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**US Army Corps
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Engineer Research and
Development Center

CADD Details Library

The CADD/GIS Technology Center

December 2002

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CADD Details Library

by The CADD/GIS Technology Center
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Summary

Several years ago, before computer-aided design and drafting (CADD) became the standard drafting tool in design, a seasoned draftsman might require, on the average, 40 hr to develop a sheet of construction details by hand. Through the use of CADD, the effort of creating a single detail has been reduced considerably. Once the designer has created a detail using CADD tools, he/she can save the detail to a file and use the detail over and over in different construction projects. Eventually, the designer will have compiled a library of details that he/she will consistently use. These details can be easily inserted into a detail sheet and then modified to meet the project requirements and specifications. This development and reuse of CADD details represents a considerable time-saving tool to the designer.

When the CADD/GIS Technology Center (Center) was established in 1992, one of the first tasks was the compilation of a CADD Details Library utilizing details created by Department of Defense (DoD) personnel. The Center did not expend design funds to hire an architect/engineer or use in-house resources to develop completely new details; instead, these details were organized into a generic format and cataloged by type.

To further simplify the use of the details library, the former Architectural Automation Field Working Group (AAFWG) tasked the Center to develop an icon-driven software retrieval system. Originally developed using MDL and AutoLISP programming, the retrieval software ran on both MicroStation and AutoCAD platforms using UNIX, DOS, and Windows operating systems.

Typically, detailing on a design project does not begin prior to the 35-percent design phase. At the 35-percent phase, the designer has defined the building's structure and envelope requirements and is ready to begin selecting typical project details.

After reviewing details in hardcopy or electronic format and identifying usable details, the designer/draftsman initiates the "CADD Detail Manager" program. The designer scrolls through the details listing, identifies the desired detail, reviews it within the display box, selects the required scale, and then places it on the details sheet. This process is repeated until the entire sheet is filled. Simple modifications to the details in order to meet specific job requirements/specifications complete the sheet. The designer may call up the CADD Detail Manager while in any design file, thus enabling detail placement anywhere within a set of drawings.

The CADD Details Library should always be considered a "living" library. Since the conception of the idea for this project, this philosophy has proven to be true. In 1995 the Center released the first CADD Details Library CD-ROM to enthusiastic response. The first CD-ROM contained over 1,200 details representing the Architectural; Mechanical; Electrical; and Hazardous, Toxic, and Radioactive Waste disciplines. User demand resulted in the addition of Civil, Structural, and Metric details to the 1999 edition of the CADD Details CD-ROM. Because of the desire for a "paperless" environment, all documents related to the current version of the CADD Details Library have been released totally in electronic

format on the CD-ROM. This gives the designer the option of printing out the document (or the pages) that he/she requires, thereby saving printing costs for the Center. Through efforts such as these, the CADD Details Library will continue to grow to include all the design disciplines with cost incurred for technical review/modification, CD-ROM reproduction, and distribution.

It is the Center's hope that the efforts of the Center, with the backing of the Field Working Groups, to develop comprehensive, multidiscipline sets of generic details will not only help designers in their daily work but also demonstrate the DoD commitment to CADD productivity.

Preface

This report contains details related to disciplines contained in the Architectural/Engineering/Construction (A/E/C) CADD Standard. This report is part of the CADD/GIS Technology Center's (Center) initiative to develop a standard methodology for the development, documentation, and use of generic design details in computer-aided design and drafting (CADD) systems. By providing both a startup set of details and a menu-driven software retrieval program, the Center hopes to ensure easy accessibility to generic design details and encourage their use in the CADD environment.

It must be emphasized that the intent of this document is not to provide "Standard Details," but to furnish CADD users with a starting point for the development of project-specific details. Although reasonable efforts have been made to verify that the enclosed details are technically correct and meet existing, generally available building code requirements, there is no expressed or implied warranty of correctness or compliance. It is the final responsibility of the user/designer to ensure the accuracy, completeness, applicability, workability, and code compliance of all details whether used or misused in whole or in part.

Project Manager for the CADD Details Library was Stephen C. Spangler of the Center.

Original authors of the CADD Details Library reports were James T. Wilson and Stephen C. Spangler of the Center. Chief of the Center is Harold L. Smith. The Center is located in the Information Technology Laboratory (ITL), U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS. Director of ITL is Dr. Jeffery P. Holland. The Director of ERDC is Dr. James R. Houston. The Commander and Executive Director of ERDC is COL John W. Morris III, EN.

The Center would like to thank the Structural Field Action CADD Group for their devotion and efforts to the CADD Details Library project. A special acknowledgment goes to Mr. Stephen Goodin, South Atlantic Division, and Mr. Alain Bernier, Fort Worth District, for their support in the initial development of the details library concept.

Beneficial comments (recommendations, enhancements, deletions) which may be of use in improving this document should be addressed to:

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1 Introduction

The use of computer-aided design and drafting (CADD) systems within the Department of Defense (DoD) has produced an increase in design efficiency while netting an appreciable reduction in overall design cost. In some offices, a 30- to 40-percent reduction in design/drafting man-hours, over the traditional “on-the-board” design effort, has been realized. These improvements have been achieved through the utilization of discipline-specific CADD design packages, the sharing of CADD-developed project information, and the reuse of design information. Recognizing the increased productivity represented in the reuse and adaptation of design and construction details, the CADD/GIS Technology Center (Center) initiated a project to collect and disseminate generic design details within the DoD.

Based on work completed by the former Mechanical Field Working Group in November 1991, and ongoing work by the former Electrical and Architectural Automation Field Working Groups, the Center recognized the necessity to pool the resources of all DoD design disciplines to ensure consistency in details development. Issues concerning scale, levels/layers, line thickness, text, line symbology, color, layout, naming convention, and file storage and retrieval procedures needed to be resolved to the satisfaction of all the design disciplines before the Center could continue. The Center tasked the Architectural Automation Field Working Group to prepare applicable criteria and procedures for standardizing the development of the CADD Details Library.

2 CADD Details Library

Library Creation

“Evolution” is the best description of the process for incorporating the suggested format for creating generic details. Agencies currently developing detail libraries are encouraged to begin incorporating the format into their daily design efforts, and not attempt a complete revamping of their existing detail libraries. As details are created, they should be included in the agencies’ detail library and submitted to the Center for possible inclusion into the DoD-wide master library. By no means should the CADD Details Library ever be considered a completed product. It is only the **beginning** of what should be a daily routine of adding and revising details for all design disciplines within the DoD.

Detail Integrity

Although a liability disclaimer covering all the details is included as part of the CADD Details Library, each detail submitted for inclusion into the library should be reviewed by the submitting agency for integrity and compliance with current design criteria. It will be extremely helpful to the Center if each detail is properly reviewed prior to submitting it for placement into the Library.

Creating a Detail

Graphics

When developing a detail, draw the detail at full size (1 in. = 1 in. (inch-pound) or 1 mm = 1 mm (metric)) (Figure 1). Each detail should exist in an individual drawing file, either in

AutoCAD’s .dwg or MicroStation’s .dgn formats. MicroStation details should not be created as cells or as part of a cell library. AutoCAD details should not be saved as blocks or blocks written out to a file (wblocks).

For detail uniformity, a standard detail layout has been developed (Figures 2 and 3). This box is only a guide for laying out details; it is understood that not all details can fit into the layout. When producing details larger than the standard detail layout box, every effort should be made to follow the format as much as possible. For example, keep the detail origin and title in the lower left corner of the detail and try to use multiples of the standard detail layout box (2 high, 2 wide, etc.).

Working units

For MicroStation details, the working units should be set to 1:12:8000 for inch-pound details and 1:1:100 for metric details. For AutoCAD details, the default “UNITS” setting should be “#4 Architectural” for inch-pound details and “#2 Decimal” for metric details.

Levels/layers

The previous edition of the CADD Details Library proposed a level/layer scheme based on construction materials or systems within a detail. Feedback from the field indicated that this was too “detailed.” Users want to be able to “turn off” all graphics versus individual construction materials within a detail.

As a result of this input, a new level/layer standard for details has been developed for the

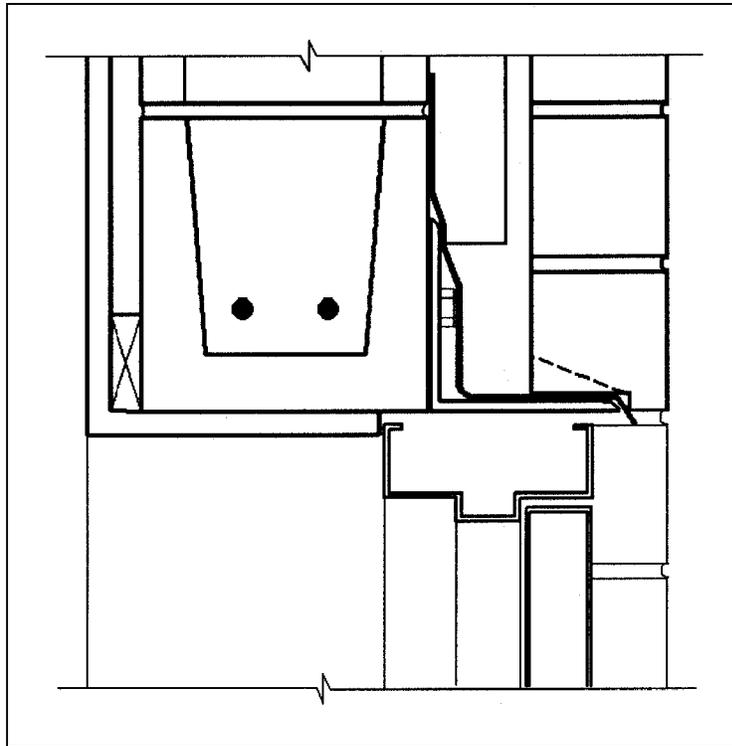


Figure 1. Detail drawn at full size

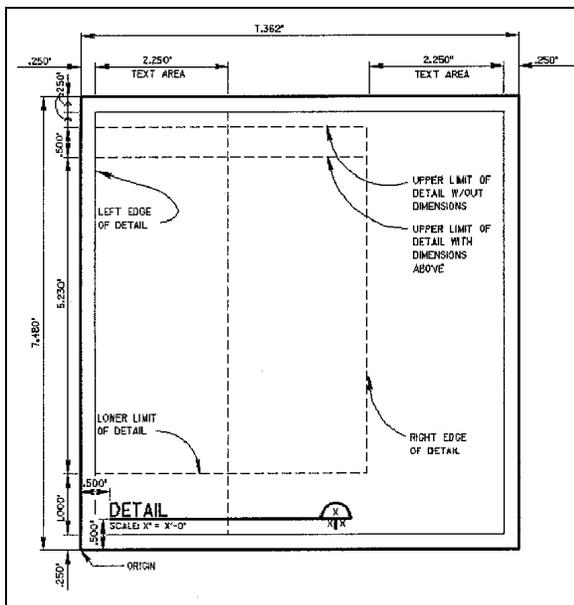


Figure 2. Inch-pound detail layout box

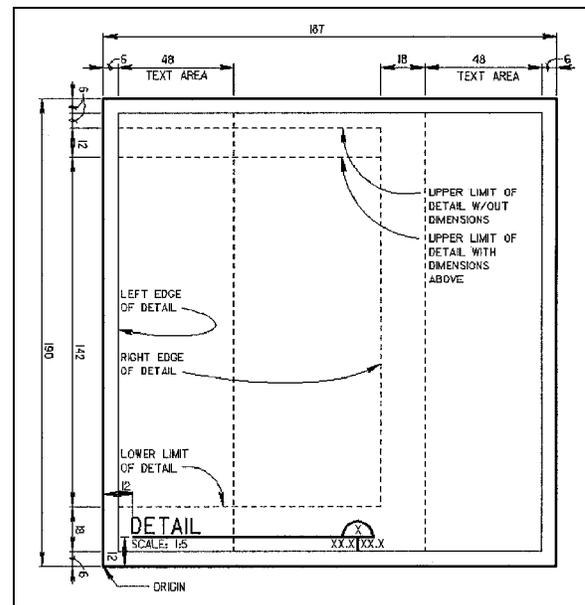


Figure 3. Metric detail layout box

Architectural/Engineering/Construction (A/E/C) CADD Standard (Table 1). Levels/layers are grouped into the following levels/layers: general information (ANNO levels/layers), detail graphics, and dimensions (inch-pound or metric).

Color/line weights

The primary purpose of color is to provide a drawing with visual depth and clarity. The previous edition of the CADD Details Library established specific line weights to colors. Users found this guideline to be too restrictive. Often a user will want to show items on the same level/layer at different color and line weights to emphasize particular parts of a detail over others. As a result, the user may use any of the colors and line weights shown in Tables 3 and 4 to create details.

Patterning/hatching

Patterning/hatching should be added to the detail on level/layer *-ANNO-PATT (Figure 4). When patterning or hatching the detail, only the pattern or hatch libraries supplied with MicroStation, AutoCAD, or the A/E/C CADD Standard should be used.

Text

After the scale of the detail is determined, text should be placed at heights corresponding to

Tables 5 and 6. This ensures that all notes and dimensions will be plotted at a height of 1/8 in. (3 mm) and the detail title will be plotted at a height of 1/4 in. (6 mm). For example, in Figure 5, the notes should be placed at a height of 1/2 in. and the detail title should be placed at a height of 1 in. for a detail that is plotted at a scale of 3" = 1' - 0". The text style used for details should be Font 1 for MicroStation users and "ROMANS" for AutoCAD users.

Abbreviations

Abbreviations for words or phrases frequently used in details should be as noted in Appendix A. When possible, abbreviations should be kept to a minimum. Other abbreviations, particularly discipline-unique abbreviations, may be used but must not conflict with those in Appendix A.

Metric

In accordance with the Metric Conversion Act of 1975 (Public Law 94-168) as amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418), and Executive Order (EO) 12770 dated July 25, 1991, this and future editions of the CADD Details Library will include metric details. Appendix B contains information on changes that will occur in design drawings and construction as a result of the conversion to the metric system.

Table 1 Detail Level/Layers		
Level #	Level/Layer Name	Level/Layer Description
1	*-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text
2	*-ANNO-KEYN	Reference keynotes with associated leaders
3	*-ANNO-NPLT	Nonplotting graphic information
4	*-ANNO-PATT	Miscellaneous patterning and hatching
5	*-ANNO-NOTE	General notes and general remarks
6	*-ANNO-SYMB	Reference bubbles, matchlines, and breaklines
7	*-ANNO-TEXT	Detail title text, text and associated leaders, notes
11	*-DETL-GRPH	Graphics, gridlines, nontext items
12	*-DETL-METR	Metric-specific dimensions and notes
13	*-DETL-INPD	Inch-pound-specific dimensions and notes
Note: See Table 2 for a listing of the Discipline Designators available for use in the "*" field.		

Table 2 Discipline Designators	
Discipline	Designator
General	G
Hazardous Materials	H
Survey/Mapping	V
Geotechnical	B
Civil Works	W
Civil	C
Landscape	L
Structural	S
Architectural	A
Interiors	I
Equipment	Q
Fire Protection	F
Plumbing	P
Process	D
Mechanical	M
Electrical	E
Telecommunications	T
Resource	R
Other Disciplines	X
Contractor/Shop Drawings	Z
Operations	O

Table 3 Color Comparison		
Color	AutoCAD Color #	MicroStation Color #
Blue	5	1
Grey	8	9
Red	1	3
Green	3	2
Yellow	2	4
Magenta	6	5
Cyan	4	7
White	7	0

Note: For a comprehensive color listing, see Appendix C in the A/E/C CADD Standard.

Table 4 Line Weights			
Line Thickness	mm	in.	MicroStation Line Weight
Fine	0.18	0.007	LW = 0
Thin	0.25	0.010	LW = 1
Medium	0.35	0.014	LW = 2
Wide	0.50	0.020	LW = 3
Extra Wide	0.70	0.028	LW = 5
Option 1	1.00	0.040	LW = 7
Option 2	1.40	0.055	LW = 10
Option 3	2.00	0.079	LW = 15

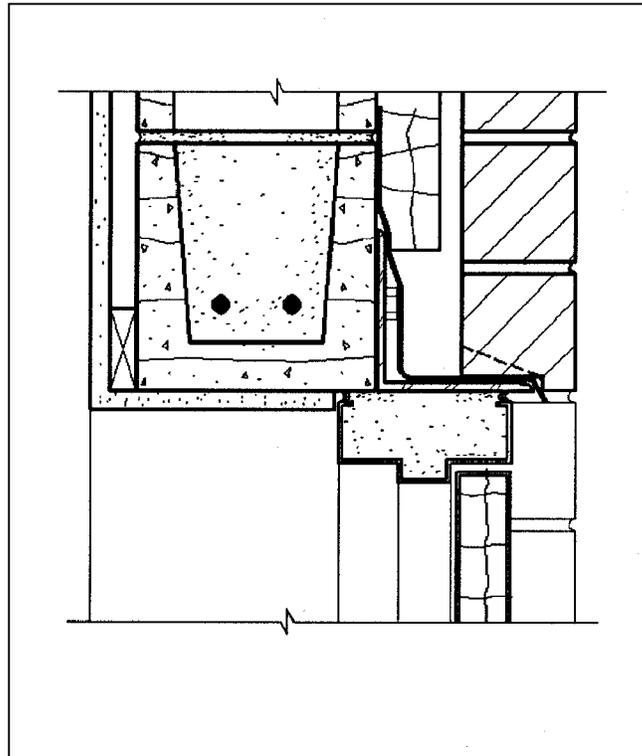


Figure 4. Patterning/hatching added to detail

Table 5 Inch-Pound Text Heights		
Detail Scale	Height at Which Notes and Dimensions Should be Placed	Height at Which Detail Title Text Should be Placed
1/32" = 1' - 0"	w	8'
1/16" = 1' - 0"	2'	4'
1/8" = 1' - 0"	1'	2'
1/4" = 1' - 0"	6"	1'
3/8" = 1' - 0"	4"	8"
1/2" = 1' - 0"	3"	6"
3/4" = 1' - 0"	2"	4"
1" = 1' - 0"	1-1/2"	3"
1-1/2" = 1' - 0"	1"	2"
3" = 1' - 0"	1/2"	1"
6" = 1' - 0"	1/4"	1/2"
Full Size	1/8"	1/4"

Table 6 Metric Text Heights		
Detail Scale	Height at Which Notes and Dimensions Should be Placed, mm	Height at Which Detail Title Text Should be Placed, mm
1 : 200	600	1200
1 : 125	375	750
1 : 100	300	600
1 : 75	225	450
1 : 50	150	300
1 : 25	75	150
1 : 20	60	120
1 : 10	30	60
1 : 5	15	30
1 : 2.5	7.5	15
Full Size	3	6

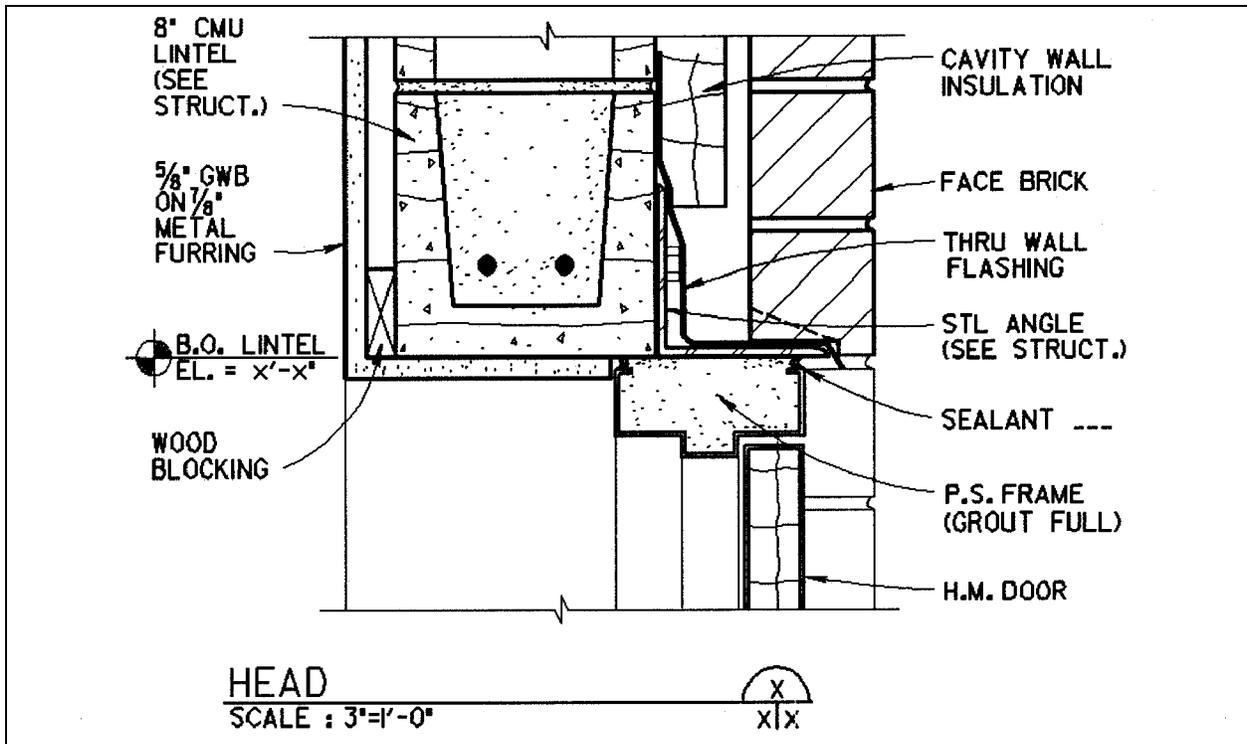


Figure 5. Text, dimensions, leader lines, and titles added to detail

Detail Naming

File names for the master set of details are based on *UniFormat Lite* (1998 Edition) produced by the Construction Specifications Institute (CSI) and the A/E/C CADD Standard. *UniFormat Lite* is used with permission from CSI. *UniFormat* may be purchased from CSI by calling (800) 689-2900. Level 1 and Level 2 *UniFormat Lite* categories are used for the first three alphanumeric characters of the file name. The Code, Sub-Code, Detail Number, and graphic type characters are non-*UniFormat* conventions developed specifically by the Center for the CADD Details Library file-naming methodology (see Figure 6).

