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This MANU-SPEC™ utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies steeples, cupolas, spires, pinnacles, towers, finials, domes and crosses. These products are manufactured by Munns Manufacturing, Inc. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat™* for other section numbers and titles.

SECTION 10343
SPIRES & STEEPLES

PART 1 GENERAL

1.01 SUMMARY

Specifier Note: Revise paragraphs below to suit project requirements.

- A. Section Includes: Custom fabricated steeples, cupolas, spires, pinnacles, towers, finials, domes and crosses.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

1.02 REFERENCES

- A. ASTM International:
 1. ASTM A36/A36M Standard Specification for Carbon Structural Steel.
 2. ASTM C920 Standard Specification for Elastomeric Joint Sealants.
- B. American Society of Civil Engineers (ASCE):
 1. ASCE 7 Minimum Design Loads for Buildings and Other Structures.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA™ sheet, for specified products.

- C. Shop Drawings: Submit shop drawings showing dimensions, framing, cladding joints, anchorage and interface with roof construction.

Specifier Note: Retain paragraph below if engineer's seal is required.

- 1. Provide shop drawings stamped by professional engineer licensed in state in which project is located.
- D. Samples: Submit selection and verification samples of finishes, colors and textures.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 1 Quality Assurance Section.

1.04 QUALITY ASSURANCE

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- A. Regulatory Requirements and Approvals: [Specify applicable requirements of regulatory agencies.]
 - 1. [Code agency name].
 - a. [Report or approval number].

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.05 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 SPIRES & STEEPLES

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Munns Manufacturing, Inc.
 - 1. Contact: PO Box 477, Garland, UT 84312; Telephone: (888) 774-7348, (435) 257-5673; Fax: (435) 257-3842; E-mail: contact@munnsmfg.com; Web site: www.munnsmfg.com.

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

- B. Substitutions: No substitutions permitted.

Specifier Note: Paragraphs below list proprietary steeples and cupolas offered by Munns Manufacturing, Inc. Select custom fabricated steeples and cupolas appropriate to project. Consult manufacturer regarding product options. Select product characteristics required; delete characteristics not required. Refer to manufacturer's SPEC-DATA™ product sheet.

2.02 COMPONENTS

- A. General: Extruded aluminum framing with aluminum cladding, on steel-framed base; factory fabricated, with all components

for complete installation.

Specifier Note: Select 1 of the first 3 paragraphs. The third paragraph is an example of how to specify loads if a building code is not referenced.

1. Design to comply with applicable building code.
 2. Design to comply with _____ building code.
 3. Design to support all dead loads, withstand wind force up to 100 mph (161 kph) and withstand seismic forces of Zone 4 specified in ASCE 7 without damage.
 4. Size and Shape: As indicated on drawings.
 5. Factory assembly to greatest extent possible; provide bolted connections for field connections.
 6. Do not use wood or wood products in fabrication.
 7. Design so framing members are not visible through windows nor cast shadows on windows.
- B. Base: ASTM A36/A36M structural steel angles, with welded connections.
1. Paint all surfaces with 2 heavy coats of rust-inhibitive metal primer.
 2. Secure aluminum framing with appropriate stainless steel bolts, with lock nuts and washers.
 3. Isolate aluminum from steel with nonconductive, water resistant material compatible with both.
- C. Framing: Extruded aluminum, alloy 6061-T6; fastened together at minimum 1 inch (25.4 mm) spacing with cold driven aluminum rivets, alloy 6061-T6, not loaded in tension.
- D. Cladding: Aluminum sheet, alloy 3033-H14 minimum.
1. Sheet Thickness: 0.032 inch (0.81 mm), minimum.
 2. Construction: Lock seamed, with fasteners concealed from view as much as possible.
 3. Cornices: Vertical joints kept to minimum; reinforced to withstand wind load during transit.
 4. Finish: Polyvinylidene fluoride resin based coating; Kynar 500 or Hylar 5000; containing minimum 70% resin.
 - a. Coil coated prior to fabrication; thermal cured 2 coat system with epoxy or acrylic latex primer; capable of being sheared or formed without separation of finish.
 - b. Color: As selected by Architect from manufacturer's standard colors.
- E. Spun and Fabricated Members: Dipped in caustic etch, coated with etching primer and finished with exterior vinyl finish.

Specifier Note: The finials can be a cross or other shape.

- F. Finial: Formed aluminum, shape as indicated on drawings, serving as lightning air terminal; provide lightning cable bonding clamps.
- G. Lightning Protection: Bi-metallic bonding plates for connecting cable to aluminum components; smooth weaved copper cable, minimum 32 strands of 17 gauge, IPC No. 32S.
1. Provide cable from finial to bond to aluminum framing and extending 36 inches (915 mm) below base of steeple.
 2. Provide bonding plates and cable to bond aluminum framing to steel framing and steel framing to grounded building steel framing.

Specifier Note: Select options below that are appropriate to project.

- H. Louvers: Formed aluminum sheet, 0.032 inch (0.81 mm) thick; weatherproof blades and insect screen over entire free area.
1. Insect Screen: Aluminum, 18 × 18 mesh.
 2. Provide water pan at base of louver with proper weepage.
 3. Provide formed supports at back of louver blades that exceed 36 inches (915 mm) in width.
- I. Window Glazing: 1/4 inch (6.4 mm) thick acrylic plastic sheet.
1. Translucent: Fiberglass reinforced copolymer paneling; shatterproof, UV and abrasion resistant; Krinklglas by

Dimensional Plastic Corp.; www.krinklglas.com.

2. Color: As selected by Architect.
- J. Sealant: 1- or 2-component silicone sealant, complying with ASTM C920 Class 25, with minimum 20 year life span stated by manufacturer.

PART 3 EXECUTION

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 1. Verify that 2 layers of secondary underlayment have been installed:
 - a. First Layer: Covering area of base and extending 36 inches (915 mm) beyond perimeter of base.
 - b. Second Layer: Covering area of base and extending 12 inches (305 mm) beyond perimeter of base.

3.03 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.04 INSTALLATION

- A. Install in accordance with steeple manufacturer's handling and erection instructions.
- B. Secure steel base to roof framing as indicated elsewhere in the Contract Documents.
- C. Isolate dissimilar metals.
- D. Caulk seams and bolted connections with specified sealant, applied to clean and dry surfaces.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch up, repair or replace damaged products prior to Substantial Completion.

END OF SECTION