



**US Army Corps  
of Engineers®**  
Engineer Research and  
Development Center

## **CAD Details Library**

The CAD/BIM Technology Center

July 2004  
(Revised September 2009)

# **CAD Details Library**

The CAD/BIM Technology Center

*U.S. Army Engineer Research and Development Center  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199*

Final report

Approved for public release; distribution is unlimited

**ABSTRACT:**

Several years ago, before computer-aided design (CAD) became the standard drafting tool in design, a seasoned draftsman might require, on the average, 40 hours to develop a sheet of construction details by hand. Through the use of CAD, the effort of creating a single detail has been reduced considerably. Once the designer has created a detail using CAD 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 CAD details represents a considerable time-saving tool to the designer.

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.

When what was formerly called the CADD/GIS Technology Center (Center) was established in 1992, one of the first tasks was the compilation of a CAD 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 (AAFVG) tasked the Center to develop an icon-driven software retrieval system. This program, called the CADD Details Manager, was developed using MDL and AutoLISP programming. The retrieval software ran on both MicroStation and AutoCAD platforms using UNIX, DOS, and Windows operating systems.

The CAD 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 CAD 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 CAD Details CD-ROM. The 2004 edition of the CAD Details CD-ROM added Interiors, Fire Protection, and Telecommunications details to the growing library.

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

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# Summary

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# Preface

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

**It must be emphasized that the intent of this document is not to provide "Standard Details," but to furnish CAD 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 CAD Details Library was Stephen C. Spangler of the Center.

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Original authors of the CAD Details Library reports were James T. Wilson and Stephen C. Spangler of the Center. 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. Reed L. Mosher. The Director of ERDC is Dr. James R. Houston. The Commander and Executive Director of ERDC is COL Gary E. Johnston.

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.

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# 1 Introduction

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The use of computer-aided design (CAD) 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 CAD design packages, the sharing of CAD-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 CAD/BIM 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 CAD Details Library.

## 2 CAD Details Library

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### 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 CAD 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 CAD 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 “feet” and “inches” for inch-pound details and “millimeters” for metric details. For AutoCAD details, the default “Units” setting should be “Architectural” for inch-pound details and “Decimal” for metric details.

#### Levels/layers

A previous edition of the CAD 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 level/layer standard for details has been developed for the



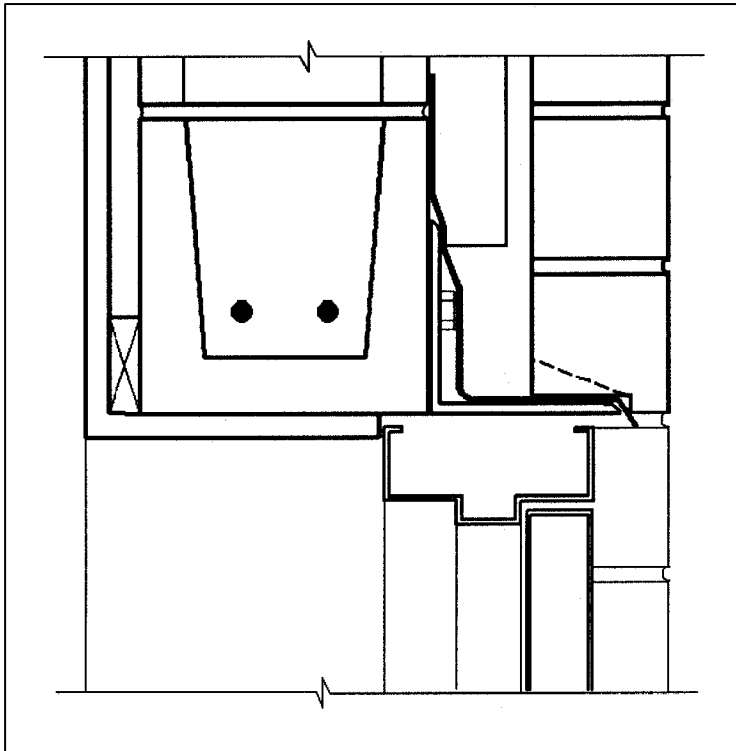


Figure 1. Detail drawn at full size

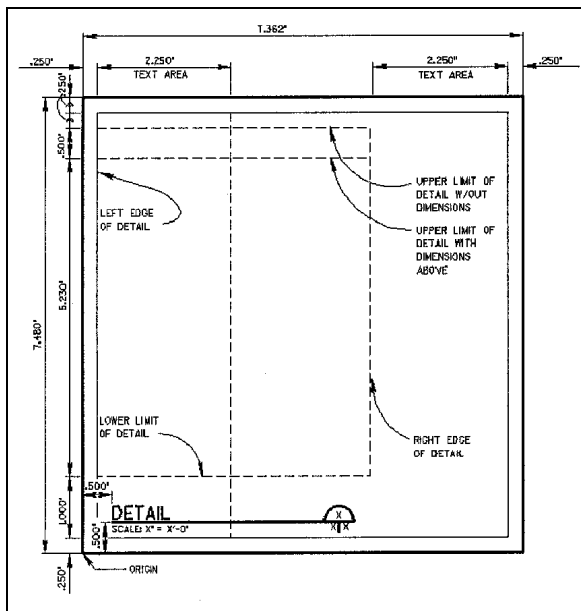


Figure 2. Inch-pound detail layout box

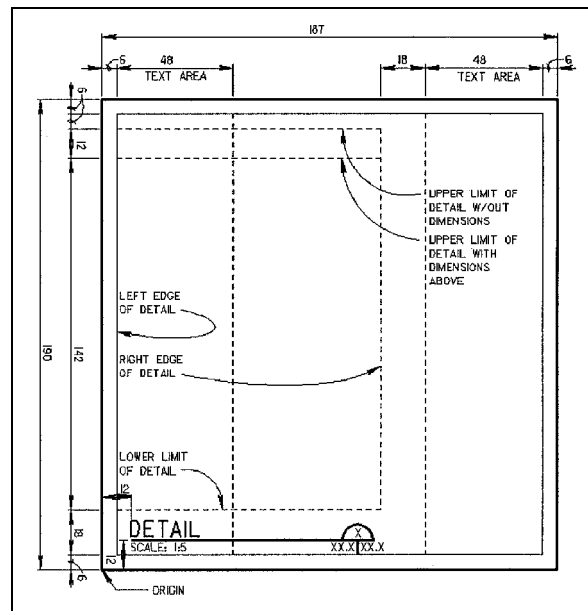


Figure 3. Metric detail layout box

Architectural/Engineering/Construction (A/E/C) CAD Standard (Table 1). Levels/layers are grouped into the following categories: general information (ANNO levels/layers), and detail graphics.

### Color/line weights

The primary purpose of color is to provide a drawing with visual depth and clarity. A previous edition of the CAD 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 colors 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 CAD 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, the CAD 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.

<b>Table 1 Detail Levels/Layers</b>	
<b>Level/Layer Name</b>	<b>Level/Layer Description</b>
*-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text
*-ANNO-KEYN	Reference keynotes with associated leaders
*-ANNO-NPLT	Non-plotting graphic information
*-ANNO-PATT	Miscellaneous patterning and hatching
*-ANNO-NOTE	General notes and general remarks
*-ANNO-SYMB	Reference bubbles, matchlines, and breaklines
*-ANNO-TEXT	Detail title text, text and associated leaders, notes
*-DETL-GRPH	Graphics, gridlines, nontext items
Note: See Table 2 for a listing of the Discipline Designators available for use in the "*" field.	

<b>Table 2 Discipline Designators</b>	
<b>Discipline</b>	<b>Designator</b>
General	G
Hazardous Materials	H
Survey/Mapping	V
Geotechnical	B
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

<b>Table 3 Color Comparison</b>		
<b>Color</b>	<b>AutoCAD Color #</b>	<b>MicroStation Color #</b>
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 CAD Standard.

<b>Table 4 Line Weights</b>			
<b>Line Thickness</b>	<b>mm</b>	<b>in.</b>	<b>MicroStation Line Weight</b>
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
XX Wide	1.00	0.040	LW = 7
XXX Wide	1.40	0.055	LW = 10
XXXX Wide	2.00	0.079	LW = 15

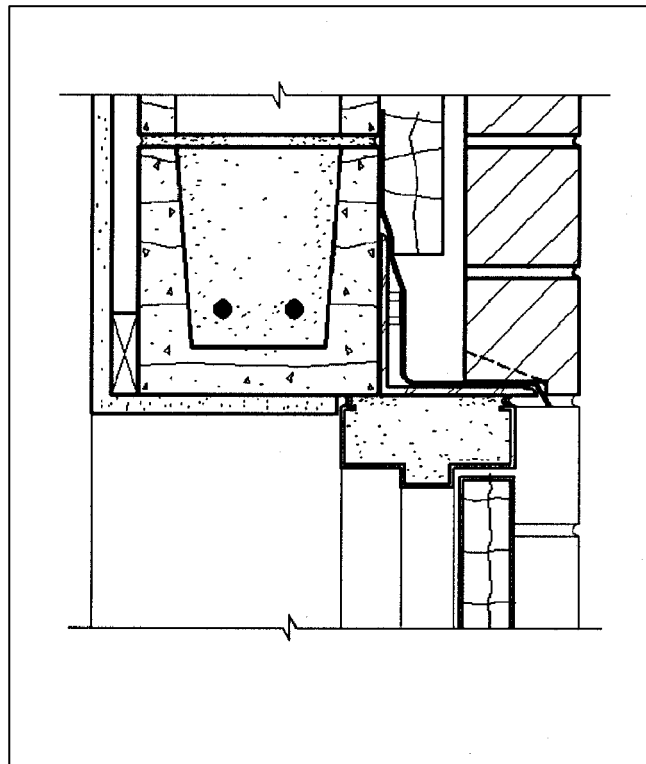


Figure 4. Patterning/hatching added to detail

<b>Table 5 Inch-Pound Text Heights</b>		
<b>Detail Scale</b>	<b>Height at Which Notes and Dimensions Should be Placed</b>	<b>Height at Which Detail Title Text Should be Placed</b>
1/32" = 1' - 0"	4'	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"

<b>Table 6 Metric Text Heights</b>		
<b>Detail Scale</b>	<b>Height at Which Notes and Dimensions Should be Placed, mm</b>	<b>Height at Which Detail Title Text Should be Placed, mm</b>
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

