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issue 28

Villa Waalre
It Is A Garden
International Centre for Cave Art

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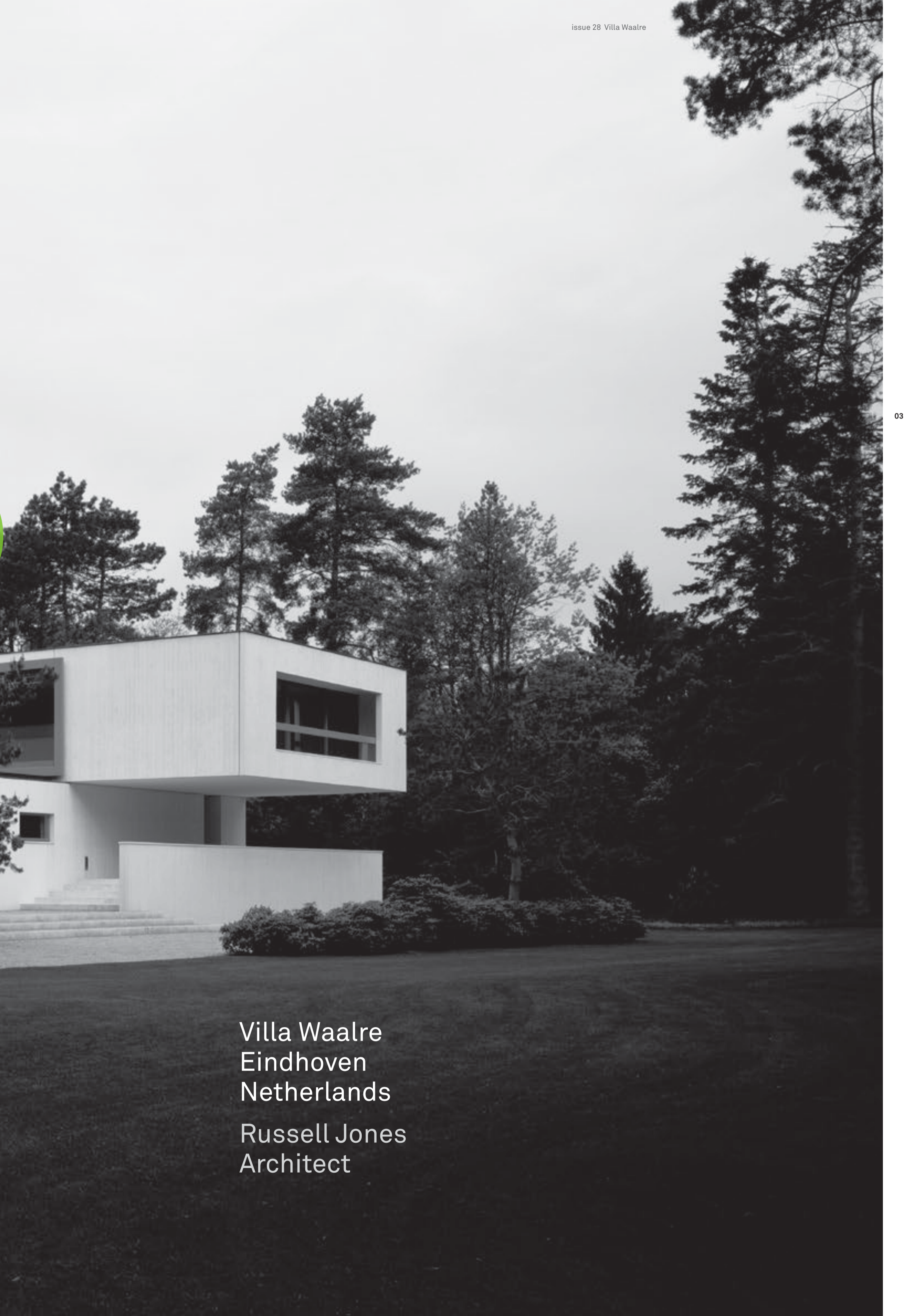


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Casson Mann

NEW WE W O H D N E





Villa Waalre
Eindhoven
Netherlands
Russell Jones
Architect

reinforced concrete imprinted with the texture of rough-sawn boards...the concrete enriched with titanium dioxide, giving it a chalky white hue, making it almost impervious to water >



- > There are echoes of the work of Marcel Breuer and Mies van de Rohe in this recently completed family house in a forest of conifers at Waalre, near the city of Eindhoven in the southern Netherlands. In particular, of Breuer's own house in Massachusetts – his modernist 'volume resting on a landscape' – while a private enclosure on the ground floor evokes the form and scale of Mies's Barcelona Pavilion courtyard.

Designed by Russell Jones, a London-based Australian architect who once worked in the office of Harry Seidler, the house sits on a 7,000 square metre parcel of land formerly owned by Philips, the Dutch technology giant which, in the late 1950s and early '60s, 'gave' senior executives plots of land close to its facilities on which to build houses. Several of the houses were designed by Louis Christiaan Kalff (1897–1976), the company's legendary design director. This house replaces one designed by Kalff for Frans Otten, son-in-law of Anton Philips.

"In the UK, the house would have most certainly been listed," Russell Jones says, the only restriction placed by planners being that the new house be of greater architectural merit.

Early in the design process, it was clear that the position of the Kalff house was the most favourable location for the new villa. The sand dune along the western boundary, the forest dominated by conifers and garden planted 50 years ago as part of the Kalff scheme, influenced decisions relating to placement, orientation and form for the new house.

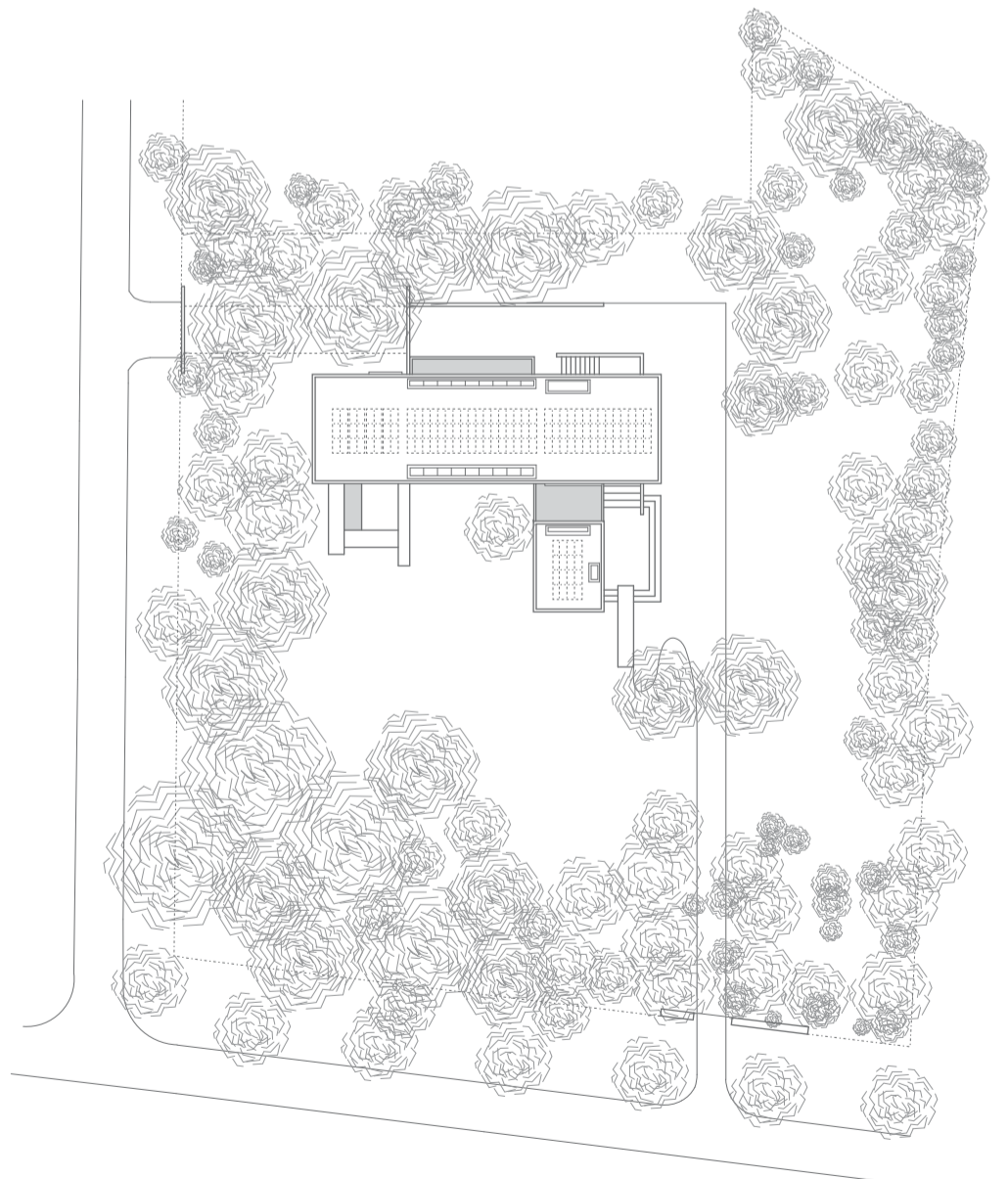
Taking advantage of key natural features, creating a specific and special exterior and interior relationship with the environment, Villa Waalre covers an enclosed area of approximately 1200square metres over four levels, with only two levels evident in the landscape. Living spaces, divided by a series of north-south transverse walls, occupy the ground plane. Bedrooms and gallery spaces occupy an east-west rectangular structure that rests across the landscape and living area walls. A "drive-through" tunnels under the western dune, creating a large carport and access to the street beyond. A 25 metre volume under the ground plane contains a swimming pool. The grotto-like pool volume is punctuated by shafts of light drawn from the roof level above. Fundamental to the project was an early decision to reflect the textural quality in the bark of the fir trees with reinforced concrete imprinted with the texture of rough-sawn boards. The concrete was enriched with titanium dioxide, giving it a chalky white hue, while also making it almost impervious to water. This module is continued in all exterior and interior joinery elements, which are crafted from similar fir boards to those used in the concrete formwork.

