

| Section No. | Section Title | Section Description |
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### DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

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|--------|--|---|
| 000101 | Project Title Page   | Project Manual title page.  |
| 000107 | Seals Page   | For seals of design professionals on Project Manual.                |
| 000115 | List of Drawing Sheets                                       | List of Drawings.   |
| 000120 | List of Schedules  | For a list of separately bound schedules.                           |
| 001113 | Advertisement for Bids                                       | For use on public projects.   |
| 001115 | Advertisement for Prequalification of Bidders                | For use on public projects.   |
| 001116 | Invitation to Bid  | For use on private projects.  |
| 001153 | Request for Qualifications                                   | For use on public projects.   |
| 002113 | Instructions to Bidders                                      | Incorporates AIA A701 by reference.                                 |
| 002213 | Supplementary Instructions to Bidders                        | For use with AIA A701.  |
| 002513 | Prebid Meetings  | Sets date, time, place, and terms for prebid meetings.              |
| 002600 | Procurement Substitution Procedures                          | Substitution procedures during bidding.                             |
| 003113 | Preliminary Schedules  | Preliminary schedules.  |
| 003119 | Existing Condition Information                               | References documents for survey and as-built information.           |
| 003126 | Existing Hazardous Material Information                      | References documents for existing hazardous materials.              |
| 003132 | Geotechnical Data  | References documents for geotechnical data.                         |
| 003143 | Permit Application   | Indicates responsibility for building permit application.           |
| 004113 | Bid Form - Stipulated Sum (Single-Prime Contract)            | Fixed price, single prime.  |
| 004116 | Bid Form - Stipulated Sum (Multiple-Prime Contract)          | Fixed price, multiple prime.  |
| 004123 | Bid Form - Construction Management (Single-Prime Contract)   | Fixed price, construction management, single prime.                 |
| 004126 | Bid Form - Construction Management (Multiple-Prime Contract) | Fixed price, construction management, multiple prime.               |
| 004133 | Bid Form - Cost-Plus-Fee (Single-Prime Contract)             | Cost plus, with or without guaranteed maximum.                      |
| 004313 | Bid Security Forms   | References AIA A310.  |
| 004321 | Allowance Form   | Attachment for Bid Form.  |
| 004322 | Unit Prices Form   | Attachment for Bid Form.  |
| 004323 | Alternates Form  | Attachment for Bid Form.  |
| 004373 | Proposed Schedule of Values Form                             | Attachment for Bid Form.  |
| 004393 | Bid Submittal Checklist                                      | Attachment for Bid Form.  |
| 005100 | Notice of Award  | For notifying successful bidder.                                    |
| 006000 | Project Forms  | References Agreement, General Conditions, and administrative forms. |
| 009113 | Addenda  | For notifying bidders of changes.                                   |

### DIVISION 01 - GENERAL REQUIREMENTS

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| 010000 | General Requirements      | Evaluations: Role of Division 1 Sections, their preparation and coordination.  |
| 011000 | Summary                   | Summary of the Work, phased construction, purchase contracts, Owner-furnished products, access to site, and work restrictions. |
| 011200 | Multiple Contract Summary | Responsibilities of each contract for the Work, coordination, and temporary facilities and controls.                           |
| 012100 | Allowances                | Provisions for cash allowances including lump-sum, unit cost, contingency, and testing and inspecting allowances.              |
| 012200 | Unit Prices               | Provisions for unit prices.  |
| 012300 | Alternates                | Provisions for change-of-scope and cost-comparison type alternates.  |

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| 012500      | Substitution Procedures  | Procedural requirements for requests for substitutions during construction.  |
| 012600      | Contract Modification Procedures   | Procedural requirements for changes to the Contract.   |
| 012900      | Payment Procedures   | Administrative requirements for Contractor's Applications for Payment.   |
| 013100      | Project Management and Coordination  | Administrative requirements for project meetings; preconstruction, preinstallation, and project closeout conferences; RFIs; and project Web sites. |
| 013200      | Construction Progress Documentation  | Contractor's Construction Schedule including Gantt charts and CPM schedules; and web-based project software.                                       |
| 013233      | Photographic Documentation   | Construction photographs, video recordings, and web-based photographic documentation.  |
| 013300      | Submittal Procedures   | Procedures for Action and Informational Submittals including Delegated-Design Submittals and Submittals Schedule.                                  |
| 013516      | Alteration Project Procedures  | General protection and work procedures for remodeling, renovation, repair, and maintenance work.   |
| 014000      | Quality Requirements   | Quality-assurance and -control requirements, special tests and inspections, and Contractor's quality-control plan.                                 |
| 014200      | References   | Common definitions and terms; and acronyms and trade names of associations, government agencies, and other entities referenced in MasterSpec.      |
| 015000      | Temporary Facilities and Controls  | Temporary utilities and facilities for construction support, security, and protection.   |
| 016000      | Product Requirements   | Administrative and procedural requirements for product, material, and equipment selection and handling; warranties; and comparable products.       |
| 017300      | Execution  | General requirements for product installation, cutting and patching, protection, field engineering, and progress cleaning.                         |
| 017419      | Construction Waste Management and Disposal   | Salvaging, recycling, and disposing of non-hazardous demolition and construction waste.  |
| 017700      | Closeout Procedures  | Contract closeout including Substantial Completion and Final Completion procedures, warranties, and final cleaning.                                |
| 017823      | Operation and Maintenance Data   | Emergency, operation, and maintenance manuals for products and equipment.  |
| 017839      | Project Record Documents   | Record record Drawings, Specifications, and Product Data.  |
| 017900      | Demonstration and Training   | Administrative and procedural requirements for instructing Owner's personnel in operation and maintenance.   |
| 018113.13   | Sustainable Design Requirements - LEED 2009 for New Construction and Major Renovations | General requirements and procedures for LEED 2009 for New Construction and Major Renovations.  |
| 018113.14   | Sustainable Design Requirements - LEED v4 BD+C   | General requirements and procedures for LEED v4 BD+C.  |
| 018113.16   | Sustainable Design Requirements - LEED 2009 for Commercial Interiors                   | General requirements and procedures for LEED 2009 for Commercial Interiors.  |
| 018113.17   | Sustainable Design Requirements - LEED v4 ID+C   | General requirements and procedures for LEED v4 ID+C.  |
| 018113.19   | Sustainable Design Requirements - LEED 2009 for Core and Shell Development             | General requirements and procedures for LEED 2009 for Core and Shell Development.  |
| 018113.23   | Sustainable Design Requirements - LEED 2009 for Schools                                | General requirements and procedures for LEED 2009 for Schools.   |
| 018113.33   | Sustainable Design Requirements - IgCC   | General requirements and procedures for IgCC.  |
| 018113.43   | Sustainable Design Requirements - ASHRAE 189.1   | General requirements and procedures for ASHRAE 189.1.  |
| 018113.53   | Sustainable Design Requirements - Green Globes   | General requirements and procedures for Green Globes.  |

