



module ROOF



Wind calculations– modules Roof

General Information:

Data Input:

Model 3D:

Results:

1. General Information:

2. General - data input area

3. Roof parameters

4. Roof shape

5. Insulation

6. Fixings layout

7. Model 3D

8. Results in wind zones

9. Optimizing fasteners

10. Report printout



– Move on to a topic of your choice



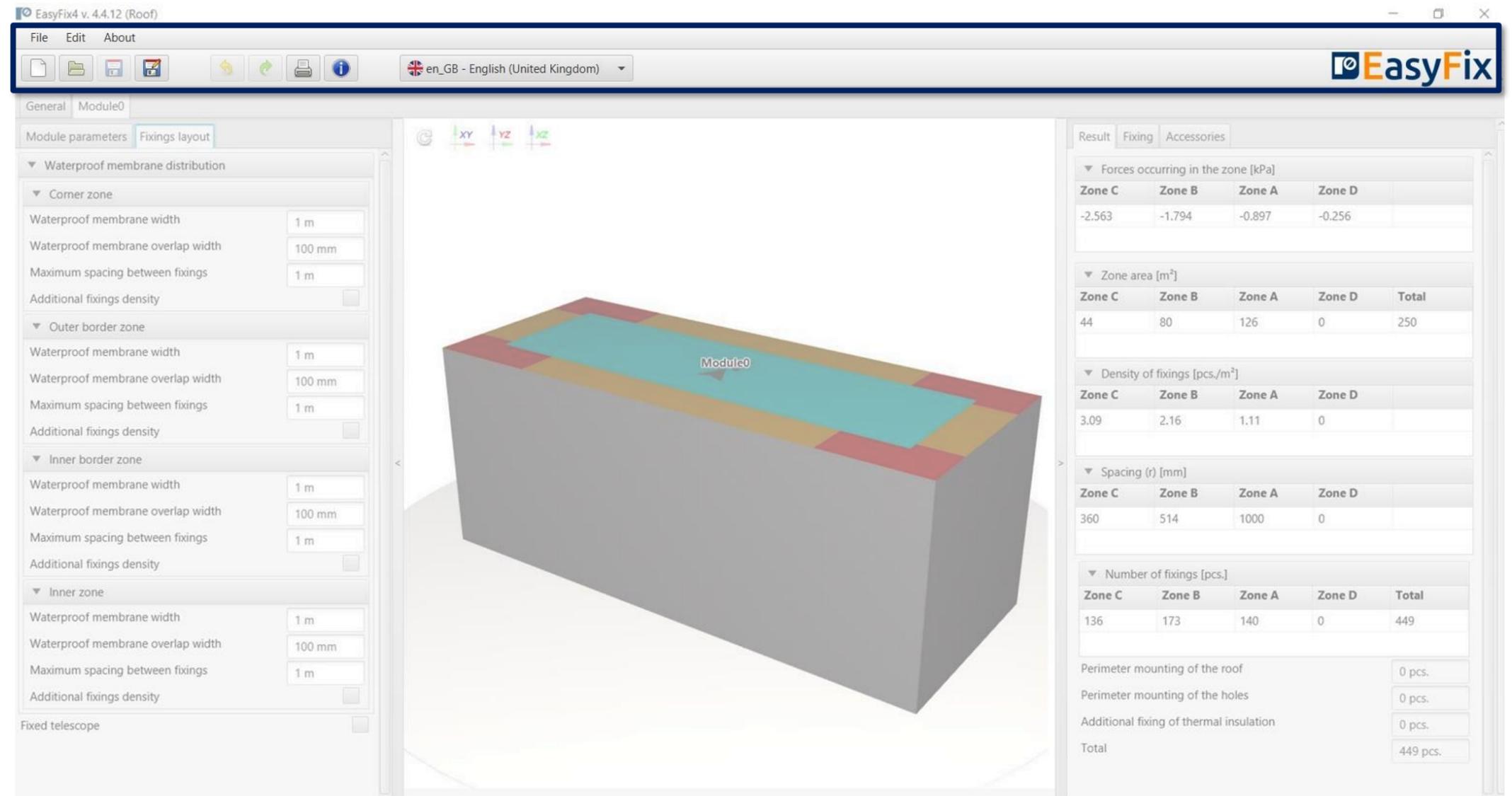
– back to table of contents



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Designation of icons and symbols :

-  Create a new project
-  Open project
-  Save |  Save as project
-  Undo |  Redo changes
-  Generate printout to pdf file
-  Program information
-  pl_PL - polski (Polska)
-  Selecting the program language
-  Information icons
-  User Manual



The screenshot shows the EasyFix v. 4.4.12 (Roof) software interface. The main window displays a 3D model of a roof module labeled 'Module0'. The interface is divided into several sections:

- Left Panel (Parameters):** Contains settings for 'Waterproof membrane distribution' across four zones: Corner zone, Outer border zone, Inner border zone, and Inner zone. Each zone has fields for 'Waterproof membrane width' (1 m), 'Waterproof membrane overlap width' (100 mm), 'Maximum spacing between fixings' (1 m), and 'Additional fixings density' (checkbox).
- Right Panel (Results):** Displays calculation results for 'Zone C', 'Zone B', 'Zone A', and 'Zone D'.