EXAMPLE: B2016A-DT007X.dwg	
Level 1 Category:	B = Shell
Level 2 Category:	20 = Exterior Closure
Code:	1 = Exterior Walls
Sub-Code:	6 = Exterior Louvers, Grilles, and Screens
Discipline Designator:	A = Architectural
Model File Type:	DT = Detail
User Definable:	
Detail Number:	007 = Detail #007
Graphics Type:	
E = Elevation	P = Plan
I = Isometric	S = Schematic
N = Notes	X = Section

Figure 6. Naming convention. Note: A full listing of *UniFormat* categories and codes is outlined in Chapter 4, "Index of Details"

3 CADD Details Library, Retrieval and Use

Obtaining Electronic Version of Details

The details and all associated programs are available to users on CD-ROM by one of the following methods (please include your name and complete mailing address when submitting a request):

E-mail: *Steve.C.Spangler@erdc.usace.army.mil*
Mail: U.S. Army Engineer Research and Development Center
The CADD/GIS Technology Center
CEERD-ID-C/Spangler
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

The details are also available for downloading from the Internet at <http://cadlib.wes.army.mil>.

CADD Detail Manager

The library is supplied on CD-ROM with a menu-driven retrieval system called the CADD Detail Manager (CDM) (see Figure 7).

Within the CDM, details are cataloged in accordance with the Level 1 and Level 2 Categories of the CSI *UniFormat* Lite system. Details are located by selecting a Level 1 Category (e.g., Substructure, Shell, etc.), a Level 2 Category (e.g., Foundations, Basement Construction, etc.), and the Detail Code (e.g., Standard Foundations, Special Foundations, etc.) from the screen pull-down menus. A list of

details within the selected code will be displayed. Individual details may be previewed by selecting (highlighting) any detail listed in the display. The selection/placement process is completed by selecting the appropriate placement scale and inserting the detail into the drawing file.

To create a detail sheet, the following steps are used:

Step 1

Select whether inch-pound or metric details are required.

Step 2

Locate the desired detail by stepping through the pulldown menus in the CDM containing the *UniFormat* Level 1 and Level 2 Categories and the Detail Codes. A list will appear that presents the detail file name, description, and recommended scale. Select and preview the detail image by highlighting the detail name.

Step 3

Select the appropriate placement scale by clicking on the "Scale" button. The Scale Conversion Table will appear as shown in Figure 8. From this table, the appropriate Sheet Scale and Detail Scale are selected. For example, if the chosen detail has a recommended scale of 3/4 in. = 1 ft - 0 in., to place the detail correctly the user should select FULL for the

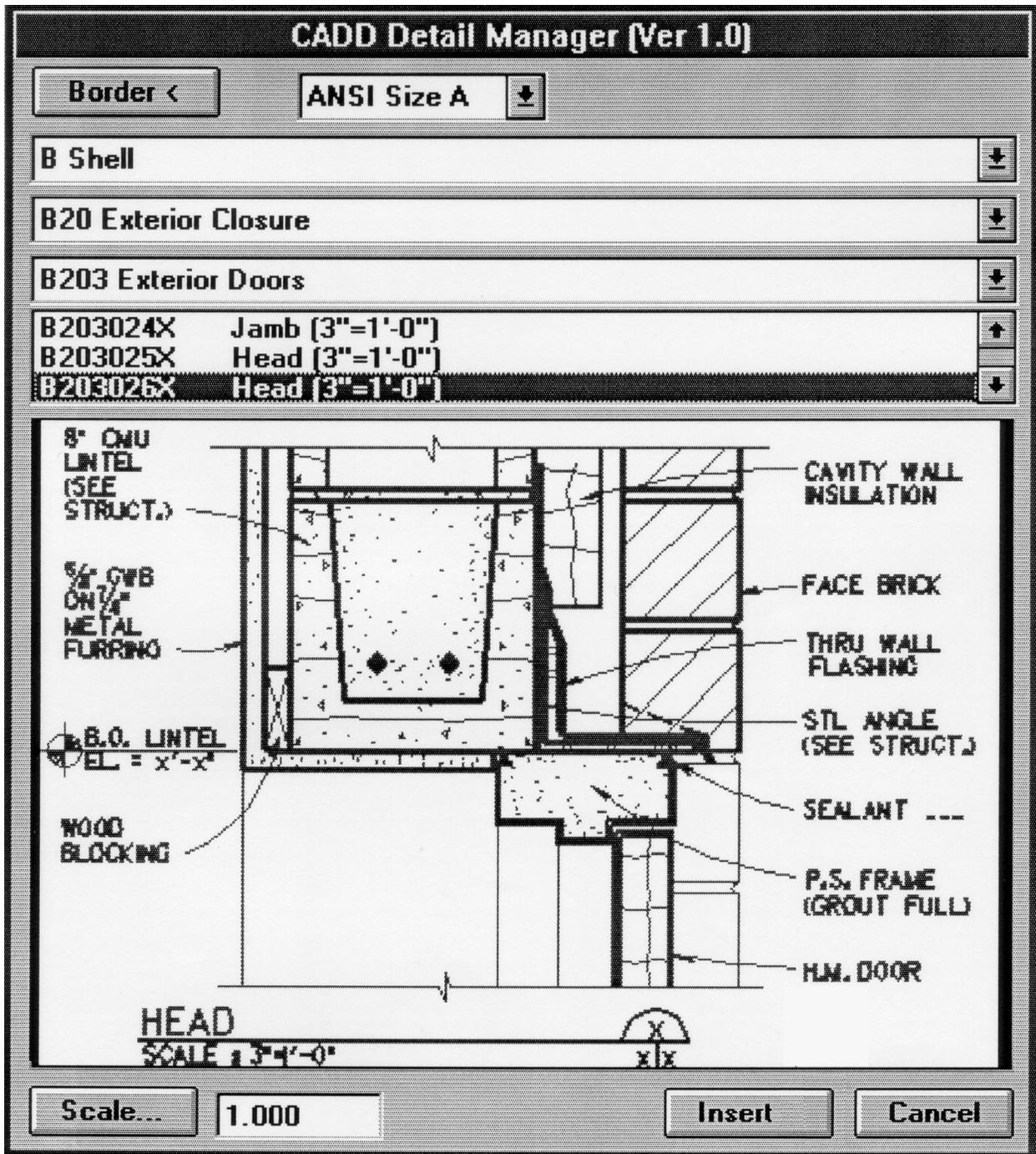


Figure 7. Example of AutoCAD CADD Detail Manager (MicroStation version similar)

Scale Conversion Table

Sheet Scale	Detail Scale
<input type="radio"/> 1/32"=1'-0"	<input type="radio"/> 1/32"=1'-0"
<input type="radio"/> 1/16"=1'-0"	<input type="radio"/> 1/16"=1'-0"
<input type="radio"/> 1/8"=1'-0"	<input type="radio"/> 1/8"=1'-0"
<input type="radio"/> 1/4"=1'-0"	<input type="radio"/> 1/4"=1'-0"
<input type="radio"/> 3/8"=1'-0"	<input type="radio"/> 3/8"=1'-0"
<input type="radio"/> 1/2"=1'-0"	<input type="radio"/> 1/2"=1'-0"
<input type="radio"/> 3/4"=1'-0"	<input type="radio"/> 3/4"=1'-0"
<input type="radio"/> 1"=1'-0"	<input type="radio"/> 1"=1'-0"
<input type="radio"/> 1-1/2"=1'-0"	<input type="radio"/> 1-1/2"=1'-0"
<input type="radio"/> 3"=1'-0"	<input type="radio"/> 3"=1'-0"
<input type="radio"/> 6"=1'-0"	<input type="radio"/> 6"=1'-0"
<input checked="" type="radio"/> FULL	<input checked="" type="radio"/> FULL

OK

Cancel

Figure 8. Scale conversion table

“Sheet Scale” (if no “Sheet Scale” is chosen, the program defaults to FULL) and 3/4 in. = 1 ft - 0 in. for the “Detail Scale.” Select the “OK” button and the CDM screen returns. (Note: For details that are Not to Scale (N.T.S.), select FULL for the “Detail Scale.”)

Step 4

Click on the “Insert” button and place the detail on the detail sheet.

Other project sheets

The user may also use the CDM to place details on sheets that are not Full Scale. For example, if a Floor Plan has been drawn Full

Size and will be plotted at a scale of 1/16 in. = 1 ft - 0 in., the user would locate the particular detail in the CDM and then click on the “Scale” button. If the detail to be inserted is at a scale of 3 in. = 1 ft - 0 in., the proper insertion scale for the detail would be chosen by selecting 1/16 in. = 1 ft - 0 in. for the “Sheet Scale” and 3 in. = 1 ft - 0 in. for the “Detail Scale.” The user would then click on the “Insert” button and place the detail. The final detail sheet would then be plotted at a scale of 1/16 in. = 1 ft - 0 in.

4 Index of Details

Note: “*” = .dgn/.dwg
“**” = metric version of detail
available

A SUBSTRUCTURE

A10 FOUNDATIONS

A101 Standard Foundations

- A1010 Misc. Standard Foundation Details
- A1011 Wall Foundations
- A1012 Column Foundations

A102 Special Foundations

- A1020 Misc. Special Foundation Details
- A1021 Driven Piles
- A1022 Bored/Augured Piles
- A1023 Shoring and Underpinning
- A1024 Dewatering
- A1025 Raft Foundations
- A1026 Cofferdams

A103 Slabs on Grade

- A1030 Misc. Slab on Grade Details
- A1031 Standard Slabs on Grade
- A1032 Structural Slabs on Grade
- A1033 Inclined Slabs on Grade
- A1034 Trenches
- A1035 Pits and Bases
- A1036 Subdrainage Systems
- A1037 Perimeter Insulation

A20 BASEMENT CONSTRUCTION

A201 Basement Excavation

- A2010 Misc. Basement Excavation Details
- A2011 Excavation for Basement
- A2012 Backfill and Compaction
- A2013 Excavation Support Systems

A202 Basement Walls

- A2020 Misc. Basement Wall Details
- A2021 Basement Wall Construction
- A2022 Basement Wall Vertical Waterproofing
- A2023 Basement Wall Dampproofing
- A2024 Basement Wall Vapor Retarders and Insulation
- A2025 Basement Wall Interior Skin

B SHELL

B10 SUPERSTRUCTURE

B101 Floor Construction

- B1010 Misc. Floor Construction Details
- B1011 Floor Structural Frame
- B1012 Structural Interior Walls Supporting Floors
- B1013 Floor Decks, Slabs and Sheathing
- B1014 Balcony Floor Construction
- B1015 Mezzanine Construction
- B1016 Ramps
- B1017 Floor Construction Vapor Retarders, Air Barriers, and Insulation
- B1018 Floor Construction Fireproofing
- B1019 Floor Construction Firestopping

B102 Roof Construction

- B1020 Misc. Roof Construction Details
- B1021 Roof Structural Frame
- B1022 Structural Interior Walls Supporting Roofs
- B1023 Roof Decks, Slabs, and Sheathing
- B1024 Canopies
- B1025 Roof Construction Vapor Retarders, Air Barriers, and Insulation
- B1026 Roof Construction Fireproofing
- B1027 Roof Construction Firestopping

B103 Typical Structural Details

B1030 Misc. Details

- **B1030S-DT001X.* - Column Sections
- **B1030S-DT002I.* - Column Detail
- **B1030S-DT003X.* - Pilaster Sections
- **B1030S-DT004E.* - Reinforcing Around Wall Openings

B1031 Steel Details

- **B1031S-DT001X.* - Partition Supports, Partial Height Wall Parallel to Joists
- **B1031S-DT002X.* - Partition Supports, Partial Height Wall Perpendicular to Joists

B1032 Concrete Details

B1033 CMU Details

- **B1033S-DT001I.* - Pilaster
- **B1033S-DT002I.* - Alternate End Cell Grouted Wall
- **B1033S-DT003I.* - Corner Detail, 6-Inch CMU Wall
- **B1033S-DT004I.* - Corner Detail, 8-Inch CMU Wall
- **B1033S-DT005I.* - Corner Detail, 12-Inch CMU Wall
- **B1033S-DT006I.* - Corner Detail, 6-Inch to 8-Inch CMU Wall
- **B1033S-DT007I.* - Corner Detail, 8-Inch to 12-Inch CMU Wall
- **B1033S-DT008X.* - Shelf Angle
- **B1033S-DT009X.* - Shelf Angle Option
- **B1033S-DT010I.* - Single Wythe Wall Fully Grouted
- **B1033S-DT011X.* - Single Wythe Wall, Section at Top of Wall
- **B1033S-DT012X.* - Single Wythe Wall, Section at Top of Wall
- **B1033S-DT013X.* - Single Wythe Wall, Section at Base (Conc. Found.)
- **B1033S-DT014X.* - Single Wythe Wall, Section at Base (CMU Found.)
- **B1033S-DT015X.* - Grouted Masonry Wall Section (Brick/Brick)
- **B1033S-DT016X.* - Grouted Masonry Wall Section (Brick/CMU)
- **B1033S-DT017I.* - Grouted Masonry Details
- **B1033S-DT018X.* - Bond Beam Corner
- **B1033S-DT019X.* - Bond Beam Intersection
- **B1033S-DT020I.* - Open End Units
- **B1033S-DT021I.* - Lintel Units
- **B1033S-DT022I.* - Pilaster Units
- **B1033S-DT023I.* - Corner Transition Units
- **B1033S-DT024X.* - Joint Reinforcement, Single Wythe Wall
- **B1033S-DT025X.* - Joint Reinforcement, Single Wythe Corner
- **B1033S-DT026X.* - Joint Reinforcement, Multiple Wythe Wall
- **B1033S-DT027X.* - Joint Reinforcement, Multiple Wythe Corner
- **B1033S-DT028P.* - Adjustable Ties
- **B1033S-DT029X.* - Brick Expansion Joint (B.E.J.)
- **B1033S-DT030X.* - CMU Control Joint (C.J.)
- **B1033S-DT031X.* - CMU Control Joint with Rubber Key

- **B1033S-DT032X.* - CMU Control Joint with Grout Key
- **B1033S-DT033X.* - Anchored Veneer Joint
- **B1033S-DT034X.* - Isolation Joint (Partition-Structural Wall)
- **B1033S-DT035X.* - Seismic Joint or Building Joint
- **B1033S-DT036X.* - Roof Connection Roof Slab
- **B1033S-DT037X.* - Roof Connection Roof Deck
- **B1033S-DT038X.* - Roof Connection Bar Joist
- **B1033S-DT039X.* - Roof Connection Between Joists
- **B1033S-DT040X.* - Interior Roof Connection, Shear Wall to Roof Deck
- **B1033S-DT041X.* - Bar Joist - Floor Connection
- **B1033S-DT042X.* - Floor Deck - Floor Connection
- **B1033S-DT043X.* - Steel Beam Floor Connection
- **B1033S-DT044X.* - Partition Supports, Full Height Wall Parallel to Joists
- **B1033S-DT045X.* - Partition Supports, Full Height Wall Perpendicular to Joists
- **B1033S-DT046I.* - Partially Grouted CMU, 16-Inch Reinforcement Spacing
- **B1033S-DT047I.* - Partially Grouted CMU, 24-Inch Reinforcement Spacing
- **B1033S-DT048I.* - Partially Grouted CMU, 32-Inch Reinforcement Spacing
- **B1033S-DT049I.* - Partially Grouted CMU, 40-Inch Reinforcement Spacing
- **B1033S-DT050I.* - Partially Grouted CMU, 48-Inch Reinforcement Spacing
- **B1033S-DT051I.* - Fully Grouted CMU, 16-Inch Reinforcement Spacing
- **B1033S-DT052I.* - Fully Grouted CMU, 24-Inch Reinforcement Spacing
- **B1033S-DT053I.* - Fully Grouted CMU, 32-Inch Reinforcement Spacing
- **B1033S-DT054I.* - Fully Grouted CMU, 40-Inch Reinforcement Spacing
- **B1033S-DT055I.* - Fully Grouted CMU, 48-Inch Reinforcement Spacing
- **B1033S-DT056E.* - Lintel
- **B1033S-DT057X.* - Lintel Sections with Stirrups
- **B1033S-DT058X.* - Lintel Section for Anchored Veneer
- **B1033S-DT059X.* - W-Shape Lintel Section for Anchored Veneer

B1034 Timber Details

B20 EXTERIOR CLOSURE

B201 Exterior Walls

B2010 Misc. Exterior Wall Details

- **B2010A-DT001X.* - Sealant Joint
- B2010A-DT003X.* - Wall Detail
- B2010A-DT004X.* - Wall Panel Expansion Joint Detail
- B2010A-DT005X.* - Wall Detail
- **B2010A-DT007X.* - Sealant Joint
- **B2010A-DT008X.* - Sealant Joint
- **B2010A-DT009X.* - Sealant Joint
- **B2010A-DT010X.* - Sealant Joint

**B2010A-DT011X.* - Sealant Joint
**B2010A-DT012X.* - Sealant Joint
**B2010A-DT013X.* - Sealant Joint
B2011 Exterior Wall Exterior Skin/Interior Skin

B2011A-DT001X.* - Metal Stud Partition
B2012 Exterior Wall Construction
**B2012S-DT001X.* - Anchored Veneer Section at Base (Concrete Found.)
**B2012S-DT002X.* - Anchored Veneer Section at Base (CMU Found.)
**B2012S-DT003X.* - Thru-Wall Flashing Option
**B2012S-DT004X.* - Adhered Thin Veneer Details

B2013 Exterior Wall Vapor Retarders, Air Barriers, and Insulation

B2014 Exterior Wall Assemblies

B2015 Parapets

B2016 Exterior Louvers, Grilles, and Screens

**B2016A-DT001X.* - Louver Head
B2016A-DT002X.* - Louver Detail (Head/Jamb)
**B2016A-DT004X.* - Louver Jamb
B2016A-DT005X.* - Louver Detail (Sill)
**B2016A-DT006X.* - Head Detail
**B2016A-DT007X.* - Louver Jamb
**B2016A-DT008X.* - Louver Sill
B2016A-DT009X.* - Head (Louver) Detail
**B2016A-DT010X.* - Louver Sill
B2016A-DT011X.* - Head Detail
B2016A-DT012X.* - Sill (Louver) Detail
B2016A-DT013X.* - Louver Head
B2016A-DT014X.* - Head Detail/Jamb/Sill
B2016A-DT015X.* - Head Detail
**B2016A-DT016X.* - Louver Jamb
B2016A-DT017X.* - Head Detail
**B2016A-DT018X.* - Louver Sill
B2016A-DT019X.* - Jamb Detail
B2016A-DT020X.* - Sill Detail

B2017 Exterior Protection Devices for Openings

B2017A-DT001X.* - Pipe Guard Detail

B2018 Exterior Balcony Walls and Railings

B2019 Exterior Soffits

B202 Exterior Windows

B2020 Misc. Exterior Window Details
B2020A-DT001X.* - Aluminum Window Jamb Detail
**B2020A-DT002X.* - Head Detail
B2020A-DT003X.* - Jamb Detail
**B2020A-DT004X.* - Head Detail
**B2020A-DT005X.* - Head/Jamb Detail
B2020A-DT006X.* - Head Detail
**B2020A-DT007X.* - Jamb Detail
**B2020A-DT008X.* - Jamb Detail
B2020A-DT009X.* - Head Detail
B2020A-DT010X.* - Jamb Detail

**B2020A-DT011X.* - Sill Detail
**B2020A-DT012X.* - Sill Detail
B2020A-DT013X.* - Head/Sill Detail
B2020A-DT014X.* - Sill Detail
B2020A-DT015X.* - Sill Detail
**B2020A-DT016X.* - Sill Detail
B2020A-DT017X.* - Sill Detail
**B2020A-DT018X.* - Jamb Detail
B2020A-DT019X.* - Head Detail
**B2020A-DT020X.* - Sill Detail
B2020A-DT021X.* - Window Sill Detail
**B2020A-DT022X.* - Jamb Detail
**B2020A-DT023X.* - Window Head Detail
**B2020A-DT024X.* - Window Sill Detail
B2020A-DT025X.* - Aluminum Window Detail
**B2020A-DT026X.* - Head Detail
**B2020A-DT027X.* - Sill Detail
**B2020A-DT028X.* - Window Jamb Detail

