

## MILESTONE 1.1

### 1. GENERAL INFORMATION

**PROJECT:** SOLHUS1

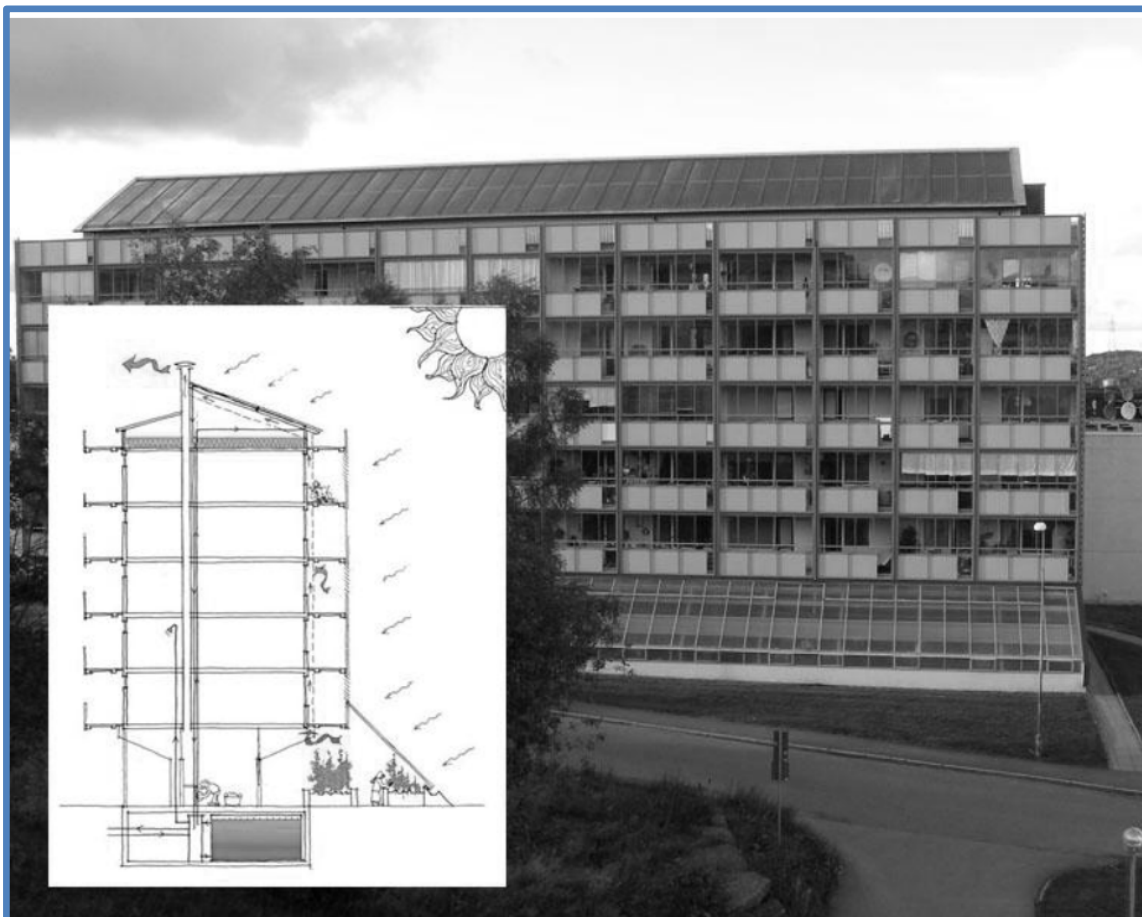
**CONTEXT:** GARDSTEN, SWEDEN

**ORIGINAL USE:** MULTI-FAMILY HOUSING

**USE:** MULTI-FAMILY HOUSING

**DESIGNER(S):** nd

**COMPLETION DATE:** 2003



**Keywords:** User-oriented approaches, Occupant behaviours, Occupancy sensors, Climate-oriented design approaches, Climatic conditions, Prevailing Winds, Metering system, Living standards



