Reinforcement at the interface between concrete cast at different times

Shortcut:

Meaning of icons and symbols:

Create new design

Open file

Safe | **Safe as**

Undo | **Redo** changes

Generate pdf printout

Information about software

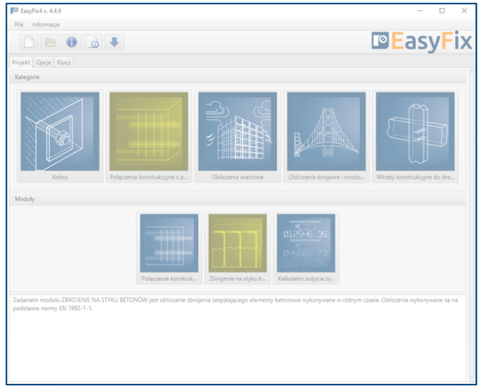
en_GB - English (United Kingdom)

Language selection

Info icons

Designing data:

1. Selection of the product category
2. Defining of the input data
3. Defining of the substrate
4. Defining of the reinforcement
5. Conditions of the installation
6. Analysis of the results
7. Generating the printout



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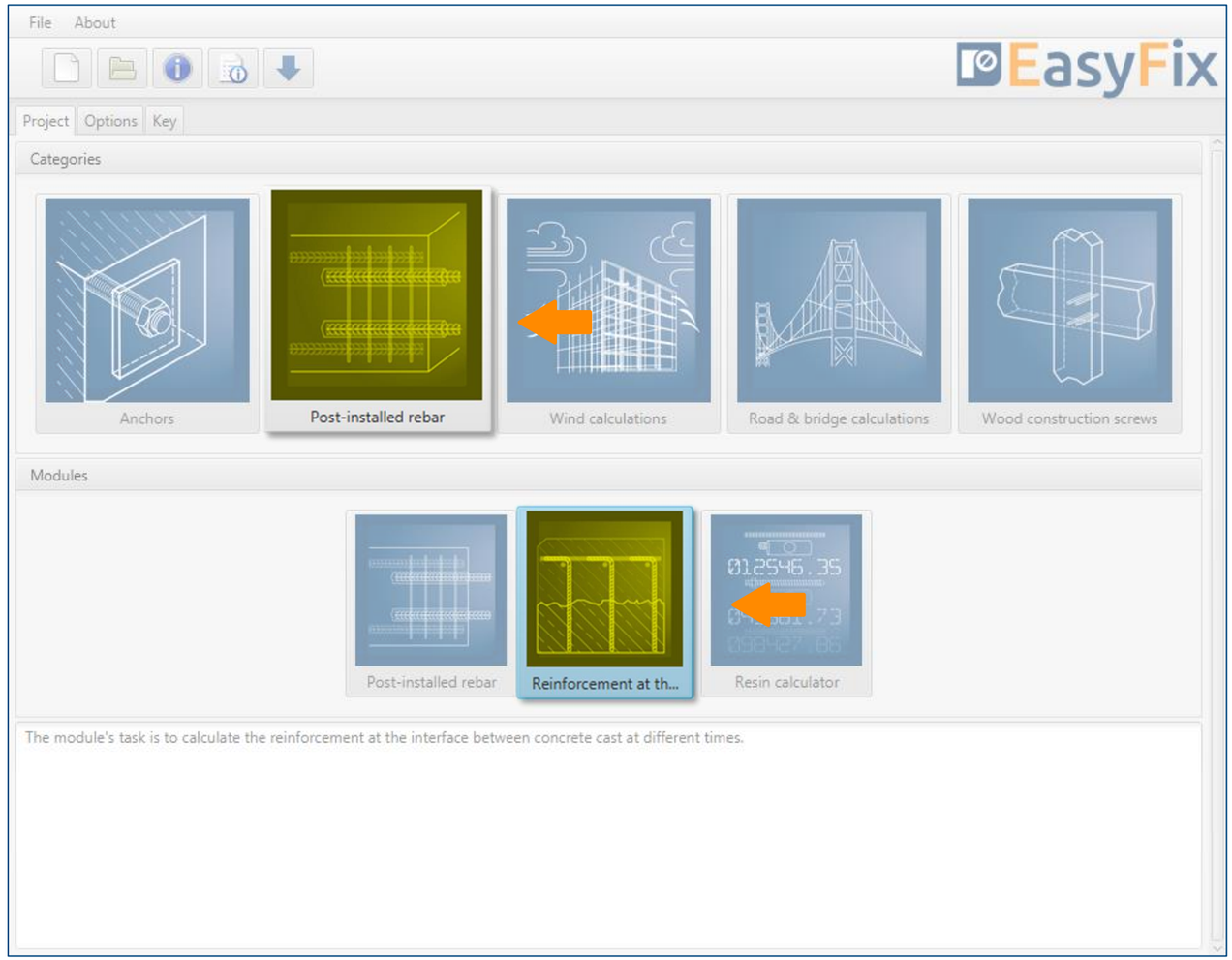
1 Selection of
The product category

»

Designing methods:

EUROCODE 2 | EN 1992-1-1

PIRR | Post Installed Rebar Rawlplug



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2 Defining of
The input data »

