



Office of General Services

BIM Guidelines v1.0

REVISION HISTORY

Revision	Date	Description	Author	Reviewed	Approved
1	1/27/2025	Initial Release	T. Johnson	N. Zumpano	B. Sherlock

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PURPOSE

The goal of the BIM Guidelines is to aid in the process of creating consistent BIM data and facilitate the coordination for the BIM models their development.

This is not a standalone document and should be read alongside the following:

Document	Type
BEP - BIM Execution Plan	Template
Revit Template Package	Set of Templates

SOFTWARE

For the different BIM uses, it is expected to use the following software. For specific software versions, refer to the BIM Execution Plan.

Common Data Environment

- Autodesk Construction Cloud

Authoring

- Autodesk Revit
- Autodesk Civil3D

Coordination

- Navisworks Manage

Plug-ins

- Revit Add-In – “Scope Box Synchronizer” by Omnia Revit

Each consultant or design team involved in the project shall be responsible for procuring and maintaining the necessary software and licenses required to author their respective models. The software selected must meet the version requirements to be compatible with the BIM workflows. The owner shall not be responsible for the purchase or maintenance of any software or licenses required for the project.

FILE STRUCTURE

FILE NAMING CONVENTION

TRADE CODES

The following 1 or 2-letter designation shall be used to identify the authoring trade of the models, model elements and drawings.

Trade Code	Trade Number	Trade Name
G	01	General
H	02	Hazardous Materials
V	03	Survey/Mapping
B	04	Geotechnical
W	05	Civil Works
C	06	Civil
L	07	Landscape
S	08	Structural
A	09	Architectural
I	10	Interiors
Q	11	Equipment
FP	12	Fire Protection
P	13	Plumbing
D	14	Process
M	15	Mechanical
E	16	Electrical
T	17	Telecommunication

AUTODESK REVIT FILE NAMING CONVENTION

Model names shall use the following parameters:

- Each field will be separated by an underscore (_) with no spaces.
- The project number will be provided by OGS.
- The trade will be a 1 or 2-letter acronym, provided in the table TRADE CODES below.
- The building name is optional and can be used to indicate separation of models or even different model purposes (documentation, site, coordination, etc.)

Naming convention format:

[Project/Contract Number]_[Client]_[Trade]_[Building Name (if applicable)]

Project Number by OGS	Client	Trade Code	Building (optional)	File Format
123456	Client	A	Main	.rvt
123456	Client	C	Site	.rvt
123456	Client	S	Building1	.rvt
123456	Client	L	Landscape	.rvt

Examples:

123456_Client_A_Main.rvt

123456_Client_L_Landscape.rvt

FAMILY AND TYPE NAMING CONVENTION

Family names shall use the following parameters:

- The Originator is a 3-letter acronym, representing the consultant’s name.
- All fields will be separated by an underscore (_) with no spaces.
- The Category Abbreviation will be a 2-letter acronym, provided in the table in the section CATEGORY ABBREVIATION.
- The Description 1 field can be utilized to describe the content of the family or the material.
- The Description 2 field can be utilized to describe the material or shape of the element.

Family Name			
Originator	Category Abbreviation (from table)	Description 1 / Material	Description 2 (if applicable)
OGS	AN	Callout Head	
XXX	CO	Concrete	Round

Examples:

OGS_AN_Callout Head.rfa

XXX_CO_Concrete_Round.rfa

For family types, there is no need to add the family name, as it is repetitive, and it increases the number of characters. For its fields:

- The Description 1 field can be utilized to describe the size or shape.
- The Description 2 field can be utilized to describe the material or finish.

Family Type	
Description 1	Description 2 (if applicable)
¼” Head	
2’	Polished

Examples:

¼” Head

2’ Polished

CATEGORY ABBREVIATION

Revit categories shall be abbreviated with the following convention. This will help the families be grouped by categories.

Category Abbreviation	Description
AT	Air Terminals
AN	Annotations

CT	Cable Tray Fittings
CA	Casework
CL	Ceilings
CO	Columns

CD	Communication Devices
CF	Conduit Fittings
CU	Curtain Panels
CM	Curtain Wall Mullions
CS	Curtain Wall Systems
DD	Data Devices
DI	Detail Items
DR	Doors
DA	Duct Accessories
DF	Duct Fittings
EE	Electrical Equipment
EF	Electrical Fixtures
EN	Entourage
FI	Filled Region
FA	Fire Alarm Devices
FP	Fire Protection
FS	Fire Systems
FL	Floors
FN	Furniture
FR	Furniture Systems
GM	Generic Models
LD	Lighting Devices
LF	Lighting Fixtures
MS	Mass
ME	Mechanical Equipment
MU	Mullions
NC	Nurse Call Devices
PK	Parking

PA	Pipe Accessories
PI	Pipe Fittings
PT	Planting
PL	Plumbing
PF	Plumbing Fixtures
PR	Profiles
RA	Railings
RM	Ramps
RF	Roofs
SD	Security Devices
SI	Site
SP	Specialty Equipment
SK	Sprinklers
ST	Stairs
SC	Structural Columns
SN	Structural Connections
SF	Structural Foundations
SB	Structural Framing
SR	Structural Rebar Elements
SS	Structural Stiffeners
TR	Structural Trusses
SY	Symbols
TG	Tags
TD	Telephone Devices
TP	Templates
TB	Title Blocks
WA	Walls
WI	Windows

AUTODESK NAVISWORKS NAMING CONVENTION

Navisworks model names shall use the following parameters:

- Each field will be separated by an underscore (_) with no spaces.
- The project number will be provided by OGS.
- The trade will be a 3-letter acronym, also provided by OGS.
- The building name is optional and can be used to indicate separation of models or even different model purposes (documentation, site, coordination, etc.)

Naming convention format:

[Project/Contract Number]_[Client]_[Trade]_[Building Name (if applicable)]

Project Number by OGS	Client	Trade Code	Building (optional)	File Format
123456	Client	A	Main	.nwd
123456	Client	C	Site	.nwd
123456	Client	S	Building1	.nwd
123456	Client	L	Landscape	.nwd

AUTODESK CIVIL 3D NAMING CONVENTION

Civil 3D model names shall use the following parameters:

- Each field will be separated by an underscore (_) with no spaces.
- The project number will be provided by OGS.
- The trade will be a 3-letter acronym, also provided by OGS.
- The building name is optional and can be used to indicate separation of models or even different model purposes (documentation, site, coordination, etc.)

Naming convention format:

[Project/Contract Number]_[Client]_[Trade]_[Building Name (if applicable)]

Project Number by OGS	Client	Trade Code	Building (optional)	File Format
123456	Client	C	Main	.dwg

COMMON DATA ENVIRONMENT

AUTODESK CONSTRUCTION CLOUD

This project will utilize Autodesk Construction Cloud storage for project file management to share, view, markup, and manage the construction drawings, documents, and models.

FOLDER STRUCTURE

<i>Model Folders</i>	
<i>Folder Name</i>	<i>Folder Use</i>

Revit files will be initialized/saved in their discipline specific sub folders.

<i>Drawings Sub Folders</i>	
<i>Sub Folder Name</i>	<i>Folder Use</i>

AUTHORING

AUTODESK REVIT

REVIT MODEL SET UP

REVIT TEMPLATE PACKAGE

A template package is included to kickstart the projects. It contains the template file, shared parameters, the family convention and the titleblocks.

File Name	Format and Version	Description
OGS Revit Template_2020.rte	RTE file, Revit 2020	Master Template
OGS Shared Parameter File.txt	TXT file, to be opened with Revit	Shared Parameter file
Revit File Naming Convention.xlsx	XLSX file, used as a reference	Description of the Naming Convention utilized for Revit files
OGS-8_5x11 Program Report Title Block	RFA files, Revit 2020	Title blocks to be utilized in OGS projects.
OGS-8_5x11 Title Block		
OGS-8_5x11 Vertical Title Block		
OGS-11x17 HorizontalV2		
OGS-24x36 CoverSheet		
OGS-24x36 Horizontal		
OGS-24x36 Horizontal-Starting Sheet		

PROJECT UNITS

Project Units shall be set to Imperial, Feet, and Inches, with a precision to the nearest 1/16. If other units are needed, they can be added to the dimension types without changing the Project Units for the project.

PROJECT INFORMATION

Project Information is a central location where users can store and manage project-specific data such as the project name, number, location, and other information that affects the entire model. This information must be edited in the "Manage/Settings/Project Information" dialog box.

It is important to keep the Project Information up-to-date and accurate, as it can be used in various ways throughout the project, such as in sheets, schedules, tags, and reports. Having accurate Project Information can help ensure consistency, coordination, and communication among team members.

Project Information

Family: System Family: Project Information Load...

Type: Edit Type...

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Text	
BUILDING #	
Identity Data	
Organization Name	
Organization Description	
Building Name	LOCATION
Author	
Energy Analysis	
Energy Settings	Edit...
Route Analysis	
Route Analysis Settings	Edit...
Other	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	ADDRESS
Project Name	PROJECT NAME
Project Number	#####

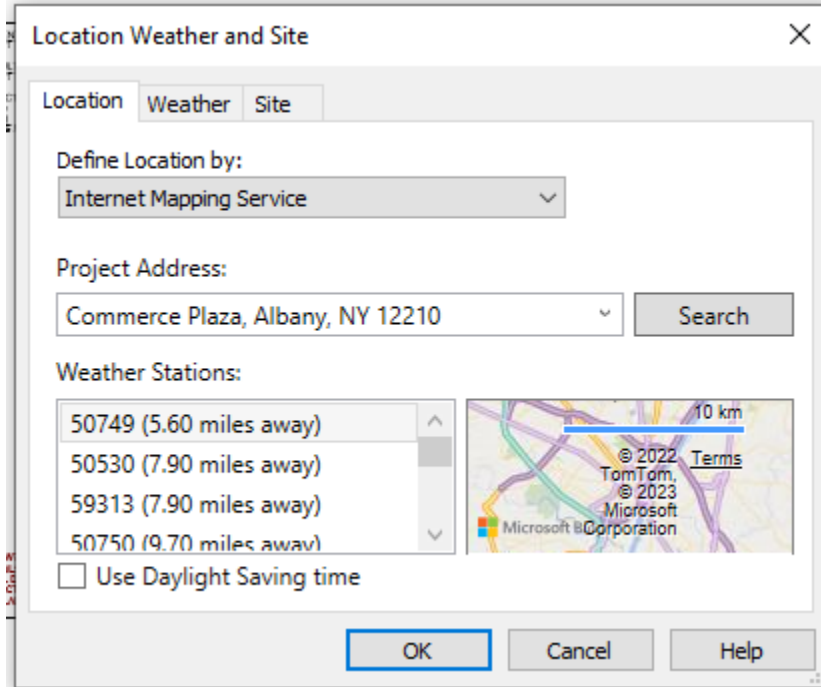
OK Cancel

LOCATION

The Location window in Revit allows users to specify the location of the project, such as the latitude and longitude, time zone, and daylight savings settings. This information is used to determine the sun and shadow patterns for the building, as well as to set the correct time for scheduling and energy analysis.

It is important to keep the location information accurate and up to date, as it can affect energy efficiency and the overall design of the building. It will also affect project coordination as it could change the project location in reference to other models linked to it. This feature must be used carefully.

The original location for all OGS projects is set to be *Commerce Plaza, Albany, NY*. This shall be updated for each project.

