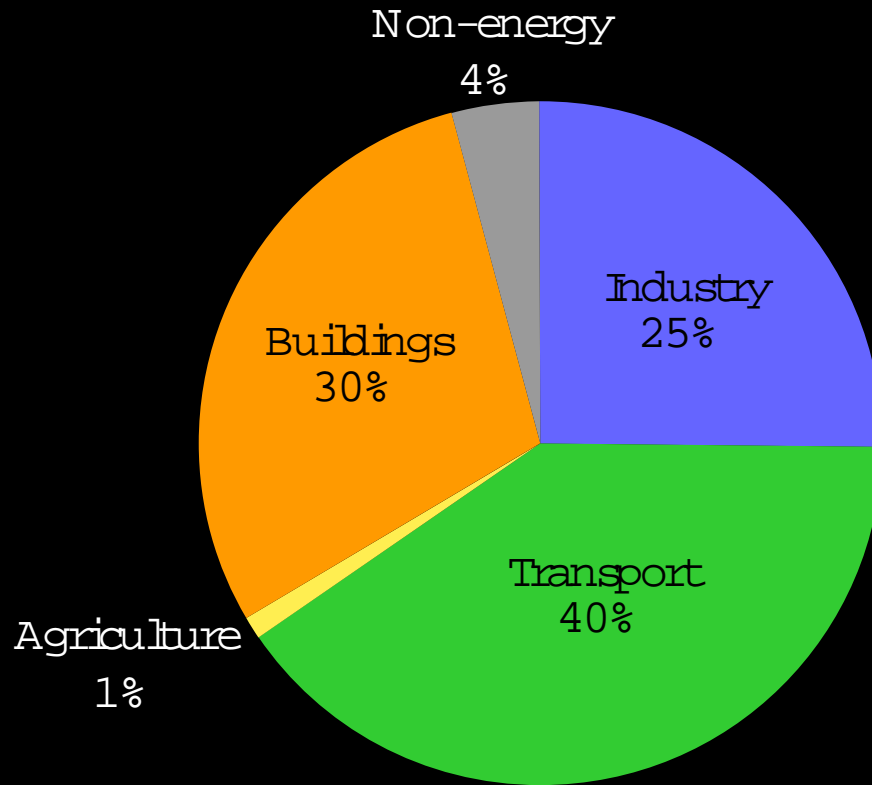






# Comparative energy consumption per capita



USA

8,163 kg oil

W ork 285 l/annum

Living 720 l/annum



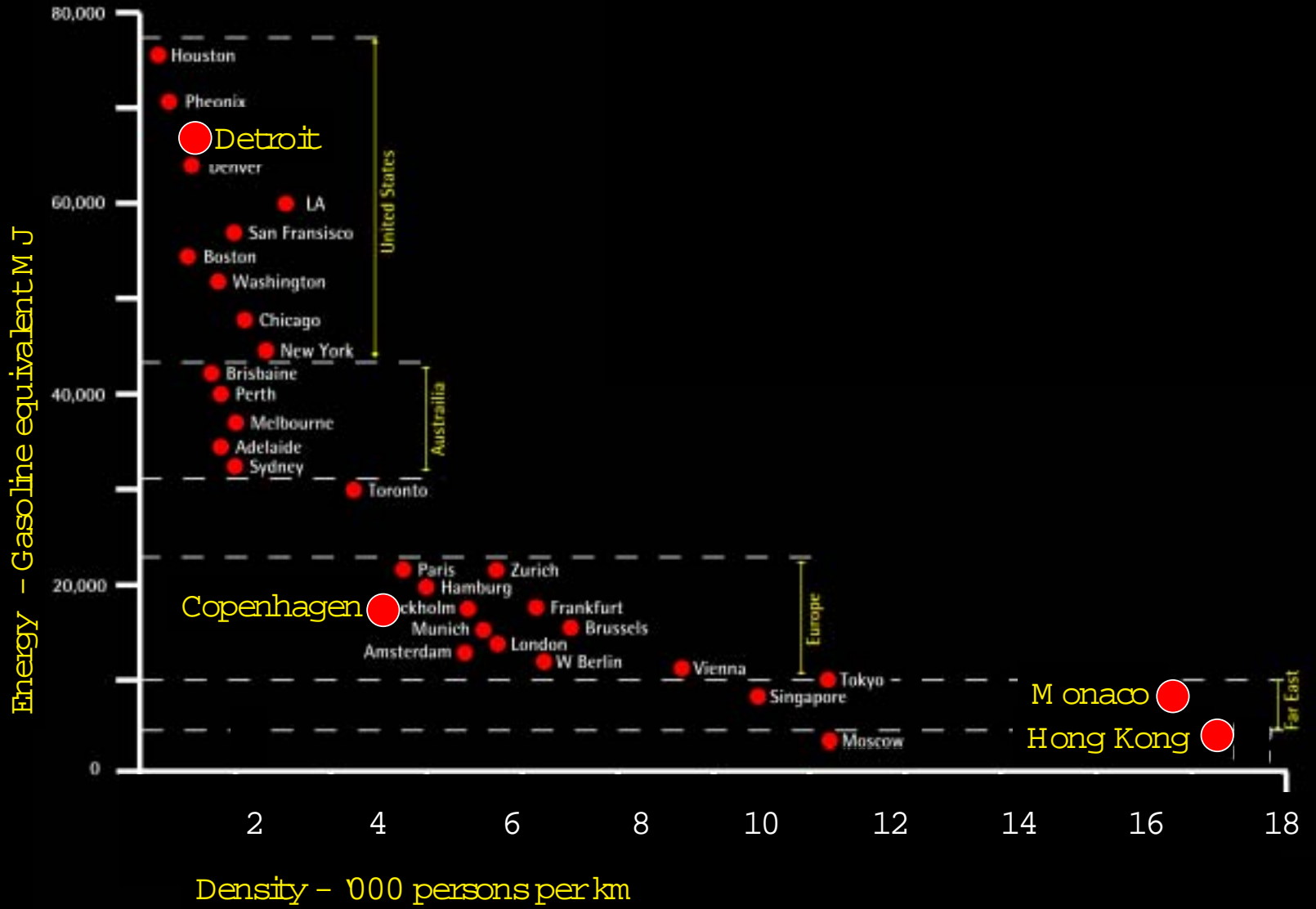
M obility 900 l/annum  
(40km per day)



Detroit

2,600 people/sq km





Source: Updated Newman and Kenworthy 1989





Copenhagen

5,800 /sq km



Monaco

16,486 /sq km



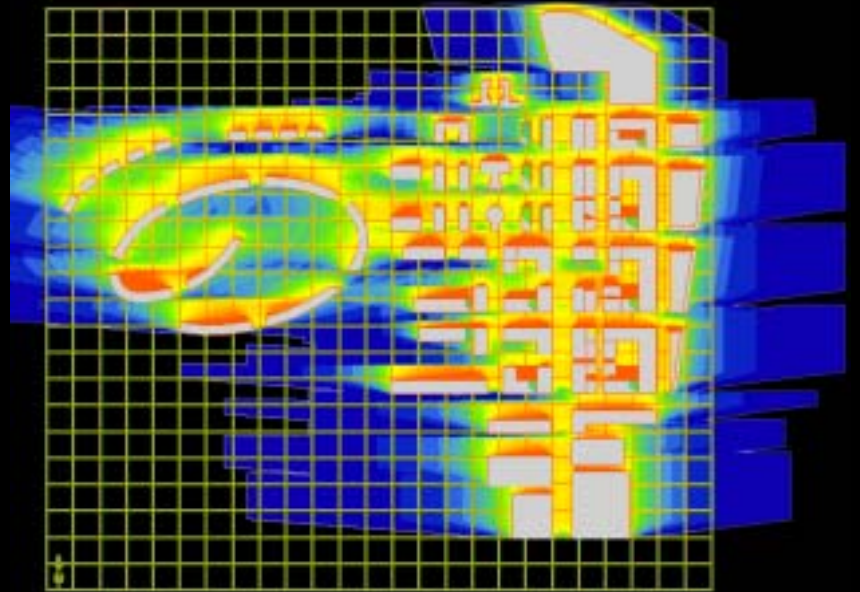
Hong Kong

20,824 /sq km

Thinking  
Global



Acting  
Local

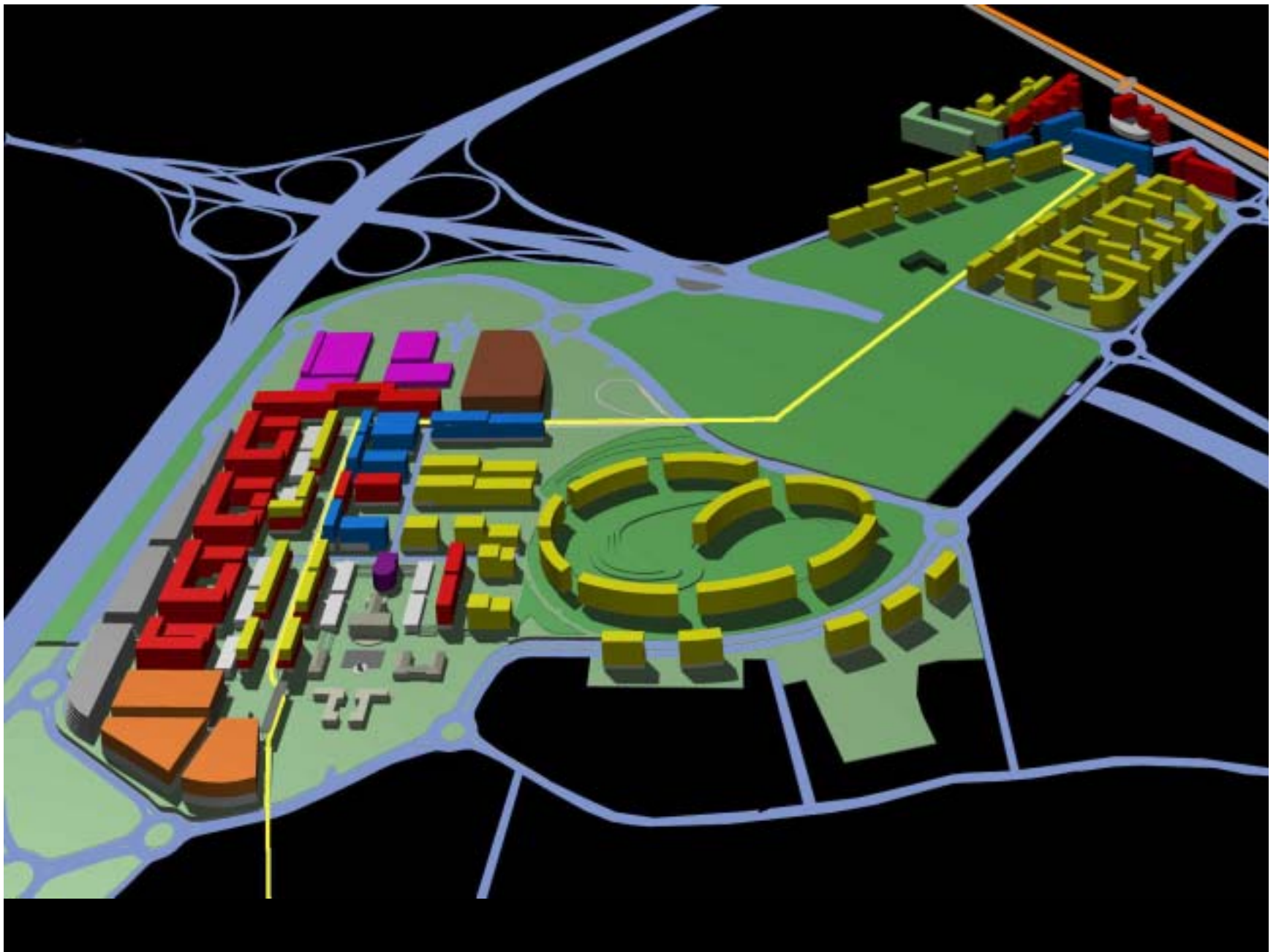




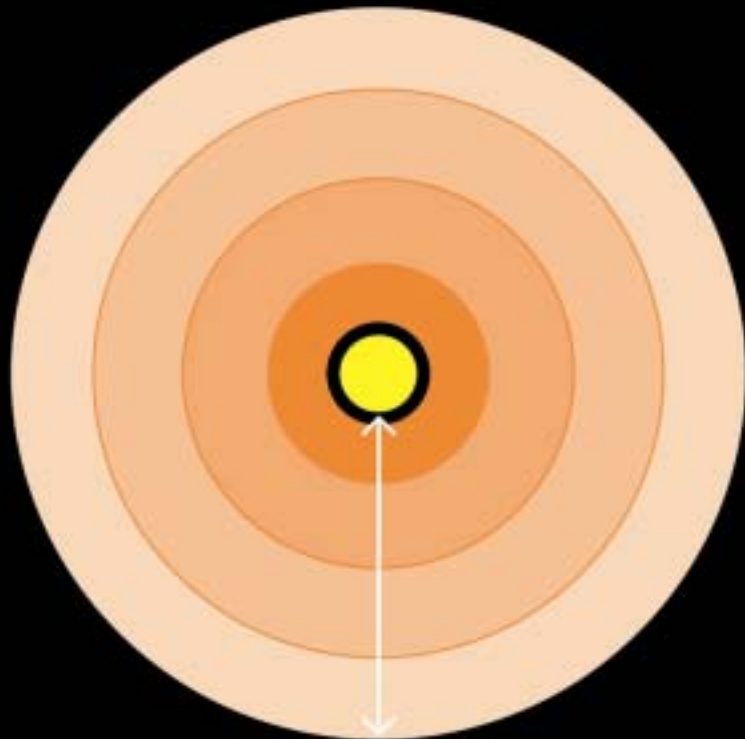












300m radius

## Community centre

Bus / train stop

Retail  
Butcher  
Grocer  
Laundrette  
Florest  
Newsagent  
Clothing  
Bakery  
Pharmacy

