AGC Construction Codes
Division 0

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00002 AGC Member Services
0010 Accountants - Certified
0011 Safety Training-Jobsite & Classroom
0020 Plan Room Services
0025 Construction Reports
0040 Construction Publications
0045 Trade & Business Associations
0050 Chambers of Commerce
0055 Automobile Dealers-Sales, Lease, Rental
0058 Automotive Parts & Supplies
0060 Truck Dealers-Sales, Lease, Rental
0061 Tires Sales & Service-Commercial
0065 Construction Equip.-Sales, Lease, Rental
0069 Trailers-Truck
0070 Cranes-Sales, Lease, Rental
0075 Trucking-General & Heavy Hauling
0080 Excavation Equipment
0085 Storage Trailers
0090 Office Trailers
0094 Containers - Construction
0095 Forklifts, Scissorlifts & Industrial Trucks
0100 Material Handling Equipment
0110 Hoists - Personnel & Material
0115 Scaffolding & Platforms
0120 Generators - Portable
0125 Trenching Machines
0135 Fuels & Lubricants
0150 Architects
0160 Engineers - Professional
0165 Remod. & Interior Finish-Out Contractors
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0180 Environmental & Ecological Services
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0197 Employee Leasing Services
0204 Construction Education Services
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00230  Cellular Telephone Equipment & Supplies
00235  Paging Equipment-Sales, Lease, Rental
00240  Telephone Answering Equip.-Syst. & Svc.
00245  Long Distance Service Companies
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00255  Blueprinting Services
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MasterFormat is the specifications-writing standard for most commercial building design and construction projects in North America. It lists titles and section numbers for organizing data about construction requirements, products, and activities. By standardizing such information, MasterFormat facilitates communication among architects, specifiers, contractors and suppliers, which helps them meet building owners' requirements, timelines and budgets.

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  06 16 13 Insulating Sheathing
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  06 17 13 Laminated Veneer Lumber
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06 25 00 Prefinished Paneling
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09 34 36  Waterproofing-Membrane Concrete Tiling

09 35 00  **Chemical-Resistant Tiling**
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09 35 16  Chemical-Resistant Quarry Tiling
09 35 19  Chemical-Resistant Paver Tiling
09 35 23  Chemical-Resistant Glass Mosaic Tiling
09 35 26  Chemical-Resistant Plastic Tiling
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09 35 36  Chemical-Resistant Concrete Tiling

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09 51 14  Acoustical Fabric-Faced Panel Ceilings
09 51 23  Acoustical Tile Ceilings
09 51 26  Acoustical Wood Ceilings
09 51 33  Acoustical Metal Pan Ceilings
09 51 33.13 Acoustical Snap-in Metal Pan Ceilings
09 51 53  Direct-Applied Acoustical Ceilings

09 53 00  **Acoustical Ceiling Suspension Assemblies**
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09 53 23  Metal Acoustical Ceiling Suspension Assemblies
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09 54 13  Open Metal Mesh Ceilings
09 54 16  Luminous Ceilings
09 54 19  Mirror Panel Ceilings
09 54 23  Linear Metal Ceilings
09 54 26  Suspended Wood Ceilings
09 54 33  Decorative Panel Ceilings
09 54 36  Suspended Decorative Grids
09 54 43  Stretched-Fabric Ceiling Systems
09 54 46  Fabric-Wrapped Ceiling Panels
09 54 53  Fiberglass Reinforced Panel Ceilings

09 56 00  Textured Ceilings
09 56 13  Gypsum-Panel Textured Ceilings
09 56 16  Metal-Panel Textured Ceilings

09 57 00  Special Function Ceilings
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09 58 00  Integrated Ceiling Assemblies

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09 61 13  Slip-Resistant Flooring Treatment
09 61 36  Static-Resistant Flooring Treatment

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09 62 53  Synthetic Turf Flooring
09 62 63  Metal Flooring
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09 64 66  Wood Athletic Flooring

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09 65 33  Conductive Resilient Flooring  
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09 69 19  Stringerless Access Flooring  
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- 09 72 16.16 Rigid-Sheet Vinyl Wall Coverings
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10 21 13.19  Plastic Toilet Compartments
10 21 13.23  Particleboard Toilet Compartments
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  14 42 16 Vertical Wheelchair Lifts
14 43 00 Platform Lifts
  14 43 13 Orchestra Lifts
  14 43 16 Stage Lifts
14 44 00 Sidewalk Lifts
14 45 00 Vehicle Lifts
14 70 00 Turntables
14 71 00 Industrial Turntables
  14 71 11 Vehicle Turntables
14 72 00 Hospitality Turntables
  14 72 25 Restaurant Turntables
14 73 00 Exhibit Turntables
  14 73 59 Display Turntables
14 74 00 Entertainment Turntables
  14 74 61 Stage Turntables
14 80 00 Scaffolding
14 81 00 Suspended Scaffolding
  14 81 13 Beam Scaffolding
  14 81 16 Carriage Scaffolding
  14 81 19 Hook Scaffolding
14 82 00 Rope Climbers
  14 82 13 Manual Rope Climbers
14 82 16  Powered Rope Climbers

14 83 00  Elevating Platforms
14 83 13  Telescoping Platform Lifts
14 83 13.13 Electric and Battery Telescoping Platform Lifts
14 83 13.16 Pneumatic Telescoping Platform Lifts
14 83 16  Scissor Lift Platforms
14 83 19  Multi-Axis Platform Lifts

14 84 00  Powered Scaffolding
14 84 13  Window Washing Scaffolding
14 84 23  Window Washing Hoists

14 90 00  Other Conveying Equipment

14 91 00  Facility Chutes
14 91 13  Coal Chutes
14 91 23  Escape Chutes
14 91 33  Laundry and Linen Chutes
14 91 82  Trash Chutes

14 92 00  Pneumatic Tube Systems
21 00 00  Fire Suppression
  21 01 00  Operation and Maintenance of Fire Suppression
    21 01 10  Operation and Maintenance of Water-Based Fire-Suppression Systems
    21 01 20  Operation and Maintenance of Fire-Extinguishing Systems
    21 01 30  Operation and Maintenance of Fire-Suppression Equipment
  21 05 00  Common Work Results for Fire Suppression
    21 05 13  Common Motor Requirements for Fire-Suppression Equipment
    21 05 16  Expansion Fittings and Loops for Fire-Suppression Piping
    21 05 19  Meters and Gages for Fire-Suppression Systems
    21 05 23  General-Duty Valves for Water-Based Fire-Suppression Piping
    21 05 29  Hangers and Supports for Fire-Suppression Piping and Equipment
    21 05 33  Heat Tracing for Fire-Suppression Piping
    21 05 48  Vibration and Seismic Controls for Fire-Suppression Piping and Equipment
    21 05 53  Identification for Fire-Suppression Piping and Equipment
  21 06 00  Schedules for Fire Suppression
    21 06 10  Schedules for Water-Based Fire-Suppression Systems
    21 06 20  Schedules for Fire-Extinguishing Systems
    21 06 30  Schedules for Fire-Suppression Equipment
  21 07 00  Fire Suppression Systems Insulation
    21 07 16  Fire-Suppression Equipment Insulation
    21 07 19  Fire-Suppression Piping Insulation
  21 08 00  Commissioning of Fire Suppression
  21 09 00  Instrumentation and Control for Fire-Suppression Systems
  21 10 00  Water-Based Fire-Suppression Systems
    21 11 00  Facility Fire-Suppression Water-Service Piping
      21 11 16  Facility Fire Hydrants
      21 11 19  Fire-Department Connections
    21 12 00  Fire-Suppression Standpipes
      21 12 13  Fire-Suppression Hoses and Nozzles
      21 12 16  Fire-Suppression Hose Reels
      21 12 19  Fire-Suppression Hose Racks
      21 12 23  Fire-Suppression Hose Valves
    21 13 00  Fire-Suppression Sprinkler Systems
      21 13 13  Wet-Pipe Sprinkler Systems
      21 13 16  Dry-Pipe Sprinkler Systems
      21 13 19  Preaction Sprinkler Systems
      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
      21 13 36  Antifreeze Sprinkler Systems
      21 13 39  Foam-Water Systems
    21 16 00  Fire-Suppression Pressure Maintenance Pumps
  21 20 00  Fire-Extinguishing Systems
21 21 00 Carbon-Dioxide Fire-Extinguishing Systems
   21 21 13 Carbon-Dioxide Fire-Extinguishing Piping
   21 21 16 Carbon-Dioxide Fire-Extinguishing Equipment
21 22 00 Clean-Agent Fire-Extinguishing Systems
   21 22 13 Clean-Agent Fire-Extinguishing Piping
   21 22 16 Clean-Agent Fire-Extinguishing Equipment
21 23 00 Wet-Chemical Fire-Extinguishing Systems
   21 23 13 Wet-Chemical Fire-Extinguishing Piping
   21 23 16 Wet-Chemical Fire-Extinguishing Equipment
21 24 00 Dry-Chemical Fire-Extinguishing Systems
   21 24 13 Dry-Chemical Fire-Extinguishing Piping
   21 24 16 Dry-Chemical Fire-Extinguishing Equipment
21 30 00 Fire Pumps
21 31 00 Centrifugal Fire Pumps
   21 31 13 Electric-Drive, Centrifugal Fire Pumps
   21 31 16 Diesel-Drive, Centrifugal Fire Pumps
21 32 00 Vertical-Turbine Fire Pumps
   21 32 13 Electric-Drive, Vertical-Turbine Fire Pumps
   21 32 16 Diesel-Drive, Vertical-Turbine Fire Pumps
21 33 00 Positive-Displacement Fire Pumps
   21 33 13 Electric-Drive, Positive-Displacement Fire Pumps
   21 33 16 Diesel-Drive, Positive-Displacement Fire Pumps
21 40 00 Fire-Suppression Water Storage
21 41 00 Storage Tanks for Fire-Suppression Water
   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
   21 41 26 Underground Storage Tanks for Fire-Suppression Water
   21 41 29 Storage Tanks for Fire-Suppression Water Additives
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 30  Operation and Maintenance of Plumbing Equipment
      22 01 40  Operation and Maintenance of Plumbing Fixtures
      22 01 50  Operation and Maintenance of Pool and Fountain Plumbing Systems
      22 01 60  Operation and Maintenance of Laboratory and Healthcare Systems
   22 05 00  Common Work Results for Plumbing
      22 05 13  Common Motor Requirements for Plumbing Equipment
      22 05 16  Expansion Fittings and Loops for Plumbing Piping
      22 05 19  Meters and Gages for Plumbing Piping
      22 05 23  General-Duty Valves for Plumbing Piping
      22 05 29  Hangers and Supports for Plumbing Piping and Equipment
      22 05 33  Heat Tracing for Plumbing Piping
      22 05 48  Vibration and Seismic Controls for Plumbing Piping and Equipment
      22 05 53  Identification for Plumbing Piping and Equipment
      22 05 73  Facility Drainage Manholes
      22 05 76  Facility Drainage Piping Cleanouts
   22 06 00  Schedules for Plumbing
      22 06 10  Schedules for Plumbing Piping and Pumps
      22 06 10.13  Plumbing Pump Schedule
      22 06 12  Schedules for Facility Potable Water Storage
      22 06 15  Schedules for General Service Compressed-Air Equipment
      22 06 30  Schedules for Plumbing Equipment
      22 06 30.13  Domestic Water Heater Schedule
      22 06 40  Schedules for Plumbing Fixtures
      22 06 40.13  Plumbing Fixture Schedule
      22 06 50  Schedules for Pool and Fountain Plumbing Systems
      22 06 60  Schedules for Laboratory and Healthcare Systems
   22 07 00  Plumbing Insulation
      22 07 16  Plumbing Equipment Insulation
      22 07 19  Plumbing Piping Insulation
   22 08 00  Commissioning of Plumbing
   22 09 00  Instrumentation and Control for Plumbing
   22 10 00  Plumbing Piping
   22 11 00  Facility Water Distribution
      22 11 13  Facility Water Distribution Piping
      22 11 16  Domestic Water Piping
      22 11 19  Domestic Water Piping Specialties
      22 11 23  Domestic Water Pumps
      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
      22 11 23.33  Separately Coupled, In-Line Centrifugal Domestic-Water Pumps
      22 11 23.36  Separately Coupled, Horizontally Mounted, In-Line Centrifugal Domestic-Water Pumps
22 12 00  Facility Potable-Water Storage Tanks
  22 12 13  Facility Roof-Mounted, Potable-Water Storage Tanks
  22 12 16  Facility Elevated, Potable-Water Storage Tanks
  22 12 19  Facility Ground-Mounted, Potable-Water Storage Tanks
  22 12 23  Facility Indoor Potable-Water Storage Tanks
  22 12 23.13  Facility Steel, Indoor Potable-Water Storage Pressure Tanks
  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
  22 12 23.26  Facility Plastic, Indoor Potable-Water Storage Non-Pressure Tanks

22 13 00  Facility Sanitary Sewerage
  22 13 13  Facility Sanitary Sewers
  22 13 16  Sanitary Waste and Vent Piping
  22 13 19  Sanitary Waste Piping Specialties
  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 19.36  Air-Admittance Valves
  22 13 23  Sanitary Waste Interceptors
  22 13 26  Sanitary Waste Separators
  22 13 29  Sanitary Sewerage Pumps
  22 13 29.13  Wet-Pit-Mounted, Vertical Sewerage Pumps
  22 13 29.16  Submersible Sewerage Pumps
  22 13 29.23  Sewerage Pump Reverse-Flow Assemblies
  22 13 29.33  Sewerage Pump Basins and Pits
  22 13 33  Packaged, Submersible Sewerage Pump Units
  22 13 36  Packaged, Wastewater Pump Units
  22 13 43  Facility Packaged Sewage Pumping Stations
  22 13 43.13  Facility Dry-Well Packaged Sewage Pumping Stations
  22 13 43.16  Facility Wet-Well Packaged Sewage Pumping Stations
  22 13 53  Facility Septic Tanks
  22 13 63  Facility Gray Water Tanks

22 14 00  Facility Storm Drainage
  22 14 13  Facility Storm Drainage Piping
  22 14 16  Rainwater Leaders
  22 14 19  Sump Pump Discharge Piping
  22 14 23  Storm Drainage Piping Specialties
  22 14 26  Facility Storm Drains
  22 14 26.13  Roof Drains
  22 14 26.16  Facility Area Drains
  22 14 26.19  Facility Trench Drains
  22 14 29  Sump Pumps
  22 14 29.13  Wet-Pit-Mounted, Vertical Sump Pumps
  22 14 29.16  Submersible Sump Pumps
  22 14 29.19  Sump-Pump Basins and Pits
  22 14 33  Packaged, Pedestal Drainage Pump Units
  22 14 36  Packaged, Submersible, Drainage Pump Units
  22 14 53  Rainwater Storage Tanks

