

Pas de cinq

Energy, Materiality, Economy, Use, and Space
By aggs.architecture, Zurich, Switzerland



From left: Hanspeter Oester, Manuel Scholl, Sarah Graham, Marc Angélli, Reto Pfenninger.



From the outset, the International Union for Conservation of Nature was a special client. As the world's oldest and largest environmental network, IUCN is a global player in the fields of conservation and sustainability. With members including more than 1,000 NGOs and governmental organisations as well as almost 11,000 volunteer scientists in some 160 countries, it is difficult to conceive of a more exciting organisation with which to collaborate on the expansion of their headquarters in Gland, near Geneva, Switzerland. The Union asked for a radically progressive building to be achieved with very limited resources – requiring a type of modern alchemy or outright magic.

Developed directly from IUCN's mission and approach, three principles formed the conceptual strategy for the building project. First, the conservation of natural resources was to be achieved through environmental sustainability, focusing on energy and materiality. Second, an economy of means was a fiscal as well as a philosophical principle in the development of the architecture. Third, a highly collaborative design process, reflecting the essential methodology of the institution, maximized the quality of the working space. Together, these principles led to the interplay of five points in a type of dance, or *pas de cinq*, of energy, materiality, economy, use, and space.

In research, work builds upon previous work, looking beyond its current state toward its own future evolution. Architects, among others, tend to work in series with experiments from one project forming a base of departure for a following work. For *agps.architecture*, the mandate to set a benchmark in sustainable design for IUCN occurred within a sequence of environmentally designed projects. As early as 1989, the office established a definition for sustainable design in the Esslingen Town Centre, that being ecologically conscious land, energy, and materials use.

Subsequently, the Midfield Terminal (Dock E) at the Zurich International Airport and the Zurich International School in Adliswil, Switzerland, explored strategies for sustainable development of buildings through geothermal energy for heating and cooling, the reduction of duct work, decentralising mechanical systems, and use of concrete as thermal mass. These projects also explored reductive materiality through eliminating additive layers and exposing the primary construction of concrete, steel, and glass. Both were based on an economy of means, and both developed space through careful programmatic assessment. The buildings set the stage for more radical implementation in the IUCN project. Reciprocity among energy, material, economic, functional, and spatial considerations progressed still further in subsequent projects at the building and urban scales utilising concrete building mass and geothermal systems supplemented by the sun. These proposals form an ongoing experiment with architecture perceived as a type of laboratory in which ideas and techniques are reframed, tested, rejected, explored, and redefined, and in which the IUCN project played an important role.

In the new IUCN facility, environmental design is implemented through an economy of means, generating a straightforward albeit generous architecture. Highest Swiss environmental standards (Minergie-P and Minergie-Eco) and LEED Platinum ratings are being implemented. Geothermal heating and cooling utilise the constant ground temperature of the earth 180 metres below using heat exchangers with heat pumps. Decentralised airboxes along the building's exterior walls bring in tempered fresh air. Ceiling panels with CO₂ sensors provide consolidated building services, including heating, cooling, acoustics, lighting, fire sprinklers, and air return. The sensors activate air exchange only when the space is in use, making operation highly efficient. A rooftop power plant is comprised of

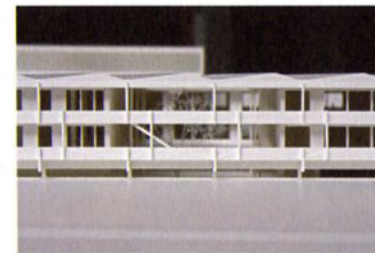
From left:
Existing building
interior;
turning the
building inside-out;
the new building
exterior.



photovoltaic panels; rooftop rainwater is stored and employed for grey-water use. Peripheral balconies and adjustable exterior blinds prevent overheating in summer and allow passive solar gain in winter while maximising natural light.

The building's materiality focuses on exposed concrete which is used for cores and ceilings. Both recycled concrete and insulating concrete are exposed, depending upon location. A key factor of the architectural concept is that building components serve multiple purposes and anything unnecessary has been eliminated. The concrete provides a high thermal value, and it expresses a language of intentional roughness, reflecting the economic value placed on sustainability rather than on refined materiality. Working in collaboration with the Swiss concrete industry, various means were laboratory tested to enhance the compressive strength of insulating concrete, including recycled aggregate within the concrete mix. Also investigated were the lifecycle of materials, recycling, and use of local renewable materials throughout the building.

One enters IUCN through the gap between the old and new buildings in a spatial compression created by a cluster of adjacent activities: a library open to the public, cafeteria, stair and hallways, and a rooftop volume hovering above. The original building is organised around central atria filled with tables, machines, plants, books, and the detritus of people working – a hodgepodge of things and activities – all part of the bustle of work in progress. This active and informal space was conceptually inserted into the headquarters expansion but with a reversed reading. While the original building's exterior is largely closed, the new is open, revealing the inner workings of the organisation. Two large courtyards penetrate the simple box of the extension, each with varying area and depth. One extends down



into the parking level, bringing light and air into that semi-below-grade realm. The second courtyard is an outdoor event space, a centre for communal activities. Offices are located along the outside walls, surrounded by exterior balconies which double as fire exiting, thus eliminating the need for rated corridors. The circulation area between the offices is double-height flexible working space, similar to the atria in the existing building, filled with natural light and promoting social interaction. The office walls are non-structural, easily reconfigured as needs change over time.

Formally linked to the folding of the roof is a play of structure subtly expressed on the exterior façade. Staggered steel columns which span only single floor levels and alternate as tension and compression members, plus structural balustrades acting as beams, carry the loads to the ground in an indirect, rhythmic path.

Floating over a north-south folded rooftop sea of photovoltaic collectors is the Holcim Think Tank, a separate and special meeting space. This is the place where ideas are developed in interdisciplinary workshops while looking toward Lake Geneva and the Swiss and French Alps beyond. The big view can hopefully contribute to the making of big ideas. IUCN is by definition a complex organisation with a clear mission, with its diverse membership looking toward solving essential global challenges. The new headquarters building implements and visualizes IUCN's belief in sustainability, its fiscal restraint, as well as its open working methodology in a rich sequence of spaces, proving that something can be made out of nothing – that alchemy in fact works.