSULATION, MIN 3-1/2 IN. THICK, PLACED TO COMPLETELY FILL THE WOOD OR STEEL STUD CAVITIES. WHEN BATTS AND BLANKETS ARE USED IN PLACE OF ITEMS 6 AND 6A, THE MAX HEIGHT IS 54 FT AND THE ALUMINUM CLIPS (ITEM 7) SHALL BE SPACED A MAX OF 5 FT OC VERTICALLY. MIN 3/4 IN. SEPARATION BETWEEN INSULATION AND AREA SEPARATION WALL. SEE BATTS

CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAME OF CLASSIFIED COMPANIES. 7. ALUMINUM CLIPS - ALUMINUM ANGLE, 0.049 IN. THICK, 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH TYPE S SCREWS 3/8 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING OR STEEL FRAMING THROUGH HOLES PROVIDED IN CLIP. 8. <u>STC RATING - THE STC RATING OF THE WALL ASSEMBLY IS 61 WHEN IT IS CONSTRUCTED AS DESCRIBED</u> <u>BY ITEMS (</u> <u>THROUGH 6, EXCEPT: A. ITEM 5, ABOVE — WOOD STUDS — SHALL BE SPACED 16 IN. OC.</u> 9. NON-BEARING WALL PARTITION INTERSECTION — (OPTIONAL) WALL SYSTEM CONSISTING OF NOMINAL 2 BY 4 IN. STUD

AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS (BZJZ)

NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL.

SCALE: 3" = 1'-0"

-HR FIRE WALL - WOOD FRAMING

ANSI/UL 263 DESIGN NO U347

PROPRIETARY ASSEMBLY - UL SOLUTIONS - January 29, 2024

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO U347

2-HR FIRE WALL

SOUND RATING - 50 STC MIN.

OR NOMINAL 2 BY 6 IN. STUD. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY.

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SCALE: 3" = 1'-0"

3-HR FIRE WALL - WOOD FRAMING

ANSI/UL 263 DESIGN NO W454

3-HR FIRE WALL - EXTERIOR WALL PROPRIETARY ASSEMBLY - UL SOLUTIONS - October 07, 2019 FIRE TEST: BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 DESIGN NO W454 SOUND RATING - 50 STC MIN.

SPACING/ INSTALLATION -

2x4 BLOCKING AS REQUIRED FOR CLIP

SEPARATION WALL: (NON-BEARING, MAX HEIGHT - 70 FT):

APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN.

NATIONAL GYPSUM CO — TYPES FSW, FSW-7

SPACING/ INSTALLATION

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS GYPSUM WALLBOARD, PER 2 LAYERS 1" GYPSUM LINER BOARD PER ITEM 3 -3-1/2" UNFACED BATT INSULATION BOTH SIDES -METAL 'H' STUDS PER ITEM 2 -ALUMINUM BREAK-AWAY CLIPS PER ITEM 7 PLYWOOD SHEATHING, PER STRUCTURAL. STUCCO FINISH SYSTEM, PER ASSEMBLY 2x4 BLOCKING AS REQUIRED FOR CLIP

SOUND RATING WITH 3-1/2" (88.9MM) GLASS FIBER INSULATION IN STUDY CAVITY ON EACH SIDE

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS 3/4" AIR SPACE MINIMUM, PER ITEM 2x FRAMING, PER ITEM 5 2 LAYERS 1" GYPSUM LINER BOARD PER ITEM 3 -3-1/2" UNFACED BATT INSULATION BOTH SIDES, PER METAL 'H' STUDS PER ITEM 2 -ALUMINUM BREAK-AWAY CLIPS PER ITEM 7 -PLYWOOD SHEATHING, PER STRUCTURAL STUCCO FINISH SYSTEM, PER ASSEMBLY-2x4 BLOCKING AS REQUIRED FOR CLIP SPACING/ INSTALLATION

DESIGN NO. W454 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

SEPARATION WALL: (NON-BEARING, MAX HEIGHT - 70 FT): 1. STEEL TRACK - NOT SHOWN - FLOOR, SIDEWALL OR TOP WALL TRACK. NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1 IN. LONG LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC 2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF

APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN. 3. GYPSUM WALLBOARD\* - TWO LAYERS OF 1 IN. THICK GYPSUM BOARD LINER PANELS, SUPPLIED IN NOM 24 IN. WIDTHS. VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS. NATIONAL GYPSUM CO — TYPES FSW, FSW-7 4. GYPSUM WALLBOARD\* - 5/8 IN. THICK GYPSUM PANELS WITH BEVELED. SQUARE OR TAPERED EDGES. GYPSUM

PANELS APPLIED HORIZONTALLY OR VERTICALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. SECURED TO STUDS (ITEM 2) WITH 1 IN. LONG TYPE S SCREWS, SPACED 16 IN. OC. HORIZONTAL EDGE JOINTS AND HORIZONTAL BUT JOINTS ON OPPOSITE SIDES OF STUDS NEED NOT BE STAGGEREI NATIONAL GYPSUM CO — TYPES FSW-C, FSK-C, EXP-C, AND FSW-G. PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEM 5. WHEN BEARING, LOAD RESTRICTED

FOR CANADIAN APPLICATIONS — SEE GUIDE BXUV7): 5. WOOD STUDS - FOR BEARING OR NONBEARING WALL RATING — NOM 2 BY 4 IN. MAX SPACING 24 IN. OC. STUDS CROSS BRACED AT MID-HEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. NO SEPARATION REQUIRED BETWEEN WOOD FRAMING AND FIRE SEPARATION WALL. FINISH RATING EVALUATED FOR WOOD STUDS ONLY. 6. GYPSUM BOARD - APPLIED HORIZONTALLY OR VERTICALLY. FASTENED TO STUDS WITH NAILS OR SCREWS OF SUFFICIENT LENGTH, SPACED 12 IN. OC. JOINTS AND FASTENER HEADS ARE NOT REQUIRED TO BE TREATED.

VERTICAL JOINTS LOCATED OVER STUDS. 7. ATTACHMENT CLIPS - ALUMINUM ANGLE. 0.049 IN. THICK. 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH TYPE S SCREWS 1 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING THROUGH HOLES PROVIDED IN CLIP. CLIPS SPACED A MAXIMUM OF 5FT OC VERTICALLY. 8. BATTS AND BLANKETS - (OPTIONAL, NOT SHOWN) — GLASS FIBER OR MINERAL WOOL INSULATION, PLACED TO COMPLETELY FILL THE WOOD STUD CAVITIES.

\*BEARING THE UL CLASSIFICATION MARK NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL.

DESIGN NO. U347

BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN U347 CONFIGURATION D. CONSTRUCTION SHALL BE PER DETAIL WHICH IS AN ENHANCED AREA SEPARATION WALL ASSEMBLY PER OWNER'S REQUEST

**SEPARATION WALL:** (NON-BEARING, MAXIMUM HEIGHT - 66 FEET, SEE ITEM 6) 1. STEEL TRACK - FLOOR, SIDEWALL OR TOP WALL TRACK, NOM 2 IN. WIDE CHANNEL SHAPED WITH NOM 1 IN. LONG LEGS, FORMED FROM NO. 25 MSG GALV STEEL, SECURED WITH SUITABLE FASTENERS SPACED 24 IN. OC. 2. STEEL STUDS - "H" SHAPED STUDS FORMED FROM NO. 25 MSG GALV STEEL HAVING AN OVERALL DEPTH OF APPROXIMATELY 2 IN. AND FLANGE WIDTH 1-3/8 IN.

 GYPSUM WALLBOARD\* - TWO LAYERS OF 1 IN. THICK GYPSUM WALLBOARD LINER PANELS, SUPPLIED IN NOM 24 IN. WIDTHS. VERTICAL EDGES OF PANELS FRICTION FIT INTO "H" SHAPED STUDS. NATIONAL GYPSUM CO — TYPES FSW, FSW-B, FSW-7, FSW-9 NATIONAL GYPSUM CO - TYPES FSW - 1" GOLD BOND BRAND FIRE-SHIELD SHAFTLINER.

PROTECTED WALL: (BEARING OR NONBEARING WALL, AS INDICATED IN ITEMS 5, 5A, AND 5B. WHEN BEARING, LOAD RESTRICTED FOR CANADIAN APPLICATIONS — SEE GUIDE BXUV7.) 4. AIR SPACE: MINIMUM 3/4-IN. AIR SPACE.

5. WOOD STUDS - FOR BEARING OR NONBEARING WALL RATING — NOM 2 BY 4 IN. MAX SPACING 24 IN. OC. STUDS CROSS BRACED AT MID-HEIGHT WHERE NECESSARY FOR CLIP ATTACHMENT. MIN 3/4 IN. SEPARATION BETWEEN WOOD FRAMING AND FIRE SEPARATION WALL. FINISH RATING EVALUATED FOR WOOD STUDS ONLY. 6B. BATTS AND BLANKETS\* - AS AN ALTERNATE TO ITEMS 6 AND 6A, GLASS FIBER OR MINERAL WOOL INSULATION, MIN. 3-1/2 IN. THICK, PLACED TO COMPLETELY FILL THE WOOD OR STEEL STUD CAVITIES. WHEN BATTS AND BLANKETS ARE USED IN PLACE OF ITEMS 6 AND 6A. THE MAX HEIGHT IS 54 FT AND THE ALUMINUM CLIPS (ITEM 7) SHALL BE SPACED A MAX OF 5 FT OC VERTICALLY. MIN 3/4 IN. SEPARATION BETWEEN INSULATION AND AREA SEPARATION WALL. SEE BATTS AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS (BZJZ)

CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAME OF CLASSIFIED COMPANIES... 7. ALUMINUM CLIPS - ALUMINUM ANGLE, 0.049 IN. THICK, 2 IN. WIDE WITH 2 IN. AND 2-1/2 IN. LEGS. CLIPS SECURED WITH TYPE S SCREWS 3/8 IN. LONG TO "H" STUDS AND WITH 1-1/4 IN. LONG SCREWS TO WOOD FRAMING OR STEEL FRAMING THROUGH HOLES PROVIDED IN CLIP. 8. STC RATING - THE STC RATING OF THE WALL ASSEMBLY IS 61 WHEN IT IS CONSTRUCTED AS DESCRIBED BY ITEMS 1 THROUGH 6, EXCEPT: A. ITEM 5, ABOVE — WOOD STUDS — SHALL BE SPACED 16 IN. OC. 9. NON-BEARING WALL PARTITION INTERSECTION — (OPTIONAL) WALL SYSTEM CONSISTING OF NOMINAL 2 BY 4 IN. STUD

OR NOMINAL 2 BY 6 IN. STUD. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NOTE: INSTALL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL.

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's CLIENT PHONE NUMBER

Contractor must verify all dimensions at project before proceeding with this

and the owner or its designated agent shall provide this written description on request.

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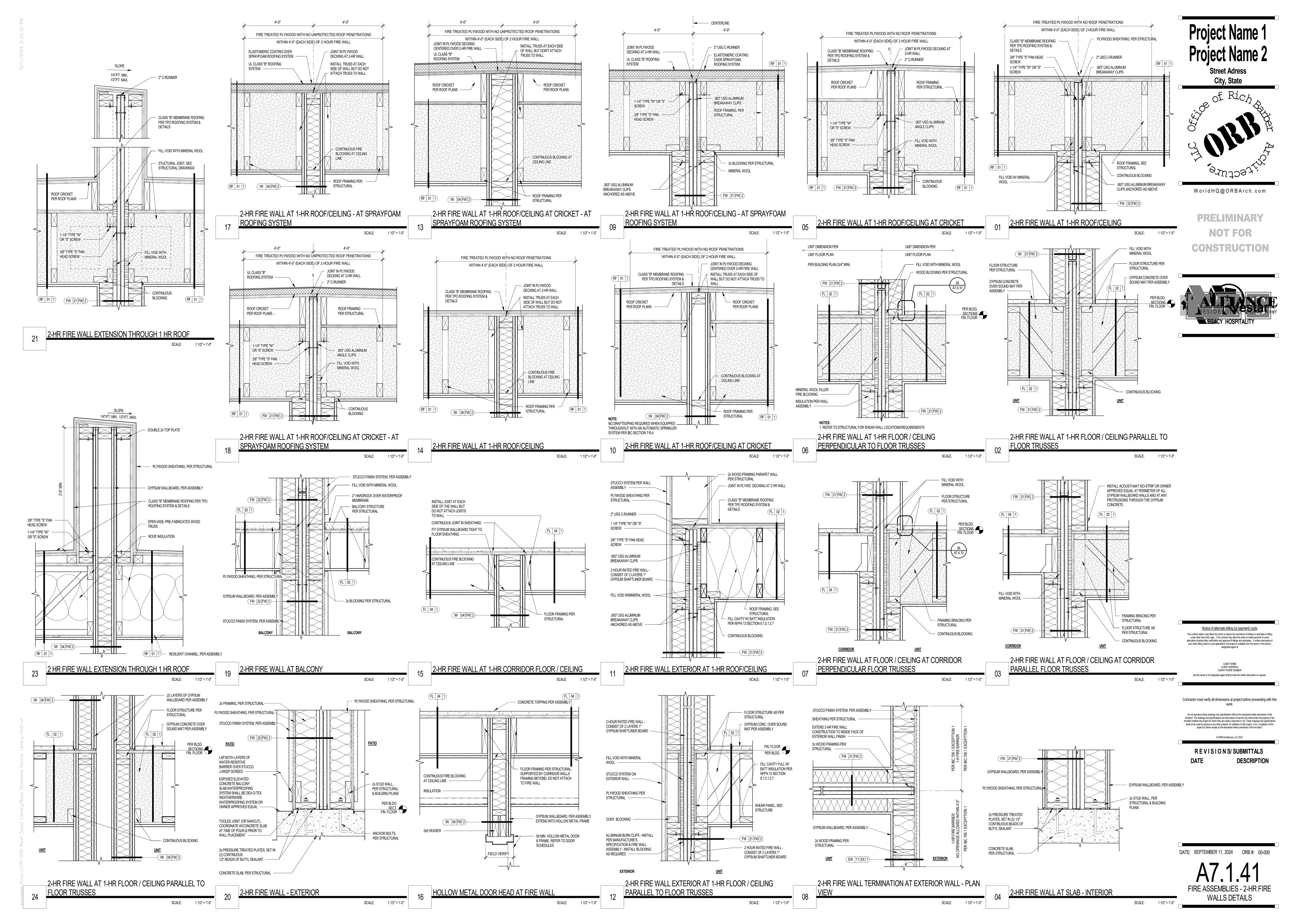
REVISIONS/SUBMITTALS

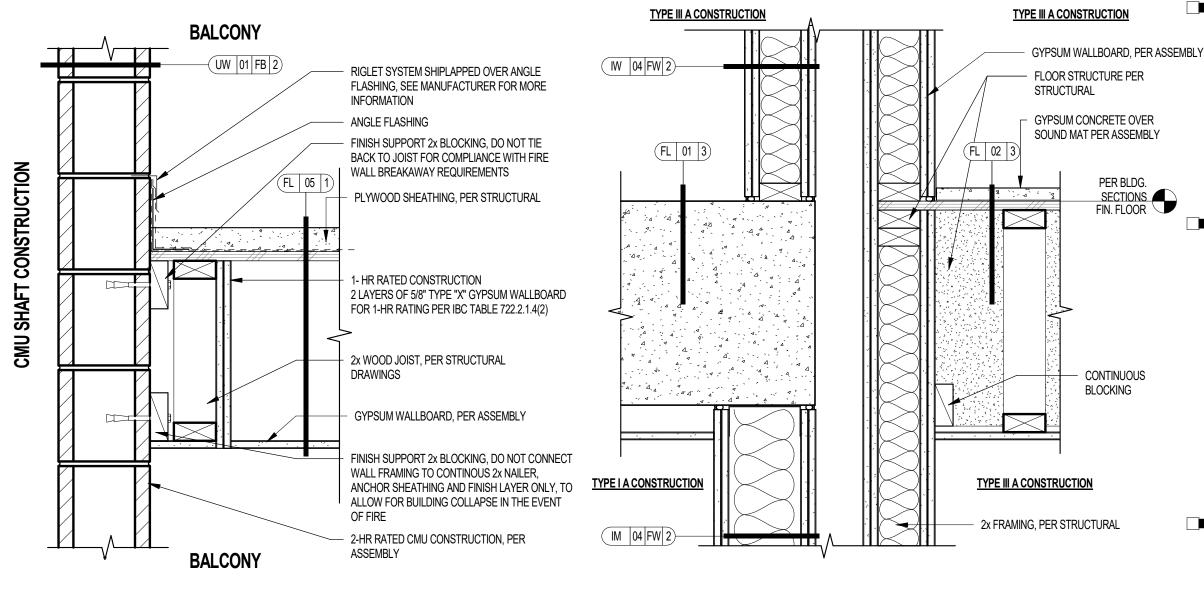
DATE: SEPTEMBER 11, 2024 ORB #: 00-000

 $^{igstyle J}$  GA FILE NO. ASW 0998 - GA-600-202 $^{\circ}$ 

SCALE: 3" = 1'-0"

SCALE: 3" = 1'-0"





SCALE: 1 1/2" = 1'-0"

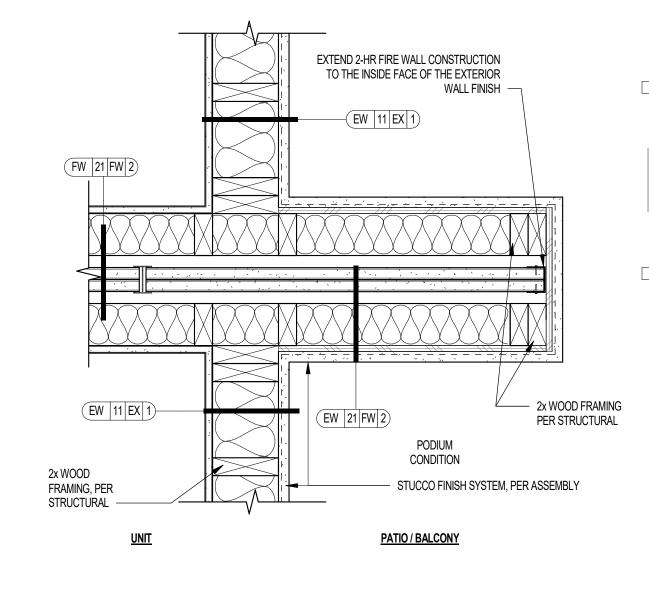
2-HR FIRE WALL EXTERIOR TERMINATION AT CMU AND

**BALCONY CONDITION** 

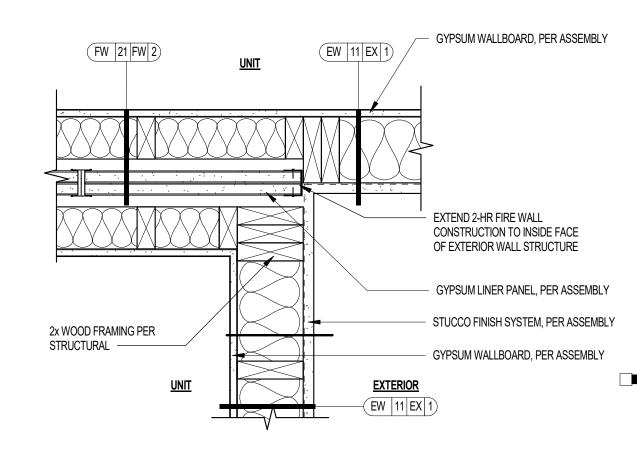
City, State WorldHQ@ORBArch.com

\_ 2-HR FIRE WALL AT 1-HR FLOOR / CEILING PARALLEL TO FLOOR TRUSSES SCALE: 1 1/2" = 1'-0"

**PRELIMINARY NOT FOR** CONSTRUCTION



2-HR FIRE WALL AT BALCONY EXTERIOR WALL - PLAN VIEW SCALE: 1 1/2" = 1'-0"

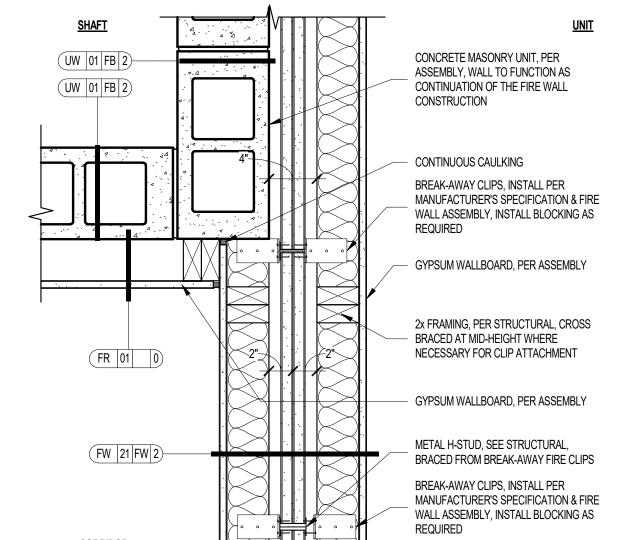


Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

 $_{\!\scriptscriptstyle -}$  2-HR FIRE WALL TERMINATION AT PATIO / BALCONY - PLAN

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

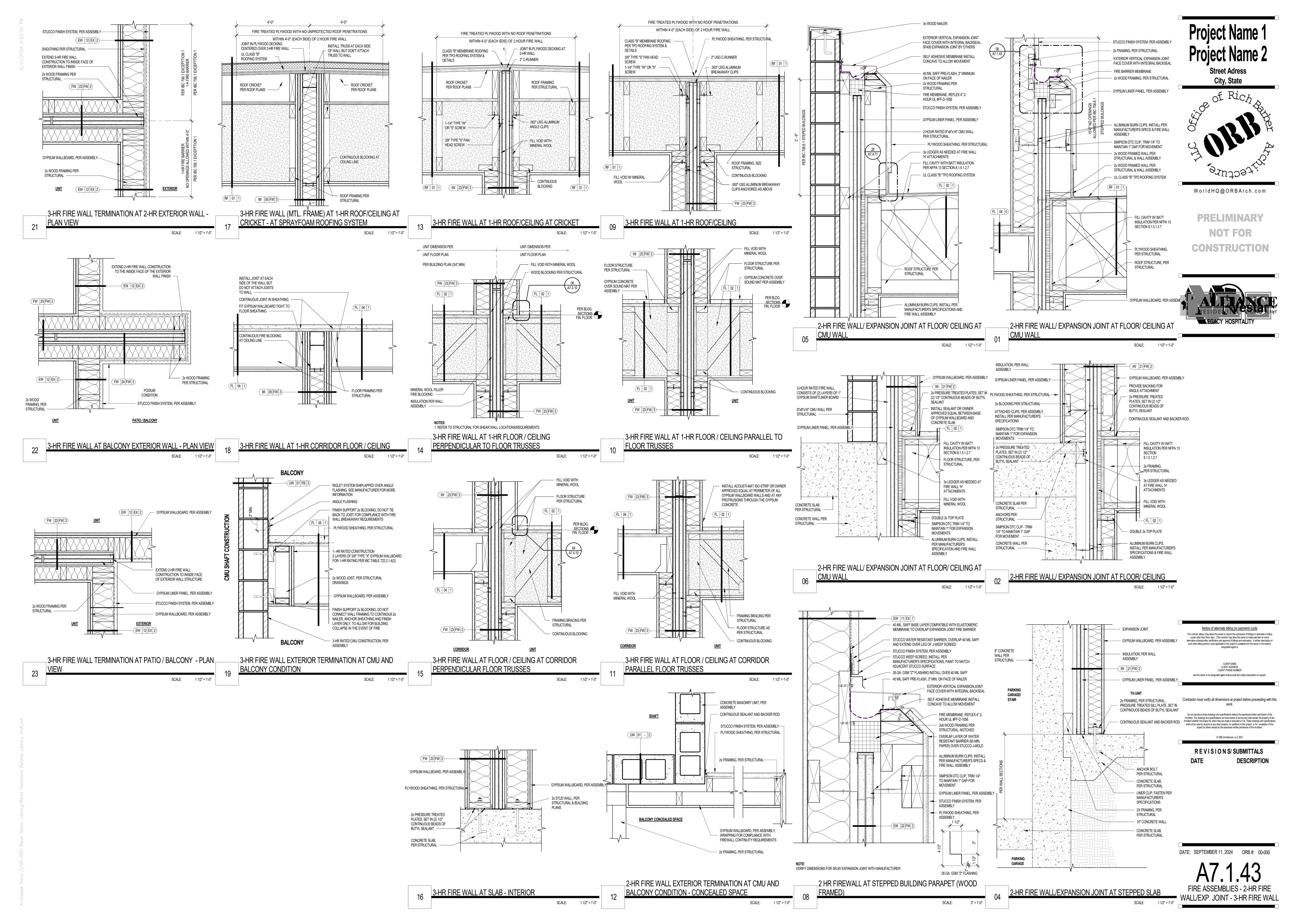


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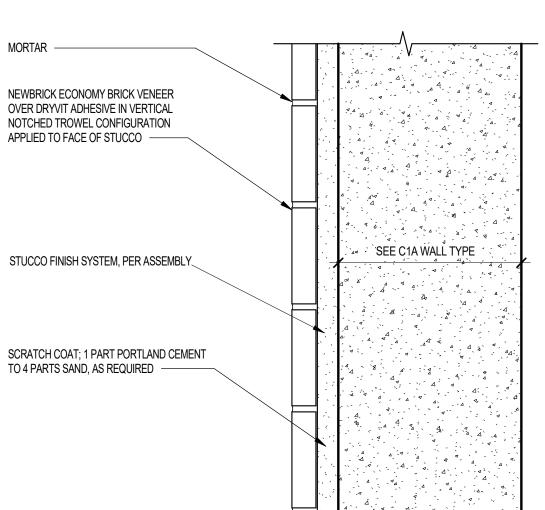
SCALE: 1 1/2" = 1'-0"

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

2-HR FIRE WALL TERMINATION AT CMU SHAFT - PLAN VIEW



# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN **SPECIFICATIONS**



## NO SOUND RATING REQUIRED AT EXTERIOR WALLS ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS

GENERIC ASSEMBLY

5/8" MAT GLASS TYPE X SHEATHING

METAL SIDING AND REVEAL SYSTEM, SEE

18 GAUGE GALVANIZED 1" DEEP Z FURRING AT 24"

18 GAUGE GALVANIZED 1" DEEP Z FURRING AT 24"

EXTERIOR ELEVATIONS

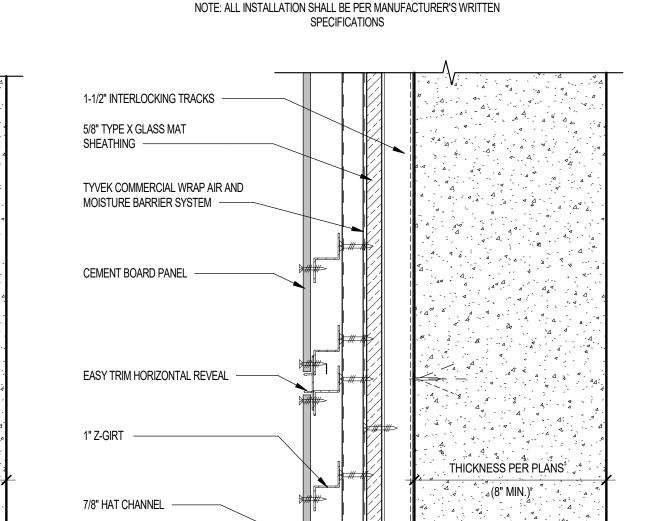
GCP ULTRA WALL MEMBRANE

ON CENTER VERTICALLY -

ON CENTER HORIZONTALLY -

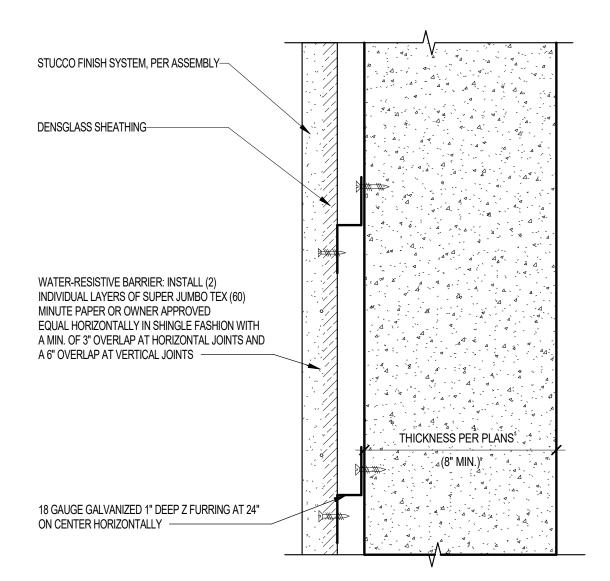
#### CONCRETE WALL WITH FACINGS OR ACCESSORIES - METAL SIDING CONCRETE WALL WITH FACINGS OR ACCESSORIES - STUCCO FINISH GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2) 4-1.1 FIRE TEST: IBC TABLE 721.1(2) 4-1.1 NO SOUND RATING REQUIRED AT EXTERIOR WALLS ARCHITECTURAL CONSTRUCTION DETAIL

THICKNESS PER PLANS<sup>1</sup>



# CONCRETE WALL WITH FACINGS OR ACCESSORIES - STUCCO FINISH GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2) 4-1.1 NO SOUND RATING REQUIRED AT EXTERIOR WALLS

# ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



# **CONCRETE WALL WITH FACINGS OR ACCESSORIES** GENERIC ASSEMBLY FIRE TEST: IBC 2018 TABLE 721.1(2) 4-1.1 NO SOUND RATING REQUIRED AT EXTERIOR WALLS <u>ARCHITECTURAL CONSTRUCTION DETAIL</u>

REINFORCING PER STRUCTURAL

# NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS

THICKNESS PER PLANS<sup>1</sup> `⊿(8" MIN.)\*



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# IBC TABLE 721.1(2) 4-1.1 THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) 4-1.

4. SOLID CONCRETE (SEE NOTES h,i) 4-1.1	MINIMUM F FACE (INC)	INISHED THICKN HES)	ESS FACE TO	
( - //	4 HOURS	3 HOURS	2 HOURS	1 HOURS
SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5
CARBONATE AGGREGATE CONCRETE	6.6	5.7	4.6	3.2
SAND-LIGHTWEIGHT CONCRETE	5.4	4.6	3.8	2.7
LIGHTWEIGHT CONCRETE	5.1	4.4	3.6	2.5

h. THE EQUIVALENT THICKNESS SHALL BE PERMITTED TO INCLUDE THE THICKNESS OF CEMENT PLASTER OR 1.5 TIMES THE THICKNESS OF GYPSUM PLASTER APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 25. i. CONCRETE WALLS SHALL BE REINFORCED WITH HORIZONTAL AND VERTICAL TEMPERATURE REINFORCEMENT AS REQUIRED BY CHAPTER 19.

SCALE: 3" = 1'-0"

# IBC TABLE 721.1(2) 4-1.1 THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) 4-1.1

4. SOLID CONCRETE (SEE NOTES h,i) 4-1.1	MINIMUM F FACE (INCH	INISHED THICKN HES)	ESS FACE TO	
,,	4 HOURS	3 HOURS	2 HOURS	1 HOURS
SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5
CARBONATE AGGREGATE CONCRETE	6.6	5.7	4.6	3.2
SAND-LIGHTWEIGHT CONCRETE	5.4	4.6	3.8	2.7
LIGHTWEIGHT CONCRETE	5.1	4.4	3.6	2.5

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THICKNESS OF GYPSUM PLASTER APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 25. i. CONCRETE WALLS SHALL BE REINFORCED WITH HORIZONTAL AND VERTICAL TEMPERATURE REINFORCEMENT AS REQUIRED BY CHAPTER 19.

# IBC TABLE 721.1(2) 4-1.1 THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) 4-1.1

			. ,	
4. SOLID CONCRETE (SEE NOTES h,i) 4-1.1	MINIMUM F FACE (INCH	INISHED THICKN HES)	ESS FACE TO	
(	4 HOURS	3 HOURS	2 HOURS	1 HOURS
SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5
CARBONATE AGGREGATE CONCRETE	6.6	5.7	4.6	3.2
SAND-LIGHTWEIGHT CONCRETE	5.4	4.6	3.8	2.7
LIGHTWEIGHT CONCRETE	5.1	4.4	3.6	2.5

NOTES:

GENERIC ASSEMBLY

FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4

h. THE EQUIVALENT THICKNESS SHALL BE PERMITTED TO INCLUDE THE THICKNESS OF CEMENT PLASTER OR 1.5 TIMES THE THICKNESS OF GYPSUM PLASTER APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 25. i. CONCRETE WALLS SHALL BE REINFORCED WITH HORIZONTAL AND VERTICAL TEMPERATURE REINFORCEMENT AS REQUIRED BY CHAPTER 19.

#### IBC TABLE 721.1(2) 4-1.1 THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) 4-1.1

4. SOLID CONCRETE (SEE NOTES h,i) 4-1.1	MINIMUM F FACE (INCH	INISHED THICKN HES)	ESS FACE TO	
,	4 HOURS	3 HOURS	2 HOURS	1 HOURS
SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5
CARBONATE AGGREGATE CONCRETE	6.6	5.7	4.6	3.2
SAND-LIGHTWEIGHT CONCRETE	5.4	4.6	3.8	2.7
LIGHTWEIGHT CONCRETE	5.1	4.4	3.6	2.5

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# THE ASSEMBLY DESCRIPTION BELOW IS PER IBC TABLE 721.1(2) 4-1.1

IBC TABLE 721.1(2) 4-1.1

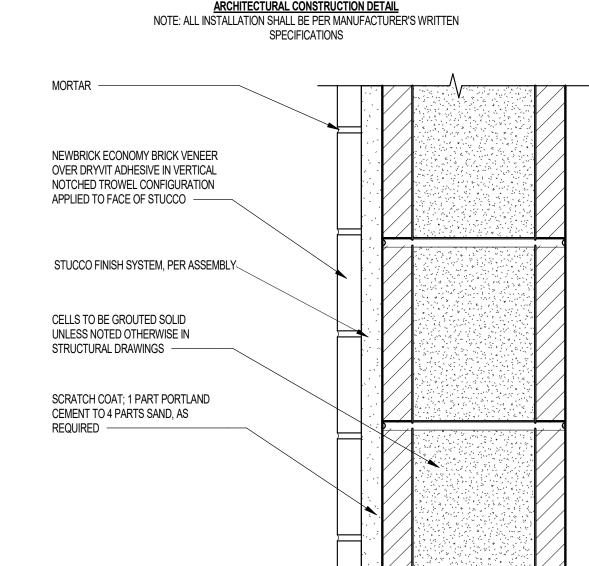
4. SOLID CONCRETE (SEE NOTES h,i) 4-1.1	MINIMUM F FACE (INCH	INISHED THICKNI HES)	ESS FACE TO	
	4 HOURS	3 HOURS	2 HOURS	1 HOURS
SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5
CARBONATE AGGREGATE CONCRETE	6.6	5.7	4.6	3.2
SAND-LIGHTWEIGHT CONCRETE	5.4	4.6	3.8	2.7
LIGHTWEIGHT CONCRETE	5.1	4.4	3.6	2.5

NOTES:

h. THE EQUIVALENT THICKNESS SHALL BE PERMITTED TO INCLUDE THE THICKNESS OF CEMENT PLASTER OR 1.5 TIMES THE THICKNESS OF GYPSUM PLASTER APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 25. i. CONCRETE WALLS SHALL BE REINFORCED WITH HORIZONTAL AND VERTICAL TEMPERATURE REINFORCEMENT AS

2010 120 11 222 12 11 (2) 1 111
CMU WALL WITH FACINGS OR ACCESSORIES - BRICK VENEER

# GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4 NO SOUND RATING REQUIRED AT EXTERIOR WALLS



MATERIAL	ITEM#	CONSTRUCTION	MINIMUM F FACE-TO-F	INISHED THIC ACE(b)	CKNESS
			3 HOURS	2 HOURS	1 HOUR
	3-1.1 (f, g)	EXPANDED SLAG OR PUMICE	4.0	3.2	2.1
CONCRETE	3-1.2 (f, g)	EXPANDED CLAY, SHALE OR SLATE	4.4	3.6	2.6
MASONRY UNITS	3-1.3 (f)	LIMESTONE, CINDERS OR AIR-COOLED SLAG	5.0	4.0	2.7
	3-1.4 (f, g)	CALCAREOUS OR SILICEOUS GRAVEL	5.3	4.2	2.8

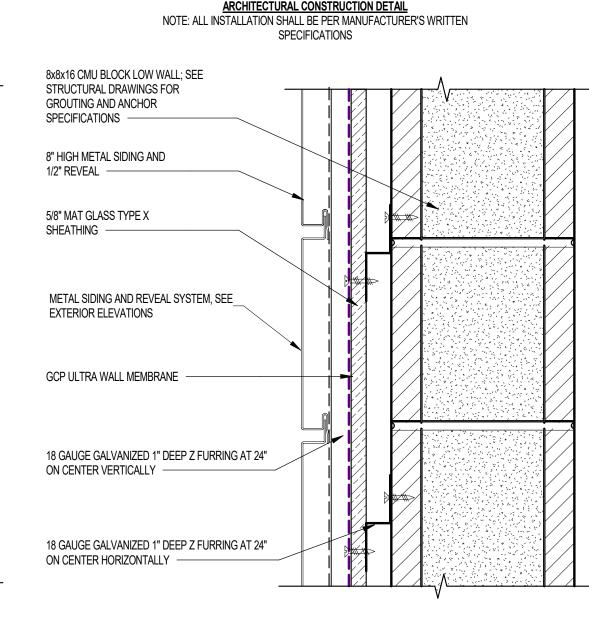
(b) THICKNESS SHOWN FOR BRICK AND CLAY TILE IS NOMINAL THICKNESS UNLESS PLASTERED. IN WHICH CASE THICKNESS ARE NET. THICKNESS SHOWN FOR CONCRETE MASONRY AND CLAY MASONRY IS EQUIVALENT THICKNESS ARE SOLID GROUTED OR FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, THE EQUIVALENT THICKNESS SHALL BE THE THICKNESS OF THE BLOCK OR BRICK USING SPECIFIED DIMENSIONS AS DEFINED IN CHAPTER 21. EQUIVALENT THICKNESS SHALL INCLUDE THE THICKNESS OF APPLIED PLASTER AND LATH OR GYPSUM WALLBOARD, WHERE

(f) THE FIRE-RESISTANCE TIME PERIOD FOR CONCRETE MASONRY UNITS MEETING THE EQUIVALENT THICKNESSES REQUIRED FOR A 2-HOUR FIRE-RESISTANCE RATING IN ITEM 3, AND HAVING A THICKNESS OF NOT LESS THAN 7-5/8 INCHES IS 4 HOURS WHEN CORES THAT ARE NOT GROUTED ARE FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, SAND OR SLAG HAVING A MAXIMUM PARTICLE SIZE OF 3/8 INCH. (g) THE FIRE-RESISTANCE RATING OF CONCRETE MASONRY UNITS COMPOSED OF A COMBINATION OF AGGREGATE TYPES OR WHERE PLASTER IS APPLIED DIRECTLY TO THE CONCRETE MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH ACI 216.1/TMS 0216. LIGHTWEIGHT AGGREGATES SHALL HAVE A MAXIMUM COMBINED DENSITY OF 65 POUNDS PER CUBIC FOOT.

2018 IBC SECTIONS: 722.3.1.2 UNGROUTED OR PARTIALLY GROUTED CONSTRUCTION. T(e) SHALL BE THE VALUE OBTAINED FOR THE CONCRETE MASONRY UNIT DETERMINED IN ACCORDANCE WITH ASTM 722.3.1.3 SOLID GROUTED CONSTRUCTION. THE EQUIVALENT THICKNESS, T(e), OF SOLID GROUTED CONCRETE MASONRY UNITS IS THE ACTUAL THICKNESS OF THE UNIT.

# GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4 NO SOUND RATING REQUIRED AT EXTERIOR WALLS

CMU WALL WITH FACINGS OR ACCESSORIES - METAL SIDING



MATERIAL	ITEM#	CONSTRUCTION	MINIMUM F FACE-TO-F	INISHED THIC ACE(b)	CKNESS
			3 HOURS	2 HOURS	1 HOUR
	3-1.1 (f, g)	EXPANDED SLAG OR PUMICE	4.0	3.2	2.1
CONCRETE	3-1.2 (f, g)	EXPANDED CLAY, SHALE OR SLATE	4.4	3.6	2.6
MASONRY UNITS	3-1.3 (f)	LIMESTONE, CINDERS OR AIR-COOLED SLAG	5.0	4.0	2.7
	3-1.4 (f, g)	CALCAREOUS OR SILICEOUS GRAVEL	5.3	4.2	2.8

(b) THICKNESS SHOWN FOR BRICK AND CLAY TILE IS NOMINAL THICKNESS UNLESS PLASTERED. IN WHICH CASE THICKNESS ARE NET. THICKNESS SHOWN FOR CONCRETE MASONRY AND CLAY MASONRY IS EQUIVALENT THICKNESS ARE SOLID GROUTED OR FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, THE EQUIVALENT THICKNESS SHALL BE THE THICKNESS OF THE BLOCK OR BRICK USING SPECIFIED DIMENSIONS AS DEFINED IN CHAPTER 21. EQUIVALENT THICKNESS SHALL INCLUDE THE THICKNESS OF APPLIED PLASTER AND LATH OR GYPSUM WALLBOARD, WHERE

(f) THE FIRE-RESISTANCE TIME PERIOD FOR CONCRETE MASONRY UNITS MEETING THE EQUIVALENT THICKNESSES

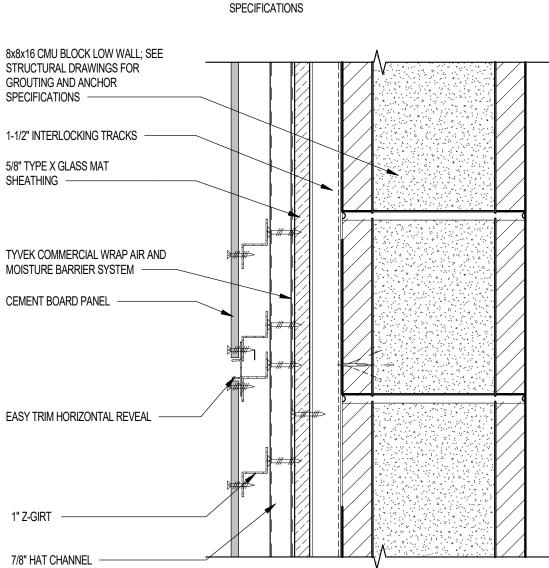
REQUIRED FOR A 2-HOUR FIRE-RESISTANCE RATING IN ITEM 3, AND HAVING A THICKNESS OF NOT LESS THAN 7-5/8 INCHES IS 4 HOURS WHEN CORES THAT ARE NOT GROUTED ARE FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, SAND OR SLAG HAVING A MAXIMUM PARTICLE SIZE OF 3/8 INCH. (a) THE FIRE-RESISTANCE RATING OF CONCRETE MASONRY UNITS COMPOSED OF A COMBINATION OF AGGREGATE TYPES OR WHERE PLASTER IS APPLIED DIRECTLY TO THE CONCRETE MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH ACI 216.1/TMS 0216. LIGHTWEIGHT AGGREGATES SHALL HAVE A MAXIMUM COMBINED DENSITY OF 65 POUNDS PER CUBIC FOOT.

722.3.1 .2 UNGROUTED OR PARTIALLY GROUTED CONSTRUCTION. T(e) SHALL BE THE VALUE OBTAINED FOR THE CONCRETE MASONRY UNIT DETERMINED IN ACCORDANCE WITH ASTM 722.3.1.3 SOLID GROUTED CONSTRUCTION. THE EQUIVALENT THICKNESS, T(e), OF SOLID GROUTED CONCRETE MASONRY UNITS IS THE ACTUAL THICKNESS OF THE UNIT.

# CEMENT BOARD PANEL SYSTEM AT CONC. SHEAR WALL

# 2018 IBC TABLE 721.1(2) 4-1.1 CMU WALL WITH FACINGS OR ACCESSORIES - CEMENT BOARD SIDING





MATERIAL	ITEM#	CONSTRUCTION	MINIMUM F FACE-TO-F	INISHED THIC ACE(b)	CKNESS
			3 HOURS	2 HOURS	1 HOUR
	3-1.1 (f, g)	EXPANDED SLAG OR PUMICE	4.0	3.2	2.1
CONCRETE	3-1.2 (f, g)	EXPANDED CLAY, SHALE OR SLATE	4.4	3.6	2.6
MASONRY UNITS	3-1.3 (f)	LIMESTONE, CINDERS OR AIR-COOLED SLAG	5.0	4.0	2.7
	3-1.4 (f, g)	CALCAREOUS OR SILICEOUS GRAVEL	5.3	4.2	2.8

(b) THICKNESS SHOWN FOR BRICK AND CLAY TILE IS NOMINAL THICKNESS UNLESS PLASTERED. IN WHICH CASE THICKNESS ARE NET. THICKNESS SHOWN FOR CONCRETE MASONRY AND CLAY MASONRY IS EQUIVALENT THICKNESS ARE SOLID GROUTED OR FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, THE EQUIVALENT THICKNESS SHALL BE THE THICKNESS OF THE BLOCK OR BRICK USING SPECIFIED DIMENSIONS AS DEFINED IN CHAPTER 21. EQUIVALENT THICKNESS SHALL INCLUDE THE THICKNESS OF APPLIED PLASTER AND LATH OR GYPSUM WALLBOARD, WHERE

(f) THE FIRE-RESISTANCE TIME PERIOD FOR CONCRETE MASONRY UNITS MEETING THE EQUIVALENT THICKNESSES REQUIRED FOR A 2-HOUR FIRE-RESISTANCE RATING IN ITEM 3, AND HAVING A THICKNESS OF NOT LESS THAN 7-5/8 INCHES IS 4 HOURS WHEN CORES THAT ARE NOT GROUTED ARE FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, SAND OR SLAG HAVING A MAXIMUM PARTICLE SIZE OF 3/8 INCH. (g) THE FIRE-RESISTANCE RATING OF CONCRETE MASONRY UNITS COMPOSED OF A COMBINATION OF AGGREGATE TYPES OR WHERE PLASTER IS APPLIED DIRECTLY TO THE CONCRETE MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH ACI 216.1/TMS 0216. LIGHTWEIGHT AGGREGATES SHALL HAVE A MAXIMUM COMBINED DENSITY OF 65 POUNDS PER CUBIC FOOT.

722.3.1.2 UNGROUTED OR PARTIALLY GROUTED CONSTRUCTION. T(e) SHALL BE THE VALUE OBTAINED FOR THE CONCRETE MASONRY UNIT DETERMINED IN ACCORDANCE WITH ASTM 722.3.1.3 SOLID GROUTED CONSTRUCTION. THE EQUIVALENT THICKNESS, T(e), OF SOLID GROUTED CONCRETE

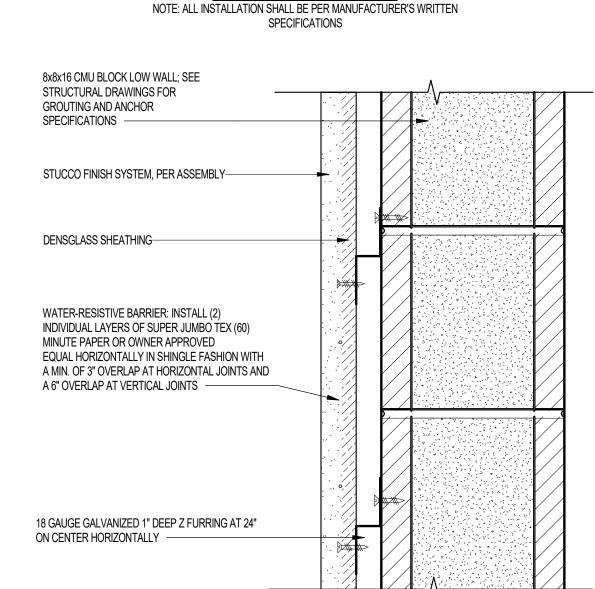
CMU WALL WITH FACINGS OR ACCESSORIES - STUCCO FINISH

STUCCO AT RATED CONCRETE WALL

REQUIRED BY CHAPTER 19.

# GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4 NO SOUND RATING REQUIRED AT EXTERIOR WALLS

ARCHITECTURAL CONSTRUCTION DETAIL



			V		
MATERIAL	ITEM#	CONSTRUCTION	MINIMUM F FACE-TO-F	INISHED THIC ACE(b)	CKNESS
			3 HOURS	2 HOURS	1 HOUR
	3-1.1 (f, g)	EXPANDED SLAG OR PUMICE	4.0	3.2	2.1
CONCRETE	3-1.2 (f, g)	EXPANDED CLAY, SHALE OR SLATE	4.4	3.6	2.6
MASONRY UNITS	3-1.3 (f)	LIMESTONE, CINDERS OR AIR-COOLED SLAG	5.0	4.0	2.7
	3-1.4 (f, g)	CALCAREOUS OR SILICEOUS GRAVEL	5.3	4.2	2.8

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(f) THE FIRE-RESISTANCE TIME PERIOD FOR CONCRETE MASONRY UNITS MEETING THE EQUIVALENT THICKNESSES REQUIRED FOR A 2-HOUR FIRE-RESISTANCE RATING IN ITEM 3, AND HAVING A THICKNESS OF NOT LESS THAN 7-5/8 INCHES IS 4 HOURS WHEN CORES THAT ARE NOT GROUTED ARE FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, SAND OR SLAG HAVING A MAXIMUM PARTICLE SIZE OF 3/8 INCH. (g) THE FIRE-RESISTANCE RATING OF CONCRETE MASONRY UNITS COMPOSED OF A COMBINATION OF AGGREGATE TYPES OR WHERE PLASTER IS APPLIED DIRECTLY TO THE CONCRETE MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH ACI 216.1/TMS 0216. LIGHTWEIGHT AGGREGATES SHALL HAVE A MAXIMUM COMBINED DENSITY OF 65 POUNDS PER CUBIC FOOT.

722.3.1.2 UNGROUTED OR PARTIALLY GROUTED CONSTRUCTION.

T(e) SHALL BE THE VALUE OBTAINED FOR THE CONCRETE MASONRY UNIT DETERMINED IN ACCORDANCE WITH ASTM 722.3.1.3 SOLID GROUTED CONSTRUCTION. THE EQUIVALENT THICKNESS, T(e), OF SOLID GROUTED CONCRETE MASONRY UNITS IS THE ACTUAL THICKNESS OF THE UNIT.

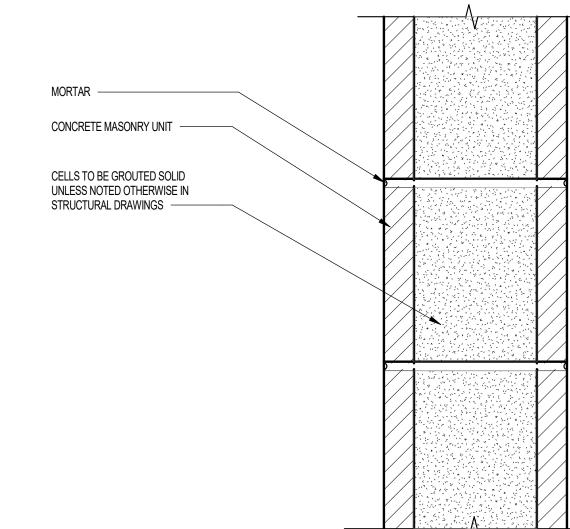
# GENERIC ASSEMBLY

SOLID CONCRETE WALL

2018 IBC TABLE 721.1(2) 4-1.1

# FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4 NO SOUND RATING REQUIRED AT EXTERIOR WALLS ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN

**SPECIFICATIONS** 



MATERIAL	ITEM#	CONSTRUCTION	MINIMUM F FACE-TO-F	INISHED THIC ACE(b)	CKNESS
			3 HOURS	2 HOURS	1 HOUR
	3-1.1 (f, g)	EXPANDED SLAG OR PUMICE	4.0	3.2	2.1
CONCRETE	3-1.2 (f, g)	EXPANDED CLAY, SHALE OR SLATE	4.4	3.6	2.6
MASONRY UNITS	3-1.3 (f)	LIMESTONE, CINDERS OR AIR-COOLED SLAG	5.0	4.0	2.7
	0.4.4.(5)				

5.3 4.2 2.8 3-1.4 (f, g) CALCAREOUS OR SILICEOUS GRAVEL b) THICKNESS SHOWN FOR BRICK AND CLAY TILE IS NOMINAL THICKNESS UNLESS PLASTERED. IN WHICH CASE THICKNESS ARE NET. THICKNESS SHOWN FOR CONCRETE MASONRY AND CLAY MASONRY IS EQUIVALENT THICKNESS ARE SOLID GROUTED OR FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, THE EQUIVALENT THICKNESS SHALL BE

THE THICKNESS OF THE BLOCK OR BRICK USING SPECIFIED DIMENSIONS AS DEFINED IN CHAPTER 21. EQUIVALENT

THICKNESS SHALL INCLUDE THE THICKNESS OF APPLIED PLASTER AND LATH OR GYPSUM WALLBOARD, WHERE

(f) THE FIRE-RESISTANCE TIME PERIOD FOR CONCRETE MASONRY UNITS MEETING THE EQUIVALENT THICKNESSES REQUIRED FOR A 2-HOUR FIRE-RESISTANCE RATING IN ITEM 3, AND HAVING A THICKNESS OF NOT LESS THAN 7-5/8 INCHES IS 4 HOURS WHEN CORES THAT ARE NOT GROUTED ARE FILLED WITH SILICONE-TREATED PERLITE LOOSE-FILL INSULATION; VERMICULITE LOOSE-FILL INSULATION; OR EXPANDED CLAY, SHALE OR SLATE LIGHTWEIGHT AGGREGATE, SAND OR SLAG HAVING A MAXIMUM PARTICLE SIZE OF 3/8 INCH. (g) THE FIRE-RESISTANCE RATING OF CONCRETE MASONRY UNITS COMPOSED OF A COMBINATION OF AGGREGATE TYPES OR WHERE PLASTER IS APPLIED DIRECTLY TO THE CONCRETE MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH ACI 216.1/TMS 0216. LIGHTWEIGHT AGGREGATES SHALL HAVE A MAXIMUM COMBINED DENSITY OF 65 POUNDS PER CUBIC FOOT.

22.3.1 .2 UNGROUTED OR PARTIALLY GROUTED CONSTRUCTION. T(e) SHALL BE THE VALUE OBTAINED FOR THE CONCRETE MASONRY UNIT DETERMINED IN ACCORDANCE WITH ASTM DATE: SEPTEMBER 11, 2024 ORB #: 00-000 722.3.1.3 SOLID GROUTED CONSTRUCTION. THE EQUIVALENT THICKNESS, T(e), OF SOLID GROUTED CONCRETE MASONRY UNITS IS THE ACTUAL THICKNESS OF THE UNIT.

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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METAL SIDING OVER EXTERIOR MASONRY WALL SCALE: 3" = 1'-0"

SCALE: 3" = 1'-0" 2018 IBC TABLE 721.1(2) 3-1.1 - 3-1.4

STUCCO OVER EXTERIOR MASONRY WALL

MASONRY UNITS IS THE ACTUAL THICKNESS OF THE UNIT.

2018 IBC TABLE 721.1(2) 3-1.1 - 3-1.4

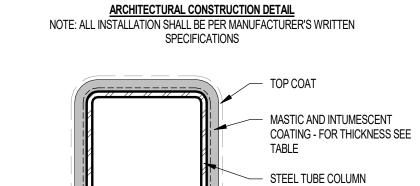
RATED COLUMN May 12, 2022

FIRE TEST: UL DESIGN Y634 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.

#### **DESIGN NO.**Y634 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

1. STEEL TUBE COLUMN — STEEL RECTANGULAR TUBE (ST) OR PIPE (SP) COLUMNS WITH THE MINIMUM SIZES SHOWN IN THE TABLES BELOW. 2. PRIMER COATING — 60 MICRON (2 MIL) THICKNESS OF A TWO COMPONENT EPOXY PRIMER OR 60 MICRON (2 MIL) THICKNESS OF AN ALKYD PRIMER OR 60 MICRON (2 MIL) THICKNESS OF AN ACRYLIC PRIMER OR 60 MICRON (2 MIL) THICKNESS OF AN

POLYURETHANE PRIMER. 3. MASTIC & INTUMESCENT COATING\* — COATING SPRAY OR BRUSH APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AT THE MINIMUM AVERAGE DRY THICKNESS SHOWN IN THE THICKNESS BELOW. THE THICKNESS SHOWN DOES 4. TOP COAT (NOT SHOWN) — THE FOLLOWING TOPCOATS SHALL BE USED FOR COMPLIANCE WITH EXTERIOR ENVIRONMENTAL EXPOSURE REQUIREMENT. SOLVENT BASED 2 PACK TOPCOAT TYPE HENSOTOP 2K PU APPLIED AT A DRY FILM THICKNESS OF 100 MICRONS (4 MIL) OR ACRYLIC POLYURETHANE TOPCOAT TYPE HI SOLIDS POLYURETHANE 250 APPLIED AT A DRY FILM THICKNESS OF 100 MICRONS (4 MIL) OR WATERBASED URETHANE TOPCOAT TYPE ACROLON 100HS AT A DRY FILM THICKNESS OF



		INTUMESCENT COA	ATING THICKNESS		
MEMBER TYPE	MEMBER DESIGNATION	FIRE RATING	SECTION FACTOR	REQUIRED (DRY FILM THICKNESS) DFT (MILS)	REQUIRED (WET FILM THICKNESS) WFT
SQUARE HOLLOW SECTIONS	4x4x5/16	1-HR	0.29	112	160
SQUARE HOLLOW SECTIONS	4x4x1/4	1-HR	0.23	144	206
SQUARE HOLLOW SECTIONS	5x5x1/4	1-HR	0.22	144	206
SQUARE HOLLOW SECTIONS	5x5x3/8	1-HR	0.33	97	139
SQUARE HOLLOW SECTIONS	7x7x3/8	1-HR	0.34	93	133
SQUARE HOLLOW SECTIONS	10x10x3/8	1-HR	0.34	93	133

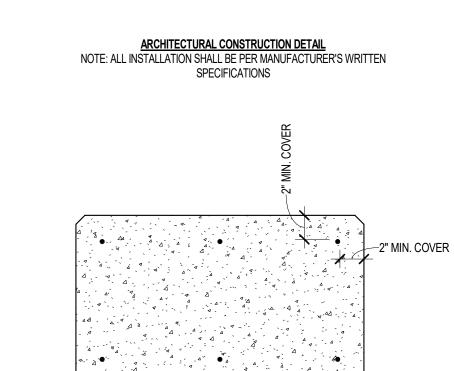


CC 03 1-HR RATED STEEL COLUMN W/INTUMESCENT COATING

- PRIMER COATING

SCALE: 3" = 1'-0"

CMU WALL WITH FACINGS OR ACCESSORIES - METAL SIDING GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(2)NOs. 3-1.1 - 3-1.4 NO SOUND RATING REQUIRED AT EXTERIOR WALLS





**PRELIMINARY** 

CONSTRUCTION



EXCERPT FROM TABLE 722.2.4 MINIMUM DIMENSION OF CONCRECULUMNS (INCHES)

REINFORCED CONCRETE COLUMN PER STRUCTURAL

TYPE OF CONCRETE	FIF	RE RESISTANCE RATING (HOURS)
	2 <sup>a</sup>	3ª
SILICEOUS	10	12
CARBONATE	10	11
SAND - LIGHTWEIGHT	9	10 1/2

NOTE: FOR SI: 1 INCH = 25 MM

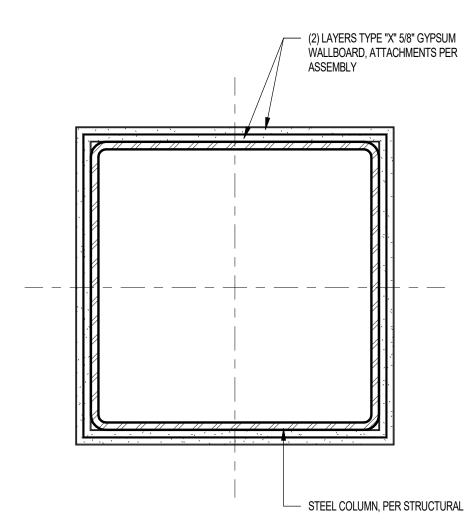
a. THE MINIMUM DIMENSION IS PERMITTED TO BE REDUCED TO 8 INCHES FOR RECTANGULAR COLUMNS WITH TWO PARALLEL SIDES NOT LESS THAN 36 INCHES IN LENGTH.

PER IBC 722.2.4.2 MINIMUM COVER FOR R/C COLUMNS. THE MINIMUM THICKNESS OF CONCRETE COVER TO THE MAIN LONGITUDINAL REINFORCEMENT IN COLUMNS, REGARDLESS OF THE TYPE OF AGGREGATE USED IN THE CONCRETE AND THE SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE, F' c' SHALL NOT BE LESS THAN 1 INCH (25mm) TIMES THE NUMBER OF HOURS OF REQUIRED FIRE RESISTANCE OR 2 INCHES (51 mm), WHICHEVER IS LESS.

CONCRETE COLUMN FIRE RATING & CONCRETE COVER SCALE: 1 1/2" = 1'-0"

1-HR RATED STEEL COLUMN GENERIC ASSEMBLY - June 2021 FIRE TEST: GA FILE NO. CM 1450

> ARCHITECTURAL CONSTRUCTION DETAIL NOTE: ALL INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN SPECIFICATIONS



DESIGN NO. WP 8006 GYPSUM WALLBOARD, GLASS MAT GYPSUM PANELS STEEL STUDS, INSULATION

FIRE TEST: UL NC505-(1-6), 71NK2639, 12-23-75; ULNC505, 77NK1518; UL Design X526

BASE LAYER 1/2" TYPE X GYPSUM WALLBOARD APPLIED AROUND TS4X4X0.188 TUBE STEEL COLUMN AND HELD IN PLACE WITH PAPER MASKING TAPE. SECOND LAYER 1/2" TYPE X GYPSUM WALLBOARD APPLIED AROUND COLUMN AND HELD IN PLACE WITH PAPER MASKING TAPE. FACE LAYER EITHER NO. 24 MSG GALVANIZED STEEL COLUMN COVER CONSISTING OF TWO L-SHAPED SECTIONS WITH SNAP-LOCK SHEET STEEL JOINTS OR NO 22 MSG GALVANIZED STEEL COLUMN COVERS CONSISTING OF TWO L-SHAPED SECTIONS WITH LAP JOINTS FASTENED WITH NO. 8X1/2" SHEET METAL SCREWS 12" O.C.

HORIZONTAL JOINTS STAGGERED 24" BETWEEN LAYERS.

FIRE DESIGN:

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

Contractor must verify all dimensions at project before proceeding with this

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

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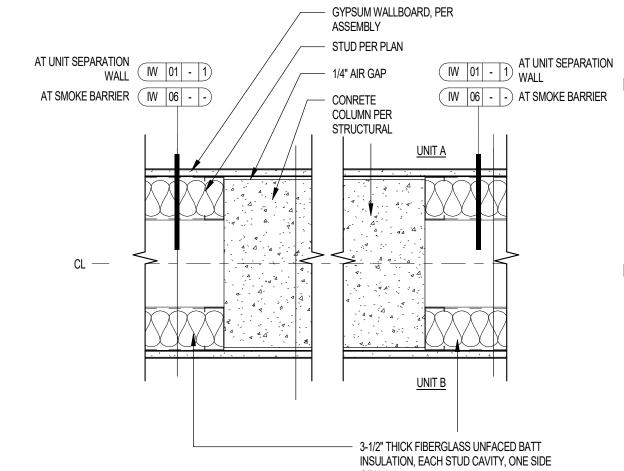
GYPSUM WALLBOARD, PER ASSEMBLY, PROVIDE (3) LAYERS GYPSUM WALLBOARD CORNER BEAD METAL STUD FRAMING, PER ASSEMBLY DOUBLE-STRAND STEEL
 WIRE TIES

BASED ON IBC TABLE 721.1(1) ITEM 1-7.3: THREE LAYERS OF 5/8" TYPE X GYPSUM WALLBOARD, EACH LAYER SCREW ATTACHED TO 1-5/8" STEEL STUDS 0.018" THICK (NO. 25 CARBON SHEET STEEL GAUGE) AT EACH CORNER OF COLUMN. MIDDLE LAYER ALSO SECURED WITH 0.049" (NO. 18 B.W. GAUGE) DOUBLE-STRAND STEEL WIRE TIES, 24" ON CENTER. SCREWS ARE NO. 6 BY 1" SPACED 24" ON CENTER FOR INNER LAYER, NO. 6 BY 1-5/8" SPACED 12" ON CENTER FOR MIDDLE LAYER AND NO. 8" BY 2-1/4" SPACED 12" ON CENTER FOR OUTER LAYER.

# WorldHQ@ORBArch.com

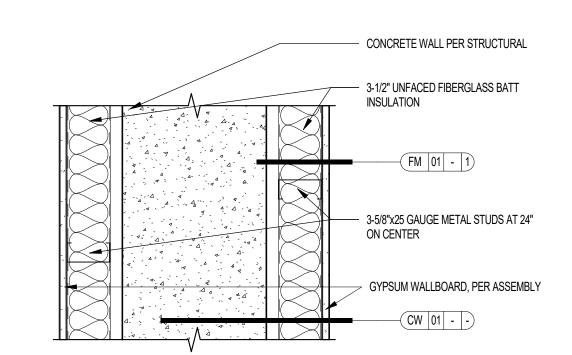
 $_{\scriptscriptstyle 3}$  3 HR FIRE RATED PROTECTION AT COLUMN WITH GYPSUM SCALE: 1 1/2" = 1'-0"

**PRELIMINARY NOT FOR** CONSTRUCTION



1-HR WALL AT CONCRETE COLUMN - METAL FRAMING SCALE: 1 1/2" = 1'-0"

OF WALL



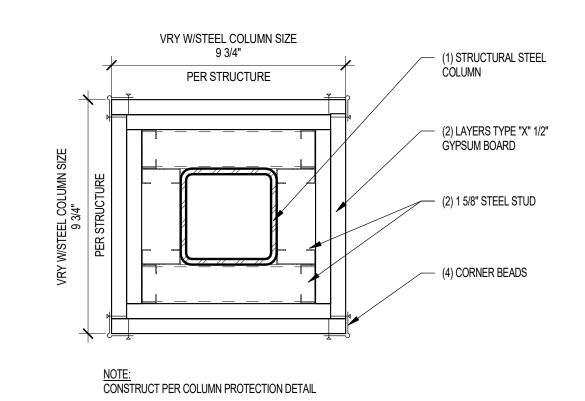
ALL ASSEMBLIES FORMING SMOKE BARRIERS OR SMOKE PARTITIONS SHALL BE SEALED TO PREVENT THE PASSAGE OF SMOKE AS REQUIRED BY CODE

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

 $\left[ \begin{array}{c|c} \hline SW & 02 \end{array} \right]$  1-HOUR SMOKE BARRIER AT SHEAR WALL

1-HR UNIT SEPARATION WALL AT CONC. SHEAR WALL SCALE: 1 1/2" = 1'-0"

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.



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**DESCRIPTION** 

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

1HR FIRE RATED STEEL COLUMN GYP. PROTECTION SQUARE PROFILE

THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN L512. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED FLOOR-CEILING ASSEMBLY PER OWNER'S REQUEST

1. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING:

SUBFLOORING - 15/32 OR 19/32 IN. THICK WOOD STRUCTURAL PANELS. MIN. GRADE "C-D" OR "SHEATHING". FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANELS TO BE PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED. VAPOR BARRIER - (OPTIONAL) — NOM 0.030 IN. THICK COMMERCIAL ASPHALT SATURATED FELT. FINISH FLOORING - FLOOR TOPPING MIXTURE - MIN 3/4 OR 1 IN. THICKNESS OF FLOOR TOPPING MIXTURE FOR 19/32 OR 15/32 IN. THICK WOOD STRUCTURAL PANELS RESPECTIVELY, HAVING A MIN COMPRESSIVE STRENGTH OF 2100 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. REFER TO THE MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL AND/OR CONTACT THE MANUFACTURER'S TECHNICAL SUPPORT FOR SPECIFIC MIX DESIGN AND MINIMUM THICKNESS RECOMMENDED FOR USE WITH ELIGIBLE

2. WOOD JOISTS - MIN 2 BY 10, SPACED 16 IN. OC AND EFFECTIVELY FIREBLOCKED IN ACCORDANCE WITH LOCAL 3. CROSS BRIDGING - MIN 1 BY 3 IN. OR MIN 2 BY 10 SOLID BLOCKING. 4. CEILING DAMPER\* - (OPTIONAL) - MAX NOM AREA SHALL BE 198 SQ IN. MAX RECTANGULAR SIZE SHALL BE 12 IN. WIDE BY 16-1/2 IN. LONG. MAX HEIGHT OF DAMPER SHALL BE 8-3/4 IN. AGGREGATE DAMPER OPENINGS SHALL NOT EXCEED 99 SQ IN. PER 100 SQ FT OF CEILING AREA. DAMPER INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS

INSTALLATION INSTRUCTIONS PROVIDED WITH THE DAMPER. A STEEL GRILLE (ITEM 7) SHALL BE INSTALLED IN

ACCORDANCE WITH INSTALLATION INSTRUCTIONS. 5. **GYPSUM WALLBOARD** - NOM 1/2 OR 5/8 IN. THICK, 4 FT WIDE GYPSUM BOARD, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO JOISTS AND SECURED WITH 5D AND 6D CEMENT COATED COOLER NAILS, SPACED 6 IN. OC, FOR THE 1/2 IN. BOARD AND 5/8 IN. THICK BOARD, RESPECTIVELY. NAILS SPACED 3/4 AND 1/2 IN. FROM SIDE AND END JOINTS, RESPECTIVELY.

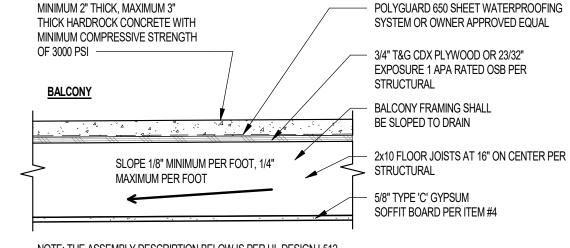
GEORGIA-PACIFIC GYPSUM - TYPES 5, DAPC, TG-C

NATIONAL GYPSUM - TYPES EXP-C, FSK-C, FSW-C PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - TYPE C OR PG-C UNITED STATES GYPSUM - TYPES C, IP-X2, IPC-AR)

6. FINISH SYSTEM - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM BOARD.

# I-HR FLOOR/CEILING AT INTERIOR CORRIDORS

1-HR FLOOR/CEILING ASSEMBLY PROPRIETARY ASSEMBLY - July 11, 2023 FIRE TEST: UL DESIGN No. L512 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY



NOTE: THE ASSEMBLY DESCRIPTION BELOW IS PER UL DESIGN L512. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED FLOOR-CEILING ASSEMBLY PER OWNER'S REQUEST

1. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING: SYSTEM NO. 12

SUBFLOORING - 15/32 OR 19/32 IN. THICK WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING". FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANELS TO BE PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED. VAPOR BARRIER - (OPTIONAL) — NOM 0.030 IN. THICK COMMERCIAL ASPHALT SATURATED FELT. FINISH FLOORING - FLOOR TOPPING MIXTURE - MIN 3/4 OR 1 IN. THICKNESS OF FLOOR TOPPING MIXTURE FOR 19/32

OR 15/32 IN. THICK WOOD STRUCTURAL PANELS RESPECTIVELY, HAVING A MIN COMPRESSIVE STRENGTH OF 2100 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. REFER TO THE MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL AND/OR CONTACT THE MANUFACTURER'S TECHNICAL SUPPORT FOR SPECIFIC MIX DESIGN AND MINIMUM THICKNESS RECOMMENDED FOR USE WITH ELIGIBLE

2. WOOD JOISTS - MIN 2 BY 10, SPACED 16 IN. OC AND EFFECTIVELY FIREBLOCKED IN ACCORDANCE WITH LOCAL 3. CROSS BRIDGING - MIN 1 BY 3 IN. OR MIN 2 BY 10 SOLID BLOCKING.

4. CEILING DAMPER\* - (OPTIONAL) - MAX NOM AREA SHALL BE 198 SQ IN. MAX RECTANGULAR SIZE SHALL BE 12 IN. WIDE BY 16-1/2 IN. LONG. MAX HEIGHT OF DAMPER SHALL BE 8-3/4 IN. AGGREGATE DAMPER OPENINGS SHALL NOT EXCEED 99 SQ IN. PER 100 SQ FT OF CEILING AREA. DAMPER INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS PROVIDED WITH THE DAMPER. A STEEL GRILLE (ITEM 7) SHALL BE INSTALLED IN ACCORDANCE WITH INSTALLATION INSTRUCTIONS.

5. GYPSUM WALLBOARD - NOM 1/2 OR 5/8 IN. THICK, 4 FT WIDE GYPSUM BOARD, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO JOISTS AND SECURED WITH 5D AND 6D CEMENT COATED COOLER NAILS, SPACED 6 IN. OC, FOR THE 1/2 IN. BOARD AND 5/8 IN. THICK BOARD, RESPECTIVELY. NAILS SPACED 3/4 AND 1/2 IN. FROM SIDE AND END JOINTS, RESPECTIVELY. AMERICAN GYPSUM - TYPE AG-C

GEORGIA-PACIFIC GYPSUM - TYPES 5, DAPC, TG-C NATIONAL GYPSUM - TYPES EXP-C, FSK-C, FSW-C

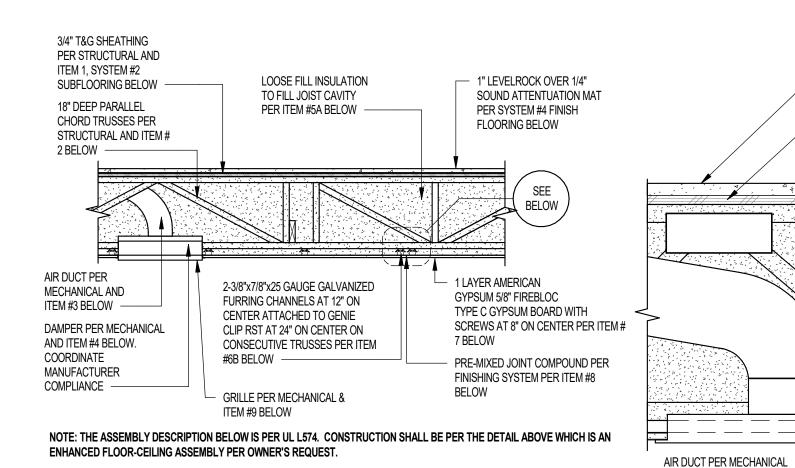
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - TYPE C OR PG-C UNITED STATES GYPSUM - TYPES C, IP-X2, IPC-AR)

S. FINISH SYSTEM - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS, AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM BOARD. 7. GRILLE - STEEL GRILLE, INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE

1-HR FLOOR/CEILING AT BALCONIES

CEILING DAMPER.

1-HR FLOOR/CEILING ASSEMBLY PROPRIETARY ASSEMBLY - February 16, 2024 FIRE TEST: UL DESIGN No. L574 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY



18" DEEP PARALLEL CHORD TRUSSES PER STRUCTURAL 2-3/8"x7/8"x25 GAUGE GALVANIZED FIREBLOC TYPE C GYPSUM FURRING CHANNELS AT 12" ON BOARD WITH SCREWS AT 8" ON CENTER ATTACHED TO GENIE CLIP RST AT 24" ON CENTER

1. FLOORING SYSTEM - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING

SUBFLOORING - MIN 23/32 IN. THICK PLYWOOD WITH T & G EDGES ALONG THE 8 FT SIDES AND EXTERIOR GLUE OR NON-VENEER APA STURD-I-FLOOR T & G PANELS PER APA SPECIFICATIONS PRP 108. FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANEL TO BE PERPENDICULAR TO TRUSSES WITH JOINTS. STAGGERED 4 FT. PLYWOOD OR PANELS SECURED TO TRUSSES WITH NO. 6D RING SHANK NAILS SPACED 12 IN. OC ALONG EACH TRUSS. TETRAGRIP™ NAILS MEASURING 2-3/8 IN. LONG, 0.113 IN. DIAMETER, 0.272 IN. ROUND HEAD, AND HELICALLY THREADED SHANK WITH BARBED FEATURES ON THE HELIX MEETING ASTM F1667 AND HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. STAPLES HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. FINISH FLOORING - FLOOR TOPPING MIXTURE\* - MIN 3/4 IN. THICKNESS OF FLOOR TOPPING MIXTURE HAVING A

MATERIAL FOR SPECIFIC MIX DESIGN. UNITED STATES GYPSUM CO - TYPES LRK - LEVELROCK® BRAND 2500 FLOOR MAT MATERIALS\* - (OPTIONAL) - FLOOR MAT MATERIAL LOOSE LAID OVER THE SUBFLOOR. REFER TO MANUFACTURER'S INSTRUCTIONS REGARDING THE MINIMUM THICKNESS OF FLOOR TOPPING OVER EACH FLOOR MAT

MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE

ALTERNATE FLOOR MAT MATERIALS\* - (OPTIONAL) - NOM 3/8 IN. THICK FLOOR MAT MATERIAL LOOSE LAID OVER THE

2. TRUSSES - PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 18 IN. WHEN CEILING DAMPERS\* ARE USED. TRUSS DEPTH MAY BE REDUCED TO 12 IN. WHEN CEILING DAMPERS\* ARE NOT USED. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0.0356 IN. THICK GALVANIZED STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR

3. AIR DUCT\* - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER. 4. CEILING DAMPER\* - FOR USE WITH MIN 18 IN. DEEP TRUSSES. NOM 20 IN. LONG BY 18 IN. WIDE BY 2-1/8 IN. HIGH, FABRICATED FROM GALVANIZED STEEL. PLENUM BOX MAX SIZE NOM 21 IN. LONG BY 18 IN. WIDE BY 16 IN. HIGH FABRICATED FROM EITHER GALVANIZED STEEL OR CLASSIFIED AIR DUCT MATERIALS BEARING THE UL CLASSIFICATION MARKING FOR CLASS 0 OR CLASS 1 RIGID AIR DUCT MATERIAL. INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS

STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE

PROVIDED BY THE MANUFACTURER. MAX DAMPER OPENINGS NOT TO EXCEED 180 SQ IN. PER 100 SQ FT OF CEILING NAILOR INDUSTRIES INC - TYPES 0755, 0755A, 0756, 0756D, 0757D, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762 0763, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP SAFE AIR DOWCO - 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463 5A. LOOSE FILL MATERIAL\* - (OPTIONAL) - LOOSE FILL MATERIAL MAY BE USED AS AN ALTERNATE TO BATT INSULATION (ITEM 5). WHEN USED, THE RESILIENT CHANNEL AND GYPSUM BOARD ATTACHMENT IS MODIFIED AS

SPECIFIED IN ITEMS 6 AND 7. ANY LOOSE FILL MATERIAL BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS, HAVING A MIN DENSITY OF 0.5 PCF. THE FINISHED RATING WHEN THIS INSULATION IS USED HAS NOT BEEN DETERMINED WHEN TYPE AG-C PANELS ARE INSTALLED THERE IS NO LIMIT ON MAXIMUM THICKNESS. WHEN TYPE TG-C PANELS ARE INSTALLED THE MAXIMUM THICKNESS IS 3-1/2 IN.

6B.**STEEL FRAMING MEMBERS\*** - (NOT SHOWN) - AS AN ALTERNATE TO ITEMS 6 AND 6A. a. FURRING CHANNELS - FORMED OF NO. 25 MSG GALV STEEL, 2-9/16 IN. OR 2-23/32 IN. WIDE BY 7/8 IN. DEEP, SPACED 24 IN. OC PERPENDICULAR TO TRUSSES. WHEN BATT INSULATION (ITEMS 5) IS DRAPED OVER THE RESILIENT CHANNEL/GYPSUM BOARD CEILING MEMBRANE, THE RESILIENT CHANNEL SPACING SHALL BE REDUCED TO 12 IN. OC. CHANNELS SECURED TO TRUSSES AS DESCRIBED IN ITEM B. ENDS OF ADJOINING CHANNELS OVERLAPPED 6 IN. AND TIED TOGETHER WITH DOUBLE STRAND OF NO. 18 SWG GALV STEEL WIRE NEAR EACH END OF OVERLAP. b. STEEL FRAMING MEMBERS\* - USED TO ATTACH FURRING CHANNELS (ITEM A) TO TRUSSES (ITEM 2). CLIPS SPACED 48 IN. OC. RSIC-1 AND RSIC-1 (2.75) CLIPS SECURED TO ALTERNATING TRUSSES WITH NO. 8 X 2-1/2 IN. COARSE DRYWALL SCREW THROUGH THE CENTER GROMMET. RSIC-V AND RSIC-V (2.75) CLIPS SECURED TO ALTERNATING TRUSSES WITH NO. 8 X 1-1/2 IN. COARSE DRYWALL SCREW THROUGH THE CENTER HOLE. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS. RSIC-1 AND RSIC-V CLIPS FOR USE WITH 2-9/16 IN. WIDE FURRING CHANNELS. RSIC-1 (2.75) AND RSIC-V (2.75) CLIPS FOR USE WITH 2-23/32 IN. WIDE FURRING CHANNELS. ADJOINING CHANNELS ARE OVERLAPPED AS DESCRIBED IN ITEM A. AS AN ALTERNATE, ENDS OF ADJOINING CHANNELS MAY BE OVERLAPPED 6 IN. AND

**PLITEQ INC** - TYPE GENIE CLIP 7. GYPSUM WALLBOARD\* - WHEN STEEL FRAMING MEMBERS (ITEM 6B) ARE USED, ONE LAYER OF NOM 5/8 IN. THICK, 4 FT WIDE GYPSUM BOARD IS INSTALLED WITH LONG DIMENSIONS PERPENDICULAR TO FURRING CHANNELS. GYPSUM BOARD SECURED TO FURRING CHANNELS WITH NOM 1 IN. LONG NO. 6 TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC IN THE FIELD OF THE BOARD. SCREW SPACING IS REDUCED TO 8 IN. OC WHEN INSULATION IS APPLIED OVER THE FURRING CHANNEL/GYPSUM PANEL CEILING MEMBRANE. GYPSUM BOARD BUTTED END JOINTS SHALL BE STAGGERED MINIMUM 16 IN. WITHIN THE ASSEMBLY. AT THE GYPSUM BOARD BUTT JOINTS, EACH END OF EACH GYPSUM BOARD SHALL BE SUPPORTED BY A SINGLE LENGTH OF FURRING CHANNEL EQUAL TO THE WIDTH OF THE GYPSUM BOARD PLUS 6 IN. ON EACH END. THESE ADDITIONAL FURRING CHANNELS SHALL BE ATTACHED TO UNDERSIDE OF THE

TRUSS WITH CLIPS AS DESCRIBED IN ITEM. SCREW SPACING ALONG THE GYPSUM BOARD BUTT JOINT SHALL BE 6 IN.

SECURED TOGETHER WITH TWO SELF-TAPPING NO. 6 FRAMING SCREWS, MIN 7/16 IN. LONG AT THE MIDPOINT OF THE

OVERLAP, WITH ONE SCREW ON EACH FLANGE OF THE CHANNEL. ADDITIONAL CLIPS REQUIRED TO HOLD FURRING

CHANNEL THAT SUPPORTS THE GYPSUM BOARD BUTT JOINTS. AS DESCRIBED IN ITEM 7.

8. FINISHING SYSTEM - (NOT SHOWN) — VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM 9. GRILLE - GRILLE INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE CEILING

STC TEST

USG090301A

USG090401A

USG090302A

USG090501A

USG090402A

1-HR FLOOR/CEILING ASSEMBLY FILLED WITH INSULATION - ENHANCED STC

FINISH FLOORING & FLOOR MAT MATERIALS - 1"

LEVELROCK ON SAM-N25 SOUND ATTENUATION

MAT OR OWNER APPROVED SUBSTITUTE, PER

FLOOR SHEATHING PER STRUCTURAL AND

18" DEEP PARALLEL CHORD TRUSSES PER

SUBFLOORING ITEM BELOW

STRUCTURAL & ITEM #2 BELOW

FILL TRUSS CAVITY W/ INSULATION

ITEM #5 OR ITEM #5B RESPECTIVELY

— 5/8" TYPE C GYPSUM BOARD PER ITEM #7A

SECOND LAYER END JOINT

(FIBERGLASS BATT OR LOOSE FILL) PER

PROPRIETARY ASSEMBLY - December 6, 2023

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FIRE TEST: UL DESIGN No. L563

DAMPER PER MECHANICAL AND

ITEM #4 BELOW. COORDINATE

CARPET & PAD 62 80

RESILIENT CHANNEL DETAIL

O.C. PER ITEM #6E

NONE

MANUFACTURER COMPLIANCE

25 MSG GALV STEEL RESILIENT CHANNEL AT 16"

1. FLOORING SYSTEM - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING: SUBFLOORING - MIN NOM 23/32 IN. THICK WOOD STRUCTURAL PANELS INSTALLED PERPENDICULAR TO TRUSSES WITH END JOINTS STAGGERED. PLYWOOD OR PANELS SECURED TO TRUSSES WITH CONSTRUCTION ADHESIVE AND NO. 6D RINGED SHANK NAILS SPACED 12 IN. OC ALONG EACH TRUSS. TETRAGRIP™ NAILS MEASURING 2-3/8 IN. LONG 0.113 IN. DIAMETER. 0.272 IN. ROUND HEAD. AND HELICALLY THREADED SHANK WITH BARBED FEATURES ON THE HELIX MEETING ASTM F1667 AND HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. STAPLES HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS

USG090501A

USG090402A

**VAPOR BARRIER** - (OPTIONAL) NOM 0.010 IN. THICK COMMERICAL ASPHALT SATURATED FELT. FINISH FLOORING - FLOOR TOPPING MIXTURE - MIN 3/4 IN. THICKNESS OF FLOOR TOPPING MIXTURE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. UNITED STATES GYPSUM CO — TYPES LRK, HSLRK, CSD

TYPES LRK - LEVELROCK® BRAND 2500 FLOOR MAT MATERIALS - (OPTIONAL) - FLOOR MAT MATERIAL LOOSE LAID OVER THE SUBFLOOR. REFER TO MANUFACTURER'S INSTRUCTIONS REGARDING THE MINIMUM THICKNESS OF FLOOR TOPPING OVER EACH FLOOR MAT

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25 2. TRUSSES - PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 12 IN. WHEN CEILING DAMPERS\* ARE NOT USED. MIN TRUSS DEPTH IS 18 IN. WHEN CEILING DAMPER\* IS USED. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0.036 0356 IN. THICK GALVANIZED STEEL PLATES, PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS

ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH... . **AIR DUCT** - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER. . DAMPER - FOR USE WITH MIN 18 IN. DEEP TRUSSES MAX PLENUM BOX SIZE NOM 19 IN. LONG BY 19 IN. WIDE AND 11-7/8 IN. HIGH FABRICATED FROM GALV STEEL. AGGREGATE DAMPER OPENINGS SHALL NOT EXCEED 128 SQ IN. PER 100 SQ FT OF CEILING AREA. DAMPER INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION

INSTRUCTIONS PROVIDED WITH THE DAMPER.. AIRE TECHNOLOGIES INC — MODELS: CRD MODEL 50 W/BOOT, CRD MODEL 50EA W/BOOT, CRD MODEL 55 W/BOOT, CRD MODEL 55 EA W/BOOT. LLOYD INDUSTRIES INC — MODEL CRD 50-BT, CRD 50-EA-BT, CRD 55-BT, CRD 55 EA-BT

UNITED ENERTECH CORP — MODEL C-S/R-WT-L, C-S/R-EA-L, C-S/R-BT, C-S/R-EA-BL . BATTS AND BLANKETS\* - (OPTIONAL) - GLASS FIBER OR MINERAL WOOL INSULATION BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING CHARACTERISTICS AND/OR FIRE RESISTANCE. WHEN NO INSULATION IS INSTALLED IN THE CONCEALED SPACE RESILIENT CHANNELS (ITEM 6) ARE SPACED 24 IN. OC. WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED 16 IN. OC, THE INSULATION SHALL BE A MAX OF 3-1/2 IN. THICK, AND SHALL BE SECURED AGAINST THE SUBFLOORING WITH STAPLES AT 12 IN. OC OR HELD SUSPENDED IN THE CONCEALED SPACE WITH 0.090 IN. DIAM GALV STEEL WIRES ATTACHED TO THE WOOD TRUSSES AT 12 IN. OC. WHEN THE RESILIENT CHANNELS ARE SPACED A MAX OF 12 IN. OC OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED, THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION, AND THE INSULATION CAN BE SECURED AGAINST THE SUBFLOORING, HELD SUSPENDED IN THE CONCEALED SPACE OR DRAPED OVER THE RESILIENT CHANNELS (OR STEEL FRAMING MEMBERS) AND GYPSUM PANEL MEMBRANE. THE FINISHED RATING HAS ONLY BEEN DETERMINED WHEN THE INSULATION IS SECURED TO THE SUBFLOORING. 5B. CAVITY INSULATION - BATTS AND BLANKETS\* OR LOOSE FILL MATERIAL\* - (NOT SHOWN) — (AS DESCRIBED

FITTED IN THE CONCEALED SPACE, DRAPED OVER THE RESILIENT CHANNEL (ITEM 6E)/GYPSUM BOARD (ITEM 7A) CEILING MEMBRANE. **6E.RESILIENT CHANNELS -** FOR USE WITH ITEM 7A - FORMED FROM MIN 25 MSG GALV STEEL INSTALLED PERPENDICULAR TO TRUSSES AND SPACED 16 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-5/8 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT. ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL. INSULATION, ITEM 5B IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL (ITEM 7A)

ABOVE IN ITEMS 5 AND 5A) — FOR USE WITH ITEM 7A — MIN. 3-1/2 IN THICK WITH NO LIMIT ON MAXIMUM THICKNESS

CEILING MEMBRANE. 7A.GYPSUM WALLBOARD\* - FOR USE WITH ITEMS 5B AND 6E. NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS, GYPSUM PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 8 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM THE END JOINTS. FINISH RATING WITH THIS CEILING SYSTEM IS 20 MIN.