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| <b>DIVISION 02 - EXISTING CONDITIONS</b>             |                                     |  |
| 024116   | Structure Demolition                | Demolition of existing buildings, structures, and associated site improvements.  |
| 024119   | Selective Demolition                | Demolition of selected portions of existing buildings, structures, and associated site improvements.   |
| <b>DIVISION 05 - METALS</b>                          |                                     |  |
| 055000   | Metal Fabrications                  | Metal items (not sheet metal) made from iron and steel shapes, stainless steel, and non-ferrous metals.  |
| 055313   | Bar Gratings                        | Metal bar gratings and frames.   |
| 055316   | Plank Gratings                      | Metal plank gratings and frames.   |
| 055319   | Expanded Metal Gratings             | Expanded metal gratings and frames.  |
| 057100   | Decorative Metal Stairs             | Architectural steel stairs.  |
| <b>DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES</b>  |                                     |  |
| 061000   | Rough Carpentry                     | Wood framing, furring, frouds, nailers, and blocking.  |
| U 061053   | Miscellaneous Rough Carpentry       | Minor wood framing, furring, grounds, nailers, and blocking.   |
| 067413   | Fiberglass Reinforced Gratings      | Fiberglass bar gratings and frames.  |
| <b>DIVISION 07 - THERMAL AND MOISTURE PROTECTION</b> |                                     |  |
| 076200   | Sheet Metal Flashing and Trim       | Custom-fabricated roof and wall flashings and roof-drainage systems, and manufactured through-wall flashing and reglets.                               |
| U 077200   | Roof Accessories                    | Roof curbs, equipment supports, roof hatches, heat and smoke vents, gravity ventilators, pipe supports, roof walkways, and preformed flashing sleeves. |
| 078413   | Penetration Firestopping            | Systems installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers.   |
| 079200   | Joint Sealants                      | Elastomeric joint sealants including, silicone, urethane, STPE, polysulfide, butyl, and latex.   |
| <b>DIVISION 08 - OPENINGS</b>                        |                                     |  |
| U 083113   | Access Doors and Frames             | Wall and ceiling units.  |
| U 083113.53  | Security Access Doors and Frames    | Medium-, high-, and maximum-security units for walls and ceilings.   |
| 083473.13  | Metal Sound Control Door Assemblies | Assemblies consisting of steel doors, steel frames, and sound control seals.   |
| 083473.16  | Wood Sound Control Door Assemblies  | Assemblies consisting of wood doors, steel frames, and sound control seals.  |
| 089116   | Operable Wall Louvers               | Operable (adjustable) metal louvers including those with insulated blades.   |
| 089119   | Fixed Louvers                       | Fixed metal louvers.   |
| <b>DIVISION 09 - FINISHES</b>                        |                                     |  |
| 099113   | Exterior Painting                   | Exterior painting.   |
| 099123   | Interior Painting                   | Interior painting.   |
| 099600   | High-Performance Coatings           | Tile-like coatings for use on exterior and interior substrates.  |
| 099633   | High-Temperature-Resistant Coatings | Heat-resistant coatings for use on exterior and interior substrates.   |

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| <b>DIVISION 10 - SPECIALTIES</b>      |  |   |
| U 104413                              | Fire Protection Cabinets   | Fire-protection cabinets and security fire-protection cabinets.   |
| 104416                                | Fire Extinguishers   | Portable and wheeled fire extinguishers.  |
| <b>DIVISION 11 - EQUIPMENT</b>        |  |   |
| 115313                                | Laboratory Fume Hoods  | Hoods and hood stands, including work tops.   |
| <b>DIVISION 21 - FIRE SUPPRESSION</b> |  |   |
| 210513                                | Common Motor Requirements for Fire Suppression Equipment                 | Universal default values for small and medium, ac motors.   |
| 210517                                | Sleeves and Sleeve Seals for Fire-Suppression Piping                     | Sleeves and sleeve seals for piping at floor and wall penetrations.   |
| 210518                                | Escutcheons for Fire-Suppression Piping                                  | Escutcheons and floor plates for piping at ceiling, floor, and wall penetrations.                                 |
| 210523                                | General-Duty Valves for Fire Protection Piping                           | Valves common to most fire-protection piping.   |
| 210529                                | Hangers and Supports for Fire Suppression Piping and Equipment           | Single and multiple hangers, framing systems, and stands and supports.  |
| 210533                                | Heat Tracing for Fire-Suppression Piping                                 | Electric cables for freeze protection.  |
| U 210548                              | Vibration and Seismic Controls for Fire-Suppression Piping and Equipment | Vibration isolation devices and seismic restraints.   |
| U 210548.13                           | Vibration Controls for Fire-Suppression Piping and Equipment             | Vibration isolation devices.  |
| 210553                                | Identification for Fire-Suppression Piping and Equipment                 | Labels, stencils, and tags.   |
| U 210700                              | Fire-Suppression Systems Insulation                                      | Equipment and pipe insulation.  |
| U 211100                              | Facility Fire-Suppression Water-Service Piping                           | Fire suppression piping and specialties outside the building.   |
| 211116                                | Facility Fire Hydrants   | AWWA and UL listed dry- and wet-barrel fire hydrants.   |
| 211119                                | Fire Department Connections  | Exposed-, flush-, and yard-type fire-department connections.  |
| 211200                                | Fire-Suppression Standpipes  | Piping, specialties, valves, hose valves, and hose stations.  |
| 211213                                | Fire-Suppression Hoses and Nozzles                                       | Hoses, reels, and racks for rack- and reel-type hose stations; and fire-suppression monitors.                     |
| 211313                                | Wet-Pipe Sprinkler Systems   | Piping, specialties, valves, and sprinklers for wet-pipe sprinkler systems.                                       |
| 211316                                | Dry-Pipe Sprinkler Systems   | Piping, specialties, valves, and sprinklers for dry-pipe and preaction sprinkler systems.                         |
| U 211339                              | Foam-Water Systems   | Fixed, low-expansion, AFFF systems for flammable-liquid fires.  |
| 212113.13                             | High-Pressure, Carbon-Dioxide Fire-Extinguishing Systems                 | Piping, fittings, and specialties for systems that deliver carbon dioxide for fire extinguishing and suppression. |
| 212113.16                             | Low-Pressure, Carbon-Dioxide Fire-Extinguishing Systems                  | Piping, fittings, and specialties for systems that deliver carbon dioxide for fire extinguishing and suppression. |
| 212200                                | Clean-Agent Fire-Extinguishing Systems                                   | Piping, containers, detection and alarms, and controls for clean-agent systems.                                   |
| U 213113                              | Electric-Drive, Centrifugal Fire Pumps                                   | End-suction, in-line, and split-case fire pumps; accessories, specialties, and flowmeter systems.                 |
| U 213116                              | Diesel-Drive, Centrifugal Fire Pumps                                     | End-suction, in-line, and split-case fire pumps; accessories, specialties, and flowmeter systems.                 |
| U 213213                              | Electric-Drive, Vertical-Turbine Fire Pumps                              | Fire pumps, accessories, specialties, and flowmeter systems.  |
| U 213216                              | Diesel-Drive, Vertical-Turbine Fire Pumps                                | Fire pumps, accessories, specialties, and flowmeter systems.  |
| U 213413                              | Pressure-Maintenance Pumps   | Multistage, regenerative turbine, submersible, and vertical-turbine pumps; pump controllers.                      |

