Module:
Lighting pole

Road & Bridge calculations – Lighting pole

Designing data:

Data input :

1. Selection of the product category
2. General data input area
3. Defining of the plate and pole’s details
4. Defining of the anchor’s layout
5. Defining of the acting load

Results :

6. Analysis of the results
7. Generating the printout

- move to a selected issue

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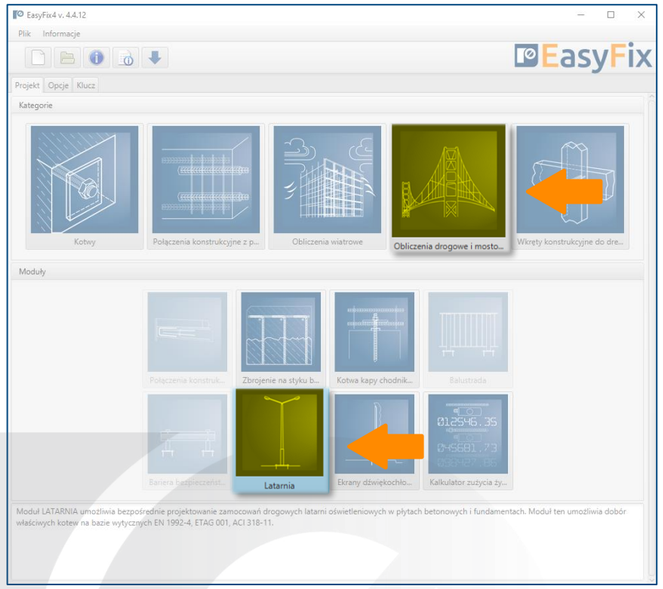
1 Selection of The product category »



Meaning of icons and symbols:


Create new design

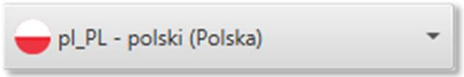

Open file


Safe | Safe as


Undo | Redo changes


Generate pdf printout

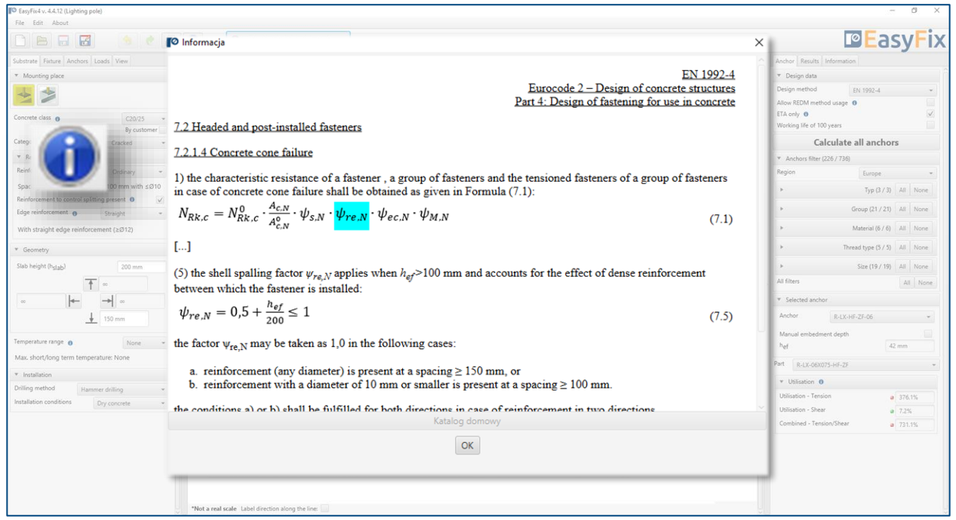

Information about software



Language selection


Info icons


Instruction manual



Click to **information icon** to display an additional window containing theory related to a particular issue.

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2 General
data input area »

In the **substrate tab**, define the location of the lighting pole and the type of substrate. This requires knowledge of the details of the concrete class and the exact dimensions of the concrete element. The shape of the ground and the positioning of the base in relation to the edge distance is very important for the final results.

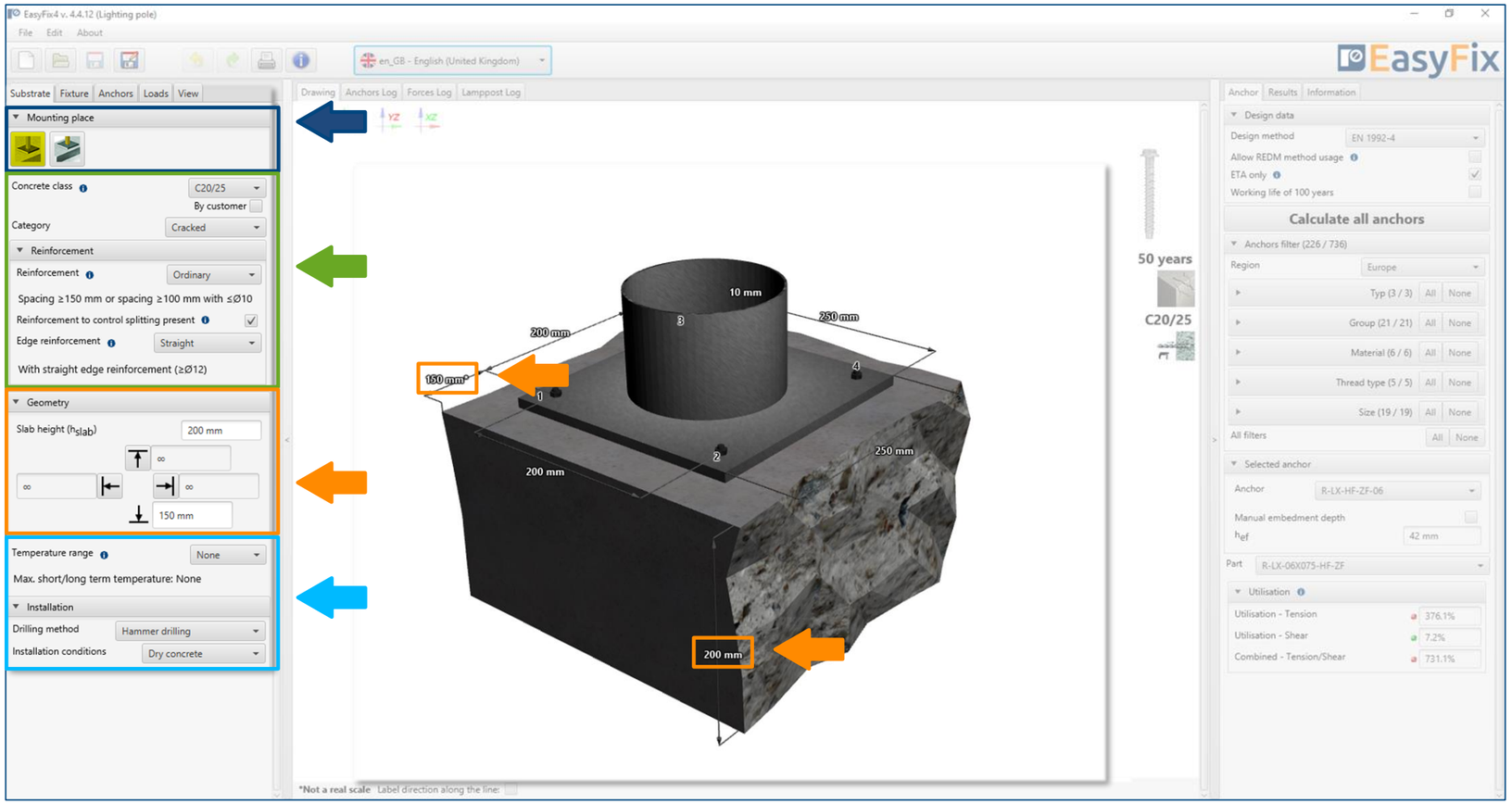
Determining **the place** of installation:

- On the plate
- On the socle

Determining of the **strength class and type of concrete:**
Entering data by selecting from the list or the option "by user".

