

Manuela Roth

CONCRETE

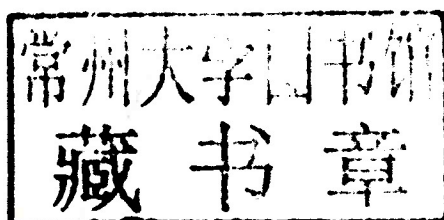
Architecture & Design



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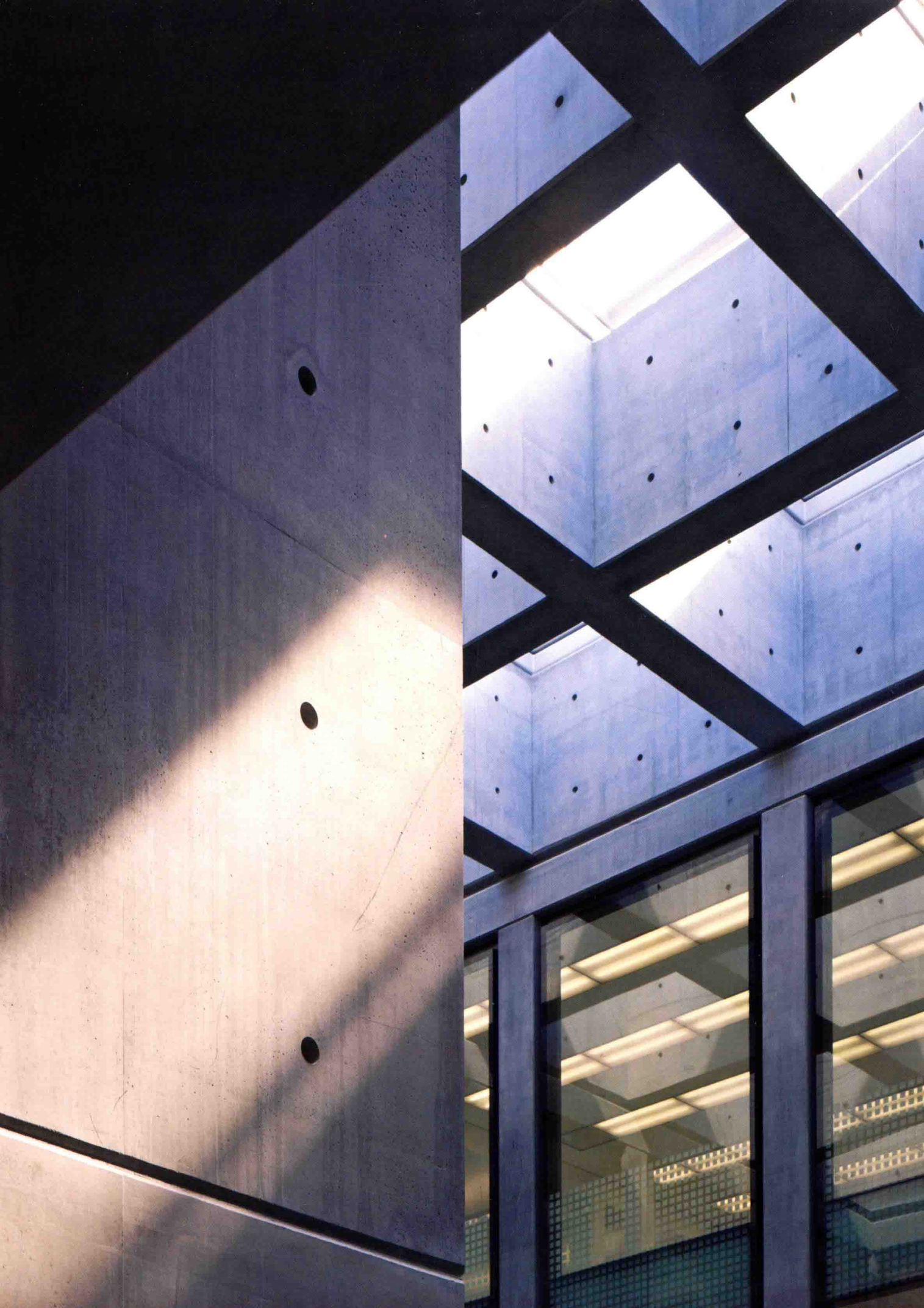
Preface

