



# KirbyCo Builders Inspector's Manual

# **KIRBYCO BUILDERS FOREMAN'S INSPECTORS MANUAL**

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## SCREW SPACING FOR EXTERIOR SHEATHING

Per FBC for load calcs:

- Densglass – 8" o.c. typical / 6" when within 8' of building edge
- Plywood – 6" o.c. typical panel edge / 12" o.c. in field

Let me know if you have any other questions.

David

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**Design No. U419**  
**BXUV.U419**  
**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 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**

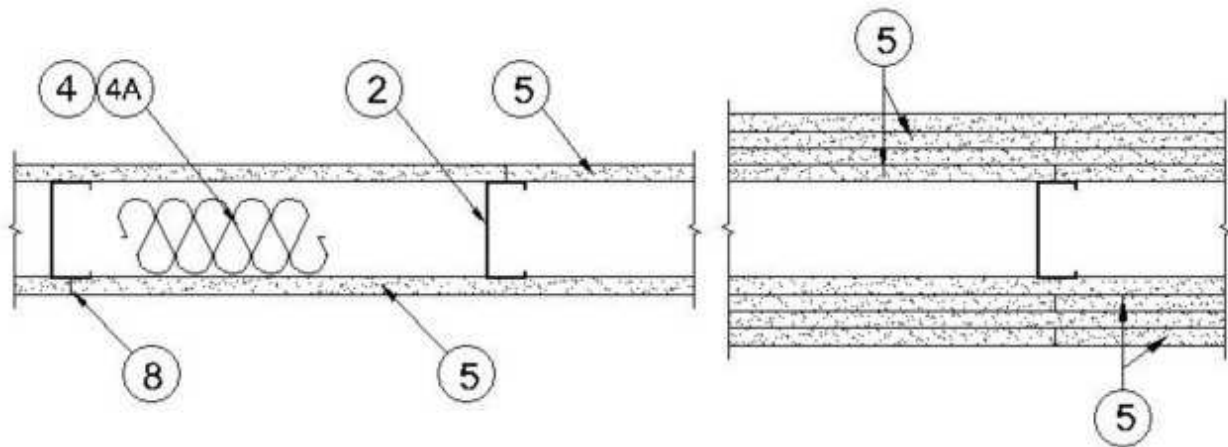
**BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada**

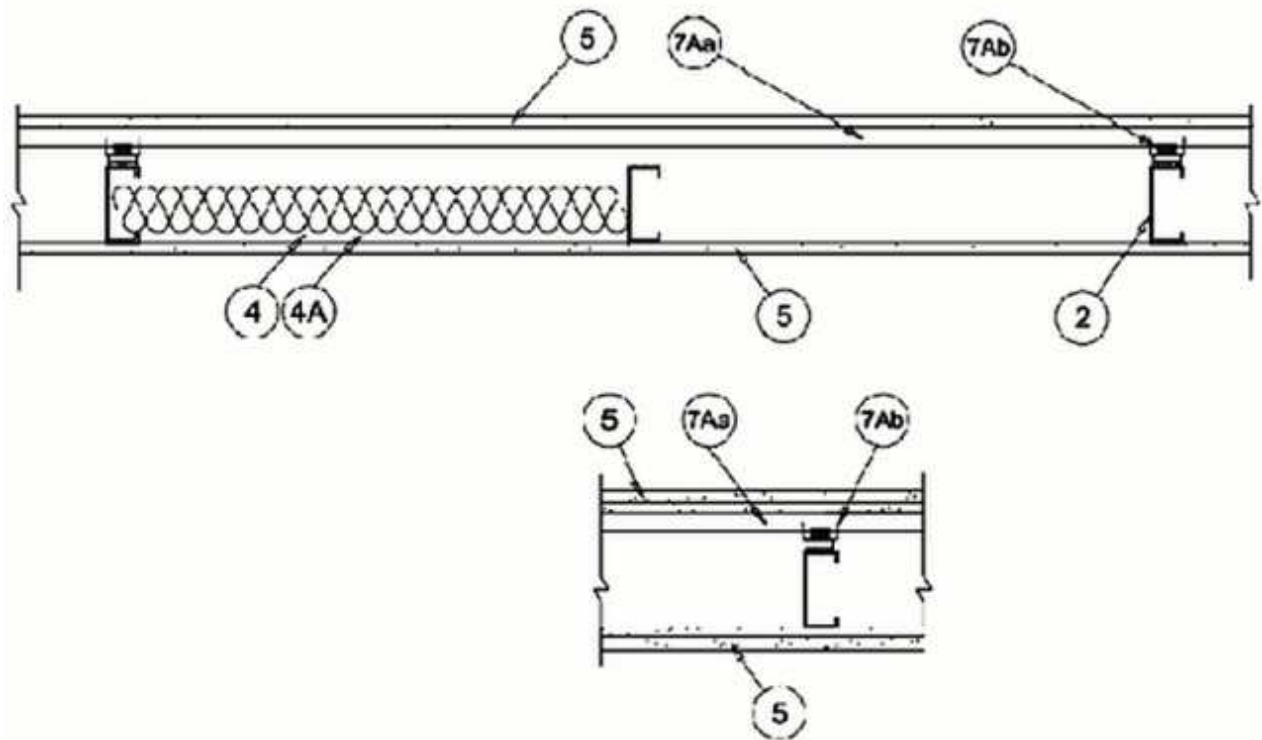
**Design No. U419**

April 12, 2016

**Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5K)**

**\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





**1. Floor and Ceiling Runners — (Not Shown) —** For use with Item 2 - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

**1A. Framing Members\* — Floor and Ceiling Runner — Not Shown —** In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

**CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track**

**CRACO MFG INC — SmartTrack25™**

**MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track**

**1B. Framing Members\* — Floor and Ceiling Runner — Not Shown —** In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track**

**MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track**

**1C. Framing Members\* — Floor and Ceiling Runners — (Not Shown) —** In lieu of Item 1 - Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

**ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System**

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System**

**QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System**

**SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System**

**STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System**

**UNITED METAL PRODUCTS INC** — Type SUPREME Framing System

1D. **Floor and Ceiling Runners** — (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. **Framing Members\* — Floor and Ceiling Runners** — (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.

**CLARKDIETRICH BUILDING SYSTEMS** — CD ProTRAK

**DMFCWBS L L C** — ProTRAK

**MBA METAL FRAMING** — ProTRAK

**RAM SALES L L C** — Ram ProTRAK

**STEEL STRUCTURAL PRODUCTS L L C** — Tri-S ProTRAK

1F. **Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**SUPER STUD BUILDING PRODUCTS** — The Edge

1G. **Framing Members\* - Floor and Ceiling Runner** — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.

**STUDCO BUILDING SYSTEMS** — CROCSTUD Track

1H. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC** — Viper20™ Track VT100.

1I. **Framing Members\* — Floor and Ceiling Runners** — (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.

**TELLING INDUSTRIES L L C** — TRUE-TRACK™

1J. **Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

**TELLING INDUSTRIES L L C** — Viper25™ Track

1K. **Framing Members\* — Floor and Ceiling Runner** — Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**TELLING INDUSTRIES L L C** — Viper20™ Track

1L. **Framing Members\* — Floor and Ceiling Runners** — (Not Shown) — As an alternate to Item 1 - For use with Item 2N. Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

**BAILEY METAL PRODUCTS LTD** — Type PLATINUM PLUS

**1M. Framing Members\* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 — For use with Item 20, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**RONDO BUILDING SERVICES PTY LTD —** Rondo Wall Track

**2. Steel Studs —** Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**2A. Steel Studs —** (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J and 5K) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

**2B. Framing Members\* - Steel Studs —** (As an alternate to Item 2, For use with Items 5C, 5I or 5K) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

**CALIFORNIA EXPANDED METAL PRODUCTS CO —** Viper25™

**CRACO MFG INC —** SmartStud25™

**MARINO/WARE, DIV OF WARE INDUSTRIES INC —** Viper25™

**2C. Framing Members\* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

**CALIFORNIA EXPANDED METAL PRODUCTS CO —** Viper20™

**MARINO/WARE, DIV OF WARE INDUSTRIES INC —** Viper20™

**2D. Framing Members\* — Steel Studs —** In lieu of Item 2 - Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**ALLSTEEL & GYPSUM PRODUCTS INC —** Type SUPREME Framing System

**CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV —** Type SUPREME Framing System

**QUAIL RUN BUILDING MATERIALS INC —** Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO —** Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC —** Type SUPREME Framing System

**UNITED METAL PRODUCTS INC —** Type SUPREME Framing System

**2E. Framing Members\* — Steel Studs —** (Not Shown, As an alternate to Item 2) —For use with Items 5F or 5G or 5I or 5K only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**CLARKDIETRICH BUILDING SYSTEMS —** CD ProSTUD

**DMFCWBS L L C —** ProSTUD

**MBA METAL FRAMING —** ProSTUD

**RAM SALES L L C —** Ram ProSTUD

**STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD**

2F. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

**SUPER STUD BUILDING PRODUCTS — The Edge**

2G. **Framing Members\* — Steel Studs** — Not Shown — In lieu of Item 2 - proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.

