
Oakhurst Dairy – New Milk Cooler**SECTION 15010 - BASIC MECHANICAL REQUIREMENTS****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.
- B. Division 16 Specification Sections.

1.2 SECTION INCLUDES

- A. Basic Mechanical Requirements specifically applicable to Division 15 Sections. Should the requirements of this section conflict with Division 1 requirements, request clarification from the Engineer before proceeding.

1.3 DEFINITIONS

- A. The following definitions apply when used in the context of this Specification Section, other Division 15 Sections excluding those related to the Refrigeration System, Division 13 Fire Protection Sections and Mechanical (H) and Plumbing (P) drawings.
 - 1. Furnish: Obtain, supply, fit out, and deliver to project site.
 - 2. Install: Set up for use.
 - 3. Provide: Furnish and install.
 - 4. Approved Equal: Material manufactured by other than name or names specified which meets the Specification and is reviewed favorably by the Engineer.
 - 5. Washdown Area(s): Rooms provided with hose reel, hose station or hose bib; refer to plumbing drawings for the location of these areas.
 - 6. The following are contractor definitions for Division 15 and Division 13 Fire Protection Specification Sections. Actual project responsibilities may vary from the definitions that follow. For example, a single contractor may be responsible for work of both the plumbing and HVAC contractors. Or multiple contractors may be responsible for work defined under a single contractor; for example, the General Contractor may include masonry, roofing, painting contractors and etc.
 - a) Fire Protection Contractor: Contractor responsible for work shown on Fire Protection (FP) Drawings and specified in Division 13 Fire Protection Specification Sections and related Division 15 Specification Sections.
 - b) Mechanical Contractor: Includes all of the following contractors: Plumbing and Piping Contractor and HVAC Contractor.
 - c) Refrigeration Contractor: Contractor responsible for work on Refrigeration (R or ER) Drawings and specified in Division 15 Specification Sections separate from other Division 15 Specification Sections.
 - d) Electrical Contractor: Contractor responsible for work shown on Electrical (E) Drawings and specified in Division 16 Specification Sections.
 - e) Site Contractor: Contractor responsible for work outside the building envelope not indicated to be provided by another contractor and specified in Division 2 Specification Sections.

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- f) General Contractor: Contractor or subcontractors responsible for all other work not provided by a contractor in the previous definitions.

1.4 QUALITY ASSURANCE

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Request clarification from the Engineer when manufacturers' instructions conflict with Contract Documents.
- D. Comply with specified standards as a minimum of quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.5 SUBMITTALS

- A. Schedule submittals to expedite the Project, and deliver to location as directed in Division 1.
- B. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal. Provide all data specifically indicated in individual Division 13 (Fire Protection) and Division 15 Specification Sections. Incomplete submittals will be rejected.
- C. Mark dimensions and values in units to match those specified.
- D. Identify Project, Contractor, Subcontractor and/or supplier; pertinent Drawing sheet, detail number(s) and specification section number, as appropriate.
- E. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Submittals without Contractor's stamp will be rejected.
- F. Identify variations from the Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
- G. Mark each copy of product data to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- H. No manufacture and/or installation shall proceed until the Engineer has reviewed Shop Drawings. Equipment subject to submittal review, if installed prior to the review of said submittal, will not be approved for payment and is installed at Contractor's risk. No additional compensation will be made for changes to such installations required as a result of the submittal review.
- I. Revise and resubmit submittals as required, identify all changes made since previous submittal.

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- J. The Contractor shall be responsible for reimbursing the Engineer for engineering time required for review of more than two resubmittals.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable Building, Mechanical, and Plumbing Codes.
- B. Fire Protection: Conform to NFPA, State and Local Codes and the Owner's Insurance Carrier.
- C. In the event that Contract Documents conflict with any applicable codes, notify the Engineer before proceeding.
- D. Obtain permits, and request inspections from the authority having jurisdiction.

1.7 MECHANICAL COORDINATION WITH OTHER TRADES

- A. The Mechanical Drawings are generally diagrammatic and indicative of the work and indicate the intent of the design.
 - 1. The Drawings shall not be used for final dimensioning unless noted on the drawings.
 - 2. The Mechanical Contractor is responsible for coordinating with others to verify equipment size, locations, associated equipment and hardware.
 - 3. The Mechanical Contractor is responsible for modifying the work with offsets, bends or other fittings to avoid minor interferences and structural obstructions.
 - 4. Perform above described modifications at no increase in Contract Price.
- B. The Mechanical Contractor shall keep all hot water heating, domestic hot water, steam, steam condensate and other piping conveying fluids at elevated temperatures at least six inches away from parallel runs of electrical raceways. Piping shall be installed below horizontal raceways.
- C. Mechanical Contractor shall provide starters and disconnect switches for all equipment furnished by the Mechanical Contractor, unless otherwise specified. Refer to Division 16 sections for product specification of starters and disconnects. Electrical power connections to starters and disconnects and from starters and disconnects to equipment will be made by the Electrical Contractor.
- D. Control Wiring:
 - 1. The Mechanical Contractor shall provide all control wiring regardless of voltage, conduits, and materials required for control system specified hereinafter or as necessary for proper operation. Refer to Division 16 Specification Sections for product specifications.
 - a) For wiring purposes, thermostats, solenoid valves, and motor-operated dampers shall be considered control elements to be wired by the Mechanical Contractor.
 - 2. Wiring for power to Mechanical Equipment shall be provided by the Electrical Contractor.
 - a) Power wiring shall include all wiring required to provide power to equipment independent of system voltage or panel source.

