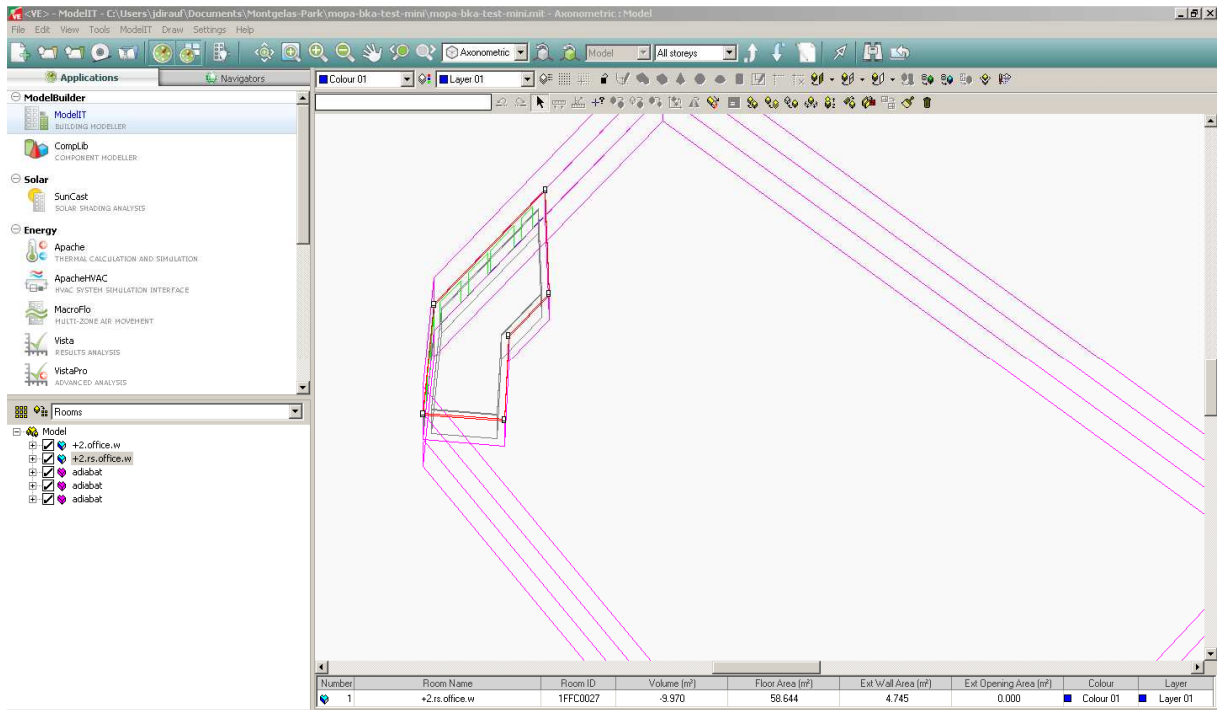
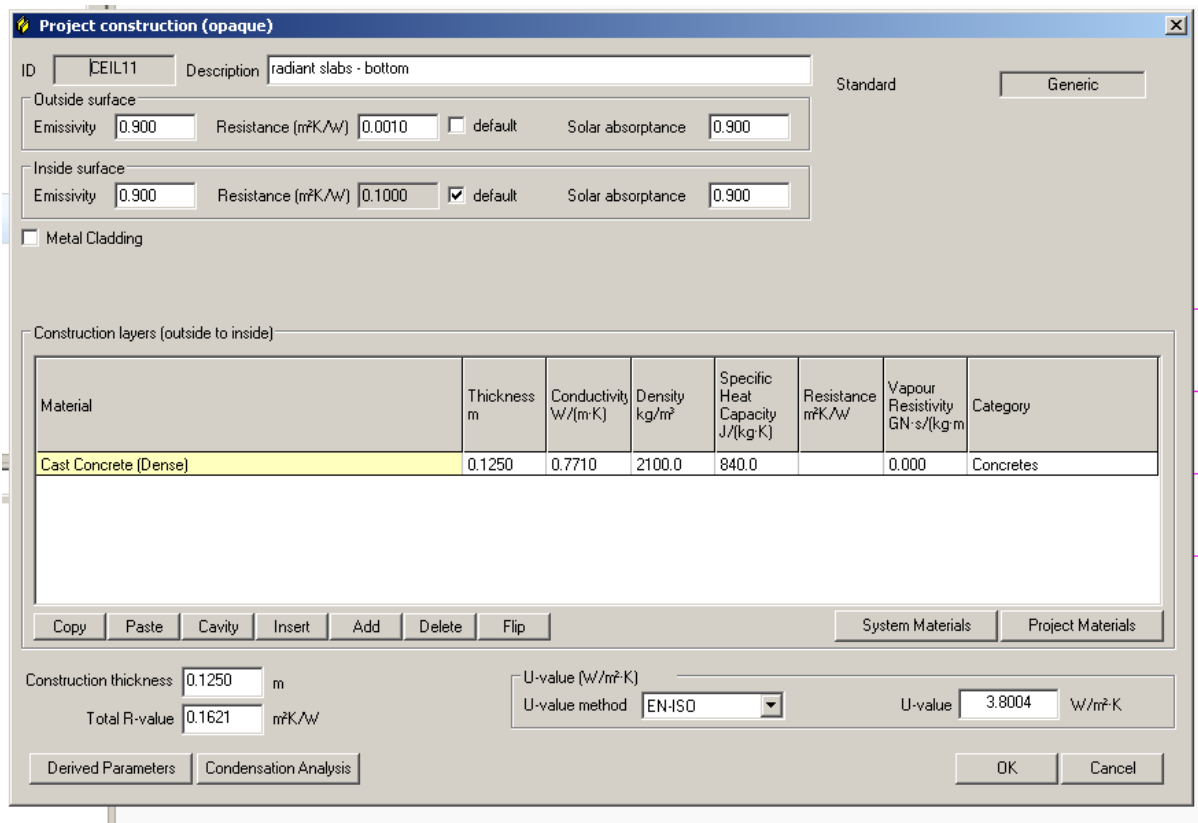