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| <b>DIVISION 22 - PLUMBING</b> |  |  |
| 220513                        | Common Motor Requirements for Plumbing Equipment                 | Universal default values for small and medium, ac motors.  |
| U 220516                      | Expansion Fittings and Loops for Plumbing Piping                 | Expansion joints and expansion-compensation devices for plumbing piping.   |
| 220517                        | Sleeves and Sleeve Seals for Plumbing Piping                     | Sleeves and sleeve seals for piping at floor and wall penetrations.  |
| 220518                        | Escutcheons for Plumbing Piping                                  | Escutcheons and floor plates for piping at ceiling, floor, and wall penetrations.                                    |
| 220519                        | Meters and Gages for Plumbing Piping                             | Temperature, pressure, and flow.   |
| 220523.12                     | Ball Valves for Plumbing Piping                                  | Ball valves common to multiple systems.  |
| 220523.13                     | Butterfly Valves for Plumbing Piping                             | Butterfly valves common to multiple systems.   |
| 220523.14                     | Check Valves for Plumbing Piping                                 | Check valves common to multiple systems.   |
| 220523.15                     | Gate Valves for Plumbing Piping                                  | Gate valves common to multiple systems.  |
| 220529                        | Hangers and Supports for Plumbing Piping and Equipment           | Single and multiple hangers, framing systems, and stands and supports.   |
| 220533                        | Heat Tracing for Plumbing Piping                                 | Electric cables for freeze protection, snow and ice melting, and temperature maintenance.                            |
| U 220548                      | Vibration and Seismic Controls for Plumbing Piping and Equipment | Vibration isolation devices and seismic restraints.  |
| U 220548.13                   | Vibration Controls for Plumbing Piping and Equipment             | Vibration isolation devices.   |
| 220553                        | Identification for Plumbing Piping and Equipment                 | Labels, stencils, and tags.  |
| U 220716                      | Plumbing Equipment Insulation                                    | Insulation materials, jackets, and installation accessories for plumbing equipment.                                  |
| U 220719                      | Plumbing Piping Insulation                                       | Insulation materials, jackets, and installation accessories for plumbing piping.                                     |
| U 221113                      | Facility Water Distribution Piping                               | Utility service, domestic, and fire-protection water, specialties, and valves.                                       |
| 221116                        | Domestic Water Piping  | Potable-water distribution within the building.  |
| 221117                        | Gray-Water Piping  | Non-potable water piping.  |
| 221119                        | Domestic Water Piping Specialties                                | Specialties, valves, and fittings for domestic water piping.   |
| U 221123.13                   | Domestic-Water Packaged Booster Pumps                            | Water-pressure boosters, simplex and multi-plex; constant- and variable speed pumps.                                 |
| U 221123.21                   | Inline, Domestic-Water Pumps                                     | In-line separately coupled, close-coupled, centrifugal pumps.  |
| U 221216                      | Facility Elevated, Potable-Water Storage Tanks                   | Above-ground water storage.  |
| U 221219                      | Facility Ground-Mounted, Potable-Water Storage Tanks             | Surface-mounted water storage.   |
| U 221223.11                   | Facility Indoor Potable-Water Storage Tanks                      | Water storage; compression and diaphragm.  |
| 221313                        | Facility Sanitary Sewers   | Sanitary sewerage and underground structures outside the building.   |
| 221316                        | Sanitary Waste and Vent Piping                                   | Soil, waste, and vent piping within the building.  |
| U 221319                      | Sanitary Waste Piping Specialties                                | Backwater and air admittance valves, cleanouts, sanitary assemblies, FOG systems, and sanitary drainage specialties. |
| U 221319.13                   | Sanitary Drains  | Floor and trench drains, and channel drain systems.  |
| U 221323                      | Sanitary Waste Interceptors                                      | Grease, oil, and sand interceptors for sewerage systems outside the building.  |
| U 221329                      | Sanitary Sewerage Pumps  | Effluent pumps; automatic, packaged; basins and covers.  |
| U 221343                      | Facility Packaged Sewage Pumping Stations                        | Pump, compressor, tank, and controls.  |
| U 221353                      | Facility Septic Tanks  | Tank, distribution box, and drainage pipe.   |
| U 221363                      | Facility Gray-Water Storage Tanks                                | Above-ground gray-water storage.   |