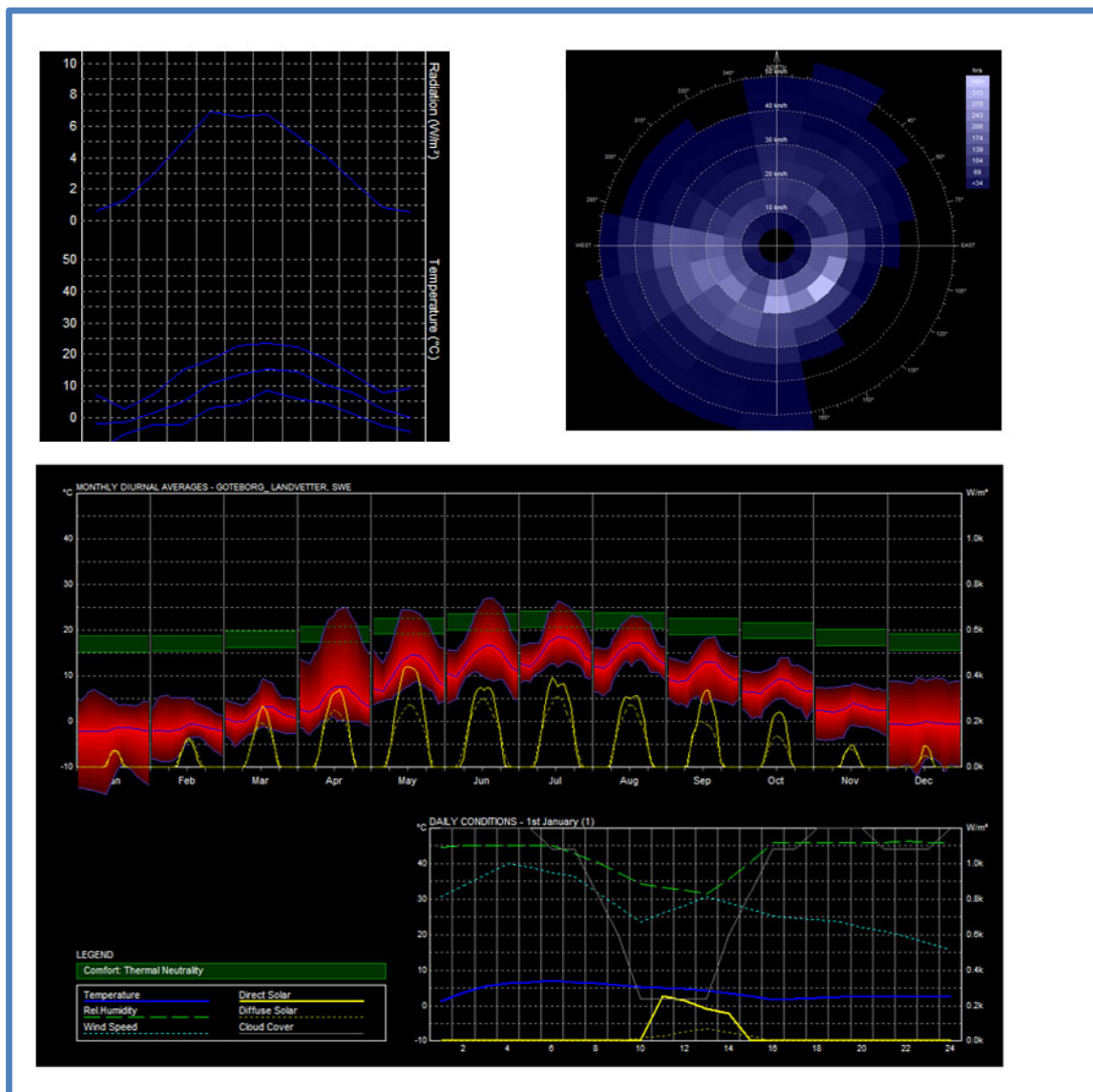
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## 2. CLIMATIC FEATURES