In total, 1,660 cubic metres of concrete was used in the project. The thermally separated outer and inner concrete structural walls are articulated to allow for structural and thermal movement, and expressed construction joints are strategically located to further register the planar and volumetric qualities of the project. The combination of the rigorous and comprehensive application of board-marked concrete and simplified tectonic form produce a legible, sculptural, liveable and environmentally responsive form. The building is orientated such that the main living, kitchen and bedroom spaces are south facing and contain large glazed openings. The structure provides thermal mass with concrete cavity walls reaching 700mm at their deepest and high levels of insulation. These passive measures are used in combination with a ground source heat pump drawing from 16 boreholes and a heat recovery central heating boiler, providing heat for the underfloor heating and water. Underfloor cooling is employed between the swimming pool below ground and the main house above to minimise heat gain. Air treatment technology and mechanical ventilation throughout facilitate further regulation of the internal environment. **Joe Rollo**





the sand dune, the forest dominated by conifers and the garden planted 50 years ago, influenced decisions relating to placement, orientation and form for the villa

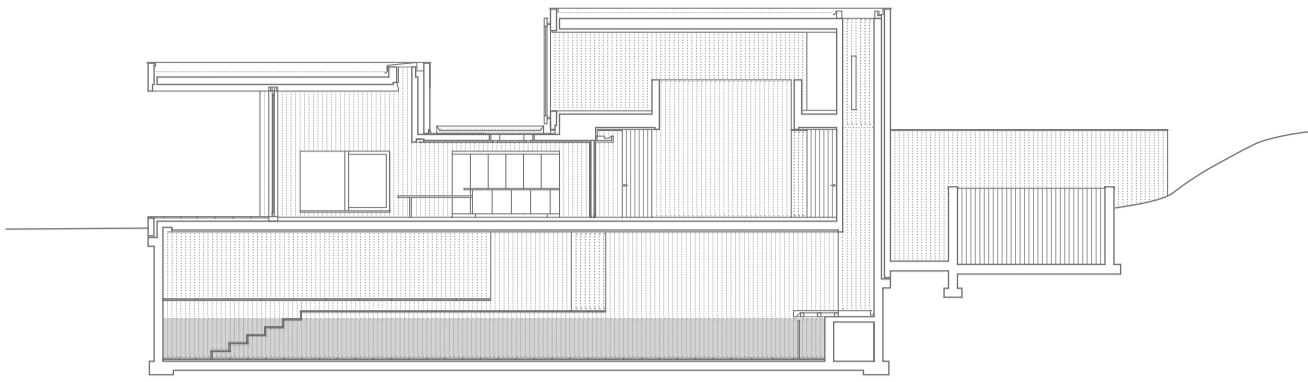


Site plan

0 10 25m







Section AA



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08

Section DD

0 1 6.25 12.5m





Project Statement

This project for a family villa is located within a forested dune landscape in Waalre, outside of the city of Eindhoven. The garden surrounding the villa was formerly occupied by a house designed by Louis Christiaan Kalff, famed Design Director of Phillips during much of the 20th Century.

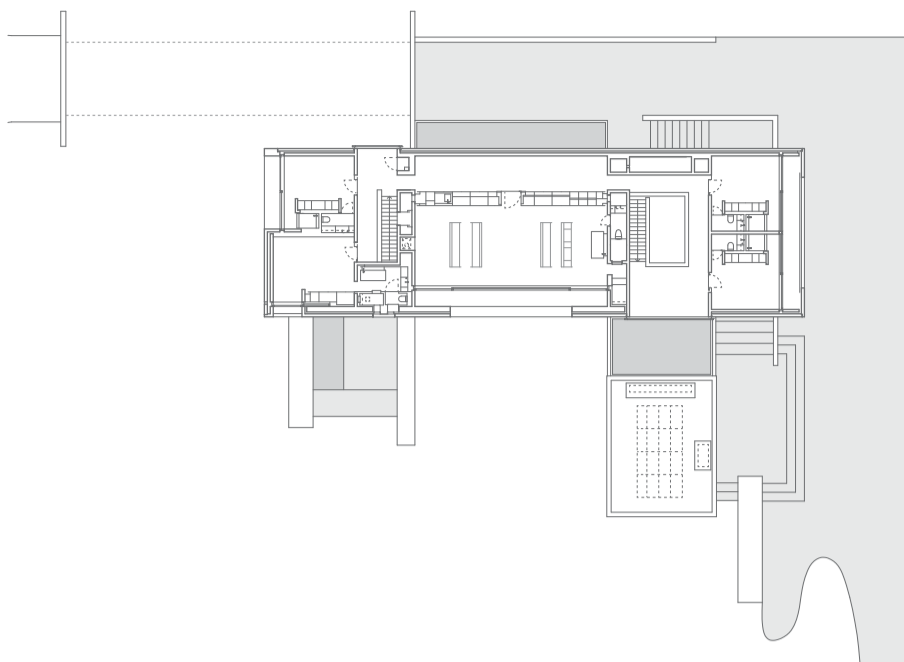
A prominent sand dune along the western boundary, original trees and garden planted in the early 60's influenced decisions relating to placement, orientation, and form for the new villa. The new architecture takes advantage of the key natural features, creating a specific and special exterior and interior relationship with the forest.

The building's environmental performance was an essential part of the design of the project, and balances both active and passive means to create a highly efficient building. Orientation, thermal mass, high levels of insulation, ground source heat pump drawing from 16 boreholes, a heat recovery central heating boiler and a bank of photovoltaic modules discreetly integrate with the architecture. Commercially available systems were adapted to enable a fully integrated services design compatible with the architecture and the budget.

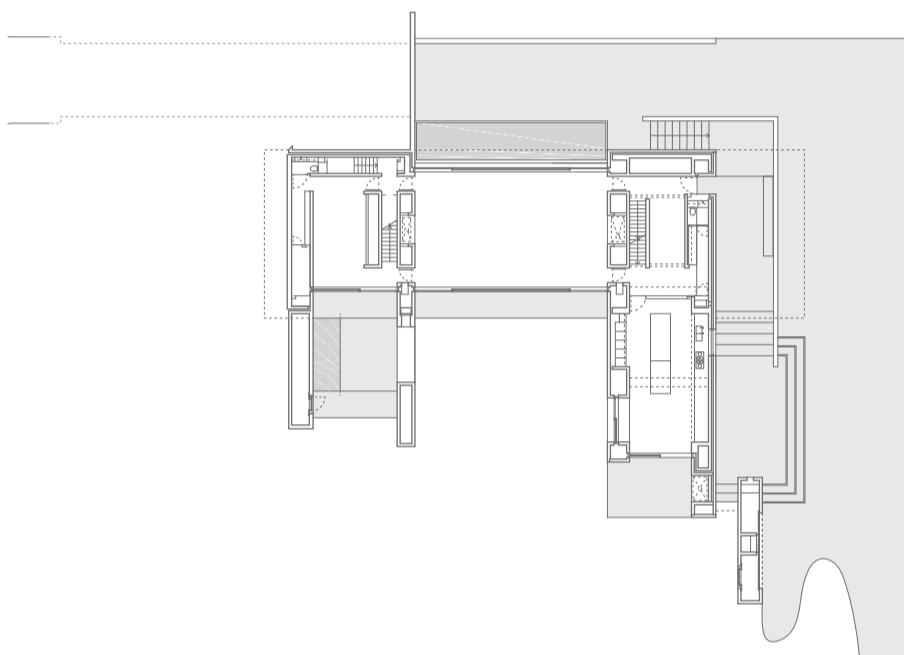
The desire to integrate the textural quality of the bark of surrounding fir trees as part of the villa's essential character, led to the decision to use concrete as the means to create structure and enclosure. Titanium dioxide enhanced white reinforced concrete forms all exterior and interior vertical surfaces, imprinted with the texture and silhouette of roughly sawn fir boards. Each textured board is 150mm in width. This module continues in all pieces of joinery, which are crafted from similar fir board to those used as formwork. In subtle contrast, Jura stone slabs are used on all floors, and articulated bathroom and kitchen elements are from Statuario marble. There is a gentle, natural richness to the material palette that tempers the rigorous, sculptural form. Continuous, textured surfaces that extend from the landscape and run through the interior are bathed in light softened by the forest and the architecture, creating a comfortable, sheltering home that is part of the landscape.