22 15 00  General Service Compressed-Air Systems
  22 15 13  General Service Compressed-Air Piping
  22 15 16  General Service Compressed-Air Valves
  22 15 19  General Service Packaged Air Compressors and Receivers
22 15 19.13 General Service Packaged Reciprocating Air Compressors
22 15 19.16 General Service Packaged Liquid-Ring Air Compressors
22 15 19.19 General Service Packaged Rotary-Screw Air Compressors
22 15 19.23 General Service Packaged Sliding-Vane Air Compressors

22 30 00 Plumbing Equipment

22 31 00 Domestic Water Softeners
22 31 13 Residential Domestic Water Softeners
22 31 16 Commercial Domestic Water Softeners

22 32 00 Domestic Water Filtration Equipment
22 32 13 Domestic-Water Bag-Type Filters
22 32 16 Domestic-Water Freestanding Cartridge Filters
22 32 19 Domestic-Water Off-Floor Cartridge Filters
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
22 33 13 Instantaneous Electric Domestic Water Heaters
22 33 13.13 Flow-Control, Instantaneous Electric Domestic Water Heaters
22 33 13.16 Thermostat-Control, Instantaneous Electric Domestic Water Heaters
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 Water Heaters
22 33 33 Light-Commercial Electric Domestic Water Heaters
22 33 36 Commercial Domestic Water Electric Booster Heaters
22 33 36.13 Commercial Domestic Water Electric Booster Heaters
22 33 36.16 Commercial Storage Electric Domestic Water Heaters

22 34 00 Fuel-Fired Domestic Water Heaters
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 Commercial Gas Domestic Water Heaters
22 34 36.13 Commercial, Atmospheric, Gas Domestic Water Heaters
22 34 36.16 Commercial, Power-Burner, Gas Domestic Water Heaters
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 Oil-Fired 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 23 Circulating, Domestic Water Heat Exchangers
22 35 23.13 Circulating, Compact Domestic Water Heat Exchangers
22 35 23.16 Circulating, Storage Domestic Water Heat Exchangers
22 35 29 Noncirculating, 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

22 40 00 Plumbing Fixtures
22 41 00 Residential Plumbing Fixtures
22 41 13 Residential Water Closets, Urinals, and Bidets
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 16.16 Residential Sinks
22 41 19 Residential Bathtubs
22 41 23 Residential Showers
22 41 26 Residential Disposers
22 41 36 Residential Laundry Trays
22 41 39 Residential Faucets, Supplies, and Trim

22 42 00 Commercial Plumbing Fixtures
22 42 13 Commercial Water Closets, Urinals, and Bidets
22 42 13.13 Commercial Water Closets
22 42 13.16 Commercial Urinals
22 42 16 Commercial Lavatories and Sinks
22 42 16.13 Commercial Lavatories
22 42 16.16 Commercial Sinks
22 42 19 Commercial Bathtubs
22 42 23 Commercial Showers
22 42 26 Commercial Disposers
22 42 29 Shampoo Bowls
22 42 33 Wash Fountains
22 42 36 Commercial Laundry Trays
22 42 39 Commercial Faucets, Supplies, and Trim
22 42 43 Flushometers

22 43 00 Healthcare Plumbing Fixtures
22 43 13 Healthcare Water Closets
22 43 16 Healthcare Sinks
22 43 19 Healthcare Bathtubs
22 43 23 Healthcare Showers
22 43 39 Healthcare Faucets
22 43 43 Healthcare Plumbing Fixture Flushometers

22 45 00 Emergency Plumbing Fixtures
22 45 13 Emergency Showers
22 45 16 Eyewash Equipment
22 45 19 Self-Contained Eyewash Equipment
22 45 23  Personal Eyewash Equipment
22 45 26  Eye/Face Wash Equipment
22 45 29  Hand-Held Emergency Drench Hoses
22 45 33  Combination Emergency Fixture Units
22 45 36  Emergency Fixture Water-Tempering Equipment

22 46 00  Security Plumbing Fixtures
    22 46 13  Security Water Closets and Urinals
    22 46 13.13  Security Water Closets
    22 46 13.16  Security Urinals
    22 46 16  Security Lavatories and Sinks
    22 46 16.13  Security Lavatories
    22 46 16.16  Security Sinks
    22 46 19  Security Showers
    22 46 39  Security Faucets, Supplies, and Trim
    22 46 43  Security Plumbing Fixture Flushometers
    22 46 53  Security Plumbing Fixture Supports

22 47 00  Drinking Fountains and Water Coolers
    22 47 13  Drinking Fountains
    22 47 16  Pressure Water Coolers
    22 47 19  Water-Station Water Coolers
    22 47 23  Remote Water Coolers

22 50 00  Pool and Fountain Plumbing Systems

22 51 00  Swimming Pool Plumbing Systems
    22 51 13  Swimming Pool Piping
    22 51 16  Swimming Pool Pumps
    22 51 19  Swimming Pool Water Treatment Equipment
    22 51 23  Swimming Pool Equipment Controls

22 52 00  Fountain Plumbing Systems
    22 52 13  Fountain Piping
    22 52 16  Fountain Pumps
    22 52 19  Fountain Water Treatment Equipment
    22 52 23  Fountain Equipment Controls

22 60 00  Gas and Vacuum Systems for Laboratory and Healthcare Facilities

22 61 00  Compressed-Air Systems for Laboratory and Healthcare Facilities
    22 61 13  Compressed-Air Piping for Laboratory and Healthcare Facilities
    22 61 13.53  Laboratory Compressed-Air Piping
    22 61 13.70  Healthcare Compressed-Air Piping
    22 61 13.74  Dental Compressed-Air Piping
    22 61 19  Compressed-Air Equipment for Laboratory and Healthcare Facilities
    22 61 19.53  Laboratory Compressed-Air Equipment
    22 61 19.70  Healthcare Compressed-Air Equipment
    22 61 19.74  Dental Compressed-Air Equipment

22 62 00  Vacuum Systems for Laboratory and Healthcare Facilities
    22 62 13  Vacuum Piping for Laboratory and Healthcare Facilities
    22 62 13.53  Laboratory Vacuum Piping
22 62 13.70 Healthcare, Surgical Vacuum Piping
22 62 13.74 Dental Vacuum Piping
22 62 19 Vacuum Equipment for Laboratory and Healthcare Facilities
22 62 19.53 Laboratory Vacuum Equipment
22 62 19.70 Healthcare Vacuum Equipment
22 62 19.74 Dental Vacuum and Evacuation Equipment
22 62 23 Waste Anesthesia-Gas Piping

22 63 00 **Gas Systems for Laboratory and Healthcare Facilities**
22 63 13 Gas Piping for Laboratory and Healthcare Facilities
22 63 13.53 Laboratory Gas Piping
22 63 13.70 Healthcare Gas Piping
22 63 19 Gas Storage Tanks for Laboratory and Healthcare Facilities
22 63 19.53 Laboratory Gas Storage Tanks
22 63 19.70 Healthcare Gas Storage Tanks

22 66 00 **Chemical-Waste Systems for Laboratory and Healthcare Facilities**
22 66 53 Laboratory Chemical-Waste and Vent Piping
22 66 70 Healthcare Chemical-Waste and Vent Piping
22 66 83 Chemical-Waste Tanks
22 66 83.13 Chemical-Waste Dilution Tanks
22 66 83.16 Chemical-Waste Neutralization Tanks

22 67 00 **Processed Water Systems for Laboratory and Healthcare Facilities**
22 67 13 Processed Water Piping for Laboratory and Healthcare Facilities
22 67 13.13 Distilled-Water Piping
22 67 13.16 Reverse-Osmosis Water Piping
22 67 13.19 Deionized-Water Piping
22 67 19 Processed Water Equipment for Laboratory and Healthcare Facilities
22 67 19.13 Distilled-Water Equipment
22 67 19.16 Reverse-Osmosis Water Equipment
22 67 19.19 Deionized-Water Equipment
23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)

23 01 00 Operation and Maintenance of HVAC Systems
- 23 01 10 Operation and Maintenance of Facility Fuel Systems
- 23 01 20 Operation and Maintenance of HVAC Piping and Pumps
- 23 01 30 Operation and Maintenance of HVAC Air Distribution
- 23 01 30.51 HVAC Air-Distribution System Cleaning
- 23 01 50 Operation and Maintenance of Central Heating Equipment
- 23 01 60 Operation and Maintenance of Central Cooling Equipment
- 23 01 60.71 Refrigerant Recovery/Recycling
- 23 01 70 Operation and Maintenance of Central HVAC Equipment
- 23 01 80 Operation and Maintenance of Decentralized HVAC Equipment
- 23 01 90 Diagnostic Systems for HVAC

23 05 00 Common Work Results for HVAC
- 23 05 13 Common Motor Requirements for HVAC Equipment
- 23 05 16 Expansion Fittings and Loops for HVAC Piping
- 23 05 19 Meters and Gages for HVAC Piping
- 23 05 23 General-Duty Valves for HVAC Piping
- 23 05 29 Hangers and Supports for HVAC Piping and Equipment
- 23 05 33 Heat Tracing for HVAC Piping
- 23 05 48 Vibration and Seismic Controls for HVAC
- 23 05 53 Identification for HVAC Piping and Equipment
- 23 05 63 Anti-Microbial Coatings for HVAC Ducts and Equipment
- 23 05 66 Anti-Microbial Ultraviolet Emitters for HVAC Ducts and Equipment
- 23 05 93 Testing, Adjusting, and Balancing for HVAC

23 06 00 Schedules for HVAC
- 23 06 10 Schedules for Facility Fuel Service Systems
- 23 06 20 Schedules for HVAC Piping and Pumps
- 23 06 20.13 Hydronic Pump Schedule
- 23 06 30 Schedules for HVAC Air Distribution
- 23 06 30.13 HVAC Fan Schedule
- 23 06 30.16 Air Terminal Unit Schedule
- 23 06 30.19 Air Outlet and Inlet Schedule
- 23 06 30.23 HVAC Air Cleaning Device Schedule
- 23 06 50 Schedules for Central Heating Equipment
- 23 06 50.13 Heating Boiler Schedule
- 23 06 60 Schedules for Central Cooling Equipment
- 23 06 60.13 Refrigerant Condenser Schedule
- 23 06 60.16 Packaged Water Chiller Schedule
- 23 06 70 Schedules for Central HVAC Equipment
- 23 06 70.13 Indoor, Central-Station Air-Handling Unit Schedule
- 23 06 70.16 Packaged Outdoor HVAC Equipment Schedule
- 23 06 80 Schedules for Decentralized HVAC Equipment
- 23 06 80.13 Decentralized Unitary HVAC Equipment Schedule
- 23 06 80.16 Convection Heating and Cooling Unit Schedule
- 23 06 80.19 Radiant Heating Unit Schedule

23 07 00 HVAC Insulation
- 23 07 13 Duct Insulation
- 23 07 16 HVAC Equipment Insulation
23 07 19 HVAC Piping Insulation

23 08 00 Commissioning of HVAC

23 09 00 Instrumentation and Control for HVAC
23 09 13 Instrumentation and Control Devices for HVAC
23 09 13.13 Actuators and Operators
23 09 13.23 Sensors and Transmitters
23 09 13.33 Control Valves
23 09 13.43 Control Dampers
23 09 23 Direct-Digital Control System for HVAC
23 09 33 Electric and Electronic Control System for HVAC
23 09 43 Pneumatic Control System for HVAC
23 09 53 Pneumatic and Electric Control System for HVAC
23 09 93 Sequence of Operations for HVAC Controls

23 10 00 Facility Fuel Systems

23 11 00 Facility Fuel Piping
23 11 13 Facility Fuel-Oil Piping
23 11 16 Facility Gasoline Piping
23 11 23 Facility Natural-Gas Piping
23 11 26 Facility Liquefied-Petroleum Gas Piping

23 12 00 Facility Fuel Pumps
23 12 13 Facility Fuel-Oil Pumps
23 12 16 Facility Gasoline Dispensing Pumps

23 13 00 Facility Fuel-Storage Tanks
23 13 13 Facility Underground Fuel-Oil, Storage Tanks
23 13 13.13 Double-Wall Steel, Underground Fuel-Oil, Storage Tanks
23 13 13.16 Composite, Steel, Underground Fuel-Oil, Storage Tanks
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 23.13 Vertical, Steel, Aboveground Fuel-Oil, Storage Tanks
23 13 23.16 Horizontal, Steel, Aboveground Fuel-Oil, Storage Tanks
23 13 23.19 Containment-Dike, 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 20 00 HVAC Piping and Pumps

23 21 00 Hydronic Piping and Pumps
23 21 13 Hydronic Piping
23 21 13.13 Underground Hydronic Piping
23 21 13.23 Aboveground Hydronic Piping
23 21 13.33 Ground-Loop Heat-Pump Piping
23 21 16 Hydronic Piping Specialties
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
23 21 29 Automatic Condensate Pump Units

23 22 00 Steam and Condensate Piping and Pumps
23 22 13  Steam and Condensate Heating Piping
23 22 13.13  Underground Steam and Condensate Heating Piping
23 22 13.23  Aboveground Steam and Condensate Heating Piping
23 22 16  Steam and Condensate Heating Piping Specialties
23 22 23  Steam Condensate Pumps
23 22 23.13  Electric-Driven Steam Condensate Pumps
23 22 23.23  Pressure-Powered Steam Condensate Pumps

23 23 00  Refrigerant Piping
23 23 13  Refrigerant Piping Valves
23 23 16  Refrigerant Piping Specialties
23 23 19  Refrigerant Safety Relief Valve Discharge Piping
23 23 23  Refrigerants

23 24 00  Internal-Combustion Engine Piping
23 24 13  Internal-Combustion Engine Remote-Radiator Coolant Piping
23 24 16  Internal-Combustion Engine Exhaust Piping

23 25 00  HVAC Water Treatment
23 25 13  Water Treatment for Closed-Loop Hydronic Systems
23 25 16  Water Treatment for Open Hydronic Systems
23 25 19  Water Treatment for Steam System Feedwater
23 25 23  Water Treatment for Humidification Steam System Feedwater

