### **Objective**

The Quality Assurance process ensures compliance with applicable codes, standards, contracts, specifications, and good engineering and construction practices. Also, and specifically, it provides Management with the continued assurance that the proven processes are used to their fullest, resulting in a completed project per quality expectation, minimizing or eliminating rework of any kind.

#### **Key Steps**

- Completion and Issuance of integrated QA/QC approach
- > Define further training needs to enable proper adherence to approved processes
- > Documenting adherence deviations if present
- Documenting corrective action programs
- Examining
- Interviewing project team members with adherence responsibilities
- Modifying the Quality Program for specific project circumstances
- Testing and Gauging

### **Key Deliverables**

- Communication with CONTRACTOR management and [Client] Management regarding quality issues
- Comparison with [Client] Survey results on process adherence
- Corrective Action Plans
- > Establish baseline performance guidelines
- Non-Conformance Reporting
- Project QA/QC Procedures
- Quality Assurance report grade with deviation analysis



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- 10 11 16.33 Rail-Mounted Markerboards
- 10 11 16.43 Portable Markerboards
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- 10 11 23 Tackboards
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- 10 11 36 Visual Display Conference Units
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- 10 13 23 Illuminated Directories
- 10 14 00 Signage
- 10 14 16 Plaques
- 10 14 23 Panel Signage
- 10 14 23.13 Engraved Panel Signage
- 10 14 26 Post and Panel-Pylon Signage
- 10 14 33 Illuminated Panel Signage
- 10 14 43 Photoluminescent Signage
- 10 14 53 Traffic Signage
- 10 14 53.13 Transportation Reference Markers
- 10 14 64 Audible Signage
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- 10 21 13.13 Metal Toilet Compartments
- 10 21 13.14 Stainless-Steel Toilet Compartments
- 10 21 13.16 Plastic-Laminate-Clad Toilet Compartments
- 10 21 13.17 Phenolic-Core Toilet Compartments
- 10 21 13.19 Plastic Toilet Compartments
- 10 21 13.23 Particleboard Toilet Compartments
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- 10 28 13 Toilet Accessories
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- 10 28 16 Bath Accessories
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- 10 41 16 Emergency Key Cabinets
- 10 41 26 Post and Panel Pylon Signage
- 10 43 13 Defibrillator Cabinets
- 10 43 16 First Aid Cabinets
- 10 44 00 Fire Protection and Cabinets
- 10 44 13 Fire Extinguisher Cabinets
- 10 44 13.53 Security Fire Extinguisher Cabinets
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- 10 51 13 Metal Lockers
- 10 51 16 Wood Lockers
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- 10 51 26 Plastic Lockers
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- 10 55 23 Mail Boxes
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- 21 13 23 Combined Dry-Pipe and Preaction Sprinkler Systems
- 21 13 26 Deluge Fire-Suppression Sprinkler Systems
- 21 13 29 Water Spray Fixed Systems
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- 21 21 13.13 High-Pressure, Carbon-Dioxide Fire-Extinguishing Systems

- 21 21 13.16 Low-Pressure, Carbon-Dioxide Fire-Extinguishing Systems
- 21 21 16 Carbon-Dioxide Fire-Extinguishing Equipment
- 21 23 00 Wet-Chemical Fire-Extinguishing Systems
- 21 23 13 Wet-Chemical Fire-Extinguishing Piping
- 21 24 00 Dry-Chemical Fire-Extinguishing Systems
- 21 24 13 Dry-Chemical Fire-Extinguishing Piping
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- 21 41 13 Pressurized Storage Tanks for Fire-Suppression Water
- 21 41 16 Elevated Storage Tanks for Fire-Suppression Water
- 21 41 19 Roof-Mounted Storage Tanks for Fire-Suppression Water
- 21 41 23 Ground Suction Storage Tanks for Fire-Suppression Water
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- 22 00 00 Plumbing
- 22 01 00 Operation and Maintenance of Plumbing
- 22 01 10 Operation and Maintenance of Plumbing Piping and Pumps
- 22 01 40 Operation and Maintenance of Plumbing Fixtures
- 22 01 50 Operation and Maintenance of Pool and Fountain Plumbing Systems
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- 22 05 00 Basic Plumbing Requirements
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- 22 05 53 Identification for Plumbing Piping and Equipment
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- 22 11 23.13 Domestic-Water Packaged Booster Pumps
- 22 11 23.23 Close-Coupled, In-Line, Sealless Centrifugal Domestic-Water Pumps
- 22 11 23.26 Close-Coupled, Horizontally Mounted, In-Line Centrifugal Domestic-Water Pumps
- 22 11 23.29 Close-Coupled, Vertically Mounted, In-Line Centrifugal Domestic-Water Pumps
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- 22 12 13 Facility Roof-Mounted, Potable-Water Storage Tanks
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- 22 12 19 Facility Ground-Mounted, Potable-Water Storage Tanks
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- 22 12 23.16 Facility Steel, Indoor Potable-Water Storage Non-Pressure Tanks
- 22 12 23.23 Facility Plastic, Indoor Potable-Water Storage Pressure Tanks
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- 22 13 13 Facility Sanitary Sewers

- 22 13 16 Sanitary Waste and Vent Piping
- 22 13 19.13 Sanitary Drains
- 22 13 19.23 Fats, Oils, and Grease Disposal Systems
- 22 13 19.26 Grease Removal Devices
- 22 13 19.33 Backwater Valves
- 22 13 29 Sanitary Sewerage Pumps
- 22 13 29.13 Wet-Pit-Mounted, Vertical Sewerage Pumps
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- 22 13 33 Packaged, Submersible Sewerage Pump Units
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- 22 15 19.23 General Service Packaged Sliding-Vane Air Compressors
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- 22 32 16 Domestic-Water Freestanding Cartridge

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- 22 32 23 Domestic-Water Carbon Filters
- 22 32 26 Domestic-Water Sand Filters
- 22 32 26.13 Domestic-Water Circulating Sand Filters
- 22 32 26.16 Domestic-Water Multimedia Sand Filters
- 22 32 26.19 Domestic-Water Greensand Filters
- 22 33 00 Electric Domestic Water Heaters
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- 22 33 30 Residential, Electric Domestic Water Heaters
- 22 33 30.13 Residential, Small-Capacity Electric Domestic Water Heaters
- 22 33 30.16 Residential, Storage Electric Domestic Water Heaters
- 22 33 30.23 Residential, Collector-to-Tank, Solar-Electric Domestic Water Heaters
- 22 33 30.26 Residential, Collector-to-Tank, Heat-Exchanger-Coil, Solar-Electric Domestic
- 22 33 33 Light-Commercial Electric Domestic Water Heaters
- 22 33 36 Commercial Domestic Water Electric Booster Heaters
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- 22 34 13 Instantaneous, Tankless, Gas Domestic Water Heaters
- 22 34 30 Residential Gas Domestic Water Heaters
- 22 34 30.13 Residential, Atmospheric, Gas Domestic Water Heaters
- 22 34 30.16 Residential, Direct-Vent, Gas Domestic Water Heaters
- 22 34 30.19 Residential, Power-Vent, Gas Domestic Water Heaters
- 22 34 36.13 Commercial, Atmospheric, Gas Domestic Water Heaters
- 22 34 36.16 Commercial, Power-Burner, Gas
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- 22 34 36.19 Commercial, Power-Vent, Gas Domestic Water Heaters
- 22 34 36.23 Commercial, High-Efficiency, Gas Domestic Water Heaters
- 22 34 36.26 Commercial, Coil-Type, Finned-Tube, Gas Domestic Water Heaters
- 22 34 36.29 Commercial, Grid-Type, Finned-Tube, Gas Domestic Water Heaters
- 22 34 46.13 Large-Capacity, Oil-Fired Domestic Water Heaters
- 22 34 56 Dual-Fuel-Fired Domestic Water Heaters
- 22 35 00 Domestic Water Heat Exchangers
- 22 35 13 Instantaneous Domestic Water Heat Exchangers
- 22 35 13.13 Heating-Fluid-in-Coil, Instantaneous Domestic Water Heat Exchangers
- 22 35 13.16 Domestic-Water-in-Coil, Instantaneous Domestic Water Heat Exchangers
- 22 35 13.19 Heating-Fluid-in-U-Tube-Coil,

