

## 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.

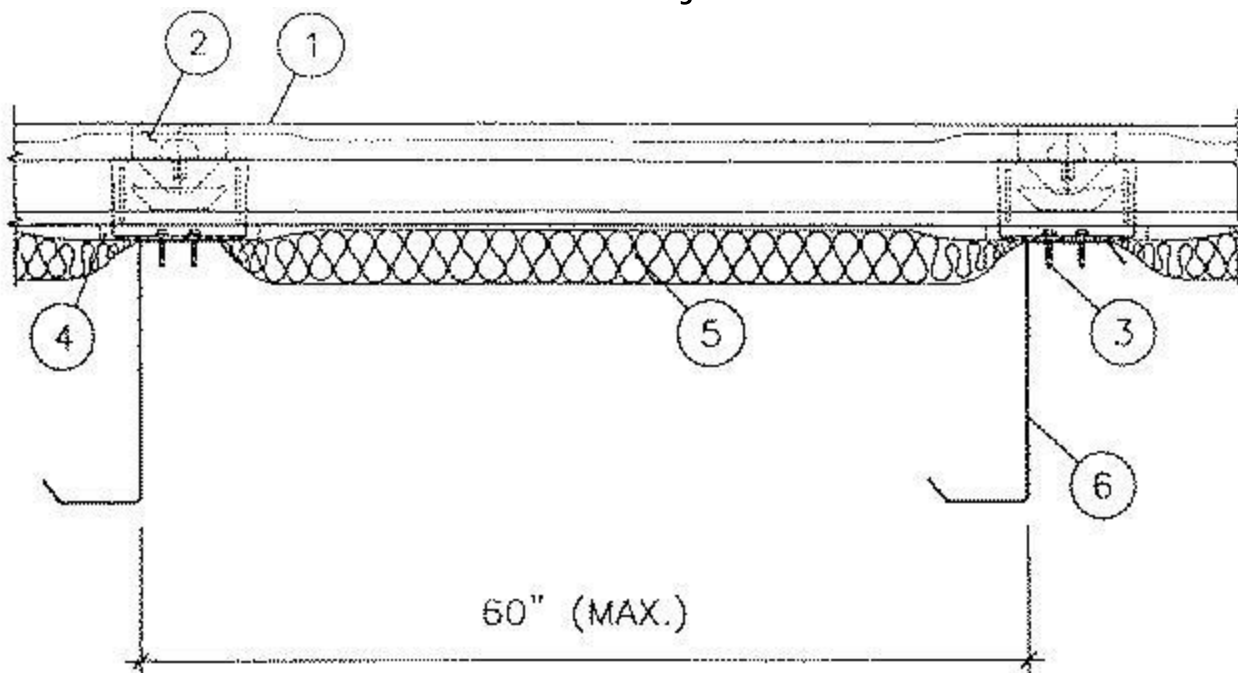
## Roof Deck Constructions

