

NEW FEATURES IN ADVANCE STEEL

8.1

MODELING

FABRICATION DRAWING

LISTS and NC FILES

STEEL

HIGH-END USER FRIENDLY MODELING,  
THAT AUTOMATICALLY CREATES GENERAL  
ARRANGEMENT AND FABRICATION DRAWINGS





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## Technology

### Technology 1: Microsoft Vista compliance

Advance Steel is Microsoft Vista compliant.

### Technology 2: AutoCAD® 2008 compliance

Advance Steel is AutoCAD® 2008 compliant.

### Technology 3: 64 bits

Either the 32-bit version or 64-bit version of Advance Steel 8.1 can be installed.

### Technology 4: XRef Bind

XRef Bind can be used between Advance Steel models.

### Technology 5: Several installed versions at the same time

Several Advance Steel versions can be installed on a computer at the same time.

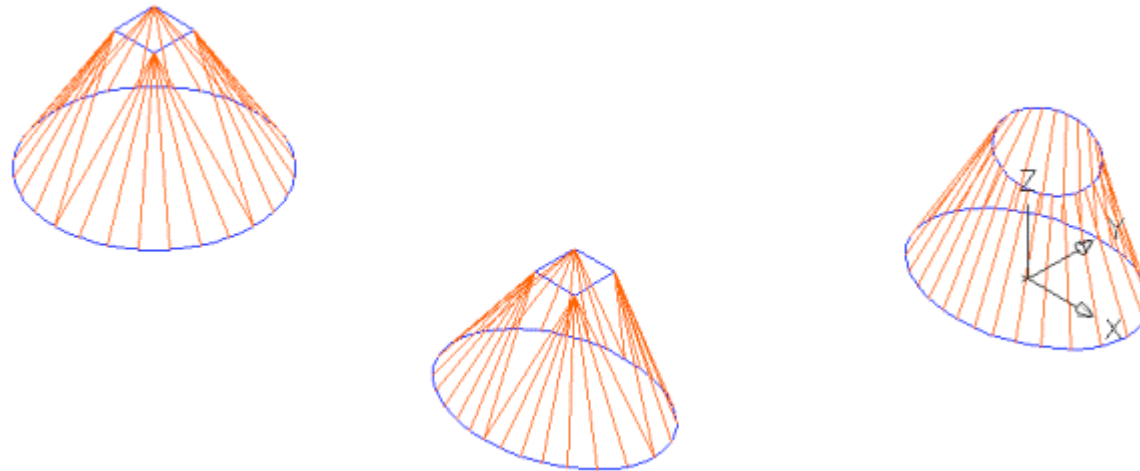
For example, it is possible to have version 7.1 and version 8.1 installed together.

This provides the option to run several versions (e.g., version 7.1 and 8.1) simultaneously.

## Modeling

### Model 1: Conical folded plate

Conical folded plates can be created.



### Model 2: Merge polybeams

Advance Steel polybeams can be merged.

### Model 3: Weld preparation on a folded plate

A welded preparation can be correctly applied on a folded plate.



### **Model 4: Advance Steel copy command – lot**

The Advance Steel copy command transfers the lot information when copying an element (e.g., beam).

### **Model 5: “Advance Steel properties” icon improvements**

A Model Role can be specified when selecting several beams using the "AdvanceSteel properties" icon.

### **Model 6: User attributes available for compound beams**

The “User attributes” are available in the Compound beam properties dialog box.

### **Model 7: Holding dialog box properties for User Attributes**

The user attributes can be selected for reuse in the next object creation (holding dialogs) like all other tabs in the beam and plate properties dialog box.

### **Model 8: Beam properties – design effort page**

The chosen standard (i.e., LRFD or ASD) is kept when closing and reopening the beam properties dialog box.

The beam dialog box opens with the current option set on the "Design Settings" tab (from Quick Connections - Global parameters settings).







### **Model 13:** New bolt norm DIN EN 14399-4

New bolt assemblies according to DIN En 14399-4 are available



## Joints and Structural Elements

### Joints 1: Library improvements

When Joint values are stored in the library, the “%” character can be used as follows:

- % means all profiles
- HEA% means all HEA
- UC203x203x% means all UC203x203 sections regardless of the weight

### Joints 2: New Joint – end plate, moment resistance

A new Joint replaces the “old” End plate, moment resistance joint.

This Joint works in the following situations:

- Between 2 beams and between a beam and a column
- With curved beams and welded beams
- The secondary beam can be connected on the flange or the web of the main beam
- Sloped and skewed model situations

The Quick Connections with the Joint Design according to US rules can use this Joint.

### Joints 3: New Joint – Tension rod systems

New Joints are available with more options than previous Joints.

This applies to manufacturers like DEHA, PFEIFER, BESISTA, MACALLOY, etc.



### Joints 4: **New Joint – gable walls**

A new Joint replaces the “old” Gable walls joint.

The new Joint offers more flexibility and additional options like punch marks and galvanization holes.

This Joint can also be used if the column is a welded beam or if the main beam (rafter) is a curved beam.

The Quick Connections with the Joint Design according to US rules can use this Joint.

### Joints 5: **New Joints – cut at object**

A new Joint replaces the “old” Cut at object joints.

This new joint contains 3 sub-rules:

- Miter
- Saw cut – Flange
- Saw cut – Web

The new joint works on straight beams as well as on curved beams, polybeams, compound beams, and welded beams with all possible combinations between them.

The Quick Param Fit can use this Joint.

### Joints 6: **New Joint – column splice**

A new Joint is available to connect two columns together.



### Joints 7: Quick Connections – clearance setting for Quick Param Fit

A clearance value can be set directly in the dialog box for the Quick Param Fit.

This setting overwrites the value assigned to the Bracing cuts Joint.

### Joints 8: Quick Connections –cap plate and base plate on columns

The Quick Connections can be configured so that “Cap plate” (on the top of columns) and “Base plate” (on the bottom of columns) Joints are automatically created.

### Joints 9: Quick Connections – new option in Global Parameters dialog box

A new option called “Top of Steel to first hole” is available in the Global Parameters dialog box.

This is useful for "Shear plate" and "Through plate" joints.

### Joints 10: Shear plate – new options for cut & position marking

A straight cut on the web of the secondary beam is obtained using a new option on the “Cope layout” tab, which makes it easier for the shop during fabrication.

A punch mark is created in the shear plate center on the same side as the selected secondary beam using the new “Create marking” option on the “Welds” tab.



### Joints 11: Shear plate – chamfer option for stiffener

The chamfer / corner finish type is also forwarded to the stiffener.

### Joints 12: Clip angle skewed – new option for cut

A straight cut is obtained on the web of the secondary beam using a new option on the "Cope layout" tab, which makes it easier for the shop during fabrication.

### Joints 13: Gusset plate joints – additional reinforcement plate

A reinforcement plate is obtained with the new options.

This plate is arranged on the opposite side of the gusset plate.

This applies to the following joints:

- "Gusset plate to column and base plate"
- "Gusset plate one diagonal"
- "Gusset plate two diagonals"
- "Gusset plate three diagonals"



### Joints 14: HSS bracing joints – additional reinforcement plate

A reinforcement plate is obtained with the new options.

This plate is arranged on the outside of the HSS bracing.

This applies to the following joints:

- “HSS bracing with sandwich plates”
- “HSS bracing with sandwich plates – additional object”

### Joints 15: CANAM Joist macro – more available sections

The following sections are available in the Diagonal bar and Vertical bar drop-down lists:

- AISC HSS Square
- AISC HSS Rectangular
- CISC HSS Square
- CISC HSS Rectangular



### Joins 16: Element contour – several improvements

- A chamfer is created on the secondary beam(s) using the “Element contour” Joint.

The cut takes into account the profile radius.

- The “Element contour” accepts multiple selections for cutting beams.
- The “Element contour” also works between a beam and a curved beam.
- The “Element contour” also works when cutting a compound on a compound and a (normal) beam on a compound beam.

### Joins 20: Parametric cope – new option for cope radius

The cope radius can be specified on the secondary beam using a new option.

