



AEC9762

Advance Steel—Managing the Model to Make Your Life Easier

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Learning Objectives

- Learn how to work with the Project Explorer, search tools, and Model View tools
- Learn how to work with search tools and the model browser
- Learn how to work the overall model and linking model views with cameras for drawing output
- Learn how to work with new visual tools to improve model performance

Description

Explore the tools inside Advance Steel software to make it easier to navigate and manage the final output from the model. Learn about the use of the project explorer and how that can help with the searching, phasing and grouping, and level management within a project. See how this can lead to further links with the drawing-production process..

Your AU Experts

My Career Started as a on the Board Draughtsman, then worked for a steel fabrication company, detailing Steelwork, Secondary Metalwork. Formed a Steel Fabrication Company which I ran for number of years, then returned to Steelwork detailing, but with a new challenge of 3D modeling with Advance Steel, Spent some 10 Years implementation, Training and Integrating Advance Steel into a Company Structure. This then lead to an opportunity to work for the Software owner at the time as Application Engineer for Advance Steel, so took up a new challenge of working in this new field. With the Autodesk Acquisition of Advance Steel this lead to my transfer as a Technical Consultant, for last 2 years, been working on implementations for various companies in Oil & Gas, food processing, Mining, in a variety of global locations and projects.

Learning Objectives

Learn how to work with the Project Explorer, search tools, and Model View tools

Project Explorer

Location: Ribbon>Home Tab>panel Project> Project explorer button.

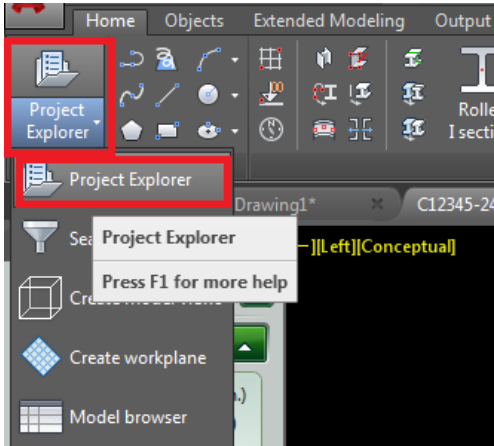


FIGURE 1: PROJECT EXPLORER

Within the project explorer there are many options and sub tools, focusing upon the model view creation and Search tool for this exercise.

Model Views

To create a model View you can access directly from the menu bar across the top of panel

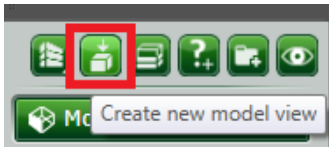


FIGURE 2: MODEL VIEW

Select the button and you have 4 options to work from, if you have Grid then that is an easy one to start with. Follow the prompts at the command line and select the gridline, then name the view, followed by the view direction arrow

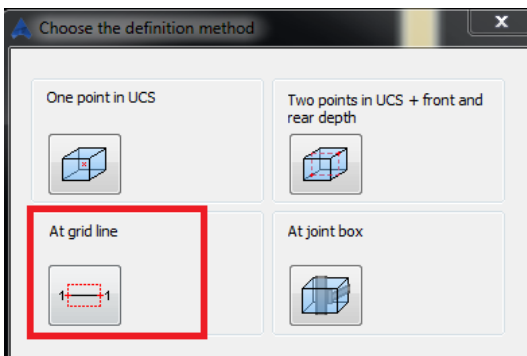


FIGURE 3: VIEW SELECTION

Once view created it will appear in the dialog pane.

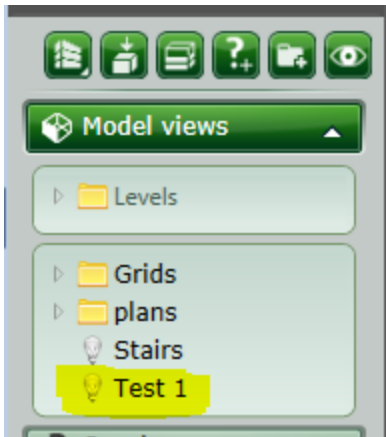


FIGURE 4: PROJECT EXPLORER PANEL

Activate view with single left mouse click of light bulb, or to orientate to the view double left mouse click over the view name.

Note: from above image folders can be added into the dialog and views moved into those folders. Just right mouse click in blank area of dialog and option to create folders will appear.

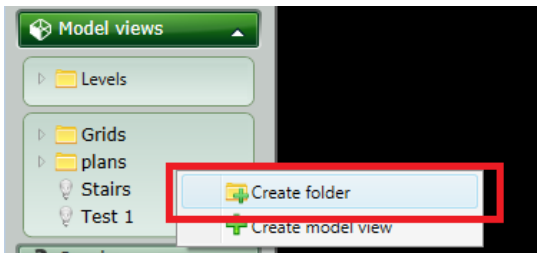


FIGURE 5: PROJECT EXPLORER- ADDING FOLDERS

Search Tools

Within the project explorer, referred to as “*Queries*” again can be accessed from the menu bar at top of interface, selecting this will bring up the search dialog.

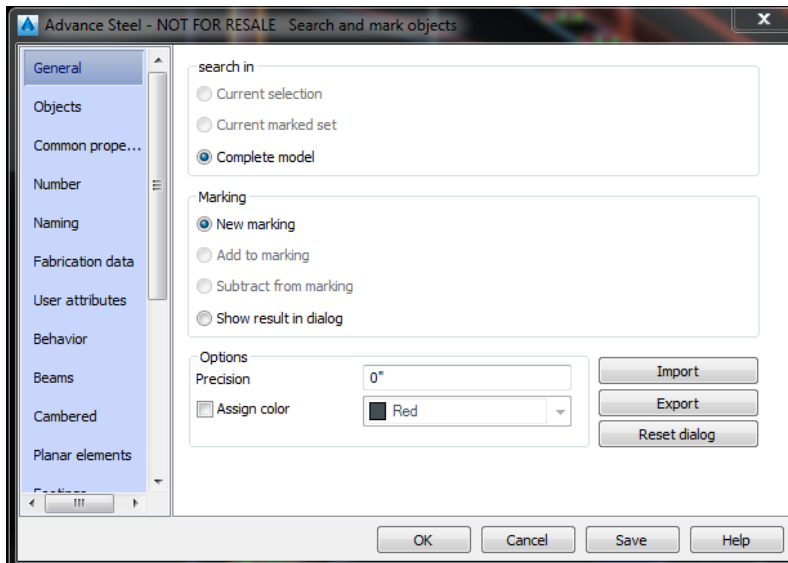


FIGURE 6: SEARCH DIALOG- QUERIES

The dialog has a number of tabs that look at attributes of AS object in the model. These can be set to a series of settings to create a search for various items. Search can be saved for recall later and also highlighting/marketing colors can be applied.

So for a test: we can search for steel beam of model role column.

- Tab objects : Select Check box - **Steel Beam**
- Tab Naming : Select model role – **Column**

Then Save button at bottom and enter the name of the query “**Column**”

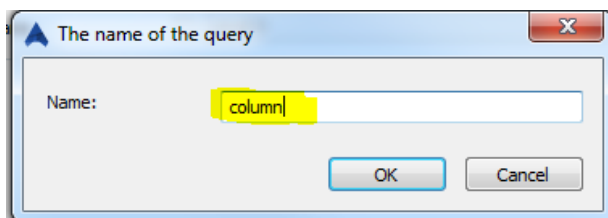


FIGURE 7: SEARCH NAME

Select ok, and then ok again in the dialog, the query appears in listing under the queries panel

The columns highlight red in the model.

If you only wish to see the columns, then left mouse click the light bulb.

