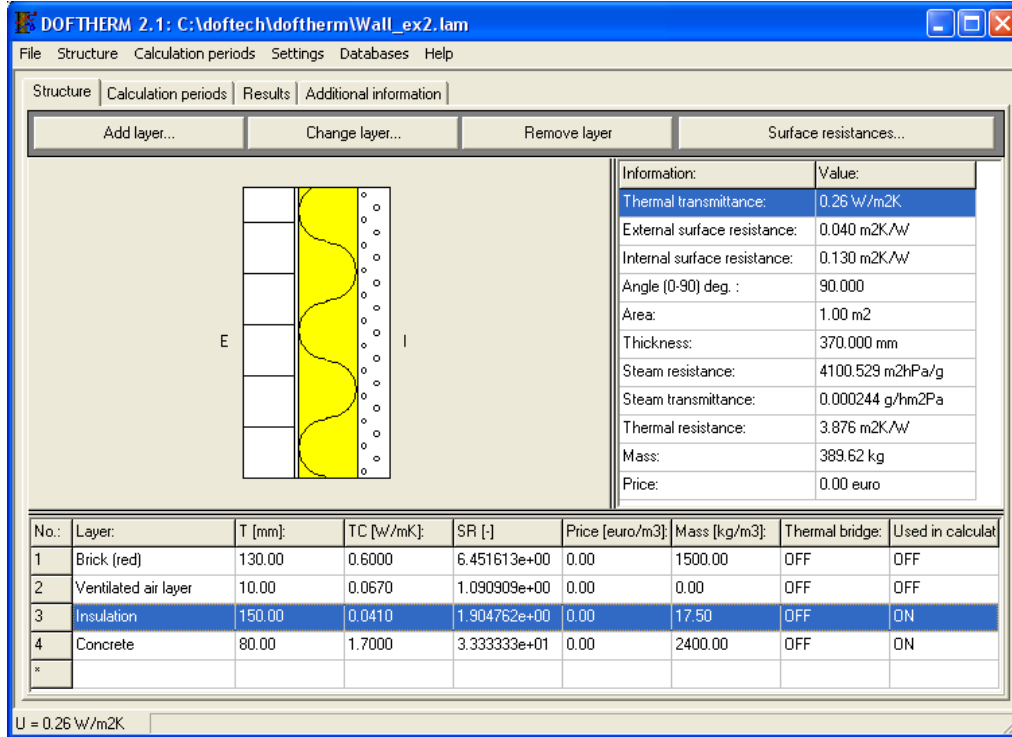


DOF-THERM SOFTWARE



The screenshot shows the DOF-THERM 2.1 software interface. The window title is "DOFTHERM 2.1: C:\doftech\doftherm\Wall_ex2.lam". The menu bar includes File, Structure, Calculation periods, Settings, Databases, and Help. The main window has tabs for Structure, Calculation periods, Results, and Additional information. Below the tabs are buttons for "Add layer...", "Change layer...", "Remove layer", and "Surface resistances...". The central area displays a cross-section of a wall with a yellow insulation layer and a wavy air layer. The left side is labeled 'E' and the right side 'I'. To the right of the cross-section is a table of information:

Information:	Value:
Thermal transmittance:	0.26 W/m ² K
External surface resistance:	0.040 m ² K/W
Internal surface resistance:	0.130 m ² K/W
Angle (0-90) deg. :	90.000
Area:	1.00 m ²
Thickness:	370.000 mm
Steam resistance:	4100.529 m ² hPa/g
Steam transmittance:	0.000244 g/hm ² Pa
Thermal resistance:	3.876 m ² K/W
Mass:	389.62 kg
Price:	0.00 euro

Below the information table is a detailed table of layers:

No.:	Layer:	T [mm]:	TC [w/mK]:	SR [-]	Price [euro/m ³]:	Mass [kg/m ³]:	Thermal bridge:	Used in calculat
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00	1500.00	OFF	OFF
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00	0.00	OFF	OFF
3	Insulation	150.00	0.0410	1.904762e+00	0.00	17.50	OFF	ON
4	Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00	OFF	ON
*								

At the bottom left, the overall thermal transmittance is shown as U = 0.26 W/m²K.