Determining of the **basic structure dimensions**: The geometry of the structure can be specified in the side panel or on the model

Determining **of the installation:**
- Service temperature
- Drilling method
- Concrete conditions



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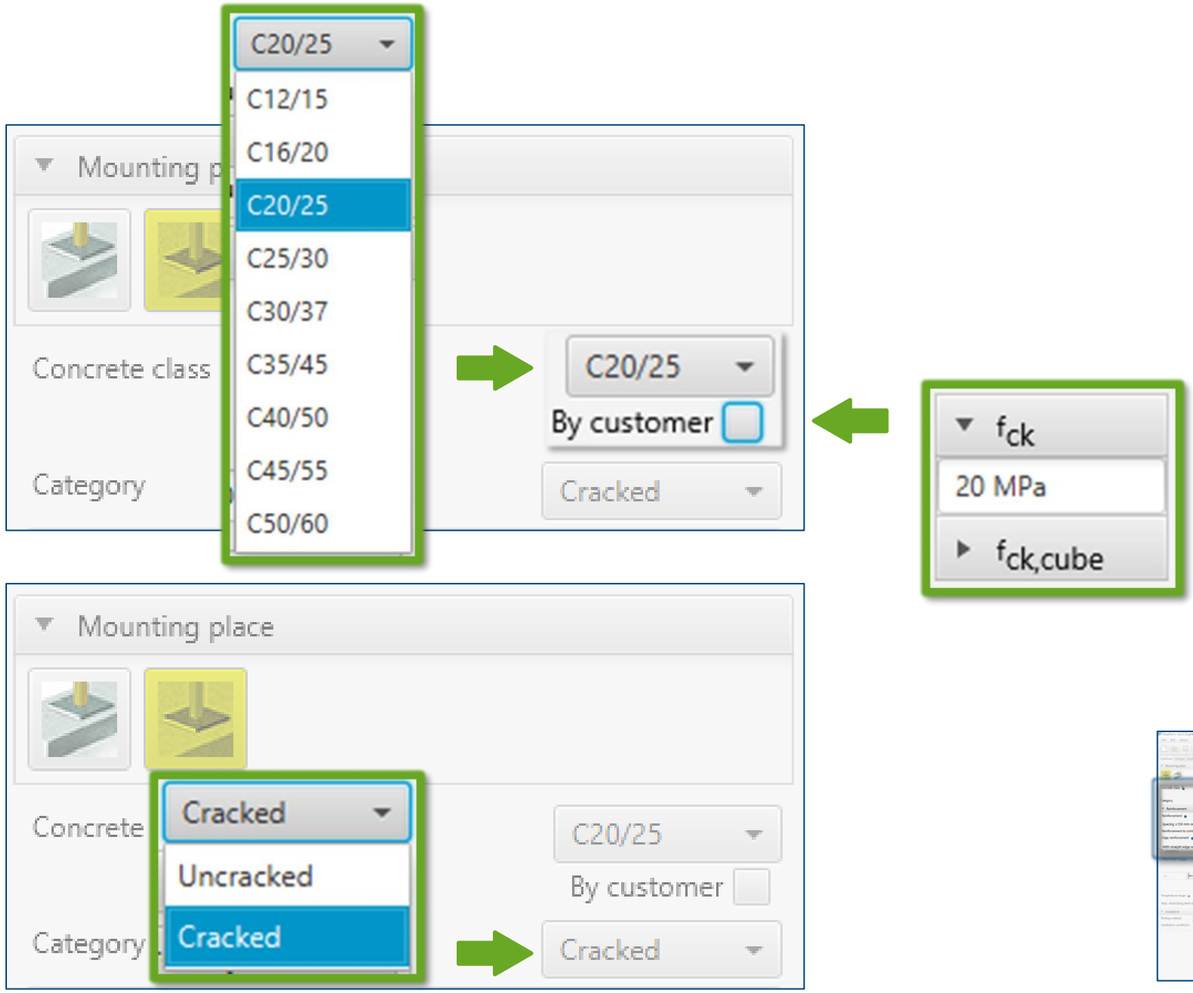
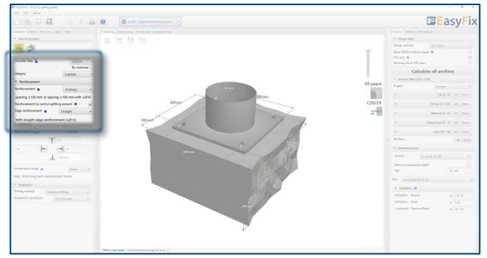
2 General data input area

Determining of the **concrete strength class:**

Selecting from the list:
Concrete strength class according to standard EN 206

Option „by user”:
Possibility of manual input of characteristic compressive strength of cylinder f_{ck}.
or
Possibility of manual input of characteristic compressive strength of cube $f_{ck,\,cube}$.





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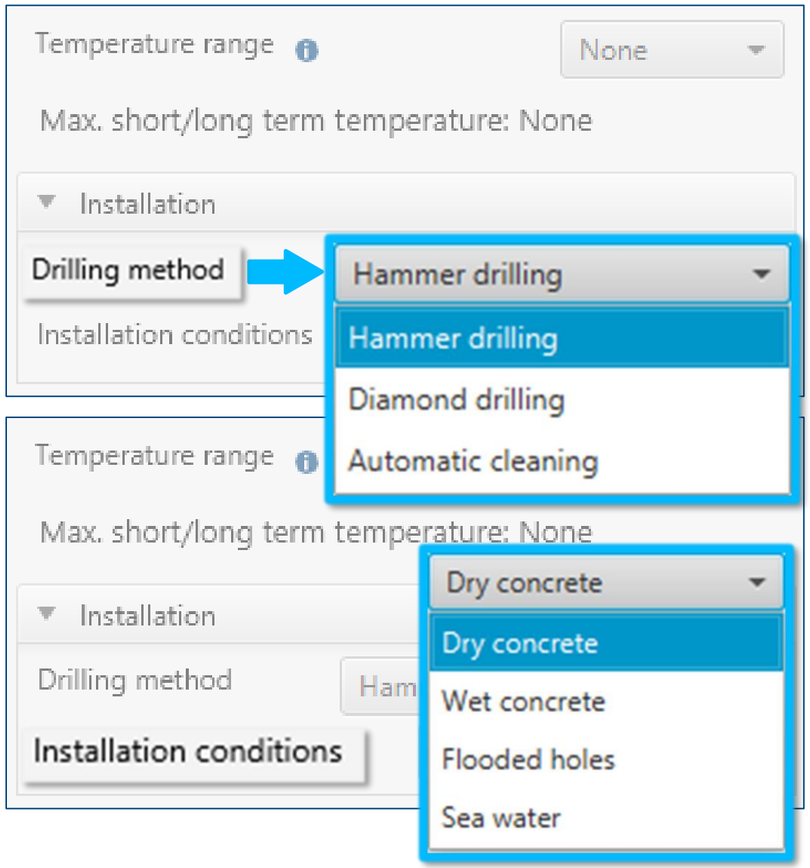
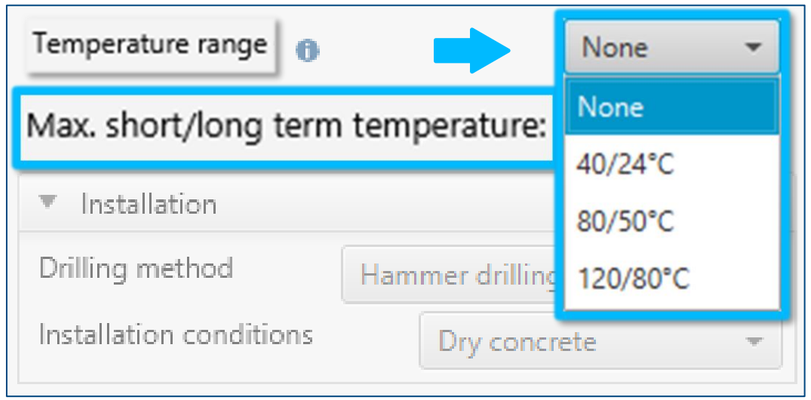
2 General data input area »

