grounded figure
a winery

This thesis submitted by Kevin W. Jones to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of:

MASTER OF ARCHITECTURE

Michael O'Brien, chairman

William Galloway
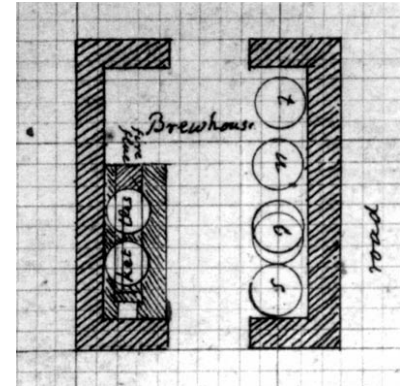
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a b s t r a c t

The nature of figure-ground relationships and their potential for use as a tool for architectural composition was investigated through the design of a winery. Included in the winery were facilities accomodating both the production and consumption of wine. These programmatic elements were used as guides for the development of multiple figure-ground relationships at a variety of scales. In addition, the dialogue between different figures as well as the careful development of the backdrop surfaces were topics of study.

Several design strategies were employed to create relationships between figure elements and their backdrops, including the insertion of volumes into and through one another, the careful development of material and surface, and light. From this work, as well as previous projects, several key findings can now be articulated concerning the potential use of figure-ground relationships in the development of a work of architecture. These include the need to optimize the proportion of figure(s) relative to a given background and the key role that the disposition of figures relative to one another plays in the development of a meaningful figure-ground relationship.

contents

introduction

1.1 | Brewhouse plan, Thomas Jefferson

The work presented here is part of an investigation into the nature of 'figure-ground' relationships and how they can be deployed to generate architectural relationships and hierarchy within a building. Implicit in this way of designing is the development of an architectural language of elements and material which allows for the clear presentation of certain special 'figures' against more neutral (though not necessarily simple) backdrops. In this way, established programmatic and architectural hierarchies can be brought to bear in the creation of the overall building composition. Whenever possible, attempts have been made to create a degree of visual calm – partly in service of the creation of figure-ground relationships and partly as an end in and of itself. To create the desired level of visual quiet and enhance the relationships between the various figures and grounds, the material palette, as well as the manner in which materials were used, was carefully controlled.

As a vehicle for investigation of figure-ground relationships, a winery – including facilities for both production and visitation – was developed in the town of Blacksburg, Virginia. The history of winemaking is almost as extensive as the history of architecture.

In the Ten Books on Architecture, Vitruvius, in his description of the layout of an ideal farmhouse, suggests that the wine room be located adjacent to the kitchen "with its windows lighted from the north" (Vitruvius) to avoid unnecessary heat gain which would spoil the wine. Indeed, at Pompeii, villas have been unearthed with elaborate courtyards tailored specifically to the production of wine (*1.2*). In this country, Virginia can count itself among one of the earliest states to develop a viticultural heritage. Thomas Jefferson was one of the first people to actively pursue winemaking and brewing and designed suitable cellars for both at Monticello (*1.1*). The current state of the winery as an architectural type, in most places, consists of vague historicist references to Italian villas mixed with a healthy dose of whatever constitutes the vernacular of the given region. Generally, very little attention is paid to the specific needs of the modern winery and to the specific needs of those people who choose to visit. Most recently, the stars of the architectural community (Steven Holl, Frank Gehry, Santiago Calatrava, *et al.*) have been commissioned to design wineries - using bold architectural statements to lure visitors to the wine racks.
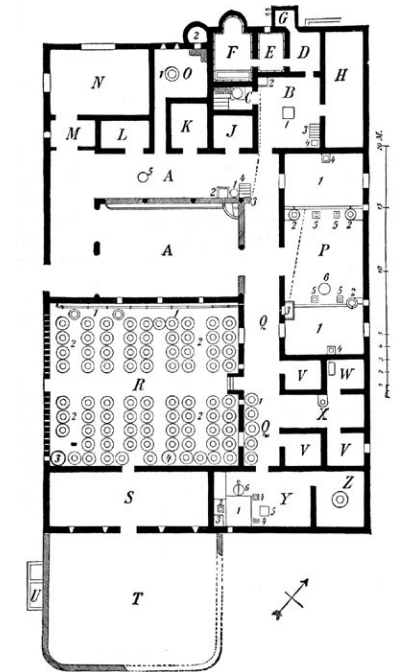
1.2 | Villa Rustica, Pompeii
wine room is denoted by *R*

In an effort to create clear relationships between the figures and the ground against which they are superimposed, material choice and refinement have served as a consistent tool to differentiate 'more special' from 'less special.' In addition to providing clear visual cues as to the importance of a given element, the interplay of figure and ground allows for a more sensitive deployment of material in service of the needs of the client, program, and the architecture. Therefore, in addition to achieving a clear visual hierarchy, a clear material hierarchy is developed that allows for a more focused use of material and design resources within the project. This approach to material usage has led to the creation of figure-ground relationships through the superimposition of highly refined elements onto ones of seemingly less complexity. It should be noted that in many instances the development of a visually and architecturally neutral background has required more design input and decision than was expended for the special 'figures.' However, this dialogue between seemingly simple and complex elements adds another layer of density to the project.

Material rigor and figure-ground relationships have a reciprocal relationship with the creation of visually quiet compositions (*1.3*). That is, each of these ideas is often simultaneously both an end, as well as a means to achieve one of the other points of interest.
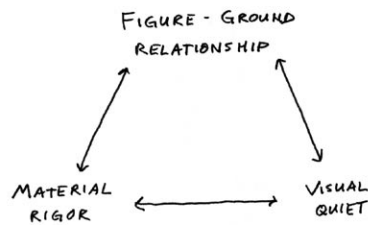
It is therefore proposed that architecture can be found not through flamboyant gesture, but through a careful consideration of the relationships between elements, the ways that light can enliven space and surface, and through the precise deployment and assembly of materials.

In this project, a set of architectural tools was employed in service of this idea, including the interpenetration of volumes, the careful development of the surfaces (the grounds) with which the figures interact, and the careful use of light to enhance the functional and architectural needs of a given space. Though the specific tools, and the ways in which they were used, has varied somewhat between this and previous projects – the overall ends are the same: the development of a design wherein certain 'special' things are presented as figures against a more neutral background.

Through this work, it has been found that there can be multiple compositions, dealing with different architectural situations, at different scales within the building. These relationships can be articulated and developed through the manipulation of scale, material, light, orientation relative to one another, and through the mechanism of assembly. *The challenge, therefore, is to create a constellation of different relationships that work in service of one another, and the whole, while still maintaining an individual flavor.*

FIGURE - GROUND
RELATIONSHIP

MATERIAL
RIGOR

VISUAL
QUIET

1.3 | diagram

1.4 | inserted window bay, south facade

figure-ground
relationship

The use of figure-ground as an architectural tool for composition offers a number of advantages for the development of a design. The need to determine which elements are to be 'figures', and which are to be 'grounds', requires the definition of a structural hierarchy for the creation of a successful programmatic and architectural composition. In addition to meeting architectural needs, this early hierarchy allows the programmatic requirements of the building to remain a consideration throughout the design rather than being relegated to a set of *ad hoc* additions shoe-horned in at the last minute. The creation of clear figure-ground relationships can also help to guide certain material decisions and how those materials are brought together in service of the needs of the architecture and the building. Finally, this approach leads to a reduction in visual noise in favor of more carefully considered visual relationships between the various parts, and various scales, of a building.

In his museum renovations, such as the Castelvecchio and the Gipsoteca Canoviana, Carlo Scarpa created a number of complex relationships between the pieces of art and their immediate surroundings – not the least of which was the dialogue created between an individual artifact and its display apparatus. These works offer some clues as to the nature of the relationship between a figure and a ground as well as a set of potential guidelines for the proper development of the ground. Examination of Scarpa's installations offers proof that the end result of a refined dialogue between a figure and its ground is something more than the sum of the two pieces (*2.1*). That is, figure and ground become engaged in a dialogue which, through a highly specific design intervention, results in a single, new, harmonious composition.


2.1 | sculpture display, Carlo Scarpa

2.2 | left, sculpture display in Castelvecchio

Examination of the design development sketches (*2.3*) for an individual display stand (*2.2*) shows that the development of a suitable ground necessitates as much consideration, if not more, than the figure it is set in contrast to. The importance of the figure to the development of the ground is evident in the drawings as the display apparatus is never drawn without the artifact. Additionally, the ground need not be overly simple or reduced in terms of material expression. It can have its own pleasing characteristics and material complexity and still perform its role as a support for a figure. Therefore, the creation of a good figure-ground dialogue requires a certain level of material and compositional complexity with regards to the design of the ground element(s).
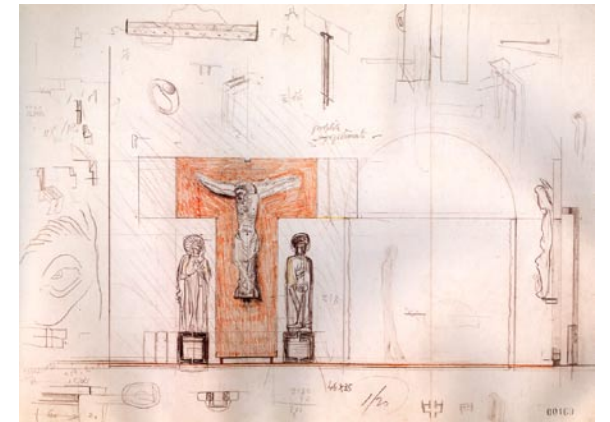
2.3 | display apparatus development, Carlo Scarpa

2.4 | *Still Life*, 1960, Giorgio Morandi

In the work of Italian painter Giorgio Morandi a different set of guidelines for the development of figure-ground relationships can be found. Through his still-life paintings, typically comprised of bottles of various shapes and colors, one can see how a reduction in visual complexity strengthens the compositional power of a set of figures placed against a relatively inert backdrop (*2.4*). Here, the lessons aren't necessarily about the development of the ground but about the disposition of figures in a given field of view. Comparison of two paintings demonstrates the role that the proportion of figures to ground can have on the establishment of a strong figure-ground relationship. In the still life from 1952, bottles are arranged into a rectangular figure which is subtly positioned and proportionally related to the remainder of the canvas backdrop (*2.5*). In a related painting from a year later, the relationship of the figural objects to the ground is less dominant (*2.6*). The strength of the ground is diminished through the increased scale of the objects and the position of an object extended beyond the picture plane. Thus, careful consideration is required in the expression and subsequent disposition of the figures.

Architect Louis Sullivan was a master of the creation of relationships between his ornamental figures and the building facades against which they were set, particularly in his later works. In the bank at Owatonna one can see a clear relationship developed between the shallow medallion ornaments and the tightly articulated brick surface of the façade (*2.7*). Here, carefully incised, shallow banding patterns help to clarify the interaction between the medallions and the brick façade while simultaneously creating several figure-ground relationships at multiple scales. That said, many times, the ornament is so rich and dense, in terms of color and material, that the effect is more textural than figural. From these works, one can see the strong compositional power of a carefully composed array of figure-ground relationships, used at different scales.


2.5 | *Still Life*, 1952, Giorgio Morandi

2.6 | *Still Life*, 1953, Giorgio Morandi
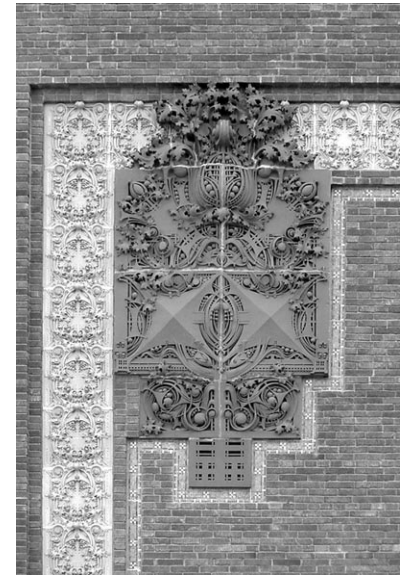
2.7 | ornament, National Farmers Bank, Louis Sullivan

figure-ground | Morandi + Sullivan

2.8 | colored light refractions and shadow create a layered set of figures

This notion of the relationship between a figure and a ground has been explored in previous projects, with varying degrees of success. In the design for an art gallery and studio in downtown Blacksburg, long glass 'light beams' became the figures inserted into a masonry façade wall (*2.10*). These elemets served several purposes in the overall composition of the interior and exterior of the building. On the interior, they diffused and reflected light down onto the wall surface to provide an even daylighting condition for the artworks displayed in the galleries. On the exterior, they became an integral part of the façade composition – acting as more refined elements to moderate the scale of the rather stark masonry wall (*2.11*). Similarly, a wooden screen structure was developed and played against a concrete wall as a means to define an exterior urban room as well as the main entrance to the gallery (*2.9*).

The various figural elements were used as a means to both programmatic (gallery lighting, entry) and architectural (scale) ends in the project. To create an additional level of dialogue between the figures and the grounds, the assembly characteristics of the former was related to the inherent module provided by the latter. For the light beams, dimensions related to the 8" module of a masonry unit were used to define the proportioning of the steel supports while the spacing of slats in the wooden screen derived itself from the 2' module inherent to site-cast concrete. In addition, the relationship of these two standard building modules to each other allowed for multiple layers of interaction between the various figure and ground elements.
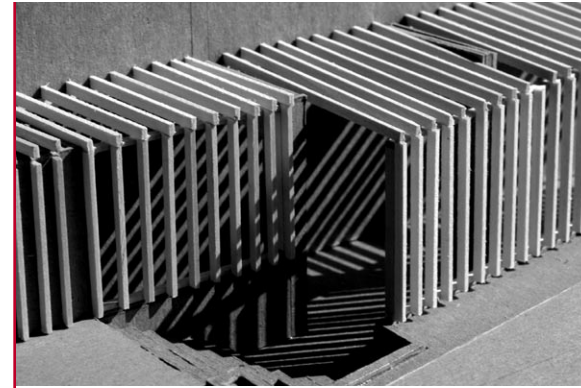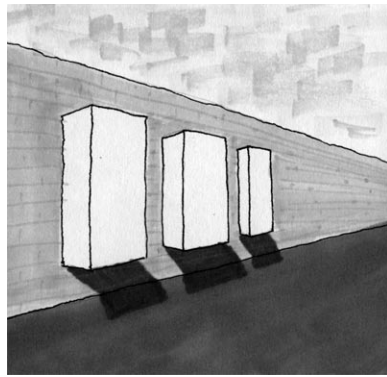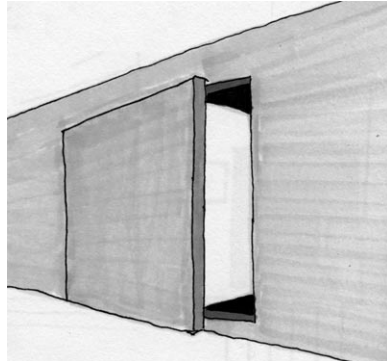

2.9 | entry screen element
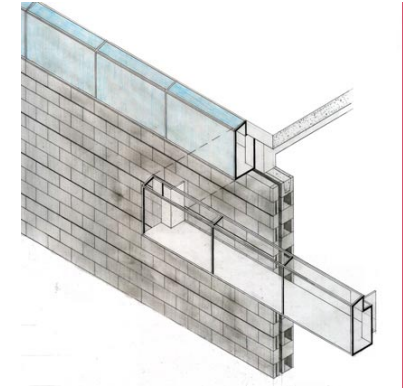

2.10 | inserted light beam, axonometric
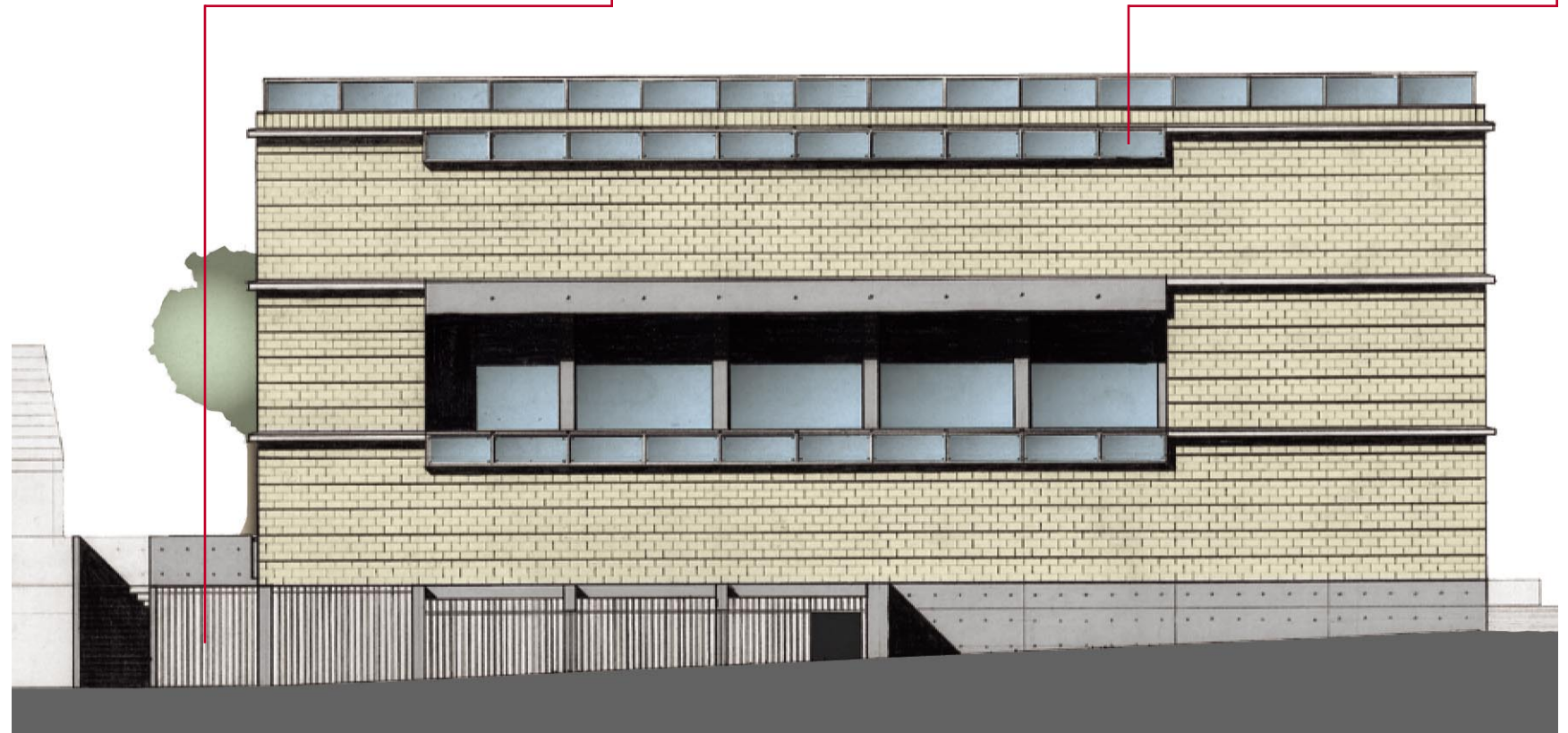
2.11 | art gallery + studio, SW elevation

figure-ground | previous work

2.12 | Lee Street House, inserted figure elements

Earlier investigations into this idea proved less successful. In a design for a house, insertion of various figure elements into and through a masonry background resulted in an overly complex composition (*2.13*). Too many figures, each with their own distinct form completely unrelated to any of the others, were played against an underdeveloped, unassertive pair of ground planes. In addition to a lack of clarity, the space between these two planes was rendered practically unusable.

When considered separately, many of the individual figure-ground relationships - a porch, the entry, a window condition - were compelling (*2.14*). However, when assembled, the density of figures, and their relative complexity proved to be too large and overwhelming, with too few relationships amongst the parts to make a coherent whole. Additionally, the deployment of a secondary facade necessitates the careful development of a meaningful interstitial space.
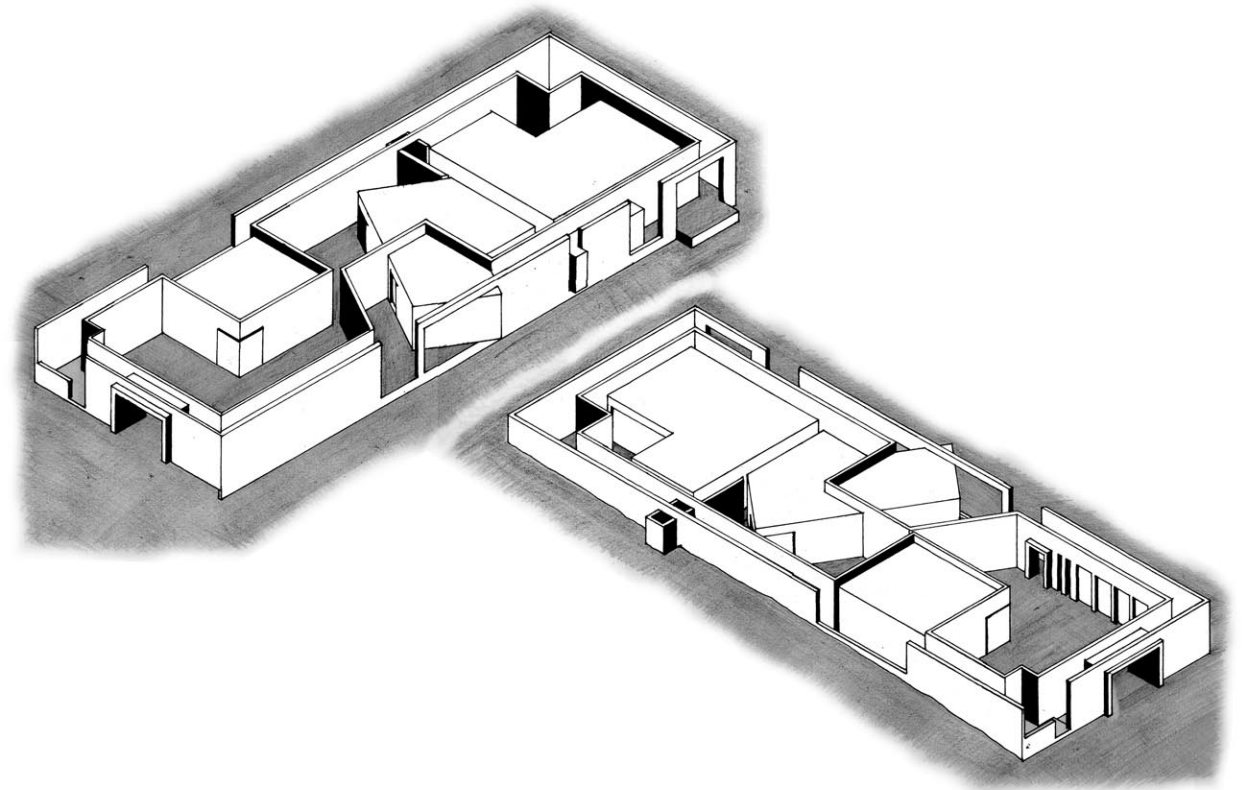
2.13 | Lee Street House, axonometrics

2.14 | Lee Street House, development series

figure-ground | previous work
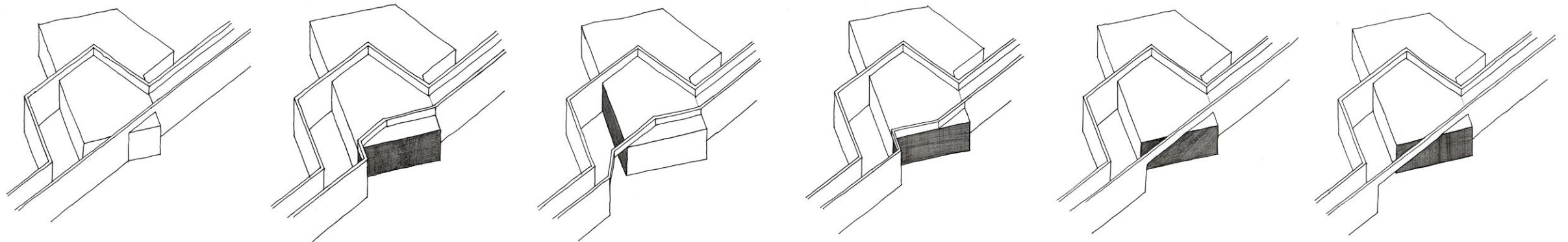
2.15 | development of the space between the masonry and screen facades; color, light, and shadow create layers of figural and backdrop elements

From these projects, and the precedents cited above, two clear ideas can be articulated with regards to the creation of architecturally successful figure-ground relationships. There is a certain optimal proportion of 'figure' to 'ground' that must be maintained to avoid sacrificing figural clarity with respect to the ground that surrounds it. This proportion is dynamic, depending on a variety of factors including the scale of an element, material articulation, field of view, light, and overall formal clarity.

Secondly, the development of the ground requires a degree of rigor and design input so as to maintain its status as an inert backdrop while at the same time fostering some level of dialogue with the figure(s). This means that, while the ground can have its own set of complexities, it must not compete with the figures. Most notably, this can be achieved through careful detailing of elements and attention paid to the inherent textural, 'textile', and assembly properties of a given material. In this way, one can use a structural hierarchy to create clear and meaningful interactions between elements as well as a coherent overall composition.