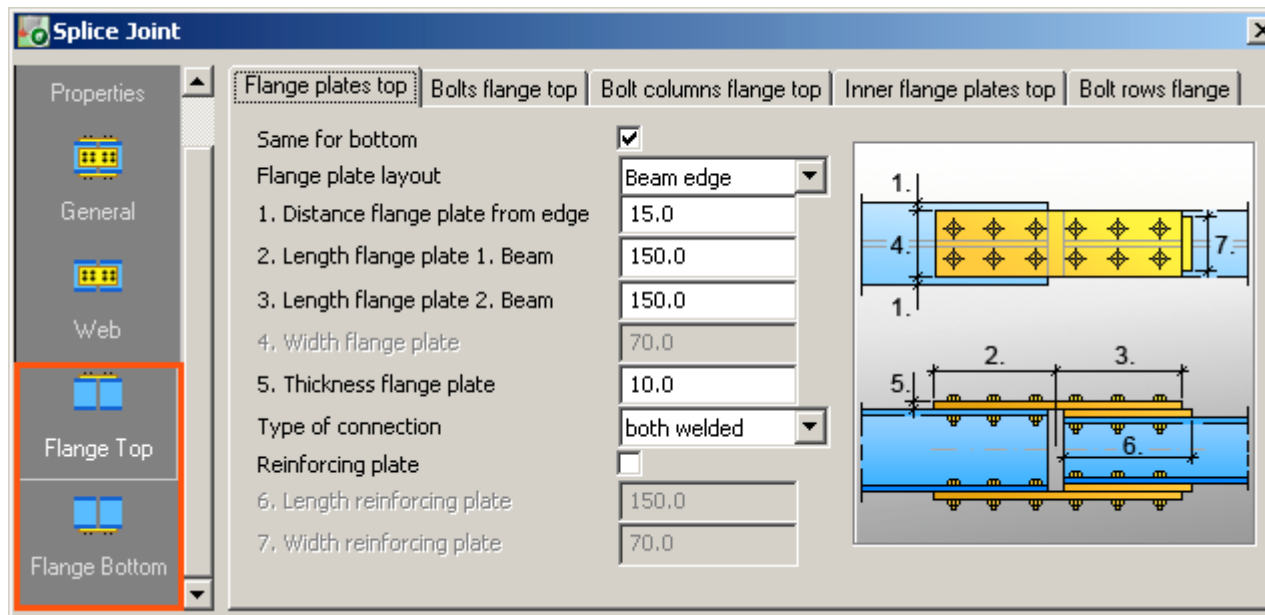


## Joins 21: Splice joint – several improvements

The web and flange plates are treated as “Rectangular plates” (instead of “Polygonal plates”).

The web plates have a justification of 1 (instead of 0.5) with their reference plane on the beam web.

A better grouping of the tabs for the Flanges with one button for “Flange Top” and another button for “Flange Bottom” simplifies the user interface.



A new option to stagger the bolts is available.

New options for the plate size for welded flange plates are available.



### **Joints 22: Double side clip angle – several improvements**

Vertical bolt settings are defined differently for both sides.

The bolts are correctly aligned on the main beam for a sloped connection.

The option for staggered bolts has been fixed for a sloped connection.

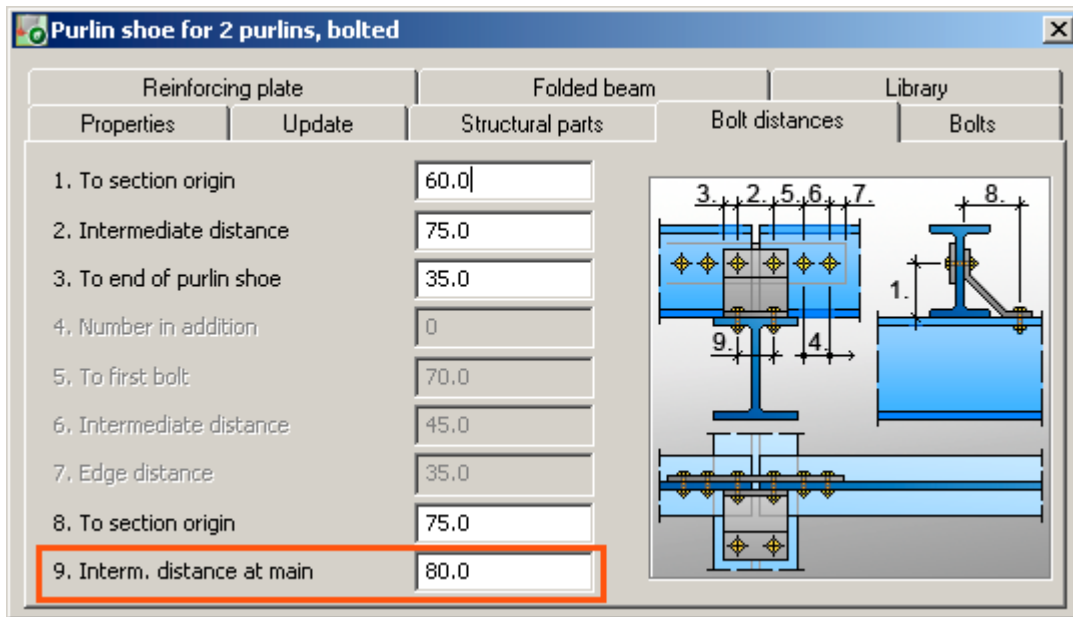
### **Joints 23: Vertical Purlin Plate – drop-down list for bolt diameters & bolt quantity**

The “Vertical Purlin Plate” Joint contains a drop-down list for the available bolt diameters.

The bolt quantity can be fixed to 2 bolts or 4 bolts.

## Joints 24: Purlin shoe, 2 purlins – new option for the bolt distance on the main beam

A new option to specify the bolt distance on the main beam (e.g., rafter) is available.



## Joints 25: Purlin connection – new option for bolt distance on the main beam

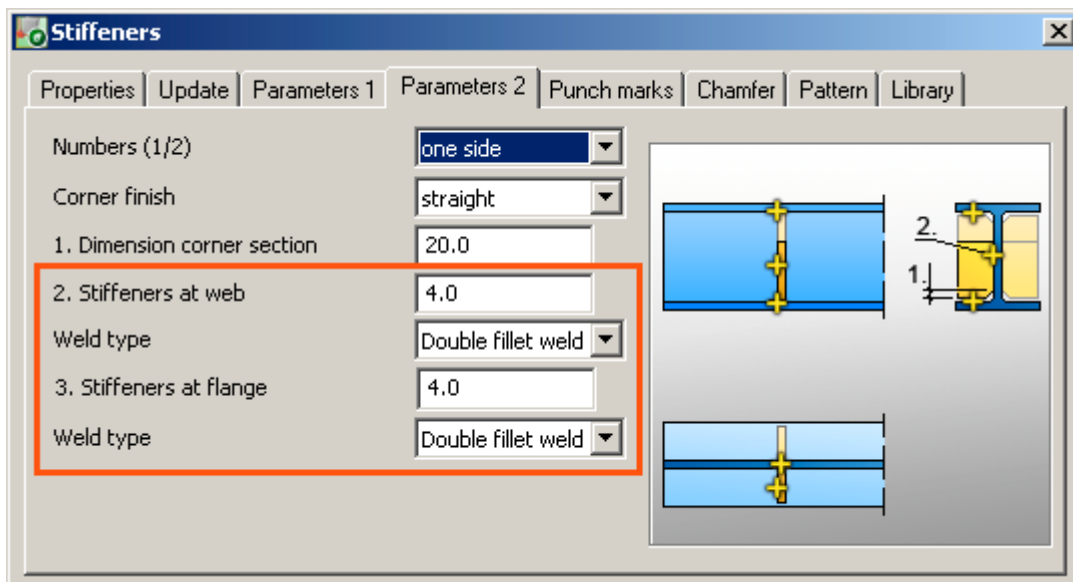
A new option to specify the bolt distance on the main beam (e.g., rafter) is available.

## Joins 26: Haunch flange – removing the flange plate

The flange plate can be removed by setting a value of “0” for its thickness.

## Joins 27: Stiffeners – new options for weld type and size

The “Stiffener, UCS” and “Stiffener, perpendicular” joints contain options to define the weld type and size for the “Stiffeners at web” and the “Stiffeners at flange” welds.





### Joints 28: Stiffeners – can also be created on T- Profiles

The “Stiffener, UCS” and “Stiffener, perpendicular” joints work on T – Profiles.

### Joints 29: Punch mark joints – use new defaults

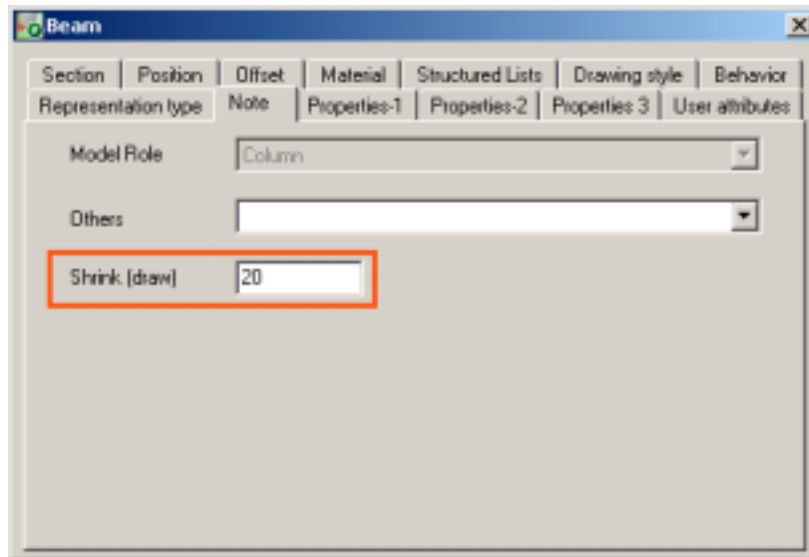
The punch mark Joints use the (new) “Default diameter for punch marks” default.

This applies to:

- GeneralPunchMarks
- PunchMarks
- PunchMarksSimple

### Joins 30: Shrink option available for beams created from Structural elements

The “Shrink (draw)” option is available for beams created from Structural elements macros (e.g., Portal Frame, etc).