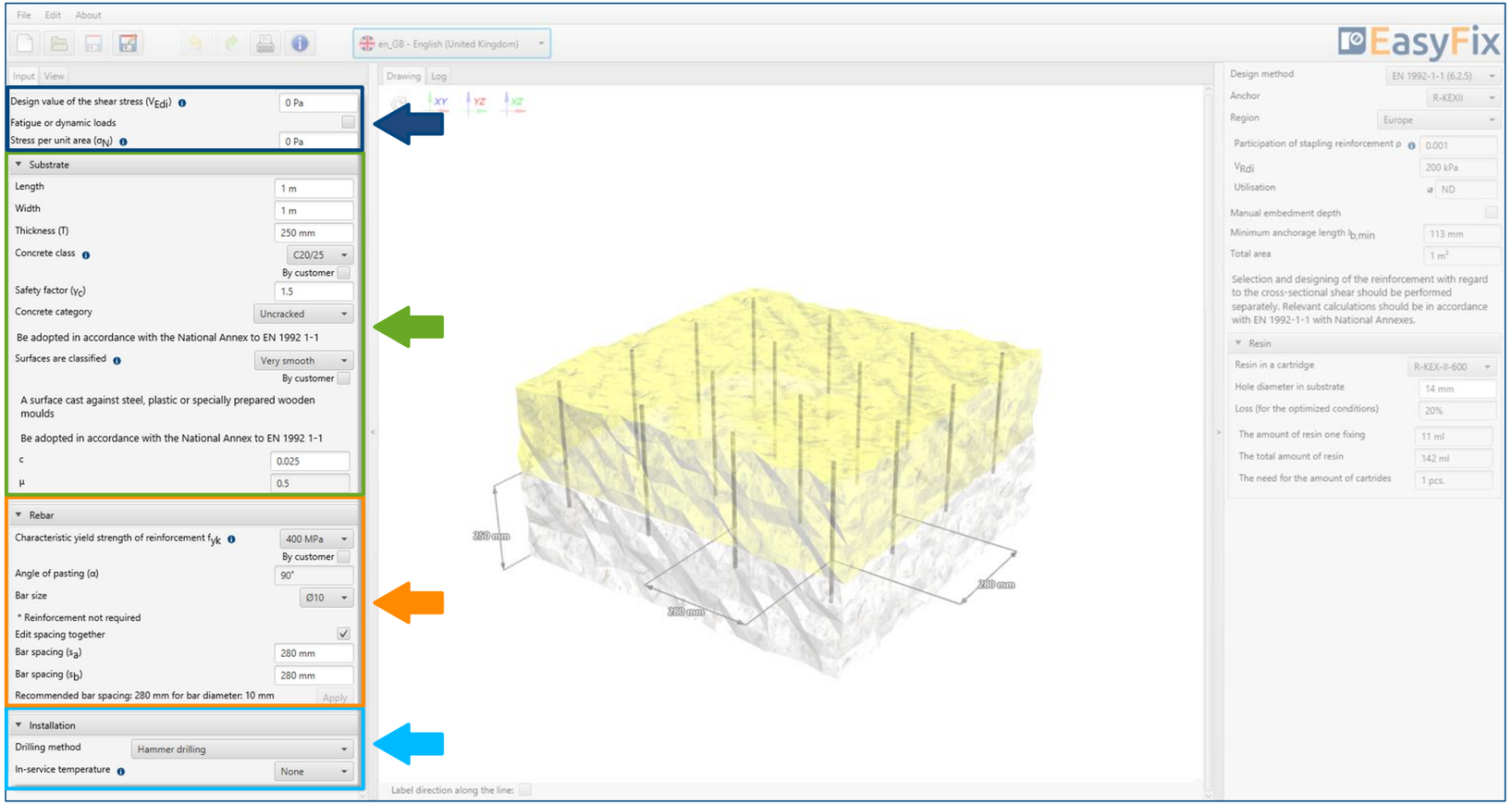
Reinforcement at the interface between concrete cast at different Times is based on the standard EN 1992-1-1:2008 p. 6.2.5.
The result of the calculations is the given anchorage depth resulting from calculations based on the standard or the PIRR engineering method using the possibilities of concrete and connection with bonded anchors.

Determination of **the stress** on the concrete surface.

Characteristics and conditions of **the substrate.**

Characteristics of **reinforcing steel**

Determination of **installation conditions.**



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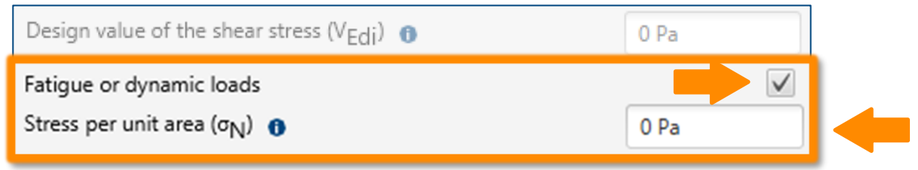
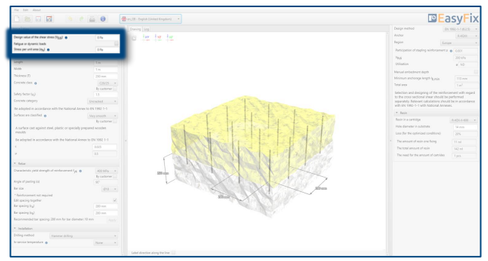
2 Defining of **The input data** »

The contact stress in the contact surface of concrete that have hardened at different times should meet the requirements: $\nu_{Edi} \leq \nu_{Rdi}$

The normal stress to the contact surface caused by the smallest external load on the joint surfaces, which always acts simultaneously with the contact shear force.





