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# ***MASTERFORMAT***™

## 2004 EDITION NUMBERS & TITLES



The Construction  
Specifications Institute



Construction Devis de  
Specifications Construction  
Canada Canada



# MASTERFORMAT™

## 2004 EDITION NUMBERS & TITLES

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6/8/2004 (revised August 2004, November 2004, October 2005)

*The numbers and titles presented here are identical to the MasterFormat™ 2004 Edition Numbers and Titles that were distributed on June 8, 2004 and revised in August 2004, save for additional selected title corrections that were made in the process of copy editing the MasterFormat publication. These corrections are listed separately on <http://www.csinet.org/MasterFormat>. **The numbers and titles presented here are identical to the numbers and titles presented in the full MasterFormat 2004 Edition (2nd printing, October 2005) publication available for purchase from CSI and CSC.***

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.

This revision of MasterFormat is the most significant in the product's 40-year history, and reflects the growing volume and complexity of information generated for commercial construction projects. MasterFormat 2004 Edition: Numbers & Titles was developed by a team of individuals representing all stakeholders in the industry – owners, architects, engineers, contractors, manufacturers and facility managers. MasterFormat is intended to address specification requirements through the entire built lifecycle.

The Numbers and Titles are intentionally structured for anticipated growth and expansion in the future. CSI encourages all interested parties to provide input to CSI so that as the built environment evolves so can MasterFormat.

To learn more about MasterFormat 2004 Edition, go to <http://www.csinet.org/MasterFormat> for education programs, training, certification and local chapter information.



# INTRODUCTION

Over the last forty years, *MasterFormat*™ has become the leading standard for organizing commercial construction specifications, and is now almost omnipresent in the AEC industry, thanks to the many applications to which it has been put. In 2001, the Construction Specifications Institute (CSI), along with sister organization Construction Specifications Canada (CSC), charged the *MasterFormat* Expansion Task Team with examining whether there was a need to revise and possibly expand the 1995 edition of *MasterFormat* to accommodate changes that have taken place in the industry since that version was published. The task team worked to develop a revised and expanded version of *MasterFormat*, consulting with all types of users, creating and distributing drafts, collecting and evaluating commentary, and attempting to bring all of this information into line with a vision of the construction industry that equally addresses the needs of next year and those of forty years from today. The 2004 edition of *MasterFormat* promises to be the most dramatic revision in the document's forty-year history, and one that will position it to excel at organizing construction information for a wider array of project types and currently unforeseen technology for the next forty years and beyond.

*MasterFormat 2004 Edition: Numbers and Titles* is a master list of numbers and subject titles for organizing information about construction work results, requirements, products, and activities into a standard sequence. Construction projects use many different delivery methods, products, and installation methods. Successful completion of projects requires effective communication among the people involved. Information retrieval is nearly impossible without a standard filing system familiar to each user. *MasterFormat Numbers and Titles* facilitate standard filing and retrieval schemes throughout the construction industry. *MasterFormat Numbers and Titles* are suitable for use in project manuals, for organizing cost data, reference keynotes on drawings, for filing product information and other technical data, for identifying drawing objects and for presenting construction market data.

Each *MasterFormat* number and title defines a "section," arranged in "levels" depending on their breadth of coverage. The broadest collections of related construction products and activities are level one titles, otherwise known as "divisions." Each division in the *MasterFormat 2004 Edition: Numbers and Titles* is made up of level two, level three, and occasionally level four numbers and titles assigned by *MasterFormat*, each of which delineate a gradually more detailed area of work results to be specified. Work results are defined as traditional construction practices that typically result from an application of skills to construction products or resources. A further explanation of how to use each of the individual titles listed in *MasterFormat 2004 Edition: Numbers and Titles* is provided in the complete *MasterFormat 2004 Edition* publication, available from CSI and CSC in late 2004. Along with these scope and usage notes, the complete publication includes other added information designed to make its use easier, including a keyword index of requirements, products, and activities to help users find appropriate numbers and titles for construction subjects and an application guide to advise users of best practices for the use of *MasterFormat* titles and numbers.

## **MASTERFORMAT 2004 EDITION DEVELOPMENT:**

The *MasterFormat* Expansion Task Team started their work in April 2001 by reaching out to the AEC industry and soliciting commentary on the proposal to revise and expand *MasterFormat*. Based on this commentary, the task team embarked on the long process of revising and developing content for the 2004 edition. Throughout its work, the task team's progress from draft to draft was driven by evaluating the commentary given by *MasterFormat*'s users, and integrating that with the central challenge – maintaining a balance between meeting the needs of today and working to help implement a broader vision of an integrated construction information marketplace that will soon be pervasive in the way we conduct our everyday work. The task team explored many possible options for maintaining this balance between the demands of the present and those of the near future, and the need that underlies it, to create

the best and most flexible and forward-thinking expansion, and do so without taking this effort beyond the bounds of user acceptance. For just as it would be senseless to create a 2004 edition of *MasterFormat* that was not flexible or forward-thinking and was thus ill-equipped to meet the challenges and needs that lie ahead, so too would it be pointless to create one that was so forward-thinking that it was unacceptable to today's users and as a result was not implemented. Having incorporated the input of literally hundreds of individuals and organizations into their work, the task team is proud to now present the title and number contents and organization of the next edition of this industry standard, *MasterFormat 2004 Edition: Numbers and Titles*.

### **MASTERFORMAT 2004 EDITION NUMBERING REVISION EXPLAINED:**

One of the most significant changes in the *MasterFormat 2004 Edition* is the adoption of a six-digit numbering system in place of the familiar five-digit system that has been used in *MasterFormat* since the 1978 edition. This six-digit system was first introduced in drafts issued in early 2003, and then accepted by the task team for all subsequent drafts, and provides exponentially more expansion spaces per level than the five-digit system, all but eliminating concerns about future expansion.

The familiar five-digit numbers in *MasterFormat 1995 Edition* are divided in the following fashion:

#### **03 2 0 0 – Concrete Reinforcement**

The first two digits, in this case “03” represent the division number, otherwise known as “level one.” Each of the next three digits are taken individually, each representing one level of classification, or levels two, three, and four. Typically in *MasterFormat*, level four numbers are not assigned and are left as zero, to provide maximum flexibility for individual users.

The new six-digit *MasterFormat 2004* numbers work in a slightly different fashion:

#### **03 20 00 – Concrete Reinforcing**

As was the case with the old numbers, the first two digits, in this case also “03,” still represent the division number, otherwise still known as “level one.” But here's where the difference comes in. The next *pair* of numbers, in this case “20” represents level two, and the third pair, “00,” represents level three. Generally, level four numbers are not defined by the listed *MasterFormat* numbers, but when they are, an additional pair of digits is attached to the end, preceded by a “dot.” Level four numbers have only been used at locations in which the amount of detail merits the additional level of classification. Level four numbers appear like this:

#### **03 52 16.13 Lightweight Cellular Insulating Concrete**

Additional recommendations for the use of level four and level five will be included in the *MasterFormat 2004 Edition* application guide and throughout the full publication, preserving a level of user modifiable numbers for flexibility. More importantly, because each level of classification is represented by a pair of digits, there is room to address over ten times as many subjects at *each level*, providing flexibility and room for expansion that the five digit numbers could never provide, and providing it where it will have the most impact in addressing future needs for expansion to address new subject matter.

### **MASTERFORMAT 2004 EDITION DIVISION CONTENTS:**

Though changes too numerous to list have been incorporated into the 2004 edition of *MasterFormat*, the following is a summary that compares the contents of the divisions that will compose *MasterFormat 2004 Edition* with *MasterFormat 1995 Edition*.

**Division 00 – Procurement and Contracting Requirements:** Essentially the same scope as *MasterFormat 1995 Edition*.

**Division 01 – General Requirements:** Area for performance requirements added to allow for writing performance requirements for elements that overlap work sections (building envelope, structure, etc.). This allows for a mixture of broad performance specifications and prescriptive specifications in a project manual.

**Division 02 – Existing Conditions:** This division is now limited to “existing conditions,” construction practices that relate to items at the site at the commencement of work – selective demolition, subsurface and other investigation, surveying, site decontamination, and site remediation, among others. All site construction as well as heavy civil and infrastructure subject matter, including utility and pavement work, has been relocated to the Site and Infrastructure Subgroup.

**Divisions 03 – Concrete, 04 – Masonry, and 05 – Metals:** Essentially the same scope as *MasterFormat 1995 Edition*.

**Division 06 – Wood, Plastics, and Composites:** Essentially the same scope as *MasterFormat 1995 Edition* with expansion in the areas of plastics and composites.

**Division 07 – Thermal and Moisture Protection:** Essentially the same as *MasterFormat 1995 Edition*.

**Division 08 – Openings:** Renamed but with essentially the same scope of as *MasterFormat 1995 Edition* with the addition of some other openings such as louvers and grilles.

**Divisions 09 – Finishes and 10 – Specialties:** Essentially the same scope as *MasterFormat 1995 Edition*.

**Division 11 – Equipment:** Equipment related to process engineering has been relocated to the Process Equipment Subgroup and equipment related to infrastructure has been relocated to the Site and Infrastructure Subgroup.

**Division 12 – Furnishings:** Essentially the same scope as *MasterFormat 1995 Edition*.

**Division 13 – Special Construction:** Special construction related to process engineering has been relocated to the Process Equipment Subgroup. Security access, building automation, detection and alarm, and fire suppression subjects have been relocated to the Facility Services Subgroup.

**Division 14 – Conveying Equipment:** Renamed with process related material handling subjects relocated to the Process Equipment Subgroup.

**Division 15 – Mechanical:** Division 15 has been reserved for future expansion and material has been relocated to Division 22 – Plumbing and Division 23 – Heating, Ventilating, and Air Conditioning in the Facility Services Subgroup.

**Division 16 – Electrical:** Division 16 has been reserved for future expansion and material has been relocated to Divisions 26 – Electrical and 27 – Communications in the Facility Services Subgroup.

**Facility Services Subgroup:** This subgroup retains the same basic content as published in Draft 4, but with some new divisions, arranged in a revised order.

**21 – Fire Suppression:** Fire suppression subjects relocated from Division 13 in *MasterFormat 1995 Edition*.

**22 – Plumbing:** Plumbing subjects relocated from Division 15 in *MasterFormat 1995 Edition*.

**23 – Heating Ventilating and Air Conditioning:** HVAC subjects relocated from Division 15 in *MasterFormat 1995 Edition*.

**25 – Integrated Automation:** Expanded integrated automation subjects relocated from Division 13 in *MasterFormat 1995 Edition*.

**26 – Electrical:** Electrical and lighting subjects relocated from Division 16 in *MasterFormat 1995 Edition*.

**27 – Communications:** Expanded communications subjects relocated from Division 16 in *MasterFormat 1995 Edition*.

**28 – Electronic Safety and Security:** Expanded electronic safety and security subjects relocated from Division 13 in *MasterFormat 1995 Edition*.

**Site and Infrastructure Subgroup:** This subgroup contains heavy civil and utility subject matter, as well as site construction material moved from Division 2 in *MasterFormat 1995 Edition*.

**Division 31 – Earthwork:** Site construction subjects, chiefly below-grade, from Division 2 in *MasterFormat 1995 Edition*.

**Division 32 – Exterior Improvements:** Site construction subjects, chiefly above-grade, from Division 2 in *MasterFormat 1995 Edition*.

**Division 33 – Utilities:** Expanded utility subjects relocated from Division 2 in *MasterFormat 1995 Edition*.

**Division 34 – Transportation:** Expanded transportation subjects relocated from various Divisions in *MasterFormat 1995 Edition*.

**Division 35 – Waterway and Marine Construction:** Expanded waterway and marine subjects relocated from mainly Division 2 in *MasterFormat 1995 Edition*.

**Process Equipment Subgroup:** Some material in this subgroup is new to *MasterFormat 2004 Edition*, while some has been relocated from Divisions 11, 13, and 14 in *MasterFormat 1995 Edition*.

**Division 40 – Process Integration:** Process facilities are composed of a variety of subsystems, tied together and integrated by distribution pathways, control, and instrumentation. All of these systems must work together as a whole. This division includes elements used to tie these systems together: piping, heat tracing, insulation, and instrumentation and control systems, and also provides a place to specify commissioning requirements for the subsystems and the facility as a whole.

**Division 41 – Material Processing and Handling Equipment:** Equipment for processing and conditioning of raw materials; material handling equipment for bulk materials as well as discrete units; manufacturing equipment and machinery, test equipment, and packaging / shipping systems.

**Division 42 – Process Heating, Cooling, and Drying Equipment:** Equipment for process heating, cooling and drying of materials, liquids, gases and manufactured items and materials.

**Division 43 – Process Gas and Liquid Handling, Purification and Storage Equipment:** Equipment for handling, purification and storage of process liquids, gases, slurries; includes atmospheric tanks as well as pressure vessels.

**Division 44 – Pollution Control Equipment:** Equipment for controlling emission of contaminants from manufacturing processes and treatment of air, water, soils and noise contaminants.

**Division 45 – Industry-Specific Manufacturing Equipment:** A division in which users can specify equipment that is used only within a single industry. All industries currently identified within the North American Industry Classification System (NAICS) are allocated space within the division.

**Division 48 – Electrical Power Generation:** Plants and equipment for the generation and control of electrical power from fossil fuel, nuclear energy, hydroelectric, wind, solar energy, geothermal energy, electrochemical energy, and fuel cells.

Divisions not named above are explicitly reserved to provide space for future development and expansion. To minimize costs resulting from potential future expansions, it's not recommended that users populate these divisions with their own material.

## **MASTERFORMAT 2004 EDITION AND OTHER INDUSTRY CLASSIFICATION EFFORTS**

The *MasterFormat* Expansion Task Team's work also envisions the expanded content of *MasterFormat* serving to inform Table 22 (Work Results) of the *OmniClass* Construction Classification System (OCCS), a multi-table system for organizing information used by the AEC industry. CSI has worked with the cross-industry group responsible for the creation and maintenance of this standard, the OCCS Development Committee, to ensure that *MasterFormat* is compatible with *OmniClass*. As a result, the full version of *MasterFormat* will be one of the first applications of the OCCS. Once fully developed, the OCCS will be the basis for deriving relational applications, and will support and empower the transfer and use of information in the construction marketplace, ultimately serving all participants who work to sustain the built environment throughout the entire life cycle. *MasterFormat's* 2004 edition will play an important role in this activity.

The 2004 edition of *MasterFormat* replaces the 1995 edition and is produced jointly by The Construction Specifications Institute (CSI); (800) 689-2900, and Construction Specifications Canada (CSC); (416)777-2198. For those interested in more information about *MasterFormat* and its use in the construction industry contact CSI Member Service at (800) 689-2900 or consult the web at [www.CSINet.org/MasterFormat](http://www.CSINet.org/MasterFormat).



# Division Numbers and Titles

## PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

Division 00 Procurement and Contracting Requirements

## SPECIFICATIONS GROUP

### GENERAL REQUIREMENTS SUBGROUP

Division 01 General Requirements

### FACILITY CONSTRUCTION SUBGROUP

Division 02 Existing Conditions

Division 03 Concrete

Division 04 Masonry

Division 05 Metals

Division 06 Wood, Plastics, and Composites

Division 07 Thermal and Moisture Protection

Division 08 Openings

Division 09 Finishes

Division 10 Specialties

Division 11 Equipment

Division 12 Furnishings

Division 13 Special Construction

Division 14 Conveying Equipment

Division 15 *Reserved*

Division 16 *Reserved*

Division 17 *Reserved*

Division 18 *Reserved*

Division 19 *Reserved*

### FACILITY SERVICES SUBGROUP

Division 20 *Reserved*

Division 21 Fire Suppression

Division 22 Plumbing

Division 23 Heating, Ventilating, and Air Conditioning

Division 24 *Reserved*

Division 25 Integrated Automation

Division 26 Electrical

Division 27 Communications

Division 28 Electronic Safety and Security

Division 29 *Reserved*

### SITE AND INFRASTRUCTURE SUBGROUP

Division 30 *Reserved*

Division 31 Earthwork

Division 32 Exterior Improvements

Division 33 Utilities

Division 34 Transportation

Division 35 Waterway and Marine Construction

Division 36 *Reserved*

Division 37 *Reserved*

Division 38 *Reserved*

Division 39 *Reserved*

### PROCESS EQUIPMENT SUBGROUP

Division 40 Process Integration

Division 41 Material Processing and Handling Equipment

Division 42 Process Heating, Cooling, and Drying Equipment

Division 43 Process Gas and Liquid Handling, Purification, and Storage Equipment

Division 44 Pollution Control Equipment

Division 45 Industry-Specific Manufacturing Equipment

Division 46 *Reserved*

Division 47 *Reserved*

Division 48 Electrical Power Generation

Division 49 *Reserved*



## DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

### 00 00 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

#### INTRODUCTORY INFORMATION

- 00 01 01 Project Title Page
- 00 01 05 Certifications Page
- 00 01 07 Seals Page
- 00 01 10 Table of Contents
- 00 01 15 List of Drawing Sheets
- 00 01 20 List of Schedules

#### PROCUREMENT REQUIREMENTS

##### 00 10 00 SOLICITATION

###### 00 11 00 Advertisements and Invitations

- 00 11 13 Advertisement for Bids
- 00 11 16 Invitation to Bid
- 00 11 19 Request for Proposal
- 00 11 53 Request for Qualifications

##### 00 20 00 INSTRUCTIONS FOR PROCUREMENT

###### 00 21 00 Instructions

- 00 21 13 Instructions to Bidders
- 00 21 16 Instructions to Proposers

###### 00 22 00 Supplementary Instructions

- 00 22 13 Supplementary Instructions to Bidders
- 00 22 16 Supplementary Instructions to Proposers

###### 00 23 00 Procurement Definitions

###### 00 24 00 Procurement Scopes

- 00 24 13 Scopes of Bids
  - 00 24 13.13 Scopes of Bids (Multiple Contracts)
  - 00 24 13.16 Scopes of Bids (Multiple-Prime Contract)
- 00 24 16 Scopes of Proposals
  - 00 24 16.13 Scopes of Proposals (Multiple Contracts)
  - 00 24 16.16 Scopes of Proposals (Multiple-Prime Contract)

###### 00 25 00 Procurement Meetings

- 00 25 13 Pre-Bid Meetings
- 00 25 16 Pre-Proposal Meetings

###### 00 26 00 Procurement Substitution Procedures

##### 00 30 00 AVAILABLE INFORMATION

###### 00 31 00 Available Project Information

- 00 31 13 Preliminary Schedules

- 00 31 13.13 Preliminary Project Schedule
- 00 31 13.16 Preliminary Construction Schedule
- 00 31 13.23 Preliminary Project Phases
- 00 31 13.26 Preliminary Project Sequencing
- 00 31 13.33 Preliminary Project Milestones
- 00 31 16 Project Budget Information
- 00 31 19 Existing Condition Information
  - 00 31 19.13 Movement and Vibration Information
  - 00 31 19.16 Acoustic Information
  - 00 31 19.19 Traffic Information
- 00 31 21 Survey Information
  - 00 31 21.13 Site Survey Information
  - 00 31 21.16 Measured Drawing Information
  - 00 31 21.19 Photographic Information
- 00 31 24 Environmental Assessment Information
  - 00 31 24.13 Soil Contamination Report
  - 00 31 24.23 Environmental Impact Study Report
  - 00 31 24.26 Environmental Impact Report Evaluation
  - 00 31 24.29 Record of Environmental Impact Decision
  - 00 31 24.33 Environmental Impact Mitigation Report
- 00 31 25 Existing Material Information
  - 00 31 25.16 Existing Concrete Information
  - 00 31 25.19 Existing Masonry Information
  - 00 31 25.23 Existing Metals Information
  - 00 31 25.26 Existing Wood, Plastics, and Composites Information
  - 00 31 25.29 Existing Thermal and Moisture Protection Information
- 00 31 26 Existing Hazardous Material Information
  - 00 31 26.23 Existing Asbestos Information
  - 00 31 26.26 Existing Lead Information
  - 00 31 26.29 Existing Polychlorinate Biphenyl Information
  - 00 31 26.33 Existing Mold Information
  - 00 31 26.36 Existing Hazardous Waste Drum Information
- 00 31 31 Geophysical Data
  - 00 31 31.13 Seismic Investigations Information
  - 00 31 31.16 Gravity Investigations Information
  - 00 31 31.19 Magnetic Investigations Information
  - 00 31 31.23 Electromagnetic Investigations Information
  - 00 31 31.26 Electrical Resistivity Investigations Information
  - 00 31 31.29 Magnetotelluric Investigations Information
- 00 31 32 Geotechnical Data
  - 00 31 32.13 Subsurface Drilling and Sampling Information
  - 00 31 32.16 Material Testing Information
  - 00 31 32.19 Exploratory Excavation Information
  - 00 31 32.23 Geotechnical Monitoring Information
- 00 31 43 Permit Application

## **00 40 00 PROCUREMENT FORMS AND SUPPLEMENTS**

### **00 41 00 Bid Forms**

- 00 41 13 Bid Form – Stipulated Sum (Single-Prime Contract)
- 00 41 16 Bid Form – Stipulated Sum (Multiple-Prime Contract)
- 00 41 23 Bid Form – Construction Management (Single-Prime Contract)
- 00 41 26 Bid Form – Construction Management (Multiple-Prime Contract)
- 00 41 33 Bid Form – Cost Plus-Fee (Single-Prime Contract)
- 00 41 36 Bid Form – Cost-Plus-Fee (Multiple-Prime Contract)

- 00 41 43 Bid Form – Unit Price (Single-Prime Contract)
- 00 41 46 Bid Form – Unit Price (Multiple-Prime Contract)
- 00 41 53 Bid Form – Design/Build (Single-Prime Contract)
- 00 41 56 Bid Form – Design/Build (Multiple-Prime Contract)
- 00 41 63 Bid Form – Purchase Contract
- 00 42 00 Proposal Forms**
  - 00 42 13 Proposal Form – Stipulated Sum (Single-Prime Contract)
  - 00 42 16 Proposal Form – Stipulated Sum (Multiple-Prime Contract)
  - 00 42 23 Proposal Form – Construction Management (Single-Prime Contract)
  - 00 42 26 Proposal Form – Construction Management (Multiple-Prime Contract)
  - 00 42 33 Proposal Form – Cost-Plus-Fee (Single-Prime Contract)
  - 00 42 36 Proposal Form – Cost-Plus-Fee (Multiple-Prime Contract)
  - 00 42 43 Proposal Form – Unit Price (Single-Prime Contract)
  - 00 42 46 Proposal Form – Unit Price (Multiple-Prime Contract)
  - 00 42 53 Proposal Form – Design/Build (Single-Prime Contract)
  - 00 42 56 Proposal Form – Design/Build (Multiple-Prime Contract)
  - 00 42 63 Proposal Form – Purchase Contract
- 00 43 00 Procurement Form Supplements**
  - 00 43 13 Bid Security Form
  - 00 43 21 Allowance Form
  - 00 43 22 Unit Prices Form
  - 00 43 23 Alternates Form
  - 00 43 25 Substitution Request Form (During Procurement)
  - 00 43 26 Estimated Quantities Form
  - 00 43 33 Proposed Products Form
  - 00 43 36 Proposed Subcontractors Form
  - 00 43 39 Minority Business Enterprise Statement of Intent Form
  - 00 43 43 Wage Rates Form
  - 00 43 73 Proposed Schedule of Values Form
  - 00 43 83 Proposed Construction Schedule Form
  - 00 43 86 Proposed Work Plan Schedule Form
  - 00 43 93 Bid Submittal Checklist
- 00 45 00 Representations and Certifications**
  - 00 45 13 Bidder's Qualifications
  - 00 45 16 Proposer's Qualifications
  - 00 45 19 Non-Collusion Affidavit
  - 00 45 23 Statement of Disposal Facility
  - 00 45 26 Worker's Compensation Certificate Schedule
  - 00 45 33 Non-Segregated Facilities Affidavit
  - 00 45 36 Equal Employment Opportunity Affidavit
  - 00 45 39 Minority Business Enterprise Affidavit
  - 00 45 43 Corporate Resolutions
  - 00 45 46 Governmental Certifications

## CONTRACTING REQUIREMENTS

### 00 50 00 CONTRACTING FORMS AND SUPPLEMENTS

- 00 51 00 Notice of Award**
- 00 52 00 Agreement Forms**
  - 00 52 13 Agreement Form – Stipulated Sum (Single-Prime Contract)

- 00 52 16 Agreement Form – Stipulated Sum (Multiple-Prime Contract)
- 00 52 23 Agreement Form – Construction Management (Single-Prime Contract)
- 00 52 26 Agreement Form – Construction Management (Multiple-Prime Contract)
- 00 52 33 Agreement Form – Cost Plus-Fee (Single-Prime Contract)
- 00 52 36 Agreement Form – Cost-Plus-Fee (Multiple-Prime Contract)
- 00 52 43 Agreement Form – Unit Price (Single-Prime Contract)
- 00 52 46 Agreement Form – Unit Price (Multiple-Prime Contract)
- 00 52 53 Agreement Form – Design/Build (Single-Prime Contract)
- 00 52 56 Agreement Form – Design/Build (Multiple-Prime Contract)
- 00 52 63 Agreement Form – Purchase
- 00 54 00 Agreement Form Supplements**
  - 00 54 13 Supplementary Scope Statement
  - 00 54 21 Allowances Schedule
  - 00 54 22 Unit Prices Schedule
- 00 55 00 Notice to Proceed**
- 00 60 00 PROJECT FORMS**
  - 00 61 00 Bond Forms**
    - 00 61 13 Performance and Payment Bond Form
      - 00 61 13.13 Performance Bond Form
      - 00 61 13.16 Payment Bond Form
    - 00 61 16 Lien Bond Form
    - 00 61 19 Maintenance Bond Form
    - 00 61 23 Retainage Bond Form
    - 00 61 26 Special Bond Form
  - 00 62 00 Certificates and Other Forms**
    - 00 62 11 Submittal Transmittal Form
    - 00 62 16 Certificate of Insurance Form
    - 00 62 19 Infection Control Form
    - 00 62 23 Construction Waste Diversion Form
    - 00 62 33 Products Form
    - 00 62 34 Recycled Content of Materials Form
    - 00 62 39 Minority Business Enterprise Certification Form
    - 00 62 73 Schedule of Values Form
    - 00 62 76 Application for Payment Form
      - 00 62 76.13 Sales Tax Form
      - 00 62 76.16 Consent of Surety to Reduction of Retainage Form
    - 00 62 79 Stored Material Form
    - 00 62 83 Construction Schedule Form
    - 00 62 86 Work Plan Schedule Form
    - 00 62 89 Construction Equipment Form
  - 00 63 00 Clarification and Modification Forms**
    - 00 63 13 Request for Interpretation Form
    - 00 63 19 Clarification Form
    - 00 63 25 Substitution Request Form (During Construction)
    - 00 63 33 Supplemental Instruction Form
    - 00 63 36 Field Order Form
    - 00 63 43 Written Amendment Form
    - 00 63 46 Construction Change Directive Form
    - 00 63 49 Work Change Directive Form
    - 00 63 53 Request for Proposal Form

- 00 63 54 Proposal Worksheet Summary Form
- 00 63 55 Proposal Worksheet Detail Form
- 00 63 57 Change Order Request Form
- 00 63 63 Change Order Form

**00 65 00 Closeout Forms**

- 00 65 13 Certificate of Compliance Form
- 00 65 16 Certificate of Substantial Completion Form
- 00 65 19 Certificate of Completion Form
  - 00 65 19.13 Affidavit of Payment of Debts and Claims Form
  - 00 65 19.16 Affidavit of Release of Liens Form
  - 00 65 19.19 Consent of Surety to Final Payment Form
  - 00 65 19.23 Acceptance Certificate Form
  - 00 65 19.26 Final Settlement Certificate Form
- 00 65 36 Warranty Form
- 00 65 73 Statutory Declaration Form

**00 70 00 CONDITIONS OF THE CONTRACT**

**00 71 00 Contracting Definitions**

**00 72 00 General Conditions**

- 00 72 13 General Conditions – Stipulated Sum (Single-Prime Contract)
- 00 72 16 General Conditions – Stipulated Sum (Multiple-Prime Contract)
- 00 72 23 General Conditions – Construction Management (Single-Prime Contract)
- 00 72 26 General Conditions – Construction Management (Multiple-Prime Contract)
- 00 72 33 General Conditions – Cost Plus-Fee (Single-Prime Contract)
- 00 72 36 General Conditions – Cost-Plus-Fee (Multiple-Prime Contract)
- 00 72 43 General Conditions – Unit Price (Single-Prime Contract)
- 00 72 46 General Conditions – Unit Price (Multiple-Prime Contract)
- 00 72 53 General Conditions – Design/Build (Single-Prime Contract)
- 00 72 56 General Conditions – Design/Build (Multiple-Prime Contract)

**00 73 00 Supplementary Conditions**

- 00 73 16 Insurance Requirements
- 00 73 19 Health and Safety Requirements
- 00 73 23 Purchase Contracts
- 00 73 26 Assigned Contracts
- 00 73 33 Non-Segregated Facilities Requirements
- 00 73 36 Equal Employment Opportunity Requirements
- 00 73 43 Wage Rate Requirements
- 00 73 46 Wage Determination Schedule
- 00 73 49 Labor Stabilization Agreement
- 00 73 53 Anti-Pollution Measures
- 00 73 63 Security Requirements
- 00 73 73 Statutory Requirements

*00 80 00 Unassigned*

**00 90 00 REVISIONS, CLARIFICATIONS, AND MODIFICATIONS**

**00 91 00 Precontract Revisions**

- 00 91 13 Addenda
- 00 91 16 Bid Revisions
- 00 91 19 Proposal Revisions

**00 93 00 Record Clarifications and Proposals**

- 00 93 13 Record Requests for Interpretation

00 93 19	Record Clarification Notices
00 93 53	Record Proposal Requests
00 93 54	Record Proposal Worksheet Summaries
00 93 57	Record Change Order Requests
<b>00 94 00</b>	<b>Record Modifications</b>
00 94 33	Record Minor Changes in the Work
00 94 36	Record Supplemental Instructions
00 94 39	Record Field Orders
00 94 43	Record Amendments
00 94 46	Record Construction Change Directives
00 94 49	Record Work Change Directives
00 94 63	Record Change Orders



## DIVISION 01 – GENERAL REQUIREMENTS

### 01 00 00 GENERAL REQUIREMENTS

#### 01 10 00 SUMMARY

##### 01 11 00 Summary of Work

- 01 11 13 Work Covered by Contract Documents
- 01 11 16 Work by Owner
- 01 11 19 Purchase Contracts

##### 01 12 00 Multiple Contract Summary

- 01 12 13 Summary of Contracts
- 01 12 16 Work Sequence
- 01 12 19 Contract Interface

##### 01 14 00 Work Restrictions

- 01 14 13 Access to Site
- 01 14 16 Coordination with Occupants
- 01 14 19 Use of Site

##### 01 18 00 Project Utility Sources

#### 01 20 00 PRICE AND PAYMENT PROCEDURES

##### 01 21 00 Allowances

- 01 21 13 Cash Allowances
- 01 21 16 Contingency Allowances
- 01 21 19 Testing and Inspecting Allowances
- 01 21 23 Installation Allowances
- 01 21 26 Product Allowances
- 01 21 29 Quantity Allowances
- 01 21 43 Time Allowances

##### 01 22 00 Unit Prices

- 01 22 13 Unit Price Measurement
- 01 22 16 Unit Price Payment

##### 01 23 00 Alternates

##### 01 24 00 Value Analysis

- 01 24 13 Value Engineering

##### 01 25 00 Substitution Procedures

- 01 25 13 Product Substitution Procedures
- 01 25 16 Execution Substitution Procedures

##### 01 26 00 Contract Modification Procedures

- 01 26 13 Requests for Interpretation
- 01 26 19 Clarification Notices
- 01 26 33 Minor Changes in the Work
- 01 26 36 Supplemental Instructions
- 01 26 39 Field Orders
- 01 26 43 Amendments
- 01 26 46 Construction Change Directives
- 01 26 49 Work Change Directives
- 01 26 53 Proposal Requests
- 01 26 54 Proposal Worksheet Summaries

- 01 26 57 Change Order Requests
- 01 26 63 Change Orders
- 01 29 00 Payment Procedures**
- 01 29 73 Schedule of Values
- 01 29 76 Progress Payment Procedures
- 01 29 83 Payment Procedures for Testing Laboratory Services
- 01 30 00 ADMINISTRATIVE REQUIREMENTS**
- 01 31 00 Project Management and Coordination**
- 01 31 13 Project Coordination
- 01 31 16 Multiple Contract Coordination
- 01 31 19 Project Meetings
  - 01 31 19.13 Preconstruction Meetings
  - 01 31 19.16 Site Mobilization Meetings
  - 01 31 19.23 Progress Meetings
  - 01 31 19.33 Preinstallation Meetings
- 01 31 23 Project Web Site
- 01 32 00 Construction Progress Documentation**
- 01 32 13 Scheduling of Work
- 01 32 16 Construction Progress Schedule
  - 01 32 16.13 Network Analysis Schedules
- 01 32 19 Submittals Schedule
- 01 32 23 Survey and Layout Data
- 01 32 26 Construction Progress Reporting
- 01 32 29 Periodic Work Observation
- 01 32 33 Photographic Documentation
- 01 32 43 Purchase Order Tracking
- 01 33 00 Submittal Procedures**
- 01 33 13 Certificates
- 01 33 16 Design Data
- 01 33 19 Field Test Reporting
- 01 33 23 Shop Drawings, Product Data, and Samples
- 01 33 26 Source Quality Control Reporting
- 01 33 29 Sustainable Design Reporting
- 01 35 00 Special Procedures**
- 01 35 13 Special Project Procedures
  - 01 35 13.13 Special Project Procedures for Airport Facilities
  - 01 35 13.16 Special Project Procedures for Detention Facilities
  - 01 35 13.19 Special Project Procedures for Health care Facilities
  - 01 35 13.43 Special Project Procedures for Contaminated Sites
- 01 35 16 Alteration Project Procedures
- 01 35 23 Owner Safety Requirements
- 01 35 26 Governmental Safety Requirements
- 01 35 29 Health, Safety, and Emergency Response Procedures
  - 01 35 29.13 Health, Safety, and Emergency Response Procedures for Contaminated Sites
- 01 35 33 Infection Control Procedures
- 01 35 43 Environmental Procedures
  - 01 35 43.13 Environmental Procedures for Hazardous Materials
  - 01 35 43.16 Environmental Procedures for Toxic Materials
- 01 35 53 Security Procedures
- 01 35 91 Historic Treatment Procedures

**01 40 00 QUALITY REQUIREMENTS**

**01 41 00 Regulatory Requirements**

- 01 41 13 Codes
- 01 41 16 Laws
- 01 41 19 Rules
- 01 41 23 Fees
- 01 41 26 Permits

**01 42 00 References**

- 01 42 13 Abbreviations and Acronyms
- 01 42 16 Definitions
- 01 42 19 Reference Standards

