

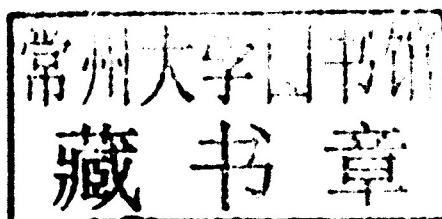
The background of the entire page is a detailed architectural section drawing of a building. The drawing is rendered in white lines on a dark grey background. It shows various structural elements, including walls, floors, and a staircase. There are numerous small numbers (1 through 24) scattered throughout the drawing, likely indicating specific components or materials. In the bottom right corner, there is a large, solid red circle.

Detail in Contemporary Residential Architecture

Virginia McLeod

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in 2012 by
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Virginia McLeod

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Picture Research by Sophia Gibb
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The private house occupies a unique position in architecture and in the history of human culture. The house is the domain of the family, of domestic activities and is used for living, working, eating and sleeping, and as a private place where individuals and families enjoy their personal lives. However, the house in its traditional form – a series of common rooms and separate sleeping areas – has undergone a number of radical changes over the last century in which the possibilities for self-expression in the domestic environment have revealed a new platform for architectural experiment. Shifts in social patterns have also fuelled this experimentation. Architects now design houses for many different types of households – single parent families, couples without children, multi-generational families, and so on. Along with social change, the pace with which technology has developed over the past 50 years, in particular computer and construction technologies, have combined to offer more and more possibilities for what a house contains, what it looks like and to whom it caters.

Construction details are as vital a part of architecture as its external form and interior layout. Whether so subtle as to be invisible, or revealed as extraordinarily complex, details determine the quality and character of a building. Good detailing entails exercising the utmost care and attention at the junctions between materials, between the different elements of a building and where a material changes direction. Through details, the myriad parts that make up a building come together to form a whole – joints, connections, seams, openings and surfaces are transformed via a combination of technology and invention into a building.

We are accustomed to being presented with photographic representations of architecture in books, magazines and on-line, with the inspiring image continuing to be the focus of the two-dimensional representation of architecture. Increasingly these images are now often accompanied by floor plans to provide a better understanding of the way a building works. The availability of floor plans is, of course, of enormous assistance in helping us to understand the spatial sequences, the extent and scale of a building, however it is not inherent in the purpose of a plan or a photograph, even if accompanied by a section, to reveal the individual elements – literally the nuts and bolts – that go together to make up a wall, a floor, a roof, a window, a staircase, a kitchen, and so on. Construction details, however, do just this, and this book unites the photograph, the plan and section, as well as the details to bring to the reader a comprehensive insight into the true workings of the building.

Architects draw details specifically to reveal the inner workings of a building – primarily, of course, they are used by the builder in order to put the building together. Readers of architectural publications, however, are all too rarely given the opportunity to examine the details – the ‘real’ representation of how a building is put together. This book aims to remedy that situation and provides a guide to the inner workings of over 50 of the most inspiring examples of contemporary domestic architecture. This book brings to the reader what has previously been hidden behind the façade, what had previously remained invisible. These details reveal not only an ‘x-ray’ of the houses presented, but an insight into the cognitive processes of the architects who brought the houses into being.

Architectural details make up to 95 per cent of the sometimes hundreds of drawings produced to describe the way a building is put together. They act as the means by which architects communicate their intent to builders, engineers and other participants in the building process.

They also act as one of the most challenging intellectual and technical exercises for any architect, producing as they must, a series of what are essentially graphic representations of every single junction and connection in a building. Almost exclusively made up of two-dimensional representations (plan and sectional drawings), the challenge resides in the architect’s ability to imagine the most complex of junctions, assemblies and components in three dimensions – as they will actually be built on site – and transfer them on to paper, or on screen, into two dimensions, into the conventional drawn representations that have been used in the construction industry for decades, even centuries.

While the selection of details presented for each of the houses in this book is necessarily limited by space, they nonetheless go a long way towards deconstructing the image of the finished building. They not only inspire, they also help us to understand the thought that went into the making of the building and perhaps the technical problems that were solved along the way.

Details also reveal the preoccupations and specialties of an individual architect. Each of the architects in this book were asked to provide their personal selection of the details that they felt best represented the house in question. As a result, a focus on the way glazing is put together with the materials that hold it in place may be revealed in some projects, while the sculptural qualities of a balustrade or even a recessed light fitting may come into focus through the details in others.

In many cases, details also reveal cultural differences as well as commonalities. The scope of this book covers five continents – Europe, North America, South America, Asia and Australia. Many of the houses appear to have aesthetic qualities in common, perhaps revealing similarities in the way architecture is taught at universities around the world, as well as the contemporary cultural influences that cross geographical boundaries. However, many differences are revealed in the details. The climate or economics in one country or region may make concrete inappropriate or too expensive to use in a domestic context. Timber or stone may, instead, be the most available, affordable material.

Similarly, differences in the traditions of the building trades are also revealed in the details. For example, bamboo is used as an every day necessity in the building industry in China where it has been used for centuries, most notably for scaffolding. The familiarity and expertise with which Chinese builders are able to manipulate this inexpensive and readily available material is virtually unknown in the west. This expertise is brilliantly utilized by contemporary architects working in China who relish the opportunity to take advantage of the consummate ease with which Chinese builders work with bamboo. This can be seen in projects such as Kengo Kuma’s Bamboo Wall House and MADA s.p.a.m.’s Father’s House, both in China. In the former, bamboo has been used for almost the entire building, interior and exterior, horizontal and vertical surfaces, and in the latter the beauty and versatility of the material is revealed in the polished bamboo matting that is employed as a surface treatment for interior walls and floors.