### Joins 31: Weld "Continuous" option is available

For all the (new) joints where the weld definition is not available directly in the Joint dialog box, the weld “continuous” option is available in the Weld properties dialog box (outside the Joint).

## Stairs and Railings

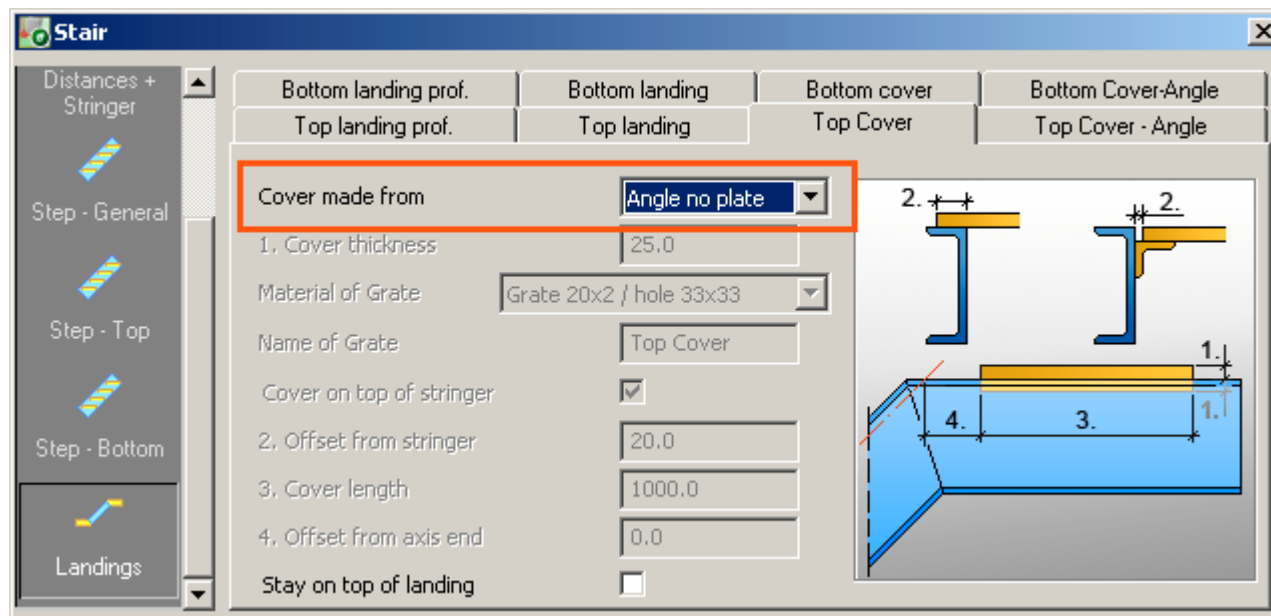
### Stairs 1: Stairs – new option for landings

Several new options are available in the Stairs macro:

- “Angle no plate” option:

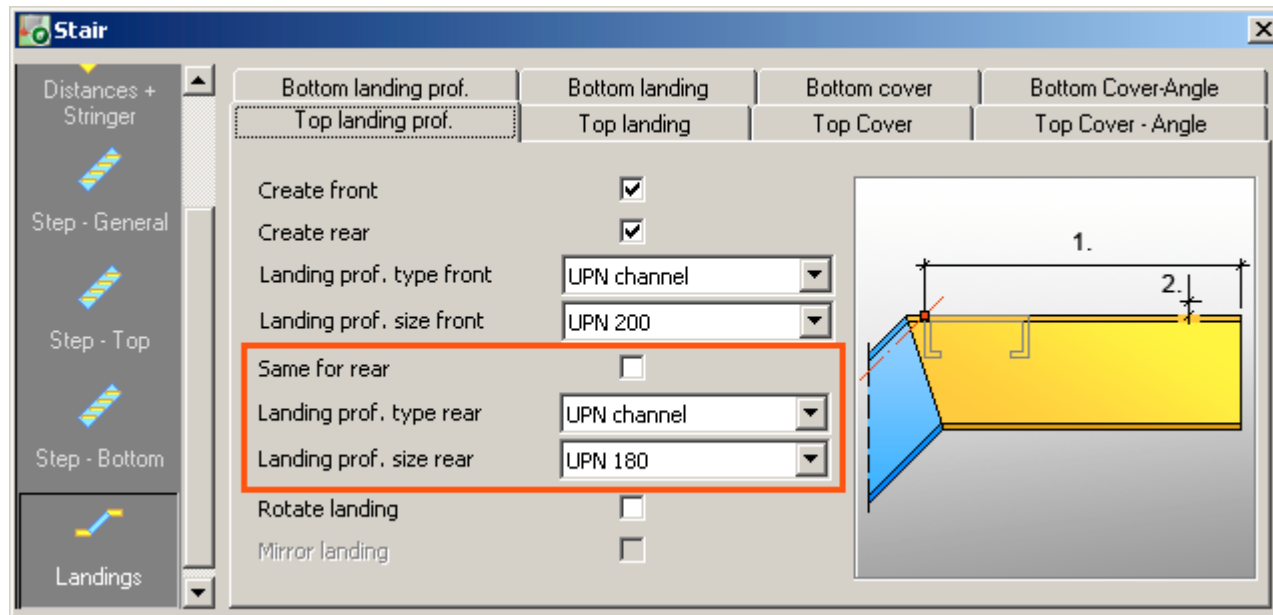
There is a new option for the Bottom and the Top landing so that a landing with Angles but without a Plate can be created.

This new option is named “Angle no plate” and can be found under “Cover made from”.



- Different profile for front and rear landings

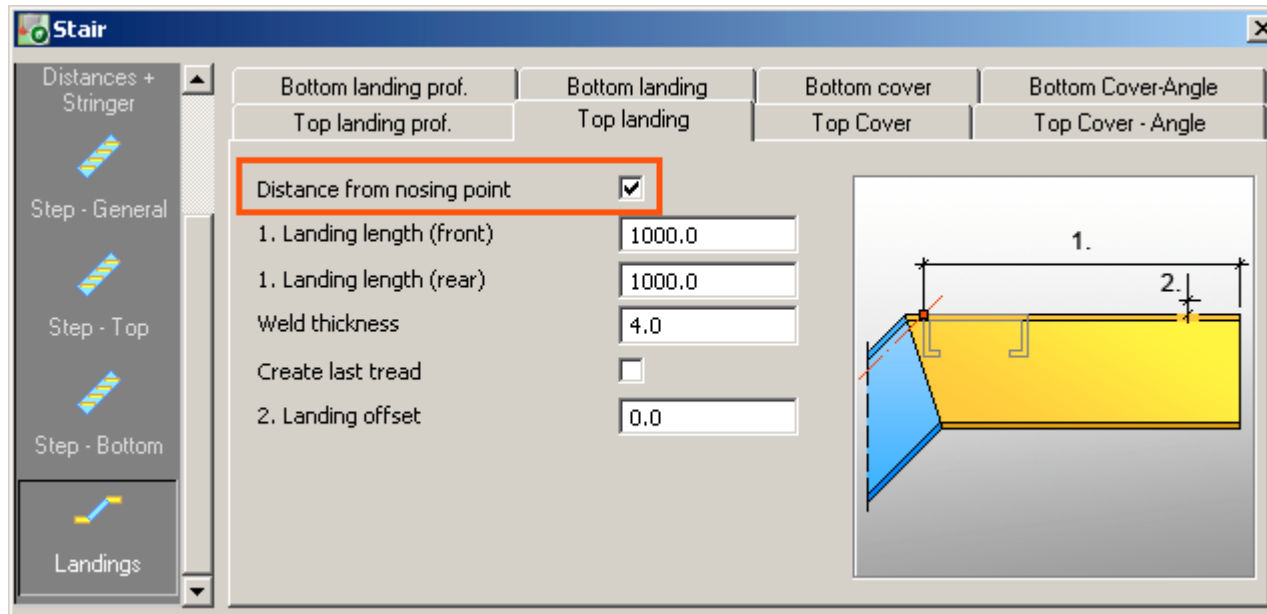
The used profile for the front landing is distinguished from the rear landing.