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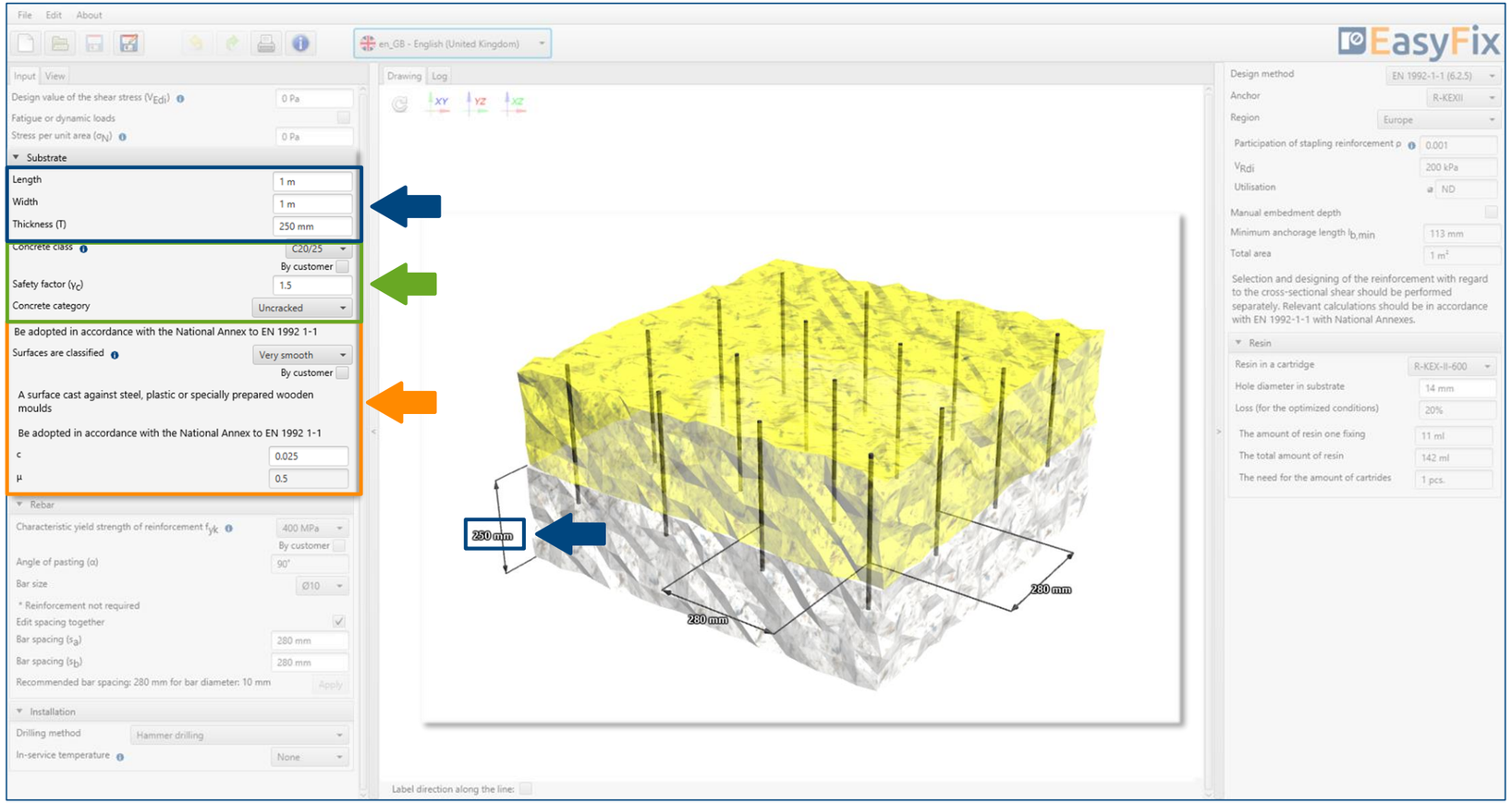
3 Defining of
The substrate »

When defining the ground conditions, the surface condition of the existing concrete is also determined. The theory describing this issue is described in the standard EN 1992-1-1 p. 6.2.5 (2).

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

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

Determination of the **roughness** of the connection plane.
Entering data by selecting from the list or the option "by user".



