GRAITEC MODELING THE FUTURE

# What's New

## in PowerPack for Advance Steel 2024

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# 1 Welcome to Graitec PowerPack for Advance Steel 2024

GRAITEC is pleased to present the latest version of Advance PowerPack for Advance Steel 2024, part of the Graitec Advance Suite.

## *1.1 Compliance with Autodesk Advance Steel 2024*

The PowerPack for Advance Steel 2024 is compliant with Autodesk Advance Steel 2024 and 2023 versions.

The PowerPack for Advance Steel 2024 can be installed using the **Setup PowerPack for Advance Steel 2024.**

This option will **install version 2024 of the PowerPack** on **Advance Steel 2023** and **2024** if the previous version is installed.

## *1.2 Installation*

Regarding the installation of the PowerPack version 2024, please follow the following guidance

1. **Open Advance Setup 2024** of PowerPack for Advance Steel – the setup will automatically identify the installed software. All you must do is press **'Install'** for the update to take place.

*Advance Setup 2024 installer popup*

# 2 Introducing New Features

With the 2024 version, we continue our focus on providing tools to allow better document management and model creation, with the introduction of several new tools for document creation and naming, with improvements in Stairs and Railings tools.

Many users request improvement in generating **Batch plot outputs to PDF format** and better control of the **file naming of the PDF's**. For this version, we introduce the **Graitec Easy batch plot** to complement the existing AutoCAD Batch plot publish command.

In the **Structures Vault**, we introduce the **Transmission Tower Designer**, a new tool that allows for the creation of a steel framework, aligned to the Transmission Line Industrial requirements. This tool is a framework generator, that aligns with our other Structures Vault tools for frame creation.

For the **Camera Browser**, we introduce a small improvement to allow access via the **contextual menu.**

We continue our commitment to the **Stairs and Railings industry**, adding some new options to those macros. **For Stairs** and the **Concrete Pan Tread type**, we bring the **closure feature to the first tread**. For Treads in general we improve the **Bolting options** to **allow for Site/shop options**, a much-requested user improvement. In the **Stair Nosing bar option**, now there is the **option to include a contour cut-out** to remove the clash and allow the user to insert the nosing bar into the tread shape.

We introduce a new stair construction type, **Concrete Stair Macro**, that will allow the user to create **multiple flights arrangements** and allow for the **replication of identical layouts and height configurations**, for multi-storey instances.

For **Railings,** there has been more of a focus in this version, with new options to allow the user to **Split the Kickrail** element, along with an option to **disable the Kickrail for sloped segments** of a railing. Regarding **Railing Base plate fixtures**, we have improved the control of the **hole type selection and tolerance values** allowing the user more control over these options in the joint macro.

For this release we introduce an **Online Help portal**, that is accessible from the PowerPack commands. This portal will replace the previously inbuilt help system, with this new system and **allows content to be added for new features** and **links to various other online resources**, such as quick start guides, dedicated help guides, videos, as well as the dedicated command help. This is the first version and will allow us to address the provision of help content in a dynamic method to the user base.

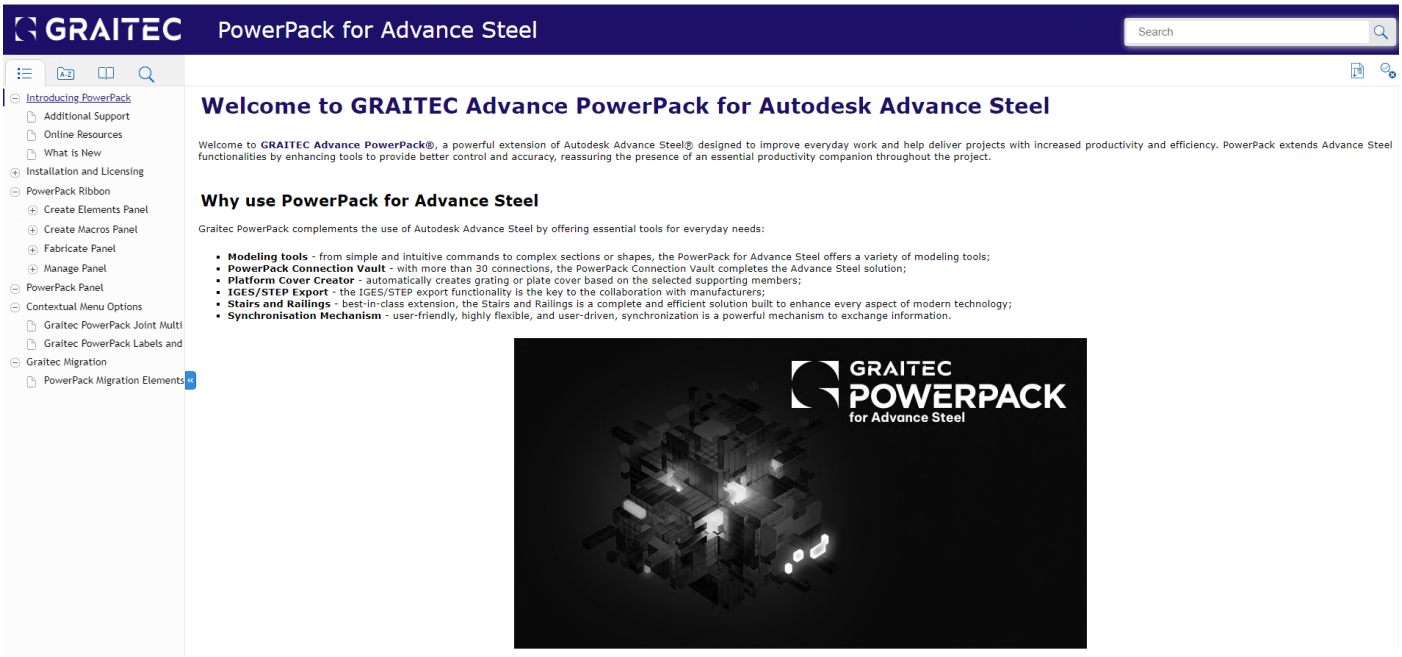
# 3 Online Help Portal

The Powerpack for Advance Steel now has an online help portal, this new portal has been created to connect to the Powerpack via the Help command found on the Powerpack ribbon and via the **F1** Help tool tips.

The portal will provide content relative to the powerpack, the structure of the portal follows the command structure of the ribbon and platelets used.

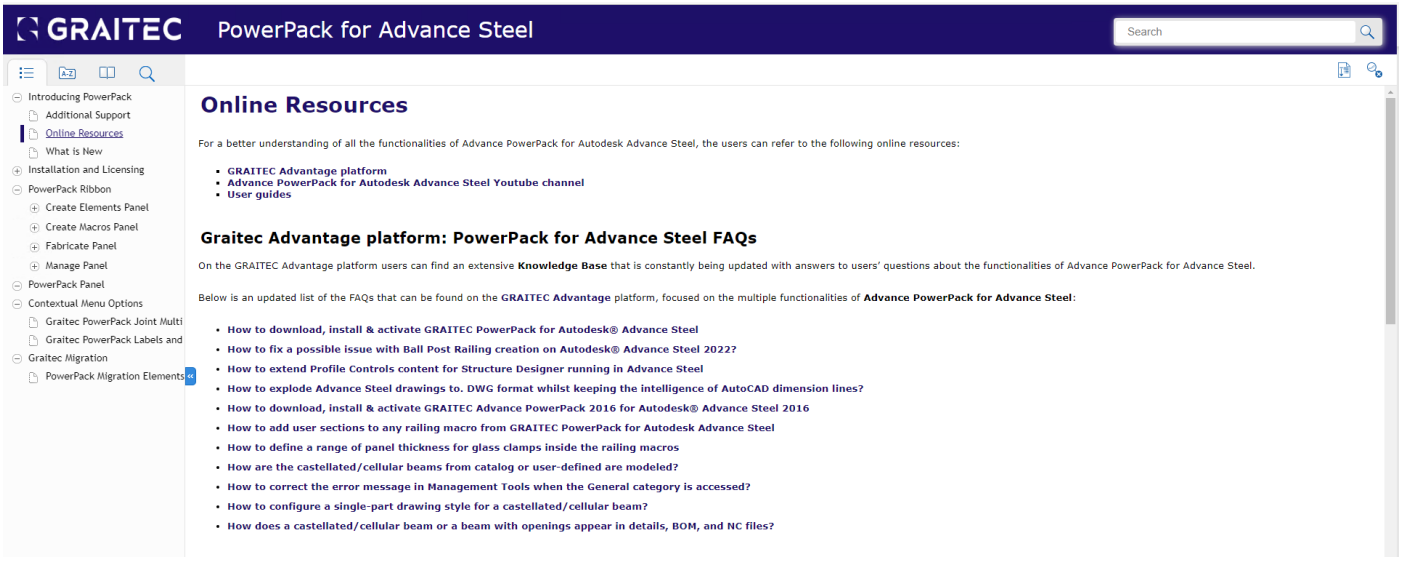
**Advantages:**

- This portal allows us to continually review, add new and update existing content as the Powerpack evolves.
- Users see the updated content, as soon as it is released, via the portal.
- Link to online portal: [PowerPack for Advance Steel (graitec.com)]



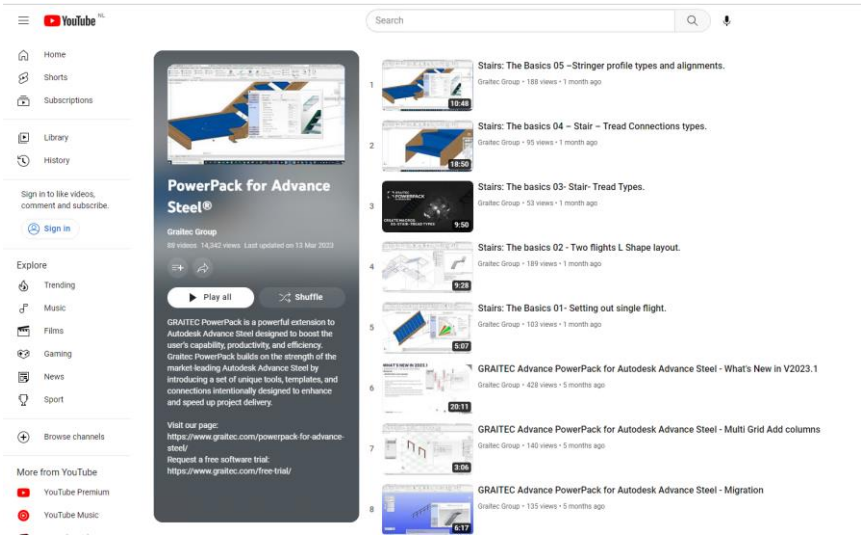

*Online Help Portal: Main start page*

- With built links to Additional support, online resources and previous What's New guides.



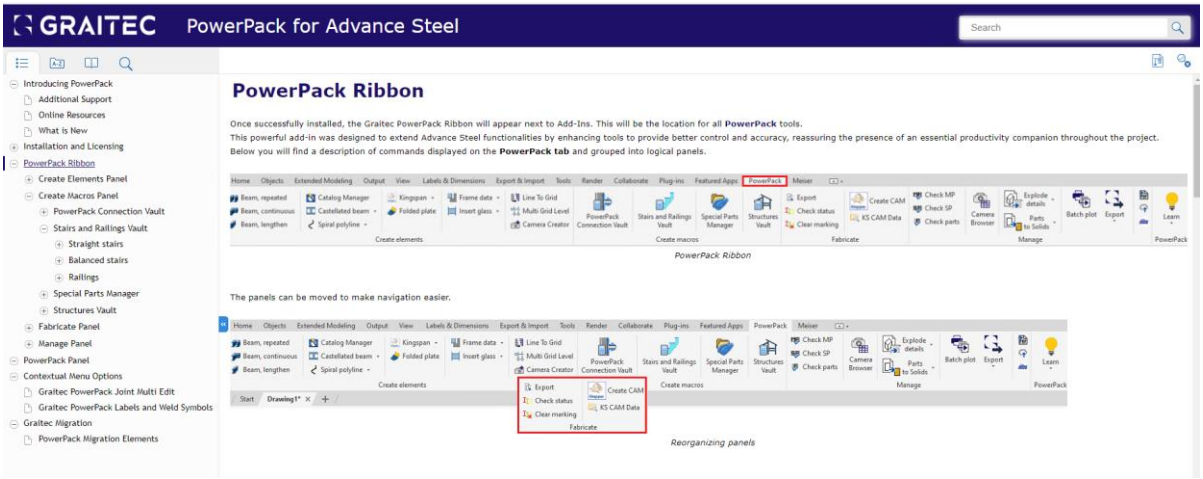

*Online help Portal: Online resources page*

- With further links to the Graitec YouTube '[Powerpack for Advance Steel]' playlist.



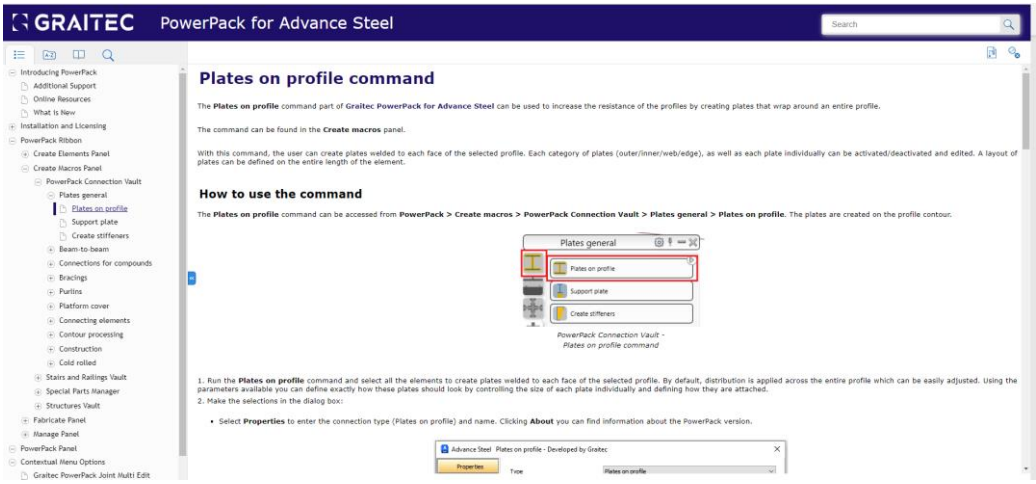

*Powerpack for Advance Steel YouTube page*

The help is structured around the Ribbon arrangement with sections created to follow panels, then the various commands and palettes. Access is via the Browser Tree dialog to the left of the webpage.




*Online Help Portal: Powerpack ribbon page*

Selecting a branch of this interface will browser to the content page via the portal:




*Online Help Portal: Sub-branch page example*

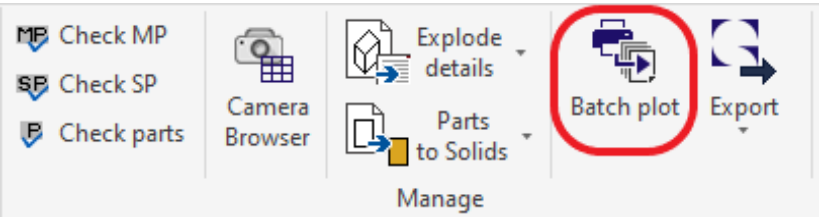
# 4 New PowerPack Features

In the 2024 version, we have several new features and we will expand upon the functionality of these below:

## *4.1 Easy Batch plot*

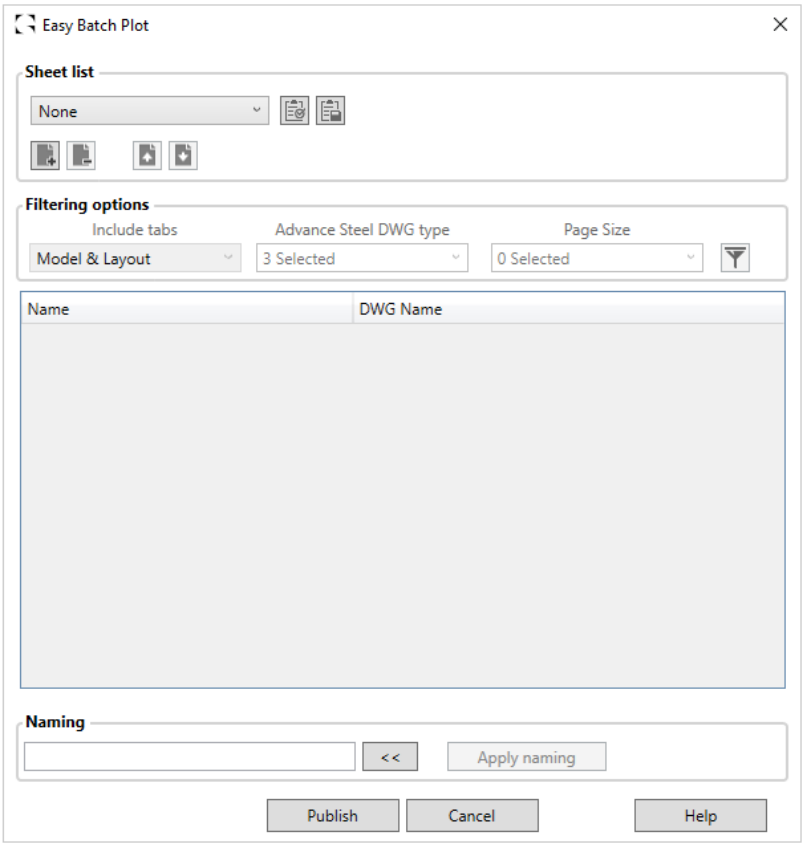
The **Easy Batch plot** command allows the user to preselect, filter files and control the naming conventions before using the standard AutoCAD batch plot ( *_Publish* command). The command works in conjunction with the AutoCAD functionality to enhance the experience for the user and allow control over file naming and file selection.

