



BXUV.U450

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

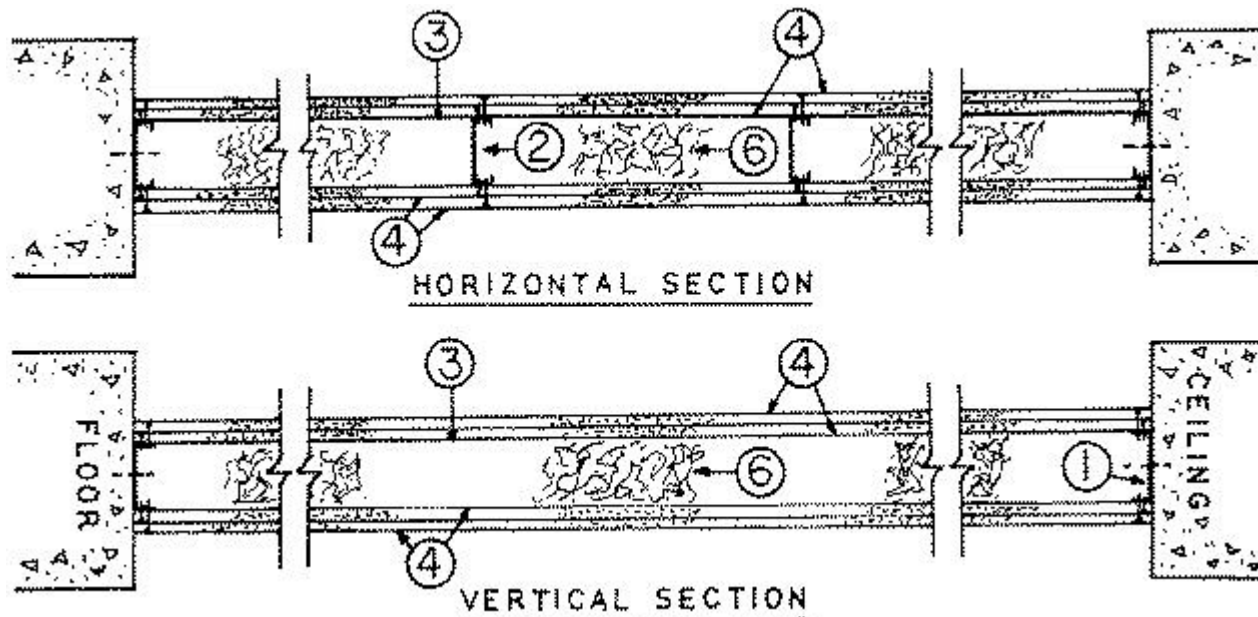
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U450

May 28, 2020

Nonbearing Wall Rating — 1, 3 or 4 HR. (See Items 1, 2, and 4)

*** 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 Runners — Channel shaped 1/2 in. deep by min 3-5/8 in. wide, No. 25 gauge painted or galvanized steel. Min. No. 18 MSG for the 4 hour rating. Secured with 3/4 in. long concrete fasteners spaced 18 in. OC. For the 1 hour rating, width may be reduced to 2-1/2 in. to accommodate the 2-1/2 in. wide studs.

1A. Framing Members* — Floor and Ceiling Runner — Not Shown — In lieu of Item 1 — For use with Item 2A, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1B. Framing Members* — Floor and Ceiling Runners — Not Shown — In lieu of Item 1 — For use with Item 2B, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 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

1C. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 in. OC max.

TELLING INDUSTRIES L L C — Viper20™ Track

1D. **Framing Members* — Floor and Ceiling Runners** — Not Shown — In lieu of Item 1 — For use with Item 2D, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 in. OC max.

TELLING INDUSTRIES L L C — TRUE-TRACK™

1E. **Framing Members* — Floor and Ceiling Runners** — Not Shown — In lieu of Item 1 — For use with Item 2F, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 in. OC max.

RESCUE METAL FRAMING, L L C — AlphaTRAK

1F. **Framing Members* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2G, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 18 in. OC max.

CRACO MFG INC — SmartTrack20™

2. **Steel Studs** — Channel shaped, min 3-5/8 in. wide with 1-1/4 in. legs, with 1/4 in. folded back return flange legs, galvanized steel, spaced not more than 16 in. OC. Stud length 3/8 in. less than assembly height. Min. No. 25 MSG for the 1 and 3 hour rating. Min. No. 18 MSG for the 4 hour rating. For the 1 hour rating, width may be reduced to 2-1/2 in.