B2021 Exterior Standard Windows

B2022 Storefronts

B2023 Glazed Curtain Walls

B2024 Exterior Special Windows

B203 Exterior Doors

B2030 Misc. Exterior Door Details

**B2030A-DT001X.* - Head Detail
**B2030A-DT002X.* - Head Detail
B2030A-DT003X.* - Head Detail
**B2030A-DT004X.* - Head Section
**B2030A-DT005X.* - Jamb Detail
B2030A-DT006X.* - Jamb Detail
B2030A-DT007X.* - Jamb Detail
**B2030A-DT008X.* - Head Detail
B2030A-DT009X.* - Head Detail
**B2030A-DT010X.* - Head Detail
**B2030A-DT012X.* - Jamb Detail
**B2030A-DT013X.* - Head Detail
B2030A-DT014X.* - Head Detail
B2030A-DT015X.* - Head Detail
**B2030A-DT016X.* - Jamb Detail
**B2030A-DT017X.* - Head Detail
**B2030A-DT018X.* - Head Detail
B2030A-DT019X.* - Head/Jamb Detail
B2030A-DT021X.* - Head Detail
**B2030A-DT022X.* - Jamb Detail
B2030A-DT023X.* - Head Detail
**B2030A-DT024X.* - Jamb Detail
**B2030A-DT026X.* - Head Detail
**B2030A-DT027X.* - Head Detail
**B2030A-DT028X.* - Head/Jamb Detail
**B2030A-DT029X.* - Head/Jamb Detail
**B2030A-DT030X.* - Jamb Detail
B2030A-DT031X.* - Jamb Detail
**B2030A-DT032X.* - Sill Detail
**B2030A-DT033X.* - Sill Detail
**B2030A-DT034X.* - Sill Detail
B2030A-DT035X.* - Sill Detail
B2030A-DT036X.* - Sill Detail
B2030A-DT037X.* - Sill Detail

B2030A-DT038X.* - Sill Detail
 **B2030A-DT039X.* - Sill Detail
 B2030A-DT040X.* - Sill Detail
 B2030A-DT041X.* - Sill Detail
 B2030A-DT042X.* - Sill Detail
 B2030A-DT043X.* - Sill Detail
 B2030A-DT044X.* - Sill Detail
 **B2030A-DT045X.* - Threshold Detail
 B2030A-DT046X.* - Jamb Detail
 B2030A-DT048X.* - Sill Detail
 **B2030A-DT049X.* - Sill Detail
 **B2030A-DT050X.* - Sill Detail
 B2030A-DT051X.* - Sill Detail
 **B2030A-DT052X.* - Sealant Joint
 **B2030A-DT053X.* - Sealant Joint
 **B2030A-DT054X.* - Sealant Joint
 B2030A-DT055X.* - Sill Detail
 B2030A-DT056X.* - Sill Detail
B2031 Exterior Entrance Doors
B2032 Exterior Utility Doors
 B2032A-DT001X.* - Hanger Door Head Detail
 **B2032A-DT002X.* - Pilot Door Head Detail
 (Jamb Sim.)
 **B2032A-DT003X.* - Semi-Recessed F.E.C.
 Head Detail
 B2032A-DT004X.* - Hanger Door Meeting Edge
 B2032A-DT005X.* - Hanger Door Weatherseal
 B2032A-DT006X.* - Pilot Door Sill Detail
 B2032A-DT007X.* - Semi-Recessed F.E.C.
 B2032A-DT008X.* - Hanger Door Jamb Detail
 B2032A-DT009X.* - Hanger Door Jamb Detail Above
 CMU Wainscot
 B2032A-DT010X.* - Jamb Detail
 B2032A-DT011X.* - Vertical Lift Door Head
 B2032A-DT012X.* - Vertical Lift Door Head
 B2032A-DT013X.* - Sill Detail
 B2032A-DT014X.* - Jamb Detail
 B2032A-DT015X.* - Vertical Lift Door Head
 **B2032A-DT016X.* - Door Jamb
 **B2032A-DT017X.* - Head Detail
 **B2032A-DT018X.* - Door Sill
 **B2032A-DT019X.* - Door Head
 B2032A-DT020X.* - Sill Detail
 **B2032A-DT021X.* - Door Jamb
 **B2032A-DT022X.* - Sill Detail
 **B2032A-DT023X.* - Jamb Detail
 **B2032A-DT024X.* - Head Detail
 B2032A-DT025X.* - Sill Detail
 B2032A-DT026X.* - Sill Detail
 **B2032A-DT027X.* - Jamb Detail
 **B2032A-DT028X.* - Sill Detail
 **B2032A-DT029X.* - Jamb Detail
 **B2032A-DT030X.* - Head Detail
 **B2032A-DT031X.* - Sill Detail
B2033 Large Exterior Special Doors
B2034 Special Use Exterior Doors
B2035 Exterior Gates

B30 ROOFING

B301 Roof Coverings

B3010 Misc. Roof Covering Details

**B3010A-DT002X.* - Lightning Protection - Air
 Terminal
 B3010A-DT003X.* - Detail at Roof Access Door
 **B3010A-DT004X.* - Curb Detail
 B3010A-DT005X.* - Roof Relief Joint Detail
 **B3010A-DT006X.* - Roof Scuttle
 **B3010A-DT007X.* - Roof Drain Details
 **B3010A-DT009X.* - Plumbing Vent Detail
 **B3010A-DT010X.* - Roof Detail
 **B3010A-DT011X.* - Roof Detail
 **B3010A-DT012X.* - Conductor Head Detail
 **B3010A-DT013X.* - Roof Detail
 **B3010A-DT014X.* - Rake Detail
 B3010A-DT015X.* - Rake Detail
 **B3010A-DT016X.* - Gable Rake Detail
 **B3010A-DT017X.* - Roof Vent Detail
 B3010A-DT018X.* - Rake Detail
 B3010A-DT020X.* - Metal Ridge Cover Detail
 B3010A-DT021X.* - Roof Ridge Detail
 B3010A-DT022X.* - Roof Edge Detail
 B3010A-DT023X.* - Rake Detail
 B3010A-DT024I.* - Downspout Strap Detail
 **B3010A-DT025X.* - Eave Detail
 B3010A-DT026X.* - Roof Edge Detail
 B3010A-DT027X.* - Boiler Stack Detail
 B3010A-DT028X.* - Expansion Joint Detail
 B3010A-DT029X.* - Lightning Protection - Air
 Terminal
 B3010A-DT030X.* - Roof Edge Detail
 B3010A-DT031X.* - Rake Detail
 B3010A-DT032X.* - Plumbing Vent Detail
 B3010A-DT033X.* - Roof Detail
 B3010A-DT034X.* - Fascia Detail
 B3010A-DT035I.* - Snowguard Detail
 B3010A-DT036X.* - Furnace Flue Detail
 B3010A-DT037X.* - Expansion Joint
 B3010A-DT038X.* - Edge Detail
 B3010A-DT039X.* - Vent Stack
 B3010A-DT040X.* - Expansion Joint
 B3010A-DT041X.* - Seam Lap Detail
 B3010A-DT042X.* - Gutter Detail
 B3010A-DT043X.* - Curb Flashing
 B3010A-DT044X.* - Roof Edge Detail
 B3010A-DT045X.* - Roof Edge Detail
 B3010A-DT046X.* - Ridge Detail
 B3010A-DT047X.* - Rake Detail
 B3010A-DT048X.* - Valley Detail
 B3010A-DT049X.* - Fascia Detail
 B3010A-DT050X.* - Rake/Gable Detail
 B3010A-DT051X.* - Downspout Detail (Typ.)
 B3010A-DT052X.* - Curb Detail
 B3010A-DT053X.* - Eave Detail
 B3010A-DT054X.* - Curb Detail

- B3011 Deck Vapor Retarders and Insulation
- B3012 Shingles and Roofing Tiles
- B3013 Manufactured Roofing
- B3014 Membrane Roofing
- B3015 Traffic Coatings
- B3016 Sheet Metal Roofing
- B3017 Flashing and Sheet Metal
- B3018 Roof Specialties and Accessories
- B3019 Manufactured Exterior Specialties

B302 Roof Openings

- B3020 Misc. Roof Opening Details
- B3021 Skylights

C INTERIORS

C10 INTERIOR CONSTRUCTION

C101 Interior Partitions

C1010 Misc. Interior Partition Details

- C1010A-DT001X.* - Door Pocket
- C1010A-DT003X.* - Elevation at Joist Pocket
- C1010A-DT004X.* - Wall Detail at Joist Pocket
- C1010A-DT005X.* - Head Detail
- C1010A-DT006X.* - Wall Latch Detail
- C1010A-DT007X.* - CMU Partition Bracing Detail
- C1010A-DT008X.* - Partition Wall Bracing
- C1010A-DT009X.* - Caging Detail
- C1010A-DT010X.* - Caging Detail
- C1010A-DT011X.* - Caging Door Detail
- C1010A-DT012X.* - Caging Door Detail
- C1010A-DT013X.* - Caging Door Detail
- C1010A-DT014X.* - Caging Door Detail
- C1010A-DT015X.* - Wire Mesh Detail
- C1010A-DT016E.* - Wire Mesh Detail
- C1010A-DT017X.* - Wire Mesh Detail
- C1010A-DT018X.* - Wire Mesh Door Jamb Detail
- C1010A-DT019X.* - Wire Mesh Detail
- C1010A-DT020X.* - Wire Mesh Shelving
- C1010A-DT021X.* - Expansion Joint Detail
- C1010A-DT022X.* - Expansion Joint Detail
- C1010A-DT023X.* - Fire Rated Gypsum Detail
- C1010A-DT024X.* - Typical Expansion Joint
- C1010A-DT025X.* - Fire Rated Column Detail
- C1010A-DT026X.* - Fire Rated Column Detail
- C1010A-DT027X.* - Wall Detail
- C1010A-DT028X.* - Fire Rated Wall Detail
- C1010A-DT029X.* - Gypsum Wall Detail
- C1010A-DT030X.* - Gypsum Wall Detail
- C1010A-DT031X.* - Jamb Detail
- C1010A-DT032X.* - Gypsum Wall Detail
- C1010A-DT033X.* - Gypsum Wall Detail
- C1010A-DT035X.* - Concrete Masonry Unit (GWB One Side)
- C1010A-DT036X.* - Concrete Masonry Unit (GWB Each Side)

- C1010A-DT037X.* - Concrete Masonry Unit (Cer. Tile One Side)
- C1010A-DT038X.* - Concrete Masonry Unit (Cer. Tile One Side)
- C1010A-DT040X.* - Plumbing Chase (Pre-Glazed One Side)
- C1010A-DT043X.* - Metal Stud Partition (GWB One Side)
- C1010A-DT044X.* - Metal Stud Partition (GWB Each Side)
- C1010A-DT045X.* - Metal Stud Partition (Cer. Tile/GWB)
- C1010A-DT046X.* - Metal Stud Partition (GWB/GRC Board)
- C1010A-DT047X.* - Metal Stud Partition (Cer. Tile One Side)
- C1010A-DT048X.* - Metal Stud Partition (Cer. Tile Each Side)
- C1010A-DT049X.* - Plumbing Chase (Cer. Tile Room Side)
- C1010A-DT050X.* - Metal Stud Partition (GWB Each Side)
- C1010A-DT051X.* - Metal Stud Partition (Cer. Tile/GWB)
- C1010A-DT052X.* - Existing CMU (GWB Each Side)
- C1010A-DT053X.* - Existing CMU (GWB Each Side)
- C1010A-DT054X.* - Existing CMU (GWB/ Metal Wall)
- C1010A-DT055X.* - Plumbing Chase (Cer. Tile One Side)
- C1010A-DT056X.* - Head Detail
- C1010A-DT057X.* - Head Detail
- C1010A-DT058X.* - Head Detail
- C1010A-DT059X.* - Head/Sill Detail
- C1010A-DT060X.* - Head Detail
- C1010A-DT061X.* - Jamb Detail
- C1010A-DT062X.* - Jamb Detail
- C1010A-DT063X.* - Jamb Detail
- C1010A-DT064X.* - Jamb Detail
- C1010A-DT065X.* - Sill Detail
- C1010A-DT066X.* - Sill Detail
- C1010A-DT067X.* - Sill Detail
- C1010A-DT068X.* - Service Window Sill Detail (Block Wall)
- C1010A-DT069X.* - Service Window Section w/Counter
- C1010A-DT070X.* - Service Window Section
- C1010A-DT072X.* - Jamb Detail
- C1010A-DT073X.* - Head Detail
- C1010A-DT074X.* - Jamb Detail
- C1010A-DT075X.* - Jamb Detail
- C1010A-DT077X.* - Jamb Detail
- C1010A-DT078X.* - Wall Type Detail
- C1010A-DT079X.* - Wall Type Detail
- C1010A-DT080X.* - Wall Type Detail
- C1010A-DT081X.* - Wall Type Detail
- C1010A-DT082X.* - Wall Type Detail (1 Hr. Fire Rated)
- C1010A-DT083X.* - Wall Type Detail (1 Hr. Fire Rated)



- C1010A-DT084X.* -Wall Type Detail (1 Hr. Fire Rated)
- C1010A-DT086X.* -Wall Type Detail (1 Hr. Fire Rated)
- C1010A-DT087X.* - Wall Type Detail (1 Hr. Fire Rated)
- C1010A-DT088X.* - Wall Type Detail
- C1010A-DT089X.* - Wall Type Detail
- C1010A-DT090X.* - Wall Type Detail
- C1010A-DT091X.* - Wall Type Detail
- C1010A-DT092X.* - Wall Type Detail
- C1010A-DT093X.* - Wall Type Detail (1 Hr. Fire Rated)
- C1011 Interior Fixed Partitions
- C1012 Interior Demountable Partitions
- C1013 Interior Operable Partitions
- C1014 Interior Balustrades and Screens
- C1015 Interior Windows
- C1016 Interior Glazed Partitions and Storefront
- C1017 Interior Partition Firestopping

- C102 Interior Doors**
- C1020 Misc. Interior Door Details
 - C1020A-DT001X.* - Head Detail
 - C1020A-DT002X.* - Head Detail
 - C1020A-DT003X.* - Jamb Detail
 - C1020A-DT004X.* - Jamb Detail
 - C1020A-DT005X.* - Jamb Detail
 - C1020A-DT006X.* - Head Detail
 - C1020A-DT007X.* - Head Detail
 - C1020A-DT008X.* - Head Detail
 - C1020A-DT009X.* - Jamb Detail
 - C1020A-DT010X.* - Jamb Detail
 - C1020A-DT011X.* - Jamb Detail
 - C1020A-DT012X.* - Head Detail
 - C1020A-DT013X.* - Jamb Detail
 - C1020A-DT014X.* - Head Detail
 - C1020A-DT016X.* - Head Detail
 - C1020A-DT017X.* - Head Detail
 - C1020A-DT018X.* - Jamb Detail
 - C1020A-DT019X.* - Sill Detail
 - C1020A-DT021X.* - Sill Detail
 - C1020A-DT022X.* - Sill Detail
 - C1020A-DT023X.* - Sill Detail
 - C1020A-DT024X.* - Sill Detail
 - C1020A-DT025X.* - Sill Detail
 - C1020A-DT027X.* - Sill Detail
 - C1020A-DT029X.* - Sill Detail
 - C1020A-DT031X.* - Sill Detail
 - C1020A-DT034X.* - Sill Detail
 - C1020A-DT036X.* - Head Detail
 - C1020A-DT038X.* - Head Detail
 - C1020A-DT039X.* - Head Detail
- C1021 Interior Swinging Doors
- C1022 Interior Entrance Doors
- C1023 Interior Fire Rated Doors

- C1024 Interior Sliding and Folding Doors
- C1025 Interior Large Doors
- C1026 Interior Special Use Doors
- C1027 Interior Gates

- C103 Interior Specialties**
- C1030 Misc. Interior Specialty Details
 - C1030A-DT001X.* - Door Elevation at Hoist Beam
 - C1030A-DT002X.* - Hoist Beam Penetration Detail
 - C1030A-DT003X.* - Head Detail
 - C1030A-DT004X.* - Jamb Detail
 - C1030A-DT005X.* - Sill Detail
 - C1030A-DT006X.* - Head Detail
 - **C1030I-DT007P.* - Toilet Rooms (Stalls)
 - **C1030I-DT008P.* - Toilet Rooms (Open)
 - **C1030I-DT009E.* - Toilet Room Elevations
 - **C1030I-DT010P.* - Wheelchair Turning Layouts
 - **C1030I-DT011P.* - Wheelchair Turning Layouts
 - **C1030I-DT012P.* - Swinging Door Layout
 - **C1030I-DT013P.* - Sliding Door Layout
 - **C1030I-DT014P.* - Lavatories
 - **C1030I-DT015P.* - Drinking Fountains
 - **C1030I-DT016E.* - Phone/Handicap Sign
 - **C1030I-DT017E.* - Rest Room Signs
 - **C1030I-DT018E.* - Signage Mounting Heights
 - **C1030I-DT019E.* - Non-Illuminated Exit Sign
 - **C1030I-DT020E.* - Directional Sign
 - **C1030I-DT021E.* - Office Identification Signs
 - **C1030I-DT022E.* - Mounting Heights – Ident. Signs
 - **C1030I-DT023E.* - Bulletin/Tack Board
 - **C1030I-DT024X.* - Section Thru Bulletin Board
 - **C1030I-DT025X.* - Sign Sections
 - **C1030I-DT026X.* - Ext. Bldg Mtd. Sign – Mounting Plate
 - **C1030I-DT027N.* - Signage Schedule
- C1031 Visual Display Boards, Telephones, Identifying Devices, and Postal Specialties
 - C1031A-DT001E.* - Bulletin Board Detail
 - C1031A-DT001X.* - Bulletin Board Section
 - C1031A-DT002X.* - Telephone Cabinet Detail
 - C1031A-DT003X.* - Marker Board Detail
 - **C1031I-DT004E.* - Telephone Station
- C1032 Compartments and Cubicles
 - C1032A-DT001X.* - Toilet Partition Hanger Detail
 - C1032A-DT002X.* - Shower Detail
 - C1032A-DT003X.* - Shower Wall Detail
- C1033 Interior Louvers and Vents
- C1034 Service Wall Systems and Wall and Corner Guards
 - **C1034I-DT001X.* - Wainscot w/Vinyl Chair Rail
 - **C1034I-DT002X.* - Wood Wainscot
 - **C1034I-DT003X.* - Bumper Rails
 - **C1034I-DT004X.* - Corner Guards
- C1035 Fireplaces and Stoves
 - **C1035I-DT001E.* - Fireplace Finish
 - **C1035I-DT002E.* - Fireplace Finish

- C1036 Pedestrian Control Devices
- C1037 Lockers, Wardrobes, Closet,
Storage, and Shelving Specialties
- C1038 Toilet and Bath Accessories (Scales)
C1038A-DT001X.* - Mirror Details

C20 STAIRS

C201 Stair Construction

- C2010 Misc. Stair Construction Details
 - C2010A-DT001E.* - Fixed Ladder Elevation
 - C2010A-DT001X.* - Metal Stair Landing Detail
 - C2010A-DT002X.* - Metal Stair Tread Detail
 - C2010A-DT003X.* - Stair Landing Detail
 - C2010A-DT004X.* - Stair Detail
 - C2010A-DT005X.* - Stair Detail
- C2011 Cast-in-Place Stair Construction
- C2012 Precast Concrete Stair Construction
 - C2012A-DT001X.* - Stair Detail
 - C2012A-DT002X.* - Stair Detail
 - C2012A-DT003X.* - Bottom Stair Detail
- C2013 Metal Stair Construction
 - C2013A-DT001X.* - Top Metal Stair Detail
 - C2013A-DT002E.* - Bottom Metal Stair Detail
 - C2013A-DT002X.* - Landing Detail
 - C2013A-DT003E.* - Metal Stair Detail
 - C2013A-DT003X.* - Metal Stair Detail
 - C2013A-DT004X.* - Top Metal Stair w/Square Tube
Posts and Rails
 - C2013A-DT005X.* - Metal Stair Detail
 - C2013A-DT006X.* - Landing Detail
 - C2013A-DT007X.* - Landing Detail
 - C2013A-DT008X.* - Landing Detail
 - C2013A-DT009X.* - Landing Detail
 - C2013A-DT010X.* - Metal Stair Detail
 - C2013A-DT011X.* - Landing Detail
 - C2013A-DT012X.* - Tread Detail
- C2014 Wood Stair Construction
- C2015 Fire Escapes

C202 Stair Finishes

- C2020 Misc. Stair Finish Details
- C2021 Tile Stair Finishes
- C2022 Terrazzo Stair Finishes
- C2023 Stone Stair Finishes
- C2024 Unit Masonry Stair Finishes
- C2025 Resilient Stair Finishes
- C2026 Carpet Stair Finishes
- C2027 Special Flooring Stair Finishes
- C2028 Stair Treatment/Painting
- C2029 Stair Railings/Soffits
 - C2029A-DT001X.* - Handrail Mounting Detail
 - **C2029I-DT002X.* - Handrail Sections
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C301 Wall Finishes

