

00 Using The Construction Task Catalog®	1
01 General Requirements	1
01 10 Summary	1
01 11 Summary Of Work	1
01 20 Price and Payment Procedures	1
01 22 Unit Prices	1
01 30 Administrative Requirements	34
01 35 Special Procedures	34
01 40 Quality Requirements	34
01 41 Regulatory Requirements	34
01 42 References	34
01 45 Quality Control	35
01 50 Temporary Facilities and Controls	37
01 51 Temporary Utilities	37
01 52 Construction Facilities	38
01 53 Temporary Construction	39
01 54 Construction Aids	40
01 55 Vehicular Access and Parking	41
01 56 Temporary Barriers and Enclosures	44
01 57 Temporary Controls	53
01 58 Project Identification	56
01 60 Product Requirements	56
01 66 Product Storage and Handling Requirements	56
01 70 Execution and Closeout Requirements	57
01 71 Examination and Preparation	57
01 74 Cleaning and Waste Management	58
01 95 Residential Construction	59
01 95 07 Residential - Thermal and Moisture Protection	59
01 95 08 Residential - Doors and Windows	59
02 Existing Conditions	1
02 20 Assessment	1
02 25 Existing Material Assessment	1
02 30 Subsurface Investigation	1
02 32 Geotechnical Investigations	1
02 40 Demolition and Structure Moving	2
02 41 Demolition	2
02 42 Removal and Salvage of Construction Materials	19
02 43 Structure Moving	19
02 50 Site Remediation	19
02 58 Snow Control	19
02 60 Contaminated Site Material Removal	19
02 61 Removal and Disposal of Contaminated Soils	19
02 65 Underground Storage Tank Removal	19
02 80 Facility Remediation	21
02 82 Asbestos Remediation	21
02 83 Lead Remediation	27
02 84 Polychlorinated Biphenyl Remediation	30
02 87 Bio-Hazard Material Remediation	30
02 89 Hazmat Ancillary Tasks and Support	39
02 90 Disaster Recovery	39
02 90 50 Cleaning and Disaster Cleanup	39
02 90 55 Emergency Clean-up	42
03 Concrete	1
03 01 Maintenance of Concrete	1
03 01 30 Maintenance of Cast-In-Place Concrete	1
03 05 Common Work Results For Concrete	3
03 05 13 Concrete Admixtures	3
03 10 Concrete Forming and Accessories	3
03 11 Concrete Forming	3
03 15 Concrete Accessories	7

Table of Contents

03 20 Concrete Reinforcing	16
03 21 Reinforcement Bars	16
03 22 Fabric and Grid Reinforcing	43
03 30 Cast-In-Place Concrete	44
03 30 53 Miscellaneous Cast-in-Place Concrete	44
03 31 Structural Concrete	45
03 35 Concrete Finishing	62
03 37 Specialty Placed Concrete	65
03 39 Concrete Curing	66
03 40 Precast Concrete	66
03 48 Precast Concrete Specialties	66
03 50 Cast Decks and Underlayment	66
03 54 Cast Underlayment	66
03 60 Grouting	67
03 61 Cementitious Grouting	67
03 62 Non-Shrink Grouting	67
03 63 Epoxy Grouting	67
03 64 Injection Grouting	68
03 80 Concrete Cutting and Boring	68
03 81 Concrete Cutting	68
03 82 Concrete Boring	68

04 Masonry 1

04 01 Maintenance of Masonry	1
04 01 20 Maintenance of Unit Masonry	1
04 01 50 Maintenance of Refractory Masonry	10
04 05 Common Work Results for Masonry	10
04 05 13 Masonry Mortaring	10
04 05 16 Masonry Grouting	10
04 05 19 Masonry Anchorage and Reinforcing	10
04 05 23 Masonry Accessories	35
04 20 Unit Masonry	36
04 21 Clay Unit Masonry	36
04 22 Concrete Unit Masonry	39
04 23 Glass Unit Masonry	44
04 40 Stone Assemblies	44
04 42 Exterior Stone Cladding	44
04 43 Stone Masonry	44
04 50 Refractory Masonry	45
04 51 Flue Liner Masonry	45
04 70 Manufactured Masonry	46
04 72 Cast Stone Masonry	46

