



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

*The CAD/BIM Technology Center  
for facilities, infrastructure, and environment*

## **A/E/C CAD Standard**

**Release 5.0**

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The A/E/C CAD Standard is compliant with Version 5.0 of the U.S. National CAD Standard®.

The A/E/C CAD Standard contains supplemental materials and DoD specific requirements not addressed in the U.S. National CAD Standard®.

# **A/E/C CAD Standard**

**Release 5.0**

Approved for public release; distribution is unlimited.



## Abstract

The A/E/C CAD Standard has been developed by the CAD/BIM Technology Center (Center) for Facilities, Infrastructure, and Environment to eliminate redundant Computer-Aided Design (CAD) standardization efforts within the Department of Defense (DoD) and the Federal Government. The manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life cycle of facilities within the DoD.

The CAD drafting standards addressed in the A/E/C CAD standard include presentation graphics, level/layer assignments, electronic file naming, and standard symbology. The Center's primary goal is to develop a CAD standard that is generic enough to operate under various CAD software packages (such as Bentley's MicroStation and Autodesk's AutoCAD) and incorporate existing industry standards when possible.

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# Preface

## Introduction

The A/E/C CAD Standard has been developed by the CAD/BIM Technology Center (Center) for Facilities, Infrastructure, and Environment to eliminate redundant Computer-Aided Design (CAD) standardization efforts within the Department of Defense (DoD) and the Federal Government. The manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life cycle of facilities within the DoD. This report supersedes “A/E/C CAD Standard, Release 4.0” (ERDC/ITL TR-9-2).

The Center acknowledges the support of the Corps’ Field Action CAD (FAC) committees, especially Jason Fairchild, Headquarters, U.S. Army Corps of Engineers. Special thanks go to Roger Fujan, U.S. Army Engineer District, Omaha; Ed Mathison, U.S. Army Engineer District, Louisville; and James Sherman, U.S. Army Engineer District, Portland, for agreeing to serve on a committee that assisted in reviewing/evaluating recommended changes to the standard.

The Center is located in the Information Technology Laboratory (ITL), U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS. The Director of ITL is Dr. Reed L. Mosher, and the Acting Deputy Director is Dr. Kevin M. Barry. At the time of publication of this report, the Director of ITL was Dr. Reed L. Mosher, the Acting Deputy Director was Dr. Kevin M. Barry, the Chief of Software Engineering and Informatics Division was Ken Pathak, and the Chief of the Tri-Service CAD/BIM Technology Center was Edward L. Huell. The Director of ERDC was Dr. Jeffery P. Holland, and the Commander of ERDC was COL Kevin J. Wilson.

## United States National CAD Standard®

In 1995, the combined resources of the Center, the American Institute of Architects (AIA), the Construction Specifications Institute (CSI), the United States Coast Guard, the Sheet Metal and Air Conditioning Contractors National Association (SMACNA), the General Services



Administration (GSA), and the National Institute of Building Sciences' (NIBS) Facility Information Council began an effort to develop a single CAD standard for the United States. Working together, these organizations agreed to develop an integrated set of documents that collectively would represent the United States National CAD Standard (NCS).

A Memorandum of Understanding (MOU) was signed on August 8, 1997. In accordance with that MOU, Release 5.0 of the A/E/C CAD Standard follows, utilizes, or references the work developed by each of the signatories. The two main NCS documents referenced within Release 5.0 of the A/E/C CAD Standard are:

- “Uniform Drawing System”  
The Construction Specifications Institute  
110 South Union Street, Suite 100  
Alexandria, VA 22314-3351
- “AIA CAD Layer Guidelines”  
The American Institute of Architects  
1735 New York Avenue, NW  
Washington, DC 20006-5292

Each of these documents is available as part of the NCS. Additional information on the NCS, as well as how to purchase a copy, can be obtained from

National Institute of Building Sciences  
1090 Vermont Avenue NW, Suite 700  
Washington, DC 20005-4905

<http://www.buildingsmartalliance.org/ncs/>

# 1 Introduction

## Acronyms

First, a few useful acronyms:

- A-E – Architect-Engineer
- A/E/C – Architecture, Engineering, and Construction
- AIA – American Institute of Architects
- ANSI – American National Standards Institute
- ASTM – American Society for Testing and Materials
- BIM – Building Information Modeling
- CAD – Computer-Aided Design
- CSI – Construction Specifications Institute
- DoD – Department of Defense
- FM – Facility Management
- GIS – Geographic Information System
- IAI – International Alliance for Interoperability
- IFC – Industry Foundation Class
- ISO – International Organization for Standardization
- NCS – United States National CAD Standard
- NIBS – National Institute of Building Sciences
- SI – International System of Units (Le Système International d’Unités)
- UDS – Uniform Drawing System

## Scope

This manual provides guidance and procedures for preparing Computer-Aided Design (CAD) products within the Department of Defense (DoD).

Chapters 1-5 of this manual address topics such as presentation graphics, level/layer assignments, electronic file naming, and standard symbology. Appendices A-D contain tables on model and sheet file level/layer names, color comparisons, as well as Architecture, Engineering, and Construction (A/E/C) CAD symbology.

## Purpose

The purpose of this manual is to set a basic CAD standard to ensure consistent electronic deliverables (products) within the DoD. These consistent deliverables are part of a comprehensive installation life-cycle management strategy. This manual sets a CAD standard specifically for the A/E/C disciplines of facilities development and civil works projects.

## Background

The immediate benefits of CAD standards are many:

- Consistent CAD products for customers.
- Uniform requirements for A-E deliverables.
- Sharing of products and expertise.

Recognizing such potential benefits, each of the DoD agencies independently initiated efforts to establish CAD standards in the late 1980's. In 1989 the Air Force Logistics Command released the "Architectural and Engineering Services for CADD Implementation Within Air Force Logistics Command." Headquarters, U.S. Army Corps of Engineers, in 1990 published Engineer Manual 1110-1-1807, "Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems." In 1993, the Naval Facilities Engineering Command distributed its "Policy and Procedures for Electronic Deliverables of Facilities Computer-Aided Design and Drafting (CADD) Systems."

To consolidate these efforts into a single standard, the Center was tasked to develop standards for the A/E/C disciplines. This manual presents the Center's effort at standardizing CAD requirements for A/E/C design and construction documents.

## Target Systems

This standard does not target any specific CAD system or software. However, to ensure successful translations among CAD applications, certain system-specific characteristics were considered and the standard adjusted accordingly. During the preparation of the standard, several baseline decisions were made:

- The standard must be applicable to the latest release of commercially available CAD packages. AutoCAD and MicroStation were chosen based on their prevalence in the DoD.
- The standard is based on CAD applications that utilize layer/level names and reference files.
- The standard requires every final plotted drawing sheet to have its own separate electronic drawing file.

## **Design Applications and Other Applications**

Numerous design applications have been developed to run on top of basic CAD engines. These applications can be used by designers to generate graphics inside CAD files. Most notable are design software packages for civil/site and BIM.

Document management systems that contain attributes or metadata for individual files and have such features as title block integration are becoming standard tools for management of electronic files. Use of these systems to store searchable metadata for files is encouraged.

## **Coordination with Design Agent**

With all the complexity and options currently available in the world of CAD, it becomes important to coordinate fundamental aspects of design work. The previously mentioned issues of basic platform, design applications, and document management are only three of the issues that can affect the success of a project and the future usefulness of the final documents. As such, each project should have at its initiation discussions and agreements on such issues as these. Each software package being used should be approved and a determination made on how many of the supporting electronic files should be provided to the customer as a part of the end product.

## **Additions/Revisions**

This standard is intended to be neither static nor all-inclusive and thus will be updated and enhanced as appropriate. Suggestions for improvements are strongly encouraged so that subsequent updates will reflect the input and needs of CAD users.

Recommendations or suggested additions should be sent to:

The CAD/BIM Technology Center  
U.S. Army Engineer Research and Development Center  
ATTN: CEERD-IS-C/Spangler  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199  
or by e-mail at: [Steve.C.Spangler@usace.army.mil](mailto:Steve.C.Spangler@usace.army.mil)

## 2 Drawing File Organization

### Design Area

#### Available drawing area

The two most extensively used CAD applications within the DoD, AutoCAD and MicroStation, both provide for a drawing area with nearly infinite range in each positive and negative axis (x,y,z).

#### File accuracy (units)

CAD systems allow the designer to work in “real-world” units. The most common units are feet:inches, feet:thousandths of feet, and meters:millimeters.

MicroStation’s approach to file accuracy allows the user to set the working units (i.e., real-world units) as the following:

- Master Units = The largest unit that may be referred to when working in the design file (e.g., feet, meters)
- Sub Units = Subdivisions of Master Units (e.g., inches, millimeters)

**Note:** *Starting with MicroStation V8, changing the Master Units in a drawing no longer changes the size of design file elements. For instance, if a design file was created in feet and a 1 ft line is drawn, changing the Master Units to inches results in the line measuring 12 in.*

In AutoCAD, the basic drawing unit for any file is the distance between two fixed Cartesian coordinates. For example, the distance between coordinates (1,1,1) and (1,1,2) is one drawing unit. A drawing unit can correspond to any measurement (e.g., foot, inch, meter, mile, fathom). AutoCAD users may enter the **Units** display option to set the desired drawing units.

The **Units** command of AutoCAD does not have a direct metric system setup. For metric designs, the recommended procedure is to choose the **Decimal** option in the **Drawing Units** dialog box. This will allow each

drawing unit to represent decimal meters, millimeters, and so forth, at the discretion of the user.

### **International Feet versus Survey Feet (V8)**

Many sites have to deal with the initial question as to whether a particular project is designed using International Feet or Survey Feet. In some states, it is specified by statute that units of measure for grid coordinates have to be either International Feet or Survey Feet. The two units are defined as follows:

- International Feet: 1 foot = 0.3048000 m
- U.S. Survey Feet: 1 foot = 0.3048006 m

Looking at this comparison, the difference between the two (0.0000006 m) may seem insignificant; however, ultimately this difference may cause coordinate values to be off by several feet, resulting in inaccurate design files. In MicroStation, the **units.def** file does contain a definition for Survey Feet (usually stored in **c:\Program Files\Bentley\Workspace\System\data**), but it is disabled by default. To enable, scroll down the **units.def** file to the section **English units (based on U.S. Survey Foot)** and delete the # in front of **#sf,ft**, which will allow for the selection of Survey Feet from the Working Units box the next time MicroStation is started.

**Note:** *If a drawing has already been created using International Feet, changing the Master Units to Survey Feet will not automatically scale all elements in the drawing to Survey Feet.*

### **Origin (global origin)**

Positioned within every electronic drawing file is an origin (“global origin” in MicroStation and “origin” in AutoCAD). The origin of a drawing file is important because it serves as the point of reference from which all other elements are located. Origins are typically defined in a drawing file by the Cartesian coordinate system of x, y, and z.

The benefit of standardizing the location of the origin of a drawing is most notable in the use of reference files (see section “Reference Files (XREFs)” in Chapter 4). A standardized origin is also helpful when translating files between CAD applications. The recommended global origin for 2D files in

both AutoCAD and MicroStation drawings is  $x = 0$  and  $y = 0$ . When 3D files are used, the  $z$ -origin should be set to allow for elevations below 0.

## Model Files and Sheet Files

Two distinct types of CAD files are addressed in this standard: model files and sheet files.

A model file contains the physical components of a building (e.g., columns, walls, windows, ductwork, piping, etc.). Model files are drawn at full scale and typically represent plans, elevations, sections, etc. Model files can be generated either by placing graphics or from BIM model extractions/views.

A sheet file is synonymous with a plotted CAD drawing file. A sheet file is a selected view or portion of referenced model file(s) within a border sheet. The addition of sheet-specific information (e.g., text, dimensions, and symbols) completes the construction of the document. In other words, a sheet file is a “ready-to-plot” CAD file.

Figure 2-1 illustrates how different model files are referenced to a sheet file (notice that even the border sheet is a referenced model file). Again, a sheet file is the combination of referenced model files with sheet-specific text/symbols to create a final ready-to-plot CAD file. A useful rule of thumb was stated in the 2nd edition of the American Institute of Architects’ (AIA) *CAD Layer Guidelines* (AIA 2005): “Model files are always referenced by other files, while sheet files are never referenced by other files.”

## Design Models and Sheet Models

Inside each CAD file can exist Design Models (or Model Space for AutoCAD users) and Sheet Models (or Paper Space for AutoCAD users). Design Models are where model files are developed or possibly where model files are assembled prior to creation of the Sheet Model (see the following section “Drawing Sheet Assembly”). Design Models contain graphic information in a model file format. For example, it may contain the entire Architectural Floor Plan model file for a building. It is this model file that is used as a reference for creating individual sheet files.

By contrast, a Sheet Model shows the presentation of model file graphics as they would appear on an individual drawing sheet. This assembly area would contain referenced individual model files, one of which would be a border sheet.



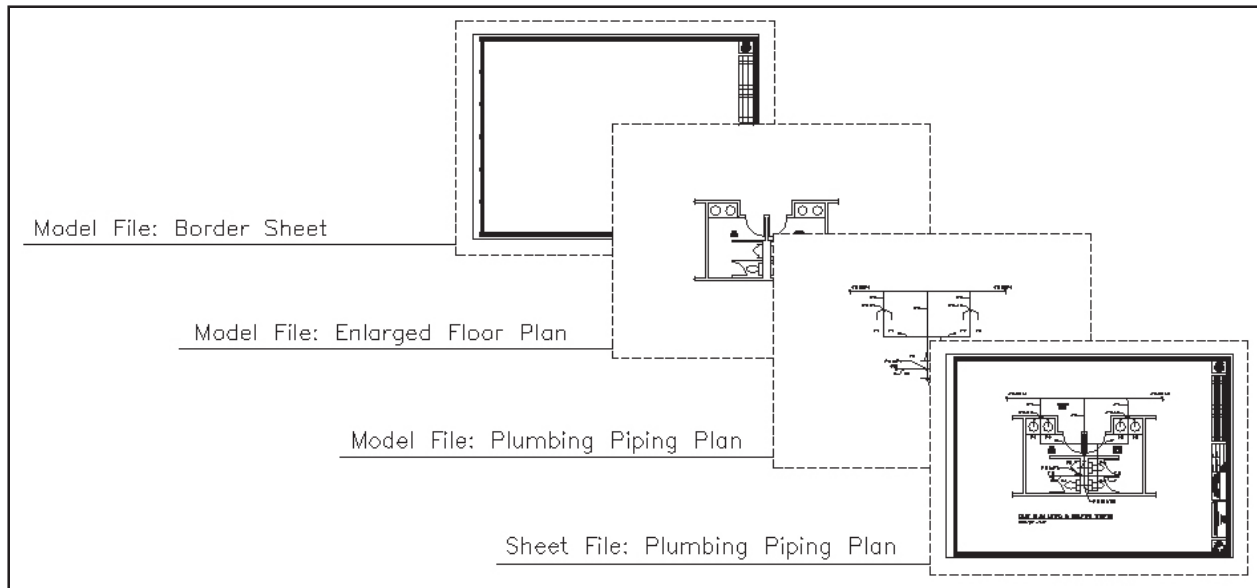


Figure 2-1. Sheet file composition.

### Drawing Sheet Assembly - Use of Design Model and Sheet Model (1:1 border sheet)

The following method for drawing sheet assembly should be used. It involves assembling individual model files and a border sheet model file to create final plotted sheets.

**Note:** *Nested referenced border sheet model files are not allowed.*

This method consists of using a sheet file that contains a Design Model and a Sheet Model. The Design Model is used to assemble all the individual reference files necessary to display the graphics. This may include references to individual views of Design Models in other files, or even coincident references. The Design Model should also contain real-world graphics such as northing and easting coordinate values of points. The Sheet Model contains a reference to the project border sheet model file (at 1:1), plus a reference to the Design Model in the active sheet file, scaled to fit into the Sheet Model (Figure 2-2).

### Electronic Drawing File Naming Conventions

Naming conventions for electronic drawing files (both model files and sheet files) allow CAD users to determine the contents of a drawing without actually displaying the file. They also provide a convenient and clear structure for organizing drawing files within project directories.

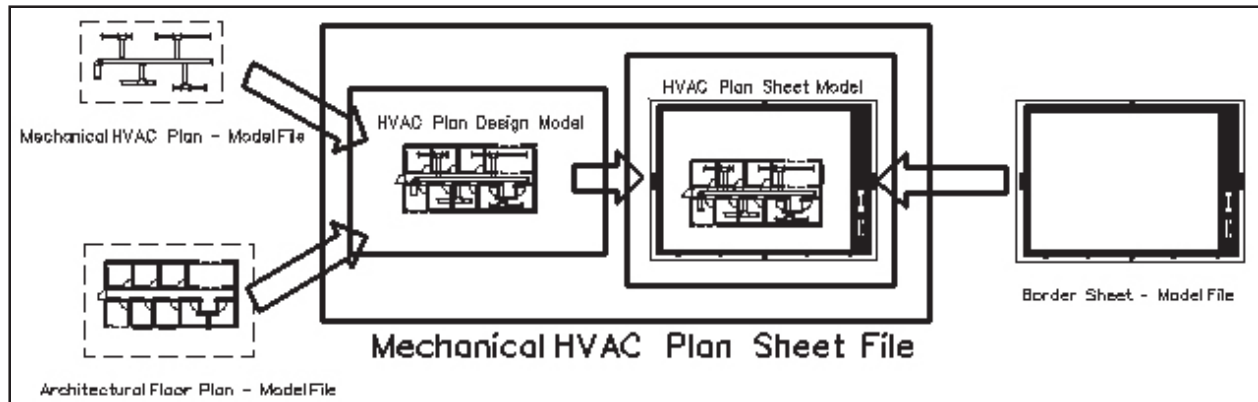


Figure 2-2. Sheet file composition using Design Model and Sheet Model.

### Project code

The Model File naming convention and the Sheet File naming convention both allow for a Project Code (1- to 20-characters) at the beginning of the file name. The Project Code should be identified at the start of each project to ensure consistent file names within that project. Some examples of Project Codes are:

- The official agency project number
- The project number defined by the agency system manager for their record system

The use of Project Codes in file names prevents the same file name from existing in different directories. When this field is used, standard naming should consider use of a special character such as an underscore “\_” for all model files so that folder sorting routines group like files together.

When a project includes multiple sites or buildings, it is important to identify each file with the appropriate feature. This should be done as a part of the Project Code. For example, a model file for project P123, building 2, could possibly use a Project Code of “\_P123-Bldg2”.

### Model file naming convention

The model file naming convention (Figure 2-3) has four mandatory fields. All fields must be used and in the correct sequence.

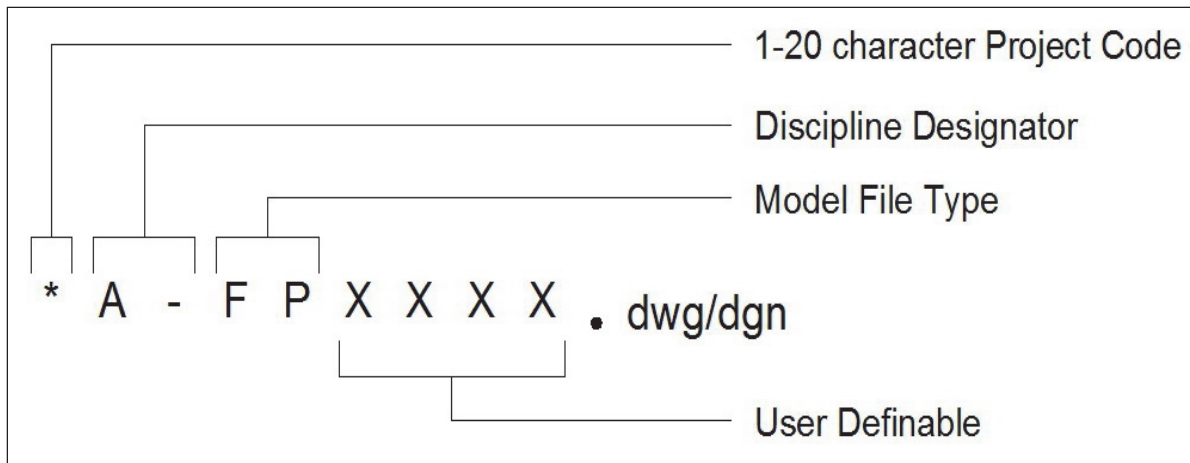


Figure 2-3. Model file naming convention.

Following the Project Code field, the first two-character field represents the Discipline Designator. The allowable characters for the first character in the Discipline Designator are listed in Table 2-1. The second character of the Discipline Designator field is either a hyphen “-” (the use of which results in this being referred to as a Level 1 Discipline Designator) or an alphabetical Level 2 Designator (Table 2-2). The next two-character field represents the Model File Type (Table 2-3). The final four-character field is User Definable.

**Note:** *In NCS V 5.0, user-defined Level 2 Designators are allowed “to differentiate among multiple buildings on a ‘campus’ or among multiple features on a large civil works project.” Should this option be chosen, Table 2-2 Level 2 Designators should not be used, in order to avoid confusion.*

**Example.** The model file name for a project at the U.S. Army Engineer Research and Development Center (ERDC), Building 8000, 1st floor, Architectural Floor Plan could be:

ERDC8000A-FPF1XX.dgn/dwg

where ERDC8000 is the Project Code, A- is the Discipline Designator, FP is the Model File Type (Floor Plan), and F1 is a user-definable set of characters for Floor 1. Since not all of the user-definable characters were used, the characters XX were used as placeholders.

Table 2-1. Discipline Designators.

Discipline	Designator
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
Distributed Energy	W
Telecommunications	T
Resource	R
Other Disciplines	X
Contractor/Shop Drawings	Z
Operations	O

Table 2-2. Discipline Designators with Level 2 Designators.

Discipline	Designator	Description	Content
General	G-	All General	All or any portion of subjects in the following Level 2 Designators
	GC	General Contract	Phasing, schedules, contractor staging areas, fencing, haul routes, erosion control, temporary and special requirements
	GI	General Information	Drawing index, code summary, symbol legend, orientation maps
	GR	General Resource	Photographs, soil borings
Hazardous Materials	H-	All Hazardous Materials	All or any portion of subjects in the following Level 2 Designators
	HA	Asbestos	Asbestos abatement, identification, or containment

Discipline	Designator	Description	Content
	HC	Chemicals	Toxic chemicals handling, removal, or storage
	HL	Lead	Lead piping or paint removal
	HP	PCB	PCB containment and removal
	HR	Refrigerants	Ozone depleting refrigerants
Survey/Mapping	V-	All Survey/Mapping	All or any portion of subjects in the following Level 2 Designators
	VA	Aerial Survey	Aerial surveyed points and features
	VC	Computed Points	Computed points and features
	VF	Field Survey	Field surveyed points and features
	VH*	Hydrographic Survey	
	VI	Digital Survey	Digitized points and features
	VN	Node Points	Node points and features
	VS	Staked Points	Staked points and features
	VU	Combined Utilities	
Geotechnical	B-	All Geotechnical	All or any portion of subjects in the following Level 2 Designators
	BB*	Boring Logs	Boring logs
	BS*	Stratigraphy	Stratigraphy profiles
Civil	C-	All Civil	All or any portion of subjects in the following Level 2 Designators
	CB*	Civil Beach Renourishment	Beach disposal and renourishment
	CD	Civil Demolition	Structure removal and site clearing
	CE*	Civil Ecosystem Restoration	Environmental restoration
	CF*	Civil Flood Control	Levees, spillways, pump stations
	CG	Civil Grading	Excavation, grading, drainage, erosion control, retention ponds
	CH*	Civil Shore Protection	Erosion protection structures on shoreline
	CI	Civil Improvements	Pavers, flagstone, exterior tile, furnishings, retaining walls, and water features
	CN	Civil Nodes	
	CN*	Civil Navigation	Navigation, harbors, dredging
	CO*	Civil Operation and Maintenance	Repair and upgrade to O&M structures
	CP	Civil Paving	Roads, driveways, parking lots
	CR*	Civil Recreation	Recreation facilities
CS	Civil Site	Plats, topographic, dimension control	

Discipline	Designator	Description	Content
	CT	Civil Transportation	Waterways, wharves, docks, trams, railways, airfields, and people movers
	CU	Civil Utilities	Water, sanitary sewer, storm sewer, power, communications, natural gas, and steam systems
	CX*	Civil Security	Security-related work
Landscape	L-	All Landscape	All or any portion of subjects in the following Level 2 Designators
	LD	Landscape Demolition	Protection and removal of existing landscape
	LG	Landscape Grading	Proposed contours and spot grades
	LI	Landscape Irrigation	Mainlines, valves, controllers, pumps, etc.
	LL	Landscape Lighting	
	LP	Landscape Planting	Landscape planting
	LR	Landscape Relocation	Vegetation relocation information
Structural	LS	Landscape Site	All site hardscape and callouts
	S-	All Structural	All or any portion of subjects in the following Level 2 Designators
	SB	Structural Substructure	Foundations, piers, slabs, and retaining walls
	SC*	Structural Components	Gates, armor, bulkheads, and railings
	SD	Structural Demolition	Protection and removal
	SF	Structural Framing	Floors and roofs
	SR*	Structural Reinforcement	Concrete reinforcement and anchors
	SS	Structural Site	
Architectural	ST*	Structural Superstructure	Walls, decks, abutments, gates, and weirs
	A-	All Architectural	All or any portion of subjects in the following Level 2 Designators
	AD	Architectural Demolition	Protection and removal
	AE	Architectural Elements	General architectural
	AF	Architectural Finishes	
	AG	Architectural Graphics	
	AI	Architectural Interiors	
AS	Architectural Site		

Discipline	Designator	Description	Content
Interiors	I-	All Interiors	All or any portion of subjects in the following Level 2 Designators
	ID	Interior Demolition	
	IF	Interior Furnishings	
	IG	Interior Graphics	Murals and visuals
	IN	Interior Design	
Equipment	Q-	All Equipment	All or any portion of subjects in the following Level 2 Designators
	QA	Athletic Equipment	Gymnasium, exercise, aquatic, and recreational
	QB	Bank Equipment	Vaults, teller units, ATMs, drive-through
	QC	Dry Cleaning Equipment	Washers, dryers, ironing, and dry cleaning
	QD	Detention Equipment	Prisons and jails
	QE	Educational Equipment	Chalkboards, library
	QF	Food Service Equipment	Kitchen, bar, service, storage, and processing
	QH	Hospital Equipment	Medical, exam, and treatment
	QL	Laboratory Equipment	Science labs, planetariums, observatories
	QM	Maintenance Equipment	Housekeeping, window washing, and vehicle servicing
	QP	Parking Lot Equipment	Gates, ticket, and card access
	QR	Retail Equipment	Display, vending, and cash register
	QS	Site Equipment	Bicycle racks, benches, playgrounds
	QT	Theatrical Equipment	Stage, movie, rigging systems
	QV	Video/Photographic Equipment	Television, darkroom, and studio
QY	Security Equipment	Access control and monitoring, surveillance	
Fire Protection	F-	All Fire Protection	All or any portion of subjects in the following Level 2 Designators
	FA	Fire Detection and Alarm	
	FX	Fire Suppression	Fire extinguishing systems and equipment
Plumbing	P-	All Plumbing	All or any portion of subjects in the following Level 2 Designators
	PD	Plumbing Demolition	Protection, termination, and removal
	PL	Plumbing	Domestic water, sanitary and storm drainage, fixtures

Discipline	Designator	Description	Content
	PP	Plumbing Piping	Piping, valves, and insulation
	PQ	Plumbing Equipment	Pumps and tanks
	PS	Plumbing Site	Extensions and connections to Civil Utilities
Process	D-	All Process	All or any portion of subjects in the following Level 2 Designators
	DD	Process Demolition	Protection, termination, and removal
	DE	Process Electrical	Electrical exclusively associated with a process and not the facility
	DG	Process Gases	Gaseous process systems
	DI	Process Instrumentation	Instrumentation, measurement, recorders, devices, and controllers (electrical and mechanical)
	DL	Process Liquids	Liquid process systems
	DP	Process Piping	Piping, valves, insulation, tanks, pumps, etc.
	DQ	Process Equipment	Systems and equipment for thermal, electrical, materials handling, assembly and manufacturing, nuclear, power generation, chemical, refrigeration, and industrial processes
	DS	Process Site	Extension and connection to Civil Utilities
Mechanical	M-	All Mechanical	All or any portion of subjects in the following Level 2 Designators
	MD	Mechanical Demolition	Protection, termination, and removal
	MH	Mechanical HVAC	Ductwork, air devices, and equipment
	MI	Mechanical Instrumentation	Instrumentation and controls
	MP	Mechanical Piping	Chilled and heating water, steam
	MS	Mechanical Site	Utility tunnels and piping between facilities
	MY*	Mechanical Hydraulic Systems	Pump stations, spillways, slide gates
Electrical	E-	All Electrical	All or any portion of subjects in the following Level 2 Designators
	EA*	Electrical Airfield Lighting and Nav aids	Visual air navigation systems
	EC*	Electrical Cathodic Protection	Cathodic protection systems
	ED	Electrical Demolition	Protection, termination, and removal
	EG*	Electrical Grounding	Grounding, lightning protection devices
	EI	Electrical Instrumentation	Controls, relays, instrumentation, and measurement devices



Discipline	Designator	Description	Content
	EL	Electrical Interior Lighting	Interior lighting
	EP	Electrical Interior Power	Interior power
	ES	Electrical Site	Exterior electrical systems (power, lighting, auxiliary)
	ET	Electrical Telecommunications	Telephone, network, voice, and data cables
	EY	Electrical Interior Auxiliary Systems	Alarms, nurse call, security, CCTV, PA, music, clock, and program
Telecommunications	T-	All Telecommunications	All or any portion of subjects in the following Level 2 Designators
	TA	Audio Visual	Cable, music, and CCTV systems
	TC	Clock and Program	Time generators and bell program systems
	TD*	Telecommunications Demolition	Protection, termination, and removal
	TI	Intercom	Intercom and public address systems
	TM	Monitoring	Monitoring and alarm systems
	TN	Data Networks	Network cabling and equipment
	TS*	SCADA	Supervisory Control and Data Acquisition (SCADA) systems and equipment
	TT	Telephone	Telephone systems, wiring, and equipment
	TY	Security	Access control and alarm systems
Resource	R-	All Resource	All or any portion of subjects in the following Level 2 Designators
	RA	Resource Architectural	Existing facility architectural drawings
	RC	Resource Civil	Surveyor's information and existing civil drawings
	RE	Resource Electrical	Existing facility electrical drawings
	RM	Resource Mechanical	Existing facility mechanical drawings
	RR	Resource Real Estate	Real estate drawings
	RS	Resource Structural	Existing facility structural drawings
Other Disciplines	X		
Contractor/Shop Drawings	Z		
Operations	O		

\* = Not in NCS 5.0

Table 2-3. Model File Types.

Discipline	Code	Definition
<i>General</i>	BS	Border Sheet
	CS	Cover Sheet
	KP	Key Plan
<i>Hazardous Materials</i>	DT	Detail
	EL*	Elevation
	LG	Legend
	PP	Pollution Prevention Plan
	QP*	Equipment Plan
	SC	Section
	XD*	Existing/Demolition Plan
<i>Survey/Mapping</i>	AL	Existing Airfield Lighting Plan
	CP	Existing Communication System Plan
	EU	Existing Electrical Utilities Plan
	HP	Existing Hydrographic Survey and Mapping Plan
	HT	Existing HTCW Utilities Plan
	LG	Legend
	PB	Property Boundary
	PR	Existing Profile
	SC	Existing Section
	SP	Survey and Mapping Plan
	UP	Existing Utilities Plan
<i>Geotechnical</i>	DT	Detail
	JP	Joint Layout Plan
	LB	Boring Log
	LG	Legend
	PV	Pavement Site Plan
	SC	Section
	SH*	Schedule
SI	Subsurface Investigation Plan	
<i>Civil</i>	AF	Airfield Plan
	BR	Beach Renourishment Plan
	DT	Detail
	EL	Elevation
	ER	Eco-Restoration Plan
	FC	Flood Control Plan

Discipline	Code	Definition
	GP	Grading Plan
	IP*	Installation Plan/Base Map
	JP	Joint Layout Plan
	KP*	Staking Plan
	LG	Legend
	NG	Navigation/Dredging Plan
	PL*	Project Location Map
	PR	Profile
	SC	Section
	SH*	Schedule
	SP	Site Plan
	TS	Transportation Site Plan
	UP	Utilities Plan
	XD*	Existing/Demolition Plan
<i>Landscape</i>	DT	Detail
	EL*	Elevation
	IP	Irrigation Plan
	LG	Legend
	LP	Landscape Plan
	SC*	Section
	SH*	Schedule
	XD*	Existing/Demolition Plan
<i>Structural</i>	3D	Isometric/3D
	BP	Bridge Plan
	CP*	Column Plan
	CW	Misc. Small Civil Works Structures
	DT	Detail
	EL	Elevation
	EP	Enlarged Plan
	FC	Flood Control Structures
	FP	Framing Plan
	LD	Locks and Dams Plan
	LG	Legend
	NP	Foundation Plan
	SC	Section
	SH	Schedule

Discipline	Code	Definition
	XD*	Existing/Demolition Plan
<i>Architectural</i>	3D*	Isometric/3D
	AC	Area Calculations/Occupancy Plan
	CP	Reflected Ceiling Plan
	DT	Detail
	EL	Elevation
	EP*	Enlarged Plan
	FP	Floor Plan
	LG	Legend
	QP	Equipment Plan
	RP	Roof Plan
	SC	Section
	SH*	Schedule
	XD*	Existing/Demolition Plan
	<i>Interiors</i>	3D*
DT		Detail
EL		Elevation
EP*		Enlarged Plan
FL		Floor Patterns
LG		Legend
QP*		Equipment Plan
RP		Furniture Plan
SC*		Section
SH*		Schedule
SP		Signage Placement Plan
WP		System Furniture Plan
XD*		Existing/Demolition Plan
<i>Fire Protection</i>	3D*	Isometric/3D
	DG*	Diagram
	DT	Detail
	FA	Fire Alarm/Detection Plan
	FP	Fire Suppression Plan
	LG	Legend
	LP	Life Safety Plan
	SH*	Schedule
	XD*	Existing/Demolition Plan

Discipline	Code	Definition
<i>Plumbing</i>	3D*	Isometric/3D
	DG	Diagram
	DT	Detail
	EL*	Elevation
	EP*	Enlarged Plan
	LG	Legend
	PP	Piping Plan
	SH*	Schedule
	XD*	Existing/Demolition Plan
<i>Mechanical</i>	3D*	Isometric/3D
	DG	Diagram
	DT	Detail
	EL	Elevation
	EP*	Enlarged Plan
	HP	HVAC Plan
	HS	Hydraulic Systems
	HT	HTCW Utilities Plan
	LG	Legend
	MD	Machine Design Plan
	MH	Material Handling Plan
	QP*	Equipment Plan
	SC	Section
	SH*	Schedule
	SP	Specialty Piping Plan
	XD*	Existing/Demolition Plan
<i>Electrical</i>	AL	Airfield Lighting Plan
	AP*	Auxiliary Power Plan
	CP	Exterior Communication Systems Plan
	DG	Diagram
	DT	Detail
	EU	Electrical Utilities Plan
	GP	Grounding System Plan
	LG	Legend
	LP	Lighting Plan
	PP	Power Plan
	PS*	Panel Schedule

Discipline	Code	Definition
	SH*	Schedule
	SS	Special Systems Plan
	XD*	Existing/Demolition Plan
<i>Telecommunications</i>	DG	Diagram
	DT	Detail
	LG	Legend
	SH*	Schedule
	TP	Telephone/Data Plan
	XD*	Existing/Demolition Plan

\* = No Model File Table available in Appendix A

**Existing/Demolition model file naming.** There are instances when a facility is being renovated and the as-built designs need to be revised to show demolition and new items. These revisions would not be made on existing as-built model files, but on copies to ensure the original as-builts are not modified.

A model file type, Existing/Demolition (XD), has been added to the standard to allow users to make revisions to as-built files. This model file type is used to aid users in separating existing-to-remain items from items that will be demolished.

**Example.** An architect has an existing as-built floor plan model file for Building 1000, 2nd floor. For the current project, walls will be demolished and new walls constructed on the 2nd floor. First, a copy would be made of the original as-built file (B1000A-FPF2XX.dgn/dwg), and the copy would be named B1000RENA-XDF2XX.dgn/dwg (B1000REN is the Project Code, A- is the Discipline Designator, XD is the Model File Type (Existing/Demolition Plan), and F2XX are user-definable characters (F2=Floor 2)). The architect would open this file and move all demolition items to demolition levels/layers (see Chapter 4, “Status (phase) levels/layers”). When the new items in the Floor Plan are drawn, the architect would open a new model file called something like B1000RENA-FPF2XX.dgn/dwg (B1000REN is the Project Code, A- is the Discipline Designator, FP is the Model File Type (Floor Plan), and F2XX are user-definable characters (F2=Floor 2)). The file

B1000RENA-XDF2XX.dgn/dwg

would be referenced in with the demolition levels/layers turned off. The architect would then use the Floor Plan active levels/layers to construct the new items for that project.

**Sheet file naming convention**

The sheet file naming convention (Figure 2-4) also has four mandatory fields. Similar to the format for model file naming, all fields must be used and in the correct sequence.

The first field is used for a 1- to 20-character Project Code (see “Project code”). The next two characters are the Discipline Designator with either a hyphen (Level 1) or an alphabetical/Level 2 Designator (Table 2-2). The next character is the Sheet Type Designator (Table 2-4) followed by a two-character Sheet Sequence Number (01-99).

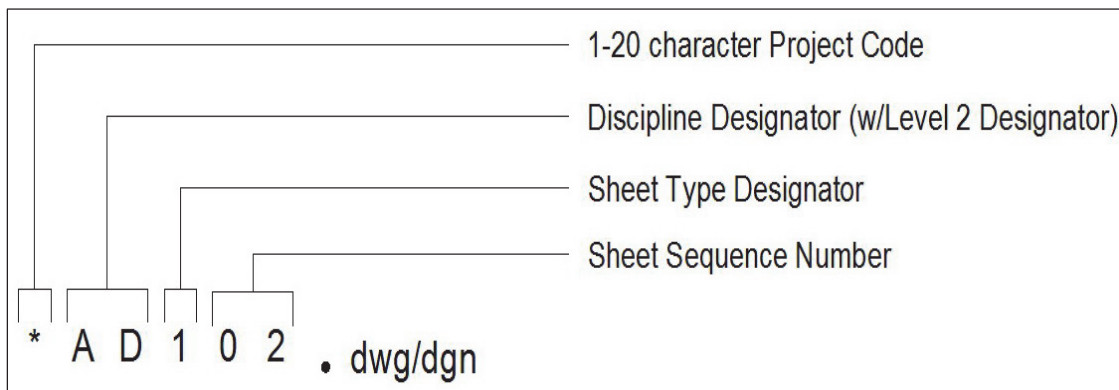


Figure 2-4. Sheet file naming convention.

Table 2-4. Sheet Type Designators.

Sheet Type	Designator
General (symbols legend, notes, etc.)	0
Plans (horizontal views)	1
Elevations (e.g., vertical views, profiles, etc.)	2
Sections (e.g., sectional views, cross sections, etc.)	3
Large Scale Views (plans, elevations, or sections that are not details)	4
Details	5
Schedules and Diagrams	6
User Defined	7
User Defined	8
3D Representations (isometrics, perspectives, photographs)	9

**Note:** *If the sheet sequence number goes above 99 sheets for a particular discipline, the user might want to consider using the Level 2 Designator in the Discipline Designator to further subdivide the discipline (Table 2-2).*

**Note:** *According to the NCS: “Sheet Sequence Numbers need not be sequential, to permit future insertion of sheets during design.”*

**Note:** *Occasionally, more than one Sheet Type (e.g., plan, elevation, detail) will be represented in one sheet file. If this is the case, the dominant Sheet Type determines the Sheet Type Designator.*

For example, the sheet file name for a project at ERDC, Building 8000, Architectural Floor Plan, sheet sequence 02 could be:

ERDC8000A-102.dgn/dwg

where ERDC8000 is the Project Code, A- is the Discipline Designator, 1 is the Sheet Type Designator (Plan), and 02 is the Sheet Sequence Number.

### Adding a drawing sheet

If a sheet needs to be added between two sequential sheets, a Supplemental Drawing Designator may be appended to the end of a sheet file name (Figure 2-5). For example, if two sheets need to be added between sheets ERDC8000A-104 and ERDC8000A-105, then the sheet file names for the inserted sheets would be ERDC8000A104-A and ERDC8000A104-B. For more information on adding additional sheets, see “Adding or deleting drawing sheets and index sheet procedures” from Chapter 11 Drawing Revisions in ERDC/ITL TR-12-1 CAD Drafting Standard.

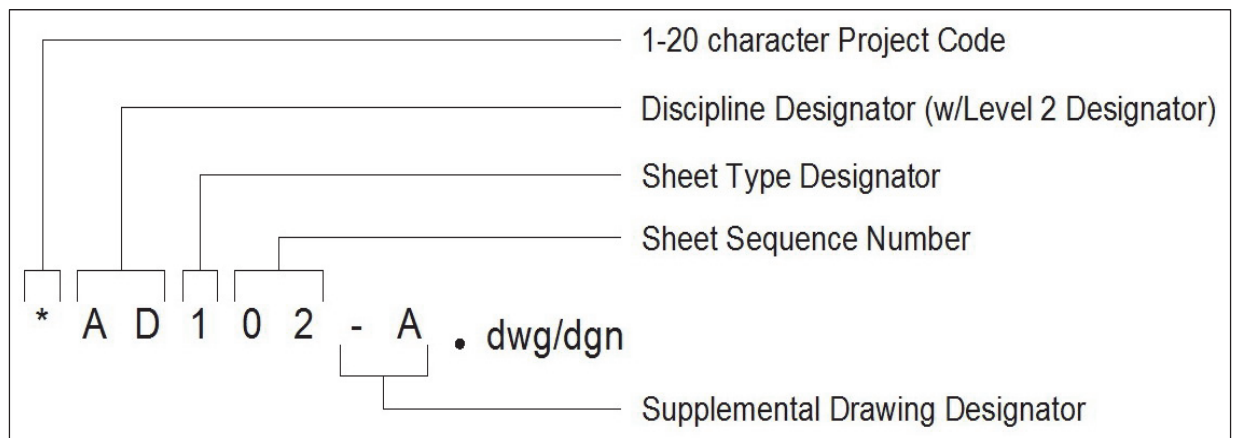


Figure 2-5. Supplemental drawing designator.



## Coordination Between Sheet File Name and Sheet Identifier

In assigning a sheet identifier (for use in the sheet identification block, reference bubbles, etc.), the user should coordinate with the name assigned to the electronic sheet file. The sheet identifier should consist of the discipline designator, sheet type designator, and the sheet sequence number (Figure 2-6).

As far as the sequence of the discipline designators in a drawing set, the NCS mandates that the disciplines follow the order as shown in Table 2-1.

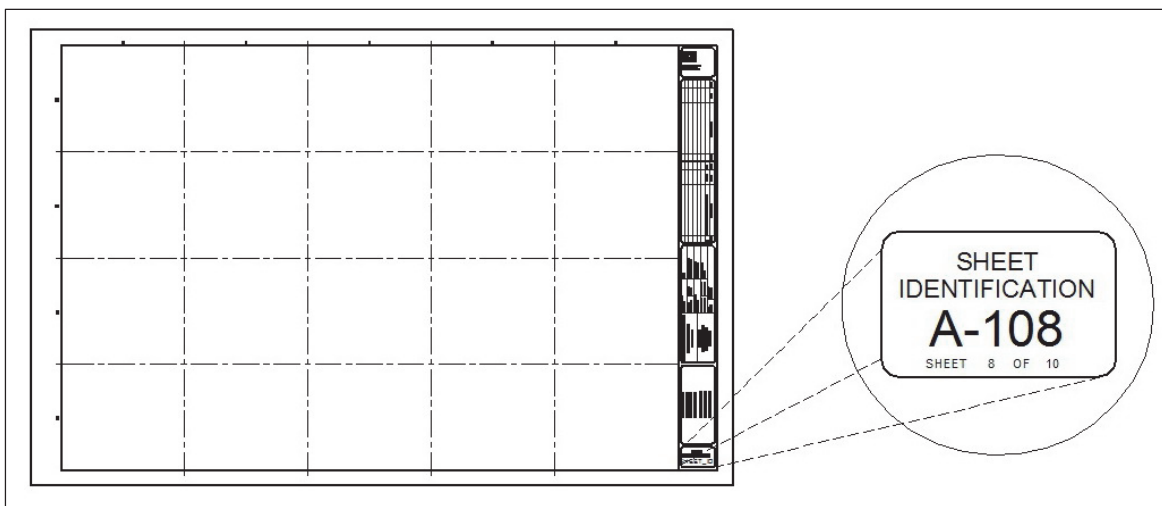


Figure 2-6. Typical border sheet title block with sheet identification block

## 3 Graphic Concepts

### Presentation Graphics

The first step in establishing an effective CAD standard is the development of a uniform approach to presentation graphics. Presentation graphics typically consist of drawing elements such as lines, arcs, shapes, text, and their attributes (line color, line width, and line style). This chapter presents brief overviews of the characteristics of presentation graphics and the philosophy used to standardize them.

#### Line widths

Although “monowidth” line work is not contractually improper, varied line widths substantially improve readability. Most commercial CAD systems provide an extensive variety of line widths. However, for the majority of A/E/C drawings, the eight line widths defined in Table 3-1 are considered sufficient and should not be expanded unless an appreciable improvement in drawing clarity or contrast can be realized. Table 3-1 shows information about the various allowed line widths.

Table 3-1. Comparison of Line Widths.







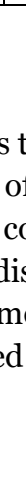
Line Thickness	mm	in.	MicroStation Line Weight	Typical Use
Fine	0.18	0.007	wt = 0	Patterning and material indications
Thin	0.25	0.010	wt = 1	Dimension lines, leaders, extension lines, break lines, grid lines, schedule grid lines, hidden objects, center lines, and setback lines
Medium	0.35	0.014	wt = 2	Object lines, text, property lines, terminator marks, schedule grid accent lines
Wide	0.50	0.020	wt = 3	Major object lines, cut lines, section cutting plane lines, property lines, drawing block borders, and titles
Extra Wide	0.70	0.028	wt = 5	Minor title underlining, footprints, match lines, schedule outlines, sheet borders, large titles, and object lines requiring special emphasis
XX Wide	1.00	0.040	wt = 7	Major title underlining and separating portions of drawings
XXX Wide	1.40	0.055	wt = 10	Border sheet outlines and cover sheet line work
XXXX Wide	2.00	0.079	wt = 15	Border sheet outlines and cover sheet line work

**Note:** *The NCS does offer an Extra Fine (0.13 mm) line width. However, the legibility on printouts becomes more difficult when the line width goes below the Fine (0.18 mm) line width. The NCS even states “Use of Extra Fine line widths should be avoided if the drawing will be plotted half-size.”*

### Line types/styles

The predominant line types/styles used in this standard are listed in Table 3-2 and are available as installed line types/styles in AutoCAD and MicroStation. The Center has also created custom line style files for MicroStation and AutoCAD, which include additional discipline line styles (see Appendix D). These files are available on the Center’s web site at <https://cadbim.usace.army.mil/cad>.

Table 3-2. Standard Line Types/Styles.

ID	Description	MicroStation Designator	AutoCAD Designator	Example
0	Continuous	0	Continuous	
1	Dotted	1	Dot	
2	Dashed	2	Hidden	
3	Dashed spaced	3	Dashed	
4	Dashed dotted	4	Dashdot	
6	Dashed double-dotted	6	Divide2	
7	Chain	7	Center	

### Line color

The primary reason to use color in CAD drawings is to improve the clarity of the drawing on a computer monitor. The variety of colors available in a CAD application depends on the capabilities of the computer monitor and its video card. Today, most systems are capable of displaying up to 16.8 million colors. For consistency, this manual recommends that all A/E/C drawings be created using the basic colors presented in Table 3-3 whenever possible.

**Note:** *The recommended colors are best viewed on a monitor with a black background.*

Appendix C contains a 256-color map for the AutoCAD and MicroStation color palettes. The table maps AutoCAD's default color palette to MicroStation's default color palette. The color table is provided for those users who require more colors than the eight shown in Table 3-3.

Table 3-3. Screen Color Comparisons.

Color	Color Number		Ratios of RGB		
	AutoCAD	MicroStation	Red	Green	Blue
Blue	5	1	0	0	255
Gray	8	9	128	128	128
Green	3	2	0	255	0
Red	1	3	255	0	0
Yellow	2	4	255	255	0
Magenta	6	5	255	0	255
Cyan	4	7	0	255	255
White	7	0	255	255	255

Note: Color numbers for AutoCAD and MicroStation were taken from default color tables.

### Screening

Screened images are created through a process in which the density and pattern of black and white dots are varied to simulate different shades of gray. Varying the intensity of gray scales allows users to distinguish different aspects of a drawing when it is plotted. For example, an area on a site designated for demolition can be assigned a color that has been assigned a screening percentage. When plotted, the area will be shown at a lighter shade compared with other elements in the drawing. This will allow the contractor to immediately identify the demolition area on the drawing.

Table 3-4 lists colors recommended to be used for screening along with a recommended screening percentage. Optionally, when variations in screening are not important, a single screening can be applied to all screened graphics.

### Plotting

Printers and plotters are controlled by files called pen tables or feature tables. These files (tables) convert thicknesses and/or color in an electronic file to line thicknesses on a paper drawing.

Table 3-4. Screened Colors.

AutoCAD		MicroStation		Gray Scale Ratios (RGB)		
Color No.	Screen percent	Color No.	Screen percent	Red	Green	Blue
250	60	8	60	102	102	102
251	50	200	50	128	128	128
252	40	168	40	153	153	153
253	30	120	30	179	179	179
254	20	56	20	204	204	204

This manual standardizes presentation graphics as they relate to electronic drawing files (screen display) and not the final printed or plotted paper drawing. By employing pen tables, each agency can ensure that consistent drawings are produced from an electronic file regardless of the type of printer or plotter used. It is the responsibility of each field activity to develop pen tables based on the printer/plotter used at that activity.

## Text

### Text styles/fonts

Each of the two major CAD platforms contain sets of fonts that have been designed for use in CAD drawing presentation. MicroStation has various fonts stored in font resource files, with each resource file capable of containing multiple fonts. AutoCAD has individual fonts as shape files. In addition, each platform has the ability to support TrueType fonts that are installed on the individual computer. Each application also has the ability to create additional fonts for its use. Since projects designed in CAD are planned for use many years into the future and files will be used by many different individuals, use of any nonstandard font is not recommended. This includes fonts for symbology, logos, business titles, etc.

There is not a direct relationship between MicroStation resource files and AutoCAD shape files. Therefore, it is important that font use be reviewed at the start of a project and decisions made on fonts that are then used consistently throughout the project by all disciplines. Previous releases of the A/E/C CAD Standard allowed the use of various AutoCAD, MicroStation, and TrueType fonts. To improve the direct translation of fonts between applications, only TrueType fonts are now allowed in the A/E/C CAD Standard.

Contrasting text styles (or fonts) are used within a drawing to delineate types of information. In most A/E/C drawings, the fonts shown in Table 3-5 should be sufficient.

Table 3-5. Comparison of Font Types.

Font Type	TrueType
Monotext	Lucida Console ABCDEFGHIJKLMNOPQRST UVWXYZ abcdefghijklmnopqrst uvwxyz
Proportional	Arial ABCDEFGHIJKLMNOPQRST UVWXYZ abcdefghijklmnopqrst uvwxyz
Slanted	Arial (slanted by 21.8 degrees) ABCDEFGHIJKLMNOPQRST UVWXYZ abcdefghijklmnopqrst uvwxyz
Filled	Arial Black ABCDEFGHIJKLMNOPQRST UVWXYZ abcdefghijklmnopqrst uvwxyz
Symbology	Symbol ΑΒΧΔΕΦΓΗΙΘΚΑΜΝΟΠΡΣΤ ΥϚΩΞΨΖ αβγδεφγηηικλμνοπρστ υφωξψζ

- Monotext font. This font creates text characters that are evenly spaced. Monotext font should be used where text fields need to be aligned such as in schedules or, in some cases, title blocks.
- Proportional font. This font creates text where the characters are proportionally spaced. It is appropriate for general notes, labels, or title blocks.
- Slanted font. A slanted font is used where text needs to be easily distinguished from other text.

- Filled font. Filled fonts are used primarily for titles and on cover sheets.
- Symbology font. This font should be used in cases where Greek symbols are representations for technical information.

### **Text height**

The NCS recommends that the minimum text height for plotted CAD files is 3/32 in. (2.4 mm). However, to maintain legibility in half-size drawings, most sites go no lower than 1/8 in. (3 mm) in text height for dimensions, notes, callouts, table/schedule text, and general text on full size drawings. Subtitles and titles shall be plotted equivalent to 3/16 in. (5 mm) and 1/4 in. (6 mm) lettering size, respectively. The text height and text width shall be assigned equal number values. Line spacing shall be equal to one half of the text height.

### **General text placement**

Text shall never be placed over other text. Text shall not be placed over feature lines, hatching, or patterning. If text is placed in a hatched or patterned area, the hatching/patterning shall be clipped so the text can be clearly read.

Text justification depends upon the type of text being placed. For example, general numbered notes shall have upper left justification, elevation labels appearing to the left of a feature shall have bottom right justification, and elevation labels appearing to the right of a feature shall have bottom left justification. (**Note:** In MicroStation, text shall be placed using text nodes when more than one line of text is placed. Text node justification shall be set so that moving the node will not be required or will be minimal should the text require future editing.)

### **Abbreviations**

Abbreviations for words or phrases frequently used in plans, sections, elevations, or details should follow the abbreviations as established in the NCS (UDS Module 5 – Terms and Abbreviations). When possible, the use of abbreviations should be kept to a minimum. Other abbreviations, particularly discipline-unique abbreviations, may be used but must not conflict with those established in the NCS.

## Border Sheets

### Sheet sizes

Typical A/E/C projects (contract documents) will be prepared on ANSI D sheets (ANSI E may be used for large maps (i.e., installation master plans and drawings for civil works projects)). For international projects, ISO A1 sheets are to be used (ISO A0 may be used for large maps). Other industry standard sizes may be used depending on specific customer requirements. Table 3-6 lists the standard sizes of all sheets.

Table 3-6. ANSI, Architectural, and ISO Sheet Size Comparison.

ANSI		Architectural		ISO	
Mark	Size in inches	Mark	Size in inches	Mark	Size in inches (mm)
F	28.0 x 40.0	F	30.0 x 42.0	NA	NA
E	34.0 x 44.0	E	36.0 x 48.0	A0	33.1 x 46.8 (841 x 1189 mm)
D	22.0 x 34.0	D	24.0 x 36.0	A1	23.4 x 33.1 (594 x 841 mm)
C	17.0 x 22.0	C	18.0 x 24.0	A2	16.5 x 23.4 (420 x 594 mm)
B	11.0 x 17.0	B	12.0 x 18.0	A3	11.7 x 16.5 (297 x 420 mm)
A	8.5 x 11.0	A	9.0 x 12.0	A4	8.3 x 11.7 (210 x 297 mm)

To develop the graphics for the sheet border, the following minimum sheet margin (defined by the NCS as “the space between the edge of the sheet and the sheet area”) guidelines are to be used:

- Top and bottom margin: 3/4 in. (20 mm)
- Left margin: 1-1/2 in. (40 mm)
- Right margin: 3/4 in. (20 mm)

### Title block

The Center recommends the use of a vertical title block placed in the right-hand margin of the border sheet as shown in Figure 3-1. Use of the vertical title block provides the most usable drawing space on a sheet. The vertical title block also ensures that the most prevalent and pertinent information remains at the bottom right of the sheet. In compliance with the NCS (UDS Module 2–Sheet Organization), title block data will include the following:



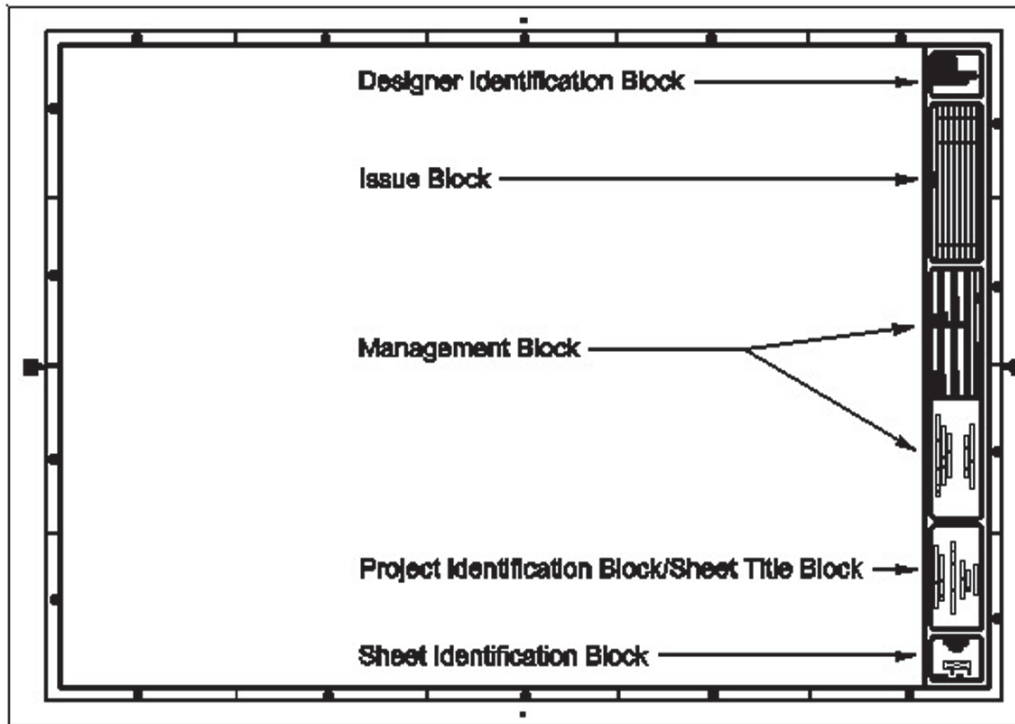


Figure 3-1. Vertical title block.

- Designer identification block
- Issue block
- Management block
- Project identification block/sheet title block
- Sheet identification block

**Note:** *Local standards may modify the content of the title block but should not alter its size or configuration if possible. See the NCS for additional recommendations.*

**Designer identification block.** The designer identification block (Figure 3-2) contains the logo or name of the agency that designed the sheet. This space could also be expanded by reducing the size of the issue block to accommodate professional seals when required.

**Issue block.** The issue block (Figure 3-3) contains a history of revisions, addenda, and/or clarifications to the sheet. The first entry should be placed on the lower left-hand line of the issue block and subsequent entries should be made above it.

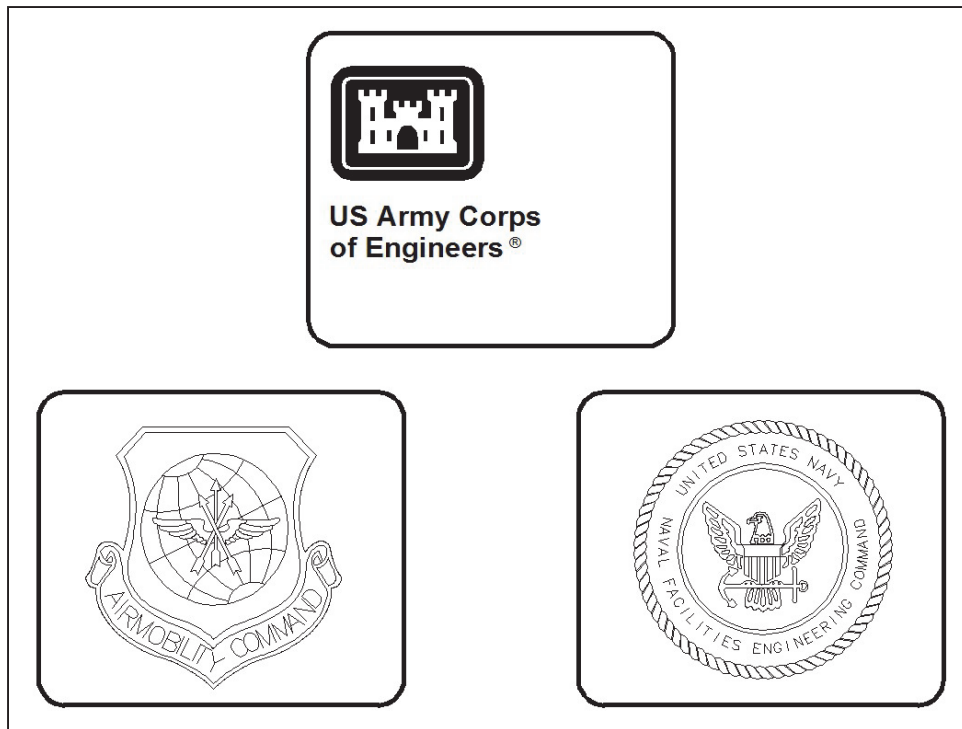


Figure 3-2. Designer identification block.

MARK	DESCRIPTION	DATE	APPR.

Figure 3-3. Issue block.

**Management block.** The management block (Figure 3-4) contains information about the designer, reviewer, and submitter. This block can also be used to maintain filing information about the drawing, such as the file name, plot scale, and drawing code (this information is sometimes plotted outside the drawing sheet cut line). If an A-E has developed the drawings, there is room for information about the firm in the lower left portion of the block.

U.S. ARMY CORPS OF ENGINEERS _____ DISTRICT CITY, STATE	DESIGNED BY:		DATE:
	DWN BY:	CKD BY:	SOLICITATION NO.:
DESIGN FIRM STREET ADDRESS CITY, STATE ZIP ADDRESS 4	SUBMITTED BY:		CONTRACT NO.:
	PLOT SCALE:	ISSUE DATE:	FILE NUMBER:
	SIZE:	FILE NAME:	

Figure 3-4. Management block.

The management block can also contain authorization block information. This is typically where the principals of the design agent would sign drawings, either for a whole project or by individual disciplines. Sometimes a disclaimer is included stating whether the project was designed by a Government agency or through a contract with a Government agency.

**Project identification block/sheet title block.** The project identification block/sheet title block (Figure 3-5) contains two sets of information. First, the project name is identified, possibly with the location or phase of the project identified. If small enough, a project logo can be presented in this block. The second set of information contains a description of the content of the sheet (e.g., Architectural Floor Plan). If more than one type of information is presented on the sheet (i.e., plans, schedules, details), the most important information is identified.

PROJECT TITLE 1
PROJECT TITLE 2
PROJECT TITLE 3
PROJECT TITLE 4
SHEET TITLE 1
SHEET TITLE 2
SHEET TITLE 3

Figure 3-5. Project identification block/sheet title block.

**Sheet identification block.** The sheet identification block (Figure 3-6) contains the sheet identifier. This sheet identifier is composed of the discipline designator, the sheet type designator, and the sheet sequence number described in the section, “Electronic Drawing File Naming Conventions” (Chapter 2). The “number of sheets” listing is optional and can contain either the total number of sheets for the entire project drawing set or the number of sheets for that particular discipline designator.

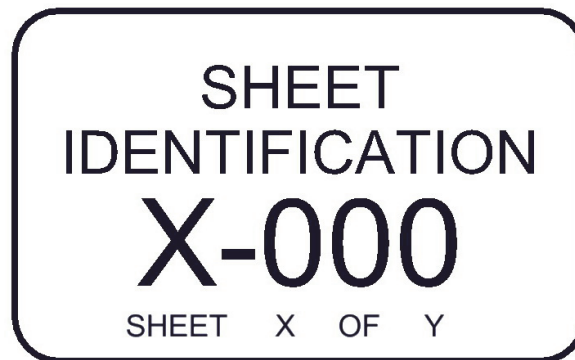


Figure 3-6. Sheet identification block.

## Real Estate Border Sheets

A Real Estate border sheet is basically the same as border sheets described on the preceding pages. Real Estate contract documents are typically prepared on ANSI E size sheets. Because of the nature of information required for Real Estate, two additional information blocks are required:

- Project map block
- Index map block

### Project map block

The project map block (Figure 3-7) contains detailed information about the project. In-depth information about the project location, transportation facilities available, audited acquisitions, and disposal data may be included as part of this block.

### Index map block

The index map block (Figure 3-8) contains additional signatures not found in the designer identification block (e.g., Chief of Real Estate Division, Chief of Cadastral Section, etc.). Also, a specific Real Estate drawing number may be included in this block.

FINAL

## PROJECT MAP

DEPT. OF THE \_\_\_\_\_  
 USING SERVICE \_\_\_\_\_

### LOCATION OF PROJECT

STATE \_\_\_\_\_  
 COUNTY \_\_\_\_\_  
 DIVISION \_\_\_\_\_  
 DISTRICT \_\_\_\_\_  
 ARMY AREA \_\_\_\_\_  
 \_\_\_\_\_ MILES OF \_\_\_\_\_  
 \_\_\_\_\_ MILES OF \_\_\_\_\_

### TRANSPORTATION FACILITIES

RAILROADS \_\_\_\_\_  
 STATE ROADS \_\_\_\_\_  
 FEDERAL ROADS \_\_\_\_\_  
 AIR LINES \_\_\_\_\_

### AUDITED ACQUISITION

TOTAL ACRES ACQUIRED \_\_\_\_\_

ACRES ACQUIRED PRIOR TO 7-1-40 \_\_\_\_\_  
 CHAINING TIDELAND PRIOR TO 7-1-40 \_\_\_\_\_  
 FEE ACQUIRED AFTER 7-1-40 \_\_\_\_\_  
 TRANSFER (FEE) \_\_\_\_\_  
 \_\_\_\_\_  
 TRANSFER (EASEMENT) \_\_\_\_\_  
 \_\_\_\_\_  
 LEASE \_\_\_\_\_  
 EASEMENT RESERVED IN FEE DISPOSAL \_\_\_\_\_

LESSOR INTERESTS \_\_\_\_\_  
 PERMITS (1) \_\_\_\_\_  
 PERMITS (2) \_\_\_\_\_  
 EASEMENTS (1) \_\_\_\_\_  
 EASEMENTS (2) \_\_\_\_\_  
 LICENSES (1) \_\_\_\_\_  
 LICENSES (2) \_\_\_\_\_

### DISPOSAL

TOTAL ACRES DISPOSED OF \_\_\_\_\_

SOLD (FEE) \_\_\_\_\_  
 FEE \_\_\_\_\_  
 EXCHANGE \_\_\_\_\_  
 EASEMENT \_\_\_\_\_  
 SOLD PERMIT (1) \_\_\_\_\_  
 TRANSFERRED (FEE) \_\_\_\_\_  
 TRANSFERRED TIDELANDS (CHAINING) \_\_\_\_\_  
 RETRANSFERRED \_\_\_\_\_  
 LEASES TERMINATED \_\_\_\_\_  
 \_\_\_\_\_  
 LESSOR INTERESTS TERM. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 REASSIGNED (FEE) \_\_\_\_\_  
 TO G-20 (FEE) \_\_\_\_\_  
 OTHER \_\_\_\_\_  
 TO G-20 (EASEMENT) \_\_\_\_\_

### LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW,  
 MOST SYMBOLS ARE DEFINED IN ARMY GLOSSARY  
 TECHNICAL MANUAL NO. 25

RESERVATION LINE \_\_\_\_\_  
 RESERVATION LINE (ACTUAL SURVEY) \_\_\_\_\_  
 TRACT BOUNDARY LINE \_\_\_\_\_  
 TRACT NUMBER \_\_\_\_\_  
 DISPOSAL \_\_\_\_\_

Figure 3-7. Project map block.

INDEX MAP	
<small>DEPARTMENT OF THE ARMY - U. S. ARMY ENGINEER DISTRICT, _____ - CORPS OF ENGINEERS - _____ DIVISION</small>	
DRAWN BY: _____ TRACED BY: _____ CHECKED BY: _____ SUBMITTED BY: _____ CHIEF, CADASTRAL SECTION RECOMMENDED BY: _____	REAL ESTATE  <b>LOCATION</b>  MILITARY RESERVATION
CHIEF, REAL ESTATE DIVISION <small>US ARMY CORPS OF ENGINEERS, WASH DC 20314</small>	APPROVED BY: _____ DATE _____ <small>COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER</small> SCALE IN FEET _____
AUDITED	DRAWING NO. SE-RE-0905
<small>INSTALLATION OR PROJECT NO.</small>	

Figure 3-8. Index map block.

## Drawing Scales

Typical drawing scales for both inch-pound and SI measurements are indicated in Table 3-7. Table 3-8 lists recommended text sizes for common inch-pound scales, as well as line type scale factors for those scales. Table 3-9 lists recommended text sizes for common metric scales. (Note: The scales shown are not all-inclusive. Scales used should be limited to those commonly found on hand-held architectural, mechanical, and engineering scales.)

## Dimensioning

As far as the appearance of dimensions, the NCS is very specific. Dimension text heights (see “Text height”, p.29) should match the size of the text in the rest of the drawing (i.e., notes and callouts) and the location of the dimension text should be at the midpoint and top of the dimension line (where possible). Dimension lines should be offset a minimum of 9/16 in. (14.5 mm) and extension lines should be offset a minimum of 1/16 in. (1.5 mm) from the element being dimensioned. Slashes or filled arrowheads are allowed by the NCS for dimension terminators. Filled arrowhead terminators should have an arrowhead width of  $1.5 * TH$  (TH = dimension text height) and a height of  $0.5 * TH$  (Figure 3-9). This achieves the NCS requirement of 3:1 filled arrowheads. Dimension terminator selection should be consistent across the entire set of drawings. Color and line width settings for dimensions should follow those shown in Figure 3-10 and Table 3-10.

## Dimensioning in Metric (SI)

Methodologies for dimensioning metric (SI) drawings are based upon the recommendations of the former Construction Metrication Council of NIBS, Washington, DC. These recommendations comply with the American Society for Testing and Materials (ASTM) E 621-94 (ASTM 1999-withdrawn 2008).

Table 3-7. Typical Drawing Scales.

Drawing Type	Inch-Pound	Metric
Site Plans	1" = 20'	1:200
	1" = 30'	1:400
	1" = 40'	1:500
	1" = 50'	1:600
	1" = 60'	1:700
	1" = 100'	1:1000
	1" = 200'	1:2000
	1" = 400'	1:5000
	1" = 500'	1:6000
	1" = 1000'	1:10000
1" = 2000'	1:20000	
Floor Plan	1/4" = 1' - 0"	1:50
	1/8" = 1' - 0"	1:100
	3/32" = 1' - 0"	----
	1/16" = 1' - 0"	1:200
Roof Plan	1/16" = 1' - 0"	1:200
Exterior elevations	1/8" = 1' - 0"	1:100
	3/32" = 1' - 0"	----
	1/16" = 1' - 0"	1:200
Interior Elevations	1/4" = 1' - 0"	1:50
	1/8" = 1' - 0"	1:100
Cross sections	1/4" = 1' - 0"	1:50
	1/8" = 1' - 0"	1:100
	3/32" = 1' - 0"	----
	1/16" = 1' - 0"	1:200
Wall sections	1/2" or 3/4" = 1' - 0"	1:20
Stair details	1" or 1-1/2" = 1' - 0"	1:10
Details	3" = 1' - 0"	1:5
	1" or 1-1/2" = 1' - 0"	1:10

Table 3-8. Inch-pound Text Sizes and Line Type Scales.

Scale	Text Size	Line Type Scale
12" = 1' - 0" or Full Size	0.125"	1
6" = 1'-0"	0.25"	2
3" = 1' - 0"	0.50"	4
1-1/2" = 1' - 0"	1"	8
1" = 1' - 0"	1.5"	12
3/4" = 1' - 0"	2"	16
1/2" = 1' - 0"	3"	24
3/8" = 1' - 0"	4"	32
1/4" = 1' - 0"	6"	48
3/16" = 1' - 0"	8"	64
1/8" = 1' - 0"	12"	96
3/32" = 1' - 0"	16"	128
1/16" = 1' - 0"	24"	192
1/32" = 1' - 0"	48"	384
1" = 5'	7.5"	60
1" = 10'	1.25'	120
1" = 20'	2.5'	240
1" = 30'	3.75'	360
1" = 40'	5'	480
1" = 50'	6.25'	600
1" = 60'	7.5'	720
1" = 100'	12.5'	1200
1" = 200'	25'	2400
1" = 400'	50'	4800
1" = 500'	62.5'	6000
1" = 1000'	125'	12000
1" = 2000'	250'	24000



Table 3-9. Metric Text Sizes and Line Type Scales.

Scale	Text Size	Line Type Scale
1:1 or Full Size	3 mm	1
1:2.5	7.5 mm	2.5
1:5	15 mm	5
1:10	30 mm	10
1:20	60 mm	20
1:30	90 mm	30
1:40	120 mm	40
1:50	150 mm	50
1:60	180 mm	60
1:100	300 mm	100
1:200	600 mm	200
1:400	1.2 m	400
1:500	1.5 m	500
1:600	1.8 m	600
1:700	2.1 m	700
1:1000	3.0 m	1000
1:2000	6.0 m	2000
1:5000	15 m	5000
1:6000	18 m	6000
1:10000	30 m	10000
1:20000	60 m	20000

### Millimeters

The preferred unit of measure for most A/E/C work is millimeters. Unit notations are unnecessary and should not be used. The dimension is provided as a whole number as shown in Figure 3-11. Also, a note should be added to the drawing stating, “All dimensions and/or dimensions shown in callouts/notes are in millimeters unless otherwise noted.”

When meter measurements are included on the same sheet, the meter dimension is provided as a real number taken to three places past the decimal point (Figure 3-12). Again, unit notations are unnecessary.

**Note:** *In circumstances where very small dimensions are used (e.g., machine details), it is permissible to use real numbers for millimeter dimensions. A note should be placed on the detail regarding this fact.*

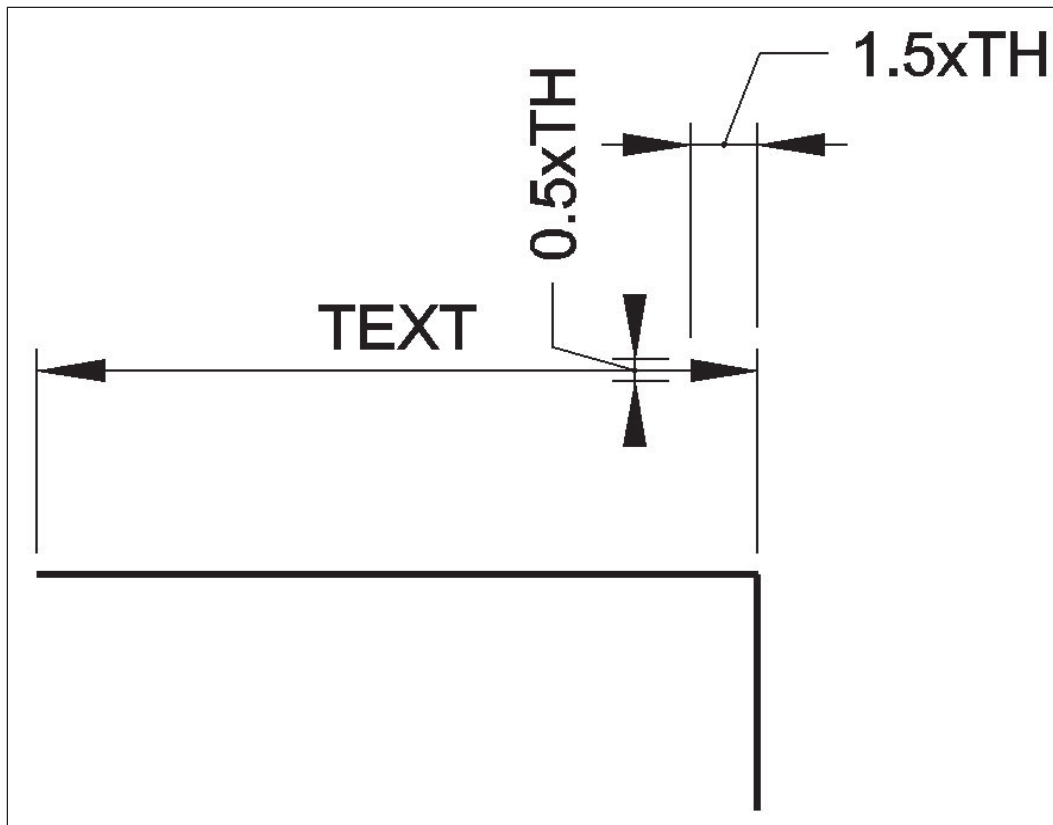


Figure 3-9. Filled arrowhead terminator sizes.

### Meters

For site plans or other drawings drawn to scales over 1:200, the unit of measure is typically meters. Where greater accuracy is required, show dimensions to three decimal places (Figure 3-12). A note should be added to the drawing stating, “All dimensions and/or dimensions shown in callouts/notes are in meters unless otherwise noted.”

### Large units of measure

Commas shall not be used when providing large units of measure; instead, a space replaces the traditional comma in numbers containing five or more digits (e.g., the number 45,000 is displayed as 45 000). In numbers containing four digits, no space is necessary (e.g., 5000). These methods are shown in Figures 3-13 and 3-14.

**Note:** *The automatic dimensioning features of AutoCAD do not allow users to replace commas with spaces in dimension text. The dimension text will presently have to be edited to provide the spacing required by ASTM E 621-94 (ASTM 1999).*

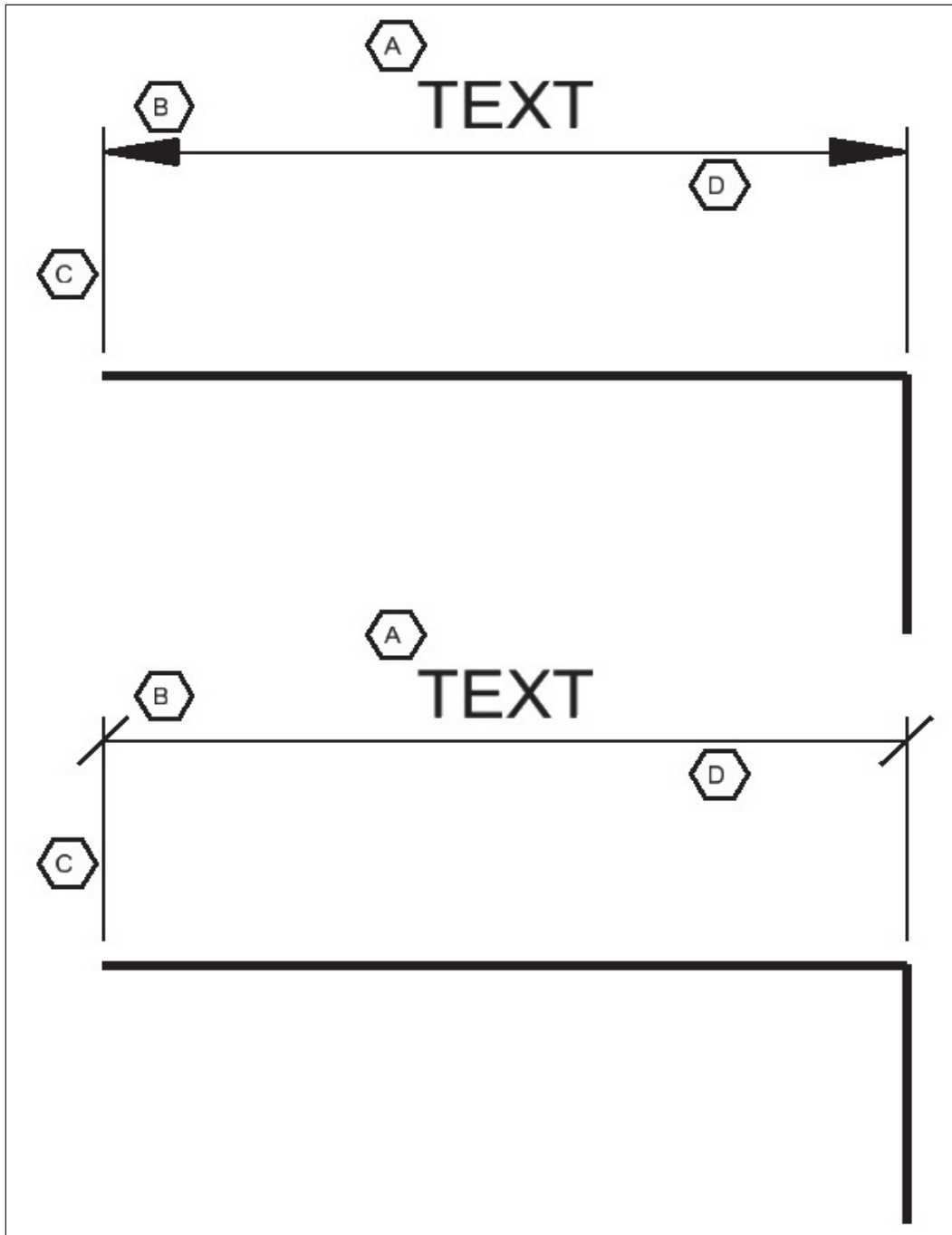


Figure 3-10. Dimension element settings.

Table 3-10. Dimension Element Settings.

Identifier	Dimension Element	NCS Line Width (mm)	Recommended Color
A	Dimension Text	0.35	Yellow
B	Terminators	0.35	Red
C	Extension Lines	0.25	Red
D	Dimension Lines	0.25	Red

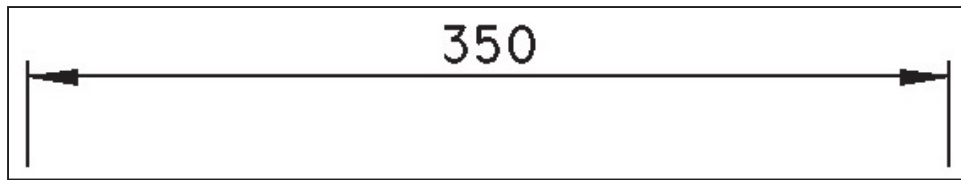


Figure 3-11. Dimension in millimeters. Always shown as a whole number.

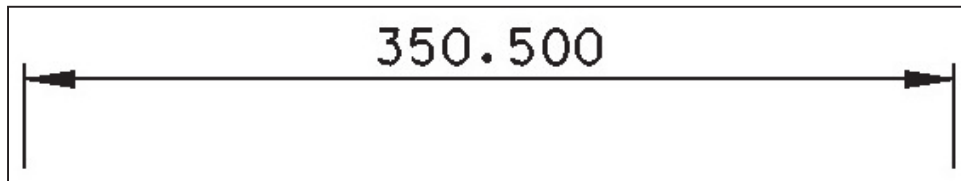


Figure 3-12. Dimension in meters. Always shown as a real number (with decimal).

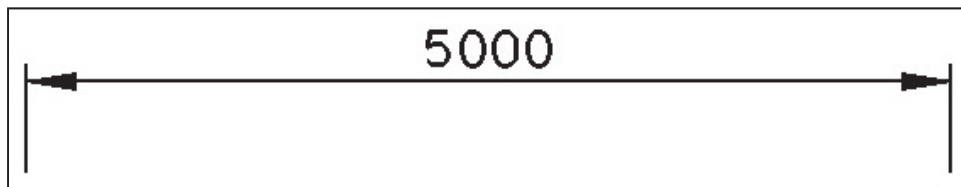


Figure 3-13. Proper dimension presentations for metric measurements with four or fewer digits.

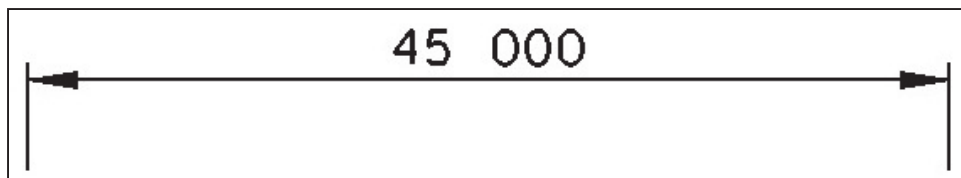


Figure 3-14. Proper dimension presentations for metric measurements with five or more digits.

### Dual units

To avoid confusion, dual units (both inch-pound and metric) should not be used. As stated in Construction Metrication Council (1998), the use of dual units “increases dimensioning time, doubles the chance for errors, makes drawings more confusing, and only postpones the (metric) learning process.”

Exceptions to this include certain “standard building designs” where dual dimensions ensure that the design can be used in either SI or inch-pound projects and in situations where products/components used in an SI project are available only as inch-pound products.

## 4 Level/Layer Assignments

### Level/Layer Naming Convention

CAD levels or layers are analogous to overlays in manual drafting systems and serve to separate graphic elements (lines, shapes, and text) according to the design discipline they represent (Figure 4-1).

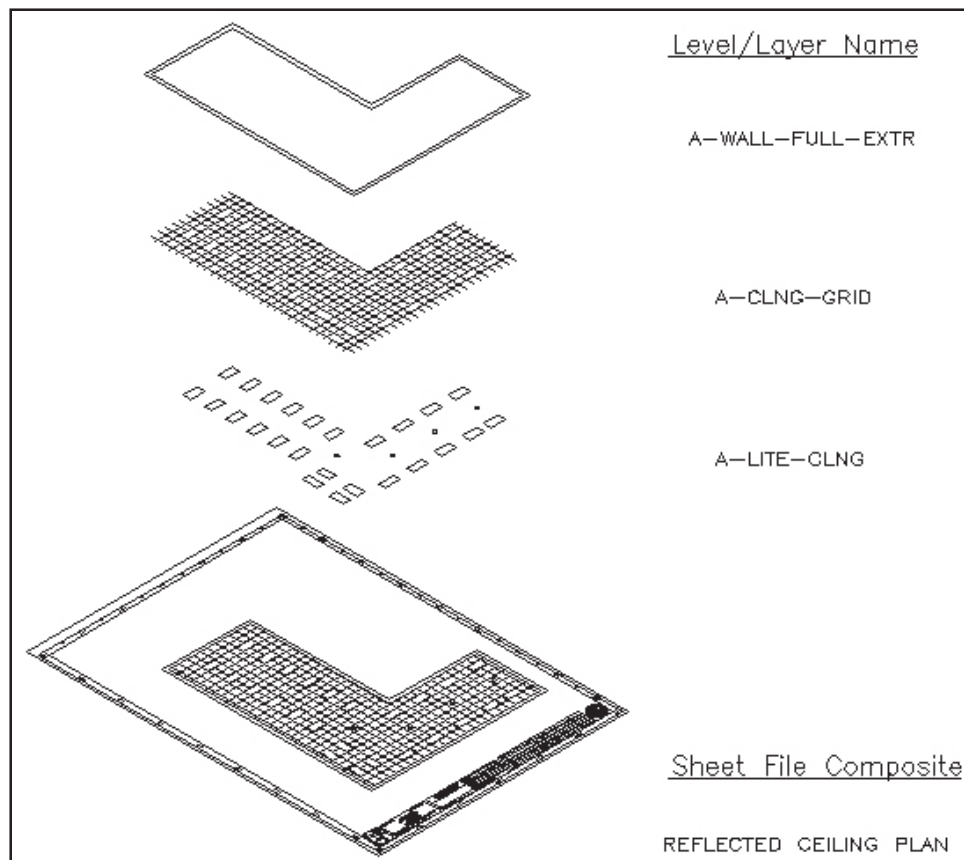


Figure 4-1. Typical levels/layers contained in a sheet file.

The types of information represented by individual levels/layers can be grouped into two primary types: model file-specific information and sheet file-specific information (Figure 4-2). Sheet file-specific information can then be broken down into two secondary types: design model-specific and sheet model-specific.

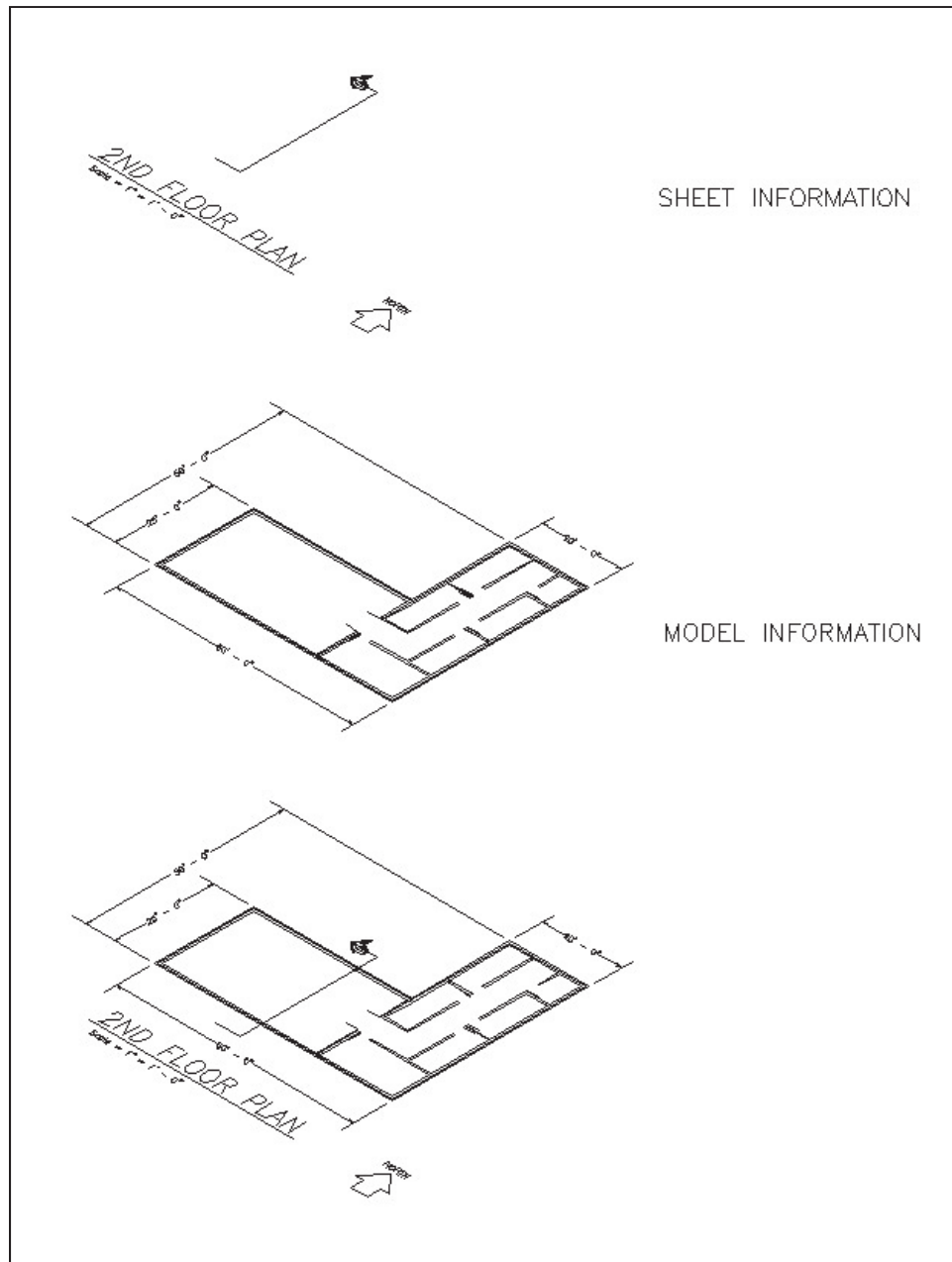


Figure 4-2. Sheet- and model-specific information.

- Model file-specific information represents the physical form of a site, a building, or objects composing a building. This information is often shared between CAD files (both model file and sheet file) through the use of reference files. Examples include walls, doors, light fixtures, and room numbers. Model file-specific information may be either literal (e.g., walls) or symbolic (e.g., electrical outlets).
- Sheet file-specific information may include notes, annotative symbols, and titles. This type of information is usually not shared between CAD

files or drawings. Design models inside a sheet file contain graphic information that would relate to real-world information (e.g., point coordinates), or information that would be sectioned off into multiple sheets (e.g., a floor plan that may take three sheets to present because of its size). Sheet model-specific information would include items specific for the presentation of that sheet. This is one reason that sheet models should never be used as a reference file to other files.

A third type of information exists for BIM. The files created in BIM are different from model files and sheet files because they are not directly referenced as graphics in the generation of drawings. Information from BIM is extracted and used to create the traditional models used in CAD generation of drawings.

To use and manipulate model file- and sheet file-specific information effectively, every level/layer must be defined (standardized) by its name and its use.

The reuse of graphic information reduces drawing time and improves project coordination. The level/layer is the basic tool used in CAD for managing graphic information (Figure 4-3). The levels/layers defined within this standard are based on the recommendations set forth in “AIA CAD Layer Guidelines” (AIA 2011).

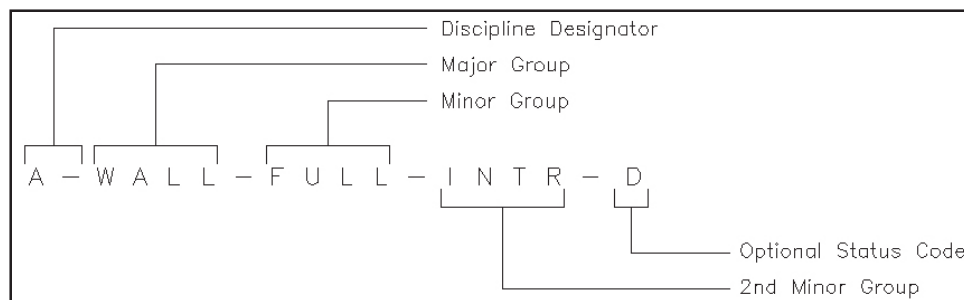


Figure 4-3. Level/layer naming format.

A basic level/layer name consists of a two-character Discipline Designator (e.g., “A-“ for Architectural, “E-“ for Electrical), a four-character Major Group (e.g., “A-DOOR” for Doors, “E-LITE” for Lighting), and a four-character Minor Group (e.g., “A-WALL-CNTR” for wall center lines, “E-LITE-CLNG” for ceiling lights). For further differentiation, another four-character Minor Group may be used (e.g., “A-WALL-FULL-EXTR” for exterior full-height walls versus “A-WALL-FULL-INTR” for interior full-

height walls). An optional item to indicate Status or Phase can also be added to every level/layer name (See “Status (Phase) levels/layers” later in this chapter).

## Model Files

As mentioned in Chapter 2, model files represent full-size drawings of building elements, systems, or information (e.g., the mechanical HVAC system, the architectural floor plan, details, or sections), and sheet files represent final plotted sheets. Model files are used as components in creating plotted sheet files. The information contained within a model file for a discipline may be referenced by other disciplines to create the particular model files or sheet files for that discipline.

A model file can be considered a work in progress. For instance, a mechanical engineer may reference the architect’s floor plan model file to begin development of the HVAC ductwork layout model file. Meanwhile, the architect can continue developing the floor plan to meet new requirements. Any changes to the floor plan would be immediately accessible to the mechanical engineer. The viewing of real-time updates eliminates a great deal of frustration for other disciplines because it allows for on-the-spot rather than after-the-fact modifications.

### Level/layer assignment tables

The level/layer assignment tables in Appendix A present the following (Figure 4-4 presents an excerpt):

- The levels/layers assigned to each model file.
- An AIA format level/layer name for each level/layer.
- A detailed description for each level/layer.
- The recommended presentation graphics associated with each level/layer. This includes the line style, line width, and color. (Note: The recommended presentation graphics may be changed to aid in drawing clarity (e.g., to show hidden objects). However, the recommended presentation graphics should be adhered to as much as possible to maintain drawing consistency.)
- The various model files that levels/layers can be created in.



Discipline: Architectural		Graphic Defaults				Model File Types							
Model File Layers/Levels		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
Level/Layer Naming	Level/Layer Description												
<b>AIA Format</b>													
<b>General Information</b>													
A-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X
A-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X
A-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X
A-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X
A-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X
A-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X
A-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X
A-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X
A-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X
A-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X
<b>Area Information</b>													
A-AREA-IDEN	Room numbers, tenant identifications, area calculations	0	0.35	2	4					X			
A-AREA-LINE	Architectural area calculation boundary lines	0	0.50	4	7					X			
A-AREA-OCCP	Occupant or employee names	0	0.35	2	4					X			
A-AREA-PATT	Area cross hatching	0	0.18	8	9					X			

Figure 4-4. Model file level/layer assignment table.

**Annotation levels/layers.** The function of annotation levels/layers is to contain model-specific information that might not be required by other disciplines. These levels/layers are as follows with \*\* representing a Discipline Designator (e.g., A-, C-):

**\*\*ANNO-DIMS**

Witness/extension lines, dimension terminators, and dimension text.

**\*\*ANNO-KEYN**

Reference keynotes with associated leaders.

**\*\*ANNO-MASK**

Text/shape mask for use with photo backgrounds

**\*\*ANNO-NOTE**

General notes and remarks.

**\*\*ANNO-NPLT**

Non-plotting graphic information.

**\*\*ANNO-PATT**

Patterning, poche, shading, and hatching.

**\*\*ANNO-SYMB**

Miscellaneous symbols.

**\*\*ANNO-TEXT**

Miscellaneous text and callouts with associated leaders.

**\*\*ANNO-RDME**

Read-me information.

**\*\*ANNO-REFR**

Reference files and raster attachments.

**Status (Phase) levels/layers.** In some cases, levels/layers may be modified to show the status of a particular item in the drawing (e.g., to be demolished, to be moved, future work, etc.). In these cases, levels/layers may have a Status code appended to them as shown in Figure 4-3. See Table 4-1 for the Status (Phase) codes.

**Table 4-1. Status (Phase) Codes.**

Code	Description
A	Abandoned
D	Existing to demolish
E	Existing to remain
F	Future work
M	Items to be moved
N	New work
T	Temporary work
X	Not in contract
1-9	Phase numbers

The use of the Status (Phase) code should be limited, since it can significantly increase the number of levels/layers in a model file. Most items can be shown through referenced model files or changing the line style of items. For instance, in a “New Work” model file, “Existing to Remain” items can be shown through a screened reference file. “Not in Contract” items and “Future Items” could be shown with a dashed line style. Therefore, it is up to the user to determine whether the use of the Status (Phase) code in level/layer names increases the readability of the model file.

### **Border sheet model files**

As mentioned before, a model file contains information that can be referenced by other disciplines to create other model files or final sheet files. Border sheets are referenced by all disciplines to create sheet files; therefore, border sheets are model files. A border sheet model file contains border sheet linework, the title block, and project-specific symbols and text. Typically, each discipline will use the same border sheet and fill in sheet-specific information within the title block or revision block prior to printing the final sheet file (e.g., sheet number, designer names).

### **Reference files (XREFs)**

Reference files (external references or XREFs) enable designers to share drawing information electronically, eliminating the need to exchange hard copy drawings between the design disciplines. With the use of reference files, the structural engineer need not wait for the architect to complete the architectural floor plans before beginning the structural framing plan model file.

Referencing electronic drawing information makes any changes later made by the architect apparent to the structural designer. This real-time access to the work of others ensures accuracy and consistency within a set of drawings and helps promote concurrent design efforts. No longer does one discipline have to wait until another discipline is nearly finished before they begin their drawings.

However, the use of level/layer assignments is a key component in the successful use of reference files. Proper use of levels/layers allows others to use the information in various model files efficiently by allowing levels/layers to be turned on only for the desired graphics.

## **Sheet Files**

Sheet files are the final project sheets that are ready to be plotted. A sheet file contains sheet-specific information (e.g., north arrows, scales, section cuts, title block information) in a sheet model (i.e., Paper Space for AutoCAD users). A design model inside the sheet file contains the model information assembled as it would be displayed on a sheet. This model would have real-world spatial alignment and would be used as the primary

model for graphical information to be displayed and presented in the sheet model. (See Chapter 2 for more on drawing assembly.)

**Level/layer assignment tables**

The level/layer assignment tables in Appendix B present the following (Figure 4-5):

Discipline: Architectural					
Level/Layer Naming	Level/Layer Description	Graphic Defaults			
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
AIA Format	Level/Layer Description				
<b>General Information</b>					
A-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
A-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
A-ANNO-LEGN	Legends and symbol keys	0	V	V	V
A-ANNO-MATC	Match lines	0	0.70	7	0
A-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
A-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
A-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
A-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
A-ANNO-REDL	Redlines	0	0.25	1	3
A-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
A-ANNO-REVC	Revision clouds	0	0.35	4	7
A-ANNO-REVS	Revision indicators and text	0	0.35	4	7
A-ANNO-SCHD	Schedules	0	V	V	V
A-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
A-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Figure 4-5. Sheet file level/layer assignment table.

- The levels/layers assigned to each sheet file.
- An AIA format level/layer name for each level/layer.
- A detailed definition for each level/layer.
- The recommended presentation graphics associated with each level/layer. This includes the line style, line width, and color.

Users should note that the first 15 levels/layers of the sheet file type for every discipline are the same, with the exception that the Discipline Designator changes depending on the discipline for that sheet file type. The unique function of these Annotation levels/layers is to contain sheet-specific information. These levels/layers are as follows with \*\* representing a Discipline Designator (e.g., A-, C-):

**\*\*ANNO-DIMS**

Sheet-specific witness/extension lines, dimension terminators, and dimension text.

**\*\*ANNO-KEYN**

Sheet-specific keynotes with associated leaders.

**\*\*ANNO-LEGN**

Legends and symbol keys.

**\*\*ANNO-MATC**

Matchlines.

**\*\*ANNO-NOTE**

Sheet-specific notes and general remarks.

**\*\*ANNO-NPLT**

Non-plotting graphic information.

**\*\*ANNO-PATT**

Sheet-specific patterning and hatching (e.g., keyplan patterning).

**\*\*ANNO-RDME**

Read-me information.

**\*\*ANNO-REDL**

Redlines.

**\*\*ANNO-REFR**

Reference files and raster attachments

**\*\*ANNO-REVC**

Revision clouds.

**\*\*ANNO-REVS**

Revision indicators and text.

**\*\*ANNO-SCHD**

Schedules.

**\*\*ANNO-SYMB**

Sheet-specific symbols (e.g., north arrow, scales).

**\*\*ANNO-TEXT**

Sheet-specific text and callouts with associated leaders.

**Development of sheet files**

As mentioned previously, referenced model files are used in the construction of sheet files. The user opens the sheet file type from Appendix B that is appropriate to his/her discipline, then references existing model files into a design model. This design model is used to generate the sheet model for that file. At this point, information can be placed on the annotation layers for the model that has been assembled.

For example, after the designer assembles the model files and creates the sheet model as described previously in Chapter 2, the designer would have to “turn off” levels/layers within each referenced model file to achieve the desired sheet file. Design model-specific annotations can be placed in the design model. When a border sheet and the design model are referenced together to form the sheet model, the designer could then place sheet-specific annotations in the sheet model. Once the final sheet file is achieved, the resulting file is saved (with all reference files attached).

## 5 Standard Symbology

### Introduction

A “cell” in MicroStation and a “block” in AutoCAD are groups of graphical elements that can be manipulated as a single entity. Examples of typical cells/blocks are windows, doors, graphic scale keys, furniture, etc. The use of such symbology enhances CAD productivity and provides an excellent opportunity for CAD standardization.

### Electronic Version of the Symbology/Elements

#### Deliverables

Within the electronic deliverables available as part of the A/E/C CAD Standard, the following symbology is provided:

- MicroStation cells contained in cell libraries (.cel) and custom line styles contained in resource files (.rsc).

**Note:** *Even though the symbols are provided in cell libraries, for MicroStation a cell library is nothing more than a specialized design file with an individual model for each symbol. The extension .cel is simply used to differentiate a cell library from a standard design (.dgn) file.*

- AutoCAD blocks, each in an individual drawing (.dwg) file, patterns in a pattern library file (.pat), multilines in a multiline library file (.mln), and custom line styles in a line type library file (.lin).

#### Line styles

Line style definitions determine the particular dash-dot sequence and relative length of dashes, blank spaces, and the characteristics of any included text or shapes. Working with line styles provides a means of distinguishing the purpose of one line from another.

AutoCAD and MicroStation both provide a set of standard line styles, as well as allowing the user to define custom line styles. In AutoCAD these custom line styles are defined in a line type library file (.lin) and a

multiline library file (.mln). In MicroStation, custom line styles are contained in resource files (.rsc) (see Chapter 3, “Line types/styles” for more information).

**Note:** *Custom line styles do not readily translate between systems; therefore, users should anticipate that translated custom line styles may revert into their primitive graphics.*

### **Tabulated Version of the Symbology/Elements**

Graphical presentations of the entire symbology library are shown in Appendix D, “A/E/C CAD Standard Symbology.”

The symbology library contains four types of elements: Lines, Patterns, Symbols, and Objects. Lines are defined as a graphical representation of linear drawing features (e.g., utility lines, fence lines, contours). Patterns are defined as repeated drawing elements (e.g., lines, dots, circles) within a defined area. Symbols are defined as MicroStation cells or AutoCAD blocks that are representative of objects (e.g., electrical outlets, smoke detectors). Objects are defined as MicroStation cells or AutoCAD blocks that retain their actual size no matter the scale of the drawing (e.g., 30- by 50-in. desk, 3'-0” door).



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# Appendix A

## Model File Level/Layer Assignment Tables

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This appendix provides the model file level/layer assignment tables:

General.....	A3
Hazardous Materials .....	A4
Survey/Mapping.....	A6
Geotechnical .....	A19
Civil .....	A23
Landscape .....	A33
Structural.....	A34
Architectural .....	A41
Interiors.....	A44
Fire Protection.....	A46
Plumbing.....	A48
Mechanical.....	A50
Electrical .....	A56
Telecommunications .....	A60

**NOTE:** With the movement toward designing "green" and requiring Leadership in Energy and Environmental Design (LEED) certification for buildings, new layers/levels to cover green materials/technologies are going to be required. Before creating new layers/levels, please consult the latest version of the U.S. National CAD Standard to see if such layers/levels already exist.

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Discipline: General  
 Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types		
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Border Sheet	Cover Sheet	Key Plan
<b>AIA Format</b>								
<b>General Information</b>								
G-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V			X
G-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	
G-ANNO-MATC	Match lines	0	0.70	6	5			X
G-ANNO-NOTE	General notes and general remarks	0	0.35	2	4			X
G-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X
G-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9			X
G-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X
G-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA			X
G-ANNO-SYMB	Miscellaneous symbols	V	0.35	6	5	X	X	X
G-ANNO-TEXT	Miscellaneous text	0	V	V	V	X	X	X
G-ANNO-TTLB	Border and titleblock linework	V	V	V	V	X	X	
G-ANNO-TTLB-GRID	Grid lines inside border	7	0.18	5	1	X		
<b>Grid Lines</b>								
G-GRID-COOR	X-Y coordinate grid lines	0	0.25	7	0			X
G-GRID-COOR-IDEN	X-Y coordinate grid lines annotation	0	0.25	7	0			X
G-GRID-EXTR	Column grid outside building	7	0.18	5	1			X
G-GRID-IDEN	Column grid tags	0	0.25	1	3			X
<b>Floor Information</b>								
G-PLAN-OTLN	Floor outline/perimeter/building footprint	0	0.35	6	5			X
<b>Coordinate Information</b>								
G-COOR-LALO	Latitude/longitude coordinate grid ticks	0	0.25	2	4	X		
G-COOR-LALO-IDEN	Latitude/longitude coordinate text	0	0.25	2	4	X		
G-COOR-STAT	State plane coordinate grid ticks	3	0.25	2	4	X		
G-COOR-STAT-IDEN	State plane coordinate text	0	0.25	2	4	X		
<b>Site Information</b>								
G-SITE-OTLN	Site plan - key map	0	0.35	6	5			X

Note: V = Varies, NA = Not Applicable

Discipline: Hazardous Materials

Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types		
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Pollution Prevention Plan	Sections	Details
<b>AIA Format</b>								
<b>General Information</b>								
H-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X
H-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X
H-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X
H-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X
H-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X
H-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X
H-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X
H-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X
H-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X
<b>Buildings</b>								
H-BLDG-IDEN	Annotation	0	0.35	2	4	X		
H-BLDG-OTLN	Command posts, information centers	0	0.35	2	4	X		
<b>Decontamination</b>								
H-DECN-EQPM	Decontamination equipment	0	0.25	1	3	X		
H-DECN-IDEN	Annotation	0	0.35	6	5	X		
<b>Disposal Areas</b>								
H-DISP-HAZW	Hazardous waste	0	0.18	5	1	X		
H-DISP-IDEN	Annotation	0	0.35	6	5	X		
H-DISP-MUNT	Munitions	0	0.18	5	1	X		
H-DISP-TANK	Spill containment tanks	0	0.35	6	5	X		
<b>Emergency Fixtures</b>								
H-FIXT-EYEW	Emergency eyewashes	0	0.25	3	2	X		
H-FIXT-SHWR	Emergency showers	0	0.25	3	2	X		
<b>Monitoring Stations</b>								
H-MNST-AIRQ	Air quality	0	0.25	3	2	X		
H-MNST-GWTR	Ground water	0	0.25	3	2	X		
H-MNST-IDEN	Annotation	0	0.25	3	2	X		
H-MNST-LAND	Landfill gas	0	0.25	3	2	X		
H-MNST-SOIL	Soil gas	0	0.25	3	2	X		
H-MNST-SWTR	Surface water	0	0.25	3	2	X		
<b>Pollution Areas</b>								
H-POLL-CONC	Polluted area of concern	0	0.35	2	4	X		
H-POLL-IDEN	Annotation	0	0.35	2	4	X		
H-POLL-ORIG	Point of pollution origin	0	0.35	2	4	X		
H-POLL-POTN	Potential spill, emission, or release source	0	0.35	2	4	X		
<b>Sample Points</b>								
H-SAMP-AIRS	Air samples	0	0.25	1	3	X		
H-SAMP-BIOL	Biological samples	0	0.25	1	3	X		
H-SAMP-BLDG	Building material samples (e.g., asbestos, lead, PCBs, etc.)	0	0.25	1	3	X		
H-SAMP-GWTR	Ground water samples	0	0.25	1	3	X		
H-SAMP-IDEN	Annotation	0	0.25	1	3	X		
H-SAMP-MAGN	Magnetometer location points	0	0.25	1	3	X		
H-SAMP-SEDI	Sediment samples	0	0.25	1	3	X		
H-SAMP-SOIL	Soil samples	0	0.25	1	3	X		
H-SAMP-SOLI	Solid material samples	0	0.25	1	3	X		
H-SAMP-SWTR	Surface water samples	0	0.25	1	3	X		

Discipline: Hazardous Materials

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Pollution Prevention Plan	Sections	Details
H-SAMP-WAST	Waste samples	0	0.25	1	3	X		
<b>Storage Facilities</b>								
H-STOR-HAZM	Hazardous materials	0	0.35	6	5	X		
H-STOR-HAZW	Hazardous waste	0	0.35	6	5	X		
H-STOR-IDEN	Annotation	0	0.35	6	5	X		
<b>Wells</b>								
H-WELL-INJN	Injection well	0	0.25	5	1	X		
H-WELL-XTRA	Extraction well	0	0.25	5	1	X		
<b>Sections</b>								
H-SECT-IDEN	Component identification numbers	0	0.35	2	4		X	
H-SECT-MBND	Material beyond section cut	0	0.18	5	1		X	
H-SECT-MCUT	Material cut by section	0	0.50	4	7		X	
H-SECT-PATT	Textures and hatch patterns	0	0.18	8	9		X	
<b>Detail Information</b>								
H-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V			X

Note: V = Varies, NA = Not Applicable

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
<b>General Information</b>															
V-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X	X	X
V-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X
V-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X	X	X
V-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X	X	X
V-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X
V-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X	X	X
V-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X
V-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X	X	X
V-ANNO-SYMB	Reference symbols	V	V	6	5	X	X	X	X	X	X	X	X	X	X
V-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X
<b>Aerial Survey</b>															
V-AERI-BNDY	Aerial photography boundaries	0	0.35	6	5	X									
V-AERI-BNDY-NEAT	Neat model boundary	0	0.35	2	4	X									
V-AERI-FLYS	Fly station	0	0.35	6	5	X									X
V-AERI-IDEN	Aerial annotation	0	0.35	2	4	X									
V-AERI-INDX	Aerial photo index	0	0.70	7	0	X									
V-AERI-PATH	Aerial flight lines/paths	6	0.35	22	22	X									
V-AERI-PHOT	Photo center (exposure station)	0	0.35	22	22	X									
V-AERI-PNPT	Panel points	0	0.35	6	5	X									X
<b>Airfields</b>															
V-AFLD-BCNS-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	203	45								X		
V-AFLD-BCNS-MISC	Miscellaneous nav aids - windcones and beacons	0	0.35	203	45								X		
V-AFLD-BCNS-STRB	Strobe beacons	0	0.35	203	45								X		
V-AFLD-CIRC-CTRL	Control and monitoring circuits	0	0.35	163	41								X		
V-AFLD-CIRC-IDEN	Circuit identifier tags, symbol modifier, and text	0	0.25	2	4								X		
V-AFLD-CIRC-MULT	Multiple circuits	0	0.35	23	46								X		
V-AFLD-CIRC-SERS	Series circuits	0	0.35	203	45								X		
V-AFLD-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.35	23	46								X		
V-AFLD-DBNK	Ductbanks	EUDUCX	0.25	83	42								X		
V-AFLD-IDEN	Airfield annotation	0	0.35	2	4								X		
V-AFLD-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.35	23	46								X		
V-AFLD-LITE-APPR	Approach lights	0	0.35	203	45								X		
V-AFLD-LITE-DIST	Distance and arresting gear markers	0	0.35	203	45								X		
V-AFLD-LITE-LANE	Hoverlane, taxilane, and helipad lights	0	0.35	203	45								X		
V-AFLD-LITE-OBST	Obstruction lights	0	0.35	203	45								X		
V-AFLD-LITE-RUNW	Runway lights	0	0.35	203	45								X		
V-AFLD-LITE-SIGN	Taxiway guidance signs	0	0.35	203	45								X		
V-AFLD-LITE-TAXI	Taxiway lights	0	0.35	203	45								X		
V-AFLD-LITE-THRS	Threshold lights	0	0.35	203	45								X		
V-AFLD-VALT	Airfield lighting vaults	0	0.35	203	45								X		
<b>Alignments</b>															
V-ALGN-DATA	Alignment coordinates and curve data	0	0.25	3	2	X	X				X	X		X	X
V-ALGN-LINE	Alignments	4	0.25	2	4	X	X			X	X		X	X	
V-ALGN-MAJR	Alignment major stationing and tick marks	0	0.25	1	3	X	X			X	X		X	X	
V-ALGN-MARK	Alignment tick marks	0	0.25	3	2	X	X			X	X		X	X	
V-ALGN-MINR	Alignment minor stationing and tick marks	0	0.18	6	5	X	X			X	X		X	X	



Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-ALGN-STAT	Alignment stationing	0	0.25	3	2	X	X				X	X		X	X
V-ALGN-SYMB	Alignment symbols (PIs)	0	0.25	6	5	X	X				X	X		X	X
V-ALGN-TEXT	Alignment text, annotation with associated leaders	0	0.25	2	4	X	X				X	X		X	X
<b>Aprons</b>															
V-APRN-CNTR	Apron centerlines	7	0.18	1	3	X									
V-APRN-CNTR-IDEN	Apron centerline annotation	0	0.25	2	4	X									
V-APRN-GRND	Grounding points	0	0.25	2	4	X									
V-APRN-HOLD	Holding position markings	0	0.18	1	3	X									
V-APRN-IDEN	Airfield apron - annotation	0	0.25	2	4	X							X	X	
V-APRN-MOOR	Mooring points	0	0.25	2	4	X									
V-APRN-MRKG	Apron markings	0	0.35	4	7	X									
V-APRN-OTLN	Airfield apron - outlines	0	0.35	4	7	X							X	X	
V-APRN-SECU	Security zone markings	0	0.18	1	3	X									
V-APRN-SHLD	Shoulders with annotation	0	0.25	2	4	X									
V-APRN-SHLD-MRKG	Shoulder stripes	0	0.25	2	4	X									
<b>Beach Renourishment</b>															
V-BECH-BANK-TOP-	Beach top of bank	0	0.18	6	5	X									X
V-BECH-BKLN	Beach breakline	2	0.25	5	1	X									X
V-BECH-BNCH	Beach bench	6	0.25	22	22	X									X
V-BECH-CNTR	Beach centerline	7	0.18	5	1	X									X
V-BECH-LIMIT	Beach limit lines	0	0.35	4	7	X									X
V-BECH-OHWM	Ordinary high water marks	0	0.25	2	4	X									X
V-BECH-OTLN	Beach outline	0	0.18	2	4	X									X
V-BECH-SLOP-IDEN	Beach slope indicator with annotation	0	0.18	7	0	X									X
V-BECH-SLOP-TOP-	Beach top of slope	2	0.25	22	22	X									X
V-BECH-SYMB	Beach symbols	0	0.18	6	5	X									X
V-BECH-TOE-	Beach toe	3	0.35	5	1	X									X
V-BECH-TOE--IDEN	Beach toe annotation	0	0.18	7	0	X									X
<b>Buildings and Primary Structures</b>															
V-BLDG-DECK	Outdoor decks (attached, no roof overhead)	0	0.35	4	7	X		X						X	X
V-BLDG-DOCK	Loading docks	0	0.35	4	7	X		X						X	X
V-BLDG-FTPT	Building footprints	0	0.50	7	0	X		X						X	X
V-BLDG-IDEN	Building and other structure annotation	0	0.25	2	4	X		X						X	X
V-BLDG-OVHD	Building overhangs	0	0.35	4	7	X		X						X	X
V-BLDG-PRCH	Porches (attached, roof overhead)	0	0.35	4	7	X		X						X	X
<b>Borings</b>															
V-BORE-GENL-LOCN	General boring X,Y location marker	0	0.35	6	5	X	X								
V-BORE-GENL-NAME	General boring name	0	0.35	6	5	X	X								
V-BORE-GENL-NOTE	General boring notes	0	0.35	6	5	X	X								
V-BORE-GPRO-LOCN	GeoProbe X,Y location marker	0	0.35	6	5	X	X								
V-BORE-GPRO-NAME	GeoProbe boring name	0	0.35	6	5	X	X								
V-BORE-GPRO-NOTE	GeoProbe boring notes	0	0.35	6	5	X	X								
V-BORE-UNDS-LOCN	Undisturbed boring X,Y location marker	0	0.35	6	5	X	X								
V-BORE-UNDS-NAME	Undisturbed boring name	0	0.35	6	5	X	X								
V-BORE-UNDS-NOTE	Undisturbed boring notes	0	0.35	6	5	X	X								
V-BORE-VCOR-LOCN	Vibra-Core X,Y location marker	0	0.35	6	5	X	X								
V-BORE-VCOR-NAME	Vibra-Core name	0	0.35	6	5	X	X								

**Discipline: Survey/Mapping**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types									
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
AIA Format	Level/Layer Description														
V-BORE-VCOR-NOTE	Vibra-Core notes	0	0.35	6	5	X	X								
<b>Borrow Areas</b>															
V-BORW-IDEN	Borrow/spoil area annotation	0	0.25	2	4	X	X								
V-BORW-LINE	Borrow/spoil area	2	0.25	2	4	X	X								
<b>Bridges</b>															
V-BRDG-CHRD-LOW-	Low chord	0	0.35	4	7									X	
V-BRDG-CNTR	Bridge centerlines	7	0.18	1	3	X									
V-BRDG-CTLJ	Control joints	0	0.18	4	7	X									
V-BRDG-DECK	Bridge deck	0	0.35	4	7	X							X		
V-BRDG-IDEN	Bridge annotation	0	0.25	2	4	X									
V-BRDG-OTLN	Bridge outlines	0	0.35	4	7	X									
V-BRDG-RLG~	Bridge railing	0	0.18	4	7	X							X		
<b>Cathodic Protection System</b>															
V-CATH-ANOD	Sacrificial anode system	0	0.35	83	42				X						
V-CATH-CURR	Impress current system	0	0.35	83	42				X						
V-CATH-IDEN	Identifier tags, symbol modifier, and text	0	0.25	83	42				X						
V-CATH-TEST	Test stations	0	0.35	83	42				X						
<b>Channels</b>															
V-CHAN-BANK-IDEN	Channel/canal top of bank annotation	0	0.25	2	4		X							X	X
V-CHAN-BANK-TOP~	Channel/canal top of bank	0	0.25	2	4		X							X	X
V-CHAN-BNCH	Channel/canal bench design feature lines (breaklines form DTMs)	0	0.25	2	4		X							X	X
V-CHAN-BWTR	Breakwaters	0	0.25	6	5	X	X								X
V-CHAN-CNTR	Channel centerline and survey report lines	7	0.18	5	1	X	X								X
V-CHAN-CNTR-IDEN	Channel centerline and survey report lines - annotation	0	0.25	5	1	X	X								X
V-CHAN-DACL	De-authorized channel limits, anchorages, etc.	0	0.25	3	2	X	X								X
V-CHAN-DACL-IDEN	De-authorized channel limits, anchorages, etc. - annotation	0	0.25	3	2	X	X								X
V-CHAN-DOCK	Docks, decks, floats, piers, and mooring facilities	0	0.25	6	5	X	X							X	X
V-CHAN-LIMIT	Channel limits, anchorages, turning basins, disposal areas, etc.	0	0.25	6	5	X	X							X	X
V-CHAN-LIMIT-IDEN	Channel limits, anchorages, turning basins, disposal areas, etc. - annotation	0	0.25	6	5	X	X							X	X
V-CHAN-NAID	Navigation aids and text	0	0.25	2	4	X	X								X
V-CHAN-SLOP-LINE	Channel cut/fill slope (Indicates cut and fill lines)	0	0.25	2	4	X	X								X
V-CHAN-SPOL	Spoil limits	0	0.35	4	7	X	X								X
V-CHAN-SYMB	Channel/canal symbols	0	0.25	6	5	X	X								X
V-CHAN-TEXT	Channel/canal text, annotation with associated leaders	0	0.25	2	4	X	X								X
V-CHAN-TOE~	Channel/canal toe	3	0.35	5	1	X	X							X	X
V-CHAN-TOE--IDEN	Channel/canal toe annotation	0	0.25	6	5	X	X								X
V-CHAN-TURN	Turning points	0	0.25	2	4	X	X								X
V-CHAN-WIDE	Channel/canal widener	3	0.35	4	7	X	X								X
<b>Communications</b>															
V-COMM-EQPM	Other communications distribution equipment	0	0.35	23	46				X						
V-COMM-JBOX	Communication junction boxes, pull boxes, handholes, pedestals, and splices	0	0.35	23	46				X						
V-COMM-MHOL	Manholes	0	0.35	23	46				X						
V-COMM-OVHD	Overhead communications/telephone lines	COMARX	0.35	4	7	X		X	X					X	X
V-COMM-OVHD-IDEN	Identifier tags, symbol modifier and text	0	0.25	4	7	X	X	X	X					X	X
V-COMM-POLE	Poles	0	0.35	203	45	X		X	X					X	X
V-COMM-POLE-GUYS	Guying equipment	0	0.35	203	45	X		X	X					X	X
V-COMM-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	203	45	X		X	X					X	X

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-COMM-UGND	Underground communications/telephone lines	COMUGX	0.35	4	7	X		X							
V-COMM-UGND-IDEN	Identifier tags, symbol modifier and text	0	0.25	4	7	X		X						X	X
<b>Control Points</b>															
V-CTRL-BMRK	Benchmarks	0	0.35	6	5	X	X								X
V-CTRL-GRID	Grid	0	0.25	3	2	X	X								X
V-CTRL-HORZ	Horizontal control points	0	0.35	6	5	X	X								X
V-CTRL-HVPT	Horizontal/vertical control points	0	0.35	6	5	X	X								X
V-CTRL-IDEN	Control point annotation	0	0.35	2	4	X	X								X
V-CTRL-TRAV	Transverse points	0	0.35	6	5	X	X								X
V-CTRL-VERT	Vertical control points	0	0.35	6	5	X	X								X
<b>Domestic Water</b>															
V-DOMW-DEVC	Connectors, faucets, reducers, regulators, vents, intake points, taps, backflow preventers, and valves	0	0.25	6	5						X				
V-DOMW-FIRE	Fire lines	FIRE	0.25	1	3					X					
V-DOMW-FTTG	Caps, cleanouts, crosses, and tees	0	0.25	6	5					X					
V-DOMW-HYDT	Hydrants	0	0.25	1	3	X		X		X					
V-DOMW-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X		X				X	X
V-DOMW-MAIN-PIPE	Main domestic water piping	WATRX	0.25	6	5	X		X		X					
V-DOMW-METR	Meters	0	0.25	3	2					X					
V-DOMW-NPW--HYDT	Non-potable hydrants/flushing hydrants	0	0.25	1	3					X					
V-DOMW-NPW--PIPE	Non-potable water piping	NONPOT	0.25	6	5					X					
V-DOMW-PITS-VENT	Vent pits	0	0.25	3	2					X					
V-DOMW-PITS-VALV	Valve pits/vaults	0	0.25	3	2	X		X		X					
V-DOMW-SERV-PIPE	Domestic water service piping	0	0.25	6	5					X				X	X
V-DOMW-SIGN	Surface markers/signs	0	0.25	1	3					X					
V-DOMW-STNS-PUMP	Booster pump stations	0	0.25	6	5					X					
V-DOMW-STNS-REDC	Pressure reducing stations	0	0.25	6	5					X					
V-DOMW-TANK	Water storage tanks	0	0.25	1	3	X		X		X					
V-DOMW-WELL	Water well houses	0	0.25	1	3					X					
<b>Ditches or Washes</b>															
V-DTCH-BOTM	Bottom of ditch or wash	6, DITCH	0.18	5	1	X								X	X
V-DTCH-CNTR	Centerline of ditch or wash	7	0.18	5	1	X								X	X
V-DTCH-EWAT	Edge of water	0	0.18	4	7	X								X	X
V-DTCH-IDEN	Ditches and washes annotation	0	0.25	3	2	X								X	X
V-DTCH-TOP~	Top of ditch or wash	0	0.18	3	2	X								X	X
<b>Underground Ductbanks (to be used when multiple systems are in one ductbank system)</b>															
V-DBNK-MULT	Ductbank	EUDUCX	0.35	83	42	X		X	X	X				X	X
V-DBNK-MULT-IDEN	Identifier tags, symbol modifier and text	0	0.25	83	42	X		X	X	X				X	X
<b>Habitats/Landforms</b>															
V-ECCO-BURR	Burrow	0	0.35	4	7	X									
V-ECCO-DENS	Den	0	0.35	4	7	X									
V-ECCO-GATR	Gator hole	2	0.25	6	5	X									
V-ECCO-HUMK	Hummocks	0	0.25	6	5	X									
V-ECCO-IDEN	Habitat annotation	0	0.25	2	4	X									
V-ECCO-NEST	Nest, nesting tree	0	0.35	4	7	X									
V-ECCO-PRCH	Perch/nesting hole	0	0.35	4	7	X									
<b>Flood Hazard Area</b>															
V-FLHA-025Y	25 year mark	6	0.25	6	5	X									

Discipline: Survey/Mapping

Model File Layers/Levels

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V-FLHA-050Y	50 year mark	3	0.25	2	4	X									
V-FLHA-100Y	100 year mark	0	0.25	6	5	X									
V-FLHA-200Y	200 year mark	2	0.25	2	4	X									
V-FLHA-500Y	500 year mark	7	0.25	6	5	X									
V-FLHA-IDEN	Flood hazard area annotation	0	0.25	2	4	X									
<b>Floodwalls</b>															
V-FLOD-BASE	Floodwall base of wall	0	0.35	20	6	X									
V-FLOD-BASE-IDEN	Floodwall base of wall annotation	0	0.25	20	6	X									
V-FLOD-CNTR	Floodwall centerline	7	0.18	20	6	X									X
V-FLOD-CNTR-IDEN	Floodwall centerline annotation	0	0.25	20	6	X									X
V-FLOD-DRNS	Floodwall toe drain	0	0.25	6	5	X								X	X
V-FLOD-DRNS-IDEN	Floodwall toe drain annotation	0	0.25	6	5	X								X	X
V-FLOD-PILE	Floodwall sheet piling	0	0.35	22	22	X								X	X
V-FLOD-PILE-IDEN	Floodwall sheet piling annotation	0	0.25	22	22	X								X	X
V-FLOD-TOE~	Floodwall toe outline	0	0.25	4	7	X								X	X
V-FLOD-TOP~	Floodwall top of wall	0	0.35	2	4	X								X	X
V-FLOD-TOP~IDEN	Floodwall top of wall annotation	0	0.25	20	6	X								X	X
<b>Liquid Fuel</b>															
V-FUEL-BERM	Berms for retaining fuel in case of major tank/line rupture	0	0.25	6	5						X				
V-FUEL-DEFL-PIPE	Defueling piping	0	0.25	6	5						X				
V-FUEL-DEVC	Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves	0	0.25	6	5						X				
V-FUEL-FLOW	Flow direction arrows	0	0.25	6	5						X				
V-FUEL-FTTG	Caps, crosses, and tees	0	0.25	6	5						X				
V-FUEL-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X			X			X	X
V-FUEL-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.25	1	3	X		X			X			X	X
V-FUEL-MAIN-PIPE	Main fuel piping	LIQPET	0.25	6	5	X		X			X			X	X
V-FUEL-METR	Meters	0	0.25	3	2						X				
V-FUEL-PITS-HYDT	Hydrant control pits	0	0.25	3	2						X				
V-FUEL-PITS-VENT	Vent pits	0	0.25	3	2						X				
V-FUEL-PITS-VALV	Valve pits	0	0.25	3	2						X				
V-FUEL-SERV-PIPE	Service piping	0	0.25	6	5						X				
V-FUEL-STNS-PUMP	Booster pump stations	0	0.25	6	5						X				
V-FUEL-TANK	Fuel tanks	0	0.25	3	2	X		X			X				
V-FUEL-TRCH	Fuel line trench	0	0.25	3	2						X				
<b>Grade Linework</b>															
V-GRAD-AFTR	After dredge depth	0	0.35	2	4		X							X	X
V-GRAD-EXST	Existing grade, ground line	3	0.35	6	5									X	X
V-GRAD-EXST-BASE	Base survey	2	0.18	22	22		X							X	X
V-GRAD-EXST-SYR1	Survey year one or area one	4	0.18	6	5									X	X
V-GRAD-EXST-SYR2	Survey year two or area two	1	0.18	2	4									X	X
V-GRAD-EXST-SYR3	Survey year three or area three	6	0.18	3	2									X	X
V-GRAD-EXST-SYR4	Survey year four or area four	3	0.18	113	16									X	X
V-GRAD-IDEN	Grade annotation	0	0.25	2	4									X	X
V-GRAD-PRED	Pre-dredge	0	0.35	2	4		X							X	X
V-GRAD-SCLN	Stability control line	7	0.35	5	1		X							X	X
<b>Grid Lines</b>															

Discipline: Survey/Mapping

Model File Layers/Levels

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V-GRID-FRAM	Frame	0	0.35	4	7										
V-GRID-MAJR	Major grid lines	1	0.25	8	9									X	X
V-GRID-MINR	Minor grid lines	1	0.18	8	9									X	X
V-GRID-TEXT	Border text, annotation	0	0.25	2	4									X	X
<b>Geothermal Heat Pump System</b>															
V-GTHP-EQPM	Geothermal heat pump system equipment	0	0.25	203	45							X			
V-GTHP-IDEN	Geothermal heat pump annotation	0	0.35	2	4							X			
V-GTHP-RETN-PIPE	Geothermal heat pump system return piping	0	0.35	203	45							X			
V-GTHP-SUPP-PIPE	Geothermal heat pump system supply piping	0	0.35	203	45							X			
<b>High Temperature/Chilled Water System</b>															
V-HTCW-CWTR-MAIN	Main chilled water piping	0	0.25	163	41							X			
V-HTCW-CWTR-PLNT	Chilled water plant	0	0.25	163	41							X			
V-HTCW-CWTR-SERV	Chilled water service piping	0	0.18	163	41							X			
V-HTCW-DEVC	Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and	0	0.25	6	5							X			
V-HTCW-FLOW	Flow direction arrows	0	0.18	3	2							X			
V-HTCW-FITG	Caps and flanges	0	0.25	6	5							X			
V-HTCW-HWTR-MAIN	Main high temperature piping	0	0.25	113	16							X			
V-HTCW-HWTR-PLNT	High temperature water plant	0	0.25	113	16							X			
V-HTCW-HWTR-SERV	High temperature service piping	0	0.18	113	16							X			
V-HTCW-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X						X		X	X
V-HTCW-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.18	1	3	X		X				X			
V-HTCW-LWTR-MAIN	Main low temperature piping	0	0.25	1	3							X			
V-HTCW-LWTR-SERV	Low temperature service piping	0	0.18	1	3							X			
V-HTCW-PITS	Valve pits/vaults, steam pits	0	0.18	3	2							X			
V-HTCW-RETN-PIPE	Return for all HTCW lines	0	0.18	5	1							X			
V-HTCW-STEM-MAIN	Main steam piping	0	0.25	113	16	X		X				X		X	X
V-HTCW-STEM-SERV	Steam service piping	0	0.18	113	16							X			
V-HTCW-STNS-PUMP	Pump stations	0	0.25	6	5							X			
<b>Hydrosurveys</b>															
V-HYDS-BKLN	Breaklines	4	0.35	7	0	X	X								X
V-HYDS-BKLN-COMM	Subsurface utilities communications breakline	COMUGX	0.35	7	0	X	X								X
V-HYDS-BKLN-DOMW	Subsurface utilities water breakline	WATRX	0.35	7	0	X	X								X
V-HYDS-BKLN-ELEC	Subsurface utilities electric breakline	EPUGX	0.35	7	0	X	X								X
V-HYDS-BKLN-FUEL	Subsurface utilities liquid fuel breakline	LIQPET	0.35	7	0	X	X								X
V-HYDS-BKLN-NGAS	Subsurface utilities natural gas breakline	NTGASX	0.35	7	0	X	X								X
V-HYDS-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	SSWAFX	0.35	7	0	X	X								X
V-HYDS-BKLN-STRM	Subsurface utilities storm sewer breakline	STRAFX	0.35	7	0	X	X								X
V-HYDS-BNDY-EXTR	Surface exterior boundary	0	0.18	3	2	X	X								X
V-HYDS-BNDY-INTR	Surface interior boundary	2	0.18	1	3	X	X								X
V-HYDS-BORE	Boring locations and text	0	0.25	6	5	X	X								X
V-HYDS-COOR	Coordinate grid text annotation	0	0.25	122	23	X	X								X
V-HYDS-COOR-LALO	Latitude and longitude grid ticks	0	0.18	3	2	X	X								X
V-HYDS-COOR-STAT	State Plane coordinate ticks	0	0.18	3	2	X	X								X
V-HYDS-COOR-UTM	UTM coordinate ticks	0	0.18	3	2	X	X								X
V-HYDS-DTMO	DTM obscure area boundary	0	0.25	6	5	X	X								X
V-HYDS-DTMP	DTM points	0	0.25	6	5	X	X								X
V-HYDS-DTMT	DTM triangles	0	0.25	22	22	X	X								X

Discipline: Survey/Mapping  
Model File Layers/Levels

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V-HYDS-MAJR	Major contours	0	0.25	2	4	X	X								X
V-HYDS-MAJR-IDEN	Major contours - annotation	0	0.25	2	4	X	X								X
V-HYDS-MINR	Minor contours	0	0.18	3	2	X	X								X
V-HYDS-MINR-IDEN	Minor contours - annotation	0	0.18	3	2	X	X								X
V-HYDS-PERI	Surface perimeter	0	0.18	3	2	X	X								X
V-HYDS-SHAP	Inroads generated shapes/lines	0	0.18	1	3										X
V-HYDS-SHOR	Shorelines, land features, and references	0	0.25	4	7	X	X								X
V-HYDS-SLOP-FILL	Cut/fill slopes	0	0.25	2	4	X	X								X
V-HYDS-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.25	2	4	X									X
V-HYDS-SLOP-TOPT	Top/toe slopes	0	0.25	6	5	X									X
V-HYDS-SOUN	Soundings and overbanks	0	0.18	V	V		X								X
V-HYDS-SPOT	Spot elevations	0	0.25	2	4	X	X								X
V-HYDS-VOID	Surface void region	0	0.18	1	3	X	X								X
V-HYDS-WATR	Water level reference (e.g., LWRP, after-grading LWRP, SWP, etc.)	0	0.35	V	V	X	X								X
<b>Industrial Waste Water</b>															
V-INDW-DEVC	Grit chambers, meters, flumes, neutralizers, oil/water separators, ejectors, tanks, and valves	0	0.25	6	5						X				
V-INDW-FLOW	Flow direction arrows	0	0.25	6	5						X				
V-INDW-FTTG	Caps and cleanouts	0	0.25	6	5						X				
V-INDW-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X			X			X	X
V-INDW-JBOX	Junction boxes and manholes	0	0.25	1	3	X	X	X			X				
V-INDW-LAGN	Lagoons	0	0.25	6	5	X	X	X			X				
V-INDW-MAIN-PIPE	Main industrial waste water piping	IWASTE	0.25	6	5	X		X			X			X	X
V-INDW-PLNT	Treatment plants	0	0.25	6	5						X				
V-INDW-SERV-PIPE	Industrial waste water service piping	0	0.25	1	3						X				
V-INDW-SIGN	Surface markers/signs	0	0.25	1	3						X				
V-INDW-STNS-LIFT	Lift stations	0	0.25	6	5	X		X			X				
<b>Irrigation</b>															
V-IRRG-EQPM	Irrigation equipment (e.g., controllers, valves, etc.)	0	0.25	6	5	X	X				X				
V-IRRG-IDEN	Irrigation annotation	0	0.25	2	4	X	X				X			X	X
V-IRRG-PIPE	Irrigation piping	0	0.25	6	5	X	X				X			X	X
V-IRRG-WELL	Irrigation wells	0	0.18	3	2						X				
<b>Joints</b>															
V-JNTS-CNSL	Construction joints - longitudinal	0	0.25	6	5	X									
V-JNTS-CNST	Construction joints - transverse	0	0.25	6	5	X									
V-JNTS-CNTL	Contraction joints - longitudinal	0	0.25	2	4	X									
V-JNTS-CNTT	Contraction joints - transverse	0	0.25	2	4	X									
V-JNTS-EDGE	Thickened edges	0	0.25	4	7	X									
V-JNTS-EXP.	Expansion joints	0	0.25	12	27	X									
V-JNTS-IDEN	Joint annotation	0	0.25	2	4	X									
<b>Levees</b>															
V-LEVE-BANK-IDEN	Levee top of bank annotation	0	0.25	20	6	X									X
V-LEVE-TOPB	Levee top of bank	0	0.25	20	6	X									X
V-LEVE-BERM	Existing berms	0	0.25	6	5	X									X
V-LEVE-BNCH	Levee bench design feature lines (breaklines form DTMs)	0	0.25	20	6	X									X
V-LEVE-BNCH-IDEN	Levee bench annotation	0	0.18	2	4	X									X
V-LEVE-BRRW	Borrow limits	0	0.35	4	7	X									X
V-LEVE-CNTR	Levee centerline	7	0.18	20	6	X									X

Discipline: Survey/Mapping  
Model File Layers/Levels

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V-LEVE-CNTR-IDEN	Levee centerline annotation	0	0.25	20	6	X									X
V-LEVE-IDEN	Levee annotation	0	0.25	2	4	X									X
V-LEVE-OTLN	Levee outline	0	0.35	4	7	X									X
V-LEVE-SLOP	Levee slope indicator with annotation	0	0.25	2	4	X									X
V-LEVE-STAN	Levee stationing	0	0.25	2	4	X									X
V-LEVE-TOE~	Levee toe	2	0.25	20	6	X									X
V-LEVE-TOE--IDEN	Levee toe annotation	0	0.18	20	6	X									X
<b>Lights</b>															
V-LITE-EXTR	Exterior lights	0	0.35	203	45			X	X						
V-LITE-EXTR-IDEN	Exterior light identifier tags, symbol modifiers, and text	0	0.25	203	45			X	X						
<b>Military Ranges</b>															
V-MILR-BATP	Battle positions	0	0.35	4	7	X									
V-MILR-CAMS	Range cameras	0	0.25	6	5	X									
V-MILR-FOXH	Fox holes and pits	0	0.25	6	5	X									
V-MILR-MATS	Moving army targets	0	0.35	4	7	X									
V-MILR-MITS	Moving infantry targets	0	0.35	4	7	X									
V-MILR-MITS-IDEN	Moving infantry targets annotation	0	0.25	2	4	X									
V-MILR-PUTS	Pop up targets	0	0.35	4	7	X									
V-MILR-PUTS-IDEN	Pop up targets annotation	0	0.25	2	4	X									
V-MILR-SATS	Stationary army targets	0	0.35	4	7	X									
V-MILR-SATS-IDEN	Stationary army targets annotation	0	0.25	2	4	X									
V-MILR-SITS	Stationary infantry targets	0	0.35	4	7	X									
V-MILR-SITS-IDEN	Stationary infantry targets annotation	0	0.25	2	4	X									
<b>Natural Gas</b>															
V-NGAS-EQPM	Equipment (pumps, motors, etc.)	0	0.25	6	5						X				
V-NGAS-FLOW	Flow direction arrows	0	0.25	6	5					X					
V-NGAS-FTTG	Caps, crosses, and tees	0	0.25	6	5					X					
V-NGAS-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X			X			X	X
V-NGAS-INST	Instrumentation (meters, valves, etc.)	0	0.25	3	2					X					
V-NGAS-MHOL	Manholes	0	0.25	6	5	X		X		X				X	X
V-NGAS-PIPE	Natural gas piping	NTGASX	0.25	6	5	X		X		X				X	X
V-NGAS-PITS-VENT	Vent pits	0	0.25	3	2					X					
V-NGAS-PITS-VALV	Valve pits/boxes	0	0.25	3	2					X					
V-NGAS-SIGN	Surface markers/signs	0	0.25	1	3					X					
V-NGAS-STNS-PUMF	Compressor stations	0	0.25	6	5					X					
V-NGAS-STNS-REDC	Reducing stations	0	0.25	6	5					X					
V-NGAS-TANK	Tanks	0	0.18	3	2	X		X		X					
<b>Obstructions</b>															
V-OBST-AIRS	Airspace obstructions	0	0.25	3	2										X
V-OBST-AIRS-IDEN	Airspace obstruction annotation	0	0.25	2	4										X
V-OBST-UWTR	Underwater obstructions (e.g., sunken ship, barge, etc.)	2	0.25	1	3		X								X
V-OBST-UWTR-IDEN	Underwater obstruction annotation	0	0.25	2	4		X								X
<b>Overrun Areas</b>															
V-OVRN-CNTR	Centerlines	7	0.18	1	3										X
V-OVRN-CNTR-IDEN	Centerline annotation	0	0.25	2	4										X
V-OVRN-IDEN	Airfield overrun area - annotation	0	0.25	2	4									X	X
V-OVRN-OTLN	Airfield overrun area - outlines	0	0.25	4	7									X	X