In this project, three main ideas were employed in service of the creation of architecturall significant figure-ground relationships. They include the interpenetration of volumes into and through one another, the treatment of building surfaces in a more nuanced way, and the ways that light can be used to address programmatic and architecture concerns.

*2.16* | next page, an island of farm buildings in Napa Valley, Alex MacLean

interpenetrating volumes

The insertion of volumes into and through one another offered a number of architectural advantages for the creation of a design proposal for the winery as well as ways to address the idea of figure-ground. The program for the winery required the accommodation of facilities for both the production of wine as well as its consumption by visitors and buyers. An overall scheme (*3.1*) was employed which treated the manufacturing function as a linear process to be interacted with at different stages by those people coming to taste, purchase, and learn about wine.

The transformation of this diagrammatic concept into built form began by accommodating the process of winemaking in one large structure ideally suited to the linear nature of manufacturing processes. Subsequently, the various secondary functions (tasting rooms, restaurant, offices, shop, stairs, etc) were made into discrete volumes inserted in various ways into the large overall volume (*3.3*). An investigation (*3.2*) into the ways that objects could be made to insert and interact with one another was undertaken in an attempt to refine the dialogue between the subsidiary elements and the manufacturing volume. These studies included partial insertion, degree of touching and overlap, as well as the wrapping of one thing around another.
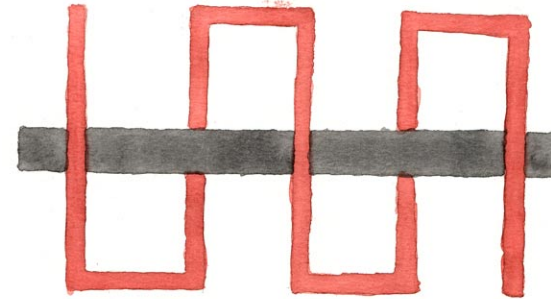
3.1 | diagrammatic sketch, interactions of two paths

*interpenetrating volumes | programmatic hierarchy*
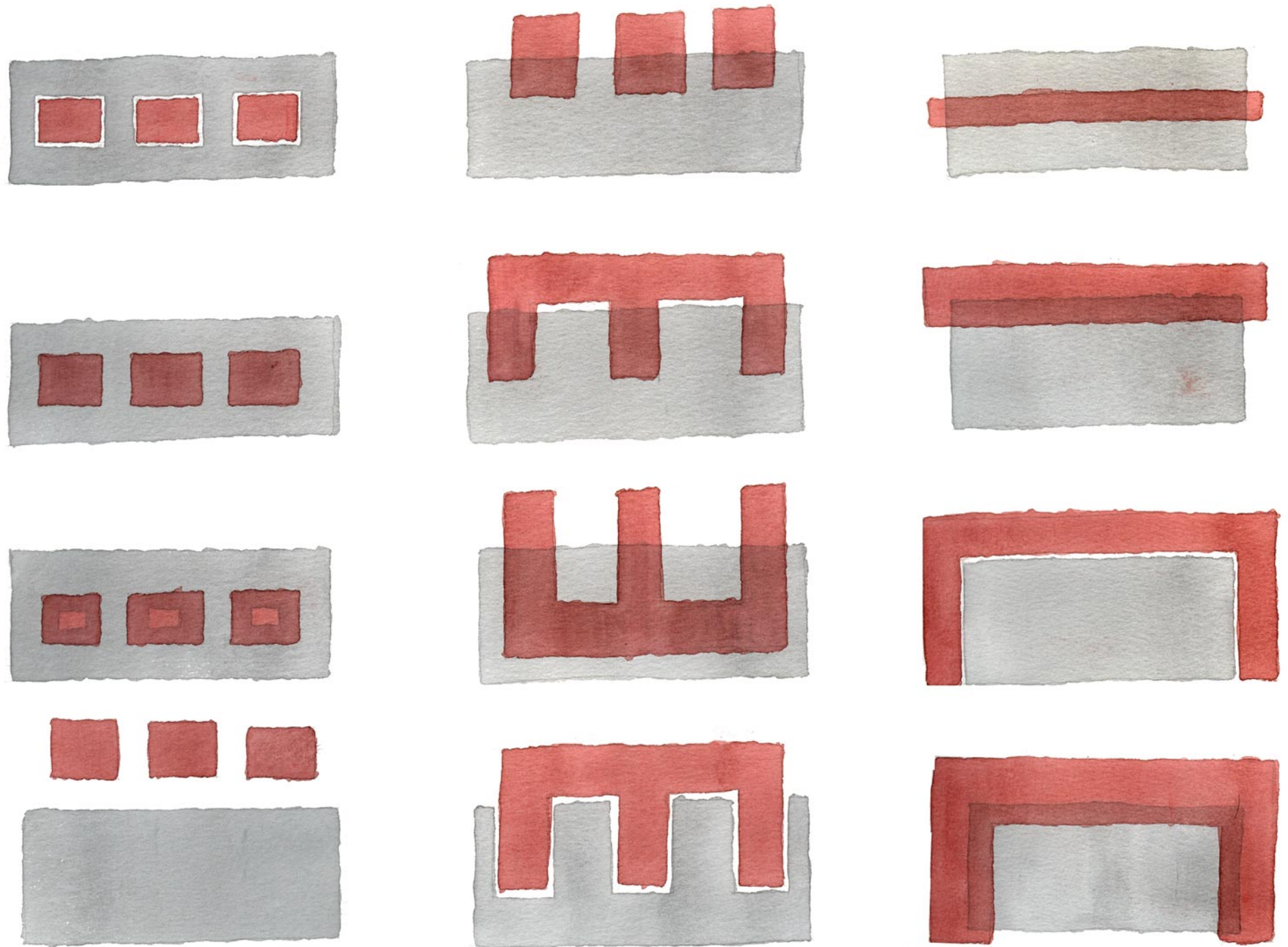
3.2 | schematic sketches, investigation of the potential ways in which volumetric elements can interact with one another
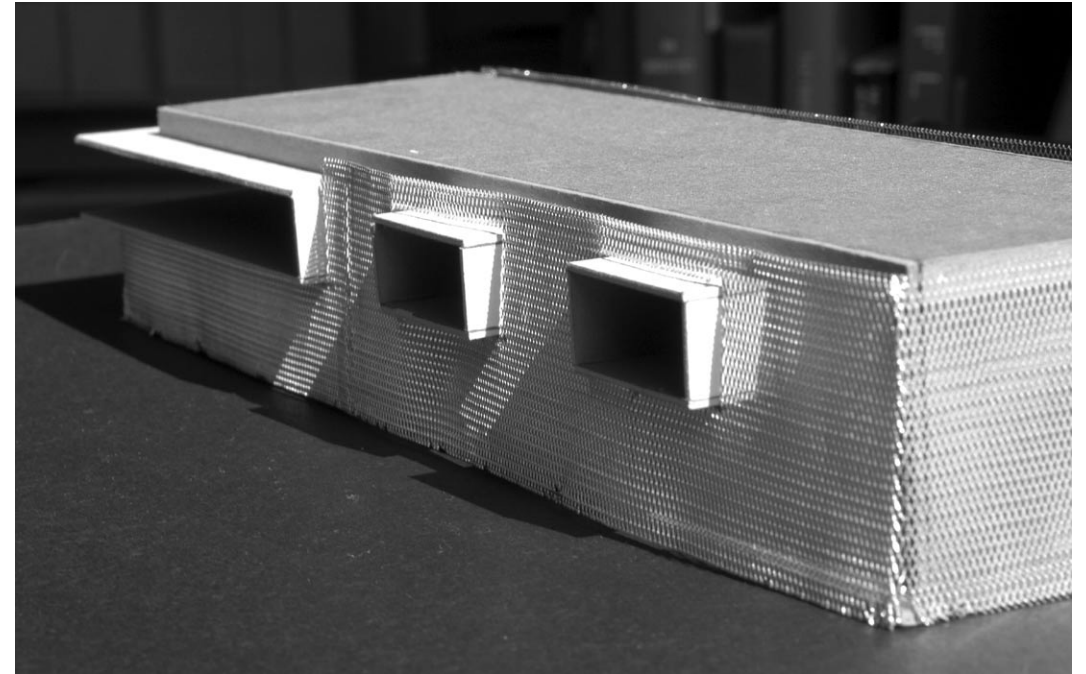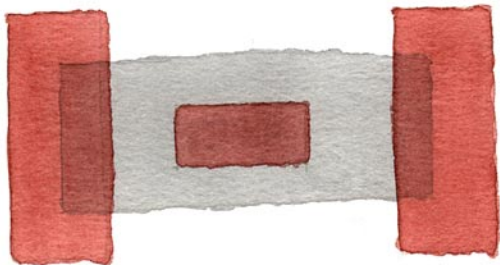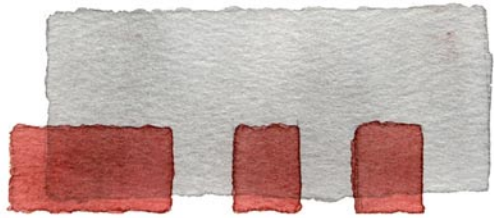
3.3 | study model, smaller volumes inserted into a larger one

Through these early studies, a functional hierarchy of importance was developed and the volumes could begin to take on the properties of figures inserted into the 'ground' of the larger manufacturing volume. A similar relationship can be seen in Steven Holl's Chapel of St. Ignatius where the accommodation of certain spiritual needs led to the development of the idea of "seven stone bottles in a stone box" (*3.4*). The various functions of the chapel were articulated as distinct volumes, enlivened by refined lighting conditions, inserted into the overall chapel footprint.
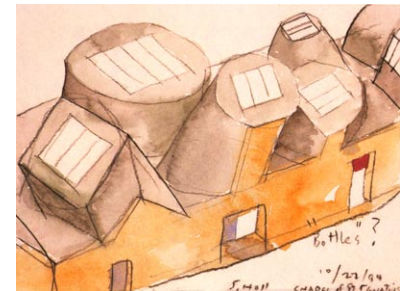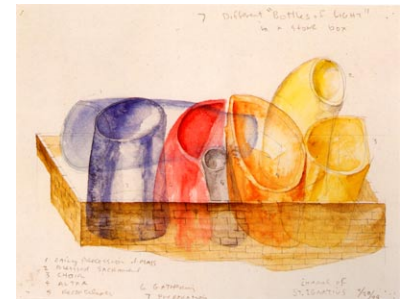
3.4 | Chapel of St. Ignatius, sketches, Steven Holl

interpenetrating volumes | programmatic volumes

3.5 | site, looking north towards Brush Mountain

The site is a 35 acre parcel located several miles west of downtown Blacksburg and the Virginia Tech campus. The majority of the site is gently rolling grass though there is a large dropoff towards the north and east edges. Due to this dropoff, there are expansive views north towards Brush Mountain which were taken advantage of in the development of the design.
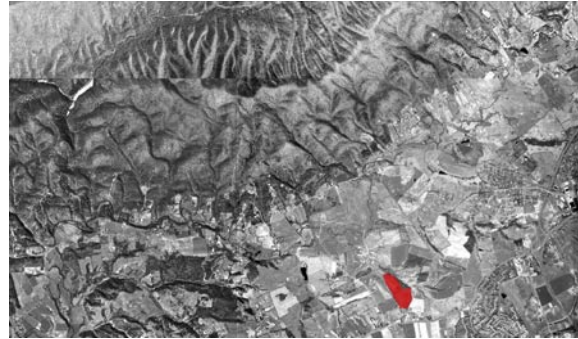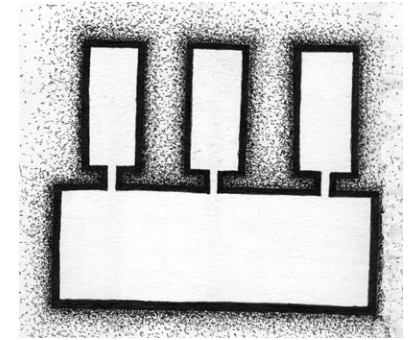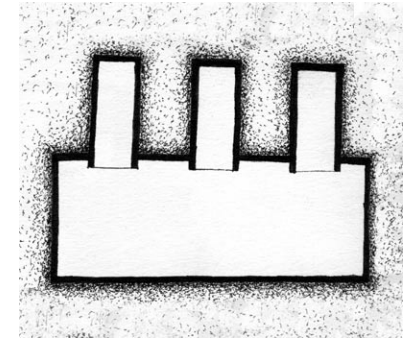

3.6 | aerial view of site, shown in red

3.7 | site topography
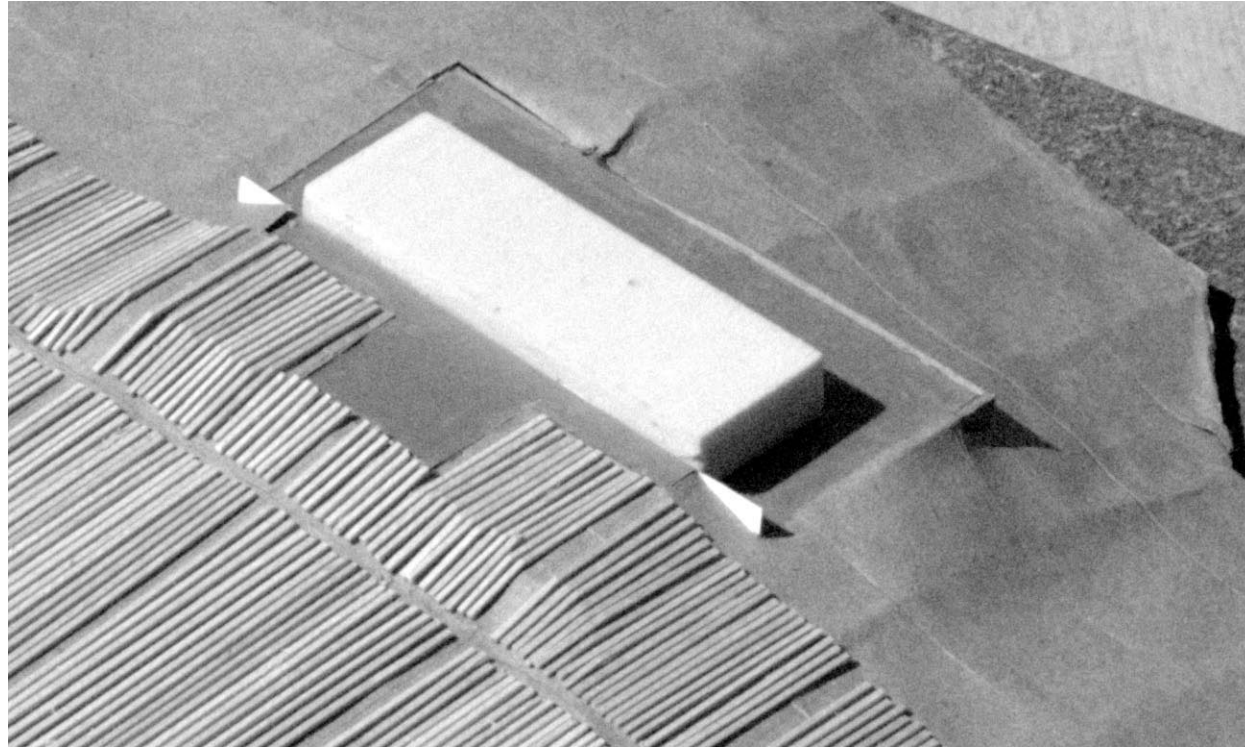
3.8 | winery is partially inserted into the hillside at the highest point of the site; this allows for the creation of an underground barrel cellar

3.9 | barrel cellar sketches

*3.10* | concept sketch, volume wrapping volume

*3.11* | early site model, screen element between vineyard and the building

To further refine the hierarchy of the various elements of the winery, a secondary screen façade was deployed around the entire building (*3.11*), defining an interstitial volume around the main building (*3.10*). This space, between the outside and the inside, was used as a component of the various functional paths that weave their way throughout the building. Parts of the interstitial space are left open, creating outdoor paths, while at other times the space is enclosed defining an interior circulation route.

An important part of the overall architectural scheme was that the various users and paths throughout the building overlap in a carefully considered way (*3.12*). That is, the needs of the winemaking process shouldn't suffer because of the need for visitor accessibility, and vice versa. Careful placement of the various volumes relative to the manufacturing process and the screen allowed for the creation of four distinctly functioning, yet overlapping circulation paths.
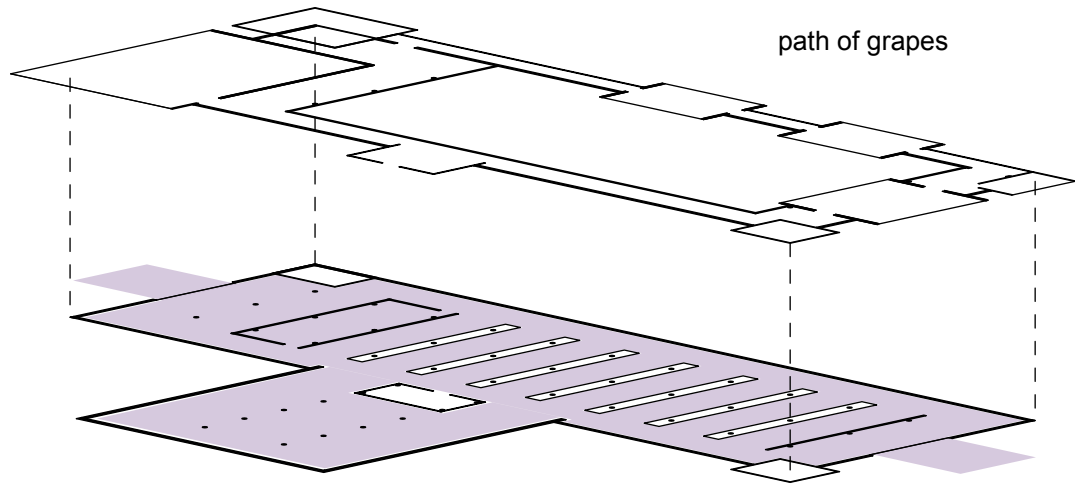
1 - entry
2 - restaurant
3 - bar
4 - kitchen
5 - restroom
6 - tasting room
7 - office
8 - shop
9 - barrel cellar
10 - estate tasting room
11 - fermentation room
12 - grape intake/crushing/destemming
13 - bottling
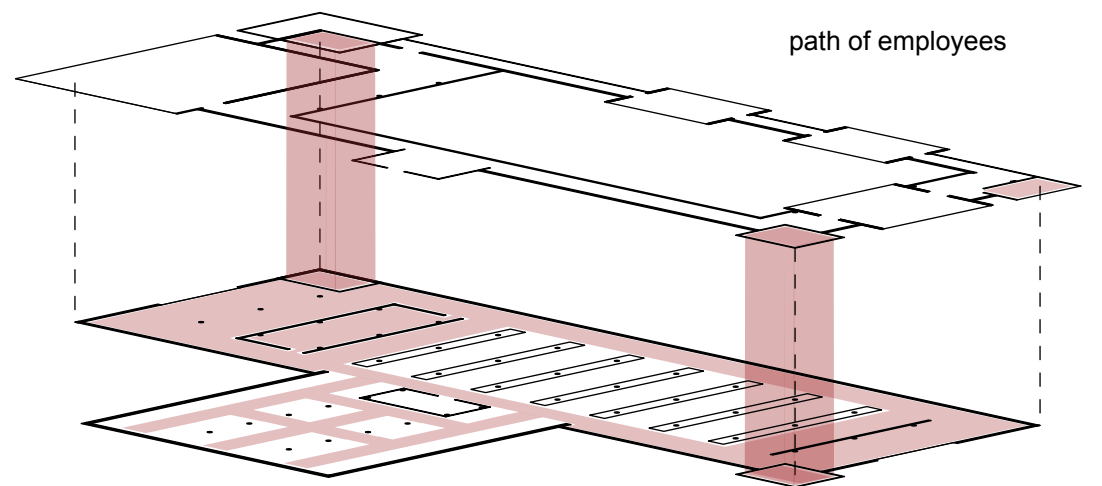**14** - barrel cleaning
15 - storage/shipping
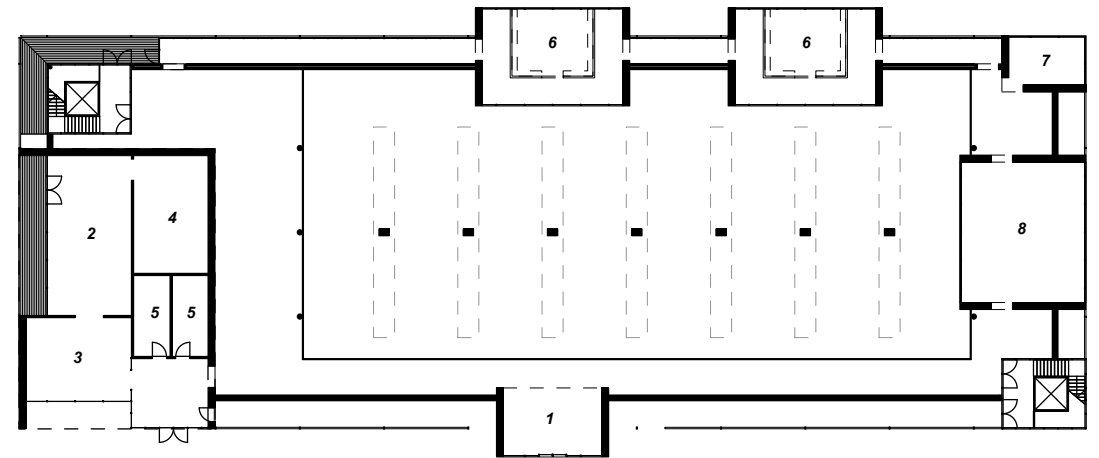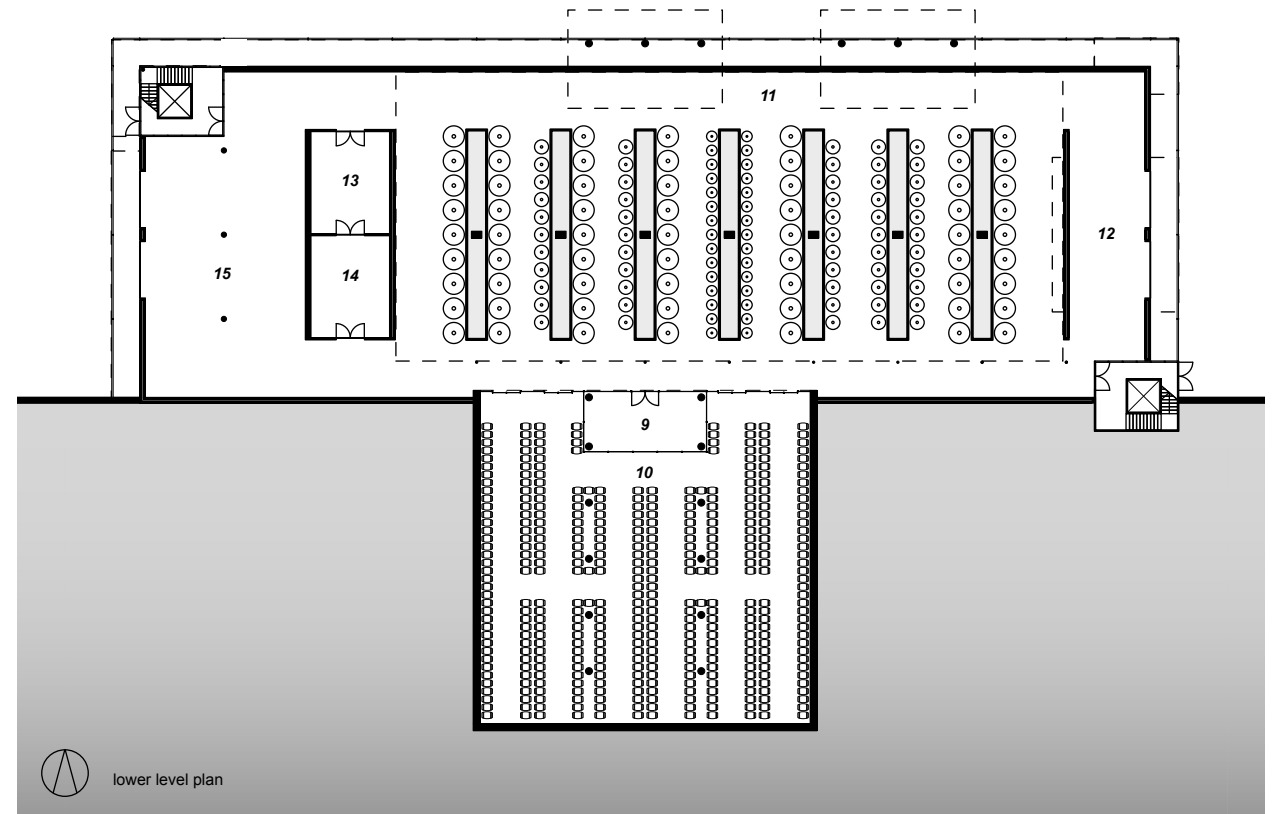
upper level plan

