

AD-A251 108

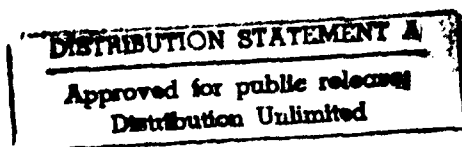


(2)

# Tri-Service Construction Guide Specifications

NA105R2

Jordan W. Cassell  
James L. Hathaway



92 6 01 067

92-14398



April 1992

# Tri-Service Construction Guide Specifications

NA105R2

Jordan W. Cassell  
James L. Hathaway

*Prepared pursuant to Department of Defense Contract MDA903-90-C-0006.  
The views expressed here are those of the Logistics Management Institute at the time of issue but not  
necessarily those of the Department of Defense. Permission to quote or reproduce any part  
– except for Government purposes – must be obtained from the Logistics Management Institute.*

Logistics Management Institute  
6400 Goldsboro Road  
Bethesda, Maryland 20817-5886



## **Executive Summary**

### **TRI-SERVICE CONSTRUCTION GUIDE SPECIFICATIONS**

Construction specifications are important in controlling the cost, quality of materials, and workmanship in construction projects. Incomplete, erroneous, or out-of-date specifications often lead to poor or excessively costly construction, unnecessary and costly design changes, and disputes and litigation. Improving the quality of construction specifications can offer major cost, quality, and performance benefits.

Currently, construction guide specification systems are maintained by both the U.S. Army Corps of Engineers and the Naval Facilities Engineering Command. At a meeting held on 5 September 1991, the Tri-Service Military Construction Executive Team agreed that the Services need a shared, jointly maintained data base of construction specifications and criteria to both improve quality and reduce costs. The primary way to realize those objectives is to standardize and consolidate the construction guide specifications.

Three organization options can achieve the goal of a tri-Service construction guide specification system: a single-Service lead in which one Service would provide management responsibility for all specifications; a single-Service lead, joint-Service technical responsibility in which management would be held in one Service and technical responsibility would be assigned to specific organizations within any Service; and split-Service responsibility in which management responsibility would be divided among the Services for particular specifications. We present the advantages and disadvantages of each option for the Tri-Service Military Construction Executive Team and the respective Service leaders who are responsible for making a consolidation decision. Under all options, the Army, Navy, and Air Force must work together as partners to ensure the effective implementation of such a program if the Services are to achieve the goal of producing a tri-Service guide. Any option will require a major change in the way business is currently accomplished but has the potential for significant cost savings and improvements in quality.

## CONTENTS

	<u>Page</u>
Executive Summary .....	iii
Chapter 1. Introduction .....	1- 1
Background .....	1- 2
Construction Specifications .....	1- 3
Construction Contracts .....	1- 6
Construction Documents .....	1- 6
Construction Specifications Institute Masterformat .....	1-10
Guide Specification Systems .....	1-11
SPECSINTACT Automated Specification System .....	1-12
Construction Criteria Base .....	1-13
Chapter 2. Assessment of Construction Guide Specifications .....	2- 1
Description of Data .....	2- 1
Methodology .....	2- 1
Summary .....	2- 2
Chapter 3. Comparison of Military Guide Specification Systems .....	3- 1
USACE Guide Specification Process .....	3- 1
NAVFAC Guide Specification Process .....	3- 5
Systems Assessment .....	3- 6
Other Service Comparisons .....	3- 7
Defense Standardization Program .....	3- 9
Tri-Service Consolidation .....	3-10
Chapter 4. Conclusions and Recommendations .....	4- 1
Effective Guide Specifications .....	4- 1
Organization Options .....	4- 3
Appendix A. Construction Specifications Institute Masterformat Broadscope Section Titles .....	A-1 – A-6
Appendix B. Construction Criteria Base Contents: Fourth Quarter 1991 .....	B-1 – B-6

# CONTENTS (Continued)

	<u>Page</u>
Appendix C. Construction Guide Specifications Data base .....	C-1 - C-31
Appendix D. Construction Guide Specifications Matrix .....	D-1 - D-33



<b>Accession For</b>	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification _____	
By _____	
Distribution/	
<b>Availability Codes</b>	
<b>Dist</b>	Avail and/or Special
A-1	

## **CHAPTER 1**

### **INTRODUCTION**

The Tri-Service Military Construction Executive Team meeting on 5 September 1991 in Washington, D.C., discussed construction specifications, standards, and criteria. Senior executives from the Army, Navy, and Air Force agreed to the need for a shared, jointly maintained data base of construction specifications and criteria.

Standardizing construction guide specifications is the primary means of achieving that objective. Fortunately, that task was started long ago by the Construction Specifications Institute (CSI). The CSI format is used extensively in building construction and has been adopted by the Consulting Committee for Construction Specifications of the Federal Construction Council although it has not yet been completely adopted for civil works construction. Consolidated standardized specifications can benefit the Government, owners, architects, engineers, and contractors in many ways, including quicker and more accurate preparation and review of construction documents and lower liability exposure.

In the late 1970s, a series of Federal Construction Guide Specifications (FCGS) was developed. The Federal Construction Council served as the planning, coordinating, and operating body to encourage continuing cooperation among Federal agencies under the FCGS program. Although the FCGS documents were completed, they received little use and were soon abandoned. The procedures used in the FCGS program tended to be burdensome; furthermore, no Federal agency was assigned lead responsibility, and that ultimately caused the demise of the FCGS program.

To ensure the development and effective implementation of a tri-Service construction guide specification system, the Army, Navy, and Air Force must work together as partners. The senior executives must be committed to the process and willing to make the appropriate changes within their respective Services to improve the system. A successful tri-Service construction guide specification program will require a major cultural change in the way business is currently performed. With a

declining military construction program, the Services may no longer be able to afford a business-as-usual approach to maintaining construction criteria documents.

## BACKGROUND

Every construction project has a set of documents that describes physical and legal requirements. Those documents consist of drawings or plans and a project manual, which generally includes bidding requirements, contract forms, conditions of the contract, and specifications. Construction specifications are an important factor in controlling cost, quality, and workmanship in construction. When they are incomplete, erroneous, or out of date, the result is often poor construction, costly design changes, disputes, and even litigation. Poor specifications can result in added costs ranging up to hundreds of thousands of dollars on a single project.

Specifications are written by architects or engineers to define the minimum quality, performance, and installation requirements for construction projects. Specification writing has traditionally fallen in a crack between the legal and engineering professions; typically, it is neither taught in engineering school where engineers are taught to design nor in law school where lawyers are taught to draft contracts. Often viewed as a necessary evil of the engineer's job, specification writing requires mastery of the technical elements of design as well as the skills of contract drafting.

The *Engineering News Record* and the School of Building Construction at the University of Florida recently completed a survey on the quality and comprehensiveness of project specifications. They concluded that most "specifications have major omissions, require significant modifications, conflict with other contract documents, are biased, are too often 'boilerplate,' and are not equal in quality or comprehensiveness to drawings."<sup>1</sup>

It has been said that over 50 percent of the construction claims are caused by unclear, ambiguous, or contradictory drawings and specifications. When those claims end up in court and questions arise about the intent of the contract, the court is more likely to turn to the specifications than to drawings. Moreover, in Federal Government contracting, specifications take precedence over drawings pursuant to

---

<sup>1</sup>"Contractor Survey Finds That Specs Don't Measure Up," *Engineering News Record*, 17 June, 1991, pp. 24-27.

the Federal Acquisition Regulation (FAR). Judges and juries are much more able to interpret written specifications than to comprehend a technical drawing.

## **CONSTRUCTION SPECIFICATIONS**

### **History**

Construction communications have evolved gradually to include drawings supplemented by written words. In ancient history, construction documentation was supplemented by the direct supervision of master designer-builders. By the seventh century, a contractual element was added in the form of written contracts between kings and their builders, thus establishing all of the fundamental elements of construction communications observed to this day – agreement, conditions, drawings, and specifications.

At the beginning of the twentieth century, although the building process was still relatively simple and involved only a few parties by today's standards, builders began to require extensive written descriptions to supplement the construction drawings. That was the beginning of modern-day specification writing. The trend toward increased use of written specifications was supported during the Depression years of the early 1930s when many builders bid for the few construction projects being undertaken, and it continued during the period of wartime industrial expansion in the early 1940s.

### **Types of Specifications**

Four types of specifications – descriptive, performance, reference standard, and proprietary – are now in use, and nearly all project specifications employ more than one type. Sometimes, in fact, all four methods will appear in the same specification. No clear rule dictates the use of any one method or combination of methods.

#### ***Descriptive Specifications***

A descriptive specification is a detailed written description of the required properties of a product, material, or piece of equipment and of the workmanship necessary for its proper installation. In descriptive specifications, proprietary names of manufacturers may not be used.

“A concrete mix of four parts coarse concrete aggregate, two parts fine aggregate, and one part cement with a 0.5 water-cement ratio” is a descriptive



specification. A performance strength of 3,000 psi after 28 days is implied in the design mix. If concrete conforming to the descriptive specification is supplied and does not withstand that load, the contractor could not be held responsible because the design mix was specified. The burden of performance is assumed by the specifier who uses a descriptive specification.

Once widely preferred, the descriptive method is being used less often as projects become more complex and as better reference standards become available. Writing a descriptive specification is a lengthy and tedious process. However, when proprietary names are forbidden, when a performance specification is impractical, and when adequate reference standards do not exist, a descriptive specification may be the only choice.

### ***Performance Specifications***

A performance specification states the end result rather than the means to the end result. To require a concrete strength of 3,000 psi after 28 days, for example, is a performance specification. It is defined as a statement of required results with criteria for verifying compliance but without unnecessary limitations on the methods for achieving the required results. *A statement of required results* means that all desired end results must be spelled out. An incomplete performance specification can result in a major loss of control over the quality of materials, equipment, and workmanship going into a project. *With criteria for verifying compliance* means that the criteria can be measured, tested, evaluated, or validated in some other acceptable way. Measurement and testing may be done prior to manufacture, at the time of manufacture, in place at the site, or after a period of service.

### ***Reference Standards***

The use of reference standards is part of the building industry's evolution from a custom, handcraft industry into a modern technologically advanced industry based on nationally recognized standards. Reference standards are requirements set by authority, custom, or general consensus and are established as accepted criteria. They are published by trade associations, government, and institutional organizations. Typical publishers are manufacturers and product users who are extremely knowledgeable about the particular reference standard subject. Reference standards are incorporated into a project manual by reference to a number, title, or other designation. The provisions of standards so referenced become a part of the project

manual just as though the entire standard were included in its entirety. Their incorporation into the project manual by reference saves the specifier the work of writing an elaborate and lengthy text.

### ***Proprietary Specifications***

Proprietary specifications identify the desired products by manufacturer's name, brand name, model number, type designation, or other unique characteristics. Even if a manufacturer's name is not stated, a specification is also considered proprietary when the product specified is available from only one source. The proprietary specification offers the following advantages:

- Provides close control over product selection
- Permits the preparation of more detailed and complete drawings based on precise information obtained from manufacturer's data
- Reduces specification length and, therefore, the production time
- Simplifies bidding by narrowing competition and removing product pricing as a major variable.

The use of proprietary specifications also has some disadvantages:

- It eliminates competition.
- It requires products with which the contractor may have had little or bad experience.
- It favors certain products and manufacturers over others.

### **Preparation of Construction Specifications**

The preparation of specifications for a construction project is generally a straightforward process. The specification writer's task can be divided into six steps:

- Preliminary research
- Preparation of preliminary specifications
- Comprehensive research
- Preparation of final specifications
- Proofing of specifications for errors
- Reproduction of final specifications.

Although the actual cost of preparing construction specifications may be less than 0.5 percent of the total project cost, the quality of the specifications can have a major effect on the final cost of construction. To avoid poorly written construction specifications, DoD should be concerned with the guide specification systems used by the U.S. Army Corps of Engineers (USACE) and the Naval Facilities Engineering Command (NAVFAC). As described later in this chapter, guide specifications provide both a framework and technical source from which individual project specifications can be tailored.

## **CONSTRUCTION CONTRACTS**

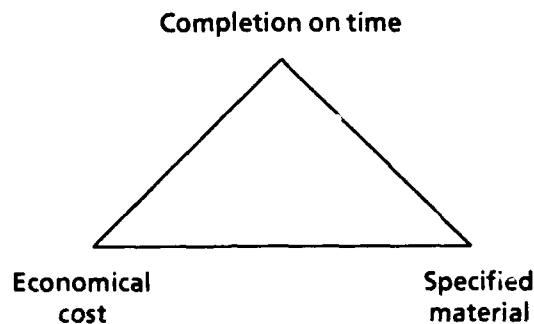
A construction agreement is generally consummated by written contract, which states the actions the contractor and the owner will each perform. The contractor promises to construct the project in accordance with the plans and specifications and to complete it within the time specified, all for an agreed sum of money. The owner promises to furnish the rights of way, preliminary information and data, and make periodic progress payments to the contractor.

The purpose of the contract is to define the rights and responsibilities of both parties to the transaction. Legal, financial, and engineering considerations are involved in construction contracts.

In contracting, the owner has three primary goals: to obtain the most economical cost, to specify the material to be used, and to ensure the construction is completed on schedule (see Figure 1-1). All of these goals may not be attainable in any one contract. The most economical cost may conflict with use of specified materials and completion on time; higher quality materials usually means higher cost and slower completion; and most rapid possible completion will work against low-cost and high-quality materials. Thus, the owner may have to compromise among his three goals to achieve the goal that is most important to him. The strongest factor influencing a contractor's performance is profit. That motivation should present no problem to the owner if the contract documents have been carefully prepared and administered, and no unforeseeable events develop during construction.

## **CONSTRUCTION DOCUMENTS**

Many people think of the end products of a design project as the drawings and specifications that a contractor will use to build the desired facility or structure. The



**FIG. 1-1. OWNER'S PRIMARY GOALS**

plans and specifications, however, are only a portion of what is collectively known as the construction documents: the graphic and written information on the project that is provided to contractors for bidding a job. Figure 1-2 shows the basic relationships between the various documents.

### **Drawings**

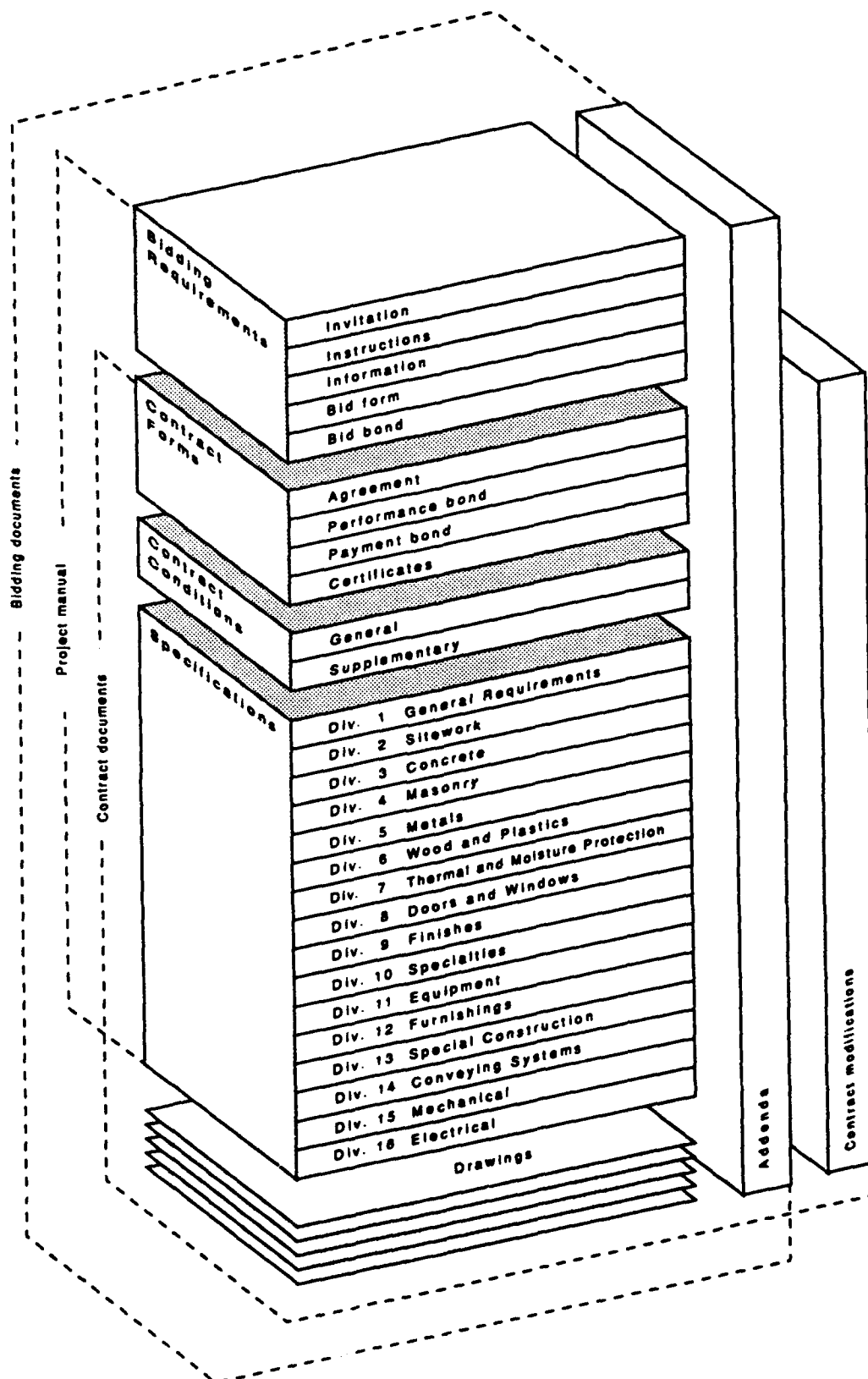
The drawings are a graphic representation of the work to be done. They show existing site conditions; the limits of work; and the relationship of the materials to each other, including sizes, shapes, locations, and connections. The drawings may include schematic diagrams showing such things as mechanical and electrical systems. They may also include schedules of structural elements, equipment, finishes, and other similar items. Construction drawings should not define the contractual or administrative terms for the project nor define the qualitative aspects of the finished products. Extensive use of notes on drawings is discouraged.

### **The Project Manual**

Written construction documents are bound together in a volume called the *project manual* and are divided into four main areas: bidding requirements, contract forms, conditions of the contract, and specifications (see Figure 1-2).

#### ***Bidding Requirements***

Bidding requirements are used to attract potential contractors and explain the procedures they are to follow in preparing and submitting their bids. They help bidders follow established procedures and submit bids that will not be disqualified



Source: Construction Specifications Institute.

**FIG. 1-2. CONSTRUCTION DOCUMENTS**

because of technicalities. Bidding requirements address all prospective bidders interested in the project, while the contract documents concern only the successful bidder. Typically, bidding requirements include the following:

- Invitation for bids
- Instructions to bidders
- Information available to bidders
- Bid form
- Bid bond form.

### ***Contract Forms***

The second part of the project manual includes the owner-contractor agreement (contract), along with performance and payment bonds and any necessary certificates, such as insurance forms.

***Agreement.*** The agreement is a written document signed by the owner and the contractor and is the legal instrument binding the parties to the work. It defines the relationships and obligations existing between owner and contractor, and, by reference, it incorporates the other contract documents. In the Federal Government, the agreement is Standard Form 1442, *Solicitation, Offer, and Award (Construction, Alteration, or Repair)*.

***Construction Performance Bond.*** The construction performance bond provides financial protection for the owner in the event the contractor does not complete the work in accordance with the agreement.

***Construction Payment Bond.*** The construction payment bond protects the subcontractors and the suppliers of material should the contractor fail to meet its financial obligations.

***Certificates.*** These documents include certificates of insurance and certificates of compliance with applicable laws and regulations.

### ***Conditions of the Contract***

In Government contracts, the conditions of the contract are referred to as the contract clauses. Contract clauses define the basic rights, responsibilities, and

relationships of the parties involved in the construction process. Standard contract clauses from the FAR are used in Federal construction contracts.

### ***Specifications***

Specifications are the fourth part of the project manual. They provide administrative details in addition to those detailed in the conditions of the contract and primarily define the qualitative requirements for products, materials, and workmanship upon which the design is based. The specifications are divided into 16 divisions in accordance with standardized procedures (see Figure 1-2).

### **CONSTRUCTION SPECIFICATIONS INSTITUTE MASTERFORMAT**

During the years closely following the end of World War II, the Federal Government initiated a vast building program. Specifications, the basic language of construction, were "multilingual," with each agency using its own format. The need for a standardized approach to organizing the project manual has long been recognized.

In early 1947, a group of Government specification writers began to meet informally to discuss the need for uniform specifications. They put in motion a plan to establish an organization in which specifiers and others in the construction industry could unite to develop a common method of communication. The organization they formed is now the Construction Specifications Institute (CSI). Its primary goals are to improve specifications writing, simplify specifications, provide a systematic approach to organizing construction documents, and promote the use of standardized forms and specifications to the maximum extent possible.

The CSI MASTERFORMAT is a system of numbers and titles for organizing construction information into a regular standard order, or sequence. By establishing a master list of titles and numbers, the MASTERFORMAT system promotes standardization and thereby facilitates the retrieval of information and improves construction communication. Since its introduction in 1963, the CSI 16-division format has been widely accepted as an industry standard in the United States and Canada. The CSI MASTERFORMAT broadscope section titles are presented in Appendix A.

## **GUIDE SPECIFICATION SYSTEMS**

Guide specification systems contain complete data on virtually every type of building material, product, and process that might be required in the construction of any building or structure. They are designed so that selected sections can be edited to form a complete set of specifications for a project. Guide specifications require an experienced specifications writer to edit and/or fill in the blanks in the master with the appropriate project information. Substantial economic and technical benefits have been gained by using electronic media to prepare construction documents. Electronic automation permits emphasis to be placed on making informed decisions and developing good master specifications rather than rushing to complete each project specification by a patchwork process. Automated techniques have improved the specifiers job; however, the use of automated guide specifications does not eliminate the need to have a trained professional assemble the final document.

Guide specification systems have been developed by several Federal agencies and private-sector construction and engineering organizations. The most widely used systems are discussed in the following subsections.

### **SPECTEXT® Guide Specification System**

SPECTEXT®, a leading industry guide specification system, was developed by the Construction Sciences Research Foundation under the auspices of CSI. It is updated by technical committees with coordination from CSI and is marketed by CSI. It is a library of more than 400 master guide specifications covering MASTERFORMAT's 16 divisions. SPECTEXT is available in hard copy or electronic media. It allows the specifier to customize product specifications and offers options for using proprietary or descriptive specifications, and in some instances, performance specifications.

### **MASTERSPEC® Guide Specification System**

MASTERSPEC® is another leading industry guide specification system that was developed by Production Systems for Architects and Engineers (PSAE), a company organized by the American Institute of Architects. Like SPECTEXT, the MASTERSPEC system is based on a comprehensive library of master specifications maintained by a full-time professional staff. The system follows MASTERFORMAT



organization and is available in hard copy or electronic media. MASTERSPEC covers all building types, including housing and heavy industrial buildings.

### **General Services Administration Guide Specification System**

The Public Buildings Services of the General Services Administration (GSA) has adopted and modified MASTERSPEC for Federal office building construction. In this study, we consider the GSA version of MASTERSPEC as a subset of MASTERSPEC rather than a separate specification system. Most comments on MASTERSPEC apply equally to the GSA version, and any differences are noted.

### **NAVFAC Guide Specification System**

For a number of years, NAVFAC has been developing and maintaining construction guide specifications that have been used successfully on construction projects. The Naval Facilities Guide Specification (NFGS) system contains approximately 340 master documents that follow the MASTERFORMAT organization. The NFGS system covers all 16 divisions of the CSI MASTERFORMAT although it deviates somewhat in section numbers and the use of section subheadings, which is typical for all the construction guide specification systems reviewed. NAVFAC has fully automated the production of project specifications by creating the master NFGS documents using the SPECSINTACT standard (SPECSINTACT is discussed later in this chapter).

### **Corps of Engineers Guide Specification System**

The Corps of Engineers Guide Specification (CEGS) system has evolved over a number of years and covers all 16 divisions of the CSI MASTERFORMAT. The CEGS system contains approximately 290 master documents that follow the MASTERFORMAT organization. The CEGS were developed primarily for military construction projects; however, they are used in civil works projects when appropriate. In conjunction with NAVFAC, USACE has also fully automated the production of project specifications by creating the master CEGS documents using the SPECSINTACT standard.

### **SPECSINTACT AUTOMATED SPECIFICATION SYSTEM**

In the space program, the National Aeronautics and Space Administration (NASA) has built, maintained, and altered a large number of facilities from high-rise

gantry towers and sophisticated test facilities to warehouse and administrative buildings. Obtaining economical construction that meets performance requirements is one of its major concerns. In the late 1960s, NASA developed SPECSINTACT, an automated specification system, and has realized the following improvements:

- Increased use of professional expertise in the development of specifications
- Fewer errors and omissions
- Uniformity in format and technical requirements
- Incorporation of new technology
- Reduced costs for developing individual project specifications.

Using the SPECSINTACT system, engineers and architects may retrieve relevant sections of text from computer storage and modify them to fit the needs of a specific project. The SPECSINTACT system is designed to allow creating, editing, and printing of project specifications and master text. In addition, it can produce project and section tables of contents, lists of resolved and unresolved references and submittals, and various other reports.

The SPECSINTACT system has been adopted by NAVFAC and USACE, and maintenance and improvements to the system are jointly funded by all three agencies. The SPECSINTACT system is also being incorporated into the MASTERSPEC system. Thus, it appears that SPECSINTACT is becoming a de facto automated specification standard.

## **CONSTRUCTION CRITERIA BASE**

Construction Criteria Base (CCB) is a compact disc system containing thousands of documents needed for the design and construction of buildings and civil works, together with built-in software for automatically accessing and processing the information. The CCB is managed by the National Institute of Building Sciences (NIBS), which distributes quarterly updates to CCB subscribers.

Compact disk read-only memory (CD-ROM) technology uses lasers to inscribe enormous amounts of information — text, graphics, and executable programs — on a compact disc identical in appearance to a music CD (see Figure 1-3). “Read-only memory” means that nothing can be written on a CD after it is produced;

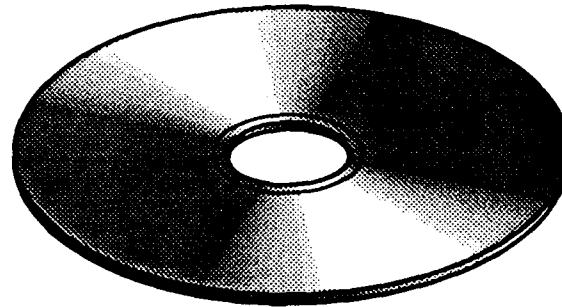
information can only be read. A compact disc reader is used to transfer information from the CD to a personal computer.

Compact discs can be distributed and stored much more cheaply than paper or any other medium such as microfiche or tapes. Printing, shipping, and filing costs are all but eliminated. And CDs contain more information in a more usable form. CD-ROM technology is becoming widespread in virtually every field, particularly in those in which knowledge is a key commodity – such as Government, medicine, education, law, and business – and it is ideal for the information-intensive field of design and construction.

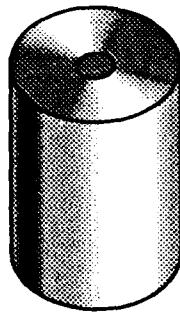
The documents on CCB are provided directly to NIBS by some 125 Federal agencies and building industry trade associations, professional societies, standards-writing organizations, and code bodies. The information currently incorporated into CCB is approaching one million printed pages. Appendix B gives a listing of the CCB contents.

The CCB does more than merely store and consolidate these massive amounts of information. It also automates many searching and processing functions that would be time-consuming and error-prone – or impossible – with less sophisticated technology. The SPECSINTACT system is included with the CCB, thus providing the user both quick-access and tailoring capabilities all within a single compact disc system.

One compact disc

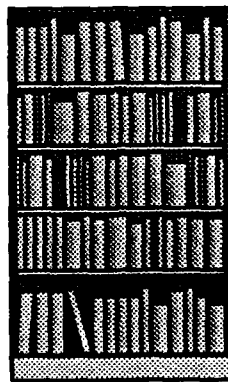


Is the equivalent of



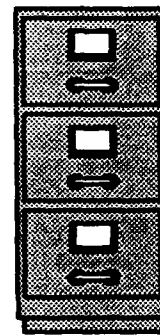
650 megabytes

or

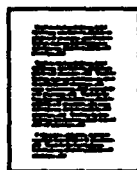


12 bookcases

or



20 filing  
cabinets



or

250,000 pages

or



1,650 floppy  
diskettes

Source: National Institutes of Building Sciences.

FIG. 1-3. COMPACT DISC INFORMATION STORAGE CAPACITY

## **CHAPTER 2**

### **ASSESSMENT OF CONSTRUCTION GUIDE SPECIFICATIONS**

#### **DESCRIPTION OF DATA**

We analyzed construction guide specifications using data obtained from the fourth quarter 1991 CCB. The data base includes construction guide specifications of several Federal agencies indexed by the CSI MASTERFORMAT (1988 edition). The CSI section numbers were assigned on the basis of interpretation of the specification subject matter as indicated by their titles. The CSI section number assignments are not intended to imply precise narrow scope designation, but were selected to place guide specifications with similar subject matter into reasonably sized groupings under the appropriate range of the CSI MASTERFORMAT. The data base is presented in Appendix C.

To maximize the reliability and relevance of our data, we restricted our analysis to seven Federal construction guide specification systems. We excluded specification systems from the Federal Aviation Administration, the Federal Highway Administration, and the Bureau of Reclamation because they are not in the CSI MASTERFORMAT and they deal primarily with public works construction. Table 2-1 presents a summary of the guide specifications reviewed by CSI MASTERFORMAT division.

#### **METHODOLOGY**

We developed a matrix of construction guide specifications from the data base presented in Appendix C. That matrix is presented in Appendix D. In that appendix, we indicate which agencies have documents for each particular CSI specification section. We tabulated the results and present a comparison of the construction guide specification systems in Table 2-2. We also made a comparison of the CEGS and NFGS specification systems; those results are presented in Table 2-3.

**TABLE 2-1**  
**SUMMARY OF CONSTRUCTION GUIDE SPECIFICATIONS REVIEWED**

CSI category	CE	CW	GS	NI	NN	NS	VA	Total
Division 0 – Bidding Requirements	0	1	2	0	0	0	3	6
Division 1 – General Requirements	6	4	17	0	8	12	9	56
Division 2 – Sitework	79	16	31	1	64	26	21	238
Division 3 – Concrete	9	11	14	0	9	11	11	65
Division 4 – Masonry	1	0	6	0	4	2	5	18
Division 5 – Metals	5	3	11	1	5	7	8	40
Division 6 – Woods and Plastics	2	0	10	0	3	3	2	20
Division 7 – Thermal and Moisture Protection	18	0	33	0	32	13	28	124
Division 8 – Doors and Windows	21	0	33	1	19	17	28	119
Division 9 – Finishes	20	1	44	1	29	16	24	135
Division 10 – Specialties	6	0	30	2	9	10	20	77
Division 11 – Equipment	23	15	15	3	34	4	37	131
Division 12 – Furnishings	6	0	26	3	9	3	12	59
Division 13 – Special Construction	16	0	5	0	13	3	8	45
Division 14 – Conveying Systems	4	5	7	0	7	4	5	32
Division 15 – Mechanical	30	6	55	3	53	54	45	246
Division 16 – Electrical	41	14	62	3	39	44	44	247
<b>Total</b>	<b>287</b>	<b>76</b>	<b>401</b>	<b>18</b>	<b>337</b>	<b>229</b>	<b>310</b>	<b>1,658</b>

**Note:** CE = U.S. Army Corps of Engineers (for military construction); CW = U.S. Army Corps of Engineers (for Civil Works); GS = General Services Administration; NI = National Institutes of Health; NN = NAVFAC; NS = NASA; VA = Department of Veteran Affairs.

