

Academy Mont-Cenis

Kourda & Perraudin Architects
And
Hegger, Hegger Schleiff

Herne-Sodingen, Germany

Built: 1991-1999



Patty Russo

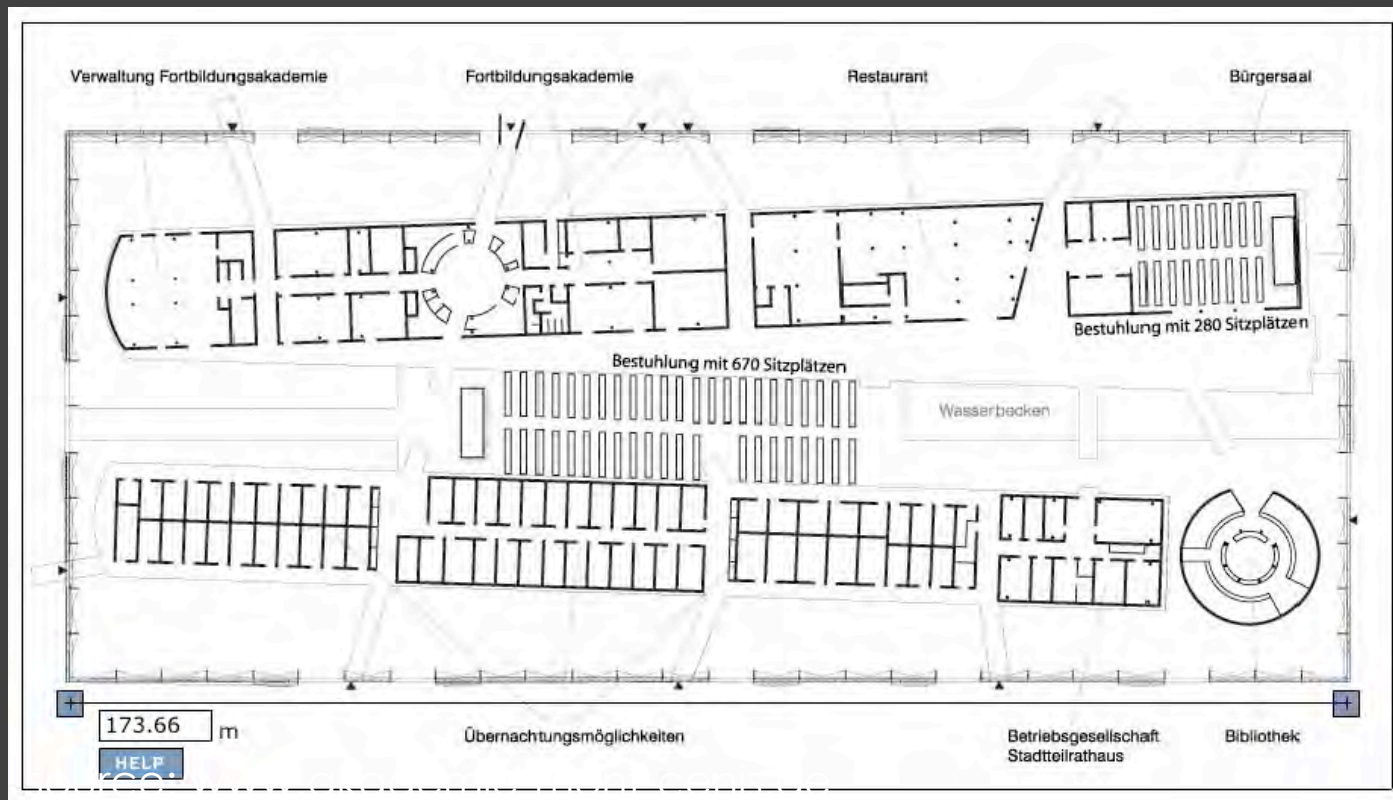
Source: www.oja-services.nl

Location

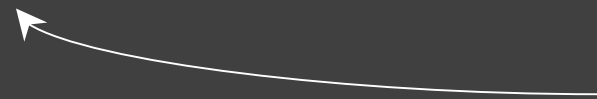


Source: google earth

Mont-Cenis: Floor Plan



570ft

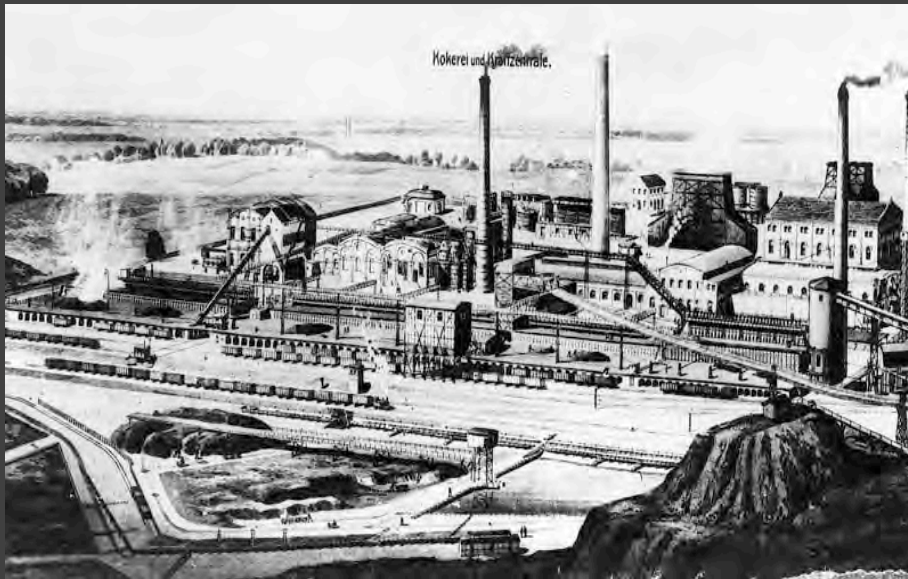


- Advanced training center
- Government facilities
- Conference space
- Hotel
- Restaurant
- Library

Source: www.akademie-mont-cenis.de

Mont-Cenis Mine

- North Rhine primarily industrial region
 - heavy mining
- Mine closed and razed in 1980's
 - Left contaminated land and mine gas leakages
 - Area lost financial resources with closure



Source: www.akademie-mont-cenis.de



