Global Campus Energy Manager’s Workshop

Designing efficient buildings

Universitat Autònoma de Barcelona (UAB).

ICTA-ICP’s Building.
Global Campus Energy
Manager’s Workshop
The UAB at a glance

• Year of construction: 1969 (40% of the buildings were built 45 years ago)

• Occupancy: 40,000 people (students, staff, and teachers)

• The Campus:
  642 acres Bellaterra Campus
  50 buildings. 42 buildings in the Bellaterra Campus and 8 in other Campus.
  6M sq feet area

• Campus Budget: $28M, $5M (Utilities)
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

General data:
Built area: 16,000 sq feet
Budget: 9,000,00 $
Execution time: May 2012 – January 2014
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

Four separate “buildings”
High quality natural lighting
Natural ventilation system that dissipates the internal thermal load
High insulation
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

Structure

- High thermal inertia
- Incorporates the ventilation system and the heating system which is a radiant floor system
- Second skin, mobile polycarbonate, takes advantage of natural lighting and ventilation
- Preconditioned air by Canadian wells
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

Natural lighting

- Occupancy and lighting sensors
- Second skin, mobile polycarbonate, takes advantage of natural lighting
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

Bioclimatism: Indoor climates and management

- Indoor windows are opened by the control system to guarantee the natural ventilation
- Fans
- Preconditioned air by Canadian wells
- Structure incorporates the ventilation system and the heating system which is radiant system
Global Campus Energy Manager’s Workshop
ICTA-ICP’s Building

Water cycle

- Reduced demand due to elements efficacy: dry urinals, low-flush toilets, with aerators and automatic faucets
- Rainwater: toilets and irrigation.
- Greywater: toilets flushing water.
The structure is activated by the geothermal pump exchanging temperature with the terrain.
Global Campus Energy Manager’s Workshop

ICTA-ICP’s Building

Certifications:

Spanish Certification Class A

LEED Gold Certification (72 points)
Gabriel Cardeñosa Arrayás

UAB’s Energy Manager

gabriel.carlenosa@uab.cat