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issue 32

Coastal House
Rifugio
Design Studio

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Coastal House
Mornington Peninsula

O'Connor & Houle
Architecture

COASTAL

C+A
02

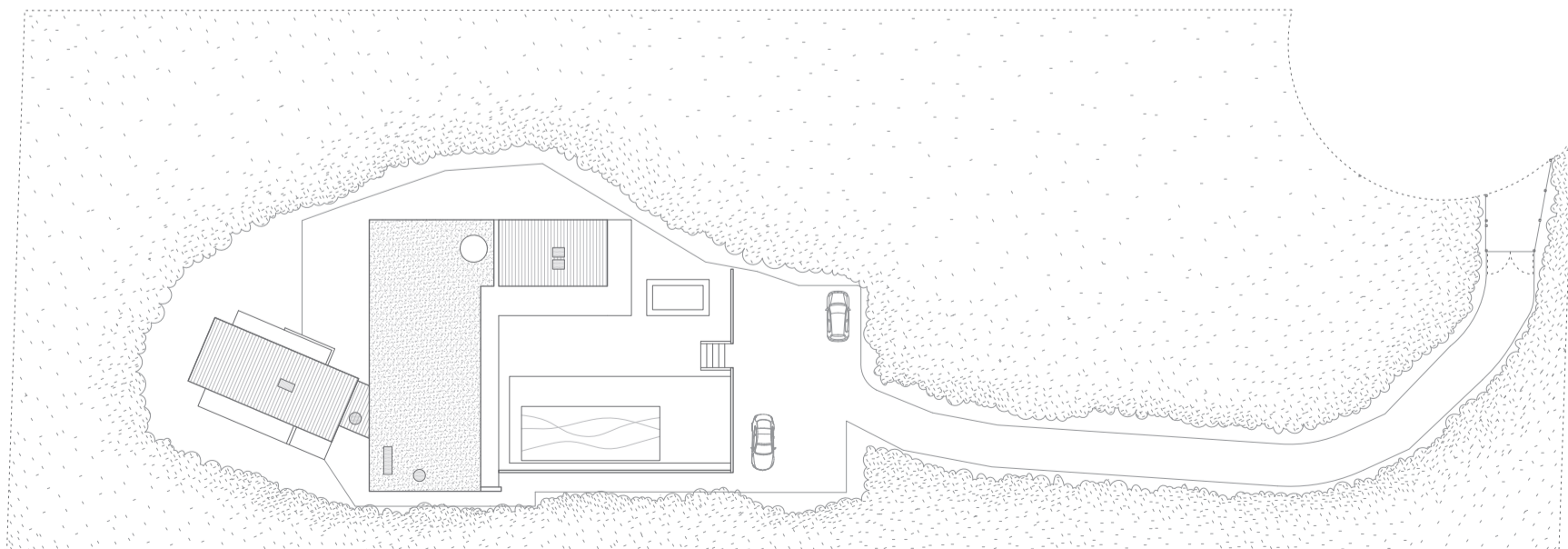


HOUSE



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04

the house articulates a duality between inward looking protected space and outward looking wild space.



Site Plan

0 5 10m





This house, on Victoria's Mornington Peninsula, is an exercise in composition, of careful siting of elements – three boxes, two lightly attached, of concrete and timber – placed about the site for aspect, each with its own defined function

Located at the end of a dirt road, on land that backs directly onto the Mornington Peninsula National Park, looking out across the roiling waters of Bass Strait, the house sits in a clearing amongst Ti-tree, dense Moonah bush and Bearded Heath. A track through the bush takes you down to the surf.

Behind a monumental wall of insitu concrete lies a compound: a separate two bedroom guest pavilion of white mahogany; a two-storey timber pavilion for sleeping, also of white mahogany; and the heart of the house: a long, concrete, steel and glass box for living and dining and entertaining. There is also a swimming pool with a Ti-tree-shaded pergola at one end, with a wood-fired oven and barbecue built into a concrete wall. In contrast to the timber boxes, which will grey to the colour of concrete with time, the pavilion has been conceived as a ground-hugging concrete container sitting on a levelled section of dune.

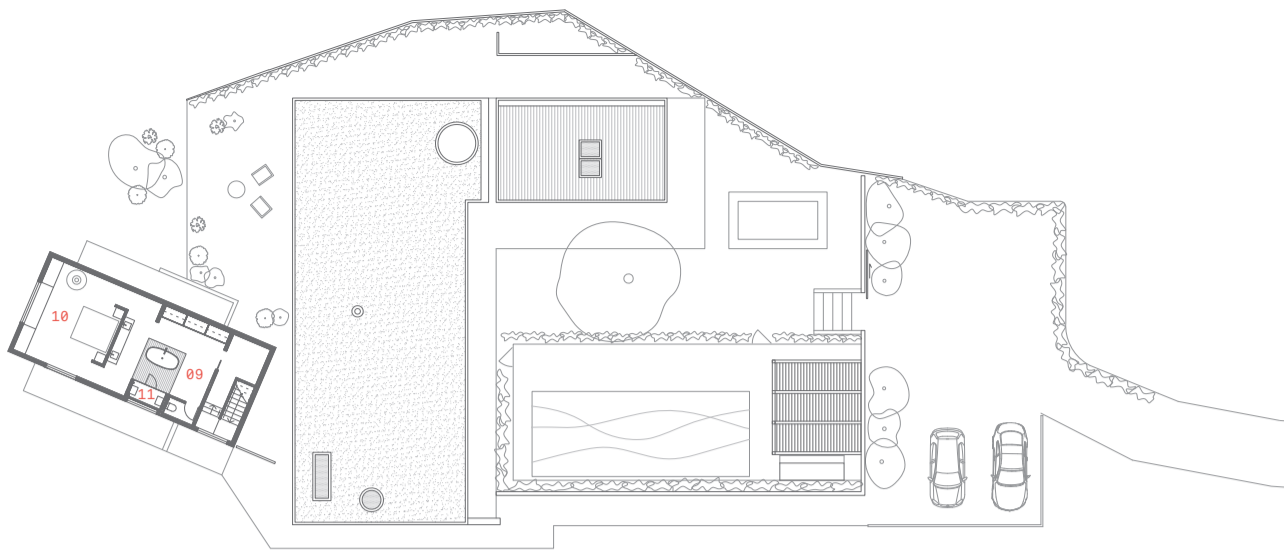
The planning of the concrete pavilion is rational: a long kitchen partially hidden behind an entry vestibule-cum-mud room, with living and dining and, behind a screen wall of concrete, a media room and library; placed sequentially. A steel-framed wall of glass looks north, out across a green lawn and the swimming pool; the view terminated by the concrete wall.