The command is located in the **Manage panel** of the Powerpack Ribbon, selection of the command button will open a dialog window for the user to add, save, remove files, or load previous DSD lists for further integration as required.




*Easy batch plot: ribbon location*

Main dialog window for the user to interact with:




*Easy Batch Plot: main dialog window*

**Advantages:**

- The **Easy batch plot** brings many advantages to the users of Advance Steel, to influence their final output files for printing and electronic transfer, highlighting key ones below:
- **File Renaming**: To remove unwanted text automatically generated by standard plot routines.
  - **Tokens** used from Advance Steel in the file name.
  - Combination of **Text and Tokens**.
  - All files or a selection of files
- **Filtering** of loaded drawings files:
  - **by layout/model**,
  - **by drawing type**
    - Assembly
    - part
    - GA
    - or combination
  - **by size**, if you have only a printer able to print certain paper-size files.
- **DSD file Creation:** to store a set of files, with filters applied and naming, for publishing repetition.
- **AutoCAD _Publish (Batch plot)** command utilizes the command which enables you:
  - **Background publishing of AutoCAD**, meaning you send it to the publish command and continue to work in the model/drawing foreground.
  - **Access** to all the **publish command options**:
    - plot stamps.
    - Multi or single-sheet file options.
    - file names are generated without the layout reference.

## 4.1.1 Easy batch plot: how to use

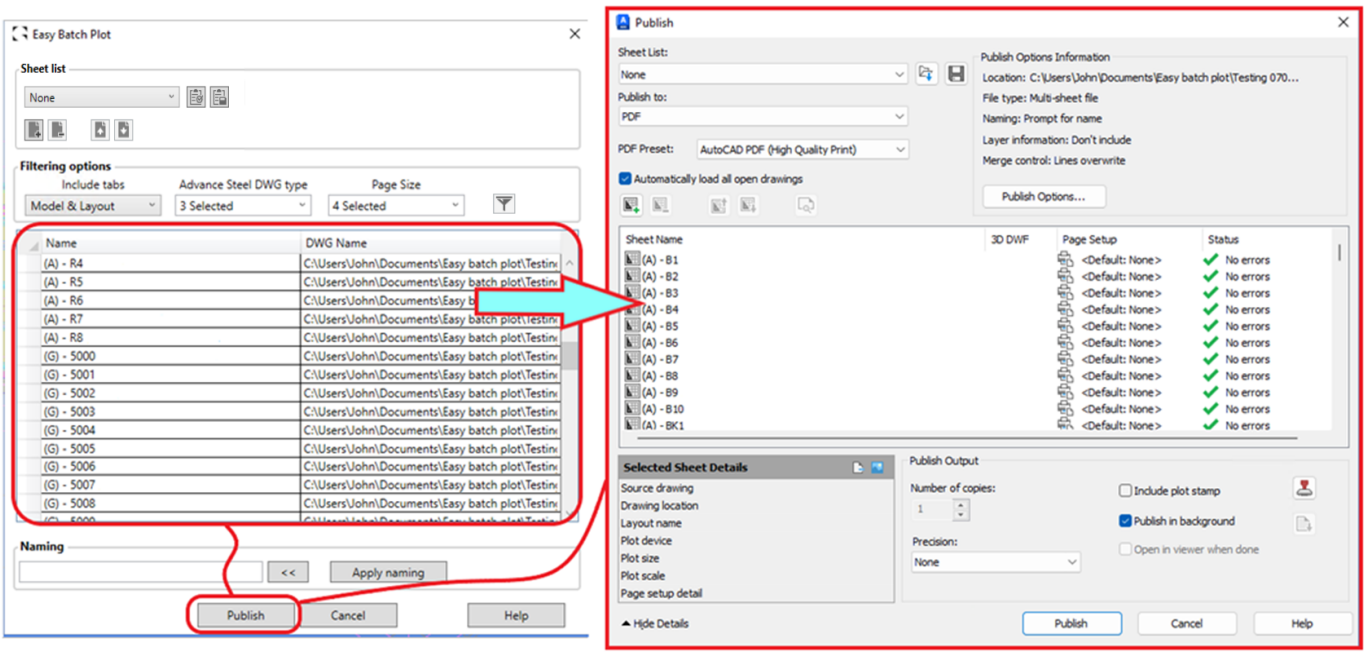
The command is developed in such a way as to follow the conventions applied in AutoCAD batch routines, in that the user can add and remove files as required via a selection dialog. These files can be further then filtered using options that are directly related to Advance Steel, by the drawing type and sheet size.

### *4.1.1.1 Easy Batch plot process:*

The basic process is outlined below, there are multiple options and combinations which can give many different scenarios.

1. Have the model from which the documents are derived open, in the session.
2. Select the command from the ribbon.
3. In the dialog select the **Add files** icon, then from the selection window, highlight the files required and add them.
4. Under the **filter** panel, the user can select the combination of filtering options and then apply them.
   - For this example, filter to Layout, Assembly, and A3 page size.
5. Under the **list panel**: the sheets shown are then reduced to reflect the filtering applied.
6. Below the list table panel is the **Naming field**. The user can type in a text, copy in text from an existing file name, and **access the tokens button** to see the list of available tokens, adding this to the naming string.
7. Returning to the sheet list window, the user can select a File, Series of files, or leave unselected, for all files. With the file selection active, then apply the naming, using the **'Apply naming'** button the file names are updated.
8. After this point, the user can choose to store the list as a DSD file or at an earlier point if they so wish to recall. Or they can proceed to publish.
9. Below the naming panel, the user selects the **Publish** button to send the files to the AutoCAD publish command (Batch plot). The easy batch plot dialog closes and the AutoCAD _ publish command opens, with the files, added to the sheet list of that dialog.

10. The user can now process to follow the available options to complete the batch plot process, with the advantage of the corrected file name and the options for background printing, single and multi-sheet creation, etc.
11. The files are stored in a dedicated folder **'Printed documents'**, created under the relative model folder.



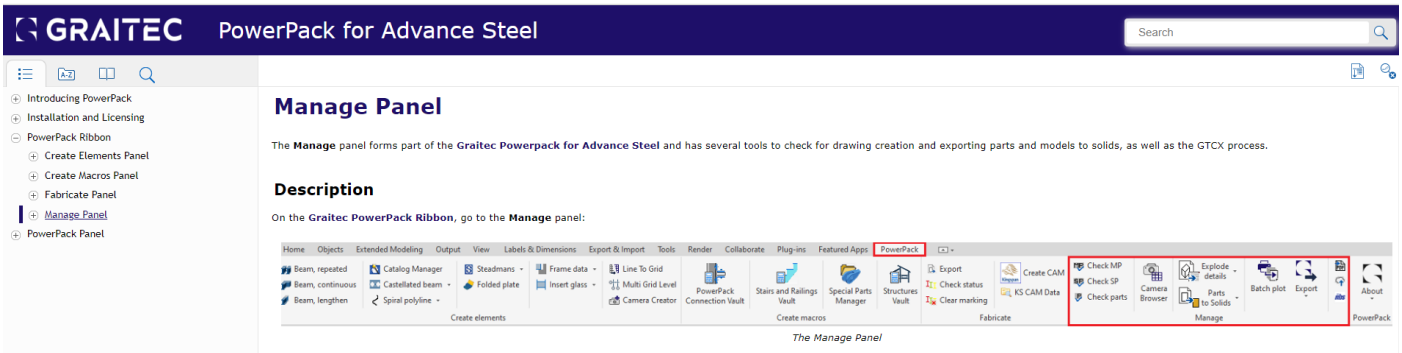

*Easy Batch Plot: Transfer to AutoCAD _Publish command*

**NOTE:** *The '_Publish' is an AutoCAD command and the functionality is as per that command. There is no alteration or interaction over this command other than what is in the standard dialog.*

## 4.1.2 Easy batch plot: Command help and user guidance

With the introduction of the **online help portal**, there will be a section there relating to the **Easy batch plot** command, this can be found under the **Manage** panel.

Please refer to this for more in-depth help and understanding of the command shown briefly above.



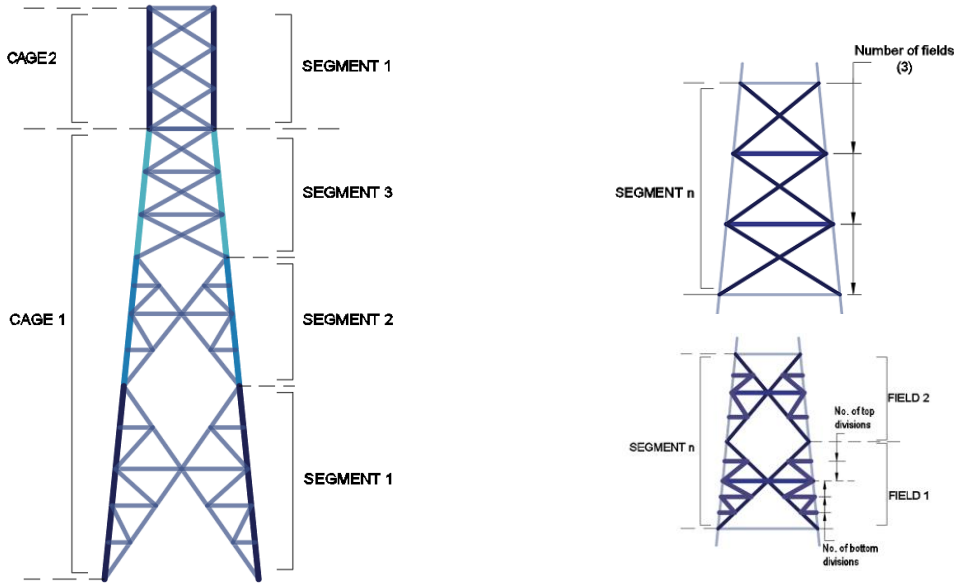

*Easy Batch Plot: online help page*

## 4.2 Tower Designers: Transmission Towers

We introduce a new element to the Structures Vault for this version, the **Towers Designer Tab**, with the Transmission Tower command. This command allows the user to create the basic structural framework associated with this type of construction method, based on a four (4) type for this release.

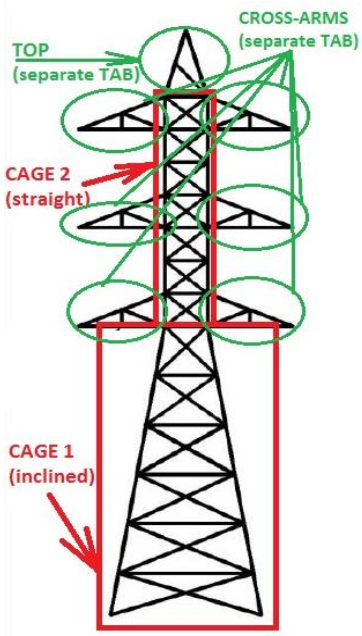
The **Transmission Towers** is a **Structure designer derivative macro**, a new tool that allows the creation of the framework associated with this type of structural detailing. The macro provides several features to control the arrangement of the tower, combined with several bracing schemes within the overall structure.

The tower macro is based upon the following basic schema for construction.




*Towers: Cage & Segments schemas*

With additional features for Cross Arms and Tower Top options.




*Towers: Overall arrangements*

The Transmission Tower macro is based currently upon a rectangular base plan arrangement for this version, then a series of cages and segments, with the option to apply bracing elements within the fields of those segments, based upon several divisions between the fields.

The geometry of the macro is based on the world coordinate system in the positive Z direction.

The dialog is built to make use of the Magic Tree macro style from Graitec and expands according to the options selected.

The main cage arrangements can be sloped or vertical or a combination of each type, based upon the Cage segment.

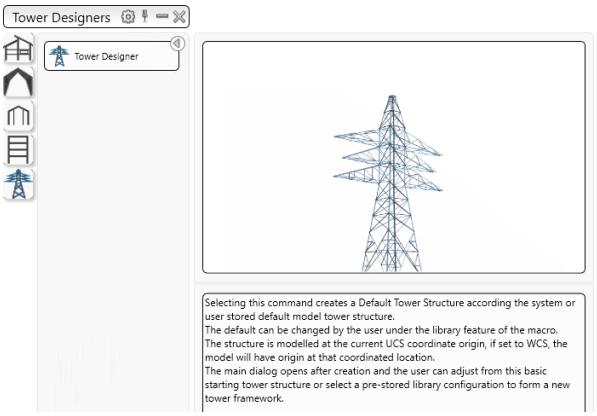
There are elements in the macro for the creation and placement of Tower Arms and a tower top element.

**Advantages:**

- The macro combines a series of macro elements to control the complex structure associated with towers. Before there were no options in the core platform that provided this combination of tools in one macro.
  - Automation of Tower Creation.
  - Numerous Bracing schemas.
  - Multiple options for tower configuration.
  - Multiple section size selection, combined multiple alignment options.
  - Library for standard configs.
  - Macro can be copied using Advance Steel copy tools if multiple locations are required.

### 4.2.1 Transmission Towers command location

The towers command is located under the **Structures palette**, with a specific tab for **Towers Designers**. Select this and then the **Command button** and the **towers designer command** will start. The creation of the tower is based upon the Current UCS 0,0,0 location, typically a user would start at WCS.




*Towers: Tower Designers Command button*

### 4.2.2 How to start with transmission towers

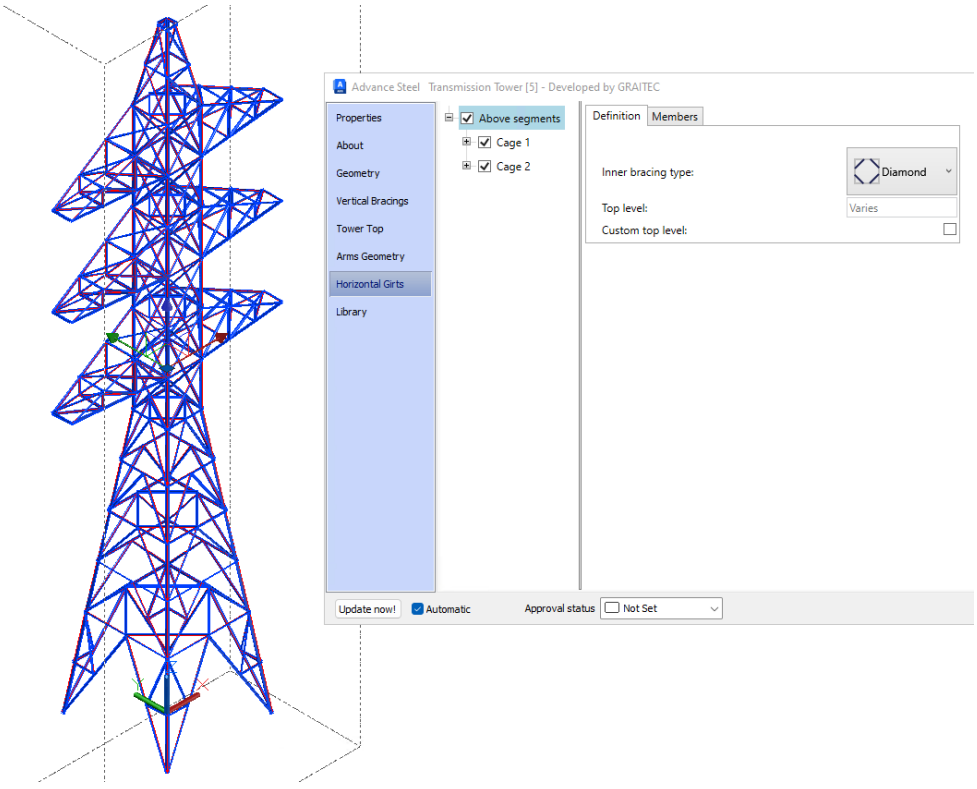
The Transmission tower macro will generate a tower structure at the current User coordinate system location if set. If not then the WCS will be used.

