



Ben van Berkel + Caroline Bos

UNStudio

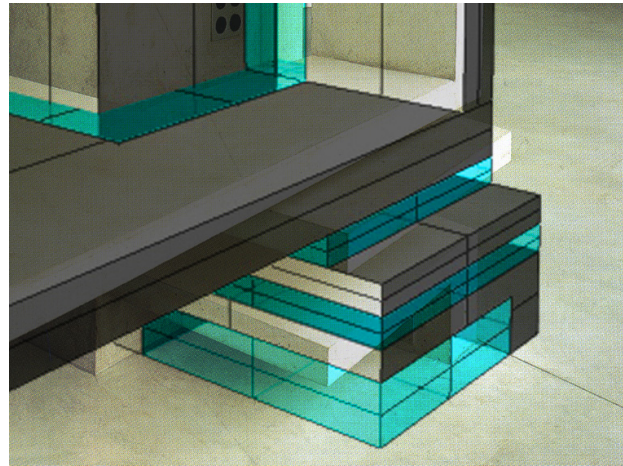
möbius house

Utrecht, Netherlands

52°18'00.72" N 5°11'50.12" E

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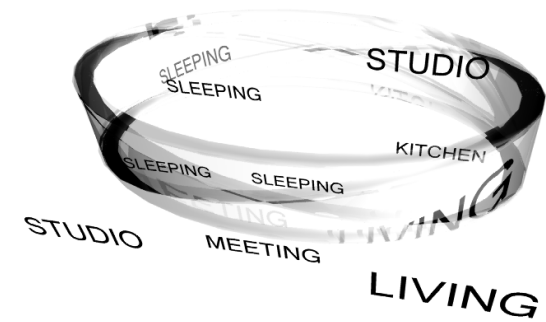
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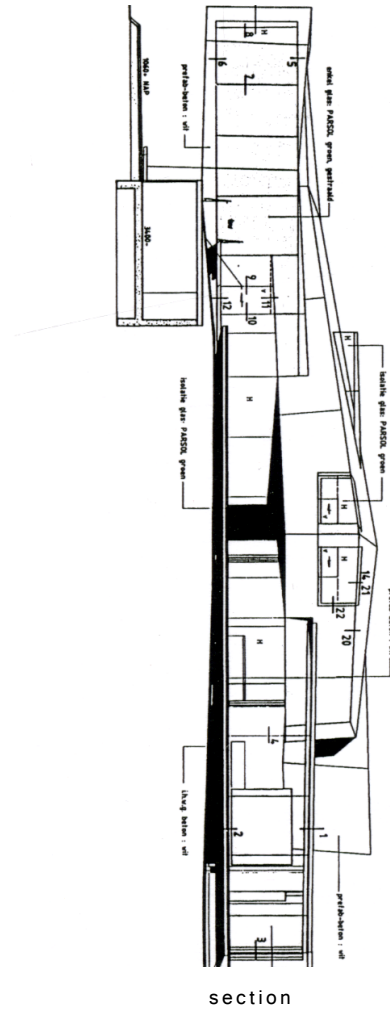
Space

The Möbius house is based upon the concept of the Möbius strip, a loop of material with a half twist resulting in a surface with only one continuous side. As such, the Möbius house is conceptualised on the notion of a continuous and fluid circulation between social space, private space, and paths of movement which are subsequently defined by ambiguous boundary conditions.

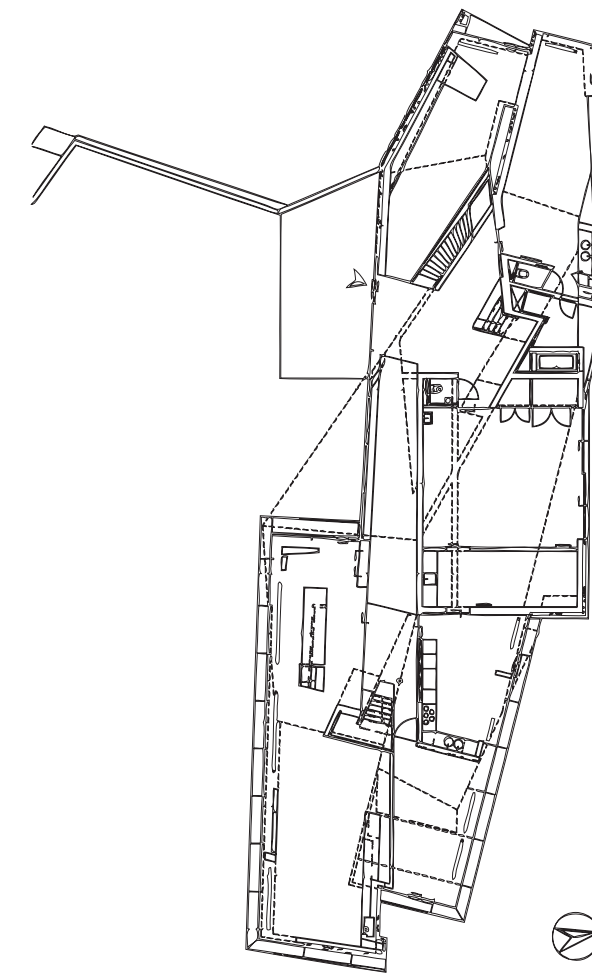
The organization of the Möbius house, by Architect Ben van Berkel and Caroline Bos of UNstudio, is an exercise in spatial ambiguity and complex interrelationships. While the modest program comprises of basic living conditions, plus two independent studios, the Möbius house attempts to relate these elements as two separate circulations which, at times, run parallel in a shared journey through the sequence of spaces. The Möbius strip concept is very much applied as a diagram to inform the way in which this might be possible. Necessarily, the buildings spatial organization has an intimate relationship with notions of temporal space, and



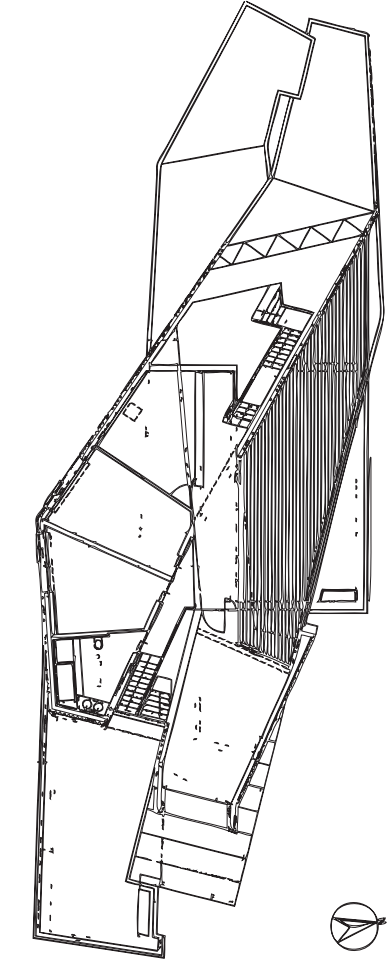
circulation diagram



section



main floor plan



second floor plan
plans + sections



children at play

Space

program is arranged on the basis of daily routine and social interactions throughout the day as opposed to pure functional requirements. Primary paths of circulation extend through the entire longitudinal axis of the building, offering open sight lines and an uninterrupted movement between programmed spaces. In both plan and section, the building has few right angles, the resulting spaces constantly in a state of subtle expansion and compression. While dynamic in nature, movement through this house is slowed by the modulation of form, sculptural points of interest, moments of repose, and a complex wandering circulation. In this way it is more of an environment for living, than a machine for living.

Located on a secluded and densely wooded site outside of the town of Utrecht, Netherlands, the first essential relationship established in this design is between interior and exterior, natural and artificial. This is expressed in the building design through the use of transparency and extension. Contrasting with the complex organization of the interior spaces, the frontal (south facing) facade of the Möbius house, and its interior/exterior relationship, maintains the simple language of the modernist curtain wall, essentially forming a clean, transparent skin with relatively little articulation as it defines the form of the building. Viewing the building from the exterior, the reflective properties of glass register impressions of the surrounding forests, tracing texture and color onto



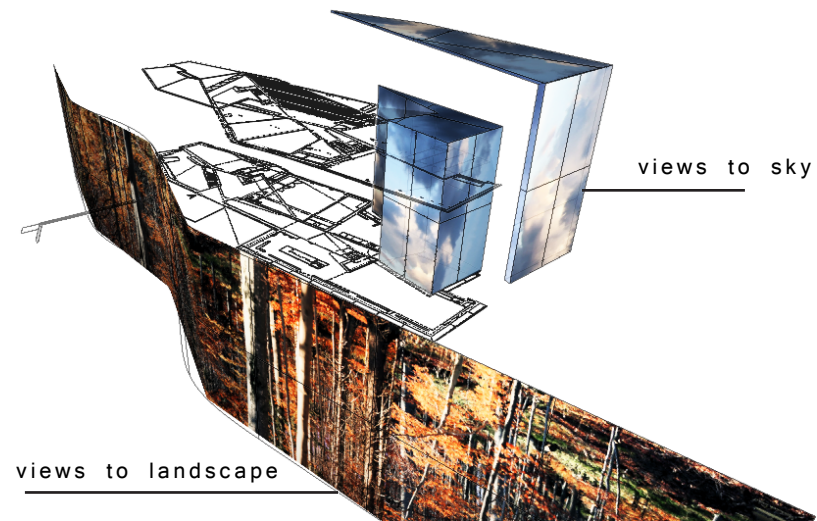
reflectivity

Space

this surface and visually dissolving the form into the landscape. An opposite effect is achieved at night, when the building's interior is illuminated from within, and the space is visually contained and isolated in contrast to the darkness of the landscape.

All of the main floor windows have a full height from floor to ceiling which extends the conceptual boundaries of the interior space beyond the extents of the building itself. Instead of displaying full panoramic fields of view however, the architects have framed certain views utilizing the sculptural mass of the building itself. The south facing curtain wall is interrupted at one point by a massive concrete obstruction sliced by careful reveals. Elements such as this provide a rhythmic interruption to the otherwise smooth curtain wall and help to orient and define space along its length. In places such as the main floor living space and the upper level atrium, the transparency of the curtain wall extends to the ceiling in continuous bands of glass which serve to extend the field of view into the vertical axis, and further extend the inner space beyond the physicality of this outer shell to gather and engage with the environment.

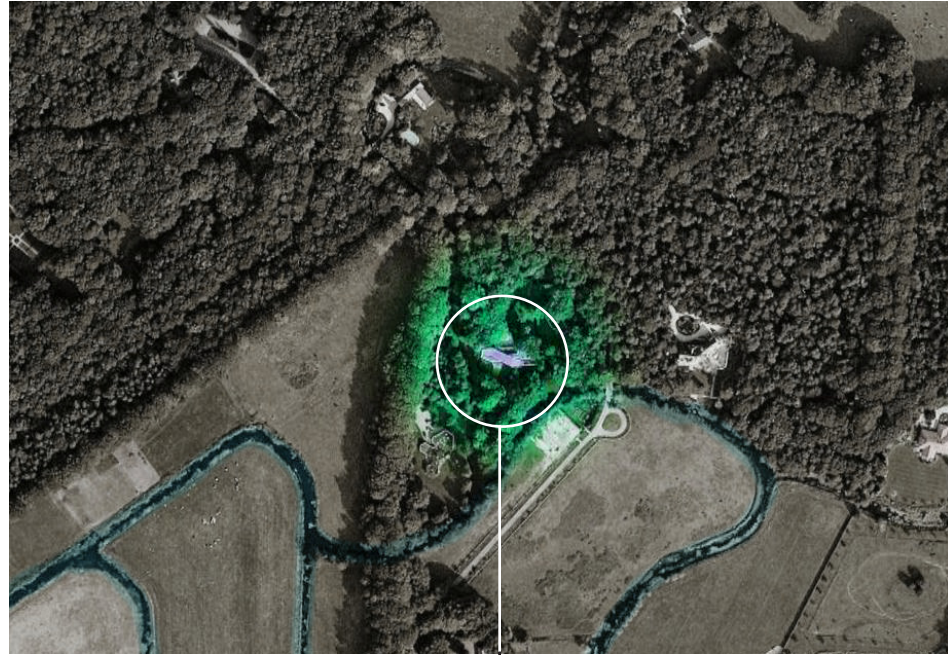
What is therefore established is a direct awareness of place and natural process which may be contrasted or aligned with activities and cycles occurring inside house. The interior space is effectively activated by changes in lighting conditions and shadow, seasonal cycles,



spatial extension diagram



luminescence



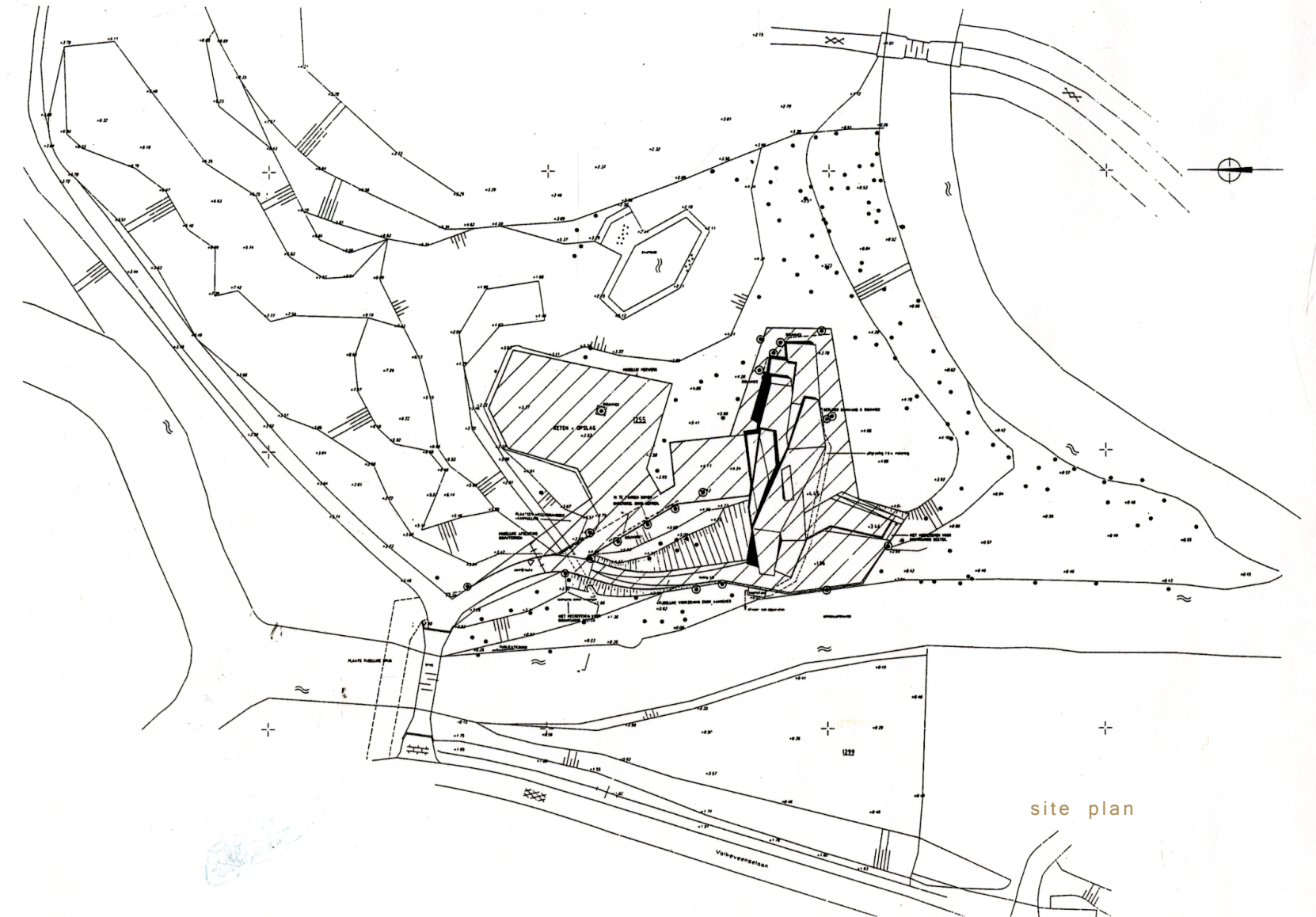
möbius house

satellite image

Space

and elemental processes such as wind and rain. The extension of space through the use of transparencies and interrelated spatial conditions, continues with the internal logic of the Möbius house, although in a more articulated and complex organization. The lightness of glass and the density of concrete are continually being juxtaposed and syncopated in alternating roles, creating a dynamic sequence of enclosure and exposure. These are closely related to ideas of building circulation, and are designed specifically to describe this aspect. For example, while ascending or descending the easternmost staircase, one arrives on an intermediate landing which penetrates into the main living space by cantilevering and hovering over the ground plane. From within this intermediate space, one is momentarily engaged visually with this living space, while simultaneously being made visible in their circulation to those occupying this space. Although separated by the materiality of glass, this transparency allows one to exist between the conditions of living and circulation, becoming both observer, and observed.

Given the open nature of the internal organization, programmed spaces within the house are defined primarily by variation in ceiling heights as opposed to conventional wall and door systems. These are able to describe sensations of openness or compression and thereby suggest the nature of occupation on a subliminal, experiential level. Spaces defined by high ceilings



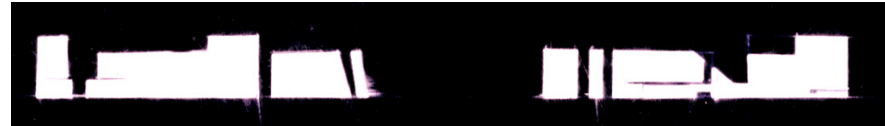
site plan

Space

encourage a dynamic engagement with the space and open social interaction. In areas where the ceilings drop into these open spaces through a subtle penetration of the glass skin, the full mass of concrete forms impose onto the space, and suggest stability, protection, and solitary reflection. Open spaces are further defined by abstracted 'furniture' elements projecting from, and integrated directly into, the massing of the building. These projections are dramatically cantilevered to hover over the ground plane and transform their physical mass into an apparent lightness and delicacy.

Additionally, this impression of lightness contrasting with mass is to be found in the articulation of the entire structure as it rests on its site. The floor plane extends as a thin base under the south east building mass, and is deeply undercut to raise the entire form lightly off the ground. In other places the building has a more integrated relationship with the earth of the site, imbedding itself deeply within it. These two seemingly opposing tectonic details are applied as expressive countermeasures to each other. Together they communicate a duality which is a constant theme throughout the design of the Mobius house. While grounded by its massive physicality, these are carefully balanced by moments of an almost ethereal weightlessness and transience.