CGC INC — TYPE ULIX UNITED STATES GYPSUM CO — Type ULIX 5/8" USG SHEETROCK® BRAND ECOSMART PANELS FIRECODE® X 5/8" USG SHEETROCK® BRAND ECOSMART PANELS MOLD TOUGH® FIRECODE® X 8. FINISHING SYSTEM - (NOT SHOWN) — VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO

JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM 9. **GRILLE** — ALUMINUM OR STEEL GRILLE, INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE CEILING DAMPER.

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

THE CAVITY OF THE FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS SHALL BE FILLED FULL WITH NON-COMBUSTIBLE INSULATION AS SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS TO BE IN COMPLIANCE WITH NFPA 13 SECTION 8.15.1.2.7 WHICH STATES: CONCEALED SPACES FILLED WITH NONCOMBUSTIBLE INSULATION SHALL NOT REQUIRE SPRINKLER PROTECTION. A MAXIMUM OF 2 INCH AIR GAP AT THE TOP OF THE SPACE SHALL BE PERMITTED. (NFPA 8.15.1.2.7.1).

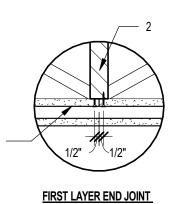
1-HR FLOOR/CEILING ASSEMBLY FILLED WITH INSULATION PROPRIETARY ASSEMBLY - December 6, 2023 FIRE TEST: UL DESIGN No. L563

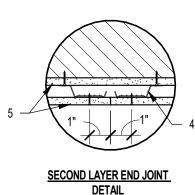
REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

FINISH FLOORING & FLOOR MAT MATERIALS - 1 LEVELROCK ON SAM-N25 SOUND ATTENUATION MAT OR OWNER APPROVED SUBSTITUTE, PER ITEM #1 BELOW FLOOR SHEATHING PER STRUCTURAL AND SUBFLOORING ITEM BELOW 18" DEEP PARALLEL CHORD TRUSSES PER STRUCTURAL & ITEM #2 BELOW 4- 4 4 4 AIR DUCT PER MECHANICAL FILL TRUSS CAVITY W/ INSULATION & ITEM #3 BELOW -(FIBERGLASS BATT OR LOOSE FILL) PER ITEM #5 OR ITEM #5A RESPECTIVELY DAMPER PER MECHANICAL AND ITEM #4 BELOW. COORDINATE MANUFACTURER 5/8" TYPE C GYPSUM BOARD PER ITEM #7 25 MSG GALV STEEL RESILIENT CHANNEL AT 12" O.C. PER ITEM #6 -

100528151CRT-001O 100528151CRT-001O

RESILIENT CHANNEL DETAIL





I. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING:

100528151CRT-001O

SUBFLOORING - MIN NOM 23/32 IN. THICK WOOD STRUCTURAL PANELS INSTALLED PERPENDICULAR TO TRUSSES WITH END JOINTS STAGGERED. PLYWOOD OR PANELS SECURED TO TRUSSES WITH CONSTRUCTION ADHESIVE AND NO. 6D RINGED SHANK NAILS SPACED 12 IN. OC ALONG EACH TRUSS. TETRAGRIP™ NAILS MEASURING 2-3/8 IN. LONG 0.113 IN. DIAMETER, 0.272 IN. ROUND HEAD, AND HELICALLY THREADED SHANK WITH BARBED FEATURES ON THE HELIX MEETING ASTM F1667 AND HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SURSTITUTED FOR THE 6D NAUS STAPLES HAVING FOLIAL OR GREATER WIT STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. VAPOR BARRIER - (OPTIONAL) NOM 0.010 IN. THICK COMMERICAL ASPHALT SATURATED FELT

FINISH FLOORING - FLOOR TOPPING MIXTURE - MIN 3/4 IN. THICKNESS OF FLOOR TOPPING MIXTURE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN

UNITED STATES GYPSUM CO — TYPES LRK, HSLRK, CSD FLOOR MAT MATERIALS - (OPTIONAL) - FLOOR MAT MATERIAL LOOSE LAID OVER THE SUBFLOOR. REFER TO MANUFACTURER'S INSTRUCTIONS REGARDING THE MINIMUM THICKNESS OF FLOOR TOPPING OVER EACH FLOOR MAT UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor

Underlayment SRM-25 . TRUSSES - PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 12 IN. WHEN CEILING DAMPERS\* ARE NOT USED. MIN TRUSS DEPTH IS 18 IN. WHEN CEILING DAMPER\* IS USED. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0.036 0356 IN. THICK GALVANIZED STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING FACH OTHER (MADE BY THE SAME PLINCH). FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH... 8. AIR DUCT - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS

PROVIDED BY THE DAMPER MANUFACTURER. F. DAMPER - FOR USE WITH MIN 18 IN. DEEP TRUSSES MAX PLENUM BOX SIZE NOM 19 IN. LONG BY 19 IN. WIDE AND 11-7/8 IN. HIGH FABRICATED FROM GALV STEEL. AGGREGATE DAMPER OPENINGS SHALL NOT EXCEED 128 SQ IN. PER 100 SQ FT OF CEILING AREA. DAMPER INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PROVIDED WITH THE DAMPER. AIRE TECHNOLOGIES INC — MODELS: CRD MODEL 50 W/BOOT, CRD MODEL 50EA W/BOOT, CRD MODEL 55

W/BOOT. CRD MODEL 55 EA W/BOOT LLOYD INDUSTRIES INC — MODEL CRD 50-BT, CRD 50-EA-BT, CRD 55-BT, CRD 55 EA-BT UNITED ENERTECH CORP — MODEL C-S/R-WT-L, C-S/R-EA-L, C-S/R-BT, C-S/R-EA-BL

5. BATTS AND BLANKETS\* - (OPTIONAL) - GLASS FIBER OR MINERAL WOOL INSULATION BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING CHARACTERISTICS AND/OR FIRE RESISTANCE. WHEN NO INSULATION IS INSTALLED IN THE CONCEALED SPACE RESILIENT CHANNELS (ITEM 6) ARE SPACED 24 IN. OC. WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED 16 IN. OC, THE INSULATION SHALL BE A MAX OF 3-1/2 IN. THICK, AND SHALL BE SECURED AGAINST THE SUBFLOORING WITH STAPLES AT 12 IN. OC OR HELD SUSPENDED IN THE CONCEALED SPACE WITH 0.090 IN. DIAM GALV STEEL WIRES ATTACHED TO THE WOOD TRUSSES AT 12 IN. OC. WHEN THE RESILIENT CHANNELS ARE SPACED A MAX OF 12 IN. OC OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED, THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION, AND THE INSULATION CAN BE SECURED AGAINST THE SUBFLOORING, HELD SUSPENDED IN THE CONCEALED SPACE OR DRAPED OVER THE RESILIENT CHANNELS (OR STEEL FRAMING MEMBERS) AND GYPSUM PANEL MEMBRANE. THE FINISHED RATING HAS ONLY BEEN DETERMINED WHEN THE INSULATION IS SECURED TO THE SUBFLOORING. 5A. LOOSE FILL MATERIAL\* — (OPTIONAL) - AS AN ALTERNATE TO ITEM 5, WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED A MAX OF 12 IN. OC, OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED - ANY LOOSE FILL

IN THE OVERALL THICKNESS OF INSULATION. THE FINISHED RATING WHEN LOOSE FILL MATERIAL IS USED HAS NOT RESILIENT CHANNELS - FORMED FROM MIN 25 MSG GALV STEEL INSTALLED PERPENDICULAR TO THE TRUSSES. WHEN INSULATION (ITEM 5) IS SECURED TO THE UNDERSIDE OF THE SUBFLOOR, THE RESILIENT CHANNELS ARE SPACED 16 IN. OC. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE, THE RESILIENT CHANNELS ARE SPACED 12 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-1/4 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT AS SHOWN IN THE ABOVE ILLUSTRATION. ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL 7. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED, GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM

MATERIAL BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS. THERE IS NO LIMIT

PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM END JOINTS. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE THE SCREW SPACING SHALL BE REDUCED TO 8 IN. OC. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. AMERICAN GYPSUM CO — Type AG-C 5/8" FIREBLOC® TYPE C GYPSUM BOARD AT INTERIOR LOCATIONS

5/8" M-BLOCK® TYPE C GYPSUM BOARD W/MOLD & MOISTURE RESISTANCE FOR WET AREAS AT INTERIOR LOCATIONS

NATIONAL GYPSUM CO — Types eXP-C, FSW-G, FSW-C, FSK-G, FSK-C. 5/8" GOLD BOND® FIRE-SHIELD C™ GYPSUM BOARD, TYPE C 5/8" GOLD BOND® XP® FIRE-SHIELD C™ GYPSUM BOARD, TYPE C UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

SHALL BE PERMITTED. (NFPA 8.15.1.2.7.1).

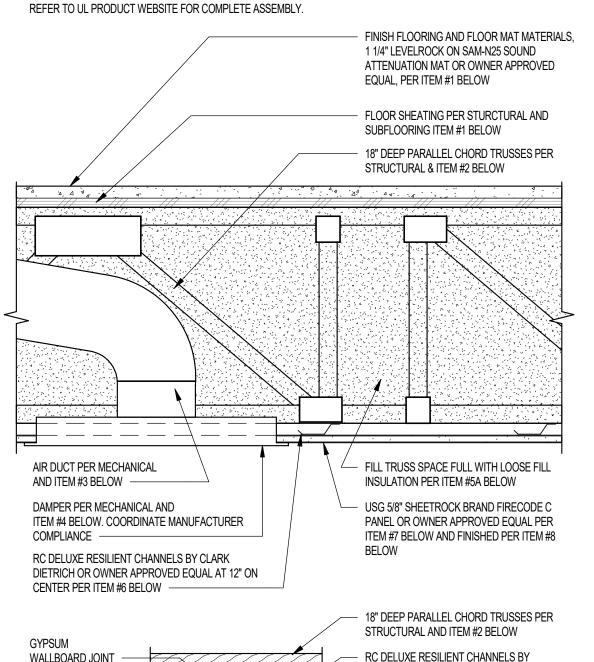
5/8" USG SHEETROCK® BRAND FIRECODE C PANELS B. FINISHING SYSTEM - (NOT SHOWN) — VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM

9. **GRILLE** — ALUMINUM OR STEEL GRILLE, INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE CEILING DAMPER. INDICATED SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING

THE CAVITY OF THE FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS SHALL BE FILLED FULL WITH NON-COMBUSTIBLE INSULATION AS SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS TO BE IN COMPLIANCE WITH NFPA 13 SECTION 8.15.1.2.7 WHICH STATES: CONCEALED SPACES FILLED WITH NONCOMBUSTIBLE

NSULATION SHALL NOT REQUIRE SPRINKLER PROTECTION. A MAXIMUM OF 2 INCH AIR GAP AT THE TOP OF THE SPACE

1-HR FLOOR/CEILING ASSEMBLY PROPRIETARY ASSEMBLY - February 16, 2024 FIRE TEST: UL DESIGN No. L550



. FLOORING SYSTEM - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING

END JOINTS STAGGERED. PLYWOOD OR PANELS SECURED TO TRUSSES WITH CONSTRUCTION ADHESIVE AND NO. 6D RINGED SHANK NAILS, SPACED 12 IN. OC ALONG EACH TRUSS. STAPLES HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. VAPOR BARRIER - (OPTIONAL) — NOM 0.010 IN. THICK COMMERCIAL ASPHALT SATURATED FELT FINISH FLOORING\* - FLOOR TOPPING MIXTURE - MIN 3/4 IN. THICKNESS OF FLOOR TOPPING MIXTURE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. FLOOR MAT MATERIALS\* - (OPTIONAL) - FLOOR MAT MATERIAL LOOSE LAID OVER THE SUBFLOOR. REFER TO

CLARK DIETRICH OR OWNER APPROVED

EQUAL AT 12" ON CENTER PER ITEM #6

USG 5/8" SHEETROCK BRAND FIRECODE C

AND FINISHED PER ITEM #8 BELOW

PANEL OR OWNER APPROVED EQUAL WITH 1"

TYPE 'S' SCREWS AT 8" ON CENTER PER ITEM 7

MANUFACTURER'S INSTRUCTIONS REGARDING THE MINIMUM THICKNESS OF FLOOR TOPPING OVER EACH FLOOR UNITED STATES GYPSUM CO - TYPES SAM, LEVELROCK® BRAND SOUND REDUCTION BOARD, LEVELROCK® BRAND FLOOR LINDERLAYMENT SRM-25 2. TRUSSES - PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH

I LIMBER ORIENTED VERTICALLY OR HORIZONTALLY MINITPLISS DEPTH IS 12 IN TRUSS MEMBERS SECLIBED TOGETHER WITH MIN 0. 0356 IN. THICK GALVANIZED STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF

3. AIR DUCT\* - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER. . DAMPER\* - FOR USE WITH MIN 18 IN. DEEP TRUSSES. MAX NOM 20 IN. LONG BY 18 IN. WIDE BY 2-1/8 IN. HIGH, FABRICATED FROM GALVANIZED STEEL. PLENUM BOX MAX SIZE NOM 21 IN. LONG BY 18 IN. WIDE BY 16 IN. HIGH FABRICATED FROM EITHER GALVANIZED STEEL OR CLASSIFIED AIR DUCT MATERIALS BEARING THE UL CLASSIFICATION MARKING FOR CLASS 0 OR CLASS 1 RIGID AIR DUCT MATERIAL. INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE MANUFACTURER. MAX DAMPER OPENINGS NOT TO EXCEED 180 SQ IN. PER 100

SQ FT OF CEILING AREA. NAILOR INDUSTRIES INC - TYPES 0755, 0755A, 0756, 0756D, 0757, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762, 0763, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP SAFE AIR DOWCO - TYPES 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463 5A. LOOSE FILL MATERIAL\* - (OPTIONAL) — AS AN ALTERNATE TO ITEM 5, WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED A MAXIMUM OF 12 IN. OC, OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED - ANY LOOSE FILL MATERIAL BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS. THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION. THE FINISHED RATING WHEN LOOSE FILL MATERIAL IS USED HAS NOT BEEN

6. RESILIENT CHANNELS - FORMED FROM MIN 25 MSG GALV STEEL INSTALLED PERPENDICULAR TO TRUSSES. WHEN NO INSULATION IS INSTALLED IN THE CONCEALED SPACE RESILIENT CHANNELS ARE SPACED 24 IN. WHEN THE INSULATION (ITEM 5) IS INSTALLED TO THE UNDERSIDE OF THE SUBFLOOR THE RESILIENT CHANNELS ARE SPACED 16 IN. OC. WHEN INSULATION (ITEM 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE, OR WHEN FOAMED PLASTIC INSULATION (ITEM 5C) IS SPRAYED TO THE UNDERSIDE OF THE SUBFLOOR, THE RESILIENT CHANNEL SPACING SHALL BE REDUCED TO 12 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-1/4 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT AS SHOWN IN THE ABOVE ILLUSTRATION. ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL. : GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED, GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM END JOINTS. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE THE SCREW SPACING SHALL BE REDUCED TO 8 IN. OC. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN FOAMED PLASTIC INSULATION (ITEM 5C) IS APPLIED TO THE UNDERSIDE OF THE SUBFLOORING, SCREW SPACING SHALL BE REDUCED TO 8 IN. OC AND MINIMUM 1-1/4 IN. LONG TYPE S SCREWS TO INSTALL GYPSUM TO THE RESILIENT CHANNELS (ITEM 6), AND BUTTED END JOINTS SHALL BE STAGGERED MIN. 2 FT WITHIN THE ASSEMBLY, AND OCCUR MIDWAY BETWEEN THE CONTINUOUS FURRING CHANNELS. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END

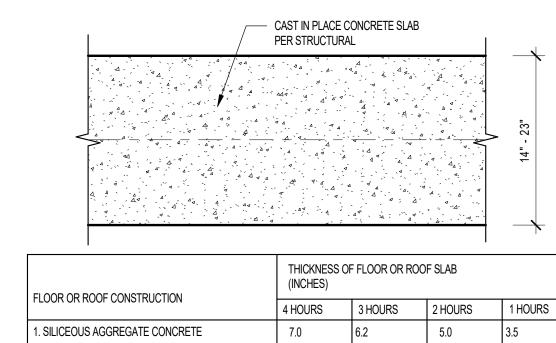
JOINT DETAIL. UNITED STATES GYPSUM CO - Types C, IP-X2, IPC-AR I. FINISHING SYSTEM - (NOT SHOWN) - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM

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

1-HR FLOOR/CEILING ASSEMBLY - FILLED WITH **INSULATION AT UNITS** 

SCALE: 1 1/2" = 1'-0" UL DESIGN No. L550

3-HR HORIZONTAL ASSEMBLY GENERIC ASSEMBLY FIRE TEST: IBC TABLE 721.1(3) ITEM NO. 1-1.1



CONSTRUCTION: 1. SILICEOUS AGGREGATE CONCRETE SLAB (CEILING NOT REQUIRED). MINIMUM COVER OVER NON- PRESTRESSED REINFORCEMENT SHALL BE NOT LESS THAN 3/4 INCH (b).

b. WHERE THE SLAB IS IN AN UNRESTRAINED CONDITION, MINIMUM REINFORCEMENT COVER SHALL BE NOT LESS THAN 1-5/8 INCHES FOR 4 HOURS (SILICEOUS AGGREGATE ONLY): 1-1/4 INCHES FOR 4 AND 3 HOURS: 1 INCH FOR 2 HOURS (SILICEOUS AGGREGATE ONLY); AND 3/4 INCH FOR ALL OTHER RESTRAINED AND UNRESTRAINED CONDITIONS.

2018 IBC TABLE 721.1(3) ITEM NO. 1-1.1

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

1-HR FLOOR/CEILING ASSEMBLY

FIRE TEST: UL DESIGN No. L550

SOUND RATING:

PROPRIETARY ASSEMBLY - February 16, 2024

WorldHQ@ORBArch.com

FINISH FLOORING AND FLOOR MAT MATERIALS, 1" LEVELROCK ON 1/4" SAM-N25 SOUND ATTENUATION MAT OR FLOOR SHEATING PER STURCTURAL AND OWNER APPROVED EQUAL, PER ITEM# SUBFLOORING ITEM BELOW

18" DEEP PARALLEL CHORD TRUSSES PE STRUCTURAL & ITEM #2 BELOW AIR DUCT PER MECHANICAL FILL TRUSS SPACE FULL WITH LOOSE FILL AND ITEM #3 BELOW —— INSULATION PER ITEM #5A BELOW DAMPER PER MECHANICAL AND USG 5/8" SHEETROCK BRAND FIRECODE C ITEM #4 BELOW. COORDINATE PANEL OR OWNER APPROVED EQUAL PER MANUFACTURER COMPLIANCE ITEM #7 BELOW AND FINISHED PER ITEM #8 RC DELUXE RESILIENT CHANNELS BY CLARK DIETRICH OR OWNER APPROVED EQUAL AT 12" ON

CENTER PER ITEM #6 BELOW -18" DEEP PARALLEL CHORD TRUSSES PER STRUCTURAL AND ITEM #2 BELOW WALLBOARD JOINT RC DELUXE RESILIENT CHANNELS BY CLARK DIETRICH OR OWNER APPROVED EQUAL AT 12" ON CENTER PER ITEM #6 USG 5/8" SHEETROCK BRAND FIRECODE C PANEL OR OWNER APPROVED EQUAL WITH 1' TYPE 'S' SCREWS AT 8" ON CENTER PER ITEM 7 AND FINISHED PER ITEM #8 BELOW

1. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING:

MAT MATERIAL.

SUBFLOORING - NOM 23/32 IN. THICK WOOD STRUCTURAL PANELS INSTALLED PERPENDICULAR TO TRUSSES WITH END JOINTS STAGGERED. PLYWOOD OR PANELS SECURED TO TRUSSES WITH CONSTRUCTION ADHESIVE AND NO. 6D RINGED SHANK NAILS, SPACED 12 IN. OC ALONG EACH TRUSS. STAPLES HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. VAPOR BARRIER - (OPTIONAL) - NOM 0.010 IN. THICK COMMERCIAL ASPHALT SATURATED FELT. FINISH FLOORING\* - FLOOR TOPPING MIXTURE - MIN 3/4 IN. THICKNESS OF FLOOR TOPPING MIXTURE HAVING A

MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD FLOOR MAT MATERIALS\* - (OPTIONAL) - FLOOR MAT MATERIAL LOOSE LAID OVER THE SUBFLOOR. REFER TO MANUFACTURER'S INSTRUCTIONS REGARDING THE MINIMUM THICKNESS OF FLOOR TOPPING OVER EACH FLOOR

UNITED STATES GYPSUM CO - TYPES SAM, LEVELROCK® BRAND SOUND REDUCTION BOARD, LEVELROCK® BRAND FLOOR UNDERLAYMENT SRM-25 2. TRUSSES - PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 12 IN. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0. 0356 IN. THICK GALVANIZED STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF

3. AIR DUCT\* - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER. DAMPER\* - FOR USE WITH MIN 18 IN. DEEP TRUSSES. MAX NOM 20 IN. LONG BY 18 IN. WIDE BY 2-1/8 IN. HIGH, FABRICATED FROM GALVANIZED STEEL. PLENUM BOX MAX SIZE NOM 21 IN. LONG BY 18 IN. WIDE BY 16 IN. HIGH FABRICATED FROM EITHER GALVANIZED STEEL OR CLASSIFIED AIR DUCT MATERIALS BEARING THE UL CLASSIFICATION MARKING FOR CLASS 0 OR CLASS 1 RIGID AIR DUCT MATERIAL. INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE MANUFACTURER. MAX DAMPER OPENINGS NOT TO EXCEED 180 SQ IN. PER 100 SQ FT OF CEILING AREA. NAILOR INDUSTRIES INC - TYPES 0755, 0755A, 0756, 0756D, 0757D, 0757D, 0757P, 0757DFP, 0758, 0759, 0760, 0761, 0762,

0763, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP **SAFE AIR DOWCO** - TYPES 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463 5A. LOOSE FILL MATERIAL\* - (OPTIONAL) — AS AN ALTERNATE TO ITEM 5, WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED A MAXIMUM OF 12 IN. OC, OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED - ANY LOOSE FILL MATERIAL BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS. THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION. THE FINISHED RATING WHEN LOOSE FILL MATERIAL IS USED HAS NOT BEEN

6. **RESILIENT CHANNELS** - FORMED FROM MIN 25 MSG GALV STEEL INSTALLED PERPENDICULAR TO TRUSSES. WHEN NO INSULATION IS INSTALLED IN THE CONCEALED SPACE RESILIENT CHANNELS ARE SPACED 24 IN. WHEN THE INSULATION (ITEM 5) IS INSTALLED TO THE UNDERSIDE OF THE SUBFLOOR THE RESILIENT CHANNELS ARE SPACED 16 IN. OC. WHEN INSULATION (ITEM 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE, OR WHEN FOAMED PLASTIC INSULATION (ITEM 5C) IS SPRAYED TO THE UNDERSIDE OF THE SUBFLOOR, THE RESILIENT CHANNEL SPACING SHALL BE REDUCED TO 12 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-1/4 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT AS SHOWN IN THE ABOVE ILLUSTRATION ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL 7. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED, GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM END JOINTS. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE THE SCREW SPACING SHALL BE REDUCED TO 8 IN. OC. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN FOAMED PLASTIC INSULATION (ITEM 5C) IS APPLIED TO THE UNDERSIDE OF THE SUBFLOORING. SCREW SPACING SHALL BE REDUCED TO 8 IN. OC AND MINIMUM 1-1/4 IN. LONG TYPE S SCREWS TO INSTALL GYPSUM TO THE RESILIENT CHANNELS (ITEM 6), AND BUTTED END JOINTS SHALL BE STAGGERED MIN. 2 FT WITHIN THE ASSEMBLY, AND OCCUR MIDWAY BETWEEN

UNITED STATES GYPSUM CO - Types C, IP-X2, IPC-AR 8. FINISHING SYSTEM - (NOT SHOWN) - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM

THE CONTINUOUS FURRING CHANNELS. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END

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

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing

cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request

Contractor must verify all dimensions at project before proceeding with this

Architect. The drawings and specifications are instruments of service and shall remain the property of the

Architect whether the project for which they are made is executed or not. These drawings and specifications

shall not be used by anyone on any other projects, for additions to this project, or for completion of this

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REVISIONS/SUBMITTALS

designated agent at

1-HR FLOOR/CEILING ASSEMBLY - FILLED WITH

1-HR FLOOR/CEILING ASSEMBLY - FILLED WITH

INSULATION - ENHANCED STC

SCALE: 1 1/2" = 1'-0"

JOINT DETAIL.

INSULATION AT UNITS UL DESIGN No. L550

1-HR FLOOR/CEILING ASSEMBLY - FILLED WITH

SCALE: 1 1/2" = 1'-0"

1-HR FLOOR/CEILING ASSEMBLY - W/RESILIENT CLIPS SCALE: 1/2" = 1'-0" SCALE: 1 1/2" = 1'-0" UL DESIGN No. L563 THE ASSEMBLY DESCRIPTION BELOW IS PER ICC-ES REPORT NO. ESR-1153. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED FLOOR/ CEILING ASSEMBLY PER OWNER'S REQUEST

#### 4.18 FIRE-RESISTANCE-RATED ROOF-CEILING OR FLOOR-CEILING ASSEMBLIES -FIGURE 3B - ASSEMBLY B

1-HR FLOOR/CEILING ASSEMBLY TJI SYSTEM

1. THE FLOORING MUST CONSIST OF A SINGLE LAYER OF 48/24 SPAN-RATED, TONGUE-AND-GROOVE, SHEATHING (EXPOSURE 1), WHEN USED AS A ROOF-CEILING ASSEMBLY. THE DECKING IS PERMITTED TO BE ANY WOOD DECK RECOGNIZED IN THE CODE. NAILED AND GLUED TO THE TOP OF THE TJI® JOISTS. CONSTRUCTION ADHESIVE CONFORMING TO ASTM D3498 MUST BE APPLIED TO THE TOP OF THE JOISTS PRIOR TO PLACING SHEATHING. ALL BUTT JOINTS OF THE SHEATHING MUST BE LOCATED OVER FRAMING MEMBERS.

2. TJI JOISTS MUST BE INSTALLED IN ACCORDANCE WITH THIS REPORT, WITH A MAXIMUM SPACING OF 24 INCH ON CENTER FOR FLOOR/ CEILING ASSEMBLIES. WHEN USED IN ROOF/ CEILING ASSEMBLIES. THE JOISTS ARE PERMITTED TO BE SPACED A MAXIMUM OF 48 INCH ON CENTER.

MAY BE INSTALLED IN THE JOIST PLENUM WHEN RESILIENT CHANNELS ARE USED. THE INSULATION MUST BE PLACED ABOVE THE RESILIENT CHANNELS BETWEEN THE JOIST BOTTOM FLANGES. 4. THE CEILING MEMBRANE MUST CONSIST OF (2) LAYERS OF 5/8 INCH THICK TYPE X GYPSUM WALLBOARD COMPLYING

3. MINIMUM 3-1/2 INCH THICK GLASS FIBER INSULATION OR GLASS FIBER INSULATION THAT IS RATED R-30 OR LESS

6. RESILIENT CHANNELS (RC-1) SHALL BE USED AS PART OF THE CEILING ATTACHMENT SYSTEM, SHALL BE SPACED 16 INCH ON CENTER AND FASTENED PERPENDICULAR TO THE TJI JOISTS USING 1 INCH, TYPE S SCREWS. THE FIRST LAYER OF THE CEILING MEMBRANE MUST BE INSTALLED PERPENDICULAR TO THE CHANNELS AND ATTACHED TO THE RESILIENT CHANNELS USING 1 INCH LONG, TYPE S SCREWS SPACED AT 12 INCH ON CENTER: THE SECOND LAYER MUST BE INSTALLED WITH THE JOINTS STAGGERED FROM THE FIRST LAYER AND ATTACHED USING 1-5/8 INCH LONG, TYPE S SCREWS. THE SCREW SPACING FOR THE SECOND LAYER OF GYPSUM WALLBOARD MUST BE A MAXIMUM OF 12 INCH

ON CENTER IN THE FIELD AND 8 INCH ON CENTER AT THE BUTT JOINTS. TYPE G SCREWS 1-1/2 INCH LONG MUST BE

SPACED 8 INCH ON CENTER AND 6 INCH FROM EACH SIDE OF THE TRANSVERSE JOINTS OF THE SECOND LAYER. THE

SECOND LAYER SHALL BE FINISHED WITH JOINT TAPE AND COMPOUND. TESTED WITH 3/4 INCH THICK FLOOR TOPPING OF GYPSUM CONCRETE

WITH ASTM C 36, ATTACHED TO THE R/C CHANNELS.

# **TABLE 6 - SOUND RATINGS**

	STC = 58 MINIMUM	
	- CONCRETE, 40 OUNCE PER SQUARE YARD PAD & 56 OUNCE SQUARE YARD CARPET.	IIC = 54
ASSEMBLY B OPTION 2	- FLOOR CONVERING MUST CONSIST OF TARKETT ACOUSTIFLOR SHEET VINYL CEILING MUST CONSIST OF (2) LAYERS OF 5/8 INCH TYPE 'X' GYPSUM BOARD - BOTTOM OF THE FLOOR CAVITY MUST CONTAIN 3 1/2" GLASS FIBER INSULATION.	IIC = 54
	- FLOOR COVERING MUST BE EITHER ARMSTRONG VIOS OR ARMSTRONG CAMBRAY SHEET VINYL OR EQUAL CEILING MUST CONSIST OF (2) LAYERS OF 5/8 INCH TYPE 'X' GYP BOARD - BOTTOM OF THE FLOOR CAVITY MUST CONTAIN 3-1/2 INCH GLASS FIBER INSULATION.	IIC = 50

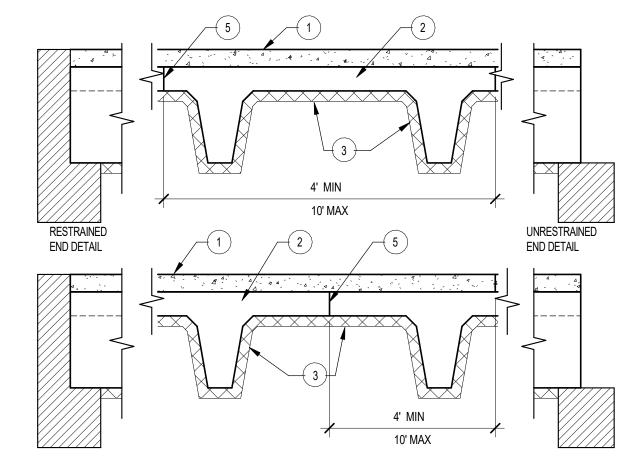
1-HR RATED FLOOR/CEILING ASSEMBLY TJI SYSTEM

\*STC 58 AND IIC 54 (ONLY FOR THE AREAS PLANNED WITH LVT OR TILE) ESTIMATED BASED ON ATI 10106.18 & H1768.14

SCALE: 1 1/2" = 1'-0"

2-HR FLOOR/ CEILING ASSEMBLY PRECAST CONCRETE DOUBLE TEE PROPRIETARY ASSEMBLY - October 17, 2017

FIRE TEST: UL DESIGN No. J704 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBL'



DESIGN NO. D730 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES I. CONCRETE TOPPING — 3000 PSI COMPRESSIVE STRENGTH, 110 TO 153 UNIT WEIGHT, MIN TOPPING THICKNESS, 1 IN. THICKNESS OF SPRAY-APPLIED FIRE RESISTIVE MATERIALS REQUIRED ON FLANGES FOR RESTRAINED AND UNRESTRAINED ASSEMBLY RATINGS

MIN. TOTAL THICKNESS OF CONCRETE INCH	2 HOUR	RATING 3 HOUR	4 HOUR
1-1/2 in.	1-1/8 in.	1-3/4 in.	2-7/8 in.
2 in.	7/8 in.	1-1/2 in.	2 in.
2-1/2 in.	3/4 in.	1-5/16 in.	1-3/4 in.
3 in.	5/8 in.	1-1/8 in.	1-9/16 in.
3-1/2 in.	7/16 in.	15/16 in.	1-3/8 in.
4 in.	5/16 in.	3/4 in.	1-1/8 in.
4-1/2 in.	1/4 in.	9/16 in.	1 in.
5 in.	1/4 in.	7/16 in.	13/16 in.

2. PRECAST CONCRETE UNITS\* - NORMAL WEIGHT CONCRETE. SINGLE OR DOUBLE STEMMED UNITS BEARING THE UL CLASSIFICATION MARKING CONTAINING DESIGN NOS. J941 OR J944 AND HAVING A MIN SLAB THICKNESS OF 1-1/2 IN.; OR BEARING THE UL CLASSIFICATION MARKING J704.

SEE PRECAST CONCRETE UNITS CATEGORY FOR NAMES OF MANUFACTURERS.

3. SPRAY-APPLIED FIRE RESISTIVE MATERIALS\* - APPLIED BY MIXING WITH WATER AND SPRAYING IN ONE OR MORE COATS, TO A FINAL THICKNESS AS SHOWN IN THE ABOVE ILLUSTRATION AND IN THE TABLES DESCRIBED IN ITEMS 1 AND 3, TO CONCRETE SURFACES WHICH MUST BE CLEAN AND FREE OF DIRT AND OIL. MIN AVG AND MIN IND DENSITY OF 15/14 PCF RESPECTIVELY. MIN AVG AND MIN IND DENSITY OF 22/19 PCF RESPECTIVELY FOR TYPES Z-106, Z-106/HY, Z-106/G. MIN AVG AND MIN IND DENSITY OF 19/18 PCF RESPECTIVELY FOR TYPES 7GP AND 7HD. FOR METHOD OF DENSITY DETERMINATION, SEE DESIGN INFORMATION SECTION.

THICKNESS OF SPRAY-APPLIED FIRE RESISTIVE MATERIALS REQUIRED ON STEMS FOR RESTRAINED AND UNRESTRAINED ASSEMBLY RATINGS

UL CLASSIFICATION
MARKING ON
RECAST CONCRETE UNIT

PRECAST CONCRETE UNIT	2 HOUR	RATING 3 HOUR	4 HOUR
J941	11/16 in.	11/16 in.	1-7/16 in.
J704-A	3/4 in.	1/8 in.	1-1/2 in.
J704-B	11/16 in.	1-1/16 in.	1-7/16 in.
J704-C	1/2 in.	7/8 in.	1-5/16 in.
J704-D	7/16 in.	13/16 in.	1-3/16 in.
J704-E	5/16 in.	5/8 in.	1 in.
J704-F	5/16 in.	3/8 in.	3/4 in.
J944		7/16 in.	13/16 in.

PYROK INC - TYPE LD. SOUTHWEST FIREPROOFING PRODUCTS CO - TYPES 4, 5, 5EF, 5GP, 5MD, 7GP, 7HD, 8EF, 8GP, 8MD, 9EF, 9GP, 9MD. GCP APPLIED TECHNOLOGIES INC - TYPES MK-6/HY, MK-6S, MONOKOTE ACOUSTIC 1, RG, Z-106, Z-106/G, Z-106/HY

4. MINIMUM BEARING - 3 INCH 5. WELD PLATES - OPTIONAL

6. METAL LATH - (NOT SHOWN) - REQUIRED WHEN TYPE 7HD IS APPLIED - METAL LATH SHALL BE 3/8 IN. EXPANDED DIAMOND MESH, WEIGHING 3.4 LB PER SQ YD. SECURED TO UNDERSIDE THROUGH STEEL WASHERS WITH AN OUTSIDE DIAM OF 1/2 IN. WITH FASTENERS SPACED 12 IN. OC IN BOTH DIRECTIONS WITH LATH EDGES OVERLAPPED APPROX 3 IN. \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

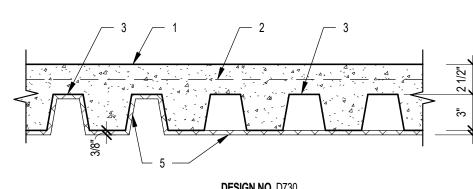
# 2-HR FLOOR/ CEILING ASSEMBLY PRECAST CONCRETE

UL DESIGN No. J704

SCALE: 1 1/2" = 1'-0"

# 2-HR FLOOR/CEILING ASSEMBLY CONCRETE OVER STEEL DECK PROPRIETARY ASSEMBLY - May 16, 2023

FIRE TEST: UL DESIGN No. D730 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY



BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

1. NORMAL-WEIGHT CONRETE - CARBONATE OR SILICEOUS AGGREGATE, 150 (+ OR -) 3 PCF UNIT WEIGHT, 4000 PSI COMPRESSIVE STRENGTH.

2. WELDED WIRE FABRIC - 6 BY 6 INCH NO. 10/10 SWG. 3. STEEL FLOOR AND FORM UNITS\* - COMPOSITE, 2 OR 3 IN. DEEP GALV UNITS. MIN GAUGES ARE 22 MSG FOR FLUTED UNITS AND 20/20 MSG FOR CELLULAR UNITS. WHEN THE UNITS ARE FLUTED OR ALTERNATING ONE 24 OR 36 IN. WIDE CELLULAR TO ONE OR MORE 24 OR 36 IN. WIDE FLUTED, THE RATINGS ARE:

RESTRAINED ASSEMBLY 2 HOUR UNRESTRAINED ASSEMBLY 2 HOUR WHEN THE UNITS ARE ALL CELULLAR, THE RATINGS ARE: RESTRAINED ASSEMBLY 2 HOUR

UNRESTRAINED ASSEMBLY - MARLYN STEEL DECKS INC - TYPE 2.0 CF OR 3.0 CF.

4. JOINT COVER (NOT SHOWN) - 2 INCH WIDE PRESSURE SENSITIVE ADHESIVE CLOTH TAPE. 5. SPRAY-APPLIED FIRE RESISTIVE MATERIALS\* - APPLIED BY MIXING WITH WATER AND SPRAYING ONE COAT TO A FINAL THICKNESS AS SHOWN ABOVE, TO STEEL SURFACES WHICH MUST BE CLEAN AND FREE OF DIRT, LOOSE SCALE AND OIL. MIN AVG AND MIN IND DENSITY OF 15/14 PCF RESPECTIVELY. MIN AVG AND MIN IND DENSITY OF 19/18 PCF RESPECTIVELY FOR TYPE 7GP AND 7HD. FOR METHOD OF DENSITY DETERMINATION, REFER TO DESIGN INFORMATION SECTION. TYPES 4, 5GP, 7GP, 7HD, 8GP, 9GP, VP4 MAY BE USED ONLY WITH ALL FLUTED STEEL FLOOR UNITS OR BLENDS CONSISTING OF ONE OR MORE FLUTED UNITS TO ONE 24 IN. WIDE MAX CELLULAR UNIT, 1-1/2 OR 3 IN. DEEP. WITH CELLS SPACED APPROX 6 AND 8 IN. RESPECTIVELY.

1-1/2 HOUR

USE OF SPATTER COAT TYPES DK, DK2, DK3, SK-1 OR SK-III IS REQUIRED ON ALL CELLULAR UNITS WITH FLAT PLATE ON THE BOTTOM, OPTIONAL ON OTHER STEEL SURFACES. THICKNESS OF THE SPATTER COAT IS INCLUDED IN THE TOTAL FINAL THICKNESS OF THE PROTECTION MATERIAL. PYROK INC - TYPE LD.

SOUTHWEST FIREPROOFING PRODUCTS CO - TYPES 4, 5, 5EF, 5GP, 5MD, 7GP, 7HD, 8EF, 8GP, 8MD, 9EF, 9GP, 9MD, DK,

GCP APPLIED TECHNOLOGIES INC - TYPES MK-6/HY, MIK-6S, MONOKOTE ACOUSTIC 1, RG, SK-III. 6. METAL LATH (NOT SHOWN) - WHERE TYPE 7HD IS APPLIED TO STEEL DECK, 3/8 INCH METAL RIBBED LATH WEIGHTING 3.4 POUND PER SQUARE YARD SHALL BE SECURED TO THE UNDERSIDE OF THE STEEL DECK (RIBS UPWARD) WITH S-12 BY 3/8 INCH LONG PAN HEAD, SELF-TAPPING STEEL SCREWS SPACED 12 INCH ON CENTER IN ALL DIRECTIONS. STEEL SCREWS SHALL BE FITTED WITH 1/2 INCH. DIAMETER STEELS WASHERS. ADJACENT PIECES OF LATH SHALL BE OVERLAPPED 1 INCH MINIMUM.

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

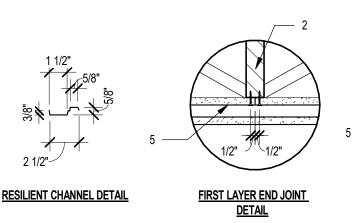
─ UL DESIGN No. D730

2-HR FLOOR/CEILING ASSEMBLY FILLED WITH INSULATION

SCALE: 1 1/2" = 1'-0"

PROPRIETARY ASSEMBLY - April 04, 2023 FIRE TEST: UL DESIGN No. L505 REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY. 2" GYPSUM CONCRETE WITH MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. PER ITEM 1 BELOW VAPOR BARRIER NOMINAL 0.030" THICK COMMERCIAL ASPHALT FELT PER ITEM 1 BELOW - 3/4" T&G CDX PLYWOOD OR 23/32" EXPOSURE 1 APA RATED OSB PER STRUCTURAL AND ITEM 1 BELOW CROSS BRIDGING, MINIMUM 1x3 OR MINIMUM 2x10 SOLID BLOCKING

2x10 FLOOR JOISTS PER STRUCTURAL AND ITEM RC DELUXE RESILIENT CHANNELS #2 BELOW BY CLARK DIETRICH OR OWNER APPROVED EQUAL AT 24" ON (2) USG 5/8" SHEETROCK BRAND FIRECODE C PANEL CENTER PER ITEM #4 BELOW -OR OWNER APPROVED EQUAL PER ITEM #5 BELOW AND FINISHED PER ITEM #7 BELOW



1. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING:

SYSTEM NO. 12 SUBFLOORING - 15/32 OR 19/32 IN. THICK WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING". FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANELS TO BE PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED. VAPOR BARRIER - (OPTIONAL) NOMINAL 0.030 INCH THICK COMMERCIAL ASPHALT SATURATED FELT. FINISH FLOORING - FLOOR TOPPING MIXTURE - MIN 3/4 OR 1 IN. THICKNESS OF FLOOR TOPPING MIXTURE FOR 19/32 OR 15/32 IN. THICK WOOD STRUCTURAL PANELS RESPECTIVELY, HAVING A MIN COMPRESSIVE STRENGTH OF 2100 PSI. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. 2. WOOD JOISTS - MIN 2 BY 10, SPACED 16 IN. OC AND EFFECTIVELY FIREBLOCKED IN ACCORDANCE WITH LOCAL CODES. 3. CROSS BRIDGING - MINIMUM 1 INCH BY 3 INCH OR MINIMUM 2 INCH BY 10 SOLID BLOCKING.

SECOND LAYER END JOINT

 RESILIENT CHANNELS - RESILIENT CHANNELS, FORMED FROM NO. 25 MSG GALV STEEL AND SHAPED AS SHOWN, SPACED 24 IN. OC PERPENDICULAR TO JOIST. CHANNELS OVERLAPPED 1-1/2 IN. AT SPLICES AND SECURED TO EACH JOIST WITH ONE 8D COMMON NAIL. MIN END CLEARANCE OF CHANNELS TO WALL TO BE 3/4 IN. ADDITIONAL PIECES, 60 IN. LONG, PLACED IMMEDIATELY ADJACENT TO CONTINUOUS CHANNELS AT END JOINTS OF SECOND LAYER OF GYPSUM BOARD (ITEM 5) AND SIMILARLY SECURED. ADDITIONAL CHANNELS SHALL EXTEND 6 IN. BEYOND EACH SIDE EDGE OF BOARD.

5. GYPSUM WALLBOARD\* - TTWO LAYERS 5/8 IN. THICK GYPSUM BOARD. WHEN RESILIENT CHANNELS (ITEM 4) ARE USED, FIRST LAYER INSTALLED WITH LONG DIMENSION PERPENDICULAR TO JOISTS, AND END JOINTS OF BOARDS LOCATED AT THE JOISTS. NAILED TO JOISTS WITH UNCOATED 8D BOX NAILS SPACED 7 IN. OC. ALL NAILS LOCATED 1/2 IN. MIN DISTANCE FROM THE EDGES AND ENDS OF THE BOARD. SECOND LAYER INSTALLED WITH LONG DIMENSION PERPENDICULAR TO THE RESILIENT CHANNELS AND CENTER LINE OF BOARDS LOCATED UNDER A JOIST AND SO PLACED THAT THE EDGE JOINT OF THIS LAYER IS NOT IN ALIGNMENT WITH THE END JOINT OF THE FIRST LAYER. SECURED TO RESILIENT CHANNELS WITH 1 IN. LONG GYPSUM BOARD SCREWS 12 IN. OC WITH ADDITIONAL SCREWS 3 IN. FROM SIDE JOINTS. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. ALL SCREWS LOCATED 1 IN. MIN DISTANCE FROM EDGES OF BOARDS. IF GYPSUM BOARD IS OTHER THAN 48 IN. WIDE, LENGTH OF ADDITIONAL CHANNEL MAY BE MODIFIED AS REQUIRED TO ALLOW FULL EXTENSION ALONG JOINTS, AS WELL AS ATTACHMENT TO JOISTS AT EACH END. JOINT TREATMENT NOT REQUIRED FOR THIS RATING. EXCEPT FOR TAPERED, ROUNDED-EDGE GYPSUM BOARD WHERE EDGE JOINTS ARE COVERED WITH PAPER TAPE AND JOINT COMPOUND. AS AN ALTERNATE. NOM 3/32 IN. THICK GYPSUM VENEER PLASTER MAY BE APPLIED TO THE ENTIRE

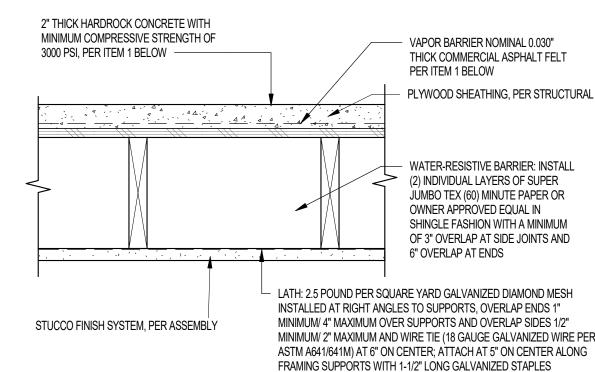
SURFACE OF CLASSIFIED VENEER BASEBOARD. JOINTS REINFORCED. **AMERICAN GYPSUM CO** - TYPE AG-C. **CERTAINTEED GYPSUM INC** - Type C, Type LGFC-C/A. GEORGIA-PACIFIC GYPSUM LLC - TYPES 5, C, DAPC, GPFS1, TG-C. NATIONAL GYPSUM CO - TYPES FSK-C. FSK-G. FSW-C. FSW-G

PABCO BUILDING PRODUCTS LLC, DBA PABCO GYPSUM - TYPE C, PG-3 OR PG-C 6. SCREW, AND GYPSUM WALLBOARD - 1 IN. LONG, WITH 0.129 IN., SELF-DRILLING AND SELF-TAPPING SHANK, AND PHILLIPS-TYPE 0.355 IN. DIAM HEAD, SCREWS SHALL BE DRIVEN NO FARTHER THAN SLIGHTLY INDENTED (NOT DEEPER THAN 1/64 IN.) INTO THE EXPOSED SURFACE OF THE GYPSUM BOARD. FINISH SYSTEM - (NOT SHOWN) - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND

SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN, THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM BOARD. \* INDICATED SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

FIRE TEST: UL DESIGN L546

SCALE: 1 1/2" = 1'-0"



THE ASSEMBLY DESCRIPTION BELOW IS PER 2018 IBC TABLE 721.1(3), ITEM 13-1.2. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED ROOF/ CEILING ASSEMBLY PER OWNER'S REQUEST CEMENT OR GYPSUM PLASTER ON METAL LATH. LATH FASTENED WITH 1-1/2 INCH BY NO. 11 GAUGE BY 7/16 INCH HEAD BARBED SHANK ROOFING NAILS SPACED 5 INCH ON CENTER. PLASTER MIXED 1:2 FOR SCRATCH COAT AND 1:3 FOR BROWN COAT, BY WEIGHT, CEMENT TO SAND AGGREGATE.

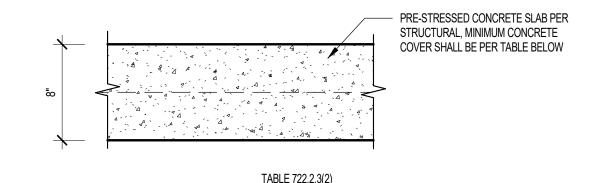
-HR FLOOR/SOFFIT W/ 2x FRAMING

1-HR CONCRETE SLAB HORIZONTAL ASSEMBLY GENERIC ASSEMBLY FIRE TEST: IBC TABLE 722.2.3(2)

3-HR HORIZONTAL ASSEMBLY

FIRE TEST: IBC TABLE 721.1(3) ITEM NO. 1-1.1

GENERIC ASSEMBLY



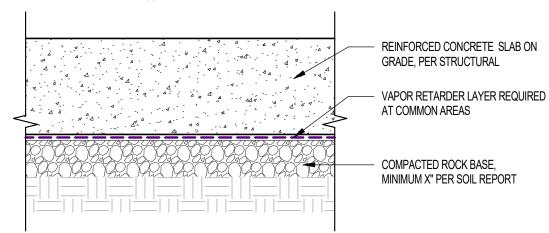
COVER THICKNESS FOR PRE-STRESSED CONCRETE FLOOR OR ROOF SLABS (INCHES)

	FIRE-RESISTANCE RATING (HOURS)
CONCRETE AGGREGATE TYPE	UNRESTRAINED
	2
SILICEOUS	1 3/4
CARBONATE	1 5/8
SAND-LIGHTWEIGHT OR LIGHTWEIGHT	1 1/2
FOR SI: 1 INCH = 25.4MM.	•

FL 07 2-HR PRESTRESSED CONCRETE SLAB MIN. COVER

IBC 2018 TABLE 722.2.3(2)

**CONCRETE SLAB ON GRADE -** AT CONDITIONED SPACES GENERIC ASSEMBLY FIRE TEST: 2018 IBC TABLE 721.1(3)



4-HOUR MAXIMUM FIRE RESISTANCE CONSTRUCTION PER TABLE 721.1(3) OF THE 2018 IBC

2018 IBC TABLE 721.1(3) ITEM1-1.1

FLOOR OR ROOF CONSTRUCTION	THICKNESS (INCHES)	THICKNESS OF FLOOR OR ROOF SLAB (INCHES)				
FLOOR OR ROOF CONSTRUCTION	4 HOURS	3 HOURS	2 HOURS	1 HOURS		
1. SILICEOUS AGGREGATE CONCRETE	7.0	6.2	5.0	3.5		

1. SILICEOUS AGGREGATE CONCRETE SLAB (CEILING NOT REQUIRED). MINIMUM COVER OVER NON- PRESTRESSED REINFORCEMENT SHALL BE NOT LESS THAN 3/4 INCH (b).

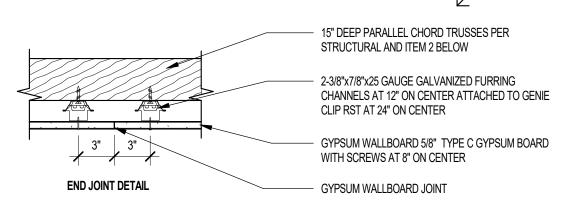
b. WHERE THE SLAB IS IN AN UNRESTRAINED CONDITION, MINIMUM REINFORCEMENT COVER SHALL BE NOT LESS THAN 1-5/8 INCHES FOR 4 HOURS (SILICEOUS AGGREGATE ONLY): 1-1/4 INCHES FOR 4 AND 3 HOURS; 1 INCH FOR 2 HOURS (SILICEOUS AGGREGATE ONLY); AND 3/4 INCH FOR ALL OTHER RESTRAINED AND UNRESTRAINED CONDITIONS.

SLAB ON GRADE ASSEMBLY W/ VAPOR RETARDER

SCALE: 1 1/2" = 1'-0"

1-HOUR FLOOR/ CEILING OPEN TRUSS AT BALCONIES WITH RESILIENT CLIPS GENERIC ASSEMBLY [ MULTIPLE PROPRIETARY GYPSUM BOARD]: October 03, 2023 **SOUND RATING:** NO STC REQUIRED REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

2100 MINIMUM PSI HARDROCK CONCRETE TOPPING (2" MINIMUM / 3" MAXIMUM THICKNESS) PER FLOOR SYSTEM 1 BELOW OVER BALCONY WATERPROOFING SYSTEM AIR DUCT PER MECHANICAL 3/4" PLYWOOD SHEATHING PER STRUCTURAL AND ITEM #3 BELOW AND FLOOR SYSTEM 1 BELOW 2x RIPPERS AT EACH TRUSS (1/8" MINIMUM / 1/4" GALVANIZED FURRING CHANNELS. MAXIMUM SLOPE) 2-3/8"x7/8"x25 GAUGE, AT 12" ON CENTER; ATTACHED TO GENIE CLIP RST AT 24" ON 15" DEEP PARALLEL CHORD TRUSSES PER STRUCTURAL AND ITEM #2 BELOW GYPSUM WALLBOARD PER ITEM 7 — CAVITY SHALL BE FILLED WITH FIBERGLASS BATT INSULATION PER ITEMS #5 AND #5C BELOW AND NOTE (2) \_ \_ \_ \_ \_ \_ \_ \_ \_



DESIGN NO. L546 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED STATES

1. **FLOORING SYSTEM** - THE FLOORING SYSTEM SHALL CONSIST OF ONE OF THE FOLLOWING:

FLOOR MAT(S)

SUBFLOORING - 15/32 OR 19/32 IN. THICK WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING". FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANELS TO BE PERPENDICULAR TO JOISTS WITH JOINTS STAGGERED. VAPOR BARRIER - COMMERCIAL ASPHALT SATURATED FELT 0.030 IN. THICK. FINISH FLOORING - COMPRESSIVE STRENGTH TO BE 2100 PSI MIN. THICKNESS TO BE 3/4 IN. MIN FOR 19/32 IN THICK WOOD STRUCTURAL PANELS OR 1 IN. MIN. FOR 15/32 IN THICK WOOD STRUCTURAL PANELS. REFER TO MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL FOR SPECIFIC MIX DESIGN. REFER TO THE MANUFACTURER'S INSTRUCTIONS ACCOMPANYING THE MATERIAL AND/OR CONTACT THE MANUFACTURER'S TECHNICAL SUPPORT FOR SPECIFIC MIX DESIGN AND MINIMUM THICKNESS RECOMMENDED FOR USE WITH ELIGIBLE

2. TRUSSES - PARALLEL CHORD TRUSSES SPACED A MAX OF 24 IN. OC FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 12 IN. WHEN DAMPERS ARE NOT USED AND 18 IN. WHEN DAMPERS ARE USED. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0.036 IN. THICK GALV STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING FACH OTHER (MADE BY THE SAME PLINCH) FORMING A SPI HAS A CHISEL POINT ON ITS OUTSIDE EDGE WITH THESE POINTS BEING DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROXIMATELY 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH.

INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER 4. CEILING DAMPER - (OPTIONAL. TO BE USED WITH AIR DUCT ITEM 3) — FOR USE WITH MIN 18 IN. DEEP TRUSSES. MAX NOM AREA SHALL BE 324 SQ IN. MAX SQUARE SIZE SHALL BE 18 IN. BY 18 IN. RECTANGULAR SIZES NOT TO EXCEED 324 SQ IN. WITH A MAX WIDTH OF 18 IN. MAX HEIGHT OF DAMPER SHALL BE 14 IN. AGGREGATE DAMPER OPENINGS SHALL NOT EXCEED 162 SQ IN. PER 100 SQ FT OF CEILING AREA. DAMPER INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS PROVIDED WITH THE DAMPER. A STEEL GRILLE (ITEM 9) SHALL BE INSTALLED IN ACCORDANCE WITH INSTALLATION INSTRUCTIONS. C&S AIR PRODUCTS — MODEL RD-521

3. AIR DUCT\* - (OPTIONAL) - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE

POTTORFF — MODEL CFD-521 . BATTS AND BLANKETS\* - (OPTIONAL WITH ITEMS 7 AND 7B; REQUIRED WITH ITEM 7A) — GLASS FIBER OR MINERAL WOOL INSULATION BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING CHARACTERISTICS AND/OR FIRE RESISTANCE. WHEN THE RESILIENT CHANNELS (ITEM 6) OR FURRING CHANNELS (ITEM 6A, 6O) ARE SPACED 16 IN. OC, THE INSULATION SHALL BE A MAX OF 3-1/2 IN. THICK, AND SHALL BE SECURED AGAINST THE SUBFLOORING WITH STAPLES AT 12 IN. OC OR HELD SUSPENDED IN THE CONCEALED SPACE WITH 0.090 IN. DIAM GALV STEEL WIRES ATTACHED TO THE WOOD TRUSSES AT 12 IN. OC. WHEN THE RESILIENT CHANNELS (ITEM 6) OR FURRING CHANNELS (ITEM 6A, 6O) ARE SPACED A MAX OF 12 IN. OC OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6B) ARE USED, THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION, AND THE INSULATION CAN BE SECURED AGAINST THE SUBFLOORING, HELD SUSPENDED IN THE CONCEALED SPACE OR DRAPED OVER THE RESILIENT OR FURRING CHANNELS (OR STEEL FRAMING MEMBERS) AND GYPSUM PANEL MEMBRANE. WHEN STEEL FRAMING MEMBERS (ITEM 6C) ARE USED, MAX 3-1/2 IN. THICK INSULATION SHALL BE DRAPED OVER THE FURRING CHANNELS (ITEM 6CA) AND GYPSUM BOARD CEILING MEMBRANE, AND FRICTION-FITTED BETWEEN TRUSSES AND STEEL FRAMING MEMBERS (ITEM 6CD). THE FINISHED RATING HAS ONLY BEEN DETERMINED WHEN THE INSULATION IS SECURED TO THE SUBFLOORING.

5.C. CAVITY INSULATION - BATTS AND BLANKETS\* OR FIBER, SPRAYED\* — (REQUIRED FOR ITEM 7C, AS DESCRIBED ABOVE IN ITEMS 5 THROUGH 5B) — MIN. 3-1/2 IN THICK WITH NO LIMIT ON MAXIMUM THICKNESS FITTED IN THE CONCEALED SPACE, DRAPED OVER THE RESILIENT CHANNEL (ITEM 61)/GYPSUM BOARD (ITEM 7C) CEILING

6.F STEEL FRAMING MEMBERS — (NOT SHOWN) — AS AN ALTERNATE TO ITEM 6, FURRING CHANNELS AND STEEL FRAMING MEMBERS\* AS DESCRIBED BELOW: a. FURRING CHANNELS — FORMED OF NO. 25 MSG GALV STEEL, 2-3/8 IN. WIDE BY 7/8 IN. DEEP, SPACED 16 IN. OC PERPENDICULAR TO TRUSSES. WHEN BATT INSULATION (ITEMS 5) IS DRAPED OVER THE RESILIENT CHANNEL/GYPSUM BOARD CEILING MEMBRANE, THE RESILIENT CHANNEL SPACING SHALL BE REDUCED TO 12 IN. OC. CHANNELS SECURED TO TRUSSES AS DESCRIBED IN ITEM B. ENDS OF ADJOINING CHANNELS OVERLAPPED 6 IN. AND TIED TOGETHER WITH DOUBLE STRAND OF NO. 18 SWG GALV STEEL WIRE NEAR EACH END OF OVERLAP. b. STEEL FRAMING MEMBERS\* — USED TO ATTACH FURRING CHANNELS (ITEM A) TO TRUSSES (ITEM 2). CLIPS SPACED 48 IN. OC. GENIECLIPS SECURED TO ALTERNATING JOISTS WITH NO. 8 X 2-1/2 IN. COARSE DRYWALL SCREW THROUGH THE CENTER GROMMET. WHEN INSULATION, ITEMS 5 IS APPLIED OVER THE FURRING CHANNEL/GYPSUM PANEL CEILING MEMBRANE, THE CLIP SPACING SHALL BE REDUCED TO 24 IN. OC AND SECURED TO CONSECUTIVE TRUSSES. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS. ADJOINING CHANNELS ARE OVERLAPPED AS DESCRIBED IN ITEM A. AS AN ALTERNATE, ENDS OF ADJOINING CHANNELS MAY BE OVERLAPPED 6 IN. AND SECURED TOGETHER WITH TWO SELF-TAPPING NO. 6 FRAMING SCREWS, MIN 7/16 IN. LONG AT THE MIDPOINT OF THE OVERLAP, WITH ONE SCREW ON EACH FLANGE OF THE CHANNEL. ADDITIONAL CLIPS REQUIRED TO HOLD FURRING CHANNEL THAT SUPPORTS THE GYPSUM BOARD BUTT JOINTS, AS DESCRIBED IN ITEM 7. NOT EVALUATED FOR USE WITH ITEM

1-HR FLOOR/CEILING OPEN WEB TRUSS AT BALCONIES W/RESILIENT CLIP

. PLITEQ INC — Type GENIECLIP

ANSI 263 UL DESIGN NO. L546

7. GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM BOARD. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED. GYPSUM BOARD INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM BOARD SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM END JOINTS. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN BATT INSULATION (ITEM 5) IS DRAPED OVER THE RESILIENT CHANNEL/GYPSUM BOARD CEILING MEMBRANE, SCREWS SPACING SHALL BE 8 IN. OC. WHEN STEEL FRAMING MEMBERS\* (ITEM 6A, 6F, 6O) ARE USED, GYPSUM BOARD INSTALLED WITH LONG DIMENSION PERPENDICULAR TO FURRING CHANNELS AND SIDE JOINTS OF SHEET LOCATED BENEATH JOISTS, GYPSUM BOARD SECURED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S. BUGLE HEAD SCREWS SPACED 12 IN. OC IN THE FIELD. BUTTED END JOINTS SHALL BE STAGGERED MIN 2 FT WITHIN THE ASSEMBLY, AND OCCUR BETWEEN THE CONTINUOUS FURRING CHANNELS. AT BUTTED END JOINTS, EACH END OF EACH GYPSUM BOARD SHALL BE SUPPORTED BY A SINGLE LENGTH OF FURRING CHANNEL EQUAL TO THE WIDTH OF THE GYPSUM BOARD PLUS 6 IN. ON EACH END. THE TWO FURRING CHANNELS SHALL BE SPACED APPROXIMATELY 3-1/2 IN, OC AND BE ATTACHED TO UNDERSIDE OF THE JOIST WITH ONE CLIP AT EACH END OF THE CHANNEL, SCREW SPACING ALONG THE END JOINT SHALL BE 8 IN. OC.

AMERICAN GYPSUM CO - TYPE AG-C 5/8" FIREBLOC TYPE C SOFFIT GYPSUM BOARD **GEORGIA PACIFIC GYPSUM LLC** - TYPE FG-C 5/8" TOUGHROCK FIREGUARD C SOFFIT BOARD

PABCO GYPSUM - TYPE C 5/8" PABCO GYPSUM SOFFIT BOARD SUPER 'C' TYPE C UNITED STATES GYPSUM CO - TYPES C 5/8" SHEETROCK BRAND MOLD TOUGH FIRECODE C 7.A GYPSUM BOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM BOARD, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM BOARD SECURED WITH 1-1/8 IN. LONG TYPE S BUGLE HEAD SCREWS SPACED 8 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM THE END JOINTS. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN ITEM 7A IS USED, THE INSULATION MUST BE USED AND MUST BE DRAPED OVER THE RESILIENT CHANNEL/GYPSUM BOARD. NATIONAL GYPSUM CO — TYPE FSW-C 5/8" GOLD BOND BRAND XP FIRE-SHIELD C GYPSUM BOARD, TYPE C 7.B GYPSUM BOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED, GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM THE END JOINTS. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE SCREW SPACING SHALL BE REDUCED TO 8 IN. OC. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL.

GORGIA-PACIFIC GYPSUM LLC - TYPE TG-C 5/8" TOUGHROCK FIREGUARD C SOFFIT BOARD PABCO GYPSUM - TYPE C 5/8" PABCO GYPSUM SOFFIT BOARD SUPER 'C' TYPE C UNITED STATES GYPSUM CO - TYPES C 5/8" SHEETROCK BRAND MOLD TOUGH FIRECODE C

CERTAINTEED GYPSUM INC - TYPE C 5/8" EXTERIOR SOFFIT TYPE C

7C. GYPSUM BOARD\* - (AS AN ALTERNATIVE TO ITEMS 7 AND 7B, FOR USE WITH ITEMS 5C AND 6I) — NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM BOARD, INSTALLED AND SECURED AS DESCRIBED IN ITEMS 7 AND 7B BUT WITH MAX SCREW SPACING 8 IN. OC. WHEN USED WITH INSULATION (BATTS AND BLANKETS\* OR FIBER SPRAYED\*) THAT IS INSTALLED OVER THE RESILIENT CHANNEL/GYPSUM BOARD\* CEILING MEMBRANE, THE RESILIENT CHANNELS MAY REMAIN AT 16 IN. OC AND NOT NEED TO BE REDUCED TO 12 IN. OC. UNITED STATES GYPSUM CO — ULIX 5/8" SHEETROCK BRAND ECOSMART PANELS MOLD TOUGH

8. FINISHING SYSTEM - (NOT SHOWN) - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM BOARD. 9. GRILLE - GRILLE, INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PROVIDED WITH THE CEILING

1. COORDINATE MECHANICAL DUCT PENETRATIONS. 2. THE CAVITY OF THE FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS SHALL BE FILLED FULL WITH NON-COMBUSTIBLE INSULATION AS SHOWN ON THE FIRE-RATED ASSEMBLY DETAILS TO BE IN COMPLIANCE WITH NFPA 13 SECTION 8.15.1.2.7 WHICH STATES: CONCEALED SPACES FILLED WITH NON-COMBUSTIBLE INSULATION SHALL NOT REQUIRE SPRINKLER PROTECTION. A MAXIMUM OF 2 INCH AIR GAP AT THE TOP OF THE SPACE SHALL BE PERMITTED. (NFPA 8.15.1.2.7.1).

> Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

designated agent at

WorldHQ@ORBArch.com

1 1/2" = 1'-0"

SCALE:

Contractor must verify all dimensions at project before proceeding with this

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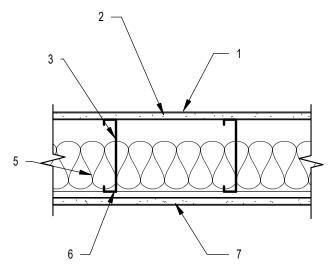
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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

2-HR FLOOR/CEILING ASSEMBLY - FILLED WITH

UL DESIGN No. L505

SCALE: 1 1/2" = 1'-0"



DESIGN NO. U493 BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

1. ROOF COVERING\* - CONSISTING OF HOT-MOPPED OR COLD-APPLICATION MATERIALS WHICH PROVIDE CLASS A, B OR C COVERINGS, DIRECTLY APPLIED TO STRUCTURAL CEMENT-FIBER UNITS(ITEM 2). SEE ROOFING MATERIALS AND SYSTEMS DIRECTORY-ROOF COVERING MATERIALS (TEVT)

**ROOFING SYSTEM - 1-HOUR RATING** 2. STRUCTURAL CEMENT - FIBER UNITS\* - NOM 3/4 IN. THICK, WITH LONG EDGES TONGUE AND GROOVED. LONG DIMENSION OF PANELS TO BE PERPENDICULAR TO JOISTS WITH END JOINTS STAGGERED A MIN OF 2 FT AND CENTERED OVER THE JOISTS. PANELS SECURED TO STEEL JOISTS WITH 1-5/8 IN. LONG NO. 8 SELF-DRILLING, SELF-COUNTERSINKING STEEL SCREWS SPACED A MAX OF 12 IN. OC IN THE FIELD WITH A SCREW LOCATED 1 IN. AND 2 IN. FROM EACH EDGE, AND 8 IN. OC ON THE PERIMETER WITH A SCREW LOCATED 2 IN. FROM EACH EDGE, LOCATED 1/2 IN. FROM THE SIDE EDGES OF THE PANEL.

AS AN ALTERNATE TO THE 1-5/8" LONG NO. 8 FASTENER, THE FOLLOWING POWER-ACTUATED PINS MAY BE USED FOR MIN. 1/8" THICK, HOT-ROLLED A36 STEEL SECTIONS FOR JOIST SPECIFIED IN ITEM 3J:

HILTI PIN MODEL X-U 32MX WITH A MIN. 0.157" SHANK DIAMETER MIN. 1-1/4" LONG, DEWALT PIN MODEL 50458-PWR WITH A MIN. 0.157" SHANK DIAMETER MIN. 1-1/4" LONG OR AEROSMITH MODEL 5324HPG WITH A MIN. 0.145 SHANK DIAMETER MIN. 1-1/4" LONG.

UNRESTRAINED ASSEMBLY RATING IS 1 HOUR WHEN ITEM 3A OR 3B IS USED. UNITED STATES GYPSUM CO - TYPES STRUCTO-CRETE, USGSP

3. STRUCTURAL STEEL MEMBERS - CHANNEL-SHAPED, MIN 10 IN. DEEP WITH MIN 1-5/8 IN. WIDE FLANGES AND 1/2 IN. LONG STIFFENING FLANGES. FABRICATED FROM MIN NO. 16 MSG GALV STEEL. MIN YIELD STRENGTH OF 50,000 PSI. JOISTS SPACED MAX 24 IN. OC. SUPPLIED WITH APPROPRIATE RIM TRACKS OF SAME SIZE AND GAUGE.

3A.STRUCTURAL STEEL MEMBERS - (NOT SHOWN) - AS AN ALTERNATE TO ITEM 3 - FOR MAXIMUM CLEAR SPANS NOT EXCEEDED 8 FT. CHANNEL-SHAPED. MIN 6 IN. DEEP WITH MIN 1-9/16 IN. WIDE FLANGES AND 3/8 IN. LONG STIFFENING FLANGES. FABRICATED FROM MIN NO. 18 MSG GALV STEEL. MIN YIELD STRENGTH OF 33,000 PSI. JOISTS SPACED MAX 24 IN. OC. SUPPLIED WITH APPROPRIATE RIM TRACKS OF SAME SIZE AND GAUGE.

3B.STRUCTURAL STEEL MEMBERS - (NOT SHOWN) - AS AN ALTERNATE TO ITEM 3 - CHANNEL-SHAPED, MIN 8 IN. DEEP WITH MIN 1-9/16 IN. WIDE FLANGES AND 3/8 IN. LONG STIFFENING FLANGES. FABRICATED FROM MIN NO. 16 MSG GALV STEEL. MIN YIELD STRENGTH OF 33,000 PSI. JOISTS SPACED MAX 24 IN. OC. SUPPLIED WITH APPROPRIATE RIM TRACKS OF SAME SIZE AND GAUGE.

4. JOIST BRIDGING - (NOT SHOWN) - FOR USE WITH ITEM 3 AND 3B - INSTALLED IMMEDIATELY AFTER JOISTS ARE ERECTED AND BEFORE CONSTRUCTION LOADS ARE APPLIED. THE BRIDGING CONSISTING OF JOIST SECTIONS CUT TO LENGTH AND PLACED BETWEEN OUTER SUPPORTS, ADJACENT TO OPENINGS AND AT MID SPAN WITH 8 FT OC MAX SPACING. BRIDGING CHANNELS ARE SCREW-ATTACHED AT EACH END TO JOIST WEB USING ANGLE CLIPS. V-BRACING OF 1-1/2 IN. BY 20-GA GALVANIZED STEEL IS SCREW-ATTACHED TO BOTTOM JOIST FLANGE BETWEEN BRIDGING

AND BEFORE CONSTRUCTION LOADS ARE APPLIED. THE BRIDGING CONSISTING OF RIM TRACK SECTIONS CLIT TO LENGTH, WITH TWO 4 IN. LONG FOLDED BACK FLANGES, AND PLACED BETWEEN OUTER SUPPORTS, ADJACENT TO OPENINGS AND AT MID SPAN WITH 10 FT OC MAX SPACING. BRIDGING CHANNELS ARE SCREW-ATTACHED TO EACH OF THE FOUR TOP AND BOTTOM JOIST FLANGES WITH TWO NO. 8 BY 1/2 IN, LONG WAFER HEAD STEEL SCREWS.

4A.JOIST BRIDGING - (NOT SHOWN) - FOR USE WITH ITEM 3A - INSTALLED IMMEDIATELY AFTER JOISTS ARE ERECTED

4B.JOIST BRIDGING - (NOT SHOWN) - FOR USE WITH ITEM 3A AND 3B - 1-1/2 IN. WIDE STRIPS FORMED FROM 20 MSG -

THE STRUCTURAL BRIDGING IS INSTALLED PERPENDICULAR TO AND ON THE BOTTOM SURFACE OF THE JOISTS AT

MID-SPAN WITH ONE #10 X 3/4 IN. LONG HEX HEAD STEEL SCREW AT EACH INTERFACE. 5. BATTS AND BLANKETS\* - GLASS FIBER INSULATION, MIN 3-1/2 IN. THICK, BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS. MIN DENSITY OF 0.5 PCF. THE INSULATION SHALL BE FITTED IN THE CONCEALED SPACE, DRAPED OVER THE RESILIENT CHANNEL (ITEM 6) OR STEEL FRAME MEMBERS (ITEM 6A) AND

GYPSUM BOARD (ITEM 8) CEILING MEMBRANE. SEE BATTS AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. 6. RESILIENT CHANNELS - FORMED OF NO. 25 MSG GALV STEEL, 1/2 IN. DEEP, SPACED MAX 12 IN. OC, PERPENDICULAR TO JOISTS. CHANNEL SPLICES LOCATED BENEATH JOISTS AND OVERLAPPED 4 IN. CHANNELS SECURED TO EACH JOIST WITH ONE 1/2 IN. LONG TYPE S-12 LOW PROFILE STEEL SCREW. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED

OPPOSITE EACH GYPSUM BOARD END JOINT AS SHOWN ON THE ILLUSTRATION ABOVE. ADDITIONAL CHANNELS SHALL

EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF BOARD. 7. GYPSUM WALLBOARD\* - ONE LAYER OF NOM 5/8 IN. THICK BY 48 IN. WIDE GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT/FURRING CHANNELS. GYPSUM PANELS SECURED TO RESILIENT/FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD SCREWS SPACED 8 IN. OC. WITH SCREWS LOCATED 4 IN. FROM AND ON EACH SIDE OF THE GYPSUM PANEL MID-SPAN, AND 1-1/2 IN. FROM SIDE EDGES OF THE BOARD. END JOINTS SECURED TO BOTH RESILIENT/FURRING CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN STEEL FRAMING MEMBERS (ITEM 6B OR 6C) ARE USED, THE BUTT JOINTS IN THE GYPSUM BOARD SHALL BE SUPPORTED BY TWO FURRING CHANNELS. THE TWO FURRING CHANNELS SHALL BE SPACED APPROXIMATELY 3-1/2 IN. OC, AND BE ATTACHED TO UNDERSIDE OF THE JOIST WITH ONE RSIC-1, RSIC-1 (2.75) OR GENIE CLIP AT EACH END OF THE CHANNEL.

UNITED STATES GYPSUM CO - TYPES C, IP-X2, IPC-AR, ULIX

UL DESIGN No. P561

FIRE TEST: IBC 2018 TABLE 722.2.2.1

**SOUND RATING:** NO STC REQUIRED

GNERIC ASSEMBLY:

1-HR FLOOR/CEILING ASSEMBLY - FILLED WITH INSULATION

SLOPE, 1/4" PER 12" MINIMUM

4 44 44

**CONCRETE TYPE** 

SILICEOUS

CARBONATE

LIGHTWEIGHT

SAND-LIGHTWEIGHT

**TABLE 722.2.2.1** 

MINIMUM SLAB THICKNESS, IN.

1 1/2

FIRE RESISTANCE RATING (HOURS)

3.8

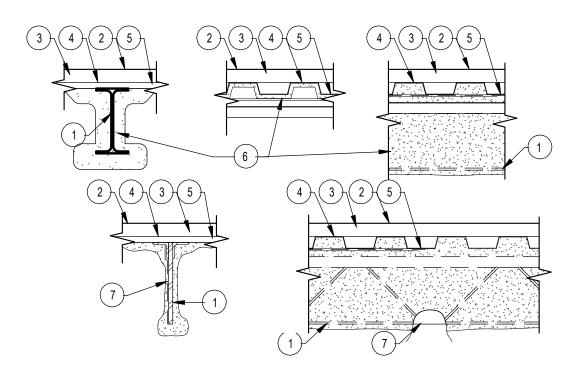
3.6

8. FINISHING SYSTEM — (NOT SHOWN) — VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM

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

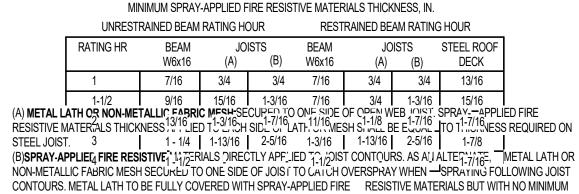
I-HR ROOF/CEILING ASSEMBLY - FILLED WITH INSULATION

3-HR ROOF/CEILING - W/2X FRAMING AT SOFFITS PROPRIETARY ASSEMBLY: November 25, 2019 FIRE TEST: UL DESIGN NO. S721 SOUND RATING: REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY.



1. STEEL SUPPORTS - W6x16 MINIMUM SIZE STEEL BEAM, 10K1, 12K3 OR 14K1 MINIMUM SIZE STEEL JOISTS. NOTE: WHEN 10K1 OR 12K1 JOISTS ARE USED, THEY WILL BE LIMITED TO A MAXIMUM TENSILE STRESS OF 26,000 PSI. 2. ROOF COVERING\* - CONSISTING OF HOT MOPPED, COLD APPLICATION OR SINGLE-PLY MATERIALS, COMPATIBLE WITH INSULATION(S) DESCRIBED HEREIN WHICH PROVIDE CLASS A, B OR C COVERINGS. SEE ROOFING MATERIALS AND SYSTEMS DIRECTORY-ROOF COVERING MATERIALS (TEVT). MECHANICALLY ATTACH WATERPROOFING SYSTEM WITH RYNNO BOND FASTENING SYSTEM, SEE MANUFACTURER SPECIFICATIONS. 3. ROOF INSULATION\* - CONSISTING OF BUILDING UNITS, FOAMED PLASTIC OR MINERAL AND FIBER BOARDS, APPLIED IN ONE OR MORE LAYERS. WHEN MULTIPLE LAYERS ARE USED, END AND SIDE JOINTS SHALL BE OFFSET A MINIMUM OF 12 INCH IN BOTH DIRECTIONS IN ORDER TO LAP ALL JOINTS. SEE CATEGORY FOR NAMES OF COMPANIES PROVIDING CLASSIFIED PRODUCTS - BUILDING UNITS (BZXX), FOAMED PLASTIC (CCVW) OR MINERAL AND FIBER BOARDS (CERZ). ROOF INSULATION SHALL BE COMPATIBLE WITH ROOF COVERING MATERIALS CLASS A, B OR C SYSTEM. SEE ROOFING MATERIALS AND SYSTEMS DIRECTORY-ROOF COVERING MATERIALS (TEVT). MEHCANICALLY FASTENED WITH RHINO BOND SYSTEM. 4. ADHESIVE - (OPTIONAL) - MAY BE APPLIED TO STEEL ROOF DECK UNITS OR BETWEEN INSULATION LAYERS AT A MAX APPLICATION RATE OF 0.4 GALLON PER 100 SQUARE FOOT SEE ADHESIVES (BYWR) CATEGORY FOR NAMES OF

MANUFACTURERS. 5. STEEL ROOF DECK - (UNCLASSIFIED) - FLUTED, NO. 22 MSG MINIMUM GALVANIZED 1-1/2 INCH DEEP WITH 3-1/2 INCH WIDE FLUTES SPACED 6 INCH ON CENTER ENDS OVERLAPPED A MINIMUM 1-1/2 INCH AND WELDED TO SUPPORTS, 12 INCH ON CENTER MAXIMUM ADJACENT UNITS BUTTON-PUNCHED, WELDED OR FASTENED WITH NO. 12 BY 1/2 INCH LONG SELF-DRILLING, SELF-TAPPING STEEL SCREWS 6. SPRAY-APPLIED FIRE RESISTIVE MATERIALS\* — APPLIED BY MIXING WITH WATER AND SPRAYING TO THE BEAM (OR JOIST) AND DECK SURFACES IN ONE OR MORE COATS TO THE FINAL MINIMUM THICKNESSES SHOWN BELOW. CREST AREAS ABOVE THE BEAM (OR JOIST) SHALL BE FILLED WITH THE SPRAY-APPLIED FIRE RESISTIVE MATERIALS. SURFACES MUST BE CLEAN AND FREE OF DIRT, LOOSE SCALE AND OIL. MINIMUM AVERAGE AND MINIMUM INDIVIDUAL DENSITY OF 15 AND 14 PCF, RESPECTIVELY, FOR TYPES 300, 300AC, 300ES, 300HS, 300N, 3000, 3000ES AND SB. FOR TYPES 400AC AND 400ES MINIMUM AVERAGE AND MINIMUM INDIVIDUAL DENSITY OF 22 AND 19 PCF, RESPECTIVELY. MINIMUM AVERAGE DENSITY OF 44 PCF WITH MINIMUM INDIVIDUAL VALUE OF 40 PCF FOR TYPES M-II AND TG. MINIMUM AVERAGE DENSITY OF 47 PCF, WITH MINIMUM INDIVIDUAL VALUE OF 43 PCF FOR TYPE M-II/P. FOR METHOD OF DENSITY DETERMINATION SEE DESIGN INFORMATION SECTION.



THICKNESS REQUIREMENTS. AS AN ALTERNATE TO THE THICKNESS SHOWN ABOVE FOR THE STEEL BEAM, THE THICKNESSES SHOWN IN THE FOLLOWING TABLE ARE APPLICABLE WHEN THE THICKNESS APPLIED TO THE BEAM'S LOWER FLANGE EDGES IS REDUCED BY ONE-HALF. THE MINIMUM THICKNESS APPLIED TO THE LOWER FLANGE EDGES IS 1/4 INCH.

MINIMUM SPRAY-APPLIED FIRE RESISTIVE MATERIALS THICKNESS, IN.							
	RATING HR	UNRESTRAINED BEAM RATING HOUR	UNRESTRAINED BEAM RATING HOUR				
	1	1/2	1/2				
	BERLIN CO LTD - Typ:1-1/20, 300ES, 300N, SB, M:11/16; and M-II/P 9/16						
GREENTECH A	GREENTECH ASIA PAZIFIC SDN BDH - Types 300 <sub>15/16</sub> ES, 300HS, M-II, or M-II/P						
GREENTECH ASIA PA2:IFIC SDN BDH - Types 300 <sub>15</sub> /16ES, 300HS, M-II, or M-II/P 13/16 I GREENTECH THERMAL INSULATION PRODUCTS MFG CO LLC:-Types 300, 300AC, 300AC, 3000, M-II, TG, and M-II ISOLATEK INTERNAT: DNAL:-Types 300, 300AC, 1-7/16, 300HS, 300N, SB, 400AC, 400E1-3/8/000, 3000ES, M-II, TG and M-II/P.							
ISOLATEK INTERNAT: DNALTypes 300, 300AC, 1-1/1123, 300HS, 300N, SB, 400AC, 400EL-1/1500, 3000ES, M-II, TG and M-II/P.							
<b>NEWKEM PRODUCTS4CORP</b> - Types 300, 300ES1-13/16 SB, M-II, TG and M-II/P. 1-13/16							

6A.(AS AN ALTERNATE TO ITEM 6) SPRAY-APPLIED FIRE RESISTIVE MATERIALS\* - APPLIED BY MIXING WITH WATER AND SPRAYING TO THE BEAM (OR JOIST) AND DECK SURFACES IN ONE OR MORE COATS TO THE FINAL MINIMUM THICKNESSES SHOWN BELOW. CREST AREAS ABOVE THE BEAM (OR JOIST) SHALL BE FILLED WITH THE SPRAY-APPLIED FIRE RESISTIVE MATERIALS. SURFACES MUST BE CLEAN AND FREE OF DIRT, LOOSE SCALE AND OIL. MINIMUM AVERAGE AND MINIMUM INDIVIDUAL DENSITY OF 17.5 AND 16 PCF, RESPECTIVELY, FOR TYPE 300TW. MINIMUM AVERAGE AND MINIMUM INDIVIDUAL DENSITY OF 22 AND 19 PCF, RESPECTIVELY, FOR TYPE 400. FOR METHOD OF DENSITY DETERMINATION SEE DESIGN INFORMATION SECTION.

MINIMUM SPRAY-APPLIED FIRE RESISTIVE MATERIALS THICKNESS, IN. UNRESTRAINED BEAM RATING HOUR RESTRAINED BEAM RATING HOUR RATING HR BEAM JOISTS BEAM JOISTS STEEL ROOF (A)METAL LATH OR NONMETALLICW6x16 C MESI(A)ECUR(B) TO ONW6x16 OF OP(A)WEB J(B)T. SPR/DECK-LIED FIRE RESISTIVE MATERIALS THICKNESS7/16'LIED TC3/44CH SIDE 3/4 LATH 7/16MESH SH3/4L BE EQL3/4. TO T113/16VESS REQUIRED ON STEEL JOIST. 1-1/2 9/16 15/16 1-3/16 7/16 3/4 1-1/16 15/16 (B)SPRAY-APPLIED FIRE RESISTIVE MATERIALS DIRECTLY APPLIED 10 JOIST CONTOURS. AS AN ALTERNATE, —METAL LATH OR NON-METALLIC FA<sup>2</sup>RIC MESH SEC(<sup>13/16</sup>) TO 0<sup>1-3/16</sup>DE OF<sup>1-7/16</sup>; TO <sup>11/16</sup>; HOVE(<sup>1-1/8</sup>YAY W<sup>1-5/16</sup>\_ISPR<sup>1-7/16</sup>; FOLLOWING JOIST CONTOURS. META3. LATH TO BE FL1 -. 1/4:0VE1-13/16|TH S2-5/16-APF1-3/16FIRE 1-13/16|STIVE2-1/8ERIAL\$1-7/8| WITH NO MIN THICKNESS REQU'REMENTS. AS AN ALTERNATE TO THE THICLULAS SHOWN ABOVE FOR THE 3-1/2 L BEAM. THE THICKNESSES S. 1-7/16 N IN THE FOLLOWING TABLE ARE APPLICABLE WHEN THE THICKNESS APPLIED TO THE BEAM'S LOWER FLANGE EDGES IS REDUCED BY

MINIMUM SPRAY-APPLIED FIRE RESISTIVE MATERIALS THICKNESS, IN.

7. GLASS FIBER MESH. COPTIONAL) - MINIMUM 3/32 INCH 15/16ARE MESH, COATED FIBERGLA 13/16CRIM FABRIC, WEIGHING A

APPLICATION AND CURING OF THE MATERIAL. AN ACCEPTABLE METHOD -OF-ATTACHING THE WILLYH IS BY EMBEDDING THE

MESH IN MINIMUM 1/4 INCH LONG BEADS OF HOT MELTED GLUE. THE BEADS OF GLUE SHALL BE SPACED MINIMUM 12 INCH ON

CENTER ALONG THE TOP CHORD OF THE BAR JOISTS. ANOTHER METHOD OF ATTACHMENT IS THE USE OF 1-1/4 INCH LONG, 1/2

INCH WIDE HAIRPIN CLIPS FORMED FROM 0.064 INCH DIAMETER STEEL WIRE, ALTERNATING FROM TOP TO BOTTOM OF THE

YARD FASTENED TO ONE SIDE OF JOISTS USING NO. 18 SWG STEEL TIE WIRE, LOCATED AT THE MID-HEIGHT OF EVERY OTHER

WEB MEMBER OR 18 INCH ON CENTER WHICHEVER IS LESS. BOTH SIDES OF LATH MUST BE COMPLETELY COATED WITH SPRAY-

9. BRIDGING - (NOT SHOWN) - MINIMUM 1-1/4 BY 1-1/4 BY 1/8 INCH THICK STEEL ANGLES WELDED TO TOP AND BOTTOM CHORDS

OF EACH JOIST. NUMBER AND SPACING OF BRIDGING ANGLES PER STEEL JOIST INSTITUTE SPECIFICATION. BRIDGING COATED

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL

8. METAL LATH - (OPTIONAL-NOT SHOWN) - DIAMOND MESH, 3/8 INCH EXPANDED STEEL, MINIMUM 1.7 POUND PER SQUARE

ATTACHMENT MUST BE GUFFICIENT TO HOLD THE MESH 1 12/16 PRAY-APPLIED FIRE RESIST 1/2 1/4/4 TERIALS DURING

WITH THE SAME THICKNESS OF SPRAY-APPLIED FIRE RESISTIVE MATERIALS (ITEM 6) AS THE JOIST.

MINIMUM OF 1.9 OUNCE3'ER SQUARE YARD SHALL BE AT1-7/16ED TO ONE SIDE OF EACH JOI:1-3/8/WEB MEMBER. THE METHOD OF

UNRESTRAINED BEAM RATING HOUR

ONE-HALF. THE MINIMUM THICKNESS APPLIED TO THE LOWER FLANGE EDGES IS 1/4 IN.

GREENTECH ASIA PRATING ION BDH - UNRESTRAINED BEAM

ISOLATEK INTERNATIONAL - Types 300TW, 400. 1/2

NEWKEM PRODUCTS<sub>1-1/2</sub>RP - Type 400.

JOIST WEB MEMBER

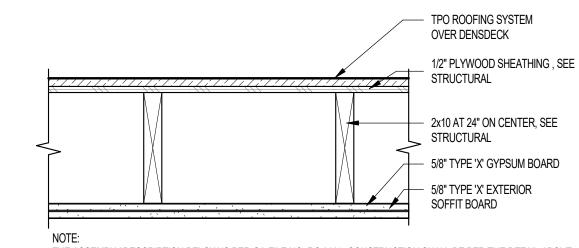
APPLIED FIRE RESISTIVE MATERIALS.

OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

GREENTECH THERMHOUR ULATION PRODRATING HOUR LLC - Type 400.

# 1-HR ROOF/CEILING - W/2X FRAMING AT BALCONIES/STAIRS & ELEVATORS GENERIC ASSEMBLY: June 2021 FIRE TEST: GA FILE NO. RC 2601

SOUND RATING:



THE ASSEMBLY DESCRIPTION BELOW IS PER GA FILE NO. RC 2601. CONSTRUCTION SHALL BE PER THE DETAIL ABOVE WHICH IS AN ENHANCED ROOF/CEILING ASSEMBLY PER OWNER'S REQUEST. BASE: LAYER 5/8 INCH TYPE 'X' GYPSUM WALLBOARD APPLIED AT RIGHT ANGLES TO 2X10 WOOD JOISTS 24 INCH ON CENTER WITH 1-1/4 INCH TYPE 'W' OR 'S' DRYWALL SCREWS 24 INCH ON CENTER. FACE:LAYER 5/8 INCH TYPE 'X' GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO JOISTS WITH 1-7/8 INCH TYPE 'W' OR 'S' DRYWALL SCREWS 12 INCH ON CENTER AT JOINTS AND INTERMEDIATE JOINTS AND 1-1/2 INCH TYPE 'G' SCREWS 12 INCH ON CENTER PLACED 2 INCH BACK ON EITHER SIDE OF END JOINTS. WOOD JOISTS SUPPORTING 1/2 INCH PLYWOOD WITH EXTERIOR GLUE APPLIED AT RIGHT ANGLES TO JOISTS WITH 8d NAILS.

JOINTS OFFSET 24 INCH FROM BASE LAYER JOINTS

APPROPRIATE ROOF COVERING.

APPROX. CEILING WEIGHT: 5 PSI (Fire): FM FC 172, 2-25-72; ITS, 8-6-98

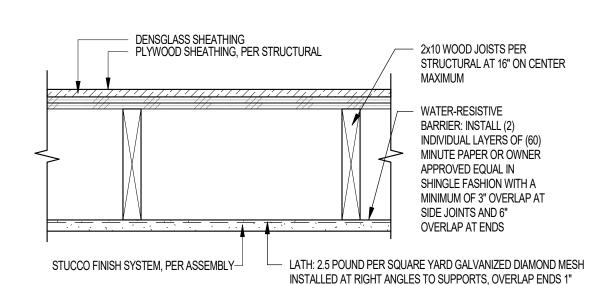
TYPICAL AT BALCONY, STAIRS & ELEVATOR ROOFS

# 1-HR ROOF/CEILING W/ 2x FRAMING OVER BALCONIES

1-HR ROOF/CEILING - W/2X FRAMING AT SOFFITS GENERIC ASSEMBLY FIRE TEST: 2018 IBC TABLE 721.1(3), ITEM 13-1.2

SOUND RATING:

☐ GA FILE NO. RC 2601 GA-600-2021



MINIMUM/ 4" MAXIMUM OVER SUPPORTS & OVERLAP SIDES 1/2" MINIMUM/ 2" MAXIMUM AND WIRE TIE (18 GA. GALVANIZED WIRE PER ASTM A641/641M) AT 6" ON CENTER; ATTACH AT 5" ON CENTER ALONG FRAMING SUPPORTS WITH 1-1/2" LONG GALVANIZED STAPLES

CEMENT OR GYPSUM PLASTER ON METAL LATH, LATH FASTENED WITH 1-1/2 INCH BY NO. 11 GAUGE BY 7/16 INCH HEAD BARBED SHANK ROOFING NAILS SPACED 5 INCH ON CENTER. PLASTER MIXED 1:2 FOR SCRATCH COAT AND 1:3 FOR BROWN COAT, BY WEIGHT, CEMENT TO SAND AGGREGATE.

THE DETAIL ABOVE WHICH IS AN ENHANCED ROOF/ CEILING ASSEMBLY PER OWNER'S REQUEST

THE ASSEMBLY DESCRIPTION BELOW IS PER 2018 IBC TABLE 721.1(3), ITEM 13-1.2. CONSTRUCTION SHALL BE PER

m. DOUBLE WOOD FLOOR SHALL BE PERMITTED TO BE EITHER OF THE FOLLOWING: (a) SUBFLOOR OF 1 INCH NOMINAL BOARDING, A LAYER OF ASBESTOS PAPER WEIGHING NOT LESS THAN 14 POUNDS PER 100 SQUARE FOOT AND A LAYER OF 1 INCH NOMINAL TONGUE-AND-GROOVE FINISHED FLOORING. (b) SUBFLOOR OF 1 INCH NOMINAL TONGUE-AND-GROOVE BOARDING OR 15/32 INCH WIDE. STRUCTURAL PANELS WITH EXTERIOR GLUE AND A LAYER OF 1 INCH NOMINAL TONGUE-AND-GROOVE FINISHED FLOORING OR 19/32 INCH WIDE. STRUCTURAL PANEL FINISH FLOORING OR A LAYER OF TYPE I GRADE M-1 PARTICLEBOARD NOT LESS THAN 5/8 INCH THICK.

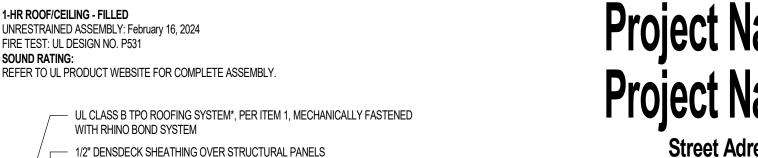
n. THE CEILING SHALL BE PERMITTED TO BE OMITTED OVER UNUSABLE SPACE, AND FLOORING SHALL BE PERMITTED TO BE OMITTED WHERE UNUSABLE SPACE OCCURS ABOVE.

1-HR ROOF/CEILING W/ 2x FRAMING AT SOFFITS

2018 IBC TABLE 721.1(3), ITEM 13-1.2

SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"



SLOPE, 1/4" PER 12" MINIMUM

1-HR ROOF/CEILING - FILLED

SOUND RATING:

FIRE TEST: UL DESIGN NO. P531

TRUSS PER STRUCTURAL AND ITEM 2

AIR DUCT\* PER

MECHANICAL AND ITEM #4

BELOW - COORDINATE

MANUFACTURER COMPLIANCE

**END JOINT DETAIL** 

DAMPER PER MECHANICAL & ITEM #5

WALLBOARD JOINT

WorldHQ@ORBArch.com

**PRELIMINARY** 



BXUV - FIRE RESISTANCE RATINGS - ANSI/UL 263 CERTIFIED FOR UNITED

DESIGN NO. U493

. ROOFING SYSTEM\* - ANY UL CLASS A, B OR C ROOFING SYSTEM (TGFU) OR PREPARED ROOF COVERING (TFWZ)

ACCEPTABLE FOR USE OVER NOM 15/32 IN. THICK WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING".

NOM 15/32 IN. THICK WOOD STRUCTURAL PANELS SECURED TO TRUSSES WITH CONSTRUCTION ADHESIVE AND NO. 6D

ITEM #8 BELOW

FILL TRUSS SPACE WITH

PER ITEM #3B -

UNFACED BATT INSULATION\*

RESILIENT CHANNELS, AT

AT EXTERIOR CONDITIONS -

12" ON CENTER, PER ITEM 6A -

USG 5/8" TYPE ULIX GYPSUM WALLBOARD\* WITH 1" TYPE

BELOW; USE 5/8" TYPE ULIX MOLD TOUGH SHEETROCK

S SCREWS AT 8" ON CENTER PER ITEM 7A

18" DEEP PARALLEL CHORD TRUSSES PER

CLARK DIETRICH OR OWNER APPROVED

EQUAL AT 12" ON CENTR PER ITEM #6A BELOW

USG 5/8" TYPE ULIX GYPSUM WALLBOARD\* WITH 1" TYPE 'S'

SCREWS AT 8" ON CENTER PER ITEM 7A AND FINISHED PER

STRUCTURAL AND ITEM #2 BELOW

RC DELUXE RESILIENT CHANNELS BY

BELOW AND FINISHED PER ITEM #8

RINGED SHANK NAILS. NAILS SPACED 12 IN. OC ALONG EACH TRUSS. STAPLES HAVING EQUAL OR GREATER WITHDRAWAL AND LATERAL RESISTANCE STRENGTH MAY BE SUBSTITUTED FOR THE 6D NAILS. . TRUSSES - PITCHED CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. TRUSS MEMBERS SECURED TOGETHER MIN.0.0356 IN. THICK GALV STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOTH HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROXIMATELY 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH. WHERE PITCHED TRUSS INTERSECTS WITH THE INTERIOR FACE OF THE EXTERIOR WALLS, THE MIN TRUSS DEPTH SHALL BE 5-1/4 IN. WITH A MIN ROOF SLOPE OF 3/12 AND A MIN. AVERAGE DEPTH OF 18 IN. WHERE THE TRUSS INTERSECTS WITH THE INTERIOR FACE OF THE EXTERIOR WALLS, THE MIN TRUSS DEPTH MAY BE REDUCED TO 3 IN. IF THE BATTS AND BLANKETS (ITEM 3) ARE USED AS SHOWN IN THE ABOVE ILLUSTRATION (ALTERNATE INSULATION PLACEMENT) AND ARE FIRMLY PACKED AGAINST THE

INTERSECTION OF THE BOTTOM CHORDS AND THE PLYWOOD SHEATHING 3. BATTS AND BLANKETS - (OPTIONAL) -GLASS FIBER INSULATION, SECURED TO THE WOOD STRUCTURAL PANELS WITH STAPLES SPACED 12 IN. OC OR TO THE TRUSSES WITH 0.090 IN. DIAM GALV STEEL WIRES SPACED 12 IN. OC. 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. AS AN OPTION, THE INSULATION MAY BE FITTED IN THE CONCEALED SPACE. DRAPED OVER THE RESILIENT CHANNEL/GYPSUM WALLBOARD CEILING MEMBRANE WHEN RESILIENT CHANNELS AND GYPSUM WALLBOARD ATTACHMENT IS MODIFIED AS SPECIFIED IN ITEMS 6 AND 7. THE FINISHED RATING HAS ONLY BEEN DETERMINED WHEN THE INSULATION IS SECURED TO THE DECKING.

3B.CAVITY INSULATION - BATTS AND BLANKETS\* OR LOOSE FILL MATERIAL\* - (AS DESCRIBED ABOVE IN ITEM 3) - FOR USE WITH ITEM 7A - MINIMUM 3-1/2 INCH THICK WITH NO LIMIT ON MAXIMUM THICKNESS FITTED IN THE CONCEALED SPACE. DRAPED OVER THE RESILIENT CHANNEL (ITEM 6A)/GYPSUM WALLBOARD (ITEM 7A) CEILING MEMBRANE. 4. AIR DUCT\* - ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER. 5. DAMPER\* - MAX NOM 20 IN. LONG BY 18 IN. WIDE BY 2-1/8 IN. HIGH, FABRICATED FROM GALVANIZED STEEL. PLENUM BOX MAXIMUM SIZE NOM. 21 IN. LONG BY 18 IN. WIDE BY 16 IN. HIGH FABRICATED FROM EITHER GALAVANIZED STEEL OR CLASSIFIED AIR DUCT MATERIALS BEARING THE UL CLASS 0 OR CLASS 1 RIGID AIR DUCT MATERIAL. INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE MANUFACTURER. MAX DAMPER OPENINGS NOT TO EXCEED 180

SQ IN. PER 100 SQ FT OF CEILING AREA. NAILOR INDUSTRIES INC — TYPES 0755, 0755A, 0756, 0756D, 0757, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762, 0763, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP. SAFE AIR DOWCO — 0455, 0455A, 0456, 0456D, 0457, 0457D, 0457-DB, 0457-CB, 0463-FB, 0457-EB, 0463-GB, 0463

6. RESILIENT CHANNELS - RESILIENT CHANNELS FORMED OF 25 MSG THICK GALV STEEL, SPACED 16 IN. OC, INSTALLED PERPENDICULAR TO TRUSSES. WHEN BATT AND BLANKET MATERIAL, ITEM 3, IS DRAPED OVER THE RESILIENT CHANNEL/GYPSUM WALLBOARD CEILING MEMBRANE. OR WHEN INSULATION (ITEM 3C) IS APPLIED TO THE UNDERSIDE OF THE ROOFING SYSTEM (ITEM 1), THE SPACING SHALL BE 12 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-1/4 IN. LONG TYPE S STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. CHANNELS ORIENTED OPPOSITE AT WALLBOARD BUTT JOINTS (SPACED 6 IN. OC) AS SHOWN IN THE ABOVE ILLUSTRATION. 6A.RESILIENT CHANNELS - FOR USE WITH ITEM 7A - FORMED FROM MIN 25 MSG GALV STEEL INSTALLED PERPENDICULAR TO TRUSSES AND SPACED 16 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-5/8 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC. ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT. ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL INSULATION, ITEM 3B IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL 7. GYPSUM WALLBOARD\* - NOMINAL 5/8 INCH THICK, 48 INCH WIDE, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS WITH 1 INCH LONG TYPE S SCREWS SPACED 12 INCH ON CENTER AND LOCATED A MINIMUM OF 1/2 INCH FROM SIDE JOINTS AND 3 INCH FROM THE END JOINTS. AT END JOINTS, TWO RESILIENT CHANNELS ARE USED. EXTENDING A MINIMUM OF 6 INCH BEYOND BOTH ENDS OF THE JOINT. WHEN LOOSE FILL MATERIAL INSULATION, ITEM 3A, IS INSTALLED OVER THE RESILIENT CHANNEL/GYPSUM WALLBOARD CEILING MEMBRANE, SCREWS SHALL BE INSTALLED

. UNITED STATES GYPSUM CO - TYPE C 7A.GYPSUM WALLBOARD\* - NOM 5/8 IN. THICK, 48 IN. WIDE, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS WITH 1 IN. LONG TYPE S SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM THE END JOINTS. AT END JOINTS, TWO RESILIENT CHANNELS ARE USED, EXTENDING A MIN OF 6 IN. BEYOND BOTH ENDS OF THE JOINT. WHEN BATT AND BLANKET INSULATION, ITEM 3, IS DRAPED OVER THE RESILIENT CHANNEL/GYPSUM WALLBOARD CEILING MEMBRANE. SCREWS SHALL BE INSTALLED AT 8 IN. OC. WHEN INSULATION (ITEM 3C) IS INSTALLED IN THE CONCEALED SPACE, SPRAY-APPLIED TO THE UNDERSIDE OF THE ROOFING SYSTEM (ITEM 1), SCREWS ARE SPACED A MAX OF 8 IN. OC ALONG RESILIENT CHANNELS, FASTENERS ARE INCREASED IN LENGTH TO 1-1/4 IN, AND GYPSUM BOARD BUTT JOINTS SHALL BE STAGGERED MIN. 2 FT WITHIN THE ASSEMBLY, AND OCCUR BETWEEN THE MAIN FURRING CHANNELS. 8. FINISHING SYSTEM - (NOT SHOWN) - VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW-HEADS; PAPER TAPE, 2 IN. WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN

ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM WALLBOARD.

\*INDICATES SUCH PRODUCTS SHALL BEAR THE UL

UL DESIGN P531

SCALE: 1 1/2" = 1'-0"

AT 8 INCH ON CENTER.

APPLICATIONS OF THIS ROOF ASSEMBLY AT BUILDINGS 3 & 4 SHALL ADHERE TO THE FOLLOWING CONSTRAINTS: VALLEY = TOP OF ROOF SHEATHING AT 00'-0" ABOVE LEVEL 1 RIDGE = TOP OF ROOF SHEATHING NOT TO EXCEED 00'-0" ABOVE LEVEL 1

ceil1-HR ROOF/CEILING ASSEMBLY - FILLED WITH INSULATION

Notice of alternate billing (or payment) cycle

This contract allows (may allow) the owner to require the submission of billings or estimates in billing

cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

3-COAT STUCCO SYSTEM - (7/8 INCH THICK) 3/8 INCH SCRATCH COAT, 3/8 INCH THICK BROWN COAT, 1/8 INCH THICK

. WATER-RESISTIVE BARRIER - INSTALL (2) INDIVIDUAL LAYERS OF SUPER (60) MINUTE PAPER OR OWNER APPROVED

. PRE-FLASH MEMBRANE - (2) LAYERS OF 40 MIL SAFF OR OWNER APPROVED EQUAL ACROSS ENTIRE SURFACE IN SHINGLE FASHION WITH MINIMUM 3 INCH OVERLAP ALONG LENGTH AND 5 INCH OVERLAP AT END JOINTS - EXTEND DOWN 4 INCH AT VERTICAL SURFACES AND OVERLAP FIRST LAYER OF WATER-RESISTIVE BARRIER: EXTEND UP 6 INCH

AT VERTICAL SURFACES UNDER FIRST LAYER OF WATER-RESISTIVE BARRIER AT STUCCO OR UNDER WINDOW

4. SELF-FURRING LATH - 17 GAUGE X 1-1/2 INCH WOVEN WIRE - LAPS SHALL BE A MINIMUM OF 1-1/2 INCH AT SIDES AND

5. WOOD SHEATHING - 1/2 INCH PLYWOOD OR OSB PER STRUCTURAL WITH 1/8 INCH GAP AT EDGES TO ALLOW FOR

ENDS - ATTACH WITH STAPLES AT 6 INCH ON CENTER ALONG FRAMING MEMBER ONLY: ROUND OR FLATTENED 0.054

INCH DIAMETER (16 GAUGE) WIRE, 3/4 INCH CROWN; 7/8 INCH LEGS FOR FLAT LATHS OR 1-1/4 INCH LEGS FOR 3/8 INCH RIB LATH WITH MINIMUM PENETRATION INTO SUPPORT OF 3/4 INCH ENGAGING NOT LESS THAN THREE STRANDS OF

EQUAL HORIZONTALLY IN SHINGLE FASHION WITH A MINIMUM OF 3 INCH OVERLAP AT HORIZONTAL JOINTS AND A 6 INCH

INTEGRAL COLOR ACRYLIC FINISH COAT - COLOR TEXTURE AS SELECTED BY OWNER/ARCHITECT

FLASHING SYSTEM AT WINDOWS. ROLL WITH 75 POUND RUBBER FACED ROLLER.

6. 2X WOOD FRAMING, PER STRUCTURAL PER STRUCTURAL.

OVERLAP AT VERTICAL JOINTS.

3-COAT STUCCO SYSTEM AT WOOD FRAMED SHELF

NOT TO SCALE

RE 07 ROOF ASSEMBLY ABOVE POST TENSION CONCRETE SLAB

UL CLASS "B" TPO ROOFING SYSTEM ON

EQUAL, MECHANICALLY FASTENED WITH

TAPERED TO MAINTAIN REQUIRED SLOPE;

DENSDECK OR OWNER APPROVED

HIGH DENSITY RIGID INSULATION,

- PRESTRESSED CONCRETE ROOF

RHINOBOND SYSTEM

R-25ci MIN

SCALE: 1 1/2" = 1'-0" UL DESIGN NO. S721

 $\left[egin{array}{c|c} \mathsf{R5} & \mathsf{0} & \mathsf{non} \ \mathsf{nated} \ \mathsf{roof} \ \mathsf{assembly} \end{array}
ight]$ 

 $ig( \mathsf{R5} \, | \, \mathsf{2} \, | \, \mathsf{2}$  -hour rated roof assembly

1-HOUR RATED ROOF ASSEMBLY

3-HR RATED ROOF ASSEMBLY

GYPSUM WALLBOARD, PER ASSEMBLY

NON-RATED ROOF/CEILING

REFER TO UL PRODUCT WEBSITE FOR COMPLETE ASSEMBLY

GENERIC ASSEMBLY

UL CLASS B TPO

STRUCTURAL -

FILL TRUSS SPACE

WITH INSULATION

ROOFING SYSTEM

PLYWOOD SHEATHING, PER STRUCTURAL

PREFAB WOOD TRUSSES PER

FIRE TEST:

SOUND RATING:

NON RATED ROOF/ CEILING

# TOP OF WALL JOINT: GYPSUM WALL ASSEMBLY

ASSEMBLY RATING = 1-HOUR OR 2-HOUR (DEPENDING ON RATING OF WALL AND FLOOR ASSEMBLY) CLASS II MOVEMENT CAPABILITIES - 19% COMPRESSION OR EXTENSION L-RATING AT AMBIENT = LESS THAN 1 CFM / LIN FT (SEE NOTE NO. 2 BELOW) L-RATING AT 400° F = LESS THAN 1 CFM / LIN FT (SEE NOTE NO. 2 BELOW)

SECTION A-A

1. CONCRETE FLOOR ASSEMBLY (1-HOUR OR 2-HOUR FIRE-RATING):

A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL ASSEMBLY (MINIMUM 4-1/2 INCH THICK).

B. ANY UL/CUL CLASSIFIED PRE-CAST HOLLOW CORE CONCRETE FLOOR ASSEMBLY (MINIMUM 6 INCH THICK). 2. GYPSUM WALL ASSEMBLY UL/cUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HOUR OR 2-HOUR FIRE-RATING) (2-HOUR SHOWN).

3. CEILING RUNNER (MINIMUM 25 GAUGE, FLANGE HEIGHT OF CEILING RUNNER SHALL BE MINIMUM 1/4 INCH GREATER THAN MAXIMUM EXTENDED JOINT WIDTH) FASTENED TO UNDERSIDE OF CONCRETE FLOOR WITH STEEL MASONRY ANCHORS OR STEEL FASTENERS (SPACED MAXIMUM 24 INCH ON CENTER) SEE NOTE BELOW.

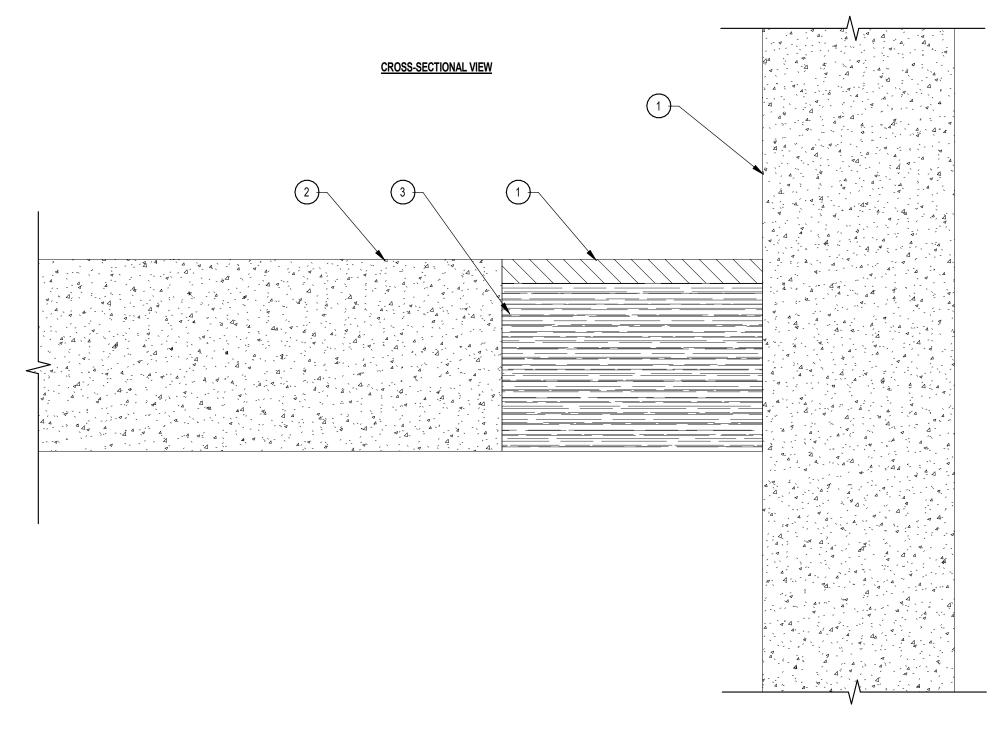
4. STEEL STUDS (MINIMUM 3-1/2 INCH WIDE), CUT 1/2 INCH TO 3/4 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT, NESTING IN CEILING RUNNER WITHOUT ATTACHMENT. 5. MINIMUM 5/8 INCH DEPTH HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT, CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT.

1. AS AN ALTERNATE TO CEILING RUNNER IN ITEM NO.3, SLOTTED CEILING RUNNERS MAY BE USED. CONSULT THE UL FIRE RESISTANCE DIRECTORY FOR

APPROVED MANUFACTURERS. 2. L-RATING ONLY APPLIES WHEN HILTI CP 606 FLEXIBLE FIRESTOP SEALANT IS USED. 3. [OPTIONAL, NOT SHOWN] MINERAL WOOL, FIBERGLASS, OR POLYURETHANE/POLYETHYLENE FOAM BACKER ROD MAY BE USED AS A BACKER IN 2-HOUR.

**UL/cUL SYSTEM NO. FW-D-1037** FIRE-RATED JOINT THROUGH CONCRETE FLOOR ASSEMBLY

ASSEMBLY RATING = 2-HOUR. CLASS MOVEMENT CAPABILITIES = 10% COMPRESSION OR EXTENSION



1. CONCRETE WALL ASSEMBLY (2-HOUR FIRE-RATING). A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 4-1/2 INCH THICK).

B. ANY UL CLASSIFIED CONCRETE BLOCK WALL.

2. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2 INCH THICK) (2-HOUR. FIRE-RATING). 3. MINIMUM 4 INCH THICKNESS MINERAL WOOL SAFING (MINIMUM 4 PCF DENSITY) COMPRESSED 50%.

4. MINIMUM 1/2 INCH DEPTH HILTI CP 604 SELF-LEVELING FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, OR HILTI CFS-S SIL SL FIRESTOP SILICONE SEALANT.

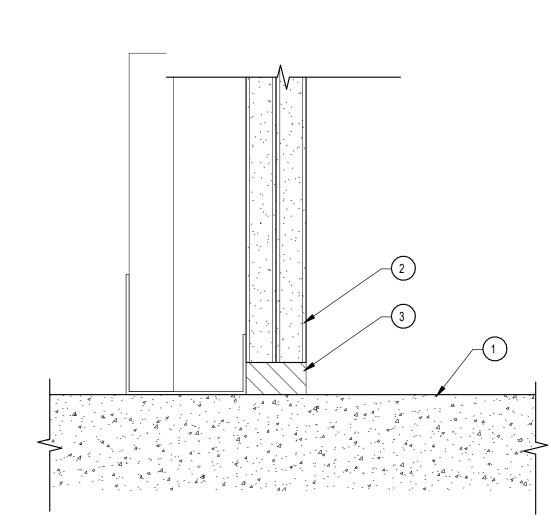
1. MAXIMUM WIDTH OF JOINT = 6 INCH

UL/cUL SYSTEM NO. BW-S-0023

February 02, 2022

BOTTOM OF WALL JOINT: GYPSUM SHAFT WALL ASSEMBLY ASSEMBLY RATING 1-HOUR OR 2-HOUR

CROSS SECTIONAL VIEW



1. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR ASSEMBLY (MINIMUM 2-1/2" THICK) (1-HR. OR2-HR. FIRE-RATING). 2. GYPSUM SHAFT WALL ASSEMBLY (UL/cUL CLASSIFIED U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. "J" SHAPED CEILING RUNNER, MINIMUM 2-1/2" WIDE WITH LEGS OF 1-1/4" AND 2" (MINIMUM 24 GA.) FASTENED TO TOP SIDE OF CONCRETE FLOOR WITH STEEL FASTENERS AT LOCATION NOTGREATER THAN 2"

FROM ENDS AND MAXIMUM 24" O.C. B. "C-H" SHAPED STUDS (MINIMUM 2-1/2" WIDE, MINIMUM 25 GA.) CUT 3/8" TO 1/2" LESS IN LENGTHTHAN ASSEMBLY HEIGHT. C. NOMINAL 1" THICK GYPSUM LINER PANEL. TYPE AND SHEET ORIENTATION AS SPECIFIED IN THEINDIVIDUAL UL/CUL DESIGN.

D. NOMINAL 1/2" OR 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEETORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL/cul design. 3. HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, ORHILTI CP 605 BOTTOM OF WALL FIRESTOP SEALANT INSTALLED THE FULL DEPTH OF GYPSUM BOARDAND FLUSH

WITH THE FINISH SIDE OF WALL (SEE NOTES NO. 1 AND 2 BELOW).

MAXIMUM WIDTH OF JOINT [FOR HILTI CP 606] = 1 INCH
 MAXIMUM WIDTH OF JOINT [FOR HILTI CP 605] = 3/4 INCH

TOP OF WALL JOINT- GYPSUM WALL ASSEMBLY

FIRE-RATED JOINT THROUGH CONCRETE FLOOR

NOT TO SCALE

NOT TO SCALE

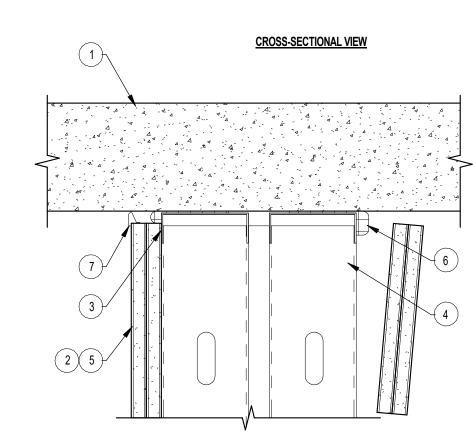
BOTTOM OF WALL JOINT AT GYPSUM SHAFT WALL

NOT TO SCALE

UL/cUL SYSTEM NO. HW-D-0758

TOP OF WALL JOINT: GYPSUM CHASE WALL ASSEMBLY

ASSEMBLY RATING = 1-HOUR OR 2-HOUR L-RATING AT AMBIENT = LESS THAN 1 CFM / LIN FT L-RATING AT 400° F = LESS THAN 1 CFM / LIN FT CLASS II AND II MOVEMENT CAPABILITIES - 50% COMPRESSION OR EXTENSION OR 66% COMPRESSION ONLY (SEE NOTES NO. 2 AND 3 BELOW)



1. CONCRETE FLOOR ASSEMBLY (1-HOUR OR 2-HOUR FIRE-RATING):

A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL ASSEMBLY (MINIMUM 4-1/2 INCH THICK). B. ANY UL/cul Classified Pre-Cast (Hollow Core) Concrete Floor (MINIMUM 6 INCH THICK).

2. GYPSUM CHASE(DOUBLE STUD) WALL ASSEMBLY UL/CUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HOUR OR 2-HOUR FIRE-RATING) (2-HR. SHOWN) 3. CEILING RUNNER (MINIMUM 25 GAUGE, FLANGE HEIGHT OF CEILING RUNNER SHALL BE MINIMUM 1/4 INCH GREATER THAN MAXIMUM EXTENDED JOINT WIDTH) FASTENED TO UNDERSIDE OF

CONCRETE FLOOR WITH MASONRY ANCHORS OR STEEL FASTENERS (SPACED MAXIMUM 24 INCH ON CENTER) (SEE NOTE NO. 1 BELOW). 4. STEEL STUDS (MINIMUM 2-1/2 INCH WIDE), CUT 3/4 INCH TO 1 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT WITH BOTTOM NESTING IN CEILING RUNNER WITHOUT ATTACHMENT. 5. 5/8 INCH OR 1-1/4 INCH THICKNESS GYPSUM WALLBOARD AS SPECIFIED IN THE INDIVIDUAL UL DESIGN. TOP ROW OF SCREWS SHALL BE INSTALLED INTO STUD 1 INCH TO 1-1/2 INCH BELOW THE

6. HILTI CFS-TTS 358, CFS-TTS 600, OR CFS-TTS OS TOP TRACK SEAL INSTALLED OVER CEILING RUNNER PRIOR TO ATTACHMENT TO UNDERSIDE OF CONCRETE FLOOR IN ACCORDANCE WITH THE

ACCOMPANYING INSTALLATION INSTRUCTIONS.

7. [OPTIONAL] PVC WALL MOUNTED DEFLECTION BEAD (BY TRIM-TEX INC. INSTALLED PER MANUFACTURER'S INSTRUCTIONS. DEFLECTION BEAD INSTALLED ON ONE OR BOTH SIDES OF WALL.

1. AS AN ALTERNATE TO CEILING RUNNER IN ITEM NO.3, SLOTTED CEILING RUNNERS MAY BE USED. CONSULT THE UL FIRE RESISTANCE DIRECTORY FOR

2. TO ACCOMODATE MAX. 50% COMPRESSION OR EXTENSION MAXIMUM WIDTH OF JOINT = 1/2 INCH. 3. TO ACCOMODATE MAX. 66% COMPRESSION ONLY MAXIMUM WIDTH OF JOINT = 3/4 INCH.

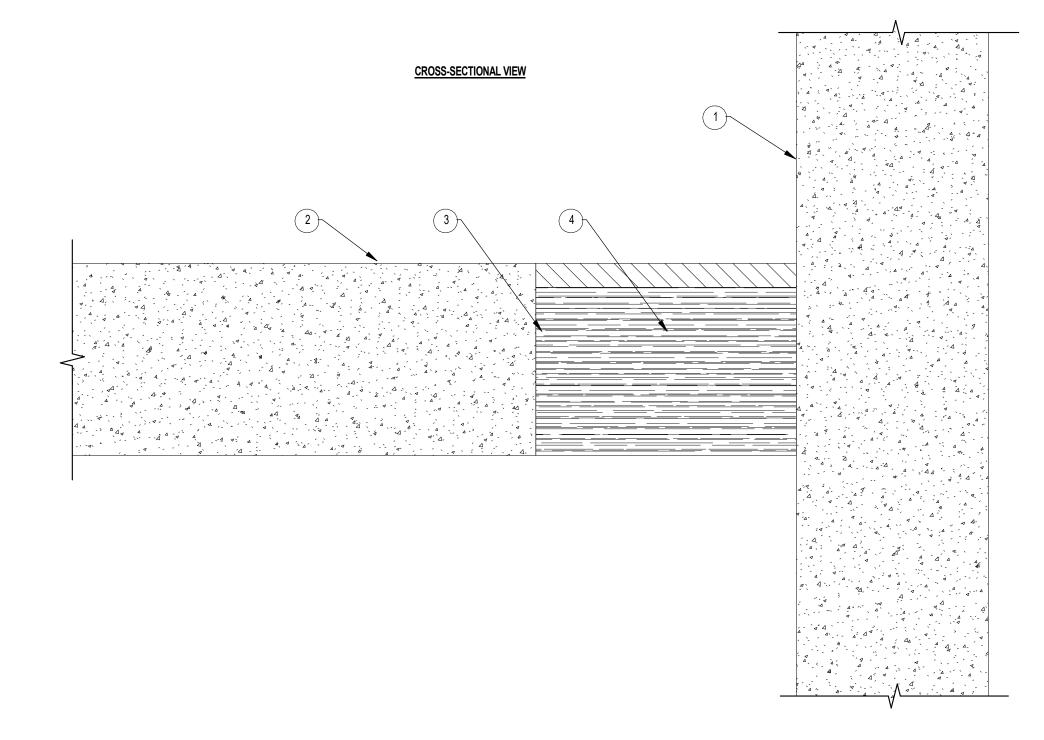
TOP OF WALL JOINT- GYPSUM CHASE WALL ASSEMBLY

APPROVED MANUFACTURERS.

UL/cUL SYSTEM NO. FW-D-1092

FIRE-RATED JOINT THROUGH CONCRETE FLOOR ASSEMBLY

ASSEMBLY RATING = 4-HOUR. L-RATING AT AMBIENT = LESS THAN 1 CFM / LIN FT L-RATING AT 400° F = LESS THAN 1 CFM / LIN FT CLASS MOVEMENT CAPABILITIES = 12.5% COMPRESSION OR EXTENSION



1. CONCRETE WALL ASSEMBLY (4-HOUR. FIRE-RATING). A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 5-1/2 INCH THICK). B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL. 2. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 5-1/2 INCH THICK) (2-HOUR FIRE-RATING). 3. MINIMUM 5 INCH THICKNESS MINERAL WOOL SAFING (MINIMUM 4 PCF DENSITY) COMPRESSED 50% AND RÉCESSED TO ACCOMMODATE FIRESTOP SEALANT. 4. MINIMUM 1/4 INCH DEPTH HILTI CFS-S SIL GG OR CFS-S SIL SL FIRESTOP SILICONE SEALANT, FLUSH WITH THE TOP SURFACE OF FLOOR.

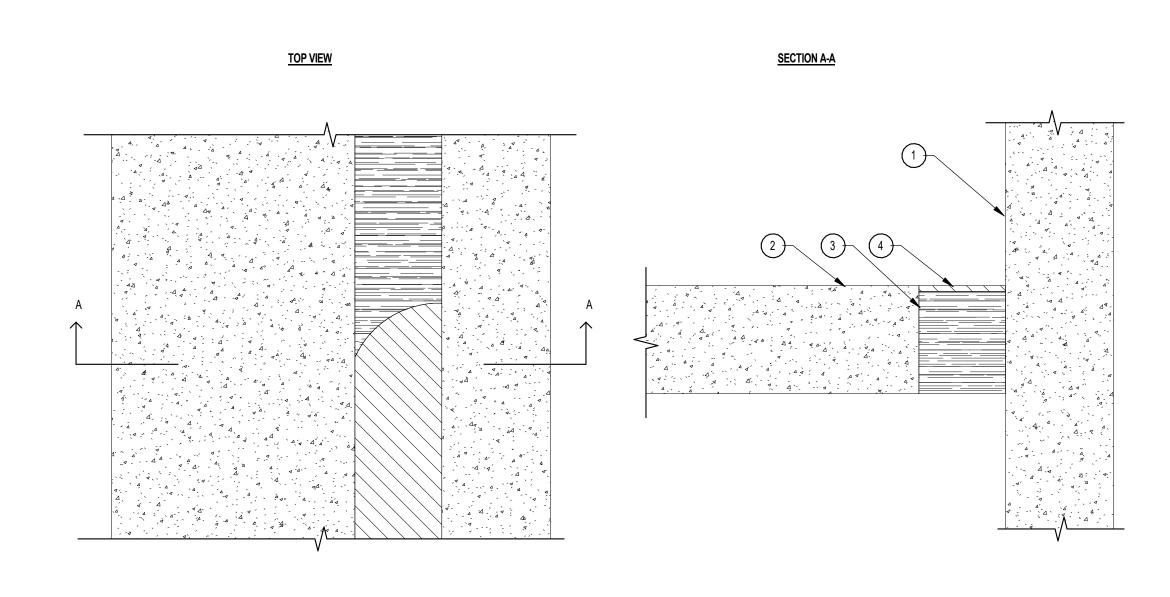
1. MAXIMUM WIDTH OF JOINT = 3 INCH

UL/cUL SYSTEM NO. FW-D-1011

FIRE-RATED JOINT THROUGH CONCRETE FLOOR ASSEMBLY

F-RATING = 3-HOUR

CLASS II MOVEMENT CAPABILITIES - 14% COMPRESSION OR EXTENSION



1. CONCRETE WALL ASSEMBLY (3-HR. FIRE-RATING):

A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 4-1/2 INCH THICK)

B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.

2. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2 INCH THICK) (3-HOUR FIRE-RATING). 3. MINIMUM 4-1/4 INCH THICKNESS MINERAL WOOL SAFING (MINIMUM 4 PCF DENSITY) COMPRESSED MINIMUM 42%. 4. MINIMUM 1/4 INCH DEPTH HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, HILTI 601S ELASTOMERIC FIRESTOP SEALANT, OR HILTI CFS-S SIL SL FIRESTOP SILICONE SEALANT

1. MAXIMUM WIDTH OF JOINT = 3-1/2 INCH

FIRE-RATED JOINT THROUGH CONCRETE FLOOR

NOT TO SCALE

2ND BUILDING SUBMITTAL

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

CLIENT ADDRESS CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

Architect. The drawings and specifications are instruments of service and shall remain the property of the

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REVISIONS/SUBMITTALS

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**PRELIMINARY** 

CONSTRUCTION

FIRE-RATED JOINT THROUGH CONCRETE FLOOR

NOT TO SCALE

**ASSEMBLY** 

NOT TO SCALE

ASSEMBLY

1. WALL ASSEMBLY — MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) STRUCTURAL CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. FLOOR ASSEMBLY — MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) STRUCTURAL CONCRETE. 3. JOINT SYSTEM — MAX SEPARATION BETWEEN EDGE OF FLOOR AND FACE OF WALL (AT TIME OF INSTALLATION OF JOINT SYSTEM) IS 3-1/2 IN. THE JOINT SYSTEM IS DESIGNED TO ACCOMMODATE A MAX 14 PERCENT IN COMPRESSION OR EXTENSION FROM ITS INSTALLED WIDTH. THE JOINT SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. FORMING MATERIAL — MIN 4 PCF MINERAL WOOL BATT INSULATION INSTALLED IN JOINT OPENING AS A PERMANENT

FORM. PIECES OF BATT CUT TO MIN WIDTH OF 4-1/4 IN. AND INSTALLED EDGE-FIRST INTO JOINT OPENING, PARALLEL WITH JOINT DIRECTION, SUCH THAT BATT SECTIONS ARE COMPRESSED MIN 42 PERCENT IN THICKNESS AND THAT THE COMPRESSED BATT SECTIONS ARE RECESSED FROM TOP SURFACE OF THE FLOOR AS REQUIRED TO ACCOMMODATE

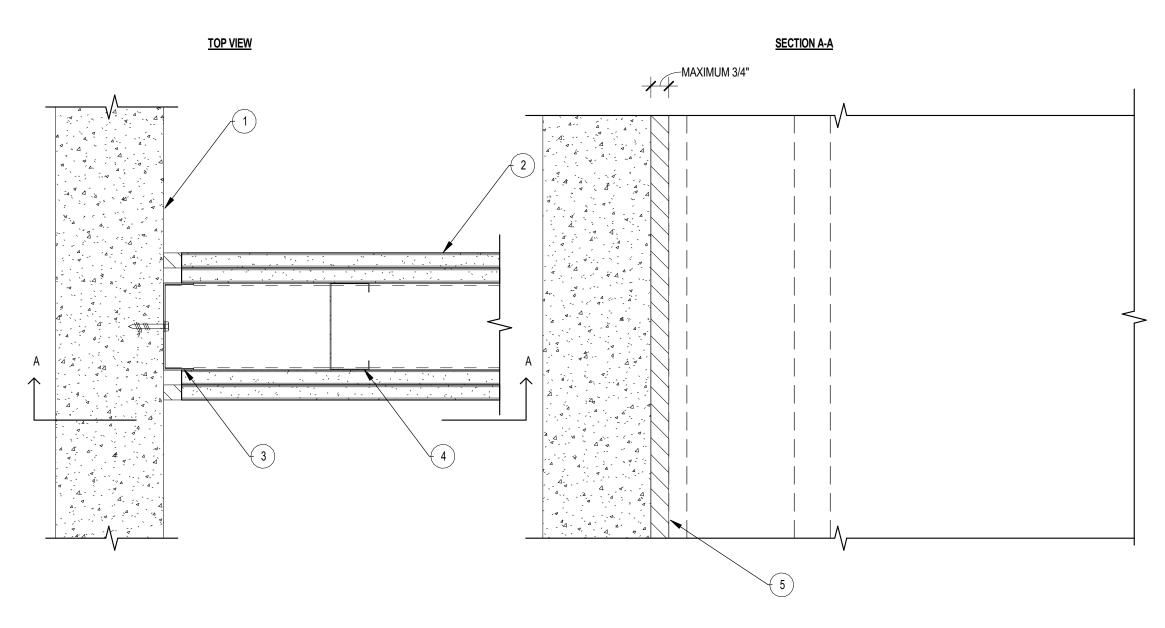
THE REQUIRED THICKNESS OF FILL MATERIAL. ADJOINING LENGTHS OF BATT TO BE TIGHTLY-BUTTED WITH BUTTED SEAMS SPACED MIN 24 IN. APART ALONG THE LENGTH OF THE JOINT. B. FILL, VOID OR CAVITY MATERIAL\* — SEALANT — MIN 1/4 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE JOINT, FLUSH WITH TOP SURFACE OF FLOOR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S ELASTOMERIC FIRESTOP SEALANT, CFS-S SIL GG OR CFS-S SIL SL (FLOORS ONLY) SEALANT

\*BEARING THE UL CLASSIFICATION MARK

# UL/cUL SYSTEM NO. WW-D-0040

# WALL TO WALL JOINT: GYPSUM WALL TO CONCRETE OR BLOCK WALL ASSEMBLY

ASSEMBLY RATING = 1-HOUR OR 2-HOUR CLASS II MOVEMENT CAPABILITY - 17% COMPRESSION OR EXTENSION L-RATING AT AMBIENT = LESS THAN 1 CFM / LIN FT L-RATING AT 400° F = LESS THAN 1 CFM / LIN FT



1. CONCRETE FLOOR ASSEMBLY (1-HOUR OR 2-HOUR FIRE-RATING): A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL ASSEMBLY (MINIMUM 4-1/2 INCH THICK).

B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL. 2. GYPSUM WALL ASSEMBLY (UL/cul CLASSIFIED U400, V400, OR W400 SERIES) (1-HOUR OR 2-HOUR FIRE-RATING) (2-HOUR SHOWN)

3. WALL RUNNER (MINIMUM 25 GAUGE) SECURED TO WALL ASSEMBLY WITH STEEL CONCRETE FASTENERS (SPACE 12 INCH ON CENTER) 4. STEEL STUDS (MINIMUM 3-1/2 INCH WIDE), CUT 1/2 INCH TO 3/4 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT, NESTING IN CEILING RUNNER WITHOUT ATTACHMENT. FIRST STUD ADJACENT

TO CONCRETE WALL SHALL NOT EXCEED 4 INCH FROM WALL FACE. 5. MINIMUM 5/8 INCH DEPTH HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT, CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT.

NOTES: 1. [OPTIONAL, NOT SHOWN] MINERAL WOOL, FIBERGLASS, OR POLYURETHANE/POLYETHYLENE FOAM BACKER ROD MAY BE USED AS A BACKER IN 2-HOUR. 2. L-RATING ONLY APPLIES WHEN HILTI CP 606 FLEXIBLE FIRESTOP SEALANT IS USED .

UL/cUL SYSTEM NO. HW-D-0097

ASSEMBLY RATING = 2-HOUR

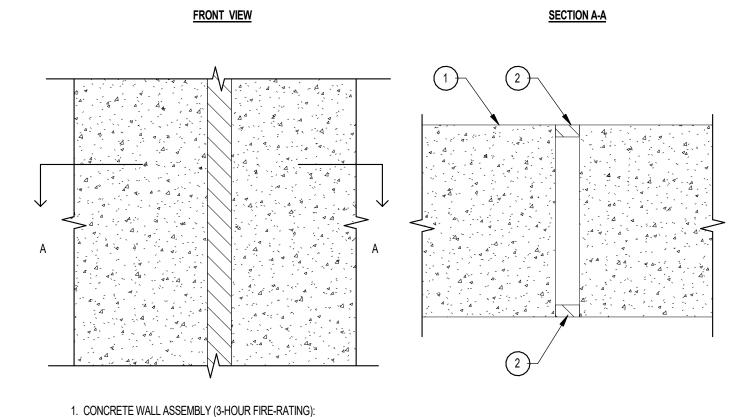
NOMINAL JOINT WIDTH - 2 INCH CLASS MOVEMENT CAPABILITIES = 14% COMPRESSION OR EXTENSION

# UL/cUL SYSTEM NO. WW-D-0032

# WALL TO WALL JOINT: CONCRETE WALL OR BLOCK WALL ASSEMBLY

ASSEMBLY RATING = 3-HOUR

CLASS II MOVEMENT CAPABILITIES - 12.5% COMPRESSION OR EXTENSION L-RATING AT AMBIENT = LESS THAN 1 CFM/LIN FT L-RATING AT 400°F = LESS THAN 1 CFM/LIN FT



A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 8 INCH THICK) B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.

2. MINIMUM 1/2 INCH DEPTH HILTI CP 606 FLEXIBLE FIRESTOP SEALANT.

1. MAXIMUM WIDTH OF JOINT = 1 INCH 2. [OPTIONAL][NOT SHOWN] MINERAL WOOL OR PLYURETHANE FOAM BACKER ROD MAY BE USED AS A BACKER FOR FIRESTOP SEALANT.



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**PRELIMINARY** CONSTRUCTION



FIRE-RATED JOINT THROUGH CONCRETE FLOOR

System No. HW-D-1070

ASSEMBLY RATINGS — 2 HR

CLASS II MOVEMENT CAPABILITIES - 40% COMPRESSION OR EXTENSION

1. FLOOR ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK STEEL-REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 3. JOINT SYSTEM — MAX WIDTH OF JOINT (AT TIME OF INSTALLATION OF JOINT SYSTEM) IS 2-1/2 IN. (64 MM). THE JOINT

SYSTEM IS DESIGNED TO ACCOMMODATE A MAX 40 PERCENT COMPRESSION OR EXTENSION FROM ITS INSTALLED

A PERMANENT FORM. BATT CUT TO WIDTH EQUAL TO THICKNESS OF WALL, COMPRESSED 50 PERCENT IN THICKNESS AND INSTALLED EDGE-FIRST INTO JOINT OPENING SUCH THAT THE COMPRESSED BATT SECTIONS ARE

FLUSH WITH BOTH SURFACES OF WALL. ADJOINING LENGTHS OF BATT TO BE TIGHTLY BUTTED WITH BUTTED

B. FILL, VOID OR CAVITY MATERIAL\* — MIN 1/16 IN. (1.6 MM) DRY THICKNESS (MIN 1/8 IN. OR 3.2 MM WET THICKNESS)

MATERIAL AND TO OVERLAP A MIN OF 1/2 IN. (13 MM) ONTO WALL AND FLOOR SURFACES ON BOTH SIDES OF WALL HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 FIRESTOP SPRAY OR CFS-SP WB FIRESTOP JOINT

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE

OF FILL MATERIAL SPRAYED ON EACH SIDE OF THE WALL TO COMPLETELY COVER MINERAL WOOL FORMING

A. FORMING MATERIAL\* — MIN 4 PCF (64 KG/M³) MINERAL WOOL BATT INSULATION INSTALLED IN JOINT OPENING AS

2. WALL ASSEMBLY — MIN 6 IN. (152 MM) THICK STEEL-REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M³) STRUCTURAL CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE

PCF, 1600-2400 KG/M³) STRUCTURAL CONCRETE.

WIDTH. THE JOINT SYSTEM SHALL CONSIST OF THE FOLLOWING:

ROCK WOOL MANUFACTURING CO — DELTA BOARD

UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

THERMAFIBER INC — TYPE SAF

SEAMS SPACED MIN 48 IN. (1219 MM) APART ALONG THE LENGTHS OF THE JOINT.

NOT TO SCALE

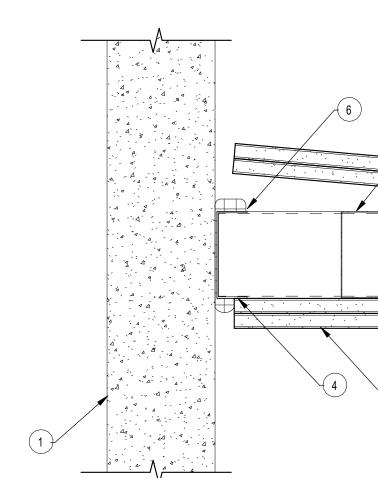
WALL TO WALL JOINT- GYPSUM WALL ASSEMBLY TO

CONCRETE WALL ASSEMBLY

WALL TO WALL JOINT- CONCRETE WALL OR BLOCK WALL

NOT TO SCALE

ASSEMBLY RATING = 1-HOUR OR 2-HOUR L-RATING AT AMBIENT = LESS THAN 1 CFM / LIN FT



A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 4-1/2 INCH THICK) (1-HOUR FIRE-RATING)

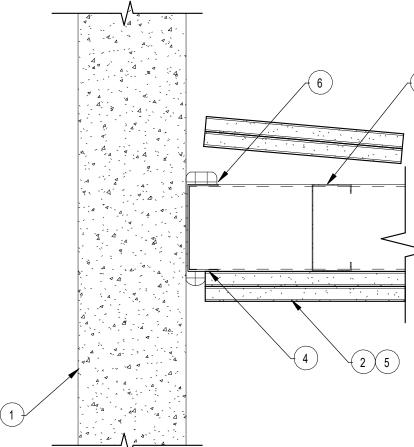
5. 5/8 INCH OR 1-1/4 INCH THICKNESS GYPSUM WALLBOARD AS SPECIFIED IN THE INDIVIDUAL UL DESIGN. 6. HILTI CFS-TTS 358, CFS-TTS 600, OR CFS-TTS OS TOP TRACK SEAL INSTALLED UNDER STEEL RUNNER PRIOR TO ATTACHMENT TO CONCRETE WALL IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.

1. MAXIMUM WIDTH OF JOINT = 3/4 INCH

# UL/cUL SYSTEM NO. WW-S-0074

# TOP OF WALL JOINT: GYPSUM WALL ASSEMBLY TO CONCRETE WALL ASSEMBLY

L-RATING AT 400° F = LESS THAN 1 CFM / LIN FT



1. CONCRETE FLOOR ASSEMBLY:

B. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 6 INCH THICK) (2-HOUR FIRE-RATING) C. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL (1-HOUR OR 2-HOUR FIRE-RATING).

2. GYPSUM WALL ASSEMBLY UL/cul CLASSIFIED U400, V400, OR W400 SERIES) (1-HOUR OR 2-HOUR FIRE-RATING) (2-HOUR SHOWN) 3. STEEL RUNNER (MINIMUM 25 GAUGE, FLANGE HEIGHT OF CEILING RUNNER SHALL BE MINIMUM 1-1/4 INCH) FASTENED TO CONCRETE WALL WITH MASONRY ANCHORS OR STEEL FASTENERS 4. STEEL STUDS (MINIMUM 3-1/2 INCH WÍDE), CUT 3/4 INCH TO 1 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT WITH BOTTOM NESTING IN STEEL RUNNER WITHOUT ATTACHMENT.

2ND BUILDING SUBMITTAL

NOT TO SCALE

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

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CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

RATED JOINT AT CMU WALL TO CONCRETE SLAB - 40%

RATED JOINT AT CMU WALL TO CONCRETE

ITS INSTALLED WIDTH. THE JOINT SYSTEM SHALL CONSIST OF THE FOLLOWING:

1. FLOOR ASSEMBLY - MINIMUM 4-1/2 INCH THICK STEEL-REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) STRUCTURAL CONCRETE.

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

3. JOINT SYSTEM- MAXIMUM WIDTH OF JOINT (AT TIME OF INSTALLATION OF JOINT SYSTEM) IS 2 INCH THE JOINT IS DESIGNED TO ACCOMMODATE A MAXIMUM 14 PERCENT COMPRESSION OR EXTENSION FROM

A. FORMING MATERIAL - MINIMUM 4.0 PCF MINERAL WOOL BATT INSULATION INSTALLED IN JOINT OPENING AS A PERMANENT FORM. BATT CUT TO MINIMUM WIDTH OF 8 INCH AND INSTALLED CUT EDGE-FIRST INTO JOINT OPENING, PARALLEL WITH JOINT DIRECTION, SUCH THAT BATT SECTIONS ARE COMPRESSED MINIMUM 50 PERCENT IN THICKNESS AND SUCH THAT THE COMPRESSED BATT SECTIONS ARE

B. FILL, VOID OR CAVITY MATERIAL\* - MINIMUM 1/8 INCH WET THICKNESS OF FILL MATERIAL SPRAYED OR TROWELLED ON EACH SIDE OF WALL TO COMPLETELY COVER MINERAL WOOL FORMING MATERIAL AND TO OVERLAP A MINIMUM 1/2 INCH ONTO CONCRETE FLOOR AND CONCRETE WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP672 FIRESTOP SPRAY OR CFS-SP WB FIRESTOP JOINT SPRAY

FLUSH WITH BOTH SURFACES OF WALL. ADJOINING LENGTHS OF BATT TO BE TIGHTLY BUTTED SEAMS SPACED MINIMUM 48 INCH APART ALONG THE LENGTHS OF THE JOINT.

WALL TO WALL JOINT- GYPSUM WALL ASSEMBLY TO

NOT TO SCALE

NOT TO SCALE

CONCRETE WALL ASSEMBLY

NOT TO SCALE

\*BEARING THE UL CLASSIFICATION MARK

1. WOOD FLOOR/CEILING ASSEMBLY (UL/cUL CLASSIFIED L500 SERIES) (1-HR. FIRE-RATING): A. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD, OR FLOOR TOPPING MIXTURE. B. [OPTIONAL - NOT SHOWN] GYPSUM WALL ASSEMBLY (FIRE-RATED OR NON FIRE-RATED) CONSISTING OF SINGLE NOMINAL 2" x 6" LUMBER PLATES AND STUDS OR DOUBLE NOMINAL 2" x 4" LUMBER PLATES AND STUDS WITH MINIMUM 1/2" THICK GYPSUM BOARD.

PENETRATING ITEM TO BE ONE OF THE FOLLOWING : A. MAXIMUM 4" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40) (CELLULAR CORE OR SOLID CORE) (CLOSED OR VENTED PIPING SYSTEM).

C. MAXIMUM 4" NOMINAL DIAMETER PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE

3. HILTI CP 648E OR CP 648S WRAP STRIP WRAPPED CONTINUOUSLY AROUND THE OUTER CIRCUMFERENCE OF THE PIPE. NUMBER OF LAYERS AND TYPE OF WRAP STRIP TO BE IN ACCORDANCE WITH THE RESPECTIVE TABLES BELOW. WRAP STRIP HELD IN PLACE WITH TAPE (OR WITH INTEGRATED FASTENING TAPE ON THE CP 648S ONLY). WRAP STRIP CENTERED IN THE GYPSUM BOARD CEILING OR, WHEN A CHASE WALL IS PRESENT, INSTALLED IN THE LOWER TOP PLATE SO THAT ONE-HALF OF THE WRAP STRIP LENGTH EXTENDS BELOW THE LOWER TOP PLATE

4. MINIMUM 3/4" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT FLUSH WITH TOP SURFACE

B. MAXIMUM 4" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED OR VENTED PIPING SYSTEM).

5. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT FLUSH WITH BOTTOM SURFACE OF CEILING. 6. MINIMUM 1/2" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT APPLIED AT WRAP STRIP/CEILING INTERFACE OF WRAP STRIP/TOP PLATE INTERFACE.

1. WHEN HILTI CP 648S IS USED, THE T-RATING IS 1/2-HR. FOR PENETRATING ITEMS WITH A NOMINAL DIAMETER OF 2" OR SMALLER, AND THE T-RATING IS 0-HR. FOR NOMINAL 3" DIAMETER PENETRATING ITEMS. THE T-RATING IS 1-HR. FOR NOMINAL 4" DIAMETER PENETRATING ITEMS. 2. WHEN HILTI CP 648E IS USED, T-RATING IS 1/2-HR.

# LII TI CD 6400 WDAD STDID

PRODUCT	NOM PIPE SIZE,	MAX OPENING	MAX OPENING		ANNULAR SPACE		
DESIGNATION	IN. (MM)	DIAM, IN. (MM	)	MIN, IN.	(MM)	MIN, IN. (MM)	
CP 648S 1.5" US	1-1/2 (38)	3 (76)	3/10	6 (4.8)	5/16 (	8)	
CP 648S 2" US	2 (51)	3-1/2 (89)	3/10	6 (4.8)	5/16 (	8)	
CP 648S 3" US	3 (102)	4 (102)	3/10	ô (4.8)	5/16 (	8)	
CP 648S 4" US	4 (140)	5-1/2 (140)	3/8	(10)	ا 3/4 (1	9)	

# HILTI CP 648E WRAP STRIP

	-							
PRODUCT	NOM PIPE SIZE,	MAX OPENING		I	ANNU	LAR SPA	CE	NUMBER OF
DESIGNATION	IN. (MM)	DIAM, IN. (MM)		MIN, IN. (MM	)	MIN, IN	I. (MM)	LAYERS
CP 648E W45/1-3/4"	1-1/2 (38)	3 (76)	3/16	6 (4.8)	5/16	8)	1	
CP 648E W45/1-3/4"	2 (51) 3	-1/2 (89)	3/16	6 (4.8)	5/16	8)	1	
CP 648E W45/1-3/4"	3 (76)	4 (102)	3/16	6 (4.8)	5/16	(8)	1	
CP 648E W45/1-3/4"	3 (76)	5 (127)	3/8	(10)	5/8 (1	6)	2	
CP 648E W45/1-3/4"	4 (102)	6 (152)	3/8	(10)	5/8 (1	6)	2	

# PLASTIC PIPE THROUGH RATED FLOOR/CEILING

SYSTEM NO. F-C-251 SCALE: 1 1/2" = 1'-0"

# **UL SYSTEM NO. F-C-7014** F RATING - 1-HOUR PER ITEM 2 T RATING - 1-HOUR — FILL MATERIAL PER ITEM 3 STEEL DUCT PER ITEM 2 FILL MATERIAL PER ITEM 3 FLOOR ASSEMBLY SECTION A-A

1. FLOOR - CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED WOOD JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 DESIGNS IN THE UL FIRE

RESISTANCE DIRECTORY, AS SUMMARIZED BELOW:

1 INCH LARGER THAN DIAMETER OF STEEL DUCT.

1.1. **FLOORING SYSTEM** - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURES\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING IS TO BE MAXIMUM 1 INCH LARGER THAN THE DIAMETER OF STEEL DUCT.

1.2. WOOD JOIST - NOMINAL 10 INCH DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOIST, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. 1.3. GYPSUM WALLBOARD\* - THICKNESS, TYPE. NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING IS TO BE MAXIMUM 1 INCH LARGER THAN DIAMETER OF

1.4. CHASE WALL - (OPTIONAL, NOT SHOWN) - THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH A 1-HOUR FIRE RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM CHASE WALL. DEPTH OF CHASE WALL STUD CAVITY TO BE MINIMUM 1/2 INCH GREATER THAN THE DIAMETER OF OPENING CUT IN SOLE AND TOP PLATES TO ACCOMMODATE THE THROUGH PENETRANT (ITEM 2). THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING

CONSTRUCTION FEATURES: STUDS - NOMINAL 2X4 INCH. 2X6 INCH OR DOUBLE NOMINAL 2X4 INCH LUMBER STUDS. 1.5. **SOLE PLATE** - NOMINAL 2X4 INCH, 2X6 INCH OR PARALLEL 2X4 INCH LUMBER PLATES, TIGHTLY DIAMETER OF OPENING IS TO BE MAXIMUM 1 INCH LARGER THAN DIAMETER OF STEEL PIPE.

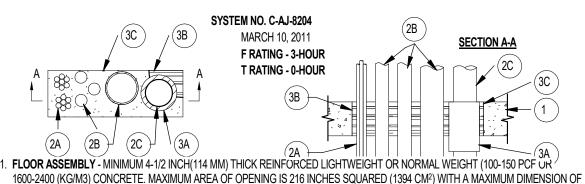
1.6. **TOP PLATE** - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2X4 INCH, TWO NOMINAL 2X6 INCH OR TWO SETS OF PARALLEL 2X4 INCH LUMBER PLATES, TIGHTLY BUTTED. DIAMETER OF

1.7. GYPSUM WALLBOARD\* - THICKNESS. TYPE. NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN.

2. STEEL DUCT - ONE NOMINAL 4 INCH DIAMETER (OR SMALLER) NO. 30 GAUGE (OR HEAVIER) STEEL DUCT OR ONE NOMINAL 10 INCH DIAMETER (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE OPENING. ANNULAR SPACE TO BE MINIMUM OF 0 INCH (POINT

CONTACT) TO MAXIMUM 1 INCH STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. 3. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR TOP PLATE. MINIMUM 1/4 INCH DIAMETER BEAD OF FILL MATERIAL APPLIED AT POINT CONTACT LOCATION ON THE TOP SURFACE OF FLOOR OR CHASE

WALL SOLE PLATE AND AT THE PENETRANT/CEILING OR CHASE WALL TOP PLATE INTERFACE. SPECIFIED TECHNOLOGIES INC - SPECSEAL LCI SEALANT \*BEARING THE UL CLASSIFICATION MARK



36 INCH(914 MM) 2. **THROUGH PENETRANTS** - PIPES, CONDUIT OR CABLES TO BE INSTALLED WITHIN THE OPENING. THE ANNULAR SPACE BETWEEN PENETRANTS SHALL BE MINIMUM 1/2 INCH(13 MM) TO MAXIMUM 6 INCH(152 MM). THE SPACE BETWEEN PENETRANTS AND PERIPHERY OF OPENING SHALL BE MINIMUM () INCH (POINT CONTACT) TO MAXIMUM (6 INCH(152 MM), PENETRANTS TO BE

RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED: A. CABLES - A MAXIMUM OF TWO 3 INCH(76 MM) DIAMETER (OR SMALLER) CABLE BUNDLES. THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED: 1. MAXIMUM 300 PAIR NO. 22 AWG (OR SMALLER) COPPER CONDUCTOR WITH POLYVINYL CHLORIDE (PVC) INSULATION AND

JACKETING MATERIAL 2. MAXIMUM 1/C NO. 4/0 AWG (OR SMALLER) COPPER CONDUCTOR CABLE WITH CROSS-LINKED POLYETHYLENE (XLPE) OR PVC.JACKET 3. MAXIMUM 7/C NO. 12 AWG (OR SMALLER) COPPER CONDUCTOR POWER AND CONTROL CABLES WITH XLPE OR PVC INSULATION WITH XLPE OR PVC JACKET. 4. MAXIMUM 3/C NO. 3/0 AWG (OR SMALLER) COPPER OR ALUMINUM CONDUCTOR SER CABLES WITH PVC INSULATION AND

5. MAXIMUM 3/C NO. 2/0 AWG (OR SMALLER) COPPER CONDUCTOR PVC JACKETED ALUMINUM CLAD OR STEEL CLAD TECK 90 MAXIMUM 110/125 FIBER OPTIC (F.O.) CABLE WITH PVC INSULATION AND JACKET.

7. MAXIMUM 3/C WITH GROUND NO. 8 AWG (OR SMALLER) COPPER CONDUCTOR NM CABLE WITH PVC INSULATION AND 8. RG/U COAXIAL CABLE WITH FLUORINATED ETHYLENE (FE) OR PVC INSULATION AND JACKET. 9. MAXIMUM 4 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR DATA CABLE WITH HYLAR JACKET AND INSULATION.

JACKET MATERIALS UNDER THE THROUGH PENETRATING PRODUCT CATEGORY. SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN INSULATION SHALL BE FIRMLY PACKED INTO THE TOP OF DEVICE, FLUSH WITH THE TOP OF THE DEVICE. THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURER B. METALLIC PIPES - A MAXIMUM OF FOUR PIPES OR CONDUITS INSTALLED WITHIN OPENING. THE FOLLOWING TYPES AND SIZES

A. STEEL PIPE - NOMINAL 4 INCH(102 MM) DIAMETER(OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. B. CONDUIT - NOMINAL 4 INCH(102 MM) DIAMETER(OR SMALLER) RIGID STEEL CONDUIT OR ELECTRICAL METALLIC TUBING C. NON-METALLIC PIPES - A MAXIMUM OF ONE NON-METALLIC PIPE OR CONDUIT INSTALLED WITHIN OPENING. THE FOLLOWING

OF METALLIC PIPES OR CONDUITS OR TUBING MAY BE USED:

RECTORSEAL — FS 900+, MC 150+ OR BF-150+ SEALANT

\*BEARING THE UL CLASSIFICATION MARK

AND SPACED MAXIMUM 24 INCH ON CENTER.

TYPES AND SIZES OF NON-METALLIC PIPES OR CONDUITS MAY BE USED:

1. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 4 INCH(102 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. RIGID NON-METALLIC CONDUIT (RNC)+ - NOMINAL 4 INCH(102 MM) DIAMETER (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA NO. 70). 3. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 4 INCH(102 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

3. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. FIRESTOP DEVICE - GALVANIZED STEEL SLEEVE LINED WITH AN INTUMESCENT MATERIAL SIZED TO FIT THE SPECIFIC DIAMETER OF THE PVC PIPE (ITEM 2C). DEVICE TO BE WRAPPED AROUND OUTER CIRCUMFERENCE OF PIPE AND INSTALLED THROUGH THE ANNULAR SPACE OF THE OPENING. THE DEVICE MAY BE SECURED TOGETHER BY MEANS OF MINIMUM 1/2 INCH(13 MM) WIDE BY 0.028 INCH(0.71 MM) THICK STAINLESS STEEL HOSE CLAMPS OR MIN 1/8 INCH(3.2 MM) DIAMETER BY 1/2 INCH(13 MM) LONG STEEL POP RIVETS SPACED MAXIMUM 4 INCH(102 MM) ON CENTER AS AN OPTION, THE DEVICE MAY BE SECURED TO THE PENETRANT WITH 3/4 INCH(19 MM) WIDE BY 0.007 INCH(0.18 MM) THICK GLASS CLOTH ELECTRICAL TAPE : CONTINUOUSLY WRAPPED TWICE AROUND THE OUTER CIRCUMFERENCE OF THROUGH PENETRANT, SPACED A MAXIMUM NCH(51 MM) ON CENTER IN FLOORS 8 INCH(203 MM) OR LESS, THE TOP EDGE OF THE DEVICE SHALL BE INSTALLED FLUSH WITH THE TOP SURFACE AND EXTEND A MAXIMUM 3-1/2 INCH(89 MM) BELOW THE BOTTOM SURFACE OF THE FLOOR OR THE BOTTOM EDGE OF THE DEVICE MAY BE INSTALLED FLUSH WITH THE BOTTOM SURFACE OF THE FLOOR. IN FLOORS GREATER THAN 8 INCH(203 MM), THE BOTTOM EDGE OF THE DEVICE MAY BE INSTALLED FLUSH WITH THE BOTTOM SURFACE OF THE FLOOR OR EXTEND A MAXIMUM 3-1/2 INCH(89 MM) BELOW THE BOTTOM SURFACE OF THE FLOOR. IN WALLS HAVING A NOMINAL THICKNESS OF 8 INCH(203 MM) OR LESS, THE DEVICE SHALL BE CENTERED WITHIN THE WALL AND EXTEND EQUALLY BEYOND EACH SURFACE OF THE WALL. IN WALLS HAVING A NOMINAL THICKNESS GREATER THAN 8 INCH(203 MM), TWO DEVICES SHALL BE INSTALLED WITHIN THE OPENING WITH BUTTED ENDS AND EXTEND EQUALLY BEYOND EACH

RECTORSEAL - FLAMESAFE @INTUMESCENT SLEEVE, METACAULK INTUMESCENT SLEEVE OR BIOSTOP INTUMESCENT SLEEVE THICK. ADAPTER SNAPS ONTO TOP OF FIRESTOP DEVICE (ITEM 2). 3M COMPANY - 3M FIRE B. PACKING MATERIAL - MINIMUM 4 INCH(102 MM) THICKNESS OF MINIMUM 4 PCF(64 KG/M3 ) MINERAL WOOL BATT INSULATION 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. C. FILL. VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/2 INCH(13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. A MINIMUM 1/2 INCH(13 MM) DIAMETER BEAD OF SEALANT TO BE APPLIED AT THE PENETRANT/CONCRETE INTERFACE AT THE POINT CONTACT LOCATIONS ON TOP SURFACE OF FLOOR OR ON BOTH SURFACES OF WALL.

NOTE: THIS FIRE STOP SYSTEM IS LIMITED TO FLOOR PENETRATIONS CONTAINED AND LOCATED WITHIN THE CAVITY OF A WALL ABOVE THE FLOOR OR BELOW THE FLOOR PER IBC SECTION 714.4.1.1.2 EXCEPTION 1

# SER CABLE THRU 3 HR CONC. SLAB OPENING

# SCALE: 3/4" = 1'-0"

UL System No. F-A-2137

**UL SYSTEM NO. W-L-5014** F RATINGS-1 AND 2 HOUR (SEE ITEM 1) PER ITEM 1 PENETRANT PER ITEM 2

T RATINGS- 1 HOUR PER ITEM 3 PENETRANT PER ITEM 2 PER ITEM 3 FILL MATERIAL PER ITEM 4 SECTION A-A

. WALL ASSEMBLY - THE 1 OR 2 HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: 1.1. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNELS STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2X4 INCH LUMBER SPACED 16 INCH ON CENTER STEEL STUDS TO BE MINIMUM 3-5/8 INCH WIDE

1.2. GYPSUM WALLBOARD\* - 5/8 INCH THICK, 4 FOOT WIDE WITH SQUARE OR TAPERED EDGES. THE 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. MAXIMUM DIAMETER OF OPENING IS 18 INCH THE HOURLY FRATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

2. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE

WALL ASSEMBLY, THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED: 2.1. STEEL PIPE - NOMINAL 12 INCH DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. 2.2. **IRON PIPE** - NOMINAL 12 INCH DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.

2.3. COPPER TUBING - NOMINAL 4 INCH DIAMETER (OR SMALLER) TYPE M (OR HEAVIER) COPPER TUBE

2.4. COPPER PIPE - NOMINAL 4 INCH (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. 3. PIPE COVERINGS\* - ONE OF THE FOLLOWING TYPES OF PIPE COVERINGS SHALL BE USED

3.1. PIPE AND EQUIPMENT COVERING MATERIALS\* - MAXIMUM 2 INCH THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINT SEALED WITH METAL FASTENERS OR FACTOR APPLIED SELF-SEALING LAP TYPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE BETWEEN INSULATED ENETRATING ITEM AND THE EDGE OF THE THROUGH OPENING SHALL BE MINIMUM 0 INCH (CONTINOUS POINT CONTACT) TO MAXIMUM 1-1/4 INCH. SEE PIPE AND EQUIPMENT COVERING MATERIALS\* - (BRGU) CATEGORY IN THE MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIALS 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.

3.2. PIPE COVERING MATERIALS\* - MAXIMUM 2 INCH THICK UNFACED MINERAL FIBER PIPE INSULATION SIZED TO THE OUTSIDE DIAMETER OF PIPE OR TUBE. PIPE INSULATION SECURED WITH MINIMUM 8 AWG STEEL WIRE SPACED MAXIMUM 12 INCH ON CENTER. THE ANNULAR SPACE BETWEEN INSULATED PENETRATING ITEM AND THE EDGE OF THE THROUGH OPENING SHALL BE MINIMUM 0 INCH (CONTINUOUS POINT CONTACT) TO MAXIMUM 1-1/2 INCH IIG MINWOOL LLC - HIGH TEMPERATURE PIPE INSULATION 1200. HIGH TEMPERATURE PIPE INSULATION BWT OR HIGH TEMPERATURE PIPE INSULATION THERMALOC

3.3. SHEATHING MATERIALS\* - USED IN CONJUNCTION WITH ITEM 3B. FOIL-SCRIM-KRAFT OR ALL SERVICE JACKET MATERIAL SHALL BE WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE PIPE WITH THE KRAFT SIDE EXPOSED. LONGITUDINAL JOINTS AND TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR BUTT TAPE. SEE SHEATHING MATERIALS (BVDV) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY SHEATHING MATERIALS 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.

4. FILL. VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS. FLUSH WITH BOTH SURFACES OF WALL. AT POINT CONTACT LOCATION BETWEEN INSULATED THROUGH PENETRANTS AND GYPSUM WALLBOARD, A MINIMUM 3/8 INCH BEAD OF FILL MATERIAL SHALL BE APPLIED TO THE INSULATED THROUGH PENETRANT/GYPSUM WALLBOARD INTERFACE ON BOTH SIDE OF WALL.

SPECIFIED TECHNOLOGIES INC - SPECSEAL 100, 101, 102 AND 105 SEALANT

# PENETRATION PER ITEM 3 FLOOR ASSEMBLY PER ITEM 1 PER ITEM 4 -F RATING - 3 HOUR SECTION A-A

T RATINGS - 3 HOUR 1. FLOOR ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) OR 1600-2400 KG/M3) CONCRETE. FIRESTOP DEVICE\* - CAST-IN-PLACE FIRESTOP DEVICE PERMANENTLY EMBEDDED DURING CONCRETE PLACEMENT OR GROUTED IN CONCRETE FLOOR ASSEMBLY IN ACCORDANCE WITH ACCOMPANYING INSTALLATION

B. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP DEVICE. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY. THE

FOLLOWING TYPES OF PIPE OR TUBING MAY BE USED: A. STEEL PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STL PIPE B. **COPPER TUBING** - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER

C. COPPER PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER).

(MINIMUM 3.5 PCF OR 56 KG/M3) GLASS FIBER UNITS, JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SSL TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT 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 10. MAXIMUM 3 CONDUCTOR NO. 12 AWG (OR SMALLER) MC (BX) COPPER CABLE WITH POLYVINYL CHLORIDE INSULATION AND MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

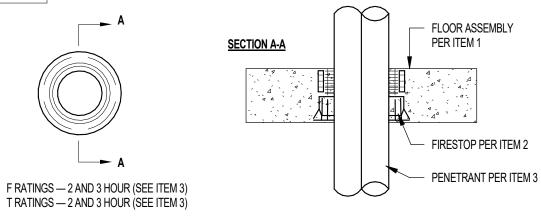
4. PIPE COVERING\* - NOMINAL 1 INCH, 1-1/2 INCH AND 2 INCH (25, 38 AND 51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY

5. PACKING MATERIAL - WHEN USING A 1 INCH (25 MM) DIAMETER PIPE WITH 1-1/2 INCH (38 MM) THICK GLASS FIBER PIPE 1. THROUGH PENETRATING PRODUCT\*- ANY CABLES. ARMORED CABLE+ OR METAL CLAD CABLE+ CURRENTLY CLASSIFIED INSULATION IN A 4 INCH (102 MM) DEVICE, A MIN 2 INCH (51 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT

> \* BEARING THE UL CLASSIFICATION MARK + BEARING THE UL LISTING MARK

INSTRUCTIONS WITH A MAXIMUM 2 INCH (51 MM) PROJECTION ABOVE THE TOP SURFACE OF THE CONCRETE. HILTI CONSTRUCTION 3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING

# TAL PIPE THROUGH 3HR RATED CONCRETE SLAE U.L. SYSTEM NO. F-A-5018 SCALE: 1 1/2" = 1'-0"



FLOOR ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE . FIRESTOP DEVICE\* - CAST-IN-PLACE FIRESTOP DEVICE PERMANENTLY EMBEDDED DURING CONCRETE PLACEMENT OR GROUTED IN CONCRETE ASSEMBLY IN ACCORDANCE WITH ACCOMPANYING INSTALLATION INSTRUCTIONS. THE DEVICE MUST BE TRIMMED FLUSH WITH TOP SURFACE OF FLOOR. 3M COMPANY - 3M FIRE BARRIER CAST-IN DEVICE 6PCID 2A. FIRESTOP DEVICE - HEIGHT ADAPTER\* - (NOT SHOWN) - FOR USE IN FLOORS GREATER THAN 8 INCH (203 MM) DEVICE HEIGHT ADAPTER, 6HA

THROUGH PENETRANT - ONE NON-METALLIC PIPE OR CONDUIT INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY, THE FOLLOWING TYPES AND SIZES OF NON-METALLIC PIPES OR CONDUIT MAY BE USED:

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER SCHEDULE 40 SOLID CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. B. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER SCHEDULE 40 CELLULAR CORE PVC (CCPVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) C. **RIGID NONMETALLIC CONDUIT (RNC)+** - NOMINAL 6 INCH (152 MM) DIAMETER SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NATIONAL ELECTRICAL CODE (NFPA NO. 70). THE HOURLY F AND T RATING OF THE FIRESTOP SYSTEM IS 3-HOUR FOR ITEMS 3A AND 3C. THE

F RATING - 3 HOUR

T RATINGS - 0, 1/4, 1/2 HOUR (SEE ITEMS 3 AND 4)

I. **FLOOR ASSEMBLY** - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR

1A.FLOOR ASSEMBLY - (OPTIONAL - NOT SHOWN) - THE FIRE RATED UNPROTECTED CONCRETE AND STEEL FLOOR ASSEMBLY

SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL D900 SERIES DESIGNS IN

2. FIRESTOP DEVICE\* - CAST-IN-PLACE FIRESTOP DEVICE PERMANENTLY EMBEDDED DURING CONCRETE PLACEMENT IN

ACCORDANCE WITH ACCOMPANYING INSTALLATION INSTRUCTIONS. E-016: HILTI CONSTRUCTION CHEMICALS. DIV OF HILTI

INC - CP 680-75/2.5"N, CP 680-110/4"N, CP 680-160/6"N, CP682-72/2.5", CP682-110/4", CP 680-M 2", CP 680-M 3", CP 680-M 4", CP 680-P

3. CABLES - CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE ASSEMBLY, ANY COMBINATION OF THE FOLLOWING

FIRESTOP DEVICE

\_CP 680-75/2.5"N, CP 682-75/2.5".

—CP 680-75/2.5"N. CP 682-75/2.5"-

CP 680-M 2", CP 680-P 2

CP 680-M 3", CP 680-P

CP 680-110/4"N. CP 682-110/4"

CP 680-M 4", CP 680-P 4"

CP 680-160/6"N

CP 680-P 6"

B. STEEL FLOOR AND FORM UNITS\* - COMPOSITE OR NON-COMPOSITE MAXIMUM 3 INCH (76MM) DEEP

A. MAXIMUM 1/C 750 KCMIL (OR SMALLER) COPPER CONDUCTOR CABLE WITH POLYVINYL CHLORIDE (PVC)

E. MAXIMUM 3/C NO. 12 AWG WITH GROUND WITH POLYVINYL CHLORIDE JACKETED STEEL CLAD TYPE MC

4. FILL, VOID OR CAVITY MATERIAL\* - PUTTY - MINIMUM 1 INCH (25 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN

LARGER) CABLE BUNDLE INSTALLED IN 3 INCH DEVICE AND 3 INCH (76 MM) DIAMETER (OR LARGER) CABLE BUNDLE

IS NOT USED. E-016;HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 618 FIRESTOP PUTTY STICK 4A. PACKING

ANNULUS FLUSH WITH TOP SURFACE OF DEVICE. FILL MATERIAL IS OPTIONAL FOR 2-1/2 INCH (64 MM) DIAMETER (OR

INSTALLED IN 4 INCH DEVICE AND 2 INCH (51 MM) DIAMETER (OR LARGER) CABLE BUNDLE INSTALLED IN 2 INCH OR 2.5 INCH

MATERIAL (NOT SHOWN) - AS AN ALTERNATE TO ITEM 4. MINIMUM 2 INCH THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL

WOOL INSULATION FIRMLY PACKED TO THE FULLEST EXTENT POSSIBLE WITHIN ANNULUS FLUSH WITH TOP SURFACE OF

NOTE: THIS FIRESTOP SYSTEM IS LIMITED TO FLOOR PENETRATIONS CONTAINED AND LOCATED WITHIN THE CAVITY OF A WALL

DEVICE. THE T RATING FOR THE FIRESTOP SYSTEM IS 1/4 HOUR WHEN FILL MATERIAL OR PACKING MATERIAL (ITEM 4 OR 4A)

B. MAXIMUM 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.

C. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.

E-016,11; THE FIRESTOP DEVICE AND MAX CABLE BUNDLE DIAMETER SHALL BE SIZED AS FOLLOWS:

GALVANIZED STEEL FLUTED UNITS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

PER ITEM 2

CABLE BUNDLE

PER ITEM 3

TOP VIEW

THE UL FIRE RESISTANCE DIRECTORY AND AS SUMMARIZED BELOW:

TYPES AND SIZES OF COPPER CONDUCTOR CABLES MAY BE USED:

MAXIMUM BUNDLE DIAMETER

2 INCH (51 mm)

4-1/2 INCH (114 mm)

6-1/2 INCH (165 mm)

1600-2400 KG/M3) CONCRETE.

2", CP 680-P 3", CP 680-P 4", CP 680-P 6"

INSULATION AND JACKET.

DEVICE.

\*BEARING THE UL CLASSIFICATION MARK

\* BEARING THE UL CLASSIFICATION MARK +BEARING THE UL LISTING MARK

FILL MATERIAL

PER ITEM 4

FLOOR ASSEMBLY

PER ITEM 1

T RATING-HOUR

SECTION A-A

F RATING - 1-HOUR OR 2-HOUR

T RATING - 1-HOUR OR 2-HOUR

L RATING AT AMBIENT - LESS THAN 1 CFM/SQ. FT.

PER ITEM 3

PER ITEM 7

PLATE PER ITEM 4

SEALANT PER ITEM 6

SCALE:

PER ITEM 2

L RATING AT 400°F - 4 CFM/SQ. FT

SUBFLOOR

PER ITEM 2

FLOOR ASSEMBLY

WALL ASSEMBLY PER

3.1. MAXIMUM 4 INCH NOMINAL DIAMETER STEEL PIPE (SCHEDULE 40 OR HEAVIER).

5. GYPSUM WALL ASSEMBLY (1-HOUR OR 2-HOUR FIRE-RATING)(2-HOUR SHOWN).

NOTE: ANNULAR SPACE = MINIMUM 1/8", MAXIMUM 3/4"

HILTI, INC. TULSA, OK 1-800-879-8000

ANSI/U.L. 1479. SYSTEM NO. FC1009

. WOOD FLOOR ASSEMBLY - DESIGN NO. L500 SERIES IN THE U.L. FIRE RESISTANCE DIRECTORY

2. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD, OR FLOOR TOP MIXTURE.

3.3. MAXIMUM 4 INCH NOMINAL DIAMETER NOMINAL OR STANDARD COPPER WATER TUBE (TYPE L OR

7. MINIMUM 3/4 INCH DEPTH HILTI FS 601 ELASTOMERIC FIRESTOP SEALANT OR FS-ONE FIRESTOP SEALANT

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS

WALL ASSEMBLY

PENETRATION

1. GYPSUM WALL ASSEMBLY (1-HOUR OR 2-HOUR FIRE-RATING)(2-HOUR SHOWN).

A. MAXIMUM 30 INCH DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).

3. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT:

NOTES: 1. MAXIMUM DIAMETER OF OPENING - 32-1/4"

2. ANNULAR SPACE - MINIMUM 0". MAXIMUM 2-1/4"

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS

A. MINIMUM 5/8 INCH DEPTH OF SEALANT FOR A 1-HOUR. FIRE RATING.

B. MINIMUM 1-1/4 INCH DEPTH OF SEALANT FOR A 2-HOUR. FIRE RATING.

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING

B. MAXIMUM 6 INCH DIAMETER COPPER PIPE.

D. MAXIMUM 4 INCH DIAMETER STEEL EMT.

C. MAXIMUM 6 INCH DIAMETER STEEL CONDUIT

HILTI, INC. TULSA, OK 1-800-879-8000

PER ITEM 1

METAL PIPE/CONDUIT THROUGH 1 HR./2HR WOOD FLOOF

F RATING - 1-HOUR OR 2-HOUR T RATING = 0-HOUR

L RATING AT AMBIENT - LESS THAN 1 CFM/SQ.

FT. L RATING AT 400°F - 4 CFM/SQ. FT.

4. MINIMUM 1/2 INCH BEAD HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

6. PROVIDE A GENEROUS BEAD OF HILTI FS 601 ELASTOMERIC FIRESTOP SEALANT OR HILTI FS-ONE HIGH PERFORMANCE

ITEM 2 -

3.2. MAXIMUM 4 INCH NOMINAL DIAMETER STEEL CONDUIT

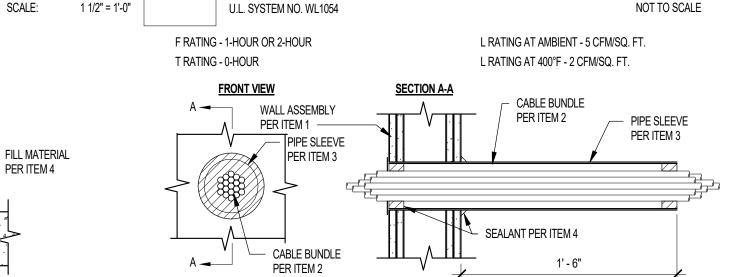
3.4. MAXIMUM 4 INCH NOMINAL DIAMETER COPPER PIPE.

3.5. MAXIMUM 4 INCH NOMINAL DIAMETER EMT.

INTUMESCENT FIRESTOP SEALANT AT THE TOP PLATE.

4 TOP PLATE

PER ITEM 1



1. GYPSUM WALL ASSEMBLY (1-HOUR OR 2-HOUR FIRE RATING)(2-HOUR SHOWN). 2. CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING:

A. 7/C NO. 12 AWG CAGLES. B. 12 PAIR 24 AWG PHONE CABLES C. 25 PAIR 24 AWG PHONE CABLES.

D. RG 59 COAXIAL CABLES. E. 2/C(+GND) NO. 14 AWG METAL-CLAD CABLES F. 2/C NO. 8 AWG METAL-CLAD CABLES G. MAXIMUM 1/2 INCH DIAMETER FIBER-OPTIC CABLES.

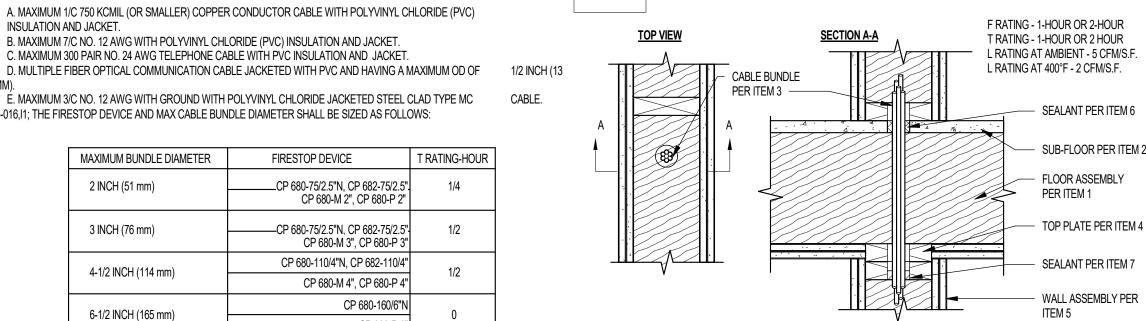
3. OPTIONAL: MAXIMUM 4 INCH NOMINAL DIAMETER STEEL PIPE SLEEVE (SCH. 40 OR THINNER)(SEE NOTE 4). 4. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT A. MINIMUM 5/8 INCH DEPTH OF SEALANT FOR A 1-HOUR FIRE RATING. B. MINIMUM 1-1/4 INCH DEPTH OF SEALANT FOR A 2-HOUR FIRE RATING.