**01 43 00 Quality Assurance**

- 01 43 13 Manufacturer Qualifications
- 01 43 16 Supplier Qualifications
- 01 43 19 Fabricator Qualifications
- 01 43 23 Installer Qualifications
- 01 43 26 Testing and Inspecting Agency Qualifications
- 01 43 29 Code-Required Special Inspector Qualifications
- 01 43 33 Manufacturer's Field Services
- 01 43 36 Field Samples
- 01 43 39 Mockups

**01 45 00 Quality Control**

- 01 45 13 Source Quality Control Procedures
- 01 45 16 Field Quality Control Procedures
  - 01 45 16.13 Contractor Quality Control
- 01 45 23 Testing and Inspecting Services
- 01 45 26 Plant Inspection Procedures
- 01 45 29 Testing Laboratory Services
- 01 45 33 Code-Required Special Inspections and Procedures

**01 50 00 TEMPORARY FACILITIES AND CONTROLS**

**01 51 00 Temporary Utilities**

- 01 51 13 Temporary Electricity
- 01 51 16 Temporary Fire Protection
- 01 51 19 Temporary Fuel Oil
- 01 51 23 Temporary Heating, Cooling, and Ventilating
- 01 51 26 Temporary Lighting
- 01 51 29 Temporary Natural-Gas
- 01 51 33 Temporary Telecommunications
- 01 51 36 Temporary Water

**01 52 00 Construction Facilities**

- 01 52 13 Field Offices and Sheds
- 01 52 16 First Aid Facilities
- 01 52 19 Sanitary Facilities

**01 53 00 Temporary Construction**

- 01 53 13 Temporary Bridges
- 01 53 16 Temporary Decking
- 01 53 19 Temporary Overpasses
- 01 53 23 Temporary Ramps
- 01 53 26 Temporary Runarounds

- 01 54 00 Construction Aids**
  - 01 54 13 Temporary Elevators
  - 01 54 16 Temporary Hoists
  - 01 54 19 Temporary Cranes
  - 01 54 23 Temporary Scaffolding and Platforms
  - 01 54 26 Temporary Swing Staging

- 01 55 00 Vehicular Access and Parking**
  - 01 55 13 Temporary Access Roads
  - 01 55 16 Haul Routes
  - 01 55 19 Temporary Parking Areas
  - 01 55 23 Temporary Roads
  - 01 55 26 Traffic Control
  - 01 55 29 Staging Areas

- 01 56 00 Temporary Barriers and Enclosures**
  - 01 56 13 Temporary Air Barriers
  - 01 56 16 Temporary Dust Barriers
  - 01 56 19 Temporary Noise Barriers
  - 01 56 23 Temporary Barricades
  - 01 56 26 Temporary Fencing
  - 01 56 29 Temporary Protective Walkways
  - 01 56 33 Temporary Security Barriers
  - 01 56 36 Temporary Security Enclosures
  - 01 56 39 Temporary Tree and Plant Protection

- 01 57 00 Temporary Controls**
  - 01 57 13 Temporary Erosion and Sediment Control
  - 01 57 16 Temporary Pest Control
  - 01 57 19 Temporary Environmental Controls
  - 01 57 23 Temporary Storm Water Pollution Control

- 01 58 00 Project Identification**
  - 01 58 13 Temporary Project Signage
  - 01 58 16 Temporary Interior Signage

**01 60 00 PRODUCT REQUIREMENTS**

- 01 61 00 Common Product Requirements**
  - 01 61 13 Software Licensing Requirements
- 01 62 00 Product Options**
- 01 64 00 Owner-Furnished Products**
- 01 65 00 Product Delivery Requirements**
- 01 66 00 Product Storage and Handling Requirements**
  - 01 66 13 Product Storage and Handling Requirements for Hazardous Materials
  - 01 66 16 Product Storage and Handling Requirements for Toxic Materials

**01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS**

- 01 71 00 Examination and Preparation**
  - 01 71 13 Mobilization
  - 01 71 16 Acceptance of Conditions
  - 01 71 23 Field Engineering
    - 01 71 23.13 Construction Layout
    - 01 71 23.16 Construction Surveying
  - 01 71 33 Protection of Adjacent Construction

- 01 73 00 Execution**

- 01 73 13 Application
- 01 73 16 Erection
- 01 73 19 Installation
- 01 73 23 Bracing and Anchoring
- 01 73 26 Existing Products
- 01 73 29 Cutting and Patching
- 01 74 00 Cleaning and Waste Management**
- 01 74 13 Progress Cleaning
- 01 74 16 Site Maintenance
- 01 74 19 Construction Waste Management and Disposal
- 01 74 23 Final Cleaning
- 01 75 00 Starting and Adjusting**
- 01 75 13 Checkout Procedures
- 01 75 16 Startup Procedures
- 01 76 00 Protecting Installed Construction**
- 01 77 00 Closeout Procedures**
- 01 77 13 Preliminary Closeout Reviews
- 01 77 16 Final Closeout Review
- 01 77 19 Closeout Requirements
- 01 78 00 Closeout Submittals**
- 01 78 13 Completion and Correction List
- 01 78 19 Maintenance Contracts
- 01 78 23 Operation and Maintenance Data
  - 01 78 23.13 Operation Data
  - 01 78 23.16 Maintenance Data
  - 01 78 23.19 Preventative Maintenance Instructions
- 01 78 29 Final Site Survey
- 01 78 33 Bonds
- 01 78 36 Warranties
- 01 78 39 Project Record Documents
- 01 78 43 Spare Parts
- 01 78 46 Extra Stock Materials
- 01 78 53 Sustainable Design Closeout Documentation
- 01 79 00 Demonstration and Training**
- 01 80 00 PERFORMANCE REQUIREMENTS**
- 01 81 00 Facility Performance Requirements**
- 01 81 13 Sustainable Design Requirements
- 01 81 16 Facility Environmental Requirements
- 01 81 19 Indoor Air Quality Requirements
- 01 82 00 Facility Substructure Performance Requirements**
- 01 82 13 Foundation Performance Requirements
- 01 82 16 Basement Construction Performance Requirements
- 01 83 00 Facility Shell Performance Requirements**
- 01 83 13 Superstructure Performance Requirements
- 01 83 16 Exterior Enclosure Performance Requirements
- 01 83 19 Roofing Performance Requirements
- 01 84 00 Interiors Performance Requirements**
- 01 84 13 Interior Construction Performance Requirements
- 01 84 16 Stairways Performance Requirements
- 01 84 19 Interior Finishes Performance Requirements

- 01 85 00 Conveying Equipment Performance Requirements**
- 01 86 00 Facility Services Performance Requirements**
  - 01 86 13 Fire Suppression Performance Requirements
  - 01 86 16 Plumbing Performance Requirements
  - 01 86 19 HVAC Performance Requirements
  - 01 86 23 Integrated Automation Performance Requirements
  - 01 86 26 Electrical Performance Requirements
  - 01 86 29 Communications Performance Requirements
  - 01 86 33 Electronic Safety and Security Performance Requirements
- 01 87 00 Equipment and Furnishings Performance Requirements**
  - 01 87 13 Equipment Performance Requirements
  - 01 87 16 Furnishings Performance Requirements
- 01 88 00 Other Facility Construction Performance Requirements**
  - 01 88 13 Special Construction Performance Requirements
  - 01 88 16 Selective Construction Performance Requirements
- 01 89 00 Site Construction Performance Requirements**
  - 01 89 13 Site Preparation Performance Requirements
  - 01 89 16 Site Improvements Performance Requirements
  - 01 89 19 Site Plumbing Utilities Performance Requirements
  - 01 89 23 Site HVAC Utilities Performance Requirements
  - 01 89 26 Site Electrical Utilities Performance Requirements
  - 01 89 29 Other Site Construction Performance Requirements
- 01 90 00 LIFE CYCLE ACTIVITIES**
  - 01 91 00 Commissioning**
    - 01 91 13 General Commissioning Requirements
    - 01 91 16 Facility Substructure Commissioning
      - 01 91 16.13 Foundation Commissioning
      - 01 91 16.53 Basement Construction Commissioning
    - 01 91 19 Facility Shell Commissioning
      - 01 91 19.13 Superstructure Commissioning
      - 01 91 19.43 Exterior Enclosure Commissioning
      - 01 91 19.73 Roofing Commissioning
    - 01 91 23 Interiors Commissioning
      - 01 91 23.13 Interior Construction Commissioning
      - 01 91 23.43 Stairways Commissioning
      - 01 91 23.73 Interior Finishes Commissioning
  - 01 92 00 Facility Operation**
    - 01 92 13 Facility Operation Procedures
  - 01 93 00 Facility Maintenance**
    - 01 93 13 Facility Maintenance Procedures
    - 01 93 16 Recycling Programs
  - 01 94 00 Facility Decommissioning**
    - 01 94 13 Facility Decommissioning Procedures

## DIVISION 02 – EXISTING CONDITIONS

### 02 00 00 EXISTING CONDITIONS

#### 02 01 00 Maintenance of Existing Conditions

- 02 01 50 Maintenance of Site Remediation
- 02 01 65 Maintenance of Underground Storage Tank Removal
- 02 01 80 Maintenance of Facility Remediation
- 02 01 86 Maintenance of Hazardous Waste Drum Handling

#### 02 05 00 Common Work Results for Existing Conditions

- 02 05 19 Geosynthetics for Existing Conditions
  - 02 05 19.13 Geotextiles for Existing Conditions
  - 02 05 19.16 Geomembranes for Existing Conditions
  - 02 05 19.19 Geogrids for Existing Conditions

#### 02 06 00 Schedules for Existing Conditions

- 02 06 30 Schedules for Subsurface Investigations
  - 02 06 30.13 Boring or Test Pit Log Schedule
- 02 06 50 Schedules for Site Remediation
- 02 06 65 Schedules for Underground Storage Tank Removal
- 02 06 80 Schedules for Facility Remediation
- 02 06 86 Schedules for Hazardous Waste Drum Handling

#### 02 08 00 Commissioning of Existing Conditions

02 10 00 *Unassigned*

### 02 20 00 ASSESSMENT

#### 02 21 00 Surveys

- 02 21 13 Site Surveys
  - 02 21 13.13 Boundary and Survey Markers
- 02 21 16 Measured Drawings

#### 02 22 00 Existing Conditions Assessment

- 02 22 13 Movement and Vibration Assessment
- 02 22 16 Acoustic Assessment
- 02 22 19 Traffic Assessment
- 02 22 23 Accessibility Assessment

#### 02 24 00 Environmental Assessment

- 02 24 13 Natural Environment Assessment
  - 02 24 13.13 Air Assessment
  - 02 24 13.43 Water Assessment
  - 02 24 13.73 Land Assessment
- 02 24 23 Chemical Sampling and Analysis of Soils
- 02 24 43 Transboundary and Global Environmental Aspects Assessment

#### 02 25 00 Existing Material Assessment

- 02 25 16 Existing Concrete Assessment
  - 02 25 16.13 Concrete Assessment Drilling
- 02 25 19 Existing Masonry Assessment
  - 02 25 19.13 Masonry Assessment Drilling
- 02 25 23 Existing Metals Assessment
  - 02 25 23.13 Welding Investigations
- 02 25 26 Existing Wood, Plastics, and Composites Assessment

- 02 25 29 Existing Thermal and Moisture Protection Assessment
  - 02 25 29.13 Waterproofing Investigations
  - 02 25 29.23 Roofing Investigations
- 02 26 00 Hazardous Material Assessment**
  - 02 26 23 Asbestos Assessment
  - 02 26 26 Lead Assessment
  - 02 26 29 Polychlorinate Biphenyl Assessment
  - 02 26 33 Biological Assessment
    - 02 26 33.13 Mold Assessment
  - 02 26 36 Hazardous Waste Drum Assessment
- 02 30 00 SUBSURFACE INVESTIGATION**
  - 02 31 00 Geophysical Investigations**
    - 02 31 13 Seismic Investigations
    - 02 31 16 Gravity Investigations
    - 02 31 19 Magnetic Investigations
    - 02 31 23 Electromagnetic Investigations
    - 02 31 26 Electrical Resistivity Investigations
    - 02 31 29 Magnetotelluric Investigations
  - 02 32 00 Geotechnical Investigations**
    - 02 32 13 Subsurface Drilling and Sampling
    - 02 32 16 Material Testing
    - 02 32 19 Exploratory Excavations
    - 02 32 23 Geotechnical Monitoring Before Construction
      - 02 32 23.13 Groundwater Monitoring Before Construction
- 02 40 00 DEMOLITION AND STRUCTURE MOVING**
  - 02 41 00 Demolition**
    - 02 41 13 Selective Site Demolition
      - 02 41 13.13 Paving Removal
      - 02 41 13.23 Utility Line Removal
      - 02 41 13.33 Railtrack Removal
    - 02 41 16 Structure Demolition
      - 02 41 16.13 Building Demolition
      - 02 41 16.23 Tower Demolition
      - 02 41 16.33 Bridge Demolition
      - 02 41 16.43 Dam Demolition
    - 02 41 19 Selective Structure Demolition
      - 02 41 19.13 Selective Building Demolition
    - 02 41 91 Selective Historic Demolition
  - 02 42 00 Removal and Salvage of Construction Materials**
    - 02 42 91 Removal and Salvage of Historic Construction Materials
  - 02 43 00 Structure Moving**
    - 02 43 13 Structure Relocation
      - 02 43 13.13 Building Relocation
    - 02 43 16 Structure Raising
      - 02 43 16.13 Building Raising
- 02 50 00 SITE REMEDIATION**
  - 02 51 00 Physical Decontamination**
    - 02 51 13 Coagulation and Flocculation Decontamination
    - 02 51 16 Reverse-Osmosis Decontamination
    - 02 51 19 Solidification and Stabilization Decontamination



November 2004

- 02 51 23 Mechanical Filtration Decontamination
- 02 51 26 Radioactive Decontamination
- 02 51 29 Surface Cleaning Decontamination
  - 02 51 29.13 High-Pressure Water Cleaning Decontamination
  - 02 51 29.16 Vacuum Sweeping Cleaning Decontamination
- 02 51 33 Surface Removal Decontamination
  - 02 51 33.13 Surface Removal Decontamination by Grinding
  - 02 51 33.16 Surface Removal Decontamination by Sand Blasting
  - 02 51 33.19 Surface Removal Decontamination by Ultrasound
- 02 52 00 Chemical Decontamination**
  - 02 52 13 Chemical Precipitation Decontamination
  - 02 52 16 Ion Change Decontamination
  - 02 52 19 Neutralization Decontamination
- 02 53 00 Thermal Decontamination**
  - 02 53 13 Incineration Decontamination
    - 02 53 13.13 Remediation of Contaminated Soils and Sludges by Incineration
  - 02 53 16 Thermal Desorption Decontamination
    - 02 53 16.13 Remediation of Contaminated Soils by Thermal Desorption
  - 02 53 19 Vitrification Decontamination
- 02 54 00 Biological Decontamination**
  - 02 54 13 Aerobic Processes Decontamination
  - 02 54 16 Anaerobic Processes Decontamination
  - 02 54 19 Bioremediation Decontamination
    - 02 54 19.13 Bioremediation Using Landfarming
    - 02 54 19.16 Bioremediation of Soils Using Windrow Composting
    - 02 54 19.19 Bioremediation Using Bacteria Injection
  - 02 54 23 Soil Washing through Separation/Solubilization
  - 02 54 26 Organic Decontamination
- 02 55 00 Remediation Soil Stabilization**
- 02 56 00 Site Containment**
  - 02 56 13 Waste Containment
    - 02 56 13.13 Geomembrane Waste Containment
  - 02 56 19 Gas Containment
    - 02 56 19.13 Fluid-Applied Gas Barrier
- 02 57 00 Sinkhole Remediation**
  - 02 57 13 Sinkhole Remediation by Grouting
    - 02 57 13.13 Sinkhole Remediation by Compaction Grouting
    - 02 57 13.16 Sinkhole Remediation by Cap Grouting
  - 02 57 16 Sinkhole Remediation by Backfilling
- 02 58 00 Snow Control**
  - 02 58 13 Snow Fencing
  - 02 58 16 Snow Avalanche Control
- 02 60 00 CONTAMINATED SITE MATERIAL REMOVAL**
  - 02 61 00 Removal and Disposal of Contaminated Soils**
    - 02 61 13 Excavation and Handling of Contaminated Material
    - 02 61 23 Removal and Disposal of Polychlorinate Biphenyl Contaminated Soils
    - 02 61 26 Removal and Disposal of Asbestos Contaminated Soils
    - 02 61 29 Removal and Disposal of Organically Contaminated Soils
  - 02 62 00 Hazardous Waste Recovery Processes**
    - 02 62 13 Air and Steam Stripping
    - 02 62 16 Soil Vapor Extraction

November 2004

- 02 62 19 Soil Washing and Flushing
- 02 65 00 Underground Storage Tank Removal**
- 02 66 00 Landfill Construction and Storage**
- 02 70 00 WATER REMEDIATION**
- 02 71 00 Groundwater Treatment**
- 02 72 00 Water Decontamination**
  - 02 72 13 Chemical Water Decontamination
  - 02 72 16 Biological Water Decontamination
  - 02 72 19 Electrolysis Water Decontamination
- 02 80 00 FACILITY REMEDIATION**
- 02 81 00 Transportation and Disposal of Hazardous Materials**
- 02 82 00 Asbestos Remediation**
  - 02 82 13 Asbestos Abatement
    - 02 82 13.13 Glovebag Asbestos Abatement
    - 02 82 13.16 Precautions for Asbestos Abatement
    - 02 82 13.19 Asbestos Floor Tile and Mastic Abatement
  - 02 82 16 Engineering Control of Asbestos Containing Materials
  - 02 82 33 Removal and Disposal of Asbestos Containing Materials
- 02 83 00 Lead Remediation**
  - 02 83 13 Lead Hazard Control Activities
  - 02 83 19 Lead-Based Paint Remediation
    - 02 83 19.13 Lead-Based Paint Abatement
  - 02 83 33 Removal and Disposal of Material Containing Lead
    - 02 83 33.13 Lead-Based Paint Removal and Disposal
- 02 84 00 Polychlorinate Biphenyl Remediation**
  - 02 84 16 Handling of Lighting Ballasts and Lamps Containing PCBs and Mercury
  - 02 84 33 Removal and Disposal of Polychlorinate Biphenyls
- 02 85 00 Mold Remediation**
  - 02 85 13 Precautions for Mold Remediation
  - 02 85 16 Mold Remediation Preparation and Containment
  - 02 85 19 Mold Remediation Clearance Air Sampling
  - 02 85 33 Removal and Disposal of Materials with Mold
- 02 86 00 Hazardous Waste Drum Handling**
- 02 90 00 *Unassigned*

## DIVISION 03 – CONCRETE

### 03 00 00 CONCRETE

#### 03 01 00 Maintenance of Concrete

- 03 01 10 Maintenance of Concrete Forming and Accessories
- 03 01 20 Maintenance of Concrete Reinforcing
- 03 01 23 Maintenance of Stressing Tendons
- 03 01 30 Maintenance of Cast-in-Place Concrete
  - 03 01 30.51 Cleaning of Cast-in-Place Concrete
  - 03 01 30.61 Resurfacing of Cast-in-Place Concrete
  - 03 01 30.71 Rehabilitation of Cast-in-Place Concrete
  - 03 01 30.72 Strengthening of Cast-in-Place Concrete
- 03 01 40 Maintenance of Precast Concrete
  - 03 01 40.51 Cleaning of Precast Concrete
  - 03 01 40.61 Resurfacing of Precast Concrete
  - 03 01 40.71 Rehabilitation of Precast Concrete
  - 03 01 40.72 Strengthening of Precast Concrete
- 03 01 50 Maintenance of Cast Decks and Underlayment
  - 03 01 50.51 Cleaning Cast Decks and Underlayment
  - 03 01 50.61 Resurfacing of Cast Decks and Underlayment
  - 03 01 50.71 Rehabilitation of Cast Decks and Underlayment
  - 03 01 50.72 Strengthening of Cast Decks and Underlayment
- 03 01 60 Maintenance of Grouting
- 03 01 70 Maintenance of Mass Concrete
- 03 01 80 Maintenance of Concrete Cutting and Boring

#### 03 05 00 Common Work Results for Concrete

#### 03 06 00 Schedules for Concrete

- 03 06 10 Schedules for Concrete Forming and Accessories
- 03 06 20 Schedules for Concrete Reinforcing
  - 03 06 20.13 Concrete Beam Reinforcing Schedule
  - 03 06 20.16 Concrete Slab Reinforcing Schedule
- 03 06 30 Schedules for Cast-in-Place Concrete
  - 03 06 30.13 Concrete Footing Schedule
  - 03 06 30.16 Concrete Column Schedule
  - 03 06 30.19 Concrete Slab Schedule
  - 03 06 30.23 Concrete Shaft Schedule
  - 03 06 30.26 Concrete Beam Schedule
- 03 06 40 Schedules for Precast Concrete
  - 03 06 40.13 Precast Concrete Panel Schedule
- 03 06 50 Schedules for Cast Decks and Underlayment
- 03 06 60 Schedules for Grouting
- 03 06 70 Schedules for Mass Concrete
- 03 06 80 Schedules for Concrete Cutting and Boring

#### 03 08 00 Commissioning of Concrete

### 03 10 00 CONCRETE FORMING AND ACCESSORIES

#### 03 11 00 Concrete Forming

- 03 11 13 Structural Cast-in-Place Concrete Forming

- 03 11 13.13 Concrete Slip Forming
- 03 11 13.16 Concrete Shoring
- 03 11 13.19 Falsework
- 03 11 16 Architectural Cast-in Place Concrete Forming
  - 03 11 16.13 Concrete Form Liners
- 03 11 19 Insulating Concrete Forming
- 03 11 23 Permanent Stair Forming
- 03 15 00 Concrete Accessories**
  - 03 15 13 Waterstops
- 03 20 00 CONCRETE REINFORCING**
  - 03 21 00 Reinforcing Steel**
    - 03 21 13 Galvanized Reinforcing Steel
    - 03 21 16 Epoxy-Coated Reinforcing Steel
  - 03 22 00 Welded Wire Fabric Reinforcing**
    - 03 22 13 Galvanized Welded Wire Fabric Reinforcing
    - 03 22 16 Epoxy-Coated Welded Wire Fabric Reinforcing
  - 03 23 00 Stressing Tendons**
  - 03 24 00 Fibrous Reinforcing**
- 03 30 00 CAST-IN-PLACE CONCRETE**
  - 03 30 53 Miscellaneous Cast-in-Place Concrete
  - 03 31 00 Structural Concrete**
    - 03 31 13 Heavyweight Structural Concrete
    - 03 31 16 Lightweight Structural Concrete
    - 03 31 19 Shrinkage-Compensating Structural Concrete
    - 03 31 23 High-Performance Structural Concrete
    - 03 31 26 Self-Compacting Concrete
  - 03 33 00 Architectural Concrete**
    - 03 33 13 Heavyweight Architectural Concrete
    - 03 33 16 Lightweight Architectural Concrete
  - 03 34 00 Low Density Concrete**
  - 03 35 00 Concrete Finishing**
    - 03 35 13 High-Tolerance Concrete Floor Finishing
    - 03 35 16 Heavy-Duty Concrete Floor Finishing
    - 03 35 19 Colored Concrete Finishing
    - 03 35 23 Exposed Aggregate Concrete Finishing
    - 03 35 26 Grooved Concrete Surface Finishing
    - 03 35 29 Tooled Concrete Finishing
    - 03 35 33 Stamped Concrete Finishing
  - 03 37 00 Specialty Placed Concrete**
    - 03 37 13 Shotcrete
    - 03 37 16 Pumped Concrete
    - 03 37 19 Pneumatically Placed Concrete
    - 03 37 23 Roller-Compacted Concrete
    - 03 37 26 Underwater Placed Concrete
  - 03 38 00 Post-Tensioned Concrete**
    - 03 38 13 Post-Tensioned Concrete Preparation
    - 03 38 16 Unbonded Post-Tensioned Concrete
    - 03 38 19 Bonded Post-Tensioned Concrete
  - 03 39 00 Concrete Curing**

- 03 39 13 Water Concrete Curing
- 03 39 16 Sand Concrete Curing
- 03 39 23 Membrane Concrete Curing
  - 03 39 23.13 Chemical Compound Membrane Concrete Curing
  - 03 39 23.23 Sheet Membrane Concrete Curing

**03 40 00 PRECAST CONCRETE**

**03 41 00 Precast Structural Concrete**

- 03 41 13 Precast Concrete Hollow Core Planks
- 03 41 16 Precast Concrete Slabs
- 03 41 23 Precast Concrete Stairs
- 03 41 33 Precast Structural Pretensioned Concrete
- 03 41 36 Precast Structural Post-Tensioned Concrete

**03 45 00 Precast Architectural Concrete**

- 03 45 13 Faced Architectural Precast Concrete
- 03 45 33 Precast Architectural Pretensioned Concrete
- 03 45 36 Precast Architectural Post-Tensioned Concrete

**03 47 00 Site-Cast Concrete**

- 03 47 13 Tilt-Up Concrete
- 03 47 16 Lift-Slab Concrete

**03 48 00 Precast Concrete Specialties**

- 03 48 13 Precast Concrete Bollards
- 03 48 16 Precast Concrete Splash Blocks
- 03 48 19 Precast Concrete Stair Treads
- 03 48 43 Precast Concrete Trim

**03 49 00 Glass-Fiber-Reinforced Concrete**

- 03 49 13 Glass-Fiber-Reinforced Concrete Column Covers
- 03 49 16 Glass-Fiber-Reinforced Concrete Spandrels
- 03 49 43 Glass-Fiber-Reinforced Concrete Trim

**03 50 00 CAST DECKS AND UNDERLAYMENT**

**03 51 00 Cast Roof Decks**

- 03 51 13 Cementitious Wood Fiber Decks
- 03 51 16 Gypsum Concrete Roof Decks

**03 52 00 Lightweight Concrete Roof Insulation**

- 03 52 13 Composite Concrete Roof Insulation
- 03 52 16 Lightweight Insulating Concrete
  - 03 52 16.13 Lightweight Cellular Insulating Concrete
  - 03 52 16.16 Lightweight Aggregate Insulating Concrete

**03 53 00 Concrete Topping**

- 03 53 13 Emery-Aggregate Concrete Topping
- 03 53 16 Iron-Aggregate Concrete Topping

**03 54 00 Cast Underlayment**

- 03 54 13 Gypsum Cement Underlayment
- 03 54 16 Hydraulic Cement Underlayment

**03 60 00 GROUTING**

**03 61 00 Cementitious Grouting**

- 03 61 13 Dry-Pack Grouting

**03 62 00 Non-Shrink Grouting**

- 03 62 13 Non-Metallic Non-Shrink Grouting

- 03 62 16 Metallic Non-Shrink Grouting
- 03 63 00 Epoxy Grouting**
- 03 64 00 Injection Grouting**
  - 03 64 23 Epoxy Injection Grouting
- 03 70 00 MASS CONCRETE**
  - 03 71 00 Mass Concrete for Raft Foundations**
  - 03 72 00 Mass Concrete for Dams**
- 03 80 00 CONCRETE CUTTING AND BORING**
  - 03 81 00 Concrete Cutting**
    - 03 81 13 Flat Concrete Sawing
    - 03 81 16 Track Mounted Concrete Wall Sawing
    - 03 81 19 Wire Concrete Wall Sawing
    - 03 81 23 Hand Concrete Wall Sawing
    - 03 81 26 Chain Concrete Wall Sawing
  - 03 82 00 Concrete Boring**
    - 03 82 13 Concrete Core Drilling
- 03 90 00 Unassigned*

## DIVISION 04 – MASONRY

### 04 00 00 MASONRY

#### 04 01 00 Maintenance of Masonry

- 04 01 20 Maintenance of Unit Masonry
  - 04 01 20.51 Unit Masonry Maintenance
  - 04 01 20.52 Unit Masonry Cleaning
  - 04 01 20.91 Unit Masonry Restoration
  - 04 01 20.93 Testing and Sampling Brick Units for Restoration
- 04 01 40 Maintenance of Stone Assemblies
  - 04 01 40.51 Stone Maintenance
  - 04 01 40.52 Stone Cleaning
  - 04 01 40.91 Stone Restoration
- 04 01 50 Maintenance of Refractory Masonry
- 04 01 60 Maintenance of Corrosion-Resistant Masonry
- 04 01 70 Maintenance of Manufactured Masonry

#### 04 05 00 Common Work Results for Masonry

- 04 05 13 Masonry Mortaring
  - 04 05 13.16 Chemical-Resistant Masonry Mortaring
  - 04 05 13.19 Epoxy Masonry Mortaring
  - 04 05 13.23 Surface Bonding Masonry Mortaring
  - 04 05 13.26 Engineered Masonry Mortaring
  - 04 05 13.29 Refractory Masonry Mortaring
  - 04 05 13.91 Masonry Restoration Mortaring
- 04 05 16 Masonry Grouting
  - 04 05 16.16 Chemical-Resistant Masonry Grouting
  - 04 05 16.26 Engineered Masonry Grouting
- 04 05 19 Masonry Anchorage and Reinforcing
  - 04 05 19.13 Continuous Joint Reinforcing
  - 04 05 19.16 Masonry Anchors
  - 04 05 19.26 Masonry Reinforcing Bars
  - 04 05 19.29 Stone Anchors
- 04 05 23 Masonry Accessories
  - 04 05 23.13 Masonry Control and Expansion Joints
  - 04 05 23.16 Masonry Embedded Flashing
  - 04 05 23.19 Masonry Cavity Drainage, Weepholes, and Vents

#### 04 06 00 Schedules for Masonry

- 04 06 20 Schedules for Unit Masonry
  - 04 06 20.13 Masonry Unit Schedule
- 04 06 40 Schedules for Stone Assemblies
- 04 06 50 Schedules for Refractory Masonry
- 04 06 60 Schedules for Corrosion-Resistant Masonry
- 04 06 70 Schedules for Manufactured Masonry

#### 04 08 00 Commissioning of Masonry

04 10 00 *Unassigned*

### 04 20 00 UNIT MASONRY

#### 04 21 00 Clay Unit Masonry

- 04 21 13 Brick Masonry

- 04 21 13.13 Brick Veneer Masonry
- 04 21 13.23 Surface-Bonded Brick Masonry
- 04 21 16 Ceramic Glazed Clay Masonry
- 04 21 19 Clay Tile Masonry
- 04 21 23 Structural Clay Tile Masonry
- 04 21 26 Glazed Structural Clay Tile Masonry
- 04 21 29 Terra Cotta Masonry
- 04 22 00 Concrete Unit Masonry**
  - 04 22 00.13 Concrete Unit Veneer Masonry
  - 04 22 00.16 Surface-Bonded Concrete Unit Masonry
  - 04 22 19 Insulated Concrete Unit Masonry
  - 04 22 23 Architectural Concrete Unit Masonry
    - 04 22 23.13 Exposed Aggregate Concrete Unit Masonry
    - 04 22 23.16 Fluted Concrete Unit Masonry
    - 04 22 23.19 Molded-Face Concrete Unit Masonry
    - 04 22 23.23 Prefaced Concrete Unit Masonry
    - 04 22 23.26 Sound-Absorbing Concrete Unit Masonry
    - 04 22 23.29 Split-Face Concrete Unit Masonry
  - 04 22 33 Interlocking Concrete Unit Masonry
- 04 23 00 Glass Unit Masonry**
  - 04 23 13 Vertical Glass Unit Masonry
  - 04 23 16 Glass Unit Masonry Floors
  - 04 23 19 Glass Unit Masonry Skylights
- 04 24 00 Adobe Unit Masonry**
  - 04 24 13 Site-Cast Adobe Unit Masonry
  - 04 24 16 Manufactured Adobe Unit Masonry
- 04 25 00 Unit Masonry Panels**
  - 04 25 13 Metal-Supported Unit Masonry Panels
- 04 27 00 Multiple-Wythe Unit Masonry**
  - 04 27 13 Composite Unit Masonry
  - 04 27 23 Cavity Wall Unit Masonry
- 04 28 00 Concrete Form Masonry Units**
  - 04 28 13 Dry-Stacked, Concrete-Filled Masonry Units
  - 04 28 23 Mortar-Set, Concrete-Filled Masonry Units
- 04 30 00 *Unassigned*
- 04 40 00 STONE ASSEMBLIES**
  - 04 41 00 Dry-Placed Stone**
  - 04 42 00 Exterior Stone Cladding**
    - 04 42 13 Masonry-Supported Stone Cladding
    - 04 42 16 Steel-Stud-Supported Stone Cladding
    - 04 42 19 Strongback-Frame-Supported Stone Cladding
    - 04 42 23 Truss-Supported Stone Cladding
    - 04 42 26 Grid-System-Supported Stone Cladding
    - 04 42 43 Stone Panels for Curtain Walls
  - 04 43 00 Stone Masonry**
- 04 50 00 REFRACTORY MASONRY**
  - 04 51 00 Flue Liner Masonry**
  - 04 52 00 Combustion Chamber Masonry**
  - 04 53 00 Castable Refractory Masonry**



04 54 00	<b>Refractory Brick Masonry</b>
04 57 00	<b>Masonry Fireplaces</b>
04 60 00	<b>CORROSION-RESISTANT MASONRY</b>
04 61 00	<b>Chemical-Resistant Brick Masonry</b>
04 62 00	<b>Vitrified Clay Liner Plate</b>
04 70 00	<b>MANUFACTURED MASONRY</b>
04 71 00	<b>Manufactured Brick Masonry</b>
04 71 13	Calcium Silicate Manufactured Brick Masonry
04 72 00	<b>Cast Stone Masonry</b>
04 73 00	<b>Manufactured Stone Masonry</b>
04 73 13	Calcium Silicate Manufactured Stone Masonry
04 80 00	<i>Unassigned</i>
04 90 00	<i>Unassigned</i>

## DIVISION 05 – METALS

### 05 00 00 METALS

#### 05 01 00 Maintenance of Metals

- 05 01 10 Maintenance of Structural Metal Framing
- 05 01 20 Maintenance of Metal Joists
- 05 01 30 Maintenance of Metal Decking
- 05 01 40 Maintenance of Cold-Formed Metal Framing
- 05 01 50 Maintenance of Metal Fabrications
- 05 01 70 Maintenance of Decorative Metal
- 05 01 70.91 Historic Treatment of Decorative Metal

#### 05 05 00 Common Work Results for Metals

- 05 05 13 Shop-Applied Coatings for Metal
- 05 05 23 Metal Fastenings
- 05 05 53 Security Metal Fastenings

#### 05 06 00 Schedules for Metals

- 05 06 10 Schedules for Structural Metal Framing
  - 05 06 10.13 Steel Column Schedule
  - 05 06 10.16 Steel Beam Schedule
- 05 06 20 Schedules for Metal Joists
  - 05 06 20.13 Steel Joist Schedule
- 05 06 30 Schedules for Metal Decking
- 05 06 40 Schedules for Cold-Formed Metal Framing
- 05 06 50 Schedules for Metal Fabrications
- 05 06 70 Schedules for Decorative Metal