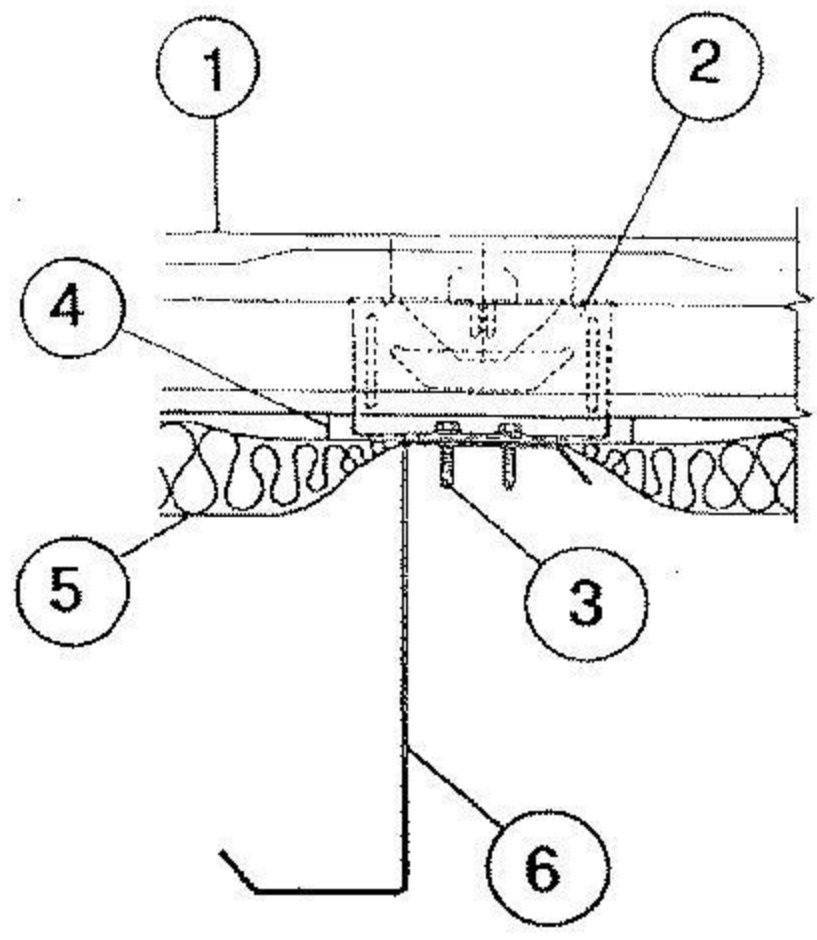
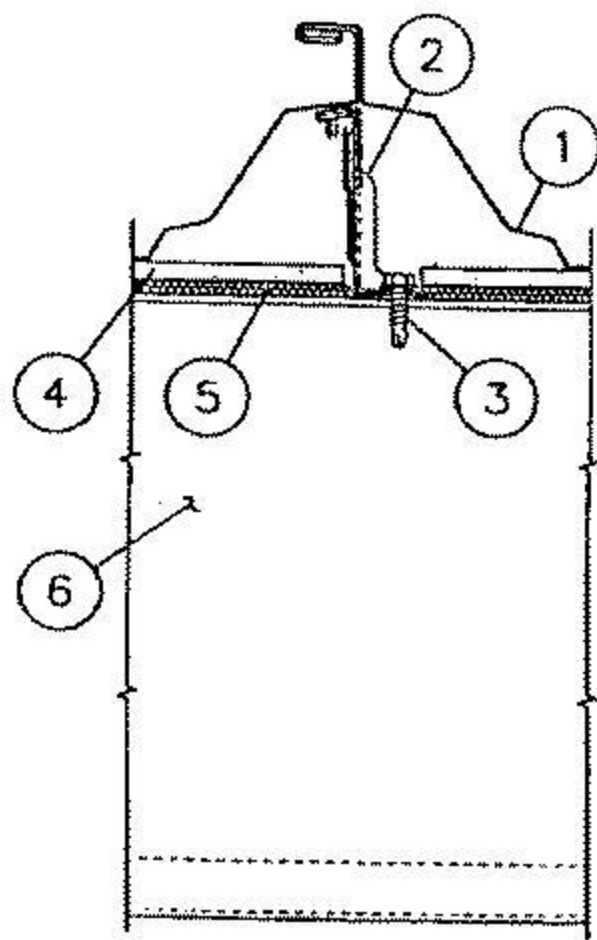
[See General Information for Roof Deck Constructions](#)

