ONLINE CERTIFICATIONS DIRECTORY

BXUV.L541
Fire Resistance Ratings - ANSI / UL 263

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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 Listed or Classified 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 as Classified, Listed, or Recognized.

Fire Resistance Ratings - ANSI / UL 263

See General Information for Fire Resistance Ratings - ANSI/UL 263

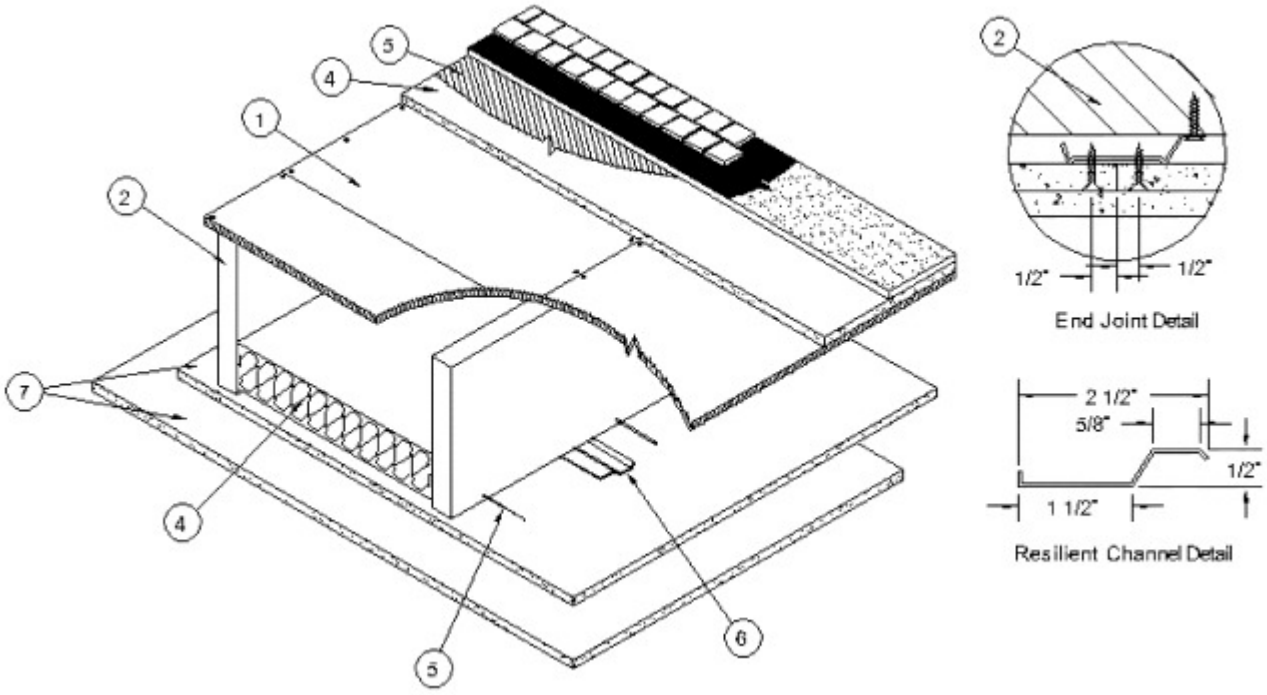
Design No. L541

February 09, 2009

Unrestrained Assembly Rating — 2 Hr.

Finish Rating — 74 Min.

Load Restricted for Canadian Applications — See Guide BXUV7



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

System No. 1

Subflooring — Min 15/32 in. thick plywood wood structural panels, min grade "C-D". Face grain of plywood to be perpendicular to joists with end joints located over wood joists and staggered min 32 in. between adjacent lengths. Plywood secured to wood joists with 6d common nails spaced 6 in. OC at the ends and 10 in. OC in the field.

Liner Panels - Gypsum Board* — Nom 1 in. thick gypsum board liner panels, supplied in 24 in. widths, to be loosely laid over subflooring with end joints centered over wood joists and staggered min 16 in. between adjacent lengths. Side joint offset 12 in. from subflooring side joints.

* **CANADIAN GYPSUM COMPANY** — Type SLX

UNITED STATES GYPSUM CO — Type SLX

* **USG MEXICO S A DE C V** — Type SLX

Damping Compound - (Optional) — Applied to top surface of 1 in. thick gypsum board liner panels with a 1/4 in. square notched trowel for sound control.

