

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.
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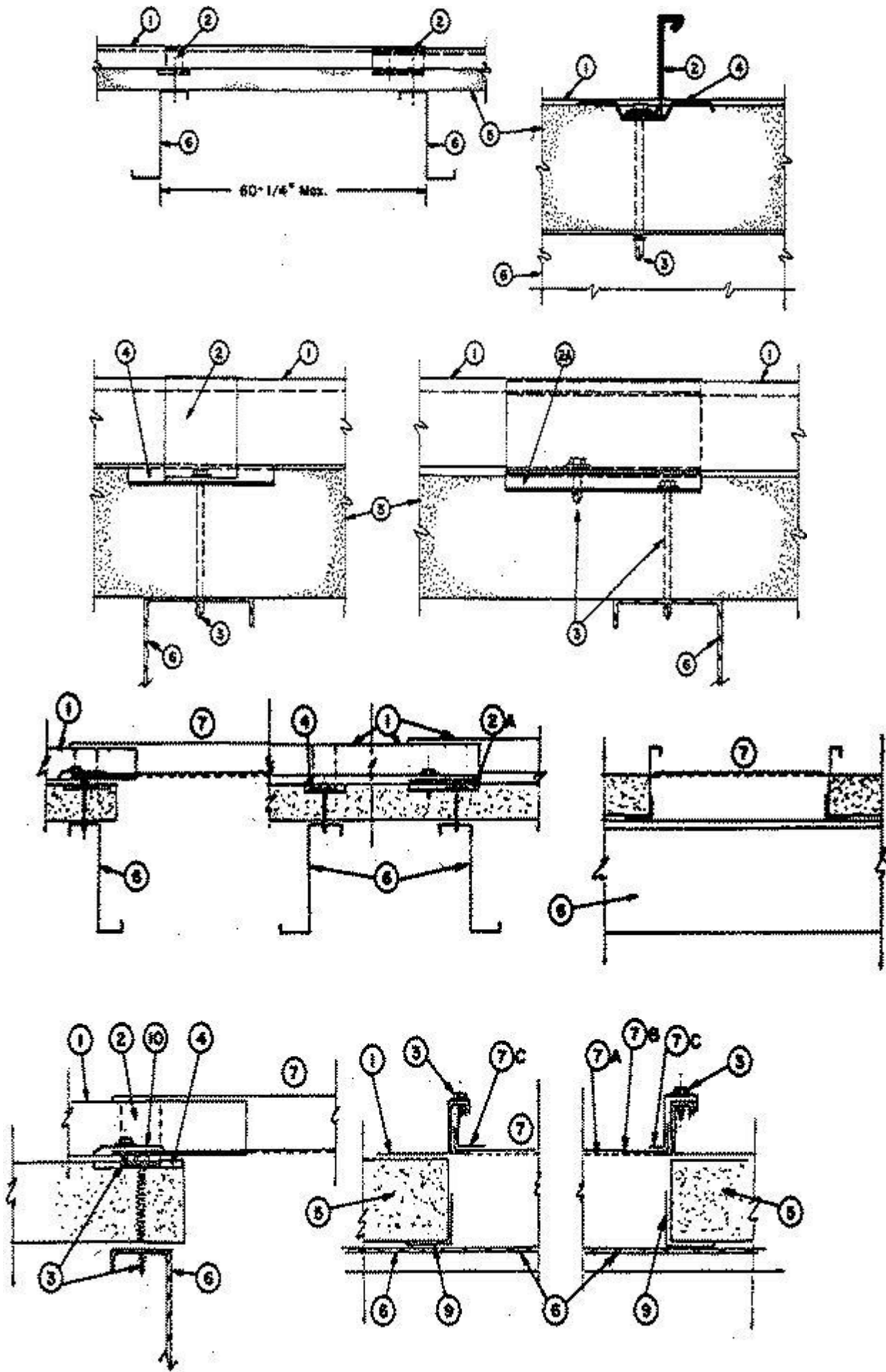
Roof Deck Constructions