- C3010 Misc. Wall Finish Details
- C3011 Concrete Wall Finishes
- C3012 Wood Wall Paneling
- C3013 Lath and Plaster Wall Finishes
- C3014 Gypsum Board Wall Finishes
- C3015 Tile and Terrazzo Wall Finishes
- C3016 Stone Facing and Acoustical Wall
Finishes
- C3017 Special Wall Finishes
- C3018 Wall Carpet
- C3019 Interior Wall Painting, Wall
Coverings, and Special Interior
Wall Coatings

C302 Floor Finishes

- C3020 Misc. Floor Finish Details
 - C3020A-DT001X.* - Base Detail
 - C3020A-DT002X.* - Expansion Joint Detail
 - C3020A-DT003X.* - Expansion Joint Detail
 - C3020A-DT004X.* - Expansion Joint Detail
 - C3020A-DT005X.* - Expansion Joint Detail
 - C3020A-DT006X.* - Sealant Joint
 - C3020A-DT007X.* - Sealant Joint
- C3021 Concrete Floor Finishes
- C3022 Tile Floor Finishes
- C3023 Terrazzo Floor Finishes
- C3024 Wood Flooring
- C3025 Stone Flooring
- C3026 Unit Masonry Flooring
- C3027 Resilient Flooring
- C3028 Carpet Flooring
- C3029 Access and Special Flooring, Floor
Treatment, and Floor Painting
 - C3029A-DT001X.* - Ramp Detail
 - C3029A-DT002X.* - Raised Floor Detail
 - C3029A-DT003X.* - Raised Floor Detail
 - C3029A-DT004X.* - Raised Floor Acoustical Wall
Detail

C303 Ceiling Finishes

- C3030 Misc. Interior Ceiling Finish
Details
 - C3030A-DT001X.* - Lay-In Ceiling Detail
 - C3030A-DT002X.* - Lay-In Ceiling Detail
 - C3030A-DT003X.* - Lay-In Ceiling Detail
 - C3030A-DT004X.* - Lay-In Ceiling Detail
 - C3030A-DT005X.* - Lay-In Ceiling Detail
 - C3030A-DT006X.* - Lay-In Ceiling Detail
 - C3030A-DT007X.* - Plaster Ceilings Detail
 - C3030A-DT008X.* - Plaster Ceilings Detail

C3030A-DT009X.* - Lay-In Ceiling Detail
 C3030A-DT010X.* - Lay-In Ceiling Detail
 C3030A-DT011X.* - Gypsum Ceiling Detail
 C3030A-DT012X.* - Plaster Ceiling Detail
 C3030A-DT013X.* - Plaster Ceiling Detail
 C3030A-DT014X.* - Lay-In Ceiling Detail
 C3030A-DT015X.* - Lay-In Ceiling Detail
 C3030A-DT016X.* - Plaster Ceiling Detail
 C3030A-DT017X.* - Ceiling Access Panel
 C3030A-DT018X.* - Plaster Ceiling Detail
 C3030A-DT019X.* - Ceiling Control Joint Details

C3031 Concrete Ceiling Finishes
 C3032 Wood Ceiling Paneling
 C3033 Lath and Plaster Ceiling Finishes
 C3034 Gypsum Board Ceiling Finishes
 C3035 Acoustical Ceiling Treatment
 C3036 Special Ceiling Surfaces
 C3037 Special Ceiling Coatings
 C3038 Interior Ceiling Painting

D SERVICES

D10 CONVEYING SYSTEMS

D101 Elevators and Lifts

D1010 Misc. Details
 D1011 Dumbwaiters
 D1012 Elevators
 D1013 Lifts

D102 Escalators and Moving Walks

D1020 Misc. Details
 D1021 Escalators
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 D1023 Aircraft Passenger Loading Systems

D103 Materials Handling

D1030 Misc. Details
 D1031 Material Handling Systems
 D1032 Bridgecranes
 **D1032M-DT001E.* - Crane Clearance Diagram
 **D1032M-DT002E.* - Crane End Truck Arrangement
 **D1032M-DT004E.* - Crane Transfer/Interlock Mechanism
 D1034 Jib Cranes
 **D1034M-DT001E.* - Jib Crane Detail
 D1035 Misc. Hoists
 D1036 Turntables
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 D1038 Special Crane Supports

D109 Other Conveying Systems

D1090 Misc. Details
 D1091 Monorails

D20 PLUMBING SYSTEMS

D201 Plumbing Fixtures

D2010 Misc. Plumbing Fixture Details
 **D2010P-DT002E.* - Flush Valve Support Detail
 **D2010P-DT006E.* - Clothes Washer Connection Detail
 **D2010P-DT008E.* - Drain Valve Detail
 **D2010P-DT009I.* - Backup Plate for Lavatories and Urinals for Masonry Walls
 **D2010P-DT010E.* - Typical Mounting for Cast Iron Lavatories on Masonry Walls
 **D2010P-DT012E.* - Hot/Cold Water Mixing Gooseneck Faucet Detail
 **D2010P-DT013E.* - Lavatory Mounting for Metal Studs
 **D2010P-DT015E.* - Freeze-Proof Wall Hydrant
 **D2010P-DT016E.* - Freeze-Proof Yard Hydrant (Box Type)
 **D2010P-DT017E.* - Yard Hydrant (Post Type)
 D2011 Water Closets
 D2012 Urinals
 D2013 Lavatories
 **D2013P-DT001E.* - Lavatory Tailpiece Detail
 D2014 Sinks
 **D2014P-DT001X.* - Mop Sink Detail
 **D2014I-DT002X.* - Lavatory w/Recessed Light
 D2015 Showers
 **D2015P-DT001E.* - Emergency Shower with Eye Wash
 **D2015P-DT002E.* - Emergency Shower with Eye Wash Detail
 **D2015P-DT003E.* - Safety Shower - Eye Wash Detail
 **D2015P-DT006E.* - Frost-Proof Drench Shower and Eye Wash Unit
 D2015H-DT007E.* - Emergency Shower and Eye Wash Detail
 D2016 Bathtubs
 D2017 Basins
 D2018 Drinking Fountains/Coolers
 **D2018P-DT002E.* - Free Standing Drinking Water Cooler
 **D2018P-DT003E.* - Wall-Hung Drinking Water Cooler
 **D2018P-DT004E.* - Semi-Recessed Drinking Water Cooler
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 D2019 Other Plumbing Fixture Details
 **D2019P-DT002E.* - Emergency Eyewash Detail
 **D2019P-DT003E.* - Wall Mounted Emergency Eyewash Detail
 **D2019P-DT005E.* - Typical Water Hammer Panel Installation

- **D2019P-DT006E.* - Freeze-Proof Yard Hydrant Detail
- **D2019P-DT007E.* - Backflow Preventer Detail
- **D2019P-DT008E.* - Washing Machine Hook-Up Detail
- **D2019P-DT009E.* - Washing Machine Water Connection Detail
- **D2019P-DT011E.* - Laundry Sink Drain Connection Detail

D202 Domestic Water Distribution

D2020 Misc. Details

- D2020P-DT001E.* - Water Meter Configuration (Less than 2 Inches)
- D2020P-DT002E.* - Water Turbine Meter Configuration (Greater than 6 Inches)
- D2020P-DT003E.* - Safety Valve Detail
- D2020P-DT004S.* - Dual Pump Hot Water Piping Schematic
- D2020P-DT007E.* - Typical Concrete Floor or Masonry Wall Penetration
- D2020P-DT008E.* - Typical Fire-Proof Framed Wall Penetration
- D2020P-DT009E.* - Typical Insulated Pipe Wall Penetration
- D2020P-DT010E.* - Piping Wall Penetration Detail
- D2020P-DT011E.* - Cast Iron Piping Building Penetration Detail
- D2020P-DT012S.* - Typical In-Line Pump Detail
- D2020P-DT013E.* - Typical Membrane Waterproof Floor Penetration Detail
- D2020P-DT014E.* - Grade Beam Pipe Penetration Detail
- D2020P-DT015E.* - Piping Thru Roof

D2021 Water Supply Piping Systems

- D2021P-DT001X.* - Water System Service Entrance for Bldgs. with Basements
- D2021P-DT002X.* - Water System Service Entrance for Bldgs. on Slabs
- D2021P-DT003S.* - Backflow Preventer Detail
- D2021P-DT004S.* - Domestic Hot Water Piping Schematic

D2022 Water Supply Plumbing Specialties

- D2022P-DT001X.* - Typical Wall Penetration Detail
- D2022P-DT002X.* - Pipe Sleeve Detail
- D2022P-DT003E.* - Trap Seal Primer Detail
- D2022P-DT004X.* - Wall Pipe Sleeve Detail
- D2022P-DT005E.* - Typical Air and Water Drop Detail
- D2022P-DT006X.* - Valve Box Detail
- D2022P-DT007X.* - Pipe Sleeve Thru Interior Wall
- D2022P-DT008X.* - Pipe Sleeve Thru Exterior Wall
- D2022P-DT009E.* - Thrust Block Details

D2023 Water Supply Equipment

- D2023P-DT001E.* - Typical In-Line Pump Detail
- D2023P-DT003E.* - Domestic Hot Water Circulating Pump
- D2023P-DT005E.* - Piping Wall Penetration Detail
- D2023P-DT011S.* - ICW Booster Pump Detail

D2024 Water Supply Insulation

- D2024P-DT001X.* - Flexible Pipe Insulation Detail

D2025 Electric Water Heater

- D2025P-DT001E.* - Floor Mounted Electric Water Heater
- D2025P-DT003E.* - Floor Mounted Electric Water Heater (Isometric)
- D2025P-DT004E.* - Domestic Electric Water Heater
- D2025P-DT005E.* - Wall Mounted Electric Water Heater

D2026 Gas Fired Water Heater

- D2026P-DT001E.* - Gas Fired Floor Mounted Water Heater (Isometric)
- D2026P-DT003E.* - Gas Fired Water Heater with Recirculating Loop
- D2026P-DT004E.* - Gas Fired Water Heater Connections
- D2026P-DT006E.* - Gas Fired Water Heater (Two Tank System)

D203 Sanitary Waste Systems

D2030 Misc. Details

- D2030P-DT002P.* - Typical Sump Pump Detail
- D2030P-DT003P.* - Sump Pump and Sump Pit Detail
- D2030P-DT004P.* - Sump Basin Detail
- D2030P-DT005P.* - Sump Basin Installed in Concrete Pit
- D2030P-DT006P.* - Sewage Injector Basin and Pit

D2031 Waste and Vent Piping Systems

- D2031P-DT000X.* - Vent Thru Roof Detail
- D2031P-DT001E.* - Waste/Vent Line Penetrating Communication Center

D2032 Waste Piping Specialties

- D2032P-DT001X.* - Dilution/Neutralization Basin Detail
- D2032P-DT002E.* - Dry Sump Detail

D2033 Waste Piping Equipment

- D2033P-DT001X.* - Floor Cleanout Detail
- D2033P-DT002X.* - Wall Cleanout Detail
- D2033P-DT004X.* - Sanitary Cleanout Floor Slab Detail
- D2033P-DT005X.* - Floor Drain Detail
- D2033P-DT006X.* - Typical Double Wall Drain Section
- D2033P-DT007E.* - Sump Pump Detail
- D2033P-DT008E.* - Floor Drain in Open Area
- D2033P-DT012E.* - Floor Cleanout for Finished Rooms
- D2033P-DT013E.* - Non-Clog Floor Drain with Sediment Bucket
- D2033P-DT014E.* - Wall Cleanout for Finished Rooms
- D2033P-DT015E.* - Typical Tub and Condensate Drain Detail
- D2033P-DT016E.* - Typical Exterior Cleanout Detail
- D2033P-DT017E.* - Typical Custom-Made Grease Interceptor Detail
- D2033P-DT018E.* - Typical Semi-Automatic Grease Interceptor

D2033P-DT019E.* - Typical Semi-Automatic Grease
Interceptor w/Draw-Off Valve
D2033P-DT020E.* - Typical Enzymatic Grease
Interceptor
D2033P-DT021E.* - Typical Manually Operated
Grease Interceptor
D2034 Waste Piping Insulation
D2035 Acid Waste Systems

D204 Rain Water Drainage Systems
D2040 Misc. Details
D2040P-DT001E.* - Rain Leader Drop Detail
D2040P-DT002E.* - Large Sump Roof Drain Detail
D2040P-DT003E.* - Medium Sump Roof Drain Detail
D2041 Rain Water Drainage Piping
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D2042 Rain Water Drainage Specialties
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D205 Special Plumbing Systems
D2050 Misc. Special Plumbing Details
D2051 Medical Gas Systems
D2052 Helium Gas Systems
D2053 Liquid Oxygen Systems
D2054 Vacuum Systems
D2055 Natural Gas Systems
D2055P-DT001E.* - Corrosion Control Test Station
D2055P-DT002P.* - Pressure Regulation Station Plan
D2055P-DT003E.* - Insulating Flange Assembly
D2055P-DT004E.* - Insulating Valve Assembly
D2055P-DT005E.* - Underground Valve Detail -
6" and Larger
D2055P-DT006E.* - Underground Valve Detail -
1" thru 4"
D2055P-DT007E.* - Roof Curb for Gas Line
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D2055P-DT008E.* - Gas Meter and Regulator
Connection
D2055P-DT009E.* - Gas Meter Configuration
D2055P-DT010X.* - Gas Valve and Valve Box
D2055P-DT011E.* - Natural Gas Spigot Detail
D2055P-DT012E.* - Metered Gas Service Entrance
D2055P-DT013E.* - Gas Line Railroad Crossing
Detail
D2055P-DT014E.* - Gas Pressure Regulator
D2055P-DT015E.* - Gas Meter and Regulator Detail
D2055P-DT016E.* - Typical Gas Service Meter with
By-pass
D2055P-DT017E.* - Typical Anodeless Gas Meter
Riser Detail
D2055P-DT018E.* - Typical Gas Service Connection
Detail
D2056 Liquified Petroleum Gas Systems
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D206 Compressed Air Systems
D2060 Misc. Compressed Air Details
D2061 Compressed Air Piping and
Equipment
D2061P-DT002E.* - Air Compressor Detail
D2061P-DT003S.* - Compressed Air Outlet Detail
D2061P-DT004E.* - Air Compressor Detail with Air
Dryer
D2061P-DT006E.* - Air Compressor Detail
D2061P-DT007E.* - Typical Compressed Air Tool
Station Detail
D2061P-DT008S.* - Typical Utility Compressed Air
Station Detail
D2061P-DT009S.* - Breathing Air Station Detail
D2061P-DT010E.* - Typical Horizontal Air
Compressor Detail
D2061P-DT011E.* - Typical Vertical Air
Compressor Detail
D2061P-DT012I.* - Breathing Air Compressor Frame
Detail
D2061P-DT014E.* - Vertical Instrument Air
Compressor/System Detail
D2062 Compressed Air Legends and
Schematics
D2062P-DT001E.* - Compressed Air System
Schematic Diagram
D2062P-DT006S.* - Air Compressor Installation
Diagram

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D301 Fuel Energy Supply Systems
D3010 Misc. Fuel Supply Details
D3010M-DT001S.* - Boiler Fuel Oil Flow Schematic
D3011 Oil Supply Systems
D3012 Gas Supply Systems
D3013 Coal Supply Systems

D302 Heat Generation Systems
D3020 Misc. Heat Generation Details
D3020M-DT001E.* - High-Temperature Water Drain
and Air Vent Detail
D3020M-DT003E.* - Metal Flue Stack Detail
D3020M-DT005E.* - Boiler Flue Connection Detail
D3020M-DT008E.* - Flue Stack and Wall Penetration
D3020M-DT009E.* - Steam Relief Valve Drip Pan Ell
D3020M-DT010S.* - Typical Steamguard Detail
D3020M-DT011S.* - Typical Pressure Reducing Set
Detail
D3020M-DT012E.* - Dripped Elbow-Safety Valve
Vent Detail
D3020M-DT013S.* - Simplex Condensate Pump Detail
D3020M-DT014E.* - Trap Discharge Connection
Detail
D3020M-DT019E.* - Typical Flue Vent Detail

D3020M-DT020S.* - End-of-Main Steam Trap Schematic
 D3020M-DT021S.* - Steam Pressure Reducing Station Schematic
 D3020M-DT022E.* - Cooling Well Detail
 D3020M-DT024E.* - Hot Vent Detail
 D3020M-DT025E.* - Relief Valve Piping Detail

D3021 Steam Boilers
 D3021M-DT001E.* - Steam Sectional Cast-Iron Forced-Draft Boiler Detail
 D3021M-DT002S.* - Low Pressure Steam Boiler Piping Detail

D3022 Hot Water Boilers
 D3022M-DT005S.* - Electric Hot Water Boiler Detail
 D3022M-DT006E.* - Steam Water-Tube Atmospheric Boiler Detail
 D3022M-DT007E.* - Domestic Hot Water Tank and Tank Heater with Steam Input
 D3022M-DT008S.* - Domestic Hot Water Schematic
 D3022M-DT009S.* - Domestic Hot Water Generator Schematic
 D3022M-DT010E.* - Vertical Hot Water Generator Connections
 D3022M-DT011S.* - Boiler Piping Schematic

D3023 Furnaces

D3024 Fuel-Fired Heaters
 D3024M-DT002S.* - Gas Fired Unit Heater Detail
 D3024M-DT003E.* - Gas Fired Make-Up Unit Heater Detail
 D3024M-DT004E.* - Boiler Stack Detail
 D3024M-DT005E.* - Typical Gas Fired Unit Heater Detail

D3025 Auxiliary Equipment
 D3025M-DT001E.* - Typical Make-Up Air Unit Detail
 D3025M-DT003S.* - Outdoor Control on Steam (Convertor Piping)
 D3025M-DT004S.* - Hot Water Generator - Steam Heated (Low Pressure)
 D3025M-DT005S.* - Hot Water Generator -Steam Heated (High Pressure)
 D3025M-DT006S.* - Steam Pressure Reducing Set

D303 Heat Rejection Systems

D3030 Misc. Heat Rejection Details

D3031 Absorption Chillers
 D3031M-DT001S.* - Absorption Chiller Piping Schematic
 D3031M-DT002E.* - Air-Cooled Chiller Piping Connection

D3032 Centrifugal Chillers
 D3032M-DT001E.* - Centrifugal Chiller Detail

D3033 Reciprocating Chillers

D3034 Rotary-Screw Chillers

D3035 Cooling Towers and Liquid Coolers
 D3035M-DT001E.* - Cross-Flow Cooling Tower Detail
 D3035M-DT005S.* - Cooling Tower Piping Schematic

D3036 Refrigerant Compressors and Condensers
 D3036M-DT001S.* - Refrigerant Piping Schematic

D3037 Heat Pumps

D304 Heat Distribution Systems

D3040 Misc. Heat Distribution Details
 D3040M-DT001E.* - Duct Hanger Detail
 D3040M-DT002X.* - Dielectric Flex Duct Connection for Roof Penetrations
 D3040M-DT003X.* - Duct Penetration Through Wall
 D3040M-DT004X.* - Typical SCIF Area Duct Installation Detail
 D3040M-DT005X.* - Typical Security Bars Installation Detail
 D3040M-DT006I.* - Typical Support Frame Detail
 D3040M-DT008E.* - Equipment Pad Detail
 D3040M-DT009E.* - Expansion Tank Support
 D3040M-DT010E.* - Vibration Isolator Detail
 D3040M-DT011X.* - Typical A/C Rooftop Spring Curb Mounting
 D3040M-DT013X.* - Security Grating Details
 D3040M-DT015E.* - Expansion Tank Detail
 D3040M-DT016E.* - Vertical Expansion Tank Detail
 D3040M-DT020I.* - Variable Volume Box Detail
 D3040M-DT021I.* - Fan Powered Variable Air Volume Box Detail
 D3040M-DT022X.* - Air Terminal Unit Mounting Detail
 D3040M-DT023I.* - Platform for Suspending Equipment from Roof Structure
 D3040M-DT024X.* - Restraints for Rigidly Mounted Mechanical Equipment
 D3040M-DT025S.* - Flash Tank Piping Detail
 D3040M-DT026E.* - Typical Expansion Tank Mounting Detail
 D3040M-DT027E.* - Expansion Tank Installation Detail
 D3040M-DT028S.* - Typical Refrigerant Piping Detail
 D3040M-DT029I.* - Refrigerant Piping Diagram
 D3040M-DT034E.* - Refrigerant Line Penetration Detail
 D3040M-DT035E.* - Manual Damper Detail
 D3040M-DT036E.* - Typical Splitter Damper Detail
 D3040M-DT037I.* - Typical Branch Take-off Fitting
 D3040M-DT038E.* - Typical Pipe Stand Support Leg
 D3040M-DT039E.* - Pipe and Conduit Roof Penetration
 D3040M-DT040E.* - Typical Relief Vent Detail
 D3040M-DT041E.* - Relief Vent Detail