Cementitious Backer Units* — Nom 1/2 or 5/8 in. thick, square edge backer units attached to wood joists with 2-5/8 in. long Type S, corrosion resistant, wafer-head steel screws spaced 8 in. OC at the perimeter and in the field. End joints to be centered over wood joists and staggered min 32 in. between adjacent lengths. Side joints offset 12 in. from those of the gypsum board liner panels. Joints covered with glass fiber mesh tape.

UNITED STATES GYPSUM CO — Durock Exterior Cement Board or Durock Brand Cement Board

Bond Coat for Setting Tile-Latex — Modified Portland cement mortar or ANSI AI36.1 Type I organic adhesive applied with a 1/4 in. square notched trowel.

Ceramic Tile — Nom 1/4 in. thick ceramic tile with joints filled with grout.

System No. 2

Subflooring — Min 15/32 in. thick plywood wood structural panels, min grade "C-D". Face grain of plywood to be perpendicular to joists with end joints located over wood joists and staggered min 32 in. between adjacent lengths. Plywood secured to wood joists with 6d common nails spaced 6 in. OC at the ends and 10 in. OC in the field.

Liner Panels - Gypsum Board* — Nom 1 in. thick gypsum board liner panels, supplied in 24 in. widths, to be loosely laid over subflooring with end joints centered over wood joists and staggered min 16 in. between adjacent lengths. Side joint offset 12 in. from subflooring side joints.

* **CANADIAN GYPSUM COMPANY** — Type SLX

UNITED STATES GYPSUM CO — Type SLX

* **USG MEXICO S A DE C V** — Type SLX

Damping Compound - (Optional) — Applied to top surface of 1 in. thick gypsum board liner panels with a 1/4 in. square notched trowel for sound control.

Finish Flooring - (Not Shown) — Min 7/16 in. thick oriented strand board (OSB), min grade Exposure 1 bearing the marking "NER-QA 397, HUD-MR 1050". Oriented strand board end joints centered over wood joists and staggered min 16 in. between adjacent lengths. Side joints offset 12 in. from gypsum board liner panel side joints. OSB secured with 2-5/8 in. long Type S bugle head steel screws spaced 12 in. OC at the perimeter and in the field.

System No. 3

* **Subflooring** — Min 15/32 in. thick plywood wood structural panels, min grade "C-D". Face grain of plywood to be perpendicular to joists with end joints located over wood joists and staggered min 32 in. between adjacent lengths. Plywood secured to wood joists with 6d common nails spaced 6 in. OC at the ends and 10 in. OC in the field.

Damping Compound - (Optional) — Applied to top surface of 1 in. thick gypsum board liner panels with a 1/4 in. square notched trowel for sound control.

Floor Mat Materials* - (Optional) — Min 3/8 in. to max 3/4 in. thick floor mat material loose laid over the subfloor. Floor topping thickness shall be as specified under **Floor Topping Mixture**.

UNITED STATES GYPSUM CO — Levelrock Brand Sound Reduction Board

Alternate Floor Mat Materials* - (Optional) — Nom 1/4 in. thick floor mat material loose laid over the subfloor. Floor topping thickness shall be as specified under **Floor Topping Mixture**.

UNITED STATES GYPSUM CO — Levelrock Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* - (Optional) — Nom 1/4 in. thick floor mat material loose laid over the subfloor. Floor topping thickness shall be as specified under **Floor Topping Mixture**.

SOLUTIA INC — Type SC50

Alternate Floor Mat Material* — (Optional) - Floor mat material nominal 3/8 in. thick loose laid over the subfloor. Floor topping shall be a min 1-1/2 in. thick.

OWENS CORNING — Type QuietZone Acoustical Floor Mat

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min

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* **Floor Mat Materials*** — (Optional)— Floor mat material nom 6 mm thick adhered to subfloor with Alpha 7 Gypsum 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.

ALPHA 7 GYPSUM L L C — Type EarthSmart SCM PT.

* **System No. 14**

Subflooring — Min 15/32 in. thick plywood wood structural panels, min grade "C-D". Face grain of plywood to be perpendicular to joists with end joints located over wood joists and staggered min 32 in. between adjacent lengths. Plywood secured to wood joists with 6d common nails spaced 6 in. OC at the ends and 10 in. OC in the field.

Damping Compound - (Optional) — Applied to top surface of 1 in. thick gypsum board liner panels with a 1/4 in. square notched trowel for sound control.

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 lightweight insulating concrete with **Perlite Aggregate*** or **Vermiculite Aggregate***, or gypsum concrete.

See **Perlite Aggregate** (CFFX) and **Vermiculite Aggregate** (CJZZ) categories for names of manufacturers.