Discipline: Survey/Mapping  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-OVRN-SHLD-MRKG	Shoulder markings	0	0.25	4	7										X
<b>Pads (Arm/Disarm/Calibration, etc.)</b>															
V-PADS-CNTR	Centerlines	7	0.18	1	3										X
V-PADS-CNTR-IDEN	Centerline annotation	0	0.25	2	4										X
V-PADS-IDEN	Pads - annotation	0	0.25	2	4									X	X
V-PADS-OTLN	Pad - outlines	0	0.25	4	7									X	X
V-PADS-SHLD	Shoulders with annotation	0	0.18	2	4										X
<b>Power</b>															
V-POWR-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.35	23	46				X						
V-POWR-IDEN	Power annotation	0	0.25	2	4	X		X	X						
V-POWR-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.35	83	42				X						
V-POWR-POLE	Power poles	0	0.35	203	45	X		X	X						
V-POWR-POLE-GUYS	Guying equipment	0	0.35	203	45				X						
V-POWR-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	203	45				X						
V-POWR-SBST	Substation equipment	0	0.35	23	46				X						
V-POWR-SWCH	Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle	0	0.35	163	41				X						
V-POWR-XFMR-PADM	Pad mounted transformers	0	0.35	23	46				X						
V-POWR-XFMR-POLM	Pole mounted transformers	0	0.35	23	46				X						
<b>Primary Electrical Cables</b>															
V-PRIM-OVHD	Overhead electrical utility lines	EPARX	0.35	4	7	X		X	X					X	X
V-PRIM-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	4	7	X		X	X					X	X
V-PRIM-UGND	Underground electrical utility lines	EPUGX	0.35	4	7	X		X	X					X	X
V-PRIM-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	4	7	X		X	X					X	X
<b>Parking Lots</b>															
V-PRKG-CNTR	Parking lot centerlines	7	0.18	1	3	X		X							
V-PRKG-CNTR-IDEN	Parking lot centerline annotation	0	0.18	1	3	X		X							
V-PRKG-CURB	Curbs and gutters	0	0.25	3	2	X		X							
V-PRKG-DRAN	Drainage slope indications	0	0.25	1	3	X		X							
V-PRKG-FIXT	Parking lot fixtures (e.g., wheel stops, parking meters)	0	0.25	91	106	X		X						X	X
V-PRKG-FLNE	Fire lanes	0	0.18	1	3	X		X						X	X
V-PRKG-IDEN	Parking lot annotation	0	0.25	6	5	X		X						X	X
V-PRKG-MRKG	Pavement markings	0	0.25	2	4	X		X							
V-PRKG-OTLN	Parking lot outlines	0	0.35	4	7	X		X							
V-PRKG-SIGN	Signs	0	0.25	2	4	X		X							
<b>Property</b>															
V-PROP-BRNG	Bearings and distance labels	0	0.35	6	5	X		X							X
V-PROP-ESMT	Easements	CONEMT	0.50	7	0	X		X							X
V-PROP-IDEN	Property annotation	0	0.25	6	5	X		X							X
V-PROP-LINE	Property lines (Existing recorded plats)	PROPL	0.35	2	4	X		X							X
V-PROP-QTRS	Quarter lines	1	0.35	6	5	X		X							X
V-PROP-RWAY	Right of ways	6	0.50	7	0	X		X							X
V-PROP-SBCK	Setback lines	3	0.18	7	0	X		X							X
V-PROP-SECT	Section lines	7	0.35	6	5	X		X							X
V-PROP-SECT-IDEN	Section lines annotation	0	0.25	6	5	X		X							X
V-PROP-SUBD	Subdivision (interior) lines	0	0.25	1	3	X		X							X
V-PROP-SXTS	Sixteenth lines (40 lines)	16THLN	0.35	6	5	X		X							X
V-PROP-TSHP	Township/range lines	4	0.35	6	5	X		X							X



Discipline: Survey/Mapping  
 Model File Layers/Levels

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AIA Format	Level/Layer Description														
V-PROP-TSHP-IDEN	Township/range lines annotation	0	0.25	6	5	X		X							X
<b>Pavements</b>															
V-PVMT-ASPH	Pavement pattern - asphalt	0	0.18	8	9	X									
V-PVMT-CONC	Pavement pattern - concrete	0	0.18	8	9	X									
V-PVMT-GRVL	Pavement pattern - gravel	0	0.18	8	9	X									
V-PVMT-IDEN	Road, parking lot, railroad, airfield pavement annotation	0	0.25	2	4	X							X	X	
V-PVMT-MRKG	Pavement markings	0	0.35	2	4	X									
V-PVMT-PATT	Joint patterns, text and dimensions	0	0.18	8	9	X									
<b>Railroads</b>															
V-RAIL-CNTR	Railroad track centerlines	7	0.18	1	3	X		X					X	X	
V-RAIL-CNTR-IDEN	Railroad track centerline annotation	0	0.25	1	3	X		X					X	X	
V-RAIL-EQPM	Railroad equipment (e.g., gates, signals)	0	0.25	91	106	X		X					X	X	
V-RAIL-IDEN	Railroad - annotation	0	0.25	2	4	X		X					X	X	
V-RAIL-TRAK	Railroad tracks	RAILRD	0.25	2	4	X		X					X	X	
<b>Rivers</b>															
V-RIVR-BOTM	River bottom	0	0.25	5	1	X	X						X	X	
V-RIVR-CNTR	Centerline of river	7	0.18	1	3	X	X						X	X	
V-RIVR-EDGE	River edge	0	0.35	5	1	X	X						X	X	
V-RIVR-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	2	4	X	X						X	X	
V-RIVR-TOPB	Top of river bank	0	0.25	5	1	X	X						X	X	
<b>Roads, Streets, and Highways</b>															
V-ROAD-ASPH	Road outlines - asphalt surface	0	0.18	8	9	X		X							X
V-ROAD-CNTR	Road centerlines	7	0.18	1	3	X		X							X
V-ROAD-CNTR-IDEN	Road centerline annotation	0	0.18	1	3	X		X							X
V-ROAD-CONC	Road outlines - concrete surface	0	0.18	7	0	X		X							X
V-ROAD-CURB	Curbs and gutters	0	0.25	6	5	X		X							X
V-ROAD-GRAL	Guard rails	GUARD	0.25	6	5	X		X							X
V-ROAD-GRVL	Road outlines - gravel surface	0	0.18	20	6	X		X							X
V-ROAD-IDEN	Road, street, highway annotation	0	0.25	6	5	X		X					X	X	
V-ROAD-MRKG	Pavement markings	0	0.25	2	4	X		X							X
V-ROAD-OTLN	Road outlines	0	0.25	4	7	X		X							X
V-ROAD-PATT	Joint patterns, text and dimensions	0	0.18	8	9	X									X
V-ROAD-SHLD	Roadway shoulders	0	0.25	6	5	X		X							X
V-ROAD-SIGN	Signs	0	0.18	1	3	X									X
V-ROAD-UPVD	Road outlines - unpaved surface	0	0.18	3	2	X									X
<b>Riprap and Other Permanent Erosion Control Items</b>															
V-RRAP-GABN	Gabions	V	0.18	1	3	X	X								
V-RRAP-MATS	Articulated concrete mats	V	0.18	3	2	X	X								
V-RRAP-RVMT	Revetments	V	0.18	1	3	X	X								
V-RRAP-WEIR	Weirs	V	0.18	3	2	X	X								
<b>Runways</b>															
V-RUNW-BLST	Blast pad and stopway markings	0	0.25	1	3	X							X	X	
V-RUNW-CNTR	Centerlines	7	0.18	1	3	X									
V-RUNW-CNTR-MRKG	Centerline markings	0	0.25	1	3	X									
V-RUNW-DISP	Displaced threshold markings	0	0.25	1	3	X									
V-RUNW-DIST	Fixed distance markings	0	0.25	1	3	X									
V-RUNW-EDGE	Airfield runway edges	0	0.25	6	5	X									

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
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V-RUNW-IDEN	Airfield runway annotation	0	0.25	2	4	X								X	X
V-RUNW-SHLD	Shoulder markings	0	0.25	6	5	X									
V-RUNW-SIDE	Side stripes	0	0.25	4	7	X									
V-RUNW-TDZM	Touchdown zone markers	0	0.25	6	5	X									
V-RUNW-THRS	Threshold markers	0	0.25	6	5	X									
<b>Secondary Electrical Cables</b>															
V-SECD-OVHD	Overhead electrical utility lines	ESARX	0.35	163	41	X		X	X					X	X
V-SECD-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	163	41	X		X	X					X	X
V-SECD-UGND	Underground electrical utility lines	ESUGX	0.35	163	41	X		X	X					X	X
V-SECD-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	163	41	X		X	X					X	X
<b>Site Features</b>															
V-SITE-EWAT	Edge of water	0	0.35	162	33	X		X							
V-SITE-FENC	Fences and handrails	FENCE	0.25	6	5	X		X							
V-SITE-FENC-IDEN	Fence, handrail, ramp, and trail annotation	0	0.25	6	5	X		X							
V-SITE-FLDS	Stump fields	0	0.25	1	3		X								
V-SITE-IDEN	Existing site feature/structure annotation	0	0.25	6	5	X	X	X						X	X
V-SITE-OTLN	Existing site features (play structures, bike racks, benches, recreational equipment)	0	0.50	4	7	X		X						X	X
V-SITE-ROCK	Rock and rock outcroppings, boulders and cobble	0	0.25	1	3	X		X							
V-SITE-STRC	Structures (bridges, sheds, foundation pads, footings, etc.)	0	0.25	22	22	X		X						X	X
V-SITE-STRS	Stairs and ramps	0	0.25	6	5	X		X							
V-SITE-VEGE	Existing treelines and vegetation	TREEL	0.35	82	18	X		X							
V-SITE-VEGE-IDEN	Existing treelines and vegetation - identification	0	0.35	82	18	X		X							
V-SITE-WALK	Walks, trails, and bicycle paths	0	0.25	2	4	X		X							
V-SITE-WATR	Water features	0	0.35	162	33	X		X							
<b>Special Systems</b>															
V-SPCL-SYST	Special systems (UMCS, EMCS, CATV, etc.)	0	0.35	203	45				X						X
V-SPCL-SYST-IDEN	Special systems (UMCS, EMCS, CATV, etc.) identifier tags, symbol modifier, and text	0	0.25	203	45				X						X
V-SPCL-TRAF	Traffic signal system	0	0.35	203	45				X						X
V-SPCL-TRAF-IDEN	Traffic signal identifier tags, symbol modifier, and text	0	0.25	203	45				X						X
<b>Sanitary Sewer</b>															
V-SSWR-DEVC	Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves	0	0.25	6	5					X					
V-SSWR-FILT	Filtration beds	0	0.25	3	2					X					X
V-SSWR-FLOW	Flow direction arrows	0	0.25	6	5					X					X
V-SSWR-FTTG	Caps and cleanouts	0	0.25	6	5					X					X
V-SSWR-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X		X				X	X
V-SSWR-JBOX	Junction boxes and manholes	0	0.25	1	3	X		X		X					X
V-SSWR-LAGN	Lagoons	0	0.25	3	2	X		X		X					X
V-SSWR-LEAC	Leach field	0	0.25	3	2					X					X
V-SSWR-MAIN-PIPE	Sanitary sewer piping	SSWAFX	0.25	6	5	X		X		X				X	X
V-SSWR-NITF	Nitrification drain fields	0	0.25	3	2	X		X		X					X
V-SSWR-PLNT	Treatment plants	0	0.25	6	5	X		X		X					X
V-SSWR-SERV-PIPE	Sanitary sewer service piping	0	0.25	1	3					X					X
V-SSWR-SIGN	Surface markers/signs	0	0.25	1	3					X					X
V-SSWR-STNS-PUMP	Booster pump stations	0	0.25	6	5	X		X		X					X
V-SSWR-TANK	Septic tanks	0	0.25	3	2	X		X		X					X
<b>Storm Sewer</b>															
V-STRM-AFFF	AFFF lagoon/detention pond	0	0.25	3	2					X					X

Discipline: Survey/Mapping  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types									
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
<b>AIA Format</b>	<b>Level/Layer Description</b>														
V-STRM-CHUT	Chutes and concrete erosion control structures	0	0.25	1	3					X					X
V-STRM-CULV	Culverts	CULVRT	0.25	3	2	X		X		X					X
V-STRM-DEVC	Downspouts, flumes, oil/water separators, and flap gates	0	0.25	6	5					X					X
V-STRM-FLOW	Flow direction arrows	0	0.25	6	5					X					X
V-STRM-FMON	Flow monitoring station	0	0.25	6	5					X					X
V-STRM-FTTG	Caps and cleanouts	0	0.25	6	5					X					X
V-STRM-HWAL	Headwalls and endwalls	0	0.35	7	0	X		X		X					X
V-STRM-IDEN	Identifier tags, symbol modifier, and text	0	0.25	2	4	X		X		X			X		X
V-STRM-INLT	Inlets (curb, surface, and catch basins)	0	0.25	3	2	X		X		X					X
V-STRM-MAIN-PIPE	Storm sewer piping	STRAF	0.25	6	5	X		X		X			X		X
V-STRM-MHOL	Manholes	0	0.25	1	3	X		X		X					X
V-STRM-POND	Retention ponds, lagoons, watersheds, and basins	0	0.25	3	2	X		X		X					X
V-STRM-ROOF	Roof drain line	0	0.25	3	2					X					X
V-STRM-SERV-PIPE	Storm sewer service piping	0	0.25	1	3	X		X		X					X
V-STRM-SIGN	Surface markers/signs	0	0.25	1	3					X					X
V-STRM-STNS-PUMP	Pump stations	0	0.25	6	5					X					X
V-STRM-SUBS-PIPE	Subsurface drain piping	0	0.25	3	2					X					X
<b>Survey</b>															
V-SURV-DATA	Survey data (benchmarks and horizontal control points or monuments)	0	0.25	6	5	X	X	X							X
V-SURV-IDEN	Survey, baseline, and control line annotation	0	0.25	6	5	X	X	X							X
V-SURV-LINE	Survey, baseline, and control line	2	0.25	4	7	X	X	X							X
V-SURV-SYMB	Survey line symbol (PIs)	0	0.35	2	4	X	X	X							X
<b>Taxiways</b>															
V-TAXI-CNTR	Centerlines	7	0.18	1	3	X									
V-TAXI-CNTR-IDEN	Centerline annotation	0	0.25	2	4	X									
V-TAXI-CNTR-MRKG	Centerline markings	0	0.18	1	3	X									
V-TAXI-EDGE	Edge markings	0	0.25	4	7	X									
V-TAXI-HOLD	Holding lines	0	0.25	2	4	X									
V-TAXI-IDEN	Taxiway - annotation	0	0.25	2	4	X							X		X
V-TAXI-OTLN	Taxiway - outlines	0	0.25	4	7	X							X		X
V-TAXI-SHLD	Shoulders with annotation	0	0.25	2	4	X									
<b>Topography</b>															
V-TOPO-BKLN	Breaklines	4	0.35	7	0	X	X								X
V-TOPO-BKLN-COMM	Subsurface utilities communications breakline	COMUGX	0.35	7	0	X	X								X
V-TOPO-BKLN-DOMW	Subsurface utilities water breakline	WATR	0.35	7	0	X	X								X
V-TOPO-BKLN-ELEC	Subsurface utilities electric breakline	EPUGX	0.35	7	0	X	X								X
V-TOPO-BKLN-FUEL	Subsurface utilities liquid fuel breakline	LIQPET	0.35	7	0	X	X								X
V-TOPO-BKLN-NGAS	Subsurface utilities natural gas breakline	NTGASX	0.35	7	0	X	X								X
V-TOPO-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	SSWAFX	0.35	7	0	X	X								X
V-TOPO-BKLN-STRM	Subsurface utilities storm sewer breakline	STRAF	0.35	7	0	X	X								X
V-TOPO-BNDY-EXTR	Surface exterior boundary	0	0.18	3	2	X	X								X
V-TOPO-BNDY-INTR	Surface interior boundary	2	0.18	1	3	X	X								X
V-TOPO-BORE	Boring locations and text	0	0.25	6	5	X	X								X
V-TOPO-COOR	Coordinate grid text annotation	0	0.25	122	23	X	X								X
V-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.18	3	2	X	X								X
V-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.18	3	2	X	X								X
V-TOPO-COOR-UTM	UTM coordinate ticks	0	0.18	3	2	X	X								X

Discipline: Survey/Mapping

Model File Layers/Levels

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AIA Format	Level/Layer Description														
V-TOPO-DTMO	DTM obscure area boundary	0	0.25	6	5	X	X								X
V-TOPO-DTMP	DTM points	0	0.25	6	5	X	X								X
V-TOPO-DTMT	DTM triangles	0	0.25	22	22	X	X								X
V-TOPO-MAJR	Major contours	0	0.25	2	4	X	X								X
V-TOPO-MAJR-IDEN	Major contours - annotation	0	0.25	2	4	X	X								X
V-TOPO-MINR	Minor contours	0	0.18	3	2	X	X								X
V-TOPO-MINR-IDEN	Minor contours - annotation	0	0.18	3	2	X	X								X
V-TOPO-PERI	Surface perimeter	0	0.18	3	2	X	X								X
V-TOPO-SHAP	Application generated shapes/lines	0	0.18	1	3										X
V-TOPO-SHOR	Shorelines, land features, and references	0	0.25	4	7	X	X								X
V-TOPO-SLOP-FILL	Cut/fill slopes	0	0.25	2	4	X	X								X
V-TOPO-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.25	2	4	X									X
V-TOPO-SLOP-TOPT	Top/toe slopes	0	0.25	6	5	X									X
V-TOPO-SOUN	Soundings and overbanks	0	0.18	V	V		X								X
V-TOPO-SPOT	Spot elevations	0	0.25	2	4	X	X								X
V-TOPO-VOID	Surface void region	0	0.18	1	3	X	X								X
V-TOPO-WATR	Water level reference (e.g., LWRP, after-grading LWRP, SWP, etc.)	0	0.35	V	V	X	X								X
<b>Airfield Traffic Areas</b>															
V-TRAF-IDEN	Airfield traffic area annotation	0	0.25	2	4	X									
V-TRAF-TYPA	Type A traffic area	4	0.35	4	7	X									
V-TRAF-TYPB	Type B traffic area	6	0.35	4	7	X									
V-TRAF-TYPC	Type C traffic area	1	0.35	4	7	X									
<b>Wetlands</b>															
V-WETL-BOGS	Bogs	0	0.25	6	5	X									X
V-WETL-FENS	Fens	0	0.25	2	4	X									X
V-WETL-IDEN	Wetland annotation	0	0.25	2	4	X									X
V-WETL-MRSH	Fresh water marshes	0	0.25	162	33	X									X
V-WETL-MRSH-SALT	Tidal saltwater marshes	0	0.25	162	33	X									X
V-WETL-MRSH-TIDL	Tidal freshwater marsh	0	0.25	162	33	X									X
V-WETL-PCSN	Pocosins	0	0.25	6	5	X									X
V-WETL-PHOL	Vernal pools, playas, prairie potholes, wet meadows, and wet prairies	0	0.25	6	5	X									X
V-WETL-RPRN	Riparian forested wetlands	0	0.25	162	33	X									X
V-WETL-SLGH	Sloughs	0	0.25	162	33	X									X
V-WETL-SWMP	Swamps	0	0.25	162	33	X									X
<b>Sections</b>															
V-SECT-IDEN	Component identification numbers	0	0.35	2	4										X
V-SECT-MBND	Material beyond section cut	0	0.18	5	1										X
V-SECT-MCUT	Material cut by section	0	0.50	4	7										X
V-SECT-PATT	Textures and hatch patterns	0	0.18	8	9										X

Note: V = Varies, NA = Not Applicable

Discipline: Geotechnical  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
<b>General Information</b>											
B-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X		X	X	X	X
B-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X		X	X	X	X
B-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X
B-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X
B-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X		X	X
B-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X
B-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X		X	X	X	X
B-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X			X	X	X
B-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X
<b>Buildings</b>											
B-BLDG-FTPT	Building footprints	0	0.50	7	0	X		X	X		
B-BLDG-IDEN	Building and other structure annotation	0	0.25	2	4	X		X	X		
<b>Geophysical Borings</b>											
B-BORE-CONE	Cone penetrometer test location	0	0.35	162	33	X					
B-BORE-HOLE	Geophysical boring locations	0	0.35	162	33	X					
B-BORE-IDEN	Geophysical location identification	0	0.35	2	4	X					
B-BORE-LINE	Geophysical transect lines	0	0.50	4	7	X					
B-BORE-PUSH	Direct push test location	0	0.35	162	33	X					
B-BORE-STRK	Geophysical strike line	0	0.35	162	33	X					
<b>Consolidation Curve</b>											
B-CONS-DATA	Consolidation curve data	0	0.25	6	5	X					
B-CONS-DATA-TEXT	Consolidation curve data text	0	0.25	6	5	X					
B-CONS-FRAM	Consolidation curve frame	0	0.50	4	7	X					
B-CONS-GRID	Consolidation curve grid	0	0.25	1	3	X					
B-CONS-GRID-TEXT	Consolidation curve grid text	0	0.25	2	4	X					
<b>Excavations</b>											
B-EXCV-EXST	Existing excavation	2	0.25	1	3	X		X	X		
B-EXCV-FUTR	Future excavation	1	0.35	5	1	X		X	X		
B-EXCV-PROP	Proposed excavation	0	0.35	3	2	X		X	X		
<b>Grouting</b>											
B-GROU-ALGN	Grout hole alignments	4	0.25	2	4	X					
B-GROU-HOLE	Borehole made specifically for grouting	0	0.35	8	9	X					
B-GROU-PRIM	Primary grout holes	0	0.35	3	2	X					
B-GROU-QUAT	Quaternary grout holes	0	0.35	4	7	X					
B-GROU-SECD	Secondary grout holes	0	0.35	1	3	X					
B-GROU-TERT	Tertiary grout holes	0	0.35	5	1	X					
<b>Water Content</b>											
B-H2OC-ATTB-DATA	Water content Atterberg limits	0	0.25	3	2	X					
B-H2OC-ATTB-TEXT	Water content Atterberg limits text	0	0.25	3	2	X					
B-H2OC-GRID-MAJR	Water content major grid	0	0.25	1	3	X					
B-H2OC-GRID-MINR	Water content minor grid	1	0.18	8	9	X					
B-H2OC-GRID-TEXT	Water content grid text	0	0.25	2	4	X					
B-H2OC-MOIS-DATA	Water content moisture content points and lines	0	0.25	6	5	X					
B-H2OC-MOIS-TEXT	Water content moisture content text	0	0.25	6	5	X					
<b>Instrumentation</b>											
B-INST-EXTN	Extensometers	0	0.35	200	13	X					

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
B-INST-EXTN-IDEN	Extensometer identifier	0	0.35	200	13	X					
B-INST-GAGE	Pressure gages	0	0.35	200	13	X					
B-INST-GAGE-IDEN	Pressure gage identification	0	0.35	200	13	X					
B-INST-INCL	Inclinometers	0	0.35	200	13	X					
B-INST-INCL-IDEN	Inclinometer identifier	0	0.35	200	13	X					
B-INST-SETL	Settlement monuments	0	0.35	200	13	X					
B-INST-SETL-IDEN	Settlement monument identifier	0	0.35	200	13	X					
<b>Joints</b>											
B-JNTS-CNTJ-LONG	Construction joints - longitudinal	0	0.35	6	5			X			
B-JNTS-CNTJ-TRAV	Construction joints - transverse	0	0.35	6	5			X			
B-JNTS-CTRJ-LONG	Contraction joints - longitudinal	0	0.35	2	4			X			
B-JNTS-CTRJ-TRAV	Contraction joints - transverse	0	0.35	2	4			X			
B-JNTS-EDGE	Thickened edges	0	2.00	4	7			X			
B-JNTS-EXPJ	Expansion joints	0	0.35	12	27			X			
<b>Logs</b>											
B-LOGS-FDTA	Field data	0	0.25	3	2		X				
B-LOGS-FORM	Bore log form	0	V	V	V		X				
B-LOGS-FRAM	Frame for boring log and associated test data	0	0.50	4	7		X				
B-LOGS-FRAM-TEXT	Text associated with boring log frame	0	0.25	2	4		X				
B-LOGS-LDTA	Laboratory data	0	0.25	1	3		X				
B-LOGS-PATT	Soil/rock patterns	0	0.18	8	9		X				
<b>Monitoring Points</b>											
B-MONP-SEEP	Seepage monitoring point	0	0.35	5	1	X					
B-MONP-WEIR	Weirs	0	0.35	4	7	X					
<b>Normal Stress</b>											
B-NORM-DATA	Normal stress data	0	0.25	6	5	X					
B-NORM-DATA-TEXT	Normal stress data text	0	0.25	6	5	X					
B-NORM-GRID-MAJR	Normal stress major grid	0	0.25	1	3	X					
B-NORM-GRID-MINR	Normal stress minor grid	1	0.18	8	9	X					
B-NORM-GRID-TEXT	Normal stress grid text	0	0.25	2	4	X					
<b>Plasticity Chart</b>											
B-PLAS-DATA	Plasticity chart data	0	0.25	6	5	X					
B-PLAS-DATA-TEXT	Plasticity chart data text	0	0.25	6	5	X					
B-PLAS-FRAM	Plasticity chart frame	0	0.50	4	7	X					
B-PLAS-GRID	Plasticity chart grid	0	V	V	V	X					
B-PLAS-GRID-TEXT	Plasticity chart grid text	0	V	V	V	X					
<b>Pavements</b>											
B-PVMT-MISM	Mismatched pavement joint	0	0.35	6	5				X		
B-PVMT-OTLN-AGSC	Outline - aggregate surface course and gravel	0	0.35	195	13				X		
B-PVMT-OTLN-HMAC	Outline - hot mix, asphaltic concrete	0	0.35	6	5				X		
B-PVMT-OTLN-PCCP	Outline - Portland cement, concrete pavement	0	0.35	2	4				X		
B-PVMT-PATT-AGSC	Pattern - aggregate surface course and gravel	0	0.18	8	9				X		
B-PVMT-PATT-HMAC	Pattern - hot mix, asphaltic concrete	0	0.18	8	9				X		
B-PVMT-PATT-PCCP	Pattern - Portland cement, concrete pavement	0	0.18	8	9				X		
B-PVMT-REIN	Reinforced pavement	0	0.35	6	5				X		
<b>Sample Locations</b>											
B-SAMP-AUGR	Auger sample location	0	0.35	17	67	X					

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types						
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details	
AIA Format	Level/Layer Description											
B-SAMP-CORE	Core sample location	0	0.35	17	67	X						
B-SAMP-DRVE	Drive sample (shelby split spoon) location	0	0.35	17	67	X						
B-SAMP-GRAB	Grab sample location	0	0.35	17	67	X						
B-SAMP-IDEN	Sample location identification	0	0.35	2	4	X						
B-SAMP-PERC	Percolation test hole	0	0.50	83	42	X						
B-SAMP-PITS	Test pit sample location	0	0.50	83	42	X						
B-SAMP-VERT	Vertical core hole location	0	0.35	122	23	X						
B-SAMP-WASH	Wash bored hole location	0	0.35	122	23	X						
<b>Shear Strength vs. Normal Stress</b>												
B-SSNS-DATA	Shear strength vs. normal stress data	0	0.25	6	5	X						
B-SSNS-DATA-TEXT	Shear strength vs. normal stress data text	0	0.25	6	5	X						
B-SSNS-FRAM	Shear strength vs. normal stress frame	0	0.50	4	7	X						
B-SSNS-GRID	Shear strength vs. normal stress grid	0	0.25	1	3	X						
B-SSNS-GRID-TEXT	Shear strength vs. normal stress grid text	0	V	2	4	X						
<b>Shear Strength</b>												
B-SSTR-1TST-DATA	Shear strength 1 Point Q test data	0	0.25	4	7	X						
B-SSTR-1TST-TEXT	Shear strength 1 Point Q test text	0	0.25	4	7	X						
B-SSTR-GRID-MAJR	Shear strength major grid	0	0.25	1	3	X						
B-SSTR-GRID-MINR	Shear strength minor grid	1	0.18	8	9	X						
B-SSTR-GRID-TEXT	Shear strength grid text	0	0.25	2	4	X						
B-SSTR-QTST-DATA	Shear strength Q test data	0	0.25	6	5	X						
B-SSTR-QTST-TEXT	Shear strength Q test text	0	0.25	6	5	X						
B-SSTR-RTST-DATA	Shear strength R test data	0	0.25	2	4	X						
B-SSTR-RTST-TEXT	Shear strength R test text	0	0.25	2	4	X						
B-SSTR-STST-DATA	Shear strength S test data	0	0.25	5	1	X						
B-SSTR-STST-TEXT	Shear strength S test text	0	0.25	5	1	X						
B-SSTR-UTST-DATA	Shear strength UCT test data	0	0.25	3	2	X						
B-SSTR-UTST-TEXT	Shear strength UCT test text	0	0.25	3	2	X						
B-SSTR-VTST-DATA	Shear strength Vane shear test data	0	0.25	7	0	X						
B-SSTR-VTST-TEXT	Shear strength Vane shear test text	0	0.25	7	0	X						
<b>Tabular Test</b>												
B-TABT-DATA	Tabular test data	0	0.25	6	5	X						
B-TABT-DATA-TEXT	Tabular test data text	0	0.25	6	5	X						
B-TABT-FRAM	Tabular test data frame	0	0.50	4	7	X						
B-TABT-GRID	Tabular test data grid	0	0.25	1	3	X						
B-TABT-GRID-TEXT	Tabular test data grid text	0	V	2	4	X						
<b>Wells</b>												
B-WELL-ASR-	ASR wells	0	0.35	82	18	X						
B-WELL-HORZ	Horizontal drain	0	0.35	82	18	X						
B-WELL-MONT	Monitoring wells	0	0.35	82	18	X						
B-WELL-PIZO	Piezometers	0	0.35	82	18	X						
B-WELL-VERT	Vertical drain	0	0.35	82	18	X						
<b>Wet Density</b>												
B-WETD-DATA	Wet density data	0	0.25	6	5	X						
B-WETD-DATA-TEXT	Wet density data text	0	0.25	6	5	X						
B-WETD-GRID-MAJR	Wet density major grid	0	0.25	1	3	X						
B-WETD-GRID-MINR	Wet density minor grid	1	0.18	8	9	X						

Discipline: Geotechnical  
 Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types						
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details	
<b>AIA Format</b>	<b>Level/Layer Description</b>											
B-WETD-GRID-TEXT	Wet density grid text	0	0.25	2	4	X						
<b>Sections</b>												
B-SECT-IDEN	Component identification numbers	0	0.35	2	4						X	
B-SECT-MBND	Material beyond section cut	0	0.18	5	1						X	
B-SECT-MCUT	Material cut by section	V	V	V	V						X	
B-SECT-PATT	Textures and hatch patterns	0	0.18	8	9						X	
B-SECT-SLOG	Stick log graphics	0	0.35	3	2						X	
B-SECT-STRA	Stratigraphy	0	0.18	8	9						X	
<b>Detail Information</b>												
B-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V							X

Note: V = Varies, NA = Not Applicable

\* = Check to see if a Civil Joint Layout Plan has been developed, to avoid duplication



Discipline: Civil  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types													
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
<b>General Information</b>																			
C-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Alignments</b>																			
C-ALGN-DATA	Alignment coordinates and curve data	0	0.35	3	2	X	X			X			X	X	X				
C-ALGN-LINE	Alignments	4	0.35	2	4	X	X	X	X	X	X		X	X	X				
C-ALGN-MAJR	Alignment major stationing and tick marks	0	0.35	1	3	X	X			X			X	X					
C-ALGN-MARK	Alignment tick marks	0	0.35	3	2	X	X					X	X	X	X				
C-ALGN-MINR	Alignment minor stationing and tick marks	0	0.18	6	5	X	X			X			X	X					
C-ALGN-STAT	Alignment stationing and tick marks, alignment PI stations	0	0.35	3	2	X	X			X			X	X	X				
C-ALGN-SYMB	Alignment symbols (PIs)	0	0.35	6	5	X	X			X			X	X	X				
C-ALGN-TEXT	Alignment text, annotation with associated leaders	0	0.35	2	4	X	X	X	X	X	X		X	X	X				
<b>Aprons</b>																			
C-APRN-CNTR	Apron centerlines	7	0.25	1	3								X						
C-APRN-CNTR-IDEN	Apron centerline annotation	0	0.35	2	4								X						
C-APRN-GRND	Grounding points	0	0.35	2	4								X						
C-APRN-HOLD	Holding position markings	0	0.25	1	3								X						
C-APRN-IDEN	Airfield apron - annotation	0	0.35	2	4								X		X			X	
C-APRN-MOOR	Mooring points	0	0.35	2	4								X						
C-APRN-MRKG	Apron markings	0	0.50	4	7								X						
C-APRN-OTLN	Airfield apron - outlines	0	0.50	4	7								X		X			X	
C-APRN-SECU	Security zone markings	0	0.25	1	3								X						
C-APRN-SHLD	Shoulders with annotation	0	0.35	2	4								X						
C-APRN-SHLD-MRKG	Shoulder stripes	0	0.35	2	4								X						
<b>Beach Renourishment</b>																			
C-BECH-BANK-TOP-	Beach top of bank	0	0.25	6	5			X	X										
C-BECH-BKLN	Beach breakline	2	0.35	5	1			X	X										
C-BECH-BLIN	Beach baseline and control line	0	0.50	4	7			X	X										
C-BECH-BLIN-IDEN	Beach baseline and control line annotation	0	0.25	4	7			X	X										
C-BECH-BNCH	Beach bench	6	0.35	22	22			X	X										
C-BECH-CNTR	Beach centerline	7	0.25	5	1			X	X										
C-BECH-CNTR-IDEN	Beach centerline annotation	0	0.25	6	5			X	X										
C-BECH-ELIN	Beach erosion control line	0	0.50	4	7			X	X										
C-BECH-ELIN-IDEN	Beach erosion control line annotation	0	0.25	6	5			X	X										
C-BECH-LIMT	Beach limit lines	0	0.50	4	7			X	X										
C-BECH-OHWM	Ordinary high water marks	0	0.35	2	4			X	X										
C-BECH-OTLN	Beach outline	0	0.25	2	4			X	X										
C-BECH-SLOP-IDEN	Beach slope indicator with annotation	0	0.25	7	0			X	X										
C-BECH-SLOP-TOP-	Beach top of slope	2	0.35	22	22			X	X										
C-BECH-SYMB	Beach symbols	0	0.18	6	5			X	X										
C-BECH-TOE-	Beach toe	3	0.50	5	1			X	X										
C-BECH-TOE-IDEN	Beach toe annotation	0	0.25	7	0			X	X										
<b>Buildings and Primary Structures</b>																			
C-BLDG-DECK	Outdoor decks (attached, no roof overhead)	0	0.50	4	7	X	X	X	X	X	X								
C-BLDG-DOCK	Loading docks	0	0.50	4	7	X	X	X	X	X	X								

Discipline: Civil  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types													
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
<b>AIA Format</b>	<b>Level/Layer Description</b>																		
C-BLDG-FTPT	Building footprints	0	0.70	7	0	X	X	X	X	X	X					X		X	
C-BLDG-IDEN	Building and other structure annotation	0	0.35	2	4	X	X	X	X	X						X		X	
C-BLDG-OVHD	Building overhangs	0	0.50	4	7	X	X	X	X	X									
C-BLDG-PRCH	Porches (attached, roof overhead)	0	0.50	4	7	X	X	X	X	X									
<b>Borrow Areas</b>																			
C-BORW-IDEN	Borrow/spoil area annotation	0	0.35	2	4	X	X		X	X	X								
C-BORW-LINE	Borrow/spoil area	2	0.35	2	4	X	X		X	X	X								
<b>Bridges</b>																			
C-BRDG-CHRD-LOW-	Low chord	0	0.50	4	7											X		X	
C-BRDG-CNTR	Bridge centerlines	7	0.25	1	3	X				X	X	X							
C-BRDG-CTLJ	Control joints	0	0.25	4	7	X				X	X	X							
C-BRDG-DECK	Bridge deck	0	0.50	4	7	X				X	X	X				X		X	
C-BRDG-IDEN	Bridge annotation	0	0.35	2	4	X				X	X	X							
C-BRDG-OTLN	Bridge outlines	0	0.50	4	7	X				X	X	X							
C-BRDG-RLG-	Bridge railing	0	0.25	4	7	X				X	X	X				X		X	
<b>Channels</b>																			
C-CHAN-BANK-IDEN	Channel/canal top of bank annotation	0	0.35	2	4	X				X	X								
C-CHAN-BANK-TOP-	Channel/canal top of bank	0	0.35	2	4	X				X	X					X		X	
C-CHAN-BNCH	Channel/canal bench design feature lines (breaklines form DTMs)	0	0.35	2	4	X				X	X					X		X	
C-CHAN-BWTR	Breakwaters	0	0.35	6	5	X				X	X								
C-CHAN-CNTR	Channel centerline and survey report lines	7	0.25	5	1	X				X	X					X		X	
C-CHAN-CNTR-IDEN	Channel centerline and survey report lines - annotation	0	0.35	5	1	X				X	X								
C-CHAN-DACL	De-authorized channel limits, anchorages, etc.	0	0.35	3	2	X				X	X								
C-CHAN-DACL-IDEN	De-authorized channel limits, anchorages, etc. - annotation	0	0.35	3	2	X				X	X								
C-CHAN-DOCK	Docks, decks, floats, piers, and mooring facilities	0	0.35	6	5	X				X	X								
C-CHAN-LIMIT	Channel limits, anchorages, turning basins, disposal areas, etc.	0	0.35	6	5	X				X	X								
C-CHAN-LIMIT-IDEN	Channel limits, anchorages, turning basins, disposal areas, etc. - annotation	0	0.35	6	5	X				X	X								
C-CHAN-NAID	Navigation aids and text	0	0.35	V	V	X			X	X	X								
C-CHAN-SLOP-LINE	Channel cut/fill slope (Indicates cut and fill lines)	0	0.35	2	4	X			X	X									
C-CHAN-SPOL	Spoil limits	0	0.50	4	7	X				X	X								
C-CHAN-SYMB	Channel/canal symbols	0	0.35	6	5	X				X	X								
C-CHAN-TEXT	Channel/canal text, annotation with associated leaders	0	0.35	2	4	X				X	X								
C-CHAN-TOE-	Channel/canal toe	3	0.50	5	1	X				X	X					X		X	
C-CHAN-TOE--IDEN	Channel/canal toe annotation	0	0.35	6	5	X				X	X								
C-CHAN-TURN	Turning points	0	0.35	2	4	X				X	X								
C-CHAN-WIDE	Channel/canal widener	3	0.50	4	7	X				X	X								
<b>Domestic Water</b>																			
C-DOMW-DEVC	Connectors, faucets, reducers, regulators, vents, intake points, taps, backflow preventers, and valves	0	0.35	6	5					X	X					X			
C-DOMW-FIRE	Fire lines	FIRE	0.35	1	3					X	X					X			
C-DOMW-FTTG	Caps, cleanouts, crosses, and tees	0	0.35	6	5					X	X					X			
C-DOMW-HYDT	Hydrants	0	0.35	1	3	X				X	X					X	X	X	
C-DOMW-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4	X				X	X					X	X	X	
C-DOMW-MAIN-PIPE	Main domestic water piping	WATERL	0.35	6	5	X				X	X					X	X	X	
C-DOMW-METR	Meters	0	0.35	3	2					X	X					X			
C-DOMW-NPW--HYDT	Non-potable hydrants/flushing hydrants	0	0.35	1	3					X	X					X			
C-DOMW-NPW--PIPE	Non-potable water piping	NONPOT	0.35	6	5					X	X					X			
C-DOMW-PITS-VENT	Vent pits	0	0.35	3	2					X	X					X			
C-DOMW-PITS-VALV	Valve pits/vaults	0	0.35	3	2	X				X	X					X	X	X	
C-DOMW-SERV-PIPE	Domestic water service piping	0	0.35	6	5					X	X					X			
C-DOMW-SIGN	Surface markers/signs	0	0.35	1	3					X	X					X			
C-DOMW-STNS-PUMP	Booster pump stations	0	0.35	6	5	X				X	X					X			
C-DOMW-STNS-REDC	Pressure reducing stations	0	0.35	6	5	X				X	X					X			
C-DOMW-TANK	Water storage tanks	0	0.35	1	3	X				X	X					X			

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Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types													
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
<b>AIA Format</b>																			
C-DOMW-WELL	Water well houses	0	0.35	1	3	X													
<b>Dredging</b>																			
C-DRED-IDEN	Dredging annotation	0	0.35	2	4	X													
C-DRED-LIMIT	Dredge limit lines	0	0.50	4	7	X			X	X	X								
C-DRED-OHWM	Ordinary high water marks	0	0.35	2	4	X			X	X	X								
<b>Ditches or Washes</b>																			
C-DTCH-BOTM	Bottom of ditch or wash	6, DITCH	0.25	5	1	X					X								
C-DTCH-CNTR	Centerline of ditch or wash	7	0.25	5	1	X					X								
C-DTCH-EWAT	Edge of water	0	0.25	4	7	X					X								
C-DTCH-IDEN	Ditches and washes annotation	0	0.35	3	2	X					X								
C-DTCH-TOP~	Top of ditch or wash	0	0.25	3	2	X					X								
<b>Habitats/Landforms</b>																			
C-ECCO-BURR	Burrow	0	0.50	4	7			X											
C-ECCO-DENS	Den	0	0.50	4	7			X											
C-ECCO-GATR	Gator hole	2	0.35	6	5			X											
C-ECCO-HUMK	Hummocks	0	0.35	6	5			X											
C-ECCO-IDEN	Habitat annotation	0	0.35	2	4			X											
C-ECCO-NEST	Nest, nesting tree	0	0.50	4	7			X											
C-ECCO-PRCH	Perch/nesting hole	0	0.50	4	7			X											
<b>Erosion and Sediment Control (Temporary/Construction)</b>																			
C-EROS-CIPR	Culvert inlet protection	V	0.25	3	2	X	X				X								
C-EROS-CNTE	Construction entrance	V	0.35	6	5	X	X				X								
C-EROS-DDIV	Drainage divides	0	0.50	4	7	X	X				X								
C-EROS-DVDK	Diversion dike	0	0.50	4	7	X	X				X								
C-EROS-IDEN	Erosion and sediment control annotation	0	0.35	3	2	X	X				X								
C-EROS-INPR	Inlet protection	V	0.25	3	2	X	X				X								
C-EROS-SILT	Silt fence	SILT	0.35	2	4	X	X				X								
C-EROS-SILT-CHCK	Silt check	0	0.35	2	4	X	X				X								
C-EROS-SILT-TRAP	Silt trap	0	0.35	2	4	X	X				X								
C-EROS-SSLT	Super silt fence	SSILT	0.35	2	4	X	X				X								
<b>Flood Hazard Area</b>																			
C-FLHA-025Y	25 year mark	6	0.35	6	5	X					X								
C-FLHA-050Y	50 year mark	3	0.35	2	4	X					X								
C-FLHA-100Y	100 year mark	0	0.35	6	5	X					X								
C-FLHA-200Y	200 year mark	2	0.35	2	4	X					X								
C-FLHA-500Y	500 year mark	7	0.35	6	5	X					X								
C-FLHA-IDEN	Flood hazard area annotation	0	0.35	2	4	X					X								
<b>Floodwalls</b>																			
C-FLOD-BASE	Floodwall base of wall	0	0.50	20	6	X					X								
C-FLOD-BASE-IDEN	Floodwall base of wall annotation	0	0.35	20	6	X					X								
C-FLOD-CNTR	Floodwall centerline	7	0.25	20	6	X					X								X
C-FLOD-CNTR-IDEN	Floodwall centerline annotation	0	0.35	20	6	X					X								X
C-FLOD-DRNS	Floodwall toe drain	0	0.35	6	5	X					X					X			X
C-FLOD-DRNS-IDEN	Floodwall toe drain annotation	0	0.35	6	5	X					X					X			X
C-FLOD-PILE	Floodwall sheet piling	0	0.50	22	22	X					X					X			X
C-FLOD-PILE-IDEN	Floodwall sheet piling annotation	0	0.35	22	22	X					X					X			X
C-FLOD-TOE~	Floodwall toe outline	0	0.35	4	7	X					X					X			X
C-FLOD-TOP~	Floodwall top of wall	0	0.50	2	4	X					X					X			X
C-FLOD-TOP--IDEN	Floodwall top of wall annotation	0	0.35	20	6	X					X					X			X
<b>Liquid Fuel</b>																			
C-FUEL-BERM	Berms for retaining fuel in case of major tank/line rupture	0	0.35	6	5											X			
C-FUEL-DEFL-PIPE	Defueling piping	0	0.35	6	5											X			

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<b>AIA Format</b>	<b>Level/Layer Description</b>																		
C-FUEL-DEVC	Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves	0	0.35	6	5									X					
C-FUEL-FLOW	Flow direction arrows	0	0.35	6	5									X					
C-FUEL-FTTG	Caps, crosses, and tees	0	0.35	6	5									X					
C-FUEL-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4	X				X				X	X			X	
C-FUEL-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.35	1	3									X					
C-FUEL-MAIN-PIPE	Main fuel piping	LIQPET	0.35	6	5	X				X				X	X			X	
C-FUEL-METR	Meters	0	0.35	3	2									X					
C-FUEL-PITS-HYDT	Hydrant control pits	0	0.35	3	2	X				X				X	X			X	
C-FUEL-PITS-VENT	Vent pits	0	0.35	3	2									X					
C-FUEL-PITS-VALV	Valve pits	0	0.35	3	2	X				X				X	X			X	
C-FUEL-SERV-PIPE	Service piping	0	0.35	6	5									X					
C-FUEL-STNS-PUMP	Booster pump stations	0	0.35	6	5									X					
C-FUEL-TANK	Fuel tanks	0	0.35	3	2	X				X				X	X			X	
C-FUEL-TRCH	Fuel line trench	0	0.35	3	2									X					
<b>Grade Linework</b>																			
C-GRAD-ALOW	Allowable over depth	0	0.35	6	5					X								X	
C-GRAD-BNCH	Bench cut	0	0.35	6	5											X		X	
C-GRAD-DSGN	Design grade (proposed)	0	0.35	3	2	X		X	X	X	X				X			X	
C-GRAD-EXCV	Excavation grade	0	0.50	4	7										X			X	
C-GRAD-EXST	Existing grade, ground line	3	0.35	6	5	X		X	X	X	X				X	X		X	
C-GRAD-FNSH	Finished grade	0	0.50	4	7	X				X	X				X			X	
C-GRAD-FNSH-PRP1	Proposed Surface #1	0	0.35	8	9	X				X	X				X			X	
C-GRAD-FNSH-PRP2	Proposed Surface #2	0	0.35	8	9	X				X	X				X			X	
C-GRAD-FNSH-PRP3	Proposed Surface #3	0	0.35	8	9	X				X	X				X			X	
C-GRAD-FNSH-PRP4	Proposed Surface #4	0	0.35	8	9	X				X	X				X			X	
C-GRAD-GTXL	Geotextile placement grade	0	0.25	1	3	X				X	X				X			X	
C-GRAD-IDEN	Grade annotation for cross sections and profiles	0	0.35	2	4	X				X	X				X			X	
C-GRAD-REQD	Required depth	0	0.35	6	5					X								X	
C-GRAD-SCLN	Stability control line	7	0.50	5	1	X				X	X				X			X	
C-GRAD-WATR	Water surface in section view	0	0.35	2	4	X				X	X				X			X	
<b>Grid Lines</b>																			
C-GRID-FRAM	Frame	0	0.50	4	7											X		X	
C-GRID-MAJR	Major grid lines	1	0.35	8	9											X		X	
C-GRID-MINR	Minor grid lines	1	0.18	8	9											X		X	
C-GRID-TEXT	Border text, annotation	1	0.35	2	4											X		X	
<b>Heliports</b>																			
C-HELI-BLST	Blast pad and stopway markings	0	0.35	1	3									X		X		X	
C-HELI-CNTR	Centerline markings	0	0.35	1	3									X					
C-HELI-DISP	Displaced threshold markings	0	0.35	1	3									X					
C-HELI-DIST	Fixed distance markings	0	0.35	1	3									X					
C-HELI-IDEN	Heliport numbers and letters	0	0.35	2	4									X		X		X	
C-HELI-SHLD	Shoulder markings	0	0.35	6	5									X					
C-HELI-SIDE	Side stripes	0	0.50	4	7									X					
C-HELI-TDZM	Touchdown zone markers	0	0.35	6	5									X					
C-HELI-THRS	Threshold markers	0	0.35	6	5									X					
<b>Industrial Waste Water</b>																			
C-INDW-DEVC	Grit chambers, meters, flumes, neutralizers, oil/water separators, ejectors, tanks, and valves	0	0.35	6	5										X				
C-INDW-FLOW	Flow direction arrows	0	0.35	6	5										X				
C-INDW-FTTG	Caps and cleanouts	0	0.35	6	5										X				
C-INDW-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4	X				X	X				X	X		X	
C-INDW-JBOX	Junction boxes and manholes	0	0.35	1	3										X				
C-INDW-LAGN	Lagoons	0	0.35	6	5										X				

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<b>AIA Format</b>	<b>Level/Layer Description</b>																		
C-INDW-MAIN-PIPE	Main industrial waste water piping	IWASTE	0.35	6	5	X									X	X		X	
C-INDW-PLNT	Treatment plants	0	0.35	6	5										X				
C-INDW-SERV-PIPE	Industrial waste water service piping	0	0.35	1	3										X				
C-INDW-SIGN	Surface markers/signs	0	0.35	1	3										X				
C-INDW-STNS-LIFT	Lift stations	0	0.35	6	5										X				
<b>Irrigation</b>																			
C-IRRG-EQPM	Irrigation equipment (e.g., controllers, valves, etc.)	0	0.35	6	5	X		X							X				
C-IRRG-IDEN	Irrigation annotation	0	0.35	2	4	X	X								X	X	X	X	X
C-IRRG-PIPE	Irrigation piping	0	0.35	6	5	X		X							X	X	X	X	X
C-IRRG-WELL	Irrigation wells	0	0.25	3	2										X				
<b>Joints</b>																			
C-JNTS-CNSL	Construction joints - longitudinal	0	0.35	6	5							X							
C-JNTS-CNST	Construction joints - transverse	0	0.35	6	5							X							
C-JNTS-CNTL	Contraction joints - longitudinal	0	0.35	2	4							X							
C-JNTS-CNTT	Contraction joints - transverse	0	0.35	2	4							X							
C-JNTS-EDGE	Thickened edges	0	0.35	4	7							X							
C-JNTS-EXPJ	Expansion joints	0	0.35	12	27							X							
C-JNTS-IDEN	Joint annotation	0	0.35	2	4							X							
<b>Levees</b>																			
C-LEVE-BANK-IDEN	Levee top of bank annotation	0	0.25	20	6	X			X	X									
C-LEVE-TOPB	Levee top of bank	0	0.35	2	4	X			X	X					X			X	
C-LEVE-BERM	Levee berm outline	0	0.35	6	5	X			X	X					X			X	
C-LEVE-BNCH	Levee bench design feature lines (breaklines form DTMs)	0	0.35	20	6	X			X	X					X			X	
C-LEVE-BNCH-IDEN	Levee bench annotation	0	0.25	2	4	X			X	X								X	
C-LEVE-BRRW	Borrow limits	0	0.50	4	7	X			X	X								X	
C-LEVE-CNTR	Levee centerline	7	0.25	20	6	X			X	X					X			X	
C-LEVE-CNTR-IDEN	Levee centerline annotation	0	0.35	20	6	X			X	X								X	
C-LEVE-IDEN	Levee annotation	0	0.35	2	4	X			X	X								X	
C-LEVE-OTLN	Levee outline	0	0.50	4	7	X			X	X								X	
C-LEVE-SLOP	Levee slope indicator with annotation	0	0.35	2	4	X			X	X								X	
C-LEVE-STAN	Levee stationing	0	0.35	2	4	X			X	X								X	
C-LEVE-TOE~	Levee toe	2	0.35	20	6	X			X	X					X			X	
C-LEVE-TOE--IDEN	Levee toe annotation	0	0.25	20	6	X			X	X								X	
<b>Military Ranges</b>																			
C-MILR-BATP	Battle positions	0	0.50	4	7	X													
C-MILR-CAMS	Range cameras	0	0.35	6	5	X													
C-MILR-FOXH	Fox holes and pits	0	0.35	6	5	X													
C-MILR-MATS	Moving army targets	0	0.50	4	7	X													
C-MILR-MITS	Moving infantry targets	0	0.50	4	7	X													
C-MILR-MITS-IDEN	Moving infantry targets annotation	0	0.35	2	4	X													
C-MILR-PUTS	Pop up targets	0	0.50	4	7	X													
C-MILR-PUTS-IDEN	Pop up targets annotation	0	0.35	2	4	X													
C-MILR-SATS	Stationary army targets	0	0.50	4	7	X													
C-MILR-SATS-IDEN	Stationary army targets annotation	0	0.35	2	4	X													
C-MILR-SITS	Stationary infantry targets	0	0.50	4	7	X													
C-MILR-SITS-IDEN	Stationary infantry targets annotation	0	0.35	2	4	X													
<b>Natural Gas</b>																			
C-NGAS-EQPM	Equipment (pumps, motors, etc.)	0	0.35	6	5										X				
C-NGAS-FLOW	Flow direction arrows	0	0.35	6	5										X				
C-NGAS-FTTG	Caps, crosses, and tees	0	0.35	6	5										X				
C-NGAS-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4	X			X						X	X		X	
C-NGAS-INST	Instrumentation (meters, valves, etc.)	0	0.35	3	2										X				
C-NGAS-MHOL	Manholes	0	0.35	6	5	X			X						X	X		X	

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<b>AIA Format</b>																			
C-NGAS-PIPE	Natural gas piping	NTGASN	0.35	6	5	X									X	X			X
C-NGAS-PITS-VENT	Vent pits	0	0.35	3	2										X				
C-NGAS-PITS-VALV	Valve pits/boxes	0	0.35	3	2	X									X	X			X
C-NGAS-SIGN	Surface markers/signs	0	0.35	1	3										X				
C-NGAS-STNS-PUMP	Compressor stations	0	0.35	6	5										X				
C-NGAS-STNS-REDC	Reducing stations	0	0.35	6	5										X				
C-NGAS-TANK	Tanks	0	0.25	3	2	X									X				
<b>Obstructions</b>																			
C-OBST-AIRS	Airspace obstructions	0	0.35	3	2														
C-OBST-AIRS-IDEN	Obstruction annotation	0	0.35	2	4									X					
<b>Overrun Areas</b>																			
C-OVRN-CNTR	Centerlines	7	0.25	1	3									X					
C-OVRN-CNTR-IDEN	Centerline annotation	0	0.35	2	4									X					
C-OVRN-IDEN	Airfield overrun area - annotation	0	0.35	2	4									X		X			X
C-OVRN-OTLN	Airfield overrun area - outlines	0	0.35	4	7									X		X			X
C-OVRN-SHLD-MRKG	Shoulder markings	0	0.35	4	7									X					
<b>Pads (Arm/Disarm/Calibration, etc.)</b>																			
C-PADS-CNTR	Centerlines	7	0.25	1	3									X					
C-PADS-CNTR-IDEN	Centerline annotation	0	0.35	2	4									X					
C-PADS-IDEN	Pads - annotation	0	0.35	2	4									X		X			X
C-PADS-OTLN	Pad - outlines	0	0.35	4	7									X		X			X
C-PADS-SHLD	Shoulders with annotation	0	0.25	2	4									X					
<b>Parking Lots</b>																			
C-PRKG-CARS	Graphic illustration of cars	0	0.35	2	4	X				X	X								
C-PRKG-CNTR	Parking lot centerlines	7	0.25	1	3	X				X	X								
C-PRKG-CNTR-IDEN	Parking lot centerline annotation	0	0.25	1	3	X				X	X								
C-PRKG-CURB	Curbs and gutters	0	0.35	3	2	X				X	X								
C-PRKG-DRAN	Drainage slope indications	0	0.35	1	3	X				X	X								
C-PRKG-FIXT	Parking lot fixtures (e.g., wheel stops, parking meters)	0	0.35	91	106	X				X	X								
C-PRKG-FLNE	Fire lanes	0	0.25	1	3	X				X	X								
C-PRKG-IDEN	Parking lot annotation	0	0.35	6	5	X				X	X					X			X
C-PRKG-MRKG	Pavement markings	0	0.35	2	4	X				X	X								
C-PRKG-OTLN	Parking lot outlines	0	0.50	4	7	X				X	X					X			X
C-PRKG-SIGN	Signs	0	0.35	2	4	X				X	X								
<b>Property</b>																			
C-PROP-CONS	Construction limits/controls, staging area	CONLMT	0.70	7	0	X				X	X								X
C-PROP-ESMT	Easements	CONEMT	0.70	7	0	X				X	X								X
C-PROP-IDEN	Property annotation	0	0.35	6	5	X				X	X								X
C-PROP-LINE	Property lines	PROPL	0.50	2	4	X				X	X								X
C-PROP-RWAY	Right of ways	6	0.70	7	0	X				X	X								X
C-PROP-RWAY-ACQU	Right of way to be acquired in perpetuity	0	0.70	7	0	X				X	X								X
C-PROP-SBCK	Setback lines	3	0.25	7	0	X				X	X								X
C-PROP-SECT	Section lines	7	0.50	6	5	X				X	X								X
C-PROP-SECT-IDEN	Section lines annotation	0	0.35	6	5	X				X	X								X
C-PROP-TSHP	Township/range lines	4	0.50	6	5	X				X	X								
C-PROP-TSHP-IDEN	Township/range lines annotation	0	0.35	6	5	X				X	X								
<b>Pavements</b>																			
C-PVMT-ASPH	Pavement pattern - asphalt	0	0.18	8	9	X				X	X	X		X					
C-PVMT-CONC	Pavement pattern - concrete	0	0.18	8	9	X				X	X	X		X					
C-PVMT-GRVL	Pavement pattern - gravel	0	0.18	8	9	X				X	X	X		X					
C-PVMT-IDEN	Road, parking lot, railroad, airfield pavement annotation	0	0.25	2	4	X				X	X			X		X			X
C-PVMT-MRKG	Pavement markings	0	0.35	2	4	X				X	X	X							
C-PVMT-PATT	Joint patterns, text and dimensions	0	0.18	8	9	X				X	X		X						

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types													
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
AIA Format	Level/Layer Description																		
<b>Railroads</b>																			
C-RAIL-CNTR	Railroad track centerlines	7	0.25	1	3														
C-RAIL-CNTR-IDEN	Railroad track centerline annotation	0	0.35	1	3														
C-RAIL-EQPM	Railroad equipment (e.g., gates, signals)	0	0.35	91	106														
C-RAIL-IDEN	Railroad - annotation	0	0.35	6	5														
C-RAIL-TRAK	Railroad tracks	RAILRD	0.35	2	4														
<b>Rivers</b>																			
C-RIVR-BOTM	River bottom	0	0.35	5	1														
C-RIVR-CNTR	Centerline of river	7	0.25	1	3														
C-RIVR-EDGE	River edge	0	0.50	5	1														
C-RIVR-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4														
C-RIVR-TOPB	Top of river bank	0	0.35	5	1														
<b>Roads, Streets, and Highways</b>																			
C-ROAD-ASPH	Road outlines - asphalt surface	0	0.25	8	9														
C-ROAD-CNTR	Road centerlines	7	0.25	1	3														
C-ROAD-CNTR-IDEN	Road centerline annotation	0	0.25	1	3														
C-ROAD-CONC	Road outlines - concrete surface	0	0.25	7	0														
C-ROAD-CURB	Curbs and gutters	0	0.35	6	5														
C-ROAD-GRAL	Guard rails	GUARD	0.35	6	5														
C-ROAD-GRVL	Road outlines - gravel surface	0	0.25	20	6														
C-ROAD-IDEN	Road, street, highway annotation	0	0.35	6	5														
C-ROAD-MRKG	Pavement markings	0	0.35	2	4														
C-ROAD-PATT	Joint patterns, text and dimensions	0	0.18	8	9														
C-ROAD-SHLD	Roadway shoulder	0	0.35	6	5														
C-ROAD-SIGN	Signs	0	0.25	1	3														
C-ROAD-UPVD	Road outlines - unpaved surface	0	0.25	3	2														
<b>Riprap and Other Permanent Erosion Control Items</b>																			
C-RRAP-GABN	Gabions	V	0.25	1	3														
C-RRAP-MATS	Articulated concrete mats	V	0.25	3	2														
C-RRAP-RVMT	Revetments	V	0.25	1	3														
C-RRAP-WEIR	Weirs	V	0.25	3	2														
<b>Runways</b>																			
C-RUNW-BLST	Blast pad and stopway markings	0	0.35	1	3														
C-RUNW-CNTR	Centerlines	7	0.25	1	3														
C-RUNW-CNTR-MRKG	Centerline markings	0	0.35	1	3														
C-RUNW-DISP	Displaced threshold markings	0	0.35	1	3														
C-RUNW-DIST	Fixed distance markings	0	0.35	1	3														
C-RUNW-EDGE	Airfield runway edges	0	0.35	6	5														
C-RUNW-IDEN	Airfield runway annotation	0	0.35	2	4														
C-RUNW-SHLD	Shoulder markings	0	0.35	6	5														
C-RUNW-SIDE	Side stripes	0	0.35	4	7														
C-RUNW-TDZM	Touchdown zone markers	0	0.35	6	5														
C-RUNW-THRS	Threshold markers	0	0.35	6	5														
<b>Site Features</b>																			
C-SITE-BLIN	Site breakline	2	0.35	3	2														
C-SITE-FENC	Fences and handrails	FENCE	0.35	6	5														
C-SITE-FENC-IDEN	Fence, handrail, ramp, and trail annotation	0	0.35	6	5														
C-SITE-IDEN	Site feature annotation	0	0.35	6	5														
C-SITE-STRC	Structures (bridges, sheds, foundation pads, footings, etc.)	0	0.35	22	22														
C-SITE-STRS	Stairs and ramps	0	0.35	6	5														
C-SITE-WALK	Walks, trails and bicycle paths	0	0.35	2	4														
<b>Sanitary Sewer</b>																			
C-SSWR-DEVC	Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves	0	0.35	6	5														

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types													
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
<b>AIA Format</b>	<b>Level/Layer Description</b>																		
C-SSWR-FILT	Filtration beds	0	0.35	3	2									X	X			X	
C-SSWR-FLOW	Flow direction arrows	0	0.35	6	5									X	X			X	
C-SSWR-FTTG	Caps and cleanouts	0	0.35	6	5									X	X			X	
C-SSWR-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4					X	X			X	X			X	
C-SSWR-JBOX	Junction boxes and manholes	0	0.35	1	3									X	X			X	
C-SSWR-LAGN	Lagoons	0	0.35	3	2									X	X			X	
C-SSWR-LEAC	Leach field	0	0.35	3	2									X	X			X	
C-SSWR-MAIN-PIPE	Sanitary sewer piping	SSWAF	0.35	6	5					X	X			X	X			X	
C-SSWR-NITF	Nitrification drain fields	0	0.35	3	2									X	X			X	
C-SSWR-PLNT	Treatment plants	0	0.35	6	5									X	X			X	
C-SSWR-SERV-PIPE	Sanitary sewer service piping	0	0.35	1	3									X	X			X	
C-SSWR-SIGN	Surface markers/signs	0	0.35	1	3									X	X			X	
C-SSWR-STNS-PUMP	Booster pump stations	0	0.35	6	5									X	X			X	
C-SSWR-TANK	Septic tanks	0	0.35	3	2					X	X			X	X			X	
<b>Storm Sewer</b>																			
C-STRM-AFFF	AFFF lagoon/detention pond	0	0.35	3	2									X	X			X	
C-STRM-CHUT	Chutes and concrete erosion control structures	0	0.35	1	3									X	X			X	
C-STRM-CULV	Culverts	CULVRT	0.35	3	2									X	X			X	
C-STRM-DEVC	Downspouts, flumes, oil/water separators, and flap gates	0	0.35	6	5									X	X			X	
C-STRM-FLOW	Flow direction arrows	0	0.35	6	5									X	X			X	
C-STRM-FMON	Flow monitoring station	0	0.35	6	5									X	X			X	
C-STRM-FTTG	Caps and cleanouts	0	0.35	6	5									X	X			X	
C-STRM-HWAL	Headwalls and endwalls	0	0.50	7	0									X	X			X	
C-STRM-IDEN	Identifier tags, symbol modifier, and text	0	0.35	2	4									X	X			X	
C-STRM-INLT	Inlets (curb, surface, and catch basins)	0	0.35	3	2									X	X			X	
C-STRM-MAIN-PIPE	Storm sewer piping	STRAF	0.35	6	5					X	X			X	X			X	
C-STRM-MHOL	Manholes	0	0.35	1	3									X	X			X	
C-STRM-POND	Retention ponds, lagoons, watersheds, and basins	0	0.35	3	2									X	X			X	
C-STRM-ROOF	Roof drain line	0	0.35	3	2									X	X			X	
C-STRM-SERV-PIPE	Storm sewer service piping	0	0.35	1	3									X	X			X	
C-STRM-SIGN	Surface markers/signs	0	0.35	1	3									X	X			X	
C-STRM-STNS-PUMP	Pump stations	0	0.35	6	5					X				X	X			X	
C-STRM-SUBS-PIPE	Subsurface drain piping	0	0.35	3	2									X	X			X	
<b>Survey</b>																			
C-SURV-DATA	Survey data (benchmarks and horizontal control points or monuments)	0	0.35	6	5									X					
C-SURV-IDEN	Survey, baseline, and control line annotation	0	0.35	6	5					X	X								
C-SURV-LINE	Survey, baseline, and control lines	2	0.35	4	7					X	X	X							
<b>Taxiways</b>																			
C-TAXI-CNTR	Centerlines	7	0.25	1	3									X					
C-TAXI-CNTR-IDEN	Centerline annotation	0	0.35	2	4									X					
C-TAXI-CNTR-MRKG	Centerline markings	0	0.25	1	3									X					
C-TAXI-EDGE	Edge markings	0	0.35	4	7									X					
C-TAXI-HOLD	Holding lines	0	0.35	2	4									X					
C-TAXI-IDEN	Taxiway - annotation	0	0.35	2	4									X		X		X	
C-TAXI-OTLN	Taxiway - outlines	0	0.35	4	7									X		X		X	
C-TAXI-SHLC	Shoulders with annotation	0	0.35	2	4									X					
<b>Topography</b>																			
C-TOPO-BNDY-EXTR	Surface exterior boundary	0	0.18	3	2									X					
C-TOPO-BNDY-INTR	Surface interior boundary	2	0.18	1	3									X					
C-TOPO-BKLN	Breaklines	4	0.50	7	0									X					
C-TOPO-BKLN-COMM	Subsurface utilities communications breakline	COMUGN	0.50	7	0									X					
C-TOPO-BKLN-DOMW	Subsurface utilities water breakline	WATERL	0.50	7	0									X					
C-TOPO-BKLN-ELEC	Subsurface utilities electric breakline	EPUGN	0.50	7	0									X					



Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-TOPO-BKLN-FUEL	Subsurface utilities liquid fuel breakline	LIQPET	0.50	7	0	X			X	X	X								
C-TOPO-BKLN-NGAS	Subsurface utilities natural gas breakline	NTGASN	0.50	7	0	X			X	X	X								
C-TOPO-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	SSWAF	0.50	7	0	X			X	X	X								
C-TOPO-BKLN-STRM	Subsurface utilities storm sewer breakline	STRAF	0.50	7	0	X			X	X	X								
C-TOPO-BORE	Boring locations and text	0	0.35	6	5	X	X	X	X	X	X								
C-TOPO-COOR	Coordinate grid text annotation	0	0.35	122	23	X	X		X	X									
C-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.25	3	2	X	X		X	X									
C-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.25	3	2	X	X		X	X									
C-TOPO-COOR-UTM	UTM coordinate ticks	0	0.25	3	2	X	X		X	X									
C-TOPO-DTMO	DTM obscure area boundary	0	0.35	6	5	X	X	X	X	X	X			X					
C-TOPO-DTMP	DTM points	0	0.35	6	5	X	X	X	X	X	X			X					
C-TOPO-DTMT	DTM triangles	0	0.35	22	22	X	X	X	X	X	X			X					
C-TOPO-MAJR	Major contours	0	0.35	2	4	X	X	X	X	X	X								
C-TOPO-MAJR-IDEN	Major contours - annotation	0	0.35	2	4	X	X	X	X	X	X								
C-TOPO-MINR	Minor contours	0	0.25	3	2	X	X	X	X	X	X								
C-TOPO-MINR-IDEN	Minor contours - annotation	0	0.25	3	2	X	X	X	X	X	X								
C-TOPO-SHAP	Application generated shapes/lines	0	0.25	1	3	X	X	X	X	X	X	X	X	X	X				
C-TOPO-SHOR	Shorelines, land features, and references	0	0.35	4	7	X	X		X	X	X								
C-TOPO-SLOP-FILL	Cut/fill slopes	0	0.35	2	4	X	X		X	X	X								
C-TOPO-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.35	2	4	X	X		X	X	X								
C-TOPO-SLOP-TOPT	Top/toe slopes	0	0.35	6	5	X	X	X	X	X	X								
C-TOPO-SOUN	Soundings and overbanks	0	0.18	V	V	X	X		X	X	X								
C-TOPO-SPOT	Spot elevations	0	0.35	2	4	X	X	X	X	X	X		X						
C-TOPO-SURF-PERI	Surface perimeter	0	0.18	3	2	X	X	X		X	X	X		X					
C-TOPO-SURF-PONT	Surface feature points	0	0.25	7	0	X	X	X	X	X	X			X					
C-TOPO-SURF-VOID	Surface void region	0	0.18	1	3	X	X	X	X	X	X			X					
C-TOPO-WATR	Water level reference (LWRP, after-grading LWRP, SWL, etc.)	3	0.50	V	V	X	X		X	X	X								
<b>Airfield Traffic Areas</b>																			
C-TRAF-IDEN	Airfield traffic area annotation	0	0.35	2	4									X					
C-TRAF-TYPA	Type A traffic area	4	0.50	4	7									X					
C-TRAF-TYPB	Type B traffic area	6	0.50	4	7									X					
C-TRAF-TYPC	Type C traffic area	1	0.50	4	7									X					
<b>Wetlands</b>																			
C-WETL-BOGS	Bogs	0	0.35	6	5			X											
C-WETL-FENS	Fens	0	0.35	2	4			X											
C-WETL-IDEN	Wetland annotation	0	0.35	2	4			X											
C-WETL-MRSH	Fresh water marshes	0	0.35	162	33			X											
C-WETL-MRSH-SALT	Tidal saltwater marshes	0	0.35	162	33			X											
C-WETL-MRSH-TIDL	Tidal freshwater marsh	0	0.35	162	33			X											
C-WETL-PCSN	Pocosins	0	0.35	6	5			X											
C-WETL-PHOL	Vernal pools, playas, prairie potholes, wet meadows, and wet prairies	0	0.35	6	5			X											
C-WETL-RPRN	Riparian forested wetlands	0	0.35	162	33			X											
C-WETL-SLGH	Sloughs	0	0.35	162	33			X											
C-WETL-SWMP	Swamps	0	0.35	162	33			X											
<b>Elevations</b>																			
C-ELEV-IDEN	Component identification numbers	0	0.35	2	4	X			X		X							X	
C-ELEV-OTLN	Outlines	0	0.35	6	5	X			X		X							X	
C-ELEV-PATT	Textures and hatch patterns	0	0.18	8	9	X			X		X							X	
C-ELEV-SIGN	Signage	0	0.35	1	3	X			X		X							X	
<b>Sections</b>																			
C-SECT-IDEN	Component identification numbers	0	0.35	2	4														X
C-SECT-MBND	Material beyond section cut	0	0.18	5	1														X
C-SECT-MCUT	Cuts through road surfaces, buildings, structures, fence lines, etc.	V	V	V	V														X

Discipline: Civil  
 Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types														
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details	
C-SECT-PATT	Textures and hatch patterns	0	0.18	cc	cc														X	
<b>Details</b>																				
C-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V															X

Note: V = Varies, NA = Not Applicable

Discipline: Landscape

Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types		
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Landscape Plan	Irrigation Plan	Details
<b>AIA Format</b>	<b>Level/Layer Description</b>							
<b>General Information</b>								
L-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X
L-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X
L-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X
L-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X
L-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X
L-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X
L-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X
L-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X
L-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X
<b>Irrigation System</b>								
L-IRRG-COVR	Irrigation coverage, spray distribution patterns	0	0.18	5	1		X	
L-IRRG-EQPM	Equipment (e.g., controllers, valves, RPBPs, etc.)	0	0.35	6	5		X	
L-IRRG-HEAD	Irrigation heads, bubblers, and drip irrigation emitters	0	0.25	1	3		X	
L-IRRG-IDEN	Annotation	0	0.35	2	4		X	
L-IRRG-PIPE	Piping	LAWNSP	0.35	6	5		X	
L-IRRG-SPKL	Sprinklers	0	0.35	6	5		X	
<b>Plant and Landscape Material</b>								
L-PLNT-BEDS	Planting beds (perennial and annual beds)	0	0.35	6	5	X		
L-PLNT-BUSH	Bushes and shrubs (e.g., evergreen, deciduous, etc.)	0	0.50	83	42	X		
L-PLNT-BUSH-LINE	Bush and shrub line	0	0.50	83	42	X		
L-PLNT-CTNR	Containers or planters	0	0.25	1	3	X		
L-PLNT-GCVR	Groundcover and vines	0	0.35	82	18	X		
L-PLNT-IDEN	Annotation	0	0.35	6	5	X		
L-PLNT-MLCH	Mulches - organic and inorganic	0	0.25	3	2	X		
L-PLNT-PLNT	Planting plants (e.g., ornamental annuals and perennials)	0	0.50	83	42	X		
L-PLNT-SHAD	Shadow areas	0	0.18	5	1	X		
L-PLNT-SPRG	Sprigs	0	0.25	3	2	X		
L-PLNT-TREE	Trees (e.g., evergreen, deciduous, etc.)	0	0.50	83	42	X		
L-PLNT-TREE-LINE	Tree line	TREEL	0.50	83	42	X		
L-PLNT-TURF	Lawn areas (turfing limits)	0	0.50	23	46	X		
<b>Site Improvements</b>								
L-SITE-BRDG	Bridges (pedestrian)	0	0.35	22	22	X		
L-SITE-DECK	Decks	0	0.35	232	107	X		
L-SITE-FENC	Fencing	FENCE	0.35	2	4	X		
L-SITE-FURN	Furnishings	0	0.50	4	7	X		
L-SITE-IDEN	Annotation	0	0.35	6	5	X		
L-SITE-PLAY	Play structures	0	0.35	2	4	X		
L-SITE-POOL	Pools and spas	0	0.35	162	33	X		
L-SITE-ROCK	Boulders and cobble	0	0.25	1	3	X		
L-SITE-RTWL	Retaining walls	0	0.50	4	7	X		
L-SITE-SPRT	Sports fields	0	0.35	2	4	X		
L-SITE-SWLK	Sidewalks and steps	0	V	V	V	X		
<b>Detail Information</b>								
L-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V			X

Note: V = Varies, NA = Not Applicable

Discipline: Structural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types													
		Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Vertical Const		Bridges				Hydraulic Structures						3D Alignment	Sections
AIA Format	Level/Layer Description					Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures			
<b>General Information</b>																			
S-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-PATT	Patterning, poche, shading, and hatching	0	0.18	8	9	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X	X	X	X	X		
S-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X		
<b>Access</b>																			
S-ACCS-ADIT	Adits in galleries and passages	0	0.35	21	30							X	X		X				
S-ACCS-CHAM	Chambers	0	0.35	22	22							X	X		X				
S-ACCS-EVTR	Elevators	0	0.35	132	103		X												
S-ACCS-GLRY	Galleries, cross overs, trenches, etc.	0	0.35	30	86	X						X			X				
S-ACCS-HTCH	Hatches	0	0.25	32	102	X				X				X	X				
S-ACCS-LADD	Ladders and ladder safety devices	0	0.35	162	33	X	X		X	X	X	X	X	X	X	X			
S-ACCS-MHOL	Manholes	0	0.35	83	42				X	X				X	X				
S-ACCS-MISC	Miscellaneous access	0	0.35	83	42				X	X				X	X				
S-ACCS-STRS	Stairs	0	0.35	133	111	X			X	X	X	X	X	X					
S-ACCS-STRS-FRMG	Stair framing	0	0.35	135	127		X		X	X	X	X	X	X					
S-ACCS-TUNL	Tunnels	0	0.35	42	182	X			X		X	X	X	X					
<b>Alignment</b>																			
S-ALGN-LINE	Alignments	4	0.25	1	3												X		
<b>Armor</b>																			
S-ARMR-CRNR	Corner protection, corner cap casting	0	0.25	143	191							X							
S-ARMR-LINR	Protective liner (used for walls, culverts, etc.)	0	0.25	122	23							X							
S-ARMR-MISC	Miscellaneous armor	0	0.25	143	191							X							
S-ARMR-WALL	Wall armor	0	0.25	143	191							X							
<b>Beams</b>																			
S-BEAM-CNTR	Beam centerlines	7	0.25	214	117		X				X	X	X	X	X				
S-BEAM-PRIM	Continuous beam or primary beam of two-way beam system	0	0.50	211	109		X				X	X	X	X	X				
S-BEAM-RBAR	Beam rebar	0	0.70	5	1		X				X	X	X	X	X				
S-BEAM-SECD	Girders or secondary beams of two-way beam system	0	0.35	212	101		X				X	X	X	X	X				
<b>Bracing</b>																			
S-BRCG-DIA~	Diagonal bracing	0	0.35	161	25		X				X		X	X					
S-BRCG-HORZ	Horizontal bracing	0	0.35	161	25		X				X		X	X					
S-BRCG-VERT	Vertical bracing	0	0.35	144	199		X				X		X	X					
<b>Bridges</b>																			
S-BRDG-ABUT	Abutments	0	0.50	83	42			X											
S-BRDG-ABUT-RBAR	Abutment rebar	0	0.70	5	1			X											
S-BRDG-BEAR	Bridge bearing	0	0.35	152	88			X		X									
S-BRDG-BEAR-CNTR	Bridge bearing centerlines	7	0.25	214	117			X		X									
S-BRDG-BENT	Bent cap	0	0.35	3	2			X											
S-BRDG-BENT-CNTR	Centerline of bents	7	0.25	214	117			X											
S-BRDG-BENT-RBAR	Bent cap rebar	0	0.70	5	1			X											
S-BRDG-CURB	Curbs/sidewalks on structure	0	0.35	2	4					X									

Discipline: Structural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types													
AIA Format	Level/Layer Description	Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures	3D Alignment	Sections	Details
S-BRDG-DIAP	Diaphragms	0	0.35	5	1						X								
S-BRDG-DIAP-RBAR	Diaphragm rebar	0	0.70	5	1						X								
S-BRDG-DRNS	Drains	0	0.25	22	22					X	X								
S-BRDG-FENC	Fencing rails, fabric, supports, and gates	0	0.25	3	2						X								
S-BRDG-FEND	Fenders	0	0.35	75	220						X								
S-BRDG-GIRD	Girders	0	0.35	70	180						X								
S-BRDG-GIRD-CNTR	Girder centerline	7	0.25	214	117						X								
S-BRDG-HEAD	Headers	0	0.35	112	247						X								
S-BRDG-PIER	Piers	0	0.50	83	42				X		X								
S-BRDG-STRG	Stringers	0	0.35	212	101						X								
<b>Columns</b>																			
S-COLS-CNTR	Column centerlines/working lines	7	0.25	40	166														
S-COLS-POST	Short columns	0	0.35	87	74			X	X										
S-COLS-PRIM	Primary columns	0	0.35	3	2			X	X										
S-COLS-RBAR	Column rebar	0	0.70	5	1			X	X										
S-COLS-SECD	Secondary columns	0	0.35	84	34			X	X										
<b>Decking</b>																			
S-DECK-BRDG	Bridge deck	0	0.35	22	22					X									
S-DECK-BRDG-RBAR	Bridge deck rebar	0	0.70	5	1					X									
S-DECK-FLOR	Floor deck	0	0.25	101	186		X												
S-DECK-FLOR-OPNG	Floor deck openings	2	0.25	1	3		X												
S-DECK-RBAR	Deck rebar	0	0.70	5	1		X												
S-DECK-ROOF	Roof deck	0	0.25	62	116		X												
S-DECK-ROOF-OPNG	Roof deck openings	0	0.25	1	3		X												
<b>Equipment Pads and Foundations</b>																			
S-EQPM-PADS	Equipment pads	0	0.35	21	30	X						X	X						
<b>Erosion Control</b>																			
S-EROS-BARR	Vapor/capillary water barriers	0	0.25	233	115	X						X	X		X				
S-EROS-GABN	Gabions	0	0.25	241	179							X	X		X				
S-EROS-PVMT	Slope paving	0	0.25	241	179							X	X		X				
S-EROS-RRAP	Riprap, stone protection, jetties, breakwaters	0	0.25	232	107							X	X		X				
<b>Fasteners &amp; Connections</b>																			
S-FSTN-ABLT	Anchor bolts	0	0.25	30	86	X	X		X	X	X	X	X	X	X	X			
S-FSTN-MISC	Fasteners and connections (non-specific)	0	0.25	13	35		X		X	X	X	X	X	X	X				
S-FSTN-PL~~	Connection plates (shear plates, gusset plates, etc.)	0	0.25	13	35		X		X	X	X	X	X	X	X				
<b>Foundation</b>																			
S-FNDN-ANCH	Anchor piles, blocks, strands, deadmen, soil/rock anchors	0	0.35	42	182	X			X			X	X		X	X			
S-FNDN-BLRD	Bollards, bollard foundations	0	0.35	42	182	X			X			X	X		X	X			
S-FNDN-CNTR	Foundation centerlines	7	0.25	44	198	X			X			X	X		X	X			
S-FNDN-DRNS	Foundation drainage features and objects	0	0.25	43	206	X			X			X	X		X	X			
S-FNDN-FTNG	Footings	0	0.35	42	182	X			X			X	X		X	X			
S-FNDN-FTNG-RBAR	Footing rebar	0	0.70	5	1	X			X			X	X		X	X			
S-FNDN-GRBM	Grade beams	0	0.50	52	36	X													
S-FNDN-PCAP	Pile caps	0	0.35	52	36							X	X		X	X			
S-FNDN-PEDS	Foundation pedestals/pads	0	0.35	41	190	X			X			X	X		X				
S-FNDN-PIER	Piers, drilled shafts, caissons	0	0.50	72	196	X						X			X				
S-FNDN-PILE	Piles	0	0.35	40	166	X			X			X	X		X	X			

Discipline: Structural  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types													
		Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Vertical Const			Bridges				Hydraulic Structures						3D Alignment
AIA Format					Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures				
S-FNDN-PL--	Column base plates	0	0.25	13	35	X					X	X		X	X				
S-FNDN-RIBS	Ribbed mat foundation	0	0.35	52	36	X					X	X		X					
S-FNDN-TRMT	Foundation treatment (grouting)	0	0.35	51	28	X			X		X	X		X	X				
S-FNDN-TUNL	Service tunnel/duct banks	0	0.35	42	182	X					X	X		X					
<b>Gates</b>																			
S-GATE-ANCH	Gate anchorages	0	0.25	30	86								X	X					
S-GATE-ANCH-DEAD	Dead man anchorage	0	0.25	30	86								X						
S-GATE-ARMS	Arm	0	0.35	161	25								X						
S-GATE-AXIS	Gate axis and centerlines	7	0.25	214	117		X			X	X	X	X	X					
S-GATE-BLKH	Bulkhead	0	0.35	5	1								X						
S-GATE-BLKH-NDLB	Bulkhead needles beam	0	0.35	212	101								X						
S-GATE-BLKH-NDLS	Bulkhead needles	0	0.35	13	35								X						
S-GATE-CONN	Gate connects, links	0	0.35	30	86								X		X				
S-GATE-DIA-	Diagonals, gussets, sleeve nut	0	0.35	13	35								X						
S-GATE-DIA--CHAN	Diagonal channels	0	0.35	13	35								X						
S-GATE-DIA--GUST	Diagonal gusset plate	0	0.35	13	35								X						
S-GATE-DIA--SUPT	Diagonal gusset plate support	0	0.35	13	35								X						
S-GATE-DIAP	Diaphragms	0	0.35	5	1								X						
S-GATE-FEND	Gate fenders	0	0.35	75	220								X						
S-GATE-FLNG	Flange	0	0.35	5	1								X						
S-GATE-FLNG-DNST	Downstream flange	0	0.35	5	1								X						
S-GATE-FLNG-GIRD	Girder flange	0	0.35	30	86								X						
S-GATE-FLNG-UPST	Upstream flange	0	0.35	5	1								X						
S-GATE-GIRD-WEB-	Girder web plates	0	0.35	162	33								X						
S-GATE-GUDG	Gudgeon	0	0.35	6	5								X						
S-GATE-GUDG-HOOD	Gudgeon hood	0	0.35	6	5								X						
S-GATE-GUDG-HUB-	Gudgeon hub	0	0.35	6	5								X						
S-GATE-GUDG-PIN-	Gudgeon pin	0	0.35	6	5								X						
S-GATE-GUDG-STIF	Gudgeon (hood) stiffener	0	0.35	6	5								X						
S-GATE-GUDG-SUPT	Gudgeon (pin) support	0	0.35	6	5								X						
S-GATE-HORZ	Horizontal rolled shapes	0	0.35	211	109								X						
S-GATE-ICST	Intercostals	0	0.35	132	103								X						
S-GATE-JACK	Gate jack	0	0.35	5	1								X						
S-GATE-JACK-HORZ	Gate jack - horizontal	0	0.35	5	1								X						
S-GATE-JACK-VERT	Gate jack - vertical	0	0.35	5	1								X						
S-GATE-LIFT	Lifting mechanism	0	0.35	142	183								X	X	X				
S-GATE-LTCH	Latching device	0	0.35	5	1								X						
S-GATE-LTCH-BOTM	Latching device - bottom	0	0.35	5	1								X						
S-GATE-LTCH-TOP-	Latching device - top	0	0.35	5	1								X						
S-GATE-LUBE	Lubrication system	0	0.25	5	1								X						
S-GATE-MISC	Gates incidental to structure	0	0.25	5	1						X	X		X	X				
S-GATE-MITR-ASSY	Miter guide assembly	0	0.35	152	88								X						
S-GATE-PIN-	Gate pins	0	0.25	30	86								X						
S-GATE-PNTL	Pintle ball, bushing & base	0	0.35	30	86								X						
S-GATE-PNTL-CAST	Pintle casting	0	0.35	62	116								X						
S-GATE-QOIN	Quoin	0	0.35	152	88								X						
S-GATE-QOIN-FLNG	Quoin flange	0	0.35	152	88								X						

Discipline: Structural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types														
AIA Format	Level/Layer Description	Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Vertical Const		Bridges			Hydraulic Structures						3D Alignment	Sections	Details	
						Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures				
S-GATE-QOIN-MITR	Quion, miter	0	0.35	152	88									X						
S-GATE-QOIN-STIF	Quoin stiffener	0	0.35	152	88									X						
S-GATE-QOIN-TRST	Quoin thrust plate	0	0.35	152	88									X						
S-GATE-QOIN-WALL	Quoin, wall	0	0.35	152	88									X						
S-GATE-QOIN-WEB~	Quoin web	0	0.35	152	88									X						
S-GATE-RAIL	Rails and guides	0	0.35	152	88									X	X	X				
S-GATE-SEAL	Gate seal	0	0.35	232	107									X		X				
S-GATE-SEAL-HORZ	Gate seal - horizontal	0	0.35	232	107									X						
S-GATE-SEAL-VERT	Gate seal - vertical	0	0.35	232	107									X						
S-GATE-SHOE	Gate shoe	0	0.35	142	183									X						
S-GATE-SKIN	Skin plates	0	0.25	142	183									X						
S-GATE-STIF	Stiffener	0	0.35	5	1									X						
S-GATE-STIF-LONG	Stiffener - longitudinal	0	0.35	5	1									X						
S-GATE-STIF-TRAN	Stiffener - transverse	0	0.35	5	1									X						
S-GATE-STOP	Stoplogs	0	0.35	42	182									X	X	X				
S-GATE-THBL	Thimble	0	0.25	241	179									X	X	X				
S-GATE-TRST	Thrust plate	0	0.25	122	23									X						
S-GATE-TRUN	Trunion	0	0.35	6	5									X						
S-GATE-VALV	Valves (general shape)	0	0.35	202	21									X						
S-GATE-VERT	Rolled vertical shapes	0	0.35	144	199									X						
S-GATE-WALK	Walkway	0	0.35	132	103									X						
S-GATE-WALK-FRMG	Walkway - framing	0	0.35	132	103									X						
S-GATE-WALK-GRGT	Walkway - grating	0	0.35	132	103									X						
S-GATE-WALK-SUPT	Walkway - support	0	0.35	132	103									X						
S-GATE-WEB~	Web	0	0.35	162	33									X						
<b>Grade Lines</b>																				
S-GRLN-SURF-E	Existing ground	3	0.25	31	110				X			X	X		X	X				
S-GRLN-SURF-N	Finished grade	0	0.35	32	102				X			X	X		X	X				
S-WATR-SURF	Water surface	0	0.25	161	25				X			X	X		X	X				
<b>Grids</b>																				
S-GRID-HORZ	Grid lines (horizontal)	7	0.18	6	5			X		X	X	X	X	X	X					
S-GRID-HORZ-IDEN	Column I.D. tags (horizontal)	0	0.25	6	5			X		X	X	X	X	X						
S-GRID-VERT	Grid lines (vertical)	7	0.18	6	5			X		X	X	X	X	X	X					
S-GRID-VERT-IDEN	Column I.D. tags (vertical)	0	0.25	6	5			X		X	X	X	X							
<b>Hydraulic Features</b>																				
S-HYDR-AXIS	Axis of structure	4	0.18	202	21									X						
S-HYDR-BAFL	Baffle blocks, splash pads	0	0.35	122	23							X	X		X					
S-HYDR-BASN	Stilling and settling basins	0	0.35	122	23									X	X					
S-HYDR-CHAN	Channel (Does not include earthen structures)	0	0.35	122	23										X					
S-HYDR-COFF	Cofferdam	0	0.35	42	182							X	X		X	X				
S-HYDR-COND	Diversinary/bypass conduits and culverts	0	0.35	122	23							X	X		X	X				
S-HYDR-DAM~	Dam	0	0.35	122	23									X	X	X				
S-HYDR-FISH	Fish ladder or passage	0	0.35	122	23									X	X					
S-HYDR-FLUM	Flume	0	0.35	122	23									X	X					
S-HYDR-INTK	Intake, outlet	0	0.35	122	23									X	X	X	X			
S-HYDR-NOVR	Non-overflow structures	0	0.35	122	23									X	X					
S-HYDR-PENS	Penstock outline and features	0	0.35	122	23									X	X					

**Discipline: Structural**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types																
		Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Vertical Const		Bridges				Hydraulic Structures										
AIA Format		Level/Layer Description				Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures	3D Alignment	Sections	Details			
S-HYDR-STRC-POWR	Powerhouse	0	0.35	124	39						X	X										
S-HYDR-SWAY	Spillway	0	0.35	122	23							X		X								
S-HYDR-WEIR	Weirs and sluiceways	0	0.35	122	23							X		X								
<b>Joints</b>																						
S-JNTS-CNTJ	Construction/lift joints - (Do not use when 3D modeling)	0	0.25	122	23	X	X		X	X	X	X		X								
S-JNTS-CTLJ	Control/contraction joints (saw cut) - (Do not use when 3D modeling)	0	0.25	122	23	X	X		X	X	X	X		X								
S-JNTS-EXPJ	Expansion joints, joint materials (e.g., felt) - (Do not use when 3D modeling)	0	0.25	124	39	X	X		X	X	X	X		X								
S-JNTS-STUC	Stucco joints - (Do not use when 3D modeling)	0	0.25	111	246		X															
S-JNTS-WTRS	Waterstops	0	0.25	221	189	X			X		X	X		X	X							
<b>Joists</b>																						
S-JOIS-BRGX	Bridging	0	0.35	82	18		X															
S-JOIS-GIRD	Joist girders	0	0.50	122	23		X															
S-JOIS-PERI	Perimeter channel or rim joist	0	0.35	142	183		X															
S-JOIS-PRIM	Primary joists	0	0.35	132	103		X															
S-JOIS-SECD	Secondary joists	0	0.35	134	119		X															
S-JOIS-TRIM	Partial length or trimmer floor joist	0	0.35	134	119		X															
<b>Fabrications (metal or other specialty)</b>																						
S-FABR-EMBD	Embedded metals (framing around openings)	0	0.35	183	201	X	X		X	X	X	X	X	X	X							
S-FABR-HOIS	Hoist structures	0	0.25	142	183					X	X	X	X	X								
S-FABR-HOOK	Line hooks, lifting hooks, check posts etc.	0	0.25	142	183					X	X	X	X	X								
S-FABR-MOOR	Mooring bits, chocks, rings	0	0.35	142	183					X	X	X	X									
S-FABR-PL--	Plates	0	0.35	142	183	X	X		X	X	X	X	X	X	X							
S-FABR-TRSH	Trash racks, intake screens	0	0.35	142	183						X	X	X	X	X							
<b>Pipes and Culverts</b>																						
S-PIPE-CULV	Precast/manufactured culverts	0	0.35	200	13									X	X							
<b>Platforms</b>																						
S-PLAT-FRMG	Platform frame/stringers	0	0.35	212	101				X	X	X	X	X	X								
S-PLAT-GRTG	Platform grating (add a second minor group to indicate platform # or elev)	0	0.25	121	15		X		X	X	X	X	X	X	X							
S-PLAT-WALK	Platform walkway	0	0.35	33	126				X	X	X	X	X	X								
<b>Reinforcement</b>																						
S-REIN-RBAR	Steel reinforcing, welded wire fabric	0	0.70	5	1	X	X	X	X	X	X	X		X	X							
S-REIN-TEND-HORZ	Horizontal Tendons	0	0.50	181	185				X	X			X									
S-REIN-TEND-VERT	Vertical Tendons	0	0.50	181	185				X	X			X									
<b>Reference Outlines</b>																						
S-OTLN-BLDG	Building outline	6	0.25	5	1	X	X	X			X	X		X	X							
S-OTLN-FLOR	Floor outline	6	0.25	5	1	X	X	X			X	X										
S-OTLN-OPNG	Openings	6	0.25	5	1	X	X	X			X	X	X	X	X							
S-OTLN-ROOF	Roof	6	0.25	5	1	X	X	X														
S-OTLN-STRC	Misc. structures	6	0.25	5	1	X			X	X	X	X	X	X	X							
<b>Safety Features</b>																						
S-SAFE-FENC	Fencing rails, fabric, supports, and gates	0	0.25	3	2				X		X	X		X	X							
S-SAFE-GRAL	Guardrails	0	0.35	62	116				X	X	X	X		X	X							
S-SAFE-HRAL	Handrails, railings	0	0.25	3	2				X	X	X	X	X	X	X							
S-SAFE-PRPT	Parapet/jersey barrier	0	0.50	3	2				X	X	X				X							
S-SAFE-PRPT-RBAR	Parapet/jersey barrier rebar	0	0.70	5	1				X	X	X			X	X							
S-SAFE-WATR	Waterway safety barriers	0	0.35	3	2				X		X	X		X	X							
<b>Signs</b>																						



Discipline: Structural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types													
AIA Format	Level/Layer Description	Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures	3D Alignment	Sections	Details
S-SIGN-BUOY	Sign buoys	0	0.35	242	187								X						
S-SIGN-EXTN	Extrusions	0	0.35	212	101		X												
S-SIGN-FRMG	Framing and connections	0	0.35	3	2		X												
S-SIGN-GAGE	Staff gages	0	0.35	232	107							X	X						
S-SIGN-PANL	Sign panels	0	0.35	232	107		X			X	X								
S-SIGN-SPRT	Supports	0	0.35	5	1		X												
S-SIGN-TEXT	Signage text	0	0.35	222	181		X												
<b>Slabs</b>																			
S-SLAB-APPR	Approach slab	0	0.35	41	190						X								
S-SLAB-APPR-RBAR	Approach slab rebar	0	0.70	5	1						X								
S-SLAB-EDGE	Edge of slab	0	0.35	41	190	X			X	X	X	X			X	X			
S-SLAB-OPNG	Openings (and depressions)	2	0.25	1	3	X			X	X	X	X			X	X			
S-SLAB-RBAR	Slab rebar	0	0.70	5	1	X			X	X	X	X			X	X			
S-SLAB-SECD	Second pour, slab cap	0	0.35	41	190	X			X	X	X	X			X				
S-SLAB-SILL	Sill	0	0.35	41	190	X			X	X	X	X			X				
<b>Stiffeners</b>																			
S-STIF-LONG	Stiffeners - longitudinal	0	0.35	3	2		X			X			X						
S-STIF-TRAV	Stiffeners - transverse	0	0.35	3	2		X			X			X						
<b>Trusses</b>																			
S-TRUS-BRGX	Truss bridging	0	0.35	82	18		X			X			X						
S-TRUS-PRIM	Primary trusses	0	0.50	4	7		X			X	X								
S-TRUS-SECD	Secondary trusses	0	0.35	6	5		X			X		X							
<b>Walls</b>																			
S-WALL-ABUT	Abutments	0	0.35	83	42				X			X		X					
S-WALL-CELL	Cell	0	0.35	53	44						X								
S-WALL-COFF	Cutoff wall	0	0.35	30	86				X		X	X			X	X			
S-WALL-CURT	Curtain/breast wall	0	0.35	72	196				X			X			X				
S-WALL-FULL	Wall going to the top of the structure	0	0.35	3	2		X				X			X					
S-WALL-GARD	Guard/guide walls	0	0.35	72	196						X	X		X					
S-WALL-LOAD	Load bearing walls	0	0.35	3	2	X	X												
S-WALL-MONO	Wall monoliths	0	0.35	3	2						X	X							
S-WALL-MSE~	Mechanically stabilized earth (MSE) wall	0	0.35	72	196				X										
S-WALL-NONL	Non-load bearing walls	0	0.35	72	196	X	X												
S-WALL-PCST	Pre-cast concrete walls	0	0.35	126	55	X	X												
S-WALL-PRHT	Wall that does not reach to the top of the structure	0	0.35	72	196		X				X			X					
S-WALL-RBAR	Wall rebar	0	0.70	5	1						X	X		X	X				
S-WALL-RTWL	Retaining wall (flood walls, wingwalls, etc.)	0	0.35	72	196				X			X		X	X				
S-WALL-SHEA	Shear walls	0	0.35	101	186	X	X												
S-WALL-STUD	Stud walls	0	0.35	42	182	X	X												
<b>Waterway Specialties</b>																			
S-WWAY-DLPH	Dolphins (associated with but not part of bridges, locks and guidewalls)	0	0.35	122	23				X		X	X		X					
S-WWAY-FEND	Fenders	0	0.35	75	220				X		X	X		X					
S-WWAY-MOOR	Mooring cells	0	0.35	142	183				X		X	X		X					
<b>Sections</b>																			
S-SECT-IDEN	Component identification numbers	0	0.35	2	4													X	
S-SECT-MBND	Material beyond section cut	0	0.18	5	1													X	
S-SECT-MCUT	Material cut by section	V	V	V	V													X	

**Discipline: Structural**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types													
						Vertical Const			Bridges			Hydraulic Structures							Misc Small Civil Works Structures
AIA Format	Level/Layer Description	Line Style*	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control Structures	Misc Small Civil Works Structures	3D Alignment	Sections	Details
S-SECT-PATT	Textures and hatch patterns	0	0.18	8	9													X	
<b>Details</b>																			
S-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V														X

\* Hidden lines will be drawn using line style 2, weight 0.25

Discipline: Architectural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
<b>General Information</b>													
A-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X
A-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X
A-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X
A-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X
A-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X
A-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X
A-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X
A-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X
A-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X
A-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X
<b>Area Information</b>													
A-AREA-IDEN	Room numbers, tenant identifications, area calculations	0	0.35	2	4					X			
A-AREA-LINE	Architectural area calculation boundary lines	0	0.50	4	7					X			
A-AREA-OCCP	Occupant or employee names	0	0.35	2	4					X			
A-AREA-PATT	Area cross hatching	0	0.18	8	9					X			
<b>Barrier</b>													
A-BARR-AIR-	Air barrier	0	0.25	5	1	X							
<b>Ceiling Information</b>													
A-CLNG-ACCS	Access panels	0	0.35	6	5		X						
A-CLNG-CTLJ	Ceiling control joints	0	0.35	2	4		X						
A-CLNG-GRID	Ceiling grid	0	0.25	1	3		X						
A-CLNG-LITE	Specialty ceiling lights not shown on the Electrical Lighting Plan	0	0.50	4	7		X						
A-CLNG-OPNG	Openings, ceiling/roof penetrations (see also A-FLOR-OVHD in Floor Plan model file)	0	0.18	8	9		X						
A-CLNG-PATT	Ceiling patterns	0	0.18	8	9		X						
A-CLNG-SFFT	Soffits	0	0.25	2	4		X						
A-CLNG-SUSP	Suspended elements, ceiling mounted specialties (e.g., clocks, fans, etc.)	0	0.18	5	1		X						
A-CLNG-TEES	Main tees	0	0.18	5	1		X						
<b>Columns</b>													
A-COLS-ENCL	Column enclosures/fire protection	0	0.50	4	7	X							
<b>Doors</b>													
A-DOOR-FULL	Full height (to ceiling) door: swing and leaf	0	0.25	3	2	X							
A-DOOR-IDEN	Door number and symbol, hardware group, etc.	0	0.25	3	2	X							
A-DOOR-PRHT	Partial height door: swing and leaf	0	0.35	6	5	X							
A-DOOR-SYMB	Miscellaneous door symbols (e.g., overhead, bifold, pocket, etc.)	0	0.25	1	3	X							
<b>Equipment</b>													
A-EQPM-ACCS	Equipment access	0	0.35	6	5				X				
A-EQPM-FIXD	Fixed equipment	0	0.50	4	7				X				
A-EQPM-IDEN	Equipment identification numbers	0	0.35	6	5				X				
A-EQPM-MOVE	Moveable equipment	0	0.35	6	5				X				
A-EQPM-OVHD	Overhead, ceiling mounted, or suspended equipment	0	0.35	6	5				X				
<b>Floor Information</b>													
A-FLOR-CSWK	Casework (manufactured cabinets)	0	0.25	3	2	X							
A-FLOR-EVTR	Elevator cars and equipment	0	0.35	2	4	X							
A-FLOR-FIXT	Plumbing fixtures	0	0.25	201	29	X							
A-FLOR-FTPT	Floor/building footprint	0	0.70	4	7	X							
A-FLOR-HRAL	Stair and balcony handrails, guard rails	0	0.25	1	3	X							

Discipline: Architectural  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
A-FLOR-IDEN	Room name, space identification text	0	0.35	3	2	X							
A-FLOR-LEVEL	Level changes, shafts, ramps, pits, breaks in construction, and depressions	0	0.35	6	5	X							
A-FLOR-NUMB	Room/space identification number and symbol	0	0.35	3	2	X							
A-FLOR-OVHD	Overhead items (overhangs, etc.)	2	0.18	8	9	X							
A-FLOR-PATT	Paving, tile, carpet patterns	0	0.18	8	9	X							
A-FLOR-PERI	Room perimeter shape (interior walls)	0	0.35	2	4	X							
A-FLOR-RAIS	Access (raised) flooring	0	0.25	3	2	X							
A-FLOR-SIGN	Signage	0	0.25	1	3	X							
A-FLOR-SPCL	Architectural specialties (e.g., toilet room accessories, display cases)	0	0.25	3	2	X							
A-FLOR-STRS	Stair risers/treads, escalators, ladders	0	0.25	1	3	X							
A-FLOR-TPTN	Toilet partitions	0	0.25	1	3	X							
A-FLOR-WDWK	Architectural woodwork (field built cabinets and counters)	0	0.25	3	2	X							
<b>Windows</b>													
A-GLAZ-FULL	Full height glazed walls and partitions (see A-WALL-CURT for curtain walls)	0	0.25	1	3	X							
A-GLAZ-IDEN	Window number and symbol	0	0.35	3	2	X							
A-GLAZ-PRHT	Windows and partial height glazed partitions	0	0.25	1	3	X							
A-GLAZ-SILL	Window sills	0	0.18	5	1	X							
<b>Roof Information</b>													
A-ROOF-CRKT	Crickets flow arrows flow info	0	0.25	1	3			X					
A-ROOF-DRNS	Roof drains	0	0.25	1	3			X					
A-ROOF-EXPJ	Expansion joints	0	0.18	5	1			X					
A-ROOF-GUTR	Roof internal gutters	0	0.18	8	9			X					
A-ROOF-HRAL	Stair handrails, nosings, guard rails	0	0.18	5	1			X					
A-ROOF-LEVEL	Level changes	0	0.18	5	1			X					
A-ROOF-OTLN	Roof perimeter/edge, roof geometry	0	0.35	6	5			X					
A-ROOF-PATT	Roof surface patterns, hatching	0	0.18	8	9			X					
A-ROOF-PRPT	Parapet walls and wall caps	0	0.35	2	4			X					
A-ROOF-SKLT	Skylights	2	0.18	8	9			X					
A-ROOF-SPCL	Roof specialties, accessories, access hatches, dormers	0	0.25	3	2			X					
A-ROOF-STRS	Stair risers/treads, ladders	0	0.18	5	1			X					
A-ROOF-WALK	Roof walkways	0	0.25	3	2			X					
<b>Walls</b>													
A-WALL-CAVI	Cavity wall lines	0	0.18	8	9	X							
A-WALL-CNTR	Wall centerlines	7	0.25	5	1	X							
A-WALL-CURT	Curtain wall mullions and glass	0	0.25	1	3	X							
A-WALL-FIRE	Fire wall designators (patterning)	0	0.35	2	4	X							
A-WALL-FULL-EXTR	Exterior full height walls	0	0.35	2	4	X							
A-WALL-FULL-INTR	Interior full height walls	0	0.25	3	2	X							
A-WALL-HEAD	Door and window headers	0	0.25	1	3	X							
A-WALL-IDEN	Wall identification/type text or tags	0	0.35	3	2	X							
A-WALL-JAMB	Door and window jambs	0	0.25	1	3	X							
A-WALL-MESH	Mesh or wire wall	0	0.18	5	1	X							
A-WALL-MOVE	Moveable walls/partitions	0	0.18	5	1	X							
A-WALL-OPNG-LVRS	Louvers	0	0.25	1	3	X							
A-WALL-PATT	Wall insulation, hatching, and fill	INBATT	0.18	8	9	X							
A-WALL-PRHT	Partial height walls (do not appear on Reflected Ceiling Plan)	0	0.25	1	3	X							
A-WALL-SPCL	Wall-hung/attached specialties (e.g., fixtures, grab bars (incl. handicap), telephone booths)	0	0.25	1	3	X							

**Discipline: Architectural**

**Model File Layers/Levels**

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types							
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
<b>AIA Format</b>													
<b>Elevations</b>													
A-ELEV-IDEN	Component identification numbers	0	0.35	2	4						X		
A-ELEV-OTLN	Outlines	0	0.50	4	7						X		
A-ELEV-PATT	Textures and hatch patterns	0	0.18	8	9						X		
<b>Sections</b>													
A-SECT-IDEN	Component identification numbers	0	0.35	2	4							X	
A-SECT-MBND	Material beyond section cut	0	0.18	5	1							X	
A-SECT-MCUT	Material cut by section	V	V	V	V							X	
A-SECT-PATT	Textures and hatch patterns	0	0.18	8	9							X	
<b>Detail Information</b>													
A-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V								X

Note: V = Varies, NA = Not Applicable

Discipline: Interiors  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format		Level/Layer Description				Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Furniture Plan	System Furniture Plan	Signage Placement Plan	Floor Patterns	Elevations	Details
<b>General Information</b>															
I-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V					X	X	X	X	X	X
I-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V					X	X	X	X	X	X
I-ANNO-NOTE	General notes and general remarks	0	0.35	2	4					X	X	X	X	X	X
I-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1					X	X	X	X	X	X
I-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9					X	X	X	X	X	X
I-ANNO-RDME	Read-me information	0	0.18	5	1					X	X	X	X	X	X
I-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA					X	X	X	X	X	X
I-ANNO-SYMB	Miscellaneous symbols	V	V	6	5					X	X	X	X	X	X
I-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V					X	X	X	X	X	X
<b>Carpet/Carpet Tile</b>															
I-CRPT-ROLL-ACNT	Carpet (roll goods) - accent color	0	V	1	3							X			
I-CRPT-ROLL-FILD	Carpet (roll goods) - field color	0	V	60	100							X			
I-CRPT-TILE-ACN1	Carpet tile - accent color	0	V	208	69							X			
I-CRPT-TILE-ACN2	Carpet tile - accent color	0	V	236	139							X			
I-CRPT-TILE-FILD	Carpet tile - field color	0	V	204	37							X			
<b>Equipment</b>															
I-EQPM-ACCS	Equipment access	2	0.18	8	9					X					
I-EQPM-CHLD	Child development (play toys, teaching rugs, play forms)	0	0.35	2	4					X					
I-EQPM-COPY	Copiers, fax machines, office equipment	0	0.35	2	4					X					
I-EQPM-FIXD	Fixed equipment	0	0.18	5	1					X					
I-EQPM-IDEN	Equipment identification numbers	0	0.25	1	3					X					
I-EQPM-MEDI	Medical (exam beds, dental chairs, etc.)	0	0.35	2	4					X					
I-EQPM-MOVE	Moveable equipment	2	0.18	5	1					X					
I-EQPM-OVHD	Overhead, ceiling mounted, and suspended equipment	0	0.25	3	2					X					
I-EQPM-STOR	Storage equipment	0	0.35	2	4					X					
<b>Signage</b>															
I-FLOR-SIGN	Signage	0	0.35	6	5						X				
<b>Flooring Items and Materials</b>															
I-FLRG-CONC	Concrete flooring	0	V	8	9							X			
I-FLRG-MATS	Entrance mat components and frames	0	V	4	7							X			
I-FLRG-STON	Stone flooring	0	V	153	104							X			
I-FLRG-TRAN	All floor thresholds and transition moldings	0	V	5	1							X			
I-FLRG-WOOD	Wood parquet tile or planks	0	V	22	22							X			
<b>Furnishings</b>															
I-FURN-ACCS	Accessories (vestibule mats, partitions, draperies, clocks, trash cans, lecturns, lamps, etc.)	0	0.25	1	3					X					
I-FURN-ADPC	Automated Data Processing Components	0	0.35	2	4					X					
I-FURN-ARTW	Artwork	0	0.35	2	4					X					
I-FURN-FLOR	Flooring (carpet, rugs, etc.)	0	0.35	2	4					X					
I-FURN-FREE	Free-standing furnishings (desks, beds, tables, dressers, credenzas, casegoods)	0	0.35	6	5					X					
I-FURN-GRID	Planning grid/modular outline	0	0.50	4	7					X					
I-FURN-IDEN	Furniture code identification	0	0.25	3	2					X					
I-FURN-PLNT	Plants	0	0.25	3	2					X					
I-FURN-SEAT	Seating (chairs, sofas, etc.)	0	0.35	2	4					X					
I-FURN-STOR	File cabinets, high density storage, shelving, storage cabinets	0	0.35	2	4					X					
<b>Monolithic (Poured or Broadcast) Flooring</b>															
I-MONO-SRFL-ACNT	Seamless resinous flooring - accent color	0	V	203	45							X			
I-MONO-SRFL-FILD	Seamless resinous flooring - field color	0	V	9	14							X			
I-MONO-TERR-ACN1	Terrazzo - accent color	0	V	144	199							X			

**Discipline: Interiors**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types						
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Furniture Plan	System Furniture Plan	Signage Placement Plan	Floor Patterns	Elevations	Details	
AIA Format	Level/Layer Description											
I-MONO-TERR-ACN2	Terrazzo - accent color	0	V	67	156				X			
I-MONO-TERR-FILD	Terrazzo - field color	0	V	239	163				X			
<b>Resilient Flooring</b>												
I-SHTP-ACNT	Sheet product (vinyl/rubber/linoleum) - accent color	0	V	190	245				X			
I-SHTP-FILD	Sheet product (vinyl/rubber/linoleum) - field color	0	V	241	179				X			
<b>System Furniture</b>												
I-SYST-FURN	Furniture	0	0.35	2	4		X					
I-SYST-IDEN	Code identification components	0	0.25	1	3		X					
I-SYST-IDPL	Code identification panels	0	0.25	1	3		X					
I-SYST-LITE	Lighting components	0	0.50	4	7		X					
I-SYST-PATT	Patterns	0	0.18	8	9		X					
I-SYST-PNLS	Panels	0	0.35	2	4		X					
I-SYST-POWR	Power, communication components	0	0.50	4	7		X					
I-SYST-STOR	Storage components	0	0.35	2	4		X					
I-SYST-WALL	System furniture partition walls	0	0.35	2	4		X					
I-SYST-WKSF	Work surface components	0	0.35	2	4		X					
<b>Tile</b>												
I-TILE-CERM-ACNT	Ceramic mosaic tile - accent color	0	V	153	104				X			
I-TILE-CERM-FILD	Ceramic mosaic tile - field color	0	V	124	39				X			
I-TILE-LINO-ACNT	Linoleum tile - accent color	0	V	236	139				X			
I-TILE-LINO-FILD	Linoleum tile - field color	0	V	60	100				X			
I-TILE-PORC-ACN1	Porcelain tile - accent color	0	V	78	244				X			
I-TILE-PORC-ACN2	Porcelain tile - accent color	0	V	9	14				X			
I-TILE-PORC-FILD	Porcelain tile - field color	0	V	128	71				X			
I-TILE-QUAR-ACNT	Quarry tile - accent color	0	V	2	4				X			
I-TILE-QUAR-FILD	Quarry tile - field color	0	V	30	86				X			
I-TILE-RUBB-ACNT	Rubber tile - accent color	0	V	209	93				X			
I-TILE-RUBB-FILD	Rubber tile - field color	0	V	20	6				X			
I-TILE-TERR-ACN1	Terrazzo tile - accent color	0	V	144	199				X			
I-TILE-TERR-ACN2	Terrazzo tile - accent color	0	V	67	156				X			
I-TILE-TERR-ACN3	Terrazzo tile - accent color	0	V	221	189				X			
I-TILE-TERR-FILD	Terrazzo tile - field color	0	V	239	163				X			
I-TILE-VNYL-ACN1	Vinyl or Vinyl composition tile - accent color	0	V	203	45				X			
I-TILE-VNYL-ACN2	Vinyl or Vinyl composition tile - accent color	0	V	115	48				X			
I-TILE-VNYL-FILD	Vinyl or Vinyl composition tile - field color	0	V	89	90				X			
<b>Elevations</b>												
I-ELEV-IDEN	Component identification numbers	0	0.25	1	3					X		
I-ELEV-OTLN	Outlines	0	0.50	4	7					X		
I-ELEV-PATT	Textures and hatch patterns	0	0.18	5	1					X		
<b>Detail Information</b>												
I-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V							X

Note: V = Varies, NA = Not Applicable  
Patterning used within each material to differentiate colors shall match the color and level of the material.

Discipline: Fire Protection  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types			
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Life Safety Plan	Fire Suppression Plan	Fire Alarm/Detection Plan	Details
<b>AIA Format</b>	<b>Level/Layer Description</b>								
<b>General Information</b>									
F-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X
F-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X
F-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X
F-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X
F-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X
F-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X
F-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X
F-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X
F-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X
<b>Aqueous Film Forming Foam System</b>									
F-AFFF-EQPM	Equipment	0	0.35	82	18		X		
F-AFFF-PIPE	Piping	0	0.35	82	18		X		
<b>CO2 Sprinkler System</b>									
F-CO2S-EQPM	Equipment	0	0.35	6	5		X		
F-CO2S-PIPE	CO2 piping or CO2 discharge nozzle piping	0	0.35	6	5		X		
<b>Control Panels</b>									
F-CTRL-PANL	Control panels	0	0.50	23	46	X		X	
<b>Floor Information</b>									
F-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X	
F-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X	
<b>Halon System</b>									
F-HALN-EQPM	Equipment	0	0.35	22	22		X		
F-HALN-PIPE	Piping	0	0.35	22	22		X		
<b>Inert Gas</b>									
F-IGAS-EQPM	Equipment	0	0.35	162	33		X		
F-IGAS-PIPE	Piping	0	0.35	162	33		X		
<b>Means of Egress Lighting</b>									
F-LITE-EMER	Emergency fixtures	0	0.50	23	46	X			
F-LITE-EXIT	Exit fixtures	0	0.50	203	45	X			
<b>Egress Requirements</b>									
F-LSFT-EGRE	Egress requirements designator	0	0.35	6	5	X			
F-LSFT-OCCP	Occupant load for egress capacity	0	0.35	6	5	X			
F-LSFT-TRVL	Maximum travel distances	0	0.35	6	5	X			
<b>Fire Protection System</b>									
F-PROT-ALRM-INDC	Indicating appliances	0	0.50	83	42			X	
F-PROT-ALRM-MANL	Manual fire alarm pull stations	0	0.50	23	46	X		X	
F-PROT-EXTI	Fire extinguishers	0	0.35	2	4	X			
F-PROT-EXTI-CABN	Fire extinguisher cabinets	0	0.35	2	4	X			
F-PROT-HOSE	Fire hoses	0	0.35	2	4	X			
F-PROT-HOSE-CABN	Fire hose cabinets	0	0.35	2	4	X			
F-PROT-RATE-DOOR	Door fire ratings	0	0.50	4	7	X			
F-PROT-RATE-WALL	Wall fire ratings	0	0.50	4	7	X			
F-PROT-SMOK	Smoke detectors and heat sensors	0	0.50	23	46			X	
<b>Smoke/Pressurization Control</b>									
F-SMOK-DMPR	Dampers	0	0.35	22	22	X		X	
<b>Sprinkler System</b>									



**Discipline: Fire Protection**

**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Life Safety Plan	Fire Suppression Plan	Fire Alarm/Detection Plan	Details
F-SPKL-CLHD	Sprinkler - ceiling heads	0	0.35	122	23		X		
F-SPKL-OTHD	Sprinkler - other heads	0	0.35	122	23		X		
F-SPKL-PIPE	Sprinkler piping	SPRINK	0.50	4	7		X		
F-SPKL-STAN	Standpipe system	0	0.35	122	23		X		
<b>Water Supply and Distribution</b>									
F-WATR-CONN	Fire department connections	0	0.35	122	23		X		
F-WATR-HYDT	Hydrants	0	0.35	122	23		X		
F-WATR-PIPE	Piping	FIRE	0.50	4	7		X		
F-WATR-PUMP	Fire pumps	0	0.35	122	23		X		
<b>Detail Information</b>									
F-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V				X

Note: V = Varies, NA = Not Applicable

**Discipline: Plumbing**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Piping Plan	Riser Diagrams	Details
<b>General Information</b>								
P-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X
P-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X
P-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X
P-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X
P-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X
P-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X
P-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X
P-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X
P-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X
<b>Domestic Water System</b>								
P-DOMW-CPIP	Cold water piping	CLDWTR	0.50	123	31	X		
P-DOMW-EQPM	Hot and cold water equipment	0	0.70	7	0	X		
P-DOMW-EQPM-ACCS	Equipment access doors	0	0.35	82	18	X		
P-DOMW-FPIP	Domestic filtered water piping	0	0.50	83	42	X		
P-DOMW-HPIP	Hot water piping	HWTR, HWTRR	0.50	113	16	X		
P-DOMW-RISR	Hot and cold water risers	2	0.25	3	2	X		
<b>Floor Information</b>								
P-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X		
P-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X		
<b>Graywater System</b>								
P-GRAY-EQPM	Equipment	0	0.70	200	13	X		
P-GRAY-PIPE	Graywater piping	GRAY	0.50	200	13	X		
<b>Laboratory Gas Piping</b>								
P-LGAS-EQPM	Equipment	0	0.70	24	38	X		
P-LGAS-PIPE	Piping	OXYGEN + NITROG, HELIUM, HYDRGN +	0.50	23	46	X		
<b>Medical/Dental Gas Piping</b>								
P-MDGS-CAIR	Compressed air	CMPAIR	0.50	83	42	X		
P-MDGS-EQPM	Equipment	0	0.70	24	38	X		
P-MDGS-NITG	Nitrogen piping	NITROG	0.50	23	46	X		
P-MDGS-NOXG	Nitrous oxide piping	NITOXI	0.50	23	46	X		
P-MDGS-OXYG	Pure O2 piping	OXYGEN	0.50	23	46	X		
P-MDGS-SAIR	Scavenge air	0	0.50	23	46	X		
P-MDGS-VACU	Medical vacuum piping	VACAIR	0.50	23	46	X		
<b>Penetrations</b>								
P-FLOR-PENE	Floor penetrations	2	0.25	3	2	X		
P-ROOF-PENE	Roof penetrations	2	0.25	1	3	X		
P-WALL-PENE	Wall penetrations	2	0.25	2	4	X		
<b>Sanitary Sewer</b>								
P-SSWR-CNDS	Condensate piping	0	0.50	83	42	X		
P-SSWR-EQPM	Equipment (e.g., sand/oil/water separators)	0	0.70	204	37	X		

**Discipline: Plumbing**  
**Model File Layers/Levels**

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types		
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Piping Plan	Riser Diagrams	Details
<b>AIA Format</b>								
P-SSWR-DRNS	Floor drains, sinks, and cleanouts	0	0.35	6	5	X		
P-SSWR-PIPE	Piping	SSWAF	0.50	203	45	X		
P-SSWR-RISR	Sanitary risers	2	0.50	203	45	X		
P-SSWR-VENT	Vent piping	VENT	0.50	203	45	X		
<b>Storm Drainage System</b>								
P-STRM-PIPE	Storm drain piping	STRAF	0.50	163	41	X		
P-STRM-DRNS	Roof drains	0, ROOFDN	0.50	163	41	X		
P-STRM-RISR	Storm drain risers	2	0.50	163	41	X		
<b>Diagram Information</b>								
P-DIAG-GRPH	Graphics, gridlines, non-text items	V	V	V	V		X	
<b>Detail Information</b>								
P-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V			X

Note: V = Varies, NA = Not Applicable

Discipline: Mechanical  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types										
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details	
AIA Format	Level/Layer Description															
<b>General Information</b>																
M-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text, weld symbols	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-NPLT	Non-plotting graphic information (e.g., clearances and working space information)	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X	X	X	X
M-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X	X	X
<b>Industrial Waste Piping</b>																
M-ACID-EQPM	Acid, alkaline, and oil waste equipment	0	0.35	80	11		X									
M-ACID-PIPE	Acid, alkaline, and oil waste piping	ACIDWS, IWASTE	0.50	80	11		X									
M-ACID-VENT	Acid, alkaline, and oil waste vent piping	2	0.50	80	11		X									
<b>Anti-Freeze</b>																
M-AFRZ-EQPM	Anti-freeze equipment	0	0.35	82	18		X	X								
M-AFRZ-SPLY-PIPE	Anti-freeze supply piping	0	0.50	82	18		X	X								
M-AFRZ-WAST-PIPE	Anti-freeze waste piping	0	0.50	82	18		X	X								
<b>Brine System</b>																
M-BRIN-EQPM	Brine system equipment	0	0.35	123	31		X									
M-BRIN-RETN-PIPE	Brine system return piping	BRINER	0.50	123	31		X									
M-BRIN-SPLY-PIPE	Brine system supply piping	BRINES	0.50	123	31		X									
<b>Chemical Treatment System</b>																
M-CHEM-EQPM	Chemical treatment system equipment	0	0.35	123	31	X										
M-CHEM-RETN-PIPE	Chemical treatment system return piping	0	0.50	123	31	X										
M-CHEM-SPLY-PIPE	Chemical treatment system supply piping	0	0.50	123	31	X										
<b>Compressed Air</b>																
M-CMPA-EQPM	Equipment	0	0.70	84	34		X									
M-CMPA-PIPE	Piping	CMPAIR	0.50	83	42		X									
<b>Condenser Water System</b>																
M-CNDW-EQPM	Condenser water system equipment	0	0.35	83	42	X										
M-CNDW-RETN-PIPE	Condenser water system return piping	CONDWR	0.50	83	42	X										
M-CNDW-SPLY-PIPE	Condenser water system supply piping	CONDWS	0.50	83	42	X										
<b>Controls</b>																
M-CONT-THER	Thermostats	0	0.25	1	3	X		X								
M-CONT-WIRE	Low voltage wiring	1, 2	0.25	1	3	X										
<b>Chilled Water System</b>																
M-CWTR-CNDS	Condensate piping	CDRNAS	0.50	83	42	X										
M-CWTR-EQPM	Chilled water equipment	0	0.35	163	41	X										
M-CWTR-RETN-PIPE	Chilled water return piping	CWR	0.50	163	41	X										
M-CWTR-SPLY-PIPE	Chilled water supply piping	CWS	0.50	163	41	X										
<b>Culvert Valves</b>																
M-CVAL-BASE	Culvert valve machinery base	0	0.35	2	4			X								
M-CVAL-BEAM	Culvert valve beams	0	0.35	2	4			X								
M-CVAL-CYLD	Culvert valve machinery cylinder (outline not for details)	0	0.35	80	11			X								

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-CVAL-SEAL	Culvert valve seals	0	0.35	3	2			X							
M-CVAL-SKIN	Culvert valve skin plate	0	0.35	1	3			X							
M-CVAL-STIF	Stiffener plates, angles, etc.	0	0.35	4	7			X							
M-CVAL-TRUN	Culvert valve trunnion beam	0	0.35	6	5			X							
<b>Dual Temperature System</b>															
M-DUAL-EQPM	Dual temperature system equipment	0	0.35	23	46	X									
M-DUAL-RETN-PIPE	Dual temperature system return piping	DTR	0.50	23	46	X									
M-DUAL-SPLY-PIPE	Dual temperature system supply piping	DTS	0.50	23	46	X									
<b>Dust and Fume Collection Systems</b>															
M-DUST-DUCT	Dust and fume ductwork	0	0.50	203	45	X									
M-DUST-DUCT-CNTR	Dust and fume ductwork centerlines	7	0.25	5	1	X									
M-DUST-EQPM	Dust and fume equipment	0	0.35	203	45	X									
M-DUST-GRIL	Dust and fume grilles	0	0.35	203	45	X									
<b>Exhaust Air System</b>															
M-EXHS-DUCT	Exhaust ductwork	V	0.50	83	42	X		X							
M-EXHS-DUCT-CNTR	Exhaust ductwork centerlines	7	0.25	5	1	X		X							
M-EXHS-EQPM	Exhaust equipment	0	0.35	83	42	X		X							
M-EXHS-GRIL	Grilles	0	0.35	83	42	X		X							
<b>Floor Information</b>															
M-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X							
M-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X							
<b>Fuel Systems</b>															
M-FUEL-DIES-RETN	Diesel fuel return piping	0	0.50	23	46			X							
M-FUEL-DIES-SPLY	Diesel fuel supply piping	0	0.50	23	46			X							
M-FUEL-DIES-VENT	Diesel fuel vent piping	0	0.50	23	46			X							
M-FUEL-EQPM	Equipment	0	0.70	24	38			X	X						
M-FUEL-GGEP-LQPG	Liquid petroleum gas	LIQPET	0.50	23	46			X	X						
M-FUEL-OGEP-RETN	Return oil piping	FUELOR	0.50	23	46			X	X						
M-FUEL-OGEP-SPLY	Supply oil piping	FUELOS	0.50	23	46			X	X						
M-FUEL-OGEP-VENT	Oil piping vent	FUELOV	0.50	23	46			X							
<b>Glycol System</b>															
M-GLYC-EQPM	Glycol system equipment	0	0.35	82	18	X	X								
M-GLYC-RETN-PIPE	Glycol system return piping	GHR	0.50	82	18	X	X								
M-GLYC-SPLY-PIPE	Glycol system supply piping	GHS	0.50	82	18	X	X								
<b>Geothermal Heat Pump System</b>															
M-GTHP-EQPM	Geothermal heat pump system equipment	0	0.35	203	45	X			X						
M-GTHP-RETN-PIPE	Geothermal heat pump system return piping	0	0.50	203	45	X			X						
M-GTHP-SPLY-PIPE	Geothermal heat pump system supply piping	0	0.50	203	45	X			X						
<b>Hydraulic Control Systems (Hydraulic Fluid)</b>															
M-HCSF-CYLD	Hydraulic cylinders	0	0.35	7	0			X							
M-HCSF-CYLD-PSTN	Hydraulic cylinder pistons	0	0.35	5	1			X							
M-HCSF-CYLD-WEAR	Wear rings	0	0.35	3	2			X							
M-HCSF-EQPM	Hydraulic system equipment	0	0.35	200	13		X	X							
M-HCSF-FTTG	Hose and pipe fittings	0	0.35	4	7			X							
M-HCSF-HOSE	Hydraulic hoses	0	0.35	4	7			X							
M-HCSF-MOTR	Hydraulic motors and actuators	0	0.35	7	0			X							

Discipline: Mechanical  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types									
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
<b>AIA Format</b>	<b>Level/Layer Description</b>														
M-HCSF-OTLN	Outlines of machinery, etc. in the vicinity of the hydraulic components	0	0.35	80	11			X							
M-HCSF-PUMP	Hydraulic pumps and pump motors	0	0.35	7	0			X							
M-HCSF-RETN-PIPE	Hydraulic system return piping	0	0.50	120	12		X	X							
M-HCSF-ROOM	Floor, walls, etc. that hydraulic system attaches to	0	0.35	5	1			X							
M-HCSF-SCHM-MISC	Miscellaneous schematic figures (i.e., common location lines)	0	0.35	6	5			X							
M-HCSF-SUPT	Pipe supports, hangers, etc.	0	0.35	20	6			X							
M-HCSF-SPLY-PIPE	Hydraulic system supply piping	0	0.50	200	13		X	X							
M-HCSF-VALV	Hydraulic valves	0	0.35	6	5			X							
M-HCSF-VALV-CONT	Hydraulic directional control valves	0	0.35	6	5			X							
M-HCSF-VALV-FLOW	Flow control valves, check valves, etc.	0	0.35	6	5			X							
M-HCSF-VALV-PRES	Pressure control valves: relief valves, counterbalance valves, etc.	0	0.35	6	5			X							
M-HCSF-VALV-SOFF	Hydraulic shutoff type valves (ball, gate, etc.)	0	0.35	6	5			X							
<b>Hydraulic Control Systems (Water)</b>															
M-HCSW-DEVC	Stilling wells, rigid anchors, anchor guides, rectifiers, reducers, markers, meters, regulators, tanks, and valves	0	0.35	6	5			X							
M-HCSW-DEVC-IDEN	Device identifiers	0	0.25	6	5			X							
M-HCSW-EQPM-ACCS	Equipment access doors	0	0.25	3	2			X							
M-HCSW-PUMP	Pump station equipment	0	0.35	6	5			X							
M-HCSW-PUMP-FLOW	Flow direction arrows	0	0.25	3	2			X							
M-HCSW-PUMP-FTTG	Caps and flanges	0	0.35	6	5			X							
M-HCSW-PUMP-IDEN	Pump identifier tags, symbol modifiers, and text	0	0.25	2	4			X							
M-HCSW-PUMP-PIPE	Pump piping (includes fittings and valves)	0	0.50	163	41			X							
<b>High Temperature/Chilled Water System</b>															
M-HTCW-CWTR-MAIN	Main chilled water piping	0	0.35	163	41	X			X						
M-HTCW-CWTR-PLNT	Chilled water plant	0	0.35	163	41	X			X						
M-HTCW-CWTR-SERV	Chilled water service piping	0	0.25	163	41	X		X	X						
M-HTCW-DEVC	Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves	0	0.35	6	5	X			X						
M-HTCW-FLOW	Flow direction arrows	0	0.25	3	2	X			X						
M-HTCW-FTTG	Caps and flanges	0	0.35	6	5	X		X	X						
M-HTCW-HWTR-MAIN	Main high temperature piping	0	0.35	113	16	X			X						
M-HTCW-HWTR-PLNT	High temperature water plant	0	0.35	113	16	X			X						
M-HTCW-HWTR-SERV	High temperature service piping	0	0.25	113	16	X			X						
M-HTCW-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4	X			X						
M-HTCW-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.25	1	3	X			X						
M-HTCW-LWTR-MAIN	Main low temperature piping	0	0.35	1	3	X			X						
M-HTCW-LWTR-SERV	Low temperature service piping	0	0.25	1	3	X		X	X						
M-HTCW-PITS	Valve pits/vaults, steam pits	0	0.25	3	2	X			X						
M-HTCW-RETN-PIPE	Return for all HTCW lines	0	0.18	5	1	X			X						
M-HTCW-STEM-MAIN	Main steam piping	0	0.35	113	16	X			X						
M-HTCW-STEM-SERV	Steam service piping	0	0.25	113	16	X		X	X						
M-HTCW-STNS-PUMP	Pump stations	0	0.35	6	5	X			X						
<b>HVAC System</b>															
M-HVAC-ACCS	Equipment access doors	0, 1, 2	0.25	3	2	X		X							
M-HVAC-CDFF	Ceiling diffusers, registers, and grilles	0	0.35	20	6	X		X							
M-HVAC-DMPR	Fire, smoke, volume dampers	0	0.25	1	3	X		X							
M-HVAC-EQPM	Equipment (non-powered)	0	0.35	2	4	X		X							
M-HVAC-EQPM-EFAN	Equipment with electric fans or motors	0	0.35	2	4	X		X							

**Discipline: Mechanical**  
**Model File Layers/Levels**

Level/Layer Naming		Graphic Defaults				Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-HVAC-EQPM-EPIP	Equipment with piping and electricity	0	0.35	2	4	X		X							
M-HVAC-EQPM-FLOR	Equipment - floor mounted	0	0.35	2	4	X		X							
M-HVAC-EQPM-SUSP	Equipment - suspended	0	0.35	2	4	X		X							
M-HVAC-FDFF	Floor diffusers, registers, and grilles	0	0.35	162	33	X		X							
M-HVAC-IDEN	Duct sizes and pressure classes	0	0.35	6	5	X		X							
M-HVAC-RDFF	Return air diffusers	0	0.35	23	46	X		X							
M-HVAC-RETN	Return ductwork	V	0.50	23	46	X		X							
M-HVAC-RETN-CNTR	Return ductwork centerlines	7	0.25	5	1	X		X							
M-HVAC-ROOF	Roof mounted HVAC equipment	0	0.35	2	4	X		X							
M-HVAC-SPLY	Supply ductwork	V	0.50	4	7	X		X							
M-HVAC-SPLY-CNTR	Supply ductwork centerlines	7	0.25	5	1	X		X							
M-HVAC-SPLY-HDUC	Supply ductwork - high pressure	V	0.50	4	7	X		X							
M-HVAC-SPLY-LDUC	Supply ductwork - low pressure	V	0.50	4	7	X		X							
M-HVAC-TAGS	Diffuser/register/grille tags and air flow arrows	0	0.35	6	5	X		X							
M-HVAC-WDFF	Wall diffusers, registers, and grilles	0	0.35	2	4	X		X							
<b>Hot Water Heating System</b>															
M-HWTR-EQPM	Hot water heating system equipment	0	0.35	113	16	X		X							
M-HWTR-RETN-PIPE	Hot water heating system return piping	HWR, HTHWR	0.50	113	16	X		X							
M-HWTR-SPLY-PIPE	Hot water heating system supply piping	HWS, HTHWS	0.50	113	16	X		X							
<b>Insulating (Transformer) Oil System</b>															
M-INSL-EQPM	Insulating oil equipment	0	0.35	200	13		X								
M-INSL-RETN-PIPE	Insulating oil return piping	0	0.50	200	13		X								
M-INSL-SPLY-PIPE	Insulating oil supply piping	0	0.50	200	13		X								
<b>Lubrication Oil</b>															
M-LUBE-EQPM	Lubrication oil equipment	0	0.35	200	13		X	X							
M-LUBE-RETN-PIPE	Lubrication oil return piping	0	0.50	200	13		X	X							
M-LUBE-SPLY-PIPE	Lubrication oil supply piping	0	0.50	200	13		X	X							
<b>Machine Design</b>															
M-MACH-AXLE	Shafts and axles	0	0.35	2	4			X		X					
M-MACH-BASE	Machinery bases	0	0.35	2	4			X		X					
M-MACH-BEAR	Bearings and couplings	0	0.35	2	4			X		X					
M-MACH-BELT	Wire rope, chains, and belts	0	0.35	22	22			X		X					
M-MACH-BSHG	Bushings, wear plates, shims, and spacers	0	0.35	2	4			X		X					
M-MACH-CLEV	Clevises	0	0.35	22	22			X		X					
M-MACH-COMP	Miscellaneous machinery parts and components	0	0.35	2	4			X		X					
M-MACH-COVR	Machinery covers, cover plates, and guarding	0	0.35	4	7			X		X					
M-MACH-FSTN	Fasteners, nuts, and bolts	0	0.35	2	4			X		X					
M-MACH-GEAR	Gears	0	0.35	6	5			X		X					
M-MACH-KEYS	Keys and keeper plates	0	0.35	22	22			X		X					
M-MACH-LROT	Large rotating machinery (turbine and pump outlines)	0	0.35	6	5			X		X					
M-MACH-MOTR	Machinery motors	0	0.35	6	5			X		X					
M-MACH-PINS	Pins	0	0.35	22	22			X		X					
M-MACH-PULL	Pulleys, drums, and sheaves	0	0.35	22	22			X		X					
M-MACH-RAIL	Rails (e.g., crane rails, rail hoots, splice plates, etc.)	0	0.35	22	22			X		X					
M-MACH-ROLL	Rollers and wheels	0	0.35	22	22			X		X					
M-MACH-ROLL-TRAK	Roller tracks	0	0.35	22	22			X		X					

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Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
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M-MACH-SEAL	Seals	0	0.35	22	22			X			X				
M-MACH-SHOE	Sliding shoes, skids, etc.	0	0.35	22	22			X			X				
M-MACH-SUPT	Support brackets	0	0.35	2	4			X			X				
M-MACH-SPRG	Springs	0	0.35	22	22			X			X				
<b>Mixed Air System</b>															
M-MAIR-DUCT	Mixed air ductwork	0	0.50	7	0	X									
M-MAIR-DUCT-CNTR	Mixed air ductwork centerlines	7	0.25	5	1	X									
M-MAIR-EQPM	Mixed air equipment	0	0.35	7	0	X									
<b>Material Handling Equipment</b>															
M-MATL-CRAN	Cranes	0	0.35	2	4			X		X					
M-MATL-CRAN-BOOM	Crane boom	0	0.35	2	4			X		X					
M-MATL-HOIS	Hoists	0	0.35	2	4			X		X					
M-MATL-HOOK	Hooks, eyes, and other end attachments	0	0.35	2	4			X		X					
M-MATL-LIFT	Miscellaneous lifting equipment	0	0.35	6	5			X		X					
M-MATL-WIRE	Wire rope, chains, and other hoisting medium	0	0.35	6	5			X		X					
<b>Miter Gates</b>															
M-MITR-BASE	Miter gate machinery base	0	0.35	2	4			X							
M-MITR-CLEV	Clevises	0	0.35	22	22			X							
M-MITR-CRNG	Cardanic ring	0	0.35	3	2			X							
M-MITR-CYLD	Miter gate machinery cylinder (outline not for details)	0	0.35	80	11			X							
M-MITR-TRUN	Miter gate machinery trunnion	0	0.35	1	3			X							
<b>Makeup Air System</b>															
M-MKUP-DUCT	Makeup air ductwork	0	0.50	2	4	X									
M-MKUP-DUCT-CNTR	Makeup air ductwork centerlines	7	0.25	5	1	X									
M-MKUP-EQPM	Makeup air equipment	0	0.35	2	4	X									
M-MKUP-GRIL	Makeup air grilles	0	0.35	2	4	X									
<b>Natural Gas System</b>															
M-NGAS-EQPM	Natural gas equipment	0	0.35	6	5		X	X							
M-NGAS-PIPE	Natural gas piping	NTGASN	0.35	6	5		X	X							
<b>Penetrations</b>															
M-FLOR-PENE	Floor penetrations	2	0.25	3	2	X	X	X							
M-ROOF-PENE	Roof penetrations	2	0.25	1	3	X	X	X							
M-WALL-PENE	Wall penetrations	2	0.25	2	4	X	X	X							
<b>Process Piping</b>															
M-PROC-EQPM	Process equipment	0	0.35	120	12		X								
M-PROC-RETN-PIPE	Process return piping	0	0.50	120	12		X								
M-PROC-SPLY-PIPE	Process supply piping	0	0.50	120	12		X								
<b>Relief Air System</b>															
M-RAIR-DUCT	Relief air ductwork	0	0.50	1	3	X									
M-RAIR-DUCT-CNTR	Relief air ductwork centerlines	7	0.25	5	1	X									
M-RAIR-EQPM	Relief air equipment	0	0.35	1	3	X									
M-RAIR-GRIL	Relief air grilles	0	0.35	1	3	X									
<b>Energy Recovery System</b>															
M-RCOV-EQPM	Energy recovery system equipment	0	0.35	203	45	X									
M-RCOV-RETN-PIPE	Energy recovery system return piping	0	0.50	203	45	X									
M-RCOV-SPLY-PIPE	Energy recovery system supply piping	0	0.50	203	45	X									