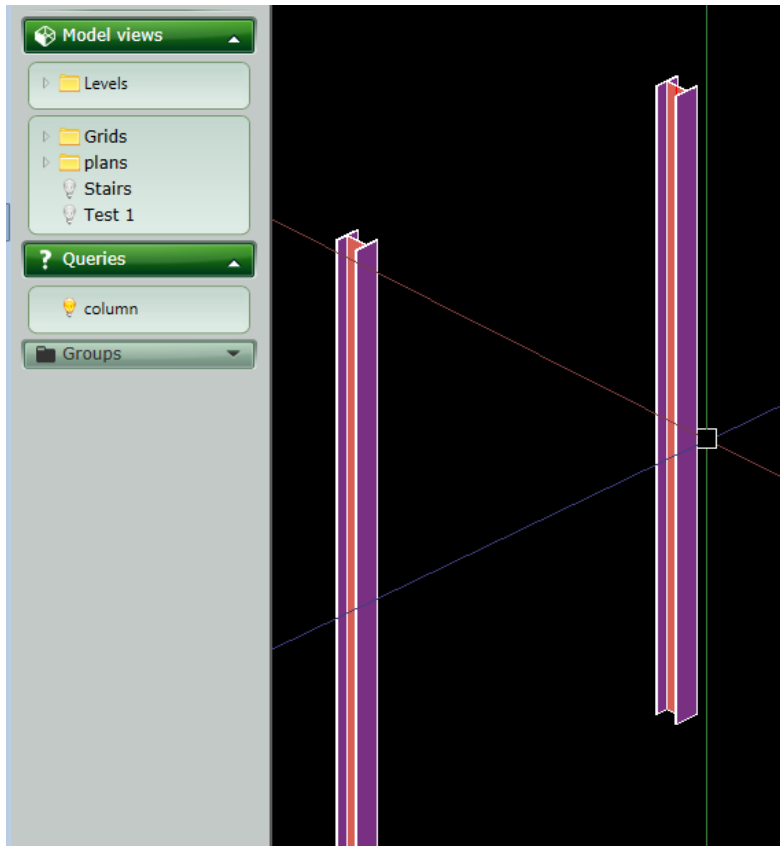


FIGURE 8: PROJECT EXPLORER – SEARCH ACTIVATION

Model Browser

The model browser is found listed under the dropdown menu from the PE, select the button and a dialog will appear similar to below.

- You can use this to review objects in the model.
- The fields available are adaptable.
- Selecting the item in the list highlights it in the model.
- Selecting the edit properties button you can then access the properties and alter as required.
- With a model view active, it will list only the elements seen in that view.
- Alter the listing by *Single Part* , *Assembly Part* (when the model is numbered)

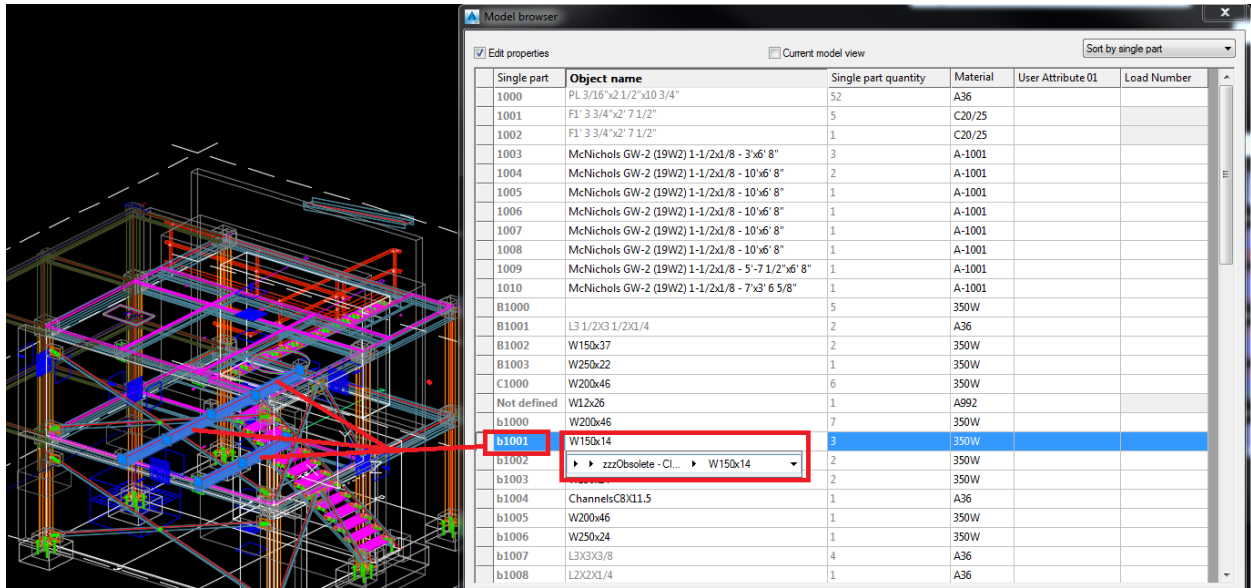


FIGURE 9: MODEL BROWSER

Note: if elements are inside Structural Element Macros, then change from inside the macro only way possible.

Learn how to work with search tools and the model browser

Search tool

Using the tools above especially the Search/query tool can help you add elements to groups within the Project Explorer.

One of the common issues in Advance Steel is that elements are added to the model and these do not get assigned a model role. The model role is very important in Advance Steel influences a great deal of the output from Advance Steel.

So a good search to add is for “None” so you can create this and “Save” it to the *Queries*.

Settings for the 3 tabs to cover most of the elements in the model and then set the model role

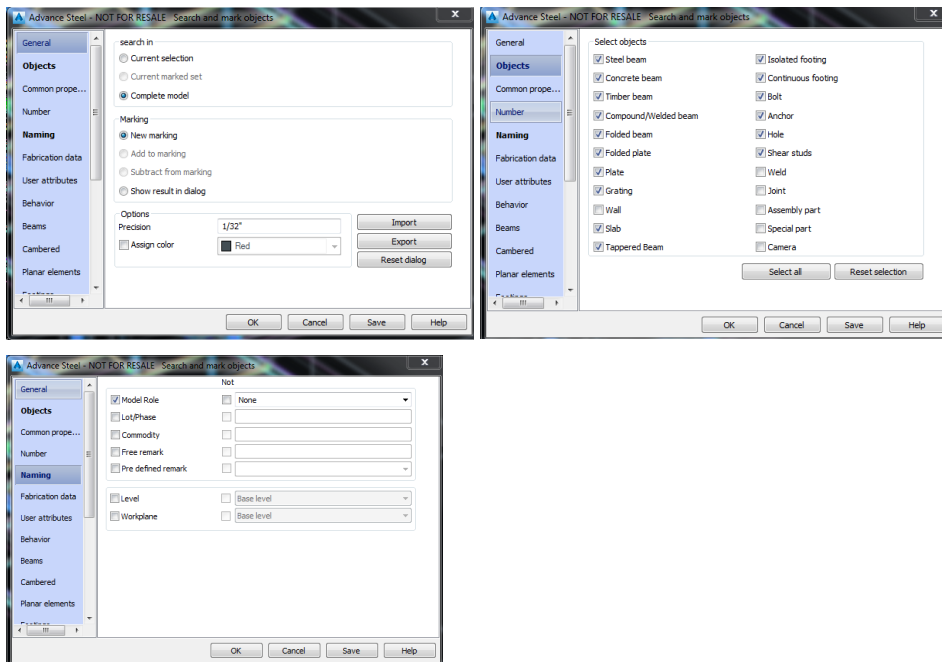


FIGURE 10: SEARCH DIALOGS

So with the settings you can then see the search in the PE, execute it and then isolate the items. (Right click on mouse over the *Saved Search name*)

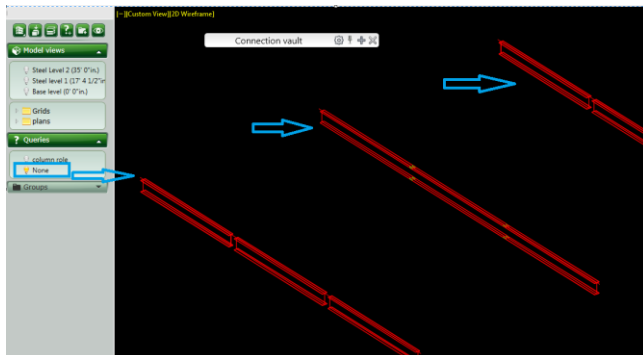


FIGURE 10A: SEARCH RESULTS

With the items marked you can select them with the “Select all marked objects” from the **Advance steel tool palette >Selection>Selected All marked object**

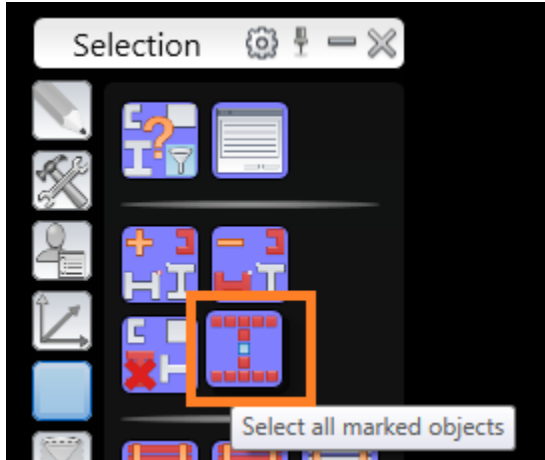


FIGURE 11: SELECT MARKED OBJECTS.

