





## Water vapour diffusion behaviour

### Climate conditions used for calculations

	Condensation period (winter)		Evaporation period (summer)	
	internal	external	internal	external
Air temperature	+18 °C	-5 °C	+20 °C	+20 °C
Relative air humidity	50 %	80 %	70 %	70 %
Saturated vapour pressure	2065 Pa	401 Pa	2340 Pa	2340 Pa
Partial vapour pressure	1033 Pa	321 Pa	1638 Pa	1638 Pa
Length of period	1440 h		2160 h	

### Temperature curve in winter

—— Curve = Temperature

The crossing point of the temperature curve with the 0-level line is the freezing point.

### Calculation of condensation in winter and evaporation in summer (Glaser method)

(No Glaser calculation possible)

### Water vapour pressure curves in winter

----- Curve = Saturated vapour pressure  
----- Curve = Theoretical partial vapour pressure  
——— Curve = Actual partial vapour pressure

The point of contact between the actual and the saturated pressure curve shows the position of the dew point, i.e. in this area the water vapour turns into condensation .

### Condensation in winter

There is no condensation in the wall. The partial vapour pressure is at every point lower than the possible saturated vapour pressure.

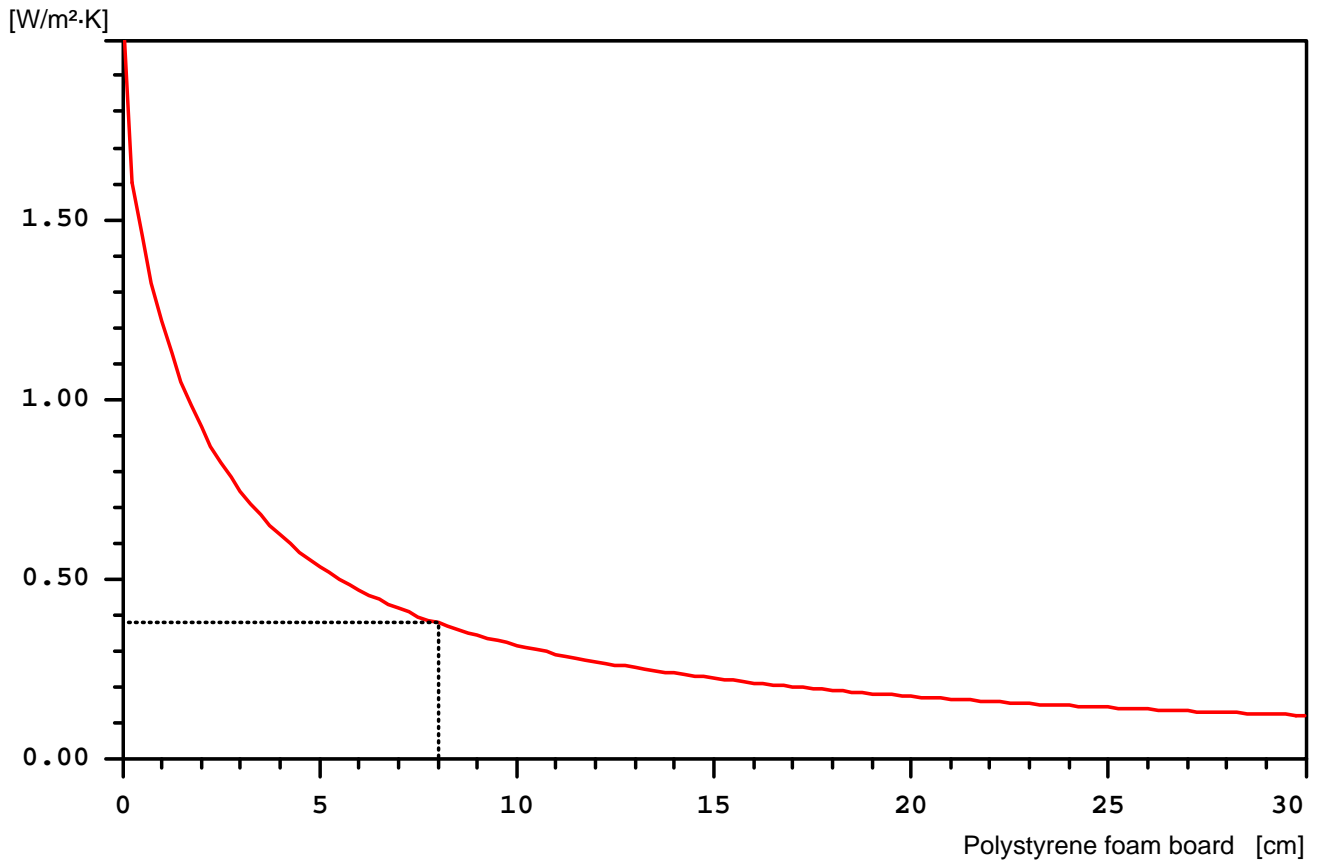
### Result

The construction build-up is physically acceptable under the given climate conditions. An increase in insulation is recommended. The necessary level of heat insulation will not be provided. (Renovation of external walls: U-Value < 0.35 W/m<sup>2</sup>·C).