23 30 00  HVAC Air Distribution

23 31 00  HVAC Ducts and Casings
23 31 13  Metal Ducts
23 31 13.13  Rectangular Metal Ducts
23 31 13.16  Round and Flat-Oval Spiral Ducts
23 31 13.19  Metal Duct Fittings
23 31 16  Nonmetal Ducts
23 31 16.13  Fibrous-Glass Ducts
23 31 16.16  Thermoset Fiberglass-Reinforced Plastic Ducts
23 31 16.19  PVC Ducts
23 31 16.26  Concrete Ducts
23 31 19  HVAC Casings

23 32 00  Air Plenums and Chases
23 32 13  Fabricated, Metal Air Plenums
23 32 33  Air-Distribution Ceiling Plenums
23 32 36  Air-Distribution Floor Plenums
23 32 39  Air-Distribution Wall Plenums
23 32 43  Air-Distribution Chases Formed by General Construction
23 32 48  Acoustical Air Plenums

23 33 00  Air Duct Accessories
23 33 13  Dampers
23 33 13.13  Volume-Control Dampers
23 33 13.16  Fire Dampers
23 33 13.19  Smoke-Control Dampers
23 33 13.23  Backdraft Dampers
23 33 19  Duct Silencers
23 33 23  Turning Vanes
23 33 33  Duct-Mounting Access Doors
23 33 43  Flexible Connectors
23 33 46  Flexible Ducts
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    27 01 10 Operation and Maintenance of Structured Cabling and Enclosures
    27 01 20 Operation and Maintenance of Data Communications
    27 01 30 Operation and Maintenance of Voice Communications
    27 01 40 Operation and Maintenance of Audio-Video Communications
    27 01 50 Operation and Maintenance of Distributed Communications and Monitoring
  27 05 00 Common Work Results for Communications
    27 05 13 Communications Services
      27 05 13.13 Dialtone Services
      27 05 13.23 T1 Services
      27 05 13.33 DSL Services
      27 05 13.43 Cable Services
      27 05 13.53 Satellite Services
    27 05 26 Grounding and Bonding for Communications Systems
    27 05 28 Pathways for Communications Systems
    27 05 29 Hangers and Supports for Communications Systems
    27 05 33 Conduits and Backboxes for Communications Systems
    27 05 36 Cable Trays for Communications Systems
    27 05 39 Surface Raceways for Communications Systems
    27 05 43 Underground Ducts and Raceways for Communications Systems
    27 05 46 Utility Poles for Communications Systems
    27 05 48 Vibration and Seismic Controls for Communications Systems
    27 05 53 Identification for Communications Systems
  27 06 00 Schedules for Communications
    27 06 10 Schedules for Structured Cabling and Enclosures
    27 06 20 Schedules for Data Communications
    27 06 30 Schedules for Voice Communications
    27 06 40 Schedules for Audio-Video Communications
    27 06 50 Schedules for Distributed Communications and Monitoring
  27 08 00 Commissioning of Communications
  27 10 00 Structured Cabling
  27 11 00 Communications Equipment Room Fittings
    27 11 13 Communications Entrance Protection
    27 11 16 Communications Cabinets, Racks, Frames, and Enclosures
    27 11 19 Communications Termination Blocks and Patch Panels
    27 11 23 Communications Cable Management and Ladder Rack
    27 11 26 Communications Rack Mounted Power Protection and Power Strips
  27 13 00 Communications Backbone Cabling
    27 13 13 Communications Copper Backbone Cabling
    27 13 13.13 Communications Copper Cable Splicing and Terminations
    27 13 23 Communications Optical Fiber Backbone Cabling
    27 13 23.13 Communications Optical Fiber Splicing and Terminations
    27 13 33 Communications Coaxial Backbone Cabling
    27 13 33.13 Communications Coaxial Splicing and Terminations
    27 13 43 Communications Services Cabling
27 13 43.13 Dialtone Services Cabling
27 13 43.23 T1 Services Cabling
27 13 43.33 DSL Services Cabling
27 13 43.43 Cable Services Cabling
27 13 43.53 Satellite Services Cabling

27 15 00 Communications Horizontal Cabling
27 15 00.16 Voice Communications Horizontal Cabling
27 15 00.19 Data Communications Horizontal Cabling
27 15 00.23 Audio-Video Communications Horizontal Cabling
27 15 00.39 Patient Monitoring and Telemetry Communications Horizontal Cabling
27 15 00.43 Nurse Call and Intercom Communications Horizontal Cabling
27 15 00.46 Paging Communications Horizontal Cabling
27 15 00.49 Intermediate Frequency/Radio Frequency Communications Horizontal Cabling
27 15 00.53 Antennas Communications Horizontal Cabling
27 15 13 Communications Copper Horizontal Cabling
27 15 23 Communications Optical Fiber Horizontal Cabling
27 15 33 Communications Coaxial Horizontal Cabling
27 15 43 Communications Faceplates and Connectors

27 16 00 Communications Connecting Cords, Devices, and Adapters
27 16 13 Communications Custom Cable Assemblies
27 16 16 Communications Media Converters, Adapters, and Transceivers
27 16 19 Communications Patch Cords, Station Cords, and Cross Connect Wire

27 20 00 Data Communications

27 21 00 Data Communications Network Equipment
27 21 13 Data Communications Firewalls
27 21 16 Data Communications Routers, CSU/DSU, Multiplexers, Codecs, and Modems
27 21 26 Data Communications Network Management
27 21 29 Data Communications Switches and Hubs
27 21 33 Data Communications Wireless Access Points

27 22 00 Data Communications Hardware
27 22 13 Data Communications Mainframes
27 22 16 Data Communications Storage and Backup
27 22 19 Data Communications Servers
27 22 23 Data Communications Desktops
27 22 26 Data Communications Laptops
27 22 29 Data Communications Handhelds

27 24 00 Data Communications Peripheral Data Equipment
27 24 13 Printers
27 24 16 Scanners
27 24 19 External Drives
27 24 23 Audio-Video Devices
27 24 26 Virtual Reality Equipment
27 24 29 Disaster Recovery Equipment

27 25 00 Data Communications Software
27 25 13 Virus Protection Software
27 25 16 Application Suites
27 25 19 Email Software

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27 25 23  Graphics/Multimedia Software
27 25 26  Customer Relationship Management Software
27 25 29  Operating System Software
27 25 33  Database Software
27 25 37  Virtual Private Network Software
27 25 39  Internet Conferencing Software
27 26 00  Data Communications Programming and Integration Services
  27 26 13  Web Development
  27 26 16  Database Development
  27 26 19  Application Development
  27 26 23  Network Integration Requirements
  27 26 26  Data Communications Integration Requirements
27 30 00  Voice Communications
27 31 00  Voice Communications Switching and Routing Equipment
  27 31 13  PBX/ Key Systems
  27 31 23  Internet Protocol Voice Switches
27 32 00  Voice Communications Terminal Equipment
  27 32 13  Telephone Sets
  27 32 16  Wireless Transceivers
  27 32 23  Elevator Telephones
  27 32 26  Ring-Down Emergency Telephones
  27 32 29  Facsimiles and Modems
  27 32 36  TTY Equipment
  27 32 43  Radio Communications Equipment
27 33 00  Voice Communications Messaging
  27 33 16  Voice Mail and Auto Attendant
  27 33 23  Interactive Voice Response
  27 33 26  Facsimile Servers
27 34 00  Call Accounting
  27 34 13  Toll Fraud Equipment and Software
  27 34 16  Telemanagement Software
27 35 00  Call Management
  27 35 13  Digital Voice Announcers
  27 35 16  Automatic Call Distributors
  27 35 19  Call Status and Management Displays
  27 35 23  Dedicated 911 Systems
27 40 00  Audio-Video Communications
27 41 00  Audio-Video Systems
  27 41 13  Architecturally Integrated Audio-Video Equipment
  27 41 16  Integrated Audio-Video Systems and Equipment
  27 41 16.25  Integrated Audio-Video Systems and Equipment for Restaurants and Bars
  27 41 16.28  Integrated Audio-Video Systems and Equipment for Conference Rooms
  27 41 16.29  Integrated Audio-Video Systems and Equipment for Board Rooms
  27 41 16.51  Integrated Audio-Video Systems and Equipment for Classrooms
  27 41 16.52  Integrated Audio-Video Systems and Equipment for Religious Facilities
  27 41 16.61  Integrated Audio-Video Systems and Equipment for Theaters
27 41.62 Integrated Audio-Video Systems and Equipment for Auditoriums
27 41.63 Integrated Audio-Video Systems and Equipment for Stadiums and Arenas
27 41 19 Portable Audio-Video Equipment
27 41 23 Audio-Video Accessories
27 41 33 Master Antenna Television Systems
27 41 43 Audio-Video Conferencing

27 42 00 Electronic Digital Systems
27 42 13 Point of Sale Systems
27 42 16 Transportation Information Display Systems
27 42 19 Public Information Systems

27 50 00 Distributed Communications and Monitoring Systems

27 51 00 Distributed Audio-Video Communications Systems
27 51 13 Paging Systems
27 51 13.13 Overhead Paging Systems
27 51 16 Public Address Systems
27 51 19 Sound Masking Systems
27 51 23 Intercommunications and Program Systems
27 51 23.20 Commercial Intercommunications and Program Systems
27 51 23.30 Residential Intercommunications and Program Systems
27 51 23.50 Educational Intercommunications and Program Systems
27 51 23.63 Detention Intercommunications and Program Systems
27 51 23.70 Healthcare Intercommunications and Program Systems
27 51 26 Assistive Listening Systems

27 52 00 Healthcare Communications and Monitoring Systems
27 52 13 Patient Monitoring and Telemetry Systems
27 52 16 Telemedicine Systems
27 52 19 Healthcare Imaging Systems
27 52 23 Nurse Call/Code Blue Systems

27 53 00 Distributed Systems
27 53 13 Clock Systems
27 53 13.13 Wireless Clock Systems
27 53 16 Infrared and Radio Frequency Tracking Systems
27 53 19 Internal Cellular, Paging, and Antenna Systems

27 60 00 Wireless Transceivers
28 00 00 Electronic Safety and Security
28 01 00 Operation and Maintenance of Electronic Safety and Security
  28 01 10 Operation and Maintenance of Electronic Access Control and Intrusion Detection
  28 01 10.51 Maintenance and Administration of Electronic Access Control and Intrusion Detection
  28 01 10.71 Revisions and Upgrades of Electronic Access Control and Intrusion Detection
  28 01 20 Operation and Maintenance of Electronic Surveillance
  28 01 30 Operation and Maintenance of Electronic Detection and Alarm
  28 01 30.51 Maintenance and Administration of Electronic Detection and Alarm
  28 01 30.71 Revisions and Upgrades of Electronic Detection and Alarm
  28 01 40 Operation and Maintenance of Electronic Monitoring and Control
  28 01 40.51 Maintenance and Administration of Electronic Monitoring and Control
  28 01 40.71 Revisions and Upgrades of Electronic Monitoring and Control

28 05 00 Common Work Results for Electronic Safety and Security
  28 05 13 Conductors and Cables for Electronic Safety and Security
    28 05 13.13 CCTV Communications Conductors and Cables
    28 05 13.16 Access Control Communications Conductors and Cables
    28 05 13.19 Intrusion Detection Communications Conductors and Cables
    28 05 13.23 Fire Alarm Communications Conductors and Cables
  28 05 26 Grounding and Bonding for Electronic Safety and Security
  28 05 28 Pathways for Electronic Safety and Security
    28 05 28.29 Hangers and Supports for Electronic Safety and Security
    28 05 28.33 Conduits and Backboxes for Electronic Safety and Security
    28 05 28.36 Cable Trays for Electronic Safety and Security
    28 05 28.39 Surface Raceways for Electronic Safety and Security
  28 05 48 Vibration and Seismic Controls for Electronic Safety and Security
  28 05 53 Identification for Electronic Safety and Security

28 06 00 Schedules for Electronic Safety and Security
  28 06 10 Schedules for Electronic Access Control and Intrusion Detection
  28 06 20 Schedules for Electronic Surveillance
  28 06 30 Schedules for Electronic Detection and Alarm
  28 06 40 Schedules for Electronic Monitoring and Control

28 08 00 Commissioning of Electronic Safety and Security

28 10 00 Electronic Access Control and Intrusion Detection

28 13 00 Access Control
  28 13 13 Access Control Global Applications
  28 13 16 Access Control Systems and Database Management
  28 13 19 Access Control Systems Infrastructure
  28 13 26 Access Control Remote Devices
  28 13 33 Access Control Interfaces
  28 13 33.16 Access Control Interfaces to Access Control Hardware
  28 13 33.26 Access Control Interfaces to Intrusion Detection
  28 13 33.33 Access Control Interfaces to Video Surveillance
  28 13 33.36 Access Control Interfaces to Fire Alarm
28 13 43 Access Control Identification Management Systems
28 13 53 Security Access Detection
28 13 53.13 Security Access Metal Detectors
28 13 53.16 Security Access X-Ray Equipment
28 13 53.23 Security Access Explosive Detection Equipment
28 13 53.29 Security Access Sniffing Equipment
28 13 63 Access Control Vehicle Identification System

28 16 00 Intrusion Detection
28 16 13 Intrusion Detection Control, GUI, and Logic Systems
28 16 16 Intrusion Detection Systems Infrastructure
28 16 19 Intrusion Detection Remote Devices and Sensors
28 16 33 Intrusion Detection Interfaces
28 16 33.13 Intrusion Detection Interfaces to Remote Monitoring
28 16 33.16 Intrusion Detection Interfaces to Access Control Hardware
28 16 33.23 Intrusion Detection Interfaces to Access Control System
28 16 33.33 Intrusion Detection Interfaces to Video Surveillance
28 16 33.36 Intrusion Detection Interfaces to Fire Alarm
28 16 43 Perimeter Security Systems

28 20 00 Electronic Surveillance

28 23 00 Video Surveillance
28 23 13 Video Surveillance Control and Management Systems
28 23 16 Video Surveillance Monitoring and Supervisory Interfaces
28 23 19 Digital Video Recorders and Analog Recording Devices
28 23 23 Video Surveillance Systems Infrastructure
28 23 26 Video Surveillance Remote Positioning Equipment
28 23 29 Video Surveillance Remote Devices and Sensors

28 26 00 Electronic Personal Protection Systems
28 26 13 Electronic Personal Safety Detection Systems
28 26 16 Electronic Personal Safety Alarm Annunciation and Control Systems
28 26 19 Electronic Personal Safety Interfaces to Remote Monitoring
28 26 23 Electronic Personal Safety Emergency Aid Devices