DOF-THERM provides an easy and fast way to calculate the thermal transmittance (U-value) together with temperature and humidity curves.

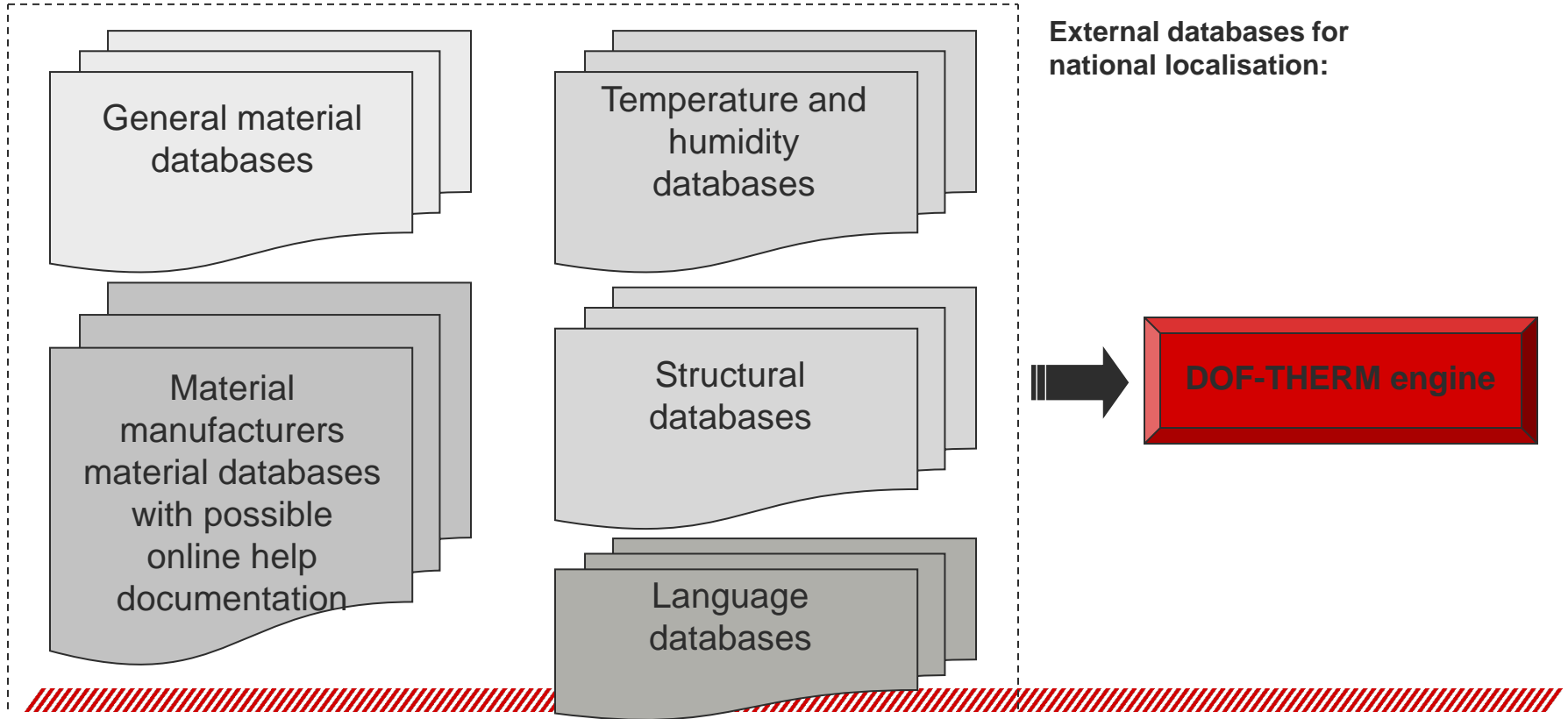
DOF-THERM can be used as a sub module of DOF-ENERGY or other third party software.

DOF-THERM is a pure stand alone program. It does not require any third party software.

DOF-THERM can be used in Windows 95, 98, 2000, NT and XP.