I reduced my model to one room, to test the radiant slab. It has one exterior surface, the rest is adiabatic. To simulate a radiant slab, I created a zone with volume nearly to 0.



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



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

In the radiant zone I put a radiator:

Field	Value
Reference:	rs.heat.+2_+3_+4.office.w
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 (l):	10000.00

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:

Radiator

Reference:

Settings

Radiator:

Heat source:

On/Off Controller

Flow at Max. Control Signal (l/s):

Temp. at Max. Control Signal (°C):

Time Switch Profile

Sensor Location:

Sensed Variable:

Radiant Fraction:

Set Point Variation:

Set Point (°C):

Deadband (K):

High Sensor Input:

Proportional Controllers

Proportional Flow Controller

Proportional Temperature Controller

Sensor Location:

Sensed Variable:

Midband Variation:

Midband (°C):

Proportional Bandwidth (°C):

Max. Change per Time Step:

Temp. at Min. Control Signal (°C):

Sensor Radiant Fraction:

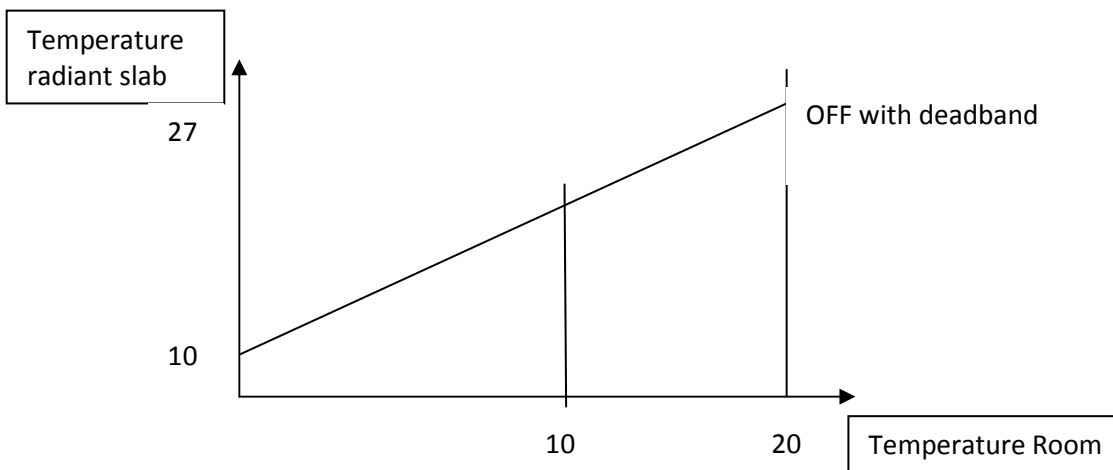
AND Connections

ID	Reference	Multiplex ID

OR Connections

ID	Reference	Multiplex ID

Which should mean the following:



The screenshot shows the 'Radiator' control window with the following settings:

- Reference:** (empty text field)
- Settings:**
 - Radiator: konv.+1_+2_+3_+4.corridor.w
 - Heat source: district heating
- On/Off Controller:**
 - Flow at Max. Control Signal (l/s): 0.00
 - Temp. at Max. Control Signal (°C): 70.00
 - Time Switch Profile: on continuously (with a 'Select' button)
- Proportional Controllers:**
 - Proportional Flow Controller
 - Proportional Temperature Controller
 - Sensor Location: Internal
 - Sensed Variable: Dry-BulbTemperature
 - Midband Variation: Constant
 - Midband (°C): 10.00
 - Proportional Bandwidth (K): 20.00
 - Max. Change per Time Step: 0.3
 - Flow at Min. Control Signal (l/s): 0.00
 - Sensor Radiant Fraction: 0
- AND Connections:**

ID	Reference	Multiplex ID
- OR Connections:**

ID	Reference	Multiplex ID
- Additional Settings (bottom left):**
 - Sensor Location: Local
 - Sensed Variable: Dry-BulbTemperature
 - Radiant Fraction: 0
 - Set Point Variation: Constant
 - Set Point (°C): 20.00
 - Deadband (K): 0.00
 - High Sensor Input: OFF

Buttons at the bottom: Multiple Edit, OK & Copy All, OK, Cancel.