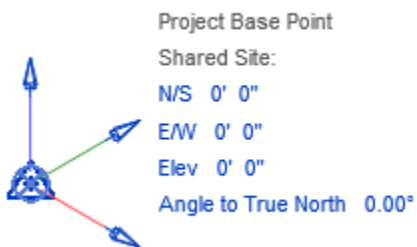


The Project Information and Location shall be pulled from the model to be utilized in the starting screen, sheets, and schedules. The parameters to include are listed below:

- Client Name NYSOGS
- Building Name Per project
- Project Name Per project
- Address Per project
- Site Per project

SHARED COORDINATES

A default Project Base Point and True North is included in the template, to easily coordinate Site information with other trades.



Project Base Point True North:

N/S: 0' – 0"

E/W: 0' – 0"

ELEV: 0' – 0"

Angle to True North: 0.00°

Project North: 0.00°

LEVELS & GRIDS

All levels and grids must be copy-monitored from the structural model file and be placed on the “Shared Levels & Grids” workset in each model.

REVIT LINKS

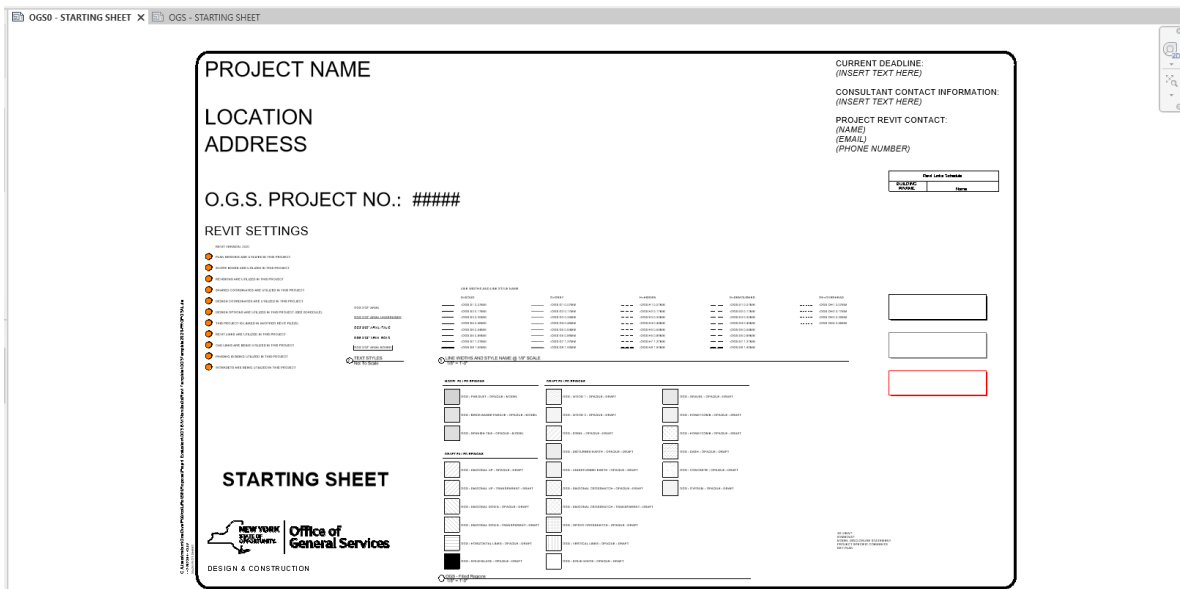
Revit models should be linked Origin to Origin and pathing should be set to Relative. All Revit Links should use Relative Path and saved in their corresponding workset. When using several Revit links, it is advisable to create separate worksets and include the link name as a suffix in the workset name to facilitate model navigation.

DWG LINKS

CAD files should be linked and not imported. If CAD import is needed, import into a new project, full explode, clean it from foreign text types, hatches, patterns, and colors and then transfer view into main model. CAD Imports within Revit families should be limited as they will slow model files. CAD links should be placed on the appropriate “CAD-Link” workset and pinned. All CAD links should be set to Relative pathing.

STARTING VIEW

The Starting View is displayed when the project is first opened. It can be set to any view in the project, such as a floor plan, elevation, or 3D view. The Starting View shows the project information along with the object styles.



PROJECT BROWSER

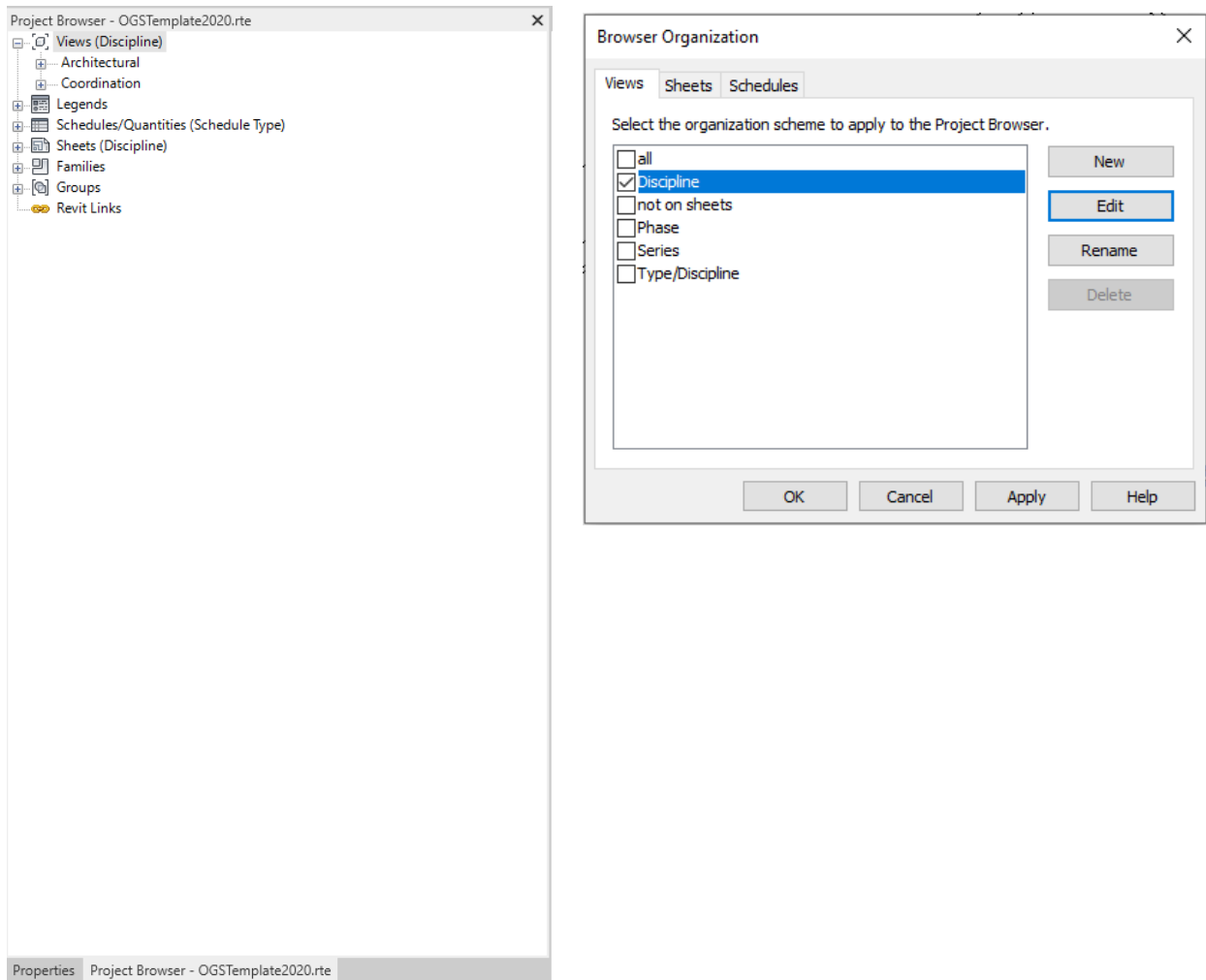
In Revit, the Browser Organization is the way the project's views, sheets, and other data are organized and displayed in the Project Browser.

VIEWS

The views browser helps organize all floor plans, sections, elevations, schematic drawings, and details. It can be tailored to the user specific needs through the Browser Organization window.

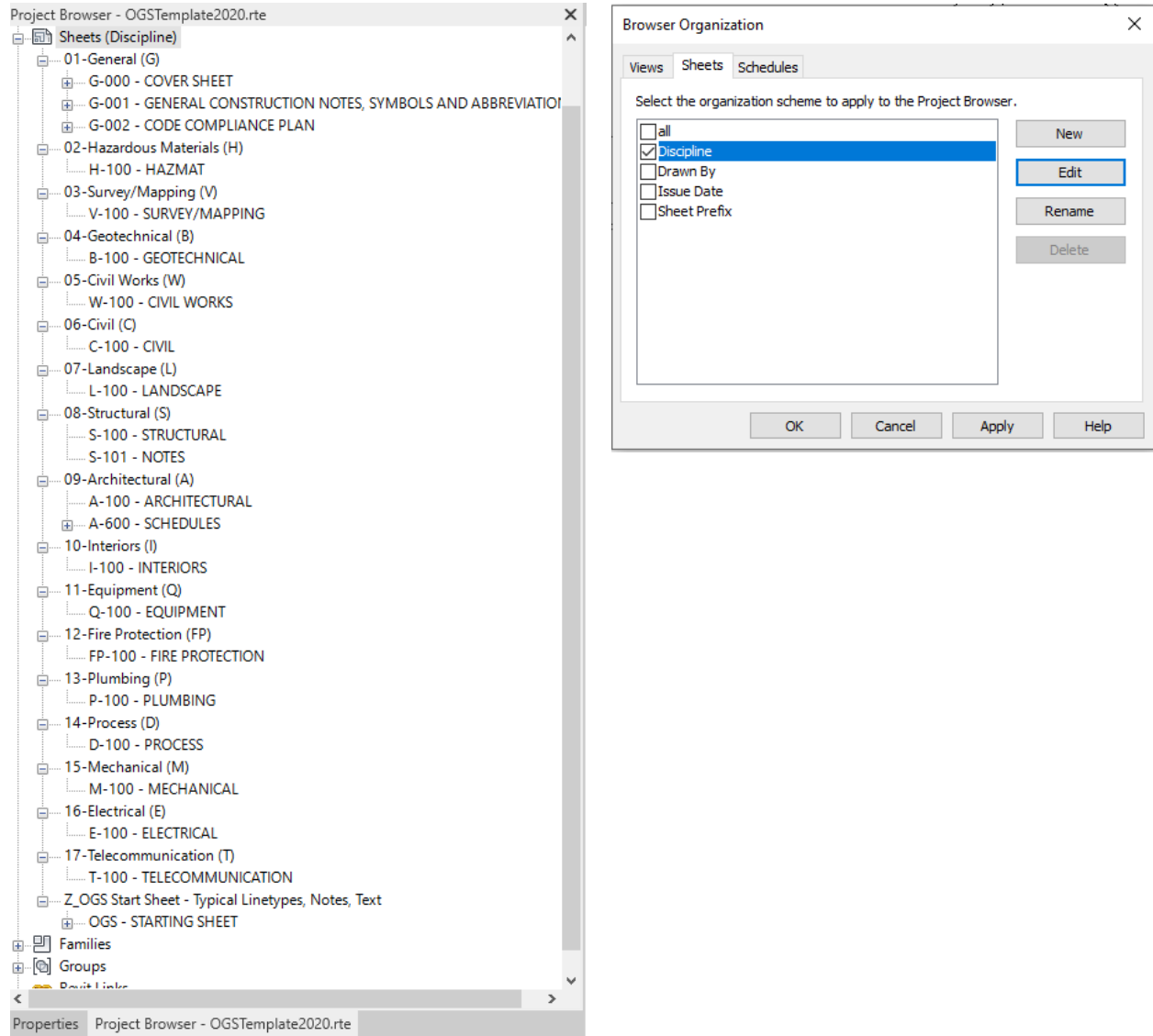
Each A/E can use their own view browser organization as needed. It is advised that **Design & Coordination** views are separated from **Sheet & Documentation** views using the project browser. In the case that **Revit Phases** are needed to achieve different drawing set packages, it is recommended the sheets and views are grouped accordingly.

