

Mobile District Advanced Modeling (AM) Bulletin Revit Templates (2022) SAM AMB 2024-04

Based on the standards produced by the



US Army Corps of Engineers
Mobile District
Engineering Division
September 2024

Version changes:

August 2020

1. Updated to supersede SAM AMB-2018-04, with improved workflow to support Revit 2020 and a more streamlined project set up, including pre-linked template model files. Major changes are noted as **Arial size 12 dark orange text**.

September 2024

1. Revised to show Revit 2022 Template section types, plan view types, text types, elevation types, and dimension styles that were modified from previous Revit templates.

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General

This document supersedes the previous 'SAM AMB 2018-04 Revit Templates'.

In this document, AEC standards refer to the CADBIM Center (CBC) AEC CADD Standard and AEC Graphics Standard. NCS refers to the National CAD Standard.

The Mobile District (SAM) Revit templates are created from the Autodesk out-of-the-box (OOTB) standard Revit templates. The Mobile District Engineering Division standardizes on implementing even-numbered year of Revit releases, skipping odd-year releases. With the OOTB templates, modifications and additions are then made to support USACE requirements in accordance with the appropriate AEC standards, NCS standard, and local requirements. The hierarchy of precedence is as follows:

Local requirements supersede AEC standards, and AEC standards supersede NCS standard.

Information appearing between the symbols `!*` and `*/` are information for internal Mobile District users.

Version Control

Template version control is important to ensure that design projects are delivered with consistency from project to project, but more importantly delivered with consistency within a project from sheet to sheet. SAM Revit templates are designated with version numbers established based on the beginning date of development for that version. For example, v.20181111 for Nov 11, 2018.

USACE Revit Standard

The CBC periodically releases Revit templates for public usage. The features adopted from these templates are as follows:

- USACE Revit Starting View
- USACE Browser Organization
- USACE View Names

USACE Revit Starting View

The USACE Revit Starting View is modified to support SAM requirements as follows:

- Addition of SAM version number in the lower left corner.
- Addition of a Group Number to allow for grouping by discipline header while still allowing sorting by Publish Order.
- Modification of Sheet Publish Order to document group number.
- Addition of FILENAME shared parameter and label to display the file name.
- Updated graphics to enhance readability.
- Added and organized parameters to streamline project set up.

- Added breakout for publish order of Fire Protection sheets.

USACE Browser Organization

The CBC USACE browser organization is implemented as-is without local changes.

USACE View Names

The CBC USACE view naming convention is implemented as-is without local changes.

USACE Border

SAM adopts the ANSI D USACE border as published by the CBC for MicroStation/AutoCAD. The ANSI D border as delivered with the USACE Revit template has been modified to match the USACE border. Additional settings are also made in both the border and the template to achieve the proper border line weights per AEC CADD standard.

Object Styles

The following object styles have been modified from the USACE base template to better support AEC compliance.

Under Annotation Objects/Title Blocks, the following SAM settings are used.

Title Blocks	1	Black	Solid
<Medium Lines>	3	Black	Solid
<Thin Lines>	1	Black	Solid
<Wide Lines>	5	Black	Solid
Cover Thick	10	Black	Solid
TTLB	7	Black	Solid

USACE Cover Sheet

SAM adopts the ANSI D USACE cover sheet as depicted in the AEC Graphics Standard as published by the CBC. The ANSI D cover sheet as delivered with the USACE Revit template has been modified to enhance functionality and match the USACE cover sheet.

Annotations

All annotations shall be Arial true type font in accordance with the AEC CAD Standard.

SAM adopts 3/32" text height as the standard text size.

SAM requirements are covered in the SAM-AMB 2018-03 – Graphic Concepts.

Text Types

Revit text types are named based on usage. This allows for future global changes in the event of changes in standards or requirements. Additional text types have been added and existing text type names have been updated for 2022 to further clarify intended usage.

The following text types are included in the SAM Revit 2022 Templates.