1. MAXIMUM DIAMETER OF OPENING - 4-1/2" 2. CABLES TO FILL MAXIMUM 33% OF AREA OF OPENING 3. ANNULAR SPACE - MINIMUM 1/4", MAXIMUM 3/4"

A. CONCRETE - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 4. STEEL SLEEVE MAY BE FLUSH WITH WALL SURFACE OR EXTEND UP TO 18" BEYOND WALL SURFACE IN ANY COMBINATION. WHEN SLEEVE IS FLUSH WITH WALL, APPLY HILTI FS-ONE FIRESTOP SEALANT ONTO WALL SURFACE. WHEN SLEEVE IS EXTENDED BEYOND ONE OR BOTH SIDES OF WALL, APPLY 1/2" CROWN HILTI FS-ONE FIRESTOP SEALANT TO WALL/ SLEEVE INTERFACE

SEE HILTI FIRESTOP INSTALLATIM N MANUAL FOR ADDITIONAL INSTRUCTIONS HILTI, INC. TULSA, OK 1-800-879-8000

# CABLE BUNDLE AT 1HR./2HR RATED WOOD FRAMED WAL U.L. SYSTEM NO. WL3065 NOT TO SCALE



. WOOD FLOOR ASSEMBLY - DESIGN NO. L500 SERIES IN THE U.L. FIRE RESISTANCE DIRECTORY. 2. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OR LUMBER. PLYWOOD, OR FLOOR TOPPING MIXTURE. 3. MAXIMUM 2 INCH DIAMETER CABLE BUNDLE MAY CONSIST OF ANY OF THE FOLLOWING:

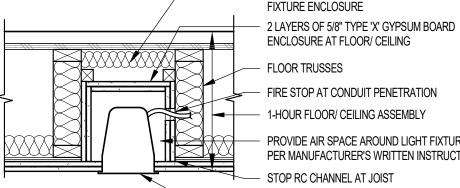
A. RG 59 COAXIAL CABLE B. MAXIMUM 8/C NO. 22 AWG TELEPHONE CABLE C. MAXIMUM 3/C NO. 10 AWG CABLE (ROMEX).

D. MAXIMUM 3/C (+GRND) 2/0 AWG SER CABLE (ALUMINUM OR COPPER). E. MAXIMUM 2/C NO. 12 AWG CABLE. TOP PLATE. 5. GYPSUM WALL ASSEMBLY (1-HOUR OR 2-HOUR FIRE RATING)(2-HOUR SHOWN).

6. MINIMUM 3/4 INCH DEPTH HILTI FS-ONE FIRESTOP SEALANT.

1. MAXIMUM DIAMETER OF OPENING - 2-1/2"

2. ANNULAR SPACE BETWEEN CABLE BUNDLE AND OPENING - MINIMUM 0", MAXIMUM 1/2" 3. CABLES TO FILL A MAXIMUM OF 45% OF CROSS-SECTIONAL AREA OF OPENING



UL-L550

ENCLOSURE AT FLOOR/ CEILING FLOOR TRUSSES FIRE STOP AT CONDUIT PENETRATION 1-HOUR FLOOR/ CEILING ASSEMBLY - PROVIDE AIR SPACE AROUND LIGHT FIXTURE PER MANUFACTURER'S WRITTEN INSTRUCTIONS

INSULATION CONTINUOUS AROUND

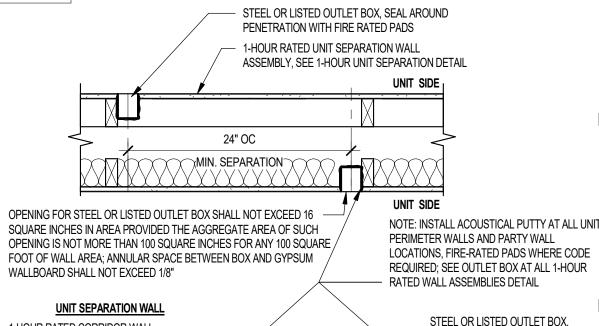
1-HOUR FLOOR/ CEILING ASSEMBLY RECESSED CAN LIGHT, LIGHT FIXTURE

MUST BEAR U.L. LISTING RATING FOR INTENDED USE PER N.E.C. 410.65(b) INSULATION CONTINUOUS AROUND FIXTURE ENCLOSURE GYPSUM WALL BOARD ENCLOSURE TO MAINTAIN INTEGRITY OF CEILING CONSTRUCTION OF 1 LAYER 5/8" TYPE 'C' GYPSUM WALLBOARD EACH SIDE & TOP

ONE HOUR ROOF/ CEILING ASSEMBLY ROOF TRUSSES FIRE STOP AT CONDUIT PENETRATION PROVIDE AIR SPACE PER MANUFACTURER'S WRITTEN INSTRUCTIONS STOP RC CHANNEL AT JOIST

RECESSED CAN LIGHT, LIGHT FIXTURE MUST BEAR UL LISTING RATING FOR INTENDED 1-HOUR ROOF/ CEILING ASSEMBLY USE PER N.E.C. 410.65(b)

RECESSED LIGHT DRYWALL ENCLOSURE @ RATED



1-HOUR RATED CORRIDOR WALL SEAL AROUND PENETRATION WITH ASSEMBLY, SEE 1-HOUR RATED INTERIOR ACOUSTICAL SEALANT WALL/ CORRIDOR DETAIL — FXTERIOR **CORRIDOR SIDE** STEEL OR LISTED OUTLET 1-HOUR RATED EXTERIOR WALL

ASSEMBLY, SEE 1-HOUR FIRE BARRIER/

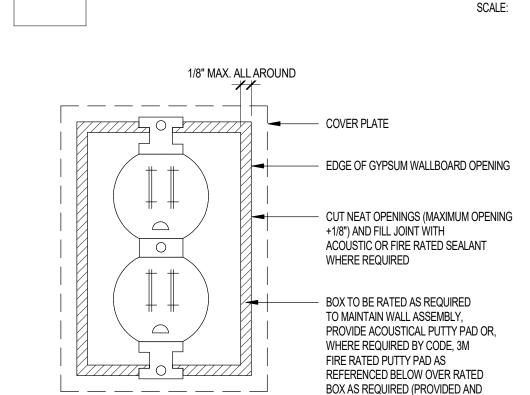
EXTERIOR WALL ASSEMBLY DETAIL

INSTALLED BY ELECTRICAL CONTRACTOR)

CORRIDOR WALL EXTERIOR WALL NOTE: INSTALL USG ACOUSTICAL SEALANT OR OWNER APPROVED EQUAL BETWEEN BASE OF GYPSUM WALLBOARD AND CONCRETE SLAB AT BOTH SIDES OF WALL

BOX, SEAL AROUND PENETRATION WITH FIRE-

OUTLET BOX AT UNIT SEPARATION AND PERIMETER VALLS SWITCHES, PHONE JACKS, ETC. SIM.

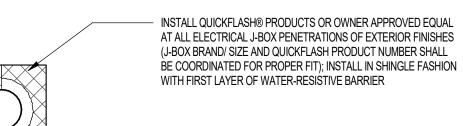


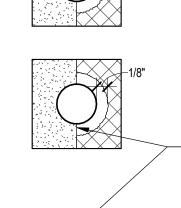
ELECTRICAL BOX FIREPROOFING: 3M FIRE BARRIER MOLDABLE PUTTY PADS MPP+ OR OWNER APPROVED EQUAL

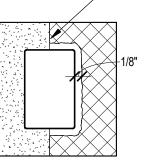
1. DETAIL OCCURS AT COMMON WALLS BETWEEN UNIT EXTERIOR RATED WALL AND CORRIDOR WALL 2. REFER TO ELECTRICAL DRAWINGS FOR OTHER REQUIREMENTS 3. PLASTER RINGS ARE NOT TO BE USED AT UNIT PERIMETER WALLS AND HOUR WALL LOCATIONS

SWITCH, PHONE, ETC. SIMILAR

# , OUTLET BOX AT 1HR/2HR RATED WALL ASSEMBLIES INCL UNIT SEPARATION, CORRIDOR & EXT. WALLS







MEMBRANE PENETRATIONS SHALL BE PROTECTED AS REQUIRED BY 2018 IBC SECTION 714.4.2. ANNULAR SPACE SHALL BE FILLED WITH A MATERIAL WHICH WILL PREVENT THE PASSAGE OF FLAME AND HOT GASES SUFFICIENT TO IGNITE COTTON WASTE WHEN SUBJECT TO IBC STANDARD 7-1.

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

UL SYSTEM NO. F-C-5053

1. **FLOOR-CEILING ASSEMBLY** - THE 1-HOUR FIRE RATED WOOD JOIST FLOOR CEILING ASSEMBLY SHALL BE

DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING FEATURES.

1.2. **WOOD JOIST** - NOMINAL 10 INCH DIAMETER (OR DEEPER) LUMBER, STEEL OR COMBINATION

1.3. GYPSUM WALLBOARD\*- THICKNESS, TYPE, NUMBER OF LAYERS AND ASTENERS SHALL BE

FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING

1.1. **FLOOR SYSTEM** - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR

AND STEEL JOIST, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED ITH ENDS

SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF CEILING OPENING IS 5 INCH.

FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:

2.1. STEEL PIPE - NOMINAL 2 INCH DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.

2.3. COPPER TUBE - NOMINAL 2 INCH DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING

2.4. COPPER PIPE - NOMINAL 2 INCH DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

2.2. IRON PIPE - NOMINAL 2 INCH DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.

COVERINGS MAY BE USED WITH THE METALLIC PIPES OR TUBES.

SECURED WITH METAL FASTENERS OR WITH BUTT TYPE

EQUIPMENT COVERING MATERIALS (BRGU)

BEARING THE UL

GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET.

JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-CEILING

3.2. TUBE INSULATION-PLASTICS+ - NOMINAL 1/2 INCH THICK ACRYLONITRILE

PASSIVE FIRE PROTECTION PARTNERS-4800 DW, 4100NS, 3600EX.

+ BEARING THE UL RECOGNIZED COMPONENT MARK

\* BEARING THE UL CLASSIFICATION MARK.\

2. **THROUGH PENETRANTS** - MAXIMUM ONE METALLIC PIPE OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY

OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM, PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF

3. **PIPE COVERING** - THE ANNULAR SPACE BETWEEN THE INSULATED PENETRANTS AND PERIPHERY OF  $\;$  THE OPENING

TO BE MINIMUM 0 INCH (POINTED CONTACT) TO MAXIMUM 7/8 INCH THE FOLLOWING TYPES AND SIZES OF PIPE

3.1. PIPE COVERING\*- NOMINAL 1 INCH THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5

BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. SEE

MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE

SPECIFICATION AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED.

PLASTICS+++ (QMFZ2) CATEGORY IN THE PLASTIC RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF

4. FILL, VOID OR CAVITY MATERIALS\*- SEALANT- MINIMUM 3/4 INCH THICKNESS OF SEALANT APPLIED WITHIN THE

ANNULAR SPACED. FLUSH WITH TOP SURFACE OF PLYWOOD FLOOR. MINIMUM 5/8 INCH THICKNESS OF SEALANT

APPLIED WITHIN THE ANNULAR DIAMETER BEAD OF SEALANT SHALL BE APPLIED AT THE PIPE COVERING/PLYWOOD

AND PIPE COVERING/GYPSUM WALLBOARD INTERFACE ON THE TOP AND BOTTOM SURFACES OF THE FLOOR-CEILING

FILL MATERIAL

FLOOR ASSEMBLY

PER ITEM 1

LAP TYPE. TRANSVERSE JOINTS

SUPPLIED WITH THE PRODUCT. SEE PIPE AND

CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR

CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 50 OR LESS MAY BE

PER ITEM 4

T RATING - 1-HOUR

PER ITEM 2

PIPE COVERING

PER ITEM 3

DIAMETER OF FLOOR OPENING IS 5 INCH.

BLE BUNDLE THROUGH CONC. FLOOF

ABOVE THE FLOOR OR BELOW THE FLOOR PER IBC SECTION 714.4.1.1.2 EXCEPTION 1

U.L. SYSTEM NO. FC3012

7. PROVIDE A GENEROUS BEAD OF HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT THE TOP PLATE.

TERIOR WALL PENETRATIONS THRU STUCCO

APPLY SILICONE SEALANT AROUND PENETRATION AFTER STUCCO IS IN PLACE, TYPICAL

SCALE:

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cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

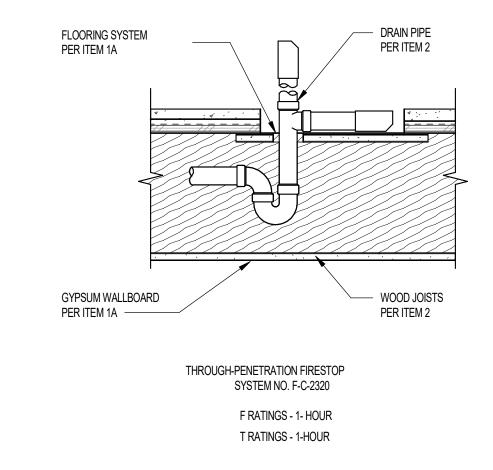
and the owner or its designated agent shall provide this written description on request

Contractor must verify all dimensions at project before proceeding with this

WorldHQ@ORBArch.com

1 1/2" = 1'-0"

1 1/2" = 1'-0" SCALE: 1 1/2" = 1'-0" NOT TO SCALE



VENT CAP PER

MECHANICAL

2x FRAMING AROUND

ASSEMBLY TO PROVIDE

SUPPORT PER SHAFT

WALL ASSEMBLY

A/C UNIT & COVER

PER MECHANICAL

ACCESS PANEL PER

ON UNIT

MECHANICAL, CENTER

COMBINATION FIRE &

SMOKE DAMPER PER

FIRESTOPPING ALL

MINERAL WOOL FIRE

A/C UNIT & COVER

PER MECHANICAL

ACCESS PANEL PER

**COMBINATION FIRE &** 

SMOKE DAMPER PER

FIRESTOPPING ALL

MINERAL WOOL FIRE

A/C UNIT & COVER PER MECHANICAL

ACCESS PANEL PER MECHANICAL, CENTER

**COMBINATION FIRE &** 

SMOKE DAMPER PER

FIRESTOPPING ALL AROUND PENETRATIONS

MINERAL WOOL FIRE

1-HOUR FIRE RATED

ASSEMBLY, TYPICAL

CONTINUOUS 2-HOUR

**COMBINATION FIRE &** 

SMOKE DAMPER PER

MECHANICAL

PODIUM LEVEL

FIRESTOPPING ALL

AROUND PENETRATIONS

NOT TO SCALE

HORIZONTAL BLOCKING AT 48" ON CENTER

BLOCKING

**BREAK-AWAY CLIPS** 

FIRESTOPPING ALL AROUND

CLIP ANGLES: CLIPS SECURED WITH TYPE S

SCREWS 3/8" LONG TO BOTH C CHANNELS AND

IM 22 FW 2 TYPICAL 4 SIDES

2-HR FRESH AIR SHAFT

DRRIDOR AC FRESH AIR DUCT SHAFT

FIRE RATED SHAFT WALL ASSEMBLY

FLOOR/ CEILING

BLOCKING

MECHANICAL

ROOF/CEILING

FLOOR/CEILING

ASSEMBLY

ASSEMBLY

FLOOR/CEILING

EACH VENT TO BE

SEPARATE TO EXTIRIOR

1-HOUR FLOOR/CEILING

ASSEMBLY

ON UNIT

BLOCKING

AROUND PENETRATIONS

LEVEL 3

MECHANICAL

ON UNIT

MECHANICAL, CENTER

BLOCKING

LEVEL 4

AROUND PENETRATIONS

MECHANICAL

SHAFT WITHIN

ROOF/ CEILING

I. FLOOR-CEILING ASSEMBLY-THE 1 HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR- CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:

A. **FLOORING SYSTEM** - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. FLOORING TO ACCOMMODATE THE BATHTUB DRAIN PIPING (ITEM 2) TO BE MAXIMUM 8 BY 12 INCH (203 BY 305 MM). CUTOUT TO BE PATCHED ON UNDERSIDE OF SUBFLOOR

USING ONE LAYER OF MINIMUM 3/4 INCH (19 MM) THICK PLYWOOD OR MINIMUM 5/8 INCH (16 MM)

THICK GYPSUM WALLBOARD (ITEM 1C) SIZED TO LAP MINIMUM 2 INCH (51 MM) BEYOND EACH EDGE OF RECTANGULAR CUTOUT. DIAMETER OF OPENING HOLE-SAWED THROUGH PATCH TO ACCOMMODATE DRAIN PIPING (ITEM 2) TO BE 1 INCH (25 MM) LARGER THAN OUTSIDE DIAMETER OF DRAIN PIPING AND POSITIONED SUCH THAT DRAIN PIPING IS CENTERED IN OPENING. PATCH SPLIT INTO TWO PIECES AT OPENING HOLE-SAWED FOR BATHTUB DRAIN PIPING. TWO PIECES POSITIONED AROUND DRAIN PIPING, WITH CUT EDGES TIGHTLY BUTTED, AND SCREW ATTACHED TO UNDERSIDE OF SUBFLOOR WITH 1-1/4 INCH (32 MM) LONG TYPE S STEEL SCREWS SPACED MAXIMUM 6 INCH (152 MM) ON CENTER.

B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.

C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.22 M) WIDE BY 5/8 INCH (16 MM) THICK, ATTACHED AS DESCRIBED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

2. **DRAIN PIPING** - NOMINAL 1-1/2 INCH (38 MM) DIAMETER (OR SMALLER) SCHEDULE 40 CELLULAR OR SOLID CORE POLYVINYL CHLORIDE (PVC) OR ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE AND DRAIN FITTINGS CEMENTED TOGETHER AND PROVIDED WITH PVC OR ABS BATHTUB WASTE/OVERFLOW FITTINGS. THE ANNULAR SPACE SHALL BE A MINIMUM 3/8 INCH (10 MM) TO MAXIMUM 5/8 INCH (16 MM).

3. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) DEPTH OF FILL MATERIAL APPLIED WITHIN ANNULAR SPACE, FLUSH WITH BOTH SURFACES OF PLYWOOD OR GYPSUM WALLBOARD PATCH. SPECIFIED TECHNOLOGIES INC - TYPE WF300 CAULK

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

<u> THTUB FIRESTOPPING SYSTEM NO. F-C-2320</u>

SCALE: 1 1/2" = 1'-0"

FIRE STOPPING AT CEILING

WALL MOUNTED EXHAUST FAN

UNPROTECTED EXHAUST FAN DUC'

IN WALL (MAXIMUM 4" DIAMETER DUCT)

4th FIN. FLR.

WALL MOUNTED EXHAUST FAN

FIRESTOPPING AT 1-HOUR

RATED WALL (IF REQUIRED)

WALL MOUNTED EXHAUST FAN

FIRESTOPPING AT 1-HOUR

RATED WALL (IF REQUIRED)

ROUTE TO EXTERIOR WAL

WALL MOUNTED EXHAUST FAN

NOT TO SCALE

1st FIN. FLR.

NOT TO SCALE

FIRESTOPPING AT 1-HOUR

RATED WALL (IF REQUIRED)

WALLBOARD PER ITEM 1B -DUCT. PER PER ITEM 2 -ITEM 3 DRYFR VENT WALLBOARD PER DUCT, PER ITEM 1C WALLBOARD PER ITEM 1B - GYPSUM WALLBOARD PER ITEM 1B WALL ASSEMBLY PER ITEM 1A -ASSEMBLY PER ITEM 1A  $\mathsf{A} \leftarrow \!\!\!\!\!-$ SECTION A-A **CONFIGURATION B** 

> THROUGH-PENETRATION FIRESTOP SYSTEM NO. W-L-7129 F RATINGS - 1/2 AND 1 HOUR (SEE ITEMS 1, 1A, AND 4) T RATINGS - 1/2 AND 1 HOUR (SEE ITEMS 1 AND 1A)

1A.WALL ASSEMBLY - CONFIGURATION B - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. **STUDS** - WALL FRAMING TO CONSIST OF WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS CONSIST OF MINIMUM NOMINAL 2 BY 6 INCH (51 BY 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 6 INCH (152.4 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ON CENTER.

B. GYPSUM WALLBOARD\* - ONE LAYER OF NOMINAL 5/8 INCH (16 MM) THICK GYPSUM WALLBOARD EACH SIDE OF WALL, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. SEE ITEM 2 FOR CUTOUT IN GYPSUM WALLBOARD ON ONE SIDE OF WALL FOR DRYER BOX.

C. GYPSUM WALLBOARD\* - AN ADDITIONAL LAYER OF GYPSUM WALLBOARD SHALL BE CUT TO FIT ID OF STUD CAVITY AND INSTALLED FLUSH WITH EDGE OF STUDS ON NON-PENETRATED FACE OF WALL. ADDITIONAL LAYER OF GYPSUM WALLBOARD TO BE ATTACHED TO MINIMUM 1 BY 2 INCH (25 BY 51 MM) WOOD NAILING STRIPS WITH FASTENERS SPACED MAXIMUM 18 INCH (457 MM) ON CENTER AROUND PERIPHERY OF BOARD. NAILING STRIPS TO BE SECURED TO WOOD STUDS AND PLATES WITH FASTENERS SPACED MAXIMUM 18 INCH (457 MM) ON CENTER NAILING STRIPS MAY BE DISCONTINUOUS AND TERMINATE MAXIMUM 1 INCH (25 MM) FROM VENT DUCT AND INTERFACES WITH PLATES AND STUDS.

THE HOURLY F AND T RATING OF THE FIRESTOP SYSTEM FOR CONFIGURATION B IS EQUAL TO 1 HOUR.

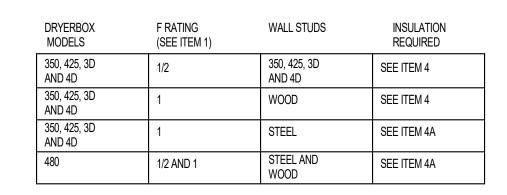
2. CABINET\* - RECESSED FIXTURE INTENDED FOR DRYER APPLIANCE EXHAUST DUCT INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS IN ONE SIDE OF WALL ASSEMBLY, CUTOUT IN GYPSUM WALLBOARD FOR TOP EXHAUST DEVICE IS MAXIMUM 9-1/2 INCH (241 MM) WIDE BY 18-1/4 INCH (464 MM) HIGH. CUTOUT IN GYPSUM WALLBOARD FOR BOTTOM EXHAUST DUCT IS MAXIMUM 14 INCH (356 MM) WIDE BY 16 INCH(406 MM) HIGH. MAXIMUM GAP BETWEEN CABINET AND GYPSUM WALLBOARD AROUND PERIPHERY OF CUTOUT SHALL BE 1/8 INCH (3.2 MM). GAP SHALL BE SEALED WITH UL CLASSIFIED SEALANT OR CAULK (SEE FILL, VOID OR CAVITY MATERIAL (XHHW) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS) OR DRYWALL COMPOUND. IN-O-VATE TECHNOLOGIES - DRYERBOX MODEL 425.

3. STEEL VENT DUCT - MAXIMUM 4 INCH (102 MM) DIAMETER BY MINIMUM 26 GAUGE RIGID STEEL DRYER DUCT FRICTION FITTED INTO TOP OR BOTTOM OPENING OF THE DUCT TO BE ROUTED ENTIRELY WITHIN FIRE RATED CONSTRUCTION FROM THE CABINET TO THE EXTERIOR OF THE BUILDING. VENT DUCT TO BE FIRESTOPPED IN ACCORDANCE WITH AN APPROPRIATE F-A-7000, F-C-7000 OR F-E-7000 SERIES FIRESTOP SYSTEM WHERE IT PASSES THROUGH THE TOP PLATE OR SOLE PLATE OF THE CHASE WALL IN WHICH IT IS ROUTED.

TABLE BELOW. THE SPACES BETWEEN THE SIDES OF THE CABINET AND THE STUDS AND THE SPACE IMMEDIATELY ABOVE THE CABINET ARE TO BE TIGHTLY PACKED WITH GLASS FIBER BATT OR MINERAL WOOL BATT INSULATION. FOR FIRESTOP SYSTEMS WITH 1 HOUR F RATING. THE ENTIRE STUD CAVITY CONTAINING THE CABINET SHALL BE FILLED WITH MINIMUM R19 GLASS FIBER BATT INSULATION OR MINERAL WOOL INSULATION WITH ADDITIONAL PIECES OF INSULATION APPLIED AS NEEDED TO COMPLETELY FILL ALL VOIDS AROUND THE CABINET AND VENT DUCT TO THE FULL DEPTH OF THE STUD CAVITY. ANY GLASS FIBER OR MINERAL WOOL BATT MATERIAL BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE MAY BE USED.

4. INSULATION - REQUIRED FOR DRYERBOX MODELS 350, 425, 3D AND 4D IN WOOD STUD WALLS AS SPECIFIED IN

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED COMPANIES.



1. WALL ASSEMBLY - THE 1 OR 2 HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE

DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: 1.1. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 BY 4 INCH LUMBER SPACED 16 INCH ON CENTER WITH NOMINAL 2 BY 4 INCH LUMBER END PLATES AND CROSS BRACES, STEEL STUDS TO BE MINIMUM 3-5/8 INCH WIDE BY 1-3/8 INCH DEEP CHANNELS WITH NOMINAL 1/4 INCH FOLDED BACK RETURN ON FLANGE EDGES, FORMED FROM MINIMUM 0.025 INCH

THICK (NO. 25 GUAGE) GALVANIZED STEEL. STEEL STUDS CUT 3/4 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT WITH ENDS NESTING IN AND SECURED TO CHANNEL SHAPED GALVANIZED STEEL FLOOR AND CEILING TRACKS WITH 1/2 INCH LONG TYPE S-12 SELF-DRILLING, SELF-TAPPING STEEL SCREWS ON

BOTH SIDES OF STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH AISI SPECIFICATIONS, STEEL STUD SPACING NOT TO EXCEED 24 INCH ON CENTER.

T RATINGS - 0, 1, 1-1/2 AND 2 HOUR. (SEE ITEM 4)

1.2. GYPSUM WALLBOARD\* - 5/8 INCH THICK, 4 FOOT WIDE WITH SQUARE OR TAPERED EDGES. ANY GYPSUM WALLBOARD BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE. WALLBOARD INSTALLED SIDES OF STUD FRAMING WITH JOINTS CENTERED OVER STUDS AND WITH JOINTS ON OPPOSITE SIDES OF WALL STAGGERED ONE STUD. FOR 1-HOUR FIRE-RATED WALL ASSEMBLY, A SINGLE LAYER OF GYPSUM WALLBOARD IS REQUIRED. FOR 2-HOUR FIRE-RATED WALL ASSEMBLY, TWO LAYERS OF GYPSUM WALLBOARD IS REQUIRED WITH OUTER LAYER JOINTS STAGGERED ONE STUD FROM INNER LAYER JOINTS. SEE WALLBOARD, GYPSUM (CKNX) CATEGORY IN UL FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS

1.3. FASTENERS - WHEN WOOD STUD FRAMING IS EMPLOYED FOR 1-HOUR FIRE-RATED WALL ASSEMBLY, GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-7/8 INCH LONG 6D CEMENT COATED NAILS SPACED 7 INCH ON AND IN THE FIELD. WHEN WOOD STUD FRAMING IS EMPLOYED FOR 2-HOUR FIRE-RATED WALL ASSEMBLY, INNER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-7/8 INCH LONG 6D CEMENT COATED NAILS SPACED 6 TO 8 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. OUTER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 2-3/8 INCH LONG 8D CEMENT COATED NAILS SPACED 6 TO 8 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. WHEN STEEL CHANNEL STUD FRAMING IS EMPLOYED FOR 1-HOUR FIRE-RATED WALL ASSEMBLY, GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1 INCH LONG TYPE S SELF-DRILLING, SELF-TAPPING, BUGLE-HEAD STEEL SCREWS SPACED 8 INCH ON CENTER AT JOINT EDGES AND 8 TO 12 INCH ON CENTER IN THE FIELD. WHEN STEEL CHANNEL STUD FRAMING IS EMPLOYED FOR 2- HOUR FIRE-RATED WALL ASSEMBLY, INNER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1 INCH LONG TYPE S SELF-DRILLING, SELF-TAPPING BUGLE-HEAD SCREWS SPACED MAXIMUM 12 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. OUTER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-5/8 INCH LONG TYPE S SELF-DRILLING, SELF-TAPPING BUGLE-HEAD STEEL SCREWS SPACED MAXIMUM 12 IN.CH ON CENTER AT JOINT EDGES AND IN THE FIELD.

1.4. JOINT TAPE AND COMPOUND - (NOT SHOWN) - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOUND APPLIED IN TWO COATS TO JOINTS AND SCREW OR NAIL HEADS OF OUTER LAYER OF GYPSUM WALLBOARD. PERFORATED PAPER TAPE, 2 INCH WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYER OF GYPSUM WALLBOARD.

2. STEEL PIPE OR CONDUIT - NOMINAL 4 INCH DIAMETER (OR SMALLER) SCHEDULE 5S (OR HEAVIER) STEEL PIPE, NOMINAL 4 INCH DIAMETER (OR SMALLER) FLEXIBLE STEEL CONDUIT. A MAXIMUM OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM, PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY

3. PIPE COVERING\* - (OPTIONAL) - NOMINAL 1 INCH THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH FOIL-SCRIM-KRAFT. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY APPLIED SLL. TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT. SEE PIPE AND EQUIPMENT COVERINGS - MATERIALS (BRGU) CATEGORY IN 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 VALUE OF 25 OR LESS AND A SMOKE DEVELOPED VALUE OF 50 OR LESS MAY BE USED. 4. FIRESTOP SYSTEM - INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EITHER 1 OR 2 HOUR DEPENDING UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED THE HOURLY T RATING FOR THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE SIZE OF THE STEEL PIPE OR CONDUIT. THE ABSENCE OR PRESENCE OF PIPE COVERING (ITEM 3). THE FIRESTOP CONFIGURATION AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. THE FIRESTOP CONFIGURATION (A, B, OR C) ID DEPENDENT UPON THE SIZE OF THE ANNULAR SPACE BETWEEN THE STEEL PIPE OR CONDUIT (OR PIPE COVERING) AND THE PERIMETER OF THE CIRCULAR THROUGH OPENING IN THE GYPSUM WALLBOARD LAYERS, AS TABULATED BELOW:

MAXIMUM PIPE OR	NOMINAL PIPE COVERING THICKNESS	ANNULAR SPACE	FIRESTOP CONFIGURATION (a)	T RATING
CONDUIT DIAMETER	NONE	0 - 3/16 INCH	Α	1 OR 2 HOUR
4 INCH.	NONE	0 - 3/16 INCH.	А	0hr
4 INCH.	NONE	1/4 - 3/8 INCH	В	0hr
4 INCH	1 INCH	1/4 - 3/8 INCH	В	1 OR 1-1/2 HOUR
4 INCH	1 INCH	0 - 3/16 INCH	С	1 OR 2 HOUR

(A)A, B AND C INDICATE FIRESTOP CONFIGURATION, AS DESCRIBED IN THE FOLLOWING:

A. FILL, VOID OR CAVITY MATERIALS\* - CAULK - CAULK FILL MATERIAL FORCED INTO ANNULAR SPACE TO MAXIMUM EXTENT POSSIBLE AND WITH A MINIMUM 1/4 INCH DIAMETER BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 S/L, CP-25 N/S

FIRESTOP CONFIGURATION B A. FILL, VOID OR CAVITY MATERIALS\* - WRAP STRIP - NOMINAL 1/4 INCH THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 INCH WIDE STRIPS. NOMINAL 2 INCH WIDE STRIP - TIGHTLY WRAPPED AROUND STEEL PIPE, STEEL CONDUIT OR PIPE COVERING (FOIL SIDE OUT) WITH SEAM BUTTED. WRAP STRIP LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROXIMATELY 1-1/4 INCH SUCH THAT APPROXIMATELY 3/4 INCH OF THE WRAP STRIP WIDTH PROTRUDES FROM THE WALL SURFACE. MINNESOTA MINING & MANUFACTURING CO. - TYPE FS-195 B. FILL, VOID OR CAVITY MATERIALS\* - CAULK - MINIMUM 1/4 INCH DIAMETER CONTINUOUS BEAD APPLIED TO LEADING EDGE OF WRAP STRIP LAYER (ITEM A) PRIOR TO INSERTION OF WRAP STRIP LAYER IN ANNULAR SPACE. AFTER INSERTION OF WRAP STRIP LAYER IN ANNULAR SPACE, A NOMINAL 1/4 INCH DIAMETER CONTINUOUS BEAD IS TO BE APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER APPROXIMATELY 3/4 INCH FROM THE WALL SURFACE. MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 S/L, CP-25 N/S.

A. FILL, VOID OR CAVITY MATERIALS\* - WRAP STRIP - NOMINAL 1/4 INCH THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 INCH WIDE STRIPS. NOMINAL 2 INCH WIDE STRIP, TIGHTLY WRAPPED AROUND PIPE COVERING (FOIL SIDE OUT) WITH SEAM BUTTED AND WITH EDGE OF WRAP STRIP ABUTTING WALL SURFACE. WRAP STRIP TEMPORARILY HELD IN POSITION WITH ALUMINUM FOIL TAPE, STEEL WIRE TIE OR EQUIVALENT. MINNESOTA MINING & MANUFACTURING

B. FILL, VOID OR CAVITY MATERIALS\* - CAULK - GENEROUS BEAD OF CAULK APPLIED TO OUTER PERIMETER OF WRAP STRIP AT INTERFACE WITH WALL SURFACE. MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 S/L, CP-25 N/S. C. STEEL COLLAR - NOMINAL 2 INCH DEEP COLLAR WITH 1-1/4 INCH WIDE BY 2 INCH LONG ANCHOR TABS AND MINIMUM 1/4 INCH LONG TABS TO RETAIN WRAP STRIP LAYER. COILS OF PRECUT 0.016 INCH THICK (NO. 30 GUAGE) GALVANIZED SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. AS AN ALTERNATE, COLLAR MAY BE FIELD FABRICATED FROM MINIMUM 0.016 INCH THICK (NO. 30 GAUGE) GALVANIZED SHEET STEEL IN ACCORDANCE WITH INSTRUCTION SHEET SUPPLIED BY WRAP STRIP MANUFACTURER. STEEL COLLAR, WITH ANCHOR TABS BENT OUTWARD 90 DEGREES, WRAPPED TIGHTLY AROUND WRAP STRIP LAYER WITH MINIMUM 1 INCH OVERLAP AT SEAM. WITH STEEL ANCHOR TABS PRESSED TIGHTLY AGAINST WALL SURFACE. COMPRESS COLLAR AROUND WRAP STRIP LAYER USING A MINIMUM 1/2 INCH WIDE BY 0.028 INCH THICK STAINLESS STEEL BAND CLAMP WITH WORM DRIVE TIGHTENING MECHANISM AT THE COLLAR MID-HEIGHT. SECURE COLLAR TO GYPSUM WALLBOARD WITH 3/16 INCH DIAMETER STEEL WASHERS. FOUR TOGGLE BOLTS REQUIRED, SYMMETRICALLY LOCATED. AS A FINAL STEP, BEND RETAINER TABS 90 DEGREES TOWARD PIPE COVERING TO LOCK WRAP STRIP LAYER IN POSITION. \*BEARING THE UL CLASSIFICATION

STEEL PIPE OR CONDUIT THROUGH 1HR./2HR RATED **NOOD FRAMED WALL** 

FIRESTOP CONFIGURATION A

SYSTEM NO. 147 F RATINGS - 1 AND 2 HOUR. (SEE ITEM 4)

SECTION A-A

. WALL ASSEMBLY - THE 1 OR 2 HOUR FIRED RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITIONS DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION

1.1. **STUDS** - WALL FRAMING SHALL CONSIST OF EITHER WOOD OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2X4 INCH LUMBER SPACED 16 INCH ON CENTER STEEL STUDS

TO BE MINIMUM 2-1/2 INCH

WIDE AND SPACED MAXIMUM 24 INCH ON CENTER.

**UL SYSTEM NO. W-L-7077** 

F RATINGS - 1 AND 2 HOUR (SEE ITEM 1

T RATINGS - 0 AND 1 HOUR (SEE ITEM 1)

WALL ASSEMBLY PER ITEM 1 -

PER ITEM 2

1.2. GYPSUM WALLBOARD\* - ONE OR TWO LAYERS OF 5/8 INCH THICK, 4 FOOT WIDE GYPSUM WALLBOARD WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER O LAYERS AND ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 5 INCH THE HOURLY F RATING IS EQUAL TO THE HOURLY RATING OF THE ASSEMBLY IN WHICH THE FIRESTOP SYSTEM IS INSTALLED. WHEN THE F RATING IS 2-HOUR, THE T RATING IS 1-HOUR WHEN THE F RATING IS 1- HOUR, THE T RATING IS 0-HOUR.

INCH IS REQUIRED WITHIN THE FIRESTOP SYSTEM, DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY, THE FOLLOWING TYPES AND SIZES OF DUCTS MAY BE USED: 2.1. **STEEL RIGID VENT DUCT** - NOMINAL 4 INCH DIAMETER (OR SMALLER) 28 GAUGE (OR HEAVIER)

THROUGH PENETRANTS - ONE METALLIC VENT DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY

WITHIN THE FIRESTOP SYSTEM. A NOMINAL ANNULAR SPACED OF MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1

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

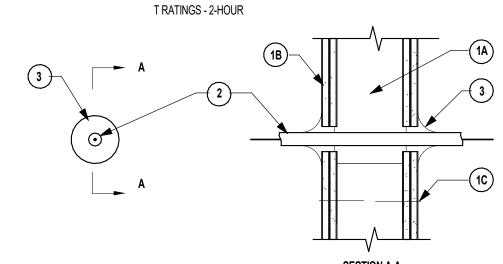
3.1. PACKING MATERIAL - FOR 2-HOUR WALL ASSEMBLIES, FOAM BACKER ROD FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIALS.

3.2. FILL, VOID OR CAVITY MATERIAL\*- CAULK - MINIMUM 5/8 INCH THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF THE WALL. AT POINT CONTACT LOCATION, A MINIMUM 1/2 INCH DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED TO THE GYPSUM WALLBOARD/DUCT INTERFACE OF BOTH SURFACES OF WALL.

ECTORSEAL - BIOSTOP 500+ BEARING THE UL CLASSIFICATION MARK

JCT PENETRATION THRU RATED WAL

SYSTEM NO. 149 F RATINGS - 2-HOUR



1. WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL 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 NOMINAL 2 BY 4 INCH LUMBER SPACED 16 INCH ON CENTER WITH NOMINAL 2 BY 4 INCH LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MINIMUM 3-5/8 INCH WIDE BY 1-3/8 INCH DEEP CHANNELS WITH NOMINAL 1/4 INCH FOLDED BACK RETURN ON FLANGE EDGES, FORMED FROM MINIMUM 0.025 INCH THICK (NO 25 GUAGE) GALVANIZED STEEL. STEEL STUDS CUT 3/4 INCH LESS IN LENGTH THAN ASSEMBLY HEIGHT WITH ENDS NESTING IN AND SECURED TO CHANNEL SHAPED GALVANIZED STEEL FLOOR AND CEILING TRACKS WITH 1/2 INCH LONG TYPE S-12 SELF-DRILLING, SELF-TAPPING STEEL SCREWS ON BOTH SIDES OF STUDS OR BY WELDED OR BOLTED CONNECTIONS DESIGNED IN ACCORDANCE WITH AISI SPECIFICATIONS, STEEL STUD SPACING NOT TO EXCEED 24 INCH ON CENTER

B. WALLBOARD, GYPSUM\* - 5/8 INCH THICK, 4 FOOT WIDE WITH SQUARE OR TAPERED EDGES. ANY GYPSUM WALLBOARD BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE. WALLBOARD INSTALLED VERTICALLY IN TWO LAYERS ON BOTH SIDES OF STUD FRAMING WITH JOINTS OF EACH LAYER CENTERED OVER STUDS. INNER LAYER JOINTS ON OPPOSITE SIDES OF WALL STAGGERED ONE STUD. OUTER LAYER JOINTS STAGGERED ONE STUD FROM INNER LAYER JOINTS. SEE WALLBOARD, GYPSUM (CKNX) CATEGORY IN UL FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

C. FASTENERS - WHEN WOOD STUD FRAMING IS EMPLOYED, INNER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-7/8 INCH LONG 6D CEMENT-COATED NAILS (0.0915 INCH SHANK DIAMETER AND 1/4 INCH DIAMETER HEADS) SPACED 6 TO 8 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. OUTER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 2-3/8 INCH LONG 8D CEMENT-COATED NAILS (0.113 INCH SHANK DIAMETER AND 9/32 INCH DIAMETER HEADS)

SPACED 6 TO 8 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. WHEN STEEL CHANNEL STUD FRAMING IS EMPLOYED, INNER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1 INCH LONG TYPE S SELF-DRILLING. SELF-TAPPING BUGLE-HEAD STEEL SCREWS SPACED MAXIMUM 12 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. OUTER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-5/8 INCH LONG TYPE S SELF-DRILLING, SELF-TAPPING, BUGLE-HEAD STEEL SCREWS SPACED MAXIMUM 12 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD. OUTER LAYER OF GYPSUM WALLBOARD ATTACHED TO STUDS WITH 1-5/8 INCH LONG TYPE S SELF- DRILLING, SELF-TAPPING. BUGLE-HEAD STEEL SCREWS SPACED MAXIMUM 12 INCH ON CENTER AT JOINT EDGES AND IN THE FIELD.

D. JOINT TAPE AND COMPOUND - (NOT SHOWN) - VINYL OR CASEIN, DRY OR PREMIXED JOINT COMPOLIND APPLIED IN TWO COATS TO JOINTS AND SCREW OR NAIL HEADS OF OUTER LAYER OF GYPSLIM WALLBOARD. PERFORATED PAPER TAPE, 2 INCH WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS OF OUTER LAYER OF GYPSUM WALLBOARD.

2. CABLE - MAXIMUM 25 NO. 24 AWG PAIR TELEPHONE CABLE OR MAXIMUM TWO CONDUCTOR WITH GROUND NO. 10, 12 OR 14 AWG TYPE NM NON-METALLIC SHEATH COPPER CONDUCTOR CABLE WITH POLYVINYL CHLORIDE CIRCULAR THROUGH OPENING IN THE GYPSUM WALLBOARD LAYERS. WHEN TWO CONDUCTOR TYPE NM CABLE IS

3. FILL, VOID OR CAVITY MATERIALS\* - CAULK - CAULK FILL MATERIAL FORCED INTO ANNULAR SPACE TO MAXIMUM EXTENT POSSIBLE AND WITH A MINIMUM 1/4 INCH DIAMETER BEAD OF CAULK APPLIED TO PERIMETER OF CABLE AT ITS EGRESS FROM THE WALL (INSTALL SYMMETRICALLY ON BOTH SIDES OF WALL). MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 S/L. CP-25 N/S. \*BEARING THE UL CLASSIFICATION MARKING

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

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cycles other than thirty days. (This contract may allow the owner to make payment on some

alternative schedule after certification and approval of billings and estimates). A written description of

such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

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CABLE THROUGH 2HR RATED WOOD FRAMED WALL

PENETRATIONS FLOOR/CEILING ASSEMBLY FIRESTOPPING AT 24" MIN. TO FAN COIL 🕖 FLOOR/CEILING - DUCT AND COMBINATION FIRE AND SMOKE ASSEMBLY DAMPER PER MECHANICAL SHAFT PER WALL ASSEMBLY FIRESTOPPING AT 1-HOUR RATED WALL DIAMETER DUCT) GYPSUM WALLBOARD CORNER BEAD FLOOR/CEILING GYPSUM WALLBOARD, PER ASSEMBLY ASSEMBLY 1. ALL JOINTS SHALL BE SEALED TO MAKE SHAFT AIR TIGHT FIRESTOPPING AT 2. REFER TO PLAN FOR SHAFT CONFIGURATION AND ADJACENT WALLS 1-HOUR RATED WALL DIAMETER DUCT) 3. ADD ADDITIONAL LAYER OF 5/8" TYPE 'X' GYPSUM WALLBOARD TO PERIMETER AS REQUIRED TO ALIGN WITH ADJACENT WALL FINISH EACH VENT TO BE SEPARATE TO EXTERIOR

SCALE: 1 1/2" = 1'-0"

FIRESTOPPING AT CEILING 1-HOUR ROOF/CEILING VERTICAL WITH 2" WIDE 2-1/2"x2-1/2"x24 GA GSM ASSEMBLY \_\_\_ WITH 1-1/4" LONG SCREWS TO WOOD OR STEEL UNPROTECTED METAL DRYER FIRESTOPPING AT DUCT IN WALL (MAXIMUM 4" 1-HOUR RATED WALL DIAMETER DUCT) 4th FIN. FLR. UNPROTECTED METAL DRYER DUCT IN WALL (MAXIMUM 4" DIAMETER 3rd FIN. FLR. ROUTE TO EXTERIOR WALL UNPROTECTED METAL DRYER DUCT IN WALL (MAXIMUM 4" ---- ROUTE TO EXTERIOR WALL UNPROTECTED METAL DRYER DUCT IN WALL (MAXIMUM 4"

NOTE: PACK ALL PENETRATION VOIDS AROUND DUCT

FIRE STOPPING AT EXHAUST FAN

**DRYER VENT** 

AT TOP AND BOTTOM PLATES WITH ROCKWOOL

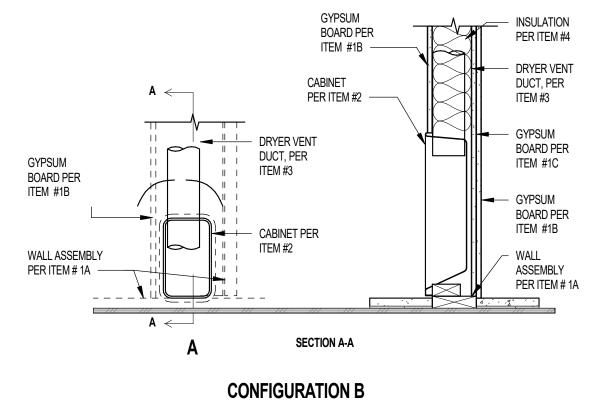
SYSTEM NO. W-L-7129

DRYERBOX FIRESTOPPING SYSTEM NO. W-L-7129 NOT TO SCALE

NOT TO SCALE

INSULATION AND JACKET MATERIALS. MAXIMUM ONE CABLE TO BE INSTALLED. IN NOMINAL 1/2 INCH DIAMETER USED, T RATING IS 1-1/2 HOUR WHEN MAXIMUM 25 PAIR TELEPHONE CABLE IS USED, T RATING IS 2-HOUR.

SYSTEM NO. W-L-7129



SYSTEM NO. W-L-7129 F RATINGS — 1/2 AND 1 HR (SEE ITEMS 1, 1A AND 4)

T RATINGS — 1/2 AND 1 HR (SEE ITEMS 1 AND 1A)

THROUGH-PENETRATION FIRESTOP

1A. WALL ASSEMBLY - CONFIGURATION B - THE 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 W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE

FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - WALL FRAMING TO CONSIST OF WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF MIN NOM 2 BY 6 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 6 IN. (152.4 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC.

B. GYPSUM BOARD\* - ONE LAYER OF NOM 5/8 IN. (16 MM) THICK GYPSUM BOARD EACH SIDE OF WALL, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. SEE ITEM 2 FOR CUTOUT IN GYPSUM BOARD ON ONE SIDE OF WALL FOR DRYER BOX.

C. GYPSUM BOARD\* - AN ADDITIONAL LAYER OF GYPSUM BOARD SHALL BE CUT TO FIT ID OF STUD CAVITY AND INSTALLED FLUSH WITH EDGE OF STUDS ON NON-PENETRATED FACE OF WALL. ADDITIONAL LAYER OF GYPSUM BOARD TO BE ATTACHED TO MIN 1 BY 2 IN. (25 BY 51 MM) WOOD NAILING STRIPS WITH FASTENERS SPACED MAX 18 IN. (457 MM) OC AROUND PERIPHERY OF BOARD. NAILING STRIPS TO BE SECURED TO WOOD STUDS AND PLATES WITH FASTENERS SPACED MAX 18 IN. (457 MM) OC. NAILING STRIPS MAY BE DISCONTINUOUS AND TERMINATE MAX 1 IN. (25

THE HOURLY F AND T RATING OF THE FIRESTOP SYSTEM FOR CONFIGURATION B IS EQUAL TO 1 HR.

MM) FROM VENT DUCT AND CABINET INTERFACES WITH PLATES AND STUDS.

2. CABINET\* - RECESSED FIXTURE INTENDED FOR DRYER APPLIANCE EXHAUST DUCT INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS IN ONE SIDE OF WALL ASSEMBLY. CUTOUT IN GYPSUM BOARD FOR TOP EXHAUST DEVICE IS MAX 9-1/2 IN. (241 MM) WIDE BY 18-1/4 IN. (464 MM) HIGH. CUTOUT IN GYPSUM BOARD FOR BOTTOM EXHAUST DUCT IS MAX 14 IN. (356 MM) WIDE BY 16 IN. (406 MM) HIGH. MAX GAP BETWEEN CABINET AND GYPSUM BOARD AROUND PERIPHERY OF CUTOUT SHALL BE 1/8 IN. (3.2 MM). GAP SHALL BE SEALED WITH UL CLASSIFIED SEALANT OR CAULK (SEE FILL, VOID OR CAVITY MATERIAL (XHHW) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS) OR DRYWALL COMPOUND. IN-O-VATE TECHNOLOGIES - DRYERBOX MODEL 425.

3. STEEL VENT DUCT - MAX 4 IN. (102 MM) DIAM BY MIN 26 GAUGE RIGID STEEL DRYER DUCT FRICTION FITTED INTO TOP OR BOTTOM OPENING OF THE DUCT TO BE ROUTED ENTIRELY WITHIN FIRE RATED CONSTRUCTION FROM THE CABINET TO THE EXTERIOR OF THE BUILDING. VENT DUCT TO BE FIRESTOPPED IN ACCORDANCE WITH AN APPROPRIATE F-A-7000, F-C-7000 OR F-E-7000 SERIES FIRESTOP SYSTEM WHERE IT PASSES THROUGH THE TOP PLATE OR SOLE PLATE OF THE CHASE WALL IN WHICH IT IS ROUTED.

4. INSULATION - REQUIRED FOR DRYERBOX MODELS 350, 425, 3D AND 4D IN WOOD STUD WALLS AS SPECIFIED IN TABLE BELOW. THE SPACES BETWEEN THE SIDES OF THE CABINET AND THE STUDS AND THE SPACE IMMEDIATELY ABOVE THE CABINET ARE TO BE TIGHTLY PACKED WITH GLASS FIBER BATT OR MINERAL WOOL BATT INSULATION. FOR FIRESTOP SYSTEMS WITH 1 HR F RATING, THE ENTIRE STUD CAVITY CONTAINING THE CABINET SHALL BE FILLED WITH MIN R19 GLASS FIBER BATT INSULATION OR MINERAL WOOL INSULATION WITH ADDITIONAL PIECES OF INSULATION APPLIED AS NEEDED TO COMPLETELY FILL ALL VOIDS AROUND THE CABINET AND VENT DUCT TO THE FULL DEPTH OF THE STUD CAVITY. ANY GLASS FIBER OR MINERAL WOOL BATT MATERIAL BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE MAY BE USED.

SEE BATTS AND BLANKETS\* (BZJZ) CATEGORY FOR NAMES OF CLASSIFIED COMPANIES.

DRYERBOX MODELS	F RATING (SEE ITEM 1)	WALL STUDS	INSULATION REQUIRED
350, 425, 3D AND 4D	1/2	350, 425, 3D AND 4D	SEE ITEM 4
350, 425, 3D AND 4D	1	WOOD	SEE ITEM 4
350, 425, 3D AND 4D	1	STEEL	SEE ITEM 4A
480	1/2 AND 1	STEEL AND WOOD	SEE ITEM 4A

DRYERBOX PENETRATION THROUGH GYPSUM WALL

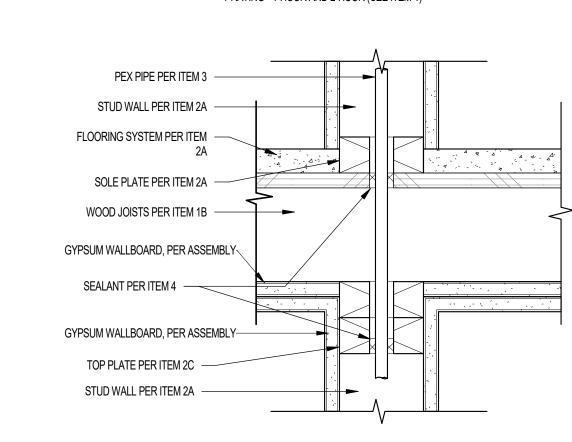
ASSEMBLY (1-HR)

SCALE: 1" = 1'-0"

# UL SYSTEM NO. F-C-2081

F RATING - 1-HOUR AND 2-HOUR (SEE ITEM 1) T RATING - 1-HOUR AND 2-HOUR (SEE ITEM 1)

JANUARY 20, 2015



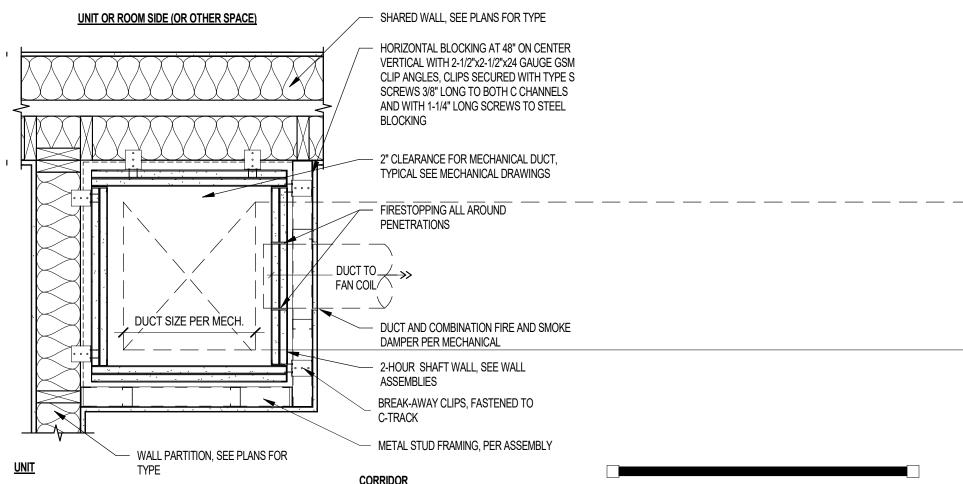
1. FLOOR-CEILING ASSEMBLY: THE 1 OR 2 HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE 'F' AND 'T' RATINGS OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING AND WALL ASSEMBLIES. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM: LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OR LUMBER,

- PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING SHALL BE 1/2 INCH (13 MM) LARGER THAN THE NOMINAL DIAMTER OF THOUGH PENETRANT (ITEM 3).
- B. WOOD JOISTS\*: FOR 1-HOUR FIRE-RATED FLOOR-CEILING ASSEMBLIES NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS (NOT SHOWN, AS REQUIRED) : RESILIENT GALVANIZED STEEL FURRING
- INSTALLED IN ACCORDANCE WITH THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY. D. GYPSUM WALLBOARD\*: THICKNESS, TYPE, NUMBER OF LAYERS AND FASTNERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING SHALL BE

1/2 INCH (13 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH PENETRANT (ITEM 3).

- 2. CHASE WALL (OPTIONAL): THE 1 OR 2 HOUR FIRE-RATED SINGLE WOOD STUD/GYPSUM WALLBOARD CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS: NOMINAL 2 INCH BY 4 INCH (51 BY 102 MM) LUMBER STUDS. B. SOLE PLATE: NOMINAL 2 INCH BY 4 INCH (51 BY 102 MM) LUMBER PLATES. DIAMETER OF OPENING SHALL BE 1/2 INCH (13 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH PENETRANT
- C. TOP PLATE: THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2" BY 4" (51 BY 102 MM) LUMBER PLATES. DIAMETER OF OPENING SHALL BE 1/2" (13 MM) LARGER THAN THE
- NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). D. GYPSUM WALLBOARD: THICKNESS, TYPE, NUMBER OF LAYERS AND FASTNERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN.
- 3. THROUGH PENETRANTS: ONE NOMINAL 1 INCH (25 MM) DIAMETER CROSS-LINKED POLYETHYLENE (PEX) SDR 9 TUBE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. DIAMETER OF OPENING THROUGH FLOORING SYSTEM AND THROUGH SOLE AND TOP PLATES OF CHASE WALL TO BE MAXIMUM 1-1/2 INCH (38 MM). PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY
- 4. FILL, VOID OR CAVITY MATERIAL\*: SEALANT MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE AND A MINIMUM 1/2 INCH (13 MM) THICKNESS OF THE CEILING OR LOWER TOP PLATES. HILTI CONSTRUCTION CHEMICALS, DIVISION OF HILTI INC. - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.

XHEX-THROUGH - FIRE PENETRATION SYSTEMS SCALE: U.L. SYSTEM NO. F-C-2081



NOTE:

1. ACTUAL CONDITION MIGHT VARY, SEE FLOOR PLANS FOR CONFIGURATION 2. ALL JOINTS SHALL BE SEALED TO MAKE SHAFT AIR TIGHT 3. REFER TO PLAN FOR SHAFT CONFIGURATION AND ADJACENT WALLS 4. ADD ADDITIONAL LAYER OF 5/8" TYPE 'X' GYPSUM WALLBOARD TO PERIMETER AS REQUIRED TO ALIGN WITH ADJACENT

2HR SHAFT FURRED WALI

WALL FINISH

SCALE:

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

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**NOT FOR** 

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

SYSTEM NO. F-C-0002

CAN/ULC S115

F RATINGS - 1 AND 2 HOUR (SEE ITEM 1)

ANSI/UL1479 (ASTM E814)

F RATINGS - 1 AND 2 HOUR (SEE ITEM 1

Classified by Underwriters Laboratories, Inc

1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOOR SYSTEM - LUMBER OF PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF FLOOR OPENING IS 1 INCH (25 MM). B. WOOD JOINTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - RESILIENT GALVANIZED STEEL FURRING INSTALLED PERPENDICULAR TO WOOD JOISTS MAXIMUM 24 INCH (610 MM) ON BOARD AND WOOD JOISTS AS REQUIRED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. FURRING CHANNELS SPACED

D. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (122 CM) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. GYPSUM WALLBOARD SECURED TO WOOD JOINTS OR FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING IS 1 INCH (25 MM). THE F, FH AND T, FT, FTH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE FLOOR-CEILING ASSEMBLY IN WHICH IT IS INSTALLED.

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Page: 1 of 2

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SYSTEM NO. F-C-1059

SYSTEM NO. F-C-0002

2. CHASE WALL - (OPTIONAL) - THE 1 OR 2-HOUR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL SHALL BE

C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL OR 2 X 4 INCH OR 2 X 6 INCH (51 X 102 OR 51 X 152 MM) LUMBER PLATES.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - FS ONE SEALANT, FS-ONE MAX INTUMESCENT SEALANT OR CP606 SEALANT

3. FILL, VOID OR CAVITY MATERIAL+ - SEALANT - MINIMUM 3/4 INCH (19MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS ON TOP SURFACE

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATIONS (SUCH

IN THE UL FIRE RESISTIANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

OF FLOOR OR SOLE PLATE OF CHASE WALL. MINIMUM 5/8 INCH (16MM) THICKNESS OF FILL MATERIAL APPLIED

WITHIN THE ANNULUS, FLUDH WITH THE BOTTOM SURFACE OF HTE CEILING OR LOWER TOP PLATE.

A. **STUDS** - NOMINAL 2 X 4 INCH OR 2 X 6 INCH (51 X 102 OR 51 X 152 MM) LUMBER STUDS.

B. SOLE PLATE - NOMINAL 2 X 4 INCH OR 2 X 6 INCH (51 X 102 OR 51 X 152 MM) LUMBER PLATES

CONSTRUCTED OF THE MATERIALS AND THE MANNER SPECIFIED IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS

Classified by

MAXIMUM DIAMETER OF OPENING IS 1 INCH.

AS CANADA), RESPECTIVELY.

Classified by Underwriters Laboratories, Inc. to UL 1479 and T RATING - 1/4-HOUR FT RATING - 1/4-HOUR L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT FH RATING - 1 AND 2-HOUR (SEE ITEM 1) L RATING AT 400 F - 4 CFM/SQ FT FTH RATING - 1/4-HOUR L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT L RATING AT 400 F - 4 CFM/SQ FT SECTION A-A

SYSTEM NO. F-C-1009

CAN/ULC S115

F RATING - 1 AND 2-HOUR (SEE ITEM 1)

ANSI/UL1479 (ASTM E814)

F RATING - 1 AND 2-HOUR (SEE ITEM 1)

1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING ASSEMBLY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:

A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING TO BE MAXIMUM 1 INCH (25 MM) LARGER THAN DIAMETER OF PIPE. AS AN ALTERNATE, THE OPENING MAY BE SQUARE-CUT WITH A MAXIMUM DIMENSION 1 INCH (25 MM) GREATER THAN THE DIAMETER OF THE PIPE. B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - (AS REQUIRED ) RESILIENT GALVANIZED STEEL FURRING INSTALLED IN ACCORDANCE WITH THE MANNER

SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY. D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR-DESIGN. DIAMETER OF OPENING TO BE MAXIMUM 1 INCH (25 MM) LARGER THAN DIAMETER OF PIPE.

Hilti Firestop Systems

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January 15, 2015

SYSTEM NO. F-C-1009

2. CHASE WALL - (OPTIONAL) - THE THROUGH PENETRANT (ITEM 3) MAY BE ROUTED THROUGH A 1 OR 2-HOUR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR- CEILING ASSEMBLY. DEPTH OF CHASE WALL TO BE MINIMUM 1 INCH GREATER THAN THE DIAMETER OF THE THROUGH PENETRANT. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - NOMINAL 2 X 4 INCH (51 BY 102 MM), 2 X 6 INCH (51 BY 152 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 BY 102 MM) LUMBER STUDS. NOMINAL 2 X 4 INCH (51 BY 102 MM) STUDS ARE ALLOWED FOR THROUGH-PENETRANTS (ITEM 3) NOT EXCEEDING NOMINAL 2 INCH (51 MM) DIAMETER. B. SOLE PLATE - NOMINAL 2 X 4 INCH (51 BY 102 MM), 2 X 6 INCH (51 BY 152 MM) OR PARALLEL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAMETER OF OPENING IS TO BE MAXIMUM 1 INCH (925 MM) LARGER THAN DIAMETER OF PIPE. AS AN ALTERNATE. THE OPENING MAY BE SQUARE-CUT WITH A MAXIMUM DIMENSION 1 INCH (25 MM) GREATER THAN THE DIAMETER OF THE PIPE. PLATES MAY BE DISCONTINUOUS OVER OPENING. TERMINATING AT TWO OPPOSING EDGES OF OPENING. MÁXIMUM LENGTH OF DISCONTINUITY TO BE 1 INCH (25 MM) GREATER THAN

DIAMETER OF THROUGH PENETRANT. C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 BY 102 MM), 2 X 6 INCH (51 BY 152 MM) OR TWO PARALLEL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAMETER OF OPENING IS TO BE MAXIMUM 1 INCH (25 MM) LARGER THAN DIAMETER OF PIPE. AS AN ALTERNATE, THE OPENING MAY BE SQUARE-CUT WITH A MAXIMUM DIMENSION 1 INCH (25 MM) GREATER THAN THE DIAMETER OF THE PIPE. PLATES MAY BE DISCONTINUOUS OVER OPENING, TERMINATING AT TWO OPPOSING EDGES OF OPENING. MAXIMUM LENGTH OF

DISCONTINUITY TO BE 1 INCH (25 MM) GREATER THAN DIAMETER OF THROUGH PENETRANT. D. STEEL PLATE - WHEN LUMBER PLATES ARE DISCONTINUOUS, NOMINAL 1-1/2 INCH (38 MM) WIDE NO. 20 GAUGE (OR HEAVIER) STEEL PLATES SHALL BE INSTALLED TO CONNECT EACH DISCONTINUOUS LUMBER PLATE AND TO PROVIDE A FORM FOR THE FILL MATERIAL. STEEL PLATES SIZED TO LAP 2 INCH (51 MM) ONTO EACH DISCONTINUOUS LUMBER PLATE AND SECURED TO LUMBER PLATES WITH STEEL SCREWS OR NAILS.

E. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION 3. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY. THE ANNULAR SPACE WITHIN THE FIRESTOP SYSTEM SHALL BE MINIMUM 0 INCH (POINT CONTACT).

FO MAXIMUM 1 INCH (25 MM). THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED: A. STEEL PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

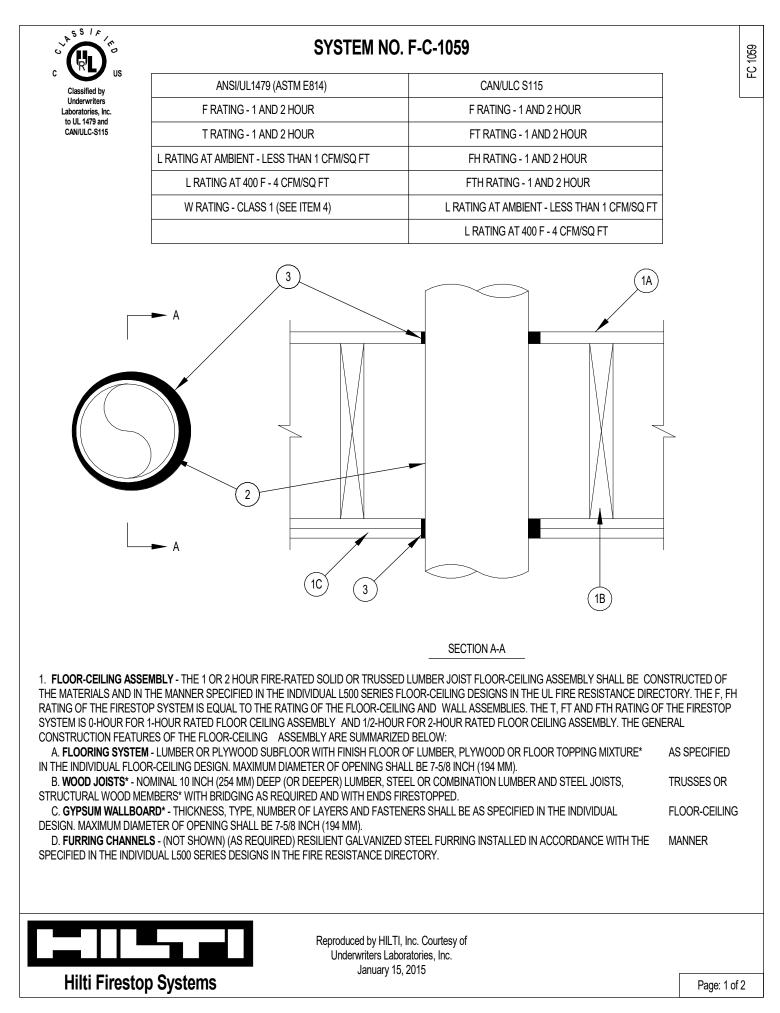
B. IRON PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE. C. CONDUIT - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. D. COPPER TUBING - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

E. COPPER PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH THE TOP SURFACE OF THE FLOOR OR THE SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR LOWER TOP PLATE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CFS-S SIL GG, CP606, FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT

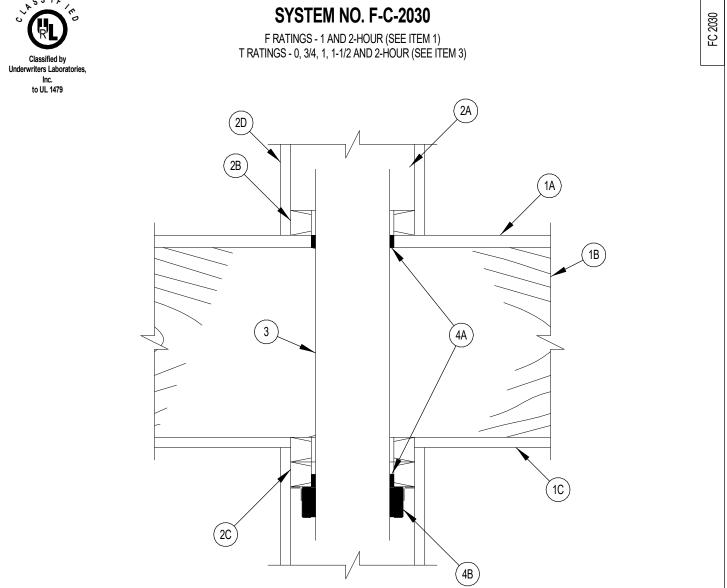
SEALANT (NOTE: L RATINGS APPLY ONLY WHEN FS-ONE SEALANT IS USED.) INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

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SYSTEM TESTED WITH A PRESSURE DIFFERENTIAL OF 2.5 PA BETWEEN THE EXPOSED AND THE UNEXPOSED SURFACES WITH THE HIGHER PRESSURE ON THE 1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE F RATING

OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING AND WALL ASSEMBLIES. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN

THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). B. JOISTS - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH END FIRESTOPPED. C. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR- CEILING DESIGN. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). D. FURRING CHANNELS - (NOT SHOWN) (AS REQUIRED) - RESILIENT GALVANIZED STEEL FURRING INSTALLED IN ACCORDANCE WITH THE MANNER

SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY.

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SYSTEM NO. F-C-2030

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January 15, 2015

. CHASE WALL - (OPTIONAL) - THE THROUGH PENETRANT (ITEM 3) MAY BE ROUTED THROUGH A 1 OR 2-HOUR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES

A. STUDS - NOMINAL 2 X 6 INCH (51 BY 152 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 BY 102 MM) LUMBER STUDS. B. SOLE PLATE - NOMINAL 2 X 6 INCH (51 BY 152 MM) (OR LARGER) OR PARALLEL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 6 INCH (51 BY 152 MM) (OR LARGER) OR PARALLEL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3).

D. **GYPSUM WALLBOARD\*** - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION 3. THROUGH-PENETRANTS - ONE NOMINAL 1-1/2 INCH (38 MM), 2 INCH (51 MM), 3 INCH (76 MM) OR 4 INCH (102 MM) DIAMETER NON-METALLIC PIPE TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. DIAMETER OF OPENING THROUGH FLOORING SYSTEM AND THROUGH SOLE AND TOP PLATES OF CHASE WALL TO BE MAXIMUM 2-1/8 INCH (54 MM), 2-5/8 INCH (67 MM), 4 INCH (102 MM) OR 5 INCH (127 MM) FOR NOMINAL 1-1/2 INCH (38 MM), 2 INCH (51 MM), 3 INCH (76 MM) OR 4 INCH (102 MM) DIAMETER NON-METALLIC PIPE SIZES, RESPECTIVELY. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY. THE T RATING IS DEPENDENT ON THE SIZE OF THE THROUGH- PENETRANT. FOR 2-HOUR RATED ASSEMBLIES, THE T RATING IS 2-HOUR FOR 1-1/2 INCH (38 MM)

DIAMETER (AND SMALLER) PIPES AND 1-1/2-HOUR FOR PIPES GREATER THAN 1-1/2-INCH (38 MM) DIAMETER FOR 1-HOUR RATED ASSEMBLIES, THE T RATING IS 1-HOUR FOR 1-1/2 INCH (38 MM) DIAMETER (AND SMALLER) PIPES, 3/4-HOUR FOR 2 INCH (51 MM) DIAMETER PIPES AND 0-HOUR FOR PIPES GREATER THAN 2 INCH (51 MM) DIAMETER THE FOLLOWING TYPES OF NON-METALLIC PIPES MAY BE USED: A. POLYVINYL CHLORIDE (PVC) PIPE - SCHEDULE 40 SOLID-CORE OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM. B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - SDR17 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED WASTE OR VENT) PIPING SYSTEMS.

C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE - SCHEDULE 40 SOLID-CORE OR CELLULAR CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. D. FLAME RETARDANT POLYPROPYLENE(FRPP) PIPE - SCHEDULE 40 FRPP PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM. 4. FIRESTOP SYSTEM - THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:

A. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL TO BE INSTALLED WITHIN THE ANNULAR SPACE BETWEEN THE PIPE AND THE FLOORING (ITEM 1A) OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS APPLIED WITHIN THE ANNULAR SPACE, FLUSH WITH THE BOTTOM SURFACE OF CEILING OR LOWER TOP PLATE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANTOR FS-ONE MAX INTUMESCENT SEALANT.

B. FIRESTOP DEVICE\* - FIRESTOP COLLAR - FIRESTOP COLLAR SHALL BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. COLLAR TO BE INSTALLED AND LATCHED AROUND THE PIPE AND SECURED TO UNDERSIDE OF CEILING OR CHASE WALL TOP PLATE (ITEM 2C) USING THE ANCHOR HOOKS PROVIDED WITH THE COLLAR. (MINIMUM 2 ANCHOR HOOKS FOR 1-1/2 (38 MM) AND 2 INCH (51 MM) DIAMETER PIPES AND 3 ANCHOR HOOKS FOR 3 INCH (76 MM) DIAMETER PIPES). THE ANCHOR HOOKS ARE TO BE SECURED TO THE CEILING WITH MINIMUM 3/16 INCH (5 MM) DIAMETER STEEL TOGGLER BOLTS OR TO THE CHASE WALL TOP PLATE WITH MINIMUM NO. 12 BY MINIMUM 1 INCH (25 MM) LONG STEEL WOOD SCREWS IN CONJUNCTION WITH STEEL WASHERS.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 643 50/1.5"N, CP643 63/2"N, CP 643 90/3"N OR CP643 110/4"N FIRESTOP COLLAR INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

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designated agent at

Page: 2 of 2

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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1. FLOOR-CEILING ASSEMBLY - THE FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION DETAILS OF THEFLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN

THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-B. WOOD JOISTS - NOMINAL 2 X 10 INCH (51 X 254 MM) LUMBER JOISTS SPACED 16 INCH (406 MM) ON CENTER WITH NOMINAL 1 X 3 INCH (25 X 76 MM) LUMBER BRIDGING AND WITH ENDS FIRESTOPPED. AS AN ALTERNATE TO LUMBER JOISTS, NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR

COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - RESILIENT GALVANLIZED STEEL FURRING INSTALLED PERPENDICULAR TO WOOD JOISTS (ITEM 1B) BETWEEN WALLBOARD (ITEM 1D) AND WOOD JOISTS AS REQUIRED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. D. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.2 M) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DIAMETRY OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). 2. CHASE WALL - (OPTIONAL) - THE THROUGH PENETRANT (ITEM 3) MAY BE ROUTED THROUGH A 1-HOUR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND

PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. **STUDS** - NOMINAL 2 X 4 INCH (51 BY 102 MM) LUMBER STUDS. B. SOLE PLATE - NOMINAL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES. DIAMETER OF OPENING SHALL BE 1 INCH (25 MM) LARGER THAN THE NOMINAL DIAMETER OF THROUGH-PENETRANT (ITEM 3). C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES. DIAMETER OF BE 1 INCH (25 MM) LARGER THAN THE NOM DIAM OF THROUGH-PENETRANT (ITEM 3). D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND

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Page: 1 of 2

SYSTEM NO. F-C-2142

3. THROUGH-PENETRANTS - ONE NON-METALLIC PIPE TO BE INSTALLED EITHER ECCENTRICALLY OR CONCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE THROUGH PENETRANT AND THE PERIPHERY OF THE OPENING SHALL BE A MINIMUM 0 INCH (POINT CONTACT) TO A MAXIMUM OF 5/8 INCH (16 MM). PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NON-METALLIC

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (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. ACRYLONITRILE BUTADINE STYRENE (ABS) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 40 CELLULAR OR SOLID CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. C. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMÎNAL 2 ÎNCH (51 MM) DIAMÉTER (OR SMALLER) SDR17 CPVC PIPE FOR USE ÎN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH AND FLUSH WITH BOTTOM SURFACE OF CEILING OR OF LOWER TOP PLATE.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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

SYSTEM NO. F-C-2203 Classified by Underwriters Laboratories, Inc. to UL 1479 F RATING - 1-HOUR T RATING - 1-HOUR

I. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 5 INCH (127 MM). B. WOOD JOIST\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR

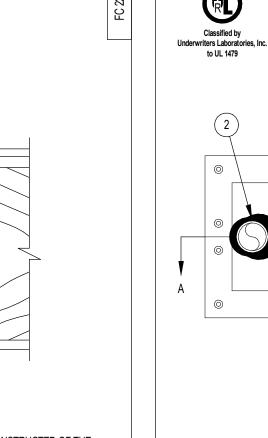
STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 5/8 INCH (16 MM) THICK, 4 FOOT (1.2 M) WIDE AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. 2. CLOSET FLANGE - ACRYLONITRILE BUTADIENE STYRENE (ABS) OR POLYVINYL CHLORIDE (PVC) CLOSET STUB SIZED TO ACCOMMODATE DRAIN PIPE. CLOSET FLANGE INSTALLED OVER DRAIN PIPING WITHIN FLOOR OPENING WITH FLANGE SECURED TO PLYWOOD FLOOR WITH STEEL SCREWS. DIAMETER OF CIRCULAR OPENING THROUGH FLOORING (ITEM 1A) TO BE MAXIMUM 1/2 INCH (13 MM) LARGER THAN OUTSIDE DIAMETER OF CLOSET FLANGE. 3. DRAIN PIPING - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 40 ACRYLONITRILE BUTADIENE STYRENE (ABS) OR POLYVINYL CHLORIDE (PVC)

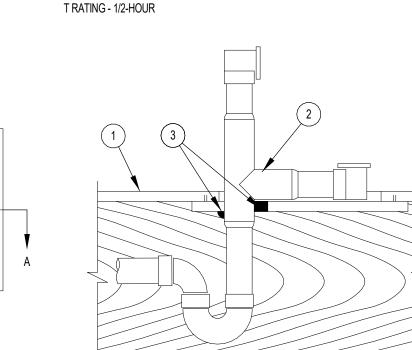
4. FILL, VOID OR CAVITY MATERIALS\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH THE BOTTOM SURFACE OF FLOOR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

DRAIN PIPE AND 90 DEGREE ELBOW FOR USE IN VENTED (DRAIN. WASTE OR VENT) PIPING SYSTEMS, PIPE INSTALLED CONCENTRICALLY WITHIN FIRESTOP

5. WATER CLOSET - (NOT SHOWN) - FLOOR MOUNTED VITREOUS CHINA WATER CLOSET.

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





SECTION A-A

1. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL

SYSTEM NO. F-C-2204

F RATING - 1-HOUR

FLOOR-CEILING DESIGN. RECTANGULAR CUTOUT IN FLOORING TO ACCOMMODATE THE BATHTUB DRAIN PIPING (ITEM 2) TO BE MAXIMUM 8 X 12 INCH (203 X 305 MM). CUTOUT TO BE PATCHED ON UNDERSIDE OF SUBFLOOR USING ONE LAYER OF MINIMUM 3/4 INCH (19 MM)

THICK PLYWOOD OR MINIMUM 5/8 INCH (16 MM) THICK GYPSUM WALLBOARD (ITEM 1C) SIZED TO LAP MINIMUM 2 INCH (51 MM) BEYOND EACH EDGE OF RECTANGULAR CUTOUT. PATCH SPLIT INTO TWO PIECES AT OPENING AND HOLE-SAWED FOR BATHTUB DRAIN PIPING. DIAMETER OF OPENING HOLE SAWED THROUGH PATCH TO ACCOMMODATE DRAIN PIPING (ITEM 2) TO BE 1 INCH (25 MM) LARGER THAN OUTSIDE DIAMETER OF DRAIN PIPING AND POSITIONED SUCH THAT THE ANNULAR SPACE BETWEEN DRAIN PIPING AND PERIPHERY OF OPENING IS CONTACT) TO MAXIMUM 1 INCH (25 MM). TWO PIECES POSITIONED AROUND DRAIN PIPING, WITH CUT EDGES TIGHTLY BUTTED, AND ATTACHED TO UNDERSIDE OF SUBFLOOR WITH 1-1/4 INCH (32 MM) LONG STEEL SCREWS SPACED MAXIMUM 6 INCH (152 MM) ON CENTER. B. WOOD JOISTS\* - NOMINAL 10 INCH (154 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR

WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 5/8 INCH (16 MM) THICK, 4 FOOT (122 CM) WIDE AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. 2. DRAIN PIPING - NOMINAL 1-1/2 INCH (38 MM, OR SMALLER) DIAMETER SCHEDULE 40 ACRYLONITRILE BUTADIENE STYRENE (ABS) OR POLYVINYL CHLORIDE (PVC) PIPE AND

DRAIN FITTINGS CEMENTED TOGETHER AND PROVIDED WITH ABS OR PVC BATHTUB WASTE/OVERFLOW FITTINGS. ANNULAR SPACE SHALL BE MIN 0 IN. (POINT CONTACT) TO 3. FILL VOID OR CAVITY MATERIALS\* - MINIMUM 5/8 INCH (16 MM) DEPTH OR FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF PLYWOOD OR GYPSUM WALLBOARD PATCH. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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),



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CANADA), RESPECTIVELY.

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Page: 2 of 2

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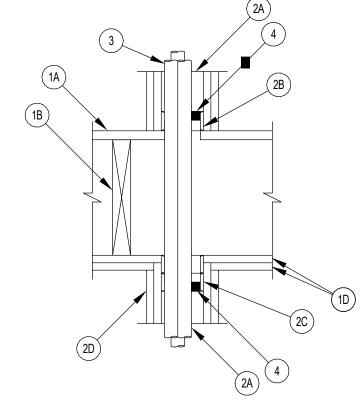
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# SYSTEM NO. F-C-2310

F RATINGS - 1 AND 2 HOUR (SEE ITEM 1) T RATINGS - 1 AND 1-1/2 HOUR (SEE ITEM 1)



1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING AND WALL ASSEMBLIES. THE T RATING OF THE FIRESTOP SYSTEM IS 1-HOUR FOR 1-HOUR RATED FLOOR-CEILING AND WALL ASSEMBLIES AND 1-1/2 HOUR FOR 2-HOUR RATED FLOOR-CEILING AND WALL ASSEMBLIES. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:

A. FORMING MATERIAL - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OR LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN, MAXIMUM DIAMETER OF FLOOR OPENING IS 3 INCH (76 MM). B. WOOD JOISTS\* - FOR 1-HOUR FIRE-RATED FLOOR-CEILING ASSEMBLIES NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. FOR 2-HOUR FIRE-RATED FLOOR-CEILING ASSEMBLIES, NOMINAL 2 X 10 INCH (51 BY 254 MM) LUMBER JOISTS SPACED 16 INCH ON CENTER WITH NOMINAL 1 X 3 INCH (25 X 76 MM) LUMBER BRIDGING AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - (AS REQUIRED) - RESILIENT GALVANIZED STEEL FURRING INSTALLED IN ACCORDANCE WITH THE MANNER

SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY. D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR- CEILING DESIGN. MAXIMUM DIAMETER OF OPENING IS 3 INCH (76 MM). 2. CHASE WALL - (OPTIONAL) - THE 1 OR 2-HOUR FIRE-RATED SINGLE WOOD STUD/GYPSUM WALLBOARD CHASE WALL SHALL BE CONSTRUCTED OF THE

MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS. B. **SOLE PLATE - NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES.** 

C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES. MAXIMUM DIAMETER OF OPENING IS 3 INCH (76 MM). D. GYPSUM WALLBOARD - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION

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SYSTEM NO. F-C-2310

3. THROUGH-PENETRANTS - NOMINAL 1 INCH (25 MM) DIAMETER (OR SMALLER) SDR 9 (OR HEAVIER) CROSS-LINKED POLYETHYLENE (PEX) TUBING FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. A MAXIMUM OF THREE TUBES MAY BE INSTALLED IN THE OPENING. THE ANNULAR SPACE BETWEEN THE TUBING AND THE PERIPHERY OF THE OPENING SHALL BE A MINIMUM OF 3/16 INCH (5 MM). TO A MAXIMUM OF 1 INCH (25 MM). THE SPACE BETWEEN THE TUBES SHALL BE A MIN OF 0 INCH (POINT CONTACT) TO A MAXIMUM OF 1/4 INCH (6 MM). TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP

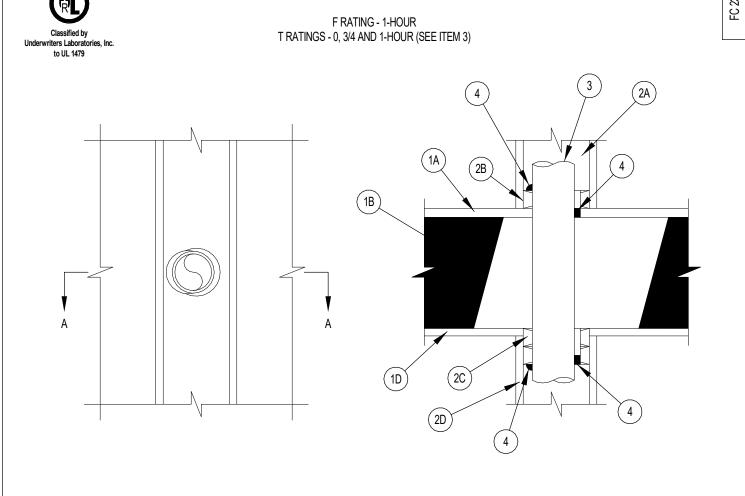
SURFACE OF FLOOR OR SOLE PLATE AND A MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH THE BOTTOM SURFACE OF THE LOWER TOP PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL. APPLIED WITHIN THE ANNULUS, FLUSH WITH THE BOTTOM SURFACE OF THE CEILING OR LOWER TOP PLATE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

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January 15, 2015



. FLOOR-CEILING ASSEMBLY - THE FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION DETAILS OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF FLOOR OPENING IS 4 INCH (102 MM). B. WOOD JOISTS - NOMINAL 2 X 10 INCH (51 X 254 MM) LUMBER JOISTS SPACED 16 INCH (406 MM) ON CENTER WITH NOMINAL 1 X 3 INCH (25 X 76 MM)

C. FURRING CHANNELS - (NOT SHOWN) - RESILIENT GALVANIZED STEEL FURRING INSTALLED PERPENDICULAR TO WOOD JOISTS (ITEM 1B) BETWEEN WALLBOARD (ITEM 1D) AND WOOD JOISTS AS REQUIRED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. D. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (122 CM) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED WITH ENDS

LUMBER BRIDGING AND WITH ENDS FIRESTOPPED. AS AN ALTERNATE TO LUMBER JOISTS, NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER,

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SYSTEM NO. F-C-2389

. CHASE WALL - THE THROUGH PENETRANT (ITEM NO. 3) SHALL BE ROUTED THROUGH A SINGLE, DOUBLE OR STAGGERED WOOD STUDS/GYPSUM WALLBOARD CHASE WALL AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - NOMINAL 2 X 4 INCH (51 X 102 MM) OR NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER STUDS.

B. SOLE PLATE - NOMINAL 2 X 4 INCH (51 X 102 MM) OR 2 X 6 INCH (51 X 152 MM) LUMBER PLATES. MAXIMUM DIAMETER OF OPENING IS 4 INCH (102 MM) WHEN NOMINAL 3 INCH (76 MM) DIAMETER PENETRANTS ARE USED. MAXIMUM DIAMETER OF OPENING IS 3 INCH (76 MM) WHEN NOMINAL 2 INCH (51 MM) OR SMALLER DIAM PENETRANTS ARE USED. C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 X 102 MM) OR 2 X 6 INCH (51 X 152 MM)

PLATES. MAXIMUM DIAMETER OF OPENING IS 4 INCH (102 MM) WHEN NOMINAL 3 INCH (76 MM) DIAMETER PENETRANTS ARE USED. MAXIMUM DIAMETER OF OPENING IS 3 INCH (76 MM) WHEN NOMINAL 2 INCH DIAMETER PENETRANTS ARE USED. D. GYPSUM WALLBOARD - MINIMUM 1/2 INCH (13 MM) RATED OR NON-RATED GYPSUM WALLBOARD. E. STEEL STRAPS - (NOT SHOWN) - STEEL STRAPS TO BE USED WHEN TOP AND SOLE PLATES ARE DISCONTINUOUS AND SHALL MEET THE

STRUCTURAL REQUIREMENTS OF THE WALL. MINIMUM 1-1/2 INCH (38 MM) WIDE BY 20 GAUGE (OR HEAVIER) GALVANIZED STEEL STRAPS USED TO BRIDGE OPENING ON BOTH SIDES OF WALL AT SOLE PLATE WHEN SOLE PLATE IS DISCONTINUOUS AT OPENING IN PLYWOOD FLOOR. STEEL STRAPS TO BE CUT TO OVERLAP A MINIMUM OF 2 INCH (51 MM) ONTO SOLE PLATE ON EACH SIDE OF OPENING AND SECURED TO SOLE PLATE WITH A MINIMUM OF TWO NAILS OR SCREWS ON EACH SIDE OF OPENING ON BOTH SIDES OF WALL. MINIMUM 3 INCH (76 MM) WIDE BY 20 GAUGE (OR HEAVIER) GALVANIZED STEEL STRAPS USED TO BRIDGE OPENING ON BOTH SIDES OF WALL AT DOUBLE TOP PLATE WHEN TOP PLATE IS DISCONTINUOUS AT OPENING. STEEL STRAPS TO BE CUT TO OVERLAP A MINIMUM OF 2 INCH (51 MM) ONTO TOP PLATE ON EACH SIDE OF OPENING AND SECURED TO TOP PLATES WITH A MINIMUM OF TWO NAILS OR SCREWS ON EACH SIDE OF OPENING ON BOTH SIDES OF WALL.

3. THROUGH PENETRANTS - ONE NON-METALLIC PIPE TO BE INSTALLED EITHER ECCENTRICALLY OR CONCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE THROUGH PENETRANT AND THE PERIPHERY OF THE OPENING SHALL BE A MINIMUM 0 INCH (POINT CONTACT) TO A MAXIMUM OF 5/8 INCH (16 MM) PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NON-METALLIC PIPES MAY BE USED.

