


# THERMO ACTIVE BUILDING SYSTEMS – BLESSING OR CURSE?

<p><b>Project type</b>  <input type="checkbox"/> Diploma project  <input checked="" type="checkbox"/> Bachelor  <input checked="" type="checkbox"/> Master  <input type="checkbox"/> Special course</p>		
<b>rerequisite</b>	11127 (desired)	
<b>Background</b>	<p>Modern office building has often problems with too high indoor temperatures resulting in a cooling demand. An energy efficient office building has to solve this challenge.</p> <p>As energy saving has become increasingly important over the past years and at the same time the demand for domestic cooling has stately increased, it is prudent to minimize energy (e.g. exergy) consumption of HVAC Systems.</p>	
<b>Project Description</b>	<p>Using Thermo Active Building Systems (TABS) brings many advantages for heating and cooling of buildings. But as any other technology, TABS also have some disadvantages.</p> <p>Where many of these advantages and disadvantages are quite obvious, others are more subtle.</p> <p>The scope of this project is to make an extensive study on the benefits and the costs of TABS. A catalog with arguments in favor as well as disfavor should be created. The findings should then be applied in the design of a building.</p>	
<b>Notes</b>		
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The following is a suggestion on what questions the project could try to deal with and how they could be addressed. Splitting the project in (three) parts offers the chance to adjust each following part in accordance to the results/findings of the previous part.

Changes are of course possible and even encouraged.

Part 1: Literature Study on the use of TABS in building construction today.

- What are the limitations of TABS?
- What are the advantages of TABS?
- Are there other systems TABS should be combined with and why?
- Are there systems TABS should not be combined with?

Part 2: Simulations of a reference building with TABS as well as alternative heating and cooling solutions for different environments and conditions.

- Simulation of TABS in different environments/conditions with identification of problem areas
- Development of alternative solutions for problematic environments/conditions
- ...

Part 3: Evaluation of findings

- Are TABS a blessing or a curse?
- What can be done to improve the usability of TABS?
- Development of an improved Building.

Additional Information's

- Simulations in IDA ICE 4 or/and IES <ve> and possibly in a Simplified Simulation Tool
- Simulation of the BOB building in Aachen, Germany ([www.bob-x.de](http://www.bob-x.de)) – Building implementation in IDA ICE and IES available.
- ...

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Check for updated versions at: [msc.benbehr.eu](http://msc.benbehr.eu)