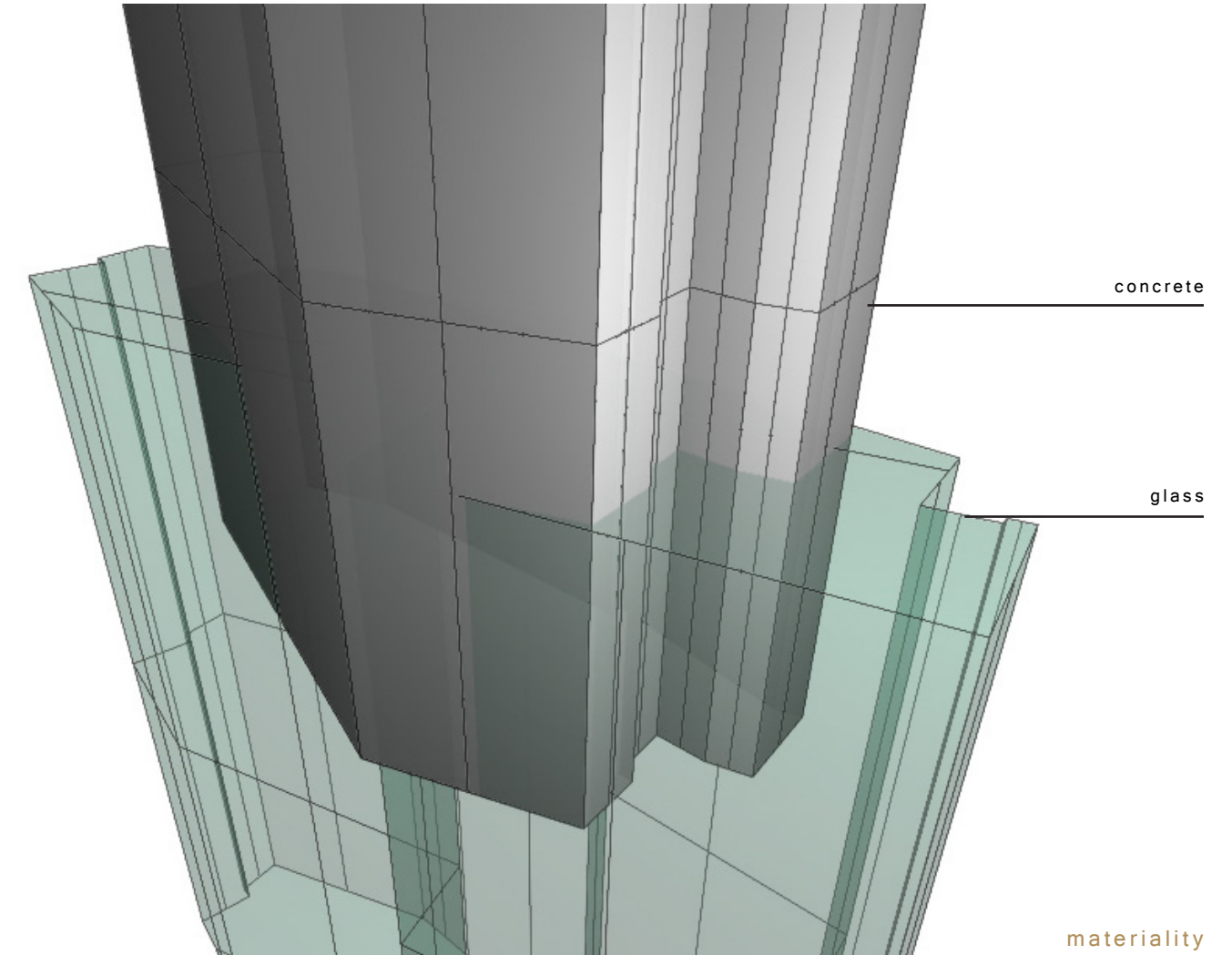
mass + density



lightness + openness



massing diagram



materiality

Form

In an attempt to align the work of UNstudio, specifically the example of the Möbius house, within a particular formal ideology, it is useful to consider architectural form as a particular language with all the associations of sign, symbol, meaning, and message which are fundamental to our written language. The analogy of 'form as language' may be seen to run through the contrasting discourse between Robert Venturi and Peter Eisenman in attempting to define the necessary evolution of architectural form and may serve as landmarks with which to position the Möbius house. Language in this sense may be either literal; such as in a modernist ideology in which forms represent their function exactly, or referential and symbolic; such as neo-classical or post-modernist interpretations of historical iconography.

In some instances however, this language may also enter the realm of poetry, in which abstractions and manipulations transform a system of signs and signifiers into the communication of essential truths beyond mere



south facade



east staircase _interior



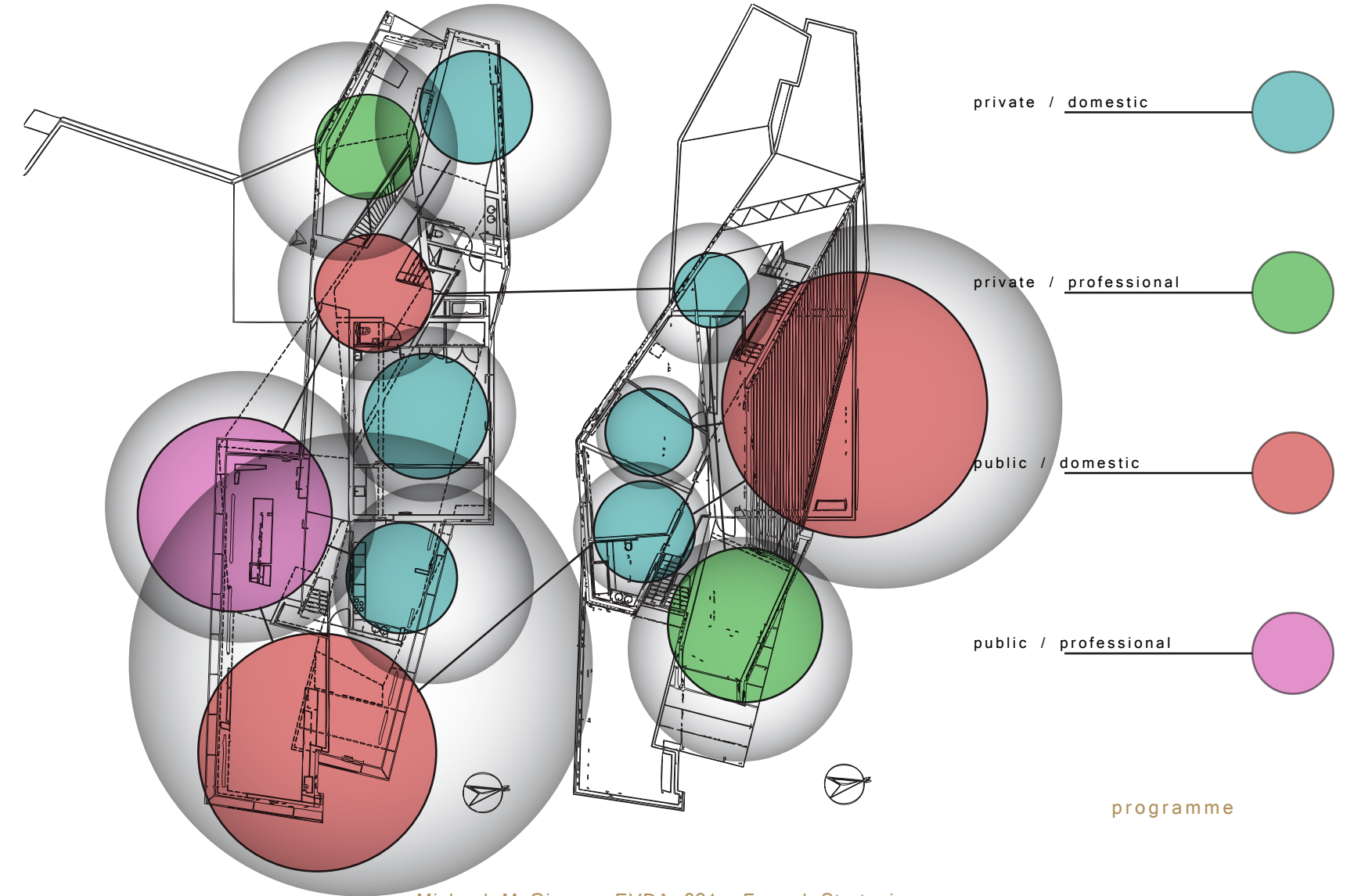
east staircase _exterior

Form

descriptors. In this respect, Möbius house articulates its function through a considered use of form which is both playful, and brutally honest in its intention.

In terms of its minimal material palette, consisting almost exclusively of concrete and glass, Möbius house may have some parallels with a modernist aesthetic. The complexity of the buildings inner logic and its tectonic articulations however, suggests otherwise. In relation to the exaggerated simplicity that is pervasive in modernism, Möbius house is an attempt to communicate the fundamental complexity of domestic living through its formal decisions. Indeed, the necessity of Möbius house to function both as home and office at one level delineates it from the typology of home and requires that its form reflects the mixing of programs within a single space. UNstudio's approach is one which allows a rejection of classification, and the ability to legitimize its form based on the specificity of the design itself, as an autonomous and singular event, without the need to reference the forms typically associated with a home or any other architectural typology for that matter. UNstudio therefore suggests Möbius house as a prototype for a functional aesthetic that is dynamic as opposed to static and in this way suggests a poetic notion of how a home functions in relation to its occupants.

From its conceptual foundation, the Möbius house is an extension of the modernist ideals of form following



