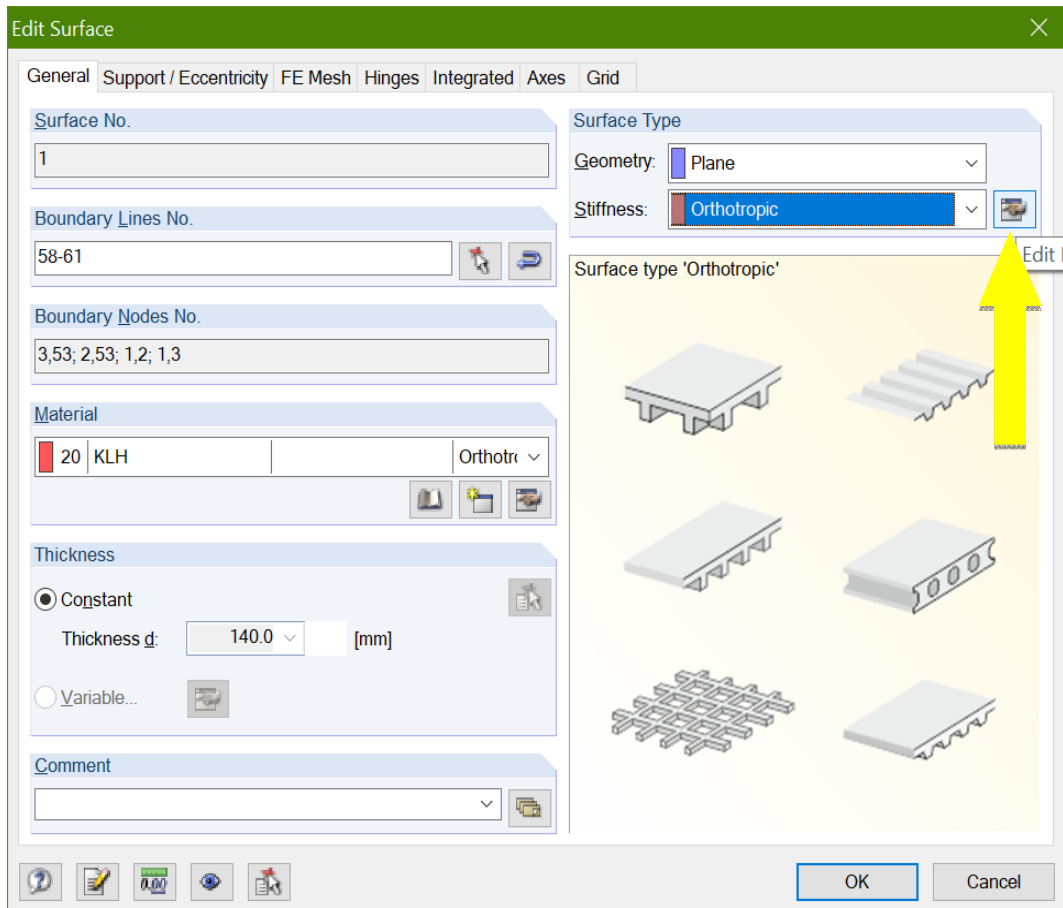


Import KLH stiffness properties into Dlubal RFEM

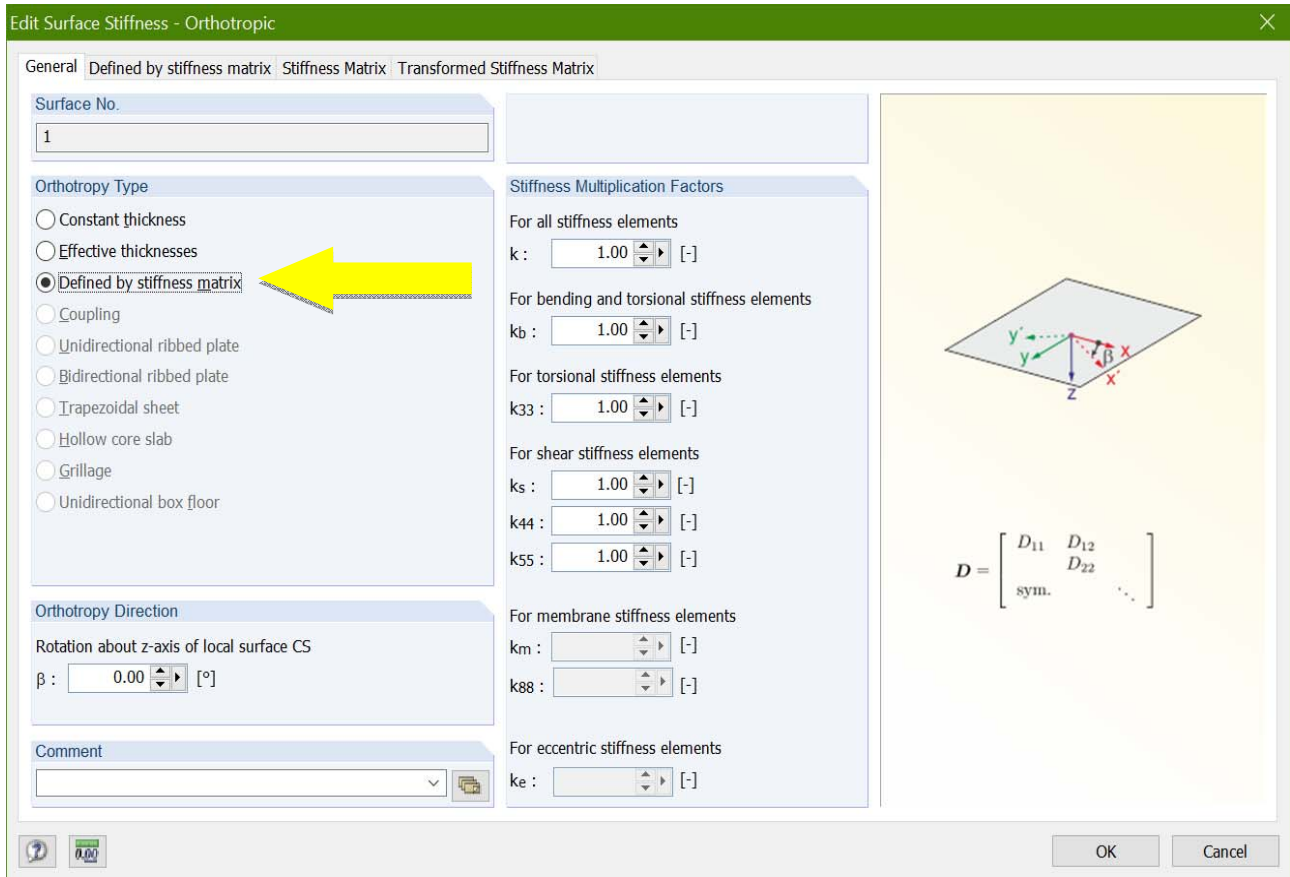
Step 1: Create a model in Dlubal RFEM – as you are used to. Create a surface (or edit an existing one) and go to “Edit Surface”, choose Stiffness “Orthotropic” and click “Edit”



Note: When you provide the stiffness properties to a surface, it does not matter which material properties you give in the “Material” section.