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.563	-1.794	-0.897	-0.256	

Zone area [m ²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m ²]				
Zone C	Zone B	Zone A	Zone D	
3.09	2.16	1.11	0	

Spacing (r) [mm]				
Zone C	Zone B	Zone A	Zone D	
360	514	1000	0	

Number of fixings [pcs.]				
Zone C	Zone B	Zone A	Zone D	Total
136	173	140	0	449

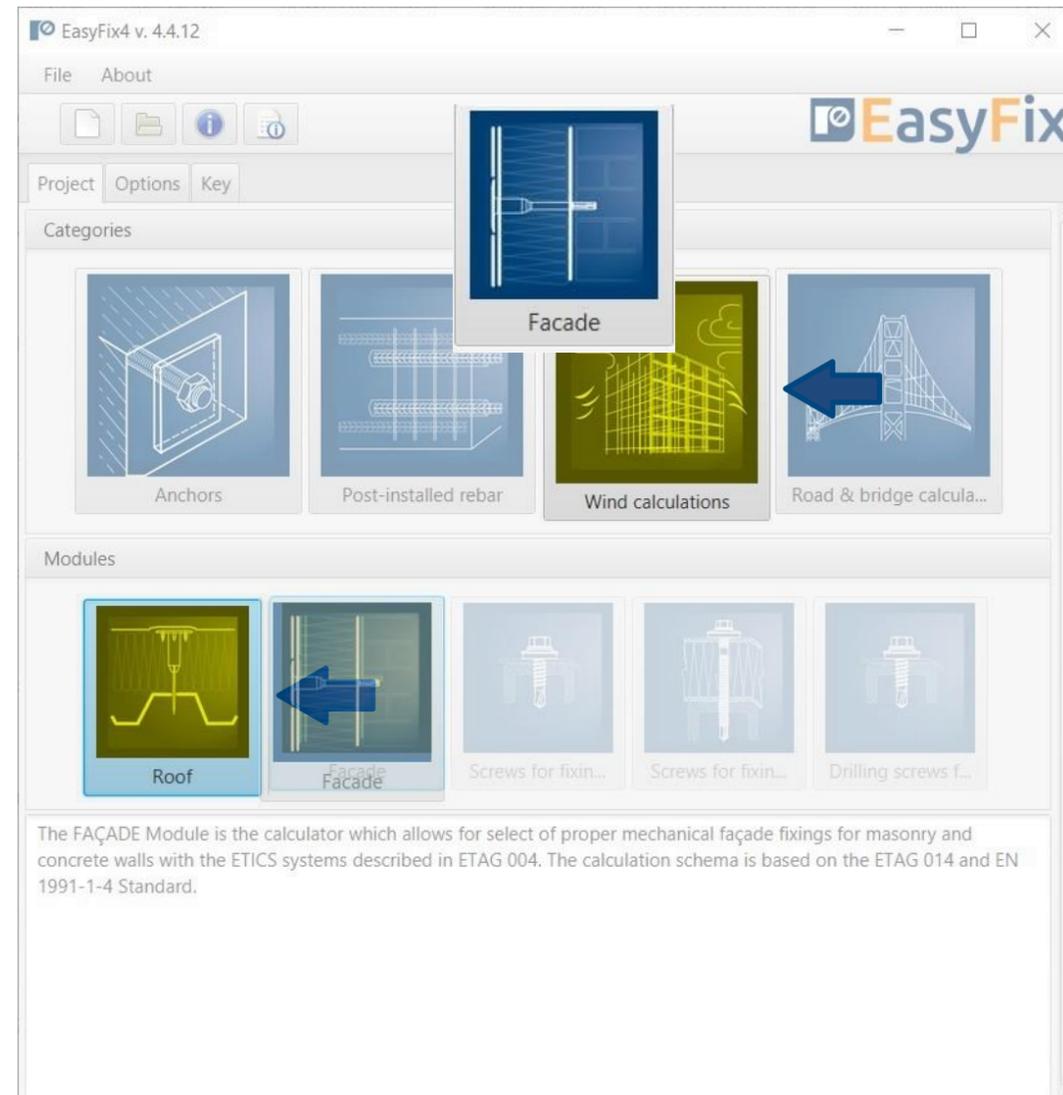
Perimeter mounting of the roof	0 pcs.
Perimeter mounting of the holes	0 pcs.
Additional fixing of thermal insulation	0 pcs.
Total	449 pcs.



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1 Select
Category and Module :