The basis of the macro is to outline the Cages in the towers, then the bracing, followed by the tower arm definitions. There are multiple variations of these configurations, but as a **quick Start reference**, outlined below is an initial tower structure.

**Quick Start :**

1. Select the command from the palette, the initial tower cages are placed into the model at the 0,0,0 UCS location (WCS).
2. On the Geometry tab select the Cage 2 button, then under the Cage Height change to 15000mm.
3. Change to the Segments sub-tab and under the 7. Number of segments change to three (3), from 2, the table below is redivided.
4. Change to the main tab of Vertical bracing. In the sub-tab of Bracing type, change the tree to Cage 1, expand to Segment 1, and change to Bracing type to 'K type' and then Web bracing to 'S type'
5. Remain in cage 1, but change to segment 2, Set bracing type to 'K Type' and under the 1. Number of fields change the value from 1 to 2.
6. Remaining in cage 1, change to segment 3 and then use the option to copy settings from Segment 2 to Segment 3. This is via the contextual option of using the right mouse button and selecting 'Copy from Segment 2'.
7. Changing now to cage 2, expand the tree to see the segments. But remain highlighted on Cage 2 level, select from bracing type 'XH type', then under '1. Number of fields', change the value in the segment from '1' to '2'.
8. Changing now to the 'Tower top' main tab, select the 'Enable Tower Top' and check this box for the top cage to appear. Remaining in that Tab, and under the Definition sub-tab, select the '1. Height' change this to '4000.00mm'. Then change to Bracing type and under the selector for bracing change to 's Type', and ensure the last diagonal is checked below.
9. Changing now to Arms geometry main tab, select from the Tree, the 'Cage 2' and expand the tree to see the segments and fields. Under Segment 1 and at Field 2 level, check the box to enable the arm in Cage 2 at that level. This can then be repeated for remaining cage segments, by enabling the same checkboxes.
10. Under the horizontal girts, it is possible to change the pattern of the girts arrangements. For this example, we will leave it as default arrangement.

This will create a very basic tower. There are many other options for the users to explore under this macro, with different combinations to achieve many different variations in tower design.

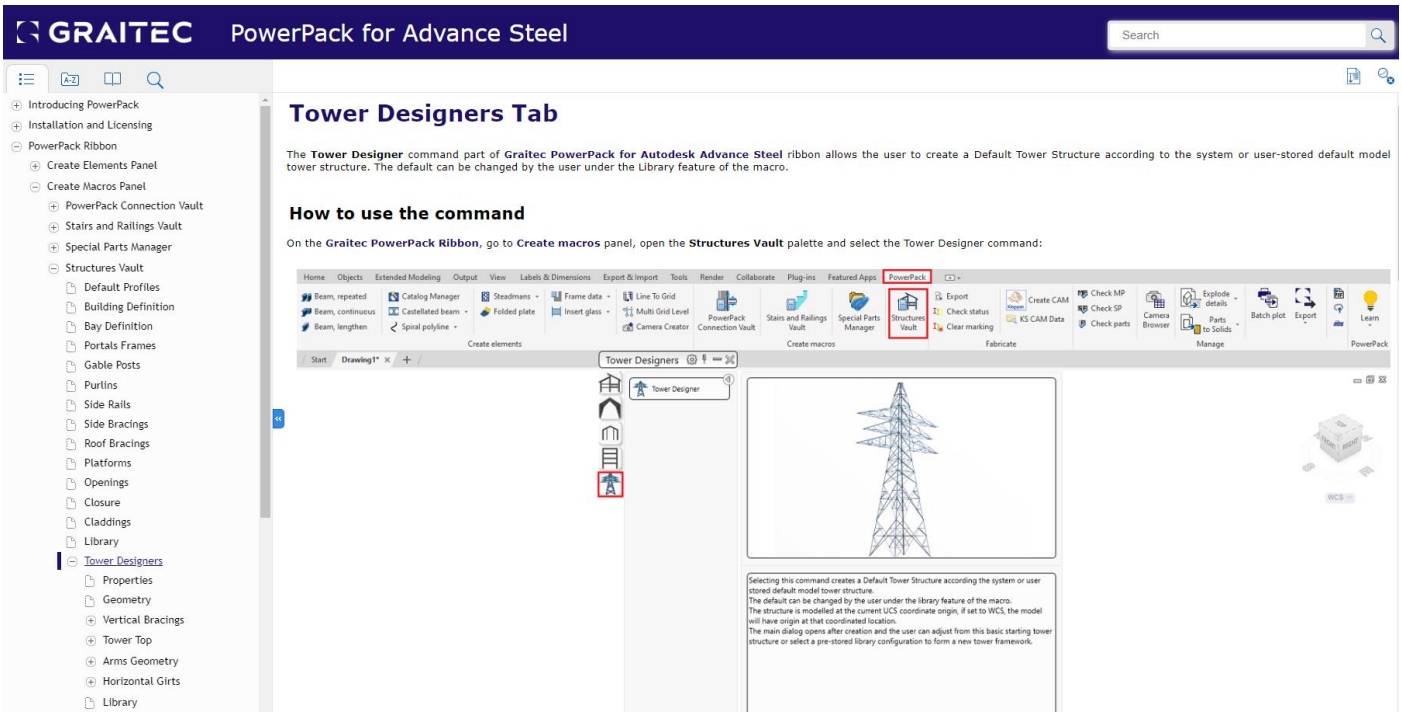



*Towers: Example Tower and Dialog tab*

### 4.2.3 Transmission Towers Command help

To complement the understanding and use of the macro as part of the **online help** there is an explanation relative to the '**Command Help**' to explain the operation of the many functions related to the macro.

This segment can be found under the 'Structures Vault', under the segment for tower designers.

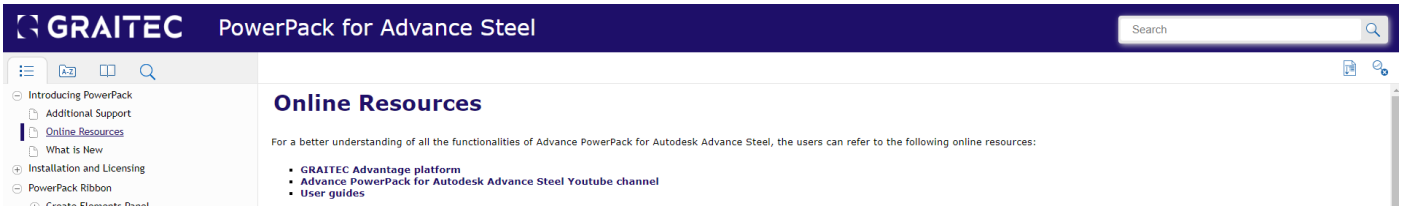



*Towers: Online Help page*

As the user can see, the macro uses the dialog to drive the creation of the entire structure for the tower, each cage, and its segments, then fields, etc. This is then combined into the tower vertical bracing schemas. The different fields allow for tower arm arrangements to be added, these, in turn, have their bracing schemas and control items. The final element is the tower top, where it is possible to add this cage element and combine it with tower arms at the cage top.

To compliment this there is a guided walk-through under the '**Online resources'** on '**How to use the towers',** found under the User guide's segment.

The document will explain how to achieve a tower configuration that explores the basics of the macro, through the placement of a series of elements, there are many other combinations and possibilities within the current tool, so this guide is only the starting point for the user to explore those.




*Towers: Online Help, Additional Resources*

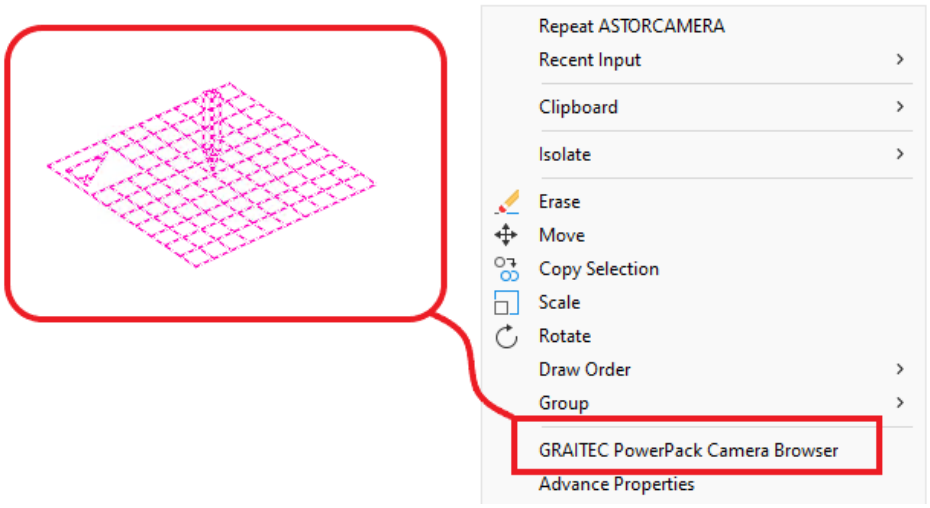
## 4.3 Camera Browser-Contextual Menu

For the **Camera Browser**, the user now has the option that allows access to this management feature via the contextual menu, thus allowing the user easier interaction with the tool.

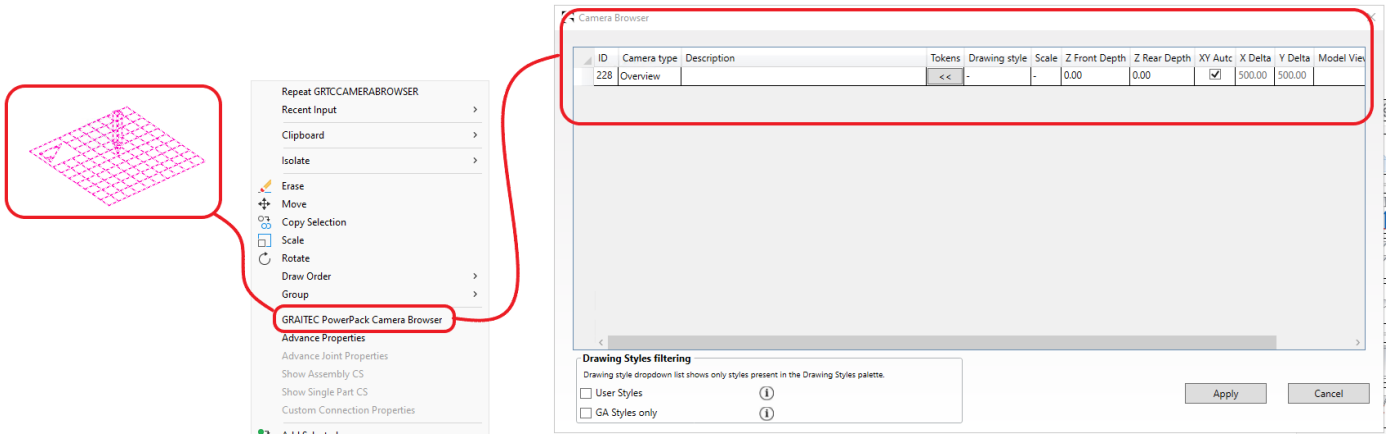
The method is to select items model using a standard AutoCAD selection method using individual selection or crossing windows methods, with items selected, then access the **contextual menu** and the **Graitec Powerpack Camera Browser** option will be present. Select this to open the browser interface.

**Advantages:**

- Easier access to the command for the user, from the model space and via the mouse button (contextual menu)




*Camera Browser: Contextual menu location*



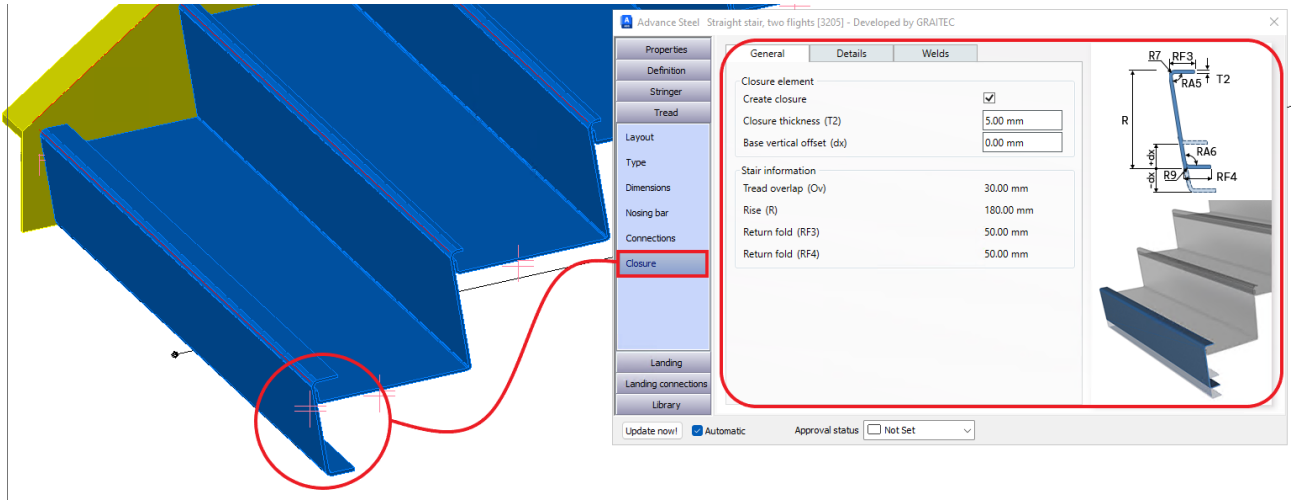

*Camera Browser: Contextual menu and main browser dialog*

# 5 Stairs and Railings

For this version, there is the introduction of some new features in both Stairs and the Railing macros. Below we explain how these have been implemented and how to implement them.

## *5.1 Stairs: Closure feature to the first tread*

In the previous version of the powerpack, we saw the introduction of the Concrete Pan tread, which allowed for a fully formed Tread from folded elements. This was integrated into the landing arrangements and to complete the process we now bring the Closure element to the first tread.




*Stairs, Closure Feature: Dialog tab location and parameters*

Under the Tread Tab, the user will now see the closure sub-tab, and selecting this tab will allow the user to create for the start of the first flight of the stair arrangement a closure element.

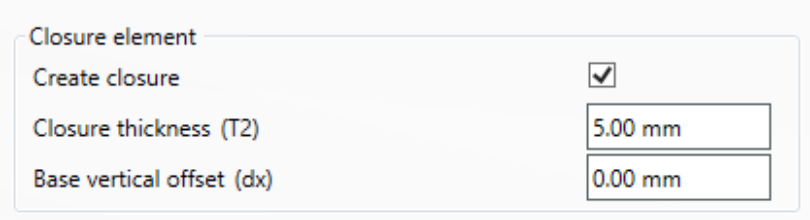
**Advantages:**

- The use of the Closure panel allows the user to create the staircase tread arrangement and **remove the toe void/trap area risk at the stair base,** with the option to **adjust to suit the final floor levels** and **finishes** and **interlock at the nosing location**.

### 5.1.1 The General Tab

There are several panels to this General tab, the main panel is the closure element. This allows for enablement of the closure itself with a check box activation and then control of the thickness and a variable for the offset of the vertical height, relative to the base height of the stair.

