Development Services

From Concept to Construction

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More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

APPEAL SUMMARY

Status: Hold for Additional Information

Appeal ID: 23793	**Project Address:** 1841 NW 23rd Ave
Hearing Date: 6/10/20	**Appellant Name:** Mark Nye
Case No.: B-004	**Appellant Phone:** 503-473-4354
Appeal Type: Building	**Plans Examiner/Inspector:** Brian McCall
Project Type: commercial	**Stories:** 5 **Occupancy:** A-2, R-1, R-2 **Construction Type:** 1-A, V-A
Building/Business Name: 1841 NW 23rd	**Fire Sprinklers:** Yes - Throughout the building
Appeal Involves: Erection of a new structure	**LUR or Permit Application No.:** 17-146619-REV-03-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3]	**Proposed use:** A-2

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	Table 601, Sections 202, 704, and 403.2.1
Requires	Table 601 requires, in Type 1A Construction, 3 hr. protection on the primary structural frame. The primary structural frame is defined in Section 202 as the following: a. The columns, b. Structural members having direct connections to the columns including girders, beams, trusses, and spandrels. c. Section 704.3, see Commentary, only requires individual encasement protection of primary structural elements that support more than two stories. d. Section 704.4 allows for fire protection of secondary members to be by the membrane or ceiling of a horizontal assembly in accordance with Section 711.
Code Modification or Alternate Requested	Most horizontal 3 hour assemblies include a 5" concrete slab that, in our project, would result in invasive reconstruction. We are looking for a lighter weight solution to meet fire protection requirements either by rating reduction (Section 403.2.1) or prescriptive (Table 721).
Proposed Design	Request: For those beams connected directly to the columns we are requesting a lighter weight solution for their fire protection as follows: Option 1: Apply the high-rise sprinkler ratings reduction for the Type 1A building and include the beams within the two-hour floor deck assembly. Option 2: Providing a prescriptive 3-hour GWB enclosure of the beams (sides and bottom) in question per IBC table 721.1(1) item 2-4.2. This includes 3 layers of 5/8” Type X GWB, clear space between beam and inside face of GWB, etc. The top of the beam is proposed to be covered with a layer of ¾” concrete board. A minimum clearance of 7’-0” will be maintained underneath all portions of the mezzanine. .

	Option 3: 1-hour reduction in fire rating and to include the beams in question in the 2-hour protection of the floor structure. In addition to the proposed beam protection, we propose providing additional sprinkler heads at 6'-0" o.c. aimed at the beams connected to the columns. They would be installed on one side (or both sides if necessary) of the beam to not adversely impact clearance heights. A minimum clearance of 7'-0" will be maintained above and below the mezzanines
Reason for alternative	Option 1: Per OSSC Section 403.2.1, in high rise construction, for those buildings equipped on each for with supervisory initiating devices and water flow initiating devices building construction of type 1A may be reduced to 1B. This is excepting the columns and would apply to the type 1A construction portion of the building only. While the building is not a high rise it does have the initiating devices on each floor. As such we believe that the rating reduction for the beams may be reduced to that required of 1B construction, or 2 hours, and may be protected within the proposed two-hour floor assembly. Option 2: We believe that the requirements to protect the beam can be met via the prescriptive assembly provided on Table 721. Should additional protective elements be needed, they would have been included in the prescriptive assembly. Option 3: We have had successful appeals where additional sprinkler heads are provided in lieu of one-hour protection.

APPEAL DECISION

Alternate horizontal 3 hour assemblies with reduction in slab thickness: Hold for additional information. Appellant may contact John Butler (503 823-7339) or e-mail at John.Butler@portlandoregon.gov with questions.

Appellant may contact John Butler (503 823-7339) or e-mail at John.Butler@portlandoregon.gov with questions.

Design No. X528

BXUV.X528

Fire-resistance Ratings - ANSI/UL 263

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

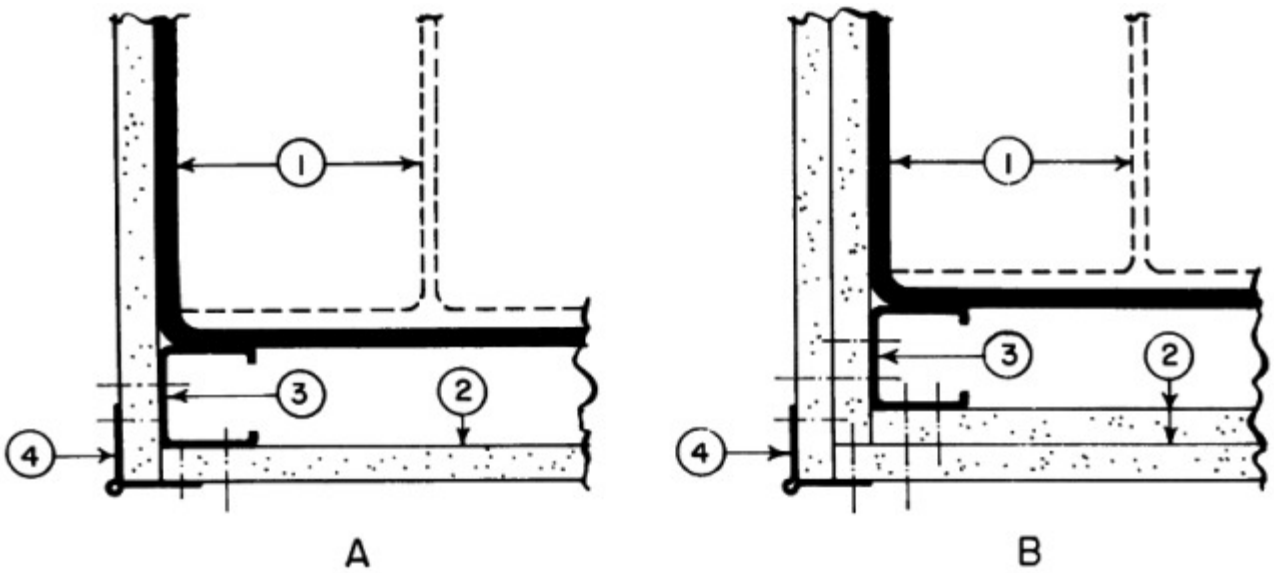
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