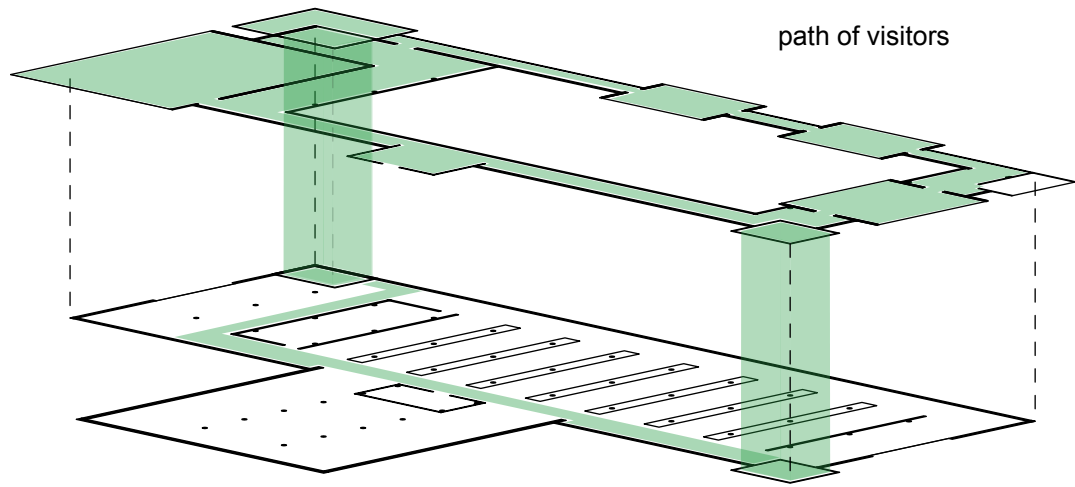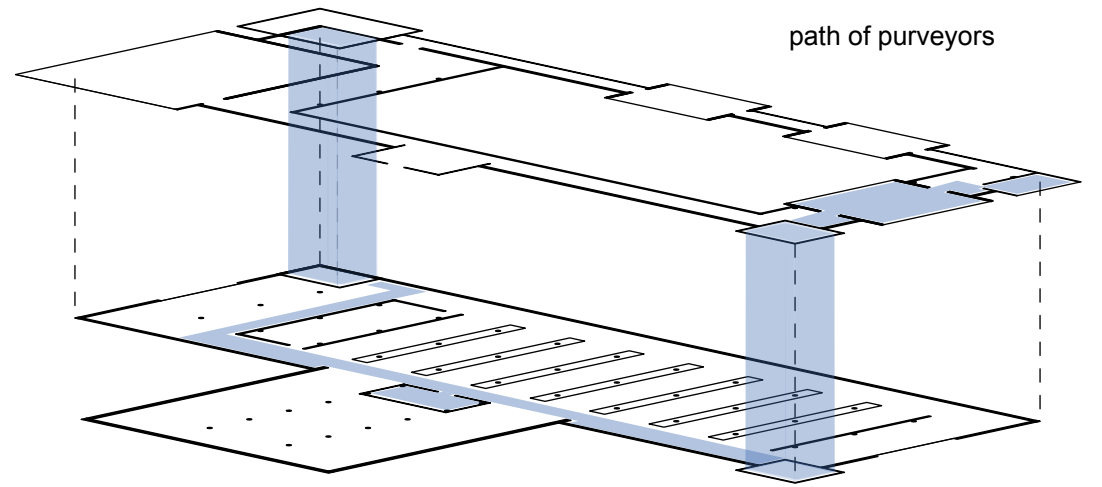lower level plan

path of grapes

path of employees
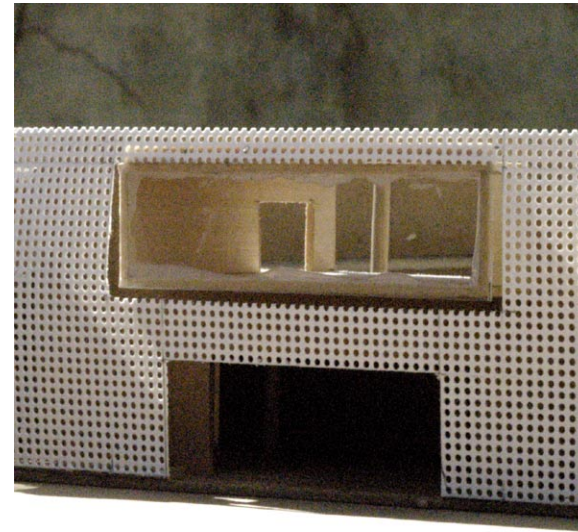
path of visitors

path of purveyors

interpenetrating volumes | overlapping user paths
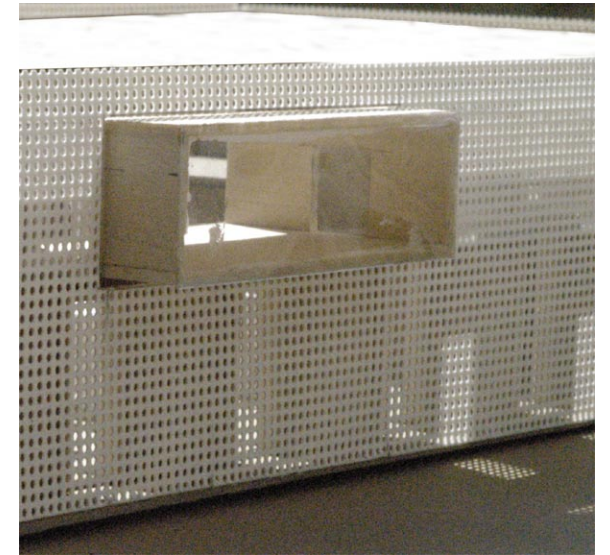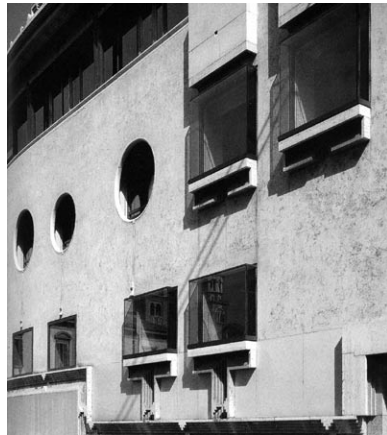
The use of a secondary façade allowed for an additional level of hierarchy to be applied to the various functional volumes inserted through it. Certain elements – tasting rooms and entry – were allowed to project beyond this secondary façade offering a visual and formal clue to their relative importance (*3.13, 3.15*). The remaining volumes, including the restaurant, office, shop, and stair towers were left flush with the screen element (*3.14, 3.15*). Additionally, the use of the screen allows for the concealment of the secondary structure required to support the two tasting rooms, thus enabling them to be read clearly as volumes inserted through two different surfaces.

In a similar way, at the People's Bank in Verona, Carlo Scarpa employed a double-layered façade and a hierarchy of window apertures to compose the façade of the bank extension (*3.16*). Scarpa felt the complex layering of surfaces, materials, and forms was necessary to give what he called "a sense of space…not communicated by pictorial order but always by physical phenomena…this is why I assert that it is the apertures, openings, and orifices that create spatial relationships." (Olsberg)

3.16 | People's Bank, Carlo Scarpa

3.13 | study model, flush shop volume

3.14 | study model, extended tasting room
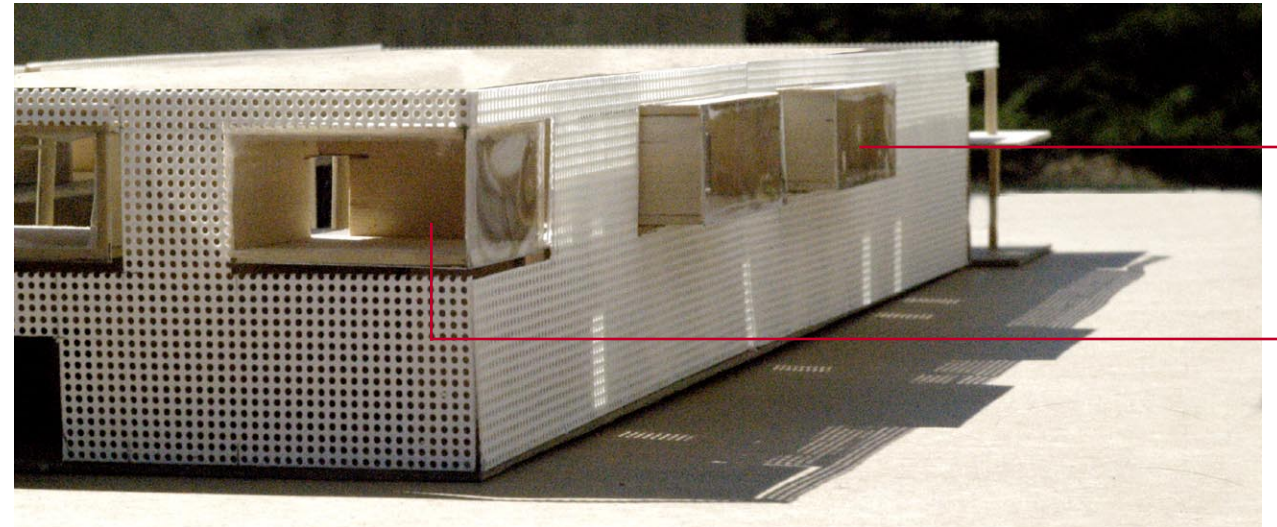
3.15 | study model, overall NE corner, flush and extended volumes are visible

north elevation
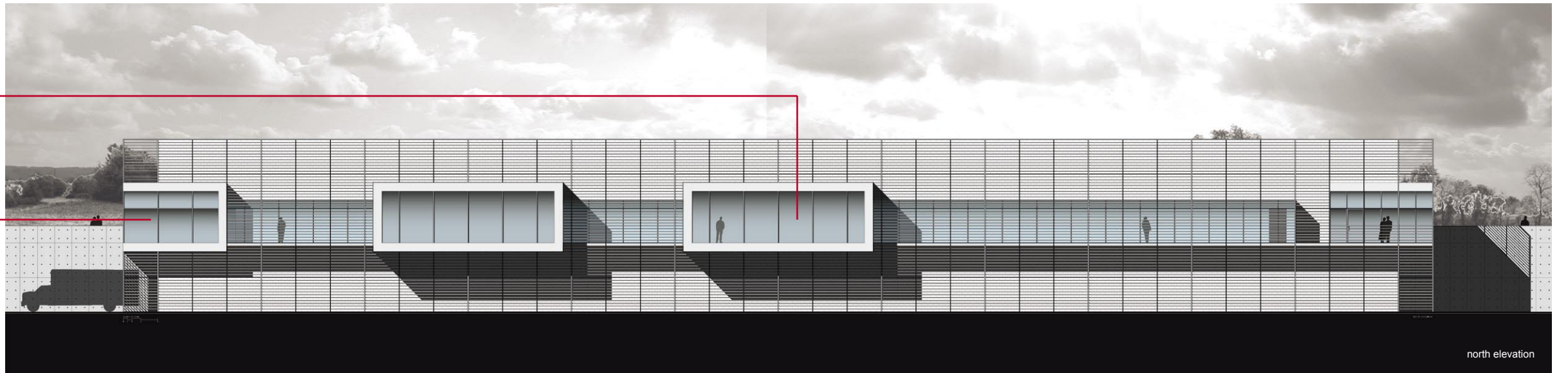
In addition to creating a programmatic hierarchy and various functional paths, the insertion of the various volumes into the manufacturing volume serves to moderate the rather large scale (100' x 300') of the main building and the screen element. As shown in the elevation (previous page), the concrete insertions serve as contrasting figural elements to the large expanses of surface generated through the accommodation of the winemaking process. These elements, each with its own program and therefore its own dimensional properties, provide the overall façade of the building with a variety of scales. This holds true on the inside of the building as well where the tasting rooms offer a more intimate scale to the large fermentation room (*3.17, 3.18*).

3.17 | fermentation room, view of tasting rooms from manufacturing floor

3.18 | longitudinal section looking north
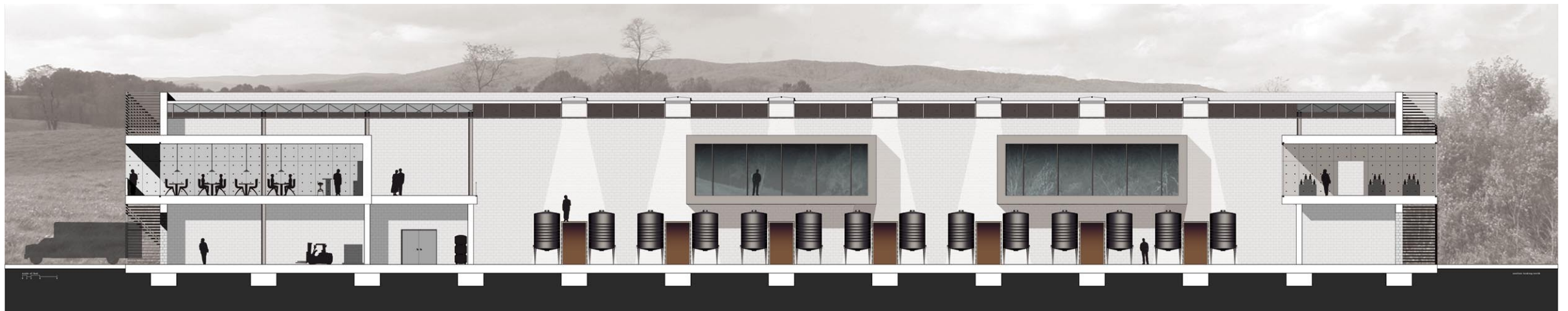
The large glass volumes employed by Herzog and de Meuron at the Tate Modern Art Gallery in London have a similar effect on the monumental scale of the turbine room (*3.19*). In section, one can see how the window volumes act as human-sized scale mediators between the 10-story height of the turbine hall and the two-story height of the circulation spaces adjacent to the turbine hall which make up the gallery proper of the building (*3.21*). Of these volumes, the architects have said the following (Yoshida):

> **The bay windows are self-contained, architectural spaces with more intimate proportions and a different scale than the adjacent concourses or galleries. The bay windows are also architectural bodies that break up the mighty, vertical steel supports of the façade and generate an optical instability. Depending on lighting conditions, the brightly illuminated glass bodies may seem to be suspended in front of the façade, thereby clearly toning down the monumentality of the industrial architecture.**

In a different way, architect Charles Moore brings a vastly different scale to the interior of his house by selectively gouging out three, two-story tower volumes within (*3.20*). The towers were not left isolated as they were further perforated with various apertures allowing the spaces within the house to flow into and out of one another.

A similar effect is achieved in the winery by the manner in which the inserted volumetric figures, as well as the interstitial space, weave themselves into and out of the manufacturing spaces (*3.12*). In this way, a layer of scale manipulation is added to the figure-ground dialogue that is created by the insertion of volumes through the screen and main building.
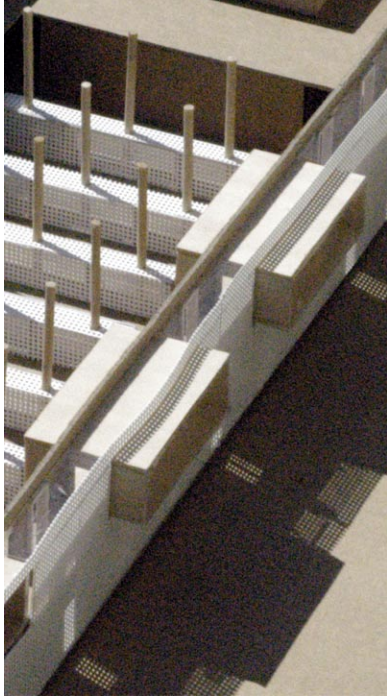

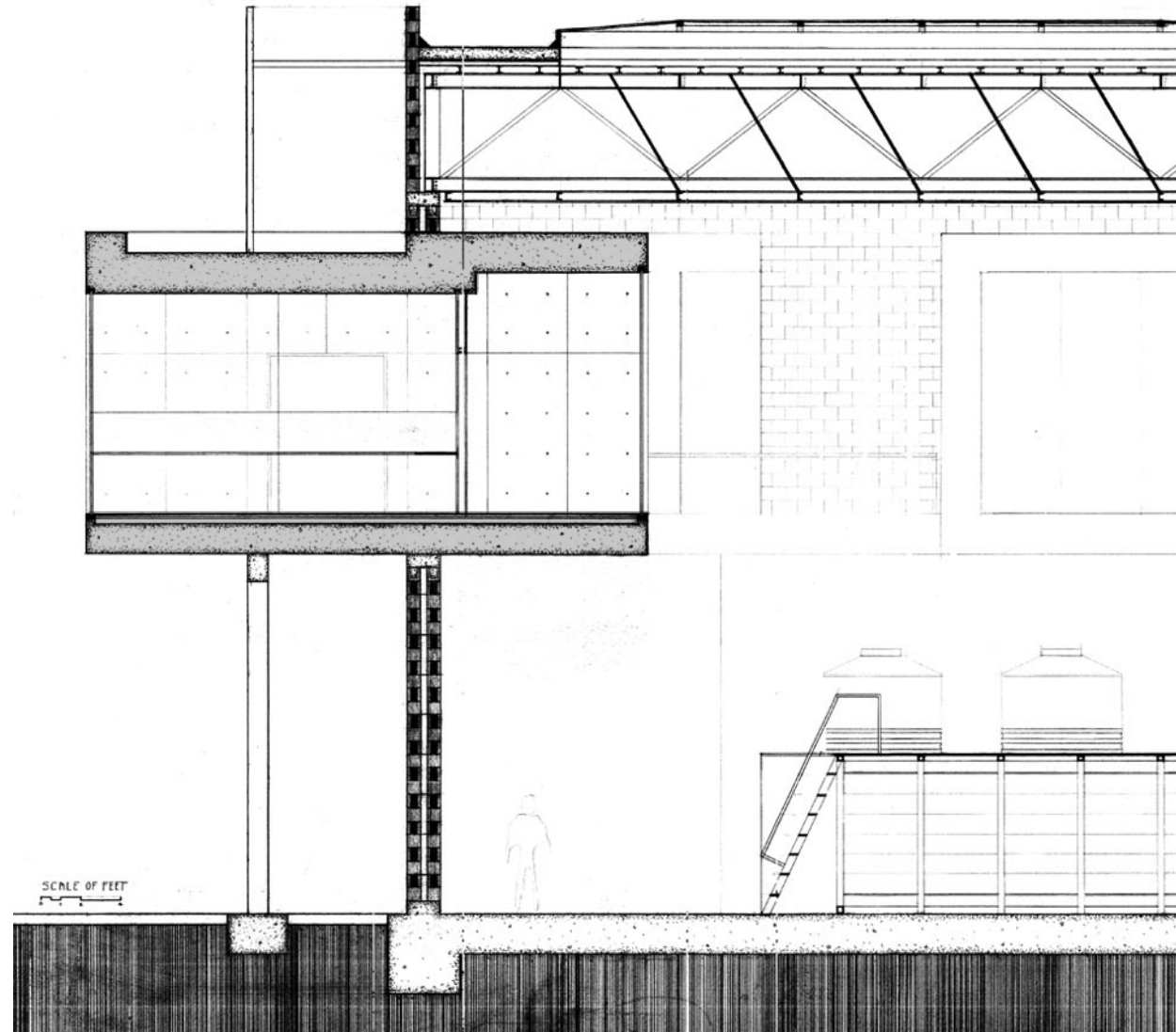*3.19* | Tate Modern Art Gallery, turbine room with glass window bays, Herzog and de Meuron
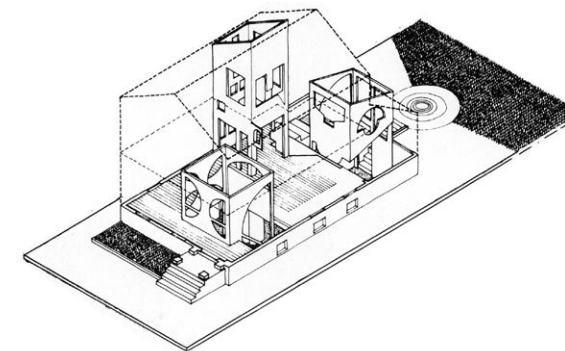
3.20 | New Haven House, Charles Moore, axonometric
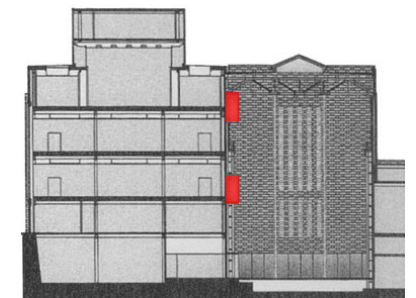
3.21 | Tate Modern Art Gallery, transverse section, bays shown in red

3.22 | model, tasting rooms mediate between the inside and the outside

3.23 | tasting and fermentation rooms, section detail

SCALE OF FEET

In addition to the manipulation of figure and ground, the interpenetration of volumes allows for the mediation of a connection between the inside and outside of the building (*3.22*). This is accomplished at a number of levels in the building. The insertion of the tasting rooms through the façade allows one to experience views of the outlying mountains and vineyard while at the same time gaining access to the fermentation and production process going on within the building (*3.23, 3.24)*. This gesture establishes connections between the visitors, the wine they are drinking, the manufacturing process, and the natural landscape which provided the grapes. At other times, the volumes which penetrate create skylights used to harness sunlight for various functional and architectural needs. A careful investigation was undertaken to tune the lighting properties of the tasting rooms such that the light would become part of the ground surface against which could inspect the clarity of the wine being tasted. Similarly, light volumes penetrate the roof harnessing north light to bathe the cool stainless steel of the tanks in the main fermentation room (*3.23*).

| tasting room, view north into landscape

At the Gipsoteca Canoviana, Carlo Scarpa uses glass volumes, inserted at the corners of the building, to harness the sun and create daylighting conditions appropriate for the illumination of the sculpture within. Two different conditions are created by the apparent penetration of a glass volume through the building envelope - one where the interior space of the building is allowed to 'spill out' beyond the boundary of the wall (*3.25*) and a second where the exterior space seems to impinge itself on the interior volume (*3.26*).

The effect of these corner treatments allows for sunlight to fall on a vertical surface, diffusing the light and reducing glare while at the same time allowing Scarpa to "cut up the blue of the sky." (Los) The effect is both functional and architectural. The insertion and placement of the glass window boxes ensures the proper disposition of light for the sculptural figures housed within the space while at the same time making the aperture volumes active participants in the architectural composition of the room.


3.25 | Gipsoteca Canoviana, Carlo Scarpa, exterior window detail

3.26 | Gipsoteca Canoviana, Carlo Scarpa, interior window detail

interpenetrating volumes | interior/exterior connection

The insertion of volumes into and through one another provided a suitable means to address a number of programmatic and architectural concerns as well as the main idea of the creation of clear figure-ground relationships. A clear and coherent set of paths, to meet the varied needs of the users of the building, was created with the various volumes serving as destinations as well as points of overlap. Smaller volumes housing various functions became the special figures set against the backdrop of the manufacturing process. Additionally, these elements served as manipulators of scale necessary to architecturally moderate the large size of the manufacturing building. Finally, at a yet smaller scale, interpenetrated volumes were used to mediate visual and physical connections between the inside and the outside – both in terms of the control of view as well as the harnessing of light to meet specific needs.