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR CORE PVC FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR-

CORE ABS PIPE FOR SUPPLY) PIPING SYSTEMS. D. ELECTRICAL NON-METALLIC TUBING (ENT+) - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) CORRUGATED-WALL ELECTRICAL NON-METALLIC TUBING (ENT)CONSTRUCTED OF POLYVINYL CHLORIDE (PVC) AND INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA NO. 70). SEE ELECTRICAL NON-METALLIC TUBING (FKHU) CATEGORY IN THE ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. WHEN FS-ONE MAXIMUM SEALANT IS USED, THE T RATING IS 0-HOUR WHEN FS-ONE SEALANT IS USED, THE T RATINGS ARE 3/4-HOUR FOR PVC AND CPVC PIPE AND 1-HOUR FOR ABS PIPE AND ENT.

4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF LOWER TOP PLATE. AT POINT CONTACT LOCATION, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT BOTTOM SURFACE OF LOWER TOP PLATE. IN ADDITION, AT TOP OF FLOOR, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE POINT CONTACT LOCATION AT TOP OF SOLE PLATE OR SUBFLOOR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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

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Page: 2 of 2

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REVISIONS/SUBMITTALS

1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING FOR 1 OR 2-HOUR ASSEMBLY IS 2-1/2 INCH (64 MM) OR 2 INCH (51 MM),

B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - (AS REQUIRED) - RESILIENT GALVANIZED STEEL FURRING INSTALLED IN ACCORDANCE WITH SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY.

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SYSTEM NO. F-C-5036

. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE

MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL

A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN

B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR

C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.2 M) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR- CEILING ASSEMBLY. THE CHASE

WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL

B. SOLE PLATE - NOMINAL 2 X 8 INCH (51 X 203 MM) LUMBER OR PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM

C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 8 INCH (51 X 203 MM) LUMBER PLATES OR TWO SETS OF NOMINAL 2 X 4

. THROUGH PENETRANTS - ONE METALLIC TUBE OR PIPE TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. TUBE OR PIPE TO BE RIGIDLY SUPPORTED ON BOTH

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D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN.

1.1 CHASE WALL - (NOT SHOWN, OPTIONAL) THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH A 1-HOUR FIRE-RATED SINGLE. DOUBLE OR

ANSI/UL1479 (ASTM E814)

F RATING - 1-HOUR

T RATING - 1-HOUR

CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:

STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.

FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - NOMINAL 2 X 8 INCH (51 X 203 MM) LUMBER OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS.

SIDES OF FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC TUBES OR PIPES MAY BE USED:

A. COPPER TUBING - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

B. COPPER PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

C. STEEL PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING IS 6-7/8 INCH (175 MM).

MAXIMUM DIAMETER OF OPENING SHALL BE 6-7/8 INCH (175 MM).

DIAMETER OF OPENING SHALL BE 6-7/8 INCH (175 MM).

THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 6-7/8 INCH (175 MM).

Hilti Firestop Systems

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Laboratories, Inc. to UL 1479 and CAN/ULC

D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR- CEILING DESIGN. MAXIMUM DIAMETER OF OPENING FOR 1 OR 2-HOUR ASSEMBLY IS 2-1/2 INCH (64 MM) OR 2 INCH (51 MM), THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING ASSEMBLY.

4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL ALSO APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR LOWER TOP PLATE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS611A SEALANT OR FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT SECTION A-A \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

CAN/ULC S115

F RATING - 1-HOUR

FH RATING - 1-HOUR

FTH RATING - 1-HOUR

CAN/ULC S115

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FT RATINGS - 0, 1 AND 1-3/4 HOUR (SEE ITEM 3)

FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FTH RATINGS - 0, 1 AND 1-3/4 HOUR (SEE ITEM 3)

Page: 1 of 2

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Page: 2 of 2

SYSTEM NO. F-C-5036

System No. F-C-3012

2. CHASE WALL - (OPTIONAL) - THE THROUGH PENETRANT (ITEM 3) SHALL BE ROUTED THROUGH A FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD

CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE

B. SOLE PLATE - NOMINAL 2 X 6 INCH (51 X 152 MM) OR PARALLEL 2 X 4 INCH (51 BY 102 MM) LUMBER PLATES, TIGHTLY BUTTED.

RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - NOMINAL 2 X 6 INCH (51 X 152 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS.

DIAMETER OF OPENING FOR 1 OR 2-HOUR RATED ASSEMBLY IS 2-1/2 INCH (64 MM) OR 2 INCH (51 MM), RESPECTIVELY.

ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTORS MAY BE USED:

E. MAXIMUM 3/C WITH GROUND NO. 2/0 AWG TYPE NM CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.

PENETRATING PRODUCTS CATEGORY. SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE

H. MAXIMUM 4/C WITH GROUND NO. 300 KCMIL (OR SMALLER) ALUMINUM SER CABLE WITH PVC INSULATION AND JACKET.

B. MAXIMUM 8/C NO. 22 AWG TELEPHONE CABLE WITH POLYVINYL CHLORIDE (PVC) JACKETING.

F. MAXIMUM 3/C NO. 12 AWG MC (BX) CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.

NAMES OF MANUFACTURERS. THE T RATING IS 1 AND 1-3/4 HOUR FOR 1 AND 2-HOUR RATED

G. MAXIMUM 1 INCH DIAMETER METAL CLAD TEK CABLE WITH PVC JACKET.

THROUGH 3G. THE T RATING IS 0 HOUR FOR CABLES 3H AND 3I.

C. MAXIMUM 2/C NO. 12 AWG CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKETING.

STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE

C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 6 INCH (51 X 152 MM) OR TWO SETS OF PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING FOR 1 OR 2-HOUR RATED ASSEMBLY IS 2-1/2 INCH (64 MM) OR 2 INCH (51

D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION

CROSS-SECTIONAL AREA OF THE OPENING (MAXIMUM 2 INCH (51 MM) DIAMETER BUNDLE). CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR

A. RG 59 COAXIAL CABLE WITH SINGLE COPPER CONDUCTOR, CELLULAR POLYETHYLENE CELLULAR FOAM INSULATION AND POLYVINYL CHLORIDE (PVC)

I. THROUGH PENETRATING PRODUCT\* - ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH

3. CABLES - IN 1-HOUR FIRE-RATED ASSEMBLIES, AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN OPENING TO BE MAXIMUM 45 PERCENT OF THE

D. MAXIMUM 3/C WITH GROUND NO. 2/0 AWG ALUMINUM OR COPPER TYPE SER CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.

3. PIPE COVERING - NOMINAL 1-1/2 INCH (38 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF (56 KG/M3)) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING TAPE. TRAVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE SHALL BE MINIMUM 1/2 INCH (13 MM) AND MAXIMUM 1 INCH (25 MM). 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

SURFACE OF GYPSUM WALLBOARD OR LOWER TOP PLATE.

WITH A FLAME SPREAD I NDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

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

4. FILL. VOID OR CAVITY MATERIALS\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF SEALANT APPLIED WITHIN ANNULAR SPACE. FLUSH WITH TOP SURFACE OF SUBFLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULAR SPACE, FLUSH WITH BOTTOM HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

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Page: 2 of 2

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SYSTEM NO. F-C-5004 CAN/ULC S115

F RATING - 1 AND 2-HOUR (SEE ITEM 1)

FT RATING - 1 AND 1-3/4 HOUR (SEE ITEM 1) FH RATING - 1 AND 2-HOUR (SEE ITEM 1) FTH RATING - 1 AND 1-3/4 HR (SEE ITEM 1) L RATING AT AMBIENT - 4 CFM/SQ FT (SEE ITEM 4)

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT (SEE ITEM 4)

SECTION A-A

ANSI/UL1479 (ASTM E814)

F RATING - 1 AND 2-HOUR (SEE ITEM 1)

T RATING - 1 AND 1-3/4 HOUR (SEE ITEM 1)

L RATING AT AMBIENT - 4 CFM/SQ FT (SEE ITEM 4)

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT (SEE ITEM4)

1. FLOOR-CEILING ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE RATING OF THE FLOOR-CEILING ASSEMBLY. THE T RATING IS 1 AND 1-3/4 HOUR FOR 1 AND 2-HOUR RATED ASSEMBLIES. RESPECTIVELY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN, MAXIMUM DIAMETER OF FLOOR OPENING IS 3-1/2 INCH (89 MM). B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - (AS REQUIRED) - RESILIENT GALVANIZED STEEL FURRING INSTALLED IN ACCORDANCE WITH SPECIFIED IN THE INDIVIDUAL L500 SERIES DESIGNS IN THE FIRE RESISTANCE DIRECTORY. D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL FLOOR-

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DESIGN. MAXIMUM DIAMETER OF FLOOR OPENING IS 3-1/2 INCH (89 MM).

ANSI/UL1479 (ASTM E814)

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

T RATINGS - 1/4 AND 1-3/4 HOUR (SEE ITEM 1)

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RESISTANCE DIRECTORY FOR

ASSEMBLIES, RESPECTIVELY, FOR CABLES 3A

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CAN/ULC S115

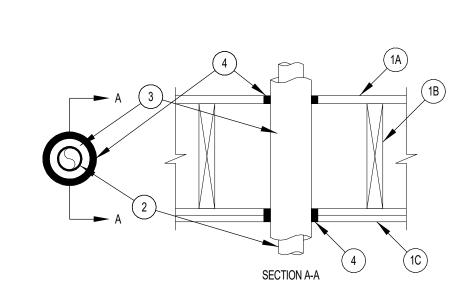
F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FT RATINGS - 1/4 AND 1-3/4 HOUR (SEE ITEM 1)

FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FTH RATINGS - 1/4 AND 1-3/4 HOUR (SEE ITEM 1)

Hilti Firestop Systems Page: 1 of 2 SYSTEM NO. F-C-5037



. FLOOR-CEILING ASSEMBLY - THE 1 AND 2-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE F AND FH RATING ARE DEPENDENT ON THE HOURLY RATING OF THE FLOOR CEILING ASSEMBLY. THE T, FT AND FTH RATING ARE 1/4 HOUR FOR 1-HOUR RATED FLOOR CEILING ASSEMBLIES AND 1-3/4 HOUR FOR 2-HOUR RATED FLOOR CEILING ASSEMBLIES. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING

ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. DIAMETER OF OPENING SHALL BE 5-1/8 INCH (130 MM). B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. FURRING CHANNELS - (NOT SHOWN) - RESILIENT GALVANIZED STEEL FURRING INSTALLED PERPENDICULAR TO WOOD JOISTS BETWEEN FIRST AND SECOND LAYERS OF WALLBOARD (ITEM 1D). FURRING CHANNELS SPACED MAXIMUM 24 INCH (610 MM).

D. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.2 M) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. FIRST LAYER OF WALLBOARD NAILED TO WOOD JOISTS. SECOND LAYER OF WALLBOARD SCREW-ATTACHED TO FURRING CHANNELS. MAXIMUM DIAMETER OF CEILING OPENING IS 5-1/8 INCH (130 MM). 1.1 CHASE WALL - (NOT SHOWN, OPTIONAL) - THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH FIRE-RATED SINGLE, DOUBLE OR STAGGERED

WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS.

B. SOLE PLATE - NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER OR PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING SHALL BE 5-1/8 INCH. C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER PLATES OR TWO SETS OF NOMINAL 2 X 4 IN. (51 X 102 MM) LUMBER PLATES TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING IS 5-1/8 INCH (130 MM). D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION

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2. CHASE WALL - (OPTIONAL) - THE THROUGH PENETRANT (ITEM 3) MAY BE ROUTED THROUGH A FIRE-RATED SINGLE. DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

System No. F-C-5004

A. STUDS - NOMINAL 2 X 6 INCH (51 X 152 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS. B. SOLE PLATE - NOMINAL 2 X 6 INCH (51 X 152 MM) OR PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 6 INCH (51 X 152 MM) OR TWO SETS OF PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING IS 3-1/2 INCH (89 MM).

D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION 3. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED: A. STEEL PIPE - NOMNAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

B. COPPER TUBING - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. C. COPPER PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

SURFACE OF CEILING OR LOWER TOP PLATE.

Hilti Firestop Systems

4. PIPE COVERING\* - NOMINAL 1/2 INCH (13 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF (56 KG/M3)) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. A NOMINAL ANNULAR SPACE OF 1/8 INCH (3 MM) IS REQUIRED WITHIN THE FIRESTOP SYSTEM. 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. A. TUBE INSULATION - PLASTICS+ - NOMINAL 3/4 INCH (19 MM) THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FURNISHED IN THE FORM OF TUBING. AN ANNULAR SPACE OF MINIMUM 1/8 INCH (3 MM) TO MAXIMUM 3/8 INCH (10 MM) IS REQUIRED WITHIN THE FIRESTOP SYSTEM. SEE PLASTICS+ (QMFZ2) CATEGORY IN THE RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED. (NOTE: L RATINGS APPLY ONLY WHEN GLASS FIBER INSULATION IS USED). 5. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL ALSO APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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



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THROUGH PENETRANTS - ONE METALLIC TUBE OR PIPE TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. TUBE OR PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC TUBES OR PIPES MAY BE USED: A. COPPER TUBING - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. B. COPPER PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

C. **STEEL PIPE** - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. 3. TUBE INSULATION-PLASTICS+ - NOMINAL 3/4 INCH (19 MM) THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. THE ANNULAR SPACE SHALL BE MINIMUM 3/8 INCH (10 MM) TO MAXIMUM 1 INCH (25 MM). SEE PLASTICS+ (QMFZ2) CATEGORY IN THE PLASTICS RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE

4. FILL, VOID OR CAVITY MATERIALS\* - SEALANT - FILL MATERIAL FORCED INTO ANNULAR SPACE TO FILL SPACE TO MAX EXTENT POSSIBLE, SEALANT SHALL BE INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE AND BOTTOM SURFACE OF CEILING OR LOWER TOP PLATE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

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Contractor must verify all dimensions at project before proceeding with this

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1. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 5-1/4 INCH(133 MM). B. WOOD JOIST\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS. TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.2 M) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING

MAXIMUM DIAMETER OF OPENING SHALL BE 5-1/4 INCH (133 MM). 1.1 CHASE WALL - (NOT SHOWN, OPTIONAL) - THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH A 1-HOUR FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS. B. SOLE PLATE - NOMINAL 2 X 6 INCH (51 X 152 MM) LUMBER OR PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING SHALL BE 5-1/4 INCH. C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 6 IN. (51 X 152 MM) LUMBER PLATES OR TWO SETS OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING IS 5-1/4 INCH (133 MM). D. **GYPSUM WALLBOARD\*** - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION

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Page: 1 of 2

# SYSTEM NO. F-C-7013

2. STEEL DUCT - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN DUCT AND PERIPHERY OF OPENING SHALL BE MINIMUM OF 1/4 INCH (6 MM) TO MAXIMUM 3/4 INCH (19 MM). STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING 3. FILL, VOID OR CAVITY MATERIALS\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULAR SPACE, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF SEALANT APPLIED WITHIN ANNULAR SPACE, FLUSH WITH BOTTOM SURFACE OF GYPSUM WALLBOARD OR LOWER TOP PLATE.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

F RATING - 1 HOUR T RATING - 0-HOUR Classified by Underwriters Laboratories, Inc. to UL 1479 and CANULC-S115

SYSTEM NO. F-C-7025

1. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 11 INCH (279 MM). B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD

MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (1.22 M) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. GYPSUM WALLBOARD SECURED TO WOOD JOISTS OR FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 11 INCH (279 MM).

1A.CHASE WALL - (OPTIONAL, NOT SHOWN) - THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH A 1-HOUR FIRE RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL. DEPTH OF CHASE WALL STUD CAVITY TO BE MINIMUM 1/2 INCH (13 MM) GREATER THAN DIAMETER OF OPENING CUT IN SOLE AND TOP PLATES TO ACCOMMODATE THE THROUGH PENETRANT (ITEM 2). THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - NOMINAL 2 X 4 INCH (51 X 102 MM), 2 X 6 INCH (51 X 152 MM), 2 X 8 INCH (51 X 203 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS. B. SOLE PLATE - NOMINAL 2 X 4 INCH (51 X 102 MM), 2 X 6 INCH (51 X 152 MM) OR 2 X 8 INCH (51 X 203 MM) LUMBER PLATES OR DOUBLE NOMINAL 2 X 4 INCH (51 | X 102 MM) LUMBER PLATES TIGHTLY BUTTED TOGETHER. CIRCULAR OPENING TO BE CENTERED IN SOLE PLATE. SOLE PLATE TO BE MINIMUM 1 INCH (25MM)

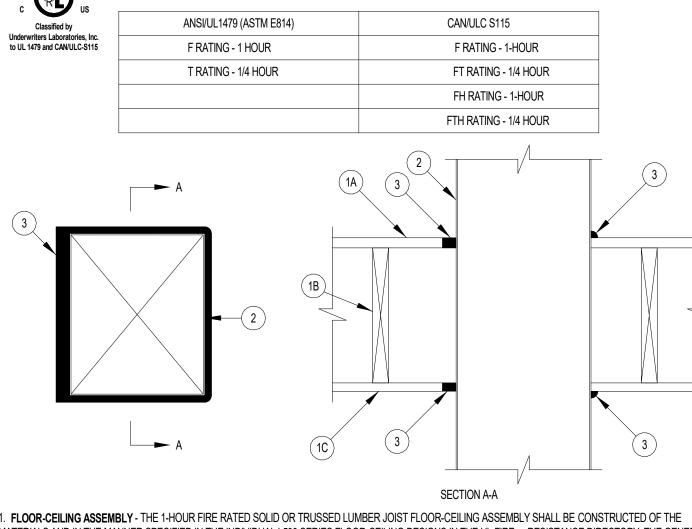
WIDER THAN DIAMETER OF OPENING. MAXIMUM DIAMETER OF OPENING IN SOLE PLATE IS 11 INCH (279 MM). C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 X 102 MM), 2 X 6 INCH (51 X 152 MM) OR 2 X 8 INCH (51 X 203 MM) LUMBER PLATES OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES TIGHTLY BUTTED TOGETHER. CIRCULAR OPENING TO BE CENTERED IN TOP PLATE. TOP PLATE TO BE MINIMUM 1 INCH (25MM) WIDER THAN DIAMETER OF OPENING. MAXIMUM DIAMETER OF OPENING IN TOP PLATE IS 5-1/2 INCH (140

D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN. 2. STEEL DUCT - ONE STEEL DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE OPENING. THE ANNULAR SPACE BETWEEN THE STEEL DUCT AND THE PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (0 MM, POINT CONTACT) TO MAXIMUM 1 INCH (25 MM). STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. THE FOLLOWING SIZES OF STEEL DUCTS MAY BE USED: A. MAXIMUM 10 INCH (254 MM) DIAMETER BY MINIMUM 0.019 INCH (0.50 MM) THICK STEEL DUCT.

B. MAXIMUM 4 INCH (102 MM) DIAMETER BY MINIMUM 0.016 INCH (0.40 MM) THICK STEEL DUCT. 3. FILL, VOID OR CAVITY MATERIALS\*-SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE TOP SURFACE OF THE FLOOR OR SOLE PLATE. MINIMUM 5/8 INCH (16 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE BOTTOM SURFACE OF GYPSUM WALLBOARD OR LOWER TOP PLATE. A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF SEALANT TO BE APPLIED AT THE DUCT/SUBFLOORING OR SOLE PLATE INTERFACE AND THE DUCT/GYPSUM WALLBOARD OR TOP PLATE INTERFACE. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 FLEXIBLE FIRESTOP SEALANT \* BEARING THE UL CLASSIFICATION MARK

Page: 2 of 2

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SYSTEM NO. F-C-7043

1. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM AREA OF OPENING SHALL BE 143 INCHES SQUARED (923 CM²) WITH A MAXIMUM DIMENSION OF 13 INCH B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR

STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - MINIMUM 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. GYPSUM WALLBOARD SECURED TO WOOD JOISTS OR FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM AREA OF OPENING SHALL BE 143 INCHES SQUARED (923 CM<sup>2</sup>) WITH A MAXIMUM DIMENSION OF 13 INCH (330MM). 2. STEEL DUCT - MAXIMUM 12 X 10 INCH (305 X 254 MM) NO. 28 GAUGE (OR HEAVIER) GALVANIZED STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE SPACE BETWEEN THE STEEL DUCT AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT

3. FIRESTOP SYSTEM - MINIMUM 3/4 INCH (19 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE TOP SURFACE OF THE FLOOR.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 606 FLEXIBLE FIRESTOP SEALANT OR FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

MINIMUM 5/8 INCH (16 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE BOTTOM SURFACE OF GYPSUM WALLBOARD CEILING.

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

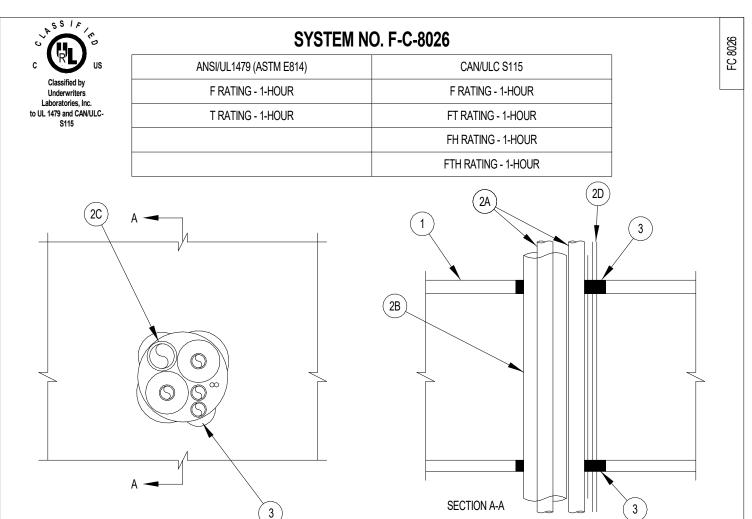
CONTACT) TO MAXIMUM 1 INCH (25 MM). STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY.



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SYSTEM TESTED WITH A PRESSURE DIFFERENTIAL OF 2.5 PA BETWEEN THE EXPOSED AND THE UNEXPOSED SURFACES WITH THE HIGHER PRESSURE ON THE EXPOSED SIDE. 1. FLOOR-CEILING ASSEMBLY - THE 1-HOUR FIRE-RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION FEATURES OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAXIMUM DIAMETER OF OPENING SHALL BE 5 INCH (127 MM). B. WOOD JOISTS\* - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (122 CM) WIDE BY 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-DESIGN. GYPSUM WALLBOARD SECURED TO WOOD JOISTS OR FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. 1A. CHASE WALL - (OPTIONAL, NOT SHOWN) - THE THROUGH PENETRANTS (ITEM 2) MAY BE ROUTED THROUGH A 1-HOUR FIRE RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM WALLBOARD CHASE WALL. DEPTH OF CHASE WALL STUD CAVITY TO BE MINIMUM 1/2 INCH (13 MM) GREATER THAN DIAMETER OF OPENING CUT IN SOLE AND TOP PLATES TO ACCOMMODATE THE THROUGH PENETRANT (ITEM 2). THE CHASE WALL SHALL BE CONSTRUCTED OF THE

MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - NOMINAL 2 X 4 INCH (51 X 102 MM), 2 X 6 INCH (51 X 152 MM) OR DOUBLE NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER STUDS. B. **SOLE PLATE** - NOMINAL 2 X 4 INCH (51 X 102 MM), 2 X 6 INCH (51 X 152 MM) OR PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, BUTTED. MAXIMUM DIAMETER OF OPENING IS 5 INCH (127 MM). C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOMINAL 2 X 4 INCH (51 X 102 MM), TWO NOMINAL 2 X 6 INCH, (51 X 102 MM) OR TWO SETS OF PARALLEL 2 X 4 INCH (51 X 102 MM) LUMBER PLATES, TIGHTLY BUTTED. MAXIMUM DIAMETER OF OPENING IS 5 INCH (127 MM). D. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION

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2. THROUGH PENETRANTS - ONE OR MORE PIPES, CONDUITS, TUBING AND CABLES TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE OPENING. THE SPACE BETWEEN ANY PENETRANT, EXCEPT NON-METALLIC PIPES AND UNINSULATED METALLIC PIPES TO BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1 INCH (25 MM). THE SPACE BETWEEN ANY PENETRANTS AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (POIN CONTACT) TO MAXIMUM 1 INCH (25 MM). PIPES, CONDUITS, TUBING AND CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. A. METALLIC PENETRANTS - ONE OR MORE METALLIC PIPES, CONDUITS OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

A1. STEEL PIPE - NOMINAL 3/4 INCH (19 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. A2. CONDUIT - NOMINAL 3/4 INCH (19 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR 3/4 INCH (19 MM) GALVANIZED STEEL CONDUIT.

A3. COPPER TUBE - NOMINAL 3/4 INCH (19 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE. A4. COPPER PIPE - NOMINAL 3/4 INCH (19 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

B. **TUBE INSULATION** - PLASTICS+ - NOMINAL 3/4 INCH (19 MM) THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. TUBE INSULATION TO BE INSTALLED ON ONE OR MORE OF THE METALLIC PIPES OR TUBES (ITEM 2A). SEE PLASTICS+ (QMFZ2) CATEGORY IN THE PLASTICS RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY

C. NON-METALLIC THROUGH PENETRANTS - ONE NON-METALLIC PIPE TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE SHALL BE SPACED A MINIMUM 1-1/2 INCH (38 MM) FROM NON-UNINSULATED METALLIC THROUGH PENETRANTS. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES MAY BE USED:

C1. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 1-1/4 INCH (32 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID CORE PVC PIPE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM. C2. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 1-1/4 INCH (32 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

D. CABLES - MAXIMUM OF TWO 4 PAIR NO. 18 AWG (OR SMALLER) CABLE WITH PVC INSULATION AND JACKET MATERIALS. 3. FILL, VOID OR CAVITY MATERIALS\* - SEALANT - MINIMUM 3/4 INCH (19 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE TOP SURFACE OF THE FLOOR OR SOLE PLATE AND MINIMUM 5/8 INCH (16 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULUS FLUSH WITH THE BOTTOM SURFACE OF GYPSUM WALLBOARD OR TOP PLATE. A MINIMUM 1/4 INCH (6 MM) DIAMETER BEAD OF SEALANT APPLIED AT THE BUNDLE/SUBFLOORING OR SOLE PLATE INTERFACE AND THE BUNDLE/GYPSUM WALLBOARD OR TOP PLATE INTERFACE AT POINT CONTACT LOCATIONS. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

+ BEARING THE UL RECOGNIZED COMPONENT MARK



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Page: 2 of 2

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's

designated agent at

CLIENT PHONE NUMBER

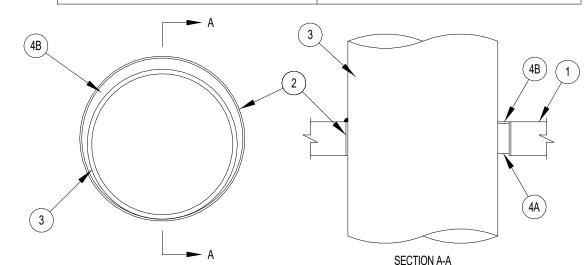
and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS



1. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*. MAXIMUM DIAMETER OF OPENING IS 32 INCH (813 MM). 2. METALLIC SLEEVE - (OPTIONAL) NOMINAL 32 INCH (813 MM) DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAXIMUM OF 3 INCH (76 MM) ABOVE FLOOR OR BEYOND BOTH

A. SHEET METAL SLEEVE - (OPTIONAL) MAXIMUM 6 INCH (152 MM) DIAMETER, MINIMUM 26 GAUGE GALVANIZED STEEL PROVIDED WITH A 26 GAUGE GALVANIZED STEEL SQUARE FLANGE SPOT WELDED TO THE SLEEVE AT APPROXIMATELY MID-HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN FLOORS, AND SIZED TO BE A MINIMUM OF 2 INCH (51 MM) LARGER THAN THE SLEEVE DIAMETER THE SLEEVE IS TO BE CAST IN PLACE AND MAY EXTEND A MAXIMUM OF 4 INCH (102 MM) BELOW THE BOTTOM OF THE DECK AND A MAXIMUM OF 1 INCH (25 MM) ABOVE THE TOP SURFACE OF THE CONCRETE FLOOR. B. SHEET METAL SLEEVE - (OPTIONAL) - MAXIMUM 12 INCH (305 MM) DIAMETER, MINIMUM 24 GAUGE GALVANIZED STEEL PROVIDED WITH A 24 GAUGE GALVANIZED STEEL SQUARE FLANGE SPÓT WELDED TO THE SLEEVE AT APPROXIMATELY MID-HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN FLOORS, AND SIZED TO BE A MINIMUM OF 2 INCH (51 MM) LARGER THAN THE SLEEVE DIAMETER. THE SLEEVE IS TO BE CAST IN PLACE AND MAY EXTEND A MAXIMUM OF 4 INCH (102 MM) BELOW THE BOTTOM OF THE DECK AND A MAXIMUM OF 1 INCH(25 MM) ABOVE THE TOP SURFACE OF THE CONCRETE

3. THROUGH-PENETRANT - ONE METALLIC PIPE. TUBE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1-7/8 INCH (48 MM). PENETRANT MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PENETRANTS MAY BE USED:

- A. STEEL PIPE NOMINAL 30 INCH (762 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. B. IRON PIPE - NOMINAL 30 INCH (762 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
- C. COPPER PIPE NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. D. COPPER TUBING - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
- E. CONDUIT NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) STEEL CONDUIT. F. CONDUIT -NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).

1. CONDON - NOWINAL 4 INCH (102 MIN) DIAMETER (OR OWNLELLY) STEEL ELECTRICAL METALLIC TODING (LIMI).



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SYSTEM NO. C-AJ-2109 F RATINGS - 2 AND 3-HOUR (SEE ITEM 3)

T RATINGS - 0, 2 AND 3-HOUR (SEE ITEMS 2 AND 3)

W RATING - CLASS 1 (SEE ITEMS 2, 3 AND 4)

L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT (SEE ITEM 4)

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT (SEE ITEM 4)

. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3)

2. STEEL SLEEVE - (OPTIONAL) - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE CAST OR GROUTED INTO FLOOR

OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES A MAXIMUM OF 3 INCH (76 MM) ABOVE THE FLOOR. IF THE STEEL SLEEVE EXTENDS ABOVE THE

3. THROUGH PENETRANTS - ONE NON-METALLIC PIPE TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. FOR

MAXIMUM 6 INCH (152 MM) DIAMETER PIPES, THE ANNULAR SPACE BETWEEN THE PIPE AND THE PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (0 MM,

POINT CONTACT) TO MAXIMUM 1/2 INCH (13 MM). FOR NOMINAL 8 INCH (203 MM) AND 10 INCH ( 254 MM) DIAMETER PIPES, THE ANNULAR SPACE BETWEEN THE

PIPE AND THE PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (0 MM, POINT CONTACT) TO MAXIMUM 1-1/4 INCH (32 MM). IF THE STEEL SLEEVE EXTENDS

ABOVE THE FLOOR (ITEM 2), A MINIMUM 1/2 INCH (13 MM) ANNULAR SPACE IS REQUIRED BETWEEN THE THROUGH PENETRANT (ITEM 3) AND THE PERIPHERY

OF THE OPENING, PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY, FOR SYSTEMS WITH A W RATING, THE MAXIMUM ANNULAR

SPACE IS 1/2 INCH (13 MM). THE T RATINGS ARE DEPENDENT ON THE SIZE AND/OR TYPE OF PIPE AS SHOWN IN THE TABLE BELOW. THE FOLLOWING TYPES

FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. FOR SYSTEMS WITH A W RATING, THE NOMINAL

(PROCESS OR SUPPLY) PIPING SYSTEMS. FOR SYSTEMS WITH A W RATING, THE NOMINAL DIAMETER OF PIPE SHALL NOT EXCEED 6 INCH (152 MM).

B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 10 INCH (254 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED

C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR

D. FLAME RETARDANT POLYPROPYLENE (FRPP) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) SCHEDULE 40 FRPP PIPE FOR USE IN CLOSED

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January 27, 2015

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 10 INCH (254 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE PVC PIPE

CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAXIMUM DIAMETER OF OPENING IS 12 INCH (305 MM). SEE

FLOOR, THE T RATING OF THE FIRESTOP SYSTEM IS 0-HOUR AND A MINIMUM 1/2 INCH (13 MM) ANNULAR SPACE IS REQUIRED BETWEEN THE THROUGH

PENETRANT (ITEM 3) AND THE PERIPHERY OF THE OPENING. THE W RATING DOES NOT APPLY WHEN THE STEEL SLEEVE IS USED.

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

CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.

AND SIZES OF NON-METALLIC PIPES MAY BE USED:

DIAMETER OF PIPE SHALL NOT EXCEED 6 INCH (152 MM).

(PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.

SECTION A-A

Page: 1 of 2

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4. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

(SUCH AS CANADA), RESPECTIVELY.

PIPE TYPE	NOMINAL PIPE DIAMETER, INCH (MM)	F RATING HOUR
PVC, CPVC	Greater than 6 (152)	2
PVC, CPVC, ABS, FRPP	6 (152) or smaller	3
PIPE TYPE	NOMINAL PIPE DIAMETER, INCH (MM)	T RATING HOUR
PVC, CPVC, ABS, FRPP	1-1/2, 2, 3 (38, 51, 76)	2

4 (102)

6 (152)

6 (152)

Greater than 6 (152)

Underwriters Laboratories, Inc.

January 07, 2015

SYSTEM NO. C-AJ-1226

A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M³) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR SLEEVE OR FROM BOTH

FLUSH WITH TOP SURFACE OF FLOOR OR SLEEVE OR WITH BOTH SURFACES OF WALL OR SLEEVE. AT THE POINT OR CONTINUOUS CONTACT

LOCATIONS BETWEEN PENETRANT AND CONCRETE OR SLEEVE. A MINIMUM 1/4 INCH (6 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE

APPLIED AT THE CONCRETE OR SLEEVE/ PIPE PENETRANT INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL.

INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION

SURFACES OF WALL OR SLEEVE AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/4 INCH (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE

+ - INDICATES SOLID CORE ABS ONLY. ++ - INDICATES CELLULAR CORE ABS ONLY.

CP 644 200/8" OR CP 644 250/10" FIRESTOP COLLAR

PVC, CPVC

PVC, CPVC, ABS, FRPP

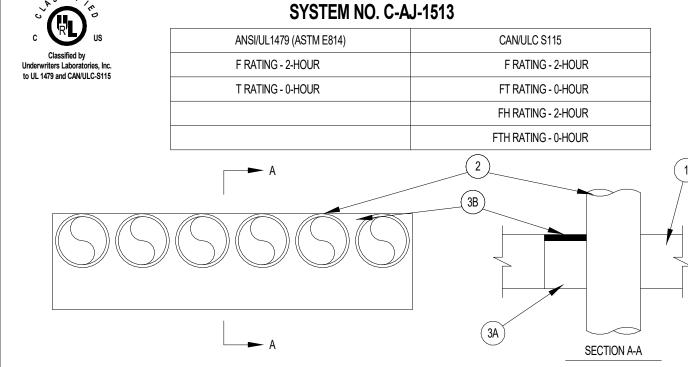
PVC, CPVC, ABS+, FRPP

4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH TOP OR BOTTOM SURFACE OF FLOOR OR BOTH SURFACES OF WALL. SEALANT IS OPTIONAL FOR PIPES HAVING A MAXIMUM DIAMETER OF 6 INCH (152 MM) IN UNSLEEVED OPENINGS. FOR SYSTEMS WITH W RATING AND/OR L RATING, MINIMUM 1/2 INCH (13 MM) THICKNESS OF CP 601S, CFS-S SIL GG, CFS-S SIL SL (FLOORS ONLY) OR CP 604 SEALANT SHALL BE APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP OR BOTTOM SURFACE OF FLOOR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT, FS-ONE MAX INTUMESCENT SEALANT, CP 601S SEALANT, CFS-S SIL GG, CFS-S SIL SL (FLOORS ONLY) OR CP 604 SEALANT

A. PACKING MATERIAL - (NOT SHOWN) - MINIMUM 1/2 INCH (13 MM) THICKNESS OF 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO ANNULAR SPACE AND RECESSED FROM THE TOP SURFACE OF FLOOR TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. REQUIRED ONLY WHEN CP 604 SEALANT IS USED. 5. FIRESTOP DEVICE\* - FIRESTOP COLLAR - FIRESTOP COLLAR SHALL BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. COLLAR TO BE INSTALLED AND LATCHED AROUND THE PIPE AND SECURED TO UNDERSIDE OF FLOOR OR BOTH SIDES OF WALL USING THE ANCHOR HOOKS PROVIDED WITH THE COLLAR. MINIMUM TWO ANCHOR HOOKS FOR NOMINAL 1-1/2 AND 2 INCH (38 AND 51 MM) DIAMETER PIPES. MINIMUM THREE ANCHOR HOOKS REQUIRED FOR NOMINAL 3 AND 4 INCH (76 AND 102 MM) DIAMETER PIPES. MINIMUM FOUR ANCHOR HOOKS REQUIRED FOR NOMINAL 6 INCH (152 MM) DIAMETER PIPES. MINIMUM TEN ANCHOR HOOKS REQUIRED FOR NOMINAL 8 INCH (203 MM) DIAMETER PIPES. MINIMUM TWELVE ANCHOR HOOKS REQUIRED FOR NOMINAL 10 INCH (254 MM) DIAMETER PIPES. THE ANCHOR HOOKS ARE TO BE SECURED WITH MINIMUM 1/4 INCH (6 MM) DIAMETER BY MINIMUM 1-1/4 INCH (32 MM) LONG STEEL EXPANSION BOLTS OR MINIMUM 0.145 INCH (3.7 MM) DIAMETER BY 1-1/4 INCH (32 MM) LONG POWDER ACTUATED FASTENERS UTILIZING A 1-7/16 INCH (37 MM) DIAMETER BY 1/16 INCH (1.6 MM) THICK STEEL WASHER. AS ALTERNATES TO THE ANCHORS SPECIFIED ABOVE, HILTI 1/4 INCH (6 MM) DIAMETER BY 1-1/4 INCH (32 MM) LONG KWIK-CON II+ CONCRETE SCREW ANCHOR, HILTI 1/4 INCH (6 MM) DIAMETER BY 1-3/4 INCH (45 MM) LONG KWIK-BOLT 3 STEEL EXPANSION ANCHOR OR HILTI X-DNI 27 P8 S15 POWDER ACTUATED FLOOR PIN WITH INTEGRAL NOMINAL 9/16 INCH (15 MM) DIAM WASHER MAY BE USED. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 643N 50/1.5", CP 643N 63/2", CP 643N 90/3", CP 643N 110/4", CP 643 160/6",

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





I. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR. MINIMUM 5 INCH(127 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAXIMUM SIZE OF OPENING IS 8 INCH (203 MM) BY 30 INCH (763 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. THROUGH PENETRANTS - ONE OR MORE METALLIC PENETRANTS TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE TOTAL NUMBER OF PENETRANTS IS DEPENDENT ON THE SIZE OF THE OPENING AND SIZES OF PENETRANTS. THE ANNULAR SPACE BETWEEN THE PENETRANTS AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT). THE ANNULAR SPACE BETWEEN NOMINAL 2 INCH (51 MM) DIAMETER (AND SMALLER) PENETRANTS SHALL BE A MINIMUM 0 INCH (POINT CONTACT). THE ANNULAR SPACE BETWEEN PENETRANTS GREATER THAN NOMINAL 2 INCH (51 MM) DIAMETER SHALL BE A MINIMUM 1/2 INCH (13 MM). A MAXIMUM ANNULAR SPACE IN THE SYSTEM SHALL BE 12 INCH (305 MM). PENETRANTS TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED:

- A. CONDUIT NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR RIGID STEEL CONDUIT B. THROUGH PENETRATING PRODUCT\* - FLEXIBLE METAL PIPING - THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED: 1. NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
- 2. NOMINAL 1 INCH (25 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. GASTITE, DIV OF TITEFLEX 3. NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY
- REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. WARD MFG LLC
- 3. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION TIGHTLY PACKED INTO THE OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- B. FILL, VOID OR CAVITY MATERIAL SEALANT\* MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC 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.



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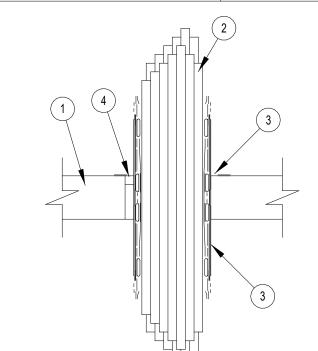
Page: 2 of 2

OMEGA FLEX INC

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Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC

SYSTEM NO. C-AJ-3283			
ANSI/UL1479 (ASTM E814)	CAN/ULC S115		
F RATING - 2-HOUR	F RATING - 2-HOUR		
T RATINGS - 0 AND 1/2 HOUR (SEE ITEM 2)	FT RATINGS - 0 AND 1/2 HOUR (SEE ITEM 2)		
L RATING AT AMBIENT - LESS THAN 1 CFM (SEE ITEM 2)	FH RATING - 2-HOUR		
L RATING AT 400 F - LESS THAN 1 CFM (SEE ITEM 2)	FTH RATINGS - 0 AND 1/2 HOUR (SEE ITEM 2)		
	L RATING AT AMBIENT - LESS THAN 1 CFM (SEE ITEM 2)		
	L RATING AT 400 F - LESS THAN 1 CFM (SEE ITEM 2)		

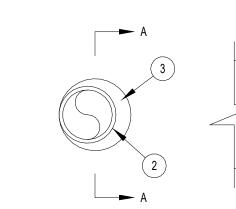


1. FLOOR OR WALL ASSEMBLY - MINIMUM 2-1/2 INCH (64 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. OPENING IN FLOOR OR WALL TO BE MAXIMUM 3 INCH (76 MM) DIAMETER FOR 2 INCH DEVICE AND MAXIMUM 5 INCH (127 MM) DIAMETER FOR 4 INCH DEVICE. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE

RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 1A. FLOOR ASSEMBLY - (NOT SHOWN) - AS AN ALTERNATE TO ITEM 1, FIRE-RATED UNPROTECTED CONCRETE AND STEEL FLOOR ASSEMBLY MAY BE USED. FLOOR ASSEMBLY TO BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL D900 SERIES FLOOR-CEILING DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. CONCRETE - MINIMUM 2-1/2 INCH (64 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) B. STEEL FLOOR AND FORM UNITS - COMPOSITE OR NONCOMPOSITE MAXIMUM 3 INCH (76 MM) DEEP FLUTED GALVANIZED UNITS AS SPECIFIED IN

THE INDIVIDUAL FLOOR-CEILING DESIGN. OPENING IN FLOOR OR WALL TO BE MAXIMUM 3 INCH (76 MM) DIAMETER FOR 2 INCH DEVICE AND MAXIMUM 5 INCH (127 MM) DIAMETER FOR 4 INCH DEVICE.

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Classified by Underwriters Laboratories, Inc

F Rating -- 2 Hr

1. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*. FLOOR MAY ALSO BE CONSTRUCTED OF ANY MINIMUM 6 INCH (152 MM) THICK UL CLASSIFIED HOLLOW CORE PRECAST CONCRETE UNITS\* HAVING A MINIMUM 2 INCH (51 MM) CONCRETE THICKNESS BELOW THE CORE. MAXIMUM DIAMETER OF OPENING IS 3 INCH (76 MM). SEE CONCRETE BLOCKS (CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORIES IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. THROUGH PENETRANTS - ONE NON-METALLIC PIPE TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. ANNULAR

SPACE BETWEEN PIPE AND EDGE OF OPENING TO BE MINIMUM () INCH (POINT CONTACT) AND MAXIMUM 5/8 INCH (16 MM). PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NON- METALLIC PIPES MAY BE USED. A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.

B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. 3. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 2 INCH (51 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT POINT CONTACT LOCATION, MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF SEALANT APPLIED AT PIPE/CONCRETE INTERFACE ON BOTTOM SURFACE OF FLOOR OR BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

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January 09, 2015

2. CABLES - WITHIN THE LOADING AREA FOR THE FIRESTOP DEVICE, THE CABLES MAY REPRESENT A 0 TO 100 PERCENT VISUAL FILL. CABLES TO BE TIGHTLY BUNDLED WITHIN THE DEVICE AND RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES OF CABLES MAY BE USED: A. MAXIMUM 100 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR TELECOMMUNICATION CABLE WITH POLYVINYL

(PVC) JACKETING AND INSULATION. B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.

D. MAXIMUM 4 PR NO. 22 AWG CAT 6 COMPUTER CABLES. E. MAXIMUM RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING.

F. FIBER OPTIC CABLE WITH POLYVINYL CHLORIDE (PVC) OR POLYETHYLENE (PE) JACKET AND INSULATION HAVING A MAX DIAM OF 1/2 INCH G. MAXIMUM 20/C NO. 22 AWG SHIELDED PRINTER CABLE WITH PVC JACKET.

H. THROUGH-PENETRATING PRODUCT\* - TWO COPPER CONDUCTORS NO. 18 AWG (OR SMALLER) POWER OR NON POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT A JACKET UNDER A METAL ARMOR. AFC CABLE SYSTEMS INC I. MAXIMUM 1/4 INCH (6 MM) DIAMETER S-VIDEO CABLE CONSISTING OF 2 MAXIMUM 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET. J. THROUGH PENETRATING PRODUCT\* - ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY. SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE RESISTANCE DIRECTORY

K. MAXIMUM 3/C NO 12 AWG MC CABLE THE T, FT AND FTH RATINGS FOR THE FIRESTOP SYSTEM ARE 1/2 HOUR EXCEPT THAT WHEN CABLE TYPES 2J OR 2K ARE USED, THE T, FT AND FTH RATINGS ARE 0 HOUR.

SEE TABLE BELOW FOR

FOR NAMES OF MANUFACTURERS.

RLF	RATINGS.					
	MAXIMUM CABLE	_		CFM/SQ FT	L RATIN	IG, CFM
	FILL	CADLE TIPE	AMBIENT	400°F	AMBIENT	400°F
	0%	_	1	2	LESS THAN 1	LESS THAN 1
	100%	ANY CABLES (ITEM 2) IN ANY COMBINATION	7	7	LESS THAN 1	LESS THAN 1

3. FIRESTOP DEVICE\* - FIRESTOP DEVICE CONSISTS OF A CORRUGATED STEEL TUBE WITH AN INNER PLASTIC HOUSING, INTUMESCENT MATERIAL RINGS, TIGHTLY TWISTED INNER FABRIC SMOKE SEAL, FLANGES AND GASKET MATERIAL (NOT SHOWN). FIRESTOP DEVICE TO BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. DEVICE SLID INTO FLOOR OR WALL SUCH THAT ENDS PROJECT AN EQUAL DISTANCE FROM THE APPROXIMATE CENTERLINE OF THE ASSEMBLY. THE ANNULAR SPACE BETWEEN THE DEVICE AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT). DEVICE PROVIDED WITH FLANGE(S) THAT ARE SPUN CLOCKWISE ONTO DEVICE THREADS, OVER GASKET MATERIAL BUTTING TIGHTLY TO TOP SIDE OF FLOOR OR BOTH SIDES OF WALL. IN FLOORS, WHEN FS-ONE SEALANT IS USED AND INSTALLED FLUSH WITH BOTTOM OF FLOOR, DEVICE FLANGE SHALL BE THREADED TIGHTLY TO BOTTOM SIDE OF FLOOR. IN FLOORS, DEVICE FLANGE TO BE SECURED TO FLOOR WITH MINIMUM TWO 1-1/4 INCH (32 MM) LONG STEEL MASONRY SCREWS OR ANCHORS. AS AN ALTERNATE TO GASKET MATERIAL, SEALANT (ITEM 4) MAY BE USED.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 653 AND CP 653 BA 2 INCH SPEED SLEEVE, CP 653 AND CP 653 BA 4 INCH SPEED SLEEVE 4. FILL, VOID OR CAVITY MATERIAL\* - AS AN ALTERNATE TO GASKET MATERIAL (SEE ITEM 3), MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS BETWEEN FIRESTOP DEVICE AND PERIPHERY OF OPENING, FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SIDES OF WALL. AS AN OPTION, WHEN FS-ONE SEALANT IS USED, THE FILL MATERIAL CAN BE INSTALLED FLUSH WITH BOTTOM OF FLOOR, FOR L RATINGS WHEN SEALANT IS USED. AN ADDITIONAL 1/4 INCH (6 MM) BEAD OF FILL MATERIAL IS APPLIED AT THE DEVICE/FLOOR OR DEVICE/WALL INTERFACE ON TOP OR BOTTOM SIDE OF FLOOR OR BOTH SIDES OF WALL ASSEMBLY PRIOR TO INSTALLING FLANGES.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 618 FIRESTOP PUTTY, 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

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designated agent at

Page: 2 of 2

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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DATE: SEPTEMBER 11, 2024 ORB #: 00-00

FIRE JOINTS - FLOORS AND WALLS

SYSTEM NO. C-AJ-5090

CAN/ULC S115

F RATINGS - 2 AND 3-HOUR (SEE ITEM 4)

ANSI/UL1479 (ASTM E814)

F RATINGS - 2 AND 3-HOUR (SEE ITEM 4)

Classified by Underwriters Laboratories,

I. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*. MAXIMUM DIAMETER OF OPENING IS 18 INCH (457 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. METALLIC SLEEVE - (OPTIONAL) - NOMINAL 18 INCH (457 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAXIMUM OF 3 INCH (76 MM) ABOVE FLOOR OR BEYOND BOTH SURFACES OF WALL. 3. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM, PIPE OR TUBING TO BE RIGIDLY SUPPORTED. ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED: A. STEEL PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE. B. COPPER PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER TUBING C. COPPER TUBING - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

Page: 1 of 2

4. TUBE INSULATION - PLASTICS+ - MINIMUM 1/2 INCH(13 MM) TO MAXIMUM 3/4 INCH (19 MM) THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. NOMINAL 1 INCH (25 MM) THICK AB/PVC FLEXIBLE FOAM INSULATION MAY BE USED FOR MAXIMUM 2-HOUR F AND FH RATINGS WHEN MAXIMUM 3 INCH (76 MM) DIAMETER PIPE OR TUBING IS USED. THE ANNULAR SPACE SHALL BE MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 12 INCH (305 MM). WHEN MAXIMUM ANNULAR SPACE EXCEEDS 1-1/2 INCH (38 MM) THE F AND FH RATINGS ARE 2-HOUR. SEE PLASTICS+ (QMFZ2) CATEGORY IN THE RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED.

5. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS

REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/4 INCH (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. WHEN MAXIMUM ANNULAR SPACE EXCEEDS 1-1/2 INCH (38 MM) THE MINIMUM THICKNESS OF

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

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L RATING AT 400 F - LESS THAN 1 CFM/SQ FT I. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*, MAXIMUM DIAMETER OF OPENING IS 29 INCH (737 MM), SEE

CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. METALLIC SLEEVE - (OPTIONAL) - NOMINAL 30 INCH (762 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAXIMUM OF 3 INCH (76 MM) ABOVE FLOOR OR BEYOND BOTH SURFACES OF WALL. IF THE STEEL SLEEVE EXTENDS BEYOND THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL, THE T RATING OF THE

FLOORS, AND SIZED TO BE A MINIMUM OF 2 INCH (51 MM) LARGER THAN THE SLEEVE DIAMETER. THE SLEEVE IS TO BE CAST-IN-PLACE FLUSH WITH BOTTOM SURFACE OF FLOOR AND MAY EXTEND A MAXIMUM OF 1 INCH (25 MM) ABOVE THE TOP SURFACE OF THE FLOOR. B. SHEET METAL SLEEVE - (OPTIONAL) - MAXIMUM 12 INCH (305 MM) DIAMETER, MINIMUM 24 GAUGE GALVANIZED STEEL PROVIDED WITH A 24 GAUGE GALVANIZED STEEL SQUARE FLANGE SPOT WELDED TO THE SLEEVE AT APPROXIMATELY MID- HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN FLOORS, AND SIZED TO BE A MINIMUM OF 2 INCH (51 MM) LARGER THAN THE SLEEVE DIAMETER. THE SLEEVE IS TO BE CAST-IN-PLACE FLUSH WITH BOTTOM SURFACE OF FLOOR AND MAY EXTEND A MAXIMUM OF 1 INCH (25 MM) ABOVE THE TOP SURFACE OF THE FLOOR.

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SYSTEM NO. C-AJ-5091 ANSI/UL1479 (ASTM E814) CAN/ULC S115 Classified by Underwriters Laboratories, Inc. F RATING - 2-HOUR F RATING - 2-HOUR FT RATINGS - 0 AND 1-HOUR (SEE ITEMS 2 AND 4) T RATINGS - 0 AND 1-HOUR (SEE ITEMS 2 AND 4) L RATING AT AMBIENT - 4 CFM/SQ FT FH RATING - 2-HOUR L RATING AT 400 F - LESS THAN 1 CFM/SQ FT FTH RATINGS - 0 AND 1-HOUR (SEE ITEMS 2 AND 4) L RATING AT AMBIENT - 4 CFM/SQ FT

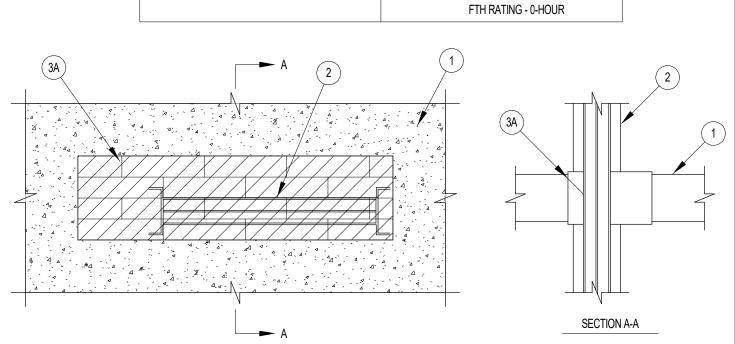
FIRESTOP SYSTEM IS 0-HOUR A. SHEET METAL SLEEVE - (OPTIONAL) - MAXIMUM 6 INCH (152 MM) DIAMETER, MINIMUM 26 GAUGE GALVANIZED STEEL PROVIDED WITH A 26 GAUGE GALVANIZED STEEL SQUARE FLANGE SPOT WELDED TO THE SLEEVE AT APPROXIMATELY MID- HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN

Page: 2 of 2

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SYSTEM NO. C-AJ-6042 ANSI/UL1479 (ASTM E814) CAN/ULC S115 Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115 F RATING - 2-HOUR F RATING - 2-HOUR T RATING - 0-HOUR FT RATING - 0-HOUR FH RATING - 2-HOUR



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January 14, 2015

I. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR OR WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL LISTED CONCRETE BLOCKS\*. MAXIMUM AREA OF OPENING IS 240 INCH SQUARE (1548 MM2) WITH MAXIMUM DIMENSION OF 30 INCH (762 MM). SEE CONCRETE BLOCKS (CAZT) IN THE UL FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. BUSWAY - ONE NOMINAL 23 INCH (584 MM) WIDE (OR SMALLER) BY 4-1/2 INCH (114 MM) DEEP, OR MAXIMUM TWO NOMINAL 11-1/4 INCH (286 MM) WIDE (OR SMALLER) BY 4-1/2 INCH (114 MM) DEEP, "I" SHAPED ALUMINUM ENCLOSURE CONTAINING FACTORY MOUNTED ALUMINUM BARS RATED FOR 600 V, 4000A OR COPPER BARS RATED FOR 600 V, 5000 A. WHEN TWO BUSWAYS ARE INSTALLED, THEY SHALL BE PLACED END TO END AND THE ANNULAR SPACE BETWEEN BUSWAYS SHALL BE MINIMUM 1/2 INCH (13 MM). THE ANNULAR SPACE BETWEEN BUSWAYS AND PERIPHERY OF OPENING SHALL BE MINIMUM 1/4 INCH (6 MM) TO MAXIMUM 5-3/4 INCH (146 MM). BUSWAYS TO BE

RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR AND WALL ASSEMBLY. THE BUSWAYS SHALL BEAR THE ULLISTING MARK AND SHALL BE I NSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, NFPA NO. 70. 3. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING

A. FILL, VOID OR CAVITY MATERIAL\* - FIRE BLOCKS INSTALLED WITH 5 INCH (127 MM) DIMENSION PASSED THROUGH THE OPENING AND CENTERED WITHIN THE THICKNESS OF THE FLOOR OR WALL. IN CONCRETE BLOCK WALLS, FIRE BLOCK TO FILL ENTIRE THICKNESS OF WALL OPENING UNLESS WALL IS SOLID FILLED. BLOCKS TO BE FIRMLY PACKED AND COMPLETELY FILL THE ENTIRE AREA OF OPENING BETWEEN AND AROUND BUSWAYS.

AROUND BUSWAYS AND FIRE BLOCK TO FILL ANY VOIDS. THIS FILL MATERIAL IS TO BE APPLIED FROM THE TOP ASSEMBLY OR BOTH SURFACES OF WALL ASSEMBLY. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE INTUMESCENT SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.

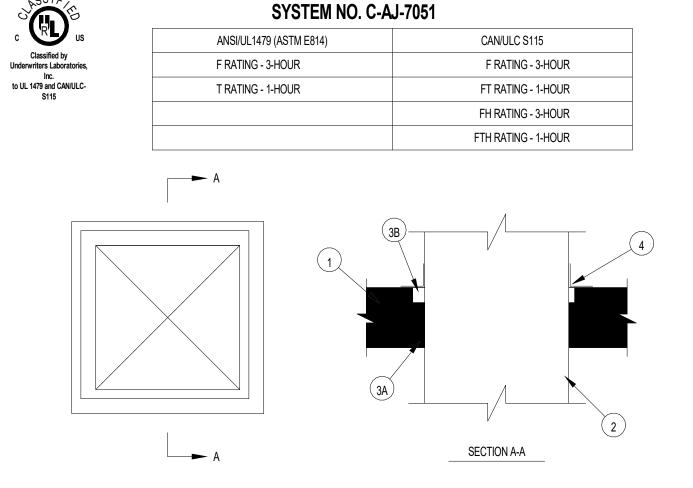
B. FILL, VOID OR CAVITY MATERIAL\* - (NOT SHOWN) - FILL MATERIAL TO BE APPLIED TO MAXIMUM EXTENT POSSIBLE WITHIN THE OPENING BETWEEN AND

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



HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CFS-BL FIRESTOP BLOCK

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. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR OR MINIMUM 5-1/2 INCH (140 MM) THICK LIGHTWEIGHT ON NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAXIMUM AREA OF OPENING IS 1024 INCH SQUARE (6606 CM²) WITH A MAXIMUM DIMENSION OF 32 INCH (813 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. STEEL DUCT - NOMINAL 30 X 30 INCH (762 X 762 MM) BY NO. 24 GAUGE (OR HEAVIER) GALVANIZED STEEL DUCT. ONE STEEL DUCT TO BE POSITIONED WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MINIMUM 1/4 INCH (6 MM) TO MAXIMUM 1-3/4 INCH (44 MM). 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 MATERIALS - MINIMUM 3-1/2 INCH (89 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM BETWEEN THE BARE STEEL DUCT AND THE PERIPHERY OF THE OPENING. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1 INCH (25 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH

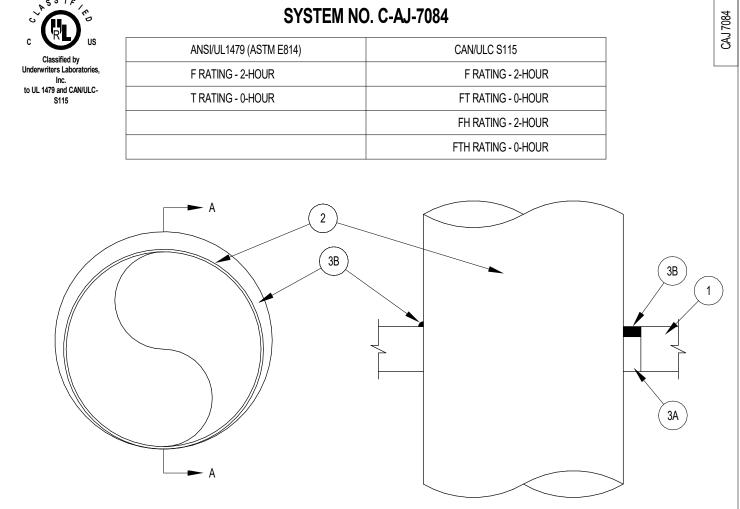
TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 606 FLEXIBLE FIRESTOP SEALANT, FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT

4. STEEL RETAINING ANGLE - NOMINAL 2 X 2 INCH (51 X 51 MM) BY NO. 16 GAUGE (OR HEAVIER) STEEL ANGLES ATTACHED TO ALL FOUR SIDES OF THE STEEL DUCT ON THE TOP SURFACE OR BOTH SURFACES OF THE WALL. THE ANGLES SHALL BE ATTACHED WITH NO. 8 (OR LARGER) STEEL SHEET METAL SCREWS SPACED MAXIMUM OF 1 INCH (25 MM) FROM EACH END AND A MAXIMUM OF 3 INCH (76 MM) ON CENTER.

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



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. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*. MAXIMUM DIAMETER OF OPENING IS 21-3/4 INCH (552 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. **THROUGH PENETRANT** - GALVANIZED STEEL DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR

SPACE BETWEEN THE DUCT AND PERIPHERY OF OPENING SHALL BE 0 INCH (POINT CONTACT) AND MAXIMUM 1-1/2 INCH (38 MM). DUCT TO BE RIGIDLY

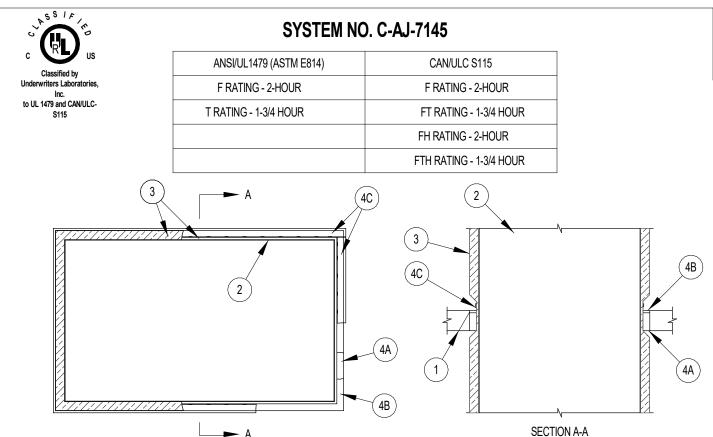
SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. A. SPIRAL WOUND HVAC DUCT - NOMINAL 20 INCH (508 MM) DIAMETER (OR SMALLER) NO. 24 MSG (OR HEAVIER) GALVANIZED STEEL SPIRAL WOUND DUCT. B. SHEET METAL DUCT - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) NO. 28 MSG (OR HEAVIER) GALVANIZED SHEET STEEL DUCT. 3. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. PACKING MATERIAL - MINIMUM 3-1/2 INCH (89 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH

ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1 INCH (25 MM) 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 DUCT AND PERIPHERY OF OPENING, A MINIMUM 1/2 INCH (13 MM) DIAM BEAD OF SEALANT SHALL BE APPLIED AT THE CONCRETE/DUCT INTERFACE.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT, FS-ONE MAX INTUMESCENT SEALANT, CP601S ELASTOMERIC FIRESTOP SEALANT, CP606 FLEXIBLE FIRESTOP SEALANT, CP 604 SELF-LEVELING FIRESTOP SEALANT, CFS-S SIL GG SEALANT OR CFS-S SIL SL SEALANT. (NOTE: CP 604 SELF-LEVELING FIRESTOP SEALANT AND CFS-S SIL SL SEALANT TO BE USED ON FLOOR ASSEMBLIES \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

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SYSTEM NO. C-AJ-5091

B. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM.

PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING

Fire Covering - MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 2 INCH (51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF OR 56 KG/M³) GLASS

FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL-SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED, SELF-

BETWEEN THE INSULATED PIPE AND THE EDGE OF THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 12 INCH (305 MM). WHEN

SEE PIPE 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. PIPE COVERING - (NOT SHOWN) - AS AN ALTERNATE TO ITEM 4. MAXIMUM 2 INCH (51 MM) THICK CYLINDRICAL CALCIUM SILICATE (MINIMUM 14 PCF OR 224

A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M³) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO

B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH

INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS

OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS

KG/M³) UNITS SIZED TO THE OUTSIDE DIAMETER OF THE PIPE OR TUBE MAY BE USED. PIPE INSULATION SECURED WITH STAINLESS STEEL BANDS OR MINIMUM

18 AWG STAINLESS STEEL WIRE SPACED MAXIMUM 12 INCH (305 MM) ON CENTER THE ANNULAR SPACE SHALL BE MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 12

SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE

A. STEEL PIPE - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

C. **COPPER PIPE** - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE

D. COPPER TUBING - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

THICKNESS OF PIPE COVERING IS LESS THAN 2 INCH (51 MM), THE T RATING FOR THE FIRESTOP SYSTEM IS 0-HOUR.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

B. IRON PIPE - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.

A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.

Hilti Firestop Systems

5. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH (114 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\*, MAXIMUM AREA OF OPENING IS 17.8 FOOT SQUARE (1.65 M2) WITH MAXIMUM DIMENSION OF 64 INCH (1.6 M). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. STEEL DUCT - MAXIMUM 60 X 36 INCH (1524 X 914 MM) STEEL DUCT. STEEL GAUGE OF DUCT SHALL CONFORM WITH SMACNA REQUIREMENTS. ONE DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN STEEL DUCT AND EDGES OF OPENING SHALL BE MINIMUM 2 INCH (51 MM) TO MAXIMUM 6 INCH (152 MM) WHEN MAXIMUM DUCT DIMENSION IS 28 INCH (711 MM). OTHERWISE, MAXIMUM ANNULAR SPACE IS 2-1/2 INCH (64 MM), STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

3. BATTS AND BLANKETS\* - NOMINAL 2 INCH (51 MM) THICK LIGHT DENSITY (MINIMUM 3/4 PCF OR 12 KG/M3) GLASS FIBER BLANKET INSULATION JACKETED ON THE OUTSIDE WITH A FOIL-SCRIM-KRAFT FACING. LONGITUDINAL AND TRANSVERSE JOINTS SEALED WITH FOIL-SCRIM-KRAFT TAPE. NOMINAL ANNULAR SPACE BETWEEN INSULATED STEEL DUCT AND PERIPHERY OF OPENING TO BE POINT CONTACT TO MAXIMUM 1/2 INCH (13 MM) PRIOR TO INSTALLATION OF PACKING MATERIAL (ITEM 4A). WHEN MAXIMUM DUCT DIMENSION IS 28 INCH (711 MM), MAXIMUM ANNULAR SPACE BETWEEN INSULATED STEEL DUCT AND PERIPHERY OF OPENING IS 4 INCH (102 MM) PRIOR TO INSTALLATION OF PACKING MATERIAL (ITEM 4A). SEE BATTS AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY BATT OR BLANKET MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD VALUE OF 25 OR LESS AND A SMOKE DEVELOPED VALUE OF 50 OR LESS MAY BE USED.

I. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY ANNULAR SPACE SUCH THAT GLASS FIBER BLANKET INSULATION ON STEEL DUCT IS COMPRESSED TO A MAXIMUM (13 MM). PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR AND FROM BOTH SURFACES OF WALL TO ACCOMMODATE THE

REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

C. RETAINING ANGLES - MINIMUM 2 X 2 INCH (51 X 51 MM) NO. 16 GAUGE (OR HEAVIER) GALVANIZED STEEL ANGLES. ANGLES ATTACHED SIDES OF STEEL DUCT, THROUGH GLASS FIBER BLANKET INSULATION, ON TOP SURFACE OF FLOOR OR ON BOTH SURFACES OF WALL WITH NO. 10 OR LARGER) STEEL SHEET METAL SCREWS SPACED 1 INCH (25 MM) FROM EACH END AND MAXIMUM 4 INCH (102 MM) ON CENTER. INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

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designated agent at

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

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DATE: SEPTEMBER 11, 2024 ORB #: 00-00

FIRE JOINTS - FLOORS AND WALLS

SYSTEM NO. C-AJ-8099 Classified by Underwriters Laboratories, Inc. ANSI/UL1479 (ASTM E814) CAN/ULC S115 F RATING - 3-HOUR F RATING - 3-HOUR FT RATINGS - 0 AND 3/4 HOUR (SEE ITEM 2) T RATINGS - 0 AND 3/4 HOUR (SEE ITEM 2) FH RATING - 2 HOUR FTH RATINGS - 0 AND 3/4 HOUR (SEE ITEM 2) 1. FLOOR OR WALL ASSEMBLY - MINIMUM 4-1/2 INCH(114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR OR MINIMUM 5 INCH (127 MM) REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS<sup>\*</sup>. FLOOR MAY ALSO BE CONSTRUCTED OF ANY MINIMUM 6 INCH (152 MM) THICK UL CLASSIFIED HOLLOW CORE PRECAST CONCRETE UNITS\*, MAXIMUM AREA OF SQUARE, RECTANGULAR OR, CIRCULAR OPENING IS 192 SQUARE INCH (1239 CM2) WITH MAXIMUM DIMENSION OF 24 INCH (61 CM). WHEN PRECAST CONCRETE UNIT FLOORS ARE USED, MAXIMUM AREA OF SQUARE, RECTANGULAR OR CIRCULÁR OPENING IS 49 SQUARE INCH (316 CM²) WITH MAXIMUM DIMENSION OF 7 INCH (17.8 CM). SEE CONCRETE BLOCKS (CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORIES IN THE 2. THROUGH-PENETRANT - ONE OR MORE PIPES OR TUBES TO BE INSTALLED WITHIN THE OPENING. THE TOTAL NUMBER OF THROUGH-PENETRANTS IS DEPENDENT ON THE SIZE OF THE OPENING AND TYPES AND SIZES OF THE PENETRANTS. ANY COMBINATION OF THE PENETRANTS DESCRIBED BELOW MAY BE USED PROVIDED THAT THE FOLLOWING PARAMETERS RELATIVE TO THE ANNULAR SPACES AND THE SPACINGS BETWEEN THE PIPES ARE MAINTAINED. THE

FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

SEPARATION BETWEEN CABLE BUNDLE, TUBES AND INSULATED TUBES SHALL BE A MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 3-1/8 INCH (79 MM). THE ANNULAR SPACE BETWEEN PENETRANTS AND THE PERIPHERY OF OPENING SHALL BE A MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 5 INCH 127 MM). PIPES OR TUBES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBES MAY BE USED. A. COPPER TUBING - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE.

- B. COPPER PIPE NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- C. STEEL PIPE NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. D. IRON PIPE - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
- E. CONDUIT NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) ELECTRIC METALLIC TUBING (EMT) OR STEEL CONDUIT. F. FLEXIBLE STEEL CONDUIT+ - NOMINAL 1 INCH (25 MM) DIAMETER (OR SMALLER) FLEXIBLE STEEL CONDUIT. SEE FLEXIBLE METAL CONDUIT (DXUZ) CATEGORY IN THE ELECTRICAL CONSTRUCTION MATERIAL DIRECTORY FOR NAMES OF MANUFACTURERS.

G. THROUGH PENETRATING PRODUCT\* - FLEXIBLE METAL PIPING - THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY

BE USED:

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SYSTEM NO. C-AJ-8099

- 1.) NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. OMEGA FLEX INC 2.) NOMINAL 1 INCH (25 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. GASTITE, DIV OF TITEFLEX
- 3.) NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE HOURLY T RATING IS 3/4-HOUR WHEN A PIPE OR TUBE WITH FIBER-GLASS INSULATION IS USED, OR 0-HOUR WHEN A PIPE OR TUBE, A PIPE
- OR TUBE WITH AB/PVC INSULATION OR A CABLE BUNDLE IS USED. THE T RATING IS 0-HOUR WHEN METALLIC PENETRANTS WITHOUT PIPE INSULATION ARE USED.
- 3. PIPE INSULATION (OPTIONAL) THE FOLLOWING TYPES OF PIPE INSULATION MAY BE USED WITH METALLIC PENETRANTS (ITEMS 2A, 2B, 2C, 2D AND 2F): A. PIPE COVERING\* - NOMINAL 1 INCH (25 MM) THICK (OR THINNER) HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF OR 56 KG/M3) GLASS FIBER UNITS JACKETED ON THE OÙTSIDÉ WITH AN ALL SERVIĆE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS ÓR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. 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 CLASSIFICA TION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
- B. TUBE INSULATION PLASTICS+++ NOMINAL 3/4 INCH (19 MM) THICK (OR THINNER) ACRYLONITRILE BUTADIENE/POLYVINYL (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. SEE PLASTICS+++ (QMFZ2) CATEGORY IN THE PLASTICS RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF
- MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED. 4. CABLES - MAXIMUM 2 INCH (51 MM) DIAMETER TIGHT BUNDLE OF CABLES INSTALLED WITHIN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE SPACE BETWEEN THE CABLES AND PERIPHERY OF THE OPENING SHALL RANGE FROM MINIMUM 2 INCH (51 MM) TO
- A. MAXIMUM 500 KCMIL SINGLE COPPER CONNECTOR POWER CABLE WITH THERMOPLASTIC INSULATION AND POLYVINYL CHLORIDE (PVC) B. MAXIMUM 300 PAIR NO. 24 AWG COPPER CONDUCTOR TELECOMMUNICATION CABLES WITH PVC INSULATION AND JACKET C. MAXIMUM 7/C COPPER CONDUCTOR NO. 12 AWG MULTICONDUCTOR POWER AND CONTROL CABLES WITH PVC OR CROSS-LINKED

MAXIMUM 4 INCH (102 MM). ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF METALLIC CONDUCTOR OF FIBER OPTIC CABLE MAY BE USED:

- POLYETHYLENE (XLPE) INSULATION AND PVC JACKET. D. MULTIPLE FIBER OPTICAL COMMUNICATION CABLES JACKETED WITH PVC AND HAVING A MAXIMUM OUTSIDE DIAMETER OF 1/2 INCH. E. MAXIMUM 3/C COPPER CONDUCTOR NO. 12 AWG WITH BARE ALUMINUM GROUND, PVC INSULATED STEEL METAL-CLAD CABLE. 5. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - MINIMUM 4 INCH (102 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY
- PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. WHEN PRECAST CONCRETE UNIT FLOORS ARE USED, PACKING MATERIAL SHALL BE INSTALLED AT A THICKNESS EQUAL TO THE THICKNESS OF THE FLOOR MINUS 1/2 INCH (13 MM), FLUSH WITH BOTTOM SURFACE OF
- B. FILL VOID OR CAVITY MATERIALS\* SEALANT MINIMUM 1/2 INCH(51 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.
- +++ BEARING THE UL RECOGNIZED COMPONENT MARKING
- \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.
- + BEARING THE UL LISTING MARK



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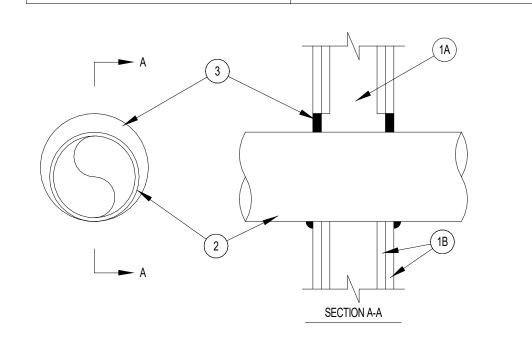
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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

FIRE JOINTS - FLOORS AND WALLS

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3)	F RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3)
T RATING - 0-HOUR	FT RATING - 0-HOUR
RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT	FH RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3)
RATING AT 400 F - LESS THAN 1 CFM/SQ FT	FTH RATING - 0-HOUR
	L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT
	L RATING AT 400 F - LESS THAN 1 CFM/SQ FT

SYSTEM NO. W-L-1054



. WALL ASSEMBLY - THE 1 OR 2-HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE

THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER. STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ON CENTER. WHEN STEEL STUDS ARE USED AND THE DIAMETER OF OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 INCH (102 TO 152 MM) WIDER AND 4 TO 6 INCH (102 TO 152 MM) HIGHER THAN THE DIAMETER OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 INCH (51 TO 76 MM) CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES. B. GYPSUM WALLBOARD\* - 5/8 INCH (16 MM) THICK, 4 FOOT (122 CM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM 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. MAXIMUM DIAMETER OF OPENING IS 32-1/4 INCH (819 MM) FOR STEEL STUD WALLS. MAXIMUM

THE F AND FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.

INCLUDE THE CONSTRUCTION FEATURES NOTED BELOW:

RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

(64 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ON CENTER.

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DIAMETER OF OPENING IS 14-1/2 INCH (368 MM) FOR WOOD STUD WALLS.

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SYSTEM NO. W-L-2078

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

T RATINGS - 0, 1, AND 2-HOUR (SEE ITEMS 2 AND 3)

L RATING AT AMBIENT - 3 CFM/SQ FT

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT

1. WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER

B. GYPSUM WALLBOARD\* - NOMINAL 5/8 INCH (16 MM) THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION

DESIGN. MAXIMUM DIAMETER OF OPENING IS 11-1/2 INCH (292 MM). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE

2. THROUGH-PENETRANTS - ONE NON-METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE

BETWEEN PIPE AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1/2 INCH (13 MM). PIPE OR CONDUIT TO BE RIGIDLY

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 10 INCH (254 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR CORE PVC

C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR

D. FLAME RETARDANT POLYPROPYLENE (FRPP) PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) SCHEDULE 40 FRPP PIPE FOR USE IN

E. POLYVINYLIDENE FLUORIDE (PVDF) PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) PVDF PIPE FOR USE IN CLOSED (PROCESS OR

SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM. WHEN MAXIMUM 6 INCH DIAMETER PIPE IS USED, T RATING IS EQUAL TO THE HOURLY

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January 28, 2015

B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 10 INCH (254 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN

SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL

A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF

SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NON-METALLIC PIPES MAY BE USED:

FIRE RATING OF THE WALL. WHEN NOMINAL 8 INCH OR 10 INCH (203 OR 254 MM) DIAMETER PIPE IS USED, T RATING IS 0-HOUR.

IN. (51 X 102 MM) LUMBER SPACED MAXIMUM 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 2-1/2 INCH

PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.

CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.

CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.

SECTION A-A

Page: 1 of 2

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SYSTEM NO. W-L-1054

2. THROUGH-PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE

INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE

C. CONDUIT - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 INCH (152 MM) DIAMETER STEEL

3. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL, AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH

FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MINIMUM 0 INCH TO MAXIMUM 2-1/4 INCH (57 MM). PIPE MAY BE

A. STEEL PIPE - NOMINAL 30 INCH (762 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

D. COPPER TUBING - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. E. COPPER PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

B. IRON PIPE - NOMINAL 30 INCH (762 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.

FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON BOTH SURFACES OF WALL

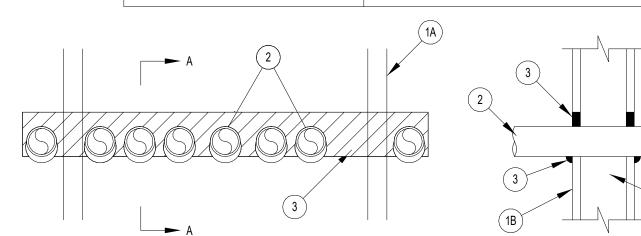
AS CANADA), RESPECTIVELY.

Page: 2 of 2

SYSTEM NO. W-L-1389

Classified by Underwriters Laboratories F RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3) F RATINGS - 1 AND 2-HOUR (SEE ITEM 1AND 3) to UL 1479 and CAN/ULC-T RATING - 0-HOUR FT RATING - 0-HOUR FH RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3) FTH RATING - 0-HOUR

ANSI/UL1479 (ASTM E814)



CAN/ULC S115

1. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING SHALL CONSIST OF MINIMUM 3-5/8 INCH (92 MM) WIDE STEEL STUDS SPACED MAXIMUM 24 INCH (610 MM) ON CENTER. B. GYPSUM WALLBOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS, AS SPECIFIED IN THE INDIVIDUAL WALL AND DESIGN. MAXIMUM HEIGHT OF OPENING IS 3-1/2 INCH (89 MM). MAXIMUM WIDTH OF OPENING IS 32 INCH (813 MM). THE HOURLY F, FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. 2. THROUGH PENETRANTS - MULTIPLE PIPES OR CONDUITS INSTALLED IN SINGLE LAYER ARRAY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE PIPES AND CONDUITS AND THE EDGES OF THE OPENING SHALL BE MINIMUM 0 INCH (0 MM, POINT CONTACT) TO MAXIMUM 1-3/8 INCH (35 MM). THE

SEPARATION BETWEEN PIPES AND CONDUITS TO BE A MINIMUM 0 INCH (0 MM, POINT CONTACT) TO A MAXIMUM 1-1/4 INCH (32 MM), PIPES AND CONDUITS TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED: A. STEEL PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE. B. CONDUIT - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) RIGID STEEL CONDUIT OR STEEL ELECTRICAL METALLIC TUBING (EMT). 3. FILL VOID OR CAVITY MATERIALS\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPES, CONDUITS AND GYPSUM FLUSH WITH EACH SURFACE OF WALL. MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL APPLIED TO THE

ONE SEALANT IS USED. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - HILTI CP 606 FLEXIBLE FIRESTOP SEALANT OR FS-ONE SEALANT, 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

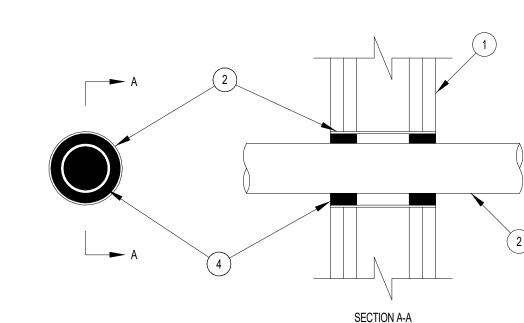
THROUGH PENETRANT/WALL INTERFACE AT THE POINT CONTACT LOCATIONS ON BOTH SIDES OF THE WALL. THE 2-HOUR F, FH RATINGS APPLY ONLY WHEN FS-

CANADA), RESPECTIVELY.

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System No. W-L-2128 F Rating — 1 and 2 Hr (See Item 1)



. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. **STUDS** - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ON CENTER. B. GYPSUM WALLBOARD\* -5/8 INCH (16 MM) THICK, 4 FOOT (122 CM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM TYPE. THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 3-1/2 INCH (89 MM). 2. METALLIC SLEEVE - OPTIONAL - NOMINAL 3-1/2 INCH (89 MM) (OR SMALLER) CYLINDRICAL SLEEVE FABRICATED FROM MINIMUM 0.016 INCH THICK (28

GAUGE) GALVANIZED SHEET STEEL AND HAVING A MINIMUM 1-1/4 INCH (32 MM) LAPS ALONG LONGITUDINAL SEAM. LENGTH OF SLEEVE TO BE INSTALLED S. THROUGH PENETRANTS - ONE NON-METALLIC PIPE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR, PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE SPACE BETWEEN PIPE AND PERIPHERY OF OPENING SHALL BE MINIMUM 1/4 INCH (6 MM) TO MAXIMUM 11/16 INCH (17.5 MM). THE FOLLOWING TYPES AND SIZES OF NON-METALLIC

SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS. B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. 4. FILL, VOID OR CAVITY MATERIALS\* - SEALANT - FOR 1-HOUR F RATING, MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. FOR 2-HOUR F RATING, MINIMUM 1-1/4 INCH (32 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.

A. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 40 PVC PIPE FOR USE IN CLOSED (PROCESS OR

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

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

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# System No. W-L-2078

3. FIRESTOP DEVICE\* - FIRESTOP COLLAR - FIRESTOP COLLAR SHALL BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. COLLAR TO BE INSTALLED AND LATCHED AROUND THE PIPE AND SECURED TO BOTH SIDES OF THE WALL USING THE ANCHOR HOOKS PROVIDED WITH THE COLLAR. (MINIMUM TWO ANCHOR HOOKS FOR 1-1/2 AND 2 INCH (38 AND 51 MM) DIAMETER PIPES, THREE ANCHOR HOOKS FOR 3 AND 4 INCH (76 AND 102 MM) DIAMETER PIPES, FOUR ANCHOR HOOKS FOR 6 INCH (152 MM) DIAMETER PIPES, TEN ANCHOR HOOKS FOR 8 INCH (203 MM) DIAMETER PIPES AND TWELVE ANCHOR HOOKS FOR 10 INCH (254 MM) DIAMETER PIPES. THE ANCHOR HOOKS ARE TO BE SECURED TO THE SURFACE OF WALL WITH 3/16 INCH (4.8 MM) DIAMETER BY 2-1/2 INCH (64 MM) LONG STEEL TOGGLE BOLTS ALONG WITH WASHERS. AS AN STEEL WASHERS MAY BE USED. WHEN THE

DRYWALL OR LAMINATE SCREW IS USED, T RATING SHALL NOT EXCEED 1-HOUR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 643 50/1.5"N, CP 643 63/2"N, CP 643 90/3"N, CP 643 110/4"N, CP 643 160/6"N, CP 644 200/8" ANDCP 644 250/10" FIRESTOP COLLARS 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - (NOT SHOWN) - MINIMUM 1/2 INCH (13 MM) THICKNESS OF SEALANT APPLIED WITHIN THE ANNULAR SPACE FOR NOMINAL 8 AND 10 INCH (203 AND 254 MM) DIAMETER PIPES, FLUSH WITH EACH SIDE OF WALL. SEALANT IN ANNULAR SPACE IS OPTIONAL FOR MAXIMUM 6

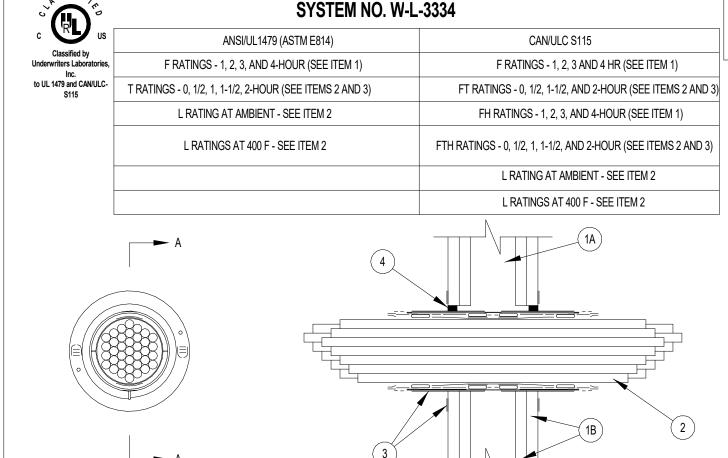
INCH (152 MM) DIAM PIPES. A MINIMUM 1/4 INCH (6 MM) THICKNESS OF SEALANT IS REQUIRED WITHIN THE ANNULAR SPACE, FLUSH WITH EACH SIDE OF WALL, TO ATTAIN THE L RATINGS FOR MAXIMUM 6 INCH (152 MM) DIAMETER PIPES. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

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January 28, 2015

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



1. WALL ASSEMBLY - THE 1, 2, 3, OR 4-HOUR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED WITHIN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCORPORATE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING SHALL CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 IN.CH (51 X 102 MM) LUMBER SPACED MAXIMUM 16 INCH (406 MM) ON CENTER. STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ONCENTER FOR 1 AND 2-HOUR WALL ASSEMBLIES. STEEL STUDS TO BE 3-5/8 INCH (92 MM) FOR 3 AND 4-HOUR WALL ASSEMBLIES. STEEL STUDS TO BE

MINIMUM 3-1/2 INCH (89 MM) WIDE WHEN 3/4 INCH (19 MM) THICK GYPSUM WALLBOARD IS USED (SEE ITEM 1B). B. GYPSUM WALL'BOARD\* - NOMINAL 5/8 IN.CH (16 MM) THICK GYPSUM WALLBOARD AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. ALTERNATELY, FOR 1 AND 2-HOUR RATED WALLS ONLY, MINIMUM ONE LAYER OF NOMINAL 3/4 INCH (19 MM) THICK GYPSUM WALLBOARD ON EACH SIDE OF WALL AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN MAY BE USED. OPENING IN GYPSUM WALLBOARD TO BE MAXIMUM 2-1/2 INCH (64 MM) DIAMETER FOR 2 INCH DEVICE AND MAXIMUM 4-1/2 INCH (114 MM) DIAMETER FOR 4 INCH DEVICE. THE HOURLY F AND FH RATINGS OF THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE HOURLY RATING OF THE WALL IN WHICH IT IS INSTALLED. 2. CABLES - WITHIN THE LOADING AREA FOR EACH FIRESTOP DEVICE, THE CABLES MAY REPRESENT A 0 TO 100 PERCENT VISUAL FILL. CABLES TO BE TIGHTLY

BUNDLED WITHIN THE DEVICE AND RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES OF CABLES MAY A. MAXIMUM 100 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR TELECOMMUNICATION CABLE WITH POLYVINYL CHLORIDE (PVC)

JACKETING

AND INSULATION.

B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.

C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE. D. MAXIMUM 4 PR NO. 22 AWG CAT 5 OR CAT 6 COMPUTER CABLES.

E. MAXIMUM RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING. F. FIBER OPTIC CABLE WITH POLYVINYL CHLORIDE (PVC) OR POLYETHYLENE (PE) JACKET AND INSULATION HAVING A MAXIMUM DIAMETER OF 1/2 INCH (13

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# SYSTEM NO. W-L-3334

G. MAXIMUM 20/C NO. 22 AWG SHIELDED PRINTER CABLE WITH PVC JACKET. H. THROUGH-PENETRATING PRODUCT\* - TWO COPPER CONDUCTORS NO. 18 AWG (OR SMALLER) POWER OR NON POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT A JACKET UNDER A METAL ARMOR.

I. MAXIMUM 1/4 INCH (6 MM) DIAMETER S-VIDEO CABLE CONSISTING OF 2 MAXIMUM 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKE

J. MAXIMUM 3/C NO 12 AWG MC CABLE. K. THROUGH PENETRATING PRODUCT\* — ANY CABLES, ARMORED CABLE+ OR METAL CLAD CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCT CATEGORY. SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. WHEN THE HOURLY RATING OF THE WALL ASSEMBLY IS 1-HOUR, THE T, FT AND FTH RATINGS ARE 0-HOUR. WHEN THE HOURLY RATING OF THE WALL ASSEMBLY IS 2-HOUR, THE T, FT AND FTH RATINGS ARE 1 -HOUR EXCEPT THAT, WHEN ITEM 2J OR 2K IS USED, THE T. FT AND FTH RATINGS ARE 1/2 HOUR . WHEN THE HOURLY RATING OF THE WALL ASSEMBLY IS 3 OR 4 -HOUR. THE T. FT AND FTH RATINGS ARE

L RATINGS APPLY ONLY WHEN DEVICE FLANGES ARE USED. L RATINGS VARY DEPENDING ON WHETHER THE GASKETING MATERIAL (SEE ITEM 3) OR THE SEALANT (ITEM 4) IS USED. SEE TABLE BELOW FOR L RATINGS.