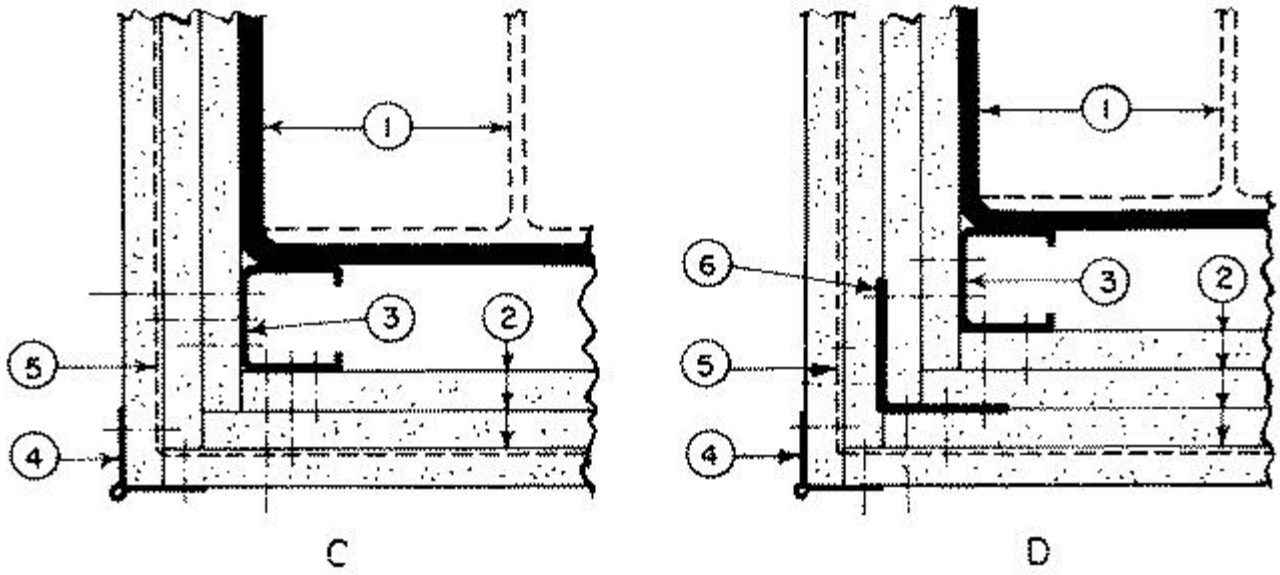
Design No. X528

October 31, 2014

Ratings — 1, 2 and 3 Hr.

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





CORNER DETAILS OF WALLBOARD
SUPPORT SYSTEMS WITHOUT STEEL COVERS

1. **Steel Column —** Min sizes of W-shaped and tubular steel columns which appear in the AISC Steel Construction Manual as shown under Item 2.

2. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 1/2 in. or 5/8 in. thick gypsum board. Applied in layers as noted in the above illustrations. Boards are to be applied vertically without horizontal joints. Min total thickness of layers in inches for the various ratings and min column sizes are as follows:

W Shaped Column Min Column Size	Rating (Hr)			Corner Details For Various Rating		
	1	2	3	1 Hr	2 Hr	3 Hr
Total thickness (In.)						
W4x13	1	1-1/2	2-1/4	B	C	D
W6x15.5	1	1-1/2	2-1/4	B	C	D
W10x49	1/2	1-1/8	1-7/8	A	B	C
Tube Shaped columns						
TS 4 by 4						
by0.188	1	1-3/4	2-5/8	B	C	D
TS 8 by 8						
by 0.250	5/8	1-1/2	2-1/4	A	C	D

ACADIA DRYWALL SUPPLIES LTD (View Classification) — CKNX.R25370

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — eXP-C, CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** As an alternate to Item 2- 3/4 in. thick gypsum wallboard. For 2 Hr rating, 1-1/2 in. total thickness, installed in accordance with corner detail B. For 3 Hr rating, 2-1/4 in. total thickness installed in accordance with corner detail C. Boards are to be applied vertically without horizontal joints.

CGC INC — Type IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — Type IP-X3 or ULTRACODE

USG MEXICO S A DE C V — Type IP-X3 or ULTRACODE

2B. **Gypsum Board* —** (As an alternate to Items 2 and 2A) — Nominal 5/8 in. thick panels. One of the layers of **Gypsum Board** (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer and secured as described in Item 2.

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

2C. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 2 through 2B) — Composite Gypsum Panel — Nominal 5/8 in. thick panels. One of the layers of **Gypsum Board** (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer of composite gypsum panel and secured as described in Item 2.

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

3. **Steel Stud —** 1-5/8 in. wide with 1-5/16 and 1-7/16 in. legs having a 1/4- in. folded flange, fabricated from No. 25 MSG galv steel. Length to be 1/2 in. less than the assembly height.

3A. **As an alternate to Item 3 Steel Framing Members* —** galv. steel clips spaced 4 ft OC and 1-1/4 in. from top and bottem of column. A No. 28 MSG galv steel support angle with 1-1/4 in. length shall be placed over clips and secured with screws attaching the wallboard. The angle cut 1 in. less than assembly height splices in angle to occur over clips. The clips for use with wide flange columns only.

JOHN WAGNER ASSOCIATES INC, DBA GRABBER — Types CB, CB1Clips.

4. **Corner Beads —** No. 28 MSG galv steel, 1-1/4 in. legs to be attached to the wallboard with No. 6 by 1 in. screws spaced 12 in. OC max.

5. **Tie Wire —** No. 18 SWG steel wire spaced 24 in. OC used with second layer of wallboard.

6. **Screws —** For attaching first layer of wallboard to steel studs, and third layer of wallboard to 2 in. by 2 in. steel angle (25 Ga) to be No. 6 by 1 in. (or 1-1/4 in. for 3/4 in. thick wallboard) Phillips head self-drilling, self-tapping double lead screws spaced 24 in. OC For attaching second layer of wallboard to steel studs and fourth layer of wallboard to 2 in. by 2 in. steel angle (25 Ga) to be No. 6 by 1-3/4 in. (or 2-1/4 in. for 3/4 in. thick wallboard) steel screws of the same type spaced 12 in. OC For attaching third layer of wallboard to steel studs to be No. 8 by 2-1/4 in. screws of the same type spaced 12 in. OC

7. **Finishing System —** (Not Shown) — Joint compound applied over corner beads to a thickness of 1/16 in.