Discipline: Mechanical  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types									
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<b>Refrigeration System</b>															
M-REFG-DISC-PIPE	Refrigeration system discharge	REFRD	0.50	163	41	X									
M-REFG-EQPM	Refrigeration system equipment	0	0.35	163	41	X									
M-REFG-RETN-PIPE	Refrigeration system return piping	REFRS	0.50	163	41	X									
M-REFG-SPLY-PIPE	Refrigeration system supply piping	REFRL	0.50	163	41	X									
<b>Raw Water Piping</b>															
M-RWTR-EQPM	Raw water equipment	0	0.35	123	31		X	X							
M-RWTR-RETN-PIPE	Raw water return piping	0	0.50	123	31		X	X							
M-RWTR-SPLY-PIPE	Raw water supply piping	0	0.50	123	31		X	X							
<b>Steam System</b>															
M-STEM-BLBD	Boiler blow down piping	BOILBD	0.50	113	16	X									
M-STEM-CNDS	Condensate piping	CDRNAF	0.50	83	42	X									
M-STEM-EQPM	Steam system equipment	0	0.35	113	16	X									
M-STEM-HPIP	High pressure steam piping	STEAMH	0.50	113	16	X									
M-STEM-LPIP	Low pressure steam piping	STEAML	0.50	1	3	X									
M-STEM-MPIP	Medium pressure steam piping	STEAMM	0.50	2	4	X									
<b>Transfer Air System</b>															
M-TAIR-DUCT	Transfer air ductwork	0	0.50	200	13	X									
M-TAIR-DUCT-CNTR	Transfer air ductwork centerlines	7	0.25	5	1	X									
M-TAIR-EQPM	Transfer air equipment	0	0.35	200	13	X									
<b>Diagram Information</b>															
M-DIAG-GRPH	Graphics, gridlines, non-text items	V	V	V	V							X			
<b>Elevations</b>															
M-ELEV-IDEN	Component identification numbers	0	0.35	2	4								X		
M-ELEV-OTLN	Outlines	0	0.35	6	5								X		
M-ELEV-PATT	Textures and hatch patterns	0	0.18	8	9								X		
<b>Sections</b>															
M-SECT-IDEN	Component identification numbers	0	0.35	2	4									X	
M-SECT-MBND	Material beyond section cut	0	0.18	5	1									X	
M-SECT-MCUT	Material cut by section	0	0.50	4	7									X	
M-SECT-PATT	Textures and hatch patterns	0	0.18	8	9									X	
<b>Detail Information</b>															
M-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V										X

Note: V = Varies, NA = Not Applicable

Discipline: Electrical  
Model File Layers/Levels

Level/Layer Naming	Level/Layer Description	Graphic Defaults				Model File Types								
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
<b>AIA Format</b>														
<b>General Information</b>														
E-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X	X	X	X	X	X	X
E-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X
E-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	113	16	X	X	X	X	X	X	X	X	X
E-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X	X	X	X	X	X	X
E-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X	X	X	X	X	X	X
E-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X	X	X	X	X	X	X
E-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X	X	X	X	X	X	X
E-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X	X	X	X	X	X	X
E-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X	X	X	X	X	X	X
E-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X	X	X	X	X	X	X
<b>Airfields</b>														
E-AFLD-BCNS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	203	45							X		
E-AFLD-BCNS-MISC	Miscellaneous nav aids - windcones and beacons	0	0.50	203	45							X		
E-AFLD-BCNS-STRB	Strobe beacons	0	0.50	203	45							X		
E-AFLD-CIRC-CTRL	Control and monitoring circuits	0	0.50	163	41							X		
E-AFLD-CIRC-IDEN	Circuit identifier tags, symbol modifier, and text	0	0.35	2	4							X		
E-AFLD-CIRC-MULT	Multiple circuits	0	0.50	23	46							X		
E-AFLD-CIRC-SERS	Series circuits	0	0.50	203	45							X		
E-AFLD-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.50	23	46							X		
E-AFLD-DBNK	Ductbanks	EUUDCN	0.50	83	42							X		
E-AFLD-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.50	23	46							X		
E-AFLD-LITE-APPR	Approach lights	0	0.50	203	45							X		
E-AFLD-LITE-DIST	Distance and arresting gear markers	0	0.50	203	45							X		
E-AFLD-LITE-LANE	Hoverlane, taxilane, and helipad lights	0	0.50	203	45							X		
E-AFLD-LITE-OBST	Obstruction lights	0	0.50	203	45							X		
E-AFLD-LITE-RUNW	Runway lights	0	0.50	203	45							X		
E-AFLD-LITE-SIGN	Taxiway guidance signs	0	0.50	203	45							X		
E-AFLD-LITE-TAXI	Taxiway lights	0	0.50	203	45							X		
E-AFLD-LITE-THRS	Threshold lights	0	0.50	203	45							X		
E-AFLD-VALT	Airfield lighting vaults	0	0.50	203	45							X		
<b>Alarm System</b>														
E-ALRM-EQPM	Alarm system equipment	0	0.50	203	45			X						
E-ALRM-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Bell System</b>														
E-BELL-EQPM	Bell system equipment	0	0.50	203	45			X						
E-BELL-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Cable System</b>														
E-CABL-COAX	Coax cable	2	0.50	83	42			X						
E-CABL-FIBR	Fiber optics cable	FIBOPT	0.50	83	42			X						
E-CABL-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
E-CABL-MULT	Multi-conductor cable	V	0.50	83	42			X						
E-CABL-TRAY	Cable trays and wireways	0, WIREWY	0.50	203	45		X	X						
<b>Cathodic Protection System</b>														
E-CATH-ANOD	Sacrificial anode system	0	0.50	83	42					X				
E-CATH-CURR	Impress current system	0	0.50	83	42					X				

Discipline: Electrical  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
E-CATH-IDEN	Identifier tags, symbol modifier, and text	0	0.35	83	42					X				
E-CATH-TEST	Test stations	0	0.50	83	42					X				
<b>Cable TV System</b>														
E-CATV-EQPM	Cable TV system equipment	0, CABLTV	0.50	203	45			X						
E-CATV-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Closed-Circuit Television System</b>														
E-CCTV-EQPM	Closed-circuit television system equipment	0, CCTV	0.50	203	45			X						
E-CCTV-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Clock System</b>														
E-CLOK-EQPM	Clock system equipment	0	0.50	203	45			X						
E-CLOK-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Communications</b>														
E-COMM-CIRC	Circuits	0	0.50	23	46						X			
E-COMM-CNMB	Communication circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	2	4						X			
E-COMM-EQPM	Other communications distribution equipment	0	0.50	23	46						X			
E-COMM-JBOX	Communication junction boxes, pull boxes, handholes, pedestals, and splices	0	0.50	23	46						X			
E-COMM-MHOL	Manholes	0	0.50	23	46						X			
E-COMM-OVHD	Overhead communications/telephone lines	COMARN	0.50	4	7						X			
E-COMM-OVHD-IDEN	Identifier tags, symbol modifier and text	0	0.35	4	7						X			
E-COMM-POLE	Poles	0	0.50	203	45						X			
E-COMM-POLE-GUYS	Guying equipment	0	0.50	203	45						X			
E-COMM-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	203	45						X			
E-COMM-UGND	Underground communications/telephone lines	COMUGN	0.50	4	7						X			
E-COMM-UGND-IDEN	Identifier tags, symbol modifier and text	0	0.35	4	7						X			
<b>Central Dictation System</b>														
E-DICT-EQPM	Central dictation system equipment	0	0.50	203	45			X						
E-DICT-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Underground Ductbanks (to be used when multiple systems are in one ductbank system)</b>														
E-DBNK-MULT	Ductbank	EUDUCN	0.50	83	42					X	X			
E-DBNK-MULT-IDEN	Identifier tags, symbol modifier and text	0	0.35	83	42					X	X			
<b>Energy Monitoring Control Systems</b>														
E-EMCS-EQPM	Energy monitoring control system equipment	0	0.50	203	45			X						
E-EMCS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Floor Information</b>														
E-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X						
E-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X	X	X						
<b>Ground System</b>														
E-GRND-CIRC	Circuits	0	0.50	4	7				X					
E-GRND-DIAG	Ground system diagram	0	0.50	163	41				X					
E-GRND-EQUI	Equipotential ground system	0	0.50	83	42				X					
E-GRND-REFR	Reference ground system	0	0.50	23	46				X					
<b>Intercom/PA System</b>														
E-INTC-EQPM	Intercom system equipment	0	0.50	203	45			X						
E-INTC-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Lighting</b>														
E-LITE-CIRC	Lighting circuits (including crosslines and homeruns)	0	0.50	83	42	X								

Discipline: Electrical  
Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types								
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E-LITE-CLNG	Ceiling mounted (surface/pendant) fixtures	0	0.50	203	45	X								
E-LITE-CNMB	Lighting circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	2	4	X								
E-LITE-EMER	Emergency fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG)	0	0.50	23	46	X								
E-LITE-EXIT	Exit fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG)	0	0.50	203	45	X								
E-LITE-EXTR	Exterior lights	0	0.50	203	45					X				
E-LITE-EXTR-IDEN	Exterior light identifier tags, symbol modifiers, and text	0	0.35	203	45					X				
E-LITE-FLOR	Floor mounted fixtures (e.g., stage)	0	0.50	203	45	X								
E-LITE-IDEN	Light fixture identifier tags	0	0.35	2	4	X								
E-LITE-JBOX	Junction boxes	0	0.50	83	42	X								
E-LITE-PANL	Main distribution panels, switchboards, lighting panels	0	0.50	4	7	X								
E-LITE-ROOF	Roof lighting	0	0.50	203	45	X								
E-LITE-SPCL	Special fixtures	0	0.50	203	45	X								
E-LITE-SWCH	Lighting contactors, photoelectric controls, low-voltage lighting controls, etc.	0	0.50	163	41	X								
E-LITE-WALL	Wall mounted fixtures	0	0.50	203	45	X								
<b>Lightning Protection System</b>														
E-LTNG-COND	Lightning protection conductors	0	0.50	203	45				X					
E-LTNG-TERM	Lightning protection terminals	0	0.35	2	4				X					
<b>Nurse Call/Paging System</b>														
E-NURS-EQPM	Nurse call/paging system equipment	0	0.50	203	45			X						
E-NURS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Power</b>														
E-POWR-BUSW	Busways	0, BUSWAY	0.50	203	45		X							
E-POWR-CIRC	Power circuits (including crosslines and homeruns)	V	0.50	83	42		X							
E-POWR-CLNG	Ceiling outlets (receptacles and switches)	0	0.50	83	42		X							
E-POWR-CNDT	Conduit	0	0.50	83	42		X							
E-POWR-CNMB	Power circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	2	4		X							
E-POWR-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.50	23	46					X				
E-POWR-DSCO	Disconnect switches	0	0.50	163	41		X			X				
E-POWR-FEED	Feeders	0	0.50	203	45		X							
E-POWR-GENR	Generators and auxiliary equipment	0	0.50	4	7		X							
E-POWR-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.50	83	42		X	X		X				
E-POWR-MOTR	Motors and utilization equipment	0	0.50	4	7		X							
E-POWR-PANL	Panelboards, MCC, backing boards, patch panel racks	0	0.50	4	7		X	X						
E-POWR-POLE	Power poles	0	0.50	203	45					X				
E-POWR-POLE-GUYS	Guying equipment	0	0.50	203	45					X				
E-POWR-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	203	45					X				
E-POWR-SBST	Substation equipment	0	0.50	23	46					X				
E-POWR-SWBD	Switchboards	0	0.50	4	7		X	X						
E-POWR-SWCH	Fuse cutouts, motor starters, contactors, pole mounted switches, circuit breakers, reclosers, cubicle switches	0	0.50	163	41		X			X				
E-POWR-URAC	Underfloor raceways	3	0.50	203	45		X							
E-POWR-WALL	Wall/floor outlets (receptacles and switches)	0	0.50	83	42		X							
E-POWR-XFMR-PADM	Pad mounted transformers	0	0.50	23	46					X				
E-POWR-XFMR-POLM	Pole mounted transformers	0	0.50	23	46					X				
<b>Primary Electrical Cables</b>														
E-PRIM-OVHD	Overhead electrical utility lines	EPARN	0.50	4	7					X				
E-PRIM-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	4	7					X				

Discipline: Electrical  
 Model File Layers/Levels

Level/Layer Naming		Graphic Defaults				Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
E-PRIM-UGND	Underground electrical utility lines	EPUGN	0.50	4	7					X				
E-PRIM-UGND-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	4	7					X				
<b>Secondary Electrical Cables</b>														
E-SECD-OVHD	Overhead electrical utility lines	ESARN	0.50	163	41					X				
E-SECD-OVHD-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	163	41					X				
E-SECD-UGND	Underground electrical utility lines	ESUGN	0.50	163	41					X				
E-SECD-UGND-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	163	41					X				
<b>Security System</b>														
E-SERT-ACCS	Access control system	0	0.50	23	46			X						
E-SERT-CLNG	Ceiling mounted sensors	0	0.50	23	46			X						
E-SERT-FLOR	Floor mounted sensors	0	0.50	23	46			X						
E-SERT-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
E-SERT-UNDR	Buried sensors	0	0.50	23	46			X						
E-SERT-WALL	Wall mounted sensors	0	0.50	23	46			X						
<b>Sound System</b>														
E-SOUN-EQPM	Sound system equipment	0	0.50	203	45			X						
E-SOUN-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Special Systems</b>														
E-SPCL-SYST	Special systems (UMCS, EMCS, CATV, etc.)	0	0.50	203	45					X				
E-SPCL-SYST-IDENT	Special systems (UMCS, EMCS, CATV, etc.) identifier tags, symbol modifier, and text	0	0.35	203	45					X				
E-SPCL-TRAF	Traffic signal system	0	0.50	203	45					X				
E-SPCL-TRAF-IDENT	Traffic signal identifier tags, symbol modifier, and text	0	0.35	203	45					X				
<b>TV Antenna System</b>														
E-TVAN-EQPM	Television antenna system equipment	0	0.50	203	45			X						
E-TVAN-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	2	4			X						
<b>Other Discipline Information</b>														
E-DISC-INFO	Clearances and working space information (NEC code, etc.)	0	0.25	3	2	X	X	X		X	X	X	X	X
<b>Detail Information</b>														
E-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V								X	
<b>Diagram Information</b>														
E-DIAG-GRPH	Graphics, gridlines, non-text items	V	V	V	V									X
E-DIAG-IDENT	Identifier tags, symbol modifiers, and text	0	0.35	2	4									X

Note: V = Varies, NA = Not Applicable

**Discipline: Telecommunications**

**Model File Layers/Levels**

Level/Layer Name	Level/Layer Description	Graphic Defaults				Model File Types		
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #	Telephone/Data Plan	Riser Diagrams	Details
<b>AIA Format</b>								
<b>General Information</b>								
T-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	0	V	V	V	X	X	X
T-ANNO-KEYN	Reference keynotes with associated leaders	0	V	V	V	X	X	X
T-ANNO-NOTE	General notes and general remarks	0	0.35	2	4	X	X	X
T-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1	X	X	X
T-ANNO-PATT	Patterning, poche, shading, and hatching	V	0.18	8	9	X	X	X
T-ANNO-RDME	Read-me information	0	0.18	5	1	X	X	X
T-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA	X	X	X
T-ANNO-SYMB	Miscellaneous symbols	V	V	6	5	X	X	X
T-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	0	V	V	V	X	X	X
<b>Cable System</b>								
T-CABL-COAX	Coax cable	2	0.50	83	42	X		
T-CABL-FIBR	Fiber optics cable	FIBOPT	0.50	83	42	X		
T-CABL-IDEN	Cable identifiers	0	0.35	2	4	X		
T-CABL-MULT	Multi-conductor cable	0	0.50	83	42	X		
T-CABL-TRAY	Cable trays and wireways	0	0.50	203	45	X		
<b>Communications</b>								
T-COMM-CIRC	Circuits	0	0.50	83	42	X		
T-COMM-CNMB	Circuit numbers	0	0.50	83	42	X		
T-COMM-EQPM	Equipment	0	0.50	83	42	X		
T-COMM-JBOX	Junction boxes	0	0.50	83	42	X		
<b>Equipment</b>								
T-EQPM-COMB	Distribution equipment for both copper and fiber optics	0	0.50	4	7	X		
T-EQPM-COPP	Distribution equipment for copper	0	0.50	4	7	X		
T-EQPM-FIBR	Distribution equipment for fiber optic	0	0.50	4	7	X		
T-EQPM-OTHR	Other telecommunications equipment	0	0.50	4	7	X		
T-EQPM-RELA	Relays, resistors, capacitors, and inducers	0	0.50	4	7	X		
<b>Floor Information</b>								
T-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X		
T-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	3	2	X		
<b>Jacks</b>								
T-COMB-JACK	Combination telephone and data/LAN jacks	0	0.50	203	45	X		
T-DATA-JACK	Data/LAN jacks	0	0.50	203	45	X		
T-PHON-JACK	Telephone jacks	0	0.50	203	45	X		
<b>Other Discipline Information</b>								
T-DISC-INFO	Information and notes for other disciplines	V	V	V	V	X	X	
<b>Diagram Information</b>								
T-DIAG-GRPH	Graphics, gridlines, non-text items	V	V	V	V		X	
T-DIAG-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	2	4		X	
<b>Detail Information</b>								
T-DETL-GRPH	Graphics, gridlines, non-text items	V	V	V	V			X

Note: V = Varies, NA = Not Applicable

# Appendix B

## Sheet File Level/Layer Assignment Tables

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This appendix provides the sheet file level/layer assignment tables:

General.....	B3
Hazardous Materials .....	B4
Survey/Mapping.....	B5
Geotechnical .....	B6
Civil .....	B7
Landscape .....	B8
Structural.....	B9
Architectural .....	B10
Interiors .....	B11
Fire Protection.....	B12
Plumbing .....	B13
Mechanical.....	B14
Electrical .....	B15
Telecommunications .....	B16

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**Discipline: General**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
G-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
G-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
G-ANNO-LEGN	Legends and symbol keys	0	V	V	V
G-ANNO-MATC	Match lines	0	0.70	7	0
G-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
G-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
G-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
G-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
G-ANNO-REDL	Redlines	0	0.25	1	3
G-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
G-ANNO-REVC	Revision clouds	0	0.35	4	7
G-ANNO-REVS	Revision indicators and text	0	0.35	4	7
G-ANNO-SCHD	Schedules	0	V	V	V
G-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
G-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Hazardous Materials**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
H-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
H-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
H-ANNO-LEGN	Legends and symbol keys	0	V	V	V
H-ANNO-MATC	Match lines	0	0.70	7	0
H-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
H-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
H-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
H-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
H-ANNO-REDL	Redlines	0	0.25	1	3
H-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
H-ANNO-REVC	Revision clouds	0	0.35	4	7
H-ANNO-REVS	Revision indicators and text	0	0.35	4	7
H-ANNO-SCHD	Schedules	0	V	V	V
H-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
H-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Survey/Mapping**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
V-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
V-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
V-ANNO-LEGN	Legends and symbol keys	0	V	V	V
V-ANNO-MATC	Match lines	0	0.70	7	0
V-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
V-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
V-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
V-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
V-ANNO-REDL	Redlines	0	0.25	1	3
V-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
V-ANNO-REVC	Revision clouds	0	0.35	4	7
V-ANNO-REVS	Revision indicators and text	0	0.35	4	7
V-ANNO-SCHD	Schedules	0	V	V	V
V-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
V-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V
<b>Topography</b>					
V-TOPO-COOR	Coordinate grid text annotation	0	0.25	122	23
V-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.18	3	2
V-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.18	3	2

Note: V = Varies, NA = Not Applicable

**Discipline: Geotechnical**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
B-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
B-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
B-ANNO-LEGN	Legends and symbol keys	0	V	V	V
B-ANNO-MATC	Match lines	0	0.70	7	0
B-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
B-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
B-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
B-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
B-ANNO-REDL	Redlines	0	0.25	1	3
B-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
B-ANNO-REVC	Revision clouds	0	0.35	4	7
B-ANNO-REVS	Revision indicators and text	0	0.35	4	7
B-ANNO-SCHD	Schedules	0	V	V	V
B-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
B-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Civil**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
C-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
C-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
C-ANNO-LEGN	Legends and symbol keys	0	V	V	V
C-ANNO-MATC	Match lines	0	0.70	7	0
C-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
C-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
C-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
C-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
C-ANNO-REDL	Redlines	0	0.25	1	3
C-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
C-ANNO-REVC	Revision clouds	0	0.35	4	7
C-ANNO-REVS	Revision indicators and text	0	0.35	4	7
C-ANNO-SCHD	Schedules	0	V	V	V
C-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
C-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V
<b>Topography</b>					
C-TOPO-COOR	Coordinate grid text annotation	0	0.35	122	23
C-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.25	3	2
C-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.25	3	2

Note: V = Varies, NA = Not Applicable

**Discipline: Landscape**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
L-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
L-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
L-ANNO-LEGN	Legends and symbol keys	0	V	V	V
L-ANNO-MATC	Match lines	0	0.70	7	0
L-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
L-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
L-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
L-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
L-ANNO-REDL	Redlines	0	0.25	1	3
L-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
L-ANNO-REVC	Revision clouds	0	0.35	4	7
L-ANNO-REVS	Revision indicators and text	0	0.35	4	7
L-ANNO-SCHD	Schedules	0	V	V	V
L-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
L-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Structural**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
S-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
S-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
S-ANNO-LEGN	Legends and symbol keys	0	V	V	V
S-ANNO-MATC	Match lines	0	0.70	7	0
S-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
S-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
S-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
S-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
S-ANNO-REDL	Redlines	0	0.25	1	3
S-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
S-ANNO-REVC	Revision clouds	0	0.35	4	7
S-ANNO-REVS	Revision indicators and text	0	0.35	4	7
S-ANNO-SCHD	Schedules	0	V	V	V
S-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
S-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Architectural**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
A-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
A-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
A-ANNO-LEGN	Legends and symbol keys	0	V	V	V
A-ANNO-MATC	Match lines	0	0.70	7	0
A-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
A-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
A-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
A-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
A-ANNO-REDL	Redlines	0	0.25	1	3
A-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
A-ANNO-REVC	Revision clouds	0	0.35	4	7
A-ANNO-REVS	Revision indicators and text	0	0.35	4	7
A-ANNO-SCHD	Schedules	0	V	V	V
A-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
A-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable



**Discipline: Interiors**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
I-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
I-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
I-ANNO-LEGN	Legends and symbol keys	0	V	V	V
I-ANNO-MATC	Match lines	0	0.70	7	0
I-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
I-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
I-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
I-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
I-ANNO-REDL	Redlines	0	0.25	1	3
I-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
I-ANNO-REVC	Revision clouds	0	0.35	4	7
I-ANNO-REVS	Revision indicators and text	0	0.35	4	7
I-ANNO-SCHD	Schedules	0	V	V	V
I-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
I-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Fire Protection**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
F-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
F-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
F-ANNO-LEGN	Legends and symbol keys	0	V	V	V
F-ANNO-MATC	Match lines	0	0.70	7	0
F-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
F-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
F-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
F-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
F-ANNO-REDL	Redlines	0	0.25	1	3
F-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
F-ANNO-REVC	Revision clouds	0	0.35	4	7
F-ANNO-REVS	Revision indicators and text	0	0.35	4	7
F-ANNO-SCHD	Schedules	0	V	V	V
F-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
F-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Plumbing**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
P-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
P-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
P-ANNO-LEGN	Legends and symbol keys	0	V	V	V
P-ANNO-MATC	Match lines	0	0.70	7	0
P-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
P-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
P-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
P-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
P-ANNO-REDL	Redlines	0	0.25	1	3
P-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
P-ANNO-REVC	Revision clouds	0	0.35	4	7
P-ANNO-REVS	Revision indicators and text	0	0.35	4	7
P-ANNO-SCHD	Schedules	0	V	V	V
P-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
P-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Mechanical**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
M-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
M-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
M-ANNO-LEGN	Legends and symbol keys	0	V	V	V
M-ANNO-MATC	Match lines	0	0.70	7	0
M-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
M-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
M-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
M-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
M-ANNO-REDL	Redlines	0	0.25	1	3
M-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
M-ANNO-REVC	Revision clouds	0	0.35	4	7
M-ANNO-REVS	Revision indicators and text	0	0.35	4	7
M-ANNO-SCHD	Schedules	0	V	V	V
M-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
M-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Electrical**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
E-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
E-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
E-ANNO-LEGN	Legends and symbol keys	0	V	V	V
E-ANNO-MATC	Match lines	0	0.70	7	0
E-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
E-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
E-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
E-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
E-ANNO-REDL	Redlines	0	0.25	1	3
E-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
E-ANNO-REVC	Revision clouds	0	0.35	4	7
E-ANNO-REVS	Revision indicators and text	0	0.35	4	7
E-ANNO-SCHD	Schedules	0	V	V	V
E-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
E-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

**Discipline: Telecommunications**

Level/Layer Naming		Graphic Defaults			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #
<b>General Information</b>					
T-ANNO-DIMS	Sheet-specific dimensions (includes witness/extension lines, dimension terminators, dimension text)	0	V	V	V
T-ANNO-KEYN	Sheet-specific reference keynotes with associated leaders	0	V	V	V
T-ANNO-LEGN	Legends and symbol keys	0	V	V	V
T-ANNO-MATC	Match lines	0	0.70	7	0
T-ANNO-NOTE	Sheet-specific notes and general remarks	0	0.35	2	4
T-ANNO-NPLT	Non-plotting graphic information	0	0.18	5	1
T-ANNO-PATT	Sheet-specific patterning and hatching (e.g., keyplan patterning)	0	0.18	8	9
T-ANNO-RDME	Read-me information (not plotted)	0	0.18	5	1
T-ANNO-REDL	Redlines	0	0.25	1	3
T-ANNO-REFR	Reference files and raster attachments	NA	NA	NA	NA
T-ANNO-REVC	Revision clouds	0	0.35	4	7
T-ANNO-REVS	Revision indicators and text	0	0.35	4	7
T-ANNO-SCHD	Schedules	0	V	V	V
T-ANNO-SYMB	Sheet-specific symbols (e.g., scales, north arrow, section cuts, detail bubbles, etc.)	V	0.35	6	5
T-ANNO-TEXT	Sheet-specific text and callouts with associated leaders (e.g., title block text, legend and schedule text)	0	V	V	V

Note: V = Varies, NA = Not Applicable

# Appendix C

## Color Table Comparison

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For more information on Screened Colors, see the section "Screening" in Chapter 3 "Graphic Concepts."

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**Appendix C  
Color Table Comparison**

<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
1	3	
2	4	
3	2	
4	7	
5	1	
6	5	
7	0	
8	9	
9	14	
10	10	
11	19	
12	27	
13	35	
14	43	
15	51	
16	59	
17	67	
18	75	
19	83	
20	6	
21	30	
22	22	
23	46	
24	38	
25	62	
26	54	
27	78	
28	70	
29	94	
30	86	
31	110	
32	102	
33	126	
34	118	
35	142	
36	134	
37	158	
38	150	
39	174	
40	166	
41	190	
42	182	
43	206	
44	198	
45	222	
46	214	

**Appendix C  
Color Table Comparison**

<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
47	238	
48	230	
49	251	
50	20	
51	28	
52	36	
53	44	
54	52	
55	60	
56	68	
57	76	
58	84	
59	92	
60	100	
61	108	
62	116	
63	124	
64	132	
65	140	
66	148	
67	156	
68	164	
69	172	
70	180	
71	188	
72	196	
73	204	
74	212	
75	220	
76	228	
77	236	
78	244	
79	252	
80	11	
81	26	
82	18	
83	42	
84	34	
85	58	
86	50	
87	74	
88	66	
89	90	
90	82	
91	106	
92	98	

<b>Appendix C Color Table Comparison</b>		
<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
93	122	
94	114	
95	138	
96	130	
97	154	
98	146	
99	170	
100	162	
101	186	
102	178	
103	202	
104	194	
105	218	
106	210	
107	234	
108	226	
109	250	
110	242	
111	246	
112	247	
113	16	
114	32	
115	48	
116	64	
117	80	
118	96	
119	112	
120	12	
121	15	
122	23	
123	31	
124	39	
125	47	
126	55	
127	63	
128	71	
129	79	
130	87	
131	95	
132	103	
133	111	
134	119	
135	127	
136	135	
137	143	
138	151	

**Appendix C  
Color Table Comparison**

<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
139	159	
140	167	
141	175	
142	183	
143	191	
144	199	
145	207	
146	215	
147	223	
148	231	
149	239	
150	40	
151	72	
152	88	
153	104	
154	136	
155	152	
156	184	
157	216	
158	232	
159	248	
160	17	
161	25	
162	33	
163	41	
164	49	
165	57	
166	65	
167	73	
168	81	
169	89	
170	97	
171	105	
172	113	
173	121	
174	129	
175	137	
176	145	
177	153	
178	161	
179	169	
180	177	
181	185	
182	193	
183	201	
184	209	

<b>Appendix C Color Table Comparison</b>		
<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
185	217	
186	225	
187	233	
188	241	
189	249	
190	245	
191	128	
192	144	
193	160	
194	176	
195	192	
196	208	
197	224	
198	240	
199	254	
200	13	
201	29	
202	21	
203	45	
204	37	
205	61	
206	53	
207	77	
208	69	
209	93	
210	85	
211	109	
212	101	
213	125	
214	117	
215	141	
216	133	
217	157	
218	149	
219	173	
220	165	
221	189	
222	181	
223	205	
224	197	
225	221	
226	213	
227	237	
228	229	
229	253	
230	91	

**Appendix C  
Color Table Comparison**

<b>AutoCAD Color No.</b>	<b>MicroStation Color No.</b>	<b>Screened Color</b>
231	99	
232	107	
233	115	
234	123	
235	131	
236	139	
237	147	
238	155	
239	163	
240	171	
241	179	
242	187	
243	195	
244	203	
245	211	
246	219	
247	227	
248	235	
249	243	
250	8	Yes
251	200	Yes
252	168	Yes
253	120	Yes
254	56	Yes
255	24	

# **Appendix D**

## **A/E/C CAD Standard Symbology**

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# Appendix D

## A/E/C CAD Standard Symbolology

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This appendix provides the A/E/C CAD Standard Symbolology as follows:

### Lines

16THLN – Sixteenth Section Line .....	D1-3
ACIDWS – Acid Waste.....	D1-3
AIRRLF – Atmospheric Vent .....	D1-3
BANKLF – Bank Left.....	D1-3
BANKRT – Bank Right .....	D1-3
BARDIT – Ditch Barrier .....	D1-3
BARDTB – Ditch and Berm Barrier .....	D1-3
BARGEN – Generic Security Barrier ...	D1-3
BARMAS – Security Masonry Barrier ..	D1-3
BERM – Berm.....	D1-4
BOILBD – Boiler Blow Down.....	D1-4
BRINER – Brine Return.....	D1-4
BRINES – Brine Supply.....	D1-4
BUSWAY – Busway .....	D1-4
CABLTV – Cable TV .....	D1-4
CCTV – Closed Circuit TV .....	D1-4
CDRNAF – Condensate Drain .....	D1-4
CLDWTR – Potable Cold Water.....	D1-4
CMP12 – CMP 12 in. Diameter	
Linear Pattern.....	D1-5
CMP127 – CMP 127 mm x 25 mm.....	D1-5
CMP152 – CMP 152 mm x 51 mm.....	D1-5
CMP38 – CMP 38 mm x 6 mm.....	D1-5
CMP51 – CMP 51 mm x 13 mm.....	D1-5
CMP68 – CMP 68 mm x 13 mm.....	D1-5
CMP76 – CMP 76 mm x 25 mm.....	D1-5
CMPAIR – Compressed Air.....	D1-5
CMPU12 – CMP up to 12 in. Diameter	
Linear Pattern.....	D1-5
COMARN – New Communication,	
Aerial .....	D1-6
COMARX – Existing Aerial	
Communication Line .....	D1-6
COMUGN – New Communication	
Underground.....	D1-6

COMUGX – Existing Underground	
Communication Line .....	D1-6
CONDFL – Flexible Conduit .....	D1-6
CONDP – Pumped Condensate.....	D1-6
CONDWR – Condenser Water Return..	D1-6
CONDWS – Condenser Water Supply..	D1-6
CONEMT – Construction Easement .....	D1-6
CONLMT – Construction Limit.....	D1-7
CULVRT – Culvert Pipe .....	D1-7
CWR – Chilled Water Return.....	D1-7
CWS – Chilled Water Supply .....	D1-7
DCAGN – Direct Current	
Aboveground .....	D1-7
DCUGN – Direct Current	
Underground .....	D1-7
DECKCR – Corrugated Metal Deck .....	D1-7
DECKFL – Metal Floor Deck .....	D1-7
DECKRF – Metal Roof Deck.....	D1-7
DEMO – Demolition Line (NCS) .....	D1-8
DEMOLN – Demolition Line (AEC)....	D1-8
DIOWTR – Deionized Water.....	D1-8
DITCH – Ditch Line.....	D1-8
DSTWTR – Distilled Water .....	D1-8
DTR – Dual Temperature Return .....	D1-8
DTS – Dual Temperature Supply .....	D1-8
DUCTTR – Trolley Duct .....	D1-8
EPARN – New Electrical Primary,	
Aerial .....	D1-8
EPARX – Existing Aerial Primary	
Electrical Line .....	D1-9
EPUGN – New Electrical	
Underground Primary .....	D1-9
EPUGX – Existing Underground Primary	
Electrical Line .....	D1-9
ESARN – New Electrical Secondary,	
Aerial .....	D1-9
ESARX – Existing Aerial Secondary	
Electrical Line .....	D1-9
ESUGN – New Electrical Secondary,	
Underground .....	D1-9

ESUGX – Existing Underground Secondary  
     Electrical Line.....D1-9  
 EUDUCN – New Duct Bank,  
     Underground.....D1-9  
 EUDUCX – Existing Underground  
     Ductbank.....D1-9  
 FALARM – Fire Alarm.....D1-10  
 FENCE – Fence.....D1-10  
 FIBOPT – Fiber Optics Line .....D1-10  
 FILL – Fill Line.....D1-10  
 FIRE – Fire Protection Water Supply .D1-10  
 FUELOR – Fuel Oil Return .....D1-10  
 FUELOS – Fuel Oil Supply .....D1-10  
 FUELOV – Fuel Oil Tank Vent .....D1-10  
 GHR – Glycol Heating Return .....D1-10  
 GHS – Glycol Heating Supply .....D1-11  
 GOVTKL – Government Taking Line D1-11  
 GRAY – Graywater.....D1-11  
 GROUND – Ground.....D1-11  
 GUARD – Guardrail.....D1-11  
 HAZMAT – Hazardous Materials.....D1-11  
 HELIUM – Helium.....D1-11  
 HPCNDR – High Pressure CondensateD1-11  
 HTHWR – High Temperature Hot  
     Water Return.....D1-11  
 HTHWS – High Temperature Hot  
     Water Supply .....D1-12  
 HUMID – Humidification Line.....D1-12  
 HWR – Low Temperature Hot  
     Water Return.....D1-12  
 HWS – Low Temperature Hot  
     Water Supply .....D1-12  
 HWTR – Potable Hot Water.....D1-12  
 HWTRR – Potable Hot Water Return .D1-12  
 HYDRGN – Hydrogen.....D1-12  
 ICWTR – Industrial Cold Water .....D1-12  
 IHWTRR – Industrial Hot Water  
     Return.....D1-12  
 IHWTRS – Industrial Hot Water  
     Supply .....D1-13  
 INBATT – Loose Fill Batt. Insulation D1-13  
 INDDRN – Indirect Drain.....D1-13  
 INDXDC – Index Depth Contour.....D1-13  
 INTCOM – Intercom.....D1-13  
 INTRLK – Interlock Steel Members...D1-13  
 IWASTE – Industrial Waste.....D1-13  
 LADDER – Cable Ladder .....D1-13  
 LAWNSP – Lawn Sprinkler Supply ...D1-13  
 LEVEBO – Other Existing Levee .....D1-14

LEVEE – New Levee .....D1-14  
 LEVEEX – Existing Levee .....D1-14  
 LEVERP – Levee to be Repaired.....D1-14  
 LIQNIT – Liquid Nitrogen.....D1-14  
 LIQOXY – Liquid Oxygen .....D1-14  
 LIQPET – Liquid Petroleum Gas .....D1-14  
 LPCNDR – Low Pressure CondensateD1-14  
 MAKEUP – Make Up Water .....D1-14  
 MANSUC – Suction Main .....D1-15  
 MINRDC – Minor Depth Contour .....D1-15  
 MPCNDR – Medium Pressure  
     Condensate.....D1-15  
 MTHWR – Medium Temperature  
     Hot Water Return.....D1-15  
 MTHWS – Medium Temperature  
     Hot Water Supply .....D1-15  
 NITOXI – Nitrous Oxide.....D1-15  
 NITROG – Nitrogen.....D1-15  
 NONPOT – Nonpotable Water .....D1-15  
 NTGASN – Natural Gas Piping .....D1-15  
 NTGASX – Exist. Natural Gas Piping D1-16  
 NURSE – Nurse Call.....D1-16  
 OXYGEN – Oxygen .....D1-16  
 PHONE – Telephone.....D1-16  
 PNTUBE – Pneumatic Tube Runs .....D1-16  
 PROJBL – Project Boundary Line .....D1-16  
 PROPL – Property Line .....D1-16  
 PS31 – PS31 Sheet Pile.....D1-16  
 PS31H – PS31 Sheet Pile Hidden .....D1-16  
 PSA23 – PSA23 Sheet Pile .....D1-17  
 PSA23H – PSA23 Sheet Pile Hidden..D1-17  
 PZ22 – PZ22 Sheet Pile.....D1-17  
 PZ22H – PZ22 Sheet Pile Hidden .....D1-17  
 PZ27 – PZ27 Sheet Pile.....D1-17  
 PZ27H – PZ27H Sheet Pile Hidden ....D1-17  
 PZ35 – PZ35 Sheet Pile.....D1-17  
 PZ35H – PZ35 Sheet Pile Hidden .....D1-17  
 PZ40 – PZ40 Sheet Pile.....D1-17  
 PZ40H – PZ40 Sheet Pile Hidden .....D1-18  
 RAILRD – Railroad .....D1-18  
 REBR12 – Rebar at 12 Inch .....D1-18  
 REBR18 – Rebar at 18 Inch .....D1-18  
 REBR6 – Rebar at 6 Inch .....D1-18  
 REBR9 – Rebar at 9 Inch .....D1-18  
 REFRD – Refrigerant Discharge.....D1-18  
 REFRL – Refrigerant Liquid.....D1-18  
 REFRS – Refrigerant Suction .....D1-18  
 RIPPLN – Riprap Plan View.....D1-19  
 ROCK – Rock .....D1-19

ROOFDN – Roof Drain.....	D1-19
RTOFWY – Right of Way .....	D1-19
SFCWTR – Soft Cold Water.....	D1-19
SHORLN – Shore Line .....	D1-19
SHWTRR – Sanitizing Hot Water Return (180F).....	D1-19
SHWTRS – Sanitizing Hot Water Supply (180F) .....	D1-19
SILT – Silt Fence .....	D1-19
SPRINK – Main Supply Sprinkler .....	D1-20
SSILT – Super Silt Fence.....	D1-20
SSWAF – New Sanitary Sewer.....	D1-20
SSWAFX – Existing Sanitary Sewer ..	D1-20
STDCOM – Combination Standpipe...	D1-20
STDDRY – Dry Standpipe.....	D1-20
STDWET – Wet Standpipe .....	D1-20
STEAMH – High Pressure Steam .....	D1-20
STEAML – Low Pressure Steam .....	D1-20
STEAMM – Medium Pressure Steam ..	D1-21
STRAF – New Storm Drain .....	D1-21
STRAFX – Existing Storm Drain.....	D1-21
TREEL – Tree Line .....	D1-21
TUVANE – Turning Vanes.....	D1-21
VACAIR – Vacuum Air.....	D1-21
VACPD – Vacuum Pump Discharge...	D1-21
VENT – Vent.....	D1-21
VENTWS – Vent and Waste Combination.....	D1-21
WATERL – New Water Line.....	D1-22
WATRX – Existing Water Line .....	D1-22
WIREWY – Wireway .....	D1-22
WWFBRC – Welded Wire Fabric.....	D1-22

**Patterns**

ADOBE – Masonry/Adobe Rammed Earth.....	D2-3
AGGLOM - Agglomerate or Flow Breccia .....	D2-3
ALUMIN – Aluminum.....	D2-3
ANDES – Andesite .....	D2-3
ASHLER – Stone Ashler.....	D2-3
BASALT – Basalt .....	D2-3
BRASS – Bronze Brass.....	D2-3
BRBLCO – Coursed Brick Block. ....	D2-3
BRCOBD – Common Bond Brick .....	D2-3
BRECCA – Breccia.....	D2-4
BRENBD – English Bond Brick. ....	D2-4
BRFLBD – Flemish Bond Brick. ....	D2-4

BRFLCB – Flemish Common Bond .....	D2-4
BRKCF – Common/Face Brick.....	D2-4
BRKELE – Brick Elevation .....	D2-4
BRRNBD – Brick Running Bond .....	D2-4
BRSTBD – Brick Stack Bond .....	D2-4
CCBSS – Cast Concrete Block, Small Scale.....	D2-4
CCELEV – Concrete Cement Elevation .....	D2-5
CDTOP – Cementitious Deck & Topping .....	D2-5
CHALK – Chalk or Marl.....	D2-5
CHERT – Chert.....	D2-5
CLAYST – Claystone or Siltstone .....	D2-5
CMPSHL – Compaction Shale.....	D2-5
CMUBP – CMU Block .....	D2-5
CMUELB – Elevation Block.....	D2-5
COAL – Coal.....	D2-5
CONBLK – Concrete Block.....	D2-6
CONC – Concrete .....	D2-6
CONCCN – Concrete, Cinder. ....	D2-6
CONCLW – Concrete, Light Weight....	D2-6
CONCPR – Precast Cast-in-Place Concrete .....	D2-6
CONCST – Concrete, Stone.....	D2-6
CONGLM – Conglomerate .....	D2-6
CONPBS – Pumice Block Concrete, Small Scale.....	D2-6
CSHALE – Cemented Shale .....	D2-6
CSJNT – Closely Spaced Joints .....	D2-7
CSTIRN – Cast Iron .....	D2-7
CSTSTN – Cast Stone .....	D2-7
CTILSS – Ceramic Tile, Small Scale....	D2-7
CUTSTN – Cut Stone.....	D2-7
DIORIT – Diorite .....	D2-7
DOLOM – Dolomite .....	D2-7
EARTH – Compacted Fill Earthwork ...	D2-7
EEARTH – Existing Earth .....	D2-7
EROCK – Existing Rock.....	D2-8
FIBFSF – Fibrous Fire Safing .....	D2-8
FILLSC – Fill Section .....	D2-8
FILTBD – Filtration Bed.....	D2-8
GABBRO – Gabbro .....	D2-8
GLASS – Structural Glass.....	D2-8
GNEISS – Gneiss .....	D2-8
GRANIT – Granite .....	D2-8
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GROUT – Grout.....	D2-9

GRVCRE – Crushed Rock Earth	
Gravel.....	D2-9
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Earthwork.....	D2-9
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Elevation .....	D2-9
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Quilts.....	D2-9
INSRIG – Rigid Insulation.....	D2-9
INSSCM – Solid Cork Magnesia	
Insulation .....	D2-10
LIMEST – Limestone.....	D2-10
LSWAMP – Large Swamp.....	D2-10
MARBL1 – Marble .....	D2-10
MARBL2 – Marble Stone .....	D2-10
MSJNT – Moderately Spaced Joints ...	D2-10
POROUS – Porous .....	D2-10
QUARTZ – Quartzite .....	D2-10
RHYOLT – Rhyolite .....	D2-10
RIPRAP – Riprap .....	D2-11
ROCK – Rock Earthwork.....	D2-11
RUBBLE – Stone Rubble.....	D2-11
SAND – Sand .....	D2-11
SANDST – Sandstone .....	D2-11
SCHIST – Schist .....	D2-11
SHELL – Shells.....	D2-11
SLATE – Slate.....	D2-11
SOAPST – Soapstone or Serpentine ...	D2-11
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STNSQR – Squared Stone .....	D2-12
TCBCSS – Terra Cotta (Small Scale)	
Brick Cotta.....	D2-12
TCELEV – Terra Cotta Elevation .....	D2-12
TCUSS – Terra Cotta (Small Scale)	
Unglazed .....	D2-12
TERRZO – Terrazzo. ....	D2-12
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TILESF – Structural Facing Tile.....	D2-12
TUFF – Tuff or Tuff Breccia.....	D2-12
USCS1 – USCS Soil Symbol .....	D2-13
USCS10 – OL, Organic Clay or Silt,	
Low Liquid Limit.....	D2-13
USCS11 – Pt, Peat.....	D2-13
USCS12 – SC, Clayey Sand.....	D2-13
USCS13 – SM, Silty Sand.....	D2-13
USCS14 – SP, Poorly Graded Sand ....	D2-13
USCS15 – SW, Well Graded Sand.....	D2-13

USCS2 – CL, Lean Clay .....	D2-13
USCS3 – GC, Clayey Gravel .....	D2-13
USCS4 – GM, Silty Gravel .....	D2-14
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Liquid Limit .....	D2-14
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Liquid Limit .....	D2-14
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High Liquid Limit.....	D2-14
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WSJNT – Widely Spaced Joints.....	D2-14
ZONECL – Zones of Core Loss.....	D2-14

## General

### Symbols

BREAK – Break Line Symbol .....	D3-3
CNTLIN – Centerline Symbol .....	D3-3
COLLIN – Column Line/	
Grid Indicator.....	D3-3
DBLARR – Double Arrow Terminator.	D3-3
DTLIND – Detail Indicator .....	D3-3
ELEV1 – Elevation Indicator, Interior ..	D3-3
ELEV2 – Elevation Indicator, Interior ..	D3-3
ELEV3 – Elevation Indicator, Interior ..	D3-3
ELEV4 – Elevation Indicator, Interior ..	D3-3
KEYIND – Keynote Indicator.....	D3-4
MAGNOR – Magnetic North Arrow ....	D3-4
MATIND – Match Line Indicator .....	D3-4
NORIND – North Indicator.....	D3-4
NORNCS – North Indicator (NCS).....	D3-4
NORTH1 – North Indicator.....	D3-4
NORTH2 – North Indicator.....	D3-4
NORTH3 – North Indicator.....	D3-4
NOTIND – Note Indicator.....	D3-4
REVID1 – Revision Indicator, 1 Char ..	D3-5
REVID2 – Revision Indicator, 2 Char ..	D3-5
S00001 – Scale 1 : 1 .....	D3-5
S00005 – Scale 1 : 5 .....	D3-5
S0000B – Scale 1” = 1”.....	D3-5
S00010 – Scale 1 : 10.....	D3-5
S0001B – Scale 1” = 1’ .....	D3-5
S0001G – Scale 1” = 1’ .....	D3-5
S00020 – Scale 1 : 20.....	D3-5
S0003B – Scale 3” = 1’ .....	D3-6

S0003G – Scale 3" = 1' .....	D3-6
S00050 – Scale 1 : 50 .....	D3-6
S0005B – Scale 1" = 5' .....	D3-6
S0005G – Scale 1" = 5' .....	D3-6
S0006B – Scale 6" = 1' .....	D3-6
S0006G – Scale 6" = 1' .....	D3-6
S00100 – Scale 1 : 100 .....	D3-6
S0010B – Scale 1" = 10' .....	D3-6
S0010G – Scale 1" = 10' .....	D3-7
S0012B – Scale 1/2" = 1' .....	D3-7
S0012G – Scale 1/2" = 1' .....	D3-7
S0014B – Scale 1/4" = 1' .....	D3-7
S0014G – Scale 1/4" = 1' .....	D3-7
S0015B – Scale 1-1/2" = 1' .....	D3-7
S0015G – Scale 1-1/2" = 1' .....	D3-7
S0016B – Scale 1/16" = 1' .....	D3-7
S0016G – Scale 1/16" = 1' .....	D3-7
S0018B – Scale 1/8" = 1' .....	D3-8
S0018G – Scale 1/8" = 1' .....	D3-8
S001KB – Scale 1:1000 .....	D3-8
S00200 – Scale 1 : 200 .....	D3-8
S0020B – Scale 1" = 20' .....	D3-8
S0020G – Scale 1" = 20' .....	D3-8
S002KB – Scale 1:2000 .....	D3-8
S0030B – Scale 1" = 30' .....	D3-8
S0030G – Scale 1" = 30' .....	D3-8
S0034B – Scale 3/4" = 1' .....	D3-9
S0034G – Scale 3/4" = 1' .....	D3-9
S0038B – Scale 3/8" = 1' .....	D3-9
S0038G – Scale 3/8" = 1' .....	D3-9
S0040B – Scale 1" = 40' .....	D3-9
S0040G – Scale 1" = 40' .....	D3-9
S00500 – Scale 1 : 500 .....	D3-9
S0050B – Scale 1" = 50' .....	D3-9
S0050G – Scale 1" = 50' .....	D3-9
S005KB – Scale 1:5000 .....	D3-10
S0060B – Scale 1" = 60' .....	D3-10
S0060G – Scale 1" = 60' .....	D3-10
S0080B – Scale 1" = 80' .....	D3-10
S0080G – Scale 1" = 80' .....	D3-10
S01000 – Scale 1 : 1000 .....	D3-10
S0100B – Scale 1" = 100' .....	D3-10
S0100G – Scale 1" = 100' .....	D3-10
S010KB – Scale 1 : 10000 .....	D3-10
S0150B – Scale 1" = 15' .....	D3-11
S0150G – Scale 1" = 15' .....	D3-11
S02000 – Scale 1 : 2000 .....	D3-11
S0200B – Scale 1" = 200' .....	D3-11
S0200G – Scale 1" = 200' .....	D3-11
S0300B – Scale 1" = 300' .....	D3-11

S0300G – Scale 1" = 300' .....	D3-11
S0316B – Scale 3/16" = 1' .....	D3-11
S0316G – Scale 3/16" = 1' .....	D3-11
S0332B – Scale 3/32" = 1' .....	D3-12
S0332G – Scale 3/32" = 1' .....	D3-12
S0364B – Scale 3/64" = 1' .....	D3-12
S0364G – Scale 3/64" = 1' .....	D3-12
S0400B – Scale 1" = 400' .....	D3-12
S0400G – Scale 1" = 400' .....	D3-12
S05000 – Scale 1 : 5000 .....	D3-12
S0500B – Scale 1" = 500' .....	D3-12
S0500G – Scale 1" = 500' .....	D3-12
S06000 – Scale 1 : 6000 .....	D3-13
S0600B – Scale 1" = 600' .....	D3-13
S0600G – Scale 1" = 600' .....	D3-13
S0800B – Scale 1" = 800' .....	D3-13
S0800G – Scale 1" = 800' .....	D3-13
S10000 – Scale 1 : 10000 .....	D3-13
S1000B – Scale 1" = 1000' .....	D3-13
S1000G – Scale 1" = 1000' .....	D3-13
S10K0B – Scale 1" = 10000' .....	D3-13
S10K0G – Scale 1" = 10000' .....	D3-14
S125KB – Scale 1 : 125000 .....	D3-14
S20000 – Scale 1 : 20000 .....	D3-14
S2000B – Scale 1" = 2000' .....	D3-14
S2000G – Scale 1" = 2000' .....	D3-14
S3000B – Scale 1" = 3000' .....	D3-14
S3000G – Scale 1" = 3000' .....	D3-14
S4000B – Scale 1" = 4000' .....	D3-14
S4000G – Scale 1" = 4000' .....	D3-14
S5000B – Scale 1" = 5000' .....	D3-15
S5000G – Scale 1" = 5000' .....	D3-15
S6000B – Scale 1" = 6000' .....	D3-15
S6000G – Scale 1" = 6000' .....	D3-15
S8000B – Scale 1" = 8000' .....	D3-15
S8000G – Scale 1" = 8000' .....	D3-15
SECIN1 – Section/Elevation Indicator	D3-15
SECIN2 – Section/Elevation Indicator	D3-15
TITLE1 – Drawing Block Title .....	D3-15
TITLE2 – Drawing Block Title .....	D3-16

## Hazardous Materials

### Symbols

AIRQST – Air Quality Monitoring Station .....	D4-3
AIRSMP – Air Sample Location .....	D4-3

BIOSMP – Biological Sample Location	D4-3
EGDECN – Equip. Decontamination	....D4-3
EGONST – Onsite Command Post	.....D4-3
EGSITE – Site Information Center	.....D4-3
EGWASH – Washdown Water Tank	....D4-3
EHZMSA – Hazmat Storage Location	..D4-3
EHZMSB – Hazmat Storage Building	..D4-3
EHZMSR – Hazmat Storage Room	.....D4-4
EHZMSV – Hazmat Storage Vault	.....D4-4
EHZWSA – Hazwaste Storage Location	D4-4
EHZWSB – Hazwaste Storage Building	D4-4
EHZWSR – Hazwaste Storage Room	...D4-4
EHZWSV – Hazwaste Storage Vault	....D4-4
EMGSHW – Emergency Shower	.....D4-4
EPOLLS – Pollution Source Site	.....D4-4
EYEWAS – Emergency Eyewash	.....D4-4
GWTQST – Groundwater Quality Monitoring Station	.....D4-5
LANGAS – Landfill Gas Monitor Probe	D4-5
MAGLOC – Magnetometer Det. Locat.	D4-5
MATSMP – Solid Material Sample Location	.....D4-5
PRLLOC – Potential Release Location	.D4-5
RESTR – Restricted Access	.....D4-5
SEDSMP – Sediment Sample Location	D4-5
SOLGAS – Soil Gas Monitoring Probe	D4-5
SOLSMP – Soil Sample Location	.....D4-5
SPLRES – Spill Response	.....D4-6
SPLTNK – Spill Containment Tank	.....D4-6
SURSMP – Surface Water Sample Loc	D4-6
SWTQST – Surface Water Quality Monitoring Station	.....D4-6
WASSMP – Waste Sample Location	....D4-6
WATSMP – Groundwater Sample Loc.	D4-6

ANCHR2 – Anchorage Large Vessel	....D5-3
ANCHR3 – Anchorage Small Vessel	....D5-3
ANCHR4 – Anchorage Small Vessel	....D5-3
ANCHR5 – Anchorage Small Vessel	....D5-4
ANCHRB – Anchor Berth	.....D5-4
ARROW – Arrow Terminator	.....D5-4
BAR1 – Barrel Buoy	.....D5-4
BAR1C – Barrel Buoy, Indicate Color	..D5-4
BAR2 – Barrel Buoy	.....D5-4
BARD – Barrel Buoy, Diagonal Stripe	.D5-4
BARLT1 – Barrel Buoy, Lighted	.....D5-4
BARLT2 – Barrel Buoy, Lighted	.....D5-4
BARMKR – Barrier Marker	.....D5-5
BARV – Barrel Buoy, Vertical Stripe	...D5-5
BARVT – Barrel Buoy, Vertical Stripe, w/Topmark	.....D5-5
BCN1 – General Beacon	.....D5-5
BCN2 – General Beacon	.....D5-5
BCN3 – General Beacon	.....D5-5
BCN4 – General Beacon	.....D5-5
BCN5 – General Beacon	.....D5-5
BCNBY1 – Buoyant Beacon	.....D5-5
BCNBY2 – Buoyant Beacon	.....D5-6
BCNLT1 – Lighted Beacon	.....D5-6
BCNLT2 – Lighted Beacon	.....D5-6
BCNLT3 – Lighted Beacon	.....D5-6
BCNRES – Resilient Beacon	.....D5-6
BCNTG1 – Telegraphic Mooring Beacon	.....D5-6
BCNTG2 – Telegraphic Mooring Beacon	.....D5-6
BCNTP1 – Telephonic Mooring Beacon	.....D5-6
BCNTP2 – Telephonic Mooring Beacon	.....D5-6
BCNTR1 – Triangular Beacon	.....D5-7
BCNTR2 – Triangular Beacon	.....D5-7
BM – Bench Mark	.....D5-7
BMALT – Bench Mark Alternate	.....D5-7
BNDMRK – Boundary Mark	.....D5-7
BREAK – Break Line Symbol	.....D5-7
BYANCH – Anchorage Buoy	.....D5-7
BYBELB – Bell Barrel Buoy	.....D5-7
BYBELP – Bell Pillar Buoy	.....D5-7
BYCHEC – Checkered Buoy	.....D5-8
BYCOMP – Compass Adjustment Buoy	.....D5-8
BYEXPL – Explosive Anchorage Buoy	.....D5-8

## Survey/Mapping

### Symbols

ACLLEL – Elevated Approach Lightbar	.....D5-3
ACLLSF – Semiflush Approach Lightbar	.....D5-3
AERO – Seaplane Anchorage Buoy	....D5-3
AFBCN – Airfield Beacon	.....D5-3
AIRFLD – Airfield Symbol	.....D5-3
ANCHR1 – Anchorage Large Vessel	....D5-3

BYFISH – Fish Trap Buoy.....D5-8  
 BYGONB – Gong Barrel Buoy.....D5-8  
 BYGONP – Gong Pillar Buoy .....D5-8  
 BYJUNC – Junction Buoy .....D5-8  
 BYPOS – Position of Buoy .....D5-8  
 BYQUAR – Quarantine Buoy.....D5-8  
 BYWAV1 – Wave Actuated Bell  
     Buoy.....D5-9  
 BYWAV2 – Wave Actuated Bell  
     Buoy.....D5-9  
 BYWHIB – Whistle Barrel Buoy.....D5-9  
 BYWHIP – Whistle Pillar Buoy.....D5-9  
 CABCNZ – Cable Crossing Zone .....D5-9  
 CABDIS – Disused Submarine Cable...D5-9  
 CABLAN – Cable Landing Beacon .....D5-9  
 CABLE – Submarine Cable .....D5-9  
 CABLE1 – Submarine Cable Area.....D5-9  
 CABLE2 – Submarine Cable Area.....D5-10  
 CABPWR – Submarine Power Area...D5-10  
 CAIRN1 – Cairn.....D5-10  
 CAIRN2 – Cairn.....D5-10  
 CAIRN3 – Cairn.....D5-10  
 CAIRN4 – Cairn.....D5-10  
 CAN1 – Can Buoy .....D5-10  
 CAN2 – Can Buoy .....D5-10  
 CANWT – White Can Buoy  
     w/Topmark.....D5-10  
 CATBSN – Catch Basin.....D5-11  
 CATBSR – Round Catch Basin .....D5-11  
 CDHDR – Core Drill Hole Drilled.....D5-11  
 CDHUDR – Core Drill Hole UndrilledD5-11  
 CGRES1 – Coast Guard Rescue  
     Station .....D5-11  
 CGRES2 – Coast Guard Rescue  
     Station .....D5-11  
 CGRES3 – Coast Guard Rescue  
     Station .....D5-11  
 CKTID – Circuit ID Symbol .....D5-11  
 CLNOUT – Cleanout .....D5-11  
 CMANH – Communication Manhole .D5-12  
 CNR90 – Corner Solid 90 .....D5-12  
 CNRNF – Corner Not Found .....D5-12  
 CNRSF – Corner Solid Flat.....D5-12  
 CNTLIN – Centerline Symbol .....D5-12  
 COAST1 – Coast Guard Station.....D5-12  
 COAST2 – Coast Guard Station.....D5-12  
 COAST3 – Coast Guard Station.....D5-12  
 COAST4 – Coast Guard Station.....D5-12  
 CULVEE – Culvert End Symbol .....D5-13  
 DBID – Ductbank ID Symbol .....D5-13

DBLARR – Double Arrow TerminatorD5-13  
 DISPLT – Disused Platform.....D5-13  
 DNGPB – Lighted Danger Pillar BuoyD5-13  
 DNGRK – Danger Underwater Rocks  
     Depth Unknown.....D5-13  
 DNGRK1 – Danger Underwater Rocks  
     Depth Unknown.....D5-13  
 DNGSB – Lighted Danger Spar Buoy D5-13  
 DOLPHN – Dolphin.....D5-13  
 DSTMKR – Runway Distance MarkerD5-14  
 DSWTCH – Distribution Switch.....D5-14  
 DTHL – Displace Threshold Light.....D5-14  
 ECRD – Rock Dam Sediment Trap....D5-14  
 EHANDH – Electrical Handhole .....D5-14  
 EMANH – Electrical Manhole.....D5-14  
 EPULLB – Electrical Pullbox .....D5-14  
 ERSBD – Straw Bale Dam.....D5-14  
 ERSCTD – Sediment Ctrl Temp Div...D5-14  
 ERSF – Silt Fence .....D5-15  
 ERSFRO – Silt Fence Rock Overflow D5-15  
 ERSOST – Stone Outlet Sed. Trap.....D5-15  
 ERTGCE – Constr. Entrance Exit .....D5-15  
 FIXPNT – Fixed Point .....D5-15  
 FLARRL – Flow Arrow Left in 0 Pt...D5-15  
 FLARRR – Flow Arrow Right in 0 Pt.D5-15  
 FLDGAT – Flood Gate .....D5-15  
 FOG – Fog Signal.....D5-15  
 FOGBCN – Fog Signal Beacon .....D5-16  
 FOGBY – Fog Signal Buoy .....D5-16  
 FOGLS – Fog Signal Light Ship.....D5-16  
 FOGLSM – Fog Signal Light Ship,  
     Manned .....D5-16  
 FOMETR – Fuel Oil Meter .....D5-16  
 FOMHOL – Fuel Oil Manhole.....D5-16  
 FOVALT – Fuel Oil Vault .....D5-16  
 GREASE – Grease Trap.....D5-16  
 GRITCH – Grit Chamber .....D5-16  
 GSMETR – Natural Gas Meter .....D5-17  
 GSMHOL – Natural Gas Manhole.....D5-17  
 GSPLNT – Gas Plant .....D5-17  
 GSRECR – Natural Gas Receiver .....D5-17  
 GSTRAP – Natural Gas Trap.....D5-17  
 GSVALT – Gas Valve Vault.....D5-17  
 GUYWR – Guy Wire .....D5-17  
 HEADWL – Headwall .....D5-17  
 HLL – Hoverlane Light.....D5-17  
 HLLL – Hoverlane Limit Light.....D5-18  
 HORCPT – Horizontal Control Point..D5-18  
 HOVCPT – Horiz. Vert. Control PointD5-18  
 HPIL – Helipad Inset Light .....D5-18

HPLEL – Elevated Helipad Perimeter  
     Light.....D5-18  
 HPPLSF – Semiflush Helipad Perimeter  
     Light.....D5-18  
 HUREYE – Hurricane Eye.....D5-18  
 HYDRNT – Fire Hydrant.....D5-18  
 INSHWY – Interstate Hwy. Symbol...D5-18  
 INSTBY – Oil Gas Installation Buoy..D5-19  
 IPC – Iron Pin and Cap.....D5-19  
 IWMETR – Industrial Waste Water  
     Meter.....D5-19  
 IWMHOL – Industrial Waste ManholeD5-19  
 JETTY – Jetty.....D5-19  
 JNBX – Junction Box.....D5-19  
 KELP – Kelp/Seaweed.....D5-19  
 LANBY1 – Lanby Superbuoy Navaid D5-19  
 LANBY2 – Lanby Superbuoy Navaid D5-19  
 LATBCN – Lattice Beacon.....D5-20  
 LIFEFT – Lifeboat Station.....D5-20  
 LIFEM1 – Lifeboat at Mooring.....D5-20  
 LIFEM2 – Lifeboat at Mooring.....D5-20  
 LIMIT – Limit of Safety Zone.....D5-20  
 LITSV1 – Floating Light.....D5-20  
 LITSV2 – Floating Light.....D5-20  
 LOOKTR – Lookout Watch Station....D5-20  
 LTART – Articulated Light.....D5-20  
 LTBEAC – Lighted Beacon.....D5-21  
 LTBY – Lighted Buoy.....D5-21  
 LTBYBB – Lighted Black Barrel  
     Buoy.....D5-21  
 LTFLD – Floodlight.....D5-21  
 LTFLT – Float Light.....D5-21  
 LTFLT1 – Float Light IALA.....D5-21  
 LTFLT2 – Float Light IALA.....D5-21  
 LTHOU1 – Lighthouse.....D5-21  
 LTHOU2 – Lighthouse.....D5-21  
 LTMAJ1 – Major Floating Light.....D5-22  
 LTMAJ2 – Major Floating Light.....D5-22  
 LTMARK – Lighted Marker.....D5-22  
 LTMIN2 – Minor Floating Light.....D5-22  
 LTPLT1 – Lighted Platform.....D5-22  
 LTPLT2 – Lighted Platform.....D5-22  
 LTPLX – Existing Light Pole.....D5-22  
 LTSH1 – Lighted Vessel Lightship ..D5-22  
 LTSH2 – Lighted Vessel Lightship ..D5-22  
 LTSH3 – Lighted Vessel Lightship ..D5-23  
 LTTOW2 – Lighted Beacon Tower ....D5-23  
 LTVES2 – Unmanned Light Vessel....D5-23  
 MARINA – Boat Harbor Marina.....D5-23

MARKGD – Green Day Marker.....D5-23  
 MARKRD – Red Day Marker.....D5-23  
 MEAST – Lighted East Marker Buoy.D5-23  
 MONWEL – Monitoring Well.....D5-23  
 MORB – Mooring Buoy.....D5-23  
 MORBBB – Black Mooring Barrel  
     Buoy.....D5-24  
 MORBBW – White Mooring Barrel  
     Buoy.....D5-24  
 MORBCW – White Mooring Can  
     Buoy.....D5-24  
 MORTWR – Mooring Tower.....D5-24  
 MSOUTH – Lighted South Marker  
     Buoy.....D5-24  
 MWEST – Lighted West Marker  
     Buoy.....D5-24  
 NOTICE – Notice Board.....D5-24  
 NUN1 – Nun Buoy.....D5-24  
 NUN2 – Nun Buoy.....D5-24  
 NUNBT – Black Nun Buoy  
     w/Topmark.....D5-25  
 NUNWT – White Nun Buoy  
     w/Topmark.....D5-25  
 OBS – Obstruction.....D5-25  
 OBSSPT – Observation Spot.....D5-25  
 OBSTRL – Obstruction Light.....D5-25  
 ODAS – ODAS Data Collection BuoyD5-25  
 OUTB – Outfall Marking Buoy.....D5-25  
 PAPI – PAPI Light Unit.....D5-25  
 PHANDH – Primary Elec Handhole...D5-25  
 PHOCPT – Photo Control Point.....D5-26  
 PIINFO – PI Information.....D5-26  
 PIL1 – Pillar Buoy.....D5-26  
 PIL2 – Pillar Buoy.....D5-26  
 PILLT – Lighted Pillar Buoy.....D5-26  
 PILM – Multicolored Pillar Buoy.....D5-26  
 PILOT – Boarding Place.....D5-26  
 PILOT1 – Pilot Office.....D5-26  
 PILOT2 – Pilot Office.....D5-26  
 PILV – Vertical Stripe Pillar Buoy ....D5-27  
 PILVT – Vertical Stripe Pillar Buoy  
     w/Topmark.....D5-27  
 PIPDIS – Disused Pipeline Pipe.....D5-27  
 PIPE – Water Sewer Outfall Intake....D5-27  
 PIPE1 – Oil Gas Pipeline.....D5-27  
 PIPE2 – Oil Gas Pipeline.....D5-27  
 PIPES1 – Oil Gas Pipeline Area.....D5-27  
 PIPES2 – Oil Gas Pipeline Area.....D5-27  
 PIVALV – Post Indicator Valve.....D5-27



PLAT1 – Prod Platform Oil Derrick ...D5-28  
 PLAT2 – Prod Platform Oil Derrick ...D5-28  
 PLAT3 – Prod Platform Oil Derrick ...D5-28  
 PMPSTA – Pump Station.....D5-28  
 POLE1 – Pole Stake Perch.....D5-28  
 POLE3 – Pole Stake Perch.....D5-28  
 POLEAR – Aerial Pole w/Guying .....D5-28  
 POLEID – Pole Identification SymbolD5-28  
 POLEP – Port Hand Stake Pole.....D5-28  
 POLES – Starboard Hand Stake Pole..D5-29  
 PRIVB – Private Barrel Buoy .....D5-29  
 RADAR – Radar Station or Beacon ....D5-29  
 RADAR1 – Floating Radar Beacon ....D5-29  
 RADAR2 – Floating Radar Beacon ....D5-29  
 RADAR3 – Floating Radar Beacon ....D5-29  
 RADAR4 – Floating Radar Beacon ....D5-29  
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 RESCUE – Rescue Station.....D5-30  
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     Platform .....D5-30  
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     Station .....D5-33  
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 SNVALT – Sanitary Valve Vault.....D5-35  
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     w/Position .....D5-37  
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Known.....	D5-38
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Above Ground.....	D5-39
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Above Ground.....	D5-39
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w/Topmark.....	D5-40
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w/Topmark.....	D5-40
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TREEG – Tree, Generic .....	D5-41
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Phase No., Thru .....	D5-41

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Light.....	D5-42
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Light.....	D5-42
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Light.....	D5-42
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Light.....	D5-42
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VERCPT – Vertical Control Point .....	D5-43
WAHHOL – Water Handhole .....	D5-43
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WAMHOL – Water Manhole.....	D5-43
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WASOFT – Water Softener .....	D5-43
WAVALT – Water Valve Vault.....	D5-43
WEIR – Weir.....	D5-43
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WELL3 – Wellhead, Above Water .....	D5-44
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Unknown.....	D5-44
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## Geotechnical

### Symbols

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(Arrow=Dir).....	D6-3
ANTICL – Anticline .....	D6-3
BHHNUM – Backhoe Hole Number....	D6-3
BOLOGR – Boring Log Refusal.....	D6-3
BORLOG – Boring Log Sheet .....	D6-3

CCHNUM – Concrete Core	
Hole Number.....	D6-3
CDRDSH – Consolidated-Drained	
Direct Shear .....	D6-3
CONDRA – Consolidated Drained .....	D6-3
CONSOL – Consolidation.....	D6-3
CONTST – Consolidation Test .....	D6-4
CONUDR – Consolidated Undrained ...	D6-4
CPNHOL – Cone Penetrometer Hole....	D6-4
CUDRTT – Consolidated-Undrained	
Triaxial Test.....	D6-4
DSCHIC – Boring w/Inclinometer.....	D6-4
DSCHOL – Drive Sampled (SPT)	
and Cored.....	D6-4
DSCHPT – Drive Sampled (SPT)	
and Cored Hyd. Pressure Tested ....	D6-4
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and Cored w/Piezometer .....	D6-4
DSCPZT – Drive Sampled (SPT)	
and Cored Hyd Test Piezometer .....	D6-4
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w/Piezometer.....	D6-5
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Number .....	D6-5
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HANGF2 – High Angle Fault 2 .....	D6-5
HDHNUM – Hand Dug Hole Number..	D6-5
HEXAGN – Hexagon Symbol .....	D6-6
HOLNUM – Hole Number, Elevation,	
Offset .....	D6-6
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ICCSNG – Inclinometer Casing .....	D6-6
MOISTC – Moisture Content.....	D6-6
NSAHOL – Nonsampled Area	
of Hole .....	D6-6
OBSHOL – Piezometer or	
Observation Hole .....	D6-6
OPBLOG – Open Boring Log.....	D6-6
PAHNUM – Power Auger Hole	
Number .....	D6-6
PIEZOM – Piezometer .....	D6-7
PROPEX – Proposed Exploration.....	D6-7
PTHNUM – Perc Test Hole Number ....	D6-7
PZABD – Abandoned Piezometer.....	D6-7
PZUNIT – Piezometer Sensing Unit .....	D6-7

RDHNUM – Rotary Drill Hole	
Number .....	D6-7
RFWELL – Relief Well.....	D6-7
RSLASH – Refusal Slashes.....	D6-7
SAMPLE – Sample .....	D6-7
SDIJNT – Strike Dip of Inclined Joint..	D6-8
SQUARE – Square Symbol.....	D6-8
STKLNG – Sticklog Legend.....	D6-8
STKLOG – Sticklog.....	D6-8
STRKDP – Strike Dip .....	D6-8
STRKVJ – Strike of Vertical Joint.....	D6-8
STRKVP – Strike w/Vertical Dip .....	D6-8
SYNCLN – Syncline .....	D6-8
TPIOB – Test Pit in Overburden .....	D6-8
TRIANG – Triangle Symbol.....	D6-9
TSHOL – Test Hole Symbol.....	D6-9
TTIOB – Test Trench in Overburden....	D6-9
UCELL – Uplift Cell.....	D6-9
UCONUD – Unconsolidated	
Undrained.....	D6-9
UCONUT Unconsolidated-Undrained	
Triaxial Test.....	D6-9
UDENIS – Undisturbed Denison	
or Push .....	D6-9
UDUNPZ – Undisturbed Sample Boring	
Piezometer.....	D6-9
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VCHHPT – Vertical Core Hole Hyd.	
Pressure Tested .....	D6-10
VCHOL – Vertical Core Hole.....	D6-10
VHNUM – Vibracore Hole Number ...	D6-10
WASHBR – Washbored.....	D6-10
WBHNUM – Wash Boring Hole	
Number .....	D6-10
WLEVDL – Water Level Date Left ....	D6-10
WTRLEV – Water Level.....	D6-10

## Civil

### Symbols

AIRFLD – Airfield Symbol.....	D7-3
ARRPT – Parking Turn Arrow.....	D7-3
ARRSD – Straight Direction Arrow.....	D7-3
ARRST – Straight and Turn Arrow.....	D7-3
BREAK – Break Line Symbol .....	D7-3
BUOY – Buoy .....	D7-3
CATBSN – Catch Basin.....	D7-3

CATBSR – Round Catch Basin .....	D7-3
CDHDR – Core Drill Hole Drilled.....	D7-3
CDHUDR – Core Drill Hole Undrilled..	D7-4
CLNOUT – Cleanout .....	D7-4
CNR90 – Corner Solid 90 .....	D7-4
CNRSF – Corner Solid Flat.....	D7-4
CNTLIN – Centerline Symbol .....	D7-4
COGRAV – Center of Gravity .....	D7-4
CULVEE – Culvert End.....	D7-4
DBLARR – Dble Arrow Terminator.....	D7-4
DRLHOL – Drill Hole.....	D7-4
ECRD – Rock Dam Sediment Trap.....	D7-5
ERSBD – Staw Bale Dam .....	D7-5
ERSCTD – Sediment Ctrl Temp Div ....	D7-5
ERSF – Silt Fence .....	D7-5
ERSFRO – Silt Fence Rock Overflow ..	D7-5
ERSOST – Stone Outlet Sed Trap.....	D7-5
ERTGCE – Construction Entr Exit .....	D7-5
FLARRL – Flow Arrow Left in 0 Pt.....	D7-5
FLARRR – Flow Arrow Right in 0 Pt...D7-5	
FOMETR – Fuel Oil Meter .....	D7-6
FOMHOL – Fuel Oil Manhole.....	D7-6
FOVALT – Fuel Oil Vault .....	D7-6
GREASE – Grease Trap.....	D7-6
GRITCH – Grit Chamber .....	D7-6
GSMETR – Natural Gas Meter .....	D7-6
GSMHOL – Natural Gas Manhole.....	D7-6
GSPLNT – Gas Plant .....	D7-6
GSRECR – Natural Gas Receiver .....	D7-6
GSTRAP – Natural Gas Trap .....	D7-7
GSVALT – Gas Valve Vault.....	D7-7
HEADWL – Headwall .....	D7-7
HNDCAP – Handicap Chair Symbol ....	D7-7
HORCPT – Horizontal Control Point....	D7-7
HOVCPT – Horiz. Vert. Control Point .D7-7	
HUREYE – Hurricane Eye.....	D7-7
HYDRNT – Fire Hydrant.....	D7-7
INSHWY – Interstate Hwy Symbol .....	D7-7
IWMETR – Industrial Waste Water Meter .....	D7-8
IWMHOL – Industrial Waste Water Manhole .....	D7-8
JNBX – Junction Box.....	D7-8
MONWEL – Monitoring Well.....	D7-8
PHOCPT – Photo Control Point.....	D7-8
PIINFO – PI Information.....	D7-8
PIVALV – Post Indicator Valve.....	D7-8
PMPSTA – Pump Station.....	D7-8
RGVALV – Regulator Valve .....	D7-8

RRSIGN – Rail Signal .....	D7-9
RRSWTC – Rail Switch.....	D7-9
SCNRH – Section Corner Hatched .....	D7-9
SCNRO – Section Corner Open.....	D7-9
SDMHOL – Storm Drainage Manhole..	D7-9
SHRUBC – Shrub, Coniferous.....	D7-9
SHRUBD – Shrub, Deciduous .....	D7-9
SIGN – Sign .....	D7-9
SNLIFT – Sanitary Sewer Lift Station..	D7-9
SNMHOL – Sanitary Manhole.....	D7-10
SNPVSL – Sanitary Pressure Vessel...D7-10	
SNVALT – Sanitary Valve Vault.....	D7-10
SPOTEL – Ground Spot Elevation .....	D7-10
SPTANK – Septic Tank .....	D7-10
STHWY – State Highway Symbol.....	D7-10
STMPIT – Steam Pit .....	D7-10
SWAMP – Swamp .....	D7-10
TIDEG – Tide Gage .....	D7-10
TIRETR – Tire Treddle.....	D7-11
TNKBG – Tank, Below Ground .....	D7-11
TNKHAG – Tank, Horizontal Above Ground.....	D7-11
TNKVAG – Tank, Vertical Above Ground.....	D7-11
TRACR – Traffic Arm w/Card ReaderD7-11	
TRAMS – Traffic Arm, Mechanical Swing.....	D7-11
TREEC – Tree, Coniferous .....	D7-11
TREED – Tree, Deciduous.....	D7-11
TREEG – Tree, Generic .....	D7-11
USHWY – US Highway Symbol .....	D7-12
VCDATA – Vertical Curve Data .....	D7-12
VERCPT – Vertical Control Point .....	D7-12
WAHHOL – Water Handhole .....	D7-12
WAMETR – Water Meter .....	D7-12
WAMHOL – Water Manhole.....	D7-12
WAPLNT – Water Plant .....	D7-12
WASOFT – Water Softener .....	D7-12
WAVALT – Water Valve Vault.....	D7-12

## Landscape

### Symbols

SHRUBC – Shrub, Coniferous.....	D8-3
SHRUBD – Shrub, Deciduous .....	D8-3
TREEC – Tree, Coniferous .....	D8-3

TREED – Tree, Deciduous.....	D8-3
TREEG – Tree, Generic .....	D8-3

## Structural

### Objects

4FRB – 4" Flat Ribbed Waterstop.....	D9-3
6FRBHD – 6" Flat Ribbed Waterstop, Heavy Duty .....	D9-3
6FRBLW – 6" Flat Ribbed Waterstop, Light Weight.....	D9-3
6RCBHD – 6" Ribbed Waterstop with Center Bulb, Heavy Duty.....	D9-3
6RCBLW – 6" Ribbed Waterstop with Center Bulb, Light Weight.....	D9-3
9FLBHD – 9" Flat Ribbed Waterstop Heavy Duty .....	D9-3
9FRBLW – 9" Flat Ribbed Waterstop Light Weight.....	D9-3
9RCBHD – 9" Ribbed Waterstop with Center Bulb, Heavy Duty.....	D9-3
9RCBLW – 9" Ribbed Waterstop with Center Bulb, Light Weight.....	D9-3
AZLBF – Foster Connection AZ LBF ..	D9-4
AZLBM – Foster Conn. AZ LBM .....	D9-4
BOX – Box Pile.....	D9-4
CMUFL – Fluted Concrete Block, 8 X 8 X 16.....	D9-4
CMURIB – Ribbed Concrete Block, 8 X 8 X 16.....	D9-4
CMUSF – Split Face Concrete Block, 8 X 8 X 16.....	D9-4
CMUSTR – Structural Concrete Block, 8 X 8 X 16.....	D9-4
PLZ23 – PLZ23 Sheet Piling .....	D9-4
PLZ25 – PLZ25 Sheet Piling .....	D9-4
PS27.5 – PS27.5 Sheet Pile .....	D9-5
PS31 – PS31 Sheet Pile.....	D9-5
PSA23 – PSA23 Sheet Pile .....	D9-5
PZ22 – PZ22 Sheet Pile.....	D9-5
PZ27 – PZ27 Sheet Pile.....	D9-5
PZ35 – PZ35 Sheet Pile.....	D9-5
PZ40 – PZ40 Sheet Pile.....	D9-5
PZBBSM – Foster Conn. HPile.....	D9-5
PZBULL – Foster Conn. Bullhead.....	D9-5
PZCBM – Foster Conn. CBM.....	D9-6
PZJOKR – Foster Conn. Joker .....	D9-6

PZWOM – Foster Conn. PZ WOM.....	D9-6
RC230 – RC230 Sheet Pile Conn.....	D9-6
RC231 – RC231 Sheet Pile Conn.....	D9-6
SS803 – Foster Superloc 1540. ....	D9-6
SS805 – Foster Cap 1550 1540.....	D9-6
SS806 – Foster Superloc 1560. ....	D9-6
SS807 – Foster Cap 1560. ....	D9-6
SS808 – Foster Superloc 1550. ....	D9-7
SS809 – Foster 180 90 Connector. ....	D9-7
SS810 – Foster Superwale.....	D9-7
ZB_27 – Foster Angle Fab Corner. ....	D9-7
ZC270 – PZ22 PZ27 L Connection.....	D9-7
ZC271 – PZ22 PZ27 L Connection.....	D9-7
ZC272 – PZ22 PZ27 L Connection.....	D9-7
ZC273 – PZ22 PZ27 L Connection.....	D9-7
ZC274 – PZ22 PZ27 L Connection.....	D9-7
ZC275 – PZ22 PZ27 L Connection.....	D9-8
ZC276 – PZ22 PZ27 L Connection.....	D9-8
ZC277 – PZ22 PZ27 L Connection.....	D9-8
ZC278 – PZ22 PZ27 L Connection.....	D9-8
ZC279 – PZ22 PZ27 L Connection.....	D9-8
ZC350 – PZ35 PZ40 L Connection.....	D9-8
ZC351 – PZ35 PZ40 L Connection.....	D9-8
ZC352 – PZ35 PZ40 L Connection.....	D9-8
ZC353 – PZ35 PZ40 L Connection.....	D9-8
ZC354 – PZ35 PZ40 L Connection.....	D9-9
ZC355 – PZ35 PZ40 L Connection.....	D9-9
ZC356 – PZ35 PZ40 L Connection.....	D9-9
ZC357 – PZ35 PZ40 L Connection.....	D9-9
ZC358 – PZ35 PZ40 L Connection.....	D9-9
ZC359 – PZ35 PZ40 L Connection.....	D9-9
ZT270 – PZ22 PZ27 T Connection.....	D9-9
ZT271 – PZ22 PZ27 T Connection.....	D9-9
ZT350 – PZ35 PZ40 T Connection.....	D9-9
ZT351 – PZ35 PZ40 T Connection.....	D9-10
ZX270 – PZ22 PZ27 Cross Conn.....	D9-10
ZX350 – PZ35 PZ40 Cross Conn.....	D9-10

### Symbols

ANBOLT – Anchor Bolt.....	D9-13
CNTLIN – Centerline Symbol .....	D9-13
COLLIN – Column Line/Grid Ind. ....	D9-13
JSTBR1 – Joist Bar, Single Line.....	D9-13
JSTBR2 – Joist Bar, Single Line.....	D9-13
PLATE – Plate Symbol .....	D9-13

# Architectural

## Objects

BRKGL – Glazed Brick .....	D10-3
CMU – Masonry Unit.....	D10-3
CMUBLK – Concrete Block, 8X8X16	D10-3
CMUCOR – Concrete Block, 8X8X16 Corner.....	D10-3
CMUEND – Concrete Block, 8X8X16 End .....	D10-3
CMUGL – Glazed Concrete Block .....	D10-3
CMUSTR – Concrete Block, 8X8X16 Str.....	D10-3
DOR18L – Left Door, 180 Degree Swing .....	D10-3
DOR18R – Right Door, 180 Degree Swing .....	D10-3
DORBFL – Left Bifold Door .....	D10-4
DORBFR – Right Bifold Door.....	D10-4
DORCPV – Door Center Pivot.....	D10-4
DORCYL – Dark Room Door.....	D10-4
DORDBL – Left Double Door .....	D10-4
DORDBR – Right Double Door.....	D10-4
DORDEL – Left Double Egress Door.	D10-4
DORDER – Right Double Egress Door	D10-4
DORFSL – Left Single Full Swing Door .....	D10-4
DORFSR – Right Single Full Swing Door .....	D10-5
DOROVH – Overhead Door .....	D10-5
DORPOC – Door Pocket.....	D10-5
DORREV – Revolving Door.....	D10-5
DORRUP – Roll Up Door.....	D10-5
DORSHL – Left Single Hinged Door.	D10-5
DORSHR – Right Single Hinged Door	D10-5
DORSLD – Sliding Door .....	D10-5
DORSLS – Sliding Surface Door.....	D10-5
DORSPL – Left Single Pivot Door .....	D10-6
DORSPR – Right Single Pivot Door...	D10-6
DORUDL – Left Uneven Double Door	D10-6
DORUDR – Right Uneven Dbl. Door.	D10-6
LINTEL – Concrete Beam Bond Lintel.....	D10-6
WINAWN – Window Awning .....	D10-6
WINBAY – Projected Bay Window ...	D10-6
WINBOW – Projected Bow Window .	D10-6
WINBOX – Projected Box Window ...	D10-6

WINDCI – Window Double Casement Inward Open.....	D10-7
WINDCO – Window Double Casement Outward Open .....	D10-7
WINDH – Double Hung Window .....	D10-7
WINFIX – Fixed 1 Foot Window .....	D10-7
WINJAL – Jalousie Window.....	D10-7
WINOSL – Sliding Window Left Operating Sash.....	D10-7
WINOSR – Sliding Window Right Operating Sash.....	D10-7
WINPIV – Pivot Window .....	D10-7
WINSCL – Window Single Casement Left Jamb Hinge.....	D10-7
WINSCR – Window Single Casement Right Jamb Hinge .....	D10-8
WINSH – Single Hung Window .....	D10-8

## Symbols

ARCPBW – Architectural Particleboard Woodwork .....	D10-11
ASBDLS – Large Scale Asbestos Board.....	D10-11
ASBDSS – Small Scale Asbestos Board.....	D10-11
BATHCO – Corner Bath.....	D10-11
BATHEM – Emergency Bath .....	D10-11
BATHFT – Foot Bath.....	D10-11
BATHHA – Hydrotherapy Arm Bath	D10-11
BATHHH – Hydrotherapy Hubbard Bath .....	D10-11
BATHHL – Hydrotherapy Leg Bath.	D10-11
BATHIF – Infant Bath .....	D10-12
BATHIN – Institutional Bath .....	D10-12
BATHRC – Recessed Bath .....	D10-12
BATHRR – Roll Rim Bath.....	D10-12
BATHSZ – Sitz Bath.....	D10-12
BATHWP – Whirlpool Bath .....	D10-12
BIDET – Watercloset Bidet.....	D10-12
BRFACC – Brick Face on Common	D10-12
BRFIRE – Fire Brick.....	D10-12
BSSFLG – Bluestone / Slate / Soapstone / Flagging.....	D10-13
CANWCT – Can Washer, Cabinet Type .....	D10-13
CANWDT – Can Washer, Dish Type	D10-13
CARPET – Carpet and Pad .....	D10-13

CPLANK – Concrete Plank.....D10-13  
DFPROJ – Drinking Fountain,  
Projecting Type.....D10-13  
DFRECS – Drinking Fountain,  
Recessed Type .....D10-13  
DFSREC – Drinking Fountain,  
Semi-Recessed Type.....D10-13  
DSHWSH – Commercial DishwasherD10-13  
EQPMID – Equipment Identifier .....D10-14  
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FLRRPL – Flooring, Resilient  
Plastic Laminate.....D10-14  
FURCHH – Furring Channel Hat.....D10-14  
FURCHN – Furring Channel.....D10-14  
GLASLS – Large Scale Glass .....D10-14  
GLASSS – Small Scale Glass .....D10-14  
GLBLLS –Glass Block, Large Scale.D10-14  
GLBLSS –Glass Block, Small Scale.D10-14  
GLELEV – Glass Elevation .....D10-15  
GPLANK – Gypsum Plank .....D10-15  
GYPBLK – Gypsum Block.....D10-15  
GYPPOM – Gypsum Plaster on  
Masonry .....D10-15  
GYPPPB – Gypsum Plaster Particle  
Board.....D10-15  
GYPSPP – Gypsum Solid Plaster  
Partition.....D10-15  
GYPWBD – Gypsum Wallboard  
Finishes .....D10-15  
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Blanket Insulation .....D10-15  
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Insulation .....D10-15  
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On 1 Side .....D10-16  
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Determined (Lg. Scale).....D10-16  
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LAVCOU – Lavatory in Counter .....D10-16  
LAVDNT – Dental Lavatory.....D10-16  
LAVHND – Handicapped Lavatory..D10-16  
LAVMDM – Med. Manicure Lav. ....D10-17  
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(Small Scale).....D10-17

ORISTB – Oriented Strand Board.....D10-17  
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PLPLLS – Large Scale Plastic on  
Plywood .....D10-17  
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Plywood .....D10-17  
PLYWD – Plywood.....D10-18  
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Interior Insulation, Large Scale...D10-18  
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as Sheathing (Lg. Scale) .....D10-18  
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SDIRLD – Stair Dir. Line Down.....D10-18  
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SHWRCO – Corner Shower.....D10-18  
SHWRHD – Shower Head .....D10-18  
SHWROG – Shower Overhead GangD10-19  
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SNK2BD – Double Bowl Sink.....D10-19  
SNK2CT – Two Compartment Sink .D10-19  
SNKCWT – Circ. Wash Type Sink...D10-19  
SNKDSP – Sink Disposer .....D10-19  
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Clinical Sink .....D10-19  
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SNKSLP – Slop-Type Sink.....D10-20  
SNKSRV – Service Sink.....D10-20  
SNKSSC – Surgeon Scrub Sink.....D10-20  
STLCSS – Structural Clay Tile,  
Small Scale.....D10-20  
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1 Face (Large Scale) .....D10-21  
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(Large Scale).....D10-21  
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WALLID – Wall Type Identifier	.....D10-23
WCFVFO – FV Flr Outlet WC	.....D10-23
WCFVWH – FV WH Watercloset	....D10-23
WCITNK – Integral Tank WC	.....D10-23
WCTANK – Tank Type WC	.....D10-23
WCWHTN – WH Tank WC	.....D10-23
WDFLBD – Wood Floor Board	.....D10-24
WDFNOS – Wood Finish on Studs	..D10-24
WDFRAM – Continuous Wood Framing	.....D10-24
WDSHSD – Wood Shingles Siding	..D10-24
WFINSH – Wood Finish	.....D10-24
WINID – Window Identifier	.....D10-24
WOODHB – Hardboard Wood	.....D10-24
WTRPFF – Waterproofing Felt Flashing	.....D10-24

## Interiors

### Objects

ABLLBD – Bulletin Board	.....D11-3
ACOSTM – Costumer	.....D11-3
ADDCAB – Double Door Cabinet	.....D11-3
AEAS30 – Easel, 30W (Hidden)	.....D11-3
AMAG15 – Magazine Rack, 15W X 3D	.....D11-3
AMAGLT – Magnifying Light	.....D11-3
APRJSC – Projection Screen, Ceiling-Mounted	.....D11-3
ASTCAB – Storage Cabinet	.....D11-3
D65CLR – Desk 65 Comp LR	.....D11-3
D65CRR – Desk 65 Comp RR	.....D11-4

D7230L – L.H. Single Pedestal Desk, 72W X 30D (2)	.....D11-4
D7230R – R.H. Single Pedestal Desk, 72W X 30D (2)	.....D11-4
DPFF – Desk, Double File Pedestal	....D11-4
DPFL – Desk, Left Pedestal	.....D11-4
DPFR – Desk Return Pedestal File	....D11-4
DSC1 – Desk, Study Carrel, Single	.....D11-4
ECGAME – Freestanding Computer Game	.....D11-4
ECOMCN – Comsec Container	.....D11-4
EDRYER – Dryer	.....D11-5
EPINBL – Pinball Machine	.....D11-5
ERFRG – Refrigerator	.....D11-5
ETV – Television	.....D11-5
EVEND – Vending Machine	.....D11-5
EWASHM – Washing Machine	.....D11-5
F4DL – Lateral File Cab-4 Drawer	....D11-5
FC3618 – Storage Cabinet, 36W X 18D	.....D11-5
FE7422 – Equip. Shelving, 74W X 22D, Barracks	.....D11-5
FV1833 – Vertical File, 18W X 33D	..D11-6
GIDIR – Directory	.....D11-6
GIIS1 – Identification Sign w/1 Slot	...D11-6
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GIPIC1 – Pictogram 1	.....D11-6
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GMAN – Man Symbol for Restroom Signage	.....D11-6
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SDMGT – Management Chair w/Arms 24W X 22D	.....D11-6
SDSEC – Secretarial Chair w/out Arms, 23W X 22D	.....D11-7
SDTASK – Task Chair	.....D11-7
SGANG – Gang Seating w/Table	.....D11-7
SSOF37 – Sofa Chair, 37W X 34D	....D11-7
SSOF63 – 2 Cushion Sofa, 63W X 34D	.....D11-7
SSOF82 – 3 Cushion Sofa, 82.5W X 34D	.....D11-7
STAB24 – Chair Tablet Arm, 24W X 24D	.....D11-7
T42SQ – Table, 42SQ w/ Armless Chairs	.....D11-7
TMS30 – Mailsort Table 16 OH Slots 30W	.....D11-7



TPOOL – Pool Table.....	D11-8
TROUND – Round Table.....	D11-8
W7230L – Workstation L Unit LR .....	D11-8
W7230R – Workstation L Unit RR.....	D11-8
WCPDSK – Desk, Computer .....	D11-8
WFLIPR – Flipper Door Unit .....	D11-8
WLIGHT – Workstation Light.....	D11-8
WPED – Workstation Pedestal.....	D11-8

## Symbols

ACURTN – Curtain.....	D11-11
APLANT – Artificial Plant .....	D11-11
GHNDPC – Universal Handicap Symbol .....	D11-11
GIID – Identification Sign.....	D11-11
MFMATL – Furniture Material List .	D11-11
MFSCHD – Furniture Schedule .....	D11-11
MFSYMB – Furniture Symbol.....	D11-11
MNORTH – North Arrow .....	D11-11
MRSCHD – Room Finish Schedule..	D11-11
MSSCHD – Signage Schedule .....	D11-12

## Fire Protection

### Symbols

1DIR – Direction Arrow.....	D12-3
ABORT – Abort Switch .....	D12-3
ACCESS – Fire Department Access ...	D12-3
AGSTCN – Agent Storage Container .	D12-3
BELLFA – Fire Alarm Bell.....	D12-3
BFPDCK – Backflow Preventer Double Check .....	D12-3
BFPRPZ – Backflow Preventer RPZ ..	D12-3
BOILER – Boiler.....	D12-3
CHIMNY – Chimney .....	D12-3
CO2AA – CO2 Automatically Actuated Extinguishing System .....	D12-4
CO2MA – CO2 Manually Actuated Extinguishing System .....	D12-4
CONSFS – Freestanding Siamese Fire Department Connection .....	D12-4
CONSIA – Siamese Fire Department Connection .....	D12-4
CONSNG – Single Fire Department Connection .....	D11-4
CPESR – Elevator Status/Recall .....	D12-4

CPFAC – Fire Alarm Communicator..	D12-4
CPFCP – Fire Alarm Control Panel ....	D12-4
CPFSA – Fire System Annunciator.....	D12-4
CPFTR – Fire Alarm Transponder or Transmitter.....	D12-5
CPHCP – Halon Control Panel.....	D12-5
CPHVA – Control Panel for HVAC ...	D12-5
DCATAA – All-Type Fire Extinguisher, Automatically Actuated. ....	D12-5
DCATMA – All-Type Fire Extinguisher, Manually Actuated.....	D12-5
DCEABC – Dry Chemical Extinguisher (ABC-Type).....	D12-5
DCEBC – Dry Chemical Extinguisher (BC-Type).....	D12-5
DCECO2 – CO2 Extinguisher.....	D12-5
DCEHLN – Halon or Clean Agent Extinguisher .....	D12-5
DCLGAA – Dry Chemical System Auto Act. (Liquid, Gas, Elec. Fires) .....	D12-6
DCLGMA – Dry Chemical System Man Act. (Liquid, Gas, Elec. Fires) .....	D12-6
DMPBAR – Barometric Damper .....	D12-6
DMPFIR – Fire Damper .....	D12-6
DMPFSS – Fire/Smoke Damper .....	D12-6
DMPSMK – Smoke Damper.....	D12-6
DRHOLD – Door Holder .....	D12-6
DTFLAM – Flame Detector .....	D12-6
DTFLOW – Flow Detector/Switch .....	D12-6
DTGAS – Gas Detector.....	D12-7
DTLEVL – Level Detector/Switch .....	D12-7
DTPRES – Pressure Detector/ Switch .....	D12-7
DTTAMP – Tamper Detector .....	D12-7
ELBP1L – 1-Lamp Emergency Light, Battery Powered.....	D12-7
ELBP2L – 2-Lamp Emergency Light, Battery Powered.....	D12-7
ELBP3L – 3-Lamp Emergency Light, Battery Powered.....	D12-7
EPSTA – Emergency Phone Station ...	D12-7
ESCAPE – Fire Escape .....	D12-7
EXFOAM – Foam Extinguisher.....	D12-8
EXITCM – Ceiling Mounted Exit Sign Light.....	D12-8
EXITLF – Exit Sign, Lighted Face .....	D12-8
EXITWM – Wall Mounted Exit Sign Light.....	D12-8
EXWATR – Water Extinguisher .....	D12-8
FANDCT – Duct Fan .....	D12-8

FANGEN – General Fan .....	D12-8	MANSTA – Manual Station.....	D12-11
FANWAL – Wall Fan .....	D12-8	METRFP – Meter .....	D12-12
FDOR3 – 3-Hour Rated Fire Door in Wall.....	D12-8	MNCHRG – Monitor Nozzle, Charged.....	D12-12
FDORL3 – Wall w/<3-Hour Rated Door .....	D12-9	MNDRY – Monitor Nozzle, Dry.....	D12-12
FPDRIV – Fire Pump w/Drives .....	D12-9	NONSS – Non-Sprinklered Space.....	D12-12
FPFREE – Free Standing Test Header	D12-9	PARTSS – Partially Sprinklered Space .....	D12-12
FPTEST – Wall-Mtd. Test Header .....	D12-9	PURGE – Manual Purge Control .....	D12-12
FRR1HR – 1-Hour Fire Resistance Rating.....	D12-9	RISER – Riser .....	D12-12
FRR2HR – 2-Hour Fire Resistance Rating.....	D12-9	RSCO2 – CO2 Reel Station .....	D12-12
FRR30M – 30 Minute Fire Resistance Rating.....	D12-9	RSDRYC – Dry Chemical Reel Station.....	D12-12
FRR3HR – 3-Hour Fire Resistance Rating.....	D12-9	RSFOAM – Foam Reel Station.....	D12-13
FRR45M – 45 Minute Fire Resistance Rating.....	D12-9	SCREEN – Screen .....	D12-13
FRR4HR – 4-Hour Fire Resistance Rating.....	D12-10	SD –Smoke Detector .....	D12-13
FULLSS – Fully Sprinklered Space ..	D12-10	SDUCT – Smoke Detector for Duct..	D12-13
HD – Heat Detector .....	D12-10	SHGARD – Sprinkler Head w/Guard.	D12-13
HLNAA – Automatically Actuated Halon Extinguishing System .....	D12-10	SHNUU – Nippled Up Upright Sprinkler Head .....	D12-13
HLNMA – Manually Actuated Halon Extinguishing System .....	D12-10	SHOUT – Outside Sprinkler Head ....	D12-13
HOSECS – Hose Station, Charged Standpipe .....	D12-10	SHPEND – Pendent Sprinkler Head .	D12-13
HOSEDS – Hose Station, Dry Standpipe. ....	D12-10	SHPNDN – Pendent Sprinkler Head, on Drop Nipple .....	D12-13
HRN1A – Horn w/Light, One Assembly .....	D12-10	SHSIDE – Sidewall Sprinkler Head..	D12-14
HRNMIN – Mini Horn.....	D12-10	SHUPRT – Upright Sprinkler Head ..	D12-14
HRNSA – Horn w/Light, Separate Assembly.....	D12-11	SMKBAR – Smoke Barrier.....	D12-14
HRNSPK – Speaker/Horn (Electric Horn) .....	D12-11	SSNOZZ – Special Spray Nozzle.....	D12-14
HYDPR1 – Private Hydrant, One-Hose Outlet .....	D12-11	THRUST – Thrust Block .....	D12-14
HYDPR2 – Private Housed Hydrant, Two-Hose Outlets .....	D12-11	TNKBG – Tank, Below Ground .....	D12-14
HYDPU2 – Public Hydrant, Two-Hose Outlets .....	D12-11	TNKHAG – Tank, Horizontal Above Ground .....	D12-14
HYDPUP – Public Hydrant, Two-Hose Outlets, Pumper Connection .....	D12-11	TNKVAG – Tank, Vertical Above Ground .....	D12-14
HYDW2H – Wall Hydrant, Two-Hose Outlets .....	D12-11	VLVCHA – Alarm Check Valve.....	D12-14
LITFAS – Light.....	D12-11	VLVCHK – Check Valve.....	D12-15
		VLVDEL – Deluge Valve .....	D12-15
		VLVDRY – Dry Pipe Valve.....	D12-15
		VLVFLT – Float Valve.....	D12-15
		VLVGEN – General Valve .....	D12-15
		VLVIBF – Indicating Butterfly Valve.....	D12-15
		VLVKEY – Key-Operated Valve .....	D12-15
		VLVNON – Nonindicating Valve (Nonrising Stem).....	D12-15
		VLVOSY – OS&Y Valve .....	D12-15
		VLVPI – Post Indicator Valve .....	D12-16
		VLVPIT – Valve in Pit.....	D12-16
		VLVPRE – Preaction Valve.....	D12-16

VLVPRG – Pressure Reg. Valve.....	D12-16
VLVPRV – Pressure Relief Valve .....	D12-16
VLVQOD – Dry Pipe Valve, w/Quick Opening Device .....	D12-16
VLVTDS – Valve w/ Tamper Detector/Switch.....	D12-16
VNTOPN – Ventilation Openings.....	D12-16
WALARM – Water Motor Alarm .....	D12-16
WATRSS – Water Spray System .....	D12-17
WBDSMA – Water-Based Dry System Manually Actuated.....	D12-17
WBDSSA – Water-Based Dry System Automatically Actuated .....	D12-17
WBFSAA – Water-Based Foam System Automatically Actuated .....	D12-17
WBFSMA – Water-Based Foam System Manually Actuated.....	D12-17
WBWSAA – Water-Based Wet System, Automatically Actuated .....	D12-17
WBWSMA – Water-Based Wet System, Manually Actuated.....	D12-17

GAUGE – Gauge.....	D13-5
HANGRD – Hanger Rod.....	D13-5
HANGSP – Hanger Spring.....	D13-5
ISOEWC – Isometric EWC.....	D13-5
ISOLAV – Isometric Lavatories.....	D13-5
ISOMOP – Isometric Mop Sink .....	D13-5
ISOUR1 – Isometric Wall Mounted Urinals.....	D13-6
ISOWC1 – Isometric Floor Mounted Water Closet .....	D13-6
ISOWC2 – Isometric Wall Mounted Water Closet .....	D13-6
LOOPL – Left Dimension Loop.....	D13-6
LOOPR – Right Dimension Loop .....	D13-6
PLGBFL – Bull Plug, Flanged.....	D13-6
PLGPSC – Pipe Plug.....	D13-6
PRGGCO – Press. Gauge and Cock....	D13-6
PUMP – Pump.....	D13-6
PUMPP – Pump (Schematic) .....	D13-7
PUMPS – In-Line Pump.....	D13-7
SLEEVE – Sleeve .....	D13-7
STGLAS – Sight Glass.....	D13-7
STRAIN – Strainer .....	D13-7
STRBLO – Blow Off Strainer.....	D13-7
TDSSC – Double Sweep Tee .....	D13-7
THERM – Thermometer .....	D13-7
TRAPST – Steam Trap.....	D13-7
TSODSC – Tee, Side Outlet, Outlet Down.....	D13-8
TSOUSC – Tee, Side Outlet, Outlet Up.....	D13-8
TSSSC – Straight Size Tee.....	D13-8
TSSWSC – Single Sweep Tee.....	D13-8
UNIOSC – Union .....	D13-8
VA3WAM – 3-Way Air Motor Controlled Valve.....	D13-8
VA3WEM – 3-Way Electric Motor Controlled Valve.....	D13-8
VA3WM – 3-Way Manual Valve .....	D13-8
VAAHOS – Angle Hose Valve.....	D13-8
VABALL – Ball Valve.....	D13-9
VABFLY – Butterfly Valve .....	D13-9
VACWR – Condenser Water Regulating Valve .....	D13-9
VADISC – Diaphragm Valve .....	D13-9
VAEMTR – Valve Actuator Electric Motor .....	D13-9
VAESOL – Valve Actuator Electric Solenoid .....	D13-9

## Plumbing

### Symbols

CAPSC – Cap.....	D13-3
DRNFUN – Open Drain Funnel.....	D13-3
EL45SC – 45 Degree Elbow .....	D13-3
EL90SC – 90 Degree Elbow .....	D13-3
ELBSC – Base Elbow .....	D13-3
ELDBSC – Double Branch Elbow .....	D13-3
ELLRSC – Long Radius Elbow .....	D13-3
ELODSC – Side Outlet Elbow, Outlet Down.....	D13-3
ELOUSC – Side Outlet Elbow, Outlet Up.....	D13-3
ELSTRT – Street Elbow.....	D13-4
ELTDSC – Turned Down Elbow .....	D13-4
ELTUSC – Turned Up Elbow .....	D13-4
FCO – Floor Cleanout .....	D13-4
FDCO – Floor Drain with Cleanout .....	D13-4
FDDT – Floor Drain with Deep Trap..	D13-4
FDNT – Floor Drain with No Trap .....	D13-4
FDTP – Floor Drain with Trap Prime .	D13-4
FDWT – Floor Drain with Trap .....	D13-4
FLBLND – Blind Flange.....	D13-5
FLOW3 – Flow Arrow .....	D13-5
FLRPEN – Iso. Floor Penetration .....	D13-5

VAGAMC – Air Motor Controlled Gate Valve .....	D13-9
VAGLAM – Air Motor Controlled Globe Valve .....	D13-9
VAGLE – Angle Globe Valve (Elevation) .....	D13-9
VAGLSE – Globe Valve .....	D13-10
VAGSE – Angle Gate Valve, (Elevation) .....	D13-10
VAGSP – Angle Gate Valve (Plan) ..	D13-10
VAGTSE – Gate Valve .....	D13-10
VAHASC – Hose Angle Valve .....	D13-10
VAHGLS – Hose Globe Valve .....	D13-10
VAHGSC – Hose Gate Valve .....	D13-10
VALSSC – Lock Shield Valve.....	D13-10
VAMAGS – Magnetic Stop Valve....	D13-10
VAMNNS – Valve Actuator Manual Nonrising Stem .....	D13-11
VAMOGS – Motor Operated Gate Valve.....	D13-11
VAMOLS – Motor Operated Globe Valve.....	D13-11
VAMOSY – Valve Actuator Manual Outside Stem & Yoke .....	D13-11
VANEED – Needle Valve.....	D13-11
VAPLUG – Plug Valve.....	D13-11
VAPMTD – Valve Actuator Pneumatic Motor Diaphragm.....	D13-11
VAPRED – Pressure Reducing Valve	D13-11
VAPRRD – Pressure Reducing Valve	D13-11
VAQOSC – Quick Opening Valve....	D13-12
VARELF – Relief or Safety Valve....	D13-12
VASCE – Angle Globe Valve (Elevation) .....	D13-12
VASCP – Angle Globe Valve (Plan)	D13-12
VASFSC – Safety Valve .....	D13-12
VASGCH – Swing Gate Check Valve	D13-12
VASNAP – Snap Action Valve.....	D13-12
VASOLN – Solenoid Valve .....	D13-12
VASPCH – Spring Check Valve.....	D13-12
VASTSC – Gate Valve.....	D13-13
VASWSC – Straight Way Check Valve.....	D13-13
VATPR – Temperature Pressure Relief Valve .....	D13-13
VLVCHK – Check Valve.....	D13-13

## Mechanical

### Symbols

ACCDOR – Duct Access Door .....	D14-3
AGUIDE – Alignment Guide .....	D14-3
AIRELM – Air Eliminator .....	D14-3
AIRIN – Air In .....	D14-3
AIRSEP – Air Separator.....	D14-3
ANCHRI – Anchor.....	D14-3
AVENTA – Automatic Air Vent.....	D14-3
AVENTM – Manual Air Vent.....	D14-3
BALLJT – Ball Joint .....	D14-3
BUSHSC – Bushing .....	D14-4
CAPSC – Cap.....	D14-4
CAPTUB – Capillary Tube .....	D14-4
CDRND – Round Ceiling Diffuser .....	D14-4
CDSQR – Square Ceiling Diffuser.....	D14-4
CFM2X3 – Airflow CFM.....	D14-4
CFM2X4 – Airflow CFM.....	D14-4
CFM3X4 – Airflow CFM.....	D14-4
COCKSC – Cock.....	D14-4
CREDSC – Concentric Reducer.....	D14-5
CRSRSC – Cross.....	D14-5
CUPJNT – Coupling Joint.....	D14-5
DCTHTR – Electric Duct Heater .....	D14-5
DMPEOC – Electric Operated Damper Control .....	D14-5
DMPFIR – Fire Damper.....	D14-5
DMPFS – Fire Smoke Damper.....	D14-5
DMPPOD – Pneumatic Damper.....	D14-5
DMPSMK – Smoke Damper.....	D14-5
DPRSD – Duct Pressure Class Down..	D14-6
DPRSH – Duct Pressure Class Horiz..	D14-6
DPRSL – Duct Pressure Class Left .....	D14-6
DPRSR – Duct Pressure Class Right...D14-6	
DPRSU – Duct Pressure Class Up .....	D14-6
DPRSV – Duct Pressure Class Vert ....	D14-6
DRIER – Drier.....	D14-6
EEQ2X2 – Electrical Equipment 2X2 Mark.....	D14-6
EEQ2X3 – Electrical Equipment 2X3 Mark.....	D14-6
EEQ2X4 – Electrical Equipment 2X4 Mark.....	D14-7
EEQ3X2 – Electrical Equipment 3X2 Mark.....	D14-7

EEQ3X3 – Electrical Equipment	
3X3 Mark.....	D14-7
EEQ3X4 – Electrical Equipment	
3X4 Mark.....	D14-7
EL45SC – 45 Degree Elbow .....	D14-7
EL90SC – 90 Degree Elbow .....	D14-7
ELBSC – Base Elbow .....	D14-7
ELDBSC – Double Branch Elbow .....	D14-7
ELLRSC – Long Radius Elbow .....	D14-7
ELODSC – Side Outlet Elbow,	
Outlet Down.....	D14-8
ELOUSC – Side Outlet Elbow,	
Outlet Up.....	D14-8
ELSTRT – Street Elbow.....	D14-8
ELTDSC – Turned Down Elbow .....	D14-8
ELTUSC – Turned Up Elbow .....	D14-8
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FANLRV – Louvered Roof	
Vent Fan.....	D14-8
FANSRV – Intake Roof Vent Fan.....	D14-9
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FLXCON – Flexible Connector .....	D14-9
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GRILEX – Exhaust Grille .....	D14-9
GRILSU – Supply Grille.....	D14-9
HANGRD – Hanger Rod.....	D14-9
HANGSP – Hanger Spring.....	D14-10
HSENS – Humidity Sensor .....	D14-10
HSTAT – Humidistat .....	D14-10
LNDIFF – Linear Diffuser .....	D14-10
LOOPL – Left Dimension Loop.....	D14-10
LOOPR – Right Dimension Loop.....	D14-10
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Opening.....	D14-10
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PLGPSC – Pipe Plug .....	D14-11
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and Cock .....	D14-11
PSDIFF – Pump Suction Diffuser .....	D14-11
PUMP – Pump.....	D14-11
PUMPP – Pump (Schematic) .....	D14-11
PUMPS – In-Line Pump.....	D14-11
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SLEEVE – Sleeve .....	D14-11
STGLAS – Sight Glass.....	D14-12
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STRBLO – Blow Off Strainer.....	D14-12
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(Wall Supply).....	D14-12
TDSSC – Double Sweep Tee .....	D14-12
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THERMW – Thermometer Well.....	D14-12
THHRB – Thermostat, Remote Bulb	D14-12
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Contained (HVAC).....	D14-12
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THMCP – Thermostat,	
Microprocessor .....	D14-13
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THPPNE – Thermostat, Pneumatic ...	D14-13
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TRAPFT – Float and Thermostatic	
Trap.....	D14-13
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Trap.....	D14-14
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Outlet Down.....	D14-14
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Outlet Up.....	D14-14
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Controlled Valve.....	D14-14
VA3WEM – 3-Way Electric Motor	
Controlled Valve.....	D14-14
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VABFLY – Butterfly Valve .....	D14-15
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Regulating Valve .....	D14-15
VADISC – Diaphragm Valve .....	D14-15
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Motor .....	D14-15
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Solenoid .....	D14-15
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Gate Valve .....	D14-16

VAGLAM – Air Motor Controlled	
Globe Valve .....	D14-16
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VAGLSE – Globe Valve .....	D14-16
VAGSE – Angle Gate Valve .....	D14-16
VAGSP – Angle Gate Valve .....	D14-16
VAGTSE – Gate Valve .....	D14-16
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Valve.....	D14-17
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Valve.....	D14-17
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Valve.....	D14-18
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VASGCH – Swing Gate Check Valve	D14-18
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Valve.....	D14-19
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Relief Valve .....	D14-19

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ACLLEL – Elevated Approach	
Lightbar.....	D15-3
ACLLSF – Semiflush Approach	
Lightbar.....	D15-3
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ANNUNT – Local Control	
Annunciation Unit.....	D15-4
ARREST – Lightning Arrestor.....	D15-4
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BARMKR – Barrier Marker.....	D15-4
BATTERY – Battery .....	D15-4
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BELL – Bell .....	D15-4
BIORDR – Biometrics Access Ctrl. ....	D15-4
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Breaker.....	D15-5
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Wall Mounted .....	D15-6
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Manhole .....	D15-6
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Rectifier .....	D15-6
CPSAN – Cathodic Protection	
Sacrificial Anode .....	D15-6
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## Electrical

### Symbols

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DSTMKR – Runway Distance	
Marker.....	D15-7
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DXFMR – Transformer, Plan View ....	D15-7
EHANDH – Electrical Handhole .....	D15-7
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ELBP2L – 2 Lamp Emergency Light..	D15-8
ELBP3L – 3 Lamp Emergency Light..	D15-8
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EPULLB – Electrical Pullbox .....	D15-8
ERECPT – Emergency Receptacle.....	D15-8
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EXITDV – Exit Device .....	D15-8
EXITLF – Exit Sign, Lighted Face ....	D15-9
EXITWM – Wall Mounted Exit	
Sign Light .....	D15-9
FAN – Ceiling Fan .....	D15-9
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Fixture.....	D15-9
FIXSPQ – Surface Pendant Battery	
Quartz Restrike .....	D15-9
FIXSPR – Surface Pendant Battery	
Receptacle.....	D15-9
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Fixture.....	D15-9
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w/Battery.....	D15-10
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Fixture.....	D15-10
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Continuous.....	D15-10
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FL2X2B – 2 X 2 Light Fixture	
w/Battery.....	D15-10
FL2X2C – 2 X 2 Light Fixture,	
Continuous.....	D15-10
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FL2X4B – 2 X 4 Light Fixture	
w/Battery.....	D15-11
FL2X4C – 2 X 4 Light Fixture,	
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HAS1N – 1 Neutral Leg.....	D15-12
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Head.....	D15-13
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Perimeter Light .....	D15-13
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Perimeter Light .....	D15-14
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HRUN2 – Home Run .....	D15-14
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w/Substation, Aboveground.....	D15-14
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w/Substation, Underground .....	D15-14
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KEYN2 – Keynote Indicator.....	D15-15
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Transmit Unit.....	D15-15
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     Panelboard Cabinet .....D15-16  
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     Panelboard/Cabinet .....D15-16  
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     Contact .....D15-18  
 RCNO – Normally Open Relay  
     Contact .....D15-18  
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 RECDER – Recorder.....D15-18  
 RECDFM – Floor Outlet, Double  
     Flush Mounted .....D15-18  
 RECDSM – Double Surf Mount  
     Floor Outlet.....D15-18  
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 RECLOS – Recloser Aerial  
     Automatic.....D15-18  
 RECPT2 – Special Receptacle .....D15-18  
 RECQUA – Quadraplex Receptacle..D15-19  
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     with Switch .....D15-19  
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     Receptacle .....D15-19  
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     Floor Outlet.....D15-19  
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 RESHTR – Elec. Resistance Heater ..D15-20  
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     Light.....D15-20  
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     Light.....D15-20  
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 SECSW – Security Window Screen..D15-21  
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     Auto .....D15-21  
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     Sensor.....D15-21  
 SENULS – Ultrasonic Sensor. ....D15-21  
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     Transformer.....D15-21  
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     Recessed.....D15-22  
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     Recessed w/Battery.....D15-22  
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     Recessed.....D15-22  
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     Recessed w/Battery.....D15-22  
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     Float Switch .....D15-22  
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     Float Switch .....D15-23  
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 Fused.....D15-24  
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 Unfused.....D15-24  
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 on Increase .....D15-26  
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 Activated Switch.....D15-26  
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 TRFARM – Traffic Arm. ....D15-27  
 TRFCLP – Vehicle Loop Detector....D15-27  
 TRFSIG – Traffic Signal Mast Arm..D15-27  
 TRNSTL – Turnstile. ....D15-28  
 TSCTRL – Traffic Signal Controller D15-28  
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 Thru.....D15-28  
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 Loop Detector .....D15-28  
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 Light.....D15-29  
 TWELSF – Semiflush Taxiway End  
 Light.....D15-29  
 TWGSGN – Taxiway Guidance SignD15-29  
 TWLEL – Elevated Taxiway Edge  
 Light.....D15-29  
 TWLSF – Semiflush Taxiway Edge  
 Light.....D15-29  
 UTPLN – New Pole .....D15-29  
 UTPLX – Existing Pole.....D15-29  
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 VIDCTL – Video Control Keyboard.D15-29  
 VIDIC – Video Intercom.....D15-30  
 VIDICM – Video Intercom Master. ..D15-30  
 VIDKPD – Camera w/Keypad. ....D15-30  
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## Telecommunications

### Symbols




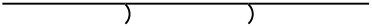

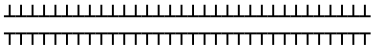
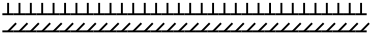


GRDROD – Grounding Rod.....D16-3  
 RECDC – Data Communication Wall  
 Receptacle.....D16-3  
 RECDCF – Data Communication Floor  
 Receptacle.....D16-3  
 RECTDF – Telephone/Data Floor  
 Receptacle.....D16-3



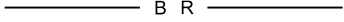


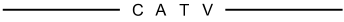
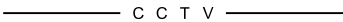


RECTDW – Telephone/Data Wall  
    Receptacle .....D16-3  
RECTEF – Telephone Floor  
    Receptacle .....D16-3  
RECTEL – Telephone Wall Recep. ....D16-3  
SIPR – SIPRNet Receptacle.....D16-3  
SIPRF – SIPRNet Floor Receptacle. ....D16-3  
TBOOTH – Telephone Booth .....D16-4










# 1 Lines Library






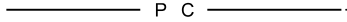


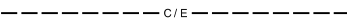
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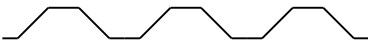


		
<p>Name: 16THLN 16TH SECTION LINE Element type: Line</p>	<p>Name: ACIDWS ACID WASTE Element type: Line</p>	<p>Name: AIRRLF AIR RELIEF Element type: Line</p>
		
<p>Name: BANKLF BANK LEFT Element type: Line</p>	<p>Name: BANKRT BANK RIGHT Element type: Line</p>	<p>Name: BARDIT DITCH BARRIER Element type: Line</p>
		
<p>Name: BARDTB DITCH AND BEAM BARRIER Element type: Line</p>	<p>Name: BARGEN GENERIC SECURITY BARRIER Element type: Line</p>	<p>Name: BARMAS SECURITY MASONRY BARRIER Element type: Line</p>

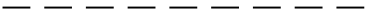





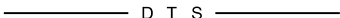
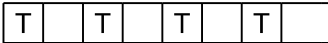
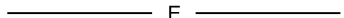
		
<p>Name: BERM BERM Element type: Line</p>	<p>Name: BOILBD BOILER BLOW DOWN Element type: Line</p>	<p>Name: BRINER BRINE RETURN Element type: Line</p>
		
<p>Name: BRINES BRINE SUPPLY Element type: Line</p>	<p>Name: BUSWAY BUSWAY Element type: Line</p>	<p>Name: CABLTV CABLE TV Element type: Line</p>
		
<p>Name: CCTV CLOSED CIRCUIT TV Element type: Line</p>	<p>Name: CDRNAF CONDENSATE DRAIN Element type: Line</p>	<p>Name: CLDWTR POTABLE COLD WATER Element type: Line</p>

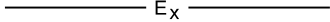
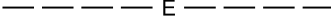





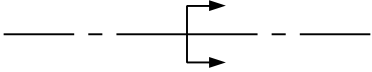
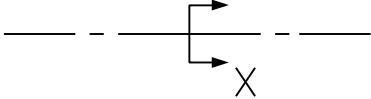
		
<p>Name: CMP12 CMP 12IN DIAMETER Element type: Line</p>	<p>Name: CMP127 CMP 127MMX25MM OR 5IN X 1IN Element type: Line</p>	<p>Name: CMP152 CMP 152MMX51MM OR 6IN X 2IN Element type: Line</p>
		
<p>Name: CMP38 CMP38MMX6MM OR 1.5INX.25IN Element type: Line</p>	<p>Name: CMP51 CMP51MMX13MM OR 2IN X .5IN Element type: Line</p>	<p>Name: CMP68 CMP68MMX13MM OR 2.7INX.5IN Element type: Line</p>
		
<p>Name: CMP76 CMP76MMX25MM OR 3IN X 1IN Element type: Line</p>	<p>Name: CMPAIR COMPRESSED AIR Element type: Line</p>	<p>Name: CMPU12 CMPU 12IN DIAMETER Element type: Line</p>

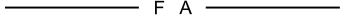
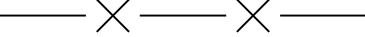
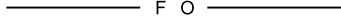





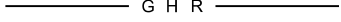
		
<p>Name: COMARN NEW COMMUNICATION AERIAL Element type: Line</p>	<p>Name: COMARX EXIST COMMUNICATION AERIAL Element type: Line</p>	<p>Name: COMUGN NEW COMMUNICATION UNDERGROUND Element type: Line</p>
		
<p>Name: COMUGX EXIST COMMUNICATION UNDERGROUND Element type: Line</p>	<p>Name: CONDFL FLEXIBLE CONDUIT Element type: Line</p>	<p>Name: CONDP PUMPED CONDENSATE Element type: Line</p>
		
<p>Name: CONDWR CONDENSER WATER RETURN Element type: Line</p>	<p>Name: CONDWS CONDENSER WATER SUPPLY Element type: Line</p>	<p>Name: CONEMT CONSTRUCTION EASEMENT Element type: Line</p>

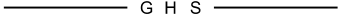


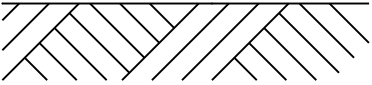
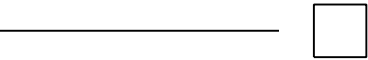
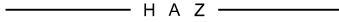
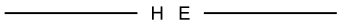

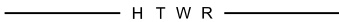


		
<p>Name: CONLMT CONSTRUCTION LIMIT Element type: Line</p>	<p>Name: CULVRT CULVERT PIPE Element type: Line</p>	<p>Name: CWR CHILLED WATER RETURN Element type: Line</p>
		
<p>Name: CWS CHILLED WATER SUPPLY Element type: Line</p>	<p>Name: DCAGN DIRECT CURRENT ABOVEGROUND Element type: Line</p>	<p>Name: DCUGN DIRECT CURRENT UNDERGROUND Element type: Line</p>
		
<p>Name: DECKCR CORRUGATED METAL DECK Element type: Line</p>	<p>Name: DECKFL METAL DECK FLOOR Element type: Line</p>	<p>Name: DECKRF METAL DECK ROOF Element type: Line</p>

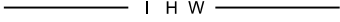
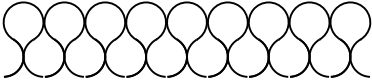





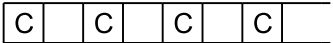

		
<p>Name: DEMO DEMOLITION LINE (NCS) Element type: Line</p>	<p>Name: DEMOLN DEMOLITION LINE (AEC) Element type: Line</p>	<p>Name: DIOWTR DEIONIZED WATER Element type: Line</p>
		
<p>Name: DITCH DITCH LINE Element type: Line</p>	<p>Name: DSTWTR DISTILLED WATER Element type: Line</p>	<p>Name: DTR DUAL TEMPERATURE RETURN Element type: Line</p>
		
<p>Name: DTS DUAL TEMPERATURE SUPPLY Element type: Line</p>	<p>Name: DUCTTR TROLLEY DUCT Element type: Line</p>	<p>Name: EPARN NEW ELEC PRIMARY AERIAL Element type: Line</p>

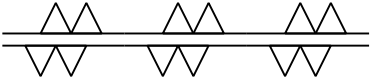

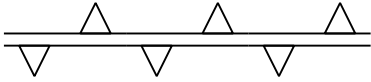
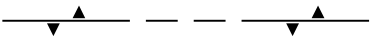


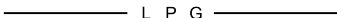
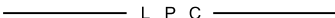
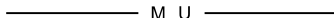
		
<p>Name: EPARX EXIST ELEC PRIMARY AERIAL Element type: Line</p>	<p>Name: EPUGN NEW ELEC PRIMARY UNDERGROUND Element type: Line</p>	<p>Name: EPUGX EXIST ELEC PRIMARY UNDERGROUND Element type: Line</p>
		
<p>Name: ESARN NEW ELEC SECONDARY AERIAL Element type: Line</p>	<p>Name: ESARX EXIST ELEC SECONDARY AERIAL Element type: Line</p>	<p>Name: ESUGN NEW ELEC SECONDARY UNDERGROUND Element type: Line</p>
		
<p>Name: ESUGX EXIST ELEC SECONDARY UNDERGROUND Element type: Line</p>	<p>Name: EUDUCN NEW UNDERGROUND DUCT BANK Element type: Line</p>	<p>Name: EUDUCX EXIST UNDERGROUND DUCT BANK Element type: Line</p>

		
<p>Name: FALARM FIRE ALARM Element type: Line</p>	<p>Name: FENCE FENCE Element type: Line</p>	<p>Name: FIBOPT FIBER OPTICS Element type: Line</p>
		
<p>Name: FILL FILL LINE Element type: Line</p>	<p>Name: FIRE FIRE PROTECTION WATER SUPPLY Element type: Line</p>	<p>Name: FUELOR FUEL OIL RETURN Element type: Line</p>
		
<p>Name: FUELOS FUEL OIL SUPPLY Element type: Line</p>	<p>Name: FUELOV FUEL OIL TANK VENT Element type: Line</p>	<p>Name: GHR GLYCOL HEATING RETURN Element type: Line</p>


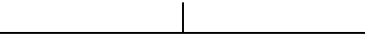


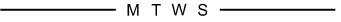




		
<p>Name: GHS GLYCOL HEATING SUPPLY Element type: Line</p>	<p>Name: GOVTKL GOVERNMENT TAKING LINE Element type: Line</p>	<p>Name: GRAY GRAYWATER Element type: Line</p>
		
<p>Name: GROUND GROUND Element type: Line</p>	<p>Name: GUARD GUARD RAIL Element type: Line</p>	<p>Name: HAZMAT HAZARDOUS MATERIALS Element type: Line</p>
		
<p>Name: HELIUM HELIUM Element type: Line</p>	<p>Name: HPCNDR HIGH PRESSURE CONDENSATE Element type: Line</p>	<p>Name: HTHWR HIGH TEMP HOT WATER RETURN Element type: Line</p>


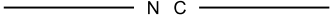



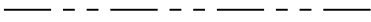

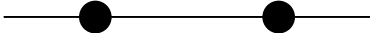
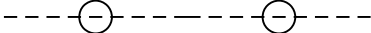
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<p>Name: HTHWS HIGH TEMP HOT WATER SUPPLY Element type: Line</p>	<p>Name: HUMID HUMIDIFICATION LINE Element type: Line</p>	<p>Name: HWR LOW TEMP HOT WATER RETURN Element type: Line</p>
<p style="text-align: center;">————— H W S —————</p>	<p style="text-align: center;">————— - - - —————</p>	<p style="text-align: center;">————— - - - - - —————</p>
<p>Name: HWS LOW TEMP HOT WATER SUPPLY Element type: Line</p>	<p>Name: HWTR POTABLE HOT WATER Element type: Line</p>	<p>Name: HWTRR POTABLE HOT WATER RETURN Element type: Line</p>
<p style="text-align: center;">————— H —————</p>	<p style="text-align: center;">————— I C W —————</p>	<p style="text-align: center;">————— I H R —————</p>
<p>Name: HYDRGN HYDROGEN Element type: Line</p>	<p>Name: ICWTR INDUSTRIAL COLD WATER Element type: Line</p>	<p>Name: IHWTRR INDUSTRIAL HOT WATER RETURN Element type: Line</p>

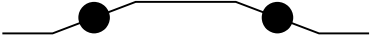

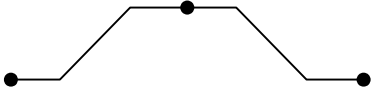
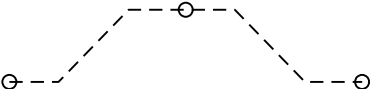
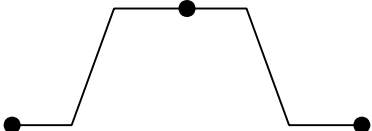
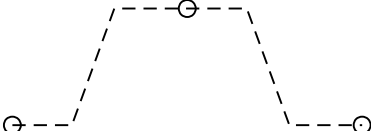
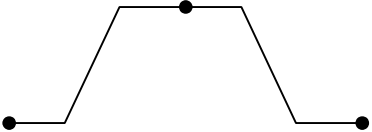
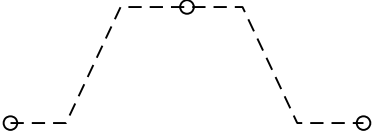
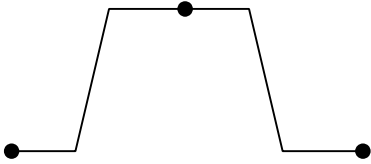
		
<p>Name: IHWTRS INDUSTRIAL HOT WATER SUPPLY Element type: Line</p>	<p>Name: INBATT LOOSE FILL BATT INSULATION Element type: Line</p>	<p>Name: INDDRN INDIRECT DRAIN Element type: Line</p>
		
<p>Name: INDXDC INDEX DEPTH CONTOUR Element type: Line</p>	<p>Name: INTCOM INTERCOM Element type: Line</p>	<p>Name: INTRLK INTERLOCK SLOPE PROTECTION Element type: Line</p>
		
<p>Name: IWASTE INDUSTRIAL WASTE Element type: Line</p>	<p>Name: LADDER CABLE LADDER Element type: Line</p>	<p>Name: LAWNSP LAWN SPRINKLER SUPPLY Element type: Line</p>

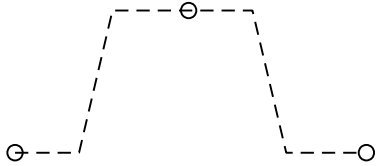
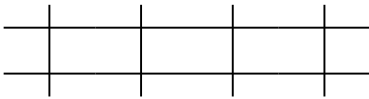
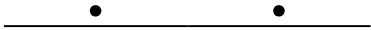






		
<p>Name: LEVEBO OTHER EXISTING LEVEE Element type: Line</p>	<p>Name: LEVEE LEVEE NEW Element type: Line</p>	<p>Name: LEVEEX EXISTING LEVEE Element type: Line</p>
		
<p>Name: LEVERP LEVEE TO BE REPAIRED Element type: Line</p>	<p>Name: LIQNIT LIQUID NITROGEN Element type: Line</p>	<p>Name: LIQOXY LIQUID OXYGEN Element type: Line</p>
		
<p>Name: LIQPET LIQUID PETROLEUM GAS Element type: Line</p>	<p>Name: LPCNDR LOW PRESSURE CONDENSATE Element type: Line</p>	<p>Name: MAKEUP MAKEUP WATER Element type: Line</p>


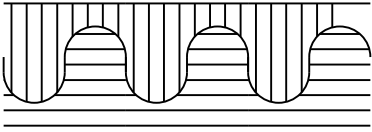


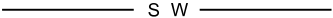


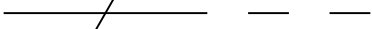



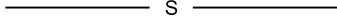
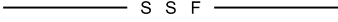

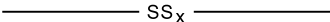
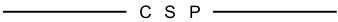
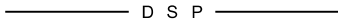
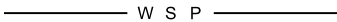


		
<p>Name: MANSUC SUCTION MAIN Element type: Line</p>	<p>Name: MINRDC MINOR DEPTH CONTOUR Element type: Line</p>	<p>Name: MPCNDR MEDIUM PRESSURE CONDENSATE Element type: Line</p>
		
<p>Name: MTHWR MEDIUM TEMP HOT WATER RETURN Element type: Line</p>	<p>Name: MTHWS MEDIUM TEMP HOT WATER SUPPLY Element type: Line</p>	<p>Name: NITOXI NITROUS OXIDE Element type: Line</p>
		
<p>Name: NITROG NITROGEN Element type: Line</p>	<p>Name: NONPOT NONPOTABLE WATER Element type: Line</p>	<p>Name: NTGASN NEW NATURAL GAS PIPING Element type: Line</p>


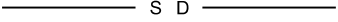


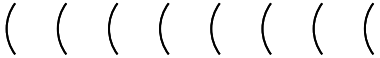



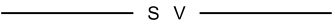
		
<p>Name: NTGASX EXIST NATURAL GAS PIPING Element type: Line</p>	<p>Name: NURSE NURSE CALL Element type: Line</p>	<p>Name: OXYGEN OXYGEN Element type: Line</p>
		
<p>Name: PHONE TELEPHONE Element type: Line</p>	<p>Name: PNTUBE PNEUMATIC TUBE RUNS Element type: Line</p>	<p>Name: PROJBL PROJECT BOUNDARY LINE Element type: Line</p>
		
<p>Name: PROPL PROPERTY LINE Element type: Line</p>	<p>Name: PS31 PS31 SHEET PILE Element type: Line</p>	<p>Name: PS31H PS31 SHEET PILE HIDDEN Element type: Line</p>


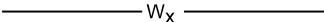
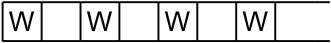
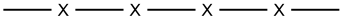
		
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<p>Name: PZ40H PZ40 SHEET PILE HIDDEN Element type: Line</p>	<p>Name: RAILRD RAILROAD Element type: Line</p>	<p>Name: REBR12 REBAR AT 12IN Element type: Line</p>
		
<p>Name: REBR18 REBAR AT 18IN Element type: Line</p>	<p>Name: REBR6 REBAR AT 6IN Element type: Line</p>	<p>Name: REBR9 REBAR AT 9IN Element type: Line</p>
		
<p>Name: REFRD REFRIGERANT DISCHARGE Element type: Line</p>	<p>Name: REFRL REFRIGERANT LIQUID Element type: Line</p>	<p>Name: REFRS REFRIGERANT SUCTION Element type: Line</p>

		
<p>Name: RIPPLN RIPRAP PLAN VIEW Element type: Line</p>	<p>Name: ROCK ROCK Element type: Line</p>	<p>Name: ROOFDN ROOF DRAIN Element type: Line</p>
		
<p>Name: RTOFWY RIGHT OF WAY Element type: Line</p>	<p>Name: SFCWTR SOFT COLD WATER Element type: Line</p>	<p>Name: SHORLN SHORE LINE Element type: Line</p>
		
<p>Name: SHWTRR SANITIZING HOT WATER RETURN Element type: Line</p>	<p>Name: SHWTRS SANITIZING HOT WATER SUPPLY Element type: Line</p>	<p>Name: SILT SILT FENCE Element type: Line</p>

		
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<b>Name: SSWAFX</b> EXIST SANITARY SEWER Element type: Line	<b>Name: STDCOM</b> COMBINATION STANDPIPE Element type: Line	<b>Name: STDDRY</b> DRY STANDPIPE Element type: Line
		
<b>Name: STDWET</b> WET STANDPIPE Element type: Line	<b>Name: STEAMH</b> HIGH PRESSURE STEAM Element type: Line	<b>Name: STEAML</b> LOW PRESSURE STEAM Element type: Line

		
<p>Name: STEAMM MEDIUM PRESSURE STEAM Element type: Line</p>	<p>Name: STRAF NEW STORM DRAIN Element type: Line</p>	<p>Name: STRAFX EXIST STORM DRAIN Element type: Line</p>
		
<p>Name: TREEL TREE LINE Element type: Line</p>	<p>Name: TUVANE TURNING VANES Element type: Line</p>	<p>Name: VACAIR VACUUM AIR Element type: Line</p>
		
<p>Name: VACPD VACUUM PUMP DISCHARGE Element type: Line</p>	<p>Name: VENT VENT Element type: Line</p>	<p>Name: VENTWS VENT AND WASTE COMBINATION Element type: Line</p>

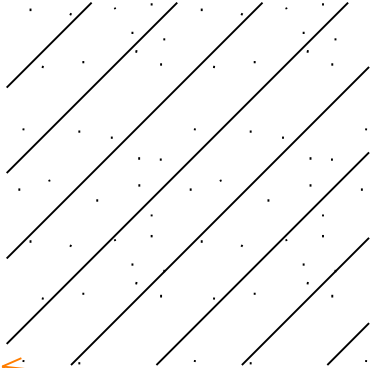

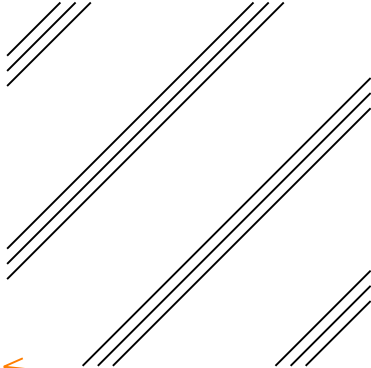
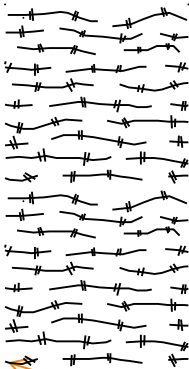
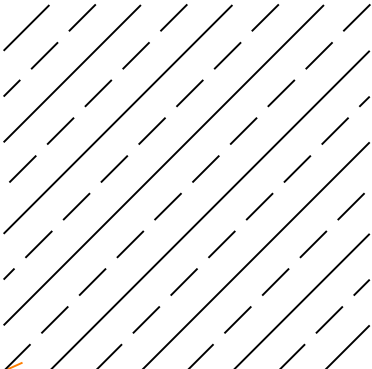
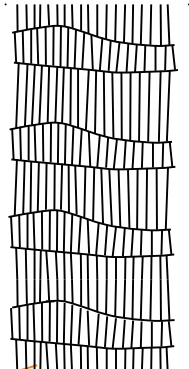
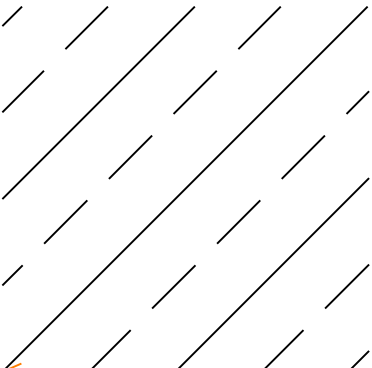
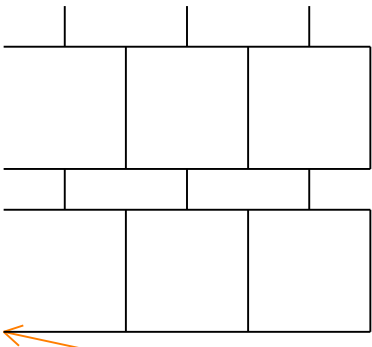
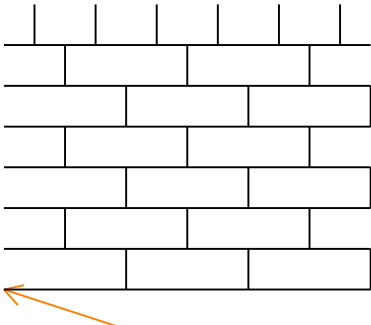
		
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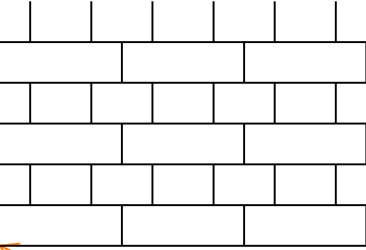
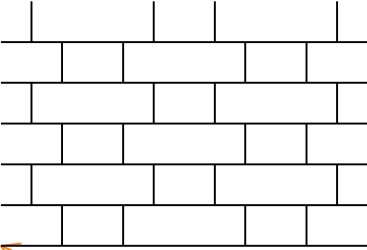
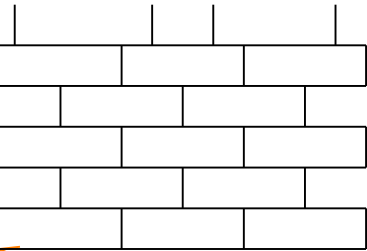
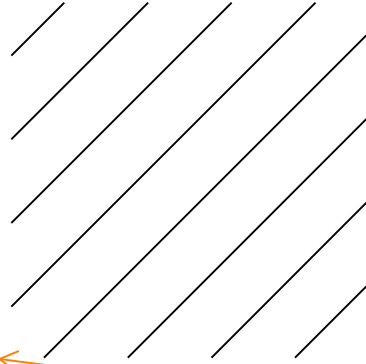
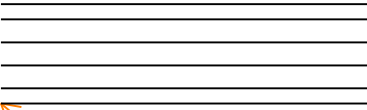
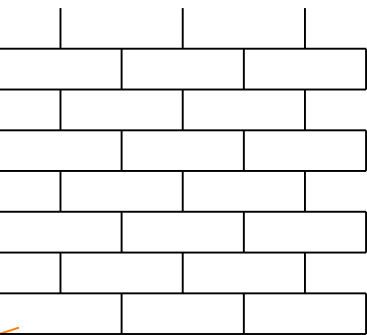
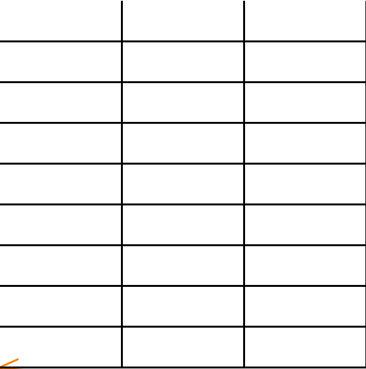
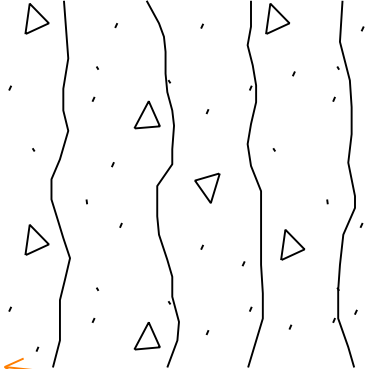