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- 22 35 23 Circulating, Domestic Water Heat Exchangers
- 22 35 23.13 Circulating, Compact Domestic Water Heat Exchangers
- 22 35 29 Non-circulating, Domestic Water Heat Exchangers
- 22 35 29.13 Noncirculating, Compact Domestic Water Heat Exchangers
- 22 35 29.16 Noncirculating, Storage Domestic Water Heat Exchangers
- 22 35 36 Domestic Water Brazed-Plate Heat Exchangers
- 22 35 39 Domestic Water Frame-and-Plate Heat Exchangers
- 22 35 43 Domestic Water Heat Reclaimers
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- 22 41 13.13 Residential Water Closets
- 22 41 13.16 Residential Urinals
- 22 41 13.19 Residential Bidets
- 22 41 16 Residential Lavatories and Sinks
- 22 41 16.13 Residential Lavatories
- 22 41 19 Residential Bathtubs
- 22 41 23 Residential Shower Receptors and Basins
- 22 41 26 Residential Disposers
- 22 41 36 Residential Laundry Trays
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- 22 42 13.16 Commercial Urinals
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- 22 42 16.13 Commercial Lavatories
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- 22 42 19 Commercial Bathtubs
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- 22 42 33 Wash Fountains
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- 22 42 43 Flushometers
- 22 43 00 Healthcare Plumbing Fixtures
- 22 43 13 Healthcare Water Closets
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- 22 43 43 Healthcare Plumbing Fixture Flushometers
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- 22 46 39 Security Faucets, Supplies, and Trim
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- 22 61 00 Compressed-Air Systems for Laboratory and Healthcare Facilities
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- 22 66 00 Laboratory Gas Systems
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- 23 09 14 Testing, Adjusting, Balancing Heating, Ventilation, Cooling Systems
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- 23 12 16 Facility Gasoline Dispensing Pumps
- 23 12 26 Facility Liquefied-Petroleum Gas Pumps
- 23 13 00 Facility Fuel-Storage Tanks
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- 23 13 13.19 Jacketed, Steel, Underground Fuel-Oil, Storage Tanks
- 23 13 13.23 Glass-Fiber-Reinforced-Plastic, Underground Fuel-Oil, Storage Tanks
- 23 13 13.33 Fuel-Oil Storage Tank Pumps
- 23 13 23 Facility Aboveground Fuel-Oil, Storage Tanks
- 23 13 23.16 Horizontal, Steel, Aboveground Fuel-Oil, Storage Tanks
- 23 13 23.23 Insulated, Steel, Aboveground Fuel-Oil, Storage Tanks
- 23 13 23.26 Concrete-Vaulted, Steel, Aboveground Fuel-Oil, Storage Tanks
- 23 13 26 Facility Aboveground Liquefied-Petroleum Gas Storage Tanks
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- 23 21 13.33 Ground-Loop Heat-Pump Piping
- 23 21 23 Hydronic Pumps
- 23 21 23.13 In-Line Centrifugal Hydronic Pumps
- 23 21 23.16 Base-Mounted, Centrifugal Hydronic Pumps
- 23 21 23.19 Vertical-Mounted, Double-Suction Centrifugal Hydronic Pumps
- 23 21 23.23 Vertical-Turbine Hydronic Pumps
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- 23 22 23 Steam Condensate Pumps

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- 23 23 00 Refrigerant Piping
- 23 23 19 Refrigerant Safety Relief Valve Discharge Pining
- 23 24 13 Internal-Combustion Engine Remote-Radiator Coolant Piping
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- 23 25 00 Chemical (Water) Treatment
- 23 25 13 Water Treatment for Closed-Loop Hydronic Systems
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- 23 31 16.13 Fibrous-Glass Ducts
- 23 31 16.16 Thermoset Fiberglass-Reinforced Plastic Ducts
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- 23 33 00 Air Duct Accessories
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- 23 34 16 Centrifugal HVAC Fans
- 23 34 23 HVAC Power Ventilators
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- 23 36 16 Variable-Air-Volume Units
- 23 37 00 Air Outlets and Inlets
- 23 37 16 Fabric Air Distribution Devices
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- 23 42 00 Gas-Phase Air Filtration
- 23 42 13 Activated-Carbon Air Filtration
- 23 42 16 Chemically-Impregnated Adsorption Air Filtration



- 23 42 19 Catalytic-Adsorption Air Filtration
- 23 50 00 Central Heating Equipment
- 23 51 00 Breechings, Chimneys, and Stacks
- 23 51 13 Draft Control Devices
- 23 51 13.11 Draft Control Fans
- 23 51 13.13 Draft-Induction Fans
- 23 51 19 Fabricated Stacks
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- 23 51 43.13 Gaseous Filtration
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- 23 52 16 Condensing Boilers
- 23 52 16.13 Stainless-Steel Condensing Boilers
- 23 52 16.16 Aluminum Condensing Boilers
- 23 52 17 Low Mass Boilers
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- 23 52 23 Cast-Iron Boilers
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- 23 52 33.16 Steel Water-Tube Boilers
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- 23 53 00 Heating Boiler Feedwater Equipment
- 23 53 13 Boiler Feedwater Pumps
- 23 53 16 Deaerators
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- 23 55 23 Gas-Fired Radiant Heaters
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- 23 57 13 Steam-to-Steam Heat Exchangers
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- 23 57 19.13 Plate-Type, Liquid-to-Liquid Heat Exchangers
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- 23 61 13 Centrifugal Refrigerant Compressors
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- 23 61 16 Reciprocating Refrigerant Compressors
- 23 61 19 Scroll Refrigerant Compressors
- 23 61 23 Rotary-Screw Refrigerant Compressors
- 23 62 00 Packaged Compressor and Condenser Units
- 23 62 13 Packaged Air-Cooled Refrigerant Compressor and Condenser Units
- 23 62 46 Packaged Variable-Refrigerant-Flow Air-Conditioning Systems
- 23 63 00 Refrigerant Condensers
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- 23 71 19.19 Encapsulated-Ice Thermal Storage
- 23 71 19.23 Ice-Harvesting Thermal Storage
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- 23 72 13 Heat-Wheel Air-to-Air Energy-Recovery Equipment
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- 23 73 23 Custom Air Handling Units
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- 23 73 39 Indoor, Direct Gas-Fired Heating and Ventilating Units
- 23 74 00 Packaged Outdoor HVAC Equipment
- 23 74 13 Rooftop Modular Air Handling Units
- 23 74 16 Packaged Rooftop Air-Conditioning Units
- 23 74 16.11 Packaged, Small-Capacity, Rooftop Air-Conditioning Units
- 23 74 16.12 Packaged, Intermediate-Capacity, Rooftop Air-Conditioning Units
- 23 74 16.13 Packaged, Large-Capacity, Rooftop Air-Conditioning Units
- 23 74 23.13 Packaged, Direct-Fired, Outdoor, Heating-Only Makeup-Air Units
- 23 74 23.16 Packaged, Indirect-Fired, Outdoor, Heating-Only Makeup-Air Units

