

Thermal simulation of an underfloor heating in an internal floor with water connection

Warm water underfloor heating system

PROJECT INFORMATION

Project name: Warm water underfloor heating system

Project Date: 08.01.15

Creator infos

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Customer infos

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MATERIALS/BOUNDARIES

USED MATERIALS

Material	W/m.K	C J/kg.K	kg/m ³	μ	Obj.	Comment
Concrete reinforced	2,50	1000	2500	80 [H]	2	EN 12524
Wood 500 kg/m ³	0,13	1600	500	30 [H]	2	
FERMACELL bound filling	0,12	1000	350	7	1	
Insulation	0,039	1450	35	150	1	
Ext. rendering	0,87	1100	1800	30 [D]	1	
Plaster	0,70	1000	1400	6 [H]	3	
Zementestrich	1,33	1080	2000	25 [15..37]	1	
Sound insulation	0,041	1450	15	60 [D]	1	
Edge insulation strip	0,04	1500	70	60	1	PE material















BOUNDARIES

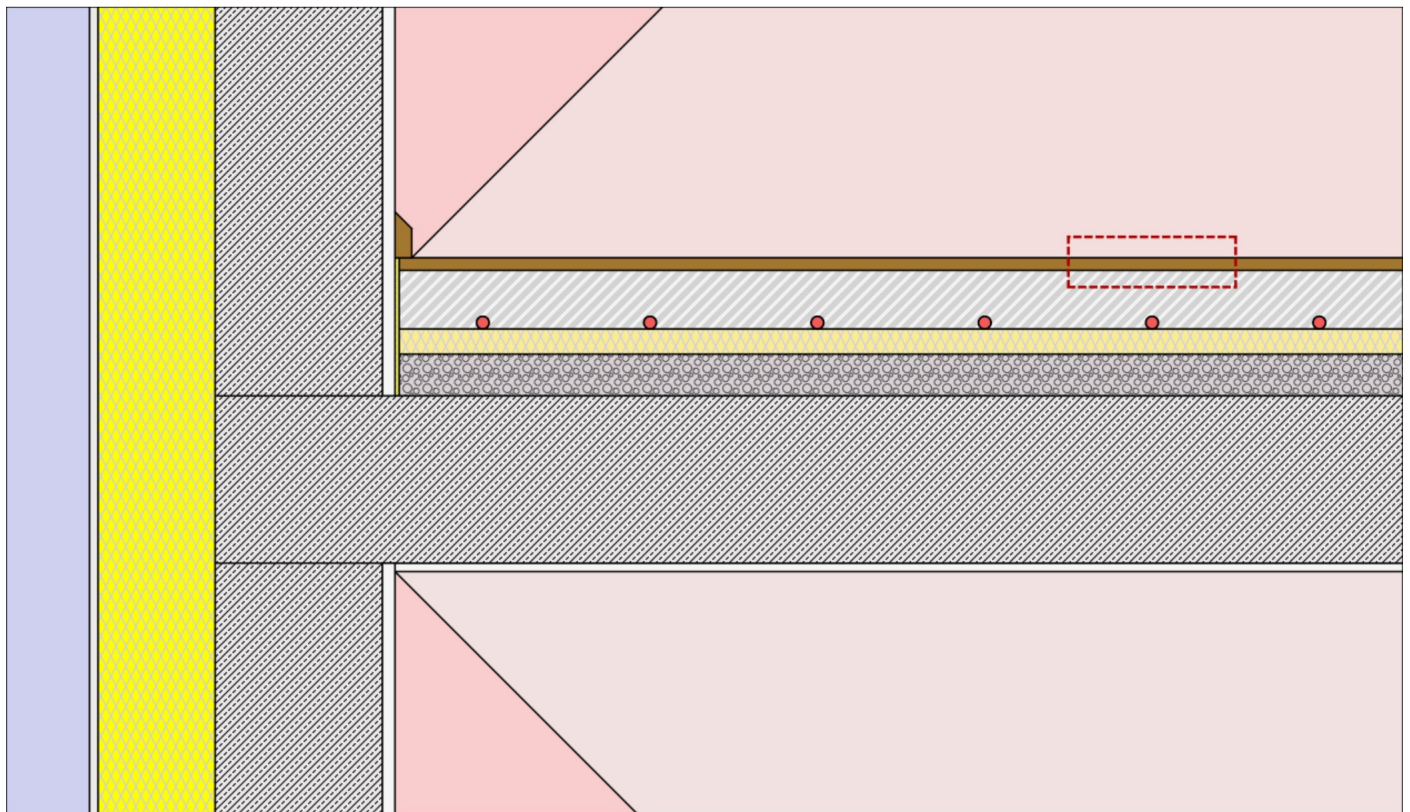
Boundary	T (°C)	RH (%)	Objects	Comment
Heating	30,0	50	6	warm water
Indoor climate ceiling	20,0	50	1	downward heat transfer
Indoor climate floor	20,0	50	1	upward heat transfer
External climate	0,0	80	1	
Indoor climate wall	20,0	50	2	horizontal heat transfer