05 Metals 1

05 01 Maintenance of Metals	1
05 01 50 Maintenance of Metal Fabrications	1
05 01 70 Maintenance of Decorative Metal	1
05 05 Common Work Results for Metals	1
05 05 19 Post-Installed Concrete Anchors	1
05 05 21 Fastening Methods for Metal	11
05 05 23 Metal Fastenings	13
05 10 Structural Metal Framing	74
05 12 Structural Steel Framing	74
05 14 Structural Aluminum Framing	133
05 20 Metal Joists	133
05 21 Steel Joist Framing	133
05 30 Metal Decking	134
05 31 Steel Decking	134
05 36 Composite Metal Decking	137
05 40 Cold-Formed Metal Framing	140
05 41 Structural Metal Stud Framing	140
05 42 Cold-Formed Metal Joist Framing	142
05 43 Slotted Channel Framing	142
05 45 Metal Support Assemblies	144
05 50 Metal Fabrications	144
05 51 Metal Stairs	144
05 52 Metal Railings	146

05 53 Metal Gratings.....	154
05 54 Metal Floor Plates.....	162
05 55 Metal Stair Treads and Nosings	162
05 58 Formed Metal Fabrications	163
05 59 Metal Specialties.....	165
05 70 Decorative Metal	165
05 73 Decorative Metal Railings	165
05 75 Decorative Formed Metal.....	165

06 Wood, Plastics, and Composites 1

06 05 Common Work Results for Wood, Plastics, and Composites	1
06 05 23 Wood, Plastic, and Composite Fastenings	1
06 05 73 Wood Treatment	22
06 10 Rough Carpentry	22
06 11 Wood Framing	22
06 13 Heavy Timber Construction	27
06 16 Sheathing.....	28
06 17 Shop-Fabricated Structural Wood	33
06 18 Glued-Laminated Construction	38
06 20 Finish Carpentry.....	39
06 22 Millwork	39
06 40 Architectural Woodwork	40
06 41 Architectural Wood Casework	40
06 42 Wood Paneling.....	54
06 46 Wood Trim	54
06 50 Structural Plastics.....	56
06 51 Structural Plastic Shapes and Plates.....	56
06 53 Plastic Decking	62
06 60 Plastic Fabrications	62
06 65 Plastic Trim.....	62
06 70 Structural Composites.....	63
06 74 Composite Gratings.....	63
06 80 Composite Fabrications.....	65
06 82 Composite Trim.....	65
06 83 Composite Paneling.....	67

07 Thermal And Moisture Protection 1

07 01 Operation and Maintenance of Thermal and Moisture Protection.....	1
07 01 50 Maintenance of Membrane Roofing.....	1
07 01 60 Maintenance of Flashing and Sheet Metal	1
07 01 70 Operation and Maintenance of Roof Specialties and Accessories	1
07 05 Common Work Results for Thermal and Moisture Protection	2
07 05 13 Mobilization Of Crew For Small Quantity Of Roof Work	2
07 10 Dampproofing and Waterproofing	2
07 11 Dampproofing	2
07 13 Sheet Waterproofing	2
07 14 Fluid-Applied Waterproofing	4
07 16 Cementitious and Reactive Waterproofing	4
07 17 Bentonite Waterproofing	4
07 18 Traffic Coatings.....	5
07 19 Water Repellents	5
07 20 Thermal Protection	5
07 21 Thermal Insulation	5
07 22 Roof and Deck Insulation.....	16
07 24 Exterior Insulation and Finish Systems.....	42
07 25 Weather Barriers	45
07 26 Vapor Retarders.....	45
07 27 Air Barriers.....	45
07 30 Steep Slope Roofing	45
07 31 Shingles and Shakes	45
07 32 Roof Tiles.....	51
07 34 Roofing Underlayment	53
07 40 Roofing and Siding Panels	55
07 41 Roof Panels	55
07 42 Wall Panels.....	58
07 46 Siding.....	59
07 50 Membrane Roofing	63

