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

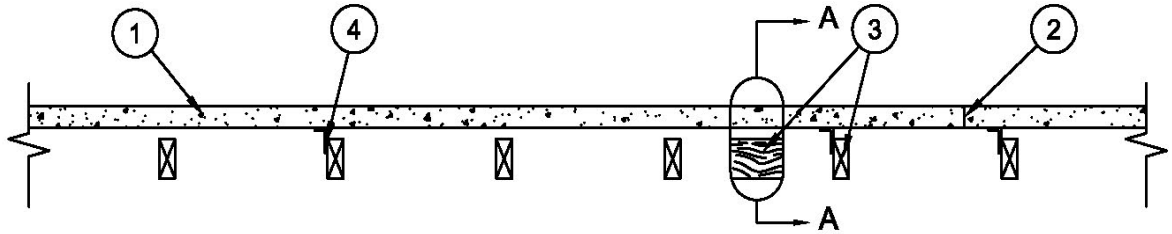
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U210**

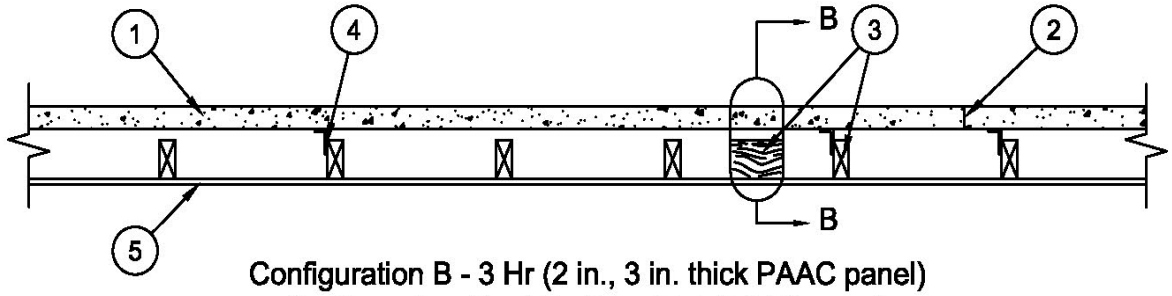
March 16, 2023

Wall Rating — 2, 3 or 4 Hr (See Drawing and Items 5, 7 and 8)
Nonbearing — See Item 1
Load Bearing — See Items 3 and 3A
Finish Rating — See Item 9
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

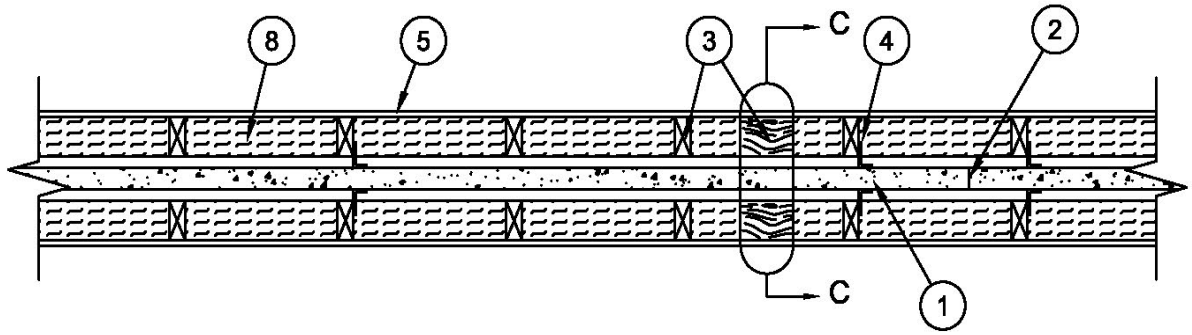
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



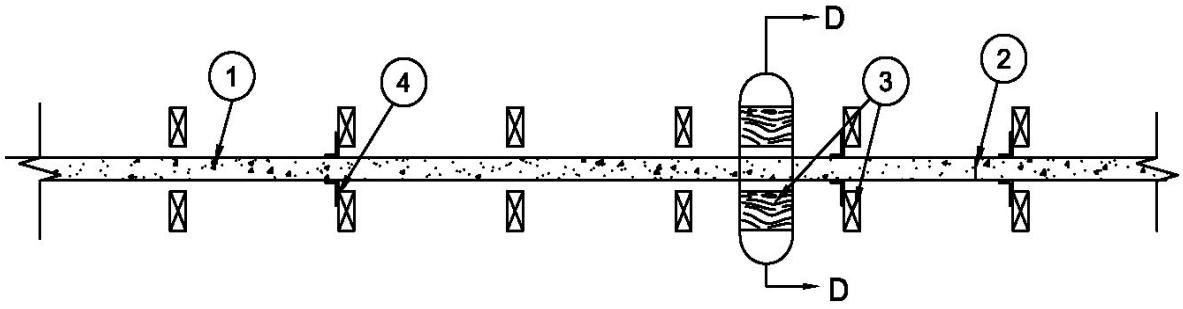
Configuration A - 2 Hr (2 in. thick PAAC panel)
Configuration A - 3 Hr (3 in. thick PAAC panel)
Configuration A - 4 Hr (4 in. thick PAAC panel)
Exposed to Fire from PAAC Panel Side Only