Select a category and module
Wind calculation -> Roof





Wind calculations– modules Roof

2 Introduction Basic window of the Roof module

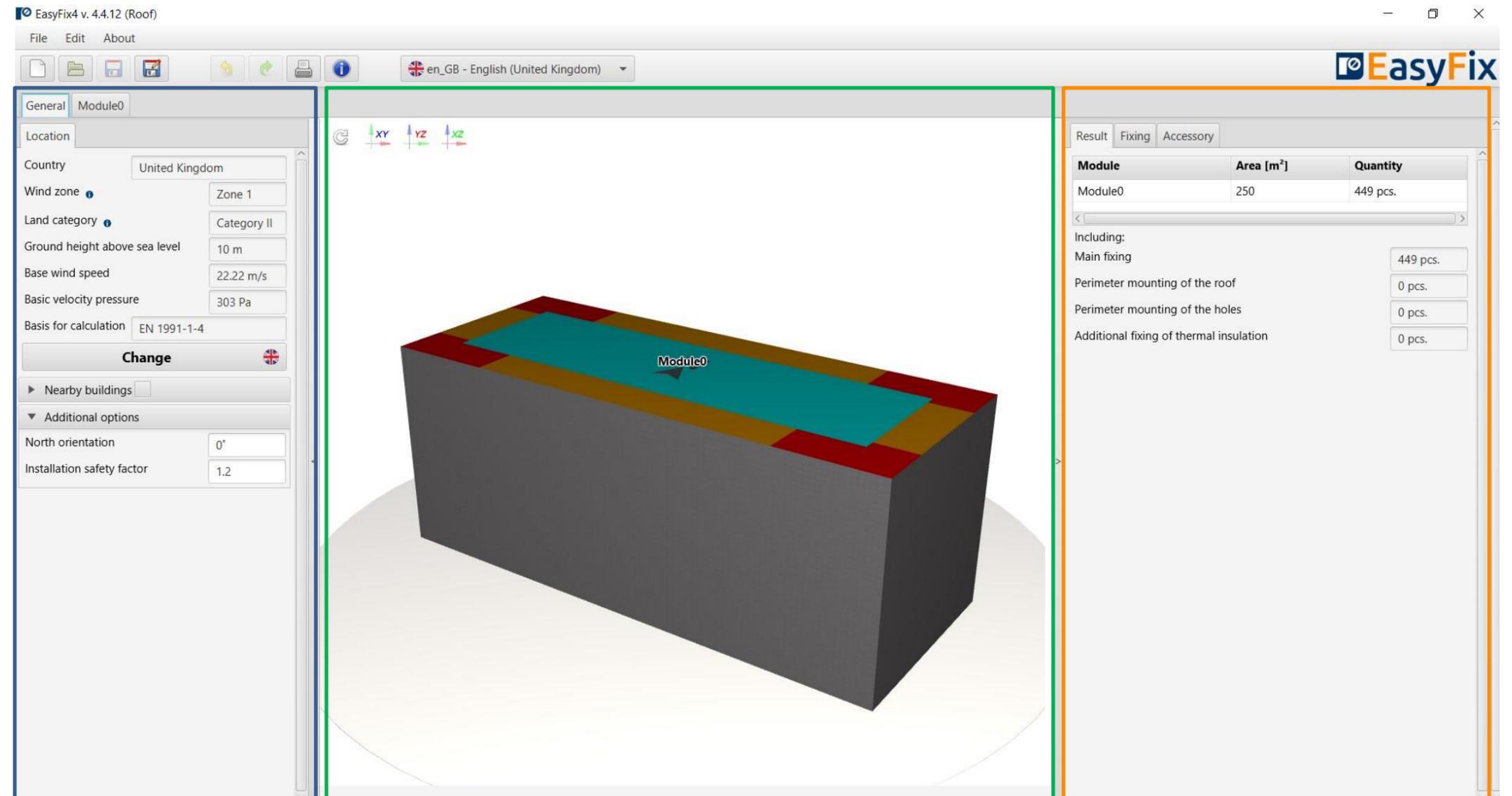
Input area
General
Module 0

View of the model
3D view with rotation and
zoom in/out

Result area
Fasteners
Results
Accessories

The basic window is divided into three areas:

- data entry
- model view
- results



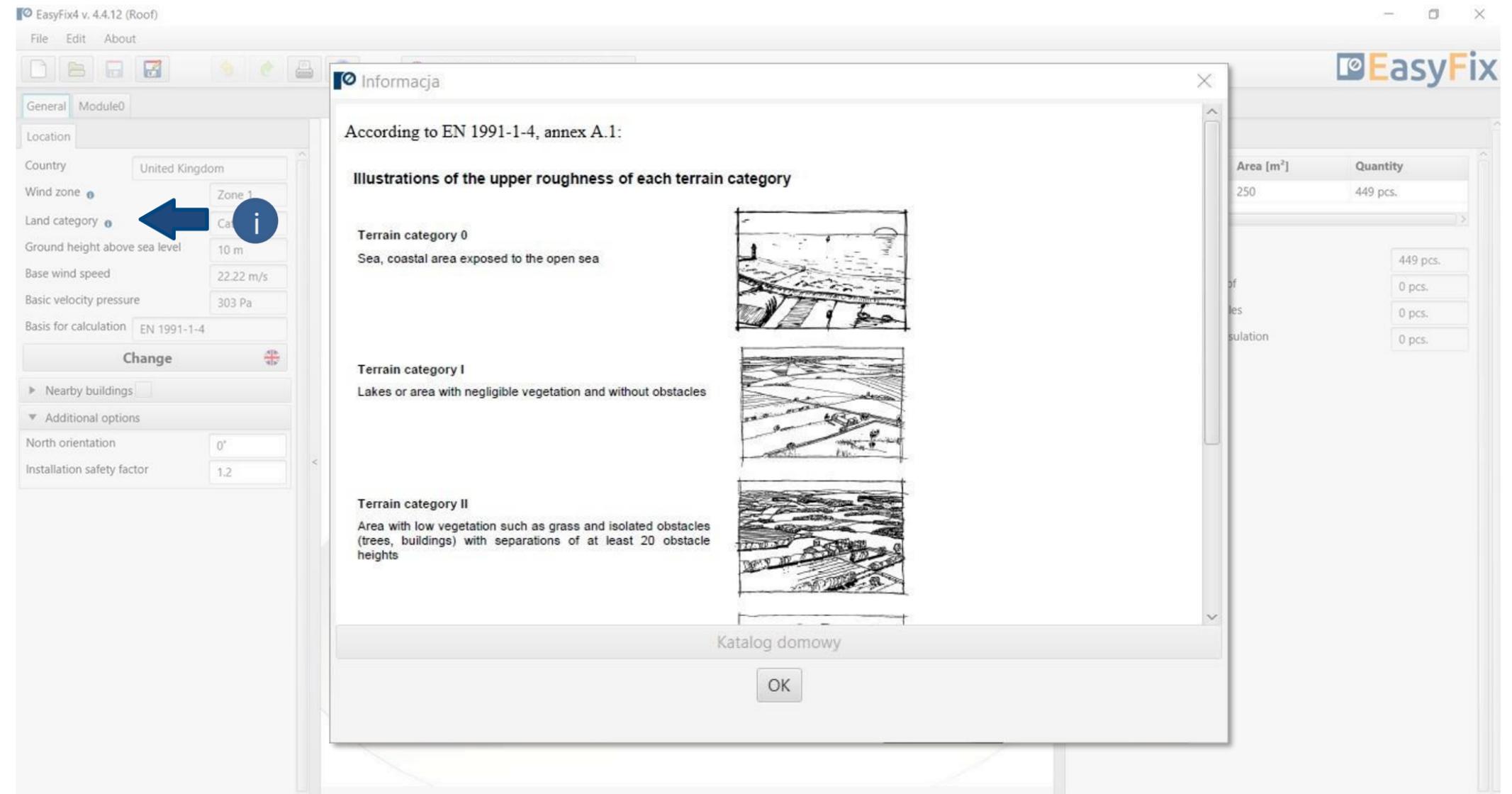


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2 Introduction
Basic window of the Roof module

Other information: applies to all elements of the scheme

Help icon "i"
Clicking on the icon opens a help window with theory on a particular program function





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3 General tab Input area

Location - enter data on the location of the building

Clicking on the **Change** icon opens a window allowing you to select a different location - country

A field to allow the introduction of neighbouring buildings affecting the wind forces affecting the object.

