

BXUV.G565

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

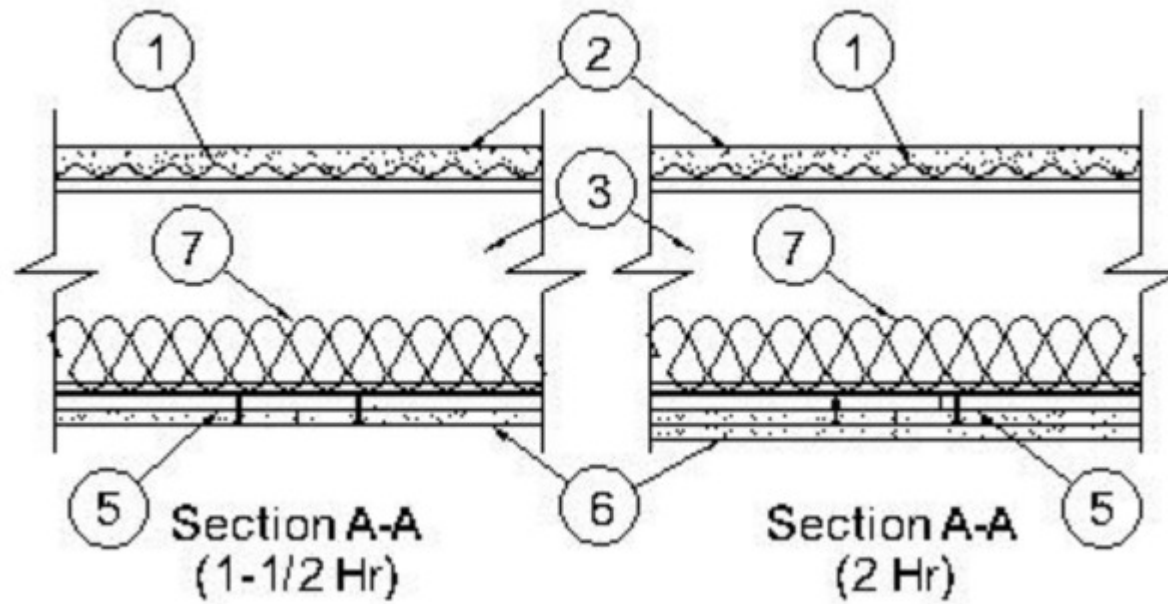
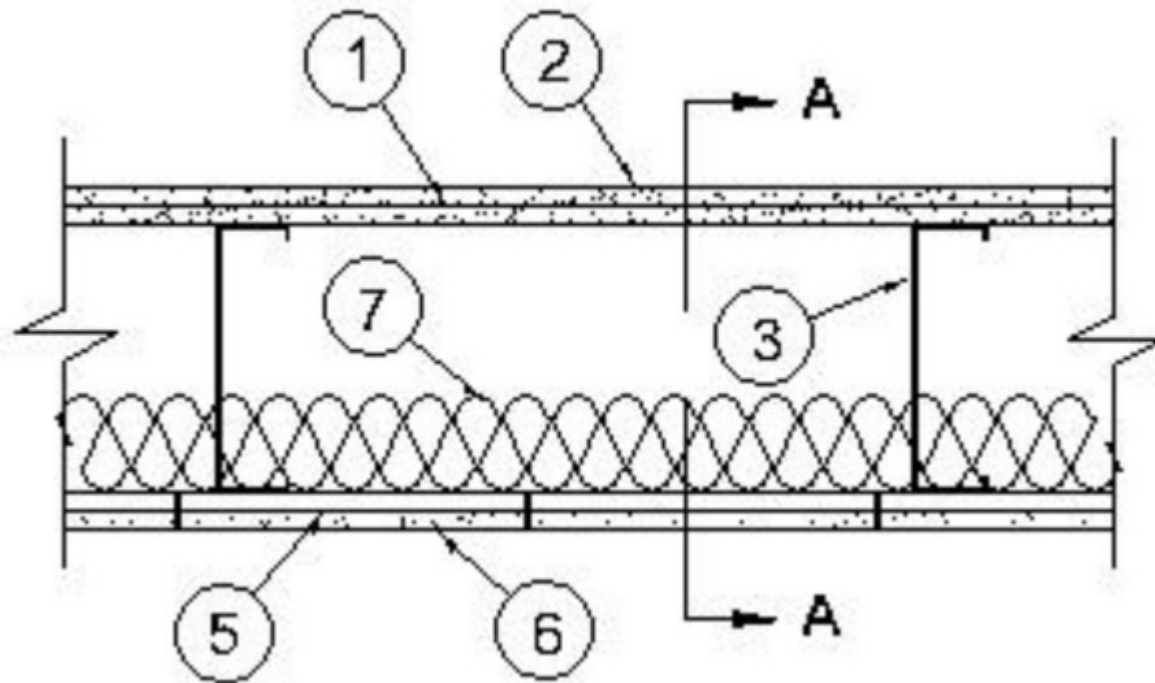
Design No. G565

April 24, 2020

Unrestrained Assembly Rating - 1, 1-1/2 and 2 Hr. (See Items 5A and 6)

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.**



1. **Steel Deck** — Min 9/16 in. deep, 22 MSG galv corrugated fluted steel deck. Overlapped one corrugation at each side and attached to each joist with 5/8 in. long #10-16 TEK screws at each side joint and no more than 12 in. OC between sides.