28 30 00 Electronic Detection and Alarm

28 31 00 Fire Detection and Alarm
28 31 11 Digital, Addressable Fire-Alarm Systems
28 31 12 Zoned (DC Loop) Fire-Alarm Systems
28 31 13 Fire Detection and Alarm Control, GUI, and Logic Systems
28 31 23 Fire Detection and Alarm Annunciation Panels and Fire Stations
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 33.23 Fire Detection and Alarm Interfaces to Access Control System
28 31 33.26 Fire Detection and Alarm Interfaces to Intrusion Detection
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 53.33  Fire Alarm Flow 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
28 32 00  Radiation Detection and Alarm
28 32 13  Radiation Detection and Alarm Control, GUI, and Logic Systems
28 32 23  Radiation Detection and Alarm Integrated Audio Evacuation Systems
28 32 33  Radiation Detection Sensors
28 32 43  Radiation Dosimeters
28 33 00  Gas Detection and Alarm
28 33 13  Gas Detection and Alarm Control, GUI, and Logic Systems
28 33 23  Gas Detection and Alarm Integrated Audio Evacuation Systems
28 33 33  Gas Detection Sensors
28 34 00  Fuel-Oil Detection and Alarm
28 34 13  Fuel-Oil Detection and Alarm Control, GUI, and Logic Systems
28 34 23  Fuel-Oil Detection and Alarm Integrated Audio Evacuation Systems
28 34 33  Fuel-Oil Detection Sensors
28 35 00  Refrigerant Detection and Alarm
28 35 13  Refrigerant Detection and Alarm Control, GUI, and Logic Systems
28 35 23  Refrigerant Detection and Alarm Integrated Audio Evacuation Systems
28 35 33  Refrigerant Detection Sensors
28 36 00  Water Detection and Alarm
28 36 13  Water Detection and Alarm Control, GUI, and Logic Systems
28 36 33  Water Detection Sensors
28 39 00  Mass Notification Systems
28 40 00  Electronic Monitoring and Control
28 46 00  Electronic Detention Monitoring and Control Systems
28 46 13  Hard-Wired Detention Monitoring and Control Systems
28 46 16  Relay-Logic Detention Monitoring and Control Systems
28 46 19  PLC Electronic Detention Monitoring and Control Systems
28 46 23  Computer-Based Detention Monitoring and Control Systems
28 46 26  Discreet-Logic Detention Monitoring and Control Systems
28 46 29  Discreet-Distributed Intelligence Detention Monitoring and Control Systems
### 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 50 Maintenance of Excavation Support and Protection
- 31 01 60 Maintenance of Special Foundations and Load Bearing Elements
- 31 01 62 Maintenance of Driven Piles
- 31 01 62.61 Driven Pile Repairs
- 31 01 63 Maintenance of Bored and Augered Piles
- 31 01 63.61 Bored and Augered Pile Repairs
- 31 01 70 Maintenance of Tunneling and Mining
- 31 01 70.61 Tunnel Leak Repairs

#### 31 05 00 Common Work Results for Earthwork
- 31 05 10 Soils for Earthwork
- 31 05 16 Aggregates for Earthwork
- 31 05 19 Geosynthetics for Earthwork
- 31 05 19.13 Geotextiles for Earthwork
- 31 05 19.16 Geomembranes for Earthwork
- 31 05 19.19 Geogrids for Earthwork
- 31 05 23 Cement and Concrete for Earthwork

#### 31 06 00 Schedules for Earthwork
- 31 06 10 Schedules for Clearing
- 31 06 20 Schedules for Earth Moving
- 31 06 20.13 Trench Dimension Schedule
- 31 06 20.16 Backfill Material Schedule
- 31 06 40 Schedules for Shoring and Underpinning
- 31 06 50 Schedules for Excavation Support and Protection
- 31 06 60 Schedules for Special Foundations and Load Bearing Elements
- 31 06 60.13 Driven Pile Schedule
- 31 06 60.16 Caisson Schedule
- 31 06 70 Schedules for Tunneling and Mining

#### 31 08 00 Commissioning of Earthwork
- 31 08 13 Pile Load Testing
- 31 08 13.13 Dynamic Pile Load Testing
- 31 08 13.16 Static Pile Load Testing

#### 31 09 00 Geotechnical Instrumentation and Monitoring of Earthwork
- 31 09 13 Geotechnical Instrumentation and Monitoring
- 31 09 13.13 Groundwater Monitoring During Construction
- 31 09 16 Foundation Performance Instrumentation
- 31 09 16.26 Bored and Augered Pile Load Tests

#### 31 10 00 Site Clearing

#### 31 11 00 Clearing and Grubbing

#### 31 12 00 Selective Clearing

#### 31 13 00 Selective Tree and Shrub Removal and Trimming
- 31 13 13 Selective Tree and Shrub Removal
- 31 13 16 Selective Tree and Shrub Trimming
31 14 00  Earth Stripping and Stockpiling
   31 14 13  Soil Stripping and Stockpiling
   31 14 13.13  Soil Stripping
   31 14 13.16  Soil Stockpiling
   31 14 13.23  Topsoil Stripping and Stockpiling
   31 14 16  Sod Stripping and Stockpiling
   31 14 16.13  Sod Stripping
   31 14 16.16  Sod Stockpiling

31 20 00  Earth Moving

31 21 00  Off-Gassing Mitigation
   31 21 13  Radon Mitigation
   31 21 13.13  Radon Venting
   31 21 16  Methane Mitigation
   31 21 16.13  Methane Venting

31 22 00  Grading
   31 22 13  Rough Grading
   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 16.13  Trenching
   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 24 00  Embankments
   31 24 13  Roadway Embankments
   31 24 16  Railway Embankments

31 25 00  Erosion and Sedimentation Controls
   31 25 14  Stabilization Measures for Erosion and Sedimentation Control
   31 25 14.13  Hydraulically-Applied Erosion Control
   31 25 14.16  Rolled Erosion Control Mats and Blankets
   31 25 24  Structural Measures for Erosion and Sedimentation Control
   31 25 24.13  Rock Barriers
   31 25 34  Retention Measures for Erosion and Sedimentation Controls
   31 25 34.13  Rock Basins

31 30 00  Earthwork Methods

31 31 00  Soil Treatment
   31 31 13  Rodent Control
   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 19 Vegetation Control  
31 31 19.13 Chemical Vegetation Control  

31 32 00 Soil Stabilization  
31 32 13 Soil Mixing Stabilization  
31 32 13.13 Asphalt Soil Stabilization  
31 32 13.16 Cement Soil Stabilization  
31 32 13.19 Lime Soil Stabilization  
31 32 13.23 Fly-Ash Soil Stabilization  
31 32 13.26 Lime-Fly-Ash Soil Stabilization  
31 32 16 Chemical Treatment Soil Stabilization  
31 32 16.13 Polymer Emulsion Soil Stabilization  
31 32 17 Water Injection Soil Stabilization  
31 32 19 Geosynthetic Soil Stabilization and Layer Separation  
31 32 19.13 Geogrid Soil Stabilization  
31 32 19.16 Geotextile Soil Stabilization  
31 32 19.19 Geogrid Layer Separation  
31 32 19.23 Geotextile Layer Separation  
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 32 33 Shotcrete Soil Slope Stabilization  
31 32 36 Soil Nailing  
31 32 36.13 Driven Soil Nailing  
31 32 36.16 Grouted Soil Nailing  
31 32 36.19 Corrosion-Protected Soil Nailing  
31 32 36.23 Jet-Grouted Soil Nailing  
31 32 36.26 Launched Soil Nailing  

31 33 00 Rock Stabilization  
31 33 13 Rock Bolting and Grouting  
31 33 23 Rock Slope Netting  
31 33 26 Rock Slope Wire Mesh  
31 33 33 Shotcrete Rock Slope Stabilization  
31 33 43 Vegetated Rock Slope Stabilization  

31 34 00 Soil Reinforcement  
31 34 19 Geosynthetic Soil Reinforcement  
31 34 19.13 Geogrid Soil Reinforcement  
31 34 19.16 Geotextile Soil Reinforcement  
31 34 23 Fiber Soil Reinforcement  
31 34 23.13 Geosynthetic Fiber Soil Reinforcement  

31 35 00 Slope Protection  
31 35 19 Geosynthetic Slope Protection  
31 35 19.13 Geogrid Slope Protection  
31 35 19.16 Geotextile Slope Protection  
31 35 19.19 Slope Protection with Mulch Control Netting  
31 35 23 Slope Protection with Slope Paving  
31 35 23.13 Cast-In-Place Concrete Slope Paving  
31 35 23.16 Precast Concrete Slope Paving
31 35 23.19 Concrete Unit Masonry Slope Paving
31 35 26 Containment Barriers
31 35 26.13 Clay Containment Barriers
31 35 26.16 Geomembrane Containment Barriers
31 35 26.23 Bentonite Slurry Trench

31 36 00 Gabions
31 36 13 Gabion Boxes
31 36 19 Gabion Mattresses
31 36 19.13 Vegetated Gabion Mattresses

31 37 00 Riprap
31 37 13 Machined Riprap
31 37 16 Non-Machined Riprap
31 37 16.13 Rubble-Stone Riprap
31 37 16.16 Concrete Unit Masonry Riprap
31 37 16.19 Sacked Sand-Cement Riprap

31 40 00 Shoring and Underpinning

31 41 00 Shoring
31 41 13 Timber Shoring
31 41 16 Sheet Piling
31 41 16.13 Steel Sheet Piling
31 41 16.16 Plastic Sheet Piling
31 41 19 Metal Hydraulic Shoring
31 41 19.13 Aluminum Hydraulic Shoring
31 41 23 Pneumatic Shoring
31 41 33 Trench Shielding

31 43 00 Concrete Raising
31 43 13 Pressure Grouting
31 43 13.13 Concrete Pressure Grouting
31 43 13.16 Polyurethane Pressure Grouting
31 43 16 Compaction Grouting
31 43 19 Mechanical Jacking

31 45 00 Vibroflotation and Densification
31 45 13 Vibroflotation
31 45 16 Densification

31 46 00 Needle Beams
31 46 13 Cantilever Needle Beams

31 48 00 Underpinning
31 48 13 Underpinning Piers
31 48 19 Bracket Piers
31 48 23 Jacked Piers
31 48 33 Micropile Underpinning

31 50 00 Excavation Support and Protection

31 51 00 Anchor Tiebacks
31 51 13 Excavation Soil Anchors
31 51 16 Excavation Rock Anchors

31 52 00 Cofferdams
31 52 13 Sheet Piling Cofferdams
31 52 16 Timber Cofferdams
31 52 19 Precast Concrete Cofferdams

31 53 00 Cribbing and Walers
31 53 13 Timber Cribwork

31 54 00 Ground Freezing

31 56 00 Slurry Walls
31 56 13 Bentonite Slurry Walls
31 56 13.13 Soil-Bentonite Slurry Walls
31 56 13.16 Cement-Bentonite Slurry Walls
31 56 13.19 Slag-Cement-Bentonite Slurry Walls
31 56 13.23 Soil-Cement-Bentonite Slurry Walls
31 56 13.26 Pozzolan-Bentonite Slurry Walls
31 56 13.29 Organically-Modified Bentonite Slurry Walls
31 56 16 Attipulgite Slurry Walls
31 56 16.13 Soil-Attipulgite Slurry Walls
31 56 19 Slurry-Geomembrane Composite Slurry Walls
31 56 23 Lean Concrete Slurry Walls
31 56 26 Bio-Polymer Trench Drain

31 60 00 Special Foundations and Load-Bearing Elements

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 13.26 Pressure-Injected Footings
31 62 16 Steel Piles
31 62 16.13 Sheet Steel Piles
31 62 16.16 Steel H 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 Augered Test Piles
31 63 16 Auger Cast Grout Piles
31 63 19 Bored and Socketed 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 13  Box 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 66 16  Special Foundation Walls
31 66 16.13  Anchored Foundation Walls
31 66 16.23  Concrete Cribbing Foundation Walls
31 66 16.26  Metal Cribbing Foundation Walls
31 66 16.33  Manufactured Modular Foundation Walls
31 66 16.43  Mechanically Stabilized Earth Foundation Walls
31 66 16.46  Slurry Diaphragm Foundation Walls
31 66 16.53  Soldier-Beam Foundation Walls
31 66 16.56  Permanently-Anchored Soldier-Beam Foundation Walls
31 66 19  Refrigerated Foundations

31 68 00  Foundation Anchors
31 68 13  Rock Foundation Anchors
31 68 16  Helical Foundation Anchors

31 70 00  Tunneling and Mining

31 71 00  Tunnel Excavation
31 71 13  Shield Driving Tunnel Excavation
31 71 16  Tunnel Excavation by Drilling and Blasting
31 71 19  Tunnel Excavation by Tunnel Boring Machine
31 71 23  Tunneling by Cut and Cover

31 72 00  Tunnel Support Systems
31 72 13  Rock Reinforcement and Initial Support
31 72 16  Steel Ribs and Lagging

31 73 00  Tunnel Grouting
31 73 13  Cement Tunnel Grouting
31 73 16  Chemical Tunnel Grouting

31 74 00  Tunnel Construction
31 74 13  Cast-in-Place Concrete Tunnel Lining
31 74 16  Precast Concrete Tunnel Lining
31 74 19  Shotcrete Tunnel Lining

31 75 00  Shaft Construction
31 75 13  Cast-in-Place Concrete Shaft Lining
31 75 16  Precast Concrete Shaft Lining

31 77 00  Submersible Tube Tunnels
31 77 13  Trench Excavation for Submerged Tunnels
31 77 16  Tube Construction (Outfitting Tunnel Tubes)
31 77 19  Floating and Laying Submerged Tunnels
32 00 00 Exterior Improvements