Table of Contents

07 51 Built-Up Bituminous Roofing	63
07 52 Modified Bituminous Membrane Roofing	71
07 53 Elastomeric Membrane Roofing	80
07 54 Thermoplastic Membrane Roofing	83
07 55 Protected Membrane Roofing	87
07 56 Fluid-Applied Roofing	87
07 57 Coated Foamed Roofing	88
07 58 Roll Roofing	90
07 59 Membrane Roofing Termination Bar	90
07 60 Flashing and Sheet Metal	90
07 61 Sheet Metal Roofing	90
07 62 Sheet Metal Flashing and Trim	92
07 63 Sheet Metal Roofing Specialties	97
07 64 Sheet Metal Wall Cladding	98
07 65 Flexible Flashing	98
07 70 Roof and Wall Specialties and Accessories	99
07 71 Roof Specialties	99
07 72 Roof Accessories	124
07 73 Roof Protection Board	149
07 76 Roof Pavers	151
07 80 Fire and Smoke Protection	151
07 81 Applied Fireproofing	151
07 84 Firestopping	153
07 86 Smoke Seals	158
07 90 Joint Protection	159
07 91 Preformed Joint Seals	159
07 92 Joint Sealants	161
07 95 Expansion Control	164

08 Openings 1

08 01 Operation and Maintenance of Openings	1
08 01 10 Operation and Maintenance of Doors and Frames	1
08 01 50 Operation and Maintenance of Windows	1
08 01 80 Maintenance of Glazing	1
08 05 Common Work Results for Openings	1
08 05 13 Door Options and Modifications	1
08 10 Doors and Frames	3
08 11 Metal Doors and Frames	3
08 12 Metal Frames	3
08 13 Metal Doors	22
08 14 Wood Doors	46
08 16 Composite Doors	113
08 30 Specialty Doors and Frames	118
08 31 Access Doors and Panels	118
08 33 Coiling Doors and Grilles	119
08 34 Special Function Doors	155
08 36 Panel Doors	166
08 38 Traffic Doors	174
08 40 Entrances, Storefronts, and Curtain Walls	189
08 42 Entrances	189
08 43 Storefronts	190
08 50 Windows	190
08 51 Metal Windows	191
08 52 Wood Windows	205
08 53 Plastic Windows	240
08 56 Special Function Windows	267
08 60 Roof Windows and Skylights	270
08 62 Unit Skylights	270
08 63 Metal-Framed Skylights	275
08 66 Wood-Framed Skylights	280
08 70 Hardware	281
08 71 Door Hardware	281
08 72 Weatherstripping, Thresholds and Seals	359
08 80 Glazing	370
08 81 Glass Glazing	371
08 83 Mirrors	384
08 84 Plastic Glazing	385
08 87 Glazing Surface Films	386

08 88 Special Function Glazing	387
08 90 Louvers and Vents	388
08 91 Louvers	388
08 95 Vents	418

09 Finishes 1

09 01 Maintenance of Finishes	1
09 01 20 Maintenance of Plaster and Gypsum Board	1
09 01 30 Maintenance of Tiling	1
09 01 90 Maintenance of Painting and Coating	1
09 20 Plaster and Gypsum Board	5
09 21 Plaster and Gypsum Board Assemblies	6
09 22 Supports for Plaster and Gypsum Board	6
09 23 Gypsum Plastering	14
09 24 Cement Plastering	15
09 28 Backing Boards and Underlayments	17
09 29 Gypsum Board	17
09 30 Tiling	24
09 30 13 Ceramic Tiling	24
09 30 16 Quarry Tiling	25
09 31 Thin-Set Tiling	25
09 32 Mortar-Bed Tiling	26
09 34 Waterproofing-Membrane Tiling	26
09 35 Chemical-Resistant Tiling	27
09 39 Tiling Transitions	27
09 50 Ceilings	27
09 51 Acoustical Ceilings	27
09 53 Acoustical Ceiling Suspension Assemblies	45
09 54 Specialty Ceilings	48
09 60 Flooring	49
09 61 Flooring Treatment	49
09 63 Masonry Flooring	49
09 64 Wood Flooring	49
09 65 Resilient Flooring	53
09 66 Terrazzo Flooring	62
09 67 Fluid-Applied Flooring	64
09 68 Carpeting	65
09 70 Wall Finishes	76
09 72 Wall Coverings	76
09 73 Wall Carpeting	76
09 80 Acoustic Treatment	77
09 81 Acoustic Insulation	77
09 84 Acoustic Room Components	77
09 90 Painting and Coating	78
09 91 Painting	78
09 92 Factory Finish	181
09 93 Staining and Transparent Finishing	182
09 96 High-Performance Coatings	184
09 97 Special Coatings	186

