



# International façade climate responsive façades

RESEARCH SCHOOL INTEGRAL DESIGN OF STRUCTURES

### Subject

How and with which methods can one realise optimised façades for office buildings that provides maximum comfort as well as economic efficiency in the facility operation for specific climate zones?

### Goal

The research project shall present an overview of façade requirements in different climate zones, useable as a guideline for architects and planners to increase the comfort and reduce the energy consumptions in the beginning of their design process.

### Expected Results

In addition, new façade constructions shall be identified that exemplify improved adaptation to the regional climate than current projects. As a vision for the future new areas for research and development will be presented that provide potential for the development of façades.

traditional buildings, related to climate zone



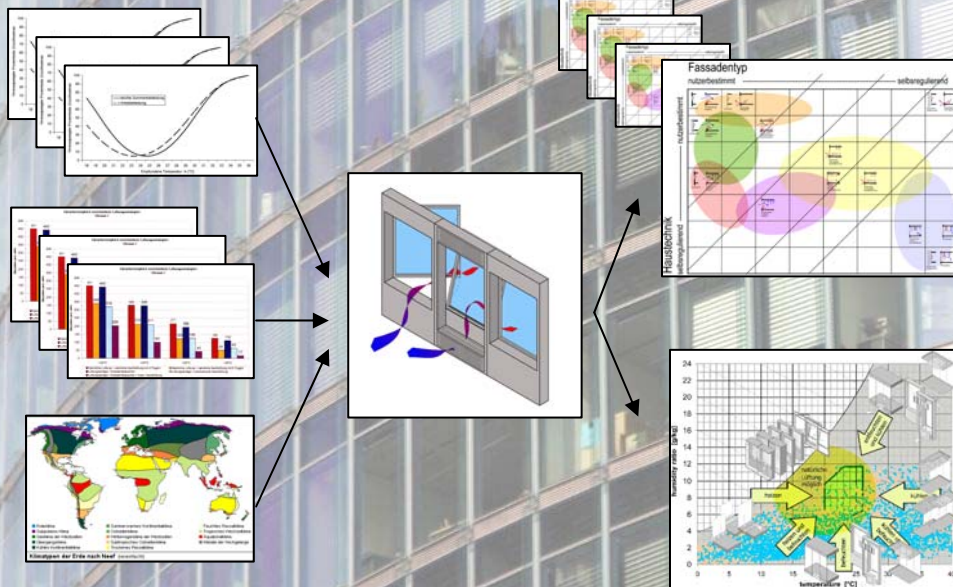
current designs



moscow



china



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## **International Facades** climate responsive facades

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### **Subject**

In the course of globalisation façade constructions developed for central European climate zones are being used worldwide. In many cases, these façades can only fulfil the requirements of the respective location by massive application of mechanical service components. High energy consumption needed to fulfil the required comfort in the offices is of lesser importance than the desired look.

### **Goals**

The research project shall present an overview of façade requirements in different climate zones, useable as a guideline for architects and planners to increase the comfort and reduce the energy consumptions in the beginning of their design process.

### **Research Question**

How and with which methods can one realise optimised façades for office buildings that provides maximum comfort as well as economic efficiency in the facility operation for specific climate zones?

### **Strategy**

The study will start with an analysis based on climate research. What are the methods to analyse the specific climates in different regions. The derivation of guidelines and requirements of facades in different climate zones will be the next step during the study.

### **Expected Results**

The research project shall present an overview of façade requirements in different climate zones, useable as a guideline for architects and planners to increase the comfort and reduce the energy consumptions. In addition, new façade constructions shall be identified that exemplify improved adaptation to the regional climate than current projects. As a vision for the future new areas for research and development will be presented that provide potential for the development of façades.

### **Preferred Partners Applications / Sponsors**

Dipl.-Ing. Thomas Auer, one of the leaders of Transsolar Climate Engineering Stuttgart, is involved in the project as an external supervisor and supports the project with helpful discussions and thermal building simulation tools ( TRNSYS ). The results will be helpful for architects and climate engineers.

### **Research Period**

2006 - 2009