

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. **L547**

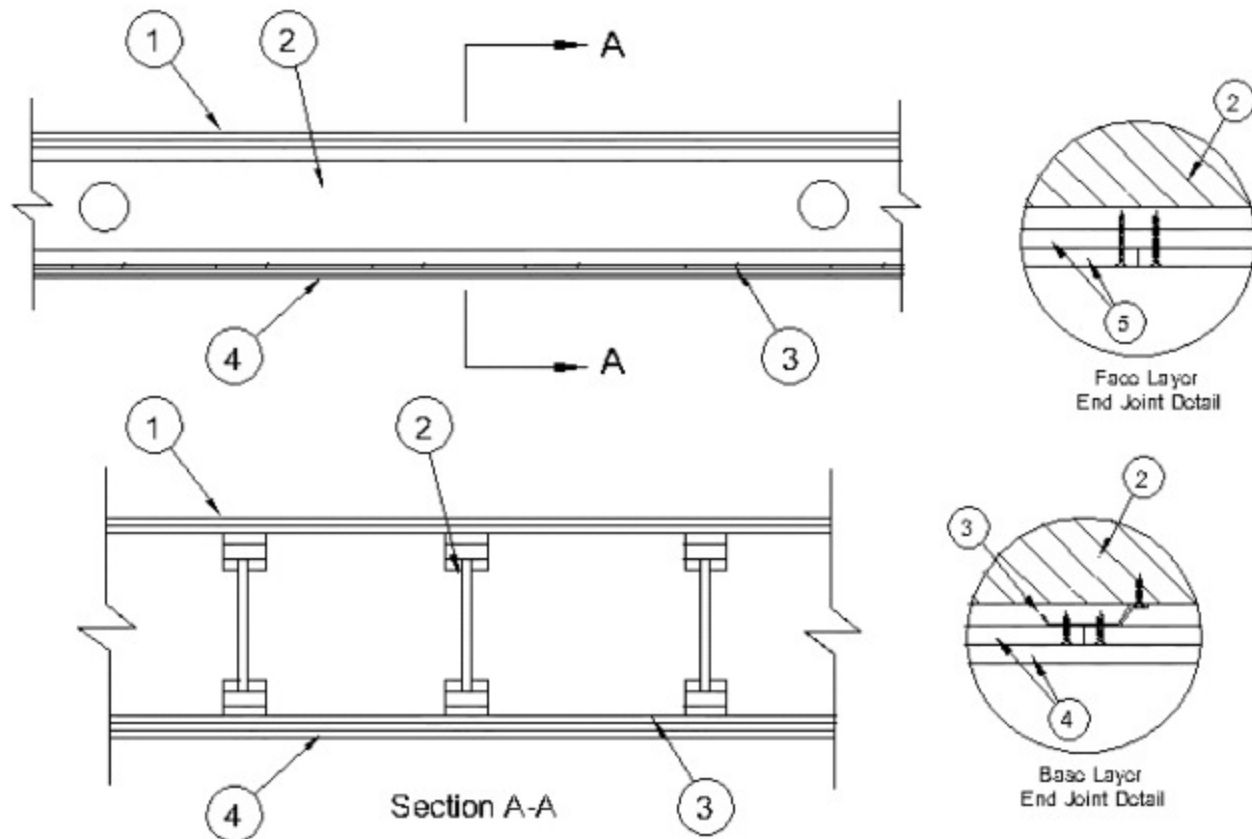
April 14, 2025

Unrestrained Assembly Rating — 1-1/2 Hr

Finish Rating — 60 Min

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. **Flooring System** — The flooring system shall consist of one of the following:

System No. 1

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Floor - Mineral and Fiber Board* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

System No. 2

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF

System No. 3

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Floor Mat Materials* - (Optional) — Floor mat material nom 1/8 in. (3mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19mm)

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 subfloor. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — Types FIRM-FILL SCM 250 and FIRM-FILL SCM 250+

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

HACKER INDUSTRIES INC — Types FIRM-FILL SCM 400 and FIRM-FILL SCM 400+

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

HACKER INDUSTRIES INC — Types FIRM-FILL SCM 750 and FIRM-FILL SCM 750+

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 5/64 in. (2mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 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 subfloor 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.