**STUDCO BUILDING SYSTEMS — CROCSTUD**

2H. **Framing Members\* — Steel Studs** — (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**TELLING INDUSTRIES L L C — TRUE-STUD™**

2I. **Framing Members\* — Steel Studs** — (As an alternate to Item 2, For use with Items 5C or 5L or 5K) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

**TELLING INDUSTRIES L L C — Viper25™**

2J. **Framing Members\* — Metal Studs** — Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights

**TELLING INDUSTRIES L L C — Viper20™**

2K. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**EB MÉTAL INC — EB Stud**

2L. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**OLMAR SUPPLY INC — PRIMESTUD**

2M. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™**

2N. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — For use with Item 1L, channel shaped, min 3-5/8 in. wide, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

**BAILEY METAL PRODUCTS LTD — Type PLATINUM PLUS**

2O. **Framing Members\* — Steel Studs** — As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.

**RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud**

3. **Wood Structural Panel Sheathing** — (Optional, For use with Item 5 Only.) — (Not Shown) - 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical



joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

**4. Batts and Blankets\*** — (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

**4A. Batts and Blankets\*** — (Optional) — Placed in 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.

**4B. Batts and Blankets\*** — For use with Item 5K. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber 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.

**5. Gypsum Board\*** — Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

**Gypsum Board Protection on Each Side of Wall**

Rating, Hr	Min Stud Depth, in. Items 2, 2C, 2D, 2F, 2G, 2O	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4)
1	3-1/2	1 layer, 5/8 in. thick	Optional
1	2-1/2	1 layer, 1/2 in. thick	1-1/2 in.
1	1-5/8	1 layer, 3/4 in. thick	Optional
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
2	3-1/2	1 layer, 3/4 in. thick	3 in.
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	2 layers, 3/4 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional
4	2-1/2	2 layers, 3/4 in. thick	2 in.

**CGC INC** — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

**UNITED STATES GYPSUM CO** — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR ; 3/4 in. thick Types IP-X3 or ULTRACODE

**USG BORAL ZAWAWI DRYWALL L L C SFZ** — 1/2 in. Type C; 5/8 in. Types C, SCX

**USG MEXICO S A DE C V** — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, **Steel Framing Members\***, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

**5A. Gypsum Board\*** — (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.

**CGC INC** — Type SHX.

**UNITED STATES GYPSUM CO** — Type FRX-G, SHX.

**USG MEXICO S A DE C V** — Type SHX.

5B. **Gypsum Board\*** — (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in. or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).

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

5C. **Gypsum Board\*** — (For Use With Item 2B) Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.

**CGC INC** — Type SCX.

**UNITED STATES GYPSUM CO** — Type SCX, SGX.

**USG BORAL ZAWAWI DRYWALL L L C SFZ** — Type SCX

**USG MEXICO S A DE C V** — Type SCX.

5D. **Gypsum Board\*** — (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.

**CGC INC** — Type USGX.

**UNITED STATES GYPSUM CO** — Type USGX.

**USG MEXICO S A DE C V** — Type USGX.

5E. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

**NEW ENGLAND LEAD BURNING CO INC, DBA NELCO** — Nelco

5F. **Gypsum Board\*** — (As an alternate to Item 5) — For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.

**UNITED STATES GYPSUM CO** — 5/8 in. thick Type SCX, SGX.

**USG BORAL ZAWAWI DRYWALL L L C SFZ** — 5/8 in. thick Type SCX

5G. **Gypsum Board\*** — (As an alternate to Item 5) — For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

**Gypsum Board Protection on Each Side of Wall**

Rating, Hr	Min Stud Depth, in. Item 2E	No. of Layers & Thickness of Panel	Min Thkns of Insulation (Item 4)
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional

**CGC INC** — 1/2 in. thick Type C, IP-X2 or IPC-AR;; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

**UNITED STATES GYPSUM CO** — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, IP-X2, IPC-AR ; 3/4 in. thick Types IP-X3 or ULTRACODE

**USG BORAL ZAWAWI DRYWALL L L C SFZ** — 1/2 in. Type C; 5/8 in. Types C, SCX

**USG MEXICO S A DE C V** — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

5H. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).

**MAYCO INDUSTRIES INC** — Type X-Ray Shielded Gypsum

5I. **Gypsum Board\*** — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.

**CGC INC** — Type ULX

**UNITED STATES GYPSUM CO** — Type ULX

**USG MEXICO S A DE C V** — Type ULX

5J. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and

optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

#### **RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall**

5K. **Gypsum Board\*** — (Not Shown) — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) need not be staggered. The number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

#### **Gypsum Board Protection on Each Side of Wall**

<b>Rating, Hr</b>	<b>Min Stud Depth, in. Items 2 through 20</b>	<b>No. of Layers &amp; Thkns of Panel</b>	<b>Min Thkns of Insulation (Item 4B)</b>
1	3-5/8	1 layer, 5/8 in. thick	3-1/2 in.
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional

#### **UNITED STATES GYPSUM CO — 5/8 in. thick Type ULIX**

6. **Fasteners** — (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

6A. **Fasteners** — (Not Shown) — For use with Item 5K- Type S or S-12 steel screws used to attach panels to studs or furring channels (Item 7). Single layer systems: 1 in. long screws, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer- 1 in. long screws, spaced 16 in. OC. Second layer- 1-5/8 in. screws, spaced 8 in. OC with screws offset 8 in. from first layer. Three-layer systems: First layer- 1 in. long screws, spaced 24 in. OC. Second layer- 1-5/8 in. long screws, spaced 24 in. OC. Third layer- 2-5/8 in. long screws, spaced 8 in. OC. Screws offset min 6 in. from layer below. Four-layer systems: First layer- 1 in. long screws, spaced 24 in. OC. Second layer- 1-5/8 in. long screws, spaced 24 in. OC. Third layer- 2-5/8 in. long screws, spaced 24 in. OC. Fourth layer- 3 in. long screws, spaced 8 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A and 5E.

7A. **Framing Members\*** — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, 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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members\*** — Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.

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

**7B. Framing Members\*** — (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:

- a. **Furring Channels** — Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A and 5E.
- b. **Steel Framing Members\*** — Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

**KINETICS NOISE CONTROL INC** — Type Isomax

**7C. Framing Members\*** — (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, 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 max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.
- b. **Steel Framing Members\*** — Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

**PLITEQ INC** — Type GENIECLIP

**7D. Steel Framing Members\*** — (Optional, Not Shown) — Furring channels and resilient sound isolation clip as described below:

- a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached to furring channels as described in Item 4. Side joint furring channels shall be attached to studs with RESILMOUNT Sound Isolation Clips - located approximately 2 in. from each end of length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge. Not for use with Item 5A and 5E.
- b. **Steel Framing Members\*** — Resilient sound isolation clip used to attach furring channels (Item 7Da) to studs. Clips spaced 24 in. OC., and secured to studs with No. 10 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

**STUDCO BUILDING SYSTEMS** — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

**8. Joint Tape and Compound** — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

**9. Siding, Brick or Stucco** — (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

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

**UNITED STATES GYPSUM CO** — Type AS

**11. Lead Batten Strips** — (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

**11A. Lead Batten Strips** — (Not Shown, For Use With Item 5H) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

**12. Lead Discs or Tabs** — (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards

(Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs** — (Not Shown, for use with Item 5H) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

13. **Lead Batten Strips** — (Not Shown, For Use With Item 5E) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs** — (Not Shown, For Use With Item 5E) 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

**\* 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 2016-04-12

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## BXUV.U465 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.

