



From Light to Dark: “Passage”  
International Archive of Women in Architecture

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## ABSTRACT

This thesis is a study of a primary passage and progression from light to dark. A secondary passage considers possibilities of a broader connection to context and a clear definition of entrance into the archive. Typologically, this thesis examines the archive as a room within a room.

## ACKNOWLEDGEMENTS

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My Parents, Becky and Mike, for their daily dose of patience and support.

Rob for paving the way and constantly pushing me to strive for the best.

All of my other friends and family who lent their shoulders, ears, and words of advice.

And finally to all of the women architects who came before me, who inspired me to design a building for the International Archive of Women in Architecture, and who opened the door for me to be a woman in architecture today.

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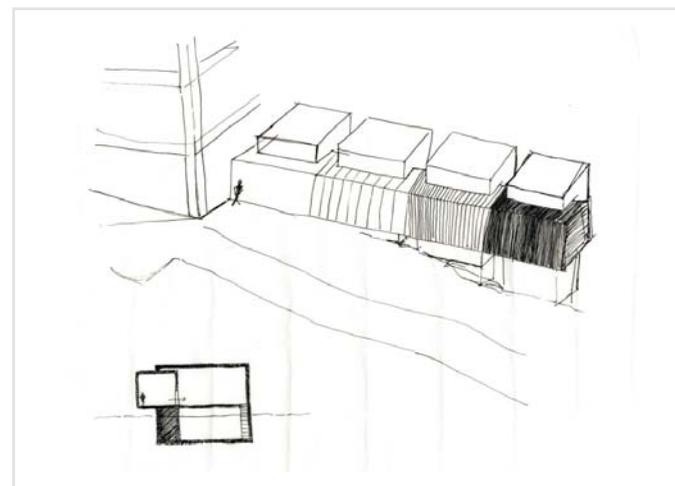
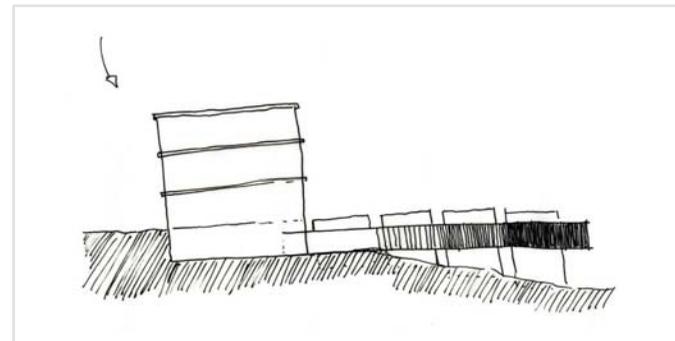
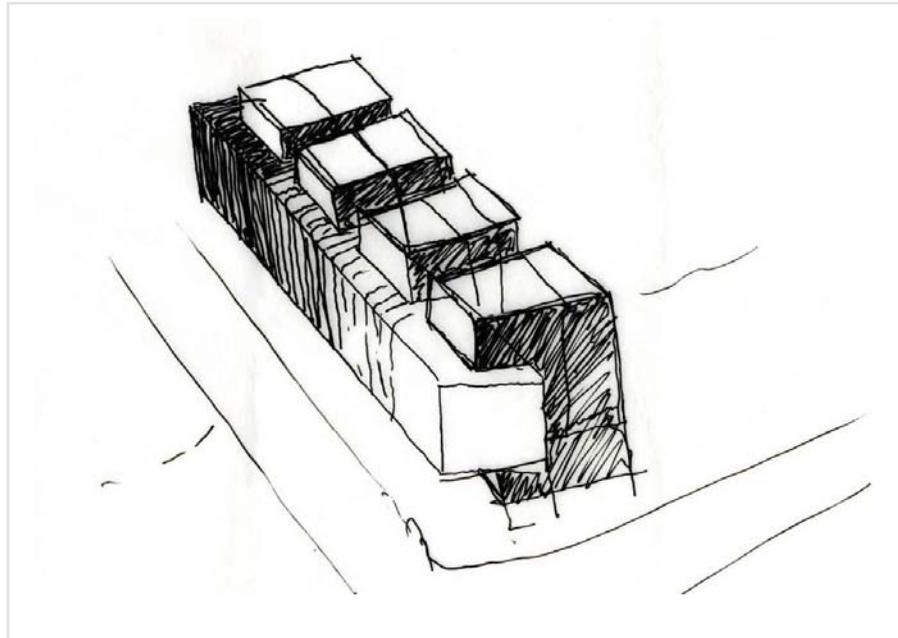


## INTRODUCTION

From the beginning, I considered the architectural idea for a facility to house the International Archive of Women in Architecture (IAWA) as analogous to passage from light to dark. This primary passage begins in bright light that defines the entrance of the exhibition level. The movement toward the archive proper is characterized by increasing darkness. This archive is proposed as a box within a box. The archive box offers the roof as an exhibition level.

The secondary passage relates the archive to the greater context of site and is public in character. It allows passage through the archive structure enroute to other parts of the Virginia Tech campus. Not only does this passage provide notice for the IAWA, it creates a strong connection with the rest of the campus. The reach of this passage extends all the way to the parking lot, leading towards and through the International Archive of Women in Architecture.

A glass wall as a main enclosure for an archive is initially a contradiction with respect to the demand of the protection from harmful UV rays. Inspired by the Laminata House of the Netherlands, I looked to laminated glass as both a means of light and UV protection. I devised an alternating glass and concrete wall that progressively becomes more dark. The glass portion is one foot thick laminated glass, turned outward so as to expose the edge of glass. These glass walls are held together by UV-resistant glue. The effect can be seen in the photograph to the left. A prismatic light that progressively dissipates through the building results.



**Early Sketches.** The idea of passage from light to dark originated with a four-part building from which a passage was hung. In this scheme the three buildings were extraneous to the primary idea of passage.



1. Beinecke Rare Book and Manuscript Library, image by Michael Marsland



2. Laminata House Hallway, image by Christian Richters and Luuk Kramer

**Glass and Archive.** The architectural idea of passage from light to dark raises the critical issue of allowing large quantities of light into a building typology that is meant to protect documents, particularly from light. Primarily, protection of the documents is accomplished by enclosing the archive proper in a separate concrete building within an outer glass shell. The Beinecke Rare Book and Manuscript Library at Yale University by SOM immediately stood out as unique as light is allowed to filter into the building yet still protecting the books. Marble slabs are used to allow a beautiful yellow tinted and diffused light to penetrate the structure. For architect Gordon Bunshaft of SOM, the light of the building appears to be of equal importance to the protection of the archives. I wanted to strive for similar qualities in my archive.

With my interest in layering, I have admired the unusual application of glass in the Laminata House in Leerdam, The Netherlands by Kruunenberg Van der Erve Architecten. I quickly came to the conclusion that their use of laminated glass turned perpendicular to its normal surface would be appropriate to the International Archive of Women in Architecture. Thousands of 2/5 inch-thick glass glued together with a UV-resistant adhesive form a single solid wall. The glass becomes enclosure and structure. The effect of the exposed edges is a filtered, blue-green tinted light that disperses throughout the building.

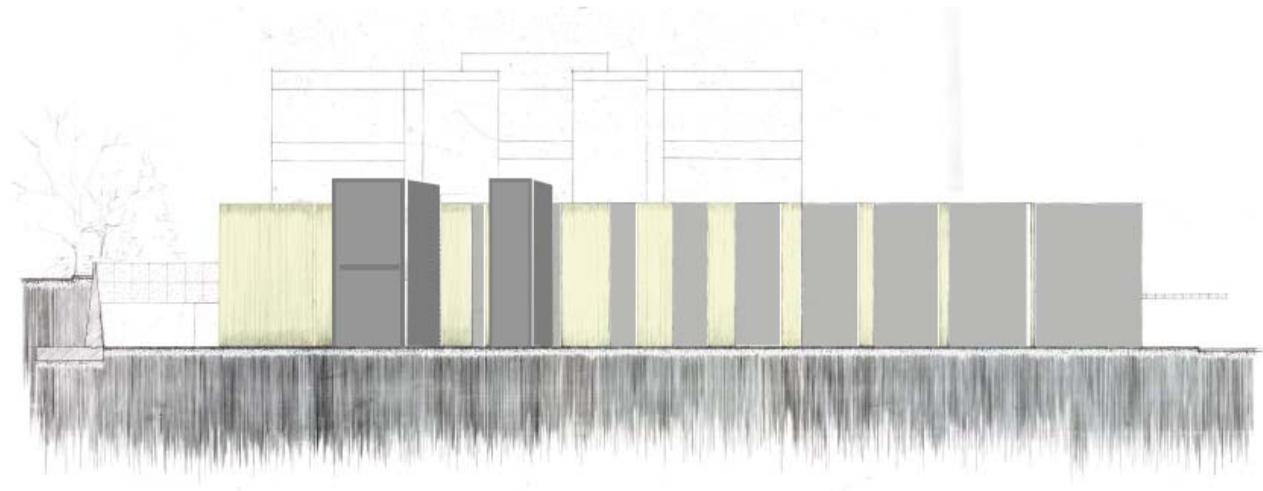
## PROGRESSION FROM LIGHT TO DARK: THE PRIMARY PASSAGE

One of the essential parts of the primary passage to the archives is the progression from light to dark. The main entrance into the IAWA leads into a well-lit public area of the exhibition level on top of the archive proper. The walls of the outer shell take on a progression from glass to concrete generating a progression in the gallery from light to dark. While a passage from dark to light is more typical, the reversal from light to dark might suggest a passage into the depths of history. For me, "depths" conjures up an image of darkness rather than lightness. I envisioned the archive to be a solemn and quiet place - a quality that is perhaps better supported by darkness. Light suggests a more public realm, in this case the furthest point in the building away from the archive proper.

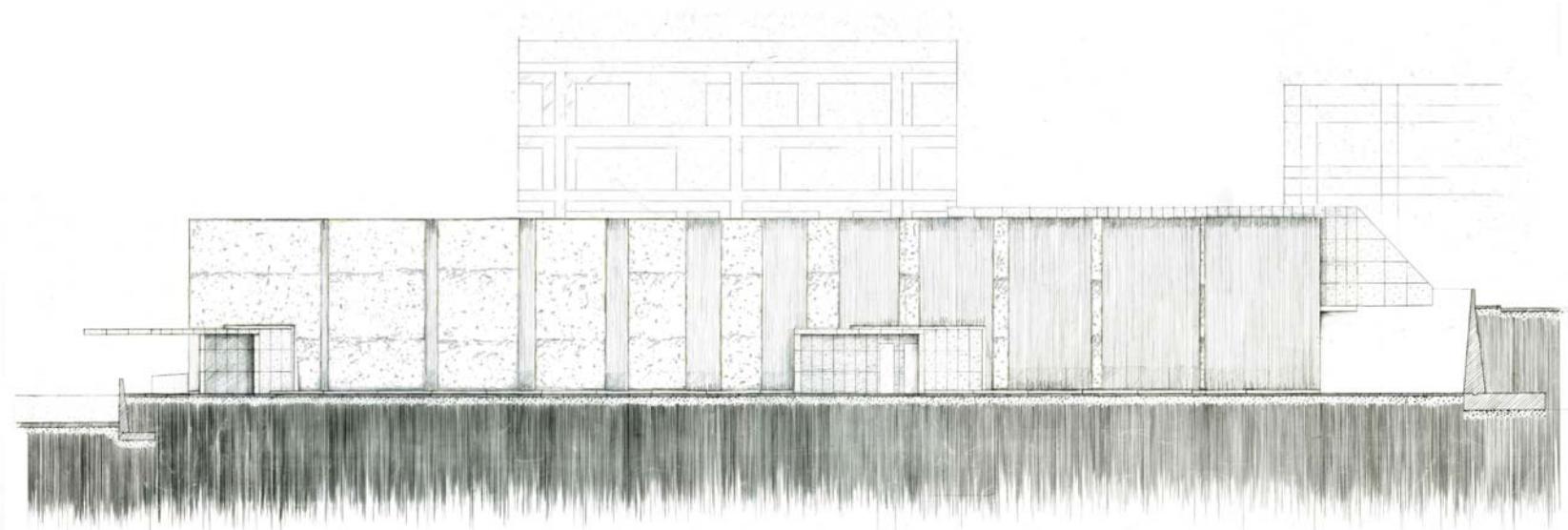
Passage from light to dark is accomplished through alternating glass and concrete. This can be seen in the elevation diagram to the left. An incremental change in the primary surface progresses from translucent to opaque. Equally important in my consideration of "passage" became the proportion of the room itself and the articulation of the end condition.