Options to change the position of an object in relation to the north and to change the installation factor

The screenshot displays the 'EasyFix4 v. 4.4.12 (Roof)' application window. The 'General' tab is active, showing various input fields for wind calculations. A 'Location' dialog box is open, allowing the user to select a location on a map of the United Kingdom. The dialog box includes a list of cities and a vertical scale from 1 to 10. The 'Change' button in the main window is highlighted with a green arrow pointing to the dialog box.

Location Dialog Box Fields:

- Country: United Kingdom
- Wind zone: Zone 1
- Land category: Category II
- Ground height above sea level: 10 m
- Base wind speed: 22.22 m/s
- Basic velocity pressure: 303 Pa
- Basis for calculation: EN 1991-1-4

Main Window Fields (General Tab):

- Nearby buildings:
- Height of the high building: 30 m
- Average height of nearby buildings: 30 m
- Length of the high building: 30 m
- Distance from the high building: 10 m
- Additional options:
 - North orientation: 0°
 - Installation safety factor: 1.2



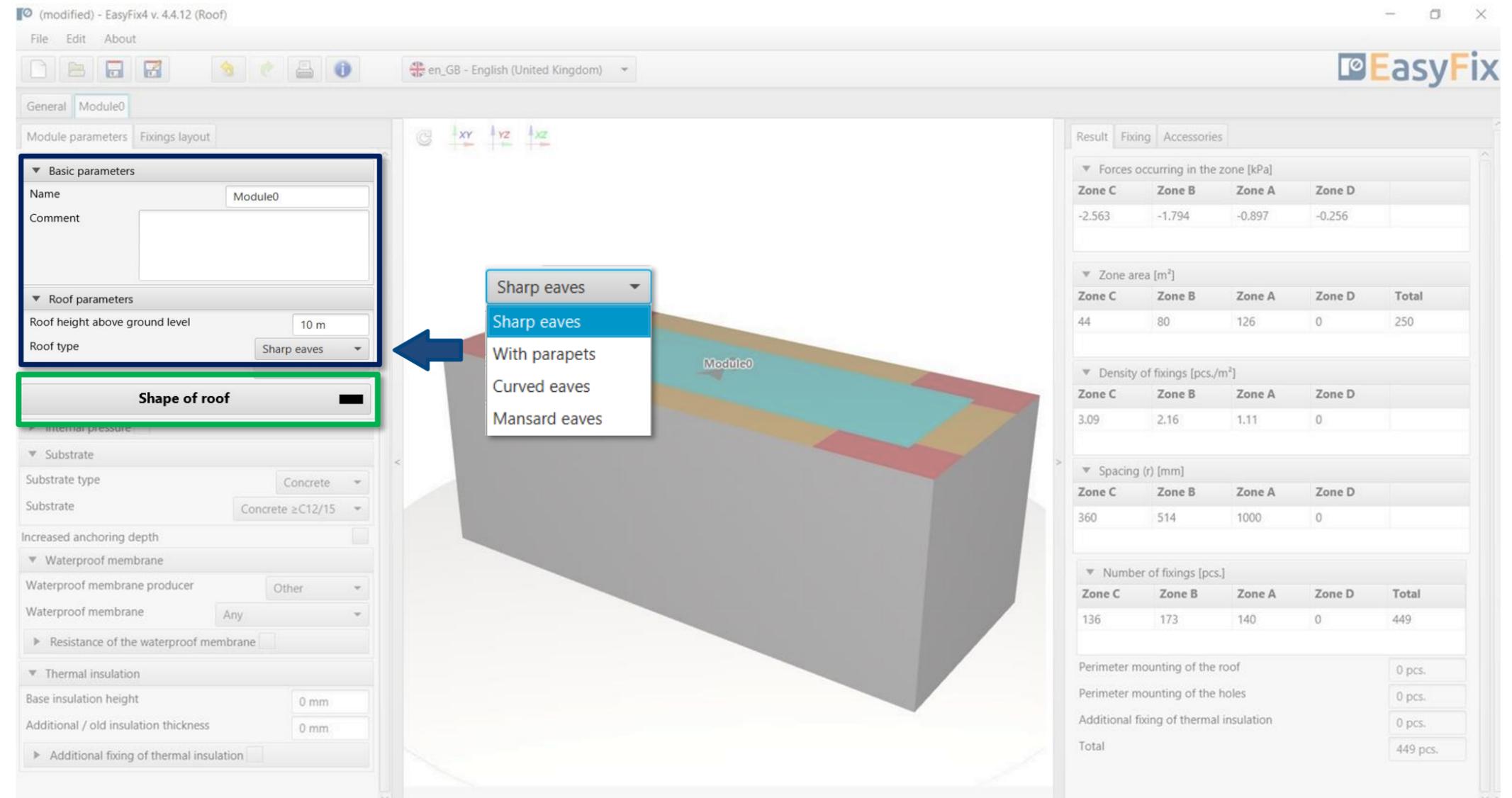
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4 Module 0 tab
Data input area

The Module tab contains two sub-tabs:
Module Parameters - shape and construction parameters of the object
System of connectors - waterproofing parameters

Basic parameters - allows to give own name to the module and comment visible on the printout.
Roof termination - allows for defining the roof edge termination from a drop-down list

Clicking on the **Roof shape** button opens an auxiliary window which allows you to draw the shape of the roof projection.