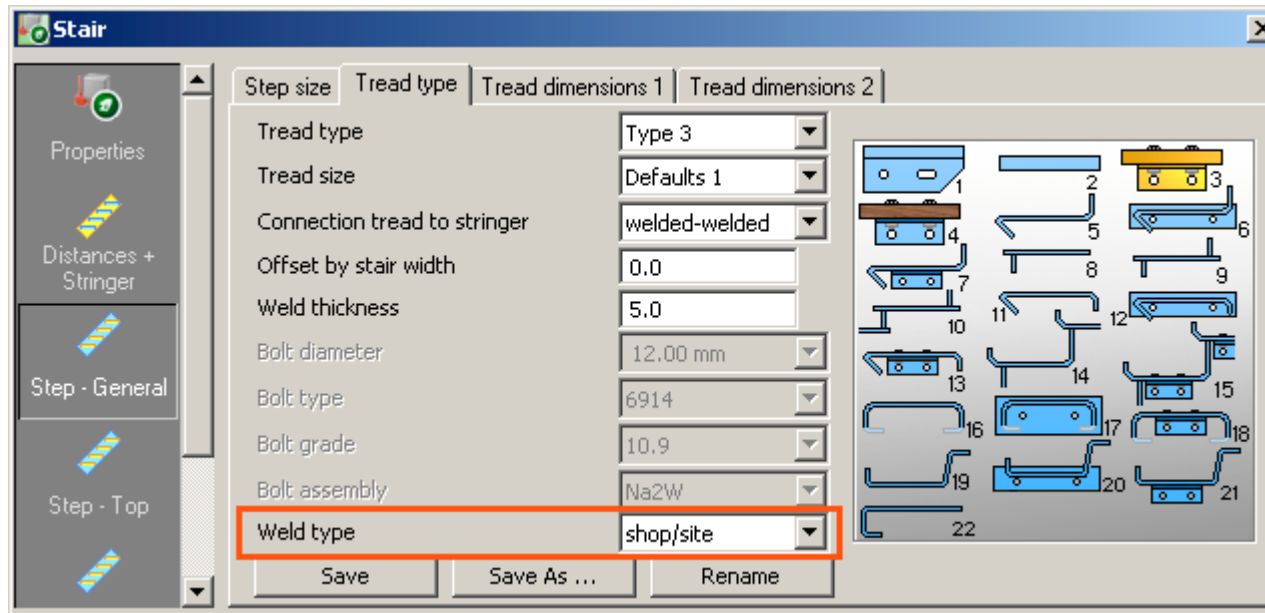
## Stairs 2: Stairs – new option for the landing distance from the nosing point

A new option to decide if the landing cover plate starts from the nosing point is available.



## Stairs 3: Stairs – new side weld option

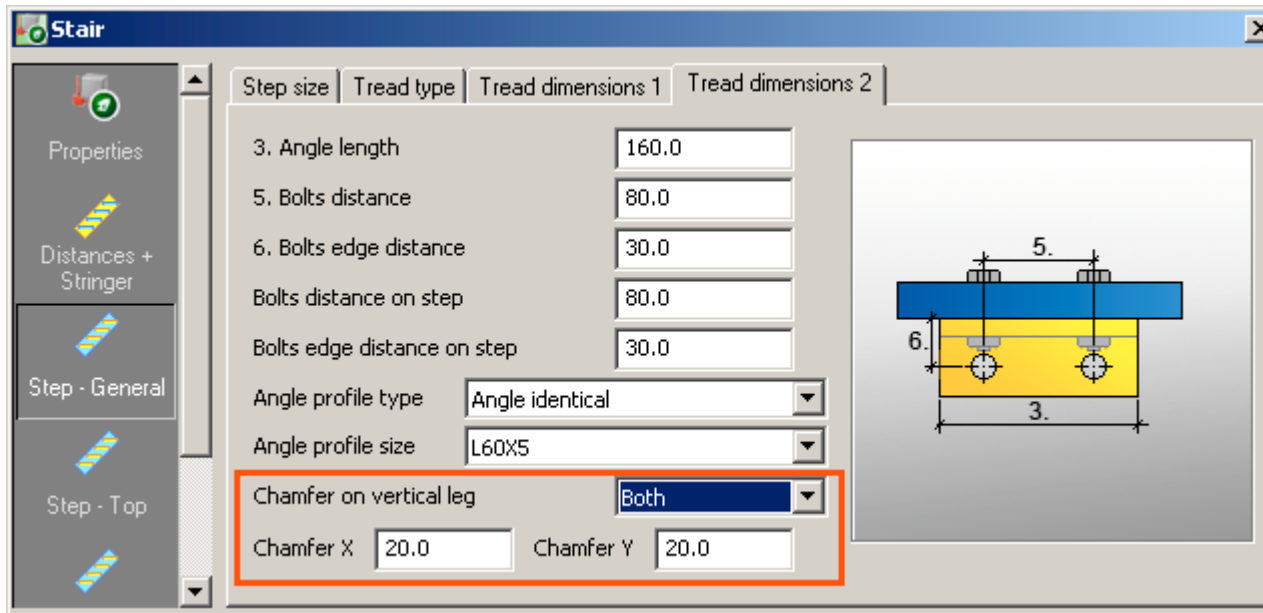
A new option is available for treads connected to a stringer with an angle. This applies to treads type 3, 7, 13, 15, 18, and 21. The available options are: "shop-shop", "site-site", "shop-site", and "site-shop".



## Stairs 4: Stairs – new option for chamfer on treads

A chamfer(s) can be added on the angle cleat for the Treads.

This applies to the following tread types: Type 3, Type 4, Type 7, Type 13, Type 15, Type 18, and Type 21.



## Stairs 5: Stairs – user treads can be connected to a stringer with an angle or plate

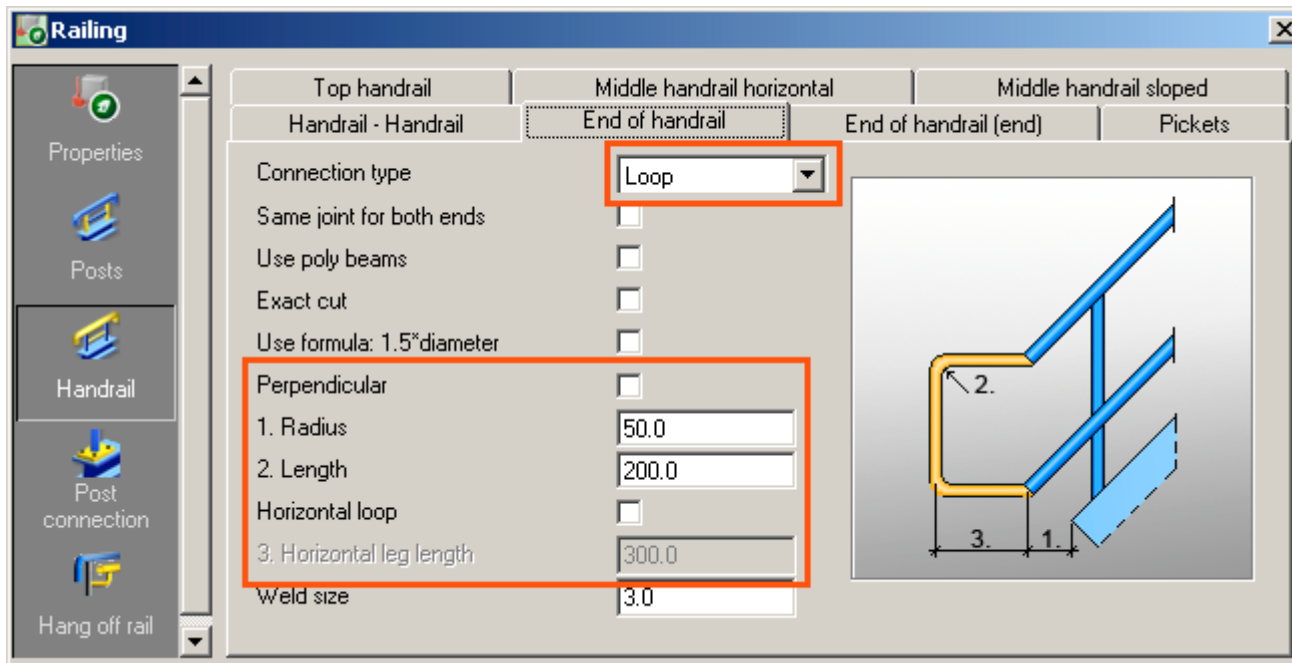
When a User Treads (tread type 22 in the Stairs macro) is used, a connection tread-stringer created with welds, angle, or plate can be selected.

## Railings 1: Railings – can be created on welded beams made of flats

A Railing can be created on welded beams that are I symmetric or I asymmetric.

## Railings 2: Railings – new "Loop" end type and new "Perpendicular" option

A "Loop" end type in the Railing macro can be created.



In addition, the "return" of the "Bent end" can be perpendicular to the hand/middle rail using the new "Perpendicular" option (available for all end types).