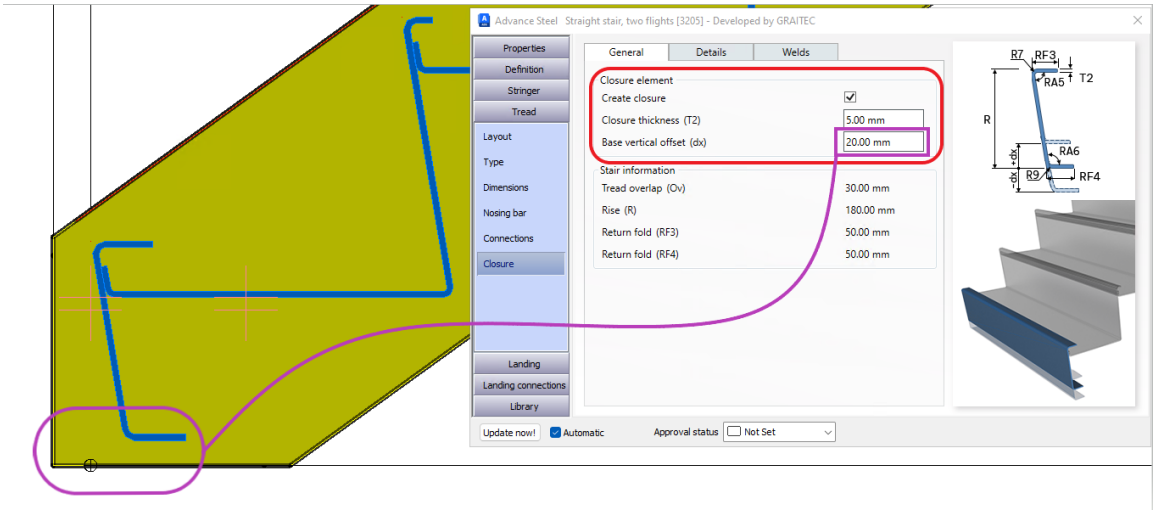
#### *5.1.1.1 The closure element panel*




*Stairs, Closure Feature: Create Closure check box.*

- **Create closure Check box:** Checked and the closure is activated.
- **Closure thickness (T2):** Field cell for user entry with a default value, user my override.
- **Base Vertical offset (dx):** Field cell user may enter a value to move from the default start point of the stair base, positive or negative.

**NOTE**: *A typical use of this extension value would be when the Stair foot is returned to a lower level than the start points, or maybe there is a covering finish to the floor that the closure needs to give clearance to.*




*Stairs, Closure Feature: General tab, Vertical offset parameter*

### *5.1.1.2 Stair information panel*

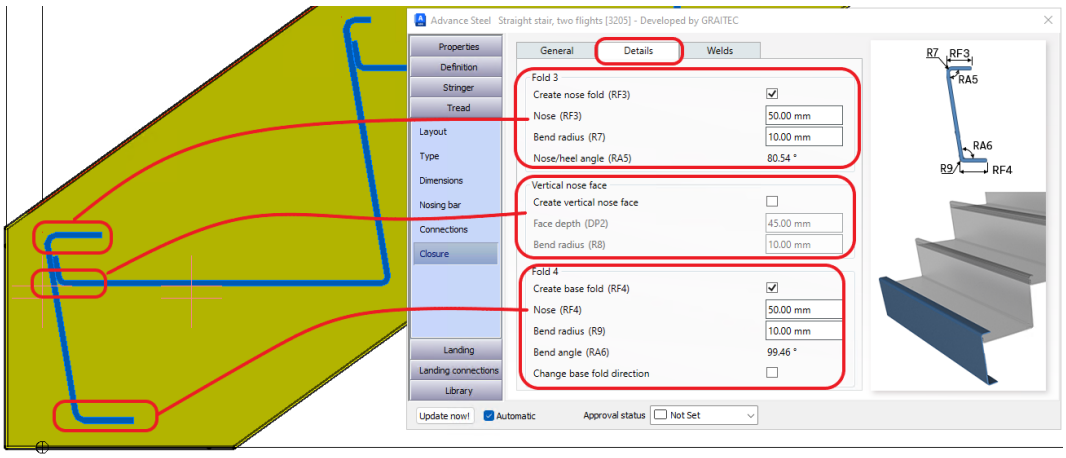
This panel contains a series of information-only fields that allow the user to see other key criteria that are presently generated in the stair/tread arrangement.

- **Fields for**: Tread Overlap, Rise, Return fold (RF3), Return fold (RF4)

## 5.1.2 The Details tab

In the details tab, there are options there also to control the return folds that are associated with this tread type to allow it to integrate into the nose of the first tread and the return closure fold at the base level.

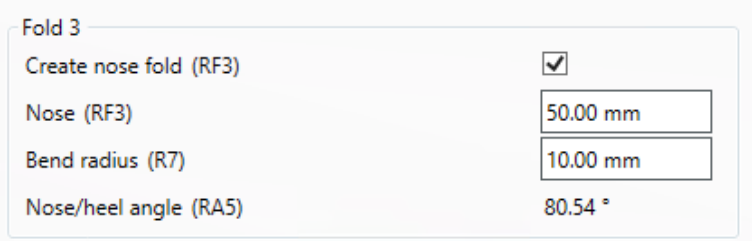
There are three (3) panels to control these elements:




*Stairs, Closure Feature: Details tab & parameters*

### 5.1.2.1 Fold 3 panel

This fold 3 is the return fold at the nosing point of the first tread, there is a check box to activate set by default and two (2) fields for control the length and radius with an informative closed field for reference.

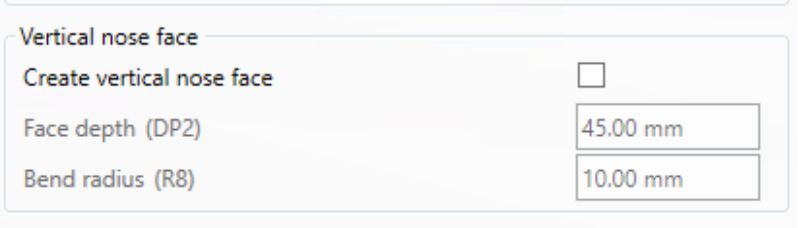



*Stairs, Closure Feature: Fold 3 parameter*

- **Create nose Fold (RF3):** Checkbox checking turns on the fold at this location within the closure form.
- **Nose (RF3):** field cell with a value that the user can enter and change as required.
- **Bend Radius (R7):** field cell with a default value, user may adjust as required.
- **Nose/heel angle (RA5):** information field only with reference angle.

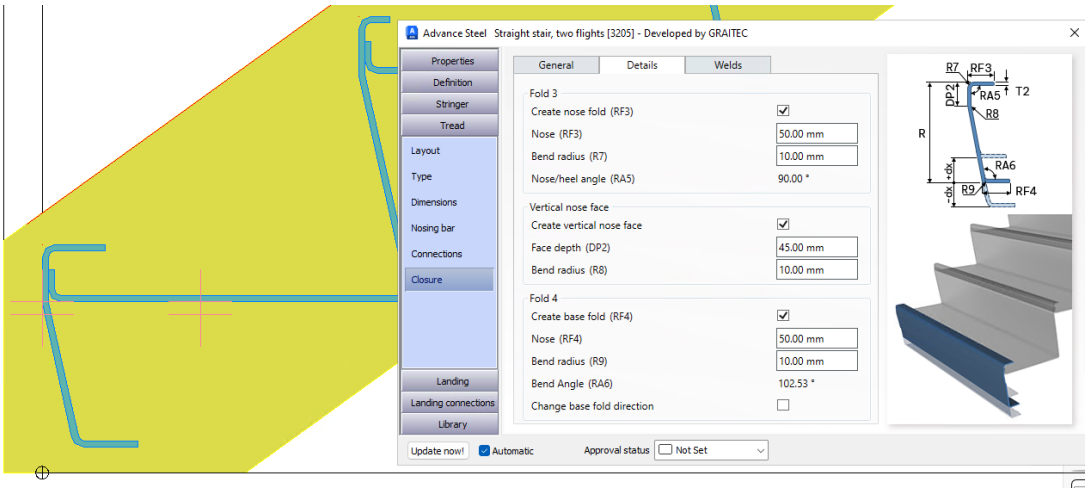
### 5.1.2.2 Vertical nose Face panel

When the user has selected these options within the main tread features, this option allows the user to replicate this feature.




*Stairs, Closure Feature: Vertical Nose Face, Check Box option*

- **Vertical Nose face:** Checkbox checking turns on the fold at this location within the closure form.
- **Face Depth (DP2):** Field cell with a value that the user can enter and change as required. The default will match the tread pan depth.
- **Bend Radius (R8):** field cell with a default value, the user may adjust as required.




*Stairs, Closure Feature: Vertical nose face, activated*

## 5.2 Stairs: Bolted Stair – assembly locations

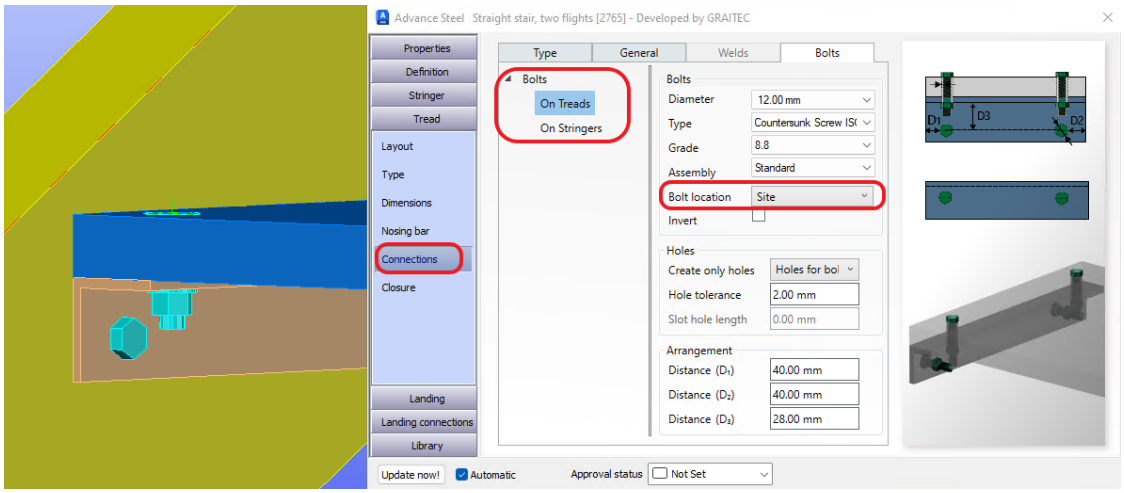
In the Stair macros, at the connection between Treads, Stringers, and supporting elements, we have now included an option to allow the user better control of the bolt arrangement, relative to the **ability to be able to select the Site or Shop option for the bolt location**.

**Advantages:**

- The advantage to the user to be able to determine this assembly method, without having to leave the context of the macro.

### 5.2.1 Standard tread types

The option to control the site or shop location of the assembly of the tread and stringers is placed under the Tread tab.

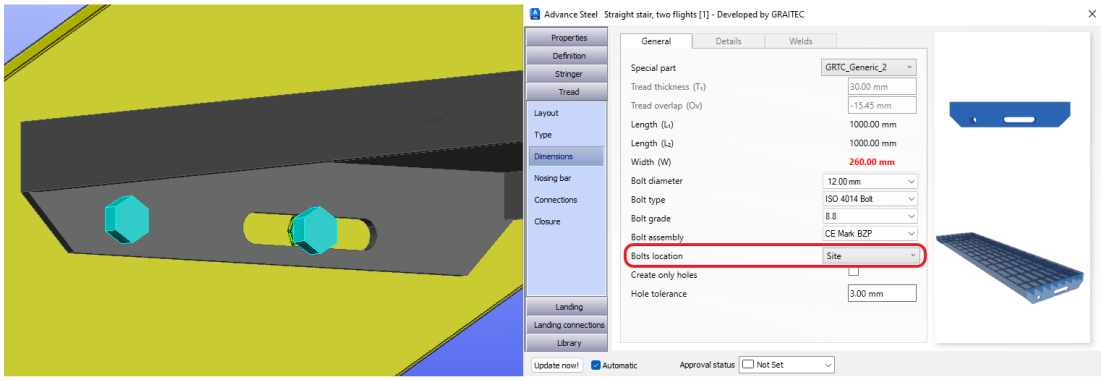



*Bolted Stair Assembly locations: Standard Tread, Bolt location*

- **Bolt location:** Drop-down selector, with the option for Site or Shop.

### 5.2.2 Special part tread

The option is the same for the **Special part Tread**, under the **Tread tab**, within the **Dimensions Tab**, the **Bolt location**, and a dropdown selector with **Site or Shop** options.

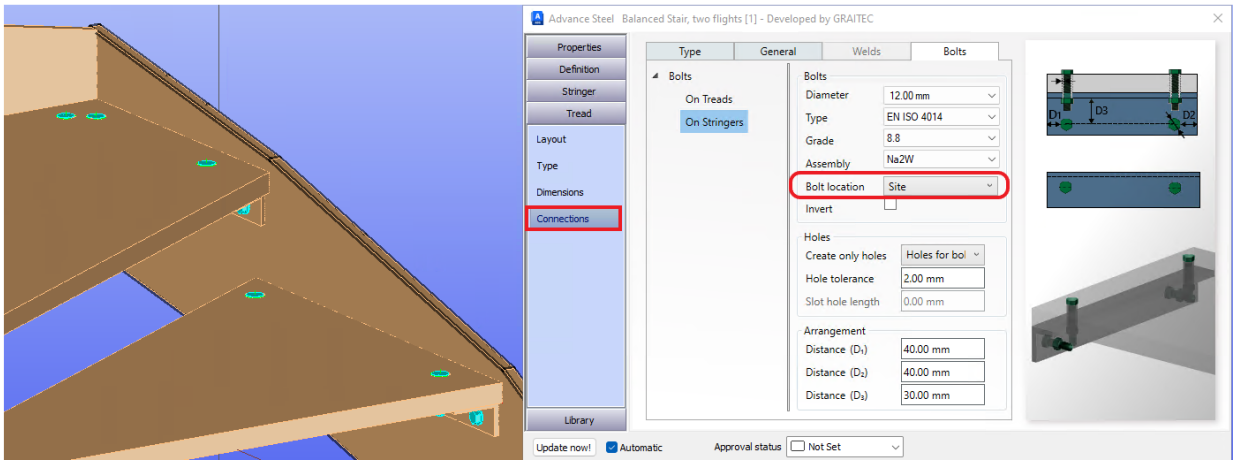



*Bolted Stair Assembly locations: Special Part Tread, Bolt location*

- **Bolt location:** Drop-down selector, with the option for Site or Shop.

## 5.2.3 Stair Types

The option for **Site/Shop bolt assembly locations** has been included in both the **Straight and Balanced stair types**.




*Bolted Stair Assembly locations: Balance Stairs, Tread, Bolt location*

## *5.3 Stairs: Nosing Bar Contour relief*

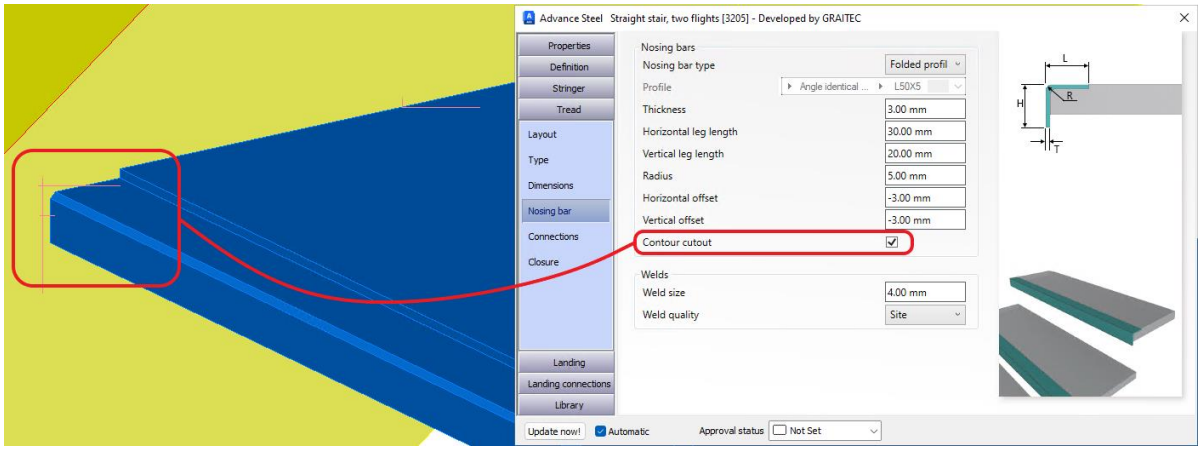
**Nosing Bars** are part of the Stair macros, giving the option to the user to add a folded profile or a defined Section profile, for a supplier of the product ranges. When the Nosing bar is positioned, it may then clash with the tread form itself, as it is inert. For this version, we have **introduced the contour cut-out feature** as a check box that the user can select to remove the clash.