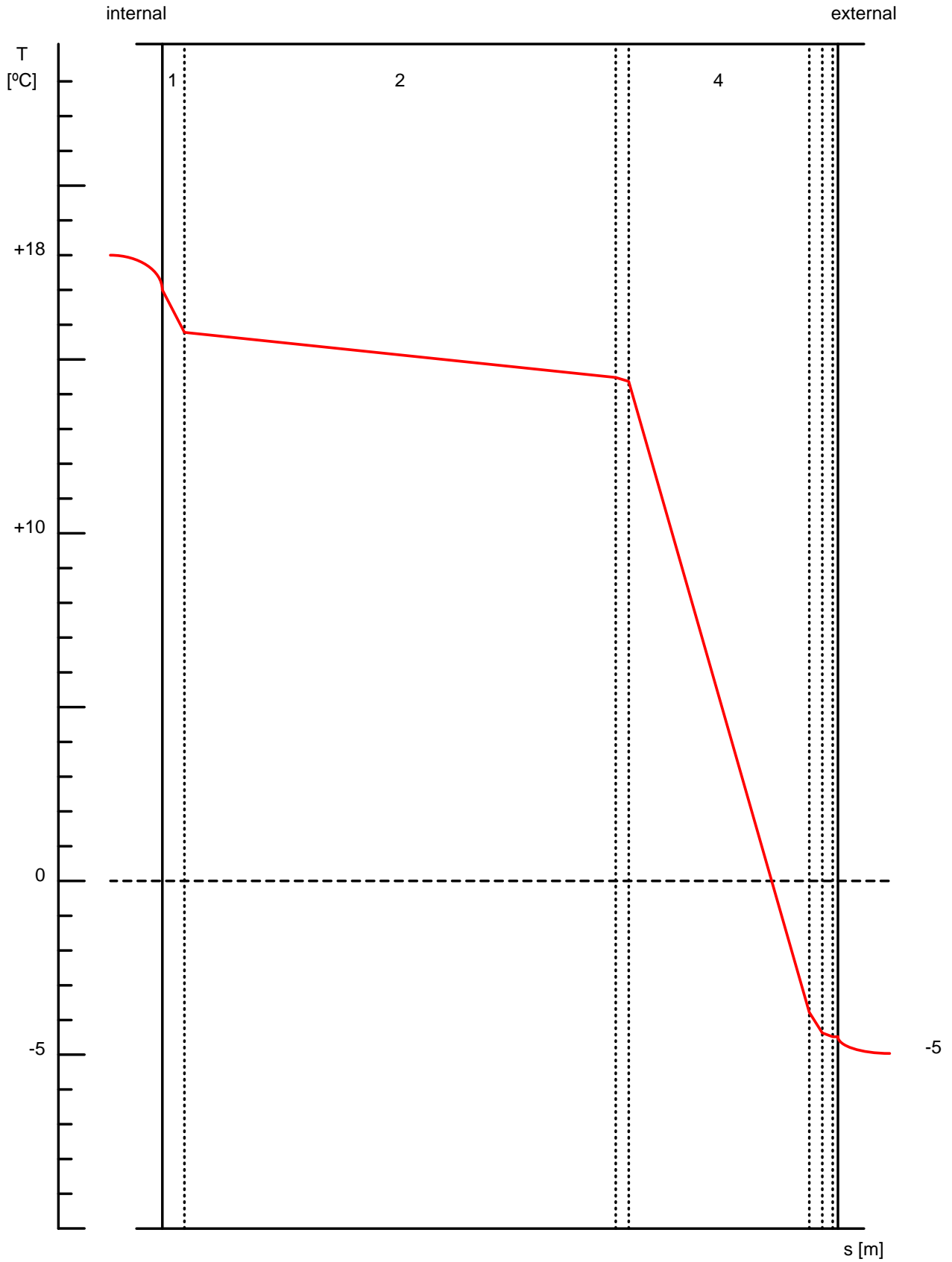


## U-Value with and without StoTherm External Insulated Facade System

Total thermal transmission	PS-foam board [cm]	U-Value [W/m <sup>2</sup> ·K]
without StoTherm System	--	2.07
with StoTherm System	2	0.92
	3	0.74
	4	0.62
	5	0.53
	6	0.47
	7	0.42
	▶ 8 ◀	▶ 0.38 ◀
	9	0.34
	10	0.31
	11	0.29
	12	0.27
	13	0.25
	14	0.24
	15	0.22
16	0.21	



### Temperature curve



### Water vapour pressure curve

(The wall is drawn in the scale of the vapour resistances)