In Australia, a 200 year tradition of building with timber is illustrated in the work of Peter Stutchbury (the Verandah House), Drew Heath (the Zig Zag Cabin) and Sean Godsell (the Peninsula House). Over time, the level of sophistication with which this ubiquitous building material is used has reached a level of artistry that goes well beyond what might ordinarily be thought of as a timber construction. Like bamboo in Chinese construction, and indeed concrete in Japanese architecture, timber is used by these

architects as the primary medium with which to express an architectural intention, which is again manifested in the quality of the detailing.

This volume also reveals some of the most surprising and perhaps even bewildering houses of recent times. For example, the Natural Ellipse in Tokyo by Masaki Endoh + Masahiro Ikeda, constructed from fibre reinforced polymer, Kengo Kuma's Plastic House in Japan constructed almost entirely from white plastic, and Simon Conder's Black Rubber Beach House clad in ethylene propylene diene monomer (EPDM). In houses such as these, the image of the building has quickly become iconic, made, as they are from materials rarely, if ever, used in domestic construction. The construction details, however, reveal the creative thinking behind the icon, as well as the reality of designing the components and junctions that make such unusual materials useful as weather-proof domestic shelters.

Another important aspect of contemporary house design is the emergence of environmentally responsive architecture. Many innovative approaches to designing appropriately for climate and to reduce the amount of energy used both in the construction and operation of buildings have found expression in domestic architecture. While this book is presented in chapters based on the main construction material, examples of environmentally responsive houses appear throughout the book. Here, we see some of the most unusual materials in detail, including straw bales in Sarah Wigglesworth's Stock Orchard Street House in London, solar panels in Pugh + Scarpa's Solar Umbrella in California and Georg Driendl's Solar Tube in Austria that employs a central atrium to act as a heat sink in winter and ventilator in summer. Again, the mechanics, the junctions, the materials and their importance to the way the house as a whole works, is revealed in the details.

Despite the effects of social, cultural and technological change, the houses in this book reveal that the typical brief for a house, large or small, remains relatively unchanged. But perhaps because it is so thoroughly known, both by the clients who commission them, the architects who design them and the builders who construct them, it has proven again and again to be fertile ground for experimentation and the search for perfection. Free from the inhibiting control of developers, and often inspired by adventurous and free-thinking clients, architects have embraced the opportunities presented by domestic architecture. Here, this creativity and insight are revealed in the details – just as important in contemporary architecture as site orientation, façade composition and the disposition of the rooms. It is in the details that the architect is free to approach every door, every window, every stair, in fact every screw, bolt, connection and assembly, with the same degree of attention that we might ordinarily associate with product design or sculpture. It seems fitting, therefore, that this book bridges the gap between two dimensions and three, and between images and reality to reveal the true nature of architectural detailing.

Virginia McLeod

Notes

Imperial and Metric Measurements

Dimensions have been provided by the architects in metric and converted to imperial, except in case of projects in the USA in which imperial dimensions have been converted to metric.

Terminology

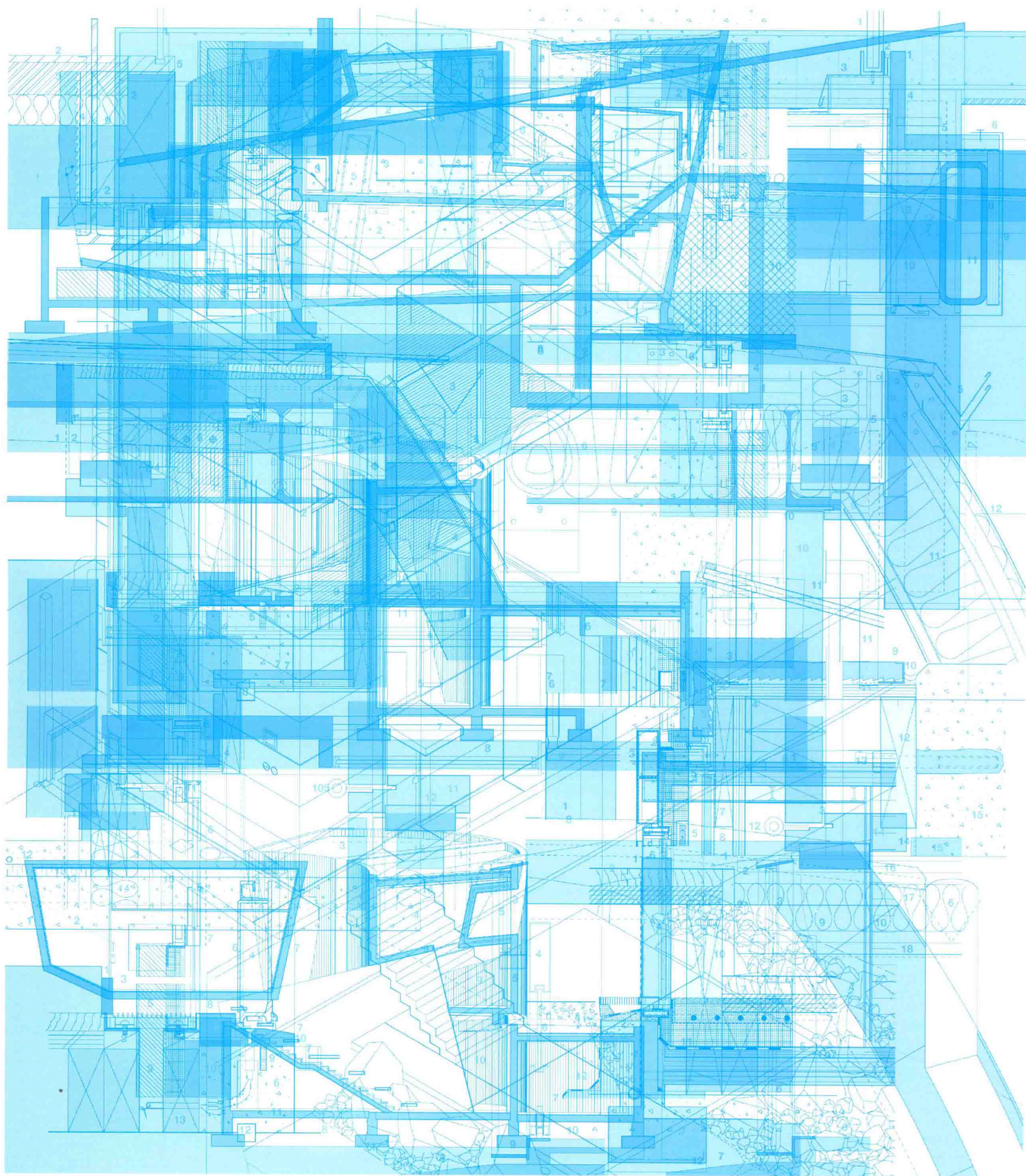
An attempt has been made to standardize terminology to aid understanding across readerships, for example 'wood' is generally referred to as 'timber' and 'aluminum' as 'aluminium'. However materials or processes that are peculiar to a country, region or architectural practice that have no direct correspondence are presented in the original.