Default 3/32" _USACE
Label 1/8" _USACE
Schedule Header 1/8" _USACE
Schedule Title 3/16" _USACE
Sub-Title 3/16" _USACE
Title 1/4" _USACE
Title Bold 1/4" _USACE

Labels

Label 1/8" _USACE

Notes and Dimensions

Default: Default 3/32" _USACE
Transparent background required: N/A

Schedules

Titles: Schedule Title 3/16" _USACE
Headers: Schedule Header 1/8" _USACE
Body: Default 3/32" _USACE

Tables

Titles: Title 1/4" _USACE
Sub-Titles: Sub-Title 3/16" _USACE
Body: Default 3/32" _USACE

Cover Sheets

Titles: Title 1/4" _USACE
Bold Titles: Title Bold 1/4" _USACE
Sub-Titles: Sub-Title 3/16" _USACE
Notes: Default 3/32" _USACE

Dimension Styles

The intent here is to provide styles that are compliant with standards/requirements and remove those that are not appropriate for use on SAM projects.

Angular Dimension Styles

- Arrow Line-Leader _USACE

Diameter Dimension Styles

- Horizontal _USACE
- Rotated _USACE

Linear Dimension Styles

- BaseLine _USACE
- Continuous _USACE

Radial Dimension Styles

- Horizontal_USACE
- Rotated_USACE

Spot Coordinates

- Horizontal_USACE
- Horizontal (w-Elevations) _USACE

Spot Elevations

- Beam Elevation (Project) _USACE
- Beam Elevation (Relative) _USACE
- No Symbol (Project) _USACE
- No Symbol (Relative) _USACE
- Target (Project) _USACE
- Target (Relative) _USACE
- Crosshair (Project)_USACE
- Crosshair (Relative)_USACE

Graphic Scales

- **Graphic Scales_USACE** – Architectural scales
- **Graphic Scales_Civil_USACE** – Civil Scales

Object Tags

- Window Tag_USACE with the triangle symbol is used.

Datum Objects

Levels

Standard levels

- 00_LEVEL_TOF, -3'-0"
- 01_LEVEL_FF, 0'-0"
- 02_LEVEL, 12'-0"
- 03_LEVEL_ROOF, 24'-0"

Additional levels may be created following a similar naming convention.

Level Types

- **Project Base Point_USACE** – Elevation Base set to Project Base Point
- **Survey Point_USACE** – Elevation Base set to Survey Point

Note 1: OOTB Level types “Level – No Head” and “Plenum” are not used in SAM and have been deleted.

Note 2: *Transfer Project Standard does not actually transfer level types. It only transfers the supporting component families. Level type transfer requires copy/paste of the desired elevation markers.*

Grid Lines

3/8" Bubble - OOTB Grid Line type modified to match NCS

Project Location

The default project location is set to Mobile AL

The default site name is PROJCODE. The site is to be renamed with the project code.

With Revit 2020, Autodesk introduced the visibility option for the Revit origin. The default

Project Base Point and Survey Point are to remain coincident at 0, 0, 0 with the origin.

Model Placeholder

A model group composed of 3D elements are provided as a placeholder to facilitate model file linking. Once design starts, the model group is to be deleted to prevent it from being visible when linked into other models. The 3D objects are generic models under the subcategory "USACE Model Placeholder" and the model lines are under the model category Lines, "USACE Model Placeholder" and "USACE Model Placeholder – Green."

The model placeholder also contains guidance on the design starting point, which is 25' x 25' from the project base point.

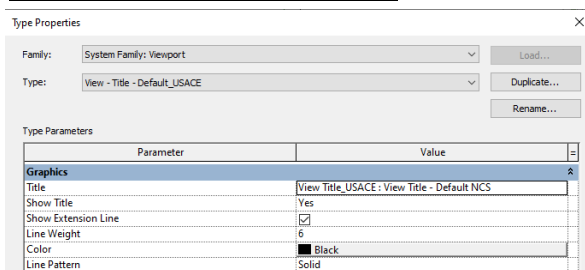
\\Note that the SAM Revit 2022 templates have been pre-linked to one another to facilitate project set up. When copied as a set within ProjectWise, links within the new set are automatically updated to resolve to the new set of files./*/

