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Drydock

*and the*

The Discursive Detail

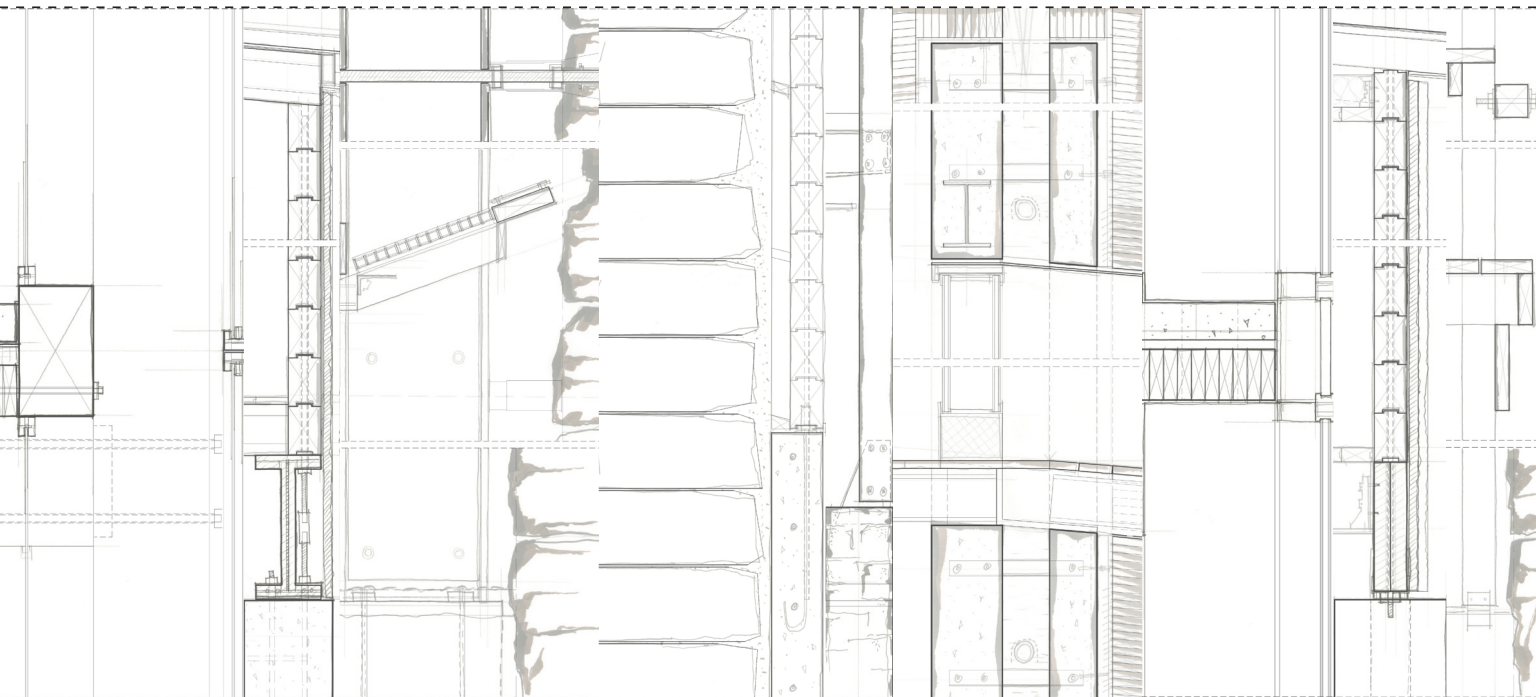
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Master of Architecture Thesis

Harvard University Graduate School of Design

Presented January 21, 2014

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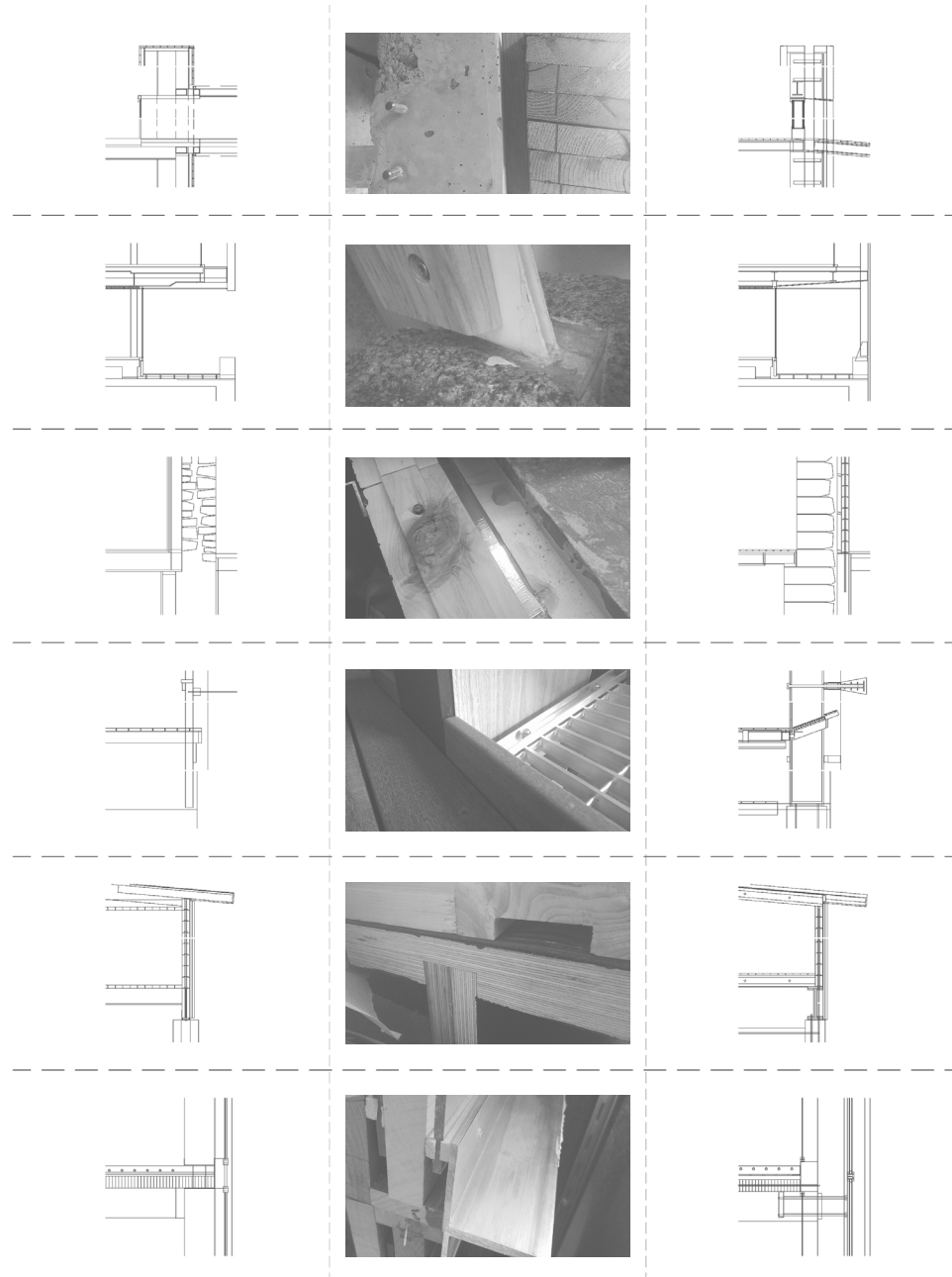
# Introduction

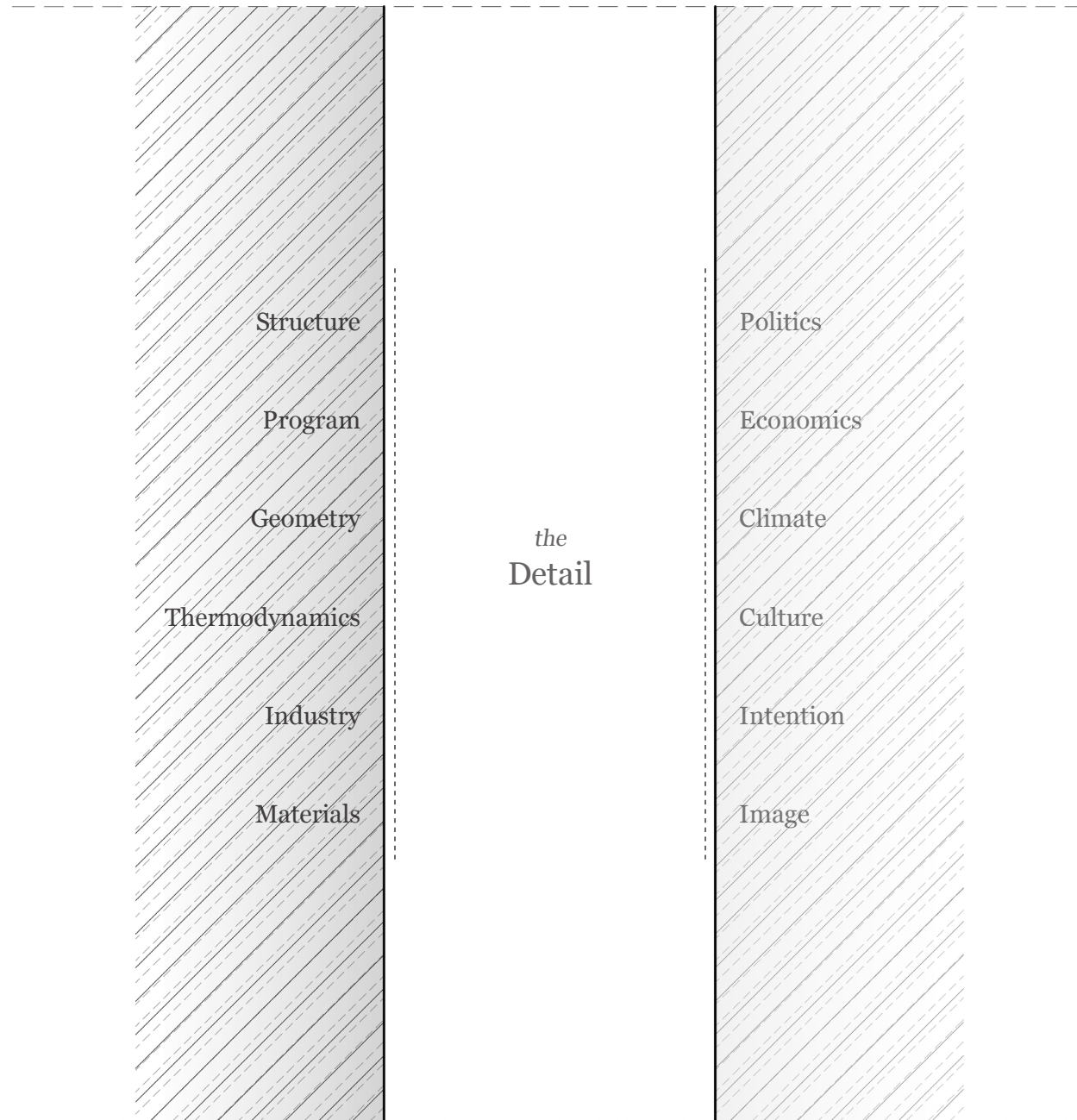
If you choose not to decide, you still have made a choice.

Geddy Lee, *Permanent Waves*

I am constantly cutting small sections and interrogating them. It's the way I interact with the built environment. This thesis is less of a singular project and more of an articulation of a position that's been escalating since the start of my graduate education - that an entire architectural realm, *mass*, exists somewhat outside of the scope of our usual discourse, and if we choose to engage it, we might just gain not only an observational understanding, but also the ability to affect it in ways which further the profession. That this *mass* can have the same discursive passion applied to it that we usually reserve for *space*, and that by doing so, we are able to imagine a role for architecture that involves a fulfilling engagement with the means by which we create buildings, conceptually and literally. I feel that our academic and professional relationship with this realm is one of assumption, expediency, convention and deferral. This hidden territory is the domain of this project.

I choose to engage it.





# 1 Territory

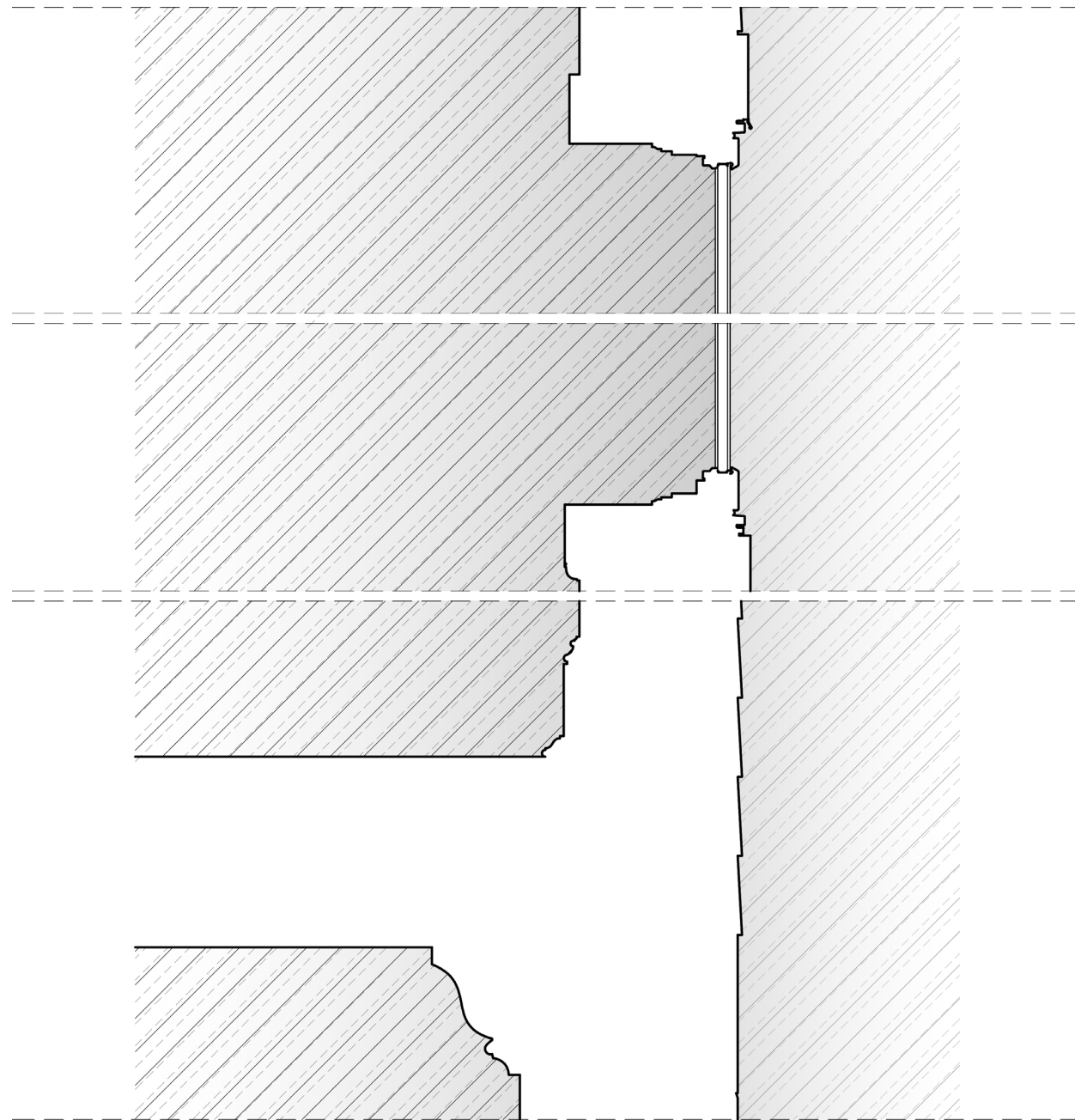
The projects presented here... propose various forms and peripheries and edges commonly referred to as 'walls'. These most primordial of architectural elements are necessitated by the state of contemporary culture, which finds itself in the midst of a crisis that can be met fully at its peripheries and edges, but not at its core, even though that is where its causes and most fatal effects are found. *At the core, the crisis is effectively disguised, while towards the boundaries, which are always to some degree neglected or at the limits of control from centers of authority, the disguise slips somewhat, and the crisis is revealed.* The disguise is, of course, not simply an effect of the crisis, but a primary cause of it... *The walls do not simply separate other spaces, but define spaces within themselves, spaces between, zones where the norms and conventions of living on either side of the wall's divide do not or, more likely, cannot apply.*

*Lebbeus Woods, Radical Reconstructions*

This passage is the staking of an architectural zone that is the domain of this investigation. This is the space *of, not by, the wall, and I will refer to it as architectural mass.*

It is an equally familiar and unfamiliar space, one which cannot be physically inhabited by the occupant or architect, but surrounds us by definition whenever we consider ourselves to be in the presence of architecture. In this project, I will argue that the means by which this space is defined emerges from relatively recent history, theory and practice as a distinct physical and cerebral entity, one endowed with astounding agency, to render a building sterile or fertile in terms of its reason for being, to 'hold up' the building literally and intellectually, and to contain within it the means of both the *construction and the construing* of an architectural act.

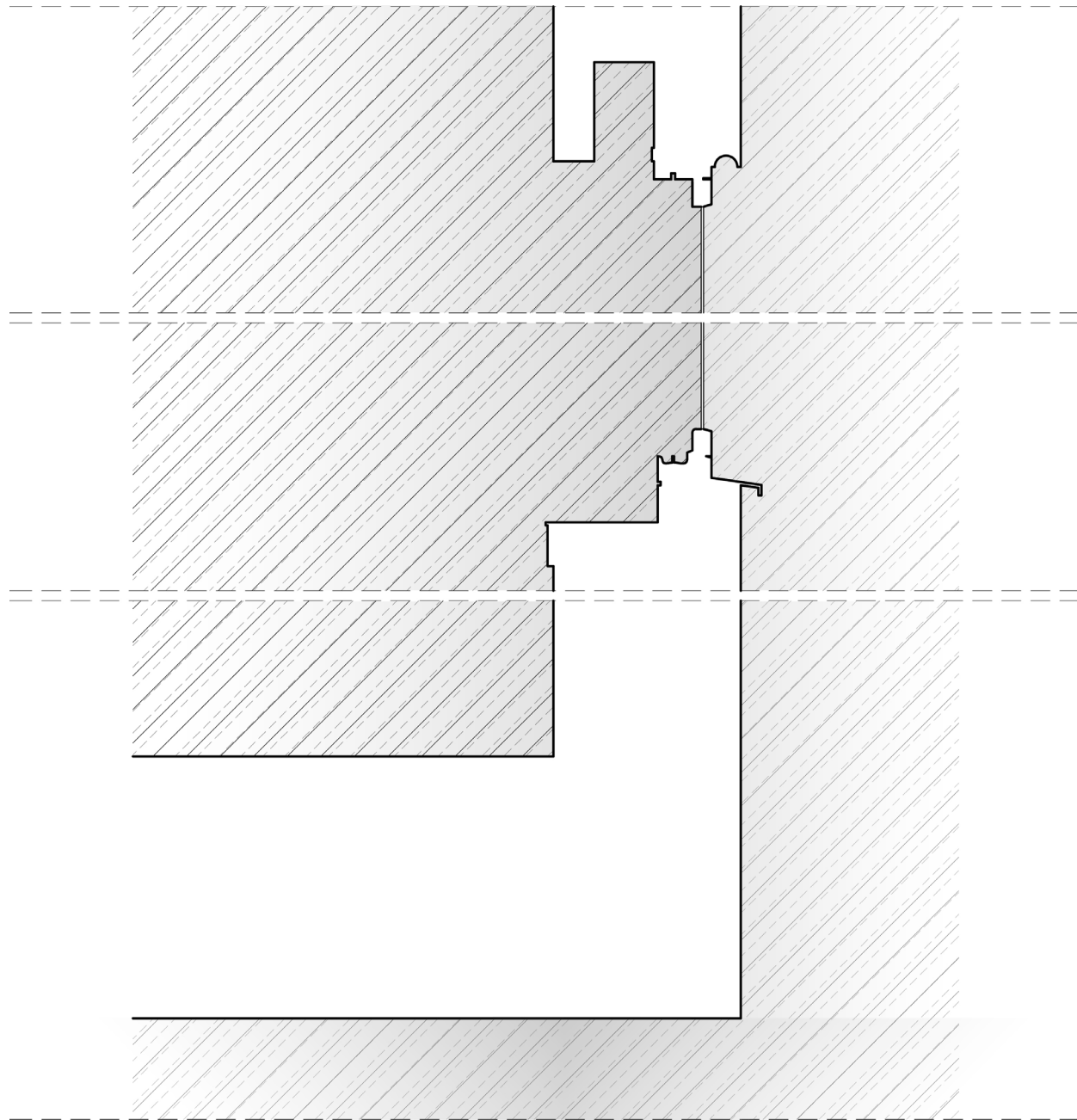




Woods demonstrates that there is a distinct difference between the two zones on either side of the wall and the zone within the wall: we don't, and cannot, go there. This third zone is inhabited by hidden but vital events, processes and forms that have the capacity to either enable the spaces on either side of it to thrive or doom it to failure. We define either side of the wall in terms of their programs, geometries, thermodynamics, economics, or any of endless means of describing space. We define the space within the wall in a singular, loaded term: *The Detail*.

What happens in the wall, and more generally, should we even care? If we can't go there but are burdened with describing it nonetheless, does it matter if the means to describe it are oriented toward economy and expediency, instead of speculation and discourse? Is detailing restricted to choices between various levels of revealing and concealing? Why would an architect be bothered with the definition of a space which cannot be inhabited?

As Marco Frascari among others recognizes, the Detail productively eludes a singular, encompassing definition. Edward Ford has published multiple volumes on the matter, but remains without a comprehensive definition. What is the Detail? Heuristically, it is a combination of materials and processes, and the representations of these, that allow an architectural idea to position itself toward physical realization. You don't need to create a detail if you don't want to at least imagine or evaluate its realization. Recursively however, it is many things to many people. A totalizing definition of this territory is not the point of this project, but to gain access to the work presented here, I offer the following reduction: A semantic definition of the term is only productive to the extent that it relates to the individual project, but it always contains at least one necessary confrontation - *the means through which an architectural act engages with the explicitly built version of itself*.



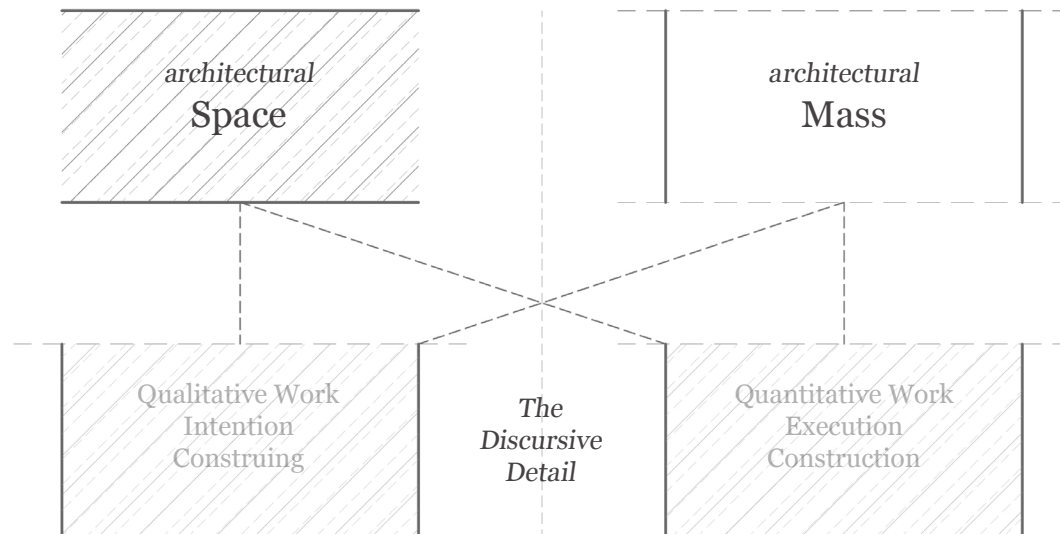
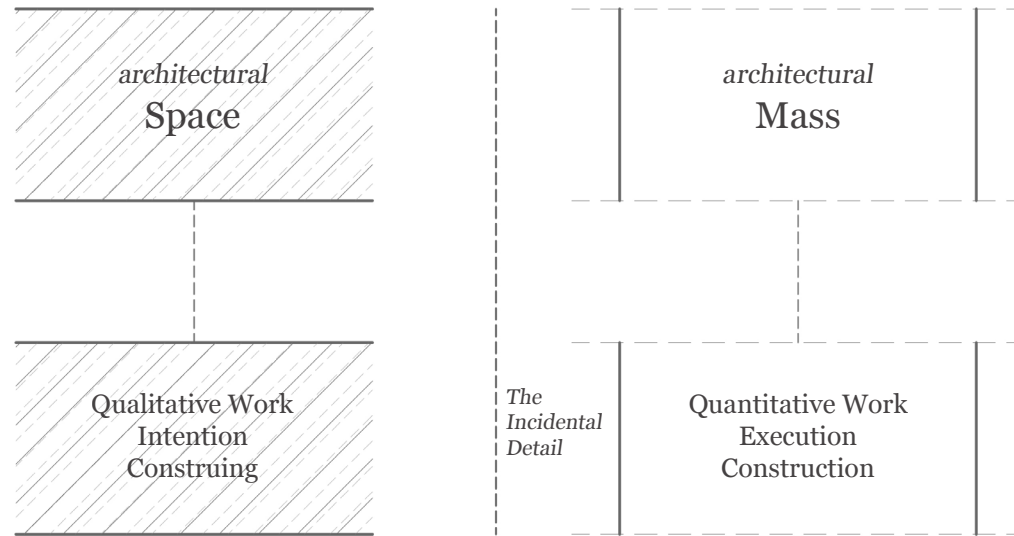
## 2 Position

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The ideas in this project are premised on an assumption: that architecture, throughout its various manifestations, *requires* acts of literal building and rebuilding as fuel. Certainly professional practice requires this, but so do any forms of text or theory, because ultimately they position themselves to an environment that is created through design.