#### 05 08 00 Commissioning of Metals

### 05 10 00 STRUCTURAL METAL FRAMING

#### 05 12 00 Structural Steel Framing

- 05 12 13 Architecturally-Exposed Structural Steel Framing
- 05 12 16 Fabricated Fireproofed Steel Columns
- 05 12 23 Structural Steel for Buildings
- 05 12 33 Structural Steel for Bridges

#### 05 13 00 Structural Stainless-Steel Framing

#### 05 14 00 Structural Aluminum Framing

- 05 14 13 Architecturally-Exposed Structural Aluminum Framing

#### 05 15 00 Wire Rope Assemblies

- 05 15 13 Aluminum Wire Rope Assemblies
- 05 15 16 Steel Wire Rope Assemblies
- 05 15 19 Stainless-Steel Wire Rope Assemblies

#### 05 16 00 Structural Cabling

- 05 16 33 Bridge Cabling

### 05 20 00 METAL JOISTS

#### 05 21 00 Steel Joist Framing

- 05 21 13 Deep Longspan Steel Joist Framing
- 05 21 16 Longspan Steel Joist Framing
- 05 21 19 Open Web Steel Joist Framing

- 05 21 23 Steel Joist Girder Framing
- 05 25 00 Aluminum Joist Framing**
- 05 30 00 METAL DECKING**
  - 05 31 00 Steel Decking**
    - 05 31 13 Steel Floor Decking
    - 05 31 23 Steel Roof Decking
    - 05 31 33 Steel Form Decking
  - 05 33 00 Aluminum Decking**
    - 05 33 13 Aluminum Floor Decking
    - 05 33 23 Aluminum Roof Decking
  - 05 34 00 Acoustical Metal Decking**
  - 05 35 00 Raceway Decking Assemblies**
  - 05 36 00 Composite Metal Decking**
    - 05 36 13 Composite Steel Plate and Elastomer Decking
- 05 40 00 COLD-FORMED METAL FRAMING**
  - 05 41 00 Structural Metal Stud Framing**
  - 05 42 00 Cold-Formed Metal Joist Framing**
    - 05 42 13 Cold-Formed Metal Floor Joist Framing
    - 05 42 23 Cold-Formed Metal Roof Joist Framing
  - 05 43 00 Slotted Channel Framing**
  - 05 44 00 Cold-Formed Metal Trusses**
  - 05 45 00 Metal Support Assemblies**
    - 05 45 13 Mechanical Metal Supports
    - 05 45 16 Electrical Metal Supports
    - 05 45 19 Communications Metal Supports
    - 05 45 23 Healthcare Metal Supports
- 05 50 00 METAL FABRICATIONS**
  - 05 51 00 Metal Stairs**
    - 05 51 13 Metal Pan Stairs
    - 05 51 16 Metal Floor Plate Stairs
    - 05 51 19 Metal Grating Stairs
    - 05 51 23 Metal Fire Escapes
    - 05 51 33 Metal Ladders
      - 05 51 33.13 Vertical Metal Ladders
      - 05 51 33.16 Inclined Metal Ladders
      - 05 51 33.23 Alternating Tread Ladders
    - 05 51 36 Catwalks
      - 05 51 36.13 Metal Catwalks
  - 05 52 00 Metal Railings**
    - 05 52 13 Pipe and Tube Railings
  - 05 53 00 Metal Gratings**
  - 05 54 00 Metal Floor Plates**
  - 05 55 00 Metal Stair Treads and Nosings**
    - 05 55 13 Metal Stair Treads
    - 05 55 16 Metal Stair Nosings
  - 05 56 00 Metal Castings**
  - 05 58 00 Formed Metal Fabrications**
    - 05 58 13 Column Covers

05 58 16	Formed Metal Enclosures
05 58 19	Heating/Cooling Unit Covers
<b>05 59 00</b>	<b>Metal Specialties</b>
05 59 63	Detention Enclosures
<i>05 60 00</i>	<i>Unassigned</i>
<b>05 70 00</b>	<b>DECORATIVE METAL</b>
<b>05 71 00</b>	<b>Decorative Metal Stairs</b>
05 71 13	Fabricated Metal Spiral Stairs
<b>05 73 00</b>	<b>Decorative Metal Railings</b>
05 73 13	Glazed Decorative Metal Railings
05 73 16	Wire Rope Decorative Metal Railings
<b>05 74 00</b>	<b>Decorative Metal Castings</b>
<b>05 75 00</b>	<b>Decorative Formed Metal</b>
<b>05 76 00</b>	<b>Decorative Forged Metal</b>
<i>05 80 00</i>	<i>Unassigned</i>
<i>05 90 00</i>	<i>Unassigned</i>

## DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

### 06 00 00 WOOD, PLASTICS, AND COMPOSITES

#### 06 01 00 Maintenance of Wood, Plastics, and Composites

- 06 01 10 Maintenance of Rough Carpentry
  - 06 01 10.71 Rough Carpentry Rehabilitation
  - 06 01 10.91 Rough Carpentry Restoration
  - 06 01 10.92 Rough Carpentry Preservation
- 06 01 20 Maintenance of Finish Carpentry
  - 06 01 20.71 Finish Carpentry Rehabilitation
  - 06 01 20.91 Finish Carpentry Restoration
  - 06 01 20.92 Finish Carpentry Preservation
- 06 01 40 Maintenance of Architectural Woodwork
  - 06 01 40.51 Architectural Woodwork Cleaning
  - 06 01 40.61 Architectural Woodwork Refinishing
  - 06 01 40.91 Architectural Woodwork Restoration
- 06 01 50 Maintenance of Structural Plastics
- 06 01 60 Maintenance of Plastic Fabrications
  - 06 01 60.51 Plastic Cleaning
  - 06 01 60.71 Plastic Rehabilitation
  - 06 01 60.91 Plastic Restoration
  - 06 01 60.92 Plastic Preservation
- 06 01 70 Maintenance of Structural Composites
- 06 01 80 Maintenance of Composite Assemblies
  - 06 01 80.51 Composite Cleaning
  - 06 01 80.71 Composite Rehabilitation
  - 06 01 80.91 Composite Restoration
  - 06 01 80.92 Composite Preservation

#### 06 05 00 Common Work Results for Wood, Plastics, and Composites

- 06 05 23 Wood, Plastic, and Composite Fastenings
- 06 05 73 Wood Treatment
  - 06 05 73.13 Fire-Retardant Wood Treatment
  - 06 05 73.33 Preservative Wood Treatment
  - 06 05 73.91 Long-Term Wood Treatment
  - 06 05 73.93 Eradication of Insects in Wood
  - 06 05 73.96 Antiseptic Treatment of Wood
- 06 05 83 Shop-Applied Wood Coatings

#### 06 06 00 Schedules for Wood, Plastics, and Composites

- 06 06 10 Schedules for Rough Carpentry
  - 06 06 10.13 Nailing Schedule
  - 06 06 10.16 Wood Beam Schedule
  - 06 06 10.19 Plywood Shear Wall Schedule
  - 06 06 10.23 Plywood Web Joist Schedule
  - 06 06 10.26 Wood Truss Schedule
- 06 06 20 Schedules for Finish Carpentry
- 06 06 40 Schedules for Architectural Woodwork
- 06 06 50 Schedules for Structural Plastics
- 06 06 60 Schedules for Plastic Fabrications
- 06 06 70 Schedules for Structural Composites
- 06 06 80 Schedules for Composite Assemblies

**06 08 00 Commissioning of Wood, Plastics, and Composites**

**06 10 00 ROUGH CARPENTRY**

- 06 10 53 Miscellaneous Rough Carpentry
- 06 10 91 Curved Wood Members

**06 11 00 Wood Framing**

- 06 11 13 Engineered Wood Products
- 06 11 16 Mechanically Graded Lumber

**06 12 00 Structural Panels**

- 06 12 13 Cementitious Reinforced Panels
- 06 12 16 Stressed Skin Panels

**06 13 00 Heavy Timber**

- 06 13 13 Log Construction
  - 06 13 13.91 Period Horizontal Log Work
- 06 13 16 Pole Construction
- 06 13 23 Heavy Timber Construction
- 06 13 33 Heavy Timber Pier Construction

**06 14 00 Treated Wood Foundations**

**06 15 00 Wood Decking**

- 06 15 13 Wood Floor Decking
  - 06 15 13.91 Carvel Planking
- 06 15 16 Wood Roof Decking
- 06 15 19 Timber Decking
- 06 15 23 Laminated Wood Decking
- 06 15 33 Wood Patio Decking

**06 16 00 Sheathing**

- 06 16 13 Insulating Sheathing
- 06 16 23 Subflooring
- 06 16 26 Underlayment
- 06 16 29 Acoustical Underlayment
- 06 16 33 Wood Board Sheathing
- 06 16 36 Wood Panel Product Sheathing
- 06 16 43 Gypsum Sheathing
- 06 16 53 Moisture-Resistant Sheathing Board
- 06 16 63 Cementitious Sheathing

**06 17 00 Shop-Fabricated Structural Wood**

- 06 17 13 Laminated Veneer Lumber
- 06 17 23 Parallel Strand Lumber
- 06 17 33 Wood I-Joists
- 06 17 36 Metal-Web Wood Joists
- 06 17 43 Rim Boards
- 06 17 53 Shop-Fabricated Wood Trusses

**06 18 00 Glued-Laminated Construction**

- 06 18 13 Glued-Laminated Beams
- 06 18 16 Glued-Laminated Columns

**06 20 00 FINISH CARPENTRY**

- 06 20 13 Exterior Finish Carpentry
- 06 20 23 Interior Finish Carpentry

**06 22 00 Millwork**

- 06 22 13 Standard Pattern Wood Trim

- 06 25 00 Prefinished Paneling**
  - 06 25 13 Prefinished Hardboard Paneling
  - 06 25 16 Prefinished Plywood Paneling
- 06 26 00 Board Paneling**
  - 06 26 13 Profile Board Paneling

06 30 00 *Unassigned*

**06 40 00 ARCHITECTURAL WOODWORK**

- 06 40 13 Exterior Architectural Woodwork
- 06 40 23 Interior Architectural Woodwork
- 06 41 00 Architectural Wood Casework**
  - 06 41 13 Wood-Veneer-Faced Architectural Cabinets
  - 06 41 16 Plastic-Laminate-Clad Architectural Cabinets
- 06 42 00 Wood Paneling**
  - 06 42 13 Solid Lumber Paneling
  - 06 42 16 Wood-Veneer Paneling
  - 06 42 19 Plastic-Laminate-Faced Wood Paneling
- 06 43 00 Wood Stairs and Railings**
  - 06 43 13 Wood Stairs
  - 06 43 16 Wood Railings
- 06 44 00 Ornamental Woodwork**
  - 06 44 13 Wood Turnings
  - 06 44 16 Wood Pilasters
  - 06 44 19 Wood Grilles
  - 06 44 23 Wood Corbels
  - 06 44 26 Wood Cupolas
  - 06 44 29 Wood Finials
  - 06 44 33 Wood Mantels
  - 06 44 36 Wood Pediment Heads
  - 06 44 39 Wood Posts and Columns
- 06 46 00 Wood Trim**
  - 06 46 13 Wood Door and Window Casings
  - 06 46 16 Wood Aprons
  - 06 46 19 Wood Base and Shoe Moldings
  - 06 46 23 Wood Chair Rails
  - 06 46 26 Wood Cornices
  - 06 46 29 Wood Fascia and Soffits
  - 06 46 33 Wood Stops, Stools, and Sills
  - 06 46 91 Splicing of Wooden Components
- 06 48 00 Wood Frames**
  - 06 48 13 Exterior Wood Door Frames
  - 06 48 16 Interior Wood Door Frames
  - 06 48 19 Ornamental Wood Frames
  - 06 48 23 Stick-Built Wood Windows
  - 06 48 26 Wood-Veneer Frames
- 06 49 00 Wood Screens and Exterior Wood Shutters**
  - 06 49 13 Wood Screens
  - 06 49 16 Exterior Wood Blinds
  - 06 49 19 Exterior Wood Shutters

**06 50 00 STRUCTURAL PLASTICS**

**06 51 00 Structural Plastic Shapes and Plates**

06 51 13 Plastic Lumber

**06 52 00 Plastic Structural Assemblies**

**06 53 00 Plastic Decking**

06 53 13 Solid Plastic Decking

**06 60 00 PLASTIC FABRICATIONS**

**06 61 00 Simulated Stone Fabrications**

06 61 13 Cultured Marble Fabrications

06 61 16 Solid Surfacing Fabrications

06 61 19 Quartz Surfacing Fabrications

**06 63 00 Plastic Railings**

**06 64 00 Plastic Paneling**

**06 65 00 Plastic Simulated Wood Trim**

**06 66 00 Custom Ornamental Simulated Woodwork**

**06 70 00 STRUCTURAL COMPOSITES**

**06 71 00 Structural Composite Shapes and Plates**

06 71 13 Composite Lumber

**06 72 00 Composite Structural Assemblies**

06 72 13 Composite Joist Assemblies

**06 73 00 Composite Decking**

06 73 13 Composite Structural Decking

**06 80 00 COMPOSITE FABRICATIONS**

**06 81 00 Composite Railings**

**06 82 00 Glass-Fiber-Reinforced Plastic**

*06 90 00 Unassigned*



## **DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

### **07 00 00 THERMAL AND MOISTURE PROTECTION**

#### **07 01 00 Operation and Maintenance of Thermal and Moisture Protection**

- 07 01 10 Maintenance of Dampproofing and Waterproofing
  - 07 01 10.81 Waterproofing Replacement
- 07 01 20 Maintenance of Thermal Protection
- 07 01 30 Maintenance of Steep Slope Roofing
- 07 01 40 Maintenance of Roofing and Siding Panels
- 07 01 50 Maintenance of Membrane Roofing
  - 07 01 50.13 Roof Moisture Survey
  - 07 01 50.16 Roof Maintenance Program
  - 07 01 50.19 Preparation for Re-Roofing
  - 07 01 50.23 Roof Removal
  - 07 01 50.61 Roof Re-Coating
  - 07 01 50.81 Roof Replacement
  - 07 01 50.91 Roofing Restoration
- 07 01 60 Maintenance of Flashing and Sheet Metal
  - 07 01 60.71 Flashing and Sheet Metal Rehabilitation
  - 07 01 60.91 Flashing and Sheet Metal Restoration
  - 07 01 60.92 Flashing and Sheet Metal Preservation
- 07 01 70 Operation and Maintenance of Roof Specialties and Accessories
- 07 01 80 Maintenance of Fire and Smoke Protection
- 07 01 90 Maintenance of Joint Protection
  - 07 01 90.71 Joint Sealant Rehabilitation
  - 07 01 90.81 Joint Sealant Replacement

#### **07 05 00 Common Work Results for Thermal and Moisture Protection**

#### **07 06 00 Schedules for Thermal and Moisture Protection**

- 07 06 10 Schedules for Dampproofing and Waterproofing
- 07 06 20 Schedules for Thermal Protection
- 07 06 30 Schedules for Steep Slope Roofing
- 07 06 40 Schedules for Roofing and Siding Panels
- 07 06 50 Schedules for Membrane Roofing
- 07 06 60 Schedules for Flashing and Sheet Metal
- 07 06 70 Schedules for Roof Specialties and Accessories
- 07 06 80 Schedules for Fire and Smoke Protection
  - 07 06 80.13 Fireproofing Schedule
  - 07 06 80.16 Firestopping Schedule
- 07 06 90 Schedules for Joint Protection
  - 07 06 90.13 Joint Sealant Schedule

#### **07 08 00 Commissioning of Thermal and Moisture Protection**

### **07 10 00 DAMPPROOFING AND WATERPROOFING**

#### **07 11 00 Dampproofing**

- 07 11 13 Bituminous Dampproofing
- 07 11 16 Cementitious Dampproofing
- 07 11 19 Sheet Dampproofing

#### **07 12 00 Built-Up Bituminous Waterproofing**

- 07 12 13 Built-Up Asphalt Waterproofing

- 07 12 16 Built-Up Coal Tar Waterproofing
- 07 13 00 Sheet Waterproofing**
  - 07 13 13 Bituminous Sheet Waterproofing
  - 07 13 26 Self-Adhering Sheet Waterproofing
  - 07 13 52 Modified Bituminous Sheet Waterproofing
  - 07 13 53 Elastomeric Sheet Waterproofing
  - 07 13 54 Thermoplastic Sheet Waterproofing
- 07 14 00 Fluid-Applied Waterproofing**
  - 07 14 13 Hot Fluid-Applied Rubberized Asphalt Waterproofing
  - 07 14 16 Cold Fluid-Applied Waterproofing
- 07 15 00 Sheet Metal Waterproofing**
- 07 16 00 Cementitious and Reactive Waterproofing**
  - 07 16 13 Polymer Modified Cement Waterproofing
  - 07 16 16 Crystalline Waterproofing
  - 07 16 19 Metal Oxide Waterproofing
- 07 17 00 Bentonite Waterproofing**
  - 07 17 13 Bentonite Panel Waterproofing
  - 07 17 16 Bentonite Composite Sheet Waterproofing
- 07 18 00 Traffic Coatings**
  - 07 18 13 Pedestrian Traffic Coatings
  - 07 18 16 Vehicular Traffic Coatings
- 07 19 00 Water Repellents**
  - 07 19 13 Acrylic Water Repellents
  - 07 19 16 Silane Water Repellents
  - 07 19 19 Silicone Water Repellents
  - 07 19 23 Siloxane Water Repellents
  - 07 19 26 Stearate Water Repellents
- 07 20 00 THERMAL PROTECTION**
- 07 21 00 Thermal Insulation**
  - 07 21 13 Board Insulation
    - 07 21 13.13 Foam Board Insulation
    - 07 21 13.16 Fibrous Board Insulation
    - 07 21 13.19 Mineral Board Insulation
  - 07 21 16 Blanket Insulation
  - 07 21 19 Foamed-in-Place Insulation
  - 07 21 23 Loose-Fill Insulation
  - 07 21 26 Blown Insulation
  - 07 21 29 Sprayed Insulation
- 07 22 00 Roof and Deck Insulation**
  - 07 22 13 Asphaltic Perlite Concrete Deck
  - 07 22 16 Roof Board Insulation
- 07 24 00 Exterior Insulation and Finish Systems**
  - 07 24 13 Polymer-Based Exterior Insulation and Finish System
  - 07 24 16 Polymer-Modified Exterior Insulation and Finish System
  - 07 24 19 Water-Drainage Exterior Insulation and Finish System
- 07 25 00 WEATHER BARRIERS**
- 07 26 00 Vapor Retarders**
  - 07 26 13 Above-Grade Vapor Retarders
  - 07 26 16 Below-Grade Vapor Retarders

- 07 26 23 Below-Grade Gas Retarders
- 07 27 00 Air Barriers**
  - 07 27 13 Modified Bituminous Sheet Air Barriers
  - 07 27 16 Sheet Metal Membrane Air Barriers
  - 07 27 19 Plastic Sheet Air Barriers
  - 07 27 23 Board Product Air Barriers
  - 07 27 26 Fluid-Applied Membrane Air Barriers
- 07 30 00 STEEP SLOPE ROOFING**
  - 07 30 91 Canvas Roofing
  - 07 31 00 Shingles and Shakes**
    - 07 31 13 Asphalt Shingles
      - 07 31 13.13 Fiberglass-Reinforced Asphalt Shingles
    - 07 31 16 Metal Shingles
    - 07 31 19 Mineral-Fiber Cement Shingles
    - 07 31 23 Porcelain Enamel Shingles
    - 07 31 26 Slate Shingles
    - 07 31 29 Wood Shingles and Shakes
      - 07 31 29.13 Wood Shingles
      - 07 31 29.16 Wood Shakes
    - 07 31 33 Composite Rubber Shingles
    - 07 31 53 Plastic Shakes
  - 07 32 00 Roof Tiles**
    - 07 32 13 Clay Roof Tiles
    - 07 32 16 Concrete Roof Tiles
    - 07 32 19 Metal Roof Tiles
    - 07 32 23 Mineral-Fiber Cement Roof Tiles
    - 07 32 26 Plastic Roof Tiles
    - 07 32 29 Rubber Tiles/Panels
  - 07 33 00 Natural Roof Coverings**
    - 07 33 13 Sod Roofing
    - 07 33 16 Thatched Roofing
    - 07 33 63 Vegetated Roofing
- 07 40 00 ROOFING AND SIDING PANELS**
  - 07 41 00 Roof Panels**
    - 07 41 13 Metal Roof Panels
    - 07 41 23 Wood Roof Panels
    - 07 41 33 Plastic Roof Panels
    - 07 41 43 Composite Roof Panels
    - 07 41 63 Fabricated Roof Panel Assemblies
  - 07 42 00 Wall Panels**
    - 07 42 13 Metal Wall Panels
    - 07 42 23 Wood Wall Panels
    - 07 42 33 Plastic Wall Panels
    - 07 42 43 Composite Wall Panels
    - 07 42 63 Fabricated Wall Panel Assemblies
  - 07 44 00 Faced Panels**
    - 07 44 13 Aggregate Coated Panels
    - 07 44 16 Porcelain Enameled Faced Panels
    - 07 44 19 Tile-Faced Panels

- 07 44 23 Ceramic -Tile-Faced Panels
- 07 44 53 Glass-Fiber-Reinforced Cementitious Panels
- 07 44 56 Mineral-Fiber-Reinforced Cementitious Panels
- 07 44 63 Fabricated Faced Panel Assemblies
- 07 46 00 Siding**
  - 07 46 16 Aluminum Siding
  - 07 46 19 Steel Siding
  - 07 46 23 Wood Siding
  - 07 46 26 Hardboard Siding
  - 07 46 29 Plywood Siding
  - 07 46 33 Plastic Siding
  - 07 46 43 Composition Siding
  - 07 46 46 Mineral-Fiber Cement Siding
  - 07 46 63 Fabricated Panel Assemblies with Siding
- 07 50 00 MEMBRANE ROOFING**
  - 07 51 00 Built-Up Bituminous Roofing**
    - 07 51 13 Built-Up Asphalt Roofing
      - 07 51 13.13 Cold-Applied Built-Up Asphalt Roofing
    - 07 51 16 Built-Up Coal Tar Roofing
    - 07 51 23 Glass-Fiber-Reinforced Asphalt Emulsion Roofing
  - 07 52 00 Modified Bituminous Membrane Roofing**
    - 07 52 13 Atactic-Polypropylene-Modified Bituminous Membrane Roofing
    - 07 52 16 Styrene-Butadiene-Styrene Modified Bituminous Membrane Roofing
    - 07 52 19 Self-Adhering Modified Bituminous Membrane Roofing
  - 07 53 00 Elastomeric Membrane Roofing**
    - 07 53 13 Chlorinated-Polyethylene Roofing
    - 07 53 16 Chlorosulfonate-Polyethylene Roofing
    - 07 53 23 Ethylene-Propylene-Diene-Monomer Roofing
    - 07 53 29 Polyisobutylene Roofing
  - 07 54 00 Thermoplastic Membrane Roofing**
    - 07 54 13 Copolymer-Alloy Roofing
    - 07 54 16 Ethylene-Interpolymer Roofing
    - 07 54 19 Polyvinyl-Chloride Roofing
    - 07 54 23 Thermoplastic -Polyolefin Roofing
    - 07 54 26 Nitrile-Butadiene-Polymer Roofing
  - 07 55 00 Protected Membrane Roofing**
    - 07 55 51 Built-Up Bituminous Protected Membrane Roofing
    - 07 55 52 Modified Bituminous Protected Membrane Roofing
    - 07 55 53 Elastomeric Protected Membrane Roofing
    - 07 55 54 Thermoplastic Protected Membrane Roofing
    - 07 55 56 Fluid-Applied Protected Membrane Roofing
      - 07 55 56.13 Hot-Applied Rubberized Asphalt Protected Membrane Roofing
    - 07 55 63 Vegetated Protected Membrane Roofing
  - 07 56 00 Fluid-Applied Roofing**
  - 07 57 00 Coated Foamed Roofing**
    - 07 57 13 Sprayed Polyurethane Foam Roofing
  - 07 58 00 Roll Roofing**
- 07 60 00 FLASHING AND SHEET METAL**
  - 07 61 00 Sheet Metal Roofing**

- 07 61 13 Standing Seam Sheet Metal Roofing
- 07 61 16 Batten Seam Sheet Metal Roofing
- 07 61 19 Flat Seam Sheet Metal Roofing
- 07 61 91 Tinplate and Ternplate Roofing
- 07 62 00 Sheet Metal Flashing and Trim**
- 07 63 00 Sheet Metal Roofing Specialties**
- 07 65 00 Flexible Flashing**
  - 07 65 13 Laminated Sheet Flashing
  - 07 65 16 Modified Bituminous Sheet Flashing
  - 07 65 19 Plastic Sheet Flashing
  - 07 65 23 Rubber Sheet Flashing
  - 07 65 26 Self-Adhering Sheet Flashing
- 07 70 00 ROOF AND WALL SPECIALTIES AND ACCESSORIES**
  - 07 71 00 Roof Specialties**
    - 07 71 13 Manufactured Copings
    - 07 71 16 Manufactured Counterflashing Systems
    - 07 71 19 Manufactured Gravel Stops and Facias
    - 07 71 23 Manufactured Gutters and Downspouts
    - 07 71 26 Reglets
    - 07 71 29 Manufactured Roof Expansion Joints
    - 07 71 33 Manufactured Scuppers
  - 07 72 00 Roof Accessories**
    - 07 72 13 Manufactured Curbs
    - 07 72 23 Relief Vents
    - 07 72 26 Ridge Vents
    - 07 72 33 Roof Hatches
    - 07 72 36 Smoke Vents
    - 07 72 43 Roof Walk Boards
    - 07 72 46 Roof Walkways
    - 07 72 53 Snow Guards
    - 07 72 63 Waste Containment Assemblies
  - 07 76 00 Roof Pavers**
    - 07 76 13 Roof Ballast Pavers
    - 07 76 16 Roof Decking Pavers
  - 07 77 00 Wall Specialties**
- 07 80 00 FIRE AND SMOKE PROTECTION**
  - 07 81 00 Applied Fireproofing**
    - 07 81 13 Cement Aggregate Fireproofing
    - 07 81 16 Cementitious Fireproofing
    - 07 81 19 Foamed Magnesium -Oxychloride Fireproofing
    - 07 81 23 Intumescent Mastic Fireproofing
    - 07 81 26 Magnesium Cement Fireproofing
    - 07 81 29 Mineral-Fiber Cementitious Fireproofing
    - 07 81 33 Mineral-Fiber Fireproofing
  - 07 82 00 Board Fireproofing**
    - 07 82 13 Calcium -Silicate Board Fireproofing
    - 07 82 16 Slag-Fiber Board Fireproofing
  - 07 84 00 Firestopping**
    - 07 84 13 Penetration Firestopping

- 07 84 13.13 Penetration Firestopping Mortars
- 07 84 13.16 Penetration Firestopping Devices
- 07 84 16 Annular Space Protection
- 07 84 23 Silicone Firestopping Foams
- 07 84 26 Thermal Barriers for Plastics
- 07 84 43 Fire-Resistant Joint Sealants
- 07 84 53 Building Perimeter Firestopping
- 07 84 56 Fire Safing
- 07 84 56.13 Fibrous Fire Safing
- 07 86 00 Smoke Seals**
- 07 87 00 Smoke Containment Barriers**
- 07 90 00 JOINT PROTECTION**
- 07 91 00 Preformed Joint Seals**
- 07 91 13 Compression Seals
- 07 91 16 Joint Gaskets
- 07 91 23 Backer Rods
- 07 91 26 Joint Fillers
- 07 92 00 Joint Sealants**
- 07 92 13 Elastomeric Joint Sealants
- 07 92 16 Rigid Joint Sealants
- 07 92 19 Acoustical Joint Sealants
- 07 95 00 Expansion Control**
- 07 95 13 Expansion Joint Cover Assemblies
- 07 95 53 Joint Slide Bearings
- 07 95 63 Bridge Expansion Joint Cover Assemblies

## DIVISION 08 – OPENINGS

### 08 00 00 OPENINGS

#### 08 01 00 Operation and Maintenance of Openings

- 08 01 10 Operation and Maintenance of Doors and Frames
- 08 01 11 Operation and Maintenance of Metal Doors and Frames
- 08 01 14 Operation and Maintenance of Wood Doors
- 08 01 15 Operation and Maintenance of Plastic Doors
- 08 01 16 Operation and Maintenance of Composite Doors
- 08 01 17 Operation and Maintenance of Integrated Door Opening Assemblies
- 08 01 30 Operation and Maintenance of Specialty Doors and Frames
- 08 01 32 Operation and Maintenance of Sliding Glass Doors
- 08 01 33 Operation and Maintenance of Coiling Doors and Grilles
- 08 01 34 Operation and Maintenance of Special Function Doors
- 08 01 35 Operation and Maintenance of Folding Doors and Grilles
- 08 01 36 Operation and Maintenance of Panel Doors
- 08 01 39 Operation and Maintenance of Traffic Doors
- 08 01 40 Operation and Maintenance of Entrances, Storefronts, and Curtain Walls
- 08 01 41 Operation and Maintenance of Entrances
- 08 01 42 Operation and Maintenance of Storefronts
- 08 01 44 Operation and Maintenance of Curtain Walls
- 08 01 50 Operation and Maintenance of Windows
- 08 01 51 Operation and Maintenance of Metal Windows
- 08 01 52 Operation and Maintenance of Wood Windows
  - 08 01 52.61 Wood Window Repairs
  - 08 01 52.71 Wood Window Rehabilitation
  - 08 01 52.81 Wood Window Replacement
  - 08 01 52.91 Wood Window Restoration
  - 08 01 52.93 Historic Treatment of Wood Windows
- 08 01 53 Operation and Maintenance of Plastic Windows
- 08 01 54 Operation and Maintenance of Composite Windows
- 08 01 56 Operation and Maintenance of Special Function Windows
- 08 01 60 Operation and Maintenance of Skylights and Roof Windows
- 08 01 61 Operation and Maintenance of Roof Windows
- 08 01 62 Operation and Maintenance of Unit Skylights
- 08 01 63 Operation and Maintenance of Metal-Framed Skylights
- 08 01 64 Operation and Maintenance of Plastic-Framed Skylights
- 08 01 70 Operation and Maintenance of Hardware
- 08 01 71 Operation and Maintenance of Door Hardware
- 08 01 74 Operation and Maintenance of Access Control Hardware
- 08 01 75 Operation and Maintenance of Window Hardware
- 08 01 80 Maintenance of Glazing
- 08 01 81 Maintenance of Glass Glazing
- 08 01 84 Maintenance of Plastic Glazing
- 08 01 88 Maintenance of Special Function Glazing
- 08 01 90 Operation and Maintenance of Louvers and Vents
- 08 01 91 Operation and Maintenance of Louvers
- 08 01 92 Operation and Maintenance of Louvered Equipment Enclosures

- 08 01 95 Operation and Maintenance of Vents
- 08 05 00 Common Work Results for Openings**
- 08 06 00 Schedules for Openings**
  - 08 06 10 Door Schedule
    - 08 06 10.13 Door Type Schedule
    - 08 06 10.16 Frame Type Schedule
  - 08 06 40 Schedules for Entrances, Storefronts, and Curtain Walls
  - 08 06 41 Entrance Schedule
  - 08 06 42 Storefront Schedule
  - 08 06 50 Window Schedule
  - 08 06 60 Skylight Schedule
  - 08 06 70 Hardware Schedule
  - 08 06 71 Door Hardware Schedule
  - 08 06 80 Glazing Schedule
  - 08 06 90 Louver and Vent Schedule
- 08 08 00 Commissioning of Openings**
- 08 10 00 DOORS AND FRAMES**
  - 08 11 00 Metal Doors and Frames**
    - 08 11 13 Hollow Metal Doors and Frames
      - 08 11 13.13 Standard Hollow Metal Doors and Frames
      - 08 11 13.16 Custom Hollow Metal Doors and Frames
    - 08 11 16 Aluminum Doors and Frames
    - 08 11 19 Stainless-Steel Doors and Frames
    - 08 11 23 Bronze Doors and Frames
    - 08 11 63 Metal Screen and Storm Doors and Frames
      - 08 11 63.13 Steel Screen and Storm Doors and Frames
      - 08 11 63.23 Aluminum Screen and Storm Doors and Frames
    - 08 11 66 Metal Screen Doors and Frames
      - 08 11 66.13 Steel Screen Doors and Frames
      - 08 11 66.23 Aluminum Screen Doors and Frames
    - 08 11 69 Metal Storm Doors and Frames
      - 08 11 69.13 Steel Storm Doors and Frames
      - 08 11 69.23 Aluminum Storm Doors and Frames
    - 08 11 73 Sliding Metal Firedoors
    - 08 11 74 Sliding Metal Grilles
  - 08 12 00 Metal Frames**
    - 08 12 13 Hollow Metal Frames
      - 08 12 13.13 Standard Hollow Metal Frames
      - 08 12 13.53 Custom Hollow Metal Frames
    - 08 12 16 Aluminum Frames
    - 08 12 19 Stainless-Steel Frames
    - 08 12 23 Bronze Frames
  - 08 13 00 Metal Doors**
    - 08 13 13 Hollow Metal Doors
      - 08 13 13.13 Standard Hollow Metal Doors
      - 08 13 13.53 Custom Hollow Metal Doors
    - 08 13 16 Aluminum Doors
    - 08 13 19 Stainless-Steel Doors
    - 08 13 23 Bronze Doors
    - 08 13 73 Sliding Metal Doors
    - 08 13 76 Bifolding Metal Doors



**08 14 00 Wood Doors**

- 08 14 13 Carved Wood Doors
- 08 14 16 Flush Wood Doors
- 08 14 23 Clad Wood Doors
  - 08 14 23.13 Metal-Faced Wood Doors
  - 08 14 23.16 Plastic-Laminate-Faced Wood Doors
  - 08 14 23.19 Molded-Hardboard-Faced Wood Doors
- 08 14 29 Prefinished Wood Doors
- 08 14 33 Stile and Rail Wood Doors
- 08 14 66 Wood Screen Doors
- 08 14 69 Wood Storm Doors
- 08 14 73 Sliding Wood Doors
- 08 14 76 Bifolding Wood Doors

**08 15 00 Plastic Doors**

- 08 15 13 Laminated Plastic Doors
- 08 15 16 Solid Plastic Doors
- 08 15 66 Plastic Screen Doors
- 08 15 69 Plastic Storm Doors
- 08 15 73 Sliding Plastic Doors
- 08 15 76 Bifolding Plastic Doors

**08 16 00 Composite Doors**

- 08 16 13 Fiberglass Doors
- 08 16 73 Sliding Composite Doors
- 08 16 76 Bifolding Composite Doors

**08 17 00 Integrated Door Opening Assemblies**

- 08 17 13 Integrated Metal Door Opening Assemblies
- 08 17 23 Integrated Wood Door Opening Assemblies
- 08 17 33 Integrated Plastic Door Opening Assemblies
- 08 17 43 Integrated Composite Door Opening Assemblies