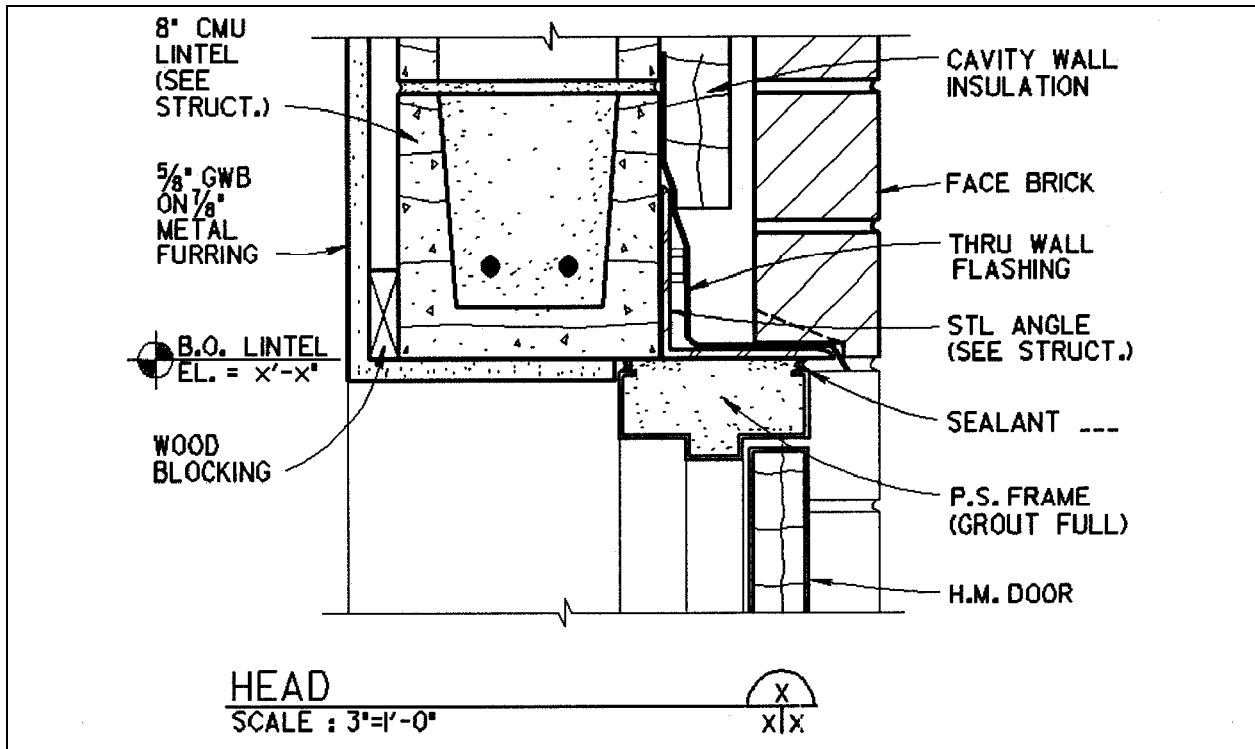


Figure 5. Text, dimensions, leader lines, and titles added to detail

## 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 CAD 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 CAD Details Library file-naming methodology (see Figure 6).

<b>EXAMPLE: B2016A-DT007X.dwg</b>	
<b>Level 1 Category:</b>	B = Shell
<b>Level 2 Category:</b>	20 = Exterior Closure
<b>Code:</b>	1 = Exterior Walls
<b>Sub-Code:</b>	6 = Exterior Louvers, Grilles, and Screens
<b>Discipline Designator:</b>	A = Architectural
<b>Model File Type:</b>	DT = Detail
<b>User Definable:</b>	
<b>Detail Number:</b>	007 = Detail #007
<b>Graphics Type:</b>	
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 CAD Details Library, Retrieval and Use

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## Background

The CAD Details Library was previously distributed on CD-ROM. The CD contained all the details (both AutoCAD and MicroStation formats) and a utility called the CAD Detail Manager. This utility allowed the user to preview, scale, and insert details into either AutoCAD or MicroStation. However, the CAD platforms (AutoCAD and MicroStation) were always evolving, which resulted in the installation routine for the CAD Detail Manager quickly becoming obsolete after the CD was released. The Center would then have to develop patches to the installation routine, allowing the CAD Detail Manager to be used with the latest versions of the CAD software.

For the latest release of the CAD Details Library, the Center looked into various products available for maintenance and distribution of detail libraries. Detail Manager PLUS from Mill Creek Systems, Inc., was ultimately selected as the product that met all criteria. Detail Manager PLUS operates very much like the former CAD Detail Manager program, except it works via an internet site versus a static CD-ROM. Additions/revisions to the CAD Details Library are made through changes to a Microsoft SQL Server database, eliminating the need for pressing a new CD-ROM every time changes are made. The Detail Manager PLUS product also works with both AutoCAD and MicroStation. As these CAD products evolve through future releases, the Center has a maintenance agreement with Mill Creek Systems to receive updates to the Detail Manager PLUS product (if required).

## Obtaining the Detail Manager PLUS Add-on

Detail Manager PLUS requires the installation of an Internet Explorer add-on. Once this add-on is installed, the Web site and product are ready for use. To obtain the add-on, visit the CAD/BIM Technology Center's Web site at: <https://cadbim.usace.army.mil/CAD>.

## Detail Manager PLUS

As mentioned, Detail Manager PLUS operates (and looks) very much like the old CAD Detail Manager utility (see Figure 7), except the details are being called directly from a Web site versus a CD-ROM. The CAD Details Library Web site may be found at: <http://caddetails.usace.army.mil/>.

Within Detail Manager PLUS, details are located by selecting the Units (Inch-Pound or Metric), the Discipline (Architectural, Mechanical, Electrical, etc.), and the Type of detail (Exterior Doors, Exterior Walls, Exterior Windows, etc.) from pull-down menus. Details may be previewed by selecting (highlighting) any detail from the resulting list. The selection process is completed by selecting the scale at which the detail was drawn. Finally, either the **Insert Block** or **Place Cell** button is selected, and the detail is immediately available to place into an active session of AutoCAD or MicroStation.

To place a detail, the following steps are used (**Note:** make sure an active session of AutoCAD or MicroStation is running).

### Step 1

Select whether an inch-pound or metric version of the detail is required. (**Note:** not all details have both versions available)

### Step 2

Locate the desired detail by stepping through the Discipline and Type pull-down menus in Detail Manager PLUS. A list of detail descriptions will then appear. Clicking on a detail description will call up a preview image of that particular detail.

### Step 3

Once the desired detail has been located, note in the preview image the scale at which the detail was created. Selecting that particular scale from the Scale pull-down menu will allow for the detail to be placed correctly in AutoCAD or MicroStation with the correct text heights (i.e., either 1/8" (3 mm) for notes and dimensions and 1/4" (6 mm) for detail title text).

### Step 4

Click on either the **Insert Block** button for AutoCAD or the **Place Cell** button for MicroStation and the detail is ready for insertion into an active session of AutoCAD or MicroStation.

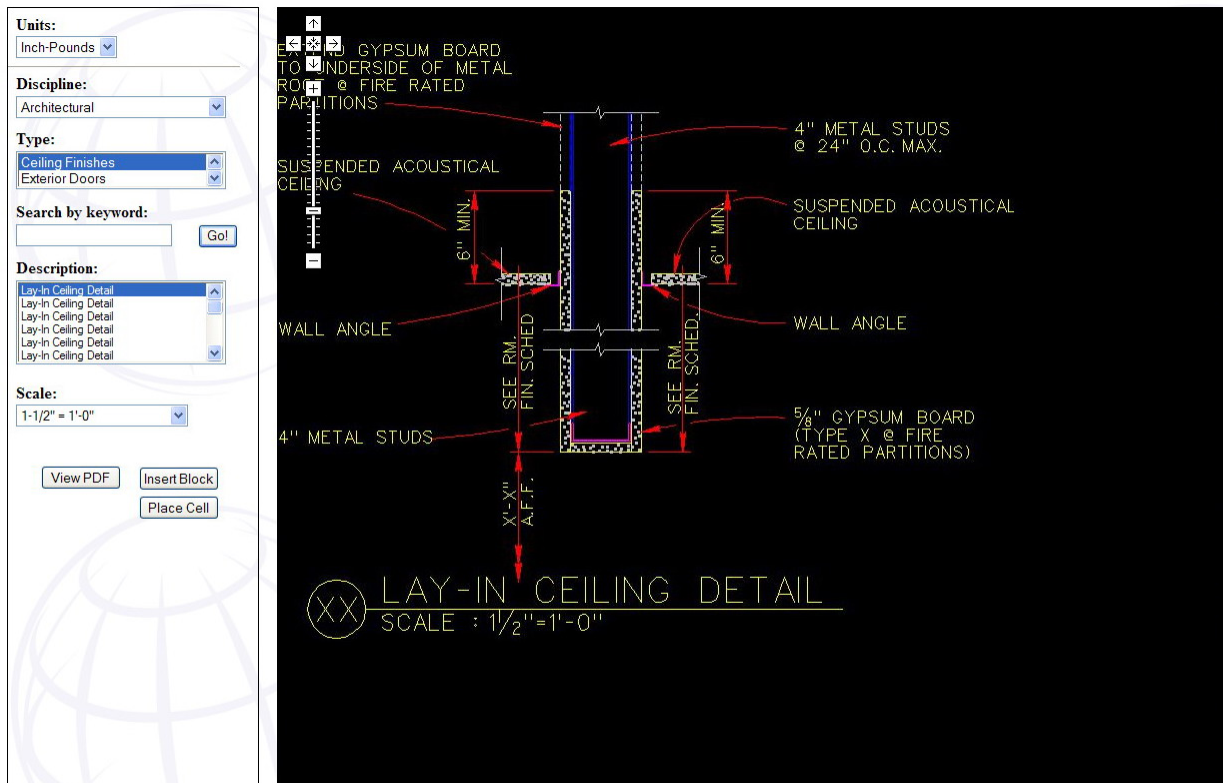


Figure 7. CAD Detail Manager

# 4 Index of Details

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## Note:

\* = .dgn/.dwg

\*\* = metric version of detail available

## A SUBSTRUCTURE

### A10 - FOUNDATIONS

#### A101 - Standard Foundations

##### A1010 - Misc. Standard Foundation Details

- \*\*A1010S-DT001X.\* – Typ. Stepped Footing
- \*\*A1010S-DT002X.\* – Typ. Grade Beam
- \*\*A1010S-DT003X.\* – Typ. Buried Pipe at Footing
- \*\*A1010S-DT004N.\* – Foundation Notes (Slab-on-Grade)
- \*\*A1010S-DT005N.\* – Foundation Notes (Ribbed Mat Slab)
- \*\*A1010S-DT006X.\* – Typical Grade Beam Reinforcing Diagram
- \*\*A1010S-DT007X.\* – Typical Grade Beam Void
- \*\*A1010S-DT008P.\* – Ribbed Mat Foundation Partial Plan-Frame Construction
- \*\*A1010S-DT009X.\* – Ribbed Mat Foundation/Perimeter Beam/Interior Rib
- \*\*A1010S-DT010X.\* – Ribbed Mat Foundation
- \*\*A1010S-DT011X.\* – Ribbed Mat Construction
- \*\*A1010S-DT012P.\* – Ribbed Mat Foundations
- \*\*A1010S-DT013X.\* – Ribbed Mat Construction Joint
- \*\*A1010S-DT014X.\* – Typical Exterior Grade Beam

##### A1011 - Wall Foundations

- \*\*A1011S-DT001X.\* – Typ. CMU Thickened Slab Footing

##### A1012 - Column Foundations

- \*\*A1012S-DT001X.\* – Typ. Pipe Column Footing

#### 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

- \*\*A1030S-DT001X.\* – Typ. Slab Control Joints (Non-Vehicular)
- \*\*A1030S-DT002X.\* – Typ. Slab Expansion Joint
- \*\*A1030S-DT003X.\* – Typ. Slab Control Joints (Vehicular Fork Lift), 8” Thick Interior Slab
- \*\*A1030S-DT004X.\* – Typ. Slab Control Joints (Vehicular Fork Lift), 6” Thick Interior Slab
- \*\*A1030S-DT005X.\* – Typ. Raise Slab-Equipment Pad (Interior)
- \*\*A1030S-DT006X.\* – Typ. Exterior Door/Sidewalk Sill
- \*\*A1030S-DT015X.\* – Construction Joint (Keyed Option)
- \*\*A1030S-DT016X.\* – Construction Joint (Doweled Option)
- \*\*A1030S-DT017X.\* – Weakened Plane Joint

##### 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

\*\*B1010S-DT001X.\* – Typ. Floor Isolation Joint at Col.