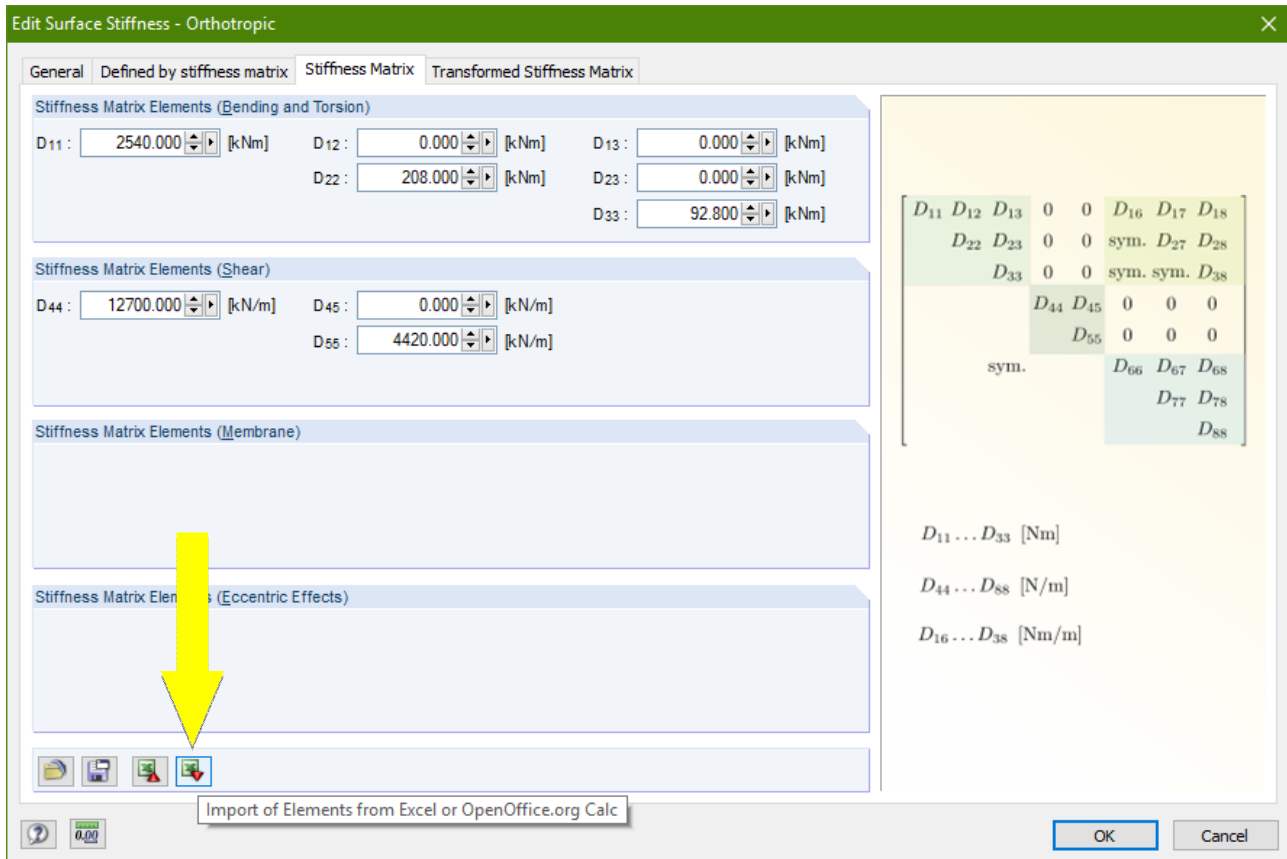
Import KLH stiffness properties into Dlubal RFEM

Step 2: Select Orthotropy Type: “Defined by stiffness matrix” in the “General” tab



