

Span-Lok hp, Curved Span-Lok , & SpanSeam Guide Specifications

MANUFACTURER - AEP SPAN

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This Guide Specification is to be used to develop an office master specification or specifications for a project. In either case, this Guide Specification must be edited to fit the conditions of use. Particular attention should be given to the deletion of inapplicable provisions. Include necessary items related to a particular project. Include appropriate requirements where blank spaces have been provided.

SECTION 07610 - Preformed Metal Standing Seam Roofing – Span-Lok hp (SL2HP-216, SL2HP-212), Curved Span-Lok (SL2C-216), and SpanSeam (SPS2-216).

Note to Designer: This product is suitable for slopes as low as 1/4:12. Please consult an AEP Span representative for slope design restrictions.

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. Prefinished, prefabricated structural standing seam roof system with continuous interlocking field formed seams.
2. Coordinate with installation of roofing substructure.
3. Provide color coordinated hip, gable, and valley flashings, ridge and peak caps, eave and shelf drips, and counterflashings.
4. Provide clips, fasteners, closures, and sealants as necessary to meet design criteria and ensure weathertight installation.

B. RELATED SECTIONS:

1. Section 05120: Structural Steel Framing
2. Section 05500: Metal Fabrications
3. Section 06100: Rough Carpentry

1.2 SYSTEM DESCRIPTION

A. DESIGN REQUIREMENTS:

1. Wind Uplift:
 - a. The panel system shall be ASTM E1592 tested under the supervision of an accredited laboratory and the laboratory shall issue the test report.
 1. The testing laboratory shall meet the requirements for compliance with the ISO/IEC Standards 17025 or an accredited independent agency, recognized by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement or ANSI.
2. Provide UL 90 rated roofing system that has been tested in accordance with UL 580 test procedure.
3. Provide Factory Mutual (FM) rated panel assembly (16" Span-Lok hp).
4. Provide factory preformed panel system that has been pretested and certified by manufacturer to comply with specified requirements under installed conditions.
5. Provide one piece, single length roof panel where possible.
6. Provide continuous interlocking field formed standing seam that inherently increases load span capability, stiffness and flexural stress handling capacity.

7. Provide panel capable of spanning 5'-0" purlin spacing and maintain UL 90 wind uplift rating.
8. Provide continuous factory installed foamable hot-melt, or butyl mastic sealant within the confines of the panel's female leg.

B. STRUCTURAL REQUIREMENTS:

1. Panel structural properties determined in accordance with latest edition of American Iron and Steel Institute's "Cold Formed Steel Design Manual," using "effective width" concepts.
2. Provide confirmation of positive and negative buckling moments and uplift capacity determined by full-scale tests.

C. SUBSTRATE CRITERIA:

1. UL90 Design Criteria: Engineer roofing system based on galvanized steel purlins capable of withstanding Class 90 loading as per UL protocol 580 applied at 90 degrees to surface and spaced as shown. (Not to exceed 5'-0" o.c.).

D. ENVIRONMENTAL REQUIREMENTS: Actual independent laboratory certified test results must be submitted.

1. Resistance to air infiltration: Span-Lok and Span-Lok hp – .022 cfm per linear foot of joint when tested in accordance with ASTM E 1680 at static test pressure differential of 12.00 psf. SpanSeam – .002 cfm per linear foot of joint when tested in accordance with ASTM E 1680 at static test pressure differential of 12.00 psf.
2. Resistance to water infiltration: Span-Lok and Span-Lok hp – No leakage through panel joints when tested in accordance with ASTM E 1646 at static test pressure differential of 15.00 psf. SpanSeam – No leakage through panel joints when tested in accordance with ASTM E 1646 at static test pressure differential of 20.00 psf.
3. Resistance to Water Penetration:
 2. No leakage through panel sideseams and endlaps after six (6) hours when tested in accordance with ASTM E2140 at a static water pressure head of six (6) inches.

1.3 SUBMITTALS

A. PRODUCT DATA: Submit manufacturer's specifications, standard detail drawings, and installation instructions.

B. SHOP DRAWINGS:

1. Submit shop drawings indicating thickness and dimensions of parts, fastenings and anchoring methods, details and locations of seams, transitions and other provisions necessary for thermal expansion and contraction.
2. Indicate roof terminations, clearly showing flashings and change of direction caps.
3. Clearly indicate locations of field and factory applied sealant.
4. Show locations and types of hold-down clips and fasteners.
5. Provide plan showing layout of entire roof.

C. SAMPLES:

1. Submit two samples, 12" long x full width panel, showing proposed metal gauge and seam profile.
2. Submit standard color samples of metal for Architect's selection.