While each A/E can create their own View Browser, OGS has included the following to facilitate view creation:



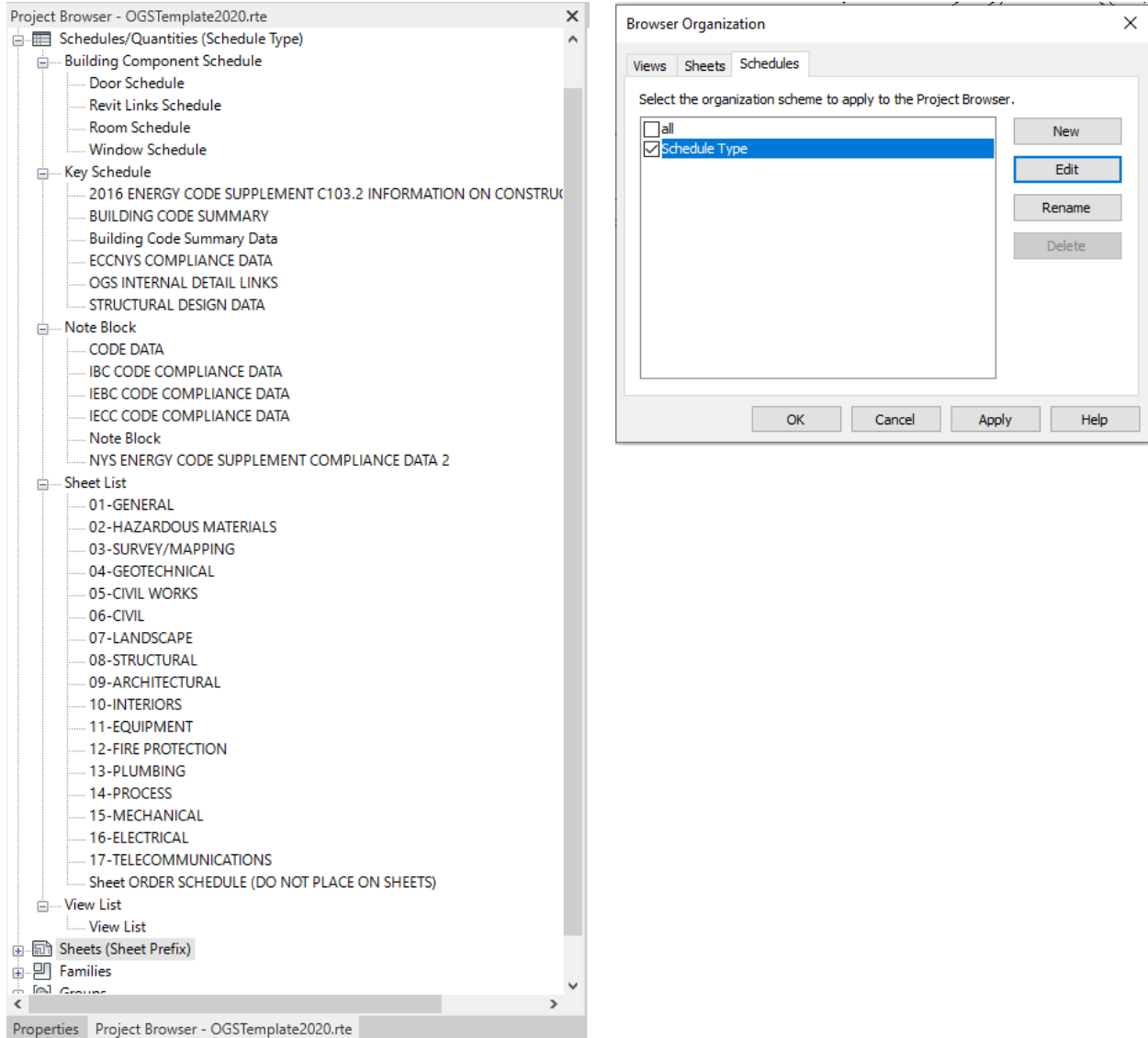
SHEETS

The sheets browser helps organize all sheets. The discipline organization scheme groups all sheets by their disciplines.



SCHEDULES

The schedule browser helps organize all schedules. It can be tailored to the user specific needs through the Browser Organization window. The Revit Template includes a Schedule Type organization that helps group schedules.



WORKSETS

The use of worksets is recommended to organize model elements and facilitate model opening, loading and synchronization. Consultants can create their own worksets to model within their own files. The following naming convention is recommended:

- Each field will be separated by an underscore (_) with no spaces.
- The Originator is a 3-letter acronym, representing the consultant's name.

- The Trade Code will be a 1-letter acronym, provided in the table in the section TRADE CODES.
- The Description 1 field can be utilized to describe the main category of the workset. It is recommended to use a short, descriptive word.

Workset Name		
Originator	Trade Code (from table)	Description 1 / Category
OGS	A	Exterior
XXX	S	Foundations

The following are suggested worksets to use in a multidisciplinary project. It is recommended that each trade organizes the modeled elements in the corresponding spaces to facilitate model navigation, quality assurance and model efficiency.

Workset Name	Visible in all Views	Editable	Description
OGS_A_Exterior	Yes	No	Architectural Exterior
OGS_A_FFE	No	No	Architectural FF&E
OGS_A_Interior	Yes	No	Architectural Interior
OGS_E_Distribution	Yes	No	Electrical Distribution
OGS_E_Misc	Yes	No	Electrical Miscellaneous
OGS_FP_Misc	Yes	No	Fire Protection Miscellaneous
OGS_M_Air	Yes	No	Mechanical Duct Systems
OGS_M_Hydraulics	Yes	No	Mechanical Hydraulic Systems
OGS_M_Misc	Yes	No	Mechanical Miscellaneous
OGS_P_Distribution	Yes	No	Plumbing Distributions
OGS_P_Misc	Yes	No	Plumbing Miscellaneous
OGS_S_Foundations	Yes	No	Structural Foundations
OGS_S_Horizontal	Yes	No	Structural Slabs and Beams
OGS_S_Reinforcement	Yes	No	Structural Reinforcement
OGS_S_Vertical	Yes	No	Structural Columns and Retaining Walls
OGS_X_CAD Link	No	No	All linked AutoCAD Files are placed on this workset
OGS_X_Coordination	No	No	Components to aid review and identification of components
OGS_X_Point Cloud	No	No	All linked Point Clouds are placed on this workset
OGS_X_Revit Link	No	No	All linked Revit Files are placed on this workset
OGS_Y_Shared Levels and Grids	Yes	No	Revit Levels and Gridlines (cannot be deleted)
OGS_Z_Hidden	No	No	Alternative options or outdated choices are moved to this workset that is not

			displayed nor published
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PARAMETERS

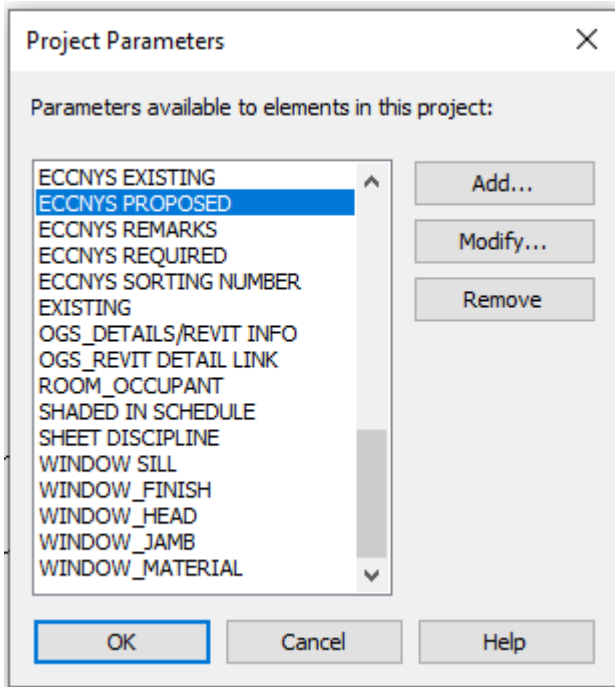
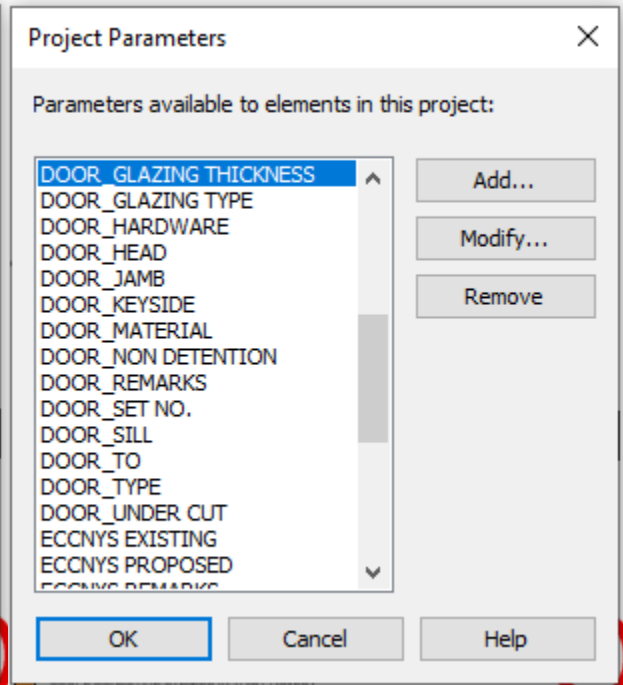
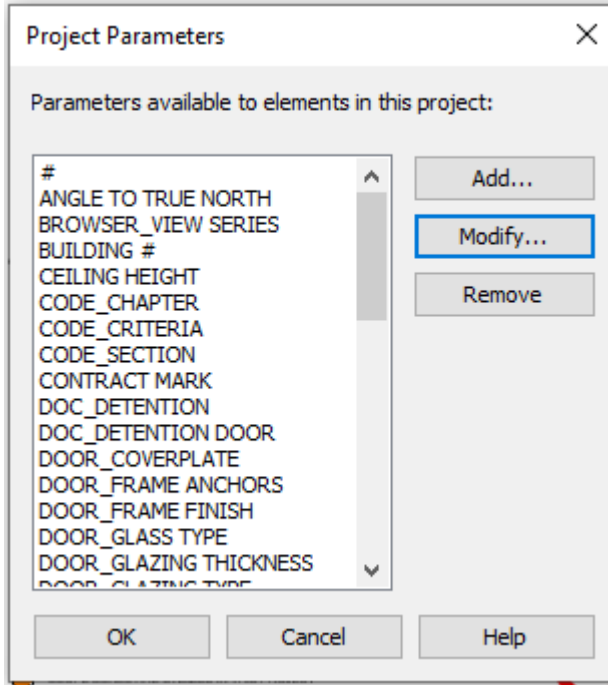
In Revit, Parameters are used to store and manage information about elements in the building model, such as dimensions, materials, and other properties. They allow users to add custom information to elements, such as door swing direction or window type, and can be used to create custom schedules, tags, and reports.

