

**Oakhurst Dairy – New Milk Cooler****SECTION 15430 - PLUMBING SPECIALTIES****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 plumbing specialties for the following:
  - 1. Water distribution systems.
  - 2. Soil, waste, and vent systems.
- B. Related Sections include the following:
  - 1. Division 15 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, basic installation requirements, and labeling and identifying requirements; and escutcheons, dielectric fittings, sleeves, and sleeve seals that are not in this Section.
  - 2. Division 15 Section "Valves" for general-duty ball, gate, and globe valves.
  - 3. Division 15 Section "Water Distribution Piping" for water-supply piping and connections.
  - 4. Division 15 Section "Drainage and Vent Piping" for drainage and vent piping and connections.

**1.3 SYSTEM PERFORMANCE REQUIREMENTS**

- A. Provide components and installation capable of producing piping systems with following minimum working-pressure ratings, unless otherwise indicated:
  - 1. Water Distribution Piping: 125 psig.
  - 2. Soil, Waste, and Vent Piping: 10-foot head of water.

**1.4 SUBMITTALS**

- A. Product Data: For each plumbing specialty indicated. Include rated capacities of selected equipment and shipping, installed, and operating weights. Indicate materials, finishes, dimensions, required clearances, and methods of assembly of components; and piping and wiring connections for the following plumbing specialty products:
  - 1. Wall hydrants
  - 2. Trap seal primer valves and systems.
  - 3. Hose reels.
  - 4. Drain Valves.
  - 5. Cleanouts.
  - 6. Floor drains.
  - 7. Trench drains.

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**Oakhurst Dairy – New Milk Cooler**

8. Sleeve penetration systems.
9. Backflow preventers.

**1.5 QUALITY ASSURANCE**

- A. Product Options: Drawings indicate size, profiles, dimensional requirements, and characteristics of plumbing specialties and are based on the specific types and models indicated. Other manufacturers' products with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."
- B. Provide listing/approval stamp, label, or other marking on plumbing specialties made to specified standards.
- C. Listing and Labeling: Provide electrically operated plumbing specialties specified in this Section that are listed and labeled.
  1. Terms "Listed" and "Labeled": As defined in National Electrical Code, Article 100.
- D. Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.
- E. Comply with NFPA 70, "National Electrical Code," for electrical components.
- F. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic potable-water piping components. Include marking "NSF-pw" on plastic potable-water piping and "NSF-dwv" on plastic drain, waste, and vent piping.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Trap Seal Primer Valves:
    - a) Josam Co.
    - b) Precision Plumbing Products, Inc.
    - c) Smith: Jay R. Smith Mfg. Co.
    - d) Tyler Pipe; Wade Div.
    - e) Watts Industries, Inc.; Water Products Div.
    - f) Zurn Industries, Inc.; Hydromechanics Div.
  2. Sleeve Penetration Systems:
    - a) ProSet Systems, Inc.
    - b) Or Approved Equal.
  3. Backflow Preventers:
    - a) Febco, Inc.
    - b) Watts Industries, Inc.
    - c) Zurn Industries, Inc.
  4. Water Hammer Arrestors:
    - a) Josam Co.
    - b) Precision Plumbing Products.

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**Oakhurst Dairy – New Milk Cooler**

- c) Jay R. Smith Mfg. Co.
- 5. Wall Hydrants:
  - a) Jay R. Smith Mfg. Co.
  - b) Watts Industries, Inc.

**2.2 STRAINERS**

- A. Strainers: Y-pattern, unless otherwise indicated, and full size of connecting piping. Include ASTM A 666, Type 304, stainless-steel screens with 3/64-inch round perforations, unless otherwise indicated.
  - 1. Pressure Rating: 125-psig minimum steam working pressure, unless otherwise indicated.
  - 2. 2-Inch NPS and Smaller: Bronze body, with female threaded ends.
  - 3. 2-1/2-Inch NPS and Larger: Cast-iron body, with interior AWWA C550 or FDA-approved epoxy coating and flanged ends.
  - 4. Y-Pattern Strainers: Screwed screen retainer with centered blowdown.
    - a) Drain: Factory- or field-installed, hose-end drain valve.
  - 5. T-Pattern Strainers: Malleable-iron or ductile-iron body with grooved ends; access end cap with drain plug and access coupling with rubber gasket.
  - 6. Basket Strainers: Bolted flange or clamp cover, and basket with lift-out handle.
    - a) Simplex Type: Single unit, with one basket.
    - b) Drain: Factory- or field-installed, hose-end drain valve.

