



TECHNICAL BULLETIN

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UL Construction #539

MasterLok FS

UL580 Class 90

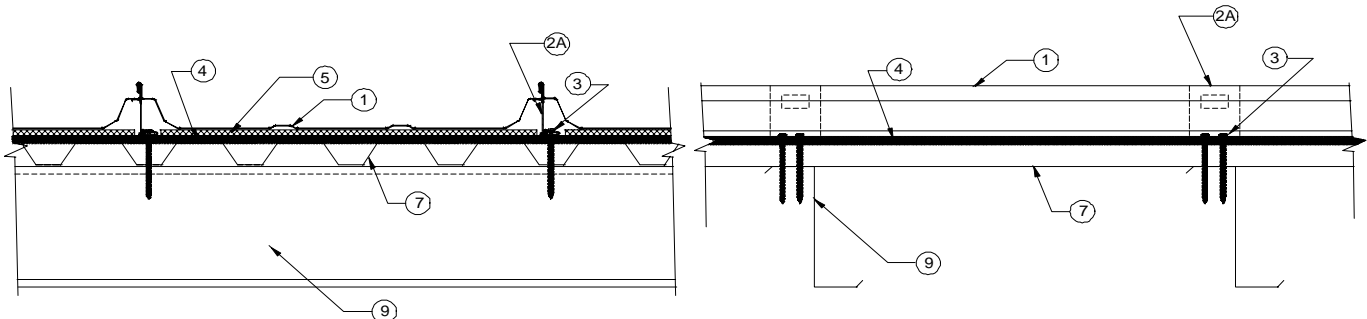
1. **Metal Roof Deck Panels*** - No. 24 MSG coated steel panels continuous over two or more spans. End laps to occur adjacent to purlins with panels overlapped 3 in. max. Side laps to be tightened and crimped with a special motorized crimping machine. A line of sealant may be used at panel end and side laps.

McElroy Metal Mill, Inc. "MasterLok FS"
2. **Roof Deck Fasteners** – (Panel Clips) – Two piece floating clip with a No. 16 MSG coated steel base and a 20 MSG coated steel top. Clips spaced at 60 ¼ inches on center and over purlins.

McElroy Metal Mill, Inc. "Low floating", "High floating", or "Utility floating"
3. **Fasteners (screws)** – Fasteners for panel clips and bearing plates through rigid insulation (or optional plywood when bearing plates are not used) and into metal deck (item No. 7) to be No.14 type Phillips head. Two (2) screws per clip. Fastener length to be ½ inch longer than the total thickness of the plywood (Item No. 4), rigid board (Item No. 6), and metal deck (Item No. 7). Screws used at the end lap to be ¼-14 by 1 inch long with 3/8-inch hex head and separate 5/8-inch neoprene and steel washer. Six (6) fasteners are to be used in the flat section of the end lap panel with the first fastener located 3- ¼ inches from either rib and then spaced in a 3 ½, 3 ½, 3 ½, 3 ½ inch pattern. An additional fastener is to be located at the second slanted segment of the rib on both sides of the end lap panel. Fasteners used with alternate 16 MSG min. thick-coated steel upper section to be No. 14 by 1 inch long self-tapping fastener. First fastener located 3/8 inch from the first slanted segment in a 4, 5 ½, 5 ½, 4-inch pattern. Screws used to attach optional plywood substructure (Item No. 4) to the metal deck (Item No. 7) to be No. 14 type with Phillips head. Fastener length to be a minimum of ½ inch longer than the total thickness of the plywood, insulation and metal deck. Spacing to be 6" oc at plywood ends and 12-inch oc on a 2 ft pattern down the length of the plywood (total of 33 fasteners per 4 by 8 foot plywood sheet). (Alternate when bearing plates replace plywood) An optional No. 10 by 1 inch self-drilling fastener may be used to attach clip to bearing plate when installer chooses to install rigid board insulation and use the bearing plates to hold it in place until clips and panels are installed.
4. **Substructure** – (Plywood)-(Optional)-(Not Shown) Plywood decking to be a nominal ½ inch thick, exposure sheathing C-D 40/20 plywood. To be used in lieu of bearing plates (Item No. 4A). When plywood is used the rigid insulation (Item No. 6) maximum thickness is 4 inches.
- 4A. **Substructure** – (Bearing Plates)-(Optional)-To be used in lieu of plywood (Item No. 4) with rigid insulation (Item No. 6) maximum thickness of 4.4 inches. Bearing Plates to be 16 MSG minimum coated steel. Located under each clip for support.
5. **Thermal Spacer** – (optional) – Polystyrene, 1 inch max. thickness, 3 inches wide, cut to fit between panel clips.
6. **Rigid Insulation** – Foamed plastic, minimum 1 inch thickness, maximum thickness 4-1/2 inches when plywood is used and 6 inches when bearing [plates are used. Density to be a min. 2 pcf.
- 6A. **Waterproof Membrane** – (Optional)-(Not Shown)- Used to protect plywood (Item No. 4). Installed under panels (Item No. 1).
7. **Metal Deck** – 22 MSG minimum thickness coated steel, min depth 1 ½ inches with ribs at 6 inches OC End lap to be 4 inch min. and occur over purlin. Metal deck to be welded to purlins in every other flute, except for the end laps which are welded in every low flute.
8. **End-Lap Plate Assembly** – (Not shown) – Used at panel end laps; Consisting of a lower section, 5 5/8 inches wide, with a 1 inch vertical leg, formed to the general profile of the panel and having four 1 inch wide by ¾ inch long tabs for sliding over the panel end. Upper section (optional) to be 1-1/2 inches wide 24 inches long and also formed to the general profile of the panel. Both parts fabricated from No. 16 MSG coated steel.
9. **Purlin** – No. 14 MSG steel (55,000 psi min yield strength)

Refer to General Information, Roof Deck Construction, (Roofing Materials and Systems Directory) for items not evaluated.

*Bearing the UL Classification Marking



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