

Truss4 v6

Fine ltd. is pleased to announce new version 6 of Truss4 software. The new version brings many new features and important bug fixes. List of new features:

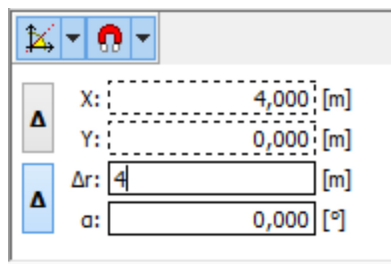
Graphical input

2D workspace contains new tools for graphical input, without any need of input in windows. It's possible to input walls and trusses in Truss 3D and members in Truss 2D in this way. The same tools are also used for new elements in both programs – for construction lines.

Graphical input was based only on connecting of existing joints or nodes in Truss 2D and 3D. The version 6 brings these new options:

- Input of the node (beginning or end of the wall, member, line or truss) everywhere in the workspace
- Object snap points on existing lines in the structure (ends, intersection, parallel intersections etc.)
- Polar input with the help of the element length and the rotation angle

Toolbar for graphical input is placed in the bottom part of the tree menu.



User interface of graphical input

The upper toolbar of the frame contains settings of polar tracking and object snap :



- This menu contains settings for the polar tracking. It's possible to switch the polar tracking on or off and also specify the increment angle. The increment angle can be 30°, 45° or 90°.



- This menu contains settings for object snap

The bottom part of the frame contains input lines for entering the point coordinates (fields X and Y) and for polar input: length (field Δr) and angle (field α). These fields are accessible by direct input from keyboard, it isn't necessary to use mouse and cursor for the input. Input of the each value is activated by corresponding letter on the keyboard. Expression

X5.36

Means, that the software enters value 5.36 into field for x-coordinate. For entering the point with coordinates $[3,2;0]$ it's possible to type expression

x3,2y0

Input has to be confirm by key "**Enter**". It's also possible to use "**Tabulator**" for switching between input lines. As an alternative of the last expression, it's possible to use

x3,2{Tab}0

The similar way is used for input with the help of length and rotation angle. The length field is accessible by key *r* and angle by letter *a*. As the input of the length is the most common way, this field is also accessible by direct input of the number on the keyboard. Typing any

number on the keyboard will automatically set the length field as active one. Rotation is measured from horizontal axis x in anti-clockwise direction (according to the coordinate system orientation). This formulation creates a line 8.5 m long with rotation 10°

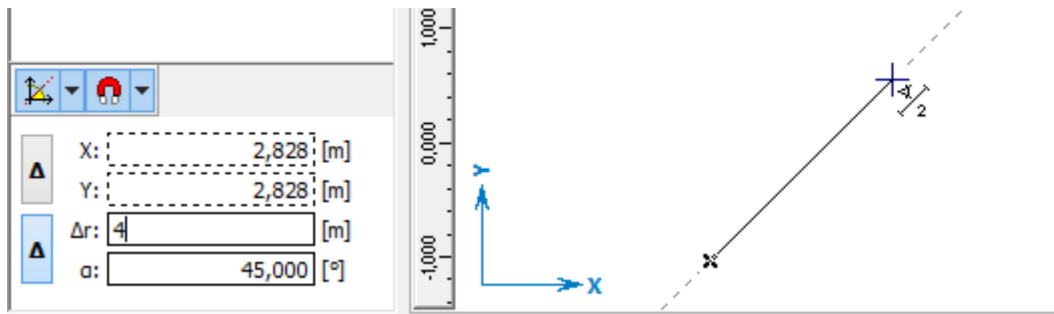
$8.5a10$

Input has to be confirmed by "Enter". Alternatively, it's possible to use "Tabulator":

$8.5\{Tab\}10$

Buttons „ Δ ” are used for switching between absolute (values are considered in relation to the start of coordinate system) and relative (values are considered in relation to the beginning point of the entered line) input. The default behaviour of the software is, that the first point of the line is specified in relation to the point $[0,0]$ in coordinate system and the second point is considered in relation to the first point.

The input line for rotation angle automatically take over the angle, that is indicated by the cursor. In the most of cases (when using polar tracking) it isn't necessary to specify the angle on the keyboard, as the correct angle is specified by the position of the cursor. Only value for the length has to be specified in these cases.



Rotation angle specified by the cursor

Truss 3D

Construction lines



Construction lines are auxiliary lines, that can be inserted in the structure during entering the structure. These lines can be used for creation of apparent intersections, parallel lines etc. Object snap during entering the walls, trusses and members is active also for these lines. The software also contains few tools for the work with construction lines like extend/trim, copy, mirror, rotate.








Tools for the work with construction lines are placed in a new toolbar. This toolbar is available only for 2D workspace. Construction lines aren't displayed in 3D workspace.