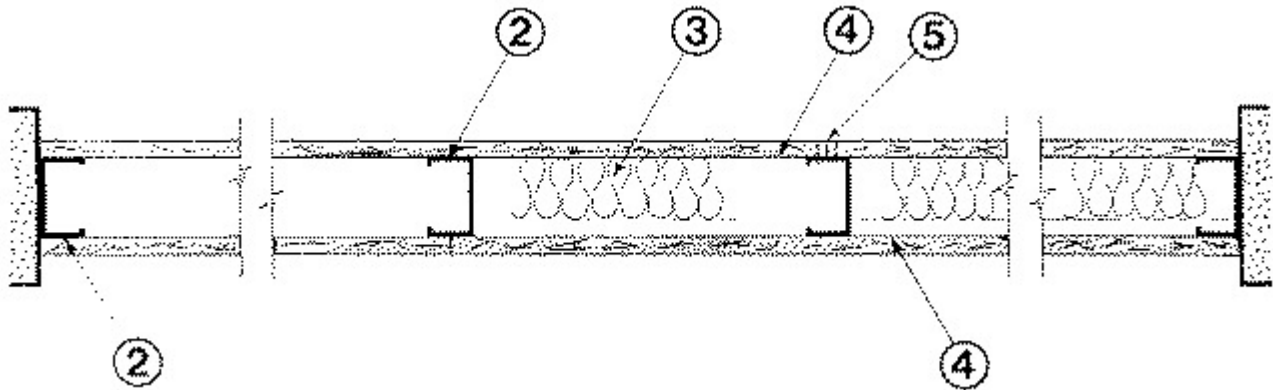
### Fire Resistance Ratings - ANSI/UL 263

[See General Information for Fire Resistance Ratings - ANSI/UL 263](#)

Design No. U465

March 03, 2010

Nonbearing Wall Rating — 1 HR.



1. **Floor and Ceiling Runners** — (not shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1A. **Framing Members\*** — **Floor and Ceiling Runners** — (Not shown) — As an alternate to Item 1 - Channel shaped, min 3-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CONSOLIDATED FABRICATORS CORP,**

**BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System**

1B. **Framing Members\* - Floor and Ceiling Runners** — Not shown - In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CRACO MFG INC** — SmarterTrack20™, SmartTrack20™

**MARINO\WARE A DIV OF WARE INDUSTRIES**

**INC** — Viper20S™ Track, Viper20D™ Track

1C. **Floor and Ceiling Runners** — (Not shown)—For use with Item 2C- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members\*— Floor and Ceiling Runners** — Not shown - In lieu of Items 1 through 1C — For use with Item 2D and 4G only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.015 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

**CLARKWESTERN BUILDING SYSTEMS INC** — CW ProTRAK

**DIETRICH INDUSTRIES INC** — DIETRICH ProTRAK

**DMFCWBS L L C** — ProTRAK

2. **Steel Studs** — Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members\*— Steel Studs** — As an alternate to Item 2 - Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

**ALLSTEEL & GYPSUM PRODUCTS INC** — Type SUPREME Framing System

**CONSOLIDATED FABRICATORS CORP,**

**BUILDING PRODUCTS DIV** — Type SUPREME Framing System

**QUAIL RUN BUILDING MATERIALS INC** — Type SUPREME Framing System

**SCAFCO STEEL STUD MANUFACTURING CO** — Type SUPREME Framing System

**STEEL CONSTRUCTION SYSTEMS INC** — Type SUPREME Framing System

2B. **Framing Members\* - Steel Studs** — Not shown - In lieu of Item 2 — For use with Item 1B, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

**CRACO MFG INC** — SmarterStud20™, SmartStud20™

**MARINO\WARE A DIV OF WARE INDUSTRIES**

**INC** — Viper20S™, Viper20D™

2C. **Steel Studs** — (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.



**2D. Framing Members\*— Steel Studs** — As an alternate to Items 2 through 2C- For use with Item 1D and 4G only, channel shaped studs, min 2-1/2 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

**CLARKWESTERN BUILDING SYSTEMS INC** — CW ProSTUD

**DIETRICH INDUSTRIES INC** — DIETRICH ProSTUD

**DMFCWBS L L C** — ProSTUD

**3. Batts and Blankets\*** — (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity.

See **Batts and Blankets** (BZJZ) category for names of Classified companies.

**3A. Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 3.0 lb/ft<sup>3</sup>. 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 to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 2.5 lb/ft<sup>3</sup>.

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

**3B. Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

**NU-WOOL CO INC** — Cellulose Insulation

**3C. Fiber, Sprayed\*** — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft<sup>3</sup>.

**INTERNATIONAL CELLULOSE CORP** — Celbar-RL

**4. Gypsum Board\*** — 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to item 6 (resilient channels) or 6A (furring channels), gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

**AMERICAN GYPSUM CO** — Types AG-C, AGX-1

**BEIJING NEW BUILDING MATERIALS PUBLIC**

**LTD CO** — Type DBX-1.

**CANADIAN GYPSUM COMPANY** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

**CERTAINTED GYPSUM INC** — Types 1, EGRG, GlasRoc, ProRoc Type X, ProRoc Type C.

**CERTAINTED GYPSUM CANADA INC** — ProRoc Type C, ProRoc Type X or ProRoc Type Abuse-Resistant.

**GEORGIA-PACIFIC GYPSUM L L C** — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6.

**LAFARGE NORTH AMERICA INC** — Types LGFC2, LGFC2A, LGFC6, LGFC6A, LGFC-C, LGFC-C/A, LGFC-WD.

**NATIONAL GYPSUM CO** — Types FSK, FSK-C, FSK-G, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6.

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

**PABCO GYPSUM** — Type PG-C, PG-11 or PG-9.

**PANEL REY S A** — Type PRX.

**SIAM GYPSUM INDUSTRY (SARABURI) CO LTD** — Type EX-1

**TEMPLE-INLAND** — Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX).

**USG MEXICO S A DE C V** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4A. **Gypsum Board\*** — (As alternate to Item 4) - Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.

**CANADIAN GYPSUM COMPANY** — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

**CERTAINTED GYPSUM INC** — ProRoc Type X, ProRoc Type C.

**CERTAINTED GYPSUM CANADA INC** — ProRoc Type X, ProRoc Type C.

**GEORGIA-PACIFIC GYPSUM L L C** — Types DAP, DAPC, DGG, DS.

**LAFARGE NORTH AMERICA INC** — Type LGFC6A, LGFC-C/A

**UNITED STATES GYPSUM CO** — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, , USGX (Joint tape and compound, Item 5, optional for use with Type USGX).

**USG MEXICO S A DE C V** — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.

4B. **Gypsum Board\*** — (As an alternate to Items 4 or 4A) — Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.

**CANADIAN GYPSUM COMPANY** — Types AR, IP-AR.

**UNITED STATES GYPSUM CO** — Types AR, IP-AR.

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

4C. **Gypsum Board\*** — As an alternate to Items 4, 4A, and 4B - Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered or backed by steel framing.

**TEMPLE-INLAND** — GreenGlass Type X.

4D. **Gypsum Board\*** — As an alternate to Items 4, 4A, 4B, and 4C - Nom. 5/8 in. thick gypsum panels applied horizontally.

Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Gypsum panels fastened to framing with 1 in. long Type S steel screws 1-1/2 in. from board edges, 3 in. from board edge and every 8 in. OC in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall.

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

**4E. Gypsum Board\*** — (As an alternate to Items 4 through 4D) - Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 7 in. OC. Not to be used with item 6.