\*\*B1010S-DT002X.\* – Typ. Floor Isolation Joint at Col.

B1011 Floor Structural Frame

B1012 Structural Interior Walls Supporting Floors

\*\*B1012S-DT001X.\* – Typ. Second Floor Door Opening

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

\*\*B1021S-DT001X.\* – Typ. Purlin to Beam Connection

\*\*B1021S-DT002I.\* – Typ. Purlin Bridging

\*\*B1021S-DT003E.\* – Typ. Purlin Support at CMU Wall

\*\*B1021S-DT004X.\* – Typ. Lateral Support of Stud Partition

\*\*B1021S-DT005X.\* – Typ. Lateral Support of Stud Partition

\*\*B1021S-DT006X.\* – Typ. Stud Wall to Deck Connection

\*\*B1021S-DT007X.\* – Typ. Roof Deck Shear Transfer

\*\*B1021S-DT008X.\* – Typ. CMU/Roof Deck Connection

\*\*B1021S-DT009I.\* – Typ. Framing for Roof Deck Opening > 12"

\*\*B1021S-DT009P.\* – Typ. Framing for Roof Deck Opening > 12"

\*\*B1021S-DT010X.\* – Typ. OWJ Bridging to Roof Deck

\*\*B1021S-DT011X.\* – Typ. Roof Ledger Between OWJ

\*\*B1021S-DT012X.\* – Typ. CMU/Roof Deck Connection

\*\*B1021S-DT013X.\* – Typ. OWJ Support at Beam

\*\*B1021S-DT014X.\* – Typ. OWJ Bridging at Mechanical Ducts

\*\*B1021S-DT015X.\* – Typ. OWJ Aux. Member and Hanger

\*\*B1021S-DT016X.\* – Typ. OWJ Bearing on CMU

\*\*B1021S-DT017X.\* – Typ. OWJ Bearing on Beam

\*\*B1021S-DT018X.\* – Typ. Bottom Flange Brace from OWJ

\*\*B1021S-DT019X.\* – Typ. OWJ/CMU Seat

\*\*B1021S-DT020X.\* – Typ. Tapered Steel Girder Schedule

\*\*B1021S-DT021E.\* – Typ. Ledger Angle Detail

\*\*B1021S-DT022E.\* – Typ. Continuous Ledger Splice

\*\*B1021S-DT023E.\* – Typ. Joist and Roof Deck Ledger

\*\*B1021S-DT024X.\* – Typ. Roof Bracing to CMU

B1021S-DT025X.\* – Typ. Ridge Beam OWJ Seat Detail

B1021S-DT026X.\* – Typ. OWJ Support over Beam

B1021S-DT027X.\* – Typ. OWJ Support over Beam

B1021S-DT028X.\* – Typ. 2.5VSP to OWJ Connection

B1021S-DT029X.\* – Typ. CMU Wall Joist Support at Ridge

B1021S-DT030X.\* – Typ. CMU Wall Joist Seat

B1021S-DT031X.\* – Typ. CMU Wall Joist Seat w/Shear Plate

B1021S-DT032X.\* – Typ. Beam Support on CMU Wall

B1021S-DT033X.\* – Typ. Drag Beam Connection at CMU Wall

B1021S-DT034X.\* – Beams to Drag Beam Connection

B1021S-DT035X.\* – Typ. Wall/Fascia Detail Between OWJ or Gable Joist

B1021S-DT036X.\* – Typ. Wall/Fascia Detail at CMU

B1021S-DT037X.\* – Typ. Wall/Fascia Detail at Gable Joist

B1021S-DT038I.\* – Typ. Hip and Valley Beam to OWJ Support

B1021S-DT039X.\* – Typ. 2.5VS Support at CMU Wall

\*\*B1021S-DT040X.\* – Steel Joist and CMU Partition Intersection

B1022 Structural Interior Walls Supporting Roofs

B1023 Roof Decks, Slabs, and Sheathing

\*\*B1023S-DT001X.\* – Typ. Wide Ribbed Decking

\*\*B1023S-DT002P.\* – Typ. Roof Deck Opening > or = 12"

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

\*\*B1030S-DT007X.\* – Existing Slab Removal and Replacement

B1031 Steel Details

\*\*B1031S-DT001X.\* – Partition Supports, Partial Height Wall Parallel to Joists

\*\*B1031S-DT002X.\* – Partition Supports, Partial Height Wall Perpendicular to Joists

\*\*B1031S-DT003I.\* – Typ. Metal Stud Bracing

\*\*B1031S-DT003X.\* – Typ. Beam to Column Flange Connection

- \*\*B1031S-DT004I.\* – Typ. Metal Stud Bracing
- \*\*B1031S-DT004P.\* – Typ. Horiz Bracing to Beam Conn.
- \*\*B1031S-DT004X.\* – Typ. Beam to Pipe or HSS Column
- \*\*B1031S-DT005I.\* – Typ. Metal Stud Track
- \*\*B1031S-DT006N.\* – Steel Framing Notes
- \*\*B1031S-DT010N.\* – Typ. Simple Beam Conn. Schedule
- \*\*B1031S-DT011X.\* – Typ. Single Beam Connection Detail
- \*\*B1031S-DT012X.\* – Typ. Double Beam Connection
- B1032 Concrete Details**
- \*\*B1032S-DT001P.\* – Typ. Elevated Slab Corner Reinforcement
- \*\*B1032S-DT002P.\* – Typ. Wall Reinf. (Double Layer)
- \*\*B1032S-DT003P.\* – Typ. Wall Reinf. (Double Layer)
- \*\*B1032S-DT004X.\* – Typ. Concrete Wall Control Joint
- \*\*B1032S-DT005X.\* – Typ. Conc. Wall Opening Reinf.
- \*\*B1032S-DT006X.\* – Typ. Depressed Slab
- \*\*B1032S-DT007N.\* – General Concrete Notes
- \*\*B1032S-DT008N.\* – Table A: Reinforcement Tension Laps and Embedment
- \*\*B1032S-DT009N.\* – Table B: Concrete Cover for Cast-in-Place Non-Prestressed Concrete for Buildings
- \*\*B1032S-DT010X.\* – Column and Pier details
- \*\*B1032S-DT011N.\* – Pier Design Notes
- \*\*B1032S-DT012P.\* – Typ. Corner and Intersection Reinforcing
- \*\*B1032S-DT101X.\* – Typ. Prestressed Hollow-Core Slab
- \*\*B1032S-DT103X.\* – Typ. CMU Support by Hollow-Core Slab
- \*\*B1032S-DT104X.\* – Typ. CJ in Hollow-Core Slab Topping
- \*\*B1032S-DT106X.\* – Typ. Tilt-Up Wall to Deck Connection
- \*\*B1032S-DT107E.\* – Typ. Tilt-Up Panel Joist Seat
- \*\*B1032S-DT108X.\* – Typ. Tilt-Up Panel Control Joint
- \*\*B1032S-DT110E.\* – Typ. Tilt-Up Panel Opening
- \*\*B1032S-DT112X.\* – Typ. Plank at CMU Wall-End View
- \*\*B1032S-DT113X.\* – Typ. Plank at CMU Wall-Side View
- \*\*B1032S-DT114X.\* – Typ. Planks Crossing at CMU Wall-Side View
- \*\*B1032S-DT115X.\* – Typ. Precast Conc. Panel to Footing Stemwall Connection Detail
- \*\*B1032S-DT116X.\* – Typ. Precast Conc. Panel to Panel Vertical Connection Detail
- 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  
 \*\*B1033S-DT101X.\* – Typ. Pilaster Beam Support  
 \*\*B1033S-DT102X.\* – Typ. Anchor Bolt  
 \*\*B1033S-DT103P.\* – Typ. CMU to Tilt-Up Wall Connection  
 \*\*B1033S-DT104P.\* – Typ. CMU Control Joint  
 \*\*B1033S-DT105P.\* – Typ. CMU Isolation Joint  
 \*\*B1033S-DT106P.\* – Typ. Tube Stiffener at End of CMU Wall  
 \*\*B1033S-DT107P.\* – Typ. CMU Corner Reinforcement  
 \*\*B1033S-DT108P.\* – Typ. CMU Intersection Reinforcement  
 \*\*B1033S-DT109P.\* – Typ. CMU Edge Stiffener  
 \*\*B1033S-DT110E.\* – Typ. CMU Wall Joist Seat  
 \*\*B1033S-DT111E.\* – Typ. CMU Pier Reinforcement  
 \*\*B1033S-DT112E.\* – Typ. CMU Pier Reinforcement  
 \*\*B1033S-DT113P.\* – Typ. CMU Wall Control Joints  
 \*\*B1033S-DT114E.\* – Typ. CMU Opening Reinforcement  
 \*\*B1033S-DT115E.\* – Typ. CMU Bond Beam (Slope) > ¼ in 12  
 \*\*B1033S-DT116E.\* – Typ. CMU Bond Beam (Slope) < or = ¼ in 12  
 \*\*B1033S-DT117P.\* – Typ. CMU Pilaster  
 \*\*B1033S-DT119X.\* – Typ. Lateral Support of CMU Partition  
 \*\*B1033S-DT120E.\* – Typ. Lateral Support of CMU Partition  
 \*\*B1033S-DT121X.\* – Typ. Lateral Support of CMU Partition.\* – Pipe Top Mounting  
 \*\*B1033S-DT122E.\* – Typ. Lateral Support of CMU Partition.\* – Pipe Bottom Mounting  
 \*\*B1033S-DT123X.\* – Typ. CMU Lintel  
 \*\*B1033S-DT124X.\* – Typ. Beam Bond Placement in CMU Wall  
 \*\*B1033S-DT125P.\* – Typ. Masonry/HSS Column Detail at Window Level