2. **Floor Topping Mixture*** — Compressive strength to be 3500 psi min. Minimum thickness to be 1 in. as measured from the top plane of the deck or the top plane of the Floor Mat Material*. Refer to manufacturer's instructions accompanying the material for specific mix design. An ethylene vinyl acetate adhesive may be applied to the steel deck prior to the installation of the floor topping mixture at a maximum application rate of 0.025 lbs./ft².

HACKER INDUSTRIES INC — Firm-Fill CMD (formerly Firm-Fill CSD)

Floor Mat Materials* — (Optional) — Floor mat material nom 5/64 in. (2mm) thick adhered to concrete slab with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick adhered to concrete slab with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32mm) of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/8 in. (3mm) thick loose laid over the concrete slab. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick loose laid over the concrete slab. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/8 in. (10mm) thick loose laid over the concrete slab. Floor topping thickness shall be a min of 1-1/4 in. (32mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 3/4 in. (19mm) thick loose laid over the concrete slab. Floor topping thickness shall be a min of 1-1/2 in. (38mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750

2A. As an alternate to Items 2:

Vapor Barrier — (Optional) - Commercial asphalt saturated felt, 0.030 in. thick.

Vapor Barrier — (Optional) - Nom 0.010 in. thick commercial rosin-sized building paper.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance. See Floor- and Roof-Topping Mixtures (CCOX) category for names of Classified Companies.

Floor Mat Materials* — (Optional, Not Shown) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

LOW & BONAR INC — EnkaSonic® by Colbond a member of the Low & Bonar group Types 125, 250, 250 Plus, 400, 400 Plus, 750, and 750 Plus.

Floor Mat Reinforcement — (Optional) - Refer to manufacturer's instructions regarding minimum thickness of floor topping for use with floor mat reinforcement.

Metal Lath — (Optional) — Expanded steel diamond mesh, 2.5 lb / sq yd loose laid over floor mat material.

Fiberglass Mesh Reinforcement — (Optional) — Coated non-woven glass fiber mesh grid loose laid over floor mat material.

3. **Structural Steel Members** — Channel-shaped, 9-1/4 in. min depth. Fabricated from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. Joists attached to joist rim with three 3/4 in. long self-drilling #10 self drilling screws at the tab to the outside of the web. At joist rim splices bearing on supports, joists rims are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with four 3/4 in. long self-drilling #10 screws to each rim piece.

3A. **Steel Joists** — As an alternate to Item 3 - Channel-shaped, 9-1/4 in. min depth. Joists are fabricated from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. Joists attached to rim joist with a minimum of three #10 3/4 in. long self-drilling screws at the rim track clip to the outside of the web joist, and a #10 1/2 in. long screw through the top and bottom flange of the joists to the top and bottom flange of the rim track. At rim joist splices bearing on supports, rim joists are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with a minimum of six 3/4 in. long self-drilling #10 screws to each rim piece. For use with item 3C.

CALIFORNIA EXPANDED METAL PRODUCTS CO — — Type SSCJ floor joists, SSRT rim joists or Type SSTT rim joists. When Type SSTT rim joists are used, secured to preformed clip tabs in accordance with manufacturers installation instructions.

4. **Joist Bridging** — For Use With Item 3 — Not shown — Installed immediately after joists are erected and before construction loads are applied. The bridging, consisting of No. 18 MSG galv steel, 2-1/2 in. wide by 21-3/4 in. long structural bridging staggered between the steel joists attached to the bottom joist flange with one 3/4 in. long self-drilling #10 self-drilling screws at each end tab of bridging. The solid bridging consists of cut to length joist sections placed between outer joists and at center joist with 8 ft OC max spacing. The solid bridging was attached to the joists with a 1-1/2 in. by 1-1/2 in. by 7 in. support clip and a 4 by 1-1/2 in. by 7 in. support clip with two, #10-3/4 in. long screws per leg per clip.

4A. **Joist Bridging** — For Use With Item 3A — Not shown — Installed immediately after joists are erected and before construction loads are applied. The structural bridging, Type CEMCO Sure Bridging, consisting of No. 18 MSG galv steel, 2-1/2 in. wide by 25-1/2 in. long with 1-5/16 in. long legs structural bridging staggered between the steel joists and attached to the bottom joist flange with two #10 1/2 in. long self-drilling screws at each end tab of bridging. Solid bridging consisting of cut to length joist sections placed between outer joists and at center joist with 8 ft OC max spacing. Solid bridging is seated in the structural bridging and is screw-attached at joist web using Type CEMCO Sure-Support Clips (1-1/2 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg on one side and the other side with Type CEMCO Sure-Support Clips (4 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg.