32 01 00 Operation and Maintenance of Exterior Improvements

32 01 11 Paving Cleaning
32 01 11.51 Rubber and Paint Removal from Paving
32 01 11.52 Rubber Removal from Paving
32 01 11.53 Paint Removal from Paving
32 01 13 Flexible Paving Surface Treatment
32 01 13.61 Slurry Seal (Latex Modified)
32 01 13.62 Asphalt Surface Treatment
32 01 16 Flexible Paving Rehabilitation
32 01 16.71 Cold Milling Asphalt Paving
32 01 16.72 Asphalt Paving Reuse
32 01 16.73 In Place Cold Reused Asphalt Paving
32 01 16.74 In Place Hot Reused Asphalt Paving
32 01 16.75 Heater Scarifying of Asphalt Paving
32 01 17 Flexible Paving Repair
32 01 17.61 Sealing Cracks in Asphalt Paving
32 01 17.62 Stress-Absorbing Membrane Interlayer
32 01 19 Rigid Paving Surface Treatment
32 01 19.61 Sealing of Joints in Rigid Paving
32 01 19.62 Patching of Rigid Paving
32 01 23 Base Course Reconditioning
32 01 26 Rigid Paving Rehabilitation
32 01 26.71 Grooving of Concrete Paving
32 01 26.72 Grinding of Concrete Paving
32 01 26.73 Milling of Concrete Paving
32 01 26.74 Concrete Overlays
32 01 26.75 Concrete Paving Reuse
32 01 29 Rigid Paving Repair
32 01 29.61 Partial Depth Patching of Rigid Paving
32 01 29.62 Concrete Paving Raising
32 01 29.63 Subsealing and Stabilization
32 01 30 Operation and Maintenance of Site Improvements
32 01 30.13 Snow Removal
32 01 80 Operation and Maintenance of Irrigation
32 01 90 Operation and Maintenance of Planting
32 01 90.13 Fertilizing
32 01 90.16 Amending Soils
32 01 90.19 Mowing
32 01 90.23 Pruning
32 01 90.26 Watering
32 01 90.29 Topsoil Preservation
32 01 90.33 Tree and Shrub Preservation

32 05 00 Common Work Results for Exterior Improvements

32 05 13 Soils for Exterior Improvements
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35 43 34  Soil Reinforcement Scour Protection
35 43 35  Slope Protection Scour Protection
35 43 36  Gabion Scour Protection
35 43 37  Riprap Scour Protection
35 43 53  Wall Scour Protection
35 43 53.13  Concrete Unit Masonry Wall Scour Protection
35 43 53.16  Segmental Wall Scour Protection
35 43 53.40  Stone Wall Scour Protection

35 49 00  Waterway Structures
35 49 13  Floodwalls
35 49 13.13  Concrete Floodwalls
35 49 13.16  Masonry Floodwalls
35 49 23  Waterway Locks
35 49 23.13  Concrete Waterway Locks
35 49 23.23  Piling Waterway Locks
35 49 26  Floodgate Machinery

35 50 00  Marine Construction and Equipment

35 51 00  Floating Construction
35 51 13  Floating Piers
35 51 13.23  Floating Wood Piers
35 51 13.26  Floating Plastic Piers
35 51 23  Pontoons

35 52 00  Offshore Platform Construction
35 52 13  Fixed Offshore Platform Construction
35 52 23  Semi-Submersible Offshore Platform Construction
35 52 33  Floating Offshore Platform Construction

35 53 00  **Underwater Construction**
35 53 23  Underwater Harbor Deepening
35 53 33  Underwater Pipeline Construction
35 53 43  Underwater Foundation Construction
35 53 53  Underwater Structures Construction
35 53 63  Underwater Waterproofing

35 59 00  **Marine Specialties**
35 59 13  Marine Fenders
35 59 13.13 Prestressed Concrete Marine Fender Piling
35 59 13.16 Resilient Foam-Filled Marine Fenders
35 59 13.19 Rubber Marine Fenders
35 59 23  Buoys
35 59 23.13 Mooring Buoys
35 59 23.16 Anchor Pendant Buoys
35 59 23.19 Navigation Buoys
35 59 29  Mooring Devices
35 59 29.13 Quick-Release Mooring Hooks
35 59 29.16 Laser Docking Systems
35 59 29.19 Capstans
35 59 33  Marine Bollards and Cleats
35 59 33.13 Cast-Steel Marine Bollards and Cleats
35 59 33.16 Cast-Iron Marine Bollards and Cleats
35 59 33.19 Stainless-Steel Marine Bollards and Cleats
35 59 33.23 Plastic Marine Bollards and Cleats
35 59 93  Marine Chain and Accessories
35 59 93.13 Marine Chain
35 59 93.16 Marine Shackles
35 59 93.19 Marine Chain Tensioners

35 70 00  **Dam Construction and Equipment**

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 00  **Arch Dams**
35 72 13  Concrete Arch Dams

35 73 00  **Embankment Dams**
35 73 13  Earth Embankment Dam
35 73 16  Rock Embankment Dams

35 74 00  **Buttress Dams**
35 74 13  Concrete Buttress Dams

35 79 00  **Auxiliary Dam Structures**
35 79 13  Fish Ladders
35 79 13.13 Concrete Fish Ladders
40 00 00  Process Integration
   40 01 00  Operation and Maintenance of Process Integration
      40 01 10  Operation and Maintenance of Gas and Vapor Process Piping
      40 01 20  Operation and Maintenance of Liquids Process Piping
      40 01 30  Operation and Maintenance of Solid and Mixed Materials Piping and Chutes
      40 01 40  Operation and Maintenance of Process Piping and Equipment Protection
   40 05 00  Common Work Results for Process Integration
      40 05 13  Common Work Results for Process Piping
         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 23  Common Work Results for Process Valves
         40 05 23.13  Carbon Steel Process Valves
         40 05 23.16  Low and Intermediate Alloy Steel Process Valves
         40 05 23.19  Stainless-Steel Process Valves
         40 05 23.33  Brass and Iron Process Valves
         40 05 23.43  Nickel and Nickel Alloys Steel Process Valves
         40 05 23.73  Plastic and Plastic Lined Process Valves
         40 05 23.93  Other Metals Process Valves
   40 06 00  Schedules for Process Integration
      40 06 10  Schedules for Gas and Vapor Process Piping
      40 06 20  Schedules for Liquids Process Piping
      40 06 30  Schedules for Solid and Mixed Materials Piping and Chutes
      40 06 40  Schedules for Process Piping and Equipment Protection
   40 10 00  Gas and Vapor Process Piping
   40 11 00  Steam Process Piping
      40 11 13  Low-Pressure Steam Process Piping
      40 11 16  Intermediate-Pressure Steam Process Piping
      40 11 19  High-Pressure Steam Process Piping
      40 11 23  Condensate Process Piping
   40 12 00  Compressed Air Process Piping
      40 12 13  Breathing Compressed Air Process Piping
      40 12 16  Non-Breathing Compressed Air Process Piping
   40 13 00  Inert Gases Process Piping
      40 13 13  Argon Process Piping
      40 13 16  Carbon-Dioxide Process Piping
      40 13 19  Helium Process Piping
      40 13 23  Krypton Process Piping
      40 13 26  Neon Process Piping
      40 13 29  Nitrogen Process Piping
40 13 33  Xenon Process Piping
40 13 93  Mixed Inert Gases Process Piping

40 14 00  **Fuel Gases Process Piping**
40 14 13  Blast Furnace Piping
40 14 16  Blue (Water) Fuel Gas Piping
40 14 19  Butane Piping
40 14 23  Carbon-Monoxide Piping
40 14 26  Chlorine Fuel Gas Piping
40 14 29  Coke Oven Gas Piping
40 14 33  Ethane-Gas Piping
40 14 36  Hydrogen Fuel Gas Piping
40 14 39  Liquid Natural-Gas Process Piping
40 14 43  Methylacetylene-Propadiene Fuel Gas Piping
40 14 49  Natural-Gas Process Piping
40 14 49.13  Synthetic Natural-Gas Piping
40 14 49.23  Propane-Air Mixes Fuel Gas Piping
40 14 53  Octane Fuel Gas Piping
40 14 59  Propane Fuel Gas Process Piping
40 14 63  Sewage Fuel Gas Piping
40 14 93  Mixed Fuel Gases Piping

40 15 00  **Combustion System Gas Piping**
40 15 13  Combustion Air Piping
40 15 16  Oxygen Combustion System Gas Piping
40 15 19  Flue-Gas Combustion System Piping
40 15 23  Exothermic-Gas Combustion System Piping
40 15 26  Endothermic-Gas Combustion System Piping
40 15 29  Disassociated-Ammonia-Gas Combustion System Piping

40 16 00  **Specialty and High-Purity Gases Piping**
40 16 13  Ammonia Gas Piping
40 16 16  Boron Gas Piping
40 16 26  Diborane Gas Piping
40 16 29  Flourine Gas Piping
40 16 33  Hydrogen Sulfide Gas Piping
40 16 36  Nitrous-Oxide Gas Process Piping
40 16 39  Ozone Gas Piping
40 16 43  Phosphine Gas Piping
40 16 46  Silane Gas Piping
40 16 49  Sulphur-Dioxide Gas Piping
40 16 53  Specialty Gas Mixtures Piping
40 16 56  High-Purity Gas Piping Components

40 17 00  **Welding and Cutting Gases Piping**
40 17 13  Acetylene Welding and Cutting Piping
40 17 16  Acetylene-Hydrogen Mix Welding and Cutting Piping
40 17 19  Methylacetylene-Propadiene Welding and Cutting Piping
40 17 23  Oxygen Welding and Cutting Piping
40 17 26  Inert Gas Welding and Cutting Piping

40 18 00  **Vacuum Systems Process Piping**
40 18 13  Low-Vacuum Systems Process Piping
40 18 16  High-Vacuum Systems Process Piping
40 20 00   Liquids Process Piping
40 21 00   Liquid Fuel Process Piping
   40 21 13  Bio Fuels Process Piping
   40 21 16  Gasoline Process Piping
   40 21 19  Diesel Process Piping
   40 21 23  Fuel-Oils Process Piping
   40 21 23.13 No. 2 Fuel-Oil Process Piping
   40 21 23.16 No. 4 Fuel-Oil Process Piping
   40 21 23.19 No. 5 Fuel-Oil Process Piping
   40 21 23.23 No. 6 Fuel-Oil Process Piping
   40 21 23.26 Kerosene Process Piping
   40 21 23.29 Tar Process Piping
40 22 00   Petroleum Products Piping
   40 22 13  Heavy-Fractions Petroleum Products Piping
   40 22 16  Light-Fractions Petroleum Products Piping
40 23 00   Water Process Piping
   40 23 13  Deionized Water Process Piping
   40 23 16  Distilled-Water Process Piping
   40 23 19  Process Plant Water Piping
   40 23 23  Potable Water Process Piping
   40 23 29  Recirculated Water Process Piping
   40 23 33  Reverse-Osmosis Water Process Piping
   40 23 36  Sanitary Water Process Piping
40 24 00   Specialty Liquid Chemicals Piping
   40 24 13  Alcohol Piping
   40 24 16  Gel Piping
   40 24 19  Slurries Process Piping
   40 24 23  Thixotropic Liquid Piping
40 25 00   Liquid Acids and Bases Piping
   40 25 13  Liquid Acids Piping
   40 25 16  Liquid Bases Piping
40 26 00   Liquid Polymer Piping
40 30 00   Solid and Mixed Materials Piping and Chutes
40 32 00   Bulk Materials Piping and Chutes
   40 32 13  Abrasive Materials Piping and Chutes
   40 32 16  Nonabrasive Materials Piping and Chutes
40 33 00   Bulk Materials Valves
   40 33 13  Airlock Bulk Materials Valves
   40 33 16  Blind Bulk Materials Valves
   40 33 19  Butterfly Bulk Materials Valves
   40 33 23  Cone Bulk Materials Valves
   40 33 26  Diverter Bulk Materials Valves
   40 33 29  Double or Single Dump Bulk Materials Valves
   40 33 33  Knife and Slide Gate Bulk Materials Valves
   40 33 36  Pinch Bulk Materials Valves
   40 33 39  Swing Bulk Materials Valves
40 33 43 Specialty Bulk Materials Valves

40 34 00 Pneumatic Conveying Lines
  40 34 13 Dense Phase Pneumatic Conveying Lines
  40 34 16 Dilute Phase Pneumatic Conveying Lines

40 40 00 Process Piping and Equipment Protection

40 41 00 Process Piping and Equipment Heat Tracing
  40 41 13 Process Piping Heat Tracing
  40 41 13.13 Process Piping Electrical Resistance Heat Tracing
  40 41 13.16 Process Piping Electrical Conductance Heat Tracing
  40 41 13.19 Process Piping Gas Heat Tracing
  40 41 13.23 Process Piping Steam Heat Tracing
  40 41 13.26 Process Piping Thermal Fluids Heat Tracing
  40 41 23 Process Equipment Heat Tracing
  40 41 23.13 Process Equipment Electrical Resistance Heat Tracing
  40 41 23.16 Process Equipment Electrical Conductance Heat Tracing
  40 41 23.19 Process Equipment Gas Heat Tracing
  40 41 23.23 Process Equipment Steam Heat Tracing
  40 41 23.26 Process Equipment Thermal Fluids Heat Tracing

40 42 00 Process Piping and Equipment Insulation
  40 42 13 Process Piping Insulation
  40 42 13.13 Cryogenic Temperature Process Piping Insulation
  40 42 13.16 Low Temperature Process Piping Insulation
  40 42 13.19 Intermediate Temperature Process Piping Insulation
  40 42 13.23 High Temperature Process Piping Insulation
  40 42 13.26 Process Piping Insulation for Specialty Applications
  40 42 23 Process Equipment Insulation
  40 42 23.13 Cryogenic Temperature Process Equipment Insulation
  40 42 23.16 Low Temperature Process Equipment Insulation
  40 42 23.19 Intermediate Temperature Process Equipment Insulation
  40 42 23.23 High Temperature Process Equipment Insulation
  40 42 23.26 Process Equipment Insulation for Specialty Applications

40 46 00 Process Corrosion Protection
  40 46 16 Coatings and Wrappings for Process Corrosion Protection
  40 46 42 Cathodic Process Corrosion Protection

40 47 00 Refractories
  40 47 13 Silica Refractories
  40 47 16 Alumina Refractories
  40 47 19 Carbon and Graphite Refractories
  40 47 23 Castable Refractories
  40 47 26 Rammed Refractories
  40 47 29 Refractory Concrete