Mont-Cenis' rebirth

- The International Building Exhibition Emscher Park (IBA) renovated houses, cleaned up rivers and land, and converted industrial sites into cultural and recreational uses in the former industrial region, renamed Emscher Park.
- Academy Mont-Cenis is one significant part of this larger plan to “re-naturalize the landscape.”



www.fotoliedtke.de

Academy Mont-Cenis: Materials and Construction

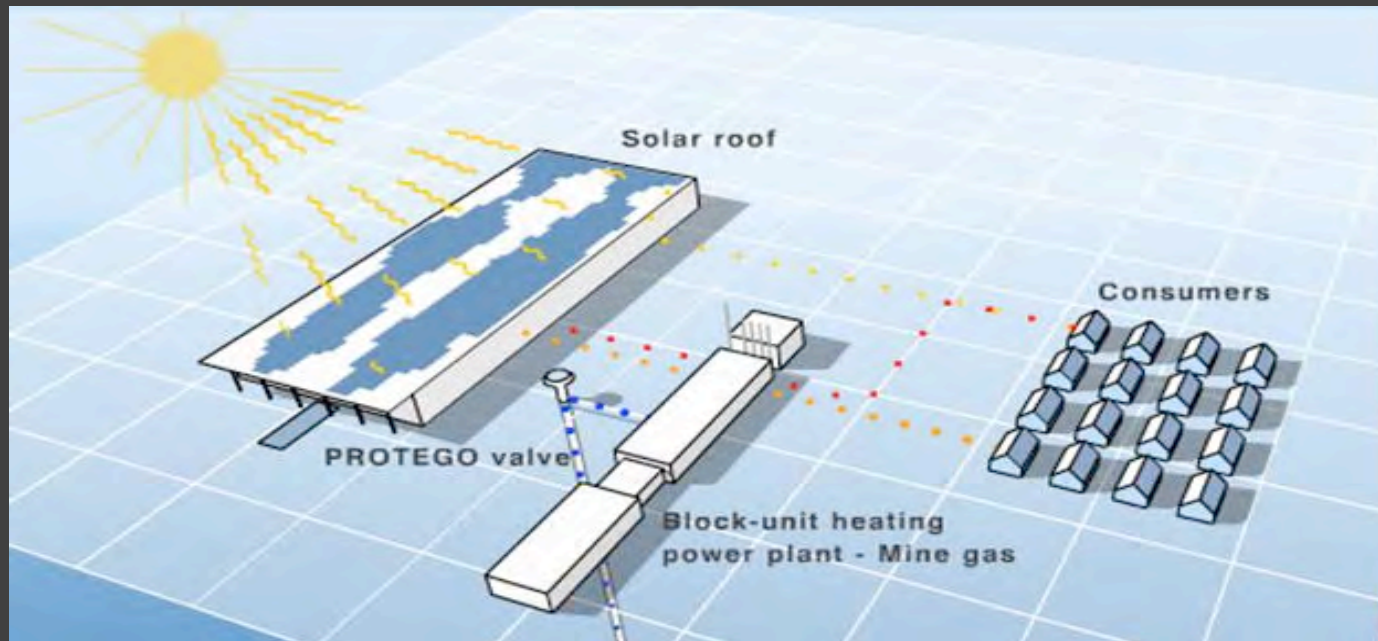
- “glass envelope”
 - Incorporated natural ventilation
 - Maintains the heat of internal structures
- Local Spruce
 - Support beams
 - Joints designed to allow for sway
- Use of mine debris
 - Lifted above street level to avoid building into old mine shafts.