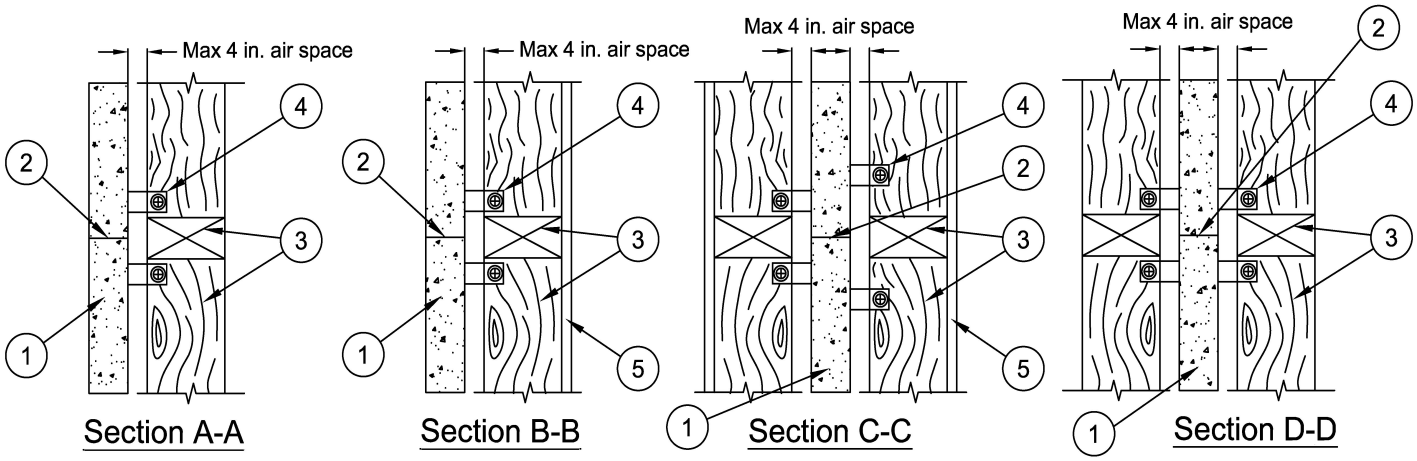
Configuration B - 3 Hr (2 in., 3 in. thick PAAC panel)
Configuration B - 4 Hr (4 in. thick PAAC panel)
Exposed to Fire from PAAC Panel Side Only



Configuration C - 4 Hr (2 in., 3 in., 4 in. thick PAAC panel)
Exposed to Fire from Either Side



Configuration D - 2 Hr (2 in. thick PAAC panel)
Configuration D - 3 Hr (3 in. thick PAAC panel)
Configuration D - 4 Hr (4 in. thick PAAC panel)
Exposed to Fire from Either Side



1. **Precast Autoclaved Aerated Concrete Panels* —** (Non load bearing component) — 2 in. thick, max 24 in. wide and 8 ft or 10 ft long reinforced panels. 3 in. thick, max 24 in. wide and 8 ft or 10 ft long reinforced panels. 4 in. thick, max 24 in. wide and up to 10 ft long reinforced panels. Reinforced PAAC panels installed horizontally or vertically. Vertical and horizontal joints need not be backed by nor centered over studs. Min. 4 in. thick, reinforced panels used for head and jamb locations (not shown). Panels mechanically attached to adjacent wood or steel stud structure (Items 3 and 4).
THERMACRETE L L C

2. **Thin Bed Mortar —** Horizontal and vertical joints between each reinforced precast autoclaved aerated concrete panel bonded full depth with ANSI A118.4 Latex/Portland cement thin bed mortar per manufacturer's specifications.

3. **Wood Studs —** (Load bearing or non load bearing component) — Nom 2 in. by 4 in., spaced a max of 16 in. OC. Studs to be effectively firestopped at the top and bottom of the wall with nom 2 in. by 4 in. plates. Studs effectively cross-braced.

3A. **Steel Studs —** (Load bearing or non load bearing component) — (Not Shown - See Item 8, Batts and Blankets) — As an alternate to Item 3 — 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 16 in. OC. Studs attached to floor and ceiling runners (Item 3B) 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.

3B. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 3A. 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.