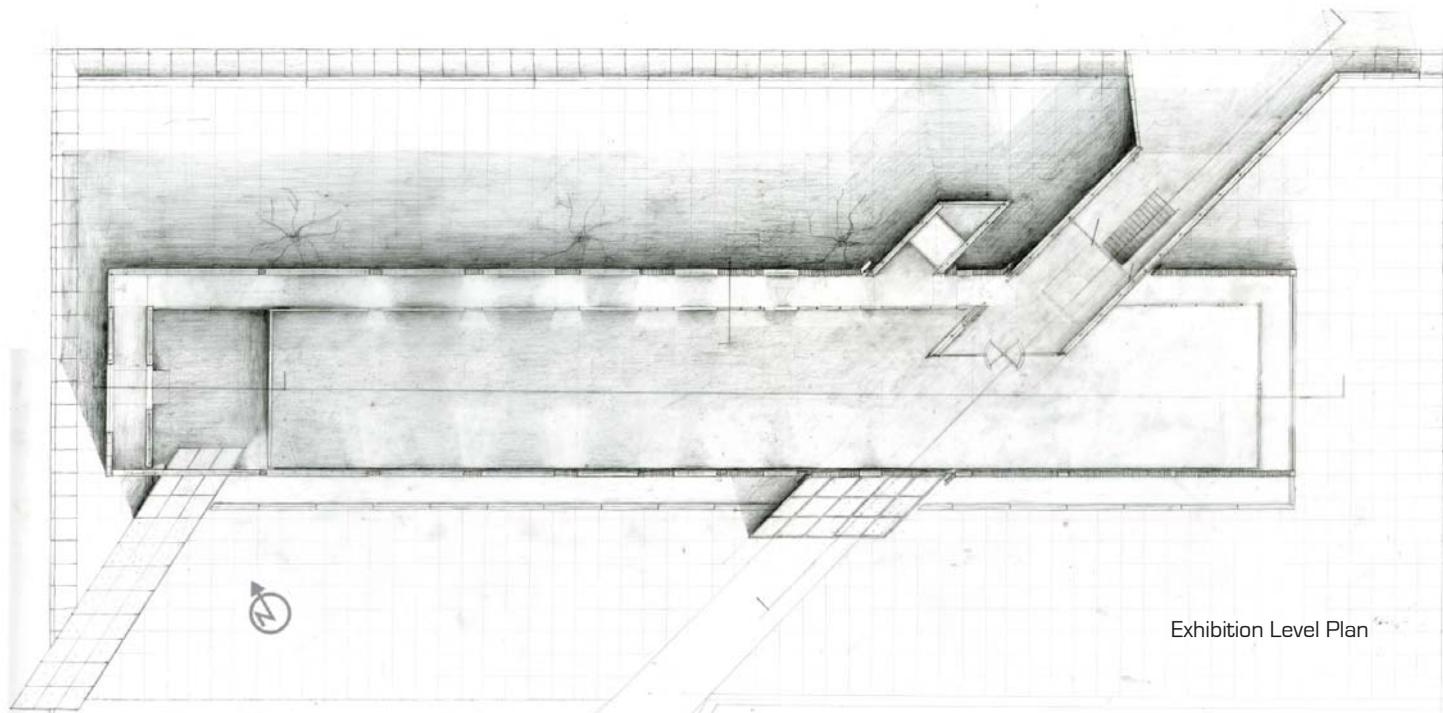
Early Model Study



North-East Elevation Diagram



South-West Elevation



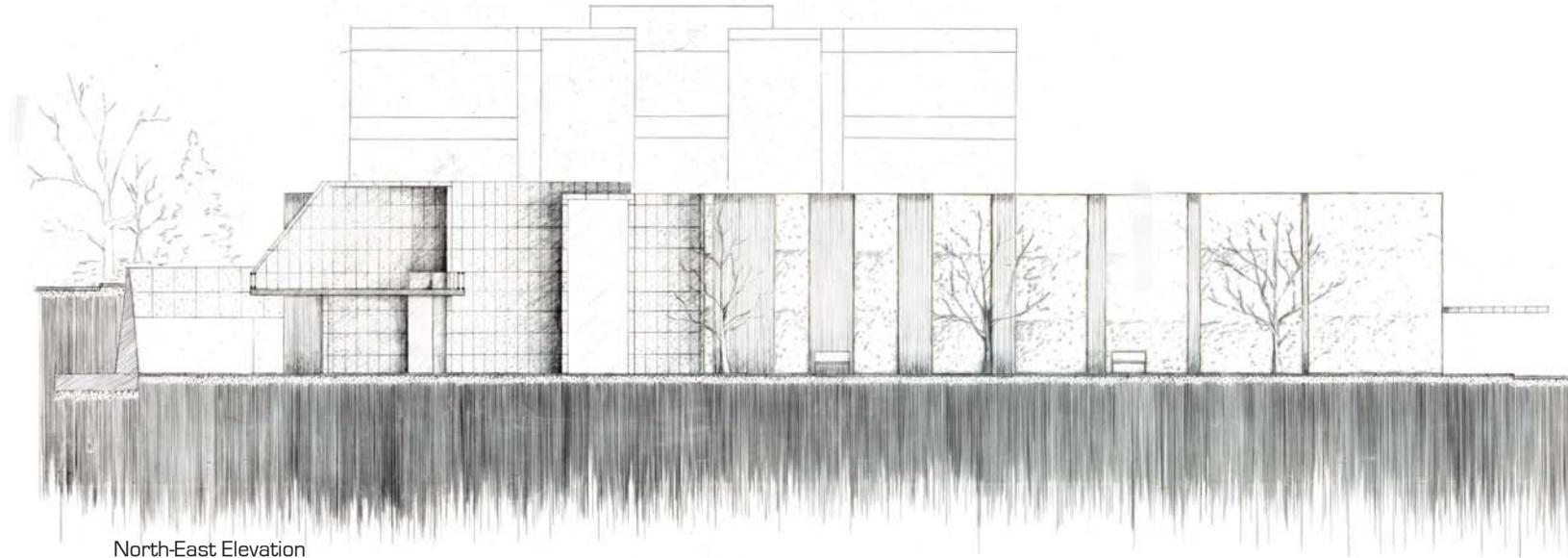
Exhibition Level Plan

**The South-West Elevation.** The progression from light to dark is meant to gradually adjust the visitor to the darkness. I struggled to find a smooth transition from glass to concrete. The final progression, in the South-West elevation to the left, shows the transition from glass to concrete. The photograph below is a representation of the Archive at night which clearly exemplifies the intent.

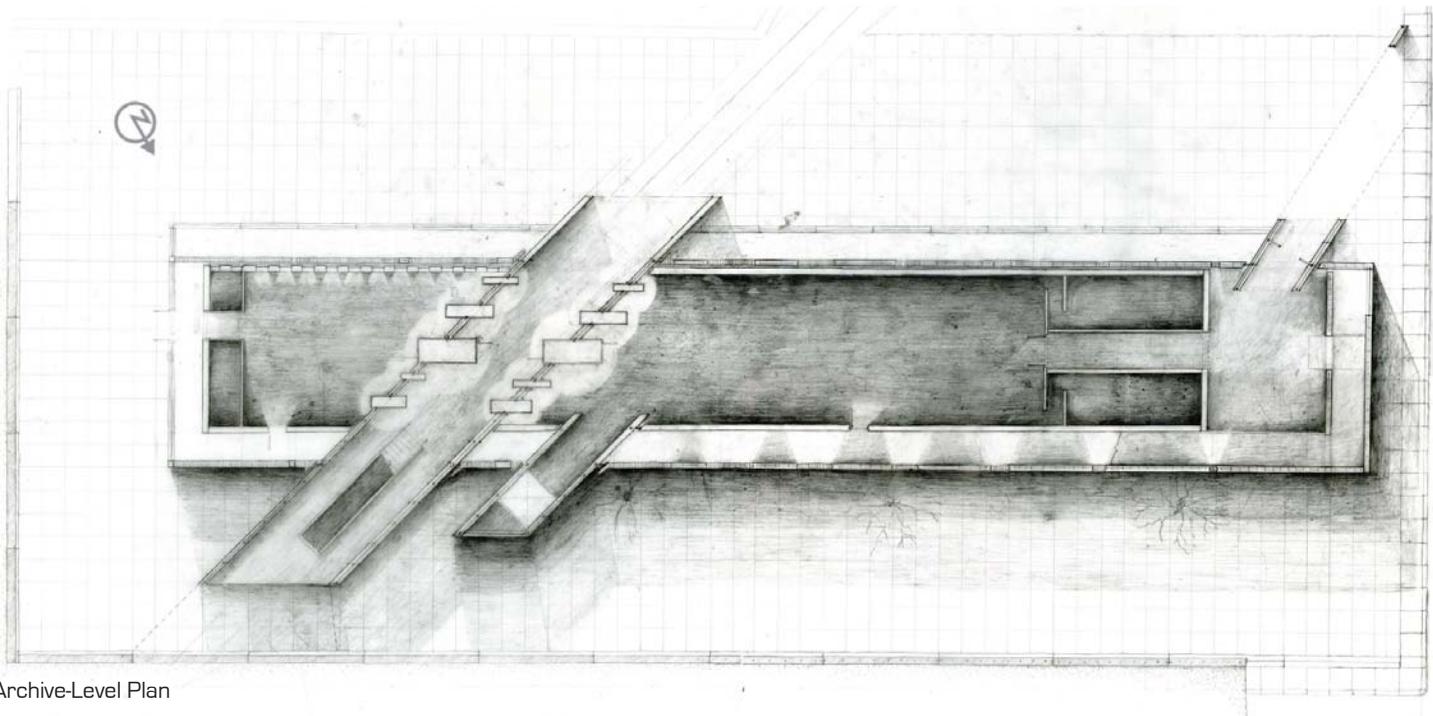
I conceived of the progression in increments of one foot. The increment is evident in the lamination of the glass walls and the solid cast-in-place concrete construction. At the far left, the Perry Street entrance leads directly to the archives entrance on the ground level. The insertion to the right of this marks the entrance to the secondary public passage. This elevation can be seen upon entering the plaza area from the Perry Street Parking lot.