08 20 00 *Unassigned*

**08 30 00 SPECIALTY DOORS AND FRAMES**

**08 31 00 Access Doors and Panels**

- 08 31 13 Access Doors and Frames
  - 08 31 13.53 Security Access Doors and Frames
- 08 31 16 Access Panels and Frames

**08 32 00 Sliding Glass Doors**

- 08 32 13 Sliding Aluminum-Framed Glass Doors
- 08 32 16 Sliding Plastic-Framed Glass Doors
- 08 32 19 Sliding Wood-Framed Glass Doors

**08 33 00 Coiling Doors and Grilles**

- 08 33 13 Coiling Counter Doors
- 08 33 16 Coiling Counter Grilles
- 08 33 23 Overhead Coiling Doors
- 08 33 26 Overhead Coiling Grilles
- 08 33 33 Side Coiling Doors
- 08 33 36 Side Coiling Grilles

**08 34 00 Special Function Doors**

- 08 34 13 Cold Storage Doors
- 08 34 16 Hangar Doors

- 08 34 19 Industrial Doors
- 08 34 33 Lightproof Doors
- 08 34 36 Darkroom Doors
- 08 34 46 Radio-Frequency-Interference Shielding Doors
- 08 34 49 Radiation Shielding Doors and Frames
  - 08 34 49.13 Neutron Shielding Doors and Frames
- 08 34 53 Security Doors and Frames
- 08 34 56 Security Gates
- 08 34 59 Vault Doors and Day Gates
- 08 34 63 Detention Doors and Frames
  - 08 34 63.13 Steel Detention Doors and Frames
  - 08 34 63.16 Steel Plate Detention Doors and Frames
  - 08 34 63.33 Detention Door Frame Protection
- 08 34 73 Sound Control Door Assemblies
- 08 35 00 Folding Doors and Grilles**
  - 08 35 13 Folding Doors
    - 08 35 13.13 Accordion Folding Doors
    - 08 35 13.23 Folding Fire Doors
    - 08 35 13.33 Panel Folding Doors
  - 08 35 16 Folding Grilles
    - 08 35 16.13 Accordion Folding Grilles
- 08 36 00 Panel Doors**
  - 08 36 13 Sectional Doors
  - 08 36 16 Single-Panel Doors
  - 08 36 19 Multi-Leaf Vertical Lift Doors
  - 08 36 23 Telescoping Vertical Lift Doors
- 08 38 00 Traffic Doors**
  - 08 38 13 Flexible Strip Doors
  - 08 38 16 Flexible Traffic Doors
  - 08 38 19 Rigid Traffic Doors
- 08 39 00 Pressure-Resistant Doors**
  - 08 39 13 Airtight Doors
  - 08 39 19 Watertight Doors
  - 08 39 53 Blast-Resistant Doors
- 08 40 00 ENTRANCES, STOREFRONTS, AND CURTAIN WALLS**
  - 08 41 00 Entrances and Storefronts**
    - 08 41 13 Aluminum-Framed Entrances and Storefronts
    - 08 41 16 Bronze-Framed Entrances and Storefronts
    - 08 41 19 Stainless-Steel-Framed Entrances and Storefronts
    - 08 41 23 Steel-Framed Entrances and Storefronts
    - 08 41 26 All-Glass Entrances and Storefronts
  - 08 42 00 Entrances**
    - 08 42 26 All-Glass Entrances
    - 08 42 29 Automatic Entrances
      - 08 42 29.13 Folding Automatic Entrances
      - 08 42 29.23 Sliding Automatic Entrances
      - 08 42 29.33 Swinging Automatic Entrances
    - 08 42 33 Revolving Door Entrances
      - 08 42 33.13 Security Revolving Door Entrances
    - 08 42 36 Balanced Door Entrances
    - 08 42 39 Pressure-Resistant Entrances

- 08 42 43 Intensive Care Unit/Critical Care Unit Entrances
- 08 43 00 Storefronts**
  - 08 43 13 Aluminum-Framed Storefronts
  - 08 43 16 Bronze-Framed Storefronts
  - 08 43 19 Stainless-Steel-Framed Storefronts
  - 08 43 23 Steel-Framed Storefronts
  - 08 43 26 All-Glass Storefronts
  - 08 43 29 Sliding Storefronts
- 08 44 00 Curtain Wall and Glazed Assemblies**
  - 08 44 13 Glazed Aluminum Curtain Walls
  - 08 44 16 Glazed Bronze Curtain Walls
  - 08 44 19 Glazed Stainless-Steel Curtain Walls
  - 08 44 26 Structural Glass Curtain Walls
    - 08 44 26.13 Structural Sealant Glazed Assemblies
  - 08 44 33 Sloped Glazing Assemblies
- 08 45 00 Translucent Wall and Roof Assemblies**
  - 08 45 13 Structured-Polycarbonate-Panel Assemblies
  - 08 45 23 Fiberglass-Sandwich-Panel Assemblies
- 08 50 00 WINDOWS**
  - 08 51 00 Metal Windows**
    - 08 51 13 Aluminum Windows
    - 08 51 16 Bronze Windows
    - 08 51 19 Stainless-Steel Windows
    - 08 51 23 Steel Windows
    - 08 51 66 Metal Window Screens
    - 08 51 69 Metal Storm Windows
  - 08 52 00 Wood Windows**
    - 08 52 13 Metal-Clad Wood Windows
    - 08 52 16 Plastic-Clad Wood Windows
    - 08 52 66 Wood Window Screens
    - 08 52 69 Wood Storm Windows
  - 08 53 00 Plastic Windows**
    - 08 53 13 Vinyl Windows
    - 08 53 66 Vinyl Window Screens
    - 08 53 69 Vinyl Storm Windows
  - 08 54 00 Composite Windows**
    - 08 54 13 Fiberglass Windows
    - 08 54 66 Fiberglass Window Screens
    - 08 54 69 Fiberglass Storm Windows
  - 08 55 00 Pressure-Resistant Windows**
  - 08 56 00 Special Function Windows**
    - 08 56 19 Pass Windows
    - 08 56 46 Radio-Frequency-Interference Shielding Windows
    - 08 56 49 Radiation Shielding Windows
    - 08 56 53 Security Windows
    - 08 56 56 Security Window Screens
    - 08 56 59 Service and Teller Window Units
    - 08 56 63 Detention Windows
    - 08 56 66 Detention Window Screens

08 56 73 Sound Control Windows

**08 60 00 ROOF WINDOWS AND SKYLIGHTS**

**08 61 00 Roof Windows**

08 61 13 Metal Roof Windows

08 61 16 Wood Roof Windows

**08 62 00 Unit Skylights**

08 62 13 Domed Unit Skylights

08 62 16 Pyramidal Unit Skylights

08 62 19 Vaulted Unit Skylights

**08 63 00 Metal-Framed Skylights**

08 63 13 Domed Metal-Framed Skylights

08 63 16 Pyramidal Metal-Framed Skylights

08 63 19 Vaulted Metal-Framed Skylights

08 63 23 Ridge Metal-Framed Skylights

08 63 53 Motorized Metal-Framed Skylights

**08 64 00 Plastic-Framed Skylights**

**08 67 00 Skylight Protection and Screens**

**08 70 00 HARDWARE**

**08 71 00 Door Hardware**

08 71 13 Automatic Door Operators

08 71 53 Security Door Hardware

08 71 63 Detention Door Hardware

**08 74 00 Access Control Hardware**

08 74 13 Card Key Access Control Hardware

08 74 16 Keypad Access Control Hardware

08 74 19 Biometric Identity Access Control Hardware

**08 75 00 Window Hardware**

08 75 13 Automatic Window Equipment

08 75 16 Window Operators

**08 78 00 Special Function Hardware**

**08 79 00 Hardware Accessories**

08 79 13 Key Storage Equipment

**08 80 00 GLAZING**

**08 81 00 Glass Glazing**

08 81 13 Decorative Glass Glazing

**08 83 00 Mirrors**

08 83 13 Mirrored Glass Glazing

08 83 16 Mirrored Plastic Glazing

**08 84 00 Plastic Glazing**

08 84 13 Decorative Plastic Glazing

**08 85 00 Glazing Accessories**

**08 87 00 Glazing Surface Films**

08 87 13 Solar Control Films

08 87 16 Safety Films

08 87 53 Security Films

**08 88 00 Special Function Glazing**

08 88 19 Hurricane-Resistant Glazing

- 08 88 23 Cable Suspended Glazing
- 08 88 33 Transparent Mirrored Glazing
- 08 88 39 Pressure-Resistant Glazing
- 08 88 49 Radiation-Resistant Glazing
- 08 88 53 Security Glazing
- 08 88 56 Ballistics-Resistant Glazing

**08 90 00 LOUVERS AND VENTS**

**08 91 00 Louvers**

- 08 91 13 Motorized Wall Louvers
- 08 91 16 Operable Wall Louvers
- 08 91 19 Fixed Louvers
- 08 91 26 Door Louvers

**08 92 00 Louvered Equipment Enclosures**

**08 95 00 Vents**

- 08 95 13 Soffit Vents
- 08 95 16 Wall Vents

## DIVISION 09 – FINISHES

### 09 00 00 FINISHES

#### 09 01 00 Maintenance of Finishes

- 09 01 20 Maintenance of Plaster and Gypsum Board
  - 09 01 20.91 Plaster Restoration
- 09 01 30 Maintenance of Tiling
  - 09 01 30.91 Tile Restoration
- 09 01 50 Maintenance of Ceilings
- 09 01 60 Maintenance of Flooring
  - 09 01 60.91 Flooring Restoration
- 09 01 70 Maintenance of Wall Finishes
  - 09 01 70.91 Wall Finish Restoration
- 09 01 80 Maintenance of Acoustic Treatment
- 09 01 90 Maintenance of Painting and Coating
  - 09 01 90.51 Paint Cleaning
  - 09 01 90.52 Maintenance Repainting
  - 09 01 90.53 Maintenance Coatings
  - 09 01 90.61 Repainting
  - 09 01 90.91 Paint Restoration
  - 09 01 90.92 Coating Restoration
  - 09 01 90.93 Paint Preservation

#### 09 05 00 Common Work Results for Finishes

- 09 05 13 Common Finishes

#### 09 06 00 Schedules for Finishes

- 09 06 00.13 Room Finish Schedule
- 09 06 20 Schedules for Plaster and Gypsum Board
- 09 06 30 Schedules for Tiling
- 09 06 50 Schedules for Ceilings
- 09 06 60 Schedules for Flooring
- 09 06 70 Schedules for Wall Finishes
- 09 06 80 Schedules for Acoustical Treatment
- 09 06 90 Schedules for Painting and Coating
  - 09 06 90.13 Paint Schedule

#### 09 08 00 Commissioning of Finishes

09 10 00 *Unassigned*

### 09 20 00 PLASTER AND GYPSUM BOARD

#### 09 21 00 Plaster and Gypsum Board Assemblies

- 09 21 13 Plaster Assemblies
- 09 21 16 Gypsum Board Assemblies
  - 09 21 16.23 Gypsum Board Shaft Wall Assemblies
  - 09 21 16.33 Gypsum Board Area Separation Wall Assemblies

#### 09 22 00 Supports for Plaster and Gypsum Board

- 09 22 13 Metal Furring
  - 09 22 13.13 Metal Channel Furring
  - 09 22 13.23 Resilient Channel Furring
- 09 22 16 Non-Structural Metal Framing

- 09 22 16.13 Non-Structural Metal Stud Framing
- 09 22 26 Suspension Systems
  - 09 22 26.23 Metal Suspension Systems
  - 09 22 26.33 Plastic Suspension Systems
- 09 22 36 Lath
  - 09 22 36.13 Gypsum Lath
  - 09 22 36.23 Metal Lath
- 09 22 39 Veneer Plaster Base
- 09 23 00 Gypsum Plastering**
  - 09 23 13 Acoustical Gypsum Plastering
  - 09 23 82 Fireproof Gypsum Plastering
- 09 24 00 Portland Cement Plastering**
  - 09 24 13 Adobe Finish
  - 09 24 23 Portland Cement Stucco
  - 09 24 33 Portland Cement Parging
- 09 25 00 Other Plastering**
  - 09 25 13 Acrylic Plastering
    - 09 25 13.13 Acrylic Plaster Finish
  - 09 25 23 Lime Based Plastering
- 09 26 00 Veneer Plastering**
  - 09 26 13 Gypsum Veneer Plastering
- 09 27 00 Plaster Fabrications**
  - 09 27 13 Glass-Fiber-Reinforced Plaster Fabrications
  - 09 27 23 Simulated Plaster Fabrications
- 09 28 00 Backing Boards and Underlayments**
  - 09 28 13 Cementitious Backing Boards
  - 09 28 16 Glass-Mat Faced Gypsum Backing Boards
  - 09 28 19 Fibered Gypsum Backing Boards
- 09 29 00 Gypsum Board**
  - 09 29 82 Gypsum Board Fireproofing
- 09 30 00 TILING**
  - 09 30 13 Ceramic Tiling
  - 09 30 16 Quarry Tiling
  - 09 30 19 Paver Tiling
  - 09 30 23 Glass Mosaic Tiling
  - 09 30 26 Plastic Tiling
  - 09 30 29 Metal Tiling
  - 09 30 33 Stone Tiling
- 09 31 00 Thin-Set Tiling**
  - 09 31 13 Thin-Set Ceramic Tiling
  - 09 31 16 Thin-Set Quarry Tiling
  - 09 31 19 Thin-Set Paver Tiling
  - 09 31 23 Thin-Set Glass Mosaic Tiling
  - 09 31 26 Thin-Set Plastic Tiling
  - 09 31 29 Thin-Set Metal Tiling
  - 09 31 33 Thin-Set Stone Tiling
- 09 32 00 Mortar-Bed Tiling**
  - 09 32 13 Mortar-Bed Ceramic Tiling
  - 09 32 16 Mortar-Bed Quarry Tiling
  - 09 32 19 Mortar-Bed Paver Tiling

- 09 32 23 Mortar-Bed Glass Mosaic Tiling
- 09 32 26 Mortar-Bed Plastic Tiling
- 09 32 29 Mortar-Bed Metal Tiling
- 09 32 33 Mortar-Bed Stone Tiling

**09 33 00 Conductive Tiling**

- 09 33 13 Conductive Ceramic Tiling
- 09 33 16 Conductive Quarry Tiling
- 09 33 19 Conductive Paver Tiling
- 09 33 23 Conductive Glass Mosaic Tiling
- 09 33 26 Conductive Plastic Tiling
- 09 33 29 Conductive Metal Tiling
- 09 33 33 Conductive Stone Tiling

**09 34 00 Waterproofing-Membrane Tiling**

- 09 34 13 Waterproofing-Membrane Ceramic Tiling
- 09 34 16 Waterproofing-Membrane Quarry Tiling
- 09 34 19 Waterproofing-Membrane Paver Tiling
- 09 34 23 Waterproofing-Membrane Glass Mosaic Tiling
- 09 34 26 Waterproofing-Membrane Plastic Tiling
- 09 34 29 Waterproofing-Membrane Metal Tiling
- 09 34 33 Waterproofing-Membrane Stone Tiling

**09 35 00 Chemical-Resistant Tiling**

- 09 35 13 Chemical-Resistant Ceramic Tiling
- 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
- 09 35 29 Chemical-Resistant Metal Tiling
- 09 35 33 Chemical-Resistant Stone Tiling

09 40 00 *Unassigned*

**09 50 00 CEILINGS**

**09 51 00 Acoustical Ceilings**

- 09 51 13 Acoustical Panel Ceilings
- 09 51 23 Acoustical Tile 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**

- 09 53 13 Curved Profile Ceiling Suspension Assemblies
- 09 53 23 Metal Acoustical Ceiling Suspension Assemblies
- 09 53 33 Plastic Acoustical Ceiling Suspension Assemblies

**09 54 00 Specialty Ceilings**

- 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 Linear 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 56 00 Textured Ceilings**
  - 09 56 13 Gypsum-Panel Textured Ceilings
  - 09 56 16 Metal-Panel Textured Ceilings
- 09 57 00 Special Function Ceilings**
  - 09 57 53 Security Ceiling Assemblies
- 09 58 00 Integrated Ceiling Assemblies**
- 09 60 00 FLOORING**
  - 09 61 00 Flooring Treatment**
    - 09 61 13 Slip-Resistant Flooring Treatment
    - 09 61 36 Static-Resistant Flooring Treatment
  - 09 62 00 Specialty Flooring**
    - 09 62 13 Asphaltic Plank Flooring
    - 09 62 19 Laminate Flooring
    - 09 62 23 Bamboo Flooring
    - 09 62 26 Leather Flooring
    - 09 62 29 Cork Flooring
    - 09 62 35 Acid-Resistant Flooring
    - 09 62 48 Acoustic Flooring
  - 09 63 00 Masonry Flooring**
    - 09 63 13 Brick Flooring
      - 09 63 13.35 Chemical-Resistant Brick Flooring
    - 09 63 40 Stone Flooring
    - 09 63 43 Composition Stone Flooring
  - 09 64 00 Wood Flooring**
    - 09 64 16 Wood Block Flooring
    - 09 64 19 Wood Composition Flooring
    - 09 64 23 Wood Parquet Flooring
      - 09 64 23.13 Acrylic-Impregnated Wood Parquet Flooring
    - 09 64 29 Wood Strip and Plank Flooring
    - 09 64 33 Laminated Wood Flooring
    - 09 64 53 Resilient Wood Flooring Assemblies
    - 09 64 66 Wood Athletic Flooring
  - 09 65 00 Resilient Flooring**
    - 09 65 13 Resilient Base and Accessories
      - 09 65 13.13 Resilient Base
      - 09 65 13.23 Resilient Stair Treads and Risers
      - 09 65 13.26 Resilient Stair Nosings
      - 09 65 13.33 Resilient Accessories
      - 09 65 13.36 Resilient Carpet Transitions
    - 09 65 16 Resilient Sheet Flooring
      - 09 65 16.13 Linoleum Flooring
    - 09 65 19 Resilient Tile Flooring
    - 09 65 33 Conductive Resilient Flooring
    - 09 65 36 Static-Control Resilient Flooring
      - 09 65 36.13 Static-Dissipative Resilient Flooring
      - 09 65 36.16 Static-Resistant Resilient Flooring
    - 09 65 66 Resilient Athletic Flooring
  - 09 66 00 Terrazzo Flooring**
    - 09 66 13 Portland Cement Terrazzo Flooring

- 09 66 13.13 Sand Cushion Terrazzo Flooring
- 09 66 13.16 Monolithic Terrazzo Flooring
- 09 66 13.19 Bonded Terrazzo Flooring
- 09 66 13.23 Palladina Terrazzo Flooring
- 09 66 13.26 Rustic Terrazzo Flooring
- 09 66 13.33 Structural Terrazzo Flooring
- 09 66 16 Terrazzo Floor Tile
  - 09 66 16.13 Portland Cement Terrazzo Floor Tile
  - 09 66 16.16 Plastic-Matrix Terrazzo Floor Tile
- 09 66 23 Resinous Matrix Terrazzo Flooring
  - 09 66 23.13 Polyacrylate Modified Cementitious Terrazzo Flooring
  - 09 66 23.16 Epoxy-Resin Terrazzo Flooring
  - 09 66 23.19 Polyester-Resin Terrazzo Flooring
- 09 66 33 Conductive Terrazzo Flooring
  - 09 66 33.13 Conductive Epoxy-Resin Terrazzo
  - 09 66 33.16 Conductive Polyester-Resin Terrazzo Flooring
  - 09 66 33.19 Conductive Plastic-Matrix Terrazzo Flooring
- 09 67 00 Fluid-Applied Flooring**
  - 09 67 13 Elastomeric Liquid Flooring
    - 09 67 13.33 Conductive Elastomeric Liquid Flooring
  - 09 67 16 Epoxy-Marble Chip Flooring
  - 09 67 19 Magnesium-Oxychloride Flooring
  - 09 67 23 Resinous Flooring
  - 09 67 26 Quartz Flooring
  - 09 67 66 Fluid-Applied Athletic Flooring
- 09 68 00 Carpeting**
  - 09 68 13 Tile Carpeting
  - 09 68 16 Sheet Carpeting
- 09 69 00 Access Flooring**
  - 09 69 13 Rigid-Grid Access Flooring
  - 09 69 16 Snap-on Stringer Access Flooring
  - 09 69 19 Stringerless Access Flooring
  - 09 69 53 Access Flooring Accessories
  - 09 69 56 Access Flooring Stairs and Stringers
- 09 70 00 WALL FINISHES**
  - 09 72 00 Wall Coverings**
    - 09 72 13 Cork Wall Coverings
    - 09 72 16 Vinyl-Coated Fabric Wall Coverings
      - 09 72 16.13 Flexible Vinyl Wall Coverings
      - 09 72 16.16 Rigid-Sheet Vinyl Wall Coverings
    - 09 72 19 Textile Wall Coverings
    - 09 72 23 Wallpapering
  - 09 73 00 Wall Carpeting**
  - 09 74 00 Flexible Wood Sheets**
    - 09 74 13 Wood Wall Coverings
    - 09 74 16 Flexible Wood Veneers
  - 09 75 00 Stone Facing**
  - 09 76 00 Plastic Blocks**
  - 09 77 00 Special Wall Surfacing**
    - 09 77 13 Stretched-Fabric Wall Systems
    - 09 77 23 Fabric-Wrapped Panels

**09 80 00 ACOUSTIC TREATMENT**

**09 81 00 Acoustic Insulation**

- 09 81 13 Acoustic Board Insulation
- 09 81 16 Acoustic Blanket Insulation
- 09 81 29 Sprayed Acoustic Insulation

**09 83 00 Acoustic Finishes**

- 09 83 13 Acoustic Wall Coating
- 09 83 16 Acoustic Ceiling Coating
- 09 83 22 Acoustic Drapery

**09 84 00 Acoustic Room Components**

- 09 84 13 Fixed Sound-Absorptive Panels
- 09 84 16 Fixed Sound-Reflective Panels
- 09 84 23 Moveable Sound-Absorptive Panels
- 09 84 26 Moveable Sound-Reflective Panels
- 09 84 33 Sound-Absorbing Wall Units
- 09 84 36 Sound-Absorbing Ceiling Units

**09 90 00 PAINTING AND COATING**

**09 91 00 Painting**

- 09 91 13 Exterior Painting
- 09 91 23 Interior Painting

**09 93 00 Staining and Transparent Finishing**

- 09 93 13 Exterior Staining and Finishing
  - 09 93 13.13 Exterior Staining
  - 09 93 13.53 Exterior Finishing
- 09 93 23 Interior Staining and Finishing
  - 09 93 23.13 Interior Staining
  - 09 93 23.53 Interior Finishing

**09 94 00 Decorative Finishing**

- 09 94 13 Textured Finishing
- 09 94 16 Faux Finishing
- 09 94 19 Multicolor Interior Finishing

**09 96 00 High-Performance Coatings**

- 09 96 13 Abrasion-Resistant Coatings
- 09 96 23 Graffiti-Resistant Coatings
- 09 96 26 Marine Coatings
- 09 96 33 High-Temperature-Resistant Coatings
- 09 96 35 Chemical-Resistant Coatings
- 09 96 43 Fire-Retardant Coatings
- 09 96 46 Intumescent Painting
- 09 96 53 Elastomeric Coatings
- 09 96 56 Epoxy Coatings
- 09 96 59 High-Build Glazed Coatings
- 09 96 63 Textured Plastic Coatings
- 09 96 66 Aggregate Wall Coatings

**09 97 00 Special Coatings**

- 09 97 13 Steel Coatings
  - 09 97 13.13 Interior Steel Coatings
  - 09 97 13.23 Exterior Steel Coatings
- 09 97 23 Concrete and Masonry Coatings
- 09 97 26 Cementitious Coatings

- 09 97 26.13 Interior Cementitious Coatings
- 09 97 26.23 Exterior Cementitious Coatings

## DIVISION 10 – SPECIALTIES

### 10 00 00 SPECIALTIES

#### 10 01 00 Operation and Maintenance of Specialties

- 10 01 10 Operation and Maintenance of Information Specialties
- 10 01 20 Operation and Maintenance of Interior Specialties
- 10 01 30 Operation and Maintenance of Fireplaces and Stoves
- 10 01 40 Operation and Maintenance of Safety Specialties
- 10 01 50 Operation and Maintenance of Storage Specialties
- 10 01 70 Operation and Maintenance of Exterior Specialties
- 10 01 80 Operation and Maintenance of Other Specialties

#### 10 05 00 Common Work Results for Specialties

#### 10 06 00 Schedules for Specialties

- 10 06 10 Schedules for Information Specialties
  - 10 06 10.13 Exterior Signage Schedule
  - 10 06 10.16 Interior Signage Schedule
- 10 06 20 Schedules for Interior Specialties
  - 10 06 20.13 Toilet, Bath, and Laundry Accessory Schedule
- 10 06 30 Schedules for Fireplaces and Stoves
- 10 06 40 Schedules for Safety Specialties
- 10 06 50 Schedules for Storage Specialties
- 10 06 70 Schedules for Exterior Specialties
- 10 06 80 Schedules for Other Specialties

#### 10 08 00 Commissioning of Specialties

### 10 10 00 INFORMATION SPECIALTIES

#### 10 11 00 Visual Display Surfaces

- 10 11 13 Chalkboards
  - 10 11 13.13 Fixed Chalkboards
  - 10 11 13.23 Modular-Support-Mounted Chalkboards
  - 10 11 13.33 Rail-Mounted Chalkboards
  - 10 11 13.43 Portable Chalkboards
- 10 11 16 Markerboards
  - 10 11 16.13 Fixed Markerboards
  - 10 11 16.23 Modular-Support-Mounted Markerboards
  - 10 11 16.33 Rail-Mounted Markerboards
  - 10 11 16.43 Portable Markerboards
  - 10 11 16.53 Electronic Markerboards
- 10 11 23 Tackboards
  - 10 11 23.13 Fixed Tackboards
  - 10 11 23.23 Modular-Support-Mounted Tackboards
  - 10 11 23.33 Rail-Mounted Tackboards
  - 10 11 23.43 Portable Tackboards
- 10 11 33 Sliding Visual Display Units
  - 10 11 33.13 Horizontal-Sliding Visual Display Units
  - 10 11 33.23 Vertical-Sliding Visual Display Units
- 10 11 36 Visual Display Conference Units
- 10 11 39 Visual Display Rails
- 10 11 43 Visual Display Wall Panels

- 10 11 46 Visual Display Fabrics
- 10 12 00 Display Cases**
- 10 13 00 Directories**
  - 10 13 13 Electronic Directories
- 10 14 00 Signage**
  - 10 14 16 Plaques
  - 10 14 19 Dimensional Letter Signage
  - 10 14 23 Panel Signage
    - 10 14 23.13 Engraved Panel Signage
  - 10 14 26 Post and Panel/Pylon Signage
  - 10 14 33 Illuminated Panel Signage
  - 10 14 36 Non-Illuminated Panel Signage
  - 10 14 43 Photoluminescent Signage
  - 10 14 53 Traffic Signage
    - 10 14 53.13 Transportation Reference Markers
  - 10 14 63 Electronic Message Signage
  - 10 14 66 Floating Signage
- 10 17 00 Telephone Specialties**
  - 10 17 13 Telephone Directory Units
  - 10 17 16 Telephone Enclosures
    - 10 17 16.13 Telephone Stalls
    - 10 17 16.16 Telephone Alcoves
  - 10 17 19 Telephone Shelving
- 10 18 00 Informational Kiosks**
- 10 20 00 INTERIOR SPECIALTIES**
- 10 21 00 Compartments and Cubicles**
  - 10 21 13 Toilet Compartments
    - 10 21 13.13 Metal Toilet Compartments
    - 10 21 13.16 Plastic-Laminate-Clad Toilet Compartments
    - 10 21 13.19 Plastic Toilet Compartments
    - 10 21 13.23 Particleboard Toilet Compartments
    - 10 21 13.40 Stone Toilet Compartments
  - 10 21 16 Shower and Dressing Compartments
    - 10 21 16.13 Metal Shower and Dressing Compartments
    - 10 21 16.16 Plastic-Laminate-Clad Shower and Dressing Compartments
    - 10 21 16.19 Plastic Shower and Dressing Compartments
    - 10 21 16.23 Particleboard Shower and Dressing Compartments
    - 10 21 16.40 Stone Shower and Dressing Compartments
  - 10 21 23 Cubicles
    - 10 21 23.13 Cubicle Curtains
    - 10 21 23.16 Cubicle Track and Hardware
- 10 22 00 Partitions**
  - 10 22 13 Wire Mesh Partitions
  - 10 22 16 Folding Gates
  - 10 22 19 Demountable Partitions
    - 10 22 19.13 Demountable Metal Partitions
    - 10 22 19.23 Demountable Wood Partitions
    - 10 22 19.33 Demountable Plastic Partitions
    - 10 22 19.43 Demountable Composite Partitions
    - 10 22 19.53 Demountable Gypsum Partitions
  - 10 22 23 Portable Partitions, Screens, and Panels

- 10 22 23.13 Wall Screens
- 10 22 23.23 Movable Panel Systems
- 10 22 26 Operable Partitions
  - 10 22 26.13 Accordion Folding Partitions
  - 10 22 26.23 Coiling Partitions
  - 10 22 26.33 Folding Panel Partitions
  - 10 22 26.43 Sliding Partitions
- 10 25 00 Service Walls**
  - 10 25 13 Patient Bed Service Walls
  - 10 25 16 Modular Service Walls
- 10 26 00 Wall and Door Protection**
  - 10 26 13 Corner Guards
  - 10 26 16 Bumper Guards
    - 10 26 16.13 Bumper Rails
    - 10 26 16.16 Protective Corridor Handrails
  - 10 26 23 Protective Wall Covering
    - 10 26 23.13 Impact Resistant Wall Protection
  - 10 26 33 Door and Frame Protection
- 10 28 00 Toilet, Bath, and Laundry Accessories**
  - 10 28 13 Toilet Accessories
    - 10 28 13.13 Commercial Toilet Accessories
    - 10 28 13.19 Healthcare Toilet Accessories
    - 10 28 13.53 Security Toilet Accessories
    - 10 28 13.63 Detention Toilet Accessories
  - 10 28 16 Bath Accessories
    - 10 28 16.13 Residential Bath Accessories
  - 10 28 19 Tub and Shower Doors
    - 10 28 19.16 Shower Doors
    - 10 28 19.19 Tub Doors
  - 10 28 23 Laundry Accessories
    - 10 28 23.13 Built-In Ironing Boards
    - 10 28 23.16 Clothes Drying Racks
- 10 30 00 FIREPLACES AND STOVES**
  - 10 31 00 Manufactured Fireplaces**
    - 10 31 13 Manufactured Fireplace Chimneys
    - 10 31 16 Manufactured Fireplace Forms
  - 10 32 00 Fireplace Specialties**
    - 10 32 13 Fireplace Dampers
    - 10 32 16 Fireplace Inserts
    - 10 32 19 Fireplace Screens
    - 10 32 23 Fireplace Doors
    - 10 32 26 Fireplace Water Heaters
  - 10 35 00 Stoves**
    - 10 35 13 Heating Stoves
    - 10 35 23 Cooking Stoves
- 10 40 00 SAFETY SPECIALTIES**
  - 10 41 00 Emergency Access and Information Cabinets**
    - 10 41 13 Fire Department Plan Cabinets
    - 10 41 16 Emergency Key Cabinets
  - 10 43 00 Emergency Aid Specialties**

10 43 13 Defibrillator Cabinets

10 43 16 First Aid Cabinets

**10 44 00 Fire Protection Specialties**

10 44 13 Fire Extinguisher Cabinets

10 44 13.53 Security Fire Extinguisher Cabinets

10 44 16 Fire Extinguishers

10 44 16.13 Portable Fire Extinguishers

10 44 16.16 Wheeled Fire Extinguisher Units

10 44 33 Fire Blankets and Cabinets

10 44 43 Fire Extinguisher Accessories

**10 50 00 STORAGE SPECIALTIES**

**10 51 00 Lockers**

10 51 13 Metal Lockers

10 51 16 Wood Lockers

10 51 23 Plastic-Laminate-Clad Lockers

10 51 26 Plastic Lockers

10 51 26.13 Recycled Plastic Lockers

10 51 33 Glass Lockers

10 51 43 Wire Mesh Storage Lockers

10 51 53 Locker Room Benches

**10 55 00 Postal Specialties**

10 55 13 Central Mail Delivery Boxes

10 55 13.13 Cluster Box Units

10 55 16 Mail Collection Boxes

10 55 19 Receiving Boxes

10 55 23 Mail Boxes

10 55 23.13 Apartment Mail Boxes

10 55 23.16 Mail Box Directories

10 55 23.19 Mail Box Key Keepers

10 55 26 Parcel Lockers

10 55 33 Data Distribution Boxes

10 55 36 Package Depositories

10 55 91 Mail Chutes

**10 56 00 Storage Assemblies**

10 56 13 Metal Storage Shelving

10 56 13.13 End-Panel-Support Metal Storage Shelving

10 56 13.16 Post-and-Shelf Metal Storage Shelving

10 56 13.19 Post-and-Beam Metal Storage Shelving

10 56 13.23 Cantilever Metal Storage Shelving

10 56 16 Fabricated Wood Storage Shelving

10 56 19 Plastic Storage Shelving

10 56 19.13 Recycled Plastic Storage Shelving

10 56 23 Wire Storage Shelving

10 56 26 Mobile Storage Shelving

10 56 26.13 Manual Mobile Storage Shelving

10 56 26.23 Motorized Mobile Storage Shelving

10 56 29 Storage Racks



- 10 56 29.13 Flow Storage Racks
- 10 56 29.16 Pallet Storage Racks
- 10 56 29.19 Movable-Shelf Storage Racks
- 10 56 29.23 Stacker Storage Racks
- 10 56 29.26 Cantilever Storage Racks
- 10 56 29.29 Drive-In Storage Racks
- 10 56 29.33 Drive-Through Storage Racks
- 10 56 33 Mercantile Storage Assemblies
- 10 57 00 Wardrobe and Closet Specialties**
- 10 57 13 Hat and Coat Racks
- 10 57 23 Closet and Utility Shelving
  - 10 57 23.13 Wire Closet and Utility Shelving
  - 10 57 23.16 Plastic-Laminate-Clad Closet and Utility Shelving
  - 10 57 23.19 Wood Closet and Utility Shelving
- 10 57 33 Closet and Utility Shelving Hardware
- 10 60 00 Unassigned*
- 10 70 00 EXTERIOR SPECIALTIES**
- 10 71 00 Exterior Protection**
- 10 71 13 Exterior Sun Control Devices
  - 10 71 13.13 Exterior Shutters
  - 10 71 13.19 Rolling Exterior Shutters
  - 10 71 13.23 Coiling Exterior Shutters
  - 10 71 13.26 Decorative Exterior Shutters
  - 10 71 13.29 Side-Hinged Exterior Shutters
  - 10 71 13.43 Fixed Sun Screens
- 10 71 16 Storm Panels
  - 10 71 16.13 Demountable Storm Panels
  - 10 71 16.16 Movable Storm Panels
- 10 73 00 Protective Covers**
- 10 73 13 Awnings
- 10 73 16 Canopies
- 10 73 23 Car Shelters
- 10 73 26 Walkway Coverings
- 10 73 33 Marquees
- 10 73 43 Transportation Stop Shelters
- 10 74 00 Manufactured Exterior Specialties**
- 10 74 13 Exterior Clocks
- 10 74 23 Cupolas
- 10 74 26 Spires
- 10 74 29 Steeples
- 10 74 33 Weathervanes
- 10 74 43 Below-Grade Egress Assemblies
- 10 74 46 Window Wells
- 10 75 00 Flagpoles**
- 10 75 13 Automatic Flagpoles
- 10 75 16 Ground-Set Flagpoles
- 10 75 19 Nautical Flagpoles
- 10 75 23 Wall-Mounted Flagpoles
- 10 80 00 OTHER SPECIALTIES**
- 10 81 00 Pest Control Devices**

