AUTODESK®
ADVANCE STEEL 2015

AUTODESK.

Starting Guide

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INTRODUCTION

This starting guide is a brief introduction to working with Advance Steel, describing the basic methodology and not meant to replace formal training.

The **Advance Steel objects** chapter describes the main objects to create a small steel structure.

The examples presented in this guide are generic for worldwide use and do not conform to local or specific company standards.

Some of the Advance Steel connections are described in the **Joints** chapter and are used to create a small model. The 3D model is created using a 1:1 scale. The model contains information about dimensions, objects, and attributes from which drawings are created as described in the **Drawing Creation** chapter.

Since not all Advance Steel tools are described in this guide, refer to the *Advance Steel Help* for more details on all commands and parameters.
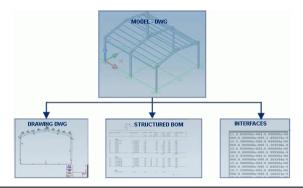
Advance Steel

Advance Steel is a leading edge steel construction application designed for steel professionals. It provides a simple user-friendly working environment for creating 3D structural models from which drawings are created.

The three dimensional model is created and stored in a drawing (in DWG format). The Advance Steel model forms the basis of the 3D construction. Complex structures are created using Advance Steel structural elements (e.g., a portal frame or a stairway) with all the required features, joints, and connections, within a command.

The Advance Steel model becomes the master reference for other tools:

- Dimensioned and labeled general arrangement and shop drawings are automatically created from the model.

- The Advance **Document Manager** manages all general arrangement and shop drawings. The update tool in the Document Manager makes single click drawing adjustments possible after model changes.

- Structured BOMs (bills of materials) and NC-information are also created from the model and include all model information such as part marks and quantities. The Document Manager also controls these documents.

*All software tools described in this guide and all remarks related to the product pertain only to the Advance Steel suite and for reading simplification only the generic name **Advance** is used.*

Where to find information?

Advance has a help system that offers step-by-step instructions for every function.

To access the help:

- **Tools** tab, **Tools** panel: click the arrow on the bottom line to expand the panel and then click ❓ .
- Instant help: press **F1**

INSTALLATION

System requirements

To successfully install Advance Steel certain requirements have to be met.

For more details, see the Installation help.

Starting the installation

Before installing Advance Steel:

  – Make sure you have administrator rights.
  – Close all active Windows applications.
  – Disable the antivirus

STARTING ADVANCE STEEL

To start Advance Steel:

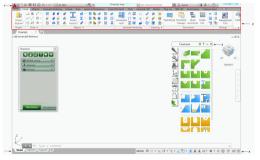– Double click on the **Advance Steel** Icon on the desktop.

Or

– On the Windows task bar, click , then select

All programs > Autodesk > Advance Steel 2015 > Advance Steel 2015

ADVANCE STEEL USER INTERFACE

Advance Steel is fully integrated into AutoCAD®. Advance Steel panels are added to the AutoCAD® ribbon.

1. Quick access toolbar

The Quick Access Toolbar provides fast access to the most frequently used tools. The set of available tools can be extended.

To add an Advance Steel ribbon button to the Quick Access Toolbar, right-click the ribbon button and select **Add to Quick Access Toolbar**.

It can be placed above or below the ribbon.

2. The ribbon

The ribbon contains a collection of panels grouped on tabs, according to type. For easier access, the main tools are placed on the **Home** tab.

On the panels, the buttons are grouped on different rows and include large buttons for the most frequently used functionalities.

Some panels can be expanded by clicking the arrow on the bottom line.

The ribbon can be minimized, thus enlarging the drawing area.

3. Tool palettes

The tool palettes contain other tools, complementary to the functionalities available on the Advance Steel ribbon.

4. Command line

Advance Steel commands can be entered using the keyboard. Press <**Enter**> after each entry.

5. Status bar

The status bar displays information regarding the program status during different phases of the project. It also contains buttons that provide access to the configuration of certain parameters: snap modes, object tooltips content, current coordinate system, and working units.

Other important tools for using Advance

- To cancel a command, press the **Esc** key.

- The current command and prompts are displayed in the command line window at the bottom of the screen. Press the **F2** key to open and close the command line window.