Designed to make the most of concrete's thermal qualities, walls are 400mm deep – a sandwich construction with 100mm high-density foam insulation cast inside the walls – with tie holes left exposed throughout. The ceiling, of board-marked concrete – deep-grained pine boards were used for the formwork – is highly textured and one of the visual delights of the house. Two-metre deep eaves keep the sun away from the glass wall to the leveled clearing of lawn and pool to the north; while carefully placed windows to the south open out to the wild coastal bush and the ocean beyond. The roof of the house is also of concrete covered with an insulating blanket, drainage and rock ballast. In time, it can be turned into a green roof, if desired.

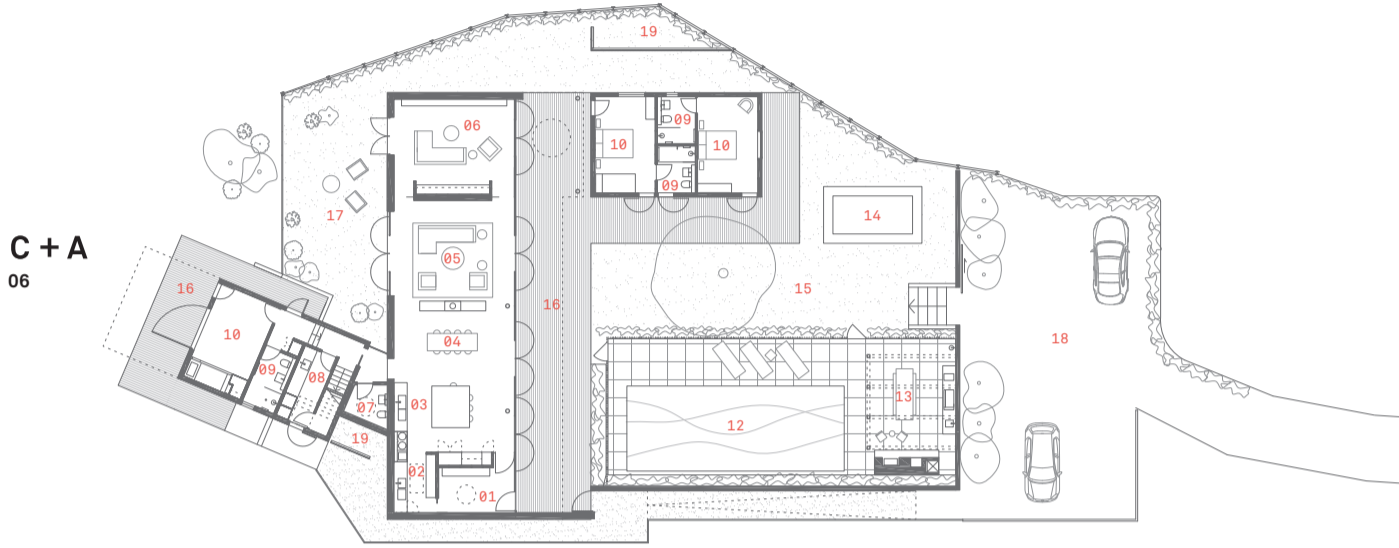
Architect Stephen O'Connor describes the house as "ground-hugging...on a patch of dune, enclosed by the coastal scrub. The carved clearing in the green and grey scrub became the principal spatial gesture. The house follows this general shape, creating a duality between inward-looking protected-space and outward-looking wild-space."

A two-storey sleeping wing, with a dramatically cantilevered upper floor, has been rotated to capture a framed view of Bass Strait through a dip in the dunes. Attached ever so slightly to the concrete box, here concrete transitions to timber; white mahogany cladding externally, while American Oak has been used to clad all interior surfaces: walls, floors, ceilings, stairs. Joinery is of solid American Oak, air-conditioning is concealed within cabinetry, concrete floors are heated, and operable skylights assist with the purging of heat in the evenings. Joe Rollo





First Floor



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Ground Floor



- | | | |
|----------------|-----------------|--------------|
| 01 Entry | 08 Laundry | 15 Lawn |
| 02 Pantry | 09 Bathroom | 16 Deck |
| 03 Kitchen | 10 Bedroom | 17 Courtyard |
| 04 Dining | 11 Steam room | 18 Parking |
| 05 Living | 12 Pool | 19 Services |
| 06 Lounge | 13 Pool pergola | |
| 07 Powder room | 14 Trampoline | |





an exercise in composition, of careful siting of elements – three boxes, two lightly attached, of concrete and timber – placed about the site for aspect





in contrast to the timber boxes, which will grey to the colour of concrete, the pavilion has been conceived as a ground-hugging concrete container, set on a levelled section of dune

Project Statement

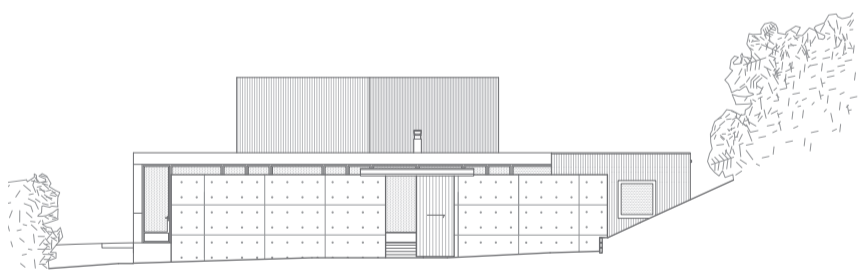
The house is in coastal Victoria, 75 minutes from Melbourne, built for an environmentally sensitive young city-based family. The site is 5000m² of coastal scrub adjacent to the Mornington Peninsula National Park within a Vegetation Protection Overlay (VPO). The park is a strip of dunes and cliffs along the ocean side of the peninsula and is home to the threatened hooded plover, migratory shore birds, various marsupials and native reptiles. The proximity to the national park gives the site a heightened environmental significance. The town planning approval process included a biological survey of the site for rare and threatened species of flora and fauna, such as the metallic sun-orchid.

The land is also within a Bushfire Management Overlay (BMO). The risk category for the site is the highest, 'Flame Zone', where buildings are required to be non-combustible and able to sustain high levels of ember attack. The BMO contains requirements for land to be cleared of vegetation in proximity to the house. The VPO and the BMO are somewhat mutually opposed in principle, one tending to minimise the amount of clearing and the other tending to maximise it. The approval process involved negotiating with both environmental and fire authorities until a balance point was found to allow a clearing for the house.