programme

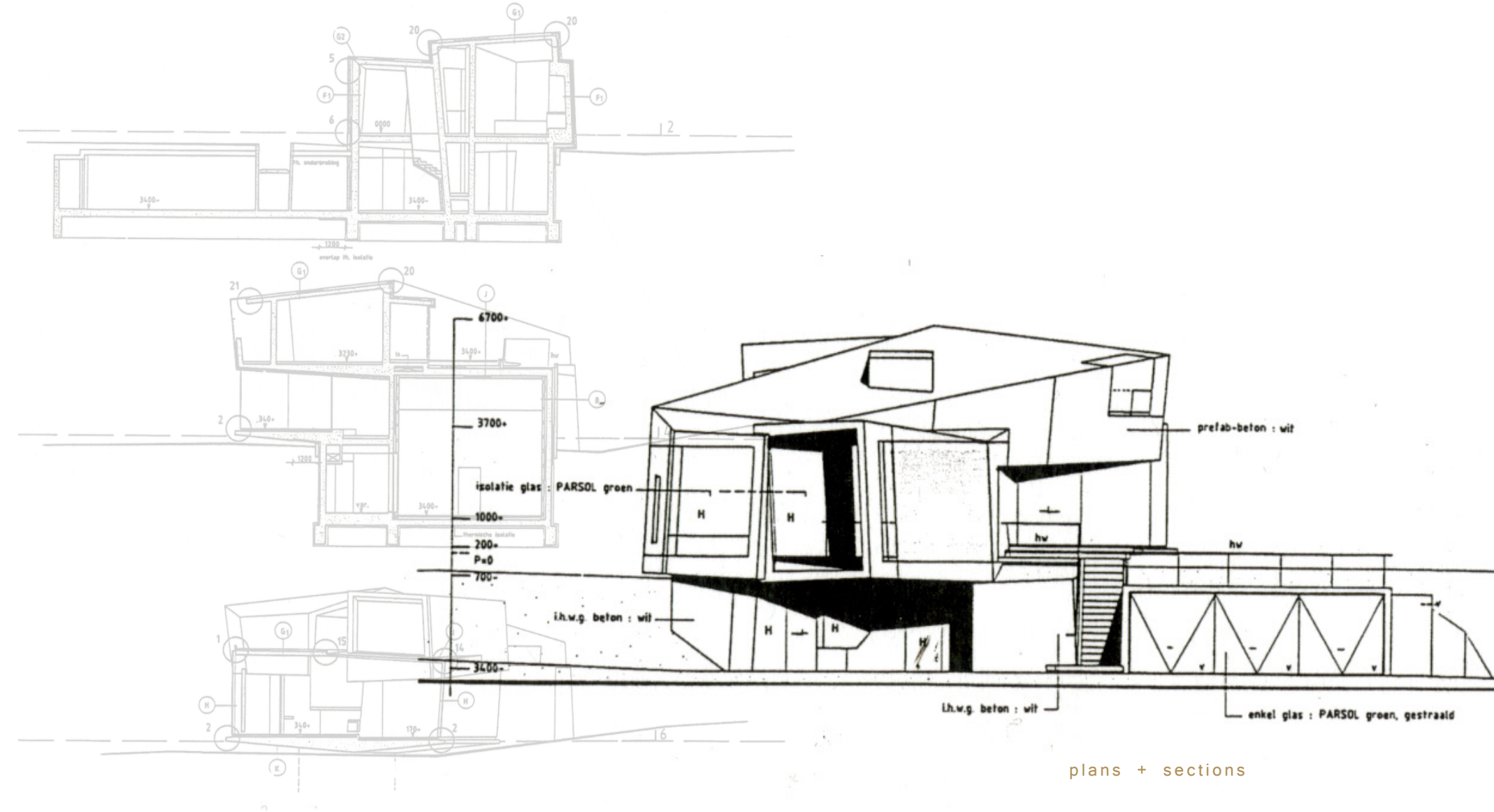


circulation corridor

Form

function, but it specifically avoids the stylistic singularity of modernist form as well as the notion that 'function' is a term which may only apply to more than the most literal translations of architectural necessity. In this model, UNStudio posits that form does not necessarily follow function in a linear relationship, rather form and function engage in an active rhetorical dialogue in which one informs the other and the two become inseparable and irreducible as concepts. In this way the Möbius house serves as an effective argument for the post-functionalism proposed by Eisenman, in which modernist ideals are augmented to accommodate for an increasing awareness of both humanism and positivism. This is not to say however, that UNStudio is ignoring aspects of tension, friction, and duality which lend a richness and interest to architectural experience; a notion which is in some ways closer to Venturi's post-modernism.

While Möbius house reveals little in its formal language to relate form to structure and construction, it does communicate notions of movement and temporal occupation through its massing and tectonics. The way in which one moves and occupies through the house is treated, not as an abstract condition; rather it is a defining force which pushes, pulls, or carves into the building form. In terms of poetics, it can be seen that UNStudio recognizes that a modernist formal language may be utilized in a post-modernist way in which there



plans + sections

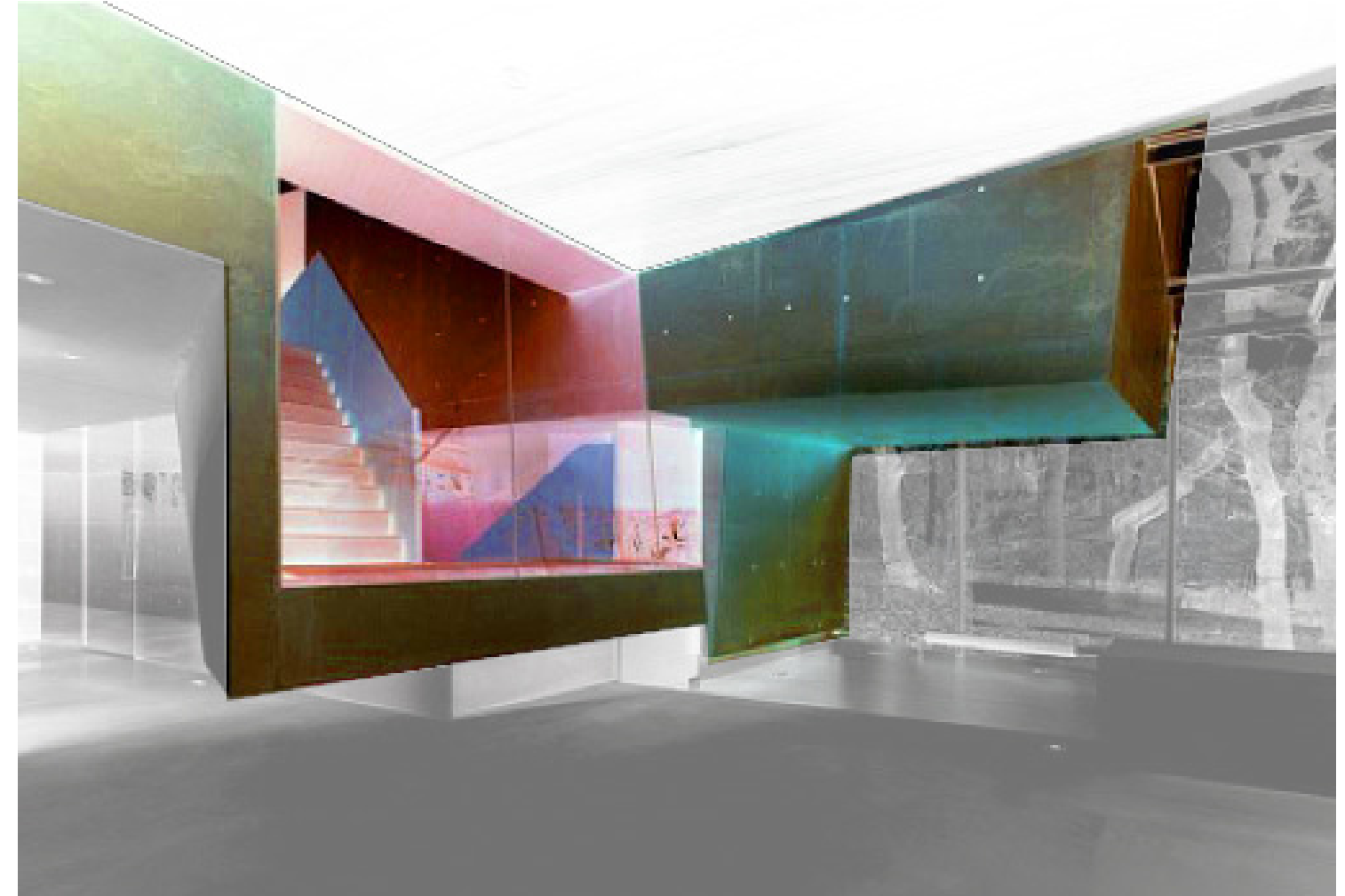


furniture elements

Form

is a poetic element to function that must be expressed through form. There are instances for example, in which structural 'columns' are articulated as discontinuous dividing walls, their original function integrated with a more complex usage. Elsewhere, concrete walls extend into abstract and sculptural furniture elements. Transparent curtain walls are used to both open space, and define space, often within the same gesture such as in the cantilevered east staircase.

While this may be seen as an attempt to simply invert preconceived notions regarding formal elements and their intended function, UNstudio is careful to express these moves with a degree of clarity and functional logic. In doing so they reveal the truth of the element, not as a reference to what a wall or column 'should' be, but rather what they are in this particular circumstance. Form is justified therefore, on its own terms and with its own intentionality to the requirements of the building function. Rather than seeking unity through singularity of both form and intention, UNstudio embraces the dualisms which are inherent to design problems. The Möbius house provides the argument that these dualisms do not oppose or negate each other, but rather amplify the effect of the opposite and create a harmony through opposition that is closer to the ideals of Venturi's post-modernism.



antistructure



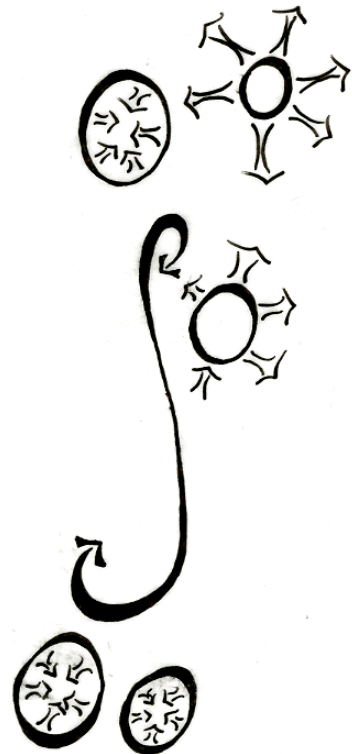
Form

Whereas the tenets of modernism sought a lightness and openness as an ideal for domestic form to the exclusion of alternative communications, Möbius house suggests that ideas of lightness and openness are communicated more convincingly when placed in direct opposition to expressions of mass and enclosure. Such oppositions may also be seen in the material palette with the density of concrete contrasting with the transparency of glass. In a similar way living space and working space exist in opposition programmatically, but are harmoniously blended in spatial terms. The relationship between duality and unity is a consistent theme in the design of the Möbius house, extending beyond formal elements to describe fundamental aspects within the relationship between form and function, post modernism and post-functionalism, and between the immateriality of the idea and the materiality of built form.

