Literature Review Report in Double Skin Facades for Office Buildings

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Main aims of the report

- Give the necessary background of the Double Skin Façade concept
- Mention the most important sources of research
- Describe briefly the application of Double Skin Facades in existing buildings
Main parts of the report

1. Introduction
   - Definition of the Double Skin Façade concept
   - History of the Double Skin Facades

2. Classification of Double Facades
   - Geometry
   - Origin and destination of the air flow
Main parts of the report

3. Technical Description

- Construction
- Opening Principles
  - Interior openings
  - Exterior openings
  - Cavity (geometry)
- Material choice
  - Panes
  - Shading devices

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Main parts of the report

4. Building Physics
   - Air flow inside the DSF cavity
   - Thermal performance
   - Daylight performance
   - Energy performance

5. Advantages – Disadvantages of Double Skin Facades

6. Measurements – Test rooms and real buildings

7. Costs and investments

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# Main parts of the report

## 8. Office buildings with Double Skin Facades

<table>
<thead>
<tr>
<th>Countries:</th>
<th>Described aspects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany (23)</td>
<td>Literature source</td>
</tr>
<tr>
<td>Finland (14)</td>
<td>Architect</td>
</tr>
<tr>
<td>Sweden (5)</td>
<td>Location of the building</td>
</tr>
<tr>
<td>United Kingdom (4)</td>
<td>Façade Type</td>
</tr>
<tr>
<td>Switzerland (1)</td>
<td>Ventilation of the cavity</td>
</tr>
<tr>
<td>Belgium (3)</td>
<td>Façade construction – Pane type</td>
</tr>
<tr>
<td>Czech Republic (1)</td>
<td></td>
</tr>
<tr>
<td>USA (2)</td>
<td>Shading device type</td>
</tr>
<tr>
<td>Australia (1)</td>
<td>HVAC</td>
</tr>
</tbody>
</table>

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Main parts of the report

9. Important information sources
   - Literature
   - Web sites

10. Discussions and Conclusions
    Author’s point of view concerning the:
    - System classification
    - Parts that influence the system’s performance and integration in Nordic climates
    - Goals to be achieved: potentials and limitations of the system – fields of further R&D

11. Summary

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Why is this report important?

1. In order to find the necessary information we contacted institutes and universities that have made research in this field and thus make useful for the future contacts.

2. The different approaches helped us see the system more overall and understand better the potentials and limitations of the system regarding on the needs, costs, system’s efficiency in different climates etc.
Why is this report important?

3. We saw the mistakes that have been made and we can avoid repeating them.

4. Knowing what is already done helps us focus on what we should do.

5. It is probably the most comprehensive “state of the art” report written up till now. This can give us a “step ahead” in ongoing projects (IEA Task 34, Best Façade, etc).
Conclusions from the report

- Double Skin Facades is a very flexible construction, applicable in different climates.
- The detailed knowledge of the system can lead us to more precise predictions of the system performance and thus to a successful integration.
- Double Facades is a delicate and individual system that can lead to the opposite results if not designed properly.
The report can be downloaded:

- From the projects web page:
  http://www.ebd.lth.se/avd%20ebd/main/personal/Project%20home%20page/default.html

- Directly: