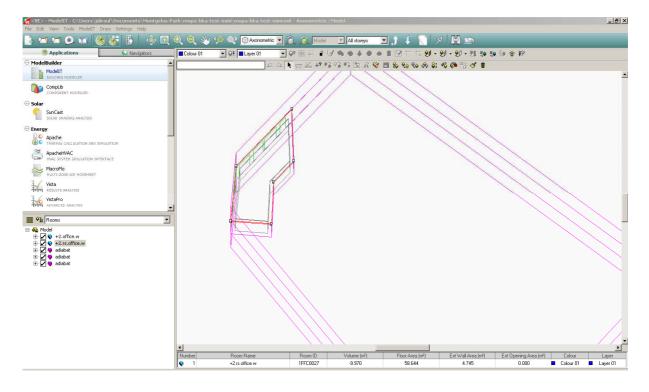
I reduced my model to one room, to test the radiant slab. It has one exterior surface, the rest is adiabatic. To simulate a radiant slab, I created a zone with volume nearly to 0.



The ceiling from the radiant slab to the room is as following:

4	Project construction (opaque)									×
1	D CEIL11 Description radiant slabs - bottom					Standa	rd		Generic	
		default	Solar abs	orptance	0.900					
-	Inside surface Emissivity 0.900 Resistance (m²K/W) 0.1000 F	 default 	Solar abs	orptance	0.900]				
j	Metal Cladding									
	Construction layers (outside to inside)									
	Material	Thickness m	Conductivity W/(m·K)	Density kg/m²	Specific Heat Capacity J/(kg·K)	Resistance m²K/W	Vapour Resistivity GN·s/(kg·m	Category		
	Cast Concrete (Dense)	0.1250	0.7710	2100.0	840.0		0.000	Concretes		4
	Copy Paste Cavity Insert Add Delet	e Flip				Sys	stem Material	s Pro	ject Materials	
	Construction thickness 0.1250 m Total R-value 0.1621 m²K/W		value (W/m²·K value method	·	•		U-value 🛛	3.8004	W/m²∙K	
	Derived Parameters Condensation Analysis							OK	Cancel	

Which is half of the concrete slab with conductivity tested by THERM.

In the radiant zone I put a radiator:

T the radiant zone i put a radiator:	
Radiator	×
n i la la la 2 a 2 a 1 d'anna	
Reference: rs.heat.+2_+3_+4.office.w	
Settings	
Orientation:	Horizontal 💌
Radiant Fraction:	1
Reference Temp.Difference (K):	6.00
Heat Output At Ref.Temp.Difference (kW):	1.60
Maximum Input From Heat source (kW):	1.60
Distribution Pump Consumption (kW):	0.019
Material:	Steel
Total Weight (kg):	10000.00
Water Capacity (I):	10000.00
OK	Cancel

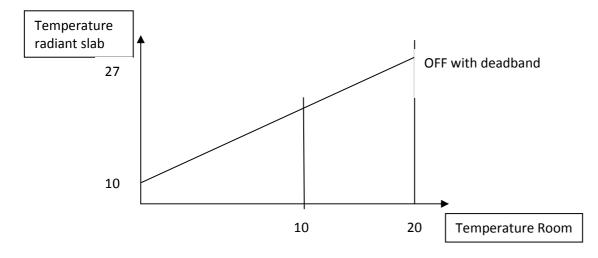
With radiant fraction =1 and the kW of the whole slab.

(I'm unsure what the effect of total weight and water capacity is, found no difference between 1kg/1l and 10000kg/10000l)

The radiant is controlled as the following:

Reference:	•									
ettings				Proportional Controller	\$					
Radiator:	rs.heat.+2_+3_+4.off	ice.w		Proportional Flow Controller Proportional Temperature Controller						
Heat source:	district heating									
Heat source.	district heating	<u> </u>		Sensor Location:	Internal 💌	+2.office.v	v	•		
n/Off Controller				Sensed Variable:		Dry-BulbT	emperature	-		
Flow at Max.Cont	rol Signal (I/s):	0.01		Midband Variation	:	Constant		•		
Temp. at Max.Cor		27.00		Midband (*C):				10.00		
Time Switch Profile	,			Proportional Band	width (°C):			20.00		
on continuously		Select		Max. Change per	Time Step:			1		
				Temp. at Min.Con	trol Signal (°C):			10.00		
				Sensor Radiant Fr	action:			0		
Sensor Location:	Other +2.	.office.w								
			ГГГ	AND Connections						
Sensed Variable:	Dry	y-BulbTemperature 💌			D (E.J. 107 1			
Sensed Variable: Radiant Fraction:	Dış	y-BulbTemperatur(0		ID	Reference		Multiple	x ID		
	Dı			ID	Reference		Multiple	x ID		
Radiant Fraction:		0			Reference	•	Multiple	x ID		
Radiant Fraction: Set Point Variation		0 nstant		ID	Reference			emove		
Radiant Fraction:		0		DR Connections	Reference					
Radiant Fraction: Set Point Variation		0 nstant			Reference			emove		
Radiant Fraction: Set Point Variation Set Point (°C):	κ [Co	0 nstant 20.00 2.00		OR Connections			Add R	emove		
Radiant Fraction: Set Point Variation Set Point (°C): Deadband (K):	ι [Co	0 nstant 20.00 2.00		OR Connections			Add R	emove		
Radiant Fraction: Set Point Variation Set Point (°C): Deadband (K):	ι [Co	0 nstant 20.00 2.00		OR Connections			Add R Multiple	emove		

Which should mean the following:



ttings Radiator:	konv.+1_+2_+3	_+4.corridor.w	•		llers onal Flow Controller onal Temperature C			-
Heat source:	district heating		•	Sensor Locatio	n: Internal 💌	+2.office.w		-
/Off Controller				Sensed Variabl	e:	Dry-BulbTer	nperature	•
Flow at Max.Con	rol Signal (I/s):		0.00	Midband Variat	on:	Constant		•
Temp. at Max.Co		<u> </u>	70.00	Midband (°C):				10.00
ime Switch Profile	,			Proportional Ba	ndwidth (K):			20.00
on continuously			Gelect	Max. Change p	er Time Step:			0.3
				Flow at Min.Co	ntrol Signal (I/s):			0.00
				Sensor Radian	Fraction:			0
Sensor Location:	Local 💌			AND Connections				
Sensed Variable:		Dry-BulbTempe	rature	ID	Reference	e (Multiple	ex ID
			0					
Radiant Fraction:								
	r	Constant						
Set Point Variation	r.	Constant	20.00			Ad	dd F	Remove
Radiant Fraction: Set Point Variation Set Point (°C): Deadband (K):	r	Constant	20.00	OR Connections	Beference			
Set Point Variation		Constant		OR Connections	Reference		dd F Multiple	
Set Point Variation Set Point (°C): Deadband (K):			0.00		Reference			

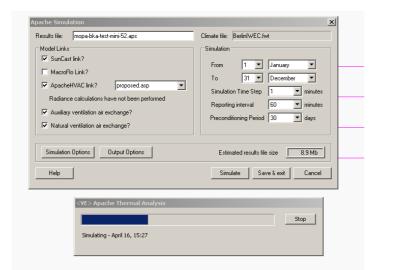
in addition to that, a radiator is the room to cover peak loads. It has a setpoint of 20. The room is served by a VAV, with 2 ach when occupied. Entering air temperature is constant 20°C

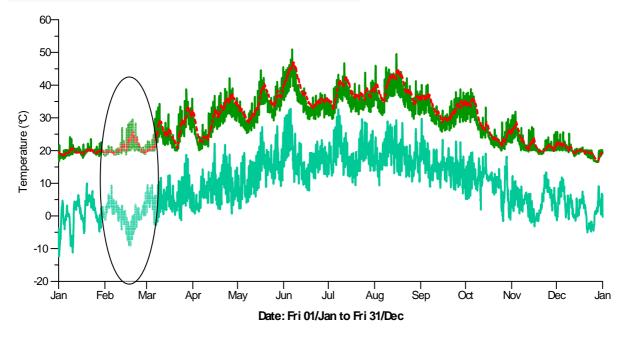
So both heaters sense the temperature of the room and have a setpoint of 20°C, so if the room temperature exceeds 20°C,(or 21 with deadband), the heaters should stop working.

My problems:

- 1. But if this is the case I can't explain the temperature rise over 25°C in march on the following diagram.
- 2. In my understanding the air temperature in the radiant slab should be much higher if I want to simulate the reality, because the radiant zone represents the radiant slabs, an even on the surface to the room should be a temperature of 23 degrees, when the room has 20. But when I rise the flow rate of the radiator to get the 23 degrees, the room temperature exceeds 28 degrees and more...

I tested nearly 100 cases so it would be really great, if you can help me in any way, I'm at the end of my knowledge.





Dry-bulb temperature: (BerlinIWEC.fwt)
 Air temperature: +2.office.w (mopa-bka-test-mini-49.aps)