**2.3 BACKFLOW PREVENTERS**

- A. General: ASSE standard, backflow preventers, of size indicated for maximum flow rate and maximum pressure loss indicated.
  - 1. 2-Inch NPS and Smaller: Bronze body with threaded ends.
  - 2. 2-1/2-Inch NPS and Larger: Bronze, cast-iron, steel, or stainless-steel body with flanged ends.
    - a) Interior Lining: AWWA C550 or FDA-approved, epoxy coating for backflow preventers having cast-iron or steel body.
  - 3. Interior Components: Corrosion-resistant materials.
  - 4. Strainer: On inlet.
- B. Pipe-Applied, Atmospheric-Type Vacuum Breakers: ASSE 1001, with floating disc and atmospheric vent.
- C. Hose-Connection Vacuum Breakers: ASSE 1011, nickel plated, with nonremovable and manual drain features, and ASME B1.20.7, garden-hose threads on outlet. Units attached to rough-bronze-finish hose connections may be rough bronze.
- D. Detector Double-Check Backflow Prevention Assemblies: ASSE 1015, suitable for continuous pressure application. Include shutoff valves on inlet and outlet, and strainer on inlet; and test cocks with two positive-seating check valves.
  - 1. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.

**Oakhurst Dairy – New Milk Cooler**

- E. Hose-Connection Backflow Preventers: ASSE 1052, suitable for at least 3-gpm flow and applications with up to 10-foot head back pressure. Include two check valves; intermediate atmospheric vent; and nonremovable, ASME B1.20.7, garden-hose threads on outlet.
- F. Back-Siphonage Backflow Vacuum Breakers: ASSE 1056, suitable for continuous pressure and backflow applications. Include shutoff valves, check valve, test cocks, and vacuum vent.
- G. Reduced Pressure Backflow: Febco model 880V, 4", reduced pressure assembly with relief valve air gap drain funnel.

**2.4 CLEANOUTS**

- A. Cleanout (CO-1): Where plumbing specialties of this designation are indicated, provide products complying with the following:
  - 1. Applicable Standard: ASME A112.36.2M.
  - 2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  - 3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model number 1400.
    - b) Jay R. Smith Mfg. Co.
    - c) Josam Co.
    - d) Wade
    - e) Watts Industries, Inc.
  - 4. Application: concrete or paving.
  - 5. Body or Ferrule Material: Cast iron.
  - 6. Adjustable Housing Material: Cast iron
  - 7. Frame and Cover Material and Finish: Cast iron.
  - 8. Frame and Cover Shape: Round.
  - 9. Top Loading Classification: Heavy Duty.
- B. Cleanout (WCO): Where plumbing specialties of this designation are indicated, provide products complying with the following:
  - 1. Applicable Standard: ASME A112.36.2M.
  - 2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  - 3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model number 1441.
  - 4. Application: Wall cleanout.
  - 5. Body or Ferrule Material: As required.
  - 6. Frame and Cover Material and Finish: Stainless Steel.
  - 7. Frame and Cover Shape: Round.

**2.5 FLOOR-DRAIN**

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**Oakhurst Dairy – New Milk Cooler**