10 81 13	Bird Control Devices
10 81 16	Insect Control Devices
10 81 19	Rodent Control Devices
<b>10 82 00</b>	<b>Grilles and Screens</b>
10 82 13	Exterior Grilles and Screens
10 82 23	Interior Grilles and Screens
<b>10 83 00</b>	<b>Flags and Banners</b>
10 83 13	Flags
10 83 16	Banners
<b>10 86 00</b>	<b>Security Mirrors and Domes</b>
<b>10 88 00</b>	<b>Scales</b>
<i>10 90 00</i>	<i>Unassigned</i>

## DIVISION 11 – EQUIPMENT

### 11 00 00 EQUIPMENT

#### 11 01 00 Operation and Maintenance of Equipment

- 11 01 10 Operation and Maintenance of Vehicle and Pedestrian Equipment
- 11 01 15 Operation and Maintenance of Security, Bank, and Detention Equipment
- 11 01 20 Operation and Maintenance of Commercial Equipment
- 11 01 30 Operation and Maintenance of Residential Equipment
- 11 01 40 Operation and Maintenance of Foodservice Equipment
- 11 01 50 Operation and Maintenance of Educational and Scientific Equipment
- 11 01 56 Operation and Maintenance of Observatory Equipment
- 11 01 60 Operation and Maintenance of Entertainment Equipment
- 11 01 65 Operation and Maintenance of Athletic and Recreational Equipment
- 11 01 70 Operation and Maintenance of Healthcare Equipment
- 11 01 80 Operation and Maintenance of Collection and Disposal Equipment
- 11 01 90 Operation and Maintenance of Other Equipment

#### 11 05 00 Common Work Results for Equipment

#### 11 06 00 Schedules for Equipment

- 11 06 10 Schedules for Vehicle and Pedestrian Equipment
- 11 06 15 Schedules for Security, Bank, and Detention Equipment
  - 11 06 15.13 Teller and Service Equipment Schedule
- 11 06 20 Schedules for Commercial Equipment
- 11 06 30 Schedules for Residential Equipment
- 11 06 40 Schedules for Foodservice Equipment
  - 11 06 40.13 Foodservice Equipment Schedule
- 11 06 50 Schedules for Educational and Scientific Equipment
- 11 06 60 Schedules for Entertainment Equipment
- 11 06 65 Schedules for Athletic and Recreational Equipment
- 11 06 70 Schedules for Healthcare Equipment
  - 11 06 70.13 Healthcare Equipment Schedule
- 11 06 80 Schedules for Collection and Disposal Equipment
- 11 06 90 Schedules for Other Equipment

#### 11 08 00 Commissioning of Equipment

### 11 10 00 VEHICLE AND PEDESTRIAN EQUIPMENT

#### 11 11 00 Vehicle Service Equipment

- 11 11 13 Compressed-Air Vehicle Service Equipment
- 11 11 19 Vehicle Lubrication Equipment
- 11 11 23 Tire-Changing Equipment
- 11 11 26 Vehicle-Washing Equipment

#### 11 12 00 Parking Control Equipment

- 11 12 13 Parking Key and Card Control Units
- 11 12 16 Parking Ticket Dispensers
- 11 12 23 Parking Meters
- 11 12 26 Parking Fee Collection Equipment
  - 11 12 26.13 Parking Fee Coin Collection Equipment
- 11 12 33 Parking Gates

#### 11 13 00 Loading Dock Equipment

- 11 13 13 Loading Dock Bumpers
- 11 13 16 Loading Dock Seals and Shelters
  - 11 13 16.13 Loading Dock Seals
  - 11 13 16.23 Loading Dock Shelters
  - 11 13 16.33 Loading Dock Rail Shelters
- 11 13 19 Stationary Loading Dock Equipment
  - 11 13 19.13 Loading Dock Levelers
  - 11 13 19.23 Stationary Loading Dock Lifts
  - 11 13 19.26 Loading Dock Truck Lifts
  - 11 13 19.33 Loading Dock Truck Restraints
- 11 13 23 Portable Dock Equipment
  - 11 13 23.13 Portable Dock Lifts
  - 11 13 23.16 Portable Dock Ramps
  - 11 13 23.19 Portable Dock Bridges
  - 11 13 23.23 Portable Dock Platforms
- 11 13 26 Loading Dock Lights
- 11 14 00 Pedestrian Control Equipment**
  - 11 14 13 Pedestrian Gates
    - 11 14 13.13 Portable Posts and Railings
    - 11 14 13.16 Rotary Gates
    - 11 14 13.19 Turnstiles
  - 11 14 16 Money-Changing Equipment
    - 11 14 16.19 Money-Changing Machines
  - 11 14 26 Pedestrian Fare Collection Equipment
    - 11 14 26.13 Pedestrian Coin Fare Collection Equipment
  - 11 14 43 Pedestrian Detection Equipment
    - 11 14 43.13 Electronic Detection and Counting Systems
  - 11 14 53 Pedestrian Security Equipment
- 11 15 00 SECURITY, DETENTION AND BANKING EQUIPMENT**
  - 11 16 00 Vault Equipment**
    - 11 16 13 Safe Deposit Boxes
    - 11 16 16 Safes
    - 11 16 23 Vault Ventilators
  - 11 17 00 Teller and Service Equipment**
    - 11 17 13 Teller Equipment Systems
    - 11 17 16 Automatic Banking Systems
    - 11 17 23 Money Handling Equipment
    - 11 17 33 Money Cart Pass-Through
    - 11 17 36 Package Transfer Units
  - 11 18 00 Security Equipment**
    - 11 18 13 Deal Drawers
    - 11 18 16 Gun Ports
    - 11 18 23 Valuable Material Storage
  - 11 19 00 Detention Equipment**
    - 11 19 13 Detention Pass-Through Doors
    - 11 19 16 Detention Gun Lockers
- 11 20 00 COMMERCIAL EQUIPMENT**
  - 11 21 00 Mercantile and Service Equipment**
    - 11 21 13 Cash Registers and Checking Equipment
    - 11 21 23 Vending Equipment

- 11 21 23.13 Vending Machines
- 11 21 33 Checkroom Equipment
- 11 21 43 Weighing and Wrapping Equipment
- 11 21 53 Barber and Beauty Shop Equipment
- 11 22 00 Refrigerated Display Equipment**
- 11 23 00 Commercial Laundry and Dry Cleaning Equipment**
  - 11 23 13 Dry Cleaning Equipment
  - 11 23 16 Drying and Conditioning Equipment
  - 11 23 19 Finishing Equipment
  - 11 23 23 Commercial Ironing Equipment
  - 11 23 26 Commercial Washers and Extractors
  - 11 23 33 Coin-Operated Laundry Equipment
  - 11 23 43 Hanging Garment Conveyors
- 11 24 00 Maintenance Equipment**
  - 11 24 13 Floor and Wall Cleaning Equipment
  - 11 24 16 Housekeeping Carts
  - 11 24 19 Vacuum Cleaning Systems
  - 11 24 23 Window Washing Systems
- 11 25 00 Hospitality Equipment**
  - 11 25 13 Registration Equipment
- 11 26 00 Unit Kitchens**
  - 11 26 13 Metal Unit Kitchens
  - 11 26 16 Wood Unit Kitchens
  - 11 26 19 Plastic -Laminate-Clad Unit Kitchens
- 11 27 00 Photographic Processing Equipment**
  - 11 27 13 Darkroom Processing Equipment
  - 11 27 16 Film Transfer Cabinets
- 11 28 00 Office Equipment**
  - 11 28 13 Computers
  - 11 28 16 Printers
  - 11 28 19 Self-Contained Facsimile Machines
  - 11 28 23 Copiers
- 11 29 00 Postal, Packaging, and Shipping Equipment**
  - 11 29 23 Packaging Equipment
  - 11 29 33 Shipping Equipment
  - 11 29 55 Postal Equipment
- 11 30 00 RESIDENTIAL EQUIPMENT**
  - 11 31 00 Residential Appliances**
    - 11 31 13 Residential Kitchen Appliances
    - 11 31 23 Residential Laundry Appliances
  - 11 33 00 Retractable Stairs**
- 11 40 00 FOODSERVICE EQUIPMENT**
  - 11 41 00 Food Storage Equipment**
    - 11 41 13 Refrigerated Food Storage Cases
    - 11 41 23 Walk-In Coolers
    - 11 41 26 Walk-In Freezers
  - 11 42 00 Food Preparation Equipment**
  - 11 43 00 Food Delivery Carts and Conveyors**

- 11 43 13 Food Delivery Carts
- 11 43 16 Food Delivery Conveyors
- 11 44 00 Food Cooking Equipment**
  - 11 44 13 Commercial Ranges
  - 11 44 16 Commercial Ovens
- 11 46 00 Food Dispensing Equipment**
  - 11 46 13 Bar Equipment
  - 11 46 16 Service Line Equipment
  - 11 46 19 Soda Fountain Equipment
- 11 47 00 Ice Machines**
- 11 48 00 Cleaning and Disposal Equipment**
  - 11 48 13 Commercial Dishwashers
- 11 50 00 EDUCATIONAL AND SCIENTIFIC EQUIPMENT**
  - 11 51 00 Library Equipment**
    - 11 51 13 Automated Book Storage and Retrieval Systems
    - 11 51 16 Book Depositories
    - 11 51 19 Book Theft Protection Equipment
    - 11 51 23 Library Stack Systems
      - 11 51 23.13 Metal Library Shelving
  - 11 52 00 Audio-Visual Equipment**
    - 11 52 13 Projection Screens
      - 11 52 13.13 Fixed Projection Screens
      - 11 52 13.16 Portable Projection Screens
      - 11 52 13.19 Rear Projection Screens
    - 11 52 16 Projectors
      - 11 52 16.13 Movie Projectors
      - 11 52 16.16 Slide Projectors
      - 11 52 16.19 Overhead Projectors
      - 11 52 16.23 Opaque Projectors
      - 11 52 16.26 Video Projectors
    - 11 52 19 Players and Recorders
  - 11 53 00 Laboratory Equipment**
    - 11 53 13 Laboratory Fume Hoods
      - 11 53 13.13 Recirculating Laboratory Fume Hoods
    - 11 53 16 Laboratory Incubators
    - 11 53 19 Laboratory Sterilizers
    - 11 53 23 Laboratory Refrigerators
    - 11 53 33 Emergency Safety Appliances
    - 11 53 43 Service Fittings and Accessories
    - 11 53 53 Biological Safety Cabinets
  - 11 55 00 Planetarium Equipment**
    - 11 55 13 Planetarium Projectors
    - 11 55 16 Planetarium Pendulums
  - 11 56 00 Observatory Equipment**
    - 11 56 13 Telescopes
    - 11 56 16 Telescope Mounts
    - 11 56 19 Telescope Drive Mechanisms
    - 11 56 23 Telescope Domes
  - 11 57 00 Vocational Shop Equipment**
  - 11 59 00 Exhibit Equipment**

**11 60 00 ENTERTAINMENT EQUIPMENT**

**11 61 00 Theater and Stage Equipment**

- 11 61 13 Acoustical Shells
- 11 61 23 Folding and Portable Stages
- 11 61 33 Rigging Systems and Controls
- 11 61 43 Stage Curtains

**11 62 00 Musical Equipment**

- 11 62 13 Bells
- 11 62 16 Carillons
- 11 62 19 Organs

**11 65 00 ATHLETIC AND RECREATIONAL EQUIPMENT**

**11 66 00 Athletic Equipment**

- 11 66 13 Exercise Equipment
- 11 66 23 Gymnasium Equipment
  - 11 66 23.13 Basketball Equipment
  - 11 66 23.23 Volleyball Equipment
  - 11 66 23.33 Interior Tennis Equipment
  - 11 66 23.43 Interior Track and Field Equipment
  - 11 66 23.53 Wall Padding
  - 11 66 23.56 Mat Storage
- 11 66 43 Interior Scoreboards
- 11 66 53 Gymnasium Dividers
  - 11 66 53.13 Batting/Golf Cages

**11 67 00 Recreational Equipment**

- 11 67 13 Bowling Alley Equipment
- 11 67 23 Shooting Range Equipment
- 11 67 33 Climbing Walls
- 11 67 43 Table Games Equipment
  - 11 67 43.13 Pool Tables
  - 11 67 43.23 Ping-Pong Tables
- 11 67 53 Game Room Equipment
  - 11 67 53.13 Video Games
  - 11 67 53.23 Pinball Machines

**11 68 00 Play Field Equipment and Structures**

- 11 68 13 Playground Equipment
- 11 68 16 Play Structures
- 11 68 23 Exterior Court Athletic Equipment
  - 11 68 23.13 Exterior Basketball Equipment
  - 11 68 23.23 Exterior Volleyball Equipment
  - 11 68 23.33 Tennis Equipment
- 11 68 33 Athletic Field Equipment
  - 11 68 33.13 Football Field Equipment
  - 11 68 33.23 Soccer and Field Hockey Equipment
  - 11 68 33.33 Baseball Field Equipment
  - 11 68 33.43 Track and Field Equipment
- 11 68 43 Exterior Scoreboards

**11 70 00 HEALTHCARE EQUIPMENT**

**11 71 00 Medical Sterilizing Equipment**

**11 72 00 Examination and Treatment Equipment**

- 11 72 13 Examination Equipment

- 11 72 53 Treatment Equipment
- 11 73 00 Patient Care Equipment**
- 11 74 00 Dental Equipment**
- 11 75 00 Optical Equipment**
- 11 76 00 Operating Room Equipment**
- 11 77 00 Radiology Equipment**
- 11 78 00 Mortuary Equipment**
  - 11 78 13 Mortuary Refrigerators
  - 11 78 16 Crematorium Equipment
  - 11 78 19 Mortuary Lifts
- 11 79 00 Therapy Equipment**
- 11 80 00 COLLECTION AND DISPOSAL EQUIPMENT**
- 11 82 00 Solid Waste Handling Equipment**
  - 11 82 13 Solid Waste Bins
  - 11 82 19 Packaged Incinerators
  - 11 82 23 Recycling Equipment
  - 11 82 26 Waste Compactors and Destructors
  - 11 82 29 Composting Equipment
- 11 90 00 OTHER EQUIPMENT**
- 11 91 00 Religious Equipment**
  - 11 91 13 Baptisteries
- 11 92 00 Agricultural Equipment**
  - 11 92 13 Milkers
  - 11 92 16 Stock Feeders
  - 11 92 19 Stock Waterers
  - 11 92 23 Agricultural Waste Clean-Up Equipment
- 11 93 00 Horticultural Equipment**
  - 11 93 13 Hydroponic Growing Systems
  - 11 93 16 Seeders
  - 11 93 19 Transplanters
  - 11 93 23 Potting Machines
  - 11 93 26 Flat Fillers
  - 11 93 29 Baggers
  - 11 93 33 Soil Mixers



## DIVISION 12 – FURNISHINGS

### 12 00 00 FURNISHINGS

#### 12 01 00 Operation and Maintenance of Furnishings

- 12 01 10 Operation and Maintenance of Art
- 12 01 20 Operation and Maintenance of Window Treatments
- 12 01 30 Operation and Maintenance of Casework
- 12 01 40 Operation and Maintenance of Furnishings and Accessories
- 12 01 50 Operation and Maintenance of Furniture
- 12 01 60 Operation and Maintenance of Multiple Seating
- 12 01 90 Operation and Maintenance of Other Furnishings

#### 12 05 00 Common Work Results for Furnishings

- 12 05 13 Fabrics

#### 12 06 00 Schedules for Furnishings

- 12 06 10 Schedules for Art
- 12 06 20 Schedules for Window Treatments
  - 12 06 20.13 Window Treatment Schedule
- 12 06 30 Schedules for Casework
  - 12 06 30.13 Manufactured Casework Schedule
- 12 06 40 Schedules for Furnishings and Accessories
  - 12 06 40.13 Furnishings Schedule
- 12 06 50 Schedules for Furniture
- 12 06 60 Schedules for Multiple Seating
- 12 06 90 Schedules for Other Furnishings

#### 12 08 00 Commissioning of Furnishings

### 12 10 00 ART

#### 12 11 00 Murals

- 12 11 13 Photo Murals
- 12 11 16 Sculptured Brick Panels
- 12 11 23 Brick Murals
- 12 11 26 Ceramic Tile Murals
- 12 11 33 Trompe l'oeil

#### 12 12 00 Wall Decorations

- 12 12 13 Commissioned Paintings
- 12 12 16 Framed Paintings
- 12 12 19 Framed Prints
- 12 12 23 Tapestries
- 12 12 26 Wall Hangings

#### 12 14 00 Sculptures

- 12 14 13 Carved Sculpture
- 12 14 16 Cast Sculpture
- 12 14 19 Constructed Sculpture
- 12 14 23 Relief Art

#### 12 17 00 Art Glass

- 12 17 13 Etched Glass
- 12 17 16 Stained Glass

#### 12 19 00 Religious Art

**12 20 00 WINDOW TREATMENTS**

**12 21 00 Window Blinds**

- 12 21 13 Horizontal Louver Blinds
  - 12 21 13.13 Metal Horizontal Louver Blinds
  - 12 21 13.23 Wood Horizontal Louver Blinds
  - 12 21 13.33 Plastic Horizontal Louver Blinds
- 12 21 16 Vertical Louver Blinds
  - 12 21 16.13 Metal Vertical Louver Blinds
  - 12 21 16.23 Wood Vertical Louver Blinds
  - 12 21 16.33 Plastic Vertical Louver Blinds
- 12 21 23 Roll-Down Blinds
- 12 21 26 Black-Out Blinds

**12 22 00 Curtains and Drapes**

- 12 22 13 Draperies
- 12 22 16 Drapery Track and Accessories

**12 23 00 Interior Shutters**

**12 24 00 Window Shades**

- 12 24 13 Roller Window Shades
- 12 24 16 Pleated Window Shades

**12 25 00 Window Treatment Operating Hardware**

- 12 25 13 Motorized Drapery Rods

**12 30 00 CASEWORK**

**12 31 00 Manufactured Metal Casework**

- 12 31 16 Manufactured Metal Sandwich Panel Casework

**12 32 00 Manufactured Wood Casework**

- 12 32 13 Manufactured Wood-Veneer-Faced Casework
- 12 32 16 Manufactured Plastic-Laminate-Clad Casework

**12 34 00 Manufactured Plastic Casework**

- 12 34 16 Manufactured Solid-Plastic Casework

**12 35 00 Specialty Casework**

- 12 35 17 Bank Casework
- 12 35 25 Hospitality Casework
- 12 35 30 Residential Casework
  - 12 35 30.13 Kitchen Casework
  - 12 35 30.23 Bathroom Casework
  - 12 35 30.43 Dormitory Casework
- 12 35 33 Utility Room Casework
- 12 35 50 Educational/Library Casework
  - 12 35 50.13 Educational Casework
  - 12 35 50.53 Library Casework
  - 12 35 50.56 Built-In Study Carrels
- 12 35 53 Laboratory Casework
  - 12 35 53.13 Metal Laboratory Casework
  - 12 35 53.16 Plastic-Laminate-Clad Laboratory Casework
  - 12 35 53.19 Wood Laboratory Casework
  - 12 35 53.23 Solid-Plastic Laboratory Casework
- 12 35 59 Display Casework
- 12 35 70 Healthcare Casework

- 12 35 70.13 Hospital Casework
- 12 35 70.16 Nurse Station Casework
- 12 35 70.19 Exam Room Casework
- 12 35 70.74 Dental Casework
- 12 35 91 Religious Casework

**12 36 00 Countertops**

- 12 36 13 Concrete Countertops
- 12 36 16 Metal Countertops
- 12 36 19 Wood Countertops
- 12 36 23 Plastic Countertops
  - 12 36 23.13 Plastic-Laminate-Clad Countertops
- 12 36 40 Stone Countertops
- 12 36 53 Laboratory Countertops
- 12 36 61 Simulated Stone Countertops
  - 12 36 61.13 Cultured Marble Countertops
  - 12 36 61.16 Solid Surfacing Countertops
  - 12 36 61.19 Quartz Surfacing Countertops

**12 40 00 FURNISHINGS AND ACCESSORIES**

**12 41 00 Office Accessories**

- 12 41 13 Desk Accessories

**12 42 00 Table Accessories**

- 12 42 13 Ceramics
- 12 42 16 Flatware
  - 12 42 16.13 Silverware
- 12 42 19 Hollowware
- 12 42 23 Glassware
- 12 42 26 Table Linens
  - 12 42 26.13 Napery

**12 43 00 Portable Lamps**

- 12 43 13 Lamps
  - 12 43 13.13 Desk Lamps
  - 12 43 13.16 Table Lamps
  - 12 43 13.19 Floor Lamps

**12 44 00 Bath Furnishings**

- 12 44 13 Bath Linens
  - 12 44 13.13 Bath Mats
  - 12 44 13.16 Bath Towels
- 12 44 16 Shower Curtains

**12 45 00 Bedroom Furnishings**

- 12 45 13 Bed Linens
  - 12 45 13.13 Blankets
  - 12 45 13.16 Comforters
- 12 45 16 Pillows

**12 46 00 Furnishing Accessories**

- 12 46 13 Ash Receptacles
- 12 46 16 Bowls
- 12 46 19 Clocks
- 12 46 23 Decorative Crafts
- 12 46 26 Decorative Screens
- 12 46 29 Vases
- 12 46 33 Waste Receptacles

**12 48 00 Rugs and Mats**

- 12 48 13 Entrance Floor Mats and Frames
  - 12 48 13.13 Entrance Floor Mats
  - 12 48 13.16 Entrance Floor Mat Frames
- 12 48 16 Entrance Floor Grilles
- 12 48 19 Entrance Floor Gratings
- 12 48 23 Entrance Floor Grids
- 12 48 26 Entrance Tile
- 12 48 43 Floor Mats
  - 12 48 43.13 Chair Mats
- 12 48 53 Rugs
  - 12 48 53.13 Runners
  - 12 48 53.16 Oriental Rugs

**12 50 00 FURNITURE**

**12 51 00 Office Furniture**

- 12 51 16 Case Goods
  - 12 51 16.13 Metal Case Goods
  - 12 51 16.16 Wood Case Goods
  - 12 51 16.19 Plastic-Laminate-Clad Case Goods
- 12 51 19 Filing Cabinets
  - 12 51 19.13 Lateral Filing Cabinets
  - 12 51 19.16 Vertical Filing Cabinets
- 12 51 83 Custom Office Furniture

**12 52 00 Seating**

- 12 52 13 Chairs
- 12 52 19 Upholstered Seating
- 12 52 23 Office Seating
- 12 52 70 Healthcare Seating
- 12 52 83 Custom Seating

**12 53 00 Retail Furniture**

- 12 53 83 Custom Retail Furniture

**12 54 00 Hospitality Furniture**

- 12 54 13 Hotel and Motel Furniture
- 12 54 16 Restaurant Furniture
- 12 54 83 Custom Hospitality Furniture

**12 55 00 Detention Furniture**

- 12 55 13 Detention Bunks
- 12 55 16 Detention Desks
- 12 55 19 Detention Stools
- 12 55 23 Detention Tables
- 12 55 26 Detention Safety Clothes Hooks
- 12 55 83 Custom Detention Furniture

**12 56 00 Institutional Furniture**

- 12 56 33 Classroom Furniture
- 12 56 39 Lecterns
- 12 56 43 Dormitory Furniture
- 12 56 51 Library Furniture
  - 12 56 51.13 Book Shelves
  - 12 56 51.16 Study Carrels
  - 12 56 51.19 Index Card File Cabinets
- 12 56 52 Audio-Visual Furniture

- 12 56 53 Laboratory Furniture
- 12 56 70 Healthcare Furniture
- 12 56 83 Custom Institutional Furniture
- 12 57 00 Industrial Furniture**
  - 12 57 13 Welding Benches
  - 12 57 16 Welding Screens
  - 12 57 83 Custom Industrial Furniture
- 12 58 00 Residential Furniture**
  - 12 58 13 Couches and Loveseats
    - 12 58 13.13 Futons
  - 12 58 16 Residential Chairs
    - 12 58 16.13 Reclining Chairs
  - 12 58 19 Dining Tables and Chairs
  - 12 58 23 Coffee Tables
  - 12 58 26 Entertainment Centers
  - 12 58 29 Beds
    - 12 58 29.13 Daybeds
  - 12 58 33 Dressers
    - 12 58 33.13 Armoires
  - 12 58 36 Nightstands
  - 12 58 83 Custom Residential Furniture
- 12 59 00 Systems Furniture**
  - 12 59 13 Panel-Hung Component System Furniture
  - 12 59 16 Free-Standing Component System Furniture
  - 12 59 19 Beam System Furniture
  - 12 59 23 Desk System Furniture
  - 12 59 83 Custom Systems Furniture
- 12 60 00 MULTIPLE SEATING**
  - 12 61 00 Fixed Audience Seating**
    - 12 61 13 Upholstered Audience Seating
    - 12 61 16 Molded-Plastic Audience Seating
  - 12 62 00 Portable Audience Seating**
    - 12 62 13 Folding Chairs
    - 12 62 16 Interlocking Chairs
    - 12 62 19 Stacking Chairs
  - 12 63 00 Stadium and Arena Seating**
    - 12 63 13 Stadium and Arena Bench Seating
    - 12 63 23 Stadium and Arena Seats
  - 12 64 00 Booths and Tables**
  - 12 65 00 Multiple-Use Fixed Seating**
  - 12 66 00 Telescoping Stands**
    - 12 66 13 Telescoping Bleachers
    - 12 66 23 Telescoping Chair Platforms
  - 12 67 00 Pews and Benches**
    - 12 67 13 Pews
    - 12 67 23 Benches
  - 12 68 00 Seat and Table Assemblies**
    - 12 68 13 Pedestal Tablet Arm Chairs
- 12 70 00 *Unassigned*

12 80 00 *Unassigned*

**12 90 00 OTHER FURNISHINGS**

**12 92 00 Interior Planters and Artificial Plants**

- 12 92 13 Interior Artificial Plants
- 12 92 33 Interior Planters
- 12 92 43 Interior Landscaping Accessories

**12 93 00 Site Furnishings**

- 12 93 13 Bicycle Racks
- 12 93 23 Trash and Litter Receptors
- 12 93 33 Manufactured Planters
- 12 93 43 Site Seating and Tables
  - 12 93 43.13 Site Seating
  - 12 93 43.53 Site Tables

## DIVISION 13 – SPECIAL CONSTRUCTION

### 13 00 00 SPECIAL CONSTRUCTION

#### 13 01 00 Operation and Maintenance of Special Construction

- 13 01 10 Operation and Maintenance of Special Facility Components
- 13 01 11 Operation and Maintenance of Swimming Pools
- 13 01 12 Operation and Maintenance of Fountains
- 13 01 13 Operation and Maintenance of Aquariums
- 13 01 14 Operation and Maintenance of Amusement Park Structures and Equipment
- 13 01 18 Operation and Maintenance of Ice Rinks
- 13 01 20 Operation and Maintenance of Special Purpose Rooms
- 13 01 21 Operation and Maintenance of Controlled Environment Rooms
- 13 01 23 Operation and Maintenance of Planetariums
- 13 01 30 Operation and Maintenance of Special Structures
- 13 01 40 Operation and Maintenance of Integrated Construction
- 13 01 49 Operation and Maintenance of Radiation Protection
- 13 01 50 Operation and Maintenance of Special Instrumentation
- 13 01 51 Operation and Maintenance of Stress Instrumentation
- 13 01 52 Operation and Maintenance of Seismic Instrumentation
- 13 01 53 Operation and Maintenance of Meteorological Instrumentation

#### 13 05 00 Common Work Results for Special Construction

#### 13 06 00 Schedules for Special Construction

- 13 06 10 Schedules for Special Facility Components
- 13 06 20 Schedules for Special Purpose Rooms
- 13 06 30 Schedules for Special Structures
- 13 06 40 Schedules for Integrated Construction
- 13 06 50 Schedules for Special Instrumentation

#### 13 08 00 Commissioning of Special Construction

- 13 08 10 Commissioning of Special Facility Components
- 13 08 11 Commissioning of Swimming Pools
- 13 08 12 Commissioning of Fountains
- 13 08 13 Commissioning of Aquariums
- 13 08 14 Commissioning of Amusement Park Structures and Equipment
- 13 08 18 Commissioning of Ice Rinks
- 13 08 20 Commissioning of Special Purpose Rooms
- 13 08 21 Commissioning of Controlled Environment Rooms
- 13 08 23 Commissioning of Planetariums
- 13 08 30 Commissioning of Special Structures
- 13 08 40 Commissioning of Integrated Construction
- 13 08 50 Commissioning of Special Instrumentation

### 13 10 00 SPECIAL FACILITY COMPONENTS

#### 13 11 00 Swimming Pools

- 13 11 13 Below-Grade Swimming Pools
- 13 11 23 On-Grade Swimming Pools
- 13 11 33 Elevated Swimming Pools
- 13 11 43 Recirculating Gutter Systems
- 13 11 46 Swimming Pool Accessories

- 13 11 49 Swimming Pool Cleaning Equipment
- 13 11 53 Movable Pool Bulkheads
- 13 11 56 Movable Pool Floors
- 13 12 00 Fountains**
- 13 12 13 Exterior Fountains
- 13 12 23 Interior Fountains
- 13 13 00 Aquariums**
- 13 14 00 Amusement Park Structures and Equipment**
- 13 14 13 Water Slides
- 13 14 16 Wave Generating Equipment
- 13 14 23 Amusement Park Rides
- 13 17 00 Tubs and Pools**
- 13 17 13 Hot Tubs
- 13 17 23 Therapeutic Pools
- 13 17 33 Whirlpool Tubs
- 13 18 00 Ice Rinks**
- 13 18 13 Ice Rink Floor Systems
- 13 18 16 Ice Rink Dasher Boards
- 13 19 00 Kennels and Animal Shelters**
- 13 19 13 Kennel Enclosures and Gates
- 13 19 16 Kennel Feeding Devices
- 13 20 00 SPECIAL PURPOSE ROOMS**
- 13 21 00 Controlled Environment Rooms**
- 13 21 13 Clean Rooms
- 13 21 16 Hyperbaric Rooms
- 13 21 23 Insulated Rooms
- 13 21 26 Cold Storage Rooms
- 13 21 29 Constant Temperature Rooms
- 13 21 48 Sound-Conditioned Rooms
- 13 22 00 Office Shelters and Booths**
- 13 23 00 Planetariums**
- 13 24 00 Special Activity Rooms**
- 13 24 16 Saunas
- 13 24 26 Steam Baths
- 13 24 66 Athletic Rooms
- 13 26 00 Fabricated Rooms**
- 13 27 00 Vaults**
- 13 27 16 Modular Fire Vaults
- 13 27 53 Security Vaults
- 13 27 53.13 Modular Concrete Security Vaults
- 13 27 53.16 Modular Metal-Clad Laminated Security Vaults
- 13 28 00 Athletic and Recreational Special Construction**
- 13 28 13 Indoor Soccer Boards
- 13 28 16 Safety Netting
- 13 28 19 Arena Football Boards
- 13 28 26 Floor Sockets
- 13 28 33 Athletic and Recreational Court Walls
- 13 28 66 Demountable Athletic Surfaces



## **13 30 00 SPECIAL STRUCTURES**

### **13 31 00 Fabric Structures**

- 13 31 13 Air-Supported Fabric Structures
  - 13 31 13.13 Single-Walled Air-Supported Structures
  - 13 31 13.16 Multiple-Walled Air-Supported Structures
- 13 31 23 Tensioned Fabric Structures
- 13 31 33 Framed Fabric Structures

### **13 32 00 Space Frames**

- 13 32 13 Metal Space Frames
- 13 32 23 Wood Space Frames

### **13 33 00 Geodesic Structures**

- 13 33 13 Geodesic Domes

### **13 34 00 Fabricated Engineered Structures**

- 13 34 13 Glazed Structures
  - 13 34 13.13 Greenhouses
  - 13 34 13.16 Solariums
  - 13 34 13.19 Swimming Pool Enclosures
  - 13 34 13.23 Sunrooms
  - 13 34 13.26 Conservatories
- 13 34 16 Grandstands and Bleachers
  - 13 34 16.13 Grandstands
  - 13 34 16.53 Bleachers
- 13 34 19 Metal Building Systems
- 13 34 23 Fabricated Structures
  - 13 34 23.13 Portable and Mobile Buildings
  - 13 34 23.16 Fabricated Control Booths
  - 13 34 23.19 Fabricated Dome Structures
  - 13 34 23.23 Fabricated Substation Control Rooms
- 13 34 56 Observatories

### **13 36 00 Towers**

- 13 36 13 Metal Towers
  - 13 36 13.13 Steel Towers
- 13 36 23 Wood Towers

## **13 40 00 INTEGRATED CONSTRUCTION**

### **13 42 00 Building Modules**

- 13 42 25 Hospitality Unit Modules
- 13 42 33 Apartment Unit Modules
- 13 42 43 Dormitory Unit Modules
- 13 42 63 Detention Cell Modules
  - 13 42 63.13 Precast-Concrete Detention Cell Modules
  - 13 42 63.16 Steel Detention Cell Modules

### **13 44 00 Modular Mezzanines**

### **13 48 00 Sound, Vibration, and Seismic Control**

- 13 48 13 Manufactured Sound and Vibration Control Components
- 13 48 23 Fabricated Sound and Vibration Control Assemblies
- 13 48 53 Manufactured Seismic Control Components
- 13 48 63 Fabricated Seismic Control Assemblies