With the objects selected you can then access the advance properties of the objects, you may see the advance multi edit options, just select it and then the beam properties

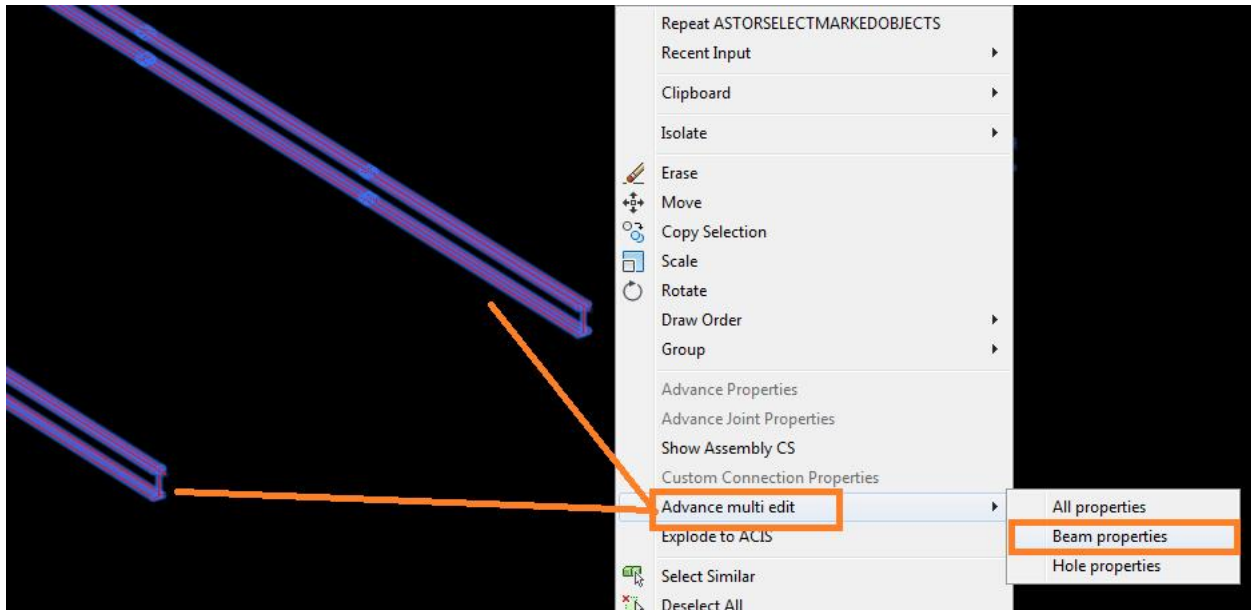


FIGURE 12: RESULTS FROM SEARCH.

This will then allow you select the properties and those that are common to each one you can adjust in this case the **Model role under the naming tab**

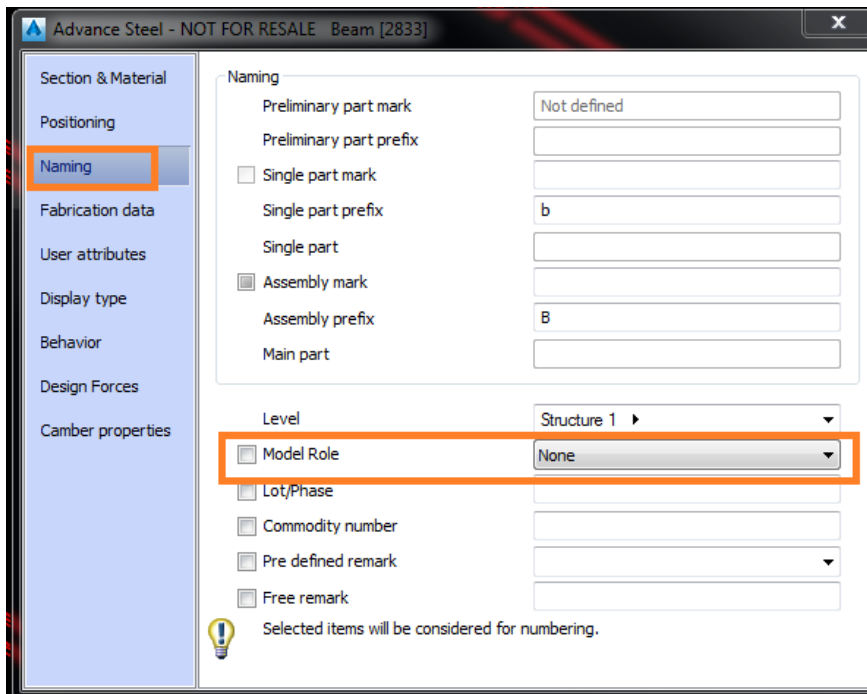


FIGURE 13: CHANGE OF PROPERTIES FROM SEARCH.

There are many combinations of elements that can be selected; you will see the primary ones on the objects tab.

Look for the primary one first e.g. **a Camera**

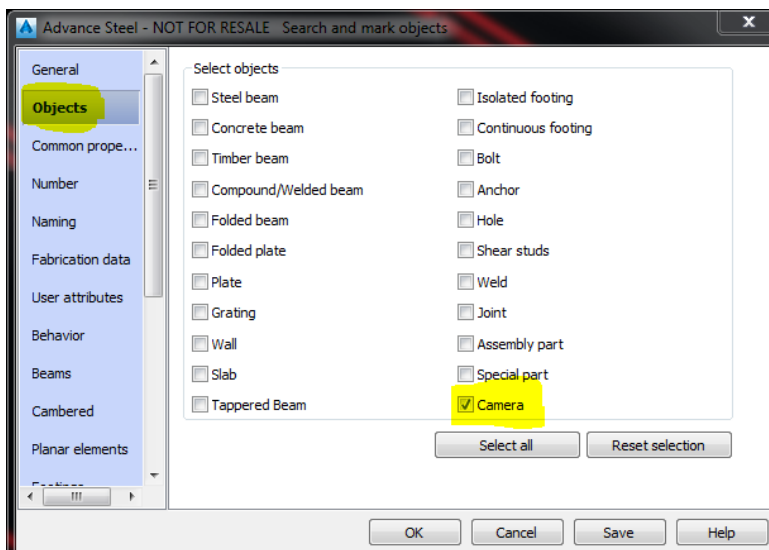


FIGURE 14: CAMERA SEARCH.

Then go to the next step, this may be a specific tab, Camera has one.

Activate the Check boxes and enter as required.

So we could search for a “None” type to make sure every camera in the model has a set type relative to its requirement for drawing output.

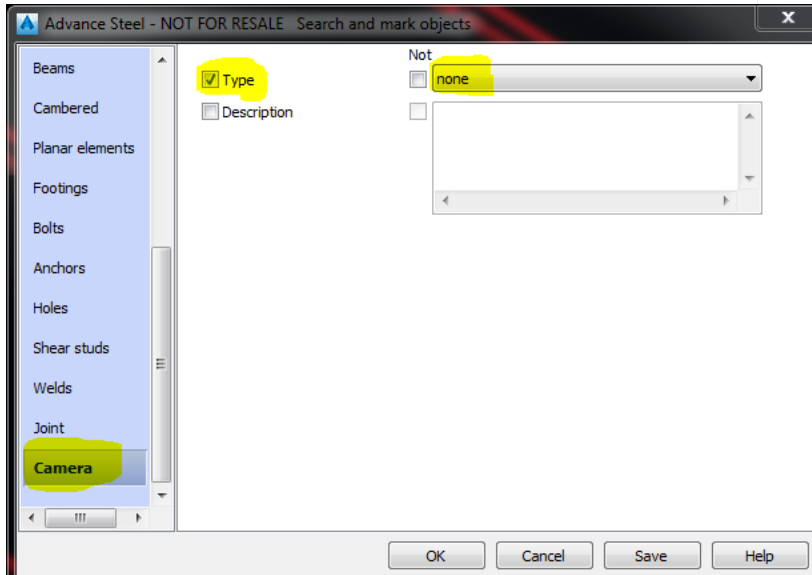


FIGURE 15: SELECTION SETTINGS.