Here are some best practices for using Parameters in Revit:

- Use Shared Parameters: Shared Parameters permits to create Parameters that can be used across multiple projects, this can be useful for creating standard Parameters that are used across different projects. When creating Shared Parameters, it's important to use groups to organize the Parameters by category, making it easier to find and use them.
- Use predefined parameters: Revit includes a set of predefined Parameters, such as "Width" or "Height," that can be used for many elements. Using these predefined Parameters can save time and ensure consistency.
- Use descriptive names: when creating Parameters, it's important to use descriptive names that accurately reflect the information they store. This makes it easier to understand and use the Parameters in schedules, tags, and reports.
- Use Parameters in schedules: Parameters can be used in schedules to create custom schedules; this allows you to organize and present the information in a meaningful way.
- Use Parameters in tags: Parameters can be used in tags to add custom information to elements, this allows you to create tags that include specific information about the elements.
- Use formulas: Parameters can be set up to use formulas, allowing to calculate values based on other parameters in the model. This can be useful for creating custom calculations, such as area or volume.
- Keep them updated: Parameters should be updated regularly to reflect the current state of the building model. This is a category that can easily be overutilized when creating parameters without revising what is included in Revit or inside the families.

Additionally, parameters included in the template should follow the naming convention:

- Uppercase
- Named according to the convention "Suffix_Description". The suffix groups parameters per category such as Door, Window, OGS, ECCNYS and the Description allows easy identification of parameters.



REVIT MODELING

BEST PRACTICES

It is advised to follow the recommended best practices for modeling. These will ensure consistency and avoid error and model corruption.

Modeling should avoid:

- Use of non-BIM software to generate 3D geometry; components must have data parameters.
- Locking dimensions in the project.
- Creating unnecessary parameters in the project.
- Modeling multi-level or unconnected elements.
- Modeling stacked walls in early design stages.
- Openings in walls and openings as ways of windows to cut walls (use voids inside the family instead) .
- Creating Model In-Place elements: use of model in-place elements should be avoided and kept to a minimum. If an in-place model must be used it should be given an appropriate family category as well as model shared parameters.
- Replacing doors for curtain panels.
- Attaching walls to floors and roofs
- Using mass families for anything except overall building massing

Modeling should:

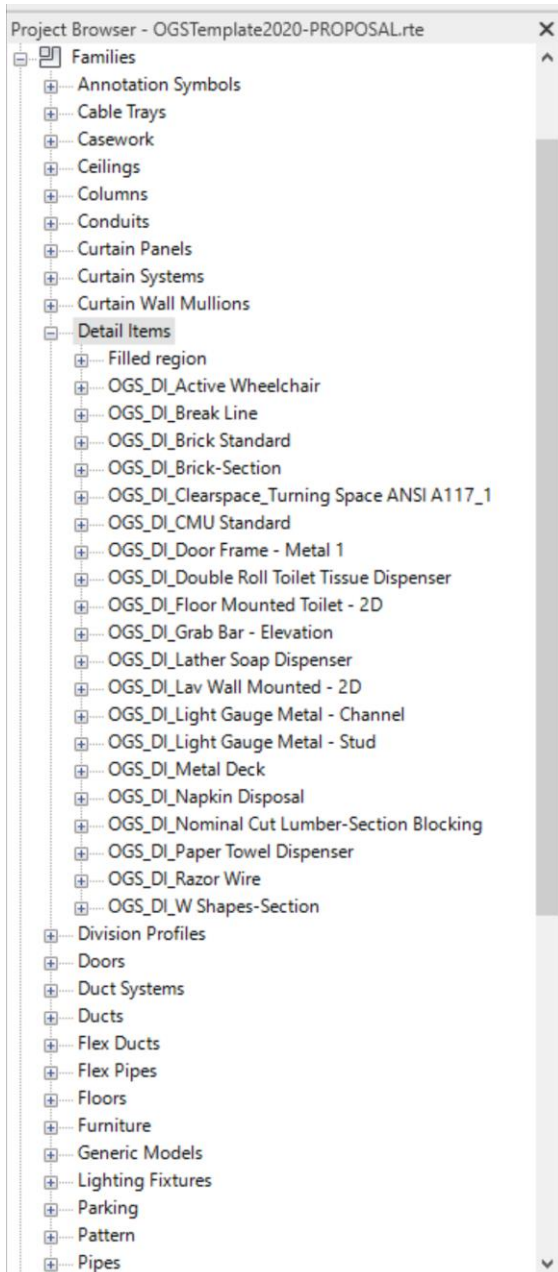
- Adhere to current OGS BIM Specifications for authoring software.
- Create views organized by sheet set or use (Working, Documentation, Presentation).
- Create a set of existing plans under the working folder, with true dimensions.
- Follow naming convention for any new families created.
- Use the overall coordinate system provided by OGS.
- Use the levels already available in the Existing Model or drawings sets, and for new projects, limit levels to one per slab.
- All objects should be placed on the correct reference level / floor level. If the element sits above a level, it should still reference the correct level.
- Use dependent views wherever they break up plans to fit on a sheet.
- Elements should be typically modeled using loaded families.
- Model different construction elements separately even if they are adjacent (e.g., sills separate from windows).
- Use the shaft opening tool for shafts and elevators.

FAMILIES

Families are made up of a set of predefined parameters, such as size, type, and material, and can be adjusted to suit the needs of the project. They can be thought of as building blocks that are used to create and customize elements in a building model.

A good practice to organize families in Revit is to create a central location, such as a network drive or cloud storage, to store all the families that will be used in the project. This will make it easy for all team members to access and use the families, and it will also help to ensure quality and consistency.

An example of the Detail Items category is shown below. These families are named following the naming convention in the FILE STRUCTURE section.

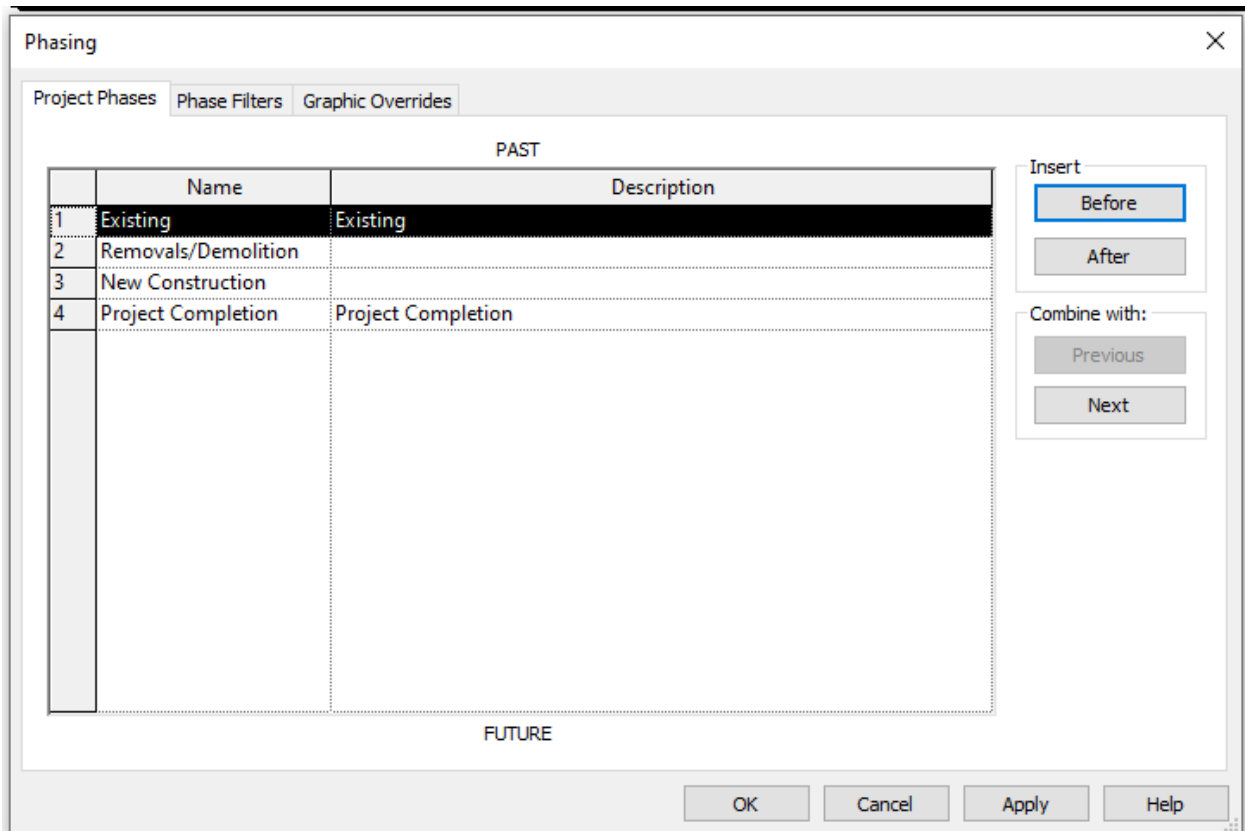


REVIT PHASES

Projects will use Revit Phases. Every A/E is responsible for placing items/elements on the correct phase. Each model will need to verify Phase Mapping for each linked model to ensure views are true to elements phase shown. Phase names will be consistent in all models and will follow Package names.

It is advised to use the project browser and view templates to control and monitor their proper usage.

The following Phases are included in the template:



INTERNAL COORDINATION & PUBLISHING

REVIT CENTRAL PROJECT

All disciplines shall host and initialize their Revit central file to the ACC/BIM360 site, saved to the specific discipline folder as outlined in the folder structure above. The initialized central files shall be where the design team develops the Revit project. Separate central Revit files that are saved to individual firm's servers, detached, and uploaded to ACC/BIM360 are not allowed.

LINK COORDINATION REVIEW

There will be a Coordination Revit Model created, linking every model in.

Levels and Grids must be Copy Monitored from one model to another. Anytime one of those elements are moved or modified, Revit warns a user opening their model. All Revit Models shall be clear from any Link Coordination Review warning. Each BIM Manager should review all copy monitored elements and accept changes from Revit links when applicable.

EXTERNAL CONSULTANT, NOT USING REVIT

If any outside Consultant not using Revit provides files, a new Revit Model will be created to link in their data, then linked into all models and monitored by the BIM Coordinator. This would be the result of building equipment not in the current SOW and is provided as design information.