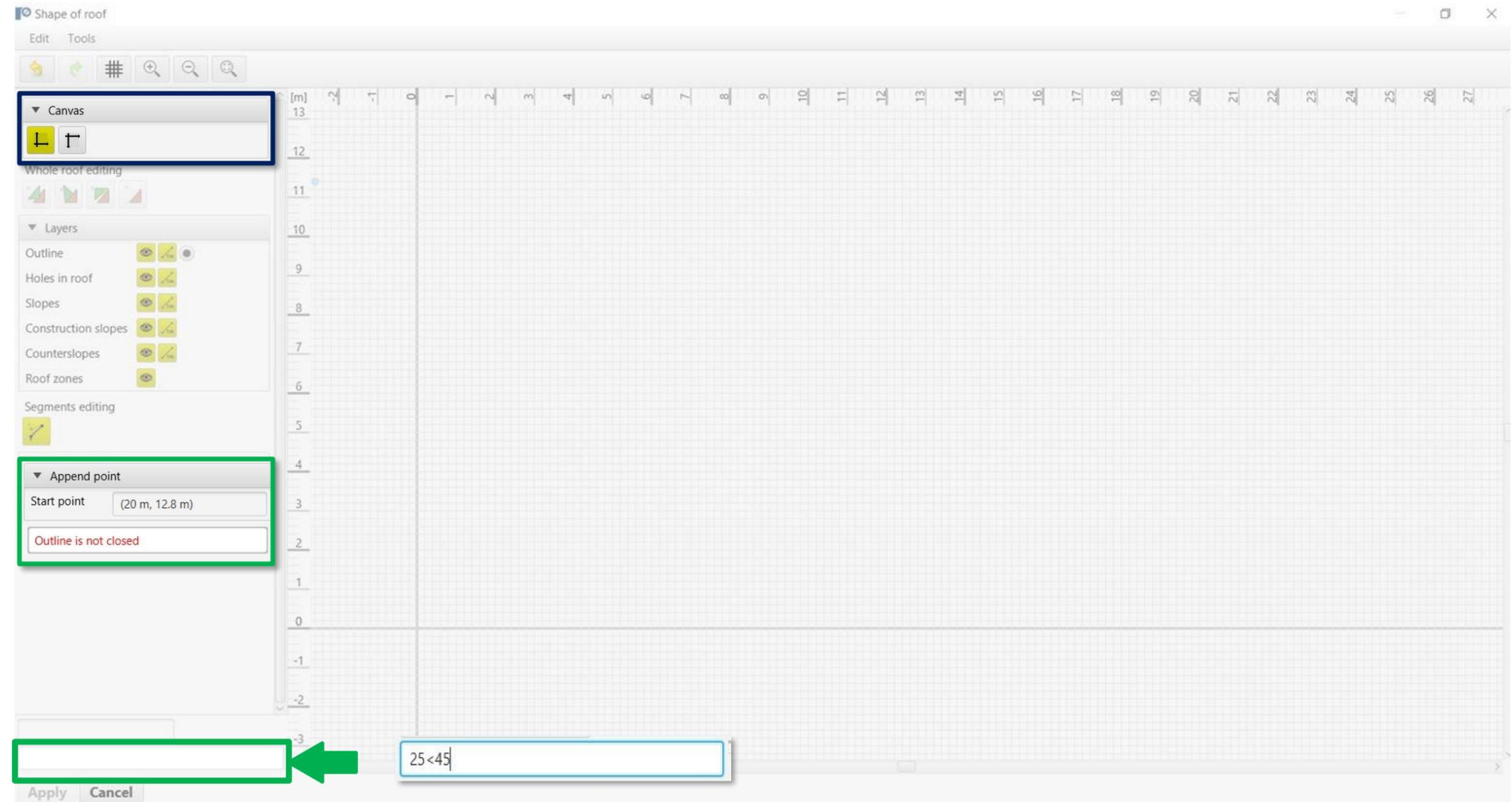
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4.1 Module 0 tab Roof shape

Canvas - Ability to select the direction of the coordinate system.

Drawing is possible by clicking on a grid point or entering coordinates in the help window. The coordinates are entered:

1. the length and angle of the segment separated by <
2. the coordinates of the point