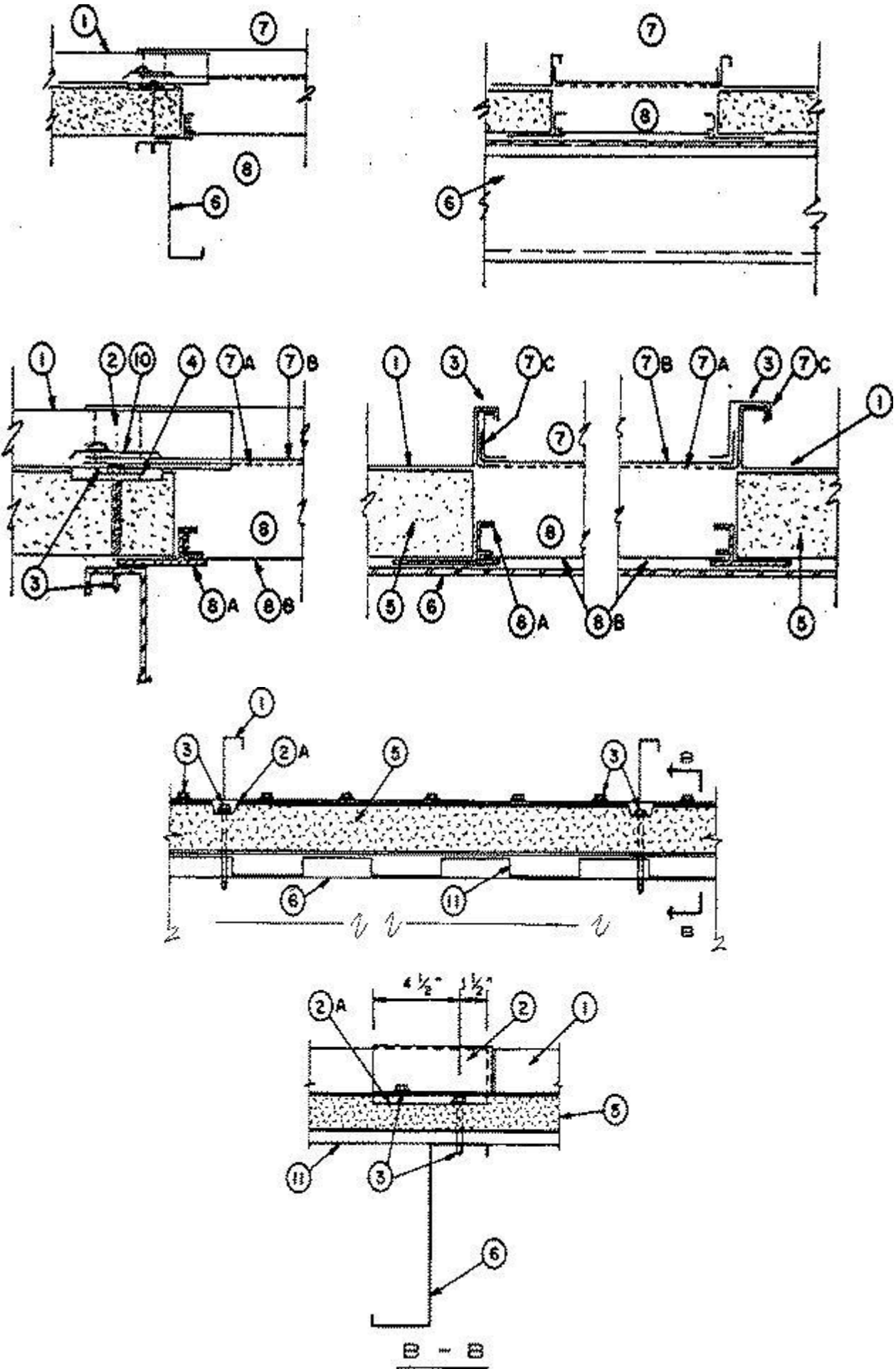
[See General Information for Roof Deck Constructions](#)