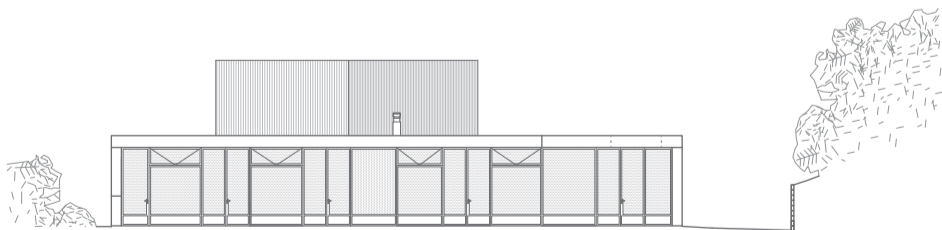
The living areas of the house itself are constructed entirely of concrete inside and out, and the other parts of the house are entirely timber. Concrete is a paradoxical material because of its high level of embedded energy, but the environmental benefits of stable, comfortable indoor air temperatures without mechanical conditioning are phenomenal. The living areas form a traditionally oriented long container facing north, with two-metre eaves on the north side and blank walls facing east and west.

Conceived as a ground-hugging form on a dune, enclosed by moonah trees and bearded heath, the house articulates a duality between inward looking protected space and outward looking wild space. The angled taller form addresses a specific vista of Bass Strait ocean between two vegetated dunes. The concrete is designed to be naturally monolithic and the timber to be artificially monolithic. The timber will grey and approach the visual character of the concrete over time, but the two materials will retain distinct identities. The concrete form maximises the effects of thermal mass using a 400mm thick in-situ double wall with a centrally placed 100mm of high-density EPS. The roof is solid in-situ concrete with external waterproofing, drainage cell, insulation, and rock ballast, providing phenomenal insulation from summer daytime heat gain. In Europe this would be called a 'warm roof', but in Australia it would be better described as a 'cool roof'.

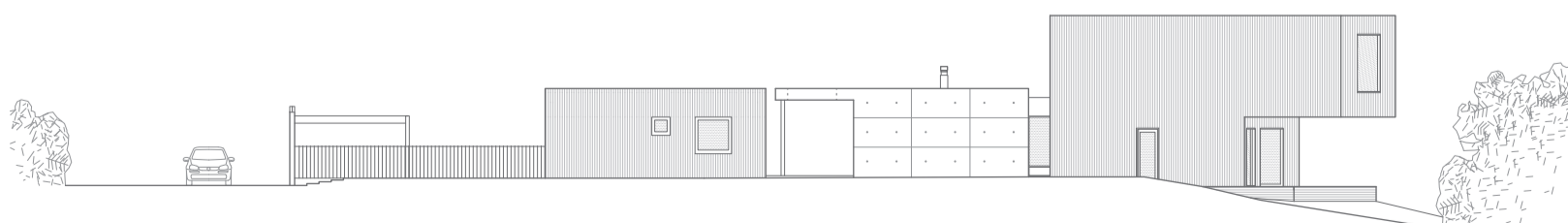
The lightweight parts of the house are thermally 'heavy', double insulated with an air space behind the timber cladding, with double-sealed, double-glazed openings. The placement of windows and operable skylights allows the purging of heat with the sea breeze. The house is designed to cope with a warming climate and to last for 100 years. O'Connor and Houle Architecture



North elevation 1



North elevation 2



West elevation



Project Coastal House
Location Mornington Peninsula, Victoria, Australia
Architects O'Connor and Houle Architecture and Landscapes
Ecologists Brett Lane and Associates Pty Ltd
Structural Engineers Mark Hodgkinson Pty Ltd
Hydraulics Engineers CR Knight and Associates Pty Ltd
Landscape Design Consultants O'Connor and Houle
Architecture and Landscapes
Interior Design Consultants O'Connor and Houle
Architecture and Landscapes
Construction Alan Pitman, Pitman Pty Ltd
Photography Earl Carter

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RIFU

JUGLIO

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Rifugio
Val Bregaglia
Switzerland

Ruch & Partner
Architekten



C + A
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a three-storey house of cast-in-place concrete that projects from the green slopes as a massive, perfectly proportioned boulder

