

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.
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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](#)

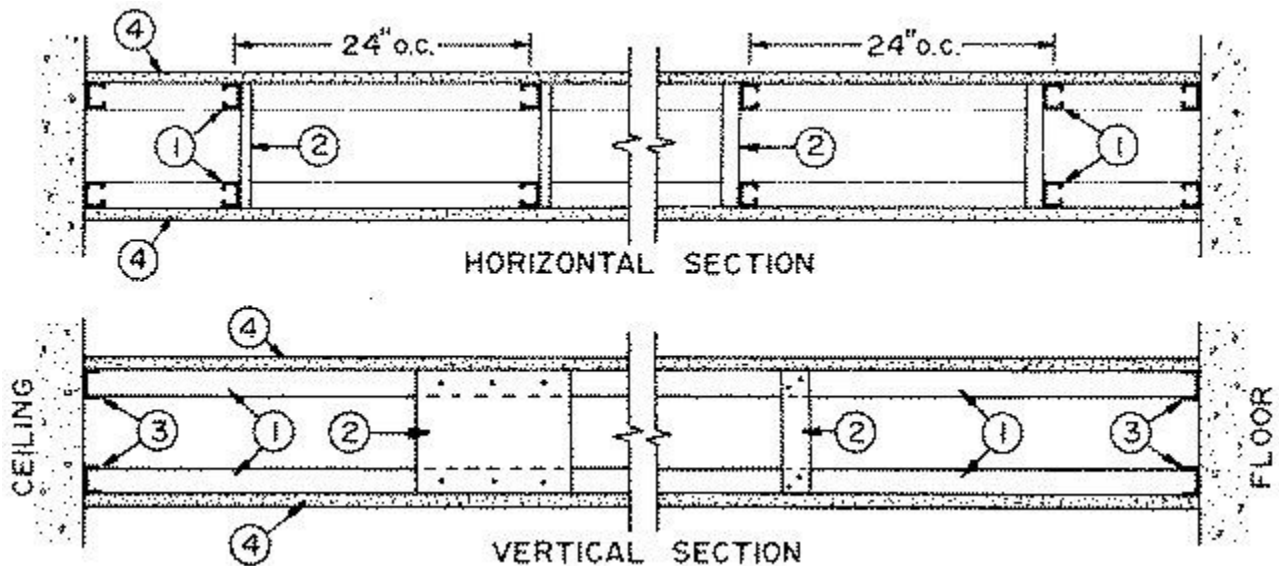
[See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances](#)

Design No. **U420**

August 4, 2023

Nonbearing Wall Rating — 1 or 2 HR.

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



1. **Studs** — Channel shaped, min. 1 5/8 in. depth. Fabricated from No. 25 MSG galv steel. Studs to be cut 1/4 in. less than assembly height.

1A. **Framing Members*— Steel Studs** — As an alternate to Item 1 for a 2 hour rating only - For use with Item 3A, channel shaped studs, min 1-5/8 in. wide, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

1B. **Framing Members*— Steel Studs** — As an alternate to Item 1- For use with Item 3B, channel shaped studs, min 1-5/8 in. wide, fabricated from No. 25 MSG galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

KIRII (HONG KONG) LTD — Type KIRII

1C. **Framing Members*— Steel Studs** — As an alternate to Item 1- For use with Item 3, channel shaped studs, min 1-5/8 in. wide, fabricated from No. 25 MSG galv steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

EB METAL INC — NITROSTUD

1D. **Framing Members* — Steel Studs** — As an alternate to Item 1 - For use with Item 3C, channel shaped, min 3-5/8 in. wide, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

BAILEY METAL PRODUCTS LTD — Type PLATINUM PLUS

1E. **Framing Members*— Steel Studs** — As an alternate to Item 1 for a 2 hour rating only - For use with Item 3D, channel shaped studs, min 1-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

1F. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 1 – For use with Item 3E, proprietary channel shaped steel studs, min 1-1/4 in. wide by min 1-5/8 in. deep with 1/4 in. return lips fabricated from min 0.019 in. thick galv steel, spaced 24 in. OC max. Studs cut 1/4 in. less in length than assembly height.

PANEL REY S A – SUPRA Stud 20EQ/19 mil

2. **Bracing** — Cut from the steel runners, min. 4-1/4 in. long, fastened to the studs with two No. 8 by 1/2 in. long self-drilling, self-tapping steel screws in each stud. As an alternate, but limits the stud cavity depth to maximum 9-1/2 in., cut from the gypsum wallboard, 9-1/2 in. long and 12 in. wide, fastened to the studs with three Type S wallboard screws in each stud. Vertical spacing of bracing not to exceed 48 in. OC.

3. **Floor and Ceiling Runners** — Channel — shaped 1 5/8 in. wide with 1 in. legs, fabricated from No. 25 MSG galv steel. Attached to floor and ceiling with fasteners spaced 24 in. OC.

3A. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 3 for a 2 hour rating only - For use with Item 1A, channel shaped, min 1-5/8 in. wide, attached to floor and ceiling with fasteners 24 in. OC. max.

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

3B. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 3 - For use with Item 1B, channel shaped, min 1-5/8 in. wide fabricated from No. 25 MSG, attached to floor and ceiling with fasteners 24 in. OC. max.