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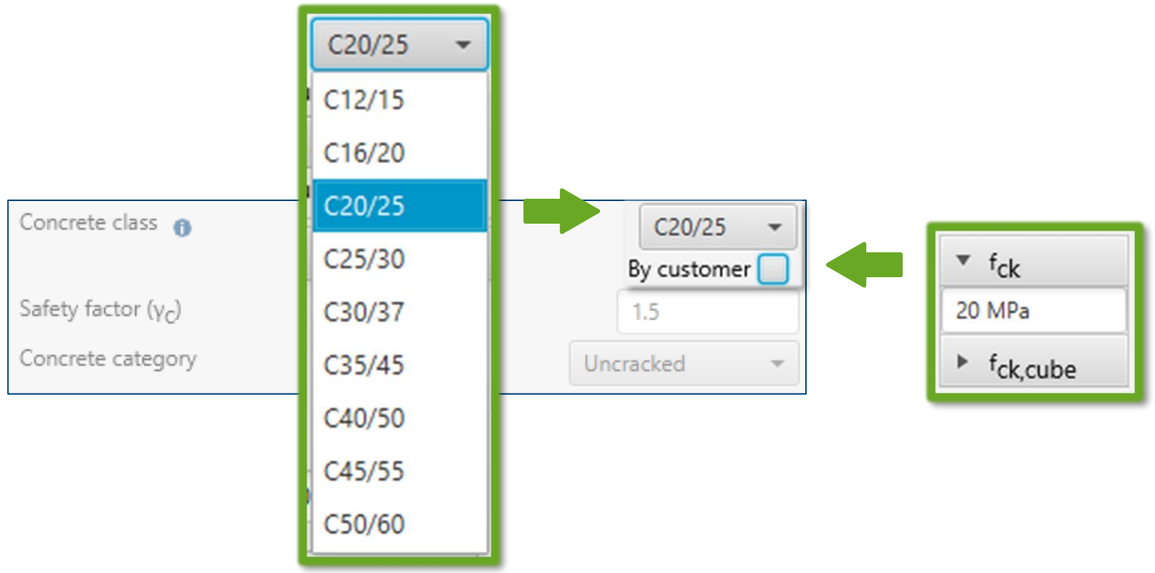
3 Defining of
The substrate »

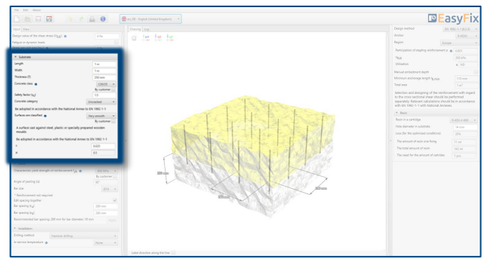
Determining of the **concrete strength class:**

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 $f_{ck,\,cube}$.

User-entered **safety factor for concrete** - depending on regional requirements.





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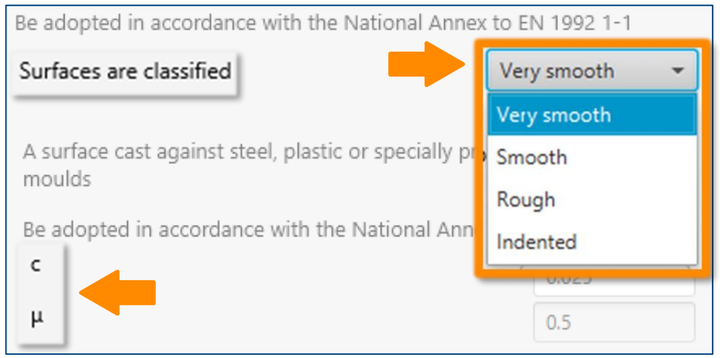
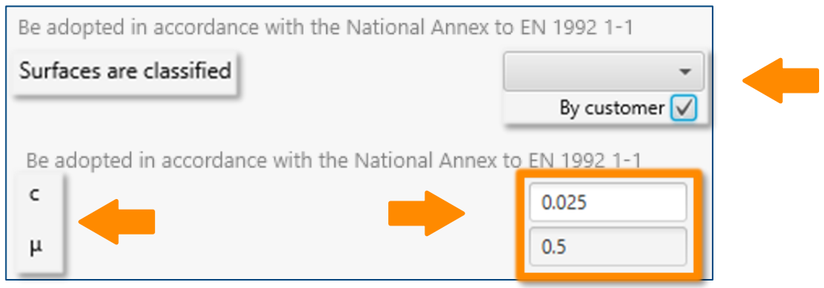
3 Defining of
The substrate »

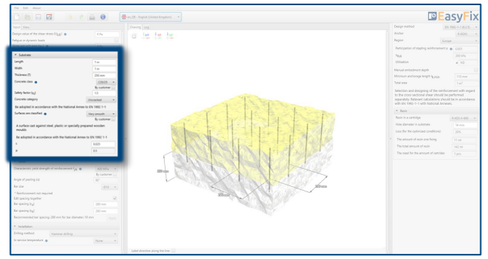
Surface classification:

Selection from the list:
According to EN 1992-1-1
- Very smooth
- Smooth
- Rough
- Indented

By user:
Possibility to manually enter the coefficients depending on the roughness of the connection plane **c** and **μ**.







