Weißenhofsiedlung

eine Fallstudie der Sonne, Wind, und Licht

boodan, bui, makhalik, so, xia
weissenhoff apartments

ARCHITECT: Ludwig Mies van der Rohe
LOCATION: Stuttgart, Germany
DATE: 1927
CLIMATE: Temperate
BUILDING TYPE: Apartment Housing
CONSTRUCTION: Iron filled frame with single tier brickwork, plastered interior and exterior.
The Weissenhof Apartments were the first four official dwellings of the Deutscher Werkbund exhibition of 1927 in Stuttgart, Germany. The exhibition consisted of sixty dwellings intended for working class Germany, and was designed by seventeen European architects, chosen by Mies van der Rohe.

It was an international showcase of what later became known as the International style of modern architecture.
elevation
section
plan g - 1f
Mies designed the building to have flexible floor plans. He intended for only the stairwells and elevators to have fixed locations and walls. The units would have semi-permanent kitchens and bathrooms, but the rest of the floor would be open plan. Tenants could easily add walls to create rooms to suit their needs.
sun

48°48'02.6"N
9°10'37.7"E
The number of hours during which the Sun is visible (black line)
cloud
Is the spacing of the development adequate to provide good solar access for either passive heating or daylighting?

Yes, since the apartment employs a thin plan scheme, each unit has solar access both in the morning and afternoon. This permits convection of heat to occur without obstruction.

However, the units are oriented on a north-south axis and do not allow internal solar access or thermal conduction during afternoon hours. A majority of the glazing is situated on the east or west facades of the building which limits exposure times of thermal storage surfaces. Considering that this is a residential building and that most tenants will be absent during the day, east-west facing windows allow for morning and late afternoon sun exposure.
light
light
Q: Is the floor planning of the units good for natural ventilation?

A: Yes. Mies designed the apartment with flexible floor plans with the stairs and elevator shaft as the only fixed points in the plan. The hallway creates a direct path from one room’s window through to the other room’s window, allowing for natural ventilation within the unit. There are also balconies in each unit.
wind

[Graph and charts showing wind patterns and statistics]
Q: What improvements need to be made to the site plan or siting of the building to improve its sustainable sites potential?

A: Increase amount of deciduous trees in the periphery to control the microclimate. In the summer they would provide shade; in the winter they would lose their leaves allowing sun to penetrate.
Q: Does this development address solar shading for the buildings?

A: Yes. The building has external shading devices that limit the sun’s penetration. However, there are no overhangs, and the shading devices are thin and parallel to the windows. The windows are also almost pushed all the way to the front facades, exposing it more to the sun.
shading
Remedial strategy:

A continuous overhang for each storey would be more effective, and provide shade under high summer sun, while permitting low winter sun to enter the apartments and heat the interior.
bibliography


When you open your heart a little, and pull someone close to you;
Your feelings will surely reach them deeper, yeah...

CAST
神田空太
椎名光里
青山百合
上井茉笑
三喰仁
メイドちゃん
千代子
神田カズ
藤村和希
館登紀一郎
姫宮沙織
上井早春
仙人

松岡慎丞
茅野愛衣
中津真莉子
高森奈津美
桜井孝宏
? ? ?
畑野めぐみ
小倉 唯
池沼清太郎
田村一郎
藤村 歩
早見沙織
清川元夢

踏み込むぜアクセル 駆け引きは無いさ、そうだよ

thanks