Metal Lath (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant

System No. 4

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

MAXXON CORP — Types Maxxon Standard and Maxxon High Strength

Floor Mat Materials* - (Optional) — 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.

MAXXON CORP — Type Encapsulated Sound Mat

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

Metal Lath (Optional) - 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

System No. 5

Deleted

System No. 6

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.010 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) - 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.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Nom 3/8 in. thick floor mat material loose laid over the subfloor.

GRASSWORX L L C — Type SC50

System No. 7

Subflooring — Min 3/4 in. thick wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered. Long edges may be T & G or square.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 or 1 in. thickness of floor topping mixture for 19/32 or 15/32 in. thick wood structural panels respectively, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ARCOSA SPECIALTY MATERIALS — AccuCrete® Types NexGen, Green, Prime and PrePour, AccuRadiant®, AccuLevel® Types G40, G50 and SD30

Alternate Floor Mat Material* — (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in. or 1 in. thick for 19/32 or 15/32 in. thick wood structural panels respectively.

ARCOSA SPECIALTY MATERIALS — AccuQuiet® Types D13, D-18, D25, DX38, EM.125, EM.125S, EM.250, EM.250S, EM.375, EM.375S, EM.750, and EM.750S.

System No. 8

Subflooring — Min 5/8 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to the joists with joints staggered.

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* — 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. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials* — (Optional) - Nom 3/32 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat RST02

Floor Mat Materials* — (Optional) - Nom 3/16 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat FF03NP

Floor Mat Materials* — (Optional) - Nom 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

PLITEQ INC — Type GenieMat FF06

Floor Mat Materials* — (Optional) - Nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

PLITEQ INC — Type GenieMat FF10

Floor Mat Materials* — (Optional) - Nom 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

PLITEQ INC — Type GenieMat FF17

Floor Mat Materials* — (Optional) - Nom 1 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

PLITEQ INC — Type GenieMat FF25

System No. 9

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

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* — 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. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 10

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Vapor Barrier — (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture, having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — Types GSL M3.4, GSL K2.6, GSL-CSD and GSL RH

Floor Mat Materials* — (Optional) — Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) — Floor mat material Nom. 1/4 in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Types Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 11

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Flooring* — Floor Topping Materials — Min 3/4 in. to 1-1/2 in. thickness of any Floor Topping Mixture bearing the UL Classification Marking as to Fire Resistance with a minimum compressive strength of 1500 psi.

See **Floor- and Roof-Topping Mixtures** (CCOX) category for names of Classified Companies. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

Floor Mat Materials* — (Optional) — Floor mat material nom 1/8 in. to 3/4 in. thick. Loose laid over the subfloor. When used, Acousti-flor CSM (crack suppression mat) is loose laid over the floor mat material. Floor topping material thickness is dependent on thickness of floor mat used.

WALFLOR INDUSTRIES INC — Type Acousti-flor, Acousti-flor CSM. Floor topping thickness depends on products used as follows:

Acousti-flor (1/8 in. thick) - Floor topping thickness shall be a minimum of 3/4 in.

Acousti-flor (1/4 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/8 in. thick) - Floor topping thickness shall be a minimum of 1 in.

Acousti-flor (3/4 in. thick) - Floor topping thickness shall be a minimum of 1-1/2 in.

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.

System No. 12

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 1 in. thickness of floor topping mixture having a min compressive strength of 4500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

SIKA DEUTSCHLAND GMBH — Type SCHONOX AP Rapid Plus

System No. 13

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

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. Refer to the manufacturer's instructions accompanying the material and/or contact the manufacturer's technical support for specific mix design and minimum thickness recommended for use with eligible floor mat(s).

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.

Freudenberg Performance Materials LP — 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.

System No. 14

Subflooring — Min 5/8 in. thick plywood wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood to be perpendicular to trusses with joints staggered.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1500 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

BoldStep — Types BoldStep Regular and BoldStep High Strength

Floor Mat Materials* - (Optional) — 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.