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| 221413      | Facility Storm Drainage Piping                                     | Stormwater piping within the building.   |
| 221423      | Storm Drainage Piping Specialties                                  | Roof drains, cleanouts, trench drains, channel drains, and piping specialties.   |
| 221429      | Sump Pumps   | Submersible, wet-pit volute, and package drainage-pump units; basins and covers.   |
| 221463      | Facility Storm-Water Retention Tanks                               | Above-ground storm-water storage.  |
| 221513      | General-Service Compressed-Air Piping                              | Nonmedical piping, equipment, and accessories.   |
| U 221519    | General-Service Packaged Air Compressors and Receivers             | Nonmedical air compressors, filters, and dryers.   |
| U 223100    | Domestic Water Softeners   | Domestic and general use, not treatment.   |
| U 223200    | Domestic Water Filtration Equipment                                | Separators; and bag, cartridge, carbon, sand, and greensand filters.   |
| U 223300    | Electric, Domestic-Water Heaters                                   | Household and commercial; tankless, instantaneous, and storage types.  |
| U 223400    | Fuel-Fired, Domestic-Water Heaters                                 | Household and commercial; gas and oil fired; instantaneous and storage types.  |
| U 223500    | Domestic-Water Heat Exchangers                                     | Steam and hot-water heat exchangers; instantaneous and storage types.  |
| 224100      | Residential Plumbing Fixtures                                      | Residential water closets, lavatories, sinks, bathtubs, and shower receptors and basins.   |
| 224213.13   | Commercial Water Closets   | Commercial water closets, supports, flushometer valves, and supplies.  |
| 224213.16   | Commercial Urinals   | Commercial urinals, supports, and flushometer valves.  |
| 224216.13   | Commercial Lavatories  | Commercial lavatories, supports, faucets, traps, and supplies.   |
| 224216.16   | Commercial Sinks   | Commercial sinks, supports, faucets, traps, and supplies.  |
| 224223      | Commercial Showers   | Shower receptors, basins, enclosures, faucets, and heads.  |
| 224233      | Wash Fountains   | Stone, metal, and plastic wash fountains.  |
| 224300      | Healthcare Plumbing Fixtures                                       | Plumbing fixtures for healthcare facilities.   |
| 224500      | Emergency Plumbing Fixtures  | Individual and combination emergency eyewash and shower units.   |
| 224600      | Security Plumbing Fixtures   | Detention facility plumbing fixtures.  |
| U 224713    | Drinking Fountains   | Pedestal, antifreeze pedestal, wheelchair accessible, wall mounted.  |
| 224716      | Pressure Water Coolers   | Freestanding, wall mounted, and wheelchair accessible.   |
| 224723      | Remote Water Coolers   | Remote water chillers.   |
| U 226113    | Compressed-Air Piping for Laboratory and Healthcare Facilities     | Piping for nonmedical laboratory air, medical air, dental air, instrument air, and medical laboratory air.                                     |
| U 226119    | Compressed-Air Equipment for Laboratory and Healthcare Facilities  | Compressors, filters, and dryers for laboratory and healthcare facilities.   |
| U 226213    | Vacuum Piping for Laboratory and Healthcare Facilities             | Piping for laboratory vacuum, medical surgical vacuum, waste anesthetic gas, dental vacuum, oral evacuation, and healthcare laboratory vacuum. |
| U 226219    | Vacuum Equipment for Laboratory and Healthcare Facilities          | Vacuum producers and accessories for laboratory and healthcare facilities.   |
| U 226313    | Gas Piping for Laboratory and Healthcare Facilities                | Piping for CO <sub>2</sub> , helium, NO <sub>2</sub> , and O <sub>2</sub> .  |
| 226400      | Medical Gas Alarms   | Alarms for medical gas systems.  |
| U 226600    | Chemical-Waste Systems for Laboratory and Healthcare Facilities    | Single- and double-wall piping and specialties, neutralization tanks, and leak detection.  |
| 226700      | Processed Water Systems for Laboratory and Healthcare Facilities   | Pipe, fittings, and specialties for deionized, distilled, and reverse osmosis water.   |
| 226713      | Processed Water Piping for Laboratory and Healthcare Facilities    | Pipe, fittings, and valves for reagent, deionized, distilled, and reverse osmosis water.   |
| 226719      | Processed Water Equipment for Laboratory and Healthcare Facilities | Equipment for reagent, deionized, distilled, and reverse osmosis water.  |