\*\*B1033S-DT126P.\* – Typ. Masonry/HSS Column Detail Below or Above Window  
 \*\*B1033S-DT127X.\* – Typ. HIP Beam Connection at CMU Wall Corner  
 \*\*B1033S-DT128E.\* – Typ. Beam Support on CMU Wall  
 \*\*B1033S-DT129E.\* – Reinforced CMU Seismic Detail  
 \*\*B1033S-DT130N.\* – Notes: Reinforced Hollow CMU

## 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  
 \*\*B2030S-DT001X.\* - Typ. Exterior Door Sill  
 \*\*B2030S-DT002X.\* - Typ. Exterior Door Sill w/out  
 Threshold

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-DT001E.\* - 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
  - \*\*C2029I-DT003E.\* - Handrail Sections

**C30 INTERIOR FINISHES**

**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
- \*\*C3030S-DT001I.\* - Typ. Suspended Ceiling Splay

**Bracing**

- 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
- D1022 Moving Walks
- 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

D1037 Scaffolding

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

\*\*D2018P-DT005E.\* - Fully Recessed Drinking Water Cooler

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 Systems**
- D2042 Rain Water Drainage Specialties**
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## **D205 Special Plumbing Systems**

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- \*\*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 Penetration
- \*\*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 Liquefied Petroleum Gas Systems  
D2057 Deionized/Distilled Water Systems  
D2058 Reverse Osmosis Systems  
D2059 Fountain Equipment and Piping

## **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

## **D30 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) SYSTEMS**

### **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 Convectector 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**

D3090 Misc. Details  
 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: EI1 -- 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 Baffle Downlight (Incandescent)
- \*\*D5022E-DT049E.\* - Recessed Baffle 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

\*\*D5030T-DT001P.\* - Bar Type Cable Tray  
 \*\*D5030T-DT002P.\* - Channel Type Cable Tray  
 \*\*D5030T-DT003I.\* - Trough Type Cable Tray  
 \*\*D5030T-DT004I.\* - Slotted Channeling  
 \*\*D5030T-DT005I.\* - Closed Channeling  
 \*\*D5030T-DT006I.\* - Channel Splice  
 \*\*D5030T-DT007E.\* - Single-Mode Fiber Optic  
 \*\*D5030T-DT008E.\* - Multi-Mode Fiber Optic  
 \*\*D5030T-DT009E.\* - Coaxial Cable RG-58/U  
 \*\*D5030T-DT010E.\* - Shielded Telephone/Station Cable  
 \*\*D5030T-DT011E.\* - Shielded Copper Twisted Pair  
 \*\*D5030T-DT012E.\* - Unshielded Copper Twisted Pair  
 \*\*D5030T-DT013E.\* - Fiber Optic Splice Housing  
 \*\*D5030T-DT014E.\* - Aerial Splice Case  
 \*\*D5030T-DT015E.\* - Stainless Steel Splice Case  
 \*\*D5030T-DT016E.\* - Clear Plastic Splice Case  
 \*\*D5030T-DT017E.\* - BNC Wall Plate Jack and Connector  
 \*\*D5030T-DT018E.\* - Fiber Optic Wall Plate Jack and Connector  
 \*\*D5030T-DT019I.\* - Single Sided Equipment Rack  
 \*\*D5030T-DT020I.\* - Double Sided Equipment Rack  
 \*\*D5030T-DT021I.\* - Relay Racks  
 \*\*D5030T-DT022E.\* - Intermediate Distributing Frame  
 \*\*D5030T-DT023E.\* - Universal Distributing Frame (Single Sided)  
 \*\*D5030T-DT024E.\* - Universal Distributing Frame (Double Sided)  
 \*\*D5030T-DT025E.\* - Universal Distributing Frame (Floor Wall)  
 \*\*D5030T-DT026E.\* - Wall Frame  
 \*\*D5030T-DT027E.\* - Pre-wired 66 Block to Modular Jack

\*\*D5030T-DT028E.\* - 66 Block  
 \*\*D5030T-DT029E.\* - BNC Terminator  
 \*\*D5030T-DT030I.\* - Telcom Standard Light Cabinet  
 \*\*D5030T-DT031I.\* - Telcom Standard Heavy Cabinet  
**D5031 Alarm and Detection Systems**  
**D5032 Clock and Programs Systems**  
**D5033 Voice and Data Systems**  
 D5033T-DT001E.\* - Wire Fiber Outlet  
 D5033T-DT002E.\* - Typical Modular Telephone Jack  
 \*\*D5033T-DT003I.\* - Communication Closet  
 \*\*D5033T-DT004I.\* - Main Cross Connect  
 \*\*D5033T-DT005I.\* - Intermediate/Horizontal Cross  
 Connect  
 \*\*D5033T-DT006E.\* - RJ-11 Wall Plate Jack and  
 Connector  
 \*\*D5033T-DT007E.\* - RJ-45 Wall Plate Jack and  
 Connector  
 \*\*D5033T-DT008E.\* - Central Office Connector (100  
 Pair Cap.)  
**D5034 Public Address and Music Systems**  
**D5035 Television Systems**  
 D5035T-DT001E.\* - Typical TV Outlet Jack  
**D5036 Underground Communications Details**  
 D5036T-DT001E.\* -Telephone Manhole  
 D5036T-DT002I.\* - 38Y Precast Telephone Manholes  
 \*\*D5036T-DT003P.\* - Poured in Place Communication  
 Manhole  
 \*\*D5036T-DT004E.\* - Communication Duct Entrance  
 Detail  
 \*\*D5036T-DT005E.\* - Exterior Telecomm Plant  
 Enclosure  
 \*\*D5036T-DT006I.\* - Exterior Telecomm Plant  
 Enclosure  
 \*\*D5036T-DT007E.\* - Typical Handhole  
 \*\*D5036T-DT008X.\* - Typical Handhole Entry  
 \*\*D5036T-DT009E.\* - Duct Spacers  
 \*\*D5036T-DT010E.\* -Manhole Cable Racks  
 \*\*D5036T-DT011X.\* - Typical Manhole  
 \*\*D5036T-DT012X.\* - Ducts Encased in Concrete  
 \*\*D5036T-DT013X.\* - Duct Entry into Building  
 \*\*D5036T-DT014E.\* - Innerduct Installation in Duct

**D504 Special Electrical Systems**  
**D5040 Misc. Special System Details**  
**D5041 Uninterruptible Power Supply  
 Systems**  
**D5042 Packaged Engine Generator Systems**  
**D5043 Battery Power Systems**  
**D5044 Cathodic Protection**  
**D5045 Electromagnetic Shielding Systems**  
 D5045E-DT001E.\* - Secure Area Penetration  
 D5045E-DT002X.\* - Welded Conduit Coupling  
**D5046 Lightning Protection Systems**  
 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

## **D505 Electrical Controls and Instrumentation**

**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**

## **D60 SPECIAL MECHANICAL SYSTEMS**

### **D601 Fuels and Lubricants**

**D6010 Misc. Fuels and Lubricant Details**  
 \*\*D6010M-DT001E.\* - Fill Line Spill Containment  
 Basin  
 \*\*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
- \*\*D6020M-DT004X.\* - Exhaust Pipe Roof Penetration
- \*\*D6020M-DT005E.\* - Engine/Generator Fuel System Diagram

#### D6021 Generator Sets

- \*\*D6021M-DT001E.\* - 100 kW Diesel Generator Set with Sub-base Tank

#### D6022 Mufflers/Silencers

### D603 Supports

#### D6030 Misc. Piping Supports

- \*\*D6030M-DT001E.\* - U-Bolt Pipe Support
- \*\*D6030M-DT002E.\* - C-Rail Pipe Support
- \*\*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
- \*\*D6030M-DT027E.\* - 45° Angle Anchor Detail
- \*\*D6030M-DT028E.\* - 90° Angle Anchor Detail

#### D6031 MSS Piping Supports

#### D6032 Seismic Supports

- \*\*D6032M-DT001E.\* - Seismic Restraint For Lateral Load
- \*\*D6032M-DT002E.\* - Seismic Angle Brace Detail
- \*\*D6032M-DT003E.\* - Seismic Restraint For Mechanical Equipment
- \*\*D6032M-DT004E.\* - Typical Seismic Restraint and Supports for Equipment
- \*\*D6032M-DT005E.\* - Seismic Sway Brace Detail for Insulated Piping
- \*\*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

#### D6033 Fire Suppression Supports

### D604 Valves

#### D6040 Misc. Valve Details

### D605 Hydropower, Locks, and Dams

- D6050 Misc. Civil Works
- D6051 Hydropower Equipment
- D6052 Locks and Dams

## E EQUIPMENT AND FURNISHINGS

### E10 EQUIPMENT

#### E101 Commercial Equipment

- E1010 Misc. Commercial Equipment
- E1011 Security and Vault Equipment
- E1012 Teller and Service Equipment
- E1013 Registration Equipment
- E1014 Checkroom Equipment
- E1015 Mercantile Equipment
- E1016 Commercial Laundry and Dry Cleaning Equipment
- E1017 Vending Equipment
  - \*\*E1017I-DT001E.\* - Vending Machines
- E1018 Office Equipment
  - \*\*E1018I-DT001E.\* - Floor Copy Machine

#### E102 Institutional Equipment

- E1020 Misc. Institutional Equipment
- E1021 Ecclesiastical Equipment
- E1022 Library Equipment
- E1023 Theater and Stage Equipment
- E1024 Instrumental Equipment
- E1025 Audio-Visual Equipment

E1026 Detention Equipment  
 E1027 Laboratory Equipment  
 E1028 Medical Equipment  
 E1029 Mortuary Equipment

**E103 Vehicular Equipment**  
 E1030 Misc. Vehicular Equipment Details  
 \*\*E1030A-DT001X.\* - Dock Bumper Detail  
 \*\*E1030A-DT002X.\* - Dock Bumper Detail  
 E1031 Vehicular Service Equipment  
 \*\*E1031M-DT002E.\* - Free Standing Parts Washer Cabinet  
 E1032 Parking Control Equipment  
 E1033 Loading Dock Equipment

**E109 Other Equipment**  
 E1091 Maintenance Equipment  
 E1092 Solid Waste Handling Equipment  
 E1093 Food Service Equipment  
 E1094 Residential Equipment  
 \*\*E1094I-DT001E.\* - Washer and Dryer  
 \*\*E1094I-DT002E.\* - Gas Ranges and Hood  
 \*\*E1094I-DT003E.\* - Microwave w/Gas Range  
 \*\*E1094I-DT004E.\* - Refrigerator  
 E1095 Unit Kitchens  
 \*\*E1095I-DT001P.\* - Typ. Residential Kitchen  
 \*\*E1095I-DT002E.\* - Unit Kitchen  
 E1096 Darkroom Equipment  
 E1097 Athletic, Recreational, and Therapeutic Equipment  
 E1098 Planetarium/Observatory Equipment  
 E1099 Agricultural Equipment