MAX CABLE FILL	CABLE TYPE	L RATING, CFM/SQ FT		L RATING, CFM					
		AMBIE	NT	400°I	=	AM	BIENT	400	)°F
		SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET
0%	_	LESS THAN 1	1.0	LESS THAN 1	2.7	LESS THAN 1	LESS THAN 1	LESS THAN 1	LESS THAN 1
100%	ITEM 2D ONLY	4.9	4.9	1.3	3.5	LESS THAN 1	LESS THAN 1	LESS THAN 1	
100%	ANY CABLES (ITEM 2) IN ANY COMBINATION	9.2	9.2	9.6	11.8	1.2	2 1.2	1.3	1.6

3. FIRESTOP DEVICE\* - FIRESTOP DEVICE CONSISTS OF A CORRUGATED STEEL TUBE WITH AN INNER PLASTIC HOUSING, INTUMESCENT MATERIAL RINGS, TWISTED INNER FABRIC SMOKE SEAL, FLANGES AND GASKETING MATERIAL (NOT SHOWN). FIRESTOP DEVICE TO BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. AS AN OPTION, THE INNER FABRIC SEAL MAY REMAIN OPEN EXCEPT THAT, TO ATTAIN THE L RATING, THE INNER FABRIC SEAL SHALL BE TWISTED TO COMPLETELY CLOSE OFF THE OPENING WITHIN DEVICE. DEVICE SLID INTO WALL SUCH THAT ENDS PROJECT AN EQUAL DISTANCE FROM THE APPROXIMATE CENTERLINE OF THE WALL ASSEMBLY. THE ANNULAR SPACE BETWEEN THE DEVICE AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM () INCH (POINT CONTACT). DEVICE PROVIDED WITH FLANGES THAT ARE SPUN CLOCKWISE ONTO DEVICE THREADS, OVER GASKETING MATERIAL BUTTING TIGHTLY TO BOTH SIDES OF WALL. AS AN ALTERNATE TO GASKET MATERIAL, SEALANT (ITEM 4) MAY BE USED. DEVICE FLANGES ARE OPTIONAL, EXCEPT THAT WHEN 3/4 INCH (19 MM) GYPSUM WALLBOARD (SEE ITEM 1B) IS USED, DEVICE FLANGES SHALL BE USED AND FOR 3 AND 4-HOUR FIRE RATING, DEVICE FLANGES SHALL BE USED. WHEN THE DEVICE FLANGES ARE NOT USED, THE T, FT AND FTH RATINGS FOR THE FIRESTOP

SYSTEM ARE 0-HOUR. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP 653 AND CP 653 BA 2" SPEED SLEEVE, CP 653 AND CP 653 BA 4" SPEED SLEEVE 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - AS AN ALTERNATE TO GASKET MATERIAL (SEE ITEM 3), MINIMUM 1/2 INCH (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS BETWEEN FIRESTOP DEVICE AND WALL, FLUSH WITH BOTH SURFACES OF WALL, AND AN ADDITIONAL 1/4 INCH (6 MM) BEAD APPLIED AROUND PERIPHERY OF DEVICE. WHEN DEVICE FLANGES ARE USED, GYPSUM WALLBOARD COMPOUND MAY BE USED IN PLACE OF THE FILL MATERIAL. SEALANT IS REQUIRED WHEN DEVICE FLANGES ARE NOT USED (SEE ITEM 3). HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE, FS-ONE MAX INTUMESCENT SEALANT, OR CP 606 SEALANT

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

+ BEARING THE UL LISTING MARK

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Page: 2 of 2

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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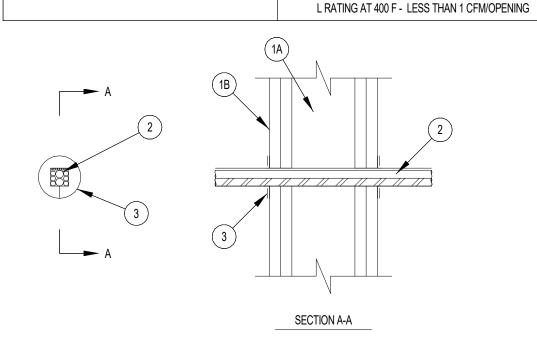
DATE: SEPTEMBER 11, 2024 ORB #: 00-00

FIRE JOINTS - GYPSUM WALLS



Oystom No. W-L	VT1T
ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)	F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)
FRATINGS - 0, 1/2, 1 AND 2-HOUR (SEE ITEM 2)	FT RATINGS - 0, 1/2, 1, AND 2-HOUR (SEE ITEM 2)
NG AT AMBIENT - LESS THAN 1 CFM/OPENING	FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1)
ATING AT 400 F - LESS THAN 1 CFM/OPENING	FTH RATINGS - 0, 1/2, 1, AND 2-HOUR (SEE ITEM 2)
	L RATING AT AMBIENT - LESS THAN 1 CFM/OPENING

System No. W-I -3414



1. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 BY 4 INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER. STEEL STUDS TO BE MINIMUM 3-1/2 INCH (89 MM) WIDE AND SPACED MAXIMUM 24

B. GYPSUM WALLBOARD\* - 5/8 INCH (16 MM) THICK, 4 FOOT (1219 CM) WIDE WITH SQUARE OR TAPPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTÉNER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. OPENING MAY BE ROUND, RECTANGULAR OR IRREGULAR WITH A MAXIMUM DIAMETER OR DIMENSION OF 1 INCH (25 MM). 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.



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3. FILL, VOID OR CAVITY MATERIAL\* - NOMINAL 60 MM DIAMETER BY 3 MM THICK PUTTY DISC WITH ONE SEAM AT RADIUS. PAPER-BACKER OF DISC TO BE REMOVED AND DISC FIRMLY PRESSED AROUND THE CABLE/CABLE BUNDLE LAPPING NOMINAL 5 MM ONTO CABLES TO COMPLETELY COVER OPENING AND FIRMLY PRESSED TO LAP ONTO THE WALL AROUND PERIPHERY OF OPENING. DISC SEAM TO BE FIRMLY PRESSED AND SEALED TIGHT, DISC TO BE INSTALLED AT BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CFS-D 1" FIRESTOP CABLE DISC

SYSTEM NO. W-L-3414

OPENING TO HAVE A VISUAL FILL OF MINIMUM 0% TO MAXIMUM 100%. THE ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE

OPENING TO BE MINIMUM 0 INCH (POINT CONTACT). CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. ANY COMBINATION OF

C. MAXIMUM 100 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR TELECOMMUNICATION CABLE WITH PVC OR PLENUM RATED INSULATION

D. MAXIMUM 4 PR NO. 22 AWG (OR SMALLER) CAT 5 OR CAT 6 COMPUTER CABLES WITH PVC OR PLENUM RATED INSULATION AND JACKETING.

E. TYPE RG/U COAXIAL CABLE WITH FLUORINATED ETHYLENE OR PVC INSULATION AND JACKETING HAVING A MAXIMUM OUTSIDE DIAMETER OF

G. THROUGH PENETRATING PRODUCT\* - MAXIMUM TWO COPPER CONDUCTOR NO. 18 AWG (OR SMALLER) POWER OR NON-POWER LIMITED FIRE

THE HOURLY T, FT AND FTH RATINGS OF THE FIRESTOP SYSTEM ARE DEPENDENT ON CABLE TYPE AND HOURLY WALL RATING AS SPECIFIED IN

1 and 2

Hourly T, FT and FTH

1 and 2

1 and 2

1 and 2

2. CABLES - SINGLE OR TIGHT BUNDLE OF CABLES TO BE INSTALLED WITHIN THE OPENING. AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN

A. MAXIMUM 3/C NO. 8 AWG NM COPPER CONDUCTOR CABLE (ROMEX) WITH PVC INSULATION AND JACKET. B. MAXIMUM 7/C-NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE INSULATION AND JACKET.

None (Blank Opening)

F. MAXIMUM 24 FIBER OPTIC CABLE WITH POLYVINYL CHLORIDE (PVC) OR POLYETHYLENE (PE) JACKET AND INSULATION.

THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:

ALARM CABLE WITH OR WITHOUT A JACKET UNDER A METAL ARMOR.

H. MAXIMUM 3/C NO. 10 AWG COPPER CONDUCTOR METAL-CLAD CABLE.

AND JACKETING.

1/2 INCH (13 MM).

AFC CABLE SYSTEMS INC

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS

MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE

OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

WALLBOARD, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL

AS CANADA), RESPECTIVELY.

SHALL BE APPLIED AT THE PIPE COVERING/GYPSUM WALLBOARD INTERFACE ON BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

Page: 1 of 2

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System No. W-L-5029

3. PIPE COVERING\* - NOMINAL 1, 1-1/2, OR 2 INCH (25, 38 OR 51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF OR 56 KG/M3) GLASS

FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED

SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUILT TAPE SUPPLIED WITH THE PRODUCT. FOR 1 AND 2-HOUF

F AND FH RATINGS, THE ANNULAR SPACE BETWEEN INSULATED PENETRANT AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT)

TO MAXIMUM 1-7/8 INCH (48 MM). FOR 3-HOUR F AND FH RATINGS, THE ANNULAR SPACE SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1-1/4

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. THE HOURLY T, FT, FTH RATINGS OF THE FIRESTOP SYSTEM ARE 1/2 HOUR FOR 1-HOUR RATED WALLS AND 1-HOUR FOR 2-HOUR RATED WALLS. FOR 3-HOUR RATED WALLS, THE HOURLY T, FT AND FTH RATINGS WHEN STEEL AND IRON PIPES ARE USED ARE 1-HOUR. FOR 3-HOUR RATED WALLS, THE HOURLY T, FT AND FTH RATINGS WHEN COPPER PENETRANTS ARE USED ARE 1-1/4 HOUR FOR 2 INCH (51 MM) THICK PIPE COVERING AND 0-HOUR FOR PIPE COVERING THICKNESS LESS THAN 2 INCH (51

Á. PIPE COVERING\* - (NOT SHOWN) - AS AN ALTERNATE TO ITEM 3, MAXIMUM 2 INCH (51 MM) THICK CYLINDRICAL CALCIUM SILICATE (MINIMUM 14 PCF) UNITS SIZED TO THE OUTSIDE DIAMETER OF THE PIPE OR TUBE MAY BE USED. PIPE INSULATION SECURED WITH STAINLESS STEEL BANDS OR MINIMUM 18 AWG STAINLESS STEEL WIRE SPACED MAXIMUM 12 INCH (305 MM) ON CENTER. WHEN THE ALTERNATE PIPE COVERING IS USED, THE T AND FT RATING SHALL BE AS SPECIFIED IN ITEM 3 ABOVE. SEE PIPE AND EQUIPMENT COVERING - MATERIALS (BRGU) CATEGORY IN THE BUILDING

COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX

4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - FOR 1 AND 2-HOUR F AND FH RATING, MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. FOR 3-HOUR F AND FH RATING, MINIMUM 1 INCH (25 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BÈTWEEN PIPE COVERING AND GYPSUM

\* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH

INCH (32 MM). SEE PIPE AND EQUIPMENT COVERING - MATERIALS (BRGU) CATEGORY IN THE BUILDING MATERIAL DIRECTORY FOR THE NAMES OF

Page: 2 of 2

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## SYSTEM NO. W-L-5028

3. TUBE INSULATION - PLASTICS+ - MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 1 INCH (25 MM) THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. AN ANNULAR SPACÈ OF MÍNIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 1-1/2 INCH (38 MM) IS REQUIRED WITHIN THE FIRESTOP SYSTEM. THE T, FT AND FTH RATINGS ARE 1-HOUR WHEN THE 1 INCH (25 MM) THICK TUBE INSULATION IS USED AND 3/4 HOUR WHEN THE 3/4 INCH (19 MM) THICK TUBE INSULATION IS USED. WHEN TUBE INSULATION THICKNESS IS LESS THAN 3/4 INCH (19 MM), THE T, FT AND

SEE PLASTICS+ (QMFZ2) CATEGORY IN THE RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONEN TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5VA MAY BE USED. 4. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS. FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE COVERING AND GYPSUM WALLBOARD, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE COVERING/GYPSUM BOARD INTERFACE ON BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

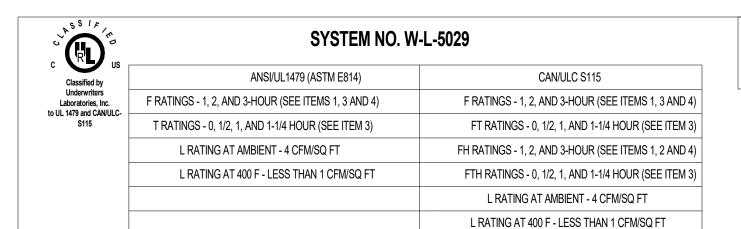
INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH

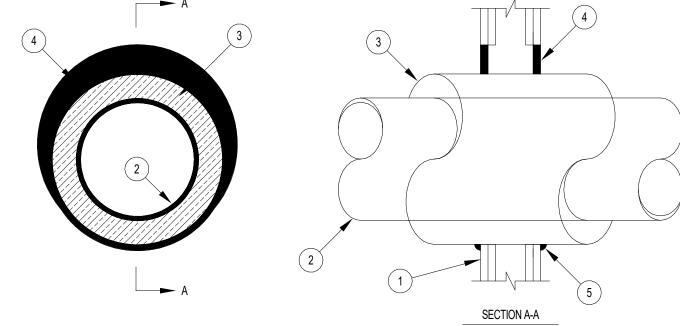


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**PRELIMINARY** 







. WALL ASSEMBLY - THE 1, 2, OR 3-HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL

INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS, WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER. STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE FOR 1 AND 2-HOUR F AND FH RATING AND 3-1/2 INCH (89 MM) WIDE FOR 3-HOUR F AND FH RATING AND SPACED MAX 24 INCH (610 MM) ON CENTER. B. GYPSUM WALLBOARD\* - MINIMUM 5/8 INCH (16 MM) THICK WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 18-5/8 INCH (473 MM). 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.

ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED: A. STEEL PIPE - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. B. IRON PIPE - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE. C. COPPER TUBING - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. WHEN THE HOURLY F OR FH RATING

2. THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED

OF THE FIRESTOP SYSTEM IS 3-HOUR, THE NOMINAL DIAMETER OF COPPER TUBE SHALL NOT EXCEED 4 INCH (102 MM). D. COPPER PIPE - NOMINAL 6 INCH (152 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. WHEN THE HOURLY F OR FH RATING OF THE FIRESTOP SYSTEM IS 3-HOUR, THE NOMINAL DIAMETER OF COPPER PIPE SHALL NOT EXCEED 4 INCH (102 MM).



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SYSTEM NO. W-L-7042 ANSI/UL1479 (ASTM E814) Classified by Underwriters Laboratories RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3) F RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3) T RATING - 0-HOUR FT RATING - 0-HOUR FH RATINGS - 1 AND 2-HOUR (SEE ITEMS 1 AND 3) FTH RATING - 0-HOUR **─** A

SYSTEM NO. W-L-5028

1. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE

MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL

A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 IN.CH (51 BY

102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER. STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE AND SPACED MAXIMUM 24 INCH (610 MM) ON

B. GYPSUM WALLBOARD\* - 5/8 INCH (16 MM) THICK, 4 FOOT (1.22 M) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE,

BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED: A. STEEL PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE. B. COPPER TUBING - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. C. COPPER PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN.

THE HOURLY FAND FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS

2. **THROUGH PENETRANTS** - ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON

CAN/ULC S115

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FT RATINGS - 0, 3/4, AND 1-HOUR (SEE ITEM 3)

FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FTH RATINGS - 0, 3/4, AND 1 HOUR (SEE ITEM 3)

L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT

ANSI/UL1479 (ASTM E814)

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

T RATINGS - 0, 3/4, AND 1-HOUR (SEE ITEM 3)

L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT

L RATING AT 400 F - LESS THAN 1 CFM/SQ FT

Classified by Underwriters Laboratories

INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

MAXIMUM DIAMETER OF OPENING IS 7-1/2 INCH (191 MM).

. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES. A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 2-1/2 INCH (64 MM) WIDE AND SPACED 24 INCH (610 MM)

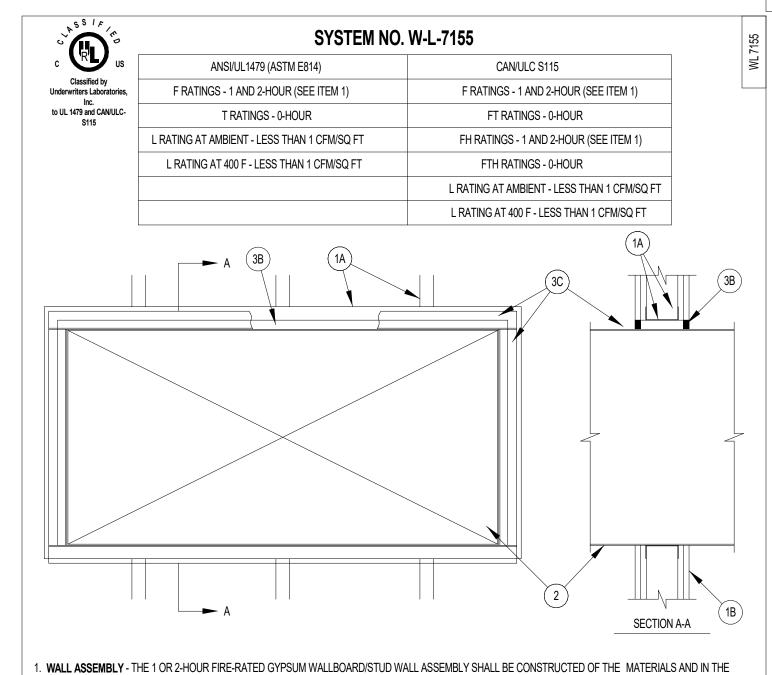
B, GYPSUM WALLBOARD\* - FOR 1-HOUR ASSEMBLY, ONE LAYER OF MINIMUM 5/8 INCH (16 MM) THICK WALLBOARD AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. FOR 2-HOUR ASSEMBLY, TWO LAYERS OF MINIMUM 5/8 INCH (16 MM) THICK WALLBOARD AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 14-1/2 INCH (368 MM) FOR WOOD STUD WALLS AND 21-3/4 INCH (552 MM) FOR STEEL STUD WALLS. 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. 2. THROUGH PENETRANT - GALVANIZED STEEL DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE DUCT AND PERIPHERY OF OPENING SHALL BE 0 INCH (0 MM, POINT CONTACT) AND MAXIMUM 1-1/2 INCH (64 MM) DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

A. SPIRAL WOUND HVAC DUCT - NOMINAL 20 INCH (502 MM) DIAMETER (OR SMALLER) NO. 24 MSG (OR HEAVIER) GALV STEEL SPRIRAL WOUND DUCT. B. SHEET METAL DUCT - NOMINAL 12 INCH (305 MM) DIAMETER (OR SMALLER) NO. 28 MSG (OR HEAVIER) GALVANIZED SHEET STEEL DUCT. 3. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) AND 1-1/4 INCH (32 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL ASSEMBLY FOR 1 OR 2-HOUR RATED WALLS, RESPECTIVELY. AT THE POINT CONTACT LOCATION BETWEEN DUCT AND WALLBOARD, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF SEALANT SHALL BE APPLIED AT THE WALLBOARD/DUCT INTERFACE ON BOTH SURFACES OF WALL

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP601S ELASTOMERIC FIRESTOP SEALANT, FS-ONE SEALANT, FS-ONE MAX INTUMESCENT SEALANT OR CP606 FLEXIBLE FIRESTOP SEALANT INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

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January 27, 2015

MANNER DESCRIBED IN THE INDIVIDUAL U400, V400 OR W400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING SHALL CONSIST OF MINIMUM 3-1/2 INCH (89 MM) WIDE STEEL CHANNEL STUDS SPACED MAXIMUM 24 INCH (610 MM) ON CENTER ADDITIONAL STEEL STUDS SHALL BE USED TO COMPLETELY FRAME THE OPENING. B. GYPSUM WALLBOARD\* - 5/8 INCH (16 MM) THICK, 4 FOOT (1.22 M) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM

TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAXIMUM AREA OF OPENING IS 73.7 SQUARE FOOT (6.85 M²) WITH A MAXIMUM DIMENSION OF 104 INCH (2.64 M). 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. 2. STEEL DUCT - MAXIMUM 100 X 100 INCH (2.5 X 2.5 M) GALVANIZED STEEL DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE DUCT SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH SMACNA CONSTRUCTION STANDARDS. THE SPACE BETWEEN THE STEEL DUCT AND PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 2 INCH (51 MM). STEEL DUCT TO BE

RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY.

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Page: 1 of 2

CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

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REVISIONS/SUBMITTALS

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

FIRE JOINTS - GYPSUM WALLS

# SYSTEM NO. W-L-7155

A. THROUGH-PENTRATING PRODUCT\* - AS AN ALTERATE TO ITEM 2. FIBER CEMENT WITH GALVANIZED STEEL FACING, 3/8 INCH (10 MM) THICK COMPOSITE METALLIC DUCT. WITH A MAXIMUM CROSS-SECTIONAL AREA OF 43.0 SQUARE FOOT, (4 M²) AND A MAXIMUM INDIVIDUAL DIMENSION OF 78 3/4 INCH (2 M), DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM SUCH THAT THE ANNULAR SPACE IS MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 2 IN. (51 MM). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. REFER TO VENTILATION DUCT ASSEMBLIES IN VOL. 2 OF THE FIRE RESISTANCE DIRECTORY. **DURASYSTEMS BARRIERS INC** - TYPE DURADUCT HP.

B. THROUGH-PENTRATING PRODUCT\* - AS AN ALTERNATE TO ITEM 2. FIBER CEMENT WITH GALVANIZED STEEL FACING, 1/4 INCH (6 MM) THICK, WITH A MAXIMUM CROSS-SECTIONAL AREA OF 1764 SQUARE INCH (1.14 M2), AND A MAXIMUM INDIVIDUAL DIMENSION OF 42 INCH (1067 MM). DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM SUCH THAT THE ANNULAR SPACE IS MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 2 INCH (51 MM). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY AND INSTALLED IN ACCORDANCE. REFER TO VENTILATION DUCT ASSEMBLIES IN VOLUME 2 OF THE FIRE RESISTANCE DIRECTORY. **DURASYSTEMS BARRIERS INC** - TYPE DURADUCT SD.

C. THROUGH-PENTRATING PRODUCT\* - AS AN ALTERNATE TO ITEM 2. GALVANIZED STEEL FACED DUCT PANEL, WITH A MAXIMUM CROSS-SECTIONAL AREA OF 2450 SQUARE INCH (1.58 M2), AND A MAXIMUM INDIVIDUAL DIMENSION OF 49-1/2 INCH (1258 MM)

DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM SUCH THAT THE ANNULAR SPACE IS MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 2 INCH (51 MM). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES WALL ASSEMBLY. REFER TO VENTILATION DUCT ASSEMBLIES IN VOLUME 2 OF THE FIRE RESISTANCE DIRECTORY.

**DURASYSTEMS BARRIERS INC** - TYPE DURADUCT GNX.

3 FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - (OPTIONAL, NOT SHOWN) - POLYETHYLENE BACKER ROD, MINERAL WOOL BATT INSULATION OR BATT INSULATION FRICTION FITTED INTO ANNULAR SPACE. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL TO

ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. A1. PACKING MATERIAL - REQUIRED AS SPECIFIED IN TABLE BELOW. MINIMUM 3-3/4 INCH (95 MM) OR 5 INCH (127 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM FOR 1 AND 2-HOUR RATED ASSEMBLIES, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL

TO ACCOMMODATE THE REQUIRED

THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MINIMUM 1/4 INCH (6 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE POINT CONTACT LOCATION BETWEEN THE STEEL DUCT AND THE GYPSUM WALLBOARD.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-S SIL GG SEALANT, FS-ONE SEALANT, FS-ONE MAX INTUMESCENT SEALANT OR CP606 FLEXIBLE FIRESTOP SEALANT

C. STEEL RETAINING ANGLES - MINIMUM NO. 16 GAUGE GALVANIZED STEEL ANGLES SIZED TO LAP STEEL DUCT A MINIMUM OF 2 INCH (51 MM) AND TO LAP WALL SURFACES A MINIMUM OF 1 INCH (25 MM). WHEN MAXIMUM DUCT DIMENSION DOES NOT EXCEED 48 INCH (122 CM) AND DUCT AREA DOES NOT EXCEED 1300 INCH SQUARE (8387 CM²), ANGLES MAY BE MINIMUM NO. 18 GAUGE GALVANIZED STEEL. ANGLES ATTACHED TO STEEL DUCT ON BOTH SIDES OF WALL WITH MINIMUM NO. 10 X 1/2 INCH (13 MM) LONG STEEL SHEET METAL SCREWS LOCATED A MAXIMUM OF 1 INCH (25 MM) FROM EACH END OF STEEL DUCT AND SPACED A MAXIMUM OF 6 INCH (152 MM) ON CENTER STEEL ANGLES ARE OPTIONAL FOR THOSE SIDES OF DUCT THAT DO NOT EXCEED THE DIMENSION SPECIFIED IN TABLE BELOW, DEPENDENT ON PACKING MATERIAL, SEALANT AND ANNULAR

MAXIMUM DUCT DIMENSION	DUCT THICKNESS	ANNULAR SPACE	PACKING MATERIAL	ANGLE (ITEM 3C) REQUIRED	
24 INCH (610 MM)	24 GAUGE OR HEAVIER	1/2 INCH MINIMUM TO 1 INCH MAXIMUM (13 TO 25 MM)	ITEM 3A1	NO	

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



CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

CLASSIFICATION OF 94-5VA MAY BE USED.

FOLLOWING TYPES AND SIZES OF PIPES, CONDUIT OR TUBES MAY BE USED.

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SYSTEM NO. W-L-8079

. THROUGH-PENETRANT - ONE OR MORE PIPES. CONDUIT OR TUBES TO BE INSTALLED WITHIN THE OPENING. THE TOTAL NUMBER OF THROUGH-

PENETRANTS IS DEPENDENT ON THE SIZE OF THE OPENING AND THE TYPES AND SIZES OF THE PENETRANTS. ANY COMBINATION OF THE

PENETRANTS DESCRIBED BELOW MAY BE USED PROVIDED THAT THE FOLLOWING PARAMETERS RELATIVE TO THE ANNULAR SPACES AND THE

SPACING BETWEEN THE THROUGH PENETRANTS ARE MAINTAINED. THE SEPARATION BETWEEN THE PENETRANTS SHALL BE MINIMUM 1 INCH (25

MM) TO MAXIMUM 20 INCH (508MM). THE ANNULAR SPACE BETWEEN PENETRANTS AND THE PERIPHERY OF OPENING SHALL BE MINIMUM 0 INCH

A. COPPER TUBING - NOMINAL 3 INCH (76 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE. B. COPPER PIPE - NOMINA 3 INCH (76 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

C. STEEL PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

E. CONDUIT - NOMINAL 3 INCH (76 MM) DIAM (OR SMALLER) ELECTRIC METALLIC TUBING (EMT) OR RIGID STEEL CONDUIT.

A. PIPE COVERING\* - MINIMUM 1 INCH (25 MM) TO MAXIMUM 2 INCH (51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY

B. TUBE INSULATION-PLASTICS+ - MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 3/4 INCH (19 MM) THICK ACRYLONITRILE

COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY

THE T, FT AND FTH RATINGS ARE 1-1/2 HOUR IF ITEM 3B IS USED. THE T, FT AND FTH RATINGS ARE 2-HOUR IF ITEM 3A IS USED.

THE PLASTICS RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED

D. IRON PIPE - NOMINAL 4 INCH (102 MM) DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.

THE T, FT AND FTH RATINGS ARE 0-HOUR IF BARE PIPE AND TUBING IS USED.

PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE, OR VENT) PIPING SYSTEMS.

(POINT CONTACT) TO MAXIMUM 20 INCH (508 MM). PIPES, CONDUIT OR TUBES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE

F. POLYVINYL CHLORIDE (PVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SCHEDULE 40 CELLULAR OR SOLID CORE PVC

G. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOMINAL 2 INCH (51 MM) DIAMETER (OR SMALLER) SDR 13.5 CPVC PIPE FOR USE IN

B. PIPE INSULATION - ONE OR MORE METALLIC PENETRANTS (PIPE OR TUBING) MAY BE INSULATED WITH THE FOLLOWING TYPES OF PIPE

PCF (56 KG/M) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL

FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE

SUPPLIED WITH THE PRODUCT. SEE PIPE AND EQUIPMENT COVERING - MATERIALS (BRGU) CATEGORY IN THE BUILDING MA<sup>3</sup>ERIALS

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

BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. SEE PLASTICS+ (QMFZ2) CATEGORY IN

THE ANNULAR SPACE BETWEEN THE INSULATED PENETRANTS AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (0 MM, POINT

CONTACT) THE SEPARATION BETWEEN THE INSULATED PENETRANTS AND THE OTHER PENETRANTS SHALL BE A MINIMUM 1 INCH (25 MM).

January 27, 2015 Page: 2 of 2

# SYSTEM NO. W-L-8079

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January 27, 2015

I. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE

MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL

TYPE, THICKNESS, NUMBER OF LAYERS AND ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM SIZE

SQUARE FOOT (7 M²) WITH A MAXIMUM WIDTH OF 105-1/2 INCH (2.7 M) FOR STEEL STUDS. THE HOURLY F AND FH RATINGS OF THE FIRESTOP SYSTEM ARE

2. STEEL DUCT - MAXIMUM 100 X 100 INCH (2.5 X 2.5 M) STEEL DUCT TO BE INSTALLED WITHIN THE FRAMED OPENING. THE DUCT SHALL BE CONSTRUCTED AND

REINFORCED IN ACCORDANCE WITH SMACNA CONSTRUCTION STANDARDS. STEEL DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

INCH (51 BY 102 MM) LUMBER SPACED MAXIMUM 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 3-1/2 INCH (89 MM) WIDE AND SPACED

OF OPENING IS 210 SQUARE INCH (1355 CM2) WITH A MAXIMUM WIDTH OF 14-1/2 INCH (368 MM) FOR WOOD STUDS. MAXIMUM SIZE OF OPENING IS 76.2

A. STUDS - WALL FRAMING SHALL CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF

MAXIMUM 24 INCH (610 MM) ON CENTER ADDITIONAL FRAMING MEMBERS SHALL BE USED TO COMPLETELY FRAME AROUND OPENING.

B. GYPSUM WALLBOARD\* - MINIMUM 5/8 INCH (16 MM) THICK, 4 FT (1.2 M) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM

SYSTEM NO. W-L-7156

CAN/ULC S115

FT RATING - 0-HOUR

FTH RATING - 0-HOUR

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

ANSI/UL1479 (ASTM E814)

F RATINGS - 1 AND 2-HOUR (SEE ITEM 1)

T RATING - 0-HOUR

Classified by

to UL 1479 and CAN/ULC-S115

INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

EQUAL TO THE HOURLY FIRE RATING OF THE WALL IN WHICH IT IS INSTALLED.

4. CABLES - ONE MAXIMUM 3 INCH (76 MM) DIAMETER BUNDLE OF CABLES INSTALLED WITHIN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SURFACES OF WALL. THE ANNULAR SPACE BETWEEN THE TIGHTLY-BUNDLED CABLES AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO MAXIMUM 20 INCH (508 MM). THE SEPARATION BETWEEN THE CABLE BUNDLE AND THE OTHER PENETRANTS SHALL BE MINIMUM 1 INCH (25 MM) TO MAXIMUM 20 INCH (508 MM). ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED: A. MAXIMUM 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET. B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR POWER AND CONTROL CABLE WITH PVC OR CROSS-LINKED POLYETHYLENE (XLPE)

INSULATION AND PVC JACKET C. MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAXIMUM OUTSIDE DIAMETER OF 1/2 INCH (13 MM). D. MAXIMUM 3/C NO. 8 AWG WITH BARE ALUMINUM GROUND, PVC INSULATED STEEL METAL-CLAD+ CABLE CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCT\* (XHLY) CATEGORY. E. MAXIMUM 3/C (WITH GROUND) NO. 8 AWG (OR SMALLER) NON-METALLIC SHEATHED (ROMEX) CABLE WITH PVC INSULATION AND JACKET

F. RG/U COAXIAL CABLE WITH POLYETHYLENE (PE) INSULATION AND POLYVINYL CHLORIDE (PVC) JACKET HAVING A MAXIMUM OUTSIDE DIAMETER OF 1/2 INCH (13 MM). G. MAXIMUM 3/4 INCH (19 MM) DIAMETER COPPER GROUND CABLE WITH OR WITHOUT PVC JACKET.

H. MAXIMUM 1-1/4INCH (32 MM) DIAMETER SINGLE OR MULTI CONDUCTOR MINERAL-INSULATED COPPER-CLAD CABLE.

THE T, FT AND FTH RATINGS ARE 1/4 HOUR IF CABLES D, G AND H ARE USED. THE T, FT AND FTH RATINGS ARE 3/4 HOUR FOR ANY OTHER

4A.THROUGH PENETRANTS - (NOT SHOWN) - MAXIMUM SIX NOMINAL 1 INCH (25 MM) DIAMETER (OR SMALLER) FLEXIBLE STEEL CONDUITS TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE CONDUITS AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO A MAXIMUM 3 INCH (76 MM). CONDUITS TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL. THE T, FT AND FTH RATINGS ARE 0- HOUR IF THIS PENETRANT IS USED. 4B.THROUGH PENETRANTS - (NOT SHOWN) - MAXIMUM TWELVE NOMINAL 3/8 INCH (10 MM) DIAMETER (OR SMALLER) POLYVINYL CHLORIDE (PVC) PNEUMATIC TUBING FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ÈCCÉNTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACÉ BETWEEN THE TUBING AND THE PERIPHERY OF THE OPENING SHALL BE MINIMUM 0 INCH (POINT CONTACT) TO A MAXIMUM 1 INCH (25 MM). TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL. 5. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. PACKING MATERIAL - IN 2-HOUR FIRE RATED WALL ASSEMBLIES, MINIMUM 4-3/4 INCH (121 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M³) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. IN 1-HOUR FIRE RATED WALL ASSEMBLIES, MINIMUM 3-1/2 INCH (89 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL RECESSED FROM BOTH SURFACES OF THE WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL

A1.PACKING MATERIAL - MINIMUM 1-1/4 INCH (32 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED AS A BACKER AROUND THE PERIMETER OF OPENING AS A PERMANENT FORM, WHEN FRAMING MEMBERS ARE USED TO FRAME THE OPENING (SEE ITEM 1A), THIS PACKING MATERIAL IS OPTIONAL. PACKING MATERIAL CAN BE USED IN COMBINATION WITH THE ADDITIONAL FRAMING MEMBERS.

B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN THROUGH PENETRANTS AND GYPSUM WALLBOARD, A MINIMUM 1/2 INCH (13 MM) DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE GYPSUM WALLBOARD/THROUGH PENETRANT INTERFACE ON BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - 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.

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April 26, 2017

+ BEARING THE UL LISTING MARK

# BEARING THE UL RECOGNIZED COMPONENT MARK

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April 26, 2017

### SYSTEM NO. W-L-7156

3. BATTS AND BLANKETS\* - NOMINAL 1-1/2 OR 2 INCH (38 OR 51 MM) THICK GLASS FIBER BATT OR BLANKET (MINIMUM 3/4 PCF OR 12 KG/M3) JACKETED ON THE OUTSIDE WITH A FOIL-SCRIM-KRAFT FACING, LONGITUDINAL AND TRANSVERSE JOINTS SEALED WITH ALUMINUM FOIL TAPE. DURING THE INSTALLATION OF THE FILL MATERIAL, THE BATT OR BLANKET SHALL BE COMPRESSED MINIMUM 50% SUCH THAT THE ANNULAR SPACE WITHIN THE FIRESTOP SYSTEM SHALL BE MINIMUM 1/2 INCH (13 MM) TO MAXIMUM 2 INCH (51 MM). SEE BATTS AND BLANKETS (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY BATT OR BLANKET MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX 50 OR LESS MAY BE USED.

4. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING: A. PACKING MATERIAL - MINIMUM 3-5/8 INCH (92 MM) OR 4-7/8 INCH (124 MM) THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM FOR 1 OR 2-HOUR FIRE-RATED WALLS, RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. B. FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT C. STEEL RETAINING ANGLES - MINIMUM NO. 16 GAUGE (0.059 IN. OR 1.5 MM) GALVANIZED STEEL ANGLES SIZED TO LAP STEEL DUCT A MINIMUM OF 2 INCH (51 MM) AND LAP WALL SURFACES A MINIMUM OF 1 INCH (25 MM). ANGLES ATTACHED TO STEEL DUCT ON BOTH SIDES OF WALL WITH MINIMUM NO. 10 STEEL SHEET METAL SCREWS SPACED A MAXIMUM OF 1 INCH (25 MM) FROM EACH END OF STEEL DUCT AND SPACED A MAXIMUM OF 6 INCH (152 MM) ON CENTER. WHEN MAXIMUM DUCT DIMENSION DOES NOT EXCEED 48 INCH (122 CM) AND DUCT AREA DOES NOT EXCEED 1300 INCH SQUARÉ (8387 CM²), ANGLES MAY BE MINIMUM NO. 18 GAUGE GALVANIZED STEEL, ANGLES ATTACHED TO STEEL DUCT ON BOTH SIDES OF WALL WITH MINIMUM NO. 10 BY 1/2 INCH (13 MM) LONG STEEL SHEET METAL SCREWS LOCATED A MAXIMUM OF 1 INCH (25 MM) FROM EACH END OF STEEL DUCT AND SPACED A MAXIMUM OF 6 INCH (152 MM) ON CENTER WHEN MAXIMUM 1-1/2 INCH (38 MM) THICK INSULATION IS USED, STEEL ANGLES ARE OPTIONAL FOR THOSE SIDES OF DUCT THAT DO NOT EXCEED THE DIMENSION SPECIFIED IN TABLE BELOW, DEPENDENT ON PACKING MATERIAL AND ANNULAR SPACE AS SPECIFIED.

MAXIMUM DUCT DIMENSION	DUCT THICKNESS	ANNULAR SPACE	PACKING MATERIAL	ANGLE (ITEM 3C) REQUIRED	
24 INCH	24 GAUGE OR HEAVIER	1/2 INCH MINIMUM TO 1 INCH MAXIMUM	ITEM 3A1	NO	
(610 MM)		(13 TO 25 MM)			

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



Page: 1 of 2

Page: 3 of 3

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SYSTEM NO. W-L-8079 ANSI/UL1479 (ASTM E814) CAN/ULC S115 Classified by Underwriters Laboratories, F RATINGS - 1 AND 2-HOUR (SEE ITEM 1) F RATINGS - 1 AND 2-HOUR (SEE ITEM 1) to UL 1479 and CAN/ULC-T RATINGS - 0, 1/2, 3/4, 1-1/2, AND 2-HOUR FT RATINGS - 0, 1/2, 3/4, 1-1/2, AND 2-HOUR (SEE ITEMS 1, 2, 3 AND 4) (SEE ITEMS 1,2, 3 AND 4) FH RATINGS - 1 AND 2-HOUR (SEE ITEM 1) FTH RATINGS - 0, 1/2, 3/4, 1-1/2, AND 2-HOUR (SEE ITEMS 1,2, 3 AND 4)

SYSTEM TESTED WITH A PRESSURE DIFFERENTIAL OF 2.5 PA BETWEEN THE EXPOSED AND THE UNEXPOSED SURFACES WITH THE HIGHER PRESSURE ON THE 1. WALL ASSEMBLY - THE 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400, V400 OR W400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR CHANNEL SHAPED STEEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER SPACED MAXIMUM 16 INCH (406 MM) ON CENTER STEEL STUDS TO BE MINIMUM 3-1/2 INCH (89 MM) WIDE AND SPACED

MAXIMUM 24 INCH (610 MM) ON CENTER WHEN ITEM 5A1 IS NOT USED, ADDITIONAL FRAMING MEMBERS (NOT SHOWN) SHALL BE INSTALLED TO FRAME

THE PERIPHERY OF THE WALL OPENING. WHEN THE ADDITIONAL FRAMING MEMBERS ARE USED TO FRAME THE OPENING, THE HOURLY T, FT AND FTH

SECTION A-A

B. GYPSUM WALLBOARD\* - 5/8 INCH (16 MM) THICK 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, U400 OR V400 WALL AND PARTITION DESIGN. IF THE THROUGH PENETRANTS ARE INSTALLED IN A WOOD STUD/GYPSUM WALLBOARD ASSEMBLY, THE MAXIMUM, AREA OF SQUARE, RECTANGULAR, OR CIRCULAR OPENING IS 210 SQUARE INCH (1355 CM2) WITH MAXIMUM DIMENSION OF 14-1/2 INCH (368 MM). IF THE THROUGH PENETRANTS ARE INSTALLED IN A STEEL STUD/GYPSUM WALLBOARD ASSEMBLY, MÁXIMUM AREA OF SQUARE, RECTANGULAR, OR CIRCULAR OPENING IS 240 SQUARE INCH (1548 CM2) WITH MAXIMUM DIMENSION OF 20 INCH (508 MM) WIDE. 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



RATINGS OF THE FIRESTOP SYSTEM ARE 0-HOUR.

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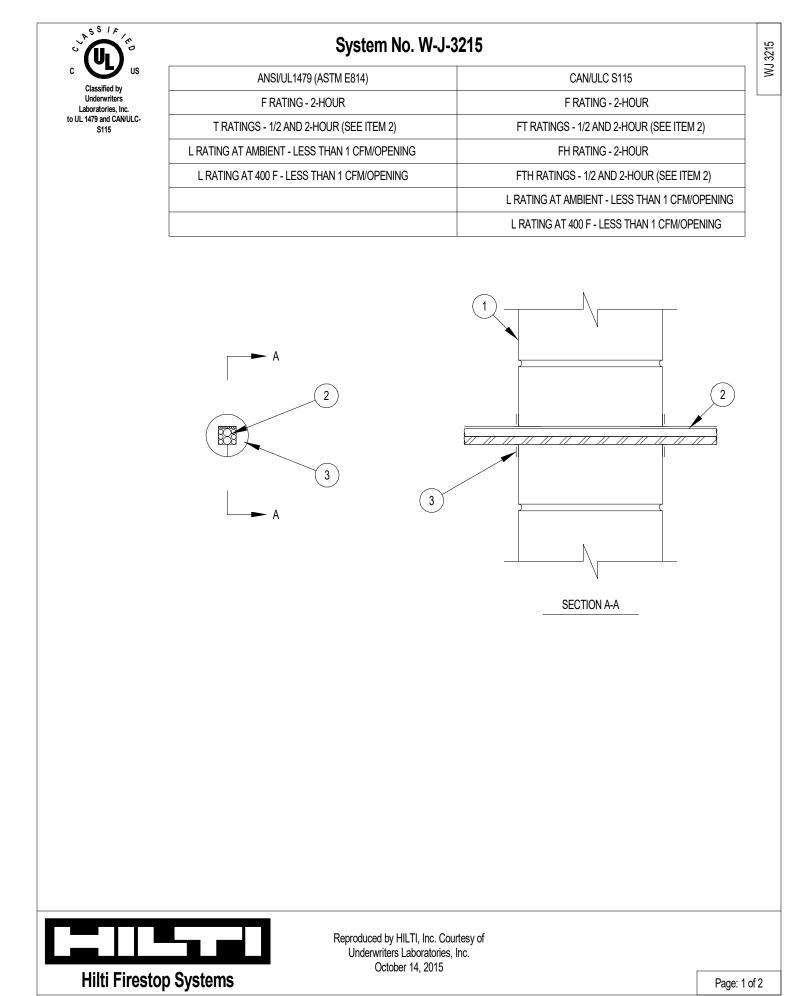
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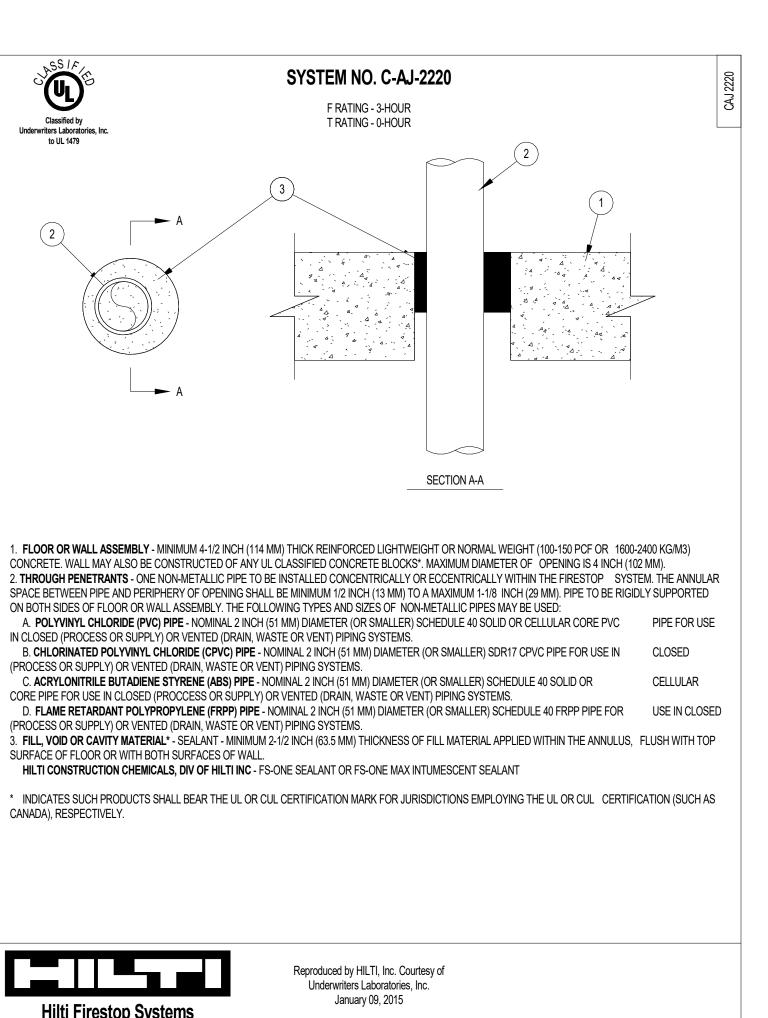
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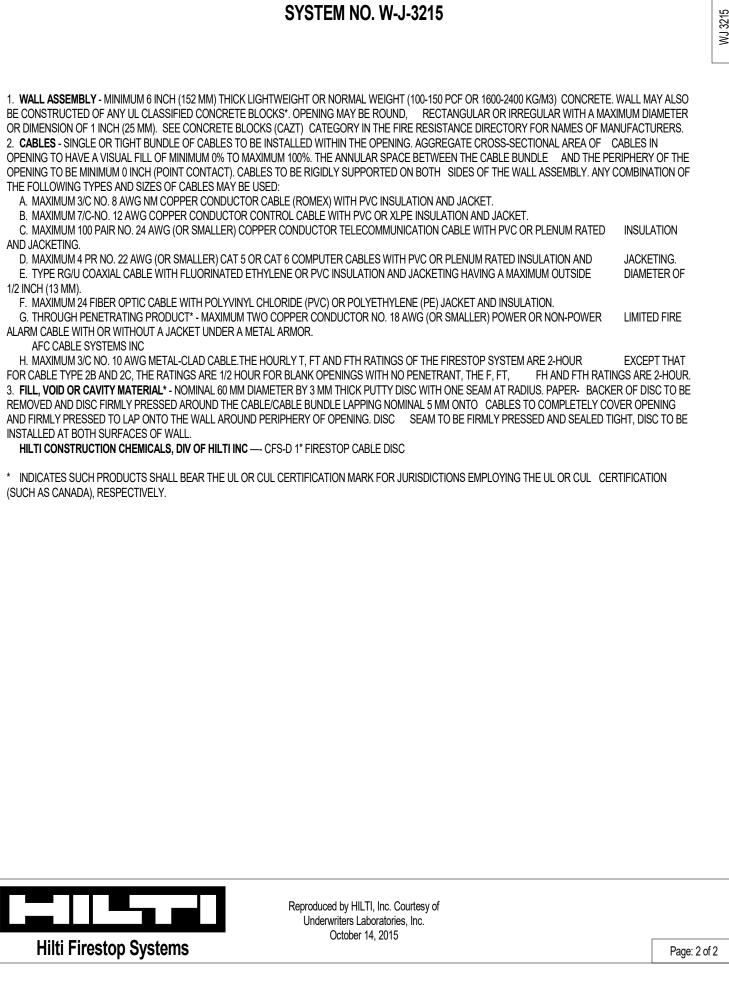
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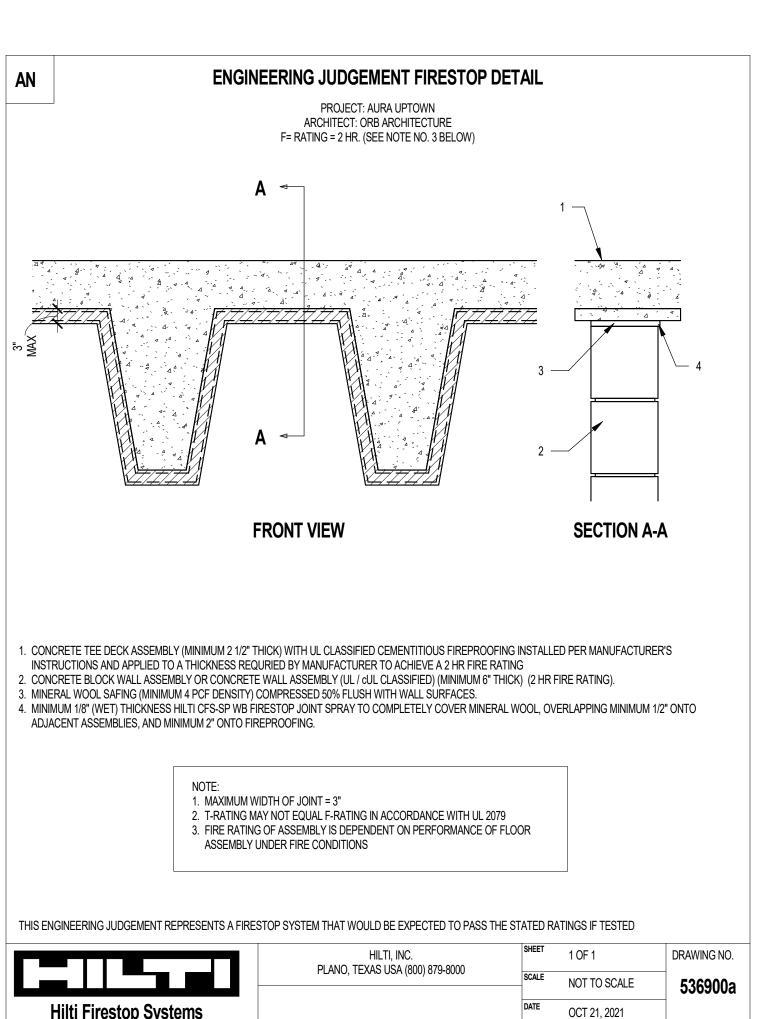
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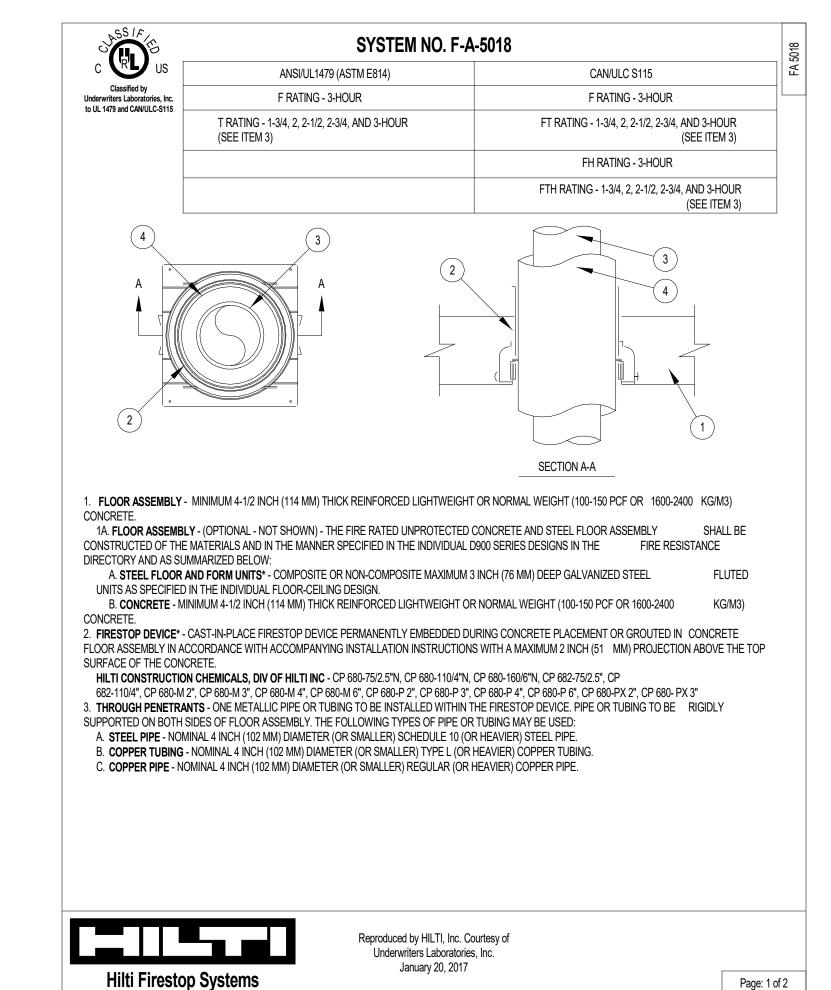
FIRE JOINTS - GYPSUM WALLS

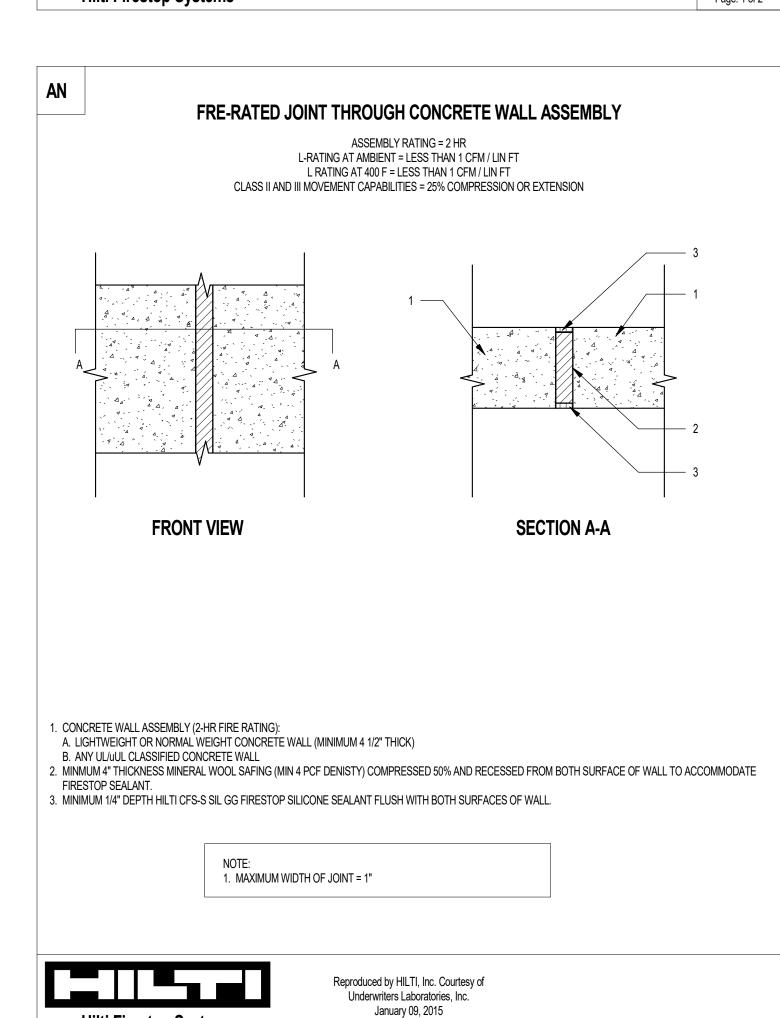


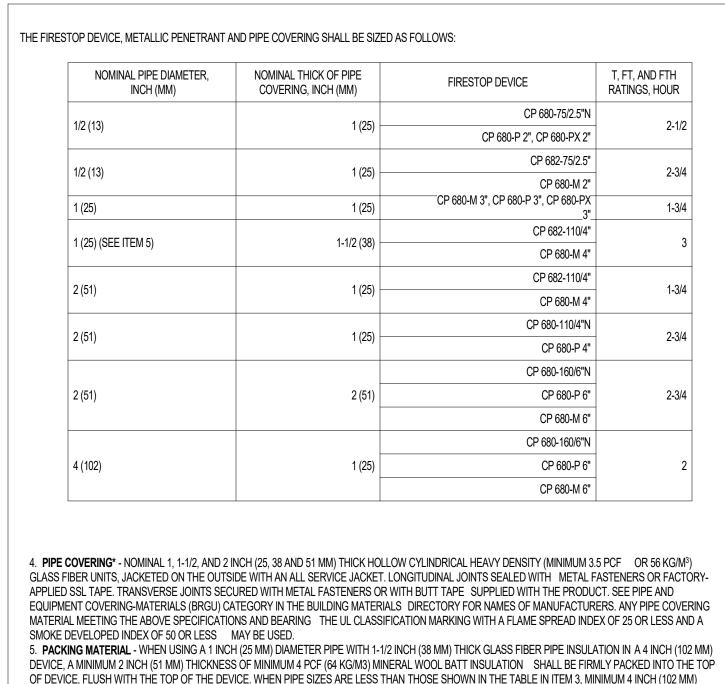












4. PIPE COVERING\* - NOMINAL 1, 1-1/2, AND 2 INCH (25, 38 AND 51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 3.5 PCF OR 56 KG/M³) GLASS FIBER UNITS. JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET, LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SSL TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE. SUPPLIED WITH THE PRODUCT, 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 5. PACKING MATERIAL - WHEN USING A 1 INCH (25 MM) DIAMETER PIPE WITH 1-1/2 INCH (38 MM) THICK GLASS FIBER PIPE INSULATION IN A 4 INCH (102 MM)

FLUSH WITH TOP SURFACE OF DEVICE. \* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

THICKNESS OF MINIMUM 4 PCF (64 KG/M3) MINERAL WOOL INSULATION SHALL BE FIRMLY PACKED TO THE FULLEST EXTENT POSSIBLE WITHIN THE DEVICE

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January 20, 2017

Hilti Firestop Systems

**PRELIMINARY** 

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SYSTEM NO. WW-D-0068 ASSEMBLY RATING - 1 AND 2 HOUR (SEE ITEM 1 Nominal Joint Width - 2 in. CLASS II MOVEMENT CAPABILITIES - 12.5% COMPRESSION OR EXTENSION 4 4 4 4 4 4 4 1. CONCRETE WALL ASSEMBLY (2-HR FIRE RATING): A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 4 1/2" THICK) B. ANY UL/uUL CLASSIFIED CONCRETE WALL 2. MINMUM 4" THICKNESS MINERAL WOOL SAFING (MIN 4 PCF DENISTY) COMPRESSED 50% AND RECESSED FROM BOTH SURFACE OF WALL TO ACCOMMODATE 3. MINIMUM 1/4" DEPTH HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT FLUSH WITH BOTH SURFACES OF WALL. NOTE: 1. MAXIMUM WIDTH OF JOINT = 1" Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 09, 2015

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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

FIRE JOINTS - CONCRETE OR CMU

11/2024 2:23:11 PM

ENGINEERING JUDGEMENT FIRESTOP DETAIL

PROJECT:
ARCHITECT: OSB ARCHITECTURE
F-RATING = 2 HOUR [SEE NOTE NO. 3 BELOW]

CROSS-SECTIONAL VIEW

1. CONCRETE TEE DECK ASSEMBLY (MINIMUM 2-1/2" THICK) WITH UL. CLASSIFIED CEMENTITIOUS FREPROOFING INSTALLED PER MANUFACTUERER'S
INSTRUCTIONS AND APPLIED TO A THICKNESS REQUIRED BY MANUFACTURER TO ACHIEVE A 2-HR FIRE RATING.
2. CONCRETE BLOCK WALL ASSEMBLY OR CONCRETE WALL ASSEMBLY (URBLI CLASSIFIED) MANUMANUF THICKNESS INFORM A POP DENSITY) COMPRESSED DISK FLUSH WITH HOUR ACCESSIBLE SIDE OF WALL
3. MINIMUM 2" THICKNESS INFORM A POP DENSITY) COMPRESSED DISK FLUSH WITH HOUR ACCESSIBLE SIDE OF WALL
5. MINIMUM IN (WITH THICKNESS HILD TO SEY WE FRESTOP JOINT SPRAY TO COMPLETELY COVER MINIERAL LYCOL OVERLAPPING MINIMUM ONTO ADJACENT
ASSEMBLIES, AND 2" ONTO FIREPROOFING.

NOTE:

1. MAXMALIN WIDTH OF JOINT = 3"
2. THATING MAY NOT EQUAL, FRATING IN ACCEDANCE WITH UL 2079
3. FIRE ARATING OF ASSEMBLY IS DEPENDENT UPON THE PERFORMANCE OF FLOOR
ASSEMBLY UNDER FIRE CONDITIONS

THIS ENGINEERING JUDGEMENT REPRESENTS A FIRETOP SYSTEM THAT WOULD BE EXPECTED TO PASS THE STATED RATINGS IF TESTED. (REFERENCE: UL/cul system No. HW-D-1058 & HW-D-0286)

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Project Name 2

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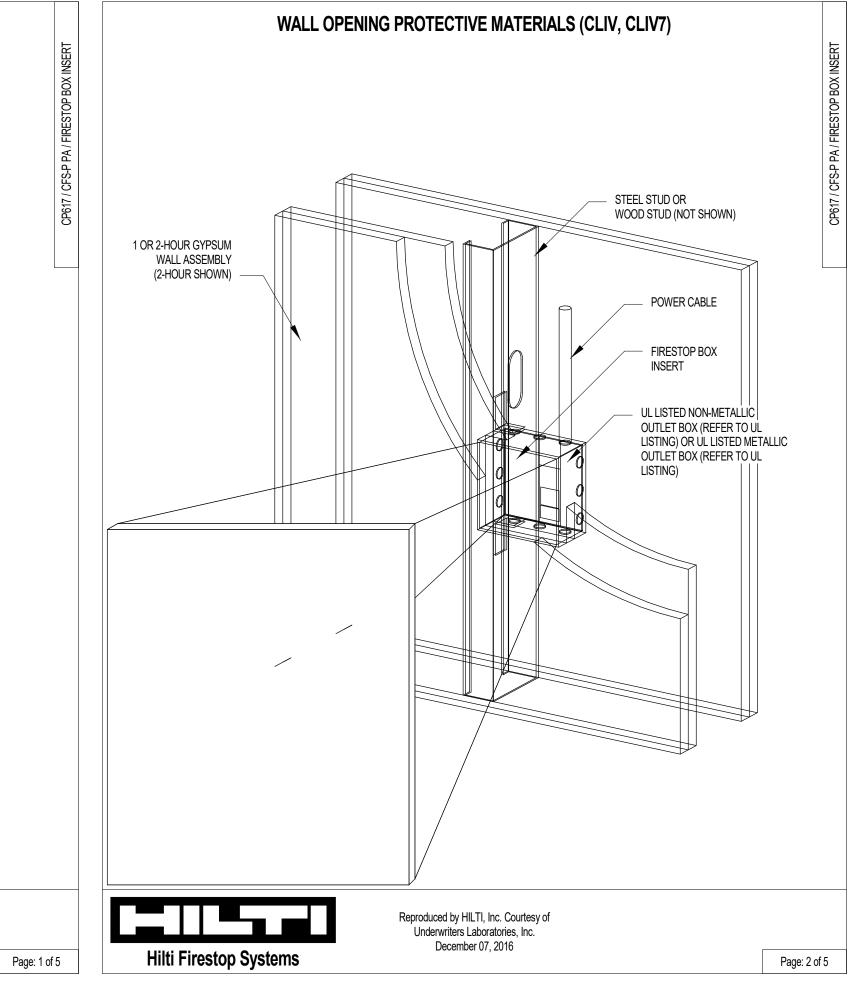
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DATE DESCRIPTION

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

A7.2.27
FIRE JOINTS - CONCRETE OR CMU



# WALL OPENING PROTECTIVE MATERIALS (CLIV, CLIV7)

CP 617 OR CFS-P PA FIRESTOP PUTTY PADS. FOR USE WITH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL MUD RINGS OR UL LISTED NON-METALLIC OUTLET BOXES IN FRAMED WALL ASSEMBLIES AS SPECIFIED BELOW. WHEN PROTECTIVE MATERIAL IS USED ON OUTLET BOXES ON BOTH SIDES OF THE WALL AS DIRECTED, THE HORIZONTAL SEPARATION BETWEEN OUTLET BOXES ON OPPOSITE SIDES OF THE WALL MAY BE LESS THAN 24 📙 INCH PROVIDED THAT THE BOXES ARE NOT INSTALLED BACK-TO-BACK (UNLESS OTHERWISE INDICATED). INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NFPA 70). MINIMUM 1/8 INCH THICK (CP 617) OR MINIMUM 0.2 INCH (CFS-P PA) THICK MOLDABLE PUTTY PADS ARE TO BE INSTALLED TO COMPLETELY COVER THE EXTERIOR SURFACES OF THE OUTLET BOX (EXCEPT FOR THE SIDE OF THE OUTLET BOX AGAINST THE STUD) AND CONDUIT FITTINGS/CONNECTORS AND TO COMPLETELY SEAL AGAINST THE STUD AND GYPSUM WALLBOARD IN THE WALL CAVITY UNLESS OTHERWISE NOTED BELOW. WHEN CFS-P PA IS USED, THE PUTTY PADS MAY BE INSTALLED WITH THE RELEASE LINER INTACT ON THE OUTSIDE OF THE PAD WITH THE EXCEPTION OF ANY OVERLAPS, IN WHICH CASE THE LINER IS TO BE REMOVED FROM THE BOTTOM LAYER AT THE OVERLAP LOCATION. THE BOX COMPOSITION, MAX DEVICE DIMENSIONS, HOURLY RATING, TYPE OF STUD AND TYPE OF FACEPLATE ARE SPECIFIED BELOW. CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4 X 4 BY MAXIMUM 2-1/8 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL COVER PLATES IN 1 AND 2-HOUR. FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MIN 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4-11/16 X 4-11/16 X MAXIMUM 2-1/8 INCH, OR MAXIMUM 4-3/8 X 4-7/8 X MAXIMUM 2-1/8 INCH, FLUSH GYPSUM WALLBOARD/WOOD STUD WALL AND PARTITION DESIGN NO. IN THE FIRE RESISTANCE DIRECTORY. WHEN U341 WALL DESIGN IS USED, WALL SHALL BE SHEATHED WITH 5/8 INCH GYPSUM WALLBOARD, AND GLASS OR MINERAL FIBER BATT INSULATION SHALL BE INSTALLED IN STUD CAVITIES IN

ACCORDANCE WITH U341 DESIGN, BOXES MAY BE INSTALLED BACK-TO-BACK. CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4-11/16 X 4-11/16 X MAXIMUM 2-1/8 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL COVER PLATES FOR USE IN 1 AND 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. MINIMUM 0.8 PCF DENSITY FIBERGLASS BATT INSULATION IS TO BE INSTALLED WITHIN THE WALL CAVITY REQUIRED FOR 1- HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES AND OPTIONAL IN 2-HOUR FIRE RATED GYPSUM WALLBOARD ASSEMBLIES.

CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4 X 3-3/4 X 3 INCH DEEP UL LISTED NON-METALLIC OUTLET BOXES MANUFACTURED BY CARLON ELECTRICAL PRODUCTS, MADE FROM POLYVINYL CHLORIDE, AND BEARING A 2-HOUR RATING UNDER THE "OUTLET BOXES AND FITTINGS CLASSIFICATION FOR FIRE RESISTANCE" CATEGORY IN THE FIRE RESISTANCE DIRECTORY. PUTTY PADS AND BOXES FOR USE IN 1 AND 2-HOUR FIRE RATED GYPSUM WALLBOARD ASSEMBLIES, FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD STUDS AND CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. OUTLET BOX SECURED TO WOOD STUD BY MEANS OF TWO NAILING TABS SUPPLIED WITH THE OUTLET BOX. PUTTY PADS SHALL LAP MINIMUM 1/2 INCH ONTO THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. OUTLET BOXES INSTALLED WITH STEEL OR PLASTIC COVER PLATES. CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4 X 4 X 2-7/8 INCH DEEP UL LISTED NON-METALLIC OUTLET BOXES MANUFACTURED BY CARLON ELECTRICAL PRODUCTS. MADE FROM POLYVINYL CHLORIDE, AND BEARING A 2-HOUR RATING UNDER THE "OUTLET BOXES AND FITTINGS

CLASSIFICATION FOR FIRE RESISTANCE" CATEGORY IN THE FIRE RESISTANCE DIRECTORY. PUTTY PADS AND BOXES FOR USE IN THE 1-HOUR FIRE RATED

V446 GYPSUM WALLBOARD/STEEL STUD OR U341 GYPSUM WALLBOARD/WOOD STUD WALL AND PARTITION DESIGN IN THE FIRE RESISTANCE DIRECTORY.

WHEN U341 WALL DESIGN IS USED. WALL SHALL BE SHEATHED WITH 5/8 INCH GYPSUM WALLBOARD, AND GLASS OR MINERAL FIBER BATT INSULATION SHALL BE INSTALLED IN STUD CAVITIES IN ACCORDANCE WITH U341 DESIGN. OUTLET BOX SECURED TO STEEL STUD BY MEANS OF FASTENING TAB SUPPLIED WITH THE OUTLET BOX. PUTTY PADS SHALL LAP MINIMUM 1/2 INCH ONTO THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. OUTLET BOXES INSTALLED WITH STEEL OR PLASTIC COVER PLATES. BOXES MAY BE INSTALLED BACK TO BACK. CP 617 FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 2-1/4 X 3-3/4 X 2-3/4 INCH DEEP UL LISTED NON-METALLIC OUTLET BOXES MANUFACTURED BY PASS AND SEYMORE, INC., AND BEARING A 2-HOUR RATING UNDER THE "OUTLET BOXES AND FITTINGS CLASSIFICATION FOR FIRE RESISTANCE" CATEGORY IN THE FIRE RESISTANCE DIRECTORY. PUTTY PADS AND BOXES FOR USE IN 1 AND 2-HOUR FIRE RATED GYPSUM WALLBOARD ASSEMBLIES, FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD STUDS AND CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY, OUTLET BOX SECURED TO WOOD STUD BY MEANS OF TWO NAILING TABS SUPPLIED WITH THE OUTLET BOX PUTTY PADS SHALL LAP

CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4 X 3-3/4 X 3 INCH DEEP UL LISTED NON-METALLIC OUTLET BOXES MANUFACTURED BY ALLIED MOLDED PRODUCTS, INC., MADE FROM FIBER REINFORCED THERMOPLASTIC AND BEARING A 2-HOUR RATING UNDER THE "OUTLET BOXES AND FITTINGS CLASSIFICATION FOR FIRE RESISTANCE" CATEGORY IN THE FIRE RESISTANCE DIRECTORY. PUTTY PADS AND BOXES FOR USE IN 1-HOUR FIRE RATED GYPSUM WALLBOARD ASSEMBLIES, FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD STUDS AND CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. OUTLET BOX SECURED TO WOOD STUD BY MEANS OF TWO NAILING TABS SUPPLIED WITH THE OUTLET BOX. PUTTY PADS SHALL LAP MINIMUM 1/2 INCH ONTO THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. OUTLET

MINIMUM 1/2 INCH ONTO THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. OUTLET BOXES INSTALLED WITH STEEL OR PLASTIC COVER

BOXES INSTALLED WITH PLASTIC COVER PLATES.

# **Wall Opening Protective Materials (CLIV, CLIV7)**

CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4 X 4 INCH X 1-1/2 INCH DEEP FLUSH DEVICE UL LISTED METALLIC OUTLET

BOXES INSTALLED WITH STEEL COVER PLATES IN 1-HOUR. FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MIN 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. THE BOXES ARE INSTALLED BACK TO BACK WITH 5 X 4 INCH UL CLASSIFIED FIRE BLOCK, CP 657 OR CFS-BL FIRESTOP BLOCK INSTALLED IN THE CAVITY BETWEEN THE TWO CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 14 X 4 X MAXIMUM 2-1/2 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL COVER PLATES IN 1 AND 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 5-1/2 INCH DEEP WOOD OR STEEL STUDS FOR 2-HOUR FIRE RATED WALLS AND MINIMUM 3-1/2 INCH DEEP WOOD OR STEEL STUDS FOR 1-HOUR FIRE RATED WALLS. WALLS CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. STUD CAVITY INSULATION IS REQUIRED AND SHALL CONSIST OF MINIMUM 5-1/2 INCH (2-HOUR RATED WALLS) OR MINIMUM 3-1/2 INCH (1-HOUR RATED WALLS) THICK FIBERGLASS (MINIMUM 0.8 PCF) OR MINERAL FIBER (MINIMUM 4 PCF). PUTTY PADS SHALL LAP MINIMUM 1/2 INCH ONTO

CP 617 OR CFS-P PA FIRESTOP PUTTY PADS, FOR USE WITH MAXIMUM 4-11/16 X 4-11/16 X MAXIMUM 2-1/8 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL OR PLASTIC COVER PLATES FOR USE IN 1 AND 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 5-1/2 INCH DEEP STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. PUTTY PADS SHALL LAP MINIMUM 1/2 INCH ONTO THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. WHEN BOXES ARE INTERCONNECTED BY MEANS OF ELECTRICAL METALLIC TUBE (EMT) OR CONDUIT, A BALL OF PUTTY PAD MATERIAL SHALL BE USED TO COMPLETELY PLUG THE OPEN END OF EACH EMT OR CONDUIT WITHIN THE OUTLET BOXES. METALLIC OUTLET BOXES MAY BE PROVIDED WITH STEEL ATTACHMENT BRACKETS WHICH OFFSET BOX MINIMUM 1/4 INCH FROM STUD. WHEN STEEL ATTACHMENT BRACKETS ARE USED, PUTTY PAD TO BE AFFIXED TO THE BACK AND ALL FOUR SIDES OF THE BOX. CFS-P PA MOLDABLE PUTTY PADS, FOR USE WITH MAXIMUM 4-11/16 X 4-11/16 INCH X MAXIMUM 2-1/8 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL COVER PLATES IN 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 AND V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. AN ADDITIONAL 3/4 INCH BALL OF PUTTY PAD MATERIAL SHALL BE USED TO PLUG THE END OF EACH ELECTRICAL METALLIC TUBE OR CONDUIT AT ITS CONNECTION TO THE BOX.

THE STUD AND GYPSUM WALLBOARD WITHIN THE STUD CAVITY. WHEN BOXES ARE INTERCONNECTED BY MEANS OF ELECTRICAL METALLIC TUBE

(EMT) OR CONDUIT, A BALL OF PUTTY PAD MATERIAL SHALL BE USED TO COMPLETELY PLUG THE OPEN END OF EACH EMT OR CONDUIT WITHIN THE

STEEL OR PLASTIC COVER PLATES IN 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 AND V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. AN ADDITIONAL 3/4 INCH BALL OF PUTTY PAD MATERIAL SHALL BE USED TO PLUG THE END OF EACH ELECTRICAL METALLIC TUBE OR CONDUIT AT ITS CONNECTION TO THE BOX. CFS-P PA MOLDABLE PUTTY PADS. FOR USE WITH MAXIMUM 14-1/4 X 4-1/2 X 2-1/2 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL COVER PLATES IN 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 AND V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. AN ADDITIONAL 3/4 INCH BALL OF PUTTY PAD MATERIAL SHALL BE USED TO PLUG THE END OF EACH ELECTRICAL

HILTI FIRESTOP BOX INSERT, FOR USE WITH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL MUD RINGS OR UL LISTED

CFS-P PA MOLDABLE PUTTY PADS, FOR USE WITH MAXIMUM 4 X 4 X 2-1/8 INCH FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH

NON-METALLIC OUTLET BOXES IN FRAMED WALL ASSEMBLIES AS SPECIFIED BELOW. WHEN PROTECTIVE MATERIAL IS USED ON OUTLET BOXES ON BOTH SIDES OF THE WALL AS DIRECTED. THE HORIZONTAL SEPARATION BETWEEN OUTLET BOXES ON OPPOSITE SIDES OF THE WALL MAY BE LESS THAN 24 INCH PROVIDED THAT THE BOXES ARE NOT INSTALLED BACK-TO-BACK (UNLESS OTHERWISE INDICATED). INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NFPA 70). THE BOX COMPOSITION, MAXIMUM DEVICE DIMENSIONS, HOURLY RATING, TYPE OF STUD AND TYPE OF FACEPLATE ARE SPECIFIED BELOW. HILTI FIRESTOP BOX INSERT, FOR USE WITH MAXIMUM 4-11/16 X 4-11/16 X 2-1/8 INCH DEEP UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED OF MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300. U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. OUTLET BOXES IN 1-HOUR FIRE RATED WALLS MAY BE INSTALLED WITH PLASTIC OR STEEL COVER PLATES. OUTLET BOXES IN 2-HOUR FIRE RATED WALLS SHALL BE INSTALLED WITH STEEL COVER PLATES. ONE 4-3/8 X 4-3/8 INCH INSERT ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED WITH THE PRODUCT. SMALLER SIZED INSERTS MAY BE CUT AND COMBINED TO ACHIEVE THE 4-3/8 X 4-3/8 INCH COVERAGE.

HILTI FIRESTOP BOX INSERT, FOR USE WITH MAXIMUM 4 X 4 X 1-1/2 INCH DEEP AND 2-1/8 INCH DEEP UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3 1/2 INCH DEEP STEEL OR WOOD STUDS AND CONSTRUCTED OF MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400, V400 OR U300 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. AS SUMMARIZED IN THE TABLE BELOW. ONE 3-11/16 X 3-3/4 INCH INSERT ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED WITH THE PRODUCT. SMALLER SIZED INSERTS MAY BE CUT AND COMBINED TO ACHIEVE THE 3-11/16 X 3-3/4 INCH COVERAGE.

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# WALL OPENING PROTECTIVE MATERIALS (CLIV, CLIV7)

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Underwriters Laboratories, Inc. December 07, 2016

BOX	TYPE OF BOX	HOURLY	WALL
SIZE	AND COVER PLATE	RATING	TYPE
4 X 4 X 2-1/8 INCH	METALLIC WITH STEEL	2-HOUR	U300, U400, OR V400 - WOOD OR
DEEP	COVER PLATES		STEEL STUDS
4 X 4 X 2-1/8 INCH DEEP	METALLIC WITH PLASTIC COVER PLATES	1-HOUR	U300, U400, OR V400 - WOOD OR STEEL STUDS
4 X 4 X 1-1/2 INCH DEEP	METALLIC WITH PLASTIC COVER PLATES	1-HOUR	U300 - WOOD STUDS

HILTI FIRESTOP BOX INSERT, FOR USE WITH MAXIMUM 2 1/8 X 4 X 2 1/8 INCH DEEP UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3 1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED OF MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. OUTLET BOXES MAY BE INSTALLED WITH STEEL COVER PLATES. ONE 1-7/8 X 2-13/16 INSERT ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED WITH THE PRODUCT. HILTI FIRESTOP BOX INSERT, FOR USE WITH MAXIMUM 4-1/2 X 8-1/2 X 1-5/8 INCH DEEP OR MAXIMUM 3-3/4 X 5-1/2 X 2-1/2 INCH DEEP UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 1-HOUR OR 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3 1/2 INCH DEEP STEEL OR WOOD STUDS AND CONSTRUCTED OF MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400, V400 OR U300 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY, AS SUMMARIZED IN THE TABLE BELOW. OUTLET BOXES INSTALLED WITH STEEL COVER PLATES. BOX INSERTS EVENLY SPACED AND ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED WITH THE PRODUCT.

	BOX SIZE INSERTS USED		FIRE RATING	WALL TYPE
1	1-1/2 X 8-1/2 X 1-5/8 INCH DEEP	TWO 3-11/16 X 3-3/4 IN. INSERTS **	2-HOUR	U300, U400 OR V400 - WOOD OR STEEL STUDS
	3-3/4 X 5-1/2 X 2-1/2 INCH DEEP	ONE 3-11/16 X 3-3/4 INCH INSERT AND ONE 1-7/8 X 2-13/16 INCH INSERT	1-HOUR	U300, U400, OR V400 - WOOD OR STEEL STUDS

\*\* - MINIMUM 3/4 INCH DEEP PLASTER RINGS INSTALLED OVER OUTLET BOX. AFTER INSTALLATION OF GYPSUM WALLBOARD, NOMINAL 1/4 INCH THICKNESS OF HILTI FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT, BEARING THE UL CLASSIFICATION MARKING FOR FILL, VOID OR CAVITY MATERIALS, APPLIED BETWEEN THE BASE LAYER OF WALLBOARD AND THE PLASTER RING.

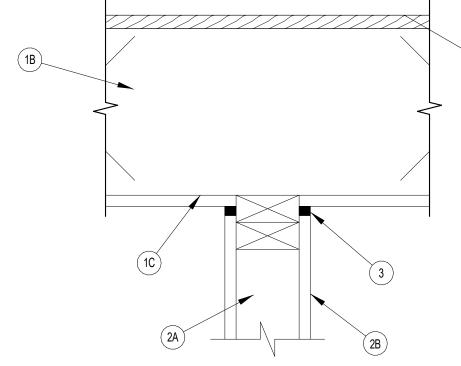
HILTI FIRESTOP BOX INSERT, FOR USE WITH 4-3/8 X 4-7/8 X 2-1/4 INCH DEEP FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 1-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. ONE 4-3/8 INCH WIDE X 4-3/8 INCH HIGH INSERT ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. SMALLER SIZED INSERTS MAY BE CUT AND COMBINED TO ACHIEVE THE 4-3/8 INCH X 4-3/8 INCH COVERAGE AND ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX. OUTLET BOXES INSTALLED WITH PLASTIC OR STEEL COVER PLATES. HILTI FIRESTOP BOX INSERT. FOR USE WITH 4-3/8 X 4-7/8 X 2-1/4 INCH DEEP FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES WITHOUT INTERNAL CLAMPS IN 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES FRAMED WITH MINIMUM 3-1/2 INCH DEEP WOOD OR STEEL STUDS AND CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE FIRE RESISTANCE DIRECTORY. ONE 4-3/8 INCH WIDE X 4-3/8 INCH HIGH INSERT ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. SMALLER SIZED INSERTS MAY BE CUT AND COMBINED TO ACHIEVE THE 4-3/8 X 4-3/8 INCH COVERAGE AND ADHERED TO THE INTERIOR BACK WALL OF THE OUTLET BOX. OUTLET BOXES INSTALLED WITH STEEL COVER PLATES. CP 617 OR CFS-P PA FIRESTOP PUTTY PADS AND HILTI FIRESTOP BOX INSERTS, FOR USE WITH MAXIMUM 4 X 4 X 1-1/2 INCH (102 X 102 X 38 MM) DEEP FLUSH DEVICE UL LISTED METALLIC OUTLET BOXES INSTALLED WITH STEEL MUD RINGS AND WITH STEEL OR PLASTIC FACEPLATES IN 1 OR 2-HOUR FIRE RATED GYPSUM WALLBOARD WALL ASSEMBLIES CONSTRUCTED WITH MINIMUM 3-1/2 INCH (89 MM) WIDE WOOD OR STEEL STUDS. WHEN BOTH PROTECTIVE MATERIALS ARE USED WITH OUTLET BOXES ON BOTH SIDES OF THE WALL AS DIRECTED, THE BOXES MAY BE INSTALLED BACK-TO-BACK PROVIDED THAT THE BACKS OF THE BOXES ARE MINIMUM 1/2 INCH (13 MM) APART AND PROVIDED THAT THE BOXES ARE NOT INTERCONNECTED. ADJOINING PIECES OF MOLDABLE PUTTY PADS TO BE OVERLAPPED APPROXIMATE 1/2 INCH (13 MM) AT THE SEAM. AN INSERT PAD SHALL BE INSTALLED TO COMPLETELY COVER THE BACK INSIDE SURFACE OF EACH OUTLET BOX.



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December 07, 2016 Page: 5 of 5

SYSTEM NO. HW-S-0090 ANSI/UL2079 CAN/ULC S115 ASSEMBLY RATING - 1-HOUR F RATING - 1-HOUR Underwriters Laboratories to UL 2079 and CAN/ULC-S115 JOINT WIDTH - 1/2 INCH MAXIMUM FT RATING - 1-HOUR FH RATING - 1-HOUR FTH RATINGS - 1-HOUR JOINT WIDTH - 1/2 INCH MAXIMUM 



I. FLOOR ASSEMBLY - THE 1-HOUR FIRE-RATED WOOD JOIST, WOOD TRUSS OR COMBINATION WOOD AND STEEL TRUSS FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL L500 SERIES FLOOR- CEILING DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES: A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE\* AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN.

B. WOOD JOISTS - NOMINAL 10 INCH (254 MM) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS\* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED. C. GYPSUM WALLBOARD\* - NOMINAL 4 FOOT (122 CM) WIDE X 5/8 INCH (16 MM) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. 2. WALL ASSEMBLY - THE 1-HOUR FIRE RATED GYPSUM WALLBOARD/LUMBER STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - WALL FRAMING TO CONSIST OF NOMINAL 2 X 4 INCH (51 X 102 MM) LUMBER SPACED 16 INCH (406 MM) ON CENTER TOP PLATE INSTALLED PARALLEL OR PERPENDICULAR TO DIRECTION OF WOOD JOISTS AND SECURED TO BOTTOM OF JOISTS WITH STEEL FASTENERS SPACED MAXIMUM 24 INCH (610 MM) ON CENTER. B. GYPSUM WALLBOARD\* - GYPSUM WALLBOARD SHEETS INSTALLED TO A MINIMUM TOTAL THICKNESS OF 5/8 INCH (16 MM) ON EACH SIDE OF WALL. WALL TO BE CONSTRUCTED AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY, EXCEPT THAT A MAXIMUM 1/2 INCH (13 MM) GAP SHALL BE MAINTAINED BETWEEN THE TOP OF THE GYPSUM WALLBOARD AND THE CEILING OF THE FLOOR-CEILING ASSEMBLY.

3. JOINT SYSTEM - FILL, VOID OR CAVITY MATERIAL\* - SEALANT - MAXIMUM SEPARATION BETWEEN THE BOTTOM OF THE CEILING AND THE TOP OF THE WALL IS 1/2 INCH (13 MM). MINIMUM 5/8 INCH (16 MM) THICKNESS OF FILL MATERIAL INSTALLED TO FILL THE JOINT, FLUSH WITH EACH SURFACE OF THE WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT, CP606 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.



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METALLIC TUBE OR CONDUIT AT ITS CONNECTION TO THE BOX.

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Page: 4 of 5

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Contractor must verify all dimensions at project before proceeding with this

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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

PENETRATION / JOINT GYP.