- 23 74 33 Split System Heat Pumps
- 23 75 00 Custom-Packaged Outdoor HVAC Equipment
- 23 75 13 Custom-Packaged, Outdoor, Central-Station Air-Handling Units
- 23 75 16 Custom-Packaged, Rooftop Air-Conditioning Units
- 23 75 23 Custom-Packaged, Outdoor, Heating and Ventilating Makeup-Air Units
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- 23 81 23 Computer-Room Air-Conditioners
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- 23 81 23.12 Large-Capacity, Computer-Room Air-Conditioners, Floor-Mounted Units
- 23 81 23.13 Computer-Room Air-Conditioners, Ceiling Mounted Units
- 23 81 23.14 Computer-Room Air-Conditioners, Console Units
- 23 81 23.16 Computer-Room Air-Conditioners, Rack Mounted, Space-Cooling Units
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- 23 82 19 Fan Coil Units
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- 26 01 40 Operation and Maintenance of Electrical Protection Systems
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- 26 11 13 Primary Unit Substations
- 26 11 16 Secondary Unit Substations
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- 26 12 16 Dry-Type, Medium-Voltage Transformers
- 26 12 19 Pad-Mounted, Liquid-Filled, Medium-Voltage Transformers
- 26 13 00 Medium-Voltage Switchgear
- 26 13 13 Medium-Voltage Circuit Breaker Switchgear
- 26 13 16 Medium-Voltage Fusible Interrupter Switchgear
- 26 13 19 Medium-Voltage Vacuum Interrupter Switchgear
- 26 13 23 Medium-Voltage Metal-Enclosed Switchgear
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- 26 13 29 Medium-Voltage Compartmentalized Switchgear
- 26 20 11 Isolated Power Systems
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- 26 21 13 Low-Voltage Overhead Electrical Service Entrance
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- 26 23 13 Paralleling Low-Voltage Switchgear
- 26 24 00 Switchboards and Panelboards
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- 26 24 16.16 Electronically Operated Circuit-Breaker Panelboards
- 26 24 19 Motor Control Centers
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- 26 27 26 Wiring Devices
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- 26 28 16.13 Enclosed Circuit Breakers
- 26 28 16.16 Enclosed Switches
- 26 29 00 Low-Voltage Controllers
- 26 29 13 Enclosed Controllers
- 26 29 13.13 Across-the-Line Motor Controllers
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- 26 29 23 Variable Frequency Drives
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- 26 32 13.13 Diesel-Engine-Driven Generator Sets
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- 26 32 14 Automatic (TDN) Transfer Switches
- 26 32 16 Steam-Turbine Generators
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- 26 32 23 Wind Energy Equipment
- 26 32 23.13 Horizontal-Axis Wind Turbines
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- 26 54 19 LED Classified Location Lighting
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- 28 01 50 Operation and Maintenance of Specialized Systems
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- 28 31 31.17 Intrusion Detection Interfaces to Information Management and Presentation
- 28 31 31.19 Intrusion Detection Interfaces to Mass Notification
- 28 31 31.21 Intrusion Detection Interfaces to Life Safety
- 28 31 31.23 Intrusion Detection Interfaces to Fire

  Alarm
- 28 31 31.25 Intrusion Detection Interfaces to Temperature Controls
- 28 31 33 Fire Detection and Alarm Interfaces
- 28 31 33.13 Fire Detection and Alarm Interfaces to Remote Monitoring
- 28 31 33.16 Fire Detection and Alarm Interfaces to Access Control Hardware
- 28 31 33.33 Fire Detection and Alarm Interfaces to Video Surveillance
- 28 31 33.43 Fire Detection and Alarm Interfaces to Elevator Control
- 28 31 43 Fire Detection Sensors
- 28 31 46 Smoke Detection Sensors
- 28 31 49 Carbon-Monoxide Detection Sensors
- 28 31 53 Fire Alarm Initiating Devices
- 28 31 53.13 Fire Alarm Pull Stations
- 28 31 53.23 Fire Alarm Level Detectors Switches
- 28 31 53.43 Fire Alarm Pressure Sensors
- 28 31 63 Fire Alarm Integrated Audio-Visual Evacuation Systems
- 28 31 63.13 Fire Alarm Horns and Strobes
- 31 00 00 Earthwork
- 31 01 00 Maintenance of Earthwork
- 31 01 10 Maintenance of Clearing
- 31 01 20 Maintenance of Earth Moving
- 31 01 40 Maintenance of Shoring and Underpinning
- 31 01 60 Maintenance of Special Foundations and Load Bearing Elements
- 31 01 62 Maintenance of Driven Piles

- 31 01 63 Maintenance of Bored and Augered Piles
- 31 01 70 Maintenance of Tunneling and Mining
- 31 05 00 Common Work Results for Earthwork
- 31 06 00 Schedules for Earthwork
- 31 06 10 Schedules for Clearing
- 31 06 20 Schedules for Earth Moving
- 31 06 40 Schedules for Shoring and Underpinning
- 31 06 50 Schedules for Excavation Support and Protection
- 31 06 70 Schedules for Tunneling and Mining
- 31 09 00 Geotechnical Instrumentation and Monitoring of Earthwork
- 31 09 13.13 Groundwater Monitoring During Construction
- 31 09 16 Foundation Performance Instrumentation
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- 31 22 16 Fine Grading
- 31 22 16.13 Roadway Subgrade Reshaping
- 31 22 19 Finish Grading
- 31 22 19.13 Spreading and Grading Topsoil
- 31 23 00 Excavation and Fill
- 31 23 13 Subgrade Preparation
- 31 23 16 Excavation
- 31 23 16.16 Structural Excavation for Minor Structures
- 31 23 16.26 Rock Removal
- 31 23 19 Dewatering
- 31 23 23 Fill
- 31 23 23.13 Backfill
- 31 23 23.23 Compaction
- 31 23 23.33 Flowable Fill
- 31 23 23.43 Geofoam
- 31 23 33 Trenching and Backfilling
- 31 30 00 Earthwork Methods
- 31 30 00 Termite Protection
- 31 31 13.16 Rodent Control Bait Systems
- 31 31 13.19 Rodent Control Traps
- 31 31 13.23 Rodent Control Electronic Systems
- 31 31 13.26 Rodent Control Repellants
- 31 31 16 Termite Control
- 31 31 16.13 Chemical Termite Control
- 31 31 16.16 Termite Control Bait Systems
- 31 31 16.19 Termite Control Barriers