**NATIONAL GYPSUM CO** — SoundBreak XP Type X Gypsum Board

**4F. Gypsum Board\*** — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

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

**4G. Gypsum Board\*** — (As an alternate to Items 4 through 4F) — For use with Items 1C and 2C only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

**NATIONAL GYPSUM CO** — Types FSW

**UNITED STATES GYPSUM CO** — Type SCX

**4H. Wall and Partition Facings and Accessories\*** — (As an alternate to Items 4 through 4G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

**QUIET SOLUTION INC** — Types QuietRock ES, QuietRock 527.

**5. Joint Tape and Compound** — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

**6. Resilient Channel** — (Optional-Not Shown) — 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F.

**6A. Steel Framing Members (Not Shown)\*** — As an alternate to Item 3, furring channels and resilient sound isolation clip 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 studs. Channels secured to studs as described in Item b. Ends of adjoining channels are 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 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.

b. **Framing Members\*** — Used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips.

**PAC INTERNATIONAL INC** — Type RSIC-1.

**6B. Framing Members\*** — Optional - Not Shown - Used as an alternate method to attach resilient channels (Item 6). Clips attached at each intersection of the resilient channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the stud with min. 1 in. long Type S-12 pan head steel screws through the center hole of the clip and the resilient channel flange.

**KEENE BUILDING PRODUCTS CO INC** — Type RC Assurance.

**7. Wall and Partition Facings and Accessories\*** — (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's

recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

**QUIET SOLUTION INC — Type QuietRock QR-510.**

**8. Lead Batten Strips —** (Not Shown, For Use With Item 4E) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 4E) and optional at remaining stud locations. Required behind vertical joints.

**9. Lead Discs or Tabs —** (Not Shown, For Use With Item 4E) - Used in lieu of or in addition to the lead batten strips (Item 8) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4E) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

\*Bearing the UL Classification Mark

Last Updated on 2010-03-03

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An independent organization working for a safer world with integrity, precision and knowledge.



## Smoke and Acoustic Sealant (CP 506)

### Applications

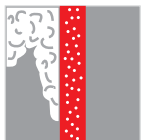
- Sealing construction joints and through-penetration openings in non fire-rated acoustical assemblies and smoke partitions (Not for use in fire-rated applications)

### Advantages

- Easy to dispense, apply and tool
- Excellent airborne sound insulation properties
- Low shrinkage after curing
- Easy cleaning with water
- Paintable

### Tested/evaluated in accordance with:

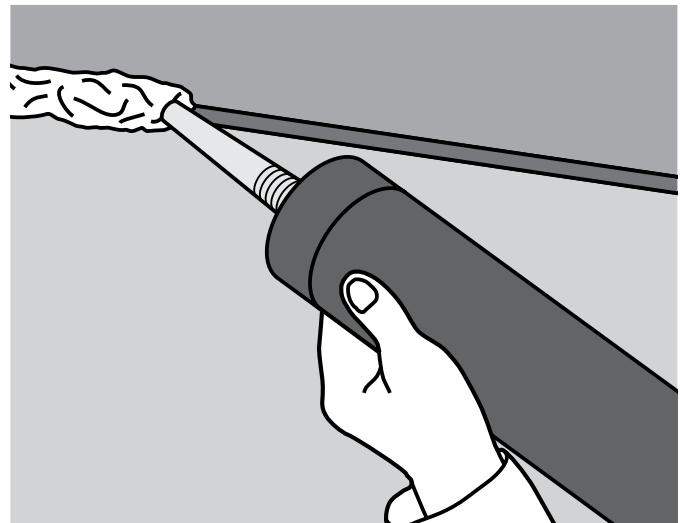
- ASTM E 90
- ASTM C 834
- ASTM E 84
- ASTM C 919



Restricts smoke migration



Excellent sound insulation characteristics with application based testing in accordance with ASTM E 90.



Technical Data	CP 506
Color	white
Chemical basis	acrylic
Storage and transport temperature range	40°F to 77°F (5°C to 25°C)
Curing time (73°F / 50% relative humidity)	approx. 3 mm / 3 days
Skin-forming time (73°F / 50% relative humidity)	approx. 15 min
Application temperature range	40°F to 104°F (5°C to 40°C)
Shelf life	24 months from date of manufacture
Sound transmission classification (ASTM E 90)	STC 63 (per tested construction type)
Movement capability (ISO 11600)	approx. 12.5%
Mold and mildew (ASTM G 21)	mold resistant
Surface burning characteristics (ASTM E 84-08)	Flame spread: 10 Smoke development: 10
Air leakage (Modified UL 2079 L-Rating)	L-Rating at Ambient = Less than 1 CFM / Lin Ft. L-Rating at 400°F = Less than 1 CFM / Lin Ft.

## Installation instructions for CP 506

### Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the product label, applicable product test reports and/or architect requirements

### Opening

- Clean the opening. Surfaces to which CP 506 will be applied should be cleaned of loose debris, dirt, oil, wax, grease, and other contaminants. The surface should be moisture and frost free.

### Application of sealant

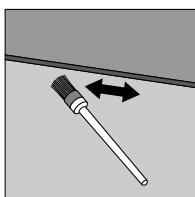
- Apply sealant in opening at required depth
- Smooth sealant with a trowel before the skin forms. Once cured, CP 506 can only be removed mechanically

### Not for use

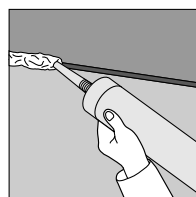
- In areas immersed in water

### Storage

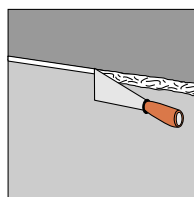
- Store only in the original packaging in a location protected from moisture at a temperature of 40°F to 77°F (5°C to 25°C)
- Observe expiration date on package



1. Clean opening



2. Apply CP 506



3. Tool CP 506

# Hilti. Outperform. Outlast.

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**Hilti Firestop**  
Saving lives  
through innovation  
and education



# CP 606 Flexible Firestop Sealant

## Product description

- An acrylic based firestop sealant that provides movement capability in fire rated joint applications

## Areas of application

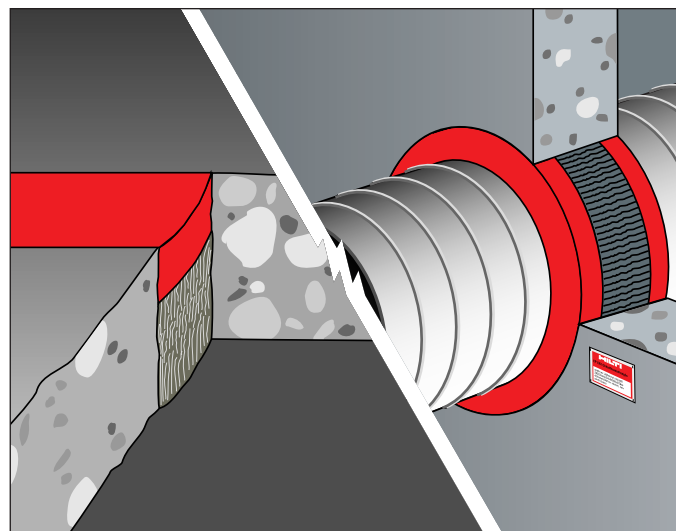
- Sealing construction/expansion joints
- Top-of-wall joints
- Metal pipes
- Cable bundles
- HVAC penetrations\*

## For use with

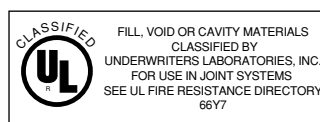
- Various base materials such as masonry, concrete, metal, etc.
- Wall and floor assemblies rated up to 3 hours

## Examples

- Where a gypsum wall assembly meets the underside of a metal or concrete deck
- Sealing expansion joints to impede the passage of fire, smoke and toxic fumes
- Sealing around HVAC penetrations through fire-rated assemblies



## Internationally tested and approved



## System advantages/Customer benefits

- Paintable
- Meets 500 cycle requirements (ASTM E 1399 & UL 2079)
- Smoke, fume and water resistant
- Easy clean up with water

# CP 606 Flexible Firestop Sealant

Description	Color	Package Contents	Volume	Item No.
CP 606, tube	red	10.5oz (310 ml)	18 in <sup>3</sup>	00337191
CP 606, foil	white	(Qty 20) 20.2oz (600 ml)	36 in <sup>3</sup>	00314272
CP 606, foil	red	(Qty 20) 20.2oz (600 ml)	36 in <sup>3</sup>	00337192
CP 606, pail	red	5 gallons (19 liter)	1155 in <sup>3</sup>	00337193
CB 200 PI-300/310 ml Dispenser				00055205
600 ml Foil Dispenser				00024669



\* For metal ducts with damper, consult damper manufacturer.