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

KEENE BUILDING PRODUCTS CO INC — Type 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 — Type 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 — Type Quiet Qurl 65/075 and Quiet Qurl 65/075 N

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

3. **Cross Bridging - (Not Shown) —** Min 1 by 3 in. or min 2 by 10 solid blocking.

4. **Batts and Blankets* —** Nom 3 in. thick batts, supplied in 48 in. lengths, cut to nom 14-3/4 in. widths and installed 1 in. from bottom surface of wood joists.

THERMAFIBER INC — Type SAFB

5. **Insulation Clips —** Nom 0.087 in. diam steel wire supplied in 15-7/16 in. lengths, friction fitted between wood joists. Four clips are used per 48 in. length of batt, installed 4 and 17-5/8 in. from each end of the batt.

6. **Resilient Channels —** Resilient channels, 2-1/2 in. wide by 1/2 in. deep, formed from No. 25 MSG galv steel and shaped as shown, spaced 16 in. OC perpendicular to joists. Channels overlapped 4 in. at splices and secured to each joist with one 1-7/8 in. long Type S bugle head steel screws. Additional resilient channels positioned so as to coincide with end joints of gypsum board (Item 7). Additional channels shall

* Extend min 3 in. beyond each side of board.

6A. **Steel Framing Members* —** (Optional, Not Shown) - Used as an alternate method to attach min. 1/2 in. deep resilient channels (Item 6) to wood joists (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the bottom of each wood joist with a min. 2-3/8 in. long Type S bugle head steel screw through the center hole of the clip and the resilient channel flange. Adjoining resilient channels are overlapped 4 in. under joists. The clip flange is opened slightly to accommodate the two overlapped channels. Additional clips required to hold resilient channel that supports the gypsum board butt joints, as described in Item 7.

KEENE BUILDING PRODUCTS CO INC — Type RC Assurance.

7. **Gypsum Board* —** Nom 5/8 in. thick, 4 ft wide gypsum board. Base layer installed with long dimension perpendicular to resilient channels and side joints centered between wood joists. Butted end joints in adjacent rows staggered min 32 in. Base layer secured to resilient channels with 1 in. long Type S bugle head steel screws spaced 16 in. OC in the field. End joints of base layer similarly fastened to additional pieces of resilient channel positioned at end joint locations with 1 in. long Type S bugle head steel screws spaced 8 in. OC. Face layer installed with long dimension perpendicular to resilient channels. Face layer secured to resilient channels with 1-5/8 in. long Type S bugle head steel screws spaced 8 in. OC in the field. Butted end joints secured to base layer with 1-1/2 in. long Type G bugle head steel screws spaced 8 in. OC. Face layer side joints offset min 24 in. from base layer side joints. Face layer end joints offset min 16 in. from end joints of base layer.

* **AMERICAN GYPSUM CO** — Type AG-C

* **CANADIAN GYPSUM COMPANY** — Types C, IP-X2

* **GEORGIA-PACIFIC GYPSUM L L C** — Type 5.

* **LAFARGE NORTH AMERICA INC** — Types LGFC-C, LGFC-C/A

* **NATIONAL GYPSUM CO** — Types FSK-C, FSW-C, FSW-G

* **PABCO BUILDING PRODUCTS L L C, DBA**

* **PABCO GYPSUM** — Type C.

* **TEMPLE-INLAND** — Type TG-C

UNITED STATES GYPSUM CO — Types C, IP-X2

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

8. **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.

9. **Acoustical Sealant - (Optional) —** A bead of acoustical sealant applied to the top surface of the wood joists for sound-control sealing.

*Bearing the UL Classification Mark

Last Updated on 2009-02-09

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ONLINE CERTIFICATIONS DIRECTORY

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Fire Resistance Ratings - ANSI / UL 263

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Design / System / Construction / Assembly Usage Disclaimer

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- 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.
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Fire Resistance Ratings - ANSI / UL 263