- 31 31 33 Sanitary Vacuum System Piping
- 31 32 23 Pressure Grouting Soil Stabilization
- 31 32 23.13 Cementitious Pressure Grouting Soil Stabilization
- 31 32 23.16 Chemical Pressure Grouting Soil Stabilization
- 31 35 23.13 Cast-In-Place Concrete Slope Paving
- 31 35 23.16 Precast Concrete Slope Paving
- 31 41 16 Sheet Piling
- 31 41 16.13 Steel Sheet Piling
- 31 41 16.16 Plastic Sheet Piling
- 31 43 13 Pressure Grouting
- 31 43 13.16 Polyurethane Pressure Grouting
- 31 43 16 Compaction Grouting
- 31 52 13 Sheet Piling Cofferdams
- 31 62 00 Driven Piles
- 31 62 13 Concrete Piles
- 31 62 13.13 Cast-in-Place Concrete Piles
- 31 62 13.16 Concrete Displacement Piles
- 31 62 13.19 Precast Concrete Piles
- 31 62 13.23 Prestressed Concrete Piles
- 31 62 16 Steel Piles
- 31 62 16.13 Sheet Steel Piles
- 31 62 16.19 Unfilled Tubular Steel Piles
- 31 62 19 Timber Piles
- 31 62 23 Composite Piles
- 31 62 23.13 Concrete-Filled Steel Piles
- 31 62 23.16 Wood and Cast-In-Place Concrete Piles
- 31 63 00 Bored Piles
- 31 63 13 Bored and Augured Test Piles
- 31 63 16 Auger Cast Grout Piles
- 31 63 19.13 Rock Sockets for Piles
- 31 63 23 Bored Concrete Piles
- 31 63 23.13 Bored and Belled Concrete Piles
- 31 63 23.16 Bored Friction Concrete Piles
- 31 63 26 Drilled Caissons
- 31 63 26.13 Fixed End Caisson Piles
- 31 63 26.16 Concrete Caissons for Marine Construction
- 31 63 29 Drilled Concrete Piers and Shafts
- 31 63 29.13 Uncased Drilled Concrete Piers
- 31 63 29.16 Cased Drilled Concrete Piers
- 31 63 33 Drilled Micropiles
- 31 64 00 Caissons
- 31 64 16 Excavated Caissons
- 31 64 19 Floating Caissons
- 31 64 23 Open Caissons
- 31 64 26 Pneumatic Caissons
- 31 64 29 Sheeted Caissons

- 31 66 00 Special Foundations
- 31 66 13 Special Piles
- 31 66 13.13 Rammed Aggregate Piles
- 31 66 15 Helical Foundation Piles
- 31 68 00 Foundation Anchors
- 31 68 13 Rock Foundation Anchors
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- 31 73 13 Cement Tunnel Grouting
- 31 73 16 Chemical Tunnel Grouting
- 32 01 00 Operation and Maintenance of Exterior Improvements
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- 32 01 16.72 Asphalt Paving Reuse
- 32 01 16.73 In Place Cold Reused Asphalt Paving
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- 32 01 16.75 Heater Scarifying of Asphalt Paving
- 32 01 17.61 Sealing Cracks in Asphalt Paving
- 32 01 30 Operation and Maintenance of Site Improvements
- 32 05 05 Selective Demolition for Exterior Improvements
- 32 06 80 Schedules for Irrigation
- 32 06 90 Schedules for Planting
- 32 12 16 Asphalt Paving
- 32 12 16.13 Plant-Mix Asphalt Paving
- 32 12 16.16 Road-Mix Asphalt Paving
- 32 12 16.19 Cold-Mix Asphalt Paving
- 32 12 16.23 Reinforced Asphalt Paving
- 32 12 16.26 Fiber-Modified Asphalt Paving
- 32 12 16.29 Polymer-Modified Asphalt Paving
   32 12 16.33 Granulated Rubber-Modified Asphalt
- 32 12 16.36 Athletic Asphalt Paving
- 32 12 19 Asphalt Paving Wearing Courses
- 32 12 19.16 Resin-Modified Asphalt Paving Wearing Courses
- 32 12 19.19 Porous Friction Asphalt Paving Wearing Courses
- 32 12 73 Asphalt Concrete Paving
- 32 13 00 Rigid Paving
- 32 13 13 Concrete Paving
- 32 13 13 Site Concrete Paving
- 32 13 13.13 Exposed Aggregate Concrete Paving
- 32 13 13.16 Power-Compacted Concrete Paving
- 32 13 13.19 Prestressed Concrete Paving
- 32 13 13.26 Stained Concrete Paving
- 32 13 13.33 Plain Concrete Paving
- 32 13 16 Decorative Concrete Paving
- 32 13 16.13 Patterned Concrete Paving



- 32 13 16.16 Roller-Compacted Concrete Paving
- 32 13 16.19 Imprinted Concrete Paving
- 32 13 16.23 Stamped Concrete Paving
- 32 13 73.16 Field-Molded Concrete Paving Joint Sealants
- 32 13 73.19 Compression Concrete Paving Joint Sealants
- 32 14 00 Unit Paving
- 32 14 13 Unit Pavers
- 32 14 13.13 Interlocking Precast Concrete Unit Paving
- 32 14 13.16 Precast Concrete Unit Paving Slabs
- 32 14 16 Brick Unit Paving
- 32 14 23 Asphalt Unit Paving
- 32 14 26 Wood Paving
- 32 14 29 Recycled-Rubber Paving
- 32 14 33 Plastic Paving
- 32 14 33.13 Permeable Plastic Paving
- 32 14 40 Stone Paving
- 32 14 43 Porous Unit Paving
- 32 15 00 Aggregate Surfacing
- 32 15 13 Cinder Surfacing
- 32 16 00 Curbs, Gutters, Sidewalks, and Driveways
- 32 16 13 Curbs and Gutters
- 32 16 13.13 Cast-In-Place Concrete Curbs and Gutters
- 32 16 13.16 Steel Faced Curbs
- 32 16 13.19 Cast-In-Place Concrete Gutters
- 32 16 13.23 Precast Concrete Curbs and Gutters
- 32 16 13.26 Precast Concrete Curbs
- 32 16 13.29 Precast Concrete Gutters
- 32 16 13.33 Asphalt Curbs
- 32 16 13.43 Stone Curbs
- 32 16 19 Asphalt Curbs
- 32 16 23 Sidewalks
- 32 16 33 Driveways
- 32 16 40 Stone Curbs
- 32 17 13 Parking Bumpers
- 32 17 13.16 Plastic Parking Bumpers
- 32 17 13.19 Precast Concrete Parking Bumpers
- 32 17 13.23 Rubber Parking Bumpers
- 32 17 13.26 Wood Parking Bumpers
- 32 17 16 Tactile Warning Surfacing
- 32 17 23 Pavement Markings
- 32 17 23.13 Painted Pavement Markings
- 32 17 23.33 Plastic Pavement Markings
- 32 31 00 Ornamental Fencing and Gates
- 32 31 00 Vertical Lift Gate
- 32 31 13 Chain Link Fences and Gates
- 32 31 13.23 Recreational Court Fences and Gates
- 32 31 13.26 Tennis Court Fences and Gates