KIRII (HONG KONG) LTD — Type KIRII

3C. **Framing Members* — Floor and Ceiling Runners** — (Not Shown) — As an alternate to Item 3 - For use with Item 1D. Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

BAILEY METAL PRODUCTS LTD — Type PLATINUM PLUS

3D. **Framing Members*— Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 3 for a 2 hour rating only - For use with Item 1E, channel shaped, min 1-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

3E. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 3 – For use with Item 1F, proprietary channel shaped runners, 1-1/4 in. wide by min. 1-5/8 in. deep fabricated from min 0.019 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

PANEL REY S A – SUPRA Track 20EQ/19 mil

4. **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 gypsum board with beveled, square, or tapered edges.

For 1 Hr Rating — One layer of gypsum board to be used. Applied vertically with joints centered over studs. Fastened to studs with 1 in. long, Type S, gypsum board screws spaced 8 in. OC at the joints, located 3/8 in. from the edges, and 12 in. OC in the field. Fasteners to be spaced 8 in. OC at the runners.

For 2 Hr Rating — Two layers of gypsum board to be used. The inner layer to be applied in the same manner as for the 1 Hr Rating. The outer layer to be fastened to the studs (through the inner layer) using 1 5/8 in. long, Type S, wallboard screws spaced 8 in. OC at the joints, located 3/8 in. from the edges and 12 in. OC in the field.

Fasteners to be spaced 8 in. OC at the runners. Joints to be staggered 24 in. from the inner layer.

AMERICAN GYPSUM CO ([View Classification](#)) — CKNX.R14196

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

CABOT MANUFACTURING ULC ([View Classification](#)) — CKNX.R25370

CERTAINTED GYPSUM INC ([View Classification](#)) — CKNX.R3660

CGC INC ([View Classification](#)) — CKNX.R19751

CERTAINTED GYPSUM INC ([View Classification](#)) — CKNX.R18482

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

NATIONAL GYPSUM CO ([View Classification](#)) — CKNX.R3501

NATIONAL GYPSUM CO ([View Classification](#)) — Riyadh, Saudi Arabia — CKNX.R15208

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

SAINT-GOBAIN GYPROC MIDDLE EAST FZE ([View Classification](#)) — CKNX.R27321

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

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO ([View Classification](#)) — CKNX.R40305

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

4A. Gypsum Board* — (As alternate to Item 4) - Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (2-hr system) staggered one stud cavity. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed with steel framing. Horizontal edge joints and horizontal butt joints in adjacent layers (2-hr system) staggered a minimum of 12 in. 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. When using ULIX, panels may be applied vertically or horizontally, screws spaced 12 in. OC in the field and perimeter, horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. 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 16 in. OC.

CGC INC — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, WRC or WRX.

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, WRC or WRX.

USG BORAL DRYWALL SFZ LLC — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4B. Gypsum Board* — (As an alternate to Items 4 or 4A) - Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.

CGC INC — Types AR, IP-AR.

UNITED STATES GYPSUM CO — Types AR, IP-AR.

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

4C. Gypsum Board* — (As an alternate to Items 4 through 4B) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

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

4D. Gypsum Board* — As an alternate to Item 4 - For 2 Hr Rating - Nom. 5/8 in. thick gypsum board with beveled, square, or tapered edges. Two layers of gypsum board to be used. Inner layer applied vertically with joints centered over studs. Fastened to studs with 1 in. long, Type S, gypsum board screws spaced 8 in. OC at the joints, located 3/8 in. from the edges, and 12 in. OC in the field. Fasteners to be spaced 8 in. OC at the runners. The outer layer to be fastened to the studs horizontally using 1 5/8 in.

long, Type S, gypsum board screws spaced 8 in. OC at the joints, located 3/8 in. from the edges and 12 in. OC in the field. Fasteners to be spaced 8 in. OC at the runners.

CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-11, PGS-WRS, PGI

4E. Gypsum Board* — (As an alternate to Item 4A, not for use with Items 1A and 3A) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4A.

CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

4F. Gypsum Board* — (As an alternate to 5/8 in. Type FSW in Item 4) - Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4.

NATIONAL GYPSUM CO — Type FSW.

4G. Wall and Partition Facings and Accessories* — (As an alternate to Items 4 through 4E) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

4H. Gypsum Board* — (As alternate to Item 4) - Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (2-hr system) need not to be staggered. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed with steel framing. Horizontal edge joints and horizontal butt joints in adjacent layers (2-hr system) need not be staggered. For the single layer system, panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 12 in. OC when applied horizontally or vertically. 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 8 in. OC. Screws offset min 6 in. from layer below.

UNITED STATES GYPSUM CO — Type ULIX.

4I. Gypsum Board* — As an alternate to Item 4 (for 1 hour rating) — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications.

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSL, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSMR-C

4J. Gypsum Board* — As an alternate to Item 4 (for 1 hour rating) — Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 12 in. OC.

NATIONAL GYPSUM CO — Type SBWB

5. Joint Tape and Compound — Vinyl or casein, 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.

6. Batts and Blankets* — (Optional, not shown) — Glass fiber batts may be installed in the interior of wall cavity. Any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. Friction-fitted to fill the stud cavities. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

6A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 6) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.
Applegate Greenfiber Acquisition LLC — Insulmax for use with wet or dry application.

6B. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 6) and Item 6A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

6C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 6) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

6D. **Batts and Blankets*** — As an alternate to Item 6 - mineral wool insulation, friction-fitted to fill the stud cavities.
ROCKWOOL — Type AFB, min. density 1.69 pcf / 27.0 kg/m³

*** 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 2023-08-04

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