Architecture thus requires a medium *through which* to build, and as the description of architectural mass, the Detail is by definition a translative medium. It is a medium through which this mass is described not only recursively to the designer as a creative tool, but explicitly to those tasked with its making as legal guidelines. The modern conception of the Detail arose when the responsibility of this description was transferred from the builder, whose internalized knowledge about architectural mass meant that only a highly representational version of a proposal by the architect was necessary for realization, to the architect, whose supposed access to newly available ideas and techniques due to external industrial modernization required the architect to describe the architectural mass explicitly.

Within the profession, however, these ideas and techniques were embraced as appearance and verbage only, leading to discord between the rhetoric of modern architecture and its physical reality. The image of architectural modernity remained just that – an image. Instead of affecting modern architecture to the extent that it is capable, the Detail becomes incidental; the responsibility for its definition passed not from the builder to the architect, but from the builder to the supplier, resulting in the architect choosing from products instead of curating processes and ideas.



Thus, the relationship between the space within the wall and the spaces on either side of it are designed only to the extent that an image is maintained. The core content of what we might consider a 'typical detail' is often the result of concessions and assumptions that rob the Detail of its full potential.

We require that the spaces we *inhabit* in built environments embody the qualitative measures that distinguishes architecture from 'mere' building, while requiring that the spaces *within walls*, those defined by the Detail, perform the quantitative work that the separation of spaces demands and that gravity demands. When we explicitly separate these two necessary areas of architectural definition, the *construing* and the *construction*, the *intention* and the *execution*, we lose the opportunity for the spaces we inhabit to contribute to the quantitative work load of architecture, and we lose the opportunity for the Detail to participate in its qualitative discourse. Remaining as such, the Detail participates only to fulfill acts of building, not acts of architecture.

I propose and seek the *Discursive Detail* – one in which the Detail participates in both the *intention and execution* of architecture, to the extent that the resulting architectural mass is endowed with equal agency as architectural space. It requires that the design of architectural mass not be assumed or deferred.

The Incidental Detail leads to architectural agency being limited to the *construing* of spaces, while its *construction* is left to expediency and convention, risking dangerous dissonance with its reason for being in the first place. The Discursive Detail has the potential to expand the architectural act to the full spectrum of a building's realization. The potential of the Detail has been curtailed by internal ignorance and external skepticism.

I aim to unleash its potential.

### 3 Lens

Him I consider the architect, who by sure and wonderful reason and method, knows both how to devise *through his own mind and energy*, and to *realize by construction*, whatever can be most beautifully fitted out for the noble needs of man, by the *movement of weights* and the *joining and massing of bodies*.

Leon Battista Alberti, *De Re Aedificatoria*

Six buildings, four criteria, three filters.

This is an examination of how an architectural project may be affected by the consideration of its salient Detail as discursive instead of incidental. Their common parameter is that the strengths of their spaces come from an act of construing, and not of construction - they have considered space and incidental mass. They are qualified against and altered according to one or all of the following criteria. The result is not a completely different building – but one in which the Detail is brought more fully into discursive consideration, altering the encounter with the project.

The four *criteria* exist latently within even the Incidental Detail, but it is the Discursive Detail which takes positions on each. These come most explicitly from Michael Cadwell’s *Strange Details*, an examination of encounters with the Querini Stampalia, the Center for British Art, the Jacobs House and the Farnsworth House.

The three *filters* come directly from the quotation above, a classic definition of the architect. They are lenses through which to observe the Discursive Detail, a definition of architectural mass which embodies those speculations usually taken on through space and form alone.

	Knut Hamsun Center Steven Holl, 2009	Oloron Sainte Marie Mediatheque Pascale Guedot, 2010	Bascom Lodge C.C.C., 1938	Menokin Ruin Stabilization Menokin Foundation, Ongoing	Writing Studio Kiel Moe, 2013	Bullitt Center Miller Hull, 2012
Plot	Directly related to the complicated life of the author, “Building as Body” “Even though I was a battleground for invisible forces...”				Solitary wooden box in a field in the woods	Display case study for green building tech
Structure		Image of extrusion from an existing base Wood and Stone Clear interior space			Solid wood walls also act as large horizontal beams, does not need additional support outside of wall mass	Modern use of heavy timber framing for energy considerations, connections change accordingly
Power			Material positioning to harness latent potential Chirality of material and building interior vs. exterior		Solid wood walls perform all of the necessary functions within a single mass	Every aspect related to both reducing and producing usable and sellable energy
Time				Preservation of a current image of a past building Order of assembly	Ability to be built by two people, materials arranged by order of permanence	250 year solid wood and concrete structure, 50 year building skin, 25 year energy generation technology

## Criteria

PLOT - Architecture tells a story: its history, its reason for existence, and its future projection. This storytelling is usually curated and interpreted through spaces. To what extent does the Detail, embodying physical constructions, participate in the conveyance of intangible ideas and emotions, in its construing?

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STRUCTURE - Buildings need to stand up literally, in terms of resistance to force. They also need to stand up conceptually, but this is usually the responsibility of their spaces. The Discursive Detail has the capacity to do both. To what extent is the difference between physical and cognitive structure also the difference between mass and space? To what extent does the Detail do both?

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POWER - It is not enough to consider energy use in terms of minimization. A definition of mass is also a definition of energy; instead of considering its minimum use we can consider its maximum potential. To what extent does the Detail maximize the capacity for energy to become literally powerful in a building?

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TIME - The Detail has the unique requirement that it must provide the means for managing various scales of time within the building. At least three time scales intertwine when mass and space are considered in concert: the scale of construction, the scale of typical use cycles, and the scale of the intended and actual lifespan. Buildings are not manifest as whole entities and do not exist for eternity - to what extent does the Detail address and make operative multiple, overlapping and contradictory timelines?

## Filters

*...through his own mind and energy, and to realize by construction...*

LABOR - The Discursive Detail has the capacity to orchestrate the means by architecture will become manifest. Because the Detail is the description of mass, but not the mass itself, it maintains a projective orientation, in that the architect can always represent more than they are capable of personally buliding. How does the detail address this inherent difference?

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*...the movement of weights...*

WEIGHT - At first an abstract consideration that becomes immediately clear when one begins to build, the literal weight described by the Discursive Detail begins to affects the character of the representation itself. How does the detail address the responsibility of defining entities that 'weigh' more than an individual can move, physically and cognitively?

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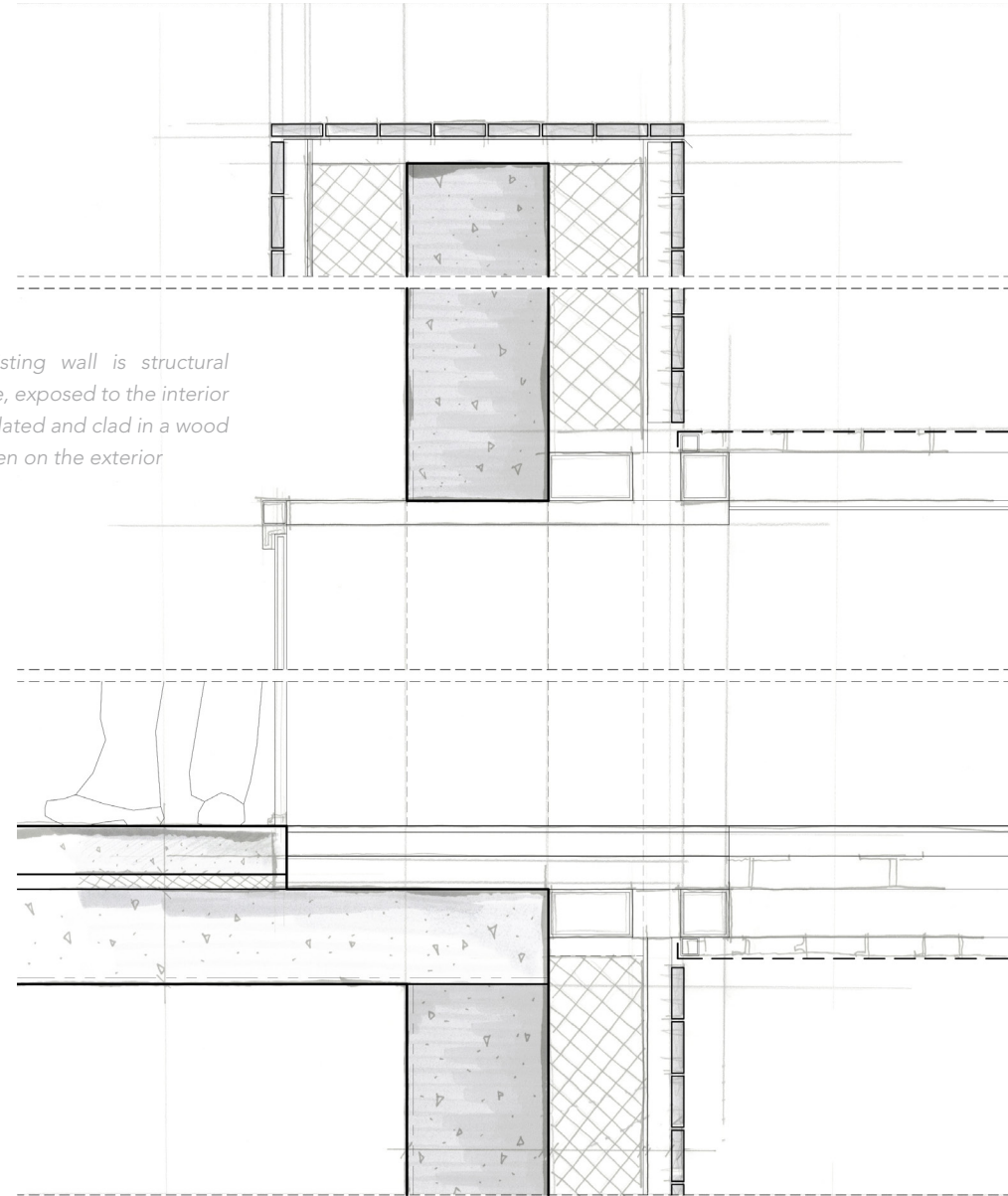
*...the joining and massing of bodies...*

JOINT - The Discursive Detail exists such that descriptions of physical discontinuity can be intellectually managed by the architect, but in the same time and place, cognitive continuity is addressed; whether separate elements are enountered and understood as either in agreement or disagreement with its physical reality. How does the detail address revealing or concealing the physical juxtapositions that they describe?

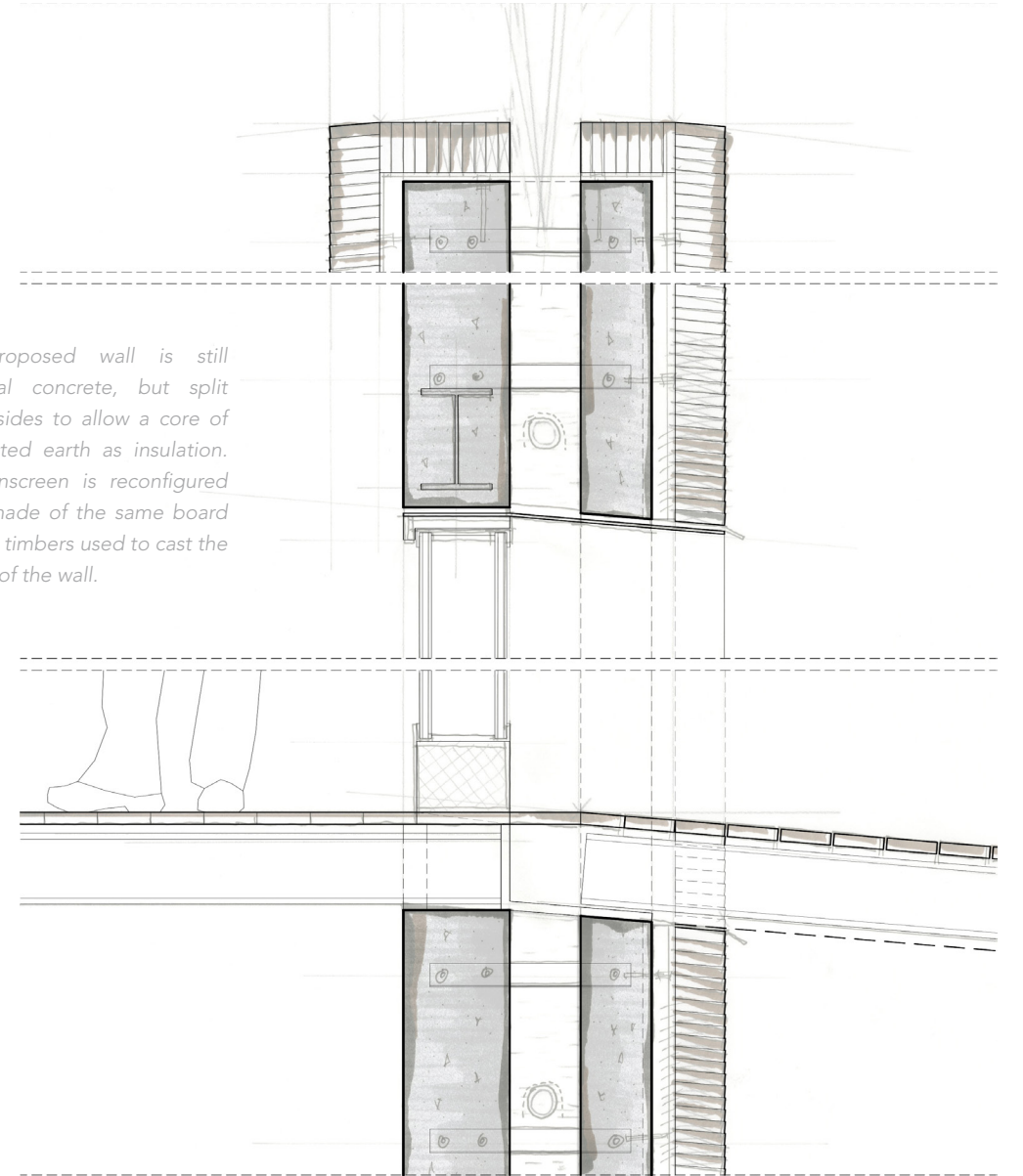


# Knut Hamsun Center - Plot

Steven Holl Architects - Hamarøy, Norway - 2009



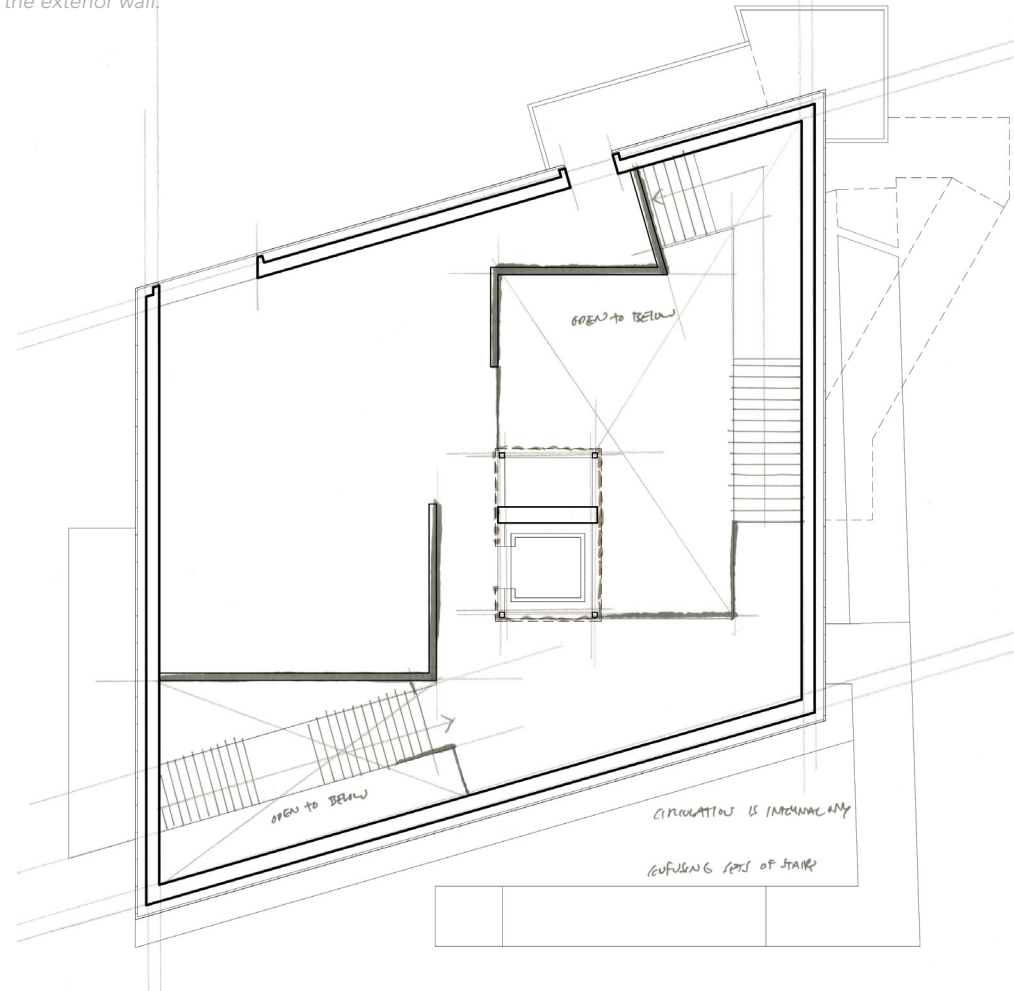
*The existing wall is structural concrete, exposed to the interior but insulated and clad in a wood rainscreen on the exterior*



*The proposed wall is still structural concrete, but split in two sides to allow a core of compacted earth as insulation. The rainscreen is reconfigured to be made of the same board forming timbers used to cast the interior of the wall.*

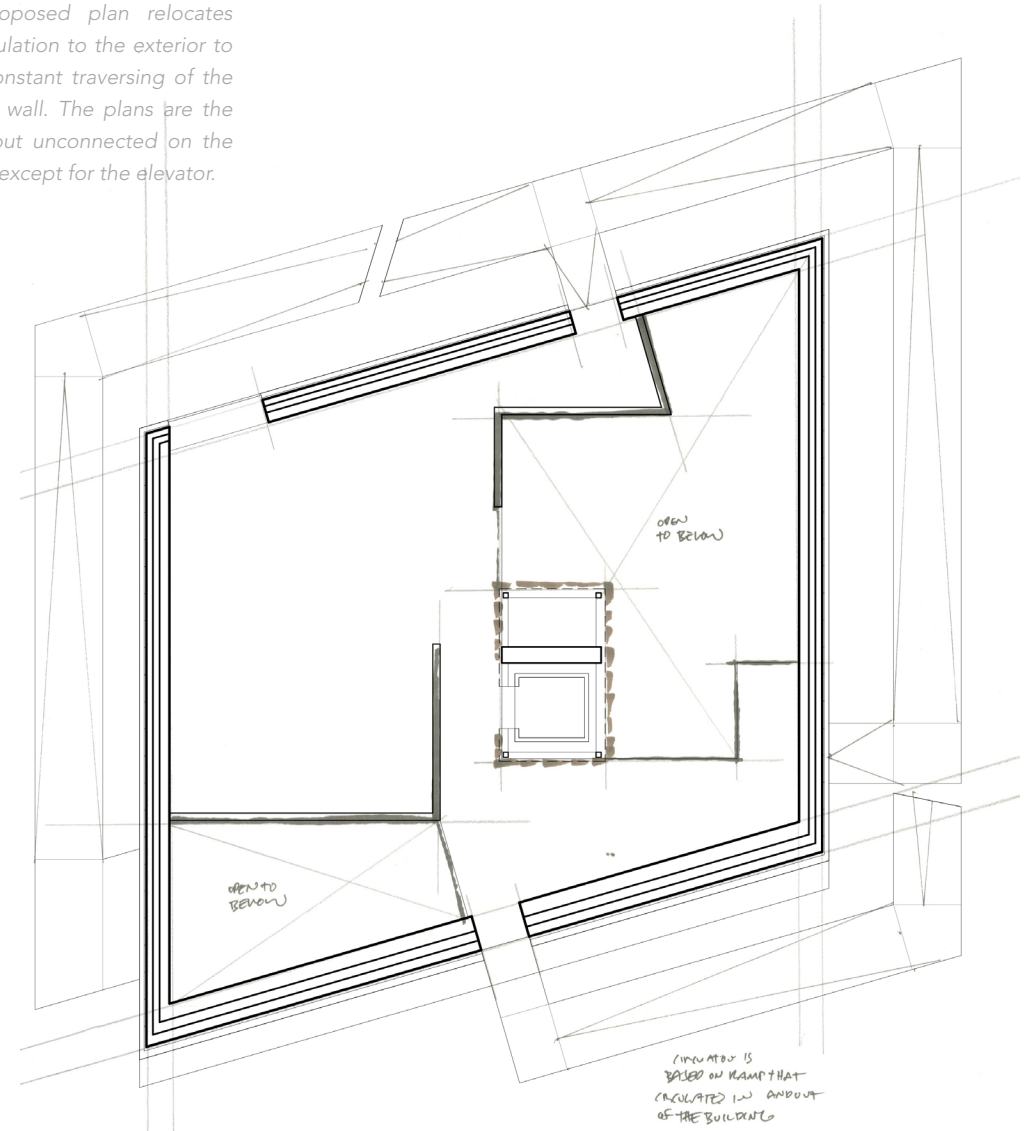


The existing plan configures an interior staircase wrapped around a central elevator and utility core, with individual decks piercing the exterior wall.

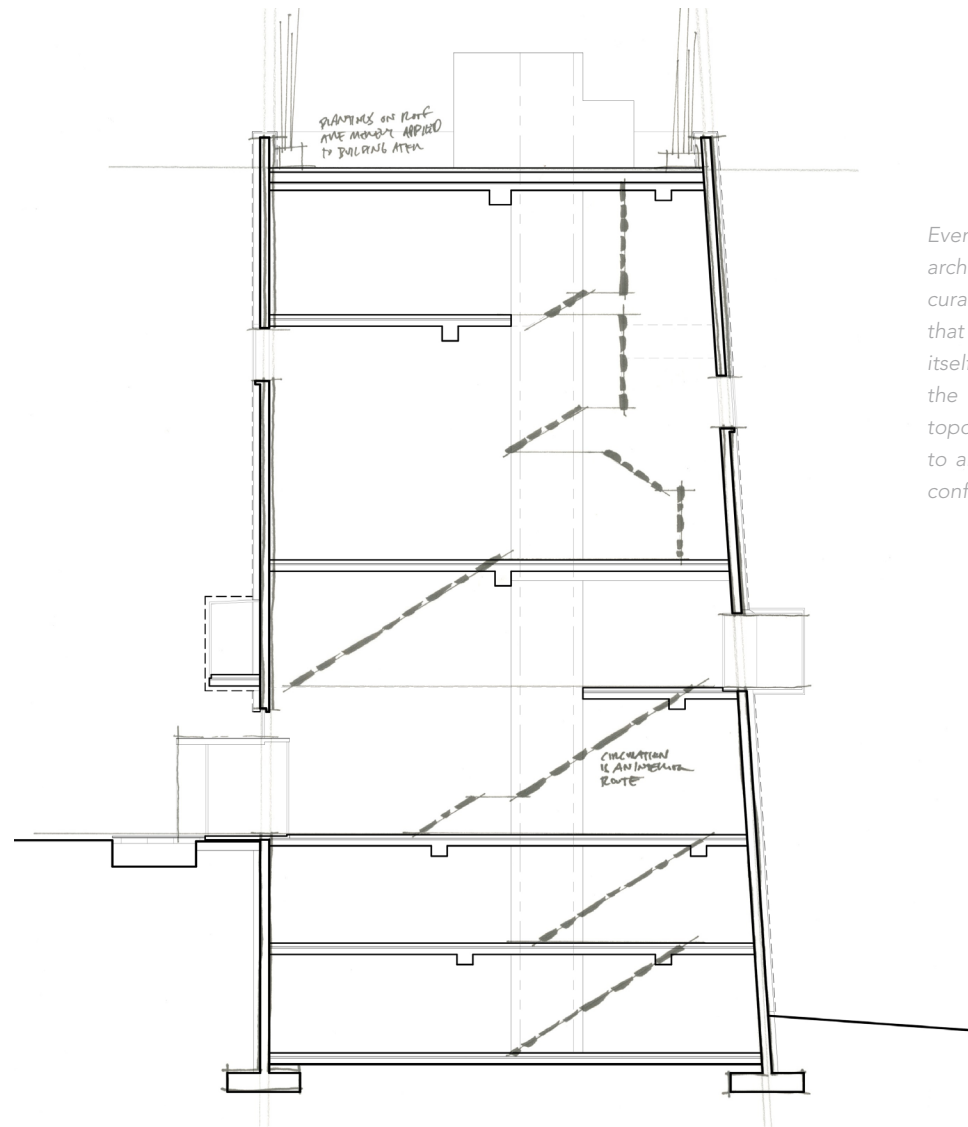


The idea of plot is central to this project - it is a building dedicated to an author, the Norwegian novelist Knut Hamsun. Steven Holl quotes from the author's 1890 work *Hunger* in describing the project: "Even though I was a battleground for invisible forces, I was aware of every detail of what was going on around me." But its Details remain based on conventions in ways that contrast with its highly specific spaces.