cantilevered forms



south elevation

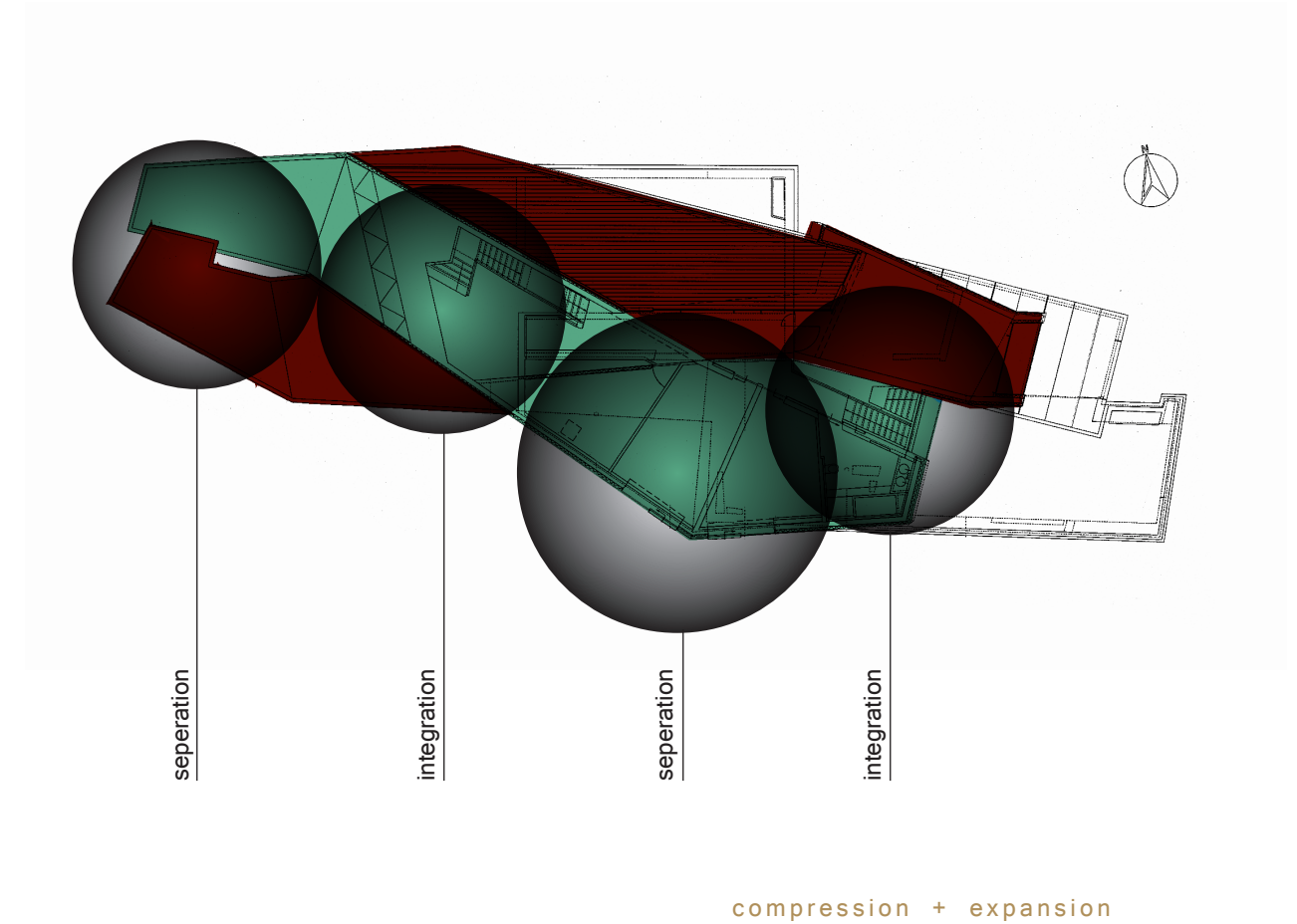


dynamics of circulation

Body

When considering both the architectural body which comprises the form of Möbius house, and the bodies which occupy it; it is clear that UNstudio is conceptualizing its design as a body in motion, never static and in a constant state of flux. To this end we may consider the Möbius house as an architectural body which is deconstructed, distorted, and physically static only as a consequence of its materiality. If we view the resulting form of the Möbius house as a dynamic entity which is 'frozen' in time and space, the ambient calmness and quietude of the building are only enhanced in juxtaposition to the apparent violence of its emergent conditions.

At its most basic, the Möbius house may be seen as two independent bodies with a vague symmetry and similarity of form, which wrap around each other in a contorted metaphorical embrace. These bodies are not passive in their engagement however, and can be seen pressing and folding into each other along their



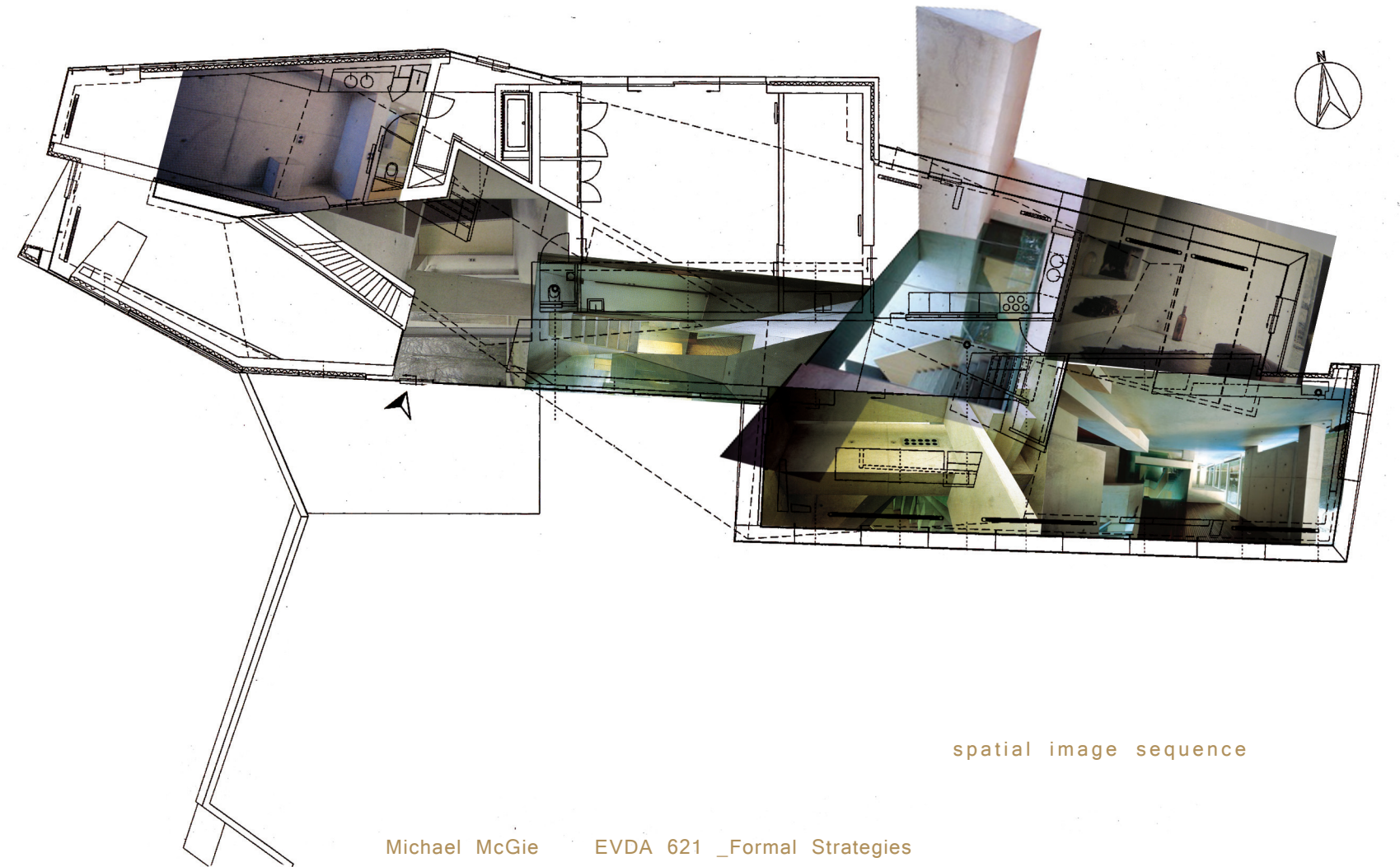
Body

longitudinal axis. Neither is this a simplistic relationship of two parts joining to form a coherent whole, as the nature of articulation between these forms has several unique adaptations as necessitated by the functional and aesthetic requirements of the building. As the two bodies alternate between separation and unification they reflect the dualistic nature of the building program which attempts to interweave professional and domestic life while maintaining a degree of autonomy between the two.

It is significant to note that the clients for the design of the Möbius house had both worked extensively in film and media, and had a particular relationship to the production of the transient cinematic image. As such the Möbius house may be seen as a backdrop for the transient occurrences of daily life in which the occupants become the subjects of a conceptual narrative, and in which the house itself is involved as a player. In this subject/object relationship it is essential that the implied dynamics of the built form are entirely reliant upon the dynamic engagement of the occupants who serve to articulate this form. The implication is that one is not independent from the other and the dialogue between architecture and occupant is a reciprocal one. While the architecture has produced a series of exceptional static images of specific framed views, both interior and exterior; the overall logic and affect of the building is not immediately apparent from any singular viewpoint. Instead,