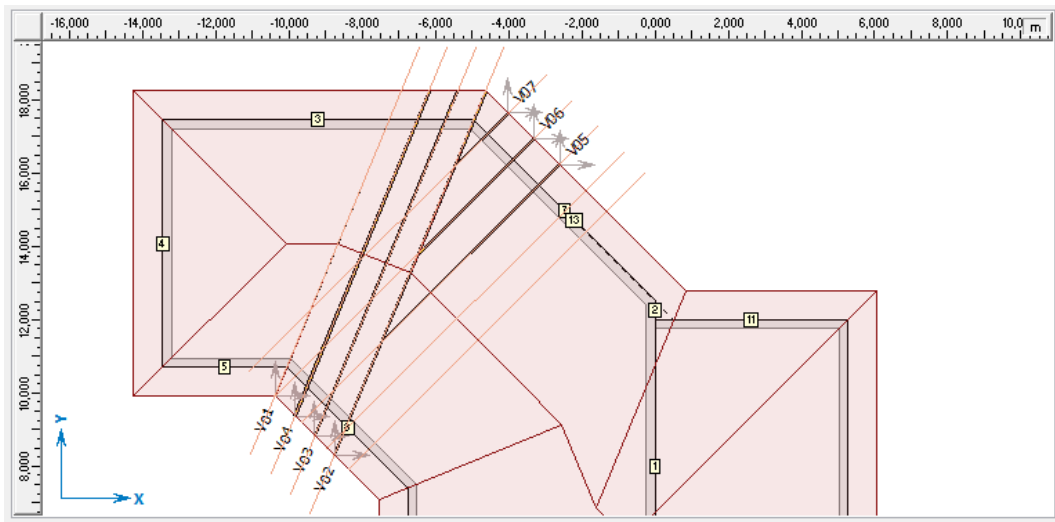
Toolbar for construction lines

All the tools can be used only for individual lines now. Support of the work with selected lines should be added in future versions. These tools are currently available:

- 
 - Switch on/off construction lines. When switched off, the lines are still saved in the structure and it's possible to display them later.
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 - Add construction line with the help of graphical input (entering of the beginning and end point of the line).

-  • Remove construction line.
-  • Copy the construction line by entering the reference and insertion point. For the It's possible to use both object snap and graphical input for the copy.
-  • Create parallel line. This tool creates parallel line in specified distance from the selected line. The distance can be specified both on keyboard or in the workspace by two points. The change of the input style is available by clicking on button "▼".
-  • Mirror the selected construction line. The original line remains on it's position. First, the mirror axis has to be entered by two points. After that, it's possible to mirror unlimited number of the lines.
-  • Create rotated copy of the line. The rotation angle can be specified by the keyboard or graphically in the workspace. The change of the input style is available by clicking on button "▼".
-  • Extend or trim two lines into the mutual intersection.
-  • Extend or trim lines to the selected one. First, the trimming line has to be selected. After that, it's possible to trim or extend unlimited number of the lines.

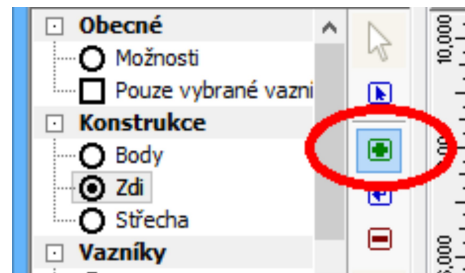
Constuction lines can be used for the input of the walls and trusses.



Construction lines for truss input

Graphical input of the walls

Walls can be entered directly in the 2d workspace. It isn't necessary to insert the points first. Graphical input can be switched on by the button "+" in the toolbar, that is displayed along the tree menu in mode "Walls".

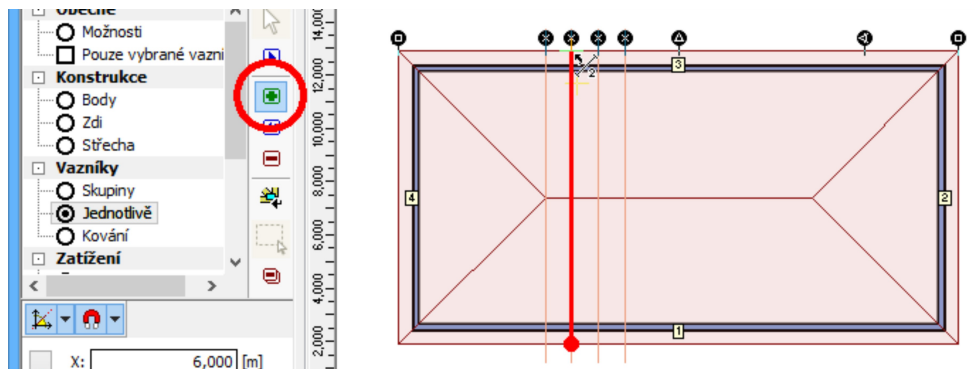


Graphical input of the walls

Graphical input is available only in 2D workspace. 3D view supports only entering the walls between existing points.