D3041 Air Distribution Systems
 D3041M-DT001E.* - Supply Air Diffuser Detail -Plan and Elevation
 D3041M-DT002X.* - Supply Air Diffuser Detail Section
 D3041M-DT003E.* - Propeller Fan Detail
 D3041M-DT004E.* - Wall Fan Detail
 D3041M-DT005E.* - Penthouse Louver Detail
 D3041M-DT006E.* - Relief or Intake Vent Detail





- D3041M-DT007X.* - Louver/Damper Detail
- D3041M-DT011E.* - Air Curtain Detail
- D3041M-DT014E.* - Duct Roof Penetration and Support Detail
- D3041M-DT016I.* - VAV Terminal Unit Detail
- D3041M-DT017E.* - Access Door Swing Detail for Air Handling Units
- D3041M-DT018E.* - Typical Fan Coil Unit Detail
- D3041M-DT019E.* - Typical Branch Connection
- D3041M-DT021E.* - Duct Access Doors
- D3041M-DT022X.* - Fire Damper with Fusible Link
- D3041M-DT023X.* - Terminal Unit Duct Take-Off
- D3041M-DT024E.* - Gas Fired Air Handling Unit
- D3041M-DT025E.* - Centrifugal In-Line Fan Detail
- D3041M-DT028E.* - Fancoil Detail
- D3041M-DT029E.* - Heating and Ventilating Unit - Ceiling Type
- D3041M-DT030E.* - Flexible Duct to Ceiling Diffuser
- D3041M-DT031E.* - Linear Slot Diffuser Detail
- D3041M-DT032I.* - Fan Powered VAV Detail
- D3041M-DT033I.* - VAV Unit with Reheat Coil
- D3041M-DT035I.* - Typical Ceiling Outlet Detail
- D3041M-DT036I.* - Typical Splitter Damper Detail
- D3041M-DT037P.* - Typical Turning Vane Detail
- D3041M-DT038P.* - Typical Splitter Damper Plan Detail
- D3041M-DT039E.* - Ceiling Diffuser Connection Detail
- D3041M-DT040E.* - Typical Gooseneck Detail
- D3041M-DT041I.* - Typical Ceiling Diffuser Detail
- D3041M-DT042E.* - Heavy Duty Supply and Exhaust Duct
- D3041M-DT043E.* - Typical Flexible Connection Detail
- D3041M-DT044I.* - Typical Duct Elbow Detail
- D3041M-DT045I.* - Typical Branch Take-Off Detail
- D3041M-DT046P.* - Transfer Duct Detail
- D3041M-DT047E.* - Return Air Security/Sound Treatment
- D3041M-DT048I.* - Typical VAV Terminal Unit
- D3041M-DT052E.* - Typical Roof Supply Fan Detail
- D3041M-DT054E.* - Combination Louver/Damper Detail
- D3041M-DT055E.* - Typical Wall Mounted Ventilation Fan with Motorized Dampers
- D3041M-DT056E.* - Intake Air Penthouse Detail

D3042 Steam Distribution Systems

- D3042M-DT001E.* - Steam Safety Relief Valve Detail
- D3042M-DT002E.* - Steam Building Supply Detail
- D3042M-DT003S.* - Steam Pressure Reducing Station Detail
- D3042M-DT004E.* - Steam Relief Valve with Drip Pan
- D3042M-DT005S.* - Low Pressure Steam Drip and Rise Detail
- D3042M-DT006S.* - Horizontal Steam Unit Heater Detail
- D3042M-DT009S.* - Steam Coil Piping Detail
- D3042M-DT010S.* - Steam Duct Humidifier Detail

- D3042M-DT011X.* - Steam Line Wall Penetration Detail
- D3042M-DT012S.* - Steam Plate Coil Piping Detail
- D3042M-DT013S.* - Vertical Steam Unit Heater Detail
- D3042M-DT014S.* - Steam Trap Installation
- D3042M-DT015S.* - Steam Pressure Reducing Station

D3043 Hydronic Distribution Systems

- D3043M-DT001E.* - Condenser Water Pump Detail
- D3043M-DT002E.* - Duplex Condensate Pump and Receiver Detail
- D3043M-DT003E.* - End Suction Pump, Makeup Water, and Expansion Tank
- D3043M-DT005E.* - Horizontal Split-Case Water Pump Detail
- D3043M-DT006E.* - Vertical In-Line Pump Detail
- D3043M-DT007E.* - Simplex Condensate Pump and Receiver Detail
- D3043M-DT008X.* - Pipe Floor Slab Penetration Detail
- D3043M-DT009X.* - Wall Pipe Penetration Detail
- D3043M-DT010E.* - Water Treatment One-Shot Feeder Detail
- D3043M-DT011E.* - Typical Computer Room Unit Piping
- D3043M-DT014S.* - Horizontal Hot Water Unit Heater Schematic
- D3043M-DT015X.* - Condensate Drain Dry-Well Detail
- D3043M-DT016S.* - Flash Tank Piping Detail
- D3043M-DT017S.* - Vertical In-Line Pump Detail
- D3043M-DT019S.* - Vertical Hot Water Unit Heater Piping Detail
- D3043M-DT020S.* - Close-Coupled Horizontal In-Line Pump Detail
- D3043M-DT021E.* - Typical Connection to Floor Mounted Single Suction Water Pumps
- D3043M-DT023E.* - Expansion Tank - 0-100 Gals
- D3043M-DT024E.* - Condensate Drain Trap Detail
- D3043M-DT027E.* - In-Line Centrifugal Pump
- D3043M-DT028S.* - Duplex Condensate Pump Connection Detail
- D3043M-DT029E.* - End Suction Pump Detail
- D3043M-DT030E.* - Chemical Feeder Detail
- D3043M-DT031E.* - Chilled Water Piping Diagram
- D3043M-DT032S.* - Pump Connection Detail
- D3043M-DT034E.* - Floor Mounted Pump Detail
- D3043M-DT035E.* - Wall Mounted Expansion Tank Detail
- D3043M-DT036E.* - Wall Mounted Expansion Tank Detail (Endview)
- D3043M-DT038E.* - Typical Make-Up Water Spool Detail
- D3043M-DT039P.* - Duplex Condensate Pump Detail
- D3043M-DT040E.* - Typical Chemical Feeder Detail

D3044 Exhaust and Ventilation Systems

- D3044M-DT001X.* - Roof Mounted Centrifugal Exhaust Fan Detail
- D3044M-DT002X.* - Exhaust Hood Detail

- D3044M-DT003E.* - Engine Exhaust Floor Outlet Detail
- D3044M-DT004E.* - Fuel Tank Exhaust Fan Detail
- D3044M-DT005E.* - Exhaust Receptor Detail
- D3044M-DT007X.* - Exhaust Penthouse
- D3044M-DT008X.* - Typical Relief Vent Detail
- D3044M-DT009X.* - Wall Mounted Exhaust Fan Detail
- D3044M-DT010X.* - Ceiling Mounted Exhaust Fan Detail
- D3044M-DT011E.* - Exhaust Fan Detail
- D3044M-DT012E.* - Ceiling Exhaust Fan Detail
- D3044M-DT013X.* - Centrifugal Wall Exhaust Fan Detail
- D3044M-DT014X.* - Propeller Exhaust/Supply Fan Detail
- D3044M-DT015X.* - Roof Mounted Exhaust & Supply Fan Detail
- D3044M-DT016E.* - Ceiling Exhaust Fan Detail
- D3044M-DT017E.* - Roof Mounted Exhaust Fan Detail
- D3044M-DT019E.* - Exhaust Hood Detail
- D3044M-DT020E.* - Vehicle Exhaust Reel
- D3044M-DT021E.* - Radial Arm Saw Dust Collection System
- D3044M-DT023E.* - Dishwasher Hood Detail
- D3044M-DT024E.* - Range and Griddle Hood Detail
- D3044M-DT025X.* - Power Roof Ventilator Detail
- D3044M-DT026E.* - Upblast Power Roof Ventilator Detail
- D3044M-DT028X.* - Wall Mounted Exhaust Fan
- D3044M-DT029E.* - Ceiling Mounted Exhaust Fan
- D3044M-DT030E.* - Relief Hood Detail
- D3044M-DT032X.* - Inlet or Exhaust Louvered Penthouse
- D3044M-DT033E.* - Exhaust Hood Detail
- D3044M-DT038E.* - Typical Roof Mounted Exhaust Vent
- D3044M-DT039E.* - Ventilation/Exhaust Opening Detail
- D3044M-DT040E.* - Typical Gravity Ventilator Detail
- D3044M-DT041E.* - Ceiling Exhaust Fan Detail
- D305 Heat Transfer**
- D3050 Misc. Heat Transfer Details
- D3050M-DT001E.* - Typical Unit Convactor Detail
- D3051 Heat Exchangers
- D3051M-DT002E.* - Single Tier Radiator
- D3051M-DT003S.* - Typical Heat Exchanger Piping Schematic
- D3051M-DT005S.* - Heat Exchanger Connection Detail
- D3052 Package Terminal Air Conditioning Systems(PTAC)
- D3053 Split Systems
- D3054 Air Coils
- D3054M-DT001E.* - Air Handling Unit Coil Piping
- D3054M-DT002E.* - Refrigerant Coil Detail
- D3054M-DT003E.* - Horizontal Fan Coil Unit Detail
- D3054M-DT004E.* - Typical Fan Coil Unit Detail
- D3054M-DT005E.* - Air Handling Unit Stacked Coil Piping
- D3054M-DT006E.* - VAV Heating Coil Detail
- D3054M-DT009E.* - Chilled Water Coil Connection (3-Way Mixing Valve)
- D3054M-DT010E.* - Typical Connections to Chilled Water Coil with Circulating Pump
- D3054M-DT011E.* - Stacked Coils Detail
- D3054M-DT012E.* - Hot Water Coil Connection (3-Way Mixing Valve)
- D3054M-DT013E.* - Hot Water Coil Connection (2-Way Mixing Valve)
- D3054M-DT014S.* - Typical Fan Coil Unit Piping Schematic
- D3054M-DT015S.* - Typical Hot Water Coil Piping Schematic
- D3054M-DT016S.* - Typical Heating Only Fan Coil Unit Piping Schematic
- D3054M-DT017S.* - Typical Steam Coil Piping Detail
- D3054M-DT018E.* - Typical Fan Coil Unit Piping Schematic
- D3054M-DT019S.* - Typical Hot Water Preheat Coil Piping Schematic
- D3054M-DT020S.* - Chilled Water Coil Piping Schematic
- D3055 Humidifiers**
- D3055M-DT001S.* - Typical Humidifier Condensate Return Detail
- D3055M-DT003P.* - Humidifier Piping Detail
- D3056 Dehumidifiers**
- D3057 Terminal Heat Transfer Units**
- D3057M-DT001E.* - Vertical Hot Water Unit Heater Detail
- D3057M-DT002E.* - Hot Water Cabinet Unit Heater Detail
- D3057M-DT003E.* - Fin Tube Radiator Detail
- D3057M-DT004E.* - Radiant Heater & Flue Pipe Detail
- D3057M-DT006E.* - Hot Water Unit Heater Detail
- D3057M-DT007E.* - Electric Unit Heater Detail
- D3057M-DT008E.* - Blow-Down Hot Water Unit Heater Detail
- D3057M-DT009E.* - Typical Convactor Piping Detail
- D3057M-DT010S.* - Fin Tube Convactor Piping Schematic
- D3057M-DT012E.* - Typical Connections to Unit Heaters
- D3057M-DT015E.* - Typical Hot Water Baseboard Convactor Piping
- D3057M-DT016E.* - Typical Steam Baseboard Convactor Piping
- D3058 Energy Recovery Units**
- D306 HVAC Controls and Instrumentation**
- D3060 Misc. HVAC Control Details**
- D3060M-DT001E.* - Control Air Compressor Detail

D3060M-DT002E.* - Thermometer Installation in Insulated Pipe
D3060M-DT003E.* - Pressure Gauge Installation
D3060M-DT004E.* - Pressure Gauge Detail
D3060M-DT005E.* - Wall Mounted Thermostat Detail
D3060M-DT006E.* - Thermowell Installation Detail
D3061 Building Systems Control
D3062 Energy Management and Conservation Systems
D3062M-DT002S.* - BTU Monitor Detail
D3062M-DT003S.* - HTW Entrance and BTU Monitor Detail
D3063 HVAC Control Systems
D3064 HVAC Sequence of Operation
D3065 Gas Purging Systems

D307 HVAC System Testing, Adjusting, and Balancing
D3070 Misc. Details
D3071 Mechanical Systems Testing, Adjusting, and Balancing
D3072 Piping Systems Testing, Adjusting, and Balancing
D3073 Air Systems Testing, Adjusting, and Balancing

D309 Special HVAC Systems and Equipment
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D3091 Solar Energy Collection, Conversion, and Storage
D3092 Industrial Ventilation
D3092M-DT001E.* - Typical Welding Fume Exhauster Detail
D3092M-DT002E.* - Swing-Arm Fume Exhaust System Detail

D40 FIRE PROTECTION SYSTEMS
D401 Fire Protection Sprinkler Systems
D4010 Misc. Sprinkler Details
D4010F-DT001E.* - Typical Sprinkler Head Drop Detail
D4010F-DT002E.* - Ceiling Mounted Detector
D4010F-DT003E.* - Underfloor Smoke Detector
D4011 Wet Pipe Sprinkler Systems
D4011F-DT001E.* - Inspector's Test Connection for Wet Pipe Sprinkler System
D4012 Dry Pipe Sprinkler Systems
D4012F-DT001E.* - Inspector's Test Connection for Dry Pipe Sprinkler System
D4012F-DT002E.* - Dry Pipe Sprinkler Riser Detail
D4013 Pre-Action Sprinkler Systems
D4013F-DT001P.* - Pre-Action Sprinkler Riser Plan

D4014 Combination Dry Pipe and Pre-Action Sprinkler Systems
D4015 Deluge Sprinkler Systems
D4016 Fire Pumps

D402 Standpipe and Hose Systems
D4020 Misc. Standpipe Details
D4021 Fire Protection Standpipe
D4022 Fire Protection Valves, Hoses, and Cabinets

D403 Fire Protection Specialties
D4030 Misc. Specialty Details
D4030A-DT001X.* - Fire Extinguisher Cabinet Detail
D4030A-DT002X.* - Fire Extinguisher Cabinet Detail
D4030A-DT003X.* - Fire Extinguisher Cabinet Detail
D4030A-DT004X.* - Fire Extinguisher Cabinet Elevation/Detail
D4030A-DT005X.* - Fire Extinguisher Cabinet Section
D4030A-DT006X.* - Fire Extinguisher Cabinet Section
D4031 Fire Extinguishers, Cabinets, and Accessories
D4032 Fire Blankets and Cabinets
D4033 Wheeled Fire Extinguisher Units

D409 Special Fire Protection Systems
D4090 Misc. Special System Details
D4091 Foam Extinguishing Systems (AFFF)
D4091F-DT001E.* - Preaction Sprinkler and Nozzles
D4091F-DT002E.* - Wet-Pipe Sprinkler and Nozzles
D4091F-DT003E.* - Preaction Sprinklers and Nozzles
D4091F-DT004E.* - Wet-Pipe Sprinkler and Nozzles
D4091F-DT005E.* - Single Wet-Pipe AFFF Sprinkler Riser
D4091F-DT006E.* - Single Deluge AFFF Sprinkler Riser
D4091F-DT007E.* - Single Preaction AFFF Sprinkler Riser
D4091F-DT008E.* - AFFF Proportioning Schematic
D4091F-DT009S.* - AFFF Proportioning Schematic
D4091F-DT010S.* - AFFF Proportioning Schematic
D4091F-DT011E.* - Fixed Nozzles, Tree Configuration
D4091F-DT012E.* - Fixed Nozzles, Linear Configuration
D4091F-DT013E.* - Fixed Nozzles, Linear Configuration
D4091F-DT014E.* - Thermal Detector Mounting Detail
D4091F-DT015E.* - Dual Bladder Tank Configuration
D4091F-DT016E.* - AFFF Pumping System Configuration

- D4092 Carbon Dioxide Extinguishing Systems
- D4093 Halogen Agent Extinguishing Systems
- D4094 Dry Chemical Extinguishing Systems

D50 ELECTRICAL SYSTEMS

D501 Electrical Service and Distribution

- D5010 Misc. Details
- D5011 Main Transformers
- D5012 Secondary Transformers
- D5013 Main Switchboards
 - D5013E-DT001E.* - Motor Control Center (MCC) - Elevation
- D5014 Interior Distribution Transformers
- D5015 Branch Circuit Panelboards
- D5016 Enclosed Circuit Breakers
- D5017 Motor Control Centers
- D5018 Aerial Distribution Details
 - D5018E-DT001E.* - Typical Three Phase Pole (0° - 9°)
 - D5018E-DT002E.* - Typical Three Phase Pole (10° - 30°)
 - D5018E-DT004E.* - Double Dead End, Double Riser Pole
 - D5018E-DT005E.* - Primary Riser Pole
 - D5018E-DT006E.* - Alternate Dead-End Clamps
 - D5018E-DT007E.* - Riser Pole Detail
 - D5018E-DT008E.* - Typical Straight Thru with Three Phase Take-Off
 - D5018E-DT009E.* - Tangent Riser Pole (Front View)
 - D5018E-DT012E.* - Overhead Primary, Underground Secondary Transformer Pole
 - D5018E-DT013E.* - Vertical Three Phase Dead End Pole
 - D5018E-DT014E.* - Riser Pole Detail
 - D5018E-DT015E.* - Three Phase Line Pole
- D5019 Underground Distribution Details
 - D5019E-DT001E.* - Transformer Pad Detail
 - D5019E-DT002E.* - Grounding Detail at the Pad Mounted Transformer
 - D5019E-DT003P.* - Electric Manhole Detail
 - D5019E-DT004X.* - Manhole Frame and Cover Details
 - D5019E-DT006P.* - Combination Manhole
 - D5019E-DT007E.* - Manhole Accessories
 - D5019E-DT008X.* - Ductbank Window Detail
 - D5019E-DT009E.* - Neutral/Ground Connection in Manhole
 - D5019E-DT010P.* - Standard Electrical Manhole (Traffic) Types 3, 4, 5, and 6
 - D5019E-DT011P.* - Standard Electrical Handhole (Non-Traffic) Types 1 and 2
 - D5019E-DT012P.* - Standard Electrical Manhole (Non-Traffic) Types 1 and 2

- D5019E-DT013E.* - Pulling-In Irons, Cable Racks, and Duct Entrance
- D5019E-DT014E.* - Conversion from PVC to Steel Conduit

D502 Lighting and Branch Wiring

D5020 Misc. Lighting and Branch

Wiring Details

- D5020E-DT002E.* - Fixture Type T
- D5020E-DT003E.* - Retractable Receptacle Detail
- D5020E-DT004E.* - Receptacle Detail
- D5020E-DT005E.* - Type: C1 -- Ceiling Mounted Ultrasonic Occupancy Sensor (N.T.S.)
- D5020E-DT006E.* - Type: C2 -- Ceiling Mounted Infrared Occupancy Sensor (N.T.S.)
- D5020E-DT007E.* - Type: C3 -- Wall Mounted Infrared Occupancy Sensor (N.T.S.)
- D5020E-DT008E.* - Type: C4 -- Wall Mtd. Ultrasonic & Infrared Occupancy Sensor (N.T.S.)
- D5020E-DT009E.* - Type: C5 -- Ceiling Mounted Daylight Photocell Sensor (N.T.S.)
- D5020E-DT010E.* - Type: C6 -- Wall Mounted Time Clock (N.T.S.)
- D5020E-DT011E.* - Type: EF1 -- Recessed Step Light Fluorescent (N.T.S.)
- D5020E-DT012E.* - Type: EH5 -- Metal Halide Wall Pak (N.T.S.)
- D5020E-DT013E.* - Type: EH12 -- Recessed Metal Halide Step Light (N.T.S.)
- D5020E-DT014E.* - Type: E11 -- Wall Mounted Incandescent Arm Dock Light (N.T.S.)
- D5020E-DT015E.* - Type: FF1 -- Fluorescent Under Cabinet Task Light (N.T.S.)
- D5020E-DT016E.* - Type: FF2 -- Clamp On Compact Fluorescent Task Light (N.T.S.)
- D5020E-DT017E.* - Type: FI1 -- Incandescent Under Cabinet Task Light (N.T.S.)
- D5020E-DT018E.* - Type: PF8 -- Pendant Mtd. 4' Sealed & Gasketed Indust. Fluor. (N.T.S.)
- D5020E-DT019E.* - Type: PF9 -- Pendant Mtd. 8' Sealed & Gasketed Indust. Fluor. (N.T.S.)
- D5020E-DT020E.* - Type: PF10 -- Pendant Mtd. Vapor Tight Indust. Fluor. (N.T.S.)
- D5020E-DT021E.* - Type: PF11 -- Pendant Mtd. Explosion Proof Indust. Fluor. (N.T.S.)
- D5020E-DT022E.* - Type: PF12 -- Pendant Mtd. Compact Fluor. Indust. Dome (N.T.S.)
- D5020E-DT023E.* - Type: PH1 -- Pendant Mtd. Indirect Metal Halide Bowl (N.T.S.)
- D5020E-DT024E.* - Type: PH2 -- Pendant Mtd. Indirect Metal Halide Bowl (N.T.S.)
- D5020E-DT025E.* - Type: PH3 -- Pendant Mtd. Direct/Indirect Metal Halide Drum (N.T.S.)
- D5020E-DT026E.* - Type: PH4 -- Pendant Mtd. Indirect Metal Halide Drum (N.T.S.)
- D5020E-DT027E.* - Type: PH5 -- Pendant Mtd. Direct/Indirect Metal Halide (N.T.S.)
- D5020E-DT028E.* - Type: PH6 -- Pendant Mtd. Metal Halide High Bay Warehouse Aisle Light (N.T.S.)