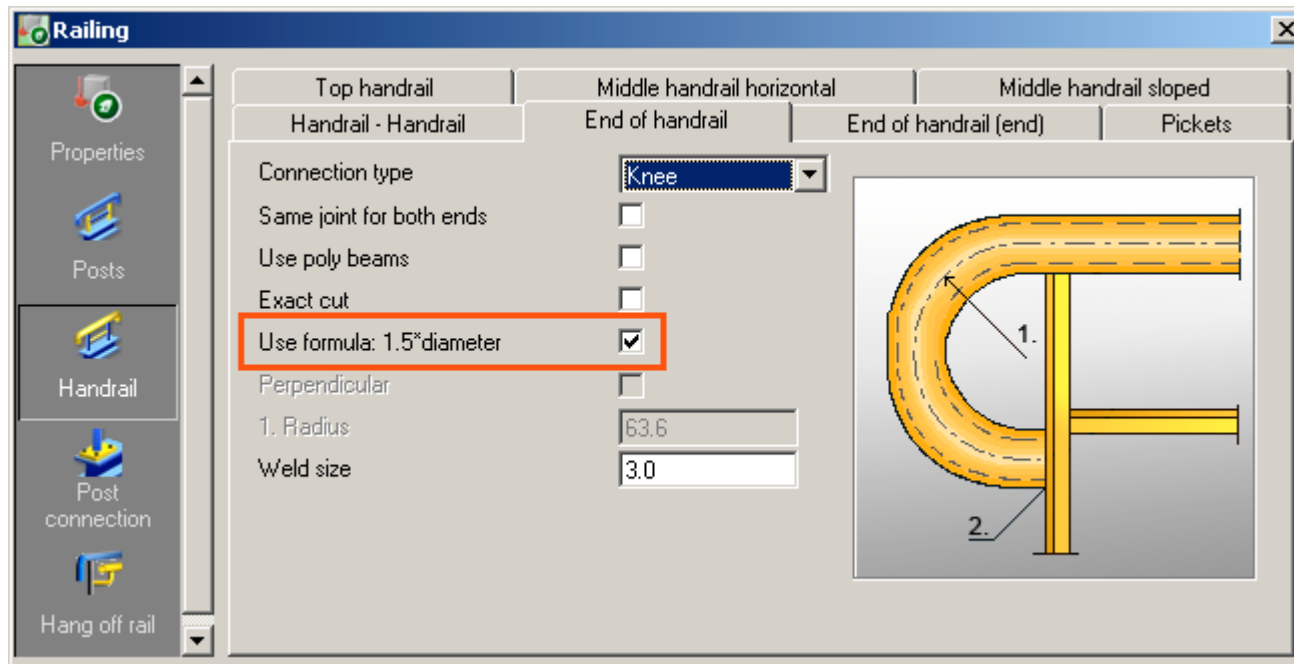
## Railings 3: Railings – "End of handrail" height improvement

When choosing a "Return" end type, the "length" (the vertical dimension) is measured from the defined handrail height and not the physical centre of top rail.

This means that if changing the height configuration between top and centre of top rail, the bottom of the return does not change the height (so that it remains aligned with mid rail).

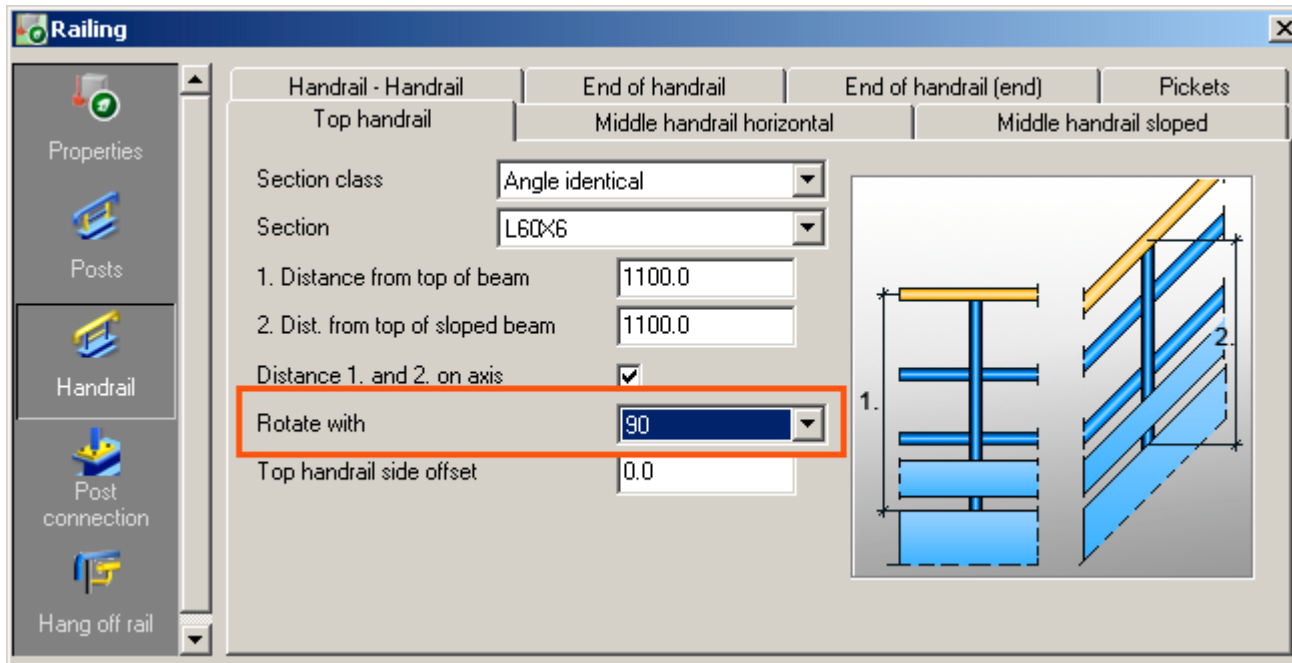
## Railings 4: Railings – "1.5 x diameter" formula is available for End of handrail

The "Use formula: 1.5 diameter" option is on the "End of handrail" tab(s).



## Railings 5: Railings – option to rotate rails when they are angle

The top rail and middle rail can be rotated, like for the vertical filling of middle rails (0, 90, 180, 270), using the new option.



## Railings 6: Railings – options for horizontal and sloped middle handrails can be set separately

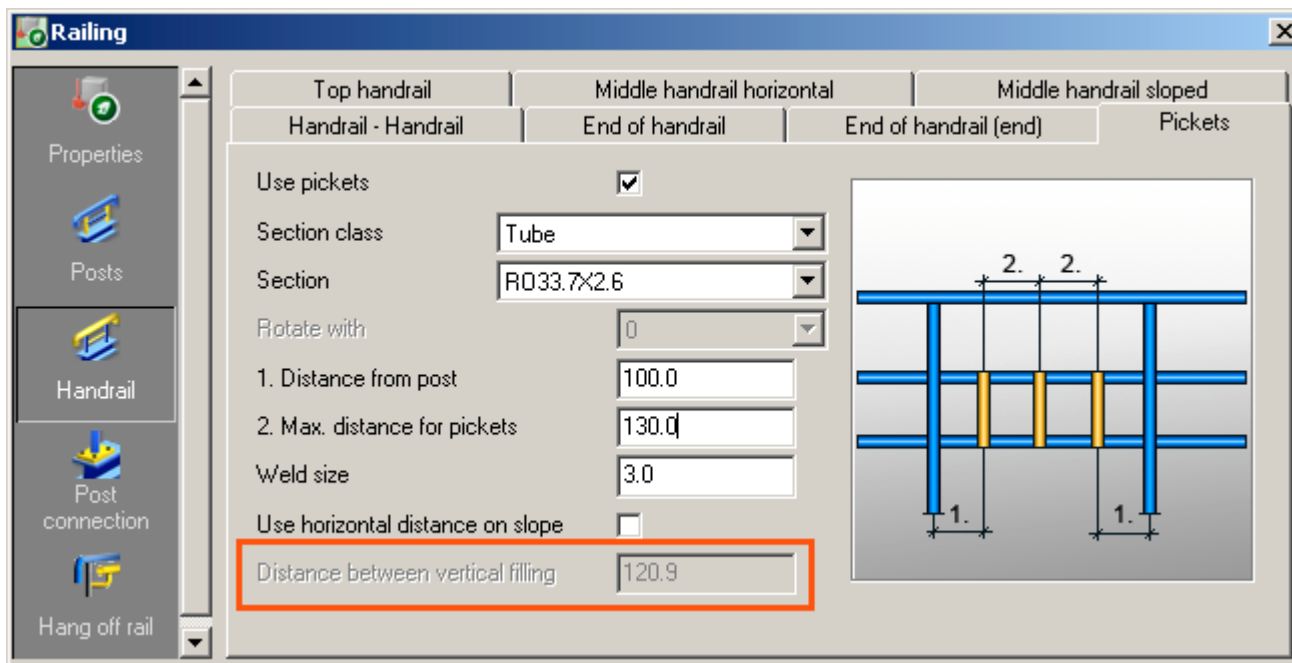
The "Middle Handrail" tab is split into two tabs ("Middle Handrail Horizontal" and "Middle Handrail Sloping"). All the properties can be set separately for each.

## Railings 7: Railings – new "Angle with weld-bolt" option for post connection

A new option is available for post connection.

## Railings 8: Railings – new option for vertical pickets

There is a new option called "Distance between posts", which is calculated, grayed, and helps the user by displaying the distance between vertical filling from the group between the first two posts.