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

Last Updated on 2014-10-31

Questions? Print this page Terms of Use Page Top

Design No. G557
BXUV.G557
Fire-resistance Ratings - ANSI/UL 263

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

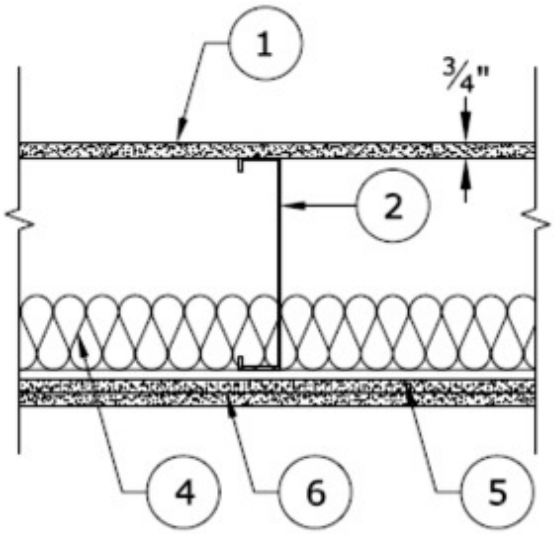
Design No. G557

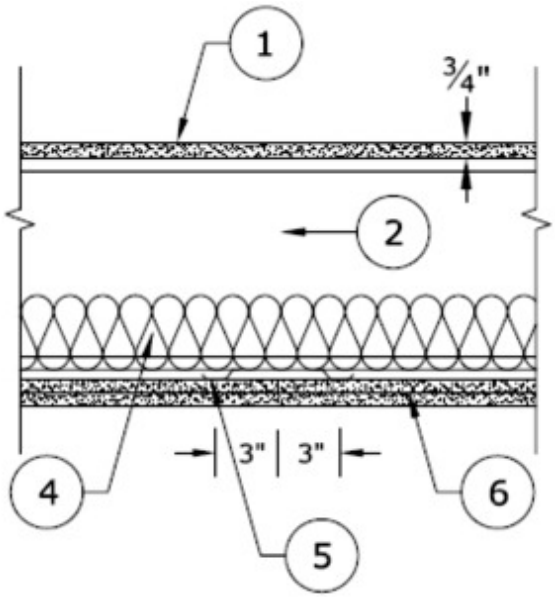
August 27, 2015

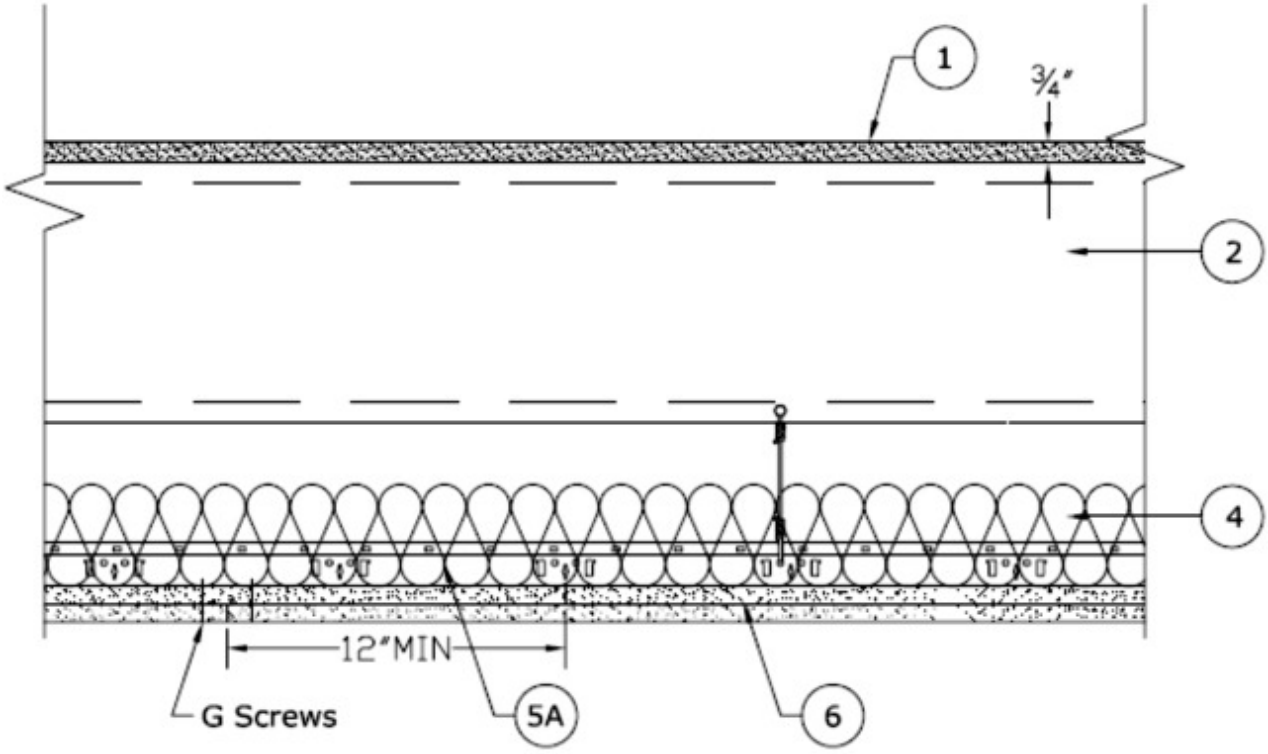
Unrestrained Assembly Rating - 2 Hr

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

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







1. **Flooring System - 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. (25 mm) 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.

UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

2. **Steel Joists —** 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.

2A. **Steel Joists —** (Not Shown) -As an alternate to Item 2 - 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.

2B. **Steel Joists —** (Not Shown) -As an alternate to Item 2 - 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.