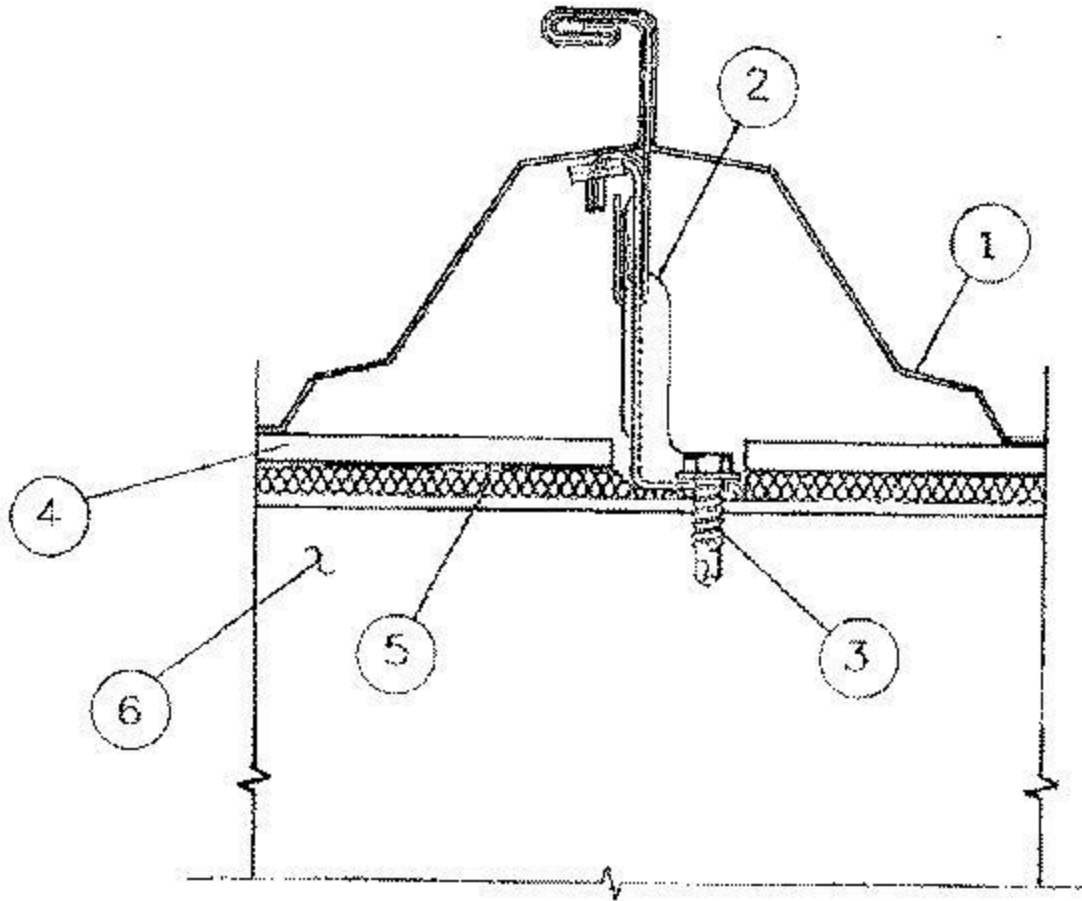
**Construction No. 552**

March 8, 2023

**Uplift — Class 90  
Fire Not Investigated**







**1. Metal Roof Deck Panels\*** — No. 24 MSG min thickness coated steel. Maximum panel width 24 in.; rib height 3 in. Panels continuous over two or more spans. Panel flat area may have optional striations or minor corrugations placed at various locations beginning at a minimum of 2 in. from side ribs. End laps to occur adjacent to purlins with panels overlapped 2 in. min - 4 in. max. End laps to be either continuous or single course. An end lap back-up plate (items 2B, 2C and 2D) may be used for single course or continuous situations. An alternate end-lap channel (item 2A) to be used for continuous end-lap situations. A bead of sealant may be used at panel end laps and side ribs. Ribs to be seamed with a hand seamer to form a horizontal flange with a tight hem. Seaming operation may be continuous or only at panel clip (item 2) locations.