## Railings 9: Railings – improvement of post alignment

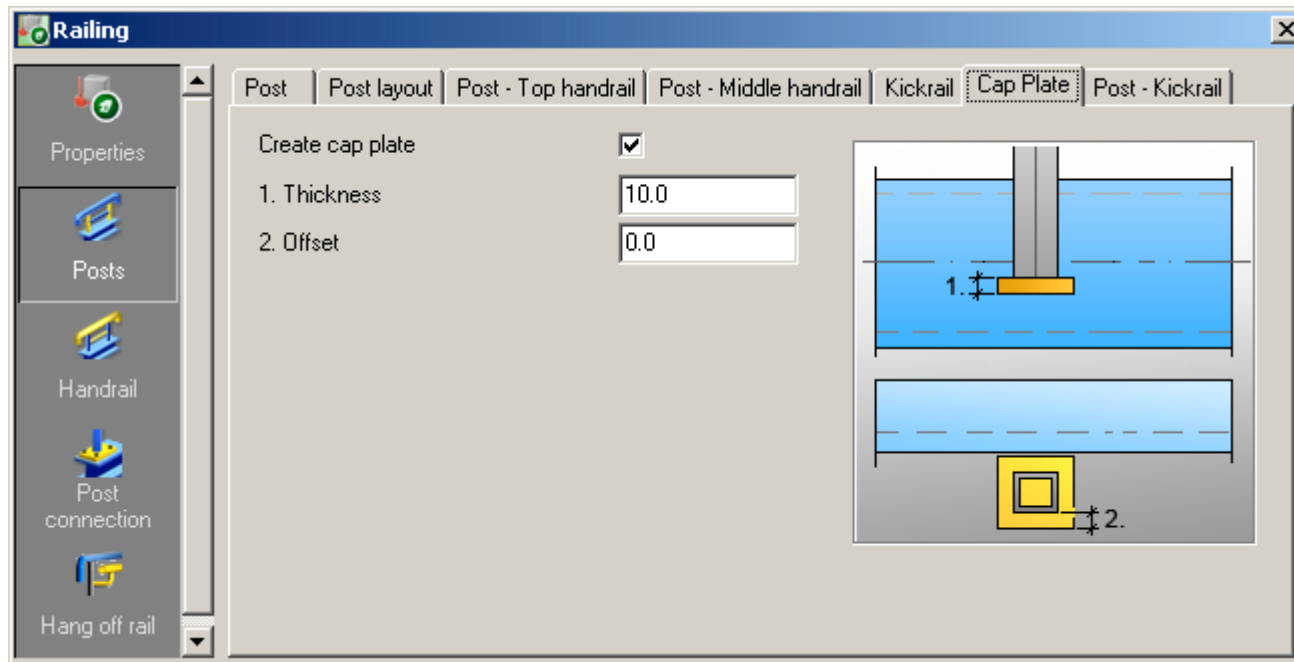
When the “Post alignment from edge” option is chosen, the reference points have been improved so that the offset is from the edge of the support beam to the center of the post.

## Railings 10: Railings – chamfer on the posts bottom

A chamfer can be created on the posts bottom.

## Railings 11: Railings – new option for cap plate at the bottom of the railing posts

There is a new "Cap plate" tab in the "Posts" group, on which the user can define whether a bottom cap plate must be created.



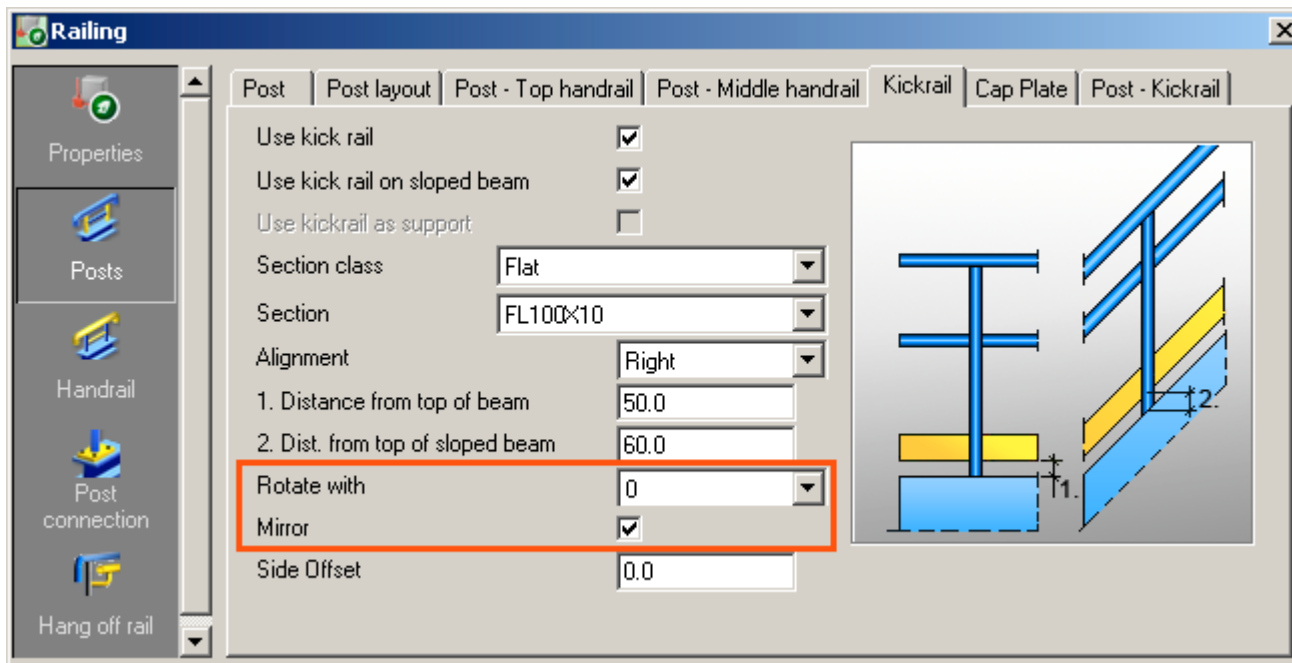


## Railings 12: Railings – new post connection options

Posts can be connected on the main beam with equal or unequal angles.

## Railings 13: Railings – new options for the Kickrail

New options for the Kickrail rotate, mirror, and offset functions are available on the "Kickrail" tab in the "Posts" group.



A new "Post - kickrail" tab in that group is also available with 4 connection types (i.e., Cut, Align, Continue - welded, Continue - bolted).

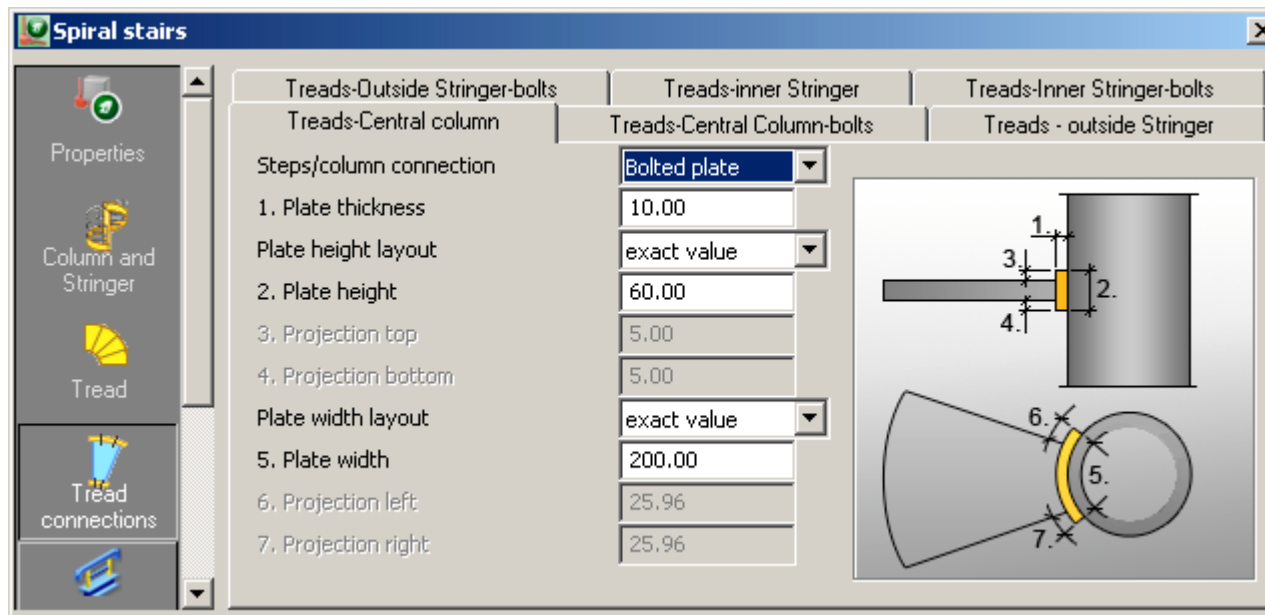
For the "W" kick type the system line is positioned at the heel of the angle while for the "F" kick type the system line is unchanged (at middle).

## Spiral 1: Spiral stairs – connection between treads and stringer

Treads can be connected to the stringer for Spiral stairs.