Floor Plans

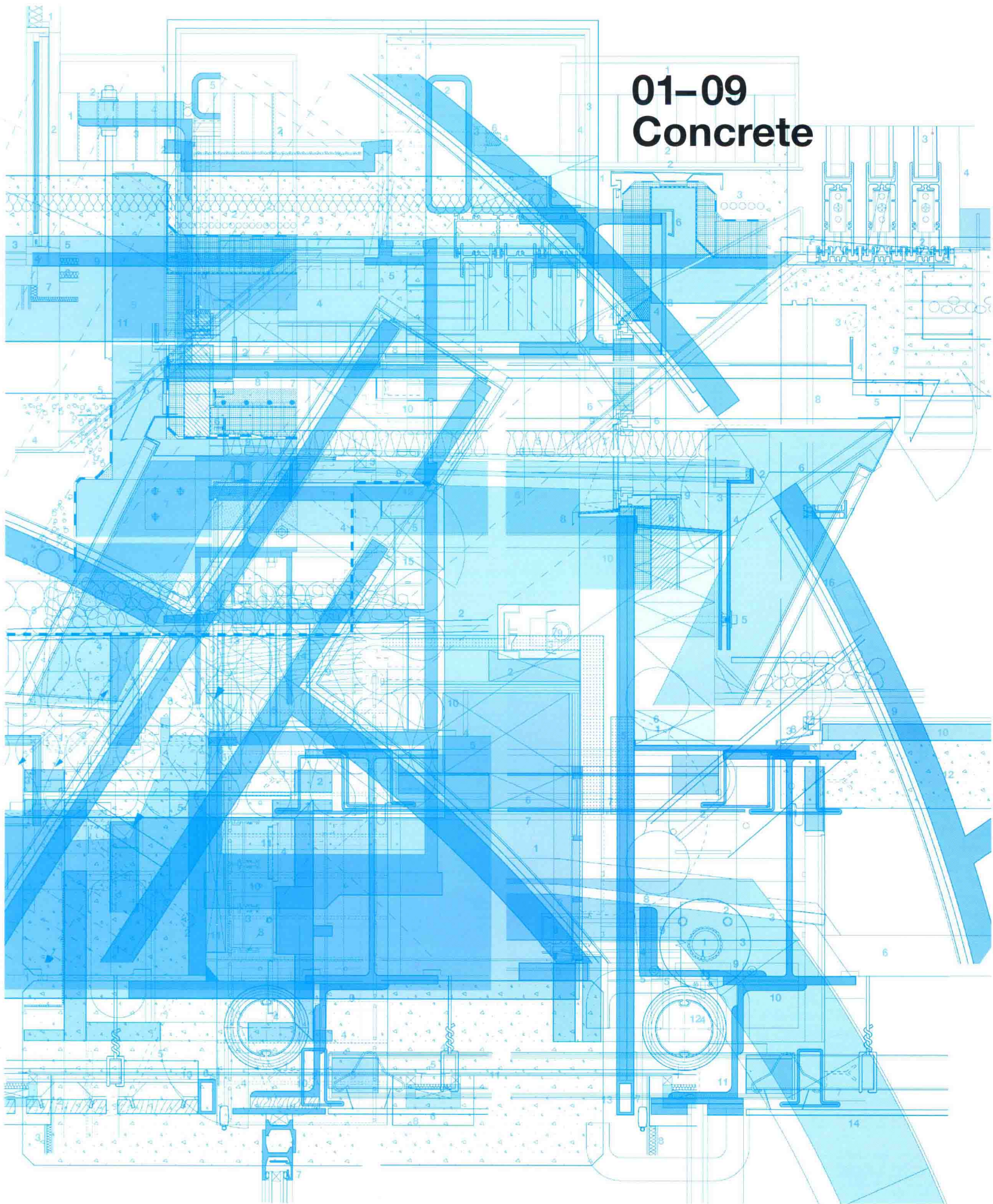
Throughout the book, the following convention of hierarchy has been used – ground floor, first floor, second floor, and so on. In certain contexts, terms such as basement level or upper level have been used for clarity.

Scale

All floor plans, sections and elevations are presented at conventional architectural metric scales, typically 1:50, 1:100 or 1:200 as appropriate. An accurate graphic scale is included on the second page near the floor plans of every project to aid in the understanding of scale. Details are also presented at conventional architectural scales, typically 1:1, 1:5 and 1:10.



01-09 Concrete



01
Alberto Campo Baeza

De Blas House
Madrid, Spain

Client
Francisco de Blas

Area
200 square metres (2,150 square feet)

Project Team
Alberto Campo Baeza, Raúl del Valle
González

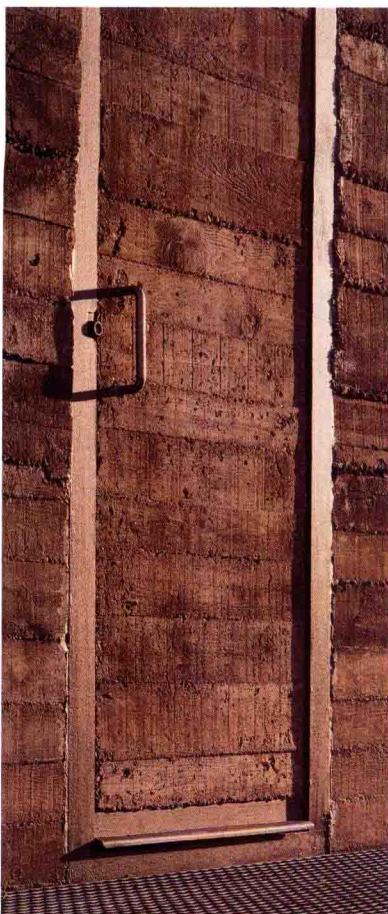
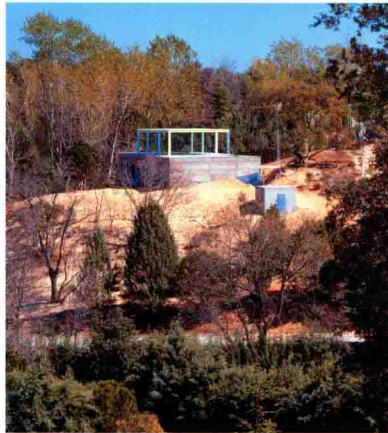
Structural Engineer
M^a Concepción Pérez Gutiérrez

Clerk of Works
Francisco Melchor

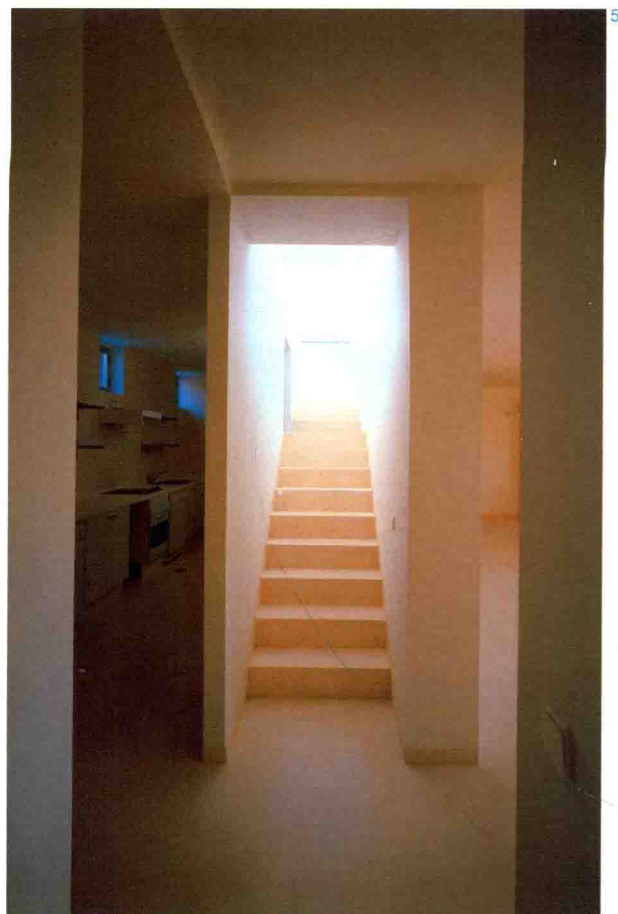
Builder
Juan Sáinz, Siete Encinas

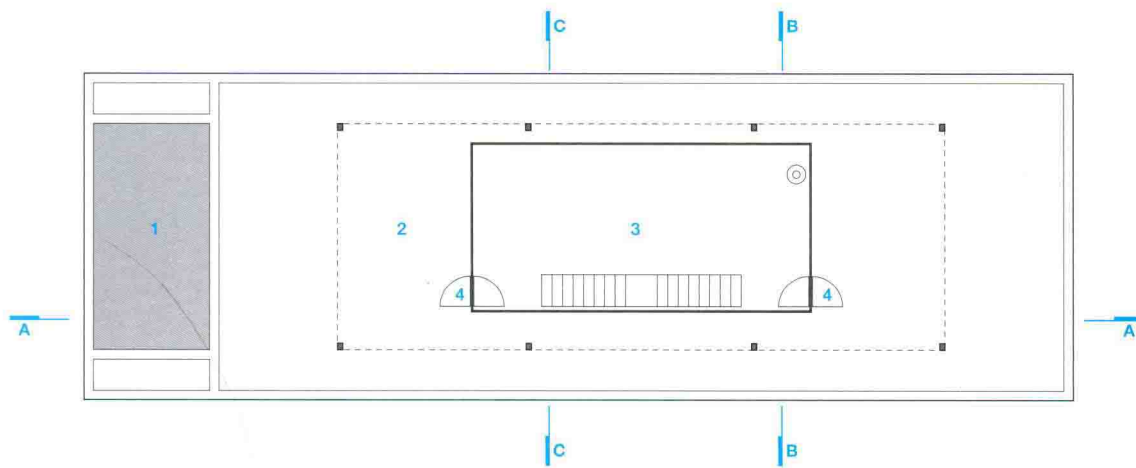
The house is located on the top of a north-facing hill on the outskirts of Madrid, overlooking a tranquil village in a valley with a mountain range visible on the horizon. The concept for the house was to strip the brief down to the essentials, resulting in a composition of only two elements: a solid concrete box and a transparent enclosure, the former acting as a plinth on which the latter is placed. The box rises inscrutably out of the ground with only a few punctured openings in the walls indicating its habitability. Its upper surface is pierced by a staircase descending into the main volume of the house, and by the swimming pool.