- 32 31 13.29 Tennis Court Wind Breaker
- 32 31 13.53 High-Security Chain Link Fences and Gates
- 32 31 16 Welded Wire Fences and Gates
- 32 31 17 Expanded Metal Fences and Gates
- 32 31 19 Decorative Metal Fences and Gates
- 32 31 19.53 Decorative Metal Security Fences and Gates
- 32 31 23 Plastic Fences and Gates
- 32 31 26 Wire Fences and Gates
- 32 31 26.11 Wire Fences with Wood Posts
- 32 31 26.13 Wire Fences with Steel Posts
- 32 31 29 Wood Fences and Gates
- 32 31 32 Composite Fences and Gates
- 32 31 53 Cattle Guards
- 32 31 56 Wild Life Deterrent Fence
- 32 32 00 Retaining Walls
- 32 32 13 Cast-in-Place Concrete Retaining Walls
- 32 32 16 Precast Concrete Retaining Walls
- 32 32 23 Segmental Retaining Walls
- 32 32 23.13 Segmental Concrete Unit Masonry Retaining Walls
- 32 32 23.16 Manufactured Modular Walls
- 32 32 26 Metal Crib Retaining Walls
- 32 32 29 Timber Retaining Walls
- 32 32 34 Reinforced Soil Retaining Walls
- 32 32 36 Gabion Retaining Walls
- 32 32 43 Soldier-Beam Retaining Walls
- 32 32 53 Stone Retaining Walls
- 32 82 00 Irrigation Pumps
- 32 84 00 Planting Irrigation
- 32 84 13 Drip Irrigation
- 32 84 23 Underground Sprinklers
- 32 86 00 Agricultural Irrigation
- 32 90 00 Planting
- 32 91 00 Planting Preparation
- 32 91 13 Soil Preparation
- 32 91 15 Soil Preparation
- 32 92 00 Turf and Grasses
- 32 92 16 Plugging
- 32 92 19 Seeding
- 32 92 19.13 Mechanical Seeding
- 32 92 19.16 Hydraulic Seeding
- 32 92 23 Sodding
- 32 92 26 Sprigging
- 32 93 00 Landscape Planting
- 32 93 23 Plants and Bulbs
- 32 93 33 Shrubs
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- 33 01 00 Operation and Maintenance of Utilities
- 33 01 10.52 Reservoir Maintenance
- 33 01 10.59 Disinfection of Water Utility Storage Tanks
- 33 01 30 Operation and Maintenance of Sewer Utilities
- 33 01 30.61 Packer Injection Grouting
- 33 01 34 Operation and Maintenance of Onsite Wastewater Disposal Systems
- 33 01 34.33 Maintenance of Onsite Sand Filters
- 33 01 50 Operation and Maintenance of Hydrocarbon Utilities
- 33 01 50.76 Relining of Steel Hydrocarbon Storage Tanks
- 33 01 60 Operation and Maintenance of Hydronic and Steam Energy Utilities
- 33 01 80 Operation and Maintenance of Communications Utilities
- 33 05 00 Common Work Results for Utilities
- 33 05 05 Buried Piping Installation
- 33 05 07 Trenchless Installation of Utility Piping
- 33 05 11 Aluminum Utility Pipe
- 33 05 12 Brass Utility Pipe
- 33 05 16 Cast-Iron Utility Pipe
- 33 05 17 Copper Utility Pipe and Tubing
- 33 05 19 Ductile-Iron Utility Pipe
- 33 05 21 High-Alloy Nickel Utility Pipe and Tubing
- 33 05 23 Stainless Steel Utility Pipe and Tubing
- 33 05 24 Steel Utility Pipe
- 33 05 24.13 Steel Pipe and Tubing for Air and Gas Service
- 33 05 24.23 Steel Pipe for Water Service
- 33 05 24.33 Steel Pipe for Bulk Materials Conveyance
- 33 05 27 Corrugated Metal Utility Pipe
- 33 05 27.13 Corrugated Metal Culvert Pipe
- 33 05 27.23 Corrugated Metal Slotted Pipe
- 33 05 27.33 Corrugated Metal Culvert Arch Pipe
- 33 05 31 Thermoplastic Utility Pipe
- 33 05 31.11 Polyvinyl Chloride Gravity Sewer Pipe
- 33 05 31.13 Polyvinyl Chloride Pressure Pipe
- 33 05 31.16 Polyvinyl Chloride Pressure Pipe for Water Transmission and Distribution (AWWA)
- 33 05 31.19 Fusible Polyvinyl Chloride Pipe
- 33 05 31.21 Ribbed Polyvinyl Chloride Gravity Pipe
- 33 05 31.23 Dual-Wall Polyvinyl Chloride Profile Pipe
- 33 05 31.27 Polyvinyl Chloride Perforated Drainage Pipe
- 33 05 31.33 ABS Utility Pipe
- 33 05 33 Polyethylene Utility Pipe

- 33 05 36 Fiberglass-Reinforced Plastic Utility Pipe
- 33 05 36.13 Fiberglass-Reinforced Plastic Pipe for Utility Air, Gas, and Odor Service
- 33 05 36.23 Fiberglass-Reinforced Plastic Pipe for Utility Liquid Service
- 33 05 39.11 Concrete Pressure Pipe, Steel-Cylinder Type (AWWA C)
- 33 05 39.13 Prestressed Concrete Pressure Pipe, Steel-Cylinder Type (AWWA C)
- 33 05 39.16 Reinforced Concrete Pressure Pipe, Noncylinder Type (AWWA C)
- 33 05 39.23 Reinforced Concrete Low-Head Pressure Utility Pipe
- 33 05 39.33 Non-Reinforced Concrete Sewer and Culvert Pipe
- 33 05 39.36 Non-Reinforced Concrete Irrigation and Drainage Pipe
- 33 05 39.41 Reinforced Concrete Pipe for Sewers and Culverts
- 33 05 39.43 Perforated Concrete Utility Pipe
- 33 05 39.46 Reinforced Concrete Elliptical Pipe for Sewers and Culverts
- 33 05 39.49 Reinforced Concrete Box Sections for Sewers and Culverts
- 33 06 00 Schedules for Utilities
- 33 06 05 Schedules for Utility Piping
- 33 06 10 Schedules for Water Utilities
- 33 06 70 Schedules for Electrical Utilities
- 33 06 80 Schedules for Communications Utilities
- 33 09 00 Instrumentation and Control for Utilities
- 33 09 10 Instrumentation and Control for Water Utilities
- 33 09 30 Instrumentation and Control for Sanitary Sewerage Utilities
- 33 09 40 Instrumentation and Control for Stormwater Utilities
- 33 09 50 Instrumentation and Control for Hydrocarbon Utilities
- 33 09 53 Leak Detection for Hydrocarbon Systems
- 33 09 60 Instrumentation and Control for Hydronic and Steam Energy Utilities
- 33 09 70 Instrumentation and Control for Electrical Utilities
- 33 09 80 Instrumentation and Control for Communications Utilities
- 33 11 00 Water Distribution System
- 33 11 00 Water Utility Distribution Piping
- 33 11 13 Public Water Utility Distribution Piping
- 33 11 16 Water Utility Distribution Piping
- 33 11 33 Vertically Suspended Dry-Location