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- b) The Electrical Contractor shall be responsible for power interface wiring for Mechanical Equipment derived from panelboards, motor control centers or Mechanical control panels as identified on the drawings.
- E. The exact location of equipment, piping, ductwork, ceiling registers, diffusers and grilles shall be coordinated with all other trades prior to installation. These items shall be relocated if required (with Engineer's approval) at no additional cost to the Owner.
- F. The Mechanical Contractor shall coordinate the installation of roof-mounted equipment and the location of all other roof penetrations with the General Contractor and Roofing Subcontractor (if one is employed). The Mechanical Contractor shall supply all roof curbs for all roof-mounted mechanical equipment. The location of the installation of the roof curb shall be indicated by the Mechanical Contractor to the General Contractor. The General Contractor shall then set the curb and provide flashing to the curb. The Mechanical Contractor is responsible to provide counter flashing and sealant between the curb and the equipment. The Mechanical Contractor shall be responsible for any additional costs as a result of not coordinating roof curb locations prior to completion of roof installation.
- G. The Mechanical Contractor shall coordinate the location of all penetrations with the General Contractor. The General Contractor shall be made aware of the openings prior to installation of the walls whenever possible. The Mechanical Contractor shall be responsible for any additional costs as a result of not coordinating the location of masonry openings.

1.8 EARTHWORK

- A. The Mechanical Contractor shall be responsible to provide all excavation, trenching and backfilling for all underground piping beneath the building pad to 5 feet outside the building. See Division 2 Sections for backfill materials and execution of excavation, trenching and backfilling.

1.9 CONCRETE

- A. Equipment Pads: The Mechanical Contractor shall be responsible to provide concrete equipment pads for all equipment supplied by the Mechanical Contractor that is mounted on the floor or outside the building on the ground unless specified otherwise within the contract documents. The drawings shall indicate the dimensions of the equipment pad. If the drawings do not indicate dimensions, the Mechanical Contractor shall supply an equipment pad that is four inches larger in all directions than the supplied piece of equipment and shall be four inches thick. See Division 3 Sections for concrete pad materials and preparation.
- B. Exception: Equipment supplied by the Mechanical Contractor that is mounted on a metal skid does not need to be supplied with a concrete pad unless specifically indicated to be supplied with a concrete pad on the drawings.

1.10 PROJECT/SITE CONDITIONS

- A. It is the responsibility of the Mechanical Contractor to field verify the exact location of all utilities that effect the work.
- B. Mechanical Contractor shall conform to all requirements of the utility companies.

1.11 WASHDOWN AREAS

- A. All areas that have a hose reel (HR-1) shall be defined as a washdown area.

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- B. The following shall be provided in all washdown areas unless specified otherwise in individual specification sections. Products are specified in individual specification sections.
 - 1. All insulated piping shall be provided with PVC cover. Refer to individual Division 15 Specification Sections for specific requirements.
 - 2. All thermostats, control panels, disconnect switches, starters and other electrical enclosures provided by this Contractor shall be rated NEMA 4X.
 - 3. All exposed hangers, hanger rods, and miscellaneous metal supports shall be galvanized steel unless specified otherwise.

1.12 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide methods to personnel handling products for prevention of soiling, disfiguring, or damaging products.

1.13 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.14 BASIS OF DESIGN

- A. In order to show design criteria and equipment layouts, one of the acceptable manufacturers was chosen. The basis of design is listed in the specifications with a model number assigned. Where no model number is listed or more than one manufacturer is listed with a model number, the basis of design is the first listed acceptable manufacturer.
- B. If the Mechanical Contractor chooses to use any of the acceptable manufacturers other than the manufacturer used as the basis of design, he shall be responsible for any modifications resulting from differences in operating weight, dimensions, electrical characteristics or other manufacturer specification. Modifications include changes to piping, steel, electrical, access platforms or mechanical modifications required by this manufacturer. Modifications shall be at no additional cost to the Owner.

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PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.1 EXCAVATING, TRENCHING, AND BACKFILLING

- A. Excavating, trenching and backfilling shall conform to requirements of Division 2 Sections for backfill products and execution of excavating, trenching and backfilling. Conflicts with Division 2 Sections and requirements listed below shall be brought to the Engineer's attention for clarification.
- B. Lay all pipes in open trenches except when Engineer gives written permission for tunneling. Open the trench sufficiently ahead of pipe laying to reveal obstructions.
- C. Unless otherwise shown or required, provide separate trenches for sewers and underground raceways, respectively, with a minimum of three feet of undisturbed earth between trenches. A surveyor's level shall be used to establish elevations included on the drawings.
- D. Rules and regulations governing the respective utilities shall be observed in executing all work under this heading. Active utilities shall be protected or relocated in accordance with written instructions of the Engineer, and the Contract Price will be adjusted for such additional work. Inactive and abandoned utilities encountered in trenching operations shall be removed, plugged and capped. In absence of specific requirements, plug or cap such utility lines at least three feet from utility line to be installed or as required by the local regulations.
- E. Surplus earth shall be distributed about the premises or hauled away as directed by the Owner's on site representative. Coordinate this work with the General Contractor. After backfilling has been completed, disturbed surfaces shall be returned to original condition and shall match adjoining areas. Where portions of lawns, shrubs, paving, etc. were removed for installation of work, such items shall be repaired to the satisfaction of the Owner's on site representative.

3.2 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Replace filters of operating equipment.
- E. Clean debris from drainage systems.
- F. Remove waste and surplus materials, and construction facilities from the site to a place approved for the purpose.
- G. Remove rubbish and debris generated by this Contractor from the site to a place approved for the purpose.

END OF SECTION 15010