3.27 | next page, light guns, la Tourette monastery, Le Corbusier
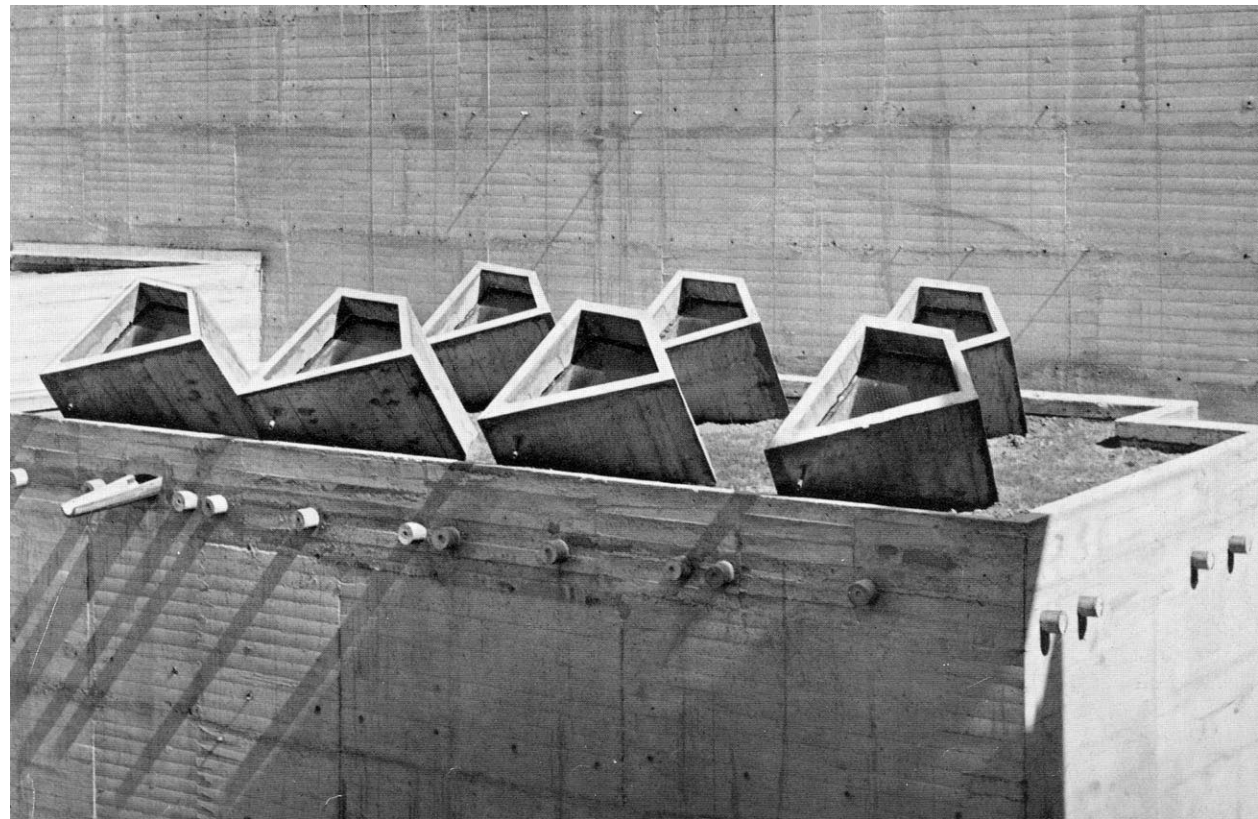
nuanced surface
development

It is in the careful development of surfaces, particularly as ground elements, that an increase in visual clarity – achieved through careful reduction and deployment of the material palette – reaps the most benefits. As has already been suggested, for an element to maintain its figural qualities, it must be set against an appropriately proportioned and scaled backdrop. This thought has served to guide a number of decisions regarding the development of the various surface elements in the winery. It is hoped that a more rigorous approach to the treatment of surfaces will make them more active participants in the overall composition and experience of the building. This approach to the design of surfaces can be found in the work of a number of architects. A statement made by artist Vito Acconci, in reference to his work with Steven Holl on the facade redevelopment for the Storefront for Art and Architecture, offers a concise summary of this idea (Ritter):

> **What I like is that this façade is not a cover, not a surface – it's a space-maker; it's an instrument between the inside and the outside.**

This project employs a complex, moveable façade which creates a condition having both exterior and interior implications. A set of tilting and rotating panels defines a spatial boundary while at the same time offering a complex mediation of space between the inside and the outside. When closed (*4.1*), the façade reads as a thin skin, stretched along the sidewalk – when open (*4.2*), the various panel positions define a complex set of spatial conditions which literally straddle the line between the city and the gallery. Through a simple act of transformation, a ground element is converted into a set of figures. This idea would suggest that, beyond a mere environmental barrier – a line drawn in space – the envelope of a building can be developed in a specific way to create a more nuanced relationship between the spaces within and immediately outside of the building.
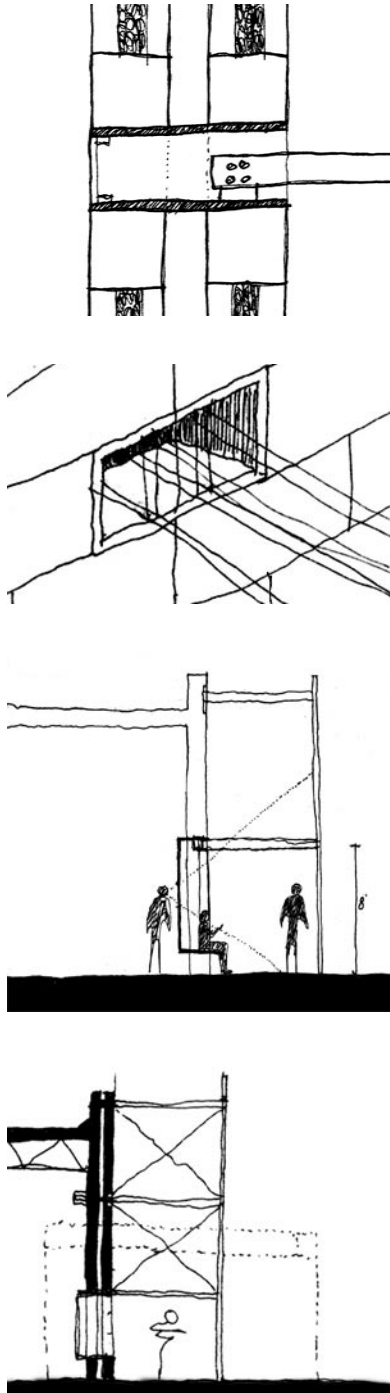
To approach this idea of a surface or façade acting as a space-maker between the inside and the outside of the winery, a careful relationship was established between the masonry wall and the secondary screen facade. In their defining of an inside/outside, interstitial space, it was important that the screen not be read as a free agent, independent of the masonry walls, but as a constituent extension of the main wall. For these two parts to work in concert as a single active element there needed to be a clear relation between the two. This relationship was created through the careful detailing of the screen.
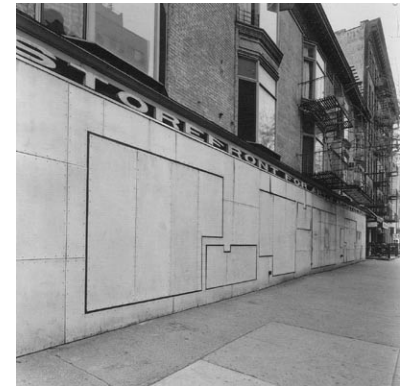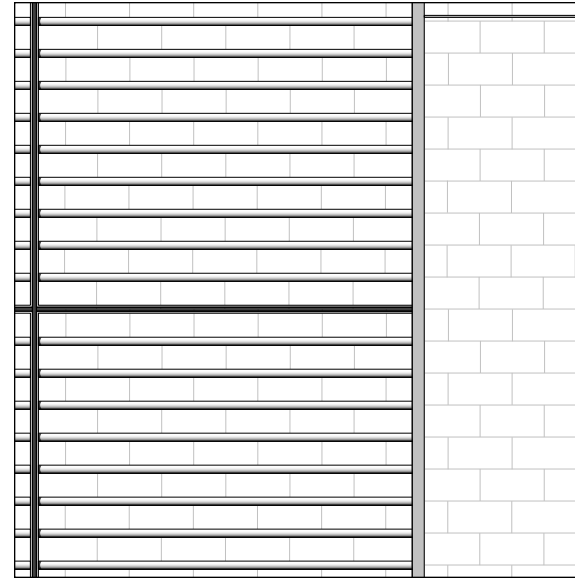

4.1 | Storefront for Art and Architecture, closed

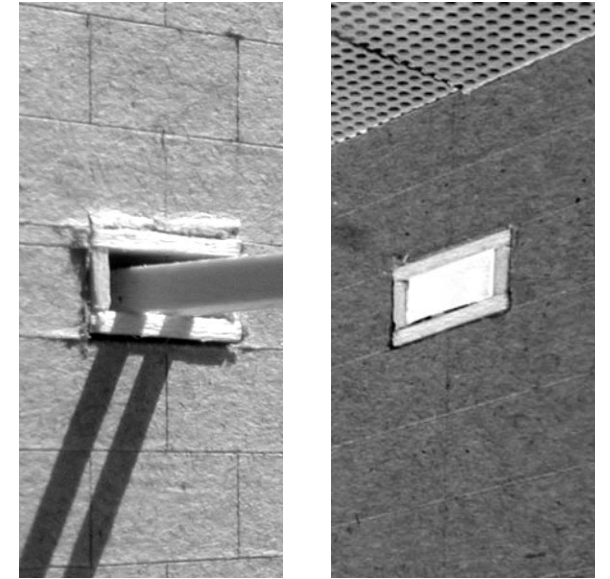*4.2* | Storefront for Art and Architecture, open

4.4 | screen and masonry share the same dimensional module

4.5 | support structure for the screen facade is related to the module of the masonry and has implications on both the exterior and the interior

4.3 | screen facade, development sketches

First, the spacing of the bars composing the screen, originally set at 6", was changed to 8" in response to the modular dimension of a standard masonry unit (*4.4*). Secondly, rather than being a self-supporting structure, independent of the masonry, the screen is dependent upon the main façade wall for support. To further relate the parts of the screen assembly to that of the main façade, cues were taken from the masonry in the development of the structural detailing for the screen (*4.3*). Finally, the screen was given interior implications through the subtle mapping of the structural intersections on the inner face of the masonry wall (*4.5*).

Through the development of these two surfaces, a more active interstitial space is created that acts as a middle ground - a volumetric façade - mediating the passage between inside and outside. Additionally, this space becomes a canvas – a ground in and of itself – where a complex array of light, shadow and color plays itself out along the southern façade (*4.7*). This idea of an indoor/outdoor interstitial space was first developed

in a previous project as an entry condition. There, the screen element served to define the entrance to the building and to create an urban room for the city.

At the Reconciliation Church in Berlin, architects Reitermann and Sassenroth use a wooden screen to define a space between the interior rammed-earth chapel and the churchyard (*4.8*). This space creates a transition zone and was also developed to pay homage to a church formerly on the site. In this building, the screen was maintained as a free agent, independent from the main church. This is evidenced in both the structure, which is mostly independent from the church, and the development of an asymmetrical concentric geometry (*4.9*). Similar to the winery, this interstitial space becomes an area where complex patterns of light and shadow are introduced to animate the space. In all these cases, however, a complex relationship of surfaces was developed towards the end of creating a mediating middle ground between the inside and the outside.
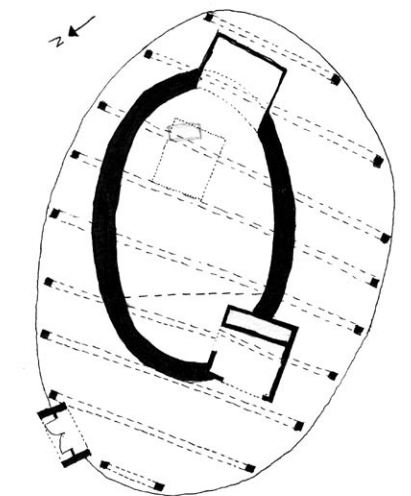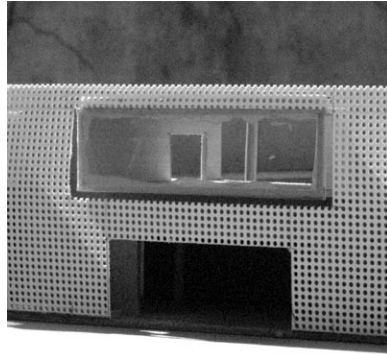
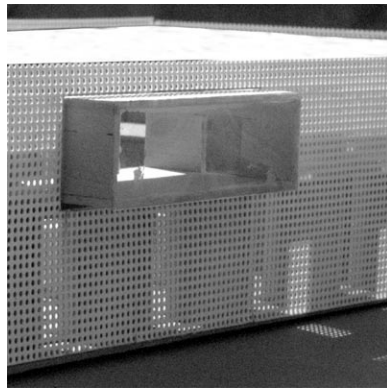4.7 | interstitial space development; figures of shadow, light, and color

4.8 | Reconciliation Chapel, Berlin, interstitial space

4.9 | Reconciliation Chapel, Berlin, plan sketch

4.6 | secondary screen facade

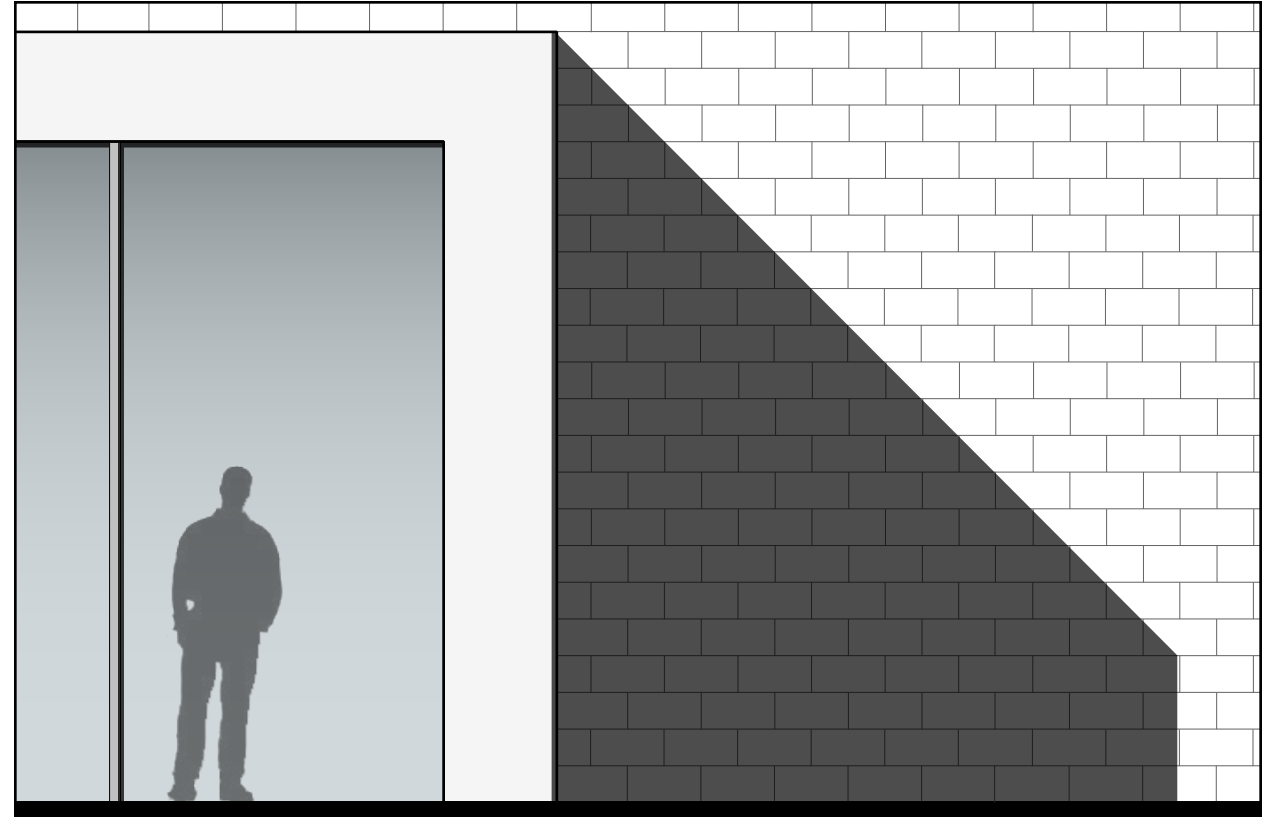*nuanced surfaces | integrating facades*

4.10 | flush volume (top); extended volume (bottom)

4.11 | masonry ground for tasting room figures

4.12 | right, detail, concrete entry volume and masonry wall

Consistently, whenever possible, surfaces in the winery were made to appear as taut, regularized membranes that wrap themselves around the space. It has been found, through previous projects and various precedents, that this approach to surface treatment allows for the clear presentation of figural elements – be they large spatial volumes or small figures of sunlight. There are two main ground surfaces in the winery serving as backdrops for the refined concrete volumes – the masonry wall of the main structure and the screen element wrapped around the exterior. Forming the exterior façade, the metal screening element assumes the role of a veil, suspended 8' from the main building. As described, the various concrete volumes are inserted either flush with this surface, or 8' beyond as dictated by the overall hierarchy (*4.10*). The screen was developed in such a way as to be clearly read as a textile backdrop for the presentation of the

figural volumes. In a similar way, the concrete masonry wall serves as a ground element for several different types and scales of figures, both on the interior and the exterior of the building. As already indicated, this surface serves as the interior ground for the concrete and glass volumes which house the various functions of the winery (*4.11*). To establish visual clarity, these volumes were dimensioned appropriately to interface well with the 8" module of the concrete masonry units (*4.12*). In this way, the connection between the concrete and the CMU is simplified with no need to cut block other than in half.

In addition to the large elements, a number of smaller elements such as small window boxes (*4.13*) on the front façade and structural connections for the attachment of the screen take on the role of figures in this masonry background. As was done for the larger
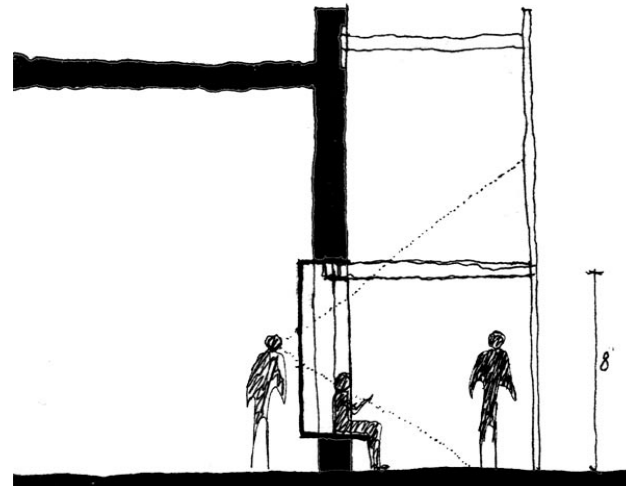
ones, these figures were developed paying careful attention to the ground in which they are inserted – taking standard block dimensions as guide for the development of the details (*4.14*).

The treatment of surfaces as taut planes, with subdued rhythm, finds precedent in the work of the neoclassical architect Sir John Soane. Soane freely transformed the classical idiom to meet his goals – an architecture where surfaces were developed as clearly articulated planes into which coffers and windows can be inserted (*4.15*). The interior surfaces of his buildings were treated not as complex assemblies of built-up moldings but as taught planes and lines into which the traditional elements were inserted. Inherent to this approach is visual clarity and discipline which allows for differences in volume and surface to be clearly read against a more inert, taught surface. One can see a similar treatment of surface in the Reconciliation Church in Berlin. Similar to the winery, a wooden screen element is treated as a veil wrapped around the inner sanctuary of the church. Here, a single entry volume and the symbol of the cross are the only figures juxtaposed against the regular, subdued rhythm of the vertical wooden slats (*4.16*). A reduced material palette and careful detailing establishes clear figure-ground relationships that can be used as an architectural tool for composing the building.
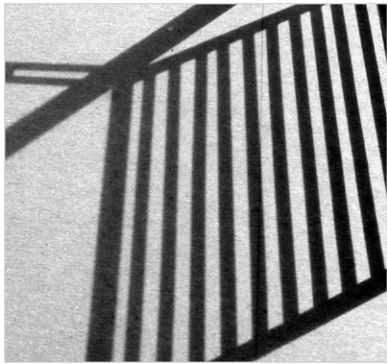

4.13 | window box, exterior (above) and interior (below)

4.15 | Bank of England, Sir John Soane

4.16 | Reconciliation Chapel, Berlin

4.14 | window box, section development sketch

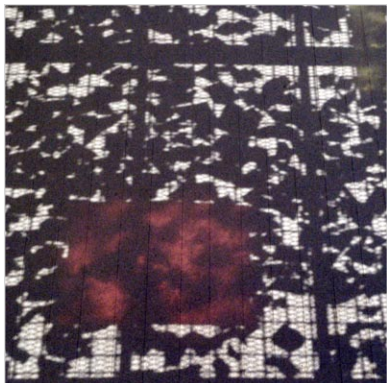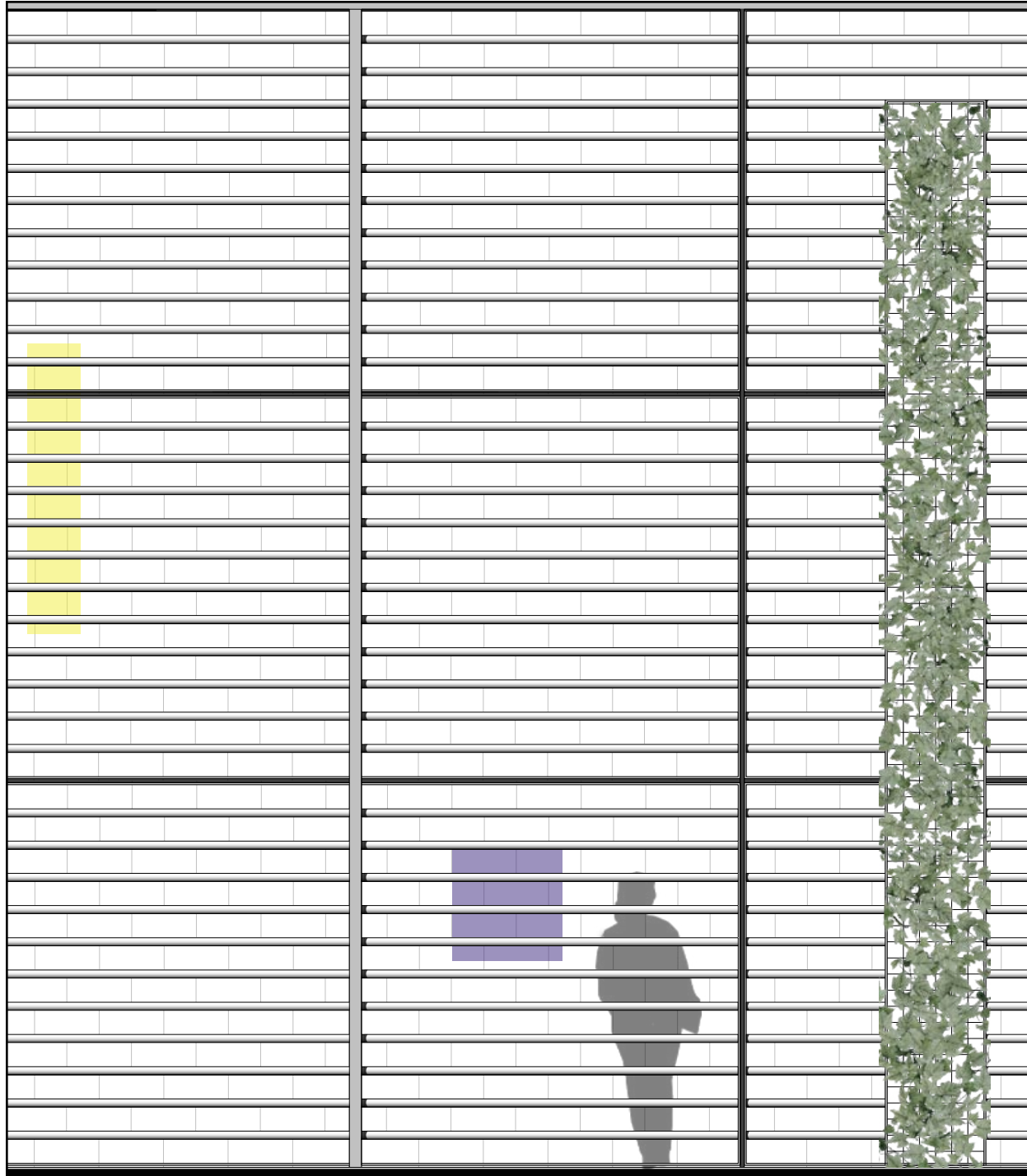*nuanced surfaces | taut surfaces*

4.17 | shadow patterns

A third way in which surfaces were carefully considered was in their use as both active manipulators of light and as passive canvases for light. The screen on the south façade was developed as a multilayered manipulator of sunlight. The repeating horizontal bars create a pattern of shadows that washes across the interstitial space (*4.17*). In addition, small zones of controlled vegetation add a different scale as well as a different pattern of shadow to the composition (*4.17, 4.18*). Finally, irregularly placed translucent colored panels create colored figures that lay themselves across the

shadow patterns between the screen and the masonry wall. The screen surface, in addition to being a ground for the concrete volumes, becomes an integral player in the creation of figures of shadow, light, and color.