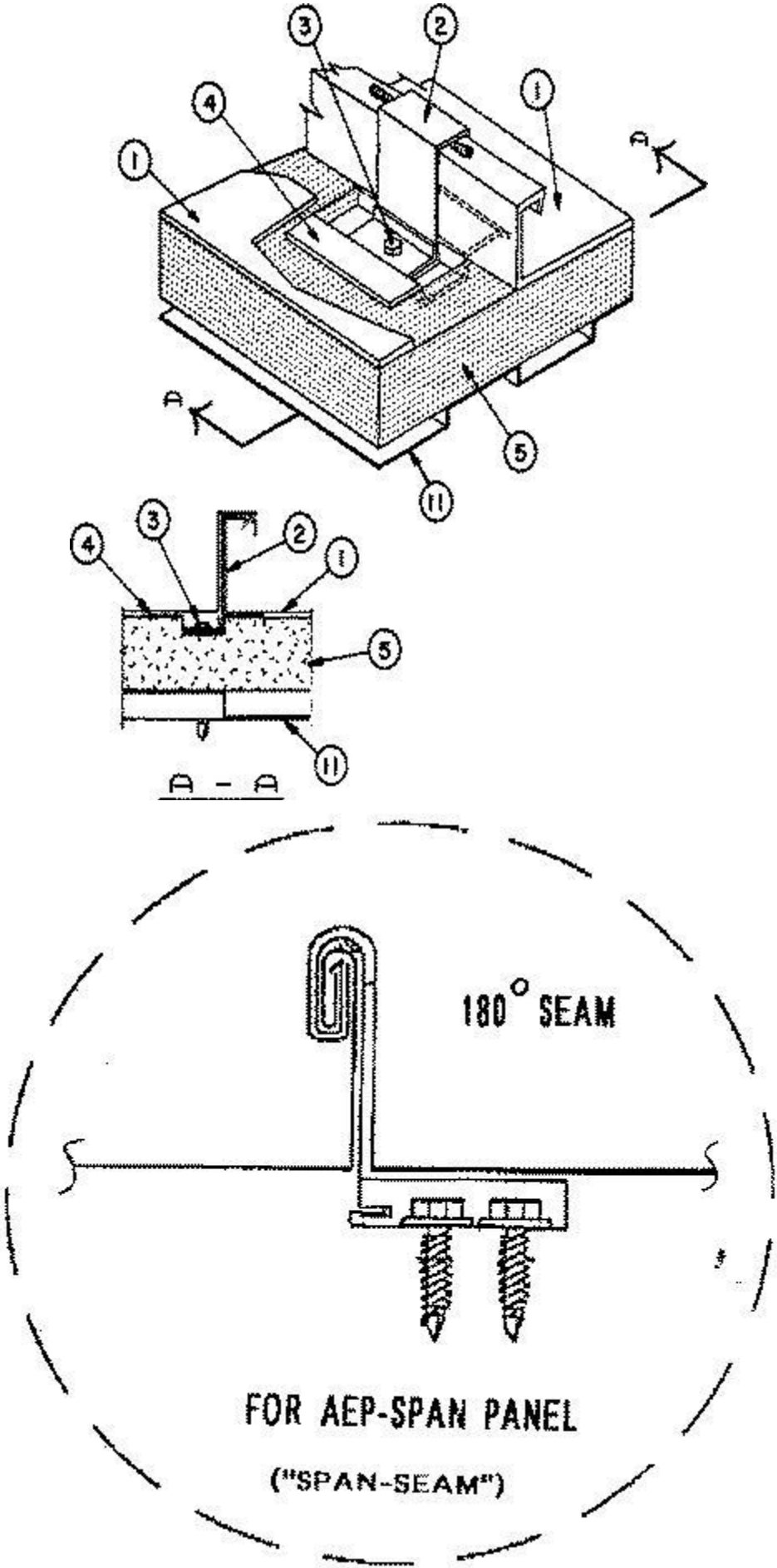
Construction No. **180**

March 30, 2023

Uplift — Class 90
Fire Not Investigated







1. **Metal Roof Deck Panels*** — No. 24 MSG min gauge coated steel, 16 in. max width. Panels continuous over two or more spans. End lap to occur over purlins and to include End Lap Back-Up Plate (Item 2A or 2B). Ends of panels overlapped 6 in. beginning 1 in. from purlin web and extending across purlin upper flange. Side laps to be tightened and crimped with special motorized crimping machine to a minimum 45 degree angle with crimping process to include tabs of panel clips (Item 2). A bead of sealing compound may be used at panel laps and side joints. For Morin Corp., seams may be 45°, 90°, or 180°.