## SUMMARY

The Federal Government has a significant opportunity to achieve savings by consolidating the various construction guide specification systems now in use. If all the agencies consolidated to one system of documents, that system would contain approximately 954 guide specifications (i.e., 644 unique and 310 duplicate documents); this would result in the elimination of 704 documents. (Note: We assumed that all unique documents are absolutely necessary.)

Within DoD, the Tri-Service Military Construction Executive Team has an opportunity to achieve its goal of a shared, jointly maintained data base of construction specifications and criteria. A tri-Service construction guide specification system would contain approximately 486 guide specifications (i.e., 353 unique

**TABLE 2-2**  
**COMPARISON OF CONSTRUCTION GUIDE SPECIFICATION SYSTEMS**

CSI category	CE		CW		GS		NI		NN		NS		VA		Total	
	U	D	U	D	U	D	U	D	U	D	U	D	U	D	U	D
Division 0 - Bidding Requirements	0	0	0	0	2	0	0	0	0	0	0	0	3	0	5	0
Division 1 - General Requirements	3	3	3	1	7	10	0	0	1	7	3	9	2	7	19	37
Division 2 - Sitework	41	38	11	5	10	21	0	1	28	36	6	20	6	15	102	136
Division 3 - Concrete	2	7	4	7	6	8	0	0	2	7	3	8	3	8	20	45
Division 4 - Masonry	0	1	0	0	2	4	0	0	0	4	0	2	2	3	4	14
Division 5 - Metals	1	4	1	2	4	7	1	0	0	5	1	6	0	8	8	32
Division 6 - Woods and Plastics	0	2	0	0	8	2	0	0	1	2	1	2	0	2	10	10
Division 7 - Thermal and Moisture Protection	2	16	0	0	8	25	0	0	13	19	2	11	5	23	30	94
Division 8 - Doors and Windows	5	16	0	0	11	22	0	1	3	16	4	13	6	22	29	90
Division 9 - Finishes	5	15	1	0	21	23	1	0	11	18	4	12	4	20	47	88
Division 10 - Specialties	0	6	0	0	8	22	0	2	1	8	1	9	3	16	13	63
Division 11 - Equipment	15	8	15	0	6	9	3	0	21	13	2	2	16	21	78	53
Division 12 - Furnishings	0	6	0	0	14	12	2	1	0	9	0	3	8	4	24	35
Division 13 - Special Construction	13	3	0	0	2	3	0	0	9	4	1	2	3	5	28	17
Division 14 - Conveying Systems	0	4	3	2	4	3	0	0	1	6	0	4	1	4	9	23
Division 15 - Mechanical	12	18	4	2	20	35	1	2	19	34	27	27	18	27	101	145
Division 16 - Electrical	20	21	13	1	32	30	2	1	15	24	22	22	13	31	117	130
Total	119	168	55	20	165	236	10	8	125	212	77	152	93	216	644	1,012

Note: U = unique; D = duplicate.

and 133 duplicate documents); this would result in the elimination of 138 duplicate documents.

The primary benefit of consolidation will be the elimination of duplicated effort in separate Services and the associated costs. A secondary benefit will be streamlining guide specifications used by a wide range of non-Government organizations, including architect-engineering (A-E) firms, trade associations, and construction industry suppliers into a single reference document.

TABLE 2-3

## COMPARISON OF USACE AND NAVFAC CONSTRUCTION GUIDE SPECIFICATIONS

CSI category	CE		NN		Total	
	U	D	U	D	U	D
Division 0 – Bidding Requirements	0	0	0	0	0	0
Division 1 – General Requirements	2	4	5	3	7	7
Division 2 – Sitework	47	32	32	32	79	64
Division 3 – Concrete	7	2	7	2	14	4
Division 4 – Masonry	0	1	3	1	3	2
Division 5 – Metals	2	3	2	3	4	6
Division 6 – Woods and Plastics	0	2	1	2	1	4
Division 7 – Thermal and Moisture Protection	7	11	19	13	26	24
Division 8 – Doors and Windows	8	13	7	12	15	25
Division 9 – Finishes	10	10	18	11	28	21
Division 10 – Specialties	3	3	6	3	9	6
Division 11 – Equipment	14	9	27	7	41	16
Division 12 – Furnishings	0	6	1	8	1	14
Division 13 – Special Construction	15	1	12	1	27	2
Division 14 – Conveying Systems	1	3	3	4	4	7
Division 15 – Mechanical	14	16	35	18	49	34
Division 16 – Electrical	24	17	21	18	45	35
Total	154	133	199	138	353	271

Note: U = unique; D = duplicate. The number of duplicate documents within a CSI division is not always the same among agencies because some specification sections contained more than 1 document.



## **CHAPTER 3**

### **COMPARISON OF MILITARY GUIDE SPECIFICATION SYSTEMS**

Each of the Services uses vastly different procedures in managing its guide specifications, but each process produces similar products. Three primary reasons lead to those similarities: the standard CSI format has been adopted by each of the Services; since introduction of the CCB, Services are now able to quickly review how the other Services and agencies have prepared the same guide specification and are able to select the best features for their own use; and the majority of the technical content is derived from industry standards.

Our objective in reviewing the various Service procedures was not to recommend a preferred system but rather to identify those features from each that would be important to consider in developing a single system to manage a tri-Service guide specification program. Our information was obtained from visits with USACE and NAVFAC headquarters' managers and field "processing centers" at Huntsville, Ala., and Port Hueneme, Calif. We also conducted telephone interviews with specification managers at the U.S. Air Force Civil Engineering Support Agency (AFCESA), three USACE districts, and two NAVFAC engineering field divisions.

Responsibility for constructing new Air Force facilities is assigned to either USACE or NAVFAC, depending on geographical location of the Air Force installation. The Air Force, therefore, relies upon those construction agents to use the appropriate guide specifications for Air Force projects. The Systems Engineering Directorate of AFCESA maintains separate specifications for replacing and repairing roofing and cathodic protection systems; however, those specifications are usually not imposed on new construction.

We briefly reviewed the Defense Standardization Program and its role in tri-Service guide specifications and discussed it at the end of this chapter.

#### **USACE GUIDE SPECIFICATION PROCESS**

Probably the most significant difference between the USACE and NAVFAC processes is the role of the respective headquarters staffs. Each Service provides

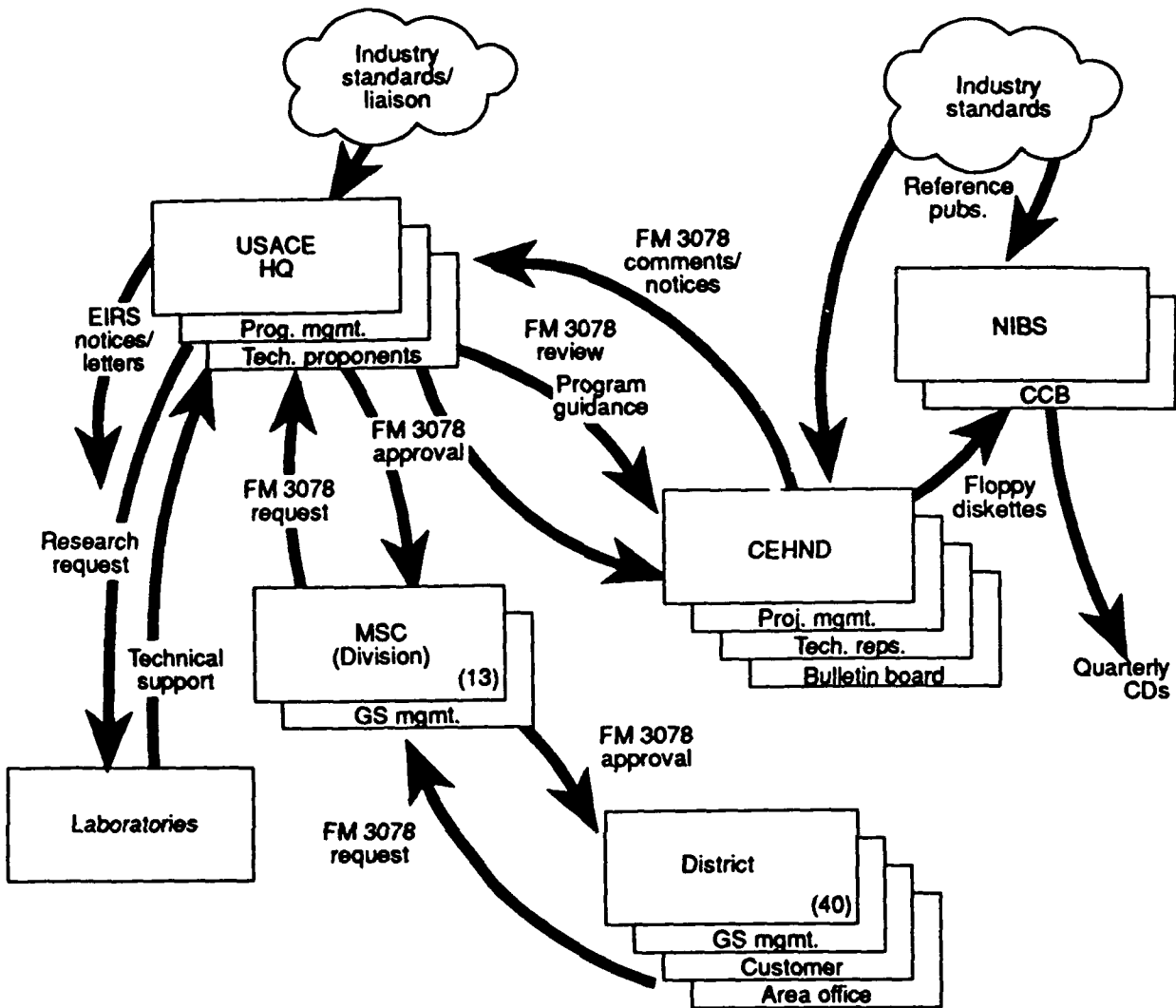
policy and program direction from its headquarters office; but, while the Army retains its technical proponents at the headquarters level, the Navy has decentralized that responsibility to its field offices.

The USACE technical managers believe that if their overall construction criteria is to be fully effective, USACE guide specifications (CEGS) must be used in conjunction with the USACE technical manuals. They emphasized the importance of that relationship when considering tri-Service guide specification consolidation.

The process for maintaining CEGS is shown in the flow diagram in Figure 3-1. Changes, including updates and new requirements, to the CEGS (inputs) are received from two primary sources. The first source is changes made by industry as new product lines become widely used, together with the industry associations that assist in setting standards for those products. The second source is from the users, i.e., field design and construction offices, who determine whether the CEGS needs to be corrected or updated; they make that determination on the basis of experience in applying it to current design and construction programs. A secondary source of technical information is the research and development efforts initiated through the Service laboratories and contracts with other research organizations. Changes recommended by field staffs could also arise from knowledge of changes in industry products and standards that could benefit USACE. A periodic review of all CEGSs also forms part of the updating process, and changes not stimulated by field request or industry input are usually made during such periodic reviews. We noted that virtually all of the 287 CEGSs have revision dates within the past year (1991); however, that does not mean that each CEGS has been reviewed and updated during that period; those revisions may reflect only minor reference changes.

The USACE Engineer Form 3078, *Recommended Changes to Engineering Documents*, provides a uniform means for anyone within USACE to propose a change to the CEGS. If generated at or below the district level, it must be endorsed by the USACE major subordinate command (MSC – formerly referred to as the division) and then forwarded to headquarters for approval/disapproval action. Following that action, the document is returned to the district through MSC, describing the action taken.

The Corps of Engineers, Huntsville Division (CEHND), provides project management support to the USACE headquarters and guide specification



Note: HQ = Headquarters; EIRS = Engineering Improvement Recommendation System; FM = Form; CD = compact disk.

FIG. 3-1. USACE CONSTRUCTION GUIDE SPECIFICATION (GS) PROCESS

management falls within Huntsville's responsibility. Before acting on the Form 3078 requests, USACE may require CEHND to coordinate additional review or research if needed and manage that effort either locally or through other USACE MSCs and districts. The results of that review are returned to the USACE technical proponent at headquarters for decision before acting on the Form 3078 request.

As project manager, CEHND also coordinates all programmed updates, scheduled every 3 years, for each CEGS. The CEHND technical staff supervises the

coordination by assigning the preparation and updating of the specification to other USACE MSCs, districts, or laboratories or by awarding a contract for the effort. Most specifications requiring contract assistance are those associated with emerging technology, such as energy monitoring and control systems. The CEHND manages the budget for USACE specifications.

The USACE provides oversight for all CEGS through the Technical Engineering, Medical Facilities, and Architectural and Planning branches in the Engineering Division of the Military Programs Directorate at USACE headquarters. Those branches are also responsible for other technical publications, including the Army technical manuals and standard designs. Senior USACE managers agree on the importance of corporate history associated with the various guide specifications that, through the years, have undergone significant research, debate, and massaging. Much of that history resides in these headquarters organizations.

After USACE decides to issue changes to the CEGS, the headquarters staff issues an Engineer Improvement Recommendation System (EIRS) bulletin to all USACE field organizations advising of the change. This publication is used to quickly distribute all kinds of management and technical information, including notices, pending regulations, and other technical information. If the change is an urgent requirement, such as a life-safety issue, a technical letter requiring immediate attention is issued in lieu of an EIRS bulletin. After receiving the approved CEGS change from USACE headquarters, CEHND prepares a floppy disk or magnetic tape with the change information and transmits it to the NIBS for inclusion in the next quarterly update of the CCB. The CCB is the official means for transmitting guide specifications to USACE field activities although electronic copies of all updated guide specifications and changes are also provided to CSI Data Services and a few other software companies. The CEHND also operates a computer bulletin board that is used to announce all changes made to the CEGS.

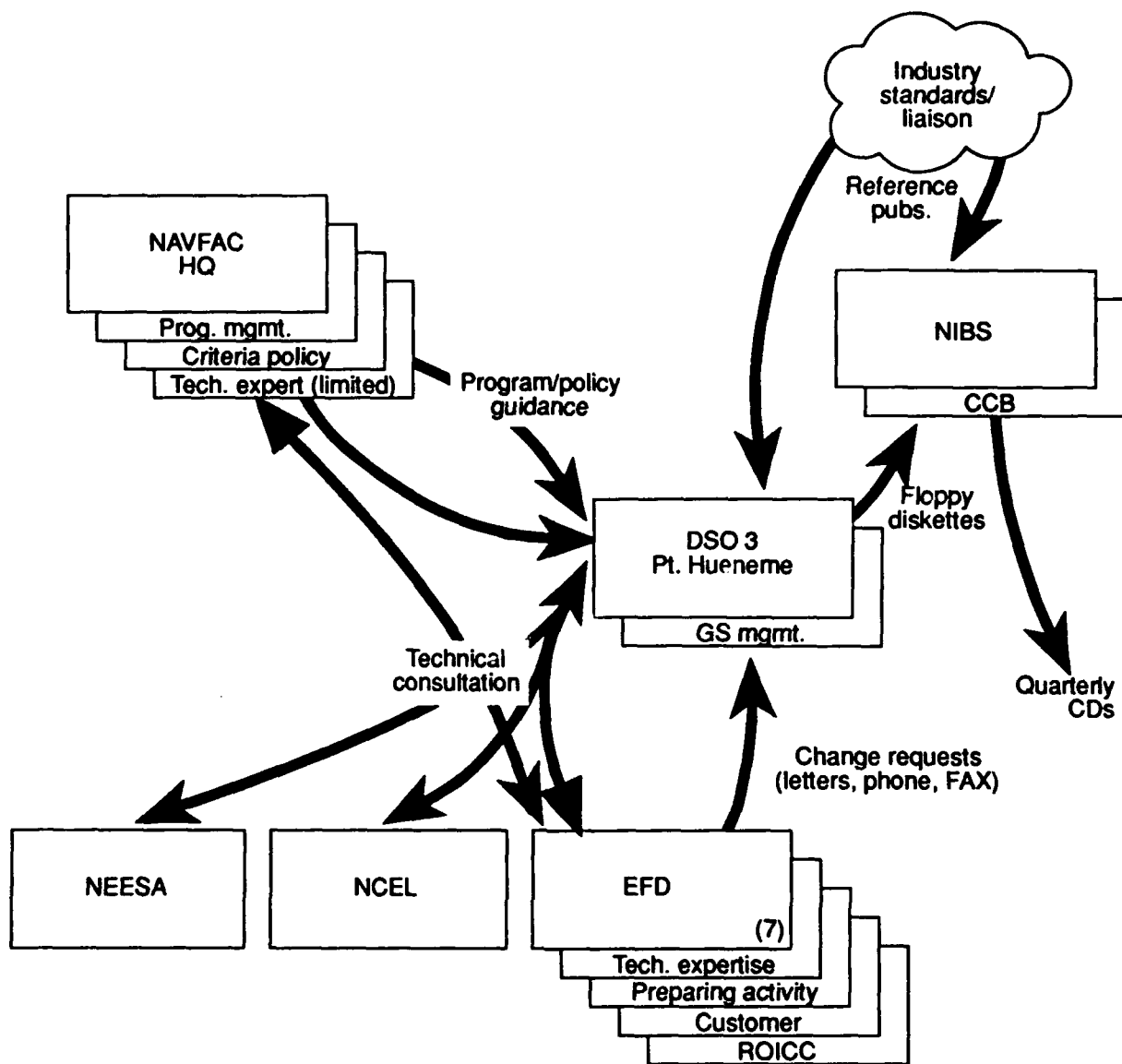
Guide specifications issued specifically for civil works (CWGS) projects are managed by the Corps of Engineers Waterways Experiment Station (CEWES), Vicksburg, Miss. Most civil works projects incorporate CEGS for the majority of their specifications; however, for special items unique to civil works projects, such as relief wells, tunnel grouting, and hydraulic turbines, the CWGSs are used. We found the CWGS to be less current than the CEGS.

## **NAVFAC GUIDE SPECIFICATION PROCESS**

In 1989, NAVFAC initiated a major change by transferring responsibility for preparing and approving the NFGS to the Civil Engineering Support Office (CESO) at Port Hueneme, Calif. While NAVFAC retains technical expertise at the engineering field divisions (EFDs), the Naval Civil Engineering Laboratory (NCEL), and the Naval Energy and Environmental Support Activity (NEESA), CESO has assumed a large portion of the day-to-day update process for each NFGS. NAVFAC headquarters has retained overall policy and program management responsibility. Only a few residual technical functions, such as medical facilities and ocean engineering criteria, remain at the headquarters, and those technical functions are scheduled to be transferred to the EFDs over the next few years.

As shown in Figure 3-2, the NFGS process managed by CESO is comparatively informal. The quarterly update issued for the CCB is NAVFAC's primary means for communicating changes to the NFGS. The CESO staff provides floppy disk updates quarterly to the CCB, with a copy to CSI Data Services. Plans are underway to establish a NAVFAC computer bulletin board that will list all changes made to NFGS. Five CESO project managers are responsible for all NFGS, and they maintain liaison with industry and the industry standards associations. They also conduct all liaison with the technical experts at the EFD, NCEL, and NEESA. When changes are required, those CESO project managers are responsible for all communications with the involved parties. A large portion of the changes required are nontechnical, such as changes to dates or paragraph numbers initiated by a standards group. The CESO staff can issue those changes unilaterally without notifying the technical manager beforehand.

Inputs to CESO from the EFDs and resident officers in charge of construction (ROICCs) involving NFGS issues are often informal and include telephone calls, FAX transmittals, and mailed correspondence. Each CESO project manager decides how he or she will respond to the inquiry, but extensive files, forms, and records are not used or maintained. For this informal system to function effectively requires a strong partnering relationship between the CESO managers and the EFD centers of expertise. Cultivating that relationship has been the key to establishing this informal process under the CESO organization. We noted that each of the 337 NFGSs



Note: HQ = Headquarters; CCB = Construction Criteria Base, CD = compact disk, ROICC = Resident Officer in Charge of Construction

FIG. 3-2. NAVFAC GUIDE SPECIFICATION (GS) PROCESS

has revisions dated within the past year; however, many of those revisions are administrative and do not reflect technical reviews and updated specifications.

### SYSTEMS ASSESSMENT

Both the USACE and NAVFAC systems appear to be producing effective guide specifications. Detailed comparison of the separate specifications is beyond the scope of this report; however, if the Services are to have common guide specifications, individual comparisons will become necessary at some point. The following are three

key comparison areas we believe to be useful in evaluating the commonalities and differences among the systems:

- **Resources:** The tri-Services 1991 program for all criteria activities is approximately \$8 million, of which about \$2 million is required for maintaining guide specifications. We would expect that savings in the range of \$750,000 to \$1 million could be realized under a tri-Service consolidation initiative.
- **Technical expertise:** Both organizations have developed technical expertise either at their headquarters or in field offices and laboratories. The more formal USACE process requires that the headquarters experts retain control over all changes to the CEGS, whereas NAVFAC expects its CESO team to contact the other NAVFAC technical experts only if they believe it necessary. We believe the more streamlined NAVFAC process can work if the project managers are competent and develop a strong partnering relationship with the technical experts. Although current results of the NAVFAC process seem encouraging, that process runs the risk of publishing a technically flawed specification. That risk is mitigated somewhat by being able to correct any errors through the ensuing quarterly update of the CCB.
- **Responsiveness:** Each system is capable of responding readily to needed guide specification changes, again principally because of the quarterly CCB update. As technical teams research needed changes, coordinate reviews, and develop a consensus, decisions are fairly simple to disseminate throughout each organization. NAVFAC relies almost exclusively on the CCB for its formal communications with the field. The USACE EIRS bulletins provide an internal means for Army activities to learn of the latest changes prior to publishing in the CCB, but maintaining the EIRS is labor intensive compared with the CCB, which uses an electronic medium. The EIRS is used for communicating technical information other than merely CEGS updates. The bulletin board provides a lower cost alternative to the EIRS bulletins although its use to date has been limited.

## OTHER SERVICE COMPARISONS

Additional comparisons of practices and procedures are useful in understanding each Service's approach to construction guide specifications:

- **Regional specifications:** Each Service has attempted to reduce the number of regional specifications to achieve greater specification uniformity. Exceptions remain largely in the CSI Division 1 – *General Requirements*, geotechnical specifications related to differing soil and climatological conditions and specifications tailored for construction in foreign countries. State and local environmental regulations were also cited as another reason to maintain selected regional specifications. Some of the field offices in each

of the Services tend to be more resistant toward the elimination of their regional specifications than do others. We believe that efforts to unify tri-Service guide specifications will help to standardize those regional specifications that are truly essential, but standardization will be impossible without strong leadership and management control.

- *CCB utilization:* In our brief survey of USACE field offices, we found that relatively few offices within the districts have direct access to the CCB. Most districts keep the CCB hardware and compact discs in the specification branches and distribute either floppy diskettes or hard-copy data to the other district offices after receipt of each quarterly update. Engineers and specification writers utilize their more familiar word processing software to tailor the guide specifications to specific project specifications after entering the CCB data into their personal computers. This process works effectively insofar as getting the CCB changes to the engineers and other design staff members. However, those employees do not have access to the SPECS-INTACT software and are unable to take advantage of that system's powerful specification-tailoring capability. Few Army installations are believed to have their own CCB subscriptions, relying instead on the lower cost microfilm media.

The NAVFAC EFDs have distributed the CCB extensively within their organizations. The Atlantic Division, for example, has 29 subscriptions to the CCB, including two in its planning division. All the major activities supported by the Atlantic Division have CCB subscriptions in their public works departments. The Navy is planning to take advantage of a DoD site-licensing arrangement with NIBS and has funded \$200,000 for Navy activities to acquire additional CCB subscriptions.

- *CCB utilization by A-E firms:* The USACE districts usually do not require their A-E firms to utilize the CCB in preparing project specifications, although many of the larger A-E firms have found the benefit of having their own subscriptions. The NAVFAC EFDs, on the other hand, routinely prescribe its use. For small firms and first-time A-E firms, NAVFAC makes allowances and provides copies of the NFGS, but those cases are exceptions.
- *Abridged (or short-form) guide specifications:* The USACE is in the process of providing abridged guide specifications to serve the small project needs of Army installations. Intended for minor construction, maintenance, and repair projects, those streamlined documents should make specification writing for small jobs less onerous and intimidating to prospective bidders for small construction projects. Concern over the risk of awarding a contract with a less-detailed specification is being overridden by the need to make the specifications for these projects more "user friendly" to the small contractor. In view of the Government's reduced risk with smaller projects, that argument has merit.



NAVFAC is also undertaking a similar initiative to prepare short-form specifications to support Navy activities. According to CESO, that effort is scheduled to be completed in 1992. It seems that both the Army and the Navy can benefit by combining their resources to develop a set of common short-form specifications, recognizing that each short-form specification is noted in the respective CEGS and NFGS. Ideally, consolidation of that effort would be linked to the larger tri-Service consolidation effort.

## **DEFENSE STANDARDIZATION PROGRAM**

As part of the Cataloging and Standardization Act of 1952, the Defense Standardization Program (DSP) has been part of a continuing attempt to streamline DoD procurement. One of the objectives of this program is to ensure that specifications and standards are written to facilitate tailoring of prescribed requirements to the particular need consistent with mission requirements. NAVFAC was assigned as lead standardization activity for the facilities engineering and design requirements (FACR) area. The FACR area covers standard general facilities engineering and design criteria, practices, and guidelines. Management responsibility for this program has been delegated to CESO, which prepares program plans, approves or initiates projects, and coordinates activities of FACR preparing activities.

Because early efforts to achieve consensus on tri-Service participation in the FACR area of the DSP have been largely unsuccessful, NAVFAC has been submitting its own criteria as input to the DoD plan. Of course, without tri-Service participation, only limited progress appears to have been made under the DSP objectives. Navy guide specifications, design manuals, and maintenance operation manuals are all being converted into the DSP formats, (i.e., guide specifications and military handbooks) and are being entered into the DSP. An important facet of the DSP is to provide the official repository and public access for Defense standardization documents. Those requiring occasional access to DoD standards and specifications can access the print-on-demand capability of the DSP without subscribing to the CCB or other commercial software packages.

Past initiatives notwithstanding, we believe that it remains in each Service's collective best interest to pursue tri-Service guide specifications and preclude being directed by others to accept a suboptimal solution. Common tri-Service guide

specifications, whether published within the CCB and/or under the DSP, should be identical documents.

#### **TRI-SERVICE CONSOLIDATION**

At the end of our brief survey of districts and EFDs, we asked each participant whether they believed the Services should pursue consolidation of the guide specifications. The uniform response was unqualified — the tri-Services should move to accomplish that as quickly as possible. Each interviewer expressed an opinion that it is in each Service's best interest to have a single set of specifications, regardless of which Service retained responsibility. Most use specifications prepared by other Services and choose the guide specifications most appropriate for the specific project.

## **CHAPTER 4**

### **CONCLUSIONS AND RECOMMENDATIONS**

The Tri-Service Military Construction Executive Team has an opportunity to reach its goal of consolidating construction guide specifications. The primary benefit of consolidation will be the elimination of duplicate Service efforts and their associated costs. A secondary benefit will be streamlining the guide specifications used by a wide range of non-Government organizations, including A-E firms, trade associations, and construction industry suppliers and consolidating them into a single reference document. Standardizing guide specifications could also lead to consolidating other construction documents, including military handbooks, technical manuals, design manuals and criteria, and standard designs. Because of the separate nature of Service missions, however, the Services are likely to continue to require unique criteria for specific requirements.

#### **EFFECTIVE GUIDE SPECIFICATIONS**

Six key elements are needed to ensure the success of a tri-Service guide specification program: technical knowledge, responsible management, information system, industry/technology input and liaison, acceptable standards, and cost impact. We believe that to devise the most acceptable management structure for unified guide specifications, we must evaluate each of those key elements before selecting an option.

#### **Technical Knowledge**

Guide specifications are founded upon proven technical knowledge that, when applied in written form, will ensure the material specified will be used and the procedure described will be followed at the job site. To maintain an effective guide specification system, each and every specification must be based upon proven technical knowledge. The system must engender enough confidence to ensure users that the technical foundation supporting each guide specification is sound and that changes based on feedback from the user community will be acted on responsibly.

This can occur only if those who add new specifications and update existing ones are technically qualified to judge the merits of each specification action.

### **Responsible Management**

A single individual or organization must be assigned responsibility for each specification. That individual (or organization) must know where to obtain or verify technical information. That responsible manager should retain control over decisions about maintenance of the guide specification and must be responsive to proposed changes, user feedback, and technology advances. Communication with industry representatives and Government users should be encouraged, and decisions on changes to specifications should be fully explained. Attitudes such as "this is the way we have always done it" and "not invented here" have no place in managing guide specifications. Similarly, the technical merits of important technical changes must be thoroughly researched and confirmed to avoid jeopardizing the public's interest and safety.

### **Information System**

The finest specification is of little value if it cannot be placed in the hands of the user in a timely manner. Fortunately, the CCB with its quarterly updates provides a near-real-time solution for publishing the current specifications to virtually all who need access to the guide specification system. With that major problem resolved, the Services can concentrate on developing an effective information system that keeps information flowing to the CCB. Obtaining the latest changes from industry practice, trade standards, and field users and then evaluating that information, deciding to make changes, and entering those approved changes into the CCB comprises the input segment of the information system. For this part of the system to be responsive, those who have recommended changes or identified problems need timely feedback.

### **Industry/Technology Input and Liaison**

Sources of technical change requirements, particularly those outside DoD, must be cultivated and expanded. Currently, one of the most effective means of ensuring information exchange is the participation of Government representatives on industry and professional association standards boards and committees. The tri-Service guide

specification program cannot succeed without the continued and expanded participation of the technical community at large.

### **Acceptable Standards**

Most Service specification managers that we interviewed acknowledge that only minor technical content differences exist between each Service's guide specification covering the same topic and after the Services adopted the CSI standard specification format, even those small differences significantly narrowed. They continued to decrease as subscriptions to the CCB have become widely available to Government design organizations. Although small differences remain, most would agree that the Services guide specifications have virtually achieved a level of standardization acceptable to both Government and industry. It is vital that in their efforts to consolidate, the Services not lose focus on industry standards as the foundation for construction specifications and that the CSI be retained as the industry standards body. The standards must be sufficiently clear and concise to make local or regional variations or addenda unnecessary. For those special cases that involve geotechnical, climatological, environmental, or foreign country issues, regional standards should be consistent for all Services.

### **Cost Impact**

The primary reason for consolidation is to reduce costs by eliminating duplication of effort. Thus, any of the organization options we proffer will cost less than the current system. We believe that net savings in the range of \$750,000 to \$1 million are achievable through consolidation. Savings of any magnitude, however, are dependent on the commitment of the Service leaders to accept and enforce dramatic changes from "business as usual". For comparing the cost impact of different organization options, however, we suggest a subjective approach — high, medium, or low — to avoid any unwarranted pretext of actual cost estimates.

### **ORGANIZATION OPTIONS**

Within the framework of the foregoing effective guide specification criteria, we suggest three organization alternatives. Selecting the preferred one requires a judgment on the value of certain aspects of existing systems. Some aspects will be lost by consolidation, while benefits, such as cost reductions, will be gained. The decision to implement a consolidation is a matter of weighing the value of lost aspects

against potential benefits. That decision should be made by the Tri-Service Military Construction Executive Team and the respective Service leaders. In discussing each of the three options, we suggest a framework using the six key elements to assist in selecting the organizational option. Because the objective is to consolidate tri-Service guide specifications, we do not list the status quo as an option.

### **Option 1: Single-Service Lead**

#### ***Description***

In this option, one Service would be designated to provide management responsibility for all tri-Service guide specifications. That Service would establish an internal organization to manage all proposed changes/updates/additions to the guide specifications. It would also retain final technical responsibility for determining the adequacy of each guide specification. Extensive networks with industry, other Services, Federal agencies, and the lead Service's internal organizations would need to be established and maintained.