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| <b>DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)</b> |  |   |
| 230130.52  | Existing HVAC Air Distribution System Cleaning     | Cleaning existing HVAC air-distribution equipment, ducts, plenums, air outlets and inlets, and duct accessories.              |
| 230513   | Common Motor Requirements for HVAC Equipment       | Universal default values for small and medium, ac motors.   |
| U 230516   | Expansion Fittings and Loops for HVAC Piping       | Expansion joints and expansion-compensation devices for HVAC piping.  |
| 230517   | Sleeves and Sleeve Seals for HVAC Piping           | Sleeves and sleeve seals for piping at floor and wall penetrations.   |
| 230518   | Escutcheons for HVAC Piping                        | Escutcheons and floor plates for piping at ceiling, floor, and wall penetrations.   |
| 230519   | Meters and Gages for HVAC Piping                   | Temperature, pressure, and flow.  |
| 230523.11  | Globe Valves for HVAC Piping                       | Globe valves common to multiple systems.  |
| 230523.12  | Ball Valves for HVAC Piping                        | Ball valves common to multiple systems.   |
| 230523.13  | Butterfly Valves for HVAC Piping                   | Butterfly valves common to multiple systems.  |
| 230523.14  | Check Valves for HVAC Piping                       | Check valves common to multiple systems.  |
| 230523.15  | Gate Valves for HVAC Piping                        | Gate valves common to multiple systems.   |
| 230523.16  | Plug Valves for HVAC Piping                        | Plug valves common to multiple systems.   |
| 230529   | Hangers and Supports for HVAC Piping and Equipment | Single and multiple hangers, framing systems, and stands and supports.  |
| 230533   | Heat Tracing for HVAC Piping                       | Electric cables for freeze protection.  |
| N 230546   | Coatings for HVAC                                  | Antimicrobial UV-C lamp systems for mounting inside HVAC equipment, for treatment of HVAC surfaces.                           |
| U 230548   | Vibration and Seismic Controls for HVAC            | Vibration isolation devices and seismic restraints.   |
| U 230548.13  | Vibration Controls for HVAC                        | Vibration isolation devices.  |
| 230553   | Identification for HVAC Piping and Equipment       | Labels, stencils, and tags.   |
| U 230593   | Testing, Adjusting, and Balancing for HVAC         | Air distribution and hydronic systems.  |
| 230713   | Duct Insulation                                    | Insulation materials, jackets, and installation accessories for HVAC ducts.   |
| U 230716   | HVAC Equipment Insulation                          | Insulation materials, jackets, and installation accessories for HVAC equipment.   |
| U 230719   | HVAC Piping Insulation                             | Insulation materials, jackets, and installation accessories for HVAC piping.  |
| 230923   | Direct Digital Control (DDC) System for HVAC       | Direct digital control system for monitoring and controlling HVAC systems.  |
| 230923.11  | Control Valves                                     | Control valves and actuators that connect to direct digital control systems.  |
| 230923.12  | Control Dampers                                    | Control dampers and actuators that connect to direct digital control systems.   |
| 230923.13  | Energy Meters                                      | Thermal and electric power energy meters that connect to direct digital control systems.                                      |
| 230923.14  | Flow Instruments                                   | Airflow and liquid flow sensors, switches and transmitters, and water meters that connect to direct digital control systems.  |
| 230923.16  | Gas Instruments                                    | Carbon dioxide, oxygen, and VOC gas detection instruments and control devices that connect to direct digital control systems. |
| 230923.17  | Level Instruments                                  | Liquid level switches, sensors, and transmitters that connect to direct digital control systems.                              |
| 230923.18  | Leak Detection Instruments                         | Leak detection switches (point type) and leak detector switches (cable type) that connect to direct digital control systems.  |
| 230923.19  | Moisture Instruments                               | Humidity and moisture sensors and transmitters that connect to direct digital control systems.                                |

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| 230923.21   | Motion Instruments  | PIR, ultrasonic, and dual-technology type motion detection instruments that connect to direct digital control systems.             |
| 230923.22   | Position Instruments                                      | Limit switches that connect to direct digital control systems.   |
| 230923.23   | Pressure Instruments                                      | Air and liquid pressure sensors, switches, and transmitters that connect to direct digital control systems.                        |
| 230923.24   | Speed Instruments   | Speed switches that connect to direct digital control systems.   |
| 230923.27   | Temperature Instruments                                   | Air, liquid, and steam temperature sensors, switches, transmitters and thermostats that connect to direct digital control systems. |
| 230923.33   | Vibration Instruments                                     | Vibration switches that connect to direct digital control systems.   |
| 230923.43   | Weather Stations  | Weather stations that connect to direct digital control systems.   |
| 230993.11   | Sequence of Operations for HVAC DDC                       | Direct digital control sequences for HVAC systems.   |
| 231113      | Facility Fuel-Oil Piping                                  | Fuel-oil piping, valves, specialties; leak-detection and monitoring systems for No. 2 fuel oil.                                    |
| U 231123    | Facility Natural-Gas Piping                               | Natural gas piping and specialties.  |
| U 231126    | Facility Liquefied-Petroleum Gas Piping                   | LP gas piping, specialties, and storage equipment.   |
| U 231213    | Facility Fuel-Oil Pumps                                   | Simplex, duplex, and triplex transfer pumps; submersible storage tank pumps; and fuel-oil maintenance systems.                     |
| U 231313    | Facility Underground Fuel-Oil Storage Tanks               | Steel and FRP UST; accessories; liquid-level gage system; and leak-detection systems.  |
| U 231323    | Facility Aboveground Fuel-Oil Storage Tanks               | Vertical, horizontal, containment-dike, insulated, and concrete vaulted steel AST.   |
| 232113      | Hydronic Piping   | Pipes, tubes, and fittings for heating and cooling water piping.   |
| 232113.13   | Underground Hydronic Piping                               | Underground piping outside the building.   |
| 232113.33   | Ground-Loop Heat-Pump Piping                              | Horizontal and vertical, direct-buried, ground-loop piping.  |
| 232116      | Hydronic Piping Specialties                               | Specialties and special-duty valves for heating and cooling water piping.  |
| U 232123    | Hydronic Pumps  | Base mounted and in-line; close coupled and separately coupled.  |
| 232213      | Steam and Condensate Heating Piping                       | Pipes, tubes, and fittings for LP and HP steam piping.   |
| 232216      | Steam and Condensate Heating Piping Specialties           | Specialties and special-duty valves for LP and HP steam piping.  |
| U 232223    | Steam Condensate Pumps                                    | Electric driven and pressure powered; single and duplex pumps with receivers.  |
| 232300      | Refrigerant Piping  | Piping, specialties, and refrigerant.  |
| 232500      | HVAC Water Treatment                                      | Auto and manual systems for hydronic systems and steam feedwater systems.  |
| 232513      | Water Treatment for Closed-Loop Hydronic Systems          | Auto and manual systems for closed-loop hydronic systems.  |
| 232516      | Water Treatment for Open-Loop Hydronic Systems            | Auto and manual systems for open-loop hydronic systems.  |
| 232519      | Water Treatment for Steam System Feedwater                | Auto and manual systems for steam feedwater systems.   |
| U 232523    | Water Treatment for Humidification Steam System Feedwater | Automatic systems for humidification steam feedwater systems.  |
| U 232533    | HVAC Makeup-Water Filtration Equipment                    | Water filtration systems for HVAC makeup water systems.  |
| U 233113    | Metal Ducts   | Rectangular and round, single- and double-wall ducts, including hangers and supports.  |