40 80 00 Commissioning of Process Systems

40 90 00 Instrumentation and Control for Process Systems

40 91 00 Primary Process Measurement Devices
  40 91 13 Chemical Properties Process Measurement Devices
  40 91 13.13 Ammonia Process Measurement Devices
  40 91 13.16 Chlorine Process Measurement Devices
  40 91 13.19 Fluoride Process Measurement Devices
40 91 13.23 Gas Analysis Process Measurement Devices
40 91 13.26 Gas Chromatograph Process Measurement Devices
40 91 13.29 pH Level Process Measurement Devices
40 91 16 Electromagnetic Process Measurement Devices
40 91 16.13 Amperes Process Measurement Devices
40 91 16.16 Capacitance Process Measurement Devices
40 91 16.19 Conductivity Process Measurement Devices
40 91 16.23 Inductance Process Measurement Devices
40 91 16.26 Lumens Process Measurement Devices
40 91 16.29 Magnetic Field Process Measurement Devices
40 91 16.33 Electrical Power Process Measurement Devices
40 91 16.36 Radiation Process Measurement Devices
40 91 16.39 Electrical Resistance Process Measurement Devices
40 91 16.43 Ultraviolet Sensors
40 91 16.46 Voltage Process Measurement Devices
40 91 19 Physical Properties Process Measurement Devices
40 91 19.13 Density Process Measurement Devices
40 91 19.16 Humidity Process Measurement Devices
40 91 19.19 Mass Process Measurement Devices
40 91 19.23 Particle Counters Process Measurement Devices
40 91 19.26 Gas Pressure Process Measurement Devices
40 91 19.29 Liquid Pressure Process Measurement Devices
40 91 19.33 Stress/Strain Process Measurement Devices
40 91 19.36 Temperature Process Measurement Devices
40 91 19.39 Vapor Pressure Process Measurement Devices
40 91 19.43 Weight Process Measurement Devices
40 91 23 Miscellaneous Properties Measurement Devices
40 91 23.13 Acceleration Process Measurement Devices
40 91 23.16 Angle Process Measurement Devices
40 91 23.19 Color Process Measurement Devices
40 91 23.23 Count Process Measurement Devices
40 91 23.26 Distance Process Measurement Devices
40 91 23.29 Energy Process Measurement Devices
40 91 23.33 Flow Process Measurement Devices
40 91 23.36 Level Process Measurement Devices
40 91 23.39 Physical Resistance Process Measurement Devices
40 91 23.43 RPM Process Measurement Devices
40 91 23.46 Time Process Measurement Devices
40 91 23.49 Turbidity Process Measurement Devices
40 91 23.53 Velocity Process Measurement Devices

40 92 00 Primary Control Devices
40 92 13 Primary Control Valves
40 92 13.13 Electrically-Operated Primary Control Valves
40 92 13.16 Hydraulically-Operated Primary Control Valves
40 92 13.19 Pneumatically-Operated Primary Control Valves
40 92 13.23 Pressure-Relief Primary Control Valves
40 92 13.26 Solenoid Primary Control Valves
40 92 13.29 Specialty Primary Control Valves
40 92 29 Current-To-Pressure Converters
40 92 33 Self-Contained Flow Controllers
40 92 36 Linear Actuators and Positioners
40 92 39 Self-Contained Pressure Regulators
40 92 43 Rotary Actuators
40 92 46 Saturable Core Reactors
40 92 49  Variable Frequency Drives
40 92 53  Voltage-To-Pressure Converters

**40 93 00  Analog Controllers/Recorders**
- 40 93 13  Analog Controllers
- 40 93 13.13  Electronic Analog Controllers
- 40 93 13.16  Electro-Hydraulic Analog Controllers
- 40 93 13.19  Electro-Pneumatic Analog Controllers
- 40 93 13.23  Hydraulic Analog Controllers
- 40 93 13.26  Pneumatic Analog Controllers
- 40 93 23  Chart Recorders

**40 94 00  Digital Process Controllers**
- 40 94 13  Digital Process Control Computers
- 40 94 13.13  Host Digital Process Control Computers
- 40 94 13.16  Personal Digital Process Control Computers
- 40 94 23  Distributed Process Control Systems
- 40 94 33  Human - Machine Interfaces
- 40 94 43  Programmable Logic Process Controllers

**40 95 00  Process Control Hardware**
- 40 95 13  Process Control Panels and Hardware
- 40 95 13.13  Local Process Control Panels and Hardware
- 40 95 13.23  Main Process Control Panels and Hardware
- 40 95 20  Process Control Display Devices
- 40 95 23  Process Control Input/Output Modules
- 40 95 26  Process Control Instrument Air Piping and Devices
- 40 95 33  Process Control Networks
- 40 95 33.13  Cabled Process Control Networks
- 40 95 33.23  Fiber Optic Process Control Networks
- 40 95 33.33  Wireless Process Control Networks
- 40 95 43  Process Control Hardware Interfaces
- 40 95 46  Process Control Mounting Racks and Supports
- 40 95 49  Process Control Routers
- 40 95 53  Process Control Switches
- 40 95 56  Process Control Transformers
- 40 95 63  Process Control Wireless Equipment
- 40 95 63.13  Process Control Wireless Transmitters
- 40 95 63.16  Process Control Wireless Receivers
- 40 95 63.19  Process Control Wireless Repeaters
- 40 95 73  Process Control Wiring
- 40 95 73.23  Process Control Cable
- 40 95 73.33  Process Control Conduit, Raceway and Supports
- 40 95 73.43  Process Control Junction Boxes

**40 96 00  Process Control Software**
- 40 96 10  Process Control Software Architecture
- 40 96 15  Process Control Software Input/Output Lists
- 40 96 20  Process Control Software Instrument Lists
- 40 96 25  Process Control Software Logic Diagrams
- 40 96 30  Process Control Software Loop Diagrams
- 40 96 35  Process Control Software Programming
- 40 96 40  Process Control Software Reports

**40 97 00  Process Control Auxiliary Devices**
40 97 10  Process Control Annunciators
40 97 15  Process Control Gages
40 97 20  Process Control Rotameters
40 97 25  Process Control Potentiometers
40 97 30  Process Control Test Equipment
41 00 00  Material Processing and Handling Equipment

41 01 00  Operation and Maintenance of Material Processing and Handling Equipment
  41 01 10  Operation and Maintenance of Bulk Material Processing Equipment
  41 01 20  Operation and Maintenance of Piece Material Handling Equipment
  41 01 30  Operation and Maintenance of Manufacturing Equipment
  41 01 40  Operation and Maintenance of Container Processing and Packaging
  41 01 50  Operation and Maintenance of Material Storage
  41 01 60  Operation and Maintenance of Mobile Plant Equipment

41 06 00  Schedules for Material Processing and Handling Equipment
  41 06 10  Schedules for Bulk Material Processing Equipment
  41 06 20  Schedules for Piece Material Handling Equipment
  41 06 30  Schedules for Manufacturing Equipment
  41 06 40  Schedules for Container Processing and Packaging
  41 06 50  Schedules for Material Storage
  41 06 60  Schedules for Mobile Plant Equipment

41 08 00  Commissioning of Material Processing and Handling Equipment
  41 08 10  Commissioning of Bulk Material Processing Equipment
  41 08 20  Commissioning of Piece Material Handling Equipment
  41 08 30  Commissioning of Manufacturing Equipment
  41 08 40  Commissioning of Container Processing and Packaging
  41 08 50  Commissioning of Material Storage
  41 08 60  Commissioning of Mobile Plant Equipment

41 10 00  Bulk Material Processing Equipment

41 11 00  Bulk Material Sizing Equipment
  41 11 13  Bulk Material Agglomerators
  41 11 16  Bulk Material Air Mill Classifiers
  41 11 19  Bulk Material Centrifuges
  41 11 23  Bulk Material Crushers
  41 11 26  Bulk Material Cyclones
  41 11 29  Bulk Material Fluid Bed Separators
  41 11 33  Bulk Material Grinders
  41 11 36  Bulk Material Homogenizers
  41 11 39  Bulk Material Lump Breakers
  41 11 43  Bulk Material Mills
  41 11 46  Bulk Material Pulverizers
  41 11 49  Bulk Material Screens
  41 11 53  Bulk Material Shredders
  41 11 56  Bulk Material Sieves

41 12 00  Bulk Material Conveying Equipment
  41 12 13  Bulk Material Conveyors
  41 12 13.13  Airdrive Bulk Material Conveyors
  41 12 13.16  Auger Bulk Material Conveyors
  41 12 13.19  Belt Bulk Material Conveyors
41 12 13.23 Container Bulk Material Conveyors
41 12 13.26 Drag Chain Bulk Material Conveyors
41 12 13.29 Hopper Bulk Material Conveyors
41 12 13.33 Reciprocating Bulk Material Conveyors
41 12 13.36 Screw Bulk Material Conveyors
41 12 13.39 Stacking and Reclalm Bulk Material Conveyors
41 12 13.43 Trough Bulk Material Conveyors
41 12 13.46 Tube Bulk Material Conveyors
41 12 13.49 Vibratory Bulk Material Conveyors
41 12 13.53 Weigh-Belt Bulk Material Conveyors
41 12 16 Bucket Elevators
41 12 19 Pneumatic Conveyors
41 12 19.13 Dense Phase Pneumatic Conveyors
41 12 19.16 Dilute Phase Pneumatic Conveyors
41 13 00 Bulk Material Feeders
41 13 13 Bin Activators/Live Bin Bottoms
41 13 23 Feeders
41 13 23.13 Airlock Bulk Material Feeders
41 13 23.16 Apron Bulk Material Feeders
41 13 23.19 Rotary-Valve Bulk Material Feeders
41 13 23.23 Screw Bulk Material Feeders
41 13 23.26 Vibratory Bulk Material Feeders
41 13 23.29 Volumetric Bulk Material Feeders
41 13 23.33 Weigh Bulk Material Feeders
41 14 00 Batching Equipment
41 14 13 Bag-Handling Batching Equipment
41 14 16 Batch Cars/Transports
41 14 19 Batch Hoppers
41 14 23 Bulk Bag-Handling Batching Equipment
41 14 26 Blenders
41 14 29 Drum-Handling Batching Equipment
41 14 33 Mixers
41 14 36 Weigh Scales
41 20 00 Piece Material Handling Equipment
41 21 00 Conveyors
41 21 13 Automatic Guided Vehicle Systems
41 21 23 Piece Material Conveyors
41 21 23.13 Belt Piece Material Conveyors
41 21 23.16 Container Piece Material Conveyors
41 21 23.19 Drag-Chain Piece Material Conveyors
41 21 23.23 Hopper Piece Material Conveyors
41 21 23.26 Monorail Piece Material Conveyors
41 21 23.29 Power and Free Piece Material Conveyors
41 21 23.33 Reciprocating Piece Material Conveyors
41 21 23.36 Roller Piece Material Conveyors
41 21 23.39 Vibratory Piece Material Conveyors
41 21 23.43 Walking-Beam Piece Material Conveyors
41 21 23.46 Weigh-Belt Piece Material Conveyors
41 21 23.53 Postal Conveyors
41 21 26 Piece Material Diverter Gates
41 21 29 Piece Material Gravity Slides
41 21 33 Piece Material Transfer Cars
41 21 36 Piece Material Turntables
41 21 39 Piece Material Feeders
41 21 39.13 Piece Material Vibratory Feeders

41 22 00 Cranes and Hoists
41 22 13 Cranes
41 22 13.13 Bridge Cranes
41 22 13.16 Gantry Cranes
41 22 13.19 Jib Cranes
41 22 13.23 Mobile Cranes
41 22 13.26 Tower Cranes
41 22 13.29 Specialty Cranes
41 22 23 Hoists
41 22 23.13 Fixed Hoists
41 22 23.16 Portable Hoists
41 22 23.19 Monorail Hoists
41 22 23.23 Specialty Hoists
41 22 33 Derricks

41 23 00 Lifting Devices
41 23 13 Clamps
41 23 16 Grabs
41 23 19 Hooks
41 23 23 Lifts
41 23 26 Slings
41 23 29 Spreader Bars/Beams
41 23 33 Tongs

41 24 00 Specialty Material Handling Equipment
41 24 13 Aeration Devices
41 24 16 Bin Vibrators
41 24 19 Dehydrators
41 24 23 Hydrators
41 24 26 Hydraulic Power Systems
41 24 29 Lubrication Systems
41 24 33 Magnetic Separators
41 24 36 Metal Detectors
41 24 39 Railcar Movers
41 24 43 Turnheads/Distributors
41 24 46 Sorting Machines
41 24 46.13 Postal Sorting Machines

41 30 00 Manufacturing Equipment

41 31 00 Manufacturing Lines and Equipment
41 31 13 Manufacturing Lines
41 31 13.13 Assembly Lines
41 31 13.16 Casting Lines
41 31 13.19 Coating Lines
41 31 13.23 Converting Lines
41 31 13.26 Disassembly Lines
41 31 13.29 Extrusion Lines
41 31 13.33 Machining Lines
41 31 13.36 Molding Lines
41 31 13.39 Finishing/Painting Lines
41 31 13.43 Painting Lines
41 31 13.46  Pickling Lines
41 31 13.49  Plating Lines
41 31 13.53  Polishing Lines
41 31 13.56  Press Lines
41 31 13.59  Rolling/Calendaring Lines
41 31 13.63  Web Processing Lines
41 31 16  Pick and Place Systems
41 31 19  Manufacturing-Line Robots
41 31 23  Specialty Assembly Machines

41 32 00  Forming Equipment
41 32 13  Bending Equipment
41 32 16  Blow-Molding Equipment
41 32 19  Brake-Forming Equipment
41 32 23  Cold-Forming Equipment
41 32 26  Die-Casting Equipment
41 32 29  Drawing Equipment
41 32 33  Electroforming Equipment
41 32 36  Forging Equipment
41 32 39  Extruding Equipment
41 32 43  Metal-Spinning Equipment
41 32 46  Piercing Equipment
41 32 49  Powder Metal-Forming Equipment
41 32 53  Pressing Equipment
41 32 56  Roll-Forming Equipment
41 32 59  Shearing Equipment
41 32 63  Spinning Equipment
41 32 66  Stretching/Leveling Equipment
41 32 69  Swaging Equipment

41 33 00  Machining Equipment
41 33 13  Automatic Screw Machining Equipment
41 33 16  Boring Equipment
41 33 19  Broaching Equipment
41 33 23  Drilling Equipment
41 33 26  Electro-Discharge Machining Equipment
41 33 29  Grinding Equipment
41 33 33  Hobbing Equipment
41 33 36  Lapping Equipment
41 33 39  Lathe Equipment
41 33 43  Leveling Equipment
41 33 46  Machining Center Equipment
41 33 53  Milling Equipment
41 33 53.13  Horizontal Milling Equipment
41 33 53.16  Vertical Milling Equipment
41 33 60  Multi-Axis Machine Equipment
41 33 63  Planing Equipment
41 33 66  Reaming Equipment
41 33 69  Routing Equipment
41 33 73  Sawing Equipment
41 33 76  Shaping Equipment
41 33 79  Threading Equipment