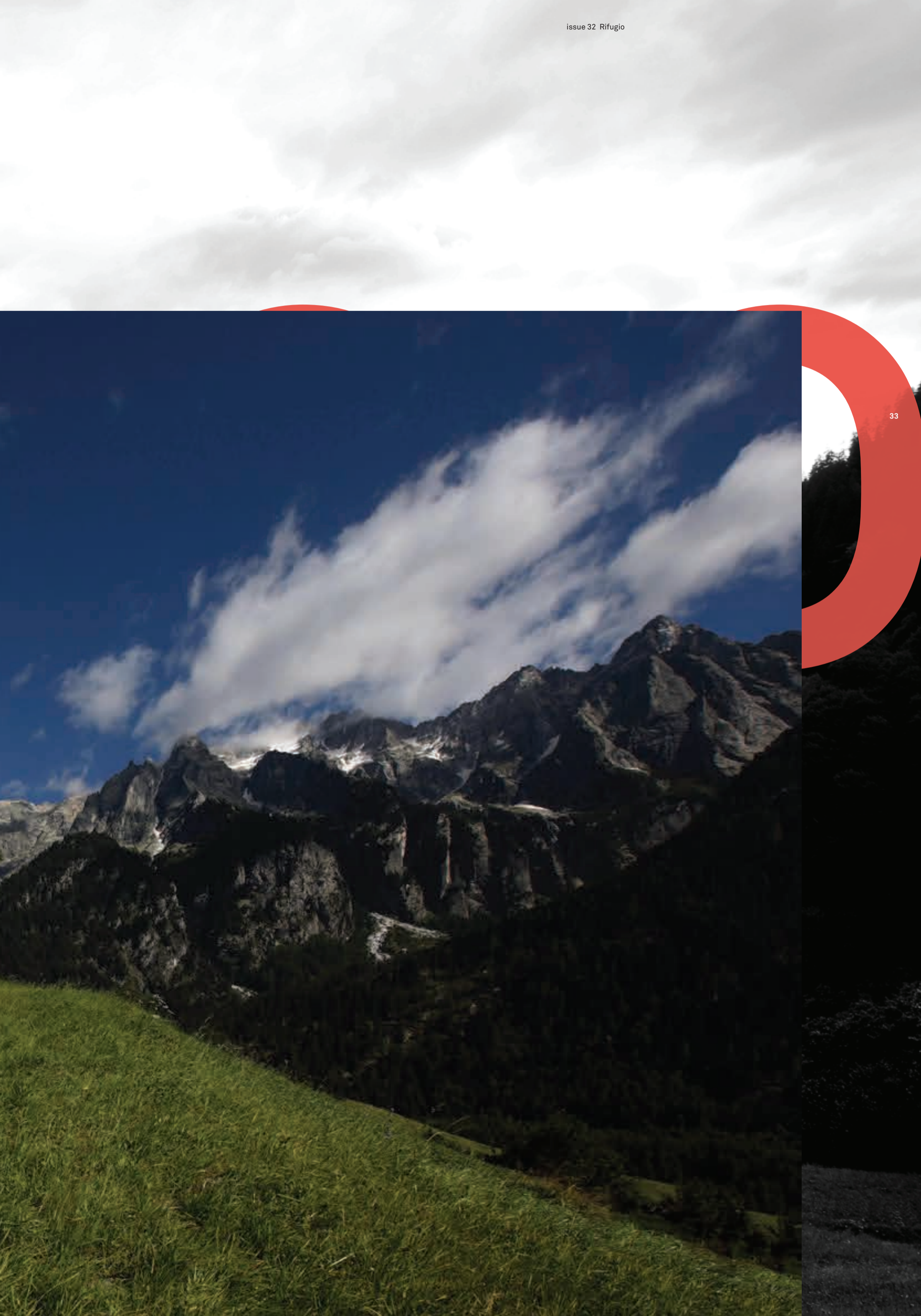


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Val Bregaglia is an alpine valley in the eastern Swiss Alps, close to the border of Switzerland and Italy, connecting to the Engadin Valley, renowned for its incomparable light and spectacular harmony of mountains and lakes. >





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> The sculptor and painter Alberto Giacometti was born here; Giovanni Segantini, one of the most famous European painters of the late 19th century, famed for his pastoral landscapes, lived and painted in the valley, never tiring of its splendours. It is here, too, that Swiss architect Hans-Jörg Ruch has established an enviable reputation for his sensitive restoration and conversion of historic peasant farmhouses, patrician homes, huts, stables and barns, often marked by modern interventions and insertions reminiscent of some of the early work of Peter Zumthor.

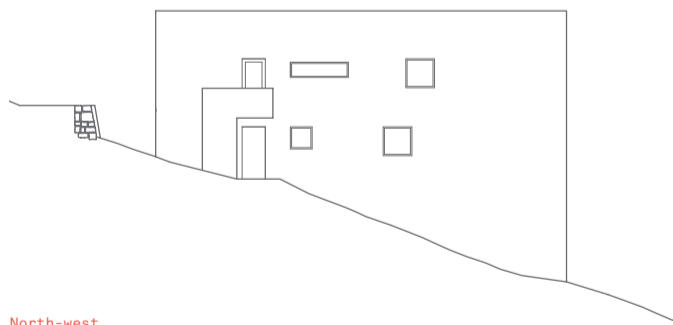
This house on a steep slope at Roticcio, a village in Canton Grisons, near the Italian border, stands in stark contrast to the stone rubble and wood log construction of the traditional and historic buildings of the region – some up to 500 years old. Here, toward the end of the village, Ruch and his associates have embedded a three-storey house of insitu concrete that projects from the green slopes as a massive, perfectly proportioned boulder.

Spied from the bottom of the valley the house, designed as a rifugio – a refuge for contemplation and as a holiday escape for its owners – could be seen as a contemporary take on lookout towers of old; a hermitage, maybe. In proportion and scale, it resembles many of the traditional buildings inhabiting the valley. But that is where the comparison ends. For this is a thoroughly modern building, made entirely of insitu concrete – water-blasted on the

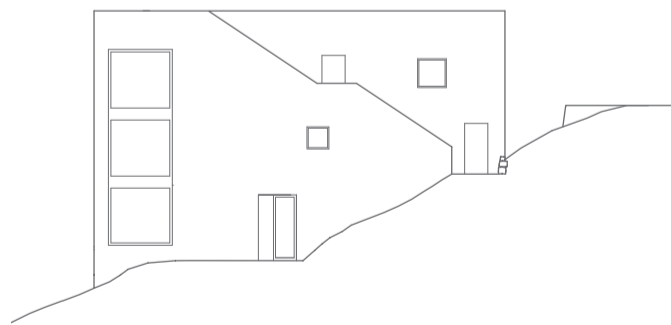
outside to expose aggregates of crushed local stone, and board-marked internally – emerging from the steep terrain. Part of the house is cut into the slope of the site. Devoid of a traditional pitched roof, the house is flat-roofed, the rooftop reached via an external stair – each level of the house has direct access to the stair – attached to one side; the terrace paved in large slabs of local stone. From here, stunning views can be had of the surrounding mountain panorama, the village at the bottom of the valley, and the meadows and forests of the immediate surroundings.

The interior of the house is remarkable for its wall surfaces of board-marked concrete. Long, deep-grained wooden planks, 27 cm wide, were applied to create the look of the board linings of the traditional buildings of the valley. The impression is one of carefully crafted carpentry. Floors are of concrete. No surfaces are painted or rendered. All wood and timber elements are of larch wood.

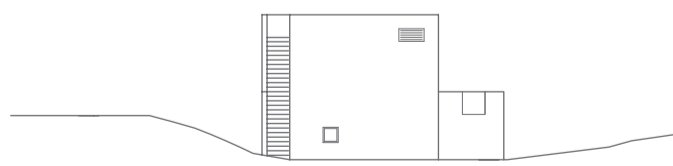
Great importance was placed on the detail of window frames. Doors, of solid larch wood, were inserted directly into the concrete, eliminating the need for door frames. The result is a seamless meshing of materials. Heating for the house is generated by air-to-water heat pump. A low-temperature under floor heating system has been integrated into the concrete slab floor. Joe Rollo