D5020E-DT029E.* - Type: PH7 -- Pendant Mtd. Metal Halide High Bay Industrial (N.T.S.)
 D5020E-DT030E.* - Type: PH8 -- Pendant Mtd. Metal Halide Low Bay Industrial (N.T.S.)
 D5020E-DT031E.* - Type: RH5 -- 10" Dia. Recessed, Enclosed & Gasketed Downlight, Plaster Ceil. (N.T.S.)
 D5020E-DT032E.* - Type: RH6 -- 9" Dia. Recessed, Enclosed & Gasketed Downlight, Concrete Ceil. (N.T.S.)
 D5020E-DT033E.* - Type: RH7 -- Recessed Lensed 2' X 2' Metal Halide Troffer (N.T.S.)
 D5020E-DT034E.* - Type: SF1 -- Surface Mounted Compact Fluor. Decorative Bowl (N.T.S.)
 D5020E-DT035E.* - Type: SF3 -- Surface Mounted Fluor. High Abuse Luminaire (N.T.S.)
 D5020E-DT036E.* - Type: SF4 -- Surface Mounted 1' X 4' Drop Opal Lens (N.T.S.)
 D5020E-DT037E.* - Type: SF5 -- Surface Mounted Wraparound (N.T.S.)
 D5020E-DT038E.* - Type: SF11 -- Surf. Mtd. Compact Fluor. Vapor Tight Jelly Jar w/Wire Guard (N.T.S.)
 D5020E-DT039E.* - Type: SF12 -- Surf. Mtd. Compact Fluor. Vapor Tight Jelly Jar w/Wire Guard & Conc. Outlet Box (N.T.S.)
 D5020E-DT040E.* - Type: SF13 -- Wall Mtd. Compact Fluor. Area Light (N.T.S.)
 D5020E-DT041E.* - Type: SH2 -- Surf. Mtd. Metal Halide Garage Luminaire (N.T.S.)
 D5020E-DT042E.* - Type: SH3 -- Surf. Mtd. Explosion Proof Metal Halide Mogul Base Jelly Jar (N.T.S.)
 D5020E-DT043E.* - Type: SH4 -- Surf. Mtd. Explosion Proof Metal Halide Mogul Base Jelly Jar (N.T.S.)
 D5020E-DT044E.* - Type: SH5 -- Surf. Mtd. Explosion Proof Metal Halide Medium Base Jelly Jar (N.T.S.)
 D5020E-DT045E.* - Type: SI1 -- Surf. Mtd. Incandescent Porcelain Lamp Holder (N.T.S.)
 D5020E-DT046E.* - Type: TF1 -- Compact Fluor. Wallwash Track Head and Track (N.T.S.)
 D5020E-DT047E.* - Type: TI1 -- Incandescent Gimbel Ring Track Head and Track (N.T.S.)
 D5020E-DT048E.* - Type: TI2 -- Low Voltage Incandescent Gimbel Ring Track Head and Track (N.T.S.)
 D5020E-DT049E.* - Type: WF2 -- Wall Mounted Compact Fluorescent Sconce (N.T.S.)
 D5020E-DT050E.* - Type: WF3 -- Compact Fluorescent Vanity Light (N.T.S.)
 D5020E-DT051E.* - Type: WF4 -- Wall Mtd. Compact Fluor. Indirect Asymmetric Luminaire (N.T.S.)
 D5020E-DT052E.* - Type: WH1 -- Surf. Mtd. Metal Halide Indirect Adjustable Luminaire (N.T.S.)
 D5020E-DT053E.* - Type: XF1 -- Emergency Battery Pack Unit (N.T.S.)
 D5020E-DT054E.* - Type: XF2 -- Fluorescent Stencil Face Exit Sign (N.T.S.)

D5020E-DT055E.* - Type: XI1 -- Emergency Lighting Battery Unit (N.T.S.)
 D5020E-DT056E.* - Type: XI2 -- Emergency Remote-Mtd. Floodlight (N.T.S.)
 D5020E-DT057E.* - Type: XL1 -- LED Stencil Face Exit Sign (N.T.S.)

D5021 Electrical Branch Wiring

**D5021E-DT001E.* - Typical Cable Tray

D5022 Interior Lighting

**D5022E-DT001E.* - Fixture Type Y
 **D5022E-DT002E.* - Fixture Type M, ME
 **D5022E-DT003E.* - 18 Cell 2-Lamp Parabolic Troffer
 **D5022E-DT004E.* - Fixture Type R, S, and T
 **D5022E-DT005E.* - Canopy Light Detail
 **D5022E-DT006E.* - Fixture Type H, HE
 **D5022E-DT007E.* - Fixture Type C, CE
 **D5022E-DT008E.* - Fixture Type C
 **D5022E-DT010E.* - Fixture Type H, CC
 **D5022E-DT011E.* - Fixture Type G
 **D5022E-DT012E.* - Explosion Proof Exit Fixture
 **D5022E-DT013E.* - Explosion Proof Emergency Light Fixture
 **D5022E-DT014E.* - Fixture Type P
 **D5022E-DT015E.* - Pit Light Detail
 **D5022E-DT016E.* - Wall Mounted Fluorescent Fixture
 **D5022E-DT017E.* - Beacon Wall Bracket, Flashing Beacon
 **D5022E-DT018E.* - Fixture Type K
 **D5022E-DT019E.* - Fixture Type W
 **D5022E-DT020E.* - Fixture Type T, TE
 **D5022E-DT021E.* - Wall Mounted Indirect Fluorescent w/Wood Shielding
 **D5022E-DT022E.* - Industrial Fluorescent
 **D5022E-DT023E.* - Surface Mounted Wrap-Around Luminaire for Other than Office Type Spaces
 **D5022E-DT024E.* - Surface Mounted Wrap-Around Luminaire for Office/Classroom Type Spaces
 **D5022E-DT025E.* - Surface, Pendant, or Bracket Mounted Parabolic Luminaire
 **D5022E-DT026E.* - Steel-Sided Surface Fluorescent
 **D5022E-DT027E.* - Round Surface Fluorescent
 **D5022E-DT028E.* - Surface Mounted 1-Lamp Nonbreakable Luminaire
 **D5022E-DT029E.* - Decorative Specialty 1-Lamp Luminaire
 **D5022E-DT030E.* - Recess Mounted Commercial HID
 **D5022E-DT031E.* - Surface Mounted Commercial HID
 **D5022E-DT032E.* - High Bay Industrial HID
 **D5022E-DT033E.* - Low Bay Industrial HID
 **D5022E-DT034E.* - Indirect HID Luminaire
 **D5022E-DT035E.* - HID Wall Mounted Luminaire
 **D5022E-DT036E.* - Recessed Round HID
 **D5022E-DT037E.* - Handball and Racquetball Court Luminaire
 **D5022E-DT038E.* - Ceiling Mounted Vandal-Resistant Luminaire

**D5022E-DT039E.* - Wall Mounted Vandal-Resistant Luminaire
 **D5022E-DT040E.* - Exit Sign
 **D5022E-DT041E.* - Explosion-Proof Luminaire
 **D5022E-DT042E.* - Emergency Lighting Unit
 **D5022E-DT043E.* - Lens Type Emergency Lighting Unit
 **D5022E-DT044E.* - Cylinder Type Emergency Lighting Unit
 **D5022E-DT045E.* - Troffer
 **D5022E-DT046E.* - 2 X 2 and 2 X 4 Parabolic Troffers
 **D5022E-DT047E.* - 1 X 4 Parabolic Troffer
 **D5022E-DT048E.* - Semi-Recessed Baffel Downlight (Incandescent)
 **D5022E-DT049E.* - Recessed Baffel Downlight (Incandescent)
 **D5022E-DT050E.* - Adjustable Semi-Recessed Spotlight
 **D5022E-DT051E.* - Remote Fixtures for Use with Battery Unit
 **D5022E-DT052E.* - Low Voltage Recessed Incandescent
 **D5022E-DT053E.* - Type L Fixture
 **D5022E-DT054E.* - Adjustable Incandescent Interior Spotlight
 D5022E-DT055E.* - Wall Mounted Fluorescent Fixture
 D5022E-DT056E.* - Type: EH6 -- Metal Halide Wall Pak (N.T.S.)
 **D5022I-DT056X.* - Cove Lighting
 D5022E-DT057E.* - Type: PF1 -- Pendant Mtd. Direct/Indirect Compact Fluor. Bowl (N.T.S.)
 D5022E-DT058E.* - Type: PF2 -- Pendant Mtd. Steel Direct/Indirect Fluorescent (N.T.S.)
 D5022E-DT059E.* - Type: PF3 -- Pendant Mtd. Aluminum Direct/Indirect Fluorescent (N.T.S.)
 D5022E-DT060E.* - Type: PF4 -- Pendant Mtd. Steel Indirect Fluorescent (N.T.S.)
 D5022E-DT061E.* - Type: PF5 -- Pendant Aluminum Indirect Fluorescent (N.T.S.)
 D5022E-DT062E.* - Type: PF6 -- Chain Hung 4' Turret Industrial Fluorescent (N.T.S.)
 D5022E-DT063E.* - Type: PF7 -- Chain Hung 8' Turret Industrial Fluorescent (N.T.S.)
 D5022E-DT064E.* - Type: RF1 -- 7" Dia. Recessed Compact Fluor. Lensed Downlight (N.T.S.)
 D5022E-DT065E.* - Type: RF2 -- 6" Dia. Recessed Compact Fluor. Downlight (N.T.S.)
 D5022E-DT066E.* - Type: RF3 -- 8" Dia. Recessed Compact Fluor. Downlight (N.T.S.)
 D5022E-DT067E.* - Type: RF4 -- 8" Dia. Recessed Compact Fluor. Louvered Downlight (N.T.S.)
 D5022E-DT068E.* - Type: RF5 -- 8" Dia. Recessed Compact Fluor. Downlight/Wallwasher (N.T.S.)
 D5022E-DT069E.* - Type: RF6 -- 7" Dia. Recessed Compact Fluor. Lensed Wallwasher (N.T.S.)
 D5022E-DT070E.* - Type: RF7 -- Recessed Lensed 1' X 4' Fluorescent Troffer (N.T.S.)
 D5022E-DT071E.* - Type: RF8 -- Recessed Lensed 2' X 2' Fluorescent Troffer (N.T.S.)
 D5022E-DT072E.* - Type: RF9 -- Recessed Lensed 2' X 4' Fluorescent Troffer (N.T.S.)
 D5022E-DT073E.* - Type: RF10 -- Recessed Parabolic 1' X 4' Fluorescent Troffer (N.T.S.)
 D5022E-DT074E.* - Type: RF11 -- Recessed Parabolic 2' X 2' Fluorescent Troffer (N.T.S.)
 D5022E-DT075E.* - Type: RF12 -- Recessed Parabolic 2' X 4' Fluorescent Troffer (N.T.S.)
 D5022E-DT076E.* - Type: RF13 -- Recessed Open Linear Fluorescent Wall Slot (N.T.S.)
 D5022E-DT077E.* - Type: RF14 -- Recessed Louvered Fluorescent Wall Slot (N.T.S.)
 D5022E-DT078E.* - Type: RF15 -- Recessed Teleconferencing Fluorescent Troffer (N.T.S.)
 D5022E-DT079E.* - Type: RF16 -- Recessed Teleconferencing Fluorescent Troffer w/Angled Lens (N.T.S.)
 D5022E-DT080E.* - Type: RH1 -- 7" Dia. Recessed Low Wattage Open Metal Halide Downlight (N.T.S.)
 D5022E-DT081E.* - Type: RH2 -- 9" Dia. Recessed Metal Halide Downlight (N.T.S.)
 D5022E-DT082E.* - Type: RH3 -- 7" Dia. Recessed Metal Halide Par Downlight (N.T.S.)
 D5022E-DT083E.* - Type: RH4 -- 7" Dia. Recessed Metal Halide Lensed Wallwasher (N.T.S.)
 D5022E-DT084E.* - Type: RI1 -- 6" Dia. Recessed Incandescent Dropped Opal Glass Downlight (N.T.S.)
 D5022E-DT085E.* - Type: RI2 -- 7" Dia. Recessed Incandescent Downlight (N.T.S.)
 D5022E-DT086E.* - Type: RI3 -- 7" Dia. Recessed Par Lamp Downlight (N.T.S.)
 D5022E-DT087E.* - Type: RI4 -- 7" Dia. Recessed Incandescent Downlight/Wallwasher (N.T.S.)
 D5022E-DT088E.* - Type: RI5 -- 7" Dia. Recessed Incandescent Lensed Wallwasher (N.T.S.)
 D5022E-DT089E.* - Type: RI6 -- 7" Dia. Recessed Incandescent Adjustable Accent (N.T.S.)
 D5022E-DT090E.* - Type: RI7 -- 4" Dia. Recessed Low Voltage Incandescent Adjustable Accent (N.T.S.)
 D5022E-DT091E.* - Type: SF2 -- 13" Dia. Surf. Mtd. Baffled Compact Fluor. Downlight (N.T.S.)
 D5022E-DT092E.* - Type: SF6 -- Surface Mounted Lensed 1' X 4' Troffer (N.T.S.)
 D5022E-DT093E.* - Type: SF7 -- Surface Mounted Lensed 2' X 2' Fluor. Troffer (N.T.S.)
 D5022E-DT094E.* - Type: SF8 -- Surface Mounted Lensed 2' X 4' Fluor. Troffer (N.T.S.)
 D5022E-DT095E.* - Type: SF9 -- Asymmetric Indirect Fluor. Mtd. In Architectural Cove (N.T.S.)
 D5022E-DT096E.* - Type: SF10 -- Fluorescent Strip Light (N.T.S.)
 D5022E-DT097E.* - Type: WF1 -- Wall Mounted Compact Fluorescent Sconce (N.T.S.)
 D5022E-DT098E.* - Type: WF5 -- Surf. Mtd. Asymmetric Fluorescent Wall Wash (N.T.S.)
 D5022E-DT099E.* - Type: WF6 -- Wall Mtd. Direct/Indirect Fluor. Luminaire, Steel Construction (N.T.S.)

D5023 Exterior Lighting

- **D5023E-DT001E.* - Exterior HID Bollard Luminaire
- **D5023E-DT002E.* - Exterior Incandescent Luminaire
- **D5023E-DT003E.* - Mounting Detail Type C Fixture
- **D5023E-DT004E.* - Wall Mounted Vaportight Fixture
- **D5023E-DT005E.* - Type ED - Obstruction Light Detail
- **D5023E-DT006E.* - Concrete Base Detail
- **D5023E-DT007E.* - Floodlight and Sports Light
- **D5023E-DT008E.* - Roadway and Area Light
- **D5023E-DT009E.* - Roadway and Area Light
- **D5023E-DT010E.* - Floodlight
- **D5023E-DT011E.* - Obstruction Light
- **D5023E-DT012E.* - Sports and Area Light
- **D5023E-DT013E.* - Fixture Support Detail
- **D5023E-DT014E.* - Lighting Pole Foundation Detail
- **D5023E-DT015E.* - Step Light
- D5023E-DT016E.* - Type: EH1 -- Pole Mtd. Metal Halide Cutoff Luminaire (N.T.S.)
- D5023E-DT017E.* - Type: EH2 -- Pole Mtd. Metal Halide Cobra Head (N.T.S.)
- D5023E-DT018E.* - Type: EH3 -- Pole Mtd. Metal Halide Cobra Head (N.T.S.)
- D5023E-DT019E.* - Type: EH4 -- Pole Mtd. Metal Halide High Mast Luminaire (N.T.S.)
- D5023E-DT020E.* - Type: EH8 -- Wall Mounted Metal Halide Floodlight (N.T.S.)
- D5023E-DT021E.* - Type: EH9 -- Pole Mounted Metal Halide Floodlight (N.T.S.)
- D5023E-DT022E.* - Type: EH10 -- Metal Halide Hazardous Location Floodlight (N.T.S.)
- D5023E-DT023E.* - Type: EH11 -- Metal Halide Bollard (N.T.S.)
- D5023E-DT024E.* - Type: EH13 -- Low Height Metal Halide Pedestrian Pole (N.T.S.)
- D5023E-DT025E.* - Type: EH12 -- Tungsten Halogen Floodlight (N.T.S.)
- D5023E-DT026E.* - Type: SH1 -- Enclosed, Integ. Ballasted 2' X 2' Metal Halide Luminaire (N.T.S.)

D503 Communication and Security Systems

D5030 Misc. System Details

- **D5030E-DT001P.* - Bar Type Cable Tray
- **D5030E-DT002P.* - Channel Type Cable Tray
- **D5030E-DT003I.* - Trough Type Cable Tray
- **D5030E-DT004I.* - Slotted Channeling
- **D5030E-DT005I.* - Closed Channeling
- **D5030E-DT006I.* - Channel Splice
- **D5030E-DT007E.* - Single-Mode Fiber Optic
- **D5030E-DT008E.* - Multi-Mode Fiber Optic
- **D5030E-DT009E.* - Coaxial Cable RG-58/U
- **D5030E-DT010E.* - Shielded Telephone/Station Cable
- **D5030E-DT011E.* - Shielded Copper Twisted Pair
- **D5030E-DT012E.* - Unshielded Copper Twisted Pair
- **D5030E-DT013E.* - Fiber Optic Splice Housing
- **D5030E-DT014E.* - Aerial Splice Case
- **D5030E-DT015E.* - Stainless Steel Splice Case
- **D5030E-DT016E.* - Clear Plastic Splice Case

- **D5030E-DT017E.* - BNC Wall Plate Jack and Connector
- **D5030E-DT018E.* - Fiber Optic Wall Plate Jack and Connector
- **D5030E-DT019I.* - Single Sided Equipment Rack
- **D5030E-DT020I.* - Double Sided Equipment Rack
- **D5030E-DT021I.* - Relay Racks
- **D5030E-DT022E.* - Intermediate Distributing Frame
- **D5030E-DT023E.* - Universal Distributing Frame (Single Sided)
- **D5030E-DT024E.* - Universal Distributing Frame (Double Sided)
- **D5030E-DT025E.* - Universal Distributing Frame (Floor Wall)
- **D5030E-DT026E.* - Wall Frame
- **D5030E-DT027E.* - Pre-wired 66 Block to Modular Jack
- **D5030E-DT028E.* - 66 Block
- **D5030E-DT029E.* - BNC Terminator
- **D5030E-DT030I.* - Telcom Standard Light Cabinet
- **D5030E-DT031I.* - Telcom Standard Heavy Cabinet

D5031 Alarm and Detection Systems

D5032 Clock and Programs Systems

D5033 Voice and Data Systems

- D5033E-DT001E.* - Wire Fiber Outlet
- D5033E-DT002E.* - Typical Modular Telephone Jack
- **D5033E-DT003I.* - Communication Closet
- **D5033E-DT004I.* - Main Cross Connect
- **D5033E-DT005I.* - Intermediate/Horizontal Cross Connect
- **D5033E-DT006E.* - RJ-11 Wall Plate Jack and Connector
- **D5033E-DT007E.* - RJ-45 Wall Plate Jack and Connector
- **D5033E-DT008E.* - Central Office Connector (100 Pair Cap.)