# CP 606 Flexible Firestop Sealant

## Product description

- An acrylic based firestop sealant that provides movement capability in fire rated joint applications

## Product features

- Silicone free
- Halogen, asbestos and solvent free
- UV-resistant

## Tested in accordance with

- UL 2079
- ASTM E 1399
- UL 1479
- ASTM E 814
- ASTM E 84

## Technical Data

### CP 606 Flexible Firestop Sealant

(at 73°F (23°C) and 50% relative air humidity)

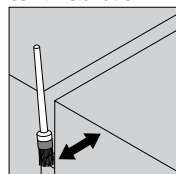
Density:	Approx. 1.5 g/cm <sup>3</sup>
Color:	Red and White
Application temperature:	40°F (5°C) to 77°F (25°C)
Skin-forming time:	Approx. 15 min.
Curing rate:	Approx. 1/16" in 3 days
Volume shrinkage:	Less than 20%
Movement capability:	Approx. 10%
Temperature resistance:	-40°F (-40°C) to 176°F (80°C)
Surface burning characteristics:	Flame spread: 0
(ASTM E84-96)	Smoke development: 5
Sound transmission classification:	50
(ASTM E 90-97)	

## Approvals

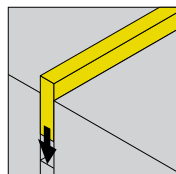
ICBO Evaluation Service, Inc.	Report No. ER-5614
California State Fire Marshal	Listing no. 1452-1200:112
City of New York	MEA 100-99-M

## Installation instructions for CP 606

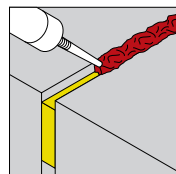
### Joint installation



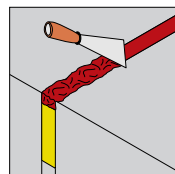
1. Clean opening



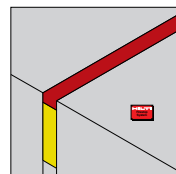
2. Insert backing material



3. Apply CP 606

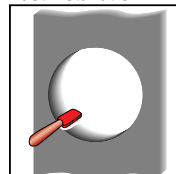


4. Smooth CP 606

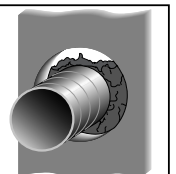


5. Fasten identification plate (if required)

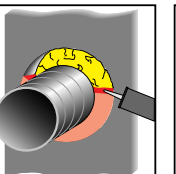
### Duct installation



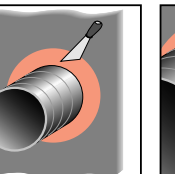
1. Clean opening



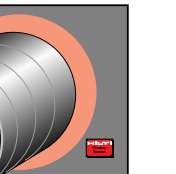
2. Insert backing material



3. Apply CP 606



4. Smooth CP 606



5. Fasten identification plate (if required)

### Opening

1. Clean the opening. Joint sides and surfaces to which CP 606 will be applied must be sound, dry and free from dust, oil and grease.

### Application of firestop

2. Insert fill of mineral wool or backer (as required).
3. Apply firestop over backer.
4. Smooth firestop sealant with a trowel before the skin forms. Once cured, CP 606 can only be removed mechanically.
5. For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case mark the identification plate and fasten it in a visible position next to the seal.

### Notice about approvals

- When using Hilti CP 606 Flexible Firestop Sealant, check that the joint or pipe application has been sealed according to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Manual.

### Not to be used...

- On areas immersed in water

### Safety precautions

- Keep out of reach of children
- Read the Material Safety Data Sheet
- Eyes and hands must be suitably protected
- Avoid contact with eyes/skin
- Only use in well ventilated areas

### Storage

- Store only in the original packaging in a location protected from moisture at a temperature of 40°F (5°C) to 77°F (25°C)
- Observe expiration date on package



Hilti (Canada) Limited

MSDS No.: 267C  
Revision No.: 001  
Prep. Date: 25 April, 2000  
Page: 1 of 2

**MATERIAL SAFETY DATA SHEET**

**Product identifier:** CP 606 Flexible Firestop Sealant  
**Product use:** Fire resistant acrylic based sealant for use in fire rated joint applications  
**Supplier:** Hilti (Canada) Limited, 6790 Century Avenue, Suite #300, Mississauga, Ontario L5N 2V8  
**Originator:** Hilti, Inc., P. O. Box 21148, Tulsa, Oklahoma, USA 74121  
**Emergency number:** Chem-Trec: 1 800 424 9300

**INGREDIENTS INFORMATION**

Ingredient	CAS Number	% (wt.)	LC <sub>50</sub> , (rat)	LD <sub>50</sub> (rat)	TLV	STEL
Calcium carbonate	01317-65-3	50 - 55	N/Av	N/Av	N/Av	N/E
Water	07732-18-5	15 - 20	N/Av	N/Av	N/E	N/E
Isononyl phthalate	28553-12-0	10 - 15	N/Av	N/Av	N/E	N/E
Polybutene	09003-29-6	01 - 05	N/Av	N/Av	N/E	N/E
Ethylene glycol	00107-21-1	01 - 05	N/Av	4700 mg/kg	N/E	N/A
Pigment	01309-37-1	01 - 05	N/Av	N/Av	N/Av	N/E

**PHYSICAL PROPERTIES**

<b>Appearance / Physical state:</b>	Red paste.	<b>Odour:</b>	Mild odour.
<b>Specific gravity (at 20°C):</b>	1.55	<b>Odour threshold:</b>	Not determined.
<b>Vapour pressure (at 20°C):</b>	Not applicable.	<b>Vapour density:</b>	Not applicable.
<b>Evaporation rate:</b>	Not determined.	<b>Boiling point:</b>	Not determined.
<b>Freezing point:</b>	Not determined.	<b>pH:</b>	Not determined.
<b>Coefficient of H<sub>2</sub>O / oil distrib:</b>	Not determined.	<b>Solubility in water:</b>	Miscible.

**FIRE AND EXPLOSION DATA**

<b>Flash point / Method:</b>	Nonflammable.	<b>Flammable limits:</b>	Not applicable.
<b>Conditions of flammability:</b>	Not applicable.	<b>Auto-ignition temperature:</b>	Not applicable.
<b>Means of extinction:</b>	Not applicable. As appropriate for surrounding fire (e.g. Water, CO <sub>2</sub> , Dry Chemical, Foam).		
<b>Special fire fighting procedures:</b>	None known. A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.		
<b>Hazardous combustion products:</b>	Not determined.		
<b>Sensitivity to mechanical impact / static discharge:</b>	Not susceptible to mechanical impact or to a static discharge.		

**REACTIVITY DATA**

<b>Stability:</b>	Stable.	<b>Incompatible materials:</b>	Strong oxidizing agents.
<b>Conditions of reactivity:</b>	None known.		
<b>Hazardous decomposition products:</b>	Not determined.		

**TOXICOLOGICAL PROPERTIES**

<b>Routes of exposure:</b>	<input checked="" type="checkbox"/> Skin contact <input type="checkbox"/> Skin absorption <input checked="" type="checkbox"/> Eye contact <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion		
<b>Exposure limits:</b>	See "Ingredients" section above.		
<b>Acute effects of exposure:</b>	<b>Eyes</b> – Slightly alkaline material; can cause irritation but injury is unlikely. <b>Skin</b> - Can cause irritation with some individuals. <b>Inhalation</b> - No effects expected. <b>Ingestion</b> - Not a likely route of exposure. Effects of ingestion have not been determined.		
<b>Chronic effects of exposure:</b>	None known.		
<b>Synergistic materials:</b>	None known.		