The proposed plan relocates the circulation to the exterior to force constant traversing of the exterior wall. The plans are the same, but unconnected on the interior except for the elevator.

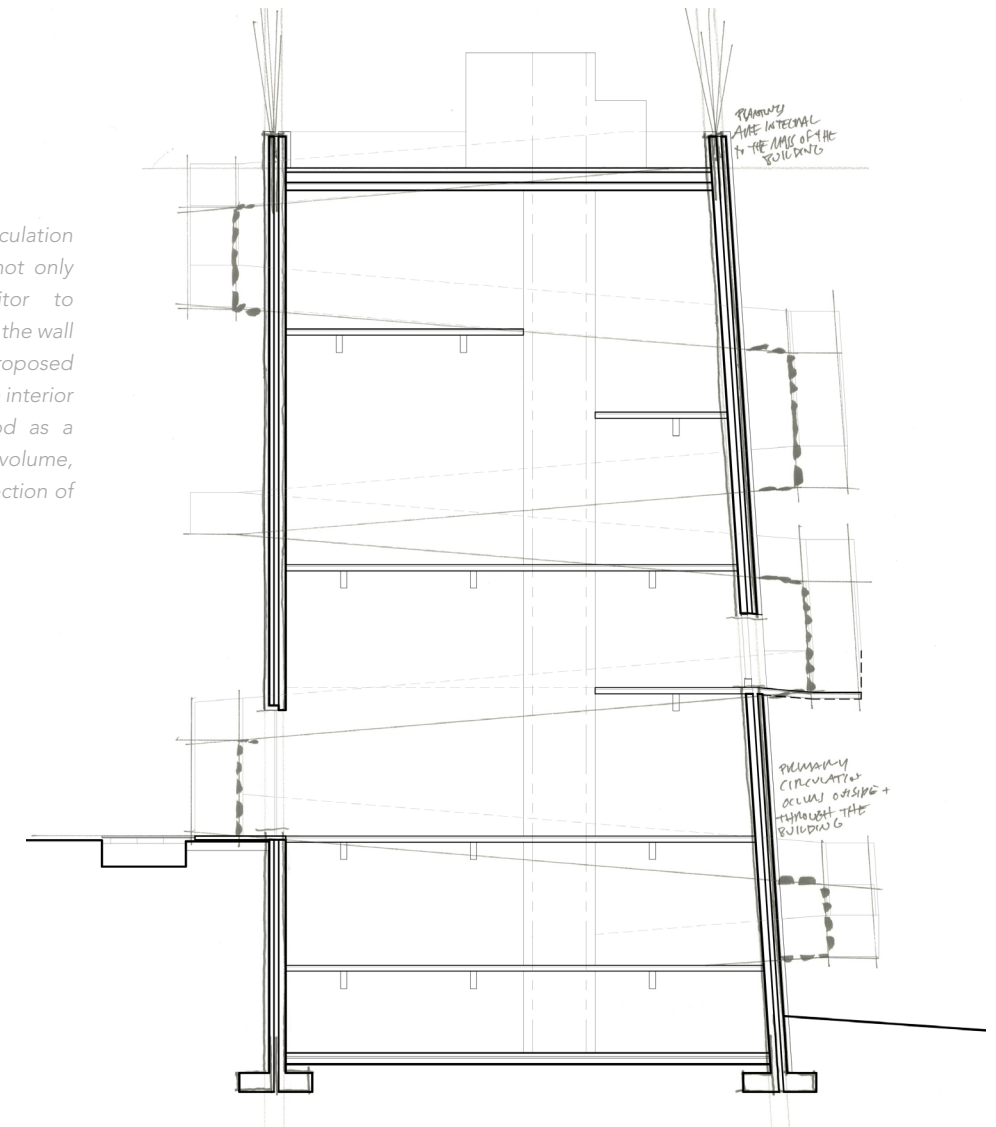


Three changes are made to the detail - the exterior rainscreen is made from the same boards which formed the interior concrete surface - traces of invisible forces. The rainscreen is pitched to align to a ramp on the exterior, shifting the entire section of the building. Finally, packed earth is extruded through the section, making the roof garden literally grow out of, instead of being applied to, the building as image.



Even though the architect takes care to curate a circulation path that hides and exposes itself at various stages, the interior remains topologically identical to any conventional stair configuration.

The interior spaces of the existing building wrap around the central elevator core, meeting the exterior wall to pierce through to create unique curated events at each moment. However, this creates an experiential pattern in which these events are encountered as objects and then exited. This robs the potential of the scheme from being able to be experienced as a 'battleground' - they are too polite.

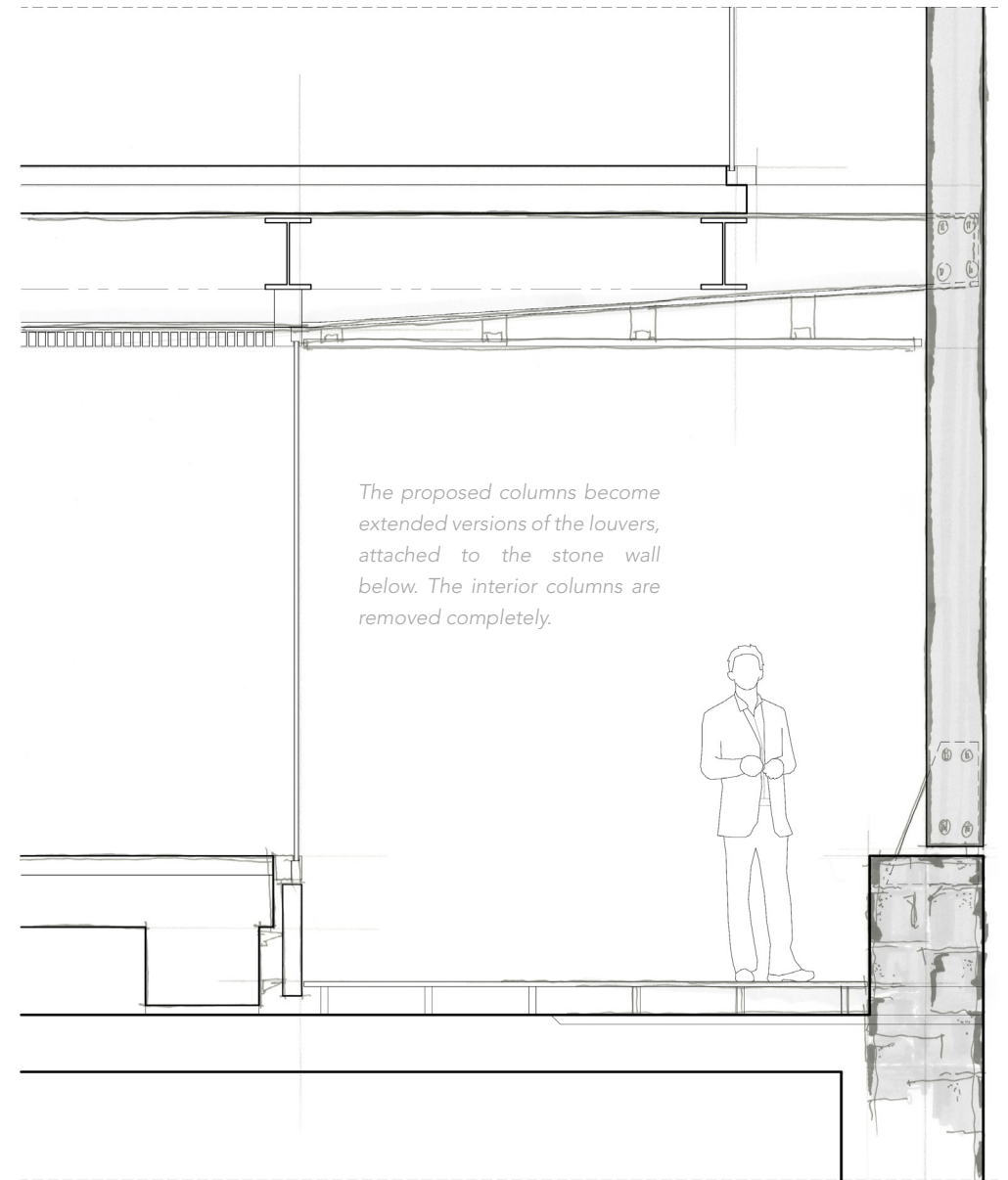
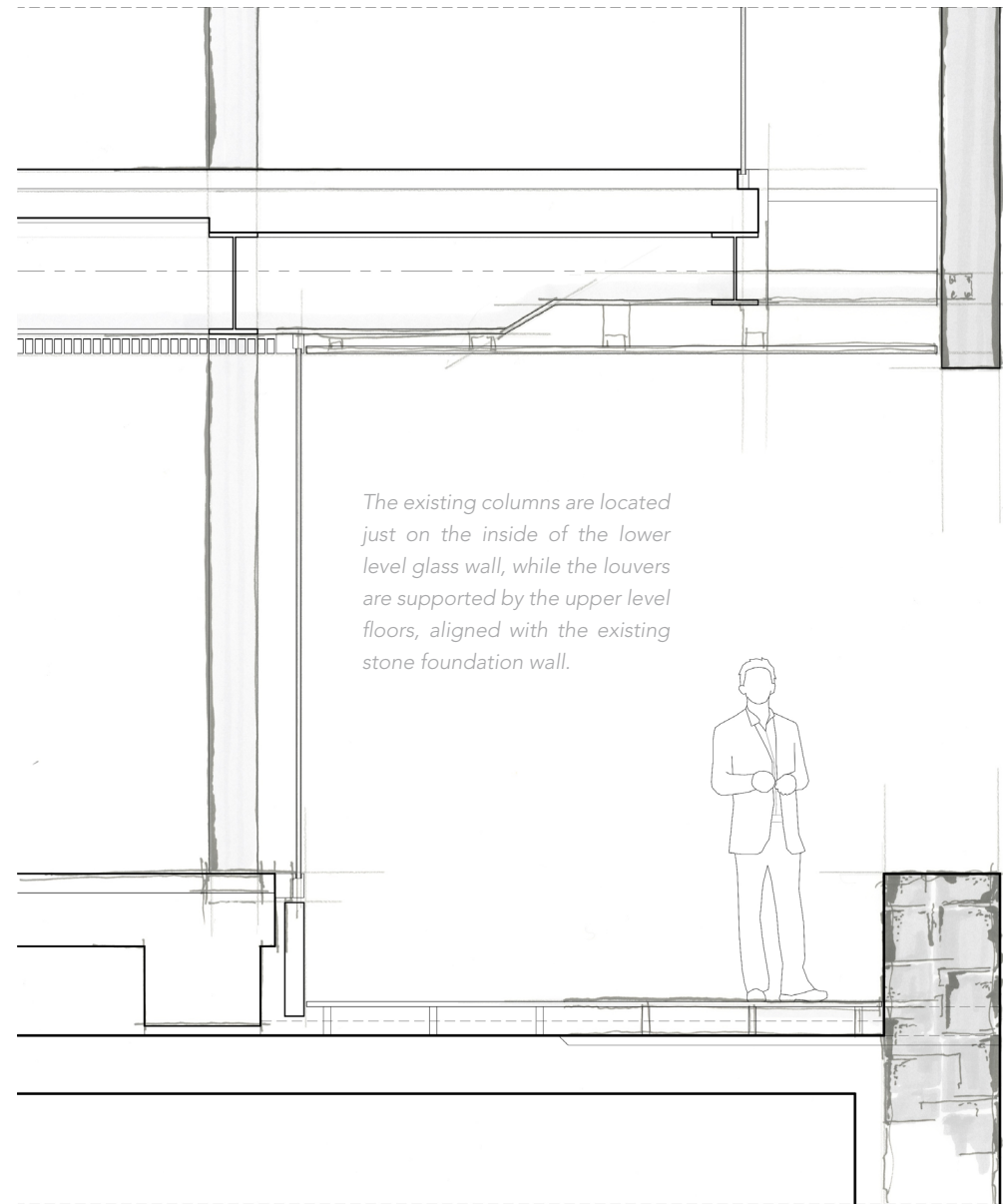


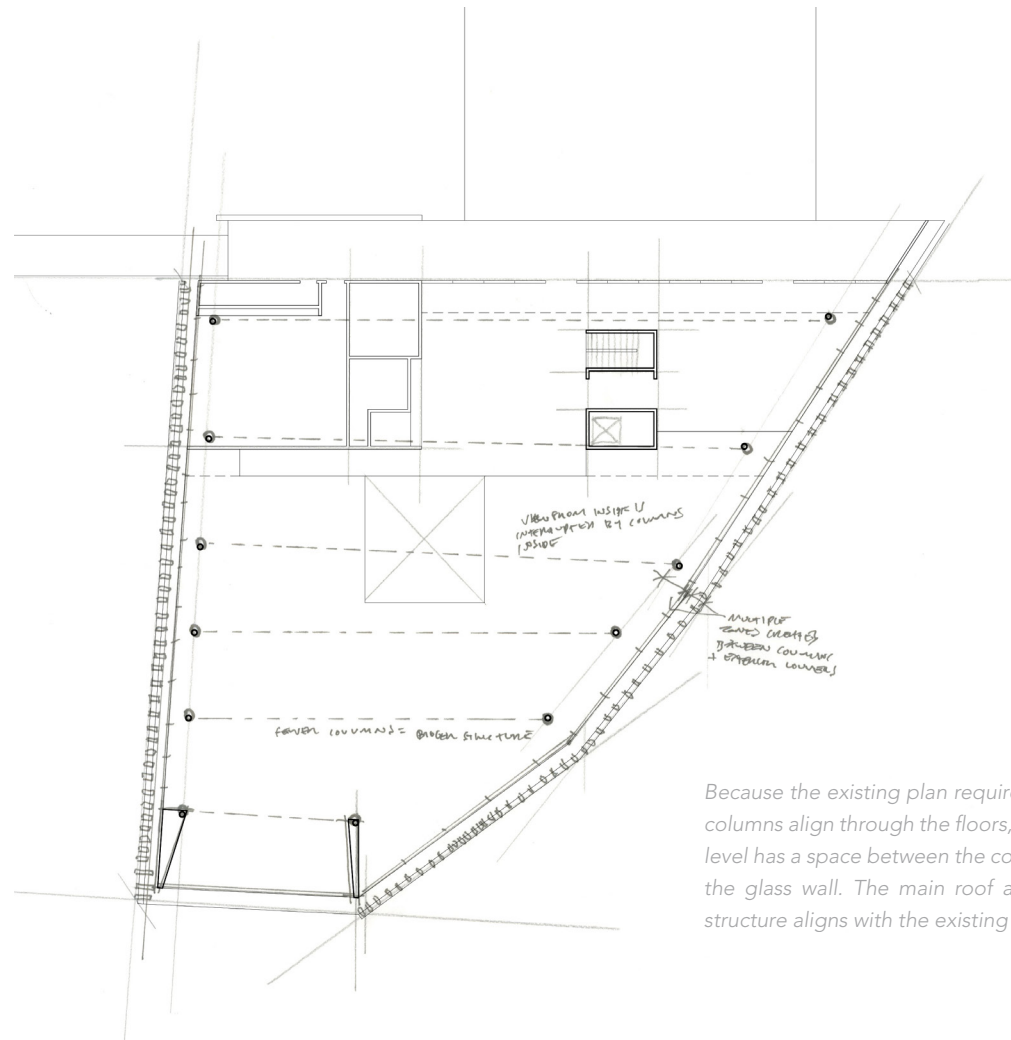
Placing the circulation on the exterior not only allows the visitor to become aware of the wall section, but the proposed section allows the interior to be understood as a single 'body' volume, not simply a collection of horizontal floors.

By aligning the angle of the rainscreen elements with an exterior ramp, the piercings through the wall are now allowed to be seamlessly connected in section, shifting the heights of the floors depending on how far they wrap the building. Now that the main circulation is on the exterior of the building, the interior becomes a series of seemingly disconnected platforms which require constant confrontation with the building's mass.

# Oloron-Sainte-Marie Library - Structure

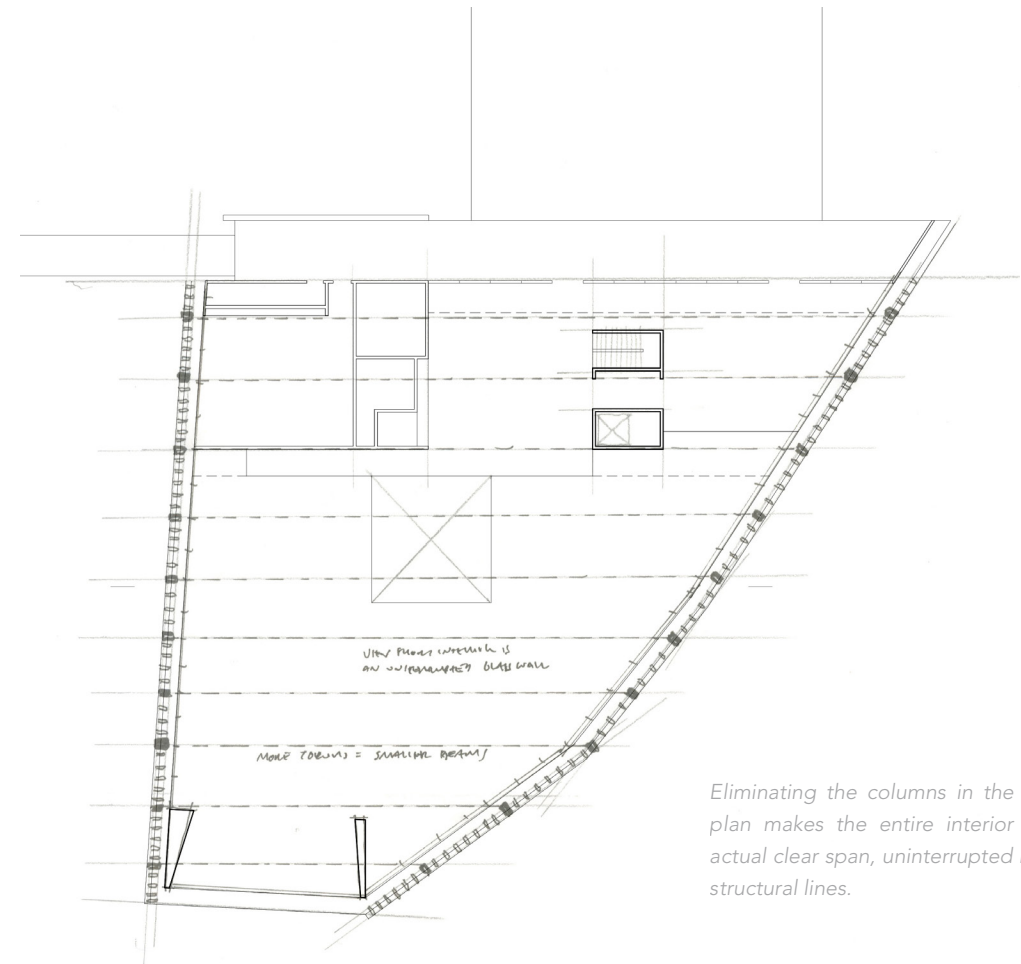
Pascale Guedot Architect - Oloron-Sainte-Marie, France - 2010





Because the existing plan requires that the columns align through the floors, the upper level has a space between the columns and the glass wall. The main roof and ceiling structure aligns with the existing columns.

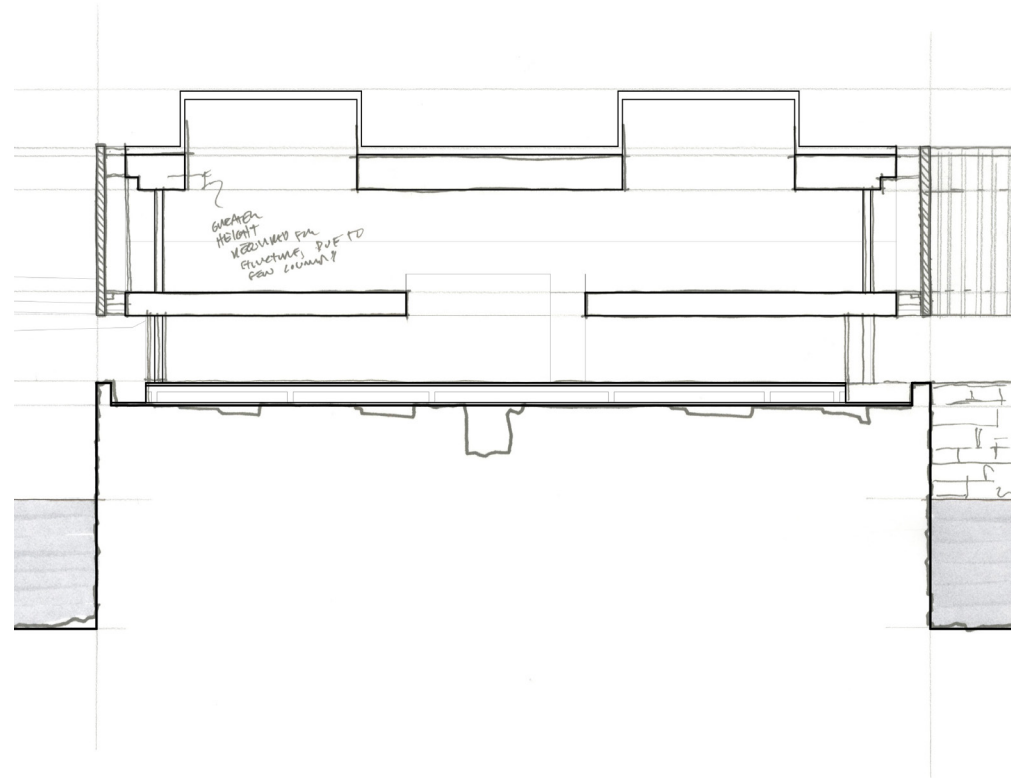
This library in France is built on the foundations of a 19th century textile mill at the confluence of two rivers. The form is a modern extrusion of the older base, which provides space to circulate around the exterior. The image of extrusion remains that - an image - created by vertical louvers that align in plan to the base. In such a scenario, the image of extrusion might simply be reduced to that: an applied graphic onto the glass.



Eliminating the columns in the proposed plan makes the entire interior space an actual clear span, uninterrupted by vertical structural lines.

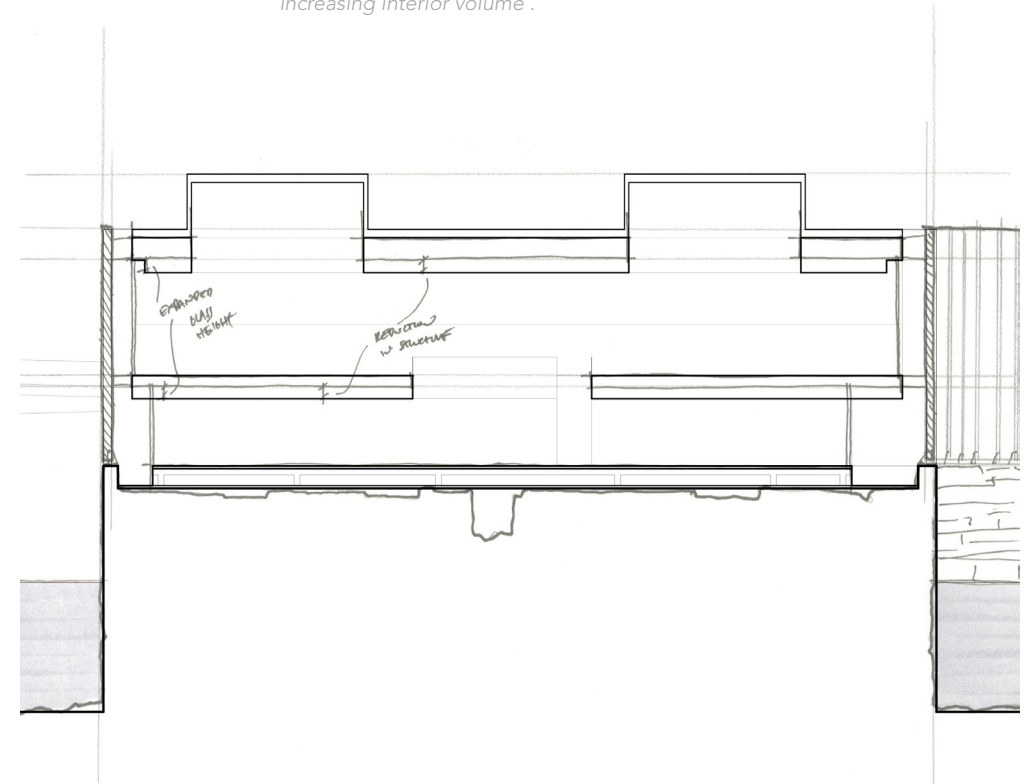
Because the vertical structural work is being done by columns, the louvers are just tacked onto the structure as an offset graphic. One simple value-engineering move would reduce the image of the louvers to a film or frit pattern. To ensure this never happens, the interior columns are removed and the louvers extended to meet the existing stone wall. The physical construction of the building is inseparable from its construing.