#### ***Discussion***

***Technical Knowledge.*** This option imposes a risk that the technical capability now diffused among each of the Services would be eroded even though the other Services would continue to recommend changes, updates, and additions to the lead Service. That feedback from the other Services will be critical to a successful effort. The Services will undoubtedly be reluctant to give up that capability, but any attempts to retain separate technical centers of expertise for guide specification efforts would diminish the effectiveness of unified specifications. However, this option recognizes the need to retain certain technical expertise within each Service for overall criteria management. Transferring responsibility to the lead Service for those specifications currently managed by only one Service could erode that technical knowledge – at least in the near term.

***Responsible Management.*** In Option 1, management control is centralized, the administrative processing of specification updates should be streamlined, and points of contact with industry and other agency representatives could be reduced. If final technical authority is to be concentrated in one Service, that Service must be properly funded and staffed to manage the guide specification responsibility.

**Information System.** Each Service has information systems in place; however, overhaul may be necessary to improve responsiveness and accommodate other Service and industry communications.

**Industry/Technology Input and Liaison.** It is important that all options accommodate those valuable industry/technology relationships established through many Service technical experts. In this option, selected Service representatives should continue to participate as members of association boards and committees and provide valuable technical advice and feedback to the lead Service technical manager.

**Acceptable Standards.** Of the three options offered for consideration, achieving consistency in standards for guide specifications would be easiest under this one. Controlling for regional variations or addenda can be managed insofar as a true spirit of partnering prevails. The lead Service, however, will need to fully accommodate the other Services' concerns if uniformity is to succeed. Without effective leadership and management control, regional specifications will proliferate and undercut any consolidation effort.

**Cost Impact.** Again, of the three options submitted, this single-Service management system should result in the lowest cost since management and technical effort can be concentrated and administrative costs minimized. Inter-Service coordination will generate some additional costs, but those costs should not detract from the inherent efficiency of this option.

## **Option 2: Single-Service Lead – Joint-Service Technical Responsibility**

### ***Description***

Option 2 provides for concentrating management of the guide specifications within one Service but at the same time, assigning technical responsibility for individual specifications or specification groups to specific organizations within the Service deemed to be most capable in that area.

### ***Discussion***

**Technical Knowledge.** This option would capture the best technical capability available in each of the Services. A tri-Service effort, probably assisted by outside impartial groups, would be necessary to determine where that capability should

reside. Recognizing that more than half of current CEGS and NFGS are unique documents, decisions about the remaining 138 guide specifications become a less formidable task.

**Responsible Management.** Management control would still remain centralized under Option 2. However, communication with those technical organizations in other Services responsible for their separate specifications would require more interaction than does Option 1. Each Service would need to provide separate resource support to the elements of its organization designated to have guide specification technical responsibility.

**Information System.** This option requires a more effective network so that each Service technical center can readily communicate with the single-Service lead manager. Without an effective information system and management commitment, Services not having technical responsibility could find it difficult to build a sound working relationship with the responsible Service counterpart.

**Industry/Technology Input and Liaison.** This key element should be enhanced for this option by building on those relationships already established with industry and association groups.

**Acceptable Standards.** Current differences among the Services standards must be bridged under this organization option. The lead-Service manager needs to work closely with the technical centers for each guide specification to maintain uniformity in form and update procedures.

**Cost Impact.** Splitting the technical oversight responsibility places an additional administrative burden on the single-Service manager compared with having single-Service technical oversight; thus, costs for this organization option should be in the low-to-medium range.

### **Option 3: Split-Service Responsibility**

#### **Description**

Similar to the joint-service responsibility for individual specifications or groups of specifications, this option would divide management responsibility fully among the Services for each separate specification or groups of specifications. Each Service would develop its own system for managing its assigned specifications, and other



Services desiring to change or update those specifications would communicate directly with the managing Service's point of contact for that specification. The managing Service would then control liaison with industry and the public for its assigned technical area.

### ***Discussion***

***Technical Knowledge.*** Like Option 2, this option would capture the current best technical capability for each specification. A method would then have to be devised to determine where that capability should reside.

***Responsible Management.*** Selection of this option would probably result in separate management systems being developed, assuming each Service would find little advantage to change from its current system. This scheme would reduce the workload over the current approach for each Service by being responsible for fewer specifications. Each Service would have to fund and staff its portion of the specifications. Whole CSI divisions of specifications would be an alternative for splitting the responsibility among Services to minimize confusion over Service responsibility. For the more complex divisions, such as 2 (Sitework), 11 (Equipment), 13 (Special Construction), 15 (Mechanical), and 16 (Electrical), a tailored split would appear to make better sense.

***Information Systems.*** Separate internal Service information systems would be required with Service linkage to the quarterly CCB update. Each technical center would need information systems to receive input from the other Services and industry.

***Industry/Technology Input and Liaison.*** No important differences should exist for this element between this option and Option 2.

***Acceptable Standards.*** Achieving uniformity under this option would be more difficult. Extra effort would be required by the tri-Service committee to review the standards used by each Service and require adjustment as needed. Specifications should not acquire Service-unique wording and format characteristics.

***Cost Impact.*** Compared with the other organization options, Option 3 would result in a high cost. We would expect much of the duplication of management effort within the current system requiring separate information systems and overhead

costs to remain. The cost advantage of consolidation is substantially diminished under this option.

## **Overview**

For any of these three options to work effectively, the Services will have to relinquish some or most of their current responsibility and authority for guide specifications. Faced with diminished resources, this loss is the inevitable price of consolidation. However, we caution against inadvertent erosion of the technical foundation for each guide specification. Similarly, each Service responsible for a specification must remain sensitive to the needs of the other Services, their technical feedback, and requests for changes and updates. Otherwise, those Services will simply append Service-unique requirements to ensure their needs are covered in that specification. Control through an effective management structure should eliminate that need.

We have seen a dramatic improvement in the communication and publication of specifications through the introduction of the CCB and its quarterly updates. Specification managers now find it relatively easy to compare how other Services and agencies have changed their respective specifications. It is relatively simple for one agency to adopt another's ideas, rather than conduct independent research. In summary, much of the work of consolidation is being accomplished through use of the CCB. Further, tri-Service consolidation will simply reduce the level of resources needed to maintain the many guide specifications that are essentially duplicated in separate Service documents.

Although consolidation beyond the tri-Service level falls outside the scope of this report, we acknowledge that other Federal agencies could be influenced by a tri-Service initiative and decide to cast their lot with their DoD partners. The timing for follow-on development of a revitalized system of Federal construction guide specifications could be right.

**APPENDIX A**

**CONSTRUCTION SPECIFICATIONS INSTITUTE  
MASTERFORMAT BROADSCOPE  
SECTION TITLES**

## **BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT**

00010 Prebid Information  
00100 Instructions to Bidders  
00200 Information Available to Bidders  
00300 BID Forms  
00400 Supplements to BID Forms  
00500 Agreement Forms  
00600 Bonds and Certificates  
00700 General Conditions  
00800 Supplementary Conditions  
00900 Addenda

**Note:** The items listed above are not specification sections and are referred to as "Documents" rather than "Sections" in the Master List of Section Titles, Numbers, and Broadscope Section Explanations.

## **SPECIFICATIONS**

### **DIVISION 1 – GENERAL REQUIREMENTS**

01010 Summary of Work  
01020 Allowances  
01025 Measurement and Payment  
01030 Alternates/Alternatives  
01035 Modification Procedures  
01040 Coordination  
01050 Field Engineering  
01060 Regulatory Requirements  
01070 Identification Systems  
01090 References  
01100 Special Project Procedures  
01200 Project Meetings  
01300 Submittals  
01400 Quality Control  
01500 Construction Facilities and Temporary Controls  
01600 Material and Equipment  
01650 Facility Startup/Commissioning  
01700 Contract Closeout  
01800 Maintenance

### **DIVISION 2 – SITEWORK**

02010 Subsurface Investigation  
02050 Demolition  
02100 Site Preparation  
02140 Dewatering  
02150 Shoring and Underpinning

02160 Excavation Support Systems  
02170 Cofferdams  
02200 Earthwork  
02300 Tunneling  
02350 Piles and Caissons  
02450 Railroad Work  
02480 Marine Work  
02500 Paving and Surfacing  
02600 Utility Piping Materials  
02660 Water Distribution  
02680 Fuel and Steam Distribution  
02700 Sewerage and Drainage  
02760 Restoration of Underground Pipe  
02770 Ponds and Reservoirs  
02780 Power and Communications  
02800 Site Improvements  
02900 Landscaping

### **DIVISION 3 – CONCRETE**

03100 Concrete Formwork  
03200 Concrete Reinforcement  
03250 Concrete Accessories  
03300 Cast-in-Place Concrete  
03370 Concrete Curing  
03400 Precast Concrete  
03500 Cementitious Decks and Toppings  
03600 Grout  
03700 Concrete Restoration and Cleaning  
03800 Mass Concrete

### **DIVISION 4 – MASONRY**

04100 Mortar and Masonry Grout  
04150 Masonry Accessories  
04200 Unit Masonry  
04400 Stone  
04500 Masonry Restoration and Cleaning  
04550 Refractories  
04600 Corrosion Resistant Masonry  
04700 Simulated Masonry

### **DIVISION 5 – METALS**

05010 Metal Materials  
05030 Metal Coating  
05050 Metal Fastening  
05100 Structural Metal Framing  
05200 Metal Joists  
05300 Metal Decking  
05400 Cold Formed Metal Framing  
05500 Metal Fabrications  
05580 Sheet Metal Fabrications

## **DIVISION 5 – METALS (Continued)**

- 05700 Ornamental Metal
- 05800 Expansion Control
- 05900 Hydraulic Structures

## **DIVISION 6 – WOOD AND PLASTICS**

- 06050 Fasteners and Adhesives
- 06100 Rough Carpentry
- 06130 Heavy Timber Construction
- 06150 Wood and Metal Systems
- 06170 Prefabricated Structural Wood
- 06200 Finish Carpentry
- 06300 Wood Treatment
- 06400 Architectural Woodwork
- 06500 Structural Plastics
- 06600 Plastic Fabrications
- 06650 Solid Polymer Fabrications

## **DIVISION 7 – THERMAL AND MOISTURE PROTECTION**

- 07100 Waterproffing
- 07150 Damproofing
- 07180 Water Repellents
- 07190 Vapor Retarders
- 07195 Air Barriers
- 07200 Insulation
- 07240 Exterior Insulation and Finish Systems
- 07250 Fireproffing
- 07270 Firestopping
- 07300 Shingles and Roofing Tiles
- 07400 Manufactured Roofing and Siding
- 07480 Exterior Wall Assemblies
- 07500 Membrane Roofing
- 07570 Traffic Coatings
- 07600 Flashing and Sheet Metal
- 07700 Roof Specialties and Accessories
- 07800 Skylights
- 07900 Joint Sealers

## **DIVISION 8 – DOORS AND WINDOWS**

- 08100 Metal Doors and Frames
- 08200 Wood and Plastic Doors
- 08250 Door Opening Assemblies
- 08300 Special Doors
- 08400 Entrances and Storefronts
- 08500 Metal Windows
- 08600 Wood and Plastic Windows
- 08650 Special Windows
- 08700 Hardware

- 08800 Glazing
- 08900 Glazed Curtain Walls

## **DIVISION 9 – FINISHES**

- 09100 Metal Support Systems
- 09200 Lath and Plaster
- 09250 Gypsum Board
- 09300 Tile
- 09400 Terrazzo
- 09450 Stone Facing
- 09500 Acoustical Treatment
- 09540 Special Wall Surfaces
- 09545 Special Ceiling Surfaces
- 09550 Wood Flooring
- 09600 Stone Flooring
- 09630 Unit Masonry Flooring
- 09650 Resilient Flooring
- 09680 Carpet
- 09700 Special Flooring
- 09780 Floor Treatment
- 09800 Special Coatings
- 09900 Painting
- 09950 Wall Coverings

## **DIVISION 10 – SPECIALTIES**

- 10100 Visual Display Boards
- 10150 Compartments and Cubicles
- 10200 Louvers and Vents
- 10240 Grilles and Screens
- 10250 Service Wall Systems
- 10260 Wall and Corner Guards
- 10270 Access Flooring
- 10290 Pest Control
- 10300 Fireplaces and Stoves
- 10340 Manufactured Exterior Specialties
- 10350 Flagpoles
- 10400 Identifying Devices
- 10450 Pedestrian Control Devices
- 10500 Lockers
- 10520 Fire Protection Specialties
- 10530 Protective Covers
- 10550 Postal Specialties
- 10600 Partitions
- 10650 Operable Partitions
- 10670 Storage Shelving
- 10700 Exterior Protection Devices for Openings
- 10750 Telephone Specialties
- 10800 Toilet and Bath Accessories
- 10880 Scales
- 10900 Wardrobe and Closet Specialties

## **DIVISION 11 – EQUIPMENT**

- 11010 Maintenance Equipment
- 11020 Security and Vault Equipment
- 11030 Teller and Service Equipment
- 11040 Ecclesiastical Equipment
- 11050 Library Equipment
- 11060 Theater and Stage Equipment
- 11070 Instrumental Equipment
- 11080 Registration Equipment
- 11090 Checkroom Equipment
- 11100 Mercantile Equipment
- 11110 Commercial Laundry and Dry Cleaning Equipment
- 11120 Vending Equipment
- 11130 Audio-Visual Equipment
- 11140 Vehicle Service Equipment
- 11150 Parking Control Equipment
- 11160 Loading Dock Equipment
- 11170 Solid Waste Handling Equipment
- 11190 Detention Equipment
- 11200 Water Supply and Treatment Equipment
- 11280 Hydraulic Gates and Valves
- 11300 Fluid Waste Treatment and Disposal Equipment
- 11400 Food Service Equipment
- 11450 Residential Equipment
- 11460 Unit Kitchens
- 11470 Darkroom Equipment
- 11480 Athletic, Recreational, and Therapeutic Equipment
- 11500 Industrial and Process Equipment
- 11600 Laboratory Equipment
- 11650 Planetarium Equipment
- 11660 Observatory Equipment
- 11680 Office Equipment
- 11700 Medical Equipment
- 11780 Mortuary Equipment
- 11850 Navigation Equipment
- 11870 Agricultural Equipment

## **DIVISION 12 – FURNISHINGS**

- 12050 Fabrics
- 12100 Artwork
- 12300 Manufactured Casework
- 12500 Window Treatment
- 12600 Furniture and Accessories
- 12670 Rugs and Mats
- 12700 Multiple Seating
- 12800 Interior Plants and Planters

## **DIVISION 13 – SPECIAL CONSTRUCTION**

- 13010 Air Supported Structures
- 13020 Integrated Assemblies
- 13030 Special Purpose Rooms
- 13080 Sound, Vibration, and Seismic Control
- 13090 Radiation Protection
- 13100 Nuclear Reactors
- 13120 Pre-Engineered Structures
- 13150 Aquatic Facilities
- 13175 Ice Rinks
- 13180 Site Constructed Incinerators
- 13185 Kennels and Animal Shelters
- 13200 Liquid and Gas Storage Tanks
- 13220 Filter Underdrains and Media
- 13230 Digester Covers and Appurtenances
- 13240 Oxygenation Systems
- 13260 Sludge Conditioning Systems
- 13300 Utility Control Systems
- 13400 Industrial and Process Control Systems
- 13500 Recording Instrumentation
- 13550 Transportation Control Instrumentation
- 13600 Solar Energy Systems
- 13700 Wind Energy Systems
- 13750 Cogeneration Systems
- 13800 Building Automation Systems
- 13900 Fire Suppression and Supervisory Systems
- 13950 Special Security Construction

## **DIVISION 14 – CONVEYING SYSTEMS**

- 14100 Dumbwaiters
- 14200 Elevators
- 14300 Escalators and Moving Walks
- 14400 Lifts
- 14500 Material Handling Systems
- 14600 Hoists and Cranes
- 14700 Turntables
- 14800 Scaffolding
- 14900 Transportation Systems

## **DIVISION 15 – MECHANICAL**

- 15050 Basic Mechanical Materials and Methods
- 15250 Mechanical Insulation
- 15300 Fire Protection
- 15400 Plumbing
- 15500 Heating, Ventilating, and Air Conditioning
- 15550 Heat Generation
- 15650 Refrigeration
- 15750 Heat Transfer

## **DIVISION 15 – MECHANICAL (Continued)**

- 15850 Air Handling
- 15880 Air Distribution
- 15950 Controls
- 15990 Testing, Adjusting, and Balancing

## **DIVISION 16 – ELECTRICAL**

- 16050 Basic Electrical Materials and Methods
- 16200 Power Generation – Build-up Systems
- 16300 Medium Voltage Distribution
- 16400 Service and Distribution
- 16500 Lighting
- 16600 Special Systems
- 16700 Communications
- 16850 Electric Resistance Heating
- 16900 Controls
- 16950 Testing

**APPENDIX B**

**CONSTRUCTION CRITERIA BASE CONTENTS:  
FOURTH QUARTER 1991**



**APPENDIX B**  
**CONSTRUCTION CRITERIA BASE CONTENTS:**  
**FOURTH QUARTER 1991**

**Specifications**

- **Military Bulletin (MIL-BUL)-34 Engineering and Design Criteria**
- **MIL-BUL-35 Matrix of Guide Specifications**
- **Naval Facilities Engineering Command (NAVFAC) Guide Specifications**
- **NAVFAC Regional Guide Specifications**
- **U.S. Army Corps of Engineers (USACE) Civil Works Guide Specifications**
- **USACE Military Construction Guide Specifications**
- **USACE Military Construction Abridged Guide Specifications**
- **National Aeronautics and Space Administration (NASA) Detailed Specifications**
- **NASA Kennedy Space Center (KSC) Local Master Specifications**
- **NASA Ames Research Center (ARC) Local Master Specifications**
- **Department of Veteran Affairs Master Specifications**
- **General Services Administration Master Specifications (Supplement: Divisions 00, 01, 02, 03, 15 & 16)**
- **Department of Energy (DOE) General Design Criteria Manual**
- **Federal Aviation Administration Construction Specifications**
- **Federal Highway Administration Standard Specifications**
- **Bureau of Reclamation Standard Specifications**
- **National Institutes of Health Specifications**
- **National Institute of Building Sciences (NIBS) Asbestos Specifications**

- American Institute of Architects (AIA) MASTERSPEC® (Optional)
- SPECSINTACT.

### **Regulations**

- Architectural and Transportation Barriers Compliance Board (ATBCB) Uniform Federal Accessibility Standards
- ATBCB Minimum Guidelines/Requirements for Accessible Design (Part 1190)
- Americans with Disabilities Act of 1990
- Uniform Federal Accessibility Standards
- DOE Energy Performance Standards (Title 10, Part 435) Envelope Compliance Program (executable) and User Manual
- Environmental Protection Agency (EPA) Asbestos Standards (Title 40, Part 763)
- EPA Underground Storage Tank regulations (Title 40, Part 280)
- EPA Hazardous Waste Management Regulations (Title 40, Parts 260, 261, 263, 264, 266)
- Occupational Safety and Health Administration (OSHA) Safety and Health Standards (1910)
- OSHA regulations for
  - ▶ Construction (1926)
  - ▶ Longshoring (1918)
  - ▶ Marine Terminals (1917)
  - ▶ Shipyard Employment (1915).

### **Codes (Optional)**

- Building Officials & Code Administrators (BOCA®) International, Inc. National Codes/1987
- BOCA National Codes/1990
- Southern Building Code Congress International (SBCCI®) Standard Codes, 1988 Editions with 1989 – 90 Revisions.

## **Standards**

- Referenced Federal/Military Specifications and Standards
- Referenced Private Industry Standards from over 100 organizations
- Single Master Reference (NAVFAC/USACE/NASA).

## **Computer-Aided Design and Drafting (CADD)**

- USACE CADD Symbols
- USACE CADD Manuals
- NAVFAC CADD Symbols
- NAVFAC CADD Details.

## **Costs**

- MCACES GOLD Cost Estimating System
- NAVFAC Cost Engineering System (CES)
- NAVFAC Parametric Facilities Cost Generator (executable)
- NAVFAC Military Handbook (MIL-HDBK)-1010, Series Cost Engineering System.

## **Design**

- General Services Administration (GSA) Design Manual: Facility Standards for the Public Building Service
- NAVFAC Design Manuals
- NAVFAC Design Policy Letters
- MIL-HDBK-102, Airfield Rigid Pavement Design Software (executable)
- NAVFAC Preliminary Hazard Analysis/List
- Value Engineering System (executable)
- Air Force Manuals, Procedures, Regulations, Engineering Technical Letters
- USACE Architectural and Engineering Instructions
- USACE Engineering Manuals, Regulations, Technical Letters
- USACE Technical Manuals

- **Department of Defense MIL-HDBK-1190, Series Facility Planning and Design Guide**
- **Military Criteria Indices**
- **Military Standard 1691E, Schedule for Medical/Dental Facilities (with data base)**
- **NIBS Directory of On-Line Construction Data bases**
- **NIBS Wood Protection Guidelines**
- **National Institute of Standards and Technology (NIST) Standards Associations Listings.**

**APPENDIX C**

**CONSTRUCTION GUIDE SPECIFICATIONS  
DATA BASE**

## **APPENDIX C**

### **CONSTRUCTION GUIDE SPECIFICATIONS DATA BASE**

This appendix lists the construction guide specifications of several Federal agencies indexed by the Construction Specifications Institute (CSI) MASTERFORMAT (1988 edition). Material presented here was developed from the fourth Quarter 1991 Construction Criteria Base (CCB) as published by the National Institutes of Building Sciences (NIBS). The CSI section numbers were assigned on the basis of interpretation of the specification subject matter as indicated by their titles. The CSI section number assignments are not intended to imply precise narrow scope designation, but were selected to place guide specifications with similar subject matter into reasonably sized groupings under the appropriate range of the CSI MASTERFORMAT.

The documents listed in this appendix are identified by the cognizant organization codes listed in Table C-1.

**TABLE C-1**  
**ORGANIZATION CODES**

<b>Code</b>	<b>Organization</b>
CE	U.S. Army Corps of Engineers (for Military Construction)
CW	U.S. Army Corps of Engineers (for Civil Works)
GS	General Services Administration
NI	National Institutes of Health
NN	Naval Facilities Engineering Command
NS	National Aeronautics and Space Administration
VA	Department of Veteran Affairs

The specification numbers listed in this appendix are the section numbers assigned by the agency that prepared the construction guide specification.

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
00001	CW	7408	04000	BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT
00100	VA	9108	00100	Lump-Sum Contract for Engineer Services for Design of Hydroelectric Power Plant
00120	GS	8403	00120	Instructions to Bidders
00500	VA	8204	00851	Supplementary Instructions to Bidders
00700	VA	9108	01001	List of Drawings
00800	GS	8403	00800	General Conditions
				Supplementary Conditions
				DIVISION 1 - GENERAL REQUIREMENTS
01010	GS	8703	01010	Summary of Work
01010	NN	9102	01010	General Paragraphs
01010	NS	9103	01010	Summary of Work
01010	VA	9010	01010	General Requirements
01010	NN	9102	01011	Additional General Paragraphs
01020	GS	8705	01020	Allowances
01030	GS	8705	01030	Alternates
01040	GS	8705	01040	Project Coordination
01045	GS	8405	01045	Cutting and Patching
01050	CW	6803	01103	Photogrammetric Mapping and Complementary Field Surveys
01050	CW	6803	01104	Aerial Photography for Photogrammetric Mapping, Photo Maps and Mosaics
01090	CE	9109	01090	Sources For Reference Publications
01090	GS	8511	01090	Definitions and Standards
01090	NN	9109	01090	References
01090	NS	9103	01090	Sources For Reference Publications
01090	VA	9102	01090	Reference Standards
01100	NS	9103	01100	Hazardous Airfield Work Locations
01100	CW	7807	01430	Environmental Protection
01100	NN	9109	01560	Environmental Protection
01100	VA	8512	01568	Environmental Protection
01200	NS	9103	01200	Project Meetings
01300	CE	9103	01300	Submittal Descriptions
01300	GS	8705	01300	Submittals
01300	NN	9109	01300	Submittals
01300	NS	9103	01300	Submittals
01300	CE	8912	01305	Submittal Procedures
01310	GS	8705	01310	Schedules and Reports
01310	VA	9009	01310	Network Analysis System S/F
01310	GS	8705	01311	Critical Path Method Scheduling
01310	NN	9102	01311	Contractor Prepared Network Analysis System (NAS)
01310	VA	9008	01311	Network Analysis System
01340	GS	8711	01340	Shop Drawings, Product Data and Samples
01340	VA	9011	01340	Samples and Shop Drawing A/E
01340	VA	8706	01340	Samples and Shop Drawings CO/SL
01400	CW	6104	01201	Subsurface Drilling, Sampling and Testing
01400	GS	8705	03014	Concrete Sampling and Testing
01400	CE	9104	05061	Ultrasonic Inspection of Weldments
01400	CE	9109	05062	Ultrasonic Inspection of Plates
01410	VA	8205	01410	Testing Laboratory Services
01440	NN	9109	01400	Contractor Quality Control (CQC) System
01440	NS	9103	01400	Quality Control
01440	CE	9101	01440	Contractor Quality Control
01440	NS	9103	01440	Basic Quality Control
01500	GS	8703	01500	Temporary Facilities
01500	NS	9103	01500	Construction Facilities and Temporary Controls
01540	GS	8403	01541	Security Regulations
01560	NS	9103	01061	General Safety Requirements
01560	GS	8509	01546	Safety and Health
01580	VA	9108	01581	Temporary Interior Signs
01590	GS	8705	01591	Construction Engineer's Office
01600	NS	9103	01600	Material and Equipment
01600	GS	8705	01632	Products
01655	NS	9103	01650	Starting of Systems

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
01700	GS	8703	01700	DIVISION 1 – GENERAL REQUIREMENTS (Continued)
01700	NS	9103	01700	Project Closeout
01730	NN	9102	01730	Operation and Maintenance Data
02050	CE	9104	02050	DIVISION 2 – SITEWORK
02050	NN	9106	02050	Demolition
02050	NS	9103	02050	Demolition And Removal
02050	VA	8205	02050	Alterations And Demolition
02050	NS	9103	02052	Demolition
02060	GS	9002	02060	Demolition
02070	GS	9002	02060	Building Demolition
02080	VA	8804	02070	Selective Demolition
02080	NI	9006	01569	Asbestos Abatement
02080	NN	9102	02080	Removal of Asbestos Material
02080	GS	8509	02080	Removal And Disposal of Asbestos Materials
02080	GS	8504	02085	Asbestos Abatement Procedure
02080	NN	9109	02086	Asbestos Contamination Control
02110	CW	6909	02080	Removal and Disposal of Lead – Containing Paint
02110	NN	9102	01301	Clearing
02110	CE	9103	02102	Clearing And Grubbing
02110	GS	8908	02110	Clearing and Grubbing
02115	GS	8905	02110	Site Clearing
02140	CW	7202	02122	Tree Protection and Trimming
02140	GS	9102	01307	Relief Wells
02158	CE	9103	02140	Dewatering
02160	GS	9102	02158	Slapjacking Rigid Pavements
02168	CW	8505	02160	Excavation Support Systems
02200	GS	8808	02214	Soil – Bentonite Slurry Trench Cutoffs
02200	NS	9103	02200	Earthwork
02200	VA	9009	02200	Site Preparation And Earthwork
02200	VA	8203	02200	Earthwork
02200	NS	9103	02201	Earthwork (Short Form)
02210	CE	9108	02284	Excavation and Embankment
02220	NN	9109	02210	Grading
02220	CE	9103	02220	General Excavation, Filling, Backfilling
02220	NN	9103	02221	Excavation, Filling, and Backfilling for Buildings
02220	CE	9107	02221	Earthwork for Structures and Pavements
02220	CE	9108	02222	Excavation, Trenching, and Backfilling for Utilities Systems
02220	NN	9103	02225	Earthwork for Roadways, Railroads, and Airfields
02220	NS	9103	02225	Excavation, Backfilling, and Compacting for Utilities
02220	NS	9103	02228	Excavation, Fill and Backfill for Structures
02230	CE	9103	02229	Excavation and Backfill for Utilities
02230	NN	9102	02232	Select – Material Subbase Course
02230	CE	9105	02232	[Base Course for Rigid] [and Subbase Course for Flexible] Paving
02230	NN	9102	02233	Graded – Crushed – Aggregate Base Course
02230	CE	9106	02233	Graded Crushed Aggregate Base Course For Flexible Pavement
02230	NN	9102	02234	Subbase Course
02230	CE	9105	02234	Bituminous Base Course
02230	CE	9105	02235	Limerock Base Course
02230	NN	9102	02236	Dry – Bound Macadam Base Course
02230	CE	9105	02236	Sand – Clay [Base] [Subbase] Course
02230	NN	9102	02237	Water – Bound Macadam Base Course
02230	CE	9105	02237	Econocrete Base Course
02230	NN	9102	02238	Bituminous – Stabilized Base Course, Subbase, or Subgrade
02230	CE	9103	02239	Portland Cement – Stabilized Base or Subbase Course
02230	CE	9106	02240	Lime – Stabilized Base Course, Subbase, or Subgrade
02230	CE	9106	02241	Stabilized – Aggregate Base Course
02230	CE	9105	02242	Bituminous Base Course
02230	NN	9102	02247	Cement Stabilized [Base] [Subbase] Course At Airfields and Roads
02230	NN	9102	02248	Lime Treated Subgrade [Lime Modified Soils]
02230	NS	9103	02289	Limerock Base Course



CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 2 - SITEWORK (Continued)
02230	NS	9103	02293	Lime - Stabilized Base Course or Subbase
02240	CW	8603	02215	Geotextiles Used as Filters
02240	CW	8103	02219	Foundation Preparation
02240	VA	8407	02254	Lime Slurry Pressure Injection
02270	CW	6207	01308	Stone Protection (Slopes and Channels)
02270	CW	9106	02541	Wire Mesh Gabions (Slope and Channel Protection)
02280	GS	8302	02281	Termite Control
02280	GS	8802	02282	Termite Control
02280	NN	9102	02284	Soil Treatment for Subterranean Termite Control
02290	CW	7602	02212	Embankment (For Earth Dams)
02300	CW	6405	01305.02	Tunnel Grouting
02360	CW	5604	01304.04	Piling; Concrete, Precast
02360	CW	7602	02311	Round Timber Piles (For Hydraulic Structures)
02360	CW	9004	02315	Steel H - Piles
02360	NS	9103	02354	Wood Piles
02360	CE	9105	02360	Steel H - Piles
02360	GS	9102	02360	Driven Piles
02360	VA	8204	02360	Foundation Piles
02360	CE	9105	02361	Round Timber Piles
02360	NN	9103	02361	Round Timber Piles
02360	CE	9105	02362	Prestressed Concrete Piling
02360	CE	9105	02363	Cast-In-Place Concrete Piles, Steel Casing
02360	NN	9109	02363	Cast-In-Place Concrete Piling, Steel Casing
02360	CE	9105	02365	Piling; Composite Wood and Cast-In-Place Concrete
02360	CE	9105	02366	Precast Concrete Piling
02360	NN	9102	02366	Steel Sheet Piles
02360	NN	9103	02368	Rolled Steel Section Piles
02360	NN	9106	02369	Pressure-Injected Footings
02360	CW	8903	02411	Metal Sheet Piling
02370	CW	7204	01305.01	Foundation Drilling and Grouting
02370	VA	8204	02362	Auger Placed Concrete Piles
02370	CE	9105	02371	Auger-Placed Grout Piles
02370	NN	9106	02371	Auger-Placed Grout Piles
02370	NS	9103	02396	Drilled Piers
02380	GS	8302	02370	Caissons
02380	VA	8204	02370	Foundation Caissons
02380	GS	9102	02380	Caissons
02380	CE	9105	02383	Drilled Foundation Caissons (Piers)
02380	NN	9102	02383	Drilled Foundation Caissons (Piers)
02450	CE	9105	02450	Railroads
02450	NN	9105	02452	Railroad Trackwork
02450	NN	9103	02453	Welding Crane and Railroad Rail - Thermite Method
02480	NN	9105	02483	Wood Marine Piling
02482	CW	6004	01102	Dredging
02482	NN	9102	02482	Dredging
02488	NN	9102	02488	Resilient Foam - Filled Marine Fenders
02488	NN	9102	02489	Arch-Type Rubber Marine Fenders
02488	NN	9105	02491	Pier Timberwork
02510	NS	9103	02510	Asphaltic Concrete Paving
02510	GS	9002	02511	Hot-Mixed Asphalt Paving
02510	NN	9106	02511	Bituminous Hot Mix Pavement
02510	NS	9103	02513	Asphaltic Concrete Surface Course
02510	VA	8512	02513	Asphaltic Concrete Paving
02510	CE	8803	02515	Concrete Pavement for Roads and Airfields
02510	CE	9105	02551	Bituminous Paving for Roads, Streets, and Open Storage Areas
02510	CE	9105	02552	Bituminous Binder and Wearing Courses (Central-Plant Cold-Mix)
02510	NN	9102	02552	Bituminous Tack Coat
02510	CE	9106	02556	Asphaltic Bituminous Heavy-Duty Pavement (Central-Plant Hot Mix)
02510	CE	9105	02557	Tar and Rubberized-Tar Concrete Pavements
02515	GS	8811	02515	Unit Pavers
02515	VA	8212	02517	Brick Pavers