10 Specialties 1

10 01 Operation and Maintenance of Specialties	1
10 01 40 Operation and Maintenance of Safety Specialties	1
10 01 50 Operation and Maintenance of Storage Specialties	1
10 10 Information Specialties	1
10 11 Visual Display Units	1
10 13 Directories	8
10 14 Signage	10
10 20 Interior Specialties	19
10 21 Compartments and Cubicles	19
10 22 Partitions	40
10 26 Wall and Door Protection	43
10 28 Toilet, Bath, and Laundry Accessories	53
10 40 Safety Specialties	62
10 41 Emergency Access And Information Cabinets	62
10 44 Fire Protection Specialties	63
10 50 Storage Specialties	68

Table of Contents

10 51 Lockers.....	68
10 70 Exterior Specialties.....	81
10 71 Exterior Protection.....	81
10 75 Flagpoles.....	81
10 80 Other Specialties.....	83
10 81 Pest Control Devices.....	83
10 86 Security Mirrors And Domes.....	84

11 Equipment 1

11 10 Vehicle and Pedestrian Equipment.....	1
11 13 Loading Dock Equipment.....	1
11 30 Residential Equipment.....	5
11 30 13 Residential Appliances.....	5
11 30 33 Retractable Stairs.....	8
11 50 Educational and Scientific Equipment.....	9
11 52 Audio-Visual Equipment.....	9
11 60 Entertainment and Recreation Equipment.....	15
11 66 Athletic Equipment.....	15
11 68 Play Field Equipment and Structures.....	15
11 80 Facility Maintenance and Operation Equipment.....	34
11 81 Maintenance Equipment.....	34
11 90 Other Equipment.....	35
11 98 Detention Equipment.....	35

12 Furnishings 1

12 01 Operation and Maintenance of Furnishings.....	1
12 01 60 Operation and Maintenance of Multiple Seating.....	1
12 20 Window Treatments.....	1
12 21 Window Blinds.....	1
12 24 Window Shades.....	1
12 30 Casework.....	2
12 31 Manufactured Metal Casework.....	2
12 35 Specialty Casework.....	6
12 36 Countertops.....	8
12 50 Furniture.....	9
12 55 Detention Furniture.....	9
12 60 Multiple Seating.....	9
12 61 Fixed Audience Seating.....	9
12 66 Telescoping Stands.....	11

13 Special Construction 1

13 20 Special Purpose Rooms.....	1
13 26 Fabricated Rooms.....	1
13 30 Special Structures.....	1
13 34 Fabricated Engineered Structures.....	1
13 40 Integrated Construction.....	2
13 46 Lightning Protection Systems.....	2
13 47 Facility Protection.....	3
13 48 Sound, Vibration, and Seismic Control.....	4

14 Conveying Equipment 1

14 01 Operation and Maintenance of Conveying Equipment.....	1
14 01 20 Operation and Maintenance of Elevators.....	1
14 20 Elevators.....	3
14 21 Electric Traction Elevators.....	3
14 24 Hydraulic Elevators.....	5
14 26 Limited-Use/Limited-Application Elevators.....	9
14 27 Custom Elevator Cabs and Doors.....	9
14 28 Elevator Equipment and Controls.....	10
14 30 Escalators and Moving Walks.....	10
14 31 Escalators.....	10
14 40 Lifts.....	10
14 41 People Lifts.....	10
14 42 Wheelchair Lifts.....	11