D. TEST REPORTS:

1. Submit test reports prepared by (UL) Underwriters Laboratories, Inc. indicating wind uplift rating

of proposed roof system.

E. CERTIFICATION:

1. Submit manufacturer's certification that materials and finishes meet specification requirements.

F. APPLICATOR'S EXPERIENCE:

1. Submit list of completed projects and name of Architects.

1.4 QUALITY ASSURANCE

A. MANUFACTURER'S QUALIFICATIONS:

1. Ten years minimum experience in factory fabrication of standing seam roofs.
2. Products listed in this specification section are as manufactured by AEP Span.
3. No other bidder of standing seam roof panels will be accepted without prior written approval of Architect based upon other manufacturer's products meeting specified requirements.
4. Manufacturer shall provide proof of \$2,000,000 liability insurance for their metal roof system.
5. The roof panel manufacturer must also subscribe to Underwriters Laboratories "Follow Up Service" assuring continuing product compliance with UL requirements. Shipment packaging of panels and attachment clips must bear UL classification markings.
6. Substitution requests must be submitted in writing minimum ten days prior to bid date accompanied by product literature, technical information, and product sample. Approved substitutions will be set forth in an addendum.
7. No substitutions will be permitted after bid date.

B. APPLICATOR QUALIFICATIONS:

1. Three years minimum experience in application of high performance standing seam roofs.
2. Minimum of five satisfactory projects on similar types of roofs.

C. REGULATORY REQUIREMENTS:

1. Comply with requirements of applicable building codes and other agencies having jurisdiction for wind uplift rating of standing seam roofs.

1.5 DELIVERY, STORAGE AND HANDLING

A. Protect products and accessories from damage and discoloration during transit and at project site. Store sheets and components in dry storage area to prevent condensation.

B. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

1.6 WARRANTY

A. MANUFACTURER'S PRODUCT WARRANTY

1. Manufacturer's standard performance warranty, as available for specified installation and environmental conditions. (Contact an AEP Span representative to determine actual warranty criteria.)

B. CONTRACTOR'S WARRANTY

1. Warrant panels, flashings, sealants, fasteners and accessories against defective materials and/or workmanship, to remain watertight and weatherproof with normal usage for two (2) years following Project Substantial Completion date.

C. MANUFACTURER'S WATERTIGHTNESS WARRANTY

1. Contact AEP Span sales department for watertightness warranty information.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. AEP Span, A Division of ASC Profiles Inc., 2110 Enterprise Boulevard, West Sacramento, CA 95691
800-733-4955
Tacoma: 2141 Milwaukee Way, Tacoma, Washington 98421
Fontana: 10905 Beech Avenue, Fontana, California 92337

B. SUBSTITUTIONS:

1. Substitutions must fully comply with specified requirements. Refer to specification Section 01630 - Product Options and Substitutions for substitution request procedures.

2.02 MATERIALS

A. PANELS:

1. Prefinished Galvalume® or Zinalume® sheet, ASTM AZ50 made of 55% aluminum, 1.6% silicon and the balance zinc as described in ASTM specification A792.

SPECIFIER: Standard offering is 24 gauge with Kynar 500® finish. Additional benefits may be realized with the use of 22 gauge. Consult AEP Span for optional gauges finishes and other types of metals.

2. Fabricate panels with sufficient thickness to meet specified UL 90 wind uplift requirements.
3. Fabricated panel with integral continuous overlapping seams suitable for continuous locking or crimping by mechanical means during installation.
4. Panel Width: 16" (SL2HP-216, SL2C-216, SPS2-216) and 12" wide (SL2HP-212)
5. Seam Height: 2" high.
6. Provide pre-installed, high grade, butyl mastic, within the confines of panel's female leg, designed to seal against adjacent male panel leg.
7. Acceptable Standing Seam System: SL2HP-212, SL2HP-216 (Span-Lok hp); SL2C-216 (Curved Span-Lok); SPS2-216 (SpanSeam) by AEP Span.

B. CLIP/FASTENER ASSEMBLIES:

1. Typical clip: UL 90 requirements:
 - a. Fasteners: Manufacturer's standard #12 - 14 x 1 1/4" long self-drilling, self-tapping hex head drive screws for metal; noncorrosive base material.
 - b. UL Rated Clip: Sliding 22 gauge galvanized steel hook in combination with a double fastened 16 gauge galvanized steel base, both at F_y (min) = 40 ksi. Clip hook shall have a shop installed hot-melt butyl sealant for continuity of seal at clip locations.
2. Typical Low Clip: Requirements:
 - a. Fasteners: as per manufacturer's recommendation.
 - b. Sliding 26 gauge at $F_y=40$ ksi (min) galvanized steel hook in combination with a double fastener 18 gauge at $F_y = 40$ ksi (min) galvanized steel base. Clip hook shall have a shop installed hot-melt butyl sealant for continuity of seal at clip locations.
3. Standard Fasteners: Same as UL 90 fasteners specified above.