Russell Jones Architect

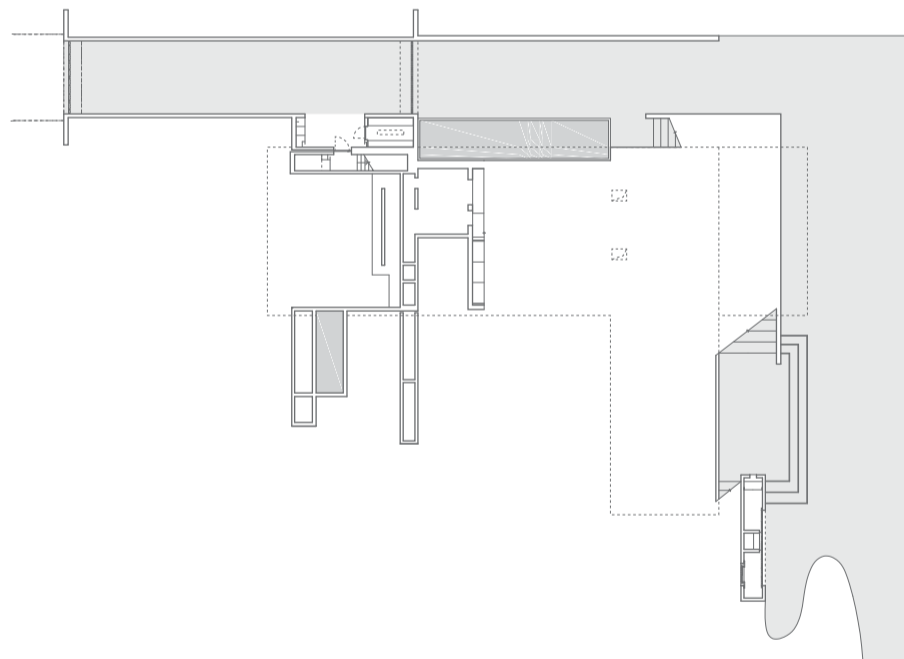
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that tempers the rigorous, sculptural form



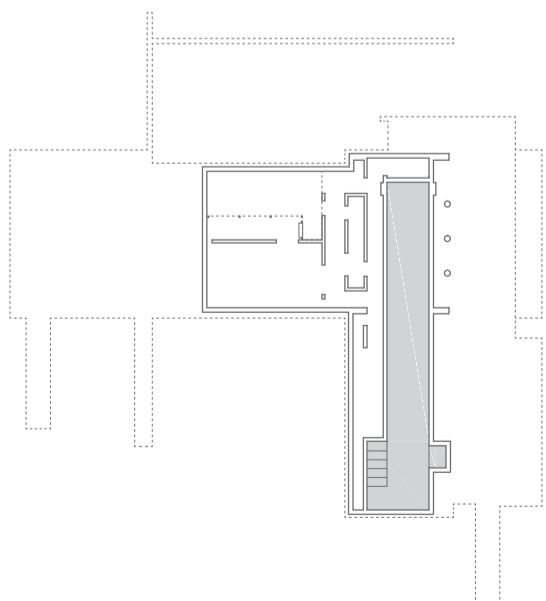
First floor



Ground floor



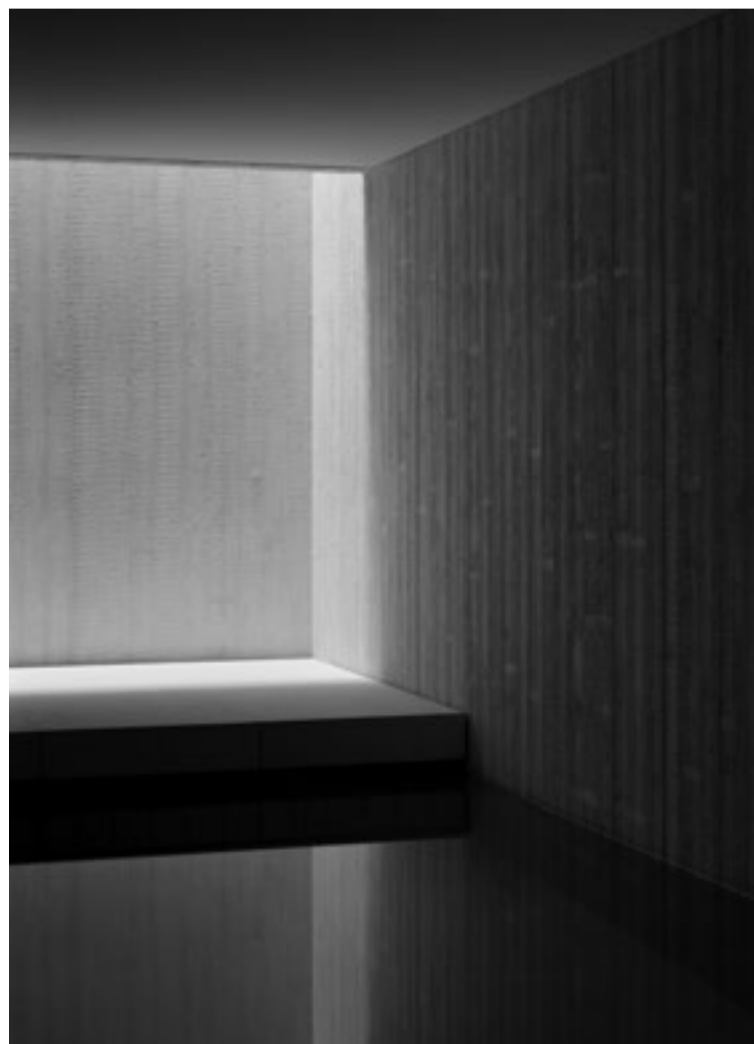
Minus 1a



Minus 2



Project Villa Waalre
Location Eindhoven, Netherlands
Architect Russell Jones
Project Team Eleni Makri, Melissa Beasley, Malcolm Thorpe, Nicholas Ierodiaconou, Ross Tredget, Nick Vullings, Hannah Guy
Project Management Royal Haskoning
Main Contractor BurgtBouw
Structural Engineer Arup Amsterdam
Environmental + Hydraulic Services Gebr.Van Hout
Electrical Services Mansveld
Landscape Strategy Studio Diekema
Photography H el ene Binet





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IT IS A GARDEN, NAGANO JAPAN

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ASSISTANT

the slant of light at ever-changing angles, the shadows of the forest, as well as *komorebi* – the interplay of light filtered through trees – make a garden of dappled shadows >