D5034 Public Address and Music Systems

D5035 Television Systems

- D5035E-DT001E.* - Typical TV Outlet Jack

D5036 Underground Communications Details

- D5036E-DT001E.* - Telephone Manhole
- D5036E-DT002I.* - 38Y Precast Telephone Manholes
- **D5036E-DT003P.* - Poured in Place Communication Manhole
- **D5036E-DT004E.* - Communication Duct Entrance Detail
- **D5036E-DT005E.* - Exterior Telecomm Plant Enclosure
- **D5036E-DT006I.* - Exterior Telecomm Plant Enclosure
- **D5036E-DT007E.* - Typical Handhole
- **D5036E-DT008X.* - Typical Handhole Entry
- **D5036E-DT009E.* - Duct Spacers
- **D5036E-DT010E.* - Manhole Cable Racks
- **D5036E-DT011X.* - Typical Manhole
- **D5036E-DT012X.* - Ducts Encased in Concrete
- **D5036E-DT013X.* - Duct Entry into Building
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D5045E-DT001E.* - Secure Area Penetration
D5045E-DT002X.* - Welded Conduit Coupling
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D5046E-DT001E.* - Horizontal Roof Air Terminal Detail
D5046E-DT002E.* - Sloped Roof Air Terminal Detail
D5046E-DT003E.* - Air Terminal & Flat Surface Mounting Base Assembled
D5046E-DT004E.* - Air Terminal Detail
D5046E-DT005E.* - Air Terminal Detail
D5046E-DT006E.* - Air Terminal Detail
D5046E-DT007E.* - Typical Mounting of Terminals on Roof Ridge
D5046E-DT008E.* - Air Terminal Detail
D5046E-DT009E.* - Air Terminal Detail
D5046E-DT010E.* - Grounding Detail
D5047 Unit Power Conditioners
D5048 Grounding Details
**D5048E-DT001E.* - Grounding Plate Detail
**D5048E-DT002E.* - System Ground Detail
**D5048E-DT003E.* - Typical Panel Grounding Detail
**D5048E-DT004X.* - Column Grounding Detail
**D5048E-DT005E.* - Bonding Plate Detail
**D5048E-DT006X.* - Ground Rod Installation Detail
**D5048E-DT007E.* - Ground Bar Detail
**D5048E-DT008E.* - Static Grounding Receptacle Detail

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D5050 Misc. Control Details
D5051 Electrical Systems Controls
D5051E-DT001S.* - Control Diagram for Receptacle
D5052 Lighting Control Systems
D5052E-DT001E.* - Photoelectric Control Detail
D5053 Instrumentation

D506 Electrical Testing
D5060 Misc. Details
D5061 Electrical Systems Testing

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**D6010M-DT002X.* - Double Walled Pipe Cleanout to Grade/Floor Cleanout
D6011 Fuel Oil Systems
**D6011M-DT001E.* - Low Pressure Nitrogen Leak Detection Box Section
**D6011M-DT002X.* - Double-Wall to Single-Wall NPT Pipe Transition Detail
D6012 Fuel Dispensing and Vapor Recovery
D6013 Lubrication Oil Systems
**D6013M-DT002E.* - Lubricant Distribution Station
D6014 Fuel Storage Tanks
**D6014M-DT001X.* - Section Thru 2500 Gal. Underground Tank
**D6014M-DT003X.* - Section Thru 4,000 Gal. Underground Tank
**D6014M-DT004X.* - Section Thru 5,000 Gal. Underground Tank
**D6014M-DT007S.* - Waste Oil Storage Tank Detail
**D6014M-DT008E.* - Fuel Storage Tank Detail
D6015 Day Tanks
**D6015M-DT001E.* - 500 Gal. Daytank
**D6015M-DT002E.* - Fuel Oil Daytank Detail

D602 Auxiliary/Emergency Power

D6020 Misc. Details
**D6020M-DT001X.* - Exhaust Pipe Wall Penetration
**D6020M-DT002S.* - Typical Fuel Flow Schematic
**D6020M-DT003X.* - Vent Pipe Wall Penetration
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**D6020M-DT005E.* - Engine/Generator Fuel System Diagram
D6021 Generator Sets
**D6021M-DT001E.* - 100 kW Diesel Generator Set with Sub-base Tank
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**D6030M-DT003E.* - Z-Bar Pipe Support
**D6030M-DT004E.* - Pipe Support Attached from Ceiling
**D6030M-DT005E.* - Spring Isolated Hanger Detail for Insulated Pipe
**D6030M-DT006E.* - Clevis Hanger Detail for Insulated Pipe
**D6030M-DT007E.* - Pipe Anchor Detail
**D6030M-DT008E.* - Chilled Water Pipe Support Detail
**D6030M-DT009E.* - Wall Hung Steam or Condensate Pipe Support Detail
**D6030M-DT010X.* - Chilled Water Horizontal Pipe Support
**D6030M-DT011X.* - Unit or Tank Mounting Bracket Detail

- **D6030M-DT012E.* - C-Strut Wall Support Detail
- **D6030M-DT013E.* - Pipe Anchoring
- **D6030M-DT014E.* - Pipe Support Detail
- **D6030M-DT016E.* - Wall Hung Pipe Support for Insulated Pipe
- **D6030M-DT017E.* - Ceiling Hung Clevis Hanger Detail for Insulated Pipe
- **D6030M-DT021E.* - Exterior Pipe Support Detail
- **D6030M-DT022X.* - Threaded Rod Attachments From Metal Deck Concrete Slab
- **D6030M-DT023X.* - Pipe & Suspended Equipment Support From Metal Deck Concrete Slab
- **D6030M-DT024X.* - Wall Anchor Detail
- **D6030M-DT026X.* - Straight Anchor Detail
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D6031 MSS Piping Supports

D6032 Seismic Supports

- **D6032M-DT001E.* - Seismic Restraint For Lateral Load
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- **D6032M-DT003E.* - Seismic Restraint For Mechanical Equipment
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- **D6032M-DT006E.* - Seismic Details for Sway Bracing
- **D6032M-DT007E.* - Typical Seismic Pipe Bracing Detail
- **D6032M-DT008E.* - Typical Sway Brace Detail
- **D6032M-DT011E.* - Seismic Brace Details
- **D6032M-DT012E.* - Seismic Restraints for Lateral & Vertical Loads (Neoprene)
- **D6032H-DT015E.* - Manhole Seismic Detail

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- D6051 Hydropower Equipment
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- E1012 Teller and Service Equipment
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E102 Institutional Equipment

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- E1021 Ecclesiastical Equipment
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E103 Vehicular Equipment

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- E1031 Vehicular Service Equipment
 - **E1031M-DT002E.* - Free Standing Parts Washer Cabinet
- E1032 Parking Control Equipment
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E109 Other Equipment

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 - **E1094I-DT001E.* - Washer and Dryer
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 E2010A-DT002X.* - Sink Detail
 E2010A-DT003X.* - Base Cabinet Detail
 E2010A-DT010I.* - Hasp Detail
 E2010A-DT013E.* - Lavatory Cabinet
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 E2010A-DT015E.* - Lavatory Cabinet
 E2010A-DT016.* - Lavatory Cabinet
 E2010A-DT017E.* - Kitchen/Break Room Counter
 E2010A-DT018E.* - Lavatory Cabinet
 E2010A-DT019E.* - Kitchen/Break Room Counter
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 E2010A-DT021E.* - Shelf Detail
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 E2010A-DT025X.* - Wood Base and Chair Rail Detail
 E2010A-DT026X.* - Half Height Wall Cap Detail
 E2010A-DT027E.* - Shelf Detail

E2011 Fixed Artwork
 E2012 Fixed Casework
 **E2012I-DT001X.* - Reception Counter
 **E2012I-DT002X.* - Standing Height Counter

E2013 Window Treatment
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 E2015 Fixed Multiple Seating
 **E2015I-DT001P.* - Auditorium Seating
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E2016 Fixed Interior Landscaping

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 **E2020I-DT001E.* - Lectern
 E2021 Movable Artwork
 E2022 Furniture and Accessories
 **E2022I-DT001P.* - Manager Workstation
 **E2022I-DT002P.* - Clerical Workstation
 **E2022I-DT003P.* - Staff Workstation
 **E2022I-DT004P.* - Shared Workstation
 E2023 Movable Rugs and Mats
 E2024 Movable Multiple Seating
 **E2024I-DT001E.* - Table w/Attached Stools
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F1011 Air Supported Structures
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 F1021 Integrated Assemblies
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F2011 Minor Demolition for Remodeling
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 - **G1032C-DT001X.* - Standard Pipe Trench Width
- G1033 Soil Stabilization
- G1034 Slope Protection and Erosion Control
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 - **G1034C-DT003X.* - Filter Barrier
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 - G1041H-DT003X.* - Typ. Settlement Monument Details
 - G1041H-DT004E.* - Drainage Pipe Detail
 - G1041H-DT005X.* - Rodent Screen
 - G1041H-DT006E.* - Typ. Monument Frame/Drainage Pipe Observation Frame
 - G1041H-DT007E.* - Landfill Liner Anchor Trench Detail
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 - G1041H-DT011P.* - Pipe Bollard Plan View
 - G1041H-DT012E.* - Typ. Slurry Trench Detail
 - G1041H-DT013E.* - Slurry Trench Corner Excavation
 - G1041H-DT014P.* - Typ. Slurry Trench Corner, Plan
- G1042 Extraction/Leachate Collection Systems
 - G1042H-DT001P.* - Extraction Well Vault, Plan
 - G1042H-DT002E.* - Extraction Well Vault, Elevation
 - G1042H-DT0003E.* - Pitless Adapter Detail
 - G1042H-DT004P.* - Well Vault Top Slab Reinforcement Details
 - G1042H-DT005P.* - Typ. Leachate Collection and Leachate Detection Sump
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 - G1042H-DT009P.* - Blower, Flare, Piping Details
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- G1042H-DT011E.* - Knock-Out Pot Detail
- G1042H-DT012P.* - Gas Extraction Well Plan
- G1042H-DT013E.* - Gas Extraction Well Installation, Elevation
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G1043 Monitoring Systems

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- G1043H-DT005E.* - Monitoring Well Construction Detail
- G1043H-DT006E.* - Surface Completion Details for Monitoring Wells
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- G1044H-DT002P.* - Decontamination Facility Plan
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- G2012 Flexible Roadway Pavement
- G2013 Roadway Unit Pavers
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- **G2014C-DT006X.* - Contraction Joint Sealant Details (Insert Type)
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- **G2015C-DT001X.* - Curb and Gutter
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- **G2015C-DT005X.* - New A.C. Pavement at New Concrete Curb
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G2016 Roadway Appurtenances

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- **G2016C-DT002X.* - Section Thru Safety Beam Guardrail
- **G2016C-DT003I.* - Back-up Plate
- **G2016C-DT004I.* - Alternate Steel "H" Beam Post and Offset Block
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- **G2016C-DT007X.* - Section Thru Safety Beam Guardrail, Type "C"
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G2023 Parking Lot Unit Pavers

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Appendix A

Abbreviations for CADD Details Library

Abbreviation	Definition	Abbreviation	Definition
AC	alternating current	ALUM	aluminum
A/C	air conditioning	AMB	ambient
AB	anchor bolt	AMP	ampere
ABV	above	∠	angle
ACC	accessible	ANOD	anodize
ACI	American Concrete Institute	ANSI	American National Standards Institute
ACPL	acoustical plaster	APPD	approved
ACR	acrylic plastic	APPROX	approximate
ACS DR	access door	ARCH	architect
ACS PNL	access panel	ARI	American Refrigeration Institute
ACSR	aluminum conductor steel reinforced	ASB	asbestos
ACST	acoustic	ASC	above suspended ceiling
ACT	acoustical ceiling tile	ASPH	asphalt
A/C UNIT	air conditioning unit	ATC	acoustical tile ceiling
ADDM	addendum	AUTO	automatic
ADH	adhesive	AVG	average
ADJ	adjacent, adjoining, adjustable	AWT	acoustical wall treatment
ADO	automatic door operator	AWG	American wire gauge
AFF	above finished floor	B	bins
AGGR	aggregate	BATT INSUL	batt insulation
AHR	anchor	BB	bulletin board
AHU	air handling unit	BC	bookcase
AI	area inlet	BD	board
AIC	amps interrupting capacity	BDRY	boundary
AISC	American Institute of Steel Construction	BE	bench
A.L.	active leaf	BEJ	brick expansion joint
ALT	alternate	BEV	bevel

Abbreviation	Definition
BITUM	bituminous
BJT	bed joint
BL	building line
BLDG	building
BLK	block
BLKG	blocking
BLW	below
BM	beam
BM	benchmark
BO	bottom of
BOT	bottom
BP	back plaster(ed)
BRCG	bracing
BRDG	bridging
BRG	bearing
BRG PL	bearing plate
BRK	brick
BRKT	bracket
BRZ	bronze
BS	both sides
BSMT	basement
Btu	British thermal unit
BtuH	btu per hour
BTWN	between
BUR	built-up roofing
BW	both ways
CAB	cabinet
CAD	cadmium
CAP	capacity
CB	catch basin
CCT	cubicle curtain track
CE	cover elevation
CEM	cement
CEM PLAS	cement plaster
CER	ceramic
CFI	conductive flooring
CFLG	counterflashing
CFM	cubic feet per minute

Abbreviation	Definition
CG	corner guard
CH BD	chalkboard
CHFR	chamfer
CHIM	chimney
CHK	check
CHR PL	chrome plated
CI	cast iron
CI	curb inlet
CIP	cast-in-place
CIRC	circular
CJ	control joint
CJ	construction joint
CKT	circuit
CKT BRKR	circuit breaker
CL	center line
CLG	ceiling
CLG HT	ceiling height
CLGL	clear glass
CLKG	caulking
CLL	contract limit line
CLO	closet
CLOS	closure
CLR	clear(ance)
CLWG	clear wired glass
cm	centimeter(s)
CMP	corrugated metal pipe
CMPST	composite
CMT	ceramic mosaic (tile)
CMU	concrete masonry unit
CND	conduit
CNL	conductive neoprene latex
CNR	corner
CNTR	counter
CO	cleanout
CO ²	carbon dioxide
COL	column
COM	common
COMB	combustion

Abbreviation	Definition
COMPT	compartment
CONC	concrete
CONN	connect
CONSTR	construction
CONT	continue
CONTR	contractor
CORR	corridor
CORR	corrugated
COV	cover
CPRS	compressible
CPS	cycles per second (hertz)
CPT	carpet
CRCMF	circumference
CRES	corrosive resistant steel
CRG	cross grain
CRS	course(s)
CS	cast stone
CSK	countersunk
CSMT	casement
CT	ceramic tile
CT	current transformer
CTL	carpet tile
C TO C	center to center
CTP	ceramic tile panel
CTR	center
CTSK	countersunk screw
CU	condensing unit
CU	copper
CU FT	cubic feet
CUH	cabinet unit heater
CU YD	cubic yards
CV	ceiling vent
CVH	conductive vinyl homogeneous (sheet type)
CW	cold water
CYL	cylinder
d	penny (as in nail - 10d)
DAT	datum

Abbreviation	Definition
DB	dry bulb
DBL	double
DBL ACT DR	double acting door
DCJ	doweled control joint
DCJT	dummy control joint
DEG	degree
DEMO	demolition
DEP	depressed
DEPR	depression
DEPT	department
DET	detail
DF	drinking fountain
DH	double hung
DH	duct heater
DIA	diameter
DIAG	diagonal
DIM	dimension
DISC	disconnect
DISP	dispenser
DIST	distribution
DIV	division
DL	dead load
D&M	dressed and matched
DMPF	dampproofing
DMPR	damper
DMT	demountable
DN	down
DR	door
DR	drain
DRB	drainboard
DR CL	door closer
DS	double strength (glass)
DS	downspout
DT	drain tile
DTS	dovetail anchor slot
DVTL	dovetail
DWG	drawing

Abbreviation	Definition
DWLS	dowels
DWR	drawer
DWTR	dumbwaiter
DX	direct expansion
E	east
EA	each
EAT	entering air temperature
EF	each face
EJ	expansion joint
EL	elevation - grade or building
ELEC	electric
EM	expanded metal
EMD	estimated maximum demand
EMER	emergency
ENCL	enclose(ure)
ENTR	entrance, entering
EP	electric panelboard
EPRF	explosion proof
EPY	epoxy coating
EQ	equal
EQUIP	equipment
ESCAL	escalator
EST	estimate(d)
EWC	electric water cooler
EWT	entering water temperature
EXC	excavate
EXD	exit device
EXH	exhaust
EXH A	exhaust air
EXIST	existing
EXP	expansion
EXP	exposed
EXP BT	expansion bolt
EXS	extra strong
EXT	exterior
F	Fahrenheit
FA	fire alarm
FA	fresh air

Abbreviation	Definition
FAC	fire apparatus closet
FAI	fresh air intake
FBD	fiberboard
FBO	furnished by others
F BRK	fire brick
FC	foot candle
FC BRK	face brick
FCG	facing
FCJ	floor construction joint
FCO	floor cleanout
FCU	fan coil unit
FD	floor drain
FDMPR	fire damper
FDTN	foundation
FE	fire extinguisher
FEB	fire extinguisher bracket
FEC	fire extinguisher cabinet
FF	factory finish
FF EL	finish floor elevation
FGL	fiberglass
FH	fire hydrant
FH	flat head
FHC	fire hose cabinet
FHMS	flat head machine screw
FHR	fire hose rack
FHS	fire hose station
FHWS	flat head wood screw
FIG	figure
FIN	finish
FIN FLR	finish floor
FIXT	fixture
FJT	flush joint
FLASH	flashing
FLR	floor
FLEX	flexible
FLG	flooring
FLR PL	floor plate
FLUOR	fluorescent

Abbreviation	Definition
FN	fence
FOC	face of concrete
FOF	face of finish
FOM	face of masonry
FOS	face of stud
FP	fire partition
FP	fireproof
FPM	feet per minute
FR	fire resistant
FR	frame
FRG	forged
FRMG	framing
FRT	fire-retardant
FS	full size
FSTNR	fasten(er)
FT	feet
FTG	footing
FURG	furring
FUT	future
FW	fire water
FWC	fabric wall covering
G	gas
GA	gage
GAL	gallon(s)
GALV	galvanized
GALV STL	galvanized steel
GB	grab bar
GC	general contractor
GEN	general
GF	ground face
GFCI	ground fault interrupter
GFE	government-furnished equipment
GFE/CI	government-furnished equipment contractor installed
GI	galvanized iron
GIP	galvanized iron pipe
GKT	gasket(ed)
GL	glass

Abbreviation	Definition
GL BLK	glass block
GLF	glass fiber
GLZ	glazing
GLZ CMU	glazed concrete masonry units
GND	ground
GOVT	government
GPL	gypsum lath
GPM	gallons per minute
GPT	gypsum tile
GRAN	granite
GR LN	grade line
GRTG	grating
GST	glazed structural tile
GSU	glazed structural units
GT	grout
GVL	gravel
GWB	gypsum wallboard
GWT	glazed wall tile
GYP	gypsum
GYP BD	gypsum board
GYP PLAS	gypsum plaster
HB	hose bibb
HC	hollow core
HCD	halon containment damper
HCP	handicapped
HD	head
HD	heavy duty
HDBD	hardboard
HDJT	head joint
HDR	header
HDW	hardware
HDWD	hardwood
HES	high early-strength cement
HEX	hexagon
HH	handhole
HK	hook(s)
HM	hollow metal
HNDRL	handrail

Abbreviation	Definition
HORIZ	horizontal
HP	high pressure
HP	horsepower
HPT	high point
HR	hour
HS	high strength
HSGYP	high-strength gypsum plaster
HSKPG	housekeeping
HT	height
HTG	heating
HTR	heater
HVAC	heating, ventilating and air conditioning
HWH	hot water heater
HYDR	hydraulic
Hz	hertz
IC	intercom
ID	inside diameter
IESNA	Illuminating Engineering Society of North America
ILK	interlock
IN	inch
INCIN	incinerator
INCL	included
INSC	insulating concrete
INSF	insulating fill
INSUL	insulation
INSUL'D	insulated
INT	interior
INTM	intermediate
INV	invert
IP	iron pipe
IPS	iron pipe size
I.P.S.	inside pipe size
JAN CLO	janitor's closet
J-BOX	junction box
JCT	junction
JF	joint filler

Abbreviation	Definition
JST	joist
JT	joint
KCM	kilo circular mil
KIP	kilopound (1000 pounds)
KIT	kitchen
KOP	knockout panel
KPL	kickplate
kV	kilovolts
kVA	kilovolt amperes
kVAR	kilovolt amperes reactive
kW	kilowatt
KWY	keyway
LAB	laboratory
LAD	ladder
LAM	laminated
LAT	leaving air temperature
LAU	laundry
LAV	lavatory
LB	lag bolt
LB	pound
LBL	label
LBR	lumber
LC	light control
LD	load
LDG	loading
LG	length
LH	left hand(ed)
LIN	linear
LKR	locker
LL	live load
LLD	lead-lined door
LM	lumen
LMST	limestone
LNTL	lintel
LONG	longitudinal
LP	lightproof
LPD	lightproof door

Abbreviation	Definition	Abbreviation	Definition
LPL	lightproof louver	ML	metal lath
LPT	low point	ML	monolithic
LR	living room	MLDG	moulding
LS	lawn sprinkler	MLWK	millwork
LT	light	mm	millimeter(s)
LT WT	lightweight	MNIC	material not in contract (installation by contractor)
LTG	lighting	MO	masonry opening
LTNG	lightning	MOD	modular
LVR	louver	MOD.	modified
LWC	lightweight concrete	MOT	motor
LWT	leaving water temperature	MP	movable partition
m	meter(s)	MR	mop receptor
M&B	matched and beaded	MRB	marble
MACH	machine	MRD	metal roof decking
MAS	masonry	MS	machine screws
MATL	material(s)	MSTC	mastic
MAX	maximum	MT	metal threshold
MB	machine bolts	MT	mount
MBR	member	MTD	mounted
MC	medical cabinet	MTFR	metal furring
MCJ	masonry control joint	MTL	metal
MCO	metal-cased opening	MVBL	movable
MDS	metal divider strip	MULL	mullion
MECH	mechanical	N	north
MECH RM	mechanical room	NAT	natural
MED	medium	NC	normally closed
MEMB	membrane	NEC	National Electrical Code
MES	metal edge strip	NEMA	National Electrical Manufacturers Association
MFD	metal floor decking	NFPA	National Fire Protection Association
MFG	manufacturing	NKL	nickel
MFR	manufacturer	NIC	not in contract
MG	motor generator	NL	nailable
MGT	matte-glazed tile	N.L.	neoprene latex
MH	manhole	NMT	nonmetallic
MI	malleable iron	NO	normally open
MIN	minimum	NO	number
MIRR	mirror	NOM	nominal
MISC	miscellaneous		