**CORRIDOR** DOOR EXPANSION JOINT COVER, MM SYSTEM - MM SYSTEMS "X-V-2" OR EQUAL OVER OR APPROVED EQUAL EXPANDING IMPREGNATED FOAM EXPANSION - PROVIDE 2" MIN. MINERAL WOOL STRIP AT 10'-0" PER IBC 718.2.1.1 - 2-HR EXTERIOR WALL. CMU OR PRE-CAST CONCRETE WALL, BY OTHERS. - DENSGLASS SHEATHING Street Adress CW 02 EX 2 FIRE TREATED PLYWOOD SHEATHING, PER STRUCTURAL City, State UW 02 EX 2 2" EXPANSION - 2X BLOCKING, PER STRUCTURAL CONTINUOUS STEEL LEDGER - CLASS B ROOFING SYSTEM ON CONCRETE TEE — PER STRUCTURAL ROOF SHEATHING ON ROOF FRAMING, SEE STRUCTURAL DOUBLE TEE CONCRETE PRE-FAB SLAB, BY - DRAFTSTOP - 2" MIN. WOOL STRIP AT 10'-0" PER IBC 718.2.1.1. NAILER RIM BOARD FILL TRUSS CAVITY COMPLETELY W/ BLOWN-IN INSULATION - TYP. PRE-FAB CONCRETE/ CMU WALL, FIRE BLOCKING AT CEILING LINE PER FLOOR PLAN PER IBC 718.2 GYPSUM WALLBOARD, PER ASSEMBLY, CONTINUOUS LAYER UP TO PARAPET - FIRE BLOCKING AT CEILING & SOFFIT LINES PER IBC 718.2 GARAGE LOBBY CORRIDOR - 1-HR RATED EXTERIOR WALL PER <u>CORRIDOR</u> WALL ASSEMBLY EXTERIOR WALL AT PARKING GARAGE PER IBC 705.3 BUILDINGS ON THE SAME LOT. EXPANSION JOINT AT GARAGE RATED SLAB ON DECK AT SEXPANSION JOINT AT WOOD FRAMED PARAPET AND **PRELIMINARY GARAGE CONCRETE WALL** SCALE: 1 1/2" = 1'-0" SCALE: 3/4" = 1'-0" 2-HR EXTERIOR CMU OR PRE-CAST CONCRETE EW 17 EX 1 WALL, BY OTHERS 2-HR RATED EXTERIOR CMU OR PRE-CAST CONCRETE WALL, BY OTHERS - 1-HR EXTERIOR WALL CW 02 EX 2 - CW 02 EX 2 - 2" x 2" STEEL ANGLE UW 02 EX 2 UW 02 EX 2 WOOD JOIST HANGER PER STRUCTURAL ALT. PER PLAN ALT. PER PLAN INSTALL GYPSUM WALLBOARD PER WALL ASSEMBLY TIGHT TO BOTTOM OF SHEATHING TO MM SYSTEM " WJL-2-2" EXPANSION JOINT CAP OR 2" EXPANSION MAINTAIN CONTINUOUS FIRE BARRIER JOINT 2x LEDGER OR JOIST PER STRUCTURAL FILL VOID WITH MINERAL WOOL - 20 GA PRE-FINISHED METAL COPING FL 04 1 DOUBLE TEE CONCRETE PRE-FAB SLAB, BY OTHERS CORRIDOR - 22 GA CONTINOUS GSM CLEAT WEATHER RESISTANT BARRIER 2x WOOD FRAMING, PER STRUCTURAL DENSGLASS SHEATHING CLASS B ROOFING SYSTEM 1-HR RATED EXTERIOR WALL CORRIDOR \_ EXPANSION JOINT AT WOOD FRAMED WALL AND GARAGE PARAPET EXPANSION JOINT **CONCRETE WALL** SCALE: SCALE: 1 1/2" = 1'-0" CORRIDOR — 2"x2" STEEL ANGLE 1-HR RATED EXTERIOR WALL INSTALL GYPSUM WALLBOARD PER WALL EW 17 EX 1 ASSEMBLY TIGHT TO BOTTOM OF SHEATHING GYPSUM WALLBOARD, PER ASSEMBLY TO MAINTAIN CONTINUOUS FIRE BARRIER INSTALL GYPSUM WALLBOARD PER WALL FL 04 1 ASSEMBLY TIGHT TO BOTTOM OF SHEATHING FILL VOID WITH MINERAL TO MAINTAIN CONTINUOUS FIRE BARRIER WOOL — FLOOR STRUCTURE, PER STRUCTURAL FIN. FLR. FIRE TREATED PLYWOOD SHEATHING, PER STRUCTURAL <u>GARAGE</u> CONTINUOUS STEEL LEDGER PER STRUCTURAL 2-HR EXTERIOR CMU OR PRE-CAST 2x LEDGER OR JOIST PER STRUCTURAL CONCRETE WALL, BY OTHERS WOOD JOIST HANGER PER STRUCTURAL EXPANSION JOINT-GLUE LAMINATED WOOD BEAM, PER FIRE BLOCKING AT CEILING & SOFFIT LINES PER STRUCTURAL, UPSIZED FOR FIRE RESISTANCE 2-HR EXTERIOR CMU OR PRE-CAST CONCRETE WALL, BY OTHERS CW | 02 | EX | 2 )-MM SYSTEM 'FX-L-2' OR EQUAL, OVER UW 02 EX 2 EXPANDING IMPREGNATED FOAM — 1-HR RATED EXTERIOR WALL ALT. PER PLAN EXPANSION JOINT —(CW |02 | EX | 2) UW 02 EX 2 such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at DRIVEWAY ENTRANCE ALT. PER PLAN CORRIDOR EXPANSION JOINT AT GARAGE ENTRY AND WOOD FRAMED \_ EXPANSION JOINT AT WOOD FRAMED WALL AND GARAGE CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER **CONCRETE WALL** and the owner or its designated agent shall provide this written description on request. SCALE: 1" = 1'-0" SCALE: 1 1/2" = 1'-0" <u>CORRIDOR</u> 90 MIN. FIRE RATED DOOR Contractor must verify all dimensions at project before proceeding with this INSTALL GYPSUM WALLBOARD - MM SYSTEMS "X-V-2" OR EQUAL OVER PER WALL ASSEMBLY TIGHT TO EXPANDING IMPREGNATED FOAM EXPANSION BOTTOM OF SHEATHING TO MAINTAIN CONTINUOUS FIRE FILL VOID WITH MINERAL \_ BARRIER WOOL — 2"x2" STEEL ANGLE © ORB Architecture, LLC 2021 CONTINUOUS STEEL LEDGER PER STRUCTURAL 2x LEDGER OR JOIST PER STRUCTURAL EW 17 EX 1)— - WOOD / JOIST HANGER PER STRUCTURAL FIRE BLOCKING AT CEILING LINE PER IBC 1-HR RATED EXTERIOR WALL FILL VOID WITH MINERAL WOOL MM SYSTEM 'FX-L-2' OR EQUAL, OVER EXPANDING IMPREGNATED FOAM — EXPANSION JOINT 2-HR EXTERIOR CMU OR PRE-CAST CONCRETE WALL, BY OTHERS 2" EXPANSION JOINT-— 90 MIN. FIRE RATED DOOR **GARAGE LOBBY** EXPANSION JOINT AT ENTRY AT RATED SLAB ON DECK



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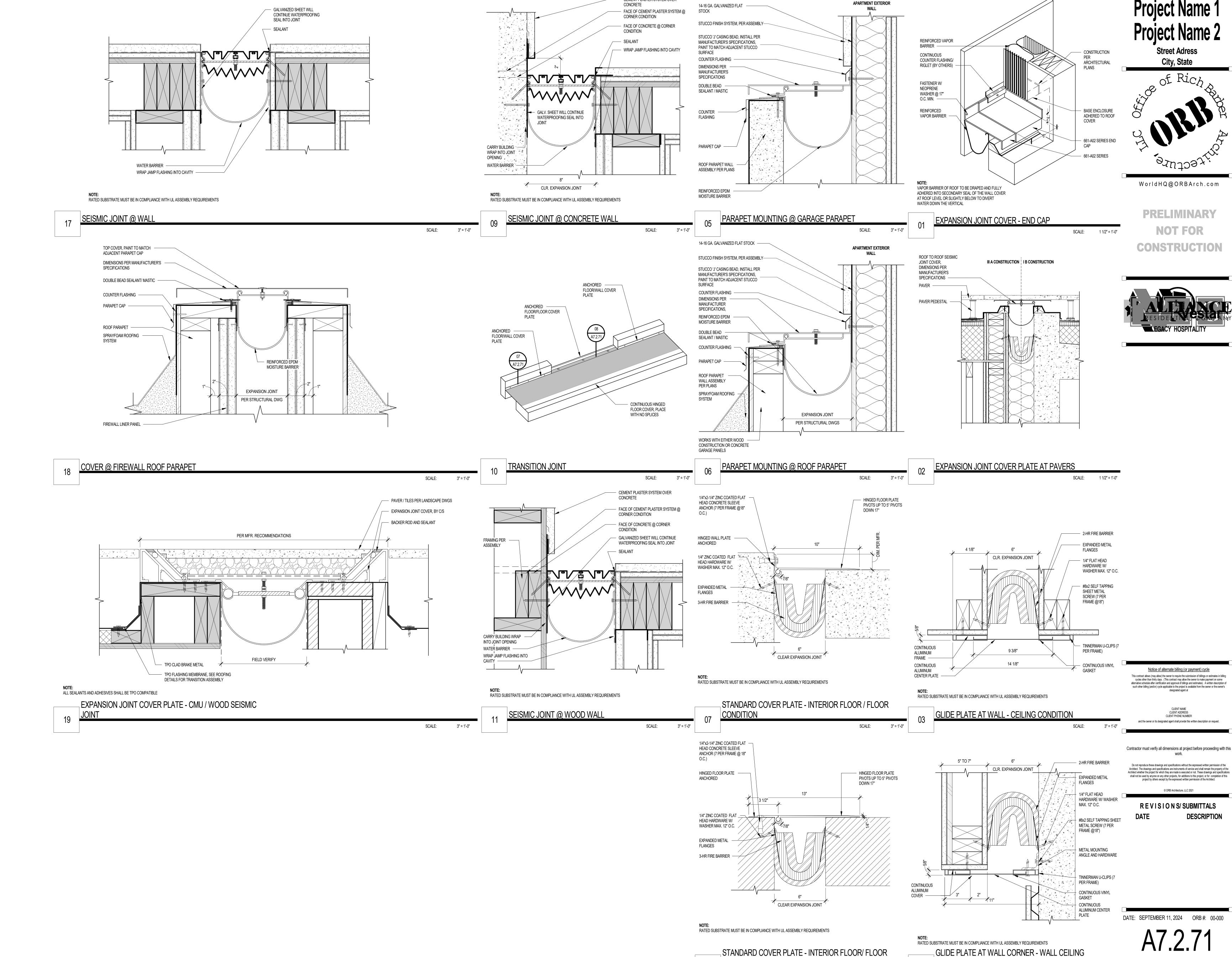
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REVISIONS/SUBMITTALS DESCRIPTION

2ND CITY SUBMITTAL

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

FIRE/EXPANSION JOINTS AT GARAGE



**CONDITION FLAT** 

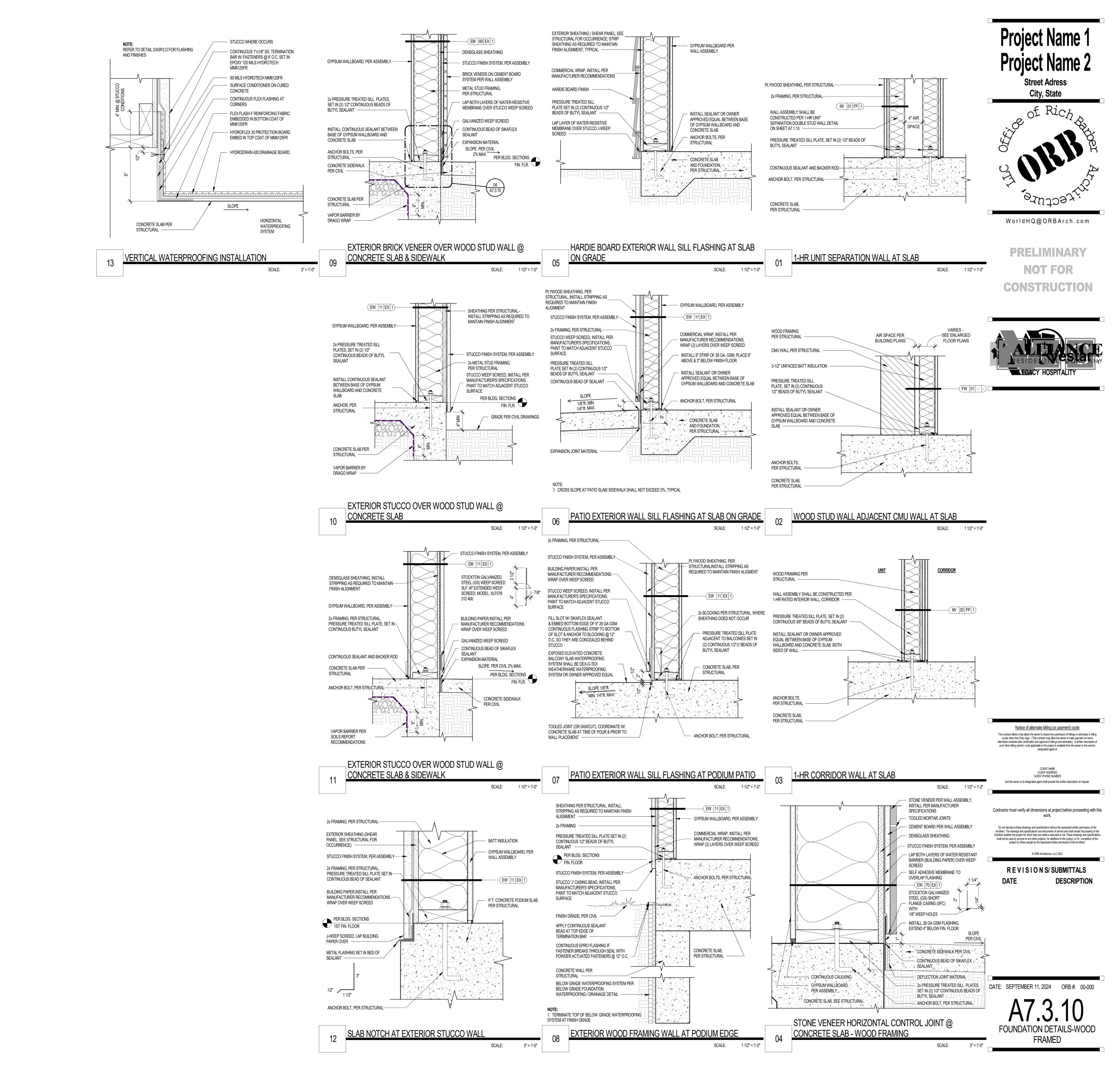
CEMENT PLASTER SYSTEM OVER

EXPANSION JOINT COVER DETAILS

SCALE: 3" = 1'-0"

CONDITION

SCALE: 3" = 1'-0"



SCALE: 1 1/2" = 1'-0"

- BELOW GRADE WATERPROOFING SYSTEM: E-PRO'S E-

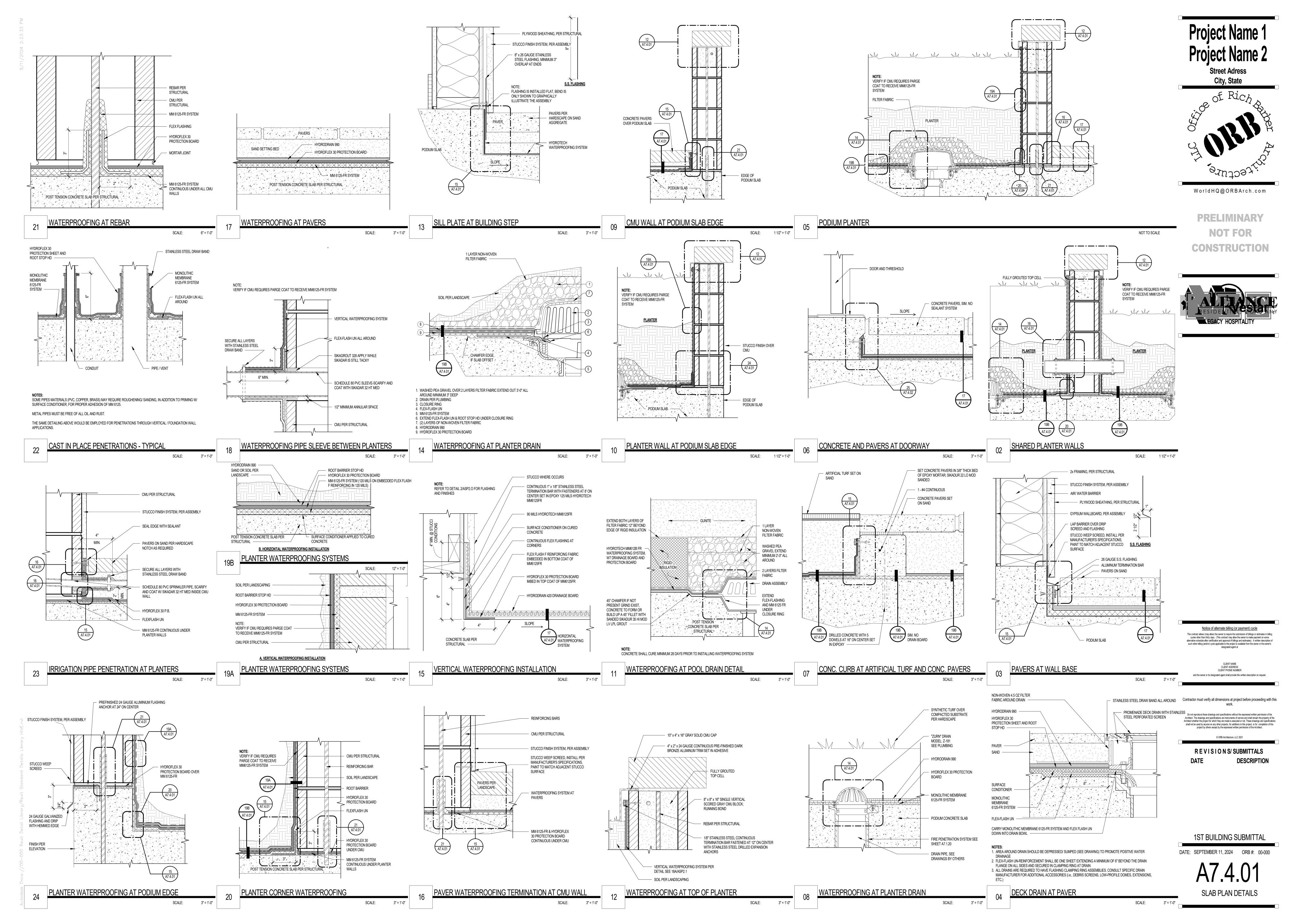


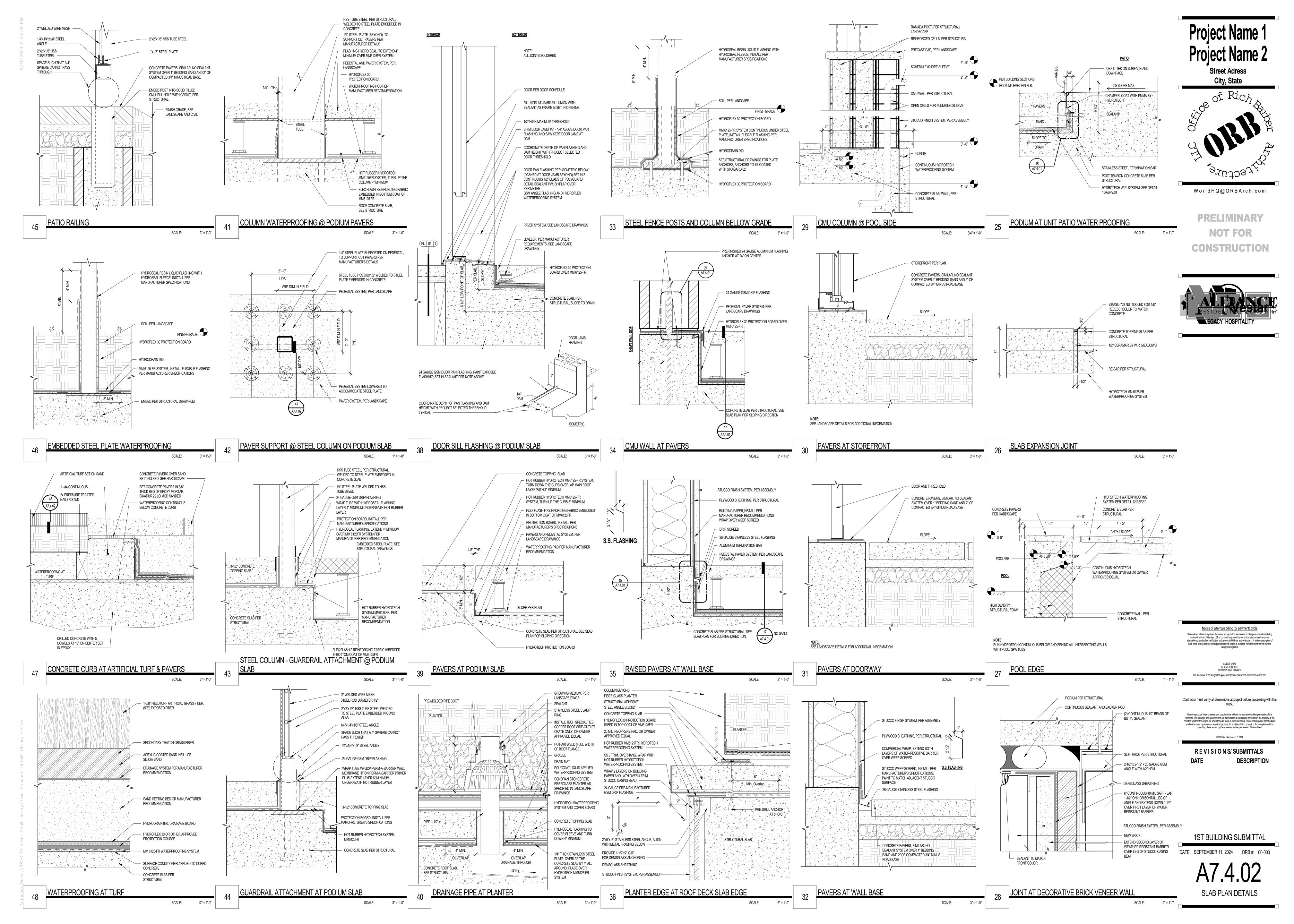
FRAMING/CMU/CONCRETE

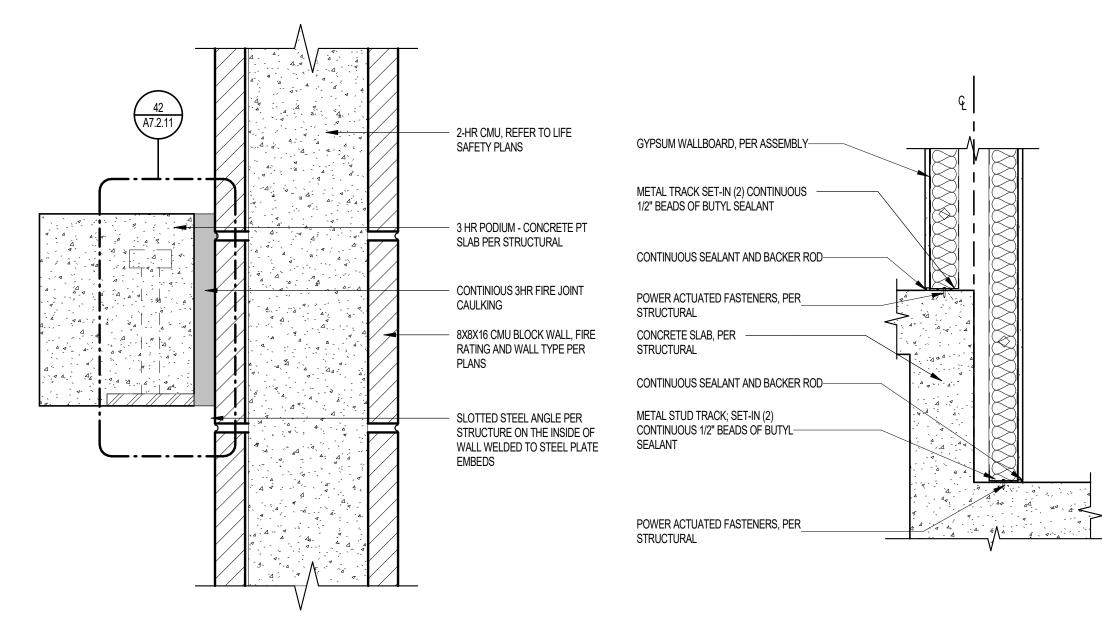
SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"







SCALE: 3" = 1'-0"

CONCRETE SLAB AT CMU WALL

City, State



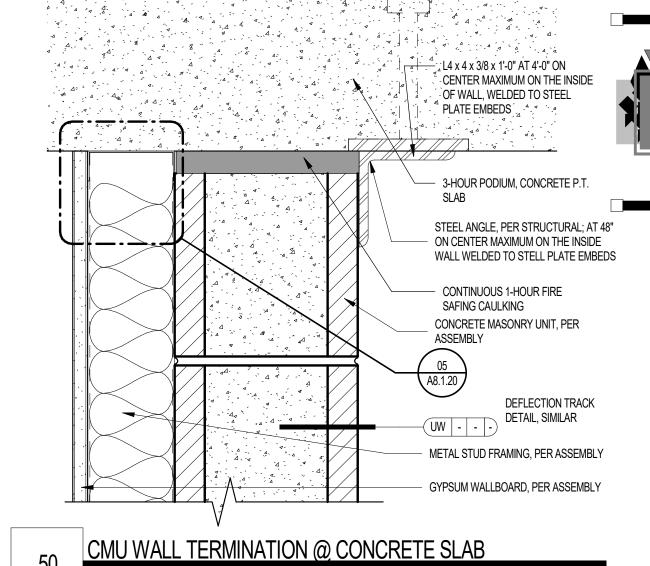
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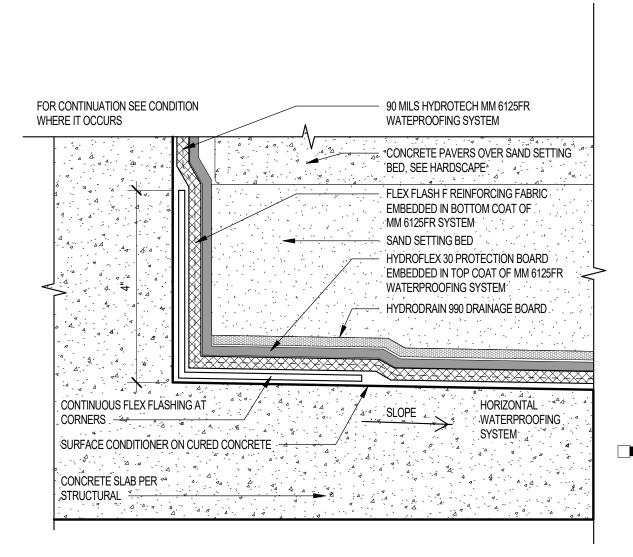
1-HR UNIT SEPARATION WALL AT SLAB STEP

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SCALE: 1" = 1'-0"

SCALE:

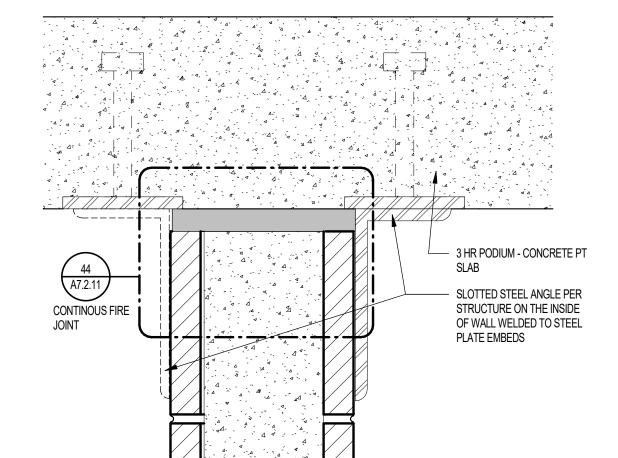




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WATERPROOFING AT CONCRETE SLAB STEP SCALE:

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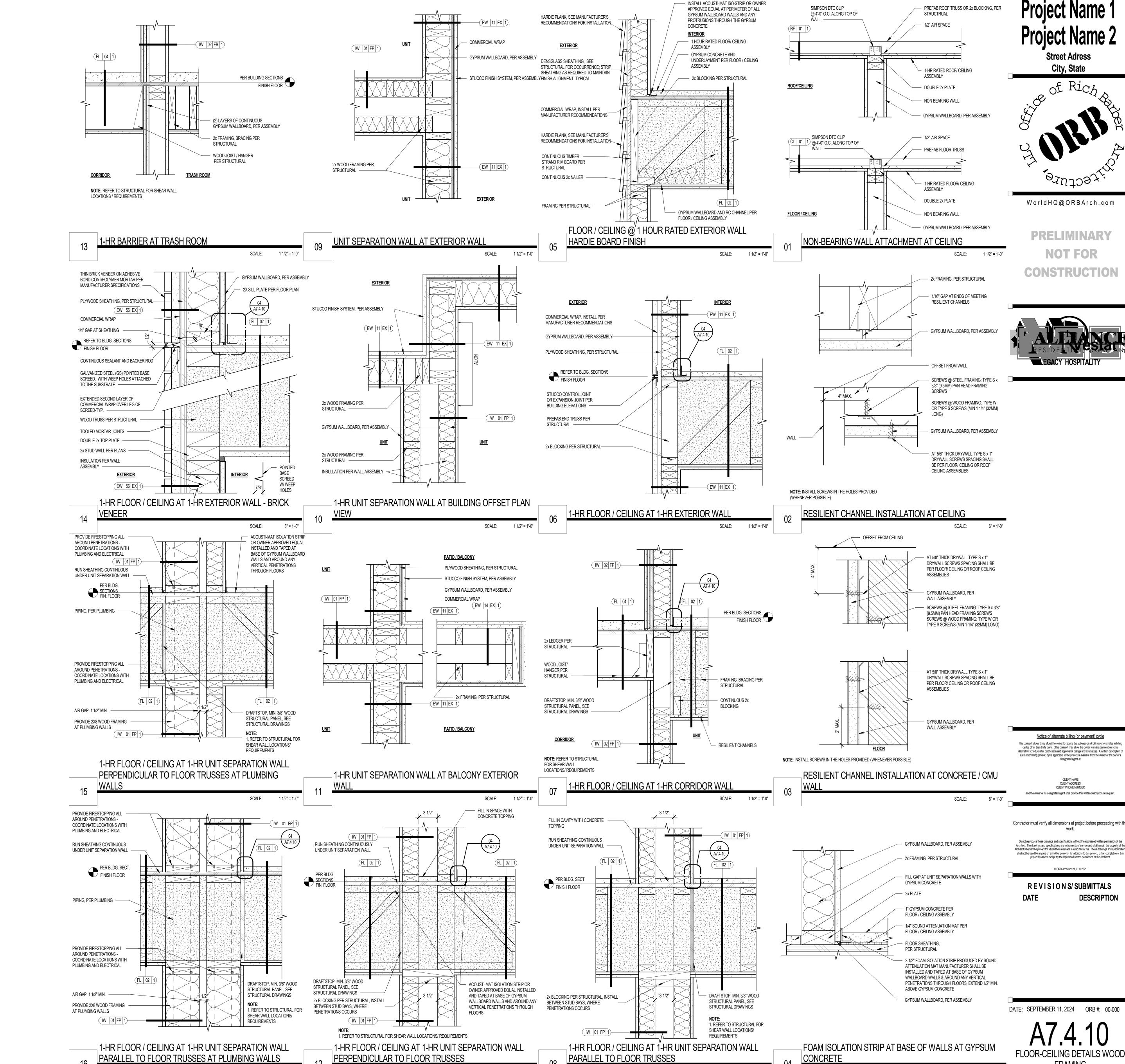
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DATE: SEPTEMBER 11, 2024 ORB #: 00-000

SLAB PLAN DETAILS

52 CMU DEFLECTION JOINT @ CONCRETE SLAB

CMU BLOCK WALL, FIRE RATING AND WALL TYPE PER PLANS



SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"



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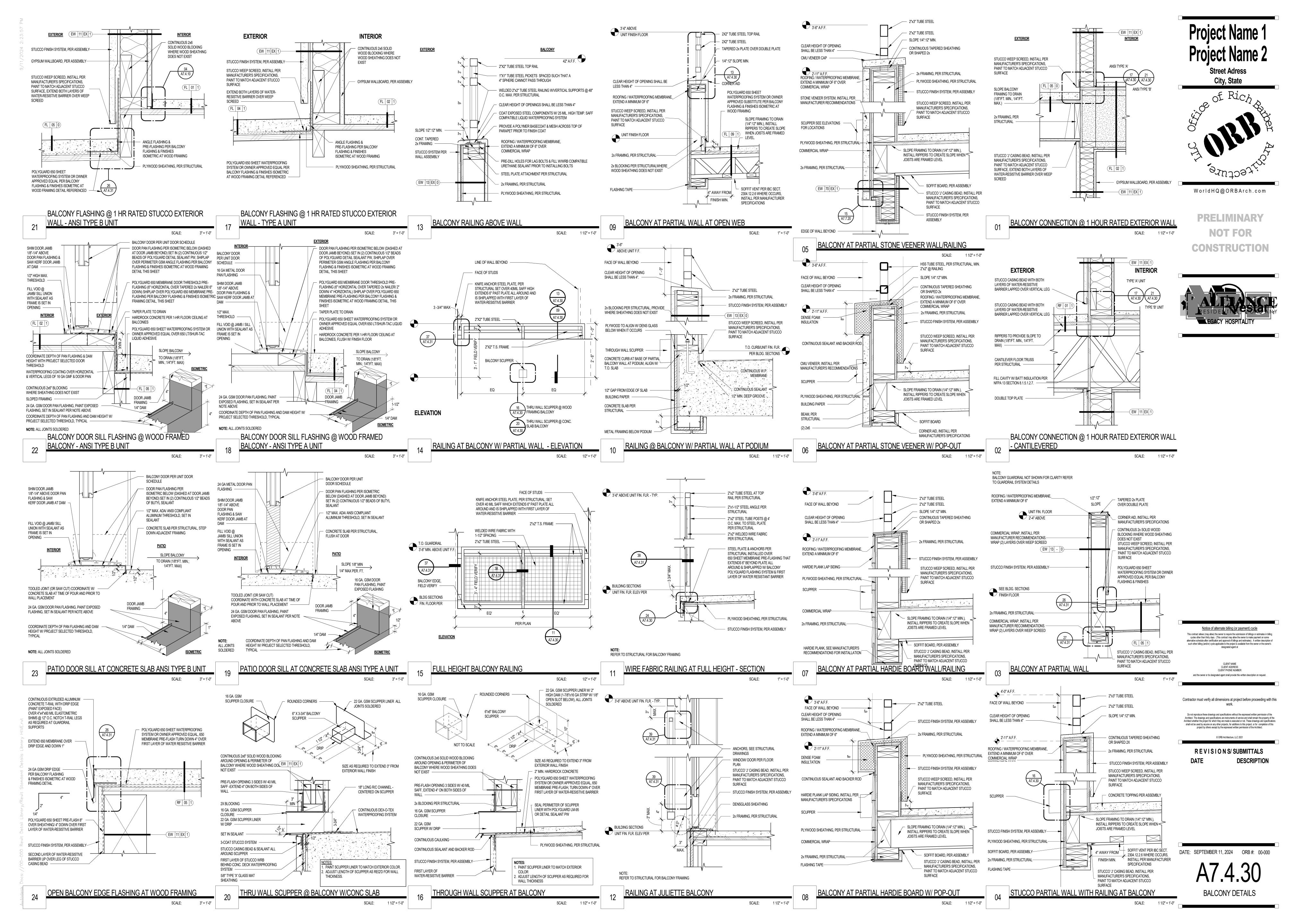
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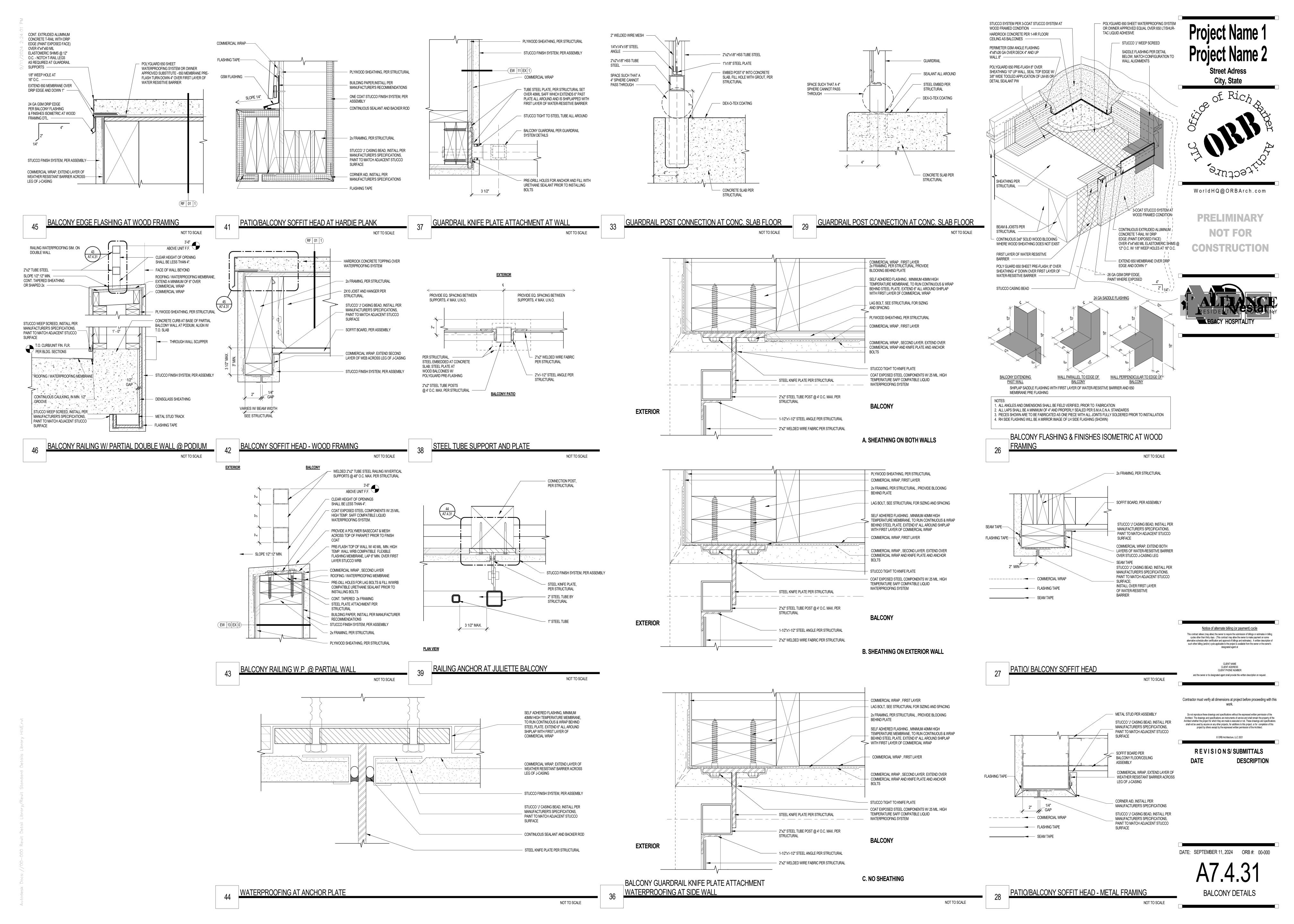
DATE: SEPTEMBER 11, 2024 ORB #: 00-000

SCALE:

CONSTRUCTION







EXTERIOR
STUCCO FINISH SYSTEM, PER ASSEMBLY COMMERCIAL WRAP, EXTEND BOTH LAYERS OF WATER-RESISTIVE BARRIER OVER WEEP SCREED STUCCO WEEP SCREED, INSTALL PER MANUFACTURER'S SPECIFICATIONS, PAINT TO MATCH ADJACENT STUCCO SURFACE TREX EXTERIOR BASEBOARD 2x BLOCKING PER STRUCTURAL, PROVIDE WHERE SHEATHING DOES NOT EXIST PAVER SYSTEM O/ LEVELER, PER MANUFACTURER REQUIREMENTS, SEE LANDSCAPE DRAWINGS PLYWOOD SHEATHING, PER STRUCTURAL ULTRAPLY TPO ROOFING SYSTEM O/ DENSDECK OR OWNER APROVED EQUAL O/ TAPERED STRUCTURE, SEE ALIGNED TO DECK — STRUCTURAL DRAWINGS

# City, State

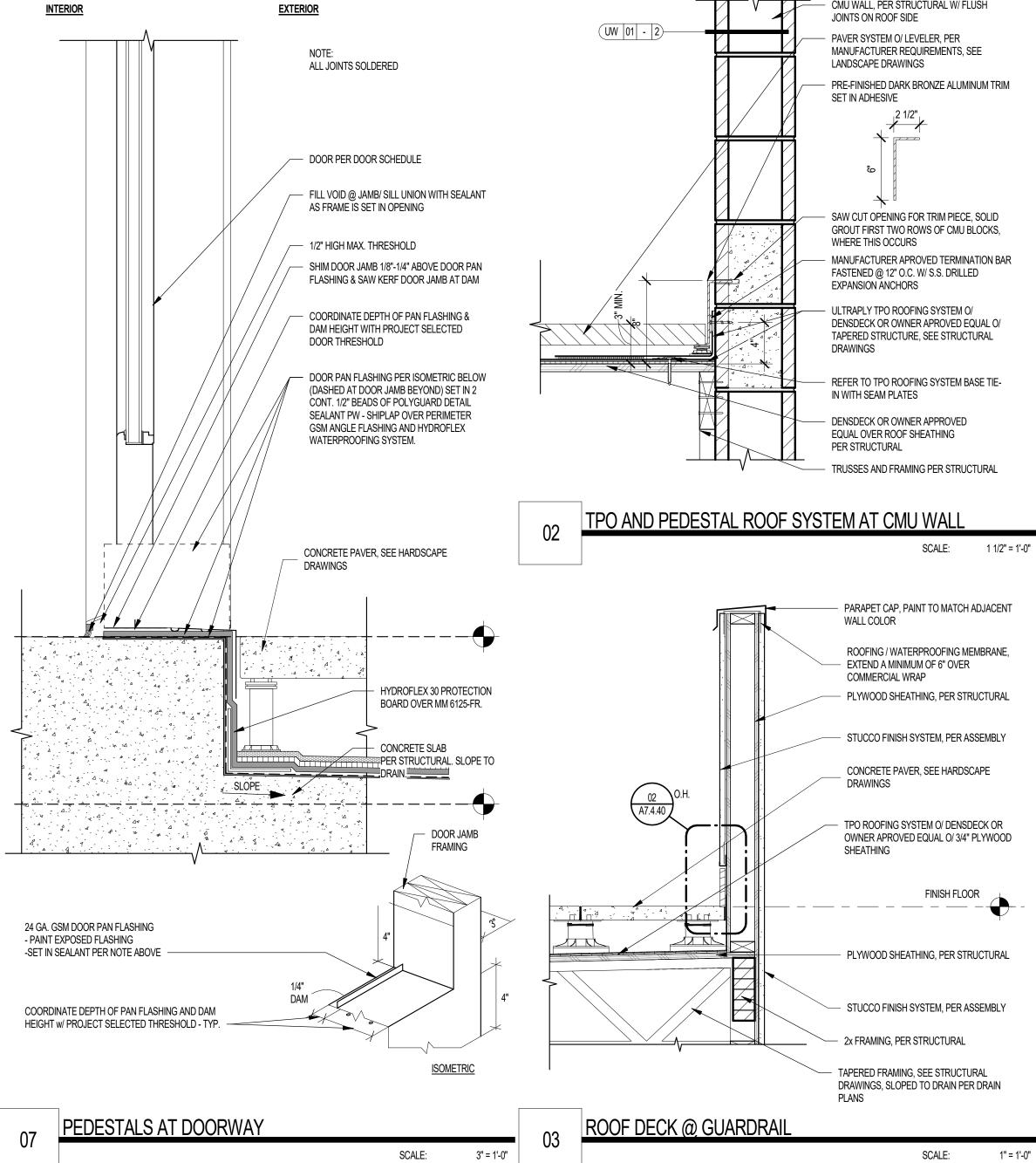
PEDESTAL SYSTEM FLASHING AT ROOF DECK EXTERIOR SCALE: 3" = 1'-0"

- CMU WALL, PER STRUCTURAL W/ FLUSH

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SEE STRUCTURAL DRAWINGS FOR WALL FRAMING STUCCO FINISH SYSTEM, PER ASSEMBLY COMMERCIAL WRAP, EXTEND BOTH LAYERS OF WATER-RESISTIVE BARRIER OVER WEEP SCREED - DRIP SCREED - 26 GAUGE S.S. FLASHING - ALUMINUM TERMINATION BAR PEDESTAL PAVER SYSTEM; PER LANDSCAPE DRAWINGS. CONCRETE SLAB PER STRUCTURAL

RAISED PAVERS AT WALL BASE

- REINFORCING BARS - COMMERCIAL WRAP CMU PER STRUCTURAL - STUCCO FINISH SYSTEM, PER ASSEMBLY STUCCO WEEP SCREED, INSTALL PER MANUFACTURER'S SPECIFICATIONS, PAINT TO MATCH ADJACENT STUCCO PAVER PEDESTAL, INSTALL PER MANUFACTURER'S SPECIFICATIONS 34 . . . — WATERPROOFING SYSTEM @ **PAVERS** MM 6125-FR & HYDROFLEX
 30 PROTECTION BOARD
 CONTINUOUS UNDER CMU.

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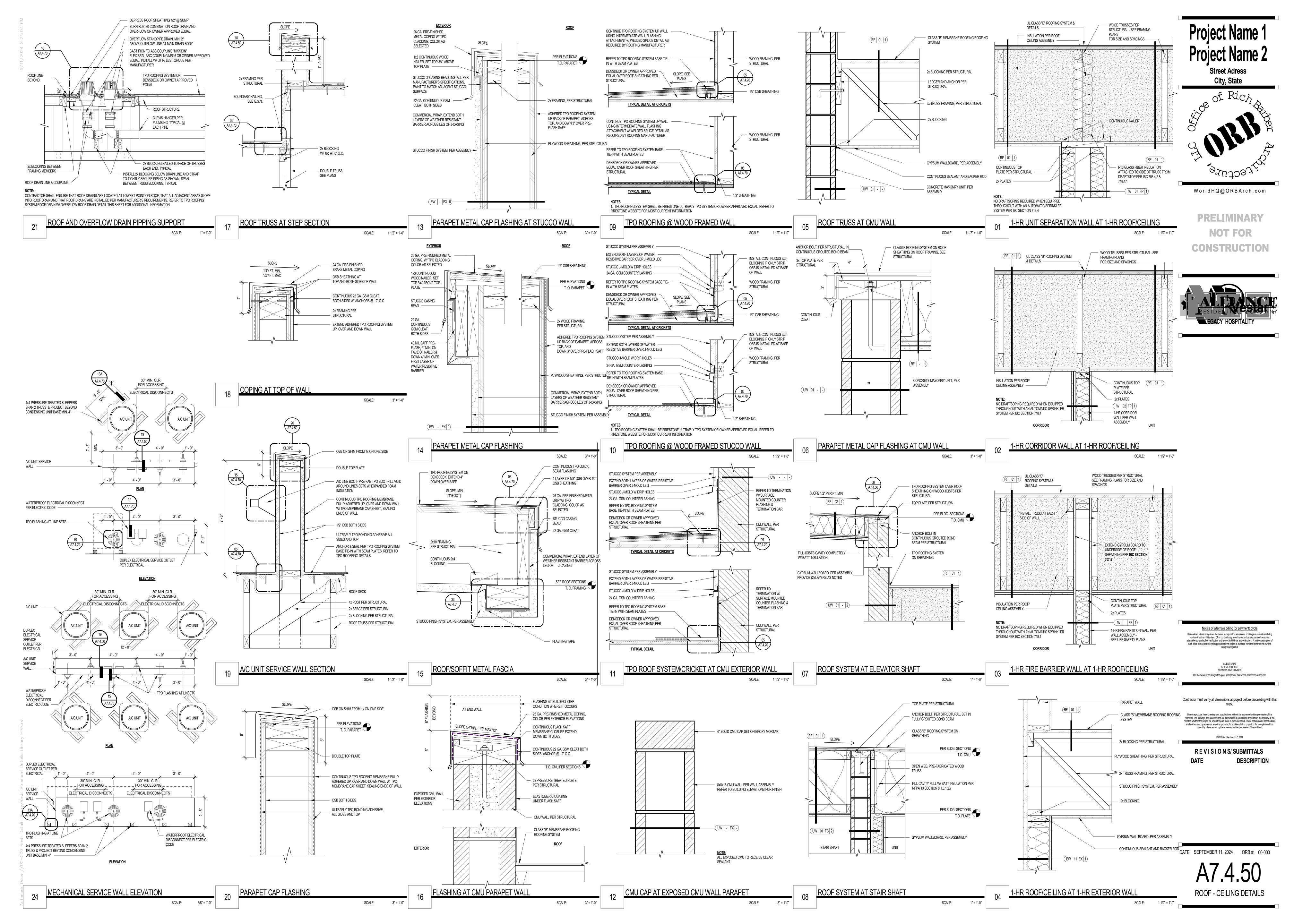
CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER

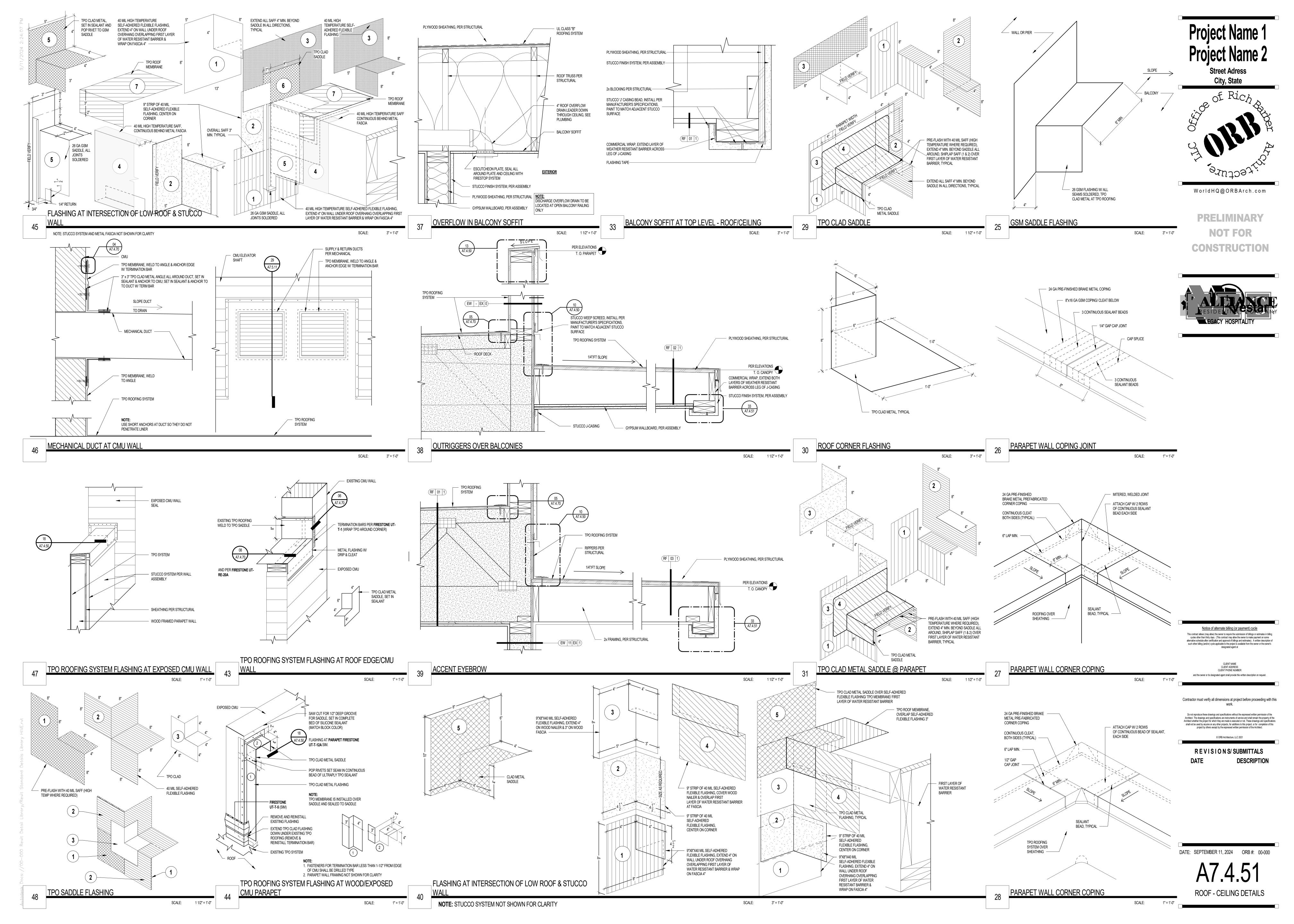
and the owner or its designated agent shall provide this written description on request.

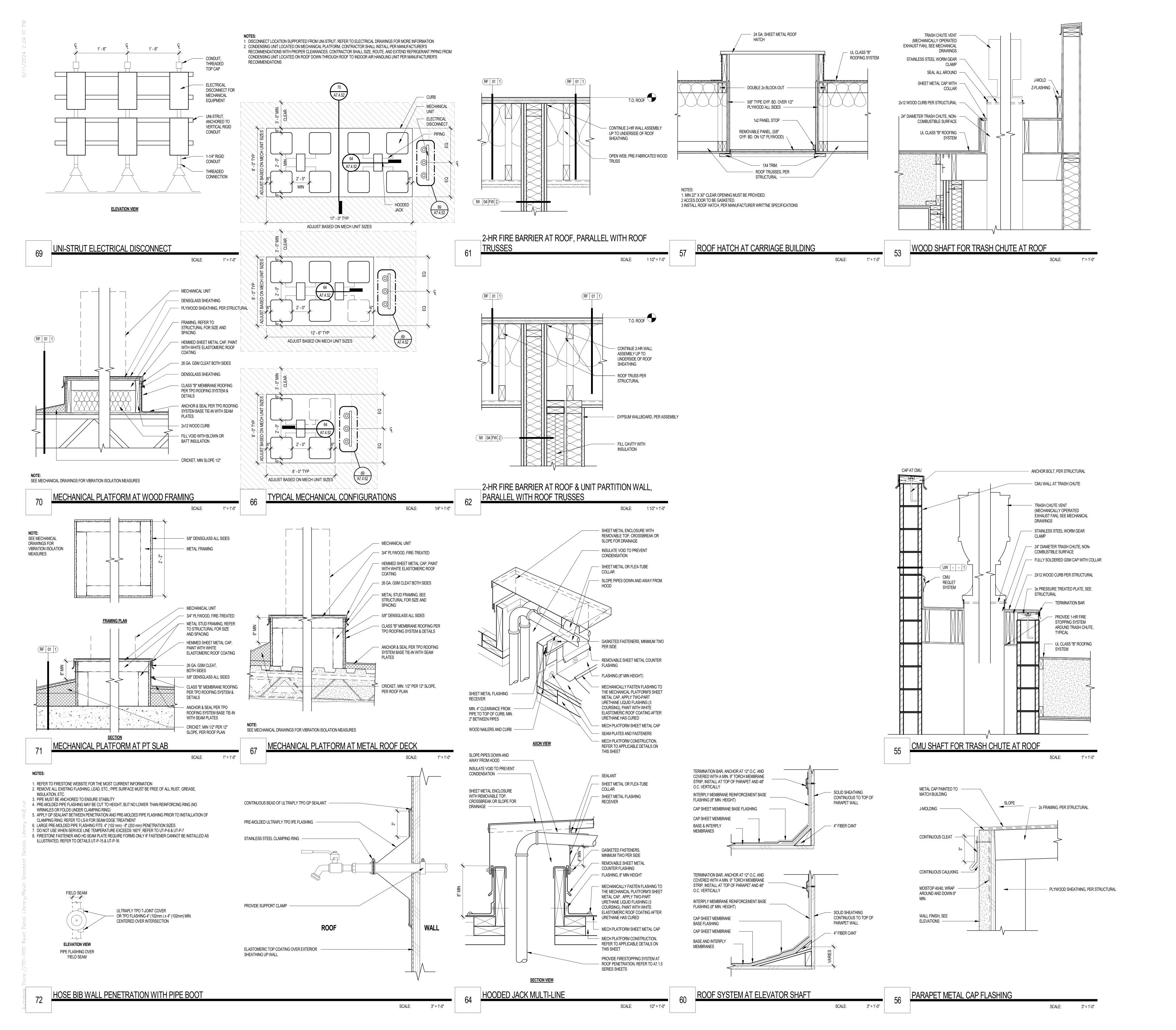
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PAVER WATERPROOFING TERMINATION AT CMU WALL







# Project Name 2 Project Name 2

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A7.4.52

**ROOF - CEILING DETAILS** 

SCALE:

SCALE:

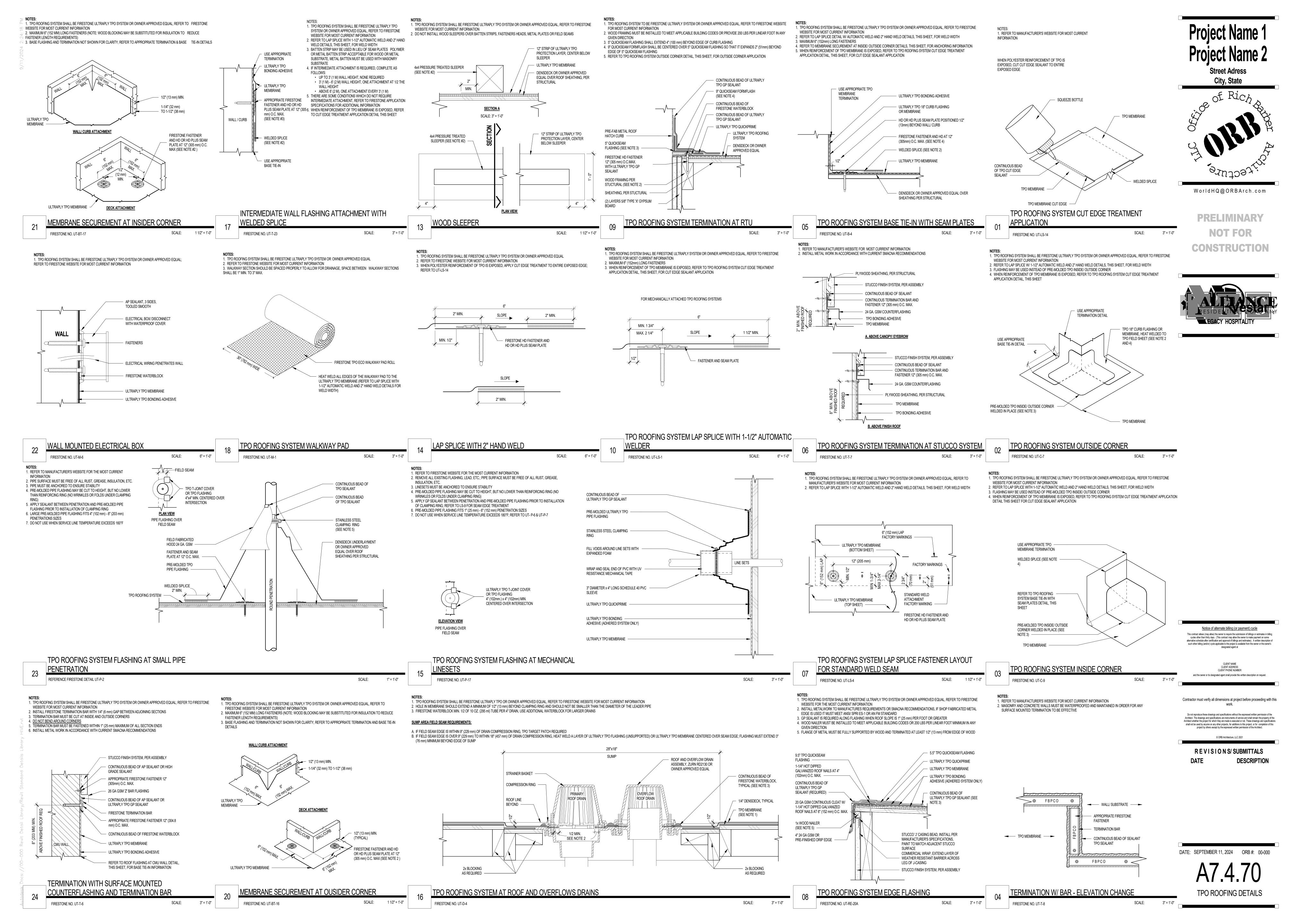
SCALE: 1 1/2" = 1'-0"

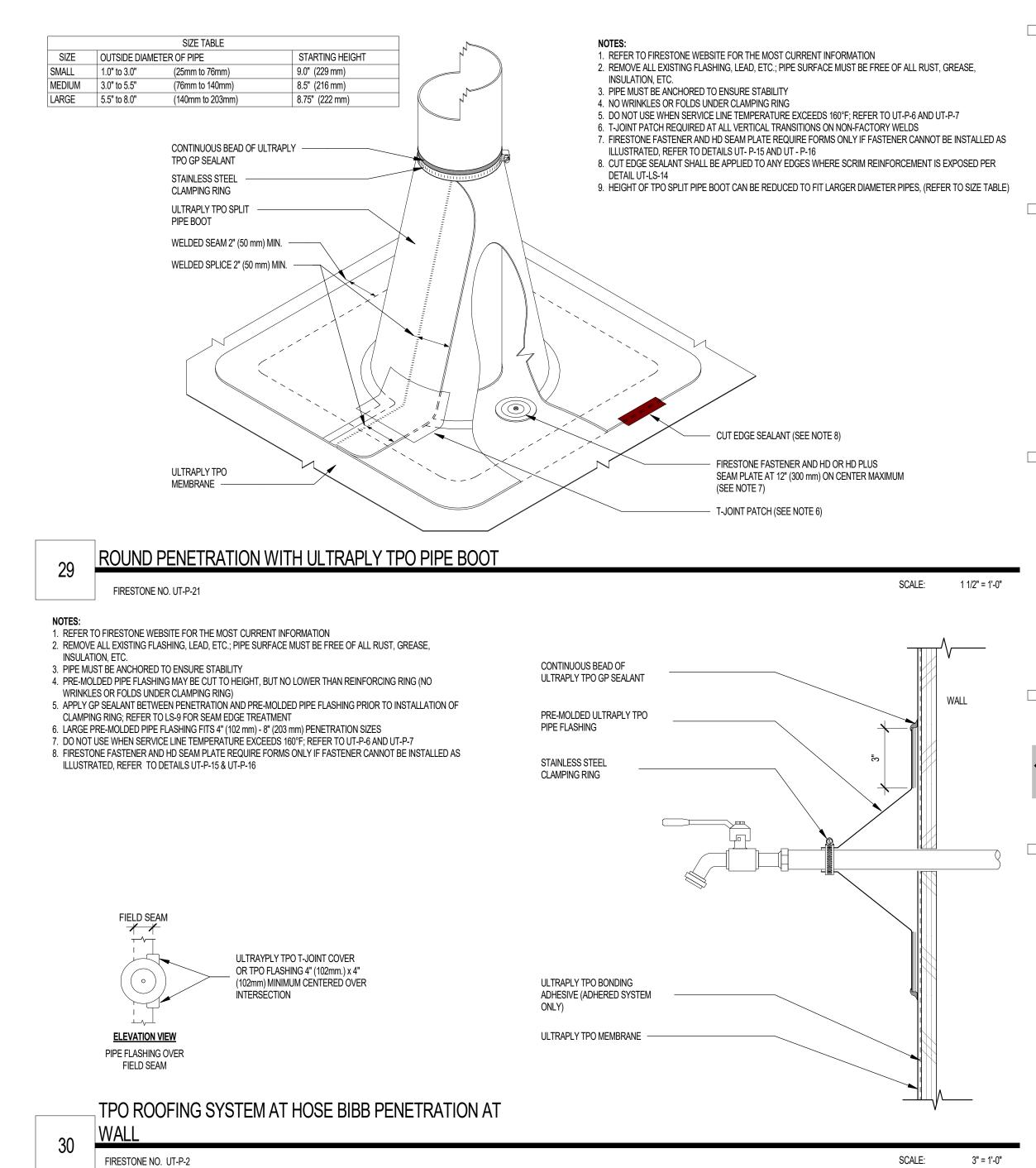
STEEL PLATE W/





SCALE: 1 1/2" = 1'-0"





1. REFER TO FIRESTONE WEBSITE FOR THE MOST CURRENT INFORMATION 2. INSTALL METAL WORK TO SMACNA RECOMMENDATIONS; IF SHOP FABRICATED METAL EDGE IS USED IT MUST MEET ANSI/ SPRI ES-1 OR AN FM STANDARD

200 LBS PER LINEAR FOOT MINIMUM IN ANY GIVEN DIRECTION

3. WOOD NAILER MUST BE INSTALLED TO MEET APPLICABLE BUILDING CODES OR

 ULTRAPLY TPO COATED METAL (SEE NOTE 2) STEP 1 - 1-1/4" HOT DIPPED GALVANIZED ROOF NAILS AT 4" (102 MM) ON CENTER MAXIMUM - FIRESTONE INSULATION - FIRESTONE INSULATION CONTINUOUS CLEAT — - WOOD NAILER HEAT RESISTANT TAPE -(SEE NOTE 3) (BY OTHERS) OVER ÙLTRAPLY TPO COATED METAL SPLICE

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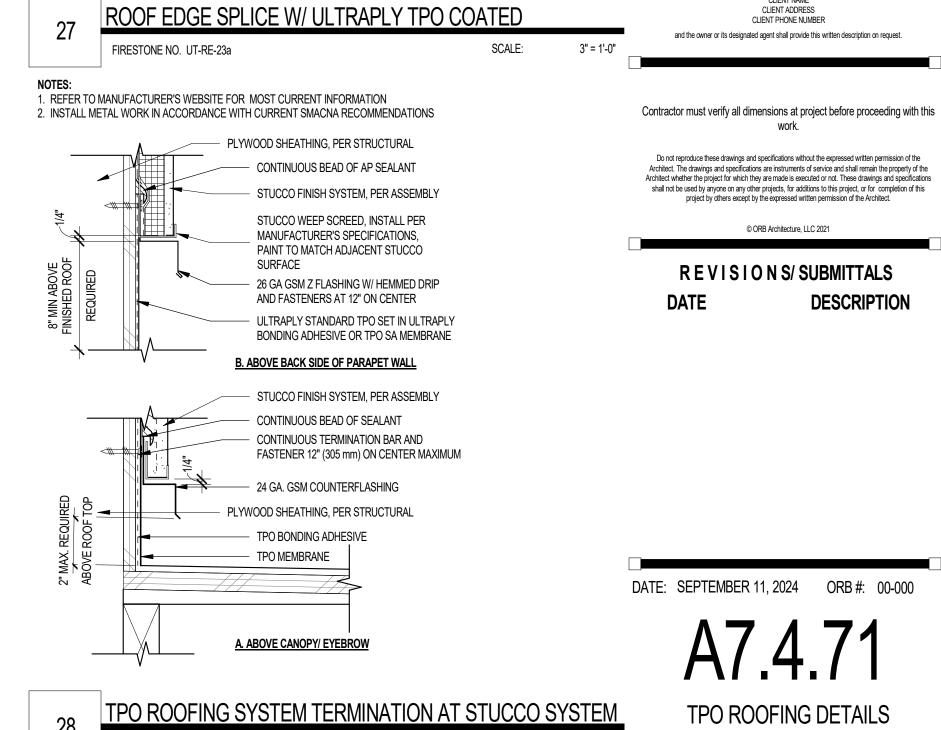
CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER

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TPO ROOFING DETAILS



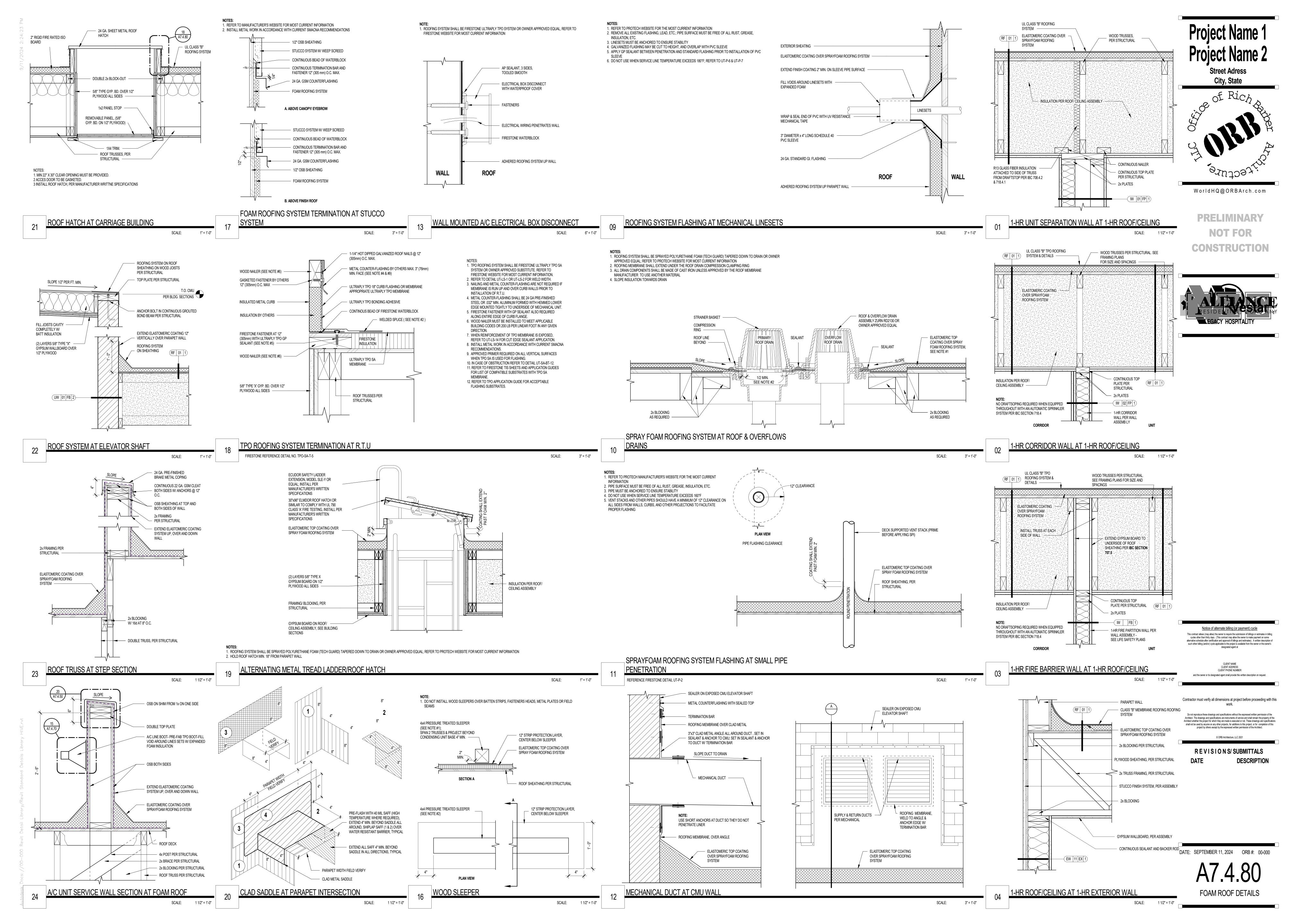
FIRESTONE NO. UT-T-7



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r-----FLASHING AT BUILDING STEP SEALER ON EXPOSED CMU CMU WALL, PER CONDITION AT END WALL STRUCTURAL W/
FLUSH JOINTS ON - 26 GA. PRE-FINISHED METAL COPING. METAL COUNTERFLASHING COLOR PER EXTERIOR ELEVATIONS WITH SEALED TOP -ROOF SIDE SLOPE 1/4"MIN. - 1/2" MAX./12" CONTINUOUS FLASH SAFF TERMINATION BAR — MEMBRANE CLOSURE EXTEND ELASTOMERIC COATING OVER DOWN BOTH SIDES SPRAYFOAM ROOFING SYSTEM EXTEND ELASTOMERIC COATING 12" - ROOF SHEATHING CONTINUOUS 22 GA. GSM CLEAT BOTH City, State VERTICALLY OVER SIDES, ANCHOR @ 12" O.C. PARAPET WALL T.O. CMU PER SECTIONS 3x PRESSURE TREATED PLATE AT CRICKETS PER STRUCTURAL EXPOSED CMU WALL ELASTOMERIC COATING PER EXTERIOR ELEVATIONS UNDER FLASH SAFF - CMU WALL PER STRUCTURAL SEALER ON EXPOSED CMU CMU WALL, PER STRUCTURAL W/
FLUSH JOINTS ON METAL COUNTERFLASHING WITH SEALED TOP ROOF SIDE ELASTOMERIC COATING OVER TERMINATION BAR -SPRAYFOAM ROOFING SYSTEM ELASTOMERIC COATING OVER ROOF SPRAYFOAM ROOFING SYSTEM EXTERIOR - ROOF SHEATHING EXTEND ELASTOMERIC COATING 12" VERTICALLY OVER PARAPET WALL AT CMU WALL **PRELIMINARY** FLASHING AT PARAPET - CMU SPRAY FOAM ROOFING AT CMU WALL **NOT FOR** SCALE: 3" = 1'-0" SCALE: 1 1/2" = 1'-0" STUCCO SYSTEM -**INSTALL CONTINUOUS 2x6** EXTEND ELASTOMERIC COATING 12" BLOCKING IF ONLY STRIP FLASHING AT BUILDING VERTICALLY OVER PARAPET WALL STEP CONDITION OSB IS INSTALLED AT BASE 26 GA. PRE-FINISHED OF WALL METAL COPING COLOR EXTEND WATER-RESISTIVE BARRIER SLOPE 1/4"MIN. - 1/2" MAX./12" ROOFING / WATERPROOFING MEMBRANE, OVER J-WEEP SCREED LEG PER EXTERIOR EXTERIOR SHEATHING ELEVATIONS -EXTEND A MINIMUM OF 6" PER STRUCTURAL 24 GA. GSM COUNTERFLASHING T.O. PARAPET ELASTOMERIC COATING OVER 1x3 CONTINUOUS WOOD PER ELEVATIONS SPRAYFOAM ROOFING SYSTEM NAILER, SET TOP 3/4" ABOVE WOOD FRAMING, TOP PLATE PER STRUCTURAL 40 MIL SAFF PREFLASH 3" MIN. 2x WOOD FRAMING, ON FACE OF NAILER & DOWN 4" PER STRUCTURAL MIN. OVER WATER RESISTANT ROOF SHEATHING - 22 GA. CONTINUOUS GSM BARRIER SHEATHING CLEAT, BOTH SIDES TYPICAL DETAIL AT CRICKETS 22 GA. CONTINUOUS GSM CLEAT, BOTH SIDES **INSTALL CONTINUOUS 2x6** BLOCKING IF ONLY STRIP STUCCO CASING BEAD -EXTERIOR SHEATHING PER OSB IS INSTALLED AT BASE STRUCTURAL EXTEND ELASTOMERIC COATING 12" OF WALL VERTICALLY OVER PARAPET WALL WATER RESISTIVE BARRIER BLOCKING AS REQUIRED EXTERIOR SHEATHING EXTEND WATER-RESISTIVE BARRIER PER STRUCTURAL ELASTOMERIC COATING OVER J-WEEP SCREED LEG — OVER SPRAYFOAM ROOFING 24 GA. GSM COUNTERFLASHING SYSTEM, EXTEND UP PLYWOOD SHEATHING, PER STRUCTURAL-SPRAYFOAM ROOFING SYSTEM WOOD FRAMING, PER STRUCTURAL **EXTERIOR** SLOPE ROOF SHEATHING STUCCO FINISH SYSTEM, PER ASSEMBLY-TYPICAL DETAIL ROOF DECK — FLASHING AT PARAPET - SŤUCCO SPRAY FOAM ROOFING @ WOOD FRAMING W/STUCCO SCALE: SCALE: 1 1/2" = 1'-0" STUCCO FINISH SYSTEM ON WOOD FRAME - FASTEN AT APPROX. 3" O.C. WITH EXTEND LAYER OF WATER-RESISTIVE CORRISION RESISTANT, BARBED, BARRIER OVER J-WEEP SCREED LEG ANNULAR RING, OR SCREW SHANK NAIL; LENGTH TO ACHIEVE APPROXIMATELY MIN 3" 24 GA. GSM COUNTERFLASHING -1-1/4" PENETRATION INTO NAILER FLANGE EXTEND ELASTOMERIC COATING BEHIND COUNTERFLASHING FASTEN AT APPROX. 6" O.C. WITH CORRISION ELASTOMERIC COATING OVER SPRAYFOAM RESISTANT, BARBED, ANNULAR RING, OR SCRW ROOFING SYSTEM, CONTINUE UP WALL EXTERIOR SHEATHING SHANK NAIL, LENGTH TO ACHIEVE ROOF SHEATHING PER STRUCTURAL APPROXIMATELY 1-1/4" PENETRATION INTO FOAM STOP WOOD FRAMING, PER STRUCTURAL - FASTEN NEAR LOWER BRAKE FOR INCREASED UPLIFT RESISTANCE AT CRICKETS - ROOFING SYSTEM TOP COAT - ROOF DECK, PER ASSEMBLY STUCCO FINISH SYSTEM ON WOOD FRAME EXTEND LAYER OF WATER-RESISTIVE BARRIER OVER J-WEEP SCREED LEG 24 GA. GSM COUNTERFLASHING -EXTEND ELASTOMERIC COATING BEHIND COUNTERFLASHING ELASTOMERIC COATING OVER SPRAYFOAM ROOFING SYSTEM CONTINUE UP WALL -EXTERIOR SHEATHING Notice of alternate billing (or payment) cycle ROOF SHEATHING PER STRUCTURAL 1. SEAL ALL SEAMS IN THE METAL EDGE PRIOR TO SLOPE FOAM APPLICATION; TERMINATE FOAM AT WOOD FRAMING, PER EXTERIOR EDGE BY MAKING A "V" CUT AND  $\rightarrow$ STRUCTURAL CAULKING WITH TRP 1 ULTRA SEAL 2. THE TRP 924 ETERNA SIL MUST BE BROUGHT UP AND OVER THE CAULKING, AND TERMINATE ON THE EXTERIOR FACE CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER FOAM ROOF EDGE ROOFING @ WOOD FRAMED PARAPET WALL and the owner or its designated agent shall provide this written description on request. SCALE: 3" = 1'-0" SCALE: 1 1/2" = 1'-0" - OVERFLOW STANDPIPE DRAIN, MIN. 2" ABOVE ZURN RD2130 COMBINATION ROOF OUTFLOW LINE AT MAIN DRAIN BODY DRAIN AND OVERFLOW OR OWNER CAST IRON TO ABS COUPLING "MISSION" FLEX-SEAL APPROVED EQUAL -ARC COUPLING MR16 OR OWNER APPROVED EQUAL, - INSTALL W/ 60 IN/LBS TORQUE PER MANUFACTURER DEPRESS ROOF © ORB Architecture, LLC 2021 SHEATHING 1/2" @ SUMP ----ROOFING SYSTEM ON **ROOF LINE** DENSDECK OR OWNER BEYOND -APPROVED EQUAL - ROOF STRUCTURE CLEVIS HANGER PER PLUMBING, TYPICAL @ 2x BLOCKING NAILED TO FACE OF TRUSSES 2x BLOCKING BETWEEN -EACH END, TYPICAL FRAMING MEMBERS - INSTALL 2x BLOCKING BELOW DRAIN LINE AND STRAP TO TIGHTLY SECURE PIPING AS SHOWN, SPAN BETWEEN TRUSS ROOF DRAIN LINE & COUPLING BLOCKING, TYPICAL CONTRACTOR SHALL INSURE THAT ROOF DRAINS ARE LOCATED AT LOWEST POINT ON ROOF, THAT ALL ADJACENT AREAS SLOPE INTO ROOF DRAIN AND THAT ROOF DRAINS ARE INSTALLED PER MANUFACTURER'S REQUIREMENTS; REFER TO ROOFING SYSTEM ROOF DRAIN W/ OVERFLOW ROOF DRAIN DETAIL, THIS SHEET, FOR ADDITIONAL INFORMATION ROOF AND OVERFLOW DRAIN PIPPING SUPPORT



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REVISIONS/SUBMITTALS **DESCRIPTION** 

**ROOF TILE & FASCIA AT EXTERIOR EAVE** 

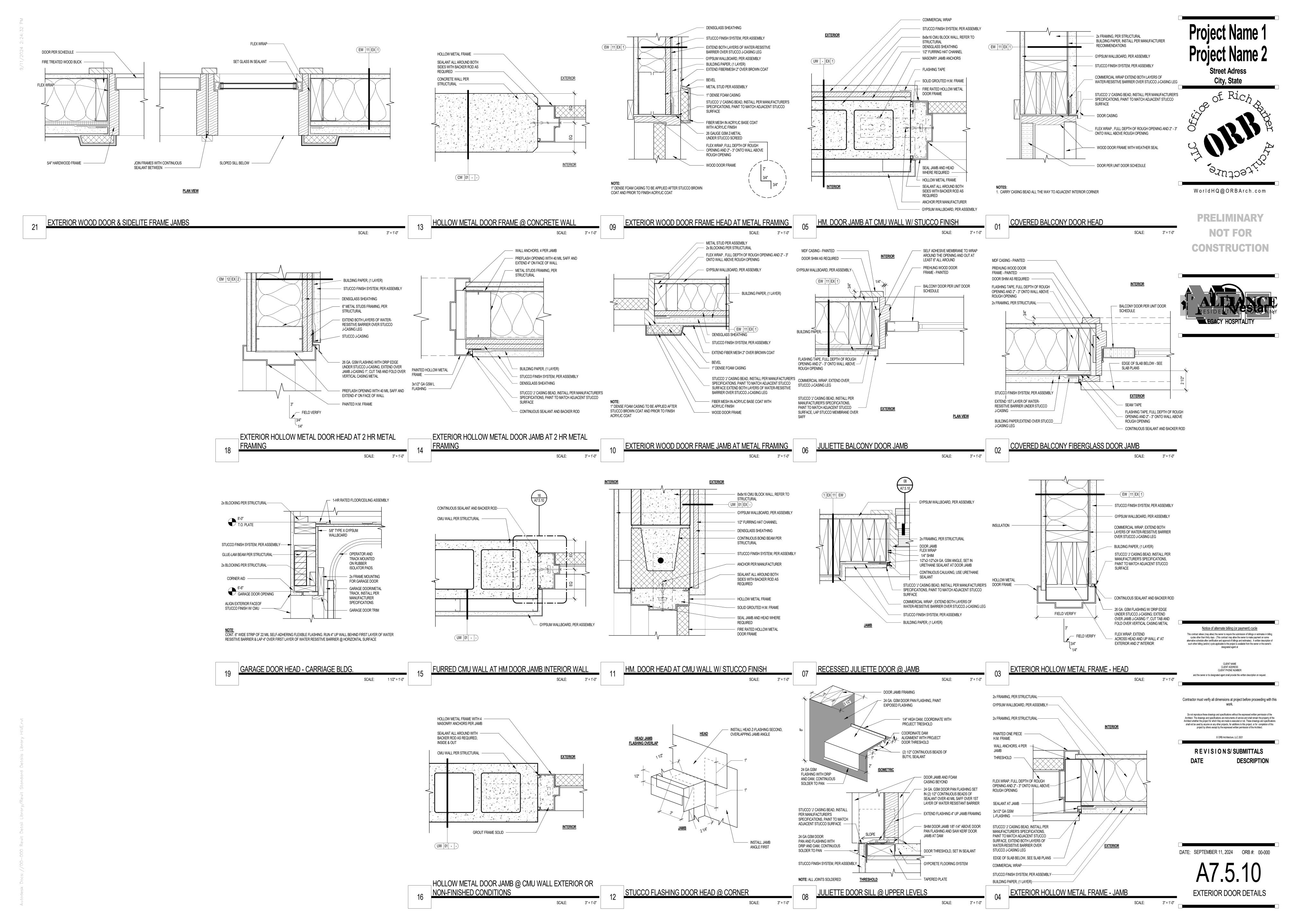
SCALE:

ROOF TILE VALLEY FLASHING



ROOF - CEILING DETAILS TILE & STANDING SEAM

SCALE: 3" = 1'-0"



SCALE: 3" = 1'-0"

SCALE: 3" = 1'-0"

Contractor must verify all dimensions at project before proceeding with this work.

and the owner or its designated agent shall provide this written description on request.

SCALE: 1 1/2" = 1'-0"

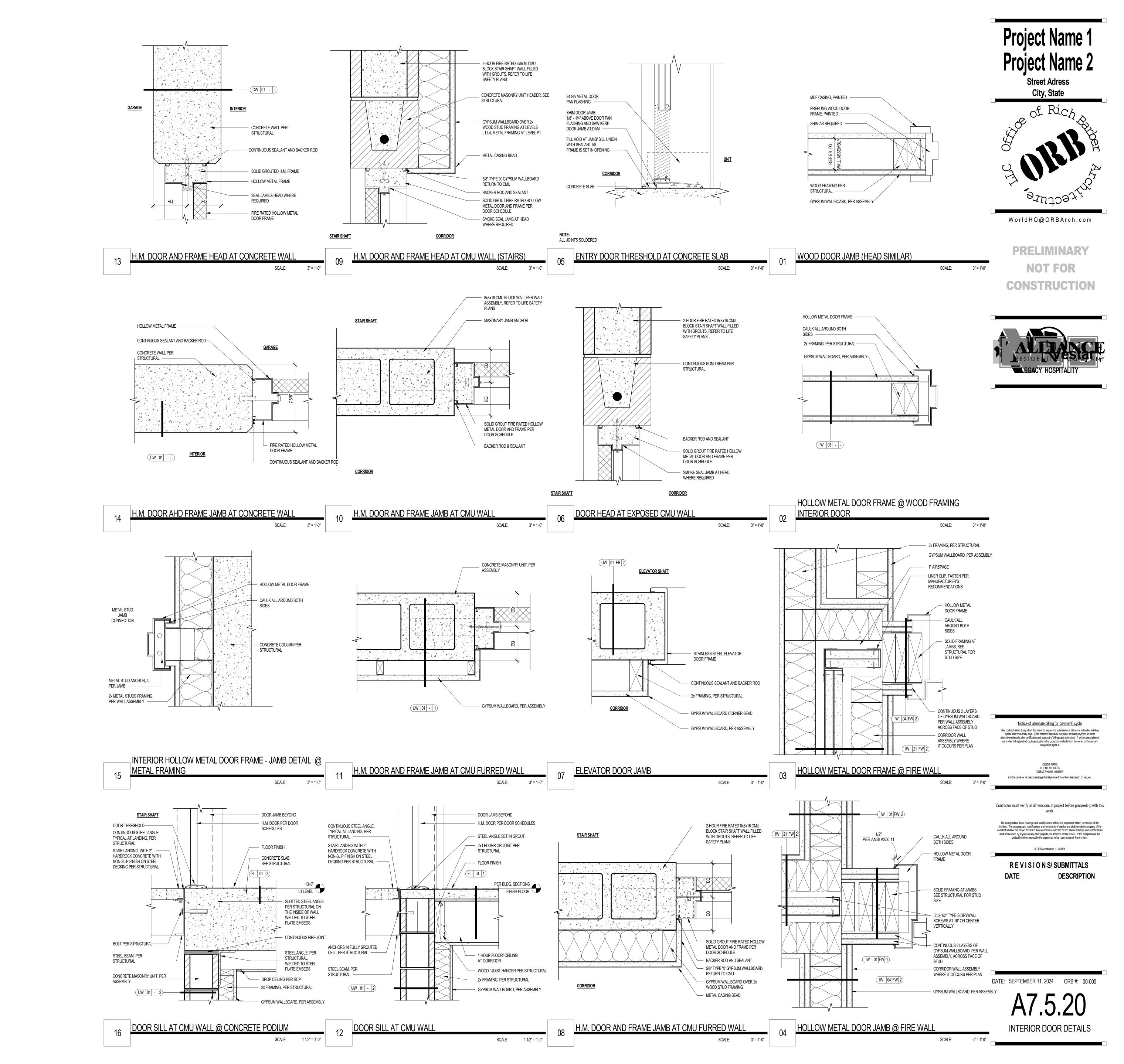
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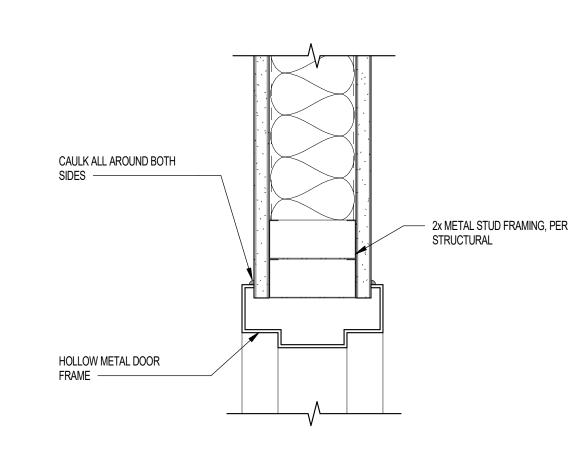
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A7.5.11 EXTERIOR DOORS & LOUVERS

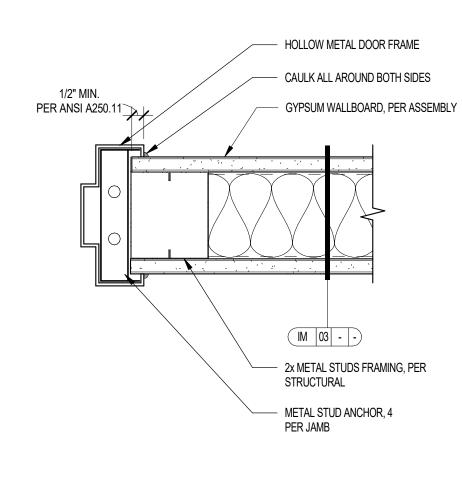




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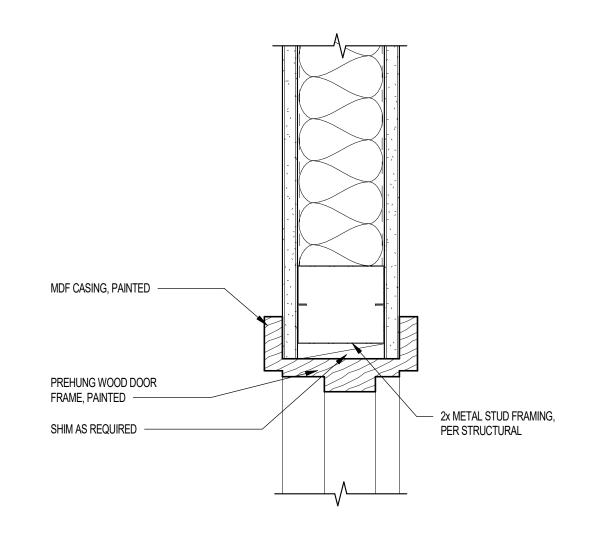
INTERIOR HOLLOW METAL DOOR FRAME - HEAD DETAIL @ METAL FRAMING SCALE: 3" = 1'-0"

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 $_{\neg}$  Interior Hollow Metal Door Frame - Jamb Detail @ SCALE: 3" = 1'-0"



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WOOD DOOR FRAME HEAD DETAIL @ METAL FRAMING SCALE:

CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER and the owner or its designated agent shall provide this written description on request.