The floor and roof structural grids align with the columns, and because the architect wishes to reduce their number, the existing section needs to have thicker spaces between occupiable space, reducing interior volume.



The columns on the interior of the existing building muddle the understanding that the building has a completely clear interior span - they are made to be as backgrounded as possible, but because of their placement, the visual continuity of the glass wall is interrupted. The corridor attempts to create a bounded frame to view the river, but because of its width, one cannot get far enough back to observe it as such.

Because the new columns are aligned with the louvers, they can increase in number without interrupting visibility further. The greater number of structural grid lines means that the proposed section can have thinner floors, increasing interior volume.

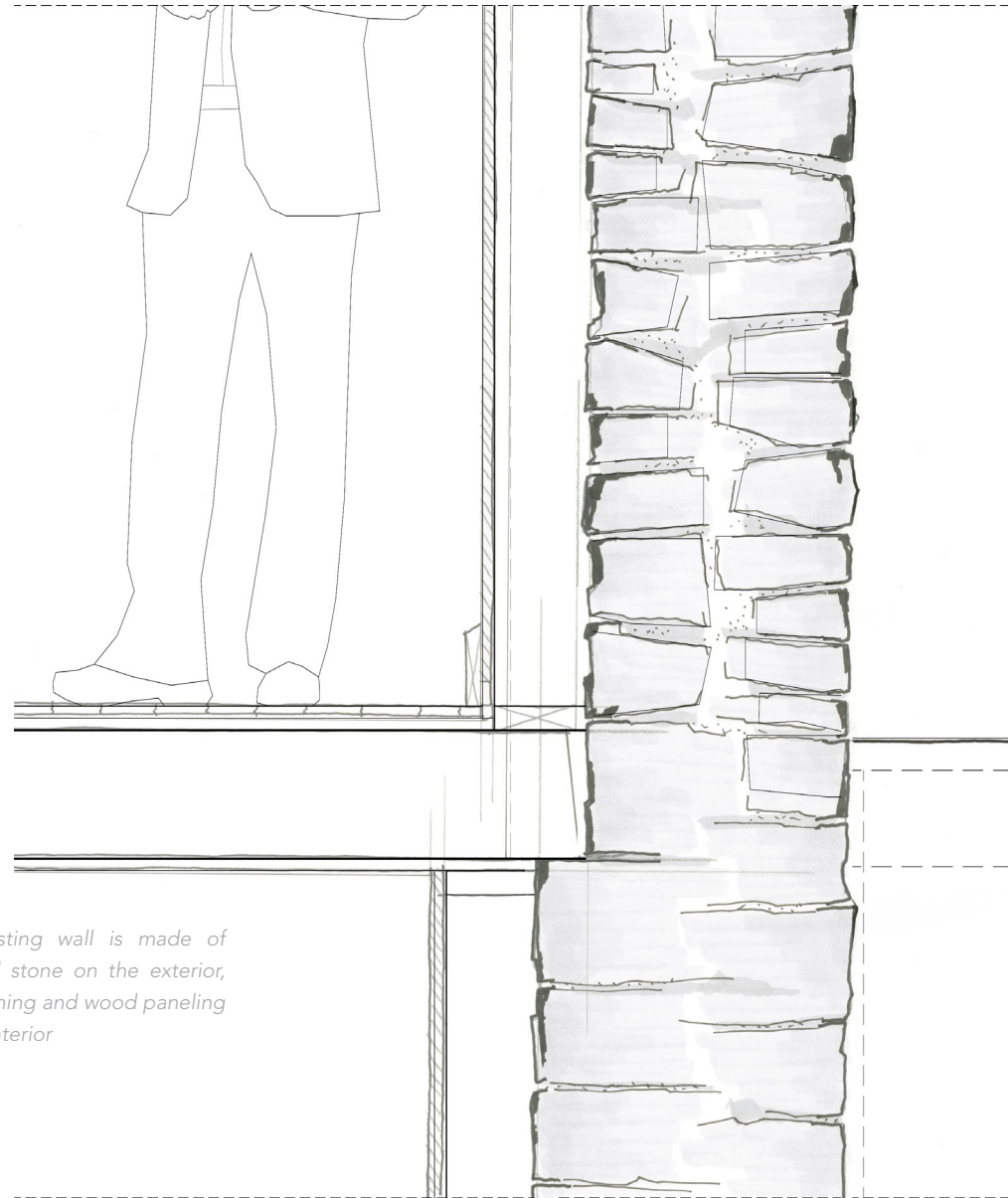


The changing of the vertical load-bearing responsibility from the columns to the louvers frees the space inside the exterior glass wall to *actually be* a clear span, and the mild climate of Oloron-Sainte-Marie allows the continuity of structure from interior to exterior to not be compromised by thermal bridging. The once open base corridor, now semi-enclosed by the columns, opens to the lower level to create an outdoor space.

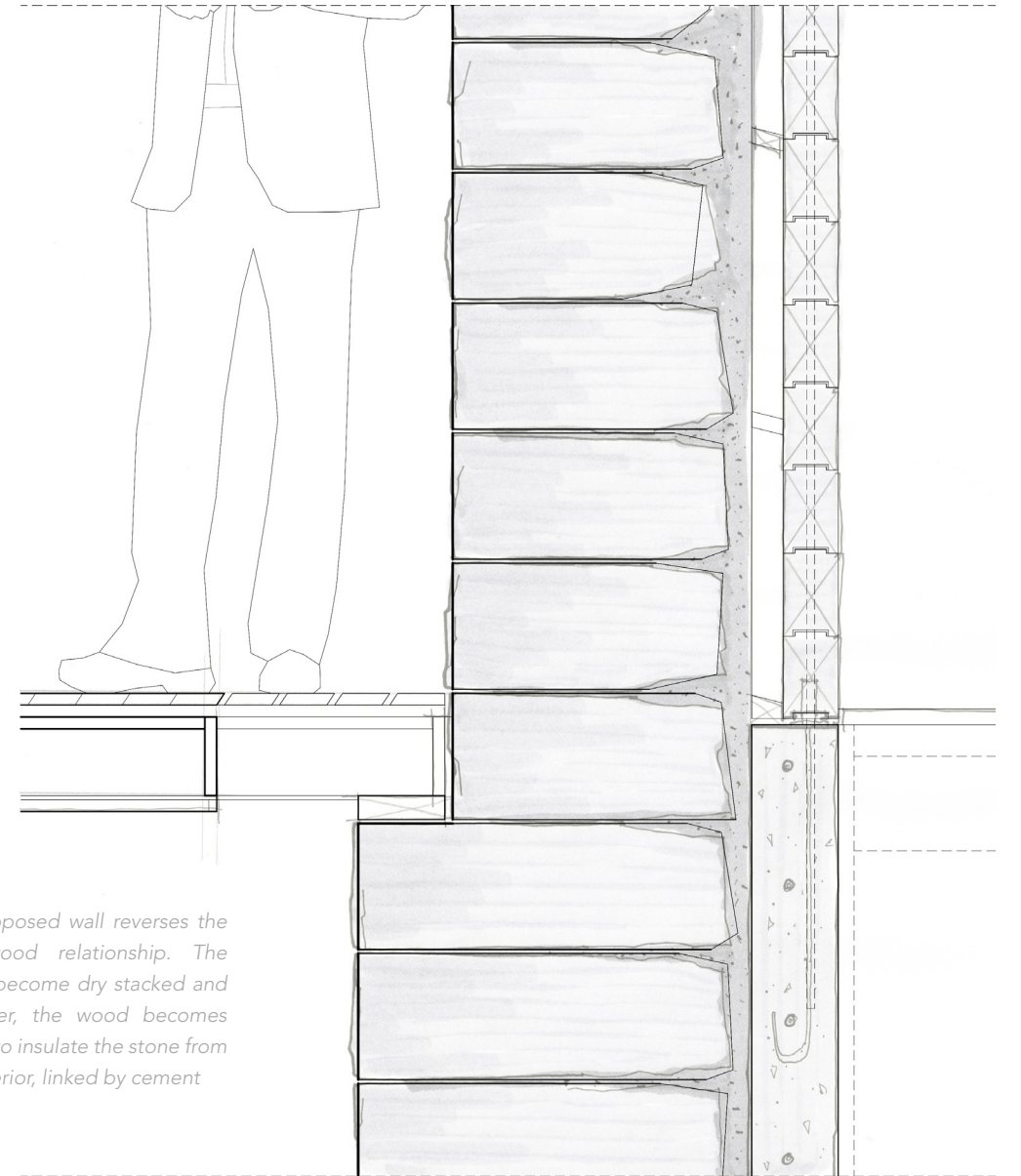


# Bascom Lodge - Power

Civilian Conservation Corps - Mount Greylock, Massachusetts - 1938

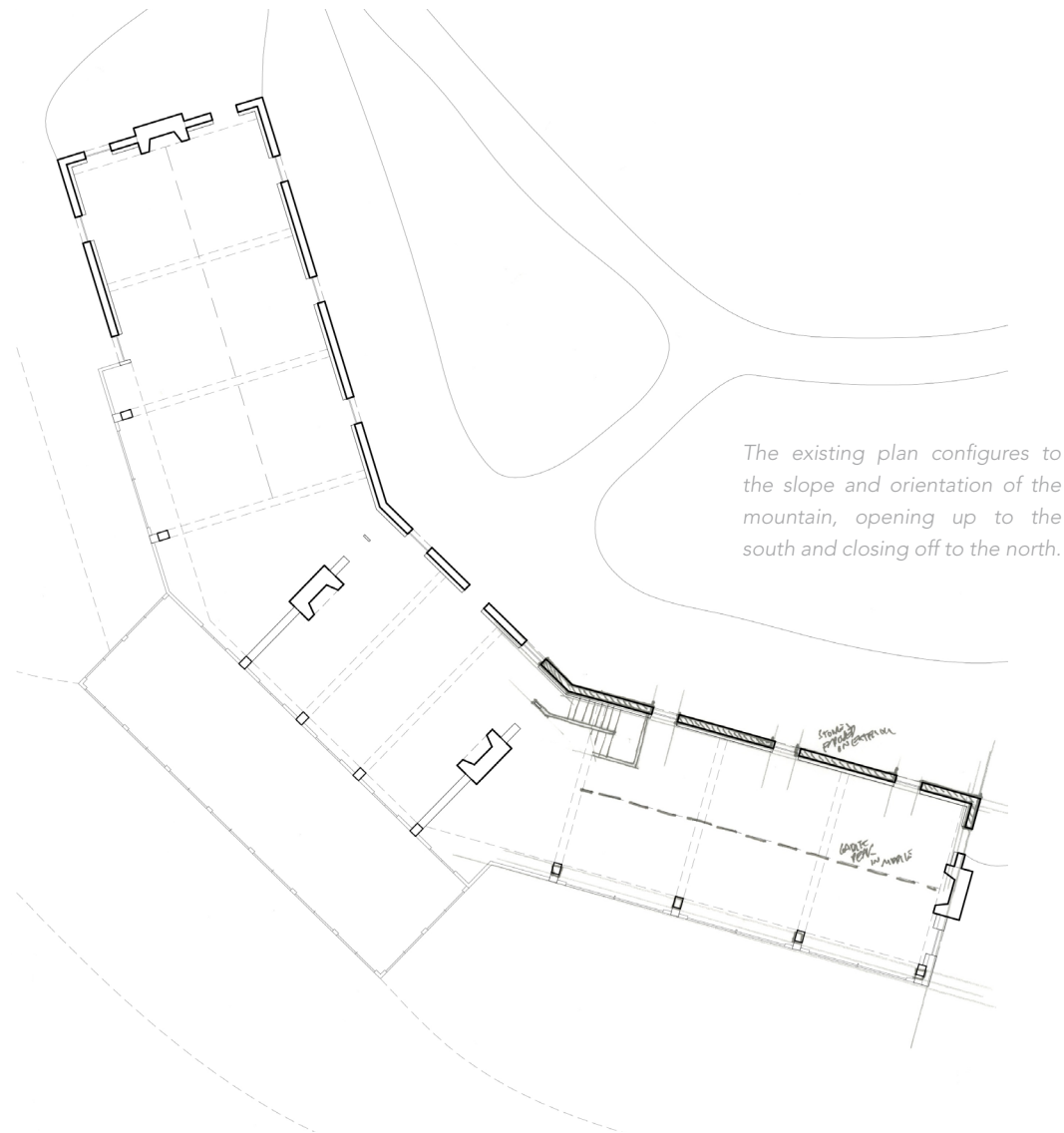


*The existing wall is made of exposed stone on the exterior, with framing and wood paneling on the interior*



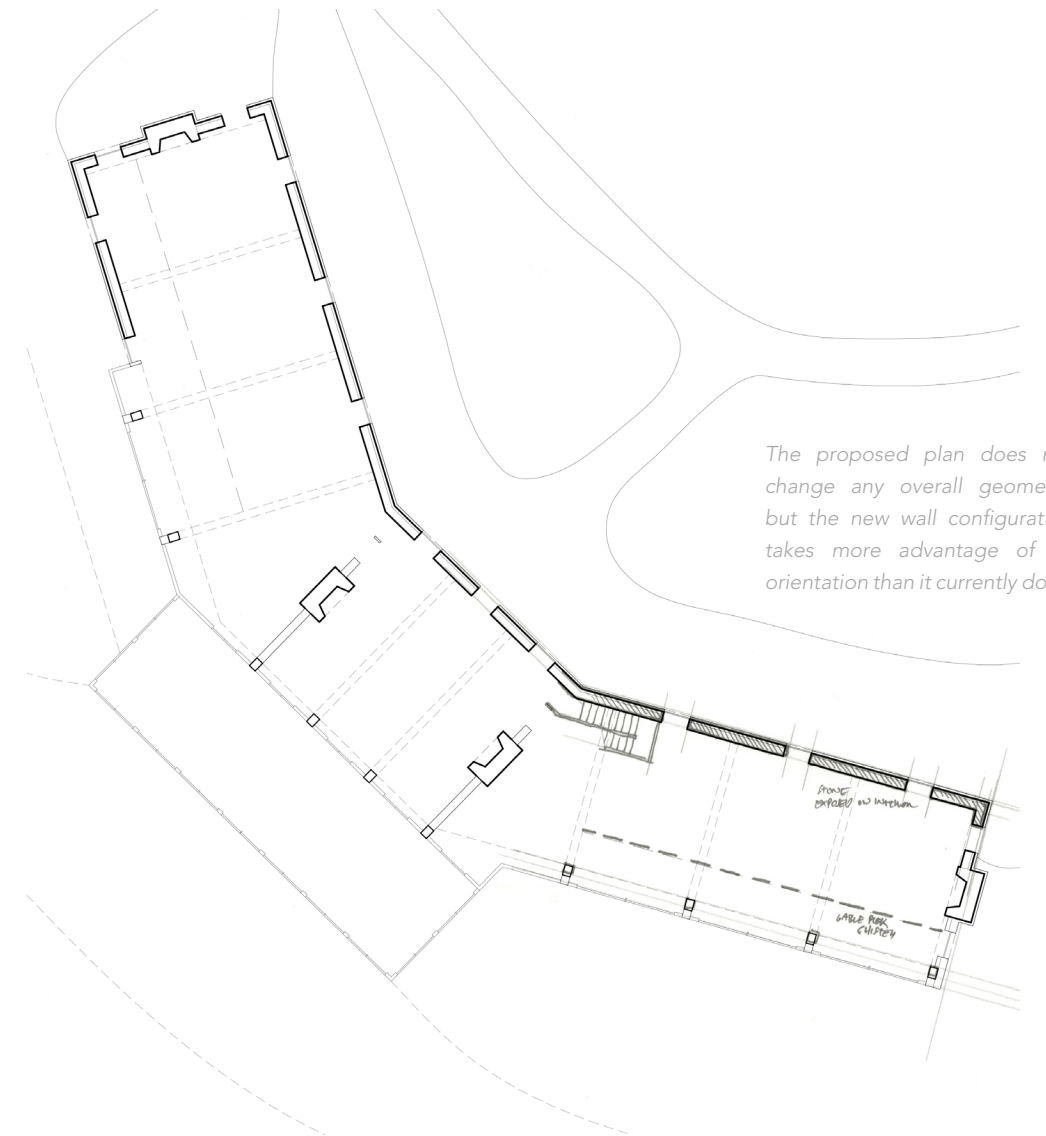
*The proposed wall reverses the stone/wood relationship. The stones become dry stacked and smoother, the wood becomes thicker to insulate the stone from the exterior, linked by cement*





The existing plan configures to the slope and orientation of the mountain, opening up to the south and closing off to the north.

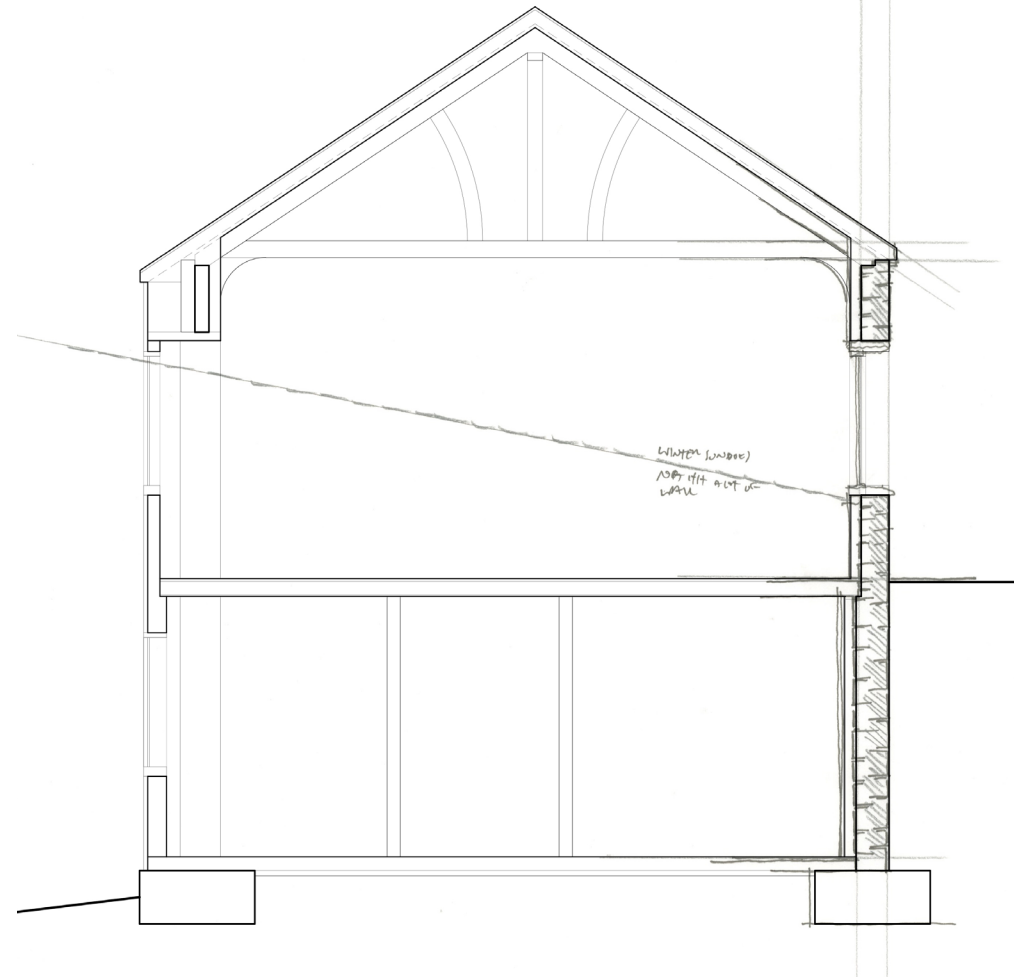
Built on the southern slope of Massachusetts' highest peak where the Appalachian Trail crosses it, this lodge includes both public gathering spaces and more secluded communal sleeping rooms. The large amount of stone in the northern wall stays on the exterior, leaving its thermal properties untapped. Because the stone is not exposed to the interior, its thermal lag capacity does not affect the rooms to the extent that it could.



The proposed plan does not change any overall geometry, but the new wall configuration takes more advantage of its orientation than it currently does.

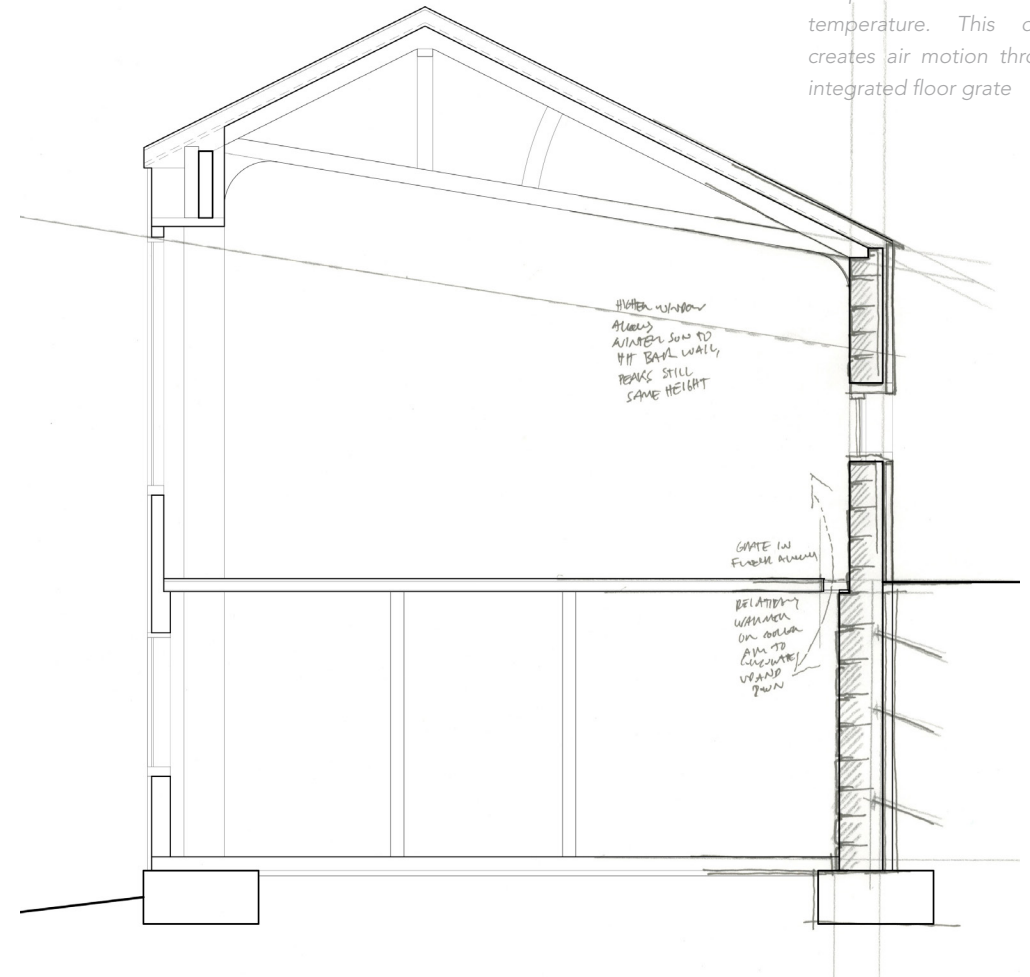
One main reversal is made - on the northern wall, the stone is placed on the inside and the wood on the outside. Now, the thermal mass of the stone, insulated from the cold north and exposed in winter time to the sunny south but shielded from the sun and connected to the cooler ground in the summer, is able to act as a regulatory device for the interior temperature.

The elevation change is evident in the existing section, showing that a large amount of earth behind the stone wall



The large openings in the southern timber framed wall make it possible to have a relatively large amount of glazing, and the relatively shallow dimension of the plan allows the winter sun to reach the interior of the northern wall. But because of the wood paneling in front of it, the stone does not see this sun directly and is therefore unable to fully store the radiant energy.