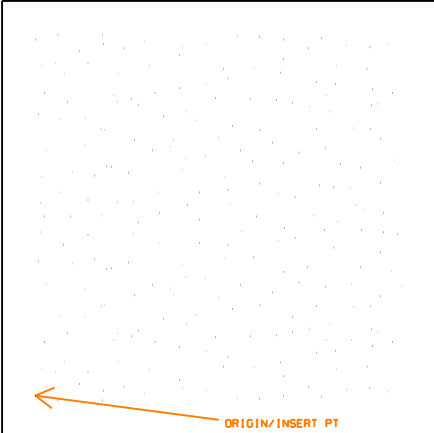
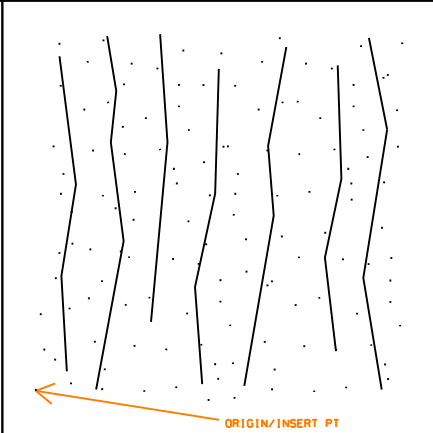
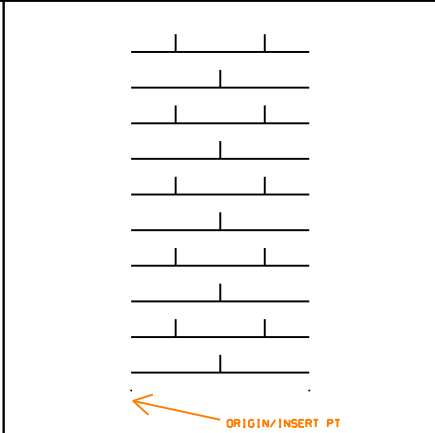
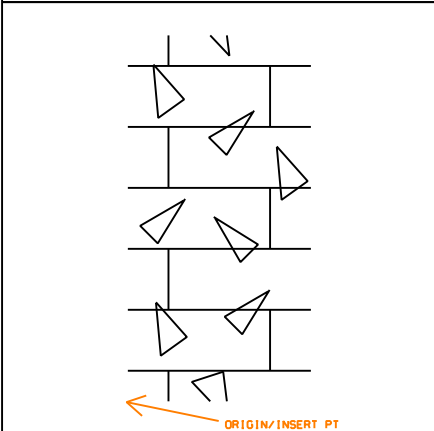
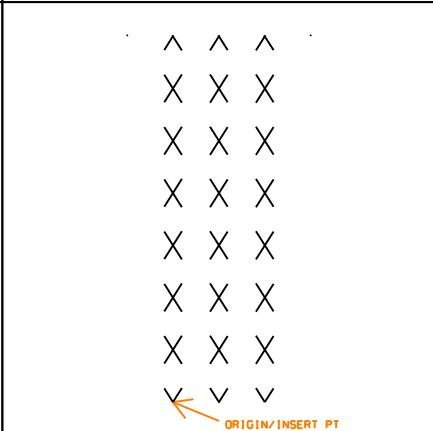
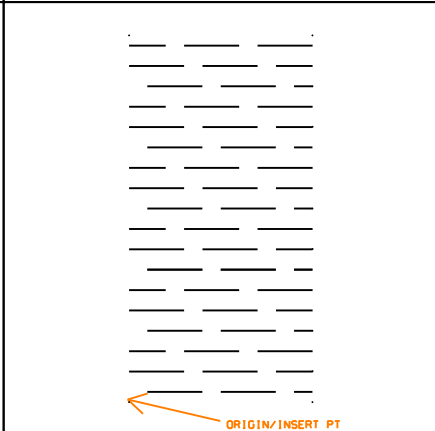
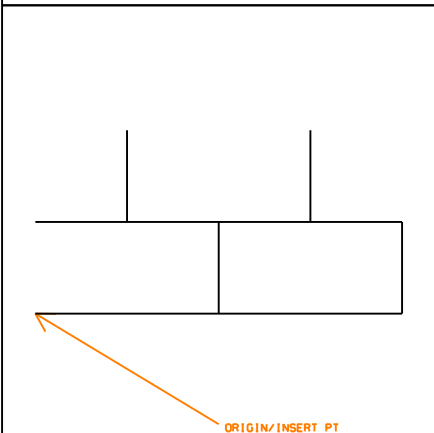
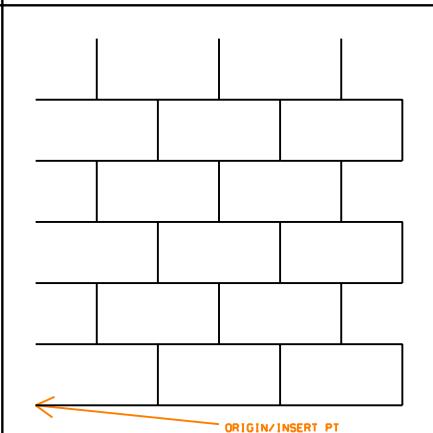
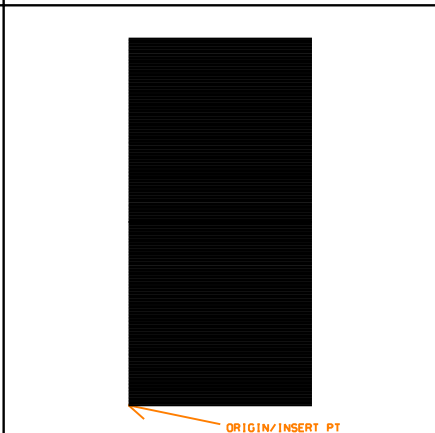
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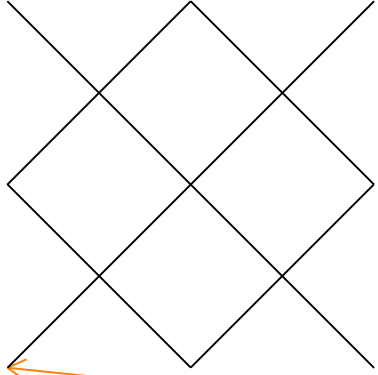
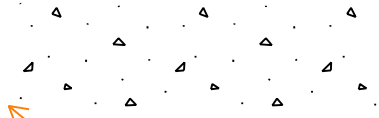
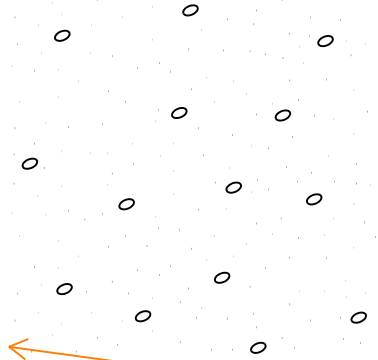
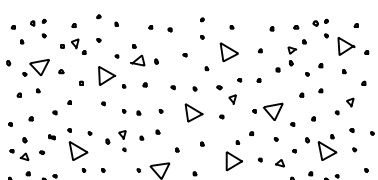
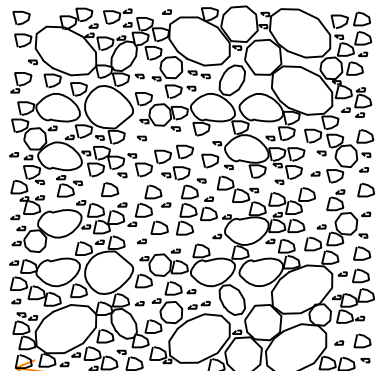
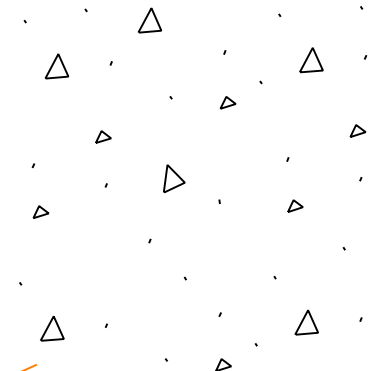
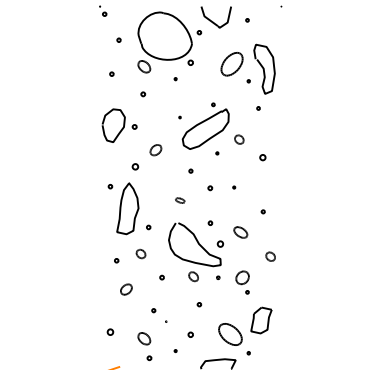
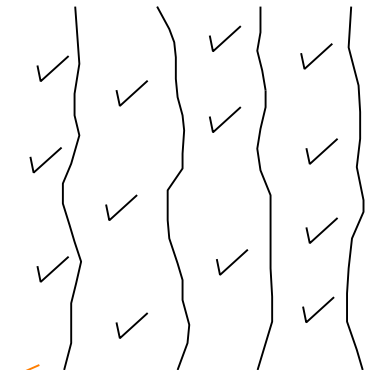
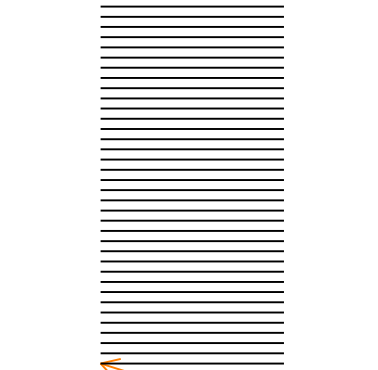
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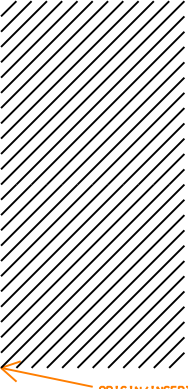
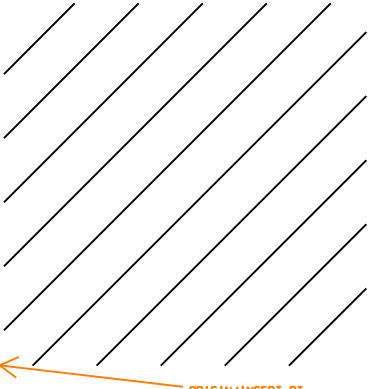
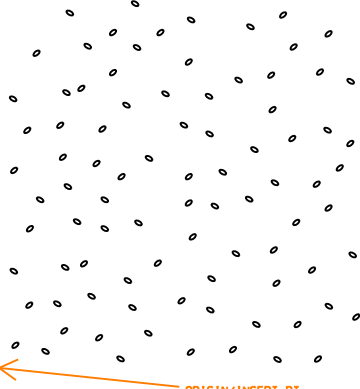
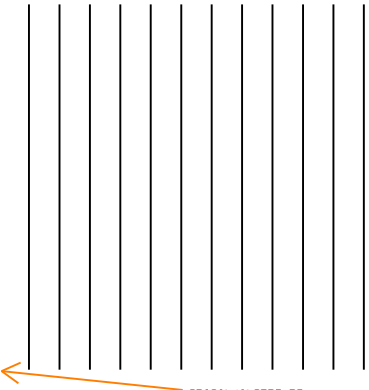
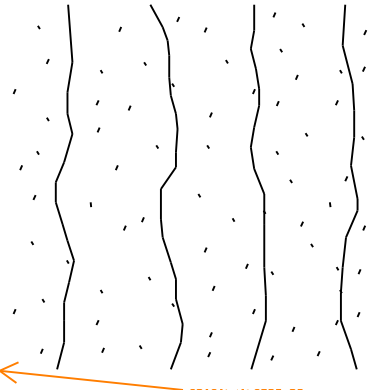
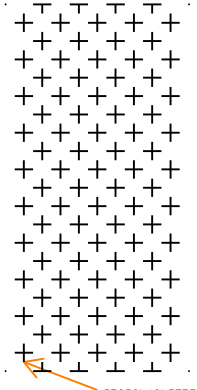
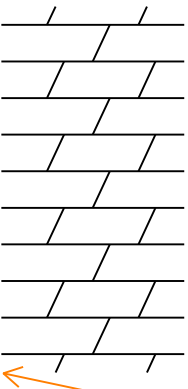
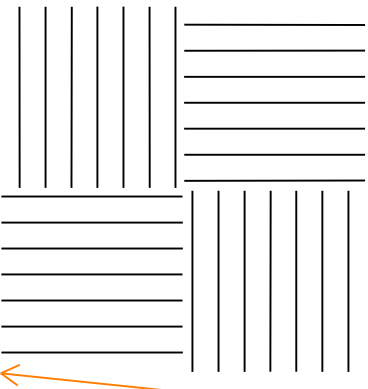
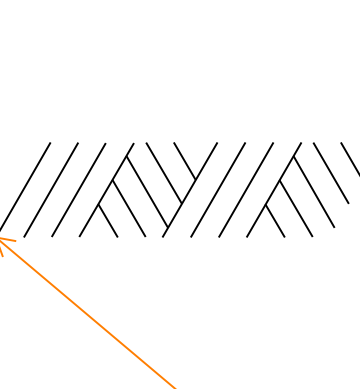
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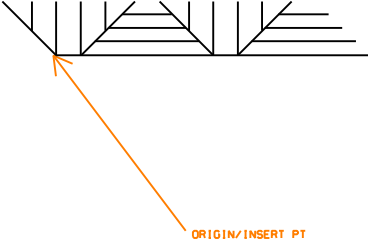
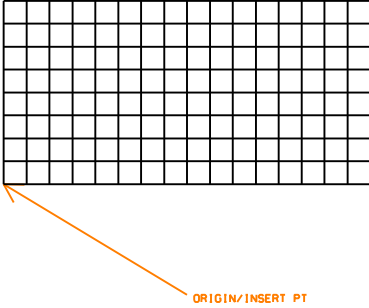
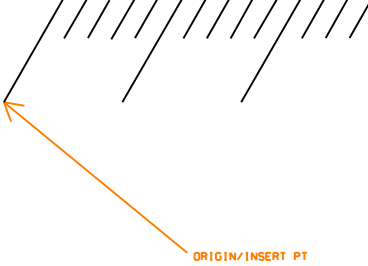
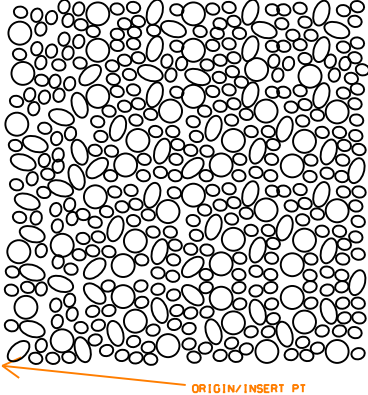
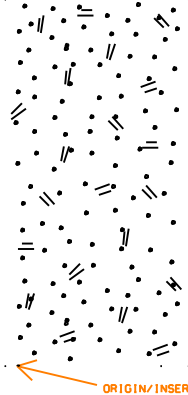
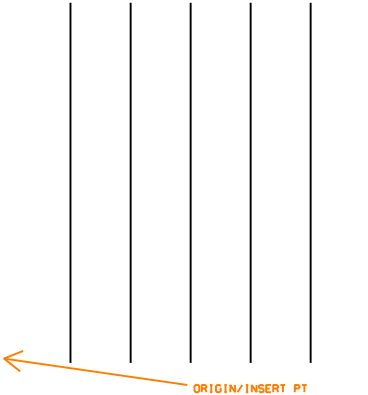
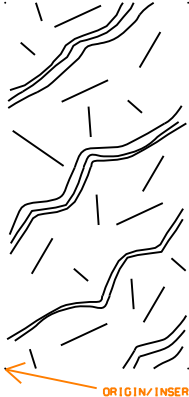
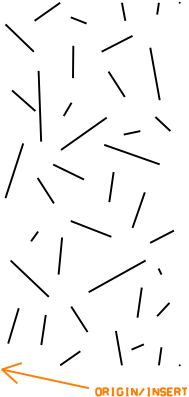
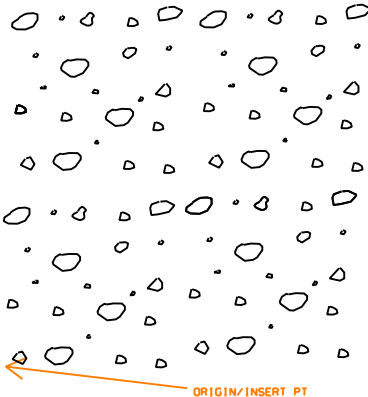
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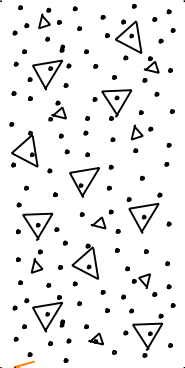

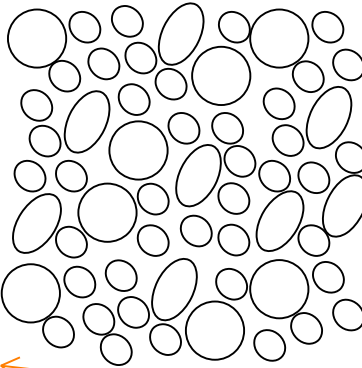
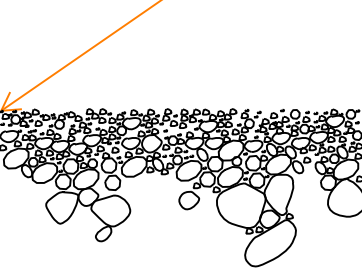
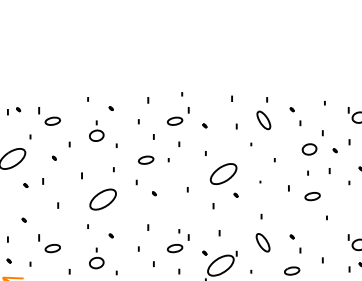
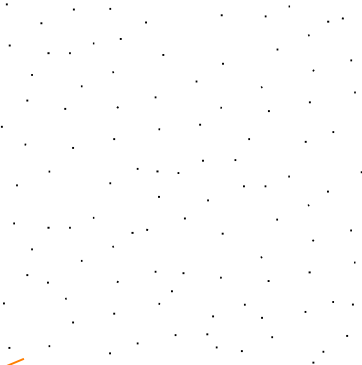
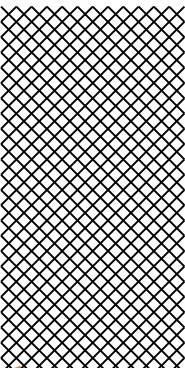
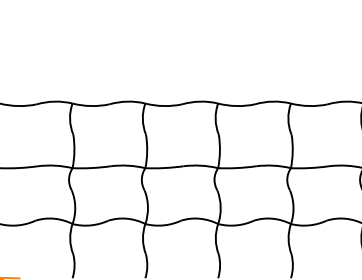
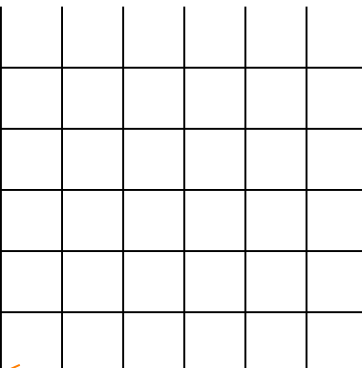
		
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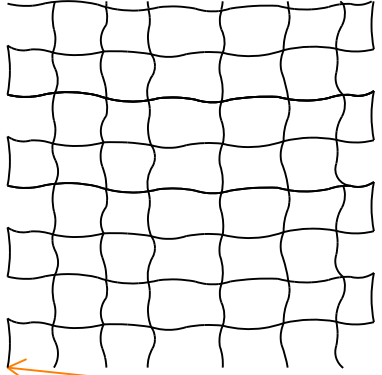
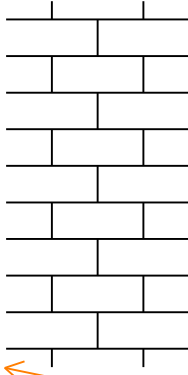
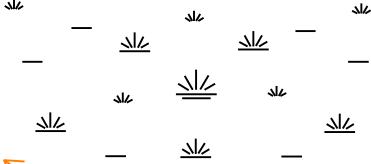
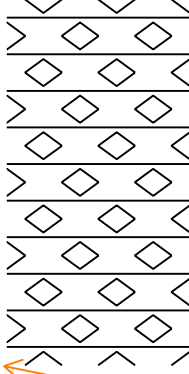

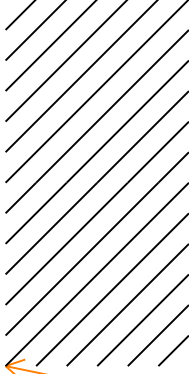
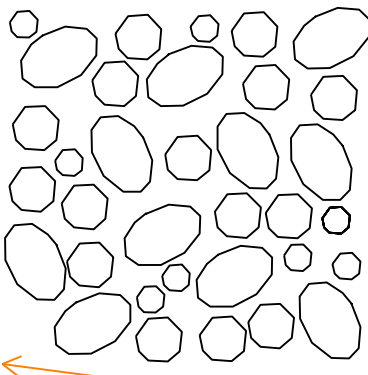
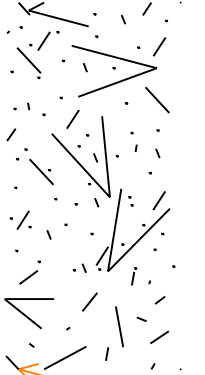
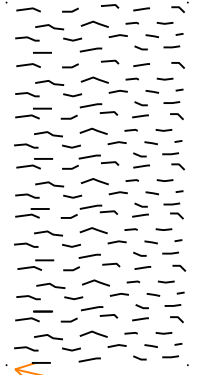
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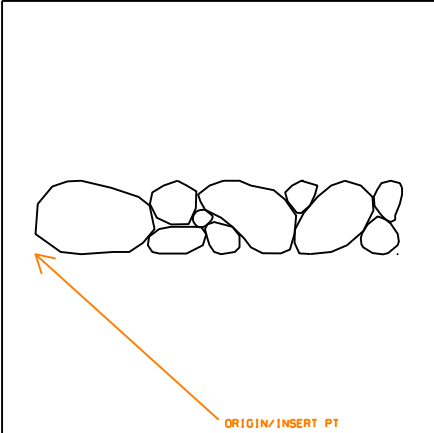
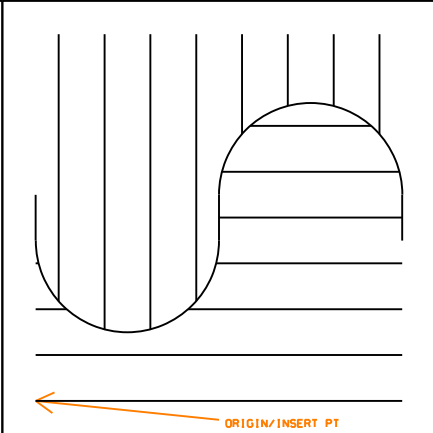
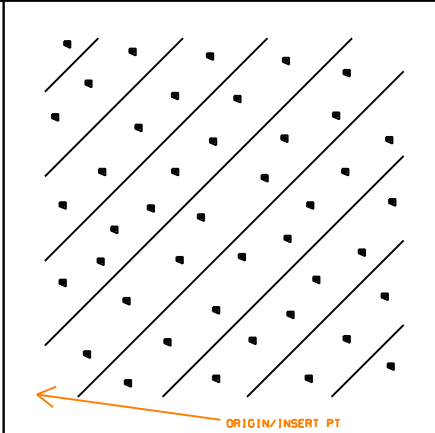
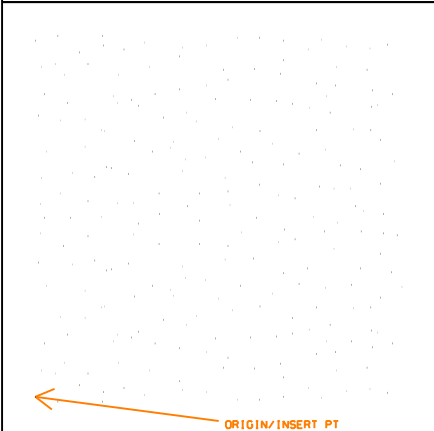
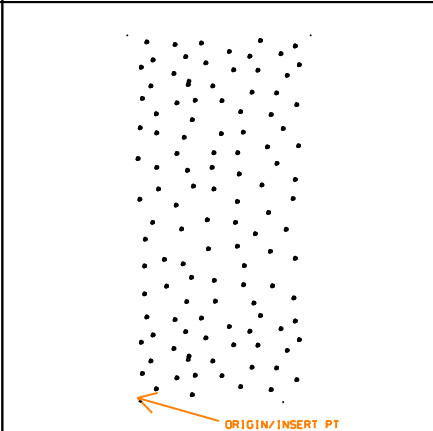
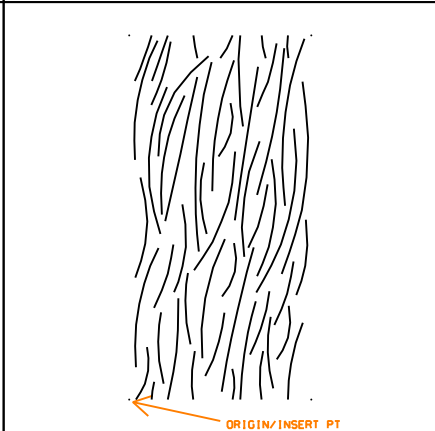
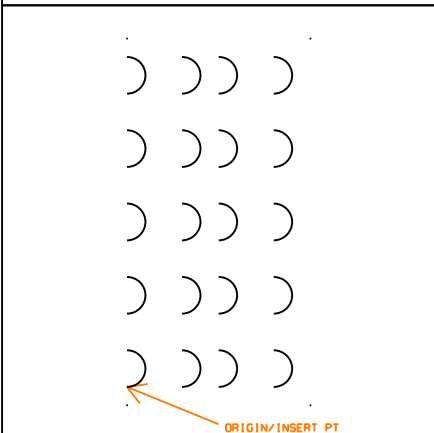
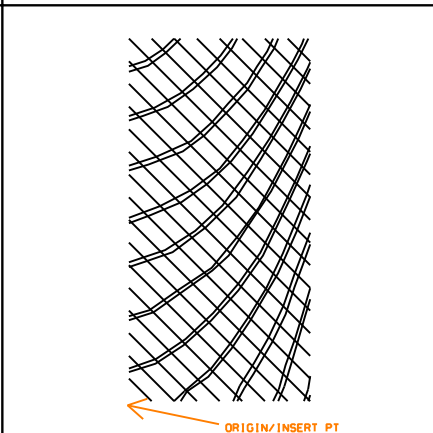
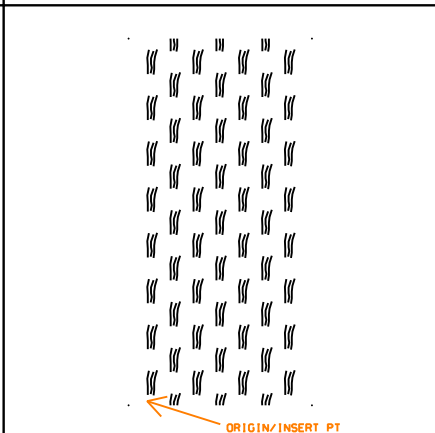
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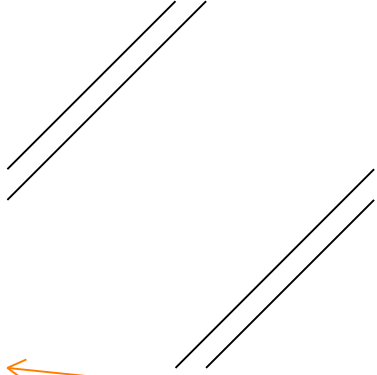
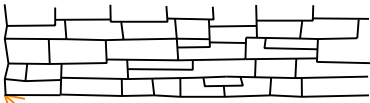
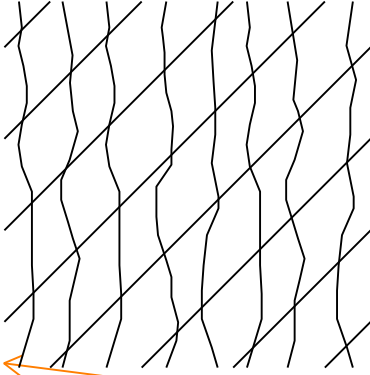
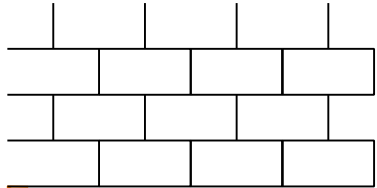
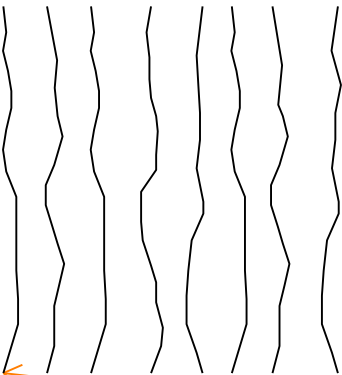
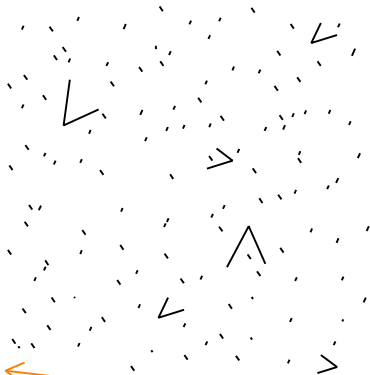
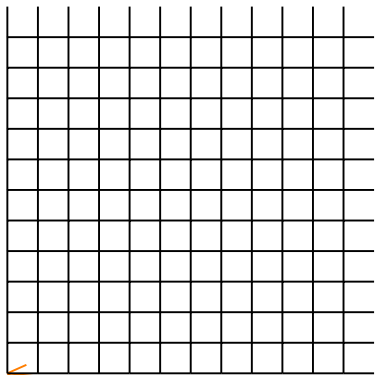
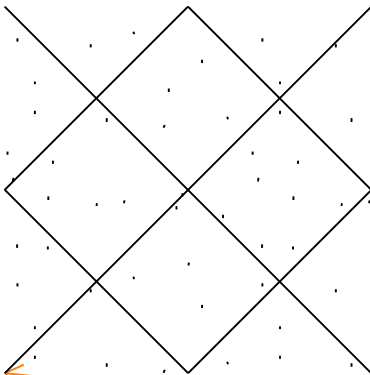
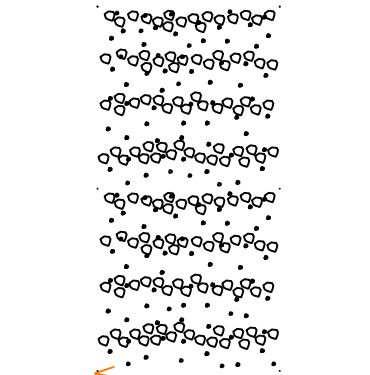
		
<p>Name: EROCK EXISTING ROCK Element type: Pattern</p>	<p>Name: FIBFSF FIBROUS FIRE SAFING PTN Element type: Pattern</p>	<p>Name: FILLSC FILL SECTION Element type: Pattern</p>
		
<p>Name: FILTBD FILTRATION BED Element type: Pattern</p>	<p>Name: GABBRO GABBRO Element type: Pattern</p>	<p>Name: GLASS STRUCTURAL GLASS PTN Element type: Pattern</p>
		
<p>Name: GNEISS GNEISS Element type: Pattern</p>	<p>Name: GRANIT GRANITE Element type: Pattern</p>	<p>Name: GRAVEL GRAVEL Element type: Pattern</p>

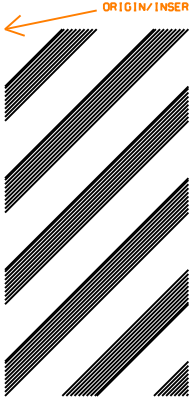
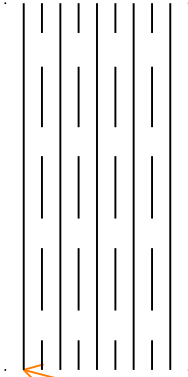
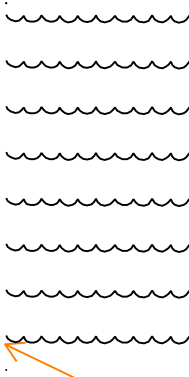
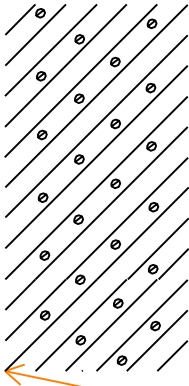
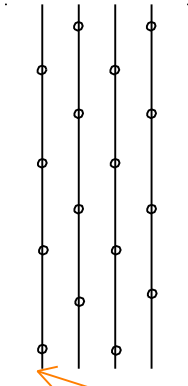
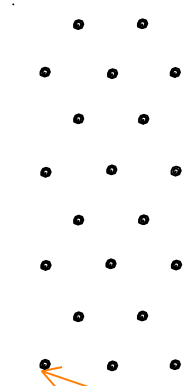
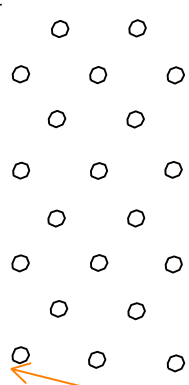
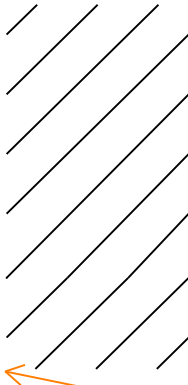
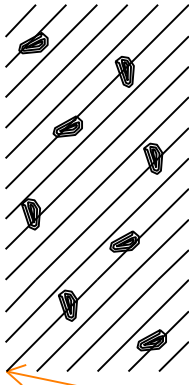


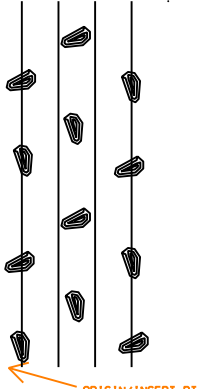


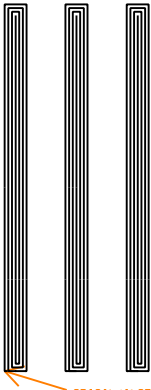
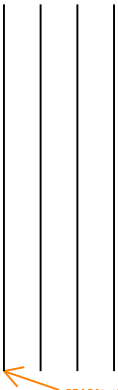
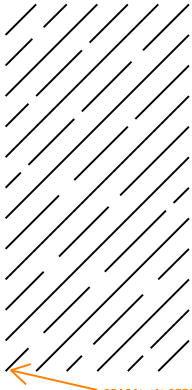
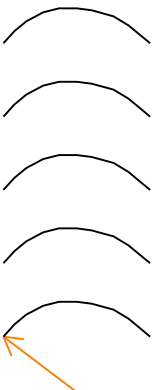
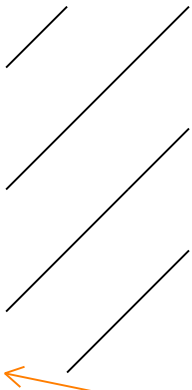
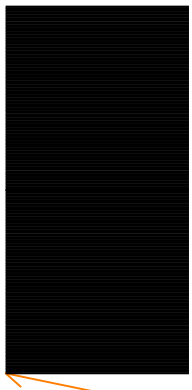
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<p>Name: HFRACT HIGHLY FRACTURED Element type: Pattern</p>	<p>Name: INSQLT LRGSCALE INSULATNQILTSPN Element type: Pattern</p>	<p>Name: INSRIG RIGID INSULATION PATTERN Element type: Pattern</p>

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<p>Name: INSSCM SOLIDCORKMAGNESIA INSULPTN Element type: Pattern</p>	<p>Name: LIMEST LIMESTONE Element type: Pattern</p>	<p>Name: LSWAMP LARGE SWAMP Element type: Pattern</p>
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<p>Name: MARBL1 MARBLE ELEVATION VIEW Element type: Pattern</p>	<p>Name: MARBL2 MARBLE STONE PLAN VIEW Element type: Pattern</p>	<p>Name: MSJNT MODERATELY SPACED JOINTS Element type: Pattern</p>
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<p>Name: POROUS POROUS Element type: Pattern</p>	<p>Name: QUARTZ QUARTZITE Element type: Pattern</p>	<p>Name: RHYOLT RHYOLITE Element type: Pattern</p>

		
<p>Name: RIPRAP RIPRAP PATTERN Element type: Pattern</p>	<p>Name: ROCK ROCK EARTHWORK PATTERN Element type: Pattern</p>	<p>Name: RUBBLE STONE RUBBLE PATTERN Element type: Pattern</p>
		
<p>Name: SAND SAND PATTERN Element type: Pattern</p>	<p>Name: SANDST SANDSTONE Element type: Pattern</p>	<p>Name: SCHIST SCHIST Element type: Pattern</p>
		
<p>Name: SHELL SHELLS Element type: Pattern</p>	<p>Name: SLATE SLATE Element type: Pattern</p>	<p>Name: SOAPST SOAPSTONE OR SERPENTINE Element type: Pattern</p>

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<p>Name: STEEL STEEL OTHER METALS PATTERN Element type: Pattern</p>	<p>Name: STNSQR SQUARED STONE PATTERN Element type: Pattern</p>	<p>Name: TCBCSS TERACOTA SMSCALE BRICKCOTA Element type: Pattern</p>
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<p>Name: TCELEV TERRA COTTA ELEVATION PTN Element type: Pattern</p>	<p>Name: TCUSS TERACOTA SMSCALE UNGLZDPTN Element type: Pattern</p>	<p>Name: TERRZO TERRAZZO PATTERN Element type: Pattern</p>
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<p>Name: TILCER CERAMIC TILE ELEVATION PTN Element type: Pattern</p>	<p>Name: TILESF STRUCTURAL FACING TILE PTN Element type: Pattern</p>	<p>Name: TUFF TUFF OR TUFF BRECCIA Element type: Pattern</p>

		
<p>Name: USCS1 OL ORGANIC CLAY OR SILT LOW Element type: Pattern</p>	<p>Name: USCS10 OL ORGANIC CLAY OR SILT LOW Element type: Pattern</p>	<p>Name: USCS11 PT PEAT Element type: Pattern</p>
		
<p>Name: USCS12 SC CLAYEY SAND Element type: Pattern</p>	<p>Name: USCS13 SM SILTY SAND Element type: Pattern</p>	<p>Name: USCS14 SP POORLY GRADED SAND Element type: Pattern</p>
		
<p>Name: USCS15 SW WELL GRADED SAND Element type: Pattern</p>	<p>Name: USCS2 CL LEAN CLAY Element type: Pattern</p>	<p>Name: USCS3 GC CLAYEY GRAVEL Element type: Pattern</p>

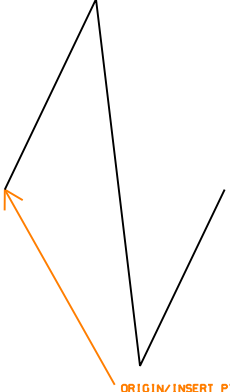
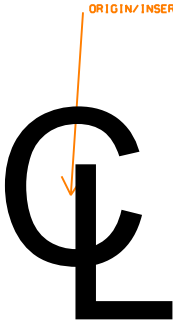
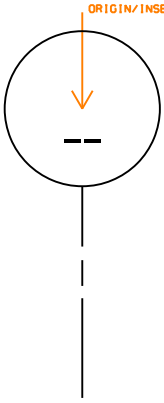
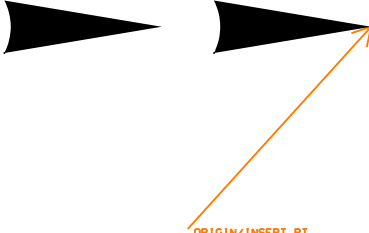
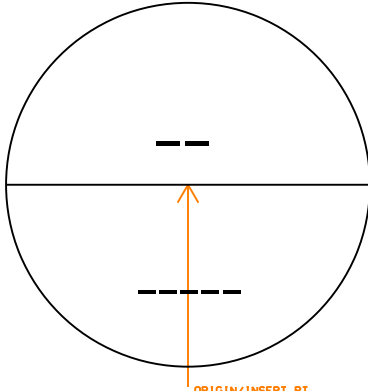
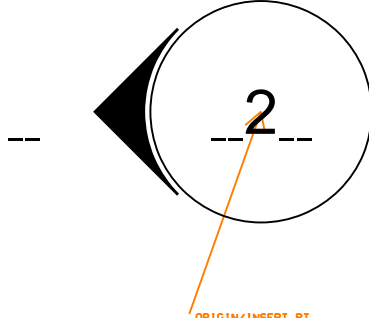
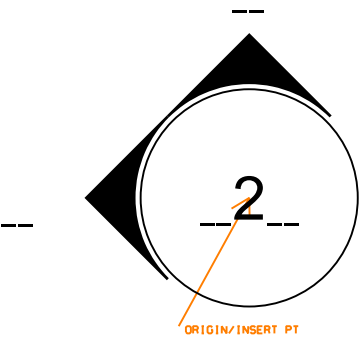
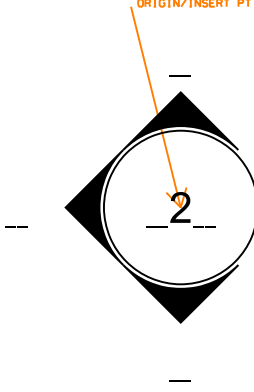
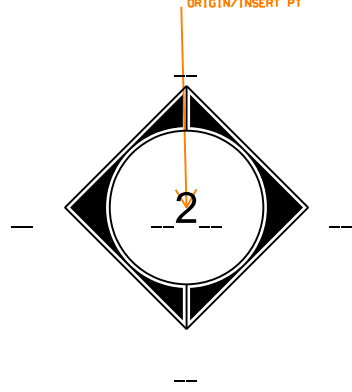
		
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<p>Name: USCS7 MH INORGANIC SILT HIGH LIQU Element type: Pattern</p>	<p>Name: USCS8 ML INORGANIC SILT LOW LIQU Element type: Pattern</p>	<p>Name: USCS9 OH ORGANIC CLAY OR SILT HIG Element type: Pattern</p>
		
<p>Name: WOOD WOOD SYMBOL Element type: Pattern</p>	<p>Name: WSJNT WIDELY SPACED JOINTS Element type: Pattern</p>	<p>Name: ZONECL ZONES OF CORE LOSS Element type: Pattern</p>

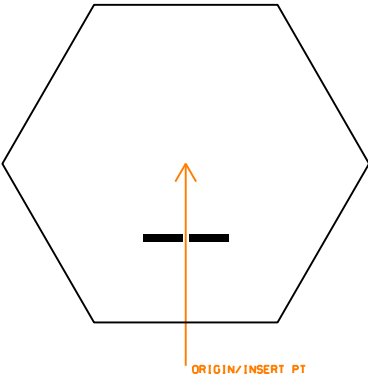
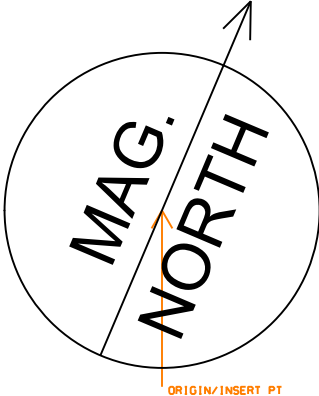
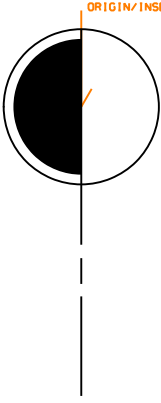
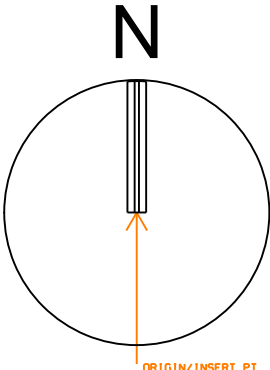
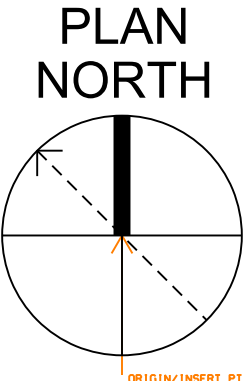

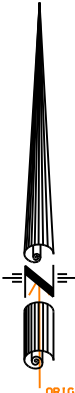

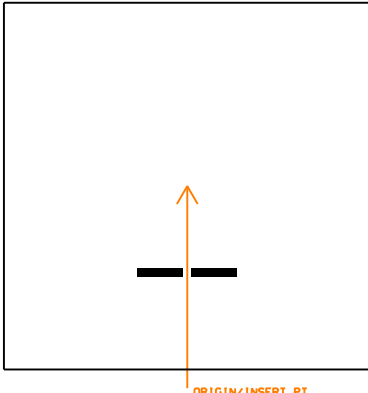
# 3 General Symbols Library

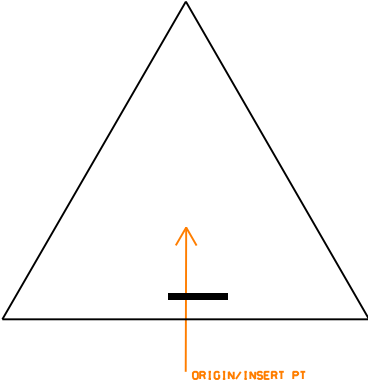
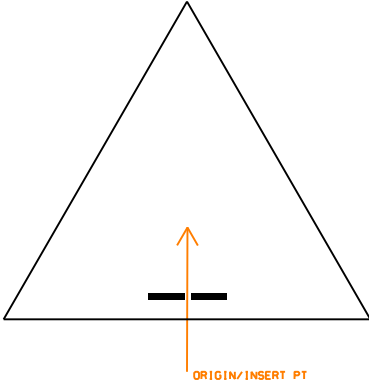
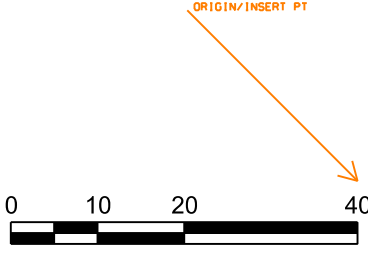
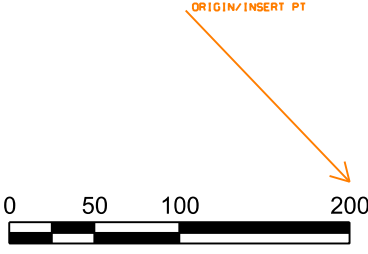
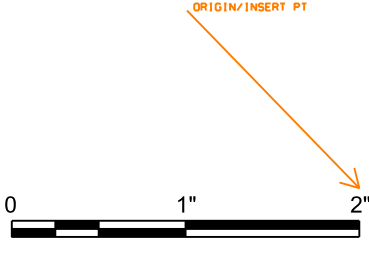
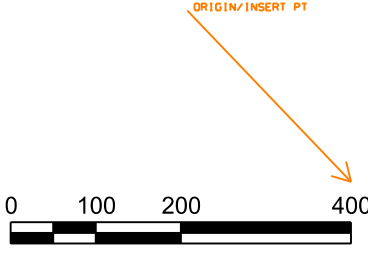
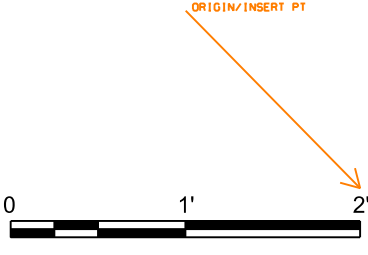
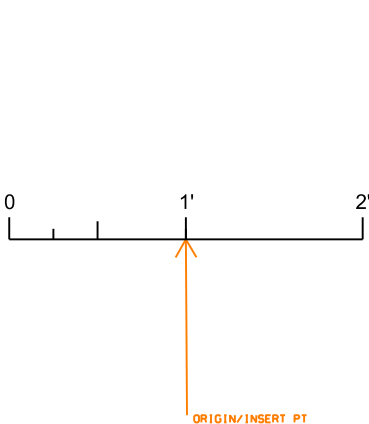
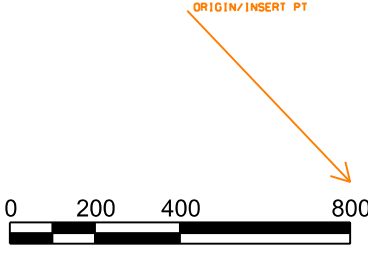
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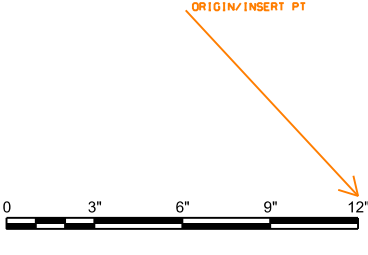
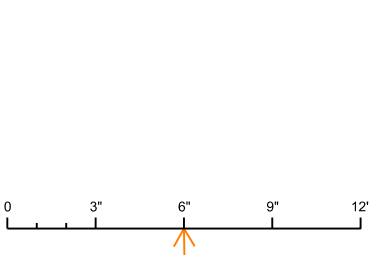
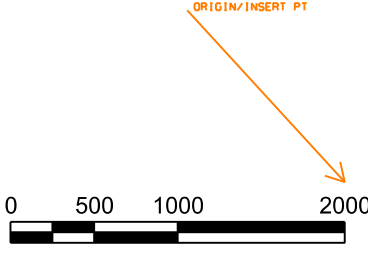
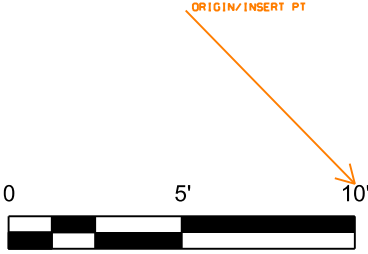
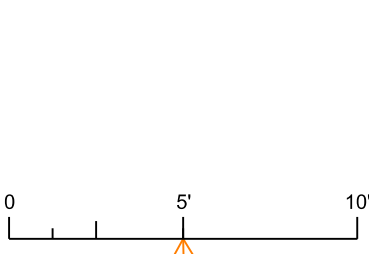
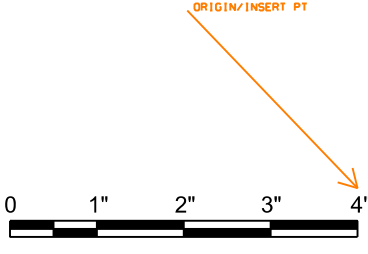
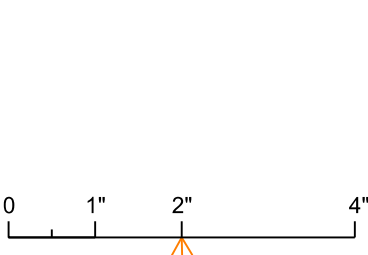
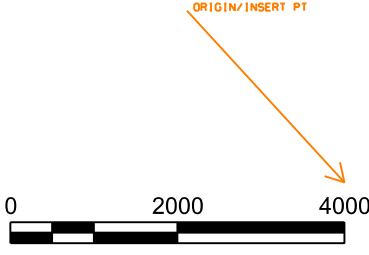
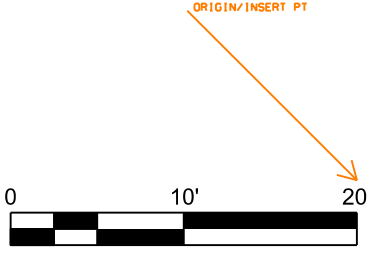
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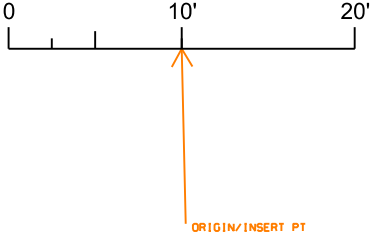
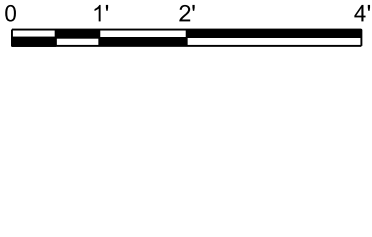
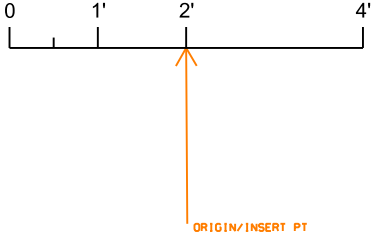
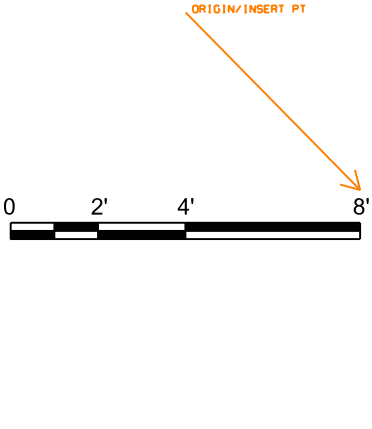
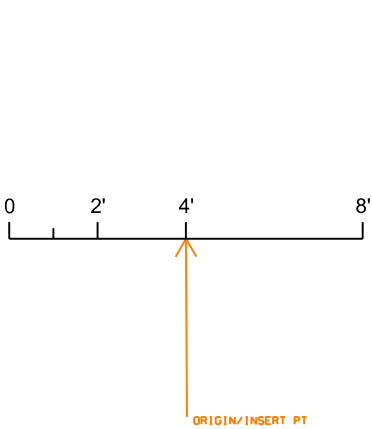
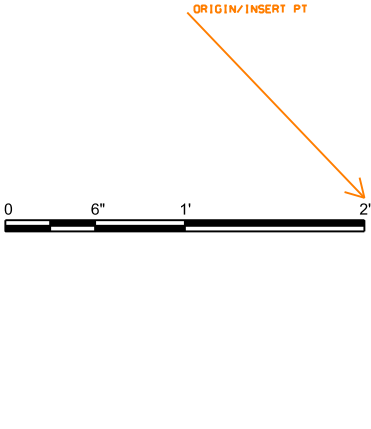
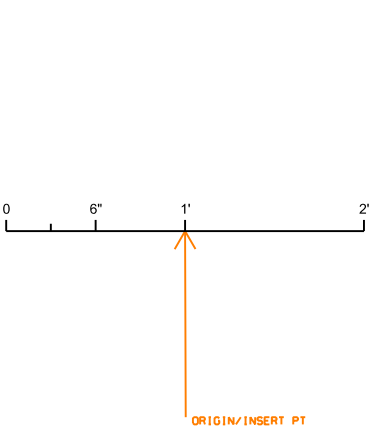
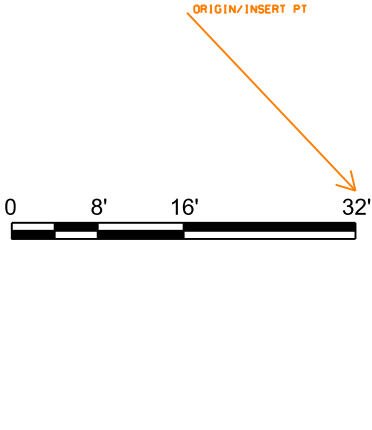
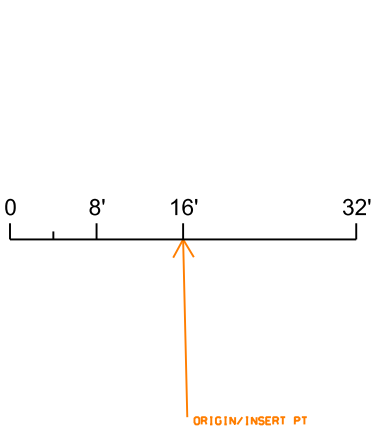


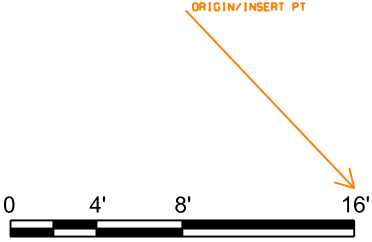
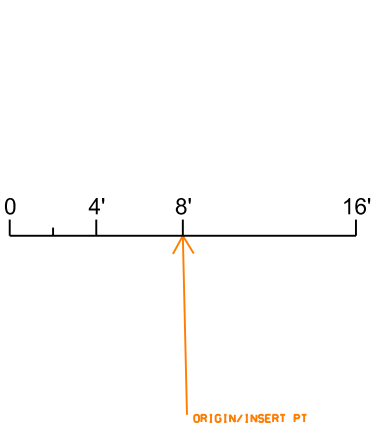
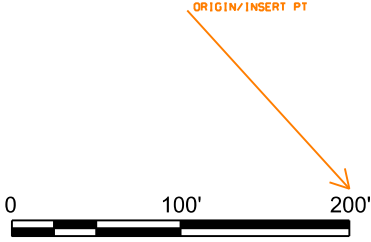
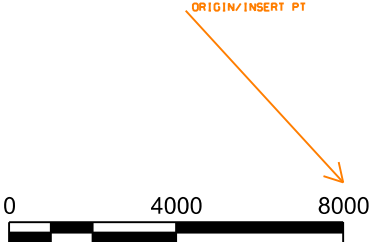
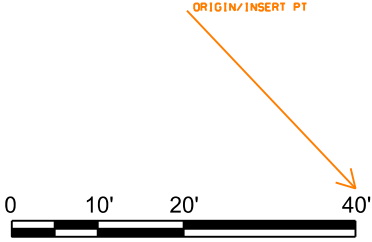
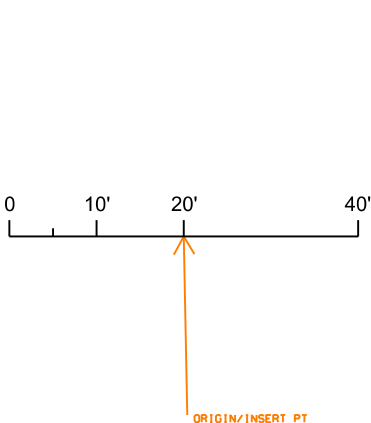
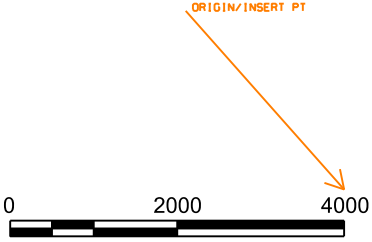
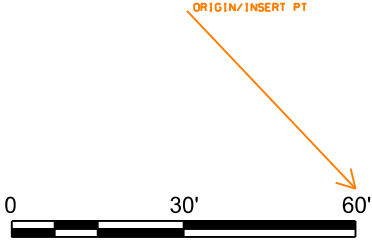
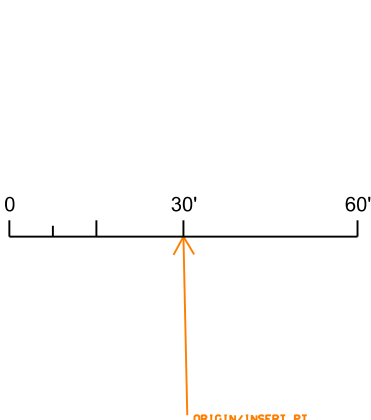
		
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<p>General: DBLARR DOUBLE ARROW TERMINATOR Element type: Symbol</p>	<p>General: DTLIND DETAIL INDICATOR Element type: Symbol</p>	<p>General: ELEV1 ELEVATION INDICATOR, INTERIOR Element type: Symbol</p>
		
<p>General: ELEV2 ELEVATION INDICATOR, INTERIOR Element type: Symbol</p>	<p>General: ELEV3 ELEVATION INDICATOR, INTERIOR Element type: Symbol</p>	<p>General: ELEV4 ELEVATION INDICATOR, INTERIOR Element type: Symbol</p>

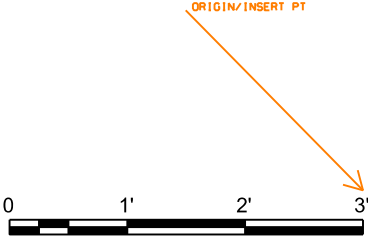
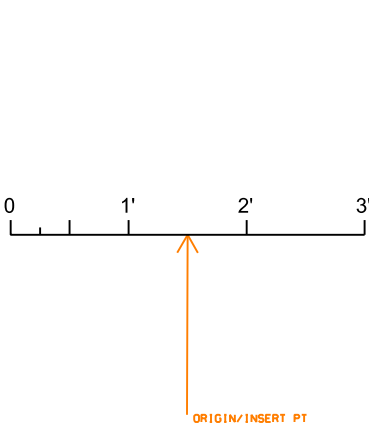
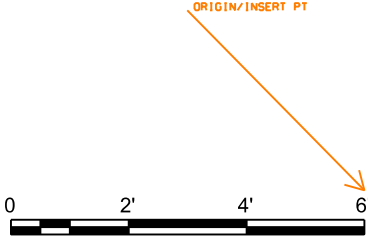
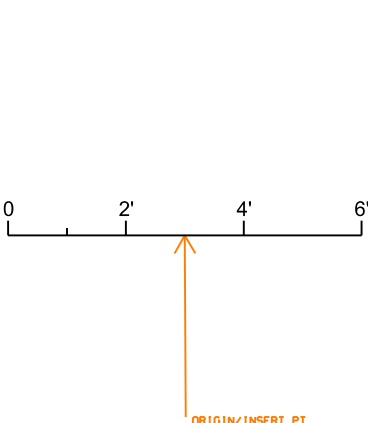
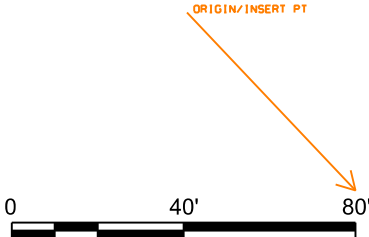
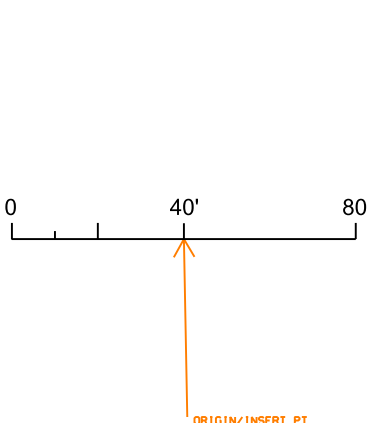
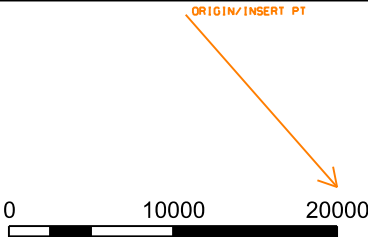
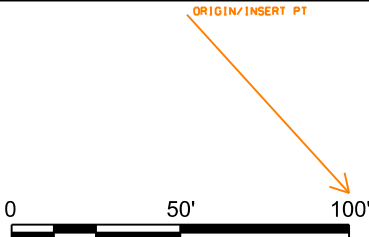
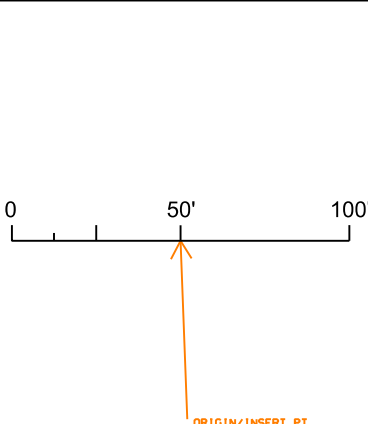
		
<p>General: KEYIND KEYNOTE INDICATOR Element type: Symbol</p>	<p>General: MAGNOR MAGNETIC NORTH ARROW Element type: Symbol</p>	<p>General: MATIND MATCH LINE INDICATOR Element type: Symbol</p>
		
<p>General: NORIND NORTH INDICATOR Element type: Symbol</p>	<p>General: NORNCS NORTH INDICATOR (NCS) Element type: Symbol</p>	<p>General: NORTH1 NORTH INDICATOR Element type: Symbol</p>
		
<p>General: NORTH2 NORTH INDICATOR Element type: Symbol</p>	<p>General: NORTH3 NORTH INDICATOR Element type: Symbol</p>	<p>General: NOTIND NOTE INDICATOR Element type: Symbol</p>

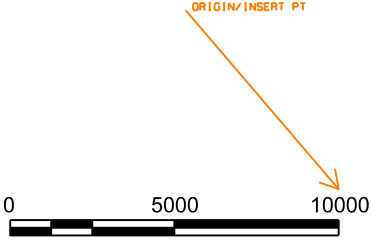
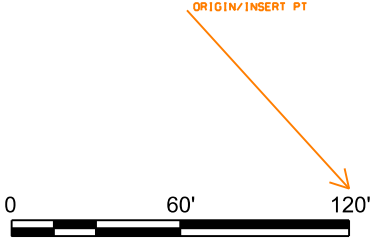
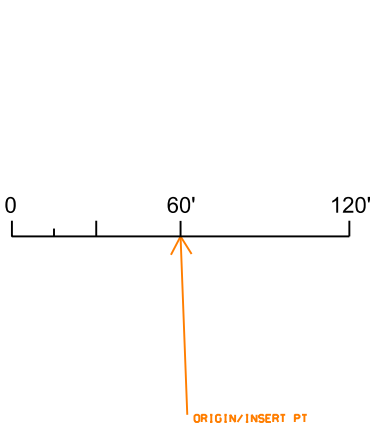
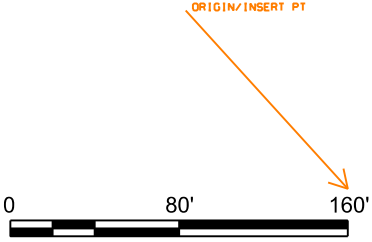
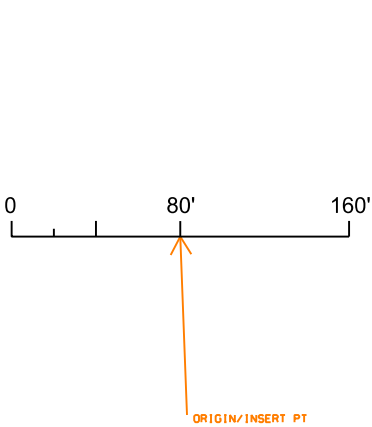
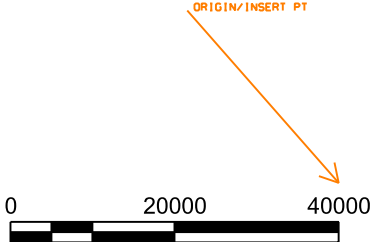
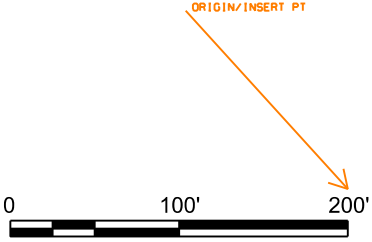
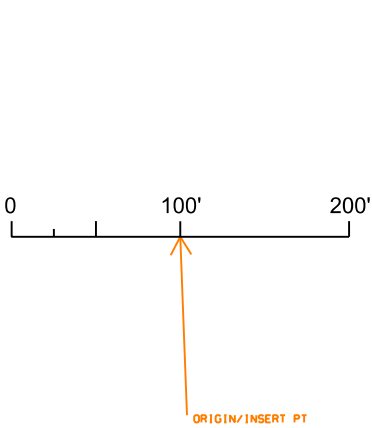
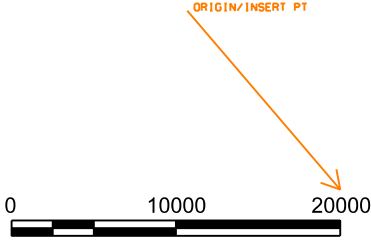
		
<p>General: REVID1 REVISION INDICATOR 1 CHARACTER Element type: Symbol</p>	<p>General: REVID2 REVISION INDICATOR 2 CHARACTERS Element type: Symbol</p>	<p>General: S00001 SCALE 1 = 1 (metric) Element type: Symbol</p>
		
<p>General: S00005 SCALE 1 = 5 (metric) Element type: Symbol</p>	<p>General: S0000B SCALE FULL Element type: Symbol</p>	<p>General: S00010 SCALE 1 = 10 (metric) Element type: Symbol</p>
		
<p>General: S0001B SCALE 1" = 1" Element type: Symbol</p>	<p>General: S0001G SCALE 1" = 1" Element type: Symbol</p>	<p>General: S00020 SCALE 1 = 20 (metric) Element type: Symbol</p>

		
<p>General: S0003B SCALE 3" = 1' Element type: Symbol</p>	<p>General: S0003G SCALE 3" = 1' Element type: Symbol</p>	<p>General: S00050 SCALE 1 = 50 (metric) Element type: Symbol</p>
		
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<p>General: S0006G SCALE 6" = 1' Element type: Symbol</p>	<p>General: S00100 SCALE 1 = 100 (metric) Element type: Symbol</p>	<p>General: S0010B SCALE 1" = 10' Element type: Symbol</p>

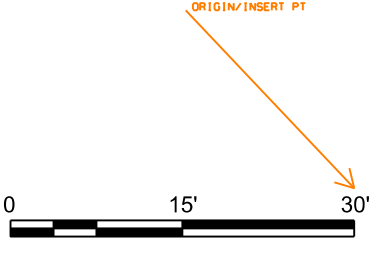
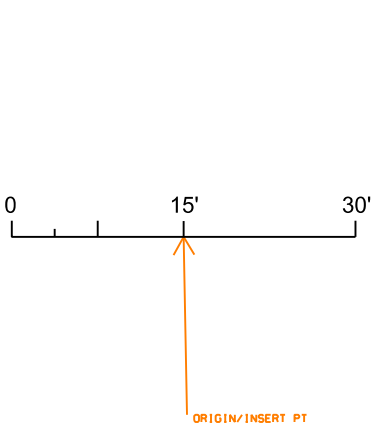
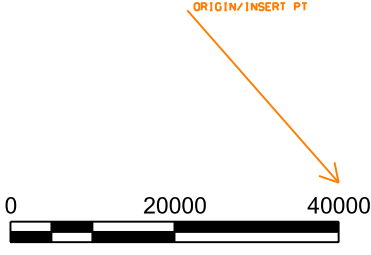
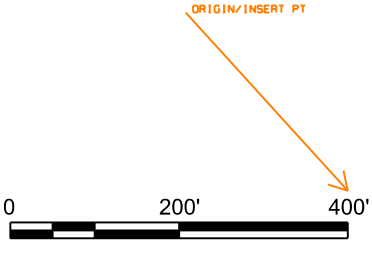
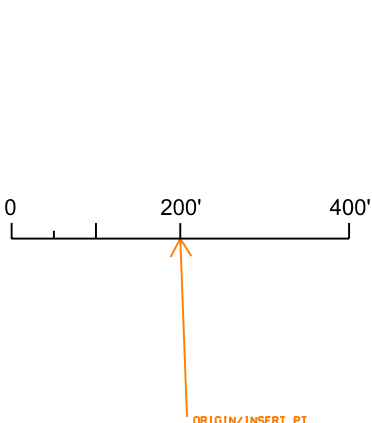
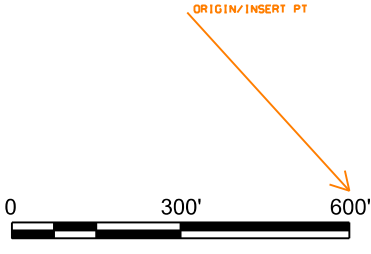
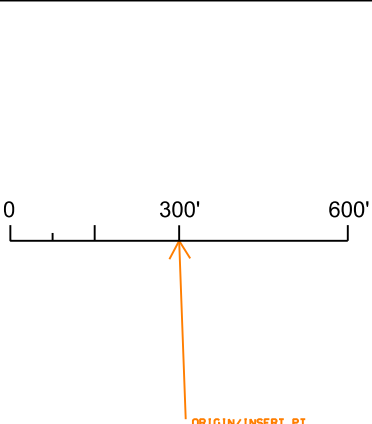
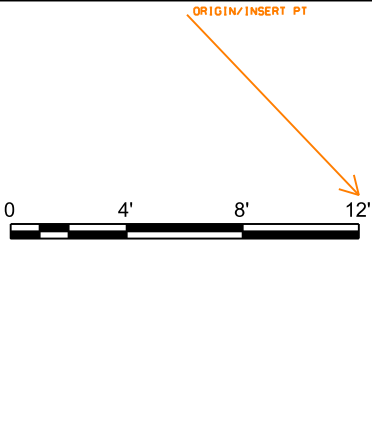
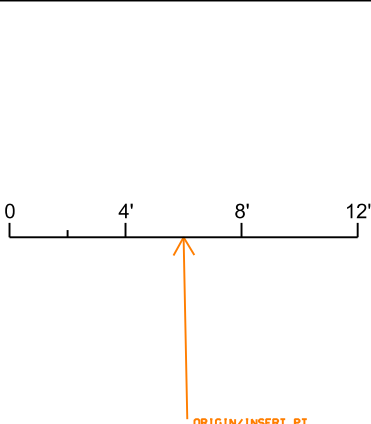
		
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<p>General: S0014B SCALE 1/4" = 1' Element type: Symbol</p>	<p>General: S0014G SCALE 1/4" = 1' Element type: Symbol</p>	<p>General: S0015B SCALE 1 1/2" = 1' Element type: Symbol</p>
		
<p>General: S0015G SCALE 1 1/2" = 1' Element type: Symbol</p>	<p>General: S0016B SCALE 1/16" = 1' Element type: Symbol</p>	<p>General: S0016G SCALE 1/16" = 1' Element type: Symbol</p>

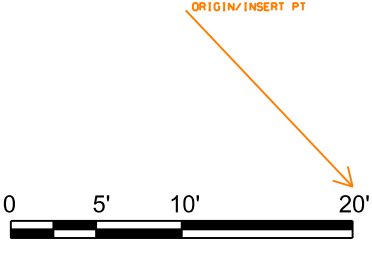
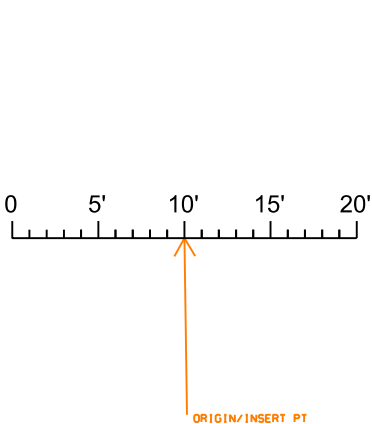
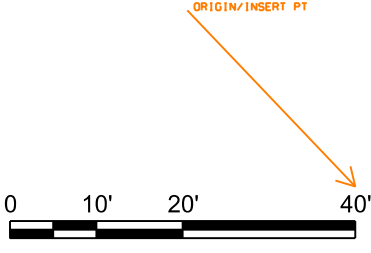
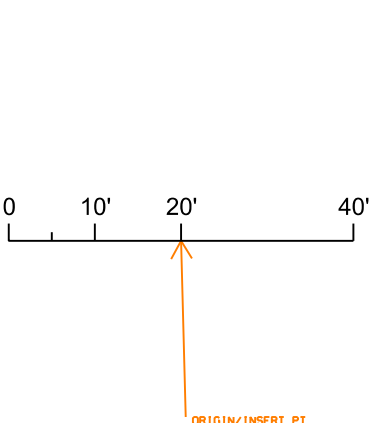
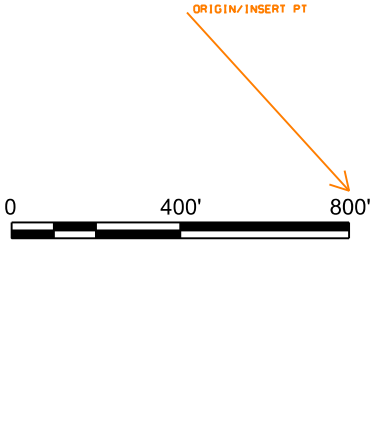
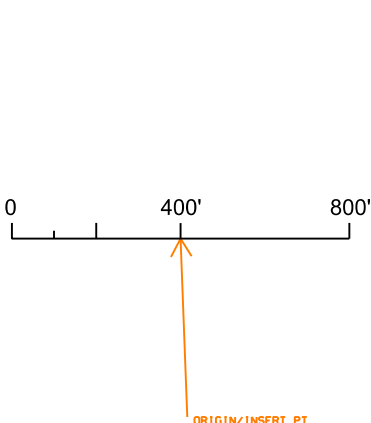
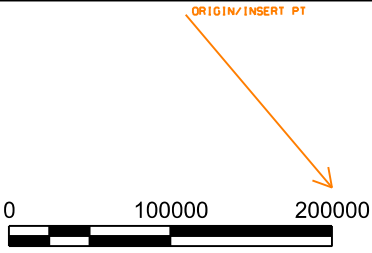
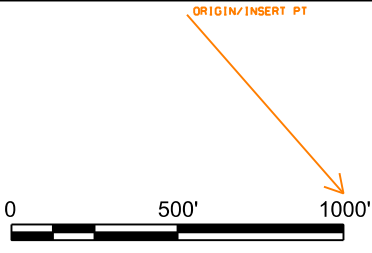
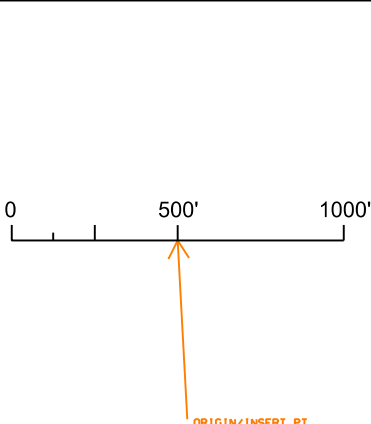
		
<p>General: S0018B SCALE 1/8" = 1' Element type: Symbol</p>	<p>General: S0018G SCALE 1/8" = 1' Element type: Symbol</p>	<p>General: S001KB SCALE 1 = 1000 (imperial) Element type: Symbol</p>
		
<p>General: S00200 SCALE 1 = 200 (metric) Element type: Symbol</p>	<p>General: S0020B SCALE 1" = 20' Element type: Symbol</p>	<p>General: S0020G SCALE 1" = 20' Element type: Symbol</p>
		
<p>General: S002KB SCALE 1 = 2000 (imperial) Element type: Symbol</p>	<p>General: S0030B SCALE 1" = 30' Element type: Symbol</p>	<p>General: S0030G SCALE 1" = 30' Element type: Symbol</p>

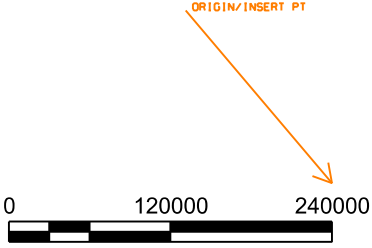
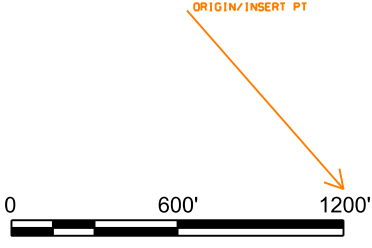
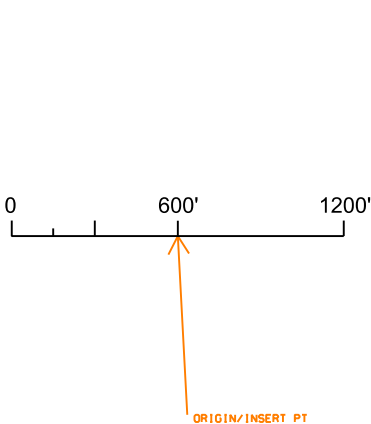
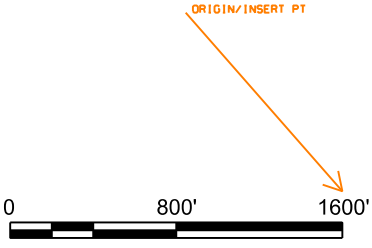
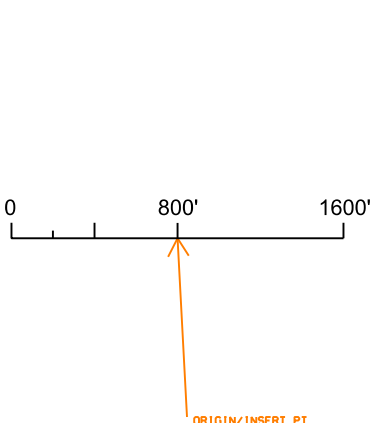
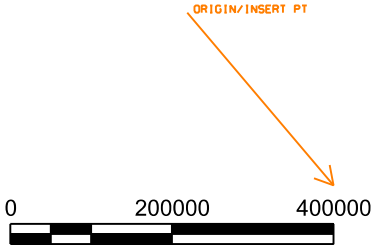
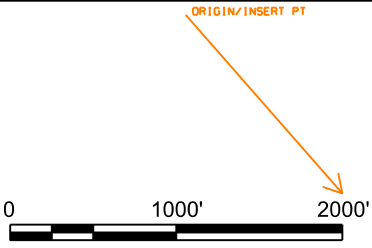
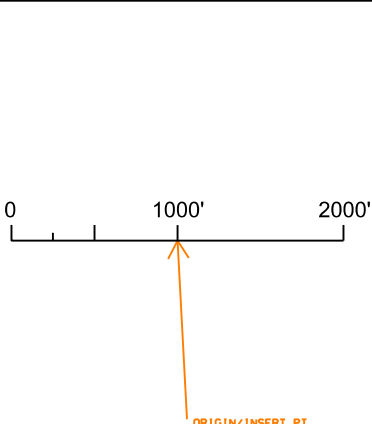
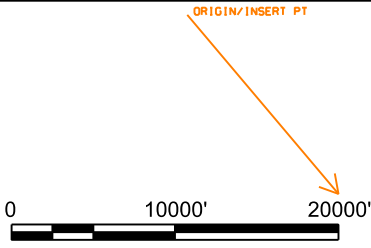
		
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<p>General: S0038G SCALE 3/8" = 1' Element type: Symbol</p>	<p>General: S0040B SCALE 1" = 40' Element type: Symbol</p>	<p>General: S0040G SCALE 1" = 40' Element type: Symbol</p>
		
<p>General: S00500 SCALE 1 = 500 (metric) Element type: Symbol</p>	<p>General: S0050B SCALE 1" = 50' Element type: Symbol</p>	<p>General: S0050G SCALE 1" = 50' Element type: Symbol</p>

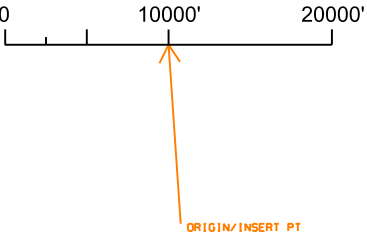
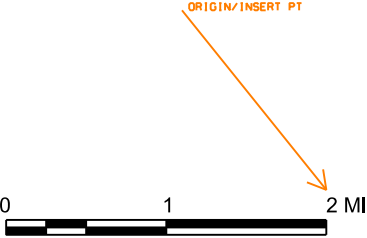
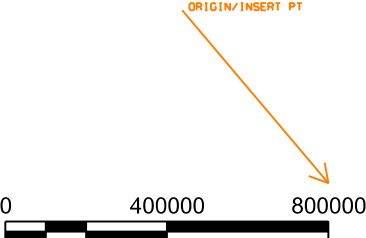
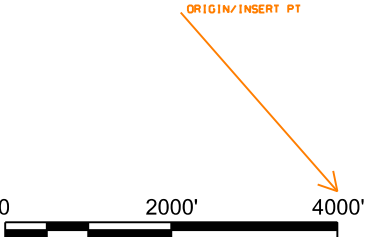
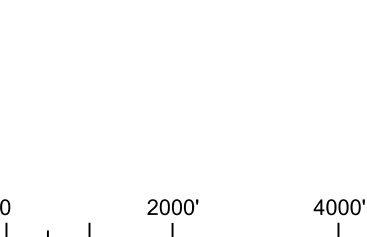
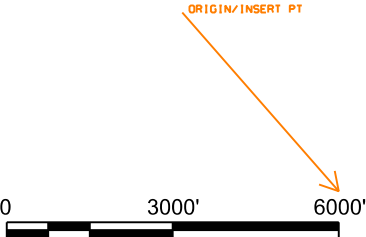
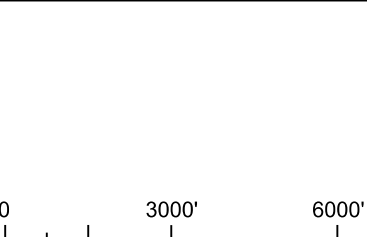
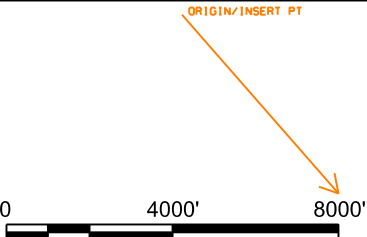
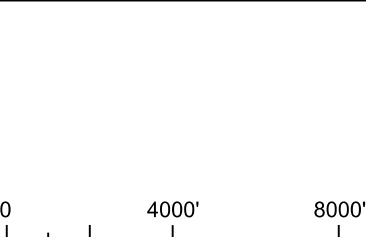
		
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<p>General: S0080B SCALE 1" = 80' Element type: Symbol</p>	<p>General: S0080G SCALE 1" = 80' Element type: Symbol</p>	<p>General: S01000 SCALE 1 = 1000 (metric) Element type: Symbol</p>
		
<p>General: S0100B SCALE 1" = 100' Element type: Symbol</p>	<p>General: S0100G SCALE 1" = 100' Element type: Symbol</p>	<p>General: S010KB SCALE 1 = 10000 (imperial) Element type: Symbol</p>



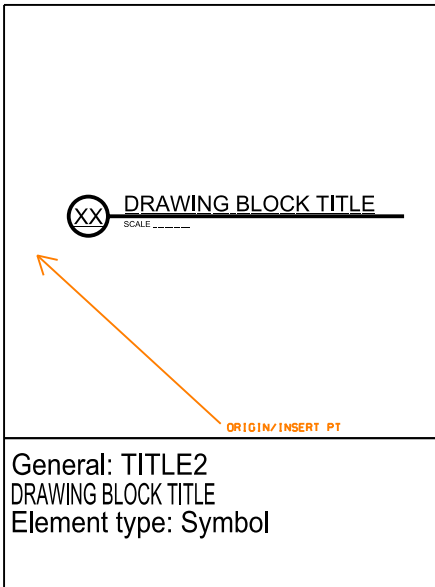
		
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<p>General: S0200B SCALE 1" = 200' Element type: Symbol</p>	<p>General: S0200G SCALE 1" = 200' Element type: Symbol</p>	<p>General: S0300B SCALE 1" = 300' Element type: Symbol</p>
		
<p>General: S0300G SCALE 1" = 300' Element type: Symbol</p>	<p>General: S0316B SCALE 3/16" = 1' Element type: Symbol</p>	<p>General: S0316G SCALE 3/16" = 1' Element type: Symbol</p>

		
<p>General: S0332B SCALE 3/32" = 1' Element type: Symbol</p>	<p>General: S0332G SCALE 3/32" = 1' Element type: Symbol</p>	<p>General: S0364B SCALE 3/64" = 1' Element type: Symbol</p>
		
<p>General: S0364G SCALE 3/64" = 1' Element type: Symbol</p>	<p>General: S0400B SCALE 1" = 400' Element type: Symbol</p>	<p>General: S0400G SCALE 1" = 400' Element type: Symbol</p>
		
<p>General: S05000 SCALE 1 = 5000 (metric) Element type: Symbol</p>	<p>General: S0500B SCALE 1" = 500' Element type: Symbol</p>	<p>General: S0500G SCALE 1" = 500' Element type: Symbol</p>

		
<p>General: S06000 SCALE 1 = 6000 (metric) Element type: Symbol</p>	<p>General: S0600B SCALE 1" = 600' Element type: Symbol</p>	<p>General: S0600G SCALE 1" = 600' Element type: Symbol</p>
		
<p>General: S0800B SCALE 1" = 800' Element type: Symbol</p>	<p>General: S0800G SCALE 1" = 800' Element type: Symbol</p>	<p>General: S10000 SCALE 1 = 10000 (metric) Element type: Symbol</p>
		
<p>General: S1000B SCALE 1" = 1000' Element type: Symbol</p>	<p>General: S1000G SCALE 1" = 1000' Element type: Symbol</p>	<p>General: S10K0B SCALE 1" = 10000' Element type: Symbol</p>

		
<p>General: S10K0G SCALE 1" = 10000' Element type: Symbol</p>	<p>General: S125KB SCALE 1 = 125000 (imperial) Element type: Symbol</p>	<p>General: S20000 SCALE 1 = 20000 (metric) Element type: Symbol</p>
		
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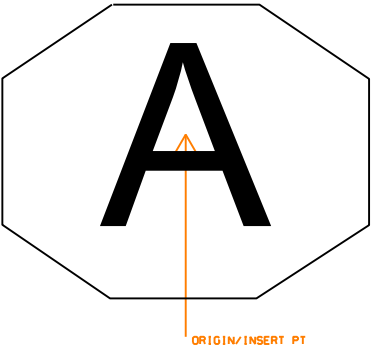
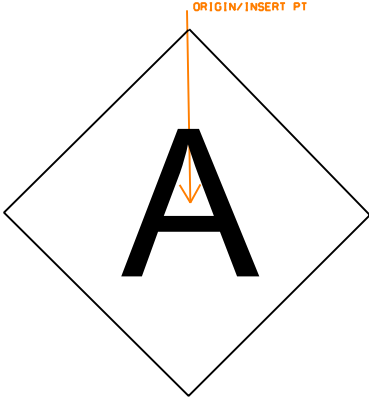
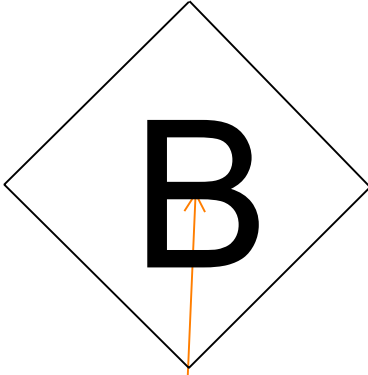
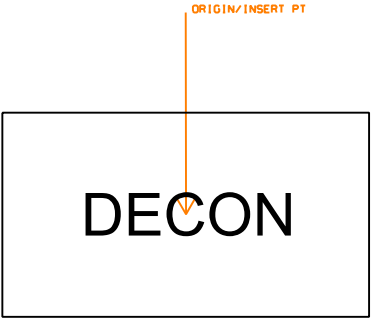
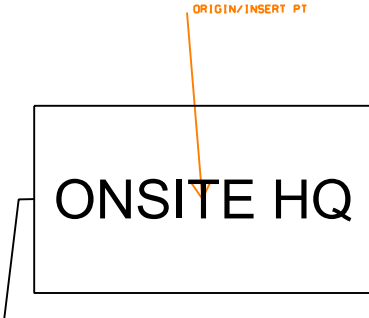
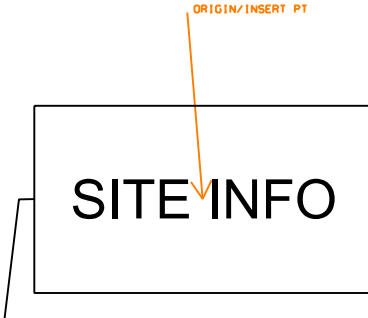
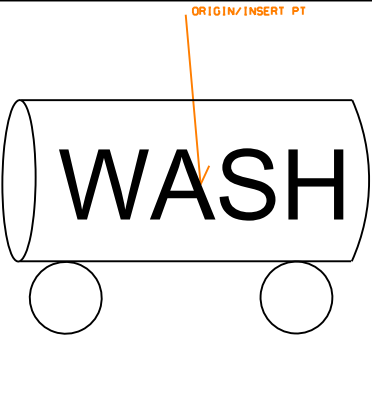
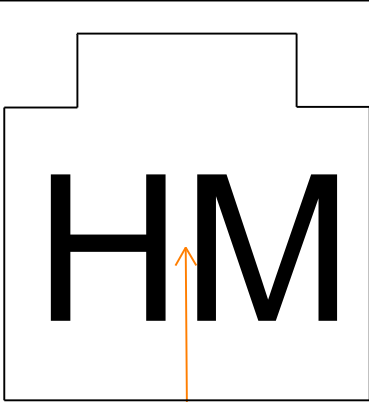
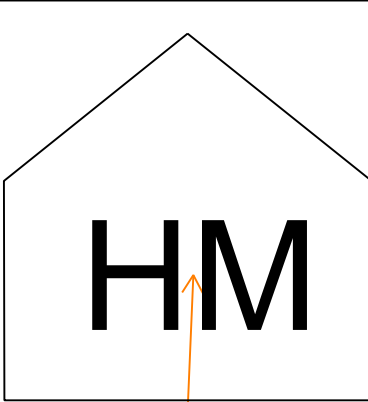


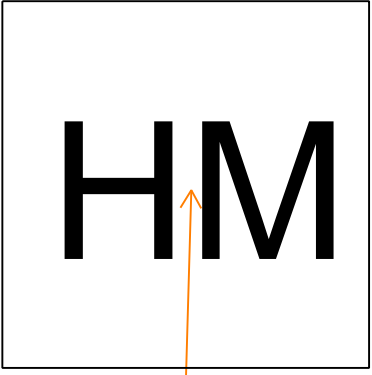
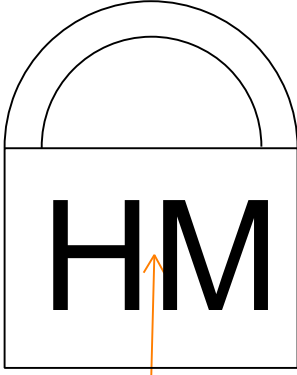
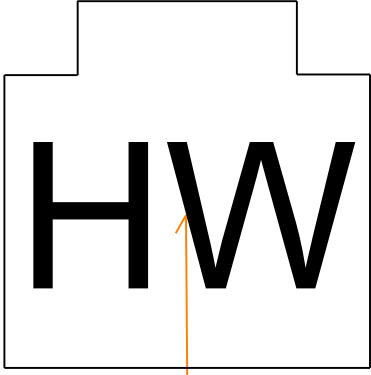
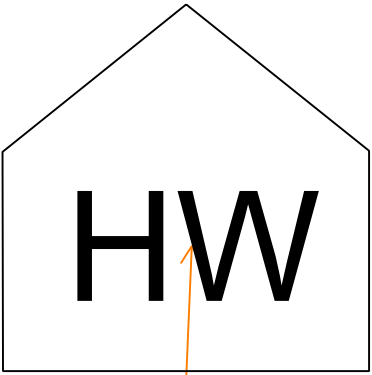
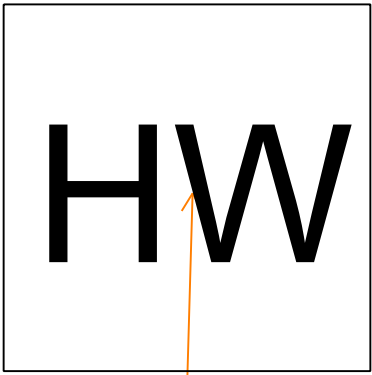
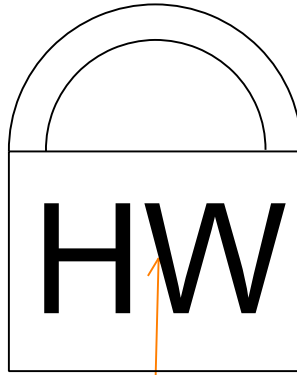
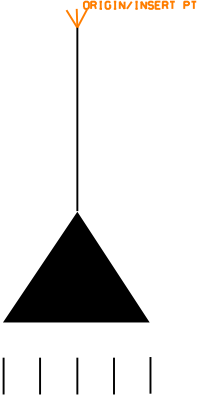
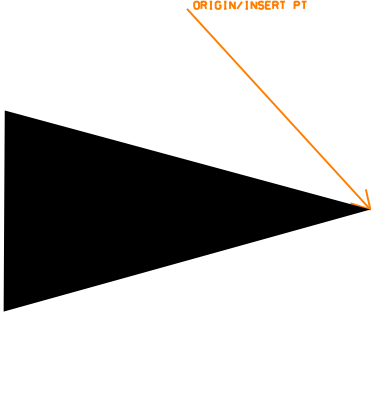
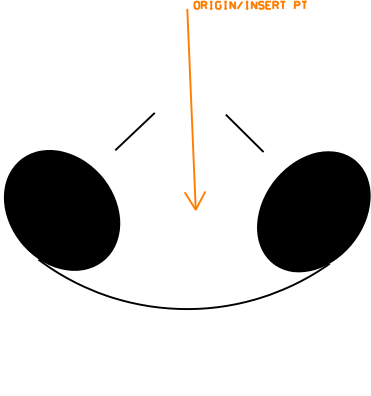
# 4 Hazardous Materials Symbols Library

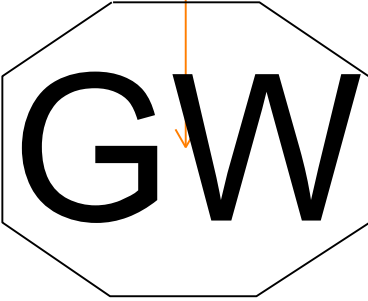
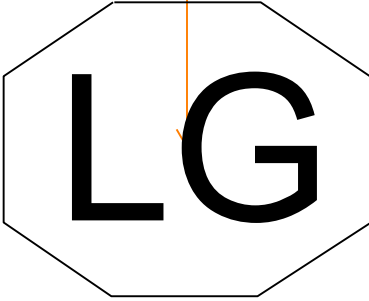
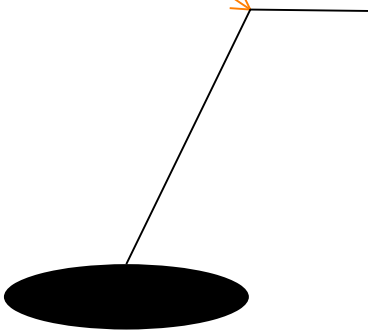
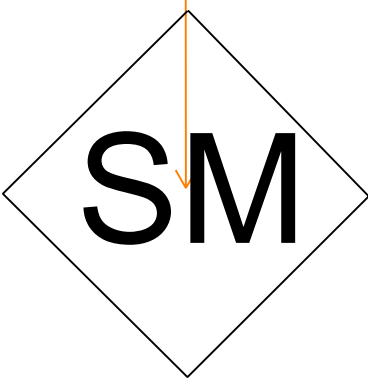
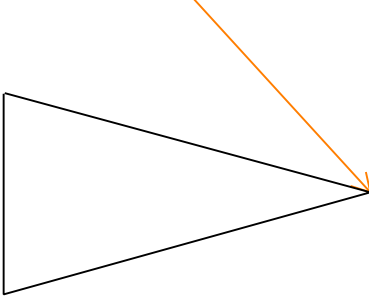


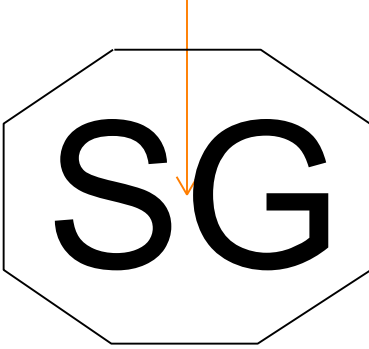
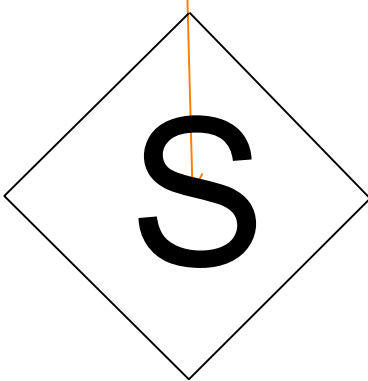
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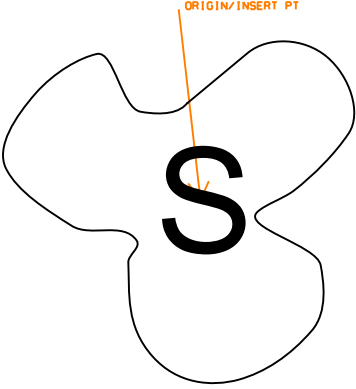
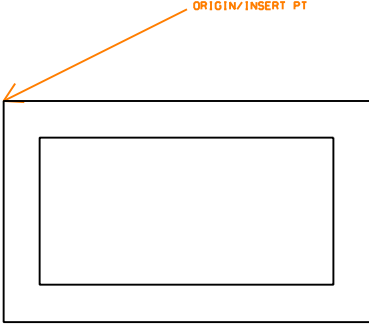
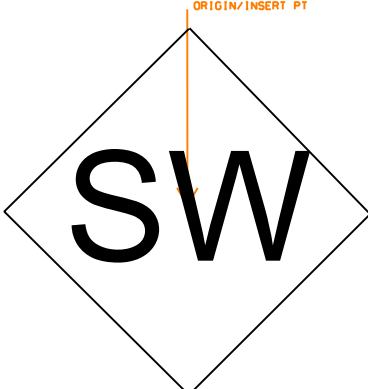
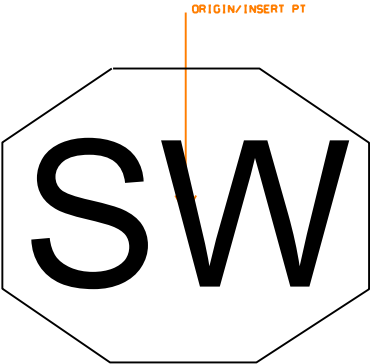
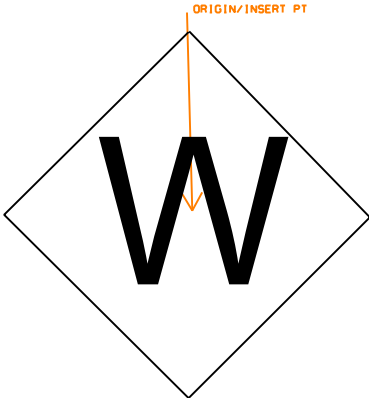
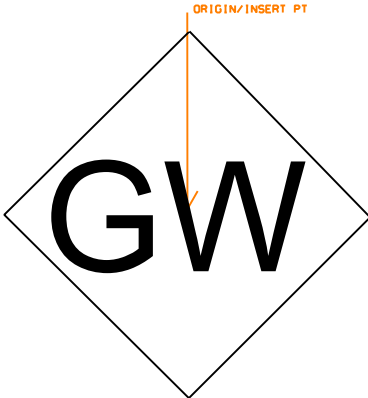
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<p>Hazardous Materials: AIRQST AIR QUALITY MON STA Element type: Symbol</p>	<p>Hazardous Materials: AIRSMP AIR SAMPLE LOCATION Element type: Symbol</p>	<p>Hazardous Materials: BIOSMP BIOLOGICAL SAMPLE LOC Element type: Symbol</p>
		
<p>Hazardous Materials: EGDECN EQUIPMENT DECON Element type: Symbol</p>	<p>Hazardous Materials: EGONST ONSITE COMMAND POST Element type: Symbol</p>	<p>Hazardous Materials: EGSITE SITE INFORMATION CENTER Element type: Symbol</p>
		
<p>Hazardous Materials: EGWASH WASHDOWN WATER TANK Element type: Symbol</p>	<p>Hazardous Materials: EHZMSA HAZMAT STOR LOCATION Element type: Symbol</p>	<p>Hazardous Materials: EHZMSB HAZMAT STOR BLDG Element type: Symbol</p>

		
<p>Hazardous Materials: EHZMSR HAZMAT STORAGE ROOM Element type: Symbol</p>	<p>Hazardous Materials: EHZMSV HAZMAT STOR VAULT Element type: Symbol</p>	<p>Hazardous Materials: EHZWSA HAZWASTE STOR LOC Element type: Symbol</p>
		
<p>Hazardous Materials: EHZWSB HAZWASTE STOR BLDG Element type: Symbol</p>	<p>Hazardous Materials: EHZWSR HAZWASTE STOR ROOM Element type: Symbol</p>	<p>Hazardous Materials: EHZWSV HAZWASTE STOR VAULT Element type: Symbol</p>
		
<p>Hazardous Materials: EMGSHW EMERGENCY SHOWER Element type: Symbol</p>	<p>Hazardous Materials: EPOLLS POLLUTION SOURCE SITE Element type: Symbol</p>	<p>Hazardous Materials: EYEWAS EMERGENCY EYEWASH Element type: Symbol</p>

		
<p>Hazardous Materials: GWTQST GRDWTR QUALITY MON STATION Element type: Symbol</p>	<p>Hazardous Materials: LANGAS LANDFILL GAS MON PROBE Element type: Symbol</p>	<p>Hazardous Materials: MAGLOC MAGNETOMETER DET LOC Element type: Symbol</p>
		
<p>Hazardous Materials: MATSMP SOLID MAT SAMPLE LOC Element type: Symbol</p>	<p>Hazardous Materials: PRLLOC POTENTIAL RELEASE LOC Element type: Symbol</p>	<p>Hazardous Materials: RESTR RESTRICTED ACCESS Element type: Symbol</p>
		
<p>Hazardous Materials: SEDSMP SEDIMENT SAMPLE LOC Element type: Symbol</p>	<p>Hazardous Materials: SOLGAS SOIL GAS MONIT PROBE Element type: Symbol</p>	<p>Hazardous Materials: SOLSMP SOIL SAMPLE LOCATION Element type: Symbol</p>

		
<p>Hazardous Materials: SPLRES SPILL RESPONSE Element type: Symbol</p>	<p>Hazardous Materials: SPLTNK SPILL CONTAINMENT TANK Element type: Symbol</p>	<p>Hazardous Materials: SURSMP SURFACE WTR SAMPLE LOC Element type: Symbol</p>
		
<p>Hazardous Materials: SWTQST SURF WTR QUAL MON STATION Element type: Symbol</p>	<p>Hazardous Materials: WASSMP WASTE SAMPLE LOCATION Element type: Symbol</p>	<p>Hazardous Materials: WATSMP GROUNDWATER SAMPLE LOC Element type: Symbol</p>

# 5 Survey/Mapping Symbols Library

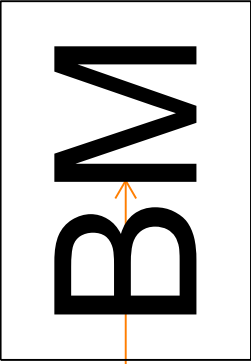
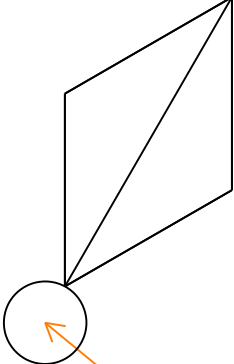
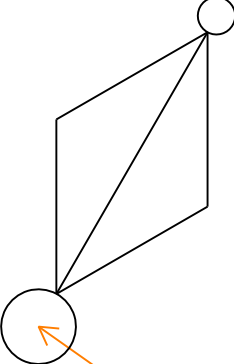
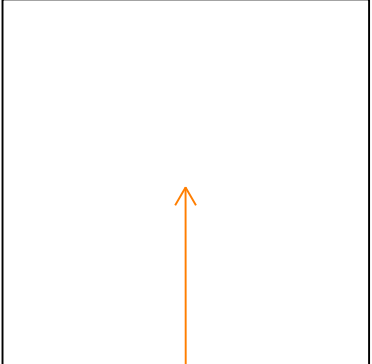
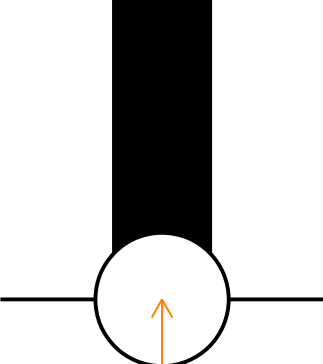
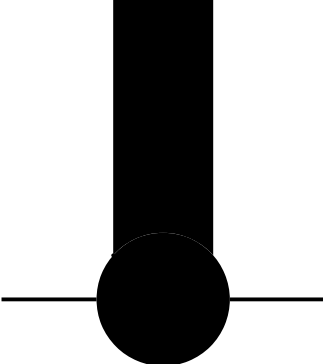
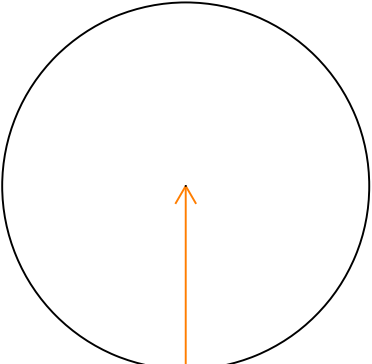
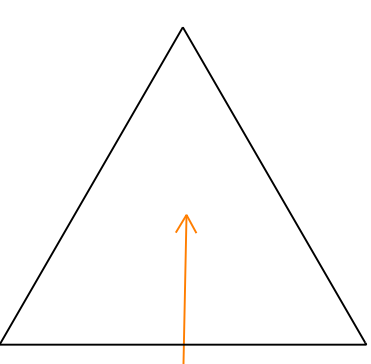
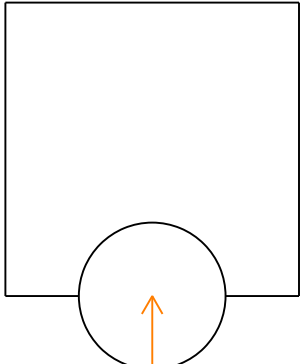
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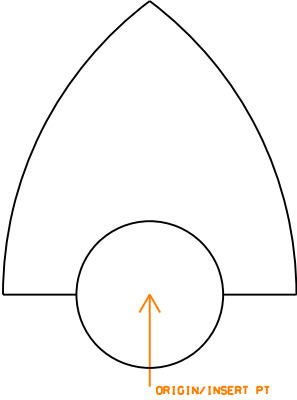
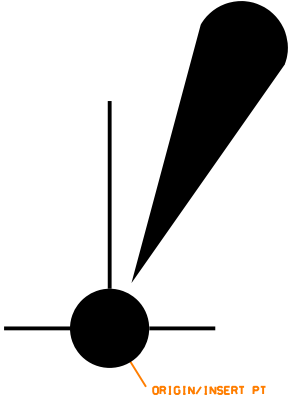
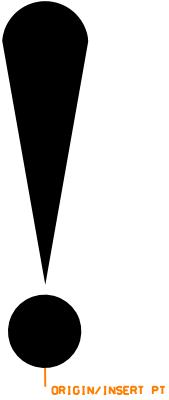
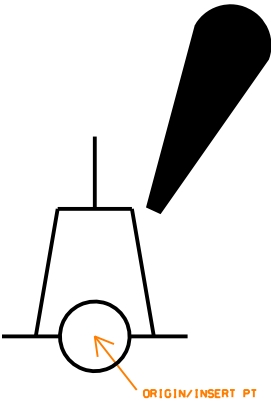
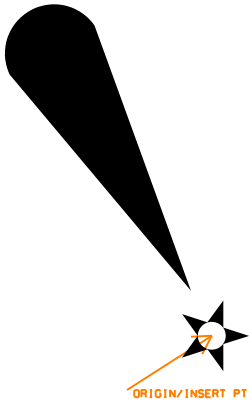
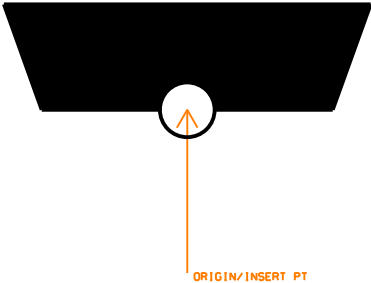
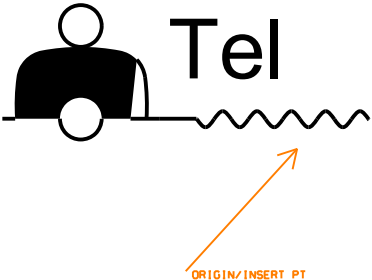
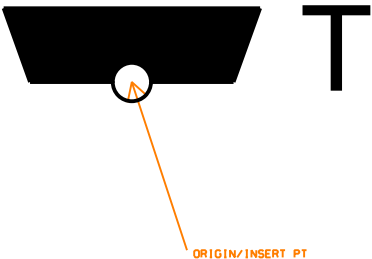
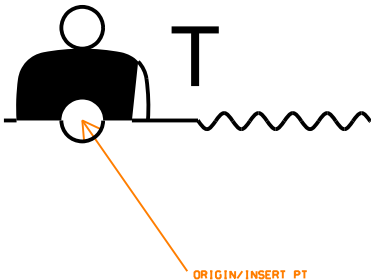
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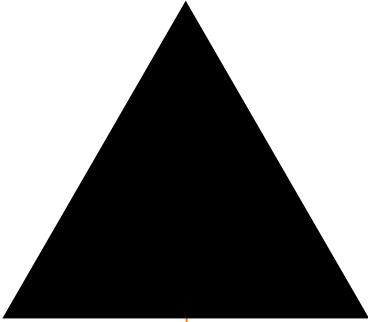
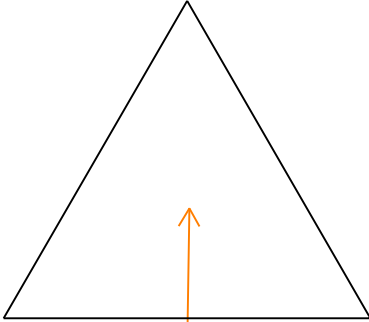
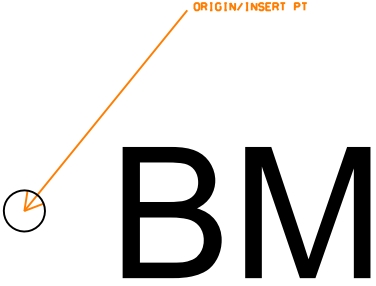
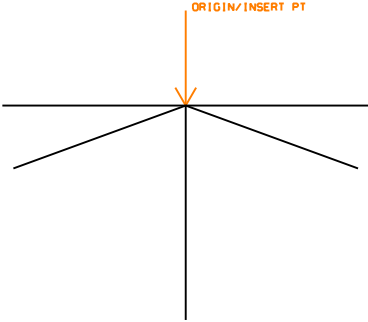
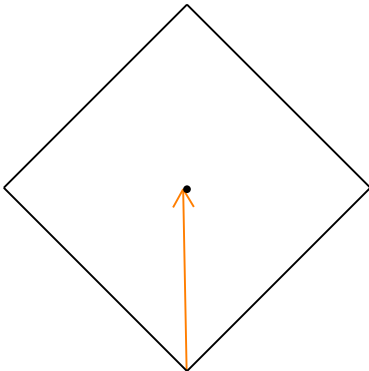
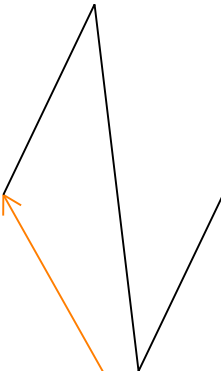
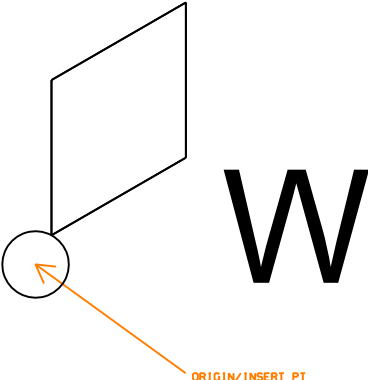
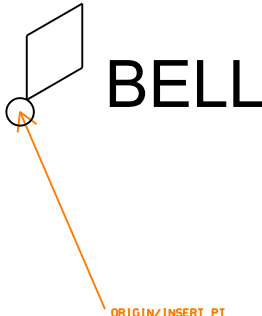
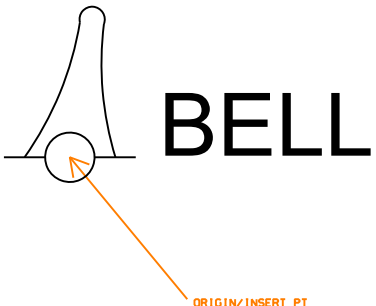
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<p>Survey/Mapping: AFBCN AIRFIELD BEACON Element type: Symbol</p>	<p>Survey/Mapping: AIRFLD AIRFIELD SYMBOL Element type: Symbol</p>	<p>Survey/Mapping: ANCHR1 ANCHORAGE LARGE VESSEL Element type: Symbol</p>
<p>Survey/Mapping: ANCHR2 ANCHORAGE LARGE VESSEL Element type: Symbol</p>	<p>Survey/Mapping: ANCHR3 ANCHORAGE SMALL VESSEL Element type: Symbol</p>	<p>Survey/Mapping: ANCHR4 ANCHORAGE SMALL VESSEL Element type: Symbol</p>

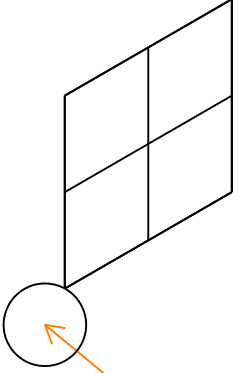
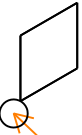

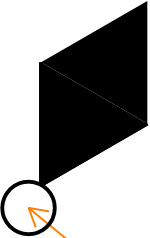
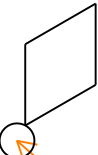
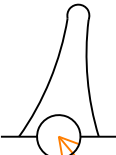
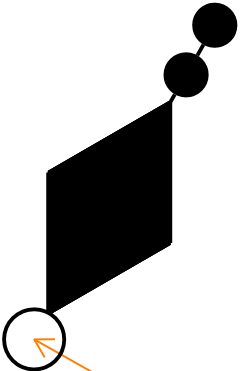
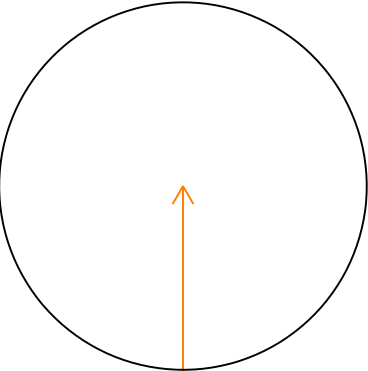
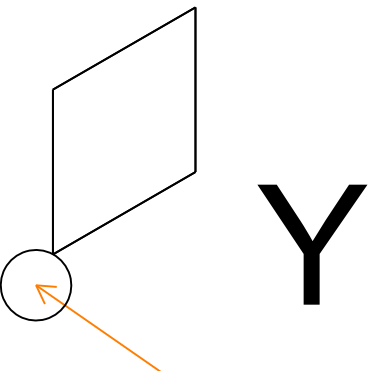
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<p>Survey/Mapping: BAR1 BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BAR1C BARREL BUOY INDICATE COLOR Element type: Symbol</p>	<p>Survey/Mapping: BAR2 BARREL BUOY Element type: Symbol</p>
<p>Survey/Mapping: BARD DIAG STRIPE BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BARLT1 LIGHTED BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BARLT2 LIGHTED BARREL BUOY Element type: Symbol</p>

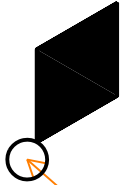
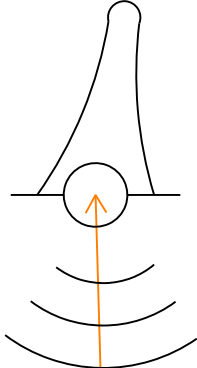
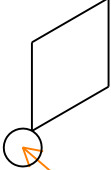
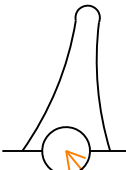
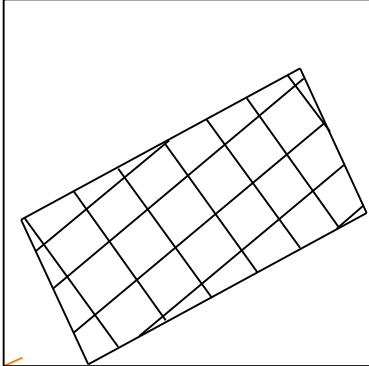

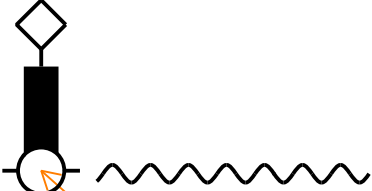




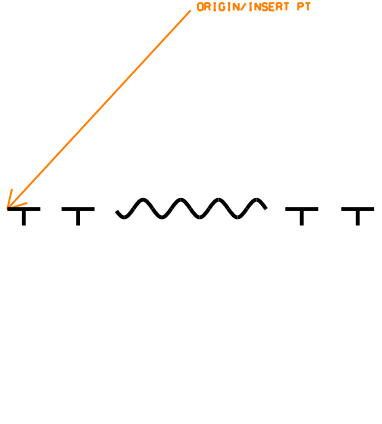
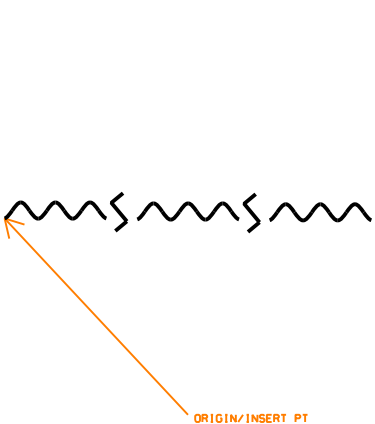
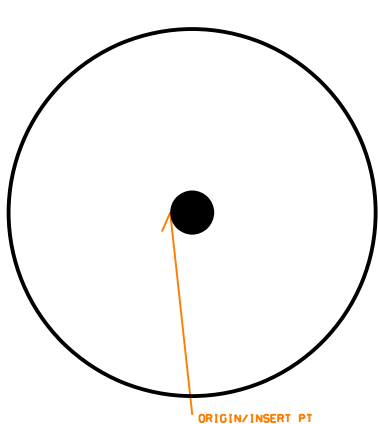
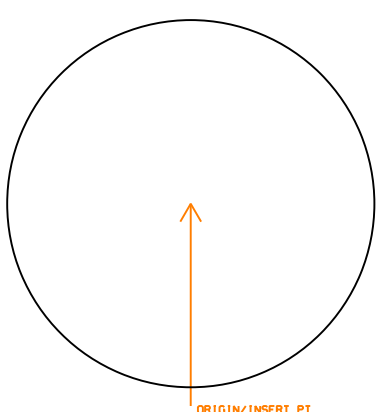
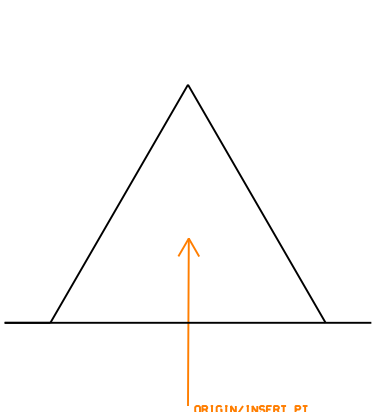
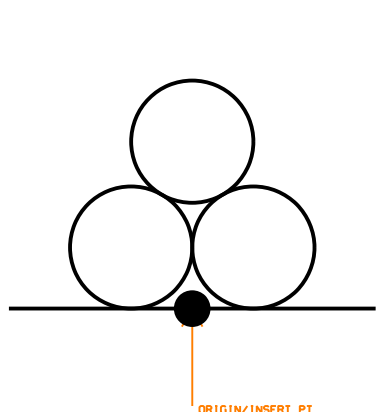
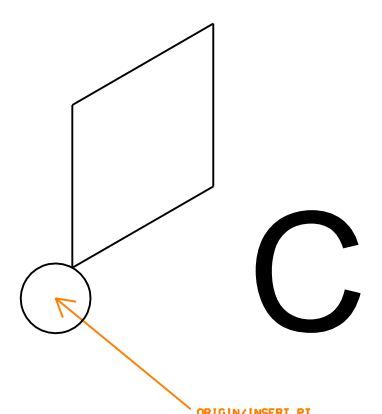
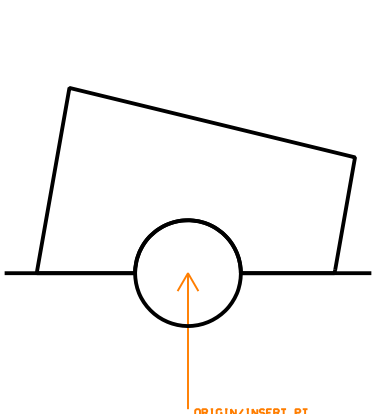
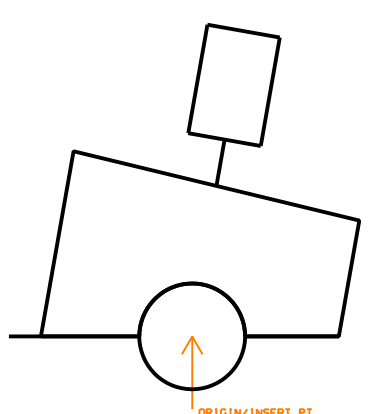
		
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<p>Survey/Mapping: BCN1 GENERAL BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCN2 GENERAL BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCN3 GENERAL BEACON Element type: Symbol</p>
		
<p>Survey/Mapping: BCN4 GENERAL BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCN5 GENERAL BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCNBY1 BUOYANT BEACON Element type: Symbol</p>

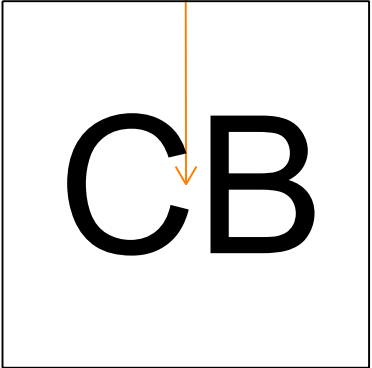
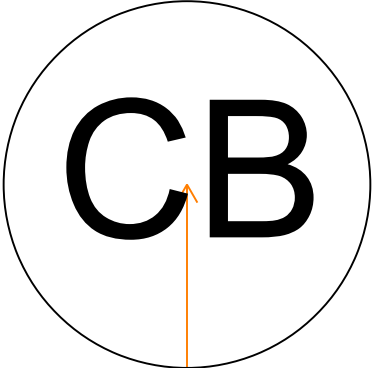
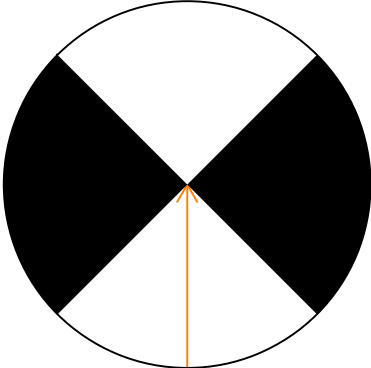
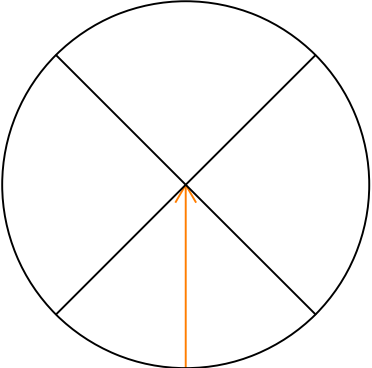



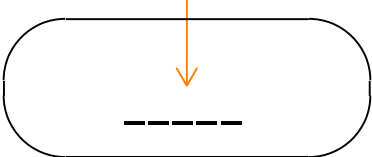
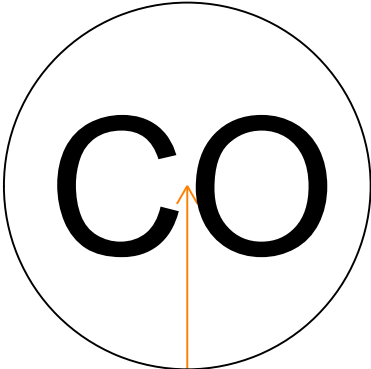
		
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<p>Survey/Mapping: BCNLT3 LIGHTED BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCNRES RESILIENT BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCNTG1 TELEGRAPHIC MOORING BEACON Element type: Symbol</p>
		
<p>Survey/Mapping: BCNTG2 TELEGRAPHIC MOORING BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCNTP1 TELEPHONIC MOORING BEACON Element type: Symbol</p>	<p>Survey/Mapping: BCNTP2 TELEPHONIC MOORING BEACON Element type: Symbol</p>

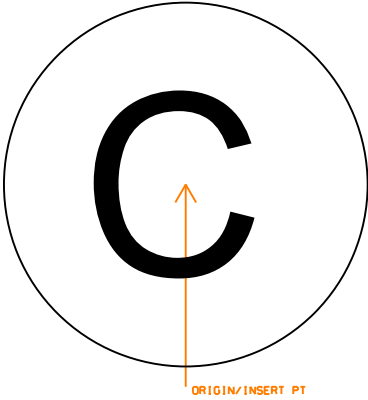
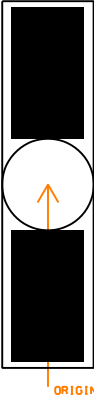
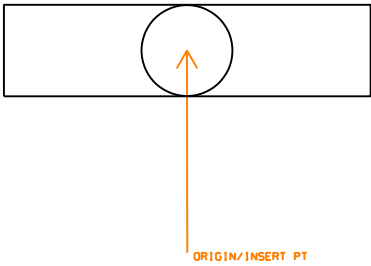
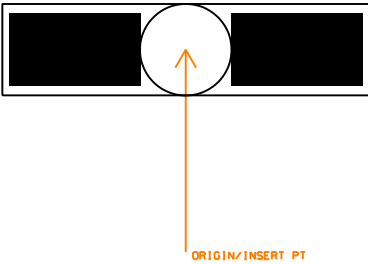
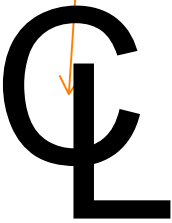

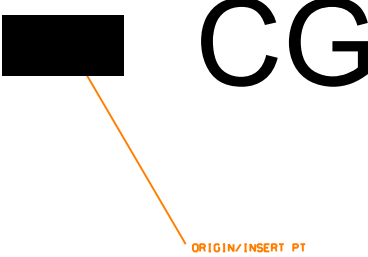
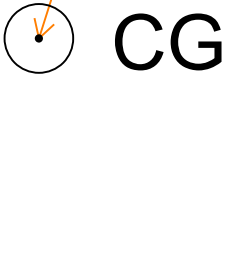
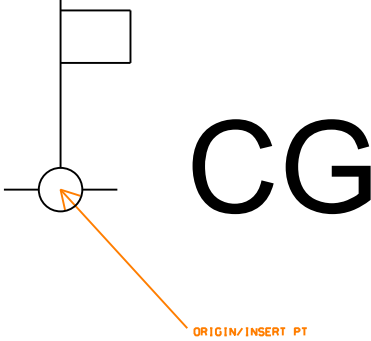
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<p>Survey/Mapping: BMALT BENCH MARK ALTERNATE Element type: Symbol</p>	<p>Survey/Mapping: BNDMRK BOUNDARY MARK Element type: Symbol</p>	<p>Survey/Mapping: BREAK BREAK LINE SYMBOL Element type: Symbol</p>
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<p>Survey/Mapping: BYANCH ANCHORAGE BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYBELB BELL BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYBELP BELL PILLAR BUOY Element type: Symbol</p>

	 <p><b>Deviation</b></p>	 <p><b>Explos Anch</b></p>
<p>Survey/Mapping: BYCHEC CHECKERED BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYCOMP COMPASS ADJUSTMENT BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYEXPL EXPLOSIVE ANCHORAGE BUOY Element type: Symbol</p>
 <p><b>BW</b></p>	 <p><b>GONG</b></p>	 <p><b>GONG</b></p>
<p>Survey/Mapping: BYFISH FISH TRAP BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYGONB GONG BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYGONP GONG PILLAR BUOY Element type: Symbol</p>
		
<p>Survey/Mapping: BYJUNC JUNCTION BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYPOS POSITION OF BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYQUAR QUARANTINE BUOY Element type: Symbol</p>

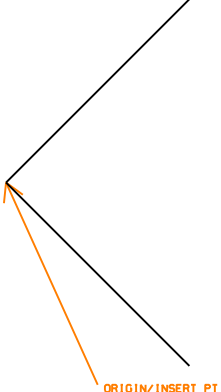
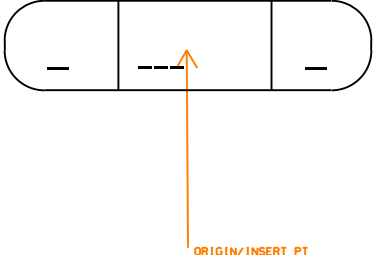
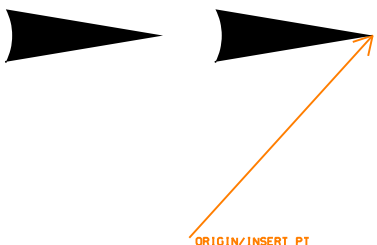
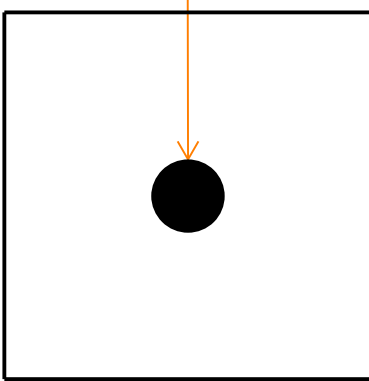
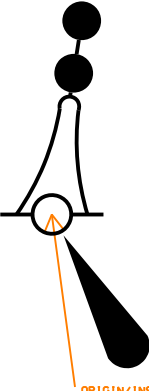
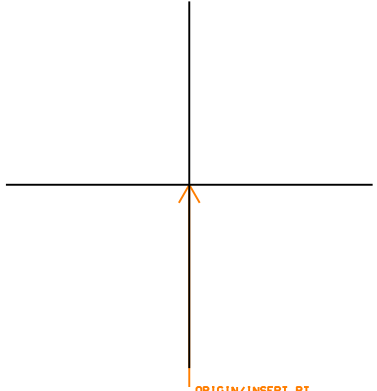
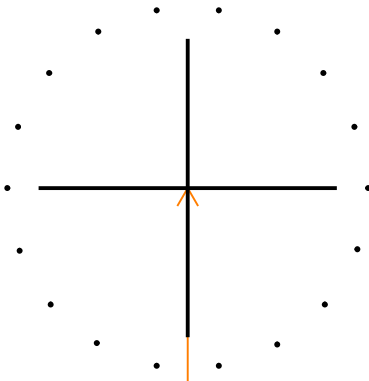
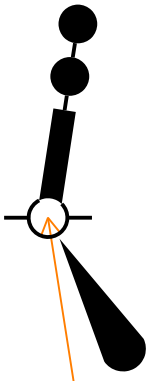
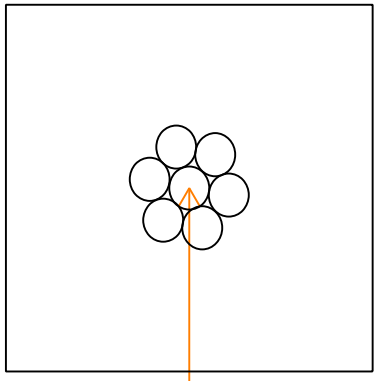
 <p><b>BELL</b></p> <p>ORIGIN/INSERT PT</p>	 <p>ORIGIN/INSERT PT</p>	 <p><b>WHIS</b></p> <p>ORIGIN/INSERT PT</p>
<p>Survey/Mapping: BYWAV1 WAVE ACTUATED BELL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYWAV2 WAVE ACTUATED BELL BUOY Element type: Symbol</p>	<p>Survey/Mapping: BYWHIB WHISTLE BARREL BUOY Element type: Symbol</p>
 <p><b>WHIS</b></p> <p>ORIGIN/INSERT PT</p>	 <p>ORIGIN/INSERT PT</p>	 <p>ORIGIN/INSERT PT</p>
<p>Survey/Mapping: BYWHIP WHISTLE PILLAR BUOY Element type: Symbol</p>	<p>Survey/Mapping: CABCNZ CABLE CROSSING ZONE Element type: Symbol</p>	<p>Survey/Mapping: CABDIS DISUSED SUBMARINE CABLE Element type: Symbol</p>
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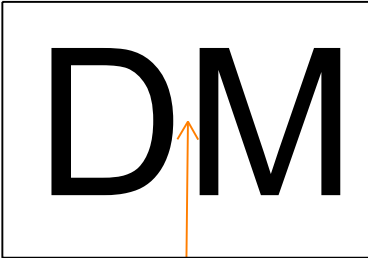
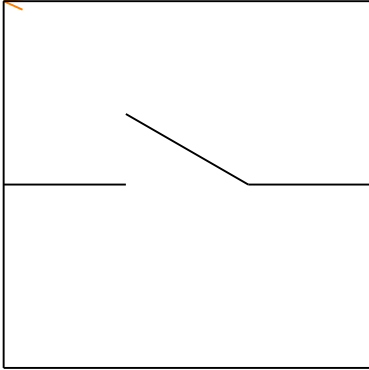
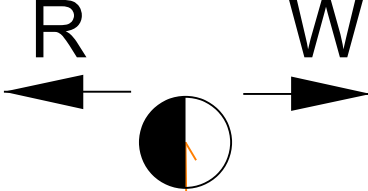
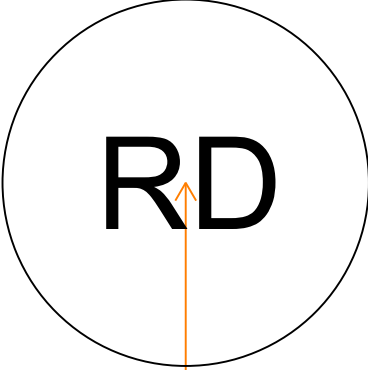
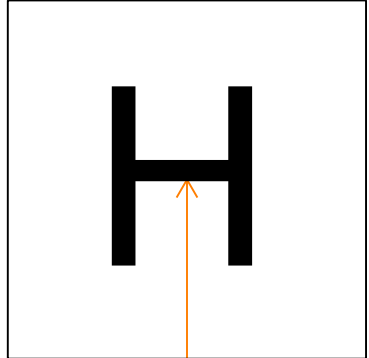
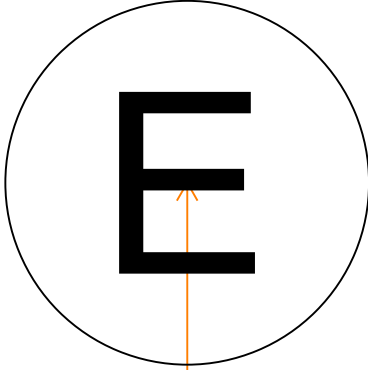
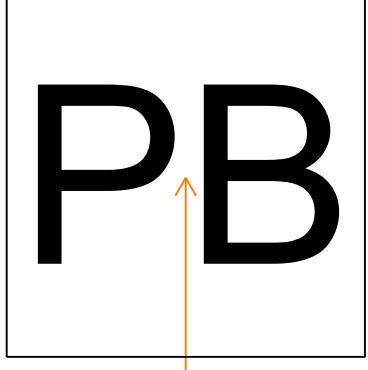
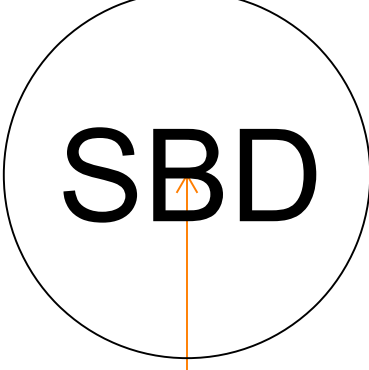
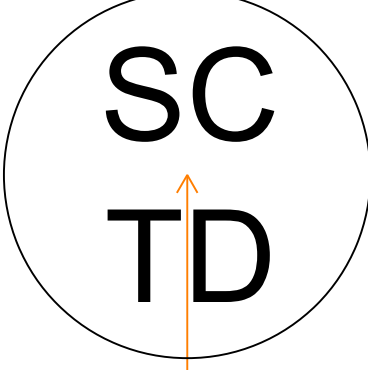
		
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<p>Survey/Mapping: CAIRN2 CAIRN Element type: Symbol</p>	<p>Survey/Mapping: CAIRN3 CAIRN Element type: Symbol</p>	<p>Survey/Mapping: CAIRN4 CAIRN Element type: Symbol</p>
		
