



## BXUVC.U414 Fire-resistance Ratings

Page Bottom

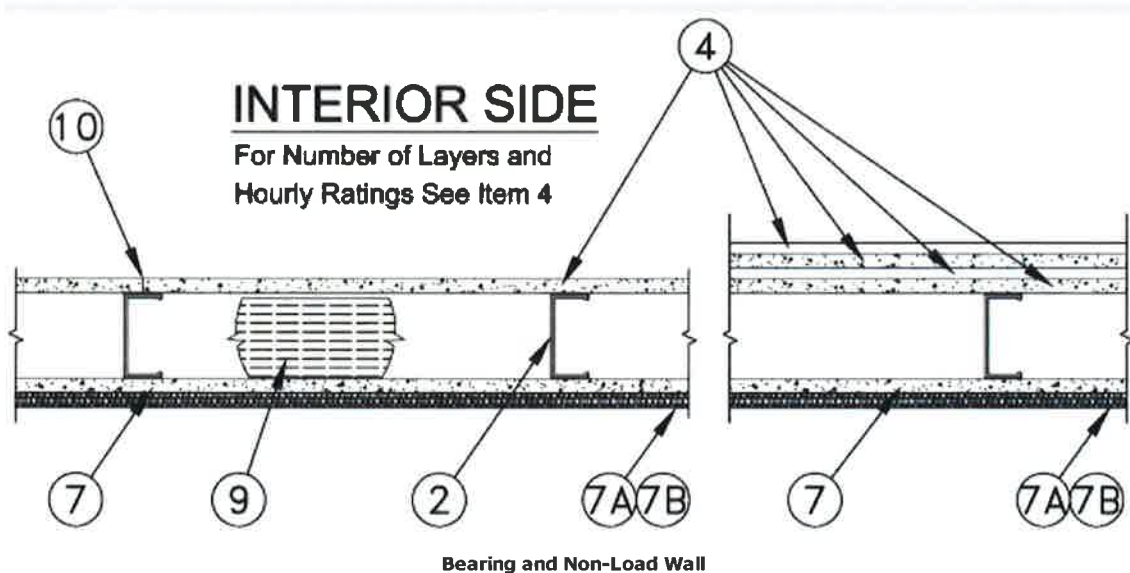
### BXUVC - Fire-resistance Ratings

See General Information for Fire-resistance Ratings

### Design No. U414

November 10, 2015

Assembly Rating - 3/4, 1, 1-1/2 or 2 h (See Item 4)



1. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped runners, fabricated from min 0.83 mm bare metal thickness (20 MSG) galvanized steel, min 92 mm deep with 32 mm flanges. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 610 mm OC.

2. **Steel Studs** — Min 0.83 mm bare metal thickness (20 MSG) galvanized steel studs, min 92 mm deep by 41 mm wide with 13 mm returns, designed in accordance with the current edition of North American Specification for the Design of Cold-Formed Steel Structural Members [CSA Standard S136]. 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 610 mm OC. Studs attached to floor and ceiling runners with 13 mm long Type S-12 steel screws on both sides of the studs or by welded or bolted connections designed in accordance with CSA- S136 specifications.

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2A. **Steel Studs** — (As an alternate to Item 2. For use with Item 4A) — Min 0.83 mm bare metal thickness (20 MSG) galvanized steel studs, min 92 mm deep by 41 mm wide with 13 mm returns, designed in accordance with the current edition of North American Specification for the Design of Cold-Formed Steel Structural Members [CSA Standard S136]. Studs spaced a max of 406 mm. OC. Studs attached to floor and ceiling runners with 13 mm long Type S-12 steel screws on both sides of the studs.

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3. **Lateral Support Members** — (Not Shown) — Where required for lateral support of studs, support shall be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Gypsum Board** — 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 (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs staggered a min of 305 mm. Horizontal edge joints and horizontal butt

joints in adjacent layers (multilayer systems) staggered a min of 305 mm. When used in widths other than 1220 mm, gypsum panels to be installed horizontally. The thickness and number of layers and percent of design load for the ¾ hr, 1 hr, 1-1/2 hr, and 2 hr ratings are as follows:

**Wallboard Protection on Interior Side of Wall**

Rating	No. of Layers & Thickness of Wallboard Panel	% of Design Load
¾ hr	1 layer, 15.9 mm thick	100
1 hr	2 layers, 12.7 mm thick	100
1-1/2 hr	2 layers, 15.9 mm thick	100
2 hr	3 layers, 12.7 mm thick	100
2 hr	2 layers, 19 mm thick	100

