



TECHNICAL BULLETIN

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No. 03-315-10

UL Construction #506G

Maxima

UL580 Class 90 Wind Uplift

1. **Metal Roof Deck Panels*** - Panel width, max 18in., min 12 in. ; rib height 2 in., min .032 in. thick aluminum. Panels continuous over three or more clips. The panel flat area may have optional striations or minor corrugations placed at various locations in the panel flat area beginning min of 2 in. from side ribs. The upper flange of the panel rib formed down to produce angle of 90 degree between the vertical segment and the top flange of the rib. A bead of sealant may be used at panel 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).

McElroy Metal Mill, Inc. "Maxima-212", "Maxima-216", "Maxima-218"

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 30 in. OC or over sub-purlins (Item 7) with max spacing of 30 in. OC; or when panel clips are fastened directly to plywood (Item 3A) as described in Item 6B, max spacing to be 30 in. OC. Either of the following:

Fixed Clip (Not Shown) – One piece assembly fabricated from No. 22 MSG min thick steel, 3-1/2 in. wide.

McElroy Metal Mill, Inc. "Maxima Fixed Clip"

Floating Clip – Two piece assembly with a base fabricated from No. 16 MSG min thick steel, 2" wide and a tab fabricated from No. 22 MSG min thick steel, 4-5/16" in. wide.

McElroy Metal Mill, Inc. "Maximum Floating Fixed Clip"

3. **Substructure – (Gypsum Board)** – (Opt.) – Min thick ½" 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)** – (Opt.) – (Not Shown) – Plywood decking used in lieu of gypsum board (Item 3), to be nom ½" thick, PS-1 rated 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 ½ 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 (50 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 3-1/2 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 or Item 7A) only.
6. **Fasteners – (Screws)** – Fasteners used to attach panel clips (Item 2) to sub-purlins (Item 7) to be No. ¼-14 by 1 in. long self-drilling, self-tapping, hex-washer-head, plated steel screws. Two fasteners per clip.
- 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 drive, or square drive, coated steel screws. Fastener length to penetrate liner panel min ½ 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 ½ 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 ½ 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 3-9-12-12-12-12-12-9-3 in. pattern and the three

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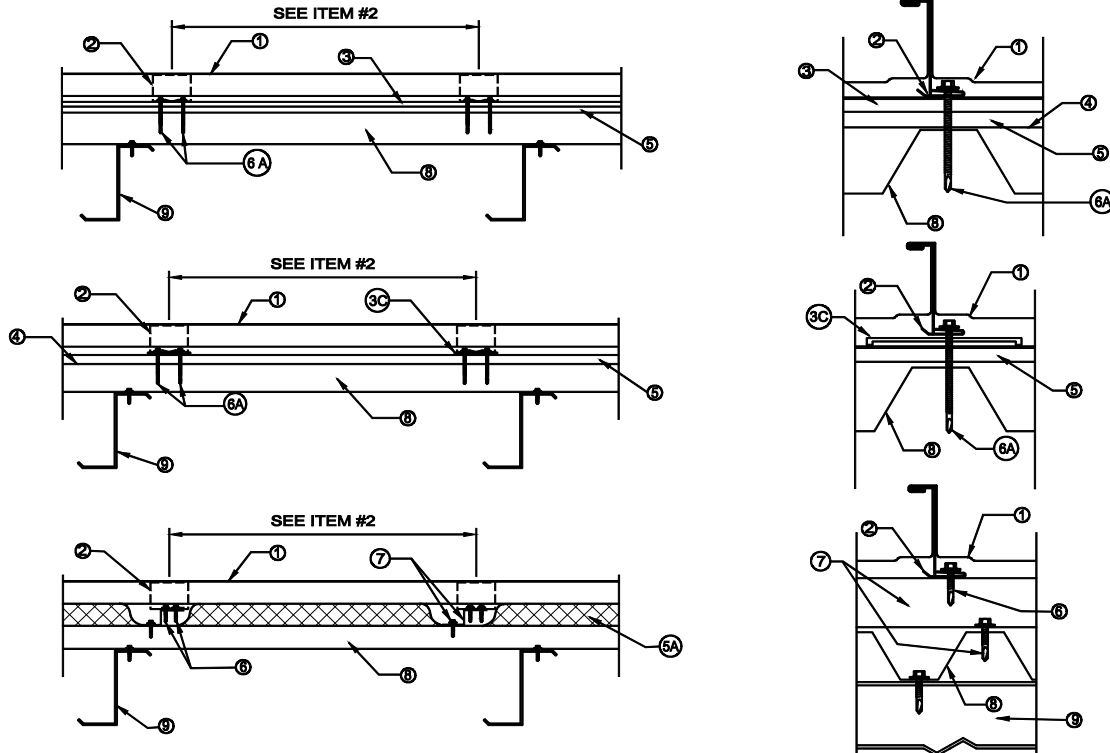


center rows are in a 2-21-24-24-21-3 in. pattern. All spacing from board edges. Fasteners used to attach panel clips (Item 2) to plywood (when plywood is fastened to liner panel as indicated above) to be No. 10-12 by 1 in. long pancake head wood screw with No. 2 Phillips drive, or No. 10-12 by 1 in. 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 30 in. OC. When Item 1 and Item 2 used. Note: For Items 7 - 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 Systems Directory) for items not evaluated.

*Bearing the UL Classification Mark



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