- A. Floor Drain (FD-1): Where plumbing specialties of this designation are indicated, provide products complying with the following:
1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number 508.
    - b) Josam Co.
    - c) Smith: Jay R. Smith Mfg. Co.
    - d) Tyler Pipe, Wade Div.
    - e) Watts Industries, Inc., Ancon Drain Div.
  4. Body Material: Cast iron.
  5. Seepage Flange: None.
  6. Clamping Device: None.
  7. Outlet: Bottom.
  8. Sediment Bucket: Not required.
  9. Top of Body and Strainer Finish: Cast iron.
  10. Top Shape: Round.
  11. Dimensions of Top or Strainer: 9" dia.
  12. Top Loading Classification: Heavy Duty.
  13. Trap Pattern: Deep Seal P-Trap.
  14. Trap Features: Trap seal primer valve drain connection.
- B. Floor Drain (FD-2): Where plumbing specialties of this designation are indicated, provide products complying with the following:
1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number 508.
    - b) Josam Co.
    - c) Smith: Jay R. Smith Mfg. Co.
    - d) Tyler Pipe, Wade Div.
    - e) Watts Industries, Inc., Ancon Drain Div.
  4. Body Material: Cast iron.
  5. Seepage Flange: Required.
  6. Clamping Device: Required.
  7. Outlet: Bottom.
  8. Sediment Bucket: Not required.

**Oakhurst Dairy – New Milk Cooler**

9. Top of Body and Strainer Finish: Cast iron.
10. Top Shape: Round.
11. Dimensions of Top or Strainer: 9" dia.
12. Top Loading Classification: Heavy Duty.
13. Trap Pattern: Deep Seal P-Trap.
14. Trap Features: Trap seal primer valve drain connection.

**2.6 TRENCH DRAINS**

- A. Trench Drain (TD-1) Where plumbing specialties of this designation are indicated, provide products complying with the following:
1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number Z-806
  4. Body Material: Polyester glass-filled fiberglass.
  5. Outlet: End.
  6. Grate and Frame Material: Dura-Coated steel iron.
  7. Dimensions of Frame and Grate: 6" wide – Refer to drawings for length.
  8. Top Loading Classification: Heavy-Duty.
  9. Trap Material: Not required.
- B. Trench Drain (TD-2) Where plumbing specialties of this designation are indicated, provide products complying with the following:
1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number Z-812
  4. Body Material: Polyester glass-filled fiberglass.
  5. Outlet: End.
  6. Grate and Frame Material: Dura-Coated steel iron.
  7. Dimensions of Frame and Grate: 12" wide – Refer to drawings for length.
  8. Top Loading Classification: Heavy-Duty.
- C. Trap Material: Not required.

**2.7 CATCH-BASIN SCHEDULE**

- A. Catch Basin CB-1: Where plumbing specialties of this designation are indicated, provide products complying with the following:

**Oakhurst Dairy – New Milk Cooler**

1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number Z-817.
  4. Body Material: Polyester glass-filled fiberglass.
  5. Outlet: End.
  6. Grate and Frame Material: Dura-Coated steel iron.
  7. Dimensions of Frame and Grate: 6" wide x 20" long.
  8. Top Loading Classification: Heavy-Duty.
- B. Catch Basin CB-2: Where plumbing specialties of this designation are indicated, provide products complying with the following:
1. Applicable Standard: ASME A112.21.1M.
  2. Model numbers indicated below are intended to show style of item only. Model numbers do not indicate all options which may be required.
  3. Products: Subject to compliance with requirements, provide one of the following:
    - a) Zurn Industries, Inc., Hydromechanics Div. Model Number Z-817.
  4. Body Material: Polyester glass-filled fiberglass.
  5. Outlet: End.
  6. Grate and Frame Material: Dura-Coated steel iron.
  7. Dimensions of Frame and Grate: 12" wide x 24" long.
  8. Top Loading Classification: Extra Heavy-Duty.
  9. Trap Material: As required.

**2.8 HYDRANTS:**

- A. Wall Hydrants: (HYD-1) ASME A112.21.3M, projecting, non-freeze, automatic draining, ceramic disc cartridge, antbackflow type, key operation. Include operating key for each hydrant.
1. Inlet: 3/4- NPS threaded or solder joint.
  2. Outlet: ASME B1.20.7 garden-hose threads.
  3. Finish: Stainless Steel Face.
  4. Model: Zurn Model 1321 or approved equal.