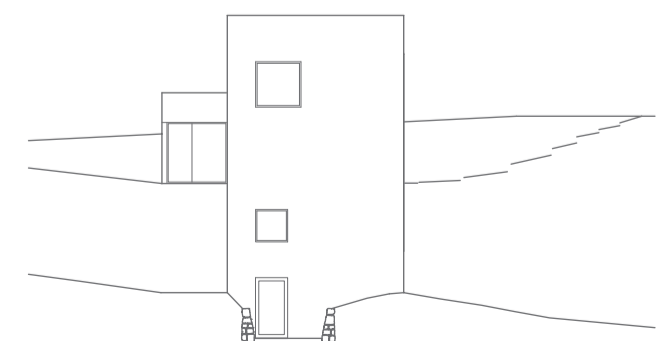
North-west



South-east

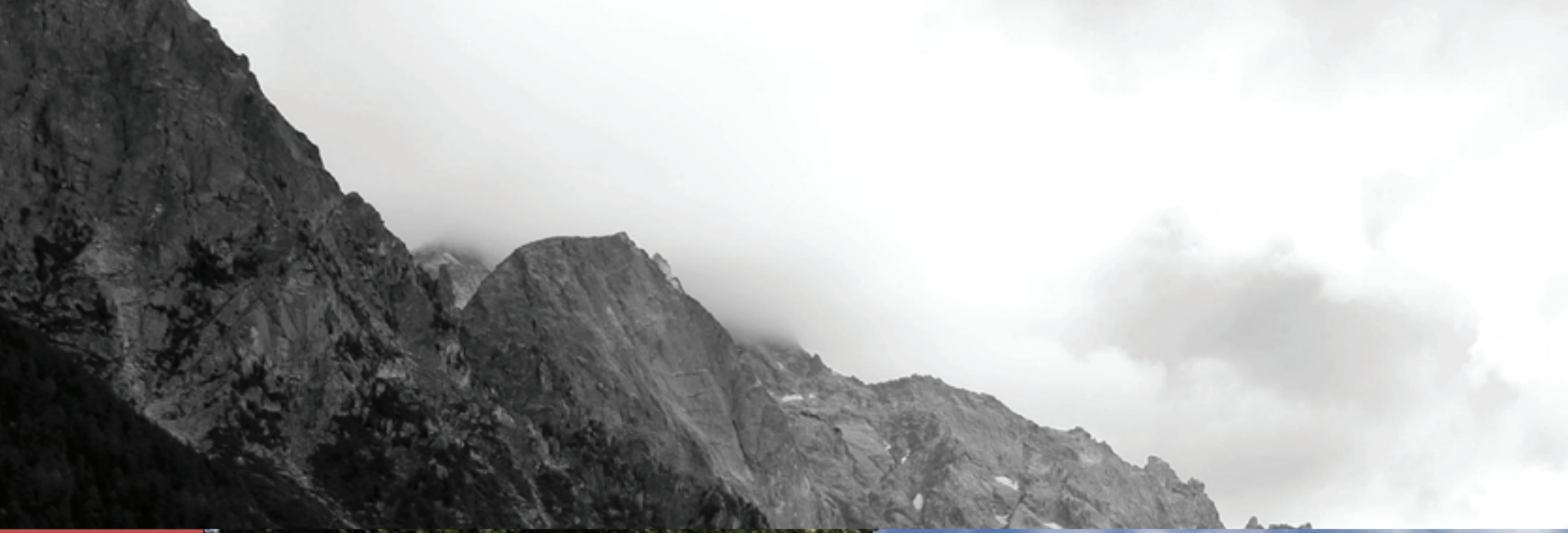


North-east



South-west









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a thoroughly contemporary building, made entirely of insitu concrete – water-blasted to expose aggregates of crushed local stone – emerging from the steep terrain



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stunning views can be had of the surrounding mountain panorama, the village at the bottom of the valley, and the meadows and forests of its surroundings





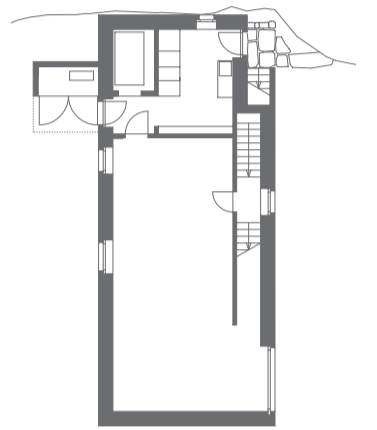


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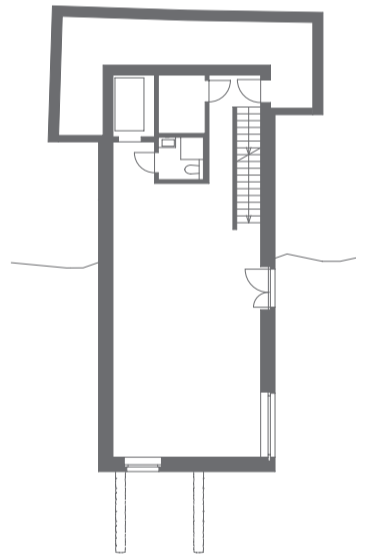




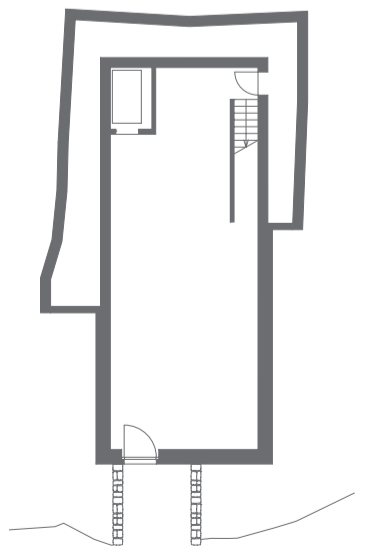
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Level 3

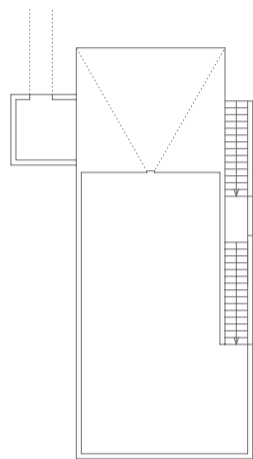


Level 2

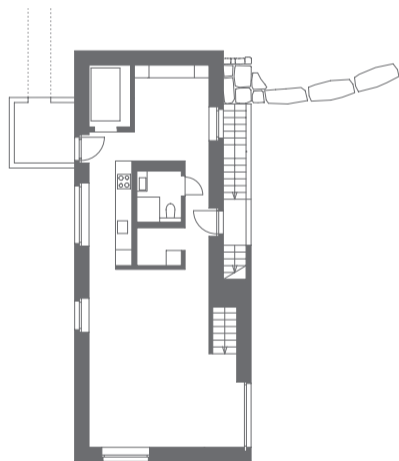


Level 1





Level 5



Level 4

Project Statement

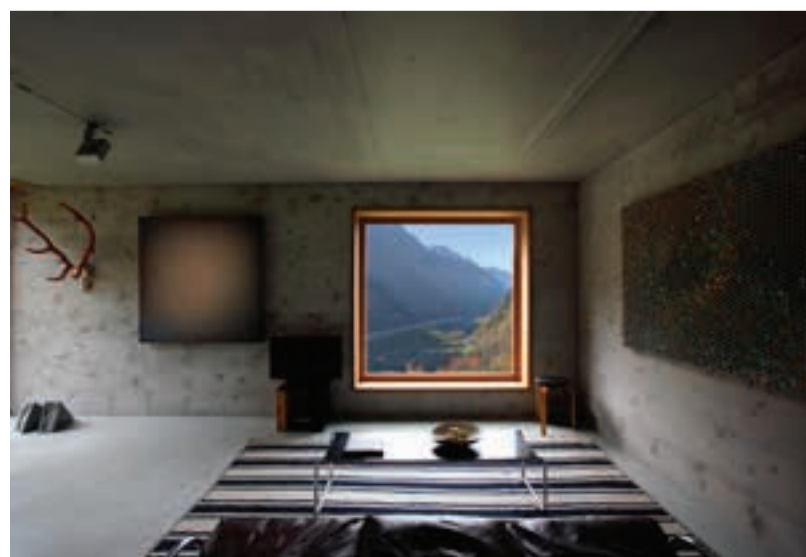
The house is located high up on the sunny side of the Bergell valley in the canton of the Grisons.