Similar effects were achieved by Herzog and de Meuron for the Dominus Winery in California. There, mesh cages filled with various sizes of stones create a stone veil that acts as a secondary façade for the winery. In addition to functioning as a heat sink, the stone acts as a light screen, diffusing and scattering

light into a myriad of patterns which fall on the surfaces of the interior of the building. At night, from the exterior, the winery seems to be perforated with light. Frank Lloyd Wright, at a smaller scale, does a similar thing in his Usonian houses. He used wooden screen elements over windows to create figures that march across the interior surfaces of the building as the day passes (*4.19*). In both of the examples, we see the integral way that a carefully employed, permeable surface can manipulate and control sunlight towards the end of enlivening architectural space.
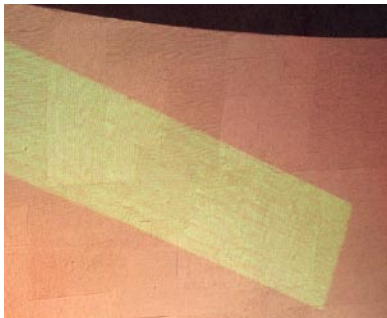
4.19 | Usonian House, F.L. Wright, window screen

4.18 | south facade screen detail
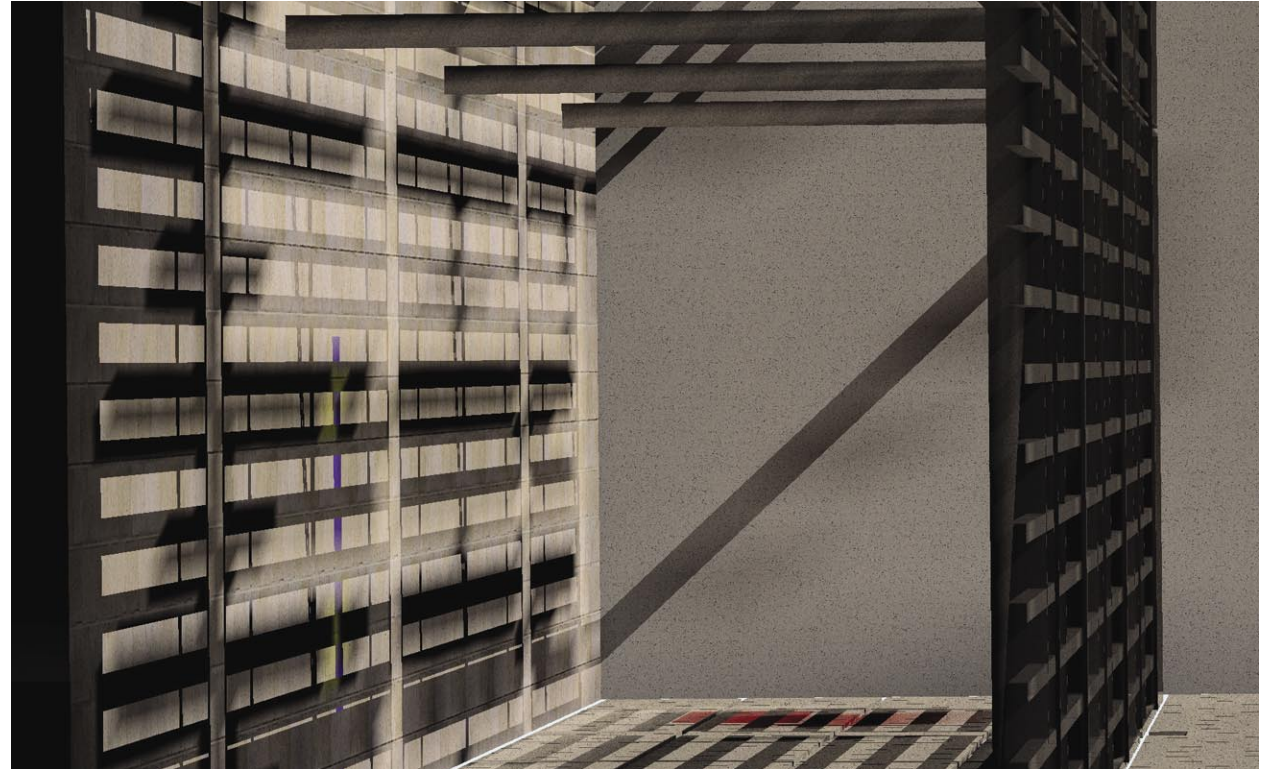
4.21 | interstitial space, masonry as backdrop for light, color, and shadow
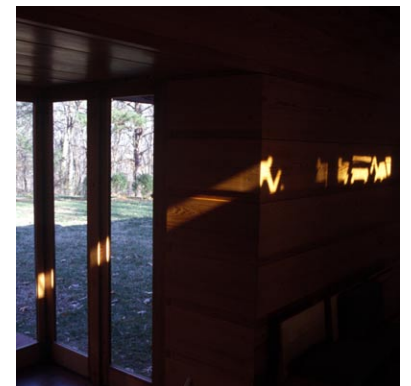
4.20 | Chapel of St. Ignatius, Steven Holl, plaster detail

Of equal importance is the treatment of the ground surfaces on which the light figures will fall. Similar to the creation of other figure-ground relationships, the surface must be carefully developed to serve as a suitable ground. For the masonry wall which will receive the array of light and shadow created by the screen (*4.21*), a smooth finished concrete block, with similarly colored mortar, was chosen. Though this surface has its own texture, its treatment as a large unadorned surface makes it an appropriate canvas for interacting with light.

At the Chapel of St. Ignatius, Steven Holl carefully developed the plaster surface of the interior walls to receive the various light patterns and figures (*4.20*). Here the plaster is applied so as to achieve a rough texture, and the effect is a more subtle falling off of the light as it washes across the surface than would be possible with a smooth finished material. The way that light can be manipulated by a surface or material, as well as the way surfaces should be prepared for receiving light, is an integral part of the overall composition of the architectural spaces.

A final point considered in the development of the masonry wall and the screen was in their ability to unify the overall composition and offer a degree of scale manipulation. As has already been stated, the large size of the manufacturing volume required measures that would help to bring it down to a more human scale. This was partly accomplished through the various concrete volumes which were inserted in the building (*4.22*) and was carried even further through the human-sized proportions provided by the CMU and the small screen elements. In this way, as one approaches the building, an ever-smaller scale of elements is presented which creates a more comfortable relationship to the human body. Additionally, the large size and multitude of elements necessitated a degree of compositional unification. The use of the screen element, wrapped around the whole building (*4.23*), created this unification as it was able to serve as a relatively refined ground element for all of the larger figures which are inserted into it.

A similar approach was employed at the Nordic Embassy complex in Berlin where a screen of copper panels was used to unify the design which included nearly half a dozen buildings all designed by different architects (*4.24*). The slightly permeable copper slats offer a diminished scale, thus avoiding any reference to a monolithic security wall, and defines the complex as a unified whole as opposed to a collection of disparate buildings.

4.22 | below, south elevation of secondary facade

4.23 | right, secondary screen as unifying element in winery

nuanced surfaces | unifying surfaces
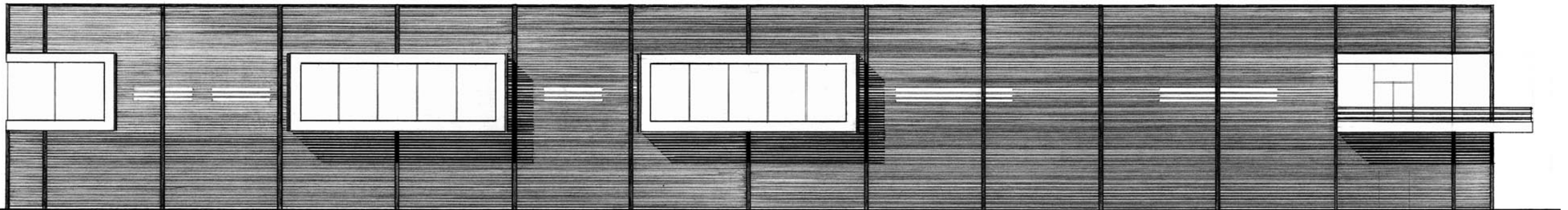
Achievement of the desired clarity of the various figures against the ground necessitated a rather rigorous approach to the development of the various surfaces in the winery. This approach to the treatment of the building surfaces led to the careful development of the masonry wall and screen ground elements against which the various figures play themselves. In this way, the clarity of the figures against the ground can be easily read while still allowing the background elements to maintain certain pleasing properties of their own. The careful treatment of surfaces in terms of their material, method of assembly, and various functions allowed each surface to perform a number of roles in the final composition of the winery. Paying careful attention to the nature of the materials enabled the various surfaces to be used as ground elements, as manipulators of light, and as suitably-scaled unifiers of the overall composition.

*4.25* | next page, rammed earth wall and steel beam

light

In an essay written in 1993, architect Tadao Ando makes the following statement about what light can do for architecture (Dal Co):

For such reasons, I view as profound the role of natural light, which can speak to us – at any point in our built environment – with remarkable immediacy of 'place' and 'time.' Through precise inquiry and detailed attention, I seek to lead light into the interior of architecture in a manner that will inform space with depth, and produce richly stimulating places.

The reading of his statement and the creation of light that will "inform space with depth" can be taken as describing both the quantitative and qualitative aspects of light. The role of light is therefore seen as essential to the development of many of the aspects of the architecture of the winery. Sunlight was used in a number of ways both as a primary element – an end – as well as a secondary element – means. Light was used in a number of ways, at different scales within the building, in support of the functional and architectural intentions behind a given condition.


*5.1* | grapevine rows, Valhalla Vineyard, Roanoke, Virginia

light | informing space
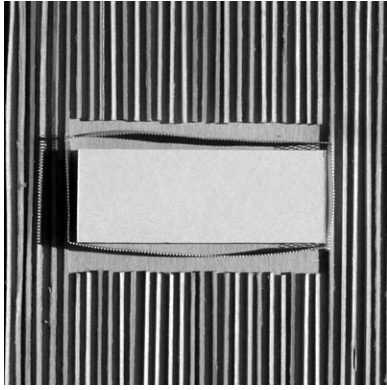
5.2 | early site model, building in relation to vineyard

At the scale of the overall site, the orientation of the vineyard rows relative to the sun imposed an inherent order that began to structure the architectural response (*5.2, 5.3*). To maximize sun exposure, vineyards are typically laid out with the vines running north to south. In turn, the 8' spacing of vineyard rows, and the general spatial properties present between adjacent rows, became a module used in the determination of various aspects of the winery. This included the bay spacing (24 feet) and the size of the interstitial space (8 feet). At a smaller scale, light and shadow becomes a set of figures used to animate the interstitial space between the two façades. In a more subtle way, light was used as part of the overall composition of rooms in service of a certain functional need within the building. In this way, the careful integration of specific lighting conditions participated in the creation of a variety of figure-ground relationships within the winery.


5.3 | site plan

light | structuring of site and building
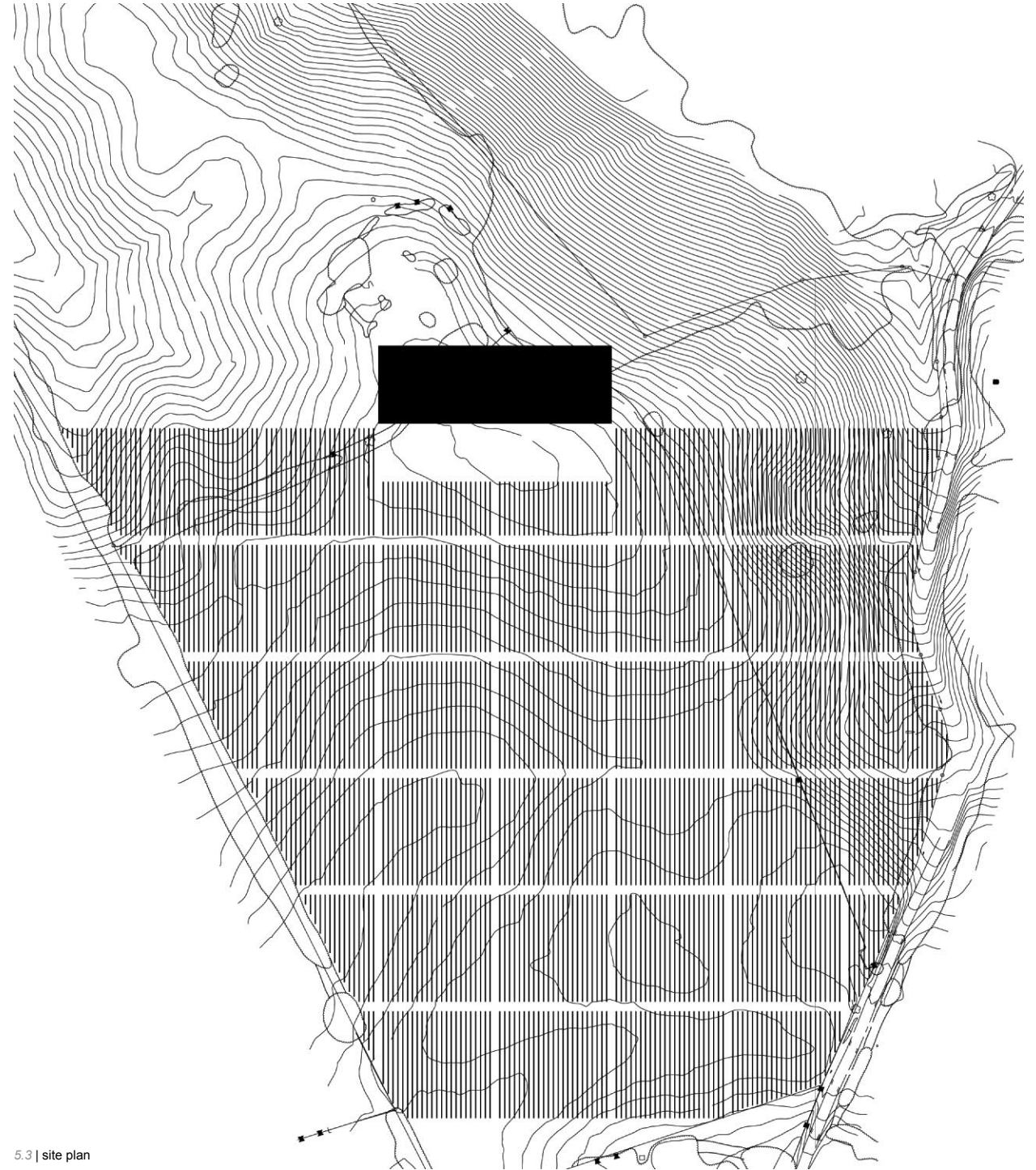
A careful study, through sketches and models, was undertaken to develop the best spatial and lighting properties for the presentation and sampling of wines in the two tasting rooms. Initial schemes developed an interior volume within the tasting room as a 'box of light' in which wine would be tasted (*5.5*). The deployment of a pair of nested volumes allowed for a discrete tasting area while still allowing the main volume to maintain its role in the overall circulation path. The room within was developed through a series of iterations to develop the best disposition of table space relative to the overall quantity and type of light (*5.4*). It was determined that a reduced material palette coupled with carefully placed diffuse light would be ideal for the inspection of the clarity of glass of wine. In the tasting rooms, light is treated in a non-overt manner and is allowed to subtly fall on the wooden shelf upon which the glass of wine is presented (*5.6*). In this way, diffuse light harmonizes with the overall composition of shelf and glass to create a complex ground composition (*5.8*).
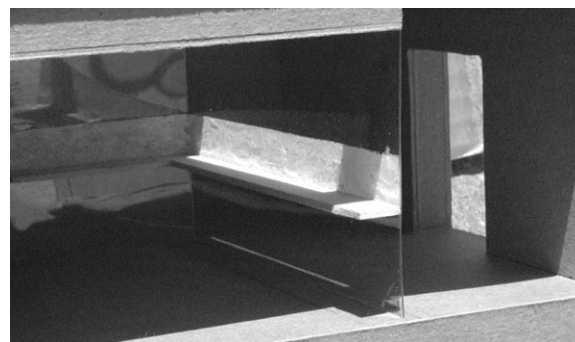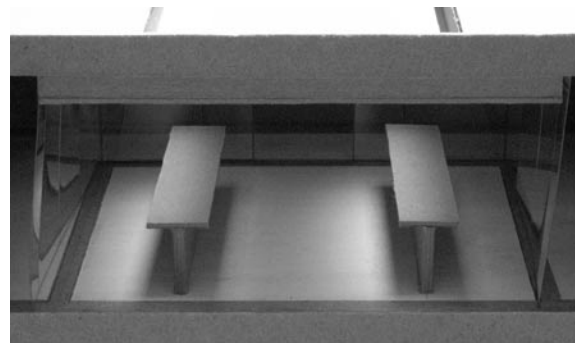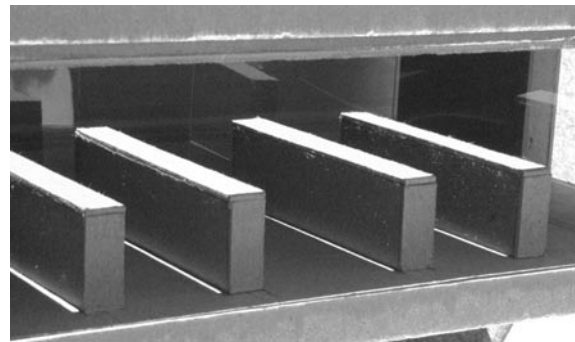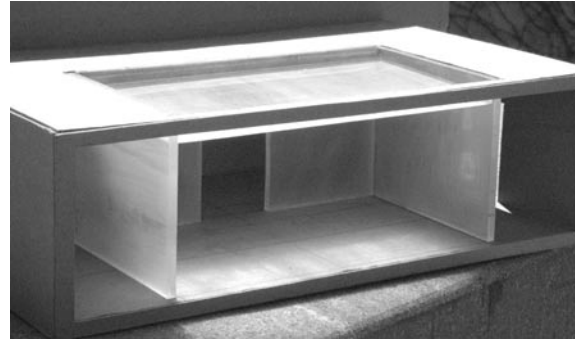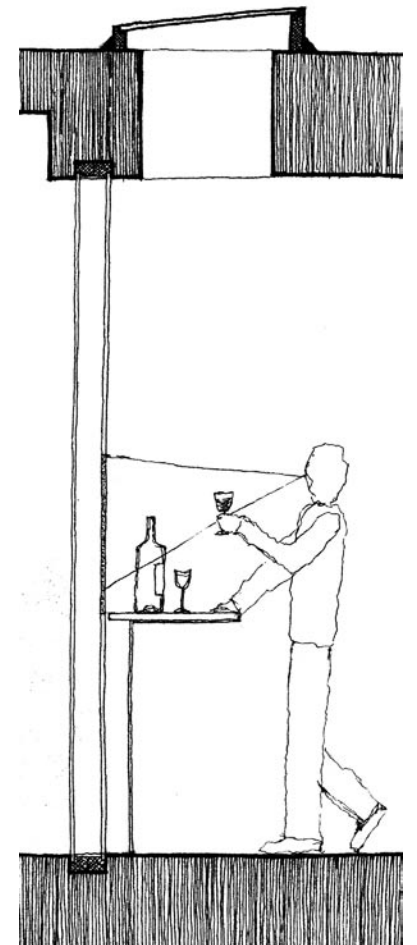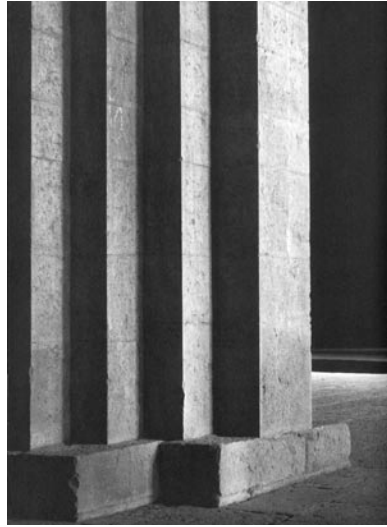

5.4 | light studies and models of tasting rooms
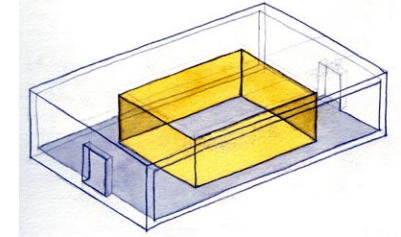
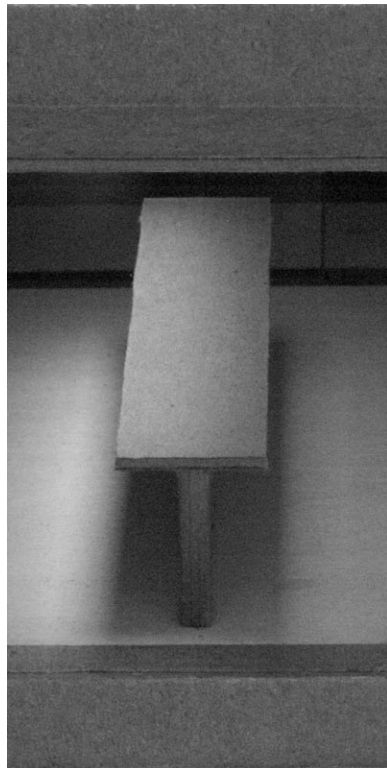*5.5* | early scheme, nested light volume

5.6 | section study, tasting surface

light | informing space

49

5.7 | Le Thoronet Abbey, Lucien Herve photographer

5.8 | diffuse light falling on tasting room table

light | light as secondary element

Similarly, in the room housing the fermentation tanks, north light is admitted through louvered skylights to bath the cool stainless tanks in a subtle blue light (*5.9*). Thus, the qualitative color characteristics of light are taken advantage of in support of an architectural intention – a cool space for fermentation to proceed uninterrupted. In these ways, light is treated not as an end of itself but as a means to achieve an architectural and functional goal.

A similar approach can be seen in the architectural composition of the Cistercian abbeys of 12th and 13th century Europe. Here, light is part of an integral composition of unadorned stone (*5.7*). In works like this, proportion, scale, and material texture – enlivened by daylight – become the keys to the development of the qualitative character of the space. Le Corbusier, referring to the French abbey le Thoronet, remarked that "light and shade are the loudspeakers of this architecture of truth, tranquility and strength. Nothing further could add to it." (Herve) In his essay "In Praise of Shadows," Jun'ichiro Tanizaki poetically writes about the subtle interaction of the light and surface in the following way (Tanizaki):

> **We delight in the mere sight of the delicate glow of fading rays clinging to the surface of a dusky wall, there to live out what little life remains to them. We never tire of the sight, for us this pale glow and these dim shadows far surpass any ornament.**

For these spaces in the winery, light plays a key role in the overall composition – it is a necessary and essential secondary element in the overall context of these rooms.

5.9 | longitudinal section, fermentation room

light | light as secondary element
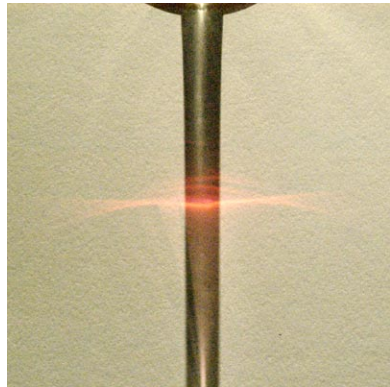
5.10 | detail, light refraction created by wine in a glass

5.11 | investigation of color and shadow in the interstitial space

5.12 | right, refracted color superimposed on shadow

While light takes on a subdued role in certain spaces within the winery, in other places it is used in a more overt and contrasting way as an architectural end – a figure – of itself. Specifically this occurs along the main (south) façade of the building where the screen element creates a complex composition of light, shadow, and color along the ground and wall of the interstitial space. An investigation into the qualitative aspects of light, color, and shadow in this space was undertaken through photography, watercolor sketches, and detailed study models.

The initial idea of overlaying fields of color on repeated shadow patterns came from a photographic study of the consequences of sunlight passing through a glass of red wine (*5.10, 5.12*). This idea was developed through sketches, models, and light studies to include controlled areas of vegetation, the repeating bars of the screen, and small patches of colored glass (*5.11, 5.13, 5.15*).