A-LERT ROOF SYSTEMS ([View Classification](#)) — "A-Lert Loc"

ADVANCED ROOFING TECHNOLOGY INC ([View Classification](#)) — "ARTK 12" and "ARTK 16"

AEGIS ROOFING COMPANY ([View Classification](#)) — "Aegis 50 Architectural Profile"

AEP SPAN, DIV OF ASC PROFILES ([View Classification](#)) — "Span-Lok" or "Span-Lok HP" (90° Seam) or "SpanSeam" (180° Seam)

ADVANCED METAL SYSTEMS INC ([View Classification](#)) — "Armor-Lock"

ARCHITECTURAL SHEETMETAL PRODUCTS INC ([View Classification](#)) — "ASP ML-200"

BAKER ROOFING INC ([View Classification](#)) — "2 in. Mechanical Seamed"

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

CENTRAL TEXAS METAL ROLLFORMING INC ([View Classification](#)) — "SPANLOC 200"

CENTURION INDUSTRIES INC, DBA TFC CANOPY ([View Classification](#)) — "Centurion 1624M"

CHIEF INDUSTRIES INC ([View Classification](#)) — "MVF" or "MVP"

CONSTRUCTION METAL PRODUCTS INC ([View Classification](#)) — "CMP Series 2500"

CORLE BUILDING SYSTEMS INC ([View Classification](#)) — "Vertical Lok"

CUSTOM-BILT METALS ([View Classification](#)) — "CB-2000"

DREXEL METALS INC ([View Classification](#)) — "DMC 200S"

DREXEL METALS, INC. ([View Classification](#)) — "Met-Fab III"

EAST TEXAS ARCHITECTURAL SHEETMETAL L L C, DBA ETAS INC ([View Classification](#)) — "2" SPANLOCK"

ENCORE STEEL BUILDING COMPANY ([View Classification](#)) — "SSR-LOK 210"

ENGLERT INC ([View Classification](#)) — "Series 2400" and "Series 2500"

FABRAL INC ([View Classification](#)) — "PowerSeam"

H&H METAL PRODUCTS INC ([View Classification](#)) — "Uni-SeamLoc" (180° Seam)

HPM BUILDING SUPPLY ([View Classification](#)) — "Custom-Lock 2"

KIRBY BUILDING SYSTEMS INC ([View Classification](#)) — "RoofLok" and "RoofLok Plus"

LAWMAN HEATING & COOLING INC ([View Classification](#)) — "SS210A"

MBCI ([View Classification](#)) — "BattenLok", "BattenLok HS" or "SuperLok"

MCELROY METAL MILL INC ([View Classification](#)) — "ABC JSM 200"

MESCO METAL BUILDINGS ([View Classification](#)) — "BattenLok", "BattenLok HS" or "SuperLok"

METAL PANELS INC ([View Classification](#)) — "SSLF2A"

METAL PANEL SYSTEMS INC ([View Classification](#)) — "MP-200" or "UC6"

METAL ROOFING SYSTEMS INC ([View Classification](#)) — "MRS System 2500"

METAL SALES MANUFACTURING CORPORATION ([View Classification](#)) — "T-Span" or "T-Span 180" (180° Seam)

METALLION INDUSTRIES INC ([View Classification](#)) — "MI200" or "MI210"

MORIN CORP ([View Classification](#)) — "SLR-12", "SLR-14", "SLR-16"

NCI BUILDING SYSTEMS L P ([View Classification](#)) — "BattenLok", "BattenLok HS" or "SuperLok"

NEW TECH MACHINERY CORP ([View Classification](#)) — "SS210A"

PETERSEN ALUMINUM CORP ([View Classification](#)) — "Tite-Loc" and "Tite-Loc Plus"

PINNACLE STRUCTURES INC ([View Classification](#)) — "PINNACLE BATTENLOK" and "PINNACLE SUPERLOK"

PMRS ([View Classification](#)) — "200MS"

RPR INC, DBA RAIN PROOF ROOFING ([View Classification](#)) — "RP210"

ROLLFAB METAL BUILDING PRODUCTS ([View Classification](#)) — "MS-200HP/90" and "MS-200HP/180"

ROOF WORKS FABRICATING L L C ([View Classification](#)) — "SS210"

ROOFMASTERS ROOFING & SHEET METAL CO INC ([View Classification](#)) — "Loc Master"

SAN ANTONIO QUALITY METALS ([View Classification](#)) — "ML-200"