- The right mouse click behaves like the **Enter** key.

- When the cursor hovers over a ribbon button, the button's tooltip appears.

- The **Undo** command on the **Quick access** toolbar cancels one or several commands.
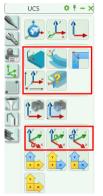

- The **Match properties** command copies properties from one object to another. The transferred properties are selected from the given list.

Advance UCS

Advance objects are created in 3D-space using the appropriate tools and their orientation is dependent on the current User Coordinate System (UCS). To place the coordinate systems in the correct position use the buttons on the Advance **UCS** tool palette.

Accessing Element Properties

When creating an Advance element, a dialog box appears in which different settings (geometric sizes etc.) and drawing styles (e.g., dimension/label on the drawings) can be changed.

The settings in the dialog box are sorted on different tabs that vary with object type.

There are several ways to access the element properties:

- **Tools** tool palette: Click .
- Right click the element and select **Advance Properties** from the context menu.

- Double click the element.

3D MODELING

Advance objects

Advance objects are created in 3D-space using various program tools. The object's orientation depends on the current UCS (**U**ser **C**oordinate **S**ystem).
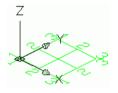
Creating a building grid

The grid is useful for placing construction elements and for orientation in the 3D view. Placing grid axes is the first step of 3D modeling in Advance.

A building grid is created in the X/Y-plane of the current coordinate system and consists of two independent axis groups: in the X- and Y- directions.

The grid axis tools are grouped on the **Grid** panel of the **Objects** tab.

Example: Building grid with 3 axes in the X-direction and in Y-direction

1. On the **Home** tab, **Objects** panel, click .
2. Enter 0,0,0 on the command line to set the first point in the origin.
3. Enter 5000, 5000 to set the second point.

Next, modify the axes number in each group.

1. Select the X-axis group.
2. Right click and select **Advance Properties** from the context menu. The "Axes parallel" dialog box appears. All modifications are made here.

To modify the number of axes:

1. Click the **Group** tab.
2. Set the **Number** to **3**. Note that the distance value is automatically calculated. The new value should be **2500**.

The model changes dynamically as values are entered or new values are selected, providing instant visual feedback.

Repeat the same steps for the axes in the Y-direction.

Creating beams

Beams are created directly in the model and are displayed, by default, in the 'wireframe' mode.

In Advance, a variety of different beam types are available. Beams are created as simple sections, compound sections, curved sections or welded sections.

The beam creation is performed using the tools on the **Beams** panel of the **Objects** tab.
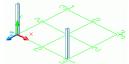
The most used beam creation tools are grouped on the **Objects** panel, on the **Home** tab.

Straight beams

Entering a starting point and an end point creates a straight beam in the Advance 3D model relative to the current user coordinate system (UCS).

The current user coordinate system (UCS) determines the position of the sections' main axes: the web of a beam runs in the Z-direction of the UCS (i.e., the 'top' of the section is in the Z-direction).

Example: *Creating straight beams HEA 200 x 2500 mm long*

1. Click a suitable UCS. Refer to the above figure for an example.

2. On the **Home** tab, **Objects** panel, click .
3. Select a starting point at (0,0,0).
4. Move the mouse pointer upwards in the Y-direction (the setting ORTHO causes an exact orientation entry) and enter 2500.

The "Beam" dialog box appears. Select the section class (HEA), followed by the section (HEA 200).
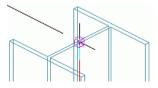
Curved beams

The current coordinate system determines the position of the main beam axes. The curved beam web runs in the Z-direction of the current UCS (i.e., the 'top' of the section is in the Z-direction). The created curved beam can be rotated 90° about its system line.

📖 *Example: Creating a curved beam between two columns*

1. Select a user coordinate system as shown in the figure above.

2. On the **Home** tab, **Objects** panel, click .

3. Use the upper system line end points of the columns as the start point and end point.
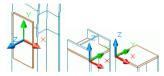
4. Define the radius of the curved beam with a circle point.