5. **Resilient Channels** — 1/2 in. deep, formed of 25 MSG galv steel, spaced 12 in. OC perpendicular to joists. Channels oriented opposite at wallboard butt-joints. Channel splices overlapped 6 in. beneath steel joists. Channels secured to each joist with 1/2 in. wafer head screws. Channels oriented opposite at wallboard butt joints (spaced 6 in. OC) as shown in the above illustration.

5A. **Steel Framing Members* - (Not Shown)** — For the 1 Hour Rating Only — As an alternate to Item 5 — Furring channels and Steel Framing Members* as described below:

- a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of

overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to joists (Item 3). Clips spaced 48 in. OC and secured to the bottom chord of alternating joists with min 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 6. Two layers of gypsum board required as described in Item 6.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

5B. **Steel Framing Members*** — (Not Shown) — For the 1 Hour Rating Only — As an alternate to Item 5 — Furring channels and **Steel Framing Members*** as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 12 in. OC perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to joists (Item 3). Clips spaced 24 in. OC and secured to the bottom chord of consecutive joists with min 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw through the center grommet. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item a. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 6. Two layers of gypsum board required as described in Item 6.

PLITEQ INC — Type GENIECLIP

5C. **Alternate Steel Framing Members** — (Not Shown)* - For the 1 hour Rating Only - As an alternate to item 5, furring channels and Steel Framing Members as described below.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 12 in OC, perpendicular to joists. Channels secured to joists as described in Item b.

b. **Steel Framing Members*** — Used to attach furring channels (Item a) to the joists (Item 3). Clips spaced at 48" OC and secured to the bottom of the joists with 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw through the center center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and tied together with double strand of No. 18 AWG galvanized steel wire. Additional clips are required to hold the Gypsum Butt joints as described in Item 6.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6. **Gypsum Board*** — **For the 1-Hour Rating** — **Steel Framing Members** (Item 5A or 5B) are used, and two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels. Base layer attached to furring channels as described below for the 2 Hour Rating. Butted end joints of base layer shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. Each end of each base layer gypsum panel shall be supported by a single length of furring channel equal to the width of the gypsum panel plus 6 in. on each end. The two support furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the joist with one RSIC-1 clip at each end of the channel. Face layer attached to furring channels and base layer as described below for the 2 Hour Rating. When **Steel Framing Members** (Item 5C) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels. Base layer secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the

board. Gypsum board butted end joints shall be staggered minimum 48 in. and centered over main furring channels. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end. The two supporting furring channels shall be spaced approximately 3 in. in from end joint. Screw spacing along the gypsum board butt joint and along both additional furring channels shall be 8 in. OC. Additional screws shall be placed in the adjacent section of gypsum board into the aforementioned 3 in. extension of the extra butt joint channels as well as into the main channel that runs between. Butt joint furring channels shall be attached with one RESILMOUNT Sound Isolation Clip at each end of the channel. Face layer attached to furring channels and base layer as described below for the 2 Hour Rating. **For the 1-1/2 Hour Rating** — Nom 5/8 in. thick, 48 in. wide gypsum panels. When resilient channels (Item 5) are used, gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle-head screws spaced 8 in. OC in both the field and the perimeter, and 1 in. and 4 in. from side edges of the board with side joints staggered 4 in. from center of joist. **For the 2 Hour Rating** — Nom 5/8 in. thick, 48 in. wide gypsum panels. Base layer installed with long dimension perpendicular to resilient channels (Item 5). Gypsum panels secured with 1 in. long Type S bugle-head screws spaced 8 inched OC in both the field and the perimeter, and 1 in. and 4 in. from side edges of the board with side joints staggered 4 in. from center of joist. Face layer installed with long dimension perpendicular to resilient channels with joints offset 24 in. from base layer. Gypsum panels secured with 1-5/8 in. long Type S bugle-head screws spaced 8 in. OC in both the field and the perimeter, and 1 in. and 4 in. from side edges of the board. At the butt joint 1-1/2 in. long Type G screws spaced 8 in. OC and 1 in and 4 in. from the side edges of the board.

AMERICAN GYPSUM CO — Type AG-C

CGC INC — Types C, IP-X2, IPC-AR, ULIX

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

CERTAINTED GYPSUM INC — Type C

GEORGIA-PACIFIC GYPSUM L L C — Types DAPC, TG-C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, ULIX

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

7. **Batts and Blankets*** — Mineral wool or glass fiber insulation, min 3-1/2 in. thick, bearing the UL Classification Marking for Surface Burning Characteristics. Insulation fitted in the concealed space, draped over the resilient channel/gypsum panel or Steel Framing Members/gypsum panel ceiling membrane.

8. **Joint System** — Not Shown — Vinyl, 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.

*** 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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