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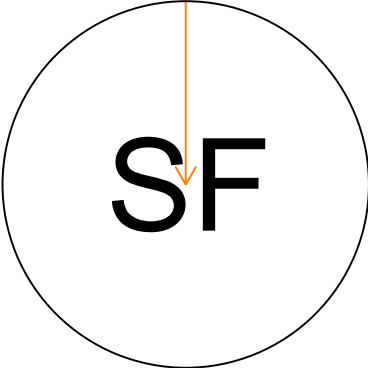
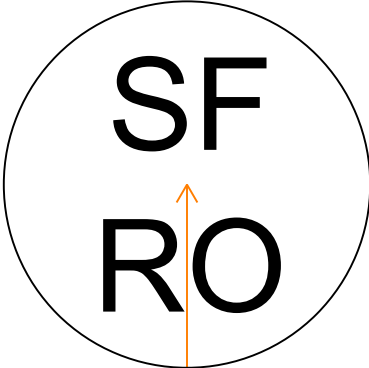
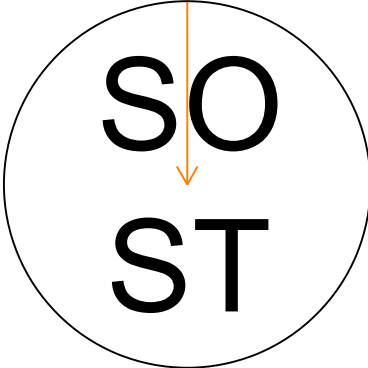
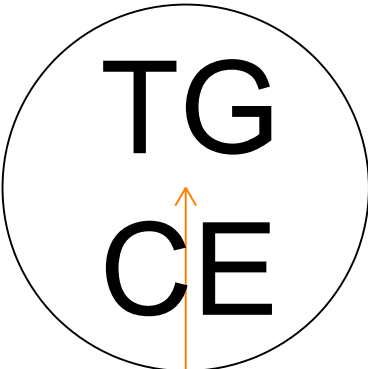
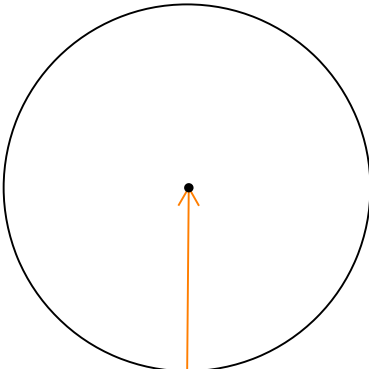
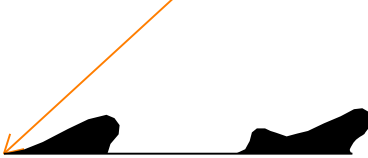
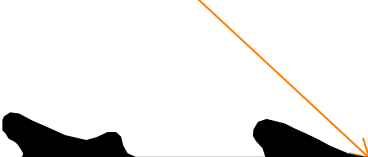
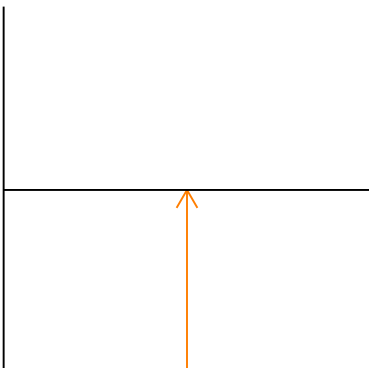
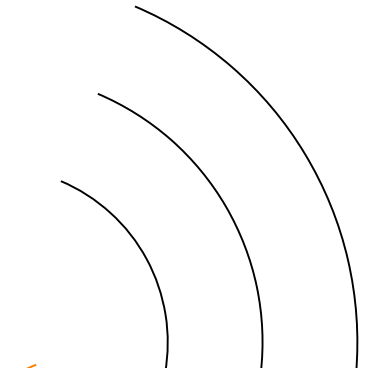
		
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<p>Survey/Mapping: CDHADR CORE DRILL HOLE UNDRILLED Element type: Symbol</p>	<p>Survey/Mapping: CGRES1 COAST GUARD RESCUE STA Element type: Symbol</p>	<p>Survey/Mapping: CGRES2 COAST GUARD RESCUE STA Element type: Symbol</p>
		
<p>Survey/Mapping: CGRES3 COAST GUARD RESCUE STA Element type: Symbol</p>	<p>Survey/Mapping: CKTID CIRCUIT ID SYMBOL Element type: Symbol</p>	<p>Survey/Mapping: CLNOUT CLEANOUT Element type: Symbol</p>

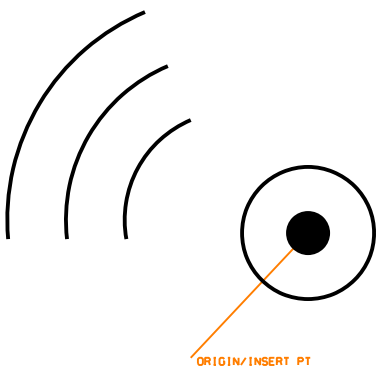
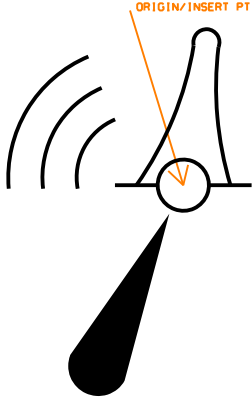
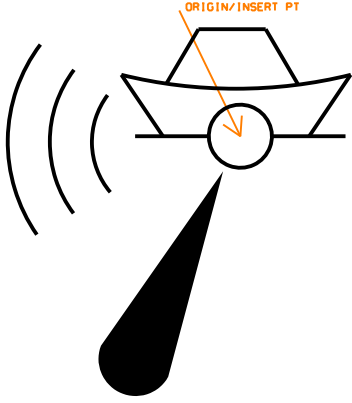
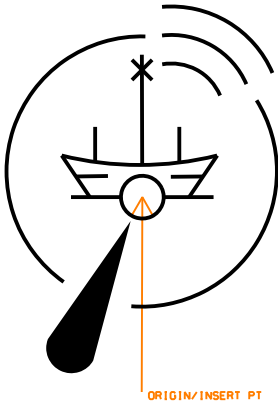
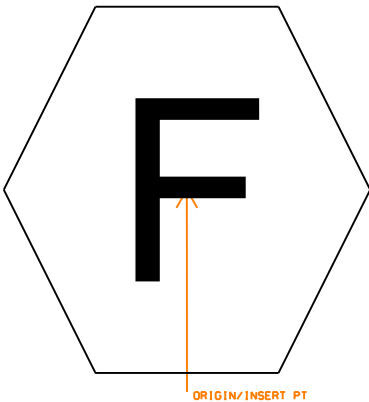
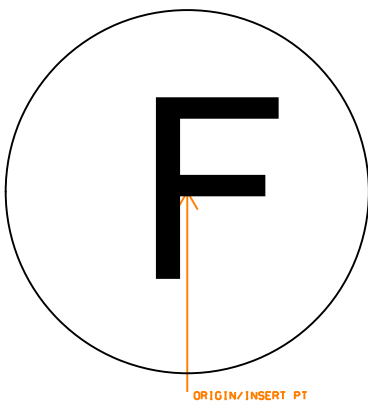
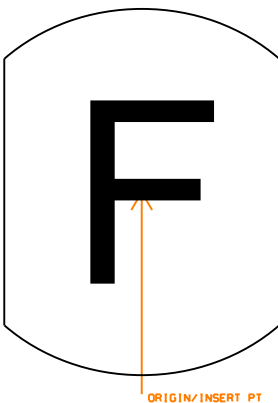
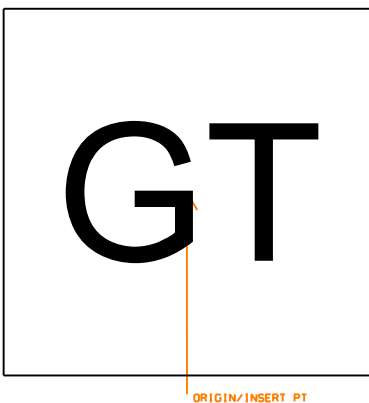
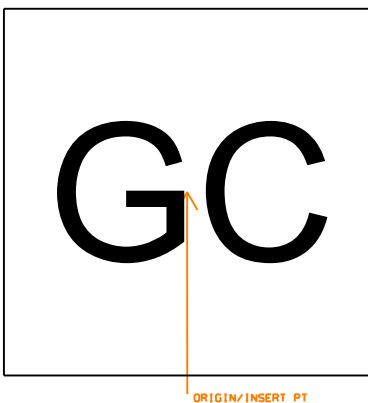
		
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<p>Survey/Mapping: CNRSF CORNER SOLID FLAT Element type: Symbol</p>	<p>Survey/Mapping: CNTLIN CENTERLINE SYMBOL Element type: Symbol</p>	<p>Survey/Mapping: COAST1 COAST GUARD STATION Element type: Symbol</p>
		
<p>Survey/Mapping: COAST2 COAST GUARD STATION Element type: Symbol</p>	<p>Survey/Mapping: COAST3 COAST GUARD STATION Element type: Symbol</p>	<p>Survey/Mapping: COAST4 COAST GUARD STATION Element type: Symbol</p>

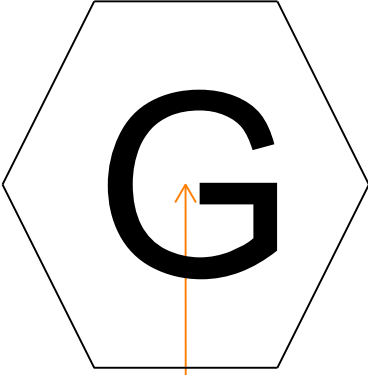
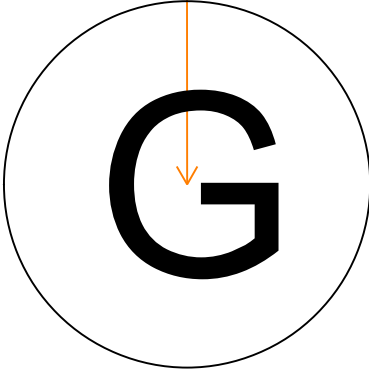

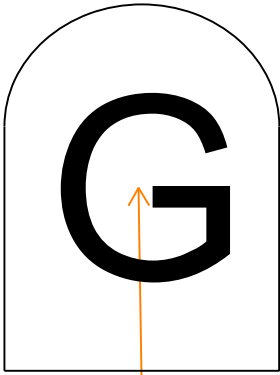
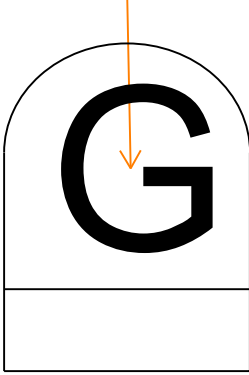
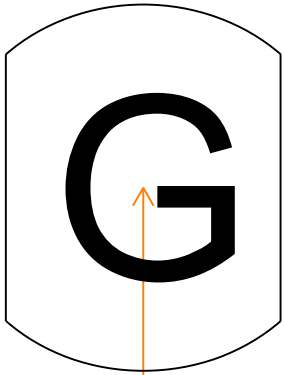
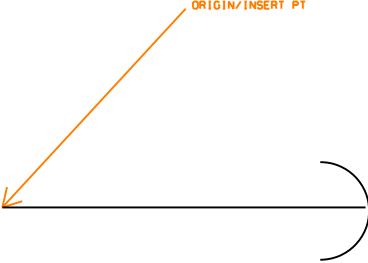
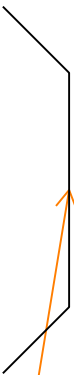
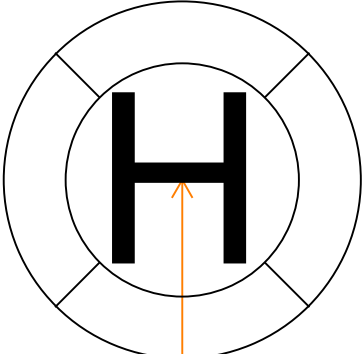


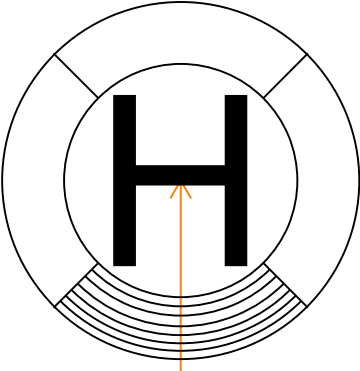
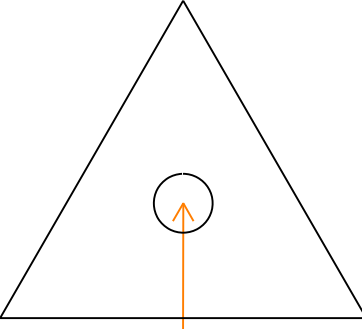
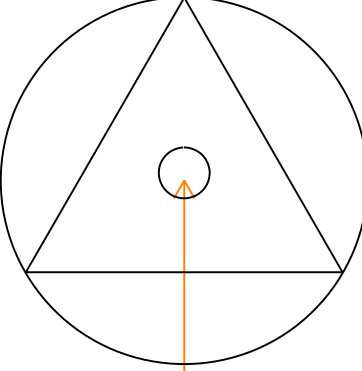
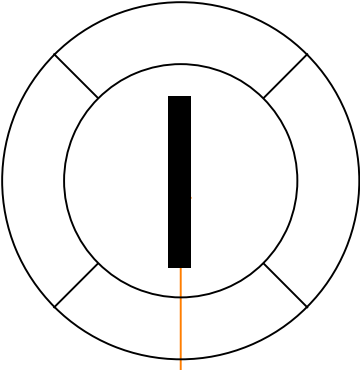
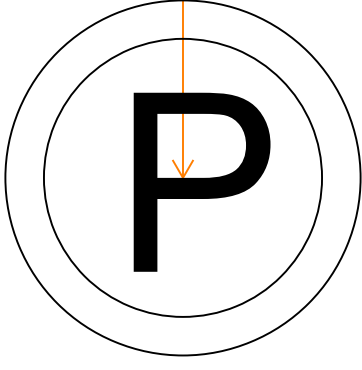
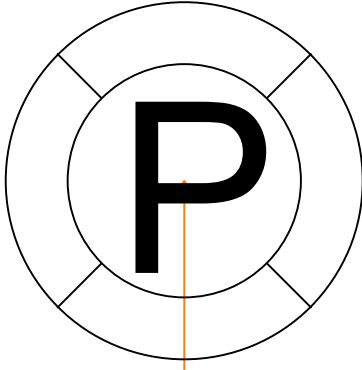
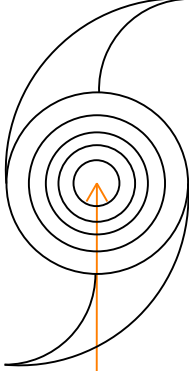
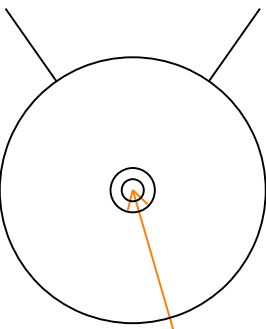
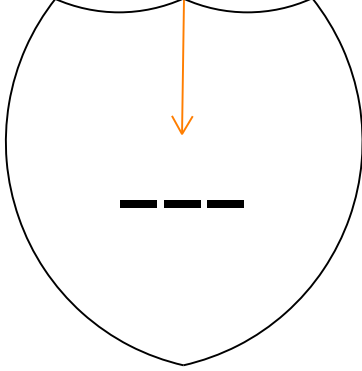
		
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<p>Survey/Mapping: DISPLT DISUSED PLATFORM Element type: Symbol</p>	<p>Survey/Mapping: DNGPB LIGHTED DANGER BUOY PILLAR Element type: Symbol</p>	<p>Survey/Mapping: DNGRK DANGER U W ROCK DEPTH UNKNW Element type: Symbol</p>
		
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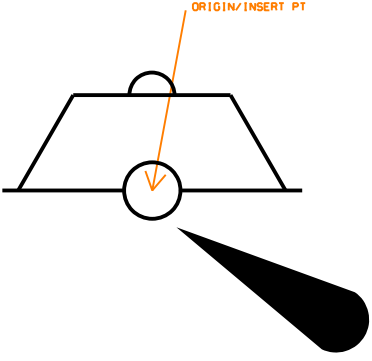

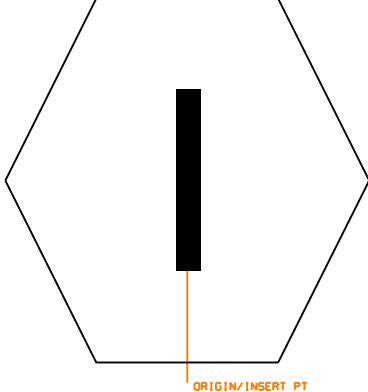
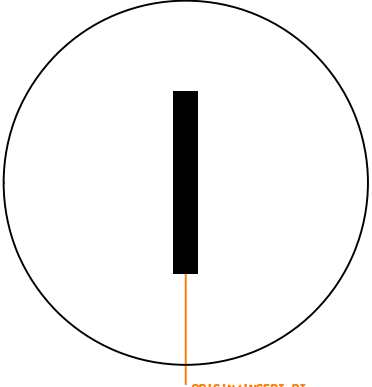
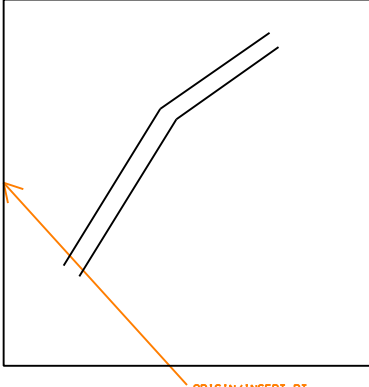
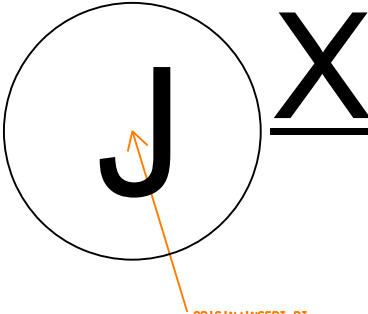
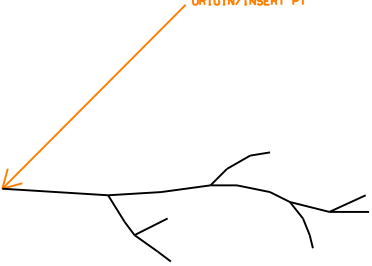
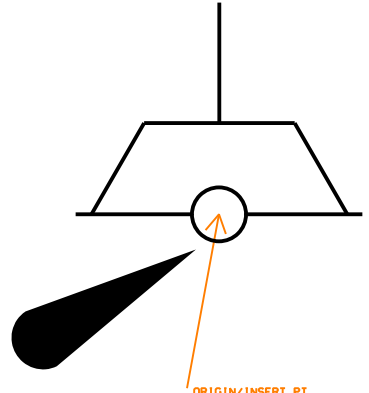
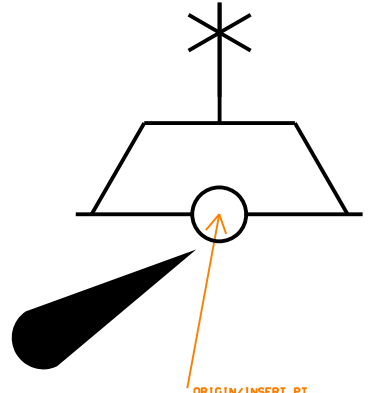
		
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<p>Survey/Mapping: ECRD ROCK DAM SEDIMENT TRAP Element type: Symbol</p>	<p>Survey/Mapping: EHANDH ELECTRICAL HANDHOLE Element type: Symbol</p>	<p>Survey/Mapping: EMANH ELECTRICAL MANHOLE Element type: Symbol</p>
		
<p>Survey/Mapping: EPULLB ELECTRICAL PULLBOX Element type: Symbol</p>	<p>Survey/Mapping: ERSBD STRAW BALE DAM Element type: Symbol</p>	<p>Survey/Mapping: ERSCTD SEDIMENT CTRL TMPRY DIVRSION Element type: Symbol</p>

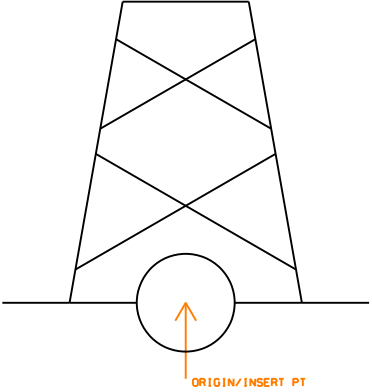
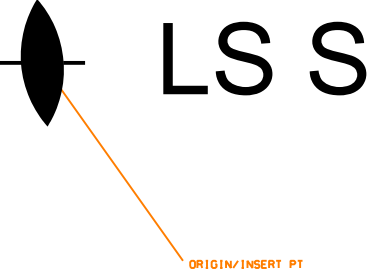
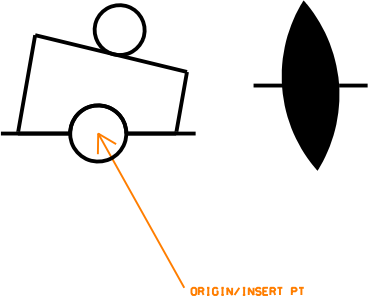
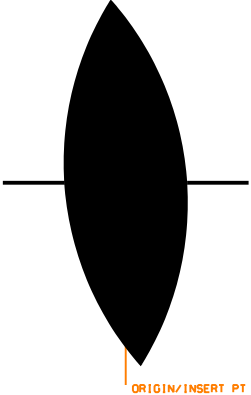
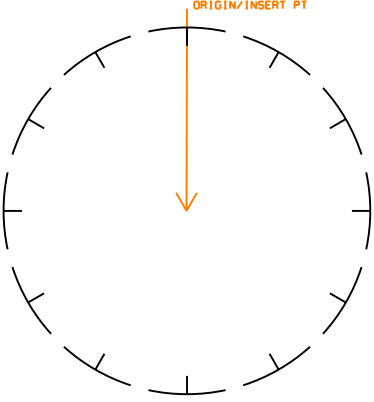
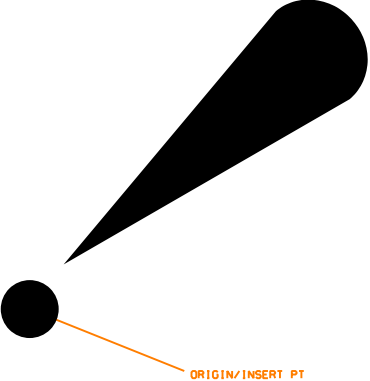
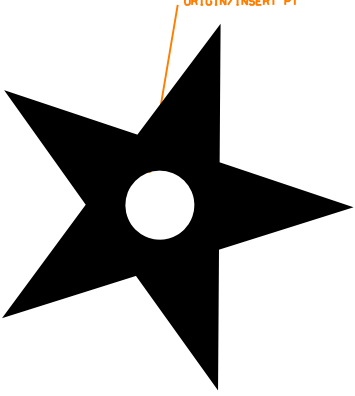
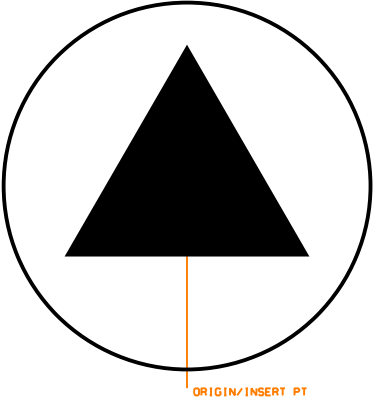
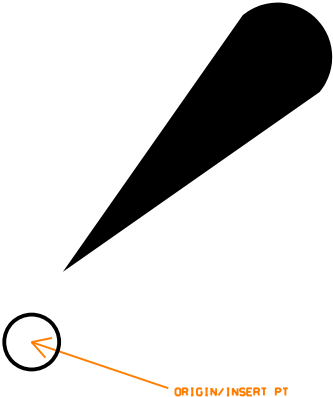
		
<p>Survey/Mapping: ERSF SILT FENCE Element type: Symbol</p>	<p>Survey/Mapping: ERSFRO SILT FENCE ROCK OVERFLOW Element type: Symbol</p>	<p>Survey/Mapping: ERSOST STONE OUTLET SEDIMENT TRAP Element type: Symbol</p>
		 <p>FLOW</p>
<p>Survey/Mapping: ERTGCE CONSTRUCTION ENTRANCE EXIT Element type: Symbol</p>	<p>Survey/Mapping: FIXPNT FIXED POINT Element type: Symbol</p>	<p>Survey/Mapping: FLARRL FLOW ARROW LEFT IN 0 POINT Element type: Symbol</p>
 <p>FLOW</p>		
<p>Survey/Mapping: FLARRR FLOW ARROW RIGHT IN 0 POINT Element type: Symbol</p>	<p>Survey/Mapping: FLDGAT FLOOD GATE Element type: Symbol</p>	<p>Survey/Mapping: FOG FOG SIGNAL Element type: Symbol</p>

		
<p>Survey/Mapping: FOGBCN FOG SIGNAL BEACON Element type: Symbol</p>	<p>Survey/Mapping: FOGBY FOG SIGNAL BUOY Element type: Symbol</p>	<p>Survey/Mapping: FOGLS FOG SIGNAL LIGHT SHIP Element type: Symbol</p>
		
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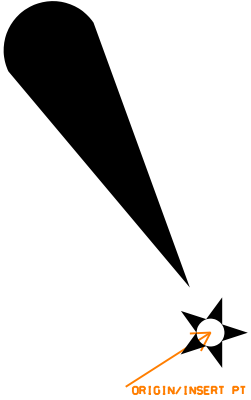
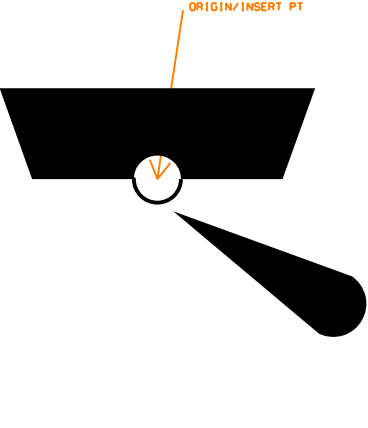
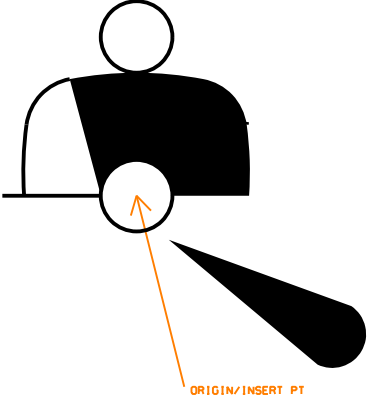
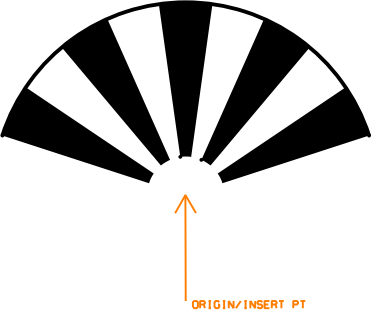
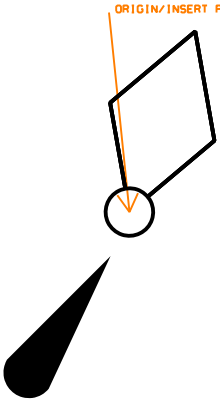
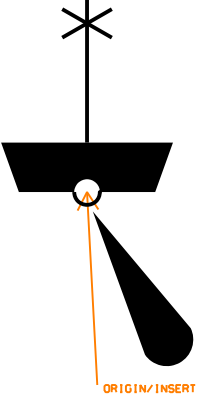
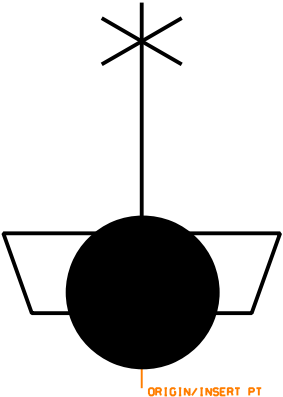
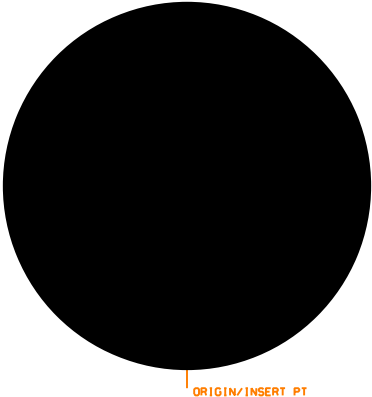
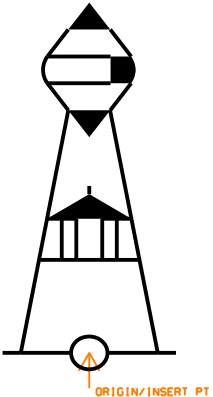
		
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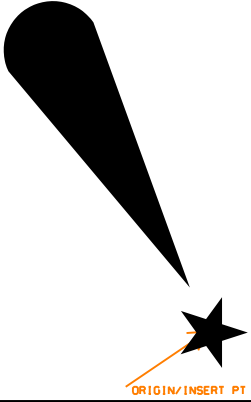
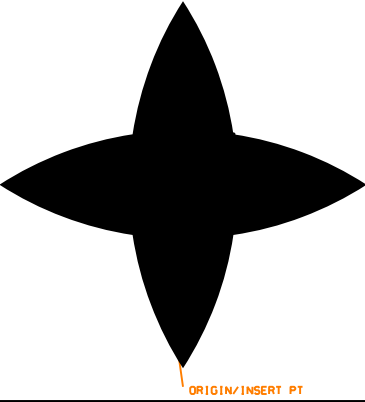
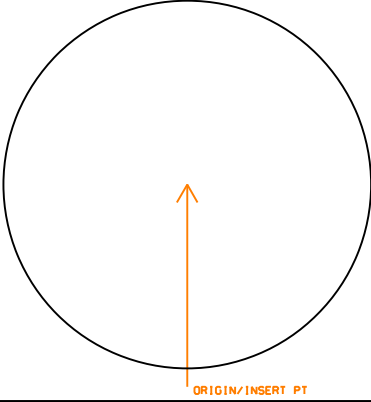
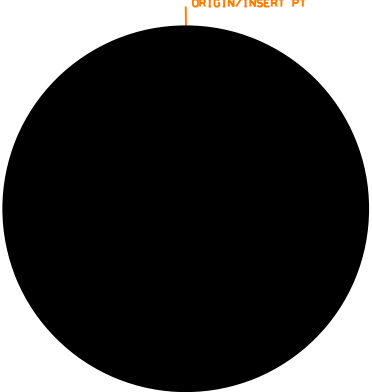
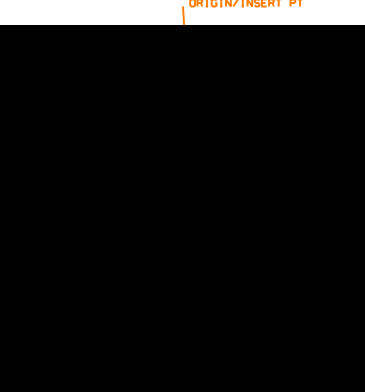
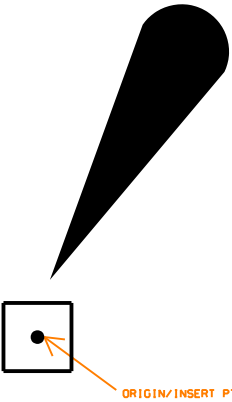
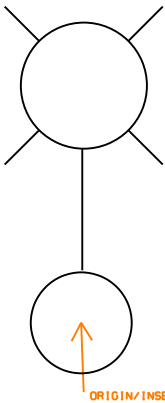
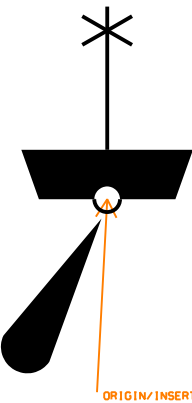
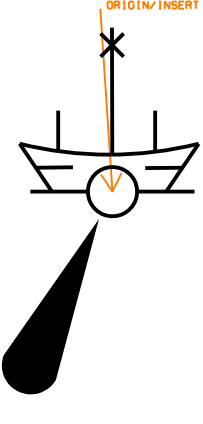
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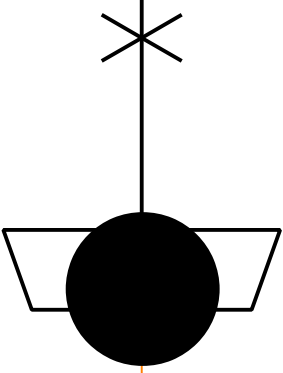
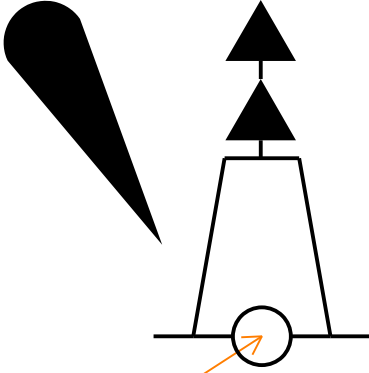
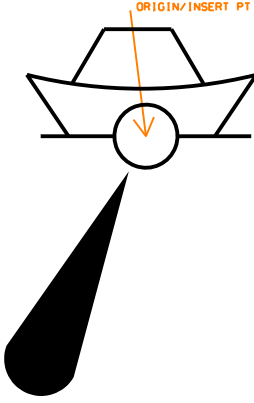

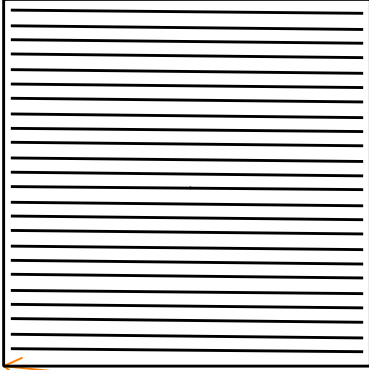
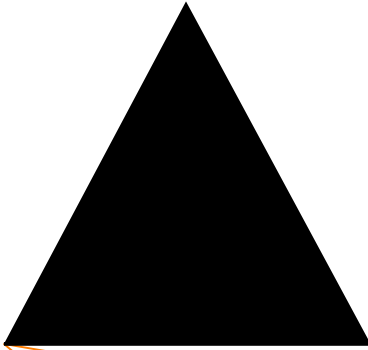
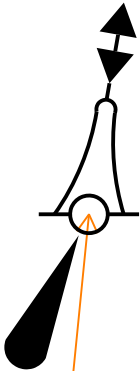
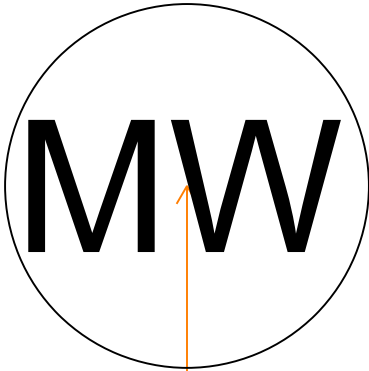
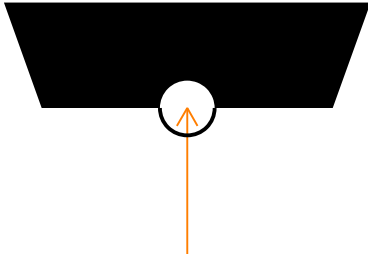
		
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<p>Survey/Mapping: IWMHOL INDUSTRIAL WASTE WATER MANHOLE Element type: Symbol</p>	<p>Survey/Mapping: JETTY JETTY Element type: Symbol</p>	<p>Survey/Mapping: JNBX EXTERIOR UTIL JUNCTION BOX Element type: Symbol</p>
		
<p>Survey/Mapping: KELP KELP SEAWEED Element type: Symbol</p>	<p>Survey/Mapping: LANBY1 LANBY SUPERBUOY NAVAID Element type: Symbol</p>	<p>Survey/Mapping: LANBY2 LANBY SUPERBUOY NAVAID Element type: Symbol</p>

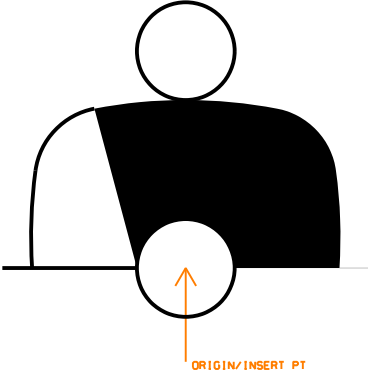
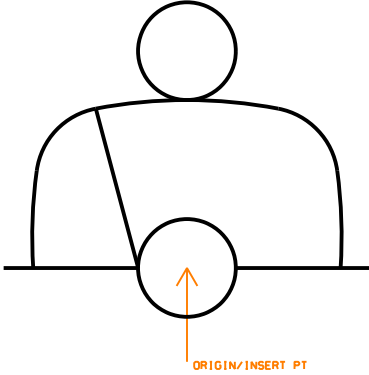
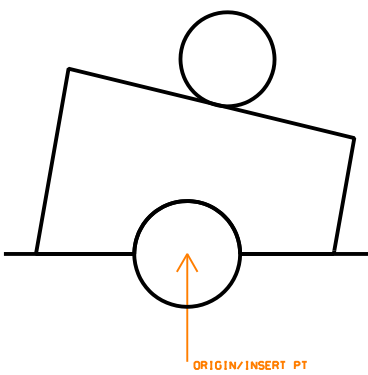

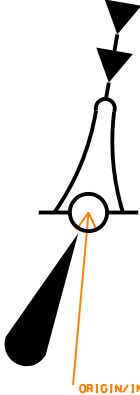
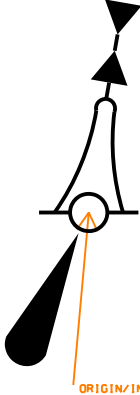
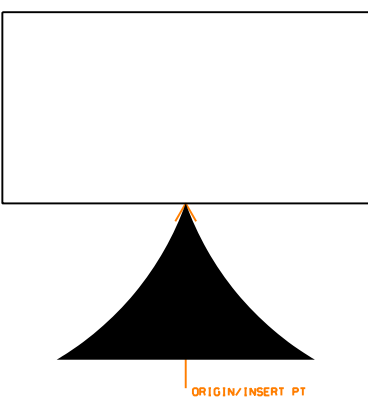
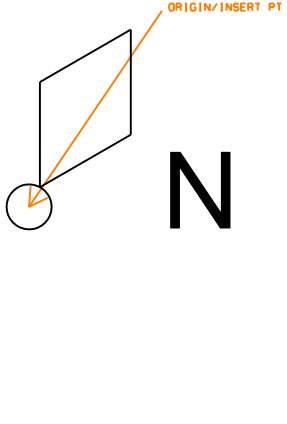
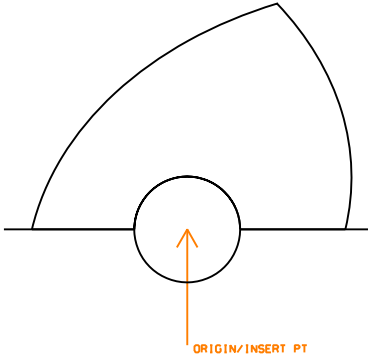
		
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<p>Survey/Mapping: LIFEM2 LIFEBOAT AT MOORING Element type: Symbol</p>	<p>Survey/Mapping: LIMIT LIMIT OF SAFETY ZONE Element type: Symbol</p>	<p>Survey/Mapping: LITSV1 FLOATING LIGHT Element type: Symbol</p>
		
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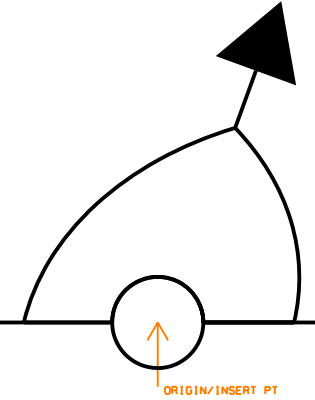
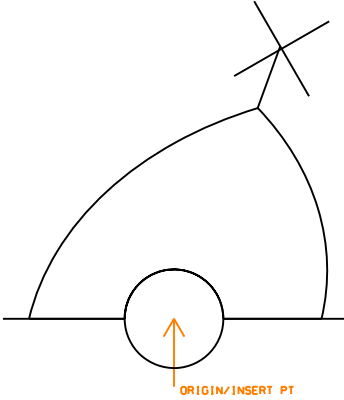
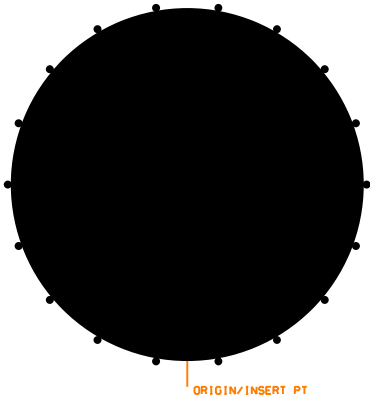
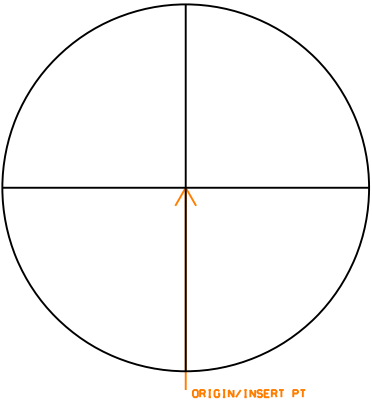
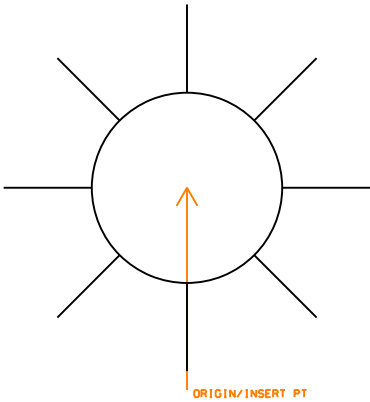
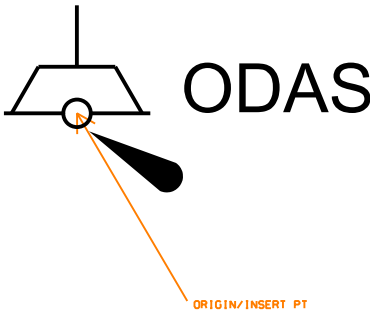
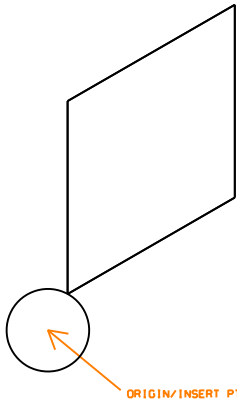
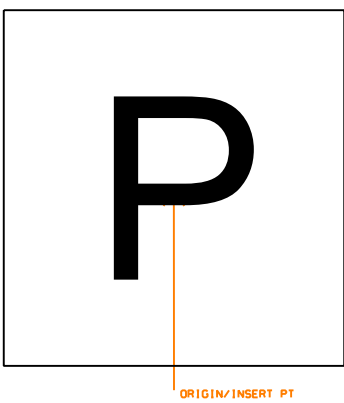
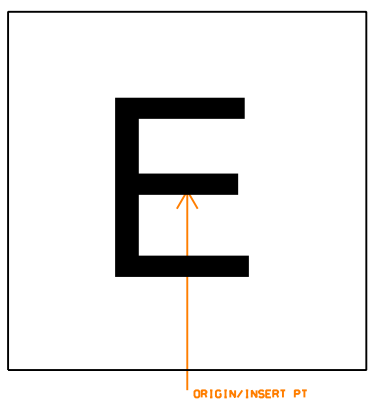


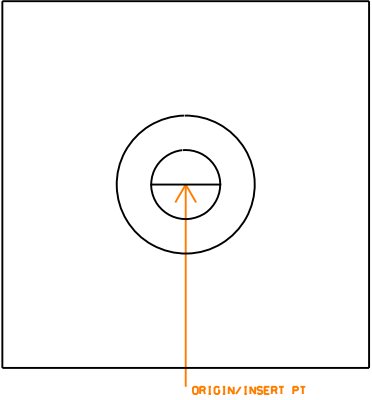
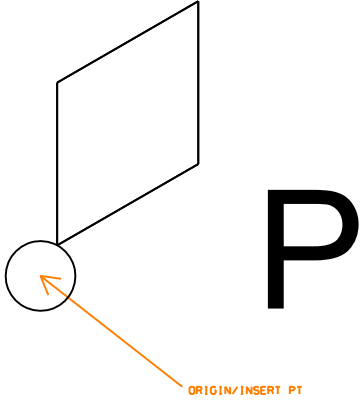
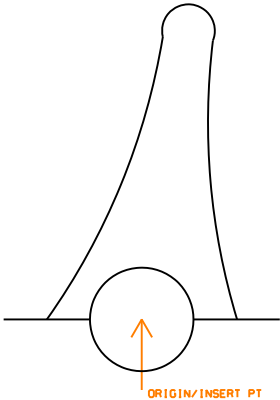
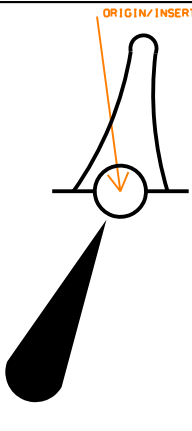
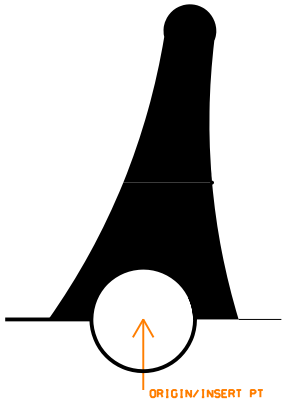
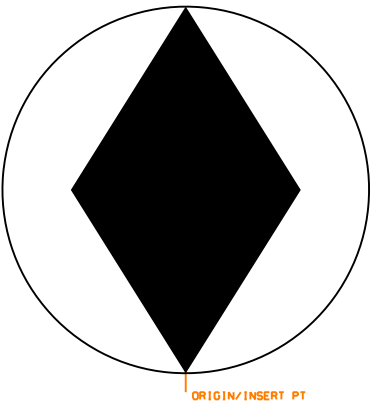
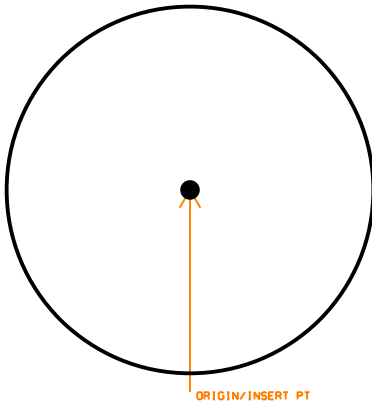
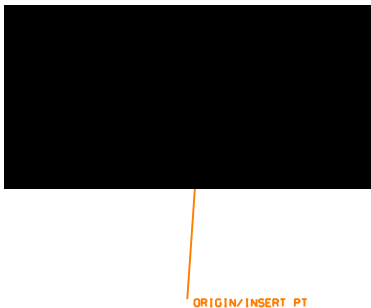
		
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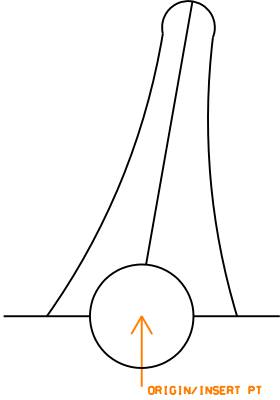
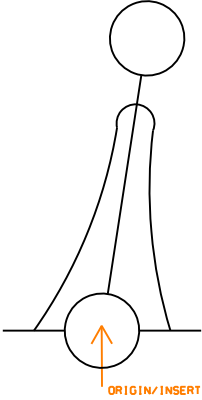
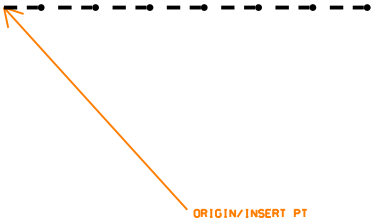
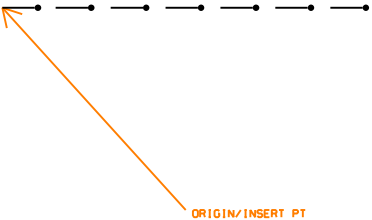
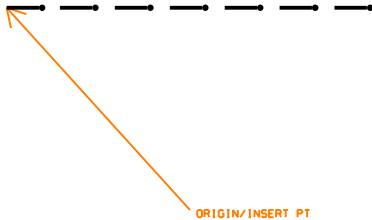
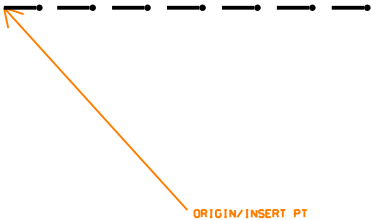
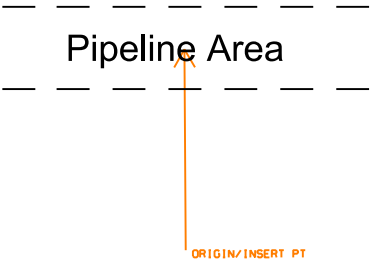
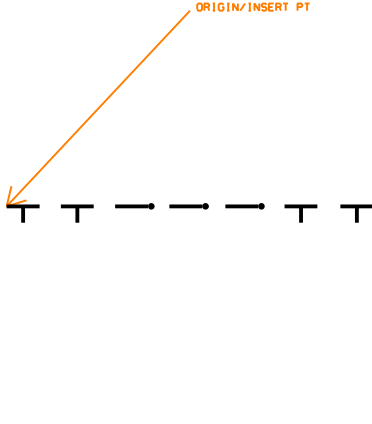
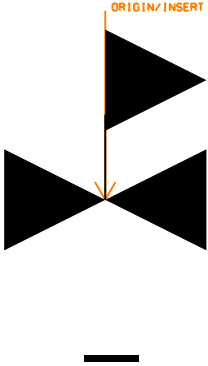
		
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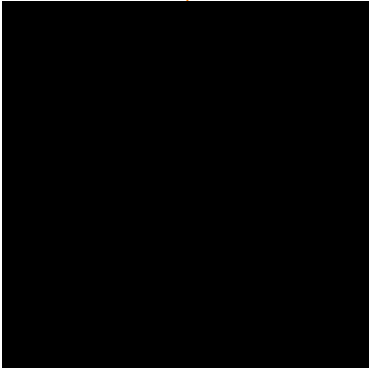
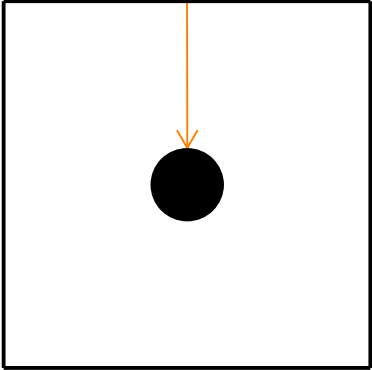

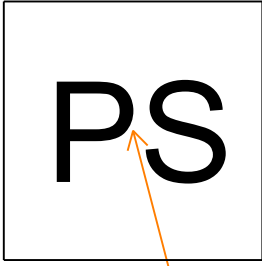
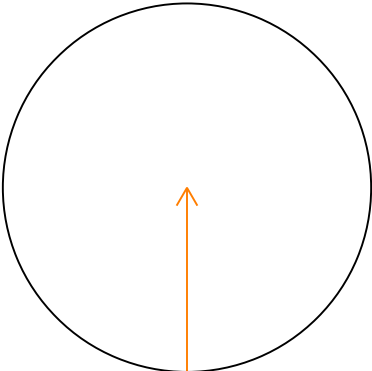
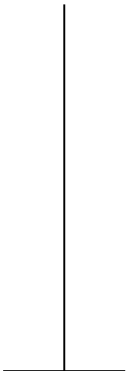
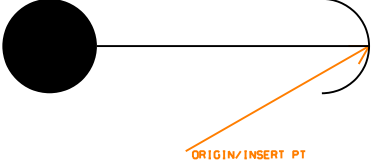
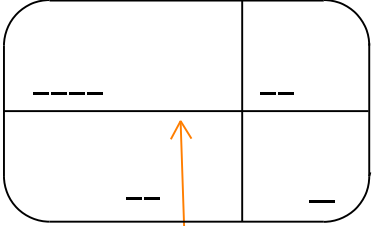
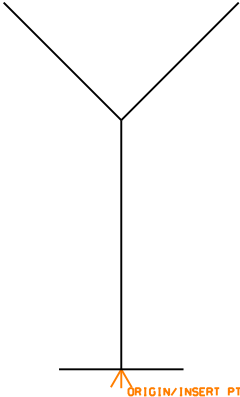
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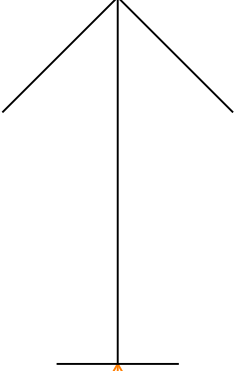
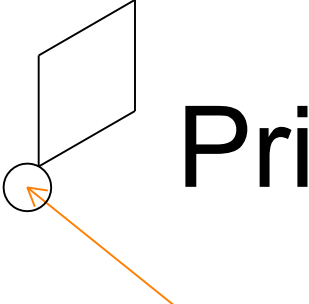
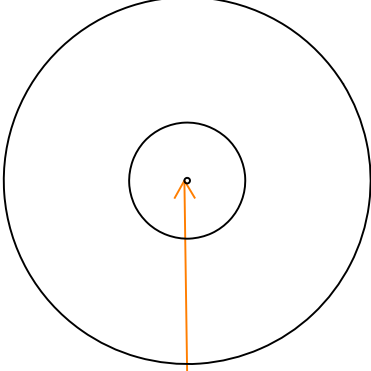
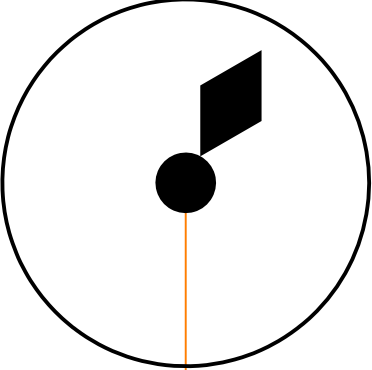
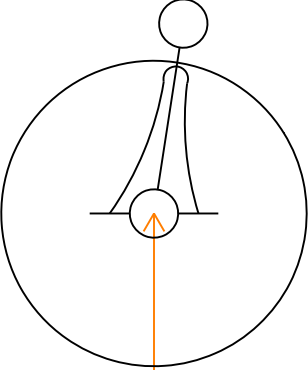
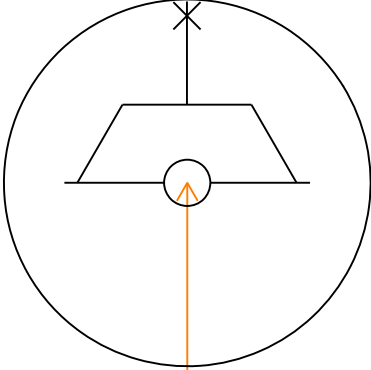
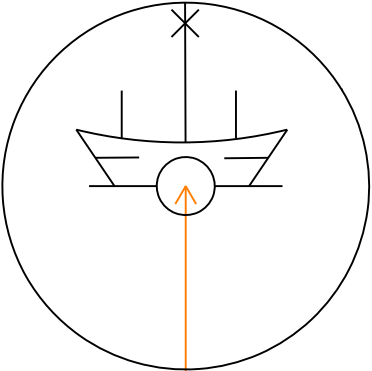
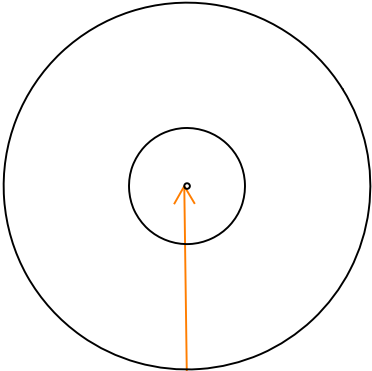
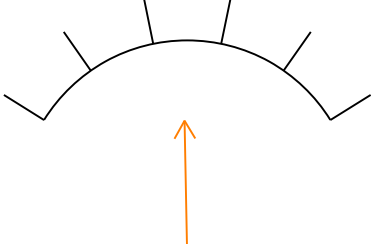
		
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<p>Survey/Mapping: OUTB BUOY MARKING OUTFALL Element type: Symbol</p>	<p>Survey/Mapping: PAPI PAPI LIGHT UNIT Element type: Symbol</p>	<p>Survey/Mapping: PHANDH PRIMARY ELECTRICAL HANDHOLE Element type: Symbol</p>

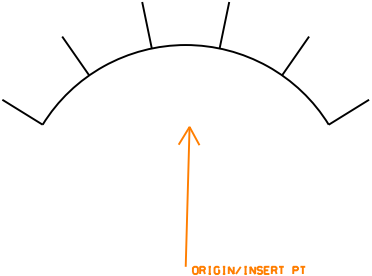
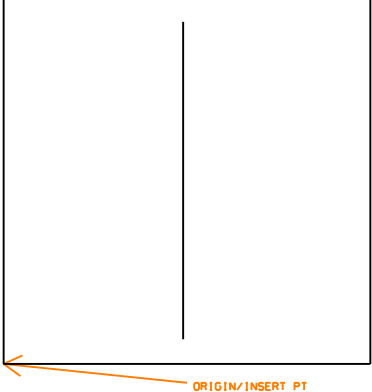
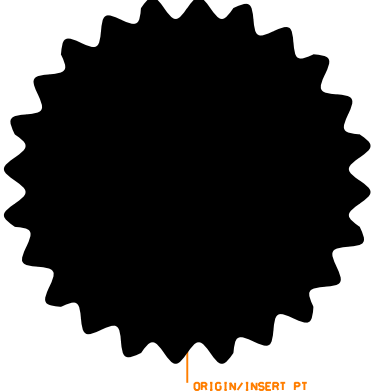
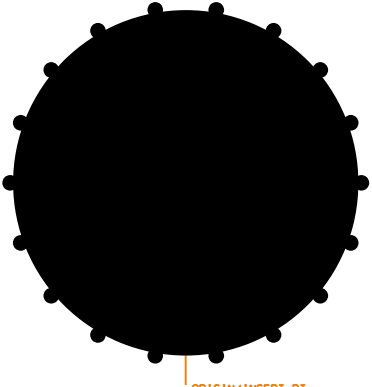
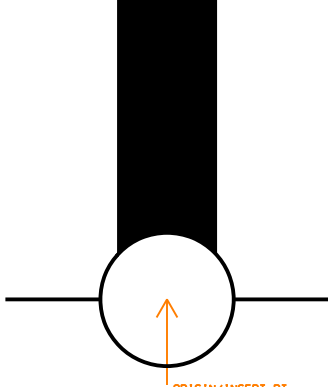
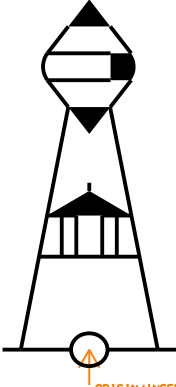
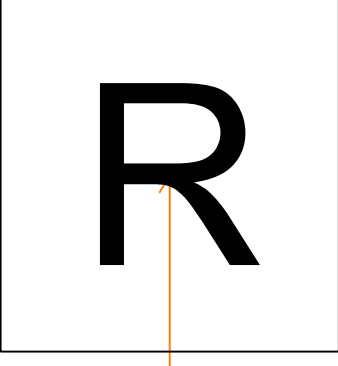
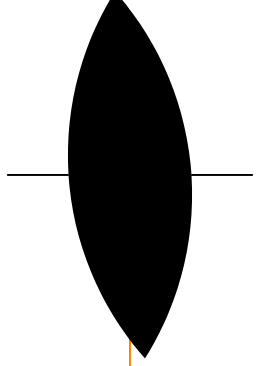
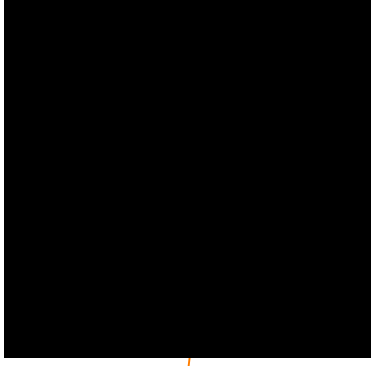
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<p>Survey/Mapping: PIL2  PILLAR BUOY  Element type: Symbol</p>	<p>Survey/Mapping: PILLT  LIGHTED PILLAR BUOY  Element type: Symbol</p>	<p>Survey/Mapping: PILM  MULT COLOR PILLAR BUOY  Element type: Symbol</p>
		
<p>Survey/Mapping: PILOT  BOARDING PLACE  Element type: Symbol</p>	<p>Survey/Mapping: PILOT1  PILOT OFFICE  Element type: Symbol</p>	<p>Survey/Mapping: PILOT2  PILOT OFFICE  Element type: Symbol</p>

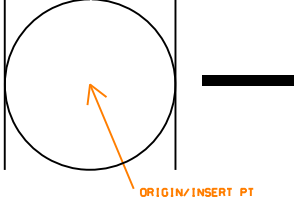
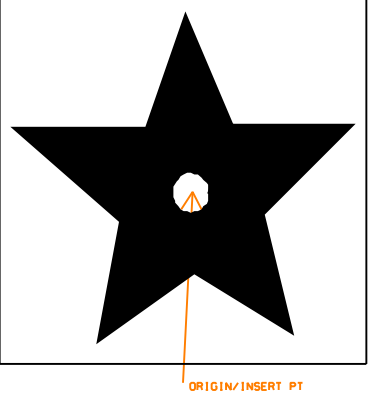
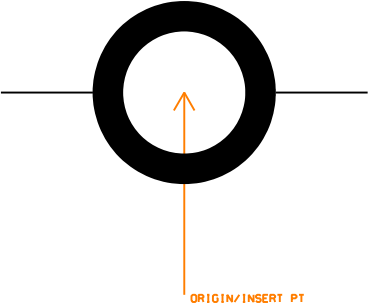
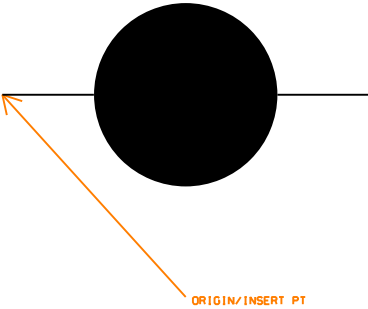
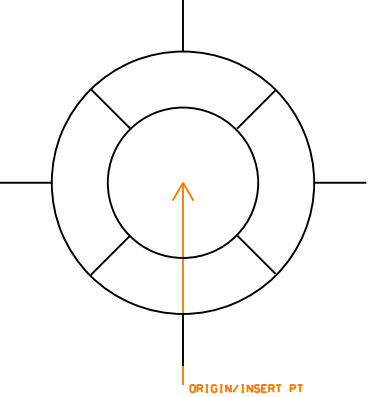
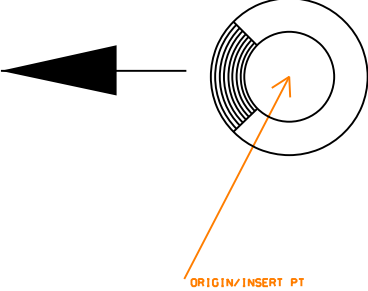
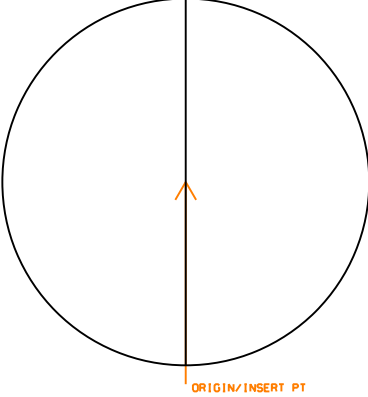
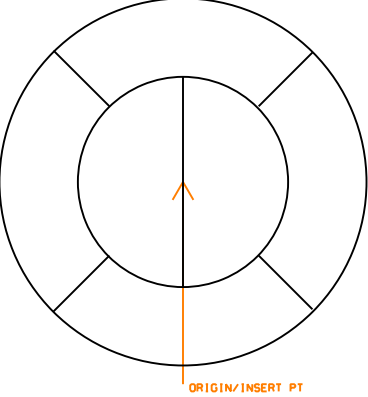
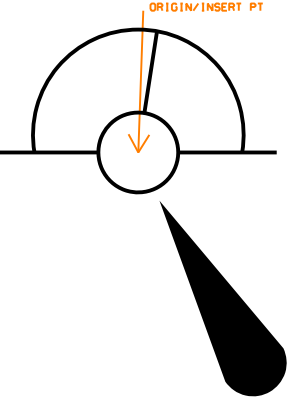
		
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<p>Survey/Mapping: PIPE WATER SEWER OUTFALL INTAKE Element type: Symbol</p>	<p>Survey/Mapping: PIPE1 OIL GAS PIPELINE Element type: Symbol</p>	<p>Survey/Mapping: PIPE2 OIL GAS PIPELINE Element type: Symbol</p>
		
<p>Survey/Mapping: PIPES1 OIL GAS PIPELINE AREA Element type: Symbol</p>	<p>Survey/Mapping: PIPES2 OIL GAS PIPELINE AREA Element type: Symbol</p>	<p>Survey/Mapping: PIVALV POST INDICATOR VALVE Element type: Symbol</p>

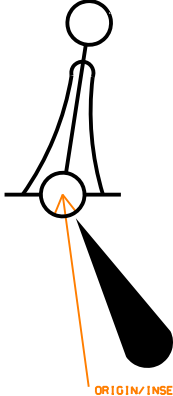
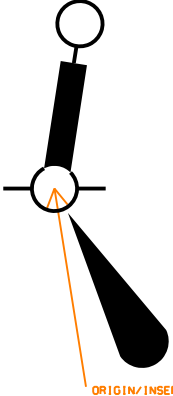
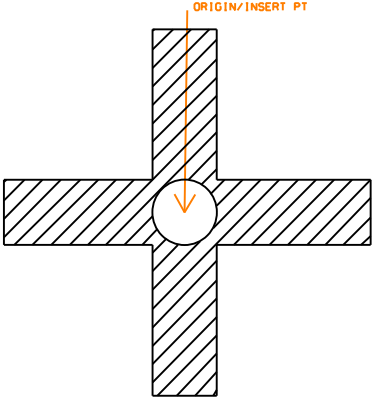
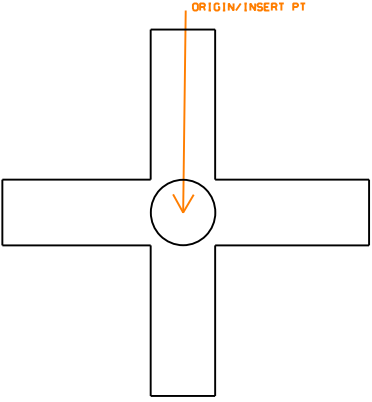
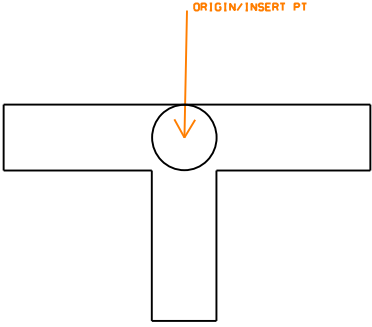

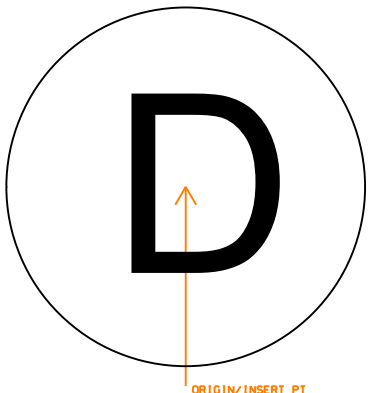
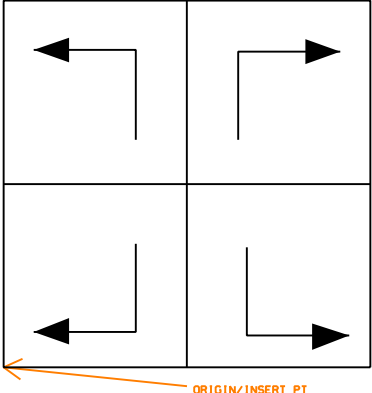
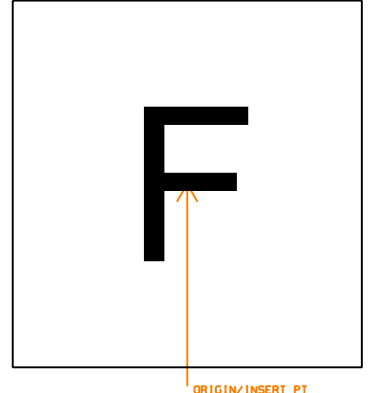
		
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<p>Survey/Mapping: PMPSTA PUMP STATION Element type: Symbol</p>	<p>Survey/Mapping: POLE1 POLE STAKE PERCH Element type: Symbol</p>	<p>Survey/Mapping: POLE3 POLE STAKE PERCH Element type: Symbol</p>
		
<p>Survey/Mapping: POLEAR AERIAL POLE W GUYING Element type: Symbol</p>	<p>Survey/Mapping: POLEID POLE IDENT. SYMBOL Element type: Symbol</p>	<p>Survey/Mapping: POLEP PORT HAND STAKE POLE Element type: Symbol</p>

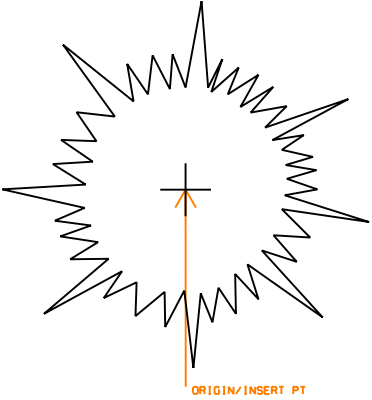
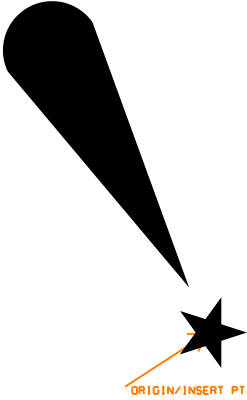
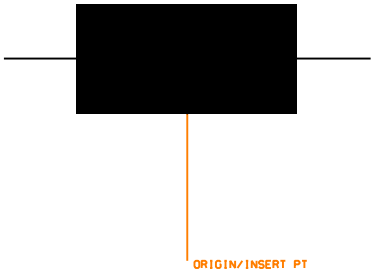
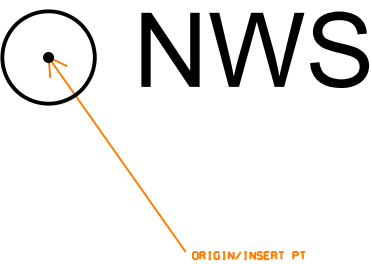
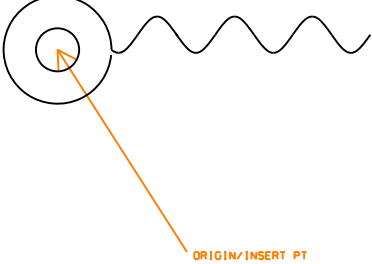
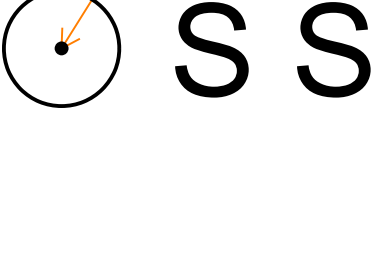
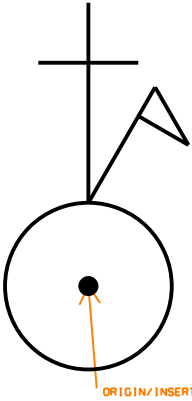

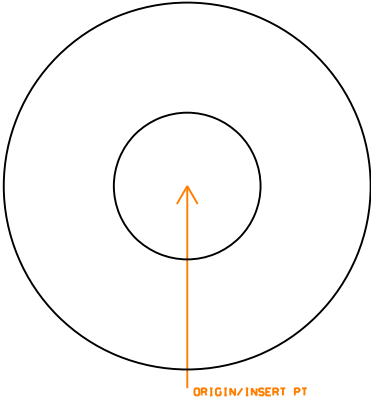




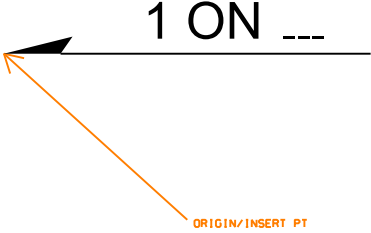
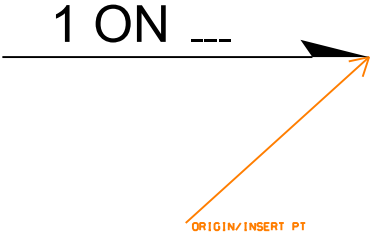
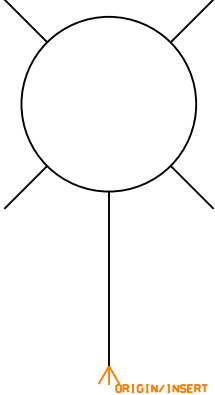
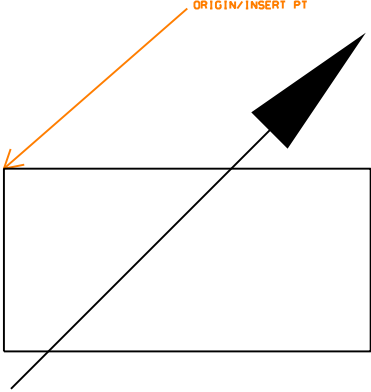
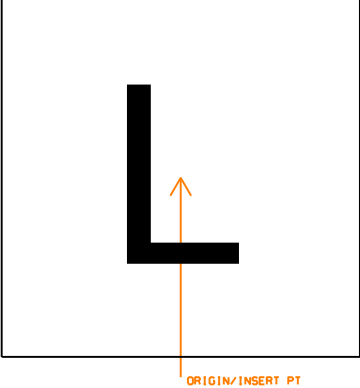
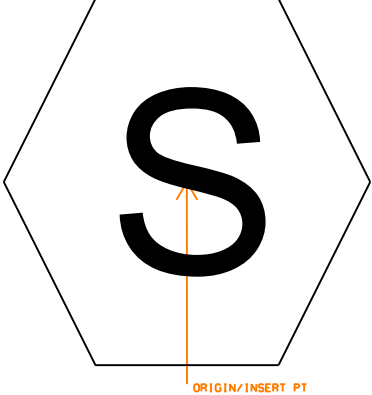
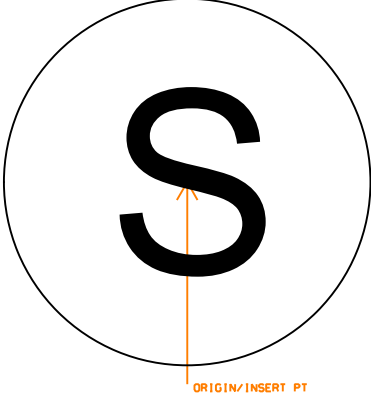
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<p>Survey/Mapping: POLES STARBOARD HAND POLE STAKE Element type: Symbol</p>	<p>Survey/Mapping: PRIVB PRIVATE BARREL BUOY Element type: Symbol</p>	<p>Survey/Mapping: RADAR RADAR STATION OR BEACON Element type: Symbol</p>
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<p>Survey/Mapping: RADAR1 FLOATING RADAR BEACON Element type: Symbol</p>	<p>Survey/Mapping: RADAR2 FLOATING RADAR BEACON Element type: Symbol</p>	<p>Survey/Mapping: RADAR3 FLOATING RADAR BEACON Element type: Symbol</p>
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<p>Survey/Mapping: RADAR4 FLOATING RADAR BEACON Element type: Symbol</p>	<p>Survey/Mapping: RADIO RADIO BEACON GENERAL Element type: Symbol</p>	<p>Survey/Mapping: RADRF1 RADAR REFLECTOR OR FEATURE Element type: Symbol</p>

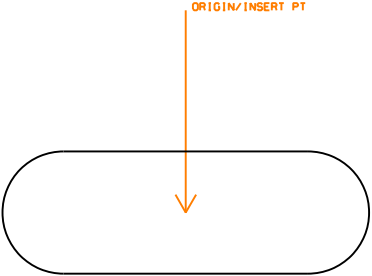
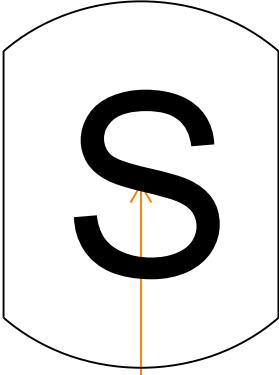

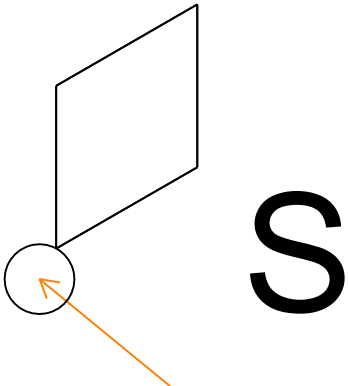
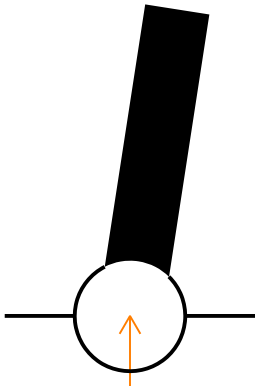
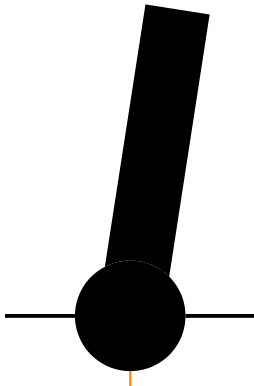
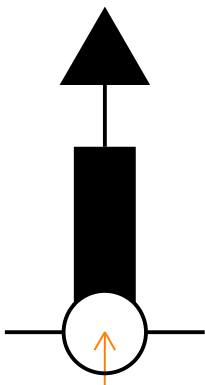
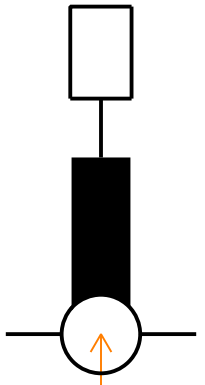
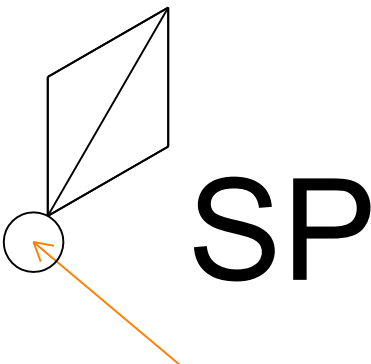
		
<p>Survey/Mapping: RADRF2 RADAR REFLECTOR OR FEATURE Element type: Symbol</p>	<p>Survey/Mapping: RANGEX RANGE EXTENSION Element type: Symbol</p>	<p>Survey/Mapping: REEF CORAL REEF LARGE ICON Element type: Symbol</p>
		
<p>Survey/Mapping: REEF1 CORAL REEF SMALL ICON Element type: Symbol</p>	<p>Survey/Mapping: REFUG1 REFUGE BEACON Element type: Symbol</p>	<p>Survey/Mapping: REFUG2 REFUGE BEACON Element type: Symbol</p>
		
<p>Survey/Mapping: REIL REIL LIGHT UNIT Element type: Symbol</p>	<p>Survey/Mapping: RESCUE RESCUE STATION Element type: Symbol</p>	<p>Survey/Mapping: RESPLT OBS RESEARCH PLATFORM Element type: Symbol</p>

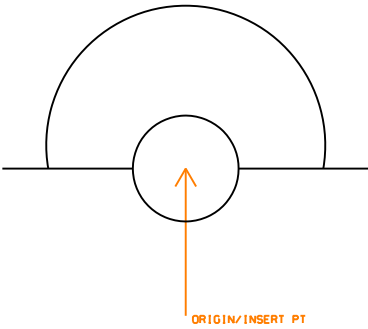
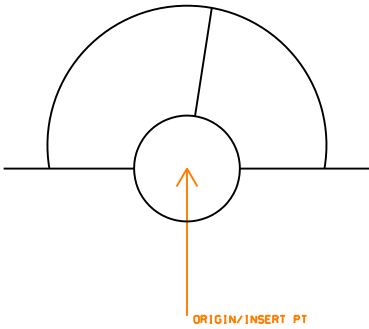
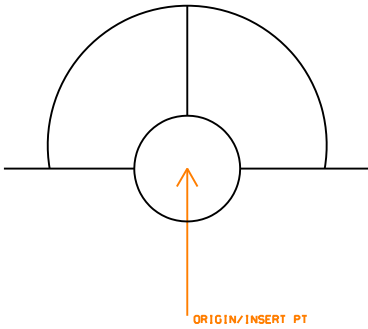
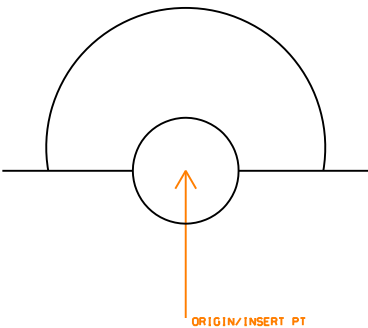
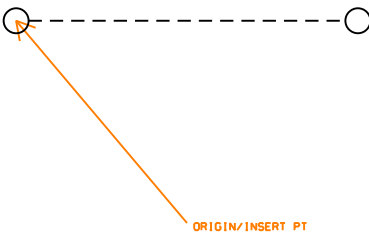
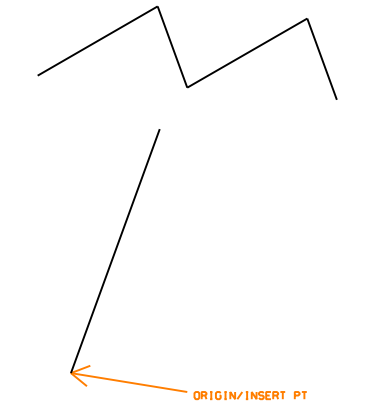
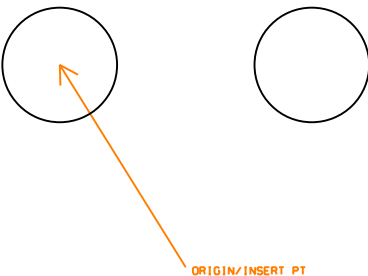
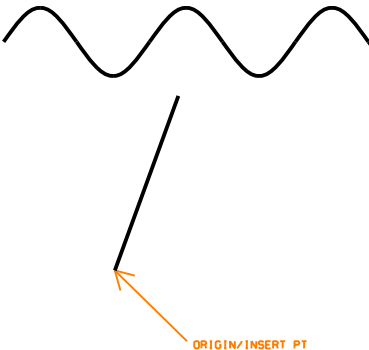
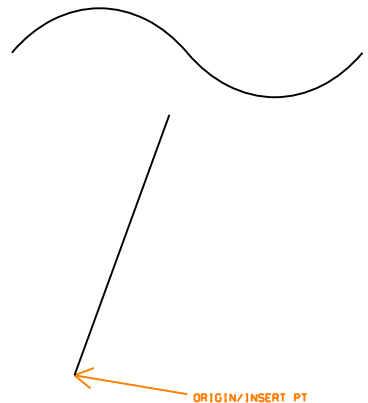
		
<p>Survey/Mapping: RGVAlV REGULATOR VALVE Element type: Symbol</p>	<p>Survey/Mapping: RSTAR RANGE STAR Element type: Symbol</p>	<p>Survey/Mapping: RVMMOP OPEN RIVER MILE MARKER Element type: Symbol</p>
		
<p>Survey/Mapping: RVMMSO SOLID RIVER MILE MARKER Element type: Symbol</p>	<p>Survey/Mapping: RWCLL RW CENTERLINE LIGHT Element type: Symbol</p>	<p>Survey/Mapping: RWEL RW END LIGHT Element type: Symbol</p>
		
<p>Survey/Mapping: RWLEL RW EDGE LIGHT_ELEVATED Element type: Symbol</p>	<p>Survey/Mapping: RWLSF RW EDGE LIGHT_SEMIFLUSH Element type: Symbol</p>	<p>Survey/Mapping: SAFE1 LIGHTED SAFE WATER MARK Element type: Symbol</p>

		
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<p>Survey/Mapping: SCNRO SECTION CORNER OPEN Element type: Symbol</p>	<p>Survey/Mapping: SCNRTO SECTION CORNER T OPEN Element type: Symbol</p>	<p>Survey/Mapping: SDM SURFACE DISPLACEMENT MONUMENT Element type: Symbol</p>
		
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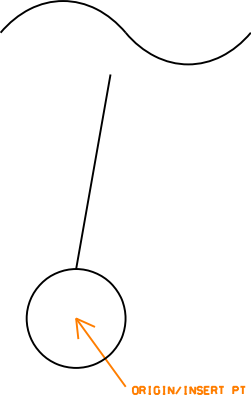
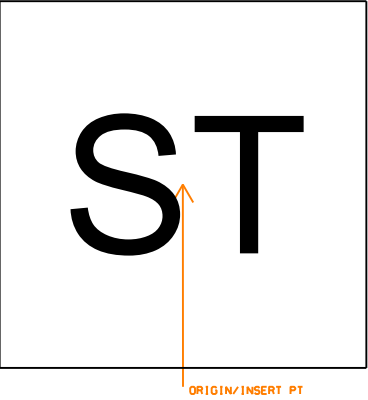
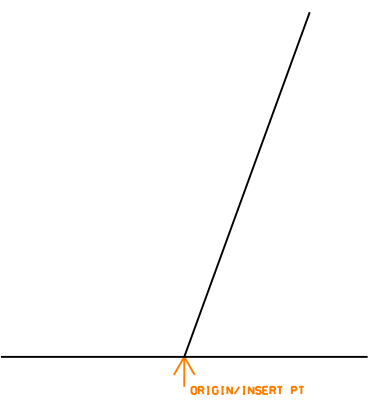
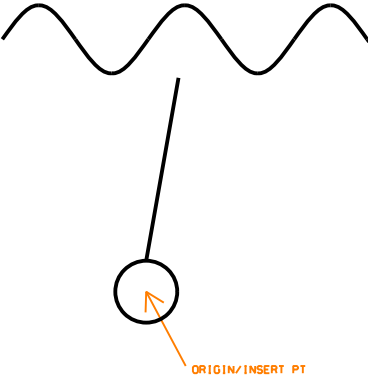
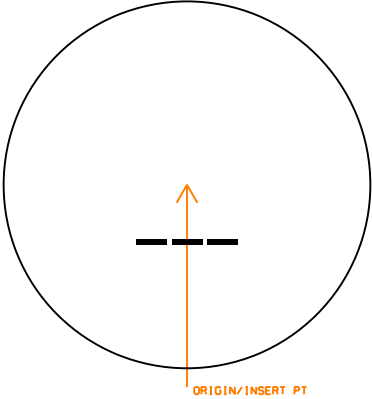
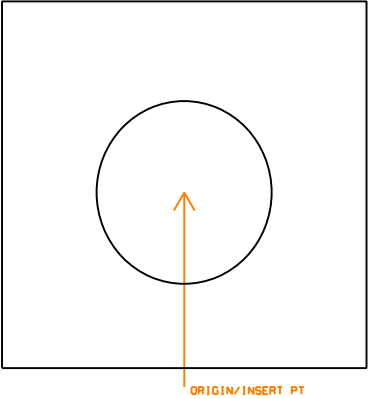
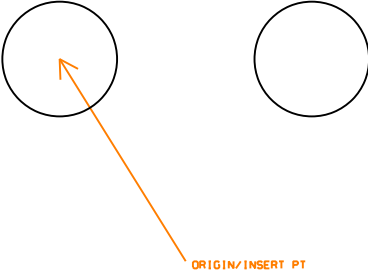
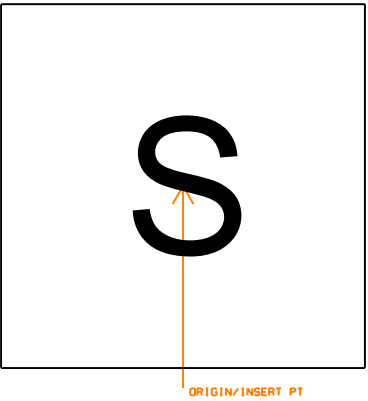
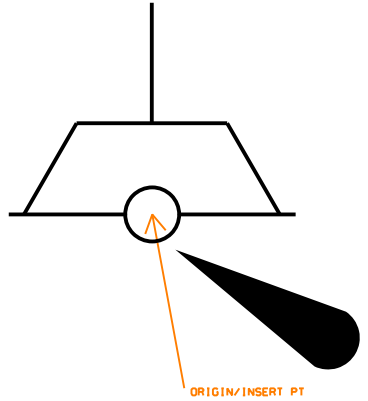
		
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<p>Survey/Mapping: SIGST2 SIGNAL STATION GENERAL Element type: Symbol</p>	<p>Survey/Mapping: SIGSTP PORT CONTROL SIGNAL STATION Element type: Symbol</p>	<p>Survey/Mapping: SIGSUB SUBMARINE SIGNAL Element type: Symbol</p>

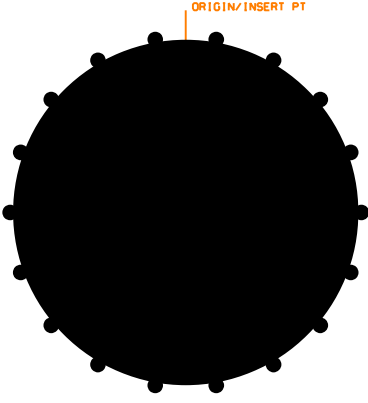
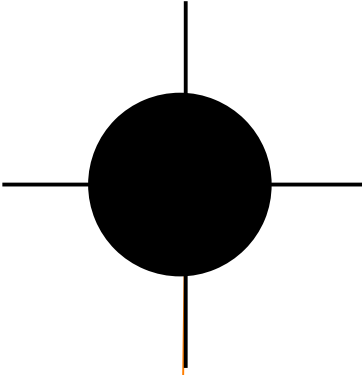
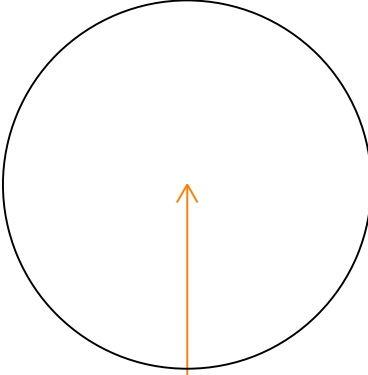
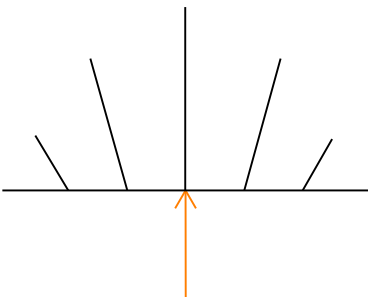
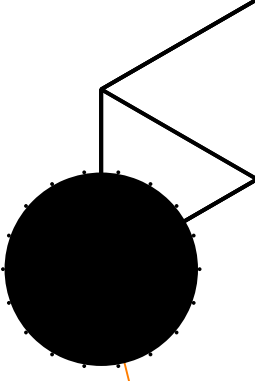
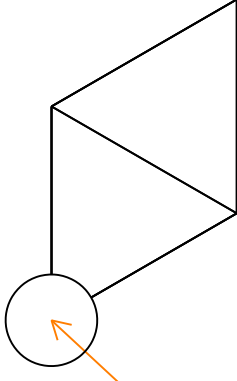
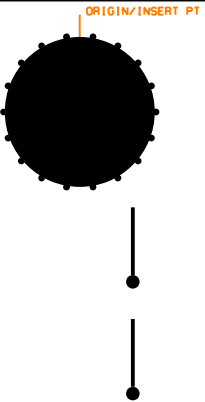
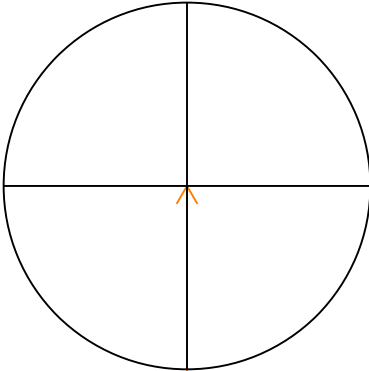
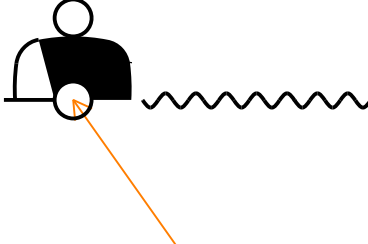
		
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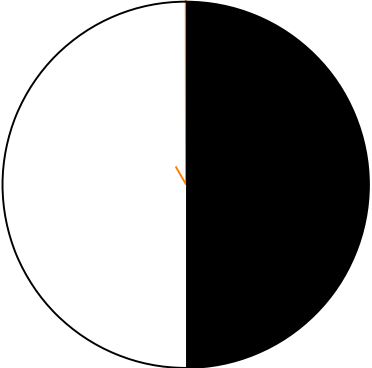
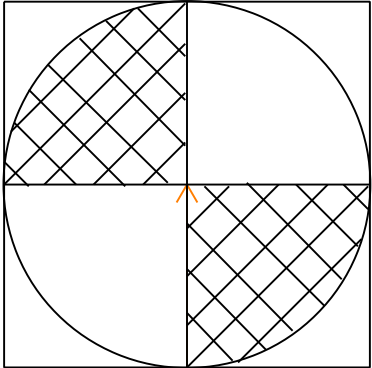
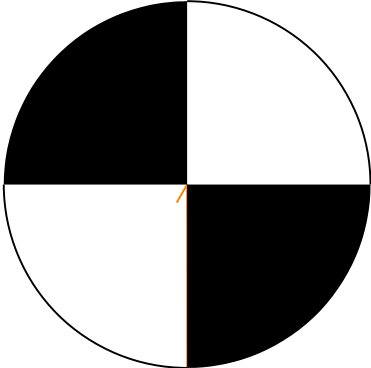
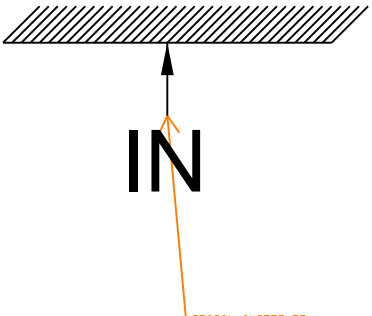
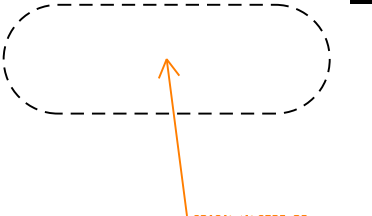
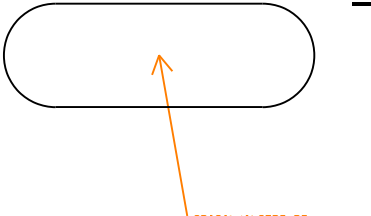
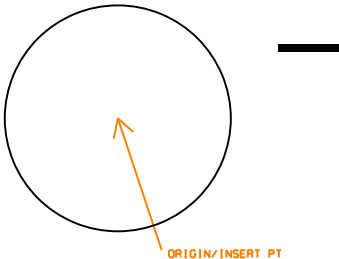
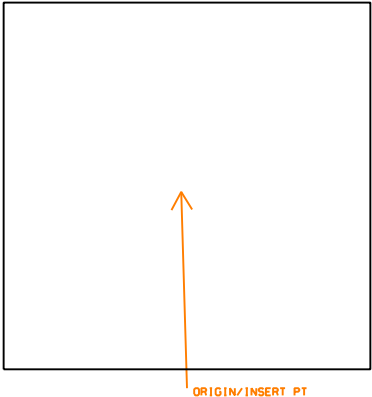
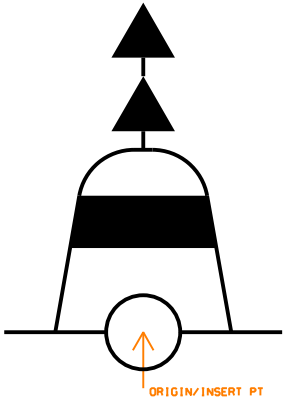
		
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<p>Survey/Mapping: SPARBT BLACK SPAR BUOY W TOPMARK Element type: Symbol</p>	<p>Survey/Mapping: SPARWT WHITE SPAR BUOY W TOP Element type: Symbol</p>	<p>Survey/Mapping: SPH1 SPHERICAL BUOY Element type: Symbol</p>

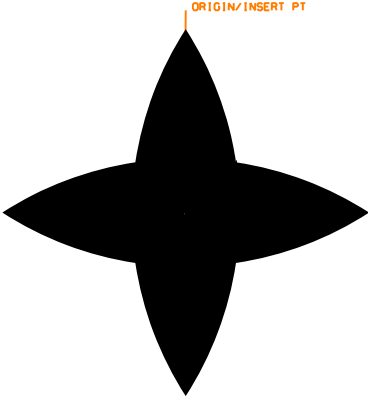
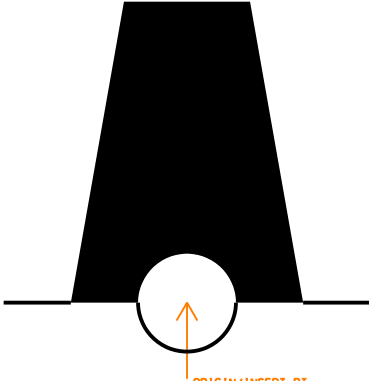
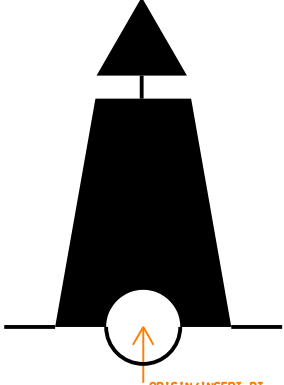
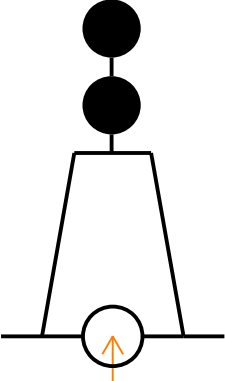
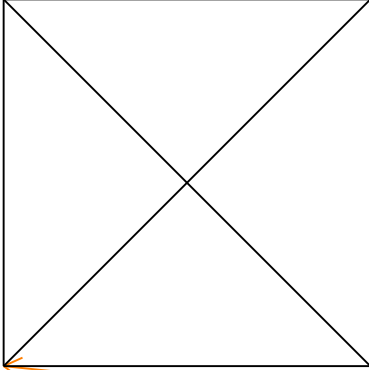
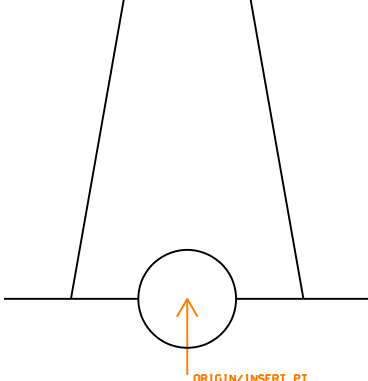
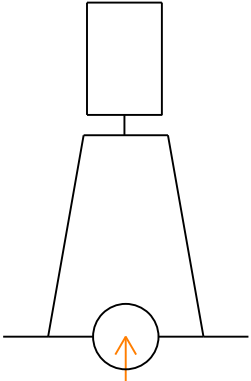
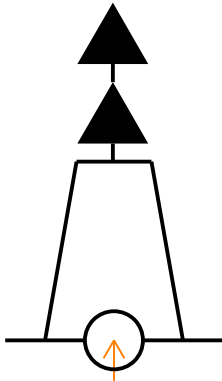
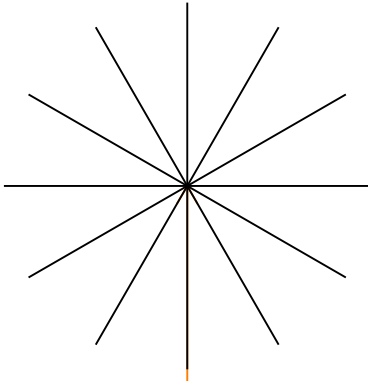
		
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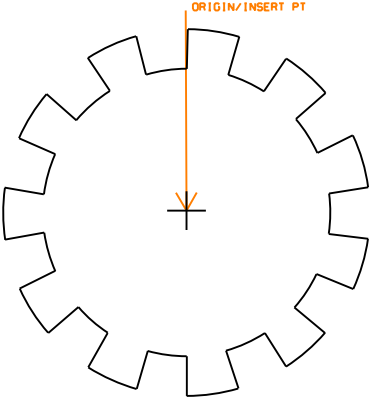
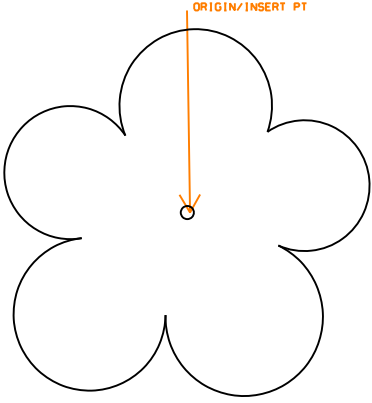
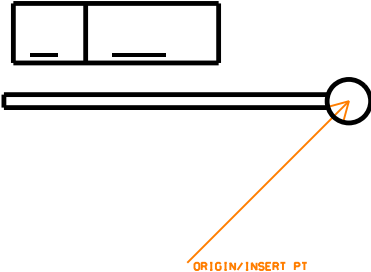
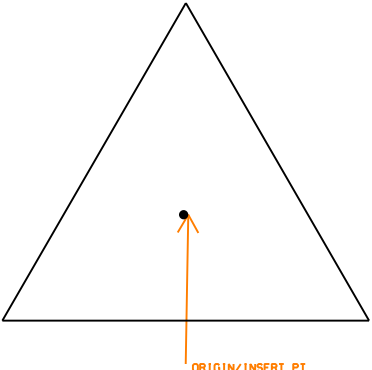
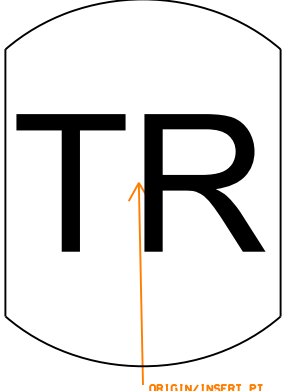
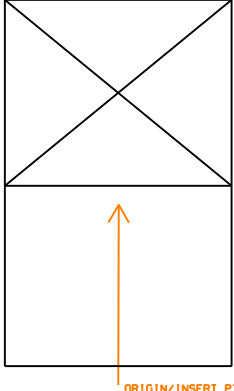
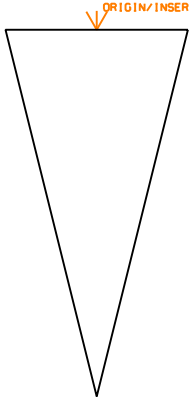
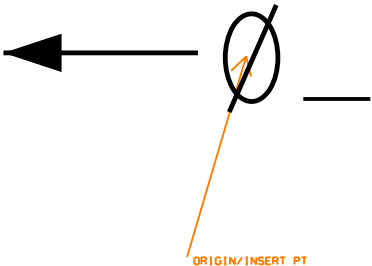
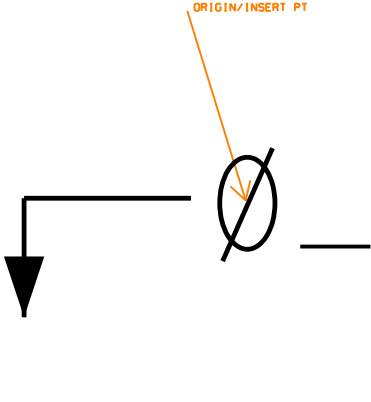


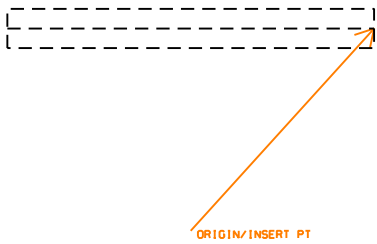
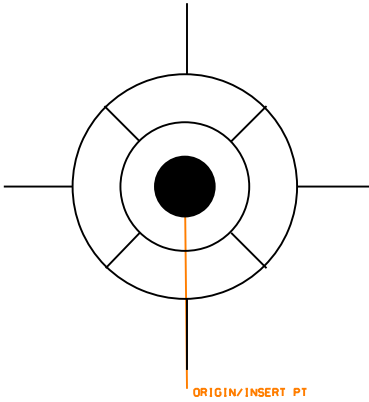
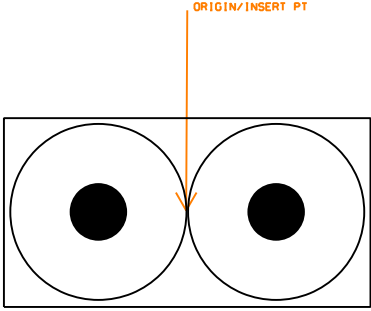
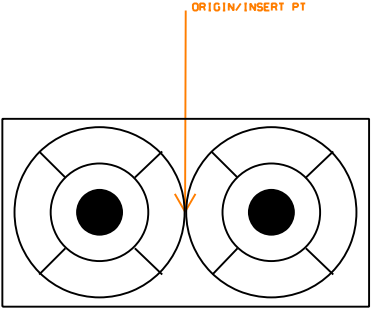
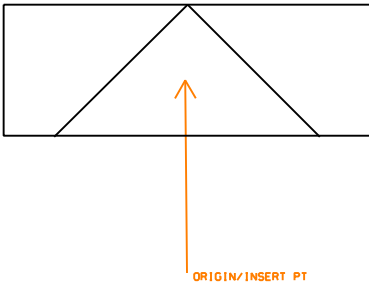
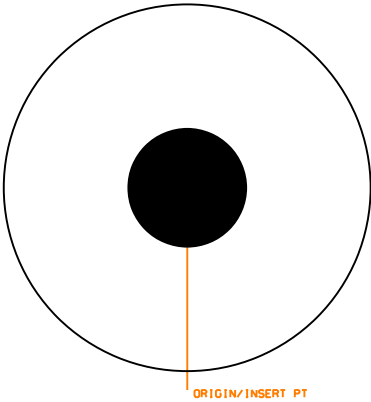
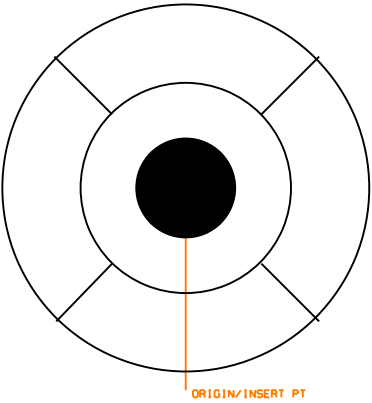
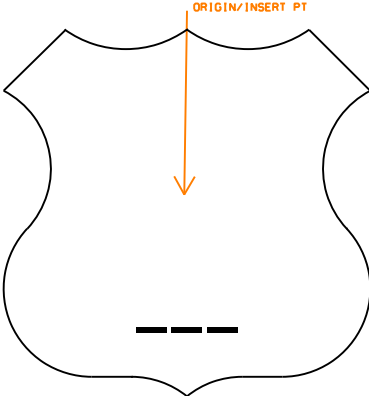
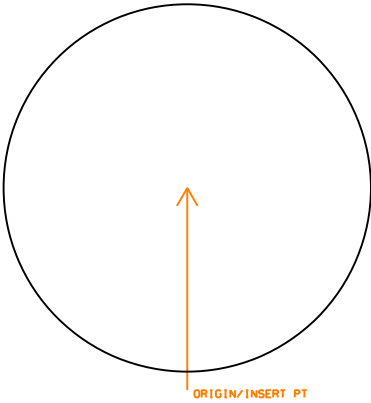
		
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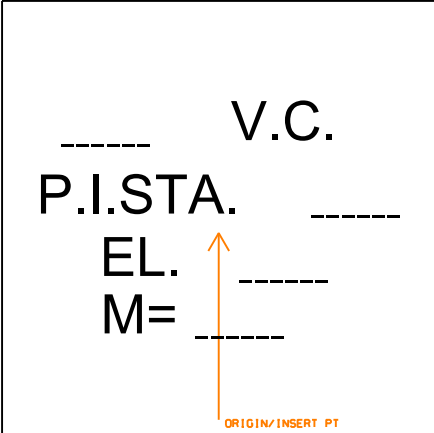
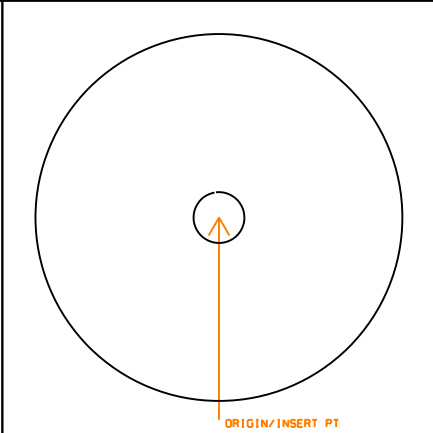
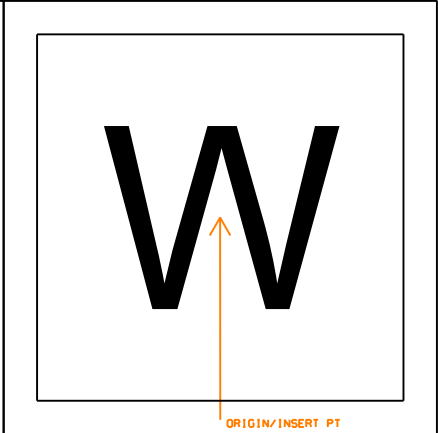
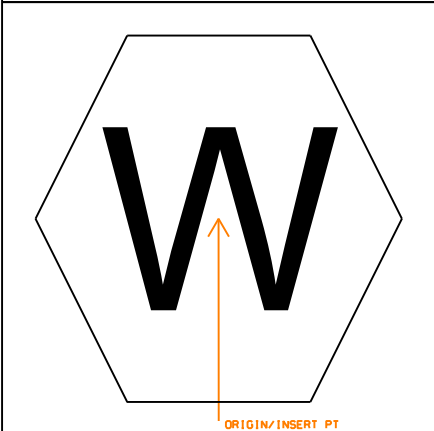
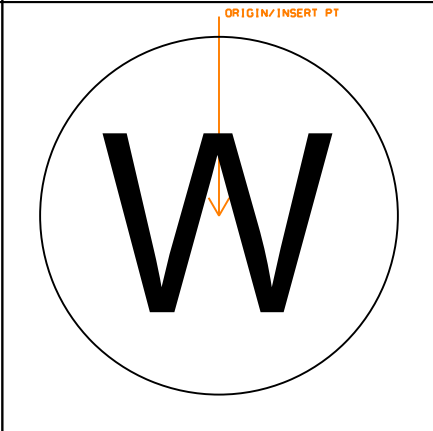
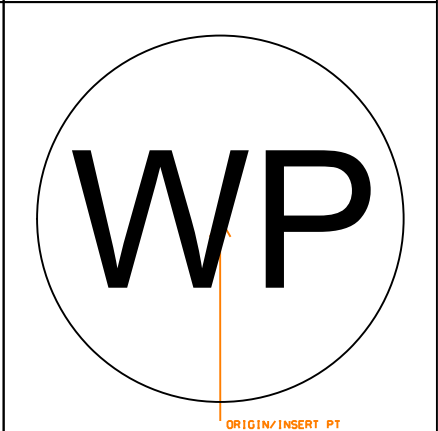
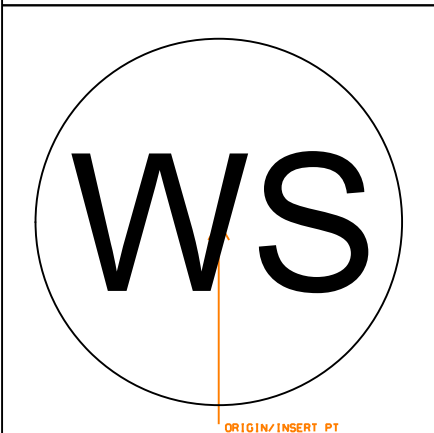
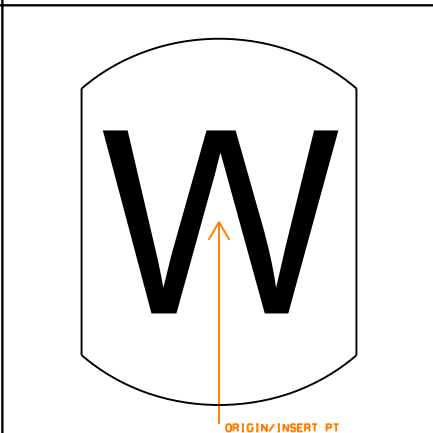
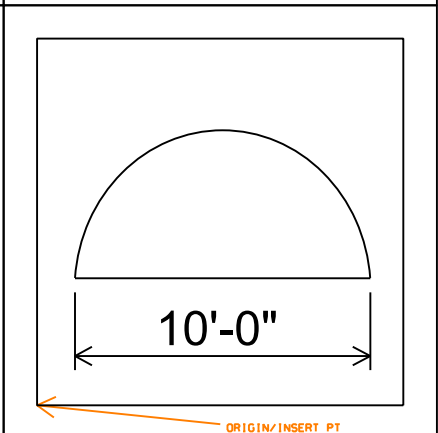
		
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<p>Survey/Mapping: SWAMP SWAMP Element type: Symbol</p>	<p>Survey/Mapping: SWELB1 SUBMERGED WELL W BUOY Element type: Symbol</p>	<p>Survey/Mapping: SWELB2 SUBMERGED WELL W BUOY Element type: Symbol</p>
		
<p>Survey/Mapping: SWELL5 SUBMERGED PROD WELL Element type: Symbol</p>	<p>Survey/Mapping: TDZL TOUCHDOWN ZONE LIGHT Element type: Symbol</p>	<p>Survey/Mapping: TELBBB TELEGRAPHIC BARREL BUOY BLK Element type: Symbol</p>

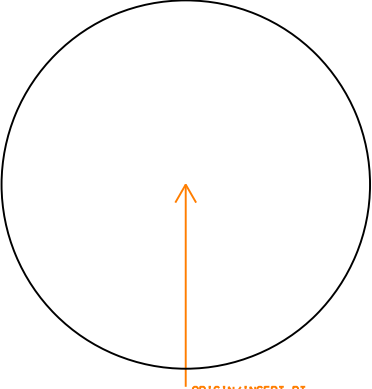
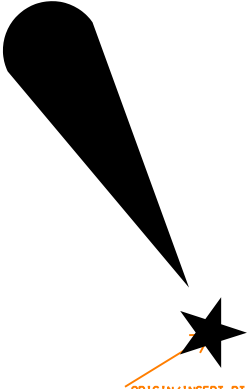
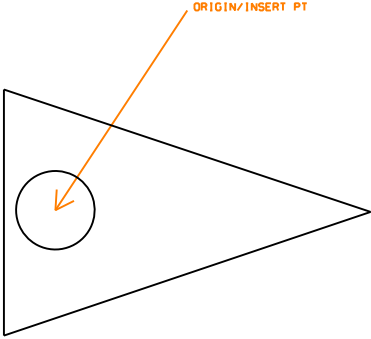
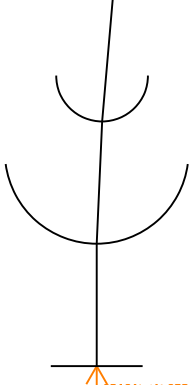
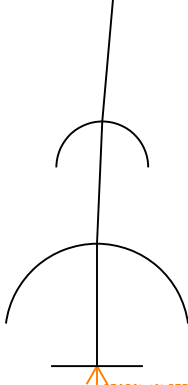
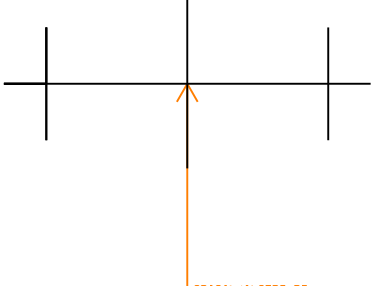
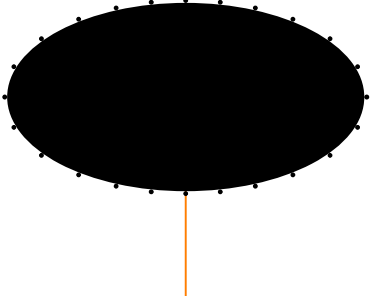
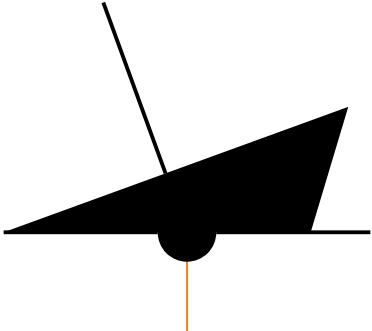
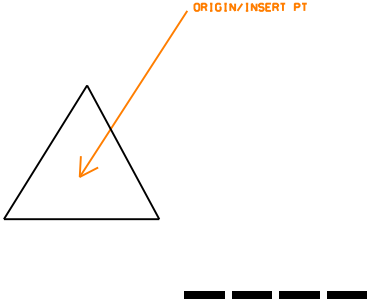
		
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<p>Survey/Mapping: TIRETR TIRE TREDDLE Element type: Symbol</p>	<p>Survey/Mapping: TNKBG TANK BELOW GROUND Element type: Symbol</p>	<p>Survey/Mapping: TNKHAG TANK HORIZ ABOVE GROUND Element type: Symbol</p>
		
<p>Survey/Mapping: TNKVAG TANK VERTICAL ABOVE GROUND Element type: Symbol</p>	<p>Survey/Mapping: TOW1 BEACON TOWER Element type: Symbol</p>	<p>Survey/Mapping: TOW2 BEACON TOWER Element type: Symbol</p>

		
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<p>Survey/Mapping: TOWBT2 BLACK BEACON TOWER W TOP Element type: Symbol</p>	<p>Survey/Mapping: TOWER TRANSMISSION TOWER Element type: Symbol</p>	<p>Survey/Mapping: TOWW WHITE BEACON TOWER Element type: Symbol</p>
		
<p>Survey/Mapping: TOWWT1 WHITE BEACON TOWER W TOP Element type: Symbol</p>	<p>Survey/Mapping: TOWWT2 WHITE BEACON TOWER W T Element type: Symbol</p>	<p>Survey/Mapping: TREEC CONIFEROUS TREE Element type: Symbol</p>

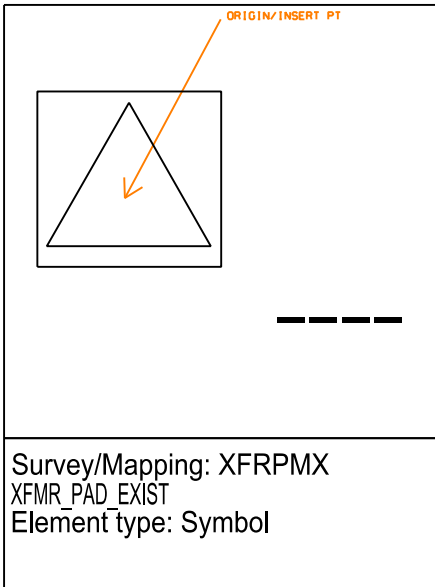
		
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<p>Survey/Mapping: TRIPNT TRIANGULATION POINT Element type: Symbol</p>	<p>Survey/Mapping: TRVALT TRANSFORMER VAULT Element type: Symbol</p>	<p>Survey/Mapping: TSCTRL TR SIGNAL CONTROLLER Element type: Symbol</p>
		
<p>Survey/Mapping: TSHEAD TRAFFIC SIGNAL HEAD Element type: Symbol</p>	<p>Survey/Mapping: TSPHS TR SIGNAL PH NO. THRU Element type: Symbol</p>	<p>Survey/Mapping: TSPHT TR SIGNAL PH NO. TURN Element type: Symbol</p>

		
<p>Survey/Mapping: TSVLDT TR SIGNAL VEH LOOP DETECTOR Element type: Symbol</p>	<p>Survey/Mapping: TWCLL TW CENTERLINE LIGHT Element type: Symbol</p>	<p>Survey/Mapping: TWELEL TW END LIGHT_ELEVATED Element type: Symbol</p>
		
<p>Survey/Mapping: TWELSF TW END LIGHT_SEMIFLUSH Element type: Symbol</p>	<p>Survey/Mapping: TWGSGN TW GUIDANCE SIGN Element type: Symbol</p>	<p>Survey/Mapping: TWLEL TW EDGE LIGHT_ELEVATED Element type: Symbol</p>
		
<p>Survey/Mapping: TWLSF TW EDGE LIGHT_SEMIFLUSH Element type: Symbol</p>	<p>Survey/Mapping: USHWY US HIGHWAY SYMBOL Element type: Symbol</p>	<p>Survey/Mapping: UTPLX POLE_EXISTING Element type: Symbol</p>

		
<p>Survey/Mapping: VCDATA VERTICAL CURVE DATA Element type: Symbol</p>	<p>Survey/Mapping: VERCPT VERTICAL CONTROL POINT Element type: Symbol</p>	<p>Survey/Mapping: WAHHOL WATER HANDHOLE Element type: Symbol</p>
		
<p>Survey/Mapping: WAMETR WATER METER Element type: Symbol</p>	<p>Survey/Mapping: WAMHOL WATER MANHOLE Element type: Symbol</p>	<p>Survey/Mapping: WAPLNT WATER PLANT Element type: Symbol</p>
		
<p>Survey/Mapping: WASOFT WATER SOFTENER Element type: Symbol</p>	<p>Survey/Mapping: WAVALT WATER VALVE VAULT Element type: Symbol</p>	<p>Survey/Mapping: WEIR WEIR Element type: Symbol</p>

		
<p>Survey/Mapping: WELL1 ABOVE WATER WELLHEAD Element type: Symbol</p>	<p>Survey/Mapping: WELL3 ABOVE WATER WELLHEAD Element type: Symbol</p>	<p>Survey/Mapping: WINDCN WINDCONE Element type: Symbol</p>
		
<p>Survey/Mapping: WITHYP PORT HAND WITHY Element type: Symbol</p>	<p>Survey/Mapping: WITHYS STARBOARD HAND WITHY Element type: Symbol</p>	<p>Survey/Mapping: WRECK WRECK NOT DANGEROUS Element type: Symbol</p>
		
<p>Survey/Mapping: WRKDNG DANGER WRECK DEPTH UNKNOWN Element type: Symbol</p>	<p>Survey/Mapping: WRKEXP WRECK PARTLY EXPOSED Element type: Symbol</p>	<p>Survey/Mapping: XFRPLX XFMR_POLE_EXIST Element type: Symbol</p>



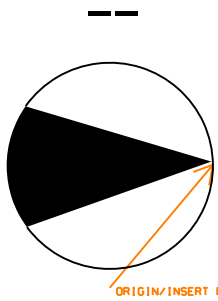
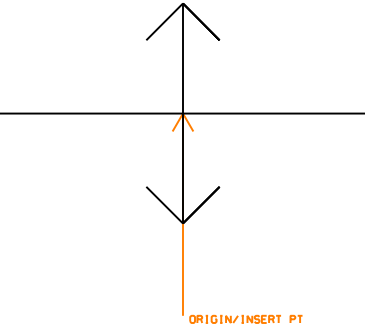
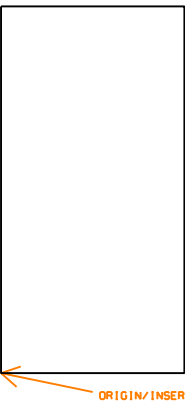
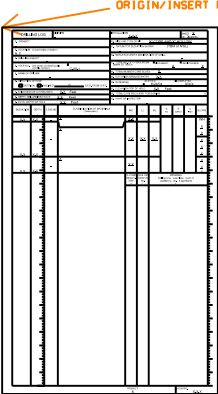
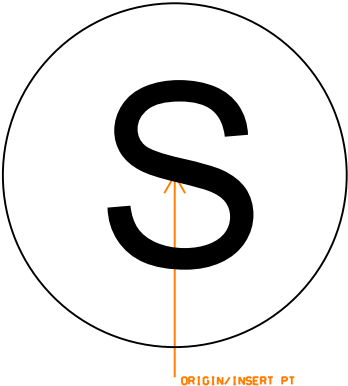
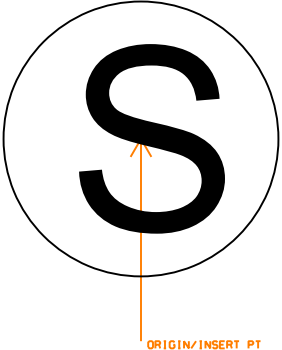
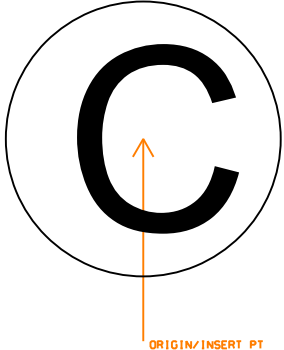


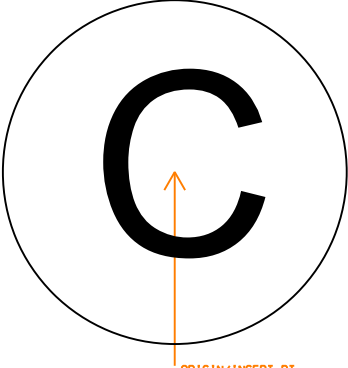
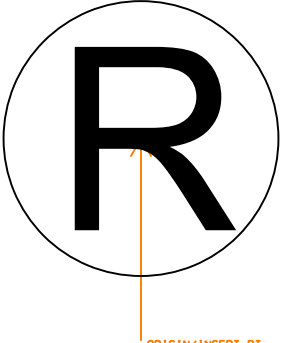
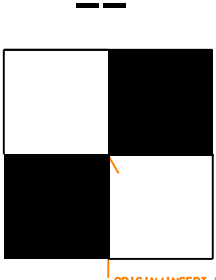
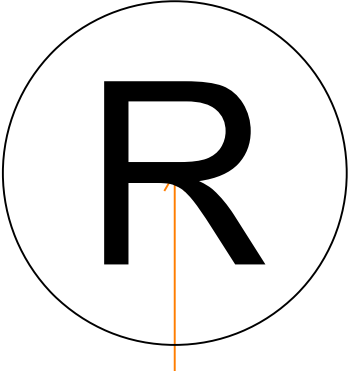
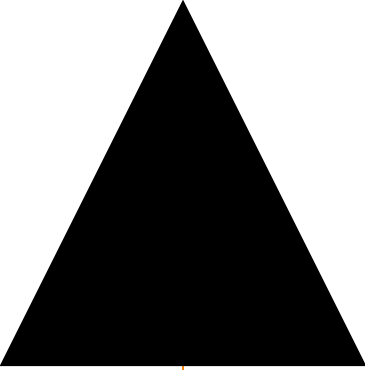
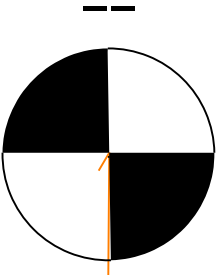
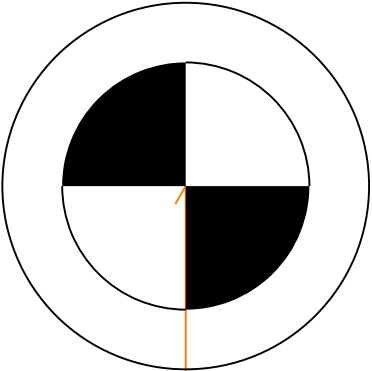
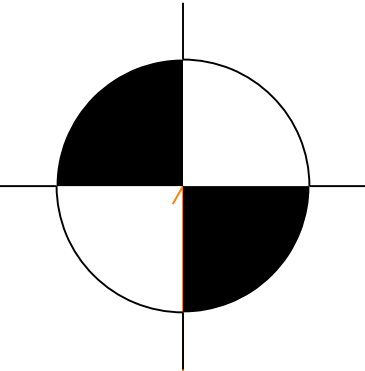
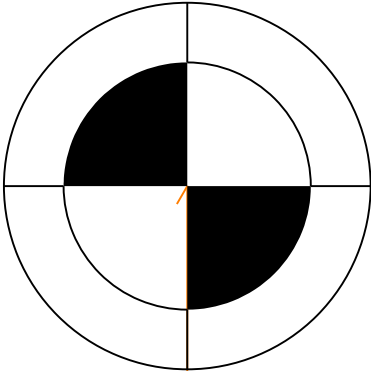
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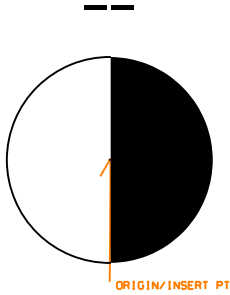
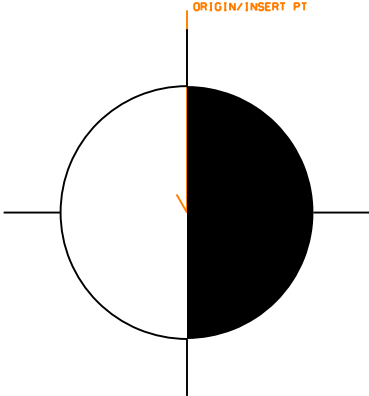
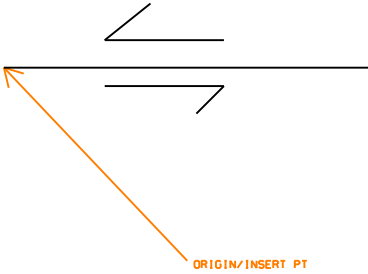
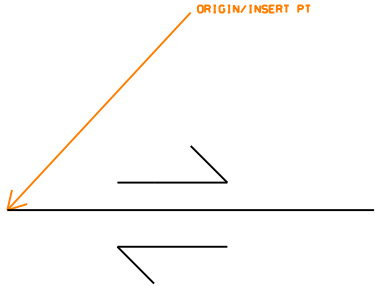
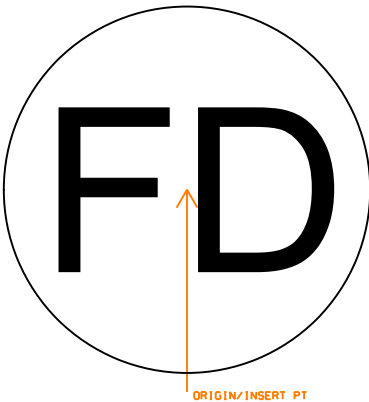
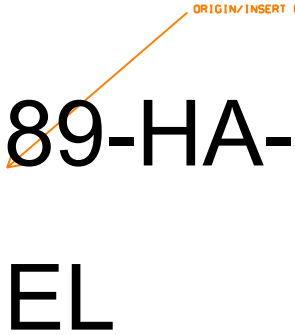
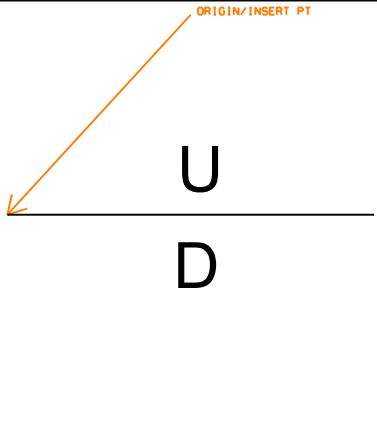
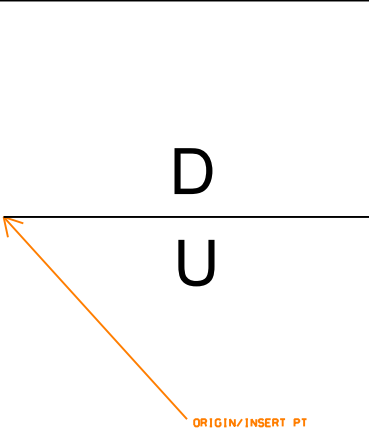
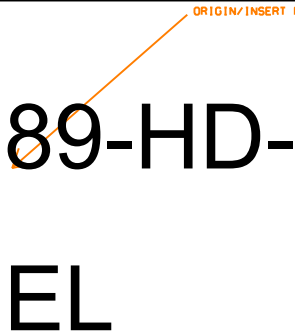
# 6 Geotechnical Symbols Library

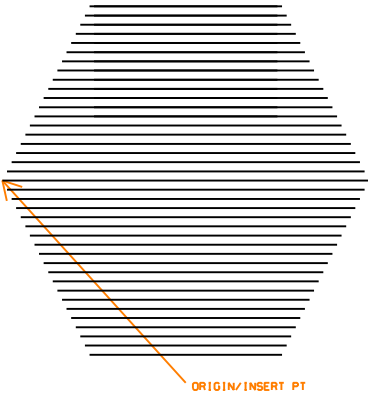
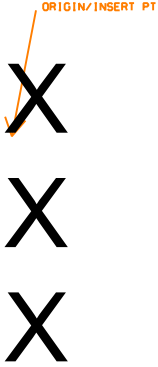
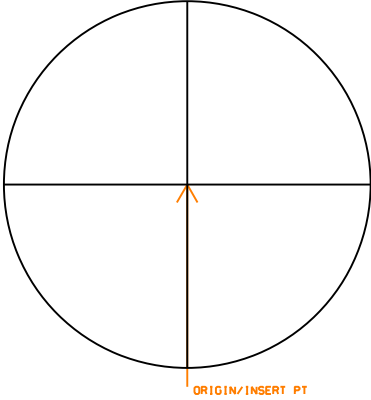
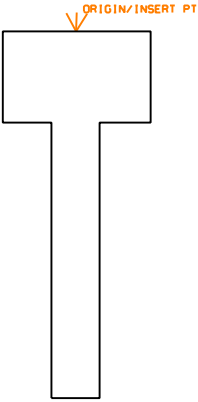
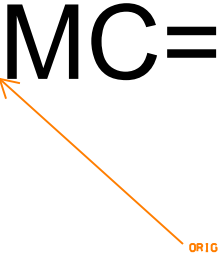
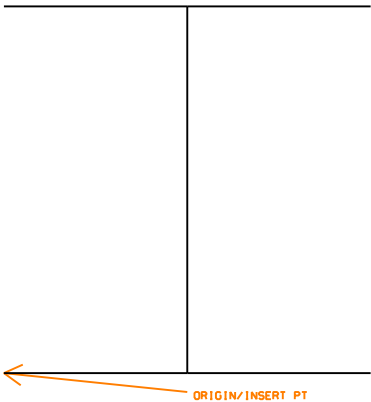
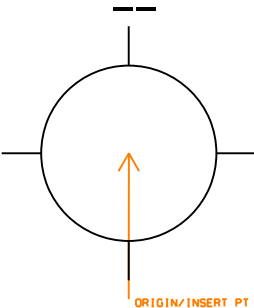
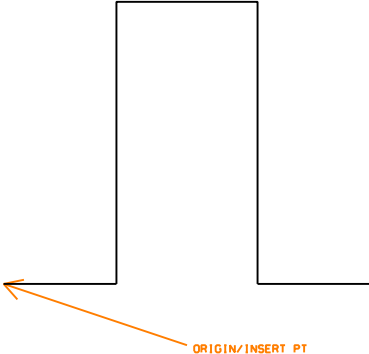


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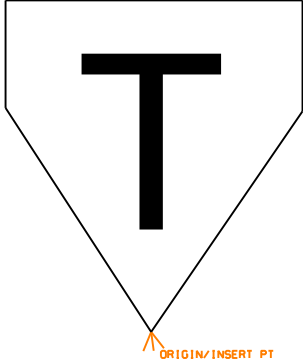
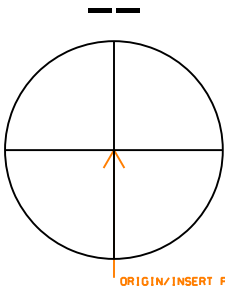
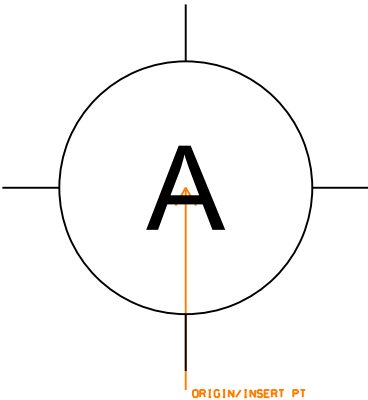

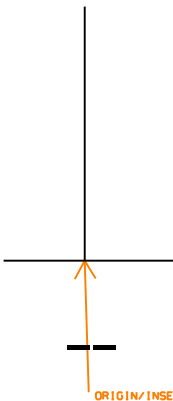
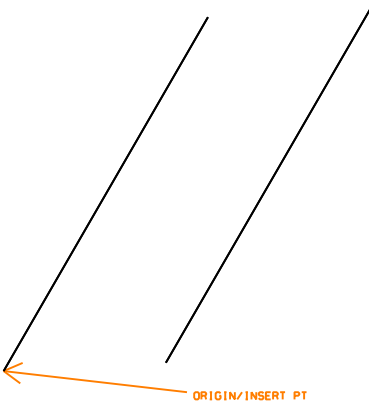
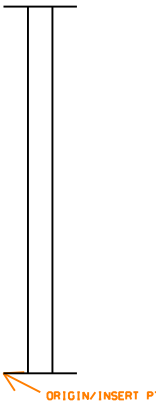
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		<p>89-CC-PA- EL</p>
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<p>Geotechnical: CDRDSH CONSOL DRAINED DIR SHEAR Element type: Symbol</p>	<p>Geotechnical: CONDR CONSOLIDATED DRAINED Element type: Symbol</p>	<p>Geotechnical: CONSOL CONSOLIDATION Element type: Symbol</p>

		
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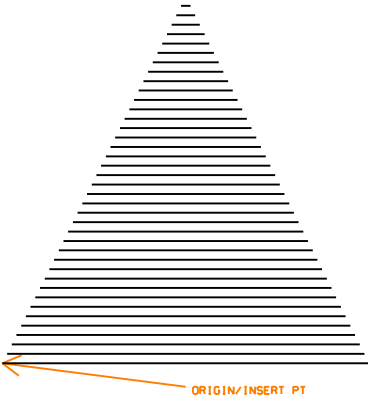
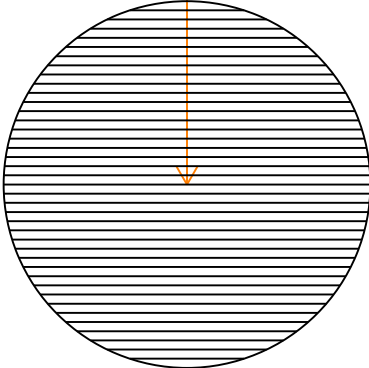
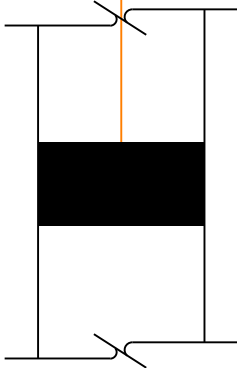
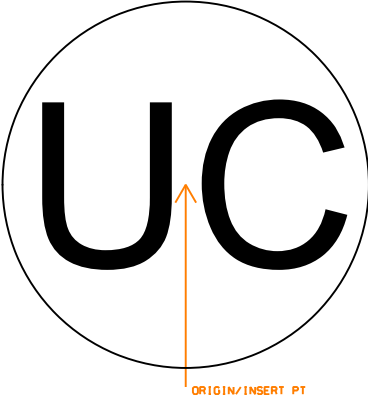
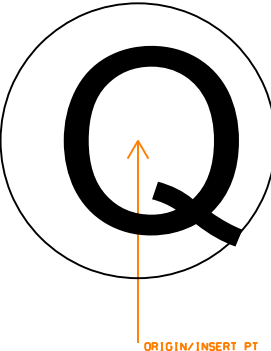
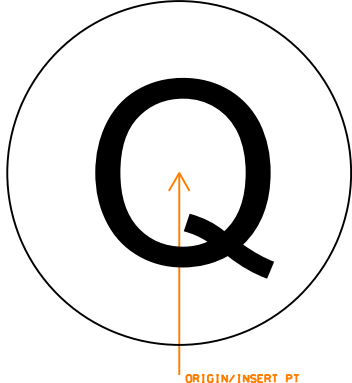
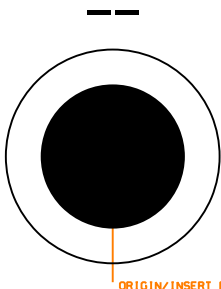
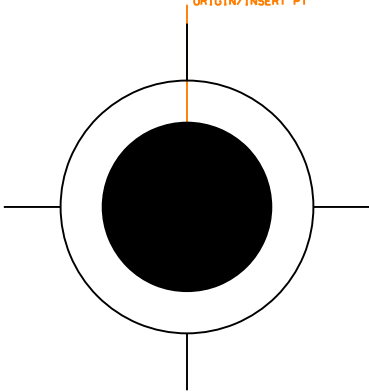
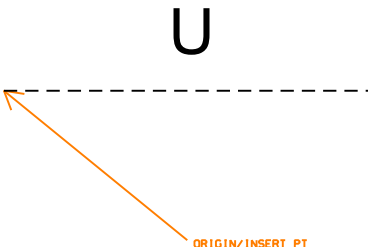
		
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<p>Geotechnical: FBLCK2 FAULT BLOCK MOVEMENT 2 Element type: Symbol</p>	<p>Geotechnical: FDRAIN FOUNDATION DRAIN Element type: Symbol</p>	<p>Geotechnical: HAHNUM HAND AUGER HOLE NUMBER Element type: Symbol</p>
		
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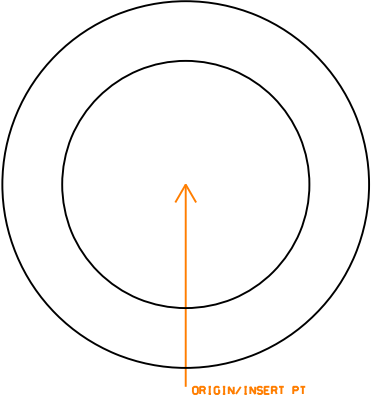
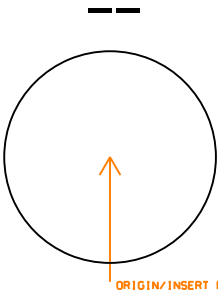


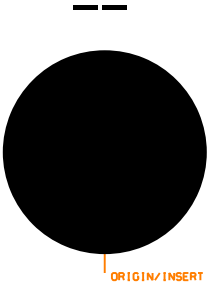


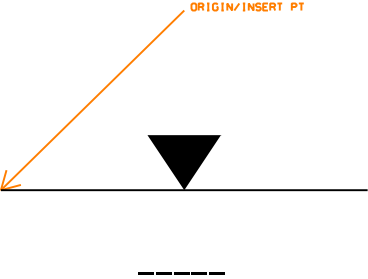
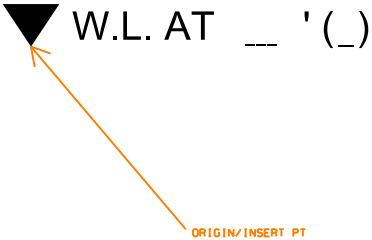
		