**ACI BUILDING SYSTEMS INC** ([View Classification](#)) — "StratoShield", "StratoShield 324"

**ALLIANCE STEEL INC** ([View Classification](#)) — "Alliance Seam 24"

**ALLSOUTH PRE-ENGINEERED COMPONENTS L L C** ([View Classification](#)) — APEC 324

**BUTLER MANUFACTURING, DIV OF BLUESCOPE BUILDINGS NORTH AMERICA INC** ([View Classification](#)) — "ClassicLoc"

**BEHLEN MFG CO** ([View Classification](#)) — "ZL-24"

**BIGBEE STEEL BUILDINGS INC** ([View Classification](#)) — "BigbeeLok-324"

**CO BUILDING SYSTEMS** ([View Classification](#)) — "TS-324"

**DEAN STEEL BUILDINGS INC** ([View Classification](#)) — "Pro Lock"

**HORIZON STRUCTURAL SYSTEMS** ([View Classification](#)) — "TS-324"

**METAL PANELS INC** ([View Classification](#)) — "StrongSeam TS-324"

**MUELLER INC** ([View Classification](#)) — "RT324"

**NUCOR CORP. (NUCOR BUILDINGS GROUP)** ([View Classification](#)) — "CFR"

**OAKLAND METAL BUILDINGS INC** ([View Classification](#)) — "Oakland Standing Seam Panel"

**RIGID GLOBAL BUILDINGS L L C** ([View Classification](#)) — "HI-Tech Series"

**SBI METAL BUILDINGS** ([View Classification](#)) — "TSS-324"

**SCHULTE BUILDING SYSTEMS INC** ([View Classification](#)) — "TS-324"

**STANDARD STRUCTURES INC** ([View Classification](#)) — "TS 324"

**TRIAD CORRUGATED METALS INC** ([View Classification](#)) — "TS324"

**USAS BUILDING SYSTEM (SHANGHAI) CO LTD** ([View Classification](#)) — "LSIII"

**VARCO PRUDEN BUILDINGS, DIV OF BLUESCOPE BUILDINGS NORTH AMERICA INC** ([View Classification](#)) — "HWR"

**2. Roof Deck Fasteners\*** — (Panel Clip) — Location at side of panels over purlins (item 6). Max spacing 60 in.  
Any of the following:

**Floating Clip\*** — Two piece assembly with a reinforced base fabricated from No. 17 MSG min coated steel; Width 4-1/4 in; Height, 2 in. min., 3.30 in. max. Upper tab fabricated from No. 22 MSG min coated steel. Width 3 in., height 1-15/16 in.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "Challenger Series 460 Floating Clip"

**Floating Clip\*** — (Not Shown)— Two piece assembly with base fabricated from No. 16 MSG min coated steel. Base width 3-3/8 in; Tab fabricated from No. 20 MSG min coated steel. Tab width 4.3 in., height 4.91 in. min, 5.91 in. max.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "MPS Floating Clip", "MPS-607 Floating Clip", "MPS-608 Floating Clip" or "MPS-609 Floating Clip".

**Floating Clip\*** — (Not Shown)— Two piece assembly with base fabricated from No. 16 MSG min coated steel. Base width 2-1/4 in; Tab fabricated from No. 20 MSG min coated steel. Tab width 4.3 in., height 3.41 in. min, 4.41 in. max.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "MPS-3 Floating Clip"

**Fixed Clip\*** — (Not Shown) One piece assembly fabricated from No. 22 MSG min coated steel. Width 4-1/4 in.; height 3 in. min, 4.30 in. max.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "Challenger Series 460 Fixed Clip"

**Floating Clip\*** — (Not Shown)— Two piece assembly with base fabricated from No. 16 MSG min coated steel. Base width 3- $n$  inches; Tab fabricated from No. 20 MSG minimum coated steel. Tab width 6, 8, 12, or 16 inches. Tab height 3.41 inches minimum, 4.41 inches maximum.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "BA 600 Series" Clip.

**Fixed Clip\*** — One piece assembly fabricated from No. 22 MSG min coated steel. Width 4.3 inches. Height 3, 3.5, 4.5, 5, 5.5, or 6 inches.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "FC 600 Series" Clip.

**2A. End Lap Back-Up Channel\*** — (Optional) — (Not Shown) — (For continuous end-lap situations only) — No. 16 MSG min coated steel channel, 3 in. wide with two 3/8 in. deep legs. Located under panel end lap, 6 to 12 in. from purlin (item 6).

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "BRS Back-Up Channel"

**2B. End Lap Back-Up Plate\*** — (Optional) — (Not Shown) — (For single panel width or continuous end-lap situations) — No. 16 MSG min coated steel, fabricated to the general profile of the panel, 5-3/4 in. wide. Located under the panel end lap, adjacent to purlin. To be used in lieu of items 2A, 2C and 2D.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "BRS Back-Up Plate"

**2C. End Lap Back-Up Plate\*** — (Optional) — (Not Shown) — (For single panel width or continuous end-lap situations) — No. 16 MSG min coated steel, fabricated to the general profile of the panel, 12-1/2 in. wide. Located under the panel end lap, adjacent to purlin. To be used in lieu of item 2A, 2B and 2D.