⚠️ *The circle point must be defined in the X/Y-plane of the coordinate system.*

5. Select a point at any radius and then specify the desired radius on the **Positioning** tab in the dialog box.

| Radius | 2500 |
| Tolerance | 2.00 |

Plates

Plates are created in Advance in almost all shapes and sizes in any plane. The plates are placed in the X/Y-plane of the current coordinate system.


The tools to create plates are on the **Plates** panel of the **Objects** tab.

The most used plate creation tools are grouped on the **Objects** panel, on the **Home** tab.

📖 *Example: Creating a rectangular plate using a center point*

1. Place a coordinate system with the X/Y-plane in the desired plate plane. Select the middle point of the outer column flange.

2. On the **Home** tab, **Objects** panel, click .

3. Set the plate center point by selecting the UCS origin or by entering the coordinates.

The plate is created with a default length, width, and height.

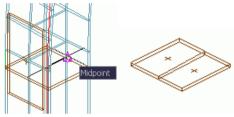4. Specify the size on the **Shape & Material** tab in the properties dialog box.

| Width X | 160.00 |
| Length Y | 300.00 |

Splitting / merging – plates

Existing Advance plates are divided into two or more plates using a polyline or two points. All plate features are maintained.

Example: Splitting a plate using two points

1. On the **Home** tab, **Objects** panel, click .
2. Set the first point by selecting the midpoint of the plate edge.
3. Set the second point by selecting the midpoint of the opposite edge.
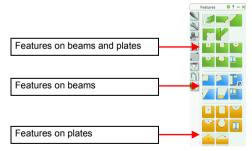
The plate is split.

Beam and plate processings

With the Advance processing almost any beam and plate contour can be created. Beams and plates can also be processed by another element (e.g., a beam).

All processing tools are located on the **Features** tool palette.

Features on beams and plates

Features on beams

Features on plates

Processings are displayed as green contours in the model. These features are Advance Objects that cannot exist independently (i.e., they belong to a member).

⚠️ *Processings are displayed only in the **Features** representation mode.*

Example: Creating a notch

Given the following situation:

Column:
HEA 200
Compound section:
Double channel – back to back – U 220

1. On the **Features** tool palette, click .
2. Select the beam (in this example it is the column) to modify at the referenced end.
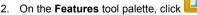
The notch is created and the properties dialog box appears. The beam can be modified to conform to specific requirements. For example, enter the notch width and depth on the **Shape** tab.

Example: Creating an exact casing cross section

A plate is processed by a beam or by another plate with the **Element contour** feature, on the **Features** tool palette. The type of processing depends on the switch setting on the **Switch** panel of the **Objects** tab.

1. On the **Objects** tab, **Switch** panel, select .
2. On the **Features** tool palette, click .
3. Select near a corner of the plate to modify.
4. Next, identify the element that causes the modification; in this example it is the column.

The plate processing is created. Repeat the same steps for the other plate.

Bolts, Anchors, Holes, Shear Studs

Bolt/hole patterns and shear studs can be created in any plane and are dependent on the current coordinate system.

Bolt patterns create connections between individual Advance objects (e.g., beam/plate or plate/plate).
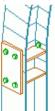
All four connection types, bolt patterns, anchor patterns, hole patterns and shear studs are created with the same commands that are grouped on the **Connection objects** panel of the **Objects** tab. The type of elements to create depends on the switch setting. The icon on the **Switch** panel indicates the active mode.

The most used bolt creation tools are grouped on the **Objects** panel, on the **Home** tab.

Example: *Creating a rectangular bolt pattern using two diagonal points*

1. Set a suitable user coordinate system.
2. On the **Objects** tab, **Switch** panel, select **Bolts**.
3. On the **Objects** tab, **Connection objects** panel, click
4. Select the connected elements: the vertical plate and the column.
5. Define a rectangular area using two diagonally opposite corner points.

The bolt pattern is created and the dialog box appears. The bolt pattern can be modified to conform to specific requirements.

Welds

Welds are created as weld points or weld lines. These objects contain the weld properties and the logical connection between connected structural parts.

Weld points are created as individual elements in the form of a cross whereas weld lines are represented in the model as thick polylines.