**2.9 TRAP SEAL PRIMER VALVES**

- A. Trap Seal Primer Valves: ASSE 1018, water-supply-fed type, with the following characteristics:
1. 125-psig minimum working pressure.
  2. Bronze body with atmospheric-vented drain chamber.
  3. Inlet and Outlet Connections: 1/2-inch NPS threaded, union, or solder joint.
  4. Gravity Drain Outlet Connection: 1/2-inch NPS threaded or solder joint.

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**Oakhurst Dairy – New Milk Cooler**

5. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.

**2.10 HOSE REEL (HR-1)**

- A. General: Assembly with fitting complying with ASME A112.18.1M and hose-connection outlet with threads complying with ASME B1.20.7.
- B. Single Hose Reel: Spring driven, twin pedestal hose reel. Hot water with shutoff valve on inlet, hose with nozzle, and the following:
  1. Manufactured:
    - a) Reelcraft Model: 9000
      - 1) Hose-Reel Material: All steel construction.
      - 2) Hose Reel Finish: Baked on powder coating.
      - 3) Installation: As required by the contract drawings.
      - 4) Guide Roller Position: As required.
      - 5) Pressure Rating: Medium
      - 6) Backflow prevention: Required on inlet piping.
      - 7) Supply Fitting: 3/4-inch NPS ball valve and check valve and 3/4-inch NPS copper, water tubing.
      - 8) Hose: Manufacturer's standard, 3/4" dia. for service fluid, temperature, and pressure; 50 feet long.
      - 9) Nozzle: Automatic water saver type spray nozzle as manufactured by Strahman Valves, Inc., or an approved equal. Color by owner.

**2.11 DRAIN VALVES**

- A. Hose-End Drain Valves: MSS SP-110, 3/4-inch NPS ball valve, rated for 400-psig minimum CWP. Include 2-piece, ASTM B 62 bronze body with standard port, chrome-plated brass ball, replaceable seats and seals, blowout-proof stem, and vinyl-covered steel handle.
  1. Inlet: Threaded or solder joint.
  2. Outlet: Short-threaded nipple with ASME B1.20.7 garden-hose thread and cap.
- B. Stop-and-Waste Drain Valves: MSS SP-110, ball valve, rated for 200-psig minimum CWP or MSS SP-80, Class 125, gate valve; ASTM B 62 bronze body, with 1/8-inch NPS side drain outlet and cap.

**2.12 MISCELLANEOUS PIPING SPECIALTIES**

- A. Water Hammer Arresters: ASME A112.26.1M, ASSE 1010, or PDI-WH 201, bellows or piston type with pressurized cushioning chamber. Sizes are based on water-supply fixture units, ASME A112.26.1M sizes A through F and PDI-WH 201 sizes A through F.
- B. Roof Flashing Assemblies: Manufactured assembly made of 4-lb/sq. ft., 0.0625-inch-thick, lead flashing collar and skirt extending at least 8 inches from pipe with galvanized steel boot reinforcement, and counterflashing fitting.
  1. Vent Cap: Open top, without cap.
- C. Deep-Seal Traps: Cast iron or bronze, with inlet and outlet matching connected piping, cleanout where indicated, and trap seal primer valve connection where indicated.



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**Oakhurst Dairy – New Milk Cooler**

1. 2-Inch NPS: 4-inch-minimum water seal.
  2. 2-1/2 Inch NPS and Larger: 5-inch-minimum water seal.
- D. Stack Flashing Fittings: Counterflashing-type, cast-iron fitting, with bottom recess for terminating roof membrane, and with threaded or hub top for extending vent pipe.

**2.13 SLEEVE PENETRATION SYSTEMS**

- A. Description: UL 1479, through-penetration firestop assembly consisting of sleeve and stack fitting with firestopping plug.
1. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.
  2. Stack Fitting: ASTM A 48, cast-iron, hubless-pattern, wye-branch stack fitting with neoprene O-ring at base and cast-iron plug in thermal-release harness in branch. Include PVC protective cap for plug.