See General Information for Fire Resistance Ratings - ANSI/UL 263

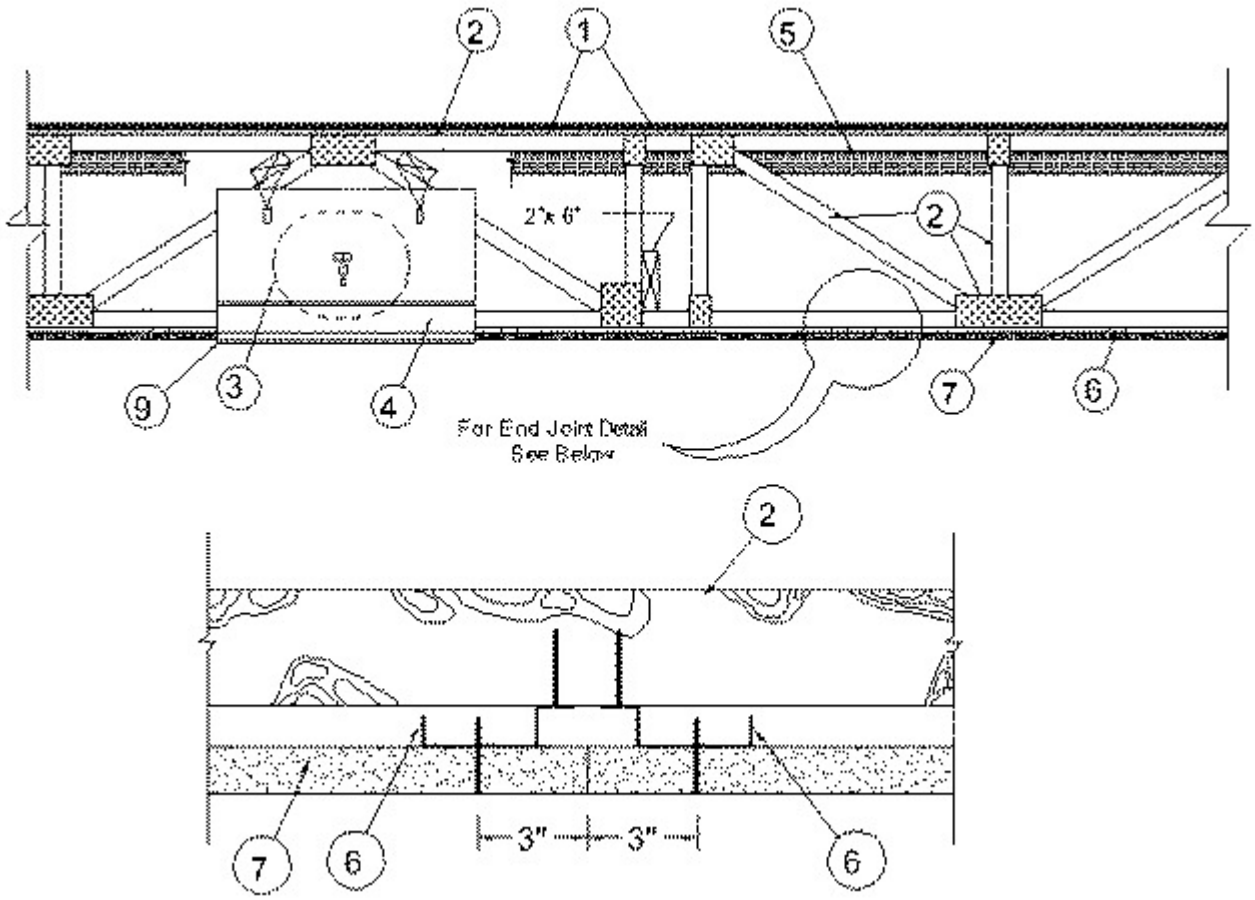
Design No. L521

December 23, 2009

Unrestrained Assembly Rating — 1 Hr

Finish Rating — 25 Min (See Items 5 and 5A)