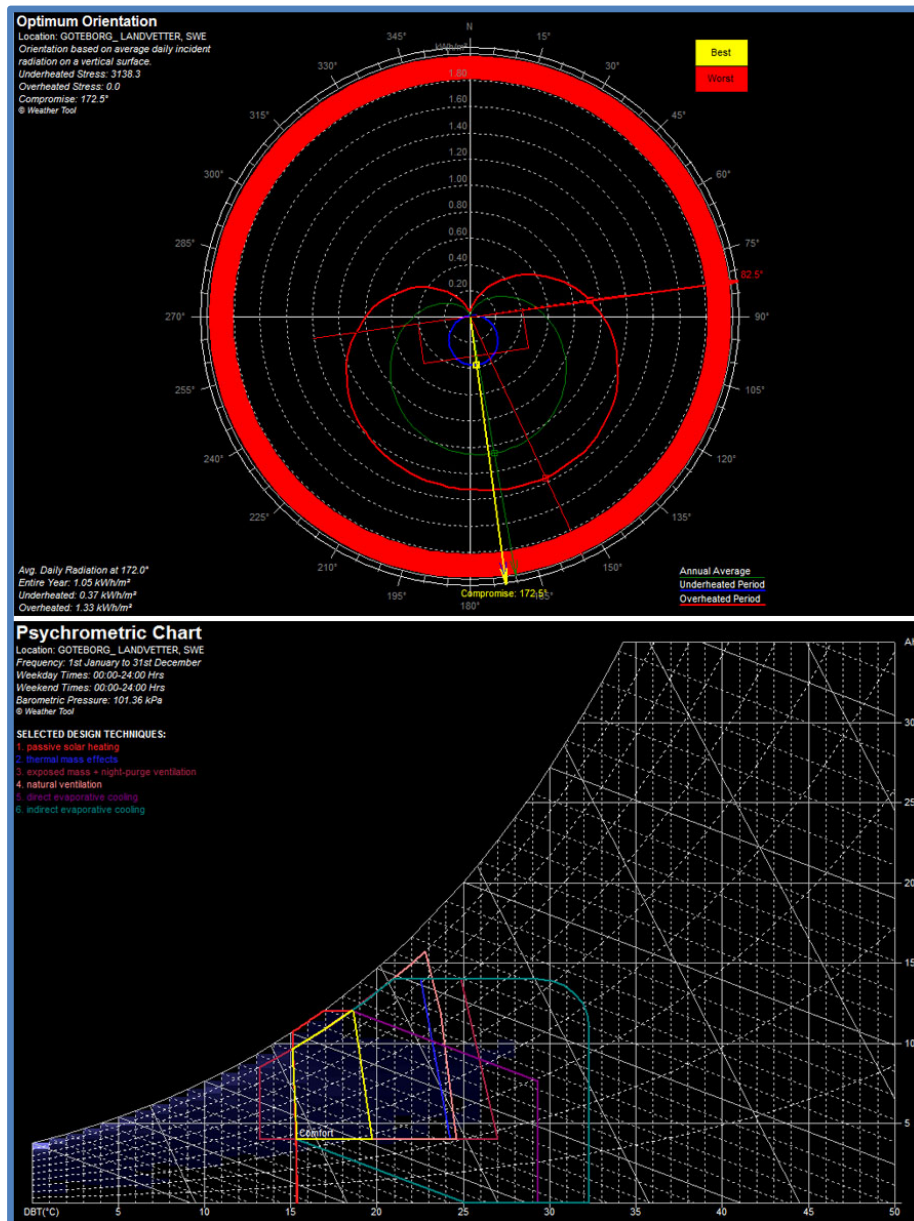
### CLIMATE SUMMARY:

- MONTHLY DATA: RADIATION (W/mq); MAX, MID, MIN TEMPERATURE °C
- PREVALLING WIND (WIND FREQUENCY – Hrs)
- HOURLY DATA – MONTHLY DIURNAL AVERAGES
- DAILY CONDITION (1<sup>ST</sup> JAN