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| Section No. | Section Title                                   | Section Description  |
|-------------|---|--|
| U 233116    | Nonmetal Ducts                                  | Fibrous-glass, PVC, and FRP ducts, hangers, and supports. Does not include fabric.                                 |
| 233300      | Air Duct Accessories                            | Volume dampers, fire and smoke dampers, vanes, duct silencers, and hardware.                                       |
| 233346      | Flexible Ducts                                  | Non-insulated and insulated flexible ducts and flexible duct connectors.   |
| U 233413    | Axial HVAC Fans                                 | Tubeaxial and vaneaxial fans.  |
| U 233416    | Centrifugal HVAC Fans                           | BI & FC indoor type; tubular and in-line units.  |
| U 233423    | HVAC Power Ventilators                          | Roof, wall, and ceiling-mounting ventilators.  |
| 233433.13   | Commercial Air Curtains                         | Commercial air curtain fans over entranceways, with and without heating.   |
| 233433.16   | Industrial Air Curtains                         | Industrial air curtain fans over entranceways, with and without heating.   |
| 233439      | High-Volume, Low-Speed Fans                     | Large diameter, high-volume, low-speed ceiling fans.   |
| 233533      | Listed Kitchen Ventilation System Exhaust Ducts | Listed grease ducts.   |
| 233600      | Air Terminal Units                              | Single-duct, dual-duct, fan-powered, induction, and diffuser types.  |
| 233713.13   | Air Diffusers                                   | Round, rectangular, perforated, and linear diffusers.  |
| 233713.23   | Registers and Grilles                           | Fixed and adjustable registers and grilles.  |
| 233713.43   | Security Registers and Grilles                  | Security registers and grilles.  |
| 233716      | Fabric Air-Distribution Devices                 | Continuous tubular fabric air diffusers, connectors, and accessories.  |
| 233723      | HVAC Gravity Ventilators                        | Unpowered ventilators and louver penthouses.   |
| 233813      | Commercial-Kitchen Hoods                        | Type I and Type II, Standard and Listed hoods.   |
| U 234100    | Particulate Air Filtration                      | Disposable, extended surface, and roll types.  |
| 234133      | High-Efficiency Particulate Air Filtration      | High-efficiency particulate air filters, ultralow-penetration air (ULPA) filters, filter frames, and filter gages. |
| U 234200    | Gas-Phase Air Filtration                        | Gas adsorbent and rechargeable media, trays and housings, frames, and filter gages.                                |
| U 234300    | Electronic Air Cleaners                         | Electronic air cleaners, access housings, service frames, and filter gages.  |
| 235113.11   | Draft Control Fans                              | Induced-draft fans.  |
| 235113.16   | Vent Dampers                                    | Barometric dampers.  |
| 235116      | Fabricated Breechings and Accessories           | Refractory-lined breechings and field-fabricated breechings.   |
| 235123      | Gas Vents                                       | Listed double-wall vents.  |
| U 235133    | Insulated Sectional Chimneys                    | Double-wall and refractory-lined chimneys; fabricated chimneys.  |
| U 235213    | Electric Boilers                                | HW and steam; HP and LP.   |
| U 235216    | Condensing Boilers                              | Packaged condensing boilers for small applications.  |
| U 235223    | Cast-Iron Boilers                               | HW and steam; gas and oil fired.   |
| U 235233    | Water-Tube Boilers                              | HW and steam; gas and oil fired.   |
| U 235239    | Fire-Tube Boilers                               | HW and steam; gas and oil fired.   |
| U 235313    | Boiler Feedwater Pumps                          | Condensate and vacuum pumps and receivers.   |
| U 235316    | Deaerators                                      | Spray, packed column, and package tray.  |
| U 235413    | Electric-Resistance Furnaces                    | Electric furnaces.   |
| U 235416.13 | Gas-Fired Furnaces                              | Gas-fired furnaces.  |
| U 235416.16 | Oil-Fired Furnaces                              | Oil-fired furnaces.  |
| 235513.16   | Gas-Fired Duct Heaters                          | Natural gas and propane, duct-mounted units.   |
| 235523.13   | Low-Intensity, Gas-Fired, Radiant Heaters       | Low intensity, gas-fired, indoor and outdoor radiant heaters.  |
| 235523.16   | High-Intensity, Gas-Fired, Radiant Heaters      | High-intensity, gas-fired, indoor and outdoor radiant heaters and patio heaters.                                   |