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<p>Geotechnical: OBSHOL PIEZOMETER OR OBSERVAT HOLE Element type: Symbol</p>	<p>Geotechnical: OPBLOG OPEN BORING LOG Element type: Symbol</p>	<p>Geotechnical: PAHNUM POWER AUGER HOLE NUMBER Element type: Symbol</p>



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<p>Geotechnical: STKLOG STICKLOG Element type: Symbol</p>	<p>Geotechnical: STRKDP STRIKE DIP Element type: Symbol</p>	<p>Geotechnical: STRKVJ STRIKE OF VERTICAL JOI Element type: Symbol</p>
<p>Geotechnical: STRKVP STRIKE W VERTICAL DIP Element type: Symbol</p>	<p>Geotechnical: SYNCLN SYNCLINE Element type: Symbol</p>	<p>Geotechnical: TPIOB TEST PIT IN OVERBURDEN Element type: Symbol</p>

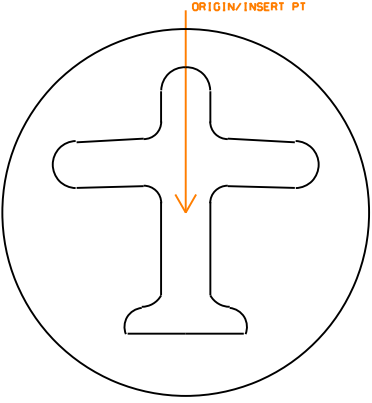
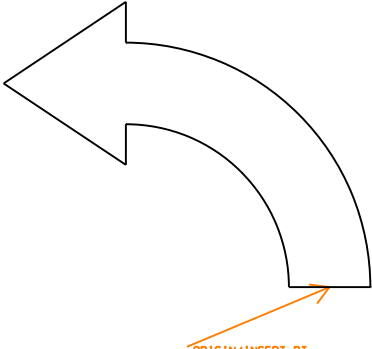
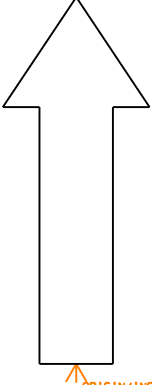
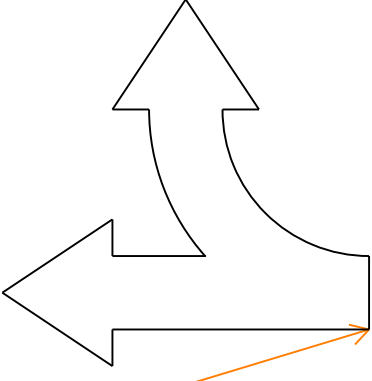
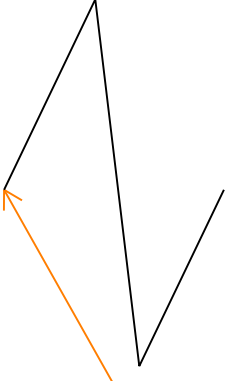
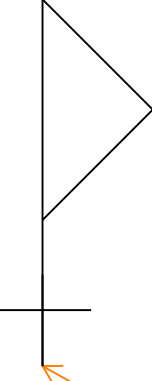
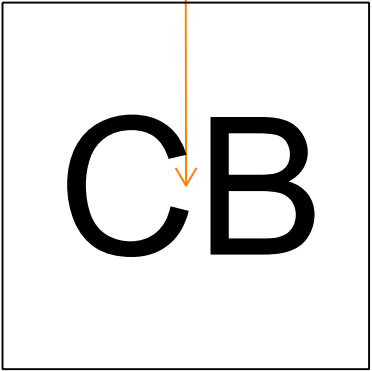
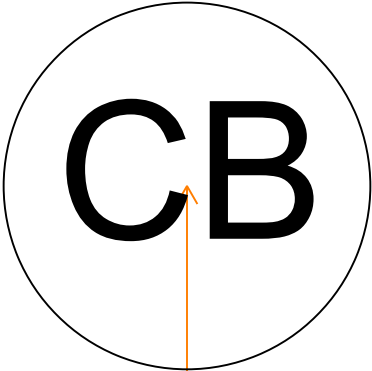
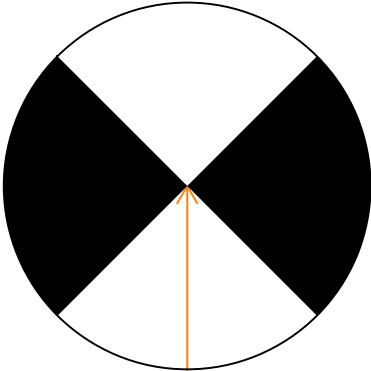
		
<p>Geotechnical: TRIANG TRIANGLE SYMBOL Element type: Symbol</p>	<p>Geotechnical: TSTHOL TEST HOLE SYMBOL Element type: Symbol</p>	<p>Geotechnical: TTIOB TEST TRENCH IN OVERBURDEN Element type: Symbol</p>
		
<p>Geotechnical: UCELL UPLIFT CELL Element type: Symbol</p>	<p>Geotechnical: UCONUD UNCONSOLIDATED UNDRAINED Element type: Symbol</p>	<p>Geotechnical: UCONUT UNCONSOL UNDRND TAXIAL TEST Element type: Symbol</p>
		
<p>Geotechnical: UDENIS UNDISTURBED DENISON OR PUSH Element type: Symbol</p>	<p>Geotechnical: UDUNPZ UNDISTURBED SAMP BORING PIEZOMETER Element type: Symbol</p>	<p>Geotechnical: ULIMIT UNSATISFACTORY LIMIT Element type: Symbol</p>

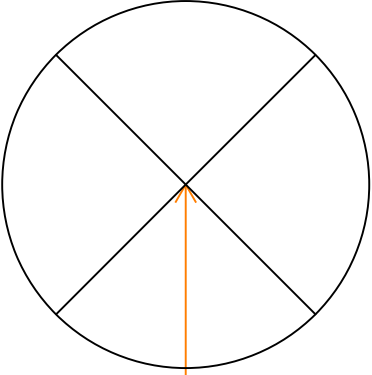
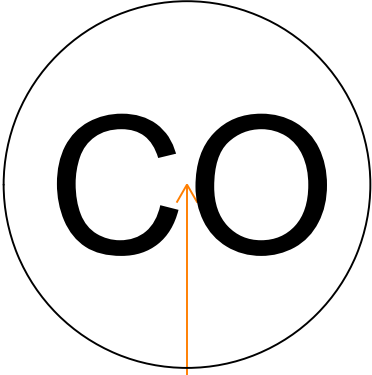
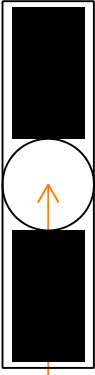
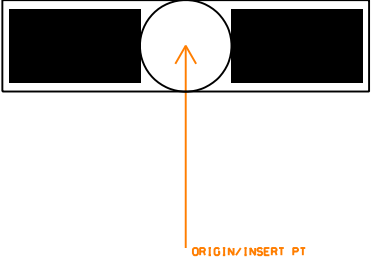
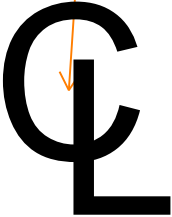
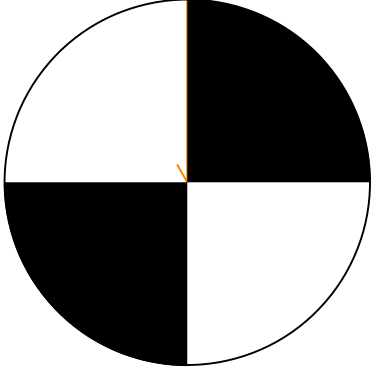
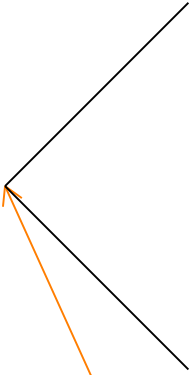
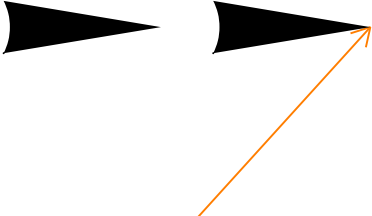
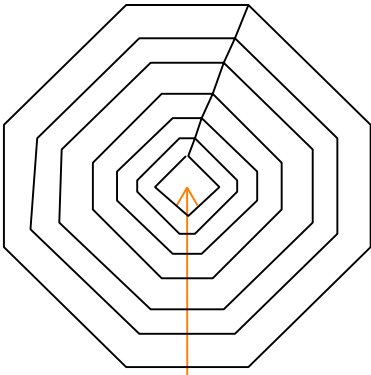
		 
<p>Geotechnical: VCHHPT VERTICAL CORE HOLE HYDR PRESS TESTED Element type: Symbol</p>	<p>Geotechnical: VCHOL VERTICAL CORE HOLE Element type: Symbol</p>	<p>Geotechnical: VHNUM VIBRACORE HOLE NUMBER Element type: Symbol</p>
	 	
<p>Geotechnical: WASHBR WASHBORED Element type: Symbol</p>	<p>Geotechnical: WBHNUM WASH BORING HOLE NUMBER Element type: Symbol</p>	<p>Geotechnical: WLEVDL WATER LEVEL DATA LEFT Element type: Symbol</p>
		
<p>Geotechnical: WTRLEV WATER LEVEL Element type: Symbol</p>		

# 7 Civil Symbols Library

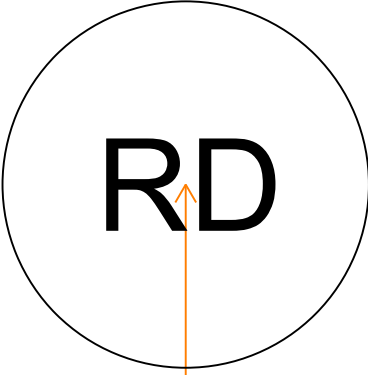
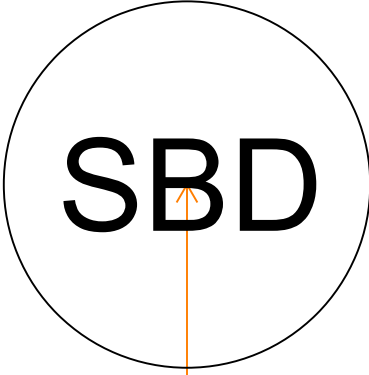
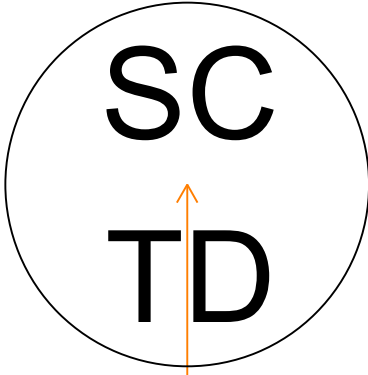
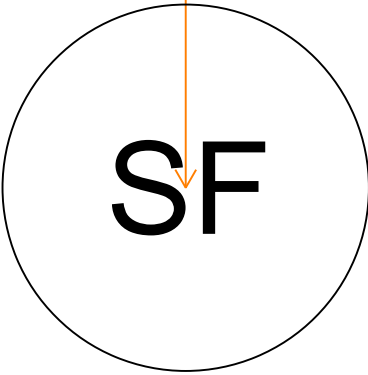
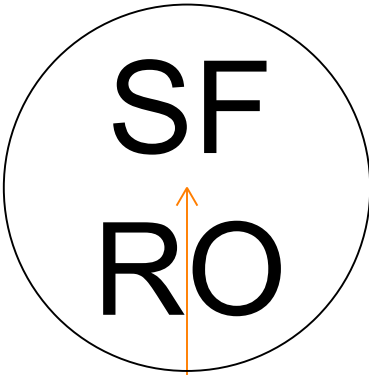
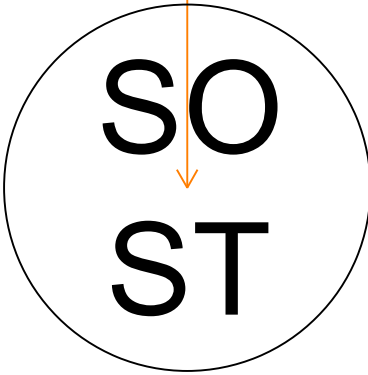
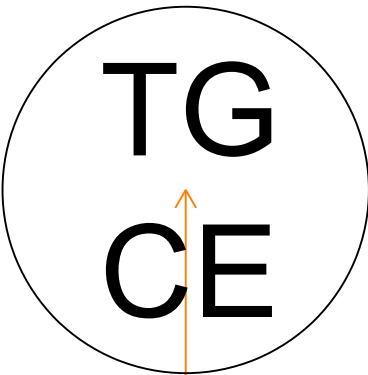
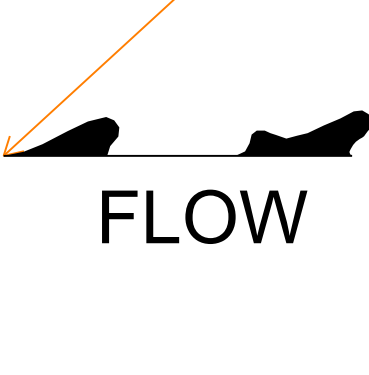
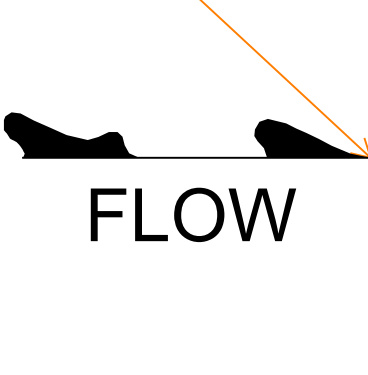
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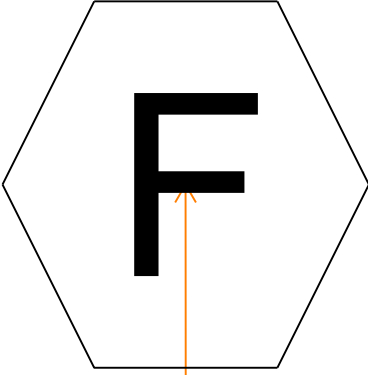
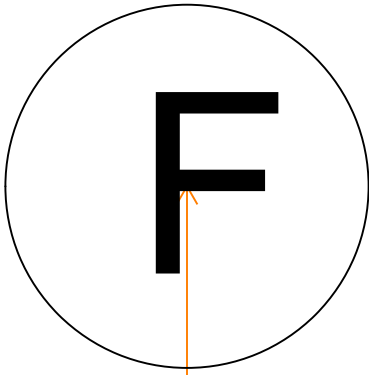
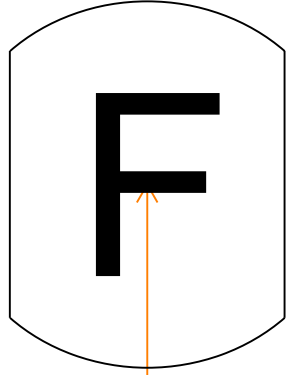
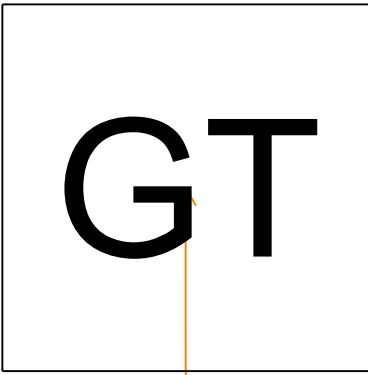
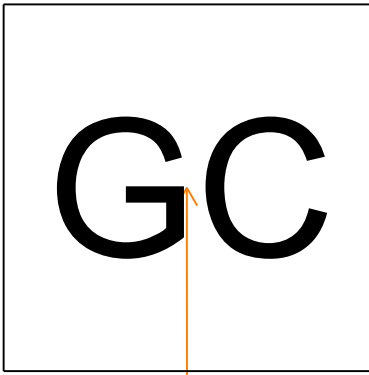
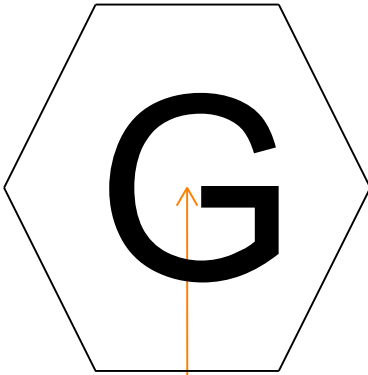
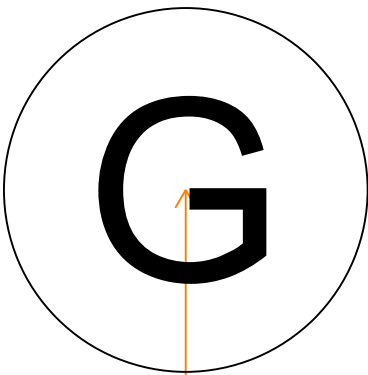

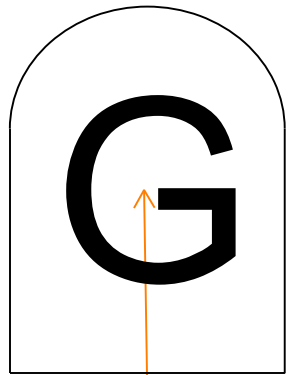
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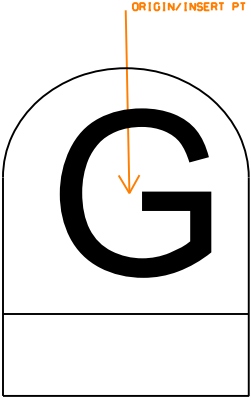
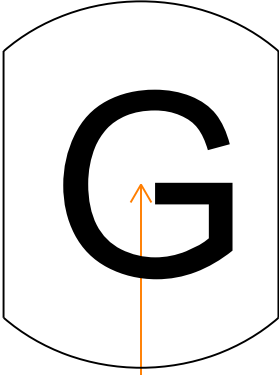
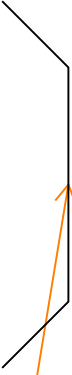
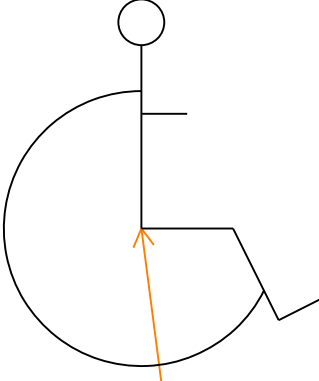
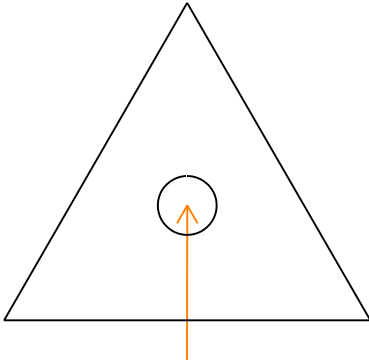
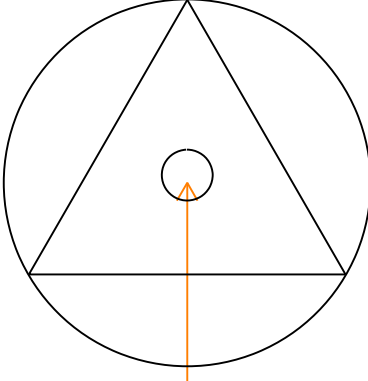
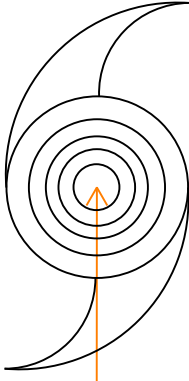
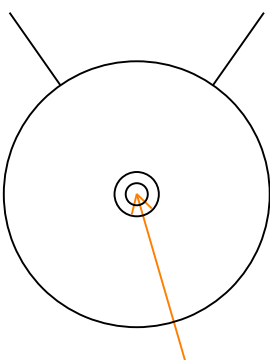
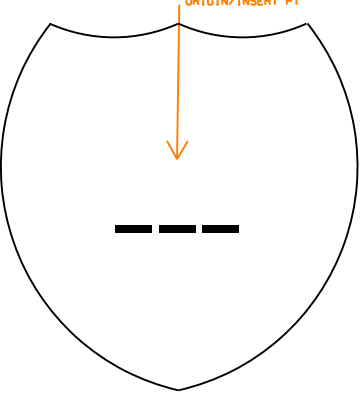
		
<p>Civil: AIRFLD AIRFIELD SYMBOL Element type: Symbol</p>	<p>Civil: ARRPT PARKING TURN ARROW Element type: Symbol</p>	<p>Civil: ARRSD STRAIGHT DIRECTION ARROW Element type: Symbol</p>
		
<p>Civil: ARRST STRAIGHT AND TURN ARROW Element type: Symbol</p>	<p>Civil: BREAK BREAK LINE SYMBOL Element type: Symbol</p>	<p>Civil: BUOY BUOY Element type: Symbol</p>
		
<p>Civil: CATBSN CATCH BASIN Element type: Symbol</p>	<p>Civil: CATBSR ROUND CATCH BASIN Element type: Symbol</p>	<p>Civil: CDHDR CORE DRILL HOLE DRILLED Element type: Symbol</p>

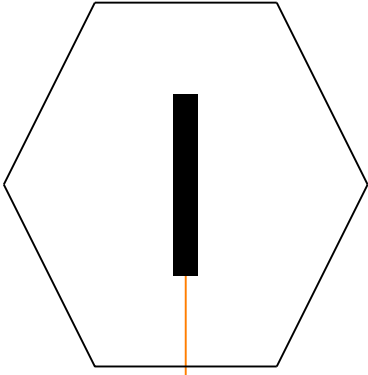
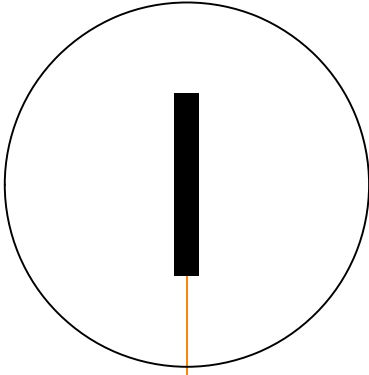
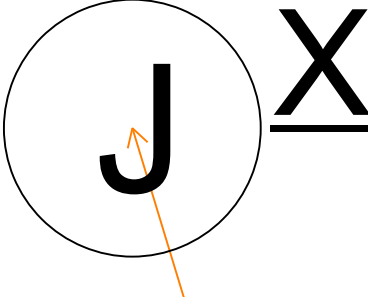
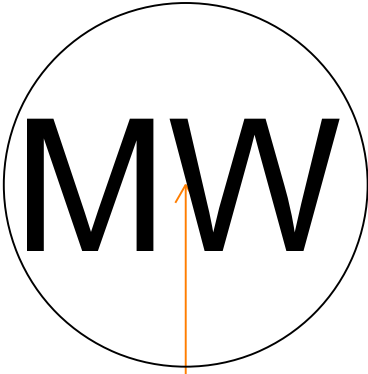
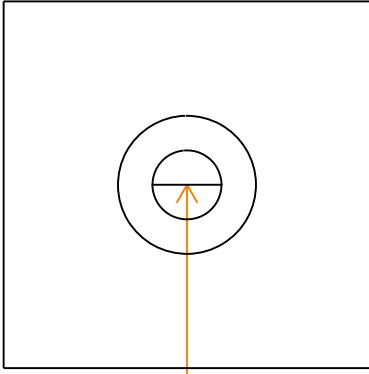
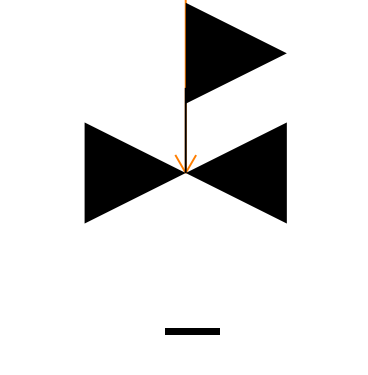
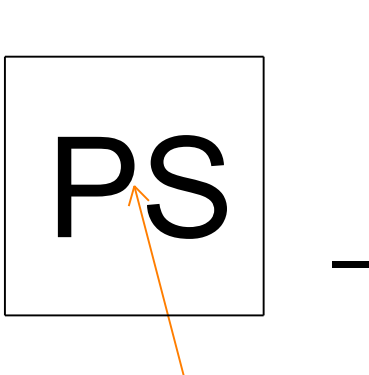
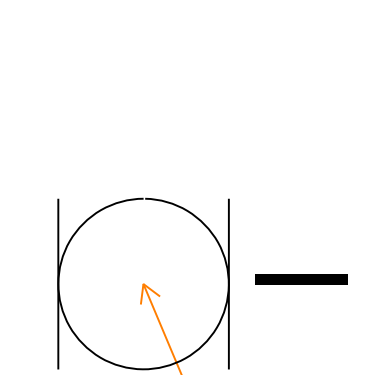
		
<p>Civil: CDHUR CORE DRILL HOLE UNDRILLED Element type: Symbol</p>	<p>Civil: CLNOUT CLEANOUT Element type: Symbol</p>	<p>Civil: CNR90 CORNER SOLID 90 Element type: Symbol</p>
		
<p>Civil: CNRSF CORNER SOLID FLAT Element type: Symbol</p>	<p>Civil: CNTLIN CENTERLINE SYMBOL Element type: Symbol</p>	<p>Civil: COGRAV CENTER OF GRAVITY SYMBOL Element type: Symbol</p>
		
<p>Civil: CULVEE CULVERT END SYMBOL Element type: Symbol</p>	<p>Civil: DBLARR DOUBLE ARROW TERMINATOR Element type: Symbol</p>	<p>Civil: DRLHOL DRILL HOLE Element type: Symbol</p>

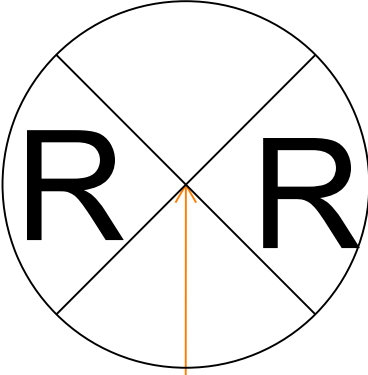
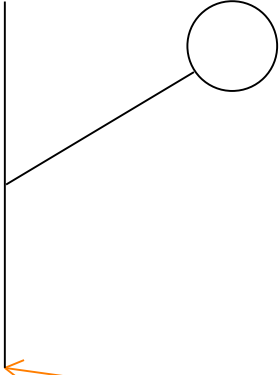
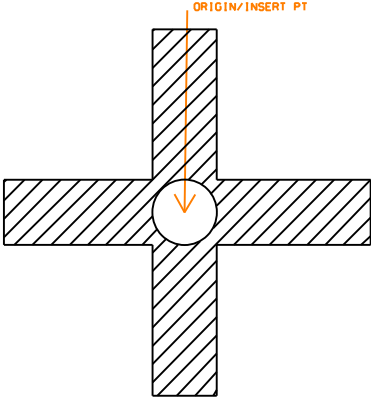
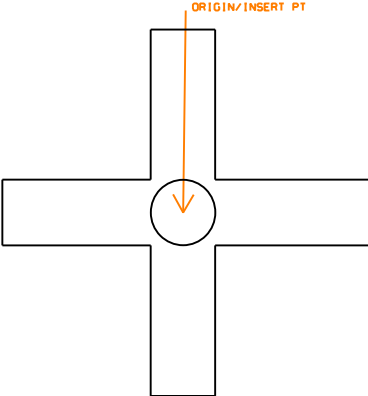
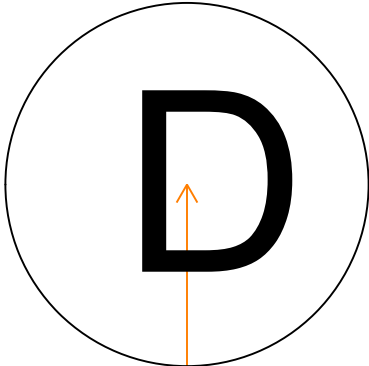
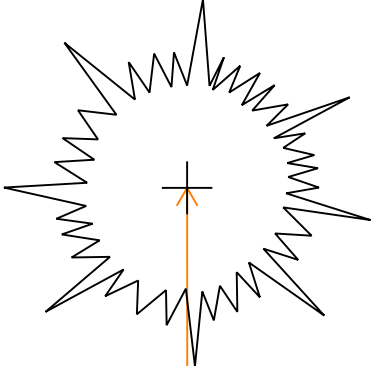
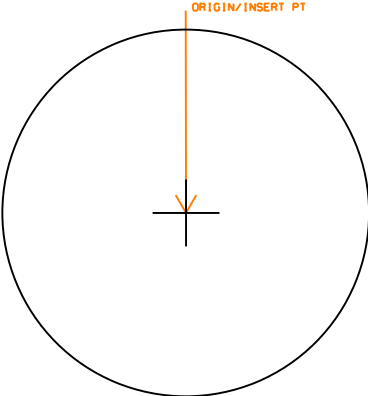
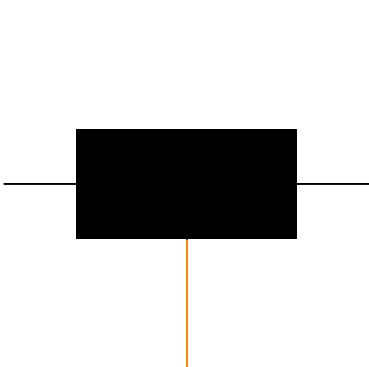
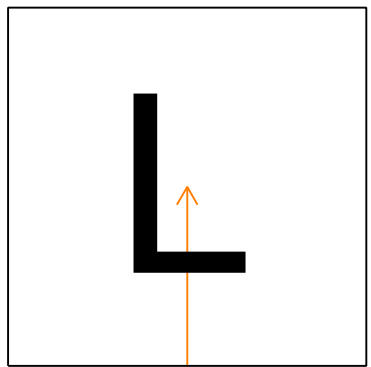


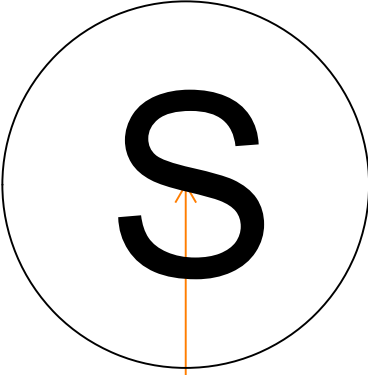
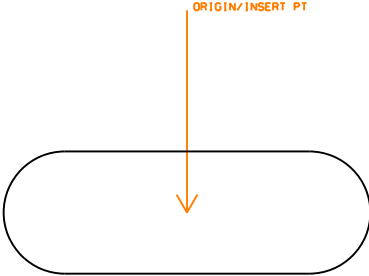
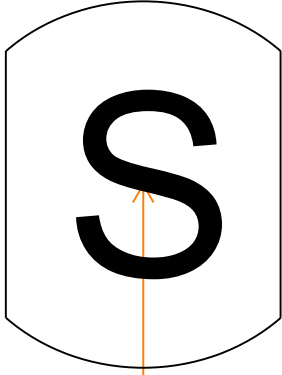
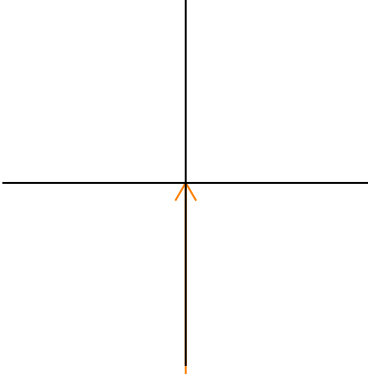
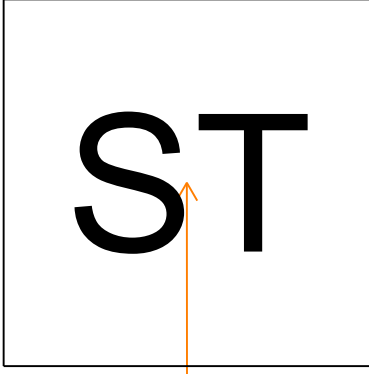
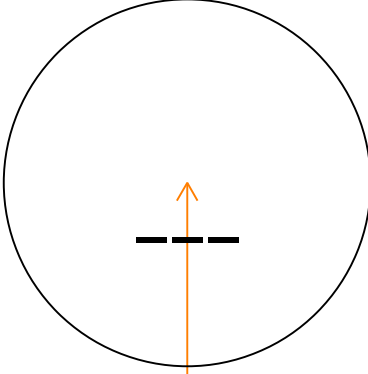
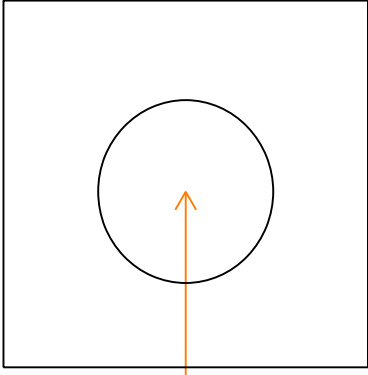
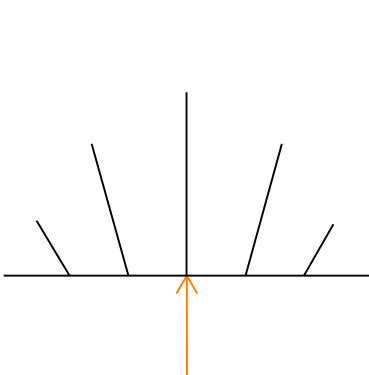
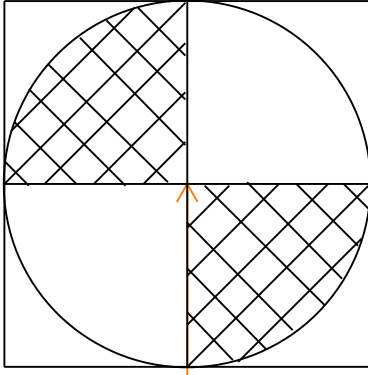
		
<p>Civil: ECRD ROCK DAM SEDIMENT TRAP Element type: Symbol</p>	<p>Civil: ERSBD STRAW BALE DAM Element type: Symbol</p>	<p>Civil: ERSCTD SEDIMENT CTRL TMPRY DIVRSION Element type: Symbol</p>
		
<p>Civil: ERSF SILT FENCE Element type: Symbol</p>	<p>Civil: ERSFRO SILT FENCE ROCK OVERFLOW Element type: Symbol</p>	<p>Civil: ERSOST STONE OUTLET SEDIMENT TRAP Element type: Symbol</p>
		
<p>Civil: ERTGCE CONSTRUCTION ENTRANCE EXIT Element type: Symbol</p>	<p>Civil: FLARRL FLOW ARROW LEFT IN 0 POINT Element type: Symbol</p>	<p>Civil: FLARRR FLOW ARROW RIGHT IN 0 POINT Element type: Symbol</p>

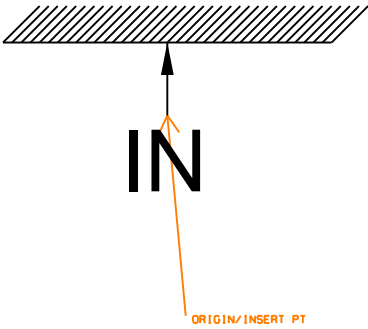
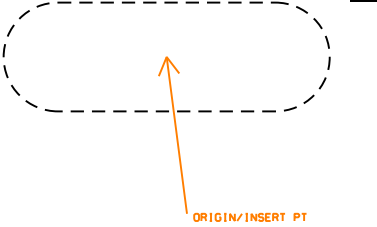
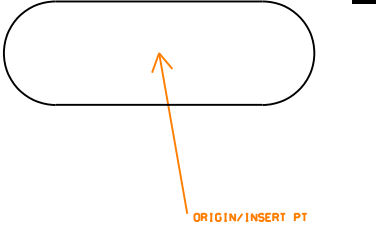
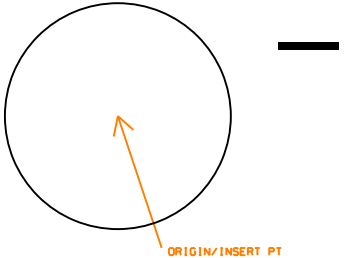
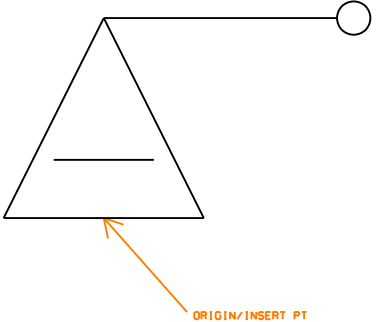
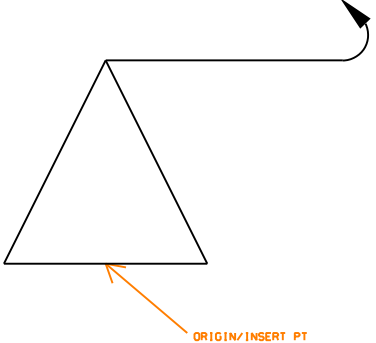
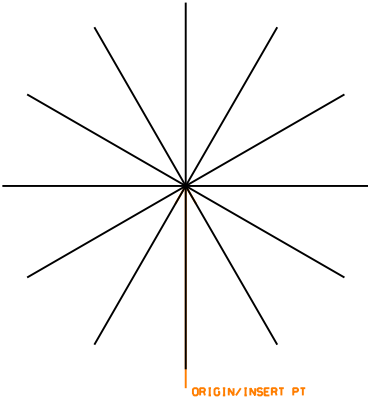
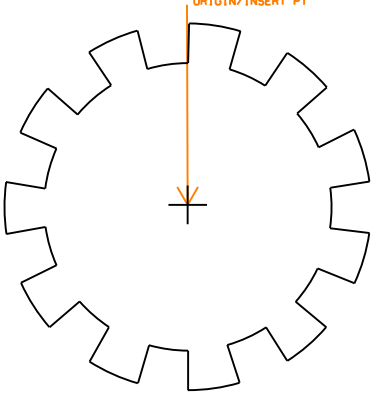
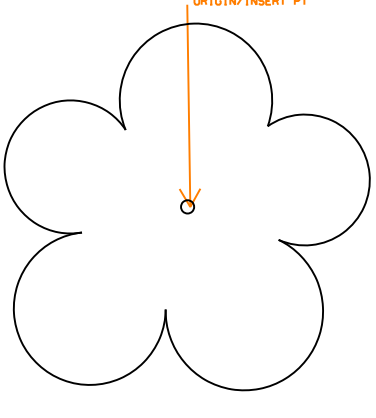
		
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<p>Civil: GREASE GREASE TRAP Element type: Symbol</p>	<p>Civil: GRITCH GRIT CHAMBER Element type: Symbol</p>	<p>Civil: GSMETR NATURAL GAS METER Element type: Symbol</p>
		
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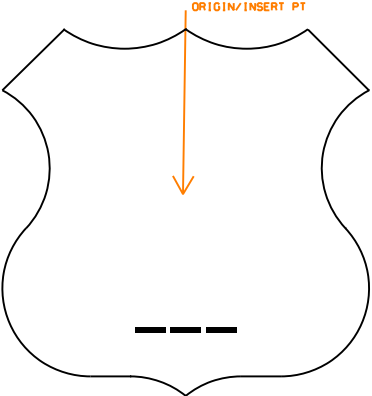
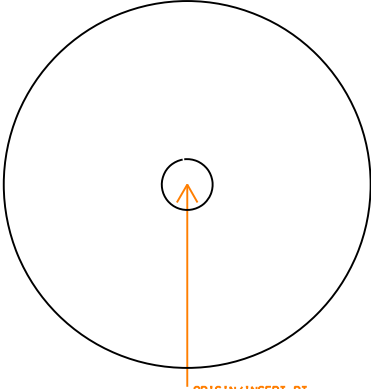
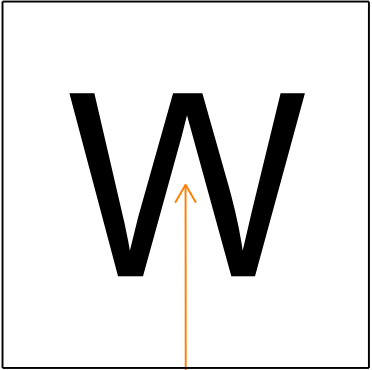
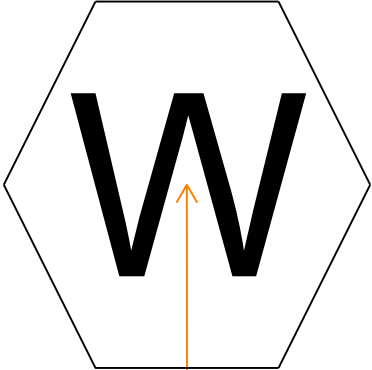
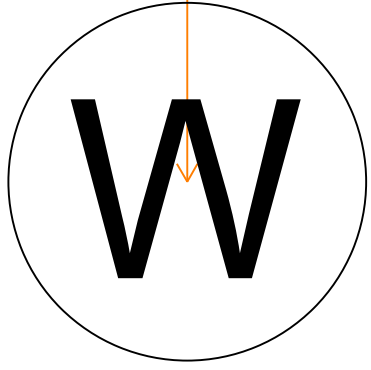

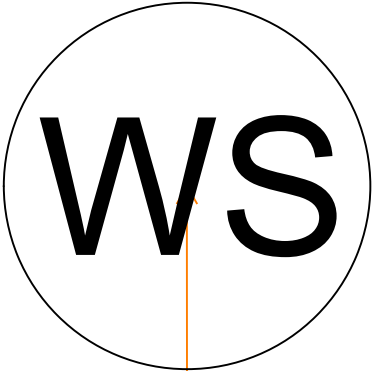
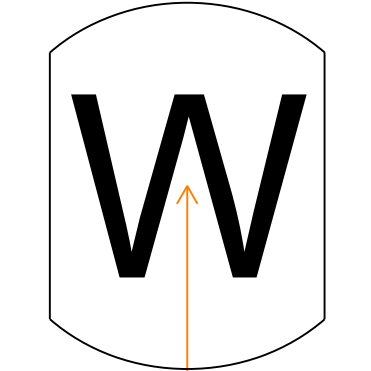
		
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<p>Civil: HNDCAP HANDICAP CHAIR SYMBOL Element type: Symbol</p>	<p>Civil: HORCPT HORIZONTAL CONTROL PT Element type: Symbol</p>	<p>Civil: HOVCPT HORIZ VERT CONTROL PT Element type: Symbol</p>
		
<p>Civil: HUREYE HURRICANE EYE Element type: Symbol</p>	<p>Civil: HYDRNT FIRE HYDRANT Element type: Symbol</p>	<p>Civil: INSHWY INTERSTATE HIGHWAY SYMBOL Element type: Symbol</p>

		
<p>Civil: IWMETR INDUSTRIAL WASTE WATER METER Element type: Symbol</p>	<p>Civil: IWMHOL INDUSTRIAL WASTE WATER MANHOLE Element type: Symbol</p>	<p>Civil: JNBX EXTERIOR UTIL JUNCTION BOX Element type: Symbol</p>
		<p style="text-align: right;">ORIGIN/INSERT PT</p> <p>P.I. = _____  P.C. = _____  P.T. = _____  Δ = _____  D = _____  R = _____  T = _____  L = _____</p>
<p>Civil: MONWEL MONITORING WELL Element type: Symbol</p>	<p>Civil: PHOCPT PHOTO CONTROL POINT Element type: Symbol</p>	<p>Civil: PIINFO PI INFORMATION Element type: Symbol</p>
		
<p>Civil: PIVALV POST INDICATOR VALVE Element type: Symbol</p>	<p>Civil: PMPSTA PUMP STATION Element type: Symbol</p>	<p>Civil: RGVALV REGULATOR VALVE Element type: Symbol</p>

		
<p>Civil: RRSIGN RAIL SIGNAL Element type: Symbol</p>	<p>Civil: RRSWTC RAIL SWITCH Element type: Symbol</p>	<p>Civil: SCNRH SECTION CORNER HATCHED Element type: Symbol</p>
		
<p>Civil: SCNRO SECTION CORNER OPEN Element type: Symbol</p>	<p>Civil: SDMHOL STORM DRAINAGE MANHOLE Element type: Symbol</p>	<p>Civil: SHRUBC CONIFEROUS SHRUB Element type: Symbol</p>
		
<p>Civil: SHRUBD DECIDUOUS SHRUB Element type: Symbol</p>	<p>Civil: SIGN SIGN Element type: Symbol</p>	<p>Civil: SNLIFT SANITARY SEWER LIFT STATION Element type: Symbol</p>

		
<p>Civil: SNMHOL SANITARY MANHOLE Element type: Symbol</p>	<p>Civil: SNPVSL SANITARY PRESSURE VESSEL Element type: Symbol</p>	<p>Civil: SNVALT SANITARY VALVE VAULT Element type: Symbol</p>
		
<p>Civil: SPOTEL GROUND SPOT ELEVATION Element type: Symbol</p>	<p>Civil: SPTANK SEPTIC TANK Element type: Symbol</p>	<p>Civil: STHWY STATE HIGHWAY SYMBOL Element type: Symbol</p>
		
<p>Civil: STMPIT STEAM PIT Element type: Symbol</p>	<p>Civil: SWAMP SWAMP Element type: Symbol</p>	<p>Civil: TIDEG TIDE GAGE Element type: Symbol</p>

		
<p>Civil: TIRETR TIRE TREDDLE Element type: Symbol</p>	<p>Civil: TNKBG TANK BELOW GROUND Element type: Symbol</p>	<p>Civil: TNKHAG TANK HORIZ ABOVE GROUND Element type: Symbol</p>
		
<p>Civil: TNKVAG TANK VERTICAL ABOVE GROUND Element type: Symbol</p>	<p>Civil: TRACR TRAFFIC ARM WTH CARD READER Element type: Symbol</p>	<p>Civil: TRAMS TRAFFIC ARM MECHANCL SWING Element type: Symbol</p>
		
<p>Civil: TREEC CONIFEROUS TREE Element type: Symbol</p>	<p>Civil: TREED DECIDUOUS TREE Element type: Symbol</p>	<p>Civil: TREEG GENERIC TREE Element type: Symbol</p>

	<p>----- V.C.  P.I.STA. -----  EL. -----  M= -----  ORIGIN/INSERT PT</p>	
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<p>Civil: WAHHOL  WATER HANDHOLE  Element type: Symbol</p>	<p>Civil: WAMETR  WATER METER  Element type: Symbol</p>	<p>Civil: WAMHOL  WATER MANHOLE  Element type: Symbol</p>
		
<p>Civil: WAPLNT  WATER PLANT  Element type: Symbol</p>	<p>Civil: WASOFT  WATER SOFTENER  Element type: Symbol</p>	<p>Civil: WAVALT  WATER VALVE VAULT  Element type: Symbol</p>



# 8 Landscape Symbols Library

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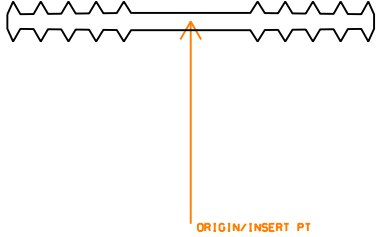
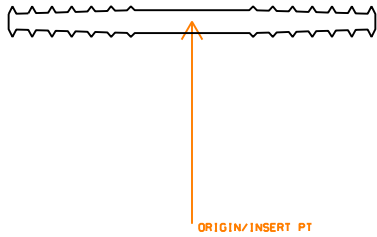
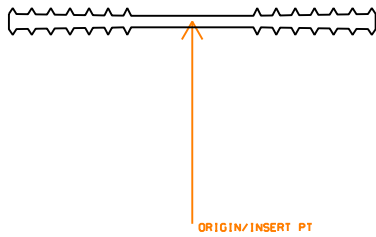
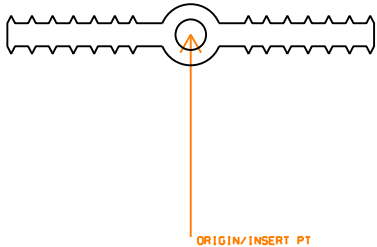
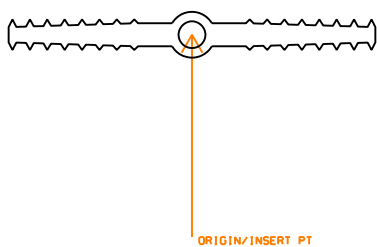
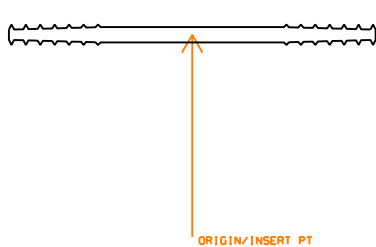
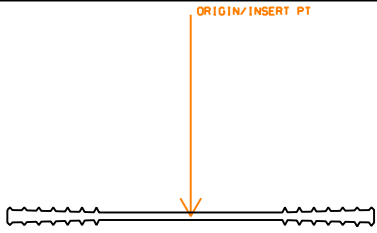
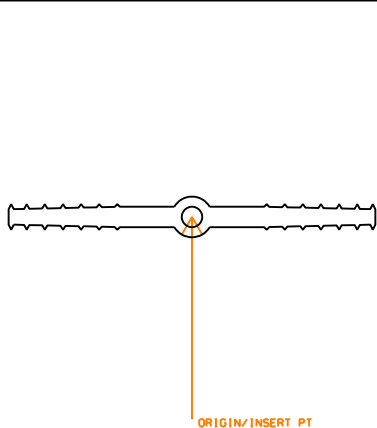
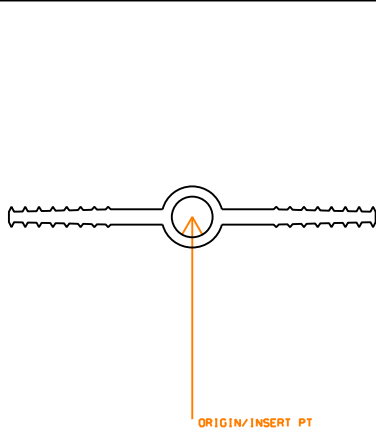
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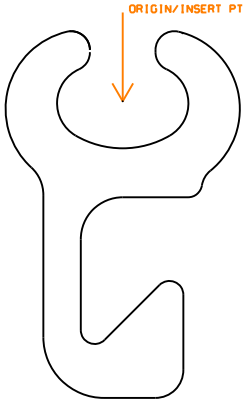
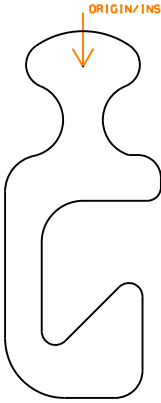
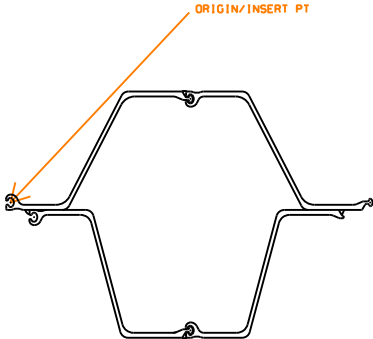
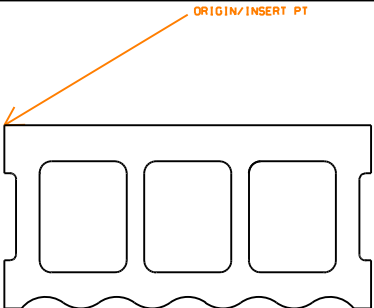
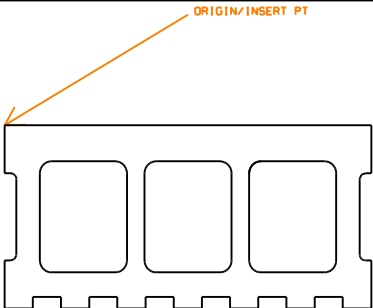
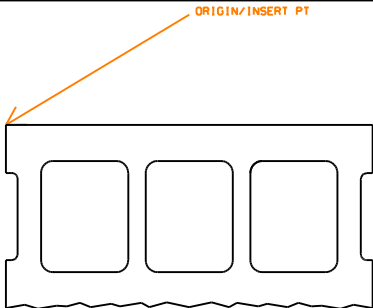
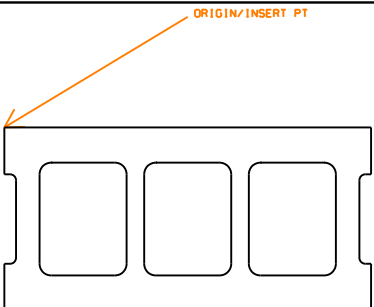
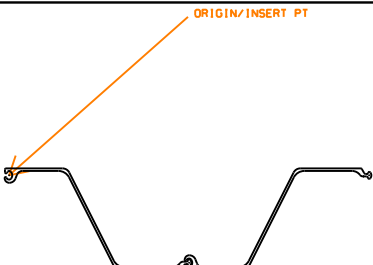
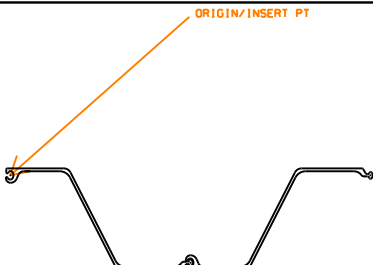
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# 9 Structural Objects Library

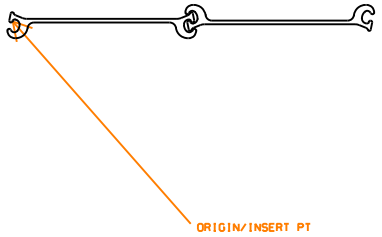
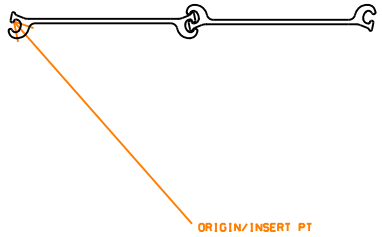
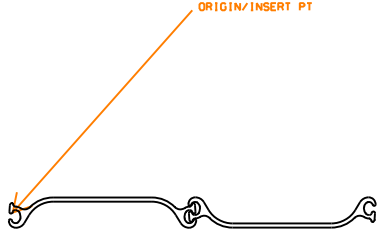
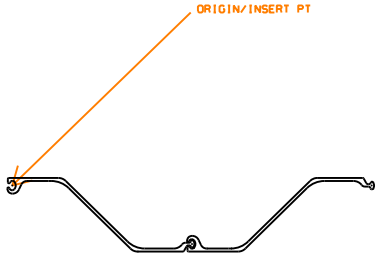
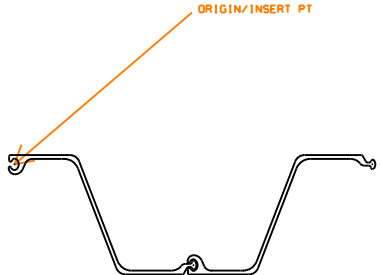
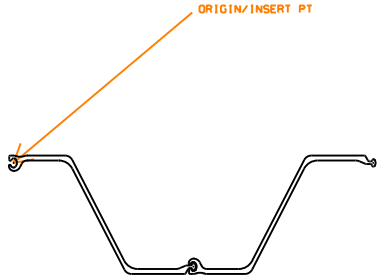
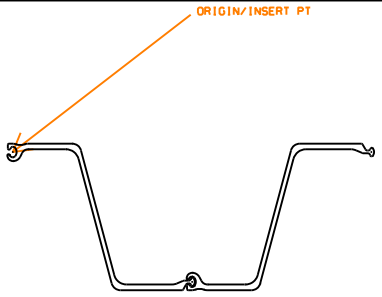
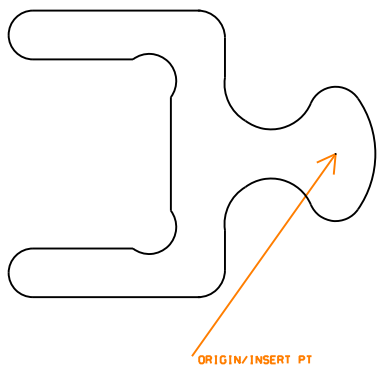
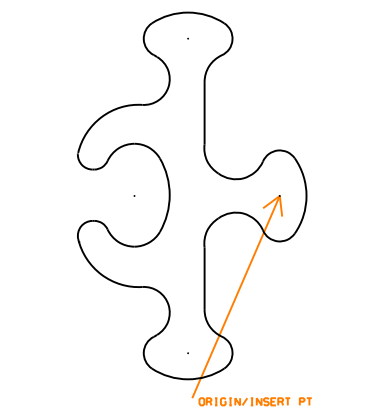
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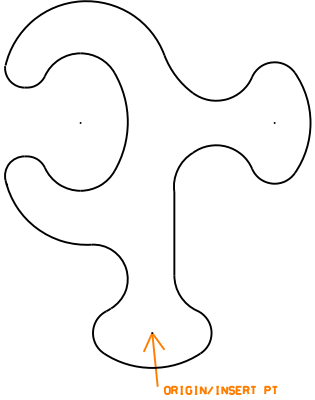
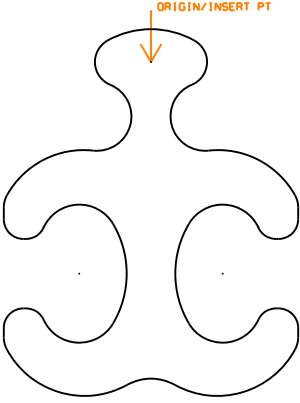
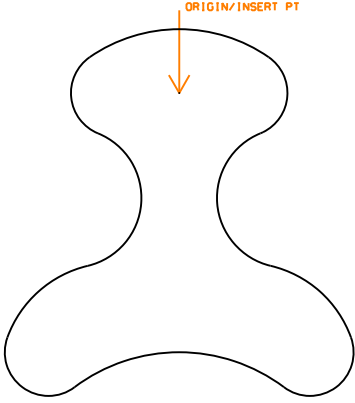
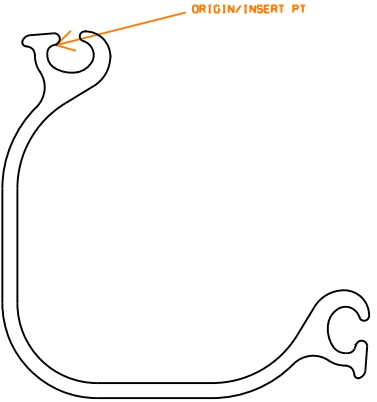
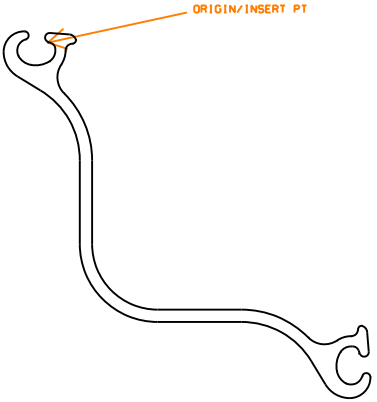
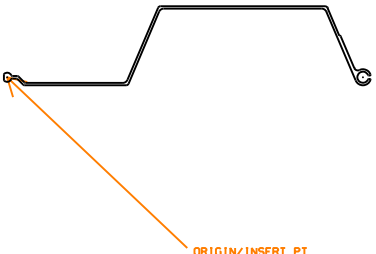
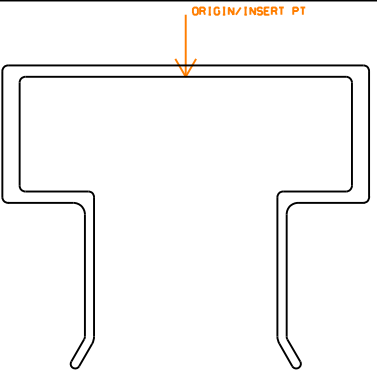
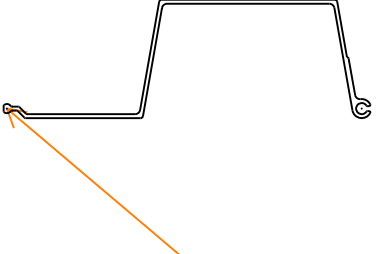
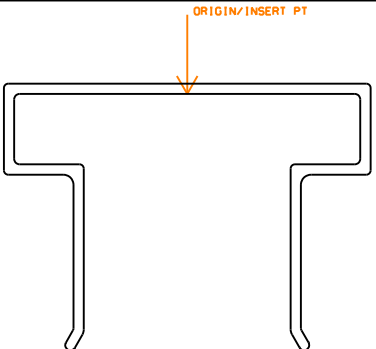
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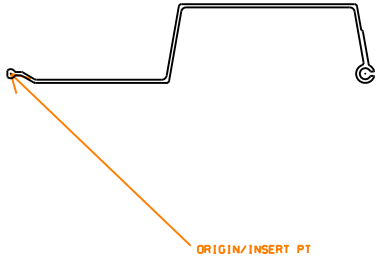
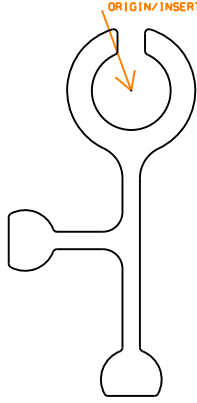
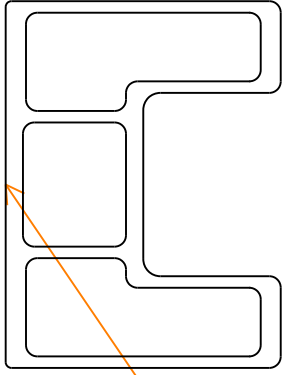
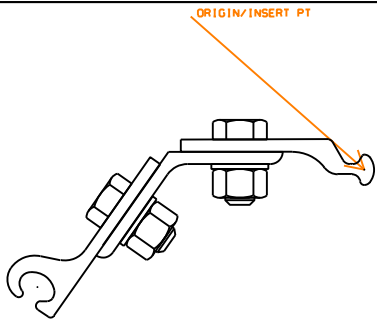
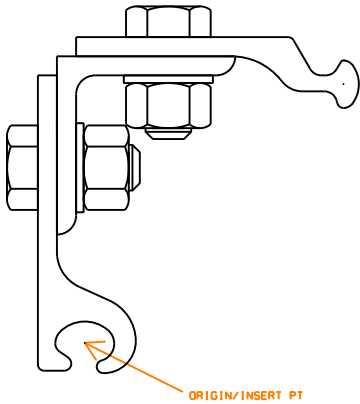
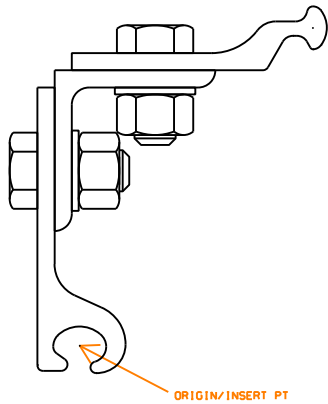
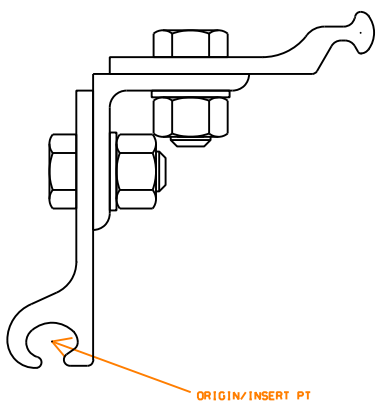
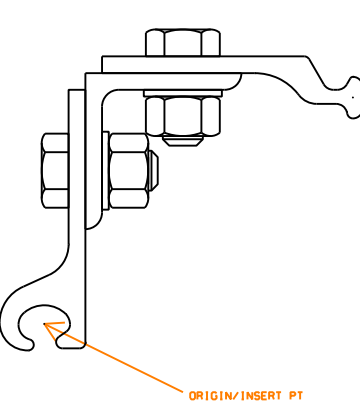
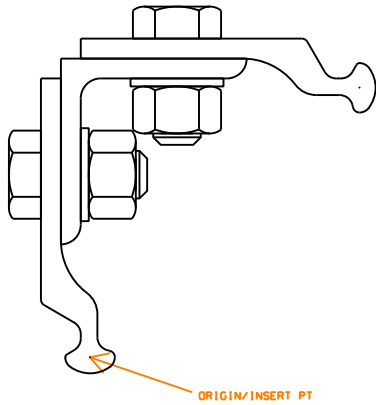
		
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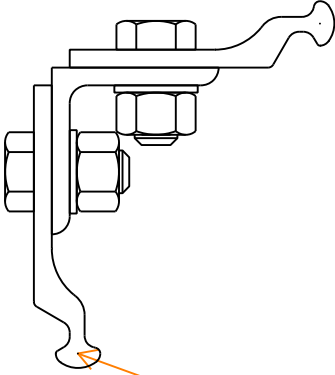
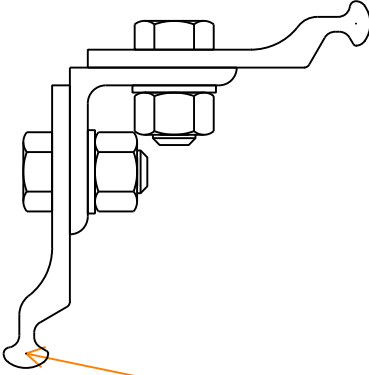
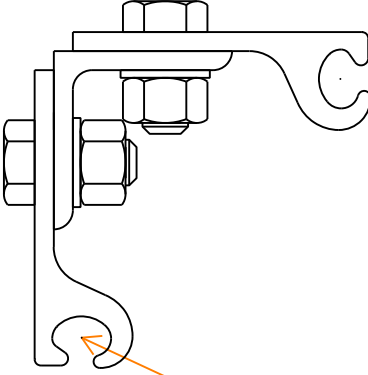
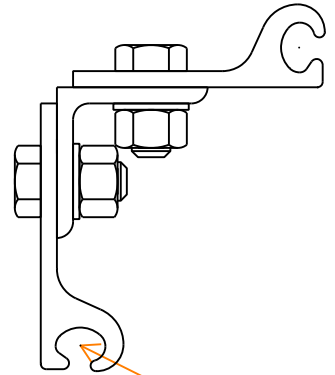
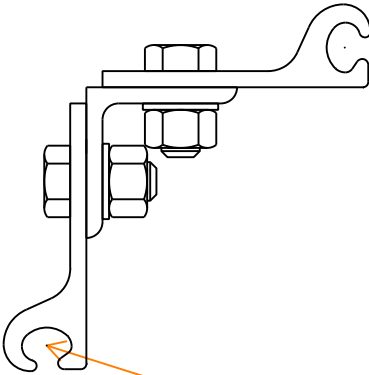
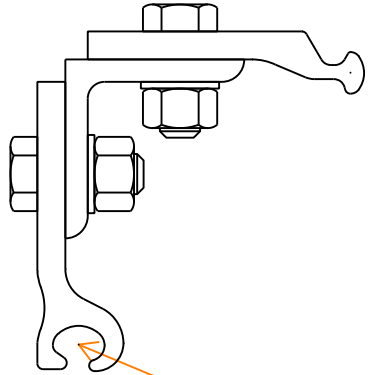
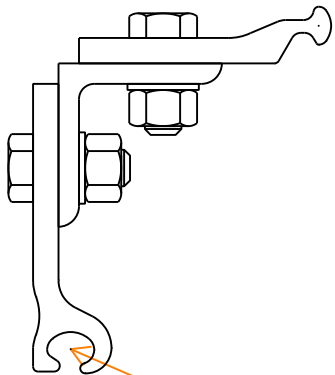
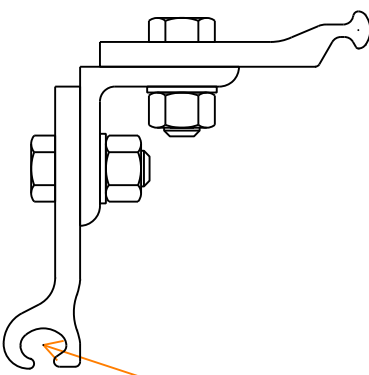
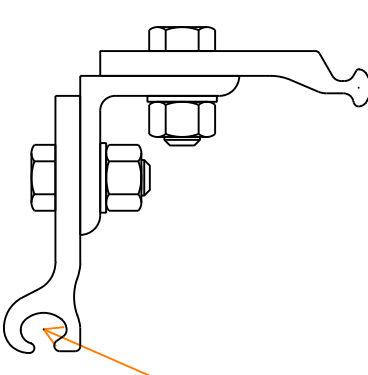
 <p>Diagram showing the cross-section of a Foster Conn AZ LBF. It features a U-shaped top with a central opening and a vertical stem with a diagonal cutout. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top center of the U-shape.</p>	 <p>Diagram showing the cross-section of a Foster Conn AZ LBM. It has a similar U-shaped top and vertical stem as the AZLBF, but with a different internal profile. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top center of the U-shape.</p>	 <p>Diagram showing the cross-section of a BOX pile. It is a hexagonal shape with a central opening and small circular details at the corners. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>
<p>Structural: AZLBF FOSTER CONN AZ LBF Element type: Object</p>	<p>Structural: AZLBM FOSTER CONN AZ LBM Element type: Object</p>	<p>Structural: BOX BOX PILE Element type: Object</p>
 <p>Diagram showing the cross-section of a Fluted Conc Blk 8x8x16. It is a rectangular block with three vertical rectangular openings and a wavy bottom edge. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>	 <p>Diagram showing the cross-section of a Ribbed Conc Blk 8x8x16. It is a rectangular block with three vertical rectangular openings and a stepped bottom edge. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>	 <p>Diagram showing the cross-section of a Split Face Conc Blk 8x8x16. It is a rectangular block with three vertical rectangular openings and a wavy bottom edge. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>
<p>Structural: CMUFL FLUTED CONC BLK 8X8X16 Element type: Object</p>	<p>Structural: CMURIB RIBBED CONC BLK 8X8X16 Element type: Object</p>	<p>Structural: CMUSF SPLIT FACE CONC BLK 8X8X16 Element type: Object</p>
 <p>Diagram showing the cross-section of a Conc Block 8x8x16 Str. It is a rectangular block with three vertical rectangular openings. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>	 <p>Diagram showing the cross-section of PLZ23 Sheet Piling. It is a U-shaped profile with a flat bottom and sloped sides. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>	 <p>Diagram showing the cross-section of PLZ25 Sheet Piling. It is a U-shaped profile with a flat bottom and sloped sides, similar to PLZ23 but with a different internal detail. An orange arrow labeled 'ORIGIN/INSERT PT' points to the top-left corner.</p>
<p>Structural: CMUSTR CONC BLOCK 8X8X16 STR. Element type: Object</p>	<p>Structural: PLZ23 PLZ23 SHEET PILING Element type: Object</p>	<p>Structural: PLZ25 PLZ25 SHEET PILING Element type: Object</p>

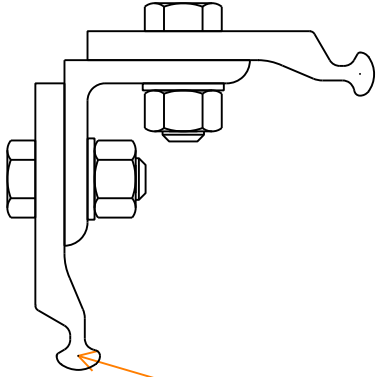
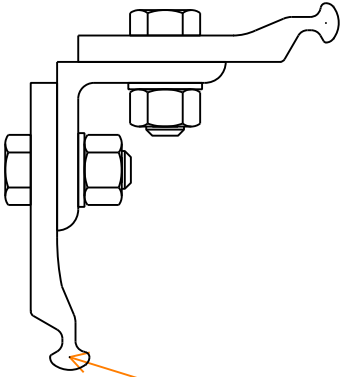
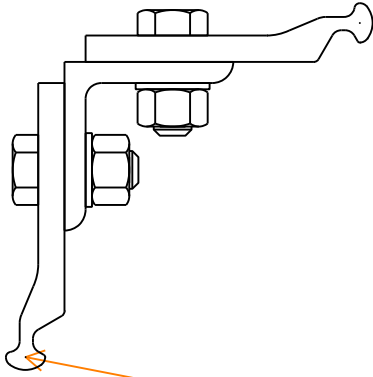
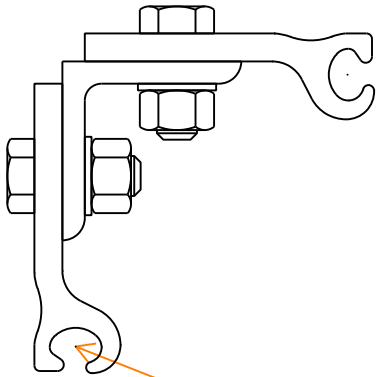
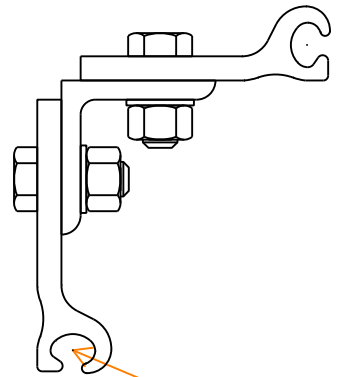
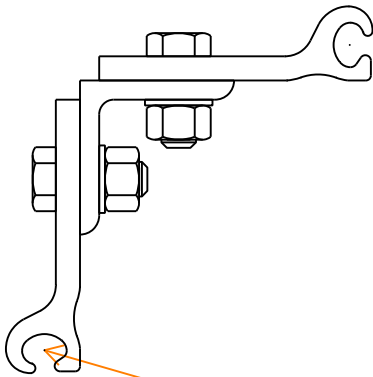
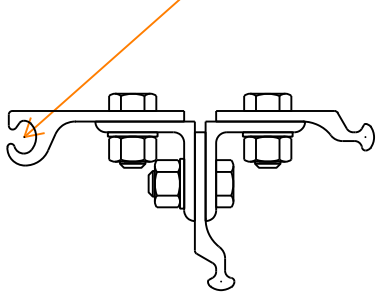
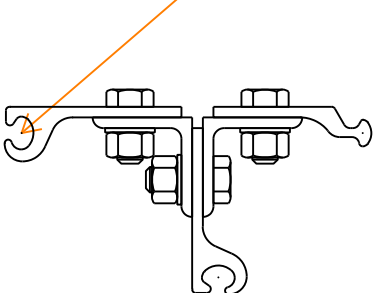
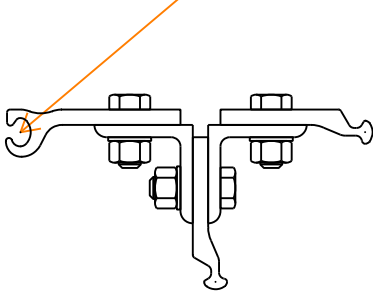


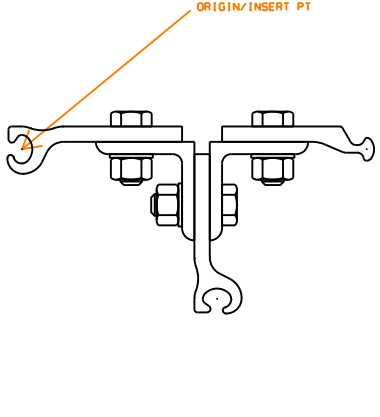
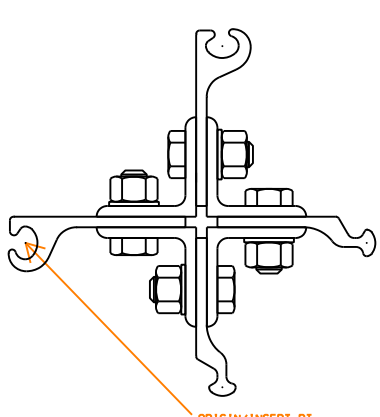
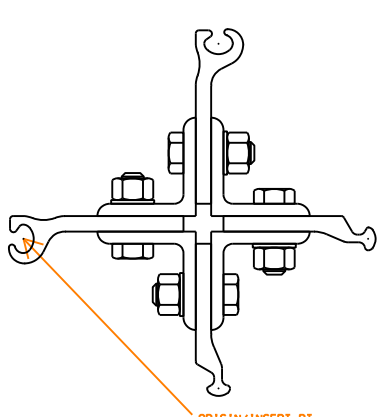
		
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<p>Structural: PZ40 PZ40 SHEET PILE Element type: Object</p>	<p>Structural: PZBBSM FOSTER CONN HPILE Element type: Object</p>	<p>Structural: PZBULL FOSTER CONN BULLHEAD Element type: Object</p>

		
<p>Structural: PZCBM FOSTER CONN CBM Element type: Object</p>	<p>Structural: PZJOKR FOSTER CONN JOKER Element type: Object</p>	<p>Structural: PZWOM FOSTER CONN PZ WOM Element type: Object</p>
		
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<p>Structural: SS805 FOSTER CAP 1550 1540 Element type: Object</p>	<p>Structural: SS806 FOSTER SUPERLOC 1560 Element type: Object</p>	<p>Structural: SS807 FOSTER 1560 CAP Element type: Object</p>

		
<p>Structural: SS808 FOSTER SUPERLOC 1550 Element type: Object</p>	<p>Structural: SS809 FOSTER 180 90 CONNECTOR Element type: Object</p>	<p>Structural: SS810 FOSTER SUPERWALE Element type: Object</p>
		
<p>Structural: ZB_27 FOSTER ANGLE FAB CORNER Element type: Object</p>	<p>Structural: ZC270 PZ22 PZ27 L CONNECTION Element type: Object</p>	<p>Structural: ZC271 PZ22 PZ27 L CONNECTION Element type: Object</p>
		
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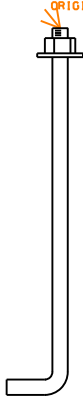
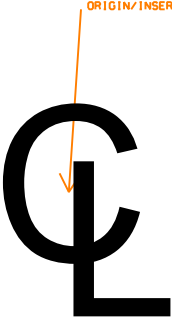
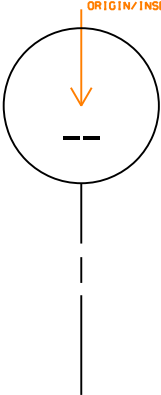
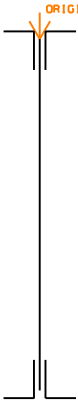
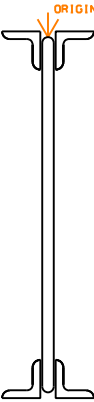
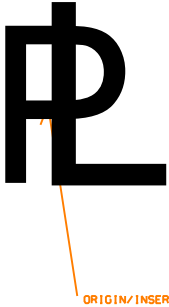
		
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# 9 Structural Symbols Library

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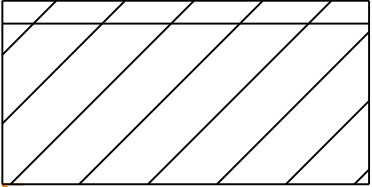
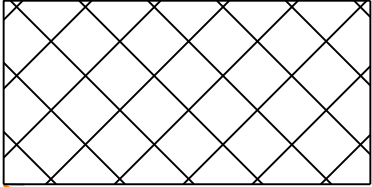
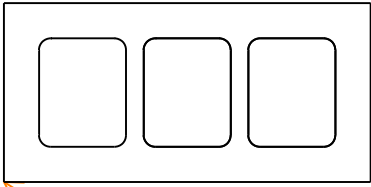
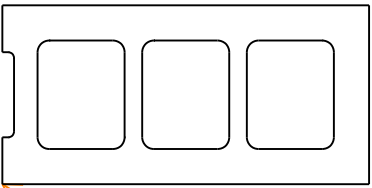
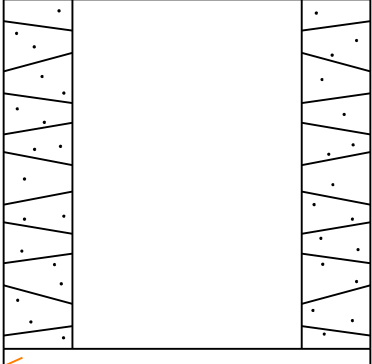
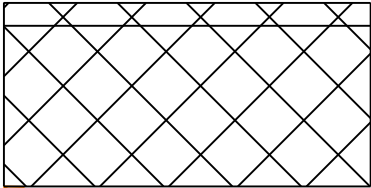
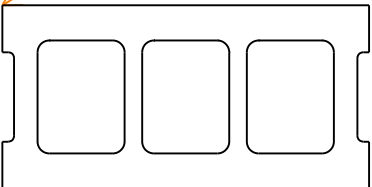
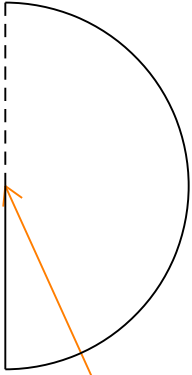
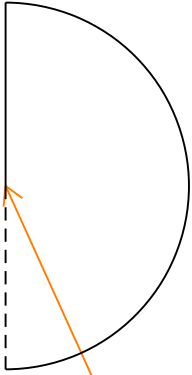
		
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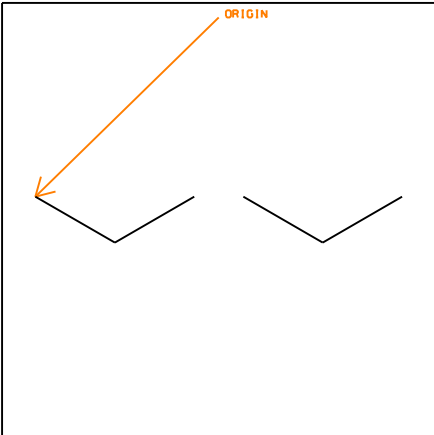
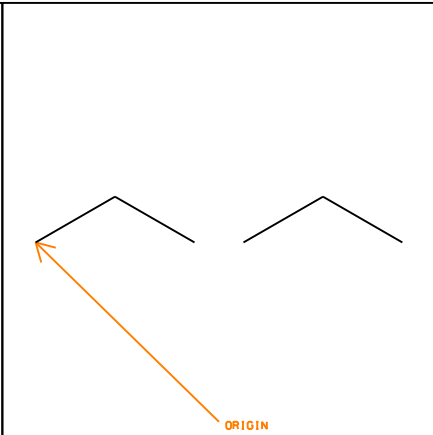
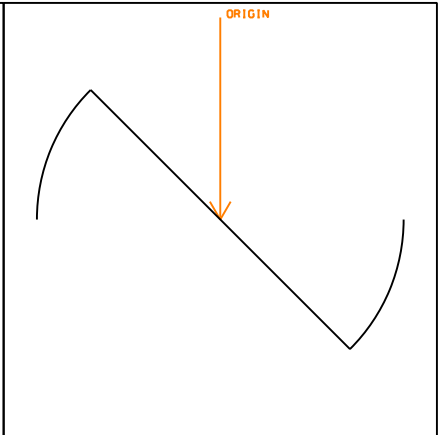
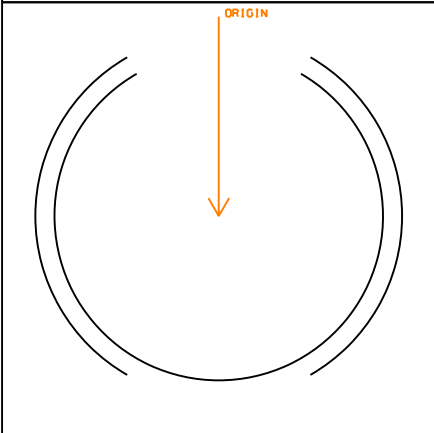
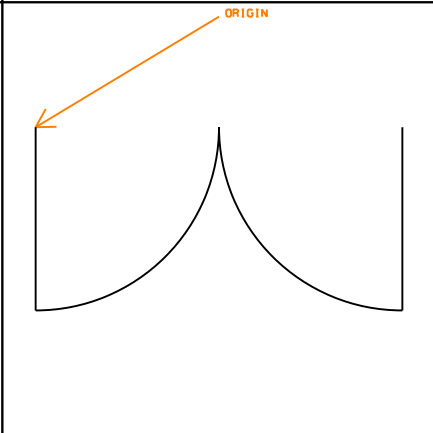
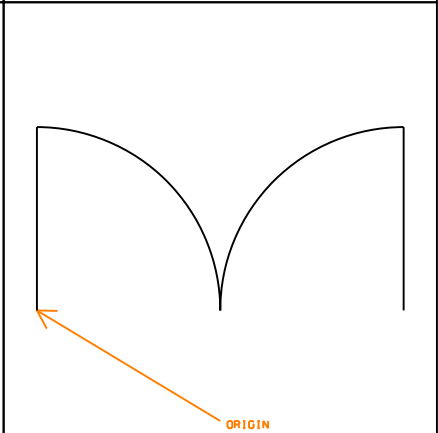
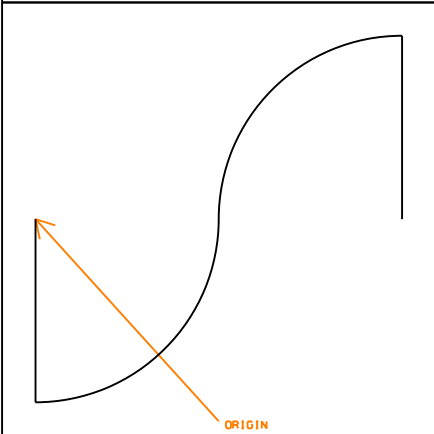
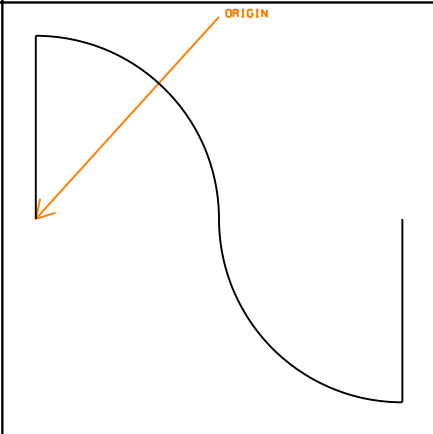
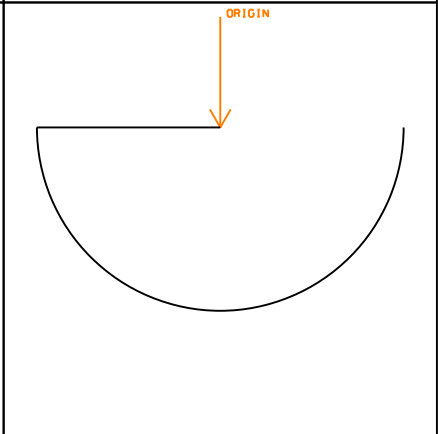
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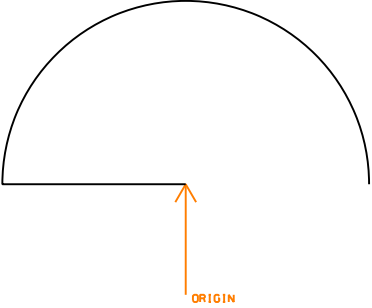
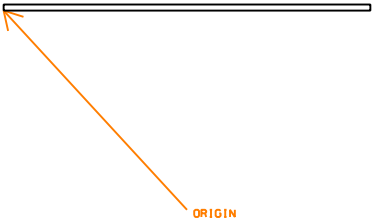
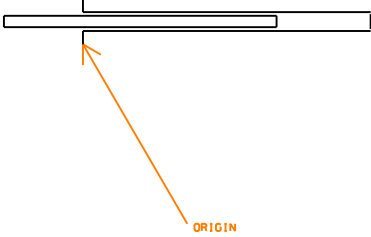
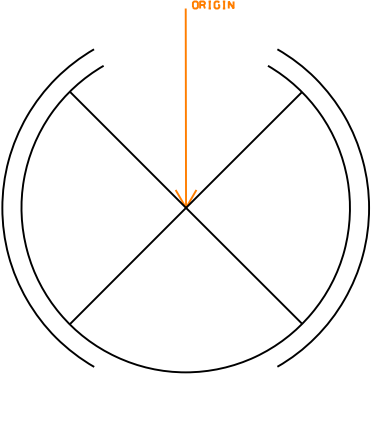
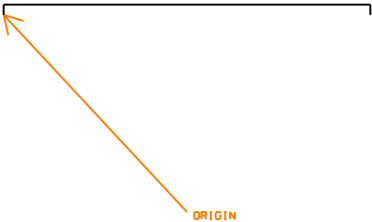
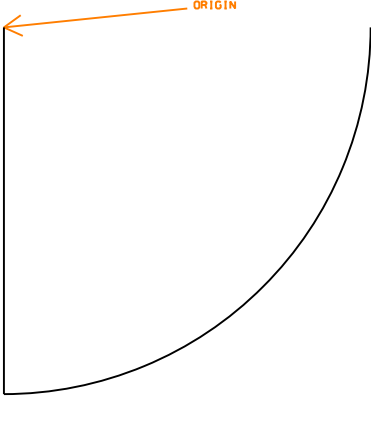
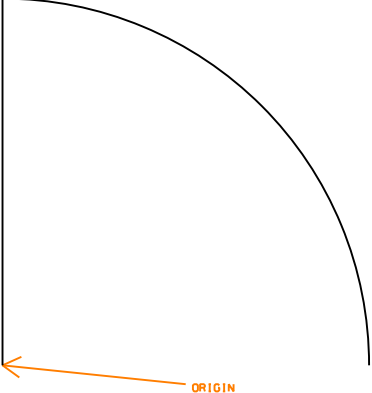
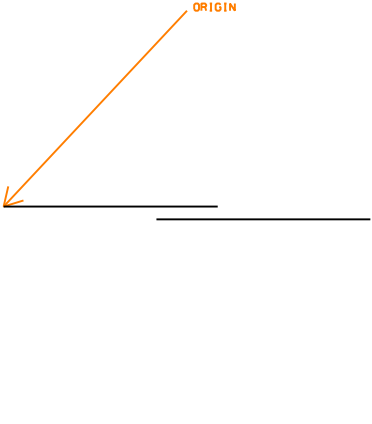
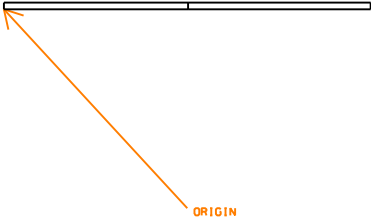
# 10 Architectural Objects Library

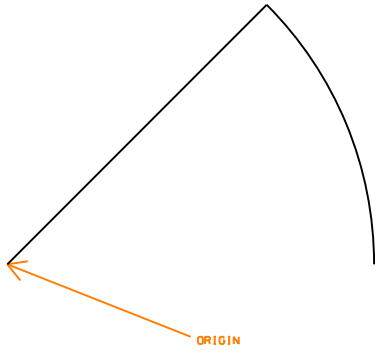
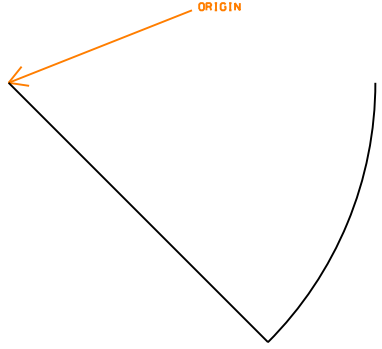
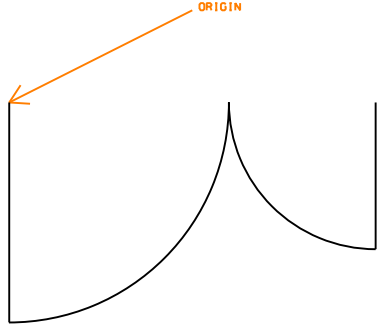
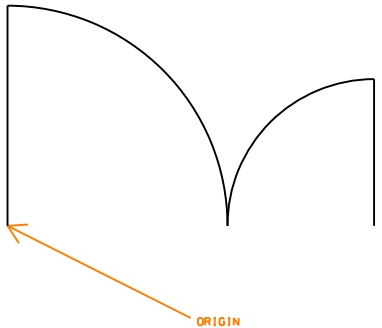
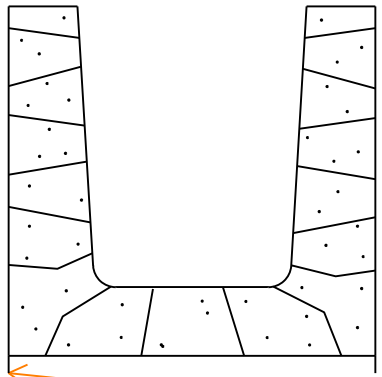
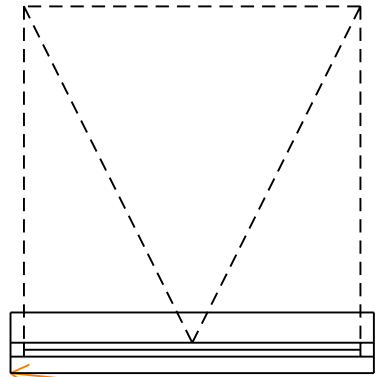
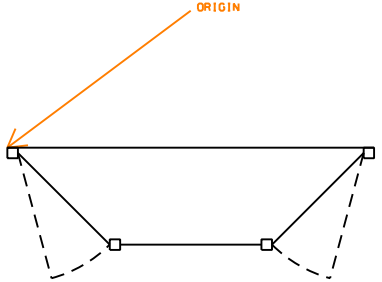
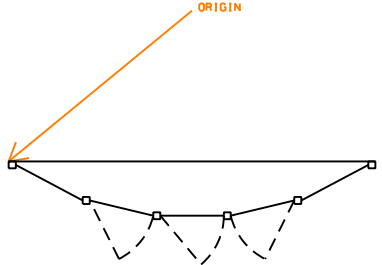
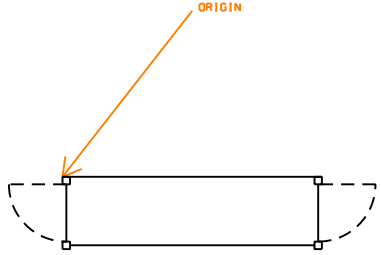
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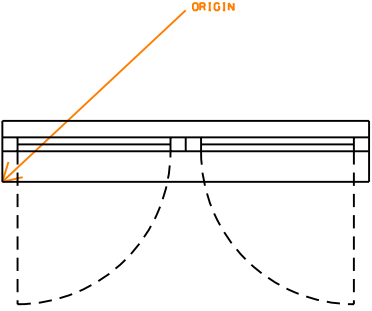
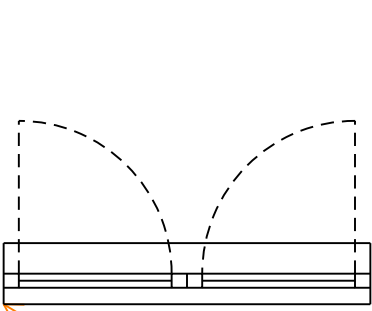

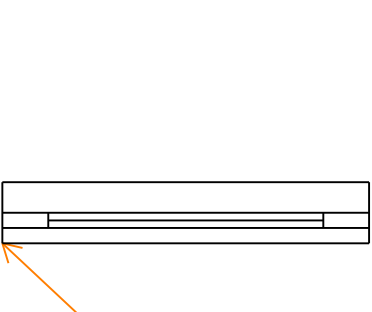
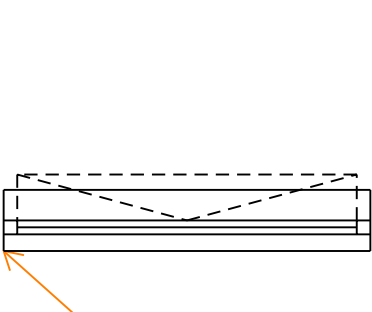
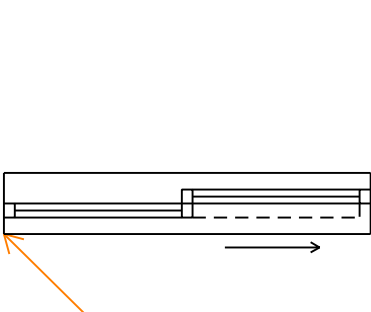
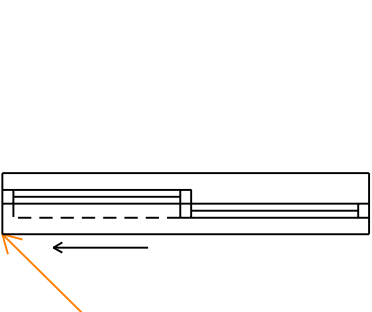
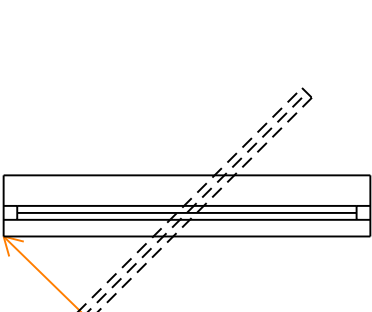
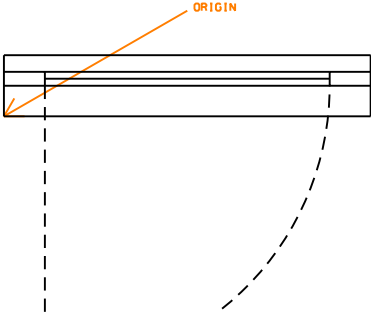
		
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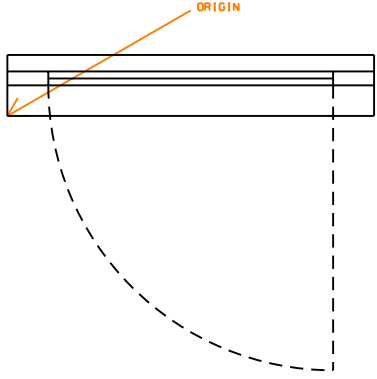
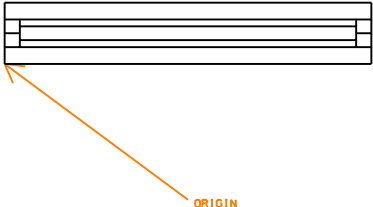
		
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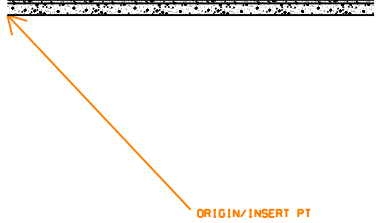
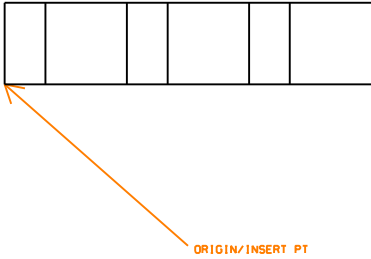
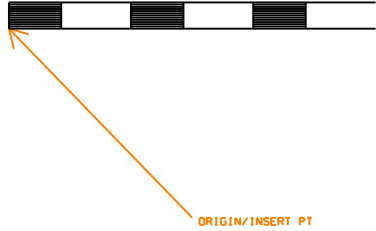
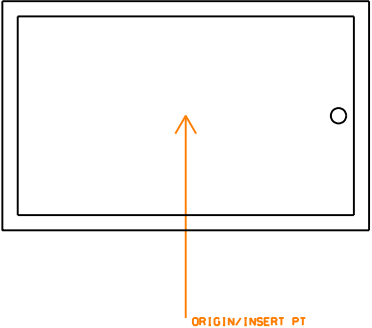
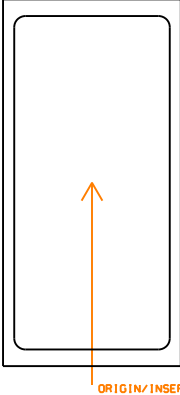
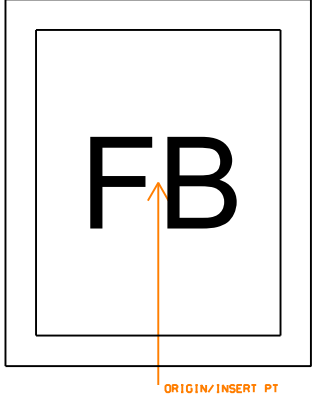
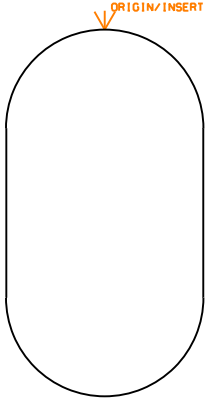
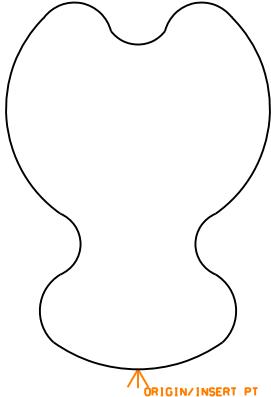
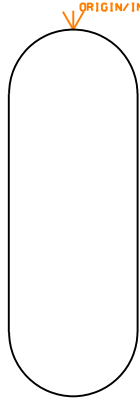
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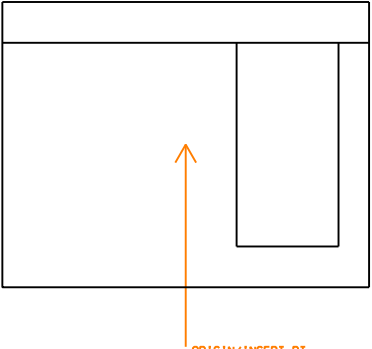
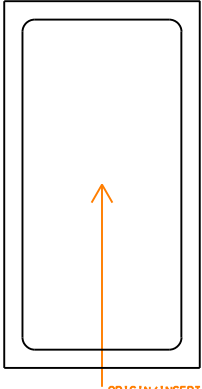
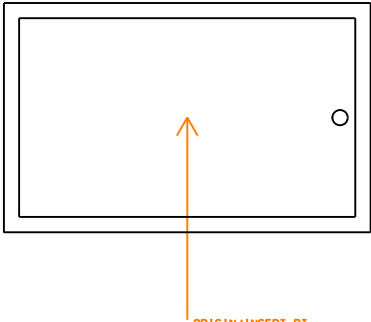
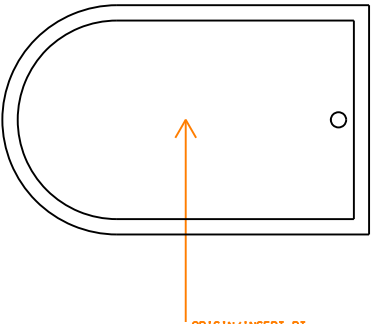
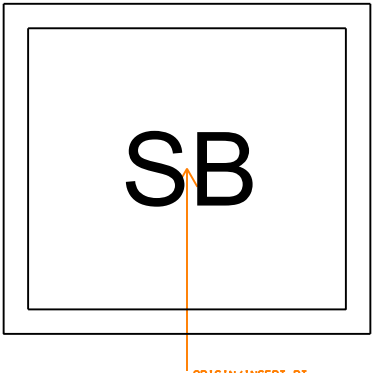
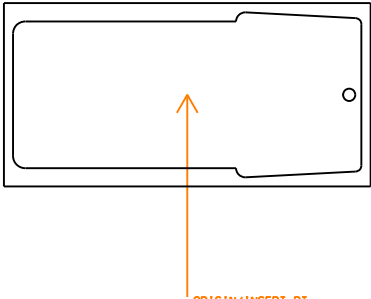
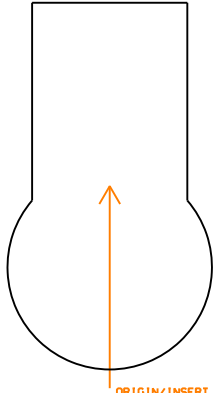
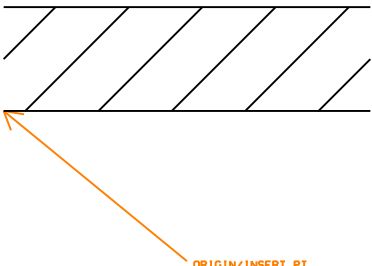
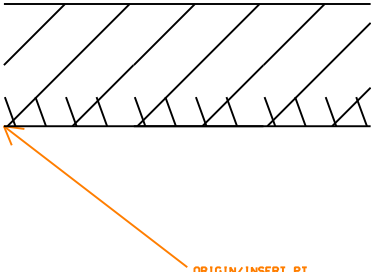
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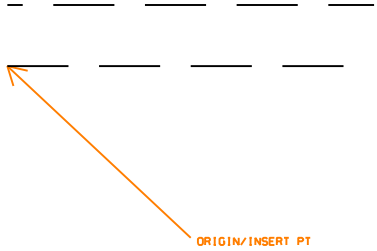
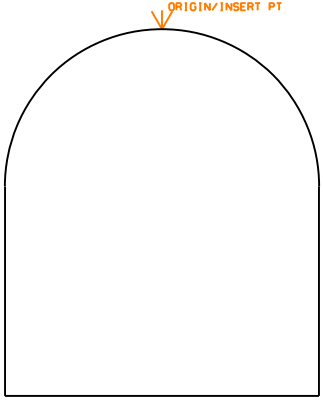
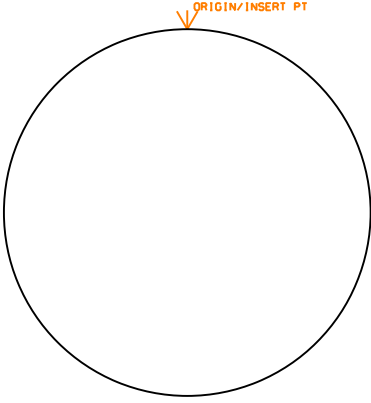
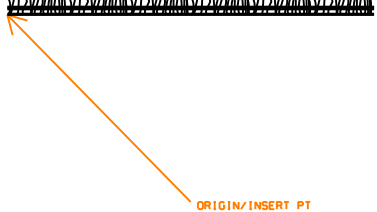
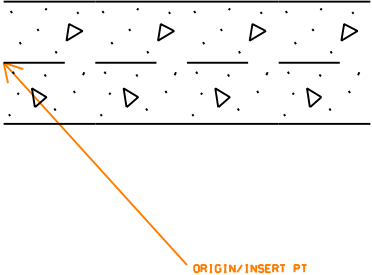
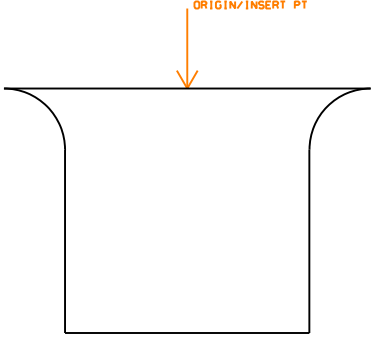
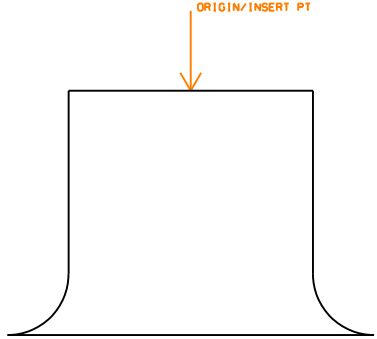
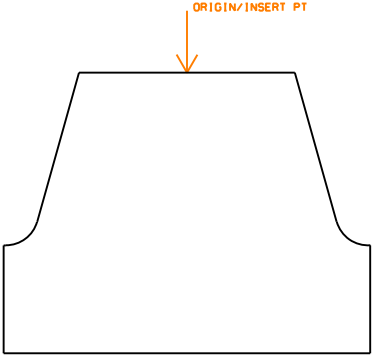
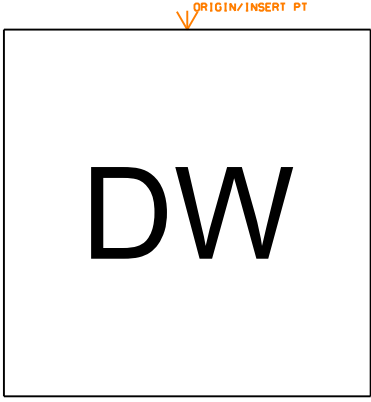
# 10 Architectural Symbols Library

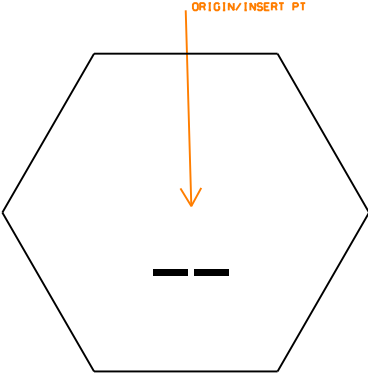
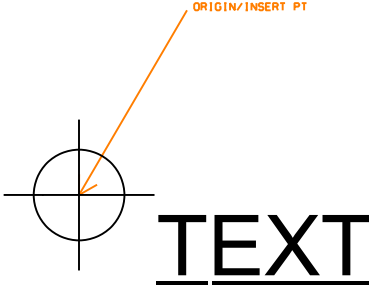
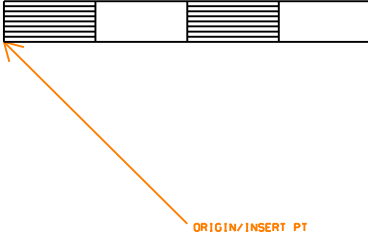
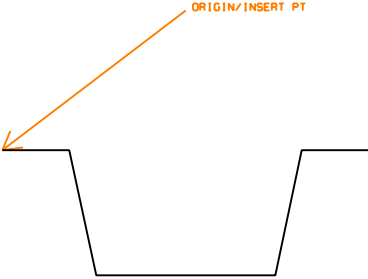
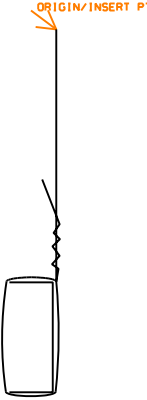
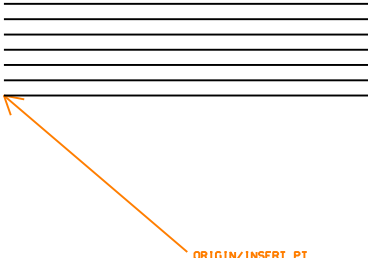
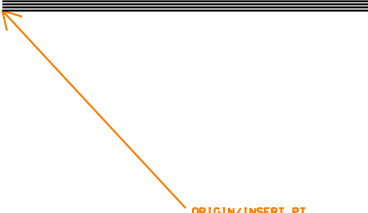
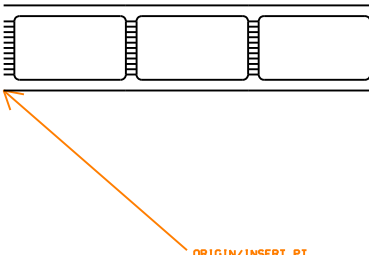
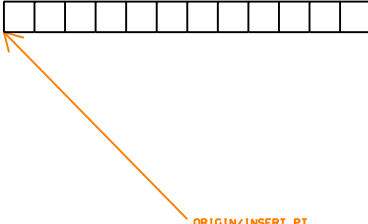
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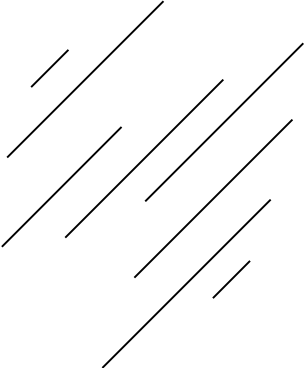
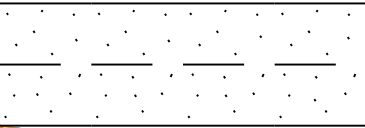
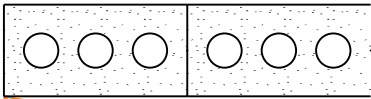
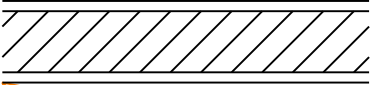
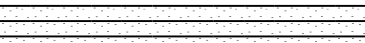
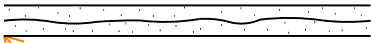


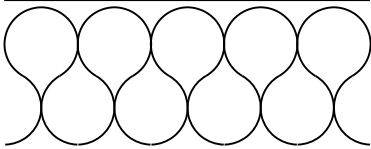
		
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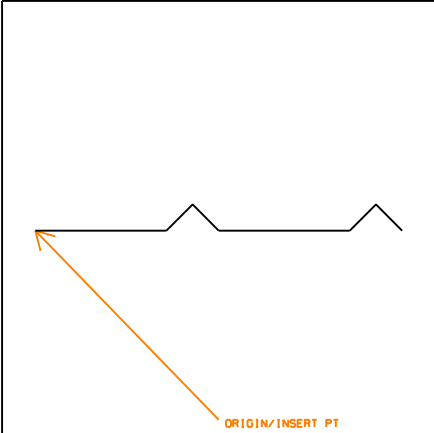
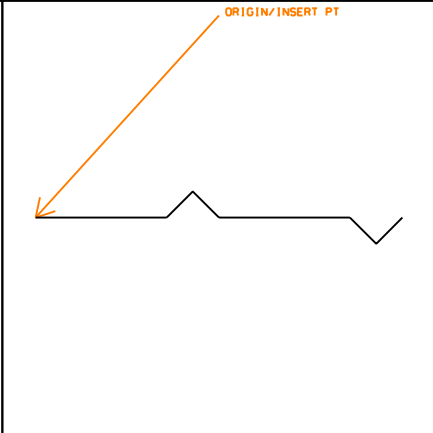
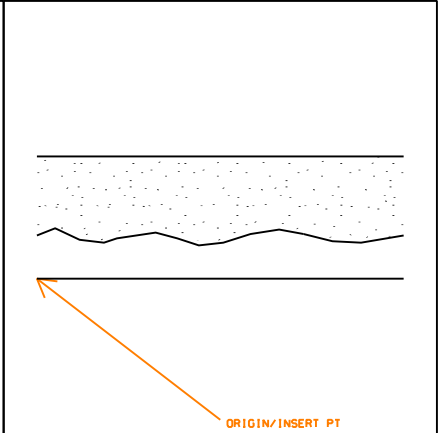
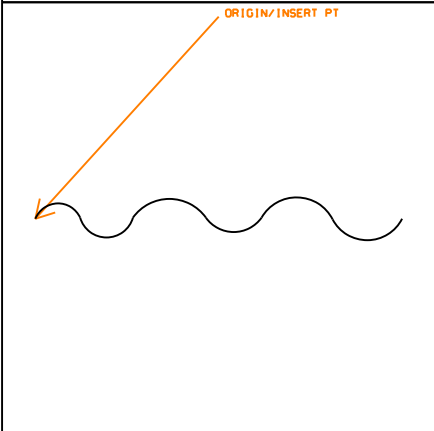
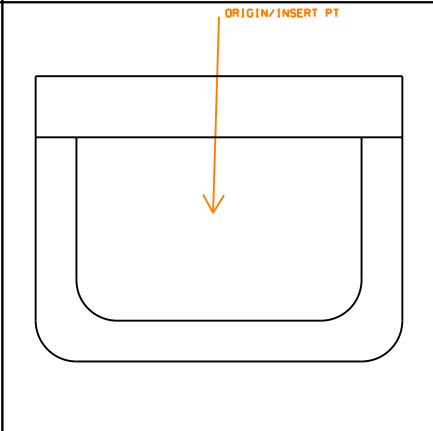
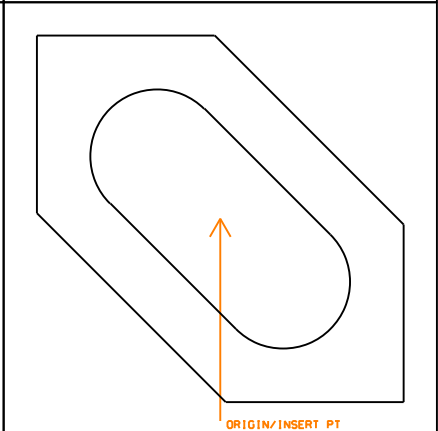
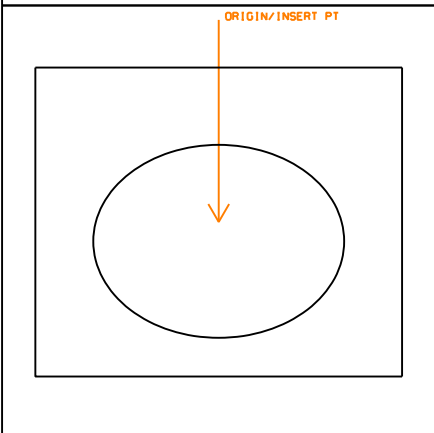
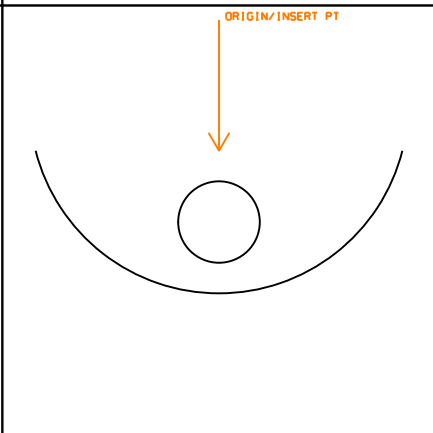
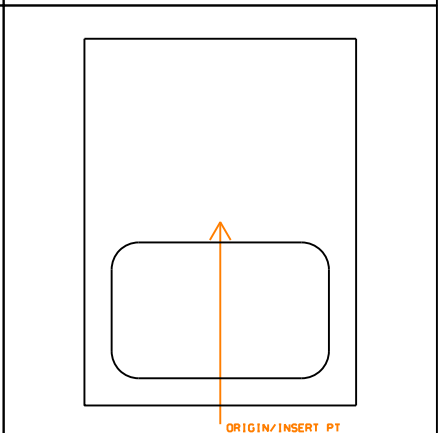
		
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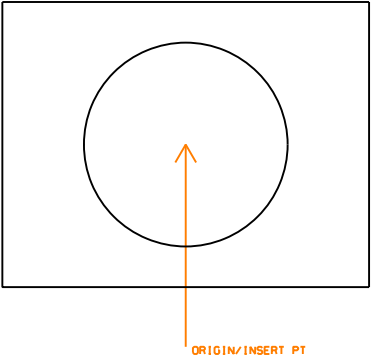
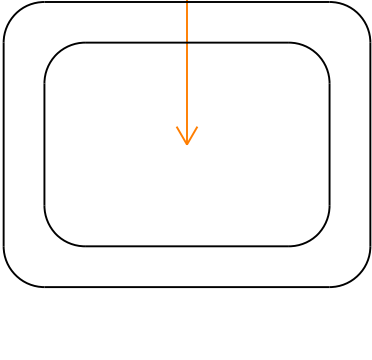
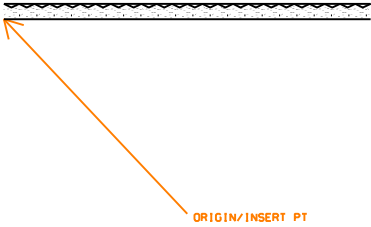
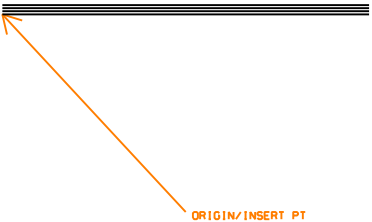
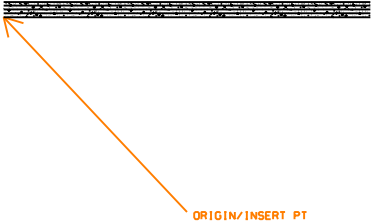
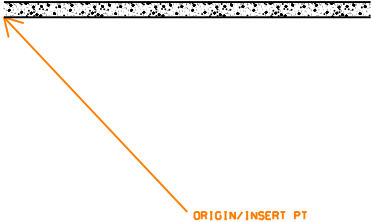
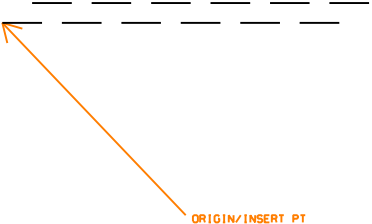
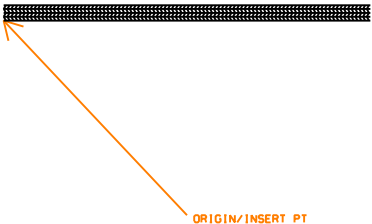
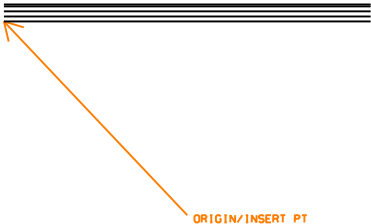
		
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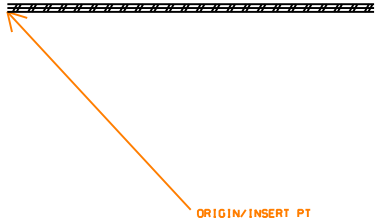
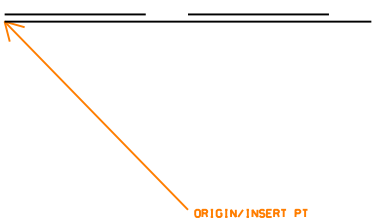
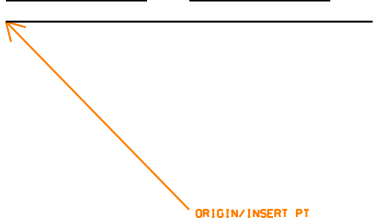
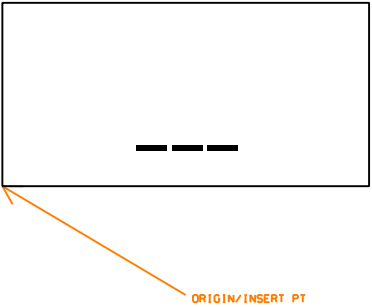
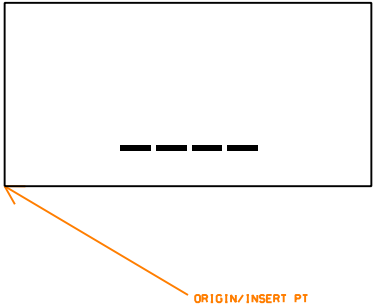
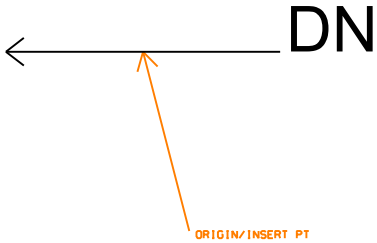
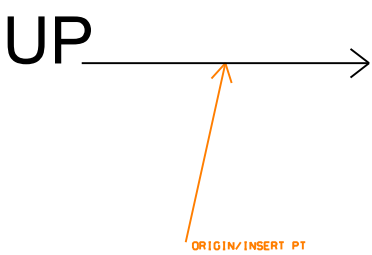
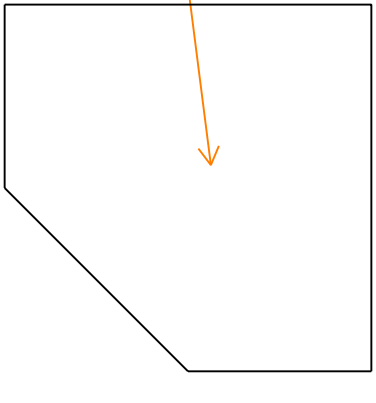
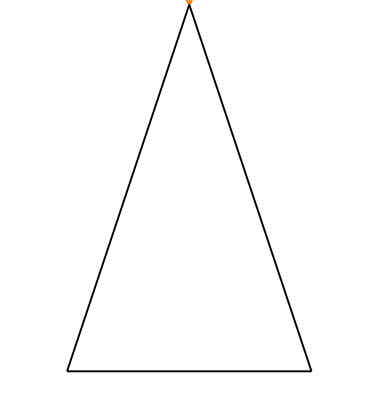
		
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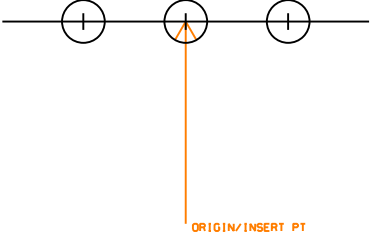
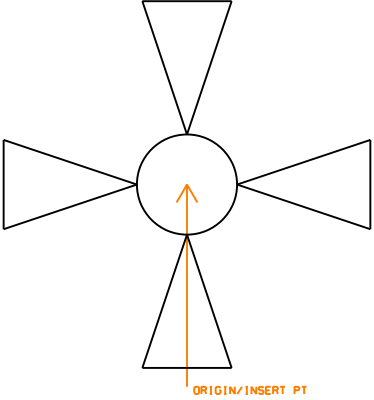
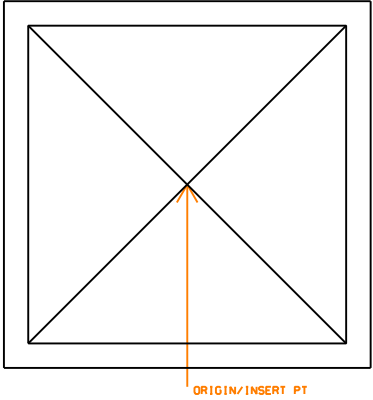
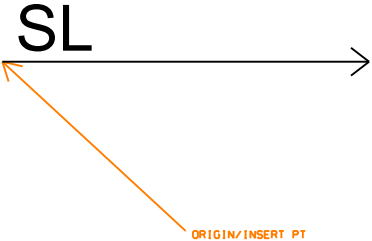
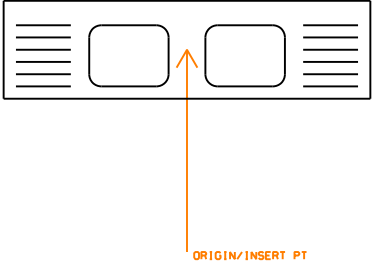
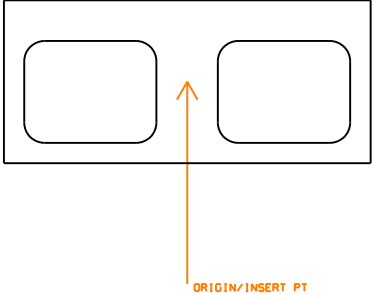
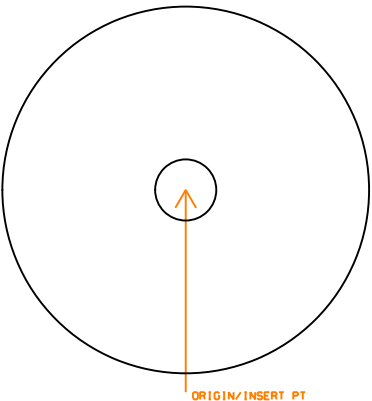
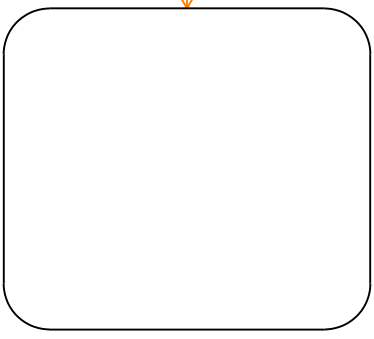
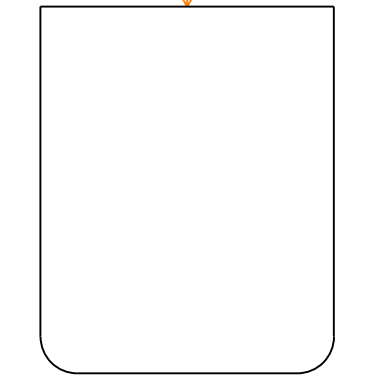


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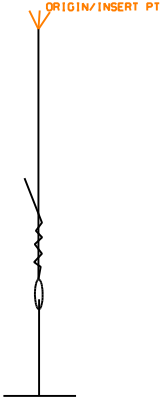
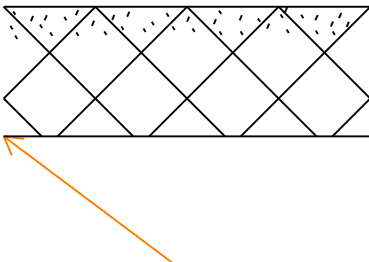
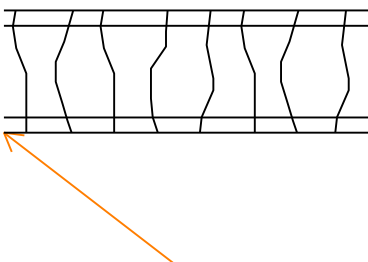
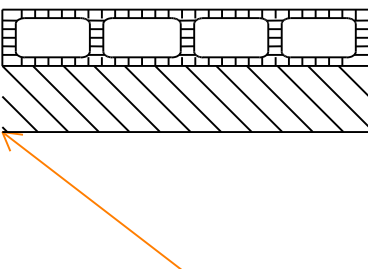
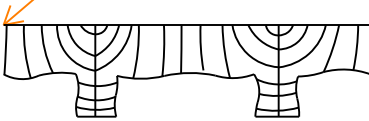
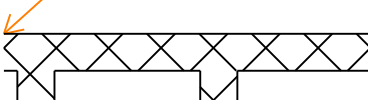
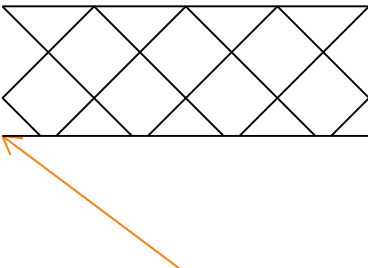
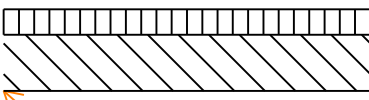
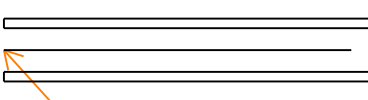
		
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<p>Architectural: LAVCOU LAVATORY IN COUNTER Element type: Symbol</p>	<p>Architectural: LAVDNT DENTAL LAVATORY Element type: Symbol</p>	<p>Architectural: LAVHND HANDICAPPED LAVATORY Element type: Symbol</p>

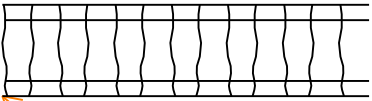
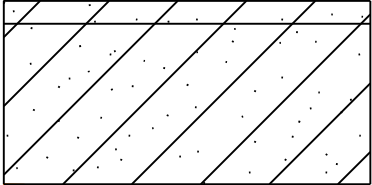
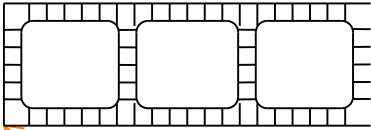
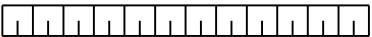

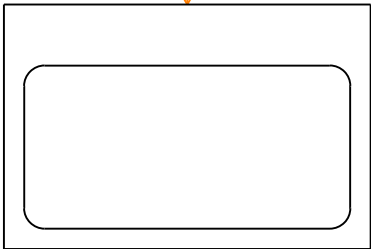
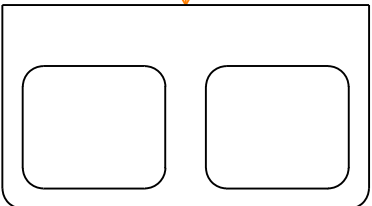
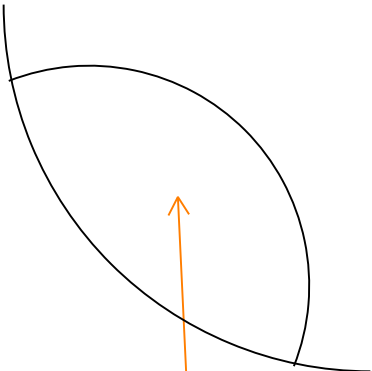
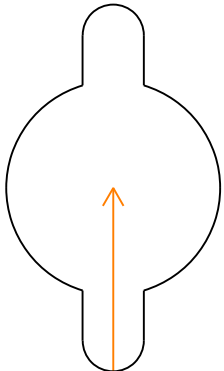
		
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<p>Architectural: PLASTC PLASTIC FINISHES Element type: Symbol</p>	<p>Architectural: PLPLLS LRGSCALE PLASTIC ON PLYWOOD Element type: Symbol</p>	<p>Architectural: PLPLSS SMSCALE PLASTIC ON PLYWOOD Element type: Symbol</p>

		
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<p>Architectural: SDIRLU STAIR DIRECTION LINE UP Element type: Symbol</p>	<p>Architectural: SHWRCO CORNER SHOWER Element type: Symbol</p>	<p>Architectural: SHWRHD SHOWER HEAD Element type: Symbol</p>

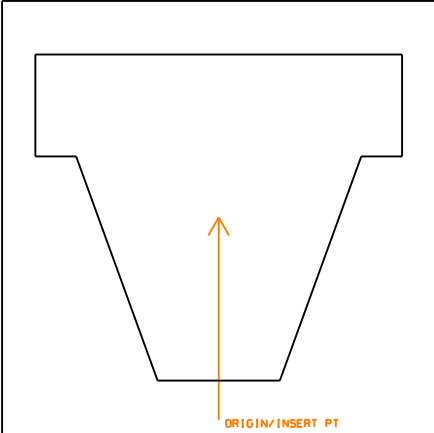
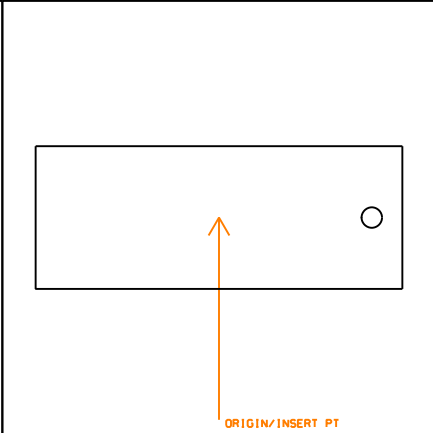
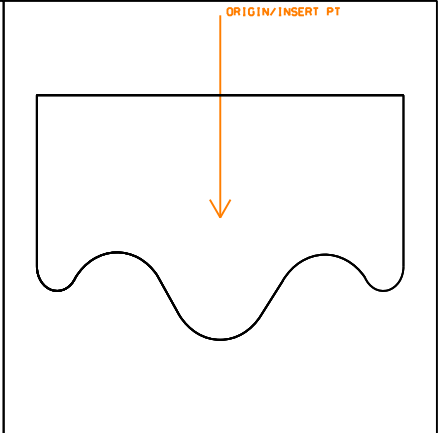
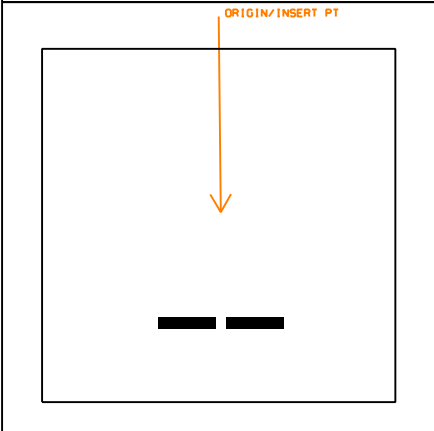
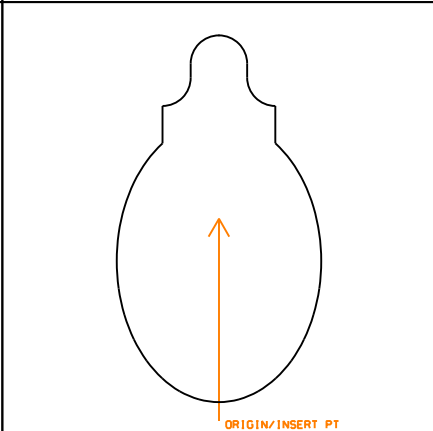
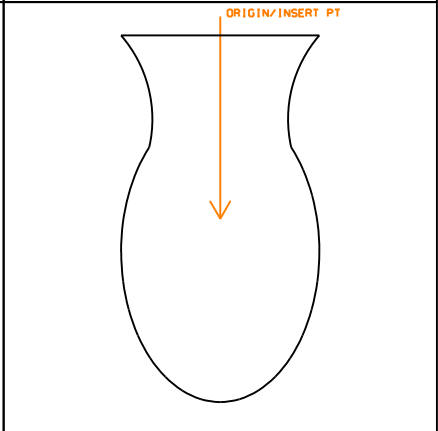
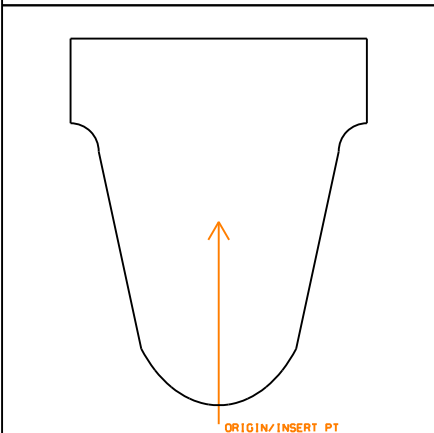
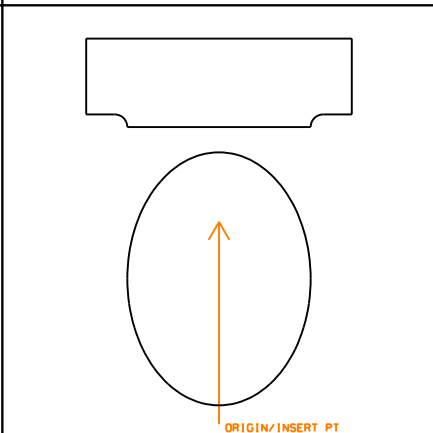
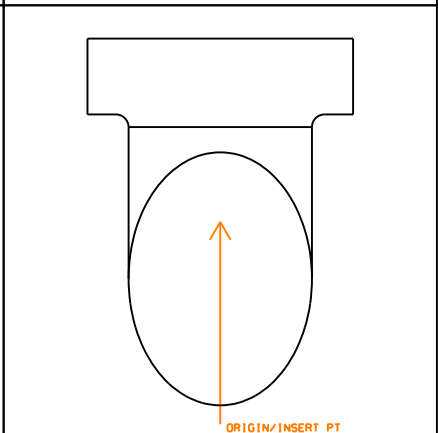
		
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<p>Architectural: SLOPE DIRECTION OF LINE SLOPE Element type: Symbol</p>	<p>Architectural: SNK2BD DBLE SINK W DRAINBOARDS Element type: Symbol</p>	<p>Architectural: SNK2CT SINK TWO COMPARTMENT TYPE Element type: Symbol</p>
		
<p>Architectural: SNKCWT CIRCULAR WASH TYPE SINK Element type: Symbol</p>	<p>Architectural: SNKDSP SINK DISPOSER Element type: Symbol</p>	<p>Architectural: SNKFRC FLUSHING RIM CLINICAL SINK Element type: Symbol</p>

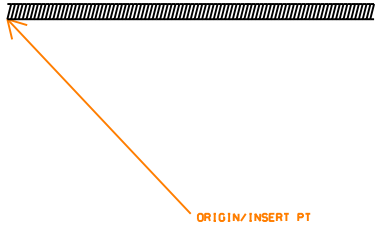
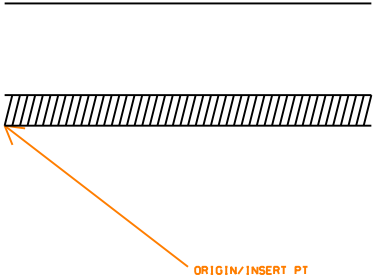
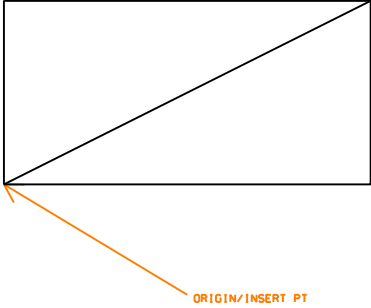
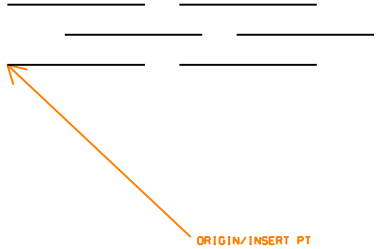
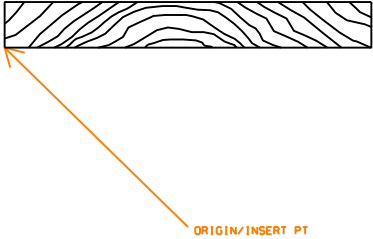
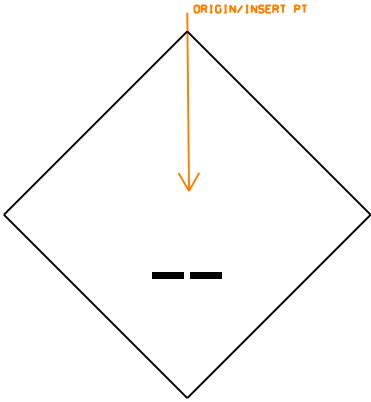
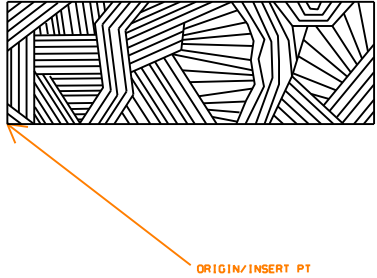
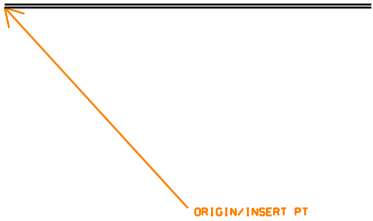
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<p>Architectural: SNKLTR SINK LAUNDRY TRAY Element type: Symbol</p>	<p>Architectural: SNKSCW SEMICIRULAR WASH SINK Element type: Symbol</p>	<p>Architectural: SNKSLP SLOP TYPE SINK Element type: Symbol</p>
<p>Architectural: SNKSRV SERVICE SINK Element type: Symbol</p>	<p>Architectural: SNKSSC SURGEON SCRUB SINK Element type: Symbol</p>	<p>Architectural: STLCSS STRUCTURAL CLAY TILE SM SCL Element type: Symbol</p>

		
<p>Architectural: SUSPNT SUSPENSION TEE Element type: Symbol</p>	<p>Architectural: TC1FLS TERACOTA GLZD1FACE LRGSCALE Element type: Symbol</p>	<p>Architectural: TC2FSS TERACOTA GLZD2FACES SMSCALE Element type: Symbol</p>
		