Photograph of Lit Model

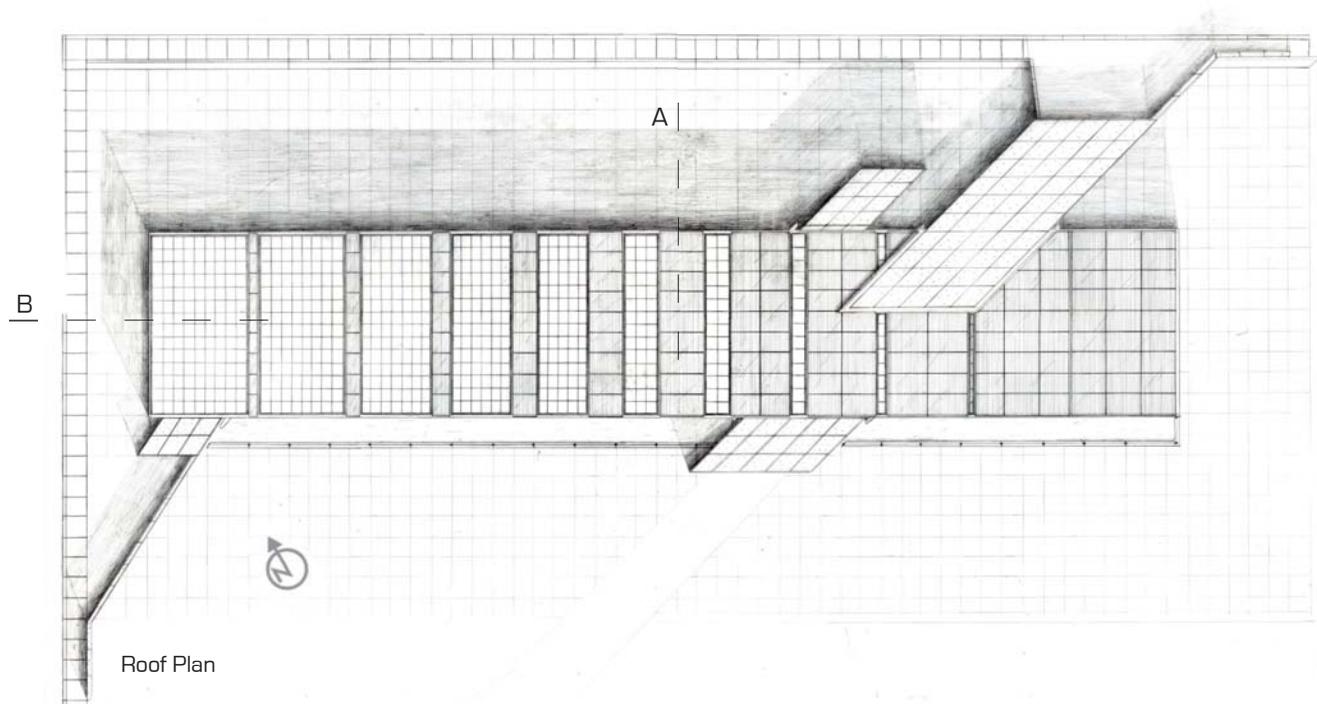


North-East Elevation

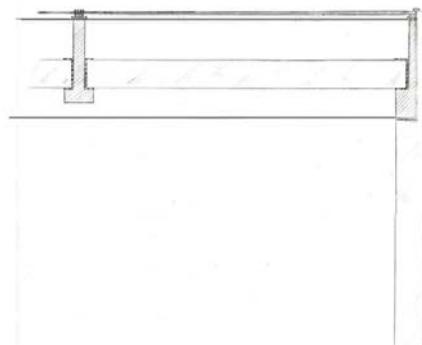


Archive-Level Plan

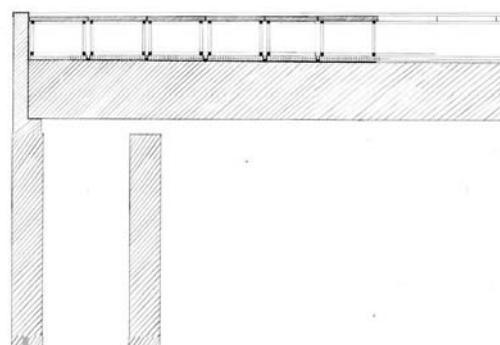
**The North-East Elevation.** The North-East elevation with the oblique entrance can be seen from the Hancock Hall Stairway. To the far left, The inserted volume forming the public passage and main entrance slices through the building, interrupting the progression from glass to concrete.



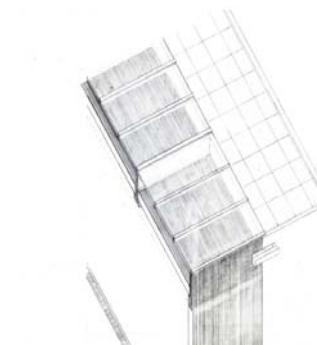
Roof Plan



Roof Section A Through Glass

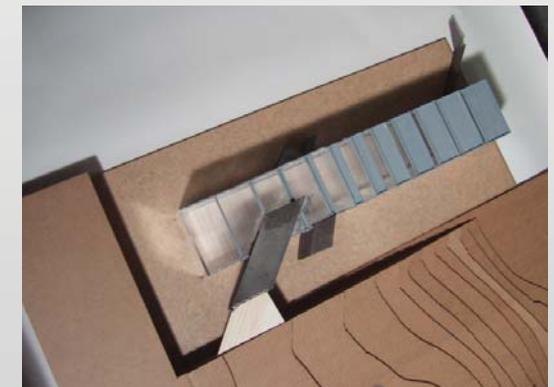


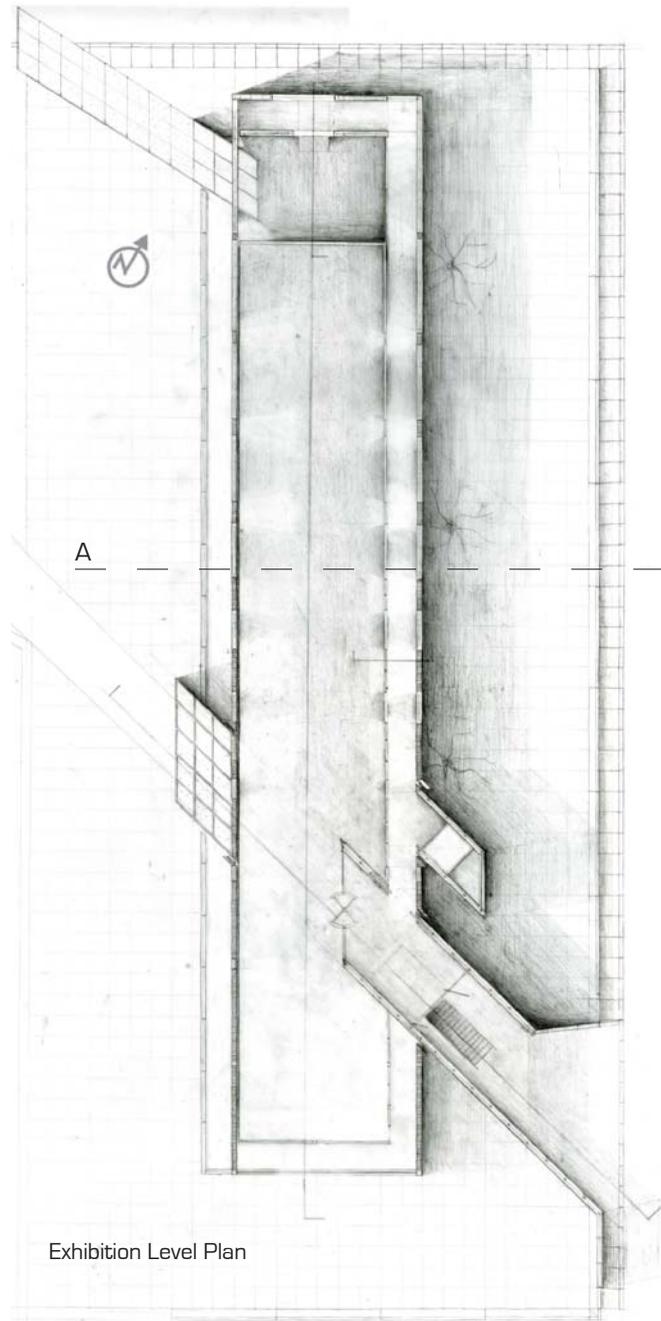
Roof Section B Through Concrete



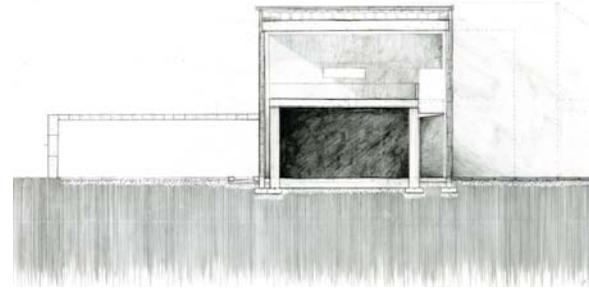
Axonometric Drawing of Roof

**The Roof.** Because of the Archive's relatively low building height, the roof surface is visible from surrounding areas. Therefore, the roof became a continuation of all the other facades. The progression from glass to concrete on the facade folds into the surface of the roof. The photograph of the model relays the concept of the progression. The roof plan depicts the layout of the roof facade. Due to spanning limitations of glass, a steel frame grid system supports the glass at 10' intervals. The frame also evolves from the need for skylights over the laminated glass ceiling that wraps around the outer shell of the building. Glass panes rest in the steel frame above the laminated glass system. The frame is kept thin to promote the uninterrupted progression of glass and concrete.