4. **Attachment Clips —** ThermAcoustic aluminum angles 0.048 in. to 0.060 in. thick and 2 in. wide with one 2 in. leg and one 2-1/2 in. to 5-1/2 in. leg. A 0.704 in. outside diameter and 0.375 in. inside diameter rubber grommet is pre-attached in the 2-1/2 in. to 5-1/2 in. long leg of the angle. Clips positioned with 2 in. leg on panel side and 2-1/2 in. to 5-1/2 in. leg on stud side. Clips attached to studs (Item 3 or 3A) with one 1-5/8 in. long sharp point high-low thread screw through a 3/4 in. diameter washer and the rubber grommet. Clips designated ThermAcoustic(DM) which are identical to the other clips except for a vertical slot in the 2 in. width direction of each long leg of the angle may also be used. When ThermAcoustic(DM) clips are used the attachment to the studs as specified above shall be through the center of the slots. Clips attached to panel (Item 1) with two 1-5/8 in. long sharp point high-low thread screws spaced 3/4 in. OC at pre-drilled holes. Max. 4 in. airspace between edge of stud and panel. Panel screws angled 20 degrees from the horizontal. When panels are installed vertically, clips spaced max 16 in. from horizontal joints and max 4 ft OC vertically per panel. When panels are installed horizontally, clips spaced max 16 in. from vertical joints and max 4 ft OC horizontally per panel. Minimum of three clips per 7 ft, 8 ft or 10 ft long side of panel (total of six clips per panel face). Configurations C and D - Clips staggered on opposite sides of panel to permit attachment to studs and panels on both sides of panel (total of 12 clips per panel).

5. **Gypsum Board**
Configurations A and D
(Optional — Not Shown) — Gypsum Board - Classified or Unclassified - One layer of 1/2 in. or 5/8 in. thick by 48 in. wide boards installed horizontally or vertically to wood studs or steel studs. Gypsum board attached to wood studs using 1-5/8 in. wallboard screws or 1-3/4 in.

long galv. nails with 0.128 in dia. shank and 7/16 in. dia head spaced 8 in. OC along the edges and 12 in. in the field. Gypsum board attached to steel studs using 1 in. long Type S-12 steel screws spaced 8 in. OC along the edges and in the field.

Configuration B

(Required) — 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 or steel studs. Gypsum board attached to wood studs using 1-5/8 in. wallboard screws spaced 8 in. OC along the edges and in the field. Gypsum board attached to steel studs using 1 in. long Type S-12 steel screws spaced 8 in. OC along the edges and in the field.

Configuration C

(Required) —**Gypsum Board*- Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** One layer of min 5/8 in. thick by 48 in. wide boards installed horizontally or vertically to wood studs. Gypsum board attached to wood studs using 1-5/8 in. wallboard screws spaced 8 in. OC along the edges and in the field.

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

6. **Thin Bed Mortar or Repair Mortar —** Applied to surface cracks on both sides of precast autoclaved aerated concrete panel per manufacturer's specifications.

7. **Finishing System —**

Configurations A and D

(Not Shown) — Gypsum board joints optionally covered with paper tape and joint compound. Fastener heads optionally covered with joint compound.

Configurations B and C

(Not Shown) — Gypsum board joints to be covered with paper tape and joint compound. Fastener heads optionally covered with joint compound.

8. **Batts and Blankets* —**

Configurations A and D

(Optional — Not Shown — Placed to completely or partially fill the stud cavities, any glass fiber or mineral wool insulation, max 3.0 pcf density, 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 — Not Shown — When Item 3A, Steel Studs, is used, the panel thickness (Item 1) shall be min. 3 in. for the 3 hour rating and min. 4 in. for the 4 hour rating) — Placed to completely or partially fill the stud cavities, any glass fiber or mineral wool insulation, max 3.0 pcf density, 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 C

(Required — When Item 3A, Steel Studs, is used, the panel thickness (Item 1) shall be min. 4 in. for the 4 hour rating) — Placed to completely fill the stud cavities in both rows of studs, any glass fiber or mineral wool insulation, max 3.0 pcf density, 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. **Finish Rating —**

Configurations A, B and D

The following are the minimum finish ratings of the reinforced PAAC panels, from 2 in. to 4 in. thick:

PAAC panel thickness, in.	Minimum finish rating, minutes
2	120
3	180
4	240

Finish rating of 2 in. thick reinforced PAAC panel is 142 minutes when airspace is 0 in., with or without Batts and Blankets*. Finish rating of 2 in. thick reinforced PAAC panel is 147 minutes when Batts and Blankets* are used and airspace is 1 to 4 in. Finish rating of 2 in. thick reinforced PAAC panel is 155 minutes when Batts and Blankets* are not used and airspace is 1 to 4 in.

Configuration C

Finish rating of 5/8 in. thick UL Classified Gypsum Board is 25 minutes without Batts and Blankets. Finish rating has not been determined when Batts and Blankets are used.

*** 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 2023-03-16