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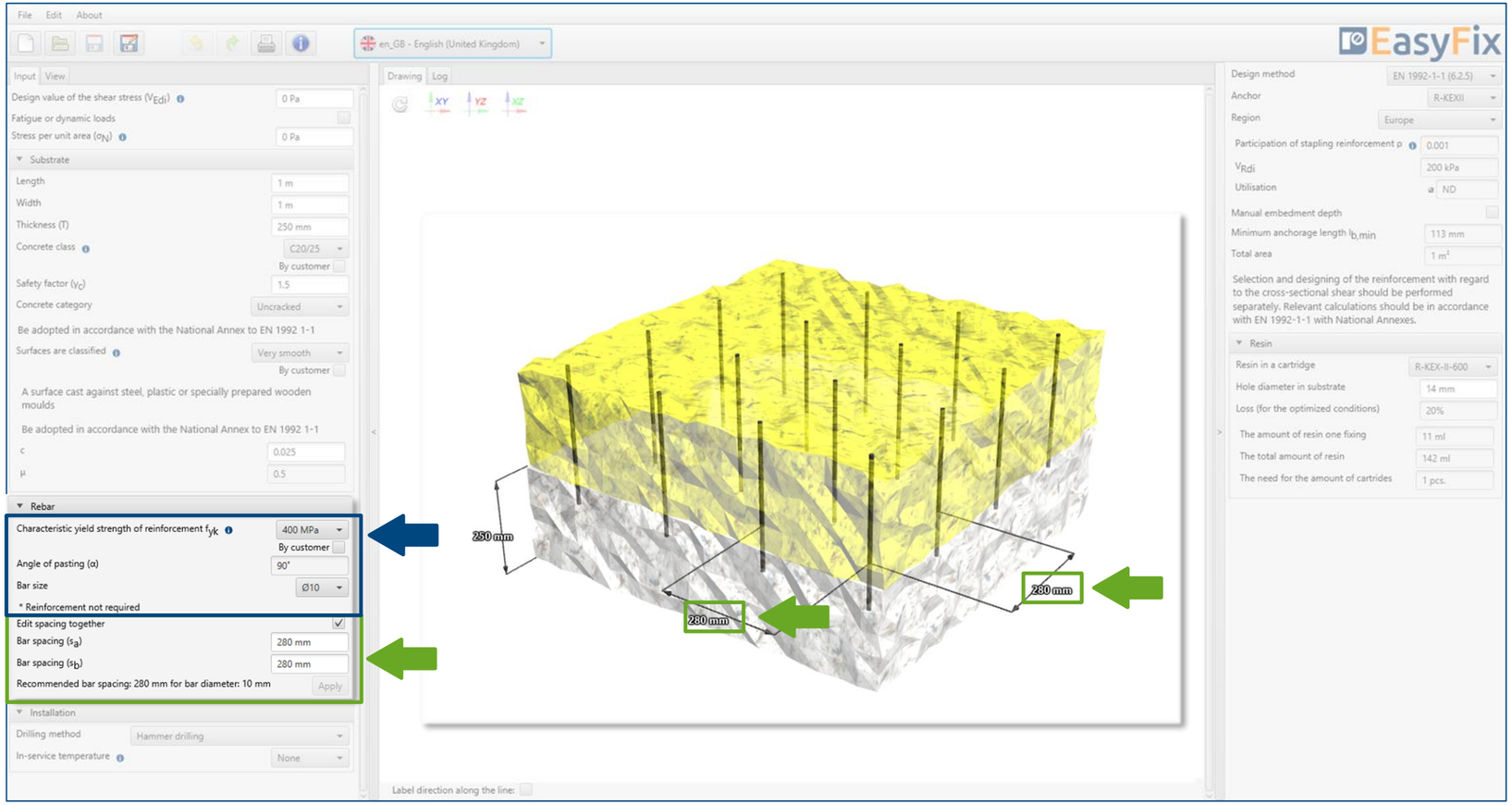
4 Defining of
the reinforcement »

Specification of **data for reinforcing steel**:

Entering data by selecting from the list or the option "by user".

Determining of **rebar spacing**

Possibility to set the reinforcement at the same distance in both directions. The bar spacing can be specified in the side panel or on the model.



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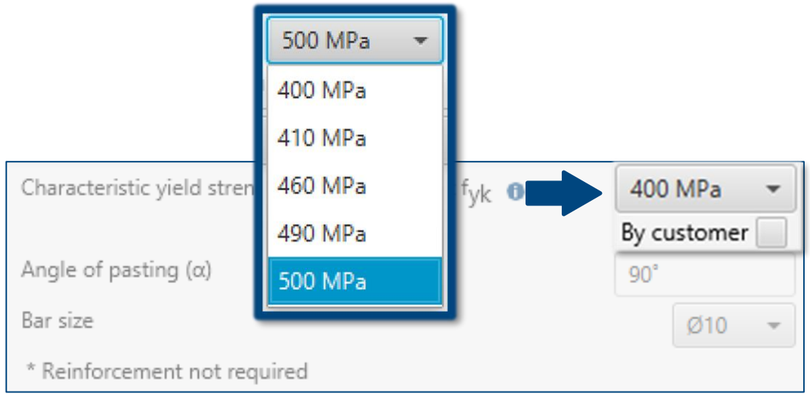
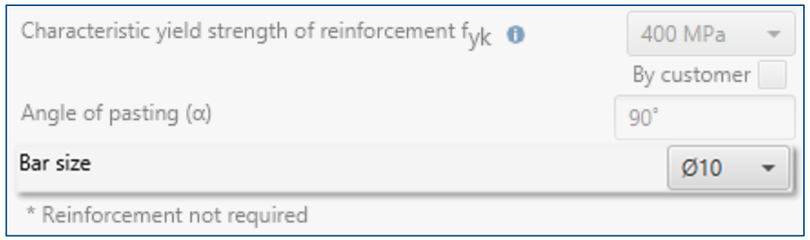
4 Defining of
the reinforcement »

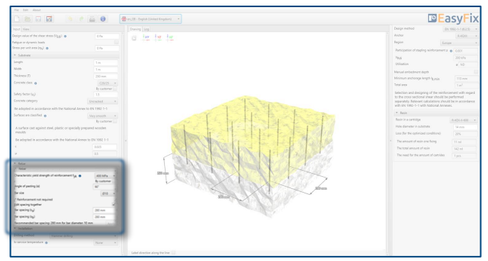
Determining of the **yield steel strength**:

Selection from the list:
Ribbed bars in accordance with
EN 1992-1-1:2008

Option „by user”:
Possibility of manual input yield steel strength f_{yk} and its safety factor γ_s according to national requirements.