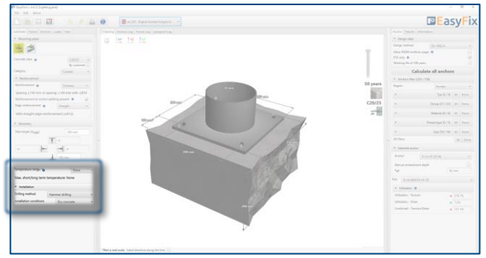
Determination of **drilling method:**
Selecting from the list:
- Hammer
- Diamond
- Automatic cleaning

Determination of **assembly condition**
Selecting from the list:
- Dry concrete
- Wet concrete
- Flooded holes
- Sea water

Determination of **service temperature:**
Selecting from the list of results filters the proper anchor group.







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3 Defining of
The plate and pole's details »

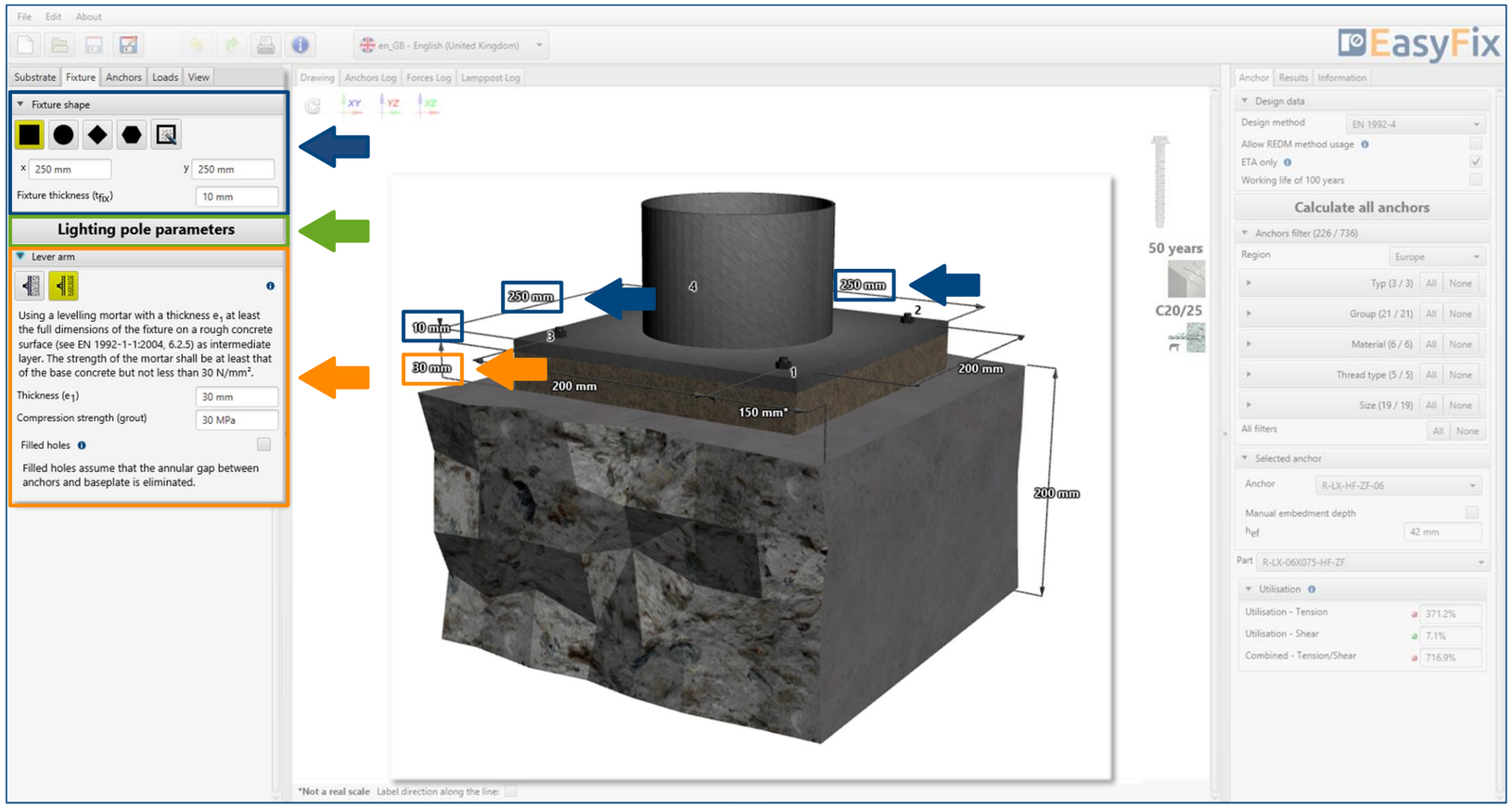
You can use basic shapes to define the geometry of the lantern base or use the **by user** option, which allows you to enter freeform shapes.
The **Fixture tab** also allows you to enter full information about the installed lamp.

Determining of **fixture shape:**
The geometry of the base is defined by entering dimensions in the side panel or on the 3D model.

Determining of **pole's parameters:**
It opens an additional window in which you must complete the data concerning the mounted element.

Determining of **connection type:**

Including grout, if exists.