Area for facilities - 1000m<sup>2</sup>

Bank  
Post Office

## Population density

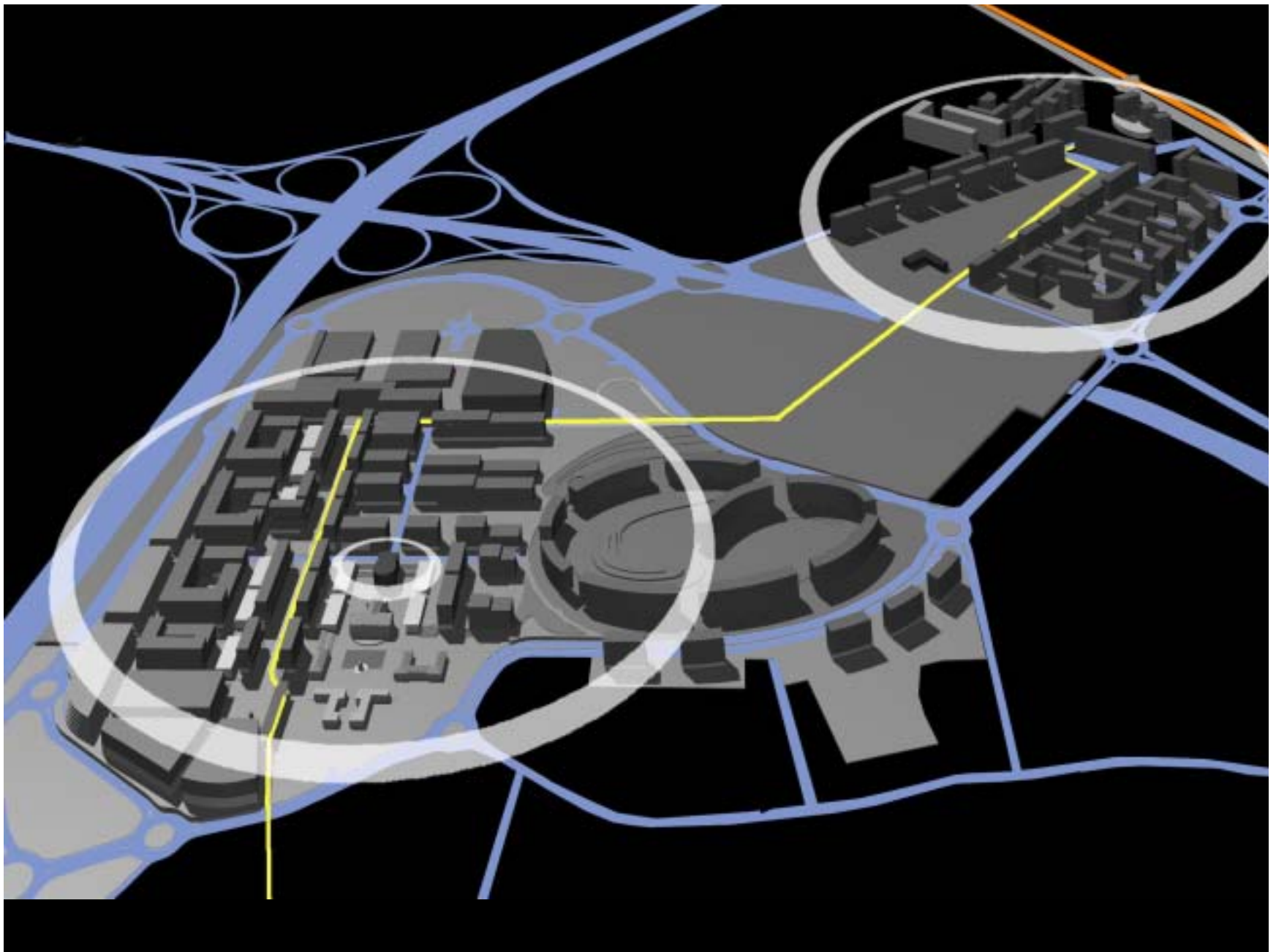
Within 300m:

Walking time 3-5 minutes

If there are 5000 people within comfortable walking distance of the community centre