Views

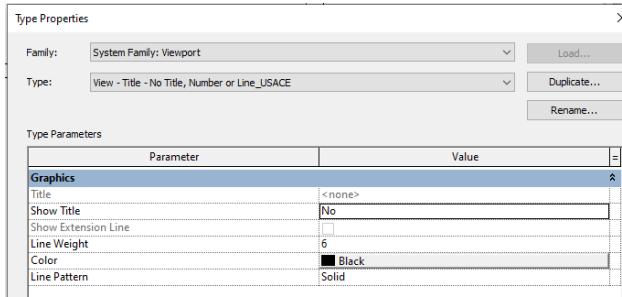
A view placed on a sheet creates an instance of a viewport. There can be multiple types, but the default viewport type is the first one created and is the one assigned when a view is dragged onto a sheet. To define a named default viewport type, use the first type created and rename as appropriate.

Viewports

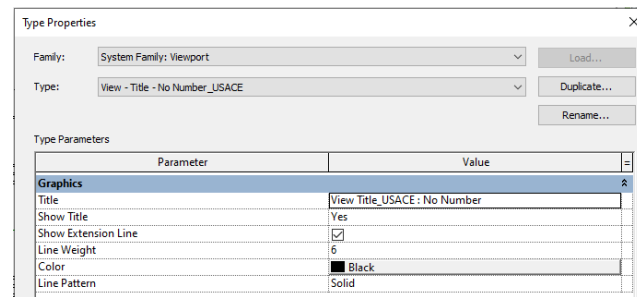
View - Title – Default_USACE



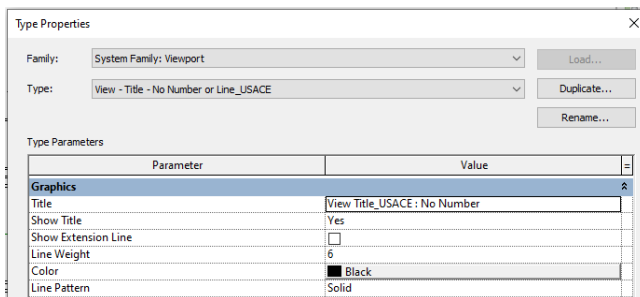
View – Title - No Title, Number or Line_USACE



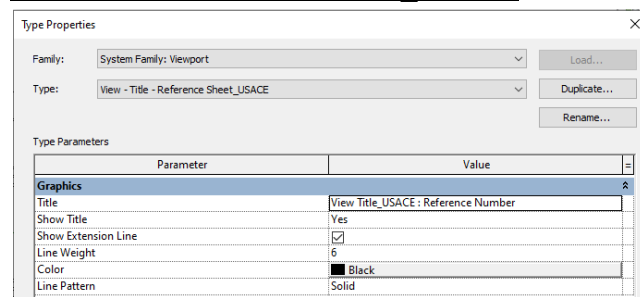
View - Title - No Number_USACE



View - Title - No Number or Line_USACE



View - Title - Reference Sheet_USACE



Sheets

The standard sheet size is ANSI D and a USACE guide grid with 1-1/2” spacing has been created for this sheet size. Note that Revit sheets have a common origin although that origin is not visible to the user. The built-in Revit guide grid aligns to this sheet origin. It is best practice not to move the border on the sheet as this would cause the guide grid to become

misaligned. Previous USACE templates had sheets with their borders arbitrarily moved causing the guide grid to appear in the wrong area of the sheets. To correct these alignment issues, create a new sheet and re-align the guide grid to the new sheet, then move the borders in existing sheets to their proper location.

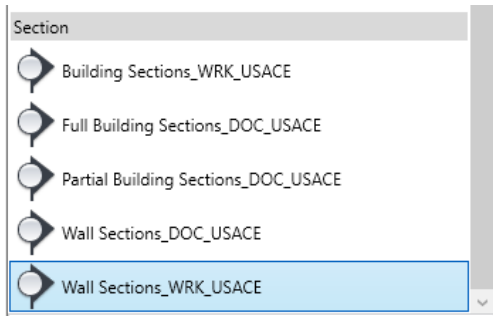
Sheet Index

See the Mobile District Advanced Modeling Bulletin, [SAM-AMB 2020-03 Project Sheet Index](#).