REVIT DOCUMENTATION

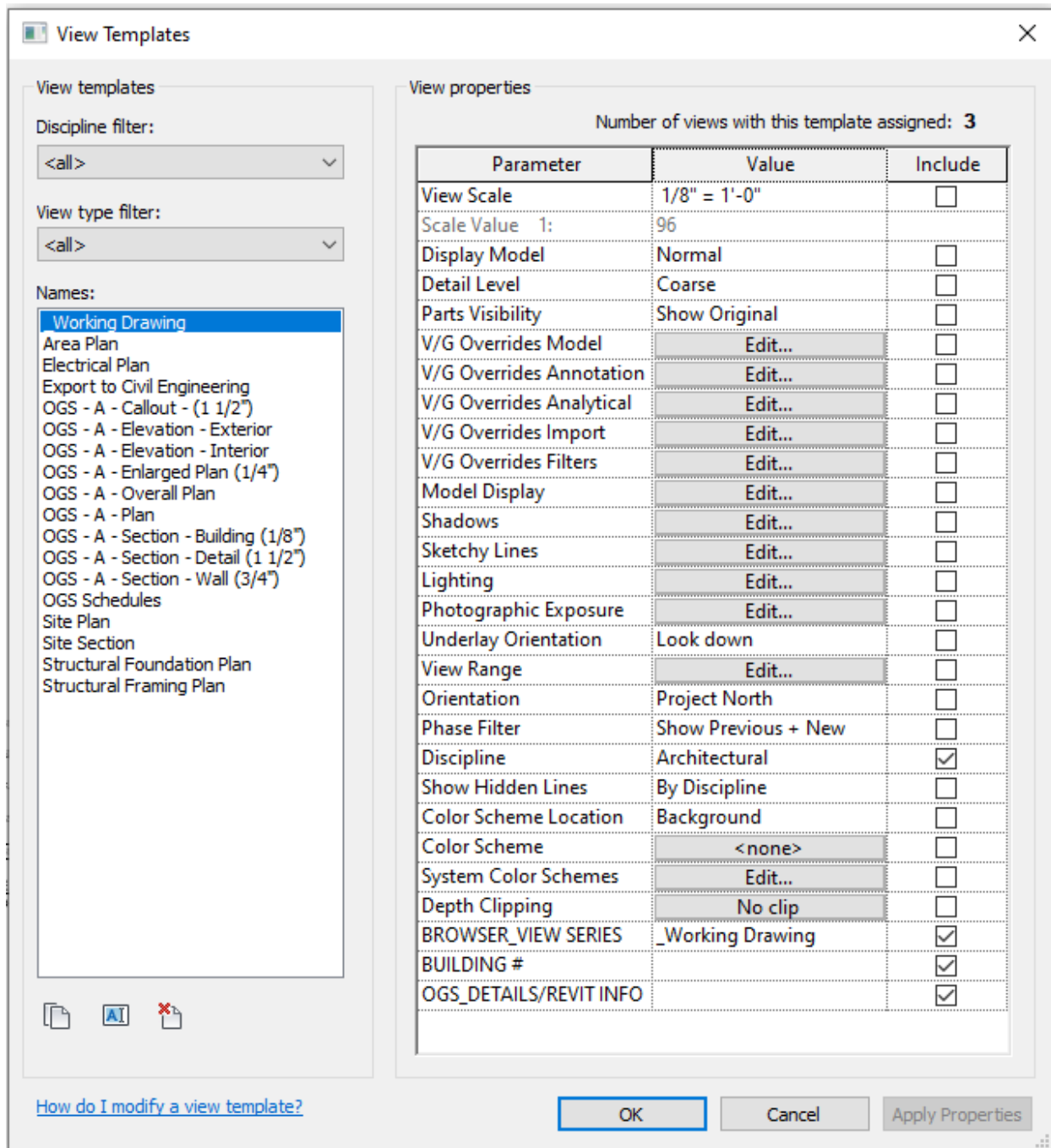
VIEWS

VIEW ORIGIN

Views to be placed on sheets shall be created from and the model and independent of views used for design. See the Project Browser section for organization of views.

VIEW TEMPLATES

View Templates in Revit are pre-configured settings for views that allow users to create views quickly and consistently with specific settings. They can be thought of as "blueprints" for views, allowing users to quickly create views that are consistent and efficient. Below is the list of View Templates included in the Revit Template.



SCOPE BOXES

In the need of splitting up floor plans into smaller views to fit onto multiple sheets: Scope Boxes will be created in the ARCH Model using the below naming convention. The BIM Coordinator will then open the ARCH Model and "Sync" and "Copy" the Scope Boxes into every model, using the Revit Add-In "Scope Box Synchronizer" by Omnia Revit. All Disciplines should use these scope boxes to match the appearance of the Architectural sheets.

VIEW NAMING

Views will be named using the following standard.

Level	Discipline	Demo Modifier (if needed)	Major View on sheet
FIRST FLOOR	HVAC	DEMO	PLAN

VIEW TITLES

Use the OGS provided PLAN and SED view title families. Select the version with the correct scale. Pull the "tail" in-line with the last letter in the view name or to the end of the scalebar (whichever is longer). View titles should be centered under the view.

Do not use words such as "OVERALL", "ENLARGED", or "LARGE SCALE".



VIEW NUMBERING

DRAWING SYMBOL LEGEND

1/4" = 1'-0"



Plan views will use a numerical view number sequential per sheet.

Section views will use a letter view number that is sequential per sheet.



Detail views will use a numerical view number that is sequential per sheet.



Typical detail views will use a numerical that is sequential through all typical detail sheets.

LEGENDS AND SCHEDULES

Legends in Revit are a visual representation of the different types of elements in a project, such as walls, doors, and windows. To create a legend, go to the "View" menu and select "Legends". These can be graphic expressions of Revit elements or drawn completely from scratch.

Schedules in Revit are a tabular representation of the properties and quantities of different elements in a project. These can be automatically updated when linked to parameters. To create a schedule, go to the "View" menu and select "Schedule". You can then select the elements you want to include in the schedule, such as walls, doors, and windows, and customize the columns and formatting as needed.

These are some good practices for schedule creation:

1. Use parameters: Revit allows you to create custom parameters for elements, such as walls, doors, and windows. These parameters can be used to create more detailed schedules, such as a schedule of door swing direction or window type.
2. Keep it consistent: When creating multiple schedules or legends, it's important to maintain consistency in terms of formatting and the information presented. Schedule templates can help achieve a cohesive look and facilitate schedule creation.

SHEETS

SHEET CREATION

Sheets created will use the **OGS-24x36 Horizontal** titleblock included in the template package. In the properties apply the correct sheet discipline and sheet discipline number to each sheet. See the sheet numbering table in the SHEET ORDER PARAMETER section.

SHEET ORDER PARAMETER

Each sheet has three Parameters for the index to sort properly. Sheet Discipline #, Sheet Discipline and Sheet Sort Order which must be filled out for every sheet. Sheet Order will be as noted:

Sheet Discipline #	Sheet Discipline	Sheet Sort Order
01	General	G
02	Hazardous	H
03	Survey/Mapping	V
04	Geotechnical	B
05	Civil Works	W
06	Civil	C
07	Landscape	L
08	Structural	S
09	Architectural	A
10	Interiors	I
11	Equipment	Q
12	Fire Protection	FP
13	Plumbing	P
14	Process	D

15	<i>Mechanical</i>	<i>M</i>
16	<i>Electrical</i>	<i>E</i>
17	<i>Telecommunication</i>	<i>T</i>

The parameters needed to fill out sheet information will be inserted into your project file after its creation. Notify the BIM Coordinator once your discipline's central file is initialized onto ACC/BIM360.

TITLEBLOCK

Do not modify the structure of the titleblock. Revision information will be provided for each submittal. See revision note section. A/E logos will need to be provided to the project BIM Coordinator for inclusion in title block. On/Off Parameters could be added to allow visibility control to show the title block differently from one instant to another. This would include Keyplans, Project Titles, Bid Package numbers or PE Stamps.

KEYPLAN

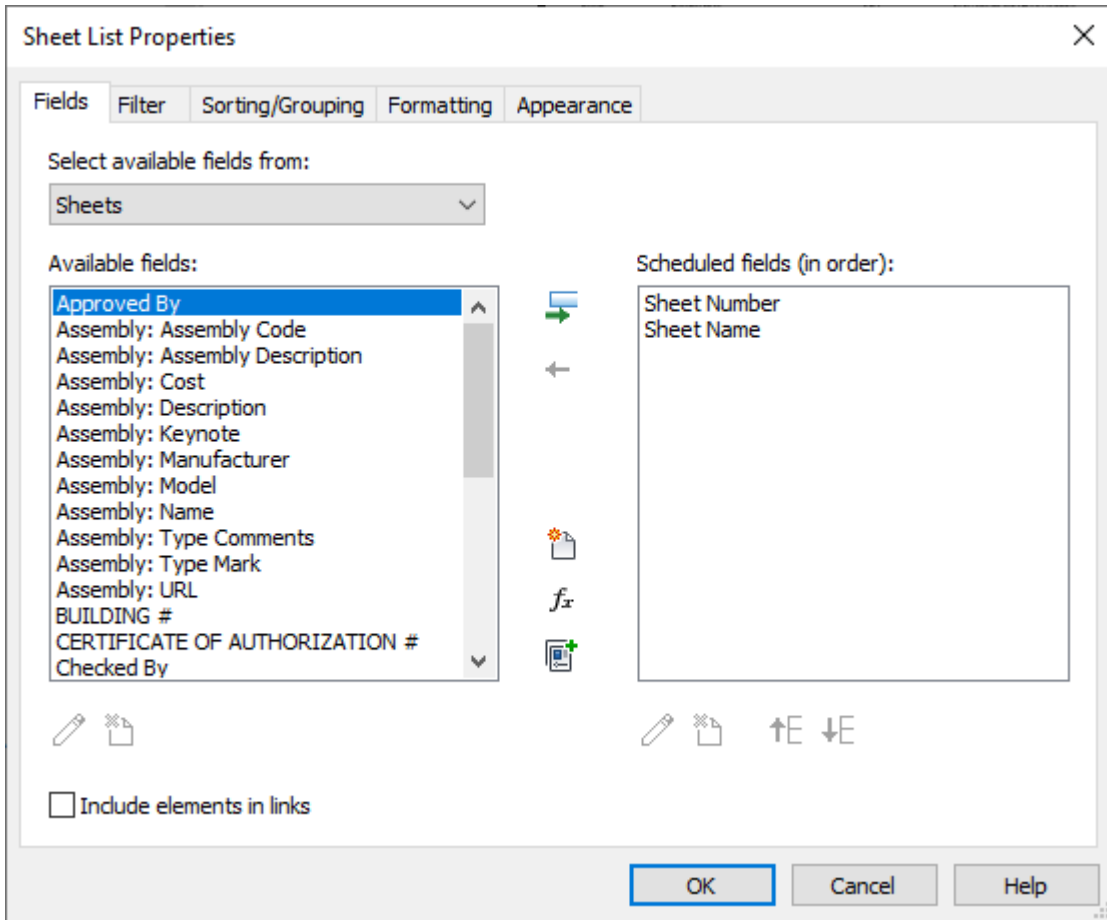
Use keyplans in the titleblock when a floor plan is placed on a sheet. Sector visibility shall be driven by instance parameters. Use the "No Keyplan" border type when no floor plan is shown on sheet.

COVER SHEET

Cover sheets will be created in the Coordination Revit Model and to be updated by the BIM Coordinator. A PDF will be emailed to the team to verify their own sheet Index.

SHEET INDEX

If there is more than one model in a project, a Coordination Revit Model can be created, linking every model in specific model worksets. From this file a Sheet Index will be created to be shown on the Cover Sheet in the Model using the "Include elements in Link" option.