Contractor must verify all dimensions at project before proceeding with this

STAIR SHAFT CLEAR FLOOR SPACE — - 1-1/2" WALL MOUNTED HANDRAIL W 22 FW 2 — (2) 2-1/2" TYPE "S" DRYWALL SCREWS AT 16" O.C. VERTICALLY CONTINUOUS (2) LAYERS OF 5/8" TYPE X
GYPSUM BOARD PER 2-HR FIRE WALL
ASSEMBLY ACROSS FACE OF STUD PER ENLARGED PLANS - CAULK ALL AROUND BOTH SIDES 2x6 WOOD JAMB FRAMING PER STRUCTURAL 1/2" PER NSI A250.11 HOLLOW METAL DOOR AND FRAME PER DOOR SCHEDULES CONTINUOUS (2) LAYERS OF 1" GYPSUM LINER PANELS PER WALL ASSEMBLY 2-HR WALL ASSEMBLY PER BUILDING PLANS HOLLOW METAL DOOR JAMB AT WOOD FRAMED STAIR

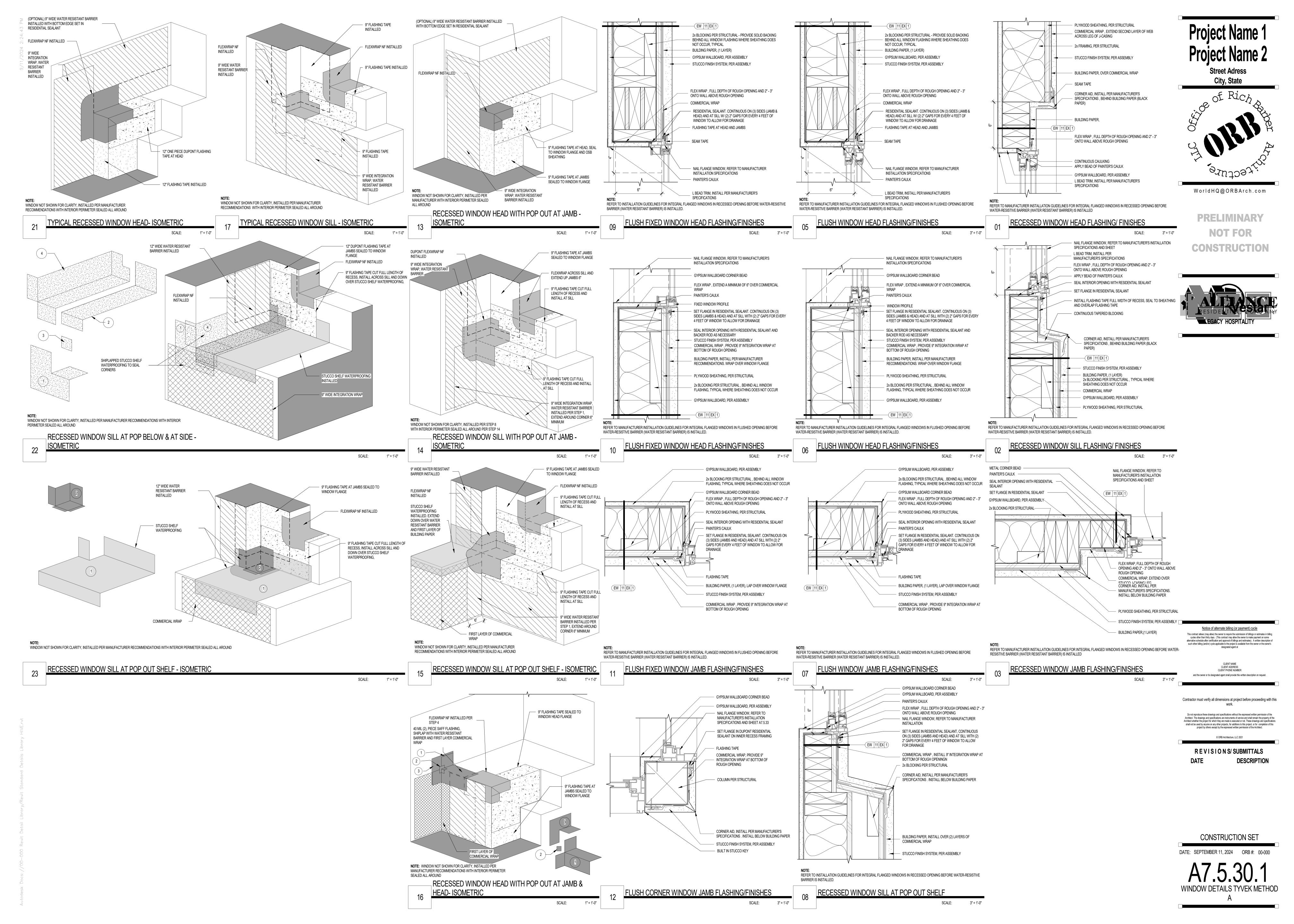
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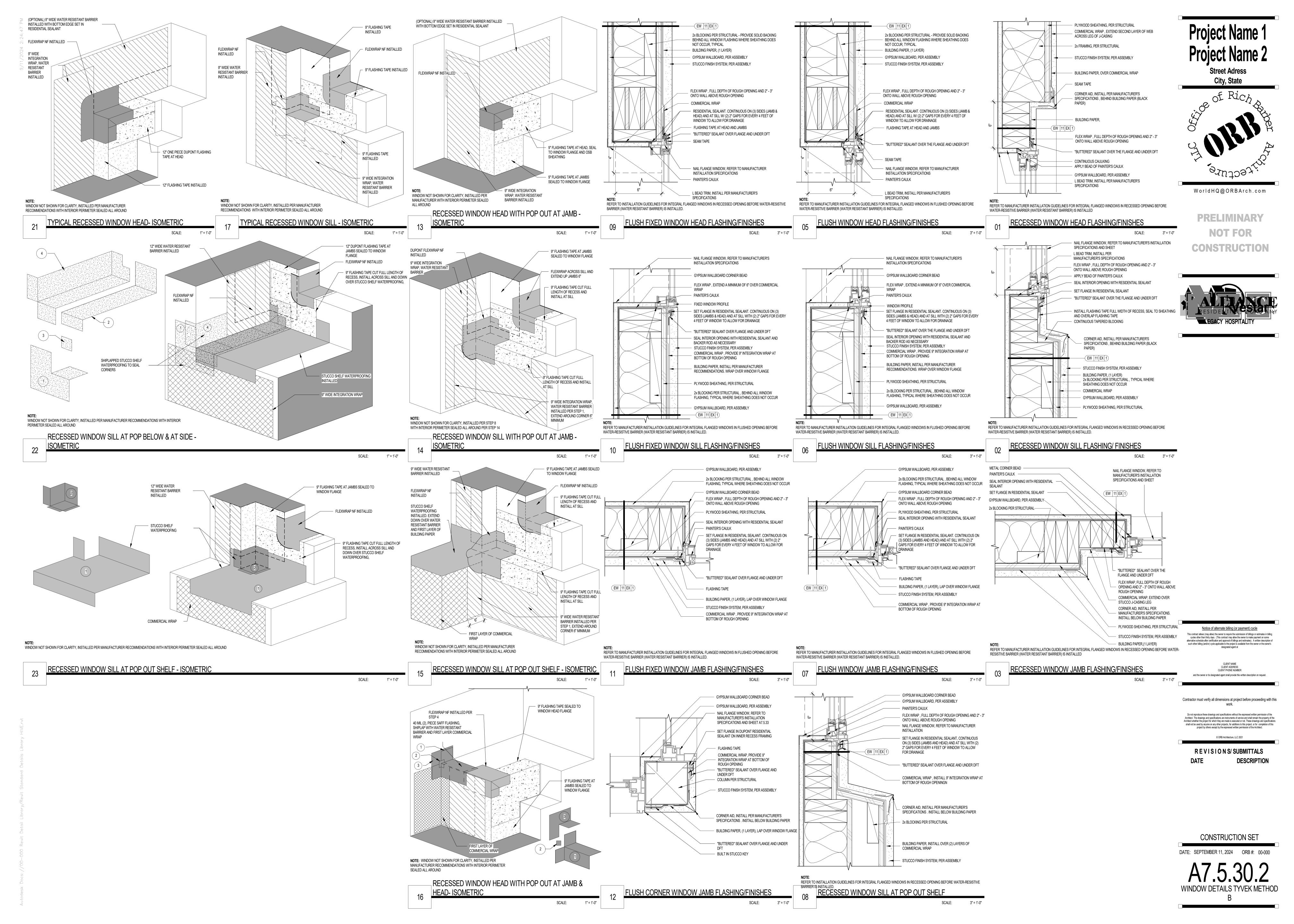
DESCRIPTION

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

SCALE: 3" = 1'-0"

INTERIOR DOOR DETAILS





All+odesy Docs //OD-DOD Bevit Detail Library/Revit Standard Details Library HIVE ryt

1/2024 2·24·52 PM

2x FRAMING, PER STRUCTURALSEE 2x FRAMING, PER STRUCTURALSEE HEADER SCHEDULE HEADER SCHEDULE PLYWOOD SHEATHING, PER STRUCTURAL PLYWOOD SHEATHING, PER STRUCTURAL COMMERCIAL WRAP, WRAP OVER SELF COMMERCIAL WRAP, WRAP OVER SELF ADHESIVE MEMBRANE ADHESIVE MEMBRANE City, State SEAM TAPE, 2" TO 3" AT CORNERS SEAM TAPE, 2" TO 3" AT CORNERS FLASHING TAPE, AND FLEX WRAP AT FLASHING TAPE, AND FLEX WRAP AT CORNERS CORNERS STUCCO 'J' CASING BEAD, INSTALL PER MANUFACTURER'S SPECIFICATIONS, STUCCO 'J' CASING BEAD, INSTALL PER MANUFACTURER'S SPECIFICATIONS, PAINT TO MATCH ADJACENT STUCCO PAINT TO MATCH ADJACENT STUCCO SURFACE CONTINUOUS SEALANT AND BACKER CONTINUOUS SEALANT AND BACKER — ROD, BOTH SIDES COLOR TO MATCH ROD, BOTH SIDES COLOR TO MATCH STOREFRONT SHIM STOREFRONT SHIM ANCHOR PER MANUFACTURER - ANCHOR PER MANUFACTURER WorldHQ@ORBArch.com STOREFRONT SYSTEM, DOOR JAMB / STOREFRONT SYSTEM, INSTALL PER - HEAD, INSTALL PER MANUFACTURER'S MANUFACTURER'S SPECIFICATIONS SPECIFICATIONS **PRELIMINARY** STOREFRONT HEAD - STUCCO FINISH STOREFRONT DOOR HEAD - STUCCO FINISH **NOT FOR** SCALE: SCALE: 3" = 1'-0" CONSTRUCTION GYPSUM WALLBOARD, PER ASSEMBLY GYPSUM WALLBOARD, PER ASSEMBLY 2x FRAMING, PER STRUCTURAL 2x FRAMING, PER STRUCTURAL - CONTINUOUS SEALANT AND BACKER ROD CONTINUOUS SEALANT AND BACKER ROD STOREFRONT SYSTEM, DOOR JAMB / STOREFRONT SYSTEM, INSTALL PER MANUFACTURER'S SPECIFICATIONS HEAD, INSTALL PER MANUFACTURER'S SPECIFICATIONS CONTINUOUS SEALANT AND BACKER CONTINUOUS SEALANT AND BACKER ROD, COLOR TO MATCH FRAME, CAULK ROD, COLOR TO MATCH FRAME, CAULK STOREFRONT PRIOR TO THE STOREFRONT PRIOR TO THE APPLICATION OF STUCCO FINISH APPLICATION OF STUCCO FINISH STUCCO 'J' CASING BEAD, INSTALL PER MANUFACTURER'S SPECIFICATIONS, STUCCO 'J' CASING BEAD, INSTALL PER MANUFACTURER'S SPECIFICATIONS, PAINT TO MATCH ADJACENT STUCCO PAINT TO MATCH ADJACENT STUCCO - FLASHING TAPE - FLASHING TAPE - SEAM TAPE COMMERCIAL WRAP, TO TERMINATE ON COMMERCIAL WRAP, TO TERMINATE ON ONE COAT STUCCO FINISH SYSTEM, PER ONE COAT STUCCO FINISH SYSTEM, PER ASSEMBLY ASSEMBLY PLYWOOD SHEATHING, PER STRUCTURAL PLYWOOD SHEATHING, PER STRUCTURAL STOREFRONT JAMB - STUCCO FINISH STOREFRONT DOOR JAMB - STUCCO FINISH SCALE: INTUMESCENT PAINT AS REQUIRED.
 COORDINATE WITH MANUFACTURER FOR REQUIRED THICKNESS AND REQUIRED FIRE HSS STRUCTURAL STEEL COLUMN, PER STRUCTURAL PROVIDE ATTACHMENT WITH HIGH-BOND DOUBLE SIDED TAPE - WRAP COLUMN TO MATCH ADJACENT MULLION FINISH CONTINUOUS SEALANT AND BACKER RODON BOTH SIDES OF STOREFRONT STOREFRONT SYSTEM, SILL/JAMB. INSTALL PER MANUFACTURER'S SPECIFICATIONS Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at CLIENT NAME CLIENT ADDRESS CLIENT PHONE NUMBER STOREFRONT CORNER AT STEEL COLUMN and the owner or its designated agent shall provide this written description on request.

ONE COAT STUCCO FINISH SYSTEM, PER

ASSEMBLY

ONE COAT STUCCO FINISH SYSTEM, PER

ASSEMBLY

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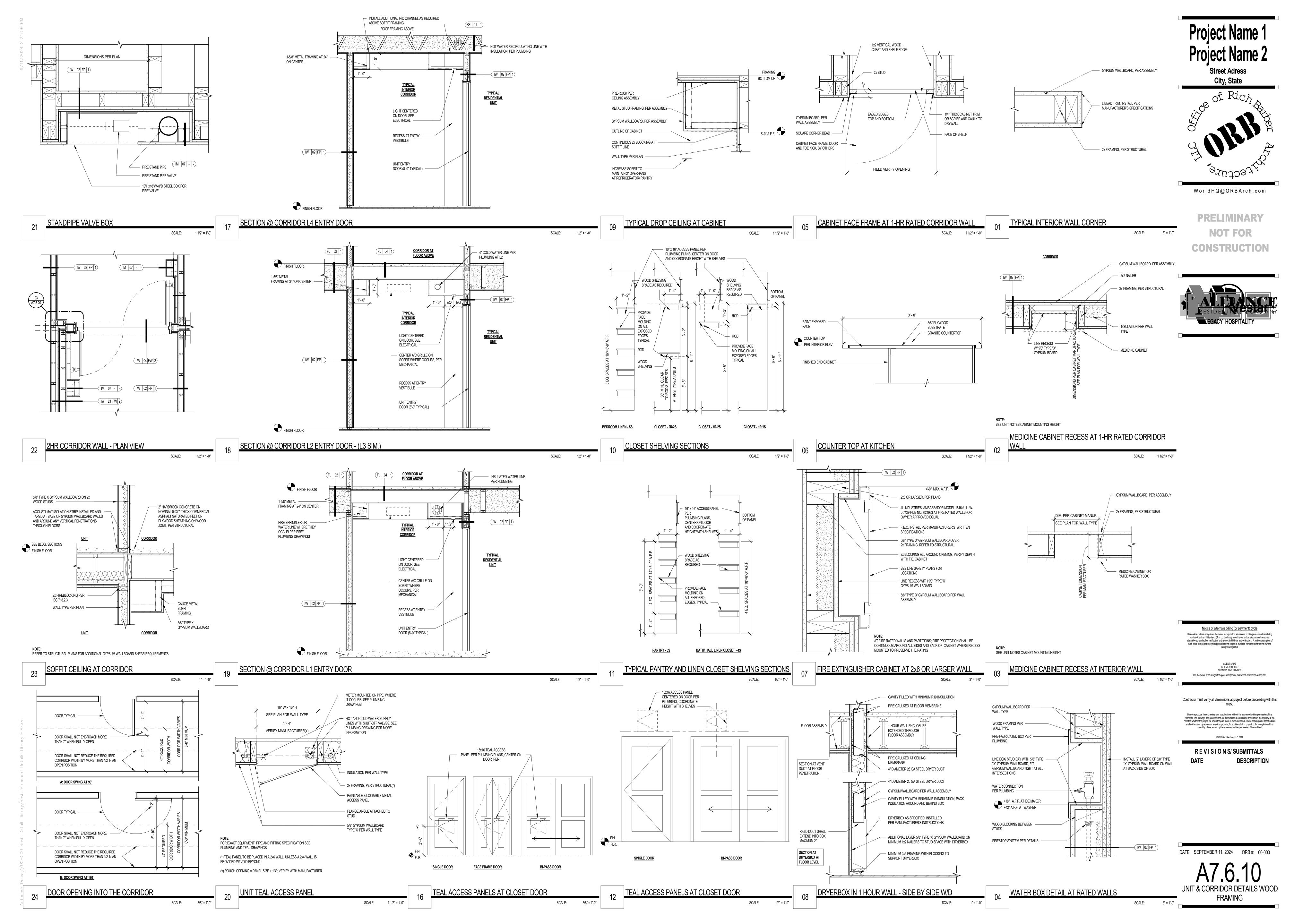
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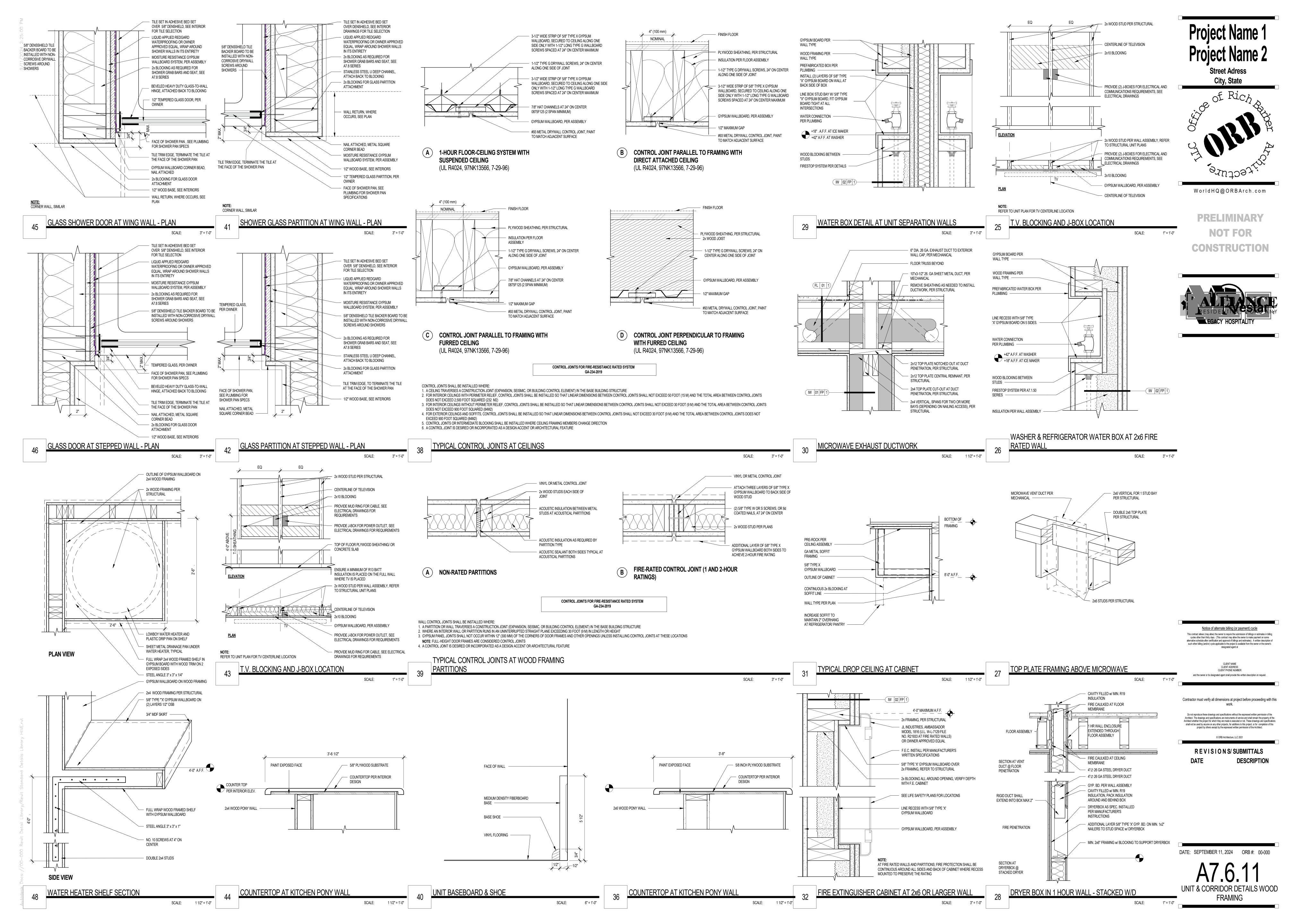
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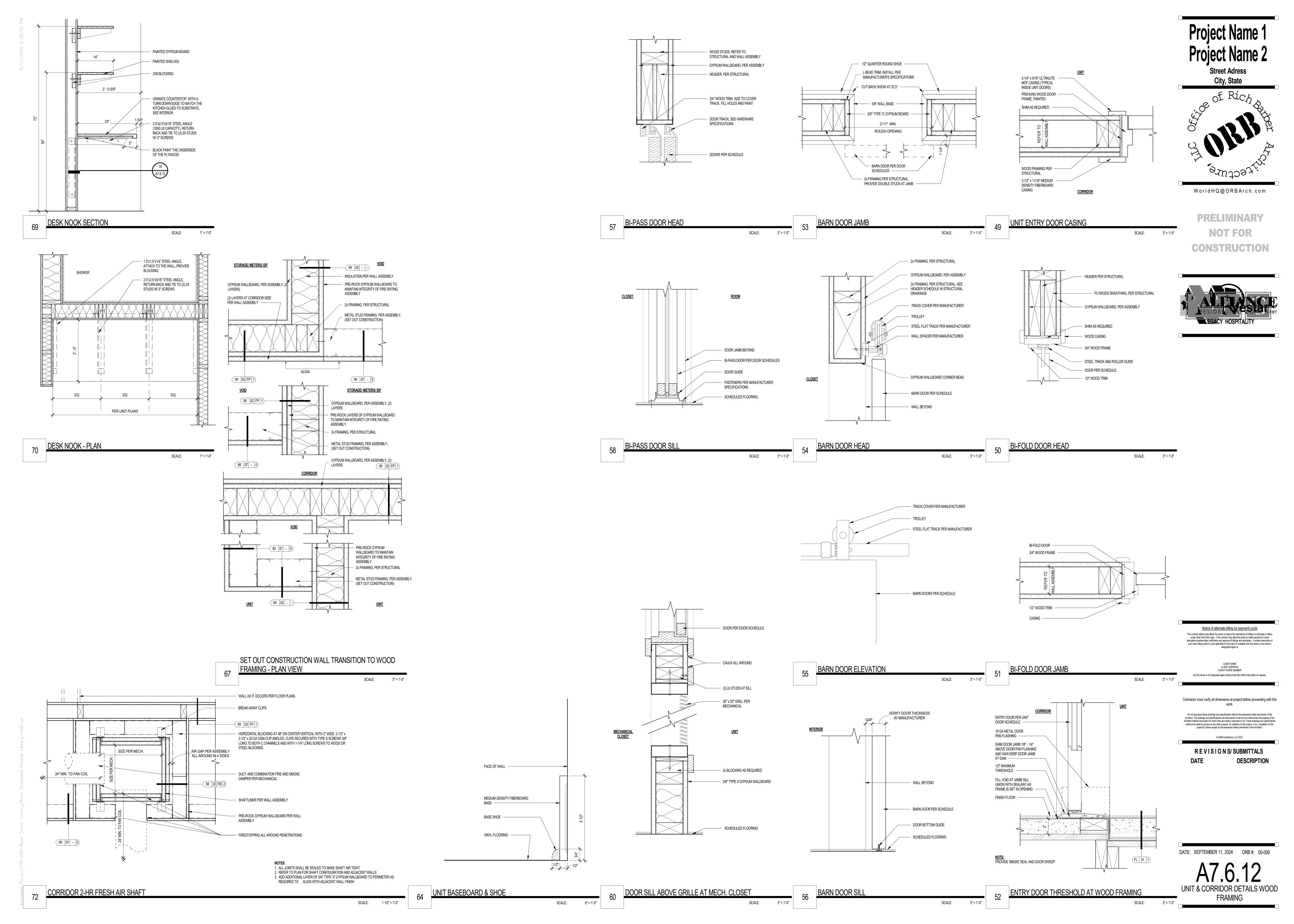
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A7.5.41



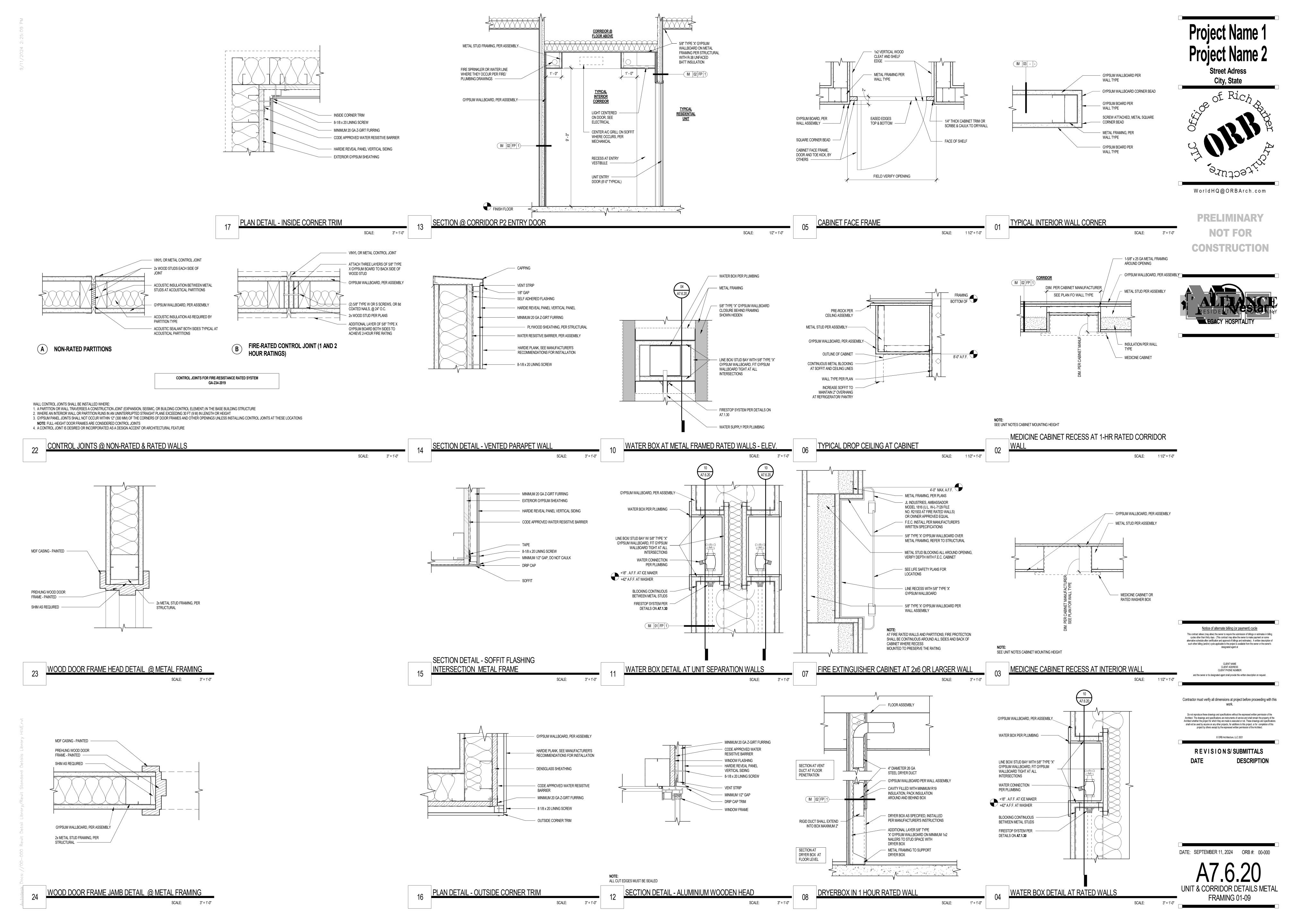


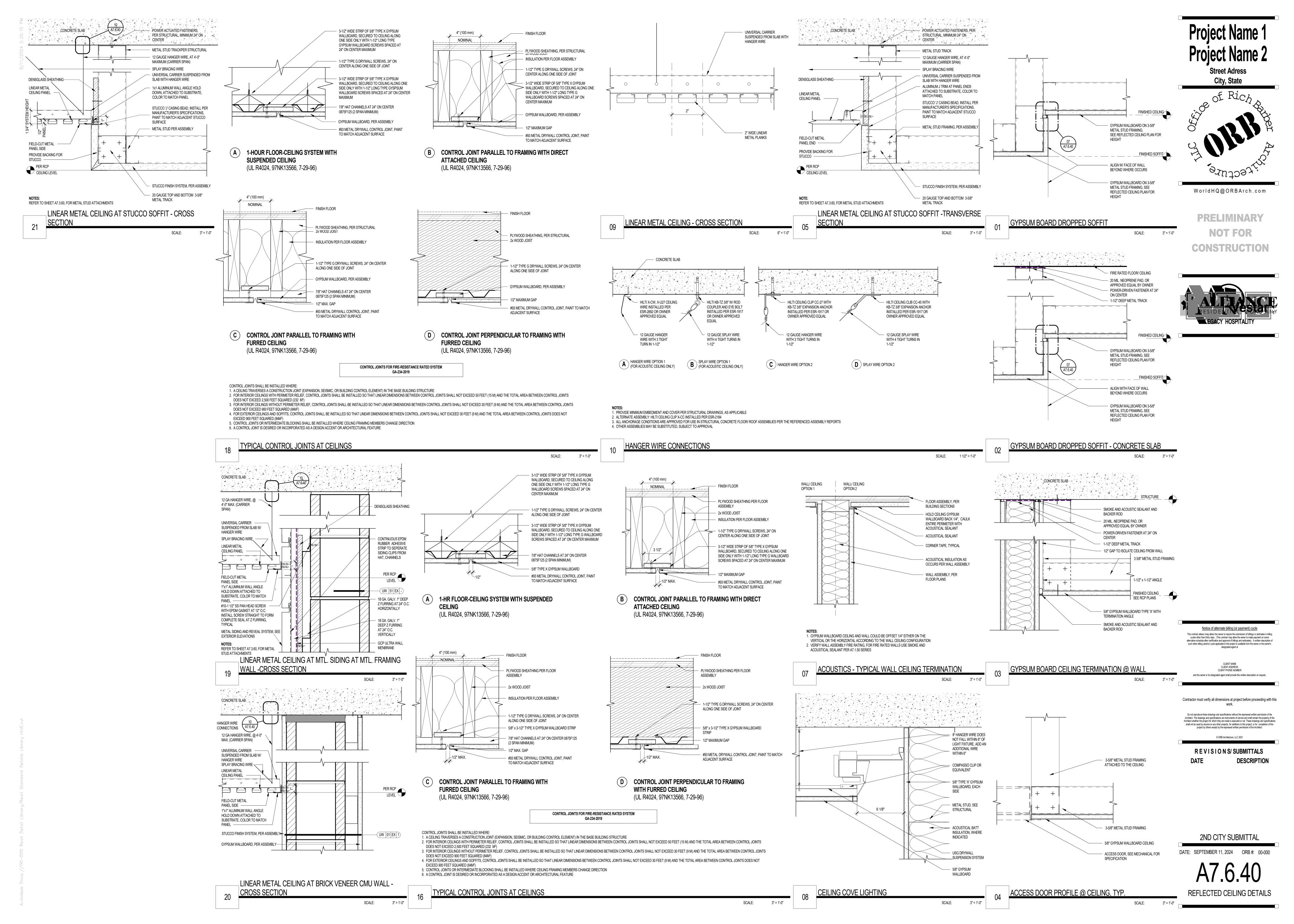


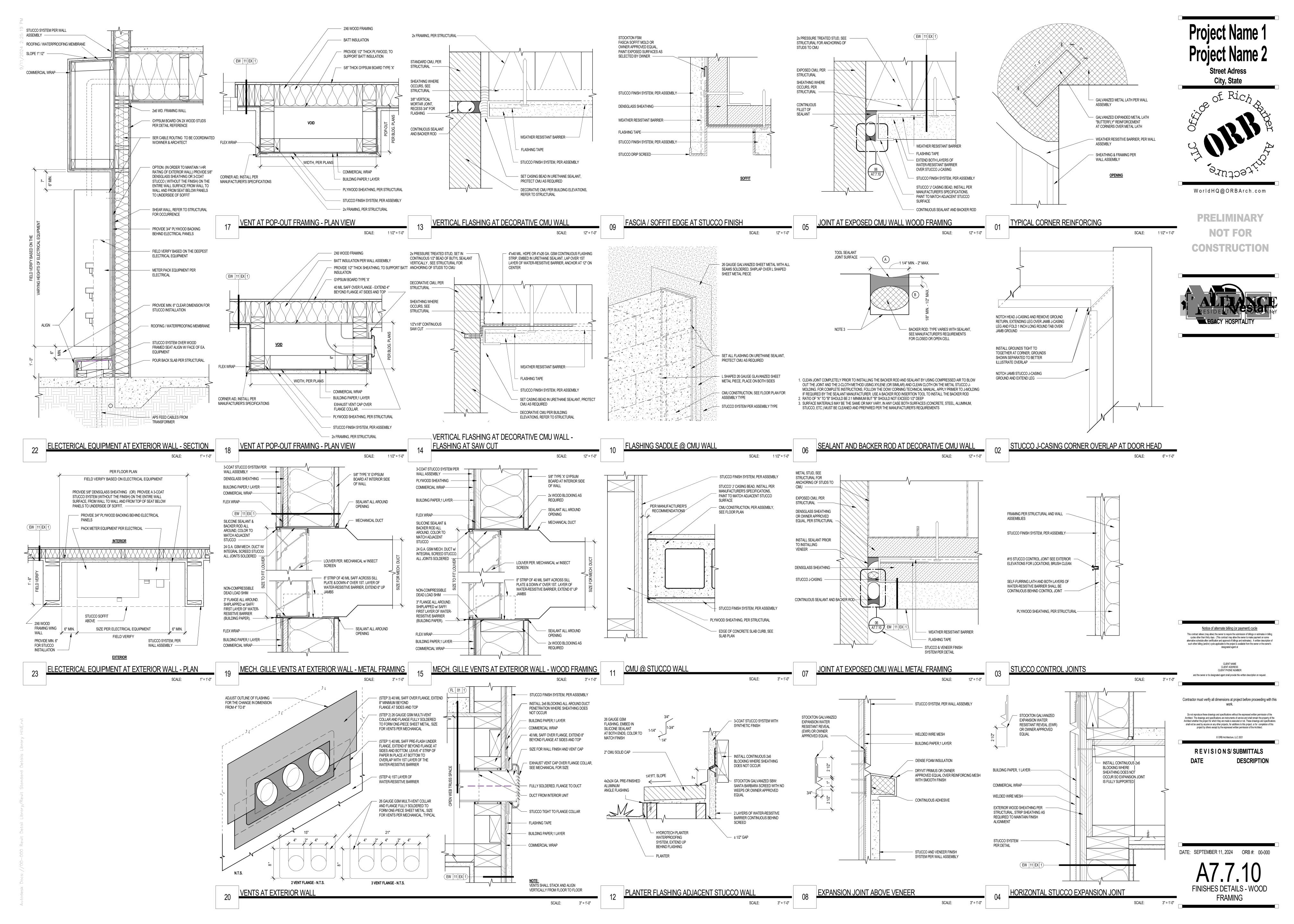


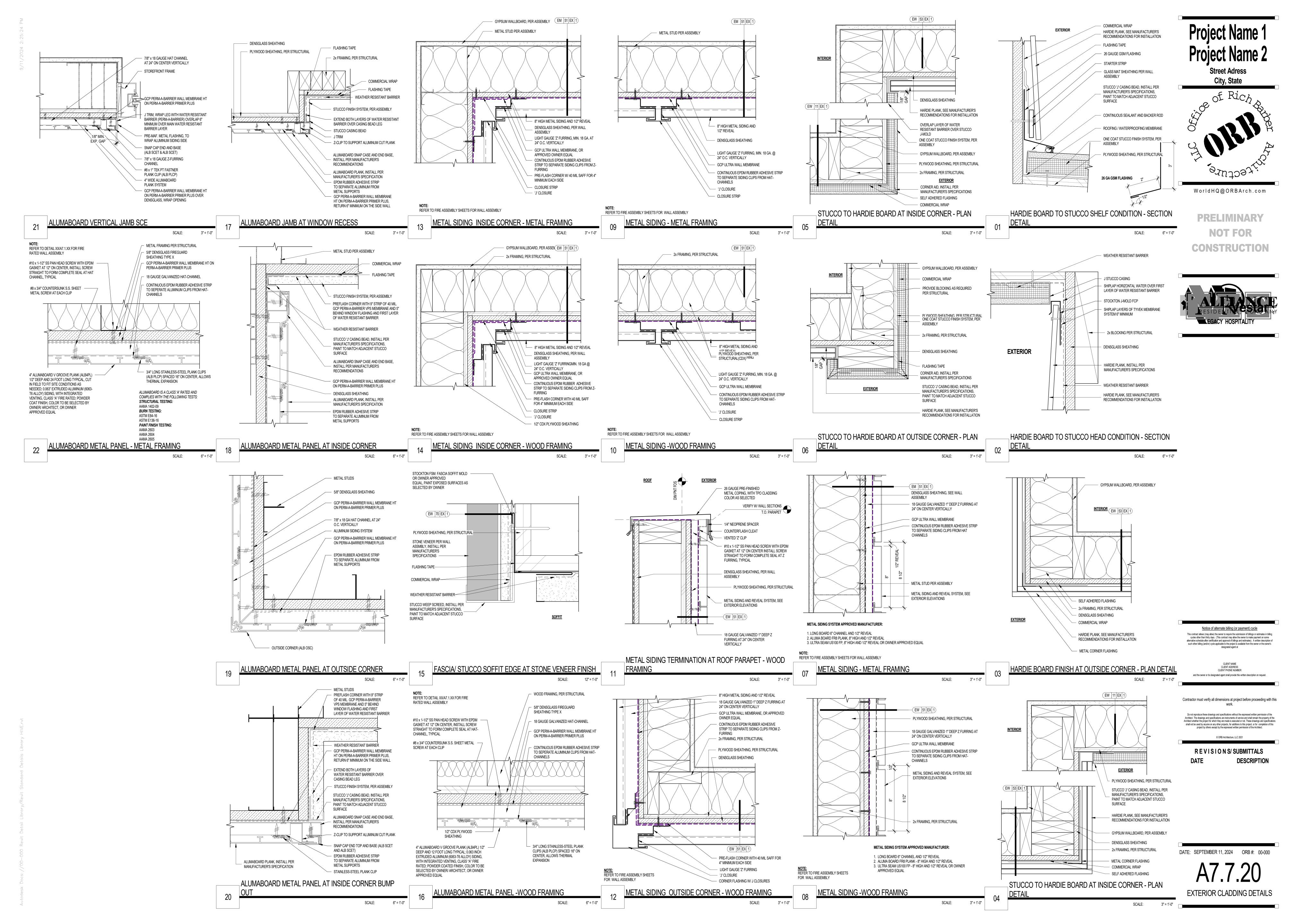


SCALE: 12" = 1'-0"









INSULATION PER WALL ASSEMBLY - 5/8" GYPSUM BOARD TYPE 'X' DENSGLASS SHEATHING PER STRUCTURAL CEMENT BOARD PER WALL ASSEMBLY NOMINAL 1"x4"x8" THIN BRICK VENEER — TOOLED MORTAR JOINTS ISOMETRIC BRICK VENEER @ CORNER EDGE ISOMETRIC SCALE: 3" = 1'-0" ISOMETRIC - INSULATION PER WALL ASSEMBLY - GYPSUM BOARD TYPE 'X' AT INTERIOR SIDE OF WALL - STEEL STUDS, PER WALL ASSEMBLY NOMINAL 1"x4"x8" THIN BRICK VENEER
CORNER PIECE ON ADHESIVE BOND
COAT/POLYMER MORTAR PER
MANUFACTURER SPECIFICATIONS - TOOLED MORTAR JOINTS DENSGLASS SHEATHING, PER WALL ASSEMBLY - BUILDING PAPER,1 LAYER COMMERCIAL WRAP THIN BRICK VENEER, INSTALL PER MANUFACTURER'S SPECIFICATIONS BRICK VENEER @ CORNER EDGE - PLAN VIEW SCALE: 3" = 1'-0" \_\_\_\_EW | 53 | EX | 1 ISOMETRIC - GYPSUM BOARD TYPE 'X' AT INTERIOR SIDE OF WALL TOOLED MORTAR JOINTS DENSGLASS SHEATHING, PER WALL ASSEMBLY - BUILDING PAPER, 1 LAYER - COMMERCIAL WRAP

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- INSULATION PER WALL ASSEMBLY STEEL STUDS, PER WALL ASSEMBLY - NOMINAL 1"x4"x8" THIN BRICK VENEER CORNER PIECE ON ADHESIVE BOND COAT/POLYMER MORTAR PER MANUFACTURER SPECIFICATIONS — THIN BRICK VENEER, INSTALL PER MANUFACTURER'S SPECIFICATIONS

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BRICK VENEER VERTICAL CONTROL JOINT AT WOOD

SCALE:

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**DESCRIPTION** 

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EXTERIOR BRICK VENEER DETAILS

CLEARANCES

(ICC A117.1-2009 - SECTION 404.2.3) (ICC A117.1-2009 - FIGURE 404.2.3.2) (2010 ADA - SECTION 404.2.4) (2010 ADA - FIGURE 404.2.4.1)

SCALE:

(ICC A117.1-2009 - SECTION 404.2.3) (ICC A117.1-2009 - FIGURES 404.2.3.3 - 404.2.3.5) (2010 ADA - SECTION 404.2.4) (2010 ADA - FIGURES 404.2.4.2 & 404.2.4.3)

SCALE: 12" = 1'-0"

ANSI A - REINFORCEMENT AND GRAB BAR FOR BATHTUBS

SCALE: 1/2" = 1'-0"

SCALE: 1/2" = 1'-0"

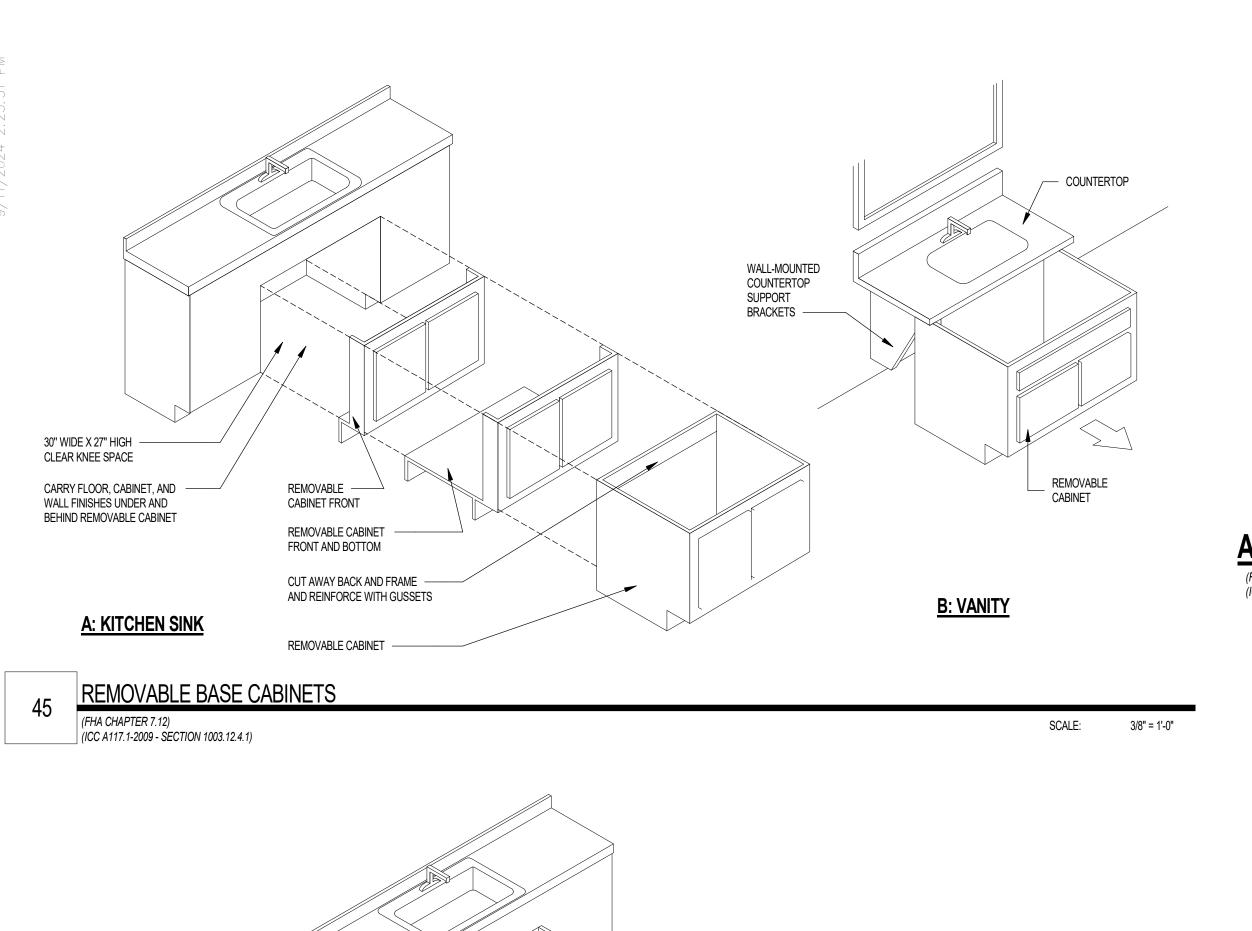
SHOWER HEAD

TYPE SHOWERS

SCALE: 1/2" = 1'-0"

TRANSFER-TYPE SHOWERS

**Project Name 1** 



DOORS RETRACT INSIDE,

PROVIDE 30" MIN CLEARANCE WHEN DOORS RETRACTED

DOORS SWING OPEN

REMOVABLE BASE CABINETS OPTION 2

(ICC A117.1-2009 - SECTION 1003.12.4.1)

MIRROR REFLECTIVE SURFACE

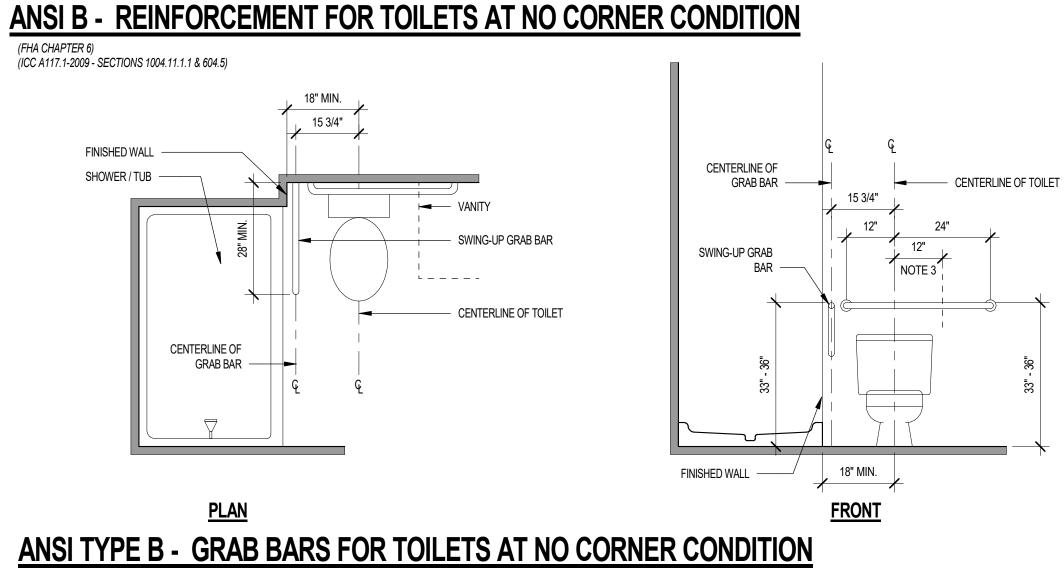
INSULATED PIPE COVER -

MANUAL REVISED APRIL 1998

(FHA - CHAPTER 7.15)

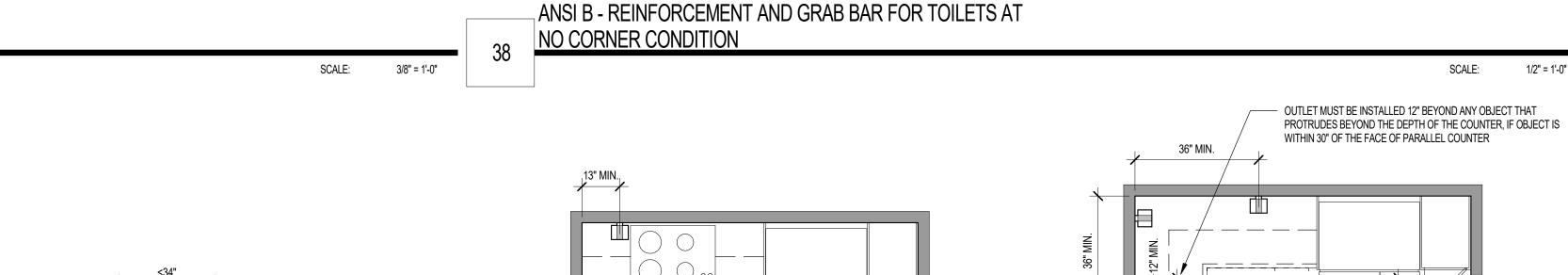
(ICC A117.1-2009 - SÉCTION 306.2)

KNEE SPACE AT ACCESSIBLE SINK WITH GARBAGE



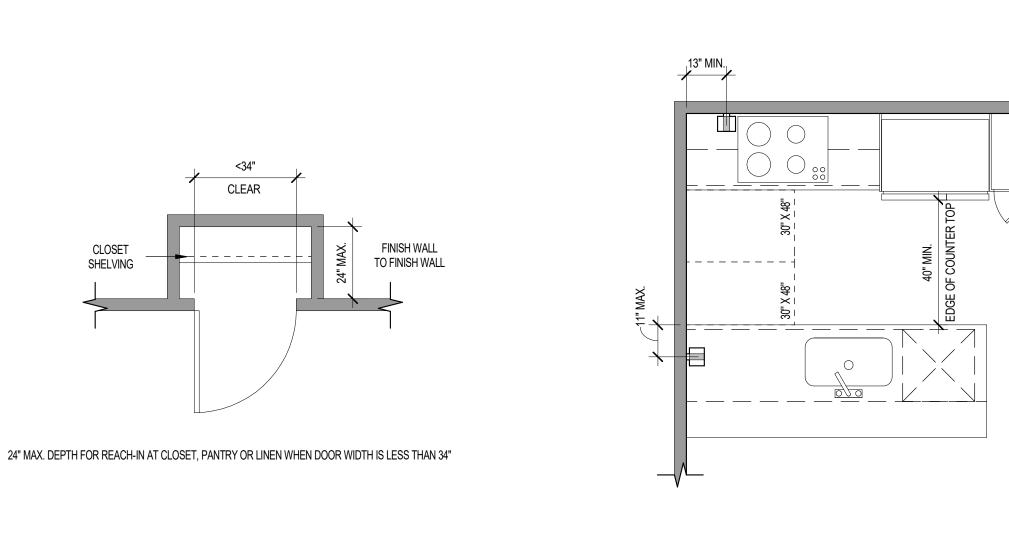
- CENTERLINE OF TOILET

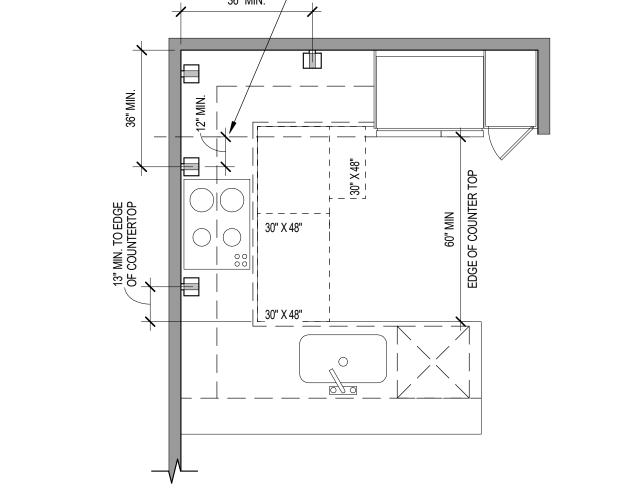
(ICC A117.1-2009 - SECTIONS 1004.11.1.1 & 604.5) 1. PER SECTIONS 1004.11.1.1 REINFORCEMENT SHALL BE PROVIDED FOR THE FUTURE INSTALLATION OF GRAB BARS COMPLYING WITH SECTION 604.5 AT WATER CLOSETS. 3. AT WATER CLOSETS WHERE WALL SPACE WILL NOT PERMIT A GRAB BAR COMPLYING WITH SECTION 604.5.2, REINFORCEMENT FOR A REAR WALL GRAB BAR 24 INCHES MINIMUM IN LENGTH CENTERED ON THE WATER CLOSET SHALL BE PROVIDED PER SECTION 1004.11.1 EXCEPTION 3. 4. GRAB BARS SHALL BE INSTALLED MEASURING FROM FINISH FLOOR TO THE TOP OF THE GRIPPING SURFACE. TYPICAL, UNLESS SPECIFIED OTHERWISE. 5. AT WATER CLOSETS WHERE A SIDE WALL IS NOT AVAILABLE FOR A 42-INCH GRAB BAR COMPLYING WITH SECTION 604.5.1 REINFORCEMENT FOR TWO SWING-UP GRAB BARS COMPLYING WITH SECTION 1004.11.1.1 SHALL BE PERMITTED TO BE INSTALLED IN LIEU OF REINFORCEMENT FOR REAR WALL AND SIDE WALL GRAB BARS. SOLID BLOCKING, SEE DETAIL 03/A7.8.10



FINISHED WALL -

SHOWER / TUB -





CENTERLINE OF TOILET

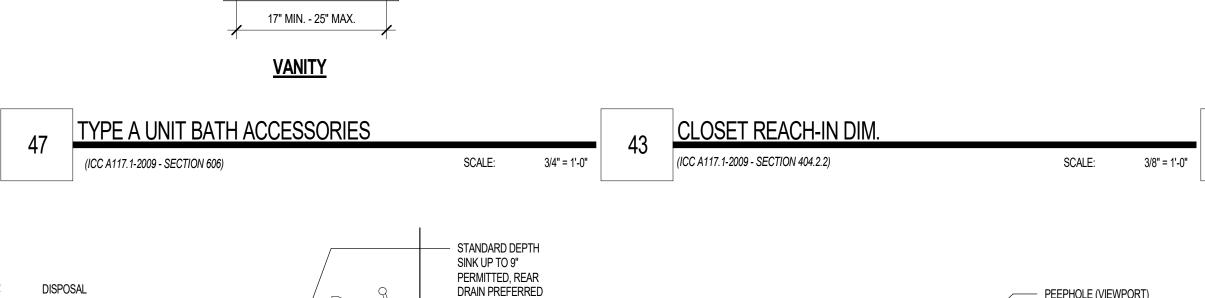
14" MIN.

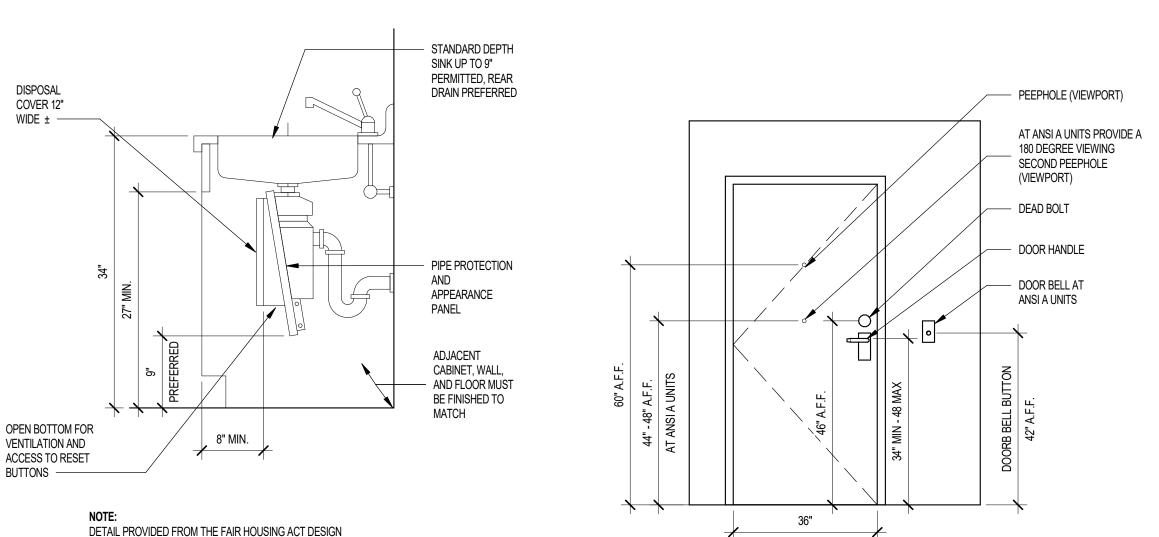
NOTE 3

18" MIN.

**FRONT** 

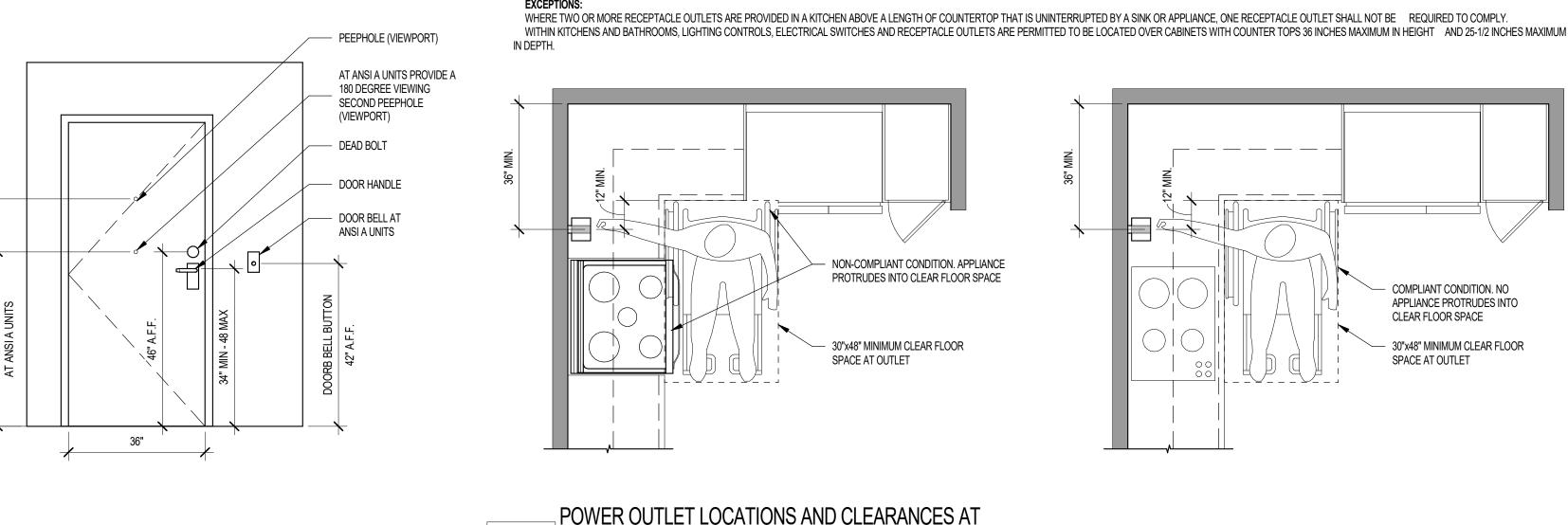
FINISHED WALL -





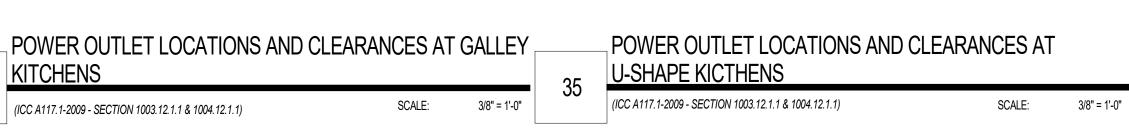
ENTRY DOOR COMPONENTS

(ICC A117.1-2009 - SECTION 404.2.2, 404.2.6)

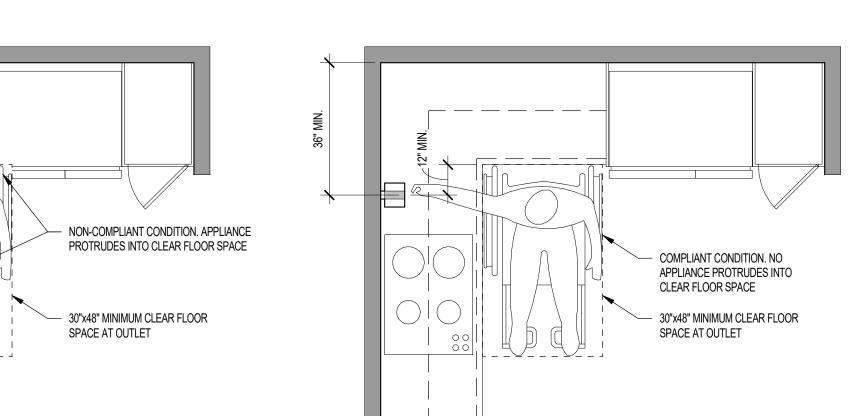


NOTES: (ICC/ANSI-2009)

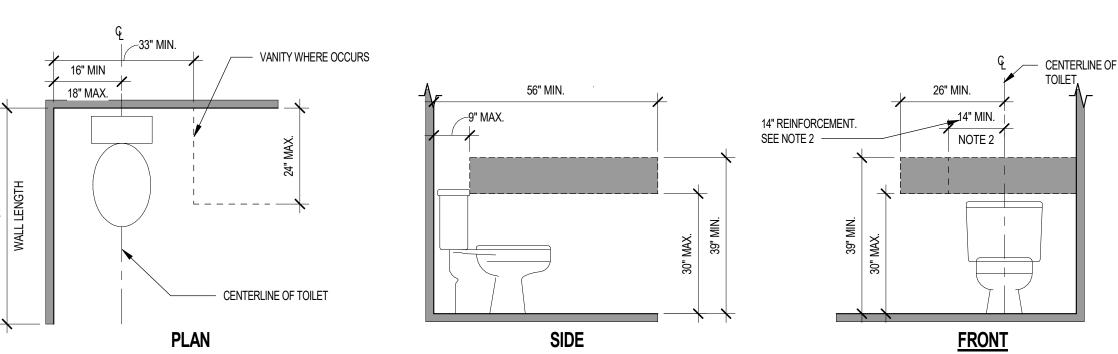
CLEAR FLOOR SPACE FOR A PARALLEL APPROACH.



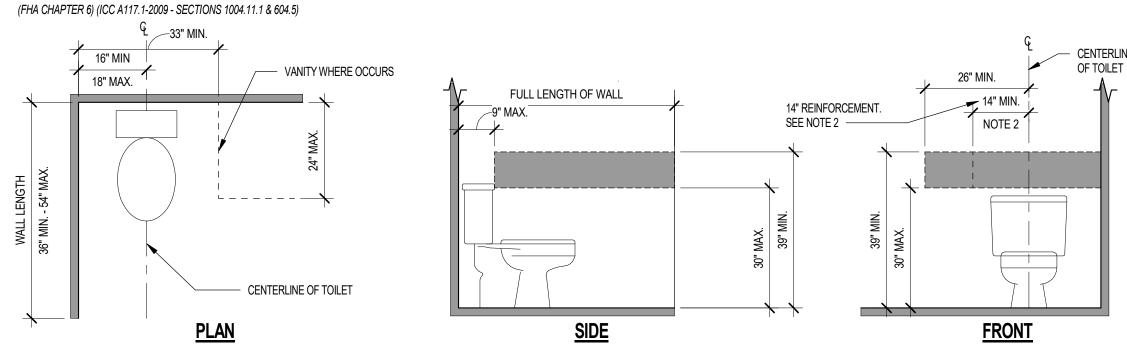
1004.9 OPERABLE PARTS, LIGHTING CONTROLS, ELECTRICAL SWITCHES AND RECEPTACLE OUTLETS, ENVIRONMENTAL CONTROLS, ELECTRICAL PANELBOARDS, AND USER CONTROLS FOR SECURITY OR INTERCOM SYSTEMS SHALL PROVIDED A 30"x48"



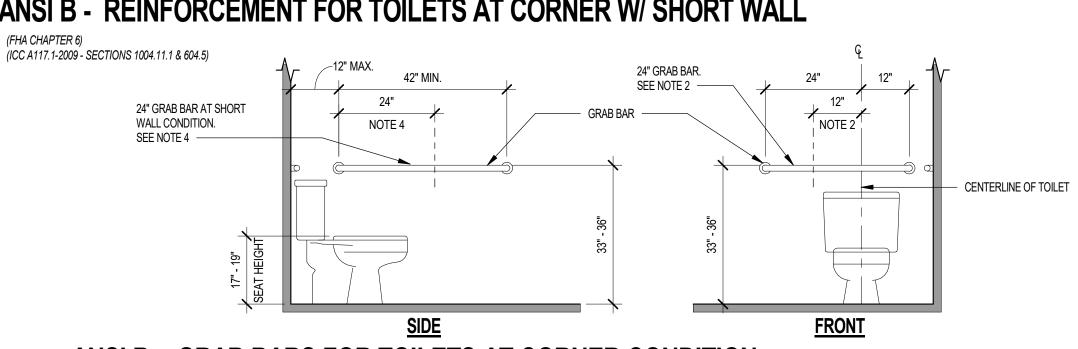








### ANSI B - REINFORCEMENT FOR TOILETS AT CORNER W/ SHORT WALL



ANSI B - GRAB BARS FOR TOILETS AT CORNER CONDITION

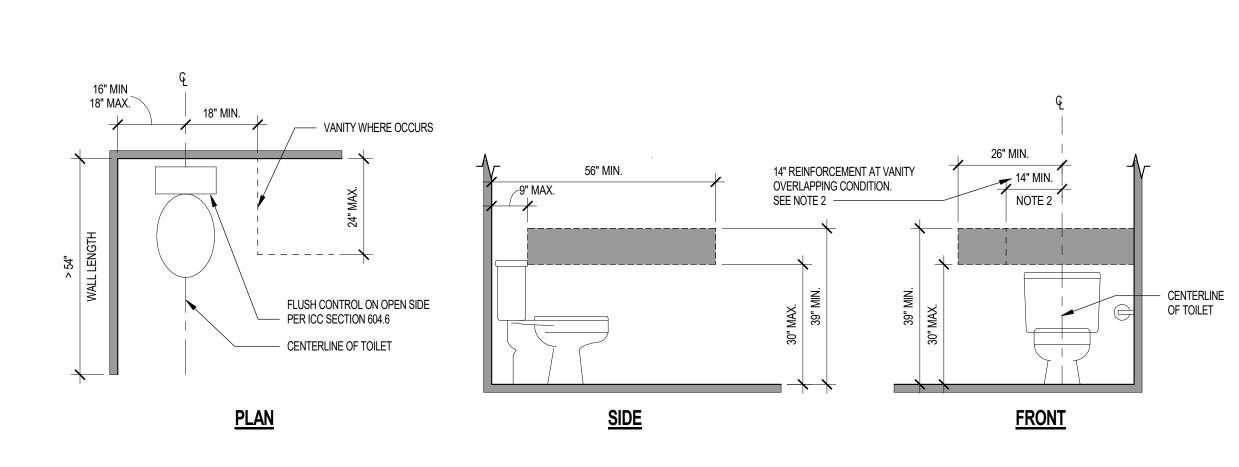
NOTES: (ICC/ANSI A117.1-2009) . PER SECTIONS 1004.11.1 REINFORCEMENT SHALL BE PROVIDED FOR THE FUTURE INSTALLATION OF GRAB BARS COMPLYING WITH SECTION 604.5 AT WATER CLOSETS. 2. AT WATER CLOSETS WHERE WALL SPACE WILL NOT PERMIT A GRAB BAR COMPLYING WITH SECTION 604.5.2, REINFORCEMENT FOR A REAR WALL GRAB BAR 24 INCHES MINIMUM IN LENGTH CENTERED ON THE WATER CLOSET SHALL BE PROVIDED PER SECTION 1004.11.1 EXCEPTION 3.

3. GRAB BARS SHALL BE INSTALLED MEASURING FROM FINISH FLOOR TO THE TOP OF THE GRIPPING SURFACE. TYPICAL, UNLESS SPECIFIED OTHERWISE. 4. AT WATER CLOSETS WHERE A SIDE WALL IS NOT AVAILABLE FOR 42-INCH GRAB BAR COMPLYING WITH SECTION 604.5.1, REINFORCEMENT FOR A SIDEWALL GRAB BAR, 24 INCHES MINIMUM IN LENGTH, LOCATED 12 INCHES MAXIMUM FROM THE REAR WALL, SHALL BE PROVIDED PER SECTION 1004.11.1 EXCEPTION 4.

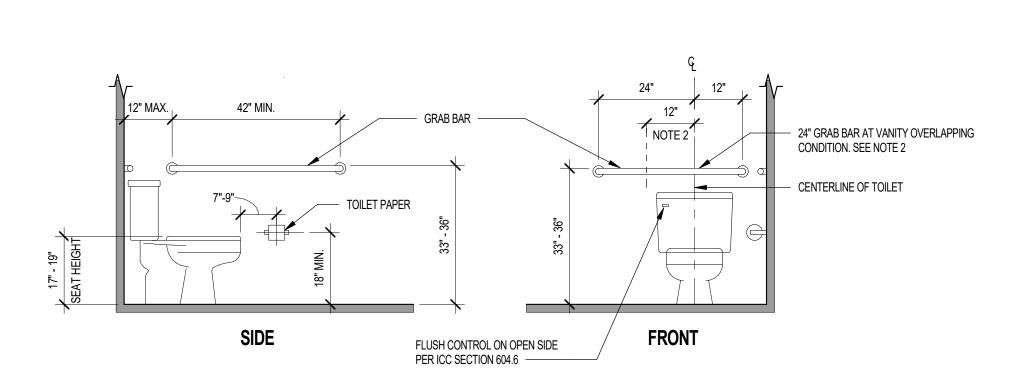
## ANSI B - REINFORCEMENT AND GRAB BAR FOR TOILETS AT

OLID BLOCKING, SEE DETAIL 03/A7.8.10

CORNER CONDITION



### ANSI TYPE A - REINFORCEMENT FOR TOILETS (FHA CHAPTER 6) (ICC A117.1-2009 - SECTIONS 1003.11.1 & 604.5)



ANSI TYPE A - GRAB BARS FOR TOILETS

NOTES: (ICC/ANSI A117.1-2009) 1. PER SECTIONS 1003.11.1 REINFORCEMENT SHALL BE PROVIDED FOR THE FUTURE INSTALLATION OF GRAB BARS COMPLYING WITH SECTION 604.5 AT WATER CLOSETS. 2. WHERE THE LAVATORY OVERLAPS THE WATER CLOSEST CLEARANCE IN ACCORDANCE WITH THE EXCEPTION TO SECTION 1003.11.2.4.4 REINFORCEMENT AT THE WATER CLOSET REAR WALL FOR A 24-INCH MINIMUM LENGTH GRAB BAR, CENTERED ON THE WATER CLOSET, SHALL BE PROVIDED PER SECTION 1003.11.1 EXCEPTION 4. 3. GRAB BARS SHALL BE INSTALLED MEASURING FROM FINISH FLOOR TO THE TOP OF THE GRIPPING SURFACE. TYPICAL, UNLESS SPECIFIED OTHERWISE.

DATE: SEPTEMBER 11, 2024 ORB #: 00-000

ANSI A - REINFORCEMENT AND GRAB BAR FOR TOILETS

LID BLOCKING, SEE DETAIL 03/A7.8.10

(ICC A117.1-2009 - SECTIONS 1003.11.1 & 604.5)

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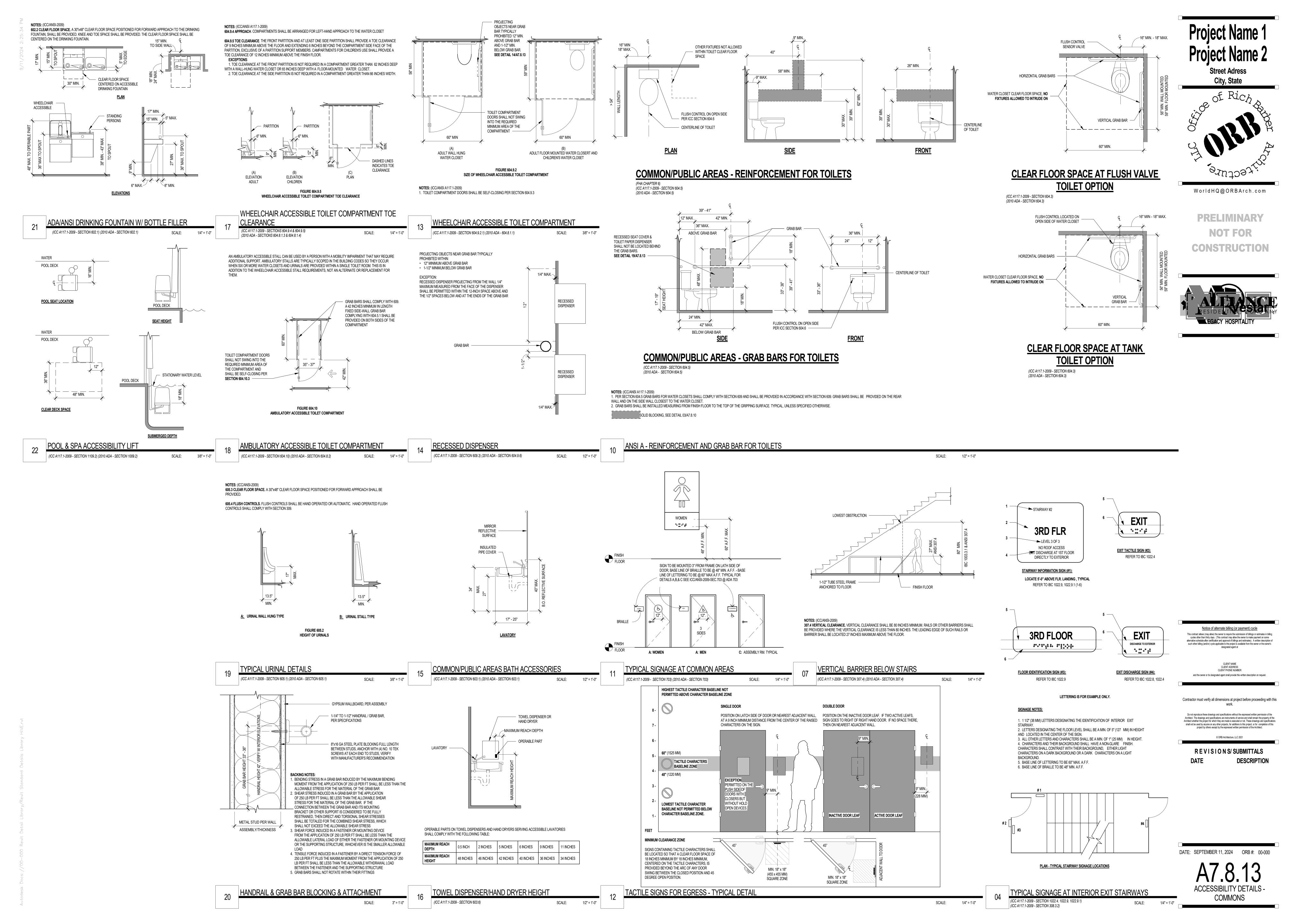
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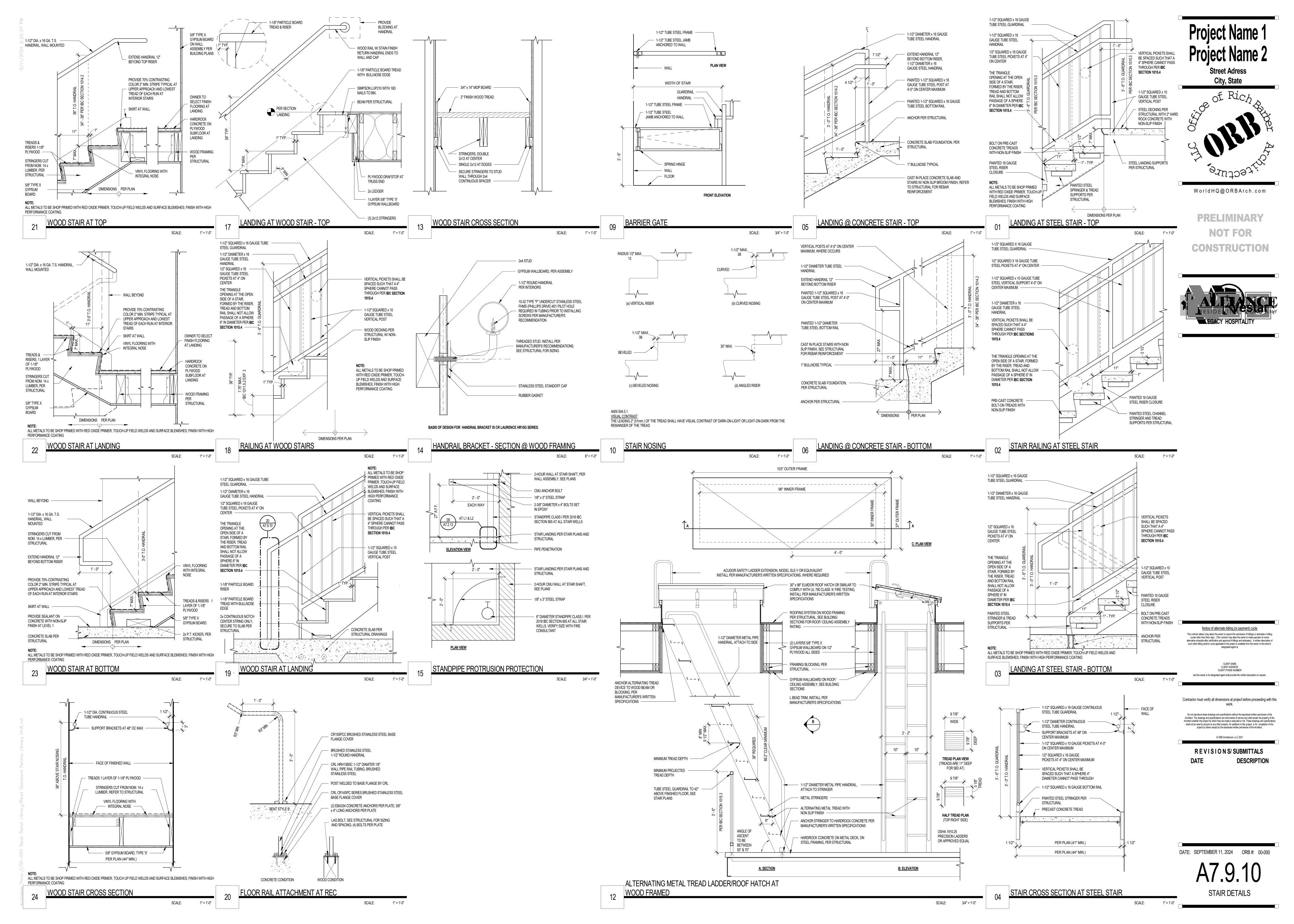
**PRELIMINARY** 

**NOT FOR** 

CONSTRUCTION

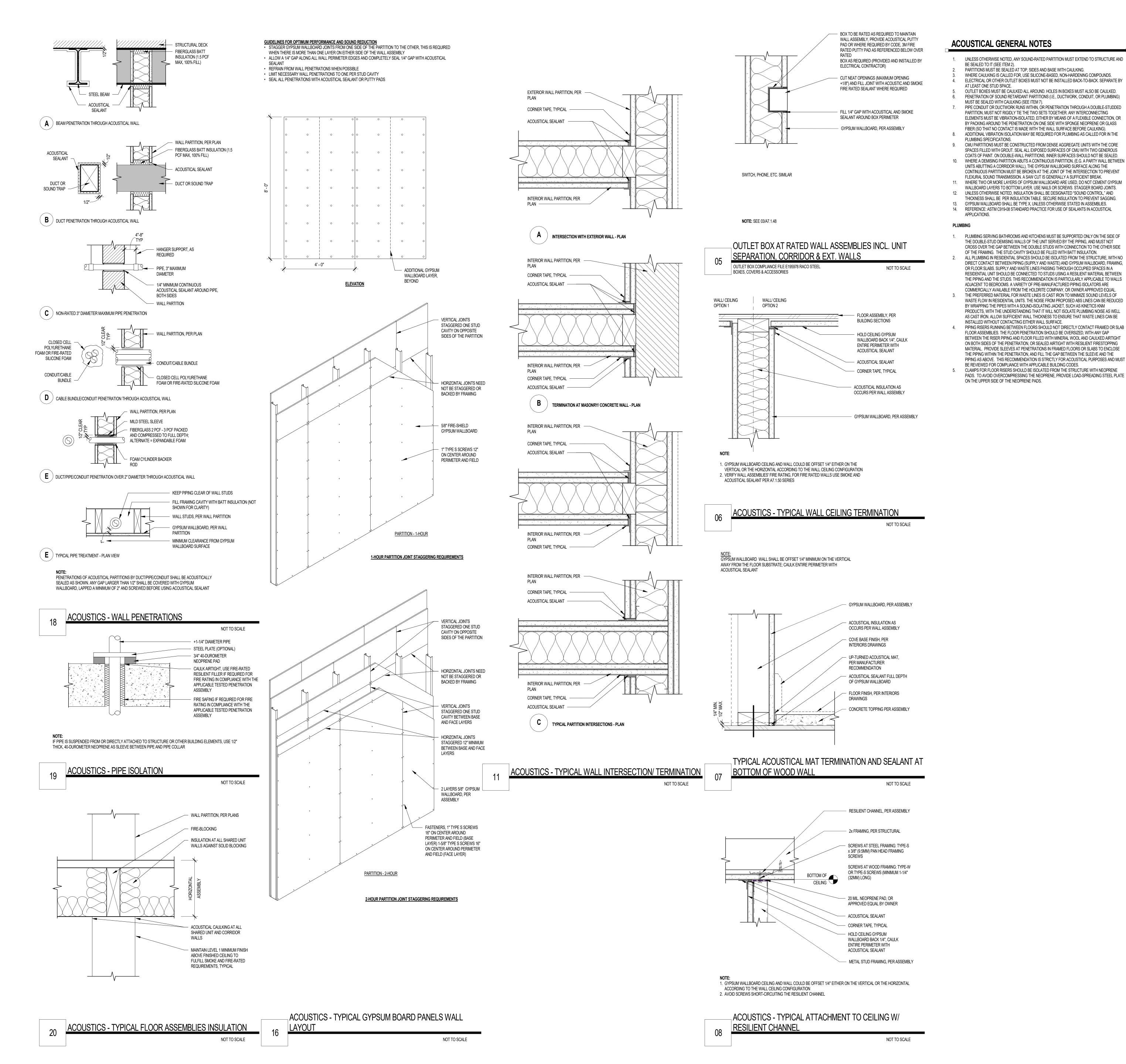
SCALE: 1/2" = 1'-0"





SCALE: 1 1/2" = 1'-0"

SCALE: 3/4" = 1'-0"



# **ACOUSTICAL GENERAL NOTES**

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**PRELIMINARY** 



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CLIENT PHONE NUMBER

and the owner or its designated agent shall provide this written description on request.

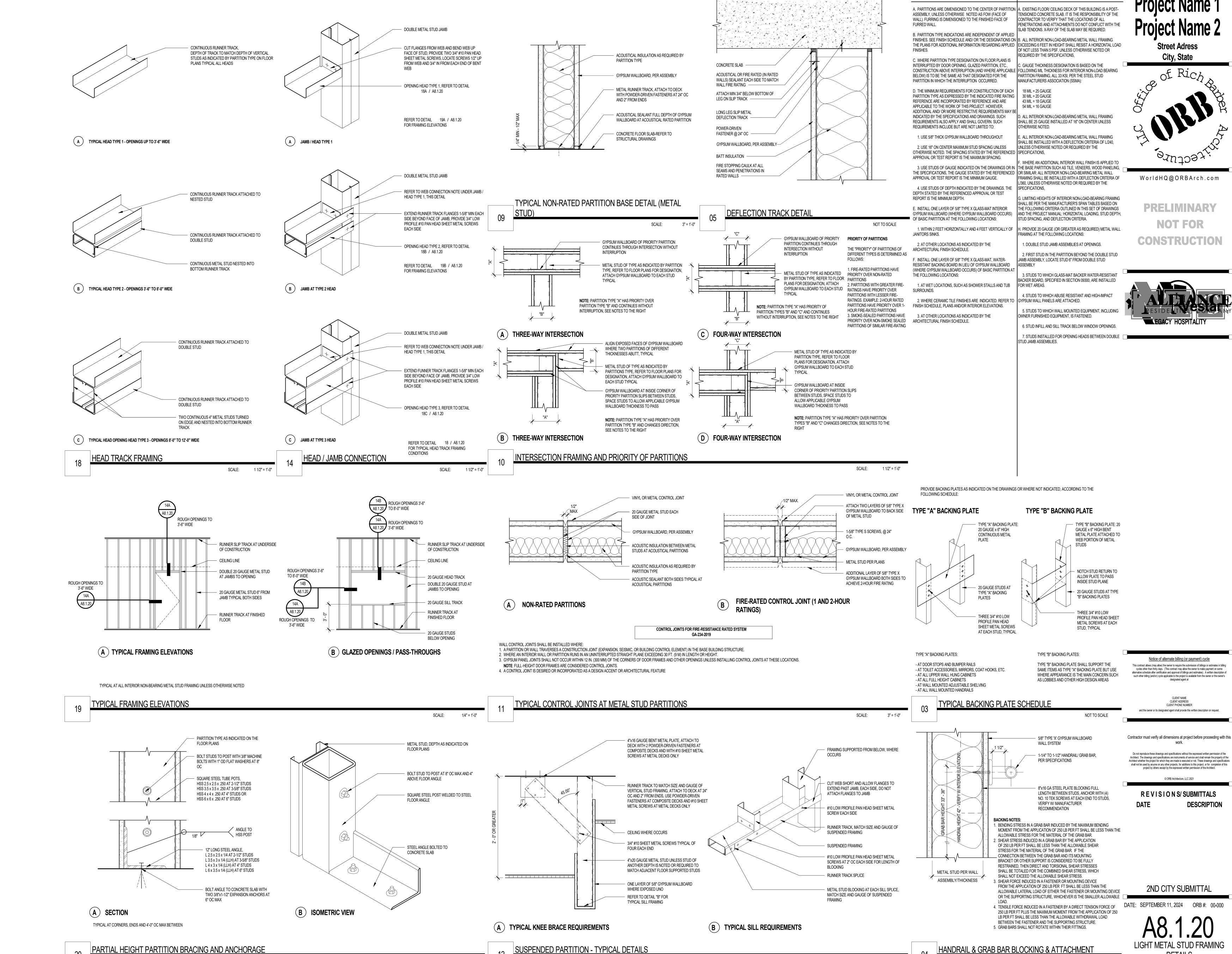
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SCALE: 3" = 1'-0"

HANDRAIL & GRAB BAR BLOCKING & ATTACHMENT SCALE: 1 1/2" = 1'-0"

**PARTITION NOTES** 

FRAMING NOTES

SCALE:

GALVANIZED STEEL COVER GRATING GALVANIZED 2X2 STEEL ANGLE, ATTACHED W/ ANCHOR BOLT TO CMU WALL 8X8X16 CMU GROUTED EXHAUST SHAFT WALL. SEE STRUCTURAL DRAWINGS FOR GROUTING AND ANCHOR SPECIFICATIONS NOTE:

1. ALL EXPOSED CMU, BRICK AND/OR STONE TO RECEIVE CLEAR SEALANT.

2. REFER TO BUILDING ELEVATIONS FOR FINISHES.

3. REFER TO STRUCTURAL DRAWINGS FOR ALL MEMBER SIZES AND SPECIFICATIONS. CMU CAR CRASH WALL & LOW WALL AT PARKING EXHAUST SHAFT METAL GRATING @ CMU WALL SCALE: 3" = 1'-0" B. WALL/COLUMN CORNER C.SLAB DRIP EDGE, WALL FACE, OCCURS AS NOTED PER DRAWINGS

# TOP OF WALL LEVEL 2" CMU SOLID CAP BLOCK SEE FLOOR PLANS 8X8X16 CMU BLOCK LOW WALL. SEE STRUCTURAL DRAWINGS FOR GROUTING AND ANCHOR SPECIFICATIONS EXPOSED CONCRETE SLAB, PER STRUCTURAL DRAWINGS FLOOR LEVEL NOTE: 1.ALL EXPOSED CMU, BRICK AND/OR STONE TO RECEIVE CLEAR SEALANT. 2.REFER TO BUILDING ELEVATIONS FOR FINISHES. 3.REFER TO STRUCTURAL DRAWINGS FOR ALL MEMBER SIZES AND SPECIFICATIONS.

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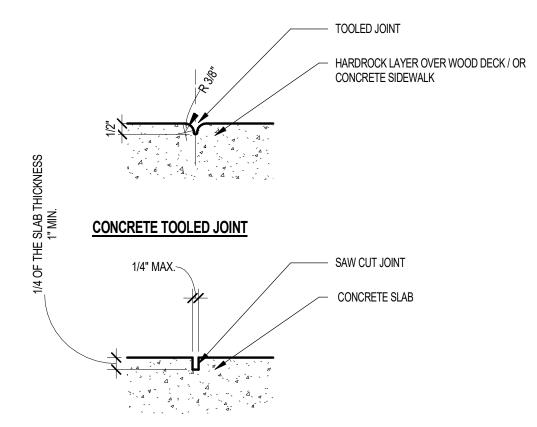
SCALE: 1" = 1'-0"

**PRELIMINARY NOT FOR** CONSTRUCTION

City, State

3/4" CHAMFER TYP AT ALL EXPOSED CONCRETE EDGES. TYP UNO.

CONCRETE CORNERS & EDGES



**CONCRETE SAW CUT JOINT** 

Notice of alternate billing (or payment) cycle This contract allows (may allow) the owner to require the submission of billings or estimates in billing cycles other than thirty days. (This contract may allow the owner to make payment on some alternative schedule after certification and approval of billings and estimates). A written description of such other billing (and/or) cycle applicable to the project is available from the owner or the owner's designated agent at