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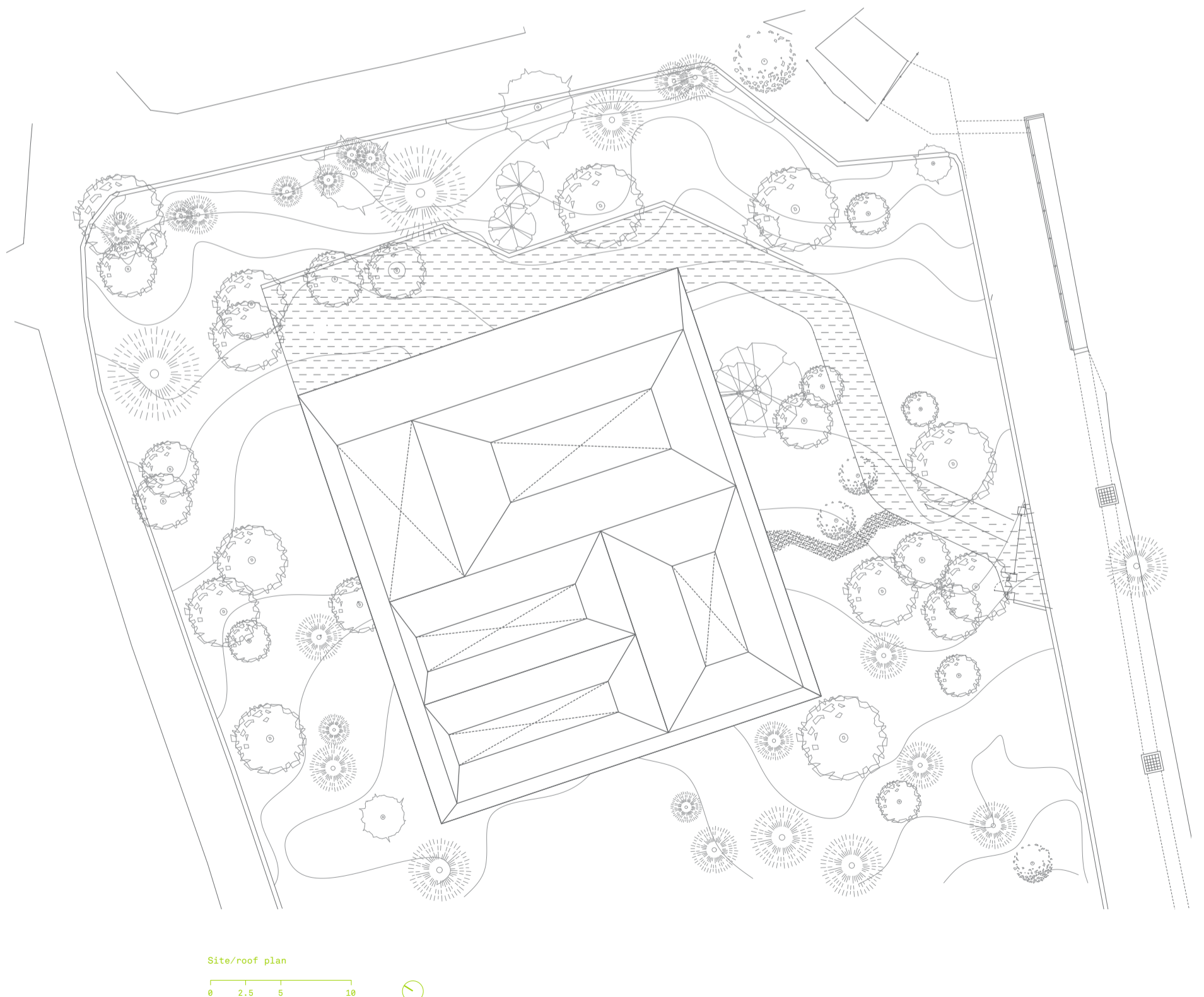
> This house, by Japanese architects Hiroi Ariyama and Megumi Matsubara of ASSISTANT, a Tokyo-based practice, stands in the forest of Karuizawa, in the mountains near Nagano, Japan. Designed as a guest house, with a private art gallery for its owner's extensive collection, the single level building, square in plan, is defined by five courtyards opened to the sky and the dense forest immediately outside its walls. It surrounds and is surrounded by the trees and plants of the forest.

Made entirely of reinforced concrete and black glass, roof planes fold inwards to draw and bounce light, as well as shadows and reflections of the surrounding nature, directly into the house. Ceilings of almost flawless white concrete are designed to create a rhythmic geometry to support the simplicity of the exterior. All rooms face into the courtyards, each of which is distinct in character, each designed to receive light and shadow at different times of the day.

The concept of vertical interplay of the sun through the courtyards, juxtaposed with transversal connections to the forest outside, are critical to the design of the house, whose volumes have been made to receive those elements across all dimensions: the slant of light at ever-changing angles, the shadows of the forest trees, as well as komorebi – the interplay of light filtered through trees – make a garden of dappled shadows dancing across the floor at the pace of the moving sun and wind. Expansive glass walls and windows create a garden of kaleidoscopic reflections of trees and plants projected onto them from every courtyard. The result is dynamic. A house of no walls, open to the sky and the ever changing forest outside its “invisible” boundaries.

Megumi Matsubara has spent the last five years working between Morocco and Japan, constantly travelling between the two countries. It is her direct experience and understanding of the two cultures, of the interplay between light and shadow and space which has been integrated into the primary concept for this house. A hybrid of the traditional Japanese relationship to nature, which is horizontal, borrowing from surrounding landscapes; and that of Islamic culture, which is vertical, inviting light in from above. Conscious use of large expanses of glass, as well as strict structural integrity to draw light from above are at play here. Complex phenomena occur within the resulting interior spaces. Light and shadows move freely as if they were inhabitants of the house.

Spaces around the five courtyards are designed according to the times of day and the coursing of natural light entering the house. “For example, the gallery space is located at the corner that receives the first rays of sunshine, and the master's bedroom is located just across the same courtyard from which the gallery walls receive the sunlight every morning,” Megumi Matsubara says. “The sleeper does not directly see the sunrise cast on the bed but every morning, waking up sees the gallery wall with his favourite works lit up by the fresh morning light. You wake up to the sunrise, see the reflections of nature and hear the singing of birds and rustle of leaves. Besides this, there are shifts of days and seasons, the changing colour of the sky. Everything is moving within and around the house in harmonious complexity. The sun creates delicate and delightful phenomena, moving freely inside the house, entertaining and embracing the visitors as a perfect host. The sun rises and sets. The moon waxes and wanes. This unbroken rhythm of light, to which we submit the entire architecture, defines this house,” she says. **Joe Rollo**

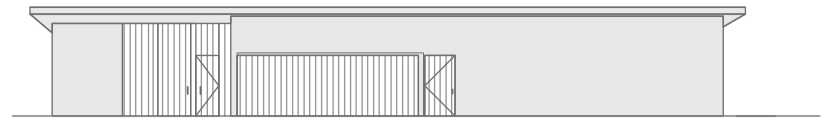


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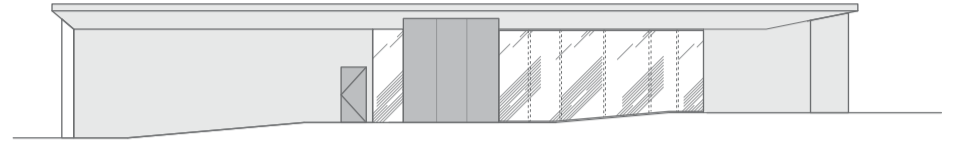




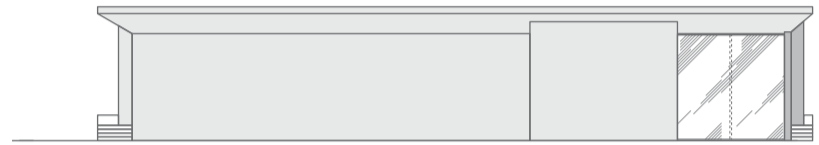
the interplay between light and shadow and space have been integrated into the primary concept for this house