SHEET NUMBERING

Sheets will be numbered using the following standard:

Discipline Designator (from the Sheet Order Parameter table)	DASH	Sheet Type Designators (from table below)	Floor Level	Sheet Sector or Sequence #
A	-	1	1	1

In the example above, the sheet A-111 would be the “First Floor Architectural Plan – Sector 1” sheet.

If needed sections and details can be placed on plan sheets when appropriate for clarity.

Sheet Type Designators:

0	General
1	Site Layout, Building Floor Plans, Ductwork Plans
2	Grading, Drainage, Erosion Control, Hydraulic Piping Plans, Potable Piping Plans, Lighting Plans, Framing Plans
3	Utilities, Sanitary Vent & Storm Piping,

4	Partial Plans, Profiles, Sections
5	Landscaping, Schedules
6	Details
7	Riser and Flow Diagrams
8	User Defined, Gas Piping Plans, Cross Sections
9	3D Representation

SHEET NAME

Sheets will be named using the following standard.

<i>FIRST FLOOR (DISCIPLINE) PLAN</i>
<i>SECOND FLOOR (DISCIPLINE) PLAN</i>
<i>ROOF (DISCIPLINE) PLAN</i>

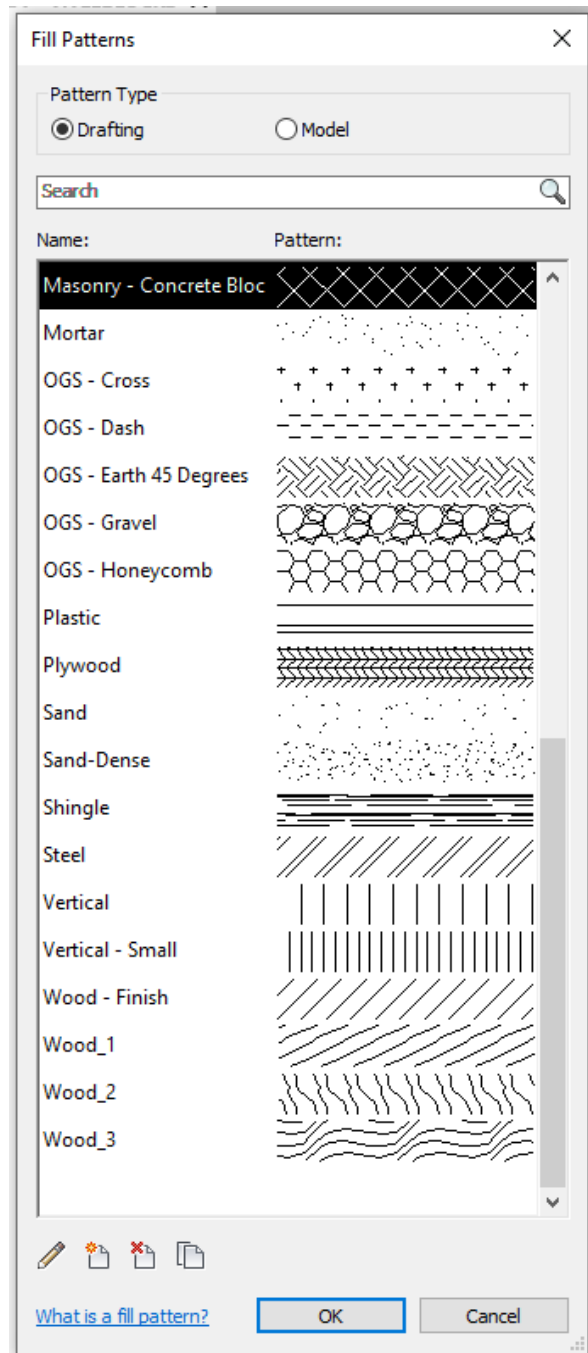
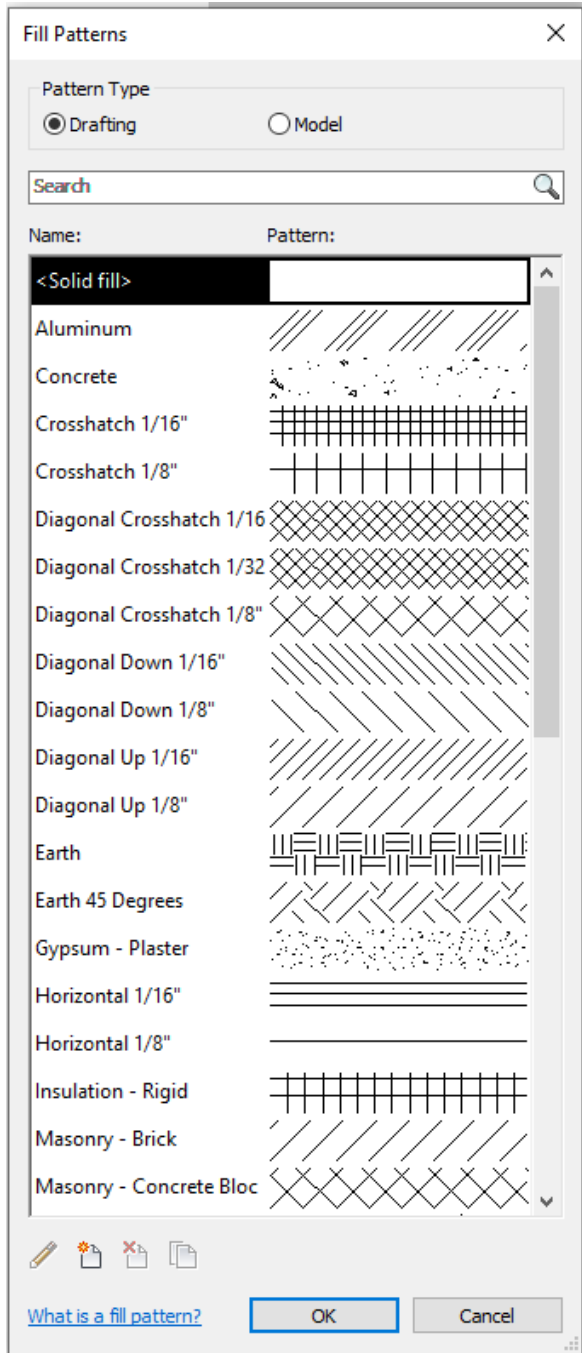
OBJECT STYLES

In Revit, Object Styles are used to control the appearance of elements in the building model. They allow users to create and manage the visual properties of elements such as lines, fills, and text. Object Styles can be thought of as "presets" for the visual properties of elements, allowing users to apply the same visual properties quickly and consistently to multiple elements.

FILL PATTERNS

Fill Patterns in Revit are used to control the appearance of filled regions in the building model, such as floors, roofs, and walls. They allow the user to apply a pattern to the filled regions, such as a hatch pattern or a texture, to indicate the material or surface type. Fill Patterns can be thought of as a way to add visual information to the model, making it easier to understand and interpret.

The following fill patterns are embedded in the template. These can be used to create filled regions.

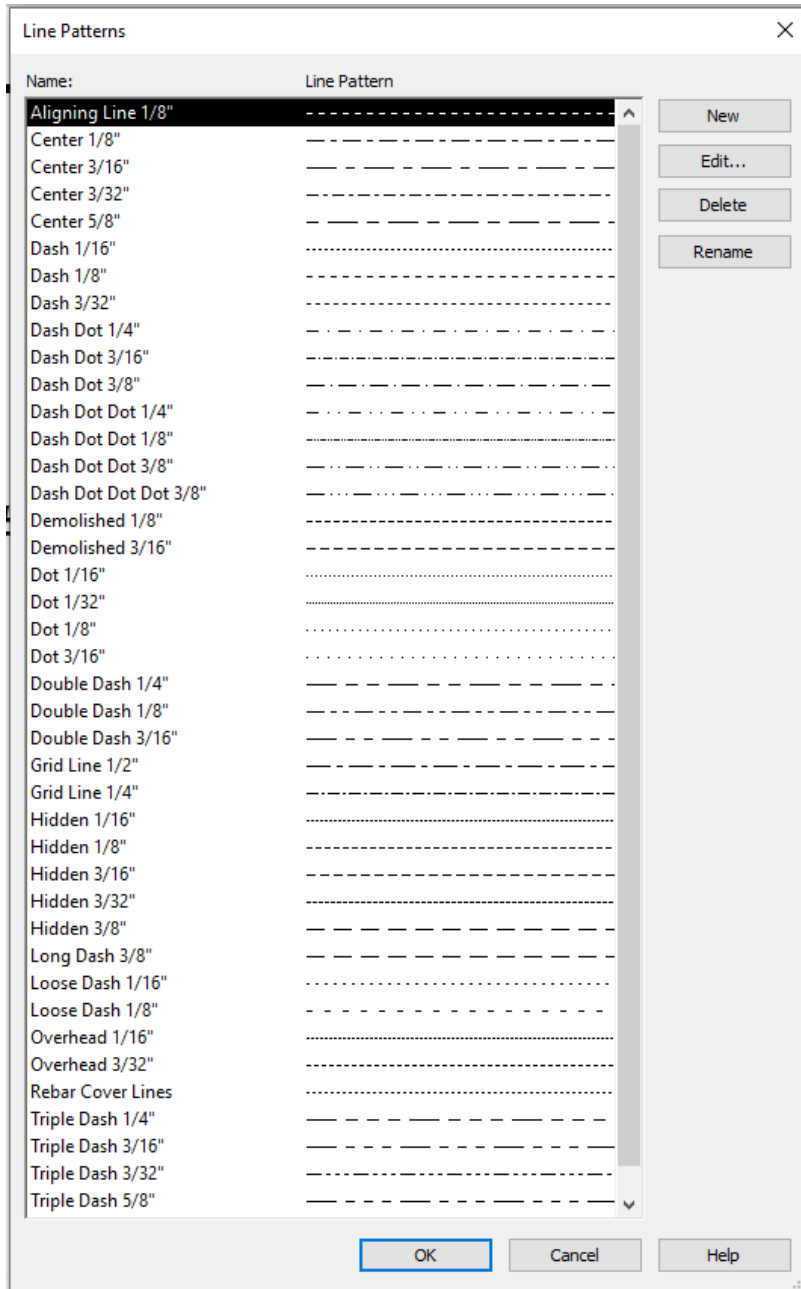


LINE WEIGHTS

Line Weights are used to control the width of lines in model elements, such as walls, floors, and structural elements. They allow the user to apply a specific width to each of the sixteen line types Revit has available.

LINE PATTERNS

Line Patterns are used to control the appearance of lines in the building model. They allow the user to apply a specific pattern to a line, such as a dashed or dotted line, or even create their own patterns. Line Patterns increase the visual information on the model, making it easier to understand and interpret.