Population density - 200 people per hectare









living

working

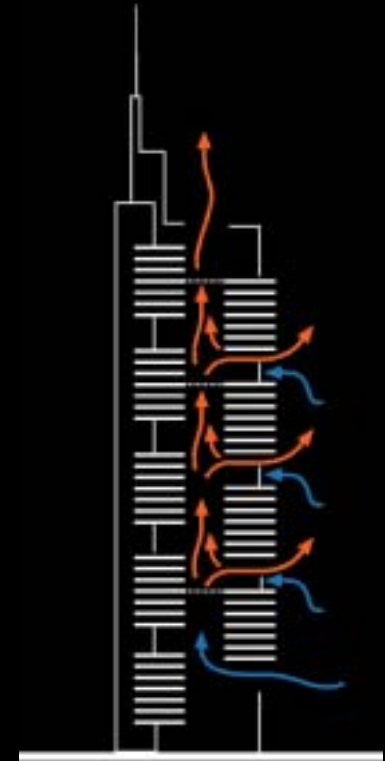
retail



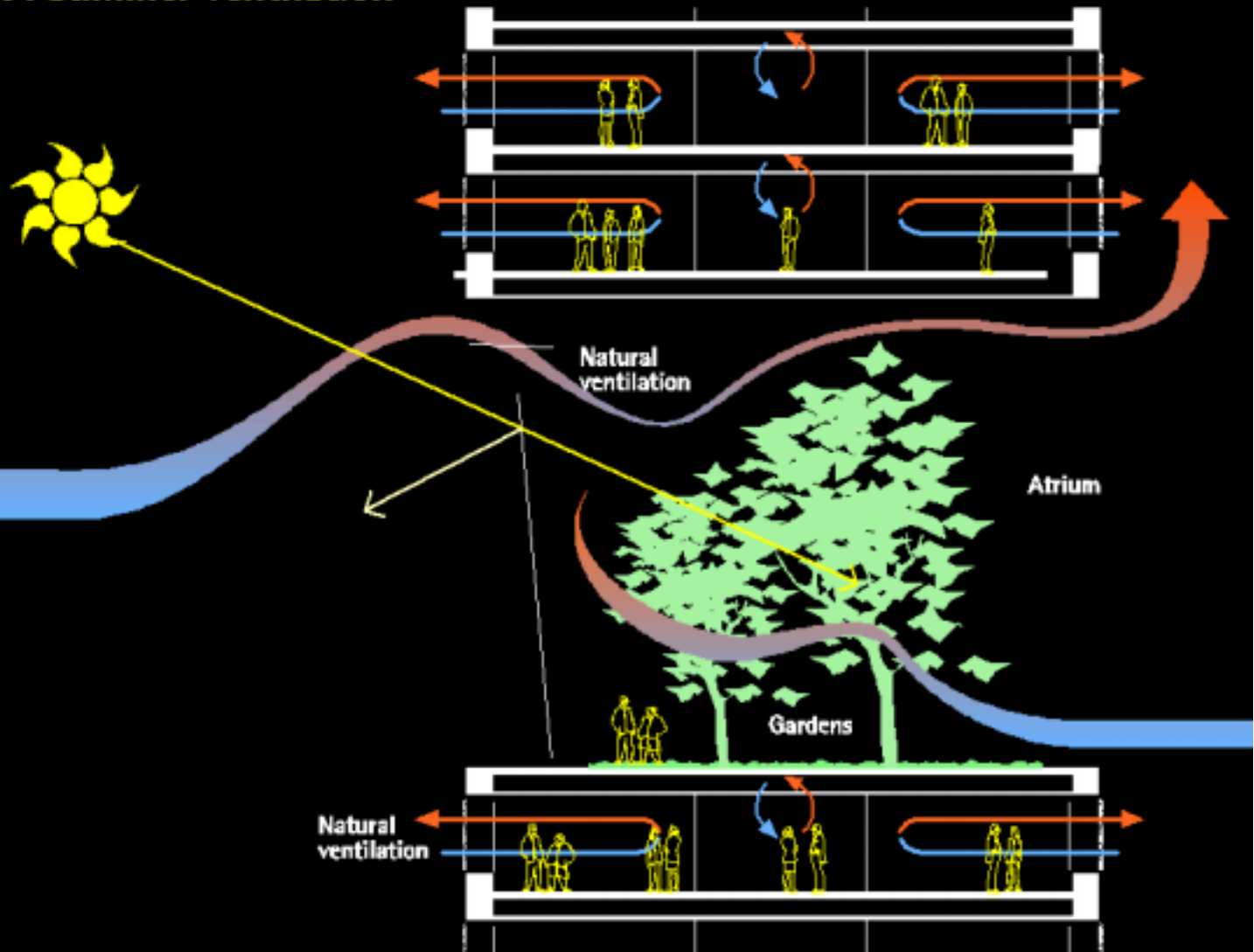




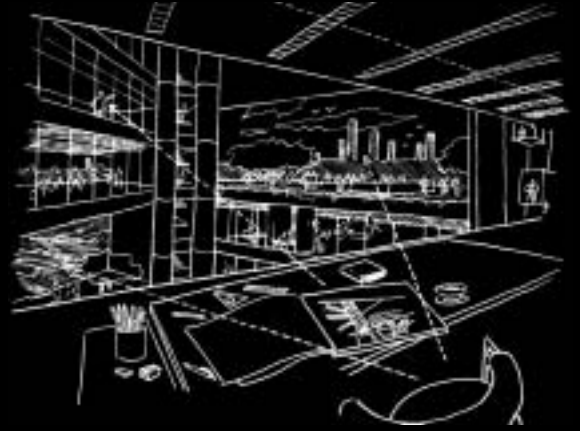




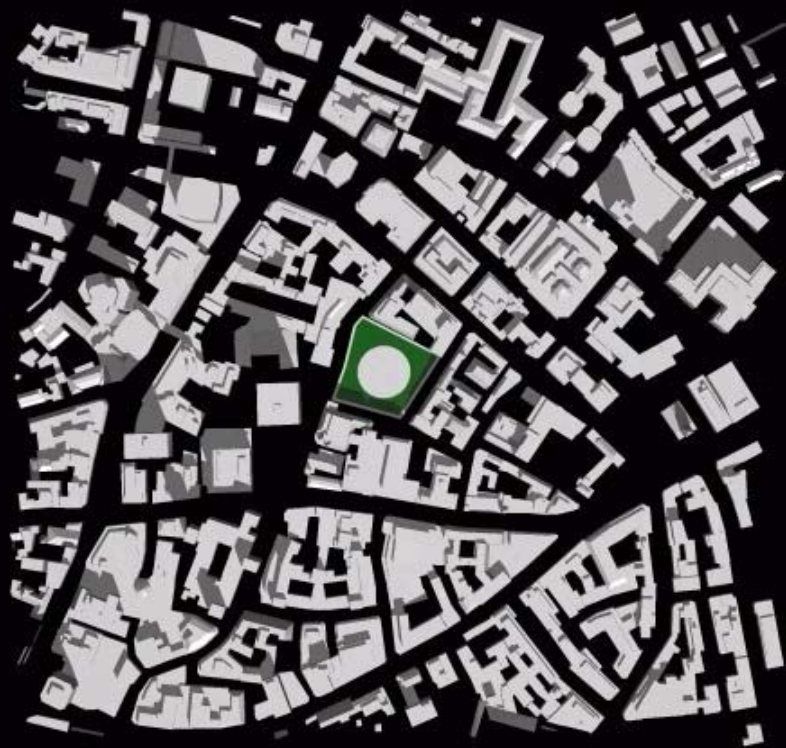
# Commerzbank : Summer ventilation



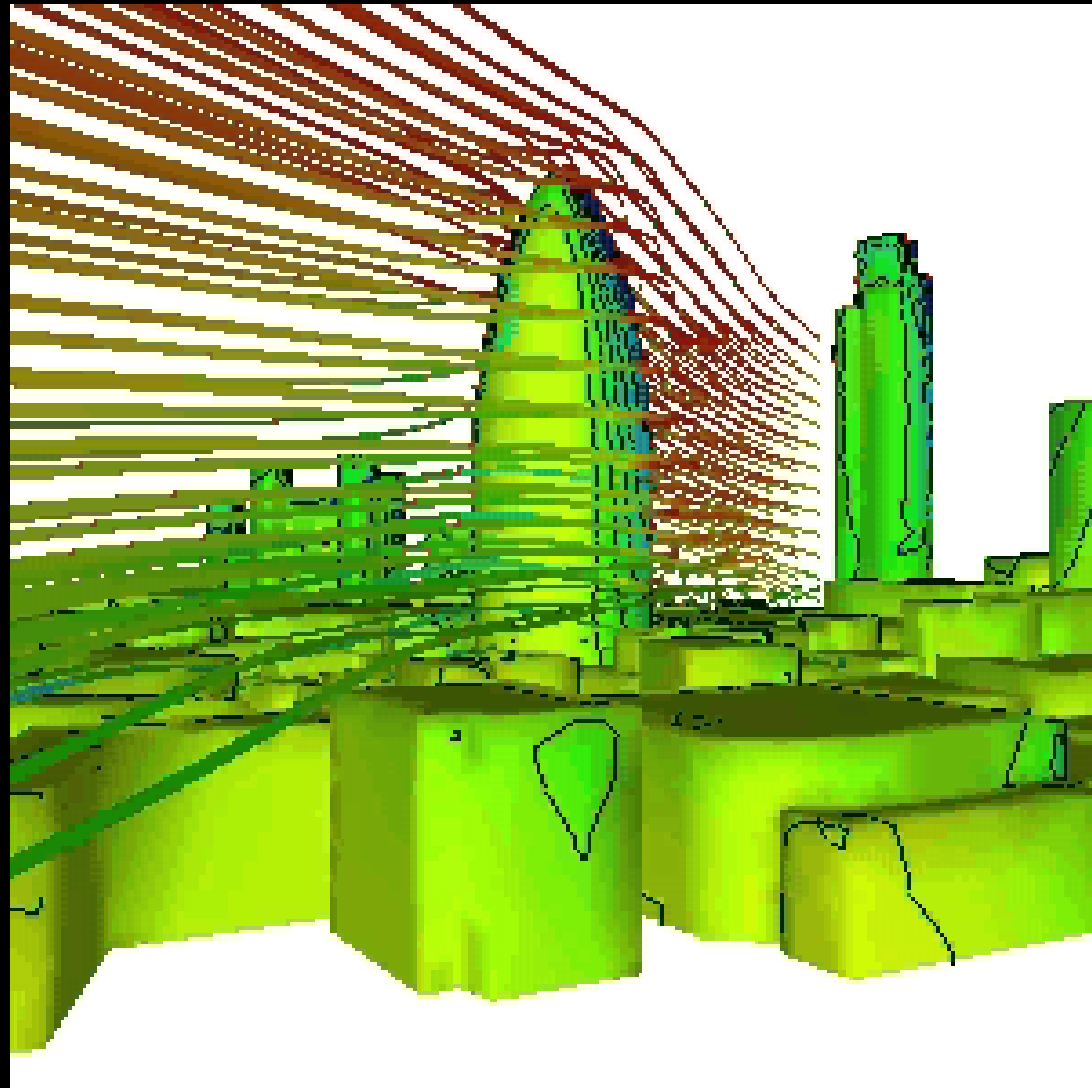












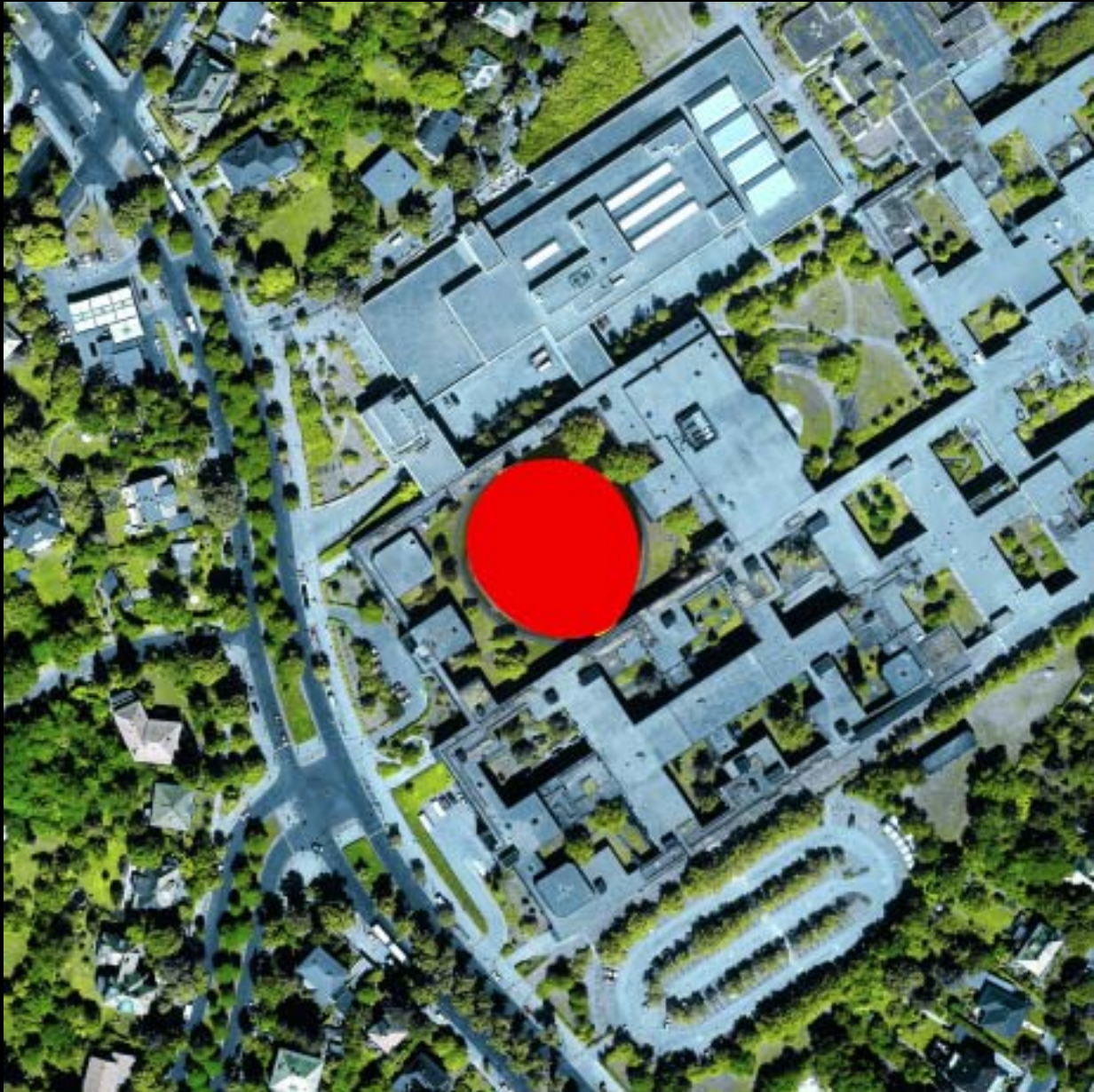




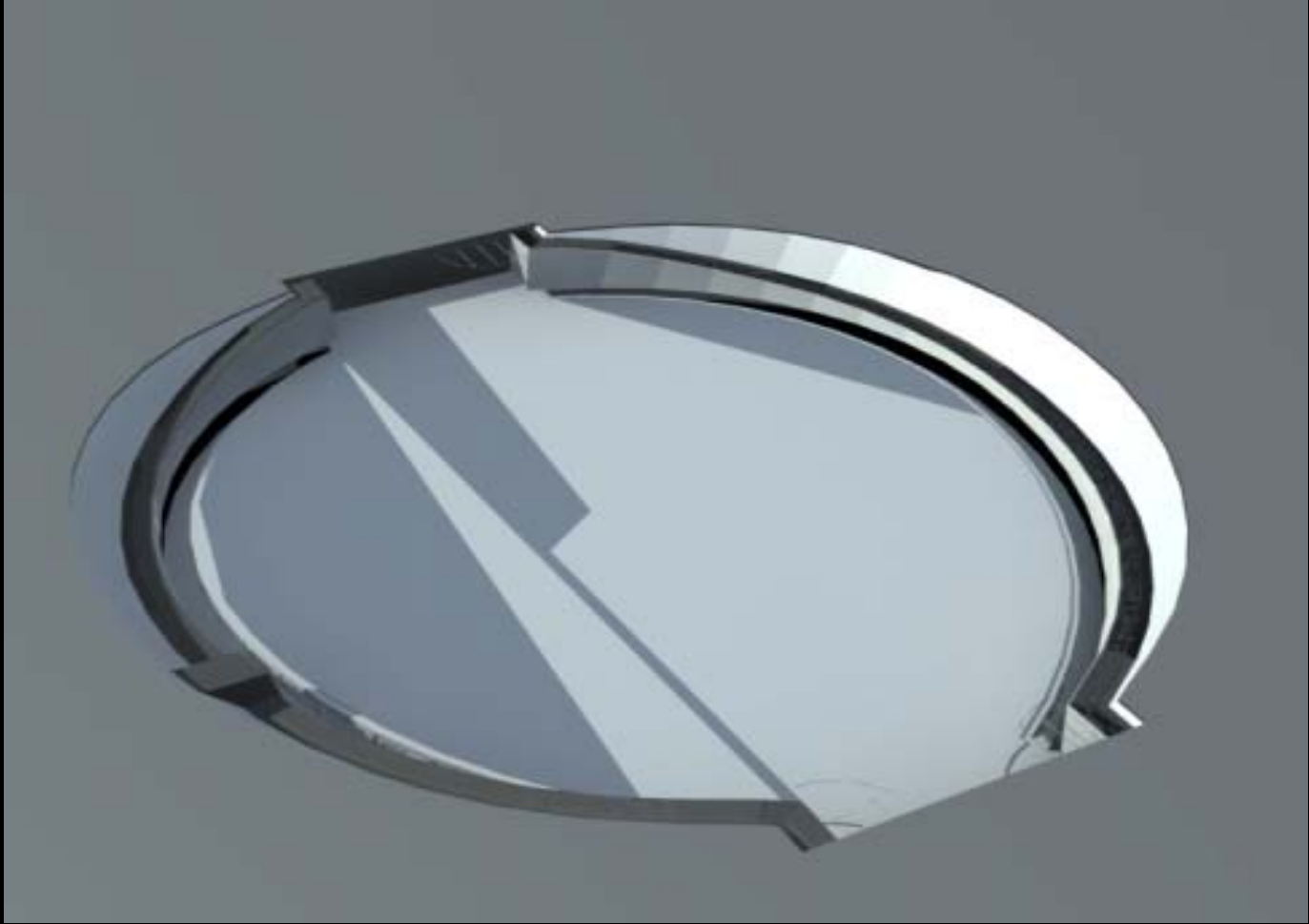