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5 Conditions of
The installation »

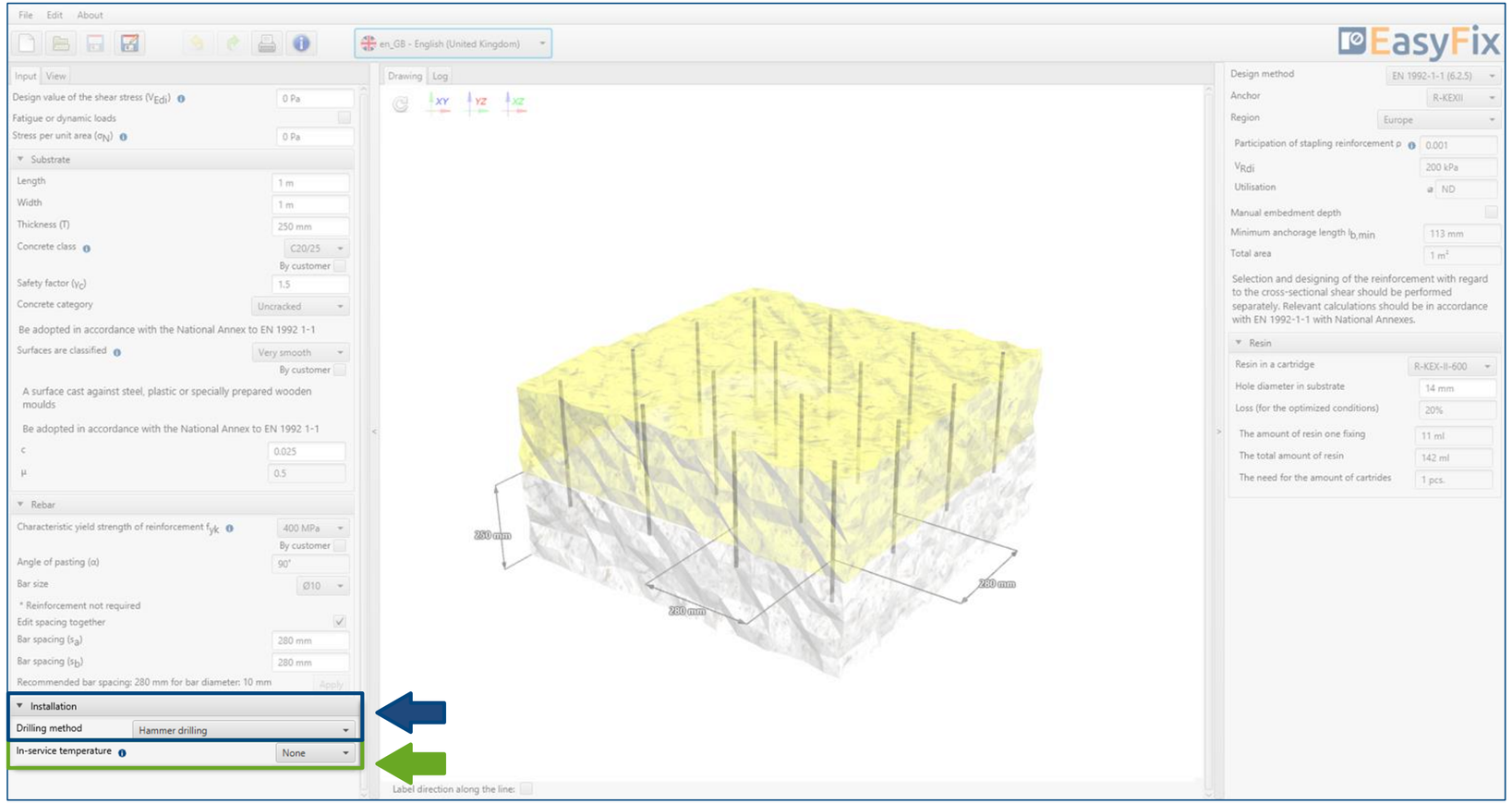
Determination and defining of the drilling method in the existing structure.
The choice of the service temperature determines the minimum and maximum temperature of the substrate at the time of installation of the anchor.

Determination of **drilling method:**

Selecting from the list:
Hammer | Diamond

Determination of **service temperature:**

Selecting from the list of results filters the proper anchor group.