**NUCOR CORP. (NUCOR BUILDINGS GROUP)** ([View Classification](#)) — "NBS CFR 12 1/2 in. Back-up Plate"

**2D. End Lap Back-Up Plate\*** — (Optional) — (Not Shown) — (For single panel width or continuous end-lap situations) — No. 16 MSG min coated steel, fabricated to the general profile of the panel, 6 in. wide. Located under the panel end lap, adjacent to purlin. To be used in lieu of item 2A, 2B and 2C.

**NUCOR CORP. (NUCOR BUILDINGS GROUP)** ([View Classification](#)) — "NBS CFR 6 in. Back-up Plate"

**2E. Cinch Strap\*** — (Optional) — (Not Shown) — 1-1/2 in. wide, fabricated from 0.091 in. thick aluminum or 20 MSG 300 Series Stainless Steel to the general form of the panel.

**BUILDING RESEARCH SYSTEMS INC** ([View Classification](#)) — "BRS Cinch Strap"

**3. Fasteners—(Screws)** — For panel-clip-to-purlin attachment to be No. 1/4-14 by 1-1/4 in. long self-drilling, self-tapping, hex-head, plated steel screws. Two fasteners used per clip. Fasteners used at the end lap to be No. 12-12 by 1-1/4 in. long self-drilling, self-tapping, hex-head, plated steel screws with a metal backed sealing washer, or 1/4-14 x 1 1/4" minimum Self-Drilling, Self-Tapping Plated Steel Screw with a EPDM Sealing Washer. As an alternate fastener, No. 17-14 by 1-1/4 in. long, type AB, self-tapping, hex-head, plated steel; screws with a 5/8 in. OD metal backed EPDM bonded sealing washer may be used. Diameter of pilot holes to be appropriate for fastener. Spacing to be approximately 6 in. OC. Fasteners inserted into guide holes in Cinch Strap (item 2E) when used.

**3A. Fasteners—(Screws)** — (Used on Optional End Lap) For panel to purlin attachment to be No. 1/4 - 14 by 1 1/4 in. min. long self-drilling, self tapping, hex head, plated steel screws. Two fasteners used per clip. Fasteners used at the end lap to be No. 12-14 x 1 1/4 in. min. long self drilling, self tapping, hex head, plated steel screws with a EPDM sealing washer. As an alternate fastener, No. 17-14 x 1 1/4 in. min long type AB, self tapping, hex head, plated steel, screws with a EPDM sealing washer may be used. Spacing to be 2 1/2 in. O.C. One fastener is located in the shoulder of each side of the major rib. All fasteners located 1 in. from end of panel. (10) fasteners total used on each lap. When used with item 2C or 2D.

For open web joists or hot rolled sections having a min. 1/8 in. upper flange thickness, No. 12-24 by 1-1/4 in. self-drilling screws may be used. Spacing to be the same for all types.

**4. Thermal Spacer** — (Optional) — Polystyrene, 3/4 - 1 in. thick, length sized to fit between panel clips (item 2 or 2A).

**5. Insulation** — Any compressible blanket insulation, maximum 18 inches thick before compression (8 in maximum between the clip base and purlin), located between thermal spacer (item 4) and purlin (item 6).

**6. Purlins** — No. 16 MSG min thickness coated steel (min yield strength 50 ksi). Max spacing 60 in. OC. As an alternative, open web joists (min yield strength 50 ksi) may be used. Max spacing 60 in. OC.

**7. Building Unit\*** — (Optional) (Not Shown)—Used with 24 MSG thick panels only. Formed to same profile as metal roof deck panels (Item No. 1). Building unit continuous over two spans. To be fastened to Item No. 8. with 1/4 in. diam dome head aluminum rivets spaced 12 in. OC.

**ALLIANCE STEEL INC** ([View Classification](#)) — "Alliance Seam 24 Skylight Panel"

**8. Building Unit Side Lap Support** — (Optional)—(Used with Item 7 only)—Used at both sides of building unit and adjacent metal roof deck panels (Item 1). Channel shaped, web 2.40 in., legs 1-1/8 in. long and formed at a 57 angle from the web, No. 16 MSG min thick steel (50,000 psi min yield strength).

Refer to general information, Roof Deck Constructions, for items not evaluated.

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

Last Updated on 2023-03-08

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