Case Study: South America/America/Chile

Universidad de Chile, Santiago, Chile.

General Description

- Founded in 1842, the Universidad de Chile is the main and oldest institution of higher education owned by the State in Chile, with a national and public character. The Universidad de Chile is a research-oriented institution, and it is organized in 14 Faculties. The Faculty of Physical and Mathematical Sciences (FCFM, for its acronym in Spanish), in which this case study is focused, hosts the School of Engineering and Sciences. The FCFM has 222 full-time professors, 1,200 graduate students and 4,900 undergraduate students.
- The Beauchef Campus, where the FCFM is located, comprises 13 Academic Departments – Astronomy, Materials Science, Computer Science, Physics, Geophysics, Geology, Civil Engineering, Mining Engineering, Electrical Engineering, Industrial Engineering, Mathematical Engineering, Mechanical Engineering, and Chemical Engineering and Biotechnology –, distributed in 24 buildings, and totalizing 130,000 m² of construction over a ground surface of 42,000 m². This includes the new building complex, Beauchef 851, with 50,000 m².

Target beneficiaries

Community largely at university and regional level, but also at global level.

UNEP thematic priority area

Climate change; resource efficiency (sustainable consumption and production).
Before greening

The area of the new building was previously occupied by an arrangement of small constructions, which were used mainly as classrooms. There was not an architectural harmony among those buildings, as they were built to satisfy immediate needs without planning.

In addition, the FCFM did not have an office or person in charge of sustainability-related initiatives at the Campus.

After greening

The new building complex Beauchef 851 has been designed and built with high sustainability standards, including technologies such as a grey water recycling system, a solar PV plant of 20 kW, solar thermal for heating, efficient lighting and air conditioning, and a CO₂ monitoring system.

In addition, an Office of Engineering for Sustainable Development (OESD) was created, which is dedicated to foster sustainability in teaching, research, operations, and outreach at the FCFM. This initiative has full support from FCFM authorities, who have granted space, a committee and funding for the OESD.

Among the projects the OESD Office is currently developing are: a new sustainability minor for undergraduates, promoting the incorporation of sustainability-related contents in undergraduate courses, and the compliance of a Cleaner Production Agreement, signed between the Head of the University and the Chilean government. The OESD also has active collaboration with the Architecture Office of the Campus, consequently most of the retrofit or new buildings are incorporating sustainability concepts. Additional ongoing projects of OESD are a carpooling platform, the carbon footprint measurement and an energy audit. Finally, a recycling system for the entire Campus is being designed and will be launched during the second semester of 2014.

Evidence of greening

LEED Gold rating under way (full compliance expected in December 2014).

Size of implementation

The new building complex Beauchef 851 has 50.000 m², while the OESD Office has 40 m².

Cost of implementation

The cost of the LEED certification for Beauchef 851 is US$ 2.100.000; the budget of the OESD Office is US$ 70.000 per year; the carpooling platform had no cost, as it was provided freely by a private company; the carbon footprint certification cost is US$ 5.000; the energy audit has had a cost of US$ 8.000; and finally the recycling system is expected to cost around US$ 120.000.

Time of implementation

The time of implementation of the Beauchef 851 project has been of 5 years.
Contact

Claudia Mac-Lean (cmaclean@ing.uchile.cl), Luis Vargas (lvargasd@ing.uchile.cl).