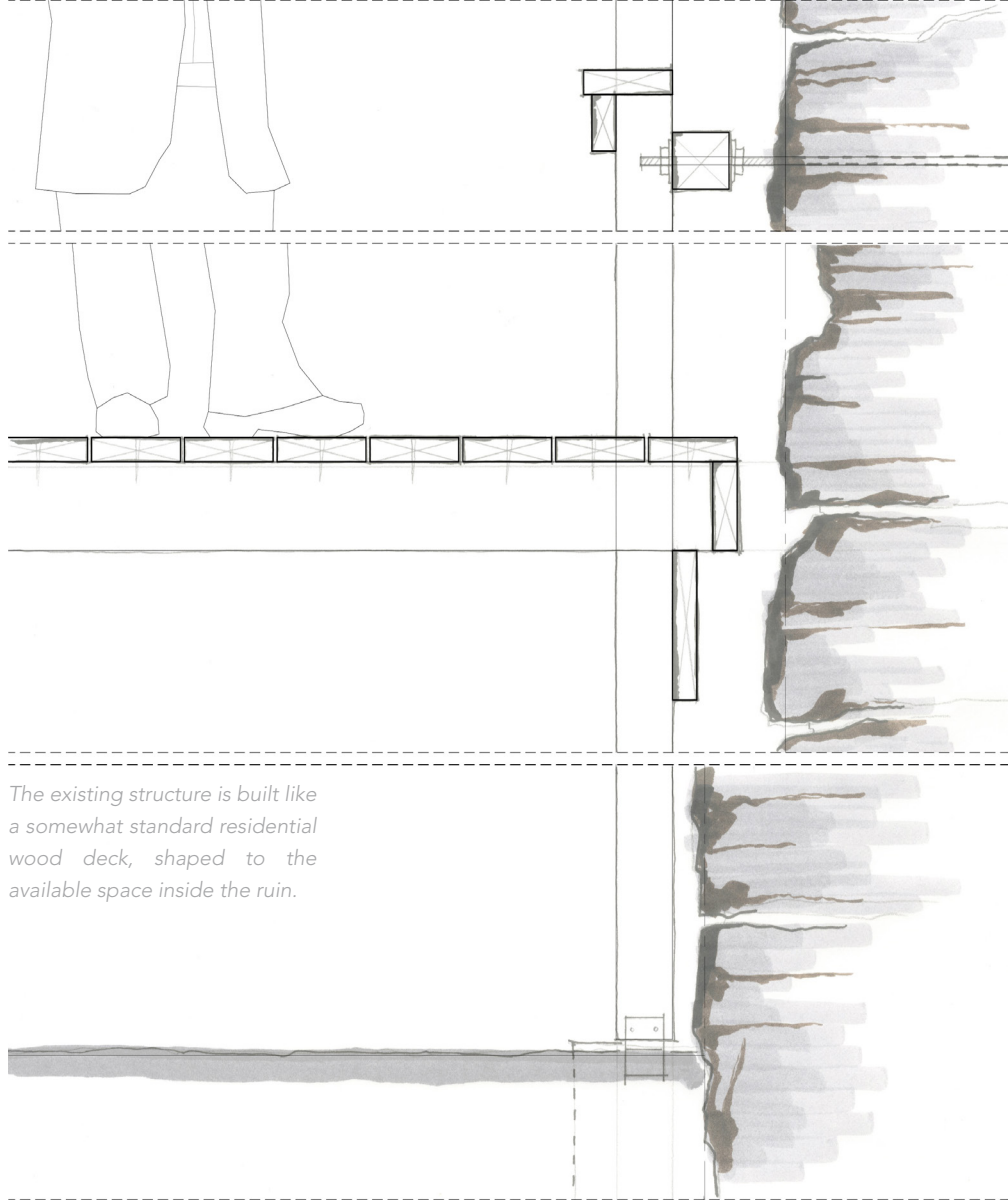
This more constant temperature of this earth makes the stone wall relatively warmer or cooler compared to the outside temperature. This difference creates air motion through the integrated floor grate



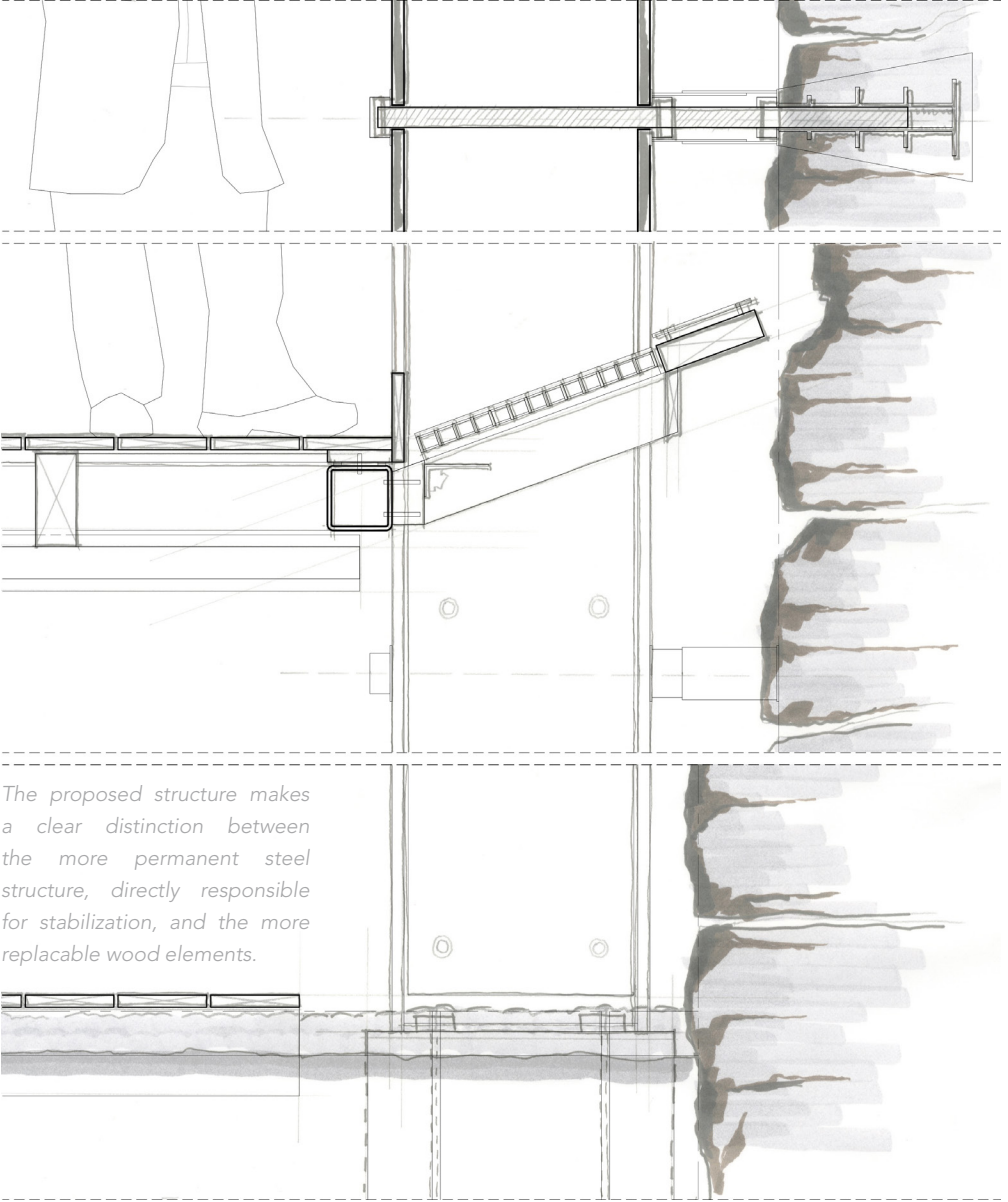
Now, the winter sun's heat is able to be stored by the now-exposed stone wall on the interior, and the wood is able to insulate its otherwise exposed exterior backside. To more effectively transmit the relative warmer or cooler air, the floor opens up at the base of the wall to provide an integrated grate. To take advantage of this activated transmission, the sleeping areas could move from attic to basement from season to season.

# Menokin Ruin Stabilization - Time

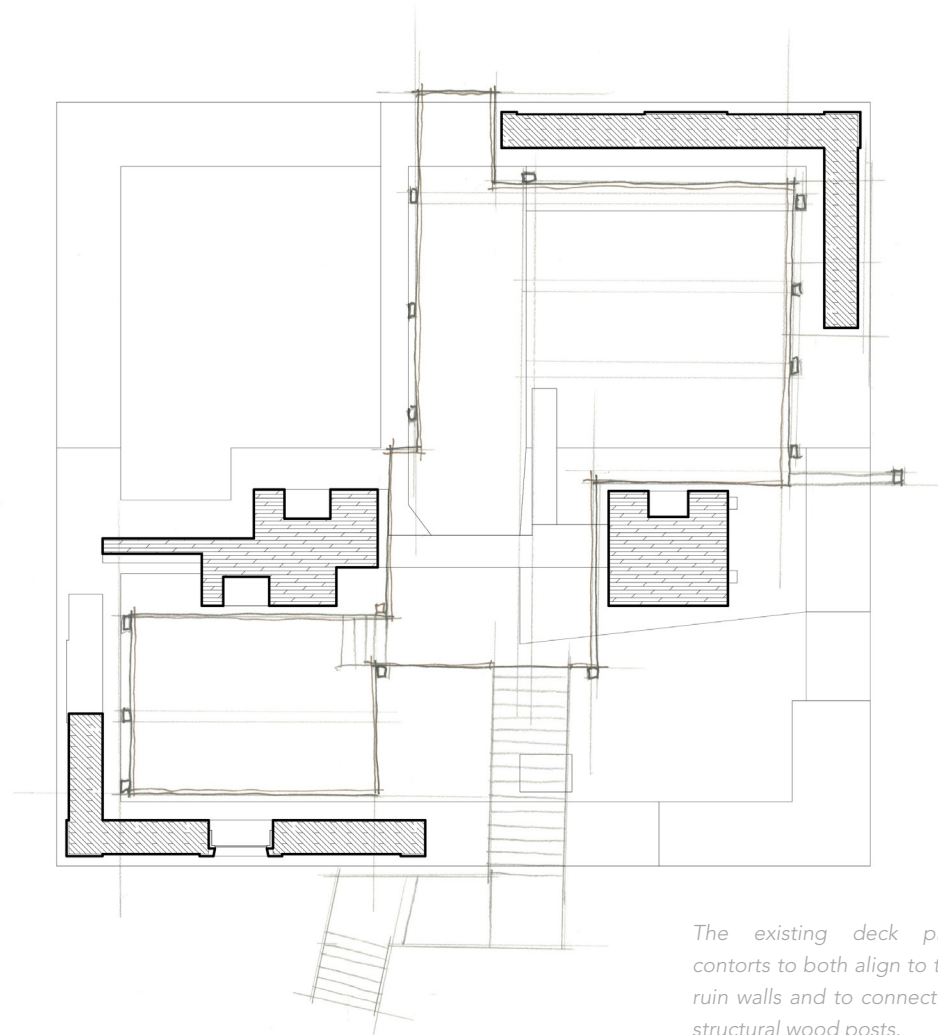
Menokin Foundation - Northern Neck, Virginia - Ongoing



*The existing structure is built like a somewhat standard residential wood deck, shaped to the available space inside the ruin.*

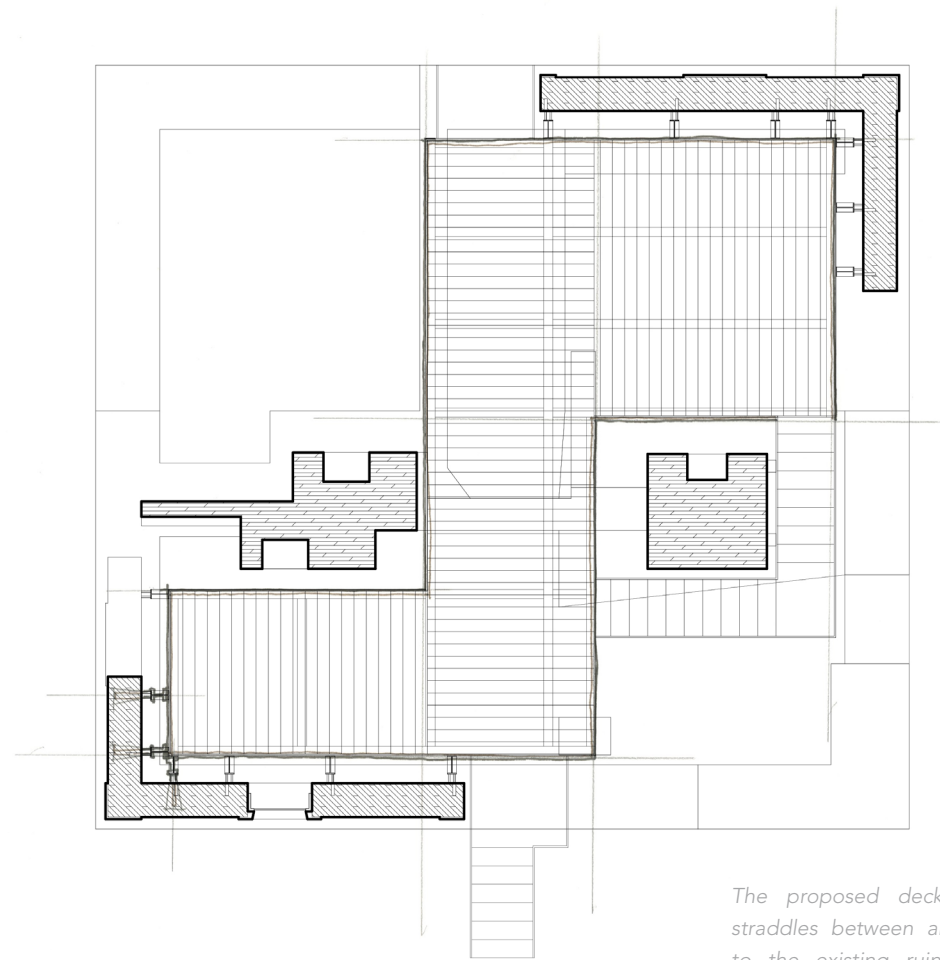


*The proposed structure makes a clear distinction between the more permanent steel structure, directly responsible for stabilization, and the more replaceable wood elements.*



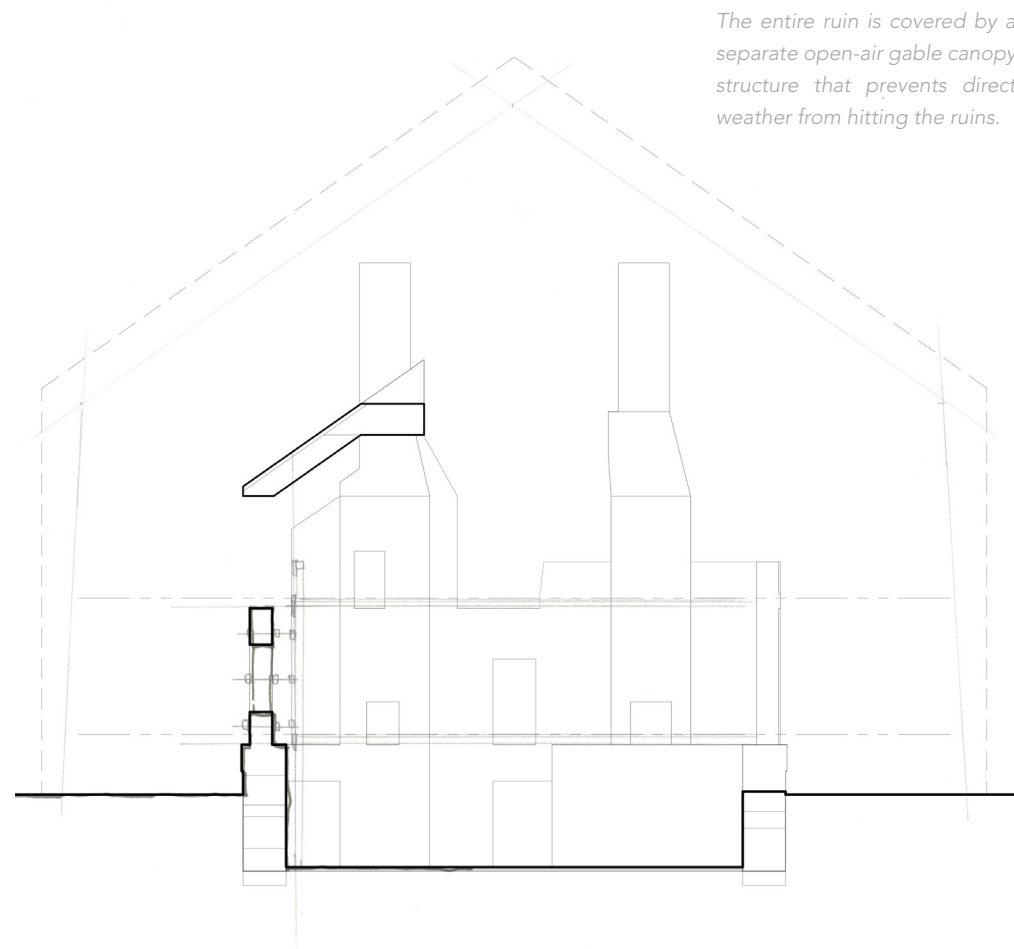
*The existing deck plan contorts to both align to the ruin walls and to connect to structural wood posts.*

Menokin is the ruin of an 18th century plantation home once owned by Francis Lightfoot Lee, a signer of the Declaration of Independence from Virginia. The brick and stonework are the majority of the remaining mass of the building, and to view it, the Menokin Foundation installed a wooden deck structure and separate overhead canopy that partially attempts to secure the structure from further deterioration.



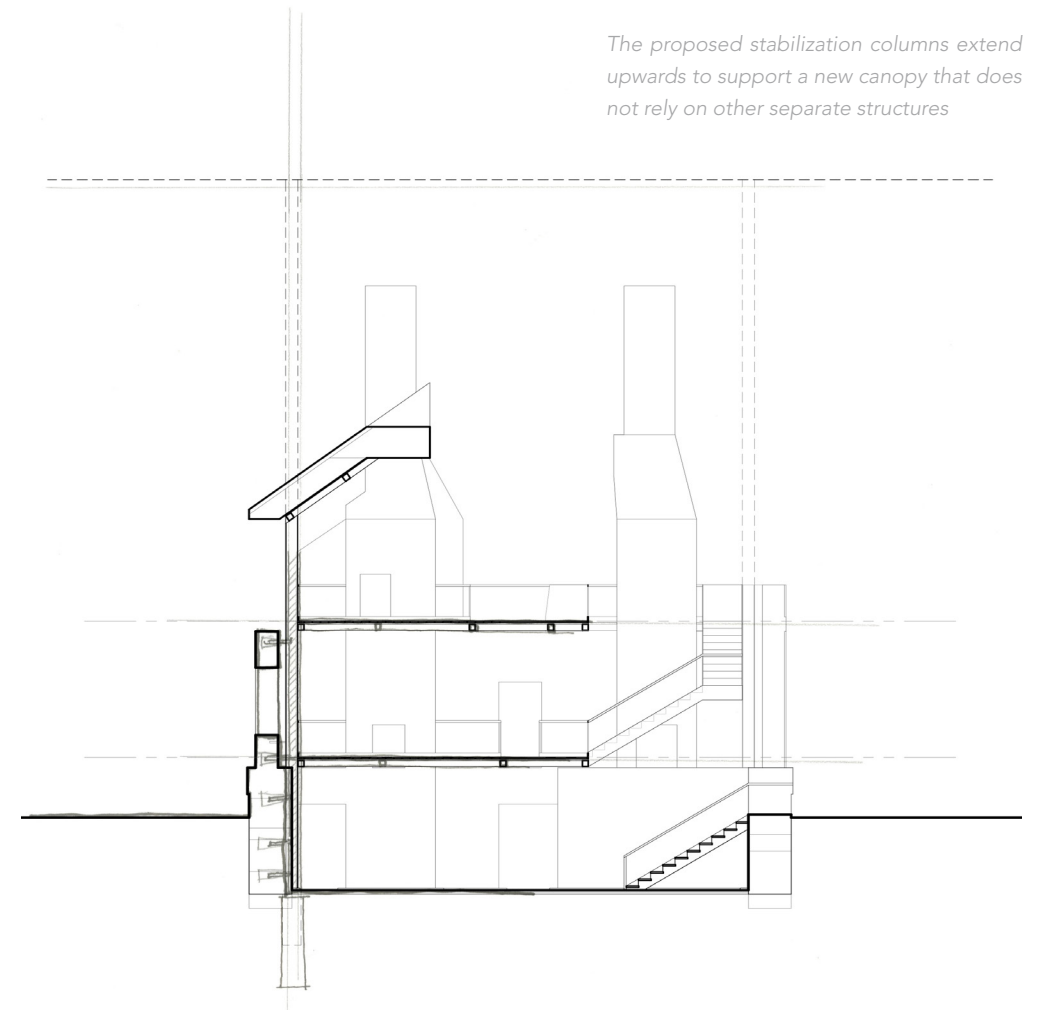
*The proposed deck plan straddles between aligning to the existing ruins and creating its own separate form.*

Steel columns are anchored to the ruined walls with custom fitted bolts ensure that the wall cannot shift up or down, while the welded frame and wooden deck provides a place for visitors to access the ruins without walking directly on them. The time and order of assembly matters - footings and columns come first, then the anchors are placed, the frame is welded and the wood deck is assembled.



*The entire ruin is covered by a separate open-air gable canopy structure that prevents direct weather from hitting the ruins.*

The integrity of a load-bearing stone wall depends on its own weight for stability over time. As it deteriorates, less and less weight presses on the mortar seams, opening them up for water to erode, freeze, expand and break the stone, leaving even less stone to press down. The temporary interventions by the Menokin Foundation are insufficient to secure the wall from this vicious cycle, even with the external canopy structure.



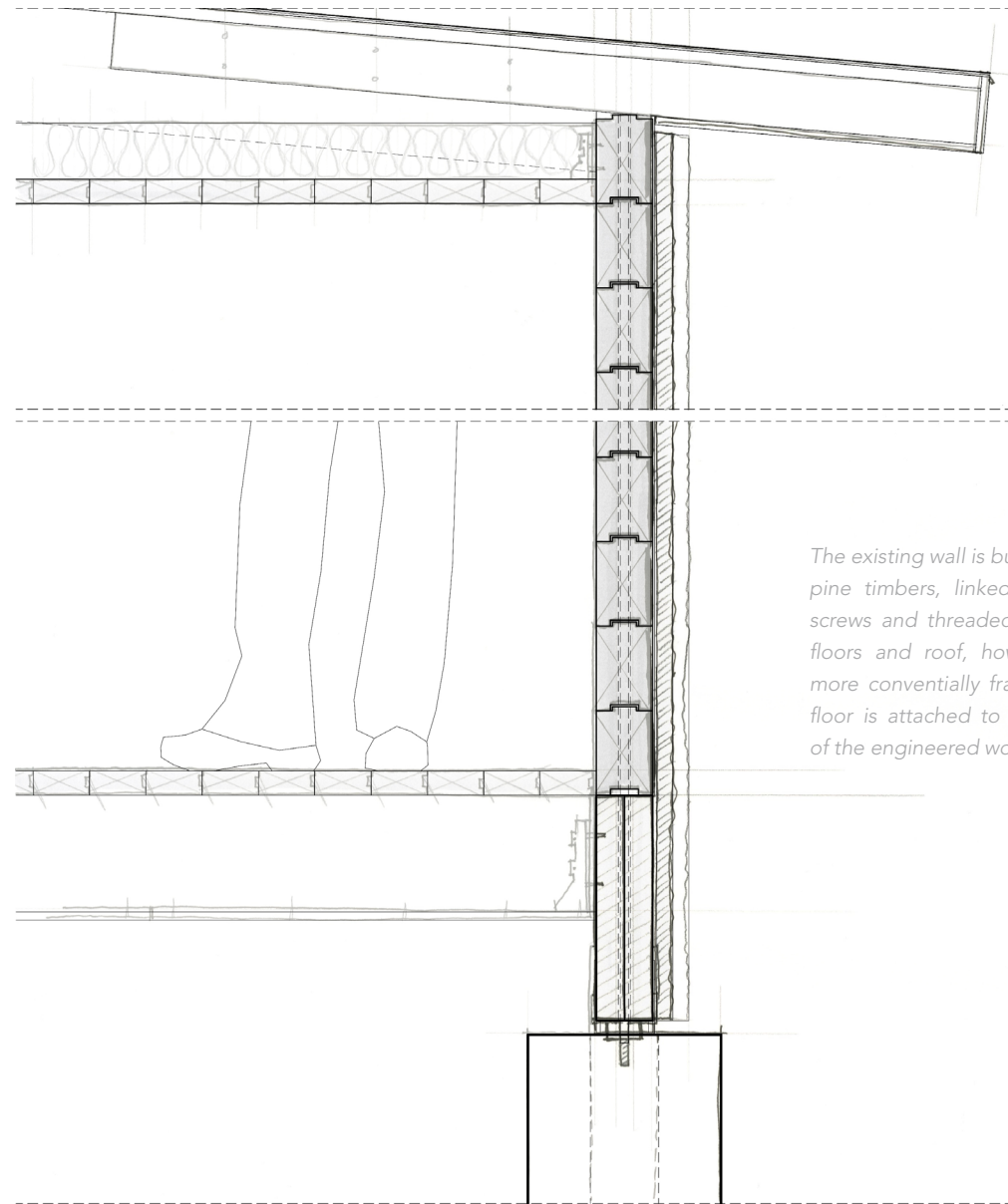
*The proposed stabilization columns extend upwards to support a new canopy that does not rely on other separate structures*

Everything in the proposal is replaceable if needed - but the wood is designed to be more replaceable than the steel, allowing the walkways to be reconfigured and replaced without changing the integral structure. The specific configuration of the detail allows the structure to be initially built, to be replaceable in the future, and to preserve a moment in past time.