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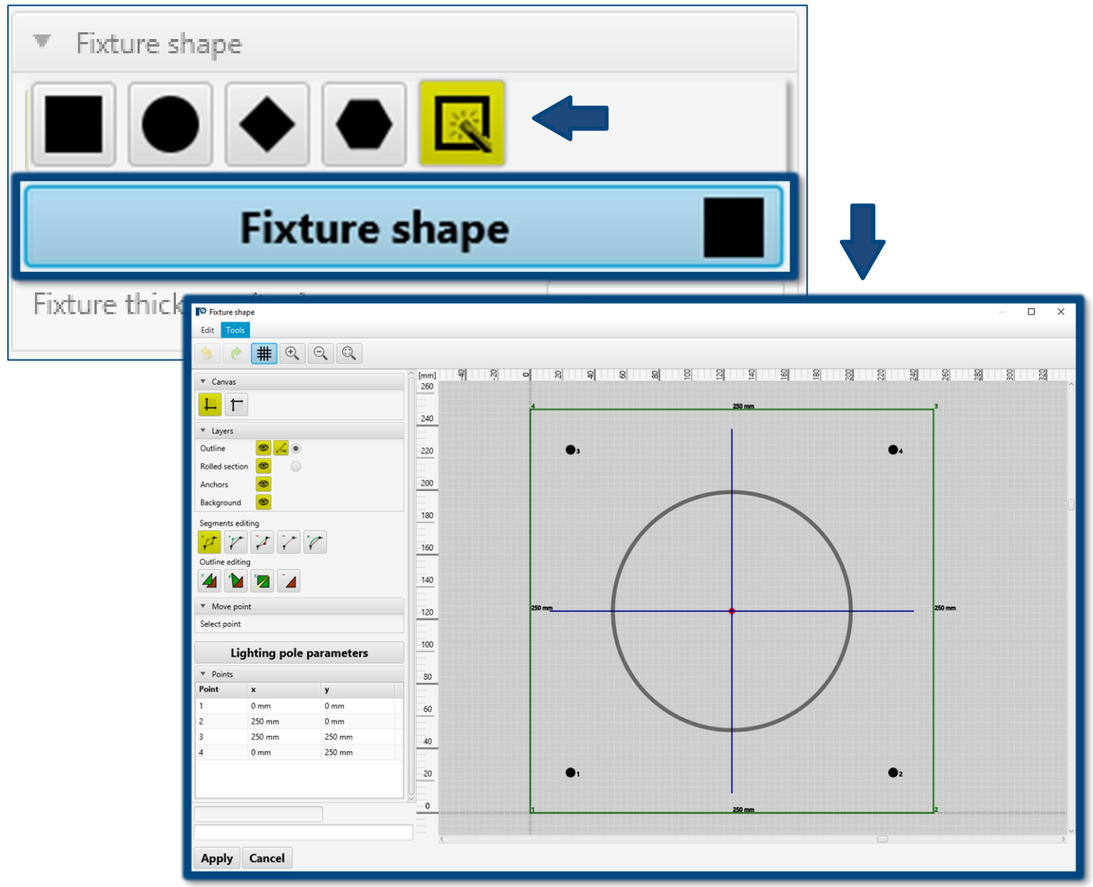
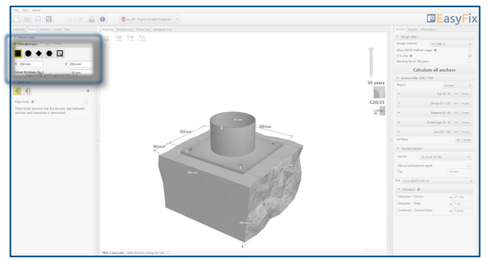
3 Defining of **The plate and pole's details** »

Determining the shape of **the base**:

The button for creating the shape of the base according to the user opens an additional window in which you can create any shape using the mouse or coordinate points.





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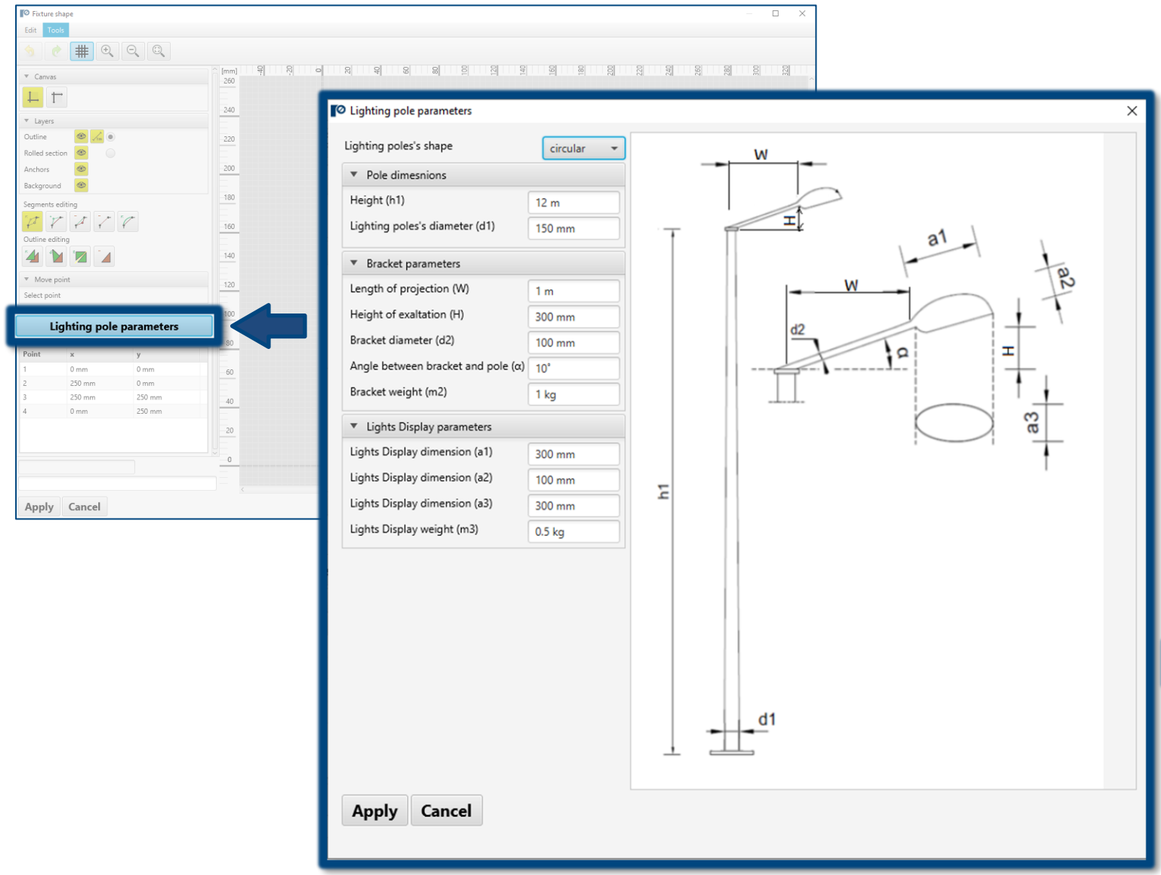
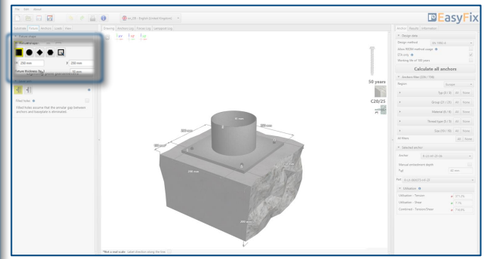
3 Defining of
The plate and pole's details »

Defining the parameters of the **lightning pole**:

The button for entering the parameters of the pole generates an additional window in which we enter detailed data about the installed lamp.