2C. **Steel Joists —** As an alternate to item 2 only - The joists are channel-shaped, 10 in. min depth. Joists are fabricated from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. Joists attached to rim joist with three #10 3/4 in. long self-drilling screws at the rim track clip to the outside of the web joist, and a #10 1/2 in. long screw through the top and bottom flange of the joists to the top and bottom flange of the rim track. At rim joist splices bearing on supports, rim joists are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with six 3/4 in. long self-drilling #10 screws to each rim piece. For use with item 3C.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Type SSCJ floor joists, SSRT rim joists

2D. **Clip Angles —** No. 16 MSG, 9-3/4 in. long steel angles with 2 in. legs. Secured to track and joist with eight No.10, ¾ in. long, self drilling, hex head screws, located 1 in. from each end of clip angle, with the other two screws on each leg evenly spaced. Only one clip angle per joist end.

2E. **Clip Angles —** (Not Shown) - As an alternate to Item 2C, for use with 6 or 8 in. deep joists (Item 2A or 2B). No. 16 MSG, 5-1/2 in. long steel angles with 1-1/2 in. legs for 6 in. deep joists and No. 18 MSG, 7-1/4 in. long steel angles with 1-1/2 in. legs for 8 in. deep joists. Secured to track and joist with six No.10, 3/4 in. long, self drilling, hex head screws, located 1 in. from each end of the clip angle and at the centerline. Only one clip angle per joist end.

2F. **Structural Steel Members* —** (Not Shown) - As an alternate to Item 2 - Pre-fabricated light gauge steel truss system minimum depth 12 in., consisting of cold-formed, galv steel chord and web sections. Trusses fabricated in various sizes, and various steel thickness spaced maximum of 24 in. OC.

AEGIS METAL FRAMING, DIV OF MITEK — Ultra-Span, Pre-fabricated Light Gauge Steel Truss System

ALLIED STUDCO — Amkey System, Pre-fabricated Light Gauge Steel Truss System.

TRUSSTEEL, DIV OF ITW BUILDING COMPONENTS INC — Trus Steel

3. **Joist Bridging —** (Not Shown) - For use with Item 2 and 2B - 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 channels.

3A. **Joist Bridging —** (Not Shown) - For use with Item 2A - Installed immediately after joists are erected and before construction loads are applied. The bridging consisting of rim track sections cut 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.

3B. **Joist Bridging —** (Not Shown) - For use with Item 2A and 2B - 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.

3C. **Joist Bridging —** Not shown — For use with item 2C. Installed immediately after joists are erected and before construction loads are applied. The structural bridging, Type CEMCO Sure Bridging, consisting of No. 18 MSG galv steel, 2-1/2 in. wide by 25-1/2 in. long with 1-5/16 in. long legs structural bridging staggered between the steel joists and attached to the bottom joist flange with two #10 1/2 in. long self-drilling screws at each end tab of bridging. Solid bridging consisting of cut to length joist sections placed between outer joists and at center joist with 8 ft OC max spacing. Solid bridging is seated in the structural bridging and is screw-attached at joist web using Type CEMCO Sure-Support Clips (1-1/2 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg on one side and the other side with Type CEMCO Sure-Support Clips (4 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg.

3D. **Bridging —** (Not Shown)—For use with Item 2F - Location of lateral bracing for truss chord and web sections to be specified on truss engineering.

4. **Batts and Blankets* —** 3-5/8 in. thick glass fiber batt insulation draped over the resilient channels (Item 5) or suspension system grid (Item 5A). Any glass fiber batt insulation bearing the UL Classification Marking for Surface Burning Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used. See **Batts and Blankets** (BKNV) category in the Building Materials Directory for names of manufacturers.

5. **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.

5A. **Steel Framing Members* —** (Optional, Not Shown) — When it is desired to drop the ceiling below the bottom plane of the structural steel members (Item 2), a suspension system may be used in lieu of the resilient channels. Main runners, cross tees, cross channels and wall angle as listed below:

a. **Main Runners —** Nom 10 or 12 ft long , 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 24 in. OC, a min of 4 in. below bottom flange of joist, twist-tied to #10 -3/4 in. long screws installed in the web, 1/2 in. fro m the bottom flange of the steel joist. Hanger wires to be located adjacent to main runner/cross tee intersections.

b. **Cross Tees —** Nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or cross channels used at 8 in. from each side of butted gypsum panel end joints. The cross tees or cross channels may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

c. **Cross Channels —** Nom 4 ft or 12 ft long, installed perpendicular to main runners, spaced 16 in. OC.

d. **Wall Angle or Channel —** Painted or galv steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment of the gypsum panel.

CGC INC — Type DGL or RX

USG INTERIORS LLC — Type DGL or RX.

6. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum panels. Base layer installed with long dimension perpendicular to resilient channels or cross tees, secured with 1-1/4 in. long Type S bugle-head screws spaced 12 in. OC, with screws located 6 in. from and on each side of the gypsum panel, in both the field and the perimeter, and 1-1/2 in. from side edges of the panels. Face layer installed with long dimension perpendicular to resilient channels or cross tees with joints offset 24 in. from base layer, secured with 1-5/8 in. long Type S bugle-head screws spaced 8 in. OC in both the field and the perimeter, and 1-1/2 in. from side edges of the panel. Butt joints of face layer panels secured to base layer with 1-1/2 in. long Type G screws spaced 8 in. OC and 1-1/2 in. from side edges of the panels, with butt joints located between resilient channels. Butt joints of face panels staggered a minimum of 12 in. from butt joints of base layer.