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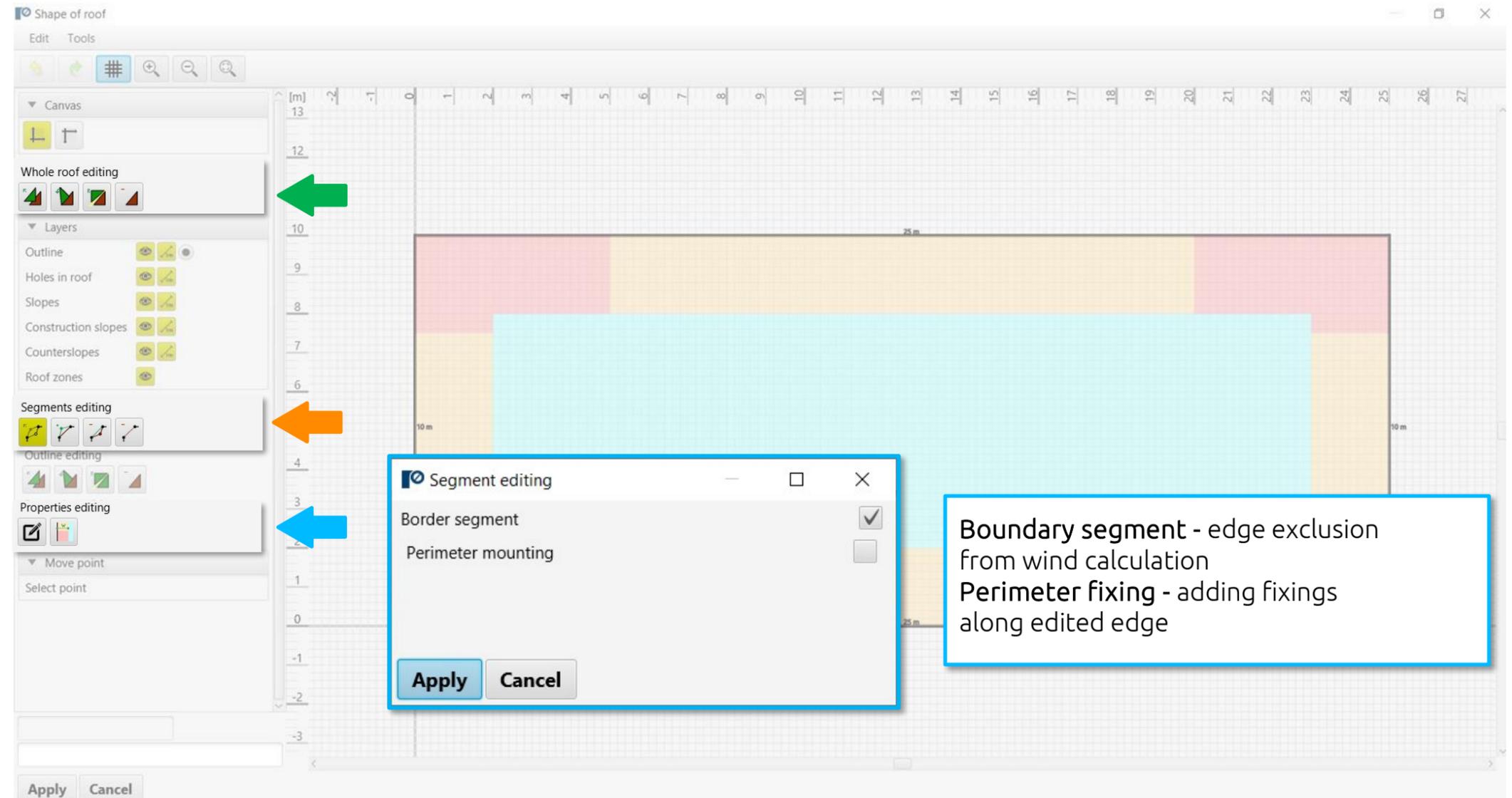
4.1 Module 0 tab Roof shape

Drawing - Closing the roof area results in the calculation of wind zones and their visualisation on the drawing.

The window for editing the entire shape allows you to:
Move
Rotate
Reflection
Deleting

The window for editing the edge of the roof shape allows you to:
Moving a point
Adding a point
Delete point
Delete entire side

The editing window allows:
Editing of each roof edge
Insertion of wind zone widths



Boundary segment - edge exclusion from wind calculation
Perimeter fixing - adding fixings along edited edge



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4 Module 0 tab
Data input area

The Module tab contains two sub-tabs:
Module parameters - shape and construction parameters of the object
System of connectors - waterproofing parameters

Internal pressure - allows consideration according to EN1991-1-4

Substrate allows you to choose from a range of substrates:
Sheet metal
Concrete
Wood

The screenshot shows the EasyFix software interface for a roof module calculation. The 'Module0' tab is active, showing 'Module parameters' and 'Fixings layout' sub-tabs. The 'Basic parameters' section includes 'Name' (Module0) and 'Comment'. The 'Roof parameters' section includes 'Roof height above ground level' (10 m) and 'Roof type' (Sharp eaves). The 'Shape of roof' section is expanded, showing 'Internal pressure' checked, 'According to' (EN 1991-1-4 p. 7.2.9 without a dominant face), and 'Internal pressure factor c_p ' (-0.34). The 'Substrate' section is highlighted with a green box, showing 'Substrate type' (Concrete), 'Substrate' (Concrete \geq C12/15), and 'Increased anchoring depth' (unchecked). The 'Waterproof membrane' is set to 'Any'. The 'Thermal insulation' section includes 'Base insulation height' (0 mm) and 'Additional / old insulation thickness' (0 mm). The 3D model of the roof module is shown in the center, with a dropdown menu for 'Steel Deck' and a list of options: Steel Deck \geq 0.50 mm, Steel Deck \geq 0.63 mm, Steel Deck \geq 0.70 mm, Steel Deck \geq 0.75 mm, Steel Deck \geq 0.85 mm, Steel Deck \geq 0.88 mm, Steel Deck \geq 0.90 mm, Steel Deck \geq 1.00 mm, Steel Deck \geq 1.25 mm, and Steel Deck \geq 1.50 mm. The 'Take steel deck spacing into account' checkbox is checked. The 'Substrate spacing' is set to 200 mm, and the 'Substrate upper wave width' is set to 100 mm. The 'Use one fastener in the tide' checkbox is unchecked. The 'Result' tab is active, showing 'Forces occurring in the zone [kPa]' and 'Zone area [m²]' tables.

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.563	-1.794	-0.897	-0.256	

Zone area [m ²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m ²]				
Zone C	Zone B	Zone A	Zone D	
3.09	2.16	1.11	0	

Take steel deck spacing into account				
Substrate spacing				
				200 mm
Substrate upper wave width				
				100 mm
Use one fastener in the tide				
				<input type="checkbox"/>
136	173	140	0	449
Perimeter mounting of the roof				
				0 pcs.
Perimeter mounting of the holes				
				0 pcs.
Additional fixing of thermal insulation				
				0 pcs.
Total				
				449 pcs.