## FIRST AID MEASURES

<b>Eyes:</b>	Flush immediately with plenty of water. Call a physician if symptoms occur.
<b>Skin:</b>	Wash with soap and water. Seek medical attention if any effects persist.
<b>Inhalation:</b>	No ill effects expected. Should discomfort occur, move to fresh air.
<b>Ingestion:</b>	Do not induce vomiting unless large amounts are ingested. If conscious, give plenty of water to drink. <u>Never</u> give anything by mouth to an unconscious person. Contact a physician immediately.
<b>Other:</b>	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure

## CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

<b>Engineering controls:</b>	General (natural or mechanically induced fresh air movements).
<b>Eye protection:</b>	As appropriate for the work area.
<b>Skin protection:</b>	Cloth gloves are suitable.
<b>Respiratory protection:</b>	None normally required.
<b>Other:</b>	No additional measures are normally required.

## PRECAUTIONS FOR SAFE HANDLING AND USE

<b>Handling procedures and equipment:</b>	For industrial use only. Keep container sealed when not in use to prevent curing of the product. Avoid contact with the eyes and skin. Practice good hygiene; i.e. wash after using and before eating or smoking.
<b>Storage requirements:</b>	Keep out of reach of children. Store in a cool dry area. Keep from freezing. Shelf life is one year from date of manufacture if stored between 40° and 77° F (5 - 25° C).
<b>Spill, leak or release:</b>	Immediately wipe away spilled material before it hardens. Place in a container for proper disposal in accordance with all applicable local, state, or federal requirements.
<b>Waste disposal:</b>	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, provincial, and federal safety, health and environmental regulations.
<b>Special shipping instructions:</b>	Avoid temperature extremes. Keep from freezing.

## REGULATORY INFORMATION

<b>WHMIS classification:</b>	D2B
<b>HMIS codes:</b>	Health 0, Flammability 0, Reactivity 0, PPE A
<b>TDG shipping name:</b>	Not regulated.

## PREPARATION INFORMATION / CONTACTS

<b>Prepared by:</b>	Hilti, Inc., Tulsa, OK USA	<b>Emergency phone number:</b>	1 800 424 9300
<b>Customer Service:</b>	Hilti (Canada) Limited, Mississauga, Ontario; 1 800 363 4458		
<b>Health / Safety contacts:</b>	Hilti, Inc., Tulsa, OK USA; 1 800 879 6000 Steve Gerrard (x6309), Jerry Metcalf (x6704)		
<b>Abbreviations used:</b>	<b>N/E</b> = None Established. <b>N/A</b> = Not Applicable. <b>N/Av</b> = Not Available. <b>H</b> = Hours. <b>HMIS:</b> Hazardous Materials Identification System		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.



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Camas, Washington • (360) 817-5500

## **CERTIFICATE OF COMPLIANCE**

CERTIFICATE NUMBER: 240798 - R16355  
ISSUE DATE: July 24, 1998

Issued to: Hilti Construction Chemicals Inc.  
5400 S. 122nd East Avenue  
Tulsa, OK 74146 USA

Report Reference: R16355, August 11, 1998

This is to Certify that  
representative samples of: Flexible Firestop Sealant, designated CP 606

Have been investigated by Underwriters Laboratories Inc. in accordance with the Standard(s)  
indicated on this Certificate.

Standard(s) for Safety: UL 1479, Fire Tests of Through-Penetration  
Firestops;  
UL 2079, Tests for Fire Resistance of Building  
Joint Systems.

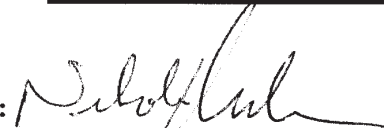
**Additional Information:**


*This material is one part sealant and is intended to be used as a  
Classified Fill, Void or Cavity Material in various Through-Penetration  
Firestop Systems as specified in Volume 2 of UL's Fire Resistance  
Directory.*

**Only those products bearing the UL Classification Marking should be considered as being covered by UL's  
Classification and Follow-Up Service**

The UL Classification Marking includes: the name "Underwriters Laboratories Inc." the word "Classified"; a control  
number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product;  
and, the product category name (product identity) as indicated in the appropriate UL Directory.

**LOOK FOR THE UL CLASSIFICATION MARKING ON THE PRODUCT**

Engineer:   
Underwriters Laboratories Inc.  
Nikola Momcilovic

Review Engineer:   
Underwriters Laboratories Inc.  
A. M. Ramirez

## Firestop Joint Spray (CFS-SP WB)

### Product description

- A sprayable fire-rated mastic for construction joints where maximum movement is required

### Product features

- Sprayable or apply by brush
- Maximum flexibility, meets 500 cycle requirements (Class II and III Approval) (ASTM E 1966 and UL 2079)
- Quick and easy installation with the Titan 600 or 1100 Sprayers can help save you time and money
- Contains no halogens, solvents or asbestos
- Water based formulation so spills and over-spray clean up quickly and easily
- Paintable
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

### Areas of application

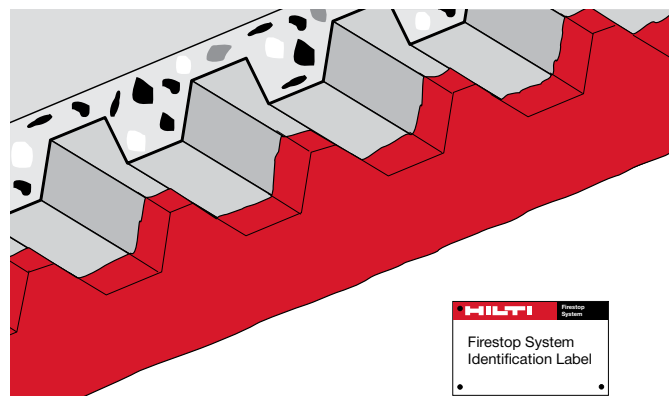
- Top-of-wall joints
- Curtain wall/edge of slab
- Expansion joints

### For use with

- Concrete, masonry and gypsum wall assemblies
- Wall and floor/wall assemblies rated up to 4 hours

### Examples

- Where a gypsum wall assembly meets the underside of a metal or concrete deck
- Where a concrete floor assembly meets with non-rated exterior wall (concrete, glass, etc.)
- Where two concrete floor/wall assemblies meet



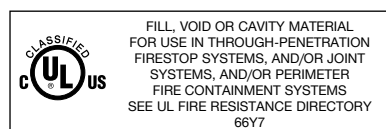
Technical Data*	CFS-SP WB
Density	Approx. 10.8 lb/gal (1.3 g/cm³)
Color	Available in red, white and gray**
Application temperature	39°F to 104°F (4°C to 40°C)
Temperature resistance	-40°F to 176°F (-40°C to 80°C)
Consistency	Sprayable liquid
Chemical basis	Acrylic-water-based-dispersion
Curing time	Approx. 24 hours @ 73°F, 50% humidity for 1/8" depth
Average volume shrinkage (ASTM C1241)	51.1%
Ph-value	Approx. 8-9
Movement capability	Up to 50%
Surface burning characteristics (CAN/ULC-S102)	Flame spread: 15 Smoke development: 10
Sound transmission classification (ASTM E 90-99)	59 (per tested construction type)

#### Tested in accordance with

- UL 2079 • ASTM E 1966 • ASTM E 84 • ASTM E 2837
- UL 1479 • ASTM E 814 • ASTM E 2307

\*At 73°F (23°C) and 50% relative humidity

\*\*Gray color requires six (6) weeks lead time



## Installation instructions for Firestop Joint Spray CFS-SP WB

### Notice

- Before handling, read Material Safety Data Sheet and product label for safe usage and health information.
- Instructions below are general guidelines — always refer to the applicable drawing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

### Opening

1. Clean the opening. Surfaces to which Firestop Joint Spray will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.

### Application of Firestop Joint Spray

2. Mineral wool packing: Install the prescribed back filling material type and depth to obtain desired rating.
3. Application of Firestop Joint Spray: Apply Firestop Joint Spray to the required depth in order to obtain the desired rating. Make sure Firestop Joint Spray contacts all surfaces and overlaps beyond all surrounding surfaces (Refer to UL System). Titan Sprayers have been successful in applying Firestop Joint Spray. Hilti recommends the use of the Titan 600 (for application temperatures above 50°F) or

Firestop Joint Spray may also be brushed on with a paint brush. Contact Hilti Technical Support for more information.