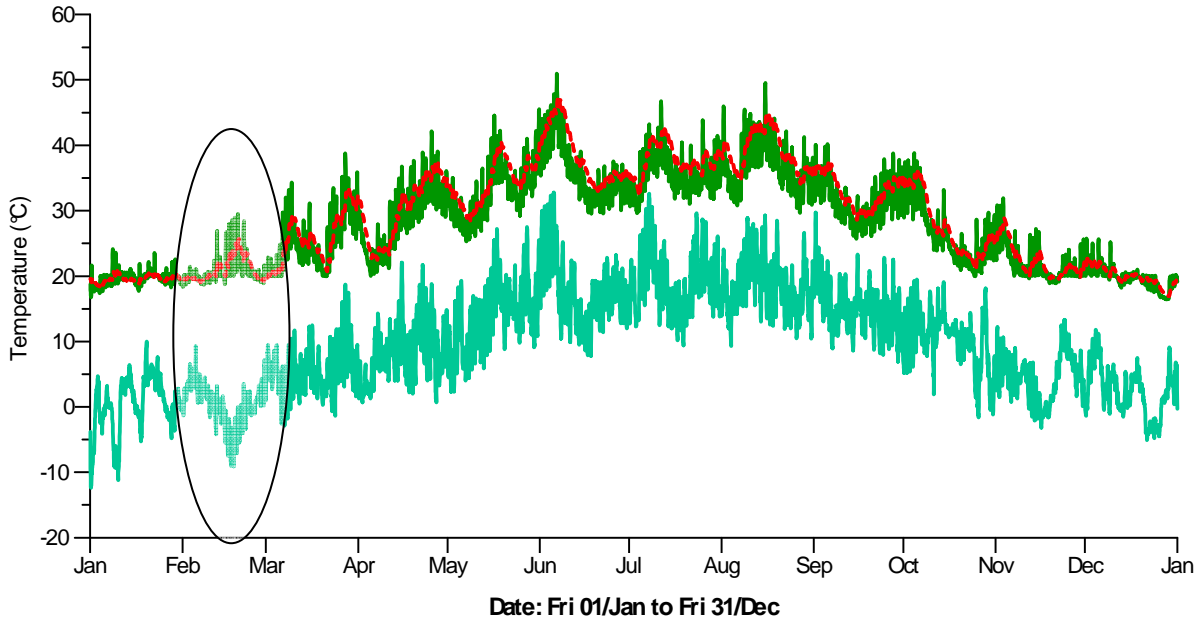
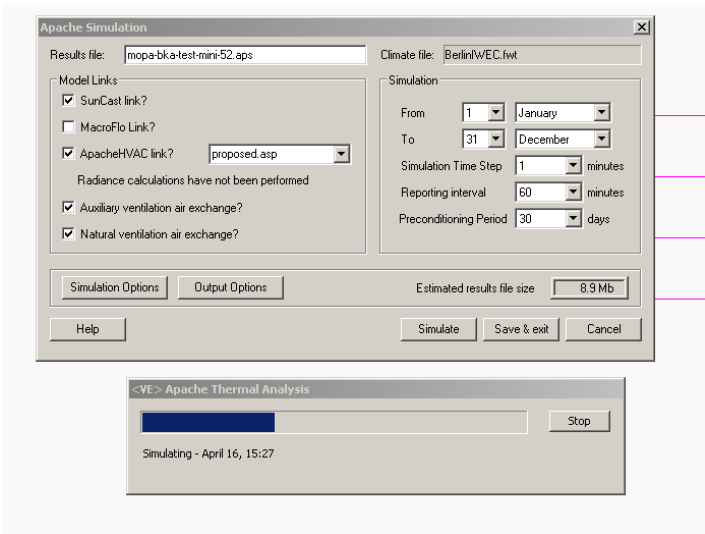
in addition to that, a radiator is the room to cover peak loads. It has a setpoint of 20. The room is served by a VAV, with 2 ach when occupied. Entering air temperature is constant 20°C

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: (Berlin/WEC.fwt)
- Air temperature: +2.office.w (mopa-bka-test-mini-49.aps)
- - - Air temperature: +2.rs.office.w (mopa-bka-test-mini-49.aps)