Example: Creating a weld point

1. On the **Home** tab, **Objects** panel, click .
2. Identify the connected objects (e.g., one column and the curved beam) and right click.
3. Select the weld creation point and right click.

The weld point is created.

On the **Selection** tool palette, click to display the connected elements. The connected elements are highlighted in red.

Joints

Another option for connecting members is using Advance joints. Joints are intelligent connections that consist of basic elements and dependent elements controlled by construction rules.

All individual joint elements, including their properties, are held together and represented as a gray box connection object.

A structural element creates several Advance objects at a time (i.e., entire structures are created by simply clicking one button).

All parts of a structural element are related to each other and their height, position, section, etc., are changed in one step.

Joints are available in the **Connection vault** which is accessible from the **Extended Modeling** panel of the **Home** tab. The joints are grouped in categories according to the type of individual members.

Frequently used joints can be grouped in the **Favorites** category for quicker access.
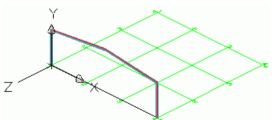
Creating a frame

A frame is created with a few clicks using a structural element.

Example: Creating a symmetrical portal frame

1. Set a suitable user coordinate system.

2. On the **Home** tab, **Extended Modeling** panel, click .

3. Define the first base point.

4. Define the second point.

5. Define the height of the frame with a right click.

The frame is created and the properties dialog box appears. The frame size can be modified to suit specific requirements.

Accessing joint properties

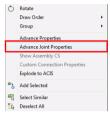To access the joint properties dialog box:

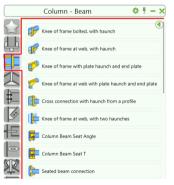- Double click on the **connection object** (the gray box).

or

- Select a joint element and right click.
- Select **Advance Joint Properties** from the context menu.

Rotate	
Draw Order	▶
Group	▶
Advance Properties	
Advance Joint Properties	
Show Assembly CS	
Custom Connection Properties	
Explode to ACIS	
Add Selected	
Select Similar	
Deselect All	

Creating an eaves connection

The knee frame joint connects the column and rafter elements.

The tools for eaves connections are grouped in the **Column - Beam** category of the **Connection vault**.

Column - Beam

- Knee of frame bolted, with haunch
- Knee of frame at web, with haunch
- Knee of frame with plate haunch and end plate
- Knee of frame at web with plate haunch and end plate
- Cross connection with haunch from a profile
- Knee of frame at web, with two haunches
- Column Beam Seat Angle
- Column Beam Seat T
- Seated beam connection
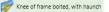
Example: *Creating a bolted knee frame connection with haunch*

1. On the **Home** tab, **Extended Modeling** panel, click [Connection vault].

2. From the **Column - Beam** category, click .

3. Select the column and right click.

4. Select the rafter on which the knee of frame should be created and right click.

A message box appears, which states that no predefined joint for the selected sections has been found in the connection table.

5. Click **OK**.

The joint is automatically created on the selected beams and can be modified in the dialog box.

Copying a connection

Any previously created joint can be used as a template and copied with all its properties.

Example: Copying an eaves connection

1. Select one knee of the frame element.

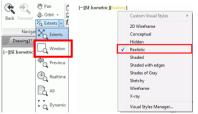The selected connection object is used as a template.

2. On the **Tools** tool palette, click .

3. Select the destination column and right click.

4. Select the corresponding rafter.

When a joint is copied, all its properties and logic relations are copied and the values for the joint are only entered once.

Zoom/Shade

To better view the created connection, use the **Zoom window** tool.

For a more realistic presentation of the model, use a shaded visual style. From the menus on the top-left corner of the drawing area select **Realistic**.

To cancel the shading, return to the **2D Wireframe** visual style.

Cancel Zoom

To view the whole object, use the **Zoom extents** tool. The entire frame is displayed.

Central rafter (ridge) connection

In this example, an apex bolted with haunch is created at the frame summit.

The joints for connecting beams by bolted end plates are grouped in the **Beam end to end** category of the **Connection vault**.
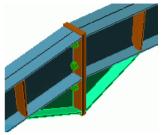

Example: Creating an apex bolted with haunch

Zoom in on the ridge point by entering two diagonal points of a window.

1. On the **Home** tab, **Extended Modeling** panel, click .
2. From the **Beam end to end** category, click .
3. Select the first rafter and right click.
4. Select the second rafter and right click.
5. Click **OK** in the "Attention" window.

The connection is created on the rafters of the frame and can be modified in the dialog box.

Creating a base plate

In this example, a base plate is created at the end of a column. The column is automatically shortened by the thickness of the base plate.

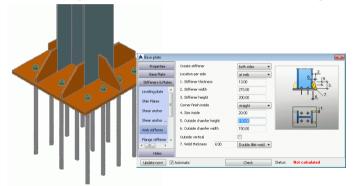The tools for base plate connections are grouped in the **Plates at beam** category of the **Connection vault**.

📖 **Example**: *Creating a base plate with shear section and stiffener*

1. On the **Home** tab, **Extended Modeling** panel, click [Connection vault].

2. From the **Plates at beam** category, select [Base plate].

3. Select the column and right click.

4. Click **OK** in the "Attention" window.

The base plate is created at the end of the column and can be modified in the dialog box. Both the column and the plate are welded together.
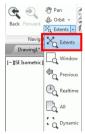

Copying an entire frame
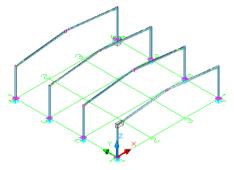
Next, the frame is created and is copied with the **Copy** tool.

Get a complete view of the model

For a complete view of the model, use the **Zoom extents** tool.

1. On the **Modify** tool palette, click **Copy** .
2. Select the entire frame and right click.
3. Select the base point of displacement.
4. Select the target point of displacement.

The frame is completely copied with all properties and connections using just two points. The only requirement is to construct one object and apply it at different positions.

Creating a bracing

In this example, an angle bracing with plate is created.

The tools for connecting bracing members using gusset plates are grouped in the **General bracing** category of the **Connection vault**.
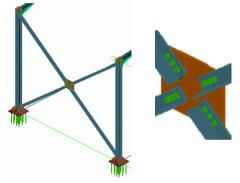
Example: *Creating a bracing*

1. On the **Home** tab, **Extended Modeling** panel, click .

2. From the **General bracing** category, select Angle bracing - same direction.

3. Select **two beams** to connect.

4. Enter four points: the start and end points of the ascending and descending diagonal bracing lines. The starting points are at the bottom of the columns. Zoom in to make sure the correct points are selected using the snap NODE.

The bracing is created and can be modified in the dialog box.

Creating purlins

The purlin tool creates a set of regularly spaced members on the selected rafters. Simply select the rafters and the purlins are automatically created. One option permits the selection of a column to position an optional eaves beam.

Example: *Creating purlins on the selected rafters*

1. On the **Home** tab, **Extended Modeling** panel, click .

2. Select the rafters and right click.

3. To select a column for the eaves beam type 1 and press **Enter**.

4. Select a column and right click.

The properties dialog box appears where the purlin layout can be modified.

Creating a purlin support

Next, the purlin is connected to the rafter with specialized connections.

The tools for connecting purlins to rafters are grouped in the **Purlins & Cold rolled** category of the **Connection vault**.

Example: *Creating a purlin connection on the selected purlin and rafter*

1. On the **Home** tab, **Extended Modeling** panel, click
2. From the **Purlins & Cold rolled** category, select .
3. Select the rafter and right click.
4. Select the outside purlin and right click.

The purlin connection is created and can be modified in the dialog box.

Example: *Creating a purlin shoe for two purlins*

1. On the **Home** tab, **Extended Modeling** panel, click
2. From the **Purlins & Cold rolled** category, select .
3. Select the rafter and right click.
4. Select the first purlin and right click.
5. Select the second purlin and right click.

The purlin shoe is created and can be modified to conform to specific requirements.

Clash check

A clash check tests if there are model interferences. Object interferences might be due to various modifications made to plates, bolts, members and their connections. This tool finds all interference cases so that they are fixed in the model before drawing creation.

The Advance **Clash Check** function checks selected elements or the entire model. Interferences are displayed as red collision solids and listed in a text window.