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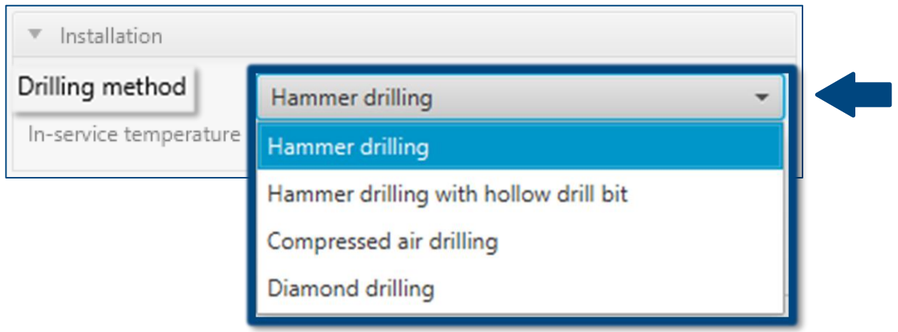
5 Conditions of
The installation »

Determination of **drilling method:**

Selecting from the list:

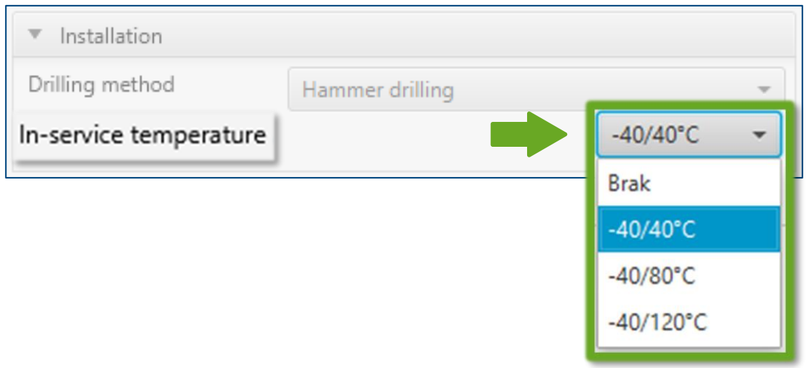
- Hammer drilling
- Hammer drilling with hollow drill bit
- Compressed air drilling
- Diamond drilling

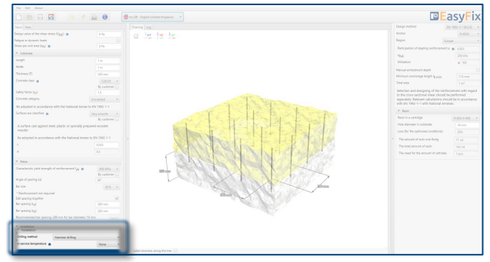


Determination of **service temperature range:**

Selecting from the list:
- 40˚ C ÷ + 40˚ C
- 40˚ C ÷ + 80˚ C
- 40˚ C ÷ + 120˚ C

Selecting from the list of results filters the proper anchor group.





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6 Analysis of
The results »

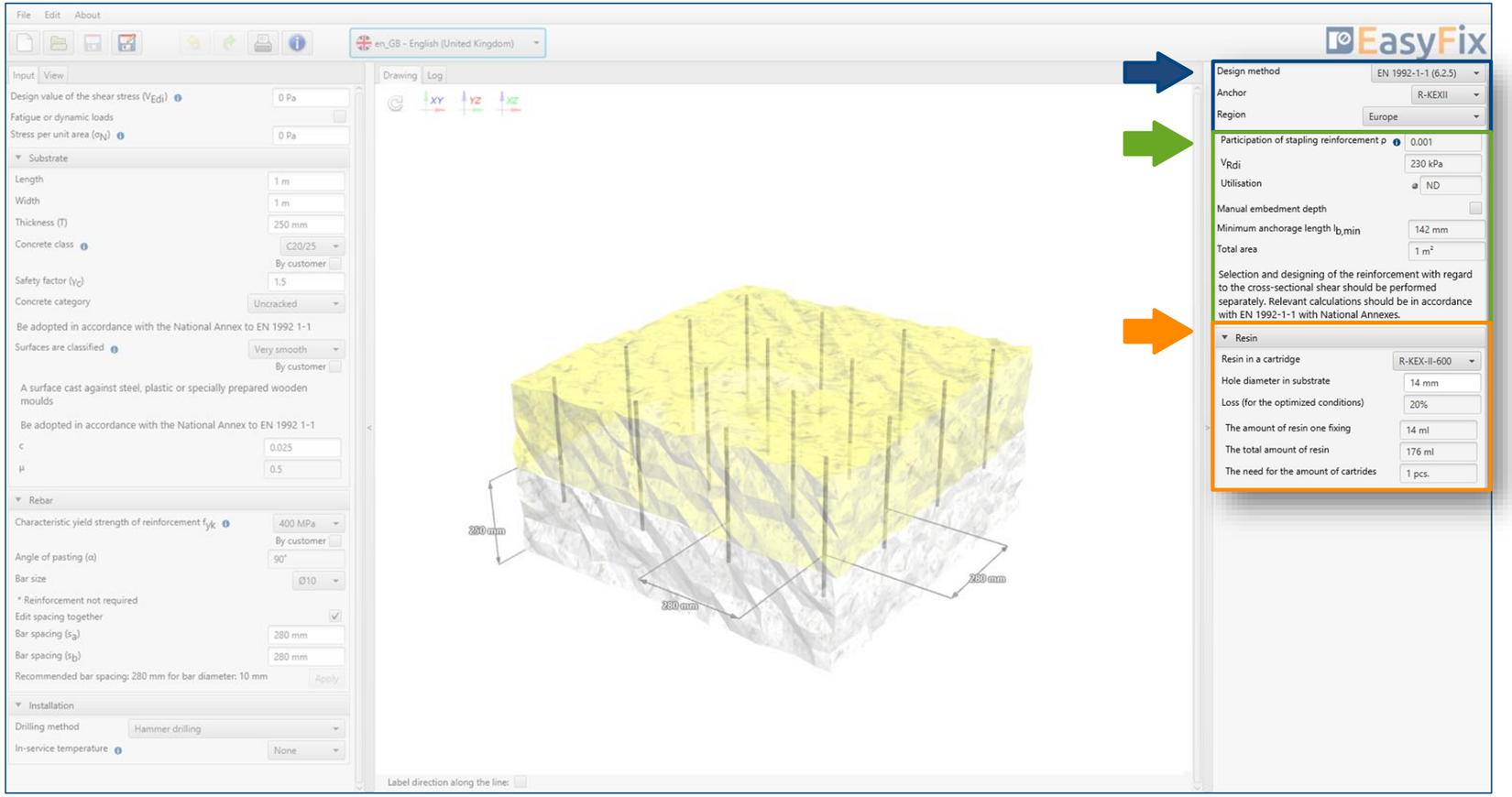
In the results panel, we can choose a design method between the calculation of the anchorage according to the standards contained in Eurocode 2 and the PIRR engineering method.
In addition, it is possible to filter products and the region in which the products will be used.