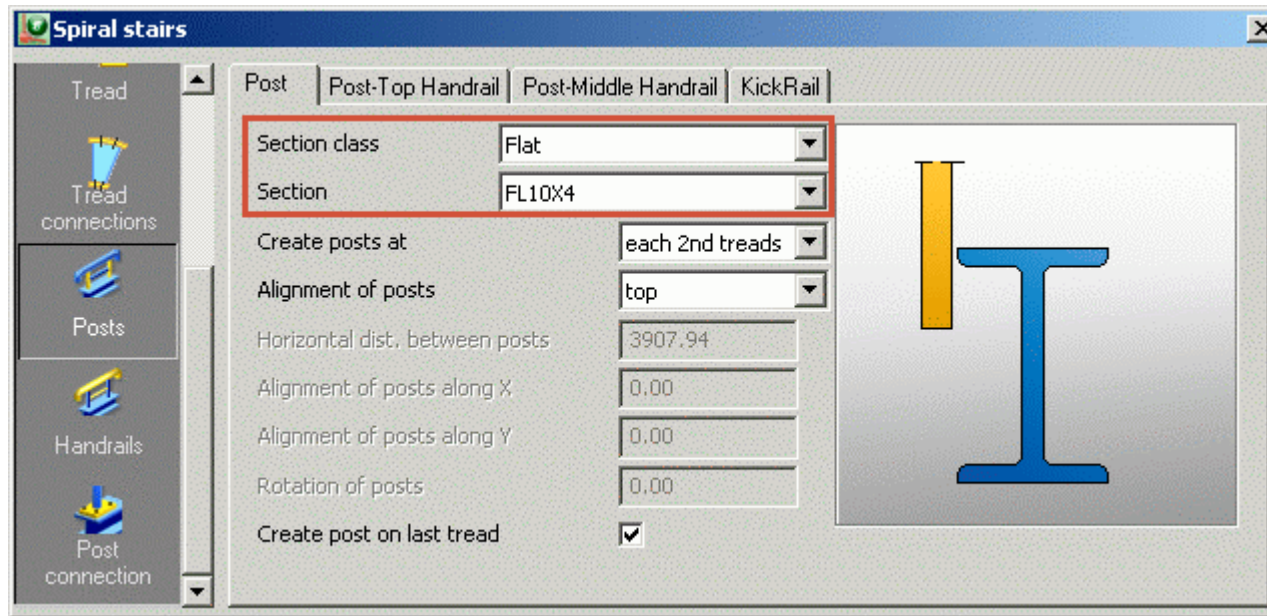
The treads have options for end plates and angles similar to straight stairs.

End plates are curved or straight to suit the stringer.



## Spiral 2: Spiral stairs – "Flat" section class is available for posts

The "Flat" section class is available in the Posts drop-down list.



## Spiral 3: Spiral stairs – Improved speed

The speed has been improved when using the Spiral stairs macro.

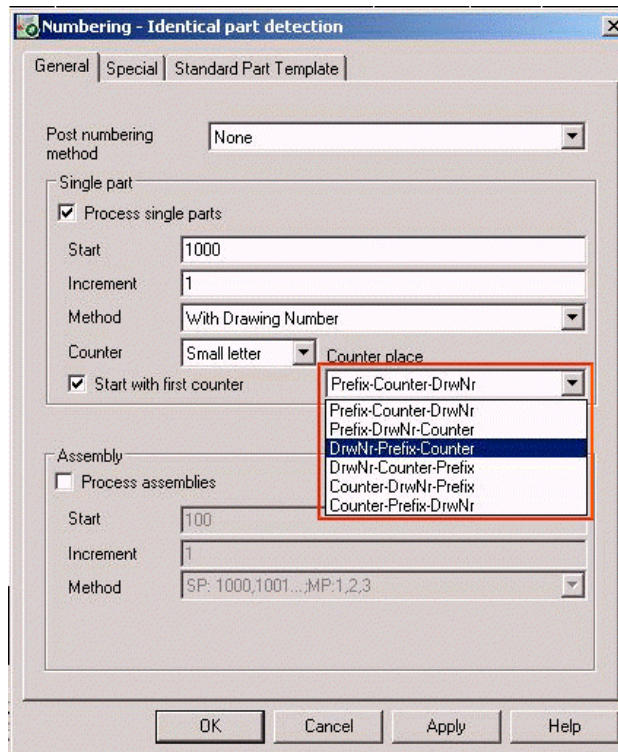
This is also visible when the stringer is a 3D folded plate.

## Numbering

### Numbering 1: Extended functionality for the "With Drawing Number" method

This new numbering is for the drawing number with a new arrangement between the drawing number - prefix - counter (e.g., 1C1, 1C2, etc).

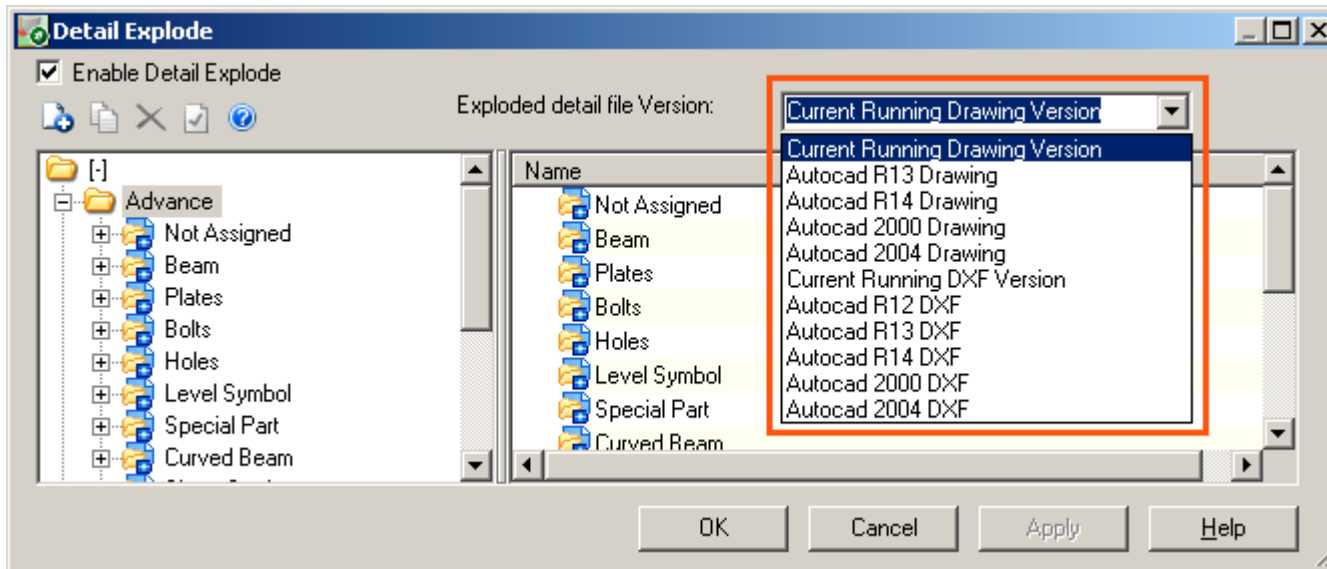
This numbering method is for use with multi-drawings.



## Document Manager

### DM 1: Batch explode: selection of the AutoCAD® version

The AutoCAD® version of the exploded drawings can be selected using a new option in the dialog box.



This is very useful for users who use the batch explode to send drawings to 3rd parties, who will sometimes be using a different AutoCAD® version.

A new default called "C0\_Detail\_OutputFileVersion" can also be modified to decide the default AutoCAD® version.



### **DM 2: User dimensions of holes are better maintained after an update**

User dimensions added on holes seen from the side view are maintained after an update of the drawing.

### **DM 3: Batch plot settings**

Advance Steel recognizes the selected plot window.

### **DM 4: List preview – find button**

The “Find” button can be used in the list preview.

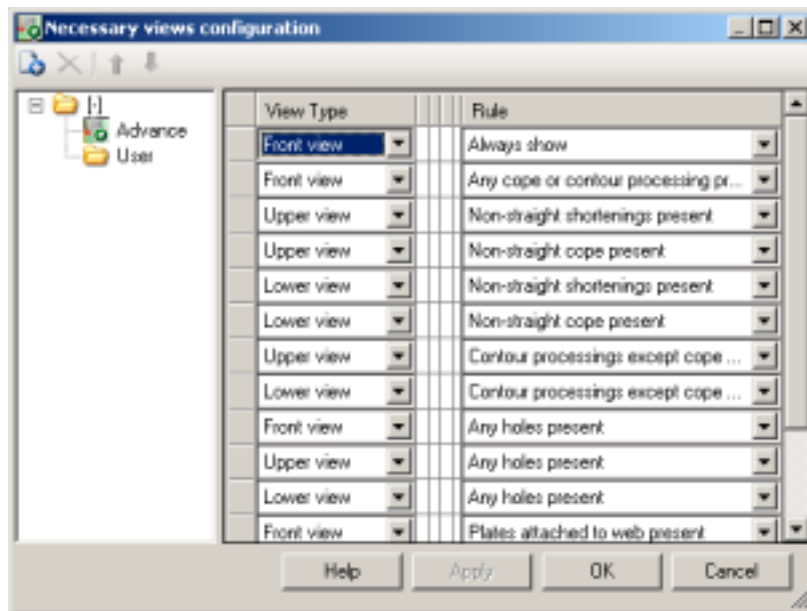
## Drawings

### Draw 1: Automatic calculation of necessary views

Advance Steel is able to detect the necessary views for workshop drawings.