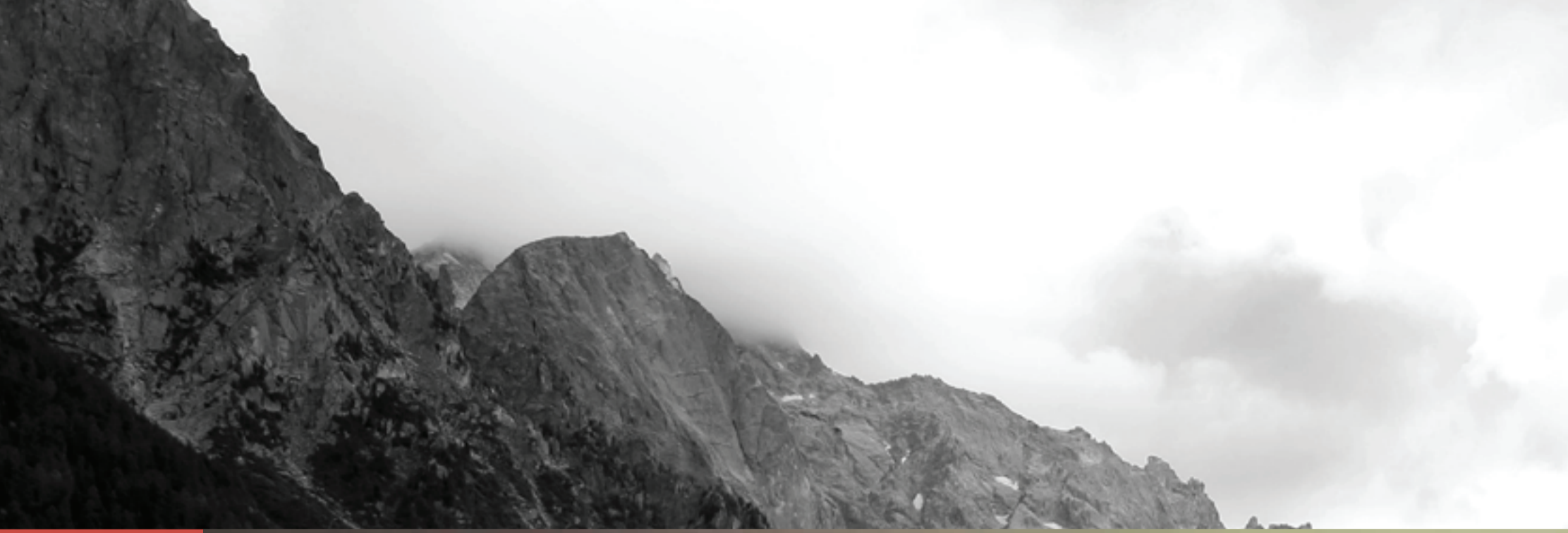
The new rectangular volume, which sticks out of the slope, marks the end of an existing tiny village. From the bottom of the valley, it appears as a slim tower popping out of the land, but towards the village it matches the proportions of the existing, rather small, rural buildings. The outside walls are made of concrete with ingredients of crushed stones from the excavation, exposed after the fresh concrete had been washed with high pressure. The house appears as a giant rock.

The most significant part of the project is an outside stair leading up to the flat roof. This almost meditative terrace is a key aspect of the project, clearly shaped out and its surface covered with huge stone plates. There is a spectacular view to the surrounding steep mountains, to the village on the bottom of the valley and to the meadows and forests of the immediate environment.

Below the significant outside stair, there is a cascade-like inside stair, leading all the way down to the lower storeys. Window placement is extremely concentrated, but placed to always frame the most spectacular views. Where the interior is concerned, the walls are also made of concrete. The formwork was made of long and wide wooden boards, joined in a precise manner to resemble a carpenter's work. Their width of 27cm determines the whole geometry of the house. Doors are constructed out of solid timber boards of the same width, with no frames and directly inserted into the concrete walls, as to appear part of the walls. Heat is generated by an air-to-water heat pump delivering energy to a heating storage tank, from where it is distributed throughout the house. A low temperature under floor heating system integrated into the concrete slabs provides classic component activation that ensures pleasant and balanced indoor climate.

Ruch & Partners Architekten





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RIFU

JUGLIO

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Project Rifugio
Location Val Bregaglia, Switzerland
Architects Ruch & Partners Architekten
Project architects Stefan Lauener, Andy Ruch
Construction manager Toni Steiner, Ruch & Partners
Project Team Gian Duri Bivetti, Markus Pöhl, Valeria Triulzi
Civil engineers Dr. Schwartz Consulting, Zug, Beat Birchler, Zernez
Master builder D. Martinelli AG, St. Moritz
Photographer Filippo Simonetti

Design Studio
Miami School of Architecture

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DESIGN



Miami, Florida

Arquitectonica

STUDIO



Sometimes a single gesture is all it takes to elevate a building to greatness. >



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> At the University of Miami, architects Arquitectonica have applied just such a flourish to the new home for design and research, the Thomas P Murphy Design Studio, on the university's Coral Gables Campus.

Containing a leading-edge digital fabrication laboratory and collaborative work spaces, the new building, of concrete and glass, is dominated by a spectacular roof of warped concrete that provides the university with a new signature building in what could otherwise have been a dumb box.

Sited at the edge of the campus, the new building stands in stark contrast to a swath of nearby boxy campus buildings set amongst palm trees. And though it looks dramatic it is, in essence, an oversized shed...with a purpose: for its sculptural structure of exposed concrete and glass serves as a teaching tool for students by illustrating some of the basic tenets of modern architecture, construction and sustainability.

Located next to a busy campus intersection, the building includes a plaza area and adjoining pathway that links the campus to the Miami Metrorail. A curved concrete wall faces the main public transit entrance and the Jorge M Perez Architecture Center that stands at the heart of the architecture school, the wall peeling away to connect with the Perez centre's arched portico and octagonal auditorium, acting as a symbolic welcoming gesture, inviting students in and to soften the rectilinear plan of the building.

