FREQUENTLY ASKED QUESTIONS: ELEMATIC ELISLAB 2.0

Question: Is ELiSLAB an online, web-based application? Can we save and store them to our own computers or a server?

Answer: Elematic ELiSLAB is stand-alone software with a web license. The software can be installed on several computers with one license only but can be used by just one user at a time.
When ELiSLAB is installed, an internet connection is required. After that, the software can be used on-site, i.e. without an internet connection. All design outputs can be stored in computers or servers.

Q: How should we interpret the values in the fire resistance section? How can we prove that the slabs are bearing? What we usually do is that we separate the calculation of fire resistance according to EN1168, take the obtained values (protective layer - cp) and transfer them into the calculation of ELiSLAB.

A: ELiSLAB calculates the fire resistance according to EN1168.
The temperature is calculated using the given fire resistance time and the given location of the bottom strands according to the figure G1 of the EN1168.
The strength of the strand at fire is calculated as the function of the temperature according to EN-1992-1-2 fig.5.1. The flexural resistance at fire is calculated using this reduced strength. Partial safety factor for materials is 1.0. Taking into account the self-weight of the slab field and the dead load of the slab, ELiSLAB calculates the permissible, uniformly distributed live load at fire, which should be compared to the live load at fire (psii2*q).
The shear resistance is calculated according to EN 1168+A3. The anchorage resistance of the strands and pre-stressing force are calculated by using the reduced values as a function of temperature.

Q: How is the interface shear between hollow core and topping calculated?

A: This is calculated according to EC-2. Users can choose the roughness type of the interface. Roughness type parameters are included in National Annex parameters.

Q: I am working on a test series for a local manufacturer, and am trying to validate the calculated shear resistance values that they have provided.
I followed the EN1186 to determine the values which are mostly in accordance with the ones from the software. However, I couldn't find the reason for the constant value from length 0 to about 450.
What I did find in the EN1186 is that I do not have to test for anything under d/2 (which in this case is roughly 450/2). This means that the constant part should be shorter and lower from my calculations.

A: The first point where ELiSLAB calculates the shear resistance, is the distance ycrit/0.7 (ycrit=critical height) from the inner edge of the support (line 35 degrees from the inner edge of the support to the height ycrit). The program takes both design value of the shear force and shear resistance for all points nearer than ycrit/0.7. Instead of distance 0,5 h in EN1168, the program uses distance ycrit/0.7 < h/2.

Q: How interaction of the bending moment and the shear force is taken into account?

A: It is taken into account as the effect of the bending moment to shear resistance by using interaction formula $M-V= [(V_{Ed}/V_{Rd})^3+(M_{Ed}/M_{Rd})^3]^{(1/3)}$.
This is relevant in the cases where the point load is close to the support, i.e. there is a strong shear force together with a moment. For a distributed load, interaction of the moment and the shear force are not governed.