Design No. **L532**

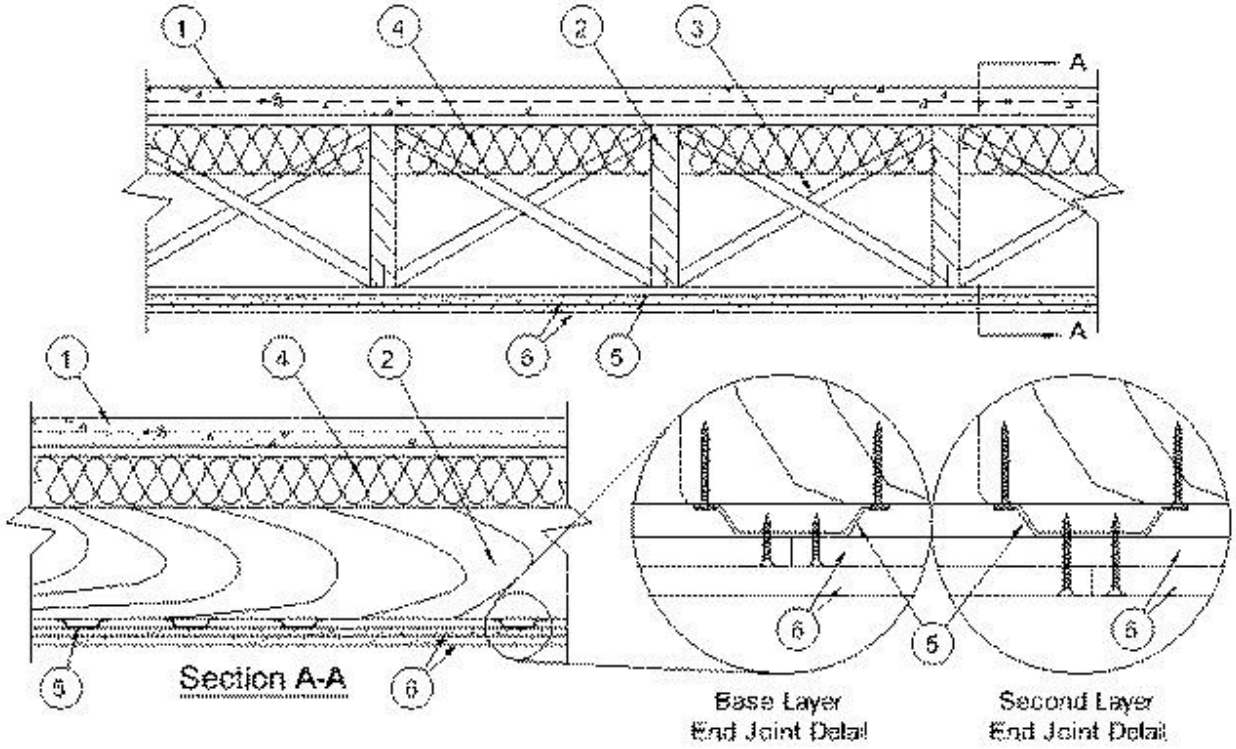
March 16, 2023

Unrestrained Assembly Rating - 1-1/2 Hr

Finish Rating - 63 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 Systems —** The flooring system shall consist of one of the following:

System No. 1

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.**Wire Mesh —** Wire mesh placed perpendicular to the wood joists consisting of No. 19 SWG galvanized steel wire twisted to form 2 in. hexagons with straight No. 16 SWG galvanized steel wire woven into mesh and spaced 3 in. OC for stiffness. Mesh installed without attachment and overlapped 6 in. at the sides.**Vapor Barrier —** (Optional) - Polyethylene film, vinyl film or nom 0.010 in. thick commercial rosin-sized building paper.**Finish Flooring - Vermiculite Concrete —** Min 1-1/2 in. thickness of vermiculite-sand concrete. Mixture shall consist of 1 part Portland cement, 2 parts sand and 3 parts Vermiculite Aggregate*, by bulk volume.

See **Vermiculite Aggregate** (CFFX) category for names of manufacturers.

