

# DOF-THERM software



First version (1.0) of DOF-THERM was released in 1996.

Latest version 2.1 is available in Finnish, English, Swedish, French and German languages.

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 subprogram in ENERGY or other software.

DOF-THERM is 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.

Downloading/updating/installing the software can be done from internet.

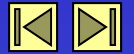
Software can be tested freely (in DEMO-mode).

The screenshot shows the DOF-THERM 2.1 interface. At the top, there is a menu bar with 'File', 'Structure', 'Calculation periods', 'Settings', 'Databases', and 'Help'. Below the menu bar are tabs for 'Structure', 'Calculation periods', 'Results', and 'Additional information'. The main window displays a wall structure diagram with a yellow highlighted section and two curves (temperature and humidity) plotted across it. Below the diagram is a table with the following data:

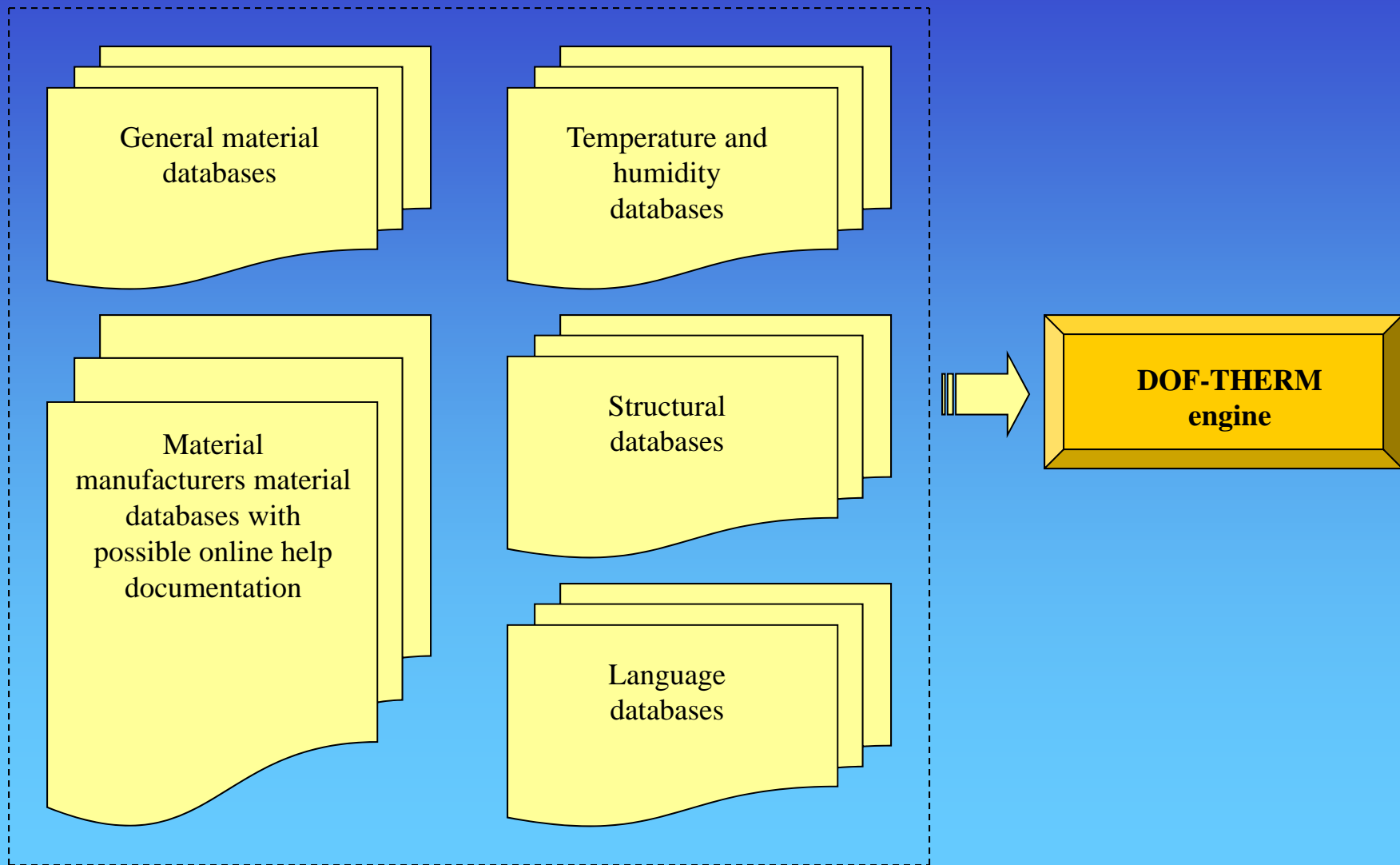
No.:	Layer:	T [mm]:	TC [W/mK]:	SR [-]	Price [euro/m3]
1	Brick (red)	130.00	0.6000	6.451613e+00	0.00
2	Ventilated air layer	10.00	0.0670	1.090909e+00	0.00
3	Insulation	150.00	0.0410	1.904762e+00	0.00
4	Concrete	80.00	1.7000	3.333333e+01	0.00

At the bottom of the window, the calculated U-value is shown as  $U = 0.26 \text{ W/m}^2\text{K}$ .