**Advantages:**

- Removes the potential clash situation between the tread and the nosing bar at both tread and landing locations.

## 5.3.1 Nosing bar relief – Treads

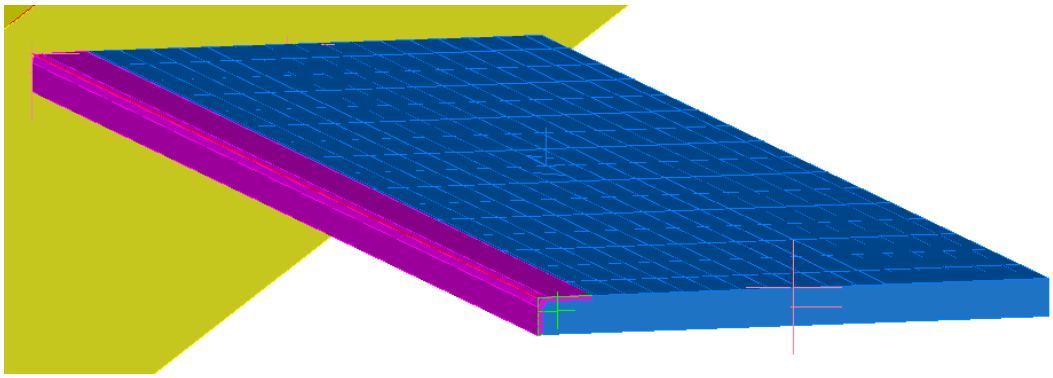
The new options are found under the tread tab, under the Nosing bar sub-tab, with a check box option to enable the contour cut-out relative to the Nosing bar shape.



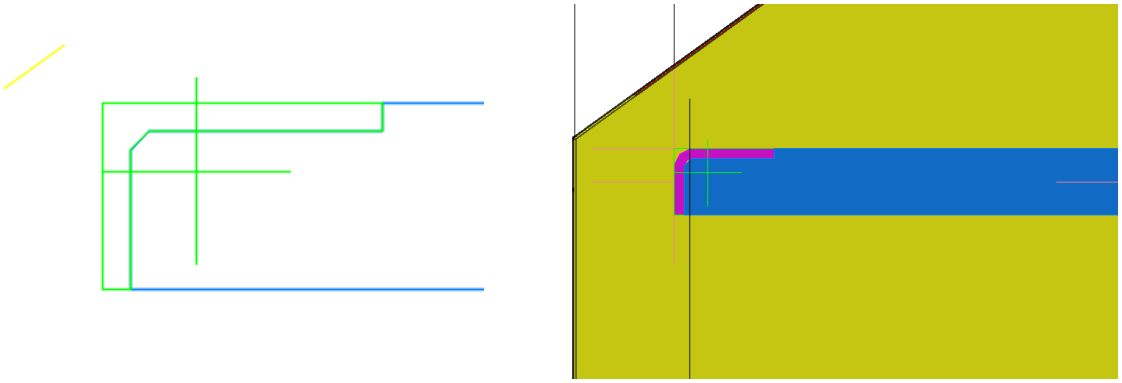

*Nosing Bar Relief: Contour cutout check box active*

- **Contour cut-out:** Checkbox, unchecked by default, checking to enable the contour element.

The images show how the cut-out is formed using an element contour around the profile, to remove this portion of the tread profile.



*Nosing Bar Relief: Grate Tread relief*

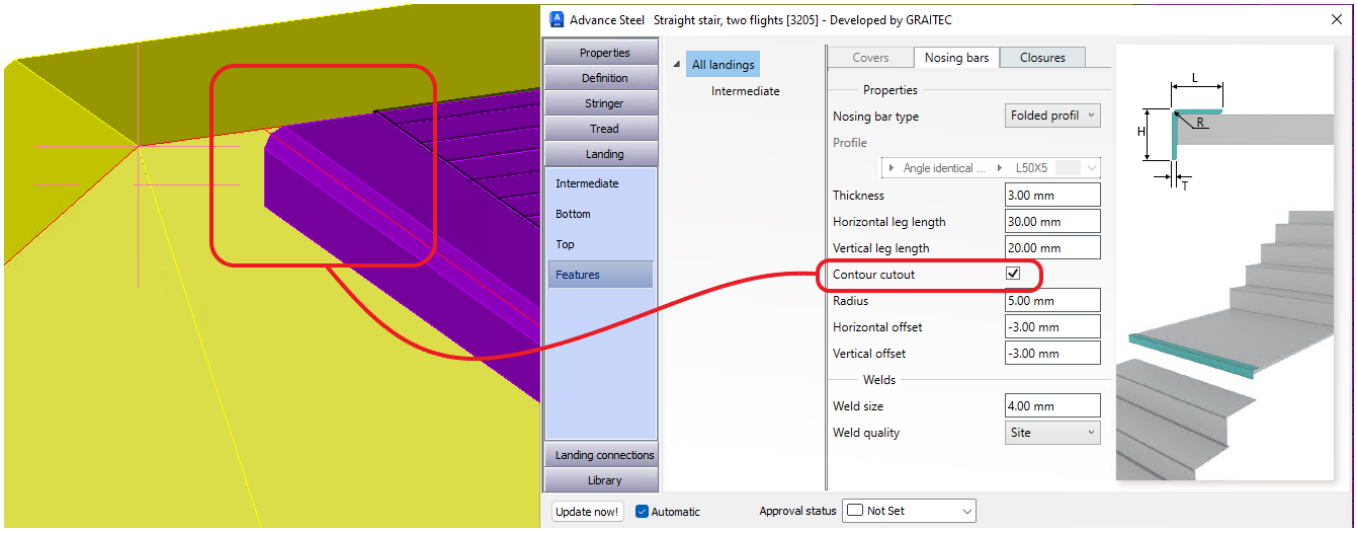


*Nosing Bar Relief: Contour feature shown with folded profile*

## 5.3.2 Nosing bar relief – Landings

The same options for the nosing bar relief are added to the landing elements of the Stair macro. The option is again accessed via a check box enablement.

The option is under the Landing tab, in the sub-tab for Nosing Bar.



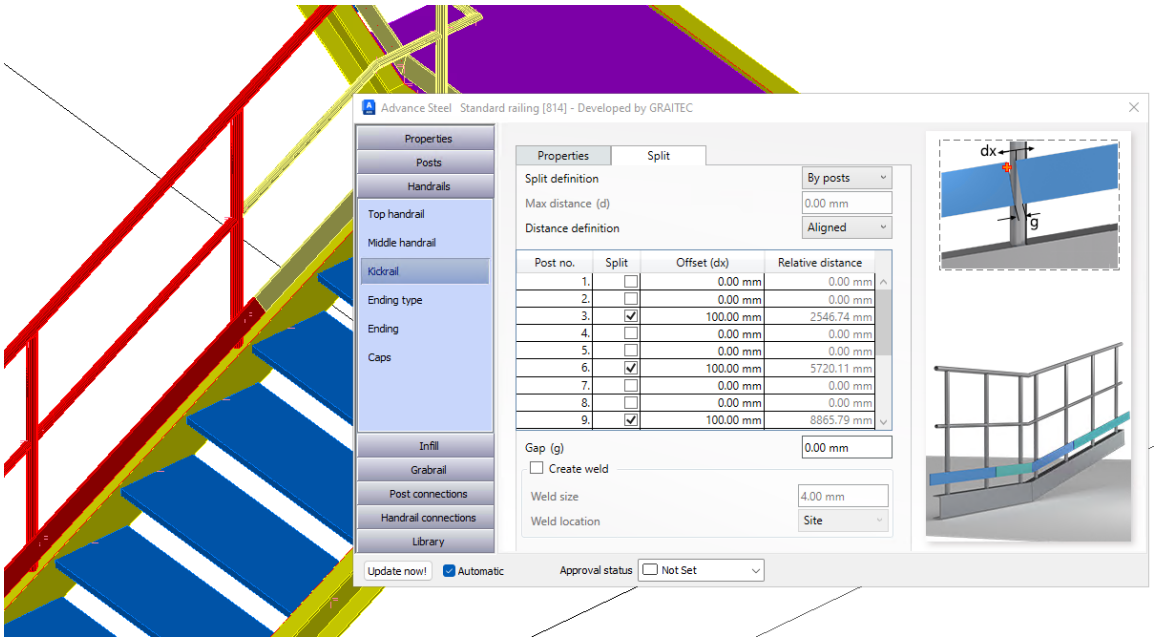

*Nosing Bar Relief: Landings, Contour cutout check box active*

- **Contour cut-out:** Checkbox, unchecked by default. By checking enable the contour element.

## 5.4 Railings: Split Kickrail

In the Railing macros, we have a **Kickrail element**, that can run the entire length of the railing. However, we have now introduced an option to allow the **Splitting of the Kickrail**, so the user can match this to the main railing split options that exist to allow better panel distribution of the railing.

With this feature, there is also an improvement to the corner options available under Kickrail, in addition to the previous miter joint we now have a Butt type arrangement with first/second Bias control of the elements.




*Split Kickrail: Split Tab with split table selections*

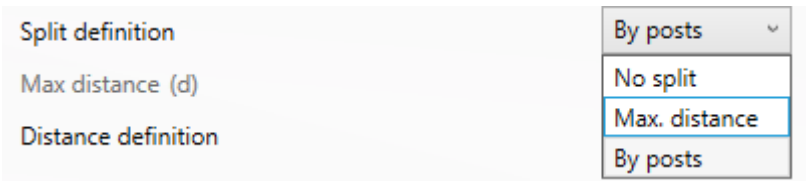
**Advantages:**

- Integrates control of the **Split location** to easier align with Top rail, middle rails, and Panel split locations, allowing for easier creation of the railing panels for fabrication and assembly conditions.

### 5.4.1 Kickrail Split Tab

For the user to split Kickrail, there is the introduction of the Split Tab, under the Kickrail Tab. The split definition is set by the dropdown menu selector: None/By posts/By length (*Default is None*), this works in conjunction with a series of other tabs.

Below the dropdown are options for max distance, which is greyed when 'By post' is selected, and Distance Definition, which allows for aligned (along slope) or horizontal.




*Split Kickrail: Split definitions*

#### 5.4.1.1 Main table panel

The table below this is populated with the entire rail, with a series of post numbers and then activation of the split directly adjacent to that post, with an offset(dx) value that is active with the By post option. The relative distance is a calculated reference value, based on the split offset distance.

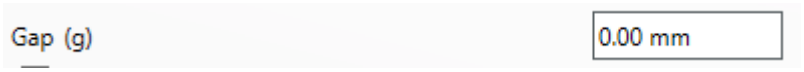
| Post no. | Split | Offset (dx) | Relative distance |
|---|---|---|---|
| 1. | ☐ | 0.00 mm | 0.00 mm |
| 2. | ☐ | 0.00 mm | 0.00 mm |
| 3. | ☑ | 100.00 mm | 1885.98 mm |
| 4. | ☐ | 0.00 mm | 0.00 mm |
| 5. | ☐ | 0.00 mm | 0.00 mm |
| 6. | ☐ | 0.00 mm | 0.00 mm |
| 7. | ☐ | 0.00 mm | 0.00 mm |
| 8. | ☐ | 0.00 mm | 0.00 mm |
| 9. | ☐ | 0.00 mm | 0.00 mm |

*Split Kickrail: Split table*

**NOTE:** *The table is greyed when by max distance is selected, the max distance (d) cell is active to control the values.*

#### 5.4.1.2 Gap value. (g)

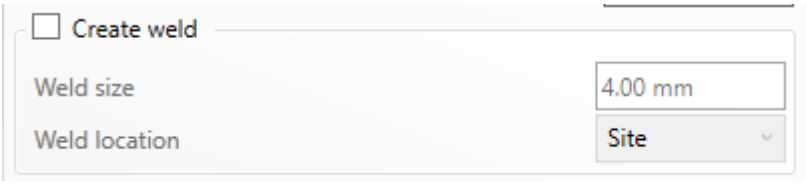
Below this is the Gap (g) field which will place a gap between the Kickrail segments as required, the user can enter value in the cell, and this is then placed into the split location within the dialog.




*Split Kickrail: Gap parameter*

#### 5.4.1.3 Create Weld option

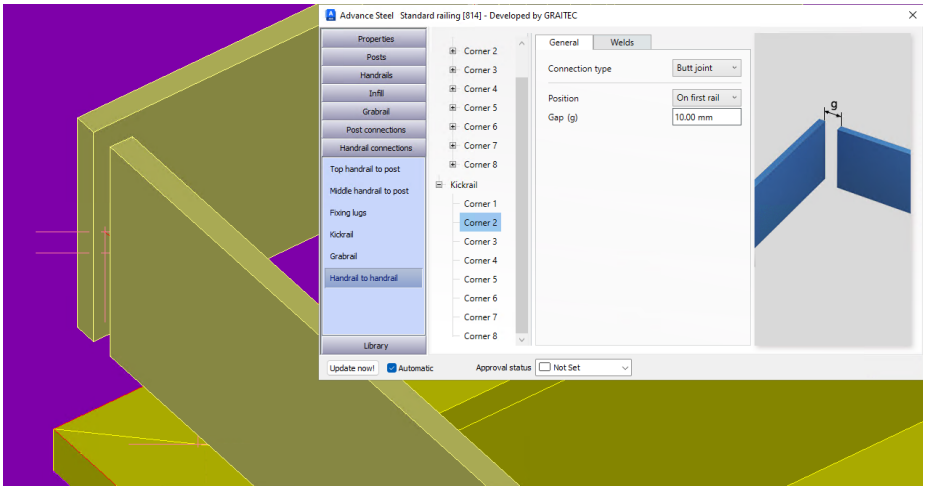
This is a check box, when checked, the weld details become available, the user may interact with this feature to set the size and location.




*Split Kickrail: Create Weld option*

## 5.5 Railings: Kickrail Corner Control

As a result of the introduction of the split Kickrail, some additional work has been carried out on the abutment at corners. There is a 'Butt' Joint option now present with a position set to allow on the first element or second element, both with a gap (g) value via a user entry value.




*Corner options Kickrail: General Tab for Corner options*

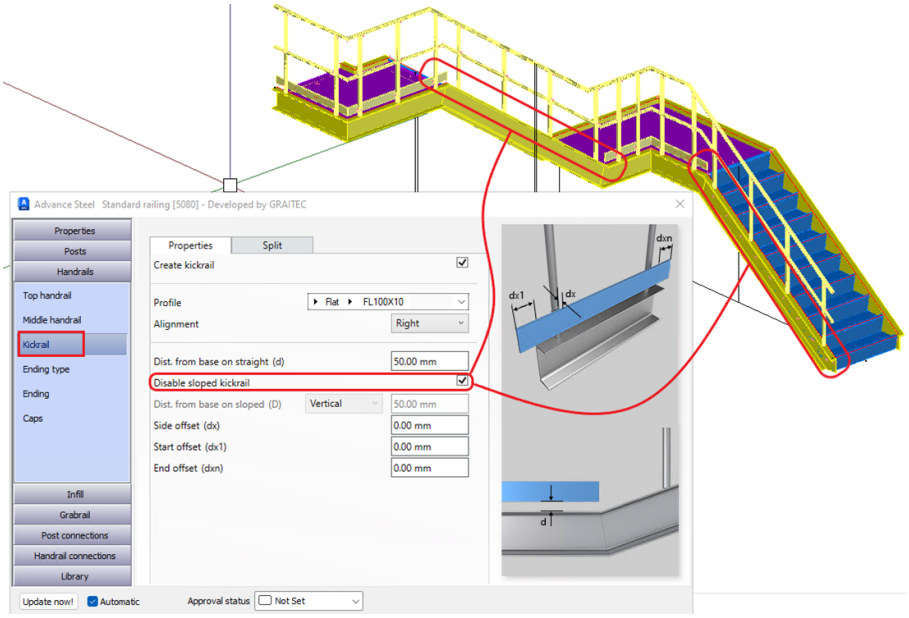
- **Connection Type:** Miter and Butt options from the Drop-down selector.
- **Position:** Drop-down selector with options for First rail, or Second rail, to switch the bias of the butt corner rail element.
- **Gap(g):** a cell field for user entry to create a Gap between the elements, (default is 0.00mm)

**Advantages:**

- Introduces new options to **achieve integrated corner control** in the Kickrail, with additional options for **Butt type**, and **Bias option** for the first or second Kickrail, to complement existing options of miter.