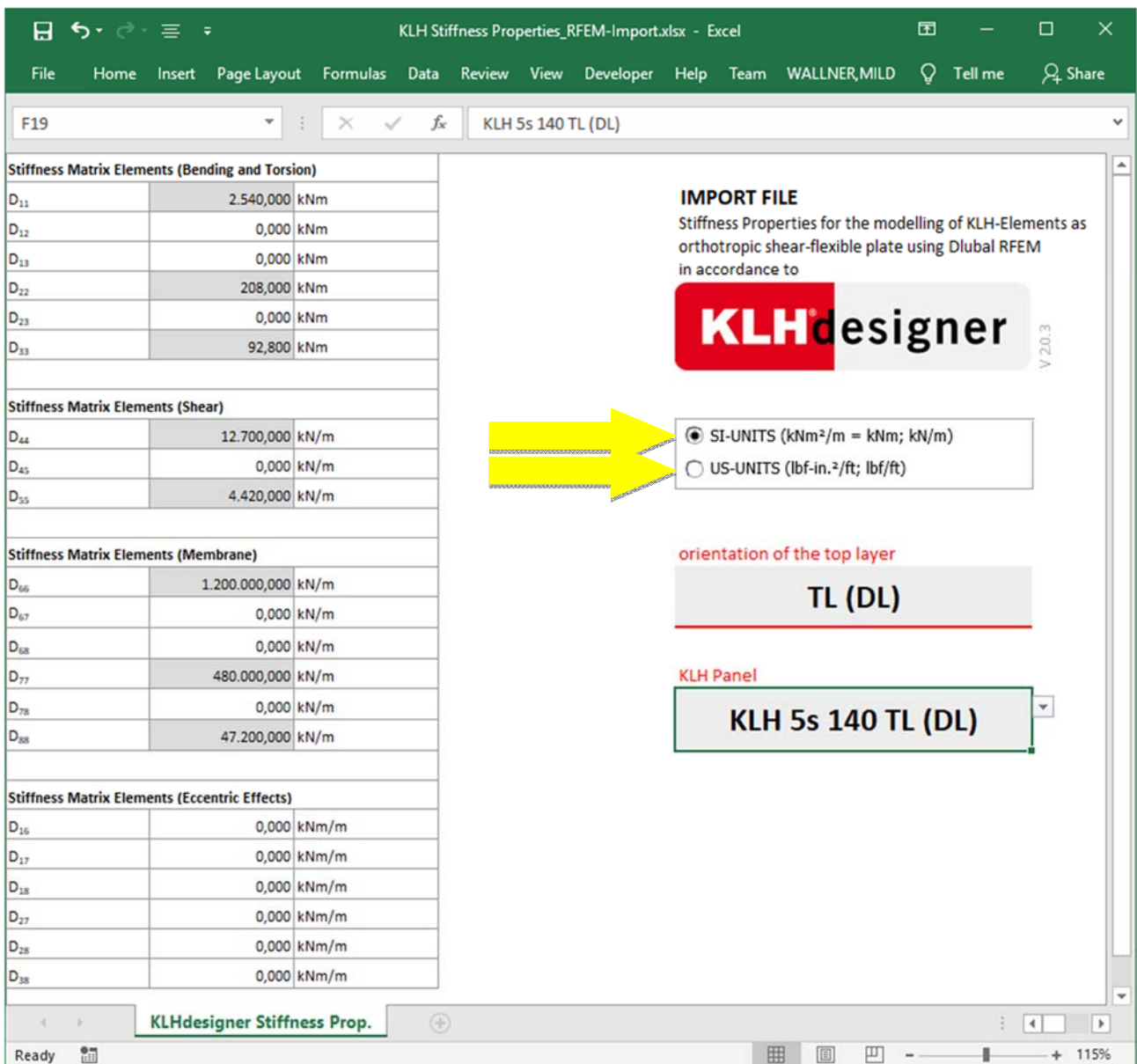
Import KLH stiffness properties into Dlubal RFEM

Step 3: Switch to the “Stiffness Matrix” tab and click “Import of Elements from Excel...”



Import KLH stiffness properties into Dlubal RFEM

Step 4: Open Excel-File: KLH Stiffness Properties_RFEM-Import and choose the units (SI/US) you want to import the stiffness values.