**PART 3 - EXECUTION****3.1 PLUMBING SPECIALTY INSTALLATION**

- A. General: Install plumbing specialty components, connections, and devices according to manufacturer's written instructions.
- B. Install strainers on supply side of each control valve, pressure regulator, and solenoid valve, and where indicated.
- C. Install trap seal primer valves with valve outlet piping pitched down toward drain trap a minimum of one percent and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.
- D. Install cleanouts in aboveground piping and building drain piping as indicated, and where not indicated, according to the following:
1. Size same as drainage piping up to 4-inch NPS. Use 4-inch NPS for larger drainage piping unless larger cleanout is indicated.
  2. Locate at each change in direction of piping greater than 45 degrees.
  3. Locate at minimum intervals of 50 feet for piping 3-inch NPS and smaller and 100 feet for larger piping.
  4. Locate at base of each vertical soil and waste stack.
- E. Install cleanout deck plates, of types indicated, with top flush with finished floor, for floor cleanouts for piping below floors.
- F. Install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall, for cleanouts located in concealed piping.
- G. Install flashing flange and clamping device with each stack and cleanout passing through floors with waterproof membrane.
- H. Install vent flashing sleeves on stacks passing through roof. Secure over stack flashing according to manufacturer's written instructions.

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**Oakhurst Dairy – New Milk Cooler**

- I. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor or as indicated. Size outlets as indicated.
- J. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
  - 1. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
  - 2. Radius, 30 to 60 Inches: Equivalent to one percent slope.
  - 3. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.
- K. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
- L. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
- M. Position floor drains for easy access and maintenance.
- N. Fasten wall-hanging plumbing specialties securely to supports attached to building substrate if supports are specified and to building wall construction if no support is indicated.
- O. Fasten recessed, wall-mounting plumbing specialties to reinforcement built into walls.
- P. Secure supplies to supports or substrate.
- Q. Install individual stop valve in each water supply to plumbing specialties. Use ball, gate, or globe valve if specific valve is not indicated.
- R. Install water-supply stop valves in accessible locations.
- S. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.
- T. Locate drainage piping as close as possible to bottom of floor slab supporting fixtures and drains.
- U. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.
- V. Install trap primer valves and trap primer piping for all floor drain traps located in non-washdown areas as defined in section 15010.
- W. All piping and floor drains that are installed in elevated floors shall be secured to remain plumb during pouring of concrete slabs and/or finished floor treatments.

**3.2 CONNECTIONS**

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:

**Oakhurst Dairy – New Milk Cooler**

1. Install piping connections between plumbing specialties and piping specified in other Division 15 Sections.
  2. Install piping connections indicated between appliances and equipment specified in other Sections; connect directly to plumbing piping systems.
  3. Install piping connections indicated as indirect wastes from appliances and equipment specified in other Sections, to spill over receptors connected to plumbing piping systems.
- B. Install hoses between plumbing specialties and appliances as required for connections.
- C. Supply Runouts to Plumbing Specialties: Install hot- and cold-water-supply piping of sizes indicated, but not smaller than required by authorities having jurisdiction.
- D. Drainage Runouts to Plumbing Specialties: Install drainage and vent piping, with approved trap, of sizes indicated, but not smaller than required by authorities having jurisdiction.
- E. Ground electric-powered plumbing specialties.
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

**3.3 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service: Provide services of factory-authorized service representative to supervise the field assembly of components and installation of grease recovery units, including piping and electrical connections, and to report results in writing.
1. Test and adjust plumbing specialty controls and safeties. Replace damaged and malfunctioning controls and components.

**3.4 COMMISSIONING**

- A. Before startup, perform the following checks:
1. System tests are complete.
  2. Damaged and defective specialties and accessories have been replaced or repaired.
  3. Clear space is provided for servicing specialties.
- B. Before operating systems, perform the following steps:
1. Close drain valves, hydrants, and hose bibbs.
  2. Open general-duty valves to fully open position.
  3. Remove and clean strainers.
  4. Verify that drainage and vent piping are clear of obstructions. Flush with water until clear.
- C. Startup Procedures: Follow manufacturer's written instructions. If no procedures are prescribed by manufacturer, proceed as follows:
1. Energize circuits for electrically operated units. Start and run units through complete sequence of operations.
- D. Adjust operation and correct deficiencies discovered during commissioning.

**Oakhurst Dairy – New Milk Cooler**

**3.5 PROTECTION**

- A. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 15430