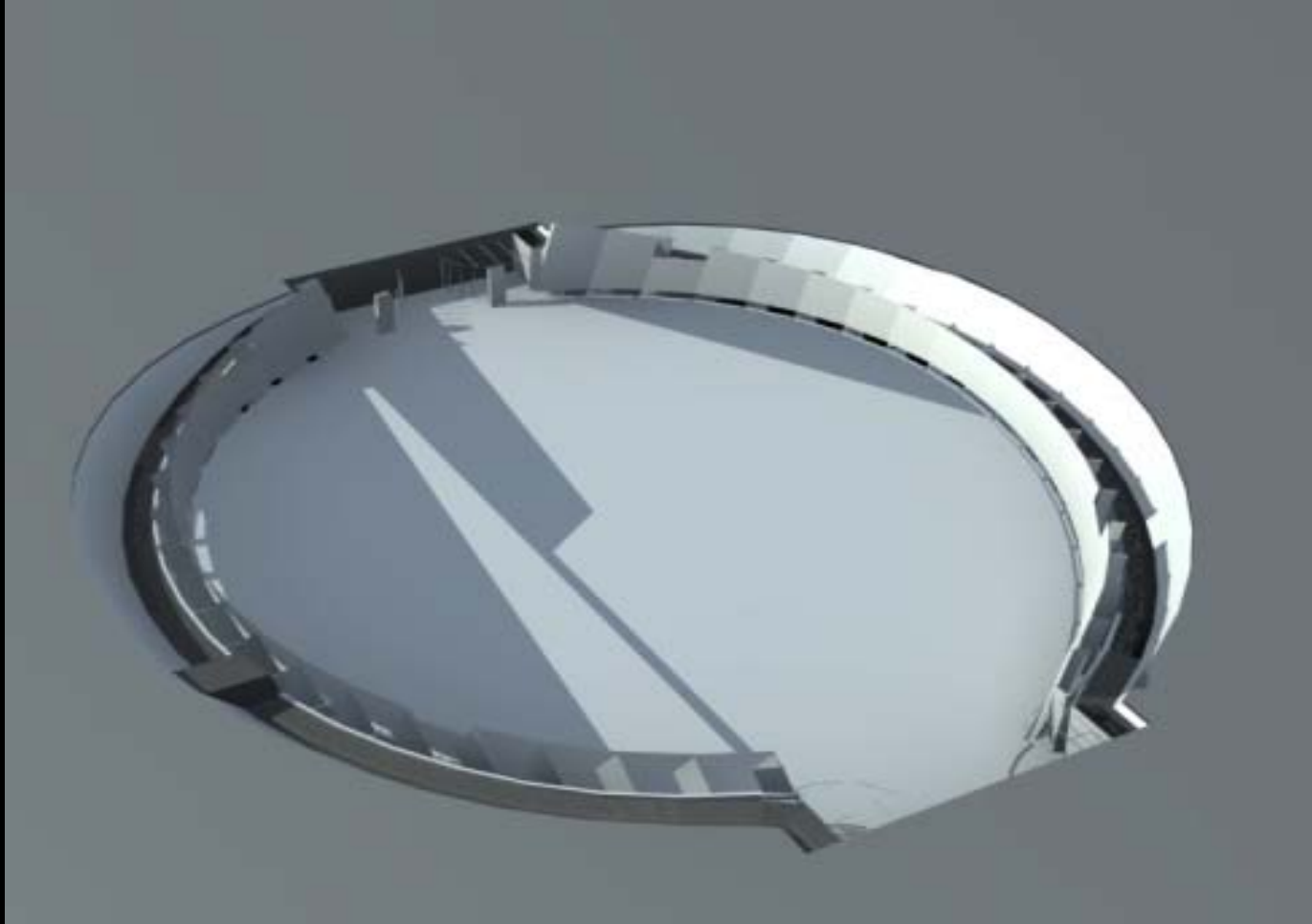


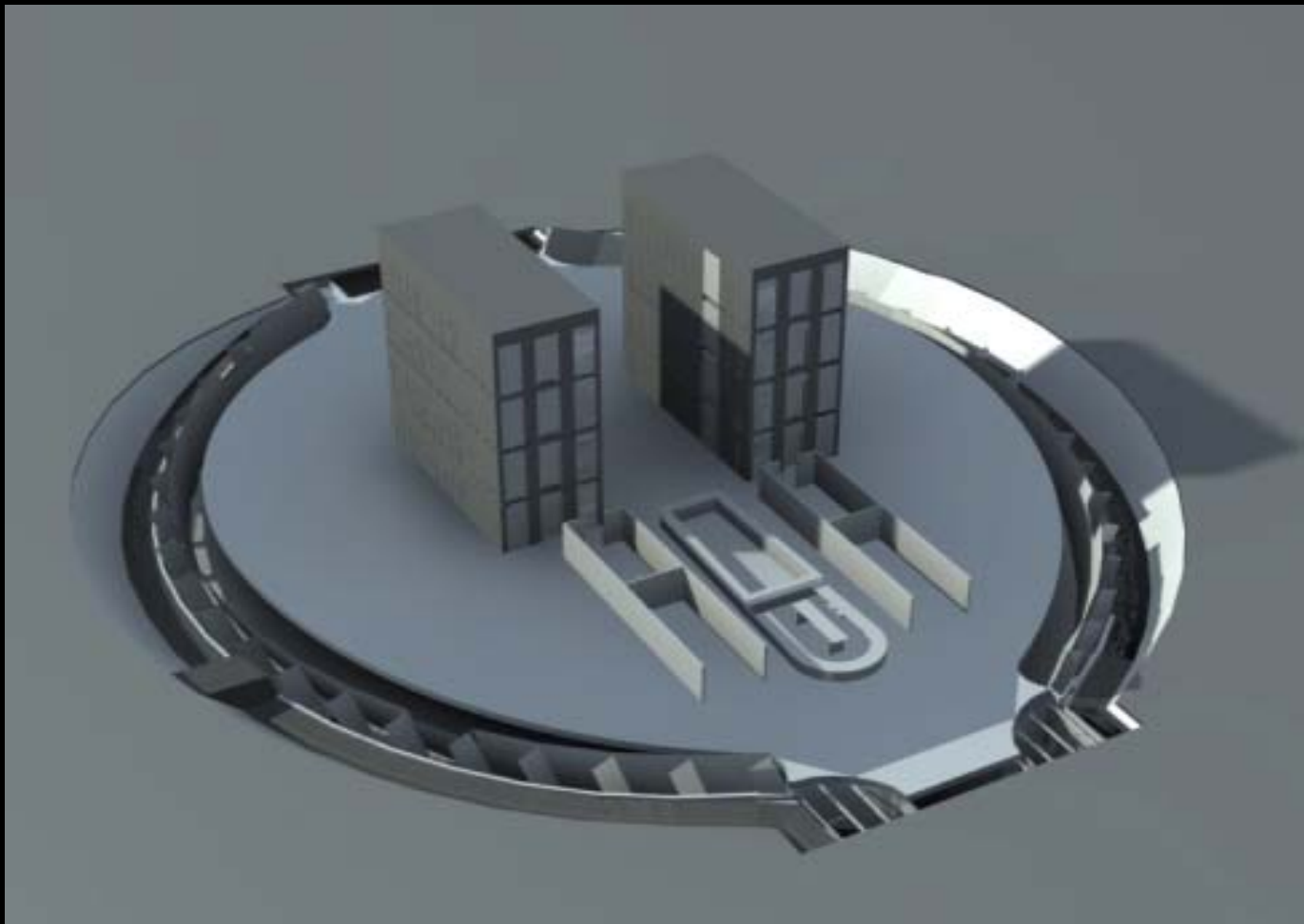




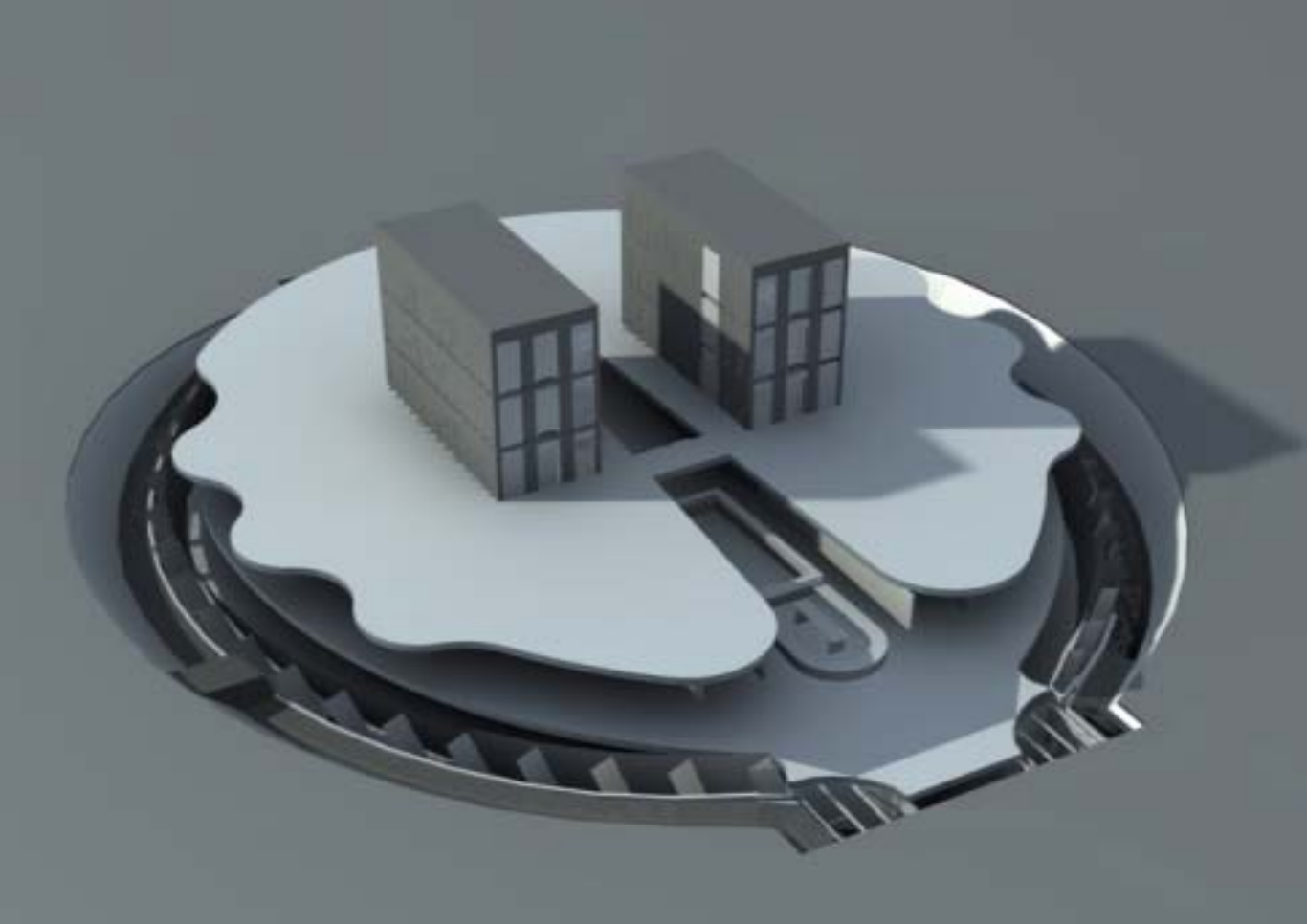










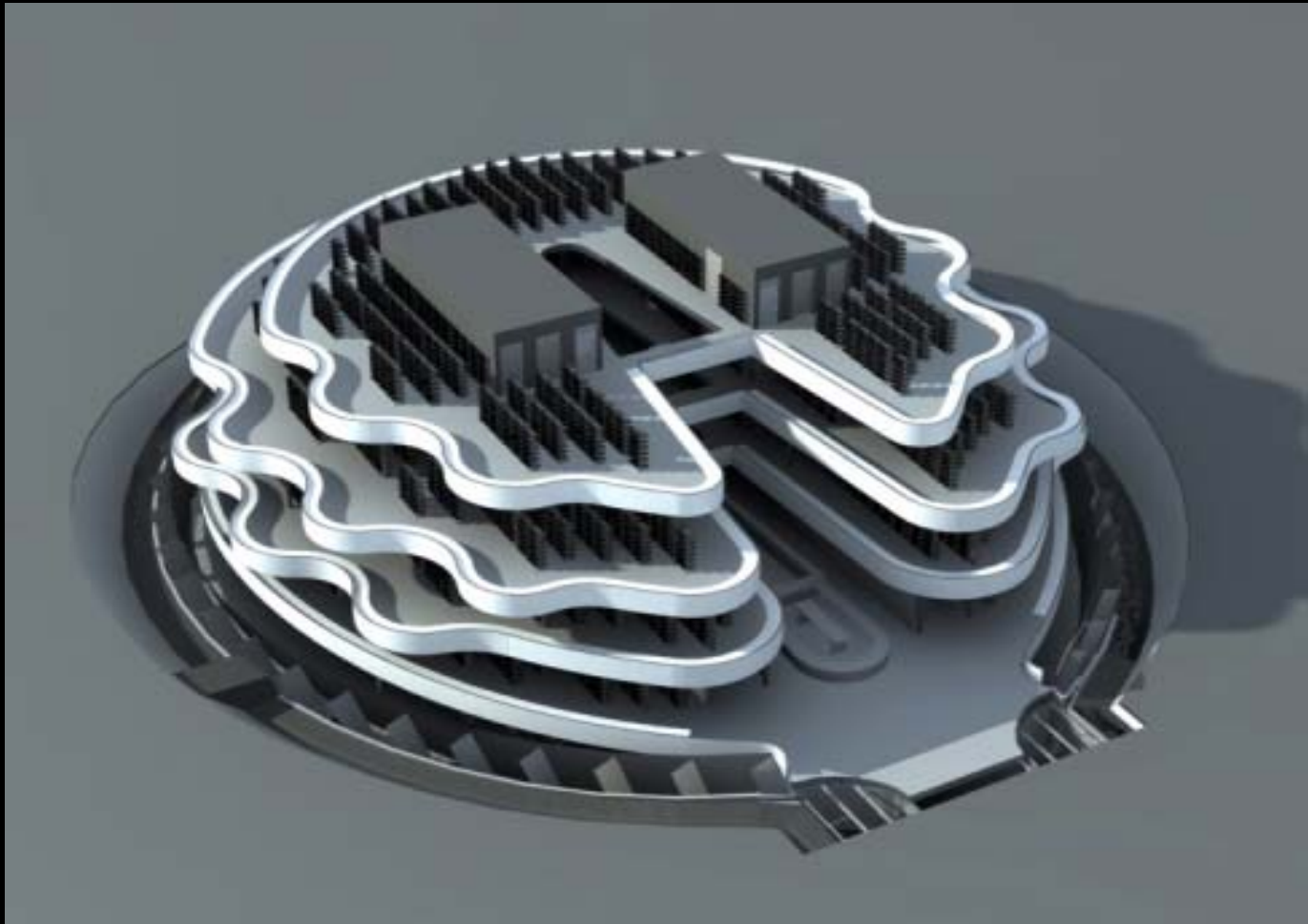


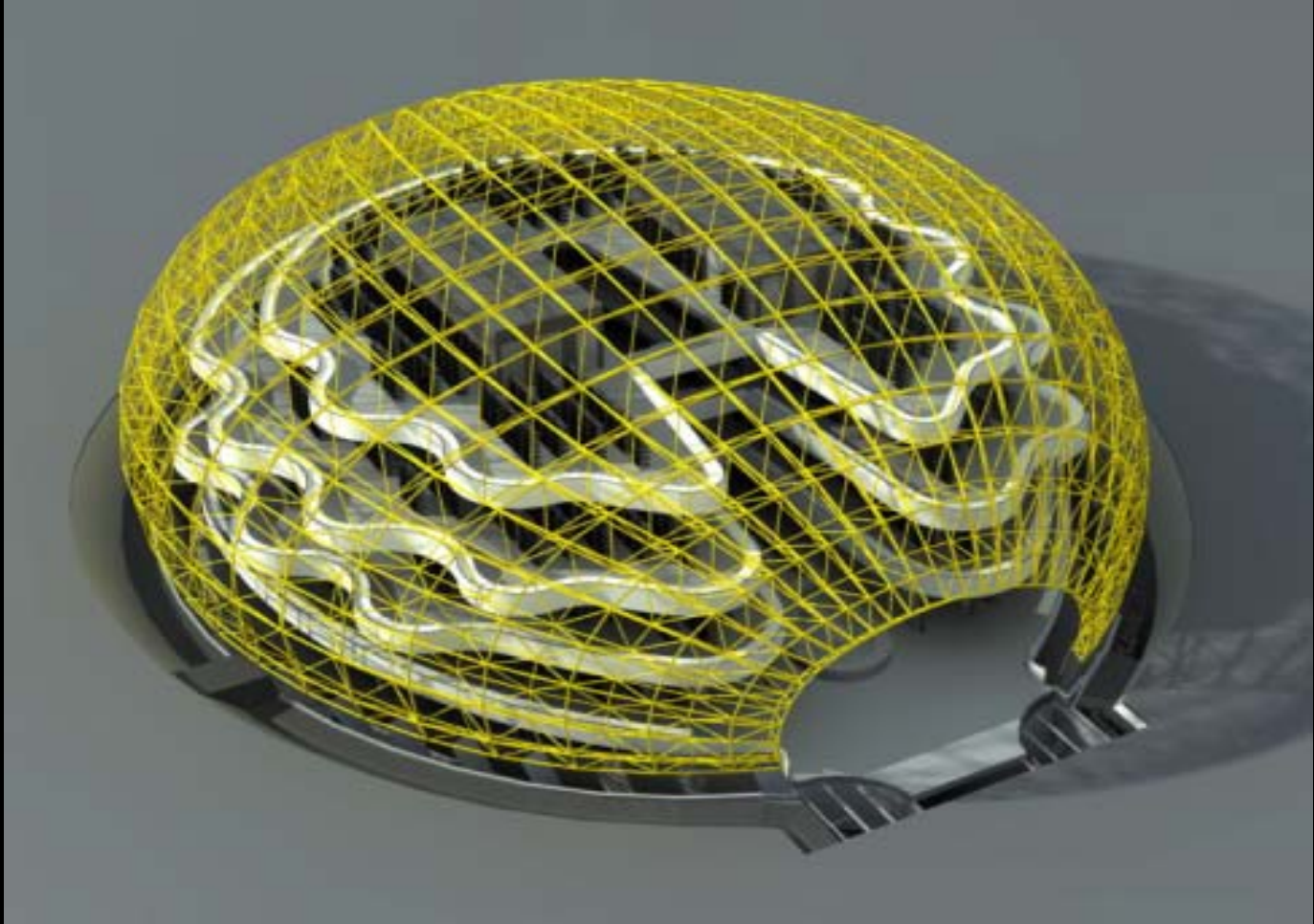




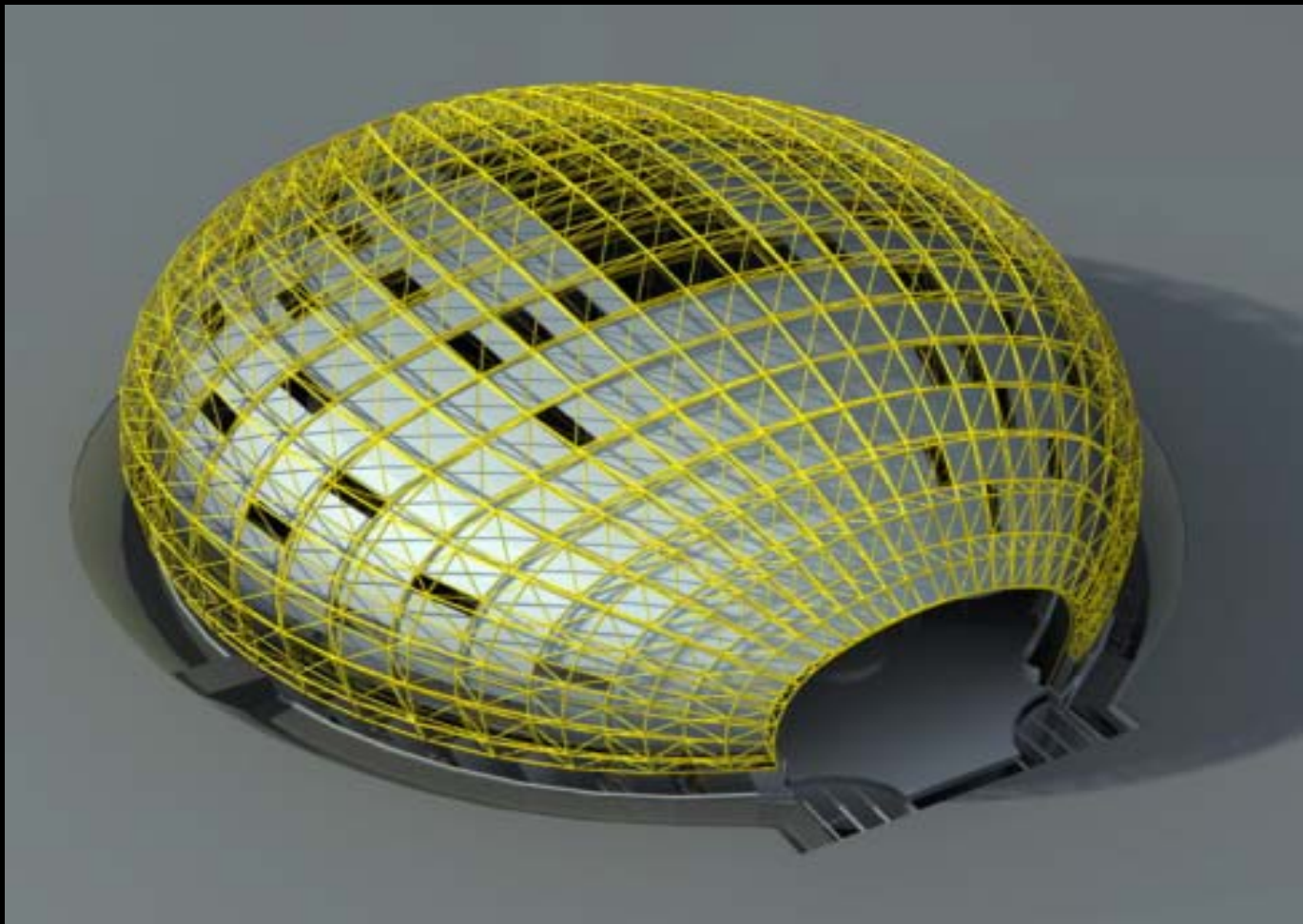


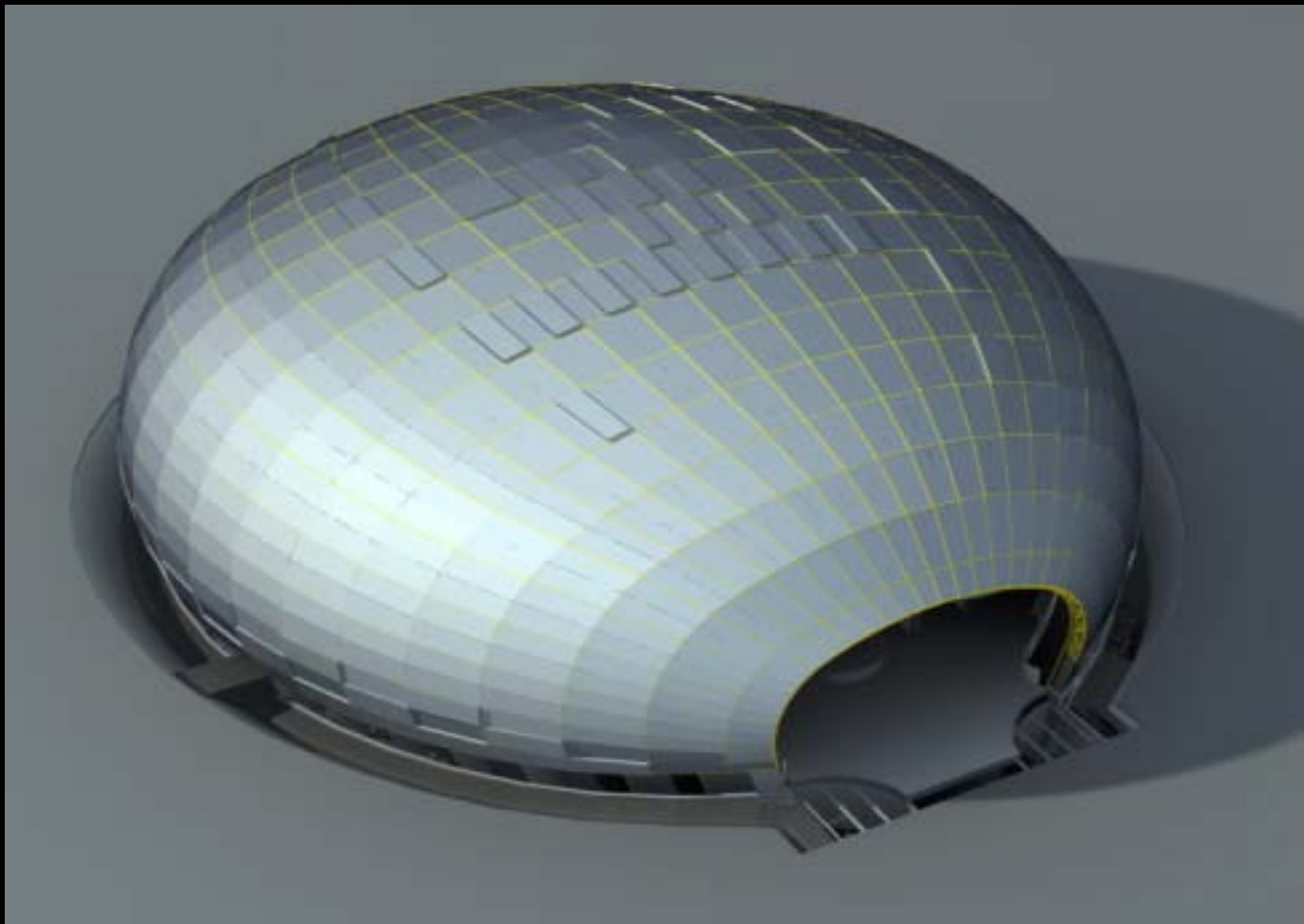


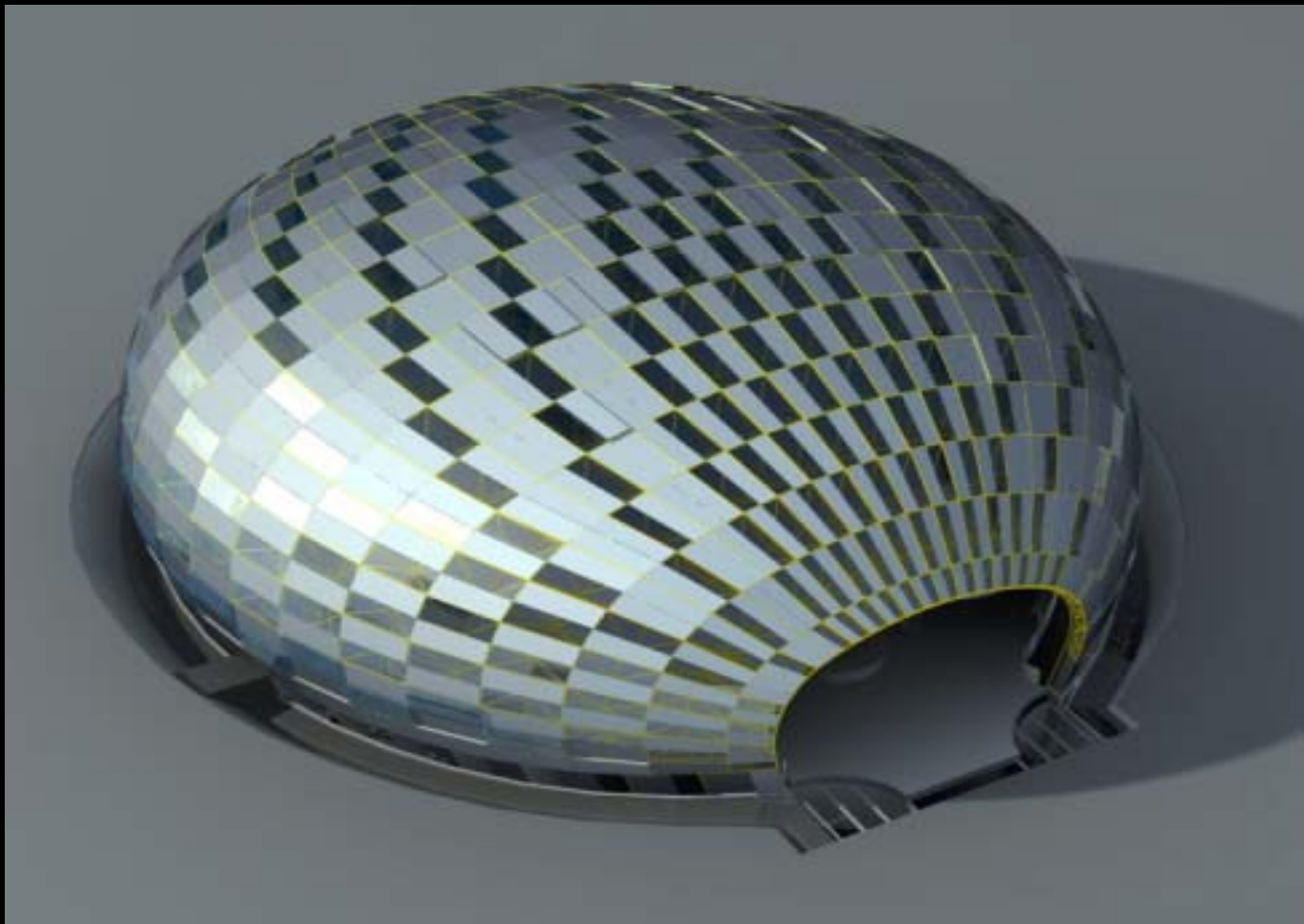




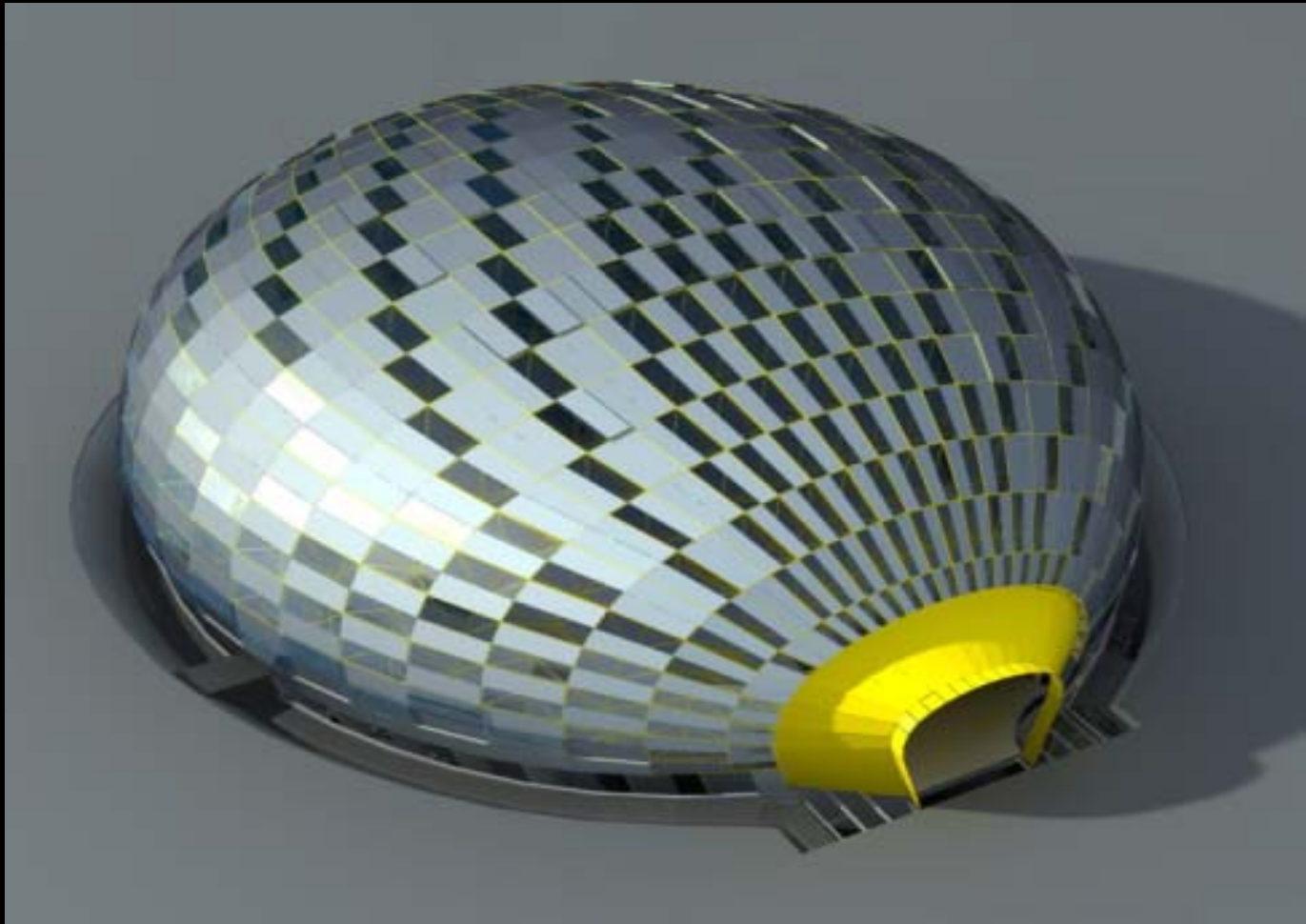


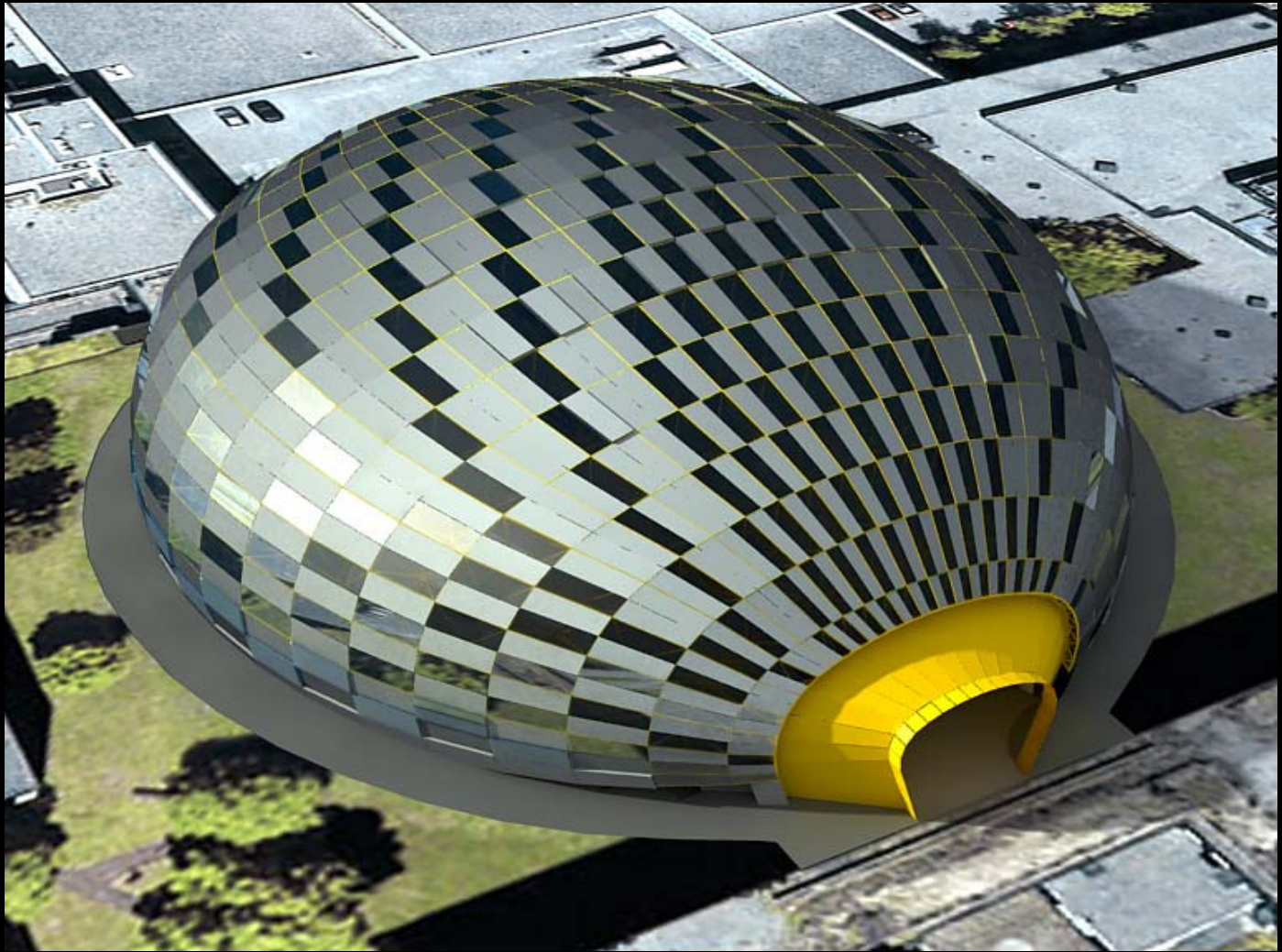