Concrete is as fascinating a building material today as it was one thousand years ago. The ancient Romans already used a type of concrete, the “Roman Concrete”, which is known today as “Opus Caementitium”. A mixture of quicklime, water and sand, this mortar was distinguished by its high resistance to pressure. Among other buildings, it was used for the construction of the Pantheon in Rome (construction time approx. 118 to 125 A.D.), one of the oldest buildings of the ancient world preserved to this day. The record span width of its cupola was not topped by a new building until 1913.

Today, concrete, in a slightly altered form, is the building material of our time. Thanks to new and improved methods, concrete was established within the past few years as a popular exterior and interior building material. However, not all concrete is created equal, the secret being in the mix. The great variety of mixtures allows adjusting the properties of concrete to the specific architectural requirements. Different compositions result in different types of concrete. Whether the used concrete is heavy or light, pressure-resistant or thermally insulating depends on the properties that are required – great load bearing capacity or safety, thermal insulation, fire protection or acoustic rating. It is no longer only poured, but the latest type of innovative self-compacting concrete can also be shaped at will. The other material characteristics are also constantly developed further – resulting in ultra-high strength concrete that is extremely pressure resistant, or extremely light-weight ultra-light concrete. Light-permeable translucent concrete resembles natural rock walls and is one of the most recent innovations that is very popular for indoor applications. By mixing it with different additives, the material with the formerly cold and brutal image can be modified in such a way that it feels soft and gentle to the touch in a quite unexpected way. The addition of color pigments provides exposed concrete with many colorful faces, while different surface treatments or sheeting give it a wide range of surface structures.

Exposed concrete is cool, understated and timeless. It is unostentatious and functional, yet can be quite decorative. Everything required for its production can be found in nature. Depending on its additives, therefore, concrete is a natural building material that is suitable for all purposes and building types. Presenting a wide scope of different concrete buildings, this book contains purist private homes such as the “House in Abiko”, Japan, prestigious office buildings and corporate headquarters such as the “Yellow Building” in London, but also public buildings (Goethe Gymnasium in Regensburg, Germany) and museums next to sacral buildings. Not only the great variety of designs but also the different construction styles turn concrete into an indispensable architectural material. Customized elements are poured or shaped on location at the construction site or pre-cast at factories, which is even more cost-effective. Its flexible nature makes concrete excellently suitable for combination with other materials. Almost all shapes, whether geometric or sculptural can be made of concrete. It therefore poses practically no limits on the imagination of architects.

Buildings made of exposed concrete require elaborate planning as many factors have to be taken into consideration. However, the effort of architects and engineers is well worth while as vividly demonstrated by the examples presented in this book. The multi-faceted buildings from around the world not only share a common material. The use of concrete turns them into unique works of creative architecture and at the same time into individual, three-dimensional calling cards for their owners and users.

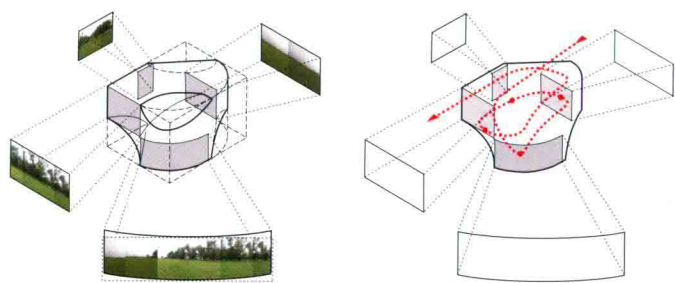


View House

Johnston Marklee, Diego Arraigada Arquitecto

| | |
|------------------|-------------------------------------|
| Location | Rosario, Argentina |
| Completion | 2009 |
| Client | Private |
| Type of use | Living |
| Gross floor area | 361 m ² |
| Concrete used | Exposed concrete, polished concrete |
| Photos | Gustavo Frittegatto |

Built on a 2,100-square meter parcel on the Argentine plains, the 300-square meter View House accommodates two conflicting desires: providing the best view of the landscape without sacrificing privacy. The project's conditions required a compact massing strategy with a minimal footprint. Without traditional yards, every façade becomes primary. Four geometric subtractions at the corners create a shape that is both embedded and lofted, cantilevered and slumped. Inside, continuous spaces spiral up to the roof terrace. The subtractions and the apertures create an interior of paired surfaces and lighting effects. The rough concrete shell, built with traditional local techniques, contrasts with the smooth and polished interior.