CGC INC — Types C, IP-X2, IPC-AR

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

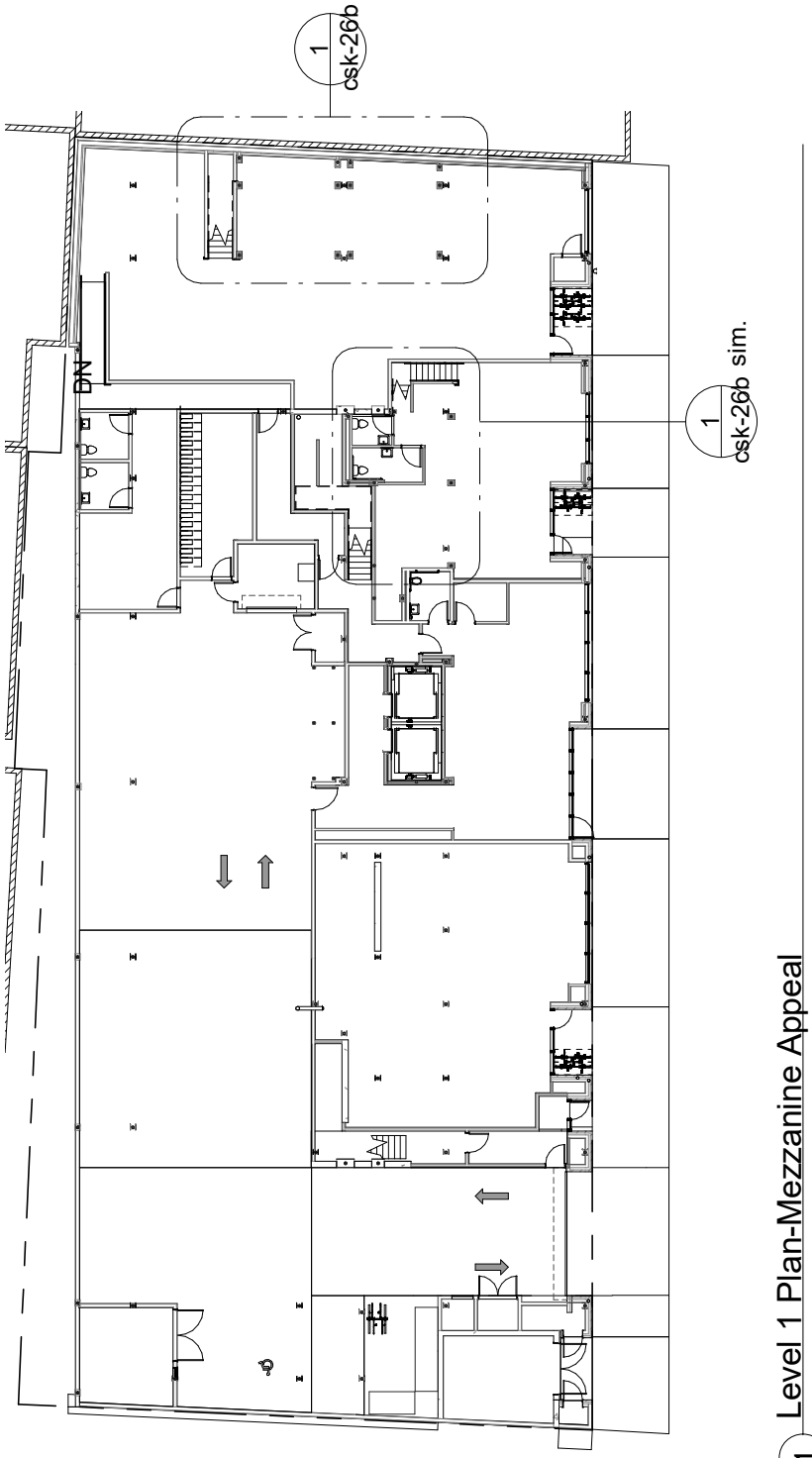
USG BORAL ZAWAWI DRYWALL L L C SFZ — Type C

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

7. **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.

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

Last Updated on 2015-08-27



1 Level 1 Plan-Mezzanine Appeal
1" = 30'-0"

W.PA
works partnership architecture, LLP
811 SE Stark St, Suite 210 portland, or 97214
503/234.2945 tel