Wind calculations– modules Roof

4 Module 0 tab
Data input area

The Module tab contains two sub-tabs:
Module parameters - shape and construction parameters of the object
System of connectors - waterproofing parameters

Waterproofing - allows you to choose the manufacturer of the membrane, and take into account the load capacity specified by the manufacturer

Thermal insulation - allows you to enter the designed base thickness of insulation and the thickness of existing layers of old hydro and thermal insulation on the roof

The screenshot shows the EasyFix software interface for roof wind calculations. The 'Module0' tab is active, showing two sub-tabs: 'Module parameters' and 'Fixings layout'. The 'Module parameters' sub-tab is selected, displaying various input fields for roof and waterproofing parameters. The 'Waterproof membrane' section is highlighted with an orange box, and the 'Thermal insulation' section is highlighted with a blue box. A 3D model of a roof structure is shown in the center, with a dropdown menu open over it, listing various waterproofing membrane options. The right-hand side of the interface displays a 'Result' panel with several tables of data.

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.563	-1.794	-0.897	-0.256	

Zone area [m²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m²]				
Zone C	Zone B	Zone A	Zone D	
3.09	2.16	1.11	0	

Spacing (r) [mm]				
Zone C	Zone B	Zone A	Zone D	
360	514	1000	0	

Number of fixings [pcs.]				
Zone C	Zone B	Zone A	Zone D	Total
136	173	140	0	449

Perimeter mounting of the roof: 0 pcs.
 Perimeter mounting of the holes: 0 pcs.
 Additional fixing of thermal insulation: 0 pcs.
Total: 449 pcs.



Wind calculations– modules Roof

4 Module 0 tab
Data input area

The Module tab contains two sub-tabs:
Module parameters - shape and construction parameters of the object
System of connectors - waterproofing parameters

Layout of fasteners
Waterproofing layout - allows the width and overlap of the waterproofing to be defined along with the maximum fastener spacing in each wind zone separately.
In addition, it is possible to allow fixing on the slope beyond the overlap.

The screenshot shows the 'Module0' tab in the EasyFix software. The left sidebar contains the 'Module parameters' section, which is highlighted with a blue box. This section includes sub-tabs for 'Waterproof membrane distribution', 'Corner zone', 'Outer border zone', 'Inner border zone', and 'Inner zone'. Each sub-tab has input fields for 'Waterproof membrane width', 'Waterproof membrane overlap width', 'Maximum spacing between fixings', and 'Additional fixings density'. The 'Fixed telescope' checkbox is also visible at the bottom of the sidebar.

The central area displays a 3D model of a roof module, labeled 'Module0', with a blue top surface and red and yellow edges. The right sidebar shows the 'Result' tab with several data tables:

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.999	-2.23	-1.333	-0.692	

Zone area [m²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m²]				
Zone C	Zone B	Zone A	Zone D	
5	3.72	2.22	0	

Spacing (r) [mm]				
Zone C	Zone B	Zone A	Zone D	
222	299	500	0	

Number of fixings [pcs.]				
Zone C	Zone B	Zone A	Zone D	Total
220	298	280	0	798

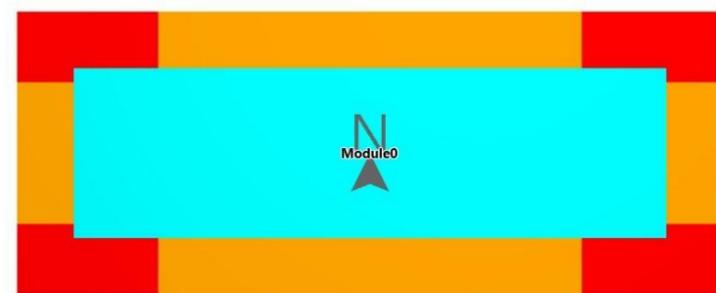
Perimeter mounting of the roof	0 pcs.
Perimeter mounting of the holes	0 pcs.
Additional fixing of thermal insulation	500 pcs.
Total	1298 pcs.



Wind calculations– modules Roof

5 Model View

3D view - by clicking on the coordinate system buttons the view can be switched to a 2D plane



The screenshot shows the EasyFix software interface. On the left, there are parameter settings for 'Module0' under 'Waterproof membrane distribution'. The central 3D view shows a rectangular roof module with a cyan top surface and red/orange borders. A coordinate system (XY, YZ, XZ) is visible above the model. On the right, there are several data tables:

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.999	-2.23	-1.333	-0.692	

Zone area [m²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m²]				
Zone C	Zone B	Zone A	Zone D	
5	3.72	2.22	0	

Spacing (r) [mm]				
Zone C	Zone B	Zone A	Zone D	
222	299	500	0	

Number of fixings [pcs.]				
Zone C	Zone B	Zone A	Zone D	Total
220	298	280	0	798

Perimeter mounting of the roof	0 pcs.
Perimeter mounting of the holes	0 pcs.
Additional fixing of thermal insulation	500 pcs.
Total	1298 pcs.