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4 Defining of The anchor's layout »

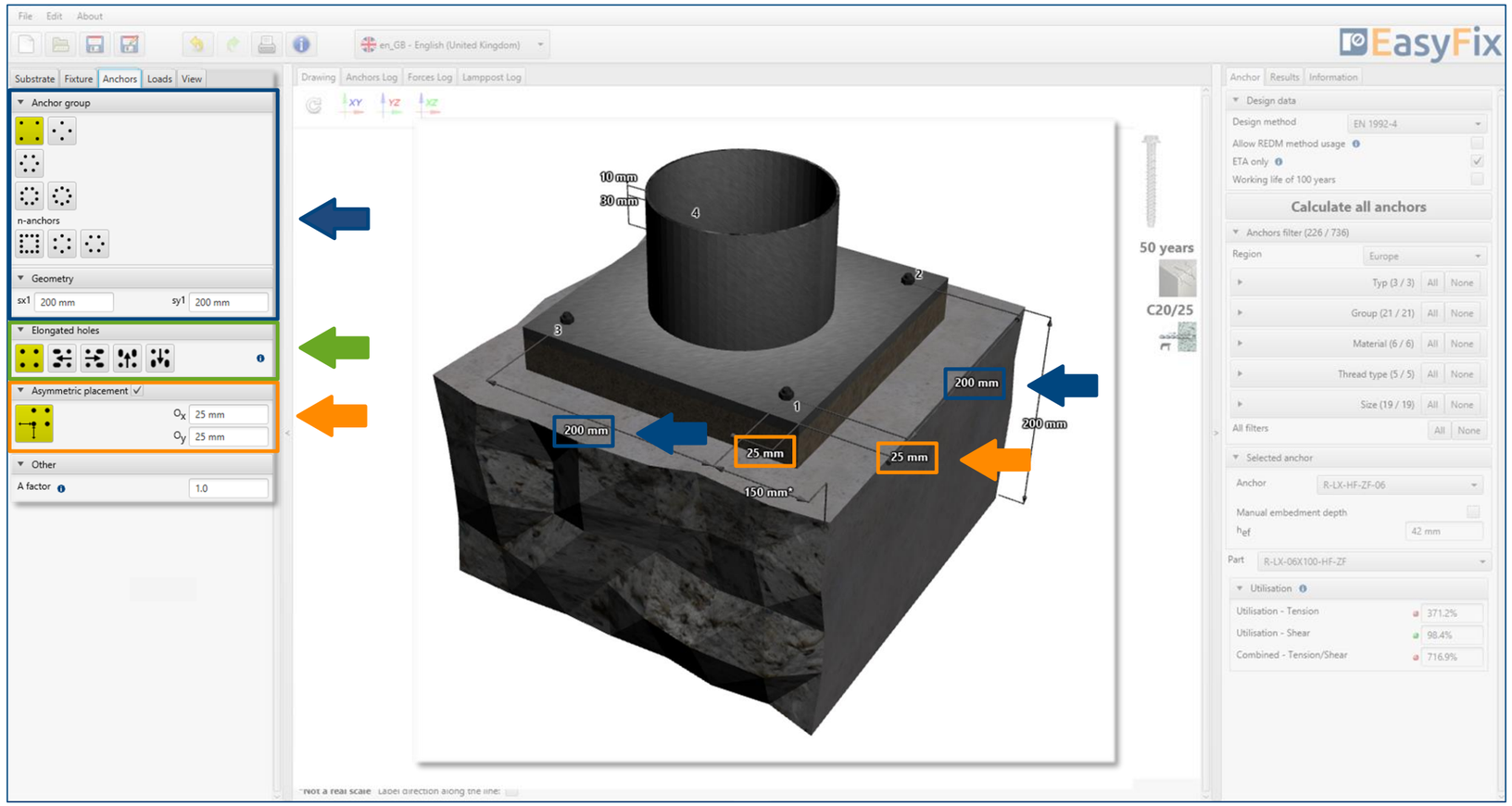
In the **Anchors tab**, define the system of anchors with which the lamp will be attached to the ground. There are several standard distributions that are used in such systems to choose from. It was also possible to take into account the bean holes and the asymmetrical arrangement of the anchors.

Determination of **the arrangement and spacing of anchors**:

Depending on the layout, the appropriate dimensions are entered in the side panel or on the 3D model.

Consideration of **elongated holes**: Declaring this option changes the distribution of shear forces to the anchors.

Determination of **asymmetrical distribution**: It determines the displacement of the anchor system in relation to the center of gravity of the base.



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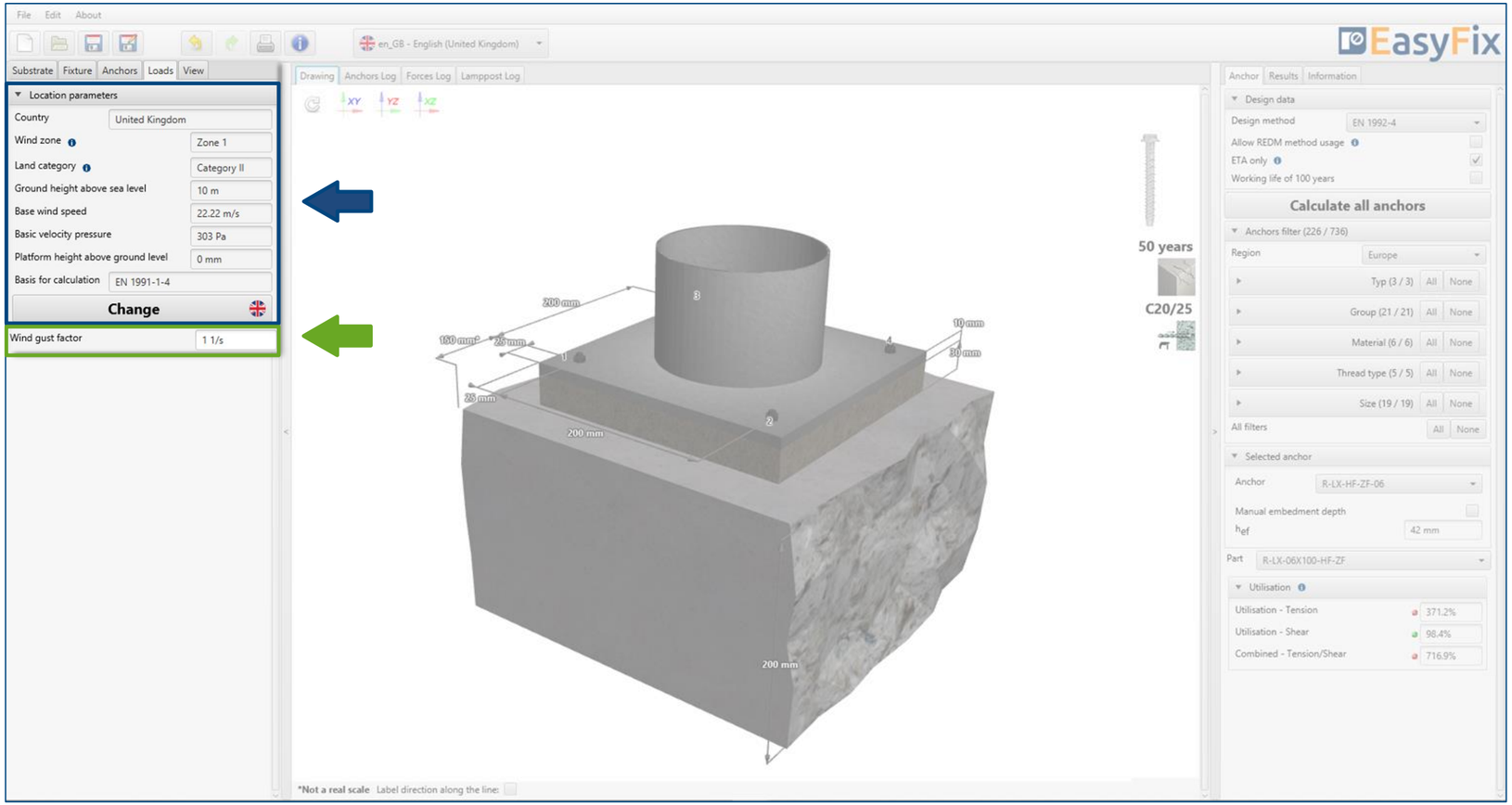
5 Defining of
The acting load »

The loads are determined on the basis of wind loads according to the national annexes to EN 1991-1-4, or entered manually by the user.