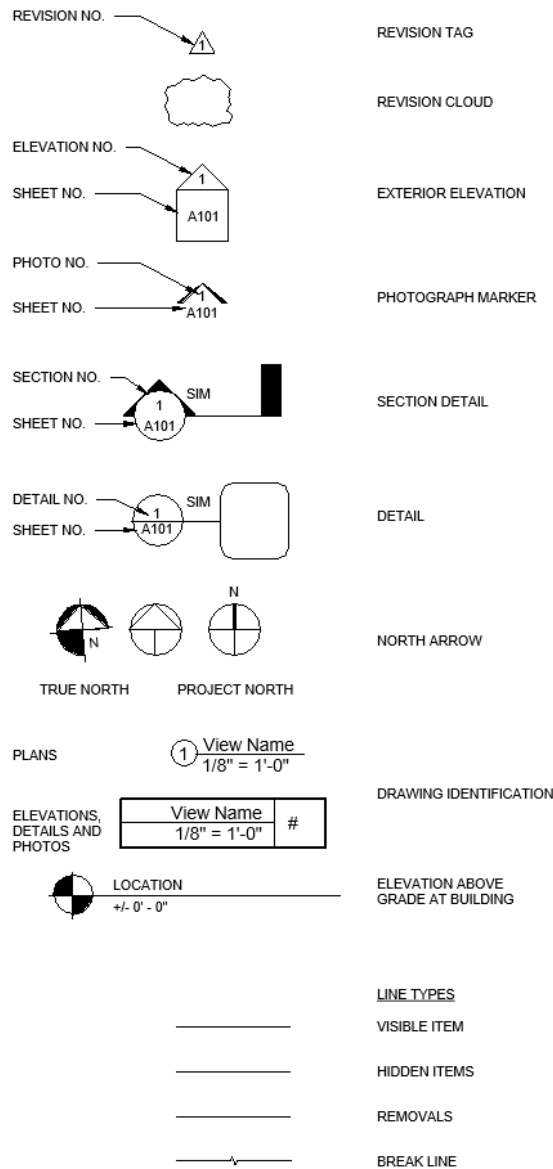
ANNOTATION

Any annotation should take place in the view and not the sheet. Sheet annotations can be disconnected from the views they might be referring to, as the design changes or the titleblocks change layouts.

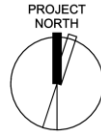
SYMBOLS

Use the provided annotation symbol families for Level Heads, Section Heads, Detail Callout, Column grids, Centerline and North Arrows as needed while using the Arial Narrow text style.

DRAWING SYMBOLS

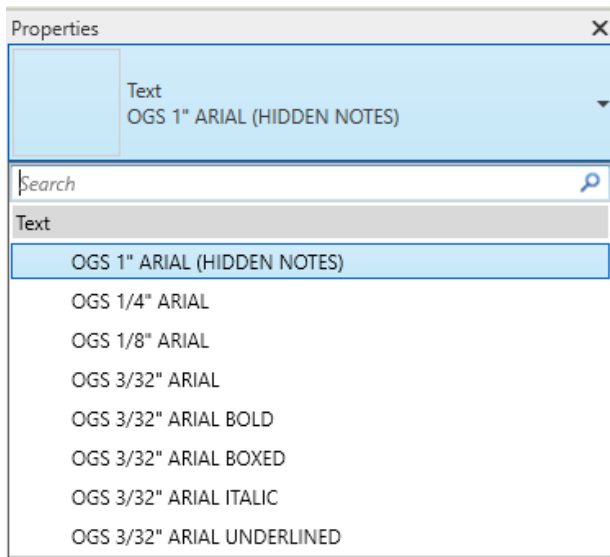


The North Arrow will be located in the provided titleblock. North Arrows use on/off parameters to control visibility.



TEXT TYPES

3/32" Arial is the standard Revit Text. It can be found in different versions to facilitate text creation. The standard leader uses an "Arrow Filled 20 Degree" and a 1.0 width. Use the provided Dimension Styles.



TAGGING

Each Consultant should use specific annotative tags for everything that can be tagged or will be shared between disciplines. Equipment Tags shall be formatted to be underlined. All Tags shall use 1/8" Arial font style.

GENERAL NOTES

General Notes are notes referring to that specific Sheet. It can also generically refer to other sheets for more information or Details. All general notes shall be placed in the Top-Right Corner snapped to the Title Block.

CODED NOTES

Coded Notes are sometimes required to clear free space on a Sheet for notes that are too long. Use coded note families, schedules and table header families as needed. Fill in information using coded notes. All Coded notes shall be placed in the Top-Right Corner snapped to the General Notes (or the Title Block if, no General Notes).

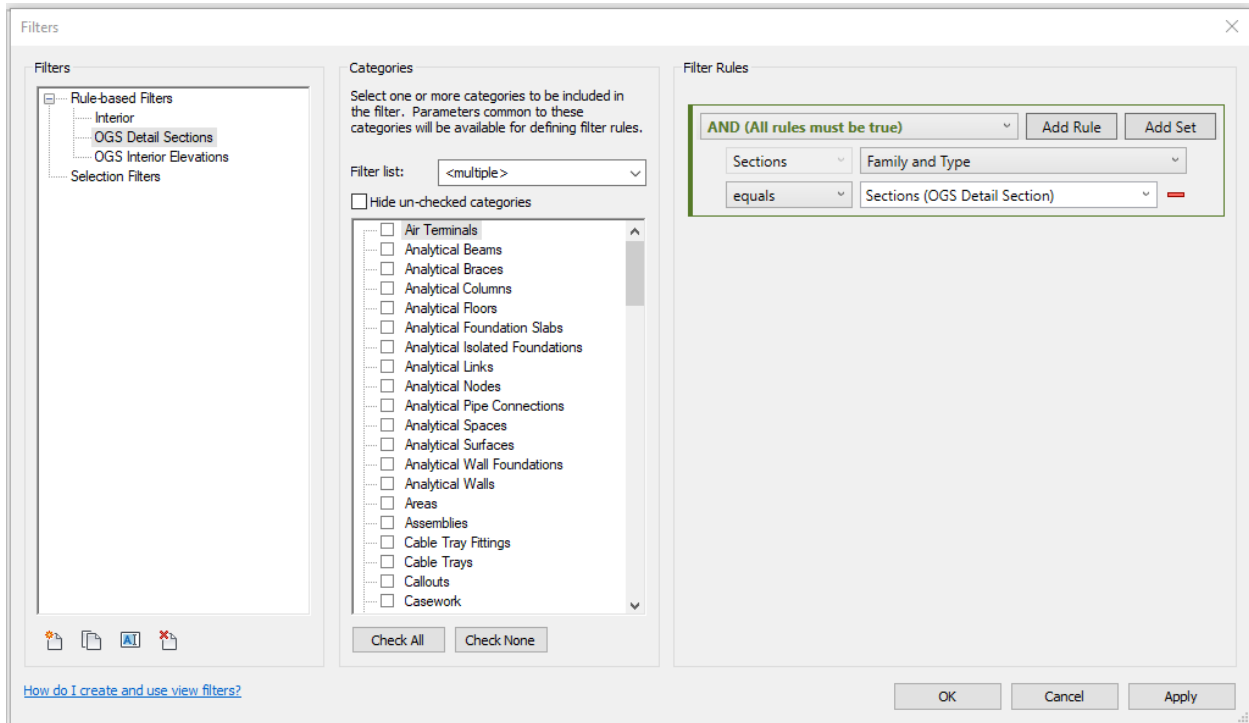
REVISION NOTES

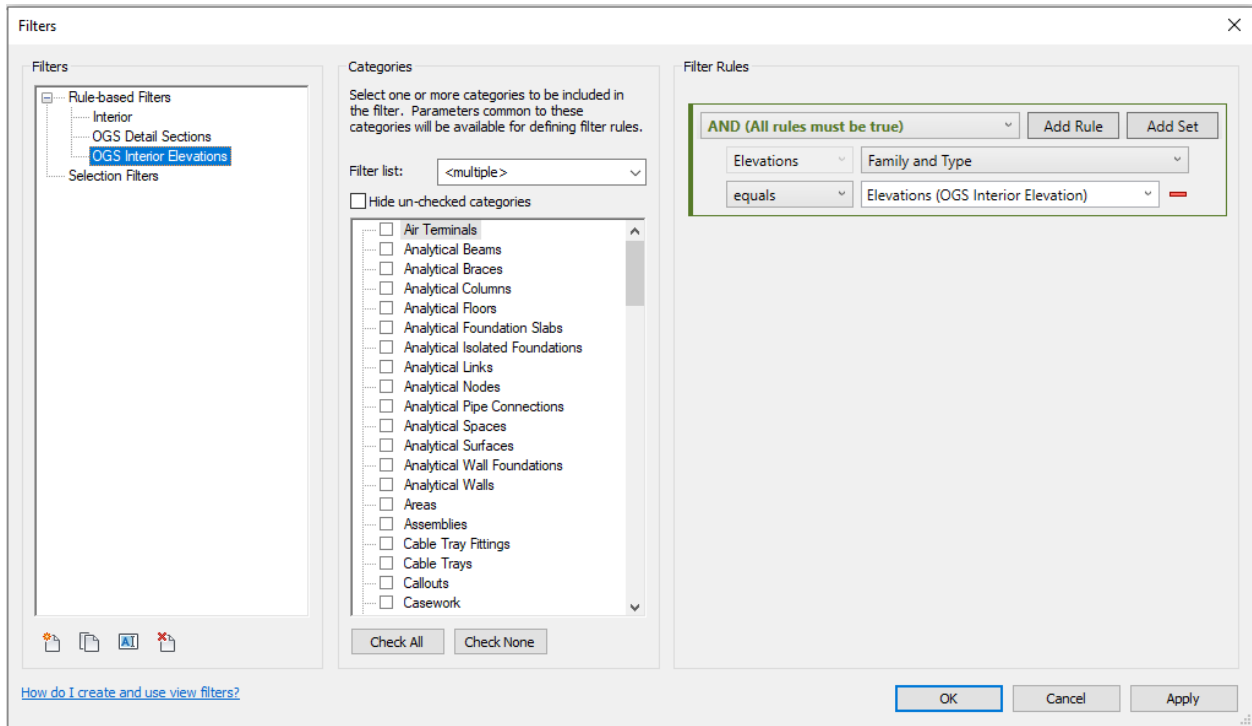
The project revision block is to be controlled by the Revit Revision tool, without needing to modify the titleblock to add Revision related text. Revisions within Revit shall be set as “per sheet”. Revision note standard is shown below.

- Sheets that are part of submittals pre-signed stamped version will acquire all submittal stamps.
- Sheets that are part of the signed stamped submittal will have their revision blocks reset and all previous submissions removed.
- Post signed stamped submittal, only sheets that are issued as part of a re-issue will receive the appropriate revision.

VIEW FILTERS

View Filters are used to control the visibility of elements in a view. They allow the user to hide or show specific elements based on their properties, such as category, type, or phase.