## *5.6 Railings: Disable Sloped Kickrail*

For this version with a focal area being the kick rail we now bring the option to turn off sloped segments of the Kickrail, leaving the remaining horizontal segments at landing and platforms. With this option and the previous one, we are enhancing the flexibility of the macro allowing the user to remain in the macro to complete as much work as possible to generate the railing and update if required.




*Disable Kickrail on slope: Checkbox option and result in the model*

**Advantages:**

- Aides the creation of railings found in those industrial situations, that require no Kickrail on the slope, thus allowing the user to maintain the macro integrity.

### 5.6.1 Disable sloped Kickrail

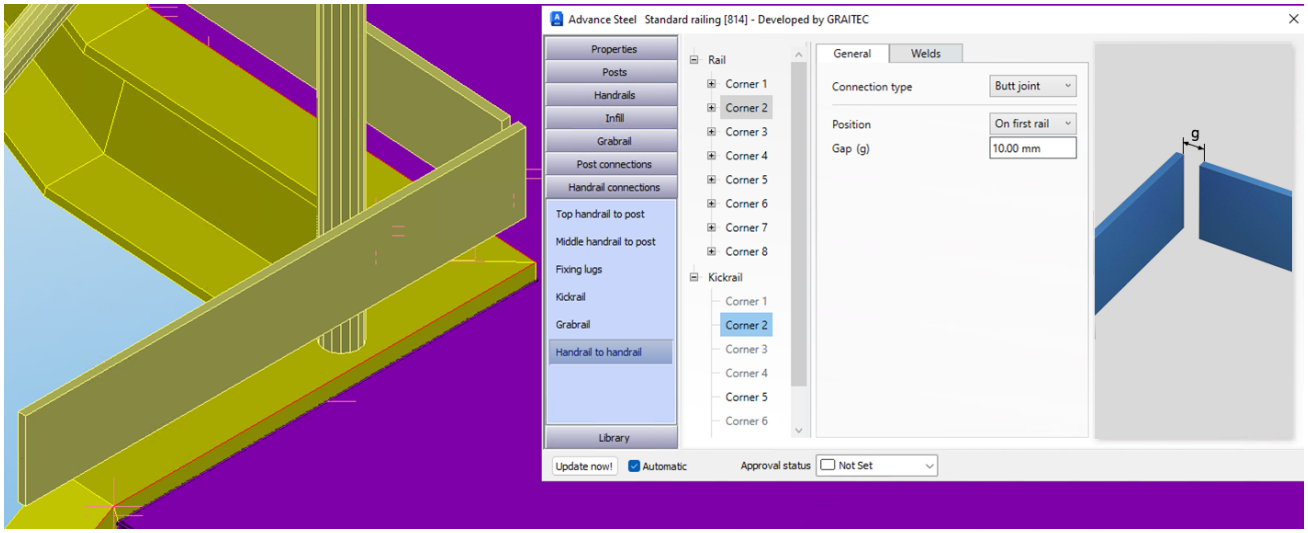
The option is a check box that is located under the Kickrail properties tab. Checking this box will disable all the sloped segments in the overall railing, leaving segments at the landing and other level segments of the railing.

*Disable Kickrail: Check box*

### 5.6.2 Corner control under Disable Sloped Kickrail

The option to control the corner types that remain is available to include the miter and New Butt type interactions. These options are located under the *Handrail-to-Handrail* sub-tab of *Handrail connections*, under the Kickrail magic tree.

The active corners are shown in black text, the inactive corners are greyed. By selecting an active corner the user can switch between types and set other parameters for Gap (g) and Position.



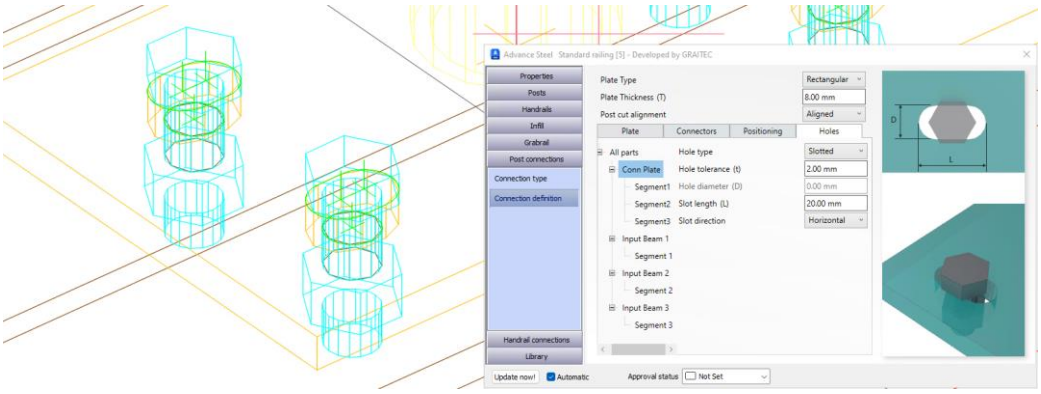

*Disable Kickrail: corner options control when active*

## *5.7 Railings: Hole Types and Tolerance control, base plate connections*

In our railing macros we have many different types of base plate connections and the much-requested option was to improve the ability to define different hole types whilst in the macro and control the tolerance/clearance value. For this version we are now allowing the user to access the hole features in the baseplate connection and change from Hole to slotted in the different connection elements, combining this with individual control of the tolerance for that hole in that element of the connection.

For this version there will be round holes and slotted holes, the round holes will be the default condition, and as such the hole type will display as '*Default*'. To allow the selection of different rail segments and part elements, the Tree branching has been adapted to accommodate this, showing All parts, with branches of Connection plate and input beams elements, then also sub-branched into segments. The tree is self-populating based upon the railing macro inputs and method of creation.

Below we expand upon the options and parameters available in the version.



*Hole type and tolerance: holes tab and model result*

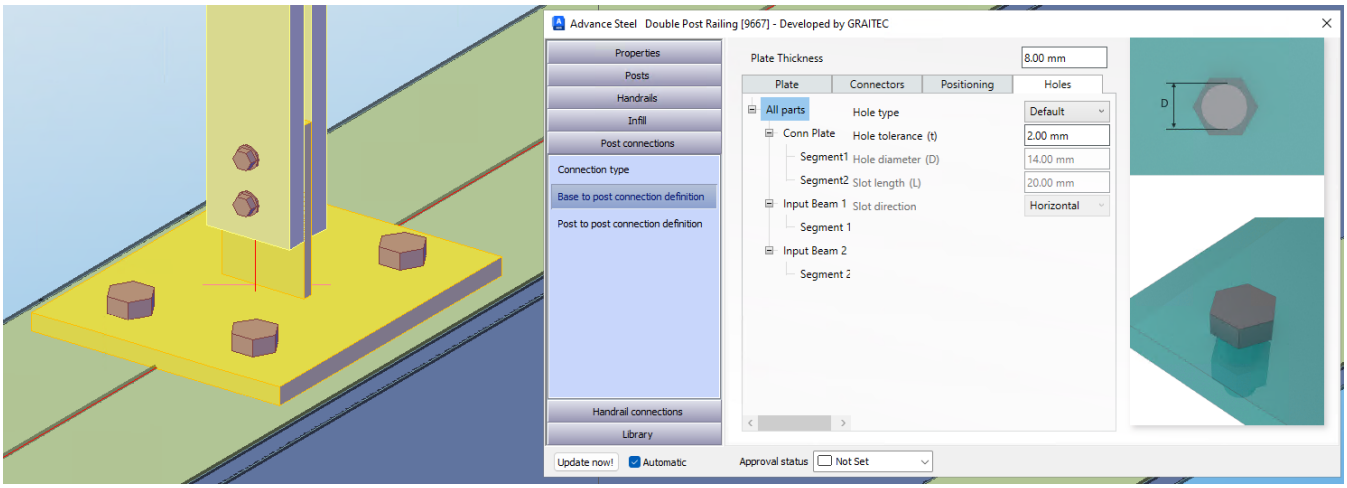
**Advantages:**

- Allow the user **improved control** over the **hole type arrangements** within **each connection element and supporting beams**, which can be different for each beam and connector plate in each segment.

## 5.7.1 Railing Types

For this version, the changes to the control of hole types are available for the following railing types:

- Standard Rail macro
- Double post Rail macro
- Kee Clamp rail macro

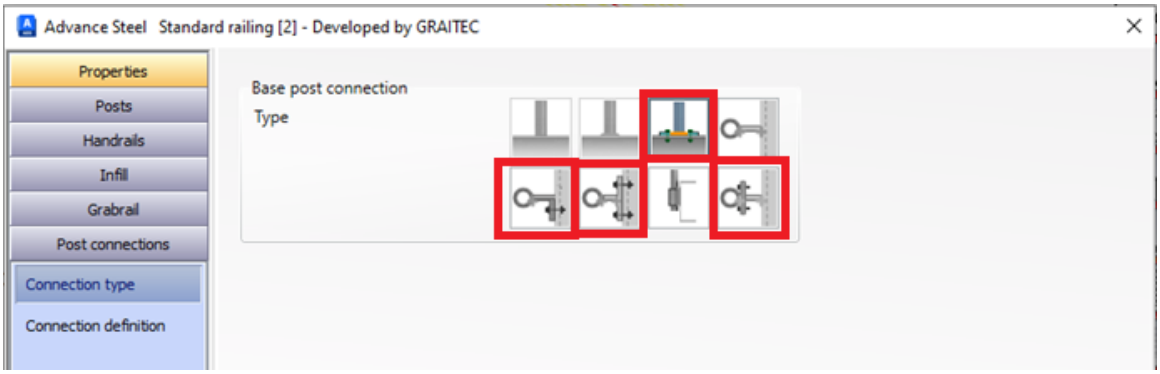



*Double post base connection option, with revised dialog options*

## 5.7.2 Connection types

The connection types that are affected by this change in the hole type selection are:

- Plate (Baseplate).
- Angle.
- T plate.
- Stiffener T Plate.



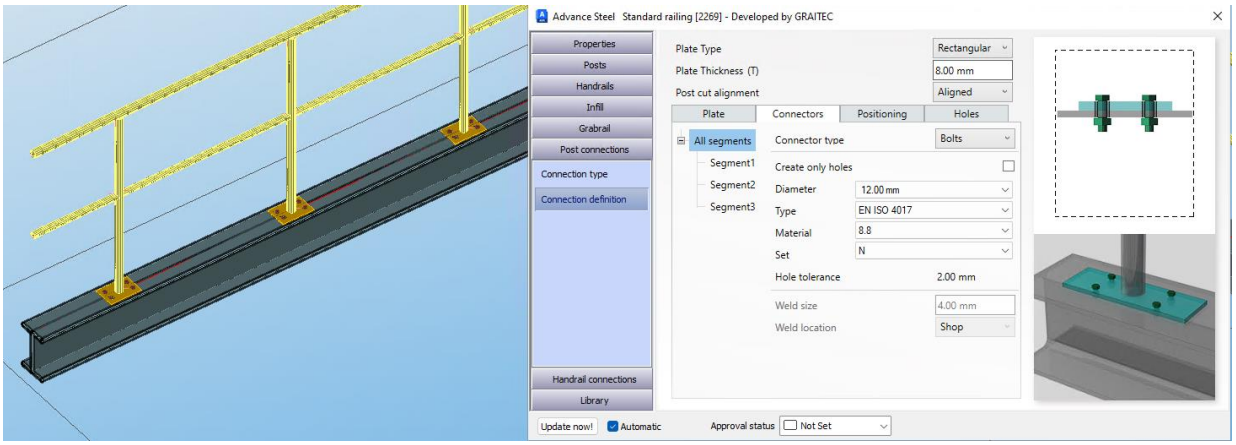

*Hole type and tolerance: Base post connection types*

These connection types have bolts/anchors in their type and now have the option to control the different hole types in each connection and supporting element.

## 5.7.3 Connectors & Hole Types

In the dialog tab for the Connector definition, there will be several different variations, dependent on the Connection type selected. The options shown will apply generically to how the control of the hole type and tolerances are applied in the connection type.

For this version, we have round holes and slotted Hole types. With control in the connector element and the input beam, is provided by the distribution in the dialog tab and the use of the Graitec Magic tree in the GUI of the macro.




*Hole type and tolerance: Connection tab*

### *5.7.3.1 Connectors tab*

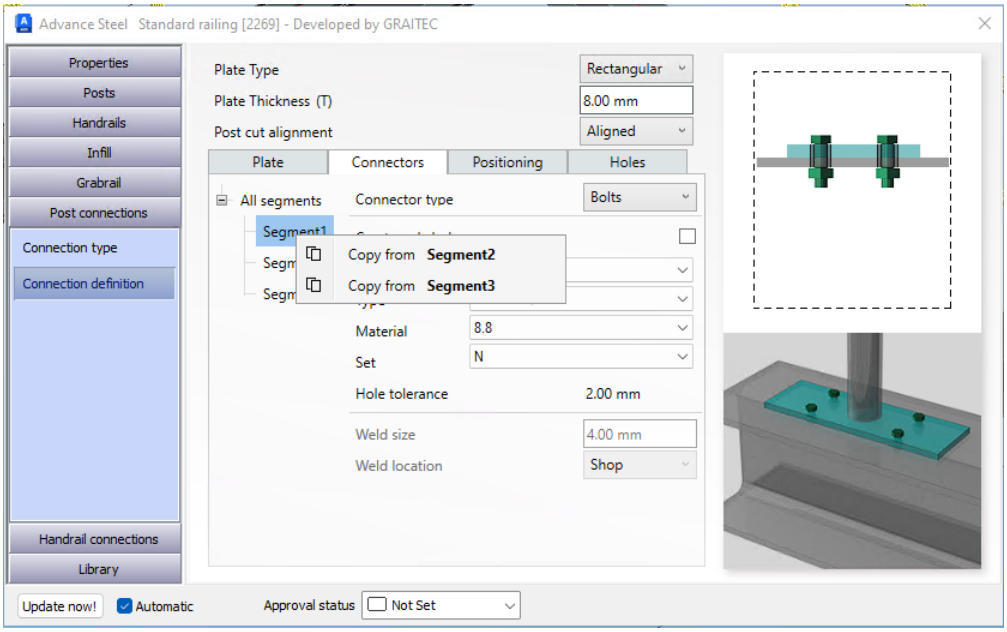
The connectors tab allows the user to change from Bolts to Anchors and select the type from available ones stored in the product database. There is a Magic Tree dialog, to allow the user to select at the top level or the sub-branch tree level. At top applies to all post locations, and the sub-level only applies to that branch.

The selection at the sub-branch level allows the user flexibility to copy from the previous segment or create a different arrangement within that rail segment.

The connector type is set to for example bolt, this then loads available bolt types from the Database and allows the user to see the parameters etc.

The connector type toggle can be changed at any point by the user.

**NOTE:** *Magic tree copies from options are available.*

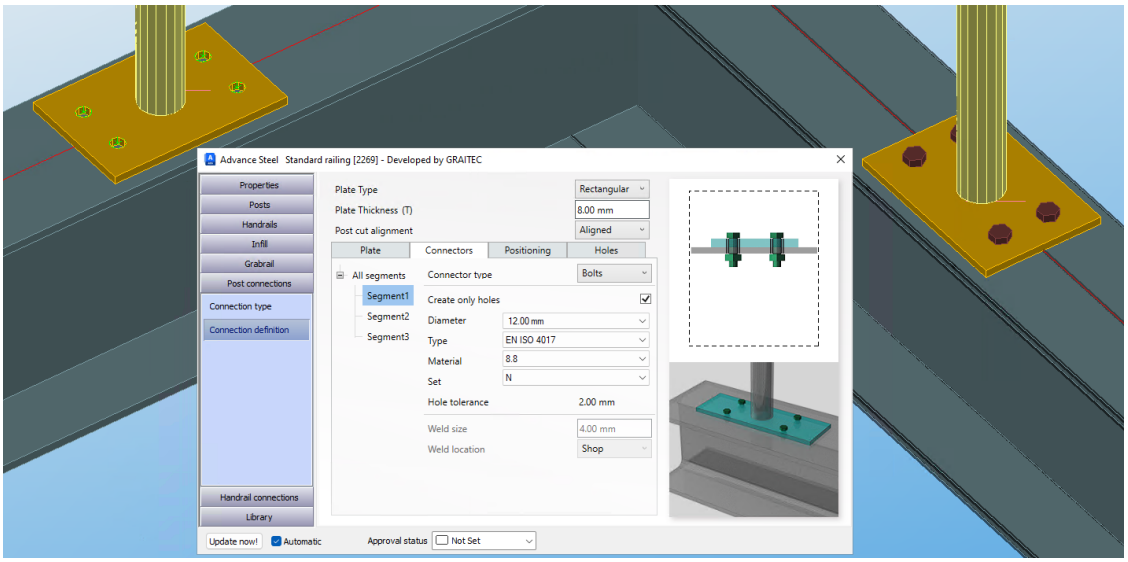



*Hole type and tolerance: Connection tab, copy options*

### *5.7.3.2 Connectors: Create only holes options*

For the user to have only holes and no fixing element, this is possible with the Check box option for this. This again is linked to the Tree, selecting at the top level, will apply to all segments, and at each segment level will apply to that segment only.