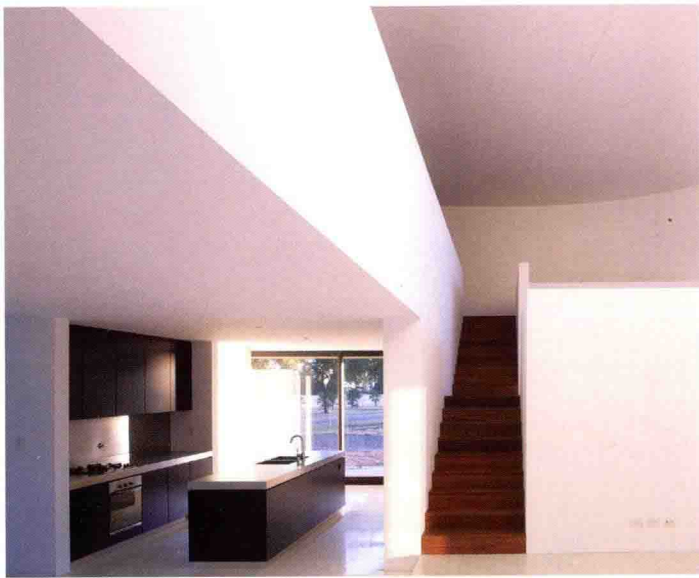


↑ Design diagram
↓ Exterior view with rooftop terrace at night



↑ Exterior view





↑ Interior view kitchen

↓ Exterior view with rooftop terrace and canopied terrace on ground floor



↑ Interior view living room

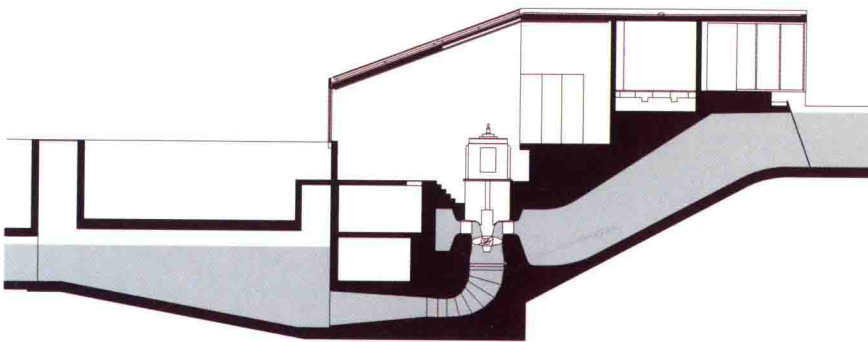


VKW Kleinkraftwerk Small Power Plant

Dietrich | Untertrifaller Architekten

| | |
|-------------------------|--|
| Location | Bregenz, Austria |
| Completion | 2005 |
| Client | Voarlberger Kraftwerke AG |
| Type of use | Industrial |
| Gross floor area | 134 m ² |
| Concrete used | In-situ concrete, pre-cast concrete (roofing slab) |
| Photos | Bruno Klomfar |

The design for the creation of a futuristic technological park did not incorporate the feeder channel for the power plant, which divides the large plot of land lengthwise. A new, more efficient small power plant was erected at the top eastern end. Landscape design measures involving trees, seating benches and an old Kaplan turbine trace the former path of the raised channel. The old and the new power stations constitute the poles of this imaginary axle. Exposed concrete with deliberately positioned openings dominates the exterior, while the side walls and roof merge laterally on the submerged side. The slanted roof consists of thin ready-made concrete slabs on top of the water-containing layer. The major part of the building is beneath the ground and dominated by the red color of the machine parts.