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| Section No. | Section Title   | Section Description  |
|-------------|---|--|
| 235533.13   | Oil-Fired Unit Heaters                                      | Fuel-oil unit heaters with propeller and centrifugal fans.                                       |
| 235533.16   | Gas-Fired Unit Heaters                                      | Natural gas and propane unit heaters with propeller and centrifugal fans.                        |
| 235613.13   | Heating, Flat-Plate, Solar Collectors                       | Liquid-type, medium-temperature, glazed solar panels.  |
| 235613.19   | Heating, Solar, Vacuum-Tube Collectors                      | Liquid-type, vacuum-tube solar collectors, accessories, and mountings.                           |
| U 235700    | Heat Exchangers for HVAC                                    | Steam to water and water to water; shell-and-tube and flat-plate types.                          |
| U 236200    | Packaged Compressor and Condenser Units                     | Air and water cooled.  |
| U 236313    | Air-Cooled Refrigerant Condensers                           | Remote forced-air, condenser, and fan units.   |
| U 236333    | Evaporative Refrigerant Condensers                          | Induced- and forced-draft evaporative refrigerant condensers.                                    |
| U 236413.13 | Direct-Fired Absorption Water Chillers                      | Natural-gas, propane, and oil fired; water cooled; two stages; and a brush-cleaning system.      |
| U 236413.16 | Indirect-Fired Absorption Water Chillers                    | Steam and hot-water generated; one and two stage.  |
| U 236416    | Centrifugal Water Chillers                                  | Hermetic and open; direct and gear drives; water and air cooled.                                 |
| U 236423.13 | Air-Cooled, Scroll Water Chillers                           | Packaged, air-cooled, scroll water chillers.   |
| U 236423.16 | Water-Cooled, Scroll Water Chillers                         | Packaged, water-cooled, scroll water chillers.   |
| U 236426.13 | Air-Cooled, Rotary-Screw Water Chillers                     | Packaged, air-cooled indoor and outdoor rotary-screw water chillers.                             |
| U 236426.16 | Water-Cooled, Rotary-Screw Water Chillers                   | Water-cooled, single- and multiple-compressor units.   |
| U 236513.13 | Open-Circuit, Forced-Draft Cooling Towers                   | Factory-assembled, open-circuit, forced-draft, towers.   |
| U 236513.16 | Closed-Circuit, Forced-Draft Cooling Towers                 | Factory-assembled, closed-circuit, forced-draft, towers.   |
| U 236514.13 | Open-Circuit, Induced-Draft, Counterflow Cooling Towers     | Factory-assembled, open-circuit, induced-draft, counterflow towers.                              |
| U 236514.14 | Open-Circuit, Induced-Draft, Crossflow Cooling Towers       | Factory-assembled, open-circuit, induced-draft, crossflow towers.                                |
| U 236514.16 | Closed-Circuit, Induced-Draft, Counterflow Cooling Towers   | Factory-assembled, closed-circuit, induced-draft, counterflow towers.                            |
| U 236514.17 | Closed-Circuit, Induced-Draft, Combined-Flow Cooling Towers | Factory-assembled, closed-circuit, induced-draft, combined-flow towers.                          |
| U 237213    | Heat Wheel Air-To-Air Energy Recovery Units                 | Rotary heat wheel, sensible-only or total heat transfer heat exchangers.                         |
| U 237216    | Heat Pipe Air-To-Air Energy Recovery Units                  | Heat pipe, sensible heat, heat exchangers utilizing passive-refrigerant heat transfer.           |
| U 237219    | Fixed Plate Air-To-Air Energy Recovery Units                | Fixed plate, sensible and total heat transfer heat exchangers.                                   |
| U 237223.13 | Packaged Indoor Heat Wheel Energy Recovery Units            | Heat wheel heat exchangers in packaged, indoor, energy-recovery units.                           |
| U 237223.19 | Packaged Indoor Fixed Plate Energy Recovery Units           | Sensible and total heat, fixed-plate heat exchangers in packaged, indoor, energy-recovery units. |
| U 237223.23 | Packaged, Outdoor, Heat Wheel Energy Recovery Units         | Heat wheel in outdoor packaged, sensible heat and total heat, energy-recovery units.             |
| U 237223.29 | Packaged, Outdoor, Fixed Plate Energy Recovery Units        | Fixed-plate heat exchanger in outdoor packaged, sensible and total heat, energy-recovery units.  |
| U 237313.13 | Indoor, Basic Air-Handling Units                            | Units consisting of fans, coils, dampers, filters, control devices, and accessories.             |
| U 237313.16 | Indoor, Semi-Custom Air-Handling Units                      | Units consisting of fans, coils, dampers, filters, control devices, and accessories.             |
| U 237333.16 | Indoor, Indirect, Gas-Fired Heating and Ventilating Units   | Indirect, gas-fired H&V units mounted inside the building.                                       |
| U 237339    | Indoor, Direct-Fired Heating and Ventilating Units          | Indoor, direct gas-fired H&V units.  |
| U 237343.16 | Outdoor, Semi-Custom Air-Handling Units                     | Units consisting of fans, coils, dampers, filters, control devices, and accessories.             |
| U 237416.11 | Packaged, Small-Capacity, Rooftop Air-Conditioning Units    | Packaged, air-cooled, rooftop HVAC, 6 tons and smaller.  |

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| Section No. | Section Title  | Section Description   |
|-------------|--|---|
| U 237416.13 | Packaged, Large-Capacity, Rooftop Air-Conditioning Units   | Packaged, air-cooled, rooftop HVAC 7.5 tons and greater.  |
| U 237423.13 | Packaged, Direct-Fired, Outdoor, Heating-Only Makeup-Air Units                                   | Outdoor, direct gas-fired H&V units.  |
| U 237423.16 | Packaged, Indirect-Fired, Outdoor, Heating-Only Makeup-Air Units                                 | Outdoor, indirect gas-fired H&V units.  |
| U 237433    | Dedicated Outdoor-Air Units  | Units capable of 100 percent outdoor air with heating and cooling.  |
| 238113.11   | Packaged Terminal Air-Conditioners, Through-Wall Units   | Through-the-wall; cooling only; heat pump; cooling plus hot-water heating, electric heating, and gas-fired heating.                 |
| 238113.12   | Packaged Terminal Air-Conditioners, Freestanding Units   | Freestanding or through-the-wall; cooling only; heat pump; cooling plus hot-water heating, electric heating, and gas-fired heating. |
| 238113.13   | Packaged Terminal Air-Conditioners, Outdoor, Wall-Mounted Units                                  | Outdoor, wall-mounted; cooling only; heat pump; cooling plus hot-water heating, electric heating, and gas-fired heating.            |
| U 238119    | Self-Contained Air-Conditioners  | Packaged cooling, heating, filters, and controls; cabinet suitable for exposed installations.                                       |
| 238123.11   | Small Capacity (6 Tons (21 kW) and Smaller), Computer-Room Air-Conditioners, Floor-Mounted Units | Floor-mounted water and air cooled, air conditioning systems for data centers.  |
| 238123.12   | Large Capacity (7 Tons (25 kW) and Larger), Computer-Room Air-Conditioners, Floor-Mounted Units  | Floor-mounted water and air cooled, air conditioning systems for data centers.  |
| 238123.13   | Computer-Room Air-Conditioners, Ceiling-Mounted Units  | Ceiling-mounted water and air cooled, air conditioning systems for data centers.  |
| 238123.14   | Computer-Room Air-Conditioners, Console Units  | Console water and air cooled, air conditioning systems for data centers.  |
| 238123.18   | Computer-Room, Rack-Cooling Equipment  | Water and air cooled, pumped-refrigerant, air conditioning systems for data centers.  |
| U 238126    | Split-System Air-Conditioners  | Air-distribution equipment separate from refrigeration equipment; cabinet suitable for exposed installations.                       |
| U 238129    | Variable-Refrigerant-Flow HVAC Systems   | Variable-refrigerant-flow HVAC systems, components, and operations, including delegated design.                                     |
| U 238146    | Water-Source Unitary Heat Pumps  | Concealed horizontal and vertical units.  |
| U 238146.13 | Water-To-Air Heat Pumps  | Concealed horizontal and vertical units; vertical-stack; and exposed-console units.   |
| 238213      | Valance Heating and Cooling Units  | Electric and hot water radiant heaters and heating and cooling panels.  |
| 238214      | Chilled Beams  | Passive and active units.   |
| U 238216.11 | Hydronic Air Coils   | Hydronic coils not integral to AHUs.  |
| U 238216.12 | Steam Air Coils  | Steam coils not integral to AHUs.   |
| U 238216.13 | Refrigerant Air Coils  | Refrigerant coils not integral to AHUs.   |
| 238216.14   | Electric-Resistance Air Coils  | Electric-resistance coils not integral to AHUs.   |
| 238219      | Fan Coil Units   | Hot water, steam, and electric heating; chilled or DX cooling.  |
| 238223      | Unit Ventilators   | Hot water, steam, and electric heating; chilled or DX cooling.  |
| 238229      | Radiators  | Flat-pipe steel radiators for hot-water, steam, and electric heating systems.   |
| 238233      | Convectors   | Convectors for hot-water, steam, and electric heating systems.  |
| 238236      | Finned-Tube Radiation Heaters  | HW, steam, and electric baseboard and finned-tube radiation heaters.  |
| 238239.13   | Cabinet Unit Heaters   | Cabinet unit heaters with hot-water, steam, and electric-resistance coils.  |
| 238239.16   | Propeller Unit Heaters   | Propeller unit heaters with hot-water, steam, and electric-resistance coils.  |
| 238239.19   | Wall and Ceiling Unit Heaters  | Wall and ceiling electric unit heaters.   |