Example: *Checking the created frame for interferences*

1. On the **Home** tab, **Checking** panel, click "Clash check" .

The Clash check dialog box appears containing the list of all collisions. If there are no collisions, the command line displays "no collision found".
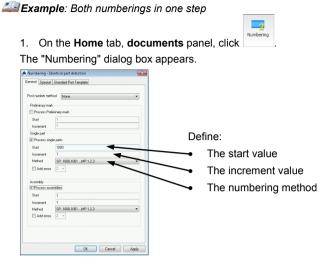
2. Exit the window.

NUMBERING

The Advance numbering tool **automatically** numbers Single Parts and Assemblies for the entire model. The numbering finds **identical parts** that should have the same number.

The numbering procedure is a single button function and works on the entire model or on selected elements.

With automatic numbering all beams and plates obtain a single part mark. All other elements are classified as attached parts. The numbering for single parts and assembly parts is done in one step or separately.

The numbering tools are grouped on the **Part marks** panel of the **Output** tab.

📖Example: Both numberings in one step

1. On the **Home** tab, **documents** panel, click .

The "Numbering" dialog box appears.

Define:

- The start value
- The increment value
- The numbering method

– Activate **Process assemblies** and **Process single parts**.
– For both, select method "SP: 1000,1001…;MP:1,2,3…".
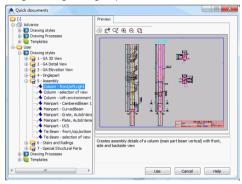2. Press **F2** to obtain the results in the text window.

DRAWING CREATION

The 2D drawings are obtained after the design and numbering of the 3D model.

Advance offers a variety of **drawing styles** for the creation of general arrangement drawings, sections, and shop drawings in various designs.

A **drawing style** is a group of instructions used to create a detail drawing and defines the elements that are displayed including labeling and dimensioning preferences.

The predefined drawing styles are different for each installation and country. Custom drawing styles are defined using the **Drawing Style Manager**. For more details, refer to the *Drawing Style Manager guide* of the Advance Steel help.

Tools for creating drawings are grouped in **Quick documents**.

📖 ***Example***: Creating an isometric view

⚠️   *Save the model prior to starting the drawing creation.*

The viewport of the created view depends on the active user coordinate system (UCS). The view direction is against the Z-direction of the UCS.

1. To create an isometric view, click ⬆️➡️ on the **UCS** tool palette and place the UCS in the plane of the screen.

2. On the **Home** tab, **Documents** panel, click Quick documents.

3. From the corresponding category, select the desired drawing style and click **Use**.

The "Drawing type" dialog box appears.

4. Change the scale to 1:50.

5. Click **OK** to close the dialog box.
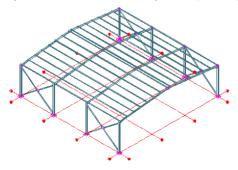
The "Select destination file" dialog box appears.

Set a path for a separate DWG in which the detail is placed.

Select the prototype template.

6. Click **OK**.

The drawing is created and saved as .dwg in the specified path.

Drawing management

The **Document Manager** is used to preview, manage and erase the created details in separate drawings (DWGs).

The link between the model and the drawing is managed automatically. Advance automatically detects the details that require updating due to model modifications. The **Document Manager** also controls drawing updates.
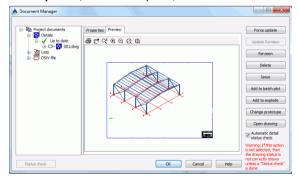
The **Document Manager** controls all dependent details and lists all information (e.g., which model drawings have been created and how many). More than one detail can be stored in a single DWG. The **Document Manager** tree structure shows the details that are in each DWG.

Opening the Document Manager

- On the **Home** tab, **Documents** panel, click Document manager .

- On the **Output** tab, **Documents** panel, click Document manager .

The **Document Manager** lists all created drawings, bill of materials / structured BOMs and the NC-data created from the model. The documents are displayed on the **Preview** tab.

CREATING LISTS

In Advance, lists are created in several different formats.

All model objects including their graphic and non-graphic properties, features and connections are stored and managed by Advance.

A list is created in two steps:

* Create extracts from the numbered and saved models.