21 Fire Suppression	1
21 01 Operation and Maintenance of Fire Suppression	1
21 01 10 Operation and Maintenance of Water-Based Fire-Suppression Systems	1
21 01 30 Operation and Maintenance of Fire-Suppression Equipment	1
21 05 Common Work Results for Fire Suppression	1
21 05 13 Common Motor Requirements for Fire-Suppression Equipment	1
21 05 16 Expansion Fittings and Loops for Fire-Suppression Piping	1
21 05 17 Sleeves and Sleeve Seals for Fire-Suppression Piping	1
21 05 19 Meters and Gages for Fire-Suppression Systems	1
21 05 23 General-Duty Valves for Water-Based Fire-Suppression Piping	2
21 05 29 Hangers and Supports for Fire-Suppression Piping and Equipment	2
21 05 33 Heat Tracing for Fire-Suppression Piping	2
21 05 48 Vibration and Seismic Controls for Fire-Suppression Piping and Equipment	2
21 05 53 Identification for Fire-Suppression Piping and Equipment	2
21 07 Fire-Suppression Systems Insulation	2
21 07 16 Fire-Suppression Equipment Insulation	2
21 07 19 Fire-Suppression Piping Insulation	2
21 10 Water-Based Fire-Suppression Systems	2
21 11 Facility Fire-Suppression Water-Service Piping	2
21 12 Fire-Suppression Standpipes	3
21 13 Fire-Suppression Sprinkler Systems	4
21 20 Fire-Extinguishing Systems	31
21 21 Carbon-Dioxide Fire-Extinguishing Systems	31
21 22 Clean-Agent Fire-Extinguishing Systems	31
21 23 Wet-Chemical Fire-Extinguishing Systems	39
21 24 Dry-Chemical Fire-Extinguishing Systems	42
21 30 Fire Pumps	44
21 31 Centrifugal Fire Pumps	44
21 34 Fire Pump Accessories	45
21 40 Fire-Suppression Water Storage	45
21 41 Storage Tanks for Fire-Suppression Water	45
22 Plumbing	1
22 01 Operation and Maintenance of Plumbing	1
22 01 10 Operation and Maintenance of Plumbing Piping and Pumps	1
22 01 40 Operation and Maintenance of Plumbing Fixtures	2
22 05 Common Work Results for Plumbing	3
22 05 13 Common Motor Requirements for Plumbing Equipment	3
22 05 16 Expansion Fittings and Loops for Plumbing Piping	3
22 05 17 Sleeves and Sleeve Seals for Plumbing Piping	3
22 05 19 Meters and Gages for Plumbing Piping	3
22 05 23 General-Duty Valves for Plumbing Piping	3
22 05 29 Hangers and Supports for Plumbing Piping and Equipment	5
22 05 33 Heat Tracing for Plumbing Piping	5
22 05 48 Vibration and Seismic Controls for Plumbing Piping and Equipment	5
22 05 53 Identification for Plumbing Piping and Equipment	5
22 05 76 Facility Drainage Piping Cleanouts	5
22 07 Plumbing Insulation	8
22 07 16 Plumbing Equipment Insulation	8
22 07 19 Plumbing Piping Insulation	8
22 10 Plumbing Piping	35
22 11 Facility Water Distribution	35
22 12 Facility Potable-Water Storage Tanks	97
22 13 Facility Sanitary Sewerage	99
22 14 Facility Storm Drainage	145
22 15 General Service Compressed-Air Systems	154
22 30 Plumbing Equipment	160
22 31 Domestic Water Softeners	160
22 32 Domestic Water Filtration Equipment	161
22 33 Electric Domestic Water Heaters	162
22 34 Fuel-Fired Domestic Water Heaters	167
22 35 Domestic Water Heat Exchangers	170
22 40 Plumbing Fixtures	171
22 41 Residential Plumbing Fixtures	171
22 42 Commercial Plumbing Fixtures	172
22 43 Healthcare Plumbing Fixtures	185
22 45 Emergency Plumbing Fixtures	186

Table of Contents

22 46 Security Plumbing Fixtures.....	188
22 47 Drinking Fountains and Water Coolers	189
22 60 Gas and Vacuum Systems for Laboratory and Healthcare Facilities.....	192
22 63 Gas Systems for Laboratory and Healthcare Facilities	192
22 66 Chemical-Waste Systems for Laboratory and Healthcare Facilities	192