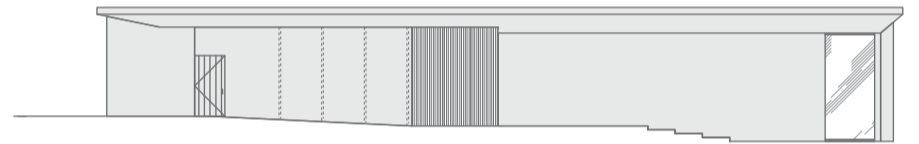
North elevation



East elevation



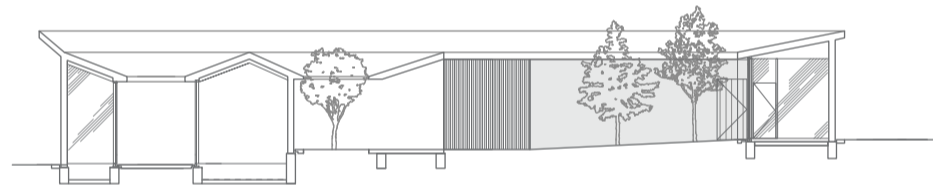
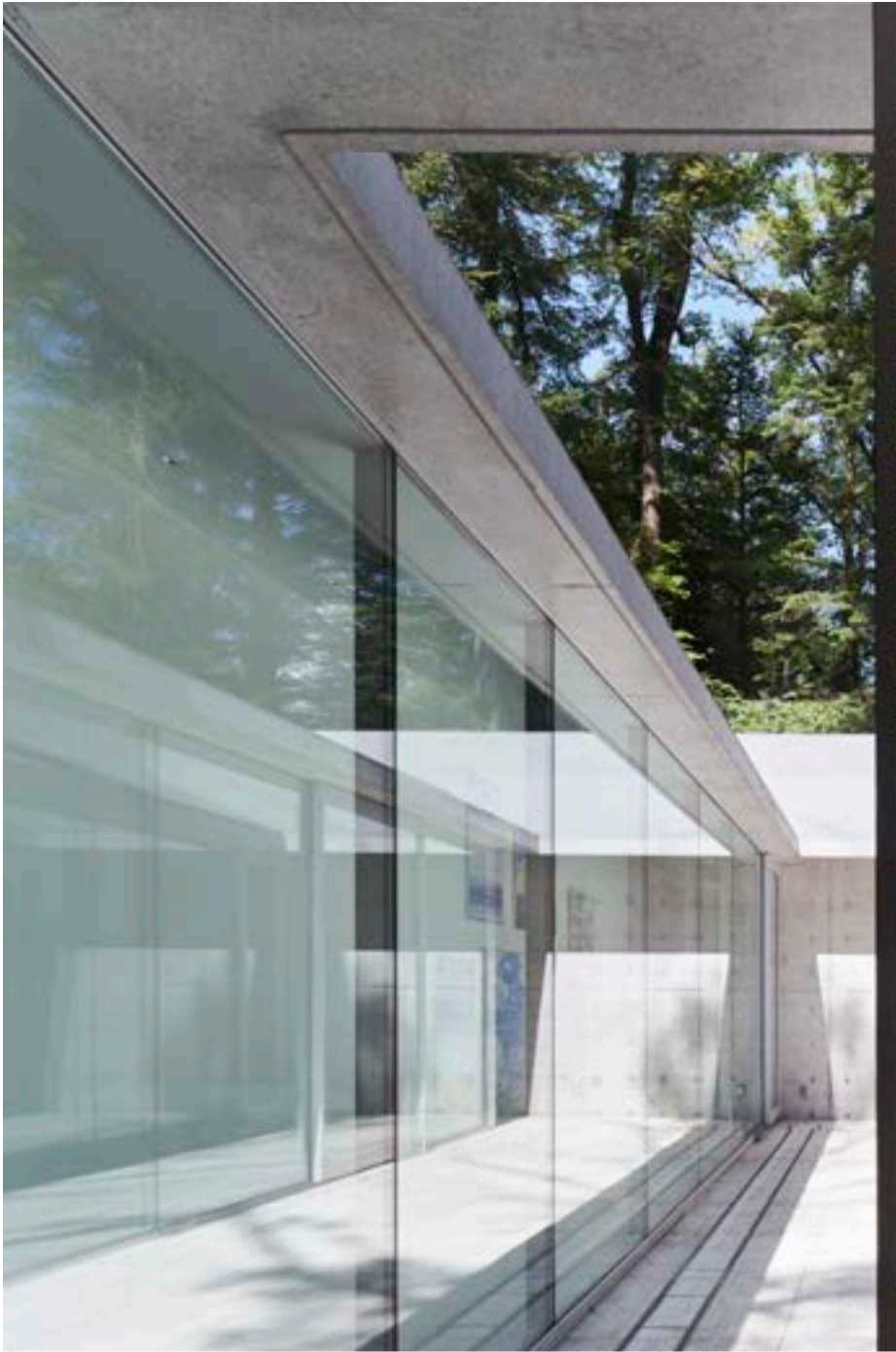
South elevation



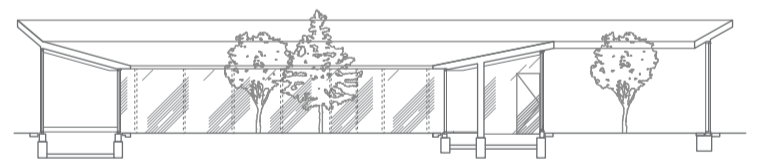
West elevation

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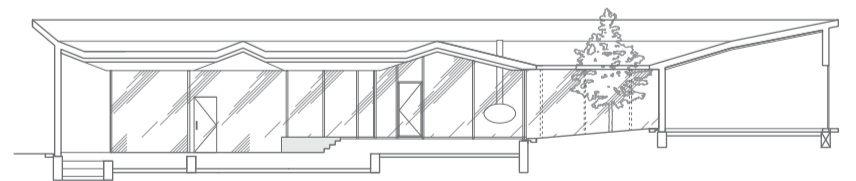