The vaulted roof structure, suspended 5.5 metres over the building's floor by narrow steel columns and a few fixed walls, creates a sense of openness and allows natural light to permeate the building. The roof, a shell of concrete, warps slightly, seemingly melting in the Miami heat, to form a gentle canopy that adds complexity to the silhouette of the building. As well as bringing shading to the glazed east and west fronts, the bowed roof also sets up the design's primary formal swerve, interacting with the curve at the entrance.

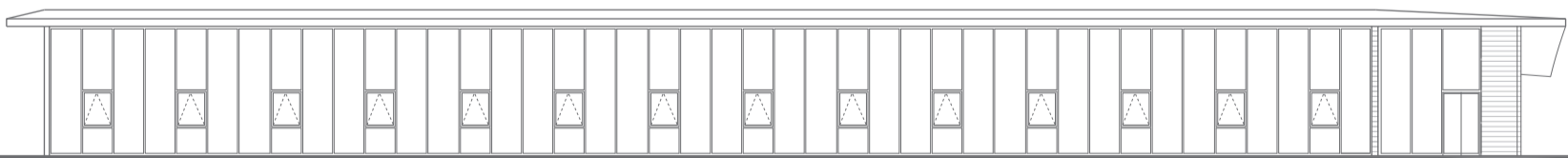
The main entrance to the building leads into an informal lobby that continues as a nave-like space running through the studio, based on a 2.3m² workstation module that can accommodate a variety of configurations for 90 to 130 desks. East and west walls of the central volume are clad in felt for students to pin up their work, and there are movable boards for informal critiques and exhibitions. Studios on the south side of the circulation passage are intended for design-build courses and have direct access to the outdoor work area. Two glazed freestanding pavilions within the building serve as faculty offices that can be redesigned and rebuilt by students each year, providing a setting for creativity and collaboration.

The design, orientation and strategic elements of the building address the movements of the sun and ensure a sustainable work environment even in the hottest months. The concrete roof warps over the southernmost point of the building to shade the interior from sunlight. The building can operate during daytime without the use of any artificial light, thanks in part to the first ever use of 5.5m-high hurricane-resistant glass panels. Operable windows allow better air circulation and eliminate dependence on air conditioning during the summer. "Studios are the heart of an architecture school – a strong magnet for prospective students," says project architect Raymond Fort. "Hence this building. The design of the studio spaces draws together every aspect of 21st century pedagogy into a cogent whole – packing everything into a deceptively simple envelope of thin concrete." By working almost exclusively in concrete, Fort and his team turned the building into a master class in the use of a single material. "We tried to show how that material – how any material – can be used in many ways. It doesn't have to have a singular purpose," he says. **Joe Rollo**

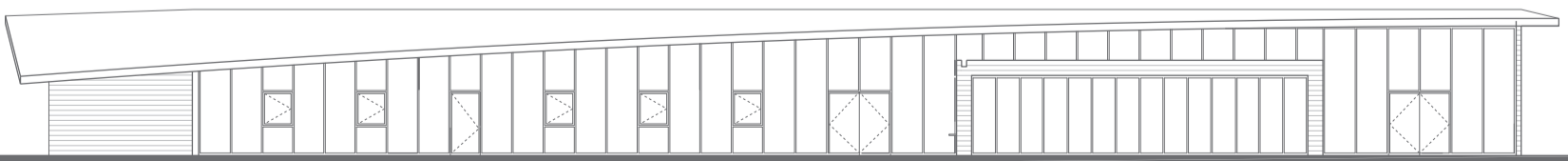


the roof warps slightly, seemingly melting in the Miami heat, to form a gentle canopy that adds complexity to the silhouette of the building