And again you can execute or save the search, as needed. With the items marked in the model you can again access their properties and adjust as required.

Note:

- With searches you can also change the marking, add to a series of marked objects, subtract and add to marking selections.
- You can also display results in a dialog, which now goes to the Data panel.

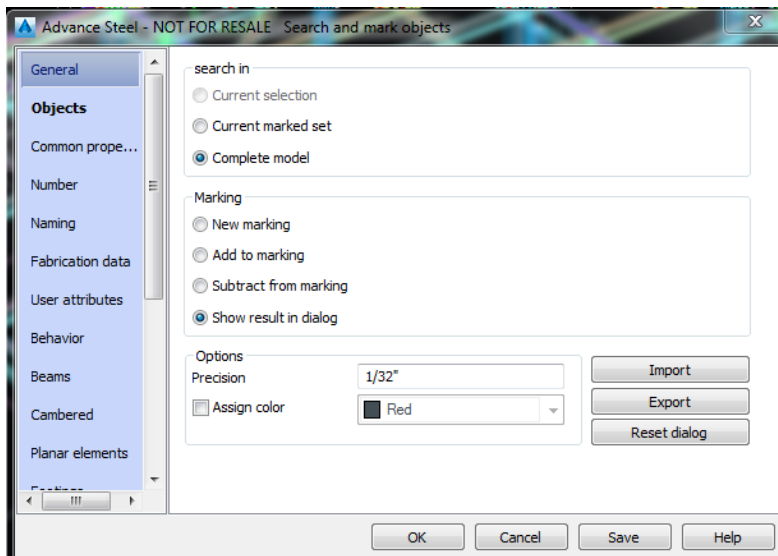


FIGURE 16: NEW SEARCH.

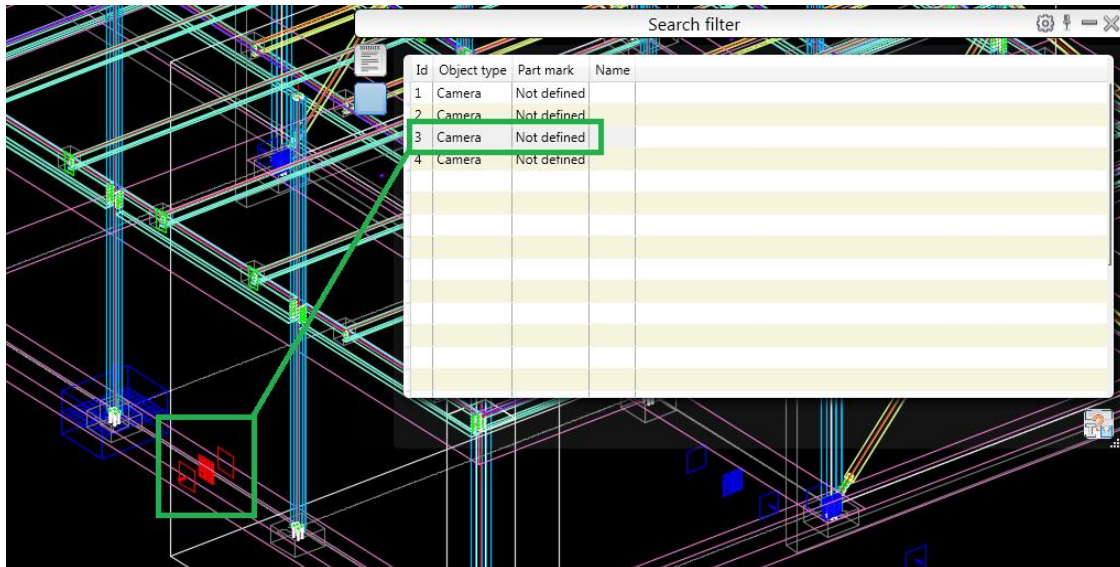


FIGURE 17: DATA PANEL SEARCH.

Groups

The group tool can again be used to link a series of objects together in the model, to make it easier for future recall for output etc. It can be used in conjunction with the search tool.

So create a search to say plate elements, then under the planar elements, set the thickness for 1/2" (12.7mm), Execute search and select the objects in the model using the select marked objects.

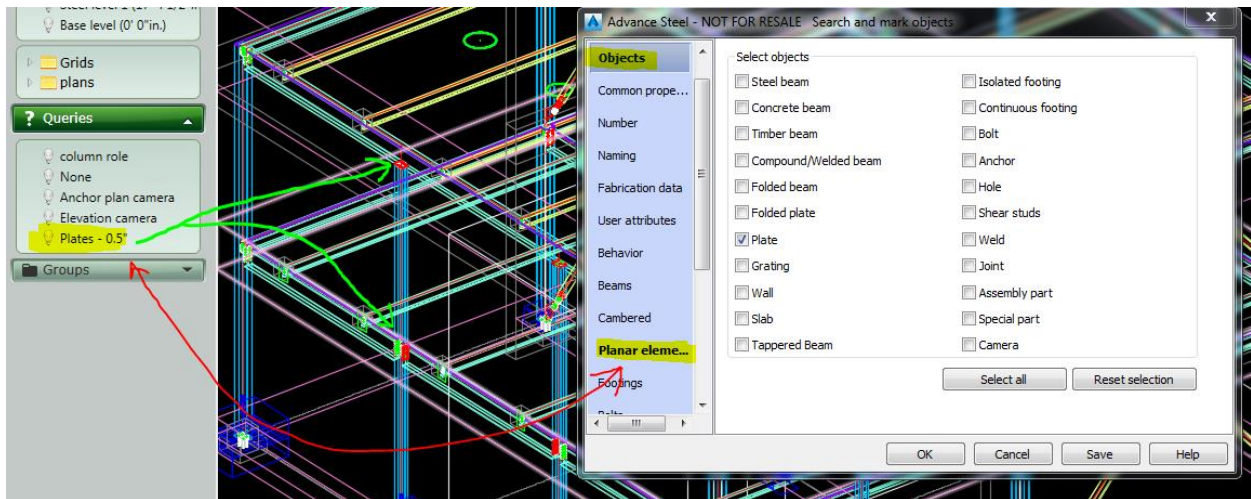


FIGURE 18: GROUP SEARCH RESULT.

With the objects selected then you can create a group and add those objects to the group.



FIGURE 19: GROUP NAME.

With the group created use the select marked objects command and then right mouse click over group name and then add elements

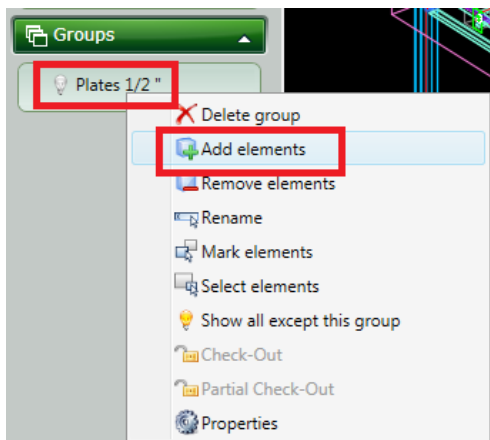


FIGURE 20: ADDING ELEMENTS.

REMEMBER THE “CLEAR MARKED OBJECT” COMMAND, THIS REMOVES ALL THE MARKING.

Then as with the other *PE elements* you can isolate the objects.

Once marked you can **run a BOM materials lists**, for those size plate, **create the drawings** for those size plates.

There are many options to add elements to groups.

Note: colorization

In AS 2016, you can add colourization and change the colours when marking elements.

Using marking by colors you can define a color for objects included in a saved query. When you need to run several queries, each query can be marked with a different color - not just with red, as in the previous versions.