SPECIFIER: For open framing system utilize a minimum 16 gauge (0.060 in. thick) 50 ksi minimum yield strength steel purlins specified in structural steel framing specification section

C. ACCESSORIES:

1. Provide manufacturer's standard accessories and other items essential to completeness of standing seam roof installation.
2. Gutters and downspouts will be fabricated to the same gauge and specification as panel.

SPECIFIER: "C" or "Z" subgirts for insulated deck systems are not usually provided by metal roofing panel supplier.
SPECIFIER: The following accessories are not necessary for every installation. Coordinate with project conditions.

D. FIELD SEALANT: Polyurethane or high grade, nondrying butyl as recommended by panel manufacturer.

1. Do not use sealant containing asphalt.

2.3 FABRICATION

A. PANELS:

1. Provide panel widths of 12" or 16", 2" high standing seam.
2. Provide panels in full length from ridge to eave when possible.
3. Where single length panels are not practical, provide mated swaged panels for positive joint end laps, shingled to accommodate water run-off (fabricated with overlap in direction of water flow).
4. Roof panels shall have flush horizontal and vertical surfaces to facilitate sealing at terminations. Panel configurations which create voids and requiring supplemental closure devices shall not be considered acceptable.
5. Onsite rollformed panels must meet applicable UL & FM requirements, and onsite rollforming equipment must have active certification through UL.

B. SEAMS:

1. Panel seams shall interlock entire length of seam.
2. Design standing seam to lock up and resist joint disengagement during design wind uplift conditions as calculated according to local building codes.
3. Provide pre-installed sealant within confines of panel's female leg to aid in resistance of leaks and provide panel-to-panel seal while allowing expansion and contraction movement, and the seams shall be continuously locked or crimped together by mechanical means during installation.

C. CLIPS:

1. Provide UL listed clip designed to allow panels to thermally expand and contract and provide ± 1 inch of thermal movement. Clip shall incorporate a self-centering feature to allow 1" of movement in both directions along panel length.
2. Clip shall be designed to meet positive and negative pressures as calculated per local building code.

D. Engineer panels to use concealed anchors that permit expansion and contraction, except at eaves, end laps, ridges, valleys, hips and gables.

2.4 FINISH

2. Exterior Finish: (choose one)
 - a. DuraTech® 5000 (polyvinylidene Fluoride), full 70% Kynar® 500/Hylar 5000® consisting of a baked-on 0.15-0.20 mil corrosion resistant primer and a baked-on 0.70-0.80 mil finish coat with a specular gloss of 10-30% when tested in accordance with ASTM D-523 at 60°.
 - b. Zinalume® Plus protective coating.

- c. DuraTech® mx metallic finish, consisting of a baked-on primer (0.15-0.2 mil.) and a baked-on Polyvinylidene Fluoride finish coat (0.7-0.8 mil.) with a specular gloss of 20-35% when tested in accordance with ASTM D-523 at 60°.
- 3. Interior Finish:
 - a. Primer Coat Material: Corrosion-resistant primer; primer coat dry film thickness: 0.15 mils; finish coat material: polyester paint, finish coat dry film thickness: 0.35 mils.
 - b. Color: Off-White to Light Gray
- 4. Color: (choose one)
 - a. Manufacturer's standard selection of not less than 22 colors.
 - b. Custom color as selected by Architect to be _____.
 - c. Custom colors are available on orders of 3,000 lft (1,500 lft mother coil) or larger. Consult an AEP Span representative for additional information.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions for assembly, installation, and erection in order to achieve weathertight installation. Install in accordance with Approved Shop Drawings.

B. Standing Seam System:

- 1. Install panels in accordance with manufacturer's instructions and recommendations. Anchor securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations for design wind load criteria.

C. Dissimilar Metals:

- 1. Where sheet metal is in contact with dissimilar metals, execute juncture to facilitate drainage and minimize possibility of galvanic action.
- 2. At point of contact with dissimilar metal, or treated lumber, coat metal with protective paint or underlayment which can be placed between metals.

D. Field apply sealant to penetrations, transitions, and other locations necessary (not standing seam) for airtight, waterproof installation while allowing for expansion and contraction.

3.4 CLEANING

A. Clean exposed surfaces of work promptly after completion of installation.

3.5 PROTECTION

A. Protect work as required to ensure roofing will be without damage at time of final completion.

END OF SECTION

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(SG091) Span-Lok CSI Guide Specifications