Circular Voids
Energy-efficient office building, Holderbank, Switzerland

Summary and appraisal by the jury
This project to build a 15,000 square meter competence center includes research laboratories, office space, and generous training facilities. Perfectly circular arcs cut through ceilings and floors crosswise the building, creating opportunities for employees and visitors to meet one another while also providing a sense of the building's size from within. Inner and outer load-bearing structures of the building are mutually-dependent, voids and passive solar heating allow a climate concept with a minimal technical installation with almost no core.

The project displays a series of outstanding features responding particularly well to most of the "target issues" for sustainable construction – merging architectural and technical considerations at the forefront of the discipline. The energy concept, for example, using cutting-edge surface geothermal heat recovery, absorbs, and thermal collectors, finds an appropriate spatial expression that would not be possible with standard systems. Here, architecture benefits from technological advances, without relinquishing its autonomy as an art form.

Notwithstanding the project's contributions to the advancement of the field, the members of the jury unanimously agreed that it must be withdrawn from the competition due to a latent conflict of interest. The design was awarded first prize in an architectural competition organized by Holcim for its proposed new center for research and development in Switzerland. Considering the proximity between the company and the Holcim Foundation with its Awards competition, the jury decided to remove the project from the award procedure. Nonetheless, respecting the exceptional value of the project, the jury conferred the first ever "Honorable Mention" of the Holcim Awards.

Sustainability concept
One of the central points of the design is the air ventilation and climate concept, which allows through-adaption of the whole system indoor climate control with almost no lines. By reducing the need for technical installation, the structure has a dramatically reduced service core. The building will fall below the requirements of the 2,000 Watt and CO2 society.

The shape of the building has an excellent ratio of surface to volume. Together with the orientation of the building, the isolated and closed facade with around four-fifths glass, will reduce the use of energy to a minimum and will achieve the Swiss passive housing standard (Minergie). The circular escape balconies will create shading in summer when the sun is high. During winters the elevated balconies will let the sun into the building, warming up the interior with direct sunshine. All windows and doors have efficient sun protection.

The constant temperature of the building through the whole year will be achieved by activating the mass of the building (TABS). The concrete slabs are thermally activated roof's thermal insulation will allow a U-value of 0.08 W/m²K. The windows are equipped with triple glazing that has an average U-value of 0.35 W/m²K.

Climate control of the whole building with high efficiency waste heat recovery (contralakit and decontralakit) and a heat pump with a very low flow temperature ensures that the energy requirement can be reduced to an absolute minimum. A geothermal network with a temperature of 12°C will source the energy system. Photovoltaic panels are placed on the roof with an optimal direction to the south and 35° pitch, thereby meeting a significant proportion of annual energy consumption of all technical installations and the heat pump.

The building has a very good envelope to energy reference area ratio (A/AE < 1.0). The primary requirements of the passive Minergie P of the building envelope are fulfilled. There will be a detailed calculation optimization of the entire energetic system. According to the guidelines, the building will be ventilated with the efficiency of the entire technology optimized in the process of design. The opaque facade is built with a U-value of 0.85 W/m²K. The roof's thermal insulation will allow a U-value of 0.08 W/m²K. The windows are equipped with triple glazing that has an average U-value of 0.35 W/m²K.

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