<p>Architectural: TCHOLW HOLLOW TERRA COTTA Element type: Symbol</p>	<p>Architectural: TCLS LARGE SCALE TERRA COTTA Element type: Symbol</p>	<p>Architectural: TCQLS TERA COTA QUARRY LRGSCALE Element type: Symbol</p>
		
<p>Architectural: TCUGLS TERACOTA UNGLAZED LRGSCALE Element type: Symbol</p>	<p>Architectural: TCVENR VENEER TERRA COTTA Element type: Symbol</p>	<p>Architectural: THRSHD THRESHOLD Element type: Symbol</p>

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<p>Architectural: TILFSS SMALL SCALE TILE FACING Element type: Symbol</p>	<p>Architectural: TILGSC GLZESTRUCTURAL CLAYTILE MAS Element type: Symbol</p>	<p>Architectural: TILSFU TILE STRUCTURAL FLOOR UNITS Element type: Symbol</p>
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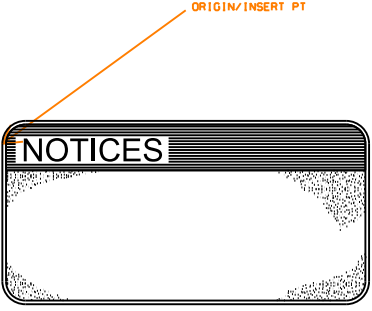
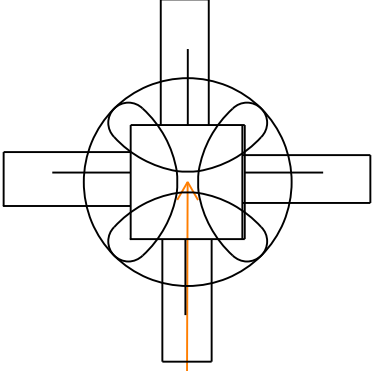
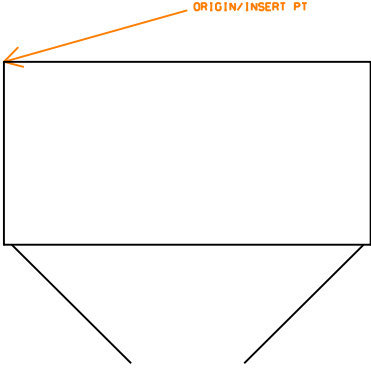
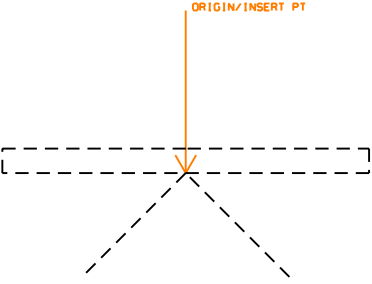
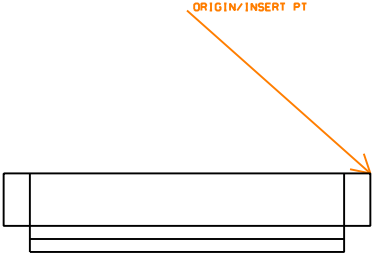
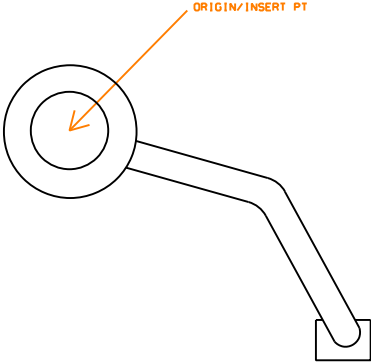
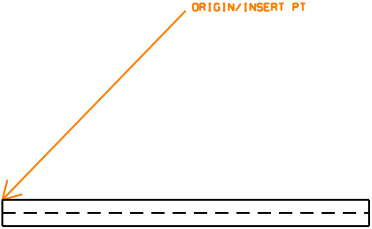
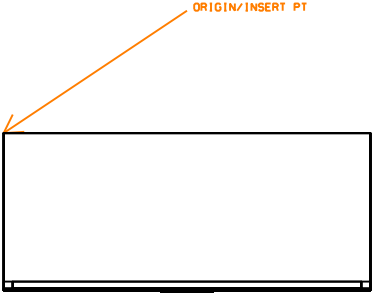
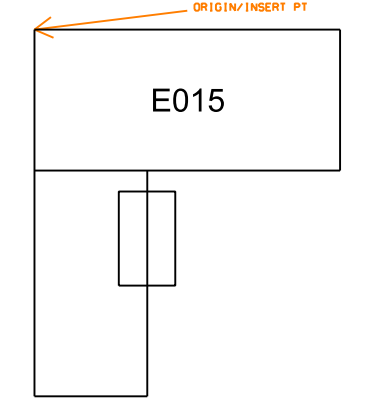
		
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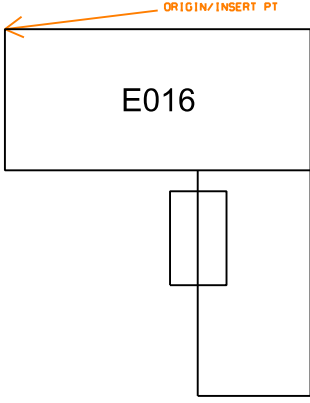
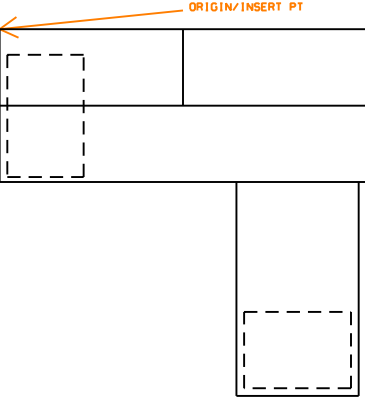
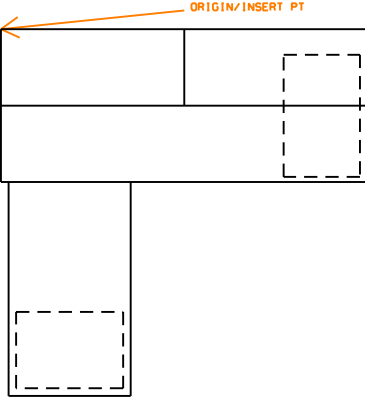
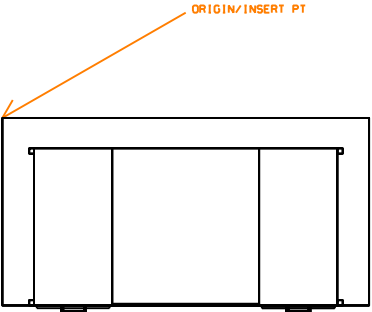
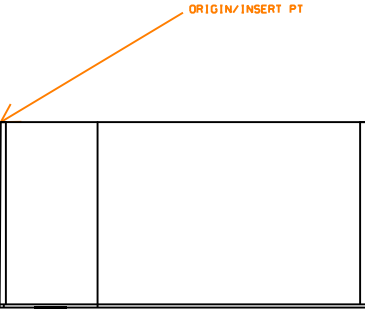
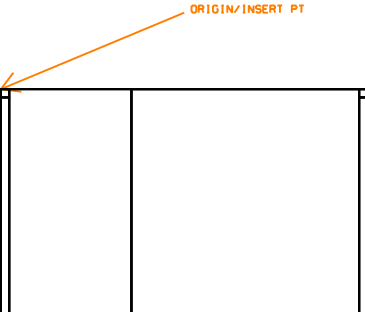
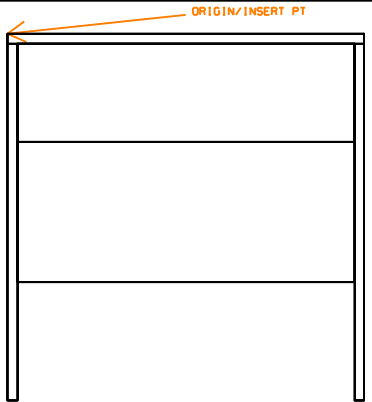
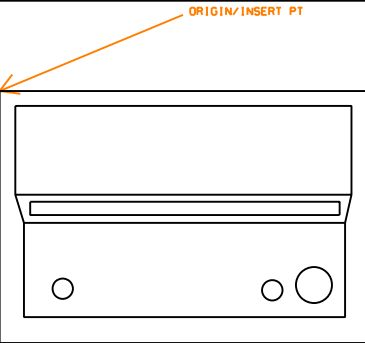
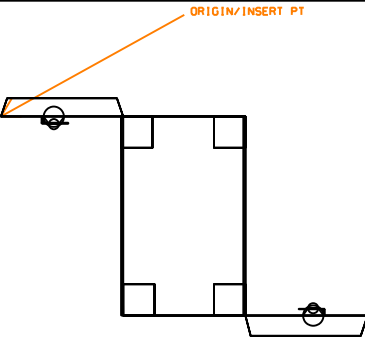
		
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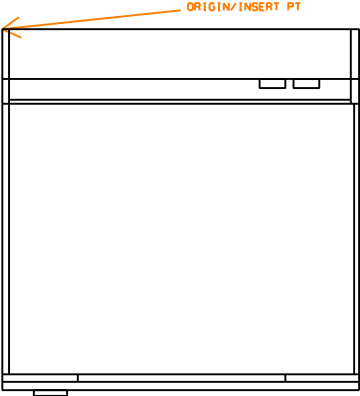
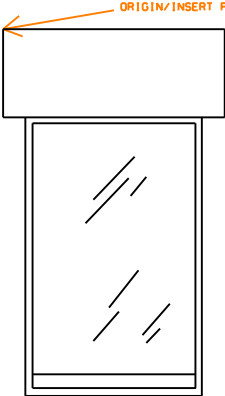
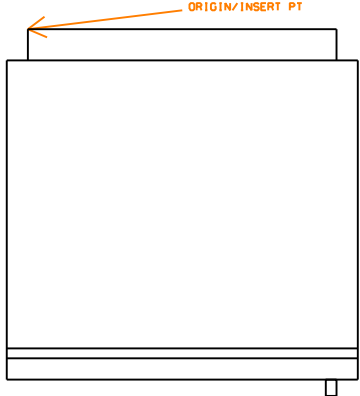
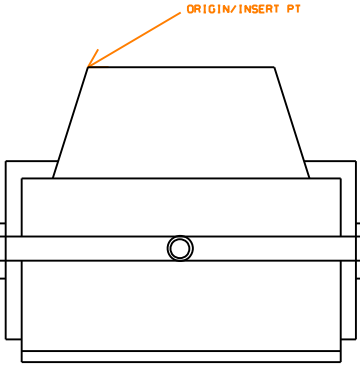
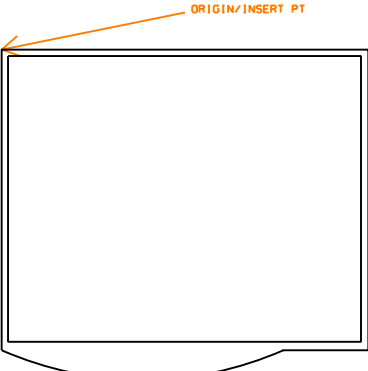
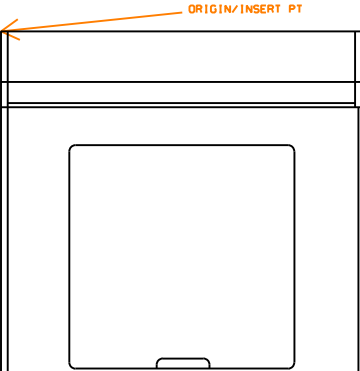
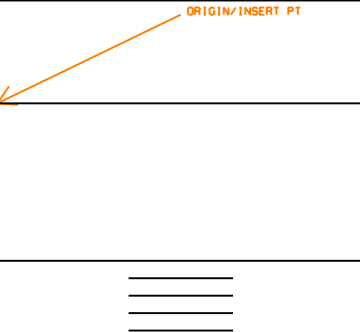
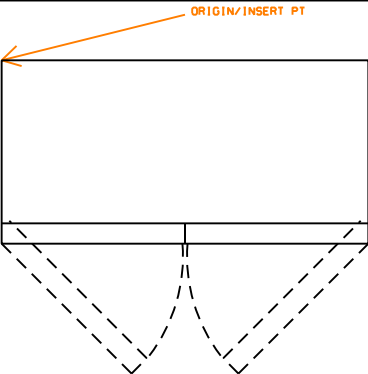
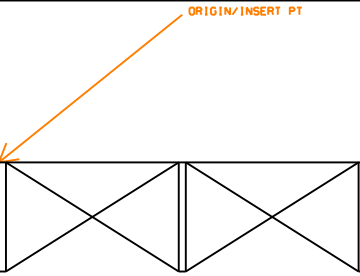
# 11 Interiors Objects Library

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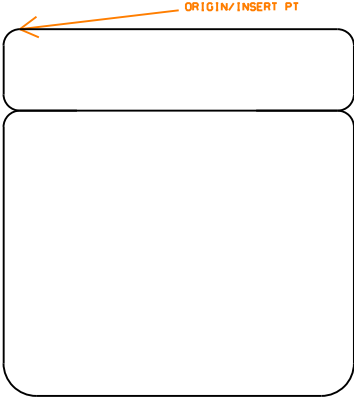
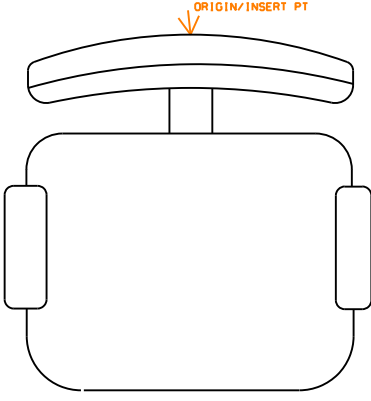
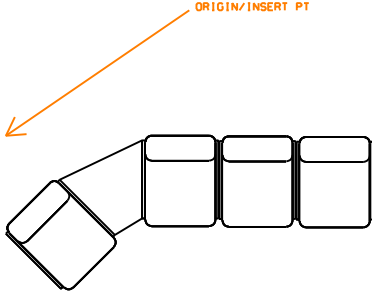
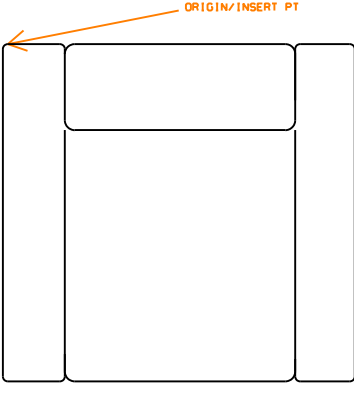
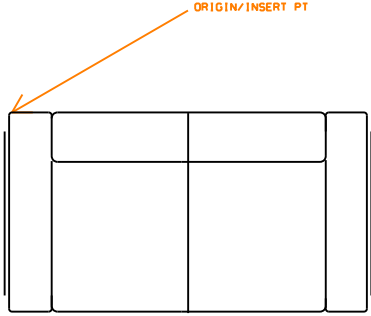
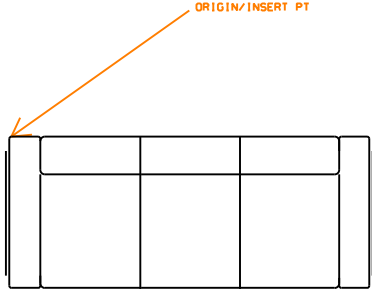
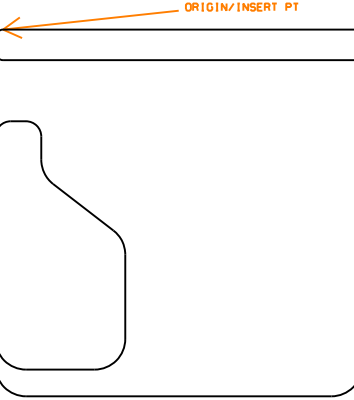
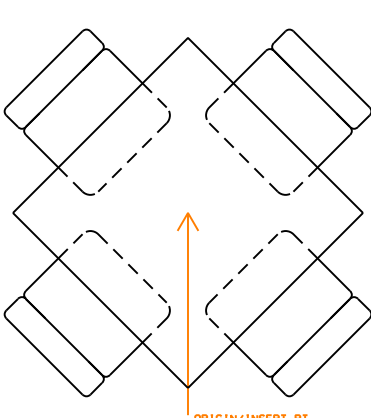
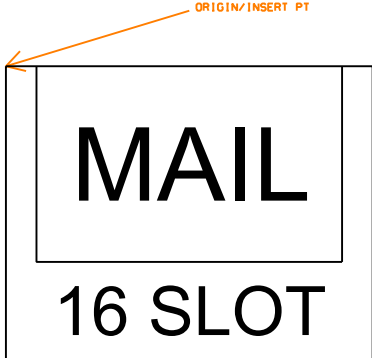
		
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<p>Interiors: AEAS30 EASEL 30W HIDDEN Element type: Object</p>	<p>Interiors: AMAG15 MAGAZINE RACK 15W X 3D Element type: Object</p>	<p>Interiors: AMAGLT MAGNIFYING LIGHT Element type: Object</p>
		
<p>Interiors: APRJSC PROJECTION SCRIN CEILING MNTD Element type: Object</p>	<p>Interiors: ASTCAB STORAGE CABINET Element type: Object</p>	<p>Interiors: D65CLR DESK 65 COMP LR Element type: Object</p>

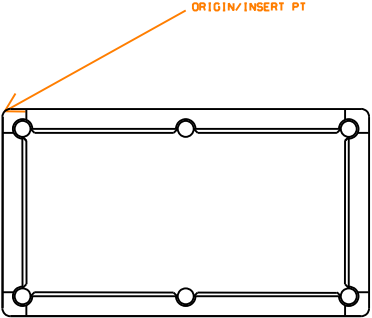
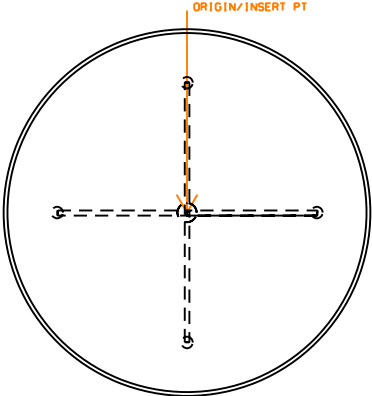
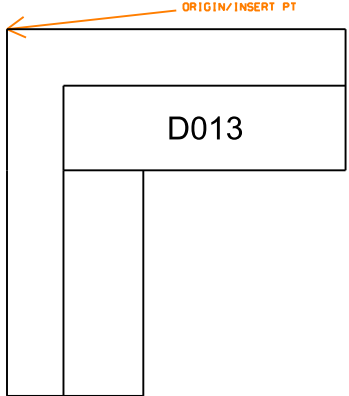
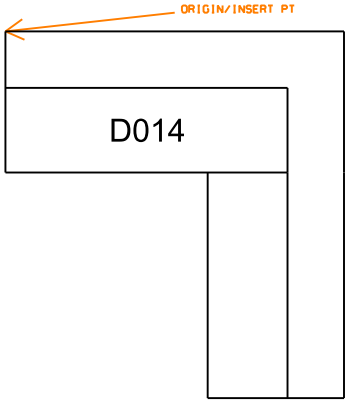
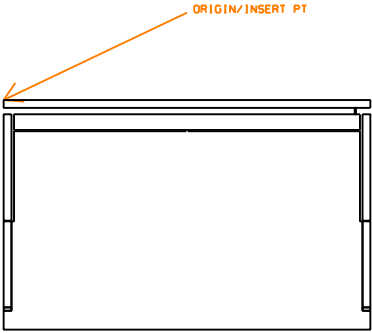
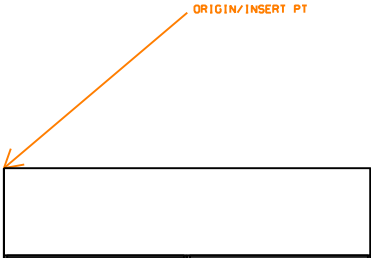
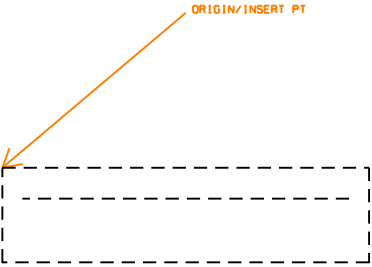
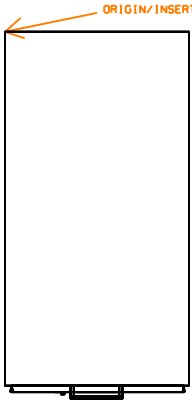
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<p>Interiors: DPFF DESK DOUBLE FILE PEDESTAL Element type: Object</p>	<p>Interiors: DPFL DESK LEFT PEDESTAL Element type: Object</p>	<p>Interiors: DPFR DESK RETURN PEDESTAL FILE Element type: Object</p>
		
<p>Interiors: DSC1 DESK STUDY CARREL SINGLE Element type: Object</p>	<p>Interiors: ECGAME FREESTANDING COMPUTER GAME Element type: Object</p>	<p>Interiors: ECOMCN COMSEC CONTAINER Element type: Object</p>

		
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<p>Interiors: ETV TELEVISION Element type: Object</p>	<p>Interiors: EVEND VENDING MACHINE Element type: Object</p>	<p>Interiors: EWASHM WASHING MACHINE Element type: Object</p>
		
<p>Interiors: F4DL LATERAL FILE CABINET 4 DRAW Element type: Object</p>	<p>Interiors: FC3618 STORAGE CABINET 36W X 18D Element type: Object</p>	<p>Interiors: FE7422 EQUIP SHELVNG 74WX22D BRRKS Element type: Object</p>

<p>Interiors: FV1833 VERTICAL FILE 18W X 33D Element type: Object</p>	<p>Interiors: GIDIR DIRECTORY Element type: Object</p>	<p>Interiors: GIIS1 IDENT SIGN WITH 1 SLOT Element type: Object</p>
<p>Interiors: GIIS2 IDENT SIGN WITH 2 SLOTS Element type: Object</p>	<p>Interiors: GIPIC1 PICTOGRAM1 Element type: Object</p>	<p>Interiors: GIPIC2 PICTOGRAM 2 Element type: Object</p>
<p>Interiors: GMAN MAN SYM FR RESTROOM SIGNAGE Element type: Object</p>	<p>Interiors: GWOMAN WOMAN SYMFOR RESTRM SGNAGE Element type: Object</p>	<p>Interiors: SDMGT MGMNT CHAIR W ARMS 24WX22D Element type: Object</p>



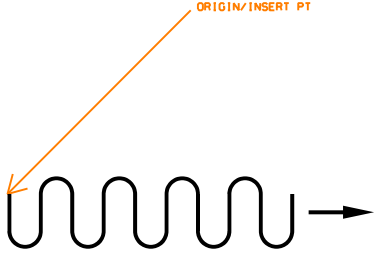
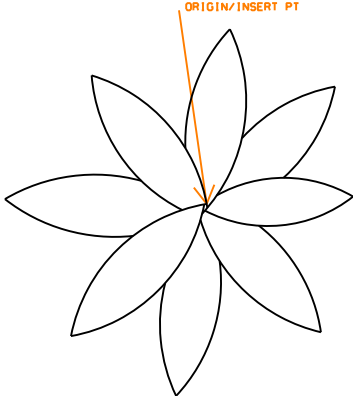
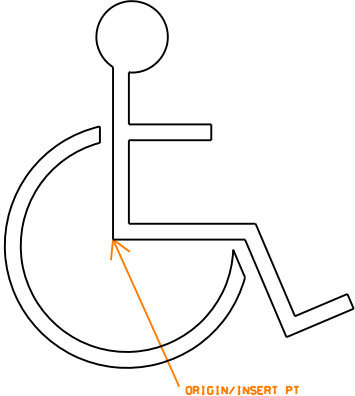
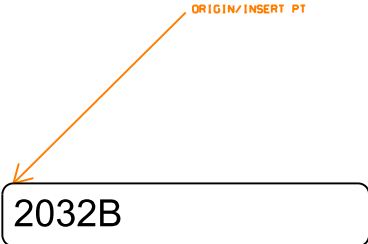
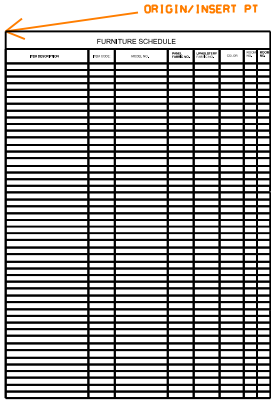
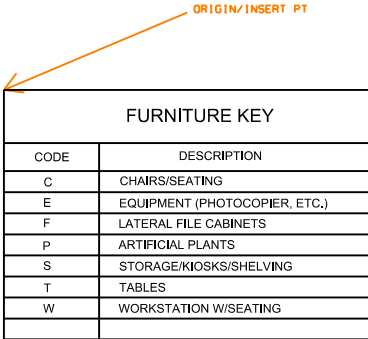
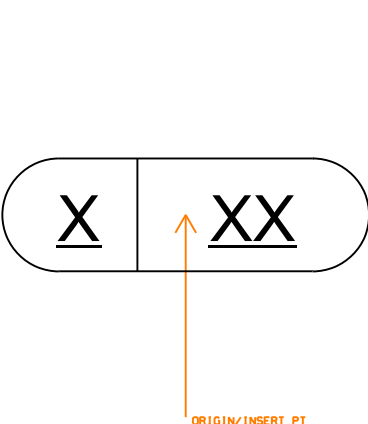
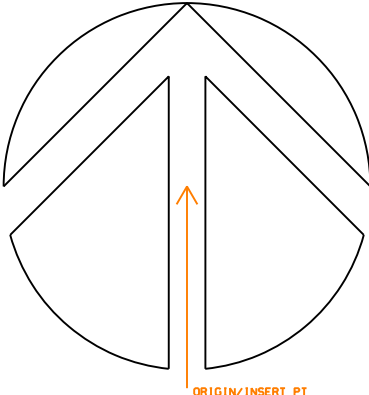
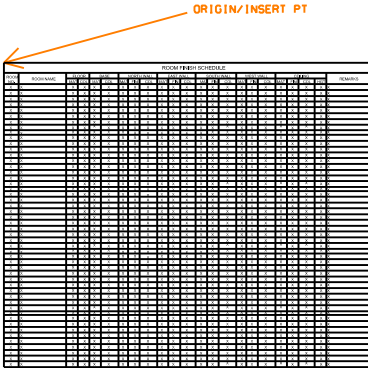
		
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<p>Interiors: SSOF37 SOFA CHAIR 37W X 34D Element type: Object</p>	<p>Interiors: SSOF63 2 CUSHION SOFA 63W X 34D Element type: Object</p>	<p>Interiors: SSOF82 3 CUSHION SOFA 82.5W X 34D Element type: Object</p>
		
<p>Interiors: STAB24 CHAIR TABLET ARM 24W X 24D Element type: Object</p>	<p>Interiors: T42SQ TABLE 42SQ W ARMLESS CHR Element type: Object</p>	<p>Interiors: TMS30 MAILSORT TBLE 160H SLOTS30W Element type: Object</p>

		
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<p>Interiors: W7230R WORKSTATION L UNIT RR Element type: Object</p>	<p>Interiors: WCPDSK DESK COMPUTER Element type: Object</p>	<p>Interiors: WFLIPR FLIPPER DOOR UNIT Element type: Object</p>
		
<p>Interiors: WLIGHT WORKSTATION LIGHT Element type: Object</p>	<p>Interiors: WPED WORKSTATION PEDESTAL Element type: Object</p>	

# 11 Interiors Symbols Library

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<p>Interiors: ACURTN CURTAIN Element type: Symbol</p>	<p>Interiors: APLANT ARTIFICIAL PLANT Element type: Symbol</p>	<p>Interiors: GHNDCP UNIVERSAL HANDICAP SYMBOL Element type: Symbol</p>																		
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FURNITURE KEY																				
CODE	DESCRIPTION																			
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F	LATERAL FILE CABINETS																			
P	ARTIFICIAL PLANTS																			
S	STORAGE/KIOSKS/SHELVING																			
T	TABLES																			
W	WORKSTATION W/SEATING																			
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<p>Interiors: MFSYMB FURNITURE SYMBOL Element type: Symbol</p>	<p>Interiors: MNORTH NORTH ARROW Element type: Symbol</p>	<p>Interiors: MRSCHD ROOM FINISH SCHEDULE Element type: Symbol</p>																		

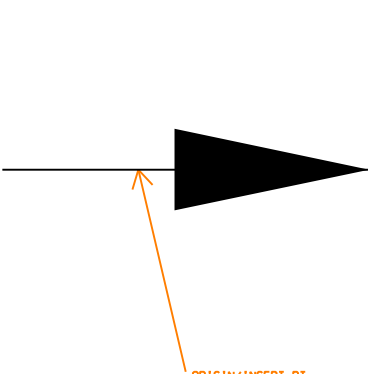
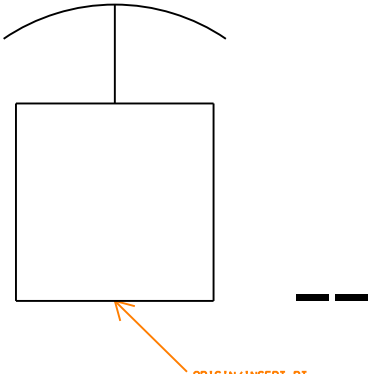
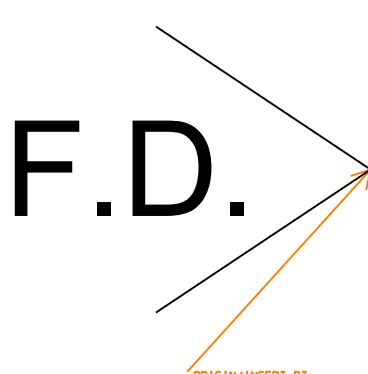
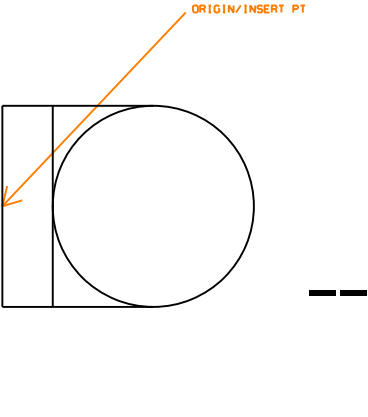
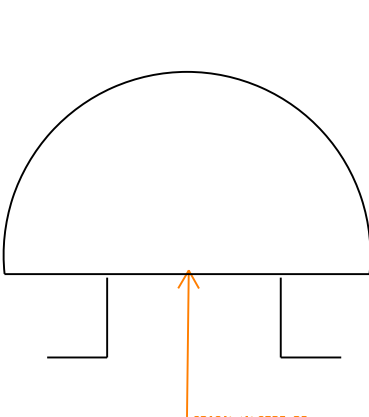
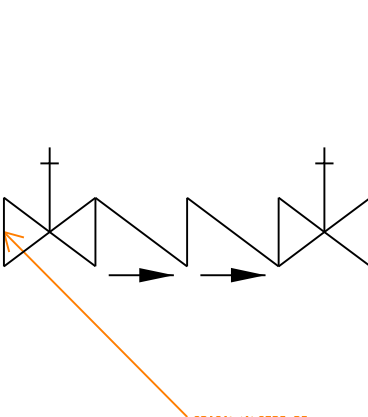
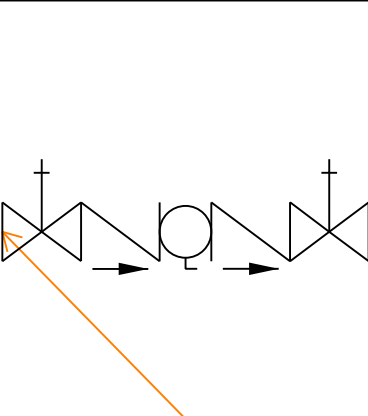
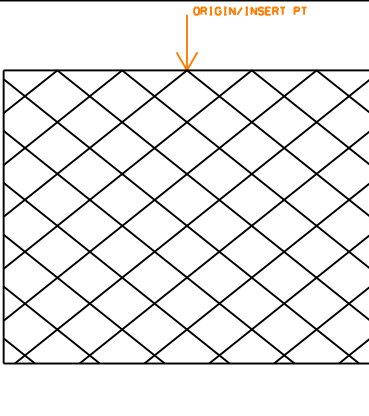
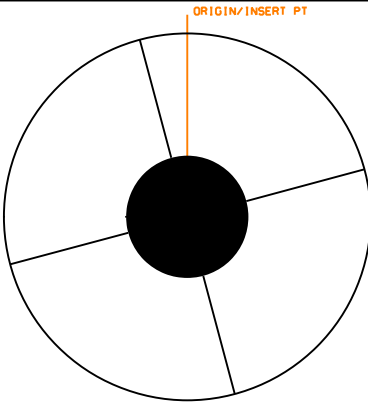


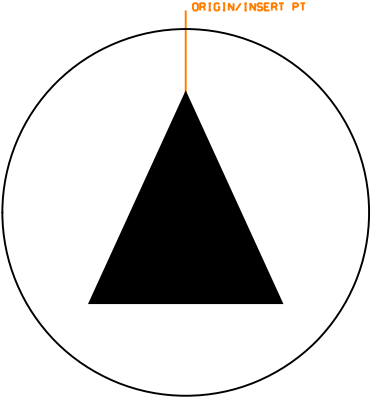
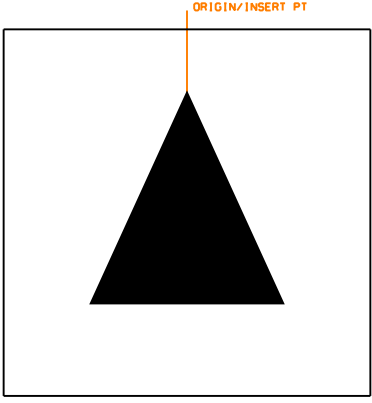
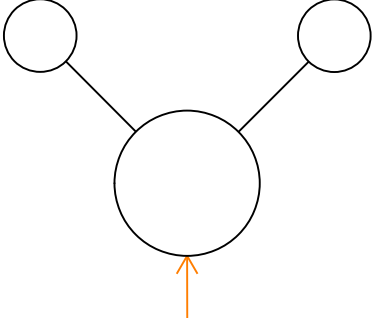
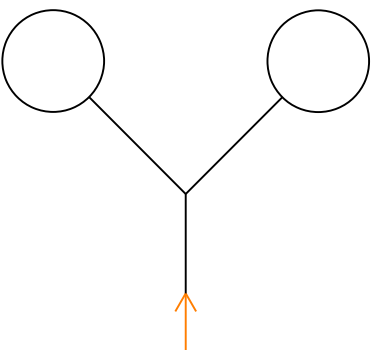
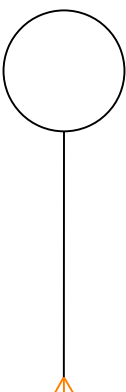
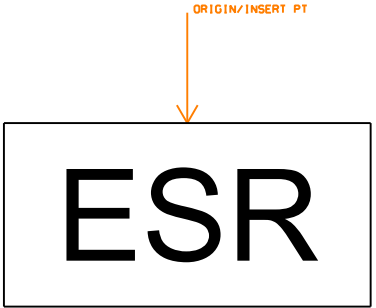
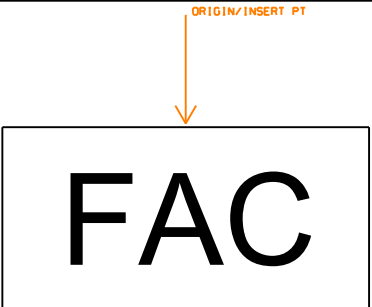
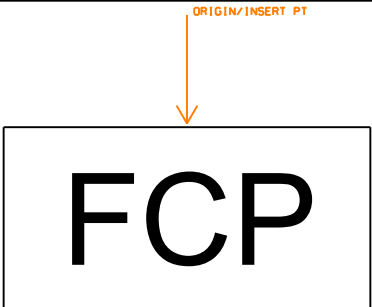
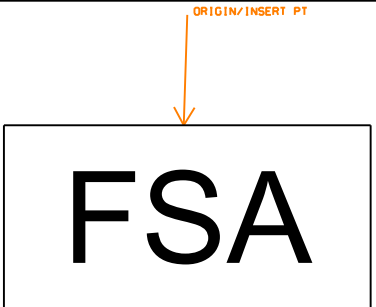
# 12 Fire Protection Symbols Library

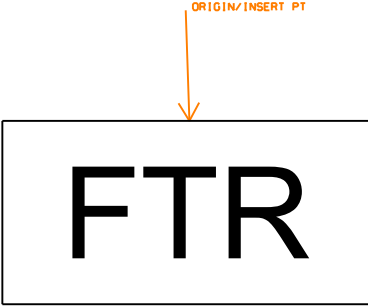
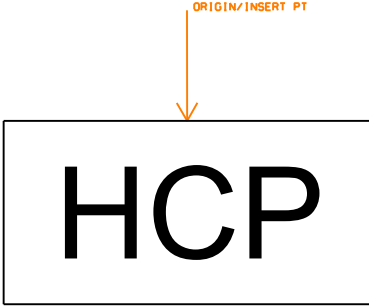
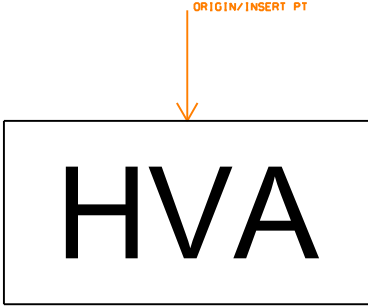
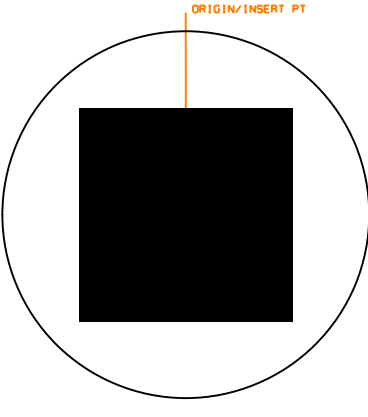
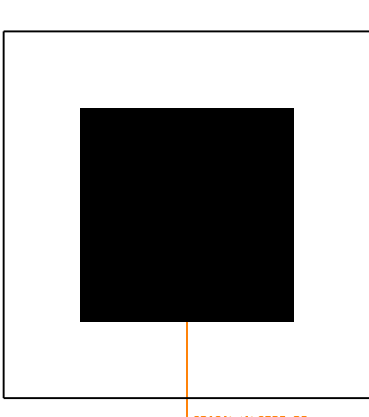
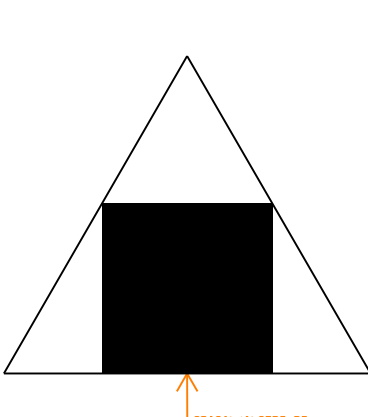
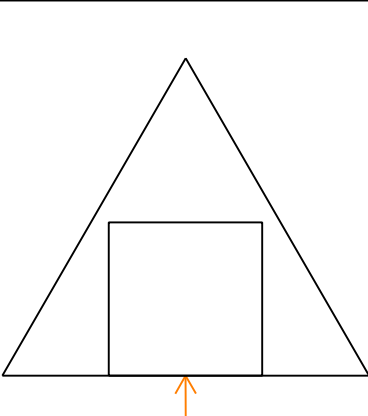
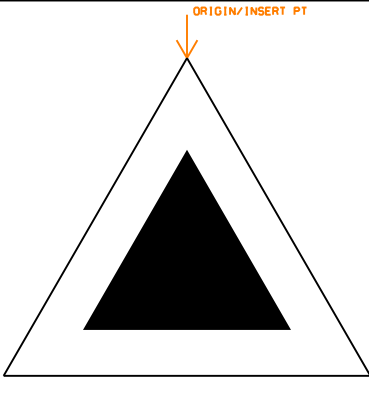
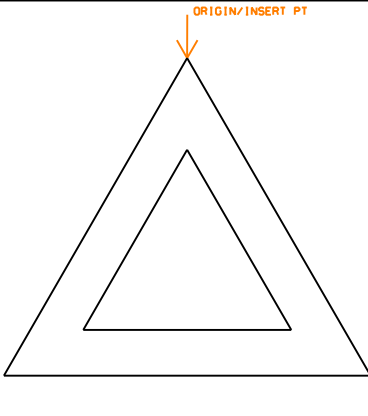
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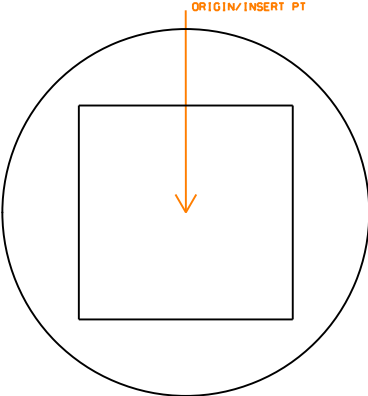
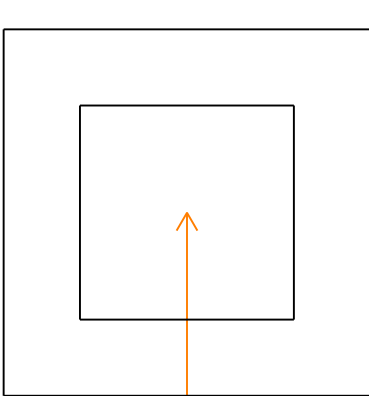
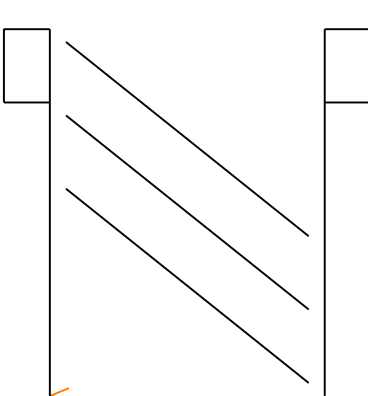
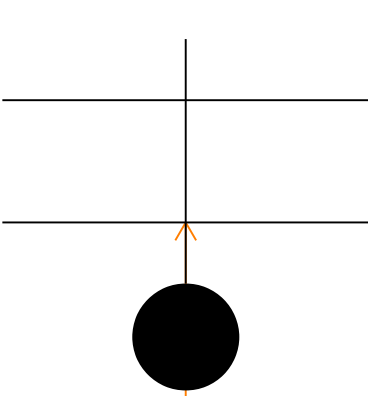
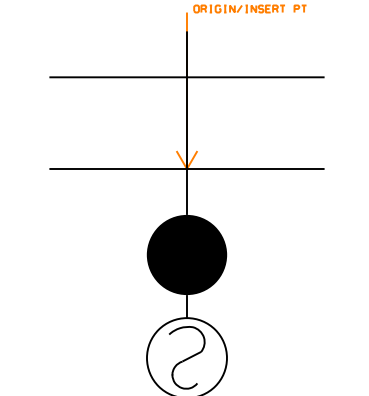
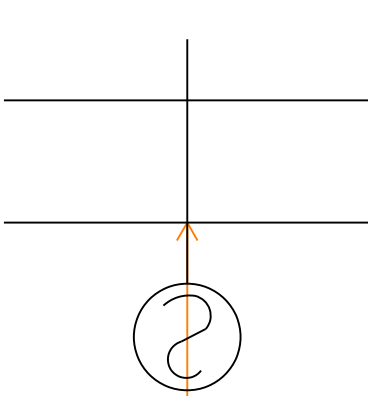
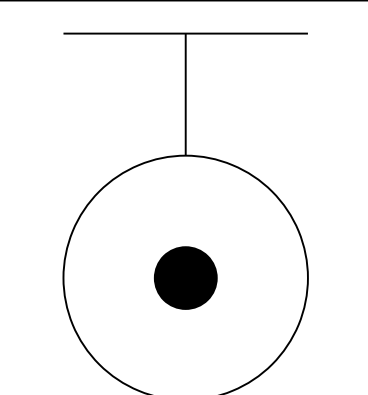
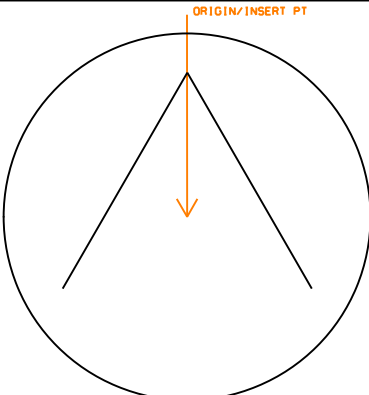
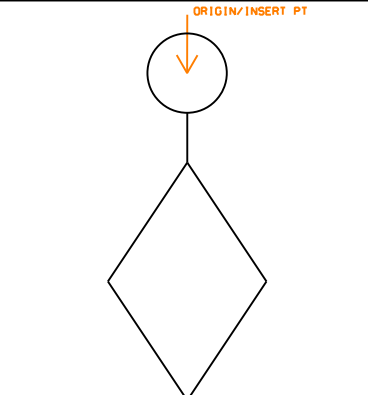
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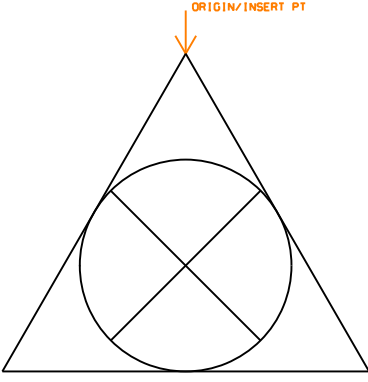
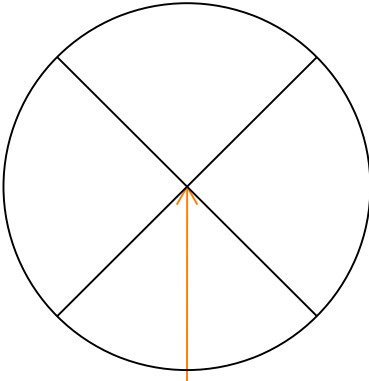
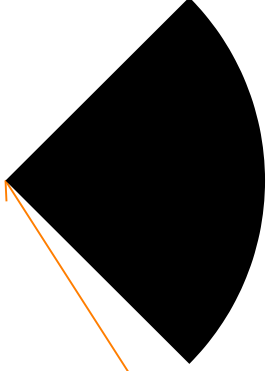
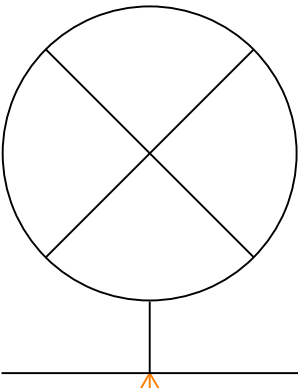
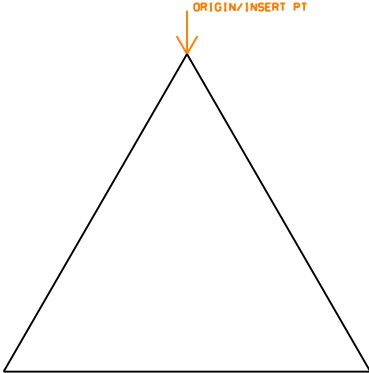
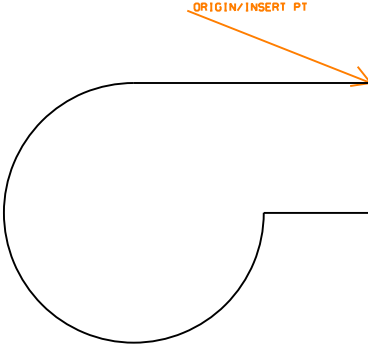
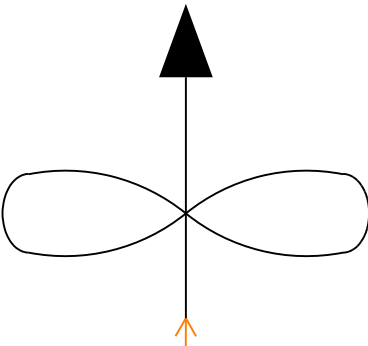
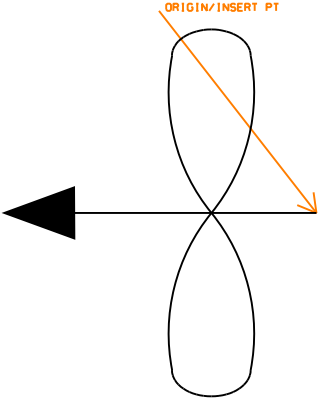
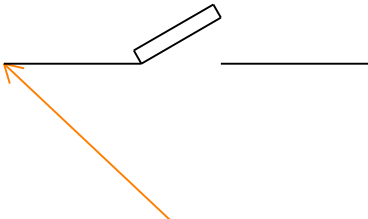
		
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<p>Fire Protection: AGSTCN AGENT STORAGE CONTAINER Element type: Symbol</p>	<p>Fire Protection: BELLFA FIRE ALARM BELL Element type: Symbol</p>	<p>Fire Protection: BFPDCK BACKFLOW PREVENTER DBL CHK Element type: Symbol</p>
		
<p>Fire Protection: BFPRPZ BACKFLOW PREVENTER RPZ Element type: Symbol</p>	<p>Fire Protection: BOILER BOILER Element type: Symbol</p>	<p>Fire Protection: CHIMNY CHIMNEY Element type: Symbol</p>

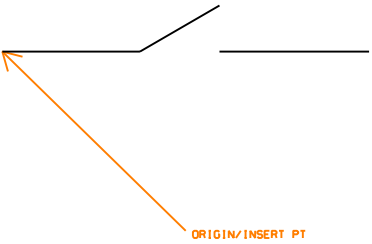
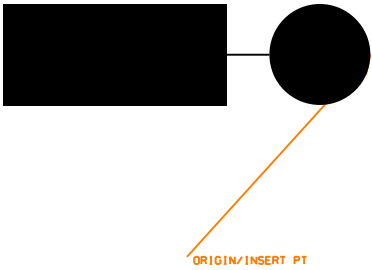
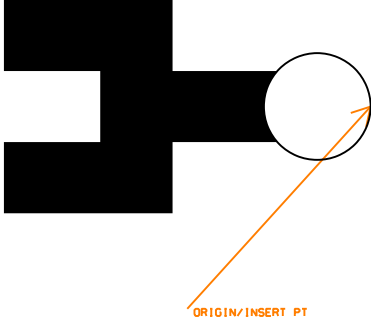
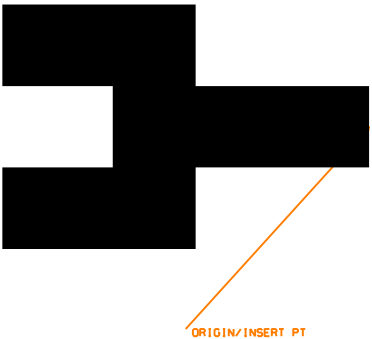
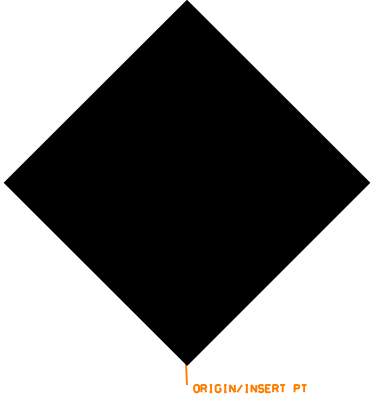
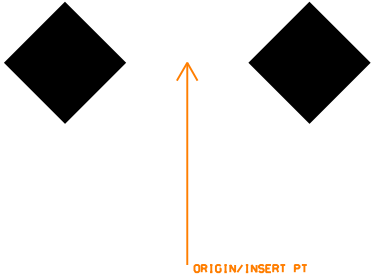
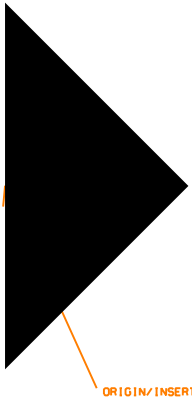
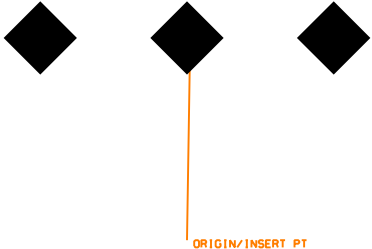
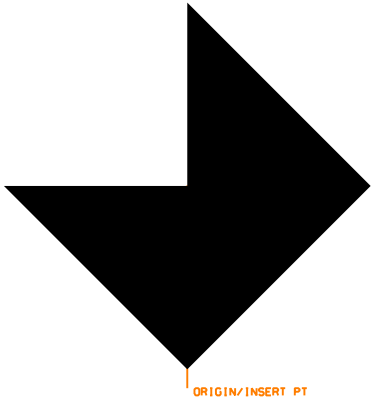
		
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<p>Fire Protection: CONSA SIAMESE FIRE DPT CONNECTION Element type: Symbol</p>	<p>Fire Protection: CONSG SINGLE FIRE DPT. CONNECTION Element type: Symbol</p>	<p>Fire Protection: CPESR ELEVATOR STATUS RECALL Element type: Symbol</p>
		
<p>Fire Protection: CPFAC FIRE AL COMMUNICATOR Element type: Symbol</p>	<p>Fire Protection: CPFCP F A CONTROL PANEL Element type: Symbol</p>	<p>Fire Protection: CPFSA F A FIRE SYS ANNUNCIATOR Element type: Symbol</p>

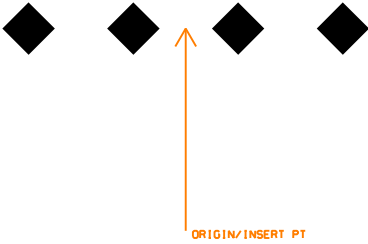
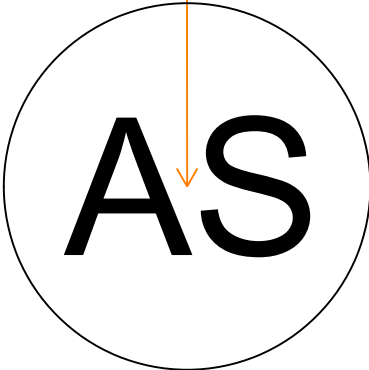
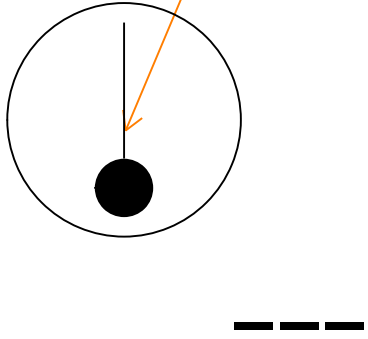
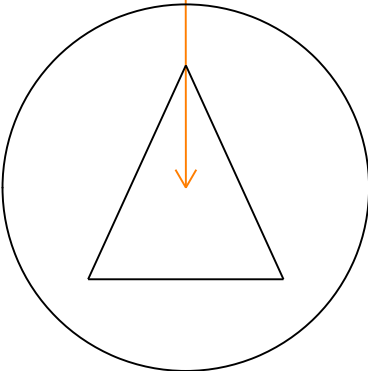
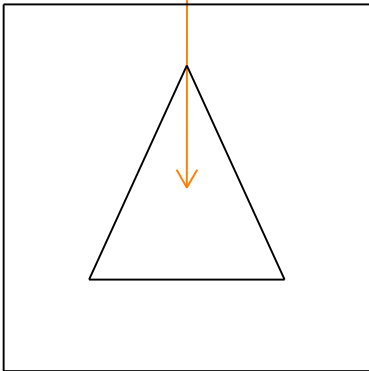
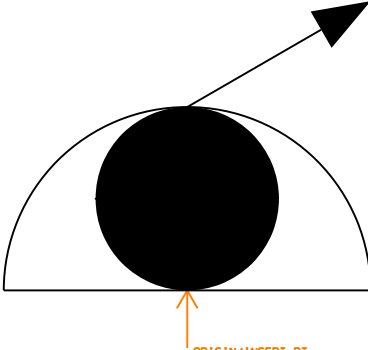
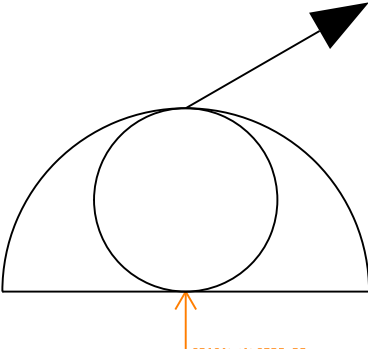
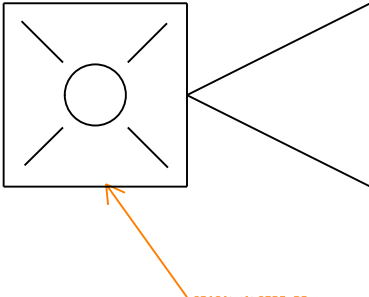
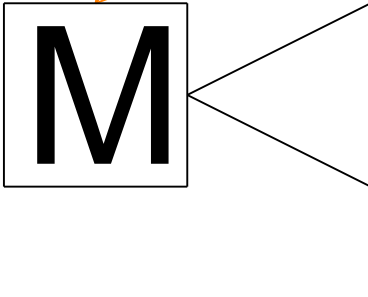
		
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<p>Fire Protection: DCATAA ALLTYPE FIREEXTNGSHRAUTOACT Element type: Symbol</p>	<p>Fire Protection: DCATMA ALLTYPE FIREEXTNGSHR MANACT Element type: Symbol</p>	<p>Fire Protection: DCEABC DRY CHEM EXTNGSHR ABC TYPE Element type: Symbol</p>
		
<p>Fire Protection: DCEBC DRY CHEM EXTNGUISHR BC TYPE Element type: Symbol</p>	<p>Fire Protection: DCECO2 CO2 EXTINGUISHER Element type: Symbol</p>	<p>Fire Protection: DCEHLN HALON OR CLEANAGENTEXTNGSHR Element type: Symbol</p>

		
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<p>Fire Protection: DRHOLD            DOOR HOLDER            Element type: Symbol</p>	<p>Fire Protection: DTFLAM            FLAME DETECTOR            Element type: Symbol</p>	<p>Fire Protection: DTFLOW            FA FLOW DETECTOR            Element type: Symbol</p>

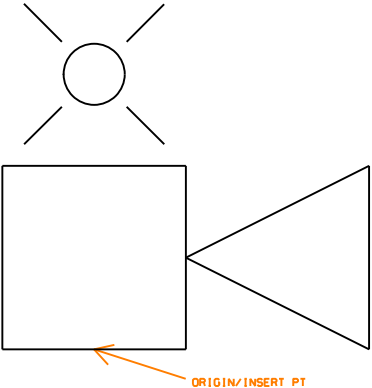
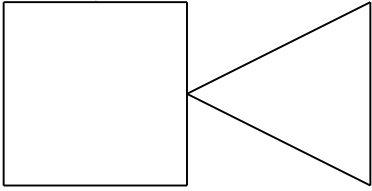
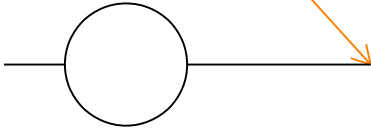
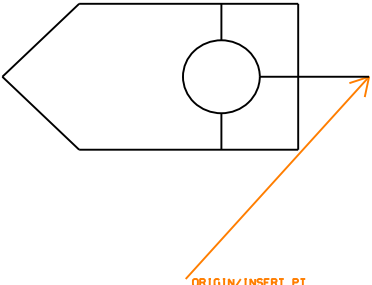
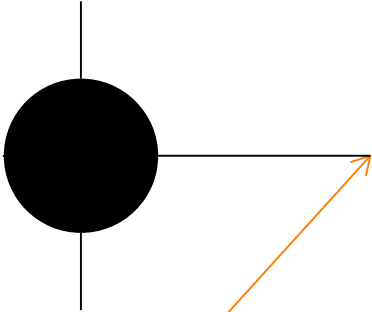
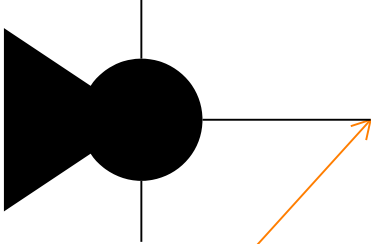
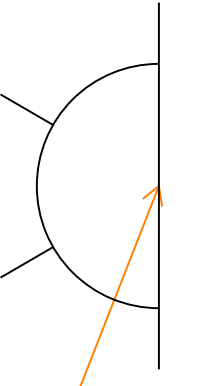
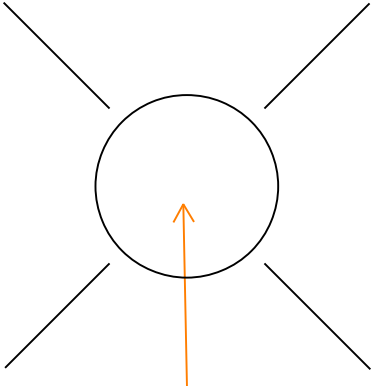
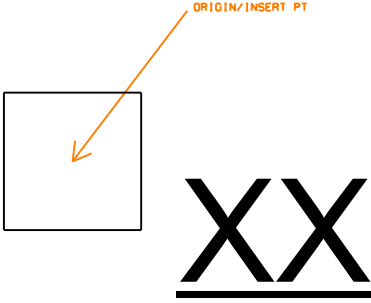
<p>Fire Protection: DTGAS FA GAS DETECTOR Element type: Symbol</p>	<p>Fire Protection: DTLEVEL FA LEVEL DETECTOR Element type: Symbol</p>	<p>Fire Protection: DTPRES FA PRESSURE DETECTOR Element type: Symbol</p>
<p>Fire Protection: DTTAMP FA TAMPER DETECTOR Element type: Symbol</p>	<p>Fire Protection: ELBP1L 1LAMP EMRGNCY LGHTBTTRY PWR Element type: Symbol</p>	<p>Fire Protection: ELBP2L 2LAMP EMRGNCY LGHTBTTRY PWR Element type: Symbol</p>
<p>Fire Protection: ELBP3L 3LAMP EMRGNCY LGHTBTTRY PWR Element type: Symbol</p>	<p>Fire Protection: EPSTA EMERGENCY PHONE STATION Element type: Symbol</p>	<p>Fire Protection: ESCAPE FIRE ESCAPE Element type: Symbol</p>

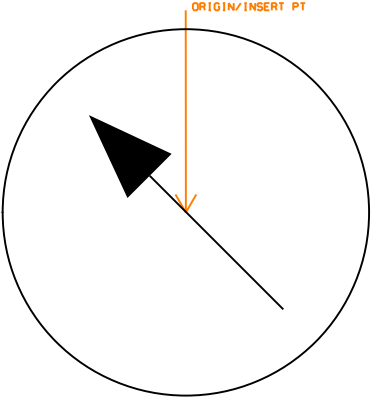
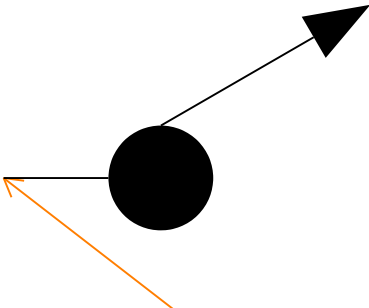
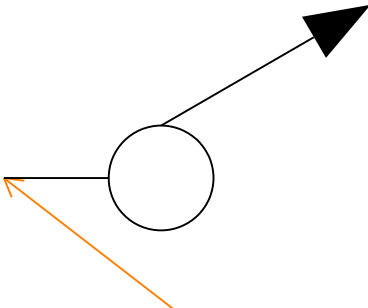
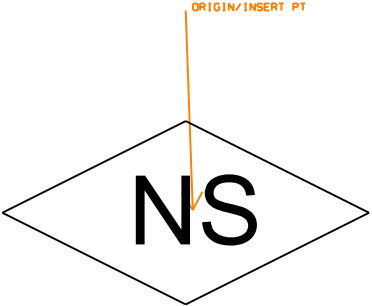
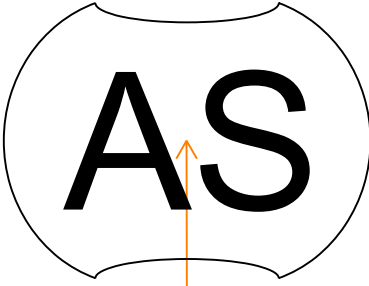
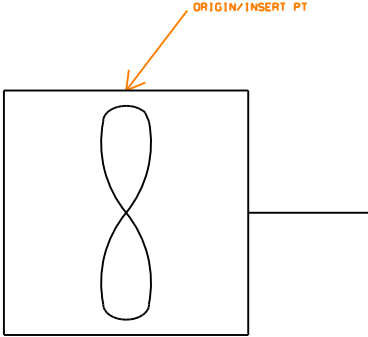
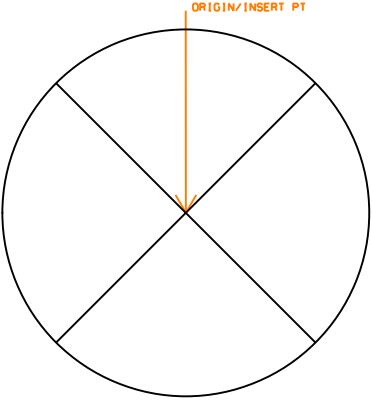
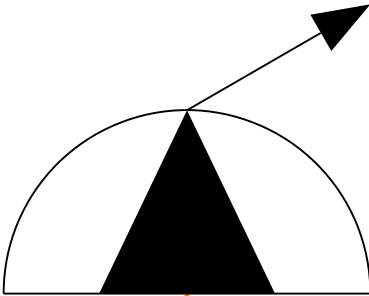
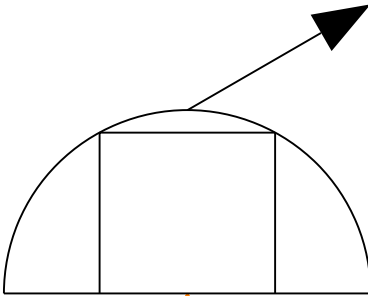
		
<p>Fire Protection: EXFOAM FOAM EXTINGUISHER Element type: Symbol</p>	<p>Fire Protection: EXITCM CEILING MNTD EXITSIGN LIGHT Element type: Symbol</p>	<p>Fire Protection: EXITLF EXIT SIGN LIGHTED FACE Element type: Symbol</p>
		
<p>Fire Protection: EXITWM WALL MOUNTD EXIT SIGN LIGHT Element type: Symbol</p>	<p>Fire Protection: EXWATR WATER EXTINGUISHER Element type: Symbol</p>	<p>Fire Protection: FANDCT DUCT FAN Element type: Symbol</p>
		
<p>Fire Protection: FANGEN GENERAL FAN Element type: Symbol</p>	<p>Fire Protection: FANWAL WALL FAN Element type: Symbol</p>	<p>Fire Protection: FDOR3 3HR RATED FIRE DOOR IN WALL Element type: Symbol</p>

		
<p>Fire Protection: FDORL3 WALL W 3 HOUR RATED DOOR Element type: Symbol</p>	<p>Fire Protection: FPDRIV FIRE PUMP WITH DRIVES Element type: Symbol</p>	<p>Fire Protection: FPFREE FREE STANDING TEST HEADER Element type: Symbol</p>
		
<p>Fire Protection: FPTEST WALL MOUNTED TEST HEADER Element type: Symbol</p>	<p>Fire Protection: FRR1HR 1 HR FIRE RATING Element type: Symbol</p>	<p>Fire Protection: FRR2HR 2 HR FIRE RATING Element type: Symbol</p>
		
<p>Fire Protection: FRR30M 30 MIN FIRE RATING Element type: Symbol</p>	<p>Fire Protection: FRR3HR 3 HR FIRE RATING Element type: Symbol</p>	<p>Fire Protection: FRR45M 45 MIN FIRE RATING Element type: Symbol</p>

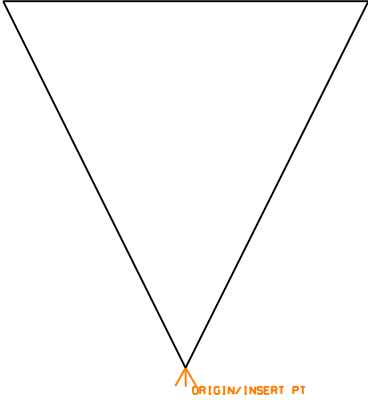
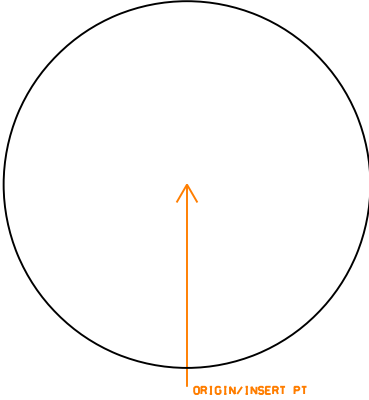
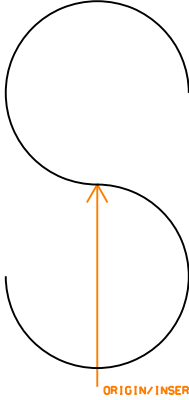
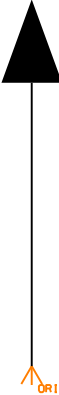
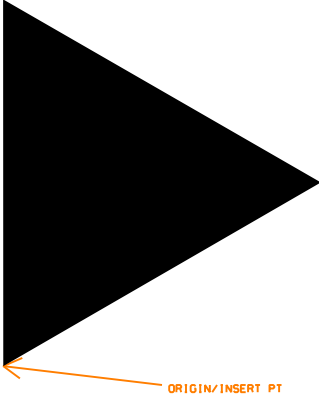
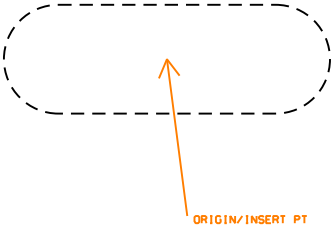
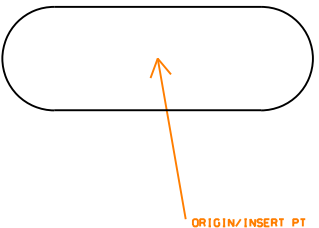
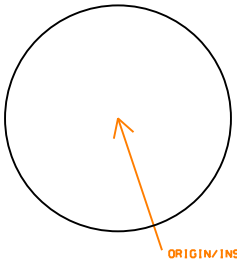
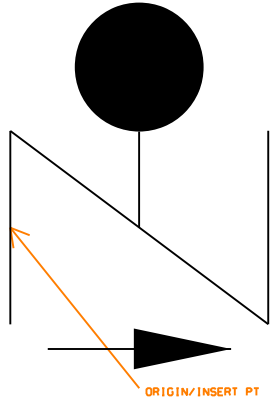
		
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<p>Fire Protection: HLNAA AUTO ACT HALON EXTINGUISHER Element type: Symbol</p>	<p>Fire Protection: HLNMA MAN ACT HALON EXTNGSHR Element type: Symbol</p>	<p>Fire Protection: HOSECS HOSE STATION CHRGD STNDPIPE Element type: Symbol</p>
		
<p>Fire Protection: HOSEDS HOSE STATION DRY STANDPIPE Element type: Symbol</p>	<p>Fire Protection: HRN1A HORN LIGHT 1 ASSY Element type: Symbol</p>	<p>Fire Protection: HRNMIN MINI HORN Element type: Symbol</p>



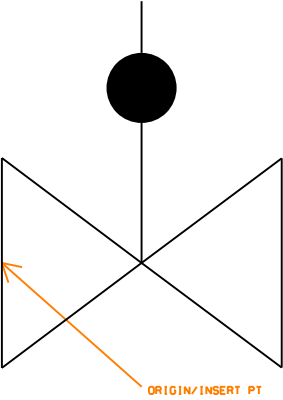
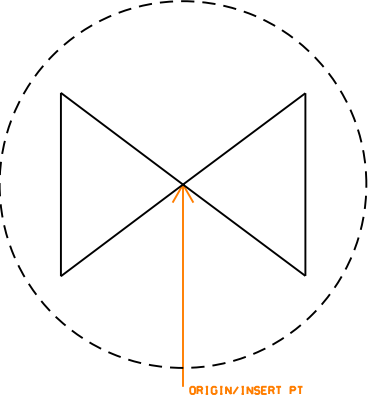
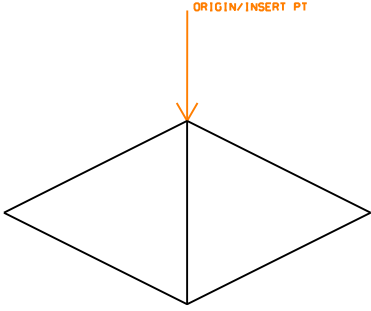
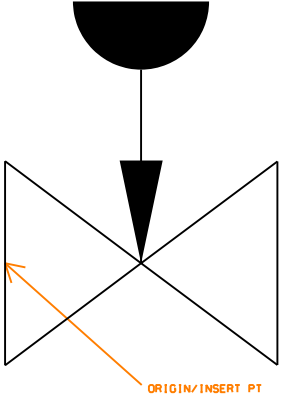
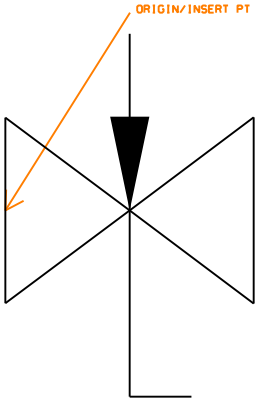
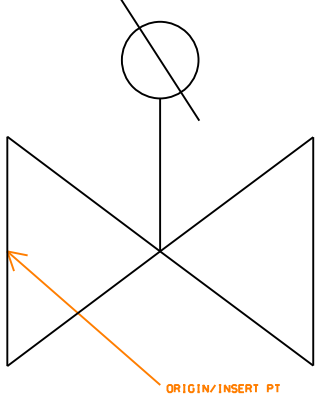
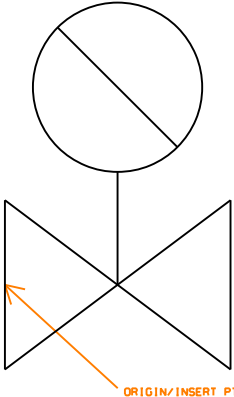
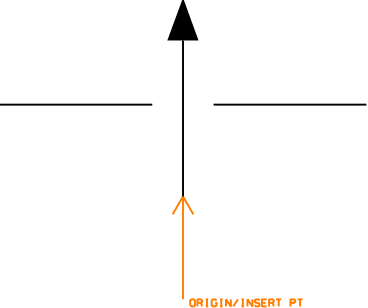
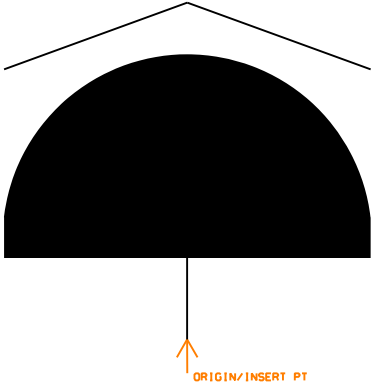
		
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<p>Fire Protection: HYDPR2 PRIVATE HOUSED HYDRANT Element type: Symbol</p>	<p>Fire Protection: HYDPU2 PUBLIC TWO HOSE OUTLET HYD Element type: Symbol</p>	<p>Fire Protection: HYDPUP PUBHYDRNT2HOSOUTLTPMPCONN Element type: Symbol</p>
		
<p>Fire Protection: HYDW2H WALL HYDRANT 2 HOSE OUTLET Element type: Symbol</p>	<p>Fire Protection: LITFAS FA STROBE LIGHT Element type: Symbol</p>	<p>Fire Protection: MANSTA MANUAL STATION Element type: Symbol</p>


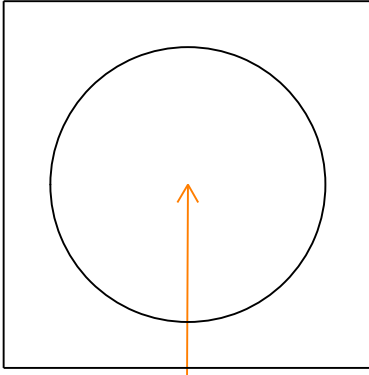
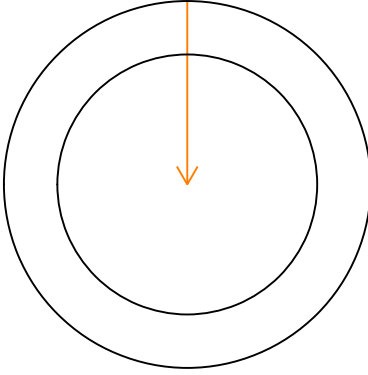
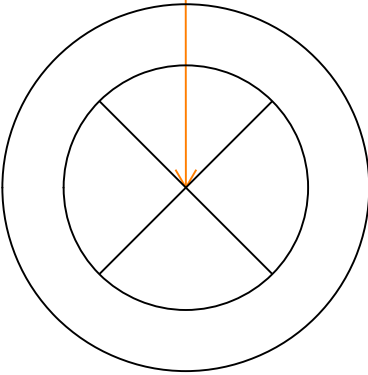
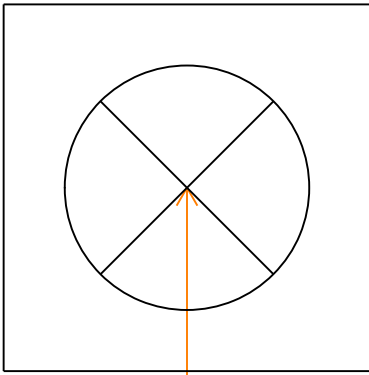
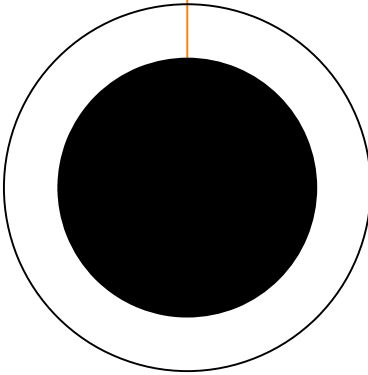
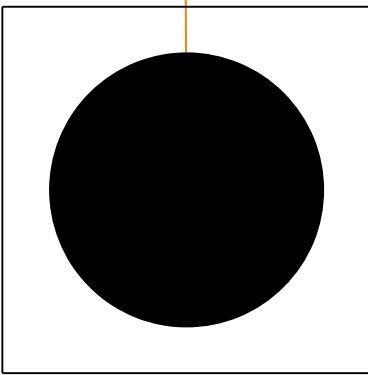
		
<p>Fire Protection: METRFP FP METER Element type: Symbol</p>	<p>Fire Protection: MNCHRG MONITOR NOZZLE CHARGED Element type: Symbol</p>	<p>Fire Protection: MNDRY MONITOR NOZZLE DRY Element type: Symbol</p>
		
<p>Fire Protection: NONSS NONSPRINKLERED SPACE Element type: Symbol</p>	<p>Fire Protection: PARTSS PARTIALLY SPRINKLERED SPACE Element type: Symbol</p>	<p>Fire Protection: PURGE MANUAL PURGE CONTROL Element type: Symbol</p>
		
<p>Fire Protection: RISER RISER Element type: Symbol</p>	<p>Fire Protection: RSCO2 CO2 REEL STATION Element type: Symbol</p>	<p>Fire Protection: RSDRYC DRY CHEMICAL REEL STATION Element type: Symbol</p>

<p>Fire Protection: RSFOAM FOAM REEL STATION Element type: Symbol</p>	<p>Fire Protection: SCREEN SCREEN Element type: Symbol</p>	<p>Fire Protection: SD SMOKE DETECTOR Element type: Symbol</p>
<p>Fire Protection: SDUCT SMOKE DETECTOR FOR DUCT Element type: Symbol</p>	<p>Fire Protection: SHGARD SPRINKLER HEAD W GUARD Element type: Symbol</p>	<p>Fire Protection: SHNUU NIPPLED UP UPRIGHT SPRNKL Element type: Symbol</p>
<p>Fire Protection: SHOUT OUTSIDE SPRINKLER HEAD Element type: Symbol</p>	<p>Fire Protection: SHPEND PENDENT SPRINKLER HEAD Element type: Symbol</p>	<p>Fire Protection: SHPNDN PENDENTSPRNKLR DROP NIPPL Element type: Symbol</p>

		
<p>Fire Protection: SHSIDE SIDEWALL SPRINKLER HEAD Element type: Symbol</p>	<p>Fire Protection: SHUPRT UPRIGHT SPRINKLER HEAD Element type: Symbol</p>	<p>Fire Protection: SMKBR SMOKE BARRIER Element type: Symbol</p>
		
<p>Fire Protection: SSNOZZ SPECIAL SPRAY NOZZLE Element type: Symbol</p>	<p>Fire Protection: THRUST THRUST BLOCK Element type: Symbol</p>	<p>Fire Protection: TNKBG TANK BELOW GROUND Element type: Symbol</p>
		
<p>Fire Protection: TNKHAG TANK HORIZ ABOVE GROUND Element type: Symbol</p>	<p>Fire Protection: TNKVAG TANK VERTICAL ABOVE GROUND Element type: Symbol</p>	<p>Fire Protection: VLVCHA ALARM CHECK VALVE Element type: Symbol</p>

<p>Fire Protection: VLVCHK CHECK VALVE Element type: Symbol</p>	<p>Fire Protection: VLVDL DELUGE VALVE Element type: Symbol</p>	<p>Fire Protection: VLVDRY DRY PIPE VALVE Element type: Symbol</p>
<p>Fire Protection: VLVFLT FLOAT VALVE Element type: Symbol</p>	<p>Fire Protection: VLVDEN GENERAL VALVE Element type: Symbol</p>	<p>Fire Protection: VLVDIBF INDICATING BUTTERFLY VALVE Element type: Symbol</p>
<p>Fire Protection: VLVKEY KEY OPERATED VALVE Element type: Symbol</p>	<p>Fire Protection: VLVDNON VALVE NONRISING STEM Element type: Symbol</p>	<p>Fire Protection: VLVDOSY OS Y VALVE Element type: Symbol</p>

		
<p>Fire Protection: VLVPI POST INDICATOR VALVE Element type: Symbol</p>	<p>Fire Protection: VLVPI VALVE IN PIT Element type: Symbol</p>	<p>Fire Protection: VLVPRE PREACTION VALVE Element type: Symbol</p>
		
<p>Fire Protection: VLVPRG PRESSURE REGULATING VALVE Element type: Symbol</p>	<p>Fire Protection: VLVPRV PRESSURE RELIEF VALVE Element type: Symbol</p>	<p>Fire Protection: VLVQOD VALVE W QUICK OPENING DEVICE Element type: Symbol</p>
		
<p>Fire Protection: VLVTDS VALVE TAMPERDETECTION SWITC Element type: Symbol</p>	<p>Fire Protection: VNTOPN VENTILATION OPENINGS Element type: Symbol</p>	<p>Fire Protection: WALARM WATER MOTOR ALARM Element type: Symbol</p>

		
<p>Fire Protection: WATRSS WATER SPRAY SYSTEM Element type: Symbol</p>	<p>Fire Protection: WBDSMA WATER BASED DRY SYS MAN ACT Element type: Symbol</p>	<p>Fire Protection: WBDSSA WATERBASED DRY SYS AUTO ACT Element type: Symbol</p>
		
<p>Fire Protection: WBFSAA WATR BASED FOAM SYS AUTOACT Element type: Symbol</p>	<p>Fire Protection: WBFSMA WATR BASED FOAM SYS MANACT Element type: Symbol</p>	<p>Fire Protection: WBWSAA WATERBASED WET SYS AUTO ACT Element type: Symbol</p>
		
<p>Fire Protection: WBWSMA WATER BASED WET SYS MAN ACT Element type: Symbol</p>		

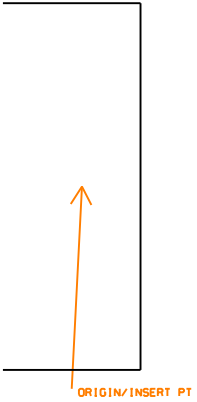
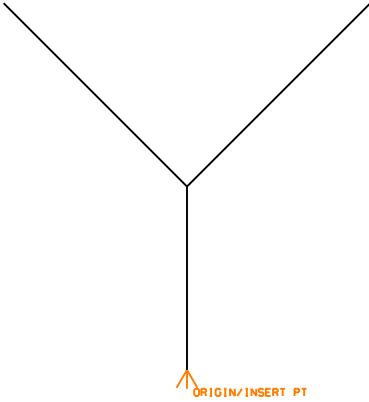
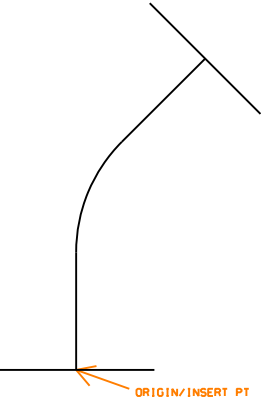
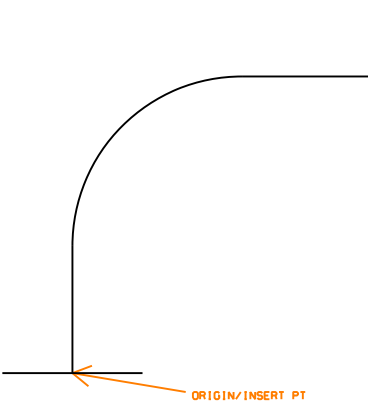
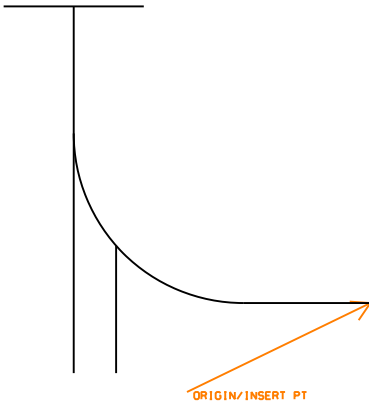
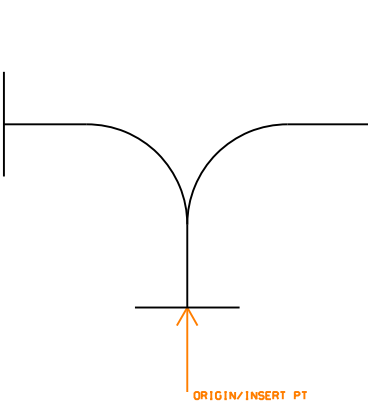
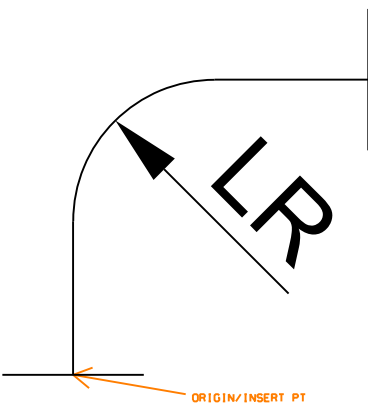
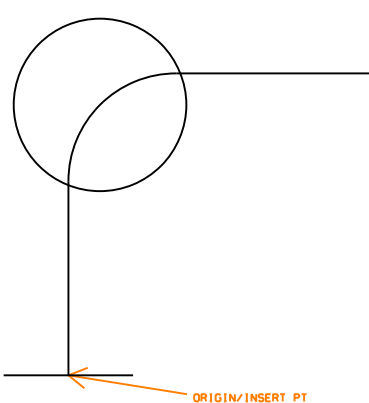
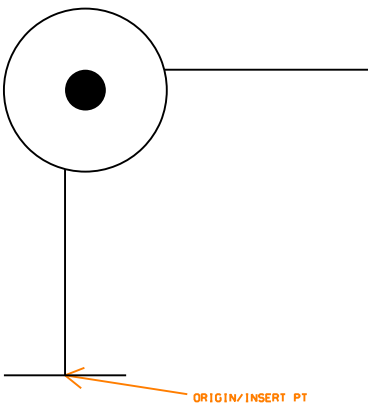
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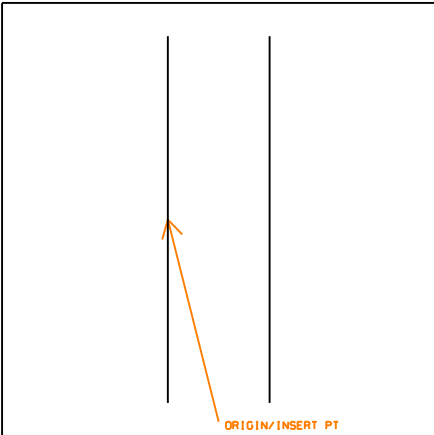
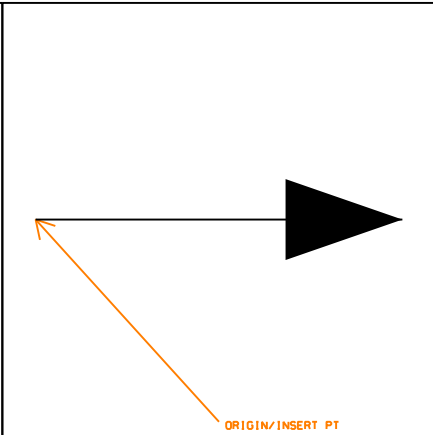
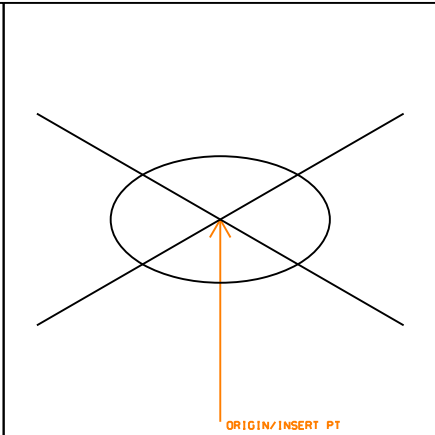
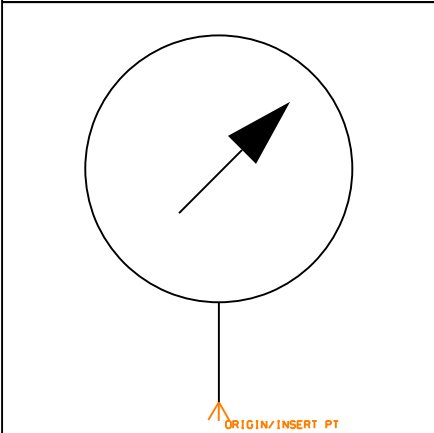
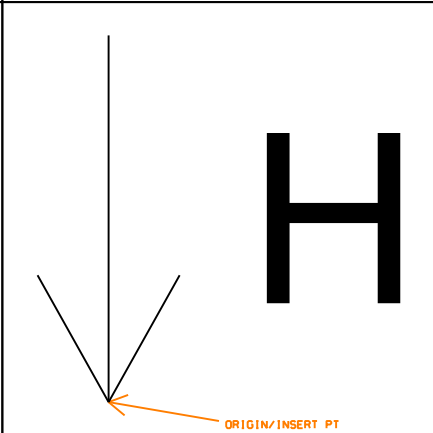
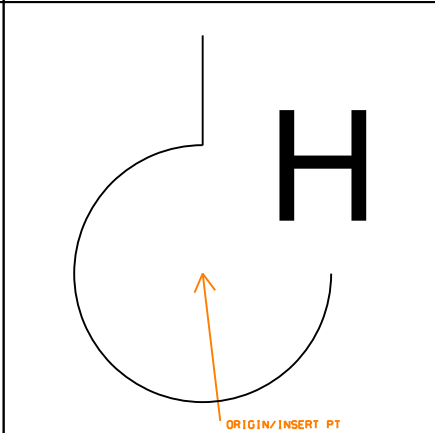
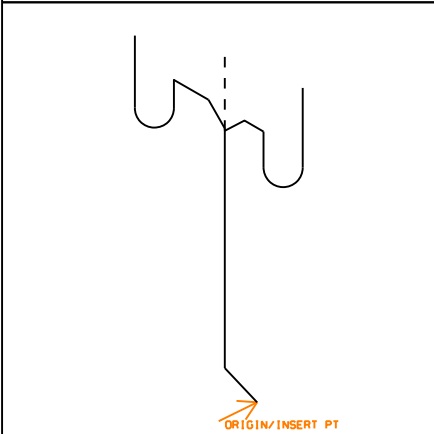
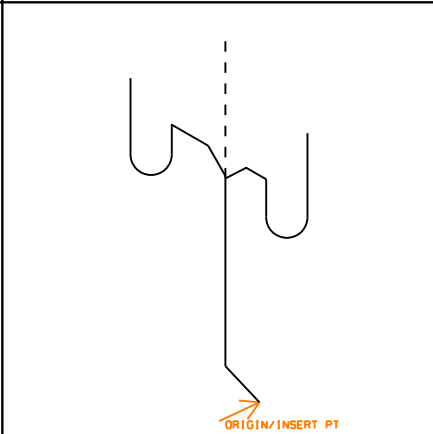
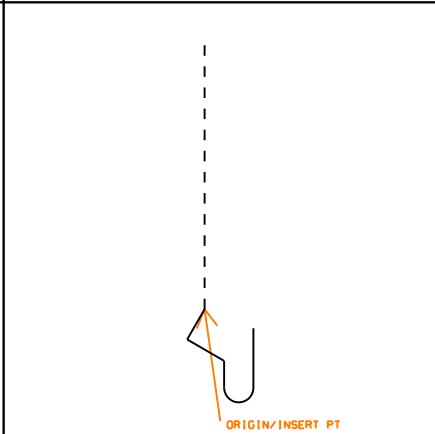
# 13 Plumbing Symbols Library

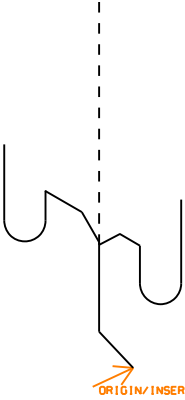
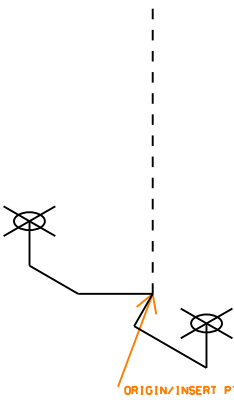

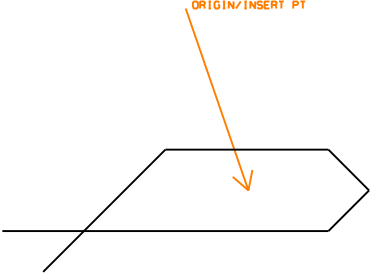
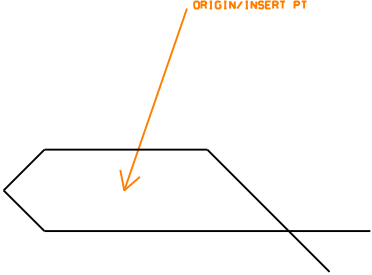
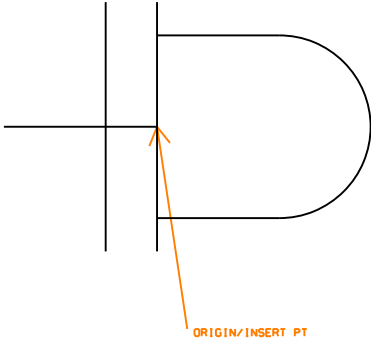
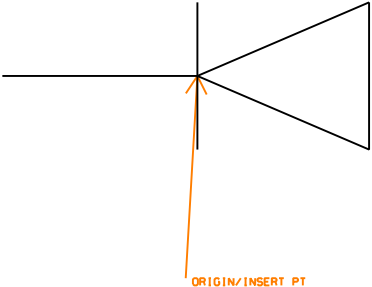
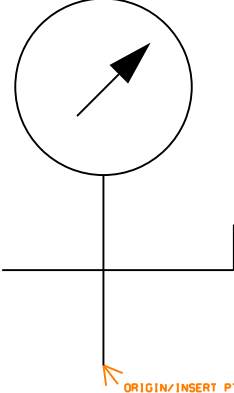
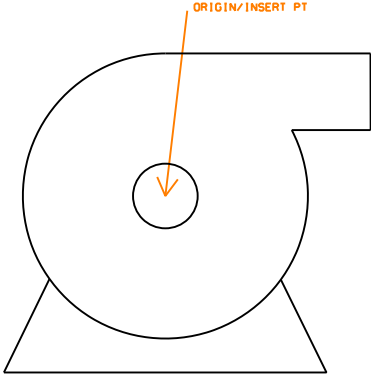
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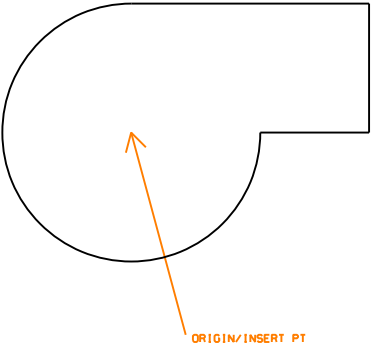
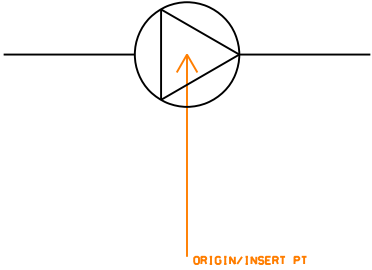
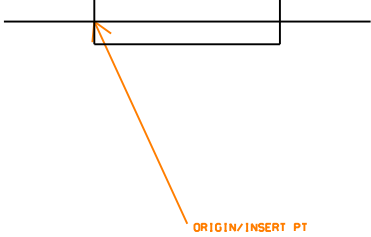
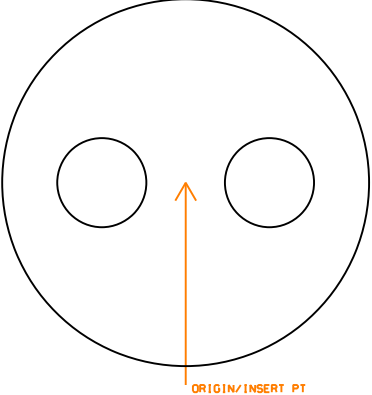
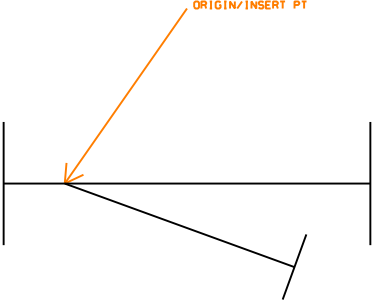
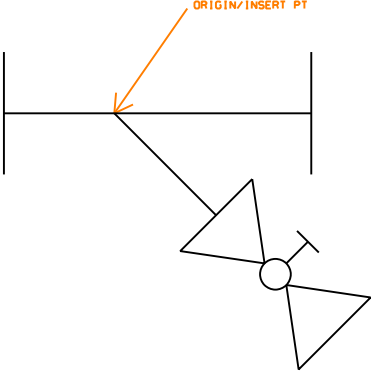
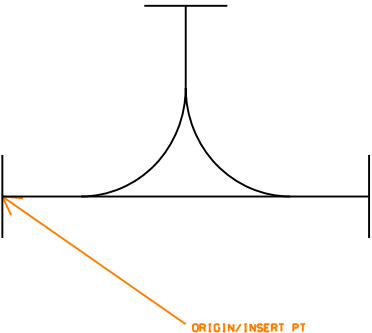
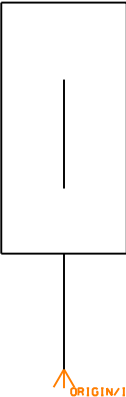
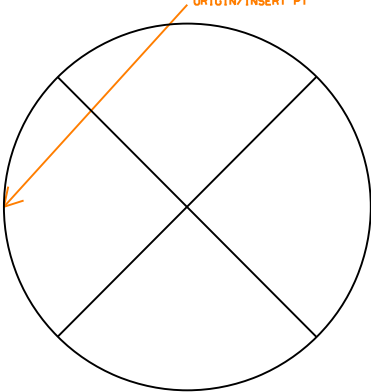
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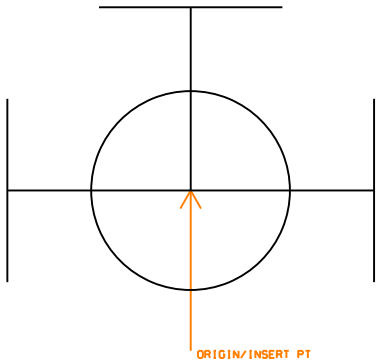
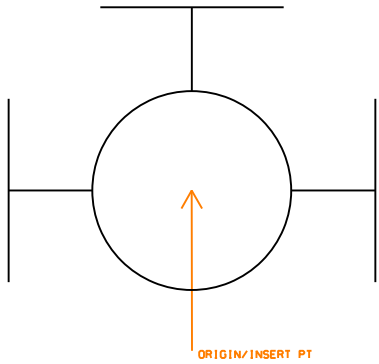
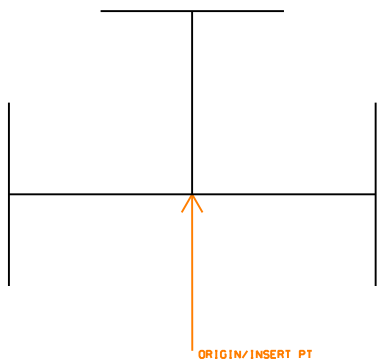
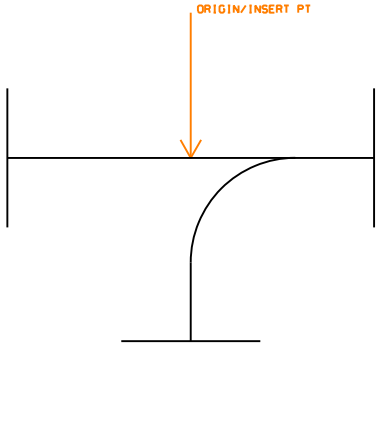
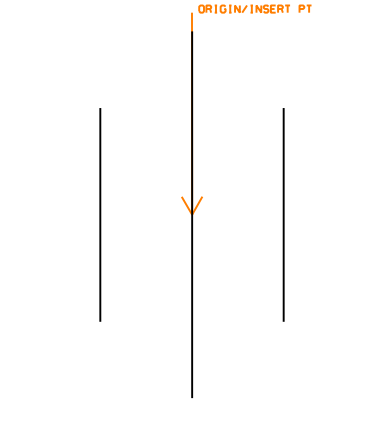
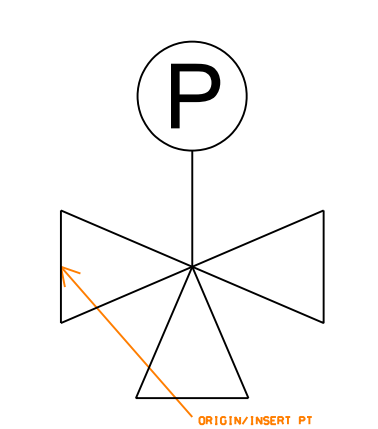
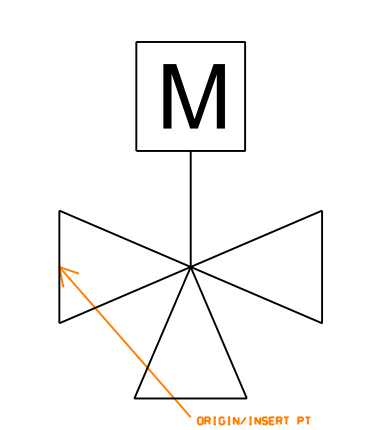
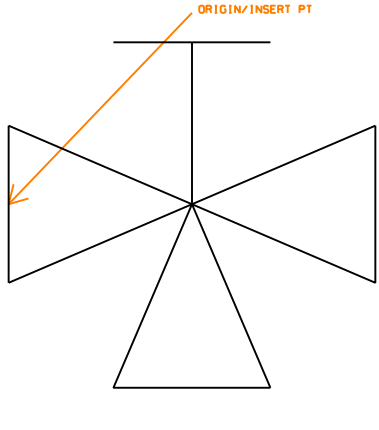
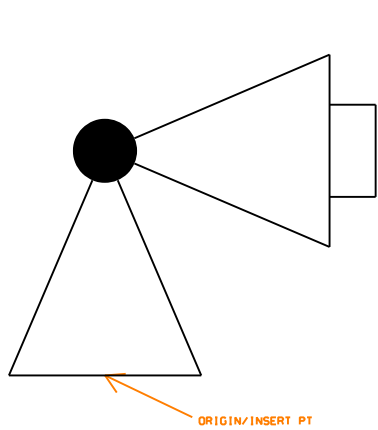
		
<p>Plumbing: CAPSC CAP Element type: Symbol</p>	<p>Plumbing: DRNFUN OPEN DRAIN FUNNEL Element type: Symbol</p>	<p>Plumbing: EL45SC 45 DEGREE ELBOW Element type: Symbol</p>
		
<p>Plumbing: EL90SC 90 DEGREE ELBOW Element type: Symbol</p>	<p>Plumbing: ELBSC BASE ELBOW Element type: Symbol</p>	<p>Plumbing: ELDBSC DOUBLE BRANCH ELBOW Element type: Symbol</p>
		
<p>Plumbing: ELLRSC LONG RADIUS ELBOW Element type: Symbol</p>	<p>Plumbing: ELODSC ELBOW SIDE OUTLET DOWN Element type: Symbol</p>	<p>Plumbing: ELOUSC ELBOW SIDE OUTLET UP Element type: Symbol</p>

<p>Plumbing: ELSTRT STREET ELBOW Element type: Symbol</p>	<p>Plumbing: ELTDSC TURNED DOWN ELBOW Element type: Symbol</p>	<p>Plumbing: ELTUSC TURNED UP ELBOW Element type: Symbol</p>
<p>Plumbing: FCO FLOOR CLEANOUT Element type: Symbol</p>	<p>Plumbing: FDCO FLOOR DRAIN WITH CLEANOUT Element type: Symbol</p>	<p>Plumbing: FDDT FLOOR DRAIN WITH DEEP TRAP Element type: Symbol</p>
<p>Plumbing: FDNT FLOOR DRAIN WITH NO TRAP Element type: Symbol</p>	<p>Plumbing: FDTP FLOOR DRAIN WITH TRAP PRIME Element type: Symbol</p>	<p>Plumbing: FDWT FLOOR DRAIN WITH TRAP Element type: Symbol</p>

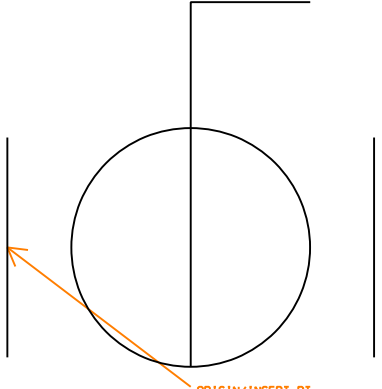
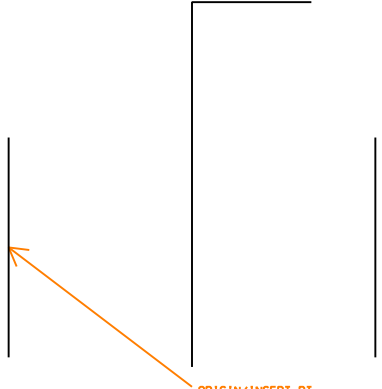
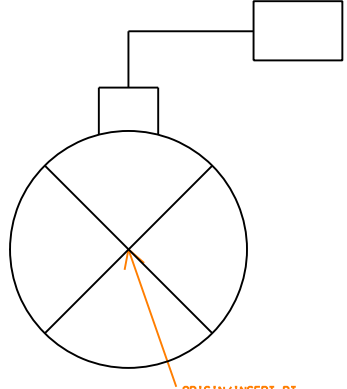
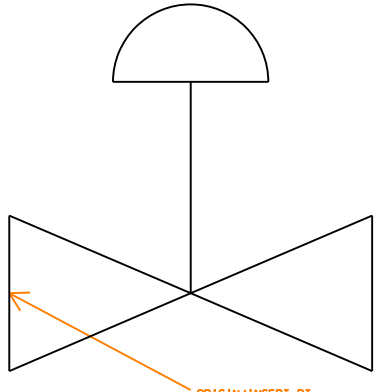
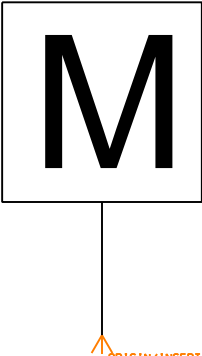
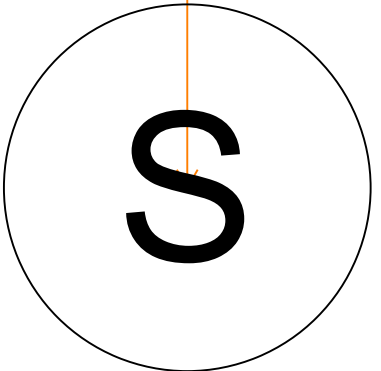
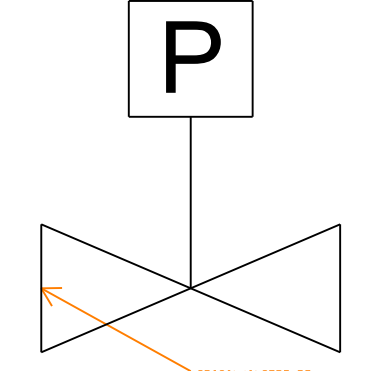
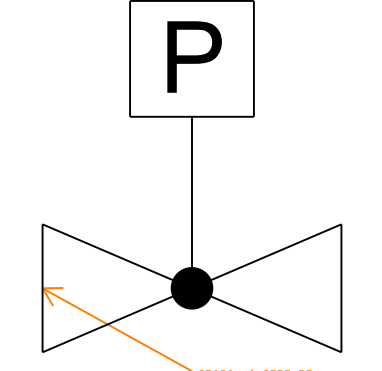
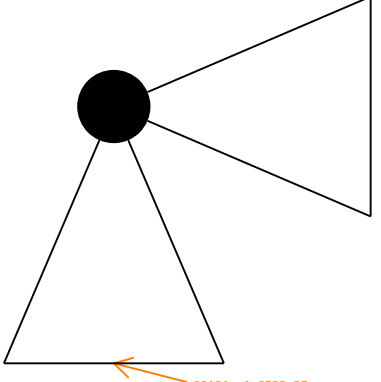
		
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<p>Plumbing: GAUGE GAUGE Element type: Symbol</p>	<p>Plumbing: HANGRD HANGER ROD Element type: Symbol</p>	<p>Plumbing: HANGSP HANGER SPRING Element type: Symbol</p>
		
<p>Plumbing: ISOEWC ISOMETRIC EWC Element type: Symbol</p>	<p>Plumbing: ISOLAV ISOMETRIC LAVATORIES Element type: Symbol</p>	<p>Plumbing: ISOMOP ISO MOP SINK Element type: Symbol</p>

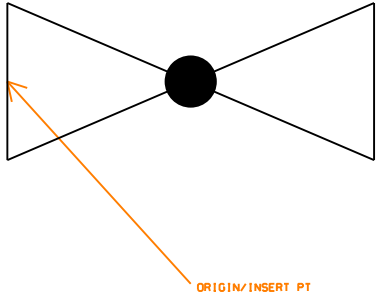
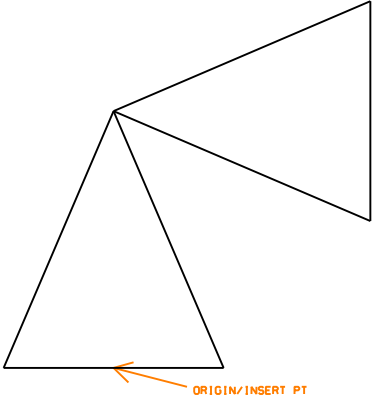
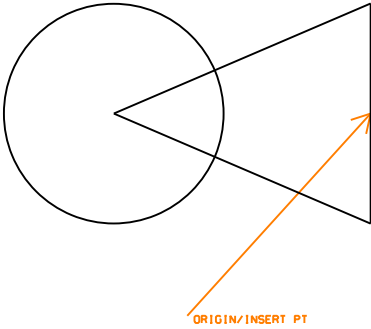
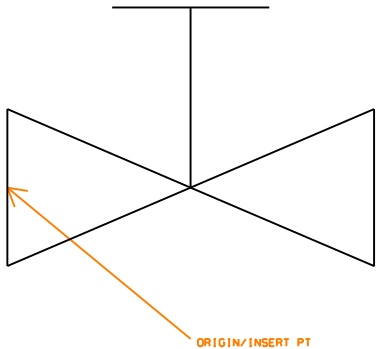
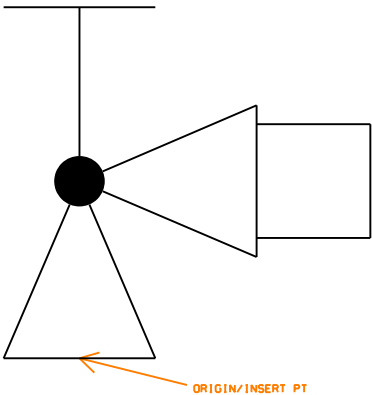
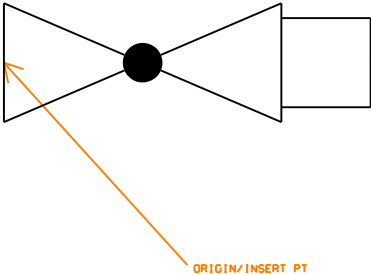
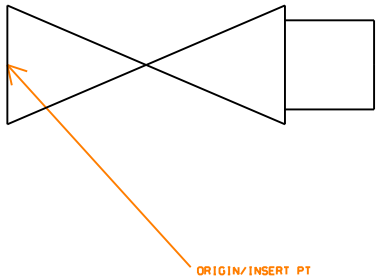
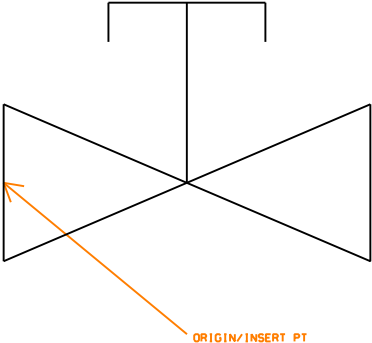
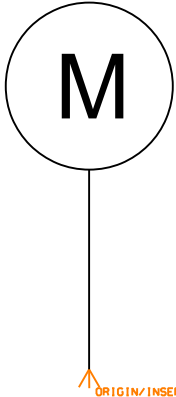
		
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<p>Plumbing: LOOPL LEFT DIMENSION LOOP Element type: Symbol</p>	<p>Plumbing: LOOPR RIGHT DIMENSION LOOP Element type: Symbol</p>	<p>Plumbing: PLGBFL BULL PLUG FLANGED Element type: Symbol</p>
		
<p>Plumbing: PLGPSC PIPE PLUG Element type: Symbol</p>	<p>Plumbing: PRGGCO PRESSURE GAGE AND COCK Element type: Symbol</p>	<p>Plumbing: PUMP PUMP Element type: Symbol</p>


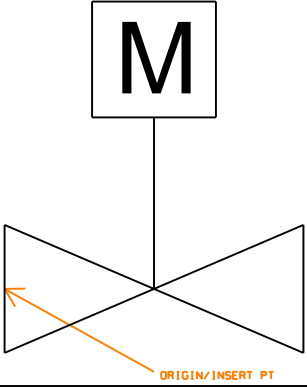
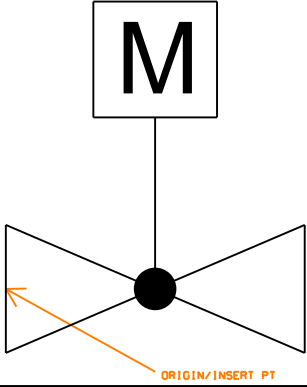
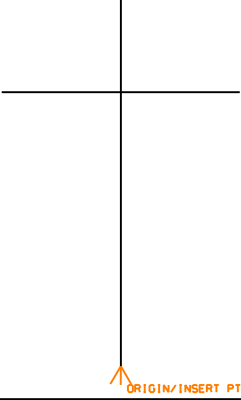
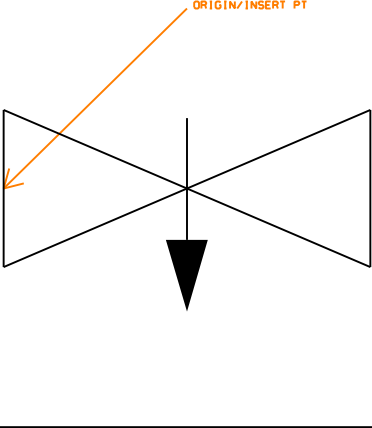
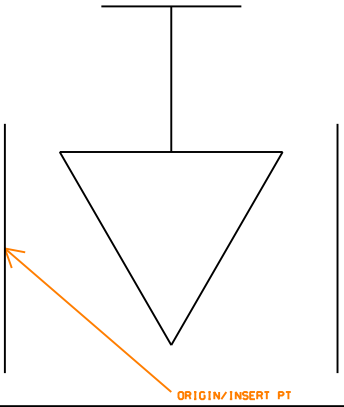
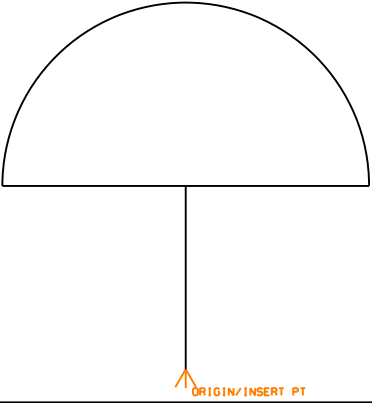
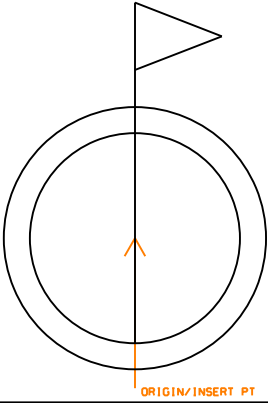
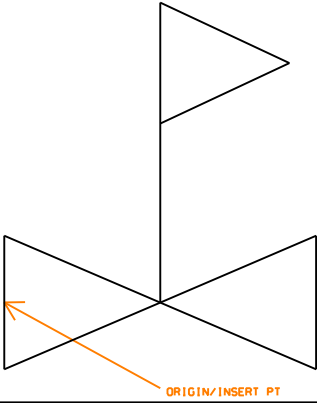
		
<p>Plumbing: PUMPP PUMP SCHEMATIC Element type: Symbol</p>	<p>Plumbing: PUMPS INLINE PUMP Element type: Symbol</p>	<p>Plumbing: SLEEVE SLEEVE Element type: Symbol</p>
		
<p>Plumbing: STGLAS SIGHT GLASS Element type: Symbol</p>	<p>Plumbing: STRAIN STRAINER Element type: Symbol</p>	<p>Plumbing: STRBLO BLOW OFF STRAINER Element type: Symbol</p>
		
<p>Plumbing: TDSSC DOUBLE SWEEP TEE Element type: Symbol</p>	<p>Plumbing: THERM THERMOMETER Element type: Symbol</p>	<p>Plumbing: TRAPST STEAM TRAP Element type: Symbol</p>

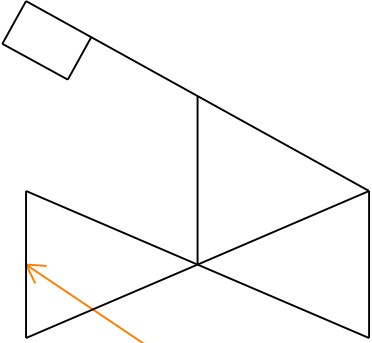
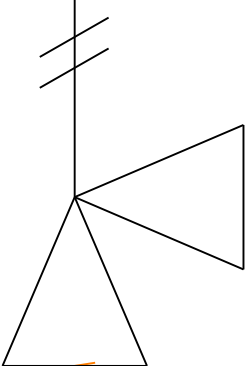
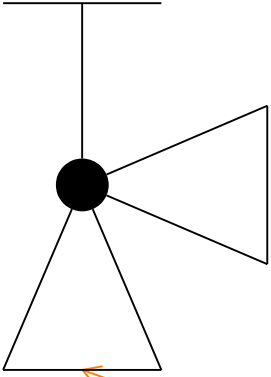
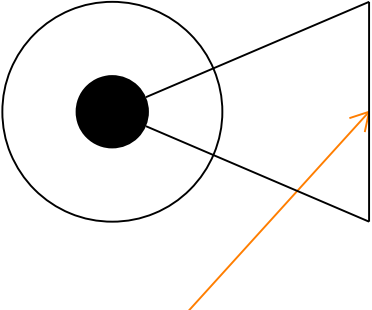
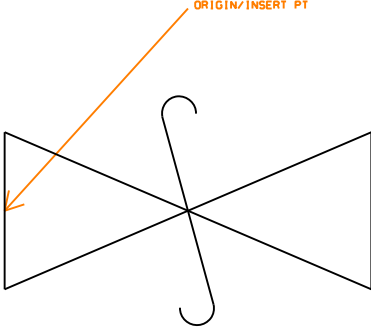
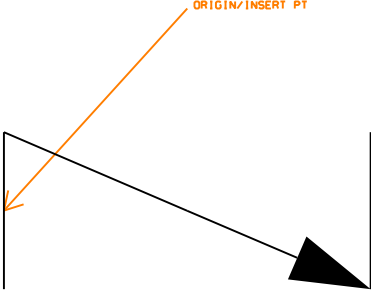
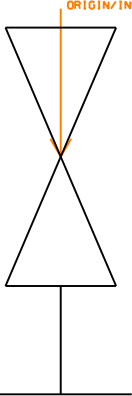
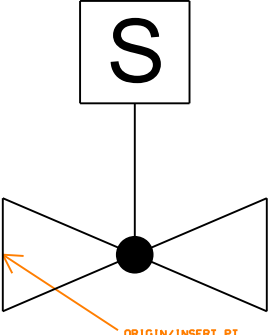
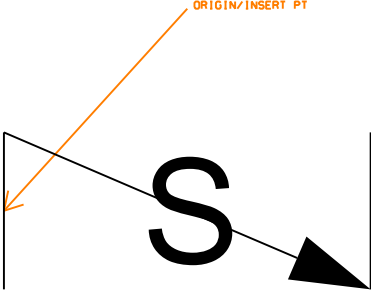
		
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<p>Plumbing: TSSWSC SINGLE SWEEP TEE Element type: Symbol</p>	<p>Plumbing: UNIOSC UNION Element type: Symbol</p>	<p>Plumbing: VA3WAM 3WAY AIRMOTOR CONTROLLER Element type: Symbol</p>
		
<p>Plumbing: VA3WEM 3WAY ELECTROMOTOR CONTROL Element type: Symbol</p>	<p>Plumbing: VA3WM 3 WAY MANUAL VALVE Element type: Symbol</p>	<p>Plumbing: VAAHOS ANGLE HOSE VALVE Element type: Symbol</p>

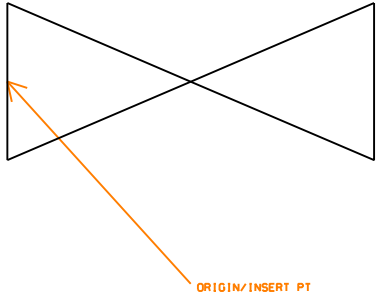
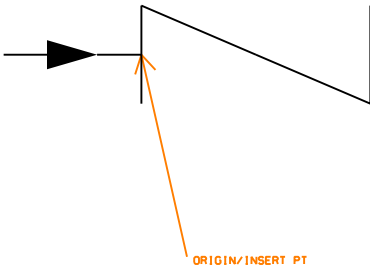
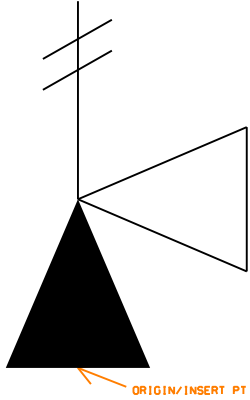
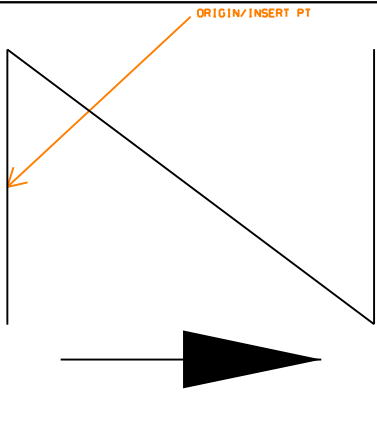


		
<p>Plumbing: VABALL BALL VALVE PLAN Element type: Symbol</p>	<p>Plumbing: VABFLY BUTTERFLY VALVE Element type: Symbol</p>	<p>Plumbing: VACWR CONDENSWATER REGULATVALVE Element type: Symbol</p>
		
<p>Plumbing: VADISC DIAPHRAGM VALVE Element type: Symbol</p>	<p>Plumbing: VAEMTR PNEUMATIC MOTOR Element type: Symbol</p>	<p>Plumbing: VAESOL SOLENOID VALVE ACTUATOR Element type: Symbol</p>
		
<p>Plumbing: VAGAMC PNEUMATIC CTRLD GATE VALVE Element type: Symbol</p>	<p>Plumbing: VAGLAM PNEUMATIC CTRLD GLOBE VLV Element type: Symbol</p>	<p>Plumbing: VAGLE ANGLE GLOBE VALVE Element type: Symbol</p>

		
<p>Plumbing: VAGLSE GLOBE VALVE Element type: Symbol</p>	<p>Plumbing: VAGSE ANGLE GATE VALVE Element type: Symbol</p>	<p>Plumbing: VAGSP ANGLE GATE VALVE PLAN Element type: Symbol</p>
		
<p>Plumbing: VAGTSE GATE VALVE Element type: Symbol</p>	<p>Plumbing: VAHASC GATE VALVE PLAN Element type: Symbol</p>	<p>Plumbing: VAHGLS HOSE GLOBE VALVE Element type: Symbol</p>
		
<p>Plumbing: VAHGSC HOSE GATE VALVE Element type: Symbol</p>	<p>Plumbing: VALSSC LOCK SHIELD VALVE Element type: Symbol</p>	<p>Plumbing: VAMAGS MAGNETIC STOP VALVE Element type: Symbol</p>

		
<p>Plumbing: VAMNNS VLV ACTUA MAN NONRISINGSTEM Element type: Symbol</p>	<p>Plumbing: VAMOGS MOTOR OPERATD GATE VALVE Element type: Symbol</p>	<p>Plumbing: VAMOLS MOTOR OPERATD GLOBE VALVE Element type: Symbol</p>
		
<p>Plumbing: VAMOSY VLV ACTTOR MAN OUTSTEM Element type: Symbol</p>	<p>Plumbing: VANEED NEEDLE VALVE Element type: Symbol</p>	<p>Plumbing: VAPLUG PLUG VALVE Element type: Symbol</p>
		
<p>Plumbing: VAPMTD VALVE ACTUATOR PNEUMOT Element type: Symbol</p>	<p>Plumbing: VAPRED PRESSURE REDUCING VALVE Element type: Symbol</p>	<p>Plumbing: VAPRRD PRESSURE REDUCING VALVE Element type: Symbol</p>

		
<p>Plumbing: VAQOSC QUICK OPENING VALVE Element type: Symbol</p>	<p>Plumbing: VARELF RELIEF OR SAFETY VALVE Element type: Symbol</p>	<p>Plumbing: VASCE ANGLE GLOBE VALVE Element type: Symbol</p>
		
<p>Plumbing: VASCP ANGLE GLOBE VALVE PLAN Element type: Symbol</p>	<p>Plumbing: VASFSC SAFETY VALVE Element type: Symbol</p>	<p>Plumbing: VASGCH SWING GATE CHECK VALVE Element type: Symbol</p>
		
<p>Plumbing: VASNAP SNAP ACTION VALVE Element type: Symbol</p>	<p>Plumbing: VASOLN SOLENOID VALVE Element type: Symbol</p>	<p>Plumbing: VASPCH SPRING CHECK VALVE Element type: Symbol</p>

		
<p>Plumbing: VASTSC GATE VALVE Element type: Symbol</p>	<p>Plumbing: VASWSC STRAIGHT WAY CHECK VALVE Element type: Symbol</p>	<p>Plumbing: VATPR TEMP PRESSURE RELIEF VALVE Element type: Symbol</p>
		
<p>Plumbing: VLVCHK CHECK VALVE Element type: Symbol</p>		

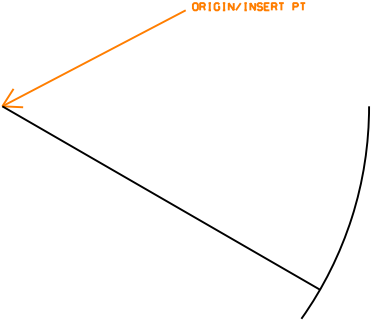
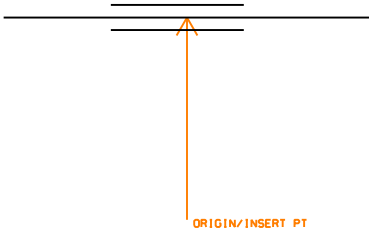
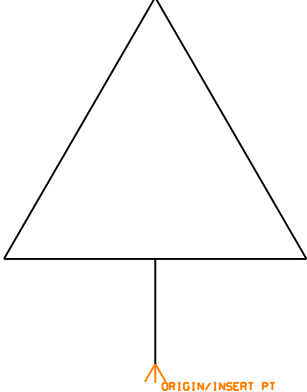
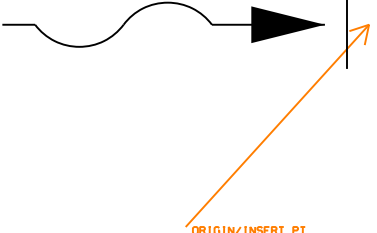
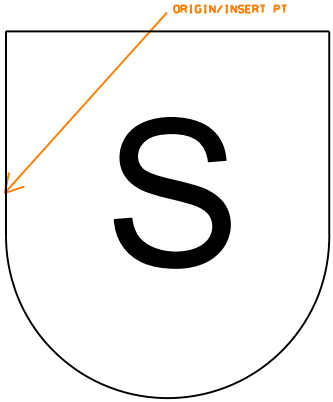
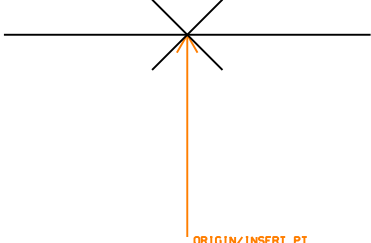
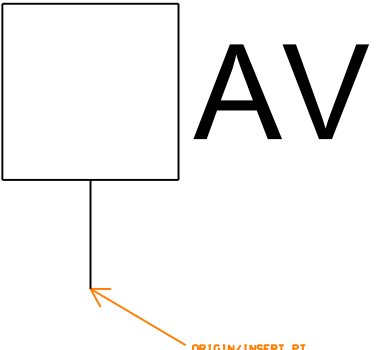
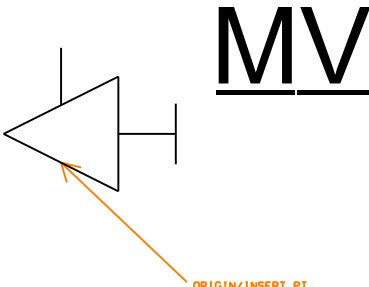
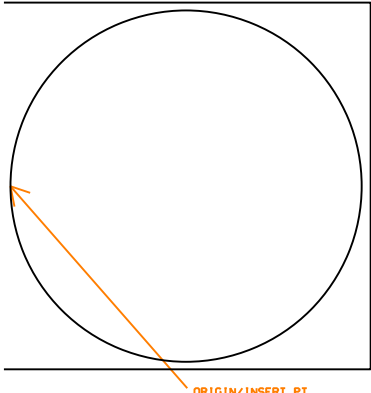
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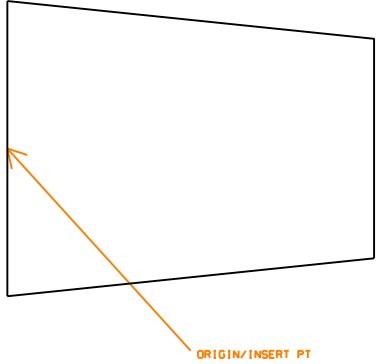

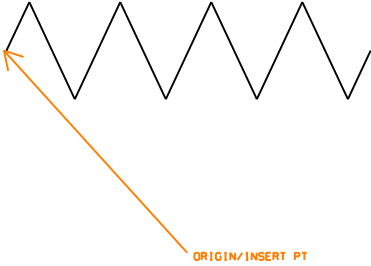
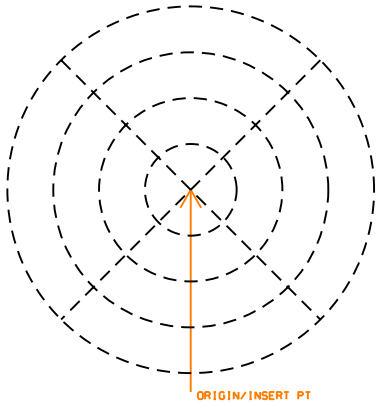
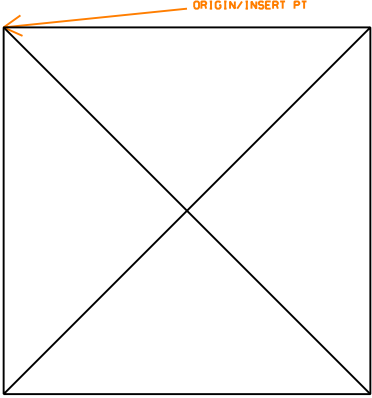
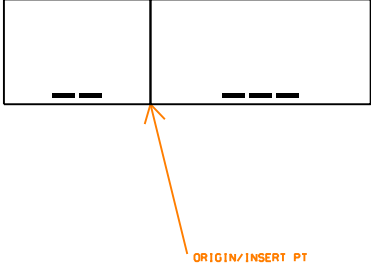
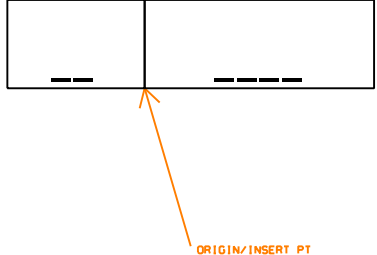
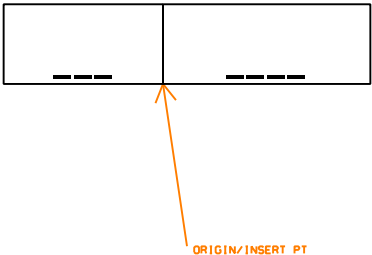
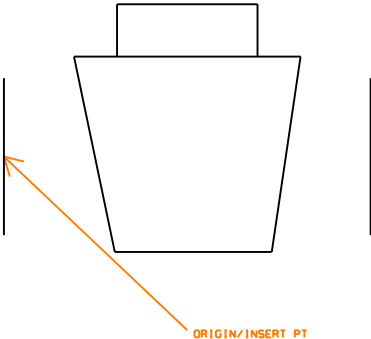
# 14 Mechanical Symbols Library

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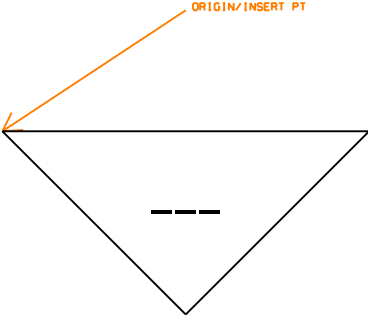
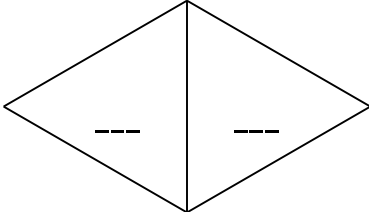
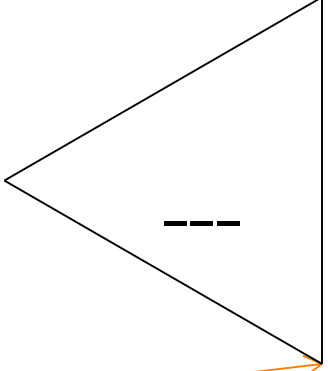
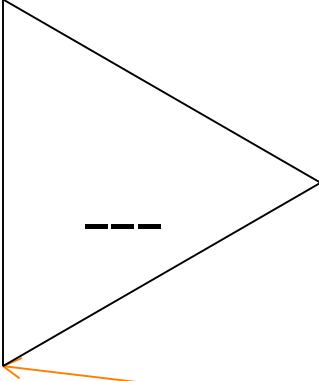
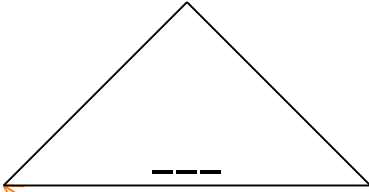
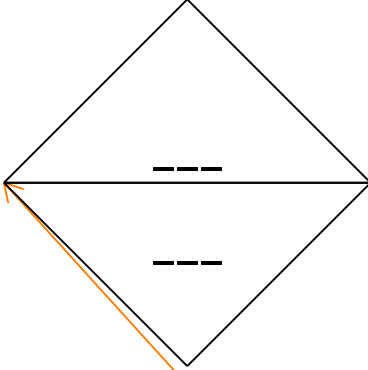
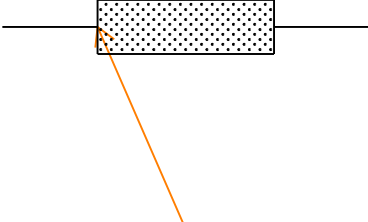
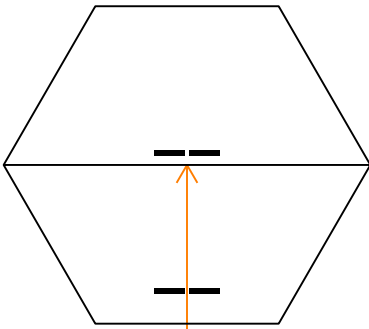
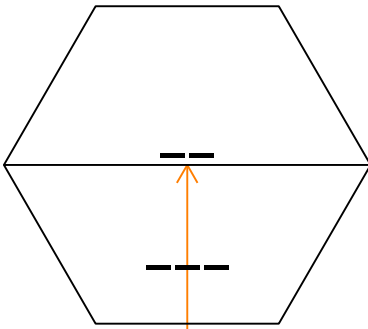
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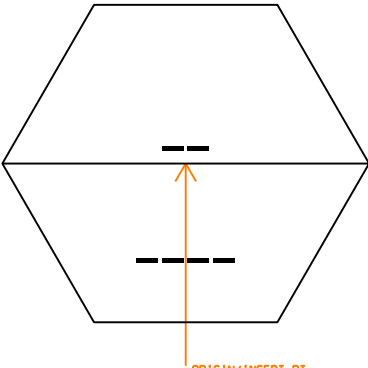
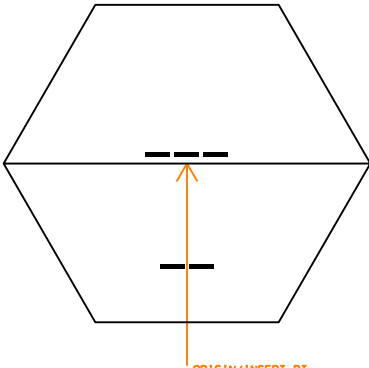
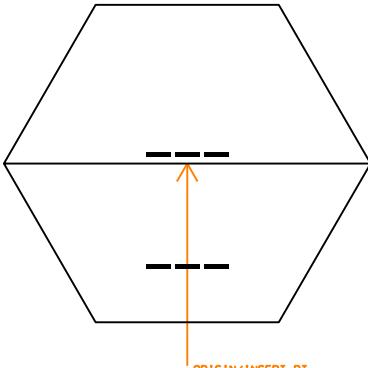
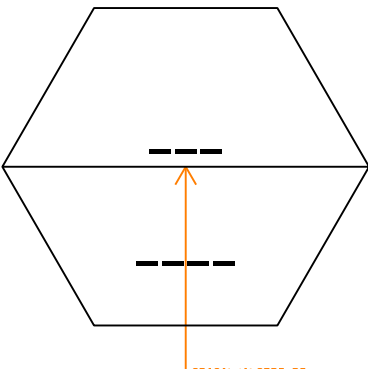
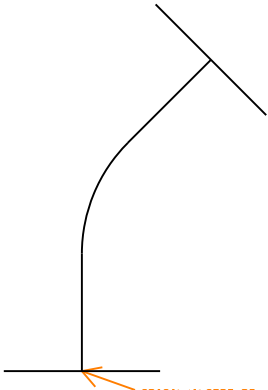
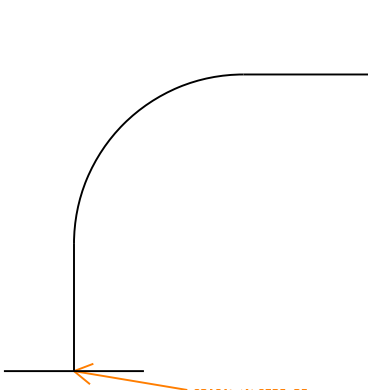
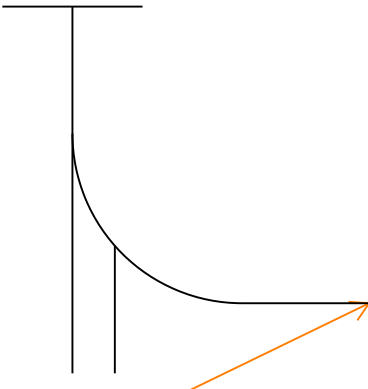
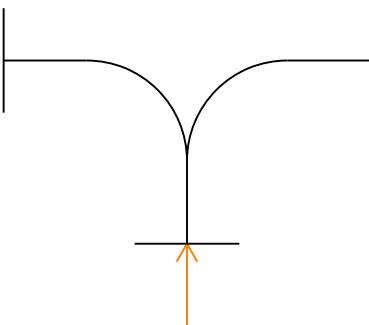
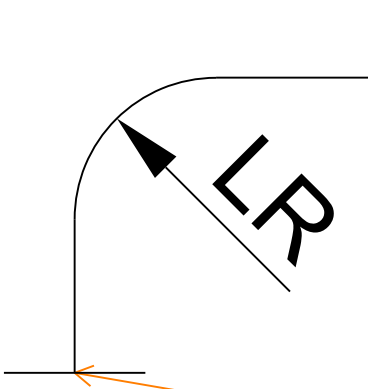