### **13 49 00 Radiation Protection**

- 13 49 13 Lead Sheet
- 13 49 16 Lead Bricks
- 13 49 19 Lead-Lined Materials

13 49 19.13 Lead-Lined Lath  
13 49 23 Modular Shielding Partitions

**13 50 00 SPECIAL INSTRUMENTATION**

**13 51 00 Stress Instrumentation**

**13 52 00 Seismic Instrumentation**

**13 53 00 Meteorological Instrumentation**

13 53 13 Solar Instrumentation

13 53 23 Wind Instrumentation

*13 60 00 Unassigned*

*13 70 00 Unassigned*

*13 80 00 Unassigned*

*13 90 00 Unassigned*

## **DIVISION 14 – CONVEYING EQUIPMENT**

### **14 00 00 CONVEYING EQUIPMENT**

#### **14 01 00 Operation and Maintenance of Conveying Equipment**

- 14 01 10 Operation and Maintenance of Dumbwaiters
  - 14 01 10.71 Dumbwaiter Rehabilitation
- 14 01 20 Operation and Maintenance of Elevators
  - 14 01 20.71 Elevator Rehabilitation
- 14 01 30 Operation and Maintenance of Escalators and Moving Walks
  - 14 01 30.71 Escalators and Moving Walks Rehabilitation
- 14 01 40 Operation and Maintenance of Lifts
  - 14 01 40.71 Lifts Rehabilitation
- 14 01 70 Operation and Maintenance of Turntables
- 14 01 80 Operation and Maintenance of Scaffolding
- 14 01 90 Operation and Maintenance of Other Conveying Equipment

#### **14 05 00 Common Work Results for Conveying Equipment**

#### **14 06 00 Schedules for Conveying Equipment**

- 14 06 10 Schedules for Dumbwaiters
- 14 06 20 Schedules for Elevators
  - 14 06 20.13 Elevator Equipment Schedule
- 14 06 30 Schedules for Escalators and Moving Walks
- 14 06 40 Schedules for Lifts
  - 14 06 40.13 Lift Schedule
- 14 06 70 Schedules for Turntables
- 14 06 80 Schedules for Scaffolding
- 14 06 90 Schedules for Other Conveying Equipment

#### **14 08 00 Commissioning of Conveying Equipment**

- 14 08 10 Commissioning of Dumbwaiters
- 14 08 20 Commissioning of Elevators
- 14 08 30 Commissioning of Escalators and Moving Walks
- 14 08 40 Commissioning of Lifts
- 14 08 70 Commissioning of Turntables
- 14 08 80 Commissioning of Scaffolding

### **14 10 00 DUMBWAITERS**

- 14 11 00 Manual Dumbwaiters**
- 14 12 00 Electric Dumbwaiters**
- 14 14 00 Hydraulic Dumbwaiters**

### **14 20 00 ELEVATORS**

- 14 21 00 Electric Traction Elevators**
  - 14 21 13 Electric Traction Freight Elevators
  - 14 21 23 Electric Traction Passenger Elevators
  - 14 21 33 Electric Traction Residential Elevators
  - 14 21 43 Electric Traction Service Elevators
- 14 24 00 Hydraulic Elevators**
  - 14 24 13 Hydraulic Freight Elevators
  - 14 24 23 Hydraulic Passenger Elevators

- 14 24 33 Hydraulic Residential Elevators
- 14 24 43 Hydraulic Service Elevators
- 14 26 00 Limited-Use/Limited-Application Elevators**
- 14 27 00 Custom Elevator Cabs**
  - 14 27 13 Custom Elevator Cab Finishes
- 14 28 00 Elevator Equipment and Controls**
  - 14 28 13 Elevator Doors
  - 14 28 16 Elevator Controls
  - 14 28 19 Elevator Equipment
    - 14 28 19.13 Elevator Safety Equipment
    - 14 28 19.16 Elevator Hoistway Equipment
- 14 30 00 ESCALATORS AND MOVING WALKS**
  - 14 31 00 Escalators**
  - 14 32 00 Moving Walks**
  - 14 33 00 Moving Ramps**
    - 14 33 13 Motorized Ramps
    - 14 33 16 Powered Ramps
- 14 40 00 LIFTS**
  - 14 41 00 People Lifts**
    - 14 41 13 Counterbalanced People Lifts
    - 14 41 16 Endless-Belt People Lifts
  - 14 42 00 Wheelchair Lifts**
    - 14 42 13 Inclined Wheelchair Lifts
    - 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 50 00 *Unassigned*
  - 14 60 00 *Unassigned*
- 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**

## **DIVISION 21 – FIRE SUPPRESSION**

### **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 12 26 Fire-Suppression Valve and Hose Cabinets

#### **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 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
- 21 50 00 *Unassigned*
- 21 60 00 *Unassigned*
- 21 70 00 *Unassigned*
- 21 80 00 *Unassigned*
- 21 90 00 *Unassigned*

## DIVISION 22 – PLUMBING

### 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 AND PUMPS

#### 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 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 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 20 00 *Unassigned*

**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 13.19 Heating-Fluid-in-U-Tube-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 16 Residential Lavatories and Sinks
- 22 41 19 Residential Bathtubs
- 22 41 23 Residential Shower Receptors and Basins
- 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 16 Commercial Lavatories and Sinks
- 22 42 19 Commercial Bathtubs
- 22 42 23 Commercial Shower Receptors and Basins
- 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 and Showers
- 22 43 23 Healthcare Shower Receptors and Basins
- 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 16 Security Lavatories and Sinks
- 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
<b>22 67 00</b>	<b>Processed Water Systems for Laboratory and Healthcare Facilities</b>
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
22 70 00	<i>Unassigned</i>
22 80 00	<i>Unassigned</i>
22 90 00	<i>Unassigned</i>

## DIVISION 23 – HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

### 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 Duct 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 Piping and Equipment
- 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 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 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
    - 23 33 53 Duct Liners
  - 23 34 00 HVAC Fans**
    - 23 34 13 Axial HVAC Fans



- 23 34 16 Centrifugal HVAC Fans
- 23 34 23 HVAC Power Ventilators
- 23 34 33 Air Curtains
- 23 35 00 Special Exhaust Systems**
- 23 35 13 Sawdust Collection Systems
- 23 35 16 Engine Exhaust Systems
  - 23 35 16.13 Positive-Pressure Engine Exhaust Systems
  - 23 35 16.16 Mechanical Engine Exhaust Systems
- 23 36 00 Air Terminal Units**
- 23 36 13 Constant-Air-Volume Units
- 23 36 16 Variable-Air-Volume Units
- 23 37 00 Air Outlets and Inlets**
- 23 37 13 Diffusers, Registers, and Grilles
- 23 37 16 Fabric Air Distribution Devices
- 23 37 23 HVAC Gravity Ventilators
  - 23 37 23.13 HVAC Gravity Dome Ventilators
  - 23 37 23.16 HVAC Gravity Louvered-Penthouse Ventilators
  - 23 37 23.19 HVAC Gravity Upblast Ventilators
- 23 38 00 Ventilation Hoods**
- 23 38 13 Commercial-Kitchen Hoods
  - 23 38 13.13 Listed Commercial-Kitchen Hoods
  - 23 38 13.16 Standard Commercial-Kitchen Hoods
- 23 38 16 Fume Hoods
- 23 40 00 HVAC AIR CLEANING DEVICES**
- 23 41 00 Particulate Air Filtration**
- 23 41 13 Panel Air Filters
- 23 41 16 Renewable-Media Air Filters
- 23 41 19 Washable Air Filters
- 23 41 23 Extended Surface Filters
- 23 41 33 High-Efficiency Particulate Filtration
- 23 41 43 Ultra-Low Penetration Filtration
- 23 41 46 Super Ultra-Low Penetration Filtration
- 23 42 00 Gas-Phase Air Filtration**
- 23 42 13 Activated-Carbon Air Filtration
- 23 42 16 Chemically-Impregnated Adsorption Air Filtration
- 23 42 19 Catalytic-Adsorption Air Filtration
- 23 43 00 Electronic Air Cleaners**
- 23 43 13 Washable Electronic Air Cleaners
- 23 43 16 Agglomerator Electronic Air Cleaners
- 23 43 23 Self-Contained Electronic Air Cleaners
- 23 50 00 CENTRAL HEATING EQUIPMENT**
- 23 51 00 Breechings, Chimneys, and Stacks**
- 23 51 13 Draft Control Devices
  - 23 51 13.13 Draft-Induction Fans
  - 23 51 13.16 Vent Dampers
  - 23 51 13.19 Barometric Dampers
- 23 51 16 Fabricated Breechings and Accessories
- 23 51 19 Fabricated Stacks
- 23 51 23 Gas Vents
- 23 51 33 Insulated Sectional Chimneys

- 23 51 43 Flue-Gas Filtration Equipment
  - 23 51 43.13 Gaseous Filtration
  - 23 51 43.16 Particulate Filtration
- 23 52 00 Heating Boilers**
  - 23 52 13 Electric Boilers
  - 23 52 16 Condensing Boilers
    - 23 52 16.13 Stainless-Steel Condensing Boilers
    - 23 52 16.16 Aluminum Condensing Boilers
  - 23 52 19 Pulse Combustion Boilers
  - 23 52 23 Cast-Iron Boilers
  - 23 52 33 Water-Tube Boilers
    - 23 52 33.13 Finned Water-Tube Boilers
    - 23 52 33.16 Steel Water-Tube Boilers
    - 23 52 33.19 Copper Water-Tube Boilers
  - 23 52 39 Fire-Tube Boilers
    - 23 52 39.13 Scotch Marine Boilers
    - 23 52 39.16 Steel Fire-Tube Boilers
- 23 53 00 Heating Boiler Feedwater Equipment**
  - 23 53 13 Boiler Feedwater Pumps
  - 23 53 16 Deaerators
- 23 54 00 Furnaces**
  - 23 54 13 Electric -Resistance Furnaces
  - 23 54 16 Fuel-Fired Furnaces
    - 23 54 16.13 Gas-Fired Furnaces
    - 23 54 16.16 Oil-Fired Furnaces
- 23 55 00 Fuel-Fired Heaters**
  - 23 55 13 Fuel-Fired Duct Heaters
    - 23 55 13.13 Oil-Fired Duct Heaters
    - 23 55 13.16 Gas-Fired Duct Heaters
  - 23 55 23 Gas-Fired Radiant Heaters
  - 23 55 33 Fuel-Fired Unit Heaters
    - 23 55 33.13 Oil-Fired Unit Heaters
    - 23 55 33.16 Gas-Fired Unit Heaters
- 23 56 00 Solar Energy Heating Equipment**
  - 23 56 13 Heating Solar Collectors
    - 23 56 13.13 Heating Solar Flat-Plate Collectors
    - 23 56 13.16 Heating Solar Concentrating Collectors
    - 23 56 13.19 Heating Solar Vacuum-Tube Collectors
  - 23 56 16 Packaged Solar Heating Equipment
- 23 57 00 Heat Exchangers for HVAC**
  - 23 57 13 Steam-to-Steam Heat Exchangers
  - 23 57 16 Steam-to-Water Heat Exchangers
  - 23 57 19 Liquid-to-Liquid Heat Exchangers
    - 23 57 19.13 Plate-Type, Liquid-to-Liquid Heat Exchangers
    - 23 57 19.16 Shell-Type, Liquid-to-Liquid Heat Exchangers
  - 23 57 33 Direct Geoexchange Heat Exchangers
- 23 60 00 CENTRAL COOLING EQUIPMENT**
  - 23 61 00 Refrigerant Compressors**
    - 23 61 13 Centrifugal Refrigerant Compressors
      - 23 61 13.13 Non-Condensable Gas Purge Equipment
    - 23 61 16 Reciprocating Refrigerant Compressors

- 23 61 19 Scroll Refrigerant Compressors
- 23 61 23 Rotary-Screw Refrigerant Compressors
- 23 62 00 Packaged Compressor and Condenser Units**
  - 23 62 13 Packaged Air-Cooled Refrigerant Compressor and Condenser Units
  - 23 62 23 Packaged Water-Cooled Refrigerant Compressor and Condenser Units
- 23 63 00 Refrigerant Condensers**
  - 23 63 13 Air-Cooled Refrigerant Condensers
  - 23 63 23 Water-Cooled Refrigerant Condensers
  - 23 63 33 Evaporative Refrigerant Condensers
- 23 64 00 Packaged Water Chillers**
  - 23 64 13 Absorption Water Chillers
    - 23 64 13.13 Direct-Fired Absorption Water Chillers
    - 23 64 13.16 Indirect-Fired Absorption Water Chillers
  - 23 64 16 Centrifugal Water Chillers
  - 23 64 19 Reciprocating Water Chillers
  - 23 64 23 Scroll Water Chillers
  - 23 64 26 Rotary-Screw Water Chillers
- 23 65 00 Cooling Towers**
  - 23 65 13 Forced-Draft Cooling Towers
    - 23 65 13.13 Open-Circuit, Forced-Draft Cooling Towers
    - 23 65 13.16 Closed-Circuit, Forced-Draft Cooling Towers
  - 23 65 16 Natural-Draft Cooling Towers
  - 23 65 23 Field-Erected Cooling Towers
  - 23 65 33 Liquid Coolers

## **23 70 00 CENTRAL HVAC EQUIPMENT**

- 23 71 00 Thermal Storage**
  - 23 71 13 Thermal Heat Storage
    - 23 71 13.13 Room Storage Heaters for Thermal Storage
    - 23 71 13.16 Heat-Pump Boosters for Thermal Storage
    - 23 71 13.19 Central Furnace Heat-Storage Units
    - 23 71 13.23 Pressurized-Water Thermal Storage Tanks
  - 23 71 16 Chilled-Water Thermal Storage
  - 23 71 19 Ice Storage
    - 23 71 19.13 Internal Ice-on-Coil Thermal Storage
    - 23 71 19.16 External Ice-on-Coil Thermal Storage
    - 23 71 19.19 Encapsulated-Ice Thermal Storage
    - 23 71 19.23 Ice-Harvesting Thermal Storage
    - 23 71 19.26 Ice-Slurry Thermal Storage
- 23 72 00 Air-to-Air Energy Recovery Equipment**
  - 23 72 13 Heat-Wheel Air-to-Air Energy-Recovery Equipment
  - 23 72 16 Heat-Pipe Air-to-Air Energy-Recovery Equipment
  - 23 72 19 Fixed-Plate Air-to-Air Energy-Recovery Equipment
  - 23 72 23 Packaged Air-to-Air Energy-Recovery Units
- 23 73 00 Indoor Central-Station Air-Handling Units**
  - 23 73 13 Modular Indoor Central-Station Air-Handling Units
  - 23 73 23 Custom Indoor Central-Station Air-Handling Units
  - 23 73 33 Indoor Indirect Fuel-Fired Heating and Ventilating Units
    - 23 73 33.13 Indoor Indirect Oil-Fired Heating and Ventilating Units
    - 23 73 33.16 Indoor Indirect Gas-Fired Heating and Ventilating Units
  - 23 73 39 Indoor, Direct Gas-Fired Heating and Ventilating Units
- 23 74 00 Packaged Outdoor HVAC Equipment**

- 23 74 13 Packaged, Outdoor, Central-Station Air-Handling Units
- 23 74 23 Packaged, Outdoor, Heating-Only Makeup-Air Units
  - 23 74 23.13 Packaged, Direct-Fired, Outdoor, Heating-Only Makeup-Air Units
  - 23 74 23.16 Packaged, Indirect-Fired, Outdoor, Heating-Only Makeup-Air Units
- 23 74 33 Packaged, Outdoor, Heating and Cooling Makeup Air-Conditioners
- 23 75 00 Custom-Packaged Outdoor HVAC Equipment**
  - 23 75 13 Custom -Packaged, Outdoor, Central-Station Air-Handling Units
  - 23 75 23 Custom -Packaged, Outdoor, Heating and Ventilating Makeup-Air Units
  - 23 75 33 Custom -Packaged, Outdoor, Heating and Cooling Makeup Air-Conditioners
- 23 76 00 Evaporative Air-Cooling Equipment**
  - 23 76 13 Direct Evaporative Air Coolers
  - 23 76 16 Indirect Evaporative Air Coolers
  - 23 76 19 Combined Direct and Indirect Evaporative Air Coolers
- 23 80 00 DECENTRALIZED HVAC EQUIPMENT**
  - 23 81 00 Decentralized Unitary HVAC Equipment**
    - 23 81 13 Packaged Terminal Air-Conditioners
    - 23 81 16 Room Air-Conditioners
    - 23 81 19 Self-Contained Air-Conditioners
      - 23 81 19.13 Small-Capacity Self-Contained Air-Conditioners
      - 23 81 19.16 Large-Capacity Self-Contained Air-Conditioners
    - 23 81 23 Computer-Room Air-Conditioners
    - 23 81 26 Split-System Air-Conditioners
    - 23 81 43 Air-Source Unitary Heat Pumps
    - 23 81 46 Water-Source Unitary Heat Pumps
  - 23 82 00 Convection Heating and Cooling Units**
    - 23 82 13 Valance Heating and Cooling Units
    - 23 82 16 Air Coils
    - 23 82 19 Fan Coil Units
    - 23 82 23 Unit Ventilators
    - 23 82 26 Induction Units
    - 23 82 29 Radiators
    - 23 82 33 Convectors
    - 23 82 36 Finned-Tube Radiation Heaters
    - 23 82 39 Unit Heaters
      - 23 82 39.13 Cabinet Unit Heaters
      - 23 82 39.16 Propeller Unit Heaters
      - 23 82 39.19 Wall and Ceiling Unit Heaters
  - 23 83 00 Radiant Heating Units**
    - 23 83 13 Radiant-Heating Electric Cables
      - 23 83 13.16 Radiant-Heating Electric Mats
    - 23 83 16 Radiant-Heating Hydronic Piping
    - 23 83 23 Radiant-Heating Electric Panels
    - 23 83 33 Electric Radiant Heaters
  - 23 84 00 Humidity Control Equipment**
    - 23 84 13 Humidifiers
    - 23 84 16 Dehumidifiers
    - 23 84 19 Indoor Pool and Ice-Rink Dehumidification Units
- 23 90 00 Unassigned**

## DIVISION 25 – INTEGRATED AUTOMATION

### 25 00 00 INTEGRATED AUTOMATION

#### 25 01 00 Operation and Maintenance of Integrated Automation

- 25 01 10 Operation and Maintenance of Integrated Automation Network Equipment
- 25 01 20 Operation and Maintenance of Integrated Equipment
- 25 01 30 Operation and Maintenance of Integrated Automation Instrumentation and Terminal Devices
- 25 01 90 Diagnostic Systems for Integrated Automation

#### 25 05 00 Common Work Results for Integrated Automation

- 25 05 13 Conductors and Cables for Integrated Automation
- 25 05 26 Grounding and Bonding for Integrated Automation
- 25 05 28 Pathways for Integrated Automation
  - 25 05 28.29 Hangers and Supports for Integrated Automation
  - 25 05 28.33 Conduits and Backboxes for Integrated Automation
  - 25 05 28.36 Cable Trays for Integrated Automation
  - 25 05 28.39 Surface Raceways for Integrated Automation
- 25 05 48 Vibration and Seismic Controls for Integrated Automation
- 25 05 53 Identification for Integrated Automation

#### 25 06 00 Schedules for Integrated Automation

- 25 06 11 Schedules for Integrated Automation Network
- 25 06 12 Schedules for Integrated Automation Network Gateways
- 25 06 13 Schedules for Integrated Automation Control and Monitoring Network
- 25 06 14 Schedules for Integrated Automation Local Control Units
- 25 06 30 Schedules for Integrated Automation Instrumentation and Terminal Devices

#### 25 08 00 Commissioning of Integrated Automation

### 25 10 00 INTEGRATED AUTOMATION NETWORK EQUIPMENT

#### 25 11 00 Integrated Automation Network Devices

- 25 11 13 Integrated Automation Network Servers
- 25 11 16 Integrated Automation Network Routers, Bridges, Switches, Hubs, and Modems
- 25 11 19 Integrated Automation Network Operator Workstations

#### 25 12 00 Integrated Automation Network Gateways

- 25 12 13 Hardwired Integration Network Gateways
- 25 12 16 Direct-Protocol Integration Network Gateways
- 25 12 19 Neutral-Protocol Integration Network Gateways
- 25 12 23 Client-Server Information/Database Integration Network Gateways

#### 25 13 00 Integrated Automation Control and Monitoring Network

- 25 13 13 Integrated Automation Control and Monitoring Network Supervisory Control
- 25 13 16 Integrated Automation Control and Monitoring Network Integration Panels
- 25 13 19 Integrated Automation Control and Monitoring Network Interoperability

#### 25 14 00 Integrated Automation Local Control Units

- 25 14 13 Integrated Automation Remote Control Panels
- 25 14 16 Integrated Automation Application-Specific Control Panels
- 25 14 19 Integrated Automation Terminal Control Units
- 25 14 23 Integrated Automation Field Equipment Panels

#### 25 15 00 Integrated Automation Software

- 25 15 13 Integrated Automation Software for Network Gateways
- 25 15 16 Integrated Automation Software for Control and Monitoring Networks

- 25 15 19 Integrated Automation Software for Local Control Units
- 25 20 00 *Unassigned*
- 25 30 00 INTEGRATED AUTOMATION INSTRUMENTATION AND TERMINAL DEVICES**
  - 25 31 00 Integrated Automation Instrumentation and Terminal Devices for Facility Equipment**
  - 25 32 00 Integrated Automation Instrumentation and Terminal Devices for Conveying Equipment**
  - 25 33 00 Integrated Automation Instrumentation and Terminal Devices for Fire-Suppression Systems**
  - 25 34 00 Integrated Automation Instrumentation and Terminal Devices for Plumbing**
  - 25 35 00 Integrated Automation Instrumentation and Terminal Devices for HVAC**
    - 25 35 13 Integrated Automation Actuators and Operators
    - 25 35 16 Integrated Automation Sensors and Transmitters
    - 25 35 19 Integrated Automation Control Valves
    - 25 35 23 Integrated Automation Control Dampers
    - 25 35 26 Integrated Automation Compressed Air Supply
  - 25 36 00 Integrated Automation Instrumentation and Terminal Devices for Electrical Systems**
    - 25 36 13 Integrated Automation Power Meters
    - 25 36 16 Integrated Automation KW Transducers
    - 25 36 19 Integrated Automation Current Sensors
    - 25 36 23 Integrated Automation Battery Monitors
    - 25 36 26 Integrated Automation Lighting Relays
    - 25 36 29 Integrated Automation UPS Monitors
  - 25 37 00 Integrated Automation Instrumentation and Terminal Devices for Communications Systems**
  - 25 38 00 Integrated Automation Instrumentation and Terminal Devices for Electronic Safety and Security Systems**
- 25 40 00 *Unassigned*
- 25 50 00 INTEGRATED AUTOMATION FACILITY CONTROLS**
  - 25 51 00 Integrated Automation Control of Facility Equipment**
  - 25 52 00 Integrated Automation Control of Conveying Equipment**
  - 25 53 00 Integrated Automation Control of Fire-Suppression Systems**
  - 25 54 00 Integrated Automation Control of Plumbing**
  - 25 55 00 Integrated Automation Control of HVAC**
  - 25 56 00 Integrated Automation Control of Electrical Systems**
  - 25 57 00 Integrated Automation Control of Communications Systems**
  - 25 58 00 Integrated Automation Control of Electronic Safety and Security Systems**
- 25 60 00 *Unassigned*
- 25 70 00 *Unassigned*
- 25 80 00 *Unassigned*
- 25 90 00 INTEGRATED AUTOMATION CONTROL SEQUENCES**
  - 25 91 00 Integrated Automation Control Sequences for Facility Equipment**

- 25 92 00 Integrated Automation Control Sequences for Conveying Equipment
- 25 93 00 Integrated Automation Control Sequences for Fire-Suppression Systems
- 25 94 00 Integrated Automation Control Sequences for Plumbing
- 25 95 00 Integrated Automation Control Sequences for HVAC
- 25 96 00 Integrated Automation Control Sequences for Electrical Systems
- 25 97 00 Integrated Automation Control Sequences for Communications Systems
- 25 98 00 Integrated Automation Control Sequences for Electronic Safety and Security Systems

## DIVISION 26 – ELECTRICAL

### 26 00 00 ELECTRICAL

#### 26 01 00 Operation and Maintenance of Electrical Systems

- 26 01 10 Operation and Maintenance of Medium-Voltage Electrical Distribution
- 26 01 20 Operation and Maintenance of Low-Voltage Electrical Distribution
- 26 01 26 Maintenance Testing of Electrical Systems
- 26 01 30 Operation and Maintenance of Facility Electrical Power Generating and Storing Equipment
- 26 01 40 Operation and Maintenance of Electrical and Cathodic Protection Systems
- 26 01 50 Operation and Maintenance of Lighting
  - 26 01 50.51 Luminaire Relamping
  - 26 01 50.81 Luminaire Replacement

#### 26 05 00 Common Work Results for Electrical

- 26 05 13 Medium-Voltage Cables
  - 26 05 13.13 Medium-Voltage Open Conductors
  - 26 05 13.16 Medium-Voltage, Single- and Multi-Conductor Cables
- 26 05 19 Low-Voltage Electrical Power Conductors and Cables
  - 26 05 19.13 Undercarpet Electrical Power Cables
- 26 05 23 Control-Voltage Electrical Power Cables
- 26 05 26 Grounding and Bonding for Electrical Systems
- 26 05 29 Hangers and Supports for Electrical Systems
- 26 05 33 Raceway and Boxes for Electrical Systems
- 26 05 36 Cable Trays for Electrical Systems
- 26 05 39 Underfloor Raceways for Electrical Systems
- 26 05 43 Underground Ducts and Raceways for Electrical Systems
- 26 05 46 Utility Poles for Electrical Systems
- 26 05 48 Vibration and Seismic Controls for Electrical Systems
- 26 05 53 Identification for Electrical Systems
- 26 05 73 Overcurrent Protective Device Coordination Study

#### 26 06 00 Schedules for Electrical

- 26 06 10 Schedules for Medium-Voltage Electrical Distribution
- 26 06 20 Schedules for Low-Voltage Electrical Distribution
  - 26 06 20.13 Electrical Switchboard Schedule
  - 26 06 20.16 Electrical Panelboard Schedule
  - 26 06 20.19 Electrical Motor-Control Center Schedule
  - 26 06 20.23 Electrical Circuit Schedule
  - 26 06 20.26 Wiring Device Schedule
- 26 06 30 Schedules for Facility Electrical Power Generating and Storing Equipment
- 26 06 40 Schedules for Electrical and Cathodic Protection Systems
- 26 06 50 Schedules for Lighting
  - 26 06 50.13 Lighting Panelboard Schedule
  - 26 06 50.16 Lighting Fixture Schedule

#### 26 08 00 Commissioning of Electrical Systems

#### 26 09 00 Instrumentation and Control for Electrical Systems

- 26 09 13 Electrical Power Monitoring and Control
- 26 09 23 Lighting Control Devices
- 26 09 26 Lighting Control Panelboards
- 26 09 33 Central Dimming Controls



- 26 09 33.13 Multichannel Remote-Controlled Dimmers
- 26 09 33.16 Remote-Controlled Dimming Stations
- 26 09 36 Modular Dimming Controls
  - 26 09 36.13 Manual Modular Dimming Controls
  - 26 09 36.16 Integrated Multipreset Modular Dimming Controls
- 26 09 43 Network Lighting Controls
  - 26 09 43.13 Digital-Network Lighting Controls
  - 26 09 43.16 Addressable Fixture Lighting Control
- 26 09 61 Theatrical Lighting Controls

## **26 10 00 MEDIUM-VOLTAGE ELECTRICAL DISTRIBUTION**

### **26 11 00 Substations**

- 26 11 13 Primary Unit Substations
- 26 11 16 Secondary Unit Substations

### **26 12 00 Medium-Voltage Transformers**

- 26 12 13 Liquid-Filled, Medium -Voltage Transformers
- 26 12 16 Dry-Type, Medium -Voltage Transformers
- 26 12 19 Pad-Mounted, Liquid-Filled, Medium -Voltage Transformers

### **26 13 00 Medium-Voltage Switchgear**

- 26 13 13 Medium -Voltage Circuit Breaker Switchgear
- 26 13 16 Medium -Voltage Fusible Interrupter Switchgear
- 26 13 19 Medium -Voltage Vacuum Interrupter Switchgear

### **26 18 00 Medium-Voltage Circuit Protection Devices**

- 26 18 13 Medium -Voltage Cutouts
- 26 18 16 Medium -Voltage Fuses
- 26 18 19 Medium -Voltage Lightning Arresters
- 26 18 23 Medium -Voltage Surge Arresters
- 26 18 26 Medium -Voltage Reclosers
- 26 18 29 Medium -Voltage Enclosed Bus
- 26 18 33 Medium -Voltage Enclosed Fuse Cutouts
- 26 18 36 Medium -Voltage Enclosed Fuses
- 26 18 39 Medium -Voltage Motor Controllers

## **26 20 00 LOW-VOLTAGE ELECTRICAL DISTRIBUTION**

### **26 21 00 Low-Voltage Overhead Electrical Power Systems**

### **26 22 00 Low-Voltage Transformers**

- 26 22 13 Low-Voltage Distribution Transformers
- 26 22 16 Low-Voltage Buck-Boost Transformers
- 26 22 19 Control and Signal Transformers

### **26 23 00 Low-Voltage Switchgear**

- 26 23 13 Paralleling Low-Voltage Switchgear

### **26 24 00 Switchboards and Panelboards**

- 26 24 13 Switchboards
- 26 24 16 Panelboards
- 26 24 19 Motor-Control Centers

### **26 25 00 Enclosed Bus Assemblies**

### **26 26 00 Power Distribution Units**

### **26 27 00 Low-Voltage Distribution Equipment**

- 26 27 13 Electricity Metering
- 26 27 16 Electrical Cabinets and Enclosures
- 26 27 19 Multi-Outlet Assemblies

- 26 27 23 Indoor Service Poles
- 26 27 26 Wiring Devices
- 26 27 73 Door Chimes
- 26 28 00 Low-Voltage Circuit Protective Devices**
- 26 28 13 Fuses
- 26 28 16 Enclosed Switches and Circuit Breakers
- 26 29 00 Low-Voltage Controllers**
- 26 29 13 Enclosed Controllers
  - 26 29 13.13 Across-the-Line Motor Controllers
  - 26 29 13.16 Reduced-Voltage Motor Controllers
- 26 29 23 Variable-Frequency Motor Controllers
- 26 30 00 FACILITY ELECTRICAL POWER GENERATING AND STORING EQUIPMENT**
- 26 31 00 Photovoltaic Collectors**
- 26 32 00 Packaged Generator Assemblies**
- 26 32 13 Engine Generators
  - 26 32 13.13 Diesel-Engine-Driven Generator Sets
  - 26 32 13.16 Gas-Engine-Driven Generator Sets
- 26 32 16 Steam-Turbine Generators
- 26 32 19 Hydro-Turbine Generators
- 26 32 23 Wind Energy Equipment
- 26 32 26 Frequency Changers
- 26 32 29 Rotary Converters
- 26 32 33 Rotary Uninterruptible Power Units
- 26 33 00 Battery Equipment**
- 26 33 13 Batteries
- 26 33 16 Battery Racks
- 26 33 19 Battery Units
- 26 33 23 Central Battery Equipment
- 26 33 33 Static Power Converters
- 26 33 43 Battery Chargers
- 26 33 46 Battery Monitoring
- 26 33 53 Static Uninterruptible Power Supply
- 26 35 00 Power Filters and Conditioners**
- 26 35 13 Capacitors
- 26 35 16 Chokes and Inductors
- 26 35 23 Electromagnetic -Interference Filters
- 26 35 26 Harmonic Filters
- 26 35 33 Power Factor Correction Equipment
- 26 35 36 Slip Controllers
- 26 35 43 Static-Frequency Converters
- 26 35 46 Radio-Frequency-Interference Filters
- 26 35 53 Voltage Regulators
- 26 36 00 Transfer Switches**
- 26 36 13 Manual Transfer Switches
- 26 36 23 Automatic Transfer Switches
- 26 40 00 ELECTRICAL AND CATHODIC PROTECTION**
- 26 41 00 Facility Lightning Protection**
- 26 41 13 Lightning Protection for Structures

- 26 41 13.13 Lightning Protection for Buildings
- 26 41 16 Lightning Prevention and Dissipation
- 26 41 19 Early Streamer Emission Lightning Protection
- 26 41 23 Lightning Protection Surge Arresters and Suppressors
- 26 42 00 Cathodic Protection**
  - 26 42 13 Passive Cathodic Protection for Underground and Submerged Piping
  - 26 42 16 Passive Cathodic Protection for Underground Storage Tank
- 26 43 00 Transient Voltage Suppression**
  - 26 43 13 Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits
- 26 50 00 LIGHTING**
  - 26 51 00 Interior Lighting**
    - 26 51 13 Interior Lighting Fixtures, Lamps, And Ballasts
  - 26 52 00 Emergency Lighting**
  - 26 53 00 Exit Signs**
  - 26 54 00 Classified Location Lighting**
  - 26 55 00 Special Purpose Lighting**
    - 26 55 23 Outline Lighting
    - 26 55 29 Underwater Lighting
    - 26 55 33 Hazard Warning Lighting
    - 26 55 36 Obstruction Lighting
    - 26 55 53 Security Lighting
    - 26 55 59 Display Lighting
    - 26 55 61 Theatrical Lighting
    - 26 55 63 Detention Lighting
    - 26 55 70 Healthcare Lighting
  - 26 56 00 Exterior Lighting**
    - 26 56 13 Lighting Poles and Standards
    - 26 56 16 Parking Lighting
    - 26 56 19 Roadway Lighting
    - 26 56 23 Area Lighting
    - 26 56 26 Landscape Lighting
    - 26 56 29 Site Lighting
    - 26 56 33 Walkway Lighting
    - 26 56 36 Flood Lighting
    - 26 56 68 Exterior Athletic Lighting
  - 26 60 00 *Unassigned*
  - 26 70 00 *Unassigned*
  - 26 80 00 *Unassigned*
  - 26 90 00 *Unassigned*

## **DIVISION 27 – COMMUNICATIONS**

### **27 00 00 COMMUNICATIONS**

#### **27 01 00 Operation and Maintenance of Communications Systems**

- 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 28.29 Hangers and Supports for Communications Systems
  - 27 05 28.33 Conduits and Backboxes for Communications Systems
  - 27 05 28.36 Cable Trays for Communications Systems
  - 27 05 28.39 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, Codec's, 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
    - 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 Telephone Sets, Facsimiles and Modems**
    - 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 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 16.61 Integrated Audio-Video Systems and Equipment for Theaters
      - 27 41 16.62 Integrated Audio-Video Systems and Equipment for Auditoriums
      - 27 41 16.63 Integrated Audio-Video Systems and Equipment for Stadiums and Arenas
    - 27 41 19 Portable Audio-Video Equipment
    - 27 41 23 Audio-Video Accessories
  - 27 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 and Mass Notification 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 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 16 Infrared and Radio Frequency Tracking Systems
- 27 53 19 Internal Cellular, Paging, and Antenna Systems