SHEFFIELD METALS INTERNATIONAL ([View Classification](#)) — "SMI 2" A Mechanical Seam"

STORAGE STRUCTURES INC. ([View Classification](#)) — "SS210A"

STREAMLINE ROOFING & CONSTRUCTION INC ([View Classification](#)) — "200MS"

TAYLOR METAL INC, DBA TAYLOR METAL PRODUCTS ([View Classification](#)) — "Mechanical Seam 200"

THE BRYER CO ([View Classification](#)) — "TBC-SUPERSEAM"

THREE DIAMOND FAB LLC ([View Classification](#)) — "TDF-SSC200"

UNION CORRUGATING CO ([View Classification](#)) — "ML200"

U S METALS L L C ([View Classification](#)) — "US-210A"

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

WESTERN STATES METAL ROOFING ([View Classification](#)) — "MS2®"

ZIMMERMAN METALS INC ([View Classification](#)) — "SS2000"

2. **Roof Deck Fasteners*** — (Panel Clips) — Two part assembly: Base, 1 in. wide approximately 1-1/4 in. long with upper segment folded over lower end of tab. Fabricated from 0.050 in. thick coated or stainless steel. Upper tab 3 in. wide, maximum tab height 3-1/2 in. with lower end formed to engage base. Fabricated from 0.023 in. thick coated or stainless steel. Spacing for clip to be 5 ft 0-1/16 in. OC with clips located over purlins (Item 6).

BUILDING PRODUCTS DEVELOPMENT INC ([View Classification](#)) — "NC3300", "NCF-3300", "NCF-3300-SS" Series Clip

2A. **Roof Deck Fasteners* (End Lap Back-Up Plate)** — (Not Shown) — No. 18 MSG min gauge coated steel. Max length 48 in. Width varies with type of purlin with a max of 6-1/2 in.

2B. **End Lap Back-Up Plate*** — (Not Shown) — No. 16 MSG min coated steel.

NCI BUILDING SYSTEMS L P ([View Classification](#)) — "BattenLok Back-Up Plate" or "SuperLok Back-Up Plate"

2C. **Roof Deck Fasteners*** — (Panel Clip) — (Not Shown) — Either of the following: Fixed or Utility Clip-one piece assembly fabricated from No. 22 MSG min gauge steel, 3 in. wide. Floating Clip-two piece assembly with a base fabricated from No. 16 MSG min gauge steel, 1-5/8 in. wide, and a top fabricated from No. 22 MSG min gauge steel, 4-1/4 in. wide. One clip to be used per panel at each purlin location.

BUILDING PRODUCTS DEVELOPMENT INC ([View Classification](#)) — "NCF-3300" Series Clip

HPM BUILDING SUPPLY ([View Classification](#)) — "CL2 Clip"

MCELROY METAL MILL INC ([View Classification](#)) — "ABC JSM 200 Utility"

NCI BUILDING SYSTEMS L P ([View Classification](#)) — "BattenLok High or Low, Fixed or Floating Clip"; "BattenLok Utility Clip" — "SuperLok High or Low, Fixed or Floating Clip"; "SuperLok Utility Clip"

2D. Roof Deck Fastener* — (End Lap Back up Plate) — (Not Shown) — Used with AEP-Span "SL-216" (90° Seam), "SPS-216" (180° Seam) panels. Length 10-1/2 in., width 15-3/4 in., No. 16 MSG min thick coated steel. Slipped under lower panel at end lap. Panels fastened together using four No. 1/4-14 by 1-1/8 in. long self-drilling, self-tapping, hex-washer head, plated steel screws with a 5/8 in. OD steel washer and a sealing washer. Screws spaced 4 in. OC beginning 2 in. from ribs.

AEP SPAN, DIV OF ASC PROFILES ([View Classification](#)) — "SL-216 End-Lap Back-Up Plate"

2E. Roof Deck Fasteners* — (Panel Clip) — (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and an upper tab fabricated from No. 22MSG min coated steel. Clips fastened to purlins with two fasteners per clip. See Item No. 3 for description of fasteners.

AEP SPAN, DIV OF ASC PROFILES ([View Classification](#)) — "SL-2.5 in. Standard Clip"

2F. Roof Deck Fasteners* — (Panel Clip) — (Not Shown) — Used with "Tite-Loc" or "Tite-Loc Plus" Panels.

