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

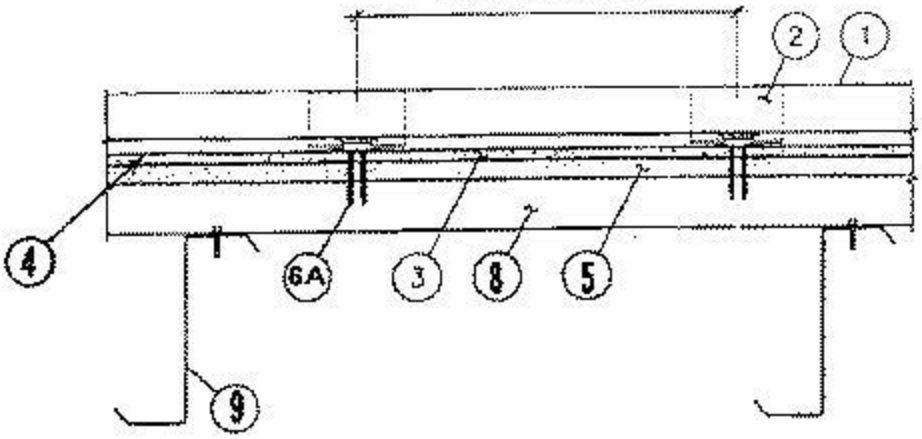
See General Information for Roof Deck Constructions

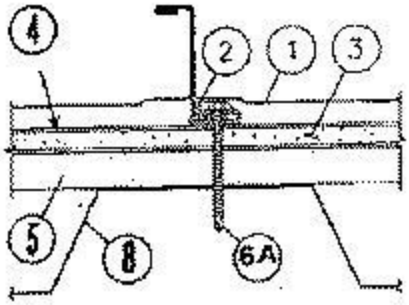
Construction No. **506A**

April 1, 2022

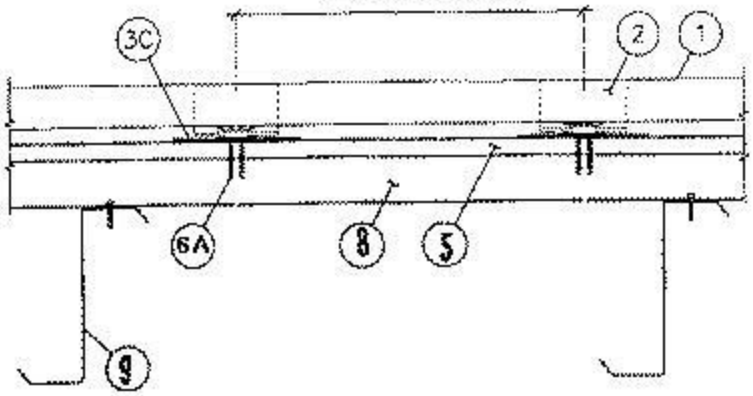
Uplift — Class 90
Fire Not Investigated

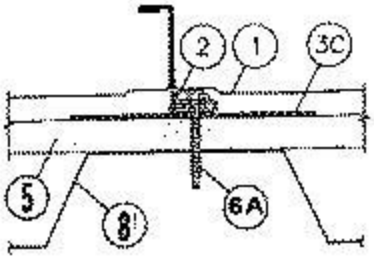
(SEE ITEM 2)

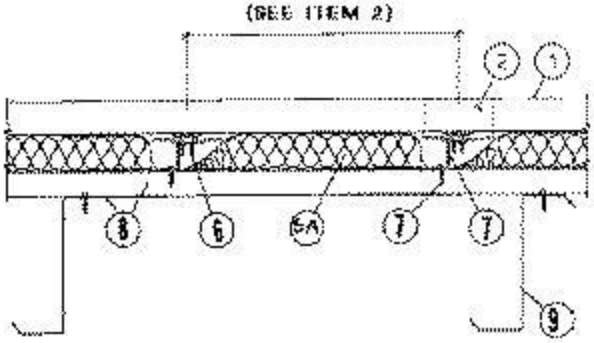


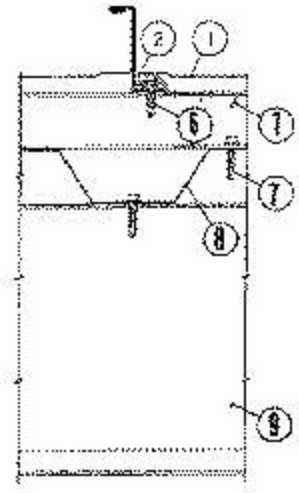


(SEE ITEM 2)