27 60 00 *Unassigned*

27 70 00 *Unassigned*

27 80 00 *Unassigned*

27 90 00 *Unassigned*

## **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

### **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 53.29 Security Access Sniffing Equipment
- 28 13 53.23 Security Access Explosive Detection Equipment
- 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 16 46 Intrusion Detection Vehicle Control 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 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 and Alarm Detection Sensors
- 28 32 43 Radiation and Alarm Dosimeters
- 28 33 00 Fuel-Gas Detection and Alarm**
  - 28 33 13 Fuel-Gas Detection and Alarm Control, GUI, and Logic Systems
  - 28 33 23 Fuel-Gas Detection and Alarm Integrated Audio Evacuation Systems
  - 28 33 33 Fuel-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 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
  - 28 50 00 *Unassigned*
  - 28 60 00 *Unassigned*
  - 28 70 00 *Unassigned*
  - 28 80 00 *Unassigned*
  - 28 90 00 *Unassigned*

## DIVISION 31 – EARTHWORK

### 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 13 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 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 Special Foundation and Load Bearing Elements Instrumentation and Monitoring
  - 31 09 16.13 Foundation Performance Instrumentation
  - 31 09 16.23 Driven Pile Load Tests
  - 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 13 Erosion Controls
- 31 25 23 Rock Barriers
- 31 25 53 Sedimentation Controls
- 31 25 63 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 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 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 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 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
  - 31 80 00 *Unassigned*
  - 31 90 00 *Unassigned*



## DIVISION 32 – EXTERIOR IMPROVEMENTS

### 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 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
- 32 05 16 Aggregates for Exterior Improvements
- 32 05 19 Geosynthetics for Exterior Improvements

- 32 05 19.13 Geotextiles for Exterior Improvements
- 32 05 19.16 Geomembranes for Exterior Improvements
- 32 05 19.19 Geogrids for Exterior Improvements
- 32 05 23 Cement and Concrete for Exterior Improvements
- 32 05 33 Common Work Results for Planting
- 32 06 00 Schedules for Exterior Improvements**
  - 32 06 10 Schedules for Bases, Ballasts, and Paving
    - 32 06 10.13 Pedestrian Walkway Schedule
  - 32 06 30 Schedules for Site Improvements
    - 32 06 30.13 Retaining Wall Schedule
  - 32 06 80 Schedules for Irrigation
    - 32 06 80.13 Irrigation Piping Schedule
  - 32 06 90 Schedules for Planting
    - 32 06 90.13 Planting Schedule
- 32 08 00 Commissioning of Exterior Improvements**
- 32 10 00 BASES, BALLASTS, AND PAVING**
  - 32 11 00 Base Courses**
    - 32 11 13 Subgrade Modifications
      - 32 11 13.13 Lime-Treated Subgrades
      - 32 11 13.16 Bituminous-Treated Subgrades
    - 32 11 16 Subbase Courses
      - 32 11 16.13 Sand-Clay Subbase Courses
      - 32 11 16.16 Aggregate Subbase Courses
    - 32 11 23 Aggregate Base Courses
      - 32 11 23.13 Sand-Clay Base Courses
      - 32 11 23.23 Base Course Drainage Layers
    - 32 11 26 Asphaltic Base Courses
      - 32 11 26.13 Plant Mix Asphaltic Base Courses
      - 32 11 26.16 Road Mix Asphaltic Base Courses
      - 32 11 26.19 Bituminous-Stabilized Base Courses
    - 32 11 29 Lime Treated Base Courses
      - 32 11 29.13 Lime-Fly Ash-Treated Base Courses
    - 32 11 33 Cement-Treated Base Courses
      - 32 11 33.13 Portland Cement-Stabilized Base Courses
    - 32 11 36 Concrete Base Courses
      - 32 11 36.13 Lean Concrete Base Courses
      - 32 11 36.16 Plain Cement Concrete Base Courses
      - 32 11 36.19 Hydraulic Cement Concrete Base Courses
  - 32 12 00 Flexible Paving**
    - 32 12 13 Preparatory Coats
      - 32 12 13.13 Tack Coats
      - 32 12 13.16 Asphaltic Tack Coats
      - 32 12 13.19 Prime Coats
      - 32 12 13.23 Asphaltic Prime Coats
    - 32 12 16 Asphalt Paving

- 32 12 16.13 Plant-Mix Asphalt Paving
- 32 12 16.16 Road-Mix Asphalt Paving
- 32 12 16.19 Cold-Mix Asphalt Paving
- 32 12 16.23 Reinforced Asphalt Paving
- 32 12 16.26 Fiber-Modified Asphalt Paving
- 32 12 16.29 Polymer-Modified Asphalt Paving
- 32 12 16.33 Granulated Rubber-Modified Asphalt Paving
- 32 12 16.36 Athletic Asphalt Paving
- 32 12 19 Asphalt Paving Wearing Courses
  - 32 12 19.13 Road-Mix Asphalt Paving Wearing Courses
  - 32 12 19.16 Resin-Modified Asphalt Paving Wearing Courses
  - 32 12 19.19 Porous Friction Asphalt Paving Wearing Courses
- 32 12 33 Flexible Paving Surface Treatments
- 32 12 36 Seal Coats
  - 32 12 36.13 Asphaltic Seal and Fog Coats
  - 32 12 36.16 Coal Tar Seal Coats
  - 32 12 36.19 Coal Tar Seal Coats with Unvulcanized Rubber
  - 32 12 36.23 Fuel-Resistant Sealers
- 32 12 43 Porous Flexible Paving
- 32 12 73 Asphalt Paving Joint Sealants
- 32 13 00 Rigid Paving**
  - 32 13 13 Concrete Paving
    - 32 13 13.13 Exposed Aggregate Concrete Paving
    - 32 13 13.16 Power-Compacted Concrete Paving
    - 32 13 13.19 Prestressed Concrete Paving
    - 32 13 13.23 Concrete Paving Surface Treatment
  - 32 13 16 Decorative Concrete Paving
    - 32 13 16.13 Patterned Concrete Paving
    - 32 13 16.16 Roller-Compacted Concrete Paving
    - 32 13 16.19 Imprinted Concrete Paving
    - 32 13 16.23 Stamped Concrete Paving
  - 32 13 73 Concrete Paving Joint Sealants
    - 32 13 73.13 Fuel-Resistant Concrete Paving Joint Sealants
    - 32 13 73.16 Field-Molded Concrete Paving Joint Sealants
    - 32 13 73.19 Compression Concrete Paving Joint Sealants
- 32 14 00 Unit Paving**
  - 32 14 13 Precast Concrete Unit Paving
    - 32 14 13.13 Interlocking Precast Concrete Unit Paving
    - 32 14 13.16 Precast Concrete Unit Paving Slabs
    - 32 14 13.19 Porous Precast Concrete Unit Paving
  - 32 14 16 Brick Unit Paving
  - 32 14 23 Asphalt Unit Paving
  - 32 14 26 Wood Paving
  - 32 14 29 Recycled-Rubber Paving
  - 32 14 40 Stone Paving
  - 32 14 43 Porous Unit Paving
- 32 15 00 Aggregate Surfacing**
  - 32 15 13 Cinder Surfacing
  - 32 15 40 Crushed Stone Surfacing
- 32 16 00 Curbs and Gutters**
  - 32 16 13 Concrete Curbs and Gutters

- 32 16 13.13 Cast-In-Place Concrete Curbs and Gutters
- 32 16 13.16 Cast-In-Place Concrete Curbs
- 32 16 13.19 Cast-In-Place Concrete Gutters
- 32 16 13.23 Precast Concrete Curbs and Gutters
- 32 16 13.26 Precast Concrete Curbs
- 32 16 13.29 Precast Concrete Gutters
- 32 16 19 Asphalt Curbs
- 32 16 40 Stone Curbs
  - 32 16 40.13 Manufactured Stone Curbs
- 32 17 00 Paving Specialties**
  - 32 17 13 Parking Bumpers
    - 32 17 13.13 Metal Parking Bumpers
    - 32 17 13.16 Plastic Parking Bumpers
    - 32 17 13.19 Precast Concrete Parking Bumpers
    - 32 17 13.23 Rubber Parking Bumpers
    - 32 17 13.26 Wood Parking Bumpers
  - 32 17 23 Pavement Markings
    - 32 17 23.13 Painted Pavement Markings
    - 32 17 23.23 Raised Pavement Markings
    - 32 17 23.33 Plastic Pavement Markings
  - 32 17 26 Tactile Warning Surfacing
- 32 18 00 Athletic and Recreational Surfacing**
  - 32 18 13 Synthetic Grass Surfacing
  - 32 18 16 Synthetic Resilient Surfacing
    - 32 18 16.13 Playground Protective Surfacing
  - 32 18 23 Athletic Surfacing
    - 32 18 23.13 Baseball Field Surfacing
    - 32 18 23.16 Natural Baseball Field Surfacing
    - 32 18 23.19 Synthetic Baseball Field Surfacing
    - 32 18 23.23 Field Sport Surfacing
    - 32 18 23.26 Natural Field Sport Surfacing
    - 32 18 23.29 Synthetic Field Sport Surfacing
    - 32 18 23.33 Running Track Surfacing
    - 32 18 23.36 Natural Running Track Surfacing
    - 32 18 23.39 Synthetic Running Track Surfacing
    - 32 18 23.43 Recreational Court Surfacing
    - 32 18 23.53 Tennis Court Surfacing
    - 32 18 23.56 Natural Tennis Court Surfacing
    - 32 18 23.59 Synthetic Tennis Court Surfacing

32 20 00 *Unassigned*

**32 30 00 SITE IMPROVEMENTS**

- 32 31 00 Fences and Gates**
  - 32 31 13 Chain Link Fences and Gates
    - 32 31 13.23 Recreational Court Fences and Gates
    - 32 31 13.26 Tennis Court Fences and Gates
    - 32 31 13.29 Tennis Court Wind Breaker
    - 32 31 13.33 Chain Link Backstops
    - 32 31 13.53 High-Security Chain Link Fences and Gates
  - 32 31 16 Welded Wire Fences and Gates
  - 32 31 19 Decorative Metal Fences and Gates
  - 32 31 23 Plastic Fences and Gates
  - 32 31 26 Wire Fences and Gates

- 32 31 29 Wood Fences and Gates
- 32 32 00 Retaining Walls**
  - 32 32 13 Cast-in-Place Concrete Retaining Walls
  - 32 32 16 Precast Concrete Retaining Walls
  - 32 32 19 Unit Masonry Retaining Walls
  - 32 32 23 Segmental Retaining Walls
    - 32 32 23.13 Segmental Concrete Unit Masonry Retaining Walls
    - 32 32 23.16 Manufactured Modular Walls
  - 32 32 26 Metal Crib Retaining Walls
  - 32 32 29 Timber Retaining Walls
  - 32 32 34 Reinforced Soil Retaining Walls
  - 32 32 36 Gabion Retaining Walls
  - 32 32 43 Soldier-Beam Retaining Walls
- 32 34 00 Fabricated Bridges**
- 32 35 00 Screening Devices**
  - 32 35 13 Screens and Louvers
  - 32 35 16 Sound Barriers
- 32 40 00 *Unassigned*
- 32 50 00 *Unassigned*
- 32 60 00 *Unassigned*
- 32 70 00 WETLANDS**
  - 32 71 00 Constructed Wetlands**
  - 32 72 00 Wetlands Restoration**
- 32 80 00 IRRIGATION**
  - 32 82 00 Irrigation Pumps**
  - 32 84 00 Planting Irrigation**
    - 32 84 13 Drip Irrigation
    - 32 84 23 Underground Sprinklers
  - 32 86 00 Agricultural Irrigation**
- 32 90 00 PLANTING**
  - 32 91 00 Planting Preparation**
    - 32 91 13 Soil Preparation
      - 32 91 13.13 Hydro-Punching
      - 32 91 13.16 Mulching
      - 32 91 13.19 Planting Soil Mixing
      - 32 91 13.23 Structural Soil Mixing
      - 32 91 13.26 Planting Beds
    - 32 91 16 Planting Soil Stabilization
      - 32 91 16.13 Blanket Planting Soil Stabilization
      - 32 91 16.16 Mat Planting Soil Stabilization
      - 32 91 16.19 Netting Planting Soil Stabilization
    - 32 91 19 Landscape Grading
      - 32 91 19.13 Topsoil Placement and Grading
  - 32 92 00 Turf and Grasses**
    - 32 92 13 Hydro-Mulching
    - 32 92 16 Plugging
    - 32 92 19 Seeding

- 32 92 19.13 Mechanical Seeding
- 32 92 19.16 Hydraulic Seeding
- 32 92 23 Sodding
- 32 92 26 Sprigging
  - 32 92 26.13 Stolonizing
- 32 93 00 Plants**
  - 32 93 13 Ground Covers
  - 32 93 23 Plants and Bulbs
  - 32 93 33 Shrubs
  - 32 93 43 Trees
- 32 94 00 Planting Accessories**
  - 32 94 13 Landscape Edging
  - 32 94 16 Landscape Timbers
  - 32 94 33 Planters
  - 32 94 43 Tree Grates
  - 32 94 46 Tree Grids
- 32 96 00 Transplanting**
  - 32 96 13 Ground Cover Transplanting
  - 32 96 23 Plant and Bulb Transplanting
  - 32 96 33 Shrub Transplanting
  - 32 96 43 Tree Transplanting

## DIVISION 33 – UTILITIES

### 33 00 00 UTILITIES

#### 33 01 00 Operation and Maintenance of Utilities

- 33 01 10 Operation and Maintenance of Water Utilities
- 33 01 20 Operation and Maintenance of Wells
- 33 01 30 Operation and Maintenance of Sewer Utilities
  - 33 01 30.13 Sewer and Manhole Testing
  - 33 01 30.16 TV Inspection of Sewer Pipelines
  - 33 01 30.51 Maintenance of Sewer Utilities
  - 33 01 30.52 Pond and Reservoir Maintenance
  - 33 01 30.61 Sewer and Pipe Joint Sealing
  - 33 01 30.62 Manhole Grout Sealing
  - 33 01 30.71 Rehabilitation of Sewer Utilities
  - 33 01 30.72 Relining Sewers
- 33 01 50 Operation and Maintenance of Fuel Distribution Lines
  - 33 01 50.51 Cleaning Fuel-Storage Tanks
  - 33 01 50.71 Lining of Steel Fuel-Storage Tanks
- 33 01 60 Operation and Maintenance of Hydronic and Steam Energy Utilities
- 33 01 70 Operation and Maintenance of Electrical Utilities
- 33 01 80 Operation and Maintenance of Communications Utilities

#### 33 05 00 Common Work Results for Utilities

- 33 05 13 Manholes and Structures
  - 33 05 13.13 Manhole Grade Adjustment
- 33 05 16 Utility Structures
  - 33 05 16.13 Precast Concrete Utility Structures
  - 33 05 16.53 Rebuilding Utility Structures
- 33 05 19 Pressure Piping Tied Joint Restraint System
- 33 05 23 Trenchless Utility Installation
  - 33 05 23.13 Utility Horizontal Directional Drilling
  - 33 05 23.16 Utility Pipe Jacking
  - 33 05 23.19 Microtunneling
  - 33 05 23.23 Utility Pipe Ramming
  - 33 05 23.26 Utility Impact Molding
  - 33 05 23.29 Cable Trenching and Plowing
- 33 05 26 Utility Line Signs, Markers, and Flags

#### 33 06 00 Schedules for Utilities

- 33 06 10 Schedules for Water Utilities
- 33 06 20 Schedules for Wells
- 33 06 30 Schedules for Sanitary Sewerage Utilities
- 33 06 40 Schedules for Storm Drainage Utilities
  - 33 06 40.13 Storm Drainage Schedule
- 33 06 50 Schedules for Fuel Distribution Utilities
- 33 06 60 Schedules for Hydronic and Steam Energy Utilities
- 33 06 70 Schedules for Electrical Utilities
- 33 06 80 Schedules for Communications Utilities

#### 33 08 00 Commissioning of Utilities

- 33 08 10 Commissioning of Water Utilities
- 33 08 20 Commissioning of Wells

- 33 08 30 Commissioning of Sanitary Sewerage Utilities
- 33 08 40 Commissioning of Storm Drainage Utilities
- 33 08 50 Commissioning of Fuel Distribution Utilities
- 33 08 60 Commissioning of Hydronic and Steam Energy Utilities
- 33 08 70 Commissioning of Electrical Utilities
- 33 08 80 Commissioning of Communications Utilities
- 33 09 00 Instrumentation and Control for Utilities**
  - 33 09 10 Instrumentation and Control for Water Utilities
  - 33 09 20 Instrumentation and Control for Wells
  - 33 09 30 Instrumentation and Control for Sanitary Sewerage Utilities
  - 33 09 40 Instrumentation and Control for Storm Drainage Utilities
  - 33 09 50 Instrumentation and Control for Fuel Distribution Utilities
  - 33 09 60 Instrumentation and Control for Hydronic and Steam Energy Utilities
  - 33 09 70 Instrumentation and Control for Electrical Utilities
  - 33 09 80 Instrumentation and Control for Communications Utilities
- 33 10 00 WATER UTILITIES**
  - 33 11 00 Water Utility Distribution Piping**
    - 33 11 13 Public Water Utility Distribution Piping
    - 33 11 16 Site Water Utility Distribution Piping
    - 33 11 19 Fire Suppression Utility Water Distribution Piping
  - 33 12 00 Water Utility Distribution Equipment**
    - 33 12 13 Water Service Connections
      - 33 12 13.13 Water Supply Backflow Preventer Assemblies
    - 33 12 16 Water Utility Distribution Valves
    - 33 12 19 Water Utility Distribution Fire Hydrants
    - 33 12 23 Water Utility Pumping Stations
    - 33 12 33 Water Utility Metering
  - 33 13 00 Disinfecting of Water Utility Distribution**
  - 33 16 00 Water Utility Storage Tanks**
    - 33 16 13 Aboveground Water Utility Storage Tanks
      - 33 16 13.13 Steel Aboveground Water Utility Storage Tanks
      - 33 16 13.16 Prestressed Concrete Aboveground Water Utility Storage Tanks
    - 33 16 16 Underground Water Utility Storage Tanks
    - 33 16 19 Elevated Water Utility Storage Tanks
- 33 20 00 WELLS**
  - 33 21 00 Water Supply Wells**
    - 33 21 13 Public Water Supply Wells
    - 33 21 16 Irrigation Water Wells
  - 33 22 00 Test Wells**
  - 33 23 00 Extraction Wells**
  - 33 24 00 Monitoring Wells**
    - 33 24 13 Groundwater Monitoring Wells
  - 33 25 00 Recharge Wells**
  - 33 26 00 Relief Wells**
  - 33 29 00 Well Abandonment**
- 33 30 00 SANITARY SEWERAGE UTILITIES**
  - 33 31 00 Sanitary Utility Sewerage Piping**
    - 33 31 13 Public Sanitary Utility Sewerage Piping



- 33 31 16 Industrial Waste Utility Sewerage Piping
- 33 32 00 Wastewater Utility Pumping Stations**
  - 33 32 13 Packaged Utility Lift Stations
    - 33 32 13.13 Packaged Sewage Lift Stations, Wet Well Type
  - 33 32 16 Packaged Utility Wastewater Pumping Stations
    - 33 32 16.13 Packaged Sewage Grinder Pumping Units
  - 33 32 19 Public Utility Wastewater Pumping Stations
- 33 33 00 Low Pressure Utility Sewerage**
  - 33 33 13 Sanitary Utility Sewerage
  - 33 33 16 Combined Utility Sewerage
- 33 34 00 Sanitary Utility Sewerage Force Mains**
  - 33 34 13 Sanitary Utility Sewerage Inverted Siphons
- 33 36 00 Utility Septic Tanks**
  - 33 36 13 Utility Septic Tank and Effluent Wet Wells
  - 33 36 16 Utility Septic Tank Effluent Pumps
  - 33 36 33 Utility Drainage Field
- 33 39 00 Sanitary Utility Sewerage Structures**
  - 33 39 13 Sanitary Utility Sewerage Manholes, Frames, and Covers
  - 33 39 23 Sanitary Utility Sewerage Cleanouts
- 33 40 00 STORM DRAINAGE UTILITIES**
  - 33 41 00 Storm Utility Drainage Piping**
    - 33 41 13 Public Storm Utility Drainage Piping
  - 33 42 00 Culverts**
    - 33 42 13 Pipe Culverts
      - 33 42 13.13 Public Pipe Culverts
    - 33 42 16 Concrete Culverts
      - 33 42 16.13 Precast Concrete Culverts
      - 33 42 16.16 Cast-in-Place Concrete Culverts
  - 33 44 00 Storm Utility Water Drains**
    - 33 44 13 Utility Area Drains
      - 33 44 13.13 Catchbasins
    - 33 44 16 Utility Trench Drains
    - 33 44 19 Utility Storm Water Treatment
      - 33 44 19.13 In-Line Utility Storm Water Filters
      - 33 44 19.16 Catch Basin Insert Utility Storm Water Filters
      - 33 44 19.19 Utility Oil and Gas Separators
  - 33 45 00 Storm Utility Drainage Pumps**
  - 33 46 00 Subdrainage**
    - 33 46 13 Foundation Drainage
      - 33 46 13.13 Foundation Drainage Piping
      - 33 46 13.16 Geocomposite Foundation Drainage
    - 33 46 16 Subdrainage Piping
      - 33 46 16.13 Subdrainage Piping
      - 33 46 16.16 Geocomposite Subdrainage
      - 33 46 16.19 Pipe Underdrains
    - 33 46 19 Underslab Drainage
      - 33 46 19.13 Underslab Drainage Piping
      - 33 46 19.16 Geocomposite Underslab Drainage
    - 33 46 23 Drainage Layers

- 33 46 23.16 Gravel Drainage Layers
- 33 46 23.19 Geosynthetic Drainage Layers
- 33 46 26 Geotextile Subsurface Drainage Filtration
- 33 46 33 Retaining Wall Drainage
- 33 47 00 Ponds and Reservoirs**
- 33 47 13 Pond and Reservoir Liners
  - 33 47 13.13 Pond Liners
  - 33 47 13.53 Reservoir Liners
- 33 47 16 Pond and Reservoir Covers
  - 33 47 16.13 Pond Covers
  - 33 47 16.53 Reservoir Covers
- 33 47 19 Water Ponds and Reservoirs
  - 33 47 19.13 Water Distribution Ponds
  - 33 47 19.16 Water Retainage Reservoirs
  - 33 47 19.23 Cooling Water Ponds
  - 33 47 19.33 Fire-Protection Water Ponds
- 33 47 23 Sanitary Sewerage Lagoons
- 33 47 26 Storm Drainage Ponds and Reservoirs
  - 33 47 26.13 Stabilization Ponds
  - 33 47 26.16 Retention Basins
  - 33 47 26.19 Leaching Pits
- 33 49 00 Storm Drainage Structures**
- 33 49 13 Storm Drainage Manholes, Frames, and Covers
- 33 49 23 Storm Drainage Water Retention Structures
- 33 50 00 FUEL DISTRIBUTION UTILITIES**
- 33 51 00 Natural-Gas Distribution**
- 33 51 13 Natural-Gas Piping
- 33 51 33 Natural-Gas Metering
- 33 52 00 Liquid Fuel Distribution**
- 33 52 13 Fuel-Oil Distribution
  - 33 52 13.13 Fuel-Oil Piping
  - 33 52 13.23 Fuel-Oil Pumps
- 33 52 16 Gasoline Distribution
  - 33 52 16.13 Gasoline Piping
  - 33 52 16.23 Gasoline Pumps
- 33 52 19 Diesel Fuel Distribution
  - 33 52 19.13 Diesel Fuel Piping
  - 33 52 19.23 Diesel Fuel Pumps
- 33 52 43 Aviation Fuel Distribution
  - 33 52 43.13 Aviation Fuel Piping
  - 33 52 43.16 Aviation Fuel Connections
  - 33 52 43.19 Aviation Fuel Grounding
  - 33 52 43.23 Aviation Fuel Pumps
- 33 56 00 Fuel-Storage Tanks**
- 33 56 13 Aboveground Fuel-Storage Tanks
- 33 56 16 Underground Fuel-Storage Tanks
- 33 56 43 Aviation Fuel-Storage Tanks
  - 33 56 43.13 Aboveground Aviation Fuel-Storage Tanks
  - 33 56 43.16 Underground Aviation Fuel-Storage Tanks
- 33 56 53 Compressed Gases Storage Tanks

**33 60 00 HYDRONIC AND STEAM ENERGY UTILITIES**

**33 61 00 Hydronic Energy Distribution**

- 33 61 13 Underground Hydronic Energy Distribution
- 33 61 23 Aboveground Hydronic Energy Distribution
- 33 61 33 Hydronic Energy Distribution Metering

**33 63 00 Steam Energy Distribution**

- 33 63 13 Underground Steam and Condensate Distribution Piping
- 33 63 23 Aboveground Steam and Condensate Distribution Piping
- 33 63 33 Steam Energy Distribution Metering

**33 70 00 ELECTRICAL UTILITIES**

**33 71 00 Electrical Utility Transmission and Distribution**

- 33 71 13 Electrical Utility Towers
  - 33 71 13.13 Precast Concrete Electrical Utility Towers
  - 33 71 13.23 Steel Electrical Utility Towers
  - 33 71 13.33 Wood Electrical Utility Towers
- 33 71 16 Electrical Utility Poles
  - 33 71 16.13 Precast Concrete Electrical Utility Poles
  - 33 71 16.23 Steel Electrical Utility Poles
  - 33 71 16.33 Wood Electrical Utility Poles
- 33 71 19 Electrical Underground Ducts and Manholes
  - 33 71 19.13 Electrical Manholes and Handholes
- 33 71 23 Insulators and Fittings
  - 33 71 23.13 Suspension Insulators
  - 33 71 23.16 Post Insulators
  - 33 71 23.23 Potheads
- 33 71 26 Transmission and Distribution Equipment
  - 33 71 26.13 Capacitor Banks
  - 33 71 26.16 Coupling Capacitors
  - 33 71 26.23 Current Transformers
  - 33 71 26.26 Potential Transformers
- 33 71 36 Extra-High-Voltage Wiring
  - 33 71 36.13 Overhead Extra-High-Voltage Wiring
- 33 71 39 High-Voltage Wiring
  - 33 71 39.13 Overhead High-Voltage Wiring
  - 33 71 39.23 Underground High-Voltage Wiring
  - 33 71 39.33 Underwater High-Voltage Wiring
- 33 71 49 Medium-Voltage Wiring
  - 33 71 49.13 Overhead Medium-Voltage Wiring
  - 33 71 49.23 Underground Medium-Voltage Wiring
  - 33 71 49.33 Underwater Medium-Voltage Wiring
- 33 71 53 Direct-Current Transmission
- 33 71 73 Electrical Utility Services
  - 33 71 73.33 Electric Meters
- 33 71 83 Transmission and Distribution Specialties

**33 72 00 Utility Substations**

- 33 72 13 Deadend Structures
- 33 72 23 Structural Bus Supports
  - 33 72 23.13 Bus Support Insulators
- 33 72 26 Substation Bus Assemblies
  - 33 72 26.13 Aluminum Substation Bus Assemblies
  - 33 72 26.16 Copper Substation Bus Assemblies
- 33 72 33 Control House Equipment

- 33 72 33.13 Relays
- 33 72 33.16 Substation Control Panels
- 33 72 33.23 Power-Line Carriers
- 33 72 33.26 Substation Metering
- 33 72 33.33 Raceway and Boxes for Utility Substations
- 33 72 33.36 Cable Trays for Utility Substations
- 33 72 33.43 Substation Backup Batteries
- 33 72 33.46 Substation Converter Stations
- 33 72 43 Substation Control Wiring
- 33 73 00 Utility Transformers**
- 33 73 13 Liquid-Filled Utility Transformers
- 33 73 23 Dry-Type Utility Transformers
- 33 75 00 High-Voltage Switchgear and Protection Devices**
- 33 75 13 Air High-Voltage Circuit Breaker
- 33 75 16 Oil High-Voltage Circuit Breaker
- 33 75 19 Gas High-Voltage Circuit Breaker
- 33 75 23 Vacuum High-Voltage Circuit Breaker
- 33 75 36 High-Voltage Utility Fuses
- 33 75 39 High-Voltage Surge Arresters
- 33 75 43 Shunt Reactors
- 33 77 00 Medium-Voltage Utility Switchgear and Protection Devices**
- 33 77 13 Air Medium-Voltage Circuit Breaker
- 33 77 16 Oil Medium -Voltage Circuit Breaker
- 33 77 19 Gas Medium -Voltage Circuit Breaker
- 33 77 23 Vacuum Medium -Voltage Circuit Breaker
- 33 77 26 Medium -Voltage Utility Fusible Interrupter Switchgear
- 33 77 33 Medium -Voltage Utility Cutouts
- 33 77 36 Medium -Voltage Utility Fuses
- 33 77 39 Medium -Voltage Utility Surge Arresters
- 33 77 53 Medium -Voltage Utility Reclosers
- 33 79 00 Site Grounding**
- 33 79 13 Site Improvements Grounding
  - 33 79 13.13 Electric Fence Grounding
- 33 79 16 Tower Grounding
  - 33 79 16.13 Communications Tower Grounding
  - 33 79 16.16 Antenna Tower Grounding
- 33 79 19 Utilities Grounding
  - 33 79 19.13 Electrical Utilities Grounding
  - 33 79 19.16 Communications Utilities Grounding
- 33 79 23 Utility Substation Grounding
- 33 79 83 Site Grounding Conductors
  - 33 79 83.13 Grounding Wire, Bar, and Rod
  - 33 79 83.16 Chemical Rod
  - 33 79 83.23 Conductive Concrete
  - 33 79 83.33 Earth Grounding Enhancement
  - 33 79 83.43 Deep Earth Grounding
- 33 79 93 Site Lightning Protection
  - 33 79 93.13 Lightning Strike Counters
  - 33 79 93.16 Lightning Strike Warning Devices
- 33 80 00 COMMUNICATIONS UTILITIES**
- 33 81 00 Communications Structures**
- 33 81 13 Communications Transmission Towers

- 33 81 16 Antenna Towers
- 33 81 19 Communications Utility Poles
- 33 81 23 Aerial Cable Installation Hardware
- 33 81 26 Communications Underground Ducts, Manholes, and Handholes
- 33 81 29 Communications Vaults, Pedestals and Enclosures
- 33 81 33 Communications Blowers, Fans, and Ventilation
- 33 82 00 Communications Distribution**
- 33 82 13 Copper Communications Distribution Cabling
  - 33 82 13.13 Copper Splicing and Terminations
- 33 82 23 Optical Fiber Communications Distribution Cabling
  - 33 82 23.13 Optical Fiber Splicing and Terminations
- 33 82 33 Coaxial Communications Distribution Cabling
  - 33 82 33.13 Coaxial Splicing and Terminations
- 33 82 43 Grounding and Bonding for Communications Distribution
- 33 82 46 Cable Pressurization Equipment
- 33 82 53 Cleaning, Lubrication and Restoration Chemicals
- 33 83 00 Wireless Communications Distribution**
- 33 83 13 Laser Transmitters and Receivers
- 33 83 16 Microwave Transmitters and Receivers
- 33 83 19 Infrared Transmitters and Receivers
- 33 83 23 UHF/VHF Transmitters and Antennas
  
- 33 90 00 *Unassigned*

## DIVISION 34 – TRANSPORTATION

### 34 00 00 TRANSPORTATION

#### 34 01 00 Operation and Maintenance of Transportation

- 34 01 13 Operation and Maintenance of Roadways
- 34 01 23 Operation and Maintenance of Railways
  - 34 01 23.13 Track Removal and Salvage
  - 34 01 23.81 Track Crosstie Replacement
- 34 01 33 Operation and Maintenance of Airfields
- 34 01 43 Operation and Maintenance of Bridges

#### 34 05 00 Common Work Results for Transportation

- 34 05 13 Common Work Results for Roadways
- 34 05 23 Common Work Results for Railways
- 34 05 33 Common Work Results for Airports
- 34 05 43 Common Work Results for Bridges

#### 34 06 00 Schedules for Transportation

- 34 06 13 Schedules for Roadways
- 34 06 23 Schedules for Railways
- 34 06 33 Schedules for Airfields
- 34 06 43 Schedules for Bridges

#### 34 08 00 Commissioning of Transportation

- 34 08 13 Commissioning of Roadways
- 34 08 23 Commissioning of Railways
- 34 08 33 Commissioning of Airfields
- 34 08 43 Commissioning of Bridges

### 34 10 00 GUIDEWAYS/RAILWAYS

#### 34 11 00 Rail Tracks

- 34 11 13 Track Rails
  - 34 11 13.13 Light Rail Track
  - 34 11 13.23 Heavy Rail Track
- 34 11 16 Welded Track Rails
  - 34 11 16.13 In-Track Butt-Welded Track Rail
  - 34 11 16.16 Pressure-Welded Track Rail
  - 34 11 16.19 Thermite-Welded Track Rail
- 34 11 19 Track Rail Joints
- 34 11 23 Special Trackwork
  - 34 11 23.13 Ballasted Special Track Rail
  - 34 11 23.16 Direct-Fixation Track
  - 34 11 23.23 Running Rail
  - 34 11 23.26 Precurved Running Rail
- 34 11 26 Ballasted Track Rail
  - 34 11 26.13 Track Rail Ballast
  - 34 11 26.16 Track Rail Subballast
- 34 11 29 Embedded Track Rail
- 34 11 33 Track Cross Ties

- 34 11 33.13 Concrete Track Cross Ties
- 34 11 33.16 Timber Track Cross Ties
- 34 11 33.19 Resilient Track Cross Ties
- 34 11 36 Track Rail Fasteners
  - 34 11 36.13 Direct-Fixation Fasteners
- 34 11 39 Track Collector Pans
  - 34 11 39.13 Fiberglass Track Collector Pans
- 34 11 93 Track Appurtenances and Accessories

**34 12 00 Monorails**

- 34 12 13 Elevated Monorails
- 34 12 16 On-Grade Monorails
- 34 12 19 Below-Grade Monorails
- 34 12 23 Maglev Monorail
- 34 12 63 Monorail Track

**34 13 00 Funiculars**

- 34 13 13 Inclined Railway

**34 14 00 Cable Transportation**

- 34 14 13 Aerial Tramways
- 34 14 19 Gondolas
- 34 14 26 Funitels
- 34 14 33 Chairlifts
- 34 14 39 Surface Lifts
- 34 14 46 Ropeway Tows
- 34 14 53 Cable Car Systems

**34 20 00 TRACTION POWER**

**34 21 00 Traction Power Distribution**

- 34 21 13 High Power Static Frequency Converters
- 34 21 16 Traction Power Substations
  - 34 21 16.13 AC Traction Power Substations
  - 34 21 16.16 DC Traction Power Substations
- 34 21 19 Traction Power Switchgear
  - 34 21 19.13 AC Traction Power Switchgear
  - 34 21 19.16 DC Traction Power Switchgear
  - 34 21 19.23 Frequency Changer
- 34 21 23 Traction Power Transformer-Rectifier Units

**34 23 00 Overhead Traction Power**

- 34 23 13 Traction Power Poles
- 34 23 16 Overhead Cable Suspension
- 34 23 23 Overhead Traction Power Cables