Specification of **input data** for the location of the mounted element.

Determination of **the wind gust action factor**.
Value entered manually by the user.



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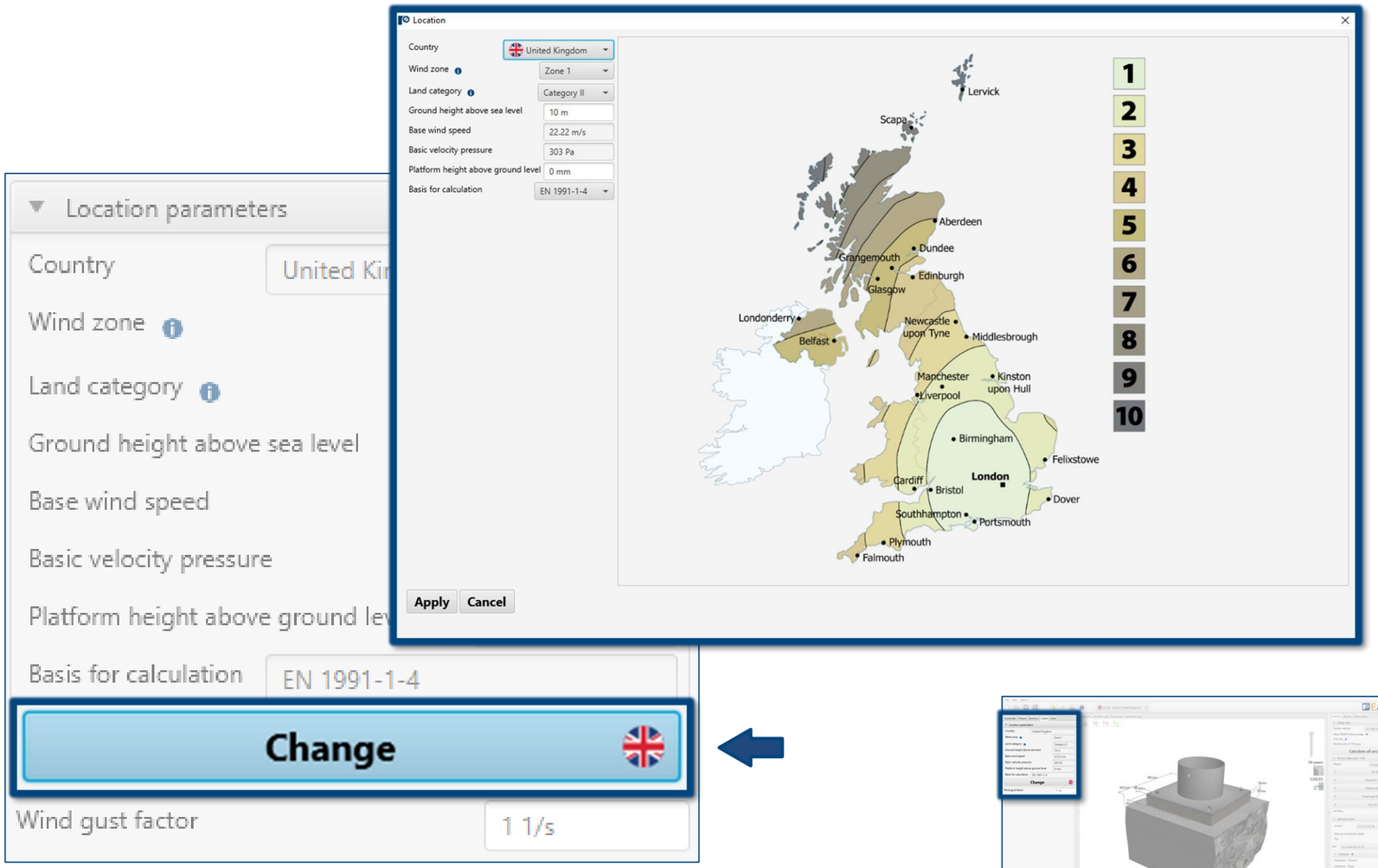
5 Defining of **The acting load** »

Determining the localization parameters:

The **Change** button to enter the location data of the lamp to be mounted generates an additional window in which we enter detailed information required to determine the forces acting on the anchors.



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6 Analysis of
The results »

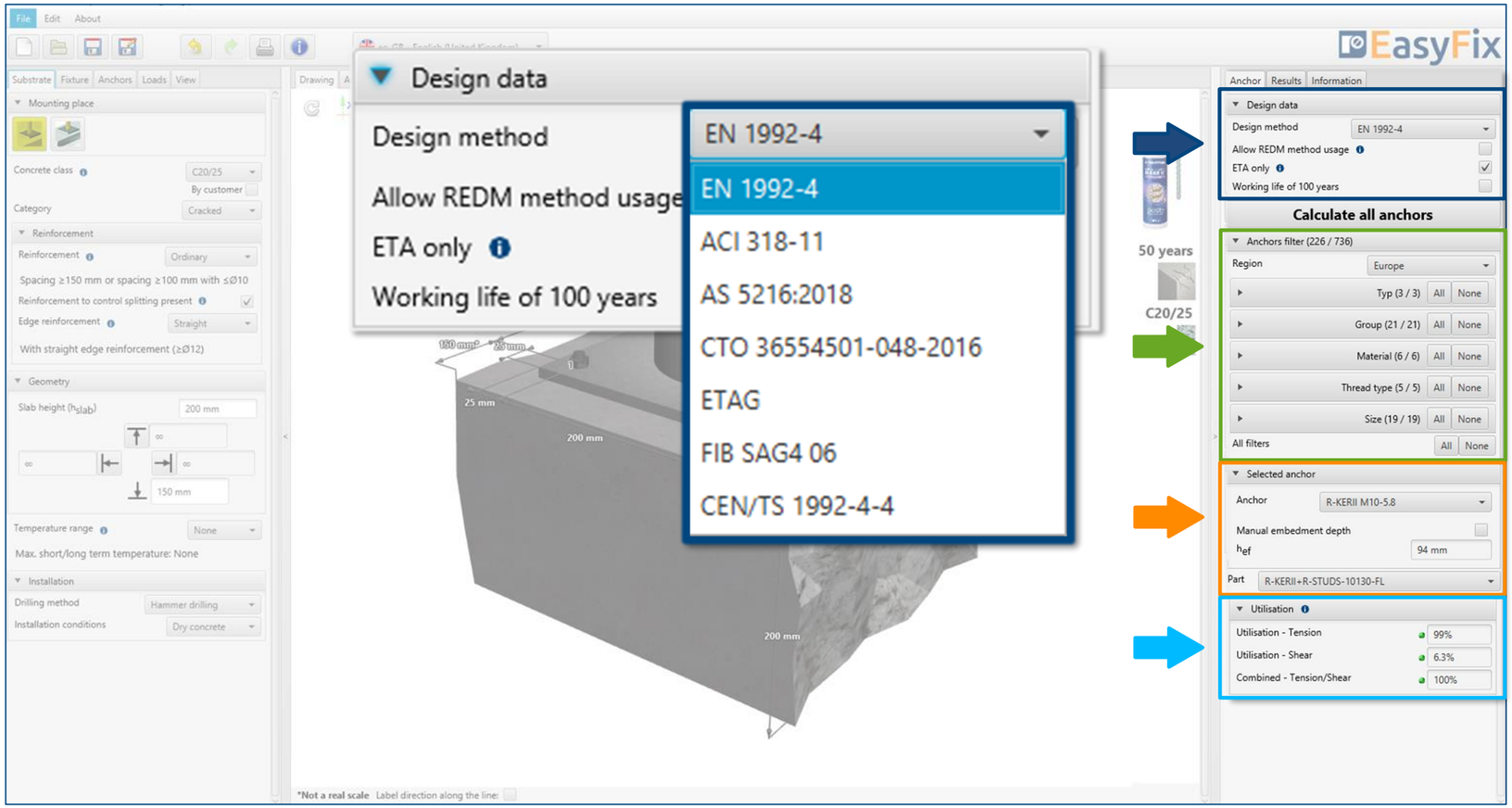
In the results panel, we can choose the appropriate design method, also **REDM. Rawlplug Engineering Design Method** - is a method that allows the calculation of anchor systems not covered by the **EN** and **ETAG.** methods. Unchecking the **ETA Data Only** box allows the use of test data from Rawlplug.