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- 33 11 36 Submersible Centrifugal Well Pumps
- 33 11 39 Jet-Type Well Pumps
- 33 14 00 Water Utility Transmission and Distribution
- 33 14 11 Water Utility Transmission Piping
- 33 14 13 Public Water Utility Distribution Piping
- 33 14 16 Site Water Utility Distribution Piping
- 33 14 23 Enclosures for Water Utility Piping and Valves
- 33 14 23.33 Enclosures for Water Utility Air Valves
- 33 16 00 Water Utility Storage Tanks
- 33 16 11 Elevated Composite Water Storage Tanks
- 33 16 13 Elevated Pillar-Type Steel Water Storage Tanks
- 33 16 13.13 Steel Aboveground Water Utility Storage Tanks
- 33 16 13.16 Prestressed Concrete Aboveground Water Utility Storage Tanks
- 33 16 16 Multi-Column Elevated Steel Water Storage Tanks
- 33 16 19 Elevated Spheroid Steel Water Storage Tanks
- 33 16 23 Ground-Level Steel Water Storage Tanks
- 33 16 31 Ground-Level AWWA D110 Type I Prestressed Concrete Water Storage Tanks
- 33 16 32 Ground-Level AWWA D110 Type II Prestressed Concrete Water Storage Tanks
- 33 16 36 Ground-Level Reinforced Concrete Water Storage Tanks
- 33 16 53 Ground-Level Metal Water Storage Cisterns
- 33 16 56 Ground-Level Plastic Water Storage Cisterns
- 33 16 61 Underground Concrete Water Storage Cisterns
- 33 16 63 Underground Non-Metallic Water Storage Cisterns
- 33 16 66 Underground Plastic Modular Water Storage
   Cisterns
- 33 19 00 Water Utility Metering Equipment
- 33 19 13 Positive Displacement Water Meters
- 33 19 13.13 Oscillating Piston Water Meters
- 33 19 13.23 Nutating Disc Water Meters
- 33 19 16 Velocity-Type Water Meters
- 33 19 16.13 Single-Jet Water Meters
- 33 19 16.16 Multi-Jet Water Meters
- 33 19 16.23 Turbine Water Meters
- 33 19 16.26 Fire-Type Turbine Water Meters
- 33 19 16.29 Portable Fire Hydrant-Type Turbine Water Meters
- 33 19 16.33 Propeller Water Meters
- 33 19 19 Compound Water Meters

- 33 19 23 Magnetic Water Meters
- 33 19 26 Ultrasonic Water Meters
- 33 19 29 Pre-paid Water Meters
- 33 30 00 Sanitary Sewerage
- 33 31 00 Sanitary Sewerage Piping
- 33 31 11 Public Sanitary Sewerage Gravity Piping
- 33 31 13 Site Sanitary Sewerage Gravity Piping
- 33 31 16 Industrial Waste Utility Sewerage Piping
- 33 31 23 Sanitary Sewerage Force Main Piping
- 33 31 26 Sanitary Pressure Sewer Piping
- 33 31 29 STEP System Piping
- 33 32 19 Septic Tank Effluent Pumps
- 33 34 13 Septic Tanks
- 33 34 13.13 Concrete Septic Tanks
- 33 34 13.23 Fiberglass Septic Tanks
- 33 34 16 Septic Tank Effluent Filters
- 33 34 16.13 Septic Tank Gravity Effluent Filters
- 33 34 16.16 Septic Tank Pressurized Effluent Filters
- 33 36 00 Utility Septic Tanks
- 33 36 00 Wastewater Utility Storage Tanks
- 33 36 16 Utility Septic Tank Effluent Pumps
- 33 36 23 Ground-Level Steel Wastewater Storage Tanks
- 33 36 36 Ground-Level Reinforced Concrete Wastewater Storage Tanks
- 33 36 43 Underground Reinforced Concrete Wastewater Storage Tanks
- 33 41 00 Storm Utility Drainage Piping
- 33 41 13 Public Storm Utility Drainage Piping
- 33 41 13.13 Foundation Drainage Piping
- 33 41 13.16 Geocomposite Foundation Drainage
- 33 41 16 Subdrainage Piping
- 33 41 16.16 Geocomposite Subdrainage
- 33 41 16.19 Pipe Underdrains
- 33 41 19 Underslab Drainage
- 33 41 19.16 Geocomposite Underslab Drainage
- 33 42 00 Culverts
- 33 42 11 Stormwater Gravity Piping
- 33 42 13 Stormwater Culverts
- 33 42 13.13 Public Pipe Culverts
- 33 42 16 Stormwater Force Main Piping
- 33 42 16.13 Precast Concrete Culverts
- 33 42 16.16 Cast-in-Place Concrete Culverts
- 33 44 21 Stormwater Downspout Filters
- 33 44 23 Inline Stormwater Filters
- 33 44 27 Stormwater Trench Drain Insert Filters
- 33 44 36 Oil and Stormwater Separators
- 33 44 43 Vortex-Type Hydrodynamic Separators
- 33 44 53 Stormwater Area Drainage Pop-up Relief