**34 24 00 Third Rail Traction Power**

- 34 24 13 Bottom-Contact Third Rail
- 34 24 16 Side-Contact Third Rail
- 34 24 19 Top-Contact Third Rail

34 30 00 *Unassigned*

**34 40 00 TRANSPORTATION SIGNALING AND CONTROL EQUIPMENT**

**34 41 00 Roadway Signaling and Control Equipment**

- 34 41 13 Traffic Signals
- 34 41 16 Traffic Control Equipment
- 34 41 23 Roadway Monitoring Equipment

**34 42 00 Railway Signaling and Control Equipment**

- 34 42 13 Railway Signals
  - 34 42 13.13 General Railway Signal Requirements
  - 34 42 13.16 Signal Solid State Coded Track Circuits
- 34 42 16 Train Control Wires and Cables
- 34 42 19 Vital Interlocking Logic Controllers
- 34 42 23 Railway Control Equipment
  - 34 42 23.13 Mainline Train Control Room Equipment
  - 34 42 23.16 Yard Train Control Room Equipment
  - 34 42 23.19 Integrated Control Equipment
  - 34 42 23.23 Interlocking Railway Control Equipment
- 34 42 26 Rail Network Equipment
- 34 42 29 Station Agent Equipment
- 34 42 33 Yard Management Equipment
- 34 42 36 Supervisory Control and Data Acquisition

**34 43 00 Airfield Signaling and Control Equipment**

- 34 43 13 Airfield Signals
  - 34 43 13.13 Airfield Runway Identification Lights
  - 34 43 13.16 Airfield Runway and Taxiway Inset Lighting
- 34 43 16 Airfield Landing Equipment
  - 34 43 16.13 Microwave Airfield Landing Equipment
  - 34 43 16.16 Instrument Airfield Landing Equipment
  - 34 43 16.19 Airfield Visual-Approach Slope Indicator Equipment
  - 34 43 16.23 Airfield Short-Approach Lighting Equipment
  - 34 43 16.26 Airfield Omni-Directional-Approach Lighting Equipment
  - 34 43 16.29 Airfield Low-Intensity-Approach Lighting Equipment
  - 34 43 16.33 Airfield High-Intensity-Approach Lighting Equipment
  - 34 43 16.36 Airfield Precision-Approach Path Indicator Equipment
- 34 43 19 Airfield Traffic Control Tower Equipment
- 34 43 23 Weather Observation Equipment
  - 34 43 23.13 Automatic Weather Observation Equipment
  - 34 43 23.16 Airfield Wind Cones
- 34 43 26 Airfield Control Equipment
  - 34 43 26.13 Airfield Lighting Control Equipment
  - 34 43 26.16 Airfield Lighting PLC Control Equipment
  - 34 43 26.19 Airfield Lighting Regulator Assembly

**34 48 00 Bridge Signaling and Control Equipment**

- 34 48 13 Operating Bridge Signals
- 34 48 16 Operating Bridge Control Equipment

**34 50 00 TRANSPORTATION FARE COLLECTION EQUIPMENT**

**34 52 00 Vehicle Fare Collection**

- 34 52 16 Vehicle Ticketing Equipment
  - 34 52 16.13 Vehicle Ticket Vending Machines
- 34 52 26 Vehicle Fare Collection Equipment
  - 34 52 26.13 Vehicle Coin Fare Collection Equipment
  - 34 52 26.16 Vehicle Electronic Fare Collection Equipment
- 34 52 33 Vehicle Fare Gates

**34 54 00 Passenger Fare Collection**

- 34 54 16 Passenger Ticketing Equipment



- 34 54 16.13 Passenger Ticket Vending Machines
- 34 54 16.16 Passenger Addfare Machines
- 34 54 16.23 Passenger Intermodal Transfer Machines
- 34 54 26 Passenger Fare Collection Equipment
  - 34 54 26.13 Passenger Coin Fare Collection Equipment
  - 34 54 26.16 Passenger Electronic Fare Collection Equipment
- 34 54 33 Passenger Fare Gates

34 60 00 *Unassigned*

**34 70 00 TRANSPORTATION CONSTRUCTION AND EQUIPMENT**

**34 71 00 Roadway Construction**

- 34 71 13 Vehicle Barriers
  - 34 71 13.13 Vehicle Median Barriers
  - 34 71 13.16 Vehicle Crash Barriers
  - 34 71 13.19 Vehicle Traffic Barriers
  - 34 71 13.26 Vehicle Guide Rails
  - 34 71 13.29 Vehicle Barrier Fenders
- 34 71 16 Impact Attenuating Devices
- 34 71 19 Vehicle Delineators
  - 34 71 19.13 Fixed Vehicle Delineators
  - 34 71 19.16 Flexible Vehicle Delineators

**34 72 00 Railway Construction**

- 34 72 13 Railway Line
- 34 72 16 Railway Siding

**34 73 00 Airfield Construction**

- 34 73 13 Aircraft Tiedowns
- 34 73 16 Airfield Grounding
  - 34 73 16.13 Aircraft Static Grounding
- 34 73 19 Jet Blast Barriers
- 34 73 23 Manufactured Airfield Control Towers
- 34 73 26 Manufactured Helipads

**34 75 00 Roadway Equipment**

- 34 75 13 Operable Roadway Equipment
  - 34 75 13.13 Active Vehicle Barriers

**34 76 00 Railway Equipment**

- 34 76 13 Roadway Crossing Control Equipment

**34 77 00 Transportation Equipment**

- 34 77 13 Passenger Loading Bridges
  - 34 77 13.13 Fixed Aircraft Passenger Loading Bridges
  - 34 77 13.16 Movable Aircraft Passenger Loading Bridges
  - 34 77 13.23 Ship Passenger Loading Bridges
- 34 77 16 Baggage Handling Equipment
  - 34 77 16.13 Baggage Scanning Equipment
  - 34 77 16.16 Baggage Scales
  - 34 77 16.19 Baggage Conveying Equipment

**34 80 00 BRIDGES**

**34 81 00 Bridge Machinery**

- 34 81 13 Single-Swing Bridge Machinery
- 34 81 16 Double-Swing Bridge Machinery
- 34 81 19 Cantilever Bridge Machinery
- 34 81 23 Lift Bridge Machinery

34 81 26	Sliding Bridge Machinery
<b>34 82 00</b>	<b>Bridge Specialties</b>
34 82 13	Bridge Vibration Dampers
34 82 13.13	Visco Elastic Bridge Vibration Dampers
34 82 13.16	Tuned-Mass Bridge Vibration Dampers
34 82 19	Bridge Pier Protection
34 82 19.13	Bridge Pier Ice Shields
<i>34 90 00</i>	<i>Unassigned</i>

## **DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION**

### **35 00 00 WATERWAY AND MARINE CONSTRUCTION**

#### **35 01 00 Operation and Maintenance of Waterway and Marine Construction**

- 35 01 30 Operation and Maintenance of Coastal Construction
- 35 01 40 Operation and Maintenance of Waterway Construction
  - 35 01 40.92 Preservation of Water Courses
- 35 01 50 Operation and Maintenance of Marine Construction
  - 35 01 50.71 Channel Excavation, Cleaning and Deepening
- 35 01 70 Operation and Maintenance of Dams

#### **35 05 00 Common Work Results for Waterway and Marine Construction**

- 35 05 30 Common Work Results for Coastal Construction
- 35 05 40 Common Work Results for Waterway Construction
- 35 05 50 Common Work Results for Marine Construction
- 35 05 70 Common Work Results for Dams

#### **35 06 00 Schedules for Waterway and Marine Construction**

- 35 06 30 Schedules for Coastal Construction
- 35 06 40 Schedules for Waterway Construction
- 35 06 50 Schedules for Marine Construction
- 35 06 70 Schedules for Dams

#### **35 08 00 Commissioning of Waterway and Marine Construction**

- 35 08 30 Commissioning of Coastal Construction
- 35 08 40 Commissioning of Waterway Construction
- 35 08 50 Commissioning of Marine Construction
- 35 08 70 Commissioning of Dams

### **35 10 00 WATERWAY AND MARINE SIGNALING AND CONTROL EQUIPMENT**

#### **35 11 00 Signaling and Control Equipment for Waterways**

- 35 11 13 Signaling Equipment for Waterways
- 35 11 53 Control Equipment for Waterways

#### **35 12 00 Marine Signaling and Control Equipment**

- 35 12 13 Marine Signaling Equipment
  - 35 12 13.13 Lighthouse Equipment
- 35 12 33 Marine Navigation Equipment
- 35 12 53 Marine Control Equipment

#### **35 13 00 Signaling and Control Equipment for Dams**

- 35 13 13 Signaling Equipment for Dams
- 35 13 53 Control Equipment for Dams

### **35 20 00 WATERWAY AND MARINE CONSTRUCTION AND EQUIPMENT**

- 35 20 13 Hydraulic Fabrications
  - 35 20 13.13 Hydraulic Bifurcation Panels
  - 35 20 13.16 Hydraulic Bulkheads
  - 35 20 13.19 Hydraulic Manifolds
  - 35 20 13.23 Hydraulic Penstocks
  - 35 20 13.26 Hydraulic Trashracks
- 35 20 16 Hydraulic Gates

- 35 20 16.13 Hydraulic Spillway Crest Gates
- 35 20 16.19 Hydraulic Head Gates
- 35 20 16.26 Hydraulic Sluice Gates
- 35 20 16.33 Hydraulic Miter Gates
- 35 20 16.39 Hydraulic Sector Gates
- 35 20 16.46 Hydraulic Tainter Gates and Anchorages
- 35 20 16.53 Hydraulic Vertical Lift Gates
- 35 20 16.59 Hydraulic Closure Gates
- 35 20 19 Hydraulic Valves
  - 35 20 19.13 Hydraulic Butterfly Valves
  - 35 20 19.23 Hydraulic Regulating Valves
- 35 20 23 Dredging
  - 35 20 23.13 Mechanical Dredging
  - 35 20 23.23 Hydraulic Dredging
  - 35 20 23.33 Integrated Dredging and Dewatering

### **35 30 00 COASTAL CONSTRUCTION**

#### **35 31 00 Shoreline Protection**

- 35 31 16 Seawalls
  - 35 31 16.13 Concrete Seawalls
  - 35 31 16.16 Segmental Seawalls
  - 35 31 16.19 Steel Sheet Piling Seawalls
  - 35 31 16.23 Timber Seawalls
  - 35 31 16.40 Stone Seawalls
- 35 31 19 Revetments
  - 35 31 19.13 Sacked Cement-Sand Revetments
  - 35 31 19.16 Concrete Unit Masonry Revetments
  - 35 31 19.36 Gabion Revetments
  - 35 31 19.40 Stone Revetments
- 35 31 23 Breakwaters
  - 35 31 23.13 Rubble Mound Breakwaters
  - 35 31 23.16 Precast Breakwater Modules
- 35 31 26 Jetties
  - 35 31 26.13 Concrete Jetties
  - 35 31 26.16 Concrete Unit Masonry Jetties
  - 35 31 26.36 Gabion Jetties
  - 35 31 26.40 Stone Jetties
- 35 31 29 Groins
  - 35 31 29.13 Concrete Groins
  - 35 31 29.16 Concrete Unit Masonry Groins
  - 35 31 29.26 Steel Groins
  - 35 31 29.36 Gabion Groins
  - 35 31 29.40 Stone Groins

#### **35 32 00 Artificial Reefs**

- 35 32 13 Scrap Material Artificial Reefs
  - 35 32 13.13 Scrap Concrete Artificial Reefs
  - 35 32 13.19 Scrap Steel Artificial Reefs
  - 35 32 13.33 Sunken Ship Artificial Reefs
- 35 32 16 Constructed Artificial Reefs
  - 35 32 16.13 Constructed Concrete Artificial Reefs
  - 35 32 16.19 Constructed Steel Artificial Reefs

### **35 40 00 WATERWAY CONSTRUCTION AND EQUIPMENT**

#### **35 41 00 Levees**

- 35 41 13 Landside Levee Berms

- 35 41 13.13 Stability Landside Levee Berms
- 35 41 13.16 Seepage Landside Levee Berms
- 35 41 16 Levee Cutoff Trenches
- 35 41 19 Levee Relief Wells
- 35 42 00 Waterway Bank Protection**
  - 35 42 13 Piling Bank Protection
    - 35 42 13.19 Steel Sheet Piling Bank Protection
    - 35 42 13.23 Timber Piling Bank Protection
    - 35 42 13.26 Plastic Piling Bank Protection
  - 35 42 29 Grout-Bag Bank Protection
  - 35 42 34 Soil Reinforcement Bank Protection
  - 35 42 35 Slope Protection Bank Protection
  - 35 42 36 Gabion Bank Protection
  - 35 42 37 Riprap Bank Protection
  - 35 42 53 Wall Bank Protection
    - 35 42 53.16 Concrete Unit Masonry Wall Bank Protection
    - 35 42 53.19 Segmental Wall Bank Protection
    - 35 42 53.40 Stone Wall Bank Protection
- 35 43 00 Waterway Scour Protection**
  - 35 43 29 Grout-Bag Scour Protection
  - 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 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 60 00 *Unassigned*

**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

35 80 00 *Unassigned*

35 90 00 *Unassigned*

## DIVISION 40 – PROCESS INTEGRATION

### 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 Fluorine 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 Sulfur-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 De-Ionized 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 50 00 *Unassigned*

40 60 00 *Unassigned*

40 70 00 *Unassigned*

**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 13.19 Personal Digital Assistant 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

## **DIVISION 41 – MATERIAL PROCESSING AND HANDLING 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 Airslide 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 Reclaim 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 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
<b>41 66 00</b>	<b>Miscellaneous Mobile Equipment</b>
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
<b>41 67 00</b>	<b>Plant Maintenance Equipment</b>
41 67 13	Plant Lube Oil System
41 67 16	Plant Fall Protection Equipment
41 67 19	Plant Safety Equipment
41 67 23	Plant Maintenance Tools
41 67 26	Plant Maintenance Washing Equipment
<i>41 70 00</i>	<i>Unassigned</i>
<i>41 80 00</i>	<i>Unassigned</i>
<i>41 90 00</i>	<i>Unassigned</i>

## DIVISION 42 – PROCESS HEATING, COOLING, AND DRYING EQUIPMENT

### 42 00 00 PROCESS HEATING, COOLING, AND DRYING EQUIPMENT

#### 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**
    - 42 32 13 Centrifugal Material Dryers
    - 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
  - 42 40 00 *Unassigned*
  - 42 50 00 *Unassigned*
  - 42 60 00 *Unassigned*
  - 42 70 00 *Unassigned*
  - 42 80 00 *Unassigned*
  - 42 90 00 *Unassigned*

## **DIVISION 43 – PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT**

### **43 00 00 PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT**

#### **43 01 00 Operation and Maintenance of Process Gas and Liquid Handling, Purification, and Storage Equipment**

- 43 01 10 Operation and Maintenance of Gas Handling Equipment
- 43 01 20 Operation and Maintenance of Liquid Handling Equipment
- 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 06 00 Schedules for Process Gas and Liquid Handling, Purification, and Storage Equipment**

- 43 06 10 Schedules for Gas Handling Equipment
- 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 and Pumps**

- 43 11 13 Gas Handling Fans
  - 43 11 13.13 Axial Gas Handling Fans
  - 43 11 13.16 Centrifugal Gas Handling Fans
- 43 11 23 Gas Handling Blowers
- 43 11 26 Gas Handling Jet Pumps
- 43 11 29 Gas Handling Vacuum Pumps

#### **43 12 00 Gas Compressors**

- 43 12 13 Centrifugal Gas Compressors
- 43 12 16 Piston Gas Compressors
- 43 12 19 Positive Displacement Gas Compressors
- 43 12 23 Rotary-Screw Gas Compressors
- 43 12 26 Vane Gas Compressors

#### **43 13 00 Gas Process Equipment**

- 43 13 13 Process Gas Blenders
- 43 13 16 Process Gas Meters
- 43 13 19 Process Gas Mixers
- 43 13 23 Process Gas Pressure Regulators

### **43 20 00 LIQUID HANDLING EQUIPMENT**

#### **43 21 00 Liquid Pumps**

- 43 21 13 Centrifugal Liquid Pumps
- 43 21 16 Diaphragm Liquid Pumps



November 2004

- 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 43 Liquid Filters
  - 43 22 43.13 Cyclonic Liquid Filters
  - 43 22 43.16 Media Liquid Filters
  - 43 22 43.19 Press Liquid Filters
- 43 22 53 Liquid Process Meters
- 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 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 De-Ionization 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 Regenerable 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

November 2004

- 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 Gas and Liquid Storage Equipment**

- 43 41 13 Gas and Liquid Pressure Vessels
  - 43 41 13.13 Ferrous Gas and Liquid Pressure Vessels
  - 43 41 13.16 Nonferrous Gas and Liquid Pressure Vessels
  - 43 41 13.19 Fiberglass Gas and Liquid Pressure Vessels
- 43 41 16 Atmospheric Tanks and Vessels
  - 43 41 16.13 Horizontal Atmospheric Tanks and Vessels
  - 43 41 16.16 Vertical Atmospheric Tanks and Vessels

43 50 00 *Unassigned*

43 60 00 *Unassigned*

43 70 00 *Unassigned*

43 80 00 *Unassigned*

43 90 00 *Unassigned*

## DIVISION 44 – POLLUTION CONTROL EQUIPMENT

### 44 00 00 POLLUTION CONTROL EQUIPMENT

#### 44 01 00 Operation and Maintenance of Pollution Control Equipment

- 44 01 10 Operation and Maintenance of Air Pollution Control
- 44 01 20 Operation and Maintenance of Noise Pollution Control
- 44 01 40 Operation and Maintenance of Water Treatment Equipment
- 44 01 50 Operation and Maintenance of Solid Waste Control

#### 44 06 00 Schedules for Pollution Control Equipment

- 44 06 10 Schedules for Air Pollution Control
- 44 06 20 Schedules for Noise Pollution Control
- 44 06 40 Schedules for Water Treatment Equipment
- 44 06 50 Schedules for Solid Waste Control

#### 44 08 00 Commissioning of Pollution Control Equipment

- 44 08 10 Commissioning of Air Pollution Control
- 44 08 20 Commissioning of Noise Pollution Control
- 44 08 40 Commissioning Water Treatment Equipment
- 44 08 50 Commissioning Solid Waste Control

### 44 10 00 AIR POLLUTION CONTROL

#### 44 11 00 Air Pollution Control Equipment

- 44 11 13 Cyclonic Separators
- 44 11 16 Industrial Dust Collectors
- 44 11 19 Air Pollution Filters
- 44 11 23 Fugitive Dust Control
- 44 11 26 Air Pollution Control Precipitators
- 44 11 29 Air Pollution Scrubbers
  - 44 11 29.13 Dry-Air Pollution Scrubbers
  - 44 11 29.16 Wet-Air Pollution Scrubbers
- 44 11 33 Thermal Oxidizers
- 44 11 36 Vacuum Extraction Systems

### 44 20 00 NOISE POLLUTION CONTROL

#### 44 21 00 Noise Pollution Control Equipment

- 44 21 13 Noise Abatement Barriers
  - 44 21 13.13 Fixed Noise Abatement Barriers
  - 44 21 13.16 Flexible Noise Abatement Barriers
  - 44 21 13.19 Portable Noise Abatement Barriers
- 44 21 23 Noise Pollution Silencers
- 44 21 26 Frequency Cancellers

### 44 40 00 WATER TREATMENT EQUIPMENT

#### 44 41 00 Packaged Water Treatment

- 44 41 13 Packaged Water Treatment Plants
  - 44 41 13.13 Chemical Packaged Water Treatment Plants
  - 44 41 13.16 Biological Packaged Water Treatment Plants
  - 44 41 13.19 Thermal Packaged Water Treatment Plants

#### 44 42 00 General Water Treatment Equipment

- 44 42 13 Aeration Water Treatment Equipment

- 44 42 16 American Petroleum Institute Separators
- 44 42 19 Water Treatment Blowers
- 44 42 23 Water Treatment Clarifiers
- 44 42 26 Water Treatment Comminutors
- 44 42 29 Water Treatment Compressors
- 44 42 33 Water Treatment Digesters
- 44 42 36 Water Treatment Dissolved Air Flotation Equipment
- 44 42 39 Water Treatment Grit Collectors
- 44 42 43 Water Treatment Induced Air Flotation Equipment
- 44 42 46 Water Treatment Mixers
- 44 42 49 Water Treatment Oil/Grease Interceptors
- 44 42 53 Water Treatment Oil/Water Separators
- 44 42 56 Water Treatment Pumps
- 44 42 59 Water Treatment Reactors
- 44 42 63 Water Treatment Sediment Removal Equipment
- 44 42 66 Water Treatment Skimmers
- 44 42 69 Water Treatment Spray Equipment
- 44 42 73 Water Treatment Tanks/Tank Liners
- 44 43 00 Water Filtration Equipment**
  - 44 43 13 Water Filters
    - 44 43 13.13 Bag Water Filters
    - 44 43 13.16 Cartridge Water Filters
    - 44 43 13.19 Fabric Water Filters
    - 44 43 13.23 Multimedia Water Filters
    - 44 43 13.26 Packaged Water Filters
  - 44 43 23 Water Filter Presses
  - 44 43 26 Rotary-Drum Water Filtration Equipment
  - 44 43 29 Water Filtration Sand
  - 44 43 33 Water Filtration Screens
  - 44 43 36 Vacuum Water Filtration Equipment
- 44 44 00 Water Treatment Chemical Systems Equipment**
  - 44 44 13 Water Treatment Chemical Feed Equipment
  - 44 44 16 Water Chlorinators
  - 44 44 19 Water Coagulators
  - 44 44 23 Water Dechlorinators
  - 44 44 26 Dissolved-Solids Water Treatment Equipment
  - 44 44 29 Water Emulsifiers
  - 44 44 33 Water Emulsion Crackers
  - 44 44 36 Water Flocculators
  - 44 44 39 Water Fluoridation Equipment
  - 44 44 43 Water Heavy Metals Treatment Equipment
  - 44 44 46 Water Hydrothermal Equipment
  - 44 44 49 Water Oils Treatment Equipment
  - 44 44 53 Water Oxidation/Reduction Equipment
  - 44 44 56 Water Ozone Equipment
  - 44 44 59 Water pH Adjustment Equipment
  - 44 44 63 Water Polymers Equipment
  - 44 44 66 Water Precipitators
  - 44 44 69 Water Pretreatment Equipment
  - 44 44 73 Water Ultraviolet Radiation Equipment
- 44 45 00 Water Treatment Biological Systems Equipment**

44 45 13	Water Biofilters
44 45 16	Water Bubble Membrane Diffusers
<b>44 46 00</b>	<b>Sludge Treatment and Handling Equipment for Water Treatment Systems</b>
44 46 13	Sludge Conveyors
44 46 16	Sludge Dewatering Equipment
44 46 19	Sludge Digesters
44 46 23	Sludge Incinerators
44 46 26	Sludge Thickeners
<b>44 50 00</b>	<b>SOLID WASTE CONTROL</b>
<b>44 51 00</b>	<b>Solid Waste Control Equipment</b>
44 51 13	Solid Waste Compactors
44 51 16	Solid Waste Baling Equipment
44 51 19	Solid Waste Fluffing Equipment
44 51 23	Solid Waste Liquid Extraction Equipment
44 51 26	Solid Waste Containers
44 51 29	Solid Waste Transfer Trailers
44 51 33	Solid Waste Transfer Stations
<i>44 60 00</i>	<i>Unassigned</i>
<i>44 70 00</i>	<i>Unassigned</i>
<i>44 80 00</i>	<i>Unassigned</i>
<i>44 90 00</i>	<i>Unassigned</i>

## DIVISION 45 – INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT

- 45 00 00 INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT**
  - 45 08 00 Commissioning of Industry-Specific Manufacturing Equipment**
  - 45 11 00 Oil and Gas Extraction Equipment**
    - 45 11 01 Operation and Maintenance of Oil and Gas Extraction Equipment
    - 45 11 06 Schedules for Oil and Gas Extraction Equipment
    - 45 11 10 thru
    - 45 12 99 *User Defined* Oil and Gas Extraction Equipment
  - 45 13 00 Mining Machinery and Equipment**
    - 45 13 01 Operation and Maintenance of Mining Machinery and Equipment
    - 45 13 06 Schedules for Mining Machinery and Equipment
    - 45 13 10 thru
    - 45 14 99 *User Defined* Mining Machinery and Equipment
  - 45 15 00 Food Manufacturing Equipment**
    - 45 15 01 Operation and Maintenance of Food Manufacturing Equipment
    - 45 15 06 Schedules for Food Manufacturing Equipment
    - 45 15 10 thru
    - 45 16 99 *User Defined* Food Manufacturing Equipment
  - 45 17 00 Beverage and Tobacco Manufacturing Equipment**
    - 45 17 01 Operation and Maintenance of Beverage and Tobacco Manufacturing Equipment
    - 45 17 06 Schedules for Beverage and Tobacco Manufacturing Equipment
    - 45 17 10 thru
    - 45 18 99 *User Defined* Beverage and Tobacco Manufacturing Equipment
  - 45 19 00 Textiles and Apparel Manufacturing Equipment**
    - 45 19 01 Operation and Maintenance of Textiles and Apparel Manufacturing Equipment
    - 45 19 06 Schedules for Textiles and Apparel Manufacturing Equipment
    - 45 19 10 thru
    - 45 20 99 *User Defined* Textiles and Apparel Manufacturing Equipment
  - 45 21 00 Leather and Allied Product Manufacturing Equipment**
    - 45 21 01 Operation and Maintenance of Leather and Allied Product Manufacturing Equipment
    - 45 21 06 Schedules for Leather and Allied Product Manufacturing Equipment
    - 45 21 10 thru
    - 45 22 99 *User Defined* Leather and Allied Product Manufacturing Equipment
  - 45 23 00 Wood Product Manufacturing Equipment**
    - 45 23 01 Operation and Maintenance of Wood Product Manufacturing Equipment
    - 45 23 06 Schedules for Wood Product Manufacturing Equipment
    - 45 23 10 thru
    - 45 24 99 *User Defined* Wood Product Manufacturing Equipment
  - 45 25 00 Paper Manufacturing Equipment**
    - 45 25 01 Operation and Maintenance of Paper Manufacturing Equipment
    - 45 25 06 Schedules for Paper Manufacturing Equipment
    - 45 25 10 thru
    - 45 26 99 *User Defined* Paper Manufacturing Equipment
  - 45 27 00 Printing and Related Manufacturing Equipment**
    - 45 27 01 Operation and Maintenance of Printing and Related Manufacturing Equipment
    - 45 27 06 Schedules for Printing and Related Manufacturing Equipment

- 45 27 10 thru
- 45 28 99 *User Defined* Printing and Related Manufacturing Equipment
- 45 29 00 Petroleum and Coal Products Manufacturing Equipment**
  - 45 29 01 Operation and Maintenance of Petroleum and Coal Products Manufacturing Equipment
  - 45 29 06 Schedules for Petroleum and Coal Products Manufacturing Equipment
  - 45 29 10 thru
  - 45 30 99 *User Defined* Petroleum and Coal Products Manufacturing Equipment
- 45 31 00 Chemical Manufacturing Equipment**
  - 45 31 01 Operation and Maintenance of Chemical Manufacturing Equipment
  - 45 31 06 Schedules for Chemical Manufacturing Equipment
  - 45 31 10 thru
  - 45 32 99 *User Defined* Chemical Manufacturing Equipment
- 45 33 00 Plastics and Rubber Manufacturing Equipment**
  - 45 33 01 Operation and Maintenance of Plastics and Rubber Manufacturing Equipment
  - 45 33 06 Schedules for Plastics and Rubber Manufacturing Equipment
  - 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
  - 45 35 06 Schedules for Nonmetallic Mineral Product Manufacturing Equipment
  - 45 35 10 thru
  - 45 36 99 *User Defined* Nonmetallic Mineral Product Manufacturing Equipment
- 45 37 00 Primary Metal Manufacturing Equipment**
  - 45 37 01 Operation and Maintenance of Primary Metal Manufacturing Equipment
  - 45 37 06 Schedules for Primary Metal Manufacturing Equipment
  - 45 37 10 thru
  - 45 38 99 *User Defined* Primary Metal Manufacturing Equipment
- 45 39 00 Fabricated Metal Product Manufacturing Equipment**
  - 45 39 01 Operation and Maintenance of Fabricated Metal Product Manufacturing Equipment
  - 45 39 06 Schedules for Fabricated Metal Product Manufacturing Equipment
  - 45 39 10 thru
  - 45 40 99 *User Defined* Fabricated Metal Product Manufacturing Equipment
- 45 41 00 Machinery Manufacturing Equipment**
  - 45 41 01 Operation and Maintenance of Machinery Manufacturing Equipment
  - 45 41 06 Schedules for Machinery Manufacturing Equipment
  - 45 41 10 thru
  - 45 42 99 *User Defined* Machinery Manufacturing Equipment
- 45 43 00 Computer and Electronic Product Manufacturing Equipment**
  - 45 43 01 Operation and Maintenance of Computer and Electronic Product Manufacturing Equipment
  - 45 43 06 Schedules for Computer and Electronic Product Manufacturing Equipment
  - 45 43 10 thru
  - 45 44 99 *User Defined* Computer and Electronic Product Manufacturing Equipment
- 45 45 00 Electrical Equipment, Appliance, and Component Manufacturing Equipment**
  - 45 45 01 Operation and Maintenance of Electrical Equipment, Appliance, and Component Manufacturing Equipment
  - 45 45 06 Schedules for Electrical Equipment, Appliance, and Component Manufacturing Equipment
  - 45 45 10 thru
  - 45 46 99 *User Defined* Electrical Equipment, Appliance, and Component Manufacturing Equipment
- 45 47 00 Transportation Manufacturing Equipment**
  - 45 47 01 Operation and Maintenance of Transportation Manufacturing Equipment

- 45 47 06 Schedules for Transportation Manufacturing Equipment
- 45 47 10 thru
- 45 48 99 *User Defined* Transportation Manufacturing Equipment
- 45 49 00 Furniture and Related Product Manufacturing Equipment**
- 45 49 01 Operation and Maintenance of Furniture and Related Product Manufacturing Equipment
- 45 49 06 Schedules for Furniture and Related Product Manufacturing Equipment
- 45 49 10 thru
- 45 50 99 *User Defined* Furniture and Related Product Manufacturing Equipment
- 45 51 00 Other Manufacturing Equipment**
- 45 51 01 Operation and Maintenance of Other Manufacturing Equipment
- 45 51 06 Schedules for Other Manufacturing Equipment
- 45 51 10 thru
- 45 52 99 *User Defined* Other Manufacturing Equipment
  
- 45 60 00 *Unassigned*
- 45 70 00 *Unassigned*
- 45 80 00 *Unassigned*
- 45 90 00 *Unassigned*



## DIVISION 48 – ELECTRICAL POWER GENERATION

### 48 00 00 ELECTRICAL POWER GENERATION

#### 48 01 00 Operation and Maintenance for Electrical Power Generation

48 01 10 Operation and Maintenance of Electrical Power Generation Equipment

48 01 70 Operation and Maintenance of Electrical Power Generation Testing

#### 48 05 00 Common Work Results for Electrical Power Generation

#### 48 06 00 Schedules for Electrical Power Generation

48 06 10 Schedules for Electrical Power Generation Equipment

48 06 70 Schedules for Electrical Power Generation Testing

#### 48 08 00 Commissioning of Electrical Power Generation

#### 48 09 00 Instrumentation and Control for Electrical Power Generation

### 48 10 00 ELECTRICAL POWER GENERATION EQUIPMENT

#### 48 11 00 Fossil Fuel Plant Electrical Power Generation Equipment

48 11 13 Fossil Fuel Electrical Power Plant Boilers

48 11 16 Fossil Fuel Electrical Power Plant Condensers

48 11 19 Fossil Fuel Electrical Power Plant Steam Turbines

48 11 23 Fossil Fuel Electrical Power Plant Gas Turbines

48 11 26 Fossil Fuel Electrical Power Plant Generators

#### 48 12 00 Nuclear Fuel Plant Electrical Power Generation Equipment

48 12 13 Nuclear Fuel Reactors

48 12 13.13 Nuclear Fuel Fission Reactors

48 12 13.16 Nuclear Fuel Fusion Reactors

48 12 23 Nuclear Fuel Electrical Power Plant Steam Generators

48 12 26 Nuclear Fuel Electrical Power Plant Condensers

48 12 29 Nuclear Fuel Electrical Power Plant Turbines

48 12 33 Nuclear Fuel Electrical Power Generators

#### 48 13 00 Hydroelectric Plant Electrical Power Generation Equipment

48 13 13 Hydroelectric Power Plant Water Turbines

48 13 16 Hydroelectric Power Plant Electrical Power Generators

#### 48 14 00 Solar Energy Electrical Power Generation Equipment

48 14 13 Solar Energy Collectors

48 14 13.13 Amorphous Solar Energy Collectors

48 14 13.16 Plate Cell Solar Energy Collectors

48 14 13.19 Vacuum Tube Solar Energy Collectors

#### 48 15 00 Wind Energy Electrical Power Generation Equipment

48 15 13 Windmills

48 15 16 Wind Energy Electrical Power Generators

#### 48 16 00 Geothermal Energy Electrical Power Generation Equipment

48 16 13 Geothermal Energy Heat Pumps

48 16 16 Geothermal Energy Condensers

48 16 19 Geothermal Energy Steam Turbines

48 16 23 Geothermal Energy Electrical Power Generators

#### 48 17 00 Electrochemical Energy Electrical Power Generation Equipment

48 17 13 Electrical Power Generation Batteries

#### 48 18 00 Fuel Cell Electrical Power Generation Equipment

48 18 13	Electrical Power Generation Fuel Cells
48 18 16	Hydrogen Control Equipment
<b>48 19 00</b>	<b>Electrical Power Control Equipment</b>
48 19 13	Electrical Power Generation Battery Charging Equipment
48 19 16	Electrical Power Generation Inverters
48 19 19	Electrical Power Generation Solar Tracking Equipment
48 19 23	Electrical Power Generation Transformers
48 19 26	Electrical Power Generation Voltage Regulators
<i>48 20 00</i>	<i>Unassigned</i>
<i>48 30 00</i>	<i>Unassigned</i>
<i>48 40 00</i>	<i>Unassigned</i>
<i>48 50 00</i>	<i>Unassigned</i>
<i>48 60 00</i>	<i>Unassigned</i>
<b>48 70 00</b>	<b>ELECTRICAL POWER GENERATION TESTING</b>
<b>48 71 00</b>	<b>Electrical Power Generation Test Equipment</b>
48 71 13	Electrical Power Generation Corona Test Equipment
48 71 16	Electrical Power Generation Current Test Equipment
48 71 19	Electrical Power Generation Power Test Equipment
48 71 23	Electrical Power Generation Resistance Test Equipment
48 71 26	Electrical Power Generation Voltage Test Equipment
<i>48 80 00</i>	<i>Unassigned</i>
<i>48 90 00</i>	<i>Unassigned</i>