**E20 FURNISHINGS**

**E201 Fixed Furnishings**  
 E2010 Misc. Fixed Furnishings  
 \*\*E2010A-DT001X.\* - Reception Counter Detail  
 \*\*E2010A-DT002X.\* - Sink Detail  
 \*\*E2010A-DT003X.\* -Base Cabinet Detail  
 \*\*E2010A-DT010I.\* - Hasp Detail  
 \*\*E2010A-DT013E.\* - Lavatory Cabinet  
 \*\*E2010A-DT014E.\* - Lavatory Cabinet  
 \*\*E2010A-DT015E.\* - Lavatory Cabinet  
 \*\*E2010A-DT016E.\* - Lavatory Cabinet  
 \*\*E2010A-DT017E.\* - Kitchen/Break Room Counter  
 \*\*E2010A-DT018E.\* - Lavatory Cabinet  
 \*\*E2010A-DT019E.\* - Kitchen/Break Room Counter  
 \*\*E2010A-DT020E.\* - Lavatory Cabinet  
 \*\*E2010A-DT021E.\* - Shelf Detail  
 \*\*E2010A-DT022X.\* - Chair Rail Detail  
 \*\*E2010A-DT023X.\* - Wood Nailer  
 \*\*E2010A-DT024X.\* - Wood Seats (Wall Mounted)  
 \*\*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  
 E2014 Fixed Floor Grilles and Mats  
 E2015 Fixed Multiple Seating  
 \*\*E2015I-DT001P.\* - Auditorium Seating  
 \*\*E2015I-DT002X.\* - Booth Seating  
 E2016 Fixed Interior Landscaping

**E202 Movable Furnishings**

E2020 Misc. Movable Furnishings  
 \*\*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  
 E2025 Movable Interior Landscaping

**F SPECIAL CONSTRUCTION AND DEMOLITION**

**F10 SPECIAL CONSTRUCTION**

**F101 Special Structures**  
 F1010 Misc. Special Structures  
 F1010S-DT001N.\* - Miscellaneous Grating Notes  
 F1010S-DT001P.\* - Typical Grating (Partial Plan)  
 F1010S-DT002X.\* - Typical Grating Section  
 F1010S-DT003P.\* - Typical Grating Lock Assembly  
 F1010S-DT003X.\* - Typical Grating Section/Grating Hinge  
 \*\*F1010S-DT010X.\* - Bench Mark Detail  
 F1011 Air Supported Structures  
 F1012 Pre-Engineered Structures  
 \*\*F1012S-DT001N.\* - Pre-Engineered Metal Building Notes

**F102 Integrated Construction**

F1020 Misc. Integrated Construction Details  
 F1021 Integrated Assemblies  
 F1022 Special Purposed Rooms

**F103 Special Construction Systems**

F1030 Misc. Special Construction System Details

F1031 Sound, Vibration, and Seismic  
Construction

F1032 Radiation Protection

F1033 Special Security Systems

#### **F104 Special Facilities**

F1040 Misc. Special Facility Details

F1041 Aquatic Facilities

F1042 Ice Rinks

F1043 Site Constructed Incinerators

F1044 Kennels and Animal Shelters

F1045 Liquid and Gas Storage Tanks

#### **F105 Special Controls and Instrumentation**

F1050 Misc. Special Controls and  
Instrumentation Details

F1051 Recording Instrumentation

F1052 Building Automation Systems

F1053 Fire Suppression and Supervisory  
Systems

#### **F20 SELECTIVE DEMOLITION**

##### **F201 Building Elements Demolition**

F2011 Minor Demolition for Remodeling

F2012 Selective Structural Demolition

##### **F202 Hazardous Components Abatement**

### **G BUILDING SITEWORK**

#### **G10 SITE PREPARATION**

##### **G101 Site Clearing**

G1011 Sod Stripping

G1012 Clearing and Grubbing

G1013 Shrub and Tree Removal

##### **G102 Site Demolition and Relocations**

G1021 Building Demolition

G1022 Site Elements Demolition

G1023 Structure Relocation

G1024 Utility Relocation

##### **G103 Site Earthwork**

G1031 Grading

G1032 Excavating, Backfilling, and  
Compacting

\*\*G1032C-DT001X.\* - Standard Pipe Trench Width

\*\*G1032S-DT001X.\* - Typ. Footing Excavation

G1033 Soil Stabilization

#### **G1034 Slope Protection and Erosion Control**

\*\*G1034C-DT001X.\* - Discharge Area Erosion Control  
Detail

\*\*G1034C-DT003X.\* - Filter Barrier

\*\*G1034C-DT004X.\* - Paved Ditch

\*\*G1034C-DT006X.\* - Straw Bale Sediment Barrier

\*\*G1034C-DT009I.\* - Concrete Splash Block Detail

#### **G1035 Earth Dams**

### **G104 Hazardous Waste Remediation**

#### **G1041 Containment Systems**

G1041H-DT001E.\* - Typical Cap Detail

G1041H-DT002E.\* - Settlement Plate Detail

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

G1041H-DT008E.\* - Landfill Cover Toe Drain Detail

G1041H-DT009E.\* - Typ. Gas Vent Detail

G1041H-DT010X.\* - Boot Sleeve Clamping Detail

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

G1042H-DT006E.\* - Typ. Leachate Collection and  
Detection Sump

G1042H-DT007E.\* - Leachate Collection Sump

G1042H-DT008E.\* - Leachate Detection Sump

G1042H-DT009P.\* - Blower, Flare, Piping Details

G1042H-DT010X.\* - Blower, Flare, Piping Details

G1042H-DT011E.\* - Knock-Out Pot Detail

G1042H-DT012P.\* - Gas Extraction Well Plan

G1042H-DT013E.\* - Gas Extraction Well Installation,  
Elevation

G1042H-DT014E.\* - Slip Coupling Detail

G1042H-DT015E.\* - Gas Extraction Well Perforation  
Detail

G1042H-DT016E.\* - Water Well Detail

G1042H-DT017E.\* - Recharge Well and Extraction  
Well, Telescoping Screen

#### **G1043 Monitoring Systems**

G1043H-DT001E.\* - Gas Monitoring Probe, Flush  
Mount

G1043H-DT002E.\* - Gas Monitoring Probe, Above-  
Grade Completion

G1043H-DT003E.\* - Gas Monitoring Probe, Perforation  
Detail

G1043H-DT004E.\* - Bollard Detail  
 G1043H-DT005E.\* - Monitoring Well Construction Detail  
 G1043H-DT006E.\* - Surface Completion Details for Monitoring Wells  
 G1043H-DT007E.\* - Monitoring Well Surface Completion Details for Frost Protection  
 G1043H-DT008E.\* - Monitoring Well Flush Mount Completion Detail  
 G1043H-DT009P.\* - Monitoring Well Surface Completion Plan View  
**G1044 Decontamination Systems**  
 G1044H-DT001E.\* - Temporary Equipment Washdown Area Details  
 G1044H-DT002P.\* - Decontamination Facility Plan  
 G1044H-DT003X.\* - Decontamination Facility Plan, Section A  
 G1044H-DT004X.\* - Decontamination Facility Plan, Section B  
 G1044H-DT005P.\* - Equipment Decontamination Pad, Plan View  
 G1044H-DT006X.\* - Equipment Decontamination Pad, Section 1  
 G1044H-DT007X.\* - Equipment Decontamination Pad, Section 2  
 G1044H-DT008N.\* - Equipment Decontamination Pad, Notes  
 G1044H-DT009E.\* - Optional Decon Pad Drainage Inlet Detail

**G20 SITE IMPROVEMENTS**

**G201 Roadways**

G2011 Roadway Base Courses  
 G2012 Flexible Roadway Pavement  
 G2013 Roadway Unit Pavers  
 G2014 Rigid Roadway Paving  
 \*\*G2014C-DT001X.\* - Bituminous Pavement Patching  
 \*\*G2014C-DT003X.\* - Contraction Joint Details  
 \*\*G2014C-DT005X.\* - Completed Construction Joint Sealant Detail  
 \*\*G2014C-DT006X.\* - Contraction Joint Sealant Details (Insert Type)  
 \*\*G2014C-DT007X.\* - Contraction Joint Sealant Details (Sawed Type)  
 \*\*G2014C-DT008X.\* - Poured Joint Sealant Details  
 \*\*G2014C-DT009X.\* - Contraction Joint Seal Details (Sawed Type)  
 \*\*G2014C-DT010X.\* - Preformed Joint Seal Details  
 \*\*G2014C-DT011X.\* - Slab Reinforcing Detail  
 \*\*G2014C-DT012X.\* - Doweled Joint Between New and Existing Pavement  
 \*\*G2014C-DT013X.\* - Construction Joint Details  
 \*\*G2014C-DT014X.\* - Dummy Groove Contraction Joint  
 G2015 Roadway Curb and Gutter  
 \*\*G2015C-DT001X.\* - Curb and Gutter  
 \*\*G2015C-DT004X.\* - Concrete Entrance

\*\*G2015C-DT005X.\* - New A.C. Pavement at New Concrete Curb  
 \*\*G2015C-DT006X.\* - New A.C. Pavement at New Concrete Curb and Gutter  
**G2016 Roadway Appurtenances**  
 \*\*G2016C-DT001X.\* - Guardrail Post Details  
 G2016C-DT002X.\* - Section Thru Safety Beam Guardrail  
 \*\*G2016C-DT003I.\* - Back-up Plate  
 G2016C-DT004I.\* - Alternate Steel "H" Beam Post and Offset Block  
 G2016C-DT005I.\* - Alternate Steel "C" Post and Offset Block  
 \*\*G2016C-DT006E.\* - Rail Element Splicing and Post Mounting  
 G2016C-DT007X.\* - Section Thru Safety Beam Guardrail, Type "C"  
 \*\*G2016C-DT008X.\* - Sawn Wood Post  
 \*\*G2016C-DT009P.\* - Two-Way Reflective Raised Pavement Marker Detail

**G202 Parking Lots**

G2021 Parking Lot Base Courses  
 G2022 Flexible Parking Lot Pavement  
 G2023 Parking Lot Unit Pavers  
 G2024 Rigid Parking Lot Paving  
 \*\*G2024C-DT001X.\* - Ramp Detail  
 G2025 Parking Lot Curb and Gutter  
 \*\*G2025C-DT001X.\* - Curb  
 \*\*G2025C-DT002I.\* - Parking Bumper  
 \*\*G2025C-DT003X.\* - Standard Valley Gutter Detail  
 \*\*G2025C-DT004X.\* - Cast-in-Place Concrete Curb  
 \*\*G2025C-DT005P.\* - Precast Concrete Wheel Stop Details  
 G2026 Parking Lot Appurtenances  
 \*\*G2026M-DT000E.\* - Typical Bollard Detail  
 \*\*G2026C-DT001X.\* - Guard Post Detail  
 \*\*G2026C-DT002I.\* - Precast Concrete Wheel Stop