The screenshot shows an Excel spreadsheet with the following data tables:

Stiffness Matrix Elements (Bending and Torsion)		
D ₁₁	2,540,000	kNm
D ₁₂	0,000	kNm
D ₁₃	0,000	kNm
D ₂₂	208,000	kNm
D ₂₃	0,000	kNm
D ₃₃	92,800	kNm

Stiffness Matrix Elements (Shear)		
D ₄₄	12,700,000	kN/m
D ₄₅	0,000	kN/m
D ₅₅	4,420,000	kN/m

Stiffness Matrix Elements (Membrane)		
D ₆₆	1,200,000,000	kN/m
D ₆₇	0,000	kN/m
D ₆₈	0,000	kN/m
D ₇₇	480,000,000	kN/m
D ₇₈	0,000	kN/m
D ₈₈	47,200,000	kN/m

Stiffness Matrix Elements (Eccentric Effects)		
D ₁₆	0,000	kNm/m
D ₁₇	0,000	kNm/m
D ₁₈	0,000	kNm/m
D ₂₇	0,000	kNm/m
D ₂₈	0,000	kNm/m
D ₃₈	0,000	kNm/m

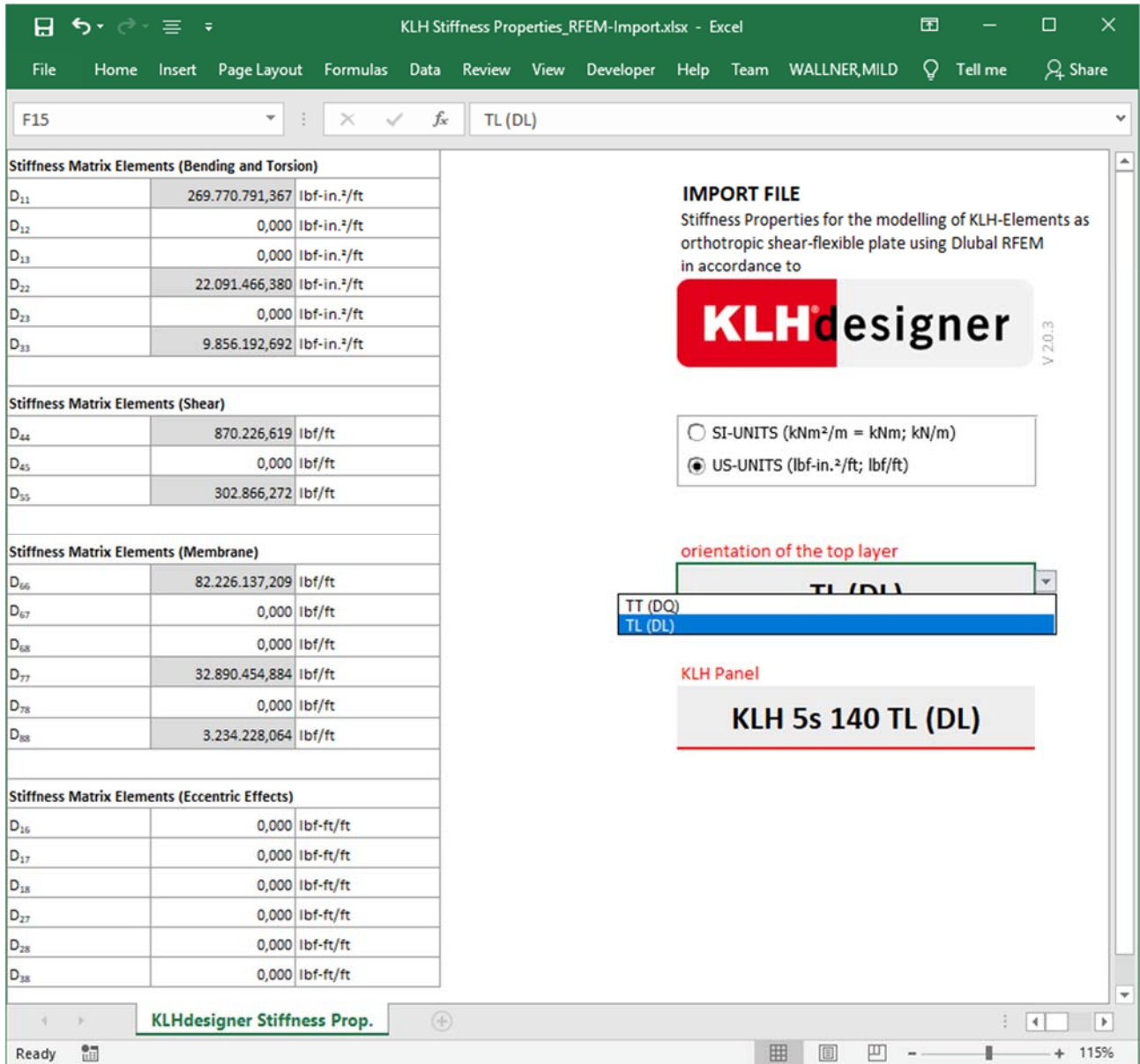
The KLH designer V 2.0.3 interface on the right includes the following settings:

- IMPORT FILE**: Stiffness Properties for the modelling of KLH-Elements as orthotropic shear-flexible plate using Dlubal RFEM in accordance to
- KLH designer V 2.0.3**
- SI-UNITS (kNm²/m = kNm; kN/m)** (Selected)
- US-UNITS (lbf-in.²/ft; lbf/ft)**
- orientation of the top layer**: TL (DL)
- KLH Panel**: KLH 5s 140 TL (DL)

Note: Make sure, that you are using the same units in RFEM as the vales are given in the Excel-File. You can change the units in RFEM by navigating to “Options” and “Units and Decimal Places” in the menu bar.

Import KLH stiffness properties into Dlubal RFEM

Step 5: Choose the KLH-panel you wish to import



The screenshot shows an Excel spreadsheet titled "KLH Stiffness Properties_RFEM-Import.xlsx" with a data table on the left and the "KLH designer" import interface on the right.

Stiffness Matrix Elements (Bending and Torsion)

D ₁₁	269.770,791,367	lbf-in. ² /ft
D ₁₂	0,000	lbf-in. ² /ft
D ₁₃	0,000	lbf-in. ² /ft
D ₂₂	22.091.466,380	lbf-in. ² /ft
D ₂₃	0,000	lbf-in. ² /ft
D ₃₃	9.856.192,692	lbf-in. ² /ft

Stiffness Matrix Elements (Shear)

D ₄₄	870.226,619	lbf/ft
D ₄₅	0,000	lbf/ft
D ₅₅	302.866,272	lbf/ft

Stiffness Matrix Elements (Membrane)

D ₆₆	82.226.137,209	lbf/ft
D ₆₇	0,000	lbf/ft
D ₆₈	0,000	lbf/ft
D ₇₇	32.890.454,884	lbf/ft
D ₇₈	0,000	lbf/ft
D ₈₈	3.234.228,064	lbf/ft

Stiffness Matrix Elements (Eccentric Effects)

D ₁₆	0,000	lbf-ft/ft
D ₁₇	0,000	lbf-ft/ft
D ₁₈	0,000	lbf-ft/ft
D ₂₇	0,000	lbf-ft/ft
D ₂₈	0,000	lbf-ft/ft
D ₃₈	0,000	lbf-ft/ft

KLH designer V 20.3 Import File

Stiffness Properties for the modelling of KLH-Elements as orthotropic shear-flexible plate using Dlubal RFEM in accordance to

KLH designer V 20.3

SI-UNITS (kNm²/m = kNm; kN/m)
 US-UNITS (lbf-in.²/ft; lbf/ft)

orientation of the top layer

TT (DQ)
 TL (DL)

KLH Panel

KLH 5s 140 TL (DL)

Import KLH stiffness properties into Dlubal RFEM

KLH Stiffness Properties_RFEM-Import.xlsx - Excel

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F19 : X ✓ fx KLH 5s 140 TL (DL)

Stiffness Matrix Elements (Bending and Torsion)		
D ₁₁	269.770.791,367	lbf-in. ² /ft
D ₁₂	0,000	lbf-in. ² /ft
D ₁₃	0,000	lbf-in. ² /ft
D ₂₂	22.091.466,380	lbf-in. ² /ft
D ₂₃	0,000	lbf-in. ² /ft
D ₃₃	9.856.192,692	lbf-in. ² /ft