Load Restricted for Canadian Applications — See Guide BXUV7



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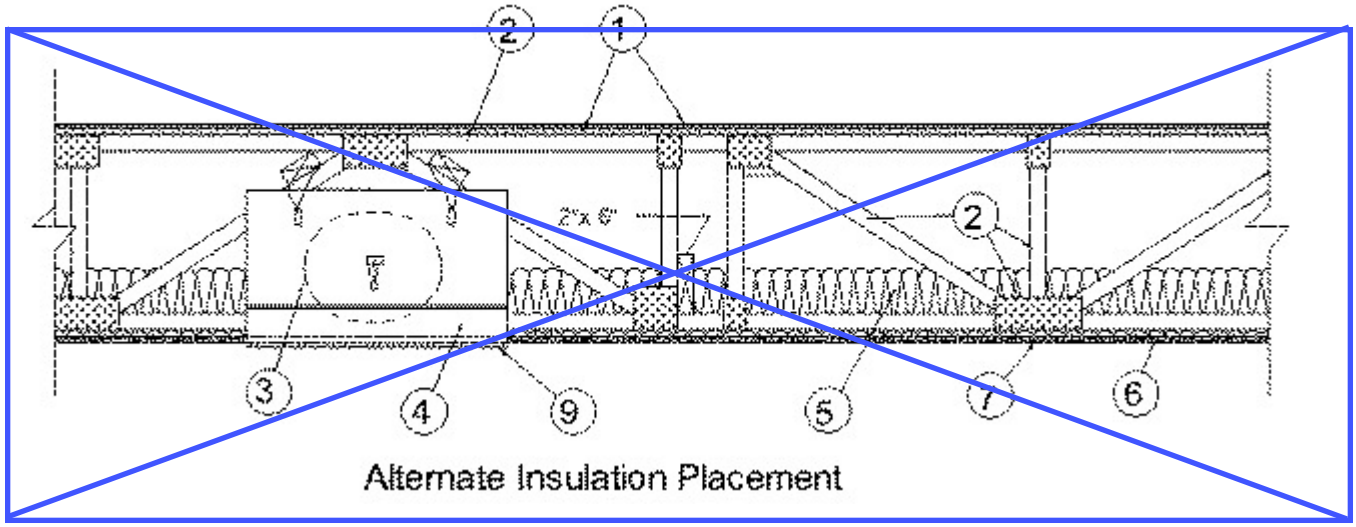

Alternate Insulation Placement

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

System No. 1

Subflooring—Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or 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.

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

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Finish Floor—Min 1 by 4 in. T & G lumber installed perpendicular to trusses, or min 15/32 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.

*

System No. 2

Subflooring—Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or 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.

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

Floor Mat Materials* — (Optional)— Nom 6 mm thick floor mat material adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of floor-topping mixture. When floor mat material is used, min thickness of floor topping mixture is 1 in.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 10 mm 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 1-1/2 in. of floor-topping mixture.

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

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

HACKER INDUSTRIES INC — Type Quiet Qurl 55/025

Alternate Floor Mat Materials* — (Optional) — Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in.

HACKER INDUSTRIES INC — Type Quiet Qurl 60/040

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

HACKER INDUSTRIES INC — Type Quiet Qurl 65/075

Metal Lath (Optional) — For use with 3/8 in. or 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. 3

Subflooring—Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or 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.

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* **ALPHA 7 GYPSUM L L C** — EarthSmart Gypsum Cement Commercial Floor Topping

Floor Mat Materials* — (Optional)— Floor mat material nom 1/4 in. thick adhered to subfloor with Alpha 7 Gypsum 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.

ALPHA 7 GYPSUM L L C — Type EarthSmart SCM WL.

Floor Mat Materials* — (Optional)— Floor mat material nom 6 mm thick adhered to subfloor with Alpha 7 Gypsum 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.

ALPHA 7 GYPSUM L L C — Type EarthSmart SCM RT.

2. **Trusses —** Parallel chord trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Min truss depth is 12 in. Truss members secured together with min 0.0356 in. thick galv steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tooth has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approx. 7/8 in. centers with four rows of teeth per inch of plate width.

3. **Air Duct* —** Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

4. **Ceiling Damper* —** For use with min 18 in. deep trusses. Max nom area shall be 324 sq in. Max square size shall be 18 in. by 18 in. Rectangular sizes not to exceed 324 sq in. with a max width of 18 in. Max height of damper shall be 14 in. Aggregate damper openings shall not exceed 162 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) shall be installed in accordance with installation instructions.

C&S AIR PRODUCTS — Model RD-521

POTTORFF — Model CFD-521.

4A. **Alternate Ceiling Damper* —** Max nom area shall be 196 sq in. Max square size shall be 14 in. by 14 in. Rectangular sizes not to exceed 196 sq in. with a max width of 26 in. Max height of damper shall be 7 in. Aggregate damper openings shall not exceed 98 sq in. per 100 sq ft of ceiling area. Damper installed in accordance with the manufacturers installation instructions provided with the damper. A steel grille (Item 9) not to exceed 144 in.^{2} shall be installed in accordance with installation instructions.

C&S AIR PRODUCTS — Model RD-521-BT

POTTORFF — Model CFD-521-BT.