STRUCTURE OF DOF-THERM SOFTWARE



LAYERS AND MATERIAL DATABASES

The screenshot shows the DOFTHERM 2.1 software interface. The main window displays a cross-section of a wall with four layers: Brick (red), Ventilated air layer, Insulation, and Concrete. The insulation layer is highlighted in yellow. To the right of the cross-section is a table of material properties for the selected layer (Concrete).

Information:	Value:
Thermal transmittance:	0.26 W/m ² K
External surface resistance:	0.040 m ² K/W
Internal surface resistance:	0.130 m ² K/W
Angle (0-90) deg. :	90.000
Area:	1.00 m ²
Thickness:	370.000 mm
Steam resistance:	4100.529 m ² hPa/g
Steam transmittance:	0.000244 g/hm ² Pa
Thermal resistance:	3.876 m ² K/W
Mass:	389.62 kg
Price:	0.00 euro

No.:	Layer:	T [mm]:	TC [W/mK]:	SR [-]	Price [euro/m3]:	Mass [kg/m3]:	Thermal bridge:	Used in calculat
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00	1500.00	OFF	OFF
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00	0.00	OFF	OFF
3	Insulation	150.00	0.0410	1.904762e+00	0.00	17.50	OFF	ON
4	Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00	OFF	ON
*								

U = 0.26 W/m²K

There can be unlimited amount of structural layers in the calculation model.

Each layer can be manually defined or selected from the material database.

LAYERS AND MATERIAL DATABASES

User can select the units he wants to use. All conversions are done automatically

The screenshot shows the DOFTHERM 2.1 software interface. The main window displays a wall cross-section with four layers: Brick (red), Ventilated air layer, Insulation, and Concrete. A table below the diagram lists the properties of these layers. A red arrow points from the 'Change layer...' button in the main window to the 'Changing layer data' dialog box. The dialog box shows the material library path and a table of properties for the selected material (Concrete).

No.:	Layer:	T [mm]:	TC [W/mK]:	SR [-]	Price [euro/m3]:	Mass [kg/m3]:	Thermal b
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00	1500.00	OFF
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00	0.00	OFF
3	Insulation	150.00	0.0410	1.904762e+00	0.00	17.50	OFF
4	Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00	OFF

Property:	Unit:	Value:
Name		Concrete
Thickness:	[mm]	80.00
Thermal conductivity:	[W/mK]	1.700000
Vapour resistance factor:	[-]	3.333333E+01
Price:	[euro/m3]	0.00
Mass:	[kg/m3]	2400.00



LAYERS AND MATERIAL DATABASES

The screenshot shows the DOFTHERM 2.1 software interface. The main window displays a wall cross-section with a yellow insulation layer and a concrete layer. Below the cross-section is a table with the following data:

No.:	Layer:	T [mm]:	TC [W/mK]:	SR [-]	Price [euro/m3]:	Mass [kg/m3]:	Thermal
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00	1500.00	OFF
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00	0.00	OFF
3	Insulation	150.00	0.0410	1.904762e+00	0.00	17.50	OFF
4	Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00	OFF

At the bottom left, the overall thermal transmittance is given as $U = 0.26 \text{ W/m}^2\text{K}$.

The 'Changing layer data' dialog box is open, showing a material library. The 'Material library' is set to 'C:\doftech\doftherm\common.mab'. The 'Library material' is 'Concrete, Medium density 2200 kg/m3'. The 'Structure layer' is empty. The 'Property' section shows the following details for the selected material:

- Name: Concrete
- Thickness: Concrete, Medium density 2000 kg/m3
- Thermal conductivity: Concrete, Medium density 2200 kg/m3
- Vapour resistance factor: Concrete, High density
- Price: Reinforced concrete (with 1 % of steel)
- Mass: Reinforced concrete (with 2 % of Steel)

Additional options include 'Layer has thermal bridge' (unchecked) and 'Used in calculation' (checked). A 'Back' button is visible at the bottom right.

Common material database
(based on EN 12524)

LAYERS AND MATERIAL DATABASES

The screenshot shows the DOFTHERM 2.1 software interface. The main window displays a wall cross-section with four layers: Brick (red), Ventilated air layer, Insulation, and Concrete. The wall is labeled 'E' on the left and 'I' on the right. A table below the cross-section lists the properties of each layer.