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 2 - SITEWORK (Continued)
02515	CE	9105	02518	Concrete Block Pavers
02520	CE	9104	02511	Concrete Sidewalks and Curbs and Gutters
02520	VA	8212	02514	Site Work Concrete
02520	NS	9103	02515	Portland Cement Concrete Paving
02520	CE	9108	02520	Roller Compacted Concrete (RCC) Pavement
02520	GS	8902	02520	Portland Cement Concrete Paving
02520	NN	9109	02520	Portland Cement Concrete Pavement For Road and Airfields
02520	NN	9102	02522	Joints, Reinforcement, and Mooring Eyes in Concrete Pavement
02520	NS	9103	02528	Concrete Curbs and Gutters
02520	CE	9102	02562	Porous Friction Course for Airfields and Roads
02520	NN	9108	02563	Pavement, Portland Cement Concrete, [Minor] [and] [Repairs]
02520	NS	9103	02560	Concrete Sidewalks
02540	CE	9105	02530	Playing Surfaces for Outdoor Sports Facilities
02545	CE	9105	02546	Aggregate Surface Course
02545	NN	9102	02551	Bituminous Prime Coat
02545	CE	9105	02553	Bituminous Macadam Wearing Course (Penetration Method)
02545	CE	9106	02554	Bituminous Road - Mix Surface Course
02545	NN	9103	02554	Coal Tar Seal Coat With Unvulcanized Rubber
02545	CE	9105	02555	Bituminous Surface Treatment
02545	NN	9102	02555	Bituminous Surface Treatment
02545	CE	9106	02558	Bituminous Tack Coat
02545	CE	9103	02559	Bituminous Prime Coat
02545	CE	9105	02560	Bituminous Seal Coat, Spray Application
02545	NN	9102	02560	Bituminous Seal Coat
02575	NN	9103	02546	Cold - Milling of Bituminous Pavement
02575	CE	9106	02561	Asphalt Slurry Seal
02575	NN	9103	02562	Resealing of Joints in Rigid Pavement
02575	CE	9105	02563	Recycled Asphalt Concrete Intermediate and Wearing Courses
02575	CE	9106	02564	Cold Mix Recycling
02575	NN	9102	02564	Patching of Rigid Pavement Partial Depth
02575	CE	9102	02565	Recycled Asphalt Concrete Intermediate and Wearing Courses for Roads
02575	NN	9106	02575	Fog Seal
02575	NN	9103	02576	Asphalt Slurry Seal
02575	NN	9102	02578	Rubber and Paint Removal From Airfield Pavements
02575	CE	9106	02579	Patching of Rigid Pavements
02575	NN	9102	02579	Reinforcing Fabric Underseal in Asphalt Overlays
02575	NS	9103	02579	Asphalt - Paving Repair
02575	CE	9102	02584	Fuel - Resistant Sealing
02575	CE	9103	02590	Grooving for Airfield Pavements
02575	CE	9104	02592	Field Molded Sealants for Sealing Joints in Rigid Pavements
02575	CE	9105	02593	Preformed Elastomeric Joint Seals for Concrete Pavements
02575	CE	9102	02594	Sealing of Cracks in Bituminous Pavements
02575	CE	9106	02596	Heater - Planing of Bituminous Pavement
02575	CE	9105	02597	Heater - Scarifying of Bituminous Pavements
02575	CE	9106	02598	Cold Milling of Bituminous Pavements
02575	CE	9105	02599	Bituminous Rejuvenation
02580	NN	9102	02577	Pavement Markings [Airfield and Roads]
02580	VA	8512	02577	Pavement Marking
02580	CE	9106	02580	Pavements Markings
02600	NS	9103	02602	Packaged Lift Stations
02600	CE	9107	02699	Valve Manholes and Piping and Equipment in Valve Manholes
02665	CE	9103	02660	Water Lines
02665	NN	9102	02660	Exterior Water Distribution System
02665	NN	9106	02661	Exterior Water Distribution System (Minor Construction)
02665	GS	8909	02666	Water Service Piping
02665	GS	8909	02669	Private Fire Service Mains
02665	NN	9109	02698	Exterior Buried Preinsulated Water Piping
02665	NS	9103	02713	Water Systems
02665	VA	8810	02713	Water System
02670	CE	9105	02670	Water Wells
02670	GS	9003	02670	Water Wells

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 2 - SITEWORK (Continued)
02670	NN	9106	02670	Rotary- Drilled Water Well
02680	NN	9102	02682	Exterior Fuel Distribution System
02685	VA	8904	02680	Gas Distribution System
02685	CE	9104	02685	Gas Distribution System
02685	NN	9102	02685	Gas Distribution System
02685	NS	9103	02685	Gas Distribution Systems
02695	NN	9102	02693	Exterior Shallow Trench Heat Distribution System
02695	NN	9102	02694	Exterior Underground Heat Distribution System
02695	CE	9105	02695	Preapproved Underground Heat Distribution System
02695	NN	9102	02695	Exterior Aboveground Steam Distribution System
02695	CE	9105	02696	Heat Distribution Systems in Concrete Trenches
02695	NN	9109	02696	Exterior Piping Insulation
02695	CE	9105	02697	Aboveground Heat Distribution Systems
02695	NN	9102	02697	Exterior Buried Pumped Condensate Return System
02695	VA	8810	02710	Distribution and Transmission System (Steam)
02710	VA	8203	02411	Foundation Drainage
02710	CE	9107	02710	Subdrainage System
02710	GS	8705	02710	Foundation Drainage
02710	CE	9108	02711	Foundation Drainage System
02720	NS	9103	02435	Site Storm Drainage System
02720	CE	9106	02720	Storm - Drainage System
02720	GS	8909	02720	Storm Sewerage
02720	NN	9109	02720	Storm Drainage System
02730	NS	9103	02722	Sanitary Sewerage Systems
02730	CE	9104	02730	Sanitary Sewers
02730	GS	8909	02730	Sanitary Sewerage
02730	NN	9102	02730	Exterior Sanitary Sewer System
02730	CE	9104	02732	Force Mains and Inverted Siphons; Sewer
02735	VA	8904	02720	Storm and Sanitary Sewerage System
02740	GS	9006	02740	Septic Systems
02740	CE	9105	02751	Pneumatic Sewage Ejectors
02740	CE	9104	02752	Siphons, Dosing
02770	CW	6911	01309	Levees
02776	GS	8908	02776	Pond and Reservoir Liners
02776	NN	9103	02776	Pond and Reservoir Liners
02810	VA	8810	02441	Lawn Irrigation System
02810	GS	8502	02810	Underground Irrigation System
02810	CE	9105	02811	Underground Sprinkler Systems
02810	NN	9102	02811	Irrigation Sprinkler Systems
02810	NS	9103	02811	Underground Sprinkler Systems
02830	NS	9103	02444	Steel Chain- Link Fences and Gates
02830	VA	8512	02444	Chain Link Fences and Gate
02830	CE	9105	02831	Fence, Chain - Link
02830	GS	8905	02831	Chain Link Fences and Gates
02830	NN	9102	02831	Fence, Chain Link
02840	VA	8512	02452	Exterior Signage
02840	NS	9103	02456	Parking Bumpers (Wheel Stops)
02840	CE	9105	02835	Vehicle Barriers
02900	VA	8512	02480	Landscaping
02900	GS	8808	02900	Landscape Work
02930	GS	8902	02930	Lawns and Grasses
02930	NN	9109	02930	Turf
02930	NS	9109	02930	Grassing (Seeding and Sodding)
02930	CE	9106	02935	Turf
02950	NS	9103	02490	Trees, Plants, and Ground Cover
02950	CE	9106	02950	Trees, Shrubs, Ground Covers, and Vines
02950	NN	9102	02950	Trees, Plants, and Ground Covers
02950	CE	9106	02955	Crownvetch
02950	GS	8902	02955	Trees and Shrubs
02950	GS	8902	02956	Ground Cover and Plants

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 3 - CONCRETE
03100	CE	9104	03100	Structural Concrete Formwork
03100	CW	8210	03101	Formwork for Concrete
03130	NS	9103	03161	Permanent Metal Forms for Concrete
03200	CE	9104	03200	Concrete Reinforcement
03200	CW	8810	03210	Steel Bars, Steel Welded Wire Fabric and Accessories for Concrete Reinforcement
03230	CW	8805	03230	Stressing Tendons and Accessories for Prestressed Concrete
03250	CW	8004	03150	Expansion, Contraction and Construction Joints in Concrete
03250	CE	9105	03250	Expansion Joints, Contraction Joints, and Water Stops
03300	CE	9107	03300	Concrete for Building Construction
03300	GS	9005	03300	Cast-in-Place Concrete
03300	NN	9105	03300	Cast-in-Place Concrete
03300	NS	9103	03300	Cast-in-Place Concrete (Short Section)
03300	VA	8301	03300	Cast-in-Place Concrete
03300	CW	9011	03301	Cast-in-Place Structural Concrete
03300	VA	8205	03301	Cast-in-Place Concrete (Short Form)
03300	NN	9102	03302	Cast-in-Place Concrete (Minor Construction)
03300	NS	9103	03305	Cast-in-Place Concrete
03300	CW	8006	03307	Concrete (For Minor Structures)
03300	NS	9103	03346	Lightweight Concrete
03330	CE	9104	03330	Cast-in-Place Architectural Concrete
03350	GS	9008	03355	Special Concrete Finishes
03360	CW	9006	03361	Shotcrete
03360	GS	9005	03361	Shotcrete
03360	NN	9102	03361	Shotcrete
03360	CW	8307	03362	Preplaced-Aggregate Concrete
03360	CW	9001	03365	Concrete for Concrete Cutoff Walls
03400	NN	9102	03410	Precast Concrete (Non-Prestressed)
03410	GS	8708	03410	Structural Precast Concrete
03410	GS	8808	03411	Precast Prestressed Hollow Core Slabs
03410	GS	8808	03412	Precast Prestressed Long-Span Units
03410	NN	9102	03412	Precast Prestressed Concrete
03410	NS	9103	03412	Precast Concrete Deck
03410	VA	9003	03412	Precast Concrete Roofing Slab
03410	GS	8808	03413	Framing Units
03410	GS	8808	03413	Precast Prestressed Structural
03410	NS	9103	03413	Precast Structural Concrete Sections
03410	CE	9104	03414	Precast Roof Decking
03410	VA	8407	03415	Prestressed Concrete Hollow Core Planks
03410	CW	8402	03425	Precast Prestressed Concrete
03410	CE	9106	03550	Precast/Prestressed Concrete Floor and Roof Units
03450	NN	9102	03411	Precast Concrete Wall Panels
03450	NS	9103	03411	Precast Concrete Wall Panels
03450	CE	9105	03450	Precast Architectural Concrete
03450	GS	9005	03450	Architectural Precast Concrete - Plant Cast
03450	VA	8403	03450	Architectural Precast Concrete Panels
03450	GS	9002	03455	Glass Fiber Reinforced Precast Concrete - Plant Cast
03470	NS	9103	03430	Tilt-Up Concrete Construction
03470	GS	8705	03470	Tilt-Up Concrete Construction
03480	NN	9102	03498	Concrete Poles
03510	CE	9106	03510	Roof Decking, Cast-in-Place Low Density Concrete
03510	VA	9009	03511	Gypsum Plank Decking
03510	VA	8404	03512	Cast-in-Place Gypsum Concrete
03520	NS	9103	03341	Insulating Concrete
03520	NN	9102	03501	Insulating Concrete Roof Deck System
03520	GS	9005	03520	Insulating Concrete Decks
03520	VA	8707	03520	Insulating Concrete
03520	VA	8707	03521	Insulating Concrete Interstitial Deck
03530	GS	8905	03531	Cementitious Wood Fiber Planks
03530	VA	8308	03532	Cement-Fiber Roof Deck
03540	VA	9101	03522	Insulating Concrete Composite
03550	GS	8705	03320	Concrete Floor Topping

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
03600	NS	9103	03606	DIVISION 3 - CONCRETE (Continued)
03700	NS	9103	03707	Expansive Grout
03700	NN	9102	03730	Concrete Restoration and Cleaning
03800	CW	9011	03305	Concrete Repair Using Epoxy Resin
				Mass Concrete
04100	VA	8810	04100	DIVISION 4 - MASONRY
04200	CE	9103	04200	Mortar//and Grout//
04200	GS	9005	04200	Masonry
04200	NN	9109	04200	Unit Masonry
04200	VA	8810	04200	Unit Masonry
04200	NS	9103	04201	Unit Masonry
04210	GS	8505	04241	Masonry
04210	NN	9105	04250	Structural Clay Facing Units
04220	NS	9103	04220	Glazed Structural Clay Tile and Prefaced Concrete Masonry Units
04230	NN	9102	04230	Concrete Unit Masonry
04230	VA	8810	04230	Reinforced Masonry
04270	GS	9102	04270	Reinforced Unit Masonry
04270	NN	9102	04270	Glass Unit Masonry
04400	GS	8911	04405	Glass Unit Masonry
04400	VA	8305	04435	Dimension Stone
04400	GS	8707	04450	Cast Stone
04500	GS	8802	04500	Stone Tile
04500	VA	8811	04515	Masonry Restoration and Cleaning
				Masonry Tuck Pointing
05050	CE	9105	05055	DIVISION 5 - METALS
05050	NI	8806	05435	Welding, Structural
05120	CE	9103	05120	Attachment Hardware
05120	GS	9002	05120	Structural Steel
05120	NN	9102	05120	Structural Steel
05120	NS	9103	05120	Structural Steel
05120	VA	8205	05120	Structural Steel
05210	CE	9103	05210	Structural Steel
05210	NN	9105	05210	Steel Joists
05210	NS	9103	05210	Steel Joists [and Joist Girders]
05210	VA	8903	05210	Steel Joists
05210	GS	9008	05220	Steel Joists
05210	GS	8905	05310	Steel Joists And Joist Girders
05310	CE	9109	05300	Steel Joists
05310	NN	9108	05310	Steel Decking
05310	VA	8203	05311	Steel Decks
05310	NS	9103	05318	Steel Decking
05310	NS	9103	05320	Steel Roof Deck
05310	VA	8203	05321	Metal Floor Decking
05400	GS	8905	05400	Steel Decking Composite
05400	NN	9102	05400	Cold-Formed Metal Framing
05400	VA	8408	05400	Cold-Formed Metal Framing
05500	CE	9109	05500	Cold-Formed Metal Framing
05500	GS	8808	05500	Miscellaneous Metal
05500	NN	9102	05500	Metal Fabrications
05500	NS	9103	05500	Metal Fabrications
05500	VA	8308	05500	Metal Fabrications
05500	CW	8510	05501	Metal Fabrications
05500	CW	8502	05502	Metalwork Fabrication, Machine Work, and Miscellaneous Provisions
05510	NS	9103	05510	Miscellaneous Metal Materials, Standard Articles, and Shop Fabricated Items
05510	VA	8903	05510	Metal Stairs
05520	GS	8911	05521	Metal Stairs
05580	GS	8805	05580	Pipe and Tube Railings
05700	GS	8802	05700	Sheet Metal Fabrications
05700	NS	9103	05700	Ornamental Metalwork
				Ornamental Metal

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
05715	GS	8907	05715	DIVISION 5 - METALS (Continued)
05720	GS	8911	05720	Prefabricated Spiral Stairs
05810	GS	8905	05810	Ornamental Handrails and Railings
05810	VA	9011	05810	Expansion Joint Cover Assemblies
05910	CW	8302	05550	Expansion Joint Cover Assemblies
				Welded Power Penstocks (and Surge Tanks)
06100	CE	9104	06100	DIVISION 6 - WOODS AND PLASTICS
06100	GS	9008	06100	Rough Carpentry
06100	NN	9108	06100	Rough Carpentry
06100	NS	9109	06100	Rough Carpentry
06100	VA	9003	06100	Rough Carpentry
06100	NN	9102	06101	Rough Carpentry
06130	GS	8805	06130	Carpentry
06180	GS	8805	06170	Heavy Timber Construction
06180	NS	9103	06181	Structural Glued Laminated Units
06190	GS	9008	06192	Glue-Laminated Structural Units
06200	CE	9108	06200	Prefabricated Metal-Plate-Connected Wood Trusses
06200	GS	8302	06200	Finish Carpentry
06200	NN	9102	06200	Finish Carpentry
06200	NS	9103	06200	Finish Carpentry
06200	VA	9108	06200	Finish Carpentry
06400	GS	8707	06265	Finish Carpentry and Millwork
06400	GS	8902	06401	Molded Architectural Ornamentation
06400	GS	8902	06402	Exterior Architectural Woodwork
06410	GS	8707	06410	Interior Architectural Woodwork
06420	GS	8902	06410	Custom Casework
			06420	Panelwork
07110	GS	8908	07110	DIVISION 7 - THERMAL AND MOISTURE PROTECTION
07110	NN	9102	07110	Sheet Membrane Waterproofing
07110	NS	9103	07110	Membrane Waterproofing
07110	CE	9105	07110	Membrane Waterproofing
07110	NN	9102	07111	Elastomeric Membrane Waterproofing
07110	CE	9105	07111	Elastomeric Waterproofing, Sheet-Applied
07110	VA	8201	07112	Bituminous Waterproofing
07110	VA	8201	07112	Bituminous Membrane Waterproofing (Built-up)
07110	VA	8901	07113	Modified Bituminous Membrane Waterproofing (Sheet)
07120	GS	9002	07114	Shower Pan Waterproofing
07120	NN	9102	07120	Fluid-Applied Waterproofing
07125	GS	8911	07120	Elastomeric Waterproofing, Fluid-Applied
07130	GS	8505	07125	Sheet Metal Waterproofing
07130	NN	9102	07130	Bentonite Waterproofing
07140	CE	9105	07130	Bentonite Waterproofing
07140	GS	8911	07140	Metallic Oxide Waterproofing
07140	NN	9102	07140	Metal Oxide Waterproofing
07140	VA	8201	07140	Metallic Oxide Waterproofing
07160	CE	9105	07140	Metal Oxide Waterproofing
07160	GS	9005	07160	Bituminous Dampproofing
07160	NN	9102	07160	Bituminous Dampproofing
07160	NS	9103	07160	Bituminous Dampproofing
07160	VA	8903	07160	Bituminous Dampproofing
07180	GS	8508	07160	Bituminous Dampproofing
07210	GS	9011	07175	Water Repellents
07210	NS	9103	07210	Building Insulation
07210	VA	8707	07210	Building Insulation
07210	VA	8707	07210	Building Insulation
07210	NN	9102	07211	Loose Fill Insulation
07210	NN	9102	07216	Loose Fill Insulation
07210	NN	9109	07218	Spray Applied Cellulose Insulation
07210	NN	9108	07221	Masonry Wall Insulation
			07230	Perimeter and Under-Slab Insulation

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 7 - THERMAL AND MOISTURE PROTECTION (Continued)
07210	NN	9102	07232	Ceiling, Wall, and Floor Insulation
07220	CE	9105	07220	Insulation For Roofing
07220	NN	9107	07220	Roof Insulation
07220	NS	9109	07220	Roof Insulation
07220	VA	8711	07220	Roof and Deck Insulation
07220	VA	8711	07221	Protective Membrane Roof Insulation
07240	CE	9105	07240	Exterior Insulation and Finish System
07240	GS	8908	07241	Exterior Insulation and Finish Systems - Class PB
07240	GS	8908	07242	Exterior Insulation and Finish Systems - Class PM
07250	CE	9105	07250	Spray-Applied Fireproofing
07250	GS	8802	07250	Sprayed-On Fireproofing
07250	NN	9102	07250	Sprayed-Applied Fireproofing
07250	VA	8201	07253	Sprayed-On Fireproofing (Mineral Fiber)
07250	GS	8808	07266	Mineral Fiber Board Fireproofing
07250	NS	9103	09228	Fireproofing
07270	VA	9011	07250	Firestopping
07270	CE	9108	07270	Firestopping
07270	NN	9102	07270	Firestopping
07310	NN	9102	07310	Asphalt Shingles
07310	CE	9105	07311	Roofing, Strip Shingles
07310	GS	9102	07311	Asphalt Shingles
07310	VA	8904	07311	Asphalt Shingles
07310	GS	8511	07313	Metal Shingles
07310	VA	9003	07313	Wood Shingles
07310	VA	9006	07314	Slate Shingles
07310	GS	8808	07315	Slate Shingles
07310	GS	9011	07317	Wood Shingles and Shakes
07320	GS	9102	07320	Roofing Tiles
07320	VA	8203	07321	Clay Roofing Tiles
07400	NS	9103	07400	Prefabricated Roofing and Siding
07410	GS	9002	07410	Manufactured Roof and Wall Panels
07410	NN	9109	07410	Preformed Metal [Roofing] [and] [Siding]
07410	VA	8201	07410	Preformed Wall and Roof Panels
07410	GS	9005	07411	Manufactured Roof Panels
07410	GS	9005	07412	Manufactured Wall Panels
07410	CE	9110	07413	Metal Roofing and Siding
07410	NN	9109	07414	Preformed Steel Standing Seam Roofing
07410	NN	9109	07415	Preformed Aluminum Standing Seam Roofing
07460	NS	9103	07411	Preformed Metal Siding
07460	VA	8204	07440	Preformed Plastic Panels
07460	GS	9102	07460	Siding
07510	CE	9103	07510	Built-Up Roofing
07510	NS	9103	07510	Asphalt Built-Up Roofing
07510	VA	9010	07510	Bituminous Built-up Roofing
07510	GS	8908	07511	Built-Up Asphalt Roofing
07510	NN	9106	07511	Aggregate Surfaced Bituminous Built-Up Roofing
07510	GS	8908	07512	Built-Up Coal-Tar Roofing
07510	NN	9106	07512	Smooth Surfaced Bituminous Built-Up Roofing
07510	NN	9106	07513	Mineral Surfaced Bituminous Built-Up Roofing
07510	NS	9109	07562	Built-Up Roofing
07520	NN	9102	07520	Prepared Roll Roofing
07530	CE	9105	07530	Elastomeric Roofing (EPDM)
07530	GS	8908	07530	Single Ply Membrane Roofing
07530	NN	9109	07530	Elastomeric Sheet Roofing System (EPDM)
07530	NS	9103	07530	Elastic-Sheet Roofing
07530	NN	9109	07531	Elastomeric Sheet Roofing System (CSPE)
07530	VA	8810	07531	PVC Sheet Roofing
07530	NN	9109	07532	Elastomeric Sheet Roofing System (PIB)
07530	VA	8810	07532	EPDM Sheet Roofing
07530	NN	9109	07533	Elastomeric Sheet Roofing System (CPE)
07530	NN	9109	07534	Thermoplastic Sheet Roofing System (PVC)

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				<b>DIVISION 7 - THERMAL AND MOISTURE PROTECTION (Continued)</b>
07530	NN	9109	07535	Modified Bitumen Sheet Roofing
07530	CE	9105	07555	Polyvinyl Chloride (PVC) Roofing
07540	CE	9109	07540	Elastomeric Roofing, Fluid Applied
07540	GS	9002	07540	Fluid-Applied Roofing
07540	VA	8201	07541	Fluid Applied Roofing (Over Concrete)
07545	NN	9102	07540	Elastomeric Roof Coatings Over Polyurethane Foam (PUF)
07545	VA	8201	07540	Fluid Applied Roofing (Over Sprayed Urethane)
07545	NN	9102	07545	Sprayed Polyurethane Foam (PUF) for Roofing Systems
07550	CE	9109	07550	Protected Membrane Roofing
07570	GS	8808	07570	Traffic Topping
07570	VA	9006	07571	Latex Mastic Deck Covering
07572	VA	9006	07572	Elastomeric Coating (Pedestrian Traffic)
07600	CE	9105	07600	Sheet Metalwork, General
07600	GS	8908	07600	Flashing and Sheet Metal
07600	NN	9102	07600	Flashing and Sheet Metal
07600	NS	9109	07600	Flashing and Sheetmetal
07600	VA	9108	07600	Flashing and Sheet Metal
07600	VA	8203	07610	Batten Seam Roofing
07610	GS	9005	07610	Sheet Metal Roofing
07700	GS	8705	07700	Roof Specialties and Accessories
07700	VA	9012	07700	Roof Specialties and Accessories
07710	GS	9008	07710	Manufactured Roof Specialties
07710	GS	8911	07716	Roof Expansion Assemblies
07720	CE	9109	07720	Roof Ventilators, Gravity Type
07720	GS	8802	07820	Metal-Framed Skylights
07720	NS	9103	15833	Gravity Roof Ventilators
07900	GS	8708	07900	Joint Sealers
07920	CE	9103	07920	Caulking and Sealants
07920	NN	9102	07920	Sealants
07920	NS	9103	07920	Sealants and Calkings
07920	VA	8906	07920	Sealants and Caulking
				<b>DIVISION 8 - DOORS AND WINDOWS</b>
08110	NS	9103	08100	Standard Steel Doors And Frames
08110	CE	9108	08110	Steel Doors and Frames
08110	NN	9109	08110	Steel Doors and Frames
08110	VA	9004	08110	Steel Doors and Frames
08110	GS	9008	08111	Standard Steel Doors and Frames
08110	GS	9005	08114	Custom Steel Doors and Frames
08120	CE	9106	08120	Aluminum Doors and Frames
08120	NN	9102	08120	Aluminum Doors and Frames
08120	NS	9103	08120	Aluminum Doors and Frames
08120	NS	9103	08121	Flush Aluminum Doors and Frames
08210	NS	9103	08200	Wood Doors
08210	CE	9103	08201	Wood Doors
08210	NN	9103	08210	Wood Doors
08210	VA	8609	08210	Wood Doors
08210	GS	8402	08211	Flush Wood Doors
08210	GS	8702	08212	Panel Wood Doors
08305	GS	8905	08305	Access Doors
08305	VA	8409	08305	Access Doors
08310	NN	9103	08310	Sliding Fire Doors
08310	VA	8204	08310	Sliding Metal Fire Doors
08310	GS	8808	08311	Aluminum Sliding Glass Doors
08310	CE	9106	08312	Sliding Metal Doors
08310	GS	8808	08312	Wood Sliding Glass Doors
08310	CE	9106	08313	Aluminum Sliding Glass Doors
08310	GS	9011	08314	Sliding Metal Fire Doors
08310	NN	9103	08371	Aluminum Sliding Glass Doors
08310	NS	9103	08394	Horizontal and Biparting Sliding Doors
08320	NS	9103	08320	Fire Protective Doors



CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 8 - DOORS AND WINDOWS (Continued)
08320	GS	9102	08321	Insulating Security Doors
08320	NS	9103	08392	Doors: Fire-Insulated, Record-Vault
08325	CE	9103	08325	Cold Storage Doors and Frames
08330	CE	9106	08330	Overhead Coiling Doors
08330	GS	8802	08330	Overhead Coiling Doors
08330	CE	9106	08331	Metal Coiling Counter Doors
08330	NN	9103	08331	Rolling Service [and Fire] Doors
08330	NS	9103	08331	Overhead Coiling Doors
08330	VA	8202	08331	Overhead Roll-up Doors and Grilles
08330	GS	8802	08340	Overhead Coiling Grilles
08330	VA	8203	08341	Overhead Rolling Shutters
08350	GS	8905	08351	Folding Doors
08350	CE	9105	08353	Accordion Doors and Partitions, and Operable Partitions
08350	VA	8201	08353	Accordion Folding Doors
08350	VA	8204	08355	Flexible Door
08360	CE	9106	08360	Sectional Overhead Doors
08360	GS	8802	08360	Sectional Overhead Doors
08360	NN	9103	08360	Sectional Overhead Doors
08360	VA	8407	08360	Overhead Sectional Metal Doors
08360	NS	9103	08364	Overhead Doors, Wood and Metal
08365	CE	9106	08365	Vertical Lift Doors
08365	NN	9105	08367	Vertical Lift Metal Doors
08375	NN	9109	08372	Steel Sliding Hangar Doors
08385	NS	9103	08380	Sound-Retardant Doors
08390	GS	8805	08390	Screen and Storm Doors
08390	NN	9109	08392	Aluminum Storm Doors
08410	GS	9011	08410	Aluminum Entrances and Storefronts
08410	VA	8201	08410	Aluminum Entrances and Store Fronts
08450	GS	9011	08450	All-Glass Entrances
08460	GS	9102	08460	Automatic Entrance Doors
08470	VA	8201	08450	Revolving Entrance Doors
08470	GS	9102	08470	Revolving Entrance Doors
08510	CE	9103	08510	Steel Windows
08510	GS	9011	08510	Steel Windows
08510	NN	9102	08510	Steel Windows
08510	NS	9103	08510	Steel Windows
08510	VA	8308	08510	Steel Windows (Double Hung)
08520	CE	9106	08520	Aluminum Windows
08520	GS	9005	08520	Aluminum Windows
08520	NN	9109	08520	Aluminum Windows
08520	NS	9103	08520	Aluminum Windows
08520	VA	8201	08520	Aluminum Windows (Single//Double//Triple//Hung)
08520	CE	9106	08521	Aluminum Environmental Control Windows
08520	VA	8201	08522	Pivoted Aluminum Windows (Double Glazed)
08520	VA	8201	08523	Projected Aluminum Windows
08520	VA	9003	08524	Side Hinged Aluminum Windows (Double Glazed)
08520	GS	9005	08525	Aluminum Architectural Windows
08520	VA	8201	08525	Horizontal Sliding Aluminum Windows
08520	VA	8201	08526	Casement Aluminum Windows
08520	VA	8201	08527	Aluminum Jalousie Windows
08520	VA	8407	08528	Double Sash Horizontal Aluminum Windows
08520	VA	9003	08540	Aluminum Double Hung Replacement Windows
08520	VA	8407	08541	Aluminum Projected Replacement Windows
08610	CE	9106	08610	Wood Windows
08610	GS	9008	08610	Wood Windows
08610	NN	9102	08610	Wood Windows
08610	CE	9106	08615	Clad Wood Windows
08610	CE	9106	08620	Polyvinyl Chloride (PVC) Windows
08610	NN	9109	08630	Poly (Vinyl Chloride) (PVC) Windows
08660	NN	9102	08661	Blast Resistant Tempered Glass Windows
08670	VA	8201	08529	Aluminum Storm Windows (Triple Track Self Storing)