Selection of the **design method** and **service life** of the installed anchor.

Anchor filters allow you to choose the right product based on the region, type and material from which it is made.

Selecting anchor
enables a more precise selection of the anchor and the imposition of the depth of its anchorage.

Utilisation
Summary results window for the selected anchor



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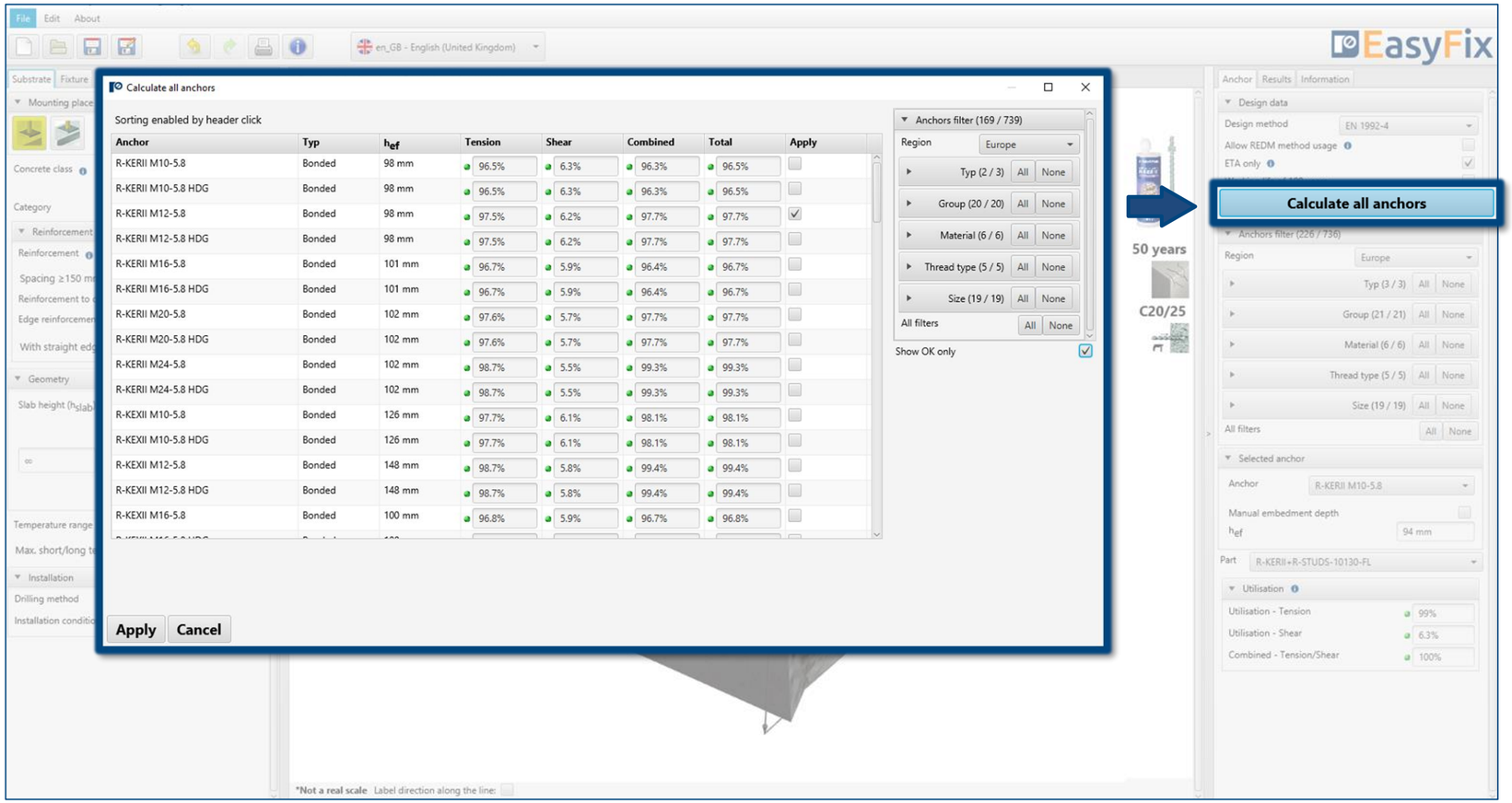
6 Analysis of
The results

Calculate all anchors opens an additional dialog with solution variants. Additionally, the anchor filter is duplicated and the option **show only ok**. Has been added, which allows you to filter only the correct solutions.