Sheet: **Unnamed**

Rev: **05/21/20**

RE: **Checker** By: Author

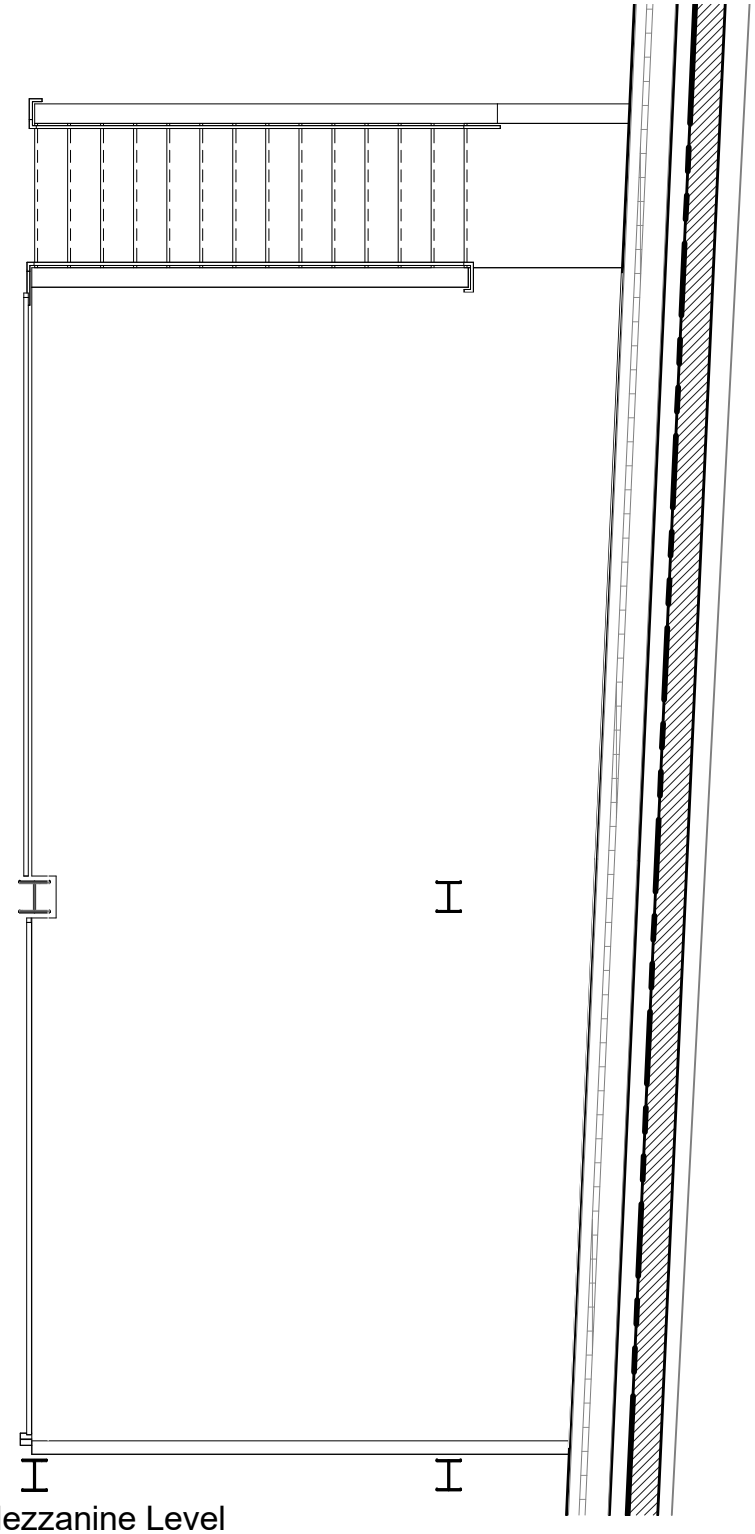
1825 NW 23rd Avenue

1825 NW 23rd Avenue

WPA Project Number: **1180**

05/21/20

csk-26a



1 Enlaged Plan-Mezzanine Level
3/16" = 1'-0"

W.PA
works progress architecture
811 SE Stark Street, Suite 210
Portland OR, 97214 (503) 234-2945

csk-26b

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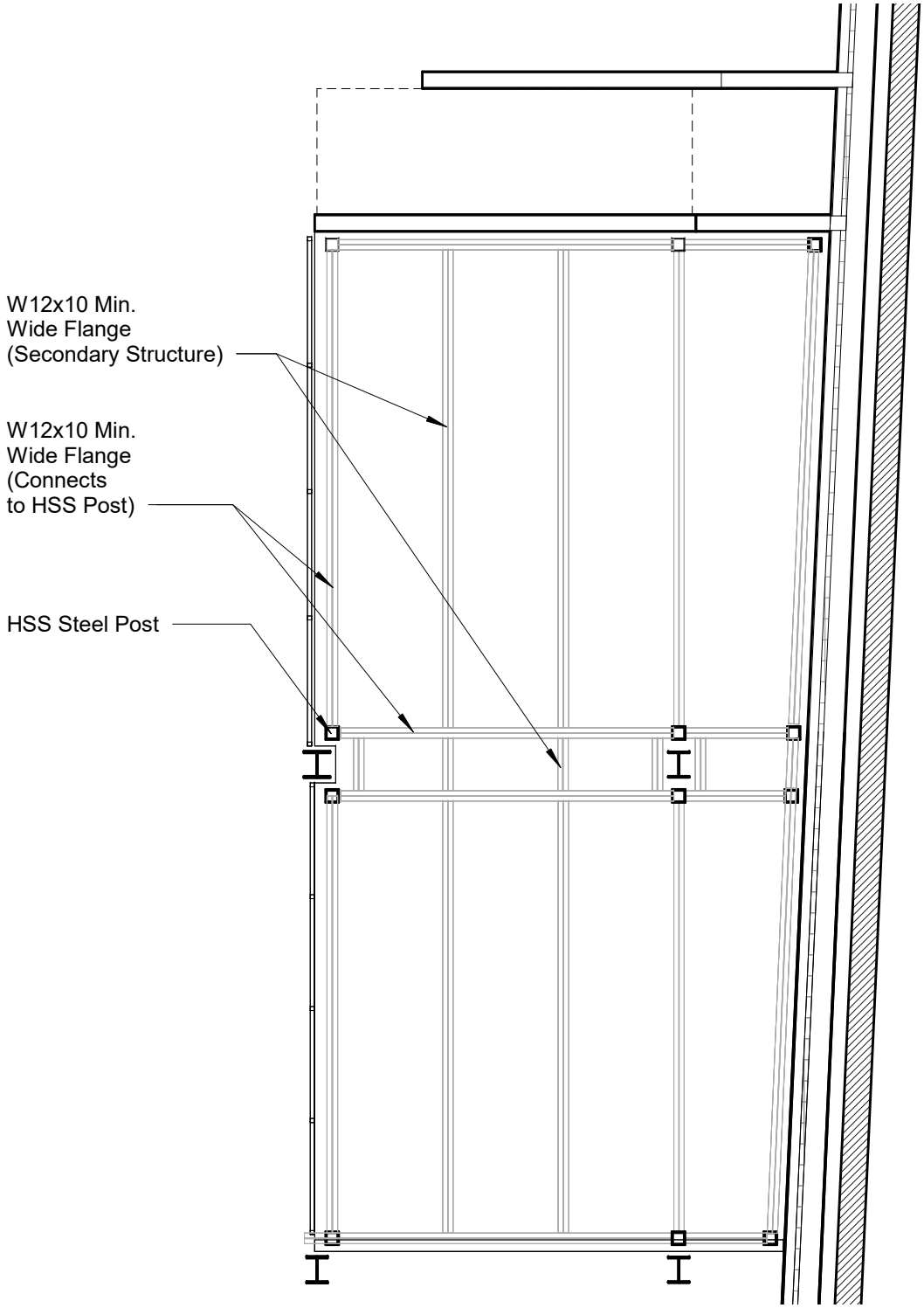