Sitting lightly on top of the box, a slender steel structure frames a glass enclosure. This unconventional arrangement allows for spaces of great contrast. The glass enclosure is designed as a place for the quiet contemplation of the landscape, the seasons and the changing light throughout the day. In contrast, the spaces in the concrete box are far more intimate and cellular, relying on the punctured windows for light and ventilation. The plan is rigorously orthogonal and centred around the communal spaces such as the living and dining areas below and the contemplation space above. On either side are bedrooms, bathrooms, a study and the plant room for the pool. Manipulating solid and void, transparent and opaque, the house sits happily in the landscape; both entrenched in it and sitting lightly on its surface.

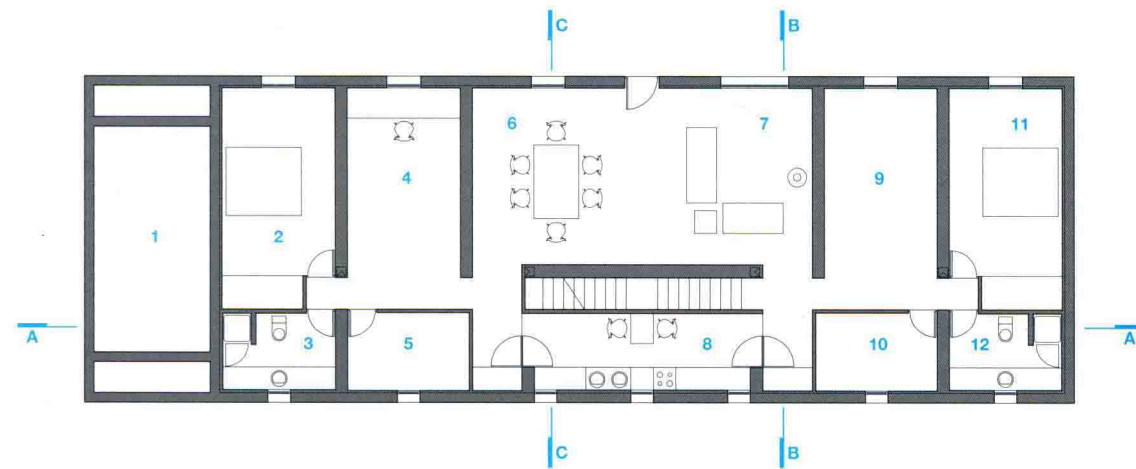


- 2 1 The bipartite composition of solid base and transparent box sit inscrutably in the landscape.
2 The house is surrounded by the hardy vegetation of the Spanish interior – the subject of contemplation from the transparent enclosure.
3 The platform on which the glass enclosure sits is punctured only by a staircase to the spaces below and the swimming pool to the west.
4 A simple door, visually inseparable from the in-situ concrete walls allows access directly from the lower level spaces to the exterior.
5 In contrast to the light-filled upper level enclosure, the spaces below are intimate and cellular in nature.

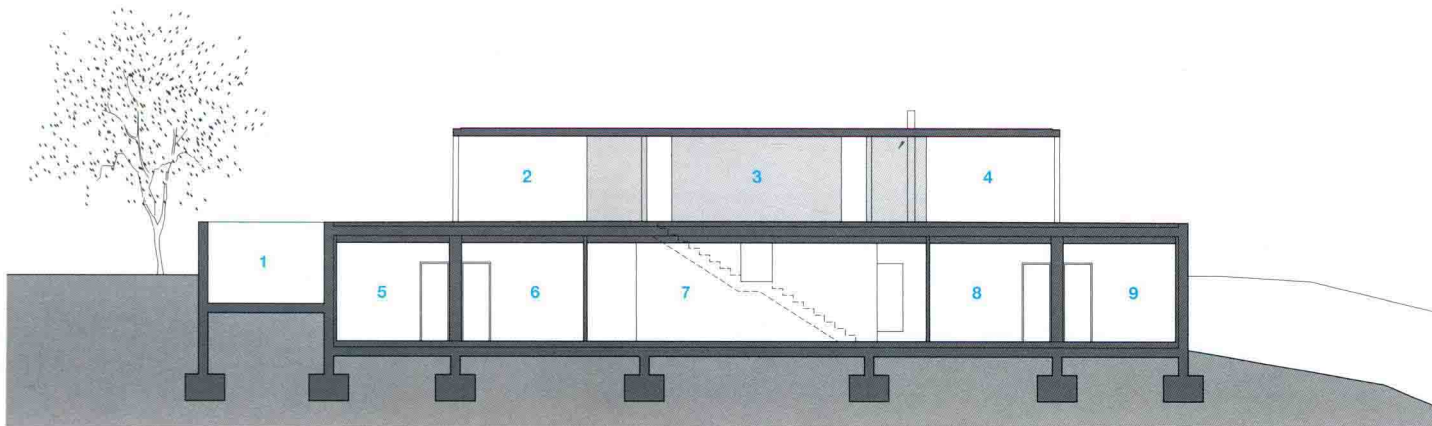
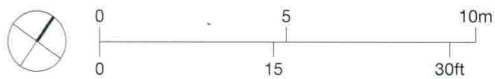