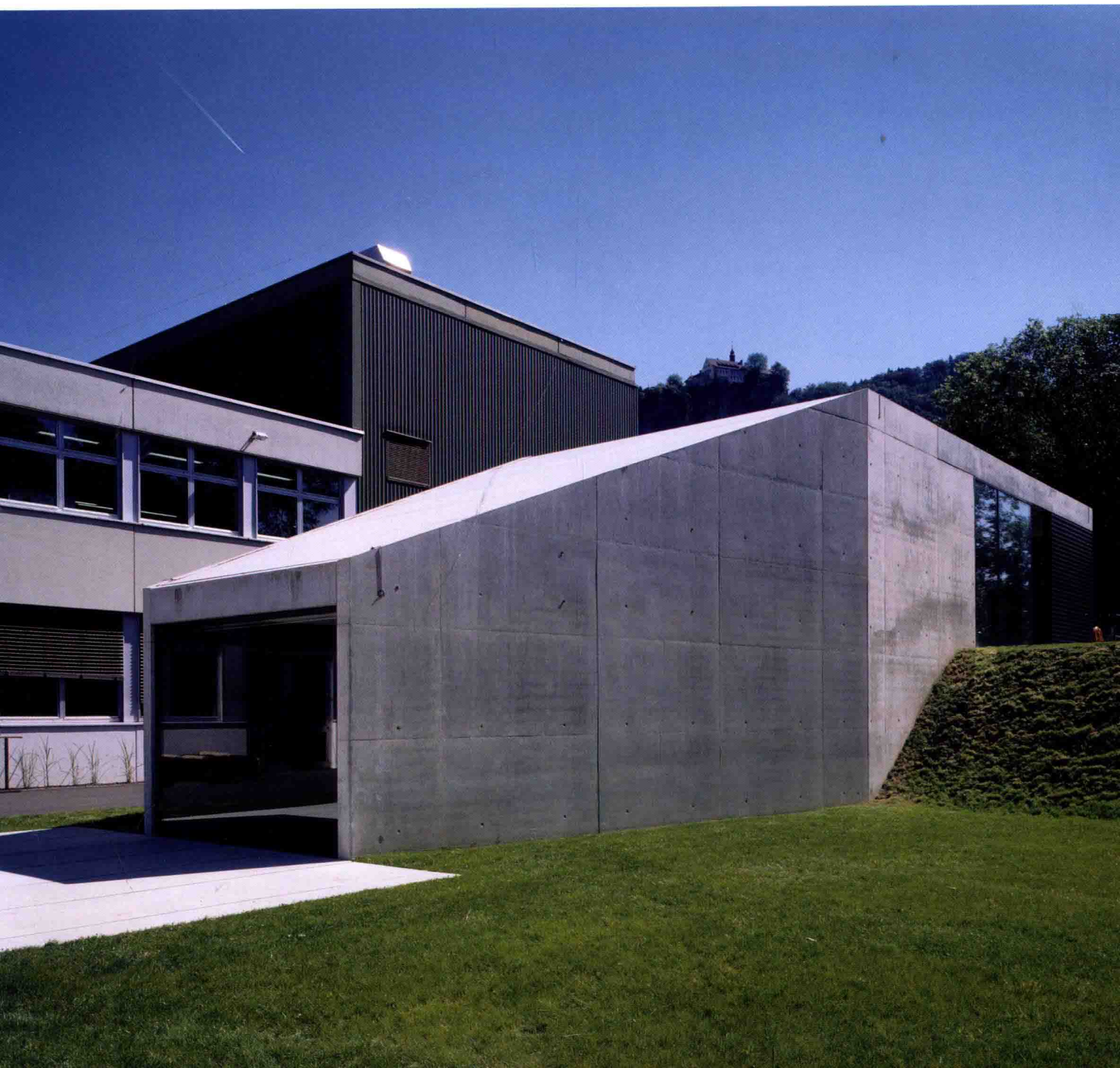
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↑ Section
↓ South façade





↑ Surroundings
↓ View from south-west





↑ Feed pipe
↓ North side

→ View from west