1 Enlarged Mezzanine Reflected Ceiling Plan
3/16" = 1'-0"

W.PA
works progress architecture
811 SE Stark Street, Suite 210
Portland OR, 97214 (503) 234-2945

csk-26c

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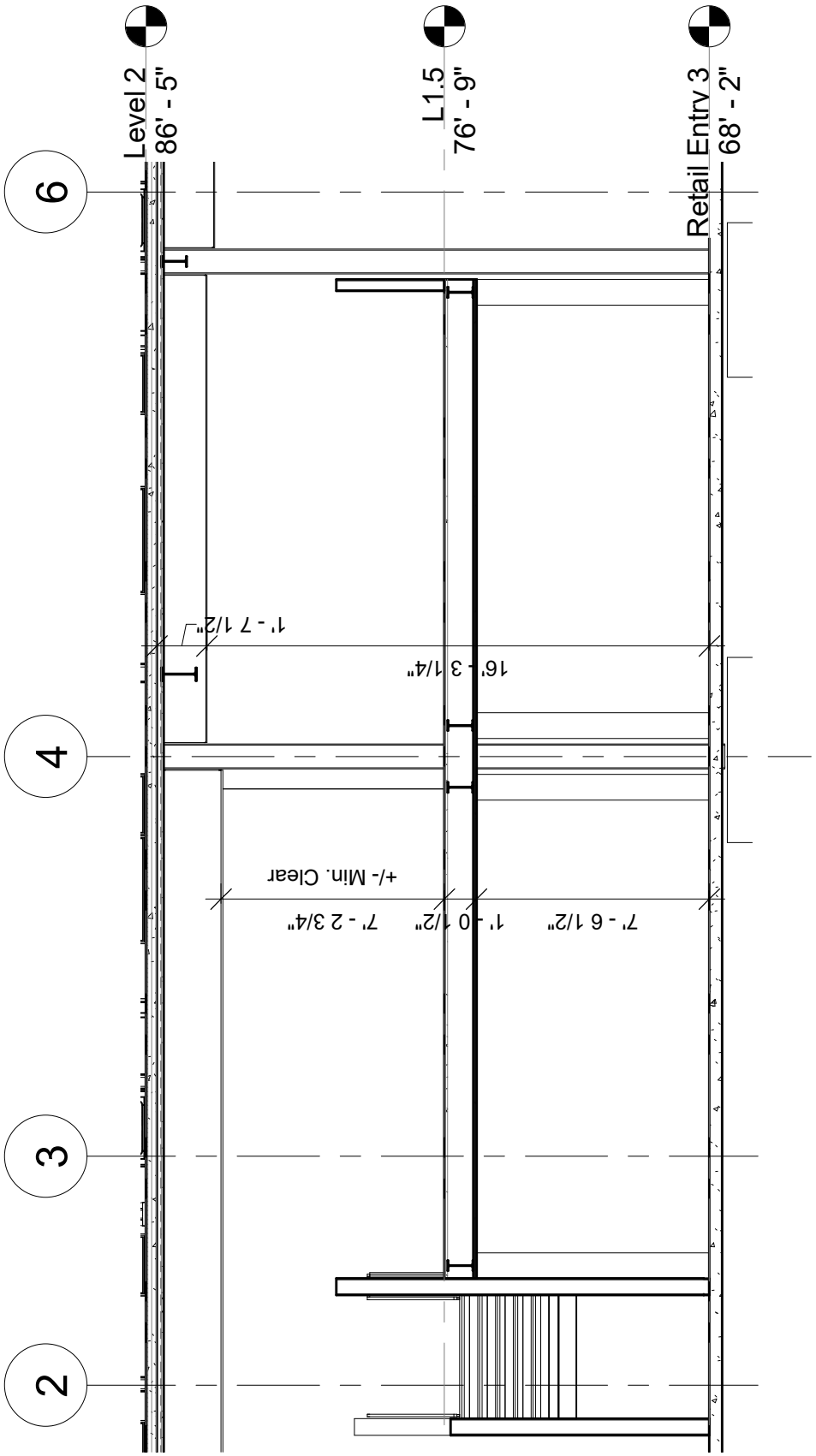
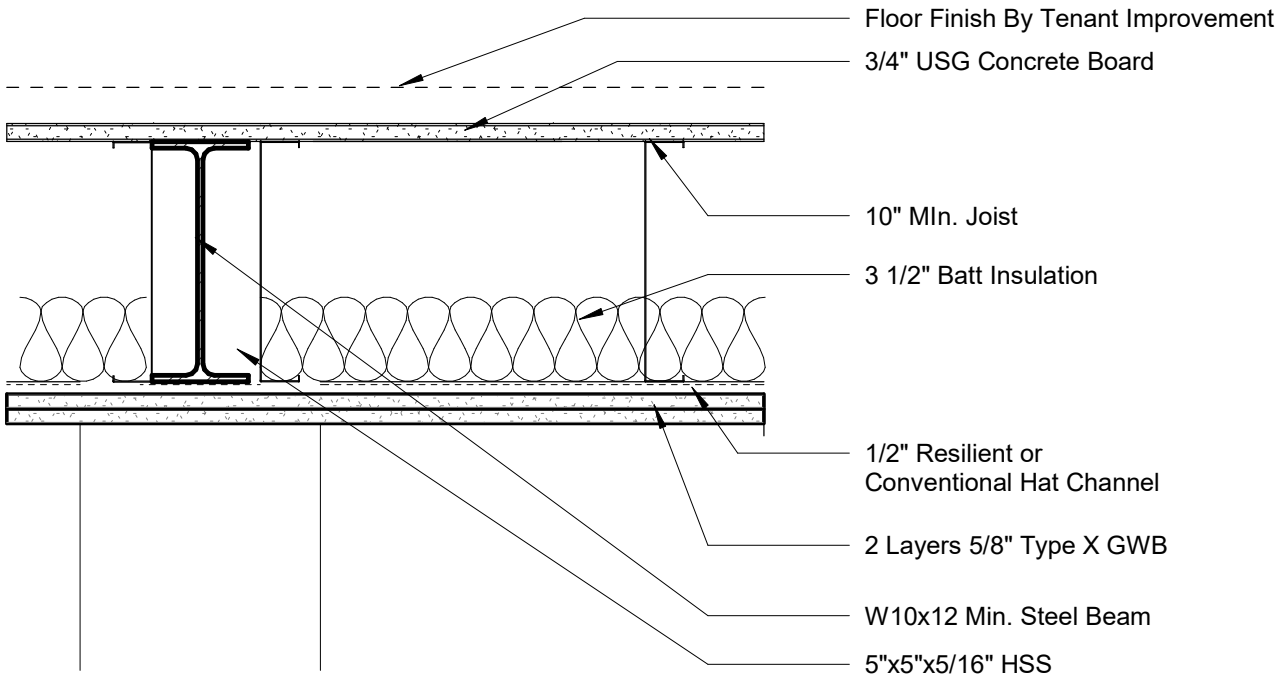