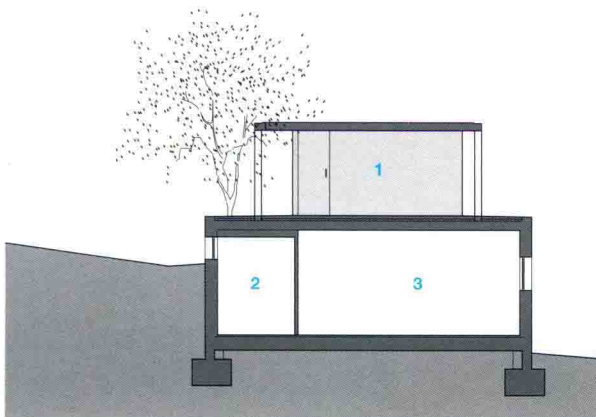
**01.01
Upper Level Floor
Plan
1:200**
1 Pool
2 Line of roof over
3 Contemplation
pavilion
4 Entry



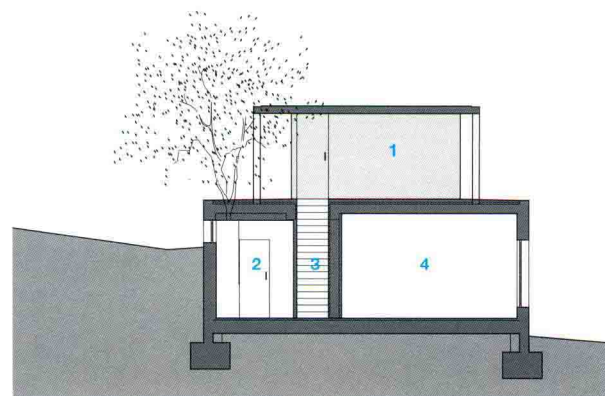
**01.02
Lower Level Floor
Plan
1:200**
1 Pool plant
2 Bedroom 1
3 Bathroom 1
4 Study
5 Utility room
6 Dining
7 Living
8 Kitchen
9 Dressing room
10 Store
11 Bedroom 2
12 Bathroom 2



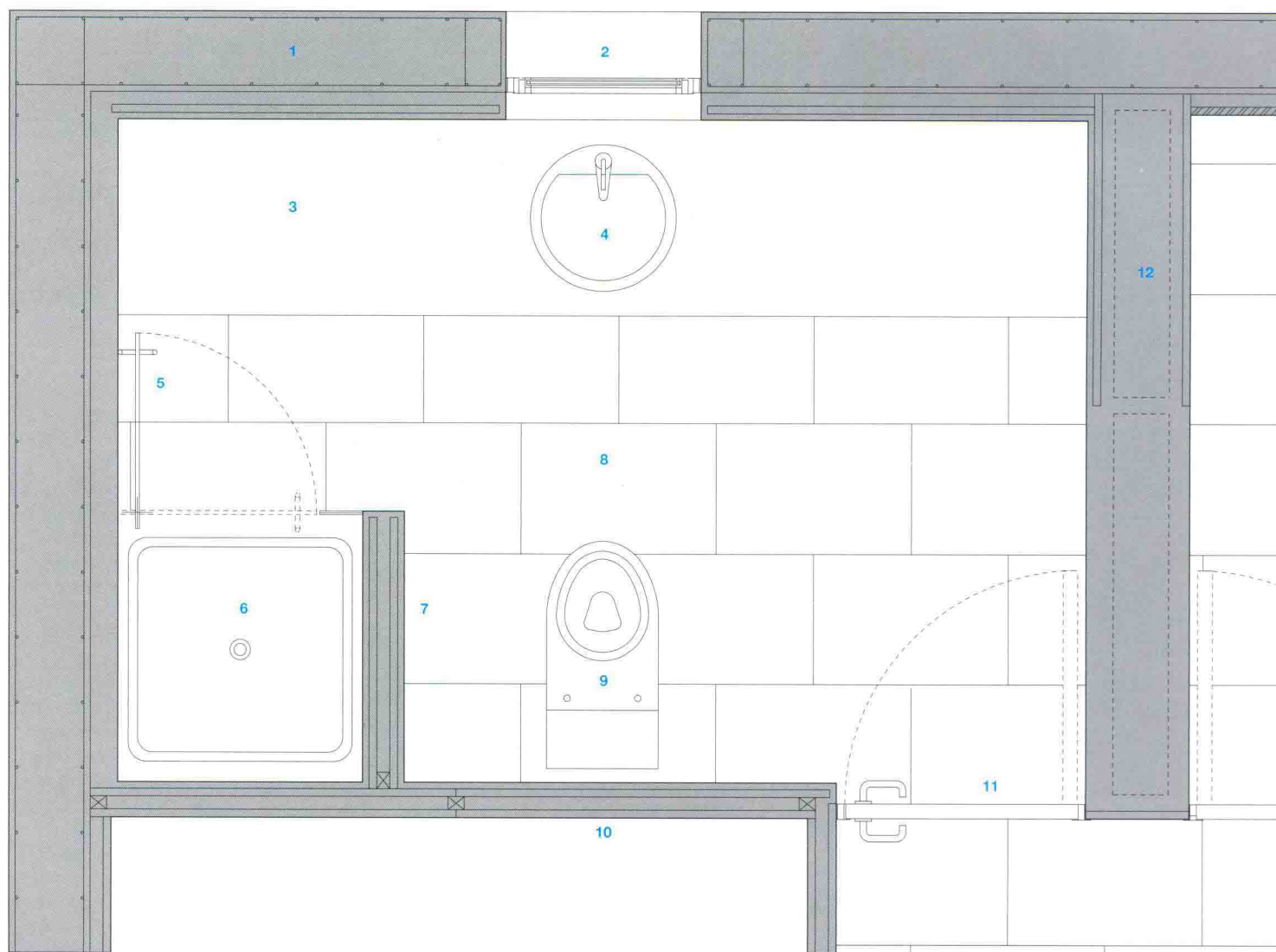
**01.03
Section A-A
1:200**
1 Pool
2 Terrace
3 Contemplation
pavilion
4 Terrace
5 Bathroom 1
6 Utility store
7 Kitchen
8 Dressing room
9 Bathroom 2