**G203 Pedestrian Paving**

G2031 Pedestrian Paving Base Courses  
 \*\*G2031L-DT001X.\* - Decomposed Granite  
 G2032 Flexible Pedestrian Pavement  
 G2033 Pedestrian Unit Pavers  
 \*\*G2033L-DT001X.\* - Concrete Interlocking Paver  
 \*\*G2033L-DT002X.\* - Rowlock Paver Detail  
 G2034 Rigid Pedestrian Paving  
 \*\*G2034C-DT001X.\* - Concrete Sidewalk  
 \*\*G2034C-DT002X.\* - Concrete Sidewalk  
 \*\*G2034C-DT003X.\* - Ramp on Tangent  
 \*\*G2034C-DT004X.\* - Ramp on Curve  
 \*\*G2034C-DT005X.\* - Typical Concrete Walk Details  
 \*\*G2034C-DT006X.\* - Sidewalk-Stoop Interface  
 G2035 Exterior Steps

## **G204 Site Development**

### **G2041 Fountains**

### **G2042 Fences and Gates**

- \*\*G2042C-DT001X.\* - Chain Link Fence Foundation
  - \*\*G2042C-DT002E.\* - Typical Layout - 5 Strand Barbed-Wire Fence
  - \*\*G2042C-DT003E.\* - Typical Barbed-Wire Drop Gate Detail
  - \*\*G2042C-DT004E.\* - Typical Panel Gate Detail
  - \*\*G2042C-DT005E.\* - Dap Detail
  - \*\*G2042C-DT006E.\* - Gate Detail
  - \*\*G2042C-DT007E.\* - Detail A
  - \*\*G2042C-DT008E.\* - Detail B
  - \*\*G2042C-DT009E.\* - Wire Rope Clamp Detail
  - \*\*G2042C-DT010P.\* - Brace Panel w/Deadmen Detail
  - G2042C-DT011X.\* - Deadman Detail
  - \*\*G2042C-DT012X.\* - Pipe Guard Detail
  - \*\*G2042C-DT013P.\* - Corner or End Detail with Deadman
  - G2042C-DT014E.\* - U-Bolt at Line Post Details
  - \*\*G2042C-DT015X.\* - U-Bolt at Cable Anchor Post Detail
  - \*\*G2042C-DT016X.\* - Bottom Rail Details
  - \*\*G2042C-DT017X.\* - Truss Rod and Band
  - \*\*G2042C-DT018E.\* - Brace Rail Clamp Detail
  - \*\*G2042C-DT019E.\* - Fastening Details
  - \*\*G2042C-DT020X.\* - Grounding Detail
  - \*\*G2042C-DT021E.\* - Swing Gate Details
  - \*\*G2042C-DT022E.\* - Line Post Attachments
  - \*\*G2042C-DT023E.\* - Chain-Link Security Fence Detail
  - \*\*G2042C-DT024E.\* - Extension Arm Details
  - \*\*G2042C-DT025E.\* - Extension Arm Details
  - \*\*G2042C-DT026P.\* - Double Swing Gate (Type FE7 Fence)
  - \*\*G2042C-DT027E.\* - Chain-Link Security Fence Detail
  - \*\*G2042C-DT028E.\* - Barbed-Tape Mounting Detail
  - G2042C-DT029E.\* - Ornamental Iron Fence Detail
  - G2042C-DT030E.\* - Wood Fence Gate Details
  - G2042C-DT031E.\* - Wood Fence Details
  - G2042C-DT032X.\* - Wood Post Detail
  - G2042C-DT033E.\* - Wood Fence Gate Details
  - G2042C-DT034E.\* - Wood Fence Details
  - G2042C-DT035P.\* - Sliding Gate Details
  - G2042C-DT036P.\* - Guide Wheel Detail
  - \*\*G2042C-DT037X.\* - Slide Gate Detail
  - \*\*G2042C-DT038E.\* - Guide Wheel Detail
- ### **G2043 Recreational and Sports Facilities**
- ### **G2044 Site and Street Furnishings**
- \*\*G2044L-DT001X.\* - Site Bench
  - \*\*G2044L-DT002X.\* - Bike Rack
  - \*\*G2044L-DT003X.\* - Bench Detail
  - \*\*G2044L-DT004X.\* - Pergola Section
  - \*\*G2044L-DT005X.\* - Pet Post
  - \*\*G2044L-DT006X.\* - Seatwall Section
- ### **G2045 Exterior Signs**
- \*\*G2045C-DT001P.\* - Handicap Parking Symbol
  - \*\*G2045L-DT001X.\* - Plaque Rockwork
  - G2045C-DT002X.\* - Street Sign Post

- \*\*G2045C-DT003P.\* - Turn & Straight Arrow
  - \*\*G2045C-DT004P.\* - Typical Turn Arrow
  - \*\*G2045C-DT005P.\* - Crosswalk and Stop Line
  - \*\*G2045C-DT006E.\* - Sign Panel Attachment
  - G2045C-DT007X.\* - Break-Away Detail
  - G2045C-DT008E.\* - Typical Delineator Types and Mountings
  - G2045C-DT009X.\* - Delineator Post Locations
  - G2045C-DT010P.\* - Handicapped Parking Detail
- ### **G2046 Footbridges and Underpasses**
- ### **G2047 Flagpoles**
- ### **G2048 Covers and Shelters**

## **G205 Landscaping**

### **G2051 Irrigation Systems**

- \*\*G2051L-DT001X.\* - Rotor Assembly
- \*\*G2051L-DT002E.\* - Drip System Assembly
- \*\*G2051L-DT003X.\* - Automatic Controller
- \*\*G2051L-DT004X.\* - Riser Assembly
- \*\*G2051L-DT005X.\* - Water Valve
- \*\*G2051L-DT006X.\* - Backflow Preventer
- \*\*G2051L-DT007X.\* - Emitter Line Flush
- \*\*G2051L-DT008X.\* - Emitter
- \*\*G2051L-DT009X.\* - Control Valve
- \*\*G2051L-DT010X.\* - Trenching Standards
- \*\*G2051L-DT011X.\* - Gate Valve
- \*\*G2051L-DT012X.\* - Ball Check Drain
- \*\*G2051L-DT013X.\* - Gate Valve
- \*\*G2051L-DT014X.\* - Gear Drive Pop-Up Sprinkler
- \*\*G2051L-DT015X.\* - High Pop-Up Spray Head
- \*\*G2051L-DT016X.\* - Interior Automatic Irrigation Controller
- \*\*G2051L-DT017X.\* - Irrigation Main Trenching Detail
- \*\*G2051L-DT018X.\* - Lateral Piping Trenching Details
- \*\*G2051L-DT019X.\* - Quick Coupler Valve
- \*\*G2051L-DT020X.\* - Remote Control Valve
- \*\*G2051L-DT021X.\* - Trench Details – Irrigation Control Wiring
- \*\*G2051L-DT022X.\* - Typ. Insulating Flange Detail
- \*\*G2051L-DT023X.\* - Typ. Thrust Blocking Details

### **G2052 Shrub and Tree Transplanting**

- \*\*G2052L-DT001X.\* - Non-Native Shrub
- \*\*G2052L-DT002X.\* - Shrub Planting
- \*\*G2052L-DT003X.\* - Shrub Planting
- \*\*G2052L-DT004X.\* - Shrub Planting
- \*\*G2052L-DT005X.\* - Shrub Planting
- \*\*G2052L-DT006X.\* - Shrub Planting
- \*\*G2052L-DT007X.\* - Bare Root Deciduous Shrub
- \*\*G2052L-DT008X.\* - Container Coniferous Shrub Detail
- \*\*G2052L-DT009X.\* - Container Deciduous Shrub Detail

### **G2053 Soil Preparation**

### **G2054 Lawns and Grasses**

- \*\*G2054L-DT001X.\* - Metal Edge Detail
- \*\*G2054L-DT002X.\* - Wood Edging

### **G2055 Trees, Plants, and Ground Covers**

- \*\*G2055L-DT001X.\* - Stake/Plant Trees
- \*\*G2055L-DT002X.\* - Vine Planting



- \*\*G2055L-DT003X.\* - Planting on a Slope
  - \*\*G2055L-DT004X.\* - Boulder
  - \*\*G2055L-DT005X.\* - Coniferous Tree Planting
  - \*\*G2055L-DT006X.\* - Deciduous Tree Planting
  - \*\*G2055L-DT007X.\* - Ivy Planting Detail
  - \*\*G2055L-DT008X.\* - Planting Detail
  - \*\*G2055L-DT009X.\* - Tree Planting Detail
  - \*\*G2055L-DT010X.\* - Balled and Burlapped Deciduous Tree
  - \*\*G2055L-DT011X.\* - Bare Root Deciduous Tree
  - \*\*G2055L-DT012X.\* - Container/Potted Deciduous Tree
  - \*\*G2055L-DT013X.\* - Perennial Bed Planting Detail
- G2056 Landscape Maintenance**
- \*\*G2056L-DT001E.\* - Installation of Landscape Filter Fabric
  - \*\*G2056L-DT002X.\* - Landscape Edging Detail
  - \*\*G2056L-DT003X.\* - Redwood Edging

**G30 SITE CIVIL/MECHANICAL UTILITIES**

**G301 Water Supply**

**G3011 Water Wells**

**G3012 Site Domestic Water Distribution**

- \*\*G3012M-DT000E.\* - Water Main Connection Detail
- \*\*G3012M-DT001E.\* - Water Meter Installation Detail
- \*\*G3012M-DT002E.\* - Typical Branch Line Valve Installation Detail
- \*\*G3012M-DT003E.\* - Typical Thrust Block Installation Detail
- \*\*G3012M-DT004E.\* - Typical Valve Box Detail
- \*\*G3012M-DT005E.\* - Tapping Sleeve and Valve Installation Detail
- \*\*G3012M-DT006E.\* - Post Indicator Valve Detail
- \*\*G3012M-DT007E.\* - Typical Motorized Valve and Valve Box Detail
- \*\*G3012C-DT008X.\* - Yard Hydrant Detail

**G3013 Site Fire Protection Water Distribution Systems**

- G3013H-DT001E.\* - Typical Fire Hydrant Setting
- \*\*G3013C-DT002X.\* - Fire Hydrant - Wet Type
- \*\*G3013C-DT003X.\* - Flow Indicator Detail