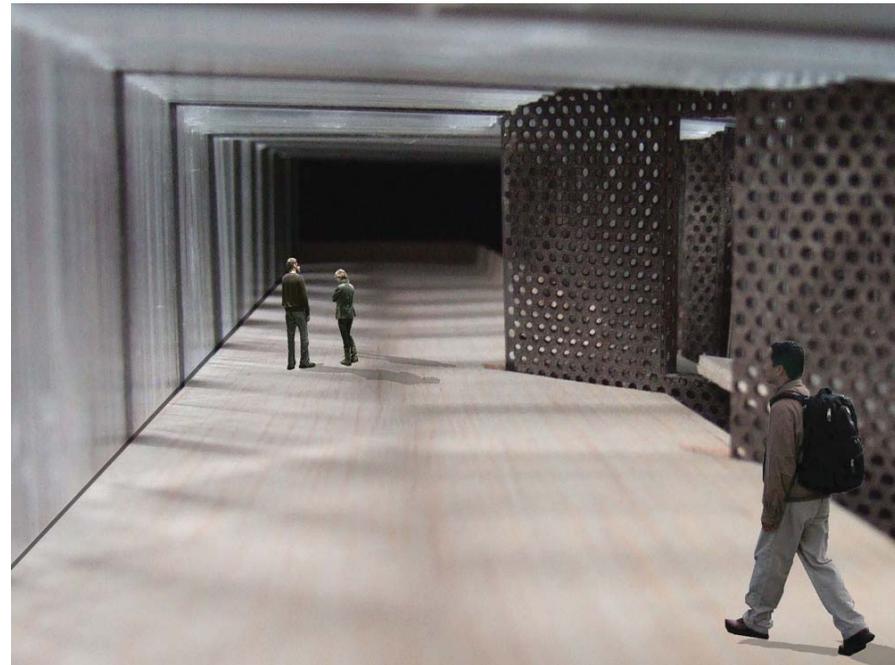




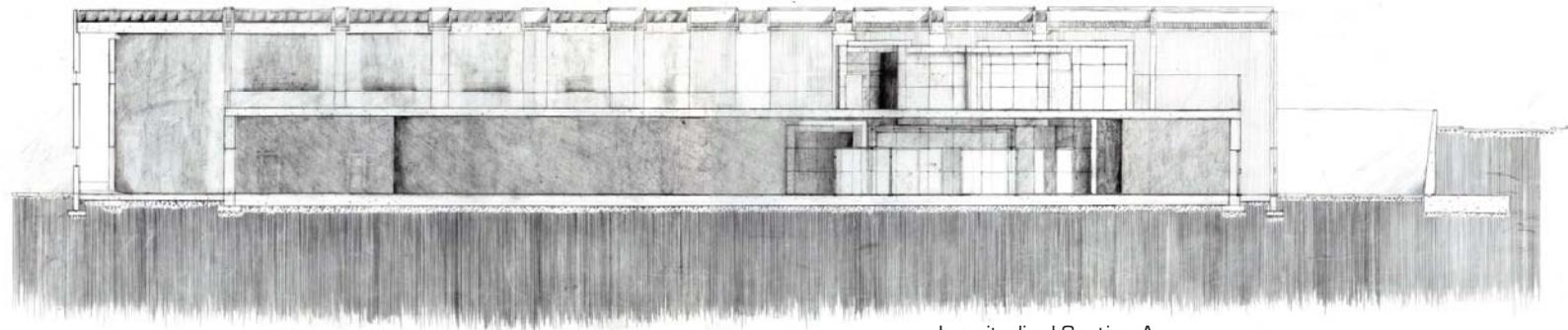
Exhibition Level Plan



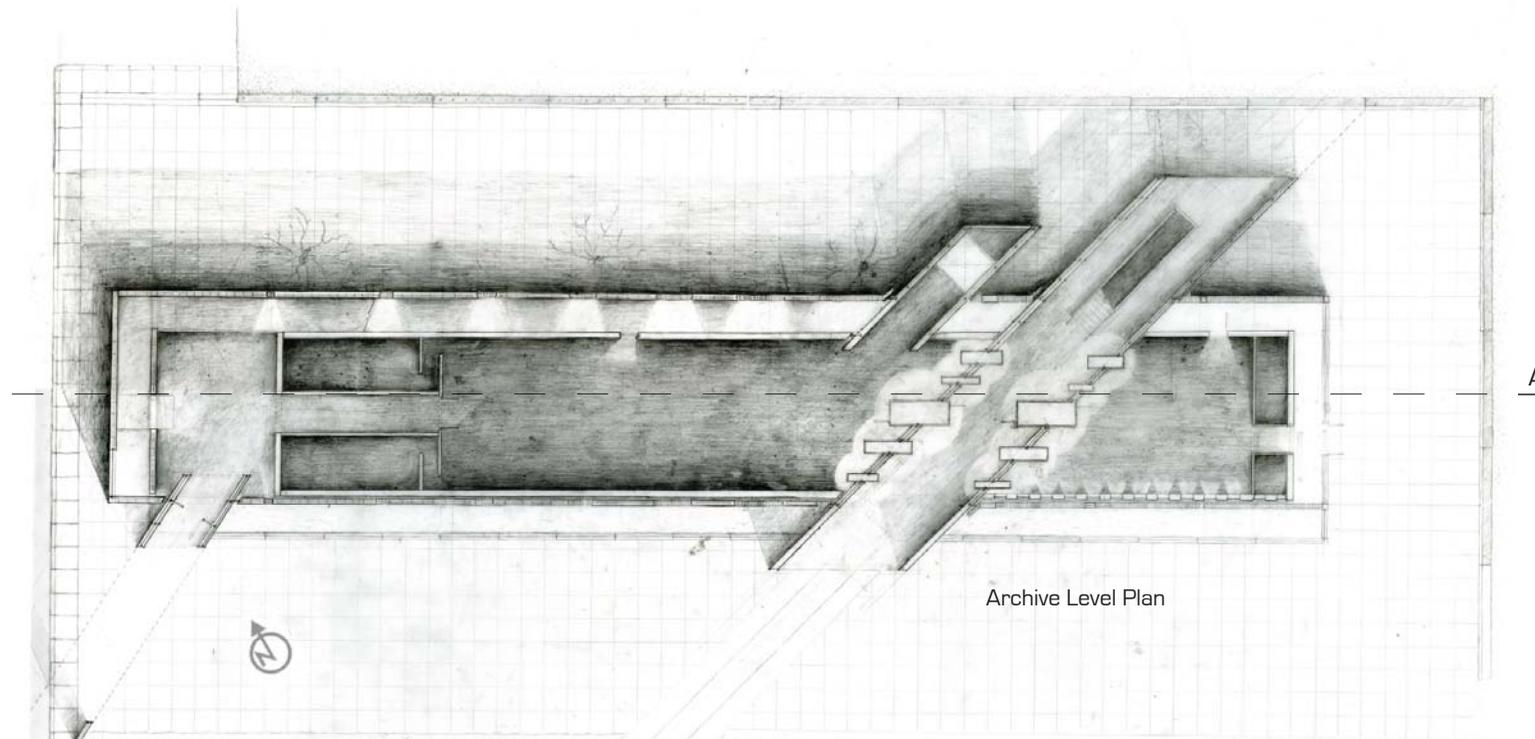
Cross-Section A



**Section and Plan.** Photograph and plan to the left show the procession from light to dark at exhibition level toward the North-West end.

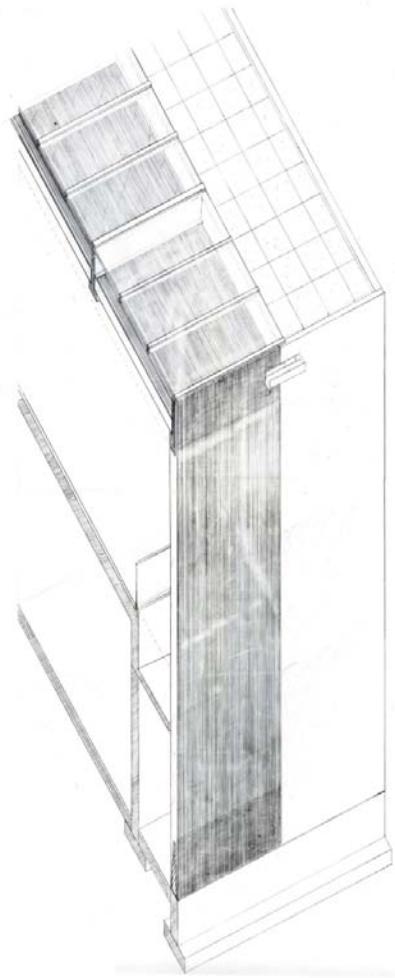


Longitudinal Section A

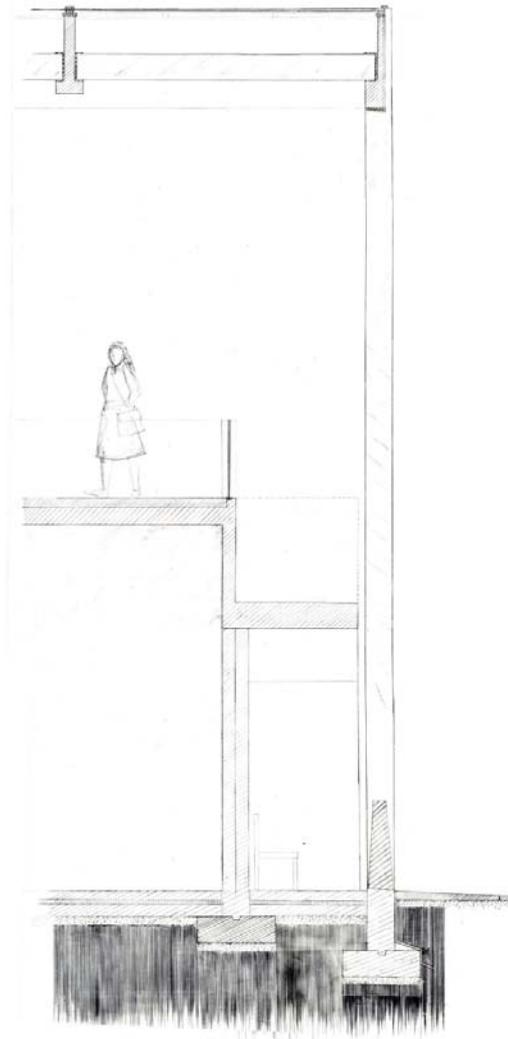


Archive Level Plan

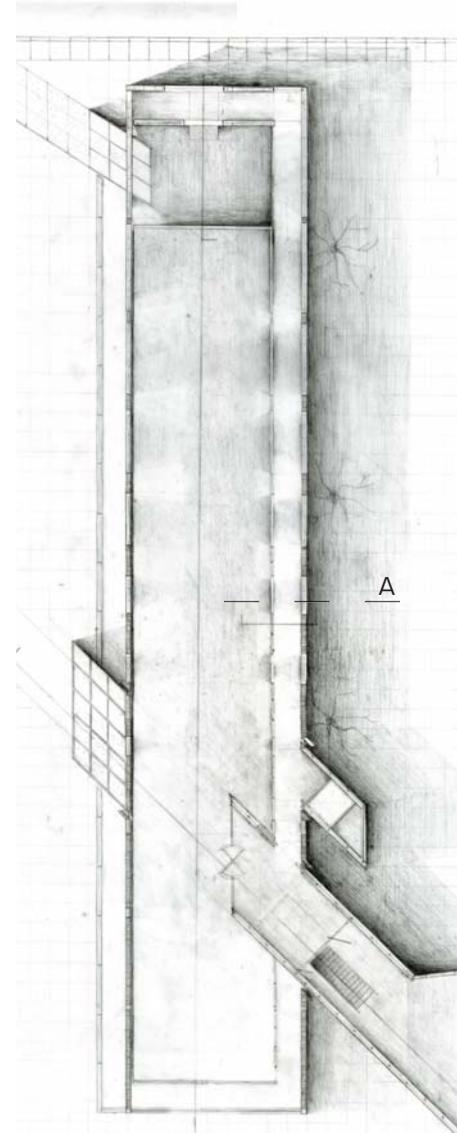
**Section and Plan.** The longitudinal section through the gallery and archive shows the progression of concrete and glass. The plan beneath shows the archive enclosure below the exhibition level relative to the external skin.