body in motion



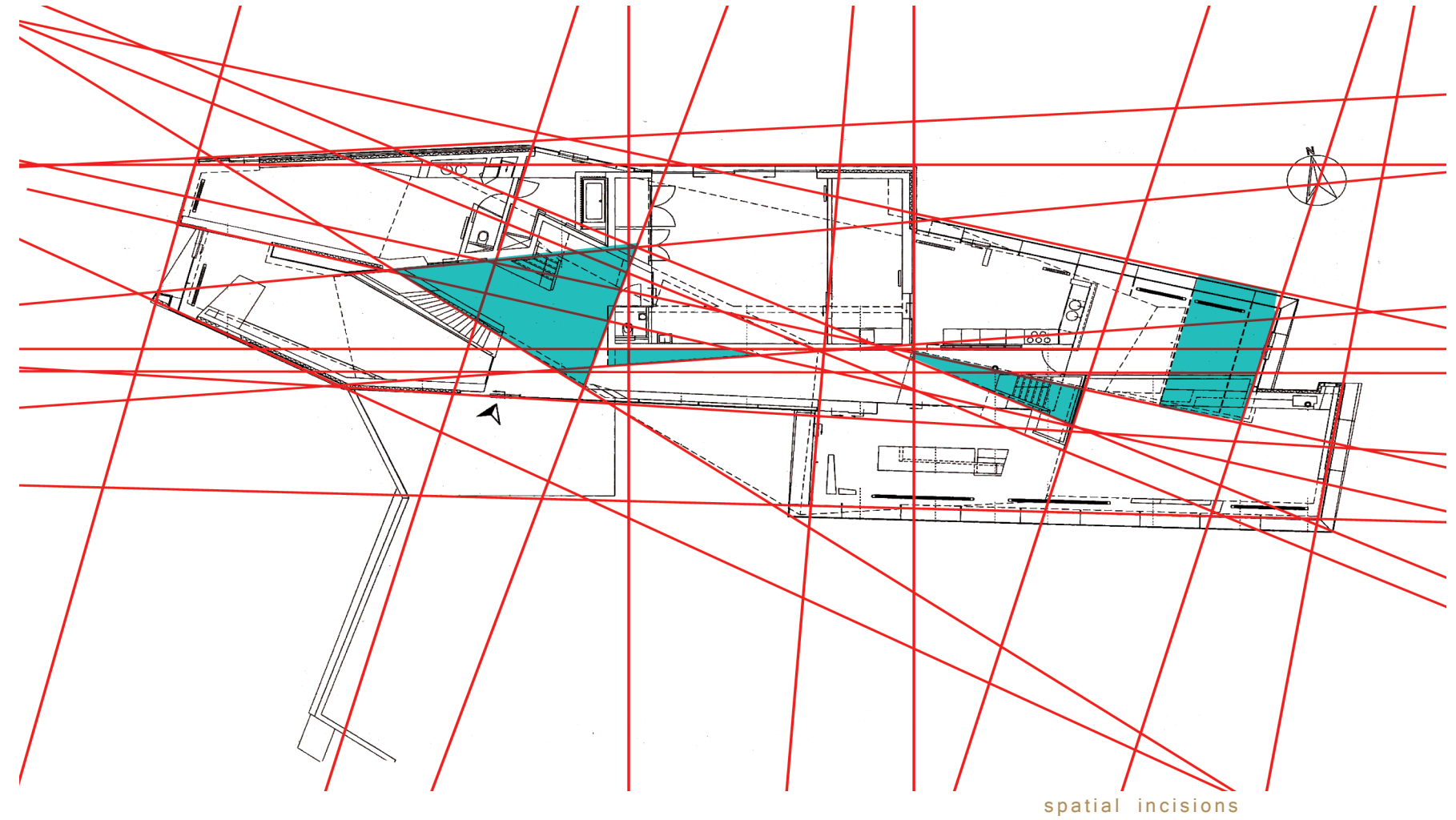
spatial image sequence



Body

it is a sequence of movements and active circulation which is required to reveal the true intention of UNstudio in this design.

The body is not prescribed in this movement however, and is allowed a degree of freedom and autonomy in how it chooses to inhabit the various spaces. Although a specific passage through the various programmed elements is made explicit through the Möbius strip diagram, UNstudio has deconstructed this diagram to the point that alternate sequences become possible through a subjective interpretation of occupation. Facilitating this freedom is the occurrence of architectural elements which are abstract enough to be multi-functioning and versatile in their use such as low tables which may be used as seating areas, dining tables which double as office desks and steps which may be used for storage. As isolated elements devoid of human engagement, the forms are simply sculptural extensions of the architecture. It is only through a particular relationship to the human body that they are able to suggest specific usages without definitively limiting the versatility of this use. The angular linear elements which are evident in the buildings plan are treated as lines of incision which quite literally carve out interstitial spaces and penetrations throughout the house. In a similar way volumetric forms rarely meet in clean and flush connections, instead making dramatic fissures on adjacent spaces. It is as



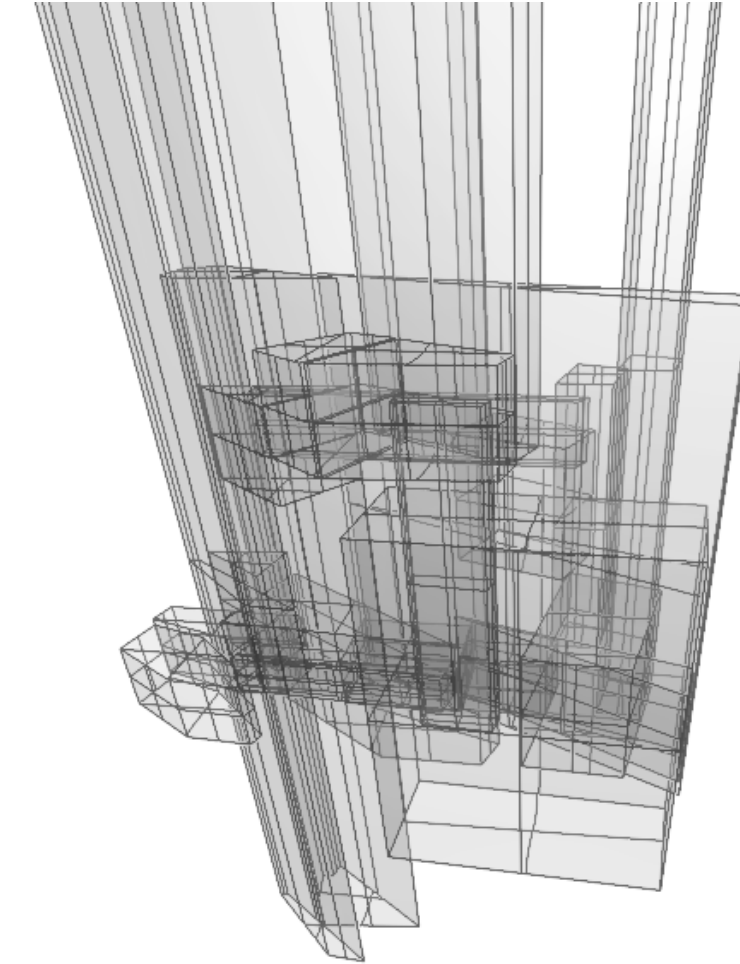
Body

though these masses have an inherent inertia which is only temporarily slowed by encounters with other forms, the collision of the two resulting in compressions and tensions defining new spatial conditions. The preverbal victim in this encounter is almost always the buildings glass 'skin' which is frequently penetrated by concrete forms in the established hierarchy of material conditions. It is through this compression and dissection however, that the nature of the buildings materiality is revealed. The strength of concrete is clearly communicated by the stillness of these otherwise dynamic forms, and amplified through the stability of dramatic cantilevers. Likewise, the transparency of glass is made physically manifest through the penetrations of solid forms.

A subtle skewing of both horizontal and vertical lines throughout the building are in some instances a response to the gently undulating topography of the site, and in other instances serve to create a surreal internal landscape of destabilization and imbalance. Columns are shifted and tapered as though on the brink of falling, internal ramps define small changes in elevation, and walls tilt to either recede from, or impose upon spaces. A body in such a space is largely denied the rectilinear assurance of pure horizontals and verticals; and those forms which are clearly orthogonal are composed mainly of glass in which case the reference is more to the exterior environment than the enclosed space.



west facade



interrelated spatial conditions

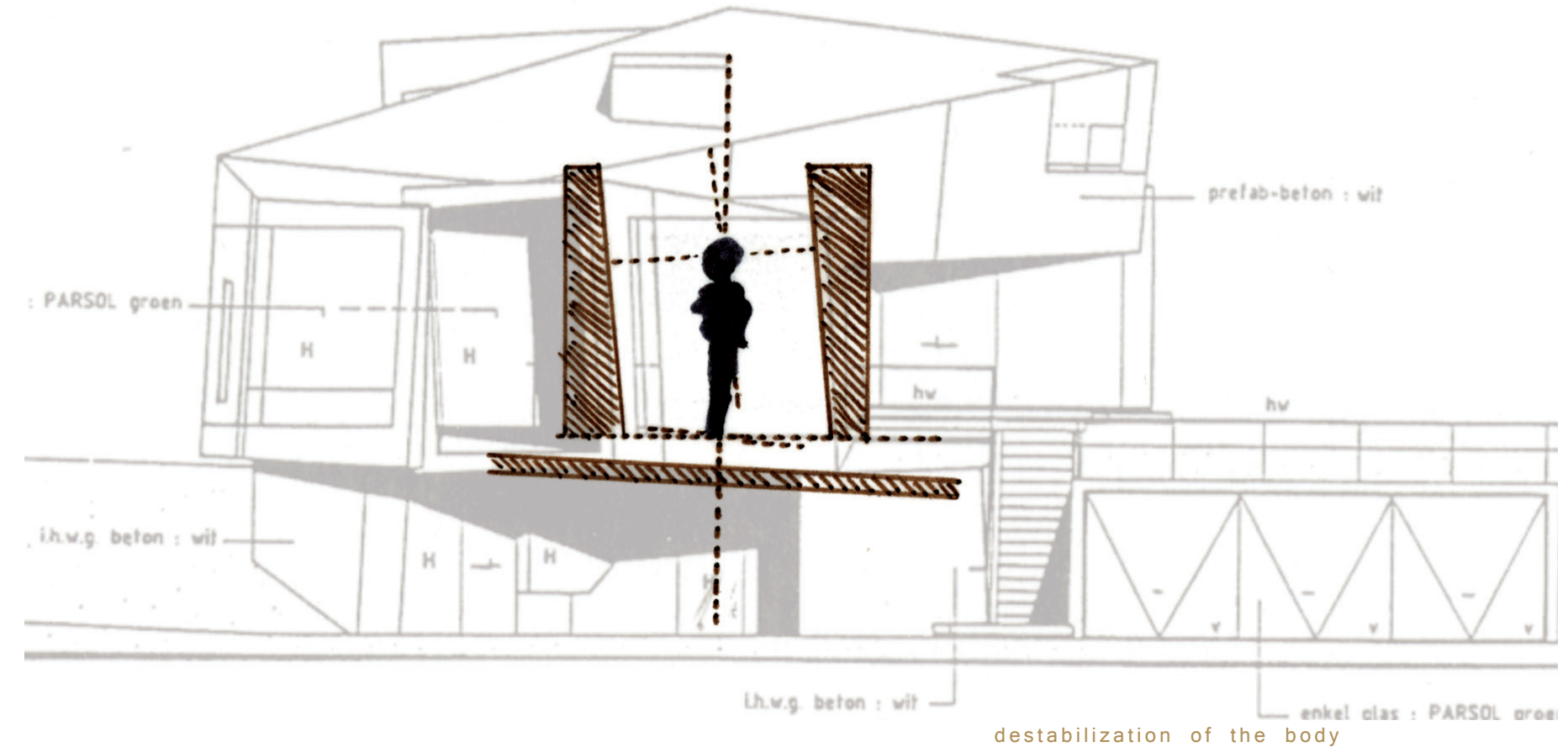
Body

The reference and orientation of the body is therefore not based upon any particular grid or axis, rather it is defined relative to the architectonic forms themselves, the natural environment, or other bodies occupying the space. An awareness of the body in relation to these variable elements is essential to the folding of architectural space within the Möbius house, and further blurs the boundaries between the built form and those who inhabit it. These are not four walls which stand as object separate from the body, but a bodies themselves which engage in an active dialogue with their human occupants.