**01.04
Section B-B
1:200**
1 Contemplation
pavilion
2 Kitchen lobby
3 Living room

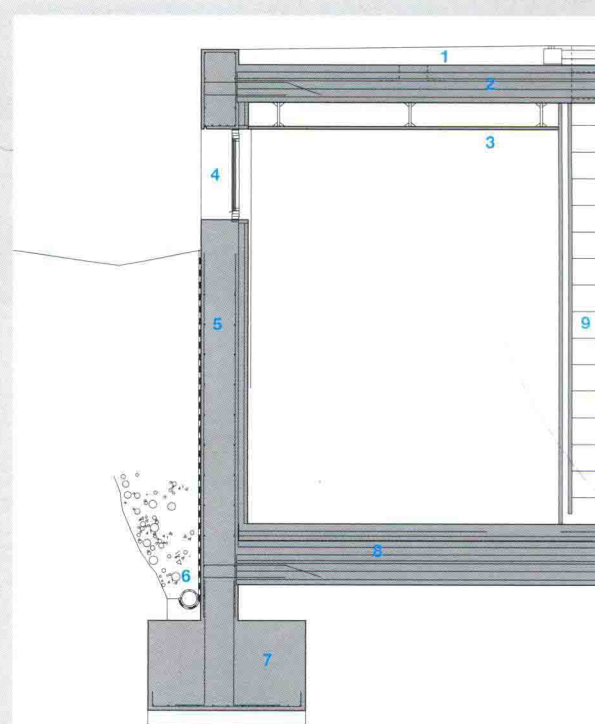


**01.05
Section C-C
1:200**
1 Contemplation
pavilion
2 Kitchen
3 Staircase
4 Dining room



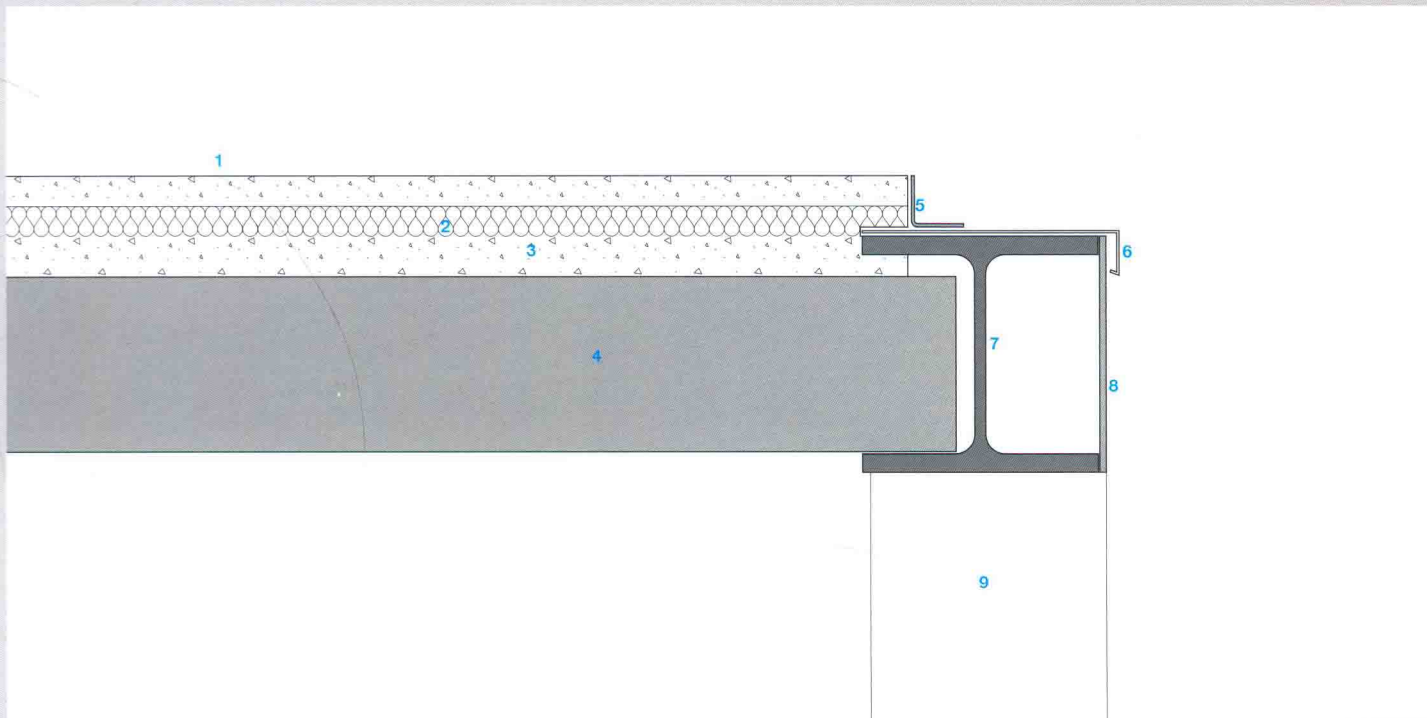
01.06
Bathroom Detail Plan
1:20

- 1 Cast in-situ reinforced concrete wall
- 2 Thermal glass pivoting window
- 3 Limestone counter
- 4 Hand basin
- 5 Translucent glass door
- 6 Limestone lined shower
- 7 Limestone wall
- 8 Limestone paving slabs
- 9 WC
- 10 Plasterboard wall
- 11 Steel-framed white painted timber door
- 12 Plasterboard wall