Axonometric Drawing



Section through Glass Wall

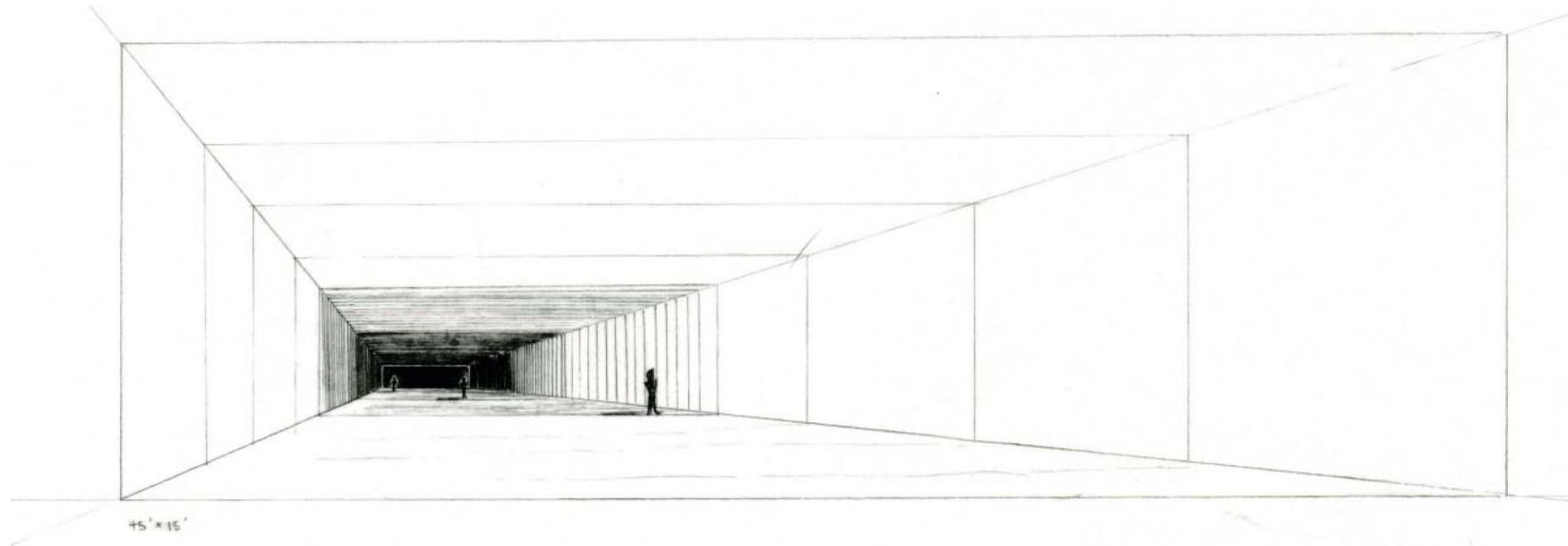
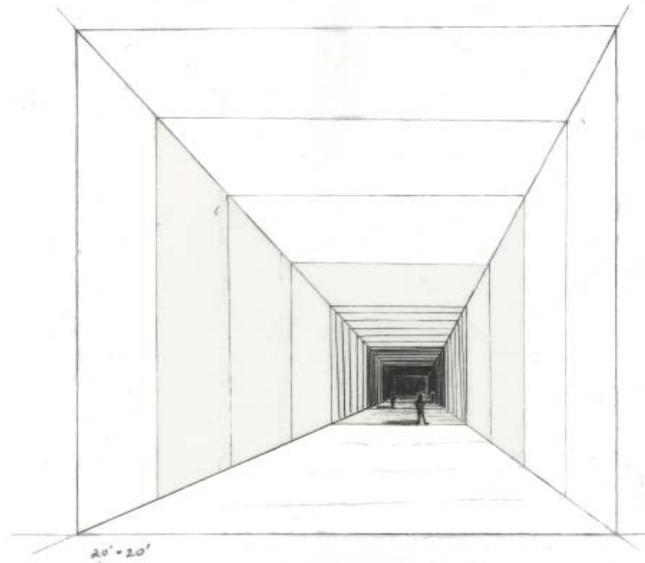
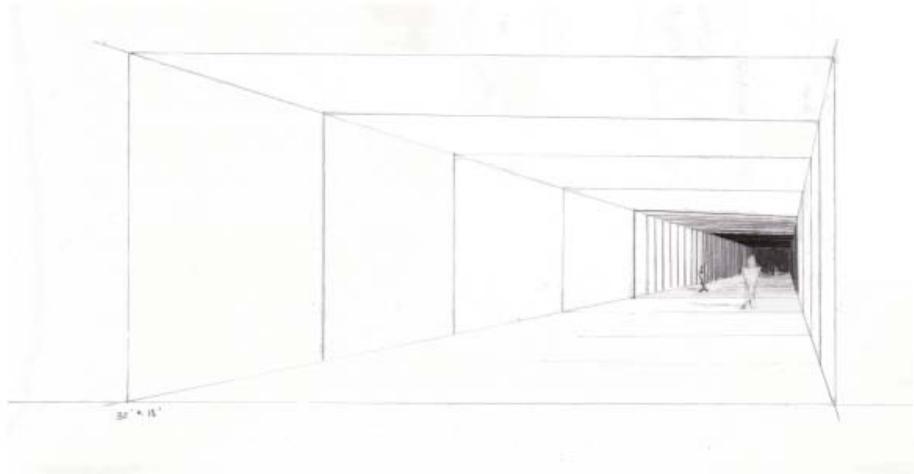


Exhibition Level Plan

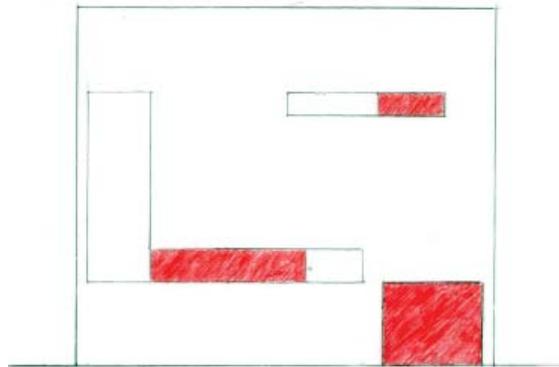
**THE USE OF GLASS.** The glass wall in the Laminata House is 15 feet tall. To address wind-load on a 30' glass wall, metal plates are co-laminated intermittently throughout the glass sheets. An alternative would have steel cables running through the wall. In my drawings, this measure is not included.

To attach the glass to the concrete building, an embedded metal plate was placed at the base and cap of each glass sheet. This plate would be bolted or welded to the concrete foundation below and the concrete beam above.

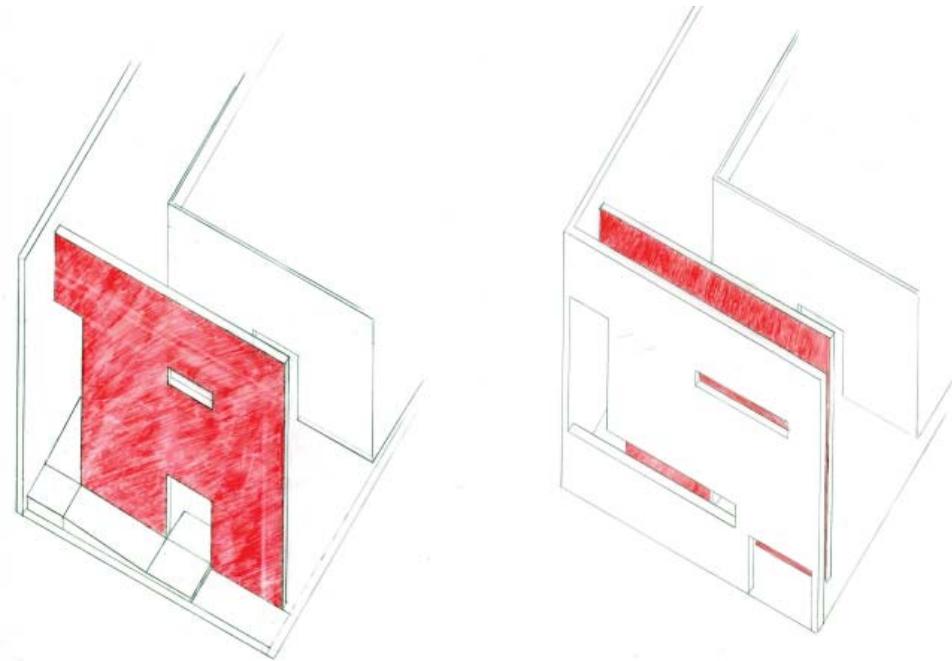
The span of layered glass as a ceiling in the photograph, wall section, and axonometric drawing, shows the continuity of the laminated glass overhead. A grid of concrete beams shortens the actual span of glass from 30 feet to 10 feet across from beam to beam. A skylight system over the glass beams prevent water from leaking in.



**PASSAGE AND PROPORTION.** The definition of 'passage' from light to dark depends greatly on its proportion. Proportionately, the exhibition level needs to be wide enough to allow for archival displays. The perspectives to the left probe for the proportions of the space which is 200' long, 30' wide and 15' high.



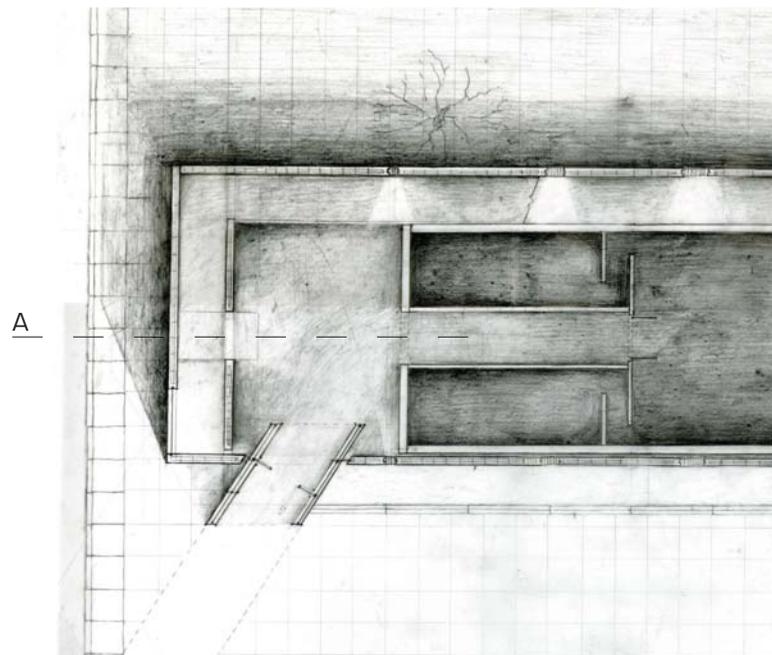
Wall Condition Study - Elevation and Axonometric