The deconstructivist language of instability and imbalance may seem counterintuitive to any architecture relating to a domestic harmony unless it is considered that the nature of the Möbius house is fundamentally one of duality and juxtaposition. UNstudio recognizes that stability requires a degree of flexibility and changeability, and that bodily engagement with architectural form is never completely static or predictable. A body at rest within the Möbius house finds itself balanced and augmented by the dynamics of the built form, and a body in motion moves fluidly through the houses open paths of circulation. There is a complex tectonic logic imbedded within the angular forms of the Möbius house which effectively communicates the tension and compromise required to achieve a fine balance between conflicting elements, rather than forcing these into an artificial stability which is only superficially masking these problems.



body at rest



destabilization of the body

Technique



circulation corridor

UNstudio posits the Möbius house as a series of questions as to the nature of structure, tectonics, and material in a way that is specific to the point of being unrepeatable. In order to guide their technique and design strategy, UNstudio has defined a clear set of logics and rules which apply to the formal compositions of the building, but do not necessarily reflect logics as they apply to the rest of the world.

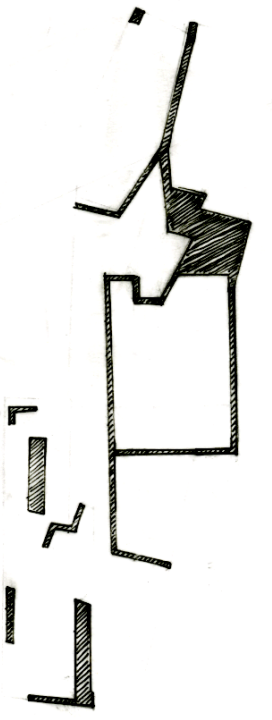
The dominant representation of tectonics in the Möbius house is one of symbolic rather than ontological communication in that structure is largely obscured; and when it is present, may be deceptive and playful in describing the true nature of the physical force involved. In fact, UNstudio is attempting to symbolically represent an absence of structure, or how structure may behave in the absence of gravity, mass, and physics. There is an ontological element to this structural technique since the structure, however obscured, is justified by its own manifestation and reality. The Möbius house never places



building mass

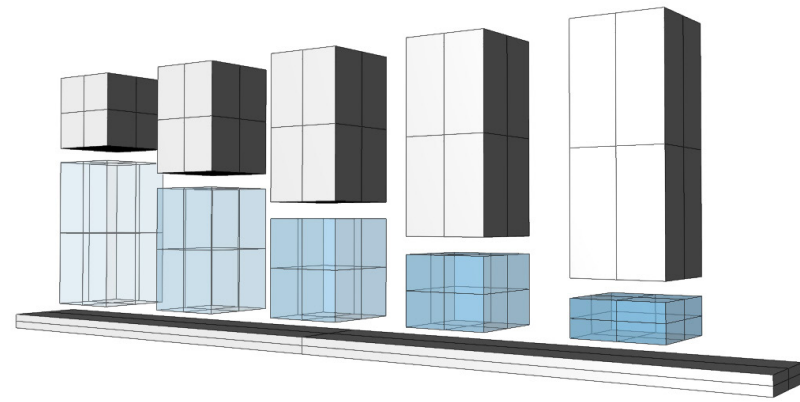


antistructure



structure

structural articulation



proximity diagram

Technique

its elements in relation to the standard archetypes of constructed form, other than to place them in opposition to these models. They are representational of nothing more than their own materiality and each form is therefore an expression of highly specific techniques of construction which do not apply to any other part of the building, let alone any preconceived notion of classical or standard forms.

There is a particular kind of tectonic that emerges through the forms of the Möbius house. That is a tectonic of proximity in which elements approach each other and displace each other, but do not physically contact. They express their formal relationship through incomplete connections so as to articulate the space between forms as a vital component in the assemblage. UNstudio is clearly demonstrating that physical contact is not always necessary in order to describe a tectonic relationship. In certain instances, a gesture such as this speaks more emphatically of material tensions and forces, than if the connection was complete and articulated. This is a relationship evident in several of the furniture/ sculptural elements within the home. As the concrete massing of the second floor drops into the main floor space it pauses just above the ground plane without actually contacting it.

The entire relationship of the building footprint to the site acts in a similar way, running in close proximity



tectonics of proximity



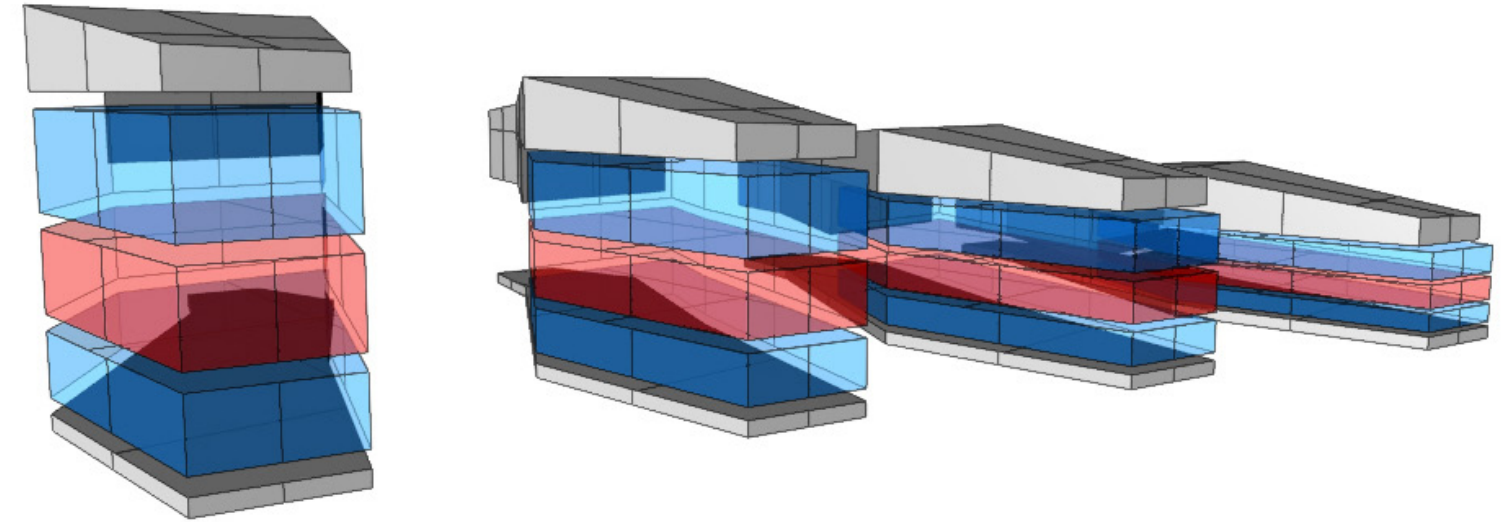
meeting area

Technique

to the landscape, but maintaining a margin of elevation which emphasises the delineation between built form and environment.

UNstudio utilizes glass as an integral part of further communicating this tectonic of proximity. The transparent forms of glass diagram the spatial relationship as concrete masses approach and diverge. They articulate a force that holds the parts of the building in a tenuous balance. The relationship between structure and anti-structure is calculated to create stability in some areas, and instability in others. In any case, the stability is more often than not attributed to glass elements and instability to concrete. If we extend this language into spatial terms the stabilizing factor in this instance is space itself, with the material as a destabilizing factor. As one occupies this intermittent space, they are within a component of the tectonic assembly itself, and actively participate through their movements, in the maintenance of this balance.

There is little emphasis given to the joint itself at the point of contact between forms. When convergence occurs, they are treated as clean intersections rather than collisions and only the angular articulation signifies the connection. As such, the particular means of construction is largely concealed through the architectural detailing leaving an ambiguity as to the true nature of the building tectonics. The part to part relationships with the form do



