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**Oakhurst Dairy – New Milk Cooler****SECTION 07610 - SHEET METAL ROOFING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Standing-seam metal roofing and flashings.
  - 2. Miscellaneous trim, flashing, closures, drip flashing, and accessories.
- B. Related Sections include the following:
  - 1. Division 6 Section "Miscellaneous Carpentry" for wood blocking and decking.
  - 2. Division 7 Section "Sheet Metal Flashing and Trim" for flashing not part of roofing and other sheet metal work.
  - 3. Division 7 Section "Sealants."

**1.3 PERFORMANCE REQUIREMENTS**

- A. Install sheet metal roofing capable of withstanding normal thermal movement, wind loading, structural movement, thermally induced movement, and exposure to weather without failure or infiltration of water into the building interior.

**1.4 SUBMITTALS**

- A. Product Data: For each product indicated. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop Drawings: Show details for forming, joining, and securing metal roofing, and for pattern of seams. Show expansion-joint details and waterproof connections to adjoining work and at obstructions and penetrations.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for metal roofing with color-coated finishes.
- D. Samples for Verification: 12-inch-square specimens of metal roofing material with specified finishes applied. Where finishes involve normal color and texture variations, include Sample sets of 2 or more units showing the full range of variations expected.
- E. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

**1.5 QUALITY ASSURANCE**

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- A. Installer Qualifications: Engage an experienced installer who has completed sheet metal roofing similar in material, design, forming method, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Industry Standard: Unless otherwise shown or specified, comply with the Sheet Metal and Air Conditioning Contractors National Association's (SMACNA) "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown.
- C. Wind-Uplift Resistance: Provide roof assemblies that meet requirements of UL 580 for Class 90 wind-uplift resistance.
  - 1. Maintain current certification of UL follow-up program for field-rolled panels on field-forming equipment.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver metal coils, panels, and other roofing materials so they will not be damaged or deformed. Package roofing materials for protection against transportation damage.
- B. Handling: Exercise care in unloading, storing, and erecting roofing materials to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight and ventilated covering. Store metal roof coils and panels to ensure dryness. Do not store coils or panels in contact with other materials that might cause staining, denting, or other surface damage.

**1.7 WARRANTY**

- A. The Contractor and the Manufacturer shall warrant all manufactured items supplied under this section for a period of one (1) year, or as required for special warranties specified herein. Warranty period shall commence on the date of substantial completion and shall meet the requirements outlined in Division 0 and Division 1. This warranty shall include repair or replacement of any item failing during normal use. In the event that the manufacturer's standard warranty for any given item exceeds the specified warranty period following substantial completion, then the longer period shall govern.
- B. Manufactured items shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it will be replaced at no expense to the Owner.
- C. The Manufacturer's warranty period shall run concurrently with the Contractor's warranty period. No exceptions to this provision shall be allowed.
- D. Special Finish Warranty: Submit a written warranty executed by the manufacturer covering failure of the factory-applied exterior finish on metal roofing within the specified warranty period and agreeing to repair finish or replace sheet metal roofing that evidences finish deterioration. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.
  - 1. Warranty Period: 20 years from date of Substantial Completion.
- E. Refer to Section 01740 for additional warranty requirements.

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- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Berridge Manufacturing Co.
  2. Fabral/Gentec Building Products, Inc.
  3. Merchant & Evans, Inc.

**2.2 SHEET MATERIALS**

- A. Prefinished Metal shall be Hot-Dipped Galvanized – ASTM A446-85 Grade C G90 Coating A525-86 24 Gauge core steel.
- B. Finish shall be full strength Kynar 500 Fluoropolymer coating, applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kyner 500-finish supplier.
- C. Strippable film shall be applied to the top side of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed before installation.

**2.3 ACCESSORY MATERIALS**

- A. Fasteners: Galvanized Steel with washers where required.
- B. Sealant: As specified in Section 07900.
- C. Vinyl: Weatherseal Insert

**2.4 FABRICATION**

- A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.
- B. Hem all exposed edges of flashing on underside, ½ inch.

**2.5 STANDING SEAM PANEL**

- A. Panels shall have 1-1/2" high vertical legs, spaced 16-1/2" on center.
- B. Standing seam to be of an interlocking, "snap-lock" design.
- C. Panels shall be site-formed in continuous lengths from ridge to eave.
- D. Continuous Rib to be 1-3/8" wide and 2-1/8" in height. Rib shall be connected to purlin with two #12-14 x 1" self-drilling/tapping fasteners at 3'-0" max.
- E. Optional Vinyl Weatherseal (U.S. Patent No. 4641475) to be factory/machine-installed.

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- F. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-1680-95 and ASTM-E 1646-95.

**PART 3 - EXECUTION****3.1 INSPECTION**

- A. Substrate:
  - 1. Examine plywood or metal deck to ensure proper attachment to framing.
  - 2. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves or projections, level to  $\pm 1/4"$  in 20', and properly sloped.
  - 3. Verify deck is dry and free of snow or ice, joints in wood deck to be solidly supported and nailed.
- B. Felting:
  - 1. Verify #30 unperforated asphalt saturated roofing felt underlayment has been installed over solid sheathing and fastened in place.
  - 2. Ensure felt installed horizontally, starting at eave to ridge with a 6" minimum overlap and 18" endlaps.
  - 3. Ensure that all nail heads are totally flush with the substrate. Nails shall be galvanized roofing nails with Coated Felt Caps.

**3.2 INSTALLATION**

- A. Comply with manufacturers standard instructions and conform to standards set forth in the Architectural Sheet Metal Manual published by SMACNA, in order to achieve a watertight installation.
- B. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.
- C. Install starter and edge trim before installing roof panels.
- D. Remove protective strippable film prior to installation of roof panels.
- E. Attach panels using manufacturer's standard clips and fasteners, spaced in accordance with approved shop drawings.
- F. Install sealants for preformed roofing panels as approved on shop drawings.
- G. Do not allow panels or trim to come into contact with dissimilar materials.
- H. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.
- I. Remove and replace any panels or components which are damaged beyond successful repair.

**3.3 CLEANING**

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- A. Clean any grease, finger marks or stains from the panels per manufacturer's recommendations.
- B. Remove all scrap and construction debris from the site.

END OF SECTION 07610