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
DIVISION 8 - DOORS AND WINDOWS (Continued)				
08670	GS	8608	08580	Aluminum Storm Windows
08670	NN	9102	08562	Aluminum Storm Windows
08700	CE	9106	08700	Hardware; Builders' (General Purpose)
08700	NS	9103	08700	Finish Hardware
08700	CE	9103	08701	Hardware: Prison - Locking Devices
08700	GS	8405	08710	Finish Hardware
08700	NI	9008	08710	Finish Hardware
08700	NN	9109	08710	Finish Hardware
08700	NS	9103	08710	Finish Hardware
08700	VA	8910	08710	Builders Hardware
08700	VA	8407	08750	Installation of Doors and Hardware
08740	VA	8506	08745	Electromagnetic Locking System
08770	GS	9102	08720	Power Door Operators
08770	VA	8910	08721	Automatic Door Operators
08810	GS	8608	08800	Glass and Glazing
08810	NN	9102	08800	Glazing
08810	CE	9106	08810	Glass and Glazing
08810	NS	9103	08810	Glass and Glazing
08810	VA	9011	08810	Glass and Glazing
08810	NS	9103	08811	Glass and Glazing
08810	GS	8904	08825	Decorative Glass
08810	GS	9002	08830	Mirrored Glass
08840	CE	9103	08840	Plastic Glazing
08840	GS	9002	08840	Plastic Glazing
08900	NN	9102	08900	Glazed Curtain Wall System
08900	NS	9103	08900	Curtain Walls
08900	GS	8902	08925	Walls
08900	GS	8902	08925	Structural Sealant Glazed Curtain
08920	GS	8902	08920	Glazed Aluminum Curtain Walls
08960	GS	8905	08960	Sloped Glazing Systems
DIVISION 9 - FINISHES				
09100	NN	9102	09100	Metal Support Systems
09110	VA	8810	09100	Non - Load Bearing Framing Systems
09200	CE	9106	09200	Lathing and Plastering
09200	GS	8911	09200	Lath and Plaster
09200	NN	9102	09200	Lathing
09200	NS	9103	09200	Exterior Lathing and Plastering
09200	VA	8810	09200	Lathing and Gypsum Plastering
09200	VA	8810	09205	Lathing and Cement Plastering
09200	GS	8911	09206	Metal Lath and Furring
09200	NN	9102	09212	Plastering and Stuccoing
09215	CE	9108	09215	Veneer Plaster
09215	GS	8802	09215	Veneer Plaster
09215	NN	9102	09215	Veneer Plaster
09215	VA	8810	09215	Veneer Plaster
09220	GS	8911	09220	Portland Cement Plaster
09220	CE	9106	09225	Stucco
09250	CE	9106	09250	Gypsum Wallboard
09250	GS	8708	09250	Gypsum Drywall
09250	NN	9102	09250	Gypsum Board
09250	NS	9109	09250	Gypsum Board
09250	GS	8802	09261	Predecorated Gypsum Board
09250	GS	8802	09262	Gypsum Sheathing
09260	NS	9103	09260	Gypsum Wallboard Systems (Dry Wall)
09260	VA	8810	09260	Gypsum Board System
09260	GS	8802	09270	Gypsum Board Shaft Wall Systems
09300	GS	8902	09300	Tile
09300	NN	9102	09310	Ceramic Tile, Quarry Tile, and Paver Tile
09310	CE	9108	09310	Ceramic Tile
09310	NS	9103	09310	Ceramic Tile

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 9 - FINISHES (Continued)
09310	VA	8812	09310	Ceramic Tile
09330	NS	9103	09330	Quarry Tile
09330	NN	9102	09331	Chemical-Resistant Quarry Tile Flooring
09400	GS	9005	09400	Terrazzo
09410	VA	8201	09410	Portland Cement Terrazzo
09410	CE	9106	09411	Bonded Terrazzo
09410	NN	9102	09411	Terrazzo, Bonded To Concrete
09420	CE	9109	09421	Terrazzo Tile
09420	VA	8203	09421	Terrazzo Tile
09430	CE	9106	09431	Conductive Resinous Terrazzo Flooring
09440	CE	9109	09445	Resinous Terrazzo Flooring
09500	NN	9102	09500	Acoustical Treatment
09510	NS	9103	09500	Acoustical Ceilings
09510	VA	9003	09500	Acoustical Ceiling
09510	CE	9106	09510	Acoustical Ceilings
09510	GS	8905	09511	Acoustical Panel Ceilings
09510	GS	8905	09512	Acoustical Tile Ceilings
09510	GS	8905	09513	Acoustical Snap-In Metal Pan
09510	GS	8905	09513	Ceilings
09510	NS	9103	09514	Acoustic Ceilings, Exposed Grid
09510	NS	9103	09516	Acoustic Ceilings, Concealed Grid
09520	GS	9011	09521	Acoustical Wall Panels
09520	VA	8407	09553	Acoustical Wall Paneling
09545	GS	8910	09546	Linear Metal Ceilings
09545	GS	8910	09549	Suspended Decorative Grids
09550	GS	8702	09550	Wood Flooring
09560	CE	9109	09560	Wood Strip Flooring
09560	NN	9102	09561	Gymnasium-Type Hardwood Strip Flooring Systems
09565	GS	8702	09565	Wood Block Flooring
09570	CE	9106	09570	Wood Parquet Flooring
09570	NN	9102	09570	Wood Parquet Flooring
09580	GS	8702	09583	Wood Athletic Flooring
09580	NN	9102	09583	Portable (Demountable) Wood Flooring
09600	GS	8811	09600	Interior Stonework
09600	VA	8204	09600	Stone and Brick Flooring
09635	GS	8811	09635	Brick Flooring
09635	GS	8811	09636	Chemical-Resistant Brick Flooring
09650	CE	9106	09650	Resilient Flooring
09650	GS	8408	09650	Resilient Flooring
09650	NS	9103	09650	Resilient Flooring
09650	CE	9109	09655	Resilient Athletic Flooring
09660	GS	8703	09660	Resilient Tile Flooring
09660	NN	9102	09660	Resilient Tile Flooring
09660	VA	8201	09660	Resilient Tile Flooring
09660	GS	8703	09664	Rubber Tile Flooring
09665	GS	8703	09665	Resilient Sheet Flooring
09665	NN	9102	09665	Sheet Vinyl Flooring
09665	VA	8201	09665	Resilient Sheet Flooring
09665	NN	9102	09666	Institutional Sheet Vinyl Flooring
09665	VA	8201	09666	Resilient Sheet Flooring (Heat Welded Seam)
09670	GS	8502	09670	Fluid-Applied Resilient Flooring
09670	NN	9102	09670	Fluid Applied Resilient (Resinous) Flooring
09675	CE	9109	09675	Conductive Vinyl Flooring
09675	GS	8703	09675	Conductive Resilient Flooring
09678	GS	8703	09678	Resilient Base and Accessories
09680	CE	9106	09680	Carpet
09680	GS	9004	09680	Carpet
09680	NN	9102	09680	Carpet
09680	NS	9103	09680	Carpet
09680	VA	8906	09682	Carpeting (Without Cushion)
09680	VA	8305	09695	Soft Surface Flooring

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 9 - FINISHES (Continued)
09690	GS	9004	09690	Carpet Tile
09690	NN	9102	09690	Carpet Tile
09690	VA	8908	09690	Carpet Modules
09700	CE	9109	09433	Conductive Sparkproof Industrial Resinous Flooring
09700	VA	8201	09701	Latex Mastic Flooring
09700	NS	9103	09756	Heavy Duty Epoxy Flooring
09705	GS	8611	09705	Resinous Flooring
09705	CE	9109	09706	Industrial Resinous Flooring
09730	VA	8201	09731	Conductive Elastomeric Flooring
09785	NN	9102	09785	Metallic Type Conductive/Spark Resistant Concrete Floor Finish
09800	GS	8802	09800	Special Coatings
09800	NS	9103	09800	Special Coatings
09800	VA	9003	09836	Multi-Color Coating
09815	NN	9102	09815	High-Build Glaze Coatings
09815	VA	8201	09815	High-Build Glazed Coatings
09830	GS	8805	09830	Elastomeric Coatings
09840	GS	8802	09841	Fire Retardant Coatings
09870	NN	9103	09809	Protection Of Buried Steel Piping and Steel Bulkhead Tie Rods
09870	NI	8605	09860	Coating For Fume Hood Exhaust Ductwork
09870	NN	9102	09871	Interior Lining for Concrete Storage Tanks (for Petroleum Fuels)
09870	NN	9105	09872	Interior Coatings for Welded Steel Tanks (for Petroleum Fuels)
09870	NN	9102	09874	Exterior Coating System for Welded Steel Petroleum Storage Tanks
09870	NN	9102	09875	Interior Coating System for Welded Steel Petroleum Storage Tanks
09870	NN	9109	09877	Coating of Steel Waterfront Structures
09870	NN	9102	09881	Linseed Oil Protection of Concrete Surfaces
09870	NS	9103	09890	Protective Coating of Carbon Steel
09900	CE	9106	09900	Painting, General
09900	GS	8611	09900	Painting
09900	NN	9109	09900	Painting
09900	NS	9103	09900	Painting
09900	VA	8201	09900	Painting
09900	NS	9103	09901	Architectural Painting
09900	GS	8805	09931	Exterior Wood Stains
09900	CW	8908	09940	Painting: Hydraulic Structures and Appurtenant Works
09950	GS	8805	09950	Wall Coverings
09950	VA	9005	09952	Polypropylene Fabric Wallcovering
09955	VA	8910	09951	Vinyl Coated Fabric Wall Covering
09955	NN	9102	09955	Vinyl-Coated Fabric Wall Covering
09960	NS	9103	09952	Vinyl Wall Covering
09960	CE	9109	09960	Vinyl-Coated Wall Covering
09960	GS	8703	09961	Vinyl Wall Covering
09970	GS	8703	09970	Wallpaper
09975	GS	8703	09975	Textile Wallcovering
09975	GS	8703	09976	Heavy Duty Synthetic Textile Wall Coverings
09980	GS	8703	09980	Wood Veneer Wallcovering
				DIVISION 10 - SPECIALTIES
10001	VA	8204	10360	Miscellaneous Specialties
10100	GS	8908	10100	Visual Display Boards
10100	VA	8201	10100	Chalkboards and Tackboards
10160	CE	9105	10160	Toilet Partitions
10160	GS	8705	10160	Toilet Partitions
10160	NN	9102	10162	Toilet Partitions
10160	NS	9103	10162	Metal Toilet Partitions and Urinal Screens
10160	VA	8812	10162	Toilet Partitions and Urinal Screens
10165	NS	9103	10161	Laminated-Plastic Toilet Partitions and Urinal Screens
10180	GS	8901	10180	Stone Toilet Partitions
10185	VA	8201	10170	Prefabricated Shower//and Dressing//Compartments
10190	NN	9102	10152	Hospital Cubicle Track
10190	VA	8409	10152	Hospital Cubicle Curtains and Intravenous Support Tracks
10190	GS	9101	10190	Cubicles

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 10 - SPECIALTIES (Continued)
10200	GS	8805	10200	Louvers and Vents
10200	VA	9011	10200	Louvers and Wall Vents
10200	NN	9102	10201	Metal [Wall] [and] [Door] Louvers
10250	GS	8901	10250	Service Wall Systems
10260	GS	8707	10260	Wall and Corner Guards
10260	NN	9109	10260	Wall and Corner Guards
10260	VA	9006	10260	Wall Guards and Corner Guards
10270	CE	9102	10270	Raised Floor System
10270	GS	8808	10270	Access Flooring
10270	NN	9106	10270	Access Flooring
10270	VA	8201	10270	Access Flooring
10270	NS	9103	10271	Elevated Floor System
10350	GS	8705	10350	Flagpoles
10350	VA	9009	10350	Flagpoles
10400	GS	8908	10416	Directories and Bulletin Boards
10400	GS	8908	10425	Signs
10400	NN	9109	10440	Signs
10430	CE	9104	10430	Exterior Signage
10430	GS	9002	10436	Exterior Post and Panel Signs
10430	GS	9002	10437	Exterior Pylon Signs
10440	CE	9103	10440	Interior Signage
10440	VA	9108	10440	Interior Signs
10500	VA	8407	10501	Wardrobe Lockers Type S-3
10505	GS	8808	10500	Metal Lockers
10505	NS	9103	10500	Lockers
10505	VA	9009	10500	Lockers
10522	GS	8908	10522	Fire Extinguishers, Cabinets, and Accessories
10522	VA	8201	10522	Fire Extinguisher Cabinets
10522	NS	9103	10524	Hand Fire Extinguishers
10550	GS	8508	10550	Postal Specialties
10550	GS	8810	11910	Mailroom Equipment and Furniture
10551	VA	9005	10551	Mail Chutes
10552	VA	8204	10552	Mail Boxes
10600	NS	9103	10600	Partitions
10605	NS	9103	10601	Mesh Partitions
10605	VA	8201	10601	Mesh Partitions
10605	GS	9011	10605	Wire Mesh Partitions
10605	NN	9109	10605	Wire Mesh Partitions
10615	CE	9103	10615	Demountable Partitions
10615	GS	8804	10615	Demountable Partitions
10615	GS	8811	10616	Demountable Aluminum Framed Partitions
10615	NS	9103	10616	Movable Gypsum Partitions
10615	GS	8811	10617	Demountable Gypsum Panel Partitions
10615	VA	8201	10617	Movable Metal Partitions
10615	GS	8811	10618	Demountable Metal Partitions
10615	NI	8606	10620	Movable Metal Partitions
10615	NI	8606	10621	Government Furnished Movable Metal Partitions
10652	GS	8907	10652	Folding Panel Partitions
10652	GS	8907	10653	Fire-Rated Folding Panel Partitions
10655	NS	9103	10623	Accordion-Folding Partitions
10655	VA	8201	10623	Accordion Folding Partitions
10655	GS	8907	10655	Accordion Folding Partitions
10655	NN	9105	10655	Accordion Folding Partitions
10670	GS	8703	10681	High Density Storage and Shelving
10675	VA	8911	10671	Metal Storage Shelving
10675	GS	8707	10675	Metal Storage Shelving
10750	GS	9008	10750	Telephone Specialties
10755	GS	9008	10753	Wall-Mounted Telephone Enclosures
10800	GS	8908	10800	Toilet and Bath Accessories
10800	NN	9102	10800	Toilet and Bath Accessories
10800	NS	9109	10800	Toilet and Bath Accessories
10800	VA	8201	10800	Toilet and Bath Accessories
10810	CE	9104	10800	Toilet Accessories

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 11 - EQUIPMENT
11022	CE	9106	08318	Security - Vault Doors
11022	NN	9109	08318	Security Vault [And Day Gate]
11022	VA	8903	11021	Vault Doors and Day Gate
11022	CE	9104	11022	Doors; Fire-Insulated, Record - Vault
11030	GS	8804	11030	Teller and Service Equipment
11032	VA	9006	11022	Service Window Units - Bullet Resistant
11050	GS	9002	11050	Library Equipment
11050	VA	8204	11052	Library Shelving, Steel
11054	GS	9005	11054	Library Stack Systems
11080	GS	8805	11080	Portable Theater and Stage Equipment
11082	GS	8805	11082	Stage Curtains
11100	GS	8804	11100	Mercantile Equipment
11132	VA	8201	11131	Projection Screen
11132	GS	9102	11132	Projection Screens
11144	CE	9104	11140	Fueling System, Service Station Type
11150	GS	8802	11150	Parking Control Equipment
11160	GS	8802	11160	Loading Dock Equipment
11160	VA	8201	11160	Loading Dock Equipment
11161	NN	9102	11161	Fixed Type Industrial Dock Leveler
11161	NS	9103	11161	Dock Levelers
11161	CE	9103	11162	Loading Dock Leveler
11165	NS	9103	11165	Dock Bumpers
11170	GS	8702	11170	Solid Waste Handling Equipment
11171	NN	9102	11171	Incinerators, Packaged, Controlled - Air Type
11171	VA	8810	11171	Incinerator (Manual Batch Feed)
11171	VA	8809	11172	Incinerator System (Automatic Feed) //with Heat Recovery Boiler//
11171	NS	9103	11176	Incinerator and Incinerator/Heat Recovery Systems
11171	CE	9104	11181	Incinerator, General Purpose
11171	CE	9105	11182	Incinerators, Medical Waste
11190	NN	9102	11191	Detention and Security Windows
11190	NN	9102	11192	Detention and Security Glazing
11190	VA	8810	11192	Detention and Protection Screens
11190	NN	9102	11193	Detention Hollow Metal Frames, Doors, and Door Frames
11190	NN	9102	11194	Detention Hardware
11190	NN	9102	11195	Detention Furniture and Accessories
11190	NN	9102	11196	Locking Control Systems [for Brig Facilities]
11190	NN	9102	11198	Duress Signal System [for Brig Facilities]
11190	NN	9102	11199	Watchtour System [for Brig Facilities]
11200	CW	8010	02201.01	Hydraulic Turbines - Francis Type
11200	CW	6903	02201.02	Hydraulic Pump - Turbines Francis Type
11200	CW	6903	02201.03	Hydraulic Turbines Kaplan Type
11200	CW	8104	02201.06	Governors for Hydraulic Turbines and Pump - Turbines
11200	CW	8009	02202.01	Hydraulic - Turbine - Driven Alternating Current Generators
11200	CW	7704	02205.01	Turbine Water Flow Measuring Equipment
11200	CW	7004	02208	Turbine Lubricating Oil
11200	CE	9105	11211	Pumps: Water, Centrifugal
11200	CE	9105	11212	Pumps: Water, Vertical Turbine
11200	CE	9104	11241	Chlorine - Feeding Machines (Automatic, Semiautomatic and Manual)
11200	CE	9104	11242	Hypochlorite - Feeding Machine
11200	CE	9104	11250	Water Softeners, Cation-Exchange (Sodium Cycle)
11200	VA	8201	11612	Water Distribution Equipment
11280	CW	6310	01506	Vertical Lift Crest Gates
11280	CW	5006	01507.01	Tractor Gates - Broome Type
11280	CW	8504	05561	Miter Gates
11280	CW	8503	05562	Sector Gates
11280	CW	8804	05563	Tainter Gates and Anchorages
11280	CW	8503	05567	Vertical Lift - Slide Gates
11280	CW	8503	05568	Vertical Lift - Wheel Gates
11280	CW	8503	05569	Vertical Lift - Tractor Gates
11300	CE	9104	11334	Comminutor
11300	NN	9102	11334	Comminutor

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 11 - EQUIPMENT (Continued)
11300	NN	9106	11336	Rectangular Chain-and-Flight Clarifier
11300	NN	9106	11337	Rectangular Reciprocating Traveling - Bridge Clarifier
11300	NN	9106	11338	Circular Clarifier Equipment
11302	NN	9108	11301	Packed, Gravity Oil/Water Separator
11306	GS	8508	11306	Packaged Pump Stations
11306	NN	9106	11306	Package Lift Stations
11310	CE	9103	11310	Pumps; Sewage and Sludge
11320	NN	9106	11320	Grit Removal System
11330	CE	9103	11330	Sewage Bar Screen and Mechanical Shredder
11330	NN	9106	11330	Mechanically Cleaned Bar Racks
11350	CE	9104	11350	Sludge-Collecting Equipment
11365	CE	9104	11365	Trickling Filter
11365	NN	9102	11365	Trickling Filter
11375	CE	9104	11375	Air Supply and Diffusion Equipment for Sewage Treatment
11380	CE	9104	11380	Sludge-Digester Gas, Heating, and Mixing System
11390	CE	9104	11390	Prefabricated Biological Wastewater Treatment Plant
11390	CE	9104	11391	Continuous Loop Reactor Wastewater Treatment System
11390	NN	9102	15396	Aeration and Complete Mixing Sewage Treatment Plants
11400	CE	9104	11400	Food Service Equipment
11400	GS	8908	11400	Food Service Equipment
11400	NN	9108	11400	Food Service Equipment
11400	NN	9102	11401	Electric Kitchen Equipment
11400	VA	8802	11401	Custom Fabricated Food Service Equipment
11400	VA	8201	11410	Food Service Cooking Equipment
11400	VA	8201	11411	Food Service Warewashing Equipment
11400	VA	8201	11412	Food Waste Machines
11400	VA	8302	11415	Food Service Self-Contained Refrigeration Equipment
11400	VA	8302	11416	Food Service Equipment - Utility Distribution System
11400	VA	8302	11420	Food Service Grease Extracting Ventilators
11450	GS	8211	11450	Residential Equipment
11450	VA	8203	11450	Residential Equipment
11460	GS	8902	11460	Unit Kitchens
11460	VA	8203	11460	Unit Kitchen - Type 22
11460	VA	8203	11461	Nourishment Unit - Type 22E
11474	VA	8201	11475	Photographic Processing Equipment
11474	NN	9102	11757	Radiographic Darkroom Equipment
11476	VA	8202	11471	Revolving Darkroom Doors
11494	VA	8201	11491	Hydrotherapy Equipment
11494	NN	9102	11716	Hydrotherapy Equipment
11500	CE	9105	11500	Air Pollution Control
11500	NS	9103	13255	Cleaning for Process Piping Systems
11600	NN	9102	11601	Laboratory Equipment and Fume Hoods
11600	VA	8201	11602	Laboratory Accessories
11600	VA	8201	11604	Biohazard Safety Cabinets
11600	GS	9011	11610	Laboratory Fume Hoods
11600	VA	8201	11610	Laboratory Fume Hoods
11600	NN	9102	11613	Still and Associated Equipment
11600	VA	8302	11614	Laboratory Washing Equipment
11600	VA	8201	11615	Laboratory Controlled Temperature Rooms
11600	VA	8201	11620	Custom Fabricated Laboratory Equipment
11600	NI	9008	11800	Fume Hood, Laboratory, Auxiliary Air Type
11600	NI	9008	11810	Fume Hood, Laboratory, Air Bypass Type
11600	NI	9008	11820	Fume Hood, Laboratory, Air Bypass Type with Horizontal Sliding Sash
11700	NN	9102	11700	General Requirements for Medical and Dental Equipment
11700	VA	8705	11701	Solution Warming Cabinets
11700	NN	9102	11702	Medical Equipment, Miscellaneous
11700	NN	9102	11770	Installation of Government-Furnished Medical Equipment
11700	VA	8512	16685	Patient Wall Systems
11700	VA	8512	16690	Intensive Care Monitor Modules
11710	CE	9105	11710	Warming Cabinets, Sterilizers, and Associated Equipment
11710	VA	8908	11710	Sterilizer and Associated Equipment

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
11710	VA	8301	11712	DIVISION 11 - EQUIPMENT (Continued)
11710	NN	9102	11722	Hospital Washing Equipment
11710	NN	9102	11730	Sterilizers and Associated Equipment
11740	NN	9102	11744	Hospital and Laboratory Washing Equipment
11740	VA	8512	15318	Dental Equipment
11760	NN	9102	11713	Oral Evacuation System
11760	VA	8512	16515	Surgical Lighting Fixtures
11760	VA	8604	16655	Medical and Surgical Lighting Fixtures
11780	VA	8201	11781	Radiology Electrical Systems
				Autopsy Tables
12050	GS	8707	12052	DIVISION 12 - FURNISHINGS
12300	NS	9103	12304	Upholstery Fabrics
12300	NI	8606	12348	Cabinets, Steel and Wood
12300	NI	9104	12349	Government Furnished Metal Laboratory Casework
12300	GS	8703	12632	Explosion-Safe Refrigerator
12301	VA	8204	12301	Wood and Laminate Casework
12301	GS	8703	12631	Metal Casework
12302	VA	8201	12302	Metal Casework
12345	GS	9011	12345	Wood Casework
12345	NI	9011	12347	Laboratory Casework
12350	NN	9102	11704	Metal Laboratory Casework and Accessories
12350	CE	9109	12335	[Casework] [and] [Material Handling Units] in Medical Facilities
12350	VA	8203	12336	Casework for Medical and Dental Facilities
12350	NN	9102	12337	Medication Cabinet
12350	VA	8203	12351	Casework, Metal and Wood (Medical and Dental)
12370	NN	9102	12331	Nurse Server
12370	GS	9010	12372	Prefabricated Vanities
12370	CE	9104	12390	Kitchen Casework
12370	NN	9102	12391	Kitchen Cabinets
12380	CE	9103	10900	Residential Kitchen [and Vanity] Cabinets
12380	GS	8810	12320	Wardrobes
12380	NN	9102	12332	Restaurant and Cafeteria Casework
12380	NN	9102	12333	Wardrobe Storage Cabinets (Three Drawer)
12500	GS	8811	12500	Wardrobes
12510	NN	9102	12510	Window Treatment
12510	GS	8703	12511	Blinds, Venetian (and Audio Visual)
12510	GS	8703	12512	Vertical Louver Blinds
12510	NS	9103	12512	Horizontal Louver Blinds
12510	CE	9109	12520	Venetian Blinds (Horizontal Louvers)
12510	CE	9106	12540	Audiovisual Blinds and Curtains and Lightproof Shades
12520	VA	8201	12513	Venetian Blinds, Draw Curtains and Window Shades
12520	VA	8201	12514	Window Shades
12520	GS	9010	12520	Lightproof Shades
12530	VA	8301	12501	Window Shades
12530	GS	8703	12530	Draperies and Curtains
12540	GS	8703	12540	Draperies
12540	NN	9102	12540	Draperies
12600	VA	8201	12340	Pharmacy Furniture
12600	VA	8201	12345	Laboratory Furniture
12600	VA	8605	12346	Interchangeable Laboratory Furniture
12600	GS	8703	12611	Systems Furniture
12600	GS	8804	12620	Furniture
12600	GS	8804	12625	Hospital Furniture
12600	VA	8710	12625	Suspended Table
12600	GS	8804	12626	Hotel and Motel Furniture
12600	GS	8703	12627	Library Furniture
12600	GS	8804	12630	Restaurant Furniture
12600	VA	8201	12645	Ecclesiastical Furniture
12600	GS	8802	12900	Building Accessories
12670	GS	8804	12676	Custom Rugs



CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
12670	NS	9103	12676	DIVISION 12 - FURNISHINGS (Continued)
12670	GS	8902	12690	Entrance Mats
12680	GS	8902	12690	Floor Mats and Frames
12700	GS	8707	12700	Foot Grilles
12710	CE	9105	12710	Multiple Seating
12710	GS	8805	12710	Theater Chairs
12710	NN	9102	12711	Auditorium and Theater Seating
12760	GS	8811	12760	Theater Seating
12810	GS	8807	12800	Telescoping Bleachers
				Interior Plants and Planters
13034	NN	9102	13034	DIVISION 13 - SPECIAL CONSTRUCTION
13038	NN	9102	13038	Prefabricated Audiometric Rooms
13038	VA	8706	13062	Cold-Storage Rooms (Prefabricated Panel Type)
13052	GS	8811	13052	Walk-In Refrigerators and Freezers
13080	CE	9106	13080	Saunas
13090	CE	9106	13090	Seismic Protection for Mechanical, Electrical Equipment
13090	GS	8811	13091	X-Ray Shielding
13090	VA	8202	13091	X-Ray Protection
13090	NN	9102	13092	Lead Radiation Shielding
13090	NN	9102	13093	X-Ray Shielding
13090	NN	9102	13094	Radio Frequency Shielded Enclosures, Demountable Type
13121	NN	9102	13121	Radio Frequency Shielded Enclosures, Welded Type
13121	NS	9103	13121	Pre-Engineered Metal Buildings (Rigid Frame)
13121	VA	8201	13121	Pre-Engineered Buildings
13122	CE	9103	13120	Pre-Engineered Metal Buildings
13122	GS	8911	13122	Metal Buildings
13170	VA	8204	13154	Metal Building Systems
13185	VA	8201	13171	Therapeutic Pool Accessories
13200	NN	9102	13205	Chain Link Animal Enclosures
13200	CE	9106	13206	Steel Tanks With Fixed Roofs
13200	NN	9109	13209	Steel Standpipes and Ground Storage Reservoirs
13200	CE	9106	13211	Water Storage Tanks
13200	VA	9010	13215	Pressure Vessels for Storage of Compressed Gases
13200	NN	9103	13217	Diesel Oil and Gasoline Storage/Dispensing
13200	NS	9103	15197	Fiberglass-Plastic Lining For Steel Tank Bottoms (for Petroleum)
13210	CE	9105	13210	Fiberglass-Reinforced Polyester Storage Tank
13210	VA	8512	13412	Elevated Steel Water Tank
13210	NS	9103	15198	Elevated Water Tank
13215	NN	9102	13216	Elevated Steel Water Tank
13219	NN	9103	13219	Underground Petroleum Tanks
13230	CE	9106	13234	Cleaning Petroleum Storage Tanks
13230	CE	9106	13290	Cover, Floating (for Sludge Digestion Tanks)
13320	NN	9102	13321	Composting Toilet
13600	CE	9106	13600	Flow Measuring Equipment [Potable Water] [Sewage Treatment Plant]
13610	GS	8408	13610	Solar Water Heating Equipment
13610	NN	9106	13610	Solar Flat Plate Collectors
13630	VA	8201	13980	Solar Energy Systems (Liquid Flat-Plate Collectors)
13810	CE	9106	13810	Solar Energy Collection Systems
13810	GS	8402	13810	Energy Monitoring and Control System (EMCS) Large Configuration
13810	CE	9106	13811	Energy Monitoring and Control Systems
13810	CE	9106	13812	Energy Monitoring and Control System (EMCS) Medium Configuration
13810	CE	9106	13813	Energy Monitoring and Control System (EMCS) Small Configuration
13810	CE	9106	13814	Energy Monitoring and Control System (EMCS) Micro System Configuration
13810	CE	9008	13945	Building Preparation for Energy Monitoring and Control Systems (EMCS)
13900	CE	9106	13976	Multi-Building Expansion of Energy Monitoring and Control System
				Self-Acting Blast Valves
14100	GS	8911	14100	DIVISION 14 - CONVEYING SYSTEMS
14200	CW	8707	01701	Dumbwaiters
14210	NN	9109	14200	Elevators for Dams Geared Type (A-C)
				Electric [Passenger] [Freight] Elevators