One piece assembly; 3 in. wide, approximately 2 in. high with two or three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP ([View Classification](#)) — "Tite-Loc Utility Clip", "Tite-Loc Plus Utility Clip"

One piece assembly; 3 in. wide, approximately 2-3/8 in. or 3 in. high, with three guide holes in base. Fabricated from No. 22 MSG coated steel.

PETERSEN ALUMINUM CORP ([View Classification](#)) — "Tite-Loc Low/High Fixed Clip", "Tite-Loc Plus Low/High Fixed Clip", "Tite-Loc AR Fixed Clip" and "Tite-Loc AR Sliding Clip", "Tite-Loc Plus AR Fixed Clip" and "Tite-Loc Plus AR Sliding Clip"

Two piece assembly; base approximately 2 in. wide, 1-11/16 in. long formed to engage upper tab. Fabricated from No. 16 MSG coated steel. Tab approximately 4-5/16 in. wide; 2-3/8 in. or 2-7/8 in. high, formed to engage base. Fabricated from No. 22 MSG coated steel. Base to have two guide holes.

PETERSEN ALUMINUM CORP ([View Classification](#)) — "Tite-Loc Sliding Clip", "Tite-Loc Plus Sliding Clip"

2G. Roof Deck Fasteners* — (Panel Clip) — (Not Shown) — Two part assembly; A base fabricated from No. 16 MSG min coated steel and upper tab fabricated from No. 22 MSG min coated steel. Clips fastened to purlins using two fasteners per clip. See Item No. 3 for description of fasteners.

METAL SALES MANUFACTURING CORPORATION ([View Classification](#)) — T-Span Clip

2H. Roof Deck Fasteners — (Panel Clips) — Two types, both two piece assemblies. Type 330 base approximately 1.88 in. by 1.70 in.; Type 330B base approximately 1.11 in. by 2.00 in. Both types fabricated from No. 16 MSG coated steel and formed to fold over upper tab. Type 330 upper tab 4.30 in. wide and 2.91 in. high max. Type 330B upper tab 4.30 in. wide and 3.34 in. high max. Both types formed to engage base. Clips spaced 5 ft, 0-1/16 in. maximum.

MORIN CORP ([View Classification](#)) — "SLR-330 Clip" (for 45° seam)

MORIN CORP ([View Classification](#)) — "SLR-330B Clip" (for 90° & 180° seam)

2I. Roof Deck Fasteners* — (Panel Clips) — (Not Shown) — No. 22 MSG min coated steel. Clips located at panel sides. Guide Holes in bottom of clip to accomadate two screw fasteners (Item 3).

FABRAL INC ([View Classification](#)) — "AMP-Loc High Fixed", "AMP-Loc Low Fixed", "AMP-Loc High Floating", "AMP-Loc Low Floating", "PowerSeam Low Floating", "PowerSeam High Floating"

3. Fasteners (Screws) — For attaching panel clips to purlins-to be 1/4-14 shoulder or stand-off type; self-drilling, self-tapping, hex-head, plated steel screws. Fastener length to vary with thickness of insulation and to be min of 3/4 in. longer than nom thickness of rigid insulation. One fastener per clip to be used at each purlin. As an alternate fastener for panel clip to purlin attachment, a No. 12-14 self-drilling, self-tapping, hex-head plated steel screw may be used. Same length detail as for 1/4-14 screws to apply. Fasteners used at end laps to be 1/4-10 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with 1/2 in. OD metal backed sealing washers. Spaced in a 1, 3, 3-1/2, 3-1/2, 3, 1 in. pattern.

For Building Unit-to-Panel side lap connections — No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD plated steel washer and a neoprene sealing washer. One fastener required at each end and one at midspan of each rib of the Building Units.

For Reinforcing Plate-to-Building Unit end lap connection — No. 18-9 by 1 in. long self-drilling, self-tapping, hex-head plated steel screws with a separate 1/2 in. OD. plated steel washer and a neoprene sealing washer.

4. **Roof Deck Fastener * (Bearing Clip)** — No. 18 MSG min gauge coated steel; 3 in. wide by 3-1/4 in. long with 3/8 in. legs. Used under Panel Clips (Item 2) over purlins and rigid insulation. Three 1/4 in. dia guide holes located in base.