# Structure of DOF-THERM software



## External databases for national localisation:



# Layers and material databases

There can be unlimited amount of structural layers in the calculation model. Each layer can be manually defined or selected from the material database.

No.:	Layer:	T [mm]:	TC [W/mK]:
1	Brick (red)	130.00	0.6000
2	Ventilated air layer	10.00	0.0670
3	Insulation	150.00	0.0410
4	Concrete	80.00	1.7000
*			

U = 0.26 W/m<sup>2</sup>K

### Selecting material database

Kohde: dofterm

- temperatures
- Airlayer.mab
- Common.mab
- ISOVER\_declared.mab
- PAROC\_declared.mab
- styrofoam\_declared.mab

Tiedostonimi: \*.mab

Tiedostotyyppi: Material databases

### Changing layer data

Material library: C:\doftech\dofterm\common.mab

Library material: Concrete, Medium density 2200 kg/m<sup>3</sup>

Structure layer

Property:

Name

Thickness:

Thermal conductivity:

Vapour resistance factor:

Price:

Mass:

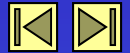
Layer has thermal bridge

Used in calculation

Change layer

Common material database (based on EN 12524)

# 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 of calculation periods 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 main window to the 'Opening calculation period databases' dialog box. The dialog box shows a file explorer view of a folder named 'temperatures' containing several CSV files. The file 'CZECH\_REPUBLIC\_Cheb.csv' is selected. The dialog also shows the file name 'CZECH\_REPUBLIC\_Cheb.csv' and the file type 'database files'.

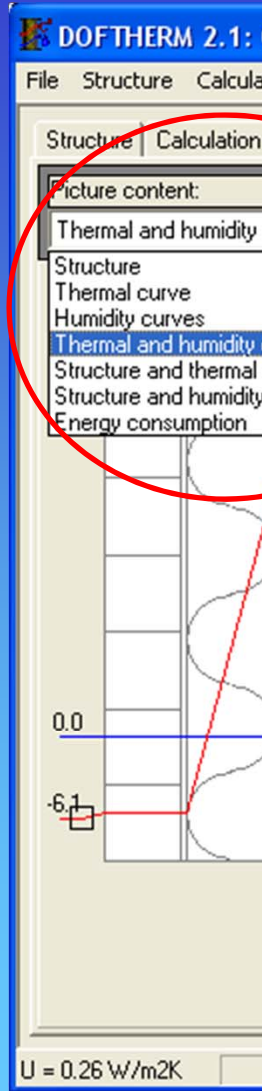
No.:	Period:	External T [c]	Internal T [c]	External RH [%]	Internal RH [%]	Duration [h]
1	3 days average	-17.00	20.00	90.00	50.00	0.00
2	January	-6.10	20.00	88.00	50.00	744.00
3	February	-6.60	20.00	87.60	50.00	672.00
4	March	-3.50	20.00	82.00	50.00	
5	April	2.60	20.00	76.00	50.00	
6	May	8.90	20.00	66.00	50.00	
7	June	14.00	20.00	61.00	50.00	
8	July	17.20	20.00	61.00	50.00	
9	August	16.00	20.00	78.00	50.00	
10	September	11.10	20.00	84.00	50.00	
11						
12						
13						
x						

Humidity unit:  RH %  
time unit:  g/m3  
 Pa

U = 0.26 W/m2K

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

# RESULTS



Temperature- and humidity calculations

Project: Example 2  
 Structure: External wall no. 2  
 Designer: D.O.F. tech Oy  
 Date: 19.11.2004  
 Code: EW 2

**Main information of structure:**  
 U-value: 0.258 W/m<sup>2</sup>K  
 Thickness: 370.000 mm  
 Area: 1.00 m<sup>2</sup>  
 Weight: 389.62 kg  
 Price: 0.00 euro

Steam resistance: 4100.529 m<sup>2</sup>hPa/g  
 Steam transmittance: 0.000244 g/m<sup>2</sup>hPa  
 Thermal resistance: 3.876 m<sup>2</sup>K/W  
 External surface res.: 0.040 m<sup>2</sup>K/W  
 Internal surface res.: 0.130 m<sup>2</sup>K/W  
 Angle (0-90): 90.000

**Layer information:**

LAYER:	T [mm]:	TC [W/mK]:	SR [-]:	Price [€/m <sup>3</sup> ]:	Weight [kg/m <sup>3</sup> ]:
1 Brick (red)	130.00	---	---	0.00	1500.00
2 Ventilated air layer	10.00	---	---	0.00	0.00
3 Insulation	150.00	0.0410	1.904762e+00	0.00	17.50
4 Concrete	80.00	1.7000	3.333333e+01	0.00	2400.00

Layers from Outside (E) to Inside (I)

**Temperature and humidities:**

Point:	T [C]:	SH [RH %]:	H [RH %]:	RH [%]:	C [g/m <sup>2</sup> ]:
E	-6.10	100.0	88.0	88.0	0.00
1	-5.83	100.0	86.2	86.2	0.00
2	-5.83	100.0	86.2	86.2	0.00
3	-5.83	100.0	86.2	86.2	0.00

**Additional information:**  
 Concrete wall, with insulation and facing brickwork.

U = 0.26 W/m<sup>2</sup>K

Also printing and preview is available. Active printout can be saved as a windows metafile picture (wmf).

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