1. **Metal Roof Deck Panels* —** No. 24 MSG min coated steel. Max panel width 18 in.; min 12 in. Rib height 2 in. Panels continuous over three or more clips (Item 2). The panel flat area may have optional striated or minor ribs placed at various locations in the panel flat area beginning min of 2 in. from side ribs. The upper flange of the panel rib may be horizontal, or optionally formed down to produce an angle of 0 to 90° between the vertical segment and the top flange of the rib. Panel end lap 2 in. min. An end lap back-up plate (Item 2A) to be used at panel end lap. A bead of sealant may be used at panel end lap and side ribs. Ribs to be seamed with an electric or hand seaming tool to form a flange with a tight hem. Seaming process to include the upper portion of the panel clips (Item 2) .

ACI BUILDING SYSTEMS INC (View Classification) — "UltraLok", "UltraLok 216", "UltraLok 218"

ALLIANCE STEEL INC (View Classification) — "Alliance Lok 212", "Alliance Lok 216", "Alliance Lok 218"

ALLSOUTH PRE-ENGINEERED COMPONENTS L L C (View Classification) — "APEC 216", "APEC 218"

BEHLEN MFG CO (View Classification) — "ZL-16"

BIGBEE STEEL BUILDINGS INC (View Classification) — "Bigbee VR"

CENTRAL STATES MFG INC (View Classification) — "Central Span"

CENTRIA, A DIVISION OF NCI GROUP, INC (View Classification) — "SDP200-12", "SDP200-16", "SDP200-18"

HORIZON STRUCTURAL SYSTEMS (View Classification) — "Panel Craft"

MCELROY METAL MILL INC (View Classification) — "Maxima-212", "Maxima-216", "Maxima-218"

METAL SALES MANUFACTURING CORPORATION (View Classification) — "Magna-Loc 16", "Magna-Loc 18" or "Magna-Loc 180" (180° Seam)

MBCI (View Classification) — "BattenLok HS"

RIGID GLOBAL BUILDINGS L L C (View Classification) — "Platinum Series"

ROLLFAB METAL BUILDING PRODUCTS (View Classification) — "MS-200HP/90" or "MS-200HP/180"

SCHULTE BUILDING SYSTEMS INC (View Classification) — "VS-216"

SOUTHEASTERN METALS MANUFACTURING CO INC (View Classification) — "Rock-Lok"

STANDARD STRUCTURES INC (View Classification) — "PanelCraft"

TAYLOR METAL INC, DBA TAYLOR METAL PRODUCTS (View Classification) — "MS200"

TRIAD CORRUGATED METALS INC (View Classification) — "MS216" or "MS218"

TREMCO CPG INC. — "TremLock VP212", "TremLock VP216", "TremLock VP218"

WHIRLWIND STEEL BUILDINGS INC (View Classification) — "WeatherLok-16"

1A. **Metal Roof Deck Panels* —** (Not Shown) - Panels (coated steel only) may be physically or mechanically curved at a radius of 4 ft. or greater.
MCELROY METAL MILL INC (View Classification) — "Maxima ADV"

TREMCO CPG INC. — "TremLock VP180"

2. **Roof Deck Fasteners* - (Panel Clips) —** Located at side of panels (Item 1) over substructure (Item 3, 3A, 3B or 3C) and fastened through substructure to liner panel (Item 8) with max spacing of 48 in. OC or over sub-purlins (Item 7) with max spacing of 48 in. OC; or when panel clips are fastened directly to plywood (Item 3B) as described in Item 6B, max spacing to be 36 in. OC.