### 3.BIOCLIMATIC FEATURES

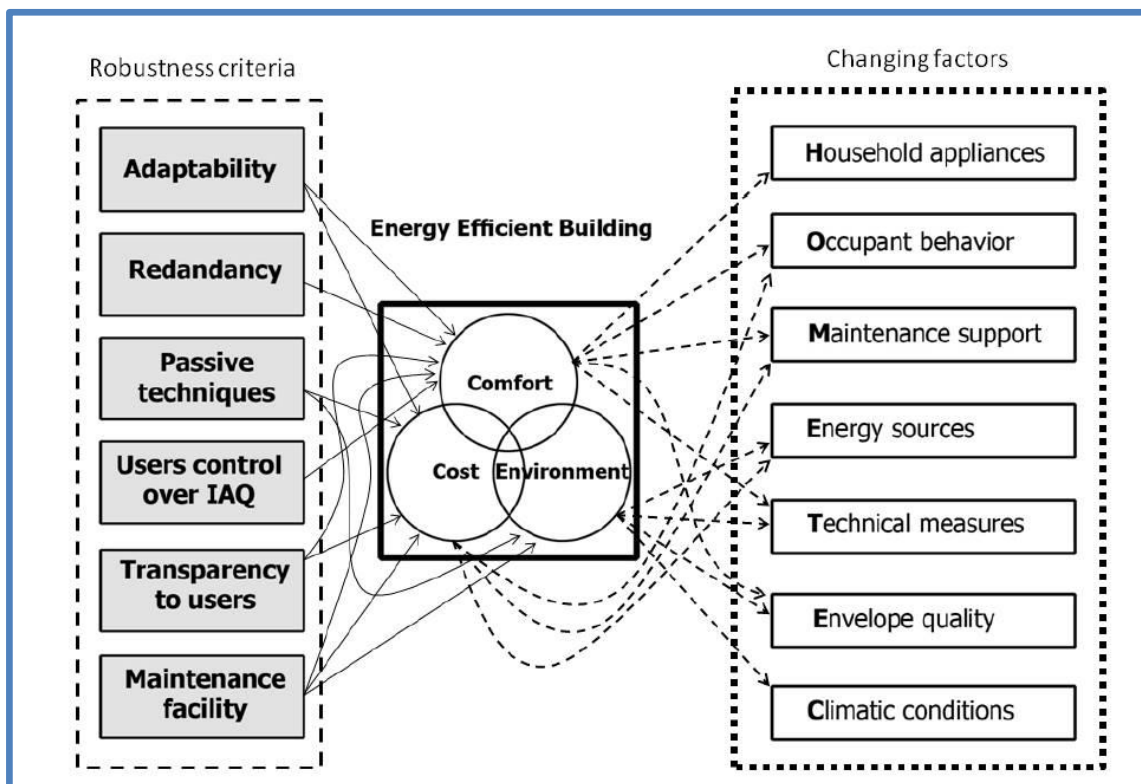
- OPTIMUM ORIENTATION
- COMBINATION OF PASSIVE ENERGY STRATEGIES



#### 4. URBAN AND/OR BUILDING FEATURES

This project is located in Gårdsten, a suburban area 10 km to the north east of Gothenburg, which was originally built in the early 1970s (1969-1972). Almost from the beginning, lack of maintenance and local services, health problems, poor public transportation, unemployment, high rate of vandalism and crime and consequently social segregation and insecurity made Gårdsten a stigmatized problematic area in the city. All these, together with technical issues with the buildings and the unpleasant gray, brutal appearance of the environment had caused considerable vacant flats in the area (almost 30%). In 1996 Gårdsten was one of the most deteriorated living areas in Sweden when the city of Gothenburg decided to make a major change in this district.

The first action to regenerate the area was to make a physical refurbishment in order to provide the tenants with better living standards and the aim was to revitalize the social structure to create a more attractive living environment. The goals would not be fulfilled without active participation of the tenants in the process and an effort to integrate a community of which a large proportion was immigrants. Furthermore, to reduce the energy costs and use of renewable energy in order to make the development more sustainable, a renewable energy design was considered to be integrated to the renovation project.