BoldStep — Type Sound Mat

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

Metal Lath - (Optional) - 3/8 in. expanded galvanized steel diamond mesh, 3.4 lbs/sq yd loose laid over the floor mat material.

Fiber Glass Reinforcement - (Optional, Not Shown) - 0.015 in. thick PVC coated non-woven fiberglass mesh, 0.368 lbs/sq yd loose laid over the floor mat material.

2. **Structural Wood Members** — Min 9-1/2 in. deep "I" shaped wood joists spaced at a max of 19.2 in. OC. Joists shall conform to ICC-ES ESR-1153 Report. Joist top and bottom chords minimum 1-3/8 in. deep by 2.3 in. wide and constructed of either Microllam laminated veneer lumber (LVL) or TimberStrand laminated strand lumber (LSL). Webs constructed of minimum 3/8 in. thick Performance Plus OSB, PS2, Exposure 1. Installation shall be in accordance with manufacturers published literature.

3. **Furring Channels** — Resilient channels, formed of 25 MSG thick galv steel, spaced 16 in. OC perpendicular to joists. Channels secured to each truss with 1-5/8 in. long Type S bugle head steel screws. As an alternate to the resilient channels, **Steel Framing Members*** (Item 3A) may be used.

3A. **Steel Framing Members*** — (Not Shown) As an alternate to Item 3, 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 trusses 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 2). Clips spaced 48 in. OC and secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall 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. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to that supports the gypsum board butt joints, as described in Item 5.

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

3B. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 3, 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 24 in. OC perpendicular to joists. Channels secured to trusses 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 2). Clips spaced 48 in. OC and secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to that supports the gypsum board butt joints, as described in Item 4.

PLITEQ INC — Type GENIECLIP

3C. **Alternate Steel Framing Members*** — (Not Shown) - As an alternate to item 3, 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 24 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 2). When wood joists are spaced 19.2 in. OC, clips spaced a max of 38.4 in. OC. When wood joists are spaced 16 or 24 in. OC, clips spaced at 48" OC and secured to the bottom of the joists with one 2 in. Coarse Drywall Screw with 1 in. diam washer through the 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 4.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

3D. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 3.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 16 in. OC, perpendicular to the joists. Channels secured to Cold Rolled Channels at every intersection with a 3/4 in. TEK screw through each furring channel leg. Ends of adjoining channels overlapped 12 in. and fastened together with two double strand No. 18 SWG galv steel wire ties, one at each end of overlap, or with two 3/4 in. TEK screws in each leg of the overlap section. Two furring channels positioned 3 in. OC, 1-1/2 in. on each side of gypsum board (Item 4) end joints, each extending a min of 6 in. beyond both side edges of the board.

b. **Cold Rolled Channels** — 1-1/2 in. by 1/2 in., formed from No. 16 ga. galv steel, positioned vertically and parallel to joists, friction-fitted into the channel caddy on the Steel Framing Members (Item 3Dc) and secured with two 3/4 in. TEK screws. Adjoining lengths of cold rolled channels lapped min. 12 in. and secured along bottom legs with four 3/4 in. TEK screws and wire-tied together with two double strand 18 SWG galv steel wire ties, one at each end of overlap.

c. **Steel Framing Members*** — Spaced 48 in. OC. max along joist, and secured to the joist on alternating joists with two, #10 x 1-1/2 in. screws through mounting holes on the hanger bracket.

PAC INTERNATIONAL L L C — Type RSIC-SI-CRC EZ Clip

3E. **Steel Framing Members*** — (Optional, Not Shown) — As an alternate to Item 3.

a. **Furring Channels** — Formed of No. 25 MSG galv steel, nominal 2-1/2 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to joists and friction fit into Steel Framing Members (Item 3Eb). 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 or with two TEK screws along each leg of the 6 in. overlap. Two furring channels positioned 6 in. OC, 3 in. on each side of gypsum board (Item 4) end joints. Butt joint channels held in place by strong back channels placed upside down, on top of, and running perpendicular to primary furring channels, extending 6 in. longer than length of gypsum side joint. Strong back channels spaced maximum 48 in. OC. Strong back channels secured to every intersection of

primary furring channels with four 7/16 in. pan head screws, two along each of the legs at intersections. Butt joint channels run perpendicular to strong back channels and shall be minimum 6 in. longer than length of joint, secured to strong back channels with 7/16 in. pan head screws, two along each of the legs at intersection with strong back channels.