interstitial space

occupied space

interstitial space

spatial tension

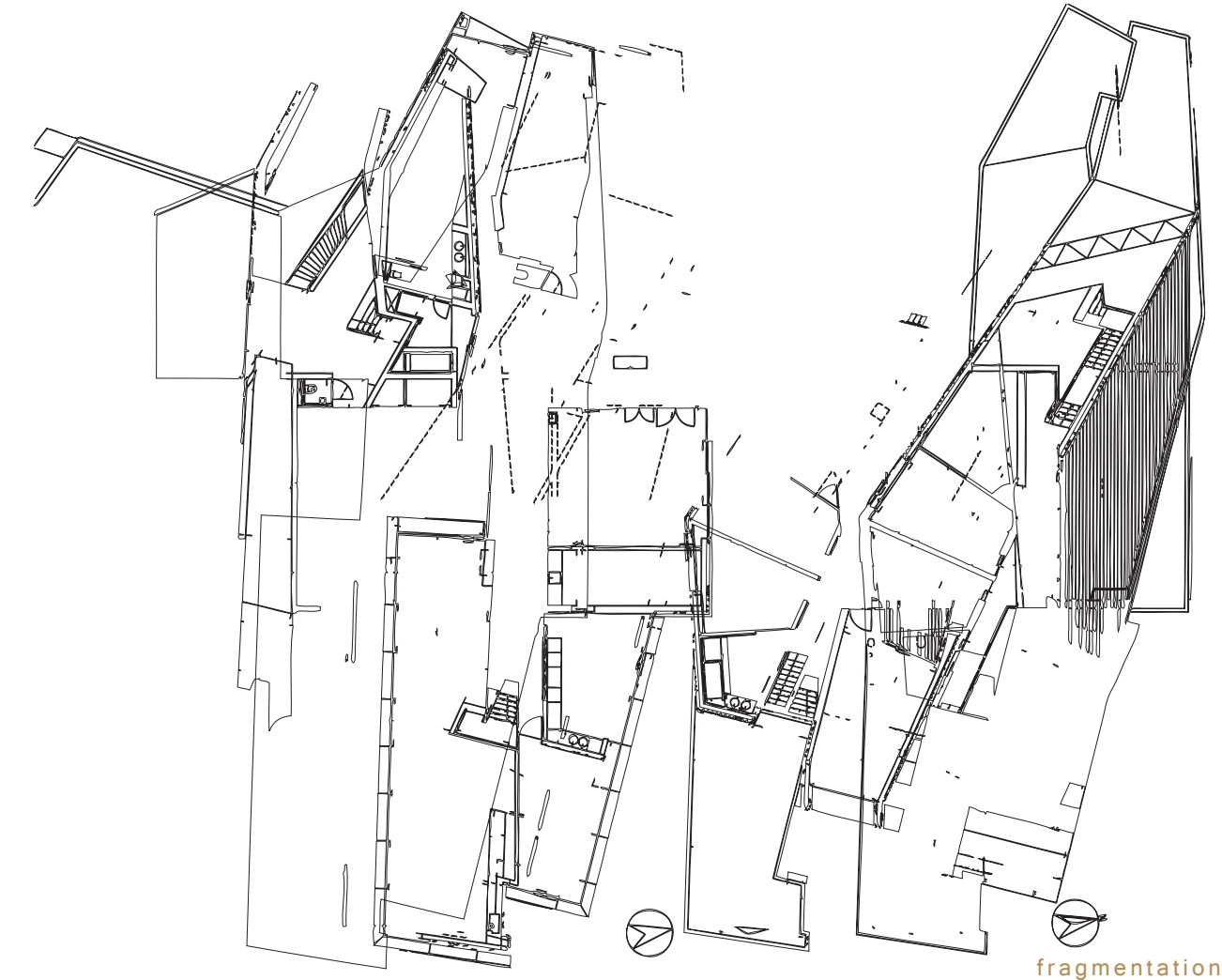
Technique

not therefore, respond in an obvious way to the realities of their material condition. Concrete for example, normally associated with density and impenetrable solidarity, becomes something fluid with indeterminate boundaries. With this strategy, the connections between parts do not require emphasis from some other, secondary component, but rather they express their relationship with a blending and continuity of surface which defies structural interpretation. Interior design details such as the fireplace, the bathtub, and several furniture elements are integrated directly into this continuity of massing, and may be seen more as extensions of this general form than separate elements.

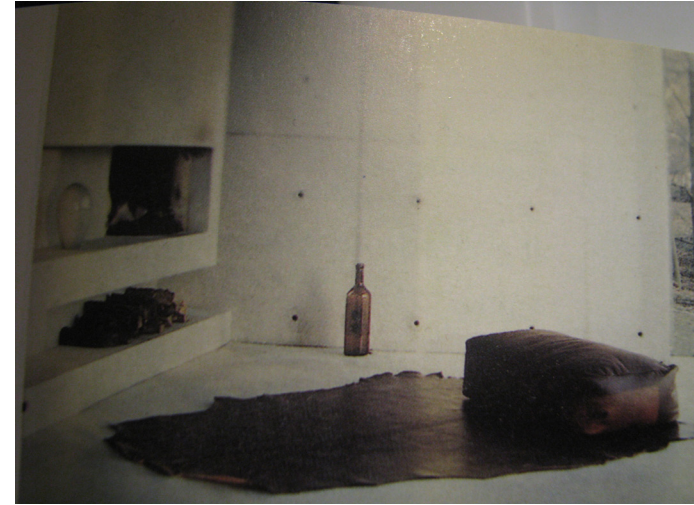
Möbius house therefore follows an informal structural logic in which the overlap and intersection are not neatly delineated or trimmed away to create a more formal logic. They are instead treated as informal occurrences of tectonic relationship, in which the collision of multiple parts is allowed to generate a new condition that is accidental as opposed to deliberate. The role of the 'accident' in this case reveals only that there may be aspects of the design which are not entirely predetermined, but rather emerge as a pure by product of technique. The consequence of this technique is that no standard tectonic device exists that is applicable in multiples, instead each individual relationship relies on the specificity of its emergent condition in order to give



bathroom detail



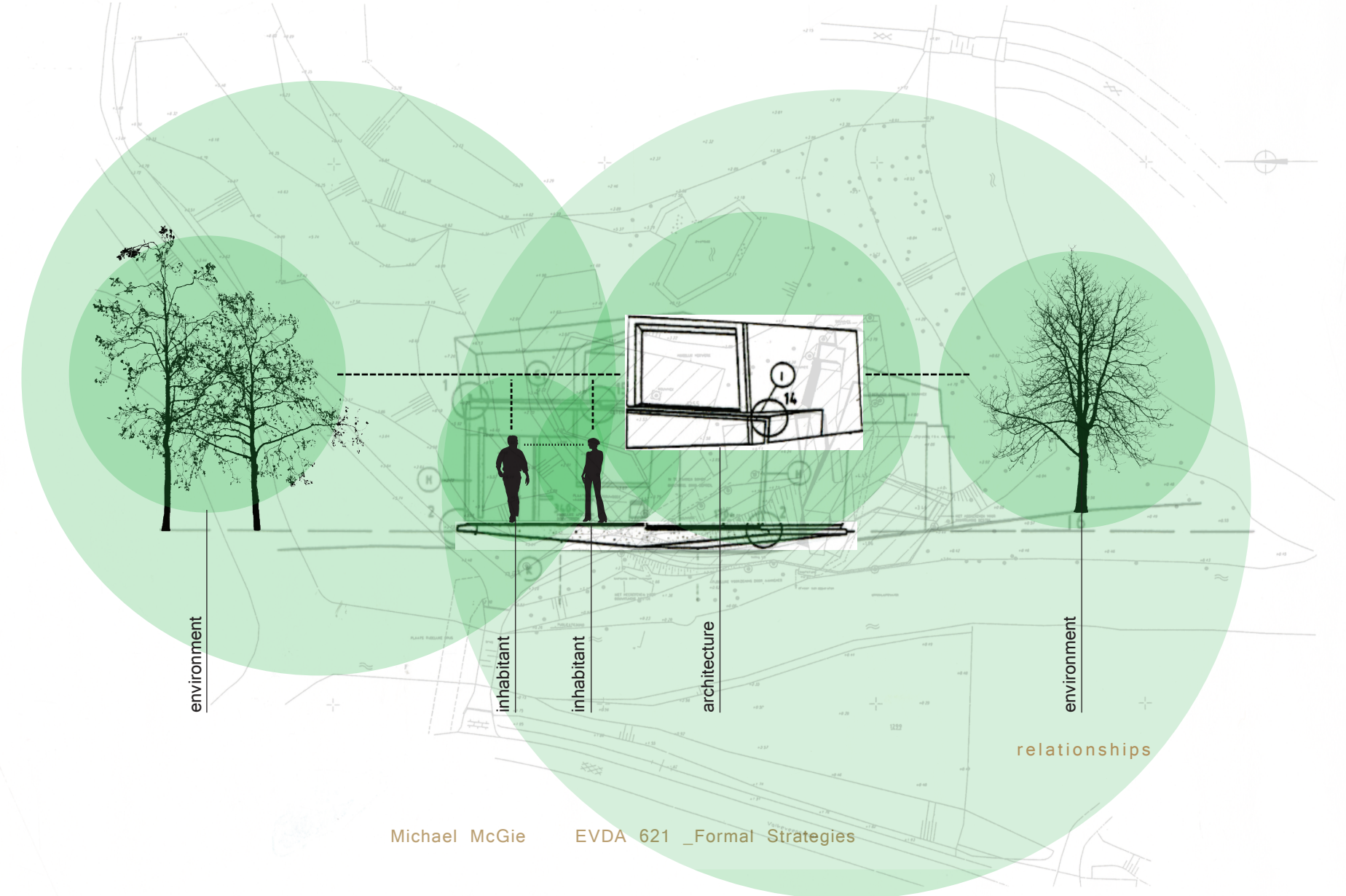
fragmentation



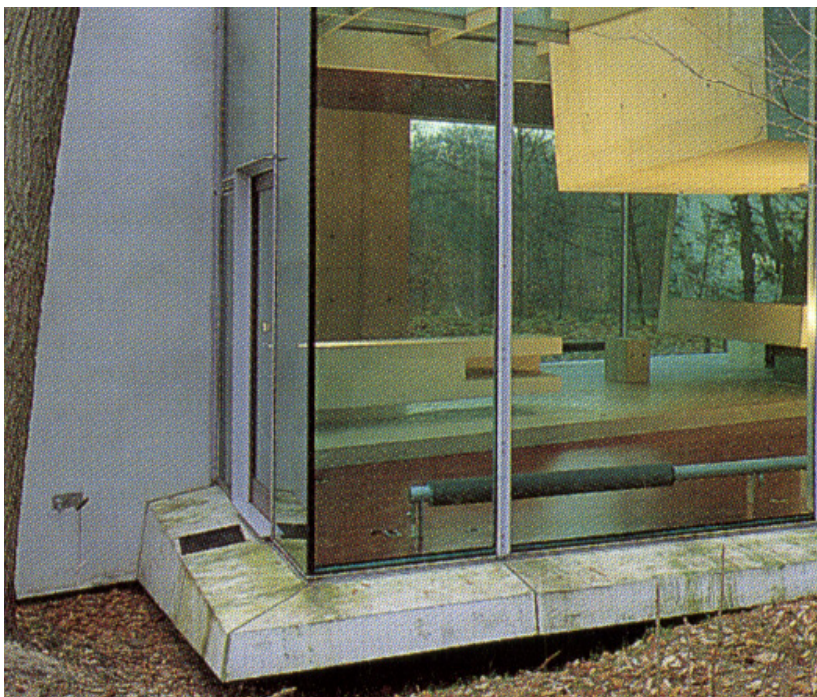
fireplace detail

Technique

form. It is conceivable that, as the design of the Möbius house began to unfold, UNstudio was required to engage in a constant series of responses and reactions to the incomplete forms that they created. The design process would not work in a linear fashion, but as a kind of reverberation between formal action, consequence, and response which becomes evident in architectural forms which push, pull, and accommodate each other. This is not to say that UNstudio lacked control or intentionality in their design process; simply that they allowed for the unexpected and inconsistent to occur without rigidly defining the outcome. The result is that the building form begins to define itself through process and technique, with the role of the designer as a guide and decision maker who must respond to emergent conditions that are somewhat out of control. The dialogue between design and designer becomes a reciprocal one, with each resulting solution creating a subsequent series of new problems, which are explored and then mediated to become compelling and poetic solutions.



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