No.:	Layer:	T [mm]:	TC [W/mK]:	SR [-]	Price [euro/m3]:	Mass [kg/m3]:	Thermal bridge:	Used in calculat
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00	1500.00	OFF	OFF
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00	0.00	OFF	OFF
3	Insulation	150.00	0.0410	1.904762e+00	0.00	17.50	OFF	ON
4	Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00	OFF	ON

Information: Value:
Thermal transmittance: 0.26 W/m2K
External surface resistance: 0.040 m2K/W
Internal surface resistance: 0.130 m2K/W
Angle (0-90) deg. : 90.000
Area: 1.00 m2
Thickness: 370.000 mm
Steam resistance: 4100.529 m2hPa/g
Steam transmittance: 0.000244 g/hm2Pa
Thermal resistance: 3.876 m2K/W
Mass: 389.62 kg
Price: 0.00 euro

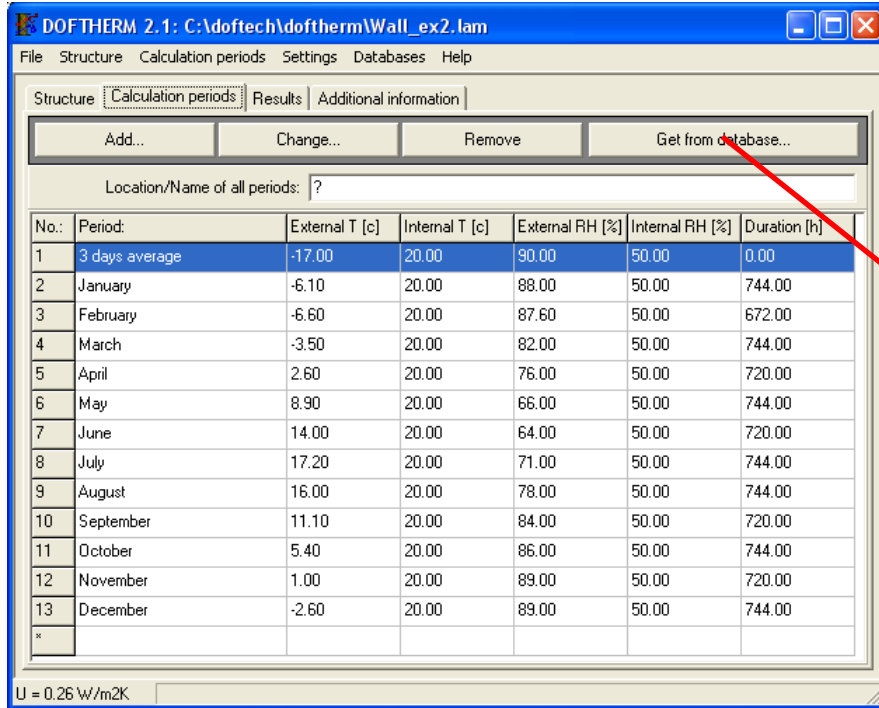
U = 0.26 W/m2K

All material manufactures can provide their product data for the users (open environment).

The screenshot shows the 'Selecting material database' dialog box. The 'Kohde:' field is set to 'dofthem'. The list of databases includes: temperatures, Airlayer.mab, Common.mab, ISOVER_declared.mab, PAROC_declared.mab, and styrofoam_declared.mab. The 'Tiedostonimi:' field is set to '.mab' and the 'Tiedostotyypit:' dropdown is set to 'Material databases'. There are 'Avaa' and 'Peruuta' buttons.

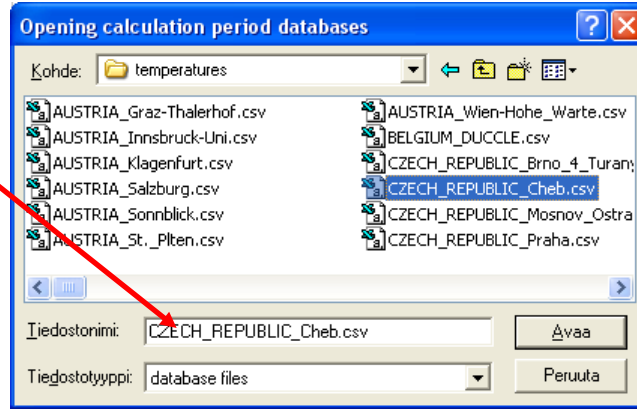
TEMPERATURE AND HUMIDITY VALUES

There can be unlimited amount of periods in the calculation model. Temperatures and humidities can be manually defined or imported from the database.