Source: www.oja-services.nl

Academy Mont-Cenis: *Energy Park*

–Provides enough clean energy to power 130,000 homes



Source: www.akademie-mont-cenis.de

- Mine gas
 - Diverted into cogeneration station; produces electricity and heat
- Solar Power
 - 3800 PV cells
 - Roof at 4° southern tilt to maximize sun
 - Energy stored in power station

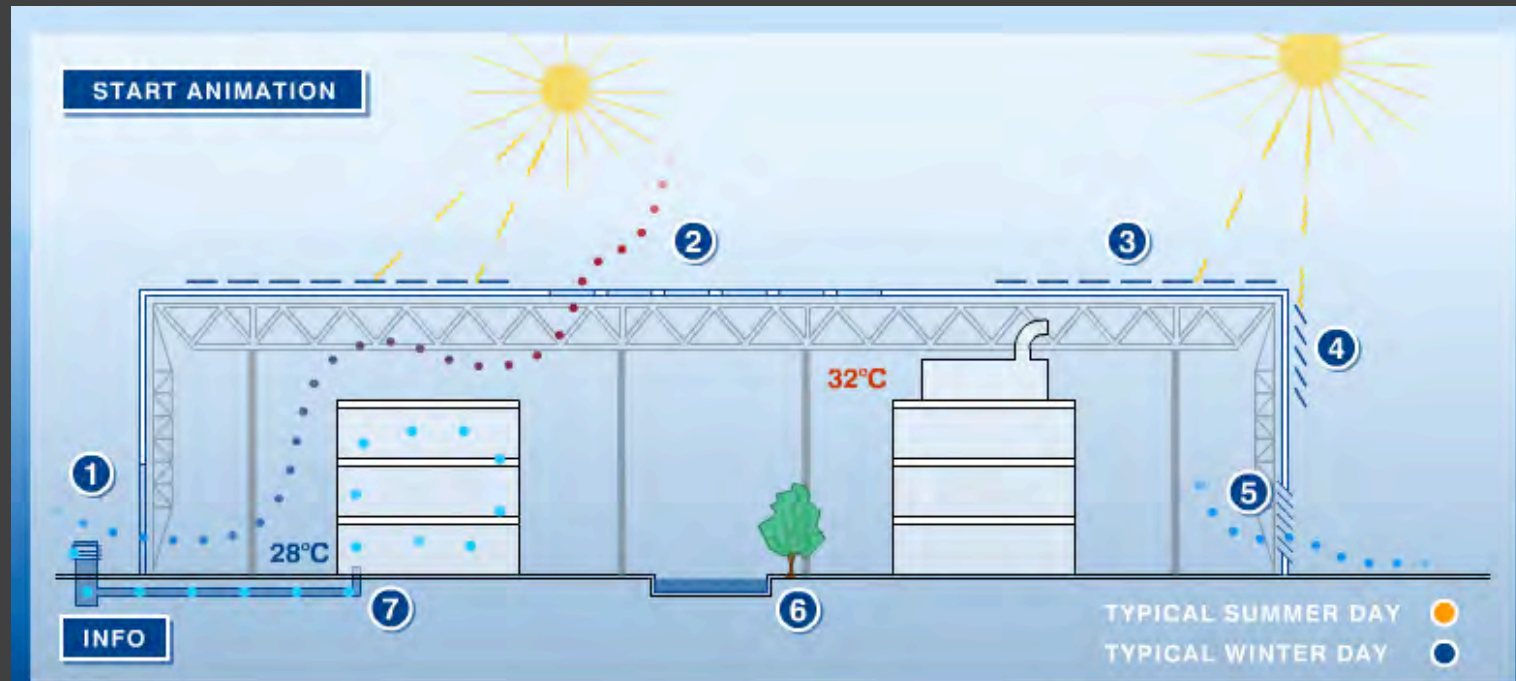
Academy Mont-Cenis: *Photovoltaic roof*

- Intermittent PV panels
 - Allow light to enter
 - Additional ventilation



Source: www.oja-services.nl

Academy Mont-Cenis: *Energy Efficiency* (*Summer*)

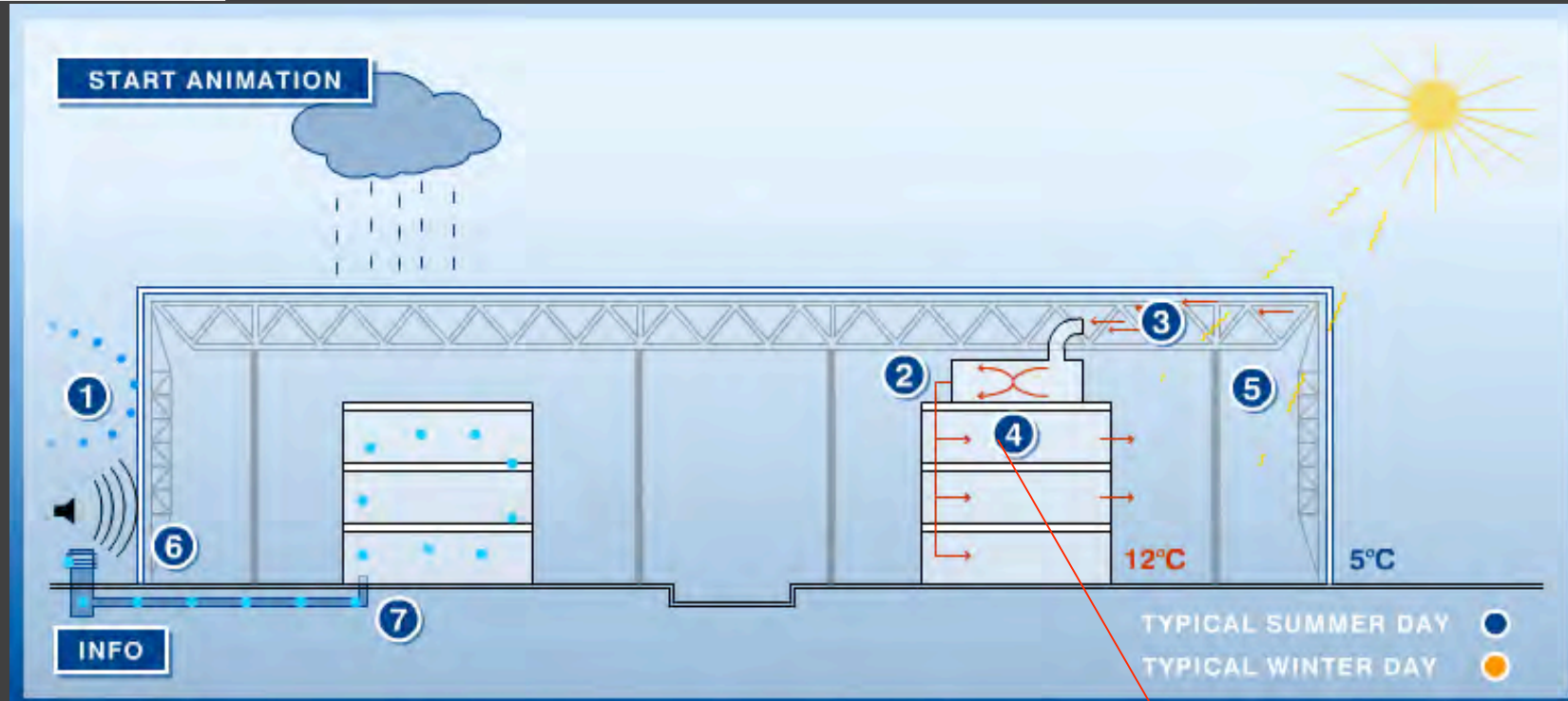


Source: www.akademie-mont-cenis.de

Summer:

1. doors open for natural ventilation
2. hot air rises and escapes through open roof lights drawing fresh air in to lower level of building.
3. Photovoltaic cells produce energy
4. Photovoltaic cells (solar shades)
5. Fresh air is drawn in from shaded areas outside of glass house
6. Vegetation and water features shade and evaporatively cool Glass house
7. Fresh air drawn in through underground air duct

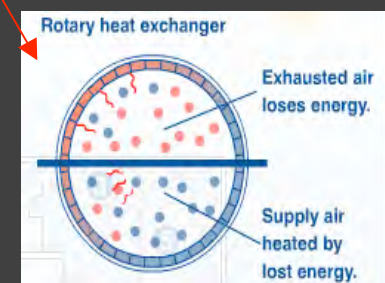
Academy Mont-Cenis: Energy Efficiency (Winter)



Source: www.akademie-mont-cenis.de

Winter :

1. wind deflected from Glass house; prevents heat loss from inner buildings
2. heat reclaimed from exhausted air
3. fresh air drawn in – preheated by glass house
4. Glasshouse heated by sun and by heat loss from buildings
5. Glass house protects microclimate from noise
6. Fresh air drawn in through underground air duct



Academy Mont-Cenis: Water Management

- Collects rain water in an under ground cistern
 - Used for irrigation, showers, toilets and roof cleaning



Soucre: Steffen Lehmann

Academy Mont-Cenis: *Indoor/Outdoor*

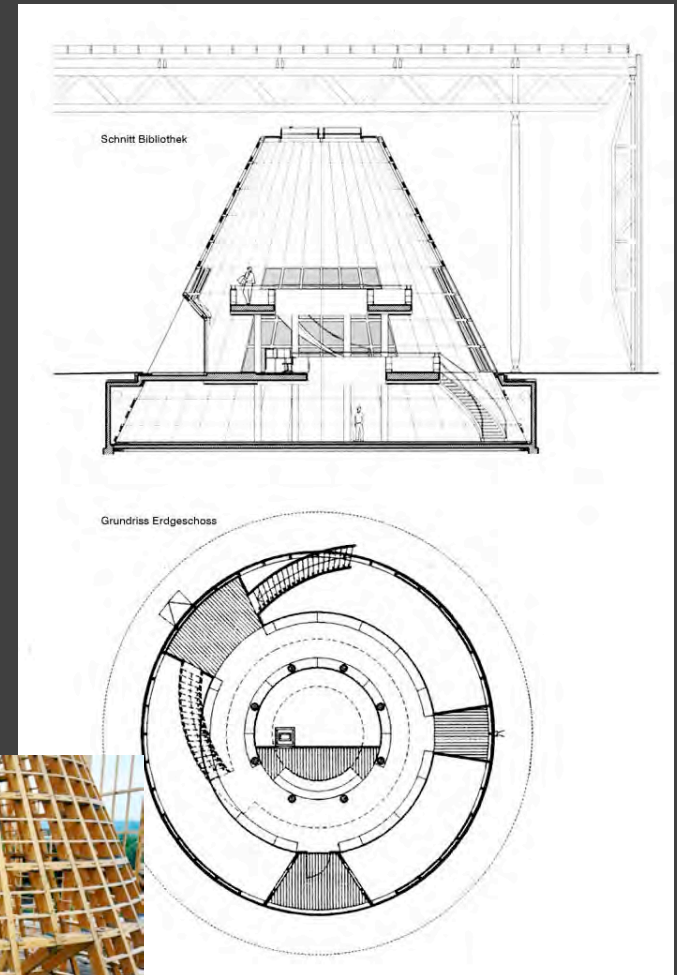


Soucre: www.treehugger.com

- Re-creates the climate of Nice, France
 - follows the natural seasons of the Mediterranean
 - Warmer temperature inside glass envelope without use of traditional heat and insulation materials.
 - Not impermeable to rain
 - Vegetation and water regulates climate
- Glass shields excess noise

Academy Mont-Cenis: *Interior Features*

- Library mimics mine shaft



Academy Mont-Cenis: Conclusions

- Visually stunning
- Innovative and complete design
- Beyond sustainable
- Indoor/outdoor experience in one
- Engages public by having public facilities



Source: www.treehugger.com