



# SAMPLE SPECIFICATIONS

# ROOFING

7 PAGES (including cover page)

## **Kalzip™ Guide Specifications**

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.

### SECTION 07610 - Preformed Metal Standing Seam Roofing – Kalzip™ (65/400 and 65/305)

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. SECTION INCLUDES:
  - 1. Prefinished, prefabricated structural standing seam roof system with continuous interlocking field formed seams.
  - 3. Coordinated hip, gable, and valley flashings, ridge and peak caps, eave and shelf drips, and counterflashings.
  - 4. Clips, fasteners, closures, and sealants as necessary to meet design criteria and ensure weathertight installation.
- B. RELATED SECTIONS:
  - 1. Section 05100: Structural Steel
  - 2. Section 05300: Metal Deck
  - 3. Section 05500: Metal Fabrications
  - 4. Section 06100: Rough Carpentry/Wood framing and Decking
  - 5. Section 07600: Flashing and Sheet Metal
  - 6. Section 07220: Roof and Deck Insulation

##### 1.2 REFERENCES

- A. Aluminum Association:
  - 1. 2005 edition of the Aluminum Design Guide
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - 2. ASTM E1680 Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
  - 3. ASTM E1646 Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference
  - 4. ASTM E1592 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
- C. Factory Mutual Global Group
  - 1. FM 4471, August 1995: Approval Standard for Class 1 Panel Roofs

##### 1.3 SYSTEM DESCRIPTION

- A. DESIGN REQUIREMENTS:
  - 1. Design criteria shall be in accordance with current edition of the locally adopted Building Code.
  - 2. Dead Load:
    - a) The dead load shall be the weight of the structural standing seam roof system.
  - 3. Live Load
    - a) The roof panel and concealed clips shall be capable of supporting a minimum uniform live load of 20 psf.
  - 4. Snow Loads:
    - a) The roof snow load shall be as shown on the contract drawings.
    - b) Snow drift effects shall be taken into consideration as applicable.
  - 5. Wind Loads:

- a) Wind loads shall be as shown on the contract drawings or calculated per Building Code components/cladding criteria. The greater uplift pressure (contract drawing specified or Building Code calculated) shall govern.
- 6. Thermal Loads:
  - a) Roof panels shall be free to expand/contract resulting from a total temperature differential of 150 degrees F.
- B. STRUCTURAL REQUIREMENTS:
  - 1. Panel structural properties are to be determined in accordance with latest edition of Aluminum Association's "Aluminum Design Manual- Specifications and Guidelines for Aluminum Structures".
  - 2. Metal roof system must be tested in accordance with ASTM E-1592 "Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference" for determination of negative (uplift) load capacity.
- C. ENVIRONMENTAL REQUIREMENTS:
  - 1. Resistance to air infiltration:  
Maximum of .024 cfm per square foot when tested in accordance with ASTM E 1680 at static test pressure differential of 6.24 psf.
  - 2. Resistance to water infiltration:  
No leakage through panel joints when tested in accordance with ASTM E 1648 at static test pressure differential of 12 psf.

#### 1.4 SUBMITTALS

- A. GENERAL: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. PRODUCT DATA: Submit manufacturer's specifications, standard details, and installation manual.
- C. SHOP DRAWINGS:
  - 1. Show roof panel system with flashings and accessories in plan and elevation; sections and details. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations. Indicate relationships with adjacent and interfacing work.
  - 2. Do not proceed with manufacture of roofing materials prior to review of shop drawings and field verification of all dimensions.
- D. SAMPLES:
  - 1. Submit sample of panel section, 12" long x full width panel, showing proposed metal gauge, finish and seam profile.
  - 2. Submit sample of panel clip and gable clip.
- E. TEST REPORTS:
  - 1. Submit copies of design test reports for each of the performance testing standards listed in Section 1.2 of this specification.
  - 2. Test reports shall be performed by an independent, accredited testing laboratory, and shall bear the seal of a registered professional engineer.
- F. CALCULATIONS:
  - 1. Submit engineering calculations defining cladding loads for all roof areas based on design criteria listed in section 1.2 of this specification
  - 2. Calculation shall clearly indicate clip type, spacing of clips by roof zones, and fastener requirements.
  - 3. Uplift load capacity of roof panel system shall be determined by ASTM E-1592 testing. Extrapolation of uplift capacities is not acceptable. Uplift capacity calculation by "section property" method is not acceptable.
  - 4. Compute uplift loads on clip fasteners with recognition of prying forces and eccentric clip loading
  - 5. Calculate pullout/shear strength of fasteners in accordance with test data published by the fastener manufacturer, utilizing applicable material safety factors.
  - 6. Compute thermal calculation for expansion/contraction forces due to total temperature differential of 150 degrees F.
  - 7. Compute panel fixed point attachment forces and required fasteners.
  - 8. Compute in-plane clip forces and indicate required attachment fasteners.
- G. WARRANTY:

1. Provide unexecuted specimen warranty documents as required in section 1.6.
- H. CERTIFICATION:
1. Submit manufacturer's certification that materials and finishes meet specification requirements.
  2. Submit applicator's certification that installer of products meets specified qualifications

#### 1.5 QUALITY ASSURANCE

- A. MANUFACTURER'S QUALIFICATIONS:
1. Ten years minimum experience in fabrication of standing seam roofs.
- B. APPLICATOR QUALIFICATIONS:
1. Three years minimum experience in application of structural field-formed concealed clip roofing systems
  2. Applicator must be an approved installer, certified by the manufacturer prior to beginning installation of the standing seam roof.
- C. PRODUCT SUBSTITUTION:
1. Products listed in this specification section are as manufactured by Kalzip Building Systems.
  2. Alternate standing seam roof panels will only be accepted with prior written approval of Architect.
  3. 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.
  4. No substitutions will be permitted after bid date.
- D. PRE-INSTALLATION MEETINGS:
1. Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. DELIVERY:
1. Deliver metal roof system to jobsite properly packaged to provide protection against transportation damage
- B. HANDLING:
1. Exercise extreme care in unloading, storing, and erecting metal roof system to prevent bending, warping, twisting, and surface damage.
- C. STORAGE AND PROTECTION:
1. Store sheet bundles above ground with one end elevated and allow for air circulation and drainage.
  2. Store sheet bundles under tarpaulin cover to protect from rain and prevent accumulation of dirt and condensation.
  3. When storing on roof, ensure that the load bearing capacity of the substructure is sufficient. Secure sheets and packages against wind uplift and sliding.
  4. Prolonged storage of bundled sheets is not recommended.
  5. ALWAYS avoid direct contact with alkali-bearing material such as lime based cement, concrete/mortar.

#### 1.7 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project specific warranty provisions.
- B. Furnish manufacturer's standard 20-year warranty stating panel material will not fail due to:
1. Corrosion
  2. Rupture
  3. Perforation
- C. Furnish written warranty signed by applicator for two year period from date of substantial completion of the building covering repairs required to maintain roof and flashings in watertight conditions.

#### PART 2 - PRODUCTS

## 2.1 ACCEPTABLE MANUFACTURER

- A. Kalzip Inc  
4921 C South Ohio St., Michigan City, IN 46360, 219-879-2793 tel  
Represented by Engineered Architecturals™  
800-737-5811 tel                      866-374-6724 fax                      [info@engineeredarchitecturals.com](mailto:info@engineeredarchitecturals.com)
- B. SUBSTITUTIONS:
  - 1. Substitutions must fully comply with specified requirements.
  - 2. Refer to specification Section 01630 - Product Options and Substitutions for substitution request procedures.

## 2.2 MATERIALS

- A. PANELS:
  - 1. Aluminum alloy sheet, ASTM B209, aluminum alloy 3004 in accord with manufacturer's standard to suit forming operations and finish specified  
Thickness: .032", .035", .040".
  - 2. Fabricated vertical leg standing seam panel with integral continuous overlapping seams suitable for continuous zipping or crimping by mechanical means during installation.
  - 3. Panel seam design shall allow for mechanical "unzipping" without compromise of panel structural integrity.
  - 4. Panels shall be 12" wide (305mm), or 15.75" wide (400mm) with a minimum vertical standing leg height of 2 ½".
  - 5. Acceptable Standing Seam System: Kalzip™ 65/305, or Kalzip™ 65/400 by CORUS Building Systems.
  - 6. All materials are to be machine curved by the manufacturer to the required design geometries.
  - 7. All materials are to be produced in one continuous length. Laps are only permitted where indicated by the drawings or by the manufacturer.
- B. CLIP/FASTENER ASSEMBLIES:
  - 1. "E" Clip [Thermally Broken]:
    - a. One piece reinforced polyamide clip designed to freely accommodate thermal movement for panel lengths beyond 130 ft.
  - 2. Hook clip
    - a. Two piece stainless steel 18ga clip either sliding or fixed. Sliding clip to accommodate 3.5" of thermal movement.
- C. ACCESSORIES:
  - 1. Provide manufacturer's standard accessories and other items essential to completeness of standing seam roof installation.
  - 2. Gutters and downspouts to be fabricated to the same gauge and specification as panel.