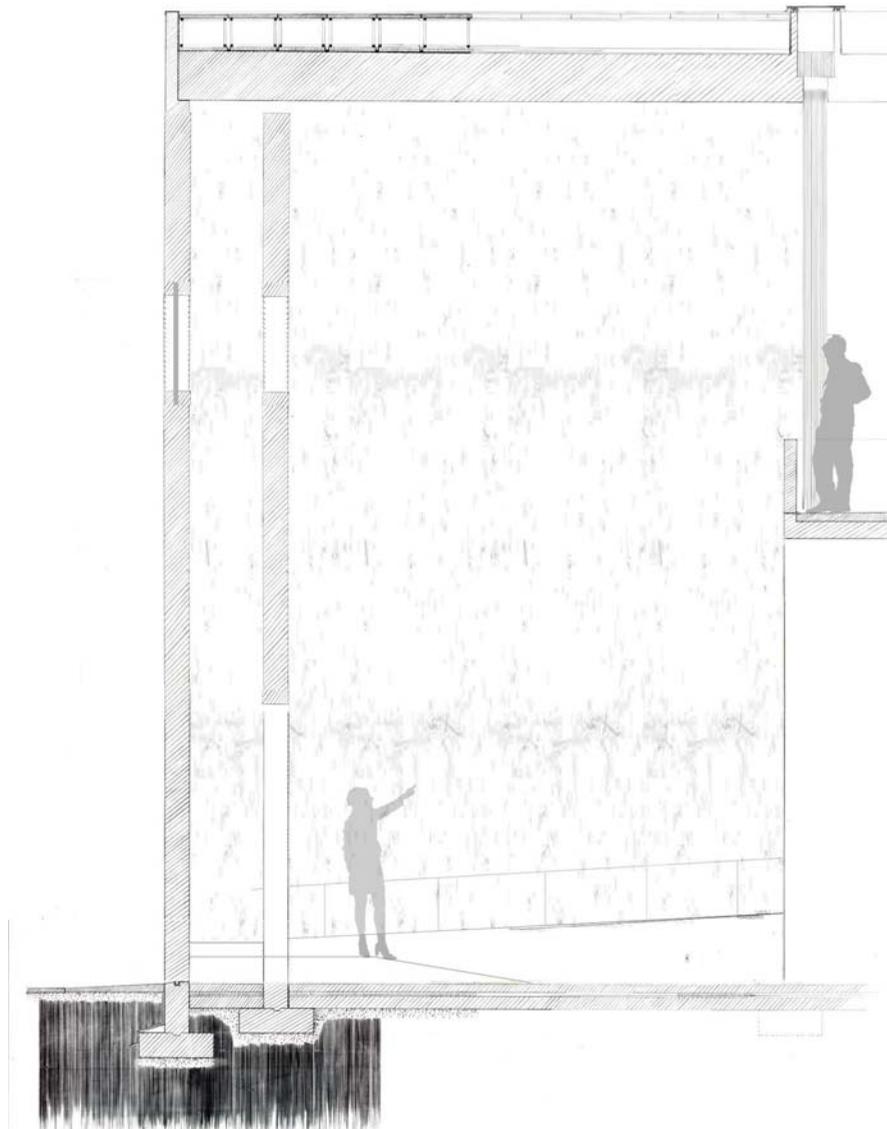
**NORTH-WEST WALL CONDITION.** The dark end of the building is defined with the addition of an inside wall, set in dialog with the parallel enclosing wall. Controlled openings through both walls allow for a small amount of light as a focal point at the end of gallery and emphasize the darkness; it allows for framed views toward Brush Mountain. The middle sketch reveals a small horizontal opening that allows a glimpse of the outside at head-level. A tall narrow opening where the ramp cuts through the wall allows a constant view of the outside during the descent. The inner wall, which is shown here in the axonometric sketch, has additional openings that allow views only at the moment between the two walls. One opening is located at head level as one is walking down the ramp. The final opening at the bottom right corner acts as a “window display” for the Archive to place samplings of new acquisitions or posters advertising special exhibitions. The red wall suggests the color of the IAWA with a red glow on the gallery side and announces the archive on the Perry Street side. The colored light provides for a vanishing point down the gallery passage due to the differentiation in light from the blue-green light that is diffused through the laminated glass walls.



End Wall Light Condition

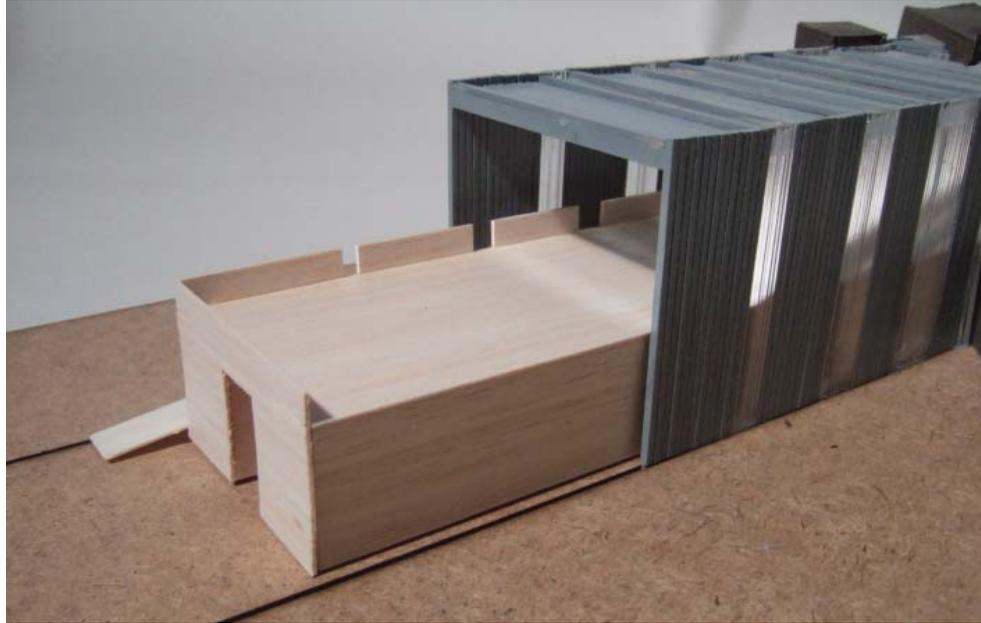


Plan of End Wall

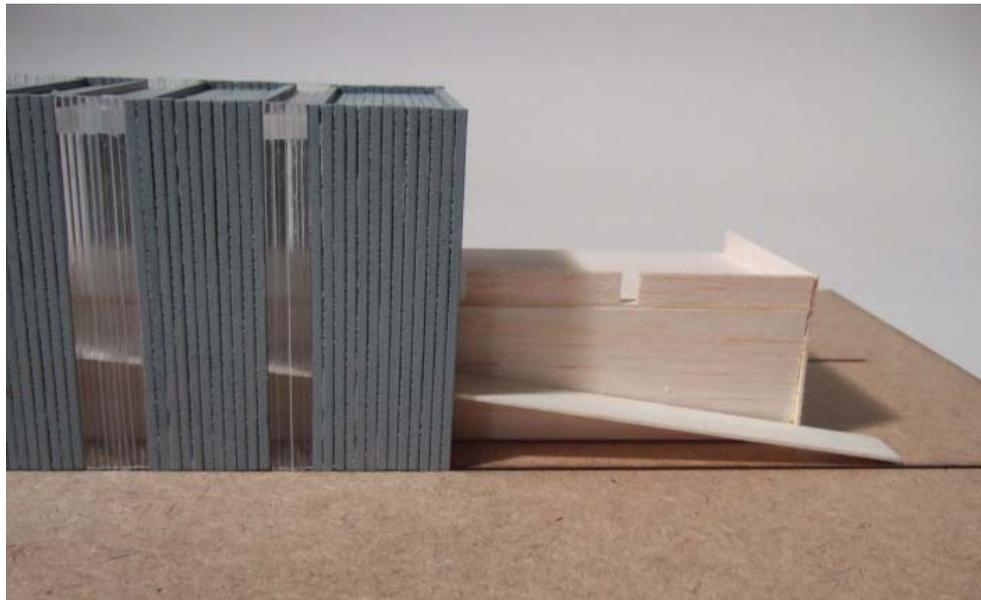


Section through End Wall

The dark North-West wall denies a direct view to Perry Street. The light South-East wall faces campus. The dark end becomes stronger with a very small amount of light permitted through the edge of the concrete wall and makes the darkness more prominent. The highly constrained views become extremely precious in a predominantly view-less building.

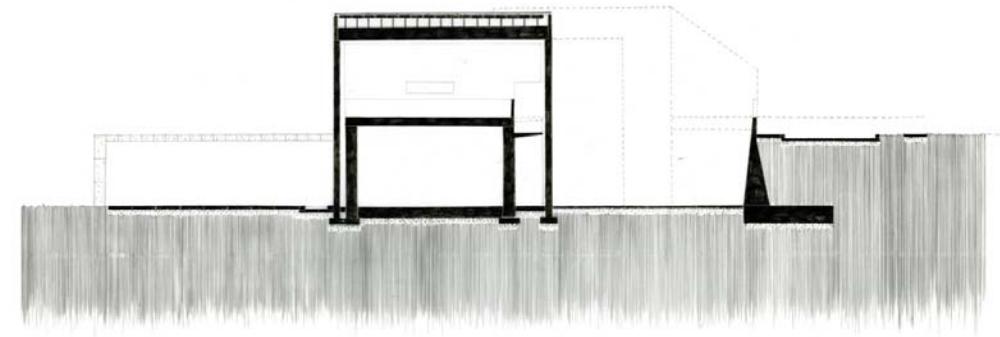


Outer Shell Peeled Away to Reveal the Inner Building

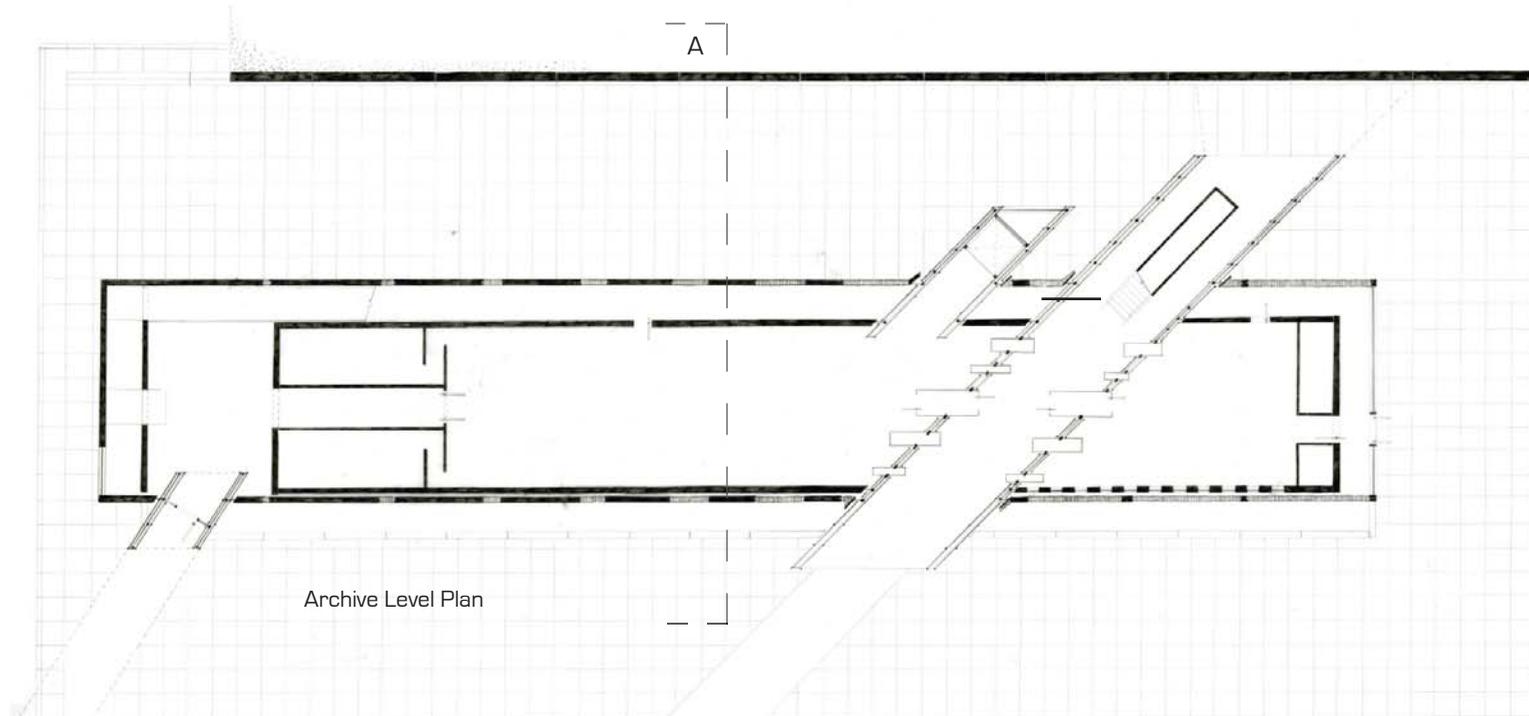


## THE ARCHIVE: A BUILDING WITHIN A BUILDING

The archive assumes an identity within the concrete and glass-layered outer shell as an independent building. The photographs to the left show the outer wall peeled back to reveal the inner structure. The separation gives the archive a sense of importance and protection. As an object inside a surrounding larger shell, the roof of the archive offers itself as an exhibition surface. The concrete of the archival tomb is smoother and lighter in color than the surfaces of the outer shell hinting the strong protective enclosure a more refined space. In the photographs to the right, the belonging of the ramp to the inner archive structure is sought through material similarities.