System No. 2

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.**Wire Mesh —** Wire mesh placed perpendicular to the wood joists consisting of No. 19 SWG galvanized steel wire twisted to form 2 in. hexagons with straight No. 16 SWG galvanized steel wire woven into mesh and spaced 3 in. OC for stiffness. Mesh installed without attachment and overlapped 6 in. at the sides.**Vapor Barrier —** (Optional) - Polyethylene film, vinyl film or nom 0.010 in. thick commercial rosin-sized building paper.**Finish Flooring —** Perlite Concrete - Min 1-1/2 in. thickness of perlite-sand concrete. Mixture shall consist of 1 part Portland cement, 2 parts sand and 3 parts Perlite Aggregate*, by bulk volume.
See **Perlite Aggregate** (CFFX) category for names of manufacturers.

System No. 3

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.**Wire Mesh - (Optional) —** Wire mesh placed perpendicular to the wood joists consisting of No. 19 SWG galvanized steel wire twisted to form 2 in. hexagons with straight No. 16 SWG galvanized steel wire woven into mesh and spaced 3 in. OC for stiffness. Mesh installed without attachment and overlapped 6 in. at the sides.**Vapor Barrier - (Optional) —** Polyethylene film, vinyl film or nom 0.010 in. thick commercial rosin-sized building paper.**Floor Topping Mixture* —** Min 1-1/2 in thickness of any floor topping mixture bearing the UL Classification Marking as to Fire Resistance. Floor topping mixture to be mixed in accordance with manufacturer's instructions. 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).
See **Floor Topping Mixture*** (CCOX) category for names of manufacturers.

System No. 4

Subflooring — Min 19/32 in. thick wood structural panels, min grade **C-D** or **Sheathing**. Face grain of plywood or strength axis of panels to be perpendicular to joists 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. 5

Subflooring — Min 23/32 in. thick T&G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Gypsum Board* — One layer of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists. Gypsum board secured with 1 in. long No. 6 Type W bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

Floor Mat Materials* — (As an alternate to the single layer gypsum board) - 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.

Gypsum Board* — (For use when floor mat is used) Two layers of nom 5/8 in. thick, 4 ft wide gypsum board, installed with long dimension perpendicular to joists on top of the floor mat material. Gypsum board secured to each other with 1 in. long No. 6 Type G bugle head steel screws spaced 12 in. OC and located a min of 1-1/2 in. from side and end joints. The joints of the gypsum board are to be staggered a minimum of 12 inches in between layers and from the joints of the subfloor.

GEORGIA-PACIFIC GYPSUM L L C — Type DS

System No. 6

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered. **Floor Topping Mixture* —** Min 1-1/2 in thickness of any floor topping mixture bearing the UL Classification Marking as to Fire Resistance. Floor topping mixture to be mixed in accordance with manufacturer's instructions.
FORMULATED MATERIALS LLC — Types FR-25, FR-30, and SiteMix

Floor Mat Materials* — (Optional) — To be used in conjunction with Floor Topping Mixture*. Any floor mat material bearing the UL Classification Marking as to Fire Resistance adhered to subflooring in accordance with manufacturer's instructions. Min Floor Topping Mixture* thickness in accordance with manufacturer's instructions.
FORMULATED MATERIALS LLC — Types M1, M2, M3, Elite, Duo, R1, and R2.

System No. 7

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists 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. 8

Subflooring — Min 19/32 in. thick wood structural panels, min grade "C-D" or "Sheathing". Face grain of plywood or strength axis of panels to be perpendicular to joists with joints staggered.

Wire Mesh — Wire mesh placed perpendicular to the wood joists consisting of No. 19 SWG galvanized steel wire twisted to form 2 in. hexagons with straight No. 16 SWG galvanized steel wire woven into mesh and spaced 3 in. OC for stiffness. Mesh installed without attachment and overlapped 6 in. at the sides.

Vapor Barrier — (Optional) - Polyethylene film, vinyl film or 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.
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.

1B. **Floor Mat Materials* — (Optional) —** To be used in conjunction with **Floor Topping Mixture***. Any floor mat material bearing the UL Classification Marking as to Fire Resistance adhered to subflooring in accordance with manufacturer's instructions. Min **Floor Topping Mixture*** thickness in accordance with manufacturer's instructions. 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).
See **Floor Mat Materials *** (CCQU) category for names of manufacturers.