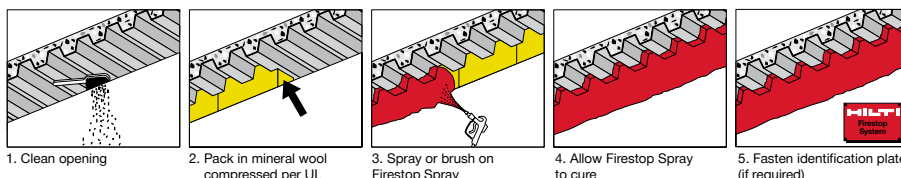
4. Curing time: Allow approx. 24 hours for typical application thickness (@ 73°F / 23°C) 50% humidity for 1/8" depth for the Firestop Joint Spray to fully cure.
5. Identification: For maintenance reasons all Firestop Joint Spray applications can be permanently marked with an identification plate and fastened in a visible position next to the seal.

### Not for use

- In areas immersed in water
- On hot surfaces (above 176°F)

### Storage

- Store only in the original packaging at temperatures 39°F to 77°F (4°C to 25°C)
- Observe expiration date on package



# Hilti. Outperform. Outlast.

## FIBERGLASS INSULATION INSTALLATION PROCEEDURES

**From:** Gibson, Charles  
**To:** [daren@kirbycobuilders.com](mailto:daren@kirbycobuilders.com); [Metcalf, Robert](#)  
**Cc:** [Britt, Garland](#); [chris@kirbycobuilders.com](mailto:chris@kirbycobuilders.com)  
**Subject:** RE: Fiberglass Batt Insulation  
**Date:** Tuesday, July 10, 2018 12:47:25 PM

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This is to confirm your discussion. The idea for "Friction Fit" is the insulation will not slide or settle creating voids in the wall. Friction fit IS permitted, if you use the right material size wise so not to allow sliding or settling. Otherwise, it will need to be secured in place.

Chuck Gibson  
Building Inspection Assistant Supervisor  
Building Inspection Division  
214 N Hogan Street  
Jacksonville, FL 32202  
[cgibson@coj.net](mailto:cgibson@coj.net)  
904-255-8541

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**From:** daren@kirbycobuilders.com <daren@kirbycobuilders.com>  
**Sent:** Tuesday, July 10, 2018 12:03 PM  
**To:** Metcalf, Robert <RMetcalf@coj.net>  
**Cc:** Gibson, Charles <CGibson@coj.net>; Britt, Garland <GBritt@coj.net>; [chris@kirbycobuilders.com](mailto:chris@kirbycobuilders.com)  
**Subject:** Fiberglass Batt Insulation

**EXTERNAL EMAIL:** This email originated from a non-COJ email address. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Robert,

I would like to confirm a discussion we had with Garland today on a jobsite about the installation of fiberglass batt insulation in metal stud cavities.

It was brought to our attention that the City does not accept "friction fit" in metal studs, that the insulation has to be mechanically fastened within the stud cavity.

I would like to be able to relay this information to our foremen, as not to cause any discrepancies in any future inspections.

I appreciate your response and Garland's time spent with us this morning.

Thanks,  
Daren Hoffman

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# Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction<sup>1</sup>

This standard is issued under the fixed designation C 1320; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice covers procedures for the installation of mineral fiber batt and blanket thermal insulation in ceilings, attics, floors, and walls of new or existing housing and other light frame construction.

1.2 This practice covers the installation process from pre-installation inspection through post-installation inspection. It does not cover the production of the insulation materials.

1.3 This practice is not intended to replace manufacturers' installation instructions, but it shall be used in conjunction with such instructions. This practice is not intended to supersede local, state, or federal codes.

1.4 This practice assumes that the installer possesses a working knowledge of applicable codes and regulations, safety practices, tools, equipment, and methods necessary for the installation of thermal insulation materials. It also assumes that the installer understands the fundamentals of construction that affect the installation of insulation.

1.5 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:

C 168 Terminology Relating to Thermal Insulating Materials<sup>2</sup>

C 665 Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing<sup>2</sup>

C 755 Practice for Selection of Vapor Retarders for Thermal Insulation<sup>2</sup>

D 3833 Test Method for Water Vapor Transmission of

Pressure-Sensitive Tapes<sup>3</sup>

E 84 Test Method for Surface Burning Characteristics of Building Materials<sup>4</sup>

### 2.2 Other Standards:

NFPA-31 Standard for the Installation of Oil Burning Equipment<sup>5</sup>

NFPA-54 National Fuel Gas Code<sup>5</sup>

NFPA-70 National Electric Code<sup>5</sup>

NFPA-211 Standard for Chimneys, Fireplaces, Vents and Solid-Fuel Burning Appliances<sup>5</sup>

ICC One and Two Family Dwelling Code<sup>6</sup>

CPSC Product Safety Fact Sheet No. 18, "The Home Electrical System"<sup>7</sup>

NAIMA Publication BI402 "Fiber Glass Batt Installation"<sup>8</sup>

## 3. Terminology

3.1 *Definitions*—Definitions relating to thermal insulation in Terminology C 168 apply to terms used in this practice.

### 3.2 Description of Terms Specific to This Standard:

3.2.1 *conditioned space*—space in a building that is served by a heating or cooling system.

3.2.2 *installer*—the person or persons who apply thermal insulation materials in buildings whether or not such person or persons have contracted with the owner to perform the work.

3.2.3 *mineral fiber batt and blanket thermal insulating materials*—those materials that meet the minimum requirements set forth in Specification C 665.

3.2.4 *owner*—the person, partnership, corporation, agency, or other entity who owns the building to be insulated whether such ownership is by virtue of deed, contract, or any other instrument for acquiring legal title under the laws of the State in which the building is located.

3.2.5 *vapor retarder*—membrane or tape that has a water vapor permeance (perm) rating of 1 perm ( $5.7 \times 10^{-11}$  kg·Pa<sup>-1</sup>·s<sup>-1</sup>·m<sup>-2</sup>) or less as defined in Practice C 755 or Test Method D 3833 respectively.

<sup>3</sup> Annual Book of ASTM Standards, Vol 15.09.

<sup>4</sup> Annual Book of ASTM Standards, Vol 04.07.

<sup>5</sup> Available from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

<sup>6</sup> Available from International Code Council, Falls Church, VA 22041.

<sup>7</sup> Available from U.S. Consumer Product Safety Commission, Washington, DC 20207.

<sup>8</sup> Available from North American Insulation Manufacturers Association, Alexandria, VA 22314.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.23 on Blanket and Loose Fill Insulation.

Current edition approved Dec. 10, 1999. Published April 2000. Originally published as C 1320-95. last previous edition C1320-95.

<sup>2</sup> Annual Book of ASTM Standards, Vol 04.06.

#### 4. Significance and Use

4.1 This practice recognizes that effectiveness, safety, and durability of insulation depend not only on the quality of the insulating materials but also on their proper installation.

4.2 This practice provides general procedures that will help to ensure installation of insulation in a safe and effective manner. It shall be noted that actual conditions in existing buildings vary greatly and in some cases additional care shall be taken to ensure effective and safe installation.

#### 5. Safety Precautions

5.1 The installer shall wear proper clothing and equipment as recommended by the insulation manufacturer.

5.2 In areas where insulation is to be installed, components of the electrical system shall be in good condition. If there is reason to believe the electrical system is faulty, do not install insulation in such areas until the owner has been informed and repair has been accomplished.