With the sub-branch segment 1 selected first, then the check box for holes only. The result is holes in segment 1 (to the left) and bolts in segment 2 (to the right).

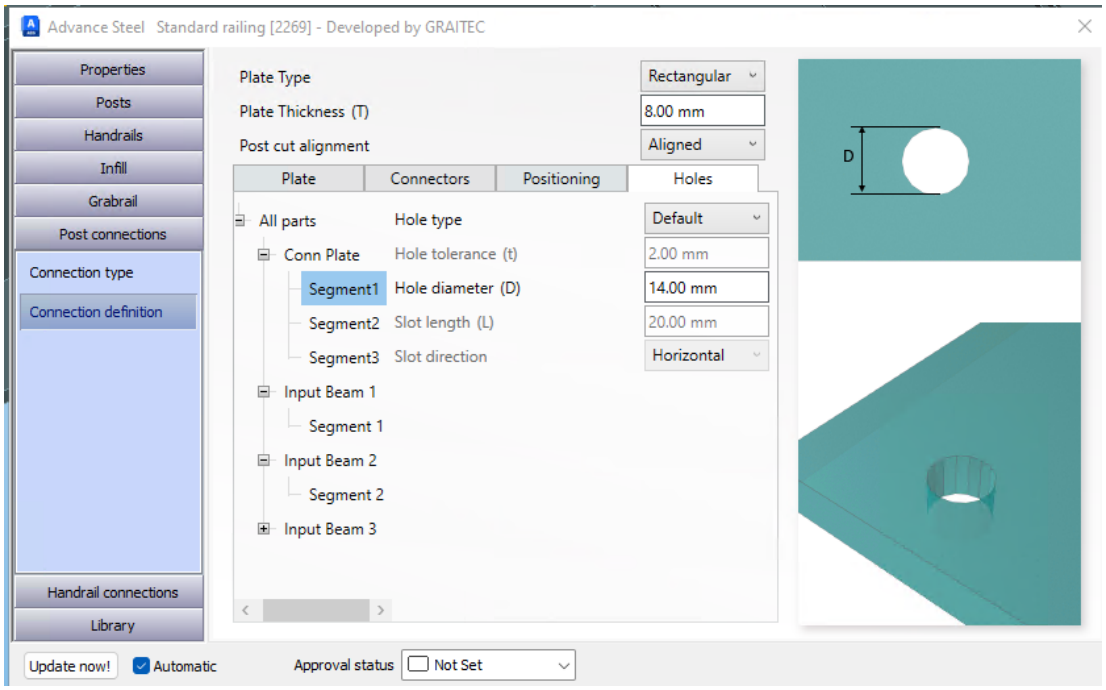



*Hole type and tolerance: Tree branch control via segments*

**NOTE:** *In the connectors tab the user will see the Hole tolerance value, this field is greyed under this tab, as it is informative only. The value is controlled under the Holes tab of the dialog.*

## 5.7.4 Holes tab

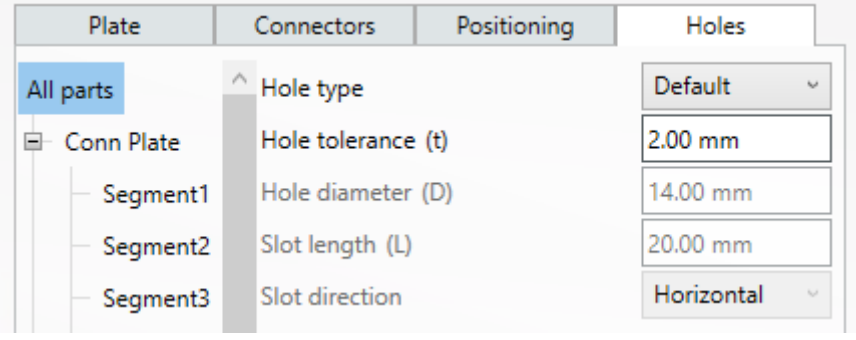
The hole types found under the '**Holes**' Tab typically default to a round type by the system, therefore this is now named 'default', with the option to change to 'slotted'. In the Tab we see the use of the Magic tree for the separation and grouping of the various elements controlled in the Baseplate connection, allowing the user the option to select the connection elements and the input elements.




*Hole type and tolerance: Holes tab*

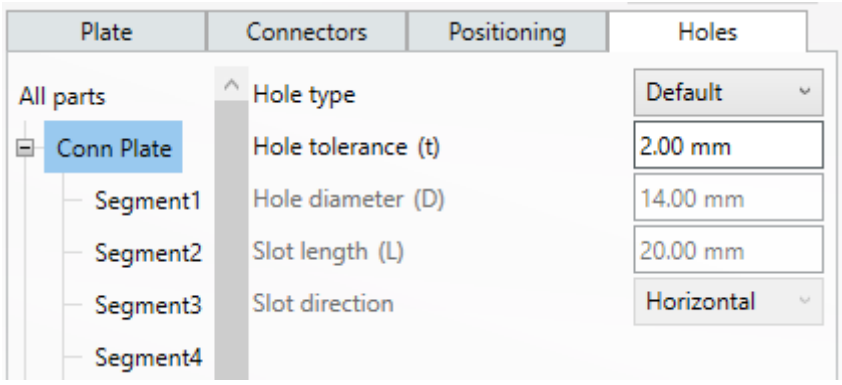
- **Holes: Magic tree options**
  - The tree allows for hole type setting in the different elements in the railing.

- **All parts**
  - The tree can have an overall top level of **All parts**, this will set all hole values the same in the sub-branches.



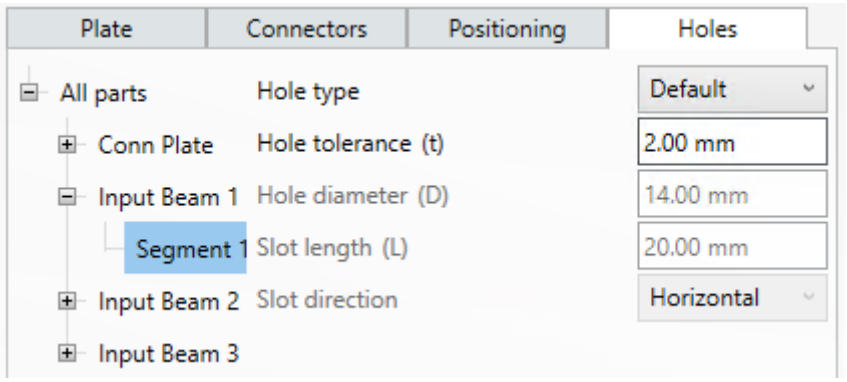

*Hole type and tolerance: Magic tree, all parts level*

- **Conn plate**
  - This is directly related to the connection plate/s of the base type of connection selected, it can be a singular plate or multiple in some instances.
  - The plates can also be selected by further sub-level of Segments, this is the different supporting parts of the beam.



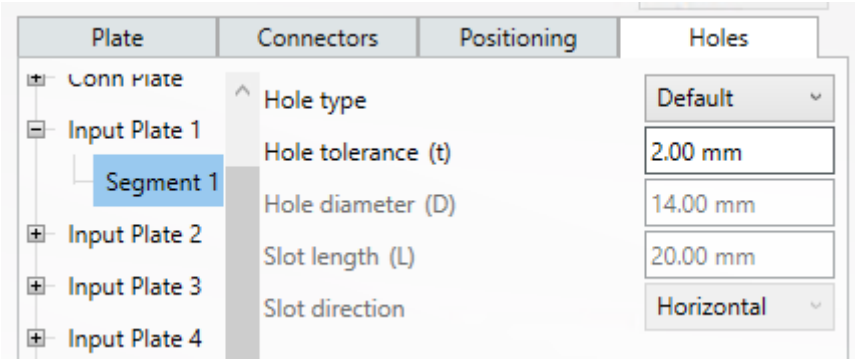

*Hole type and tolerance: Magic tree, Conn plate level*

- **Input Beam**
  - This is the main supporting beam element, associated with the connection location. Again, this also has a segment level associated with it.




*Hole type and tolerance: Magic tree, input beam, segment level*

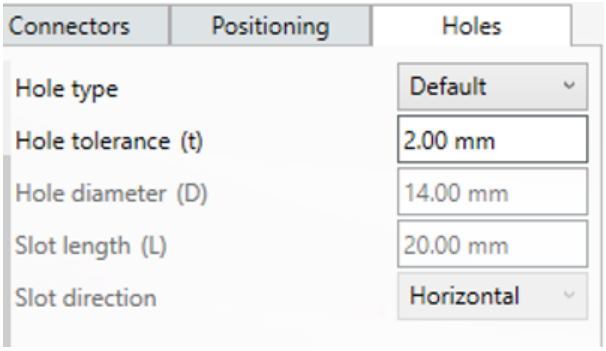
  - ***Note:*** *For plate Elements, the branch is renamed Input plate.*




*Hole type and tolerance: Magic tree, input plate, segment level*

### *5.7.4.1 Holes Tab: Setting for hole type and tolerance.*

Under the main part of the Holes Tab is the setting for each branch of the tree, at the top level. Applying the settings will populate the entire railing. Below this, the branch only influences that branch and its corresponding sub-branches.



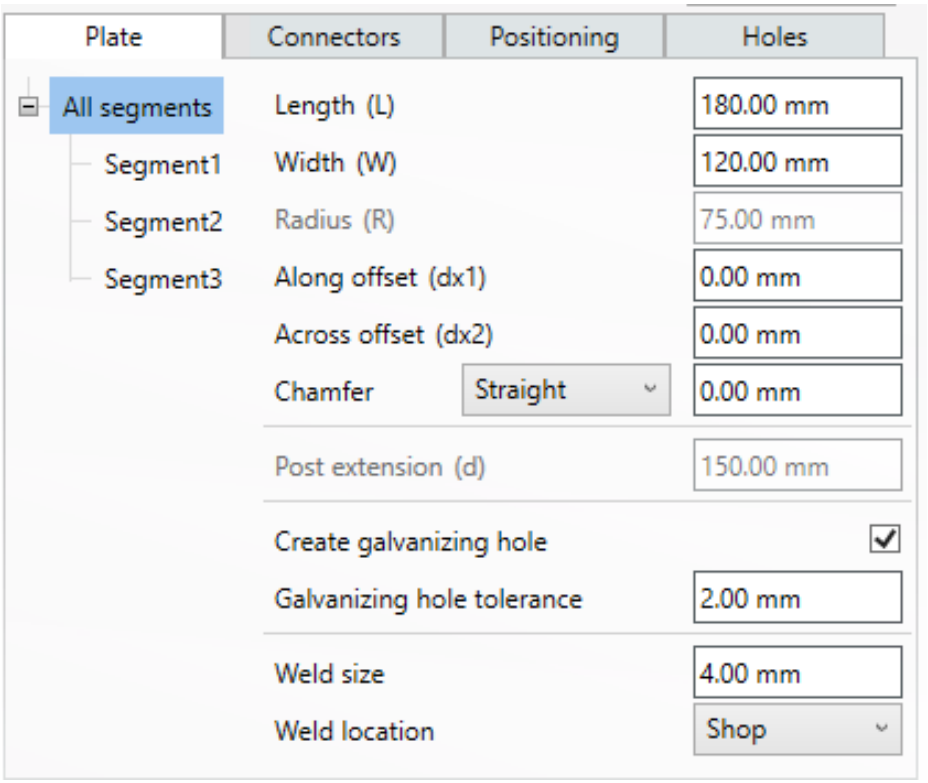

*Hole type and tolerance: hole tolerance setting*

- **Hole Type:** Drop-down combo selector, with options for Default (round) and slotted.
- **Hole diameter:** Greyed field that informs of the hole size, based upon the tolerance and bolt/anchor diameter.
- **Slot Length:** Only active when slotted hole type is active from the previous combo box selection.
- **Slot direction:** only active for slotted holes, controls the direction of the slot.

**NOTE:** *For handrail with special part base plates, the options to change the hole type are only available for the supporting element. There is no control in the special part of its hole type, which comes from the modeling of the special part.*

## 5.7.5 Plate tab

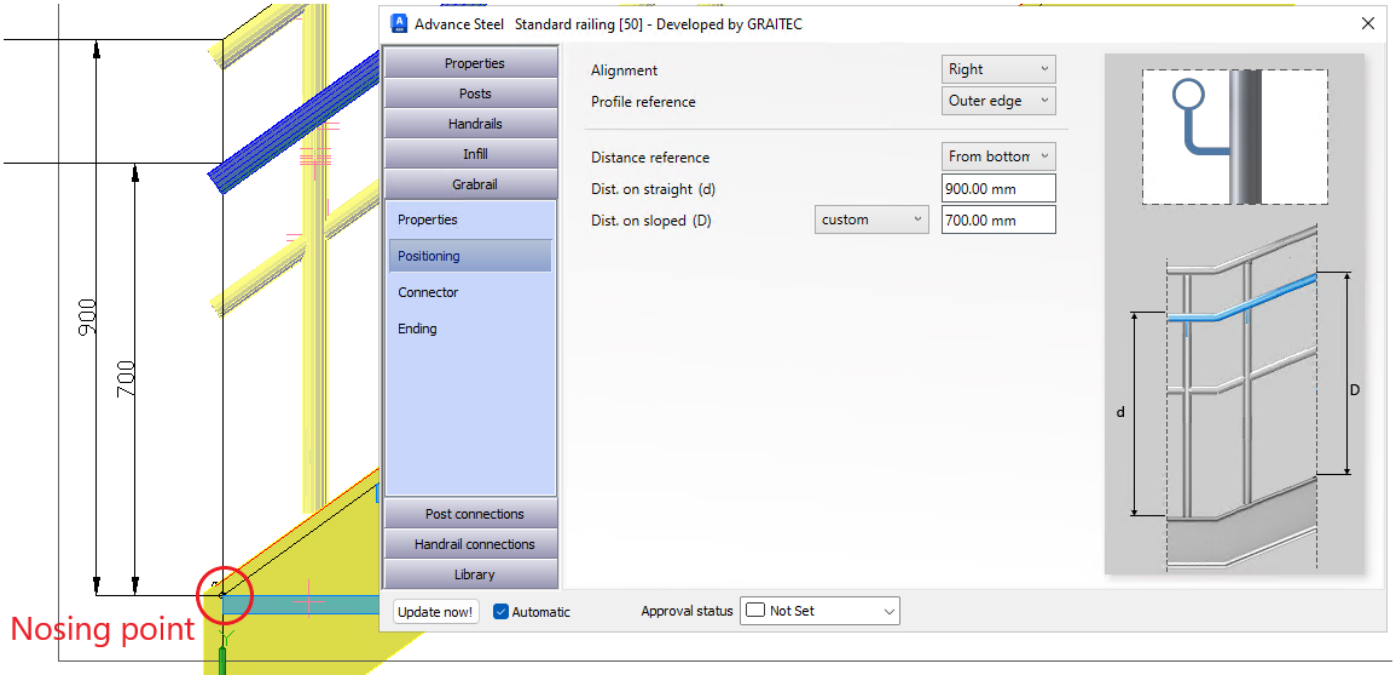
For the plate Tab, there is a change in the plate tab, the *'Galvanising hole' check box'* and the *'galvanising hole tolerance'* has moved to this tab. This is also integrated into the Magic Tree at a segment level. These galvanizing hole options were previously on the holes tab of the dialog.