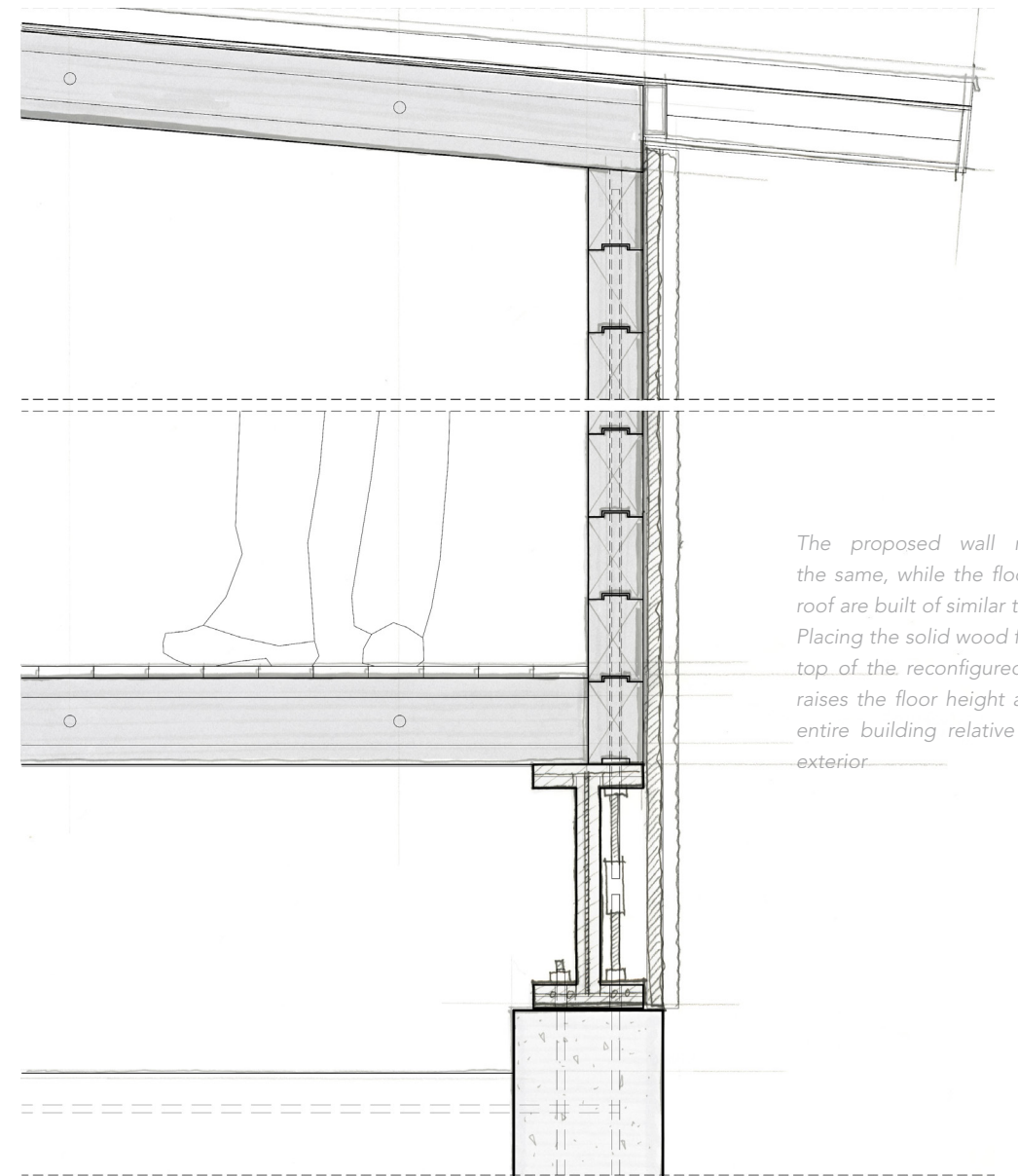


# Writing Studio

Kiel Moe and Alexander Watchman - Halifax, Vermont - 2013

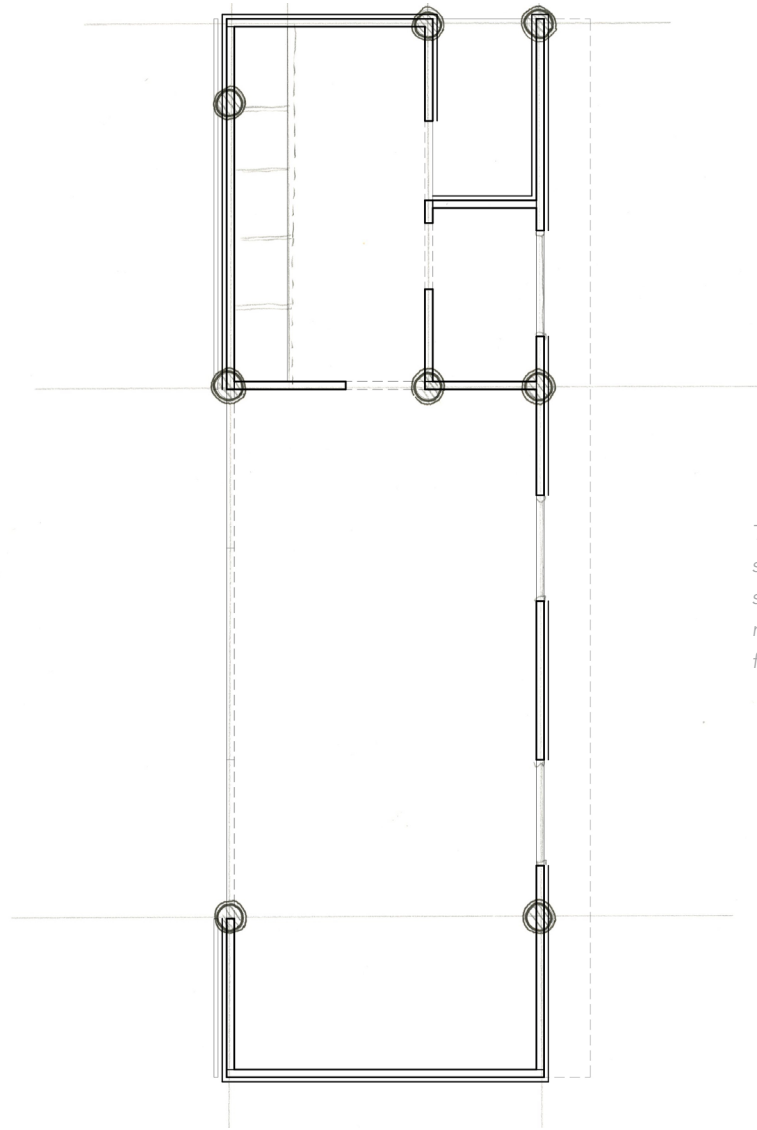


*The existing wall is built of solid pine timbers, linked by large screws and threaded rod. The floors and roof, however, are more conventionally framed. The floor is attached to the inside of the engineered wood beam.*



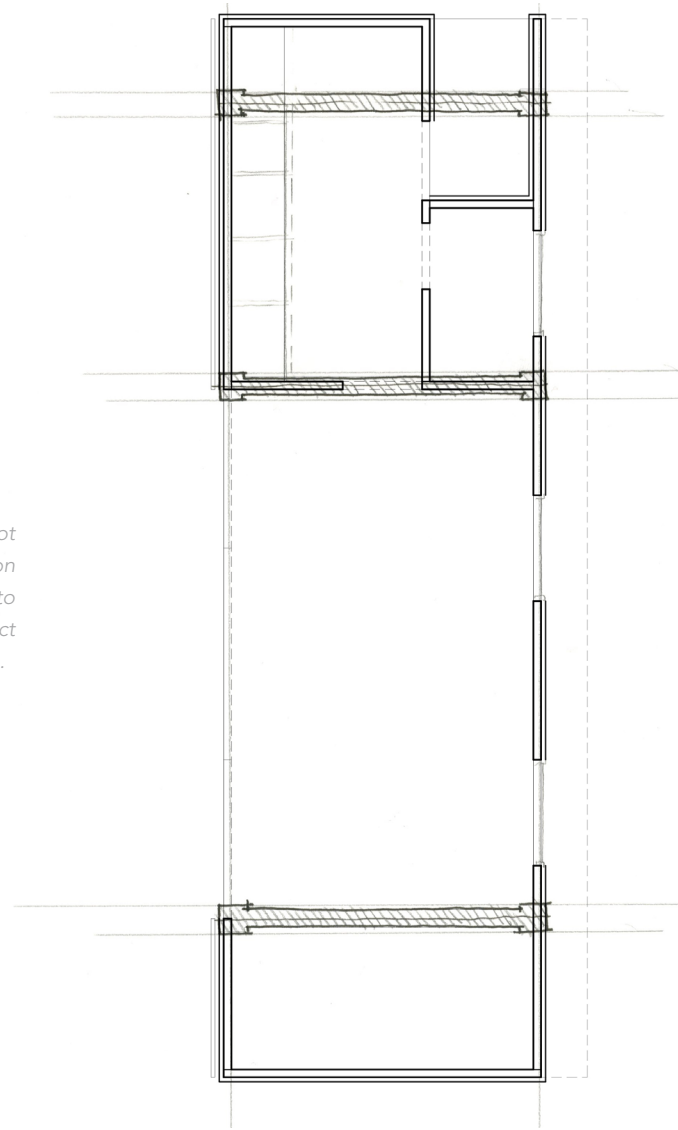
*The proposed wall remains the same, while the floors and roof are built of similar timbers. Placing the solid wood floor on top of the reconfigured beam raises the floor height and the entire building relative to the exterior.*





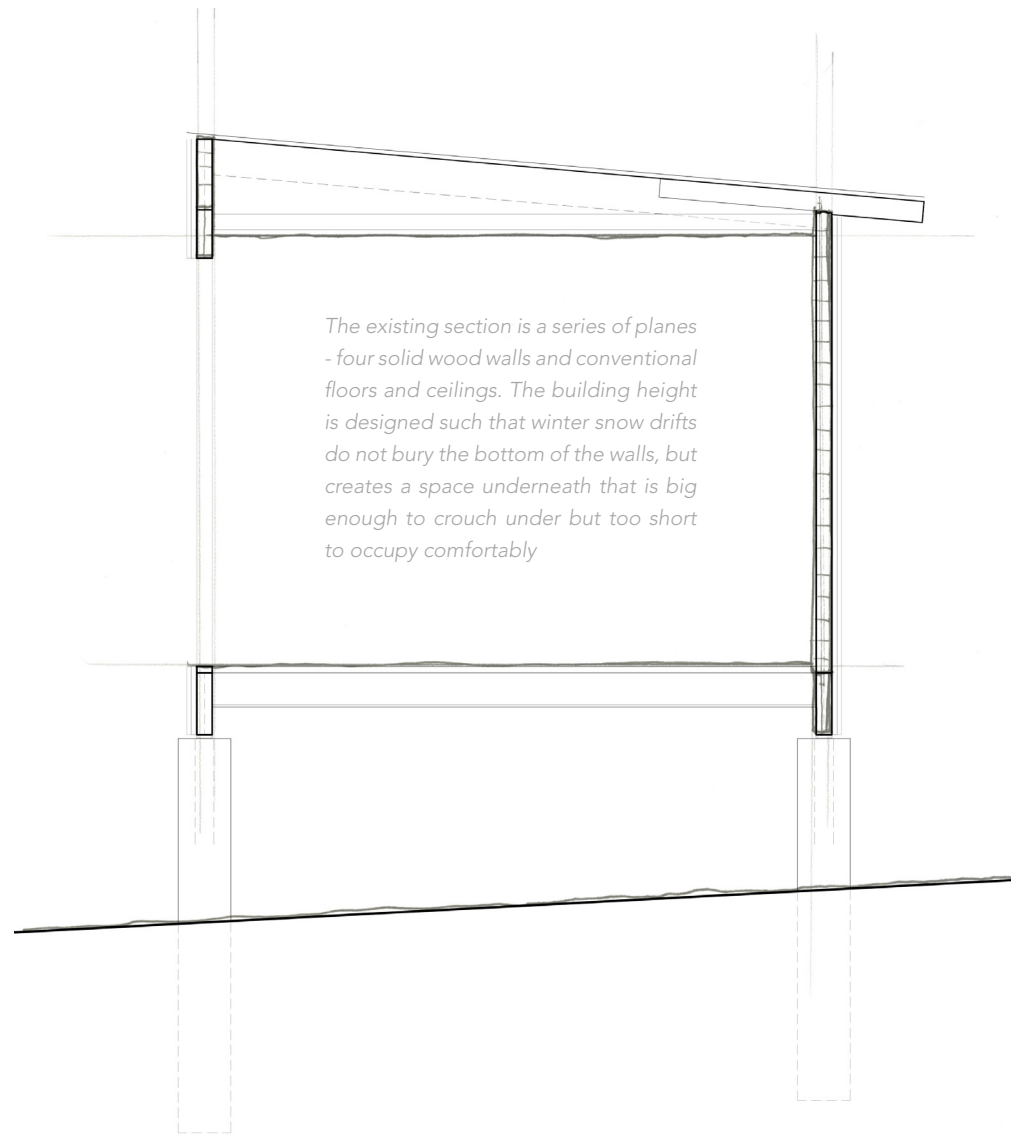
*The existing building is supported on eight standard site-poured concrete footings, making the building appear to float as much as possible.*

Plot, Structure, Power and Time were all considered integrally in this building, but there are still traces of assumed methods of construction that linger in the building, hindering its full potential. This cabin was built by Kiel Moe and myself out of solid pine walls with hemlock board and batten siding, with a (sort of) standard floor and roof, all on engineered wood beams and poured cylindrical concrete footings.

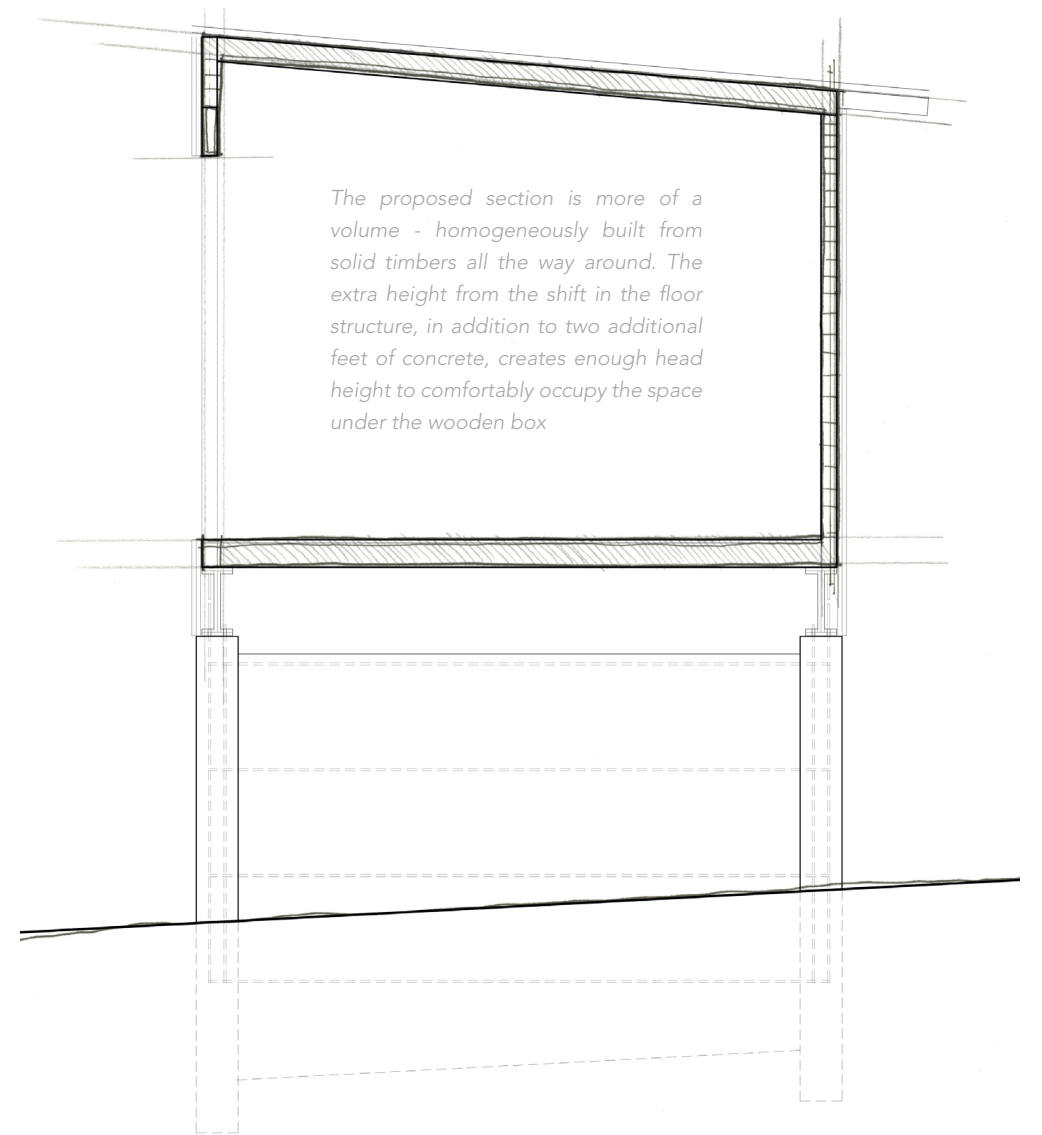


*The proposed plan does not change, but the foundation supports are consolidated into three long bars that connect the two sides of the building.*

The floor and roof are now both built from slightly larger timbers than the wall itself, creating a truly continuous homogeneous wooden box. The walls went up quickly, so this process is applied to all surface. The floor is now on top of a more precisely engineered beam instead of attached to it, eliminating the possibility that bridging could occur across and under the beam.



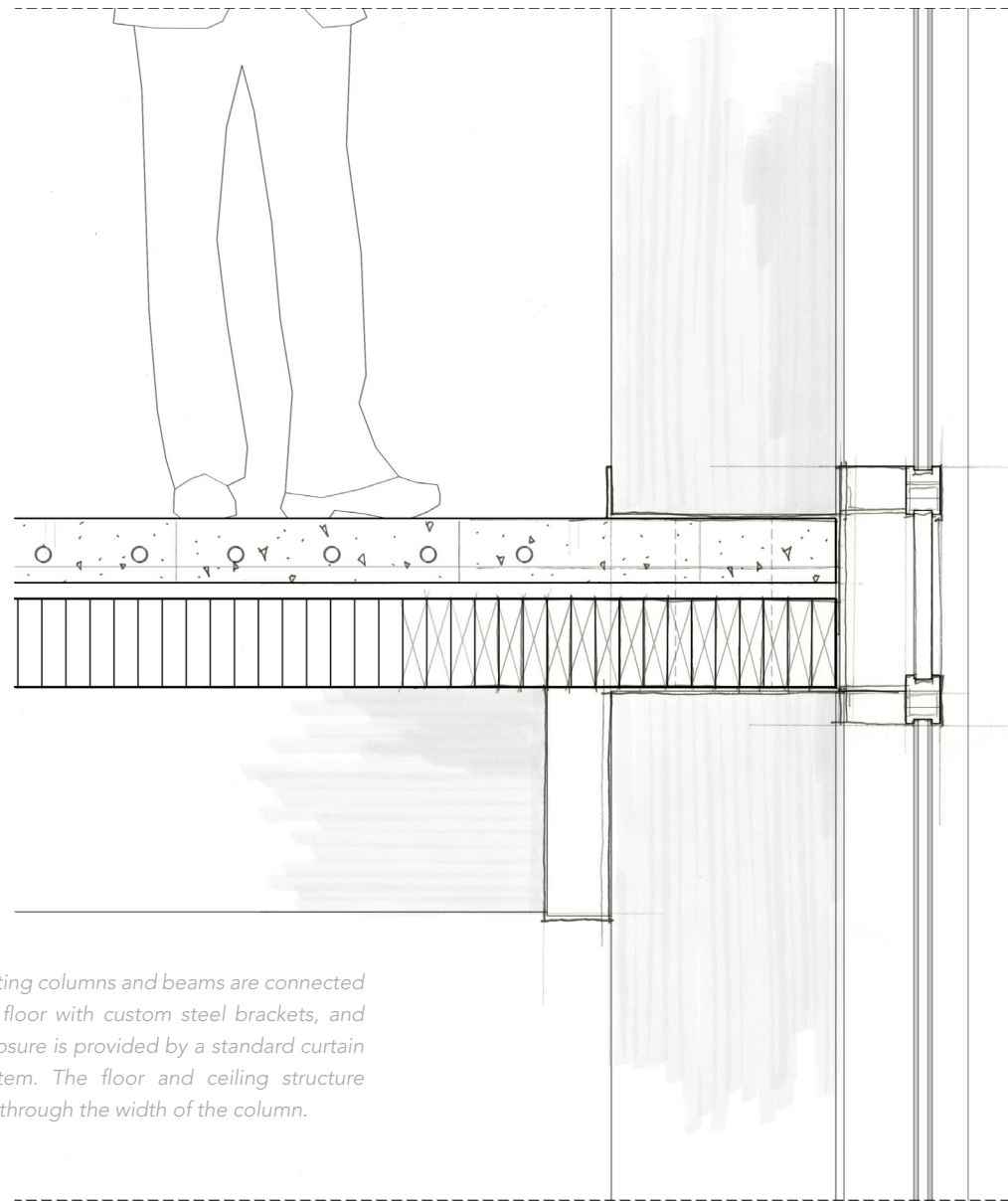
The difference between the solid timber walls and the balloon-frame-like roof and floor make the section read as a composition of thickened planes instead of a continuous boundary. It relies on its wooden mass for structural and energy considerations, but the discontinuities at the joints between the walls, floor and roof make a continuously even envelope impossible.



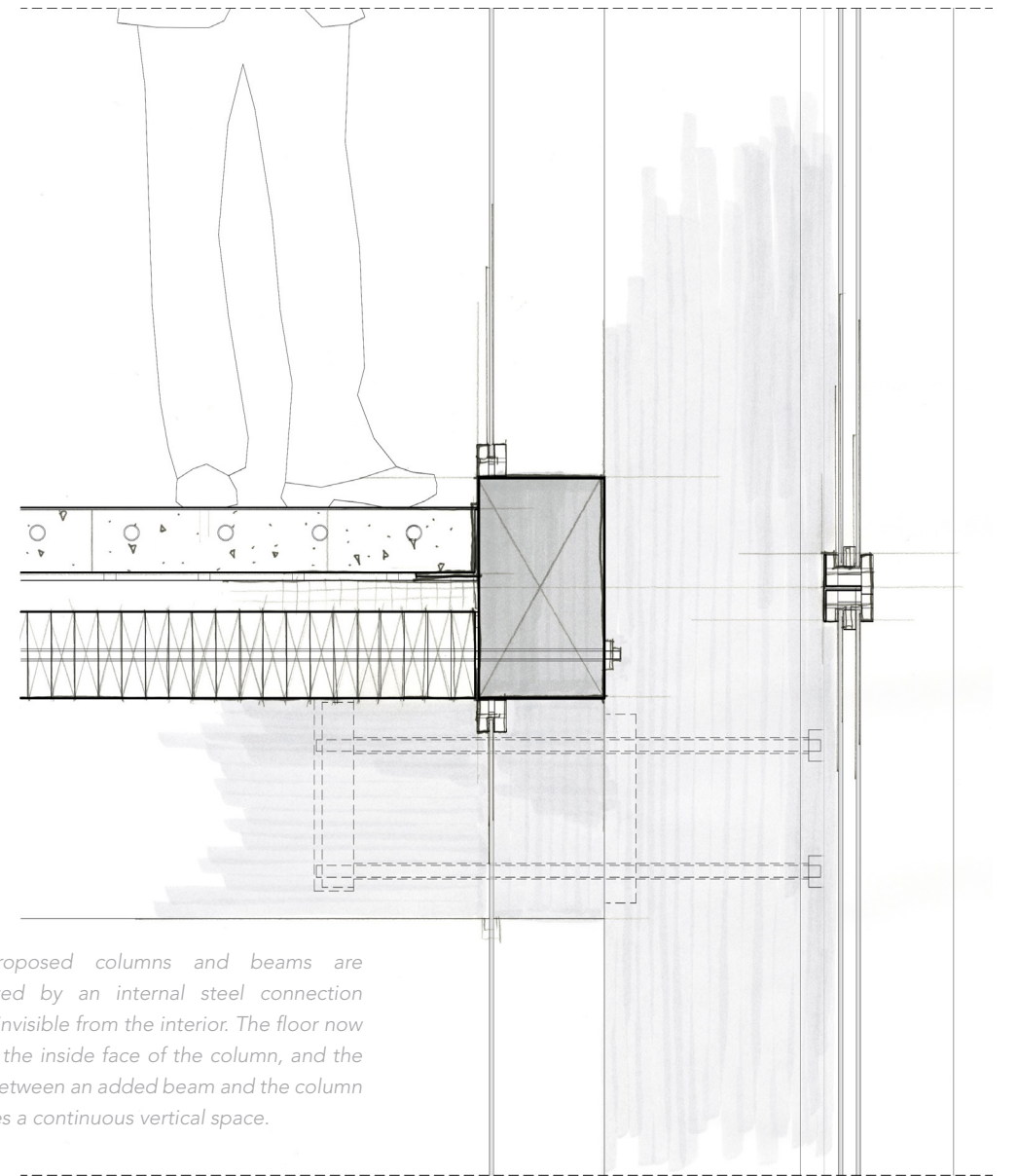
Placing the now continuous box on top of, instead of tied to, the edge beam provides the extra head height that allows access under the structure. The hemlock siding continues down and covers the beam. The threaded rods now link directly to custom formed concrete piers instead of relying on hurricane straps for uplift. The piers also directly tie the two sides of the building together.