41 34 00  Finishing Equipment
41 34 13 Anodizing Equipment
41 34 16 Barrel Tumbling Equipment
41 34 23 Coating Equipment
41 34 23.13 Diffusion Coating Equipment
41 34 23.16 Dipping Coating Equipment
41 34 23.19 Film Coating Equipment
41 34 23.23 Phosphatizing Coating Equipment
41 34 23.26 Plasma Coating Equipment
41 34 23.29 Hardface Welding Coating Equipment
41 34 23.33 Spray Painting Booth
41 34 26 Deburring Equipment
41 34 36 Electroplating Equipment
41 34 46 Grinding Equipment
41 34 49 Honing Equipment
41 34 53 Lapping Equipment
41 34 56 Shot Peening Equipment
41 34 59 Superfinishing/Polishing Equipment

41 35 00 Dies and Molds
41 35 13 Dies
41 35 13.13 Drawing Dies
41 35 13.16 Extrusion Dies
41 35 13.19 Press Dies
41 35 13.23 Rotary Dies
41 35 13.26 Rule Dies
41 35 33 Molds

41 36 00 Assembly and Testing Equipment
41 36 13 Applicators
41 36 13.13 Adhesive Applicators
41 36 13.16 Lubricant Applicators
41 36 13.19 Sealer Applicators
41 36 16 Fixtures and Jigs
41 36 19 Joining Equipment
41 36 19.13 Adhesive Joining Equipment
41 36 19.16 Arc-Welding Equipment
41 36 19.19 Brazing Equipment
41 36 19.23 Resistance-Welding Equipment
41 36 19.26 Riveting Equipment
41 36 19.29 Sintering Equipment
41 36 19.33 Soldering Equipment
41 36 23 Cutting Equipment
41 36 23.13 Cutting Torches
41 36 23.16 High-Pressure Water Cutting Equipment
41 36 23.19 Laser Cutting Equipment
41 36 23.23 Plasma Cutting Equipment
41 36 26 Process Tools
41 36 26.13 Air Process Tools
41 36 26.16 Electric Process Tools
41 36 26.19 Hydraulic Process Tools
41 36 26.23 Manual Process Tools
41 36 29 Manufacturing Measurement and Testing Equipment
41 36 29.13 Gages, Rules, and Blocks
41 36 29.16 Penetrant Measurement and Testing Equipment
41 36 29.19 Laser Measurement and Testing Equipment
41 36 29.23 Magnaflux Measurement and Testing Equipment
41 36 29.26 Optical Comparators
41 36 29.29 Profilometers
41 36 29.33 Radiograph Measurement and Testing Equipment
41 36 29.36 Surface Tables
41 36 29.39 Ultrasonic Measurement and Testing Equipment
41 36 29.43 Test Weigh Scales

41 40 00 Container Processing and Packaging

41 41 00 Container Filling and Sealing
41 41 13 Bulk Container Fillers/Packers
41 41 16 Container Cappers
41 41 19 Container Fillers
41 41 19.13 Bag Fillers
41 41 19.16 Box Fillers
41 41 19.19 Bottle Fillers
41 41 23 Container Sealers

41 42 00 Container Packing Equipment
41 42 13 Box Packing Equipment
41 42 13.13 Box Makers
41 42 13.16 Box Packers
41 42 16 Bulk Material Loaders
41 42 16.13 Container Bulk Material Loaders
41 42 16.23 Truck Bulk Material Loaders
41 42 16.26 Railcar Bulk Material Loaders
41 42 16.29 Ship Bulk Material Loaders
41 42 16.33 Barge Bulk Material Loaders
41 42 19 Carton Packers
41 42 23 Carton Sealers
41 42 26 Carton Shrink Wrappers
41 42 29 Carton Stackers

41 43 00 Shipping Packaging
41 43 13 Banding/Strapping Equipment
41 43 16 Barcode Equipment
41 43 16.13 Barcode Readers
41 43 16.16 Barcode Printers
41 43 19 Labeling Equipment
41 43 23 Pallet Stacking/Wrapping Equipment

41 50 00 Material Storage

41 51 00 Automatic Material Storage
41 51 13 Automatic Storage/Automatic Retrieval Systems

41 52 00 Bulk Material Storage
41 52 13 Bins and Hoppers
41 52 13.13 Fixed Bins and Hoppers
41 52 13.23 Portable Bins and Hoppers
41 52 13.33 Bulk Material Containers
41 52 13.43 Returnable Bins and Hoppers
41 52 13.53 Throwaway Bins and Hoppers
41 52 16 Silos
41 52 16.13 Concrete Silos
41 52 16.16 Concrete Masonry Unit Silos
41 52 16.19 Steel Silos
41 52 19  Material Storage Tanks
  41 52 19.13  Horizontal Material Storage Tanks
  41 52 19.23  Vertical Material Storage Tanks
  41 52 19.33  Portable Material Storage Tanks

41 53 00  Storage Equipment and Systems
  41 53 13  Storage Cabinets
  41 53 16  Container Storage Systems
  41 53 19  Flat Files
  41 53 23  Storage Racks
  41 53 23.13  Mobile Storage Racks
  41 53 26  Mezzanine Storage Systems

41 60 00  Mobile Plant Equipment

41 61 00  Mobile Earth Moving Equipment
  41 61 13  Backhoes
  41 61 16  Bulldozers
  41 61 19  Compactors
  41 61 23  Excavators
  41 61 26  Graders
  41 61 29  Payloaders
  41 61 33  Trenchers

41 62 00  Trucks
  41 62 13  Cement Mixer Trucks
  41 62 16  Dump Trucks
  41 62 19  Flatbed Trucks
  41 62 23  Forklift Trucks
  41 62 26  Pickup Trucks
  41 62 29  Tank Trucks

41 63 00  General Vehicles
  41 63 13  Bicycles
  41 63 16  Carts
  41 63 19  Maintenance Vehicles
  41 63 23  Utility Vehicles
  41 63 26  Vans
  41 63 29  Wagons

41 64 00  Rail Vehicles
  41 64 13  Locomotives
  41 64 13.13  Diesel Locomotives
  41 64 13.23  Electric Locomotives
  41 64 16  Mobile Railcar Movers

41 65 00  Mobile Support Equipment
  41 65 13  Mobile Air Compressors
  41 65 16  Mobile Generators
  41 65 19  Mobile Welders

41 66 00  Miscellaneous Mobile Equipment
  41 66 13  Mobile Boring and Drilling Rigs
  41 66 16  Mobile Lifts and Cherrypickers
  41 66 19  Mobile Paving Equipment
  41 66 23  Mobile Sweepers/Vacuums
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42 01 00 Operation and Maintenance of Process Heating, Cooling, and Drying Equipment
42 01 10 Operation and Maintenance of Process Heating Equipment
42 01 20 Operation and Maintenance of Process Cooling Equipment
42 01 30 Operation and Maintenance of Process Drying Equipment

42 06 00 Schedules for Process Heating, Cooling, and Drying Equipment
42 06 10 Schedules for Process Heating Equipment
42 06 20 Schedules for Process Cooling Equipment
42 06 30 Schedules for Process Drying Equipment

42 08 00 Commissioning of Process Heating, Cooling, and Drying Equipment
42 08 10 Commissioning of Heating Equipment
42 08 20 Commissioning of Cooling Equipment
42 08 30 Commissioning of Drying Equipment

42 10 00 Process Heating Equipment

42 11 00 Process Boilers
42 11 13 Low-Pressure Process Boilers
42 11 16 Intermediate-Pressure Process Boilers
42 11 19 High-Pressure Process Boilers
42 11 23 Specialty Process Boilers

42 12 00 Process Heaters
42 12 13 Electric Process Heaters
42 12 16 Fuel-Fired Process Heaters
42 12 19 Thermoelectric Process Heaters
42 12 23 Solar Process Heaters
42 12 26 Specialty Process Heaters

42 13 00 Industrial Heat Exchangers and Recuperators
42 13 13 Industrial Gas-to-Gas Heat Exchangers
42 13 16 Industrial Liquid-to-Gas/Gas-to-Liquid Heat Exchangers
42 13 19 Industrial Liquid-to-Liquid Heat Exchangers
42 13 23 Industrial Gas Radiation Heat Exchangers
42 13 26 Industrial Solar Radiation Heat Exchangers

42 14 00 Industrial Furnaces
42 14 13 Annealing Furnaces
42 14 16 Atmosphere Generators
42 14 19 Industrial Baking Furnaces
42 14 23 Industrial Brazing Furnaces
42 14 26 Industrial Calcining Furnaces
42 14 29 Industrial Heat-Treating Furnaces
42 14 33 Industrial Melting Furnaces
42 14 33.13 Ceramics and Glass Melting Furnaces
42 14 33.16 Ferrous Melting Furnaces
42 14 33.19 Non-Ferrous Melting Furnaces
| 42 14 36 | Primary Refining Furnaces |
| 42 14 43 | Reactor Furnaces |
| 42 14 46 | Industrial Reheat Furnaces |
| 42 14 53 | Industrial Sintering Furnaces |
| 42 14 56 | Industrial Vacuum Furnaces |
| **42 15 00** | **Industrial Ovens** |
| 42 15 13 | Industrial Drying Ovens |
| 42 15 16 | Industrial Curing Ovens |
| 42 15 19 | Industrial Specialty Ovens |
| **42 20 00** | **Process Cooling Equipment** |
| **42 21 00** | **Process Cooling Towers** |
| 42 21 13 | Open-Circuit Process Cooling Towers |
| 42 21 16 | Closed-Circuit Process Cooling Towers |
| **42 22 00** | **Process Chillers and Coolers** |
| 42 22 13 | Centrifugal Process Chillers and Coolers |
| 42 22 16 | Reciprocating Process Chillers and Coolers |
| 42 22 19 | Refrigerant Process Chillers and Coolers |
| 42 22 23 | Rotary Process Chillers and Coolers |
| 42 22 26 | Thermoelectric Process Chillers and Coolers |
| **42 23 00** | **Process Condensers and Evaporators** |
| 42 23 13 | Process Condensers |
| 42 23 16 | Process Cooling Evaporators |
| 42 23 19 | Process Humidifiers |
| **42 30 00** | **Process Drying Equipment** |
| **42 31 00** | **Gas Dryers and Dehumidifiers** |
| 42 31 13 | Drying Evaporators |
| 42 31 16 | Desiccant Equipment |
| 42 31 19 | Regenerative Dryers |
| 42 31 23 | Refrigerant Dryers |
| **42 32 00** | **Material Dryers** |
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| 42 32 16 | Conveyor Material Dryers |
| 42 32 19 | Flash Material Dryers |
| 42 32 23 | Fluid-Bed Material Dryers |
| 42 32 26 | Material Roasters |
| 42 32 29 | Rotary-Kiln Material Dryers |
| 42 32 33 | Spray Material Dryers |
| 42 32 36 | Tower Material Dryers |
| 42 32 39 | Vacuum Material Dryers |
| 42 32 43 | Specialty Material Dryers |
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   43 01 10.16 Gas Compressors Maintenance and Rehabilitation
   43 01 20  Operation and Maintenance of Liquid Handling Equipment
   43 01 20.13 Liquid Pumps Maintenance and Rehabilitation
   43 01 20.16 Liquid Process Equipment Maintenance and Rehabilitation
   43 01 30  Operation and Maintenance of Gas and Liquid Hi-Purification Equipment
   43 01 40  Operation and Maintenance of Gas and Liquid Storage
   43 01 40.13 Non-pressurized Tanks Cleaning, Maintenance, and Rehabilitation
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   43 06 20  Schedules for Liquid Handling Equipment
   43 06 30  Schedules for Gas and Liquid Hi-Purification Equipment
   43 06 40  Schedules for Gas and Liquid Storage

43 08 00  Commissioning of Process Gas and Liquid Handling, Purification, and Storage Equipment
   43 08 10  Commissioning of Gas Handling Equipment
   43 08 20  Commissioning of Liquid Handling Equipment
   43 08 30  Commissioning of Gas and Liquid Purification Equipment
   43 08 40  Commissioning of Gas and Liquid Storage

43 10 00  Gas Handling Equipment

43 11 00  Gas Fans, Blowers, Pumps and Boosters
   43 11 11  Direct Drive Single Stage Centrifugal Blowers
   43 11 12  Integrally Geared Single Stage Centrifugal Blowers
   43 11 13  Separately Geared Single Stage Centrifugal Blowers
   43 11 14  Direct Drive Integral Shaft Single Stage Centrifugal Blowers
   43 11 17  Horizontally Split Multistage Centrifugal Blowers
   43 11 18  Vertically Split Multistage Centrifugal Blowers
   43 11 19  Centrifugal Fans
   43 11 23  Axial Blowers
   43 11 26  Axial Fans
   43 11 31  Rotary Helical Screw Blowers
   43 11 33  Rotary Lobe Blowers
   43 11 34  Regenerative Rotary Blowers
   43 11 36  Rotary Vane Blowers
43 11 41  Gas-handling Venturi Jet Pumps
43 11 43  Gas-handling Vacuum Pumps
43 11 46  Gas Boosters

43 12 00  Gas Compressors
43 12 11  Centrifugal Compressors
43 12 13  Diagonal or Mixed-flow Compressors
43 12 16  Axial-flow Compressors
43 12 33  Single-acting Reciprocating Compressors
43 12 34  Double-acting Reciprocating Compressors
43 12 37  Diaphragm Reciprocating Compressors
43 12 51  Rotary Screw Compressors
43 12 53  Rotary Vane Compressors
43 12 56  Rotary Liquid-ring Compressors
43 12 57  Rotary Scroll Compressors

43 13 00  Gas Process Equipment
43 13 13  Gas Blenders
43 13 19  Gas Mixers
43 13 23  Gas Pressure Regulators
43 13 31  Gas Separation Equipment
43 13 33  Gas Dehydration Equipment
43 13 36  Combined Gas Separation and Dehydration Equipment
43 13 39  Gas Recovery and Condensing Equipment
43 13 43  Waste Gas Burner System
43 13 46  Gas Control and Safety Equipment

43 15 00  Process Air and Gas Filters
43 15 13  Blower Intake and Turbine Air Filters
43 15 13.13  Static Prefilters
43 15 13.16  Static Final Filters
43 15 13.19  Static HEPA Filters
43 15 13.23  Pulse Filters
43 15 33  Grease Filters
43 15 43  Mist Eliminators
43 15 63  High-temperature Air Filters
43 15 73  Multiple-application Air Filters
43 15 73.11  Air Filter Media
43 15 73.12  Permanent Washable Filters
43 15 73.13  Poly-ring Air Filters
43 15 73.15  Rigid Cell Filters
43 15 73.17  Automatic Roll-type Air Filters
43 15 76  Chemical Media for Air and Gas Filters