Stiffness Matrix Elements (Shear)		
D ₄₄	870.226,619	lbf/ft
D ₄₅	0,000	lbf/ft
D ₅₅	302.866,272	lbf/ft

Stiffness Matrix Elements (Membrane)		
D ₆₆	82.226.137,209	lbf/ft
D ₆₇	0,000	lbf/ft
D ₆₈	0,000	lbf/ft
D ₇₇	32.890.454,884	lbf/ft
D ₇₈	0,000	lbf/ft
D ₈₈	3.234.228,064	lbf/ft

Stiffness Matrix Elements (Eccentric Effects)		
D ₁₆	0,000	lbf-ft/ft
D ₁₇	0,000	lbf-ft/ft
D ₁₈	0,000	lbf-ft/ft
D ₂₇	0,000	lbf-ft/ft
D ₂₈	0,000	lbf-ft/ft
D ₃₈	0,000	lbf-ft/ft

IMPORT FILE
Stiffness Properties for the modelling of KLH-Elements as orthotropic shear-flexible plate using Dlubal RFEM in accordance to

KLH designer V 2.0.3

SI-UNITS (kNm²/m = kNm; kN/m)

US-UNITS (lbf-in.²/ft; lbf/ft)

orientation of the top layer

TL (DL)

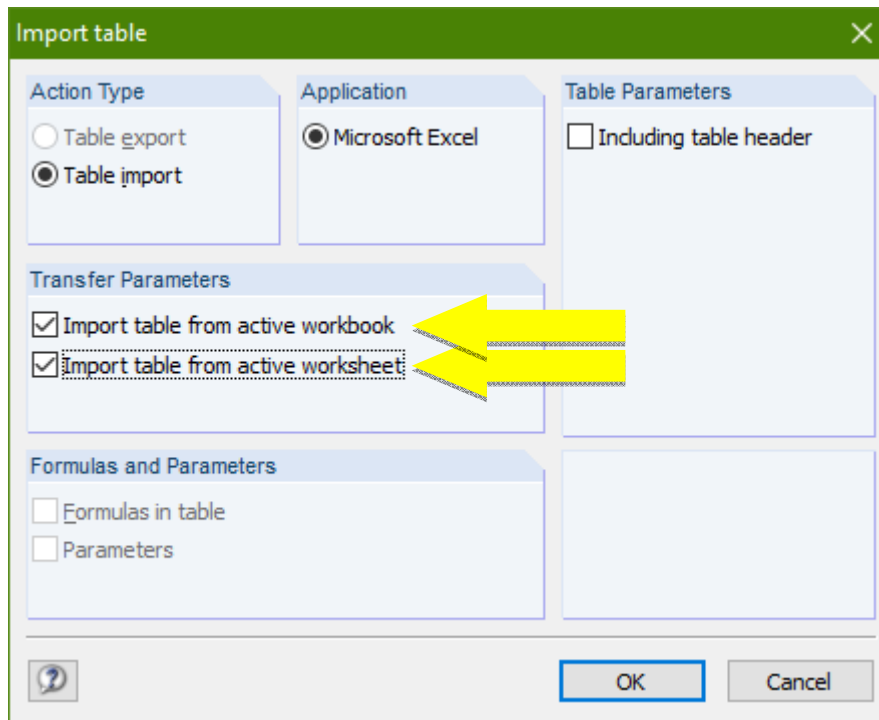
KLH Panel

- KLH 5s 140 TL (DL)
- KLH 5s 150 TL (DL)
- KLH 5s 160 TL (DL)
- KLH 5ss 160 TL (DL)
- KLH 5s 170 TL (DL)
- KLH 5s 180 TL (DL)
- KLH 5s 190 TL (DL)
- KLH 5s 200 TL (DL)

Ready KLHdesigner Stiffness Prop. 115%

Import KLH stiffness properties into Dlubal RFEM

Step 6: Check the following “Transfer Parameters” in RFEM



Step 7: Import the KLH stiffness properties by confirming with a click on “OK”