# Bullitt Center

Miller Hull Architects - Seattle, Washington - 2012

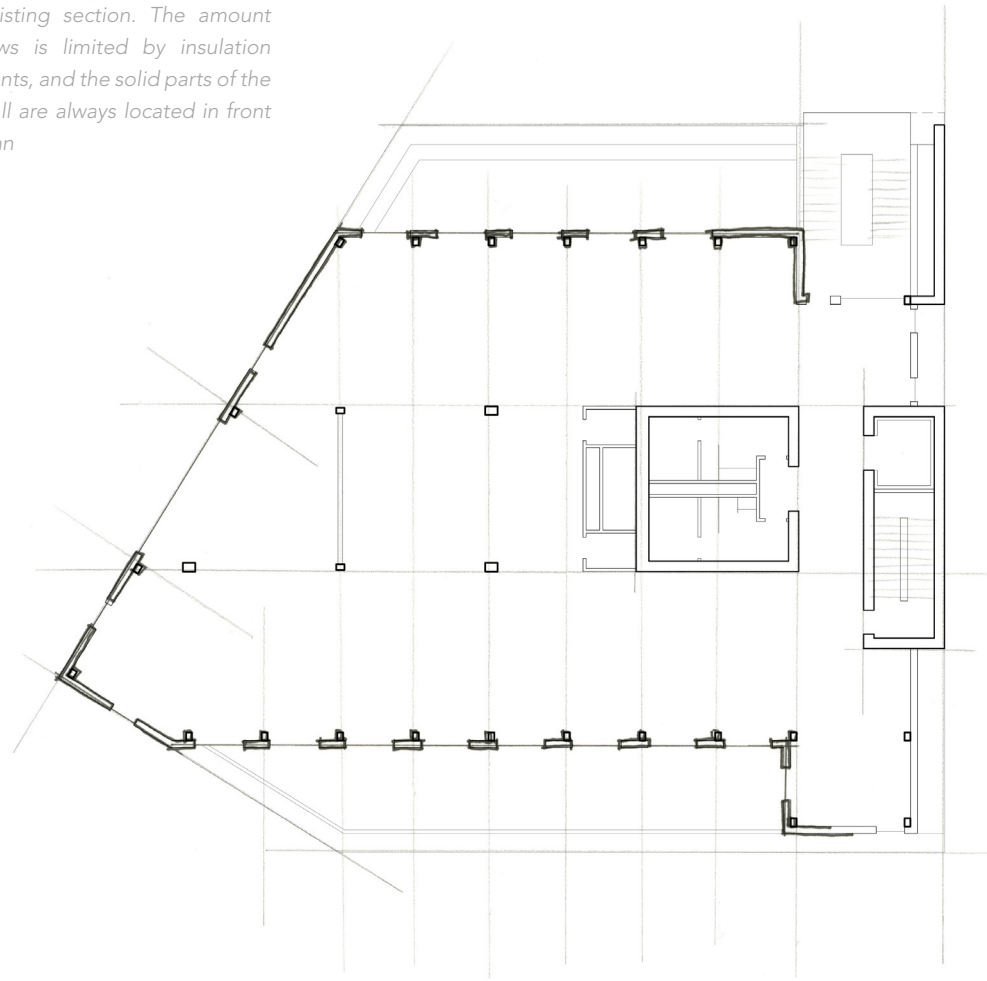


*The existing columns and beams are connected floor by floor with custom steel brackets, and the enclosure is provided by a standard curtain wall system. The floor and ceiling structure extends through the width of the column.*

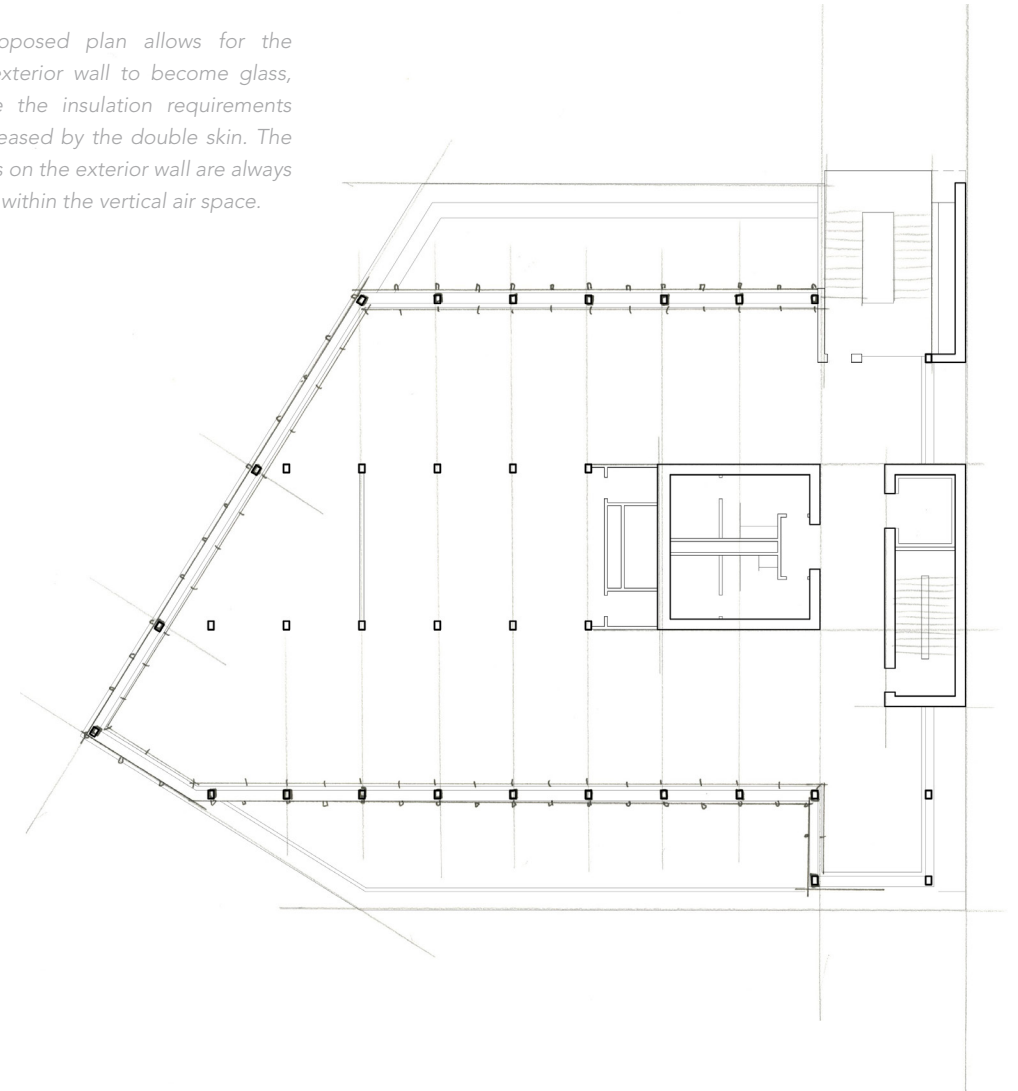


*The proposed columns and beams are connected by an internal steel connection system invisible from the interior. The floor now ends at the inside face of the column, and the space between an added beam and the column becomes a continuous vertical space.*

The columns and rainscreen are evident in the existing section. The amount of windows is limited by insulation requirements, and the solid parts of the curtain wall are always located in front of a column



The proposed plan allows for the entire exterior wall to become glass, because the insulation requirements are increased by the double skin. The columns on the exterior wall are always located within the vertical air space.



This office building pursues at least two lofty goals - to be the world's most most energy efficient commercial space, and to have a 250 year lifespan. Both of these require reconsiderations of typical details. The structure is provided by a heavy timber frame connected with partially exposed steel fasteners. The ceiling is a series of rowlock-oriented smaller timbers, on top of which is a radiant heated poured-in-place concrete slab.

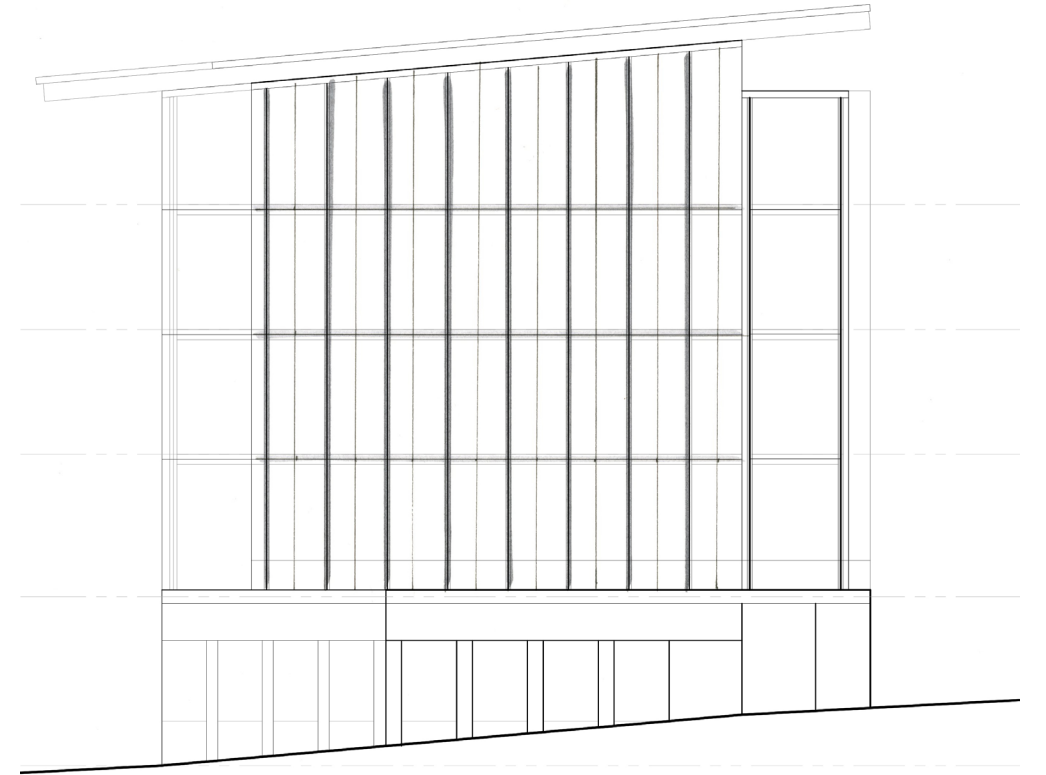
Instead of relying on custom steel brackets to attach in a platform-framed relationship of column to floor, the columns are continuous across the floor thickness, secured with large concealed mechanical fasteners. The floor thickness is hidden behind an edge beam, which creates a vertical gap at the column because the floor does not extend to the curtain wall. The single curtain wall is replaced by two mostly glass walls.

*The existing elevation does not allow for the innovative structural system to be visible from the exterior, and it looks like many other conventional curtain wall systems.*



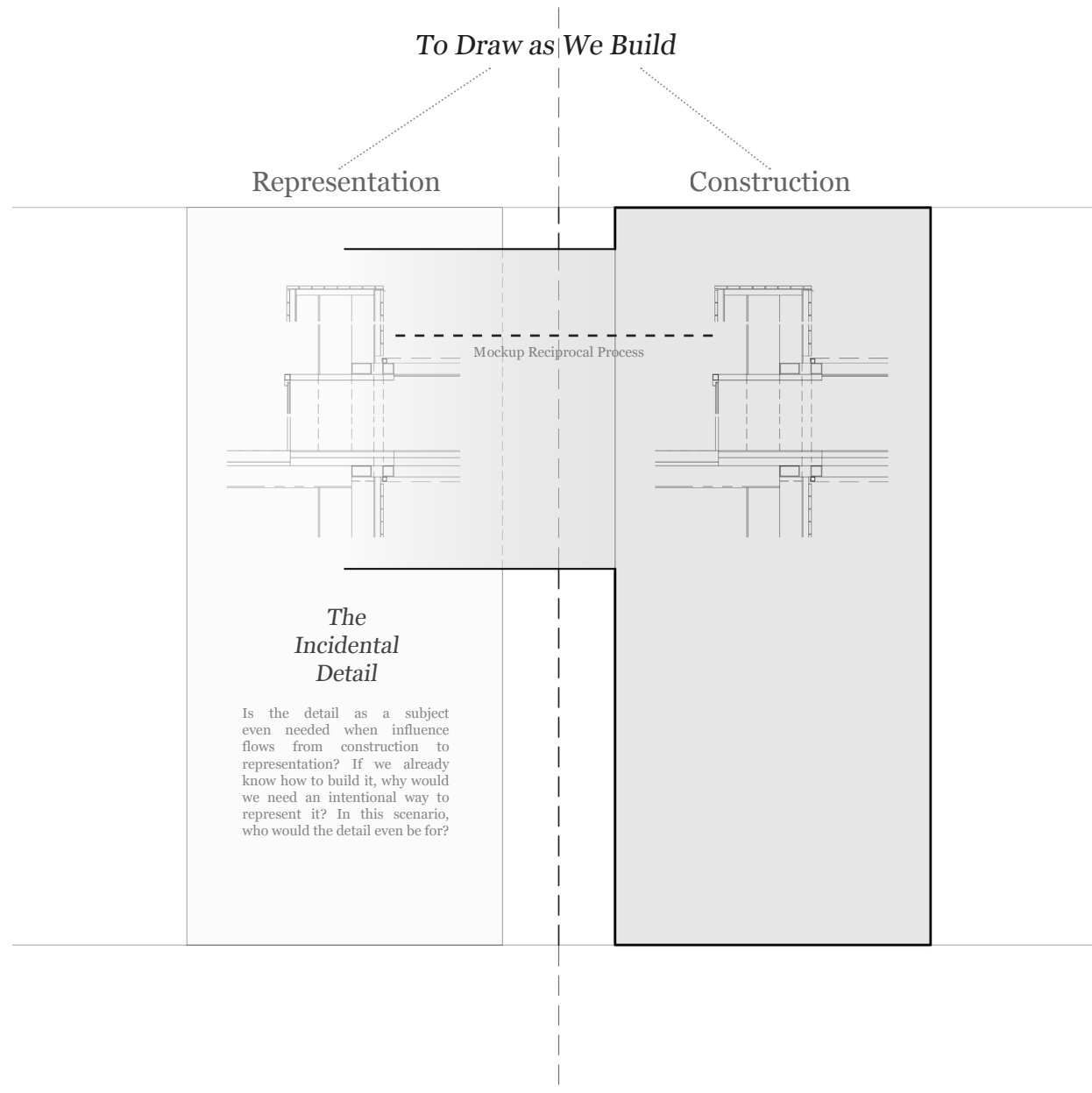
Because the single curtain wall needs to insulate the building, window openings are restricted to the spaces between the heavy timber columns, limiting the ability for the innovative structure to be observed and understood from the exterior. Also conflicting with its ambitions is the cast-in-place floor, making the systems imbedded within it difficult to update (at least once within 250 years) without complete removal.

*The proposed elevation allows both the horizontal and vertical wood structural elements on the interior to be seen from the outside. The entire wall is now glass, interrupted only by mullions.*



The larger exterior and new interior windows create a double skin that allows ventilation. Because the timbers are not hidden behind solid curtain wall panels, the image presented to the city exhibits the actual mass of the building. Everything but the timbers are removable, including large cast floor panels - ensuring that over its lifespan, elements will be replaced as tenants, programs and climates change.

## 4 Proposal



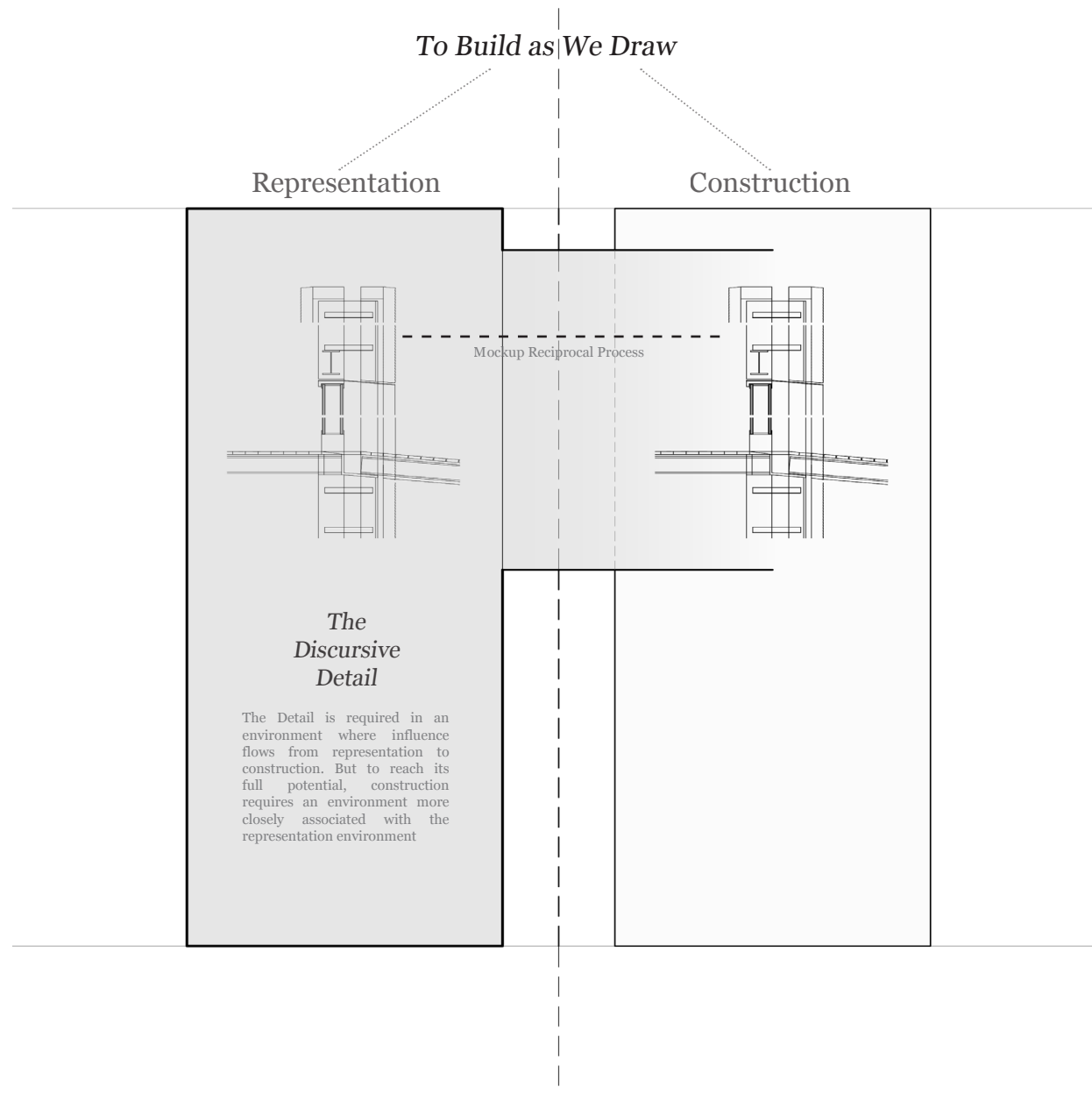
If we were to train ourselves *to draw as we build*, from the bottom up, stopping our pencils at the joints of pouring and erecting, ornament would evolve out of our love for the perfection of construction and we would develop *new methods of construction*.

Louis Kahn, *commentary on the Yale Art Gallery*

Forget conversations with bricks. What Kahn extracts is this: the relationship between the representation of architecture, and the making of that architecture, needs to be one of discourse, that is, of idea-generating conversation. If the Detail as representation borders on building as physical manifestation, it only makes sense for the one to affect the other - *the question is what influences what*. This idea is the seed from which the Discursive Detail emerges, as the arbiter of this conversation.

Through the buildings examined, rebuilt and reprojected in the previous section, one thing among many becomes clear - that between the act of construction and the act of representing the construction through the detail, the latter *retains more projective agency*. Looking through the lens of labor, as instructive as they are, the built examples remain the capacity of one person. When we observe an entire building, they are the work of an army of people and processes coordinated at least in part by the Detail. Kahn observes a disconnect between the possibilities within the detail and its outcome in the building. For him, if we draw like we build, which in the terms of this project is to say that if we represent the making of buildings closer to the ways we literally make buildings, that we would necessarily draw differently and therefore be able to think differently. There is a fatal flaw in this.





*If we draw as we build, the drawing loses its projective agency. But we do not build, we represent - If we draw as others build, we limit ourselves to those means and methods which are not necessarily part of our agency, aspects which we are legally not allowed to enter, at least at the present moment. This exclusion was born of the same shift that led to the birth of the Detail in the first place. We are both burdened with describing architectural mass and excluded from its direct manifestation. The power of the representation of architectural mass is the ability to affect this space without needing to actually build it, but in order to retain this power, architecture must not assume or defer its contents.*

I propose an alternative mode of drawing, and in doing so, an alternative mode of architectural production. It is one which exists, again, somewhat outside of the scope of our usual discourse; one which has been attempted but not realized to the extent that it could. It is a mode of production which *requires* the Discursive Detail, not one onto which it is imposed.

*We need to build as we draw.* When we build as we draw, we retain the ability for the representation to maintain an orientation toward *what could* be built, not *what is* built; to project how we *could* build, not how *we already* build. However, the key is this: to build as we draw requires a physical environment for architectural making that more closely resembles the digital and cognitive environments in which we draw - it cannot be the conventional construction site. It needs to be an environment in which enfilade-dependent timelines and typical considerations of gravity are not taken for granted as they are in conventional methods of building. Under assumed and deferred environments of making, it is only natural that the Detail becomes assumed, deferred and incidental. To fully realize the projective agency of the Discursive Detail, we need an environment that is equally projective.

This environment, for this project, is the Architectural Drydock.

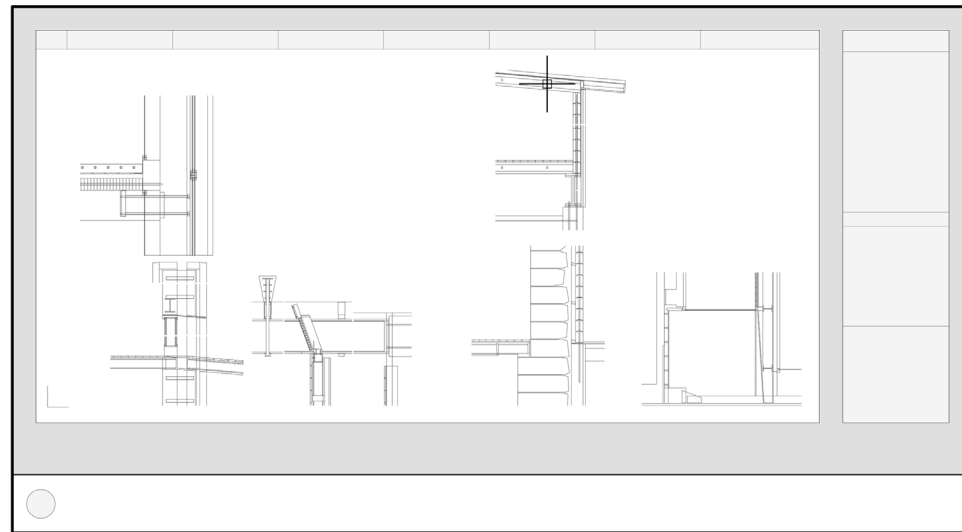
## 5 Drydock

"We have succeeded in erecting a building that cannot be split into dichotomies such as construction and technology, or surface and structure. Things work together... It constitutes a balanced whole."