43 20 00  Liquid Handling Equipment
43 21 00  Liquid Pumps
43 21 13  Centrifugal Liquid Pumps
43 21 16  Diaphragm Liquid Pumps
43 21 19  Dispensing Liquid Pumps
43 21 23  Drum Liquid Pumps
43 21 26  Gear Liquid Pumps
43 21 29  Metering Liquid Pumps
43 21 33  Piston/Plunger Liquid Pumps
43 21 36  Positive Displacement Liquid Pumps
43 21 39  Submersible Liquid Pumps
43 21 43  Sump Liquid Pumps
43 21 46  Vane Liquid Pumps

43 22 00  Liquid Process Equipment
43 22 13  Liquid Aeration Devices
43 22 16  Liquid Agitators
43 22 19  Liquid Blenders
43 22 23  Liquid Centrifuges
43 22 26  Liquid Deaerators
43 22 29  Drum Handling Liquid Process Equipment
43 22 33  Liquid Emulsifiers
43 22 36  Liquid Evaporators
43 22 39  Liquid Feeders
43 22 56  Liquid Process Mixers
43 22 59  Liquid Process Pressure Regulators
43 22 63  Liquid Separation Towers
43 22 66  Liquid Weigh Systems
43 22 69  Liquid Grease Receiving and Dewatering Systems
43 22 73  Liquid Fillers
43 22 76  Liquid Screeners
43 22 79  Liquid Clarifiers
43 22 83  Liquid Classifiers
43 22 86  Liquid Homogenizers
43 22 89  Liquid Presses
43 22 96  Liquid Versators
43 22 99  Liquid Votators

43 27 00  Process Liquid Filters
43 27 13  Cyclonic Liquid Filters
43 27 16  Centrifugal Horizontal Pressure Leaf Liquid Filters
43 27 19  Press Liquid Filters
43 27 23  Liquid Bag Filters
43 27 33  Mechanically Cleaned Liquid Filters
43 27 43  Tubular Backwashing Liquid Filters
43 27 53  Vacuum Belt Liquid Filters
43 27 63  Woven Media Liquid Filters
43 27 63.13 Disc Liquid Filters
43 27 63.23 Rotating Drum Liquid Filters
43 27 63.33 Layer Liquid Filters
43 27 63.43 Candle Liquid Filters
43 27 63.53 Vertical Leaf Liquid Filters
43 27 73  Nonwoven Media Liquid Filters
43 27 73.13 Surface Liquid Filters
43 27 73.23 Depth Liquid Filters

43 30 00  Gas and Liquid Purification Equipment
43 31 00  Gas and Liquid Purification Filtration Equipment
43 31 13  Gas and Liquid Purification Filters
43 31 13.13 Activated Carbon-Gas and Liquid Purification Filters
43 31 13.16 Gas and Liquid Purification Filter Presses
43 31 13.19 High-Purity Cartridge Gas and Liquid Purification Filters
43 31 13.23 Membrane Diaphragm Gas and Liquid Purification Filters
43 31 13.26 Multimedia Gas and Liquid Purification Filters
43 31 13.29 Pretreatment Cartridge Gas and Liquid Purification Filters
43 31 13.33 Ultrafilter Units

**43 32 00 Gas and Liquid Purification Process Equipment**

43 32 13 Gas and Liquid Purification Process Beds
43 32 13.13 Anion-Gas and Liquid Purification Process Beds
43 32 13.16 Cation-Gas and Liquid Purification Process Beds
43 32 23 Gas and Liquid Purification Process Clarifier Systems
43 32 26 Gas and Liquid Purification Decarbonators
43 32 29 Electronic Deionization Purification Units
43 32 33 External Regeneration Systems
43 32 36 Mixed-Bed Ion-Exchange Vessels
43 32 39 Gas and Liquid Purification Mixed Beds
43 32 39.13 Externally Regeneratable Gas and Liquid Purification Mixed Beds
43 32 39.16 In-Situ Regenerable Gas and Liquid Purification Mixed Beds
43 32 53 Packed-Bed Ion-Exchange Vessels
43 32 56 Reverse-Osmosis Purification Units
43 32 59 Gas and Liquid Purification Scrubbers
43 32 63 Ultraviolet Sterilizers
43 32 66 Vacuum Degasifiers
43 32 69 Chemical Feed Systems
43 32 73 Ozonation Equipment
43 32 76 Chlorination Equipment

**43 40 00 Gas and Liquid Storage**

**43 41 00 Non-pressurized Tanks and Vessels**

43 41 11 Bolted Steel Tanks
43 41 13 Welded Steel Tanks
43 41 13.13 Glass-lined Welded Steel Tanks
43 41 13.23 Rubber-lined Welded Steel Tanks
43 41 13.33 Epoxy-lined Welded Steel Tanks
43 41 13.43 Ceramic-lined Welded Steel Tanks
43 41 23 Stainless Steel Tanks
43 41 26 Aluminum Tanks
43 41 31 Metallic Specialty Tanks
43 41 41 Polyvinyl Chloride Tanks
43 41 43 Polyethylene Tanks
43 41 45 Fiberglass Reinforced Plastic Tanks
43 41 53 Wood Stave Tanks
43 41 63 Precast Concrete Tanks
43 41 73 Ceramic Tanks
43 41 83 Non-metallic Specialty Tanks

**43 42 00 Pressurized Tanks and Vessels**

43 42 11 Cast Iron Pressure Tanks
43 42 13 Ductile Iron Pressure Tanks
43 42 21 Welded Steel Pressure Tanks
43 42 23 Glass-lined Steel Pressure Tanks
43 42 26 Welded Steel Gas Storage Sphere
43 42 33 Stainless Steel Pressure Tanks
43 42 36 Aluminum Pressure Tanks
43 42 41 Metallic Specialty Pressure Tanks
43 42 53 Fiberglass Reinforced Plastic Pressure Tanks
43 42 83 Non-metallic Specialty Pressure Tanks
44 00 00 Pollution and Waste Control Equipment

44 01 00 Operation and Maintenance of Pollution and Waste Control Equipment
  44 01 10 Operation and Maintenance of Air Pollution Control
  44 01 20 Operation and Maintenance of Noise Pollution Control
  44 01 30 Operation and Maintenance of Odor Control Equipment
  44 01 40 Operation and Maintenance of Water Pollution Control Equipment
  44 01 50 Operation and Maintenance of Solid Waste Control and Reuse
  44 01 60 Operation and Maintenance of Waste Thermal Processing Equipment

44 05 00 Common Work Results for Pollution and Waste Control Equipment

44 06 00 Schedules for Pollution and Waste Control Equipment
  44 06 10 Schedules for Air Pollution Control
  44 06 20 Schedules for Noise Pollution Control
  44 06 30 Schedules for Odor Control Equipment
  44 06 40 Schedules for Water Pollution Control Equipment
  44 06 50 Schedules for Solid Waste Control and Reuse
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44 08 00 Commissioning of Pollution and Waste Control Equipment
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  44 08 20 Commissioning of Noise Pollution Control
  44 08 30 Commissioning of Odor Control Equipment
  44 08 40 Commissioning of Water Pollution Control Equipment
  44 08 50 Commissioning of Solid Waste Control and Reuse
  44 08 60 Commissioning of Waste Thermal Processing Equipment

44 10 00 Air Pollution Control

44 11 00 Particulate Control Equipment
  44 11 13 Fugitive Dust Control
  44 11 16 Fugitive Dust Barrier Systems
  44 11 19 Atmospheric Air Quality Monitoring Equipment
  44 11 20 Gravitational Separators
  44 11 31 Venturi Scrubbing Equipment
  44 11 33 Spray Tower/Chamber Scrubbing Equipment
  44 11 36 Cyclone Scrubbing Equipment
  44 11 51 Pulse Jet Fabric Filtration Equipment
  44 11 53 Reverse Flow Fabric Filtration Equipment
  44 11 54 Shake/Deflate Fabric Filtration Equipment
  44 11 56 Cartridge Filtration Equipment
  44 11 59 Disposable Dry Filtration Equipment
  44 11 71 Cyclone Dust Collection Equipment
  44 11 73 Multicyclone Dust Collection Equipment
  44 11 76 Mist Elimination Equipment
  44 11 93 Wet Electrostatic Precipitator Equipment
44 11 96  Dry Plate Electrostatic Precipitator Equipment

44 13 00  Gaseous Air Pollution Control Equipment
44 13 11  Spray Tower/Chamber Absorption Equipment
44 13 13  Packed Tower/Chamber Absorption Equipment
44 13 14  Tray Tower Absorption Equipment
44 13 16  Jet Bubbling Reactor Equipment
44 13 17  Venturi Absorption Equipment
44 13 20  Vacuum Extraction Systems
44 13 31  Powdered Injection Adsorption Equipment
44 13 33  Fluidized Bed Adsorption Equipment
44 13 34  Fixed Bed Adsorption Equipment
44 13 36  Rotary Bed Adsorption Equipment
44 13 39  Radial Bed Adsorption Equipment
44 13 51  Thermal Oxidation Equipment
44 13 53  Catalytic Oxidation Equipment
44 13 56  Flare Oxidation Equipment
44 13 59  Claus Sulfur Recovery Equipment
44 13 71  Thermal Reduction Equipment
44 13 73  Catalytic Reduction Equipment
44 13 76  Non-catalytic Reduction Equipment
44 13 77  Selective Non-catalytic Reduction Equipment
44 13 81  Condensation Systems
44 13 83  Contact Condensing Equipment
44 13 86  Solvent Recovery Equipment
44 13 91  Biofilter Media
44 13 93  Fixed Bed Biofilter Equipment
44 13 96  Fixed Bed Biotrickling Filter Equipment
44 13 97  Fixed Bed Bioscrubbing Equipment

44 20 00  Noise Pollution Control

44 21 00  Noise Pollution Control Equipment
44 21 13  Fixed Noise Abatement Barriers
44 21 16  Flexible Noise Abatement Barriers
44 21 19  Portable Noise Abatement Barriers
44 21 23  Noise Pollution Silencers
44 21 26  Frequency Cancellers

44 30 00  Odor Control

44 31 00  Odor Treatment Equipment
44 31 11  Wet Chemical Packed Tower Odor Control Equipment
44 31 13  Chemical Mist System Odor Control Equipment
44 31 16  Activated Carbon Adsorption Odor Control Equipment
44 31 19  Packaged Odor Control Systems
44 31 21  Odor Control Biofilters
44 31 28  Odor Control Biofilter Aeration Floor
44 31 29  Odor Control Biofilter Media
44 31 31  Odor Control Biotrickling Filter Equipment
44 31 33  Odor Control Bioscrubbing Equipment
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44 32 23 Odor Masking/Counteracting Equipment

44 40 00 Water Pollution Control Equipment

44 41 00 Water Pollution Containment and Cleanup Equipment
44 41 13 Spill Cleanup
44 41 21 Containment Booms
44 41 23 Marine Spill Accessories
44 41 31 Spill Decks
44 41 32 Drum Containment Units
44 41 33 Containment Pallets
44 41 34 Prefabricated Spill Containment Curbing
44 41 36 Prefabricated Spill Containment Berms
44 41 37 Prefabricated Berms for Tank Containment
44 41 41 Collapsible Storage Tanks

44 50 00 Solid Waste Control and Reuse

44 51 00 Solid Waste Collection, Transfer, and Hauling Equipment
44 51 13 Solid Waste Portable Containers
44 51 16 Solid Waste Stationary Containers
44 51 23 Solid Waste Transfer Trailers

44 53 00 Solid Waste Processing Equipment
44 53 11 Live-floor Storage Bins
44 53 13 Refuse Cranes and Accessories
44 53 16 Solid Waste Screens
44 53 21 Car Crushers
44 53 23 Shears and Guillotines
44 53 26 Shredders and Grinders
44 53 27 Perforators
44 53 31 Bag Breakers
44 53 33 Granulators
44 53 36 Crumb Rubber Systems
44 53 39 Briquetters
44 53 41 Vibratory Table Separation Equipment
44 53 43 Ferrous Metals Separation Equipment
44 53 44 Eddy Current Separators
44 53 46 Single-stream Materials Separation Equipment
44 53 49 Ballistic Separators
44 53 51 Air Classifying Equipment
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44 53 53 Optical Sorting Equipment
44 53 56 Packaged Sorting Stations
44 53 59 Packaged Reclaimer Stations
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- 44 55 11 Electromechanical Composters
- 44 55 13 Compost Screening Equipment
- 44 55 16 Compost Shredding Equipment
- 44 55 23 Compost Pile Turning Equipment
- 44 55 26 Compost Mixing and Blending Equipment
- 44 55 33 In-vessel Composting Equipment
- 44 55 43 Compost Pad System
- 44 55 73 Compost Liquid Extraction Equipment

**44 60 00 Waste Thermal Processing Equipment**

**44 61 00 Waste-to-Energy Plants**
- 44 61 13 Waste Receiving, Management, and Feed Equipment
- 44 61 16 Mass Burn Combustion Equipment
- 44 61 23 Refuse-derived Fuel Feed Equipment
- 44 61 26 Refuse-derived Fuel Combustion Equipment
- 44 61 29 Modular Combustion System Equipment
- 44 61 31 Ash Handling Equipment
- 44 61 33 Post-combustion Ferrous Metals Recovery Equipment
- 44 61 36 Post-combustion Non-ferrous Metals Recovery Equipment

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**44 63 00 Rotary Kiln Incinerators**

**44 64 00 Gasification Equipment**
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- 44 64 23 Co-current Fixed Bed Gasification Equipment
- 44 64 33 Fluidized Bed Gasification Equipment
- 44 64 43 Entrained Flow Gasification Equipment
- 44 64 53 Plasma Arc Gasification Equipment

**44 65 00 Pyrolysis Equipment**

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**44 67 00 Heat Recovery Equipment for Waste Thermal Processing**

**44 68 00 Synthesis Gas Cleanup and Handling Equipment**
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45 33 00  Plastics and Rubber Manufacturing Equipment
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45 33 10  thru
45 34 99  User-Defined Plastics and Rubber Manufacturing Equipment

45 35 00  Nonmetallic Mineral Product Manufacturing Equipment
45 35 01  Operation and Maintenance of Nonmetallic Mineral Product Manufacturing Equipment
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45 35 10  thru
45 36 99  User-Defined Nonmetallic Mineral Product Manufacturing Equipment

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45 39 00  Fabricated Metal Product Manufacturing Equipment
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<td>45 43 00</td>
<td><strong>Computer and Electronic Product Manufacturing Equipment</strong></td>
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