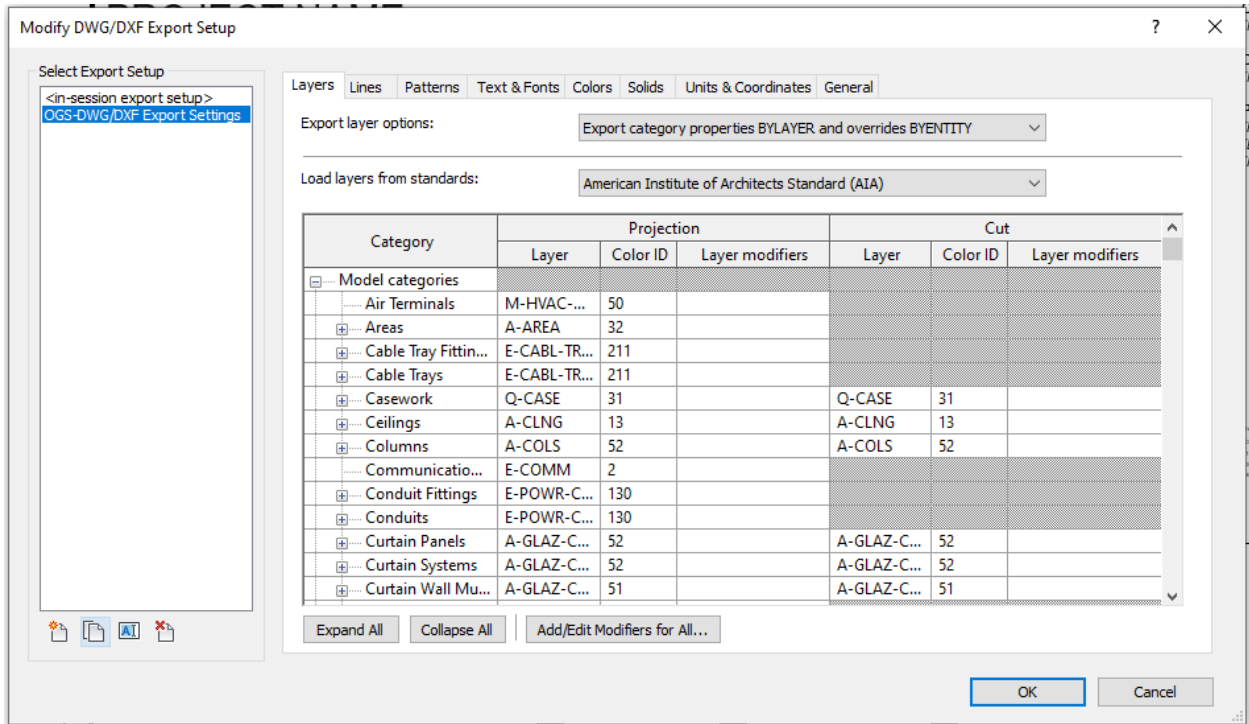


AUTOCAD EXPORT SETTINGS

Each discipline is expected to export an updated plan view, unlimited view range, True North orientation for Civil Coordination whenever significant changes are made or at the request of the Project Manager / BIM Coordinators / Civil users. The file should be placed in the XREF folder of BIM360 and use the following file name convention. All exported DWGs should be one entire floor showing its own, with the view saved for future use with “-DWG Export” as the name.

Discipline/Model	Floor/Level	Modifier	Building
<i>ARCH</i>	<i>1st</i>	<i>Demo</i>	<i>Lexington</i>

The DWG/DXF Export Setup feature allows the user to export a Revit model to a DWG or DXF file format to allow compatibility with other software. **OGS-DWG/DXF Export Settings** are included in the template and are based on the AIA Standard layers.



COORDINATION

AUTODESK NAVISWORKS

NAVISWORKS FILE TYPES (NWF, NWC, NWD)

The following file types will be used in a Navisworks clash detection process:

NWC

NWC, or Navisworks Cache files, are generated from the native design models in Revit or Civil 3D. NWC files are read-only files and can be thought of as a transfer mechanism to convert Revit and other model data into a format that Navisworks recognizes. All geometry, relevant object property information, and display settings from the source files will carry over with the NWC export. Once the file is opened in Navisworks, any changes made – such as redlines, markups, viewpoints, or display overrides – cannot be saved back to this format.

When the native model format file is first brought in, Navisworks creates a file with the same name but with the .nwc file extension in the same directory as the source file; existing file names of .nwc files should be maintained and overwritten in a designated shared location within the project folder.

NWF

NWF files host no 3D geometry but rather contain links to the geometry from the original NWC source files. Besides the links, NWF files contain such items as markup data, viewpoints, comments, graphical overrides, search/selection sets, TimeLiner, and clash detection tests.

When working with the NWF file format, the file size for NWFs is extremely small as compared to the NWC/NWD formats; however, the user must have access to the source files located at a shared location within the project folder to view properly.

NWD

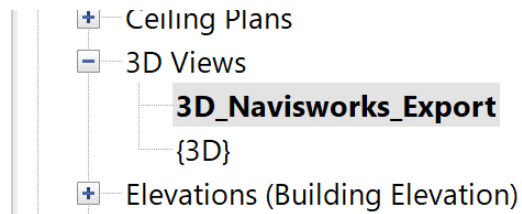
NWD files can be thought of as static snapshots that capture specific milestones that will be detached from NWC links. Similar to the NWC format, the NWD format includes all geometry and object property data but can save changes and graphical overrides to the model. The primary difference is that NWD files do not update or re-cache if changes have been made to the source data. Sometimes having a static representation of a model is useful for archiving specific milestone events.

Also, since this format has all of the geometry integrated into the file, it is a perfect format to share with other users without worrying about supplying the accompanying source files.

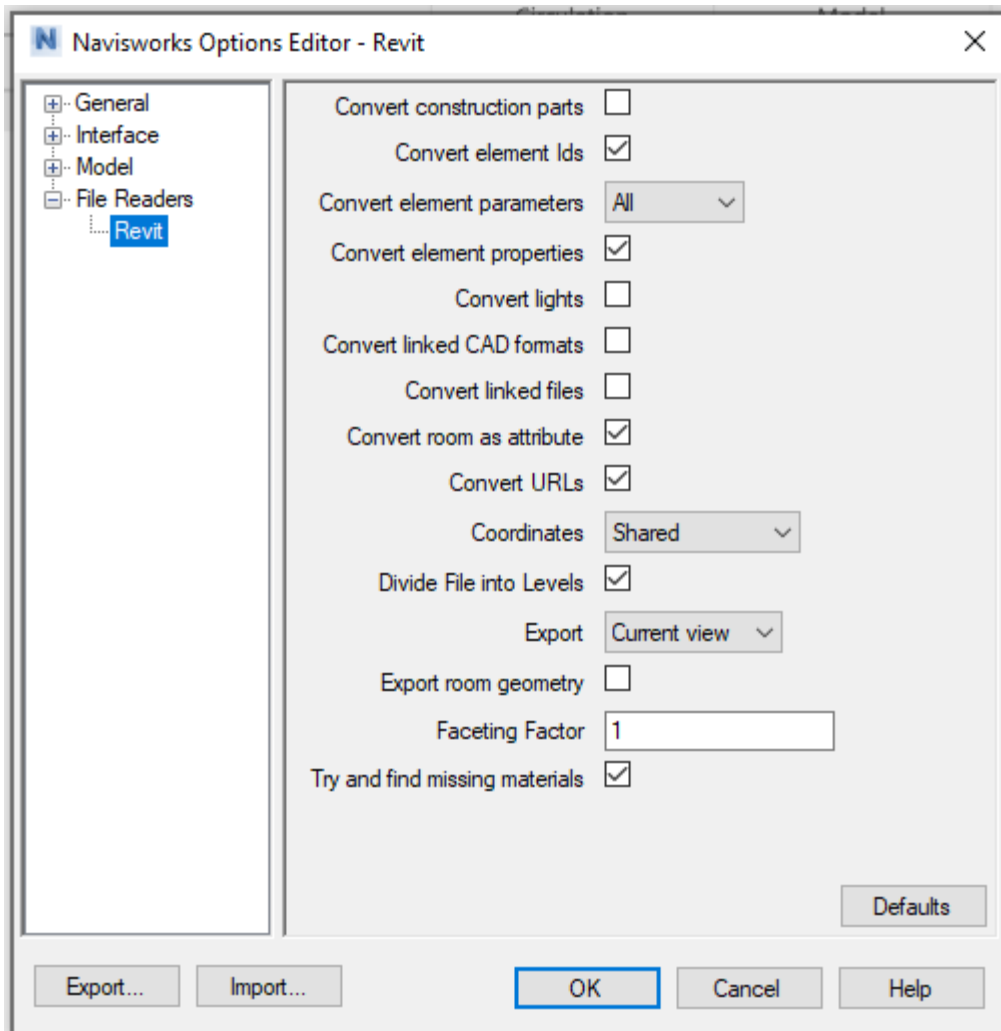
EXPORT NWC MODEL

Navisworks files can be exported from Revit, from the following two options:

1. Use the preloaded 3D view in the Revit template, which is named “3D_Navisworks_Export”.



2. If the view needs to be recreated, the A/E or contractor can adjust or set up a new view, following the steps below:
 - a. Go to the default 3D view.
 - b. Set the Detail Level to Fine
 - c. Set the Visual Style to Wireframe
 - d. Hide non-model elements (in VG) such as:
 - i. Lines (from Model Categories)
 - ii. Scope Boxes (from Annotation Categories)
 - iii. Structural Analytical Lines (from Analytical Model Categories)
 - iv. Imported drawings, families, etc. from (Imported Categories)
 - v. Links from (Revit Links)
 - e. Save the view as “3D_Navisworks_Export”
 - f. Go to File >> Export >> NWC
 - g. Click on the Navisworks Settings button



DELIVERY

All models shall be delivered in the native authoring file format. They shall be packaged for each design phase and shall include:

- All native model files,
- All master files (container files, documentation files, etc.),
- All linked files,
- Any additional settings required to export or print information from the model (such as DWG Export Settings, page setup. etc.),
- All the views, schedules and legends that are included in the documentation sets,
- All the sheets in the set, exported in both DWG and PDF.

Furthermore, all the drawings and schedules will be created from the BIM model.

FILE FORMATS

These formats are required to allow interoperability between different BIM software:

- RVT: files authored in Autodesk Revit
- DWG: files authored in Autodesk Civil3D
- NWD: files authored in Navisworks Manage

REVIT MODEL ISSUANCE

The following are some best practices to consider when cleaning a Revit model before issuance:

1. Publish the model before performing any clean-up activities to ensure data safety and have backup capabilities. Use the Publish Settings to share the views and sheets relevant to the set.
2. Open with Audit and Resolve Errors and Warnings: Run the "Audit" tool in Revit to identify and resolve any errors or warnings in the model. Addressing these issues improves model integrity and reliability.
3. Review links and imported elements: check that all links are centralized in a location that is accessible to the entire team and remove imported elements that slow model performance.
4. Purge Unused elements: Use the "Purge Unused" tool in Revit to remove any unused or unnecessary elements from the model. This helps reduce file size and improve performance.
5. Review and remove unnecessary views and sheets: revise the project's views and sheets to identify any unused or redundant ones. Delete or hide views and sheets that are not needed for the final deliverables. E.g., Work in progress views.
6. Manage Levels and Grids: review the project's levels and grids to ensure they are properly organized and labeled. Remove any unused or redundant levels and grids to streamline the model.
7. Check and clean up model geometry: inspect the model for any overlapping or intersecting elements, misplaced elements, or gaps in geometry. Make necessary adjustments to ensure accuracy and detect clash geometry.
8. Optimize views and detail levels: evaluate the level of detail in each view and adjust it as necessary. Use appropriate detail levels to balance model complexity and performance.

9. Check and assign object properties: review and ensure that all model elements have the correct object properties assigned, such as materials, parameters, and classifications.
10. Worksets: ensure the elements were added to the correct worksets to facilitate model visualization. Make use of Hidden worksets when necessary.

PLUG-INS

Plugins enhance the functionality of Revit. Although they are not mandatory, this section comprehends recommended plugins that facilitate recurrent workflows. They are free and can be installed at the discretion of the IT department.

- Revit Add-In – “Scope Box Synchronizer” by Omnia Revit

<https://apps.autodesk.com/RVT/en/Detail/Index?id=6897465823377340538>

- DiRoots

<https://diroots.com/revit-plugins/dirootsone/>

- PyRevit

<https://github.com/eirannejad/pyRevit/releases>