*Andrea Deplazes, commentary on the Monte Rosa hut*

The Incidental Detail arises from overlapping assumptions and concessions by various professions as to how an architectural idea might be realized. The idea that a building is built more or less in its entirety from materials that are assembled at the site is the largest of these assumptions. If we were to draw our buildings in the way that these are built, our plans would start by erasing a large hatched surface to represent excavation. We would then draw the formwork for the concrete foundation, fill the gap with different hatching, and then erase the forms. Individual sticks of steel structure would be drawn, always remembering to either make little dots for bolts or dashed lines for welds (remember your helmet). After the building is done, we would erase all of the smudge accumulated from the constant drawing and editing at the base of the building, and then draw little trees and pavers.

This is a drawing process which robs the capability of the Detail to project anything beyond the assumptions through which buildings are currently made. This is not how we draw, however. We draw assuming that our lines have no weight - we can represent the finish first and the structure last if we choose. We assume that we can create modules or blocks in various places at various times. There is a physical place where we can build like we draw. It is the Drydock, and it uses the Discursive Detail to design architecture oriented toward being built in ways otherwise impossible.

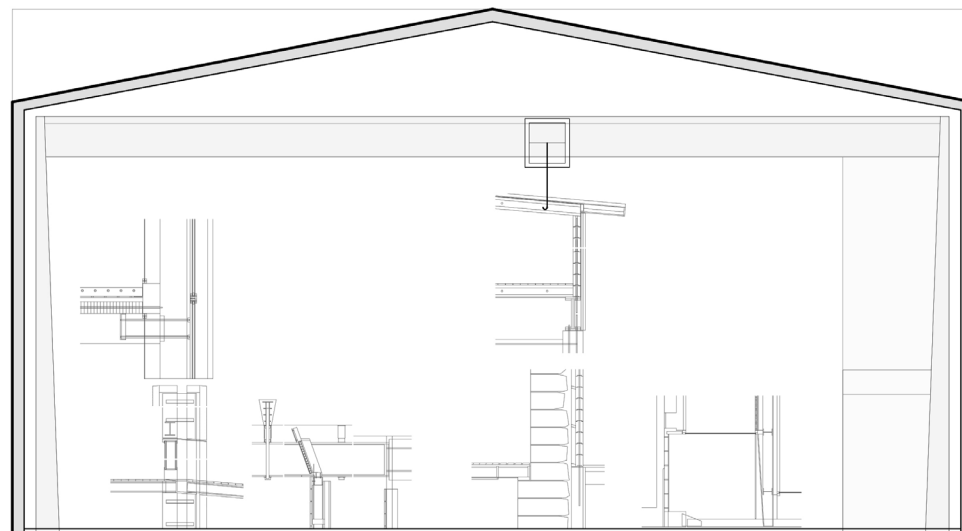


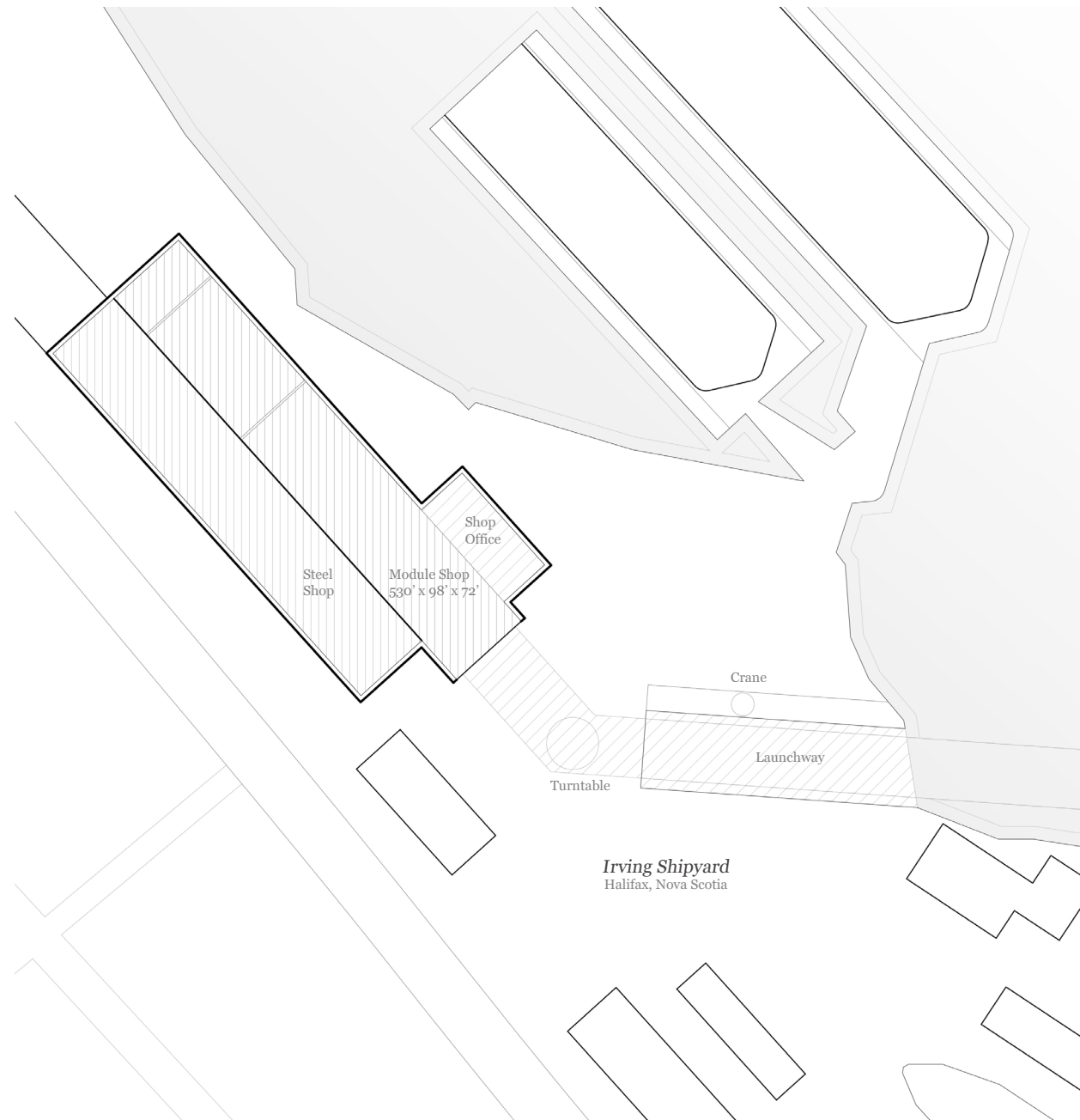
### *Current Digital Drawing Environment*

Changeable, Weightless, Timeless, Multiple Authors, Multiple Overlapping Heterogeneous Blocks

### *Projected Drydock Building Environment*

Changeable, 'Weightless', 'Timeless', Multiple Authors, Multiple Overlapping Heterogeneous Blocks



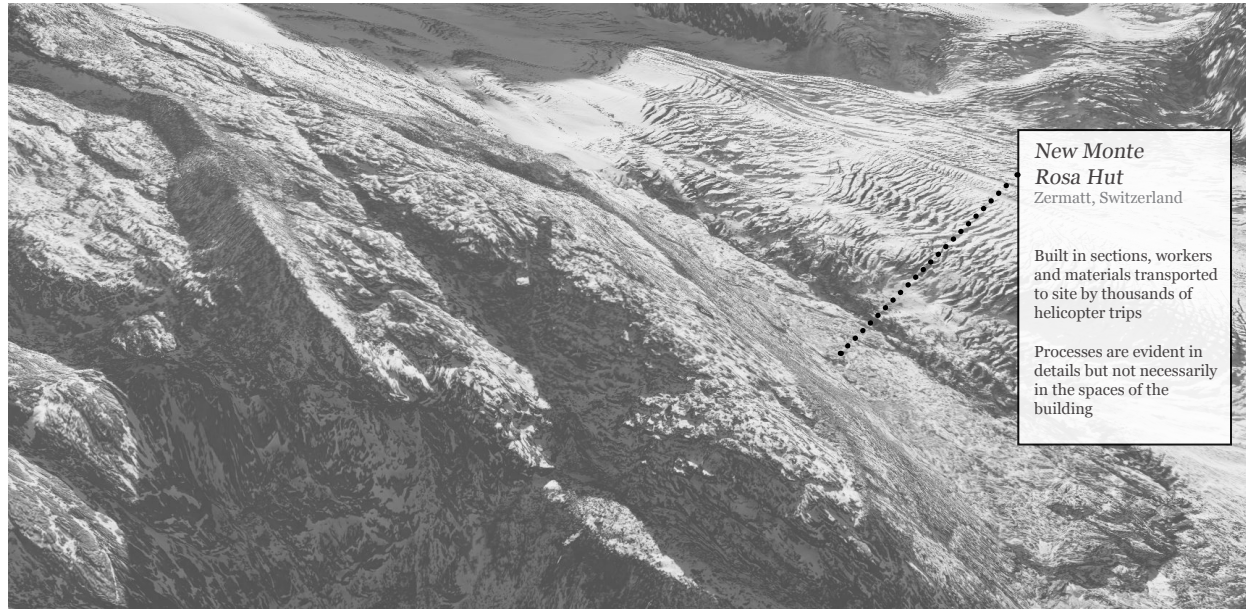


Drydock is a building fabrication environment located in a shipyard, specifically for this project in the Module Shop of the Irving Shipbuilding yard in Halifax, Nova Scotia. It is an environment which assembles large heterogeneous architectural modules, whose specifications are unique to the individual project but oriented toward using the processes already available in the shipyard. These modules are entire buildings or sections of buildings, depending on the project. Whether the parts for these modules are made in the shipyard or not, they are assembled within the cavernous Module Shop, and then transported to the final building site for assembly.

The Discursive Detail thrives in Drydock because of the conceptual alignment between the digital environment in which the Detail is created and the physical environment of the shipyard. Keep in mind the definition of the Discursive Detail - its participation in both the intention and execution of architecture. This is not only about utilizing the ability to both think and construct architectural acts in projective ways. It is about the enabling of intentions, Plots, Structures, forms of Power and scales of Time that would be otherwise unachievable. It is about architectural agency necessarily including both construing and construction.

I propose an architectural project that recognizes the power of the projective representation of architectural mass, not as fantasy or formal consequence, but with an orientation toward ways of making that requires the Detail to not be assumed or deferred. The Discursive Detail is the place where intention and execution come into direct contact with one another, and Drydock is an environment where the misalignments, assumptions and compromises of the typical confrontations between these two necessary architectural realms does not need to exist. Compromises between architectural intention and built execution is the result of architects being concerned only with one or the other. Drydock is an environment which requires engagement with both.





**New Monte  
Rosa Hut**  
Zermatt, Switzerland

Built in sections, workers  
and materials transported  
to site by thousands of  
helicopter trips

Processes are evident in  
details but not necessarily  
in the spaces of the  
building



**FORCE Tidal Power  
Research Center**  
Parrsboro, Nova Scotia

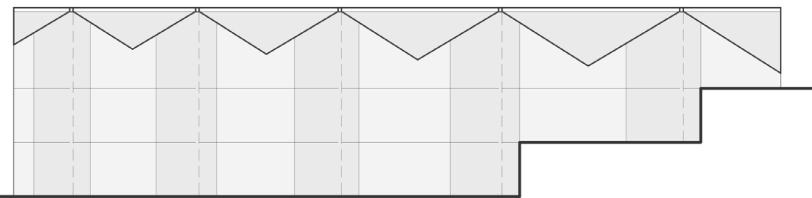
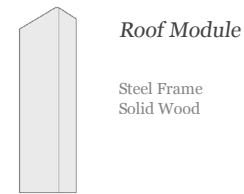
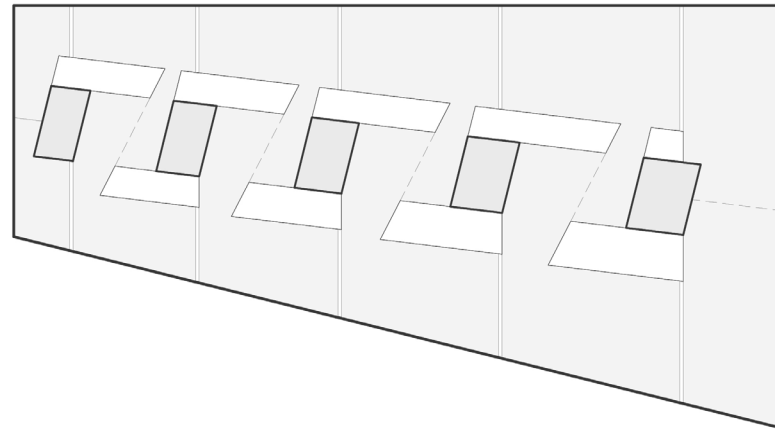
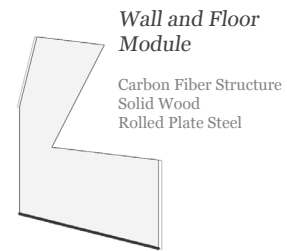
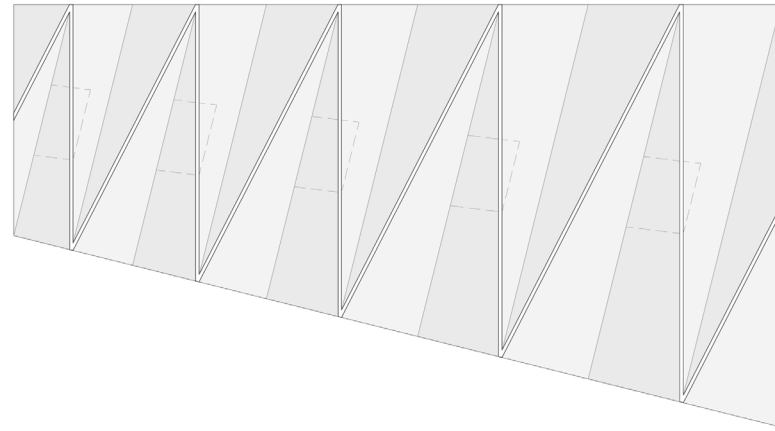
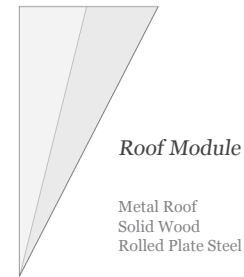
Built in large modules in  
Drydock, transported to  
site by ship

Taps into the potentials  
of both the construction  
environment and the  
final site

The quote from the beginning of the chapter refers to a built example that I have found instructive - the Monte Rosa hut in Switzerland - not for its forms, functions or even necessarily its particular details, but for the idea that the means through which a building is imagined to be made can influence the ways that the mass of a building is represented. It would not be possible to consider the mass of such a building as a void to be considered later by someone else - it is a primary zone of architectural investigation that is fully engaged in the intention and execution, of the project simultaneously. Its circumstances and goals require that the architect engage it. Anyone can *imagine* any building being made anywhere - it becomes a fuller architectural idea when the *means through which it can be made* are considered and interrogated. Drydock and the Discursive Detail are entries into this territory.

The Fundy Ocean Research Center for Energy (FORCE) is a non-profit organization outside of Parrsboro, Nova Scotia, that provides physical and legal access to underwater tidal energy companies to test their technologies and equipment in the world's highest tidal range. The Minas Basin of the Bay of Fundy experiences an average range between 42 and 47 feet - meaning that the precise area of FORCE's test sites sees more water passing through it every day than the combined flow of all the world's rivers.

To manage the underwater test sites, an onshore facility is needed, one which serves three purposes - a monitoring lab for the test sites, medium-term lodging for the scientists and technicians involved, and the ability for the public to visit the facility. Primarily a private scientific institution, the ability for public access makes the project more visible. The combination of the organization's site, existing involvement with industry, access to energy and its particular institutional goals make the imagining of such a facility an ideal test project for Drydock. The underwater cables to the test sites were laid in December 2013. This is happening *right now*.



The core of the design exercise is the development of Discursive Details that have orientations toward three aspects of the entire project - first, an orientation toward the creation of specific environments inside and outside of the finished building. Second, an orientation toward the processes that will be used to make them, whether they happen in Drydock or are built onsite. Third, an orientation toward an orchestration of how building modules constructed in Drydock will ultimately be assembled in a condensed timeline, and how they will sustain the completed building in the future. The project does not assume that *everything* will happen in Drydock - on the contrary, it allows the work that needs to be done onsite to be aligned to the ideas of the project, not simply toward expediency and economy. The Discursive Detail is the conceptual organizer of the project; Drydock is the means by which the capacities of the Detail are more fully enabled.

As noted earlier, while the built examples investigated in the beginning of this project were instructive, they remain the work of an individual. Drydock and the Discursive Detail are by definition the projective work of an army of people, whose organization and intelligence are manifest through processes that are outside of the scope of an individual master builder. The models are only representations of the capabilities described by the Detail and the processes. My goal is that the design of the FORCE facility as an example will show that the Discursive Detail is a powerful agent through which architecture can more firmly embed procedural intelligence into our work, and that Drydock is a means through which we can projectively imagine a full architectural act that embeds this intelligence throughout an entire process.

I truly believe in the power of architectural mass, but in order to tap into its power, we must be willing to engage it, not defer it. Details are the agents that we can use as architects to engage it. All aspects of this thesis, from making to representing to projective thought, are experimental engagements with this hidden territory.



## Texts

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Woods, Lebbeus. *Radical Reconstructions*. New York: Princeton Architectural Press, 1997.

An unexpected place to start, Lebbeus Woods' collection of proposals for Sarajevo, Havana and San Francisco is prefaced by an essay titled 'Walls'. The quotation from this introduction transcribed early in the thesis text startled me – but in a way, it is a deliberate misreading. The crises that Woods speaks of are political and social transformations that he manifests architecturally, the crises that I refer to are the extents to which architectural intention and execution align or misalign. As crises, these are all ongoing states that architecture must position itself to, not discrete events to be 'solved.' This quotation in particular lays out the initial intellectual territory of the thesis. This is the first of what I consider to be the five key texts for this project.

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Mostafavi, Moshen and David Leatherbarrow. *On Weathering: The Life of Buildings in Time*. Cambridge, MA: MIT Press, 1993.

Really an effort to find out the ideas of our own dean, I was intrigued to find out about the role of the architect and the builder in relation to how a building is described. Within a discussion of the role of time and literal erosion, a shift in how buildings are described emerges. When the role of the architect includes the description of newly mass-produced parts previously unavailable to the builder, the detail as a type is born, a necessary but previously non-existent description from the architect to the builder that shifts the relative roles of each and the actual mass of buildings themselves.

Latour, Bruno. "Where are the Missing Masses?" *Shaping Technology/Building Society*. Wiebe E. Bijker and John Law. Cambridge, MA: The MIT Press, 1992.

A discussion partially of who's in control of who and who figures who, between humans and technology, I found within the text the ability of 'things' to be analyzed both in their ability to do literal work that humans cannot, and how the human either relates to it or not.

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Krauss, Rosalind. "The Grid, The /Cloud/ and the Detail." *The Presence of Mies*. Detlef Mertins. New York: Princeton Architectural Press, 1996.

The invocation of Mies presiding over the installation of the gigantic mass of roof above the Berlin National Gallery. Horrifically present in terms of its weight, it is not simply a question of whether a detail is present or absent, but involve ideas that contradict each other. The detail is a place where conflicts like intention and execution play out. This interference is not destructive, that one cancels out the other but is constructive, that each is sharpened.

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*How Much Does Your Building Weigh, Mr. Foster?* Dir. Carlos Carcas and Noberto Lopez Amado. Perf. Norman Foster. Art Commissioners and Aiete Ariane Films, 2010.

In a recalling of their helicopter ride over the newly completed Sainsbury Center, Buckminster Fuller asking Norman Foster the question asked in the title of the film playing in the background. What is doing the real work? Is it what is graphically presented as the architecture, or is it the gigantic mass of concrete under it? What is doing work and what is not doing work? Are there ways to do it 'lighter' not in terms of mass but in terms of responsibility?

Alberti, Leon Battista. *De Re Aedificatoria (On the Art of Building)*. Saarbrücken: VDM Publishing, 2011

Alberti's classic definition of the architect is taken apart to extract the three key lenses through which to observe the detail. Fuller's invocation of architectural weight gains an historical prefiguration, and highlights aspects which details position themselves against.

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Dickinson, Duo. *Expressive Details: Materials, Selection, Use*. New York: McGraw-Hill, 1996.

Not remaining merely an exhibition of images and precedent, I found practically instructive the highlighting of the gap that exists between designing a detail only for intention or only for execution. This gap becomes the conceptual place in which details leave the architect behind, pushed either to the agency of the product or the builder. In this space, the detail loses its full translative agency.

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Ford, Edward R. *Five Houses, Ten Details*. New York: Princeton Architectural Press, 2009.

This is the second of the five key texts for this project, but more generally, Edward Ford is required reading for investigations of detailing. The author embarks on the design of five houses for a single site, the combination of the last two resulting in the actual project. What becomes clear is this – the relationship between architectural mass and architectural space cannot be considered incidental. The conversation is not one of expediency or cost, and but also does not linger in theory either. The full agency of the detail in its translative capacity is revealed, showing that architectural ideas normally described by space and form must be embodied in a building's mass.

Cadwell, Michael. *Strange Details*. Cambridge, MA: MIT Press, 2007.

Instead of ten details, Cadwell focuses on four – made only available to the person through the encounter with the detail, both as an artifact and as a representation. This is my third foundational text, because it makes evident the four filters through which my own observations are drawn: plot, structure, power and time. Combined with the ideas in KieranTimberlake’s book described later, it becomes the transition to the built work of the thesis.

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Ford, Edward R. *The Details of Modern Architecture, Vol. 1 and 2*. Cambridge, MA: MIT Press, 1990.

I needed to understand Cadwell’s details not through the personal encounter but through the terms of architectural representation in this classic text. What was amazing became the means by which an idea can be compressed into a single assembly that radically changes the understanding of the entire building itself.

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Frascari, Marco. “*The Tell-The-Tale Detail.*” *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory*. Kate Nesbitt. New York: Princeton Architectural Press, 1997.

This is the fourth foundational text for this project, specifically in its identification of the detail to encapsulate both the construction and the construing of an architectural act. It furthers the idea of the birth of the architectural detail in the shift from this responsibility from the builder to the architect, not stating it as mere fact but claiming this territory within architecture, and thus requiring that it take on the translation from intention to execution. The detail does not remain as merely a specific type of drawing or stay at a particular scale.

Ford, Edward R. *The Architectural Detail*. New York: Princeton Architectural Press, 2011.

I came to this text later than anticipated, especially because it is premised on a simple question: what is the architectural detail? It remains unanswered, but the means by which he arrives there reveals both jarringly incompatible thoughts on the agency of the detail, and the necessity to not define the term through sterile semantics but to investigate and take positions on it.

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*New Monte Rosa Hut SAC: Self-Sufficient Building in the High Alps*. Ed. ETH Zurich, 2011.

The only text dedicated solely to a specific precedent, it manages to orient itself toward the projective possibility of the detail not only as a physical means of translation but as a mindset, and as a way to deliver architecture. The detail in this project is the entire means by which it is designed and figured. What results is the ability to both imagine possibilities for architecture that fully exploits the capabilities of the detail, and places the architect firmly as the necessary arbiter of the work that the detail can do.

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Kieran, Stephen and James Timberlake. *Refabricating Architecture*. New York: McGraw-Hill, 2004.

In order for the detail to be able to achieve its full potential as describing an architectural mass that is instilled with the same design energy and agency that is normally reserved for space and form, architecture must divorce itself from prior means of delivering buildings which rob architecture of this capacity through concessions and assumptions. To build like we draw requires a physical environment which aligns to the digital and cerebral environment in which the detail is born.

I'd like to recognize Cam Willard, Burton LeGeyt and Rachel Vroman from the Harvard Graduate School of Design's Fabrication Lab, not only for their support and assistance with this project, but for my entire time spent working with them. I began working in the lab immediately upon entering the GSD, and have found nothing but encouragement and insight ever since. Their particular skills and perspectives are as valuable as any class, and I encourage anyone interested in becoming a better designer to learn from them. I truly grew as a maker and thinker during my time in the lab, and it's not so much of an exaggeration to say that I could not have made it through this program without the shop. Thanks guys, for everything.

Danielle Etzler was my advisor for this project, and I feel like she's the only person who could both set me loose to work in the ways that I work and keep me in check at the same time. This project was a personal exploration, but it would not have been possible without her guidance and support. I'd also like to thank Kiel Moe for trusting me to lift expensive windows with a truck and some knots. Our discussions over barbecue after long days of construction, and the actual construction itself, were transformative to the ways that I've thought about this project.

I could not have completed the 'mass' of this project without my thesis help team. I feel incredibly lucky to have such talented people willing to take time out of their schedules to contribute. Good luck next semester, and don't hesitate to contact me when you need your future professional projects built.