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
DIVISION 14 - CONVEYING SYSTEMS (Continued)				
14210	CE	9106	14210	Elevators, Electric
14210	GS	8911	14210	Electric Traction Elevators
14210	NS	9103	14213	Electric Passenger and Freight Elevators
14240	NN	9109	14214	Hydraulic [Passenger] [Freight] Elevator
14240	NS	9103	14223	Hydraulic Passenger and Freight Elevators
14240	CE	9103	14240	Elevators, Hydraulic
14240	GS	8911	14240	Hydraulic Elevators
14240	VA	8802	14240	Hydraulic Elevators
14310	GS	8911	14310	Escalators
14320	GS	9002	14320	Moving Walks
14420	GS	9005	14420	Wheelchair Lifts
14450	VA	8204	14450	Motor Vehicle Lifts
14560	GS	8702	14560	Chutes
14560	VA	8203	14560	Chutes (Linen and Trash)
14580	CE	9106	14580	Pneumatic-Tube System Carrier Tubing)
14580	VA	8202	14581	Pneumatic Tube System
14580	VA	8202	14582	Pneumatic Soiled Linen/Trash System
14605	NN	9102	14606	Portal Crane Track Installation
14620	NN	9109	14334	Monorails With Manual Hoist
14620	NN	9109	14335	Monorails With Air Motor Powered Hoist
14620	NS	9103	14370	Monorail and Hoists
14630	CW	7401	01604.01	Indoor Electrically Operated Traveling Crane for Hydroelectric Power Plants (Alt. Current)
14630	CW	7304	01604.02	Indoor Electrically Operated Traveling Crane for Hydroelectric Power Plants (Direct Current)
14630	NS	9103	14380	Electric Overhead Cranes
14630	CE	9106	14630	Cranes Electric Overhead Traveling, Top Running and Underhung 30 Ton Max
14630	NN	9102	14636	Cranes, Overhead Electric, Overrunning (Under 20,000 Pounds)
14630	NN	9106	14637	Cranes, Overhead Electric, Underrunning (Under 50,000 Pounds)
14640	CW	7504	01602	Dam Gantry Cranes
14640	CW	8108	01603	Draft Tube Gantry Cranes
DIVISION 15 - MECHANICAL				
15050	NS	9103	15003	General Mechanical Provisions
15050	GS	8910	15010	Mechanical Basic Requirements
15050	NN	9102	15011	Mechanical General Requirements
15050	NS	9103	15050	Basic Mechanical Materials and Methods
15050	VA	9010	15050	Basic Methods and Requirements (Mechanical)
15050	VA	8810	15051	Basic Requirements and Methods (Boiler Incinerator)
15050	CW	9106	15487	Turbine Lubricating Oil
15060	CE	9106	15052	Welding Pressure Piping
15060	NS	9103	15061	Steel Pipe (150, 350, 2,000, and 6,000 PSI)
15060	NS	9103	15064	Plastic Pipe
15060	NS	9103	15066	Stainless Steel Pipe (350 to 6,000 PSI)
15060	NN	9102	15116	Welding Pressure Piping
15060	VA	8809	15339	Boiler Plant Piping Systems
15100	NS	9103	15100	Valves (Steam and Condensate)
15100	NS	9103	15119	Self-Contained Control and Relief Valves
15120	NS	9103	15125	Steam Traps
15130	GS	8910	15130	Meters and Gauges
15140	GS	8910	15140	Supports and Anchors
15160	CW	8002	02303.01	Pumps-Vertical Propeller Type
15160	NN	9102	15052	Large Centrifugal Air Compressors (Over 200 HP)
15160	NN	9102	15053	Large Nonlubricated Reciprocating Air Compressors (Over 300 HP)
15160	NN	9102	15054	Nonlubricated Rotary Screw Air Compressors (100 HP and Larger)
15160	NS	9109	15141	Centrifugal Pumps
15160	NS	9103	15145	Sump Pumps
15160	NS	9103	15148	Condensate Pumps
15170	GS	8910	15170	Motors
15190	GS	8910	15190	Mechanical Identification
15240	NS	9103	15161	Vibration Isolation
15240	NN	9102	15200	Noise, Vibration, [and Seismic] Control
15240	VA	8611	15200	Noise and Vibration Control

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 15 – MECHANICAL (Continued)
15240	VA	8810	15201	Noise and Vibration Control Seismic Requirements (Boiler Plant)
15240	GS	8910	15240	Vibration Isolation
15250	CE	9103	15250	Thermal Insulation for Mechanical Systems
15250	GS	8910	15250	Mechanical Insulation
15250	NN	9109	15250	Insulation of Mechanical Systems
15250	VA	9010	15250	Insulation
15250	VA	8808	15262	Boiler Plant Insulation
15260	NS	9109	15260	Pipe Insulation
15290	NS	9109	15258	Duct Insulation
15300	CE	9106	15300	Sprinkler Systems, Fire Protection
15300	VA	8807	15500	Fire Protection
15300	NS	9103	15501	Automatic Sprinkler Systems
15320	GS	8910	15320	Fire Pumps
15320	NN	9102	15320	Fire Pumps
15330	GS	8910	15330	Wet – Pipe Sprinkler System
15330	NI	9006	15330	Wet Pipe Fire Extinguishing Sprinkler System
15330	NN	9103	15330	Fire Extinguishing Sprinkler Systems (Wet Pipe)
15330	NS	9103	15330	Fire Protection Sprinkler Systems
15335	GS	8910	15335	Dry – Pipe Sprinkler System
15335	NN	9103	15335	Fire – Extinguishing Sprinkler Systems (Dry Pipe)
15345	GS	8910	15345	Combination Dry – Pipe and Pre – Action Sprinkler System
15350	GS	8910	15340	[Pre – Action] [and] [Deluge] Sprinkler System
15350	NN	9102	15340	Fire Extinguishing Sprinkler Systems [Deluge] [Preaction]
15350	NS	9103	15504	Deluge Automatic Sprinkler Systems
15355	CE	9107	15355	Aqueous Film – Forming Foam (AFFF) Fire Protection System
15355	GS	8910	15355	Foam Extinguishing System
15355	NN	9102	15356	AFFF Fire Extinguishing System for Aircraft Hangars
15355	NN	9102	15357	AFFF Fire Extinguishing System for Fuel Tank Protection
15355	NN	9102	15358	AFFF Fire Extinguishing System for HAZ/FLAM Material Facility
15360	CW	7906	02206	Carbon Dioxide Fire Extinguishing Equipment (For Hydroelectric Power Plants)
15360	GS	8910	15360	Carbon Dioxide Extinguishing Systems
15360	NN	9102	15361	Carbon Dioxide Fire Extinguishing Systems (High Pressure)
15360	NN	9102	15362	Carbon Dioxide Fire Extinguishing Systems (Low Pressure)
15360	NS	9103	15507	Carbon Dioxide Fire – Protection Systems
15365	CE	9106	15365	Halon 1301 Fire Extinguishing Systems
15365	GS	8910	15365	Halon Agent Extinguishing Systems
15365	NN	9102	15365	Halon 1301 Fire Extinguishing System
15370	GS	8910	15370	Dry Chemical Extinguishing Systems
15370	NN	9102	15371	Dry and Wet Chemical Extinguishing Systems for Kitchen Equipment
15400	CE	9105	15400	Plumbing, General Purpose
15400	NN	9106	15400	Plumbing
15400	NS	9109	15400	Plumbing
15400	VA	9009	15400	Plumbing Systems
15400	CE	9105	15405	Plumbing, Hospital
15400	GS	8910	15410	Plumbing Piping Systems and Plumbing Specialties
15400	NS	9103	15418	Chemical – Waste Drainage Systems
15430	NS	9103	15432	Plumbing Specialties
15440	GS	8910	15440	Plumbing Fixtures
15440	VA	9106	15450	Plumbing Fixtures and Trim
15440	NS	9103	15453	Plumbing Fixtures
15440	NN	9106	15460	Hospital Plumbing Fixtures
15450	VA	8810	15139	Pumps (Plumbing)
15450	VA	8808	15424	Domestic Water Heaters
15450	GS	8910	15450	Plumbing Equipment
15450	VA	8812	15455	Water Softening System
15450	VA	8904	15456	Water Dealkalizing System
15475	VA	8512	15460	Therapeutic Pool Equipment
15480	NS	9103	15250	Low – Pressure Compressed Air System
15480	NS	9103	15280	Low – Vacuum Piping
15480	VA	8512	15319	Compressed Air System, Shop and Laundry
15480	NS	9103	15325	Natural Gas System

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 15 - MECHANICAL (Continued)
15480	CW	8904	15346	Lubrication System for Local Flood Protection Pumping Units
15480	NI	9101	15409	Distilled Water Piping System
15480	NS	9103	15480	High-Pressure Compressed Air Systems
15480	VA	8811	15481	Dental Compressed Air System
15480	GS	8910	15482	Natural Gas Piping
15480	NN	9102	15482	Fiberglass Reinforced Plastic (FRP) Piping (for Petroleum)
15480	NN	9109	15483	Fuel Oil Handling System
15480	NN	9106	15484	Medical Gas and Vacuum Systems
15480	NN	9102	15486	Aviation Fuel Distribution and Dispensing
15480	CE	9106	15488	Gas Piping Systems
15480	NN	9102	15488	Low Pressure Compressed Air Systems (Non-Breathing Air Type)
15480	VA	8811	15488	Laboratory (Nonflammable) Gas and Vacuum Systems
15480	NN	9102	15489	High and Medium Pressure Compressed Air Systems
15480	VA	8811	15491	Medical Gas and Vacuum Systems
15480	NN	9102	15492	Fuel Gas Piping
15480	CE	9106	15495	Hydraulic Fluid Power Systems
15480	GS	8910	15590	Fuel Oil Handling System
15500	NS	9103	15500	Heating/Ventilation/Air Conditioning
15500	NS	9103	15502	Heat Pump Air Conditioning System
15500	NS	9103	15503	Direct Expansion Air Conditioning System
15500	NS	9103	15505	Chilled Water Air Conditioning System
15500	VA	9010	15705	HVAC Piping Systems
15510	GS	8910	15510	Hydronic Piping Systems
15510	NN	9106	15512	Chilled, Condenser, or Dual Service Water Piping
15520	GS	8910	15520	Steam and Steam Condensate Piping and Specialties
15520	NN	9106	15521	Steam System and Terminal Units
15530	GS	8910	15530	Refrigerant Piping and Specialties
15530	NN	9102	15530	Refrigerant Piping
15530	NS	9103	15651	Refrigeration Piping and Specialties
15530	VA	8811	15651	Refrigerant Piping
15530	VA	8608	15706	Preinsulated Chilled Water Piping
15540	VA	8811	15140	Pumps (HVAC)
15540	GS	8910	15540	Pumps: General Purpose
15545	GS	8910	15541	Water Treatment
15545	VA	8811	15704	Water Treatment (HVAC)
15550	NN	9106	15554	Steam Heating Plant No. 4, 20,000 to 75,000 Pounds Per Hour
15550	CE	9106	15555	Central High Temperature Water (HTW) Generating Plant and Auxiliaries
15550	GS	8910	15555	Boilers
15550	NN	9102	15555	Low Pressure Water Heating Boilers (Under 800,000 Btu/hr Output)
15550	CE	9105	15556	Forced Hot Water Heating Systems Using Water and Steam Heat
15550	NN	9102	15556	Low Pressure Water Heating Boilers (Over 800,000 Btu/hr Output)
15550	CE	9107	15559	Central Steam-Generating System, Coal-Fired
15550	CE	9107	15560	Central Steam-Generating System, Oil-Fired
15550	CE	9107	15561	Central Steam Generating System - Combination Gas and Oil Fired
15550	CE	9105	15562	Heat and Utilities Systems, Central Steam
15550	CE	9106	15566	Warm Air Heating System
15550	NS	9103	15620	Boilers
15550	VA	9012	15622	Fire Tube Steam Boilers and Accessories
15550	VA	9102	15624	Water Tube Steam Boilers and Accessories
15550	NN	9102	15631	Steam Boilers and Equipment (500,000 - 18,000,000 Btu/hr)
15550	NN	9103	15632	Steam Boilers and Equipment (18,000,000 - 60,000,000 Btu/hr)
15570	GS	8910	15570	Boiler Accessories
15570	VA	8812	15625	Boiler Plant Mechanical Equipment
15575	GS	8910	15575	Breechings and Stacks
15575	VA	8810	15614	Boiler Breechings and Stacks
15580	GS	8910	15580	Feedwater Equipment
15590	VA	9010	15606	Oil Storage System (Boiler Plant)
15620	CW	6206	01504	Crest-Gate-Seal Heaters
15620	CE	9105	15565	Heating System - Gas-Fired Heaters
15620	GS	8910	15620	Fuel Fired Heaters
15620	NN	9102	15620	Unit Heaters and Infrared Heaters

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 15 - MECHANICAL (Continued)
15620	NN	9109	15621	Warm Air Heating Systems
15650	CE	9104	15650	Central Refrigerated Air - Conditioning System)
15650	VA	8807	15650	Refrigeration Equipment (HVAC)
15650	CE	9106	15652	Cold Storage Refrigeration Systems
15650	NN	9102	15652	Central Refrigeration Equipment for Air Conditioning
15650	CE	9106	15654	Commissary Refrigeration System
15650	NN	9102	15654	Refrigeration Equipment for Cold Storage
15650	CE	9105	15690	Evaporative Cooling Systems
15650	NN	9102	15822	Evaporative Cooling System
15655	NS	9103	15658	Reciprocating Compressors
15670	GS	8910	15670	Condensing Units
15680	NS	9103	15659	Water Cooled Reciprocating Water Chiller
15680	NS	9103	15674	Centrifugal Chiller
15680	GS	8910	15681	Absorption Chillers
15680	GS	8910	15682	Centrifugal Chillers
15680	GS	8910	15683	Reciprocating Chillers
15710	GS	8910	15710	Cooling Towers
15710	VA	8811	15712	Cooling Tower, Packaged
15710	VA	8811	15714	Cooling Tower, Field Assembled
15740	NS	9103	15661	Air-Cooled Condensers
15750	NN	9102	15751	[High] [Medium] Temperature Water System Within Buildings
15755	GS	8910	15755	Heat Exchangers
15770	CE	9106	15775	Applied Heat Pump Systems Built-Up and Industrial Systems
15780	CE	9103	15853	Air-Conditioning System (Unitary Type)
15780	VA	8808	15770	Unitary Air Conditioning Equipment
15780	NS	9103	15771	Packaged Air-Conditioning Unit
15780	GS	8910	15780	Packaged Air-Conditioning Units
15780	NN	9108	15780	Packaged Air Conditioning Units
15780	GS	8910	15782	Computer Room Air Conditioning Units
15780	NS	9103	15785	Computer Room Air Conditioning System
15790	VA	8809	15750	Heating and Cooling Coils
15790	NS	9103	15790	Air Coils
15790	NS	9103	16881	Duct Heaters
15810	GS	8910	15810	Humidifiers
15820	CW	6403	02309	Dehumidification System for Flood Control Pumping Stations
15830	VA	8811	15740	Terminal Units
15830	NS	9103	15755	Baseboard, Finned-Tube Radiation and Convectors
15830	NS	9103	15756	Unit Heaters and Ventilators
15830	NS	9103	15761	Fan-Coil Units
15830	GS	8910	15830	Heating and Cooling Terminal Units
15845	VA	8808	15819	Energy Recovery Equipment
15845	CE	9106	15845	Energy Recovery System
15845	GS	8910	15845	Air-to-Air Energy Recovery Units
15845	CE	9106	15846	Heat Recovery Boilers
15850	NS	9103	15763	Air Handling Unit (Factory Fabricated and Assembled)
15850	VA	8811	15763	Air Handling Units
15850	NS	9103	15820	Fans
15850	VA	8811	15822	Fans
15850	NN	9102	15850	Air Handling and Distribution Equipment
15850	GS	8910	15855	Air Handling Units Factory Fabricated
15850	GS	8910	15856	Air Handling Units Field Erected
15860	GS	8910	15860	Centrifugal Fans
15860	GS	8910	15865	Special Fans
15870	NS	9103	15830	Power Roof Ventilator
15870	NN	9102	15871	Industrial Ventilation and Exhaust Systems (Ducts and Fans)
15880	NN	9102	15852	Mechanical Cyclone Dust Collector of Flue Gas Particulates
15880	NN	9102	15853	Electrostatic Dust Collector of Flue Gas Particulates
15880	NN	9102	15854	Fabric Filter Dust Collector of Flyash Particles in Flue Gas
15880	NN	9102	15877	Dust and Gas Collector, Dry Scrubber and Fabric Filter Type
15885	NS	9103	15880	Air Filters
15885	GS	8910	15885	Air Cleaning

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 15 - MECHANICAL (Continued)
15885	VA	8904	15885	Air Filters
15890	VA	9010	15840	Ductwork and Accessories
15890	NS	9109	15841	Low Pressure Ductwork
15890	NS	9103	15842	Medium/High Pressure Ductwork
15890	NI	8008	15843	Laboratory Exhaust System
15890	GS	8910	15890	Ductwork
15890	CE	9108	15895	Air Supply and Distribution System (For Air-Conditioning System)
15890	NN	9106	15895	Ductwork and Ductwork Accessories
15890	GS	8910	15900	Fibrous Glass Ductwork
15920	GS	8910	15920	Sound Attenuators
15930	NS	9103	15889	Mixing Boxes and Terminal Units
15930	CE	9108	15935	Ventilation and Exhaust Systems
15930	GS	8910	15935	Air Terminal Units
15930	CE	9105	15940	Overhead Vehicle Tailpipe [and Welding Fume] Exhaust System(s)
15940	GS	8910	15940	Air Inlets and Outlets
15940	NS	9109	15941	Diffusers
15950	VA	8808	15900	Controls and Instrumentation
15950	VA	9108	15901	Controls and Instrumentation (Boiler Plant)
15950	VA	9010	15902	Controls and Instrumentation (DDC) Control Center (ECC)
15950	CE	9106	15950	Heating, Ventilating and Air Conditioning HVAC Control Systems
15950	GS	8910	15950	Automatic Control Systems
15970	NS	9109	15970	Control Systems
15970	NN	9102	15971	Space Temperature Control Systems
15970	NN	9102	15972	Direct Digital Control Systems
15970	NS	9103	15976	Air Handling Unit Microprocessor Interface
15985	GS	8910	15985	Sequence of Operation
15990	VA	8808	15980	Testing, Adjusting and Balancing
15990	CE	9103	15990	Testing, Adjusting, and Balancing of HVAC Systems
15990	GS	8910	15990	Testing, Adjusting and Balancing
15990	NN	9109	15996	Testing/Adjusting/Balancing: Heating/Ventilating/Cooling Systems
15990	NN	9102	15997	Testing Industrial Ventilation Systems
15991	NS	9103	15990	Mechanical System Testing and Balancing
15994	VA	8802	15991	Demonstrations and Tests//Boiler Plant/Incinerator System (Automatic Feed)
				DIVISION 16 - ELECTRICAL
16050	CW	8909	01907	Electrical Equipment (for Gate Hoists)
16050	CW	7903	02207	Insulating Oil, Electrical
16050	NS	9103	16003	General Electrical Provisions
16050	GS	8910	16010	Electrical Basic Requirements
16050	NN	9105	16011	Electrical General Requirements
16050	NS	9109	16050	Basic Electrical Materials and Methods
16050	VA	8908	16050	Basic Methods and Requirements (Electrical)
16050	VA	8512	16051	Electrical System Protective Device Study
16050	GS	8910	16060	Electrical System Protective Device Study
16050	NS	9103	16105	Standard Wiring Systems
16050	NS	9103	16183	Control and Protective Devices
16110	GS	8910	16110	Raceways
16110	GS	8910	16111	Cable Trays
16110	VA	8610	16111	Conduit Systems
16110	CE	9104	16113	Underground Duct System
16110	GS	8910	16113	Indoor Service Poles
16110	NN	9106	16113	Underfloor Raceway System
16110	VA	8512	16113	Underfloor Ducts
16110	GS	8910	16114	Underfloor Raceway System
16110	NS	9103	16114	Cable Trays
16110	CE	9104	16115	Underfloor Raceway System (Cellular Steel Floor)
16110	GS	8910	16115	Underground Ducts and Manholes
16110	NS	9103	16343	Underground Duct Systems and Manholes
16120	CW	8108	01404.04	Insulated Wire and Cable (For Hydraulic Structures)
16120	CW	9104	16120	Insulated Wire and Cable
16120	GS	8910	16120	Wires and Cables

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 16 - ELECTRICAL (Continued)
16120	GS	8910	16124	Flat Conductor Cables
16120	GS	8910	16126	Control/Signal Wiring
16120	VA	9104	16126	Cables, High Voltage (Above 600 Volts)
16120	VA	8606	16127	Cables, Low Voltage (600 Volts and Below)
16120	GS	8910	16335	Cables (Above 600 Volts)
16120	NI	9104	16377	High Voltage (15KV) Cable and Splices
16120	NS	9103	16390	Medium - and High-Voltage Power Cables
16120	NS	9103	16905	Instrumentation and Communications Cables
16130	GS	8910	16130	Electrical Boxes and Fittings
16140	GS	8910	16135	Wiring Devices
16140	VA	8512	16140	Wiring Devices
16160	GS	8910	16160	Cabinets and Enclosures
16160	VA	8512	16160	Panelboards
16190	GS	8910	16190	Support Devices
16195	GS	8910	16195	Electrical Identification
16200	CE	9104	16224	Stationary Gas Turbine Generators
16200	CE	9105	16225	Stationary Steam Turbine Generators
16300	CW	8307	02205.05	Auxiliary Power Distribution Centers
16300	NN	9109	16304	480 Pier Outlet Assemblies
16300	NN	9102	16305	400-Hertz Low Voltage Substation
16300	NN	9109	16306	400-Hertz (Hz) Solid State Frequency
16300	NN	9109	16307	Marina Electrical Work
16300	CE	9103	16311	Main Electric Supply Station
16310	GS	8910	16310	Secondary Unit Substation
16310	NS	9103	16311	Primary Unit Substation
16310	NN	9102	16312	Low - Voltage Switchgear and Secondary Unit Substations
16310	NS	9103	16312	Secondary Unit Substation
16310	VA	8704	16312	Unit Substation, Secondary
16320	CW	8212	02203	Power Transformers
16320	GS	8910	16320	Transformers (Above 600 Volts)
16320	VA	8512	16321	Transformers Padmounted
16320	NS	9109	16335	Power Transformers
16320	GS	8910	16427	Network Transformers and Network Protectors
16330	NS	9103	16330	Capacitor Equipment
16340	CW	6907	02204.02	Outdoor Group - Operated Disconnecting Switches and Insulators (69 to 230 kv)
16340	CW	8404	02204.04	Outdoor Surge Arresters (Station Class Gapped Valve Type) and (Station Class
16340	GS	8910	16340	Insulators and Lightning (Surge) Arresters
16345	NS	9109	16325	Switchgear Assemblies
16345	GS	8910	16345	Switchgear (Above 600 Volts)
16345	VA	8704	16361	Switchgear, High Voltage (Above 600 Volts)
16350	CW	8305	02204.01	Outdoor Oil Circuit Breakers (121 to 242 kv)
16350	NS	9103	16304	Load-Break Switches
16360	GS	8910	16360	Interrupter Switches (Above 600 Volts)
16360	NS	9103	16360	Load Break SF6 Gas Switches
16370	NN	9102	16370	Overhead Electrical Work
16370	CE	9103	16375	Electrical Distribution System, Underground
16370	NS	9103	16391	Overhead Pole Line
16370	NS	9103	16392	Overhead High-Voltage Wiring
16375	CE	9103	16370	Electrical Distribution System, Aerial
16375	NN	9106	16375	Underground Electrical Work
16375	VA	8910	16402	Underground Electrical Construction
16390	CW	8404	02205.02	13.8 kV Metal-Clad Switchgear, Generator Neutral Grounding Equipment and
16390	GS	8910	16390	Primary Grounding
16400	CW	8206	02301	Electric Motors - - 3 Phase, Vertical Induction Type (For Flood - Control Pumping Stations)
16400	CW	8302	02302	3-Phase Vertical Synchronous Type 1500 Horsepower and Above (For Flood Control
16400	VA	8512	16150	Motors
16400	NS	9109	16400	Motors
16400	NN	9106	16402	Interior Wiring Systems
16400	CE	9103	16415	Electrical Work, Interior
16400	GS	8910	16496	Prefabricated Flexible Wiring - Lighting Fixtures
16400	GS	8910	16497	Prefabricated Flexible Wiring - Convenience Outlets

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 16 - ELECTRICAL (Continued)
16415	GS	8910	16415	Voltage Regulators
16420	GS	8910	16420	Service Entrance (600 Volts or Less)
16425	GS	8910	16425	Switchboards
16425	GS	8910	16426	Switchgear (600 Volts and Below)
16425	CW	8701	16427	480-Volt Station Service Switchgear and Transformers
16425	VA	8704	16462	Distribution Switchboard
16425	VA	8704	16464	Switchgear, Low Voltage (600 Volts and Below)
16430	VA	8512	16430	Metering
16440	VA	9104	16170	Disconnects (Motor and Circuit)
16440	GS	8910	16440	Disconnect Switches
16445	GS	8910	16445	Peak Load Controllers
16450	GS	8910	16450	Secondary Grounding
16450	NS	9103	16450	Secondary Grounding
16450	VA	8704	16450	Grounding
16460	NS	9103	16460	Distribution Transformers
16460	VA	9104	16460	Transformers (General Purpose)
16460	GS	8910	16461	Transformers - General Purpose Dry Type
16460	VA	8512	16461	Transformers (Specialty)
16460	GS	8910	16462	Specialty Type Transformers
16460	NN	9106	16462	Pad-Mounted Transformers
16465	VA	9104	16112	Busway
16465	GS	8910	16465	Bus Duct
16470	GS	8910	16470	Panelboards
16470	NS	9103	16470	Panelboards
16475	NS	9103	16303	Surge Arresters
16475	NS	9103	16307	Fuse Cutouts
16475	CW	8706	16352	Outdoor Sulfur Hexafluoride Gas (SF6) Circuit Breakers (121 to 242 KV)
16475	CE	9105	16475	Coordinated Power System Protection
16475	GS	8910	16475	Overcurrent Protective Devices
16475	GS	8910	16477	Low Voltage Power Circuit Breakers
16475	GS	8910	16660	Ground Fault Protection Systems
16480	VA	8810	16155	Motor Starters
16480	NS	9103	16184	Motor-Control Centers
16480	GS	8910	16480	Motor Control Centers (600 Volts or Less)
16480	VA	9104	16480	Motor Control Centers
16480	VA	9104	16481	Motor Control Panelboards
16480	GS	8910	16482	Motor Starters
16480	GS	8910	16484	Motor Starter Panelboards
16485	GS	8910	16485	Contactors
16490	GS	8910	16250	Automatic Transfer Switches
16490	VA	8512	16251	Automatic Transfer Switches
16490	CE	9106	16262	Automatic Transfer [and By-Pass/Isolation] Switches
16490	NN	9102	16262	Automatic Transfer [and Bypass/Isolation] Switches
16490	NS	9103	16305	Air-Break Switches
16490	NS	9103	16306	Oil Switches
16490	VA	8512	16362	Switches, High Voltage (Above 600 Volts)
16490	NS	9103	16490	Switches
16500	CE	9103	16505	Protective Lighting System
16502	GS	8709	16503	Poles and Standards
16510	GS	8910	16510	Lighting Fixtures
16510	NN	9105	16510	Interior Lighting
16510	VA	8712	16510	Building Lighting, Interior
16510	NS	9103	16511	Fluorescent Luminaires
16510	NS	9103	16512	Incandescent Lighting
16510	GS	8910	16520	Luminous Ceilings
16520	NS	9109	16517	High Intensity Discharge (HID) Lighting
16520	VA	9104	16520	Site Lighting
16520	GS	8910	16530	Site Lighting
16520	NN	9102	16530	Exterior Lighting
16520	NS	9103	16550	Highway and Roadway Lighting
16520	NS	9103	16555	Floodlighting



CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 16 - ELECTRICAL (Continued)
16520	NN	9102	16560	Airfield Lighting
16535	NS	9103	16518	Exit Lighting
16535	GS	8910	16535	Central Emergency Battery-Inverter System
16535	NS	9103	16535	Emergency Lighting Units
16600	GS	8910	16605	Electrical Work on Demountable Partitions
16600	CE	9109	16665	Static Electricity Protection System
16600	VA	9104	16665	Miscellaneous Medical Construction
16600	VA	8512	16675	Isolated Power Systems
16610	CE	9105	16610	Uninterruptible Power System (UPS)
16610	GS	8910	16611	Uninterruptible Power Supply System
16620	NN	9106	16202	Diesel-Electric Generators (Design 1) 500 to 2,500 kW - Prime DU
16620	NN	9106	16203	Diesel-Electric Generators (Design 2) 2,501 kW or Larger - Prime
16620	NN	9106	16204	Standby Diesel-Electric Generators (Design 3) 301 to 1,000 kW
16620	NN	9106	16205	Standby Diesel-Electric Generators (Design 4) 1,001 kW or Larger
16620	NN	9106	16208	Diesel Engine-Generator Sets - Prime and Standby - 10 to 500 kW
16620	VA	8512	16208	Engine Generators
16620	CE	9109	16263	Diesel-Generator Set Stationary 100-2500 kW, With Auxiliaries
16620	CE	9105	16264	Diesel-Generator Sets Stationary 10-99 kW, With Auxiliaries
16620	NN	9102	16492	Motor-Generator Sets, 400 Hertz (Hz)
16620	NI	9003	16600	Diesel-Electric Generators and Auto Transfer Switches
16620	GS	8910	16620	Standby Power Generator Systems (25 to 1000 kW)
16640	CE	9105	16640	Cathodic Protection System (Sacrificial Anode)
16640	GS	8910	16640	Cathodic Protection by Galvanic Anodes
16640	NS	9103	16640	Cathodic Protection System (Sacrificial Anode)
16640	VA	8810	16640	Cathodic Protection (Boiler Plant Systems)
16640	CE	9103	16641	Cathodic Protection System (Steel Water Tanks)
16640	GS	8910	16641	Cathodic Protection with Impressed Current
16640	NN	9109	16641	Cathodic Protection by Galvanic Anodes
16640	NS	9103	16641	Cathodic Protection System (Steel Water Tanks)
16640	CE	9105	16642	Cathodic Protection System (Impressed Current)
16640	NN	9109	16642	Cathodic Protection by Impressed Current
16640	NS	9103	16642	Cathodic Protection System (Impressed Current)
16640	NN	9109	16643	Cathodic Protection System (Steel Water Tanks)
16650	GS	8910	16650	Electromagnetic Shielding Systems
16650	NN	9102	16650	Radio Frequency Interference Power Line Filters
16670	NS	9103	16601	Lightning Protection
16670	CE	9103	16670	Lightning Protection System
16670	GS	8910	16670	Lightning Protection Systems
16670	NN	9107	16670	Lightning Protection System
16670	VA	8604	16670	Lightning Protection System
16720	GS	8910	16615	Water Alarm Systems - Computer Rooms
16720	NS	9109	16720	Fire - Alarm And Detection Systems
16720	CE	9103	16721	Fire Detection and Alarm System
16720	NN	9102	16721	Exterior Fire Alarm System, Closed Circuit Telegraphic Type
16720	VA	8806	16721	Fire Alarm - Local Building System
16720	CE	9106	16722	Fire Alarm Reporting System, Radio Type
16720	GS	8910	16722	Fire Alarm Systems
16720	NI	9006	16722	Interior Fire Alarm System
16720	NN	9102	16722	Interior Fire Alarm System
16720	VA	8806	16722	Fire Alarm - Base Loop System
16720	NN	9102	16723	Fire Alarm System, Radio Type
16720	GS	8910	16724	Integration of Public Address and Security System
16720	CE	9108	16725	Intrusion Detection System
16720	GS	8910	16725	Programmable Security Access Card System
16720	NN	9102	16726	Basic Intrusion Detection Systems (IDS)
16720	NN	9102	16727	Commercial Intrusion Detection Systems (IDS)
16720	VA	9104	16727	Motion Intrusion Detector (MID)
16720	CE	9104	16752	Electronics Entry Control Systems
16740	NN	9102	16740	Telephone Distribution Systems
16740	CE	9109	16741	Telephone System, Inside Plant
16740	NS	9103	16741	Audio Cable Systems

CSI	ORG	DATE	SPEC NO.	SPECIFICATION TITLE
				DIVISION 16 - ELECTRICAL (Continued)
16740	CE	9105	16742	Telephone System, Outside Plant
16740	NN	9102	16742	Pier Telephone Distribution Systems
16740	NN	9106	16744	Fiber Optics Data Transmission for Interior System
16740	NN	9106	16745	Fiber Optics Data Transmission for Exterior System
16740	CE	9104	16750	Nurse Call System
16740	NN	9102	16751	Nurse Call System
16740	CE	8912	16753	Wireline Data Transmission Media for Security Systems
16740	CE	9105	16754	Fiber Optics Data Transmission Media for Security Systems
16740	CE	9105	16755	Signaling System, Doctor's Paging
16740	CE	9105	16760	Intercommunications System
16740	GS	8910	16760	Intercommunication Systems
16740	NN	9102	16760	Intercommunication System
16740	VA	8406	16760	Intercommunication Systems
16740	VA	9007	16761	Audio-Visual, Nurse Call and Code One System
16740	VA	8406	16762	Dental Clinic Intercommunication and Patient Annunciation System
16740	CE	9109	16766	Central Dictation System
16740	CE	9105	16790	Stand-Alone One-Way Radio Control System
16740	CE	9105	16792	Wire Line Data Transmission System
16740	CE	9104	16794	Coaxial Cable Data Transmission System
16740	CE	9105	16795	Fiber Optics Data Transmission System for EMCS
16740	CE	9105	16797	One-Way Radio Control for Energy Monitoring and Control System (EMCS)
16740	CE	9105	16798	Two-Way Radio Data Transmission System
16740	NS	9109	16904	Fiber Optic Cable Systems
16770	CE	9109	16770	Radio and Public Address Systems
16770	VA	8401	16770	Public Address System
16770	VA	8203	16771	Radio Entertainment Distribution System
16770	VA	8203	16772	Radio Entertainment Extension System
16780	CE	9109	16751	Closed Circuit Television Systems
16780	CE	9105	16781	Master Antenna Television System
16780	VA	8406	16781	Master TV Antenna Equipment and Systems
16780	NN	9106	16782	[Master] [Community] Antenna Television System
16780	VA	8411	16782	Master TV Antenna Equipment and Systems Extension
16850	NN	9102	16852	Electric Space Heating Equipment
16850	CE	9109	16855	Electric Space Heating Equipment
16850	NS	9103	16890	Electric Heaters
16900	NS	9103	16931	Light-Sensitive Control Devices
16900	NS	9103	16950	Gas Detection Systems
16915	GS	8910	16675	Programmable Lighting Control System

## **APPENDIX D**

### **CONSTRUCTION GUIDE SPECIFICATIONS MATRIX**

## **APPENDIX D**

### **CONSTRUCTION GUIDE SPECIFICATIONS MATRIX**

This appendix is a matrix of construction guide specifications of several Federal agencies developed from Appendix C. The guide specifications listed in this appendix are identified by the cognizant organization codes listed in Table D-1.