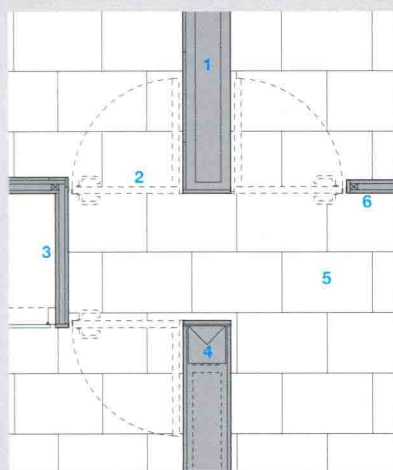


01.07
Detail Wall Section
1:50

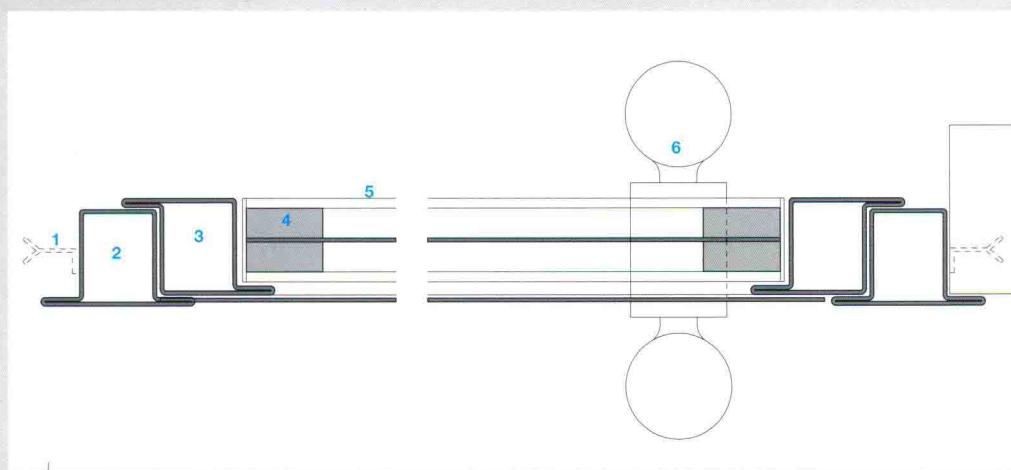
- 1 Concrete paving
- 2 Reinforced concrete slab
- 3 Painted plasterboard ceiling
- 4 Thermal glass pivoting window
- 5 Cast in-situ reinforced concrete wall
- 6 Subterranean drainage
- 7 Reinforced concrete foundation
- 8 Reinforced concrete slab
- 9 Plasterboard wall



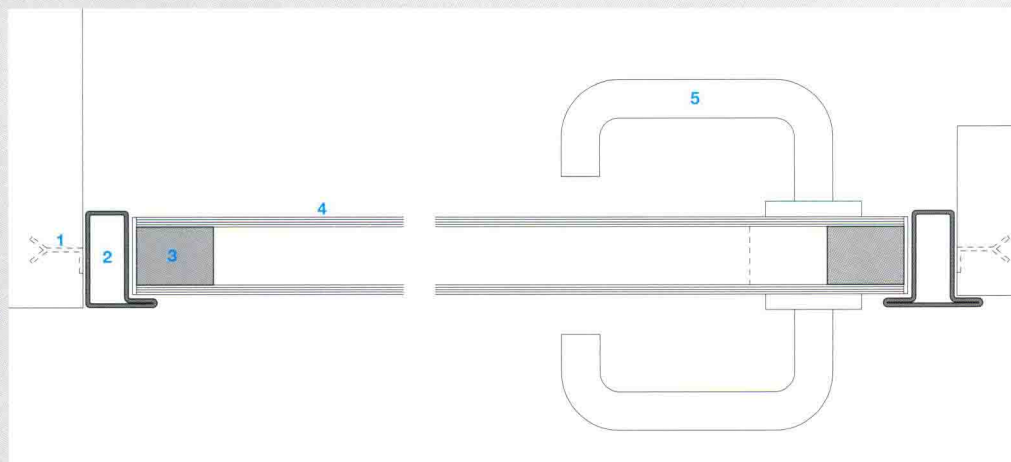
01.08
Roof Detail
1:5
1 Concrete screed to roof
2 Thermal insulation and waterproofing
3 Reinforced concrete slab
4 Pre-cast concrete slab
5 White painted galvanized steel angle
6 Sealed drip groove in flashing
7 Steel beam
8 Steel plate
9 Welded column



01.09
Door Detail
1:50
1 Plasterboard wall
2 Timber door
3 Closet
4 Steel column
5 Limestone floor
6 Plasterboard wall



01.10
Door Detail
1:5
1 Steel anchorage
2 White painted steel door frame
3 White painted steel door architrave
4 Timber door framing
5 White painted damp-proof membrane board
6 Stainless steel door handle



01.11
Door Detail
1:5
1 Steel anchorage
2 White painted steel door frame
3 Timber door framing
4 White painted damp-proof membrane board
5 Stainless steel door handle