## 2.3 MISCELLANEOUS MATERIALS

- A. FASTENERS:
  - 1. All self tapping/self drilling fasteners, bolts, nuts, rivets shall be designed to withstand specified design loads.
  - 2. All fasteners to be manufactured from series 304 austenitic stainless steel. Rivet style fasteners to be manufactured from aluminum or stainless steel.
  - 3. Provide neoprene washers under the heads of all exposed fasteners.
  - 4. Use proper torque settings to obtain controlled uniform compression for a positive seal without rupturing the neoprene washer.
- B. SUB-FRAMING:
  - 1. Provide all sub-framing required per the approved shop drawings to achieve the designed geometry (i.e. concave & convex curves) and any other required items.
- C. ACCESSORIES:
  - 1. Provide all components required per the approved shop drawings for a complete metal roof system to include panels, clips, gable clips, fasteners, trims/flashings, closures, fillers, sealants and any other required items.

## 2.4 FABRICATION

- A. PANELS:
  - 1. Provide factory formed panel widths of 12" or 15.75" with 2.5" high standing seam.
  - 2. Panels are to be fabricated full length with absolutely no end lap conditions allowed.
- B. TRIM/FLASHING:
  - 1. Fabricate trims/flashings from same material and gauge as roof panel system.
  - 2. Fabricate trims/flashings in accordance with approved shop drawings and applicable standards.

## 2.5 FINISH

- A. NATURAL ALUMINUM:
  - 1. Stucco Embossed. Aluminum AA3004/3005 post processed through embossing rollers.
  - 2. Natural Mill. Aluminum AA3004/3005
- B. PAINTED ALUMINUM:
  - 1. Two-Coat Fluoropolymer Finish: Standard fluoropolymer 2-coat system consisting of 0.2 mil primer and 0.8 mil 70 percent PVDF fluoropolymer color coat.
    - a. Color: As selected from manufacturer's standard colors
    - b. Color: As selected from manufacturer's custom colors
    - c. Color:\_\_\_\_\_.
  - 2. Two-Coat Fluoropolymer Finish: MICA metallic appearing coating, 0.25 mil primer with 1.8 mil 70 percent PFCF fluoropolymer color coat containing pearlescent flakes.
    - a. Color: As selected from manufacturer's standard colors
    - b. Color: As selected from manufacturer's custom colors
    - c. Color:\_\_\_\_\_.
  - 3. Three-Coat Fluoropolymer Finish: Metallic finish, 0.25 mil primer with 0.75 mil 70 percent PVDF fluoropolymer coating containing metallic flakes and 0.5 mil 70 percent PVDF fluoropolymer clear top coat
    - a. Color: As selected from manufacturer's standard colors
    - b. Color: As selected from manufacturer's custom colors
    - c. Color:\_\_\_\_\_.
- C. PRE-WEATHERED:
  - 1. AluPlus Patina. Stucco embossed aluminum substrate treated to provide weathered/matt appearance.
- D. ZINC COATED:
  - 1. AluPlusZinc. Aluminum substrate electrolytically fused with a 4 mm zinc layer on each side of sheet.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine the alignment and placement of the building structure and substrate. Correct any objectionable warp, waves or buckles in the substrate before proceeding with installation of the pre-formed metal roofing. The installed roof panels will follow the contour of the structure and may appear irregular if not corrected.
- B. Do not proceed with installation until discrepancies have been resolved.

### 3.2 INSTALLATION

- A. Install roofing and flashings in accordance with approved shop drawings and manufacturer's product data, within specified erection tolerances.
- B. Install metal roof system so that it is weathertight, so that it is without waves, warps, buckles, fastener stresses or distortion.
- C. Install metal roof system with allowance for thermal expansion and contraction.
- D. Anchor roof panels securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations.

- E. Do not allow panels or trim to come in contact with dissimilar materials such as copper, fire retardant treated timber, concrete/mortar. Water runoff from dissimilar materials is also prohibited

### 3.3 CLEANING

- A. Clean exposed surfaces of excess material and debris promptly after completion of installation.
- B. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

### 3.4 PROTECTION

- A. Protect work as required to ensure roofing will be without damage at time of final completion.
- B. Replace products having damage other than minor finish damage.
- C. Repair products having minor damage to finish in accordance with panel manufacturer's recommendations.

END OF SECTION