Here, the dynamic and changing qualities of the light suggest movement - in support of the architectural function of this space as a means of passage between parts of the winery. The light, and its interaction with the surfaces, defines the primary architectural statement in this space – similar to the stark repeated patterns found along the cloisters at le Thoronet (*5.14*) and Le Corbusier's la Tourette. In the interstitial space, as in certain places of these monasteries, the architecture shapes itself around the creation and presentation of certain lighting conditions. Light becomes the defining characteristic of these spaces.
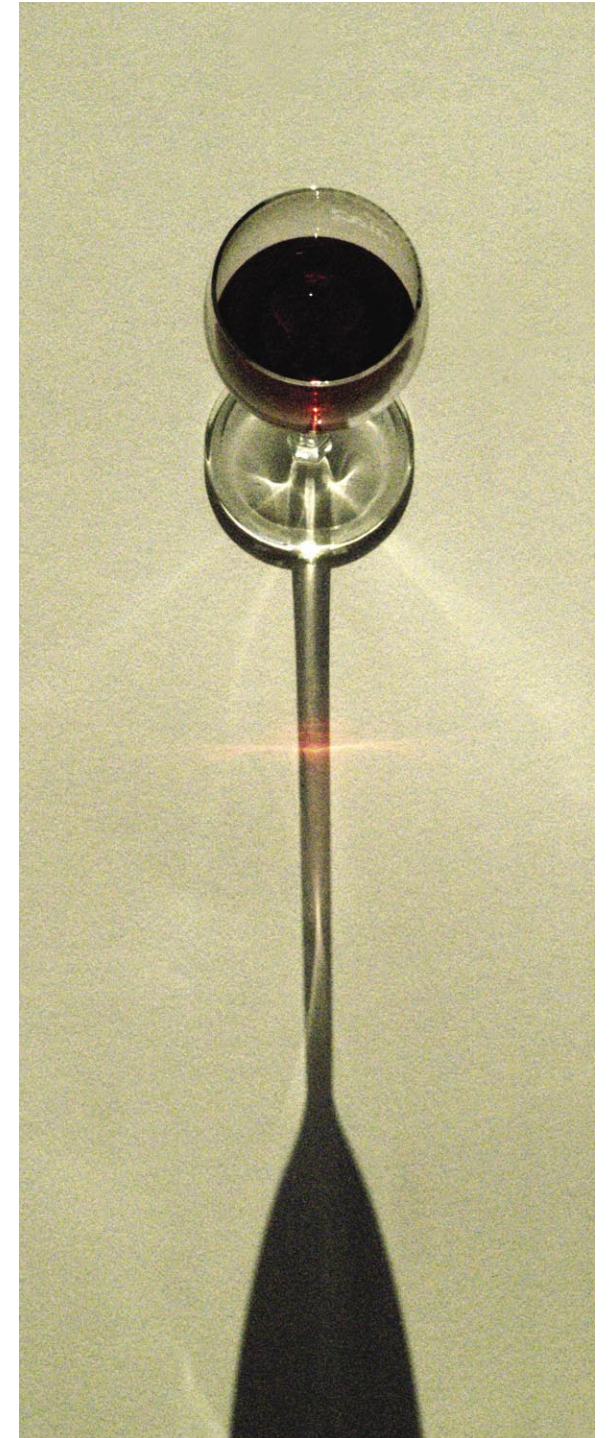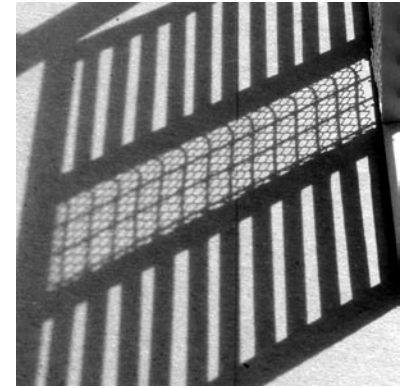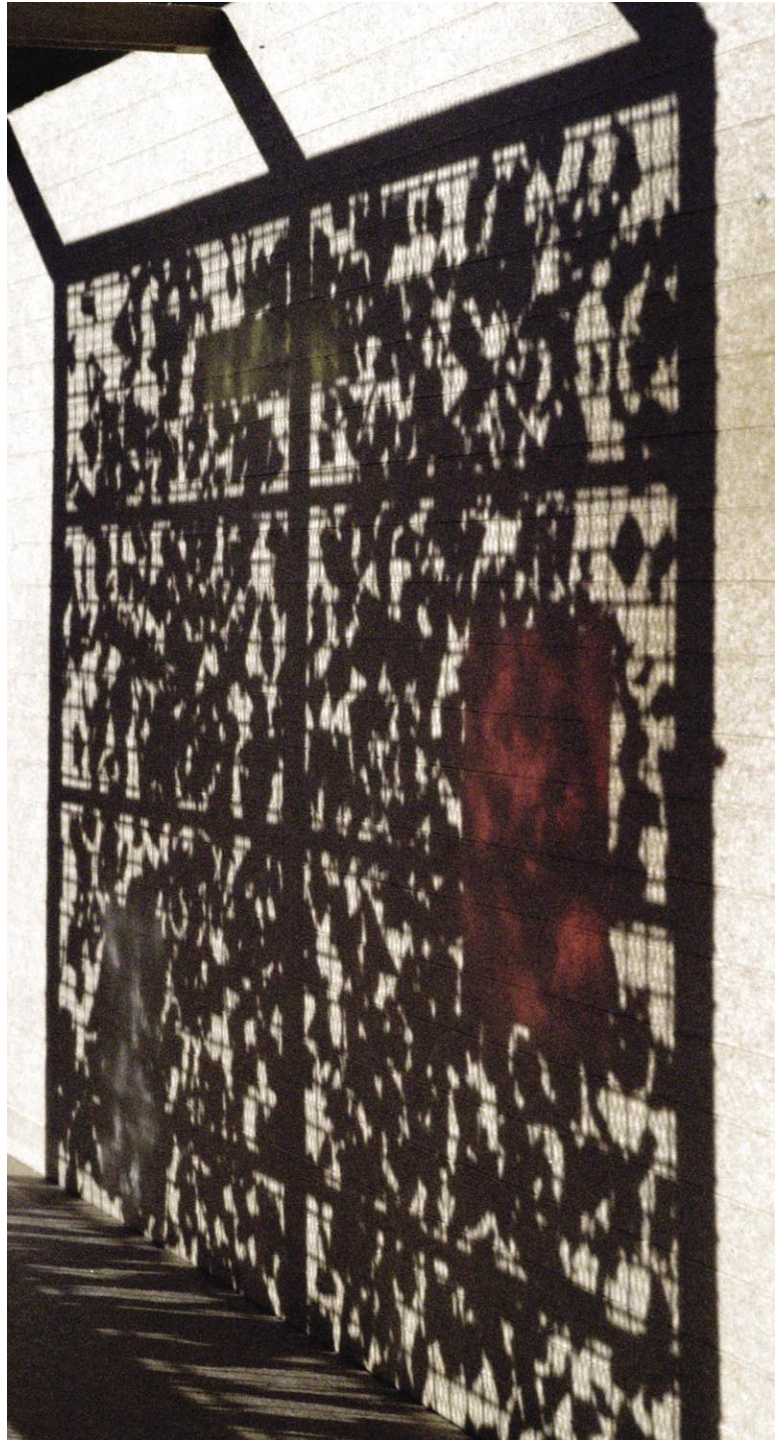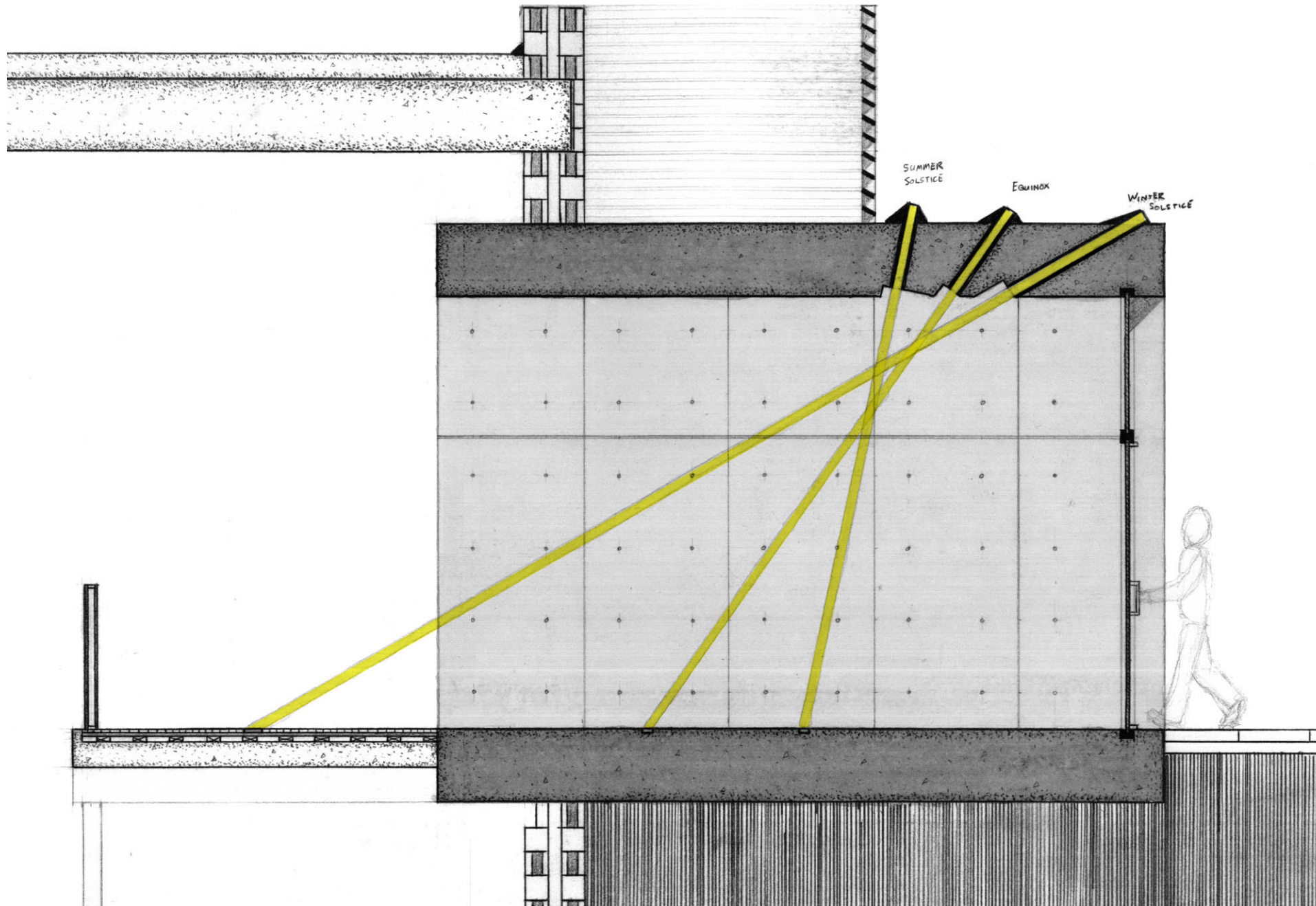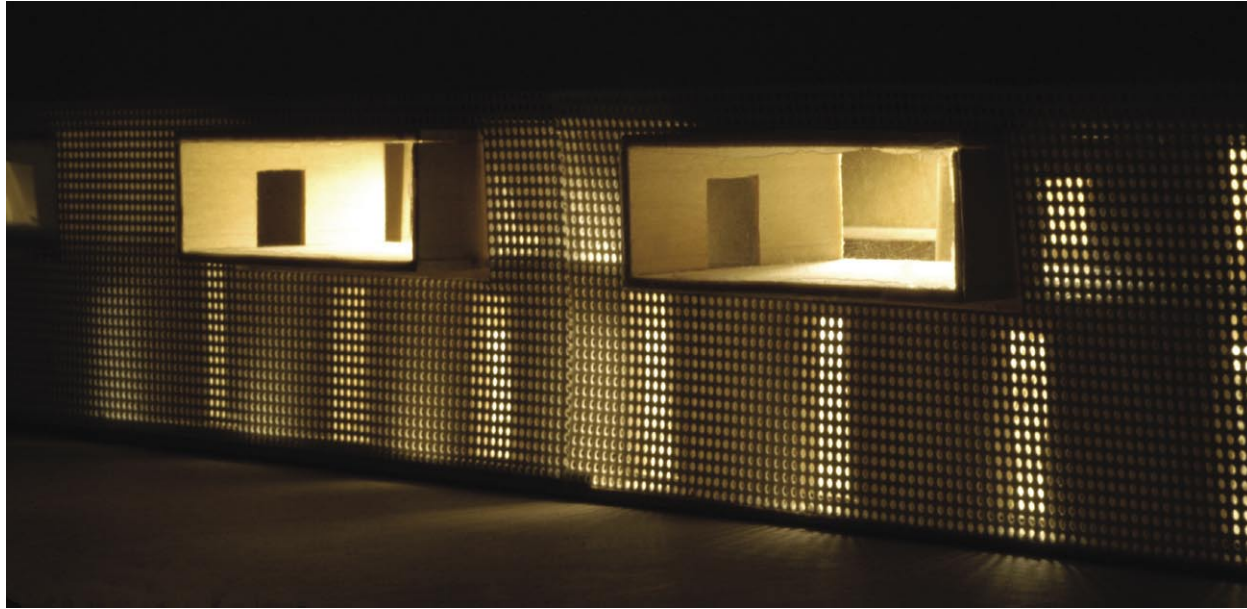
5.13 | screen development, regularized shadow patterns

5.14 | Le Thoronet, cloister, Lucien Herve photographer

5.15 | left, screen development, fields of color overlaying a foliage shadow pattern

light | color + shadow

SUMMER
SOLSTICE

EQUINOX

WINTER
SOLSTICE

5.16 | entry section, detailing the seasonal light wells

5.17 | night view of permeable screen element

In addition to the creation of certain figure-ground effects, light also has the inherent property of being able to be manipulated in a time-dependent fashion. Sunlight can be harnessed in such a way as to take advantage of its hourly, daily, and seasonal modulations. An effort was made to connect the production of wine with its agrarian history and the tradition of noting the change in seasons based upon the position of the sun. This was accomplished by the insertion of three 'light tubes' into the roof of the concrete entry volume (*5.16*). These tubes are oriented such that, at noon on the two solstices and two equinoxes, a shaft light is admitted to illuminate a spot on the floor, thus paying homage to the traditional planting and harvesting seasons.

The use of a permeable screen element to wrap the building allows for the creation of distinct daytime and nighttime conditions. During the day, the screen presents a somewhat opaque surface while at night the building becomes a lantern in the landscape with light spilling out into the countryside (*5.17*). The dynamic and controllable nature of light (both electric and from the sun) allows for the creation of a multitude of time-dependent conditions that can be used to create architecture in lieu of complex formal and material relationships.

light | tracking time

Regardless of the final way that light is employed in a given space, there is still the necessity of taking a pointed and rigorous approach to its use. That is, light cannot be treated as incidental – it must be treated like a material in and of itself. In the words of artist James Turrell, "the task is to do something that makes thingness out of light." (Turrell) It is this respect and treatment of light that is compelling about Turrell's artwork. Through his art installations and building illuminations (*5.18*), he is manipulating architecture and architectural space through the careful and rigorous deployment of light. Indeed his critique of architecture comes in the *ad hoc* way that light is treated – as "rarely done in the way that light activates the space and makes it alive." (Turrell 2) It is only through the careful investigation and deployment of light that meaningful architectural spaces can be created and achieve Ando's goal to "inform space with depth, and produce richly stimulating places." (Dal Co)

5.18 | next page, *Afrum-Proto*, James Turrell
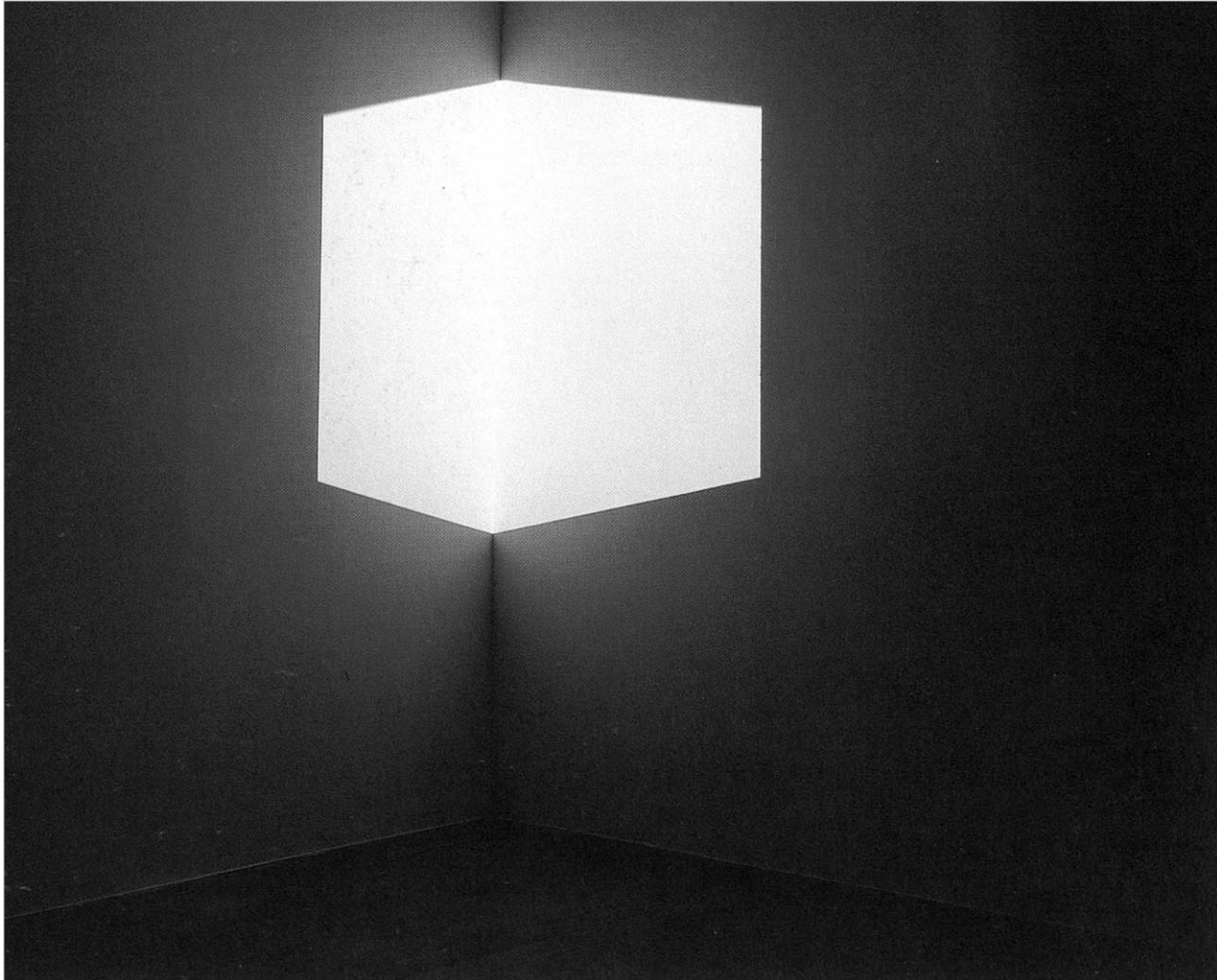
3 compositions
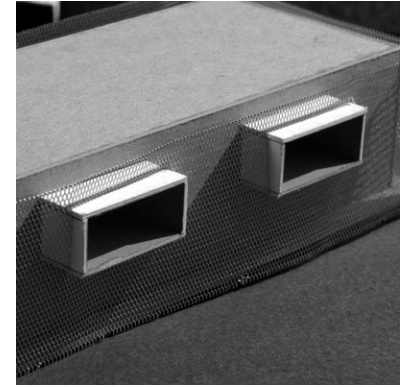
6.1 | tasting rooms

Three compositions – a tasting room, the fermentation room, and the interstitial spaces between the two southern facades – are presented as a means to discuss the manner in which the various ideas previously presented were combined. This includes the design strategies described as well as the integration of figure-ground relationships, visual quiet, and material rigor. Each of the spaces presents and combines these ideas in different ways towards the ends of meeting architectural as well as programmatic needs.

The tasting rooms (*6.1*) are refined places designed to accomodate the elegant and focused consumption of wine. Inside, volume, material, surface, views, and light are combined into a single composition that works wholly in support of the act of winetasting. The fermentation room (*6.2*) forms a central core around which many aspects of manufacturing and visitation occur. The room is a large, double-height space bathed in cool north light and readily adaptable to the variable needs of production from year to year. The interstitial space (*6.3*) along the south facade serves purely architectural purposes as a zone of transition and a place to experience and enjoy changing conditions of light and shadow.
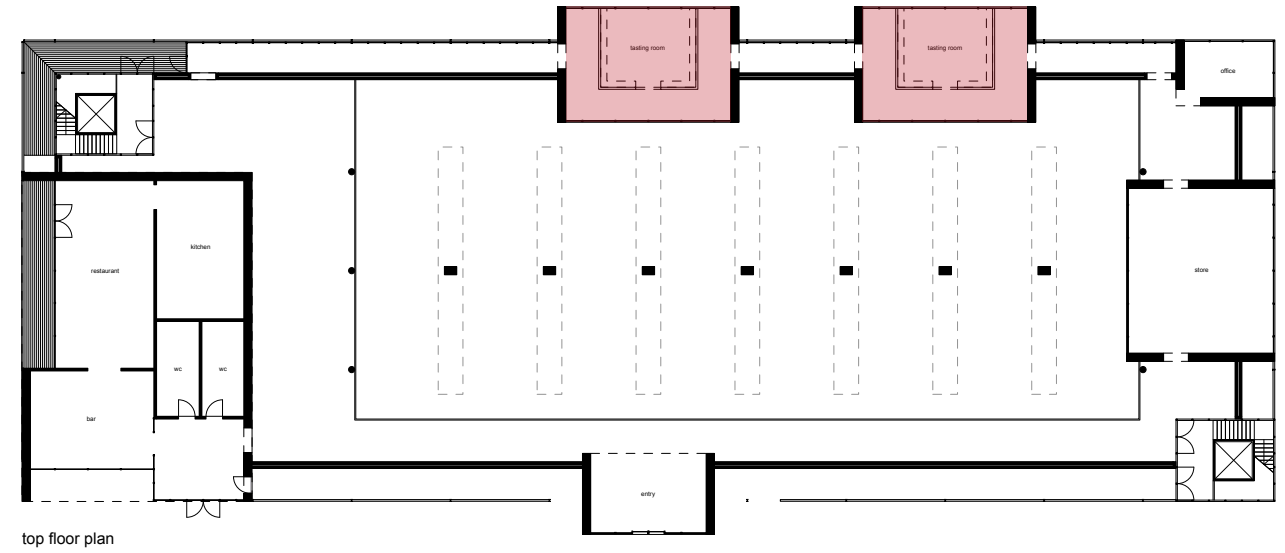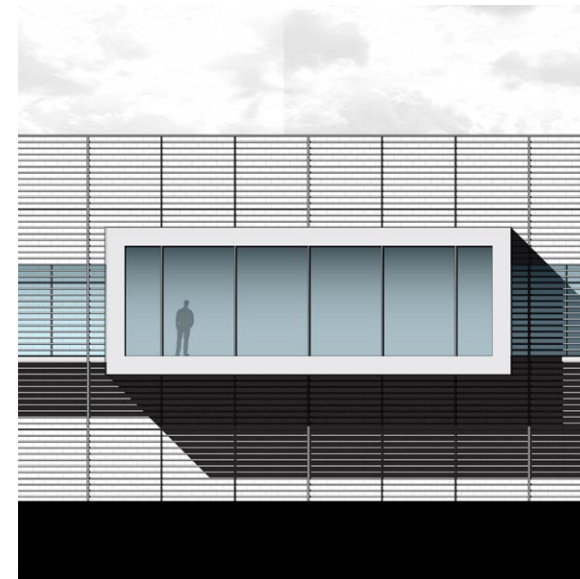

6.2 | fermentation room

6.3 | interstitial space between two facades
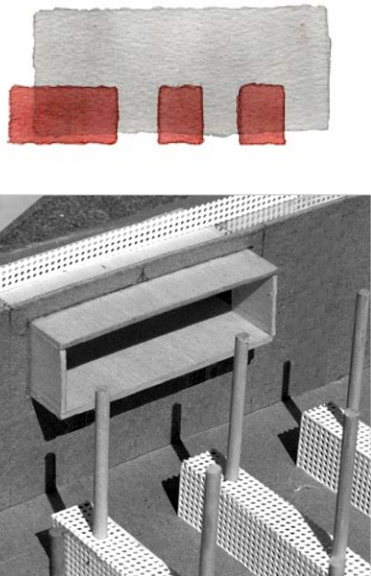
three compositions | introduction

The tasting rooms are small, refined concrete and glass volumes inserted through both the masonry wall and the screen wall. One room is reserved for the tasting of white wines while the second is for reds. This approach to the sampling portion of a winery tour allows for multiple groups to progress through the winery at the same time. The tasting rooms are suspended volumes, inserted through the facades along the upper floor, which extend into the fermentation room as well as out into the landscape.

top floor plan

*three compositions | tasting rooms*

exterior view of tasting room


interior view of tasting rooms

The insertion of these rooms helps to bring a more intimate scale to the rather large scale of the external and internal elevations. Additionally, a visual and spatial connection is developed between the manufacturing on the inside and the vineyard landscape on the outside. The tasting rooms were developed as the main figural elements on the northern side of the building and assert their programmatic importance by extending beyond the secondary façade. Similarly, the tasting rooms take on a prominent role in the spatial composition of the main fermentation room. On the interior, the masonry wall provides the ground while on the exterior the screen wall creates the backdrop for the two rooms.

view from tasting room out into landscape
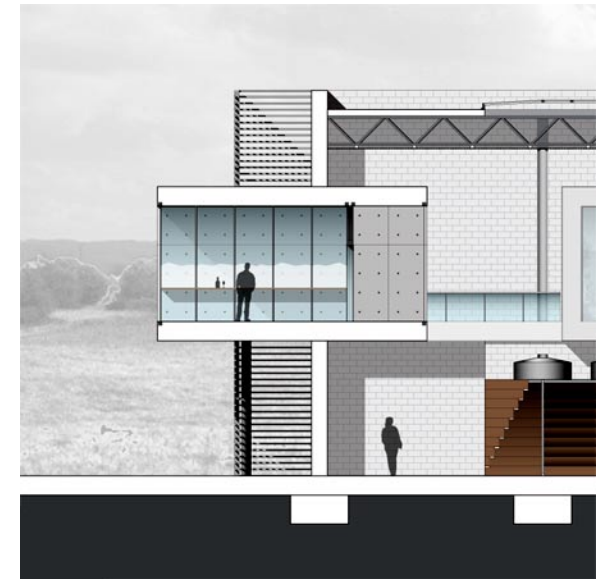
section through tasting room