Using marking by colors for the project

In order to use the new "Marking by colors" feature in a project, you need to access the *Search and mark objects dialog*. You can do this in two ways:



1. Using the **Advance Steel Tool Palette**, access the **Selection** category and click the **Search filter** button.
 2. Using the **Project Explorer**, in the upper side of the window click the **Create new query** icon.
- The **Search and mark objects dialog** appears. In the **General** tab check **Assign color** and from the drop down menu select your desired color to mark the query.

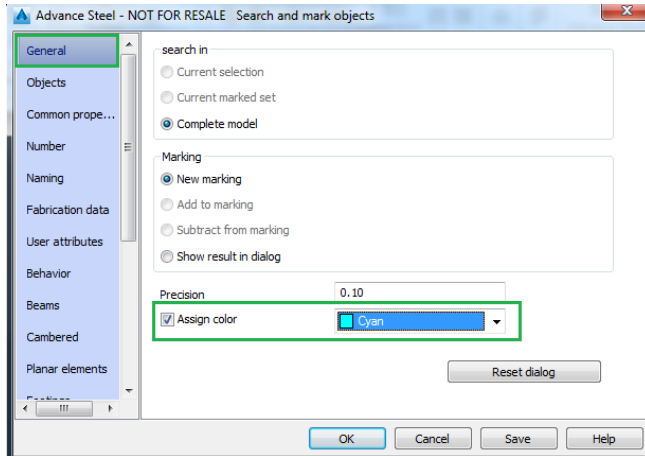


FIGURE 21: COLOR SEARCH OPTION TAB.

After you set the query parameters and validate all the changes, the searched objects are marked with the assigned color.

Note: If you run several queries and not lose the preview markings, check the **Add to marking** option in the **General** tab:

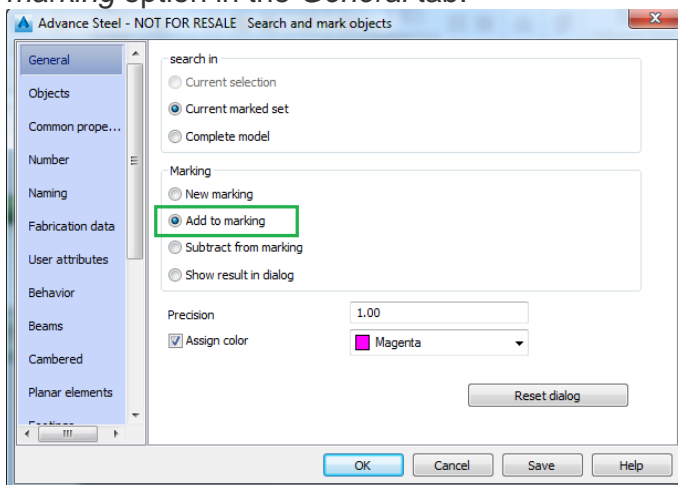


FIGURE 21: ADDING MARKING IN SEARCH.

Note: If you want to save some queries, click the **Save** button in the **Search and mark objects dialog** after setting each query parameters. You need to provide a name for the query. The saved queries will appear in the **Query** section in the **Project Explorer**.

Multi user options in the Project Explorer

In the PE it is possible if you are working in an Advance Steel Slave model to check items in and out of the model via the PE.

Please see embedded file at end of document under the Appendices

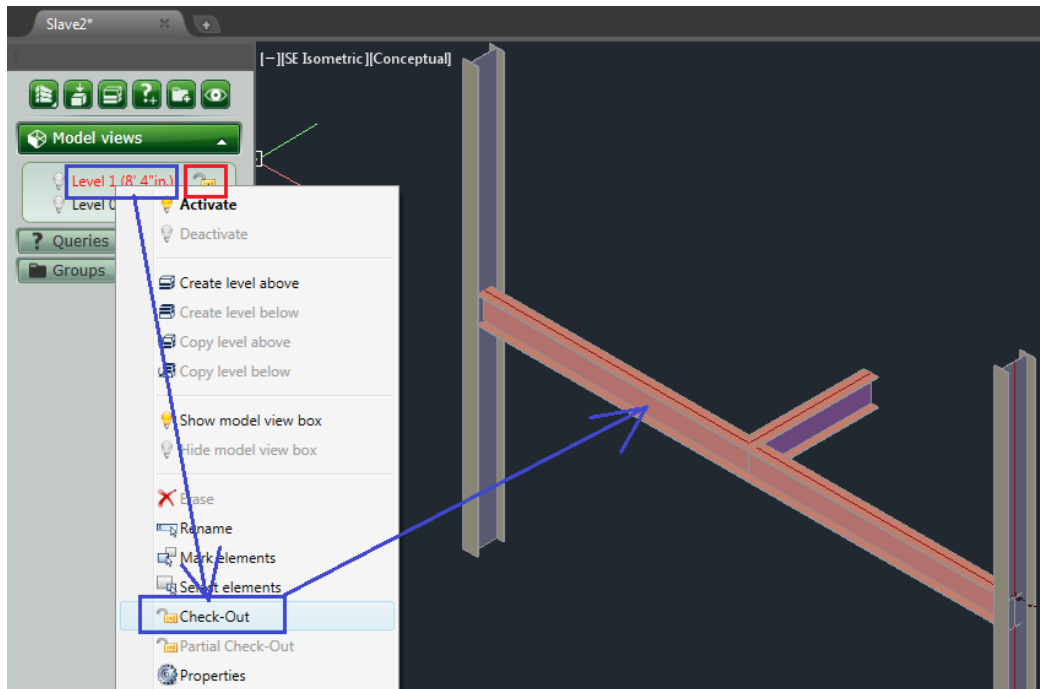


FIGURE 22: PROJECT EXPLORER - MULTI USER FEATURES IN SLAVE MODEL .

Learn how to work the overall model and linking model views with cameras for drawing output

Advance Steel Cameras

What is an AS Camera and how can it be used inside.

When modeling in Advance Steel, Camera objects can be inserted as we progress through the model. These camera objects enable the system to extract the model data into a series of 2D line views, which can be inserted into Drawing Sheets.

An AS Camera is an UCS Dependent object. (Z Direction is the View direction of the Camera)

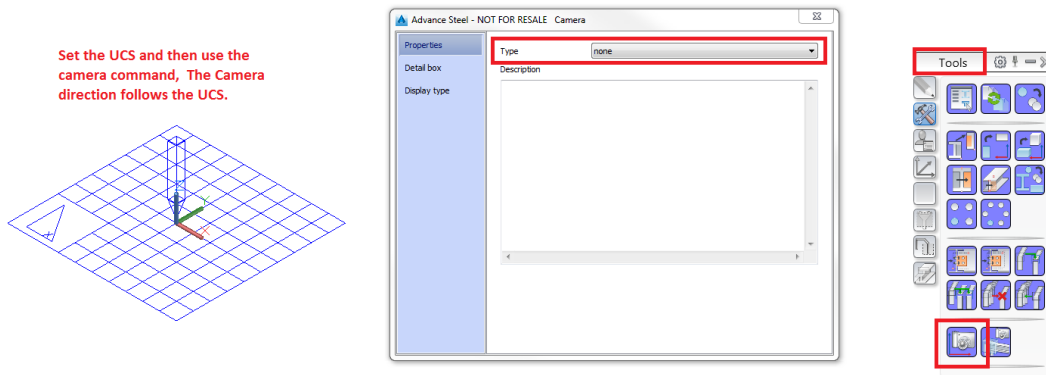


FIGURE 23: CAMERA OPTIONS AND SETTINGS.

There are different Camera types and additional types can be created.