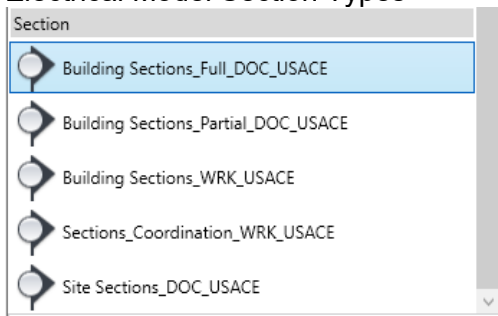
Sections and Elevations

There are multiple NCS-compliant section type symbologies available to use. They are listed below based on the discipline of the template. The names describe what type of section and the view purpose for that section.

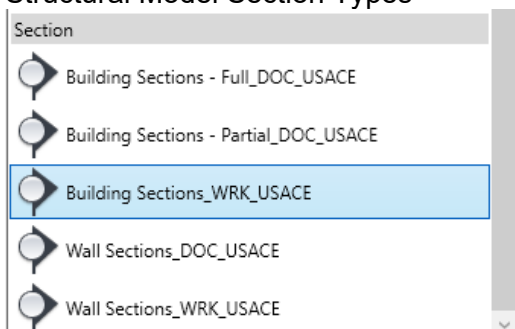
Architectural and Interior Model Section Types



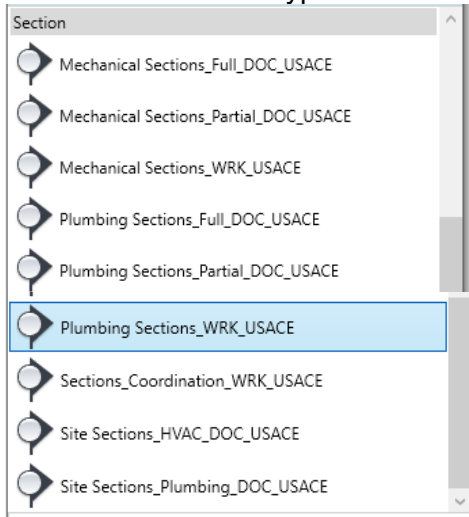
Electrical Model Section Types



Structural Model Section Types

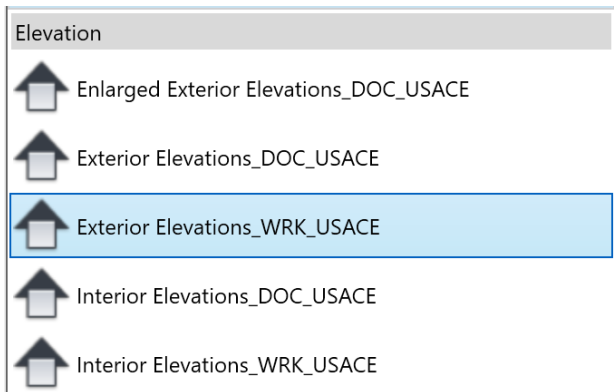


Mechanical Section Types

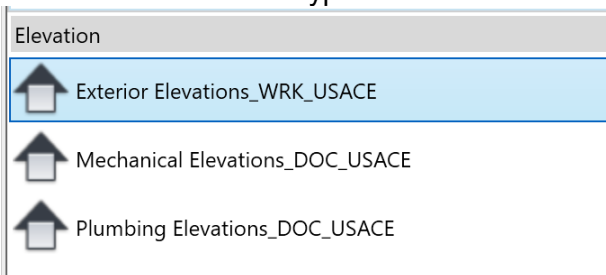


There are multiple NCS-compliant elevation type symbologies available to use. They are listed below based on the discipline of the template. The names describe what type of section and the view purpose for that section.




Architectural and Interior Model Elevation Types






Mechanical Elevation Types



Electrical Model Elevation Types

Elevation	
	Exterior Elevations_Coordination_WRK_USACE
	Exterior Elevations_DOC_USACE
	Exterior Elevations_WRK_USACE

Structural Model Elevation Types

Elevation	
	Exterior Elevations_DOC_USACE
	Exterior Elevations_WRK_USACE
	Framing Elevations_DOC_USACE

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