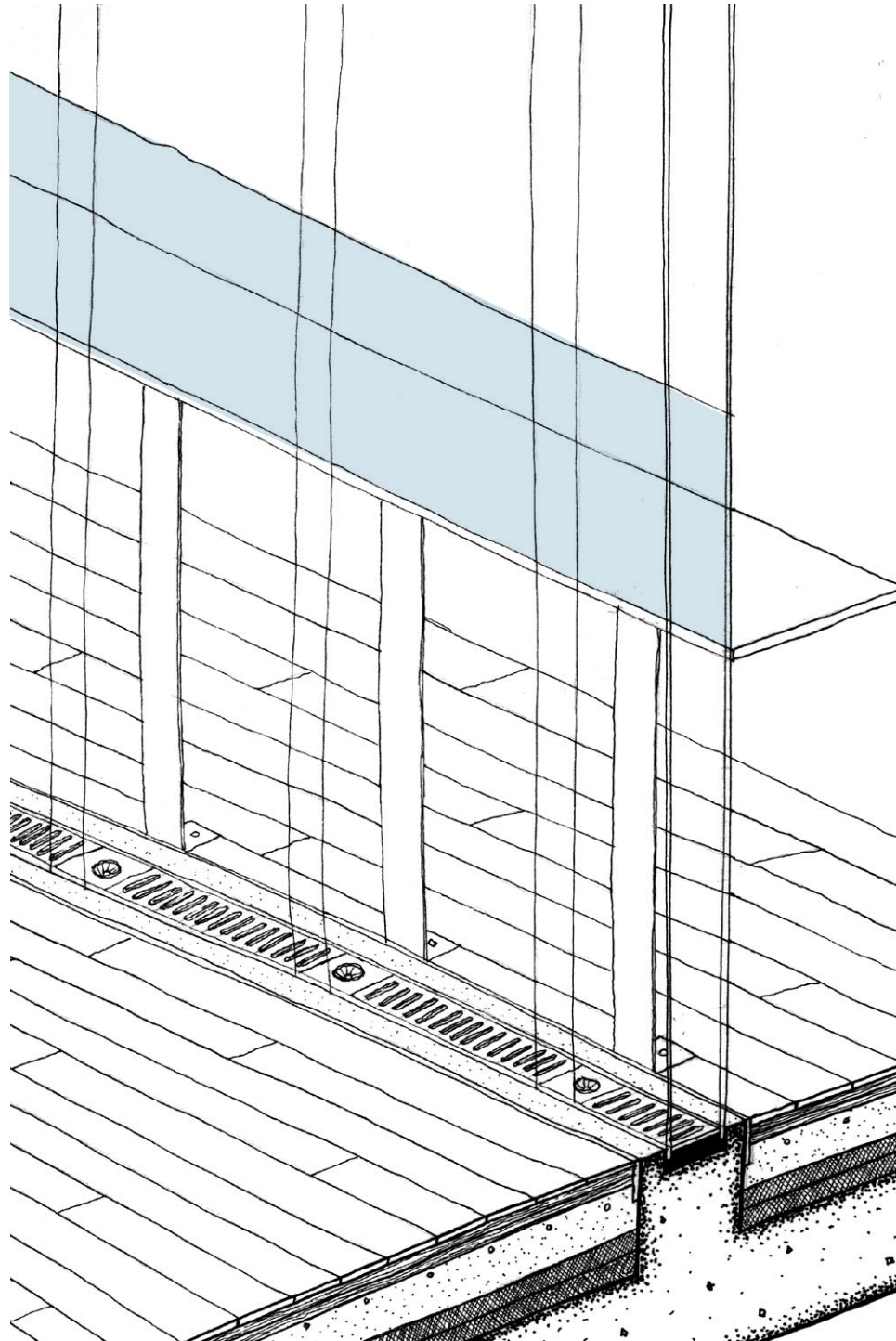
three compositions | tasting rooms
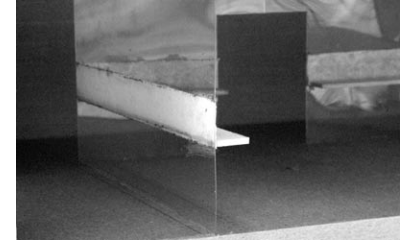
investigations of nested volumes
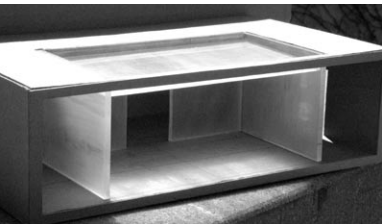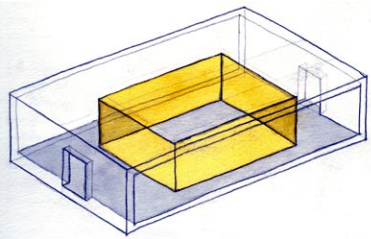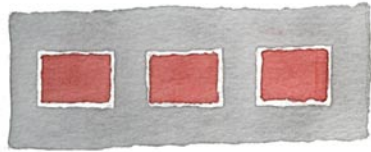
At a smaller scale, a nested figural volume of glass was developed within the concrete tasting rooms. The further segregation of spaces within enables the volumes to maintain a dual role as both path and destination. A careful investigation was undertaken to develop these spaces so as to provide an ideal environment for the sampling of wine. A visually reduced, unornamented wooden shelf forms a surface along the glass partition walls for the placement of glass, bottle, and materials for making notes. A frosted glass surface serves as a backdrop for the inspection of the color and clarity of the wine. Both shelf and frosted glass are subtly illuminated with relatively diffuse, indirect light from a skylight. The use of a double-layered glass partition allows for electric lighting from within and thus enables the tasting rooms to be utilized in the evenings. The material palette is reduced – concrete walls and roof, wooden floors and shelf, glass and steel partition (*6.4*) – and the materials are carefully deployed with respect to one another.
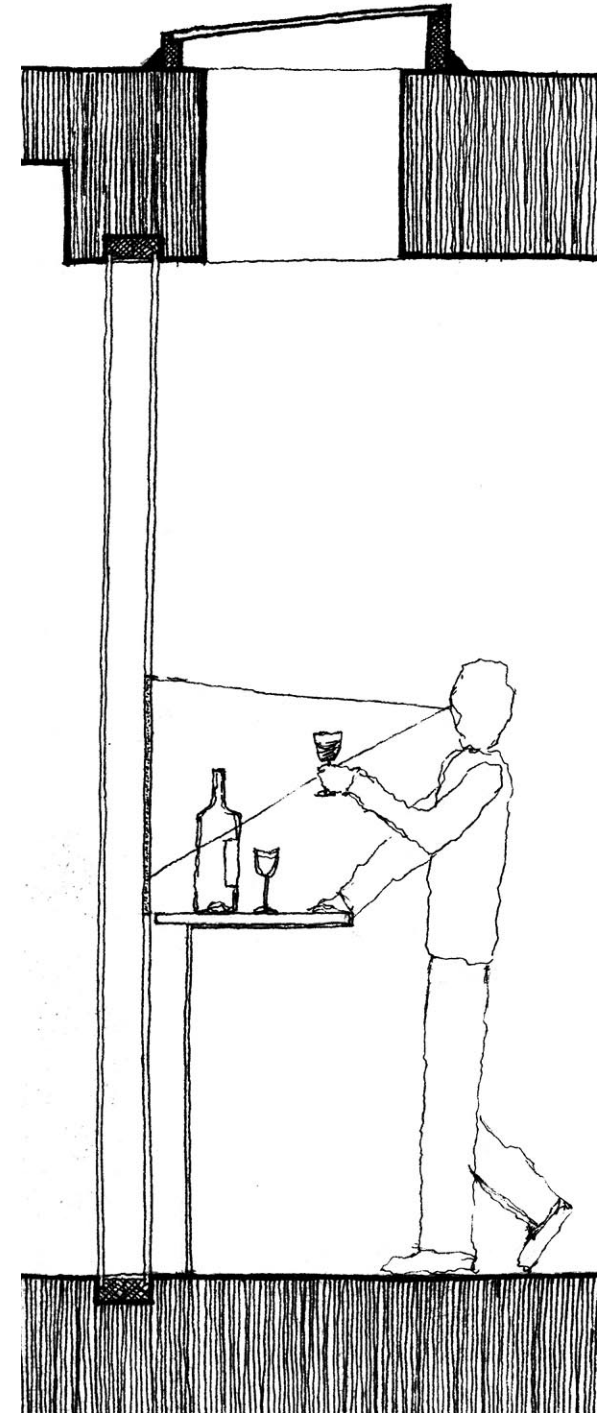
section study of skylight and tasting surface
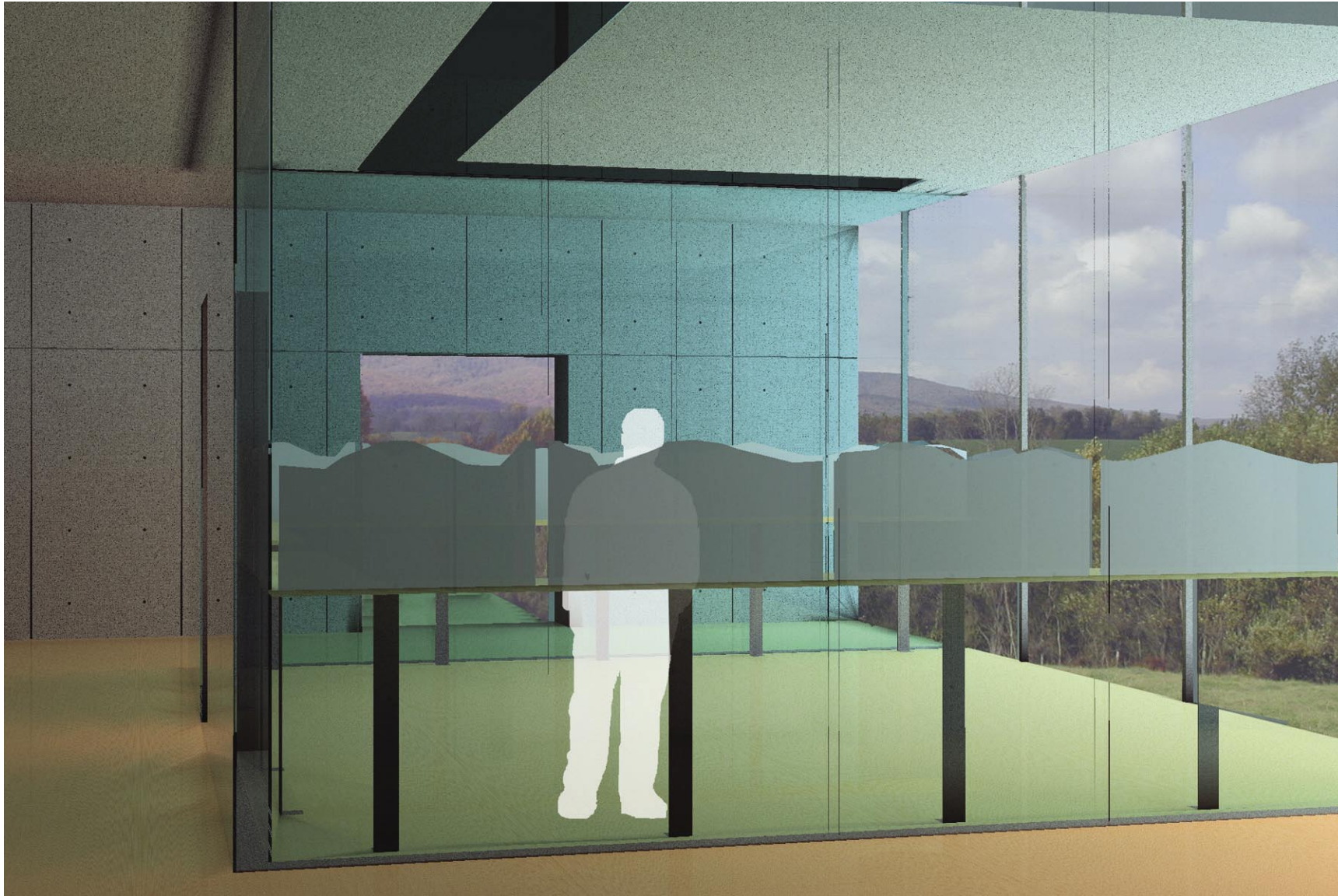
study model of tasting room

6.4 | tasting room materials
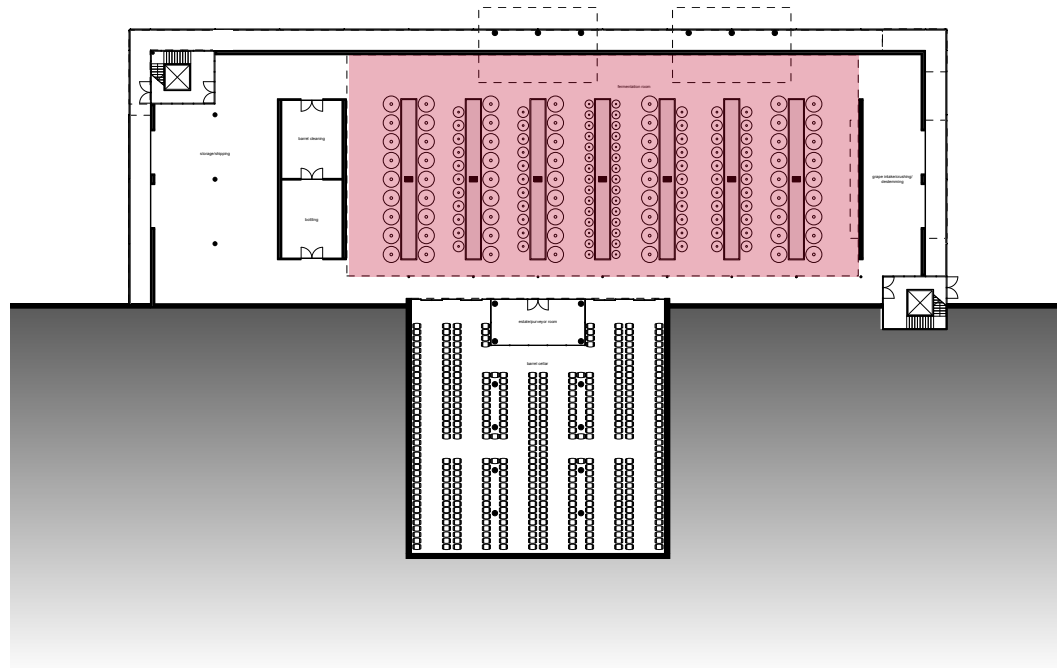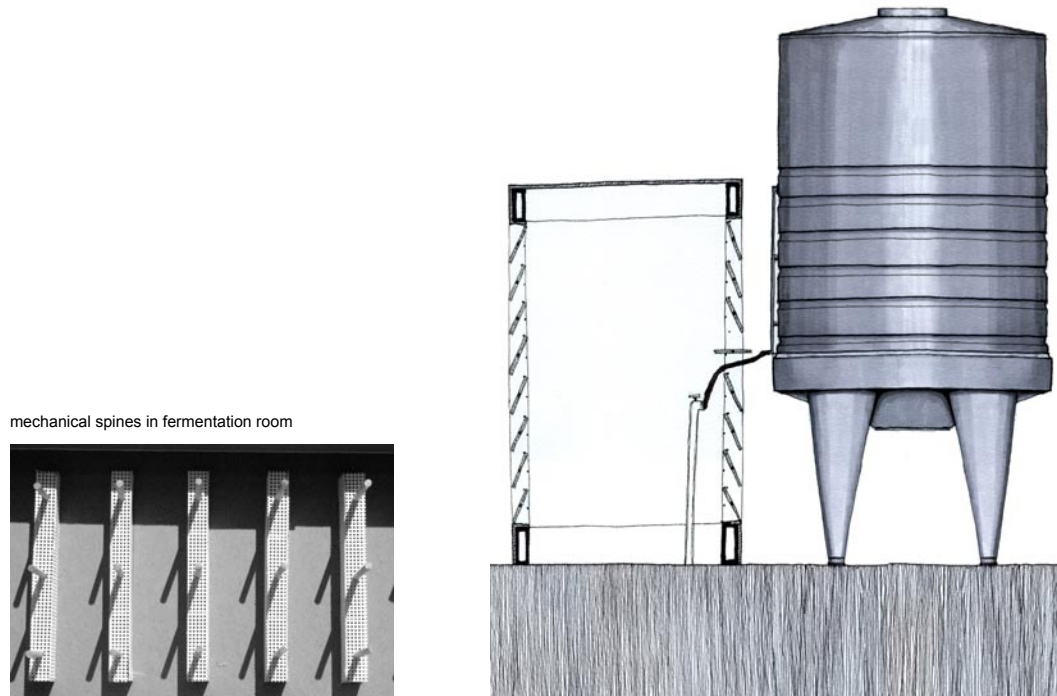

detail of tasting room volume

interior view of tasting room

interior view of tasting room

lower level plan

mechanical spines in fermentation room

development of adaptable mechanical spines

On the interior of the winery, the room accommodating the fermentation of wine in stainless steel tanks became the element around which everything else was organized. As indicated, the tasting rooms overhang this space which was designed to be adaptable to tanks of varying volume as the needs of the winery change over time. To that end, mechanical spines – housing all the necessary mechanical, electrical, and plumbing needs of the tanks – were deployed at regular intervals in the double-height space. These spines have adjustable louvered doors that afford one access to the interior equipment. Additionally, these elements allow for access to the top of the tanks when it becomes necessary.

Skylights over the spines illuminate the space with indirect north light – chosen for its cooler tones as being fit to bathe the cool stainless steel. In this way, certain qualitative aspects of light offer a subtle enhancement to the spatial composition. Materials in the fermentation room include concrete floors, masonry walls, and steel mechanical spines. As with other spaces, the material palette was controlled to reduce visual noise and chosen in careful support of the needs of the production processes. The carefully detailed mechanical spines become immovable figures in the landscape of stainless steel tanks which constitute and ever-changing ground condition. These spines, in addition to the other inserted volumes – shop and tasting rooms – offer another scale to what is essentially a two-story warehouse.
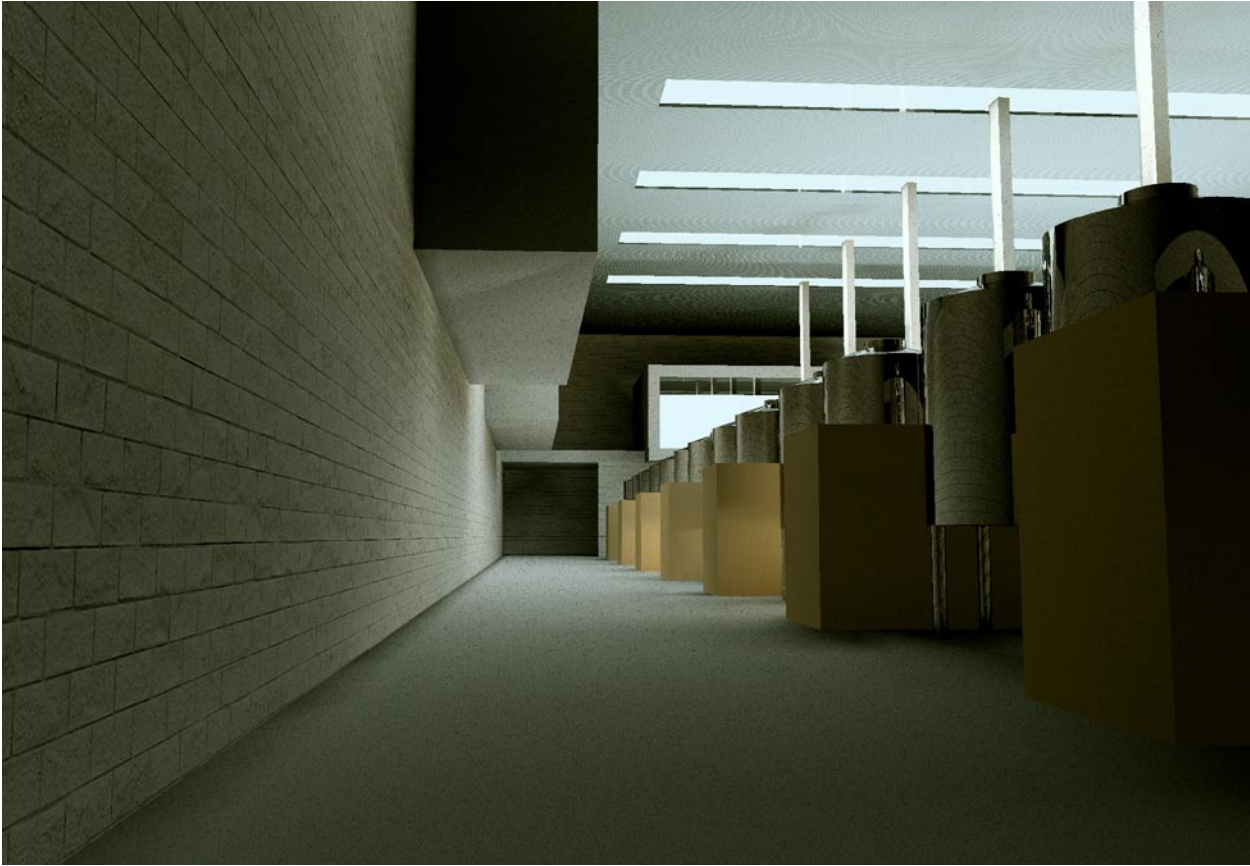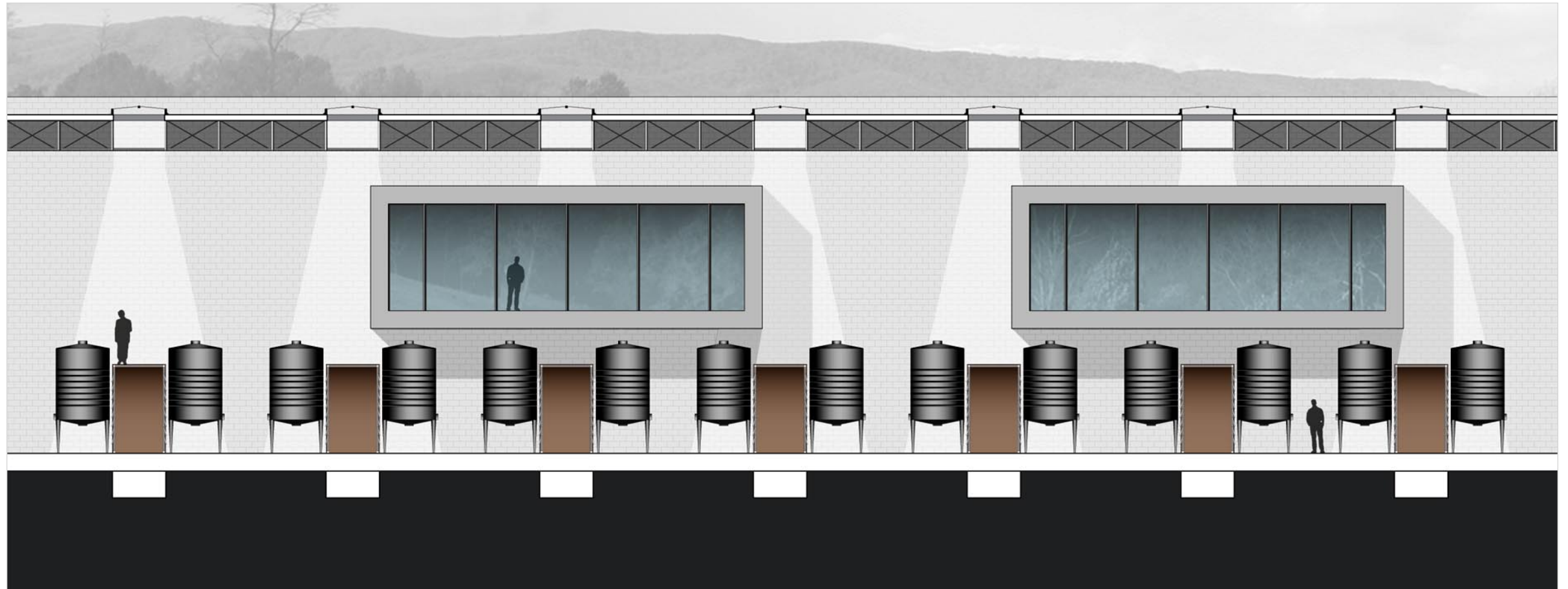
interior view of fermentation room

partial section through fermentation room

partial longitudinal section looking north

interior view of fermentation room

interior view of fermentation room

interstitial volume, defined by the screen facade and masonry wall, wraps the building

The interstitial space between the two facades was treated as volumetric container surrounding and interacting with the main structure. This in-between space becomes a place of transition serving purely architectural ends. In contrast to the way that light was used as part of a more subtle ground condition in the fermentation and tasting rooms, light was treated in a more assertive way in the development of the interstitial space. Along the southern façade, light, color, and shadow become the figures which paint themselves across the inert backdrop of the space between the primary masonry façade and the secondary screen façade. The two façades which border this space were developed carefully to maintain a relationship between the two, as described already. Careful light studies – in particular the consequences of screen element choice – were undertaken to develop the screen façade. It was imperative that while this screen would have its own properties, imparted to the interstitial space, that it still maintain a suitable ground condition for the various concrete functional volumes inserted into and through it.