**TABLE D-1**  
**ORGANIZATION CODES**

<b>Code</b>	<b>Organization</b>
CE	U.S. Army Corps of Engineers (for Military Construction)
CW	U.S. Army Corps of Engineers (for Civil Works)
GS	General Services Administration
NI	National Institutes of Health
NN	Naval Facilities Engineering Command
NS	National Aeronautics and Space Administration
VA	Department of Veteran Affairs

Bullets indicate that an organization has a guide specification for a particular Construction Specifications Institute (CSI) specification number. A number next to the bullet indicates multiple documents. A specification number is provided in parentheses if a document is unique to one agency and its number is different from the CSI MASTERFORMAT.

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
<b>BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT</b>							
00100 - Instructions to Bidders							•
00120 - Supplementary Instructions to Bidders			•				
00500 - List of Drawings							•
00700 - General Conditions							•
00800 - Supplementary Conditions			•				
<b>DIVISION 1 - GENERAL REQUIREMENTS</b>							
01010 - Summary of Work			•		• <sub>2</sub>	•	•
01020 - Allowances			•				
01030 - Alternates			•				
01040 - Project Coordination			•				
01045 - Cutting and Patching			•				
01050 - Photogrammetric Mapping and Complimentary Field Surveys (01103)		•					
01050 - Aerial Photography for Photogrammetric Mapping, Photo Maps and Mosaics (01104)		•					
01090 - References	•		•		•	•	•
01100 - Environmental Protection		•			•		•
01100 - Hazardous Airfield Work Locations						•	
01200 - Project Meetings						•	
01300 - Submittals	• <sub>2</sub>		•		•	•	
01310 - Progress Schedules <i>Network Analysis Schedule</i>			• <sub>2</sub>		•		• <sub>2</sub>
01340 - Shop Drawings, Product Data, and Samples			•				• <sub>2</sub>
01400 - Concrete Sampling and Testing (03014)			•				
01400 - Subsurface Drilling, Sampling and Testing (01201)		•					
01400 - Ultrasonic Inspection of Plates (05062)	•						
01400 - Ultrasonic Inspection of Weldments (05061)	•						
01410 - Testing Laboratory Services							•
01440 - Contractor's Quality Control	•				•	• <sub>2</sub>	
01500 - Construction Facilities and Temporary Controls			•			•	
01540 - Security (01541)			•				
01560 - Safety and Health			•			•	
01580 - Temporary Interior Signs (01581)							•
01590 - Construction Engineer's Office (01591)			•				
01600 - Material and Equipment			•			•	

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
01655 - Starting of Systems (01650)						•	
01700 - Project Closeout			•			•	
01730 - Operation and Maintenance Data					•		
DIVISION 2 - SITEWORK							
02050 - Demolition	•				•	• <sub>2</sub>	•
02060 - Building Demolition			•				
02070 - Selective Demolition			•				
02080 - Asbestos Abatement			• <sub>2</sub>	•	•		•
02080 - Removal and Disposal of Lead-Containing Paint (02090)					•		
02110 - Site Clearing - <i>Clearing and Grubbing</i>	•	•	•		•		
02115 - Tree Protection and Trimming (02122)			•				
02140 - Dewatering		•	•				
02158 - Slapjacking Rigid Pavements	•						
02160 - Excavation Support Systems			•				
02168 - Soil-Bentonite Slurry Trench Cutoffs (02214)		•					
02200 - Earthwork			•			• <sub>2</sub>	• <sub>2</sub>
02210 - Grading	•						
02220 - Excavating, Backfilling, and Compacting for Utilities	•				•	•	
02220 - Excavating, Backfilling, and Compacting for Structures	•				•	•	
02220 - Excavating, Backfilling, and Compacting for Pavement (Rail-roads)	•						
02220 - General Excavation, Filing, Backfilling					•		
02230 - Bituminous Base Course	•				•		
02230 - Bituminous-Stabilized Base Course, Subbase, or Subgrade (02238)	•						
02230 - Portland Cement-Stabilized Base or Subbase Course	•				•		
02230 - Dry-Bound Macadam Base Course (02236)	•						
02230 - Econocrete Base Course (02237)					•		
02230 - Graded-Crushed-Aggregate Base Course	•				•		
02230 - Limerock Base Course	•					•	
02230 - Lime-Stabilized Base Course, Subbase, or Subgrade	•				•	•	
02230 - Select-Material Subbase Course	•				•		
02230 - Subbase Course (02234)	•						
02230 - Stabilized-Aggregate Base Course (02241)	•						
02230 - Water-Bound Macadam Base Course (02237)	•						

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
02230 - [Base Course for Rigid] [and Subbase Course for Flexible] Paving (02232)					•		
02240 - Foundation Preparation (02219)		•					
02240 - Geotextiles Used as Filters (02215)		•					
02240 - Lime Slurry Pressure Injection (02254)							•
02270 - Stone Protection (Slopes and Channels) (01308)		•					
02270 - Wire Mesh Gabions (Slope and Channel Protection) (02541)		•					
02280 - Termite Control			• <sub>2</sub>		•		
02290 - Embankment (For Earth Dams) (02212)		•					
02300 - Grouting (01305.02)		•					
02360 - Cast-In-Place Concrete Piles, Steel Casing	•				•		
02360 - Driven Piles			•				
02360 - Foundation Piles							•
02360 - Metal Sheet Piling (02411)		•					
02360 - Piling: Composite Wood and Cast-In-Place Concrete (02365)	•						
02360 - Precast Concrete Piling	•	•					
02360 - Pressure-Injected Footings (02369)					•		
02360 - Prestressed Concrete Piling (02362)	•						
02360 - Rolled Steel Section Piles (02368)					•		
02360 - Round Timber Piles	•	•			•		
02360 - Steel H-Piles	•	•					
02360 - Steel Sheet Piles (02366)					•		
02360 - Wood Piles (02354)						•	
02370 - Auger Placed Concrete Piles (02362)							•
02370 - Auger-Placed Grout Piles	•				•		
02370 - Drilled Piers (02396)						•	
02370 - Foundation Drilling and Grouting (01305.01)		•					
02380 - Caissons			• <sub>2</sub>				•
02380 - Drilled Foundation Caissons (Piers)	•				•		
02450 - Railroad Trackwork	•				•		
02050 - Welding Crane and Railroad Rail - Thermite Method (02453)					•		
02480 - Wood Marine Piling (02483)					•		
02482 - Dredging		•			•		
02488 - Arch-Type Rubber Marine Fenders (02489)					•		
02488 - Pier Timberwork (02491)					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
02488 - Resilient Foam-Filled Marine Fenders					•		
02510 - Asphaltic Bituminous Heavy-Duty Pavement (Central-Plant Hot Mix) (02556)	•						
02510 - Asphaltic Concrete Paving						•	•
02510 - Asphaltic Concrete Surface Course (02513)						•	
02510 - Bituminous Binder and Wearing Courses (Central-Plant Cold-Mix) (02552)	•						
02510 - Bituminous Hot Mix Pavement (02511)					•		
02510 - Bituminous Paving for Roads, Streets, and Open Storage Areas (02551)	•						
02510 - Bituminous Tack Coat (02552)					•		
02510 - Concrete Pavement for Roads and Airfields (02515)	•						
02510 - Hot-Mixed Asphalt Paving (02511)			•				
02510 - Tar and Rubberized-Tar Concrete Pavements (02557)	•						
02515 - Brick Pavers (02517)							•
02515 - Concrete Block Pavers (02518)	•						
02515 - Unit Pavers			•				
02520 - Concrete Curbs and Gutters	•					• <sub>2</sub>	
02520 - Joints, Reinforcement, and Mooring Eyes in Concrete Pavement (02522)					•		
02520 - Pavement, Portland Cement Concrete, [Minor] [and] [Repairs] (02563)					•		
02520 - Portland Cement Concrete Pavement For Road and Airfields	•				•		
02520 - Portland Cement Concrete Paving			•			•	
02520 - Roller Compacted Concrete (RCC) Pavement	•						
02520 - Site Work Concrete (02514)							•
02540 - Playing Surfaces for Outdoor Sports Facilities (02530)	•						
02545 - Aggregate Surface Course (02546)	•						
02545 - Bituminous Macadam Wearing Course (Penetration Method) (02553)	•						
02545 - Bituminous Prime Coat	•				•		
02545 - Bituminous Road-Mix Surface Course (02554)	•						
02545 - Bituminous Seal Coat	•				•		
02545 - Bituminous Surface Treatment	•				•		
02545 - Bituminous Tack Coat (02558)	•						
02545 - Coal Tar Seal Coat With Unvulcanized Rubber (02554)					•		
02575 - Asphalt Slurry Seal	•				•		



Section Number & Title	CE	CW	GS	NI	NN	NS	VA
02575 - Asphalt-Paving Repair (02579)						•	
02575 - Bituminous Rejuvenation (02599)	•						
02575 - Cold Milling of Bituminous Pavements	•				•		
02575 - Cold Mix Recycling (02564)	•						
02575 - Field Molded Sealants for Sealing Joints in Rigid Pavements (02592)	•						
02575 - Fog Seal					•		
02575 - Fuel-Resistant Sealing (02584)	•						
02575 - Grooving for Airfield Pavements (02590)	•						
02575 - Heater-Planing of Bituminous Pavement (02596)	•						
02575 - Heater-Scarifying of Bituminous Pavements (02597)	•						
02575 - Patching of Rigid Pavements	•				•		
02575 - Preformed Elastomeric Joint Seals for Concrete Pavements (02593)	•						
02575 - Recycled Asphalt Concrete Intermediate and Wearing Courses (02563)	•						
02575 - Recycled Asphalt Concrete Intermediate and Wearing Courses for Roads (02565)	•						
02575 - Reinforcing Fabric Underseal in Asphalt Overlays (02579)					•		
02575 - Resealing of Joints in Rigid Pavement (02562)					•		
02575 - Rubber and Paint Removal From Airfield Pavements (02578)					•		
02575 - Sealing of Cracks in Bituminous Pavements (02594)	•						
02580 - Pavements Markings	•				•		•
02600 - Packaged Lift Stations (02602)						•	
02600 - Valve Manholes and Piping and Equipment in Valve Manholes (02699)	•						
02665 - Exterior Buried Preinsulated Water Piping (02698)					•		
02665 - Exterior Water Distribution System (02660)					•		
02665 - Exterior Water Distribution System (Minor Construction) (02661)					•		
02665 - Private Fire Service Mains (02669)			•				
02665 - Water Service Piping	•		•				
02665 - Water Systems						•	•
02670 - Water Wells	•		•		•		
02680 - Exterior Fuel Distribution System (02682)					•		
02685 - Gas Distribution System	•				•	•	•
02695 - Aboveground Heat Distribution Systems	•				•		•

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
02695 - Exterior Buried Pumped Condensate Return System (02697)					•		
02695 - Exterior Piping Insulation (02696)					•		
02695 - Exterior Shallow Trench Heat Distribution System (02693)					•		
02695 - Exterior Underground Heat Distribution System	•				•		
02695 - Preapproved Underground Heat Distribution System	•						
02710 - Foundation Drainage	•		•				•
02710 - Subdrainage System	•						
02720 - Storm Drainage System	•		•		•	•	
02730 - Sanitary Sewerage Systems	•		•		•	•	•
02730 - Force Mains and Inverted Siphons; Sewer (02732)	•						
02740 - Pneumatic Sewage Ejectors (02751)	•						
02740 - Septic Systems			•				
02740 - Siphons, Dosing (02752)	•						
02770 - Levees (01309)		•					
02776 - Pond and Reservoir Liners			•		•		
02810 - Irrigation Sprinkler Systems					•		•
02810 - Underground Irrigation System	•		•			•	
02830 - Chain Link Fences and Gates	•		•		•	•	•
02840 - Exterior Signage (02452)							•
02840 - Parking Bumpers (Wheel Stops) (02456)						•	
02840 - Vehicle Barriers (02835)	•						
02900 - Landscaping			•				•
02930 -Turf, Lawns and Grasses	•		•		•	•	
02950 - Crownvetch (02955)	•						
02950 - Ground Cover and Plants (02956)			•				
02950 - Trees, Shrubs, Plants, and Ground Cover	•		•		•	•	
DIVISION 3 - CONCRETE							
03100 - Formwork for Concrete	•	•				•	
03200 - Steel Bars, Steel Welded Wire Fabric and Accessories for Concrete Reinforcement	•	•					
03230 - Stressing Tendons and Accessories for Prestressed Concrete		•					
03250 - Expansion Joints, Contraction Joints, and Water Stops	•	•					
03300 - Cast-in-Place Concrete	•	•	•		•	•	•
03300 - Cast-in-Place Concrete (Minor Construction)		•			•	•	•
03300 - Lightweight Concrete (03346)						•	

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
03330 - Cast-In-Place Architectural Concrete	•						
03350 - Special Concrete Finishes (03355)			•				
03360 - Concrete for Concrete Cutoff Walls (03365)		•					
03360 - Preplaced-Aggregate Concrete (03362)		•					
03360 - Shotcrete		•	•		•		
03400 - Precast Concrete (Non-Prestressed) (03410)					•		
03410 - Framing Units (03413)			•				
03410 - Precast Prestressed Concrete	•	•			•		
03410 - Precast Prestressed Hollow Core Slabs			•				•
03410 - Structural Precast Concrete			•			•	
03410 - Precast Prestressed Long-Span Units (03412)			•				
03410 - Precast Prestressed Structural (03413)			•				
03410 - Precast Concrete Roofing Slab	•						•
03410 - Precast Concrete Deck (03412)						•	
03450 - Architectural Precast Concrete - Plant Cast	•		•				•
03450 - Glass Fiber Reinforced Precast Concrete - Plant Cast (03455)			•				
03450 - Precast Concrete Wall Panels					•	•	
03470 - Tilt-Up Concrete Construction			•			•	
03480 - Concrete Poles (03498)					•		
03510 - Cast-in-Place Gypsum Concrete (03512)							•
03510 - Gypsum Plank Decking (03511)							•
03510 - Roof Decking, Cast-in-Place Low Density Concrete	•						
03520 - Insulating Concrete Decks			•		•	•	• <sub>2</sub>
03530 - Cementitious Wood Fiber Planks			•				•
03540 - Insulating Concrete Composite (03522)							•
03550 - Concrete Floor Topping (03320)			•				
03600 - Expansive Grout (03606)						•	
03700 - Concrete Repair Using Epoxy Resin					•	•	
03800 - Mass Concrete (03305)		•					
DIVISION 4 - MASONRY							
04100 - Mortar//and Grout//							•
04200 - Unit Masonry	•		•		•	• <sub>2</sub>	•
04210 - Glazed Structural Clay Tile and Prefaced Concrete Masonry Units			•		•		
04230 - Reinforced Masonry					•		•

• Section Number & Title	CE	CW	GS	NI	NN	NS	VA
04270 - Glass Unit Masonry			•		•		
04400 - Cast Stone (04435)							•
04400 - Dimension Stone (04405)			•				
04400 - Stone Tile (04450)			•				
04500 - Masonry Restoration and Cleaning			•				•
DIVISION 5 - METALS							
05050 - Attachment Hardware (05435)				•			
05050 - Welding, Structural (05055)	•						
05120 - Structural Steel	•		•		•	•	•
05210 - Steel Joists And Joist Girders	•		• <sub>2</sub>		•	•	•
05310 - Steel Decking	•				•	• <sub>2</sub>	• <sub>2</sub>
05400 - Cold-Formed Metal Framing			•		•		•
05500 - Metal Fabrications		•	•		•	•	•
05500 - Miscellaneous Metal	•	•					
05510 - Metal Stairs						•	•
05520 - Pipe and Tube Railings (05521)			•				
05580 - Sheet Metal Fabrications			•				
05700 - Ornamental Metalwork			•			•	
05715 - Prefabricated Spiral Stairs			•				
05720 - Ornamental Handrails and Railings			•				
05810 - Expansion Joint Cover Assemblies			•				•
05910 - Welded Power Penstocks (and Surge Tanks) (05550)		•					
DIVISION 6 - WOODS AND PLASTICS							
06100 - Carpentry (06101)					•		
06100 - Rough Carpentry	•		•		•	•	•
06130 - Heavy Timber Construction			•				
06180 - Glue-Laminated Structural Units (06181)						•	
06180 - Structural Glued Laminated Units (06170)			•				
06190 - Prefabricated Metal-Plate-Connected Wood Trusses (06192)			•				
06200 - Finish Carpentry	•		•		•	•	•
06400 - Exterior Architectural Woodwork (06401)			•				
06400 - Interior Architectural Woodwork (06402)			•				
06400 - Molded Architectural Ornamentation (06265)			•				
06410 - Custom Casework			•				

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
06420 - Panelwork			•				
DIVISION 7 - THERMAL AND MOISTURE PROTECTION							
07110 - Bituminous Waterproofing	•						•
07110 - Elastomeric Waterproofing, Sheet-Applied	•				•		
07110 - Membrane Waterproofing			•		•	•	
07110 - Modified Bituminous Membrane Waterproofing (Sheet) (07113)							•
07110 - Shower Pan Waterproofing (07114)							•
07120 - Fluid-Applied Waterproofing			•		•		
07125 - Sheet Metal Waterproofing			•				
07130 - Bentonite Waterproofing			•		•		
07140 - Metal Oxide Waterproofing	•		•		•		•
07160 - Bituminous Dampproofing	•		•		•	•	•
07180 - Water Repellents (07175)			•				
07210 - Building Insulation			•		•	•	•
07210 - Loose Fill Insulation					•		•
07210 - Masonry Wall Insulation (07221)					•		
07210 - Perimeter and Under-Slab Insulation (07230)					•		
07210 - Spray Applied Cellulose Insulation (07218)					•		
07220 - Roof Insulation	•				•	•	• <sub>2</sub>
07240 - Exterior Insulation and Finish System	•		• <sub>2</sub>				
07250 - Fireproofing	•		• <sub>2</sub>		•	•	•
07270 - Firestopping	•				•		•
07310 - Asphalt Shingles			•		•		•
07310 - Metal Shingles (07313)			•				
07310 - Roofing, Strip Shingles (07311)	•						
07310 - Slate Shingles			•				•
07310 - Wood Shingles and Shakes			•				•
07320 - Roofing Tiles			•				•
07410 - Manufactured Roof and Wall Panels	•		• <sub>3</sub>			•	•
07410 - Preformed Aluminum Standing Seam Roofing (07415)					•		
07410 - Preformed Metal [Roofing] [and] [Siding]					•		
07410 - Preformed Steel Standing Seam Roofing (07414)					•		
07460 - Preformed Metal Siding (07411)						•	
07460 - Preformed Plastic Panels (07440)							•

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
07460 - Siding			•				
07510 - Bituminous Built-up Roofing	•		• <sub>2</sub>		• <sub>3</sub>	• <sub>2</sub>	•
07520 - Prepared Roll Roofing					•		
07530 - Elastic-Sheet Roofing						•	
07530 - Elastomeric Sheet Roofing System (EPDM)	•				•		•
07530 - Elastomeric Sheet Roofing System (CPE) (07533)					•		
07530 - Elastomeric Sheet Roofing System (CSPE) (07531)					•		
07530 - Elastomeric Sheet Roofing System (PIB) (07532)					•		
07530 - Modified Bitumen Sheet Roofing (07535)					•		
07530 - Polyvinyl Chloride (PVC) Roofing	•				•		•
07530 - Single Ply Membrane Roofing			•				
07540 - Fluid-Applied Roofing	•		•				•
07545 - Elastomeric Roof Coatings Over Polyurethane Foam (PUF) (07540)					•		
07545 - Fluid Applied Roofing (Over Sprayed Urethane) (07540)							•
07545 - Sprayed Polyurethane Foam (PUF) for Roofing Systems					•		
07550 - Protected Membrane Roofing	•						
07570 - Latex Mastic Deck Covering (07571)							•
07570 - Traffic Topping			•				•
07610 - Sheet Metal Roofing			•				•
07600 - Flashing and Sheetmetal	•		•		•	•	•
07700 - Roof Specialties and Accessories			•				•
07710 - Manufactured Roof Specialties			•				
07710 - Roof Expansion Assemblies (07716)			•				
07720 - Gravity Roof Ventilators	•					•	
07720 - Metal-Framed Skylights (07820)			•				
07920 - Sealants and Calkings	•		•		•	•	•
DIVISION 8 - DOORS AND WINDOWS							
08110 - Custom Steel Doors and Frames (08114)			•				
08110 - Steel Doors and Frames	•		•		•	•	•
08120 - Aluminum Doors and Frames	•				•	• <sub>2</sub>	
08210 - Wood Doors	•		• <sub>2</sub>		•	•	•
08305 - Access Doors			•				•
08310 - Aluminum Sliding Glass Doors	•		•		•		
08310 - Horizontal and Biparting Sliding Doors (08394)						•	

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
08310 - Sliding Metal Fire Doors			•		•		•
08310 - Sliding Metal Doors (08312)	•						
08310 - Wood Sliding Glass Doors (08312)			•				
08320 - Doors: Fire-Insulated, Record-Vault (08392)						•	
08320 - Fire Protective Doors						•	
08320 - Insulating Security Doors (08321)			•				
08325 - Cold Storage Doors and Frames	•						
08330 - Metal Coiling Counter Doors (08331)	•						
08330 - Overhead Coiling Doors	•		•			•	
08330 - Overhead Coiling Grilles (08340)			•				
08330 - Overhead Rolling Shutters (08341)							•
08330 - Overhead Roll-up Doors and Grilles (08331)							•
08330 - Rolling Service [and Fire] Doors (08331)					•		
08350 - Accordion Doors and Partitions, and Operable Partitions (08353)	•						
08350 - Accordion Folding Doors (08353)							•
08350 - Flexible Door (08355)							•
08350 - Folding Doors (08351)			•				
08360 - Sectional Overhead Doors	•		•		•	•	•
08365 - Vertical Lift Doors	•				•		
08375 - Steel Sliding Hangar Doors (08372)					•		
08385 - Sound-Retardant Doors (08380)						•	
08390 - Storm Doors			•		•		
08410 - Aluminum Entrances and Storefronts			•				•
08450 - All-Glass Entrances			•				
08460 - Automatic Entrance Doors			•				
08470 - Revolving Entrance Doors			•				•
08510 - Steel Windows	•		•		•	•	•
08520 - Aluminum Windows	• <sub>2</sub>		• <sub>2</sub>		•	•	• <sub>10</sub>
08610 - Clad Wood Windows (08615)	•						
08610 - Polyvinyl Chloride (PVC) Windows	•				•		
08610 - Wood Windows	•		•		•		
08660 - Blast Resistant Tempered Glass Windows (08661)					•		
08670 - Aluminum Storm Windows			•		•		•
08700 - Finish Hardware	•		•	•	•	• <sub>2</sub>	•

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
0870C - Hardware: Prison-Locking Devices (08701)	•						
08700 - Installation of Doors and Hardware (08750)							•
08740 - Electromagnetic Locking System (08745)							•
08770 - Power Door Operators			•				•
08810 - Decorative Glass (08825)			•				
08810 - Glass and Glazing	•		•		•	• <sub>2</sub>	•
08810 - Mirrored Glass (08830)			•				
08840 - Plastic Glazing	•		•				
08900 - Glazed Curtain Wall System			• <sub>2</sub>		•	•	
08920 - Glazed Aluminum Curtain Walls			•				
08960 - Sloped Glazing Systems			•				
DIVISION 9 - FINISHES							
09100 - Metal Support Systems					•		
09110 - Non-Load Bearing Framing Systems (09100)							•
09200 - Lath and Plaster	•		• <sub>2</sub>		• <sub>2</sub>	•	• <sub>2</sub>
09215 - Veneer Plaster	•		•		•		•
09220 - Portland Cement Plaster			•				
09220 - Stucco (09225)	•						
09250 - Gypsum Board	•		•		•	•	
09250 - Gypsum Sheathing (09262)			•				
09250 - Predecorated Gypsum Board (09261)			•				
09260 - Gypsum Board System			•			•	•
09310 - Ceramic Tile	•		•		•	•	•
09330 - Chemical-Resistant Quarry Tile Flooring (09331)					•		
09330 - Quarry Tile						•	
09400 - Terrazzo			•				
09410 - Portland Cement Terrazzo	•				•		•
09420 - Terrazzo Tile	•						•
09430 - Conductive Resinous Terrazzo Flooring (09431)	•						
09440 - Resinous Terrazzo Flooring (09445)	•						
09510 - Acoustical Tile Ceilings	•		• <sub>4</sub>		•	• <sub>3</sub>	•
09520 - Acoustical Wall Panels			•				•
09545 - Linear Metal Ceilings (09546)			•				
09545 - Suspended Decorative Grids (09549)			-				



Section Number & Title	CE	CW	GS	NI	NN	NS	VA
09550 - Wood Flooring			•				
09560 - Wood Strip Flooring	•				•		
09565 - Wood Block Flooring			•				
09570 - Wood Parquet Flooring	•				•		
09580 - Portable (Demountable) Wood Flooring (09563)					•		
09580 - Wood Athletic Flooring (09563)			•				
09600 - Interior Stonework			•				
09600 - Stone and Brick Flooring							•
09635 - Brick Flooring			•				
09635 - Chemical-Resistant Brick Flooring (09636)			•				
09650 - Resilient Athletic Flooring (09655)	•						
09650 - Resilient Flooring	•		•			•	
09660 - Resilient Tile Flooring			•		•		•
09660 - Rubber Tile Flooring (09664)			•				
09665 - Resilient Sheet Flooring			•		• <sub>2</sub>		• <sub>2</sub>
09670 - Fluid-Applied Resilient Flooring			•		•		
09675 - Conductive Resilient Flooring	•		•				
09678 - Resilient Base and Accessories			•				
09680 - Carpet	•		•		•	•	• <sub>2</sub>
09690 - Carpet Tile			•		•		•
09700 - Conductive Sparkproof Industrial Resinous Flooring (09433)	•						
09700 - Heavy Duty Epoxy Flooring (09756)						•	
09700 - Latex Mastic Flooring (09701)							•
09705 - Resinous Flooring	•		•				
09730 - Conductive Elastomeric Flooring (09731)							•
09785 - Metallic Type Conductive/Spark Resistant Concrete Floor Finish					•		
09800 - Special Coatings			•			•	•
09815 - High-Build Glazed Coatings					•		•
09830 - Elastomeric Coatings			•				
09840 - Fire Retardant Coatings (09841)			•				
09870 - Coating For Fume Hood Exhaust Ductwork (09860)				•			
09870 - Coating of Steel Waterfront Structures (09877)					•		
09870 - Exterior Coating System for Welded Steel Petroleum Storage Tanks (09874)					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
09870 - Interior Coating System for Welded Steel Petroleum Storage Tanks (09875)					•		
09870 - Interior Coatings for Welded Steel Tanks (for Petroleum Fuels) (09872)					•		
09870 - Interior Lining for Concrete Storage Tanks (for Petroleum Fuels) (09871)					•		
09870 - Linseed Oil Protection of Concrete Surfaces (09881)					•		
09870 - Protection Of Buried Steel Piping and Steel Bulkhead Tie Rods (09809)					•		
09870 - Protective Coating of Carbon Steel (09890)						•	
09900 - Architectural Painting (09901)						•	
09900 - Exterior Wood Stains (09931)			•				
09900 - Painting	•		•		•	•	•
09900 - Painting: Hydraulic Structures and Appurtenant Works (09940)		•					
09955 - Vinyl Coated Fabric Wall Covering			•		•		• <sub>2</sub>
09960 - Vinyl Wall Covering	•		•			•	
09970 - Wallpaper			•				
09975 - Heavy Duty Synthetic Textile Wall Coverings (09976)			•				
09975 - Textile Wallcovering			•				
09980 - Wood Veneer Wallcovering			•				
DIVISION 10 - SPECIALTIES							
10100 - Visual Display Boards			•				•
10160 - Toilet Partitions and Urinal Screens	•		•		•	•	•
10165 - Laminated-Plastic Toilet Partitions and Urinal Screens (10161)						•	
10180 - Stone Toilet Partitions			•				
10185 - Prefabricated Shower//and Dressing//Compartments (10170)							•
10190 - Cubicles			•				
10190 - Hospital Cubicle Curtains and Intravenous Support Tracks (10152)							•
10190 - Hospital Cubicle Track (10152)					•		
10200 - Louvers and Vents			•		•		•
10250 - Service Wall Systems			•				
10260 - Wall and Corner Guards			•		•		•
10270 - Access Flooring	•		•		•	•	•
10350 - Flagpoles			•				•
10400 - Directories and Bulletin Boards (10416)			•				

