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

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

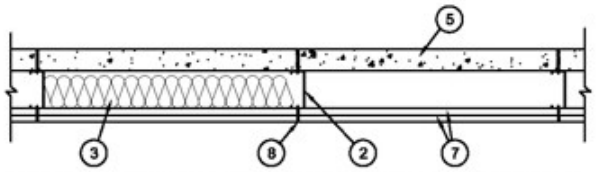
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U214**

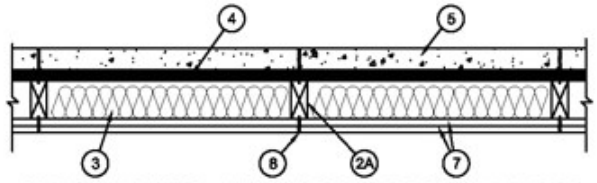
November 10, 2023

Bearing Wall Rating - 1, 1-1/2 and 2 Hr (See Item 7)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

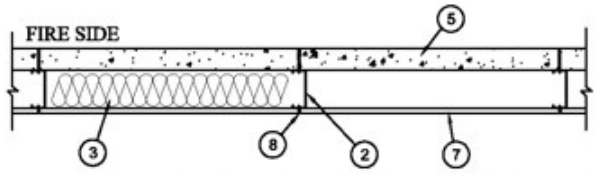
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



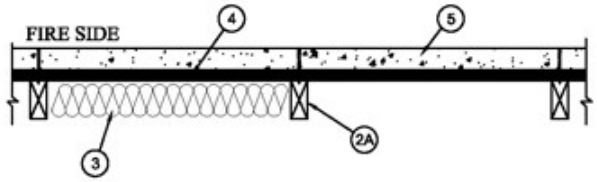
CONFIGURATION A - EXPOSED TO FIRE FROM EITHER SIDE



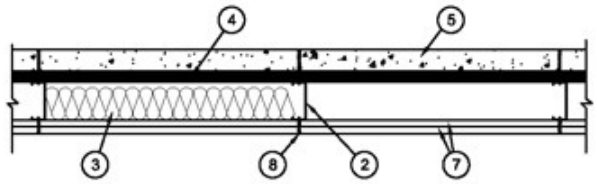
CONFIGURATION B - EXPOSED TO FIRE FROM EITHER SIDE



CONFIGURATION C - EXPOSED TO FIRE FROM PAAC PANEL SIDE ONLY



CONFIGURATION D - EXPOSED TO FIRE FROM PAAC PANEL SIDE ONLY



CONFIGURATION E - EXPOSED TO FIRE FROM EITHER SIDE

1. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.0329 in. thick (No. 20 gauge corrosion-protected steel, that provide a sound structural connection between steel studs and adjacent assemblies such as floor, ceiling and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

2. **Steel Studs —** Corrosion protected steel studs, min 3-1/2 in. wide, min No. 20 MSG (0.0329 in. thick), 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. The max stud spacing of wall assemblies shall not exceed 24 in. OC. Studs attached to floor and ceiling runners with 1/2 in. long Type S-12 pan head, self-drilling, self-tapping steel screws on both sides of the studs or by welded or bolted connections designed in accordance with AISI specifications.

2A. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. or 24 in. OC. Studs cross braced at mid-height and effectively firestopped at the top and bottom.

3. **Batts and Blankets* —**

Configurations A, C and D

(Optional) — Placed to completely or partially fill the 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.

Configuration B

(Optional when Foamed Plastic, Item 4, is not used) — Placed to completely or partially fill the 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. (Required when Foamed Plastic, Item 4, is used) — Placed to completely fill the stud cavities, any 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.

Configuration E

Placed to completely or partially fill the 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.

4. **Foamed Plastic* —**

Configuration A
(Not to be used with Configuration A)
Configurations B, C, D and E

(Optional) — 1 in. thick rigid polystyrene insulation or 1 in. thick rigid polyisocyanurate insulation attached to wood studs with 1-1/2 in. long galvanized roofing nails or to steel studs (Configuration C or E only) with 1-1/2 in. long Type S-12 wafer head steel screws. Any polystyrene or polyisocyanurate insulation boards bearing the UL Classification Marking as to Fire Resistance. See **Foamed Plastic*** (CCVW) Category for names of Classified companies. When Foamed Plastic insulation is used in Configuration B or E, insulation (Item 3) is required.

5. **Precast Autoclaved Aerated Concrete* —** Min 2 in. thick, max 24 in. wide and max 10 ft long panels installed horizontally, with vertical joints centered over studs. Fastened to the studs with No. 12 by 3-1/2 in. long Phillips head screws spaced 8 in. OC, starting 4 in. from panel edge. When Foamed Plastic (Item 4) is used, fastener length increased to 4-1/2 in. At panel butt joints, screws angled 30 degrees from the vertical. Butt joints staggered min. 16 in. from adjacent panels.
LITECRETE, S.A. DE C.V. — Types AAC-3, -4, -6 Thin Panels

6. **Thin Bed Mortar —** (Not Shown) — Applied to the horizontal and vertical joints of each precast autoclaved aerated concrete panel.

7. **Gypsum Board —**

Configurations A and B

(Required) — **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.** Gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs. Vertical joints in adjacent layers staggered one stud cavity. The thickness and number of layers for the 1, 1-1/2 and 2 hr ratings are as follows:

Wallboard Protection on Interior Side of Wall

Rating	No. Layers And Thickness of Panels
1	2 layers, 1/2 in. thick
1-1/2	2 layers, 5/8 in. thick
2	3 layers, 1/2 in. thick

CABOT MANUFACTURING ULC (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

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

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

NATIONAL GYPSUM CO (View Classification) — 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 BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

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

Configuration C - 2 Hr Rating

(Required) — Gypsum Board - Classified or Unclassified - One layer of min 1/2 in. thick by 48 in. wide boards installed horizontally or vertically to steel studs. Gypsum board attached to steel studs using 1 in. long Type S-12 steel screws spaced 12 in. OC along the edges and in the field.

Configuration D - 2 Hr Rating

(Optional — Not Shown) — Gypsum Board - Classified or Unclassified - One layer of min 1/2 in. thick by 48 in. wide boards installed horizontally or vertically to wood studs. Gypsum board attached to wood studs using 1-1/4 in. wallboard screws spaced 12 in. OC along the edges and in the field.

Configuration E - 1 Hr Rating

(Required) **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs. Vertical joints in adjacent layers staggered one stud cavity. The thickness and number of layers for the 1 and 1-1/2 hr ratings are as follows:

Wallboard Protection on Interior Side of Wall

Rating	No. Layers And Thickness of Panels
1	2 layers, 5/8 in. thick
1-1/2	3 layers, 5/8 in. thick

8. **Fasteners —** Screws used to attach Gypsum Board (Item 7) to steel studs (Item 2): self-tapping bugle head sheet steel type, spaced 12 in. O.C. First layer Type S-12 by 1 in. long. Second layer Type S-12 by 1-5/8 in. long. Third layer Type S-12 by 1-7/8 in. long. Nails used to attach Gypsum Board (Item 7) to wood studs (Item 2A): First layer 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam, 15/64 in. diam heads spaced 6 in. OC. Second and Third layer 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam heads spaced 8 in. OC.

*** 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 2023-11-10