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North Elevation



South Elevation

0 2 5m



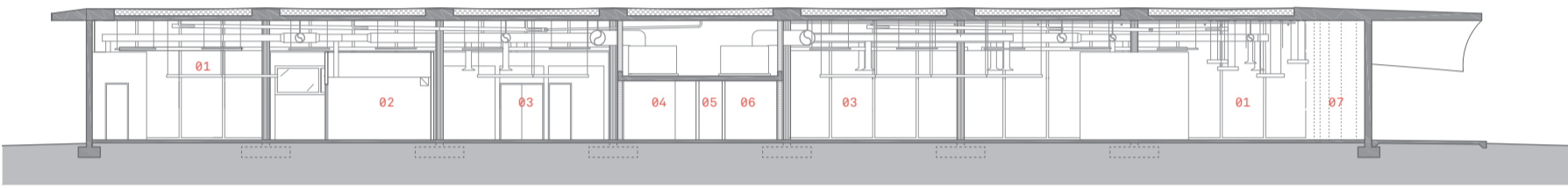
East Elevation



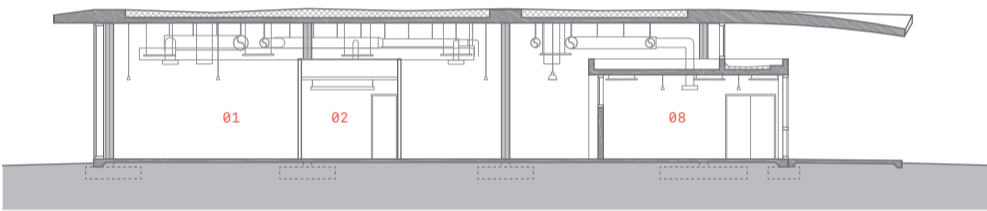
West Elevation



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Section 1

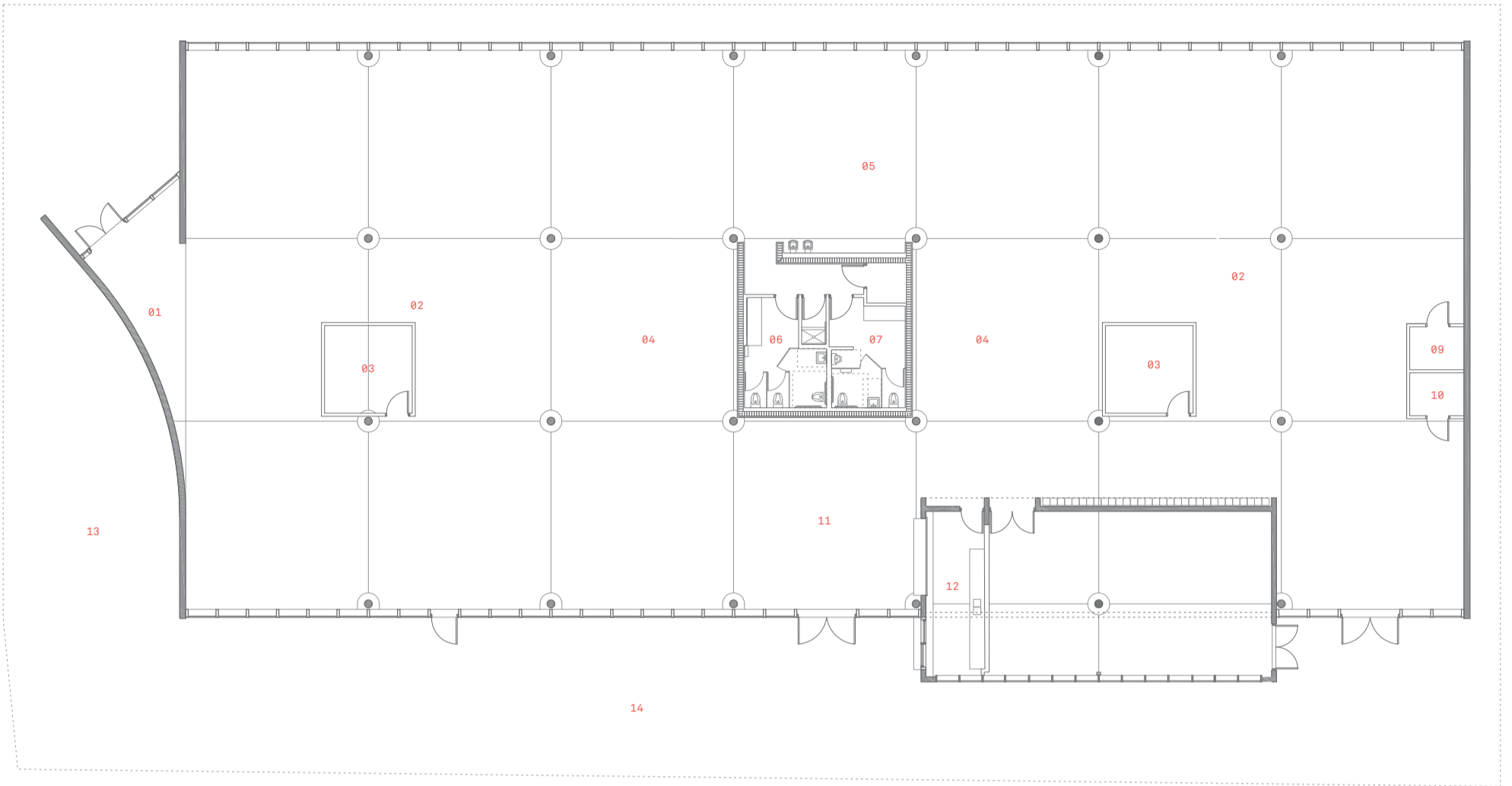


Section 2



- 01 Studio
- 02 Faculty office
- 03 Presentation area
- 04 Women's restroom
- 05 Janitor
- 06 Men's restroom
- 07 Building Entrance
- 08 Fabrication Lab





Floor Plan



- 01 Building entrance
- 02 Studio
- 03 Faculty office
- 04 Presentation area
- 05 Print/Plot area
- 06 Men's restroom
- 07 Women's restroom
- 08 Janitor
- 09 IT room
- 10 Electrical room
- 11 Lounge
- 12 Cafe
- 13 Outdoor jury
- 14 Outdoor workspace





a master class in the use of a single material...
packing everything into a deceptively simple
envelope of concrete





Project Statement

The new studio building for the University of Miami School of Architecture provides a space conducive to learning and studying, but also serves as a teaching tool by illustrating some of the basic tenets of modern architecture.

The building is located at the center of an intersection, creating a plaza and adjoining pathway that act as a link from the campus to the Miami Metrorail. The southern wall peels away in order to address the portico of the existing auditorium and gallery. The warping corner of the roof folds over the southernmost tip of the building, shading the interior space from the strongest sunlight. The building has tall and flexible spaces, both indoors and outdoors. Narrow steel pipe columns support the 5.5 metre high ceilings to create a sense of openness and allow natural light to permeate throughout the building. Operable windows encourage fresh air and reduced use of air conditioning. The studio space is based on a 7.6 metre square – a module of four student desks – repeated to total 1,219 square metres. The main entrance spills into an informal lobby and continues as a corridor that runs through the studios and out a garage door into the rear access road. The corridor has movable boards and model podiums for informal critiques or exhibitions. The studios on the south side of the circulation passage are intended for the design-build studio courses and have direct access to the outdoor work area. Within the space, there are smaller volumes including the fabrication lab, which punctures the facade. The East and West walls of the central volume are felt clad for students to pin up work. The open plan accommodates seventy-six desks and is adaptable to future work/study styles. The faculty offices are also moveable and can be redesigned and rebuilt by students each year, making a setting for creativity and collaboration. **Arquitectonica**







Project Thomas P Murphy Studio Building
Location University of Miami, Coral Gables, Florida
Architect Arquitectonica
Project Team Bernardo Fort-Brescia, Raymond Fort, Sherri Gutierrez, Alfonso Jurado, Rafael Guissari
Interior Design Arquitectonica Interiors + University of Miami Interior Design
M/E/P Engineer Stantec
Structural Engineer Garcia Mullin Group
Geotechnical Engineer NV5
General Contractor Coastal Construction
Photography Robin Hill and Miami in Focus

State Offices Melbourne, 1966–1969
Macarthur Street, East Melbourne
Yuncken Freeman Architects

REARVIEW

This striking modernist urban ensemble of three different but related buildings, of precast concrete cladding, set on a plaza surrounded by significant government offices from the mid 19th and early 20th century, is remarkable for its sensitivity to the civic and historic context of the area despite not conforming to the design brief, which called for a tower directly behind the Old Treasury Building. The small classically proportioned window openings and location of the main tower to one side of the Old Treasury and off the Collins Street axis, was an unusually considered response to the urban context. The project technically broke new ground with innovative use of load-bearing precast concrete cladding used structurally to allow column free internal spaces. Heightened interest was created at ground level to the two low-rise buildings by elevating each on piloti utilising a transitional slab.

The State Offices project has been judged among the Top 10 Concrete Buildings in Australia, to celebrate 90 years of Cement Concrete & Aggregates Australia. The other buildings are: Academy of Sciences, Canberra; Sydney Opera House; Gladesville Bridge, Sydney; Underground Carpark, University of Melbourne; Australia Square, Sydney; High Court of Australia, Canberra; James Cook University Library, Townsville; Queensland Art Gallery, Brisbane; and Punchbowl Mosque, Sydney.

Photograph: John Gollings