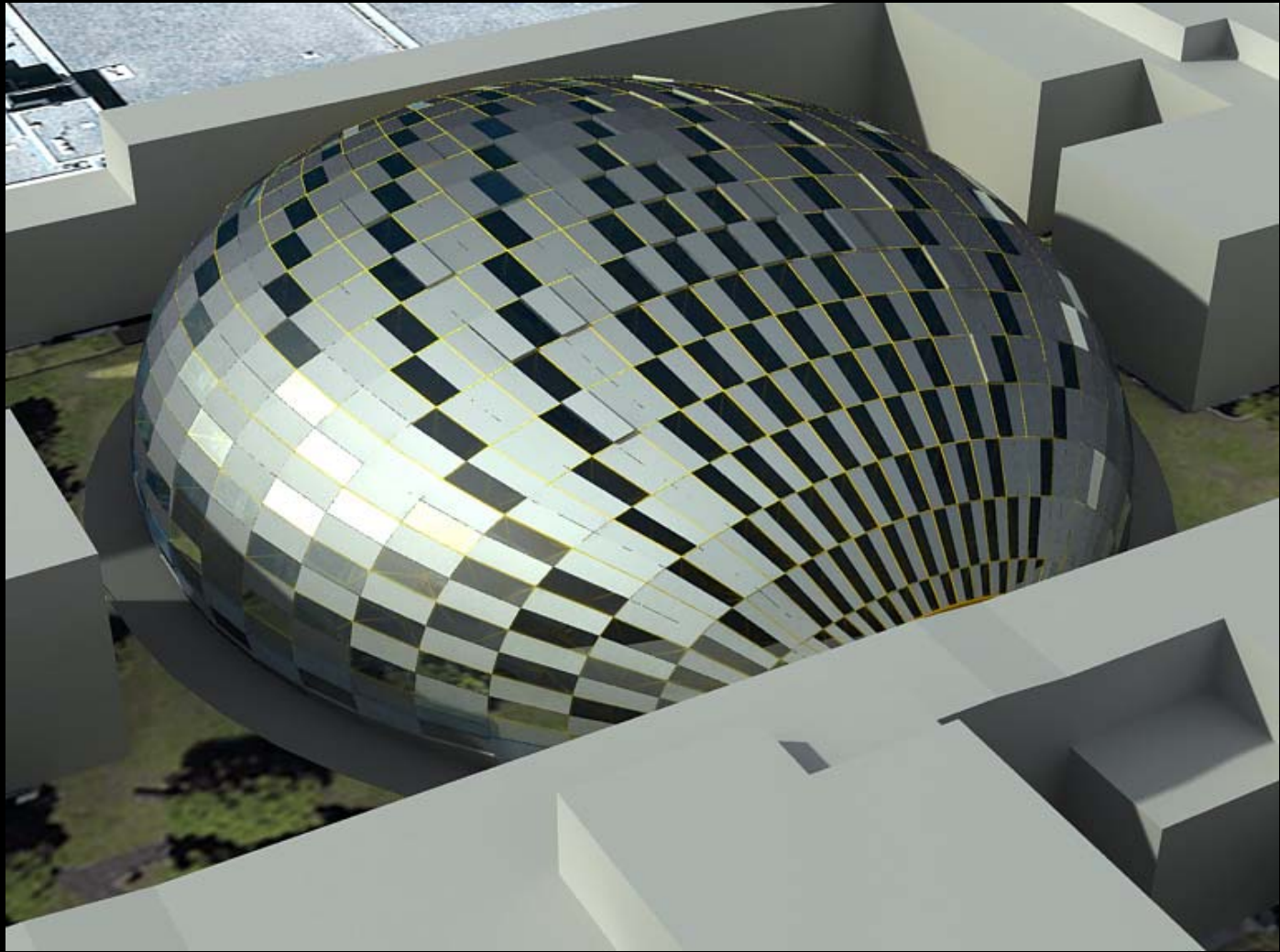




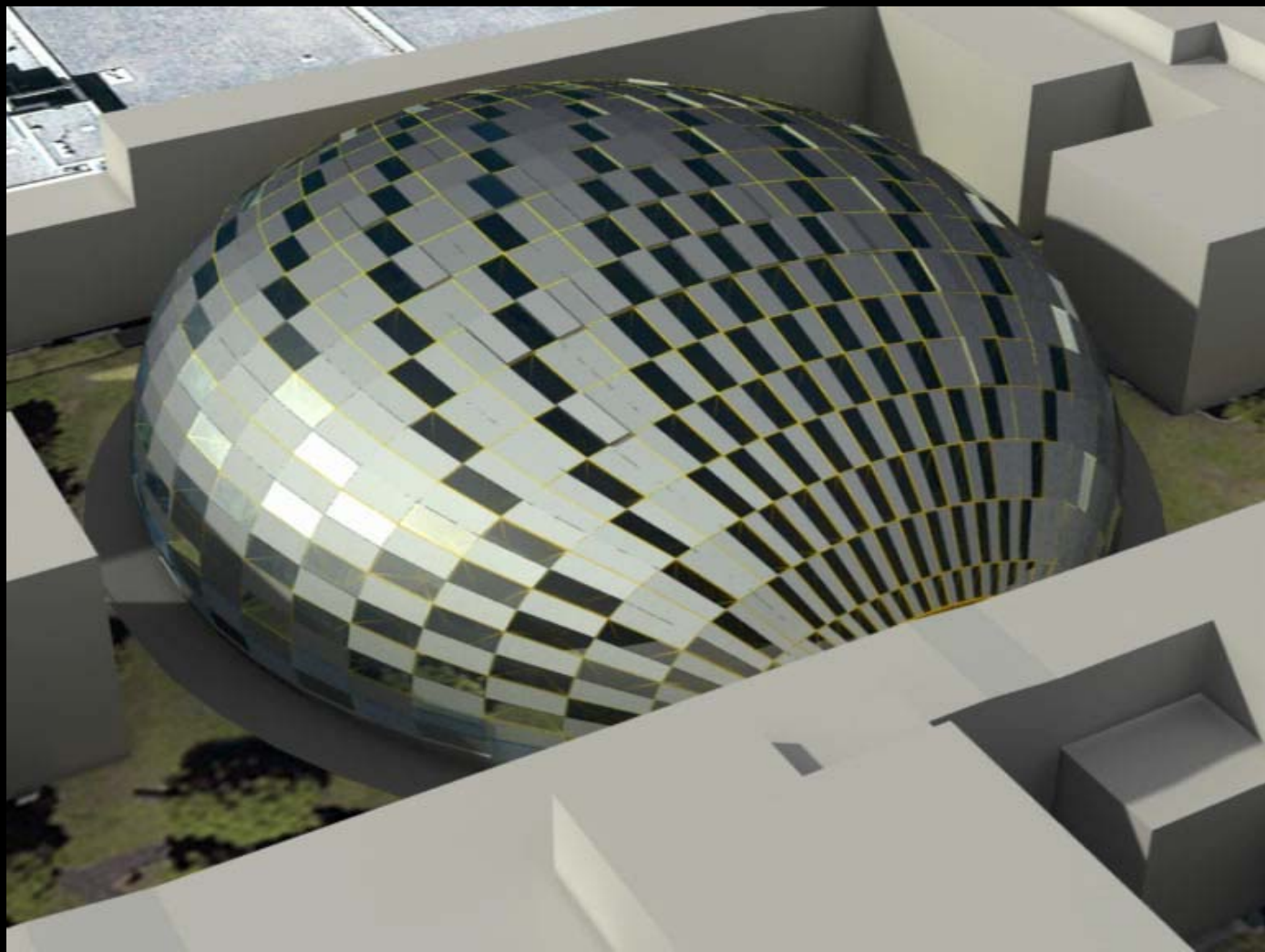




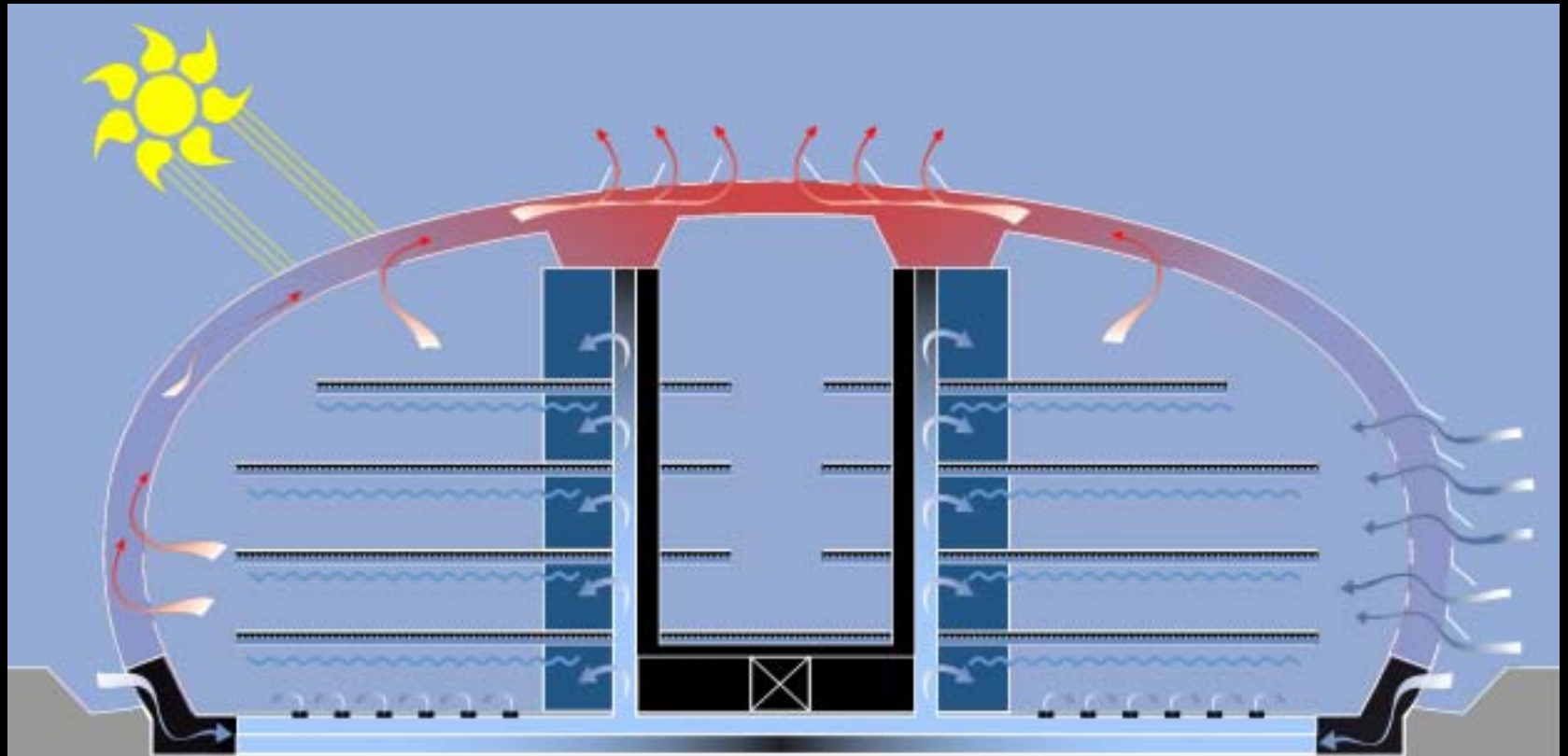


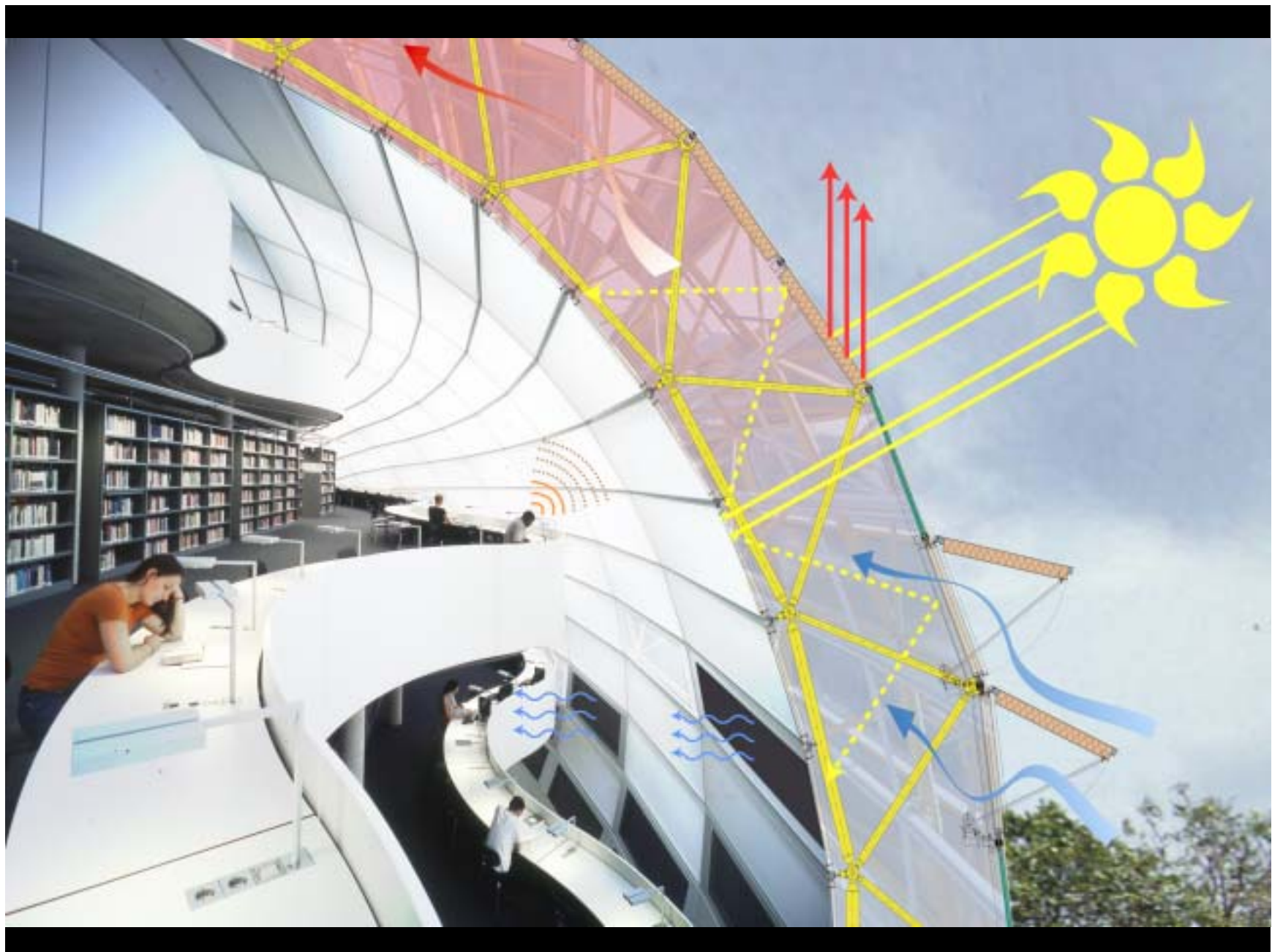




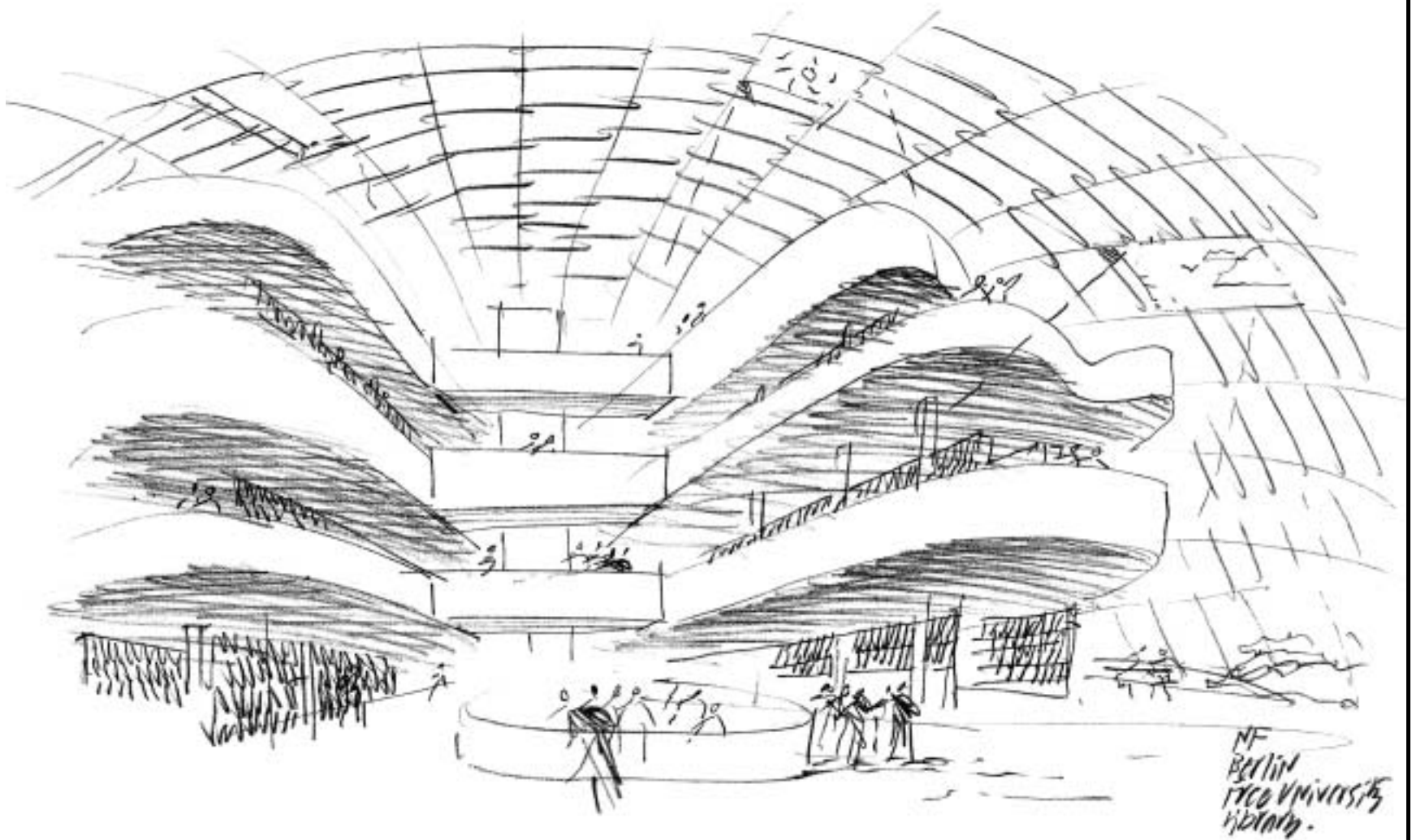


Außentemperatur zwischen  $+16^{\circ}$  und  $+24^{\circ}$  C









MF  
Berlin  
TCO UNIVERSITY  
LIBRARY.









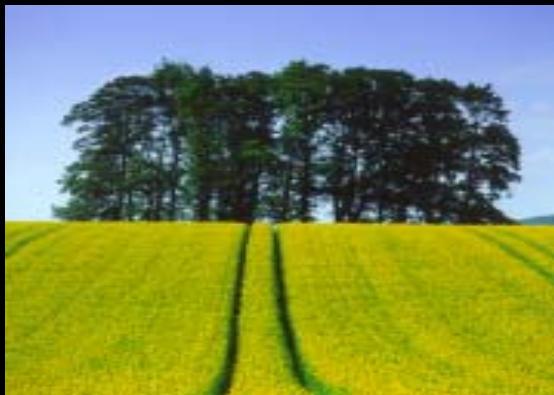
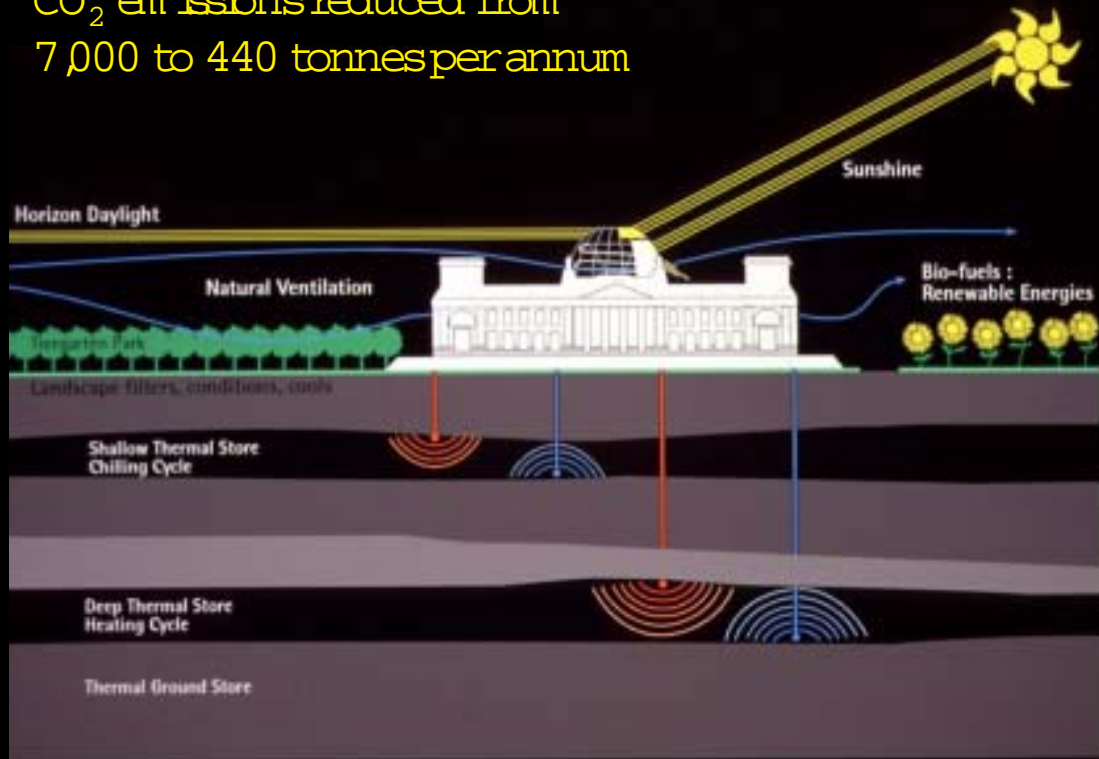