Fixed Clip — (Not Shown) - One piece assembly fabricated from No. 22 MSG min thick steel, 3-1/2 in. wide.
BUILDING RESEARCH SYSTEMS INC (View Classification) — "Challenger 100 Fixed Clip"

BUILDING RESEARCH SYSTEMS INC (View Classification) — "FC 11200", "FC 11203", "FC 11213", or "MPS 1220"

MCELROY METAL MILL INC (View Classification) — "Maxima Fixed Clip"

Floating Clip — Two piece assembly with a base fabricated from No. 16 MSG min thick steel, 2 in. wide and a tab fabricated from No. 22 MSG min thick steel, 4-1/4 in. wide.
BUILDING RESEARCH SYSTEMS INC (View Classification) — "Challenger 100 Floating Clip"

MCELROY METAL MILL INC (View Classification) — "Maxima Floating Clip"

Floating Clip— Two piece assembly with a base fabricated from No. 16 MSG min thick steel, 3-3/8 in. wide and a top fabricated from No. 22 MSG min thick steel, 4-5/16 in. wide.

BUILDING RESEARCH SYSTEMS INC (View Classification) — "MPS-PC Floating Clip" or "MPW-1213-XX Floating Clip".

2A. **End Lap Back-Up Plate —** (Not Shown) - No. 16 MSG min thick coated steel channel, 3 in. wide with two 3/8 in. deep legs. Max length 74 in. Located under the panel (Item 1) end lap (50 ksi min yeild strength).

2B. **End Lap Back-Up-Plate —** (Optional) (Not Shown) - No. 16 MSG min thick coated steel. Width 11, 15 or 17 in., length 7 in. Two 3/4 in. by 3/4 in. tabs and a 1 in. deep vertical leg located at upslope edge of panel (50 ksi min yield strength).

2C. **Roof Deck Fastenters*(Cinch Plate) —** (Optional)-(Not Shown) width 1-15/16 in., length 18 in. max. Fabricated from No. 20 MSG min thick stainless steel. Located over end lap.
BUILDING RESEARCH SYSTEMS INC — "PC-16 Cinch Plate", "PC-18 Cinch Plate"

3. **Substructure - (Gypsum Board) —** (Optional) - Min thick 1/2 in. To be placed on top of either the liner panel (Item 8) or rigid insulation (Item 5). Combined thickness of the gypsum board and rigid insulation not to exceed 4 in. All joints to be taped with 2.5 in. wide joint tape.

3A. **Substructure - (Plywood) —** (Optional) - (Not Shown) - Plywood decking, used in lieu of gypsum board (Item 3), to be nom 1/2 in. thick, exposure 1 sheathing, 40/20, CD. Located over rigid insulation (Item 5). Combined thickness of the plywood and rigid insulation not to exceed 4 in.

3B. **Substructure - (OSB) —** (Optional) - (Not Shown) - OSB decking, used in lieu of gypsum board (Item 3), to be nom 1/2 in. thick. Located over rigid insulation (Item 5). Combined thickness of the OSB and rigid insulation not to exceed 4 in.

3C. **Substructure - (Bearing Plate) —** (Optional) - Bearing plate to be used in lieu of gypsum board (Item 3) to be 4 by 5 in. by No. 20 MSG min thick coated steel (35 ksi min yield strength). Used under each clip (Item 2) over rigid insulation (Item 5) only when rigid insulation is located directly under panel (Item 1).

4. **Vapor Barrier —** (Optional) - Single ply, used between the substructure (Items 3, 3A or 3B) and panel (Item 1). To be min 30 lb roofing felt.

5. **Foamed Plastic - (Rigid Insulation) —** (Optional) Max thickness 6 in. when gypsum board (Item 3), plywood (Item 3A) or OSB (Item 3B) is used and 10 in. when bearing plates (Item 3C) are used. Min bearing strength to be 20 psi. 1.8 pcf min density or see products Classified under TJBX.

5A. **Insulation —** (Optional) - Compressible blanket insulation 8 in. max thickness before compression. Used with sub-purlins (Item 7) only.