23 Heating, Ventilating, and Air-Conditioning (HVAC) 1

23 01 Operation and Maintenance of HVAC Systems.....	1
23 01 10 Operation and Maintenance of Facility Fuel Systems	1
23 01 20 Operation and Maintenance of HVAC Piping and Pumps.....	1
23 01 30 Operation and Maintenance of HVAC Air Distribution.....	3
23 01 50 Operation and Maintenance of Central Heating Equipment.....	3
23 01 60 Operation and Maintenance of Central Cooling Equipment.....	4
23 05 Common Work Results for HVAC.....	5
23 05 13 Common Motor Requirements for HVAC Equipment.....	5
23 05 16 Expansion Fittings and Loops for HVAC Piping	9
23 05 17 Sleeves and Sleeve Seals for HVAC Piping	9
23 05 19 Meters and Gages for HVAC Piping.....	10
23 05 23 General-Duty Valves For HVAC Piping.....	13
23 05 29 Hangers and Supports for HVAC Piping and Equipment.....	31
23 05 33 Heat Tracing for HVAC Piping.....	56
23 05 48 Vibration and Seismic Controls for HVAC	56
23 05 53 Identification for HVAC Piping and Equipment.....	60
23 05 66 Anti-Microbial Ultraviolet Emitters for HVAC Ducts and Equipment.....	60
23 05 93 Testing, Adjusting, and Balancing for HVAC.....	62
23 07 HVAC Insulation.....	65
23 07 13 Duct Insulation.....	65
23 07 16 HVAC Equipment Insulation.....	66
23 07 19 HVAC Piping Insulation	66
23 08 Commissioning of HVAC	70
23 09 Instrumentation and Control for HVAC	70
23 09 23 Direct-Digital Control System for HVAC	70
23 09 43 Pneumatic Control System For HVAC	86
23 10 Facility Fuel Systems	86
23 11 Facility Fuel Piping	87
23 12 Facility Fuel Pumps.....	98
23 13 Facility Fuel-Storage Tanks.....	99
23 20 HVAC Piping and Pumps.....	108
23 21 Hydronic Piping and Pumps	108
23 22 Steam and Condensate Piping and Pumps	202
23 23 Refrigerant Piping.....	207
23 25 HVAC Water Treatment	212
23 30 HVAC Air Distribution.....	212
23 31 HVAC Ducts and Casings	212
23 33 Air Duct Accessories	245
23 34 HVAC Fans	288
23 35 Special Exhaust Systems.....	303
23 36 Air Terminal Units.....	304
23 37 Air Outlets and Inlets	306
23 38 Ventilation Hoods	320
23 40 HVAC Air Cleaning Devices.....	321
23 41 Particulate Air Filtration	321
23 42 Gas-Phase Air Filtration	323
23 43 Electronic Air Cleaners	323
23 50 Central Heating Equipment.....	323
23 51 Breechings, Chimneys, and Stacks.....	323
23 52 Heating Boilers	344
23 53 Heating Boiler Feedwater Equipment.....	361
23 54 Furnaces	362
23 55 Fuel-Fired Heaters	364
23 57 Heat Exchangers for HVAC.....	369
23 60 Central Cooling Equipment.....	370
23 61 Refrigerant Compressors	370
23 62 Packaged Compressor and Condenser Units	371
23 63 Refrigerant Condensers	373
23 64 Packaged Water Chillers.....	375
23 65 Cooling Towers	378
23 70 Central HVAC Equipment	382

23 71 Thermal Storage	382
23 72 Air-To-Air Energy Recovery Equipment	382
23 73 Indoor Central-Station Air-Handling Units	382
23 74 Packaged Outdoor HVAC Equipment	399
23 80 Decentralized Unitary HVAC Equipment	406
23 81 Decentralized Unitary HVAC Equipment	406
23 82 Convection Heating and Cooling Units	418
23 83 Radiant Heating Units	434
23 84 Humidity Control Equipment	435