1C. **Metal Lath (Optional) —** For use with **Floor Topping Mixture*** and **Floor Mat Materials*** in accordance with manufacturer's instructions, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. 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).

2. **Wood Joists —** Min 2 by 10, spaced 16 in. OC and effectively fireblocked in accordance with local codes.

3. **Cross Bridging —** Min 1 by 3 in. or min 2 by 10 solid blocking.

4. **Batts and Blankets* —** Any glass fiber batt material bearing the UL Classification Marking as to Fire Resistance. Nom 96 by 16 by 3-1/2 in. thick glass fiber batts having a min density of 0.6 pcf friction-fitted between joists against underside of subfloor. When unfaced batts are used, batts secured in place with steel retainer wires consisting of nominal 15-3/8 in. lengths of 0.085 in. diameter steel wire with "toothed" ends. Retainer wires pressed into joist cavity, against underside of insulation, spanning between and biting into the joists on both ends. Retainer wires spaced max 12

in. OC. When faced batts are used, batts secured to joists on both sides with staples spaced max 12 in. OC.
See **Batts and Blankets** (BZJZ) category for names of manufacturers.

5. **Furring Channels —** Furring channels, 7/8 in. deep by 2-5/8 in. or 2-9/16 in. or 2-23/32 in. or 2-3/8 in. wide at the base by 1-7/16 in. wide at the face, formed from No. 25 MSG galv steel, spaced max 16 in. OC, perpendicular to wood joists. Furring channels secured to each joist with two 6d coated nails. Channels spliced with adjoining pieces overlapped min 2-1/2 in., centered beneath wood joist, and secured together with the two 6d coated nails. Additional pieces of channel, 60 in. long, located at each gypsum board base layer end joint, midway between continuous channels and attached to each joist with two 6d coated nails.

5A. **Steel Framing Members* - (Not Shown) —** Used as an alternate method to attach furring channels to wood joists. 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. 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. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two min 7/16 in. long No 6 self-tapping framing screws, at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 6.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

5B. **Steel Framing Members* —** (Not Shown) - Used to attach furring channels, 2-3/8 in. wide, to the wood 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 hold furring channel that supports the gypsum board butt joints, as described in Item 6.
PLITEQ INC — Type Genie Clip

5C. **Steel Framing Members* —** (Not Shown) - Used as an alternate method to attach furring channels to joists. Clips spaced at 48" OC and secured to the bottom of the trusses with one 2 in. Coarse Drywall Screw 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 6.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

5D. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 5.
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 6) 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 5Dc) 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

5E. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 5.
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 5Eb). 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 6) 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 5Ea) 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

6. **Gypsum Board* —** Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512. Nominal 5/8 in. thick gypsum board or gypsum veneer plaster. Two layers of 5/8 in. thick by 48 in. wide gypsum board installed with long dimensions parallel with joists. Base layer attached to the furring channels using 1 in. long Type S bugle head steel screws spaced 8 in. OC along butted end joints and 12 in. OC in the field of the board. Butted end joints to occur midway between continuous furring channels and to be backed by the additional channels which extends 6 in. beyond both sides of gypsum board. Butted base layer end joints to be offset a min of 32 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 centered over continuous furring channels and 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 5A or 5B) is used, gypsum board installed with long dimension perpendicular to furring channels and side joints of sheet located beneath joists. Gypsum board secured using 1 in. long Type S bugle head screws spaced 12 in. OC in the field. Gypsum board butt joints in the base layer shall be staggered min 2 ft within the assembly, and occur

between the 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 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 RSIC-1 or Genie clip at each end of the channel. Outer layer attached as previously described.

When **Steel Framing Members** (Item 5C) are used, one layer of nom 5/8 in. thick, 4 ft wide 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 one RESILMOUNT Sound Isolation Clip at each end of the channel. Outer layer attached as previously described.

When **Steel Framing Members** (Item 5D) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 6. Adjacent butt joints staggered minimum 48 in. OC.

When **Steel Framing Members** (Item 5E) are used, nom 5/8 in. thick, 4 ft wide gypsum board, installed as described in Item 6. Butt joints staggered minimum 24 in. OC.

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

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

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

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 MEXICO S A DE C V (View Classification) — CKNX.R16089

7. **Finishing System - (Not Shown) —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

*** 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 2023-03-16