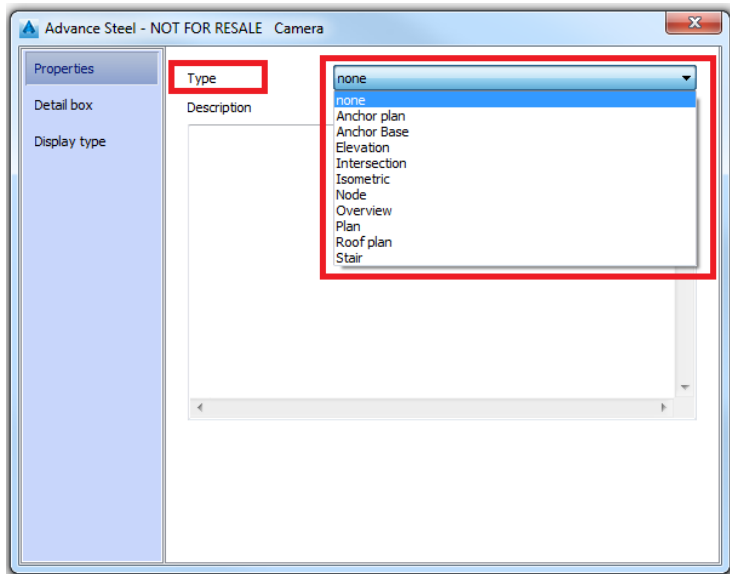


FIGURE 24: CAMERA TYPES.

The AS Cameras has Advance Steel properties, and with these properties they can be linked to use the Drawing Style and Drawing Process systems.

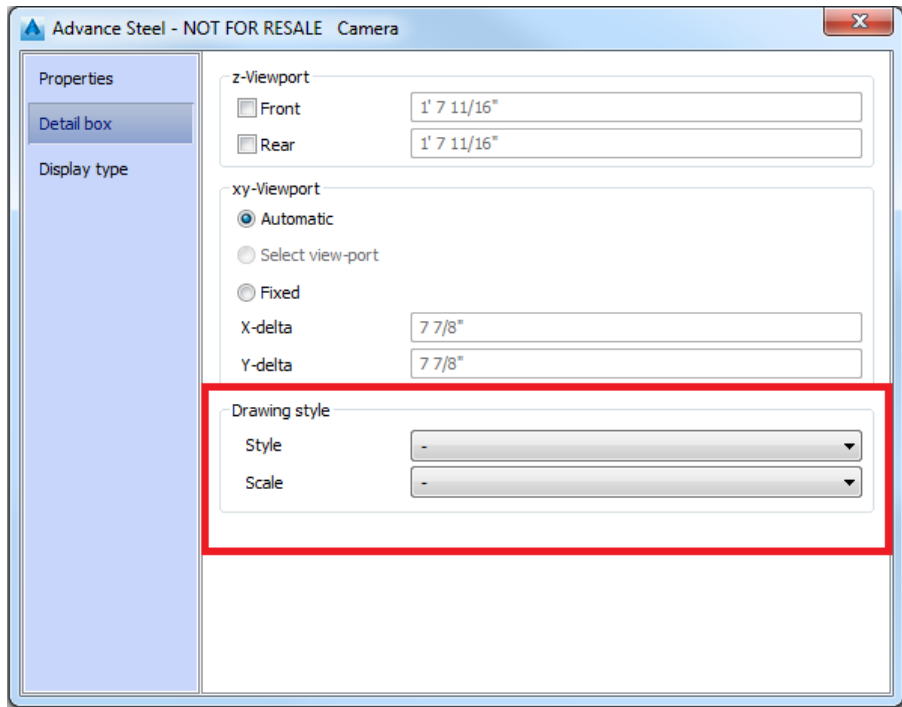


FIGURE 25: CAMERA – STYLE AND SCALE SELECTION.

Camera links to Drawing Process, Using the “Detail Style Map” and the Model Objects part of the Drawing Style System.

- Create the Camera in the model.
- Set **The Type**.
- The **Type** links to the Model object in the DSM Model object.
- The **Model Objects Camera Type** then used in the DPM under the **Detail Style Map**.
- The **Detail Style Map** used to control the Default drawing style for the given camera Type.

Drawing output

As explained previously the Camera objects can be used to set up desired output views in the model. These views however, require some form of content control, this is via the Drawing Style selected, and the style can also be relative to the type of Camera chosen.

So it's sometime better to look at what is required as the output and then work back to place that in the model.

So for Example: we require and **Elevation Drawing**, We could create a **Camera of Elevation Type**, which then uses an **Elevation Drawing Style**.

Model Views and Camera Types

We reviewed **Model Views** and how to create them and add them into the project explorer.

So the Trick here is to think about your model views as a precursor to your drawing views.

- Create the “Model View” with a mind on the Arrangement drawing requirement, so an elevation on a Grid line, Section through the building, a plan on a floor level, a detail on a joint intersection.
- So with a bit of forward planning it is possible to create a series of model views that reflect your drawing outputs,
 - Plan
 - Anchorplan
 - Level 1
 - Level 2
 - Elevation
 - Grid 1
 - Grid 4
 - Grid A
 - Grid C
 - Section
 - Grid B
 - Grid 2
 - Details
 - Baseplate
 - Bracing connection.

As the model views are created we break the model down into series of viewable areas that are relative to what we are looking to achieve as an output for Drawing.

Also when the view is created there is an option to activate the view, which orientated so that user is looking at the Zee Axis of the View.

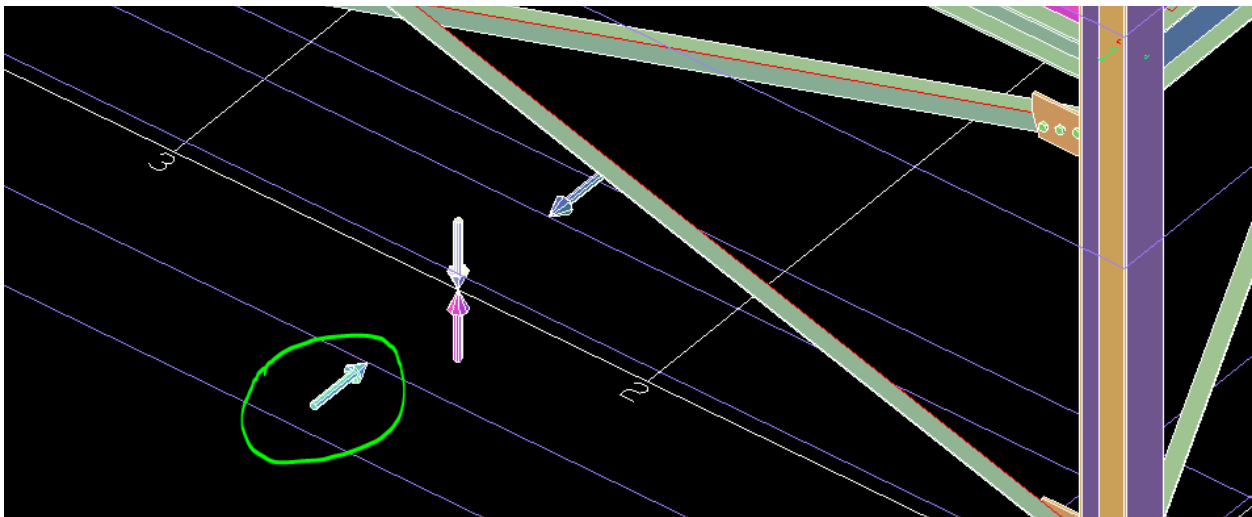


FIGURE 26: VIEW ARROW DIRECTION TO SET UCS IN MODEL VIEW

So when you active the view you should see the image below:

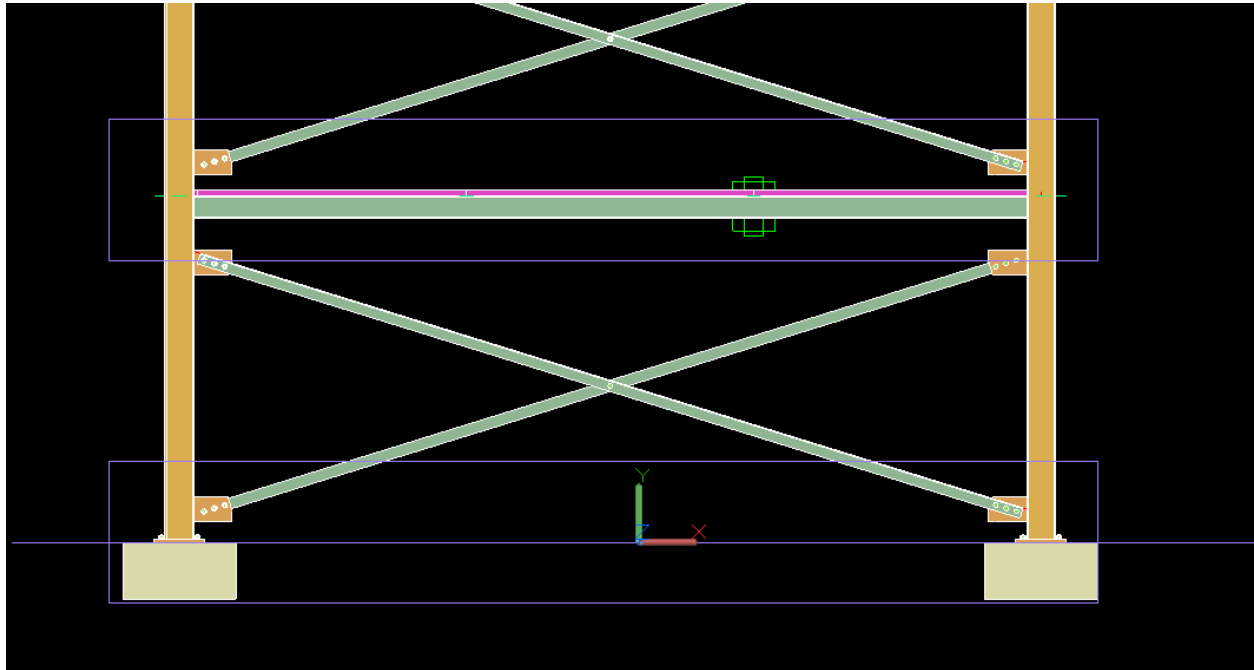


FIGURE 27: USC ALIGNED TO MODEL VIEW.

What you will also notice from above is that the UCS has orientated itself to the current view direction.

This is down to the option to change the UCS that is part of the Model view properties.

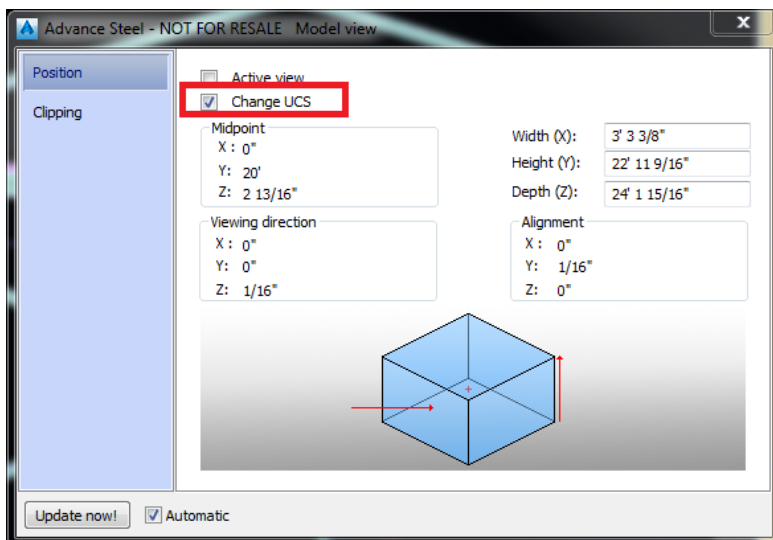


FIGURE 28: MODEL VIEW PROPERTIES – UCS DIRECTION.

With this active, the UCS is set when the view is activated going onto Next trick, that places the *Camera at the View direction, because Camera's are UCS Driven*

Tools palette> Create Camera UCS > Type 0,0,0 at command line . Camera is created at the Current USC origin in the model, based upon the model view.

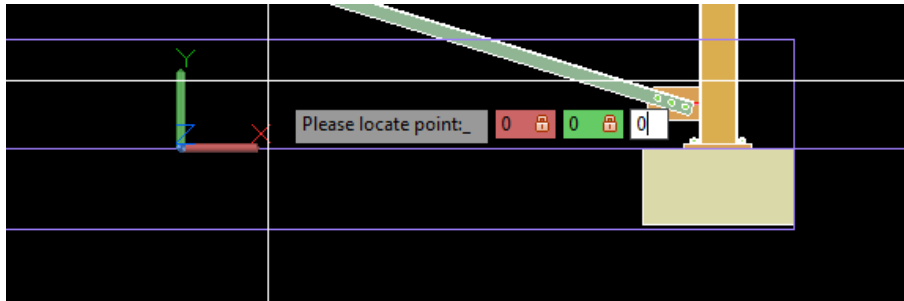


FIGURE 29: CAMERA PLACEMENT.

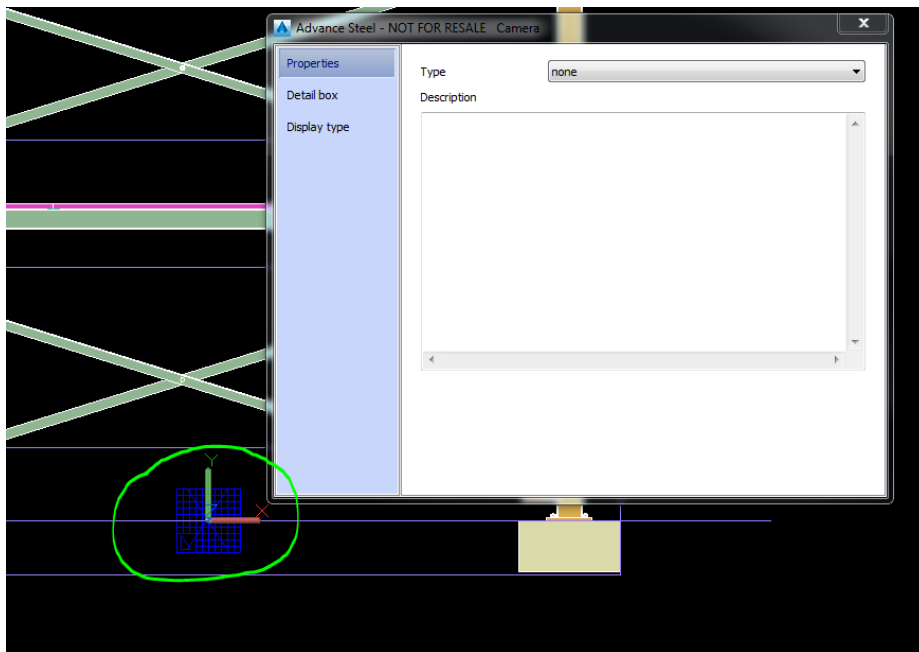


FIGURE 30: CAMERA POSITIONED – INITIAL DIALOG.

With Camera placed, just set the Type based upon the desired drawing type, elevation in this Example.

Note: you can also make adjustments to the Camera view planes and overall size as required. The camera will be placed on a layer, providing you are using a template with the Camera layer present and the object assignment Management tool entry is enabled.

You can repeat this process as you progress through the model, so as we create model views we can place the camera at that time also. You need only set the type if you wish or adjust it later.

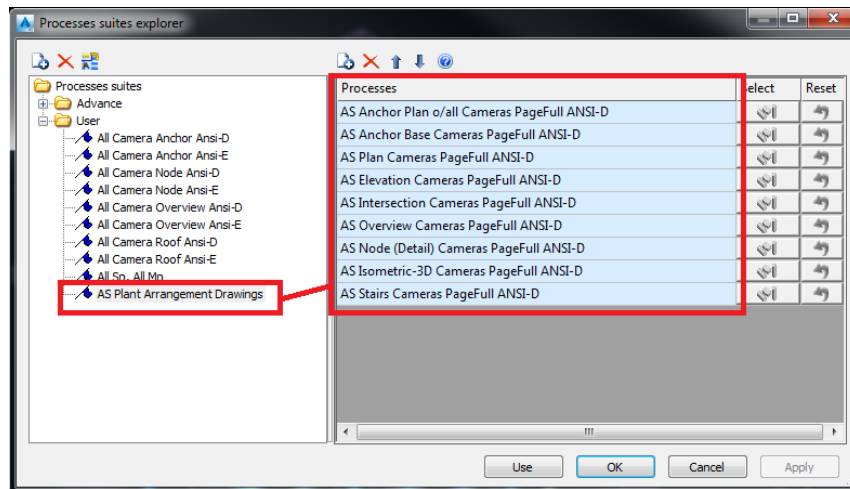
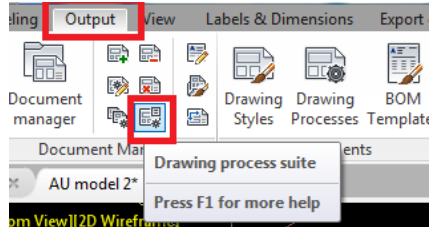
So when you get to the end of the modeling task, or at any time during that period, it is possible to create a set of arrangement drawings from the model.