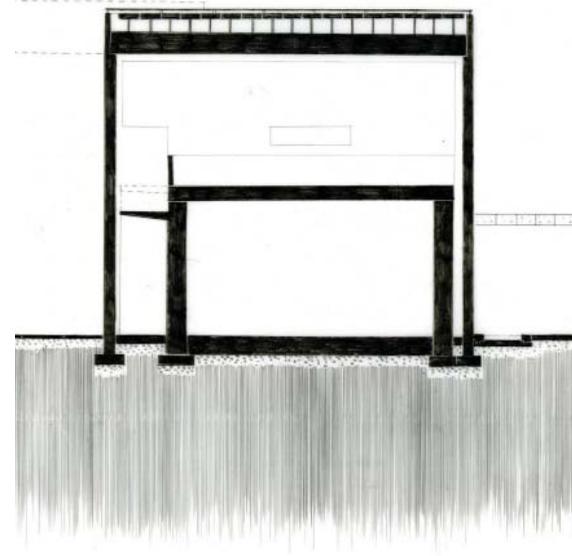
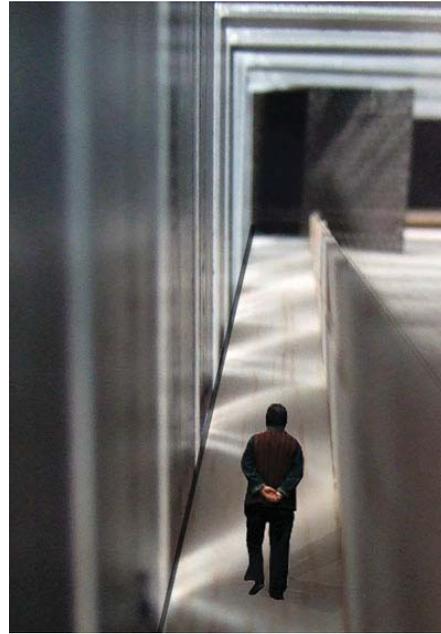


Cross-Section A



Archive Level Plan

The cross section and plan show the massing of the building. The idea of the archive as a building within a building is revealed here.

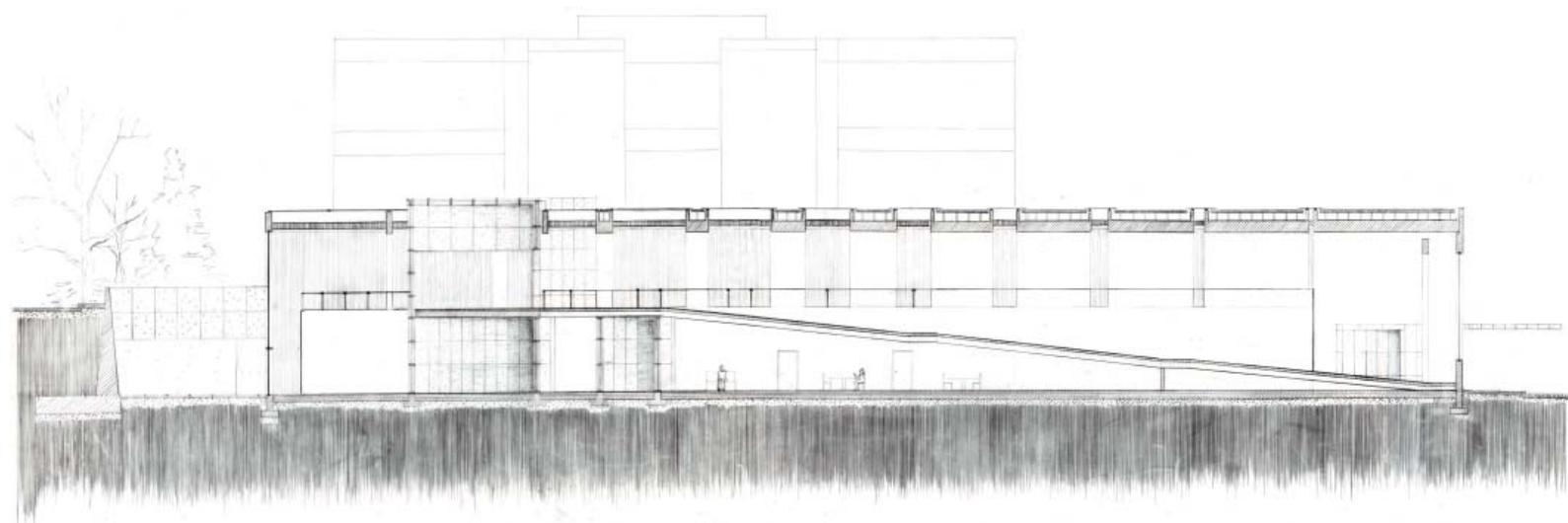


Ramp Cross Section

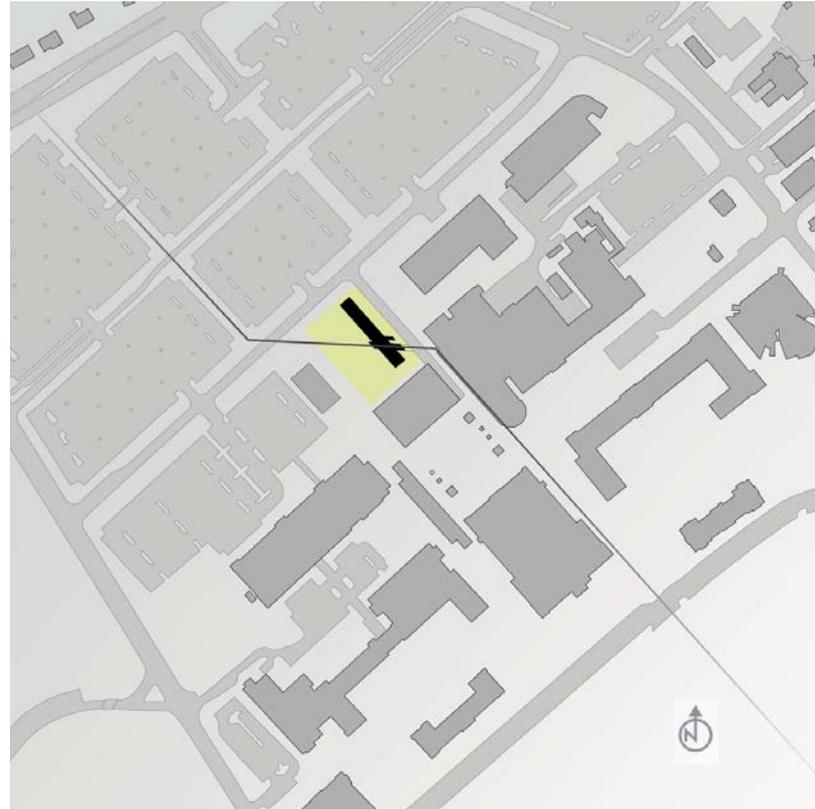
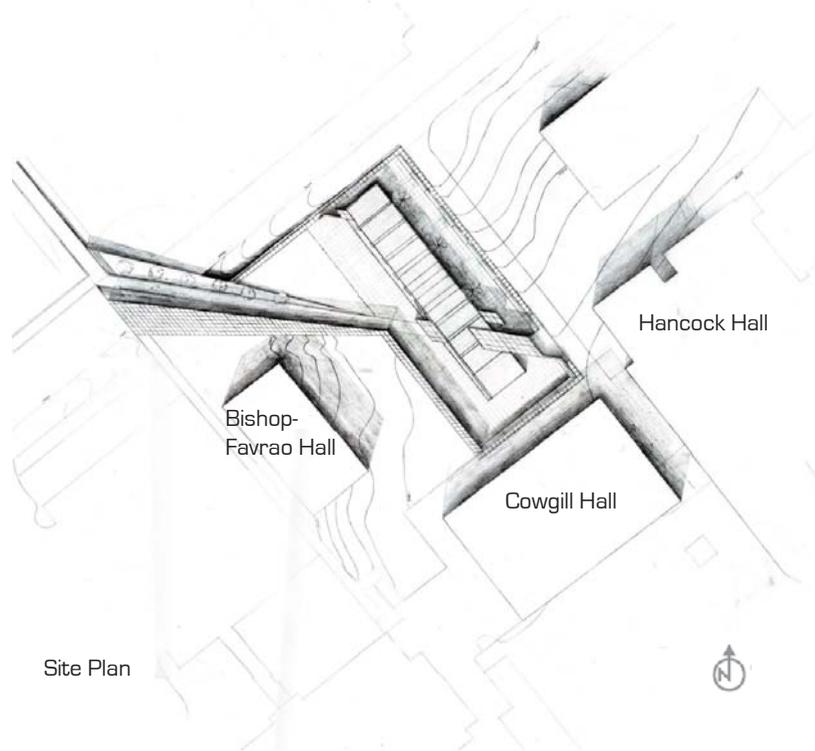


**THE RAMP AND THE ARCHIVE BOX.** The ramp runs alongside the north side of the archive and descends 15 feet from light to dark. From the exhibition level, it leads towards the archive entrance below. It is literally a passage down into the darkness of the ground level that ends at the archive's entrance. The section through the ramp explains the cantilever and slope along the archive sarcophagus. The ramp section thins as it reaches towards the outer shell. A three-inch gap separates the ramp from the glass and concrete wall, allowing light from below. This suggests that the ramp is an integral part of the sarcophagus.

A second purpose of the ramp is to form a roof for a reading zone below between the archive wall and the outer shell. It is an illuminated retreat adjacent to the dark archive. Access to this room only occurs from the archive.