4A. **Roof Deck Fasteners* (Bearing Plate)** — (Not Shown) — No. 24 MSG min gauge coated steel. 4-5/8 in. wide, 6 in. long used under each panel clip (Item 2E).

AEP SPAN, DIV OF ASC PROFILES ([View Classification](#)) — "SL Bearing Plate"

5. **Foamed Plastic** — (Optional as alternate to Item 5) — Rigid type, supplied in 4 ft wide sheets, max thickness 3 in. Butt joints, staggered to occur over purlins.

THE DOW CHEMICAL CO ([View Classification](#)) — Types Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR, TUFF-R™ ci Insulation, Thermax IH Insulation, Type Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

6. **Purlins** — 0.056 in. min thickness steel (min yield strength 40,000 psi) or min "H" series open web steel joists. Maximum spacing 60-1/4 in.

7. **Building Units*** — (Optional) — Prefabricated assemblies of a Skylight Panel, (Item 7B), mounted in a Perforated Metal Roof Deck Panel, (Item 7A), with Flashings, (Item 7C). Assembly continuous over two spans erected in the same manner as Metal Roof Deck Panels.

NCI BUILDING SYSTEMS L P ([View Classification](#)) — "BattonLok Light Transmitting Panel" or "SuperLok Light Transmitting Panel" or "Riveted Rail SuperLok/BattenLok HS LTP".

7A. **Perforated Metal Roof Deck Panels** — No. 24 MSG min gauge coated steel perforated in the flat portion.

7B. **Plastic Skylight*** — (**Translucent, Glass Fiber Reinforced Plastic Panel**) — Thickness 0.04 in. (nom) formed to fit the Perforated Metal Roof Deck Panel, (Item 7A).

7C. **Flashing** — No. 20 MSG min gauge coated steel. Attached to the Building Unit to retain and flash the Plastic Skylight to the Perforated Metal Roof Deck Panel.

8. **Insulating Units** — (Optional) — Prefabricated assemblies of a Plastic Insulating Skylight Pan, (Item 8B), mounted in an Aluminum Frame, (Item 8A). Assembly spans between adjacent purlins beneath a Building Unit only.

8A. **Aluminum Frame** — Extruded aluminum alloy, 0.055 in. min thickness shop assembled.

8B. **Plastic Insulating Skylight Pan** — (Translucent, glass fiber reinforced modified acrylic plastic panel). Shop assembled in Aluminum Frame (Item 8A).

9. **Insulation Trim** — No. 24 MSG min gauge coated steel. Used at the sides of the Building Unit.

10. **Reinforcing Plate** — Min 0.05 in. thickness coated steel. Max length 15-1/2 in., width 5-1/4 in. Used at downslope end lap of Building Unit to Metal Roof Deck Panel.

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

11. **Liner Panel** — (Optional) — The following liner panel types may be used:

A. No. 27 MSG min coated steel; 7 in. deep with major ribs having a 2 in. wide crest and spaced 8 in. O.C. cover width 32 in. Panel to be installed with major ribs down. (Min. yield strength to be 40,000 psi.)

B. No. 29 MSG min coated steel; 9/16 in. deep with ribs having a 3/4 in. wide crest and spaced 2.667 in. O.C. (Min. yield strength to be 80,000 psi.)

C. 0.018 in. min thickness aluminum (3105 H 194 alloy). 9/16 in. deep with ribs having a 3/4 in. wide crest and spaced 2.667 in. O.C. (Min. yield strength 30,000 psi)

All types to have adjacent widths overlapped min. of one corrugation at sides. End laps to be located over purlins with min. overlap to be 3 in. Liner panels to be fastened to purlins using No. 18-9 by 1 in. self-drilling, self-tapping, hex-head plated steel screws with an optional 1/2 in. O.D. plated steel washer and a neoprene sealing washer. Fasteners to be located one at each side lap and one in the approximate center of each panel width.

12. **Stiffenner Plate** — (Not Shown) — To be used with the "Riveted Rail SuperLok/BattenLok HS LTP" panel—Min. 18 ga., 8 in. by 1ft-3-1/2 in., attached at the midpoint of the panel.

Refer to General Information, Roof Deck Constructions (Roofing Materials and Systems 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.**

Last Updated on 2023-03-30

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