NOTE 1—The CPSC Product Safety Fact Sheet No. 18 has identified the following signs of electrical deficiencies: lights dimming, fuses blowing, circuit breakers tripping frequently, electrical sparks and “glowing” from receptacles, light flickering, and coverplates on switches and outlets that are warm or hot to the touch.

#### 6. Pre-installation Inspection and Preparation

6.1 Inspect the roof, walls, ceilings, and attic floors to identify areas where previous or existing moisture problems have caused paint peeling, warpage, staining, visible fungus growth, rotting, or other structural damage. Do not install insulation in such areas until the owner has been informed and has certified that these conditions have been corrected and their source(s) of moisture eliminated.

6.2 Provide proper attic ventilation in accordance with local building requirements or practices, such as the ICC One and Two Family Dwelling Code.

6.3 When the attic has soffit vents at the eaves, make provisions to prevent insulation from blocking the vents and restricting attic ventilation.

6.4 Where insulation is to be installed beneath floors over crawl spaces or on crawl space walls, cover the ground surface with a vapor retarder.

6.5 Provide proper crawl space ventilation in accordance with local building requirements or practices, such as the ICC One and Two Family Dwelling Code.

6.6 Inspect attic floors for openings that might permit entrance of air from conditioned spaces below. Do not install insulation in such areas until the owner has been informed and has certified that these conditions have been corrected.

#### 7. Installation Procedures

##### 7.1 General:

7.1.1 Handle the insulation material in accordance with the manufacturer's instructions and keep free of extraneous materials. Keep materials dry, off the ground, and protected from water.

7.1.2 It is difficult to describe every situation that will be encountered by the insulation installer. In general, however, the installer should be guided by the need to reduce heat flow around or through obstructions and to protect mechanical

systems. Wherever insulation is installed in a building, it is very important that it fit snugly on all sides. If the insulation is too long for a space, cut it to the correct size. If it is too short, cut a piece to fill the void.

7.1.3 Install the insulation in such a way that the thickness specified by the manufacturer is met or exceeded. Avoid compression of the insulation where ever possible. Failure to achieve the manufacturer's labeled thickness will reduce the R-value.

7.1.4 When a vapor retarder facing is provided with the insulation, it can be pressure fit with no stapling or face stapled or inset stapled. Both inset and face staple methods are widely used and are acceptable procedures. Inset stapling is usually preferred by the wall finish trades because it allows adhesive application of the wall board. Some areas require face stapling. Always check the local code requirements.

7.1.4.1 Position the vapor retarder toward the winter-warm side, except in a hot, humid climate where local requirements or practices differ regarding the placement of vapor retarders.

7.1.4.2 High performance batts such as R13, R15, R21, R22, R30C, or R38C may not have to be stapled in place. The higher density of these products helps hold them in place without a measurable loss in the moisture protection of the vapor retarder. Make sure the insulation facing is flush with the face of the stud. The insulation shall fit snugly at the sides and ends.

7.1.4.3 When inset stapling, gently press the insulation at the sides of the framing cavity, usually about  $\frac{3}{4}$  in. (19 mm), until the outside of the flange is flush with the face of the framing. When inset stapling between inclined or vertical framing members, as in cathedral ceilings or walls, start stapling at the top and work down. Use enough staples to hold the insulation firmly in place and avoid gaps or fishmouths between flanges and framing.

7.1.4.4 When face stapling, place the insulation between framing members and check to be sure it fits the cavity at both ends. With facing material flush with the face of the framing, the flanges will overlap the framing. Staple the flanges to the face of the framing, using enough staples to hold the insulation firmly in place and avoid gaps and fishmouths. The flange of the faced insulation placed in the next cavity will overlap the previously stapled flange. When more than one batt is used, pieces shall be snugly butted.

7.1.5 Standard foil and kraft-faced building insulations shall never be left exposed as stated on the facing of the product. The facing shall be covered and in substantial contact with an approved ceiling, wall, or floor construction material as required by the building codes. Inset and face stapling of these products are acceptable procedures.

7.1.6 Maintain a 3-in. (75-mm) minimum air space around motors, fans, blowers, heaters, other heat-producing devices, flues and chimneys, as specified by NFPA-31, NFPA-54, and NFPA-211.

7.1.7 Maintain a 3-in. (75-mm) minimum air space around all sides of recessed lighting fixtures, unless such fixtures are approved for installation in direct contact with insulation, IC rate, as specified in NFPA-70. This includes fixture wiring compartments and ballasts, and other heat-producing devices.



Do not cover open areas above these devices; allow free air circulation, unless they are specifically approved for operation when covered with thermal insulation. Allow devices that may require periodic servicing to remain accessible after the insulation is installed.

#### 7.2 Walls:

7.2.1 Carefully fill any small spaces remaining around windows, doors, or wall cavity obstructions with insulation. Patch the vapor retarder with vapor retarder tape where it has been interrupted in these areas, including any remaining fish mouths or gaps between flanges and framing.

7.2.2 Caulk, gasket, or otherwise seal around all other penetrations of the interior wall, including plumbing, electrical, heat registers, and grills.

7.2.3 Insulate junction boxes for wall switches and convenience outlets at outside walls between the rear of the box and the sheathing. Place insulation behind the junction box, and if necessary, cut insulation to fit snugly around it. Where electrical wiring passes through a stud cavity and is located close to the inside wall surface, insulation should be pressed behind the wiring. When the wiring is in the center of the cavity, either a shallow cut in the insulation may be used to allow the wiring to pass through the insulation or it may be split lengthwise and the wiring sandwiched within.

7.2.4 Place insulation between the piping in exterior walls and the exterior wall sheathing. Sidewalls where plumbing fixtures are to be placed shall be insulated before the fixtures are installed. To guard against pipes freezing, insulation should never be placed between piping and the warm side of the wall.

#### 7.3 Attics, Ceilings, and Floors:

7.3.1 When installing insulation around trusses or cross bracing of ceiling or floor joists, care should be taken to ensure that the insulation material is of the proper width, fits tightly around these obstructions, and that there are no gaps in the insulation.

7.3.2 Use only full width (typically 16 or 24 in. wide) batts or blankets when insulating between attic trusses and ceiling joists below open attic spaces. When insulating with two layers, the first layer of insulation should be at least the same height as the bottom structural member. Apply the second layer crosswise to the joists. For single layer applications, use insulation thicker than the bottom structural member and make sure the tops of adjacent batts or blankets meet and cover the structural members where unobstructed.

7.3.3 Install floor insulation between floor joists to fit snugly in the joist areas in contact with the floor and support with such things as wire fasteners, screening, or nylon mesh held in place by stapling or nailing.

7.3.4 Install insulation around air vents in a manner that will ensure free movement of air through the vents into the attic or crawl space.

7.3.5 Fit the attic side of access doors or panels with an insulation batt (or equivalent material) except where there is a retractable ladder or other equipment attached. Anchor the insulation to the door or panel with staples or adhesive.

## 8. Post-installation Inspection

8.1 Ensure that no gaps or areas exist where insulation is unnecessarily compressed. Examples are behind piping and electrical wiring. When inset stapling, minimal compression should be used to fasten the facing flanges.

8.2 Ensure that insulation does not restrict vents so that minimum attic ventilation requirements specified in 6.2, or crawl space ventilation requirements specified in 6.5 of this practice are met.

8.3 Ensure that insulation material is not in the air spaces, specified in 7.1.6 and 7.1.7 of this practice, around and above motors, fans, blowers, heaters, recessed lighting fixtures, ballasts, wiring compartments, and other heat-producing devices. Turn off electric power while performing this inspection.

8.4 Ensure that all cavities that act as air ducts for heating, cooling, or ventilation requirements are not restricted by insulation materials.

8.5 Ensure that no vapor retarder with a flame spread classification greater than 25, per Test Method E 84, is left exposed to either the habitable space or to the attic, crawl, or other spaces.

8.6 The installer shall provide a contract, receipt, or attic card showing the coverage area, thickness, and R-value of the insulation installed for each part of the building. The contract, receipt, or attic card shall be dated and signed by the installer. An acceptable practice is to attach an attic card adjacent to the entrance.

## 9. Keywords

9.1 batt and blanket; installation; light frame construction; mineral fiber

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