**G3014 Site Contaminated Water Distribution**

- G3014H-DT001E.\* - Typical Vacuum & Air Relief Valve Manhole, Dry Conditions
- G3014H-DT002E.\* - Vacuum & Air Relief Valve Manhole, High Groundwater Conditions
- G3014H-DT003E.\* - Detail Valve Box
- G3014H-DT004E.\* - Typical Service Box Setting
- G3014H-DT005E.\* - Typical Valve Setting
- G3014H-DT006E.\* - Post Indicator Valve
- G3014H-DT007X.\* - Typical Thrust Blocking
- G3014H-DT008I.\* - Typical Gooseneck Connection
- G3014H-DT009E.\* - Test Lead Station
- G3014H-DT010E.\* - Blow-off Assembly

**G302 Sanitary Sewer**

**G3021 Site Sanitary Sewerage**

- \*\*G3021M-DT001E.\* - Typical Oil Separator Detail
- \*\*G3021C-DT002X.\* - Through Flow Cleanout Detail
- G3021C-DT003X.\* - Galvanized Steel Ladder Detail
- \*\*G3021C-DT004X.\* - Section Thru Base of Standard Manhole
- G3021C-DT005X.\* - Concrete Encasement
- \*\*G3021C-DT006E.\* - Cleanout to Grade

**G3022 Septic Systems**

**G3023 Site Sanitary Sewerage Equipment**

**G3024 Sewage Ponds**

**G303 Storm Sewer**

**G3031 Site Storm Sewerage**

- \*\*G3031C-DT001X.\* - Catch Basin Protection
- \*\*G3031C-DT002P.\* - Typical Roof Drain Detail
- \*\*G3031C-DT003P.\* - Typical Concentric Manhole Detail
- \*\*G3031C-DT004P.\* - Typical Eccentric Manhole Detail
- \*\*G3031C-DT005P.\* - Typical Precast Shallow Manhole Detail
- \*\*G3031C-DT006P.\* - Manproofing Detail
- \*\*G3031C-DT007P.\* - Typical Precast Concentric Manhole Detail
- \*\*G3031C-DT008P.\* - Typical Precast Eccentric Manhole Detail
- \*\*G3031C-DT009P.\* - Typical Precast Shallow Manhole Detail
- \*\*G3031C-DT010P.\* - Manhole Cover and Frame

**G3032 Site Storm Sewer Appurtenances**

- \*\*G3032C-DT002X.\* - Catch Basin
- \*\*G3032C-DT003X.\* - Catch Basin (30" and 36" Pipe)
- \*\*G3032C-DT004X.\* - Drop Manhole
- \*\*G3032C-DT005X.\* - Manhole
- \*\*G3032C-DT006P.\* - Flared End Section Steel Barrier Manproofing Detail
- \*\*G3032C-DT007E.\* - Drain Pipe Detail

**G3033 Site Storm Sewerage Equipment**

**G3034 Storm Water Ponds and Reservoirs**

**G304 Heating Distribution**

**G3040 Misc. Site Steam Distribution Systems**

- \*\*G3040M-DT001X.\* - Steam Manhole Detail

**G3041 Site Steam Piping Systems**

- \*\*G3041M-DT001P.\* - Valve Manhole
- \*\*G3041M-DT002E.\* - Access Ladder
- \*\*G3041M-DT003E.\* - Isolation Flange
- \*\*G3041M-DT004E.\* - Valve and Pipe Support
- \*\*G3041M-DT006P.\* - Open Grating Cover Plan
- \*\*G3041M-DT007X.\* - Angle Support for Grating
- \*\*G3041M-DT008X.\* - Structural Support for Grating
- \*\*G3041M-DT009P.\* - Grating Support Locations
- \*\*G3041M-DT010P.\* - Checker Plate Cover Details
- \*\*G3041M-DT011P.\* - Raised Cover Plate

- \*\*G3041M-DT012X.\* - Raised Cover Plate – Section A-A
- \*\*G3041M-DT013X.\* - Raised Cover Plate – Section B-B
- \*\*G3041M-DT014X.\* - Raised Cover Plate – Section C-C
- \*\*G3041M-DT015X.\* - Detail 1 - Hinge Detail
- \*\*G3041M-DT016E.\* - Lifting Lug
- \*\*G3041M-DT017E.\* - Handle
- \*\*G3041M-DT019P.\* - Concrete Cover Plan
- \*\*G3041M-DT020X.\* - Concrete Cover Detail
- \*\*G3041M-DT021E.\* - Typical Gooseneck Detail
- \*\*G3041M-DT022E.\* - Valve Manhole Floor Drain
- \*\*G3041M-DT023E.\* - Sump Basin with Discharge to Grade
- \*\*G3041M-DT024E.\* - Sump Basin Covers
- \*\*G3041M-DT032E.\* - Free Pipe Support
- \*\*G3041M-DT033E.\* - Guided Pipe Support
- \*\*G3041M-DT036X.\* - Typical Trench and Cover Dimensions
- \*\*G3041M-DT037X.\* - Construction Joint
- \*\*G3041M-DT038X.\* - Trench and Cover Reinforcing
- \*\*G3041M-DT039X.\* - Typical Trench Wall Corner Reinforcing
- \*\*G3041M-DT040E.\* - Lifting Device
- \*\*G3041M-DT049X.\* - Access Cover
- \*\*G3041M-DT050E.\* - Vent and Drain Details
- \*\*G3041M-DT055X.\* - Two Conduit System
- \*\*G3041M-DT056X.\* - Single Conduit System
- \*\*G3041M-DT057X.\* - Conduit, Vent, and Drain
- \*\*G3041M-DT058X.\* - Low Profile Pipe Support
- \*\*G3041M-DT059X.\* - Anchor Support
- \*\*G3041M-DT060X.\* - Free Support
- \*\*G3041M-DT061X.\* - Guided Support
- \*\*G3041M-DT062E.\* - High Profile Base
- \*\*G3041M-DT063E.\* - Pipe Guide
- \*\*G3041M-DT064E.\* - High Profile Pipe Anchor
- \*\*G3041M-DT065E.\* - Valve Manhole Top Penetration
- \*\*G3041M-DT066I.\* - Trap Station Layout Isometric
- \*\*G3041M-DT067E.\* - Accumulator
- \*\*G3041M-DT068E.\* - Duplex Condensate Pump Set Connection Detail
- \*\*G3041M-DT069E.\* - Condensate Cooling System
- \*\*G3041M-DT070E.\* - Wall Anchor for Non-Metallic Piping Systems

**G3042 Site Steam Distribution Equipment**

**G305 Cooling Distribution**

**G3051 Site Hydronic Piping Systems**

- \*\*G3051C-DT001X.\* - Concrete Headwall

**G3052 Site Hydronic Distribution Equipment**

**G306 Fuel Distribution**

**G3061 Site Gas Distribution Systems**

**G3062 Site Oil Distribution Systems**

- \*\*G3062C-DT001X.\* - Underground Fuel Oil Tank Anti-Flotation Pad & Anchorage Detail

**G3063 Other Site Fuel Distribution Systems**

**G309 Other Site Mechanical Utilities**

**G3091 Industrial Waste Systems**

- G3091H-DT001E.\* - Sanitary/Ind. Waste Sewer Bldg. Connections
- G3091H-DT002E.\* - Building Sewer Cleanout
- G3091H-DT003E.\* - Bedding Details
- G3091H-DT004X.\* - Typical Precast Concentric Manhole Details
- G3091H-DT005X.\* - Standard Shallow Manhole
- G3091H-DT006X.\* - Typical Precast Eccentric Manhole Details
- G3091H-DT007X.\* - Typical Precast Eccentric Drop-Manhole Details
- G3091H-DT008X.\* - Typical Precast Concentric Drop-Manhole Details
- G3091H-DT009E.\* - Marking Post Detail
- G3091H-DT010E.\* - Double Wall Waste Oil Storage Tank
- G3091H-DT011E.\* - 3" Stick Gauge Detail
- G3091H-DT012P.\* - Tank Manhole Hatch Detail, Plan
- G3091H-DT013X.\* - Tank Manhole Hatch Detail, Section 1
- G3091H-DT014X.\* - Tank Manhole Hatch Detail, Section 2
- G3091H-DT015P.\* - Plan of Cover, 30" x 30" Double Leaf Hatch Cover
- G3091H-DT016X.\* - 30" x 30" Double Leaf Hatch Cover, Section 3
- G3091H-DT017X.\* - 30" x 30" Double Leaf Hatch Cover, Section 4
- G3091H-DT018E.\* - Double Walled Oil/Water Interceptor
- G3091H-DT019X.\* - Concrete Oil/Water Separator
- G3091H-DT020E.\* - Weir Detail
- G3091H-DT021E.\* - Lifting Lug
- G3091H-DT023P.\* - Baffle to Wall Detail Typical
- G3091H-DT024E.\* - Exterior Equipment Cabinet Detail
- G3091H-DT025E.\* - Interior Equipment Cabinet Detail
- G3091H-DT026E.\* - Vertical Turbine Pump Setting
- G3091H-DT027X.\* - Lift Station Details, Section View
- G3091H-DT028P.\* - Lift Station Plan
- G3091H-DT029E.\* - Air & Vacuum Release Valve
- G3091H-DT030X.\* - Pipe Casing Detail (Wood Skids)
- G3091H-DT031X.\* - Pipe Casing Detail (HDPE Skids)
- G3091H-DT032N.\* - Pipe Casing Detail Notes
- G3091H-DT033E.\* - End Seal Detail for Casing Pipe
- G3091H-DT034E.\* - End Seal Detail for Casing Pipe
- G3091H-DT035E.\* - Sampling Valve Detail
- G3091H-DT036E.\* - Wall Sleeve Details
- G3091H-DT037X.\* - Gravity Flow Metering Manhole

**G3092 Other Special Site Plumbing Systems**

**G40 SITE ELECTRICAL UTILITIES**

**G401 Electrical Distribution**

**G4011 Site Electrical Substations**

**G4012 Site Electric Power Distribution Lines**

**G4013 Site Electric Power Transmission Equipment**

**G402 Site Lighting**

**G4021 Area Site Lighting Systems**

- \*\*G4021C-DT001X.\* - Fiberglass Pole Direct Set Tenon Mount
- \*\*G4021C-DT002X.\* - Fiberglass Pole Direct Set Mast Arm Mount
- \*\*G4021C-DT003X.\* - Concrete Pole Direct Set Tenon Mount
- \*\*G4021C-DT004X.\* - Concrete Pole Direct Set Mast Arm Mount
- \*\*G4021C-DT005X.\* - Steel Pole Direct Set Tenon Mount
- \*\*G4021C-DT006X.\* - Steel Pole Direct Set Mast Arm Mount

**G4022 Security Site Lighting Systems**

**G4023 Other Site Lighting Systems**

**G403 Site Communication and Security Systems**

- G4030 Misc. Systems
- G4031 Site Alarm and Detection Systems
- G4032 Site Voice and Data Systems
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**G90 OTHER SITE CONSTRUCTION**