*Hole type and tolerance: Galvanised hole check box moved to plate tab*

## 5.8 Railing - Grab rail positioning improvement

The vertical placement of the grabrail to the nosing line of the staircase has been improved in this version. The user can select the nosing point as part of the railing creation process and the Positioning dimensions and parameters are respected relative to the nosing point.




*Railing Grab rail Nosing point: update to reference point in the model*

**Advantages:**

- Aligns the vertical positioning of Grab rails with the Main Railing elements and conventions for railing guidance standards to align rail heights to nosing points of Stair flights.

## 5.9 Concrete Stair Macro

Concrete stair structures are a regular requirement for detailing associated railings and in some construction sectors, the Stair forma is created associated with the outlined requirement of the Stair Rise, goings, and landing placements.

For this version, we introduce the Concrete Stair macro that allows users to interact with the placement of Railing macros to follow this stair outline.

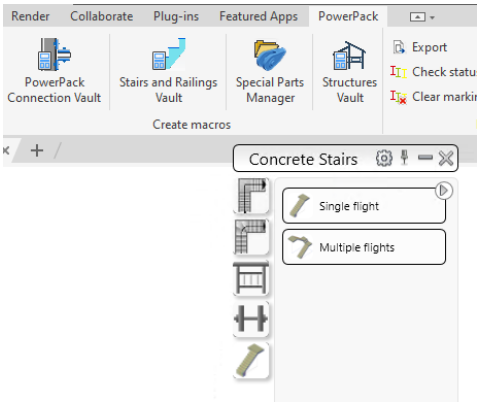
**Advantage:**

- The use of these macros allows the user greater flexibility to **create schematic concrete stairs** that can be used within the model space for Railings and then easily displayed in Drawings to convey the staircase structure and layout, then combined to show the railings, with the stair as a background supporting element.

### 5.9.1 Concrete macro command location

The macro is part of the Stairs and railing tools for the Powerpack for Advance Steel. The command can be found under the Stairs and Railings palette.

Using the ribbon, open the **Stairs & Railings palette** and look for the **Concrete Stair tab**.




*Concrete Stair: Stairs and Railing palette*

There are **two** (2) **commands:** one for a **single flight** option and a **multiple flight** option. Selecting a command button will activate the command and allow the user to create a stair arrangement, using each macro independently or a combination of both to create concrete stair outlines.

The stair tool creates the stair arrangements using Advance Steel concrete objects. These are then used to interact with as elements for railings using point and line methods, with additional supporting object selection, via the tools from the Graitec railing macros.

## 5.9.2 Concrete Fitter- adjustment to Management tool options

An important option that needs to be set within the management tool default to make use of the macro is the **concrete fitter option**, this **needs to be disabled**.

The user can find this under the Management tools>Defaults>Concrete>General>Disable the Fitter.

*Concrete Stair: Management Tools setting for Disables fitter*

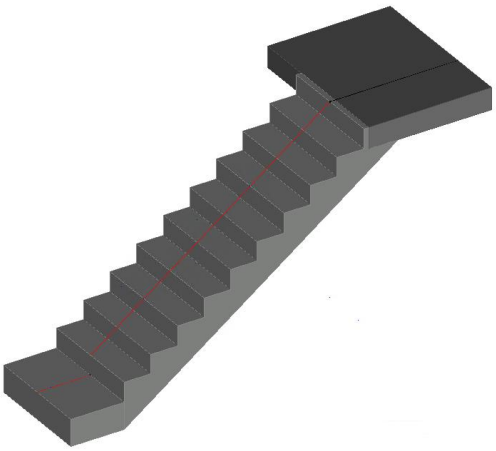
**Checking the box will enable this**, the user **would need to reload the defaults**, using the standard **advance steel update defaults** button.

The change in this management tool setting will allow the interaction between the stair flights and landings to be controlled in the macro, by the parameters of the macro. The user may toggle back this setting after using the tool, but awareness is required of how the macro interacts with this.

### *5.9.2.1 Single flight command*

The command is designed to create a single flight Staircase in the Z positive direction from the Zero (0) XY plane of the model space. The command has options to allow:

- Creation of **top** and **bottom** landings, with exit options to the straight left and right.
- Options to create a **Stair foot arrangement**, vertical and horizontal.

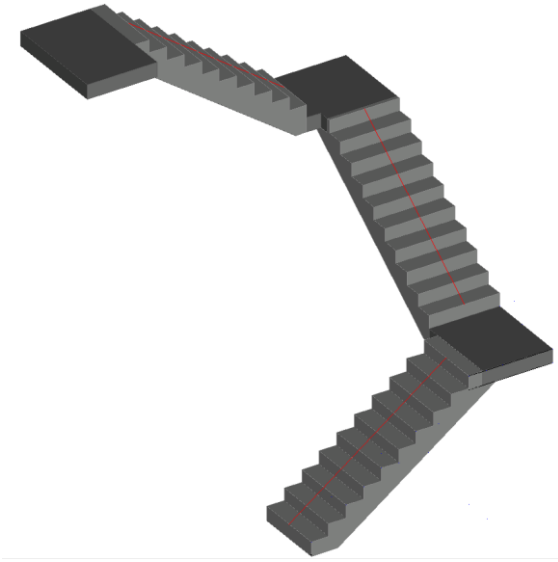


*Concrete stair: Single flight option*

#### *5.9.2.2 Multiple flight command*

The command allows the user to create a series of flights in a switch-back arrangement for 2 flights, with an additional option to create three (3) flights, using a different landing option. The command has options to allow:

- Creation of **top** and **bottom landings**, with exit options to the straight left and right.
- Creation of a **middle landing** with several types of arrangements.
  - **Type 5** landing allows for the introduction of a middle flight to enable 3 flight arrangements.
- Options to create a **Stair foot arrangement**, vertical and horizontal.

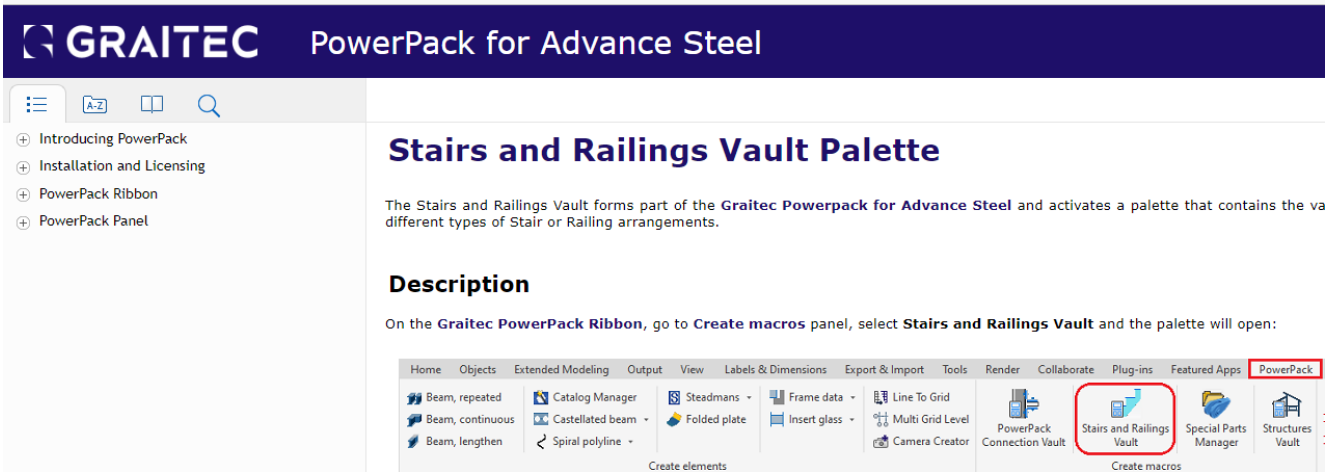


*Concrete Stair: Multiple flight options*

### 5.9.3 Concrete Stair macro: Help and How to guides

With the introduction of the online help portal, there will be a section there relating to the Concrete Stair command, this can be found under the 'Create Macros' panel, under the Stairs and Railings Vault.

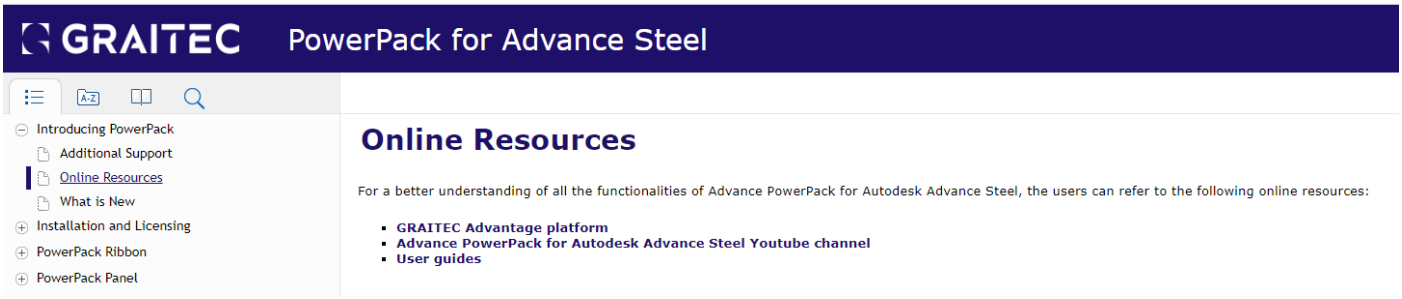
**Help content**: PowerPack Stairs and Railings Vault




*Concrete Stair: online help portal content location.*

To aid the understanding and use of the macro there is a '**Command Help**' to explain the operation of the many functions related to the macro, to complement this we also have generated an '**How to use the concrete stair' guide**.

The guide can be found also in the new online help, on the '**Online resources'** page, under the '**User guides**' segment of that help page.

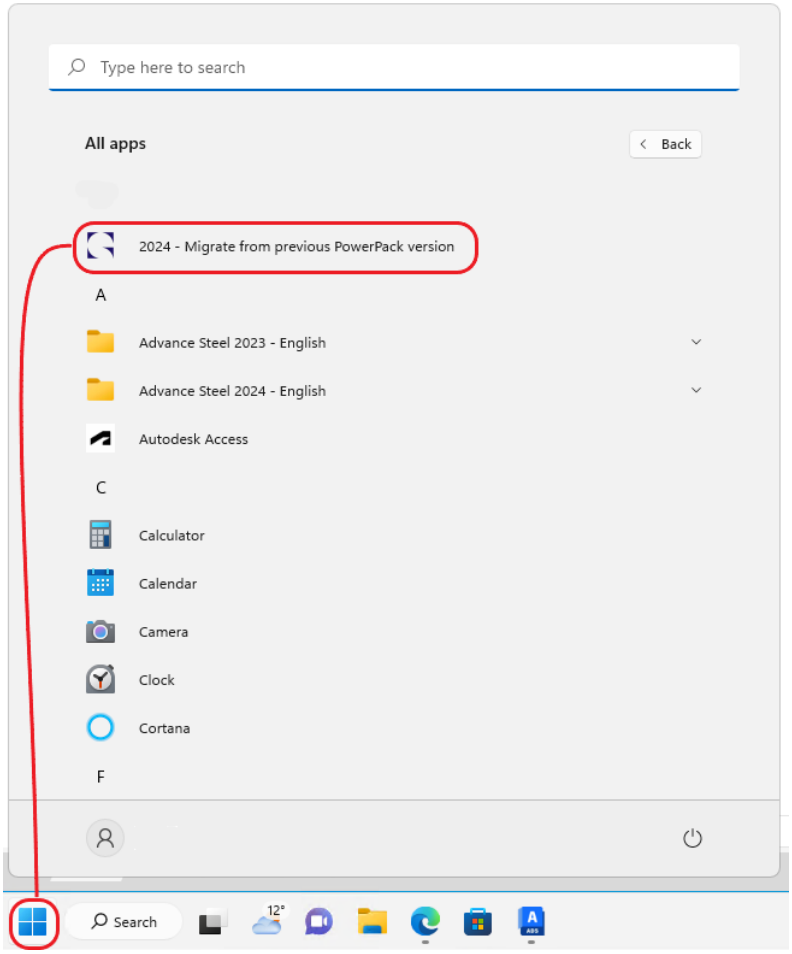



*Concrete Stair: online resource location*

# 6 Data Migration

For the Powerpack, there are options to Migrate User data from the previous versions. This feature allows for the transfer from previous versions to the 2024 version.

The tool is found under the Windows Start menu > all apps > Migration from previous versions




*Migration: Windows 11 Start menu Icon*

The **Migration tool** allows for the transfer of:

- **Joint Libraries,** from content stored in multiple database locations.
- **Special part manager**, DWGs added by the user under the symbols folder.
- **Stair and Railing**s, Special Part Data managed by the Special Part Manager, combined with the library entries created.
- **Structure designer**, that runs with Advance Steel.

See the **online help** for further details of the migration process and recommend workflow:

Migration Tool PowerPack for Advance Steel (graitec.com)

# 7 Product data updates

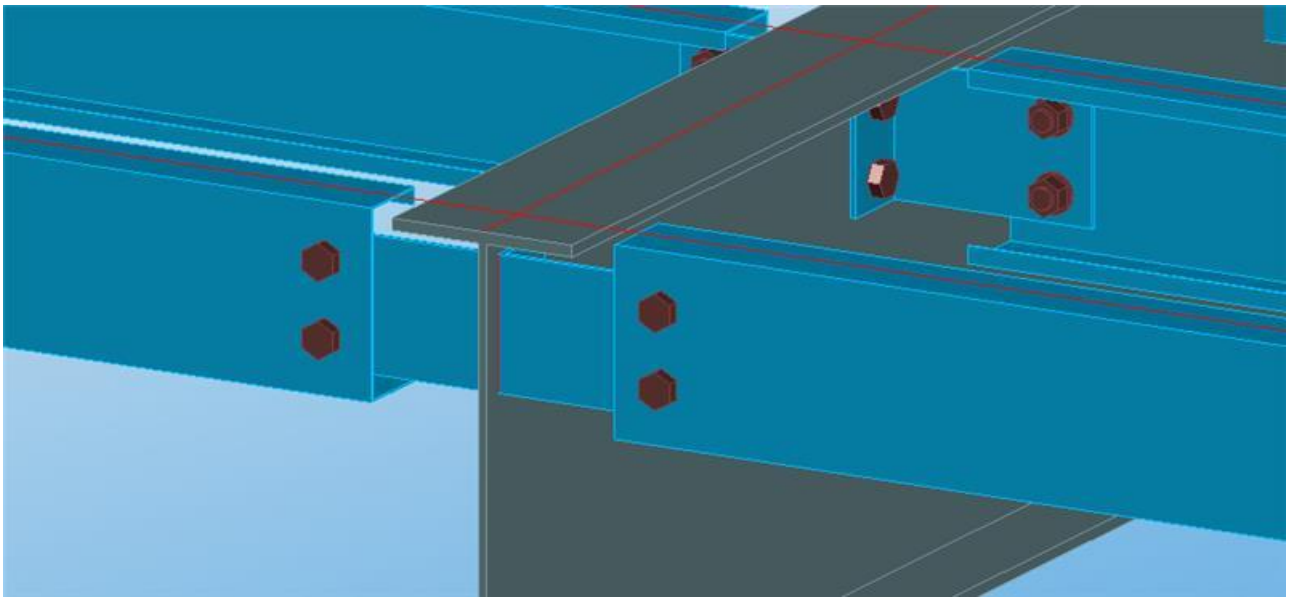
In this version, we deliver product updates for the following suppliers.

## 7.1 Steadmans – Cold Formed Sections update

For this version, we bring an update to the Steadmans Cold rolled Mezzanine floor beams. The update is relative to the details of the Mezzanine Floor Inset Cleats as per Steadmans redesign. The focus is on the redefinition of the cleat sizes and hole dimensions.

The new design is applied automatically when the Mezzanine Floor Inset Cleat joints are used on Steadmans C Section floor beams.

This is delivered as part of the Powerpack Data distribution to the Advance Steel databases.



*Product update: Steadmans mezzanine floor cleats*

## 7.2 Balex Libraries: Renaming & updates

For the section group '**Balex**' there are some additions and changes to the group contents/section profiles.

The changes include a series of new profiles being added to the database, combined with some realignment of product naming to suppliers' protocols.

Present in this update are section classes that have been indicated as '**obsolete'**, as requested again to comply with the product information. Note that the section class is indicated as obsolete, but the profiles remain named the same.

**NOTE:** *The full extent of the update is covered under the online help portal, under the Additional Resources section.*