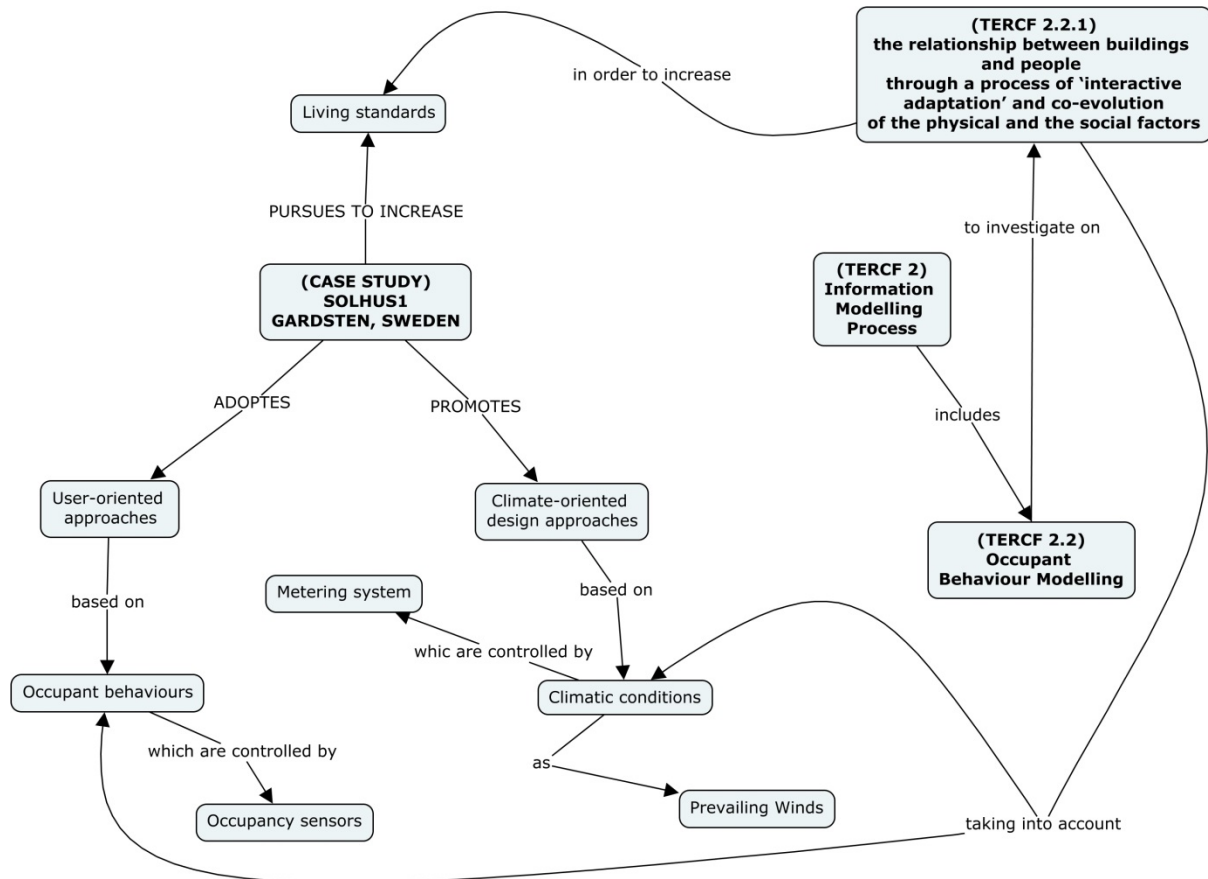


Relation between main objectives of EE buildings, robustness criteria and HOMETEC factors



**5. FOCUS QUESTION AND MAP**

**How to deal with the level of uncertainties?**





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### 6. REFERENCES

VahidSabouri, , Two Case Studies in Energy Efficient Renovation of Multi-family Housing, *Master Thesis at Chalmers Architecture Design for Sustainable Development (MPDSD)*, Gothenburg, Sweden, 2012,

<http://publications.lib.chalmers.se/records/fulltext/158263.pdf>



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