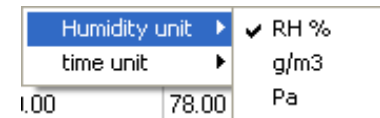


The screenshot shows the DOFTHERM 2.1 software interface. The main window displays a table with columns for 'No.', 'Period', 'External T [c]', 'Internal T [c]', 'External RH [%]', 'Internal RH [%]', and 'Duration [h]'. A red arrow points from the 'Get from database...' button in the interface to the 'Opening calculation period databases' dialog box on the right.

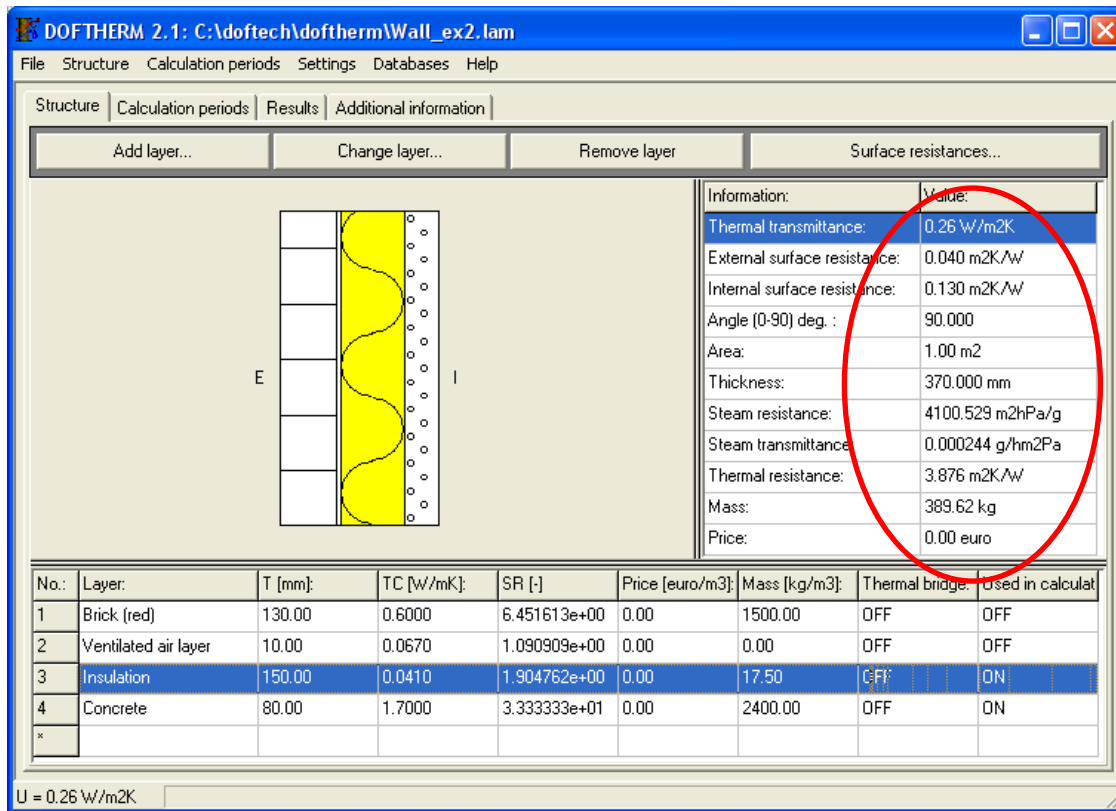
No.	Period	External T [c]	Internal T [c]	External RH [%]	Internal RH [%]	Duration [h]
1	3 days average	-17.00	20.00	90.00	50.00	0.00
2	January	-6.10	20.00	88.00	50.00	744.00
3	February	-6.60	20.00	87.60	50.00	672.00
4	March	-3.50	20.00	82.00	50.00	744.00
5	April	2.60	20.00	76.00	50.00	720.00
6	May	8.90	20.00	66.00	50.00	744.00
7	June	14.00	20.00	64.00	50.00	720.00
8	July	17.20	20.00	71.00	50.00	744.00
9	August	16.00	20.00	78.00	50.00	744.00
10	September	11.10	20.00	84.00	50.00	720.00
11	October	5.40	20.00	86.00	50.00	744.00
12	November	1.00	20.00	89.00	50.00	720.00
13	December	-2.60	20.00	89.00	50.00	744.00
*						