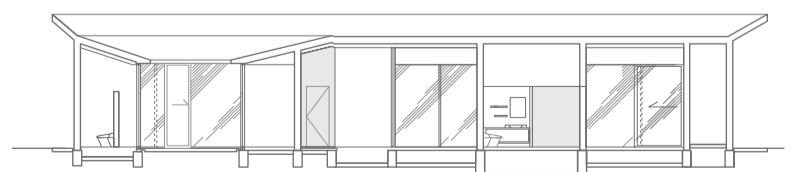
Section AA



Section BB



Section CC



Section DD





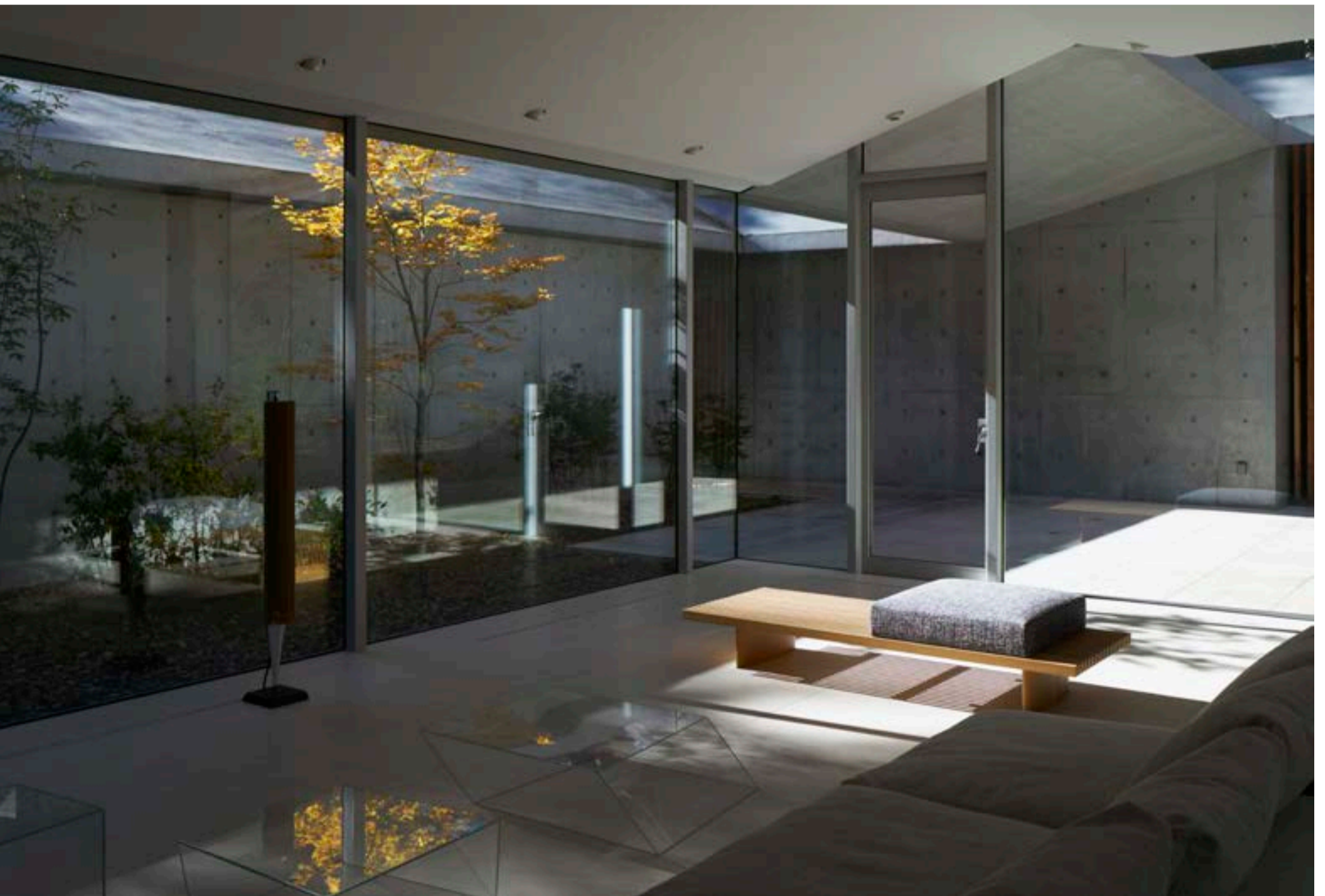






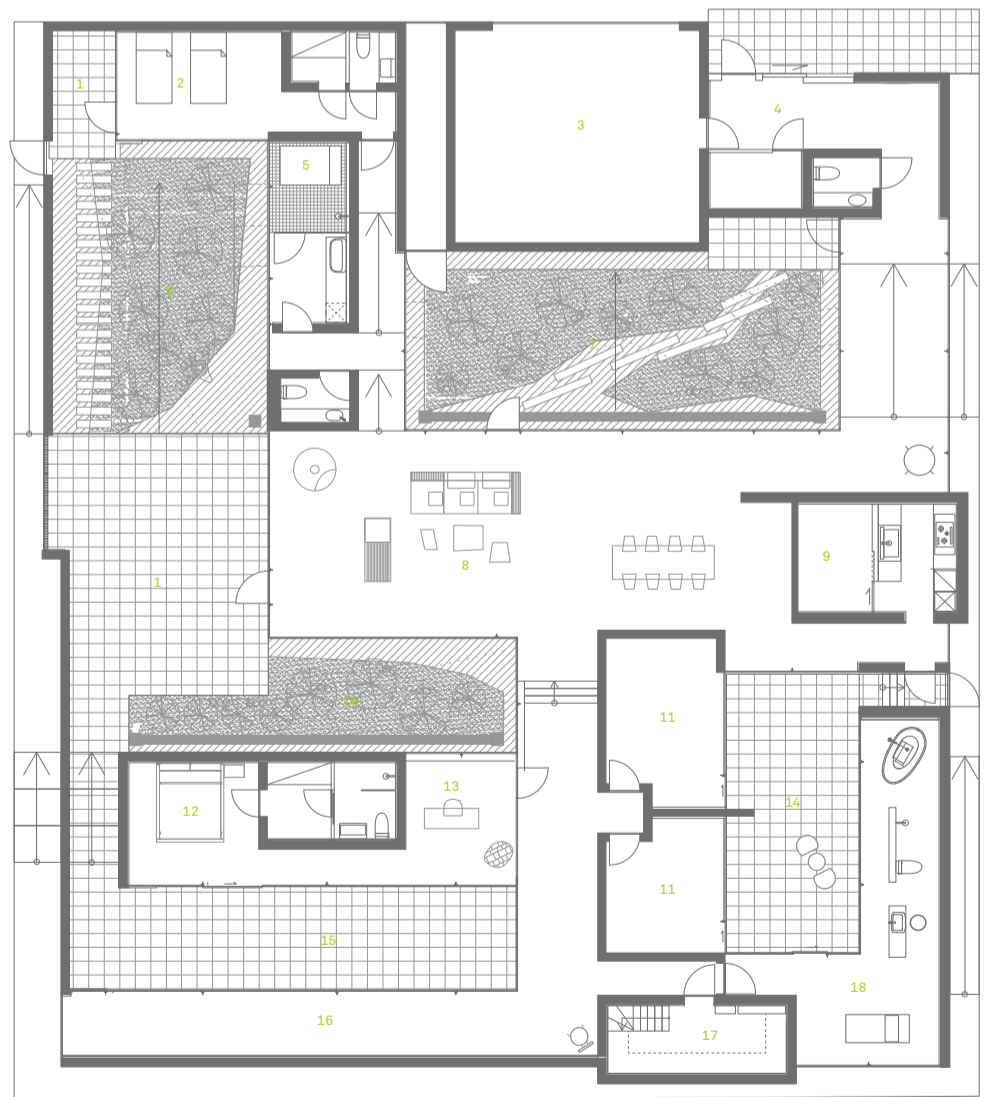


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concrete receives light and shadows
without blinding one's eyes... glass reflects
kaleidoscopic images



Plan

- | | |
|-----------------|-----------------|
| 1 Veranda | 10 Courtyard 4 |
| 2 Guest room | 11 Bedroom |
| 3 Garage | 12 Main bedroom |
| 4 Entrance | 13 Study room |
| 5 Main bathroom | 14 Courtyard 2 |
| 6 Courtyard 5 | 15 Courtyard 3 |
| 7 Courtyard 1 | 16 Gallery |
| 8 Living room | 17 Storage |
| 9 Pantry | 18 Bathroom |







Project Statement

In order to welcome light, concrete and glass became the two main materials for this house. We simplified the materials in order to receive the complex phenomena in the architecture. Concrete receives light and shadows without blinding one's eyes. Glass reflects kaleidoscopic images amplifying delicate phenomena designed to occur in the house. As opposed to the closed look from outside, once entering inside, the interior space is ultimately connected to the surrounding nature. The contrast makes the link to the nature more intimate and stronger. Our architectural language expresses chance and movement. The interplay of light, wind, trees, even living creatures like birds, their reflections and shadows, are deliberately designed to be part of the space, as much as human lives that occur within. Our role is to bring about this balance, so that architecture speaks of itself through the whisper of all those inhabitants. It is this quality of eventful void that we believe in architecture that we continue to challenge towards further awareness of space. We architects answered that the first priority of this house should be the sunlight, light being the permanent host, closest cohabitant. ASSISTANT

C + A

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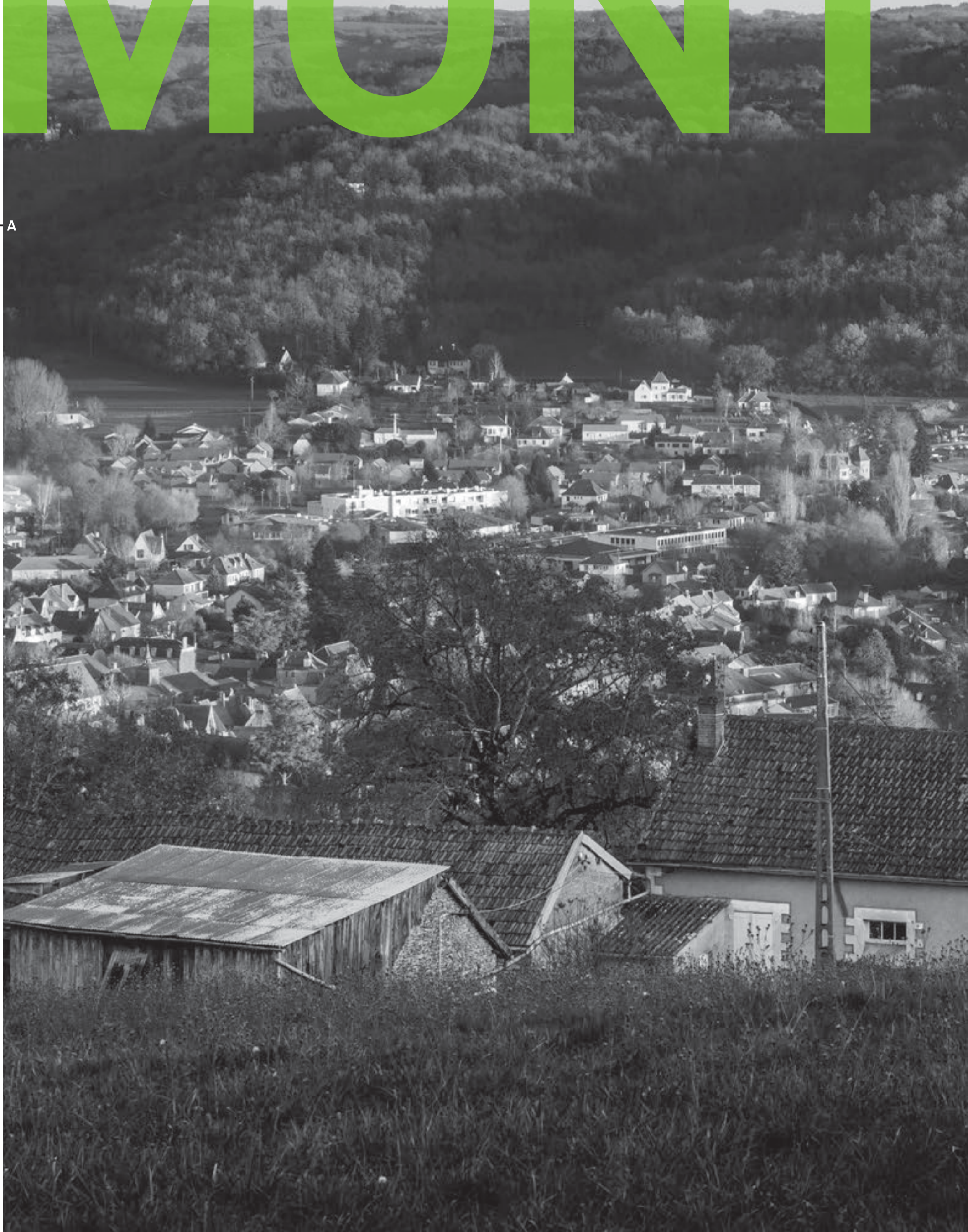






MONTE

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IGNIAC

International Centre
for Cave Art
Montignac France

Snøhetta +
Casson Mann

a deep canyon-like cut into the hillside, of inclined striated concrete walls, sandblasted to suggest geological layers >

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> Widely celebrated by archaeologists as the 'Sistine Chapel' of prehistory, the Lascaux Cave at Montignac in the Dordogne region of south western France has, since its discovery in 1940 by four boys chasing their dog down a fox hole, attracted hundreds of thousands of visitors each year to look and wonder at the prehistoric art inscribed on its walls. Dated back to 20,000 years, the 600 paintings and 1,400 engravings stand among the finest known examples of cave art from the Palaeolithic period. Pressure to protect the paintings forced the permanent closure of the cave in 1963. A full scale replica of the cave, known as Lascaux II, was constructed nearby and opened in 1983 as a mock-up experience for up to 250,000 visitors a year. Lascaux III, a traveling replica, followed in 2012.