6. **Fasteners - (Screws) —** Fasteners used to attach panel clips (Item 2) to sub-purlins (Item 7) to be No. 1/4-14 by 1 in. long self-drilling, self-tapping, hex-washer-head, plated steel screws. Two fasteners per clip.
Fasteners used at end lap of panel (Item 1) to be one of the following: No. 1/4-14 by 1 in. long, Type AB point self-drilling, self-tapping, hex-washer-head, plated or stainless steel screws or No. 12-14 by 1-14 in. long self-drilling, self-tapping, hex-washer-head, plated steel screws. Spacing for 12 in. wide panel to be 1, 3, 4, 4, 3, 1 in. pattern. Spacing for 16 in. wide panels to be 1, 3, 4, 4, 3, 1 in. pattern; spacing for 18 in. wide panels to be 1-1/2, 3-1/2, 4, 4, 3-1/2, 1-1/2 in. pattern.

6A. **Fasteners - (Screws) —** Fasteners used to attach panel clips (Item 2) through gypsum board, plywood, OSB, or bearing plate (Item 3, 3A, 3B, or 3C, respectively) and foamed plastic (Item 5) into liner panel (Item 8) to be No. 12 or No. 14 dia. with Phillips or square drive, coated steel screws. Fastener length to penetrate liner panel min 1/2 in. Two fasteners per clip.
Note: The panel clips may be fastened directly to the bearing plate using two No. 10-16 by 1 in. long self-drilling, self-tapping, pancake head No. 2 Phillips drive coated steel screws. The panel clip/bearing plate combination is to be fastened to the liner panel using two No. 12-13 truss head screws described above, inserted through guide holes in the bearing plates and into the liner panel. Min penetration 1/2 in.

6B. **Fasteners - (Screws) —** (Not Shown) - Fasteners used to attach plywood Substructure (Item 3A) through rigid insulation (Item 5) to liner panel (Item 8) to be No. 14-13, No. 3 Phillips drive truss head screws. Fastener length to penetrate liner panel min 1/2 in. Total of 33 fasteners per 4 by 8 ft plywood sheet to be used. Fasteners located in five rows along the 4 ft length in a 3-9-12-12-9-3 in. pattern. The two outer rows are in a 3-9-12-12-12-12-12-12-9-3 in. pattern and the three center rows are in a 2-21-24-24-21-3 in. pattern. All spacing from board edges. Fasteners used to attach panel clips (Item 2) to plywood (when plywood is fastened to liner panel as indicated above) to be No. 10-12 by 1 in. long pancake head wood screw with No. 2 Phillips drive, or No. 10-12 by 1 in. long hex-head wood screw. Two fasteners per clip.

7. **Sub-Purlin —** No. 16 MSG min thick coated steel (50 ksi min yield strength). Hat section, min 3/4 in. deep, 2 in. wide or Zee section, 2 in. wide, flanges 2 in. deep. Max spacing between sub-purlins to be 48 in. OC.
Note: Screws used to attach sub-purlin to liner panel to be No. 12-13, No. 3 Phillips drive, truss head, coated steel. Max fastener spacing to be 12 in. OC for Zee section with fasteners located in center of lower flange. For hat section, two screws, spaced 24 in. OC, located at each side of channel to be used.

8. **Liner Panel - (Steel Deck) —** No. 22 MSG min thick coated steel. Fabricated to various profiles (33 ksi min yield strength). Steel deck depth and profile, support spacing (max 6 ft), method of positioning (end and side laps), and fastening of deck to supports to be per deck manufacturer's and local code requirements for uplift loading.

9. **Liner Panel Supports —**
Purlins — No. 16 MSG min thick steel (50 ksi min yield strength). Spacing to depend on design considerations for uplift loading: max 6 ft, 0 in. OC.

Joists — (Optional) - (Not Shown) - Open web steel joist having a min No. 16 MSG upper flange (50 ksi min yield strength) or a min 1/8 in. thick upper flange (33 ksi min yield strength). Max spacing 6 ft, 0 in. OC.

Refer to general information, Roof Deck Construction, (Roofing Materials and System Directory) 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.**

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL Solutions' Follow - Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL Solutions' Follow - Up Service. Always look for the Mark on the product.