5. **Batts and Blankets* —** Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. When the resilient channels (Item 6) or furring channels (Item 6A) are spaced 16 in. OC, the insulation shall be a max of 3-1/2 in. thick, and shall be secured against the subflooring with staples at 12 in. OC or held suspended in the concealed space with
* 0.090 in. diam galv steel wires attached to the wood trusses at 12 in. OC. When the resilient channels (Item
* 6) or furring channels (Item 6A) are spaced a max of 12 in. OC or when the Steel Framing Members (Item 6B) are used, there is no limit in the overall thickness of insulation, and the insulation can be secured against the subflooring, held suspended in the concealed space or draped over the resilient or furring channels (or Steel Framing Members) and gypsum panel membrane. When **Steel Framing Members** (Item 6C) are used, max 3-1/2 in. thick insulation shall be draped over the furring channels (Item 6Ca) and gypsum board ceiling membrane, and friction fitted between trusses and Steel Framing Members (Item 6Cd). The finished rating has only been determined when the insulation is secured to the subflooring.

5A. **Fiber, Sprayed*** — As an alternate to Item 5 when insulation is draped over the resilient channels and

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* gypsum board ceiling membrane. Spray-applied cellulose insulation material having a min density of 0.5 pcf and installed at a max thickness of 3-1/2 in. When used, the resilient channel and gypsum board attachment is modified as specified in Items 6 and 7 and wire mesh (Item 10) shall be attached to the furring channels to facilitate installation of the material. The finished rating when Fiber, Sprayed is used has not been determined. The fiber is applied with water within the concealed space, over the resilient channel/gypsum board ceiling membrane, in accordance with the application instructions supplied with the product. Alternate application method: The fiber is applied with U.S. Greenfiber LLC Type AD100 hot melt adhesive at a nominal ratio of one part adhesive to 6.6 parts fiber in accordance with the application instructions supplied with the product. Alternate application method: The fiber is applied without water or adhesive in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — Cocoon2 Stabilized or Cocoon-FRM (Fire Rated Material)

5B. **Fiber, Sprayed* —** As an alternate to Items 5 and 5A, Spray-applied cellulose insulation material. When used, the resilient channel and gypsum board attachment is modified as specified in Items 6 and 7, and wire mesh (Item 10) shall be attached to the furring channels to facilitate installation of the material. The fiber is applied with water within the concealed space, over the resilient channel/gypsum board ceiling membrane, in accordance with the application instructions supplied with the product, and may substantially fill the concealed space. Nominal dry density of 3.0 lb/ft3. Alternate application method: The fiber is applied with U.S. Greenfiber LLC Type AD100 hot melt adhesive at a nominal ratio of one part adhesive to 6.6 parts fiber in accordance with the application instructions supplied with the product. Nominal dry density of 2.5 lb/ft3. Alternate application method: The fiber is applied without water or adhesive at a nominal dry density of 3.0 lb/ft3, in accordance with the application instructions supplied with the product. When Item 5B (Fiber, Sprayed) is used, two layers of gypsum board required as described in Item 7. Not evaluated for use with Item 6B, 6C or 6D.

U S GREENFIBER L L C — Cocoon2 Stabilized or Cocoon-FRM (Fire Rated Material)

6. **Resilient Channels —** Formed from min 0.020 in. thick galv steel, 1/2 in. deep by 2-3/8 in. wide at the base and 1-3/8 in. wide at the face as shown, spaced 16 in. OC perpendicular to trusses. When insulation, Items 5, 5A or 5B is applied over the resilient channel/gypsum panel ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to each truss with 1-1/4 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint as shown in the above illustration. Additional channels shall extend min 6 in. beyond each side edge of panel.

* 6A. **Steel Framing Members*** (Not Shown) - As an alternate to Item 6.

a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to wood structural members. When insulation, Items 5, 5A or 5B is applied over the furring channel/gypsum panel ceiling membrane, the furring channel spacing shall be reduced to 12 in. OC. 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 AWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC. RSIC-1 clips secured to alternating trusses with No. 8 x 2-1/2 in. course drywall screw through the center grommet. RSIC-V clips secured to alternating joists with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. 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 7. When **Fiber, Sprayed** (Item 5B) is used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board shall be installed as described in Item 7.

PAC INTERNATIONAL INC — Types RSIC-1, RSIC-V.

6B. **Alternate Steel Framing Members —** (Not Shown) - As an alternate to Items 6 and 6A, main runners, cross tees, cross channels and wall angle as listed below.

a. **Main Runners —** Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 48

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b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC, and secured to the bottom chord of alternating trusses with two No. 8 x 2-1/2 in. course drywall screws, one through the hole at each end of the clip. When insulation, Items 5 or 5A is applied over the furring channel/gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses. 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 7. Two layers of gypsum board required as described in Item 7. Not evaluated for use with Item 5B.