Graphical input of the trusses

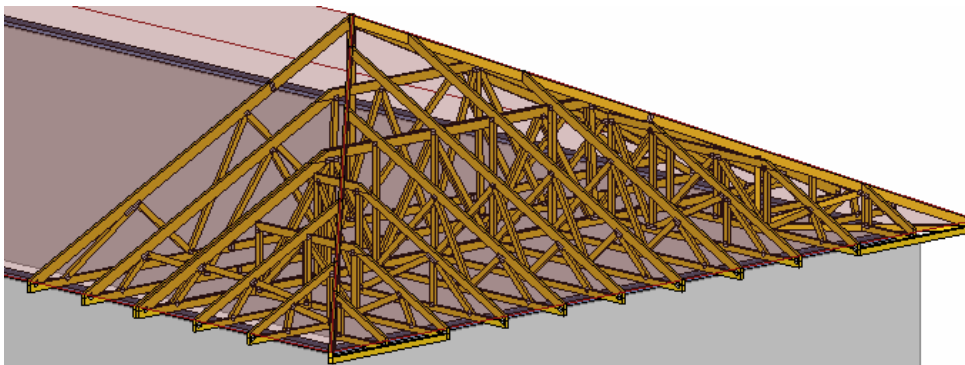
Trusses can be added in the similar way to the walls. Graphical input is available in the mode "Trusses" - "Individually" of the tree menu.



Graphical input of trusses including object snap

New features for the hips

Hips can be entered including partial hips in the corners. This arrangement creates a hip with shorter corner truss. Girder is loaded by the reactions uniformly distributed along the girder length. All the significant truss connections are arranged with 90° angles.



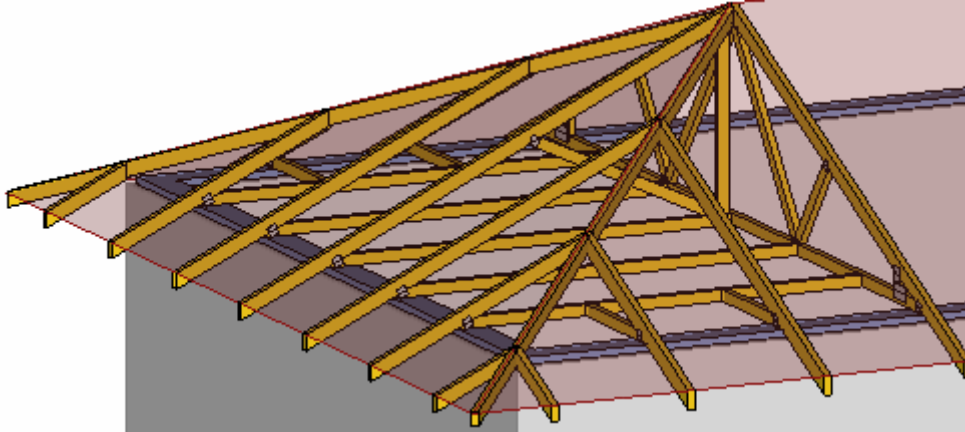
New hip topology

The edge vertical in mono-pitched trusses can be switched on or off.

Infill hip

New hip type designed for the South African market. This hip is suitable for roofs with overhangs and spans under 7 metres. These hips are usually used in area without snow load

and without thermal insulation in the ceiling level. It isn't suitable for other conditions, as the support of the mono trusses is provided only by the corner rafter. The hip contains relatively small total number of joints and also smaller timber volume.



Infill hip

***.dxf drawing contains also list of trusses**

Drawing of the roof exported into *.dxf file format contains also list of trusses including their shapes.

Truss 2D

Graphical input of the members

Similarly to the walls and trusses in Truss 3D, it's possible to use graphical input for entering the members into truss. All the features of the graphical input (object snap, polar input, construction lines) are available in Truss 2D.

System strength factor k_{sys}

The strength characteristics may be multiplied by a system strength factor k_{sys} according to the part 6.6 of EN 1995-1-1. These conditions shall be fulfilled:

- several equally spaced similar trusses are placed in the roof
- maximum centre to centre distance of the trusses is 1,2 m
- Trusses are laterally connected by a continuous load distribution system. Tiling
- battens, purlins or panels can transfer the load to the neighbouring trusses provided that these load-distribution members are continuous over at least two spans, and any joints are staggered.

Maximal value of k_{sys} factor is 1.1.

This factor can be changed in Truss 2D in "**Truss properties**", tab "**Standard**".

Truss Explorer

Extended options for the documentation

Printing capabilities of Truss Explorer are now identical to the capabilities of Truss 3D. Few new features were added into Truss Explorer like batch documentation or exports to CNC machines.