If a view does not provide any additional information compared to another main view, Advance Steel automatically omits its creation.

Users can define the rules they want to apply for this automatic calculation of necessary views in a dialog box.



It works for single part drawings and for assembly part drawings.

This provides very clear workshop drawings where only necessary views are created.



## Draw 2: Better label placement

The labels are better placed and do not cross each other.

## Draw 3: Multiple-labels color

The color of the "2x" gets the same color as the label itself based on a new default called "C40\_UseLabelSettingsForCombinedLabelsInfo".

## Draw 4: Sloped triangle improvements

The slope triangle is more flexible to handle.

The following improvements have been made:

- Properties for the slope dimension are controlled through the slope triangle dialog box.
- The short side is fixed (configured by the dimension style: arrow size).
- The orientation of the text is given by the orientation of the line defining the reference (base side of the slope triangle).
- The angle text can be placed on the opposite side of the triangle.

## Draw 5: Revision table improvements

The cell height of Revision Table is automatically resized to fit the text.

Words are no longer split (if they do not fit on the same line).

Revisions can be edited with the "Revision Mark" command ( `_AstM4CommDetailRevision`).





### **Draw 6: Folded profile drawings**

The unfolded Folded profiles are displayed with the same view in drawings and in DXF-NC files so that they are understandable to users.

### **Draw 7: Folded profile unfolding**

The elongation affects only the radius since the elongation happens there and not on the rest of the folded plate. Straight parts are not affected by the elongation calculation; only the folded edge is affected.

### **Draw 8: Unfold text can be customized**

The unfold text can be configured as a label.

This label supports the following tokens: %BendingDirection, %BendingAngle, %BendingRadius and the normal format tokens (color, font, etc.).

### **Draw 9: Intersection view creation controlled by a default**

Advance Steel creates Intersection views when updating the drawing based on the "C40\_CreateAllInteractiveViewsAtUpdate" default.



### **Draw 10: End plate views – more flexibility**

In previous versions of Advance Steel, the automatic creation of End plate views was based on some (hard-coded) model roles that the user could not modify.

This has been changed to give more flexibility to users.

### **Draw 11: Cut views – omitted for certain parts**

Advance Steel omits automatic creation of cut views for certain model role objects.

This applies to beams that have the "Haunch" model role.

### **Draw 12: Thickness token available for the view title**

The "Thickness" token can be in a detail title and can have any precision set to it.

This is useful for Plates having, for example, a thickness of "3.5mm".

### **Draw 13: Weld width improvements**

The justification setting of the AutoCAD® text attribute is taken into account for weld symbols which are not too long in width. This provides better quality drawings for the display of weld symbols.



### **Draw 14: Weld properties dialog – user text on "Additional data" tab**

When “Insert weld symbol” is used in a drawing, user text can be added on the “Additional data” tab of the weld properties dialog box.

### **Draw 15: Radial dimension creation - simplification**

There are 3 available methods when creating a radial dimension: 3P, 2P, and Radius.

- The "3P" method is used for selecting 3 points on the arc.
- The "2P" method is used for selecting the arc center and a point on the arc.
- The "Radius" method is used for selecting the arc center and radius.

### **Draw 16: Better results when moving the radial dimension**

When a Radial dimension is selected and moved, the arrow (of the radial dimension) stays as close as possible to the point on the selected arc when the dimension is created

### **Draw 17: Switch off hidden lines from inside a drawing**

When the hidden lines are switched off in a drawing, the hidden lines of bolts and holes are also removed.



### **Draw 18: Decreased memory usage when creating a 3D view**

The memory usage has been decreased when creating a 3D View from the model. This provides improved speed results.

### **Draw 19: Detail explode settings for Polybeams**

The polybeam was added to the Detail Explode settings.

### **Drawing Style Manager**

#### **DSM 1: "Compact" button improvement**

The "Compact" button works on huge databases (the drawing styles are contained in a database).

#### **DSM 2: Dimension holes not perpendicular to their normal**

Holes can be dimensioned along directions that are not perpendicular to their normal.

#### **DSM 3: Improved geometric restrictions for curved beams**

Geometric restrictions for the front/rear views of a curved beam are improved.

#### **DSM 4: New "Model object" group is immediately visible**

When a new group is created in "Model object", Advance Steel does not have to be restarted to see the new group.

#### **DSM 5: DS label configuration - GUI improvements**

Easier understanding of the labels configuration options is achieved with pictures.



## Lists

### Lists 1: Improvements in memory usage by drawings containing a list

There are no longer problems of memory usage limits when requesting all the drawings (containing a list) of a whole structure.

### Lists 2: Templates by default

BOM Templates delivered by default are improved as follows:

- Export to MS Excel is improved.
- Some column names are improved.
- Name of the list is included in the page header.

### Lists 3: User attributes tokens available in DSTV-BOM

The User attributes tokens are available in DSTV-BOM.

### Lists 4: BOM templates from project branch

BOM templates from the Project branch are available on the "Template" tab of the "Insert list" dialog box.



### **Lists 5: Date display on lists**

The Date is correctly displayed on lists with the following format: dd.MM.yyyy

### **Lists 6: Improved speed of the BOM editor dialog box**

The speed of the BOM editor dialog box has been improved, especially for big models.

### **Lists 7: DSTV lists with imperial bolts**

The DSTV lists works with bolts in imperial units.



### Settings in the Management Tools

#### MT 1: New defaults for punch marks and galvanized holes

The new defaults are:

- C1000\_DiameterGalvanizedHolesCenter = Default diameter for galvanized holes center
- C1000\_DiameterGalvanizedHolesCorner = Default diameter for galvanized holes corner
- C1000\_DiameterPunchMark = Default diameter for punch marks

#### MT 2: New default for the RD dimension symbol

The reference symbol for running dimension (RD) is displayed based on the new "C40\_ShowRunningDimSymbol" default.

#### MT 3: New default for zero suppression in lists

A new default "C0\_BOMSuppressLastZeros" is available to define on how many decimals are shown after the comma.

#### MT 4: Improved color choice for the "Color for marked objects" default

The color for the "Color of marked objects" default can be easily chosen.





### **MT 5: "Import/export directory for PSS files" Default – path can be set**

The path can be defined for this default by using the new "CurrDir" token.

### **MT 6: "Specifies the default clipping type" Default – new option**

The option to set this default to “custom clipping” is available.

## Import / Export

### Import/Export 1: **Toolbar improvement**

The existing toolbar has been split into two toolbars.



### Import/Export 2: **GTC –transfers connection elements**

The GTC supports all parts of the joint (i.e., features, welds, bolts, small plates, complex cuts, etc.).

### Import/Export 3: **GTC Synchronization – curved beam**

The "Curved" value is transferred in the GTC file.

### Import/Export 4: **GTC Synchronization – folded beam**

The folded beam properties are correctly transferred in the GTC file.

## Import/Export 5: IFC 2x3

IFC 2x3 files can be imported and exported.



## Import/Export 6: CIS/2 export

For the cut of the end of members having an angle, Advance Steel uses FEATURE\_VOLUME\_PRISMATIC\_SKEWED\_END (instead of FEATURE\_CUTTING\_PLANE) for the CIS/2 files.

## Import/Export 7: PSS Mapping profile improvements

PSS functionality

## Import/Export 8: KISS export improvements

The "Part net weight" for plates is exported to KISS files.

The "Part net Area" for beams is exported to KISS files.

The Assembly part mark or the Single part mark is exported in the KISS files based on the setting of the new "CO\_KissUseAssemblyNumberForPartMark" default.



### Import/Export 9: Joint Design (CM66 – French rules) import improvement

Files from the new version of MELODY Attaches (\*.BLF01 extensions) are imported on the “Joint Design” tab of the “Haunch” Joint dialog box.

### Import/Export 10: Joint Design (EC3) – new option for bolts

In “Settings”, threaded and unthreaded bolts can be distinguished, which is required for Joint Design.

### Import/Export 11: New default for saving with proxy-graphics

The automatic saving of the model with proxy-graphics is based on the setting of the new “C0\_SaveProxyGraphic” default.



### **NC Files**

#### **NC Files 1: User sections / Custom planes**

All Advance Steel profiles, which do not provide standard planes, provide custom planes for NC files.



### Others...

- SDDP and Advance Steel 8.1 can be installed on the same computer.
- Some sections (e.g., Flats), which were missing when importing a SDDP model, are correctly imported.
- The catalog of Russian profiles has been corrected so that internal names do not contain Russian characters (only English characters).
- Mapping of the Profile names in certain drawing styles has been improved.
- Installation in Chinese: a Chinese installation of Advance Steel with Chinese settings (preferred sizes, etc.) is available.
- Installation in Korean: a Korean installation of Advance Steel with Korean settings (preferred sizes, etc.) is available.
- Some prompts in some dialog boxes were partially hidden on the Korean platform: this has been corrected.
- The shortcut for <C>hanging the label content within drawings has been fixed in the Dutch and Polish versions.
- The Advance Steel audit detects and deletes features (when not part of a joint), which cannot be correctly subtracted from objects during the audit.