2A. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1A, proprietary channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2B. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1B, channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel spaced max 16 in. OC. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

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

2C. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1C, proprietary channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

TELLING INDUSTRIES L L C — Viper20™

2D. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1D, channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel spaced max 16 in. OC. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

TELLING INDUSTRIES L L C — TRUE-STUD™

2E. **Framing Members* — Steel Studs** — As an alternate to Item 2 — For use with Item 1A (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 16 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

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

2F. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1E, channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel spaced max 16 in. OC. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

RESCUE METAL FRAMING, L L C — AlphaSTUD

2G. **Framing Members* — Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1A, proprietary channel shaped steel studs, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height. Min. No. 18 MSG for the 4 hour rating.

CRACO MFG INC — SmartStud20™

3. **Metal Mesh** — (Used with Item 5) — Diamond mesh, expanded steel, 3.4 lbs/sq yd, 27 by 96 in. sheets tied to iron bands (Item 7) and at laps with No. 18 SWG wire spaced 6 in. OC. As an alternate to the diamond mesh and iron bands, 3/8 in. rib, 3.4 lbs/sq yd expanded metal lath. Fastened to studs (ribbed side against studs) with No. 18 SWG wire spaced 6 in. OC. Fastened to runners with 1/2 in. long self-drilling, self-tapping steel screws spaced 6 in. OC. Laps 6 in. min and tied with No. 18 AWG wire spaced 6 in. OC min. The metal lath may be provided with a paper backing. When provided with the paper backing, the paper backed side of the lath shall face the metal studs.

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 on each side applied vertically with joints centered over studs. Fastened to studs with 1 in. long, Type S, self-tapping, self-drilling steel screws spaced 8 in. OC at the joints located 3/8 in. from the edges and 12 in. OC in the field. Joints to be staggered from the inner layer.

For 3 Hr Rating — Two layers of gypsum board on each side. The inner layer to be applied vertically with joints centered over studs. Fastened to studs with 1 in. long, Type S, self-tapping, self-drilling, wallboard screws spaced 8 in. OC at the joints located 3/8 in. from the edges and 12 in. OC in the field. The outer layer also applied vertically to be fastened to the studs (through the inner layer) using 1-5/8 in. long, Type S, self-drilling, self-tapping, steel 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 from the inner layer.

For 4 Hr Rating — (Not Shown) — To be applied to Min. 18 MSG (0.0428 bare metal thickness) steel framing only. Three layers of gypsum board on each side. Two inner layers to be applied in the same manner as the 3 hr rating. The outer layer may be applied vertically or horizontally, unless specified below, and fastened to each stud through the two previous layers with 2-1/4 in. long, Type S, self-drilling, self-tapping steel screws spaced 3/8 in. from the edges, 8 in. OC in the field. Joints in each gypsum board layer to be staggered from the joints in the adjacent layer and on opposite sides of studs.

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

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) — 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

4A. **Gypsum Board*** — (As an alternate to Item 4) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 4.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

NATIONAL GYPSUM CO — Type SBWB

4B. **Gypsum Board*** — (As an alternate to Items 4 through 4A) — 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.

4C. **Wall and Partition Facings and Accessories*** — (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 527.

4D. **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.

5. **Portland Cement Plaster** — (Not Shown) — May be used in lieu of the layers of gypsum board (Item 4) on metal lath side, 3/4 in. thick, applied in scratch coat consisting of 100 lb cement to 50 lb lime to 5-1/2 cu ft of sand and brown coat consisting of 100 lb cement to 50 lb lime to 6 cu ft of sand. To be applied to Min. 18 MSG (0.0428 bare metal thickness) steel framing only.

6. **Spray-Applied Fire Resistive Materials*** — Sprayed in stud cavities to completely fill interior of walls. Min avg and min indiv densities of 13 and 11 pcf, respectively for Types D-C/F, II, and II HS. Min avg and min indiv densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section.

ISOLATEK INTERNATIONAL — Types D-C/F, II, II HS, or HP. Type EBS or Type X adhesive/sealer is optional.

7. **Joint Tape and Compound** — (Used with Item 4; Not Shown) — 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.

8. **Building Paper** — (Not Shown — Optional) — May be used on the exterior face of the wall assembly, between the metal studs and the metal mesh or lath, as a backing for the application of the plaster (Item 5). The building paper may be a single-ply asphalt saturated sheathing, woven polyolefin sheathing or similar vapor barrier materials.

*** 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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