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- 33 45 00 Storm Utility Drainage Pumps
- 33 46 56 Tree Box Filters
- 33 51 13 Natural-Gas Piping
- 33 51 56 Submersible Liquid Hydrocarbon Pumps
- 33 52 00 Hydrocarbon Transmission and Distribution
- 33 52 13 Liquid Hydrocarbon Piping
- 33 52 13.13 Fuel-Oil Piping
- 33 52 13.23 Fuel-Oil Pumps
- 33 52 16.13 Gasoline Piping
- 33 52 16.23 Gasoline Pumps
- 33 52 19 Diesel Fuel Distribution
- 33 52 19.13 Diesel Fuel Piping
- 33 52 19.23 Diesel Fuel Pumps
- 33 52 43 Aviation Fuel Distribution
- 33 52 43.13 Aviation Fuel Piping
- 33 52 43.23 Aviation Fuel Pumps
- 33 56 00 Fuel-Storage Tanks
- 33 56 13 Aboveground Hydrocarbon Storage Tanks
- 33 56 16 Underground Fuel-Storage Tanks
- 33 56 21 Ground-Level Fixed Roof Hydrocarbon Storage Tanks
- 33 56 21.16 Single-Wall Ground-Level Fixed Roof Metallic Hydrocarbon Storage Tanks
- 33 56 21.26 Double-Wall Ground-Level Fixed Roof Non-Metallic Hydrocarbon Storage Tanks
- 33 56 33.13 Double-Wall Metallic Underground Hydrocarbon Storage Tanks
- 33 56 33.23 Single-Wall Metallic Underground Hydrocarbon Storage Tanks
- 33 56 33.26 Single-Wall Non-Metallic Underground Hydrocarbon Storage Tanks
- 33 56 33.29 Double-Wall Non-Metallic Underground Hydrocarbon Storage Tanks
- 33 56 43 Aviation Fuel Storage Tanks
- 33 56 43.13 Aboveground Aviation Fuel-Storage Tanks
- 33 56 43.16 Underground Aviation Fuel-Storage Tanks
- 33 56 53 Compressed Gaseous Hydrocarbon Storage Tanks
- 33 56 60 Moveable Hydrocarbon Storage Tanks
- 33 59 00 Hydrocarbon Utility Metering
- 33 59 11 Diaphragm Bellows Hydrocarbons Meters
- 33 59 13 Hydrocarbons Rotary Meters
- 33 59 16 Hydrocarbons Turbine Meters
- 33 59 19 Hydrocarbons Orifice Meters
- 33 59 26 Hydrocarbons Coriolis Meters
- 33 59 43 Liquid Hydrocarbon Sampling and Quality Analysis Instrumentation
- 33 59 46 Gas Hydrocarbon Sampling and Quality

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- 33 61 00 Hydronic Energy Distribution
- 33 63 13 Underground Steam and Condensate Distribution Piping
- 33 63 23 Ground-Level Steam and Condensate Distribution Piping
- 33 71 16 Electrical Poles
- 33 71 16.13 Precast Concrete Electrical Utility Poles
- 33 71 16.23 Steel Electrical Utility Poles
- 33 71 16.33 Wood Electrical Utility Poles
- 33 71 26.23 Current Transformers
- 33 71 26.26 Potential Transformers
- 33 71 36 Extra-High-Voltage Transmission Wiring
- 33 71 36.13 Overhead Extra-High-Voltage Transmission Wiring
- 33 71 39 High-Voltage Transmission Wiring
- 33 71 39.23 Underground High-Voltage Transmission Wiring
- 33 71 39.33 Underwater High-Voltage Transmission Wiring
- 33 71 49 Medium-Voltage Transmission Wiring
- 33 71 49.13 Overhead Medium-Voltage Transmission Wiring
- 33 71 49.23 Underground Medium-Voltage Transmission Wiring
- 33 71 49.33 Underwater Medium-Voltage Transmission Wiring
- 33 72 00 Utility Substations
- 33 73 00 Utility Transformers
- 33 73 13 Liquid-Filled Utility Transformers
- 33 73 23 Dry-Type Utility Transformers
- 33 74 00 Extra High Voltage (EHV) Switchgear and protection devices
- 33 74 13 Air EHV Circuit Breaker
- 33 74 16 Oil EHV Circuit Breaker
- 33 74 19 Gas EHV Circuit Breaker
- 33 74 36 EHV Utility Fuses
- 33 75 13 Air High-Voltage Circuit Breaker
- 33 75 16 Oil High-Voltage Circuit Breaker
- 33 75 19 Gas High-Voltage Circuit Breaker
- 33 75 23 Vacuum High-Voltage Circuit Breaker
- 33 75 36 High-Voltage Utility Fuses
- 33 77 00 Medium-Voltage Utility Switchgear and Protection Devices
- 33 77 13 Air Medium-Voltage Circuit Breaker
- 33 77 16 Oil Medium-Voltage Circuit Breaker
- 33 77 19 Gas Medium-Voltage Circuit Breaker
- 33 77 23 Vacuum Medium-Voltage Circuit Breaker
- 33 77 36 Medium-Voltage Utility Fuses



- 33 79 00 Site Grounding
- 33 79 13 Site Improvement Grounding
- 33 79 13.13 Electric Fence Grounding
- 33 79 16 Tower Grounding
- 33 79 16.13 Communications Tower Grounding
- 33 79 16.16 Antenna Tower Grounding
- 33 79 19 Utilities Grounding
- 33 79 19.13 Electrical Utilities Grounding
- 33 79 19.16 Communications Utilities Grounding
- 33 79 93 Site Lightning Protection
- 33 82 43 Grounding and Bonding for Communications Transmission and Distribution
- 34 01 33 Operation and Maintenance of Airfields
- 34 01 43 Operation and Maintenance of Bridges
- 34 05 05 Selective Demolition for Transportation
- 34 06 00 Schedules for Transportation
- 34 06 43 Schedules for Bridges
- 34 21 19 Traction Power Switchgear
- 34 21 19.13 AC Traction Power Switchgear
- 34 21 19.16 DC Traction Power Switchgear
- 35 01 00 Operation and Maintenance of Waterway and Marine
- 35 01 30 Operation and Maintenance of Coastal Construction
- 35 01 70 Operation and Maintenance of Dams
- 35 05 05 Selective Demolition for Waterway and Marine Construction
- 35 06 00 Schedules for Waterway and Marine Construction
- 35 06 30 Schedules for Coastal Construction
- 35 06 70 Schedules for Dams
- 35 31 16.19 Steel Sheet Piling Seawalls
- 35 71 00 Gravity Dams
- 35 71 13 Concrete Gravity Dams
- 35 71 16 Masonry Gravity Dams
- 35 71 19 Rockfill Gravity Dams
- 35 72 13 Concrete Arch Dams
- 35 74 13 Concrete Buttress Dams
- 40 00 00 Process Interconnections
- 40 01 00 Operation and Maintenance of Process
- 40 01 10 Operation and Maintenance of Gas and Vapor Process Piping
- 40 01 70 Operation and Maintenance of Instrumentation for Process Systems
- 40 01 90 Operation and Maintenance of Primary Control Devices
- 40 05 05 Exposed Piping Installation
- 40 05 11 Aluminum Process Pipe
- 40 05 12 Brass Process Pipe