Abbreviation	Definition
NR	noise reduction
NRC	noise reduction coefficient
N'REQD	not required
NTS	not to scale
OA	outside air
OBSC	obscure
OBW	observation window
OC	on center
OCEW	on center each way
OD	outside diameter
OFF	office
OGI	obscure glass
OH	overhead
OHMS	ovalhead machine screw
OHWS	ovalhead wood screw
OJ	open-web joist
OPH	opposite hand
OPNG	opening
OPP	opposite
OPQ	opaque
OPS	operations
OS & Y	outside screw and yoke
OWGL	obscure wired glass
P	pole
PA	public address
PAR	parallel
PB	panic bar
PBD	particle board
PBS	push button station
PC	piece
PCC	precast concrete
PCF	pounds per cubic foot
PCP	cement plaster (portland)
PD	pavement drain
PED	pedestal
PERF	perforate(d)
PERIM	perimeter
PH	phase

Abbreviation	Definition
PHAR	pharmacy
PI	point of intersection
PIPU	prefab isolation power unit
PIV	post indicating valve
PL	plate
PL	property line
PLAM	plastic laminate
PLAS	plaster
PLAT	platform
PLBG	plumbing
PLF	pounds per linear foot
PLG	piling
PL GL	plate glass
PLYWD	plywood
PNL	panel
PNT	paint(ed)
POL	polished
PORC	porcelain
PORT	portable
PPGL	polished plate glass
PPM	parts per million
PR	pair
PREFAB	prefabricate(d)
PREFIN	prefinished
PREFMD	preformed
PRKG	parking
PROJ	project
PRV	pressure-regulating valve
PS	pipe space
P.S.	pressed steel
PS CONC	prestressed concrete
PSF	pounds per square foot
PSI	pounds per square inch
PT	pneumatic tube
PT.	point
PT CONC	post-tensioned concrete
PTD	paper towel dispenser
PTN	partition

Abbreviation	Definition
PTR	paper towel receptacle
PV	paved
PVC	polyvinyl chloride
PVMT	pavement
PW	pass window
QT	quarry tile
QT.	quart
QTR	quarter
1/4 RND	quarter round
QTY	quantity
R	radius
R	range
RA	return air
RAB	rabbeted
RA GR	return air grille
RAR	return air register
RB	rubber base, resilient base
RBL	rubble stone
RBR	rubber
RC	remote control
RCP	reinforced concrete pipe
RCVR	receiver
RD	roof drain
RDGE	ridge
RECPT	receptacle
REC ROOM	recreation room
RECT	rectifier
REF	reference
REFL	reflect
REFR	refrigeration
REG	register
REG	reglet
REINF	reinforce
REM	remove(able)
REQD	required
RESIL	resilient
RET	return
REV	revision

Abbreviation	Definition
RFG	roofing
RGH	rough
RH	relative humidity
RH	right hand
RH	roof hatch
RK	rack
RLG	railing
RM	room
RND	round
RO	rough opening
ROW	right of way
RP	retractable partition
RPM	revolutions per minute
RPRT	raised pattern rubber tile
RSR	riser
RTF	rubber tile floor
RVS	reverse
RVT	rivet
RWC	rainwater conductor
S	south
SA	supply air
SB	splash block
S.B.	security bars
SC	solid core
SCHED	schedule
SCR	screw
SCRN	screen
SCT	structural clay tile
SCUT	scuttle
SD	storm drain
SDI	Steel Door Institute
SECT	section
SEQ	sequence
SFGL	safety glass
SFTU	structural facing tile unit
SFU	structural facing unit
SG	sheet glass
SHLDR	shoulder

Abbreviation	Definition
SHT	sheet
SHTHG	sheathing
SHV	shelving
SIM	similar
SJI	Steel Joist Institute
SKLT	skylight
SLNT	sealant
SLV	sleeve
SM	sheet metal
SMS	sheet metal screws
SOV	shut off valve
SPC	spacer
SPCL	special
SPD	soundproof door
SPEC	specification
SPF	soundproof
SP FIN	special finish
SPH	space heater
SPKR	speaker
SQ	square
SQHD	square head
S&R	shelf and rod
SS	service sink
SS	standing seam (roof)
SST	stainless steel
STA	station
STD	standard
STG	seating
STL	steel
STN	stone
STOR	storage
ST PR	static pressure
STR	stringer
STRUCT	structural
STWY	stairway
SUB FL	subfloor
SUSP	suspended
SV	sheet vinyl

Abbreviation	Definition
SW	switch
SWBD	switchboard
SYMM	symmetrical
SYNTH	synthetic
SYS	system
T	tread
TAN	tangent
TB	towel bar
TC	terra cotta
TEL	telephone
TEMP	temperature
TEMP	temporary
TER	terrazzo
TERM	terminal
T&G	tongue and groove
TGL	toggle
TH	truss head
THK	thick(ness)
THRES	threshold
TK BD	tackboard
TKS	tackstrip
TO	top of
TOIL	toilet
TOL	tolerance
TOPO	topography
TPD	toilet paper dispenser
TPTN	toilet partition
TRANS	transom
TRANS	transverse
TOS	top of slab
TOS	top of steel
TOW	top of wall
TSTAT	thermostat
TT	terrazzo tile resinous matrix
TV	television
TYP	typical
UC	unit cooler
UGND	underground

Abbreviation	Definition
UH	unit heater
UL	Underwriters Laboratories
UNEX	unexcavated
UNFIN	unfinished
UPS	uninterruptable power supply
UR	urinal
UTIL	utility
UV	unit ventilator
V	volt
VAB	vapor barrier
VAR	varnish
VB	vinyl base
VCT	vinyl composition tile
VCT	vitrified clay tile
VD	vault door
VENT	ventilator(ion)
VERT	vertical
VEST	vestibule
VF	vinyl fabric
VG	vertical grain
VH	vinyl homogeneous
VIN	vinyl
VJ	v-joint(ed)
VNR	veneer
VOL	volume
VRM	vermiculite
VS	vent stack
VT	vinyl tile
V.T.	voltage transformer
VTR	vent thru roof
VWC	vinyl wall covering
W	west
W/	with
WB	wet bulb

Abbreviation	Definition
WBL	wood blocking
WC	water closet
W/C	wheelchair
WCO	wood-cased opening
WD	wood
WD	wood door
WDSP	waste disposer
WDW	window
WF	wire flange
WG	wire glass
WH	wall hung
WHB	wheel bumper
WHM	watt-hour meter
WI	wrought iron
WKSH	work shop
WM	wire mesh
W/O	without
WP	waterproof(ing)
WP	weatherproof
WP	working point
WR	waste receptacle
WRB	wardrobe
WS	waterstop
W.S.	waste stack
WSCT	wainscot
WT	weight
WTH	width
W/W	wall to wall
WWF	welded wire fabric
WWM	woven wire mesh
XFMR	transformer
YD	yard
YD	yard drain

Appendix B

Metric Construction Information

The following information was published in the Construction Metrication Council's *Construction Metrication* newsletter, Volume 10, Issue 3, dated 4th Quarter 2001. *Construction Metrication* is a quarterly newsletter designed to inform the building community about metrication in U.S. construction. The Construction Metrication Council was created by the National Institute of Building Sciences to provide industry-wide, public, and private sector support for the metrication of Federal construction and to promote the adoption and use of the metric system of measurement as a means of increasing the international competitiveness, productivity, and quality of the U.S. construction industry. The current Chairman of the Council is Mr. Thomas R. Rutherford, P.E., DoD, and the Executive Director is Mr. William A. Brenner, AIA. The Center would like to thank Mr. Brenner for allowing the reprint of the Council's newsletter information. For information on how to subscribe to *Construction Metrication*, please address all inquiries to the following:

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WHAT WILL CHANGE AND WHAT WILL STAY THE SAME?

METRIC MODULE AND GRID

What will change

- The basic building module, from 4 inches to **100 mm**.

What will stay the same

- A module and grid based on rounded, easy-to-use dimensions. The 100-mm module is the global standard.

DRAWINGS

What will change

- Units, from feet and inches to millimeters for all building dimensions and to meters for large site plans and civil engineering drawings. Unit notations are unnecessary: if there's no decimal point, it's millimeters; if there's a decimal point carried to one, two, or three places, it's meters. Centimeters are not used in construction.

- Drawing scales, from inch-fractions- to-feet to true ratios. Preferred metric scales are **1:1** (full size); **1:5** (close to 3" = 1'-0"); **1:10** (between 1" = 1'-0" and 1-1/2" = 1'-0"); **1:20** (between 1/2" = 1'-0" and 3/4" = 1'-0"); **1:50** (close to 1/4" = 1'-0"); **1:100** (close to 1/8" = 1'-0"); **1:200** (close to 1/16" = 1'-0"); **1:500** (close to 1" = 40'-0"); **1:1000** (close to 1" = 80'-0").
- Drawing sizes, to the ISO "A" series: **A0 (1189 x 841 mm, 46.8 x 33.1 inches)**; **A1 (841 x 594 mm, 33.1 x 23.4 inches)**; **A2 (594 x 420 mm, 23.4 x 16.5 inches)**; **A3 (420 x 297 mm, 16.5 x 11.7 inches)**; **A4 (297 x 210 mm, 11.7 x 8.3 inches)**. Of course, metric drawings can be made on any size paper.

What will stay the same

- Drawing contents.

Never use dual units (both inch-pound and metric) on drawings. It increases dimensioning time, doubles the chance for errors, makes drawings more confusing, and postpones the learning process.

SPECIFICATIONS

What will change

- Units of measure, from inch-pound to metric units.

What will stay the same

- Everything else in the specification.

Do not use dual units in specifications except when the use of an inch-pound measure serves to clarify an otherwise unfamiliar metric measure; then place the inch-pound unit in parentheses after the metric. For example, "7.5 kW (10 horsepower)." All unit conversions should be **checked by a professional** to ensure that rounding does not exceed allowable tolerances.

CONSTRUCTION PRODUCTS

What will change

- Concrete block, drywall, plywood, and suspended ceiling and raised flooring systems. The dimensions of these products will eventually change to fit a 100-mm module.
- Products that are fabricated or formed for each job (for example, cabinets, trusses, ductwork, commercial doors and windows, and concrete work. These products usually can be made in inch-pound or metric sizes with equal ease.

What will stay the same

- All other products since they are either cut-to-fit for each job—such as structural steel, framing lumber, trim siding, wiring, piping, and roofing—or are not dimensionally sensitive—for example, fasteners, hardware, electrical components, plumbing fixtures, and HVAC equipment. These products simply will be relabeled in metric units. A 2-3/4" x 4-1/2" wall switch face plate might be relabeled 70 x 115 mm and a 30-gallon tank, 114 L. Manufacturers are converting many of these products to new rational metric sizes, but only as it becomes convenient and economical for them to do so.

"2-BY-4" STUDS AND OTHER "2-BY" WOOD AND METAL FRAMING MEMBERS

What will change

- Spacing, from 16" to **400 mm**, and 24" to **600 mm**.

What will stay the same

- Framing member cross sections.

"2-bys" are produced in fractional inch dimensions now so there is no need to convert

them to new rounded “hard” metric dimensions. “2-by-4s” may keep their traditional name forever, or perhaps they’ll eventually be called “50 x 100s” (mm), or, more precisely but less likely, “38 x 89s.”

DRYWALL, PLYWOOD, OSB, PARTICLE BOARD, AND RELATED SHEET PRODUCTS

What will change

- Widths, from 4’-0" to **1200 mm**.
- Heights, from 8’-0" to **2400 mm**, 10’-0" to **3000 mm**.

What will stay the same

- Thicknesses, so fire, acoustic, and thermal ratings won’t have to be recalculated.

Metric drywall and plywood are readily available, but require longer delivery lead times and may cost more in small amounts until their use becomes more common.

BATT INSULATION

What will change

- Nothing, although batts may be relabeled to include nominal metric widths, such as **16"/400 mm** or **24"/600 mm**.

What will stay the same

- Everything else.

Batts will not change in width; they’ll just have a tighter “friction fit” when installed between metric-spaced framing members.

DOORS

What will change

- Heights, from 6’-8" to **2050 mm** or **2100 mm** and from 7’-0" to **2100 mm**.

- Widths, from 2’-6" to **750 mm**; 2’-8" to **800 mm**; 2’-10" to **850 mm**; 3’-0" to **900 mm** or **950 mm**; and 3’-4" to **1000 mm**.

What will stay the same

- Door thicknesses.
- Door materials and hardware.

For commercial work, doors and doorframes can be ordered in any size since they normally are custom-fabricated.

CEILING SYSTEMS

What will change

- Grids and lay-in ceiling tile, air diffusers, and recessed lighting fixtures— from 2’ x 2’ to **600 x 600 mm** and from 2’ x 4’ to **600 x 1200 mm**.

What will stay the same

- Grid profiles, tile thicknesses, air diffuser capacities, florescent tubes, and means of suspension.

RAISED FLOOR SYSTEMS

What will change

- Grids and lay-in floor tile, from 2’ x 2’ to **600 x 600 mm**.

What will stay the same

- Grid profiles, tile thicknesses, and means of support.

HVAC CONTROLS

What will change

- Temperature units, from Fahrenheit to Celsius.

What will stay the same

- Everything else.

Controls are now digital so temperature conversions can be made with no difficulty.

BRICK

What will change

- Standard brick to **90 x 57 x 190 mm**.
- Mortar joints from 3/8" and 1/2" to **10 mm**.
- Brick module from 2' x 2' to **600 x 600 mm**.

What will stay the same

- Brick and mortar composition.

Of the 100 or so brick sizes currently made, most are within a millimeter of a metric brick size so the brick industry has no trouble supplying "metric" brick.

CONCRETE BLOCK

What will change

- Block sizes to **190 x 190 x 390 mm**.
- Mortar joints from 1/2" to **10 mm**.
- Block module from 2' x 2' to **600 x 600 mm**.

What will stay the same

- Block and mortar composition.

SHEET METAL

What will change

- Designation from "gage" to millimeters.

What will stay the same

- Metal thicknesses.

When specifying sheet metal in metric units, SMACNA recommends stating *minimum* thicknesses; using soft-converted thicknesses may be confusing to suppliers.

CONCRETE

What will change

- Strength designations from "psi" to megapascals rounded to the nearest 5 megapascals per ACI 318M, such as: 2500 psi to **20 MPa**; 3000 psi to **25 MPa**; 3500 psi to 25 Mpa; 4000 psi to **30 MPa**; 4500 psi to **35 MPa**; 5000 psi to **35 MPa**. The amount of rounding will depend upon the use of the concrete.

What will stay the same

- Everything else.

REBAR [revised 10/95]

What will change

- Rebar has been renamed per ASTM standards as follows: #3 to #10, #4 to #13, #5 to #16, #6 to #19, #7 to #22, #8 to #25, #9 to #29, #10 to #32, #11 to #36, #14 to #43, and #18 to #57.

What will stay the same

- Rebar cross sections.

GLASS

What will change

- Cut sheet dimensions, from feet and inches to millimeters.

What will stay the same

- Sheet thickness, sheet glass can be produced in any thickness and often is made in even millimeters sizes. See ASTM C1036.

PIPE AND FITTINGS

What will change

- Nominal pipe and fitting designations, from inches to millimeters.

What will stay the same

- Pipe and fitting cross sections and threads.

Pipes and fittings are produced in “soft” decimal inch dimensions but are identified in nominal inch sizes as a matter of convenience. A 2-inch pipe has neither an inside nor an outside diameter of 2 inches, a 1-inch fitting has no exact 1-inch dimension, and a 1/2-inch sprinkler head contains no 1/2-inch dimension anywhere, so there is no need to “hard” convert pipes and fittings to rounded metric dimensions. They will not change size but simply be relabeled in metric units as follows: 1/8" = **6 mm**; 3/16" = **7 mm**; 1/4" = **8 mm**; 3/8" = **10 mm**; 1/2" = **15 mm**; 5/8" = **18 mm**; 3/4" = **20 mm**; 1" = **25 mm**; 1-1/4" = **32 mm**; 1-1/2" = **40 mm**; 2" = **50 mm**; 2-1/2" = **65 mm**; 3" = **75 mm**; 3-1/2" = **90 mm**; 4" = **100 mm**; 4-1/2" = **115 mm**; and 1" = **25 mm** for all larger sizes.

ELECTRICAL CONDUIT

What will change

- Conduit designations from feet and inches to millimeters.

What will stay the same

- Conduit cross sections.

Electrical conduit is similar to piping: it is produced in “soft” decimal inch dimensions but

identified in nominal inch sizes. Neither nonmetallic nor metallic conduit will change size; they be relabeled in metric as follows: 1/2" = **16 (mm)**, 3/4" = **21**; 1" = **27**; 1-1/4" = **35**; 1-1/2" = **41**; 2" = **53**; 2-1/2" = **63**; 3" = **78**; 3-1/2" = **91**; 4" = **103**; 5" = **129**; 6" = **155**.

ELECTRICAL WIRE

What will change

- Nothing at this time.

What will stay the same

- Existing American Wire Gage (AWG) sizes.

STRUCTURAL STEEL

What will change

- Section designations, from inches to millimeters and from pounds per foot to kilograms per meter, in accordance with ASTM A6M.
- Bolts, to metric diameters and threads per ASTM A325M and A490M.

What will stay the same

- Cross sections.

Like pipe and conduit, steel sections are produced in “soft” decimal inch dimensions (with actual depths varying by weight). They are designated in both rounded inch dimensions and rounded (to the nearest 10 mm) metric dimensions. Thus, a 10-inch section is also designated as a 250-mm section and a 24-inch section is also designated as a 610-mm section.

Appendix C

Detail Revision/Deletion Recommendation Form

Name: _____

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Detail Name: _____

Recommendation (Check one): Revise _____ Delete _____

Reason: _____

Please attach additional pages if more space is required.

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1. REPORT DATE (DD-MM-YYYY) November 2002		2. REPORT TYPE Final report		3. DATES COVERED (From - To)	
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13. SUPPLEMENTARY NOTES					
14. ABSTRACT Several years ago, before computer-aided design and drafting (CADD) became the standard drafting tool in design, a seasoned draftsman might require, on the average, 40 hr to develop a sheet of construction details. By using CADD, this effort has easily been reduced to less than 15 hr. By employing the proposed CADD Details Library, an entire sheet of 20 details can be constructed in less than 10 min and, in many cases, require only minor project-specific modifications. By any measure, the development and reuse of CADD details represent a considerable time-saving tool. It is important to realize that the CADD Details Library was developed by collecting existing details within the Department of Defense (DoD). The former Architectural Automation Task Group (AATG), now renamed the Architectural Automation Field Working Group (AAFVG), did not expend design funds to hire an architect/engineer or use in-house resources to develop completely new details. The AATG membership simply organized existing details into a generic format and cataloged them by type. <p style="text-align: right;"><i>(Continued)</i></p>					
15. SUBJECT TERMS Architectural Details CADD		CADD Details Construction Details Details			
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14. (Concluded).

To further simplify the use of the details library, the AAFWG tasked the Tri-Service CADD/GIS Technology Center (Center) to develop an icon-driven software retrieval system. Developed with MDL and AutoLISP programming, the retrieval software will work on UNIX and DOS Intergraph platforms and AutoCAD DOS systems.

Typically, detailing on a design project does not begin prior to the 35-percent design phase. At the 35-percent phase, the designer has defined the building's structure and envelope requirements and is ready to begin selecting typical project details.

After reviewing the generic details in hardcopy format and identifying usable details, the designer/draftsman initiates the "DETAILS" program. The designer scrolls through the details listing, identifies the desired detail, reviews it within the display icon, and then places it on the details sheet. The retrieval program provides a rectangular box (representing the detail's dimensions) that may be dragged within the drawing file and placed by snapping to any of the grid intersection points on the provided details sheet. The detail is automatically placed, and the process is repeated until the entire sheet is filled. Simple modifications to the details to meet specific job requirements complete the sheet. The designer may also call up the details routine while in any design file, thus enabling detail placement anywhere within a set of drawings.

The CADD Details Library should always be considered a "living" document. This means the library may change as often as twice a year. The Center will publish the first *Call For Details* in 1994, giving agency designers an opportunity to implement the format in their everyday work habits. After the details are collected, each Center Field Working Group will meet to review and assemble the second generation of the CADD Details Library. The Center will continue to distribute the new libraries and retrieval software. Through evolution, the library will grow to include all the design disciplines with cost incurred only for technical review, reproduction, and distribution.

Future additions to the library will offer entire sheets of preassembled details where a designer will be able to call up a sheet of details, schedules, elevations, etc., and then simply delete those details that do not pertain to the current project.

It is the Center's hope that the work of the AAFWG and other Field Working Groups to develop comprehensive, multidiscipline sets of CADD details will not only help designers in their daily work but also demonstrate the Tri-Service commitment to CADD productivity.

Destroy this report when no longer needed. Do not return it to the originator.