KINETICS NOISE CONTROL INC — Type Isomax.

6E. **Steel Framing Members* —** (Optional, Not Shown) - Used as an alternate method to attach min. 1/2 in. deep resilient channels (Item 6) to wood trusses (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the bottom chord of each wood truss with a min. 1-3/4 in. long Type S bugle head steel screw through the center hole of the clip and the resilient channel flange. Adjoining resilient channels are overlapped 4 in. under trusses. The clip flange is opened slightly to accommodate the two overlapped channels. Additional clips required to hold resilient channel that supports the gypsum board butt joints, as described in Item 7.

KEENE BUILDING PRODUCTS CO INC — Type RC Assurance.

6F. **Steel Framing Members* —** (Not Shown) - As an alternate to Items 6, 6A, 6B, 6C and 6D.

a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 16 in. OC perpendicular to wood structural members. When insulation, Items 5 or 5A is applied over the furring channel/gypsum panel ceiling membrane, the furring channel spacing shall be reduced to 12 in. OC. 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 AWG galvanized steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 48 in. OC, and secured to the bottom chord of alternating trusses with one No. 8 x 2-1/2 in. coarse drywall screw through center grommet. When insulation, Items 5 or 5A is applied over the furring channel/gypsum panel ceiling membrane, the clip spacing shall be reduced to 24 in. OC and secured to consecutive trusses. 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 7. Not evaluated for use with Item 5B.

PLITEQ INC — Type Genie Clip

7. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum panels. When resilient channels (Item 6) are used, gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. When insulation (Items 5 or 5A) is applied over the resilient channel/gypsum panel ceiling membrane screw spacing shall be reduced to 8 in. OC. End joints secured to both resilient channels as shown in end joint detail. When **Steel Framing Members** (Item 6A) are used, gypsum panels installed with long dimensions perpendicular to furring channels. Panels attached to the furring channels using 1 in. long Type S bugle-head steel screws spaced 8 in. OC along butted end joints and in the field of the panel. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. Each end of each 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 truss with one clip at each end of the channel. When **Steel Framing Members*** (Item 6B) are used, gypsum panels installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Panels fastened to cross tees with 1 in. long . Type S bugle-head screws spaced in the field and 8 in. OC along end joints. Panels fastened to main runners with 1

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* in. long . Type S bugle-head screws spaced midway between cross tees. Screws along sides and ends of panels spaced 3/8 to 1/2 in. from panel edge. End joints of panels shall be staggered with spacing between joints on adjacent panels not less than 4 2 ft OC. When **Fiber, Sprayed** (Item 5B) is 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 gypsum board secured with 1 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. End joints secured to both resilient channels as shown in end joint detail. Outer layer gypsum board secured with 1-5/8 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from the end joints. Outer layer shall be finished as described in Item 8. When both **Steel Framing Members** (Item 6A) and **Fiber, Sprayed** (Item 5B) are used, furring channels spaced 12 in. OC and two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimension perpendicular to furring channels. Base layer secured to furring channels with nom 1 in. long Type S bugle head screws spaced 8 in. OC along butted end joints and 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. 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 support furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to the underside of the truss with one clip at each end of the channel. Outer layer secured to furring channels using 1-5/8 in. long Type S screws spaced 8 in. OC and 1-1/2 in. from the end joint. 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 6C) are used, two layers of nom 5/8 in. thick, 4 ft wide gypsum board are installed with long dimensions perpendicular to furring channels (Item 6Ca). 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 centered on the continuous furring channels. Butted base layer end joints to be offset a min of 16 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 end joints and 12 in. OC in the field. Butted end joints centered on the continuous furring channels and offset a min of 16 in. from butted end joints of base layer. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer. When **Steel Framing Members** (Item 6D) 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 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. 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 4 in. OC, and be attached to underside of the truss with one Isomax clip at each end of the channel. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer attached to the furring channels using 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC in the field. The end of the outer layer boards at the butt joint shall be attached to the base layer boards with 1-5/8 in. long Type G screws spaced 8 in. OC and 1-1/2 in. from the end joint. 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. Outer layer shall be finished as described in Item 8. When **Steel Framing Members** (Item 6F) are used, one layer of nom 5/8 in. thick, 4 ft wide are installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels using 1 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field of the board. Butted end joints shall be staggered minimum 2 ft. within the assembly. Additional furring channels constructed as per Item 6F shall be used to support each end of each gypsum board. These additional furring channels shall be attached to underside of the truss with Genie clips as described in Item 6F. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Outer layer attached to the furring channels using 1-5/8 in. long No. 6 Type S bugle-head steel screws spaced 12 in. OC in the field. The outer layer boards at the butt joint shall be attached to the base layer boards with No. 10, 1-1/2 in. long drywall screws spaced 8 in. OC and 1-1/2 in. from the end joint. Butted end joints to be offset a min of 24 in. from base layer end joints. Butted side joints of outer layer to be offset min 16 in. from butted side joints of base layer

* **CANADIAN GYPSUM COMPANY** — Types C, IP-X2, IPC-AR.