- 40 05 13 Bronze Process Pipe
- 40 05 13.13 Steel Process Piping
- 40 05 13.16 Lined or Internally-Coated Steel Process Piping
- 40 05 13.19 Stainless-Steel Process Piping
- 40 05 13.23 Aluminum Alloys Process Piping
- 40 05 13.33 Brass, Bronze, Copper, and Copper Alloys Process Piping
- 40 05 13.43 Nickel and Nickel Alloys Process Piping
- 40 05 13.53 Ductile, Malleable, and Cast-Iron Alloys Process Piping
- 40 05 13.63 Titanium and Titanium Alloys Process Piping
- 40 05 13.73 Plastic Process Piping
- 40 05 13.76 Fiberglass-Reinforced Plastic and Resins Process Piping
- 40 05 13.93 Other Metals Process Piping
- 40 05 17 Copper Process Pipe and Tubing
- 40 05 19 Ductile Iron Process Pipe
- 40 05 21 High-Alloy Nickel Process Pipe and Tubing
- 40 05 23 Stainless Steel Process Pipe and Tubing
- 40 05 23.13 Duplex and Super-Duplex Stainless Steel Process Pipe
- 40 05 23.33 Special-Fabrication Stainless Steel Process Pipe and Tubing
- 40 05 24 Steel Process Pipe
- 40 05 24.13 Steel Pipe and Tubing for Air and Gas Service
- 40 05 24.23 Steel Pipe for Water Service
- 40 05 24.26 Steel Pipe and Tubing for Process Liquid Service
- 40 05 24.33 Steel Pipe for Bulk Materials Conveyance
- 40 05 26 Other Metals Process Pipe
- 40 05 26.13 Titanium Process Pipe
- 40 05 26.33 Zirconium Process Pipe
- 40 05 31 Thermoplastic Process Pipe
- 40 05 31.13 Polyvinyl Chloride Process Pipe
- 40 05 31.23 Chlorinated Polyvinyl Chloride Process Pipe
- 40 05 31.33 ABS Process Pipe
- 40 05 31.43 Polypropylene Process Pipe
- 40 05 31.53 PVDF Process Pipe
- 40 05 31.63 High-Purity Plastic Process Pipe
- 40 05 33 High-Density Polyethylene Process Pipe
- 40 05 36 Fiberglass-Reinforced Plastic Process Pipe
- 40 05 36.13 Fiberglass-Reinforced Plastic Pipe for Process Air, Gas, and Odor Service
- 40 05 36.23 Fiberglass-Reinforced Plastic Pipe for Process Liquid Service



- 40 05 37 Centrifugally Cast Fiberglass-Reinforced Polymer Mortar Process Pipe
- 40 05 38 PTFE Process Pipe
- 40 05 39 Concrete Pipe
- 40 05 39.13 Concrete Pressure Water Pipe
- 40 05 39.23 Concrete Gravity and Drainage Process Pipe
- 40 05 51 Common Requirements for Process Valves
- 40 05 53 Process Valves Four-inch Diameter and Larger
- 40 05 56 Process Valves, Smaller than Four-inch Diameter
- 40 05 57 Actuators for Process Valves and Gates
- 40 05 57.13 Manual Actuators
- 40 05 57.33 Hydraulic Cylinder Actuators
- 40 05 57.43 Hydraulic Actuator Systems
- 40 05 57.53 Pneumatic Actuators
- 40 05 59.43 Butterfly Gates
- 40 05 61 Gate Valves
- 40 05 61.13 Solid Wedge Metal-Seated Gate Valves
- 40 05 62.13 Eccentric Plug Valves for Gas Service
- 40 05 62.16 Eccentric Plug Valves for Liquid Service
- 40 05 63 Ball Valves
- 40 05 63.13 AWWA Metal-Seated Ball Valves
- 40 05 63.16 AWWA Resilient-Seated Ball Valves
- 40 05 63.33 Metallic Ball Valves
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- 46 61 46 Automatic Backwash Cloth Filter Equipment
- 46 61 53 Cartridge Filters
- 46 61 63 Bag Filters
- 46 61 73 Automatic Straining Equipment
- 46 63 00 Demineralization Equipment
- 46 63 11 Ion-exchange Vessel Media
- 46 63 13 Mixed Bed Ion-exchange Vessel Systems
- 46 63 16 Packed Bed Ion-exchange Vessel Systems
- 46 63 17 Electrodialysis Reversal Equipment
- 46 63 23 Reverse-Osmosis and Nanofiltration Membrane Equipment
- 46 63 31 Multiple-effect Distillation Equipment
- 46 63 32 Water Vapor Compression Distillation
- 46 63 33 Desalination Mechanical Vapor Compression Equipment
- 46 63 34 Desalination Thermal Vapor Compression
- 46 63 36 Desalination Multi-stage Flash Equipment
- 46 63 41 Desalination Falling Film Evaporators
- 46 63 43 Desalination Rising Film Evaporators
- 46 63 53 Desalination Forced-circulation Crystallizing Equipment
- 46 63 63 Desalination Spray Dry Evaporation Equipment
- 46 63 73 Demineralization Energy Recovery Equipment
- 46 70 00 Water and Wastewater Residuals Handling and Treatment
- 46 71 00 Residuals Thickening Equipment
- 46 71 13 Circular Gravity Thickeners
- 46 71 16 Gravity Belt Thickeners
- 46 71 23 Dissolved Air Flotation Thickening Equipment
- 46 71 33 Rotary Drum Thickening Equipment
- 46 71 36 Centrifuge Thickening Equipment
- 46 71 43 Disc Thickeners
- 46 71 46 Thickening Screw Press
- 46 71 53 Scum Concentrator Equipment
- 46 73 21 Aerobic Digester Aeration Equipment
- 46 73 24 Autothermal Thermophilic Aerobic Digestion Equipment
- 46 73 26 Egg-shaped Digesters
- 46 73 31 External Draft Tube Digester Mixing System
- 46 73 32 Internal Draft Tube Digester Mixing System
- 46 73 41 Digester Heating Equipment
- 46 73 63 Residuals Pasteurization Equipment

- 46 76 00 Residuals Dewatering Equipment
- 46 76 13 Vacuum Filters
- 46 76 21 Belt Filter Presses
- 46 76 23 Plate-and-Frame Filter Presses
- 46 76 26 Rotary Presses
- 46 76 27 Screw Presses
- 46 76 33 Dewatering Centrifuges
- 46 76 53 Belt Dryers
- 46 76 60 Direct-heat Residuals Drying Equipment
- 46 76 70 Indirect-heat Residuals Drying Equipment
- 46 78 00 Thermal Treatment of Residuals
- 46 78 13 Multiple-hearth Sludge Incinerators
- 46 78 23 Fluidized-bed Sludge Incinerators
- 46 78 33 Ash Handling Equipment
- 46 78 41 Recuperative Air Preheating Equipment
- 46 78 46 Regenerative Thermal Oxidizers
- 46 78 47 Waste Heat Recovery Boilers
- 46 78 49 Waste Heat Recovery Heat Exchangers
- 46 78 73 Thermal Oxidation Equipment
- 48 00 00 Electrical Power Generation
- 48 05 05 Selective Demolition for Electrical Power Generation
- 48 06 00 Schedules for Electrical Power Generation
- 48 06 70 Schedules for Electrical Power Generation Testing
- 48 09 00 Instrumentation and Control for Electrical Power Generation
- 48 10 00 Electrical Power Generation Equipment
- 48 11 13 Fossil Fuel Electrical Power Plant Boilers
- 48 16 13 Geothermal Energy Heat Pumps
- 48 19 00 Electrical Power Control Equipment
- 48 19 23 Electrical Power Generation Transformers



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