development of interstitial space and screen facade

The final design consisted of a regular, textile-like, array of 2" steel bars interspersed with carefully controlled climbing plants and fragments of color. Early iterations maintained the entire wall as a living screen. However, this idea was moved away from in favor of the current design which presented the building more clearly as an object on the landscape against the backdrop of Brush Mountain to the north. The screen façade also offers several degrees of scale as one moves closer – going from the appearance of a monolith down to a kit of parts comprised of elements no bigger than one's hand. The climbing plants, as well as the color fragments become smaller figures set against the backdrop of the screen element as well as the masonry wall behind. In this way, the façade develops several different scales of figure-ground relationship which are all interrelated yet with their own distinct flavor.
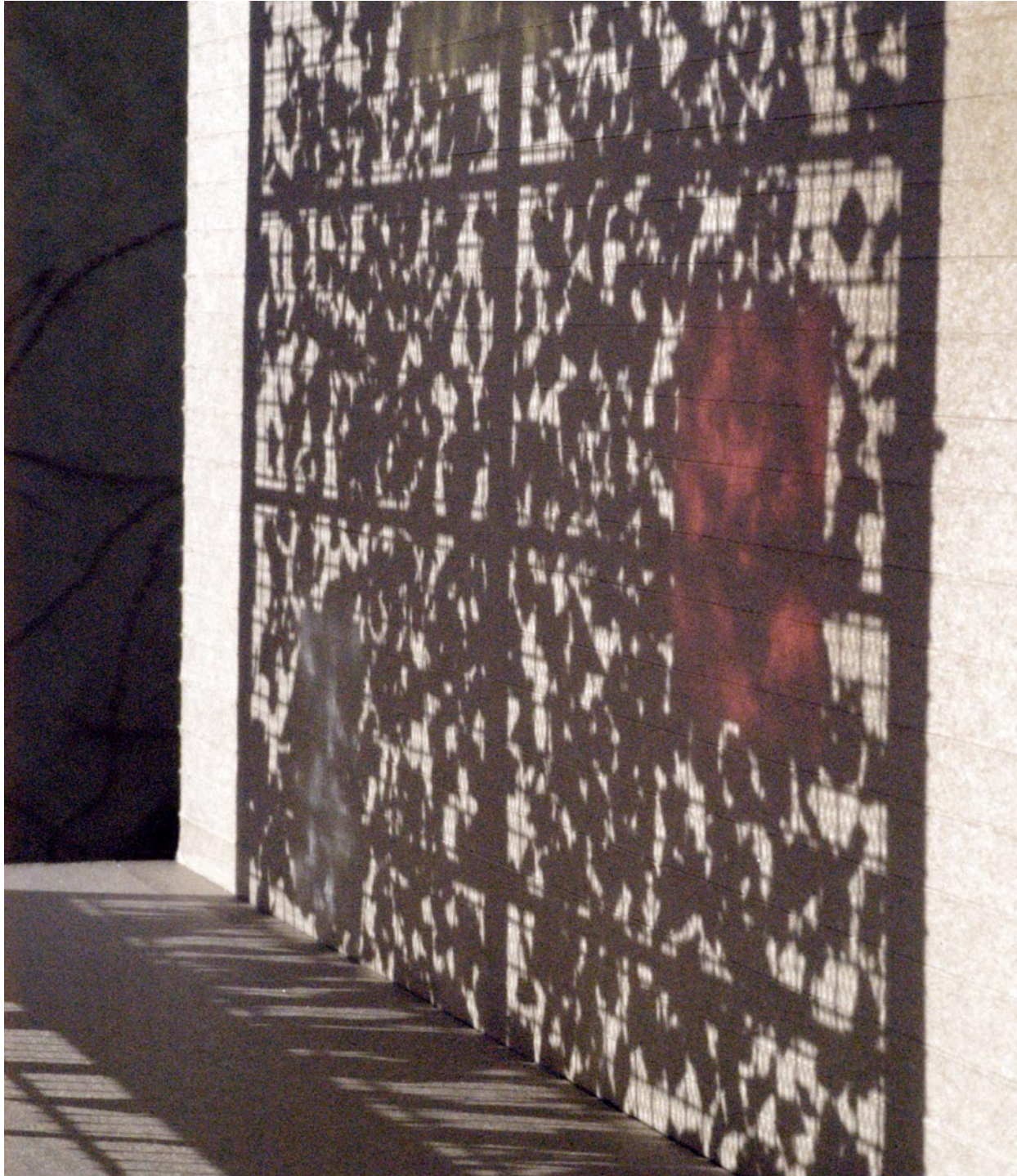
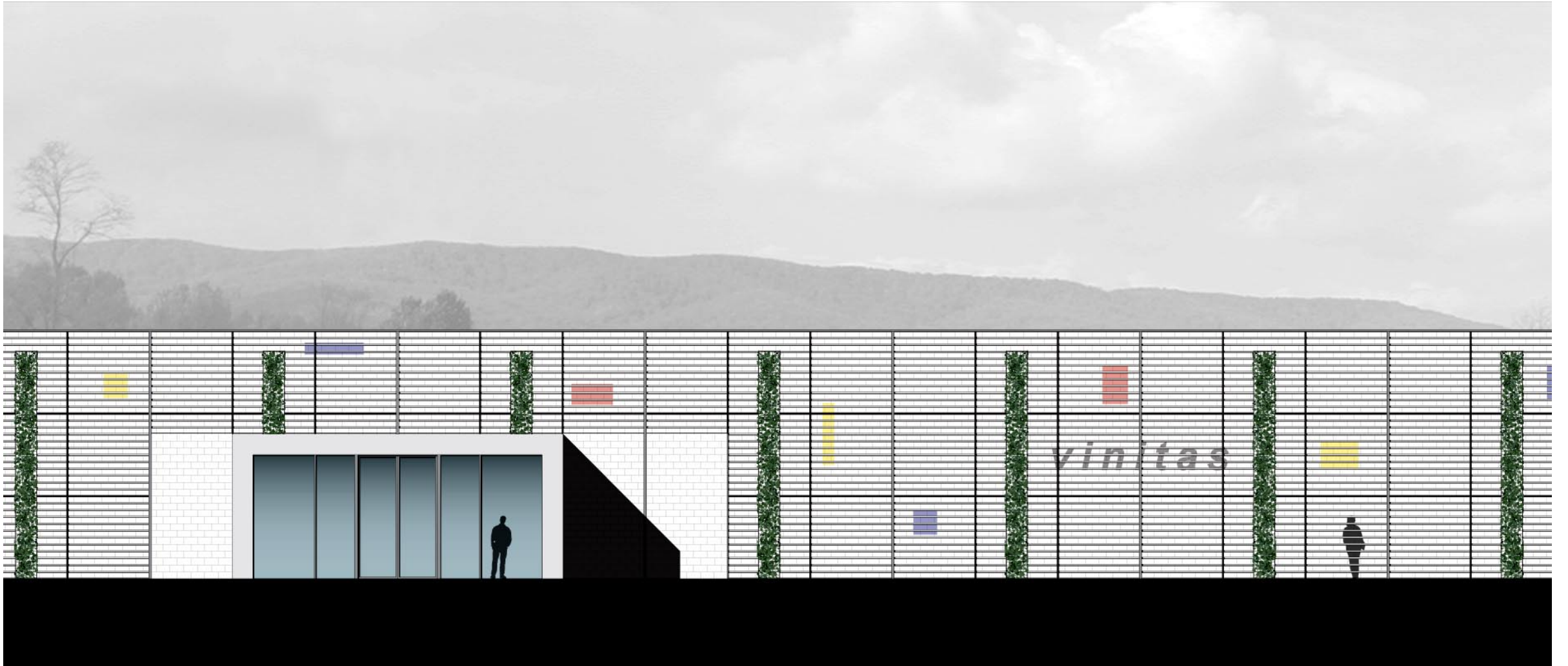south facade screen module
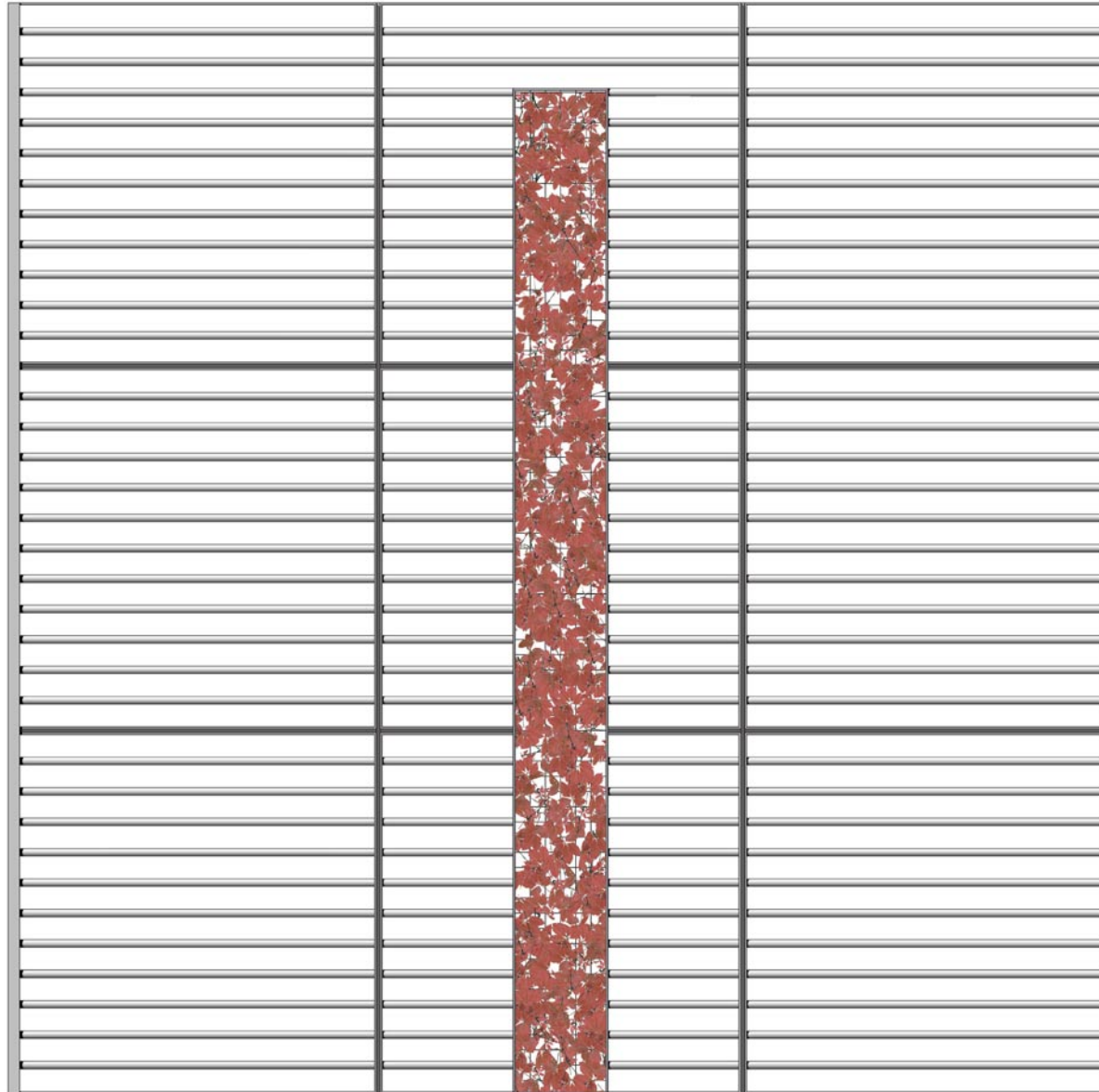
construction details of screen
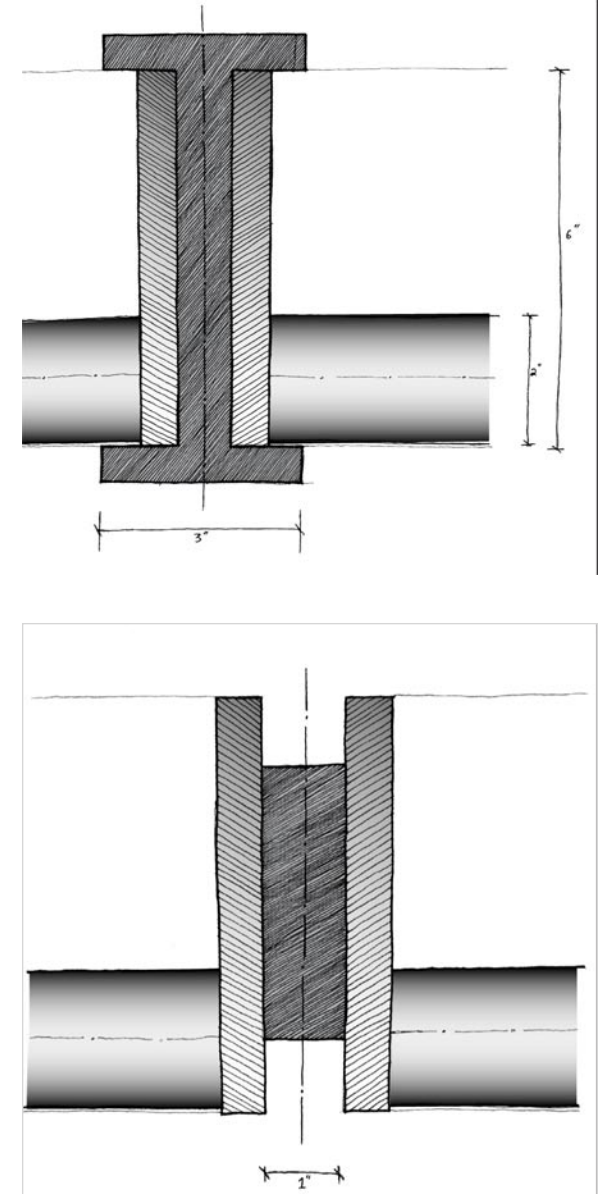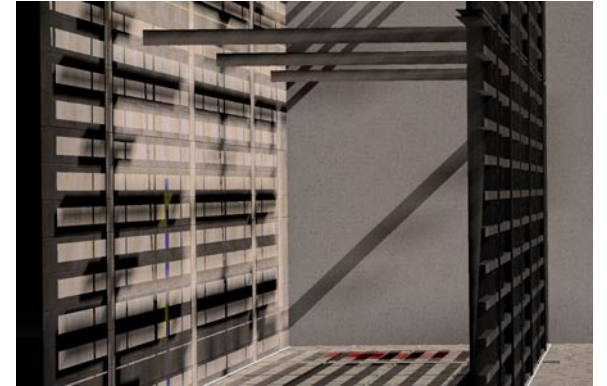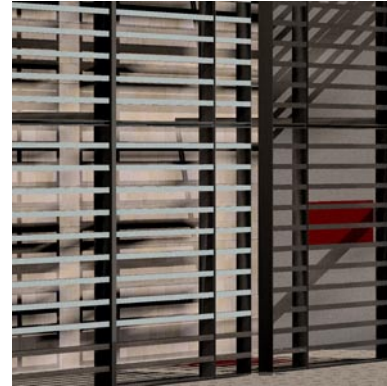
views of south screen facade

model study, interaction of light, shadow patterns, and color

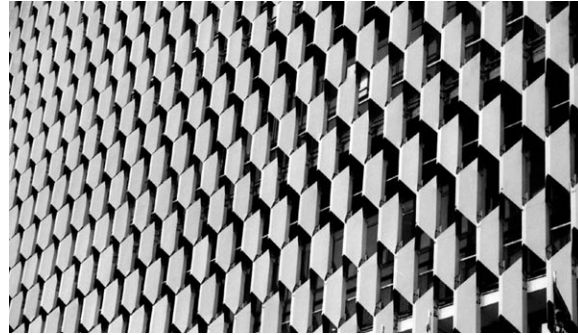partial south elevation

conclusions

Through the development of a winery, the compositional possibilities of the creation of figure-ground relationships have been investigated as a means to create meaningful programmatic and architectural interactions. To develop a competent dialogue from the interplay of extraordinary elements against more ordinary ones, a degree of rigor was necessary with regard to choice of a material palette and assembly. Within the broad categories of figure-ground relationship and material rigor, several different design tools were utilized to present the various 'special' elements against a more neutral background. These tools included the interpenetration of volumes, the utilization of façade surfaces in a more rigorous way and the ability of light to participate in a meaningful way in the functional and architectural composition of the spaces.

Coupling the winery project with investigations and previous projects, a number of findings can now be articulated concerning the potential architectural merit of the ideas listed above. With regards to the interaction of figures and grounds, two things were found that must be avoided to prevent undermining the strength of the figure-ground relationship. First, one must be mindful of the number of figures placed in proximity to one another as there is a point at which the clarity of an individual figure becomes lost in the mix.
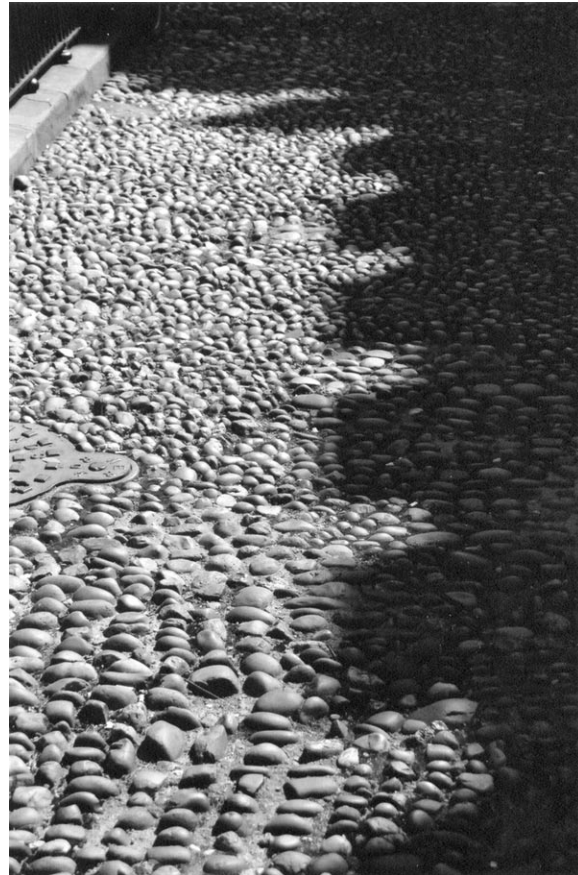

6.1 | gate + column detail, Oxford, United Kingdom

6.2 | building facade, Alexanderplatz, Berlin, Germany

6.3 | cobblestone street, Oxford, United Kingdom

Secondly, the development of the ground as a neutral entity is of particular importance in order to optimize its interaction with the figural elements. In this project, it was discovered that the development of the screen element required a high degree of resolution in order to provide an appropriately scaled backdrop for the insertion of the various concrete volumes.

These findings go hand in hand with certain discoveries made concerning the application of a more rigorous approach to the choice of a material palette. It has been determined, through this and other projects, that a reduction in visual noise is required for the creation of clear figure-ground associations. The reduction of the material palette has proven to be essential for the creation of visual quiet. It has been discovered that working within the constraints of a given material, e.g. the 8" dimension of CMU or a 2' grid for cast in place concrete, doesn't hinder architectural possibilities. In fact, this approach creates a useful degree of 'resistance' in decision-making which can ultimately lead to a more refined, cleaner project. Additionally, it is proposed that the use of familiar materials in new, refined, or slightly different ways could afford an uninitiated person some access to architecture through an innate appreciation of craft and assembly.

In addition to maintaining a certain material sensibility from the beginning, several other working strategies have been identified which have proven invaluable for the meaningful development of a project. Working at different scales simultaneously, coupled with more complex section development has lead to an overall improvement in the quality of the work. The maintenance of a clear structural hierarchy within the project has also proven to be a useful tool for organizing the architectural responses to program, function and site. Finally, the importance of light – both sunlight and electric – should always be a factor in the development of a project as its ability to both participate in, or be the defining factor of, spatial compositions never fails to create meaningful interactions between people and architecture. Like an appreciation for craft and assembly, almost anybody, regardless of architectural literacy, will respond favorably to the carefully considered deployment of sunlight.

6.4 | entry detail, Oxford, United Kingdom

conclusions
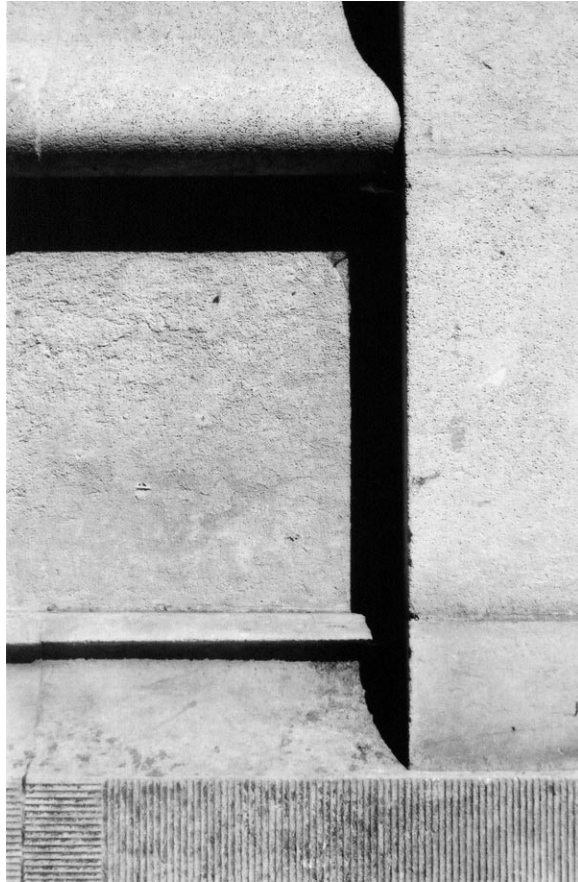
6.5 | facade detail, Oxford, United Kingdom

Based upon the studies undertaken and the findings gleaned thus far, the following thoughts are meant to suggest further avenues of investigation into these recurrent themes. The ability to develop the relationship between a ground and figures of different scale would seem to offer multiple architectural opportunities at a variety of scales. In terms of figures and their relationship to planar ground elements, the development of more shallow relationships, in terms of depth, offers the potential for a more subtle interaction between the elements. Additionally, the development of relationships of this type would necessarily require the careful consideration of light and its ability to render depth. In this way, the creation of a shallow figure-ground relationship would also become a study into the way that light interacts with and enlivens a surface. Finally, work of this type would require ever more careful treatment of material and surface.

Future addressing of the idea of nuanced surface development, in addition to its role in the creation of figure-ground relationships, would seem to be an essential avenue of pursuit for any architect. A rigorous approach to the choice, use, and assembly of materials would enable an architect to directly affect the ways in which a person interacts with a building, both visually and tactilely. In this way, one could begin to address Vito Acconci's notion of a building facade acting as a mediating instrument between inside and outside.

conclusions

Finally, the question of the scale limitations of figure-ground relationships has yet to be determined. That is, at what scale does the ability to create meaningful interactions between figural elements and a neutral backdrop fail? This question would seem to be active at both a small scale as well as a larger urban scale. Can buildings be read as figures in the ground of a city? How much ground must one be able to control to create these relationships? Can it be done by carefully controlling the field of view alone? Additionally, the question as to the suitability of this idea to a variety of programs could be of some concern. How can one create a visually quiet figure-ground relationship for a building with a retail/consumer program - a program with no clear hierarchy, where everything must be created equal? How must the ground and/or figures change architecturally, formally, materially, etc. to address issues of this type?

The need to answer, as well as the ability to ask, these types of questions would suggest that the investigation of figure-ground relationships as a design tool could have architectural longevity.

6.6 | sidewalk, London, United Kingdom

acknowledgments

acknowledgments

image credits

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Introduction

1.1   Informational flyer. Brewing at Monticello. Thomas Jefferson Foundation, Inc., 2003.

1.2   Mau, August; Francis Kelsey. Pompeii, its life and art. New York: The MacMillan Company, 1902.

Figure-Ground Relationship

2.1   Los, Sergio, *et al*. Carlo Scarpa. Los Angeles: Taschen, 2002.

2.2   Olsberg, Nicholas, *et al*. Carlo Scarpa, Architect: Intervening with History. Canada: Monacelli Press, 1999.

2.3   *Ibid*.

2.4   Mattioli Rossi, Laurai. The Later Morandi: Still Lifes 1950-1964. Milan: Mazzotta, 1998.

2.5   *Ibid*.

2.6   *Ibid*.

2.7   Michael J. O'Brien, photograph, Farmer's & Merchants Bank, used by permission

2.16 Maclean, Alex; Bill McKibben. Look at the Land: Aerial Reflections on America. New York: Rizzoli, 1993.

Interpenetrating Volumes

3.4   Holl, Steven. The Chapel of St. Ignatius. New York: Princeton Architectural Press, 1999.

3.16 Los, Sergio, *et al*. Carlo Scarpa. Los Angeles: Taschen, 2002.

3.20 Allen, Gerald. Charles Moore. New York: Whitney Library of Design, 1980.

3.21 Yoshida, Nobuyuki (ed). Herzog & de Meuron, 1978-2002 = Herutsogu ando do Muron, 1978-2002. Tokyo: Kabushiki Kaisha E ando Yu, 2002.

3.25 Los, Sergio, *et al*. Carlo Scarpa. Los Angeles: Taschen, 2002.

3.26 *Ibid*.

3.27 Henze, Anton; Bernhard Moosbrugger. La Tourette, the Le Corbusier Monastery. New York: G. Wittenborn, 1963.

Nuanced Surface Development

4.1   Ritter, Arno, *et al*. Acconci, Holl: Storefront for Art and Architecture. Bergenz : Kunsthaus Bregenz, Archiv Kunst Architektur, 2000.

4.2   *Ibid*.

4.15 Birnstingl, Harry Joseph. Sir John Soane. London: E. Benn, 1925.

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Light

5.7   Herve, Lucien; Francois Cali. Architecture of Truth: The Cistercian Abbey of Le Thoronet. New York, NY: Phaidon Press, 2001.

5.15 *Ibid*.

5.18 Turrell, James; Peter Noever; Daniel Birnbaum. James Turrell: the other horizon. Ostfildern-Ruit, Germany : Cantz, 1999.

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