* Create structured BOMs from the extracts using the Advance List Template Wizard.

The created BOMs can be saved, printed or exported in several formats.

Example: Creating a model extract containing the beams in the model

1. On the **Home** tab, **Documents** panel, click ⬛ Create lists .

   A window appears where the model objects for the extract can be selected.

   Different saved configurations of model objects

   Select the model objects for the current configuration.

2. Check **Model objects** and then select **Beams** to select all the beams.

3. Click **New** 🔲 on the dialog box toolbar to save a selection set.

4. Select a model object from the list in the dialog box. Enter a name and click **Next**.

The name is displayed in the left field.

5. Click **Apply** to save the configuration.
6. Click **Next** to continue.
7. In the "Select destination file" dialog box, click **OK** to save the file.

If **Create list** is clicked, the information is stored and the List Template Wizard opens automatically to create and print the lists.

Example: *Creating a BOM based on a previously created model extract*

1. On the **Output** tab, **Document Manager** panel, click to start the BOM editor.

An Advance template may be selected or users can define their own templates starting from an existing one.

2. Select a BOM template.
3. Click **Use**.

4.   A dialog box appears. Select the desired model extract.

5.   Click **OK** to finish the BOM creation.

The structured BOM appears. It can be printed, saved, exported to PDF (and other formats) or sent by e-mail using the corresponding icons on the menu bar.

6.   Click **Export**. The "Report export" dialog appears displaying the export options.

7.   Select an export format from the list.

8.   Click **OK**.

9.   Save the created BOM file. A file name is requested in a new window. The BOM file is saved as a Report in the folder

...\[model folder]\[model name]\BOM\[BOMfilename]

This small exercise was a very simple introduction to Advance Steel. With time, your familiarity, speed, and understanding of the power and versatility of Advance Steel will improve as you use the software on real projects.

RECOMMENDED PRACTICES

Saving the project

1. Create a folder structure to store your projects in correctly, create a projects folder and then create sub folders for each project.

In that folder store the model which then creates its own relative folder and required sub folders. This keeps all models and databases separate and avoids conflicts.

2. Create an AutoSave folder location and adjust your system to save your automatic backup files to that known location, keep it simple and at the root of the System such as C:\AdvanceSteel\Autosave.

3. Save your model at regular intervals.

4. Use a suitable *Name* for the Model such as the contract number, project reference or place name. This can be useful later on in the project, as the model name can be listed in the drawing and NC naming and also be linked to the actual file references.

Modeling

5. Always start your model at 0,0,0 in the World Coordinates.

6. Be aware of how you model a beam/section "Right to left" or "left to right", as this can influence how the front and the back of beam are displayed on an assembly drawing.

7. **Columns** – Always try to model so the Z Axis of the column flange is to the outside face of the building for perimeter columns.

8. **System-line placement** – When modelling horizontal members, roof members, floor beams, etc. always try to have the system line in the top of the profile at the middle of the flange. This affects the assembly drawing dimensioning.

For Columns try to keep it in the center, unless you have a specific need for one column flange face to be at a set location, as this means that if you change section then the change in size goes away from that face. So the flanges still remain in line. This is sometimes used where cladding is applied directly to hot rolled steel flanges.

For purlins and Rails, try to keep the system line to the bottom face nearest the supporting beam, as then if the size changes for the rail, the difference goes outwards, rather than altering the hot rolled frame set-out.

Always try to make sure your system lines meet for beams columns etc. This is like you wire-line in the model and with this it

is easy to check the primary position of and object, also the system line is used as the datum for the dimensioning of the Drawings and in other aspects of the modelling.

9. Remember your UCS; this is a vital tool in placement and orientation of objects within the Advance Steel environment.

10. For complex setting out of a building, say radial etc., always try to have some reference/construction line geometry in the system, create a layer and place it in there, it can be turned off, but is always there for reference.

11. Before you model a beam type, like poly-beam, or curved beam, consider how you are going to manufacture it and more importantly how you are going to detail it.