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

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

8. **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.

9. **Grille —** Steel grille, installed in accordance with the installation instructions provided with the ceiling damper.

* 10. **Wire Mesh** — (Not shown) — For use with Item 5A and 5B — 1 in. 20 gauge galvanized poultry netting installed between the furring channels and gypsum board. The poultry netting is attached with washers and 1/2 in. wafer head screws, spaced 24 in. OC., to the furring channels. The **Fiber, Sprayed** (Item 5A or 5B)

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* ~~is installed through cut openings in the poultry netting, in between trusses. The cut openings in the poultry netting shall be staggered at a maximum of 6 ft.~~

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ONLINE CERTIFICATIONS DIRECTORY

BXUV.U359
Fire Resistance Ratings - ANSI / UL 263

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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 Listed or Classified 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 as Classified, Listed, or Recognized.

Fire Resistance Ratings - ANSI / UL 263

See General Information for Fire Resistance Ratings - ANSI/UL 263

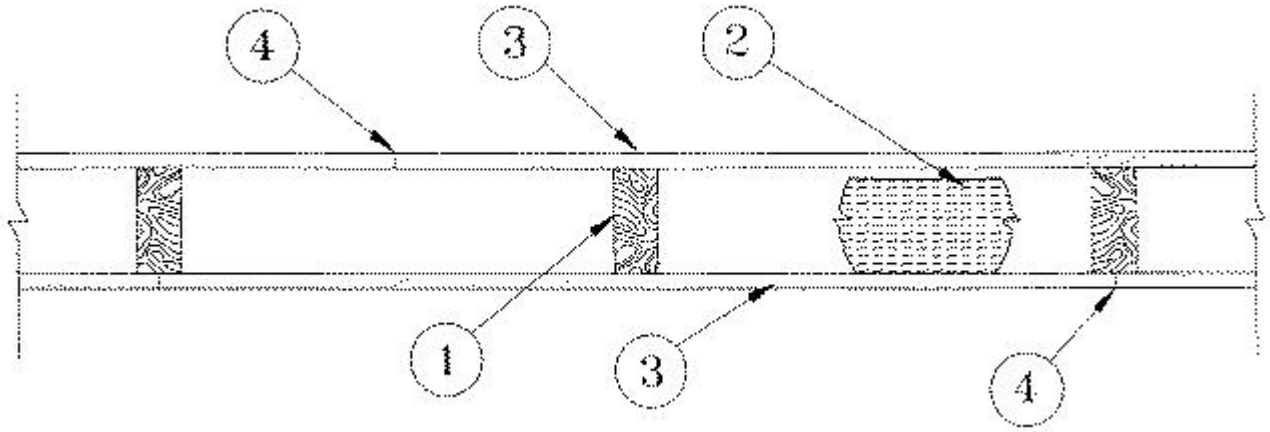
Design No. U359

February 27, 2006

Bearing Wall Rating — 1 Hr

Finished Rating — 29 Min

Load Restricted for Canadian Applications — See Guide BXUV7



1. **Wood Studs —** Nom 2 by 4 in., spaced max 16 in. OC.

2. **Batts and Blankets* (Optional, Not shown) —** Placed to completely or partially fill the stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets (BKNV or BZJZ) Categories for names of

Classified companies.

3. **Gypsum Board* —** Applied either horizontally or vertically. Vertical joints centered over studs. When used in widths other 48 in., wallboard is to be installed horizontally. Nom 5/8 in. thick board attached to studs and plates with 6d cement coated nails (1-7/8 in. long) spaced 7 in. OC or with 1-7/8 in. long Type S screws spaced 7 in. OC or 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last srcrew 1 in. from edge of board.

UNITED STATES GYPSUM CO — ~~Type FRX-C~~ See condition 2 of Section IV of Research Report 25092

4. **Joints and Nailheads — (Not shown) —** Wallboard joints covered with paper tape and joint compound. Nailheads covered with joint compound.

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Last Updated on 2006-02-27

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