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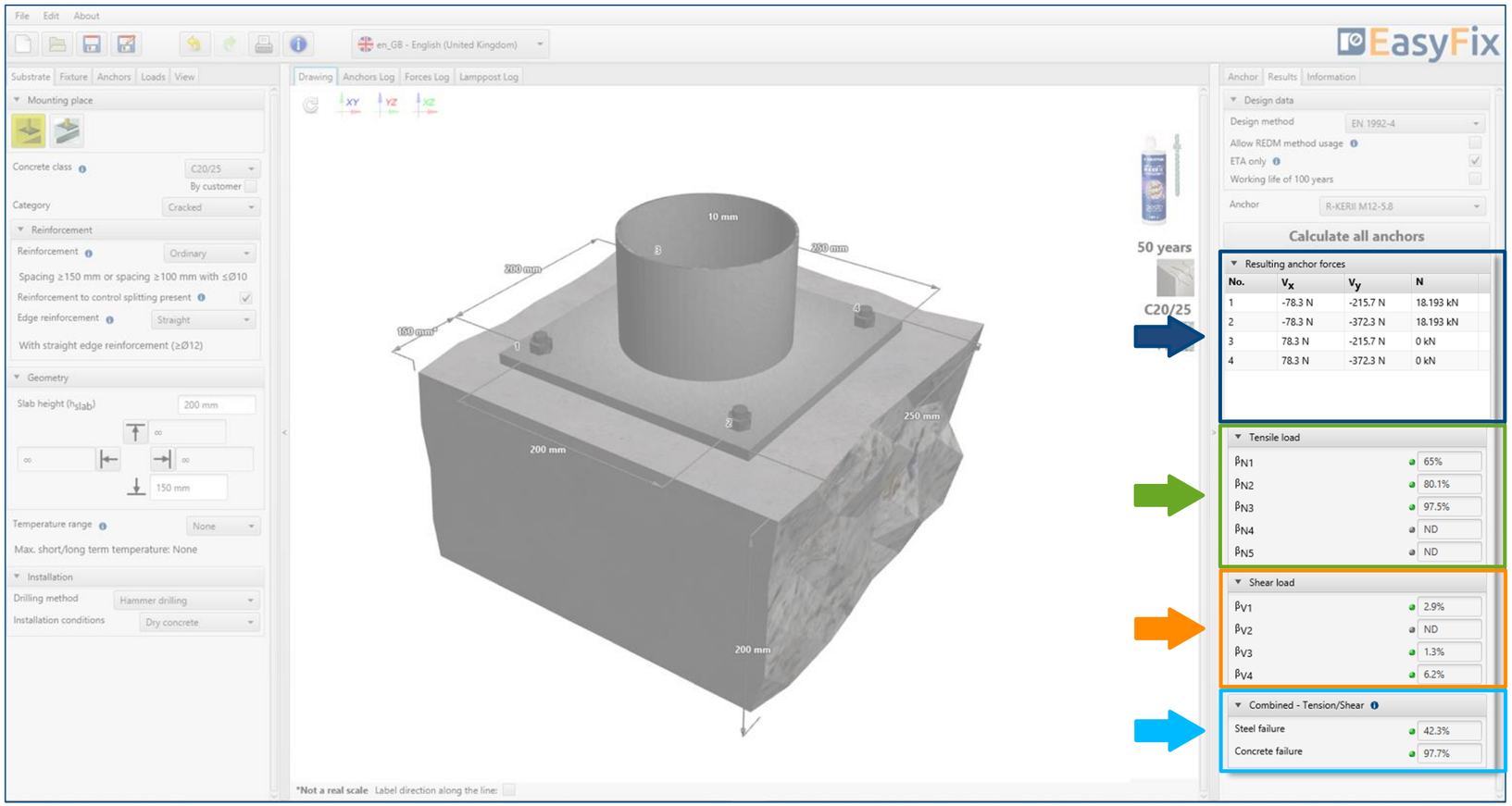
6 Analysis of
The results »

Resulting forces in the anchors
gives the values of the tension and shear forces acting on individual anchors.

Tensile loads
the percentage utilisation of the anchor system due to tensile forces in individual failure models

Shear loads
the percentage utilisation of the anchor system from shear forces in individual failure patterns

Combined Tension/Shear
combination of shear and tension actions – percentage utilisation of steel and concrete



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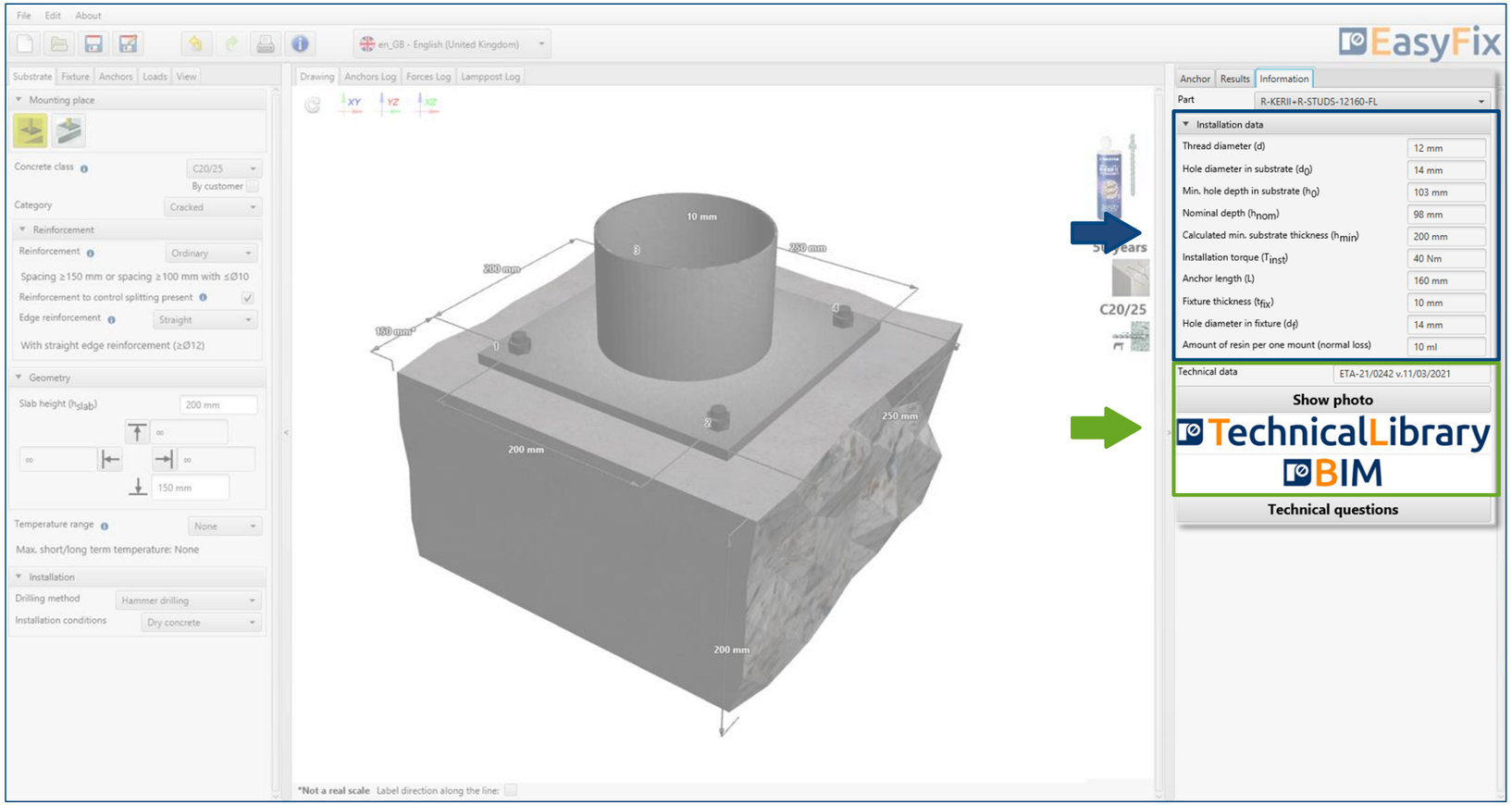
6 Analysis of
The results »

Installation data
Installation parameters of the designed anchor

Dynamic links to:
Technical Library
BIM Library
Rawlplug Technical Helpdesk RTH



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7 Generating
The printout »

In the printout panel it is possible to set regional options, i.e., language, decimal separator and system of units. The printout in pdf format contains all the data that is necessary in design and during the installation of the product.

Print option.
Enables you to generate a document in a pdf format.