CO<sub>2</sub> emissions reduced from  
7,000 to 440 tonnes per annum



## Life cycle of materials in a building: the principle stages

Disposal

Waste disposal  
incineration

Raw material extraction

Manufacture

Production and  
distribution

Re-use or  
recycling

Construction  
installation

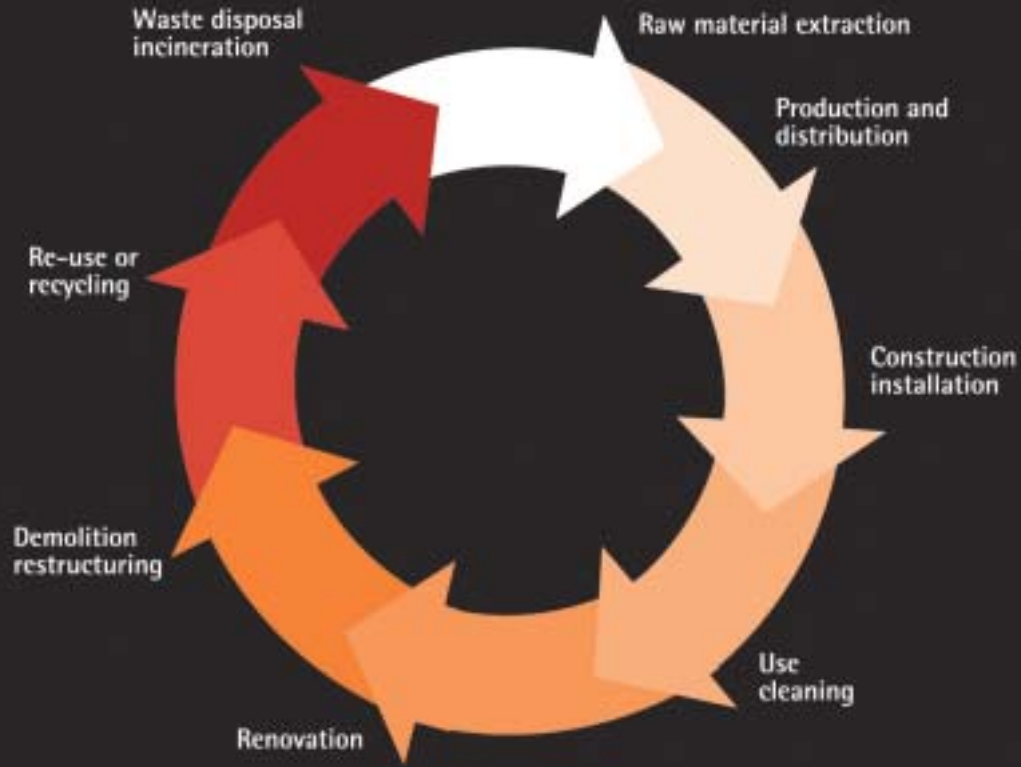
Demolition  
restructuring

Use  
cleaning

Maintenance

Renovation

Use



REDUCTIONS in  
ENERGY CONSUMPTION

Building Form and Orientation

Passive  
Elements

Active  
Systems

Ideal Orientation and Form Response  
Natural Light and Ventilation

Passive Thermal Systems  
High Facade Thermal Performance  
Sustainable Materials

Responsive Shading  
Activated Blinds

Ultra Low Energy Plant and Equipment  
Building Integrated Photovoltaics  
Sophisticated Building Control Systems  
Heat Recovery Systems