Wind calculations– modules Roof

6 Tab Connectors Results area

Results tab - contains calculated Values of wind forces in the zones
 Area of wind zones
 Number of connectors per m2 in the zones
 Spacing between fasteners
 Total number of connectors in each zone and on the whole roof
 Information about additional fasteners

The screenshot displays the EasyFix software interface for a roof module calculation. The central 3D model shows a rectangular roof module with a blue top surface and grey sides, labeled 'Module0'. The left sidebar contains 'Module parameters' and 'Fixings layout' tabs, with 'Fixings layout' selected. It lists parameters for three zones: Corner zone, Outer border zone, and Inner border zone, each with fields for waterproof membrane width (1 m), overlap width (100 mm), maximum spacing between fixings (1 m), and an additional fixings density checkbox. The right sidebar shows the 'Result' tab with several data tables:

Forces occurring in the zone [kPa]				
Zone C	Zone B	Zone A	Zone D	
-2.999	-2.23	-1.333	-0.692	

Zone area [m²]				
Zone C	Zone B	Zone A	Zone D	Total
44	80	126	0	250

Density of fixings [pcs./m²]				
Zone C	Zone B	Zone A	Zone D	
5	3.72	2.22	0	

Spacing (r) [mm]				
Zone C	Zone B	Zone A	Zone D	
222	299	500	0	

Number of fixings [pcs.]				
Zone C	Zone B	Zone A	Zone D	Total
220	298	280	0	798

Perimeter mounting of the roof	0 pcs.
Perimeter mounting of the holes	0 pcs.
Additional fixing of thermal insulation	500 pcs.
Total	1298 pcs.



Wind calculations– modules Roof

6 Tab Connectors Results area

Fastener's tab - allows for filtering and optimal selection of the fastener

The screenshot shows the EasyFix software interface. On the left, there are configuration panels for 'Waterproof membrane distribution' with sub-sections for 'Corner zone', 'Outer border zone', 'Inner border zone', and 'Inner zone'. Each section includes input fields for 'Waterproof membrane width', 'Waterproof membrane overlap width', 'Maximum spacing between fixings', and 'Additional fixings density'. The central 3D model shows a rectangular roof module labeled 'Module0' with a blue top surface and red and yellow borders. On the right, the 'Fastener's tab' is active, displaying a table for selecting fasteners. The table has columns for 'Used', 'Size', and 'QTY' for both 'Screw: R-WBT-61' and 'Telescope: R-GOK'. The 'Screw' table shows sizes from 50 mm to 300 mm, with 50 mm and 75 mm selected. The 'Telescope' table shows sizes from 0 mm to 625 mm, with 0 mm selected.

Screw: R-WBT-61			Telescope: R-GOK		
Used	Size	QTY	Used	Size	QTY
<input checked="" type="checkbox"/>	50 mm	1298	<input checked="" type="checkbox"/>	0 mm	1298
<input checked="" type="checkbox"/>	75 mm		<input checked="" type="checkbox"/>	15 mm	
<input checked="" type="checkbox"/>	90 mm		<input checked="" type="checkbox"/>	35 mm	
<input checked="" type="checkbox"/>	100 mm		<input checked="" type="checkbox"/>	65 mm	
<input checked="" type="checkbox"/>	120 mm		<input checked="" type="checkbox"/>	75 mm	
<input checked="" type="checkbox"/>	140 mm		<input checked="" type="checkbox"/>	85 mm	
<input checked="" type="checkbox"/>	160 mm		<input checked="" type="checkbox"/>	95 mm	
<input checked="" type="checkbox"/>	180 mm		<input checked="" type="checkbox"/>	105 mm	
<input checked="" type="checkbox"/>	200 mm		<input checked="" type="checkbox"/>	125 mm	
<input checked="" type="checkbox"/>	220 mm		<input checked="" type="checkbox"/>	135 mm	
<input checked="" type="checkbox"/>	240 mm		<input type="checkbox"/>	155 mm	
<input checked="" type="checkbox"/>	260 mm		<input checked="" type="checkbox"/>	165 mm	
<input checked="" type="checkbox"/>	300 mm		<input checked="" type="checkbox"/>	185 mm	
			<input checked="" type="checkbox"/>	225 mm	
			<input type="checkbox"/>	235 mm	
			<input checked="" type="checkbox"/>	255 mm	
			<input checked="" type="checkbox"/>	285 mm	
			<input checked="" type="checkbox"/>	325 mm	
			<input checked="" type="checkbox"/>	385 mm	
			<input checked="" type="checkbox"/>	425 mm	
			<input checked="" type="checkbox"/>	525 mm	
			<input checked="" type="checkbox"/>	625 mm	



Wind calculations– modules Roof

6 Tab Connectors Accessories area

Accessories tab - suggests the type and quantity of accessories needed to complete the calculated roof

The screenshot shows the EasyFix software interface. The 'Accessories' tab is active, displaying a list of required accessories and their quantities. The central 3D model shows a roof module labeled 'Module0' with various colored zones (red, yellow, green, blue) indicating different areas for accessories.

Accessory	Quantity
RT-BIT-TORX25/100	13
RT-BIT-TORX25/150	13
RT-BIT-TORX25/200	13
RT-BIT-TORX25/250	13
RT-BIT-TORX25/350	13
RT-BIT-TORX25/450	13
RT-SDSA-5/110	6
RT-SDSA-5/160	6
RT-SDSA-5/210	6
RT-SDSA-5/310	6
RT-SDSA-5/360	6
RT-SDSA-5/460	6
RT-ADAP-500 (500mm adapter)	6
RT-ADAP-800 (800mm adapter)	6
RT-TD-50-110 (50mm)	1
RT-TD-50-160 (100mm)	1
Screwdriver eg. MDW-264	1
Drilling machine eg. MDW-D25313	1



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7 Generation of Printout

In the printout panel, we can set regional options, i.e. language, decimal separator and unit system. The printout in pdf format contains all data necessary for projects and product installation.

Print option.
Enables the generation of a document in the pdf extension.

Zone A	Zone D	
-1.333	-0.692	

Zone A	Zone D	Total
126	0	250

Zone A	Zone D	
2.22	0	

Zone A	Zone D	
500	0	

Zone A	Zone D	Total
280	0	798

Perimeter mounting of the roof	0 pcs.
Perimeter mounting of the holes	0 pcs.
Additional fixing of thermal insulation	500 pcs.
Total	1298 pcs.