✓ For simple curves use curved beams, rather than poly beams

✓ For complex beams, that may appear too easy to create as poly beams, look at how the original shape line is created. Is it from a series of curves of known radii, if so, model it as a series of curved beams as you will buy it as curves and then weld or joint together. Poly-beams do not lend themselves to being dimensioned as radii; they work on points based upon the references they were created from.

KEEP IT SIMPLE – SIMPLE TO MODEL = SIMPLE TO MAKE.

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12. Note the difference between holes and contours, make a decision on how the hole will be produced, drilled or cut out via cutting torch or profiler. This affects drawings and NC processing. For drilled holes use the Hole commands. For profiled holes use the Contour commands. The size of the hole makes no difference to how the NC describes it.

13. Assess your project before you start, look at how you are going to build the structure, how it is going to be delivered, where are you starting from, craneage etc. You can model it in Advance, but you are the one driving it, it goes where you steer it.

14. Try to use Macros where possible for Joints. When using macros, if you create a joint and think you may use it again somewhere, store it in the table with a suitable reference. For example bracings, you can set one up for Flats and one for Tubes, save each to the table and then when inputting bracing you can just select that default.

15. Use project Explorer to manage the model structure, set up views so it's easier to work on plan or elevation at a time.

16. Always use model roles, as this defines the prefix in numbering and also has influence with the drawing output. The drawing styles link to the Model roles to set the style within the process.

Numbering

17. Use the standard numbering rules set in Advance Steel and try to work with those, always let program update the model numbering, DO NOT MANUALLY NUMBER UNLESS YOU HAVE TO, this can lead to problems.

18. If model is not complete, then try numbering using the Lot/Phase option with the box ticked. This means that the existing part of the model will have unique numbers. These numbers will not be used elsewhere in the model in later phases. This means you can carry on modelling and then just renumber at a later stage and numbers / items from phase 1 will not alter their numbers.

19. Use the preliminary numbering of the model; adjust the BOM lists to include preliminary numbers. These references never change and can be a good way to track items whose final number has changed. For example if pre ordering curved beams this reference can be used to track that component.

Creating drawings

20. GA Drawings

Think about what you want before you start, map out how you are going to approach the drawings. For example floor plans first in level order, from ground up, then Elevations going around the building, Sections through the building, local details of special joints / typical joints, 3D Views of model. Lot phasing 3D views.

Plan it on a piece of paper, make a list, assign the drawing numbers for GAs to follow this pattern, so you may have 5 drawing for plans, 4 for sections, etc.

Think about the SCALE on the paper, can you combine two elevations onto one drawing etc.

21. Parts Drawings

Think about how they are going to be manufactured – in house, sub contracted off profilers etc., all ordered in at once or in phases. This may change the paper size you choose to produce the drawing on. A3 or A4 single item, puts each part on its own drawing, makes it easy to send, each drawing is relative to each part and that part only.

22. Assembly drawings

Think about how they are going to be fabricated – all in one shop, subcontracted to various workshops, in phases etc. Sometimes easier to do single drawings for each assembly, as can be fitted onto smaller A3 size, most small fabricators only have limited printing facilities, so sending A1 drawings can mean that they print of at vastly reduced size leading to mistakes, omissions or lots of phone calls to clarify what something is. So set up to smaller sheet to start with a larger scale to show the details clearer.

23. Check the drawings – sometimes things get missed or mixed up in the model, and are not always picked up. Use the drawings to check what is being produced. A quick review can save you time and money in the long run.

Lists

24. Filter the model to produce lists for required items; use the lists that are set for Curved Beams, plates, beams. Use the list to check the model and that you have done all the drawings and things don't get missed.

NC files

25. If you want only plates of a certain size then use search filter to find and select them, then create the NC files. You can adjust the naming of the files and details shown on the hard stamp to include things like thickness, number off etc., using the defaults.

26. Be aware of the Defaults in the Management Tools; there are many settings it there that can be adjusted to change the out-come of drawings and modelling etc., depending upon what you require.

27. When building onto an existing structure this can be modelled in Advance, but you must remember to set that structure so that it is not used for the Drawings or BOM. These settings are on the **Behavior** tab in the object properties dialog. What this does is set it so that when the model is numbered, these existing components are numbered but with a negative value and are not consider for drawings or material lists.