

CASE STUDY REPORT

Oost Campus

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Oostkamp, Belgium
2012

LOCATION: OSTENDE, BELGIUM

LATITUDE/LONGITUDE: 51.2°N, 2.87°E

ELEVATION: 5 m



Oostkamp, Belgium is a coastal city with an oceanic climate. North winds keep the temperatures lower than inland Europe during the summers while winters remain cool. On average, the annual temperatures remain within a narrow range of -5°C - 27°C while precipitation is evenly distributed throughout the year with approximate 50% cloud coverage.

Environmental Building Design Strategies:

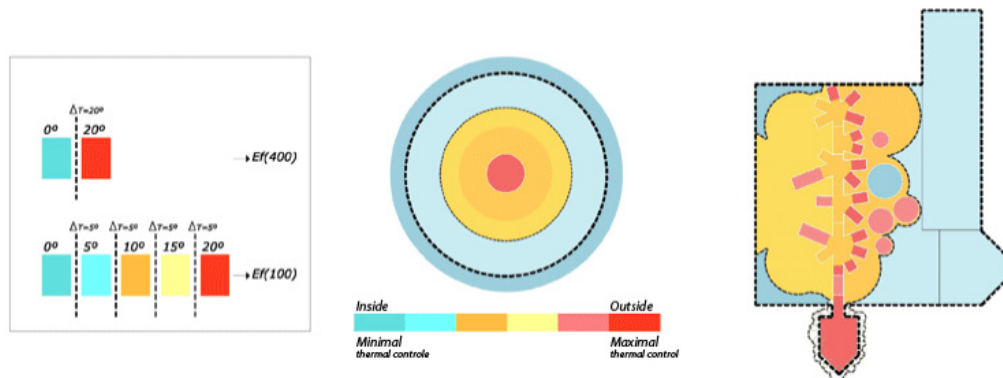
1) Oostcampus is a rehabilitated industrial Coca-Cola factory from the 80s. The reuse of an existing building preserves gray energy, i.e. the energy to build from scratch. The firm reused the foundation, bearing structure, outerskin, insulation, waterproofing, electric power station, heating plant, water ducts, fire hoses, and drainage.

As the insulation is a remnant from the 80s, serving a warehouse, it is insufficient for the building's new purpose, a civic and communal center. The warehouse may not need as strong an insulation as the movement of people and objects as well as the machinery will generate heat. However, in a civic center, there is less movement and people reside in one spot longer. The insulation from the factory is insufficient for the purposes of the civic center.

2) To remedy this, the firm created a thermal onion, layers of skins within the building. This takes away the need to warm the entire building. The first skin is the skin of the warehouse. As it provides little insulation, upon entrance, the offices are in smaller crates that are more thoroughly heated.

3) The wind generates electricity, powering LEDs to light the space.

There is not a direct positive link between the source of power and the heat flow of the building. It can be said that the artificial light, which to some extent heats the space, is derived from a sustainable source.



Thermal Onion: Layers of thermally controlled areas

At the moment, the wind turbine in the background of the building only powers the LEDs in the building. The warmest areas, as indicated in red in the diagram above, are heated by other energy sources. I would try to find alternative ways of heating these areas that could reduce the net energy. As they are interior spaces, they could perhaps benefit from solar gain. As for the insulation of these areas, they are in an optimal position as their immediate environments are moderate temperatures. This means that they do not require as stringent a barrier as they would if they were exposed to the outdoors. In fact, the firm built the office spaces from some insulation, typical wood sheathing, and glass.