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| Section No. | Section Title                              | Section Description  |
|-------------|--|--|
| U 238313    | Radiant-Heating Electric Cables            | Electric cables for ceilings and floors, snow and ice melting, and freezer-floor frost prevention. |
| U 238316    | Radiant-Heating Hydronic Piping            | Embedded pipes, tubes, manifolds, fittings, piping specialties, and controls.                      |
| 238323      | Radiant-Heating Electric Panels            | Factory-fabricated panels.   |
| 238413.16   | Wetted-Element Humidifiers                 | Water-pressure atomizing humidifiers.  |
| U 238413.19 | Atomizing Humidifiers                      | Water-pressure or compress-air types.  |
| 238413.23   | Direct-Steam-Injection Humidifiers         | Externally-supplied steam.   |
| U 238413.29 | Self-Contained Steam Humidifiers           | Electric resistance, electrode cylinder, and gas-fired steam generator humidifiers.                |
| U 238413.36 | Heat Exchanger Humidifiers                 | Steam-to-steam humidifiers.  |
| U 238416.13 | Outdoor, Mechanical Dehumidification Units | Outdoor, refrigerant-type mechanical dehumidification equipment.                                   |
| U 238416.16 | Indoor, Mechanical Dehumidification Units  | Indoor, refrigerant-type mechanical dehumidification equipment.                                    |

### DIVISION 26 - ELECTRICAL

|          |                                   |  |
|----------|-----------------------------------|--|
| U 262933 | Controllers for Fire-Pump Drivers | Full- and limited-service, electric-driver controllers; and diesel-driver controllers. |
|----------|-----------------------------------|--|

### DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

|             |                                 |  |
|-------------|---------------------------------|--|
| U 284400    | Refrigerant Detection and Alarm | Monitors, alarms, breathing apparatus, and ventilation equipment interlocks. |
| U 284621.13 | Conventional Fire-Alarm Systems | Small systems for buildings relying on zoned fire-alarm concept.             |

### DIVISION 31 - EARTHWORK

|        |               |   |
|--------|---------------|---|
| 311000 | Site Clearing | Clearing, grubbing, vegetation protection, stripping and stockpiling topsoil and rock, and disconnecting utilities. |
| 312000 | Earth Moving  | Excavating, filling and backfilling, compacting, and grading.   |
| 312319 | Dewatering    | Temporary construction dewatering requirements for ground-water control.  |

### DIVISION 32 - EXTERIOR IMPROVEMENTS

|          |                                      |   |
|----------|--------------------------------------|---|
| U 321216 | Asphalt Paving                       | Paving, overlays, surface treatments, asphalt curbs, asphalt traffic-calming devices, cold milling, and hot-mix patching. |
| U 321223 | Imprinted Asphalt                    | Embossing patterns in new or existing asphalt pavement.   |
| 321313   | Concrete Paving                      | Concrete curbs and gutters, walks, driveways, parking lots, and miscellaneous paving.                                     |
| U 321713 | Parking Bumpers                      | Wheel stops applied to asphalt or concrete pavement.  |
| U 321716 | Manufactured Traffic-Calming Devices | Preformed rubber or plastic traffic-calming devices applied to asphalt or concrete pavement.                              |
| U 321723 | Pavement Markings                    | Painted markings applied to asphalt or concrete pavement.   |
| 323113   | Chain Link Fences and Gates          | Standard chain-link fencing systems with swing or horizontal-slide gates and gate operators.                              |
| 328400   | Planting Irrigation                  | Heads, pipes, and controls.   |

### DIVISION 33 - UTILITIES

|        |                                   |                                     |
|--------|-----------------------------------|-------------------------------------|
| 330500 | Common Work Results for Utilities | Basic piping materials and methods. |
|--------|-----------------------------------|-------------------------------------|

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| Section No. | Section Title  | Section Description   |
|-------------|--|---|
| 331113      | Potable Water Supply Wells                           | Drilled and driven wells and well pumps.  |
| 334200      | Stormwater Conveyance                                | Gravity and forced storm piping, underground structures, and specialties.                 |
| 334600      | Subdrainage  | Drainage for foundations, underslabs, plaza decks, retaining walls, and landscaped areas. |
| 336313      | Underground Steam and Condensate Distribution Piping | Underground piping serving one or more buildings.   |

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