€

£

£

INCREASES in  
BUILDING COMPONENT COST













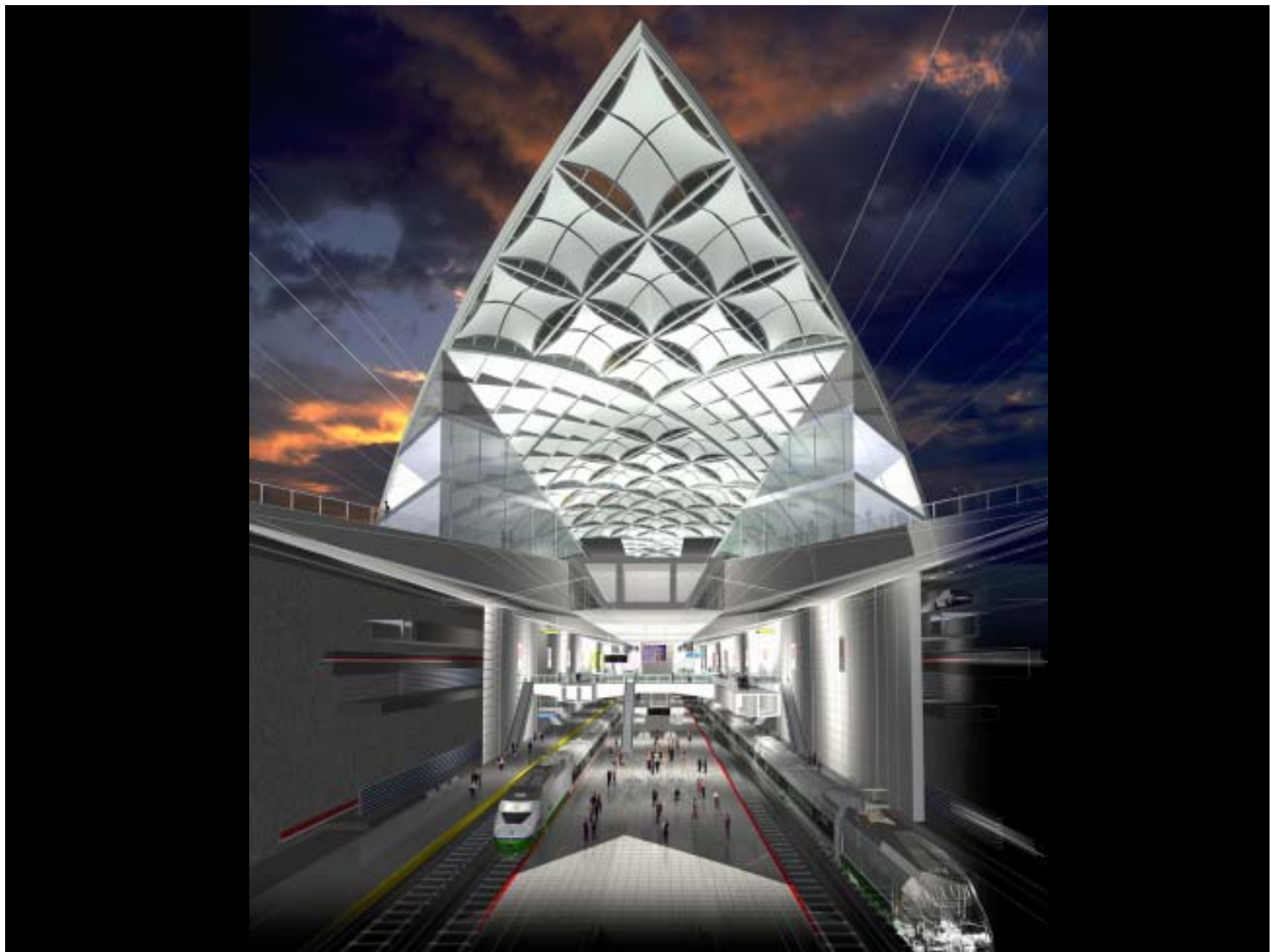


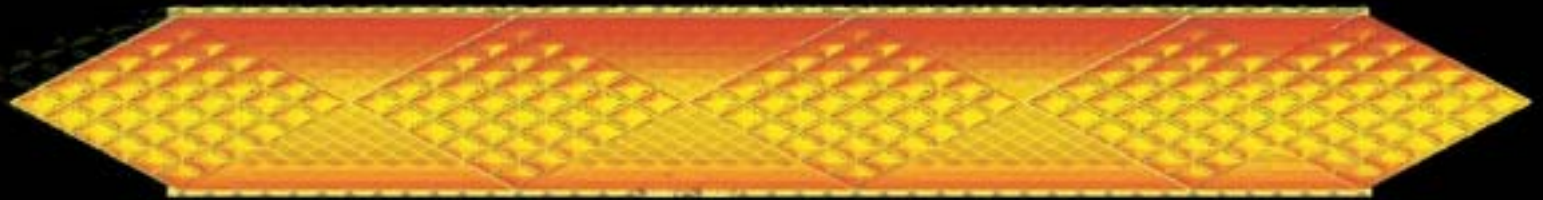










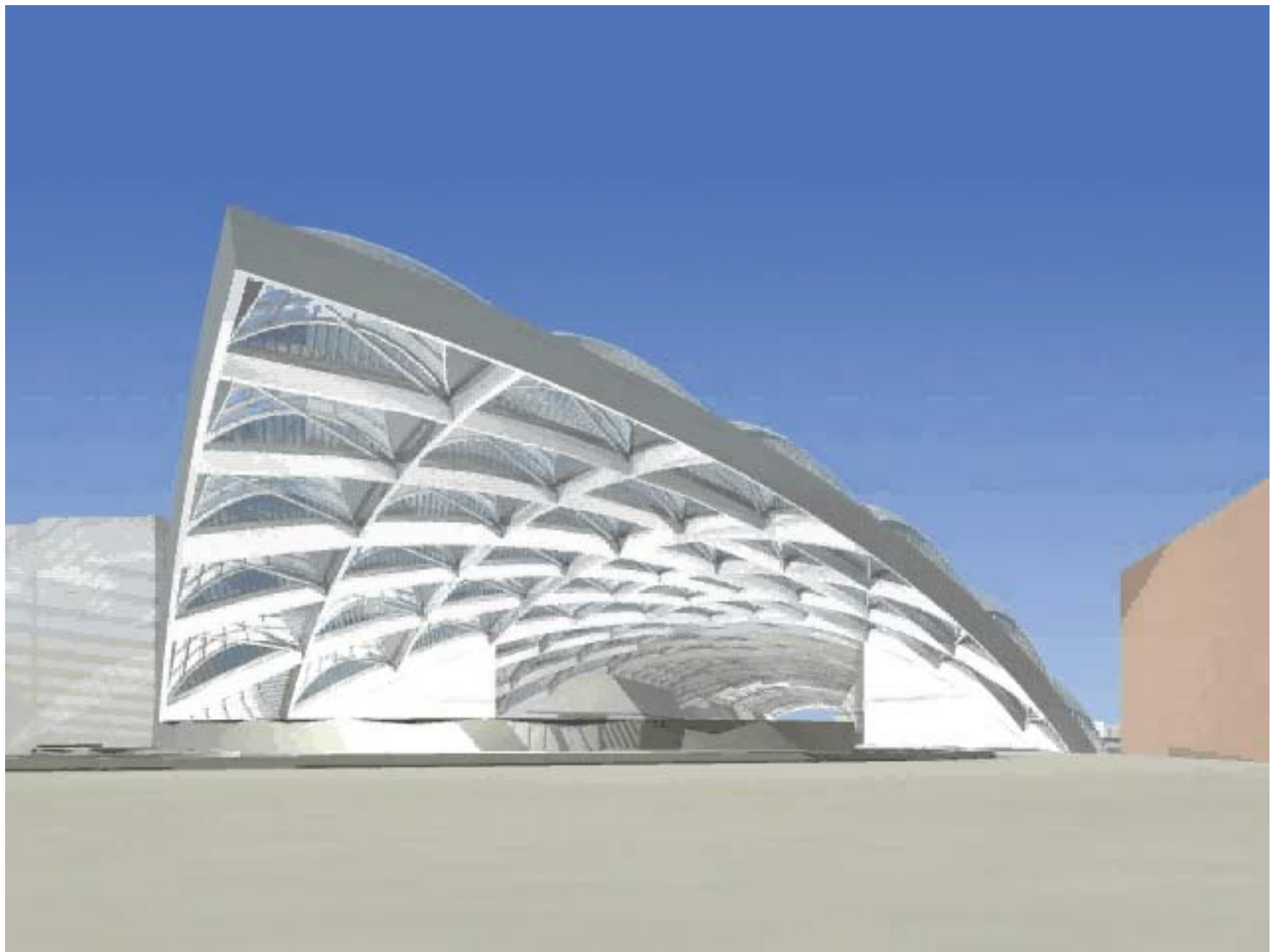


Photovoltaic production

329 000 kW h/year



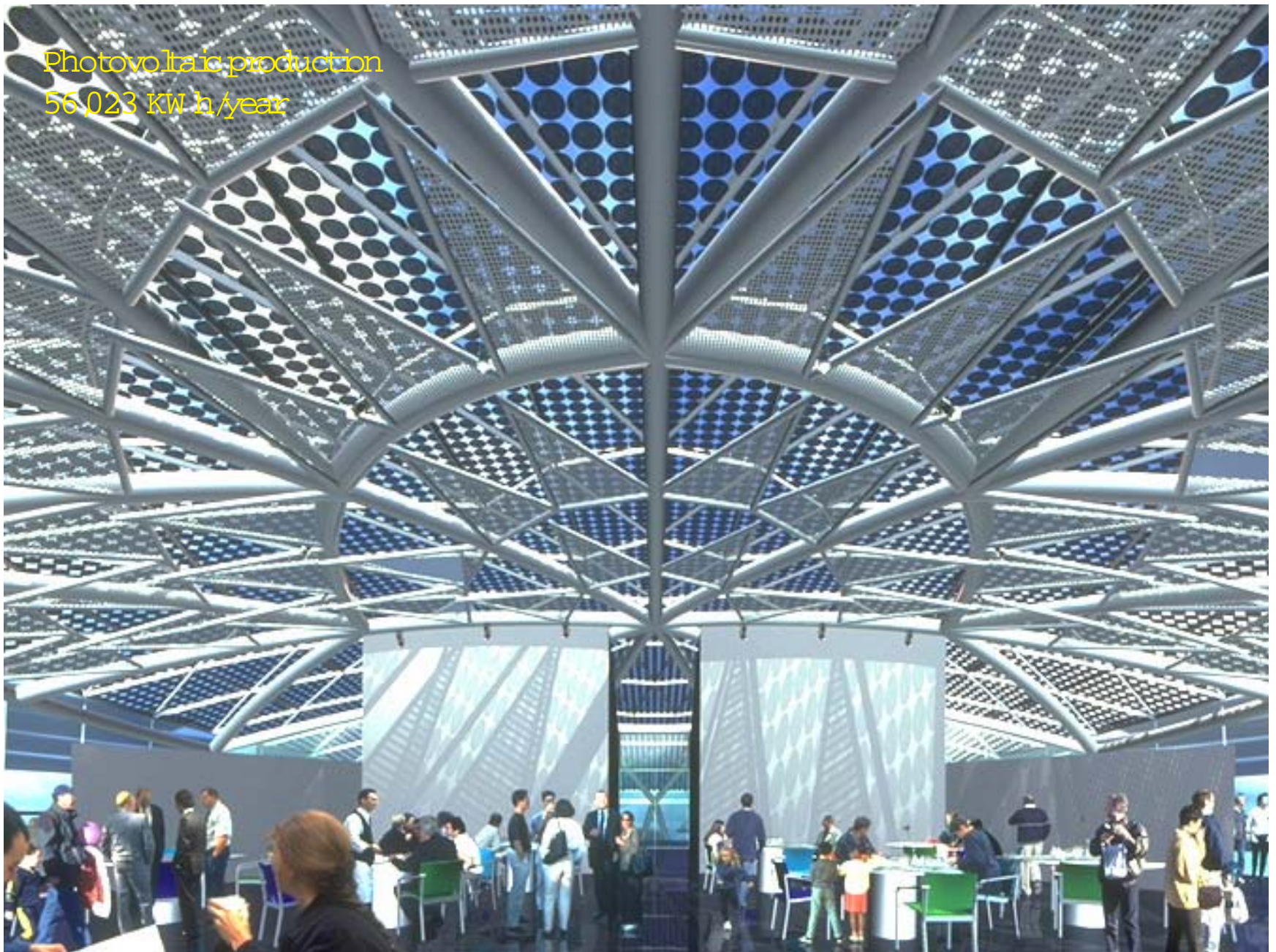








Photovoltaic production  
56,023 KW h/year





Photovoltaic production

67,000 kW h/year









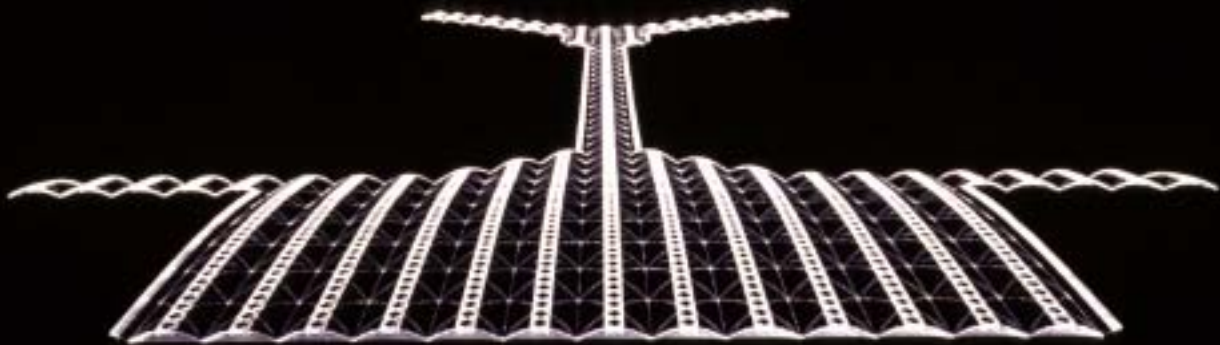














13.53.42

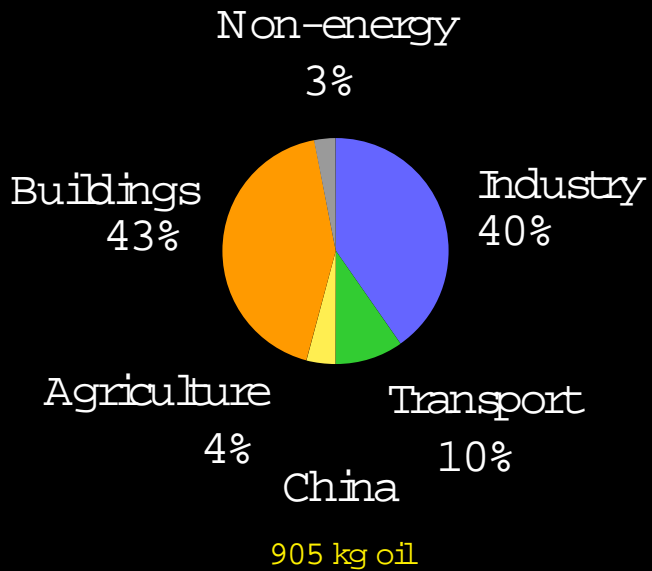




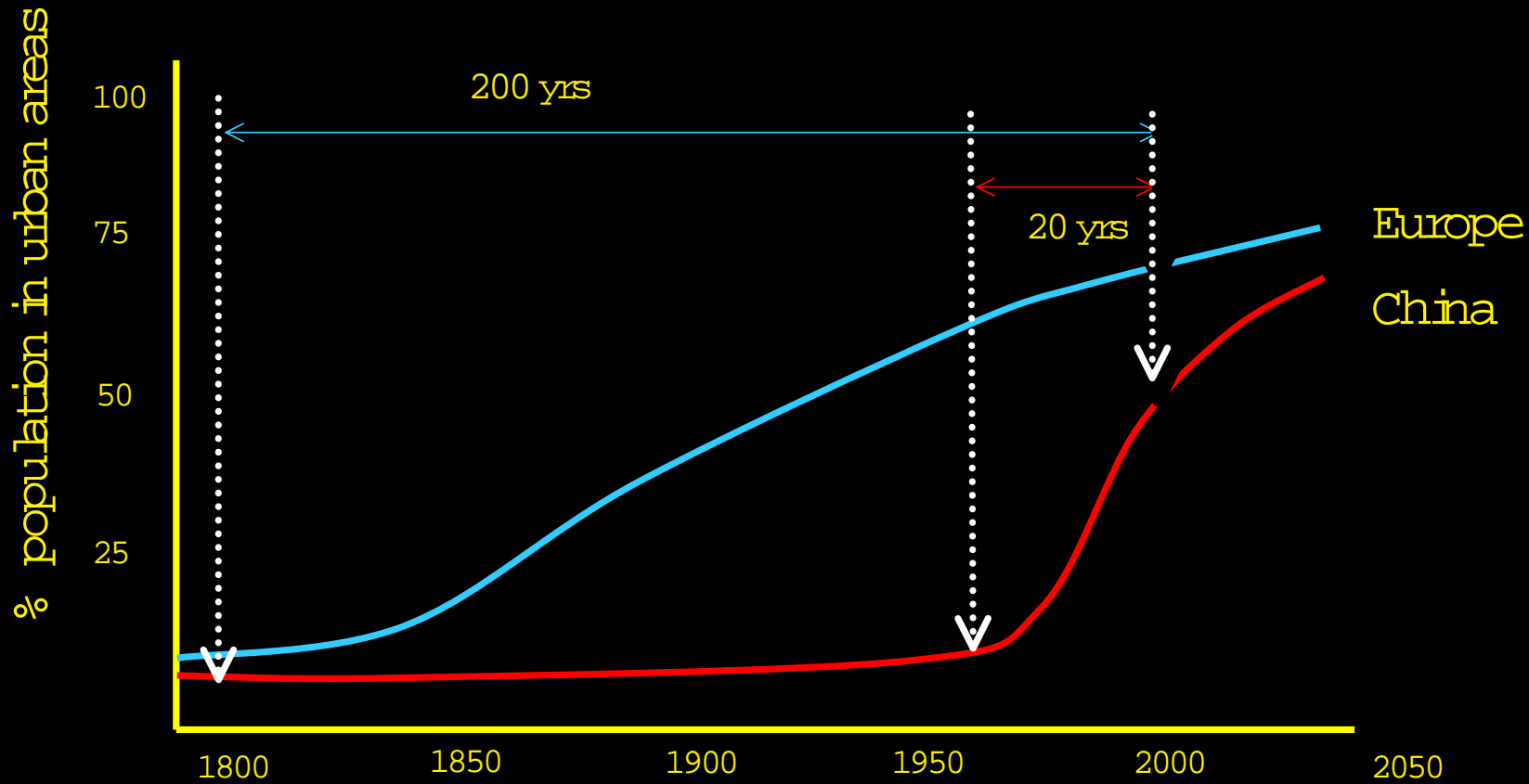




# Comparative energy consumption per capita







Migration from rural to urban living in Europe and China



1950





2015





# Changes in Transport Modal Split