b. **Steel Framing Members*** — Used to attach furring channels (Item 3Ea) to joists. Clips spaced 48 in. OC and secured along joist webs at each furring channel intersection with min. 3/4 in. long self-drilling #10 x 1-1/2 in. screws through each of the provided hole locations. Furring channels are friction fitted into clips.

PAC INTERNATIONAL L L C — Type RSIC-S1-1 Ultra

3F. **Steel Framing Members*** — (Optional - Not Shown) — Used to attach resilient channels (Item 3) to joists (Item 2). Clips spaced 48 in. OC and secured to joists with one No. 8 x 2-1/2 in. coarse drywall screw through center grommet hole. Channels secured to clips with one #10 x 1/2 in. pan-head self-drilling screw. Ends of adjoining channels overlapped 6 in. and secured together with two #8 15 x 1/2 in. Philips Modified screws spaced 2-1/2 in. from the center of the overlap. Gypsum board butt joints require additional resilient channels spaced 1-1/2 in. from the butt joint on either side. One edge of the extra channels will extend to an adjacent joist where it is secured with a clip.

KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

3G. **Steel Framing Members*** — (Optional, Not Shown) — Used as an alternate method to attach resilient channels to structural members. A resilient sound isolation accessory shall be used at each attachment point of the resilient channels and spaced max 19.2 in. O.C. Channel ends butted and centered under the structural members and attached with one accessory at each end. Additional accessories used to hold resilient channels that support the gypsum board end joints. The accessory envelops the mounting edge of the resilient channel. The accessory and resilient channel are fastened to the structural members with the screws supplied with the accessory and per the accessory manufacturer's installation instructions. Gypsum Board butt joints staggered minimum 24 in. OC and Base layer Gypsum Board screws spaced 8 in. OC in both the field and perimeters when used.

PAC INTERNATIONAL L L C — Type RC-1 Boost

4. **Gypsum Board** — Two layers of 1/2 in. thick by 4 ft wide gypsum board installed perpendicular to resilient channels. Base layer of secured to resilient channels with 1 in. long Type S bugle head screws spaced 8 in. OC at the butted end joints and 16 in. OC in the field of the board. Face layer secured to resilient channels with 1-5/8 in. Type S bugle head screws spaced 8 in. OC in the field of the board and with 1-1/2 in. long Type G screws spaced 8 in. OC at the butt joints located midspan between resilient channels. When **Steel Framing Members** (Item 3A, 3B) are used, gypsum board installed with long dimension parallel with trusses. Base layer attached to the furring channels using 1 in. long Type S bugle head steel screws spaced 12 in. OC in the field of the board. Butted end joints shall be staggered min 2 ft within the assembly, and occur midway between the continuous furring channels. At butted end 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 6 in. on each end. The two furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the joist with one clip at each end of the channel. Screw spacing along the end joint shall be 8 in. OC. Butted base layer end joints to be offset a min of 24 in. in adjacent courses. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle-head steel screws spaced 8 in. OC at butted joints and 12 in. OC in the field. Butted end joints to be offset a min of 8 in. from base layer end joints. Butted side joints of outer layer to be offset min 18 in. from butted side joints of base layer. When **Steel Framing Members** (Item 3C) are used, base layer gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board 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 support furring channels shall be spaced approximately 3 in. in from joint. Screw spacing along the gypsum board butt joint and along both additional 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 a RESILMOUNT Sound Isolation Clip at each end of the channel. Face layer secured as described above.

When **Steel Framing Members** (Item 3D) are used, two layers of nom 1/2 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 3E) are used, two layers of nom 1/2 in. thick, 4 ft wide gypsum board, installed as described in Item 4. Butt joints staggered minimum 24 in. OC.

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*** 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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