		
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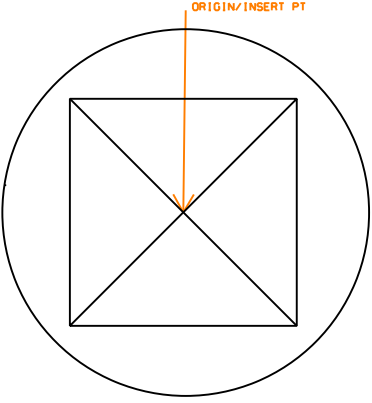
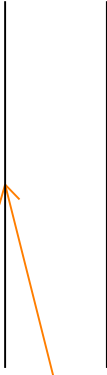
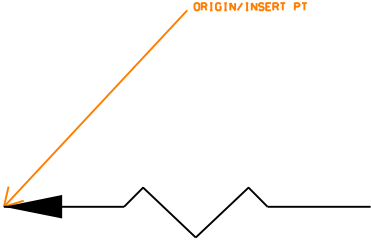
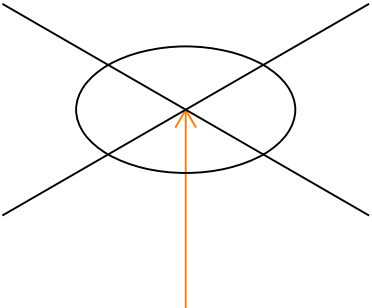
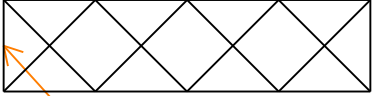
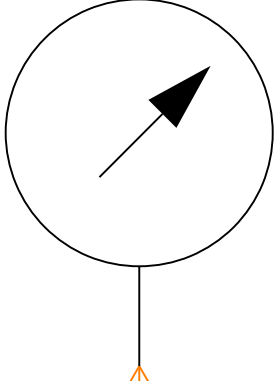
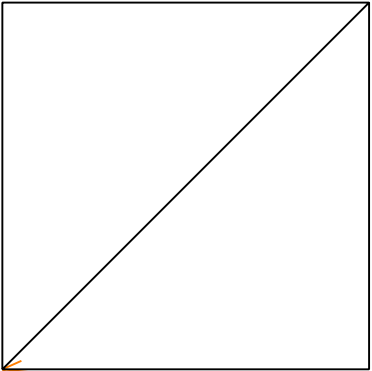
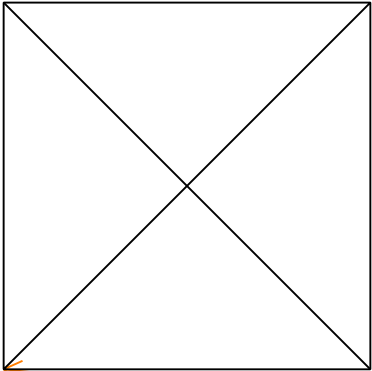
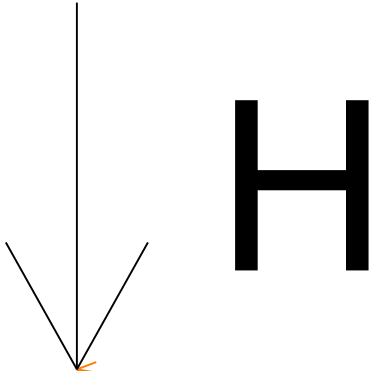
		
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<p>Mechanical: CDRND ROUND CEILING DIFFUSER Element type: Symbol</p>	<p>Mechanical: CDSQR SQUARE CEILING DIFFUSER Element type: Symbol</p>	<p>Mechanical: CFM2X3 AIRFLOW CFM Element type: Symbol</p>
		
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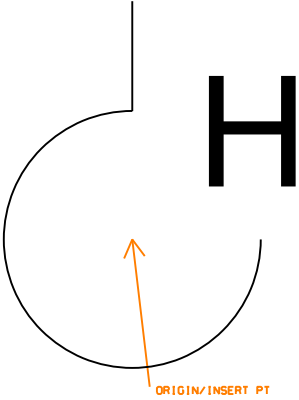
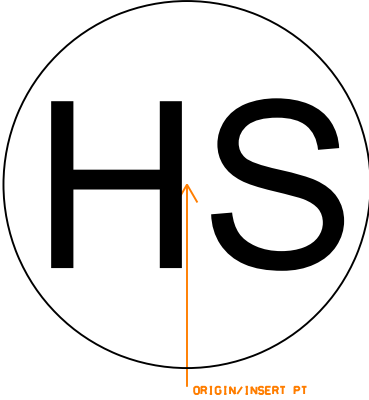
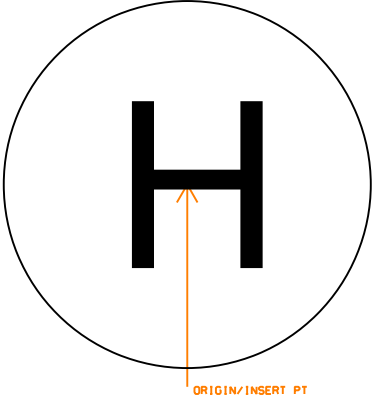
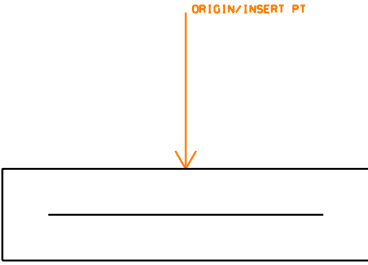
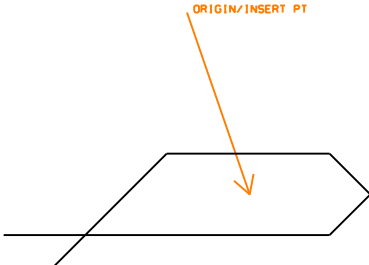
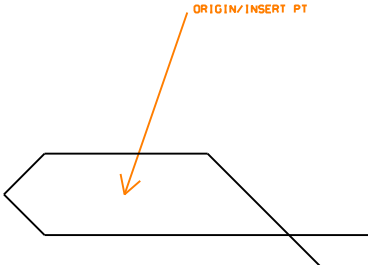
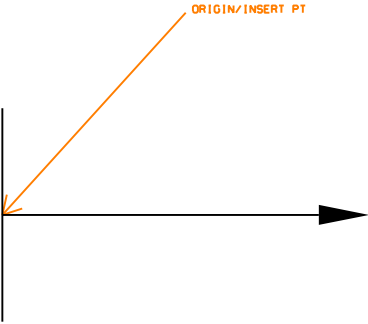
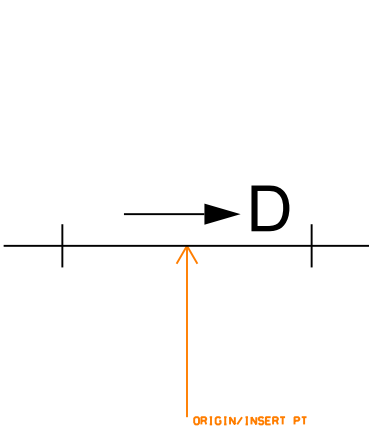
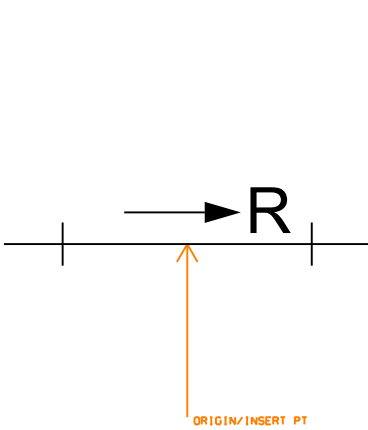
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<p>Mechanical: DCTHTR ELECTRIC DUCT HEATER Element type: Symbol</p>	<p>Mechanical: DMPEOC ELECT OPERATED DAMPER Element type: Symbol</p>	<p>Mechanical: DMPFIR FIRE DAMPER Element type: Symbol</p>
<p>Mechanical: DMPFS FIRE SMOKE DAMPER Element type: Symbol</p>	<p>Mechanical: DMPPOD PNEUMATIC DAMPER Element type: Symbol</p>	<p>Mechanical: DMPSMK SMOKE DAMPER Element type: Symbol</p>

		
<p>Mechanical: DPRSD DUCT PRESSURE CLASS DOWN Element type: Symbol</p>	<p>Mechanical: DPRSH DUCT PRESSURE HORIZONTAL Element type: Symbol</p>	<p>Mechanical: DPRSL DUCT PRESSURE LEFT Element type: Symbol</p>
		
<p>Mechanical: DPRSR DUCT PRESSURE RIGHT Element type: Symbol</p>	<p>Mechanical: DPRSU DUCT PRESSURE CLASS UP Element type: Symbol</p>	<p>Mechanical: DPRSV DUCT PRESSURE CLASS VERT Element type: Symbol</p>
		
<p>Mechanical: DRIER DRIER Element type: Symbol</p>	<p>Mechanical: EEQ2X2 ELEC. EQUIP 2X2 MARK Element type: Symbol</p>	<p>Mechanical: EEQ2X3 ELEC. EQUIP 2X3 MARK Element type: Symbol</p>

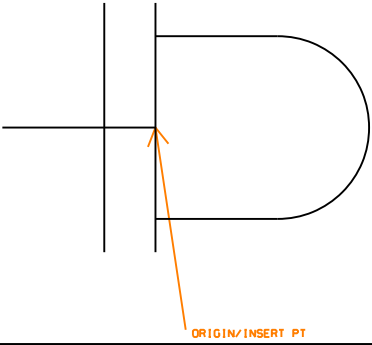
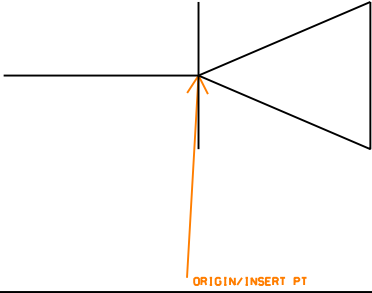
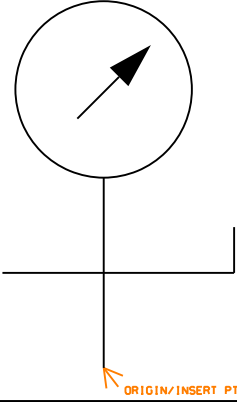
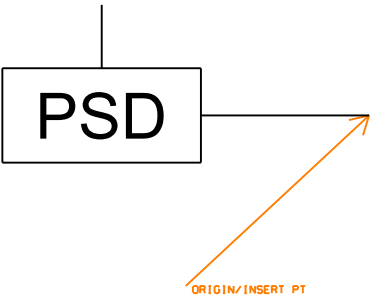
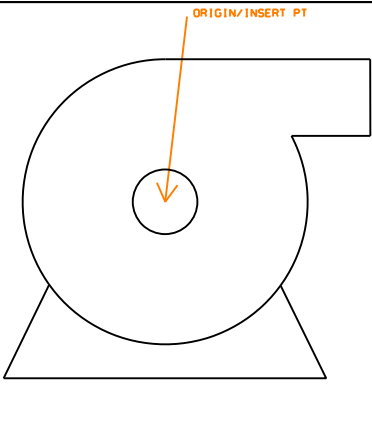
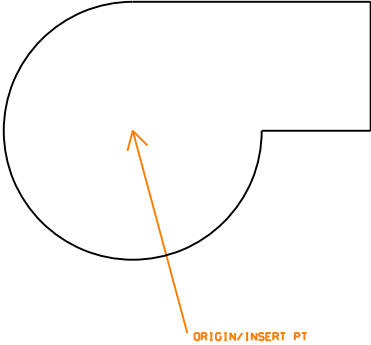
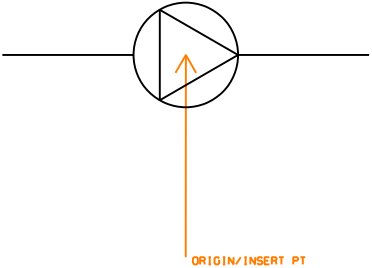
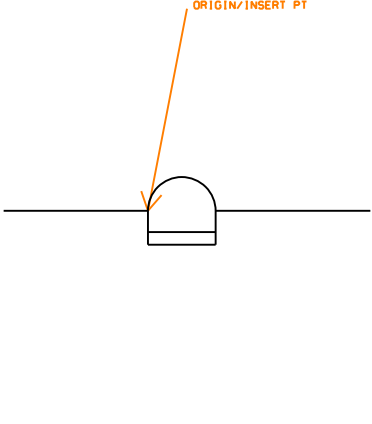
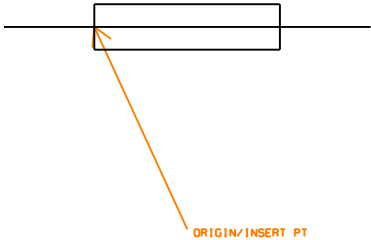
		
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<p>Mechanical: EEQ3X4 ELEC EQUIP 3X4 MARK Element type: Symbol</p>	<p>Mechanical: EL45SC 45 DEGREE ELBOW Element type: Symbol</p>	<p>Mechanical: EL90SC 90 DEGREE ELBOW Element type: Symbol</p>
		
<p>Mechanical: ELBSC BASE ELBOW Element type: Symbol</p>	<p>Mechanical: ELDBSC DOUBLE BRANCH ELBOW Element type: Symbol</p>	<p>Mechanical: ELLRSC LONG RADIUS ELBOW Element type: Symbol</p>

<p>Mechanical: ELODSC ELBOW SIDE OUTLET DOWN Element type: Symbol</p>	<p>Mechanical: ELOUSC ELBOW SIDE OUTLET UP Element type: Symbol</p>	<p>Mechanical: ELSTRT STREET ELBOW Element type: Symbol</p>
<p>Mechanical: ELTDSC TURNED DOWN ELBOW Element type: Symbol</p>	<p>Mechanical: ELTUSC TURNED UP ELBOW Element type: Symbol</p>	<p>Mechanical: EREDSC ECCENTRIC REDUCER Element type: Symbol</p>
<p>Mechanical: EXPJNT EXPANSION JOINT Element type: Symbol</p>	<p>Mechanical: FANERV EXHAUST ROOF VENT FAN Element type: Symbol</p>	<p>Mechanical: FANLRV LOUVERED ROOF VENT FAN Element type: Symbol</p>

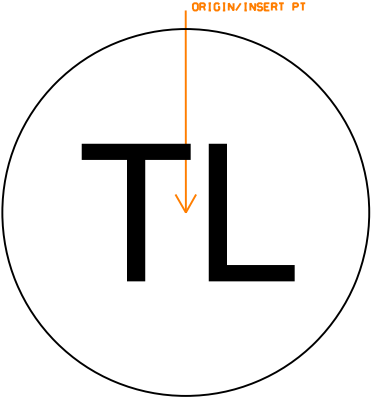
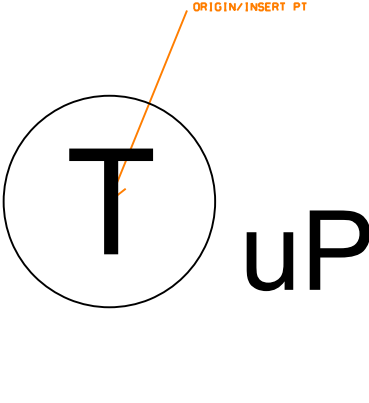
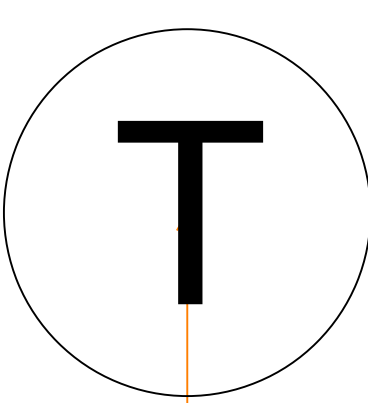
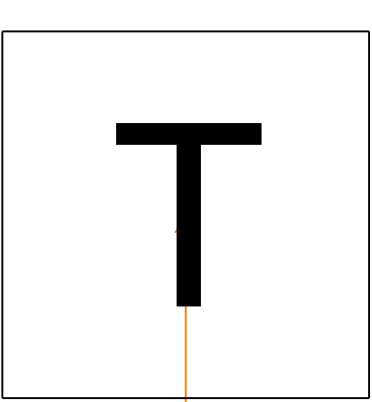
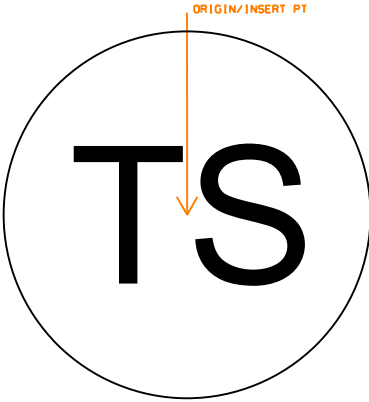
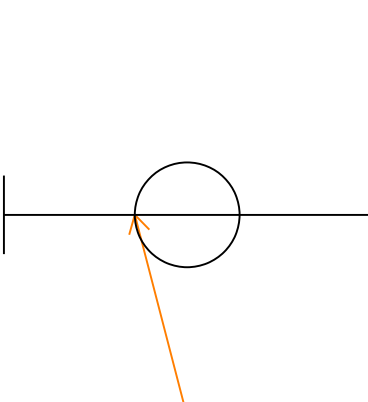
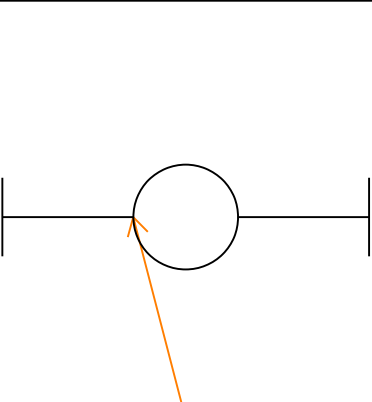
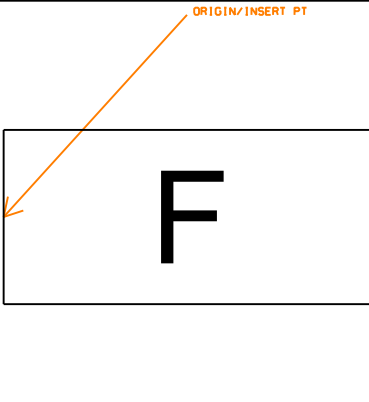
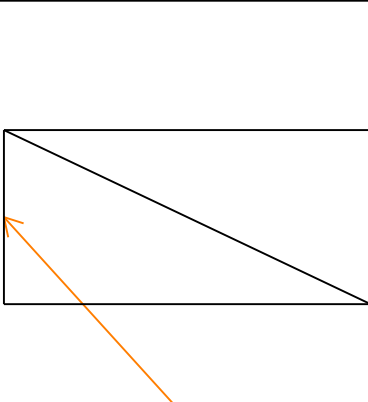
		
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<p>Mechanical: FLRPEN FLOOR PENETRATION ISO Element type: Symbol</p>	<p>Mechanical: FLXCON FLEXIBLE CONNECTOR Element type: Symbol</p>	<p>Mechanical: GAUGE GAUGE Element type: Symbol</p>
		
<p>Mechanical: GRILEX EXHAUST GRILLE Element type: Symbol</p>	<p>Mechanical: GRILSU SUPPLY GRILLE Element type: Symbol</p>	<p>Mechanical: HANGRD HANGER ROD Element type: Symbol</p>

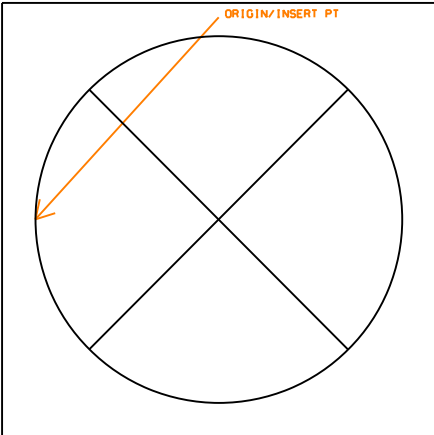
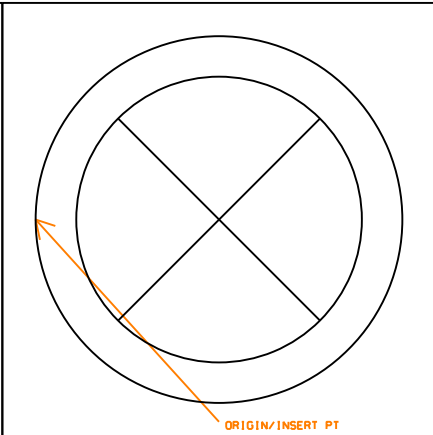
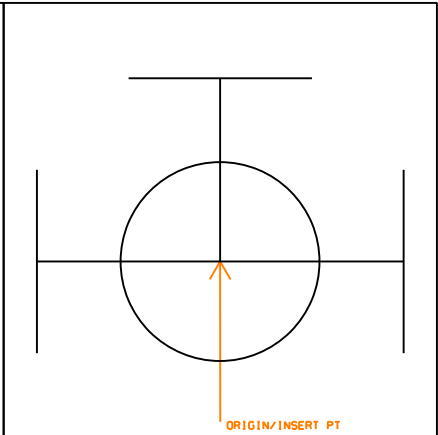
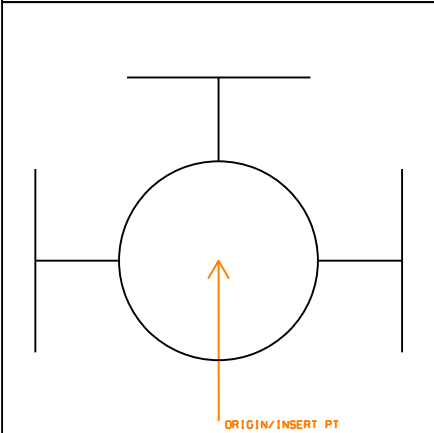
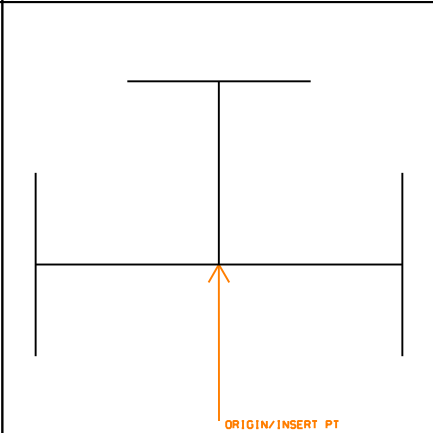
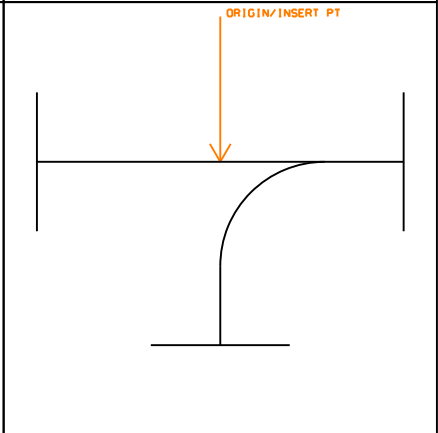
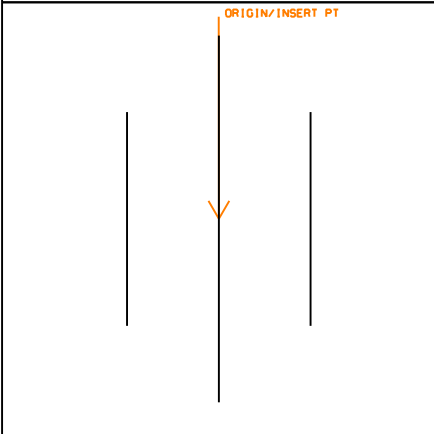
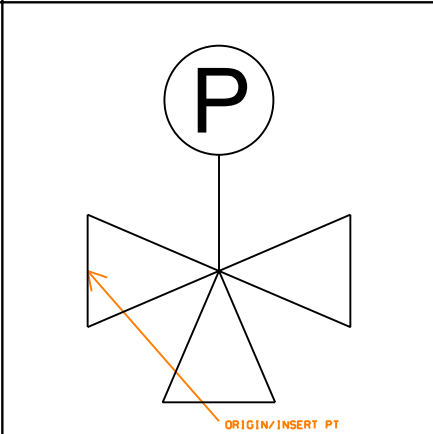
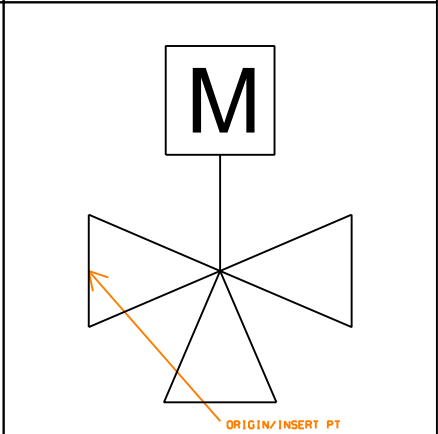
		
<p>Mechanical: HANGSP HANGER SPRING Element type: Symbol</p>	<p>Mechanical: HSENS HUMIDITY SENSOR Element type: Symbol</p>	<p>Mechanical: HSTAT HUMIDISTAT Element type: Symbol</p>
		
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<p>Mechanical: LOUOPN DOOR OR WALL LOUVER Element type: Symbol</p>	<p>Mechanical: PIDROP PITCH OR PIPE DROP Element type: Symbol</p>	<p>Mechanical: PIRISE PITCH OR PIPE RISE Element type: Symbol</p>



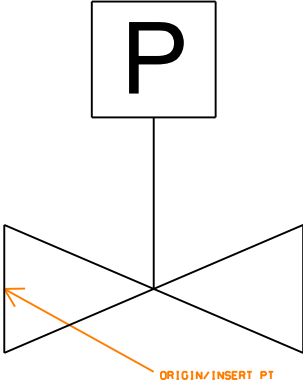
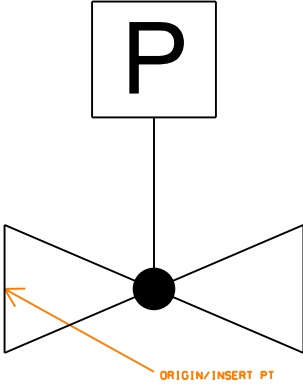
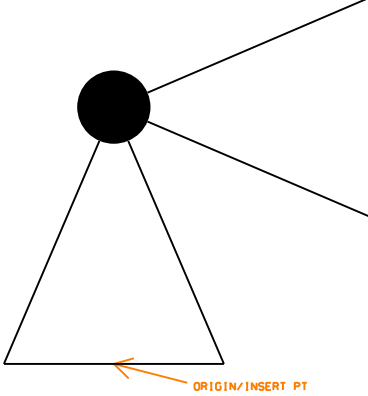
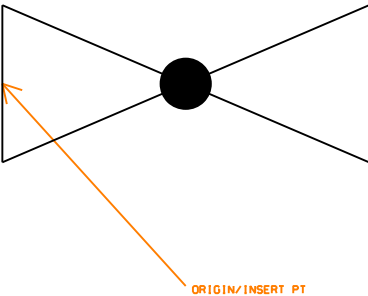
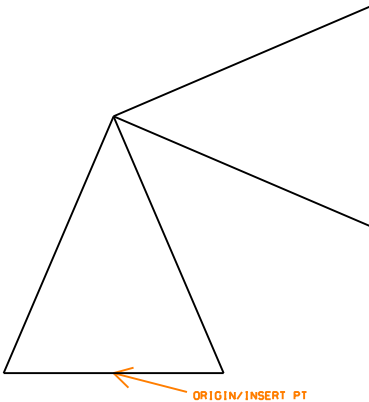
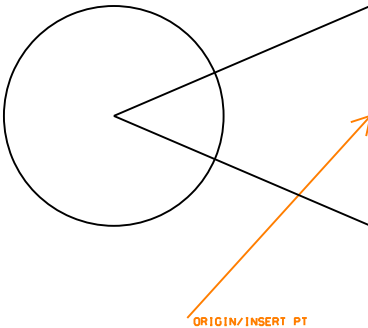
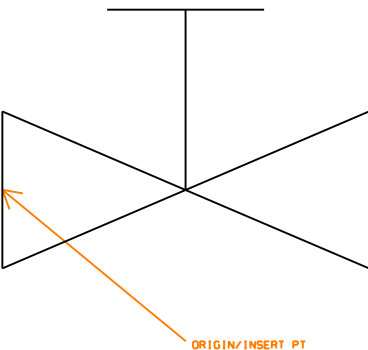
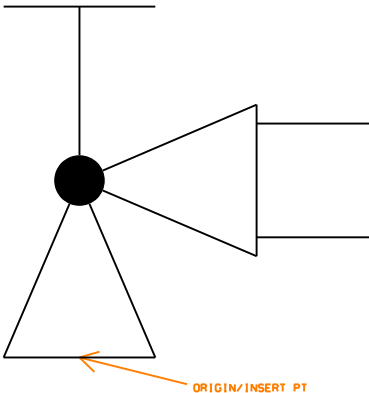
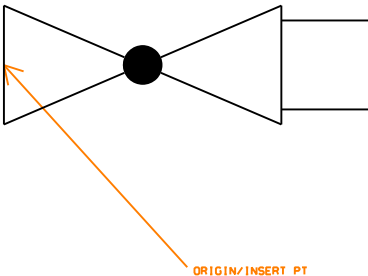
		
<p>Mechanical: PLGBFL BULL PLUG FLANGED Element type: Symbol</p>	<p>Mechanical: PLGPSC PIPE PLUG Element type: Symbol</p>	<p>Mechanical: PRGGCO PRESSURE GAGE AND COCK Element type: Symbol</p>
		
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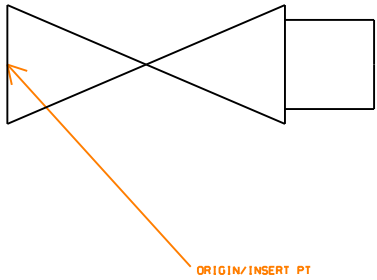
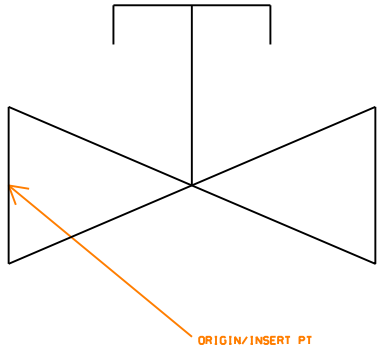
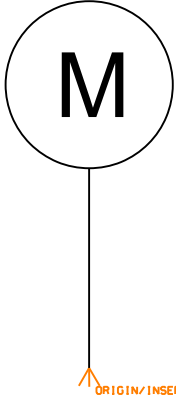
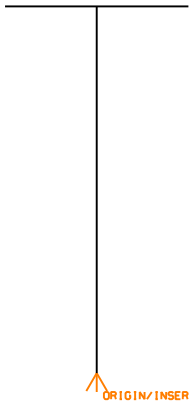
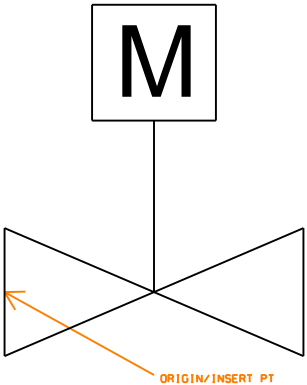
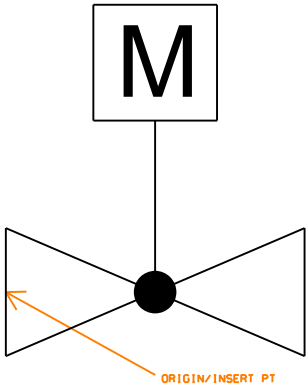
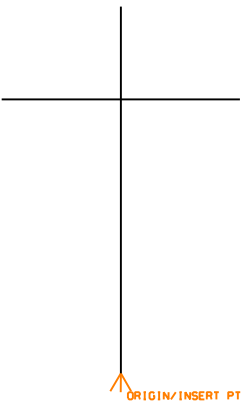
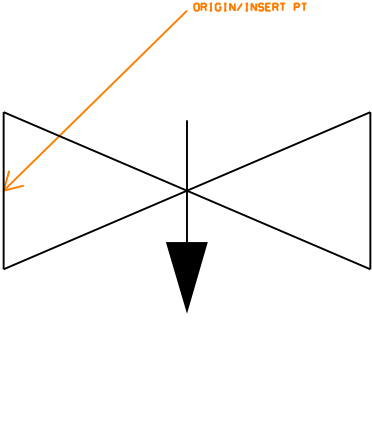
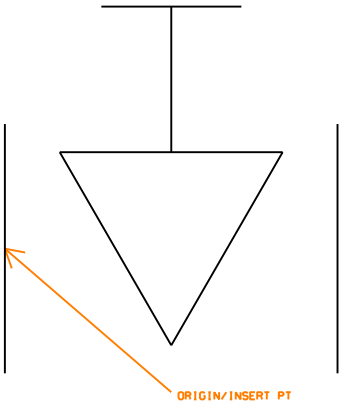
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<p>Mechanical: SUPOUT SUPPLY OUTLET WALL SUPPLY Element type: Symbol</p>	<p>Mechanical: TDSSC DOUBLE SWEEP TEE Element type: Symbol</p>	<p>Mechanical: THERM THERMOMETER Element type: Symbol</p>
<p>Mechanical: THERMW THERMOMETER WELL Element type: Symbol</p>	<p>Mechanical: THHRB THERMOSTAT REMOTE BULB Element type: Symbol</p>	<p>Mechanical: THHSC THERMOSTAT SELFCONTAINED Element type: Symbol</p>

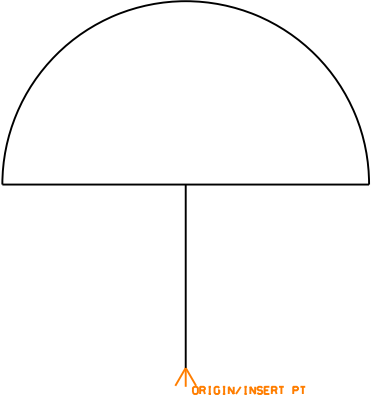
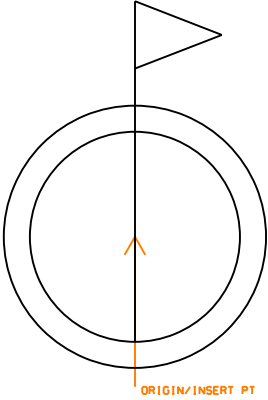
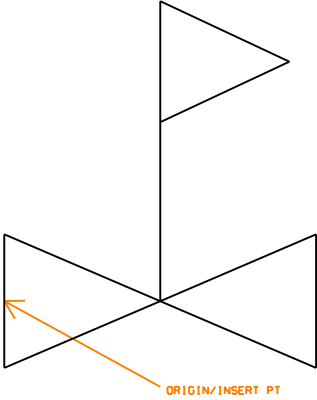
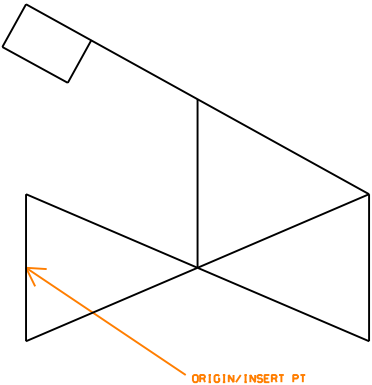
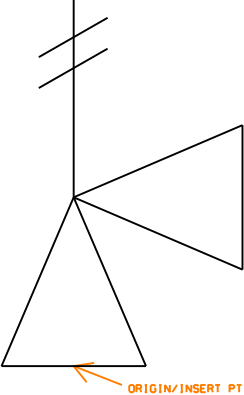
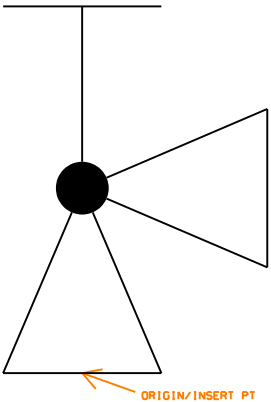
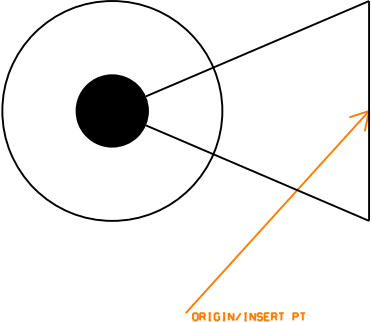
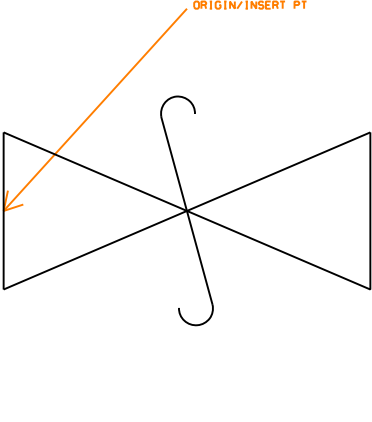
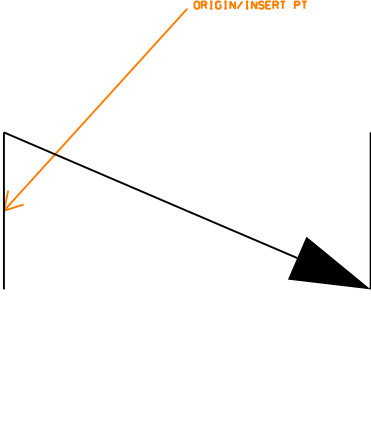
		
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<p>Mechanical: THPPNE THERMOSTAT PNEUMATIC PIPE Element type: Symbol</p>	<p>Mechanical: TMPSEN TEMPERATURE SENSOR Element type: Symbol</p>	<p>Mechanical: TODSC TEE OUTLET DOWN Element type: Symbol</p>
		
<p>Mechanical: TOUSC TEE OUTLET UP Element type: Symbol</p>	<p>Mechanical: TRAPFL FLOAT TRAP Element type: Symbol</p>	<p>Mechanical: TRAPFT FLOAT THERMOSTATIC TRAP Element type: Symbol</p>

		
<p>Mechanical: TRAPST STEAM TRAP Element type: Symbol</p>	<p>Mechanical: TRAPT B THERMOSTATIC BLAST TRAP Element type: Symbol</p>	<p>Mechanical: TSODSC TEE SIDE OUTLET DOWN Element type: Symbol</p>
		
<p>Mechanical: TSOUSC TEE SIDE OUTLET UP Element type: Symbol</p>	<p>Mechanical: TSSSC TEE Element type: Symbol</p>	<p>Mechanical: TSSWSC SINGLE SWEEP TEE Element type: Symbol</p>
		
<p>Mechanical: UNIOSC UNION Element type: Symbol</p>	<p>Mechanical: VA3WAM 3WAY AIRMOTOR CONTROLER Element type: Symbol</p>	<p>Mechanical: VA3WEM 3WAY ELECMOTOR CONTRLE Element type: Symbol</p>

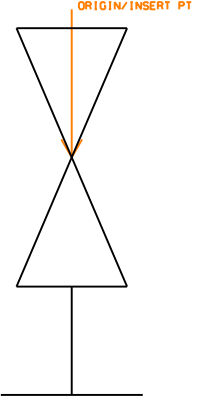
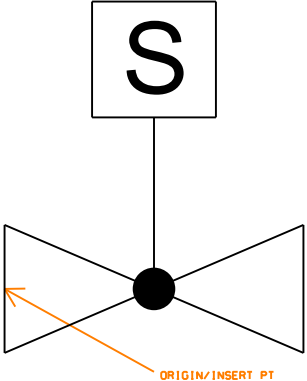
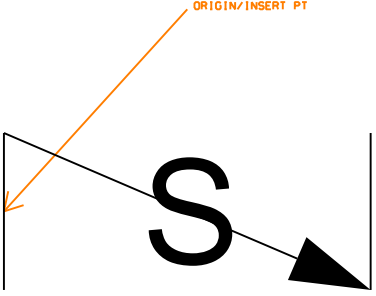
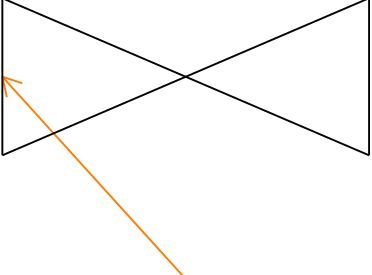
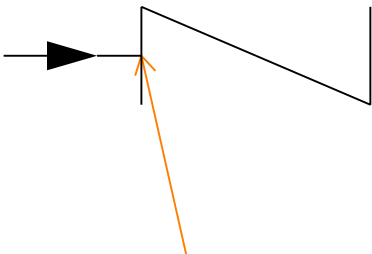
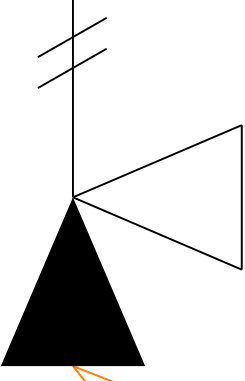
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<p>Mechanical: VABFLY BUTTERFLY VALVE Element type: Symbol</p>	<p>Mechanical: VACWR CONDENS WATER REGUL VALVE Element type: Symbol</p>	<p>Mechanical: VADISC DIAPHRAGM VALVE Element type: Symbol</p>
<p>Mechanical: VAEMTR PNEUMATIC MOTOR Element type: Symbol</p>	<p>Mechanical: VAESOL SOLENOID VALVE ACTUATOR Element type: Symbol</p>	<p>Mechanical: VAF LSC FLOAT VALVE Element type: Symbol</p>

		
<p>Mechanical: VAGAMC PNEUMATIC CTRLD GATE VALVE Element type: Symbol</p>	<p>Mechanical: VAGLAM PNEUMATIC CTRLD GLOBE VLV Element type: Symbol</p>	<p>Mechanical: VAGLE ANGLE GLOBE VALVE Element type: Symbol</p>
		
<p>Mechanical: VAGLSE GLOBE VALVE Element type: Symbol</p>	<p>Mechanical: VAGSE ANGLE GATE VALVE Element type: Symbol</p>	<p>Mechanical: VAGSP ANGLE GATE VALVE PLAN Element type: Symbol</p>
		
<p>Mechanical: VAGTSE GATE VALVE Element type: Symbol</p>	<p>Mechanical: VAHASC GATE VALVE PLAN Element type: Symbol</p>	<p>Mechanical: VAHGLS HOSE GLOBE VALVE Element type: Symbol</p>

		
<p>Mechanical: VAHGSC HOSE GATE VALVE Element type: Symbol</p>	<p>Mechanical: VALSSC LOCK SHIELD VALVE Element type: Symbol</p>	<p>Mechanical: VAMAGS MAGNETIC STOP VALVE Element type: Symbol</p>
		
<p>Mechanical: VAMNNS VLV ACTUA MAN NONRISINGSTEM Element type: Symbol</p>	<p>Mechanical: VAMOGS MOTOR OPERATD GATE VALVE Element type: Symbol</p>	<p>Mechanical: VAMOLS MOTOR OPERATD GLOBE VALVE Element type: Symbol</p>
		
<p>Mechanical: VAMOSY VLV ACTOR MAN OUTSTEM Element type: Symbol</p>	<p>Mechanical: VANEED NEEDLE VALVE Element type: Symbol</p>	<p>Mechanical: VAPLUG PLUG VALVE Element type: Symbol</p>

		
<p>Mechanical: VAPMTD VALVE ACTUATOR PNEUMOT Element type: Symbol</p>	<p>Mechanical: VAPRED PRESSURE REDUCING VALVE Element type: Symbol</p>	<p>Mechanical: VAPRRD PRESSURE REDUCING VALVE Element type: Symbol</p>
		
<p>Mechanical: VAQOSC QUICK OPENING VALVE Element type: Symbol</p>	<p>Mechanical: VARELF RELIEF OR SAFETY VALVE Element type: Symbol</p>	<p>Mechanical: VASCE ANGLE GLOBE VALVE Element type: Symbol</p>
		
<p>Mechanical: VASCP ANGLE GLOBE VALVE PLAN Element type: Symbol</p>	<p>Mechanical: VASFSC SAFETY VALVE Element type: Symbol</p>	<p>Mechanical: VASGCH SWING GATE CHECK VALVE Element type: Symbol</p>



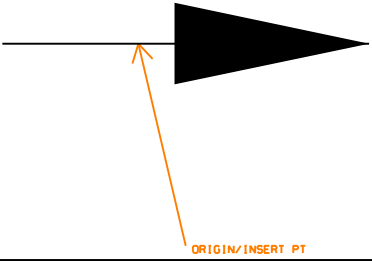
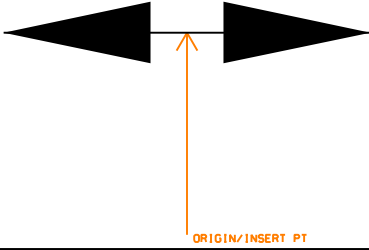
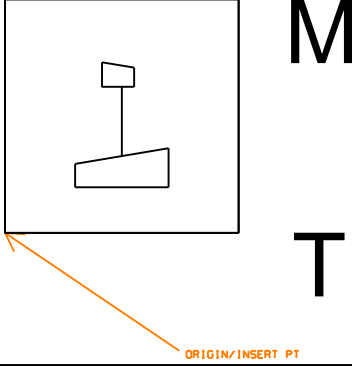
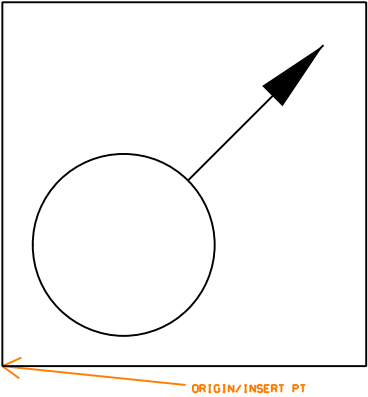

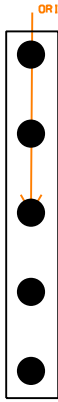
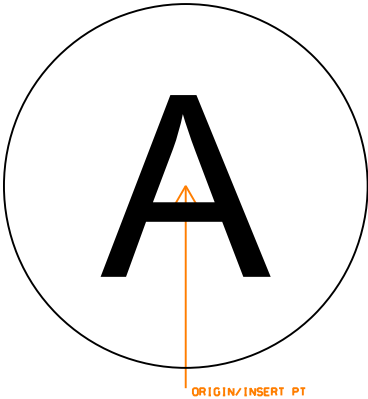
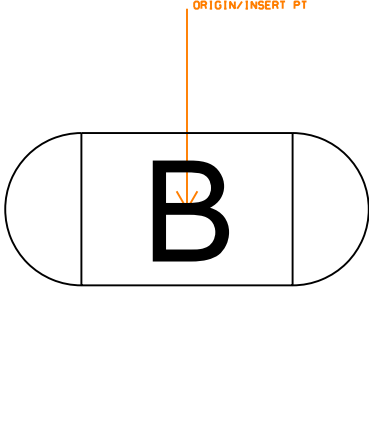
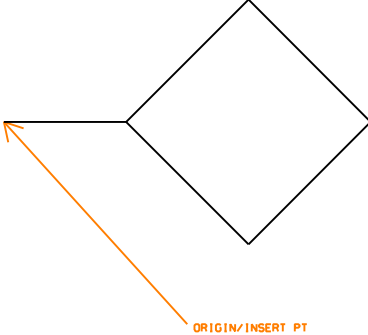
		
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<p>Mechanical: VASTSC GATE VALVE Element type: Symbol</p>	<p>Mechanical: VASWSC STRAIGHT WAY CHECK VALVE Element type: Symbol</p>	<p>Mechanical: VATPR TEMP PRESSURE RELIEF VALVE Element type: Symbol</p>

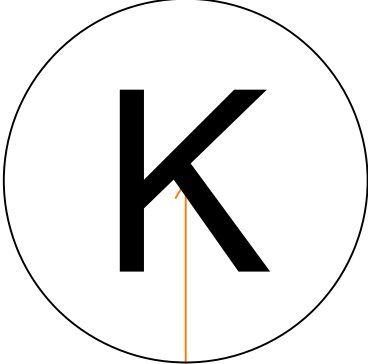
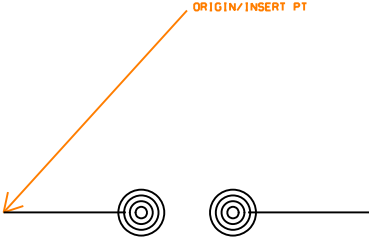
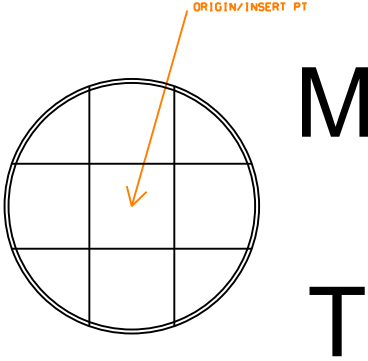
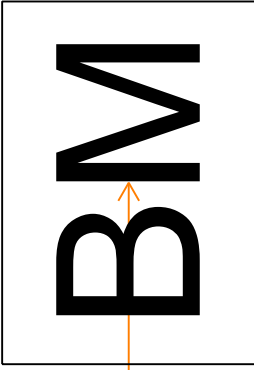
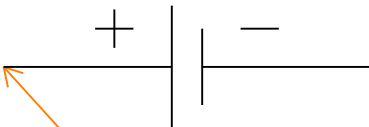
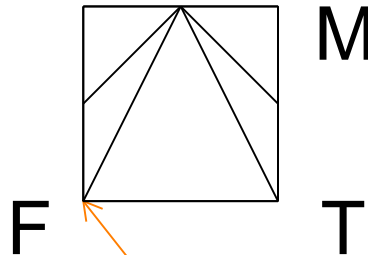
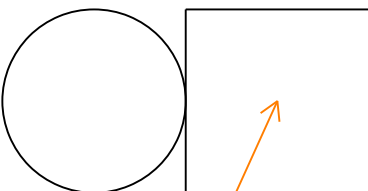
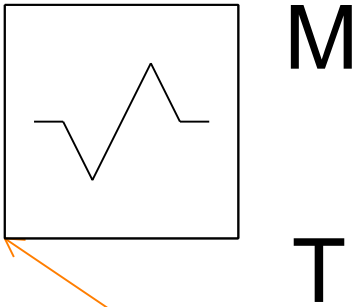
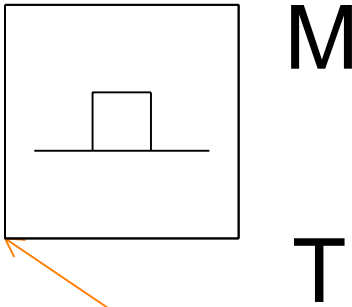
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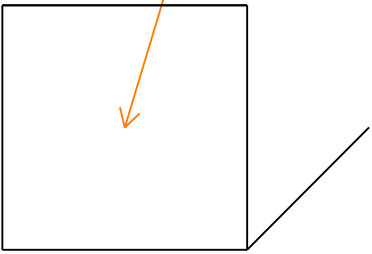
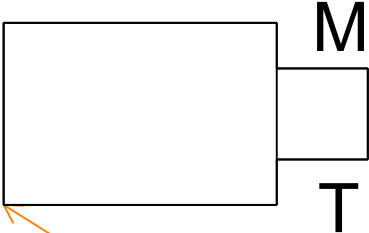
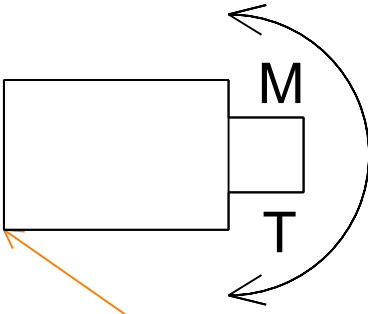
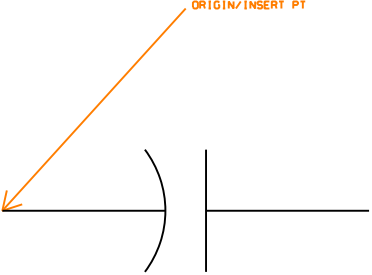
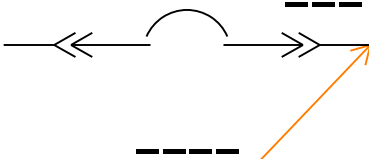
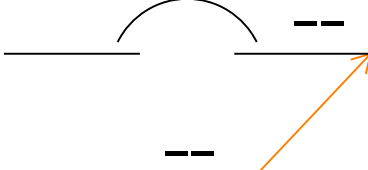
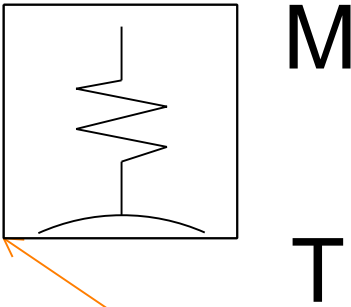
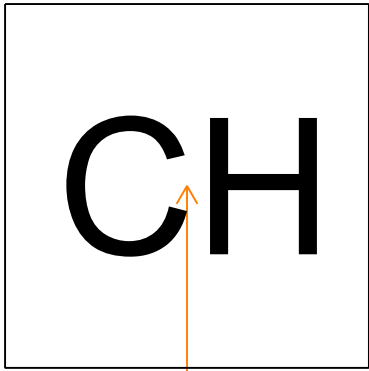
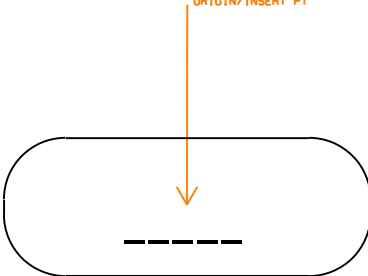
# 15 Electrical Symbols Library

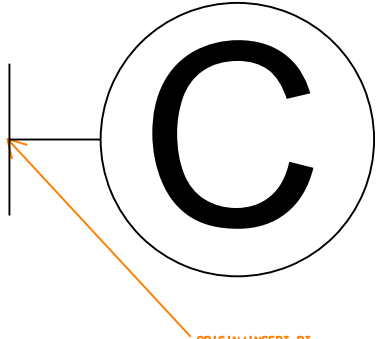
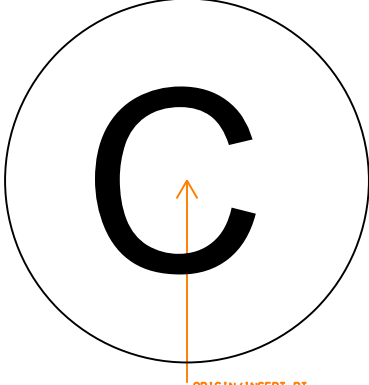
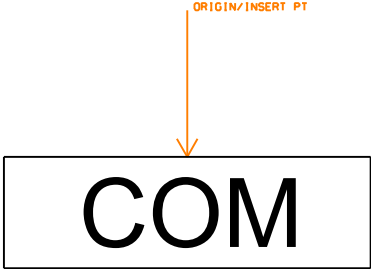

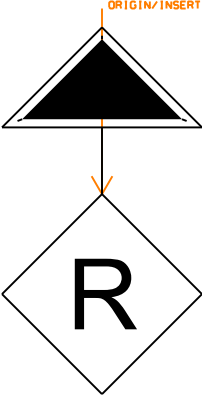
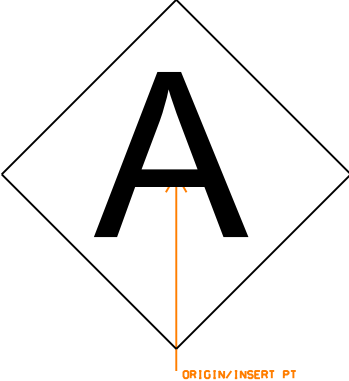
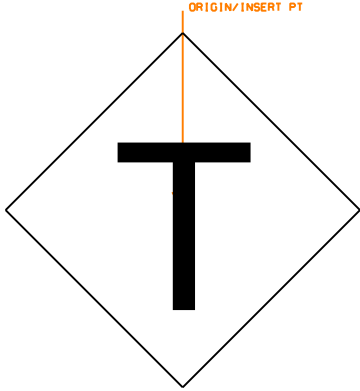
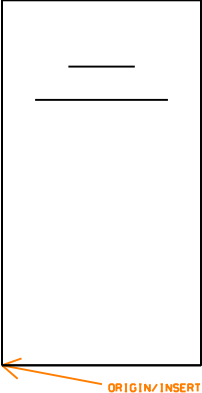
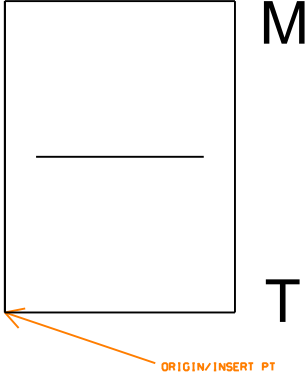
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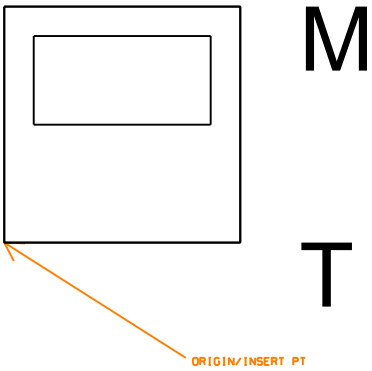
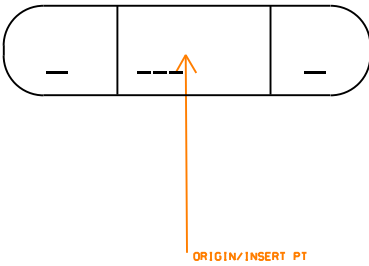
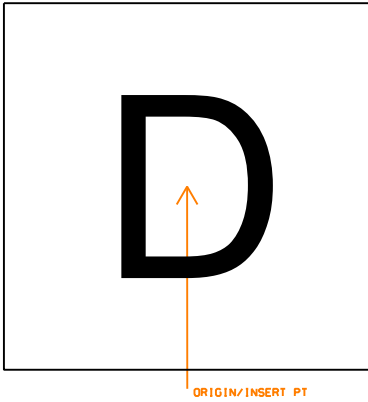
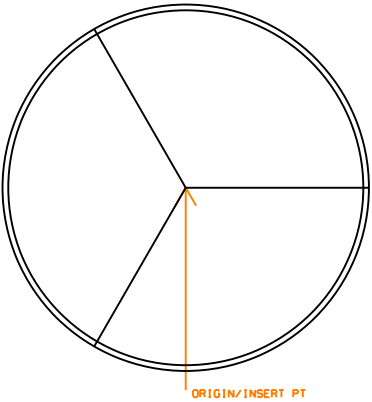
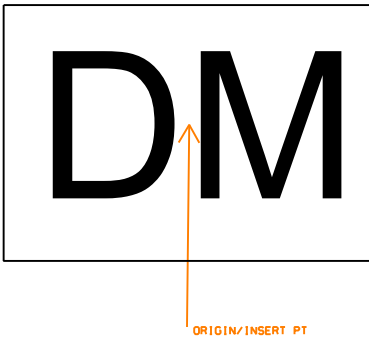
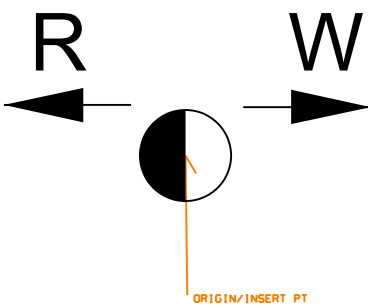
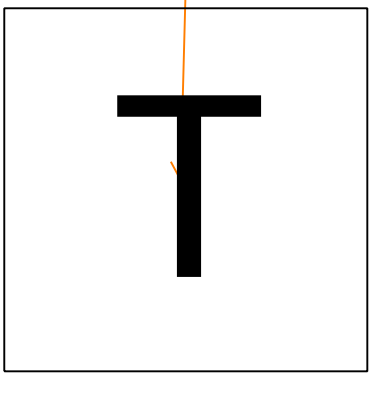
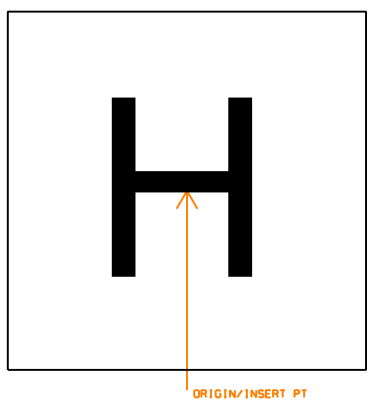
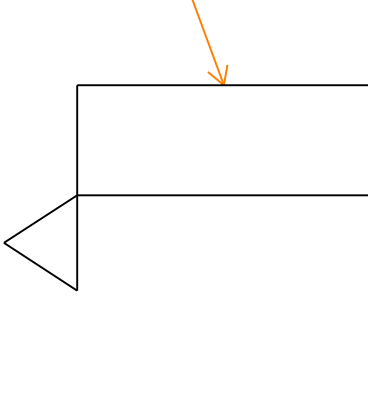
		
<p>Electrical: 1DIR DIRECTION ARROW Element type: Symbol</p>	<p>Electrical: 2DIR DOUBLE DIRECTION ARROW Element type: Symbol</p>	<p>Electrical: 2WAYMC 2-WAY RADIO MICROPHONE Element type: Symbol</p>
		
<p>Electrical: ACCBIO BIOMETRIC ACCESS CONTROL Element type: Symbol</p>	<p>Electrical: ACLLEL APPROACH LIGHTBAR_ELEVATED Element type: Symbol</p>	<p>Electrical: ACLLSF APPROACH LIGHTBAR_SEMIFLUSH Element type: Symbol</p>
		
<p>Electrical: AEROD AERIAL ROD Element type: Symbol</p>	<p>Electrical: AFBCN AIRFIELD BEACON Element type: Symbol</p>	<p>Electrical: ANNUN ANNUNCIATOR Element type: Symbol</p>

		
<p>Electrical: ANNUNT LOCAL CONTROL ANNUNCIATION UNIT Element type: Symbol</p>	<p>Electrical: ARREST LIGHTNING ARRESTOR Element type: Symbol</p>	<p>Electrical: AUDIO AUDIO DEVICE Element type: Symbol</p>
		
<p>Electrical: BARMKR BARRIER MARKER Element type: Symbol</p>	<p>Electrical: BATTERY BATTERY Element type: Symbol</p>	<p>Electrical: BEAM BI-STATIC BEAM SENSOR Element type: Symbol</p>
		
<p>Electrical: BELL BELL Element type: Symbol</p>	<p>Electrical: BIORDR BIOMETRICS ACCESS CONTROL DEVICE Element type: Symbol</p>	<p>Electrical: BUTTON PUSH BUTTON Element type: Symbol</p>

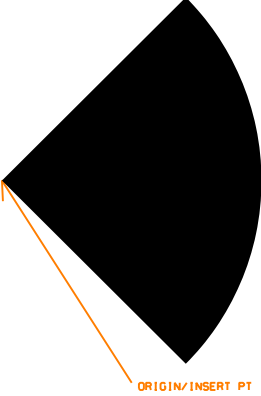
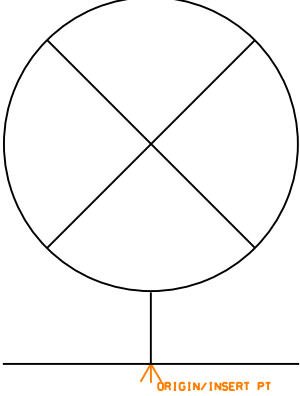
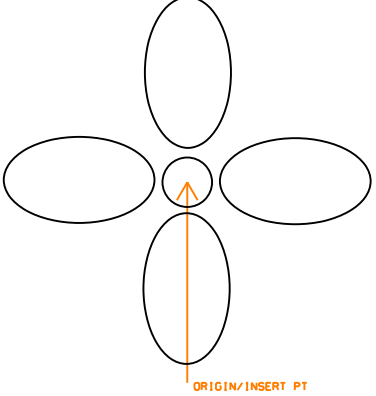
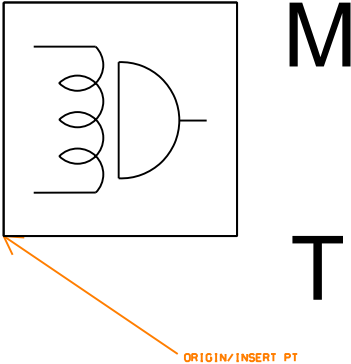
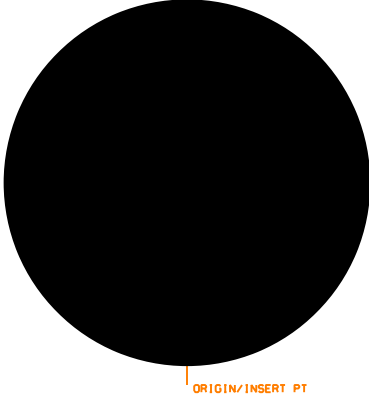
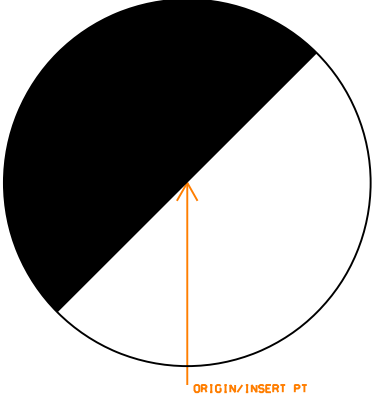
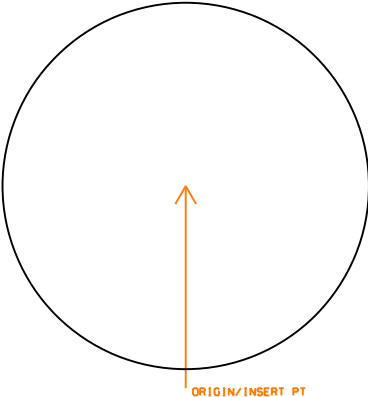
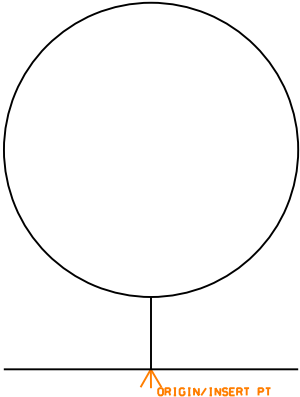
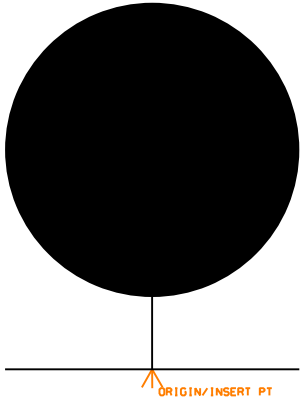
		
<p>Electrical: BUZZER BUZZER Element type: Symbol</p>	<p>Electrical: CAMFXD CAMERA Element type: Symbol</p>	<p>Electrical: CAMPTZ CAMERA WITH PAN/TILT/ZOOM Element type: Symbol</p>
		
<p>Electrical: CAPCTR CAPACITOR Element type: Symbol</p>	<p>Electrical: CBDOUT DRAWOUT CIRCUIT BREAKER Element type: Symbol</p>	<p>Electrical: CBMCAS MOLDED CASE CKT BREAKER Element type: Symbol</p>
		
<p>Electrical: CELLTX CELLULAR TRANSMITTER Element type: Symbol</p>	<p>Electrical: CHIME CHIME Element type: Symbol</p>	<p>Electrical: CKTID CIRCUIT ID SYMBOL Element type: Symbol</p>

		
<p>Electrical: CLOCKW CLOCK OUTLET WALL MOUNTED Element type: Symbol</p>	<p>Electrical: CMANH COMMUNICATION MANHOLE Element type: Symbol</p>	<p>Electrical: CMPANL COMMUNICATION PANEL Element type: Symbol</p>
		
<p>Electrical: CPLTM CKT LINE TERMINATOR Element type: Symbol</p>	<p>Electrical: CPREC2 CATHODIC PROTECTION RECTIFIER Element type: Symbol</p>	<p>Electrical: CPSAN CP SACRIFICIAL ANODE Element type: Symbol</p>
		
<p>Electrical: CPTST CATHODIC PROTECT TEST STATION Element type: Symbol</p>	<p>Electrical: CPU CENTRAL PROCESSING UNIT Element type: Symbol</p>	<p>Electrical: CRDRDR CARD ACCESS READER Element type: Symbol</p>

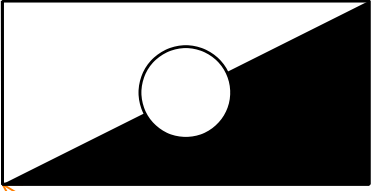

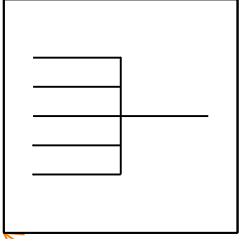
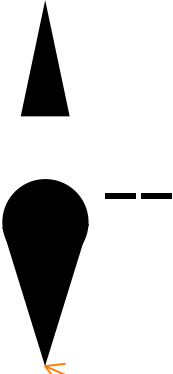
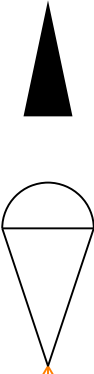

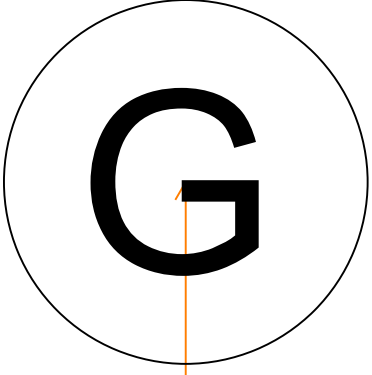
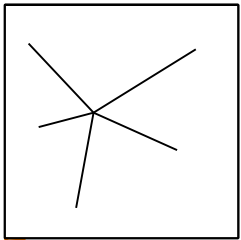
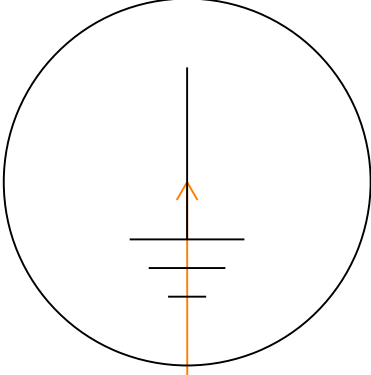


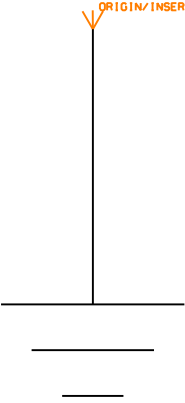
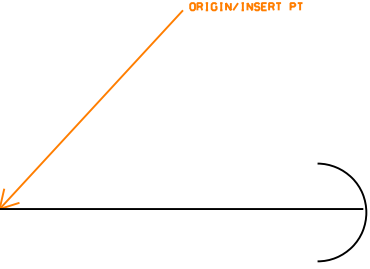


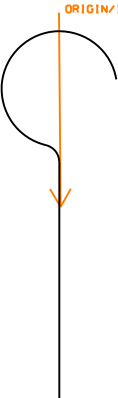
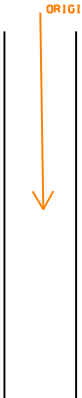
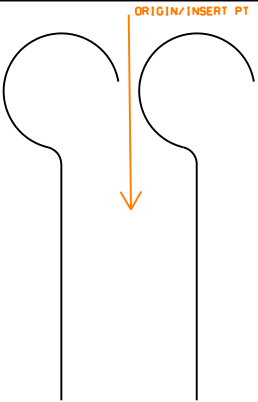
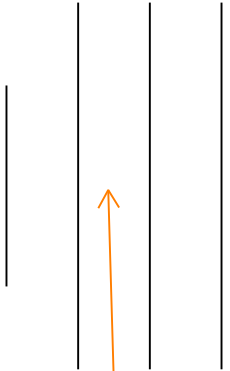
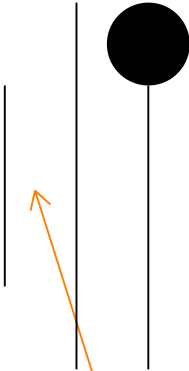
		
<p>Electrical: CTRLPL CONTROL PANEL Element type: Symbol</p>	<p>Electrical: DBID DUCTBANK ID SYMBOL Element type: Symbol</p>	<p>Electrical: DOROPN ELECTRIC DOOR OPENER Element type: Symbol</p>
		
<p>Electrical: DORREV REVOLVING DOOR Element type: Symbol</p>	<p>Electrical: DSTMKR RW DISTANCE MARKER Element type: Symbol</p>	<p>Electrical: DTHL DISPLACE THRESHOLD LIGHT Element type: Symbol</p>
		
<p>Electrical: DXFMR TRANSFORMER, PLAN VIEW Element type: Symbol</p>	<p>Electrical: EHANDH ELECTRICAL HANDHOLE Element type: Symbol</p>	<p>Electrical: ELBP1L 1LAMP EMRGNCY LGHTBTTRY PWR Element type: Symbol</p>

<p>Electrical: ELBP2L 2LAMP EMRGNCY LGHTBTTRYPWR Element type: Symbol</p>	<p>Electrical: ELBP3L 3LAMP EMRGNCY LGHTBTTRYPWR Element type: Symbol</p>	<p>Electrical: ELLOCK ELECTRONIC LOCK Element type: Symbol</p>
<p>Electrical: EMANH ELECTRICAL MANHOLE Element type: Symbol</p>	<p>Electrical: EMETER ELECTRICAL METER Element type: Symbol</p>	<p>Electrical: EPULLB ELECTRICAL PULLBOX Element type: Symbol</p>
<p>Electrical: ERECT EMERGENCY RECEPTACLE Element type: Symbol</p>	<p>Electrical: EXITCM CEILING MNTD EXITSIGN LIGHT Element type: Symbol</p>	<p>Electrical: EXITDV EXIT DEVICE Element type: Symbol</p>

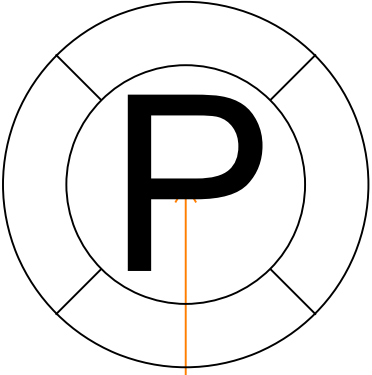
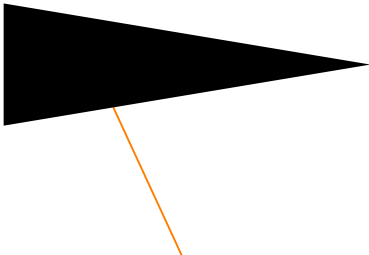
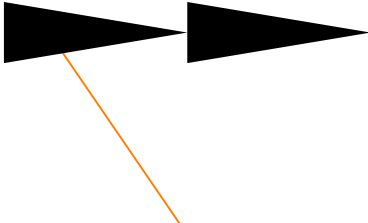
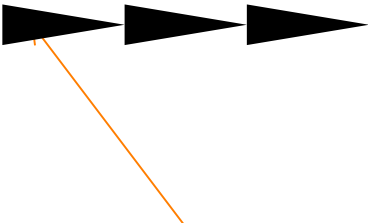
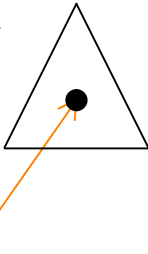
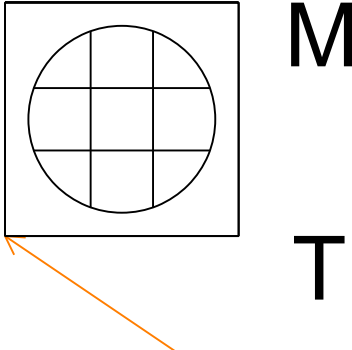
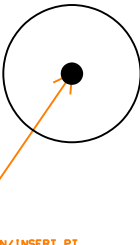
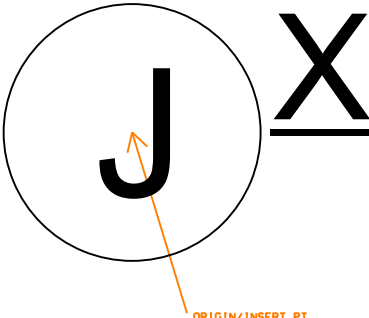
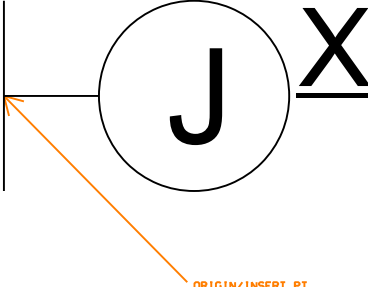
		
<p>Electrical: EXITLF EXIT SIGN LIGHTED FACE Element type: Symbol</p>	<p>Electrical: EXITWM WALL MOUNTD EXIT SIGN LIGHT Element type: Symbol</p>	<p>Electrical: FAN CEILING FAN Element type: Symbol</p>
		
<p>Electrical: FIBMOD FIBER OPTIC MODULE Element type: Symbol</p>	<p>Electrical: FIXSPB PENDANT BATTERY FIXTURE Element type: Symbol</p>	<p>Electrical: FIXSPQ PENDANT QUARTZ RESTRIKE Element type: Symbol</p>
		
<p>Electrical: FIXSPR PENDANT FIXTURE Element type: Symbol</p>	<p>Electrical: FIXWM WALL MOUNTED FIXTURE Element type: Symbol</p>	<p>Electrical: FIXWMB WALL MOUNTED BATTERY FIXTURE Element type: Symbol</p>

<p>Electrical: FL14WB 1X4 WALL MNT FIXT W BATTERY Element type: Symbol</p>	<p>Electrical: FL14WM 1X4 WALL MNT FIXTURE Element type: Symbol</p>	<p>Electrical: FL1X4 1X4 LIGHT FIXTURE Element type: Symbol</p>
<p>Electrical: FL1X4B 1X4 LIGHT FIXTURE W BATTERY Element type: Symbol</p>	<p>Electrical: FL1X4C 1X4 LIGHT CONTINUOUS Element type: Symbol</p>	<p>Electrical: FL2X2 2X2 LIGHT FIXTURE Element type: Symbol</p>
<p>Electrical: FL2X2B 2X2 LIGHT FIXTURE W BATTERY Element type: Symbol</p>	<p>Electrical: FL2X2C 2X2 LIGHT CONTINUOUS Element type: Symbol</p>	<p>Electrical: FL2X4 2X4 LIGHT FIXTURE Element type: Symbol</p>

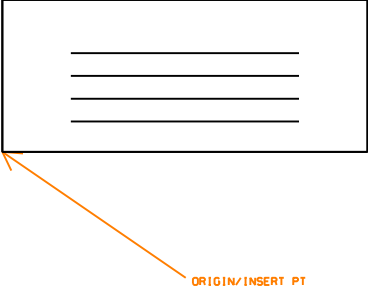
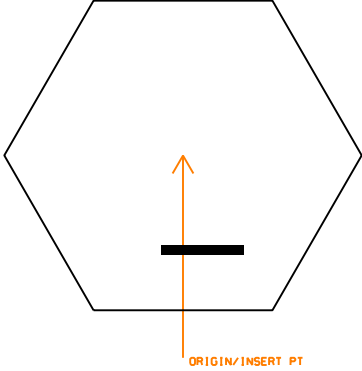
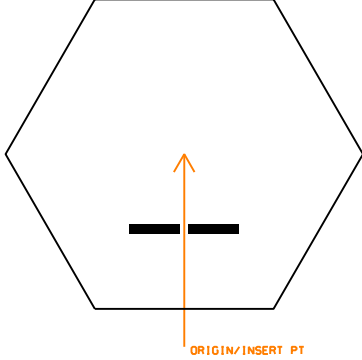
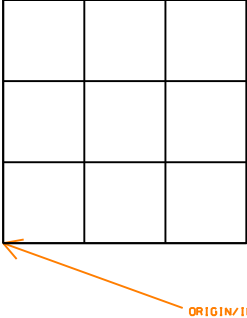
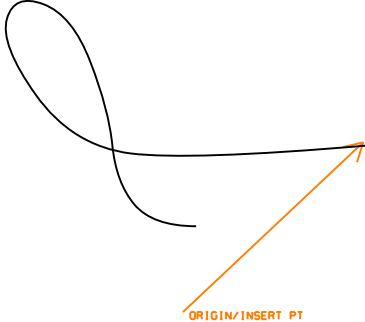
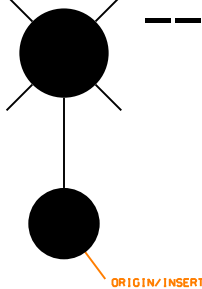
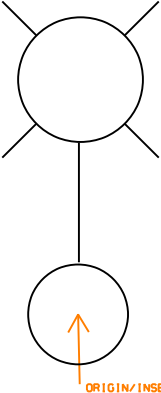
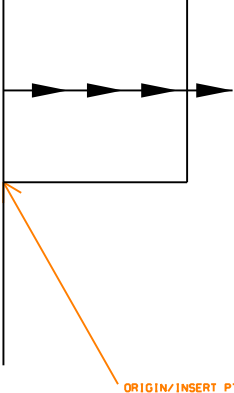
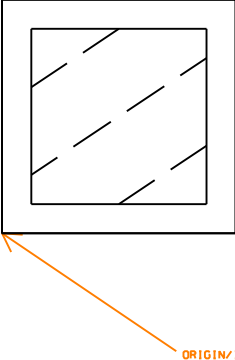
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<p>Electrical: FL2X4B 2X4 LIGHT FIXTURE W BATTERY Element type: Symbol</p>	<p>Electrical: FL2X4C 2X4 LIGHT CONTINUOUS Element type: Symbol</p>	<p>Electrical: FLDPNL FIELD PANEL Element type: Symbol</p>
 <p style="text-align: center;">ORIGIN/INSERT PT</p>	 <p style="text-align: center;">ORIGIN/INSERT PT</p>	 <p style="text-align: center;">ORIGIN/INSERT PT</p>
<p>Electrical: FLTN FLOODLIGHT, NEW Element type: Symbol</p>	<p>Electrical: FLTX FLOODLIGHT, EXISTING Element type: Symbol</p>	<p>Electrical: FUSRAT FUSE WITH RATING Element type: Symbol</p>
 <p style="text-align: center;">ORIGIN/INSERT PT</p>	 <p style="text-align: right; font-size: 2em;">M T</p> <p style="text-align: center;">ORIGIN/INSERT PT</p>	 <p style="text-align: center;">ORIGIN/INSERT PT</p>
<p>Electrical: GENRTR GENERATOR Element type: Symbol</p>	<p>Electrical: GLASBR GLASS BREAKAGE SENSOR Element type: Symbol</p>	<p>Electrical: GRDROD GROUNDING ROD Element type: Symbol</p>

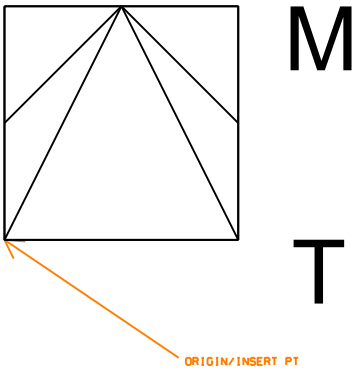
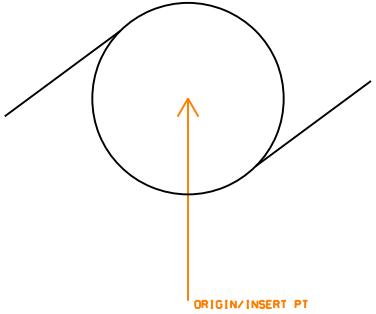
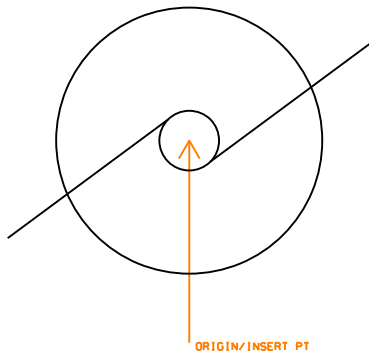
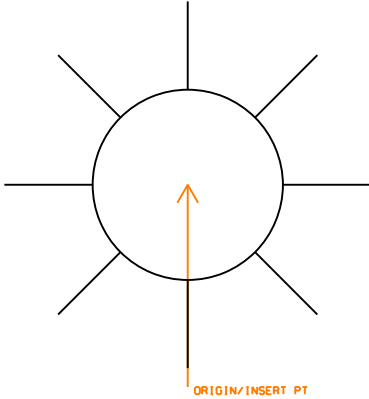
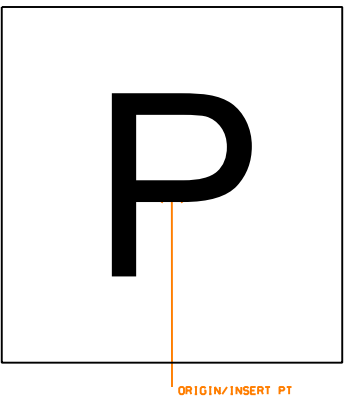
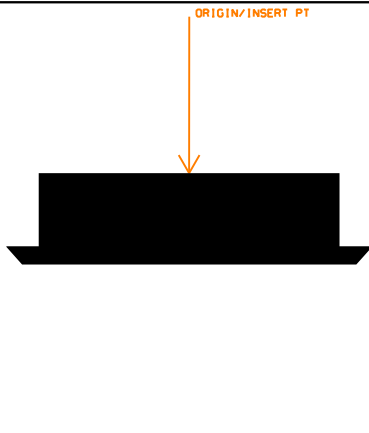
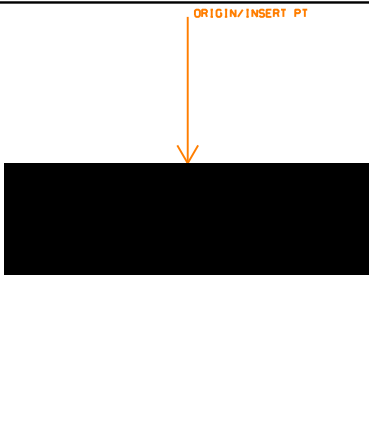
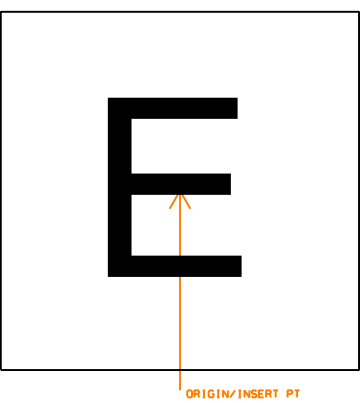
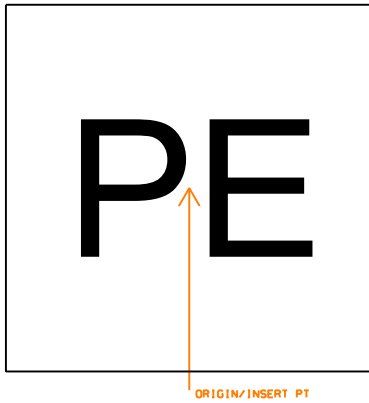
		
<p>Electrical: GROUND EARTH GROUND Element type: Symbol</p>	<p>Electrical: GUYWR GUY WIRE Element type: Symbol</p>	<p>Electrical: HAS1H 1 HOT LEG Element type: Symbol</p>
		
<p>Electrical: HAS1N 1 NEUTRAL LEG Element type: Symbol</p>	<p>Electrical: HAS1S 1 SWITCH LEG Element type: Symbol</p>	<p>Electrical: HAS2H 2 HOT LEGS Element type: Symbol</p>
		
<p>Electrical: HAS2S 2 SWITCH LEGS Element type: Symbol</p>	<p>Electrical: HAS3HN 3 HOT 1 NEUT LEGS Element type: Symbol</p>	<p>Electrical: HAS3MK HOT NEUTRAL GROUND Element type: Symbol</p>

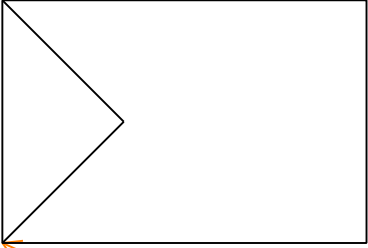
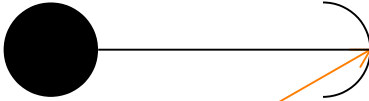
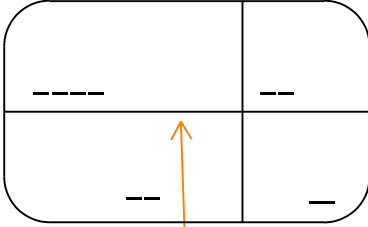
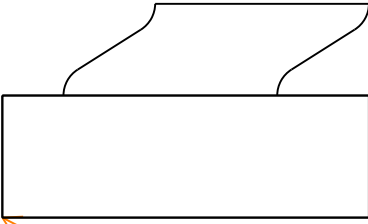
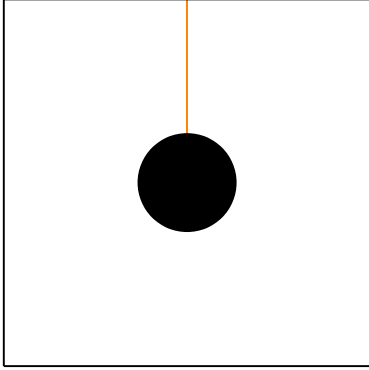
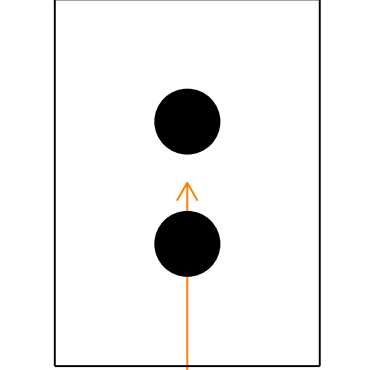
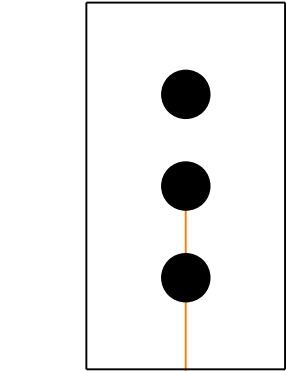
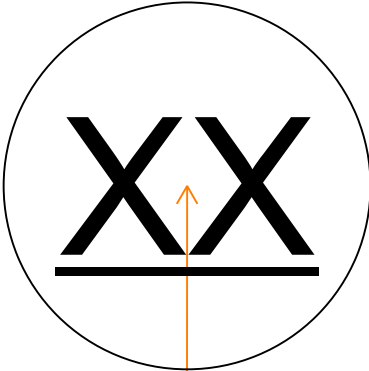
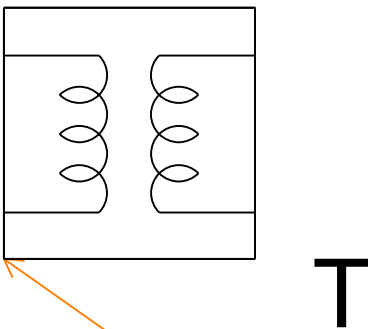
<p>Electrical: HAS3S 3 SWITCH LEG Element type: Symbol</p>	<p>Electrical: HAS4MK 2 HOT NEUTRAL GROUND Element type: Symbol</p>	<p>Electrical: HAS5MK 3 HOT NEUTRAL GROUND Element type: Symbol</p>
<p>Electrical: HASGND 1 GROUND LEG Element type: Symbol</p>	<p>Electrical: HEDASW AERIAL SERVICE WEATHER HEAD Element type: Symbol</p>	<p>Electrical: HLL HOVERLANE Element type: Symbol</p>
<p>Electrical: HLLL HOVERLANE LIMIT LIGHT Element type: Symbol</p>	<p>Electrical: HPIL HELIPAD INSET LIGHT Element type: Symbol</p>	<p>Electrical: HPPLEL HELIPAD PER LIGHT, ELEVATED Element type: Symbol</p>

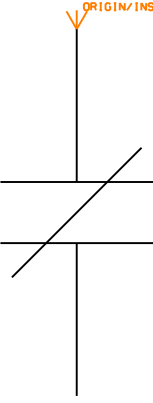
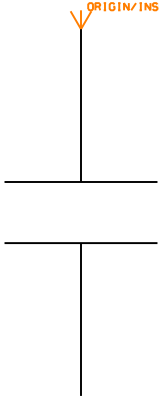
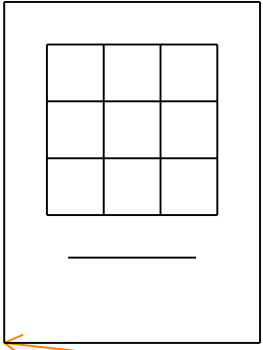
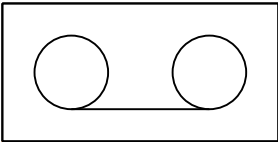
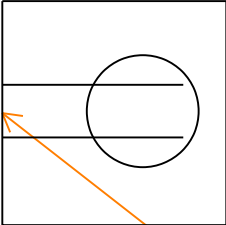
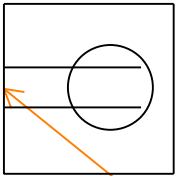
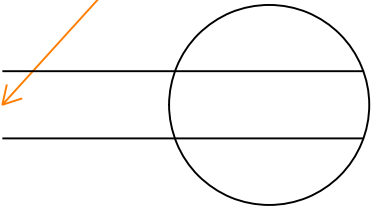
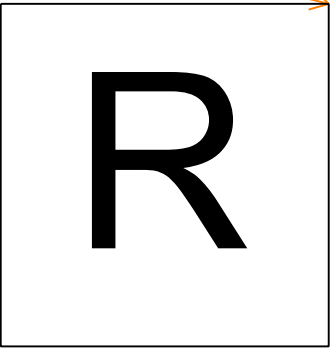
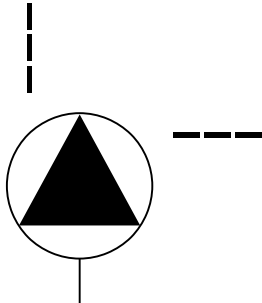
		
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	<p>POCC</p> 	
<p>Electrical: HRUN3 HOME RUN 3 Element type: Symbol</p>	<p>Electrical: INTAG INTERCONNECTION W/SUBST, ABOVEGROUND Element type: Symbol</p>	<p>Electrical: INTCOM INTERCOM Element type: Symbol</p>
<p>POCC</p> 		
<p>Electrical: INTUG INTERCONNECTION W/SUBST, UNDERGROUND Element type: Symbol</p>	<p>Electrical: JNBX EXTERIOR UTIL JUNCTION BOX Element type: Symbol</p>	<p>Electrical: JNBXWM JUNCTION BOX WALL MT Element type: Symbol</p>



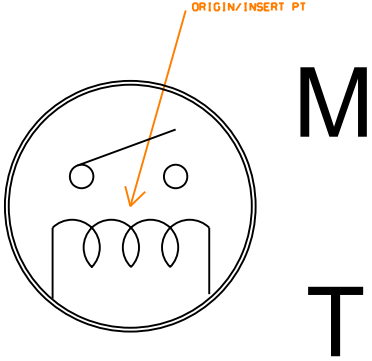
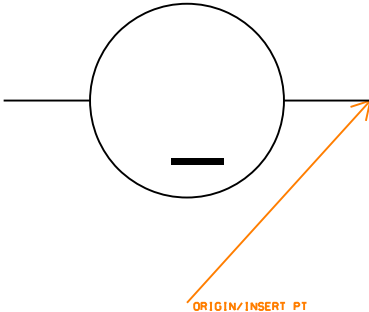
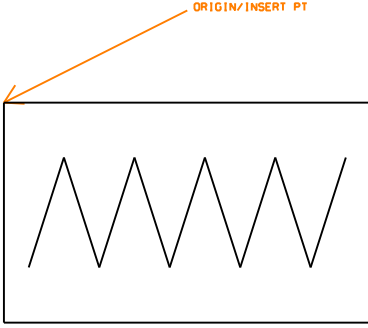
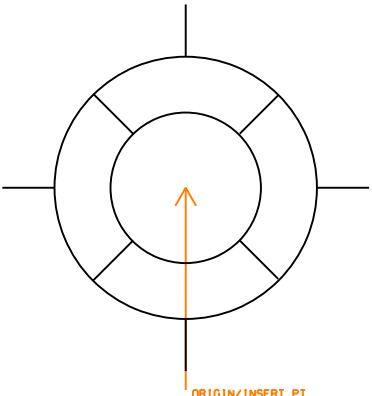
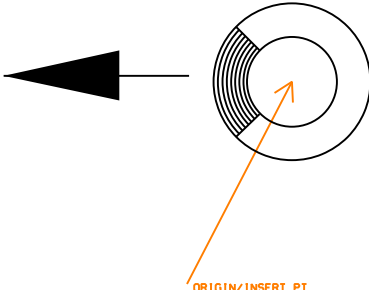
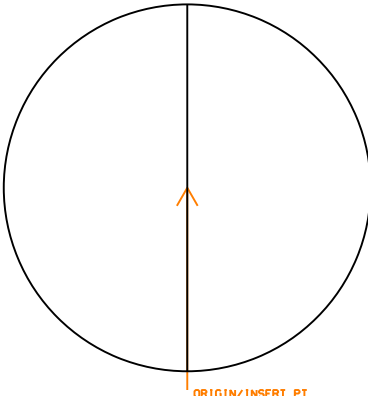
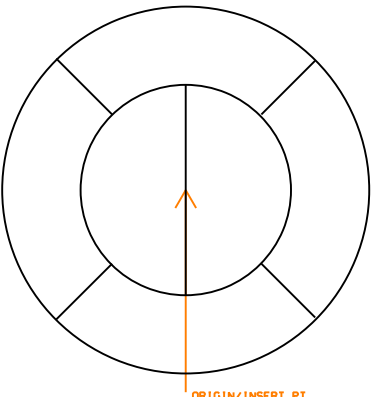
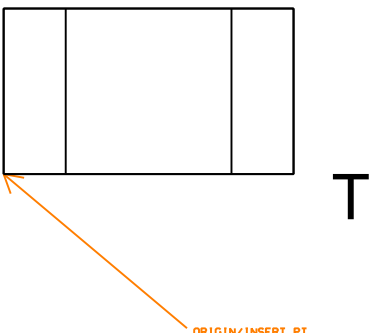
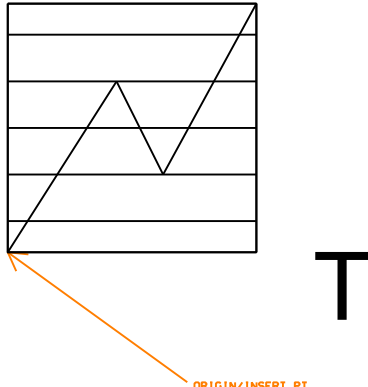
		
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<p>Electrical: KEYPAD KEYPAD DEVICE Element type: Symbol</p>	<p>Electrical: LEADER LEADER LINE Element type: Symbol</p>	<p>Electrical: LTPLN LIGHT POLE, NEW Element type: Symbol</p>
		
<p>Electrical: LTPLX LIGHT POLE, EXISTING Element type: Symbol</p>	<p>Electrical: MICROW OUTDOOR MICROWAVE XMIT UNT Element type: Symbol</p>	<p>Electrical: MONITR MONITOR Element type: Symbol</p>

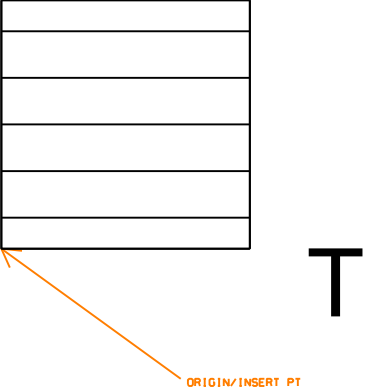
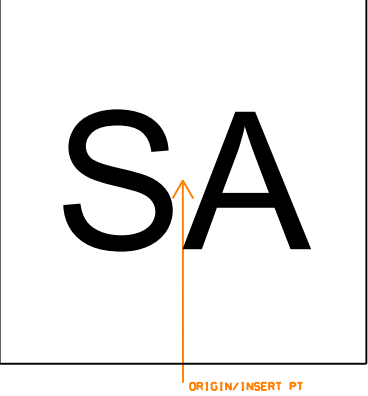
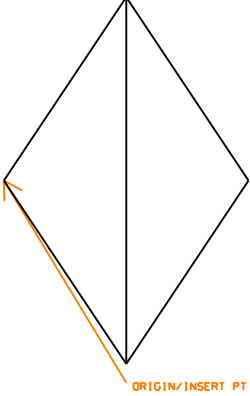
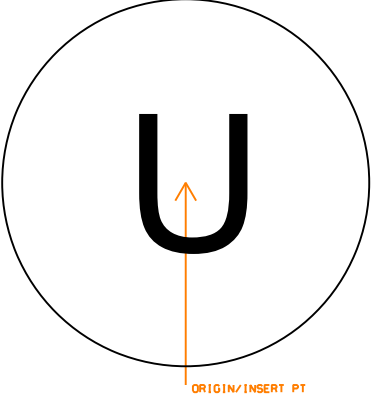
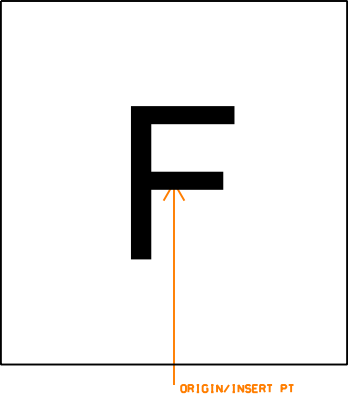
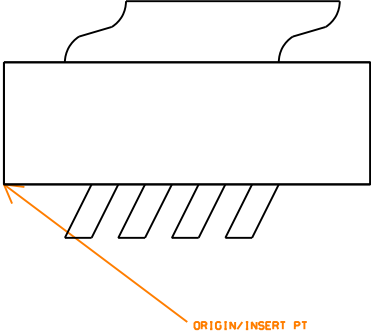
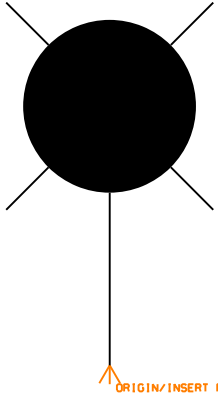
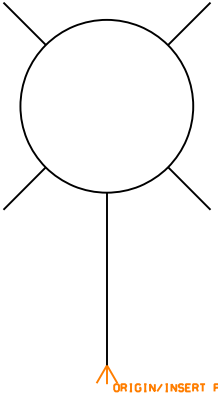
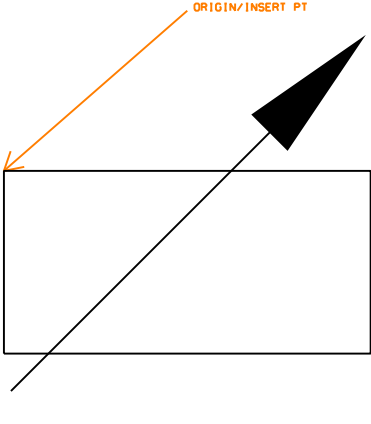
		
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<p>Electrical: OBSTRL OBSTRUCTION LIGHT Element type: Symbol</p>	<p>Electrical: PAPI PAPI LIGHT UNIT Element type: Symbol</p>	<p>Electrical: PBFMC FLUSH MNTD PANELBRD CABINET Element type: Symbol</p>
		
<p>Electrical: PBSMC SURFACE MNTD PANELBRD CAB Element type: Symbol</p>	<p>Electrical: PHANDH PRIMARY ELECTRICAL HANDHOLE Element type: Symbol</p>	<p>Electrical: PHOTO PHOTOELECTRIC RELAY Element type: Symbol</p>

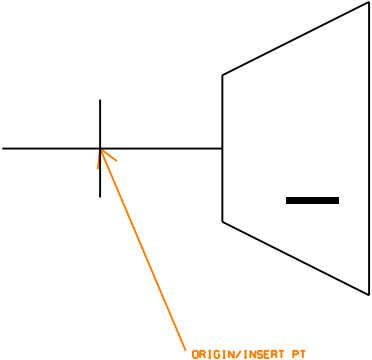
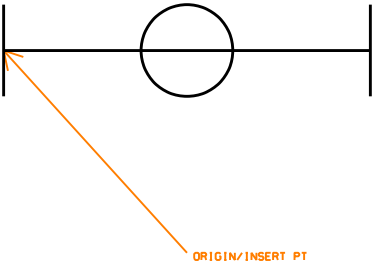
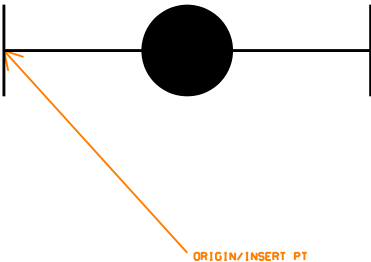
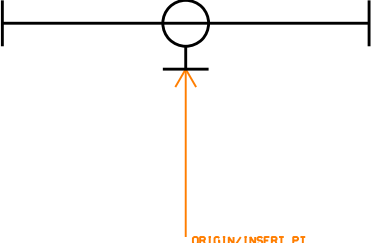
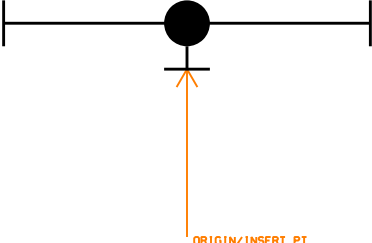
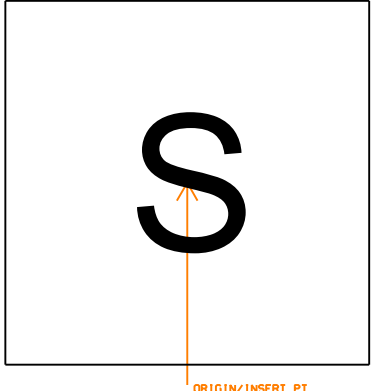
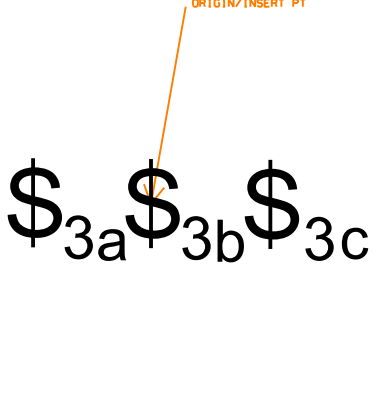
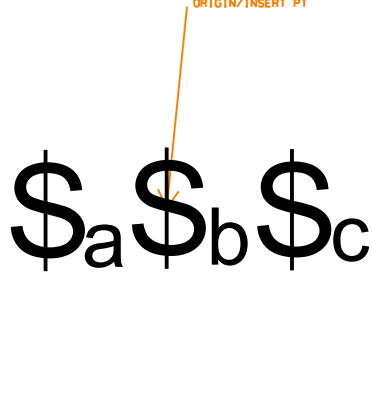
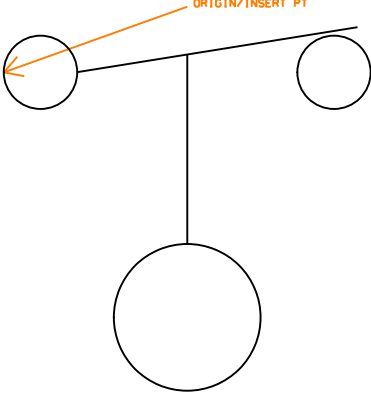
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<p>Electrical: PHOTOV PHOTOVOLTAIC POWER Element type: Symbol</p>	<p>Electrical: POLEAR AERIAL POLE W GUYING Element type: Symbol</p>	<p>Electrical: POLEID POLE IDENT. SYMBOL Element type: Symbol</p>
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<p>Electrical: PRINTR PRINTER Element type: Symbol</p>	<p>Electrical: PSHST1 ONE PUSHBUTTON STATION Element type: Symbol</p>	<p>Electrical: PSHST2 TWO PUSHBUTTON STATION Element type: Symbol</p>
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<p>Electrical: PSHST3 THREE PUSHBUTTON STATION Element type: Symbol</p>	<p>Electrical: PWRDVC POWER SYSTEM DEVICE ANSI Element type: Symbol</p>	<p>Electrical: PWRSPY POWER SUPPLY Element type: Symbol</p>

		
<p>Electrical: RCNC NORMALLY CLSD RELAY CONTACT Element type: Symbol</p>	<p>Electrical: RCNO NORMALLY OPEN RELAY CONTACT Element type: Symbol</p>	<p>Electrical: RDRKPD CARD READER WITH KEYPAD Element type: Symbol</p>
		
<p>Electrical: RECDER RECORDER Element type: Symbol</p>	<p>Electrical: RECDFM DOUBLEFLUSHMOUNTFLOOROUTLET Element type: Symbol</p>	<p>Electrical: RECDSM DOUBLESURFMOUNTFLOOROUTLET Element type: Symbol</p>
		
<p>Electrical: RECDUP DUPLEX RECEPTACLE Element type: Symbol</p>	<p>Electrical: RECLOS RECLOSER AERIAL AUTOMATIC Element type: Symbol</p>	<p>Electrical: RECPT2 SPECIAL RECEPTACLE Element type: Symbol</p>

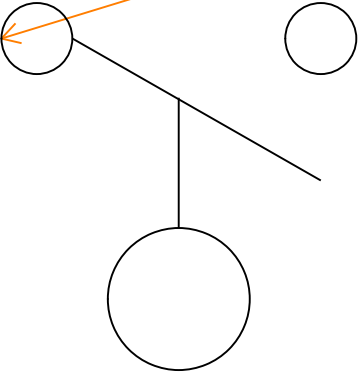
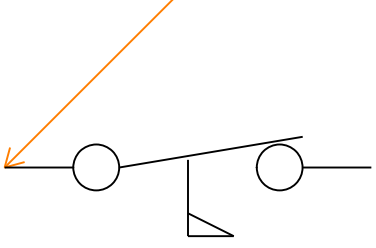
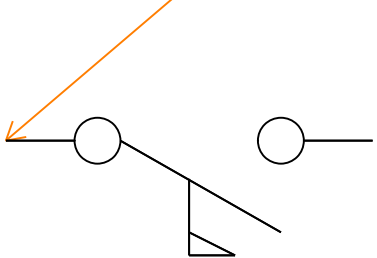
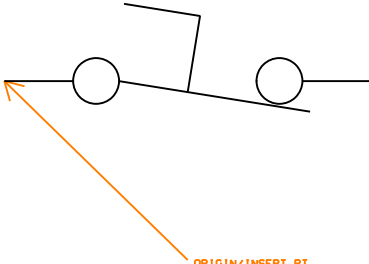




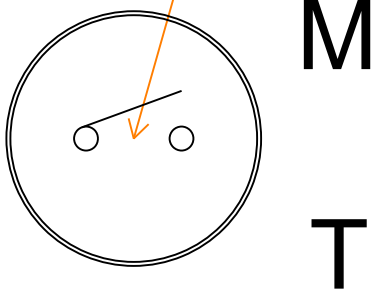
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<p>Electrical: RECSFM SINGLE FLUSH MOUNT FLR OUTL Element type: Symbol</p>	<p>Electrical: RECSIN SINGLE RECEPTACLE Element type: Symbol</p>	<p>Electrical: RECSNS SNGL RECEPTACLE WITH SWITCH Element type: Symbol</p>
<p>Electrical: RECSPP SPECIAL PURPOSE RECEPTACLE Element type: Symbol</p>	<p>Electrical: RECSSM SINGLESURFMOUNTFLOOROUTLET Element type: Symbol</p>	<p>Electrical: REIL REIL LIGHT UNIT Element type: Symbol</p>

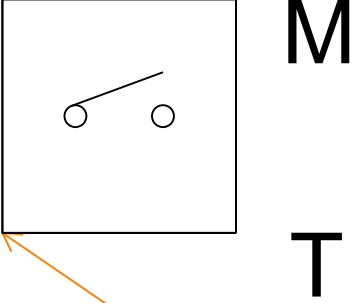

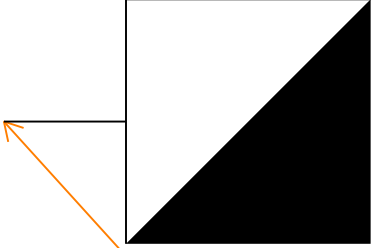
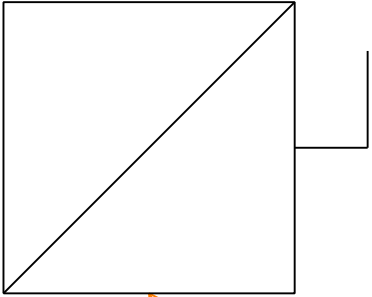

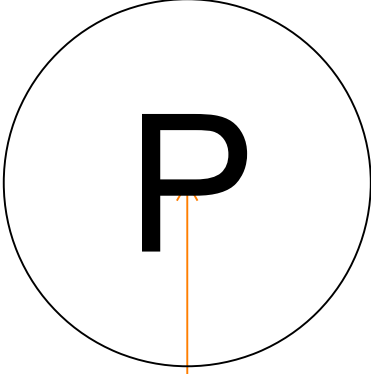



		
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<p>Electrical: RWCLL RW CENTERLINE LIGHT Element type: Symbol</p>	<p>Electrical: RWEL RW END LIGHT Element type: Symbol</p>	<p>Electrical: RWLEL RW EDGE LIGHT ELEVATED Element type: Symbol</p>
		
<p>Electrical: RWLSF RW EDGE LIGHT SEMIFLUSH Element type: Symbol</p>	<p>Electrical: SCRDEV SCREENING DEVICE Element type: Symbol</p>	<p>Electrical: SECSA SECURITY SCREEN WITH ALARM Element type: Symbol</p>


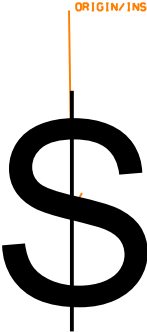

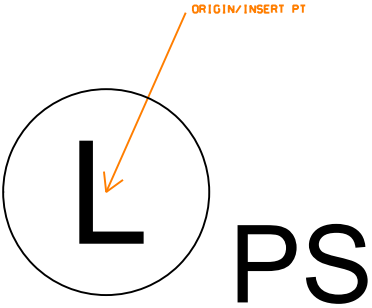
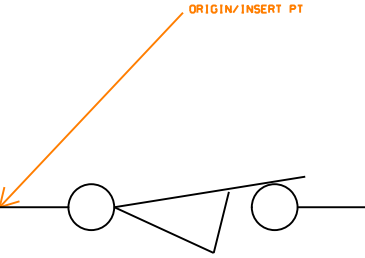
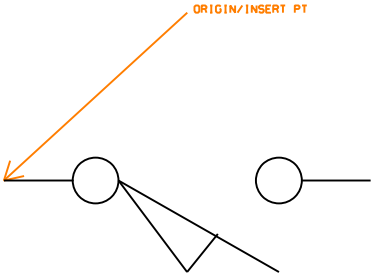
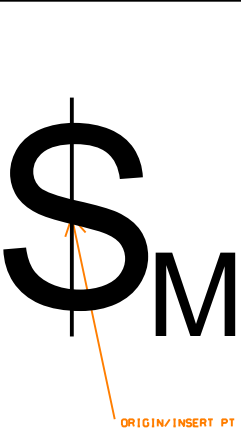
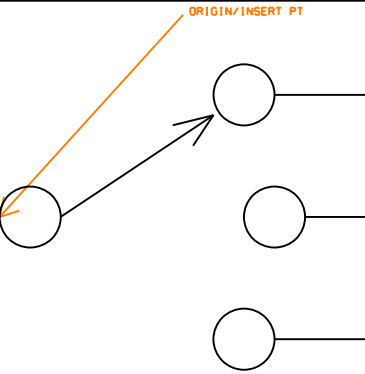
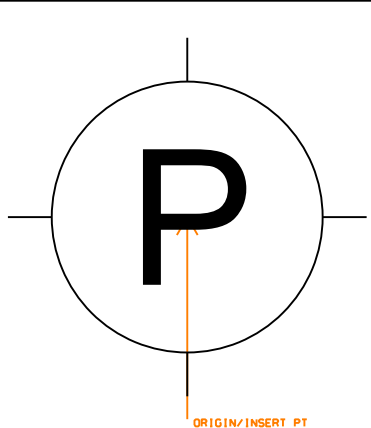
		
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<p>Electrical: SENULS ULTRASONIC SENSOR Element type: Symbol</p>	<p>Electrical: SFL SEQUENCED FLASHER LIGHT Element type: Symbol</p>	<p>Electrical: SHREDR DOCUMENT DESTROYER Element type: Symbol</p>
		
<p>Electrical: SLLN STREETLIGHT LUMINAIRE, NEW Element type: Symbol</p>	<p>Electrical: SLLX STREETLIGHT LUMINAIRE, EXISTING Element type: Symbol</p>	<p>Electrical: SLREG CONSTNT CURRENT TRANSFORMER Element type: Symbol</p>

		
<p>Electrical: SOUNDS SOUND SYSTEM INDICATE USE Element type: Symbol</p>	<p>Electrical: STP14 SURFACE REC 1X4 STRP Element type: Symbol</p>	<p>Electrical: STP14B SURFACE 1X4 STRIP BATTERY Element type: Symbol</p>
		
<p>Electrical: STP18 SURFACE REC 1X8 STRP Element type: Symbol</p>	<p>Electrical: STP18B SURFACE 1X8 STRIP BATT Element type: Symbol</p>	<p>Electrical: SUBSTA SUBSTATION Element type: Symbol</p>
		
<p>Electrical: SW3ABC 3 THREE WAY SWITCHES Element type: Symbol</p>	<p>Electrical: SWABC THREE SINGLE SWITCHES Element type: Symbol</p>	<p>Electrical: SWFLNC NORMALLY CLOSED FLOAT SWITCH Element type: Symbol</p>

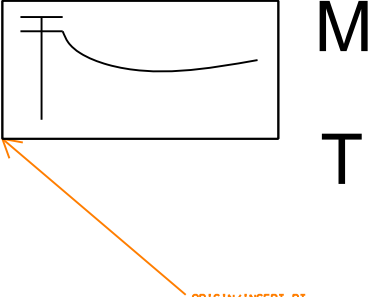
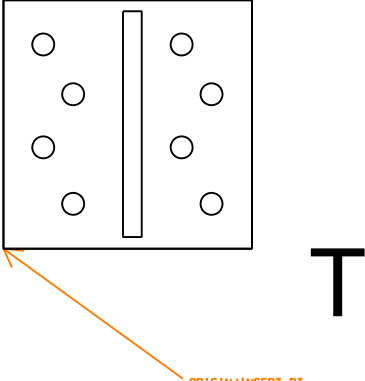
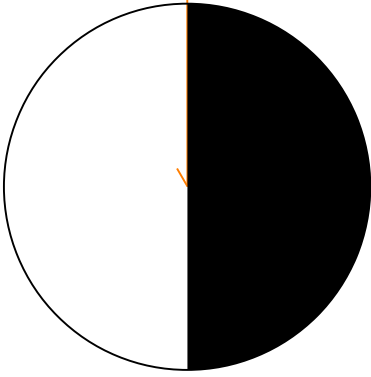
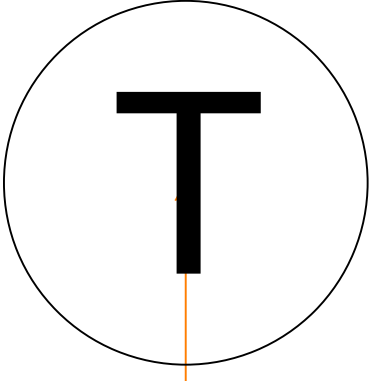
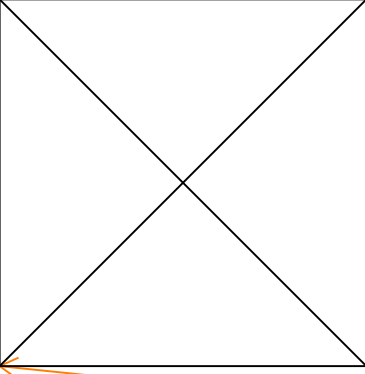
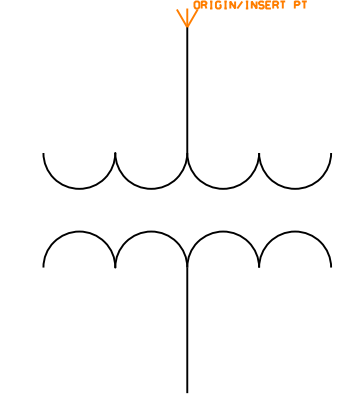
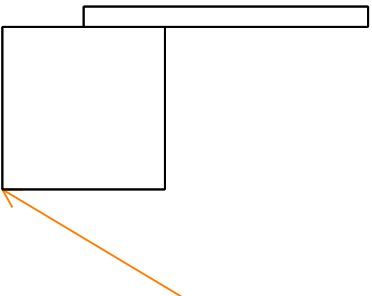
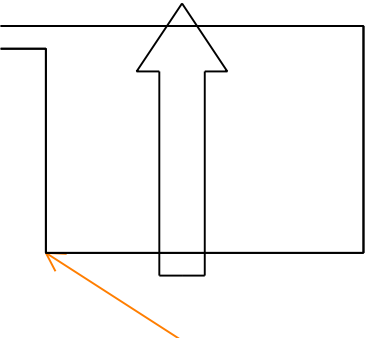
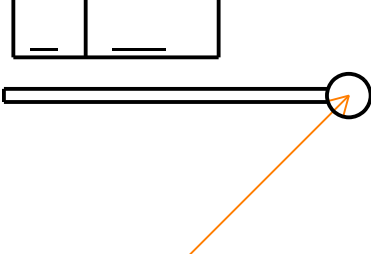


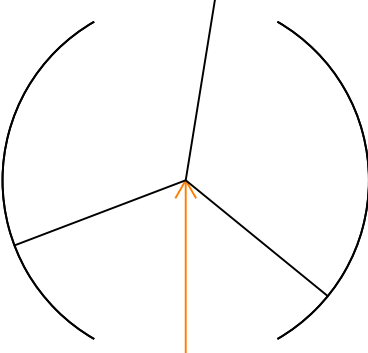
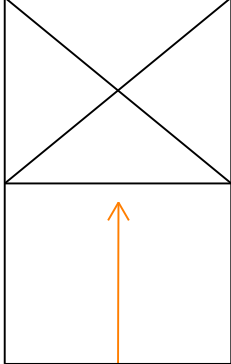
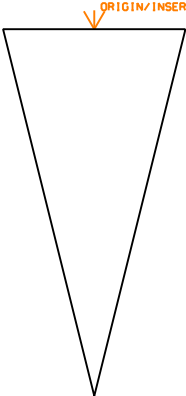
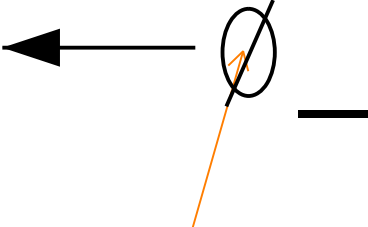
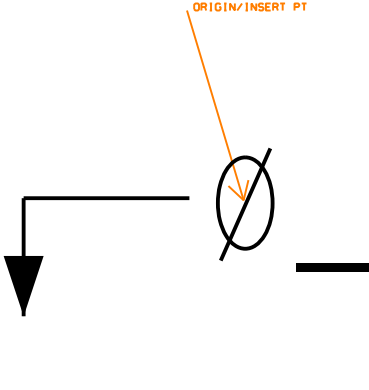
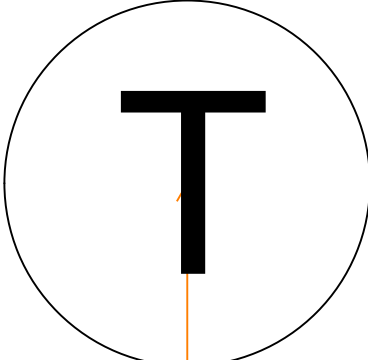
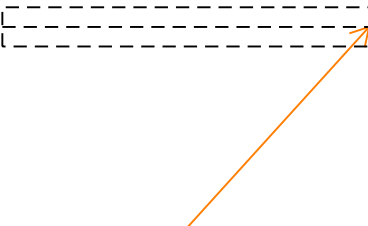
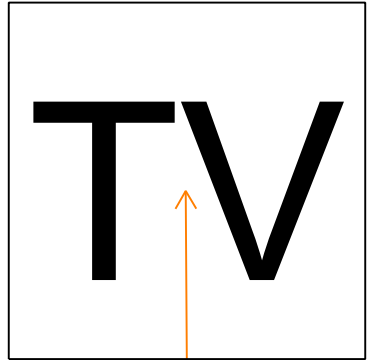
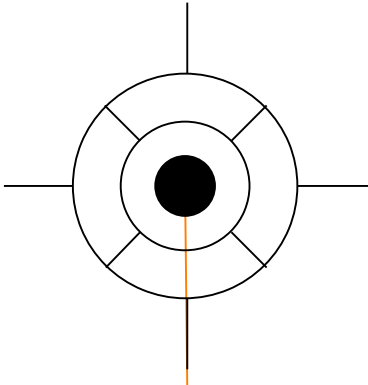
		
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<p>Electrical: SWFNC NORM CLSD FOOT OPRTD SWITCH Element type: Symbol</p>	<p>Electrical: SWI2WY DOUBLE POLE SWITCH Element type: Symbol</p>	<p>Electrical: SWI3WY THREE WAY SWITCH Element type: Symbol</p>
		
<p>Electrical: SWI4WY FOUR WAY SWITCH Element type: Symbol</p>	<p>Electrical: SWICB CIRCUIT BREAKER Element type: Symbol</p>	<p>Electrical: SWICHA AUTOMATIC MONITORING SWITCH Element type: Symbol</p>

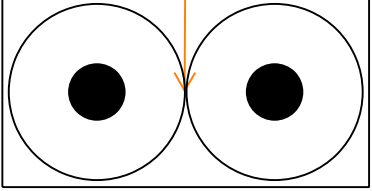
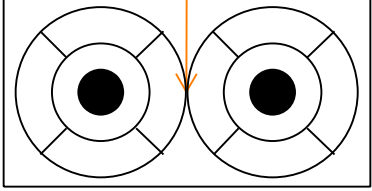
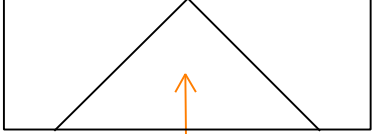
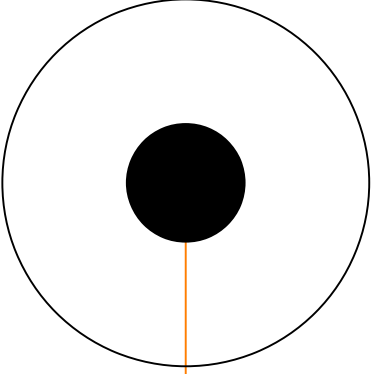
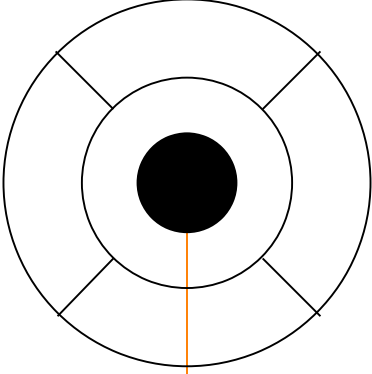
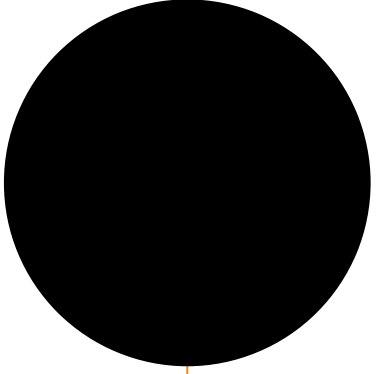
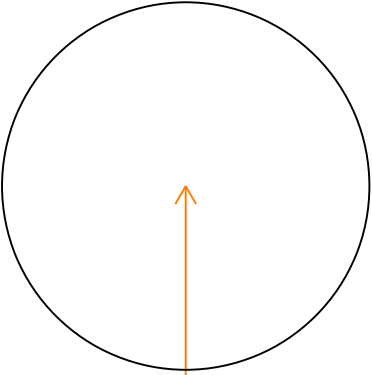
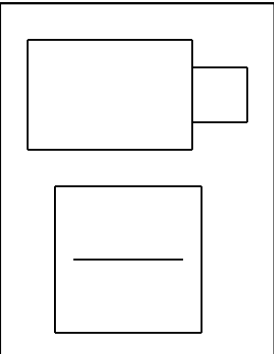
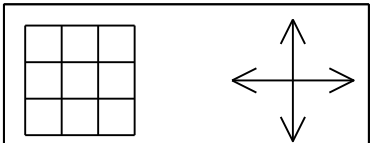
		
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<p>Electrical: SWIDSF DISCONNECT SWITCH, FUSED Element type: Symbol</p>	<p>Electrical: SWIDSU DISCONNECT SWITCH, UNFUSED Element type: Symbol</p>	<p>Electrical: SWIDUR DURESS SWITCH Element type: Symbol</p>
		
<p>Electrical: SWIFUS FUSED SWITCH Element type: Symbol</p>	<p>Electrical: SWIKEY KEY OPERATED SWITCH Element type: Symbol</p>	<p>Electrical: SWILVM LOW VOLTAGE MASTER SWITCH Element type: Symbol</p>

		
<p>Electrical: SWIPLT SWITCH W/PILOT LIGHT Element type: Symbol</p>	<p>Electrical: SWITCH SINGLE POLE SWITCH Element type: Symbol</p>	<p>Electrical: SWITIM TIMER OPERATED SWITCH Element type: Symbol</p>
		
<p>Electrical: SWLAMP LAMP HOLDER POLE SWITCH Element type: Symbol</p>	<p>Electrical: SWLNC NORMALLY CLOSED LIMIT SWITCH Element type: Symbol</p>	<p>Electrical: SWLNO NORMALLY OPEN LIMIT SWITCH Element type: Symbol</p>
		
<p>Electrical: SWMOTR MOTOR SWITCH Element type: Symbol</p>	<p>Electrical: SWMULT MULTIPOSITION SWITCH Element type: Symbol</p>	<p>Electrical: SWPCM CEILING MOUNTED PULL SWITCH Element type: Symbol</p>

<p>Electrical: SWPCOI PRES SWTCH CLSE ON INCREASE Element type: Symbol</p>	<p>Electrical: SWPOOI PRESS SWTCH OPN ON INCREASE Element type: Symbol</p>	<p>Electrical: SWSBRK SINGLE BREAK SWITCH Element type: Symbol</p>
<p>Electrical: SWTANC NORMCLSDTEMPACTIVATEDSWTCH Element type: Symbol</p>	<p>Electrical: SWTANO NORMOPNTEMPACTIVATEDSWTCH Element type: Symbol</p>	<p>Electrical: SWTDNC NORM CLSD TIME DELAY SWITCH Element type: Symbol</p>
<p>Electrical: SWTDNO NORM OPEN TIME DELAY SWITCH Element type: Symbol</p>	<p>Electrical: TARDR CARD READER w/TIME AND ATTENDANCE Element type: Symbol</p>	<p>Electrical: TDZL TOUCHDOWN ZONE LIGHT Element type: Symbol</p>

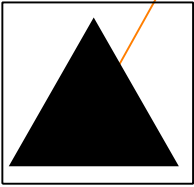
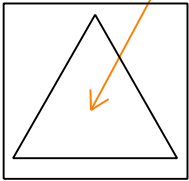
		
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<p>Electrical: TMANH TELEPHONE MANHOLE Element type: Symbol</p>	<p>Electrical: TOWER TRANSMISSION TOWER Element type: Symbol</p>	<p>Electrical: TRANSF TRANSFORMER, CURRENT Element type: Symbol</p>
		
<p>Electrical: TRFARM TRAFFIC ARM Element type: Symbol</p>	<p>Electrical: TRFCLP VEHICLE LOOP DETECTOR Element type: Symbol</p>	<p>Electrical: TRFSIG TRAFFIC SIGNAL MAST ARM Element type: Symbol</p>

		
<p>Electrical: TRNSTL TURNSTILE Element type: Symbol</p>	<p>Electrical: TSCTRL TR SIGNAL CONTROLLER Element type: Symbol</p>	<p>Electrical: TSHEAD TRAFFIC SIGNAL HEAD Element type: Symbol</p>
		
<p>Electrical: TSPHS TR SIGNAL PH NO THRU Element type: Symbol</p>	<p>Electrical: TSPHT TR SIGNAL PH NO TURN Element type: Symbol</p>	<p>Electrical: TSTAT THERMOSTAT Element type: Symbol</p>
		
<p>Electrical: TSVLDT TR SIGNAL VEH LOOP DETECTOR Element type: Symbol</p>	<p>Electrical: TVOUT TELEVISION OUTLET Element type: Symbol</p>	<p>Electrical: TWCLL TW CENTERLINE LIGHT Element type: Symbol</p>

		
<p>Electrical: TWLELE TW END LIGHT_ELEVATED Element type: Symbol</p>	<p>Electrical: TWLSF TW END LIGHT_SEMIFLUSH Element type: Symbol</p>	<p>Electrical: TWGSGN TW GUIDANCE SIGN Element type: Symbol</p>
		
<p>Electrical: TWLEL TW EDGE LIGHT_ELEVATED Element type: Symbol</p>	<p>Electrical: TWLSF TW EDGE LIGHT_SEMIFLUSH Element type: Symbol</p>	<p>Electrical: UTPLN POLE_NEW Element type: Symbol</p>
		
<p>Electrical: UTPLX POLE_EXISTING Element type: Symbol</p>	<p>Electrical: VIDCR CAMERA W/CARD READER Element type: Symbol</p>	<p>Electrical: VIDCTL VIDEO CONTROL KEYBOARD Element type: Symbol</p>

<p>Electrical: VIDIC VIDEO INTERCOM Element type: Symbol</p>	<p>Electrical: VIDICM VIDEO INTERCOM MASTER Element type: Symbol</p>	<p>Electrical: VIDKPD CAMERA W/KEYPAD Element type: Symbol</p>
<p>Electrical: VIDMTN VIDEO MOTION DETECTOR Element type: Symbol</p>	<p>Electrical: VIDMUX VIDEO MULTIPLEXER Element type: Symbol</p>	<p>Electrical: WYECON XFMR WYE CONNECTION Element type: Symbol</p>
<p>Electrical: WYEXGC XFMR GROUNDED CONNECTION Element type: Symbol</p>	<p>Electrical: XFRPLN XFMR_POLE_NEW Element type: Symbol</p>	<p>Electrical: XFRPLX XFMR_POLE_EXIST Element type: Symbol</p>



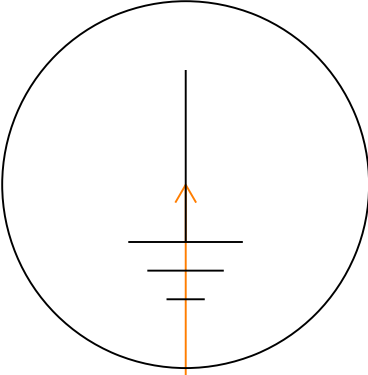
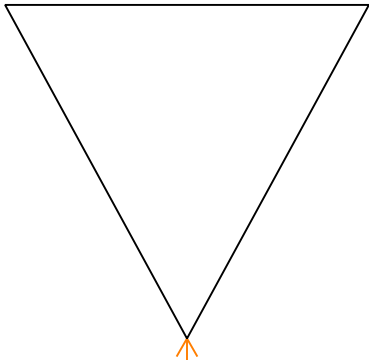
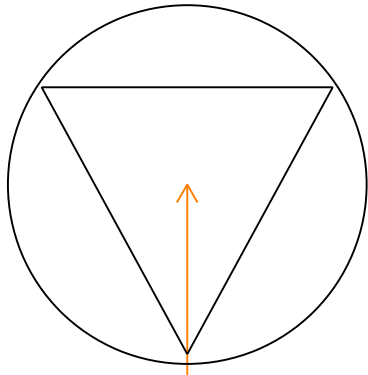
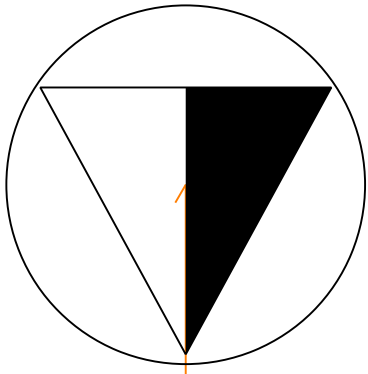
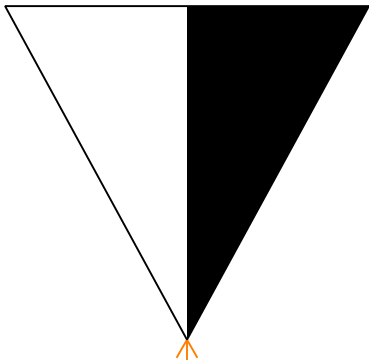
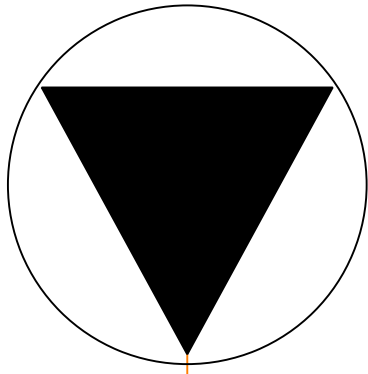
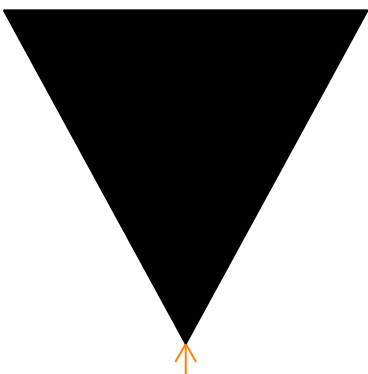
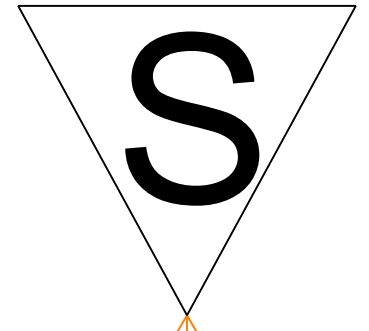
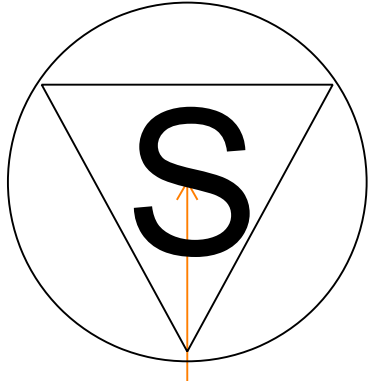
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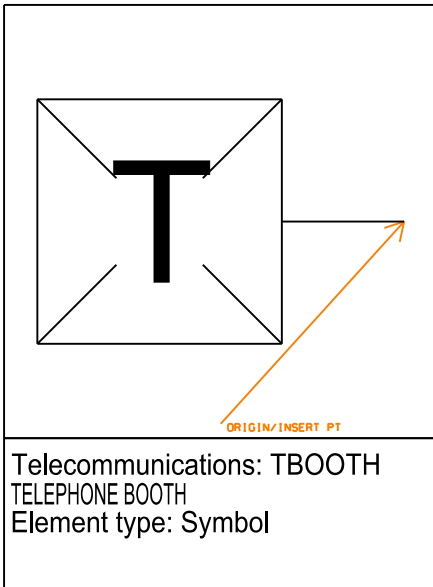
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# 16 Telecommunications Symbols Library

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<p>Telecommunications: GRDROD GROUNDING ROD Element type: Symbol</p>	<p>Telecommunications: RECDC DATACOMM RECEPTACLE Element type: Symbol</p>	<p>Telecommunications: RECDCF DATACOMM FLOOR RECEPTACLE Element type: Symbol</p>
		
<p>Telecommunications: RECTDF TELEPHONE/DATA FLOOR RECEPTACLE Element type: Symbol</p>	<p>Telecommunications: RECTDW TELEPHONE/DATA RECEPTACLE Element type: Symbol</p>	<p>Telecommunications: RECTEF TELEPHONE FLOOR RECEPTACLE Element type: Symbol</p>
		
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# REPORT DOCUMENTATION PAGE

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				<b>5b. GRANT NUMBER</b>	
				<b>5c. PROGRAM ELEMENT NUMBER</b>	
<b>6. AUTHOR(S)</b>  CAD/BIM Technology Center for facilities, infrastructure, and environment				<b>5d. PROJECT NUMBER</b>	
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<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b>  U.S. Army Engineer Research and Development Center Information Technology Center 3909 Halls Ferry Road Vicksburg, MS 39180-6199				<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>  ERDC/ITL TR-12-6	
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				<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
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<b>13. SUPPLEMENTARY NOTES</b>  This report supersedes ERDC/ITL TR-9-2.					
<b>14. ABSTRACT</b> The A/E/C CAD Standard has been developed by the CAD/BIM Technology Center (Center) for Facilities, Infrastructure, and Environment to eliminate redundant Computer-Aided Design (CAD) standardization efforts within the Department of Defense (DoD) and the Federal Government. The manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life cycle of facilities within the DoD.  The CAD drafting standards addressed in the A/E/C CAD standard include presentation graphics, level/layer assignments, electronic file naming, and standard symbology. The Center's primary goal is to develop a CAD standard that is generic enough to operate under various CAD software packages (such as Bentley's MicroStation and Autodesk's AutoCAD) and incorporate existing industry standards when possible.					
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<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b>  UNCLASSIFIED	<b>b. ABSTRACT</b>  UNCLASSIFIED	<b>c. THIS PAGE</b>  UNCLASSIFIED		446	<b>19b. TELEPHONE NUMBER (include area code)</b>