Time and humidity units can be changed. All conversions are done automatically.

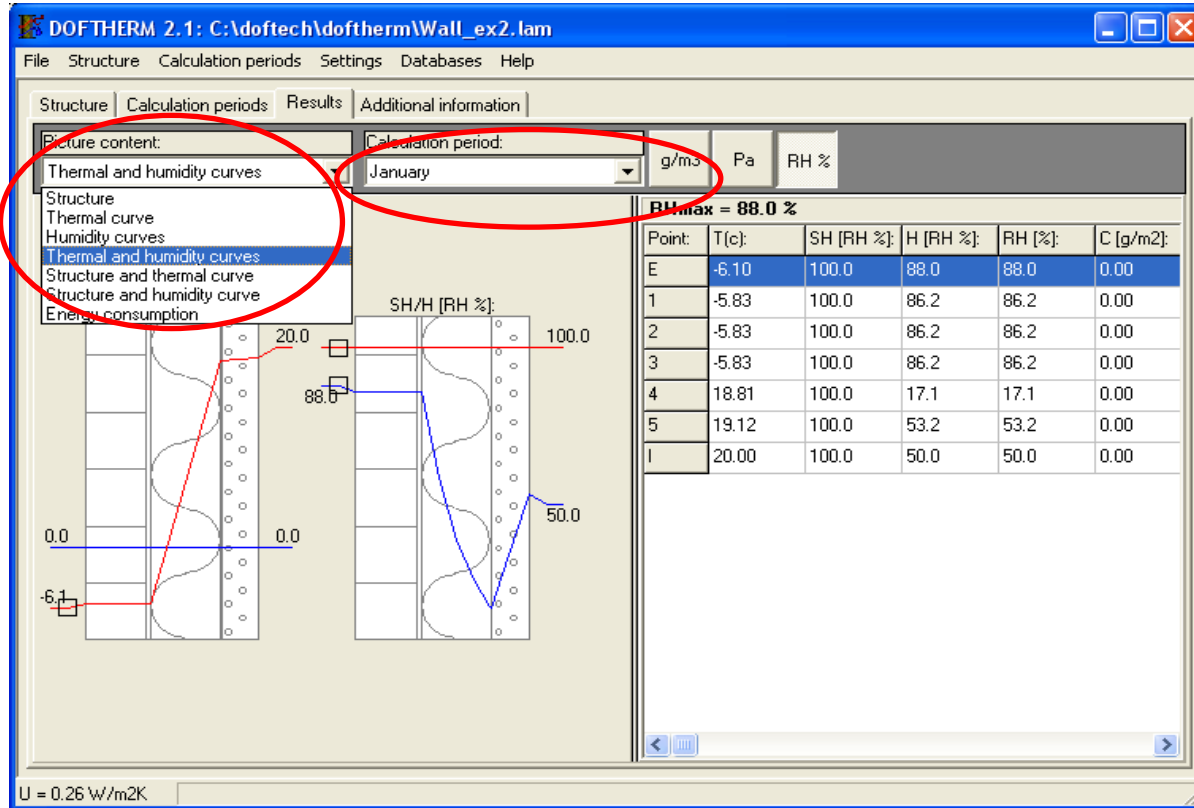


RESULTS



U-value, transmittances
and resistances

RESULTS



RESULTS

Also printing and preview is available.

Active printout can be saved as a windows metafile picture (wmf).