**CGC INC** — 12.7 mm thick Type C, IP-X2, IPC-AR, or WRC; 15.9 mm thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, WRX or WRC; 19 mm thick Types AR, IP-AR, IP-X3, ULTRACODE, USGX (Joint tape and compound, Item 10, optional for use with Type USGX)

**4A. Gypsum Board** — (As an alternate to Item 4 when used as the base layer, For direct attachment only) — Nom 15.9 mm or 19 mm thick boards may be used as alternate to all 15.9 mm or 19 mm thick boards shown in Item 4. Wallboard Protection on Each Side of Wall. The nom 15.9 mm or 19 mm thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. See Items 2A, 8. Wallboard secured to studs with 32 mm long Type S-12 steel screws spaced 204 mm OC at perimeter and 305 mm OC in the field. To be used with Lead Batten Strips (see Item 12) or Lead Discs or Tabs (see Item 13).

**RAY-BAR ENGINEERING CORP** — Type RB-LBG

**5. Fasteners** — (Not Shown) — Type S-12 steel screws used to attach panels to runners (Item 1) and studs (Items 2, 2A) or furring channels (Item 8). **Single layer systems:** 25 mm long for 12.7 mm and 15.9 mm thick panels or 32 mm long for 19 mm thick panels, spaced 204 mm OC when panels are applied horizontally, or 305 mm OC when panels are applied vertically. **Two layer systems:** First layer - 25 mm long for 12.7 mm and 15.9 mm thick panels or 32 mm long for 19 mm thick panels, spaced 406 mm OC. Second layer - 42 mm long for 12.7 mm and 15.9 mm thick panels or 57 mm long for 19 mm thick panels, spaced 406 mm OC with screws offset 204 mm from first layer. **Three-layer systems:** First layer - 25 mm long for 12.7 mm thick panels, spaced 610 mm OC. Second layer - 42 mm long for 12.7 mm thick panels, spaced 610 mm OC. Third layer - 57 mm long for 12.7 mm thick panels, spaced 305 mm OC. Screws offset min 152 mm from layer below.

**6. Building Paper** — (Not Shown) — No. 15 asphalt felt or equivalent as required.

**7. Gypsum Sheathing** — For exterior walls, 12.7 mm and 15.9 mm thick exterior regular gypsum sheathing applied vertically or horizontally, attached to studs and runners with 25 mm long Type S12 steel screws spaced 305 mm OC along studs and runners. One or more of the following exterior facings shall be applied over the gypsum sheathing.

**A. Siding, Brick or Stucco** — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies. When a min 95 mm thick brick veneer facing is used, the rating is applicable for exposure on either side. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

**B. Foamed Plastic** — Aged expanded polystyrene (EPS) board per ASTM C578, with a nom density not less than 16 kg/m<sup>3</sup>, with a flame spread of less than 25 and a smoke developed of less than 450, adhered to the gypsum sheathing (Item 7) See **Foamed Plastic (CCVWC) Category** for names of Classified companies.

**8. Furring Channels** — (Optional on one or both sides, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 0.45 mm (25 MSG) corrosion-protected steel, spaced vertically a max of 610 mm OC. Flange portion attached to each intersecting stud with 12.7 mm long Type S-12 pan-head steel screws. Not for use with gypsum panels under Item 4A.

**9. Batts and Blankets** — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the ULC Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNVC and/or BZJZC) Categories** for names of Classified companies.

**10. Joint Tape and Compound** — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of interior face layer. Paper tape, nom 50 mm wide, embedded in first layer of compound over all joints of interior face layer. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

**11. Caulking and Sealants** — (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter on interior side for sound control.

**12. Lead Batten Strips** — (Not Shown, For Use With Item 4A) — Lead batten strips, min 38 mm wide, max 3050 mm

long with a max thickness of 3.2 mm. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 25 mm long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9%, meeting the US Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Required behind vertical joints.

13. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4A) — Used in lieu of or in addition to the lead batten strips (Item 12) or optional at other locations - Max 19 mm diam. by max 3.2 mm thick lead discs compression fitted or adhered over steel screw heads or max 12.7 mm by 32 mm by max 3.2 mm thick lead tabs placed on gypsum boards (Item 4A) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the US Federal specification QQ-L-201f, Grade "C".

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