**G901 Service Tunnels**

**G902 Other Site Systems and Equipment**

**G9021 Contaminant Processing Systems and**

**Equipment**

- G9021H-DT001I.\* - Activated Carbon Process Units, Series Operation, Isometric
- G9021H-DT003E.\* - Activated Carbon Process Units Elevation
- G9021H-DT004P.\* - Gravity Filter Plan
- G9021H-DT005X.\* - Gravity Filter Section
- G9021H-DT006E.\* - Gravity Filter Elevation
- G9021H-DT007I.\* - Polymer Feed System
- G9021H-DT008I.\* - Hydrochloric Acid Feed System
- G9021H-DT009I.\* - Lime Feed System
- G9021H-DT010E.\* - Air Stripper



# Appendix A

## Abbreviations for CAD Details Library

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

<b>Abbreviation</b>	<b>Definition</b>
BLK	block
BLKG	blocking
BLW	below
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
CAP	capacity
CB	catch basin
CCT	cubicle curtain track
CCTV	closed circuit television
CE	cover elevation
CEM	cement
CEM PLAS	cement plaster
CER	ceramic
CFI	conductive flooring
CFLG	counterflashing
CFM	cubic feet per minute
CG	corner guard
CH BD	chalkboard
CHFR	chamfer
CHIM	chimney
CHK	check

<b>Abbreviation</b>	<b>Definition</b>
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
CLL	contract limit line
CLO	closet
CLOS	closure
CLR	clear(ance)
CLWG	clear wired glass
cm	centimeter(s)
CMP	corrugated metal pipe
CMPST	composite
CMU	concrete masonry unit
CND	conduit
CNL	conductive neoprene latex
CNR	corner
CNTR	counter
CO	cleanout
CO <sub>2</sub>	carbon dioxide
COL	column
COM	common
COMB	combustion
COMPT	compartment
CONC	concrete
CONN	connect
CONSTR	construction
CONT	continue
CONTR	contractor
CORR	corridor

<b>Abbreviation</b>	<b>Definition</b>
COV	cover
CPRS	compressible
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
C TO C	center to center
CTR	center
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
DB	dry bulb
DBL	double
DBL ACT DR	double acting door
DCJ	doweled control joint
DCJT	dummy control joint
DEG	degree
DEMO	demolition
DEPR	depression
DEPT	department
DET	detail
DF	drinking fountain
DH	double hung

<b>Abbreviation</b>	<b>Definition</b>
DH	duct heater
DIA	diameter
DIAG	diagonal
DIM	dimension
DISC	disconnect
DISP	dispenser
DISTR PNL	distribution panel
DIV	division
DL	dead load
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
DVTL	dovetail
DWG	drawing
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

<b>Abbreviation</b>	<b>Definition</b>
EP	electrical 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
EXH	exhaust
EXH A	exhaust air
EXIST	existing
EXP	expansion
EXP	exposed
EXP BT	expansion bolt
EXT	exterior
F	Fahrenheit
FA	fire alarm
FA	fresh air
FAC	fire apparatus closet
FAI	fresh air intake
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
FGL	fiberglass
FH	fire hydrant

<b>Abbreviation</b>	<b>Definition</b>
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
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



<b>Abbreviation</b>	<b>Definition</b>
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 circuit interrupter
GFE	government-furnished equipment
GFE/CI	government-furnished equipment contractor installed
GI	galvanized iron
GIP	galvanized iron pipe
GKT	gasket(ed)
GL	glass
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
GWT	glazed wall tile
GYP	gypsum
GYP BD	gypsum board
GYP PLAS	gypsum plaster
HB	hose bibb
HC	hollow core

<b>Abbreviation</b>	<b>Definition</b>
HCD	halon containment damper
HCP	handicapped
HD	head
HD	heavy duty
HDBD	hardboard
HD JT	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
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
HYDR	hydraulic
Hz	hertz
IC	intercom
ID	inside diameter
IESNA	Illuminating Engineering Society of North America
ILK	interlock
IN	inch
INCIN	incinerator
INCL	included
INSF	insulating fill

<b>Abbreviation</b>	<b>Definition</b>
INSUL	insulation
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
JST	joist
JT	joint
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	laminate
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

<b>Abbreviation</b>	<b>Definition</b>
LL	live load
LLD	lead-lined door
LM	lumen
LMST	limestone
LNTL	lintel
LONG	longitudinal
LP	lightproof
LPD	lightproof door
LPL	lightproof louver
LPT	low point
LR	living room
LS	lawn sprinkler
LT	light
LT WT	lightweight
LTG	lighting
LTNG	lightning
LVR	louver
LWC	lightweight concrete
LWT	leaving water temperature
m	meter(s)
M&B	matched and beaded
MACH	machine
MAS	masonry
MATL	material(s)
MAX	maximum
MB	machine bolts
MBR	member
MC	medicine cabinet
MCJ	masonry control joint
MCO	metal-cased opening
MDS	metal divider strip
MECH	mechanical
MECH RM	mechanical room
MED	medium
MEMB	membrane
MES	metal edge strip
MFD	metal floor decking
MFG	manufacturing

<b>Abbreviation</b>	<b>Definition</b>
MFR	manufacturer
MG	motor generator
MGT	matte-glazed tile
MH	manhole
MI	malleable iron
MIN	minimum
MIRR	mirror
MISC	miscellaneous
ML	metal lath
ML	monolithic
MLDG	moulding
MLWK	millwork
mm	millimeter(s)
MNIC	material not in contract (installation by contractor)
MO	masonry opening
MOD	modular
MOD.	modified
MOT	motor
MP	movable partition
MR	mop receptor
MRB	marble
MRD	metal roof decking
MS	machine screws
MT	metal threshold
MT	mount
MTD	mounted
MTFR	metal furring
MTL	metal
MVBL	movable
MULL	mullion
N	north
NAT	natural
NC	normally closed
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NKL	nickel

<b>Abbreviation</b>	<b>Definition</b>
NIC	not in contract
NL	nailable
N.L.	neoprene latex
NM	nonmetallic
NO	normally open
NO	number
NOM	nominal
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
OGL	obscure glass
OH	overhead
OHMS	ovalhead machine screw
OHWS	ovalhead wood screw
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

<b>Abbreviation</b>	<b>Definition</b>
PCP	cement plaster (portland)
PD	pavement drain
PED	pedestal
PERF	perforate(d)
PERIM	perimeter
PH	phase
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	performed
PRKG	parking
PROJ	project
PRV	pressure-regulating valve
PS	pipe space
P.S.	pressed steel
PS CONC	prestressed concrete
PSF	pounds per square foot

<b>Abbreviation</b>	<b>Definition</b>
PSI	pounds per square inch
PT	pneumatic tube
PT.	point
PT CONC	post-tensioned concrete
PTD	paper towel dispenser
PTN	partition
PTR	paper towel receptacle
PV	paved
PVC	polyvinyl chloride
PVG	paving
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
RDG INS	rigid insulation
RECPT	receptacle
REC ROOM	recreation room
RECT	rectifier
REF	reference
REFL	reflect
REFR	refrigeration
REG	register

<b>Abbreviation</b>	<b>Definition</b>
REG	reglet
REINF	reinforce
REM	remove(able)
REQD	required
RESIL	resilient
RET	return
REV	revision
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
R	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
SCRN	screen
SCT	structural clay tile
SD	storm drain
SDI	Steel Door Institute
SECT	section
SEQ	sequence

<b>Abbreviation</b>	<b>Definition</b>
SFGL	safety glass
SFTU	structural facing tile unit
SFU	structural facing unit
SG	sheet glass
SHLDR	shoulder
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
STOR	storage
ST PR	static pressure
STR	stringer
STRUCT	structural

<b>Abbreviation</b>	<b>Definition</b>
STWY	stairway
SUB FL	subfloor
SUSP	suspended
SV	sheet vinyl
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
TOL	tolerance
TOPO	topography
TOS	top of slab
TOS	top of steel
TOW	top of wall
TPD	toilet paper dispenser
TPTN	toilet partition
TRANS	transom
TRANS	transverse
TSTAT	thermostat
TV	television
TYP	typical

<b>Abbreviation</b>	<b>Definition</b>
UC	unit cooler
UGND	underground
UH	unit heater
UL	Underwriters Laboratories
UNEX	unexcavated
UNFIN	unfinished
UPS	uninterruptable power supply
UR	urinal
UTIL	utility
UV	unit ventilator
V	volt
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
VJ	v-joint(ed)
VNR	veneer
VOL	volume
VR	vapor retarder
VRM	vermiculite
VS	vent stack
V.T.	voltage transformer
VTR	vent thru roof
VWC	vinyl wall covering
W	west
W/	with
WB	wet bulb
WBL	wood blocking
WC	water closet
W/C	wheelchair
WCO	wood-cased opening

<b>Abbreviation</b>	<b>Definition</b>
WD	wood
WD	wood door
WDSP	waste disposer
WDW	window
WF	wide flange
WGL	wired glass
WH	wall hung
WH	water heater
WHB	wheel bumper
WHM	watt-hour meter
WI	wrought iron
WKSH	work shop
WM	wire mesh
W/O	without
WP	waterproof(ing)

<b>Abbreviation</b>	<b>Definition</b>
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	welded wire mesh
XFMR	transformer
YD	yard
YD	yard drain

# Appendix B

## Metric Construction Information

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The following information was published in the former Construction Metrication Council's *Construction Metrication* newsletter, Volume 10, Issue 3, dated 4<sup>th</sup> Quarter 2001. *Construction Metrication* was a quarterly newsletter formerly published 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.

To download back issues of *Construction Metrication*, go to <http://www.nibs.org/cmcnews.html>.

### 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 door frames 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, fluorescent 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 millimeter 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.

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<b>14. ABSTRACT</b>  Several years ago, before computer-aided design (CAD) became the standard drafting tool in design, a seasoned draftsman might require, on the average, 40 hours to develop a sheet of construction details by hand. Through the use of CAD, the effort of creating a single detail has been reduced considerably. Once the designer has created a detail using CAD 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 CAD details represents a considerable time-saving tool to the designer.  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.  <span style="float: right;"><i>(Continued)</i></span>									
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#### **14. (Concluded).**

When what was formerly called the CADD/GIS Technology Center (Center) was established in 1992, one of the first tasks was the compilation of a CAD 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. This program, called the CADD Details Manager, was developed using MDL and AutoLISP programming. The retrieval software ran on both MicroStation and AutoCAD platforms using UNIX, DOS, and Windows operating systems.

The CAD 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 CAD 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 CAD Details CD-ROM. The 2004 edition of the CAD Details CD-ROM added Interiors, Fire Protection, and Telecommunications details to the growing library.

It is the Center’s hope that the efforts of the Center, with the backing of the tri-services, to develop comprehensive, multidiscipline sets of generic details will not only help designers in their daily work but also demonstrate the DoD commitment to CAD productivity.