26 Electrical 1

26 01 Operation and Maintenance of Electrical Systems	1
26 01 10 Operation and Maintenance of Medium-Voltage Electrical Distribution	1
26 01 20 Operation and Maintenance of Low-Voltage Electrical Distribution	2
26 01 50 Operation and Maintenance of Lighting	2
26 05 Common Work Results for Electrical	26
26 05 13 Medium-Voltage Cables	26
26 05 19 Low-Voltage Electrical Power Conductors and Cables	32
26 05 23 Control-Voltage Electrical Power Cables	48
26 05 26 Grounding and Bonding for Electrical Systems	49
26 05 29 Hangers and Supports for Electrical Systems	53
26 05 33 Raceway and Boxes for Electrical Systems	74
26 05 39 Underfloor Raceways for Electrical Systems	212
26 05 43 Underground Ducts and Raceways for Electrical Systems	213
26 05 46 Utility Poles for Electrical Systems	227
26 05 53 Identification for Electrical Systems	231
26 05 83 Wiring Connections	231
26 09 Instrumentation and Control for Electrical Systems	234
26 09 23 Lighting Control Devices	234
26 10 Medium-Voltage Electrical Distribution	252
26 11 Substations	252
26 12 Medium-Voltage Transformers	259
26 13 Medium-Voltage Switchgear	262
26 18 Medium-Voltage Circuit Protection Devices	265
26 19 High-Voltage Circuit Protection	265
26 20 Low-Voltage Electrical Distribution	268
26 21 Low-Voltage Electrical Service Entrance	268
26 22 Low-Voltage Transformers	269
26 24 Switchboards and Panelboards	275
26 25 Enclosed Bus Assemblies	321
26 27 Low-Voltage Distribution Equipment	324
26 28 Low-Voltage Circuit Protective Devices	341
26 29 Low-Voltage Controllers	369
26 30 Facility Electrical Power Generating and Storing Equipment	385
26 31 Photovoltaic Collectors	385
26 32 Packaged Generator Assemblies	389
26 33 Battery Equipment	395
26 35 Power Filters and Conditioners	397
26 36 Transfer Switches	398
26 40 Electrical And Cathodic Protection	402
26 43 Surge Protective Devices	402
26 50 Lighting	405
26 51 Interior Lighting	405
26 52 Safety Lighting	448
26 54 Classified Location Lighting	453
26 55 Special Purpose Lighting	455
26 56 Exterior Lighting	468

27 Communications 1

27 05 Common Work Results for Communications	1
27 05 26 Grounding and Bonding for Communications Systems	1
27 05 29 Hangers and Supports for Communications Systems	1
27 05 33 Conduits and Back Boxes for Communications Systems	4
27 05 39 Surface Raceways for Communications Systems	4
27 05 43 Underground Ducts and Raceways for Communications Systems	4
27 05 46 Utility Poles for Communications Systems	4
27 05 53 Identification for Communications Systems	4

Table of Contents

27 10 Structured Cabling	4
27 11 Communications Equipment Room Fittings	4
27 13 Communications Backbone Cabling	10
27 15 Communications Horizontal Cabling	12
27 16 Communications Connecting Cords, Devices, and Adapters	51
27 20 Data Communications	52
27 21 Data Communications Network Equipment	52
27 50 Distributed Communications and Monitoring Systems	53
27 51 Distributed Audio-Video Communications Systems	54

28 Electronic Safety and Security 1

28 05 Common Work Results for Electronic Safety and Security	1
28 05 26 Grounding and Bonding for Electronic Safety and Security	1
28 05 53 Identification for Electronic Safety and Security	1
28 10 Access Control	1
28 15 Integrated Access Control Hardware Devices	1
28 16 Access Control Interfaces	1
28 20 Video Surveillance	7
28 21 Surveillance Cameras	7
28 40 Life Safety	24
28 42 Gas Detection and Alarm	24
28 43 Fuel Oil Detection and Alarm	25
28 46 Fire Detection and Alarm	25
28 47 Mass Notification	70
28 49 Electronic Personal Protection Systems	71

31 Earthwork 1

31 05 Common Work Results for Earthwork	1
31 05 16 Aggregates for Earthwork	1
31 05 36 Equipment Delivery, Pickup, Mobilization and Demobilization	3
31 10 Site Clearing	3
31 11 Clearing and Grubbing	3
31 13 Selective Tree and Shrub Removal and Trimming	3
31 20 Earth Moving	5
31 22 Grading	5
31 23 Excavation and Fill	5
31 24 Embankments	10
31 25 Erosion and Sedimentation Controls	11
31 30 Earthwork Methods	14
31 31 Soil Treatment	14
31 32 Soil Stabilization	14
31 35 Slope Protection	17
31 36 Gabions	17
31 37 Riprap	17
31 40 Shoring and Underpinning	17
31 41 Shoring	17
31 43 Concrete Raising	18
31 45 Vibroflotation and Densification	18
31 60 Special Foundations and Load-bearing Elements	18
31 62 Driven Piles	18
31 63 Bored Piles	21