HEAT TRANSFER RESISTANCE

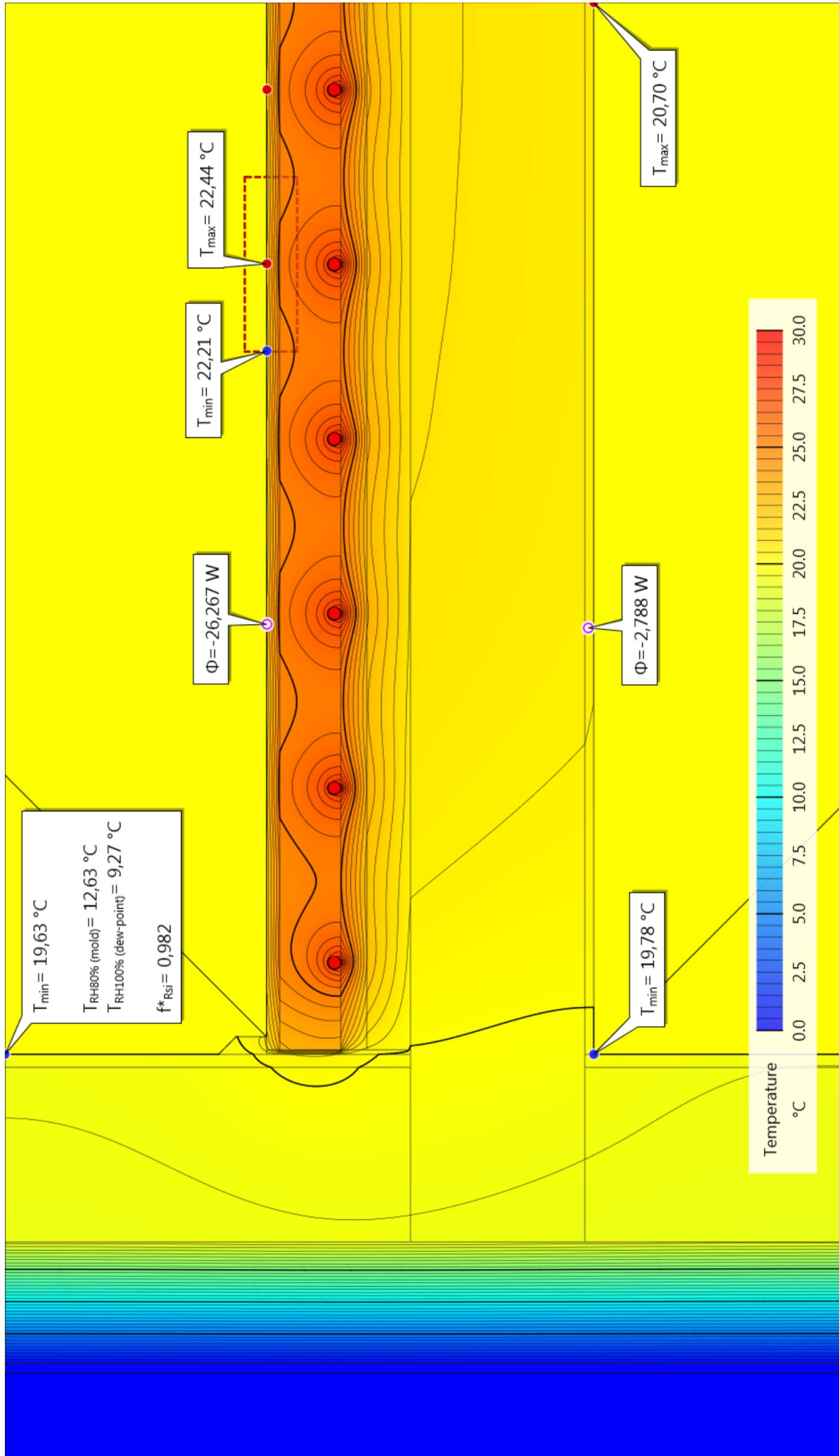
Name	Value(m ² W/K)	from material	to material
dyn1	0,018	ALL	Heating
dyn2	0,17	ALL	Indoor climate ceiling
dyn3	0,10	ALL	Indoor climate floor
dyn4	0,04	ALL	External climate
dyn5	0,13	ALL	Indoor climate wall