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
10400 - Signs			•		•		
10430 - Exterior Signage	•		• <sub>2</sub>				
10440 - Interior Signage	•						•
10500 - Wardrobe Lockers Type S-3 (10501)							•
10505 - Metal Lockers			•			•	•
10522 - Fire Extinguishers, Cabinets, and Accessories			•			•	•
10550 - Postal Specialties			• <sub>2</sub>				• <sub>2</sub>
10600 - Partitions			•		•	• <sub>2</sub>	•
10615 - Demountable Partitions	•		• <sub>4</sub>	• <sub>2</sub>		•	•
10652 - Fire-Rated Folding Panel Partitions (10653)			•				
10652 - Folding Panel Partitions			•				
10655 - Accordion-Folding Partitions			•		•	•	•
10675 - Metal Storage Shelving			• <sub>2</sub>				•
10750 - Telephone Specialties			• <sub>2</sub>				
10800 - Toilet and Bath Accessories	•		•		•	•	•
DIVISION 11 - EQUIPMENT							
11022 - Vault Doors and Day Gate	• <sub>2</sub>				•		•
11030 - Teller and Service Equipment			•				
11032 - Service Window Units - Bullet Resistant (11022)							•
11050 - Library Equipment			• <sub>2</sub>				•
11060 - Portable Theater and Stage Equipment			•				
11062 - Stage Curtains			•				
11100 - Mercantile Equipment			•				
11132 - Projection Screens			•				•
11144 - Fueling System, Service Station Type (11140)	•						
11150 - Parking Control Equipment			•				
11160 - Loading Dock Equipment			•				•
11161 - Dock Levelers	•				•	•	
11165 - Dock Bumpers						•	
11170 - Solid Waste Handling Equipment			•				
11171 - Incinerators, Packaged	• <sub>2</sub>				•	•	• <sub>2</sub>
11190 - Detention and Protection Screens (11192)							•
11190 - Detention and Security Glazing (11192)					•		
11190 - Detention and Security Windows (11191)					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
11190 - Detention Furniture and Accessories (11195)					•		
11190 - Detention Hardware (11194)					•		
11190 - Detention Hollow Metal Frames, Doors, and Door Frames (11193)					•		
11190 - Duress Signal System [for Brig Facilities] (11198)					•		
11190 - Locking Control Systems [for Brig Facilities] (11196)					•		
11190 - Watchtour System [for Brig Facilities] (11199)					•		
11200 - Chlorine-Feeding Machines (Automatic, Semiautomatic and Manual) (11241)	•						
11200 - Governors for Hydraulic Turbines and Pump-Turbines (02201.06)		•					
11200 - Hydraulic Pump-Turbines Francis Type (02201.02)		•					
11200 - Hydraulic Turbines - Francis Type (02201.01)		•					
11200 - Hydraulic Turbines Kaplan Type (02201.03)		•					
11200 - Hydraulic-Turbine-Driven Alternating Current Generators (02202.01)		•					
11200 - Hypochlorite-Feeding Machine (11242)	•						
11200 - Pumps: Water, Vertical Turbine (11212)	•						
11200 - Pumps: Water, Centrifugal (11211)	•						
11200 - Turbine Lubricating Oil (02208)		•					
11200 - Turbine Water Flow Measuring Equipment (02205.01a)		•					
11200 - Water Distribution Equipment (11612)							•
11200 - Water Softeners, Cation-Exchange (Sodium Cycle) (11250)	•						
11280 - Miter Gates (05561)		•					
11280 - Sector Gates (05562)		•					
11280 - Tainter Gates and Anchorages (05563)		•					
11280 - Tractor Gates - Broome Type (01507.01)		•					
11280 - Vertical Lift - Slide Gates (05567)		•					
11280 - Vertical Lift - Tractor Gates (05569)		•					
11280 - Vertical Lift - Wheel Gates (05568)		•					
11280 - Vertical Lift Crest Gates (01506)		•					
11300 - Circular Clarifier Equipment (11338)					•		
11300 - Comminutor	•				•		
11300 - Rectangular Reciprocating Traveling-Bridge Clarifier (11337)					•		
11300 - Rectangular Chain-and-Flight Clarifier (11336)					•		
11302 - Packed, Gravity Oil/Water Separator (11301)					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
11306 - Packaged Pump Stations			•		•		
11310 - Pumps; Sewage and Sludge	•						
11320 - Grit Removal System					•		
11330 - Mechanically Cleaned Bar Racks					•		
11330 - Sewage Bar Screen and Mechanical Shredder	•						
11350 - Sludge-Collecting Equipment	•						
11365 - Trickling Filter	•				•		
11375 - Air Supply and Diffusion Equipment for Sewage Treatment	•						
11380 - Sludge-Digester Gas, Heating, and Mixing System	•						
11390 - Aeration and Complete Mixing Sewage Treatment Plants (15396)					•		
11390 - Continuous Loop Reactor Wastewater Treatment System (11391)	•						
11390 - Prefabricated Biological Wastewater Treatment Plant	•						
11400 - Food Service Equipment	•		•		• <sub>2</sub>		• <sub>7</sub>
11450 - Residential Equipment			•				•
11460 - Unit Kitchens			•				• <sub>2</sub>
11474 - Photographic Processing Equipment (11475)							•
11474 - Radiographic Darkroom Equipment (11757)					•		
11476 - Revolving Darkroom Doors (11471)							•
11494 - Hydrotherapy Equipment (11491)					•		•
11500 - Air Pollution Control	•						
11500 - Cleaning for Process Piping Systems (13255)						•	
11600 - Biohazard Safety Cabinets (11604)							•
11600 - Custom Fabricated Laboratory Equipment (11620)							•
11600 - Fume Hood, Laboratory, Air Bypass Type (11810)				•			
11600 - Fume Hood, Laboratory, Air Bypass Type with Horizontal Sliding Sash (11820)				•			
11600 - Fume Hood, Laboratory, Auxiliary Air Type (11800)				•			
11600 - Laboratory Accessories (11602)							•
11600 - Laboratory Controlled Temperature Rooms (11615)							•
11600 - Laboratory Fume Hoods			•		•		•
11600 - Laboratory Washing Equipment (11614)							•
11600 - Stills and Associated Equipment (11613)					•		
11700 - General Requirements for Medical and Dental Equipment					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
11700 - Installation of Government-Furnished Medical Equipment (11770)					•		
11700 - Intensive Care Monitor Modules (16690)							•
11700 - Medical Equipment, Miscellaneous (11702)					•		
11700 - Patient Wall Systems (16685)							•
11700 - Solution Warming Cabinets (11701)							•
11710 - Hospital Washing Equipment					•		•
11710 - Sterilizers and Associated Equipment					•		•
11710 - Warming Cabinets, Sterilizers, and Associated Equipment	•						
11740 - Dental Equipment (11744)					•		
11740 - Oral Evacuation System (15318)							•
11760 - Medical and Surgical Lighting Fixtures					•		•
11760 - Radiology Electrical Systems (16655)							•
11780 - Autopsy Tables (11781)							•
DIVISION 12 - FURNISHINGS							
12050 - Upholstery Fabrics (12052)			•				
12300 - Cabinets, Steel and Wood (12304)						•	
12300 - Explosion-Safe Refrigerator (12349)				•			
12300 - Government Furnished Metal Laboratory Casework (12348)				•			
12301 - Metal Casework			•				•
12302 - Wood Casework			•				•
12345 - Laboratory Casework			•	•			
12350 - Casework for Medical and Dental Facilities	•				• <sub>2</sub>		
12350 - Medication Cabinet (12336)							•
12350 - Nurse Server (12351)							•
12370 - Residential Casework	•		•		• <sub>2</sub>		
12380 - Restaurant and Cafeteria Casework (12320)			•				
12380 - Wardrobes	•				• <sub>2</sub>		
12500 - Window Treatment			•				
12500 - Blinds	• <sub>2</sub>		• <sub>2</sub>		•	•	
12520 - Lightproof Shades (12514)							•
12520 - Window Shades			•				•
12530 - Drapery Hardware			•				•
12540 - Draperies and Curtains			•		•		
12600 - Building Accessories (12900)			•				

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
12600 - Ecclesiastical Furniture (12645)							•
12600 - Furniture (12620)			•				
12600 - Hospital Furniture (12625)			•				
12600 - Hotel and Motel Furniture (12626)			•				
12600 - Laboratory Furniture (12345, 12346)							• <sub>2</sub>
12600 - Library Furniture (12627)			•				
12600 - Pharmacy Furniture (12340)							•
12600 - Restaurant Furniture (12630)			•				
12600 - Suspended Table (12625)							•
12600 - Systems Furniture (12611)			•				
12670 - Rugs and Mats			• <sub>2</sub>			•	
12680 - Foot Grilles			•				
12700 - Multiple Seating			•				
12710 - Theater Seating	•		•		•		
12760 - Telescoping Bleachers			•				
12810 - Interior Plants and Planters (12800)			•				
DIVISION 13 - SPECIAL CONSTRUCTION							
13034 - Prefabricated Audiometric Rooms					•		
13038 - Cold-Storage Rooms					•		•
13052 - Saunas			•				
13080 - Seismic Protection for Mechanical, Electrical Equipment	•						
13090 - X-Ray Shielding	•		•		•		•
13090 - Radio Frequency Shielded Enclosures					• <sub>2</sub>		
13121 - Pre-Engineered Buildings					•	•	•
13122 - Metal Building Systems	•		•				
13170 - Therapeutic Pool Accessories (13154)							•
13185 - Chain Link Animal Enclosures (13171)							•
13200 - Diesel Oil and Gasoline Storage/Dispensing (13215)							•
13200 - Fiberglass-Plastic Lining For Steel Tank Bottoms (for Petroleum) (13217)					•		
13200 - Fiberglass-Reinforced Polyester Storage Tank (15197)						•	
13200 - Pressure Vessels for Storage of Compressed Gases (13211)	•						
13200 - Steel Standpipes and Ground Storage Reservoirs (13206)	•						
13200 - Steel Tanks With Fixed Roofs (13205)					•		
13200 - Water Storage Tanks (13209)					•		

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
13210 - Elevated Steel Water Tank	•					•	•
13215 - Underground Petroleum Tanks (13216)					•		
13219 - Cleaning Petroleum Storage Tanks					•		
13230 - Composting Toilet (13290)	•						
13230 - Cover, Floating (for Sludge Digestion Tanks) (13234)	•						
13320 - Flow Measuring Equipment [Potable Water] [Sewage Treatment Plant] (13321)					•		
13600 - Solar Water Heating Equipment	•						
13600 - Solar Flat Plate Collectors			•		•		
13630 - Solar Energy Collection Systems (13980)							•
13810 - Building Preparation for Energy Monitoring and Control Systems (EMCS) (13814)	•						
13810 - Energy Monitoring and Control System (EMCS) Large Configuration	•						
13810 - Energy Monitoring and Control System (EMCS) Medium Configuration (13811)	•						
13810 - Energy Monitoring and Control System (EMCS) Micro System Configuration (13813)	•						
13810 - Energy Monitoring and Control System (EMCS) Small Configuration (13812)	•						
13810 - Energy Monitoring and Control Systems			•				
13810 - Multi-Building Expansion of Energy Monitoring and Control System (13945)	•						
13900 - Self-Acting Blast Valves (13976)	•						
DIVISION 14 - CONVEYING SYSTEMS							
14100 - Dumbwaiters			•				
14200 - Elevators for Dams Gearing Type (A-C) (01701)		•					
14210 - Electric Traction Elevators	•		•		•	•	
14240 - Hydraulic Elevators	•		•		•	•	•
14310 - Escalators			•				
14320 - Moving Walks			•				
14420 - Wheelchair Lifts			•				
14450 - Motor Vehicle Lifts							•
14560 - Chutes			•				•
14580 - Pneumatic Tube System	•						• <sub>2</sub>
14605 - Portal Crane Track Installation (14606)					•		
14620 - Monorail and Hoists					• <sub>2</sub>	•	



Section Number & Title	CE	CW	GS	NI	NN	NS	VA
14630 - Electric Overhead Cranes	•	• <sub>2</sub>			• <sub>2</sub>	•	
14640 - Gantry Cranes		• <sub>2</sub>					
DIVISION 15 - MECHANICAL							
15050 - Basic Mechanical Materials and Methods			•		•	• <sub>2</sub>	• <sub>2</sub>
15050 - Turbine Lubricating Oil (15487)		•					
15060 - Boiler Plant Piping Systems (15339)							•
15060 - Plastic Pipe (15064)						•	
15060 - Stainless Steel Pipe (350 to 6,000 PSI) (15066)						•	
15060 - Steel Pipe (150, 350, 2,000, and 6,000 PSI) (15061)						•	
15060 - Welding Pressure Piping	•				•		
15100 - Self-Contained Control and Relief Valves (15119)						•	
15100 - Valves (Steam and Condensate)						•	
15120 - Steam Traps (15125)						•	
15130 - Meters and Gauges			•				
15140 - Supports and Anchors			•				
15160 - Centrifugal Pumps (15141)						•	
15160 - Condensate Pumps (15148)						•	
15160 - Large Centrifugal Air Compressors (Over 200 HP) (15052)					•		
15160 - Large Nonlubricated Reciprocating Air Compressors (Over 300 HP) (15053)					•		
15160 - Nonlubricated Rotary Screw Air Compressors (100 HP and Larger) (15054)					•		
15160 - Pumps-Vertical Propeller Type (02303.01)		•					
15160 - Sump Pumps (15145)						•	
15170 - Motors			•				
15190 - Mechanical Identification			•				
15240 - Noise and Vibration Control			•		•	•	• <sub>2</sub>
15250 - Mechanical Insulation	•		•		•		• <sub>2</sub>
15260 - Pipe Insulation						•	
15290 - Duct Insulation (15258)						•	
15300 - Fire Protection	•					•	•
15320 - Fire Pumps			•		•		
15330 - Wet Pipe Fire Extinguishing Sprinkler System			•	•	•	•	
15335 - Dry-Pipe Sprinkler System			•		•		
15345 - Combination Dry-Pipe and Pre-Action Sprinkler System			•				

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
15350 - Deluge Automatic Sprinkler Systems			•		•	•	
15355 - Foam Extinguishing System	•		•		• <sub>3</sub>		
15360 - Carbon Dioxide Extinguishing Systems		•	•		• <sub>2</sub>	•	
15365 - Halon 1301 Fire Extinguishing Systems	•		•		•		
15370 - Dry Chemical Extinguishing Systems			•		•		
15400 - Chemical-Waste Drainage Systems (15418)						•	
15400 - Plumbing	• <sub>2</sub>		•		•	•	•
15430 - Plumbing Specialties (15432)						•	
15440 - Hospital Plumbing Fixtures (15460)					•		
15440 - Plumbing Fixtures			•			•	•
15450 - Domestic Water Heaters (15424)							•
15450 - Plumbing Equipment			•				
15450 - Pumps (Plumbing) (15139)							•
15450 - Water Dealkalizing System (15456)							•
15450 - Water Softening System (15455)							•
15475 - Therapeutic Pool Equipment (15460)							•
15480 - Aviation Fuel Distribution and Dispensing (15486)					•		
15480 - Natural Gas Piping (15492)			•				
15480 - Compressed Air System, Shop and Laundry (15319)							•
15480 - Dental Compressed Air System (15481)							•
15480 - Distilled Water Piping System (15409)				•			
15480 - Fiberglass Reinforced Plastic (FRP) Piping (for Petroleum) (15482)					•		
15480 - Fuel Gas Piping	•				•		
15480 - Fuel Oil Handling System			•		•		
15480 - High and Medium Pressure Compressed Air Systems (15489)					•		
15480 - High-Pressure Compressed Air Systems						•	
15480 - Hydraulic Fluid Power Systems (15495)	•						
15480 - Laboratory (Nonflammable) Gas and Vacuum Systems (15488)							•
15480 - Low-Pressure Compressed Air System					•	•	
15480 - Low-Vacuum Piping (15280)						•	
15480 - Lubrication System for Local Flood Protection Pumping Units (15346)		•					
15480 - Medical Gas and Vacuum Systems					•		•
15480 - Natural Gas System			•			•	

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
15500 Chilled Water Air Conditioning System (15505)						•	
15500 - Direct Expansion Air Conditioning System (15503)						•	
15500 - Heat Pump Air Conditioning System (15502)						•	
15500 - Heating/Ventilation/Air Conditioning						•	
15500 - HVAC Piping Systems (15705)							•
15510 - Chilled, Condenser, or Dual Service Water Piping (15512)					•		
15510 - Hydronic Piping Systems			•				
15520 - Steam and Steam Condensate Piping and Specialties			•		•		
15530 - Preinsulated Chilled Water Piping (15706)							•
15530 - Refrigerant Piping and Specialties			•		•	•	•
15540 - Pumps (HVAC) (15140)							•
15540 - Pumps: General Purpose			•				
15545 - Water Treatment			•				•
15550 - Boilers			•			•	
15550 - Central High Temperature Water (HTW) Generating Plant and Auxiliaries (15555)	•						
15550 - Central Steam Generating System - Combination Gas and Oil Fired (15561)	•						
15550 - Central Steam-Generating System, Coal-Fired (15559)	•						
15550 - Central Steam-Generating System, Oil-Fired (15560)	•						
15550 - Fire Tube Steam Boilers and Accessories (15622)							•
15550 - Forced Hot Water Heating Systems Using Water and Steam Heat (15556)	•						
15550 - Heat and Utilities Systems, Central Steam (15562)	•						
15550 - Low Pressure Water Heating Boilers (Over 800,000 Btu/hr Output) (15556)					•		
15550 - Low Pressure Water Heating Boilers (Under 800,000 Btu/hr Output) (15555)					•		
15550 - Steam Boilers and Equipment (18,000,000 - 60,000,000 Btu/hr) (15632)					•		
15550 - Steam Boilers and Equipment (500,000 - 18,000,000 Btu/hr) (15631)					•		
15550 - Steam Heating Plant No. 4, 20,000 to 75,000 Pounds Per Hour (15554)					•		
15550 - Warm Air Heating System (15566)	•						
15550 - Water Tube Steam Boilers and Accessories (15624)							•
15570 - Boiler Accessories			•				•
15575 - Boiler Breechings and Stacks			•				•

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
15580 - Feedwater Equipment			•				
15590 - Oil Storage System (Boiler Plant) (15606)							•
15620 - Fuel Fired Heaters	•	•	•		• <sub>2</sub>		
15650 - Central Refrigeration Equipment for Air Conditioning	•				•		
15650 - Refrigeration Equipment for Cold Storage	•				•		
15650 - Commissary Refrigeration System	•						
15650 - Evaporative Cooling Systems	•				•		
15650 - Refrigeration Equipment (HVAC)							•
15655 - Reciprocating Compressors (15658)						•	
15670 - Condensing Units			•				
15680 - Absorption Chillers (15681)			•				
15680 - Centrifugal Chiller			•			•	
15680 - Reciprocating Chillers			•			•	
15710 - Cooling Towers			•				• <sub>2</sub>
15740 - Air-Cooled Condensers (15661)						•	
15750 - [High] [Medium] Temperature Water System Within Buildings (15751)					•		
15755 - Heat Exchangers			•				
15770 - Applied Heat Pump Systems Built-Up and Industrial Systems (15775)	•						
15780 - Computer Room Air Conditioning System			•			•	
15780 - Packaged Air-Conditioning Units			•		•	•	
15780 - Unitary Air Conditioning Equipment	•						•
15790 - Air Coils						•	
15790 - Duct Heaters (16881)						•	
15790 - Heating and Cooling Coils (15750)							•
15810 - Humidifiers			•				
15820 - Dehumidification System for Flood Control Pumping Stations (02309)		•					
15830 - Baseboard, Finned-Tube Radiation and Convectors (15755)						•	
15830 - Fan-Coil Units (15761)						•	
15830 - Heating and Cooling Terminal Units			•				
15830 - Terminal Units (15740)							•
15830 - Unit Heaters and Ventilators (15756)						•	
15845 - Energy Recovery Units	• <sub>2</sub>		•				•
15850 - Air Handling and Distribution Equipment			•		•	• <sub>2</sub>	• <sub>2</sub>

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
15860 - Centrifugal Fans			•				
15860 - Special Fans (15865)			•				
15870 - Industrial Ventilation and Exhaust Systems (Ducts and Fans) (15871)					•		
15870 - Power Roof Ventilator (15830)						•	
15880 - Dust and Gas Collector, Dry Scrubber and Fabric Filter Type (15877)					•		
15880 - Electrostatic Dust Collector of Flue Gas Particulates (15853)					•		
15880 - Fabric Filter Dust Collector of Flyash Particles in Flue Gas (15854)					•		
15880 - Mechanical Cyclone Dust Collector of Flue Gas Particulates (15852)					•		
15885 - Air Cleaning Devices			•			•	•
15890 - Ductwork and Accessories	•		• <sub>2</sub>	•	•	• <sub>2</sub>	•
15920 - Sound Attenuators			•				
15930 - Air Terminal Units (15935)			•				
15930 - Mixing Boxes and Terminal Units (15869)						•	
15930 - Overhead Vehicle Tailpipe (and Welding Fume) Exhaust System(s) (15940)	•						
15930 - Ventilation and Exhaust Systems (15935)	•						
15940 - Air Inlets and Outlets			•			•	
15950 - Controls and Instrumentation	•		•		• <sub>2</sub>	• <sub>2</sub>	• <sub>3</sub>
15985 - Sequence of Operation			•				
15990 - Testing, Adjusting and Balancing	•		•		• <sub>2</sub>	•	• <sub>2</sub>
DIVISION 16 - ELECTRICAL							
16050 - Electrical Equipment (for Gate Hoists) (01907)		•					
16050 - Insulating Oil, Electrical (02207)		•					
16050 - Basic Electrical Materials and Methods			•		•	• <sub>2</sub>	•
16050 - Electrical System Protective Device Study			•				•
16050 - Standard Wiring Systems (16105)						•	
16050 - Control and Protective Devices (16183)						•	
16110 - Cable Trays			•			•	
16110 - Conduit Systems (16111)							•
16110 - Indoor Service Poles (16113)			•				
16110 - Raceways			•				
16110 - Underfloor Ducts (16113)							•

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
16110 - Underfloor Raceway System	•		•		•		
16110 - Underground Ducts and Manholes	•		•			•	
16120 - Cables, High Voltage (Above 600 Volts)			•				•
16120 - Cables, Low Voltage (600 Volts and Below) (16127)							•
16120 - Control/Signal Wiring (16126)			•				
16120 - Flat Conductor Cables (16124)			•				
16120 - High Voltage (15KV) Cable and Splices (16377)				•			
16120 - Instrumentation and Communications Cables (16905)						•	
16120 - Insulated Wire and Cable (16120)		•					
16120 - Insulated Wire and Cable (For Hydraulic Structures) (01404.04)		•					
16120 - Wires and Cables			•			•	
16130 - Electrical Boxes and Fittings (16130)			•				
16140 - Wiring Devices			•				•
16160 - Cabinets and Enclosures (16160)			•				
16160 - Panelboards (16160)							•
16190 - Support Devices (16190)			•				
16195 - Electrical Identification (16195)			•				
16200 - Stationary Gas Turbine Generators (16224)	•						
16200 - Stationary Steam Turbine Generators (16225)	•						
16300 - 400-Hertz Low Voltage Substation (16305)					•		
16300 - 400-Hertz (Hz) Solid State Frequency (16306)					•		
16300 - 480 Pier Outlet Assemblies (16304)					•		
16300 - Auxiliary Power Distribution Centers (02205.05)		•					
16300 - Main Electric Supply Station (16311)	•						
16300 - Marina Electrical Work (16307)					•		
16310 - Low-Voltage Switchgear and Secondary Unit Substations (16312)					•		
16310 - Primary Unit Substation (16311)						•	
16310 - Secondary Unit Substation			•			•	•
16320 - Network Transformers and Network Protectors (16427)			•				
16320 - Power Transformers		•	•			•	•
16330 - Capacitor Equipment						•	
16340 - Insulators and Lightning (Surge) Arresters			•				
16340 - Outdoor Group-Operated Disconnecting Switches and Insulators (69 to 230 kv) (02204.02)		•					

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
16340 - Outdoor Surge Arresters (Station Class Gapped Valve Type) and (Station Class Zinc-Oxide Valve Type) (02204.04)		•					
16345 - Switchgear Assemblies			•			•	•
16350 - Load-Break Switches (16304)						•	
16350 - Outdoor Oil Circuit Breakers (121 to 242 kv) (02204.01)		•					
16360 - Interrupter Switches (Above 600 Volts) (16360)			•				
16360 - Load Break SF6 Gas Switches (16360)						•	
16370 - Electrical Distribution System, Underground (16375)	•						
16370 - Overhead Electrical Work					•	•	
16370 - Overhead Pole Line (16391)						•	
16375 - Electrical Distribution System, Aerial (16370)	•						
16375 - Underground Electrical Work					•		•
16390 - 13.8 kV Metal-Clad Switchgear, Generator Neutral Grounding Equipment and Metal-Enclosed Bus (02205.02)		•					
16390 - Primary Grounding (16390)			•				
16400 - 3-Phase Vertical Synchronous Type 1500 Horsepower and Above (For Flood Control Pumping Stations) (02302)		•					
16400 - Electric Motors--3 Phase, Vertical Induction Type (For Flood-Control Pumping Stations) (02301)		•					
16400 - Interior Wiring Systems	•				•		
16400 - Motors						•	•
16400 - Prefabricated Flexible Wiring - Convenience Outlets (16497)			•				
16400 - Prefabricated Flexible Wiring - Lighting Fixtures (16496)			•				
16415 - Voltage Regulators			•				
16420 - Service Entrance (600 Volts or Less)			•				
16425 - 480-Volt Station Service Switchgear and Transformers (16427)		•					
16425 - Switchboards			•				•
16425 - Switchgear, Low Voltage (600 Volts and Below)			•				•
16430 - Metering							•
16440 - Disconnect Switches			•				•
16445 - Peak Load Controllers			•				
16450 - Secondary Grounding			•			•	•
16460 - Transformers (General Purpose)			•		•	•	•
16460 - Specialty Type Transformers			•				•
16465 - Bus Duct			•				•
16470 - Panelboards			•			•	

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
16475 - Coordinated Power System Protection	•						
16475 - Fuse Cutouts (16307)						•	
16475 - Ground Fault Protection Systems (16660)			•				
16475 - Low Voltage Power Circuit Breakers (16477)			•				
16475 - Outdoor Sulfur Hexafluoride Gas (SF6) Circuit Breakers (121 to 242 KV) (16352)		•					
16475 - Overcurrent Protective Devices			•				
16475 - Surge Arresters (16303)						•	
16480 - Motor Control Centers			•			•	•
16480 - Motor Control Panelboards			•				•
16480 - Motor Starters			•				•
16485 - Contactors			•				
16490 - Air-Break Switches (16305)						•	
16490 - Automatic Transfer [and Bypass/Isolation] Switches	•		•		•		•
16490 - Oil Switches (16306)						•	
16490 - Switches						•	•
16500 - Protective Lighting System (16505)	•						
16502 - Poles and Standards (16503)			•				
16510 - Building Lighting, Interior					•		•
16510 - Fluorescent Luminaires (16511)						•	
16510 - Incandescent Lighting (16512)						•	
16510 - Lighting Fixtures			•				
16510 - Luminous Ceilings (16520)			•				
16520 - Airfield Lighting (16560)					•		
16520 - Exterior Lighting (16530)					•		
16520 - Floodlighting (16555)						•	
16520 - High Intensity Discharge (HID) Lighting (16517)						•	
16520 - Highway and Roadway Lighting (16550)						•	
16520 - Site Lighting			•				•
16535 - Central Emergency Battery-Inverter System			•				
16535 - Emergency Lighting Units						•	
16535 - Exit Lighting (16518)						•	
16600 - Electrical Work on Demountable Partitions (16605)			•				
16600 - Isolated Power Systems (16675)							•
16600 - Miscellaneous Medical Construction (16665)							•



Section Number & Title	CE	CW	GS	NI	NN	NS	VA
16600 - Static Electricity Protection System (16665)	•						
16610 - Uninterruptible Power Supply System	•		•				
16620 - Diesel Engine-Generator Sets - Prime and Standby - 10 to 500 kW (16208)					•		
16620 - Diesel-Electric Generators and Auto Transfer Switches (16600)				•			
16620 - Diesel-Electric Generators (Design 1) 500 to 2,500 kW - Prime DU (16202)					•		
16620 - Diesel-Electric Generators (Design 2) 2,501 kW or Larger - Prime (16203)					•		
16620 - Diesel-Generator Set Stationary 100-2500 kW, With Auxiliaries (16263)	•						
16620 - Diesel-Generator Sets Stationary 10-99 kW, With Auxiliaries (16264)	•						
16620 - Engine Generators (16208)							•
16620 - Motor-Generator Sets, 400 Hertz (Hz) (16492)					•		
16620 - Standby Diesel-Electric Generators (Design 3) 301 to 1,000 kW (16204)					•		
16620 - Standby Diesel-Electric Generators (Design 4) 1,001 kW or Larger (16205)					•		
16620 - Standby Power Generator Systems (25 to 1000 kW)			•				
16640 - Cathodic Protection by Galvanic Anodes			•		•		
16640 - Cathodic Protection by Impressed Current	•		•		•	•	
16640 - Cathodic Protection System (Sacrificial Anode)	•					•	
16640 - Cathodic Protection System (Steel Water Tanks)	•				•	•	
16640 - Cathodic Protection (Boiler Plant Systems)							•
16650 - Electromagnetic Shielding Systems			•				
16650 - Radio Frequency Interference Power Line Filters					•		
16670 - Lightning Protection Systems	•		•		•	•	•
16720 - Intrusion Detection System	•				• <sub>2</sub>		•
16720 - Electronics Entry Control Systems	•		•				
16720 - Fire Alarm Systems	• <sub>2</sub>		•	•	• <sub>3</sub>	•	• <sub>2</sub>
16720 - Integration of Public Address and Security System (16724)			•				
16720 - Water Alarm Systems - Computer Rooms (16615)			•				
16740 - Nurse Call System	•				•		•
16740 - Audio Cable Systems (16741)						•	
16740 - Central Dictation System (16766)	•						
16740 - Coaxial Cable Data Transmission System (16794)	•						

Section Number & Title	CE	CW	GS	NI	NN	NS	VA
16740 - Dental Clinic Intercommunication and Patient Annunciation System (16762)							•
16740 - Fiber Optic Cable Systems	• <sub>2</sub>				• <sub>2</sub>	•	
16740 - Intercommunication Systems	•		•		•		•
16740 - One-Way Radio Control for Energy Monitoring and Control System (EMCS) (16797)	•						
16740 - Pier Telephone Distribution Systems (16742)					•		
16740 - Signaling System, Doctor's Paging (16755)	•						
16740 - Stand-Alone One-Way Radio Control System (16790)	•						
16740 - Telephone Distribution Systems	• <sub>2</sub>				•		
16740 - Two-Way Radio Data Transmission System (16798)	•						
16740 - Wire Line Data Transmission System (16792)	• <sub>2</sub>						
16770 - Public Address System							•
16770 - Radio and Public Address Systems	•						
16770 - Radio Entertainment Distribution System (16771)							•
16770 - Radio Entertainment Extension System (16772)							•
16780 - Closed Circuit Television Systems (16751)	•						
16780 - Master TV Antenna Equipment and Systems	•				•		• <sub>2</sub>
16850 - Electric Space Heating Equipment	•				•	•	
16900 - Gas Detection Systems (16950)						•	
16900 - Light-Sensitive Control Devices (16931)						•	
16915 - Programmable Lighting Control System (16675)			•				

# REPORT DOCUMENTATION PAGE

Form Approved  
OPM No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering, and maintaining the data needed, and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE April 1992		3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE <i>Tri-Service Construction Guide Specifications</i>				5. FUNDING NUMBERS C MDA903-90-C-0006 PE 0902198D	
6. AUTHOR(S) Jordan W. Cassell, James L. Hathaway					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Logistics Management Institute 6400 Goldsboro Road Bethesda, MD 20817-5886				8. PERFORMING ORGANIZATION REPORT NUMBER LMI-NA105R2	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Department of the Navy Naval Facilities Engineering Command 200 Stovall Street Alexandria, VA 22332-2300				10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION/AVAILABILITY STATEMENT A: Approved for public release; distribution unlimited				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <p>Construction specifications are important in controlling the cost, quality of materials, and workmanship in construction projects. Incomplete, erroneous, or out-of-date specifications often lead to poor or excessively costly construction, unnecessary and costly design changes, and disputes and litigation. Improving the quality of construction specifications can offer major cost, quality, and performance benefits.</p> <p>Currently, construction guide specification systems are maintained by both the U.S. Army Corps of Engineers and the Naval Facilities Engineering Command. At a meeting held on 5 September 1991, the Tri-Service Military Construction Executive Team agreed that the Services need a shared, jointly maintained data base of construction specifications and criteria to both improve quality and reduce costs. The primary way to realize those objectives is to standardize and consolidate the construction guide specifications. The Army, Navy, and Air Force must work together as partners to ensure the effective implementation of such a program if the Services are to achieve the goal of producing a tri-Service guide.</p>					
14. SUBJECT TERMS Construction Guide Specifications, Construction Criteria, Military Construction, U.S. Army Corps of Engineers, USACE, Naval Facilities Engineering Command, NAVFAC, Specifications, Construction				15. NUMBER OF PAGES 121	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	18. SECURITY CLASSIFICATION OF ABSTRACT Unclassified		20. LIMITATION OF ABSTRACT UL	