Lascaux IV, the International Centre for Cave Art, an 8,365 square metre exhibition and interpretive centre, opened last December half a kilometre down the hill from the original cave, at the intersection of a densely forested hillside and rolling farmland of the Vezere Valley, beside the small town of Montignac. Designed by Norwegian architects Snøhetta in partnership with London-based scenographers and exhibition designers Casson Mann, this new building has been created to seem, on first encounter, like a fissure on the land.

At a distance, it resembles a jagged, geological fault line running across the land. Up close, it is enormous, a deep canyon-like cut in the hillside, of inclined striated concrete walls, sandblasted to suggest geological layers, directing visitors to six galleries and a replica of the original cave. Here, canted walls, roof, the deep façade band and interior and exterior floor surfaces are made of insitu architectural concrete, providing the building with its monolithic expression. The raw, unfinished treatment of the concrete evokes the mineral world, the rock of the hills and interior of the cave itself.

Glass, framed by a deep band of concrete, defines the façade and the roof of the orientation space, drawing light, creating visual connections between the exterior and interior of the building. The interplay of concrete and glass produces a series of contrasting effects between opacity and transparency, light and shadow, rough and smooth, incompleteness and sophistication.

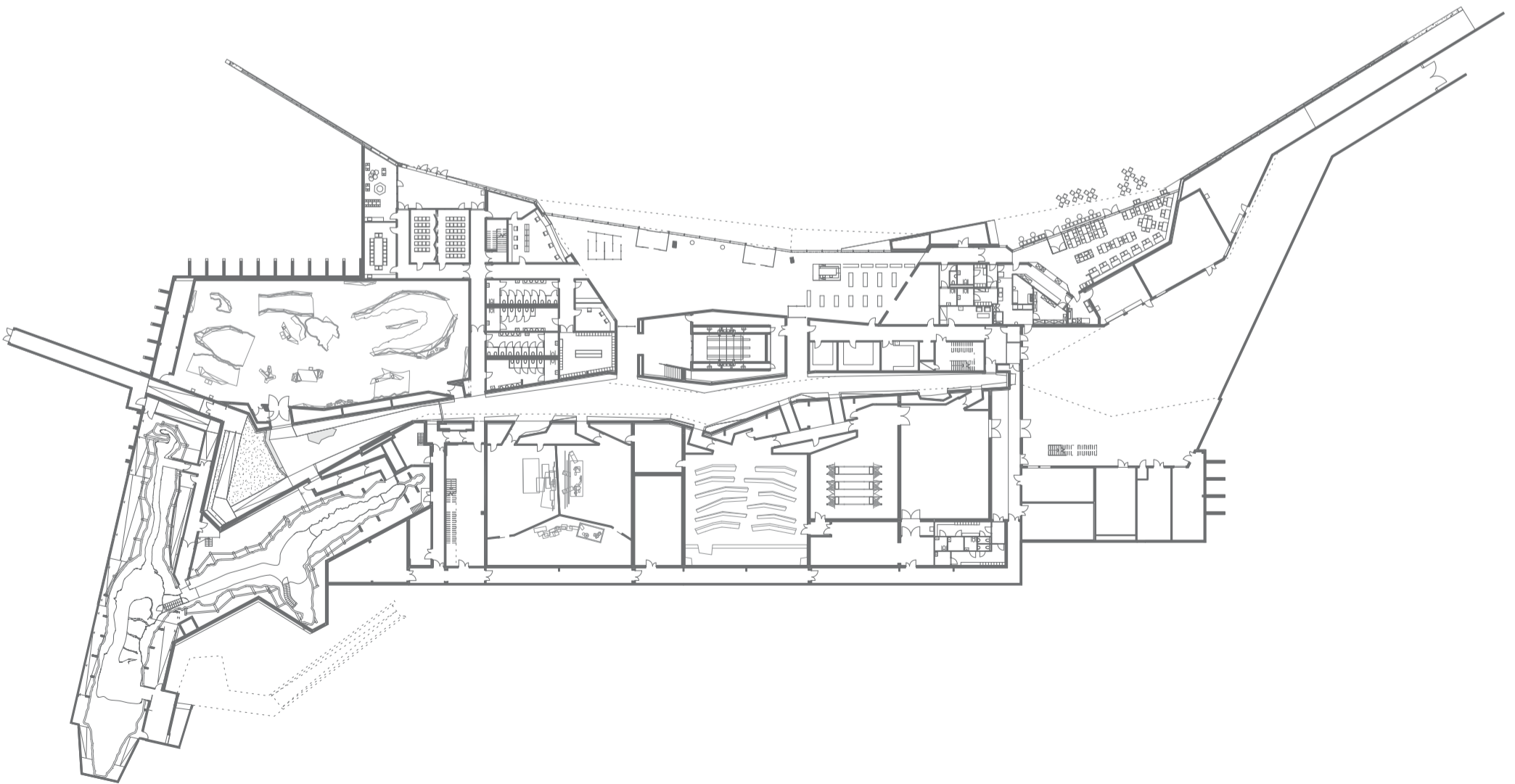
The cut along the spine of the building drags light into the public spaces, tracking sun and cloud throughout the course of the day. As visitors make their way through the building, the changing light conditions highlight the various functions and atmospheres of each space. From the darkness in the cave replicas, to the open sky in the garden, to the shadow play in the orientation zone, visitors move through a sequence of lighting conditions carefully attuned to how the eye responds to light and darkness.

Six gallery zones, including a theatre, are included in the centre, the journey carefully sequenced, climbing first to a belvedere on the roof, with views down the Vezere Valley, before descending towards the cave facsimile, following the incline of the roof towards the edge of the forest until reaching the entrance to the cave replica. The cave was created using the most advanced 3D laser scanning and casting technologies to replicate it to within one millimetre of the original. Twenty five artists spent two years hand-painting 900 metres of resin rock reproductions. To ensure the highest level of accuracy, artists applied the same pigments as those used by its prehistoric decorators 20,000 years ago to recreate the hundreds of paintings and engravings which adorn the walls of Lascaux IV. **Joe Rollo**



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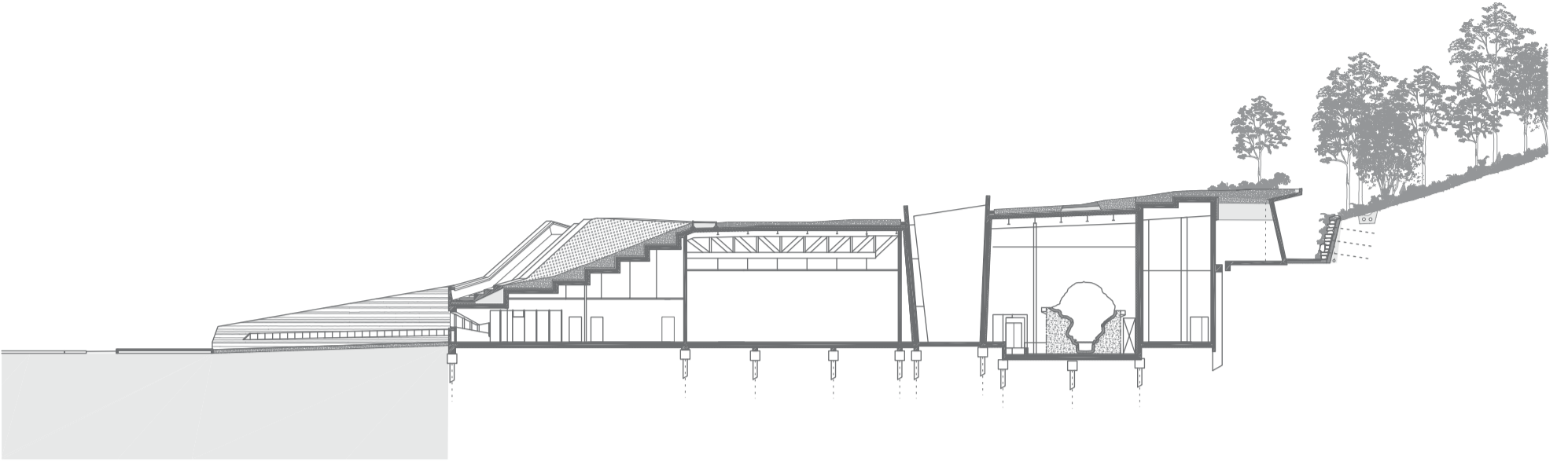
the raw, unfinished treatment of the concrete evokes the mineral world, the rock of the hills and interior of the cave itself











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Project Statement

The new International Centre for Cave Art in Montignac welcomes visitors to an immersive educational experience of the historic Lascaux cave paintings. As an interpretation centre featuring state-of-the-art experiential storytelling technology paired with a facsimile of the caves, Lascaux IV offers an opportunity to discover the caves in a unique way that reveals a sense of wonder and mystery.