MATERIAL VIEW

- | | | |
|--|---|--|
|  Heating |  Indoor climate ceiling |  Indoor climate floor |
|  External climate |  Indoor climate wall |  Concrete reinforced |
|  Wood 500 kg/m ³ |  FERMACELL bound filling |  Insulation |
|  Ext. rendering |  Plaster |  Zementestrich |
|  Sound insulation |  Edge insulation strip | |

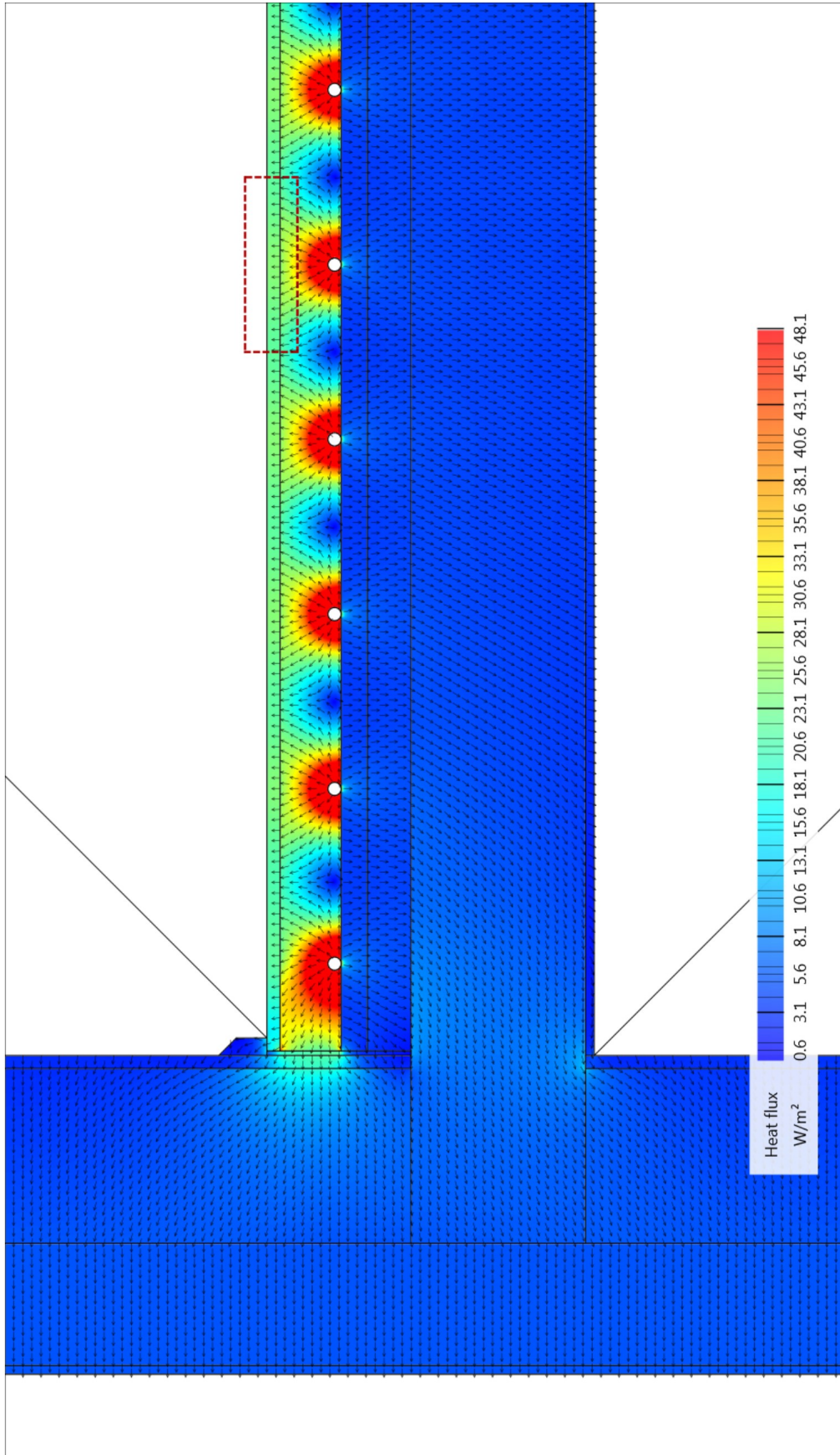


TEMPERATURE VIEW



Simulation resolution: 1,0 mm; Cell count: 803.940

HEAT FLUX VIEW



Simulation resolution: 1,0 mm; Cell count: 803.940