1 Section Thru Mezzanine
3/16" = 1'-0"

W.PA
works progress architecture
811 SE Stark Street, Suite 210
Portland OR, 97214 (503) 234-2945

csk-26d

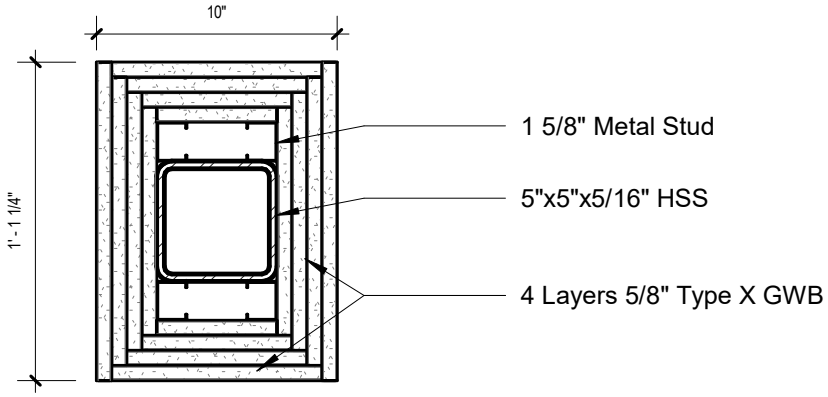
Unnamed



2 Hour Floor Protection
10" Min. Stud
UL G557, Ref also to UL H510

2 Section - 2 HR Rated Concrete Board Floor Typical

1 1/2" = 1'-0"



3 Hour Column/Post
HSS 5x5
UL X528

1 3 HR HSS Column Wrap Appeal

1 1/2" = 1'-0"

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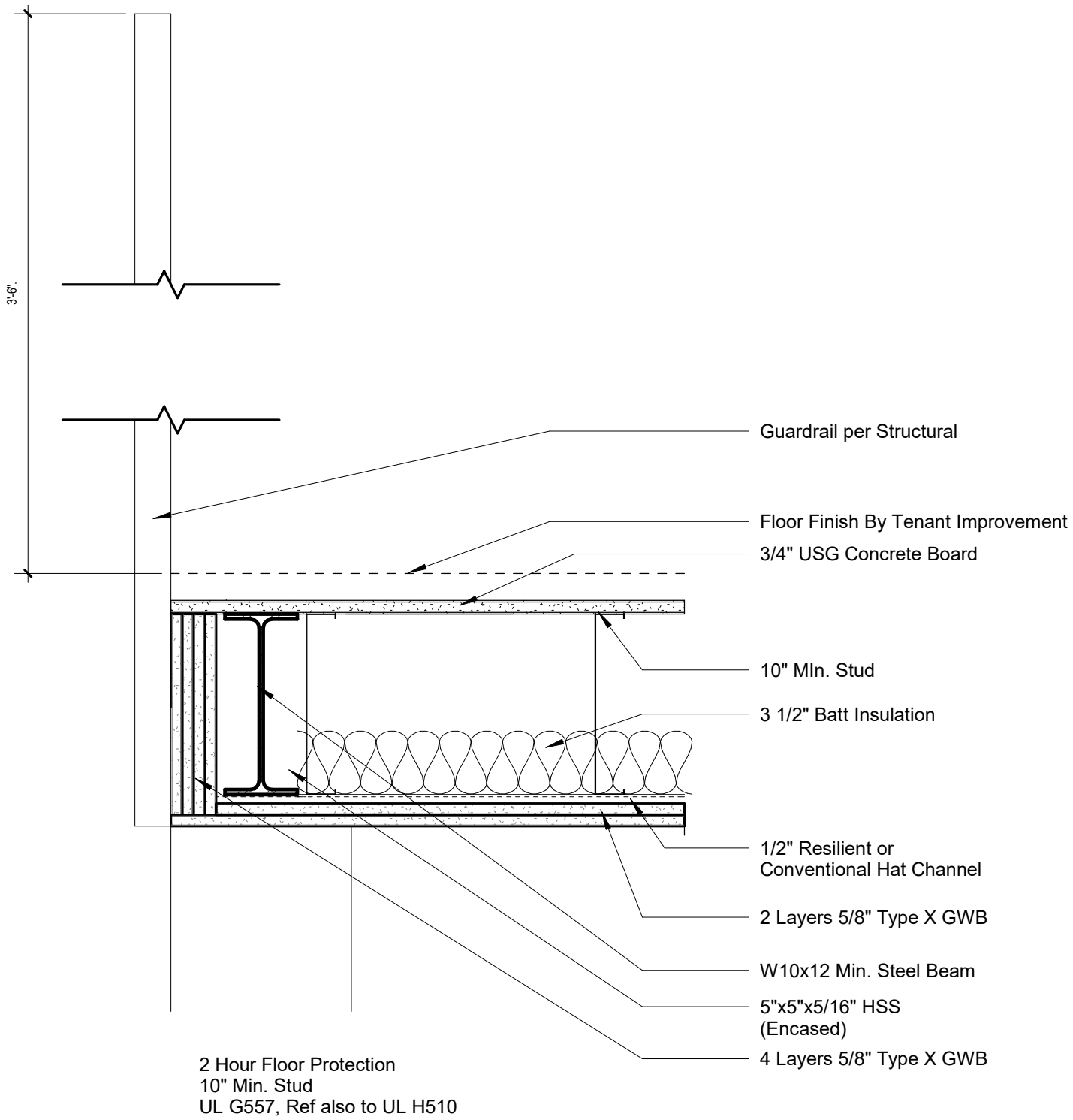
csk-26e

Unnamed



2 Hour Floor Protection
10" Min. Stud
UL G557, Ref also to UL H510

Section - 2 HR Rated Concrete Board Floor at Edge

1

1 1/2" = 1'-0"

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Unnamed