This can be done using any of camera process or custom processes created and also it can all be linked into the **Drawing Process Suite tool**.

Drawing Process Suite

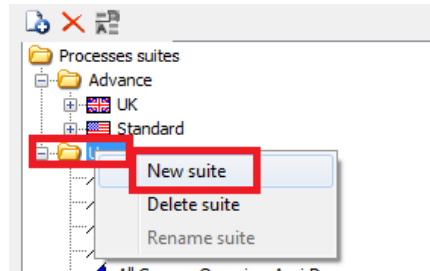
This tool enables you to combine a series of processes together into a sequence that can be used to produce the drawings from the model.

Found on the ribbon> Output>Document manager panel>Drawing process suite



To create your own suite:

- Just select the user folder and right mouse click “New Suite”, name as required and then add processes as required.



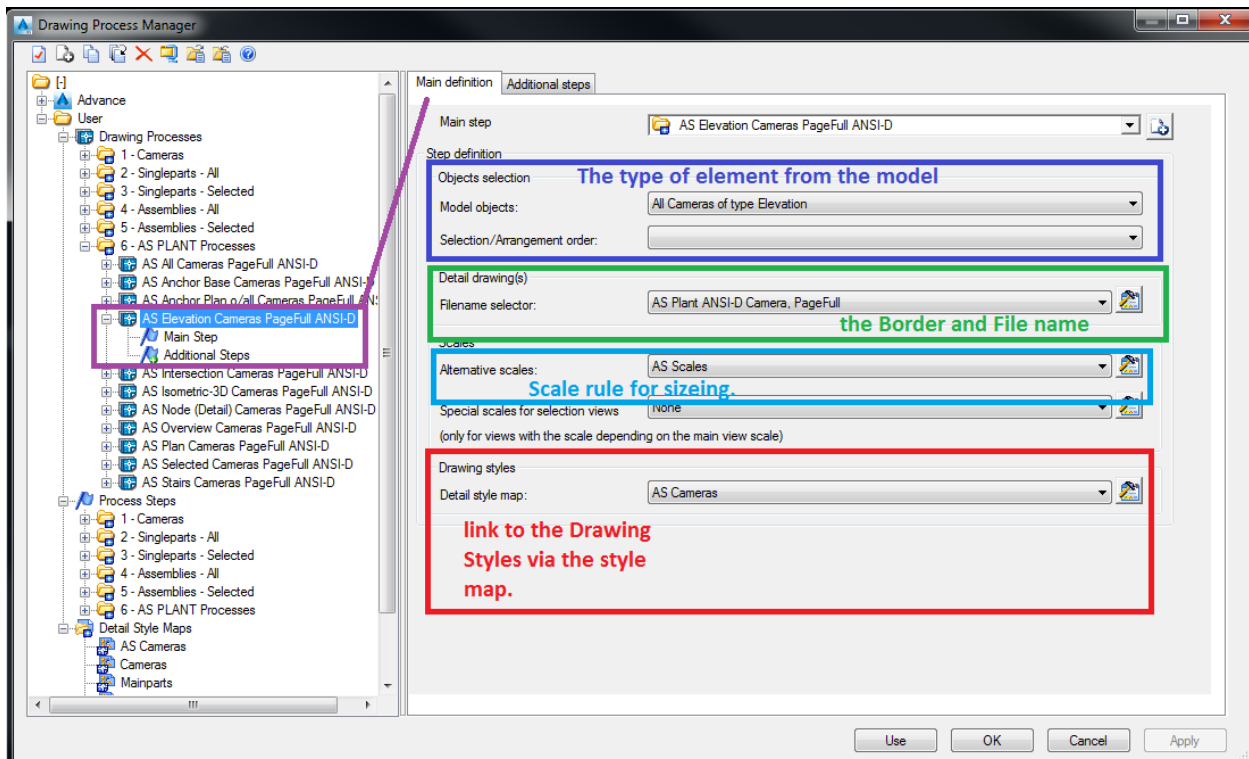
- Details of the drawing process suite are in the drawing styles manager guide, available from Autodesk Representative.

Drawing process manager

This is one of the two managers associated with the drawing production. This manager allows you to create a link between the various elements that make up a drawing.

Combines together:

- Links with the Cameras on the model (Parts and assembly elements for drawings)
- The Drawing style (coming from the Drawing style manager)
- The border of the drawing and sheet size in the form of the Advance steel prototype file.
- Options for Scale fit and sub processes for difference sheet sizes.
- Defines the naming of the Drawing file

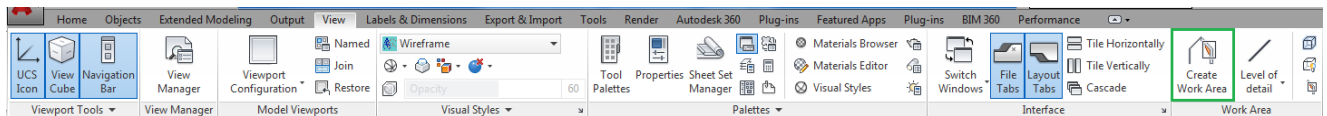


- *Details of the Drawing Process manager are in the Drawing Styles Manager guide in the appendices.*

Learn how to work with new visual tools to improve model performance

Work area increases Advance Steel performance when working with large 3D models. It allows you to define a working space within the model that differentiates the level of detail. Outside the working area, the Advance Steel objects are just displayed with simple graphics. Inside the working area, objects are displayed in full level of detail and you can edit them.

The Work area is defined through the *Create work area* command: on the ribbon, **View tab > Work Area panel**



Two points are required in the model space to define the diagonal corners of the work area. The level of detail for the objects outside the work area can be defined during creation, or changed through the four buttons available on the ribbon.

The levels of details for the outside entities are:

- **Low:** only beams are displayed as lines.
- **Medium:** only beams are displayed with their proper section, together with shortenings and cope features.
- **Medium with plates:** Plates are also visible without any cuts.
- **High:** Beams and plates are visible together with all their features.

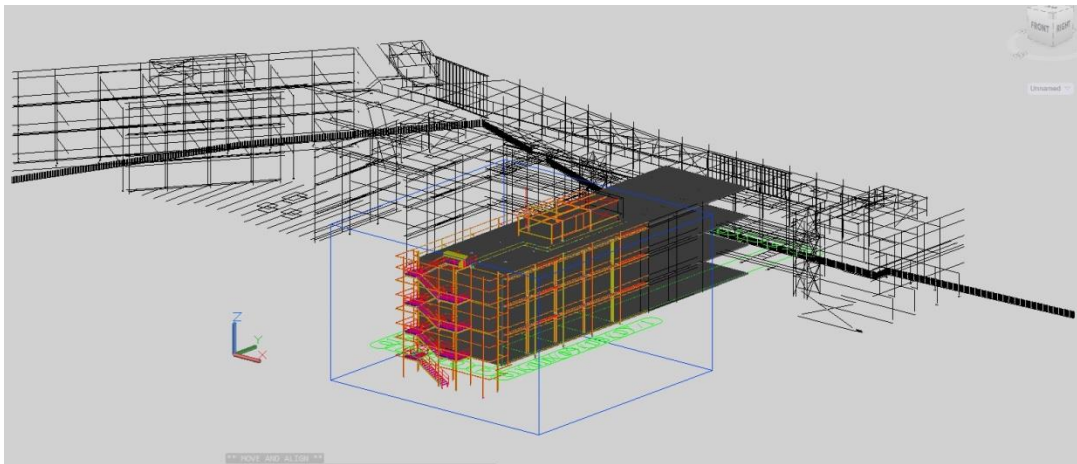


FIGURE 1: WORK AREA

Appendices

Useful links

- [Advance Steel Help](#)
- [New 2016 Feature Videos](#)
- [Advance Steel FAQ list](#)
- [Advance Steel Drawing Styles Customisation](#)
- [How are elements attached to work planes](#)
- [How are work planes Created](#)
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