32 Exterior Improvements 1

32 01 Operation and Maintenance of Exterior Improvements	1
32 01 11 Paving Cleaning	1
32 01 13 Flexible Paving Surface Treatment	2
32 01 16 Flexible Paving Rehabilitation	2
32 01 17 Flexible Paving Repair	3
32 01 29 Rigid Paving Repair	5
32 01 90 Operation and Maintenance of Planting	5
32 10 Bases, Ballasts, and Paving	8
32 11 Base Courses	8
32 12 Flexible Paving	9
32 13 Rigid Paving	11
32 14 Unit Paving	15
32 16 Curbs, Gutters, Sidewalks, and Driveways	18

32 17 Paving Specialties.....	24
32 18 Athletic and Recreational Surfacing.....	32
32 30 Site Improvements	37
32 31 Fences and Gates.....	37
32 32 Retaining Walls	106
32 33 Site Furnishings	107
32 39 Manufactured Site Specialties	116
32 80 Irrigation	118
32 84 Planting Irrigation	118
32 90 Planting	126
32 91 Planting Preparation	126
32 92 Turf and Grasses	128
32 93 Plants	131
32 94 Planting Accessories.....	162
32 96 Transplanting	164

33 Utilities

1

33 01 Operation and Maintenance of Utilities	1
33 01 10 Operation and Maintenance of Water Utilities	1
33 01 30 Operation and Maintenance of Sewer Utilities	2
33 01 34 Operation and Maintenance of Onsite Wastewater Disposal Systems	61
33 01 70 Operation and Maintenance of Electrical Utilities	61
33 05 Common Work Results for Utilities	63
33 05 07 Trenchless Installation of Utility Piping	63
33 05 09 Piping Specials for Utilities	65
33 05 16 Cast-Iron Utility Pipe	65
33 05 17 Copper Utility Pipe and Tubing	65
33 05 19 Ductile-Iron Utility Pipe	65
33 05 24 Steel Utility Pipe	65
33 05 27 Corrugated Metal Utility Pipe	65
33 05 31 Thermoplastic Utility Pipe	65
33 05 33 Polyethylene Utility Pipe	65
33 05 39 Concrete Pipe	66
33 05 41 Vitrified Clay Utility Pipe.....	66
33 05 61 Concrete Manholes.....	66
33 05 63 Concrete Vaults and Chambers.....	68
33 05 81 Metallic Castings for Utility Structures	77
33 05 83 Non-Metallic Accessories for Utility Structures	77
33 05 84 Accessories for Utility Structures	78
33 05 97 Identification and Signage for Utilities.....	80
33 10 Water Utilities	80
33 14 Water Utility Transmission and Distribution	80
33 16 Water Utility Storage Tanks	163
33 19 Water Utility Metering Equipment	163
33 30 Sanitary Sewerage Utilities	164
33 31 Sanitary Sewerage Piping	164
33 32 Sanitary Sewerage Equipment	169
33 34 Onsite Wastewater Disposal.....	169
33 40 Stormwater Utilities	170
33 41 Subdrainage.....	170
33 42 Stormwater Conveyance	173
33 44 Storm Utility Water Drains	223
33 50 Hydrocarbon Utilities	224
33 52 Hydrocarbon Transmission and Distribution.....	224
33 53 Hydrocarbon Utility Pressure Regulation.....	226
33 56 Hydrocarbon Storage.....	226
33 59 Hydrocarbon Utility Metering	226
33 60 Hydronic and Steam Energy Utilities.....	227
33 61 Hydronic Energy Distribution	227
33 70 Electrical Utilities	244
33 71 Electrical Utility Transmission and Distribution	244

34 Transportation

1

34 40 Transportation Signaling and Control Equipment.....	1
34 41 Roadway Signaling and Control Equipment	1
34 70 Transportation Construction and Equipment.....	1
34 71 Roadway Construction.....	1

Table of Contents

35 Waterway and Marine Construction	1
35 20 Waterway and Marine Construction and Equipment.....	1
35 22 Hydraulic Gates.....	1
40 Process Interconnections	1
40 05 Common Work Results For Process Interconnections	1
40 05 19 Ductile Iron Process Pipe	1
40 05 23 Stainless Steel Process Pipe and Tubing	218
40 05 71 Solids Handling Valves.....	249
40 20 Liquids Process Piping.....	250
40 23 Water and Wastewater Process Piping.....	250