The new museum is situated between a densely-forested hillside and the agricultural Vezere Valley. Snøhetta's architecture conceives the museum as a fine cut in the landscape, inviting visitors into a curious world of prehistory. By framing the experience of the cave replica in contemporary design, the approach counters the potential trap of artifice: the materiality and geometry of the approach allows visitors to understand they are in the presence of a reproduction, without distracting from the power of its impact. The form and materiality have a monolithic, sober expression, speaking to the surrounding nature and the massive rock formations embedded in the hill.

The visitor experience is carefully sequenced, starting with ascent to a belvedere on the roof of the building before making a descent along a gentle slope to the cave facsimile, facilitating a mental transition through time and space, creating an experience similar to that of the cave's first discoverers in 1940.

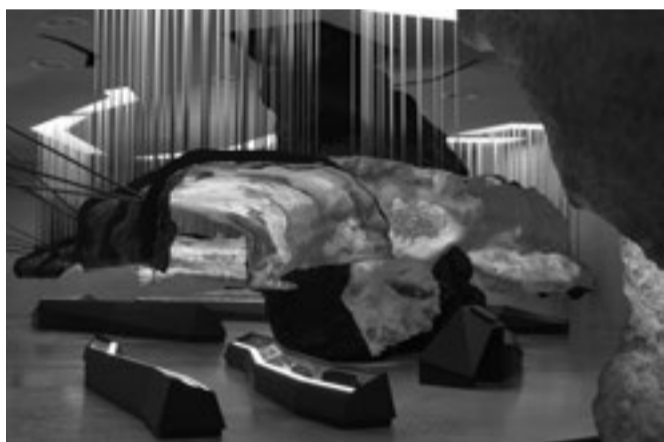
Inside the cave facsimile the atmosphere is damp and dark, re-creating the humidity within the caves. Sounds are muffled;

the temperature drops. This sequence is dedicated to contemplation, allowing an experience of the sanctuary as it was. Lights flicker just as the animal fat lamps of Paleolithic times did, revealing the layers of paintings and engravings on the walls. A transition space known as the Cave Garden provides an opportunity to re-adjust to the exterior context following the intense experience of the cave replica. Throughout, the juxtaposition between descent and ascent, inside and outside, earth and sky, nature and art, evoke an analogous experience of the caves.

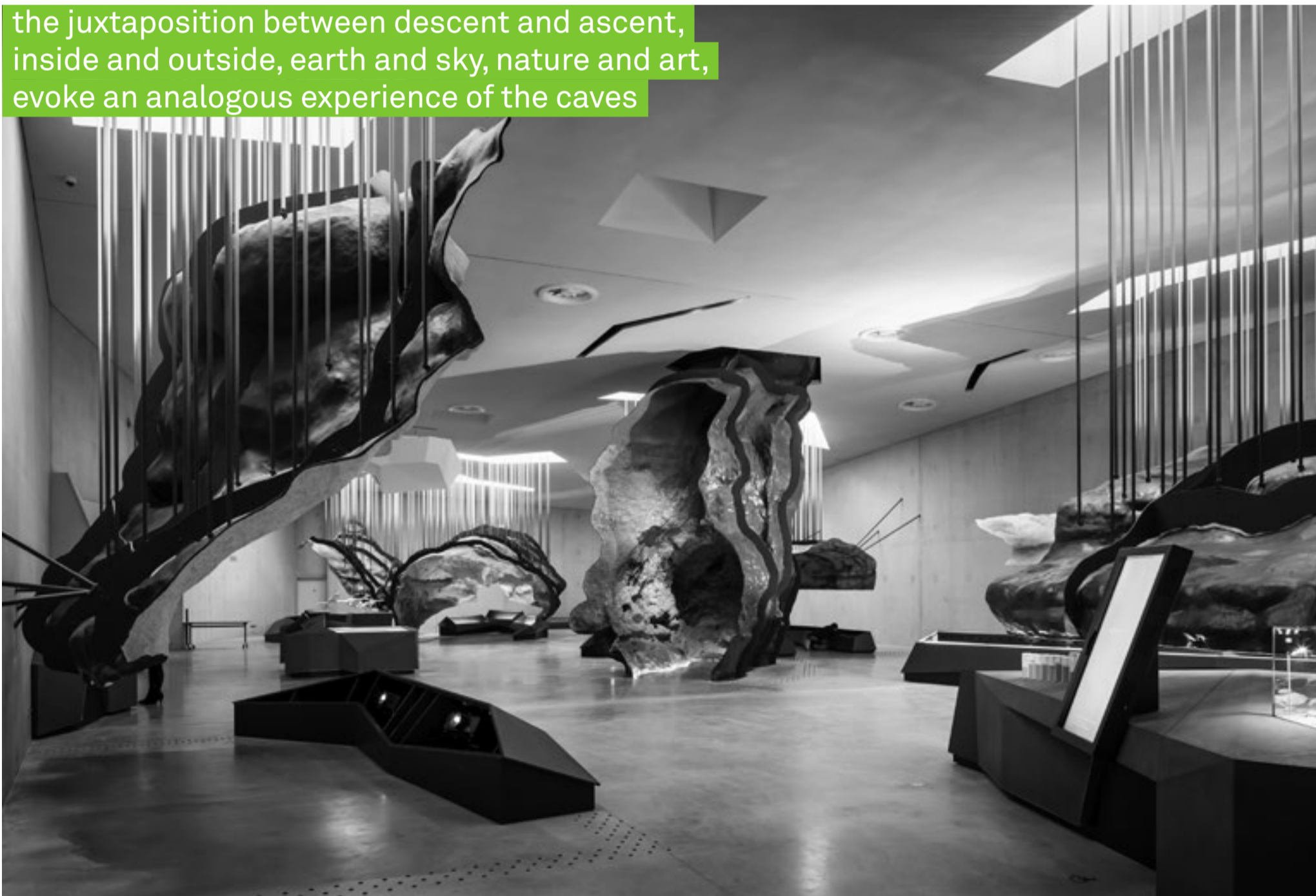
A fissure of daylight illuminates the orientation zone between the multiple educational spaces. Casson Mann's installations are enhanced by digital learning experiences, employing new technological devices and interactive screens to offer the findings of the most recent research from expert pre-historians and archaeologists.

Exhibition spaces include The Workshop, with eight hanging rock wall fragments; the Cave Art Theatre, where a three-act play using light, sound, movies and objects are used to give life to the story of the Lascaux cave. In the cinema, stereoscopic glasses take visitors on a 3D digital journey through the cave. In the Imagination Gallery, visitors are able to explore the influence of prehistoric cave art on modern and contemporary artists.

Snøhetta + Casson Mann



the juxtaposition between descent and ascent, inside and outside, earth and sky, nature and art, evoke an analogous experience of the caves





Project Lascaux IV – International Centre for Cave Art
Location Montignac France
Architect Snøhetta
Scenography Casson Mann
Landscape Architect Snøhetta
Interior Architect Snøhetta
Associate Architects SRA Architectes, Duncan Lewis
Scape Architecture
Virtual Reality Jangled Nerves
Acoustic Engineer Commins dBlab
Lighting 8'18"
Structural Design Khephren Ingénierie
Photography Supplied by Snøhetta



UC Innovation Centre, Santiago Chile
Alejandro Aravena – Elemental 2014

REARVIEW

This 14-storey concrete building, the UC Innovation Centre – Anacleto Angelini, at the Catholic University of Chile in Santiago, Chile, resulted from a desire to foster exchanges of knowledge between companies and researchers, to enhance business opportunities within a matrix of formal and informal areas, meeting spaces and work areas, designed to encourage interactions between its various occupants. It takes the form of a tower of massive blocks of reinforced concrete, stacked and assembled, not unlike blocks in a Jenga game, with pieces “removed”, creating a series of openings and protrusions. Openings, fronted by glass balconies, act to both ventilate the network of interior spaces as well as draw light into the building. Internally, a central transparent core rises for the entire height of the building, encouraging interaction and vertical circulation. First suggested as a glass tower, Alejandro Aravena proposed a tower of solid mass of concrete better suited to Chile’s extremes of climate. Aravena, who describes the building as “a return to more primitive forms of architecture”, says its form was a result of “wanting to get away from the sun, not go looking for the sun.” The tower, which has three storeys below ground, uses about half the amount of energy of a glass building.

Photograph: Felipe Díaz Contardo