Panel of **filters:**
- Design method
- Type of resin
- Region

Results for reinforcement with **determined anchorage depth**.

Possibility to enter the declared anchorage depth.

Results for the appropriate **resin** depending on the package.



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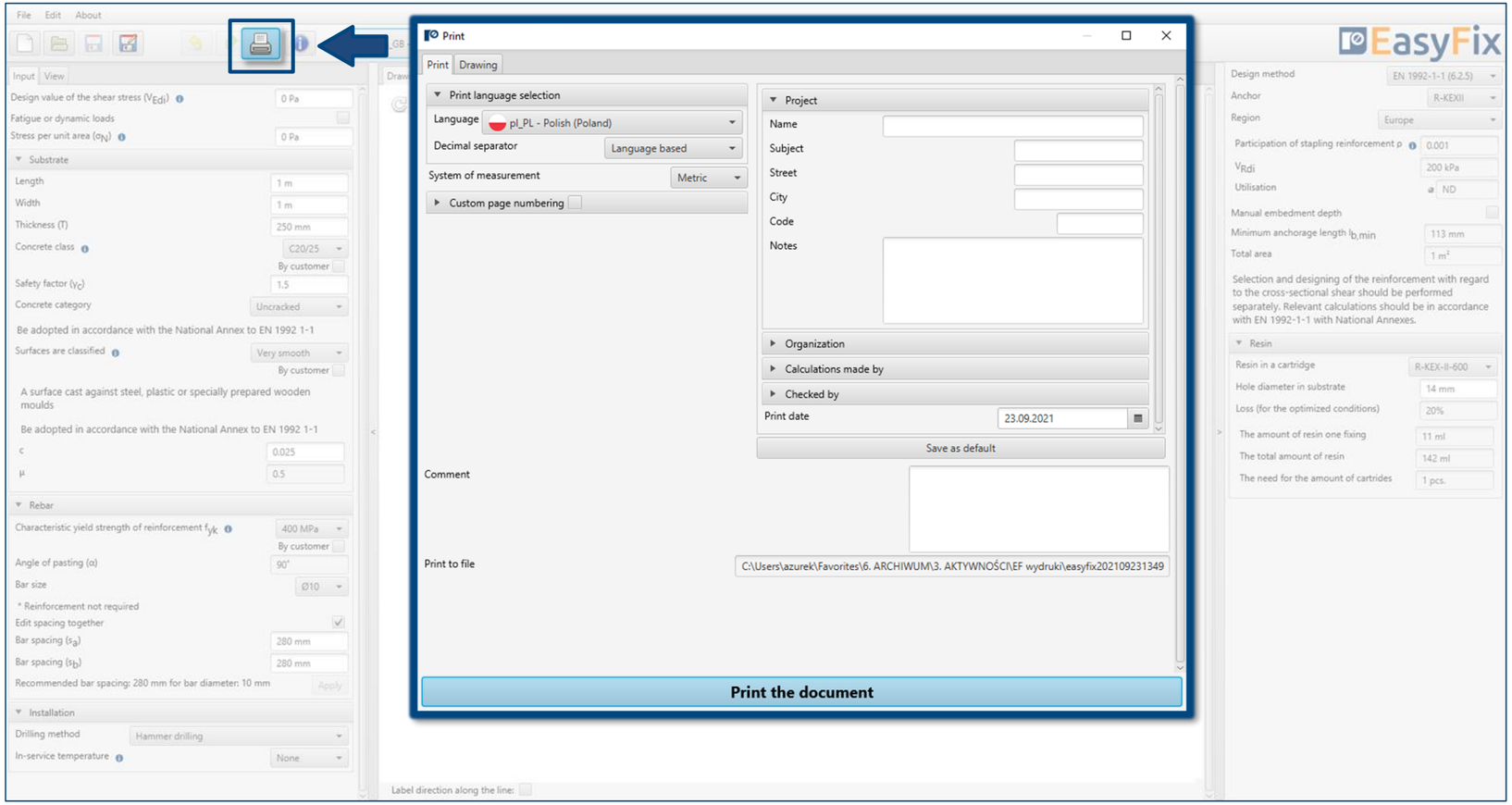
7

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.