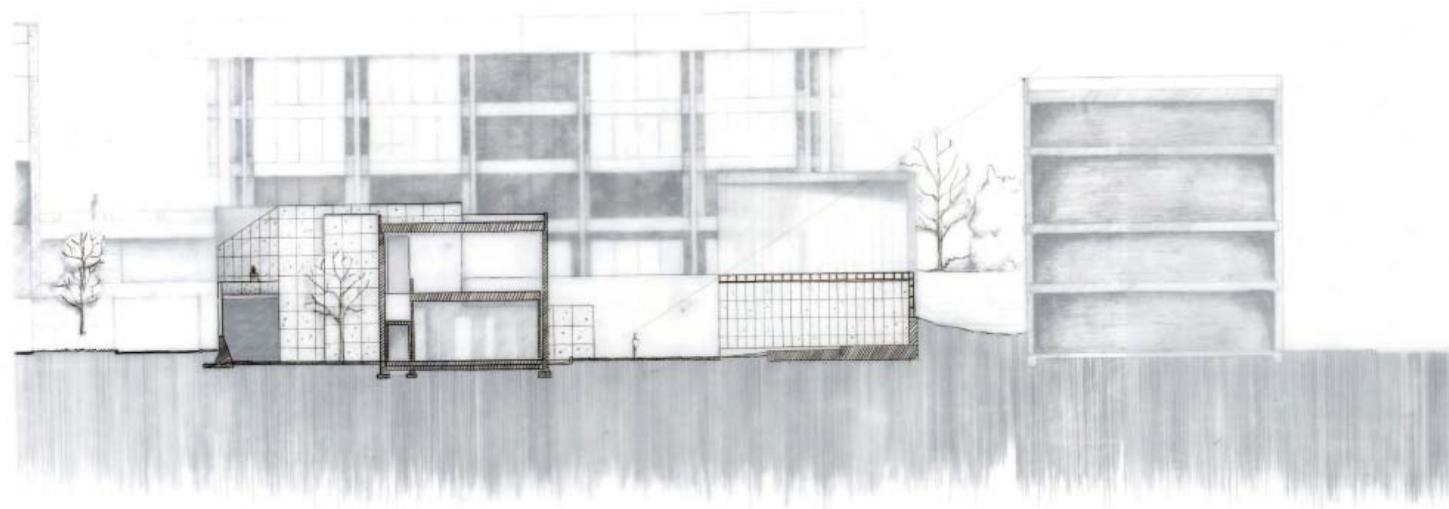


Ramp Longitudinal Section



### THE SECONDARY PASSAGE: A BROADER CONNECTION BETWEEN THE CAMPUS NETWORK AND THE ARCHIVE

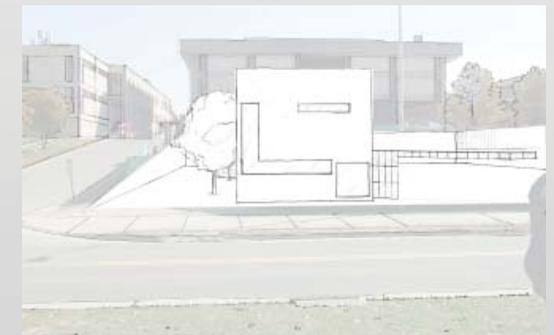
The secondary passage relates the archive to the greater context of site and is public in nature. The main entrance to building lies within this metal insertion and points directly to the covered stairs of Hancock Hall, one of the main entry points onto campus. In addition, the metal insertion allows passage through the archive structure enroute to other parts of the Virginia Tech campus. Not only does this tunneling passage provide exposure for the IAWA, it creates a strong connection with the rest of the campus. The reach extends all the way to the parking lot, leading towards and through the International Archive of Women in Architecture.

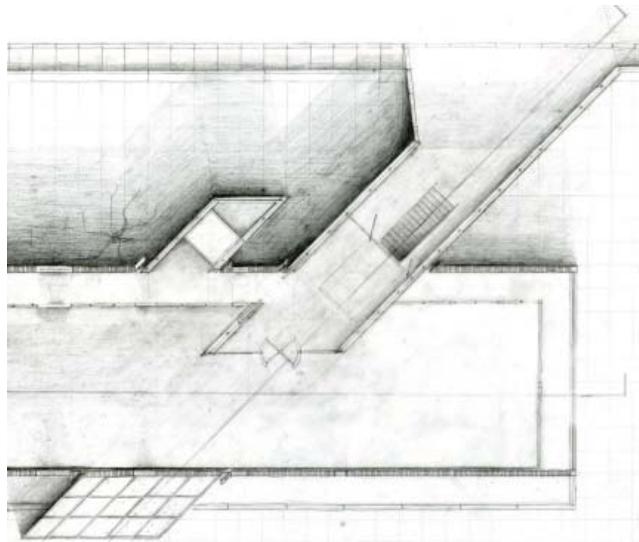


Site Section

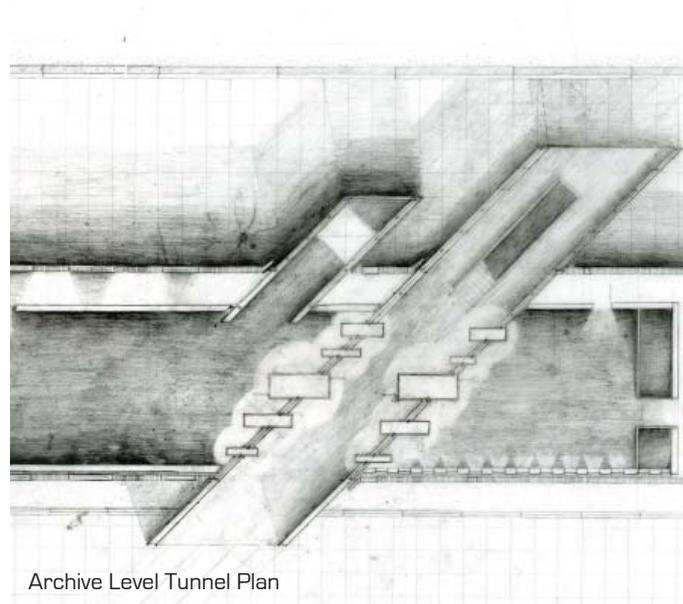
### THE ARCHIVE EXTENSION INTO CAMPUS.

The public passage is open to the outside and becomes a path connecting the campus network and the building to the Perry Street Parking Lot. The path itself is lined with perforated metal that prevents views of Bishop-Favrao Hall, the new building construction building. The tunnel allows a covered and more direct route onto campus, guiding students directly into the path of the IAWA. It initiates human interaction with the IAWA site. A constant flow of people walking through promotes the IAWA plaza as a gathering place for students, thus bringing more into contact with the archive.

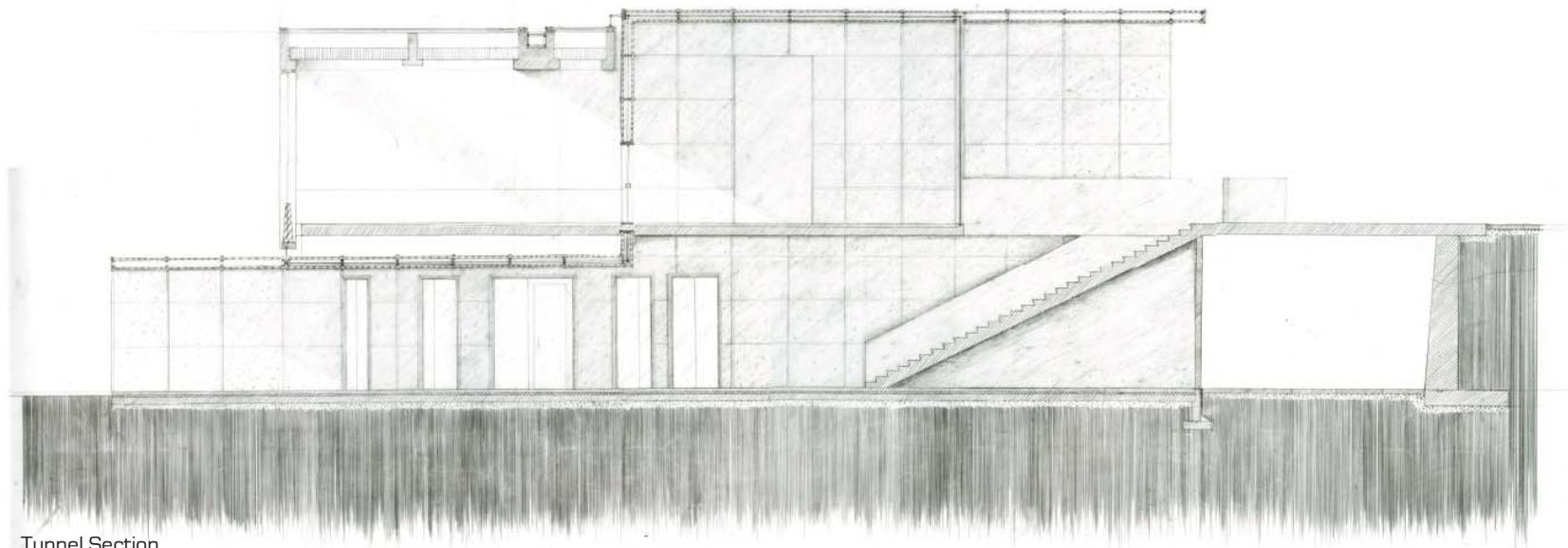




Exhibition Level Tunnel Plan

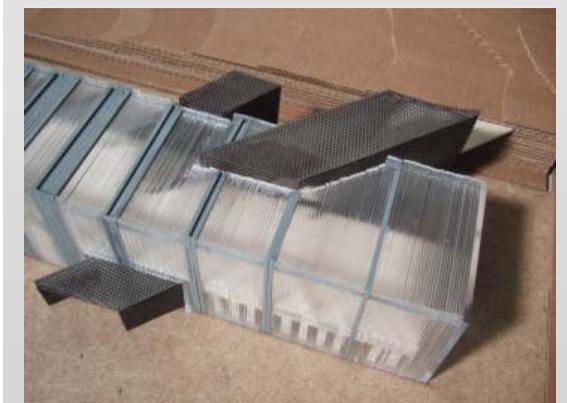


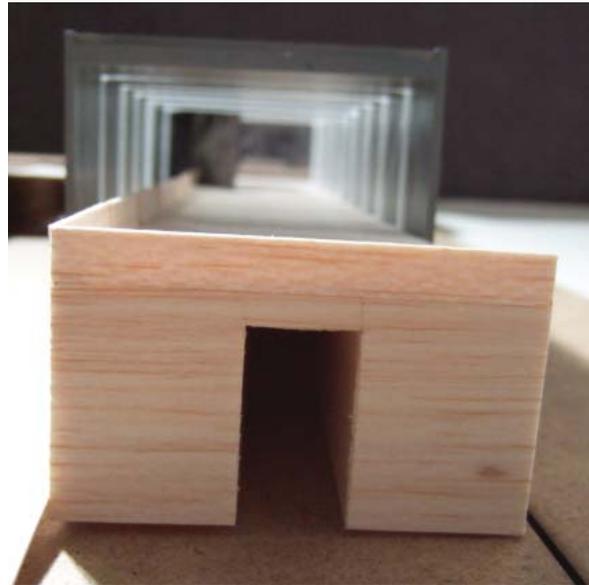
Archive Level Tunnel Plan



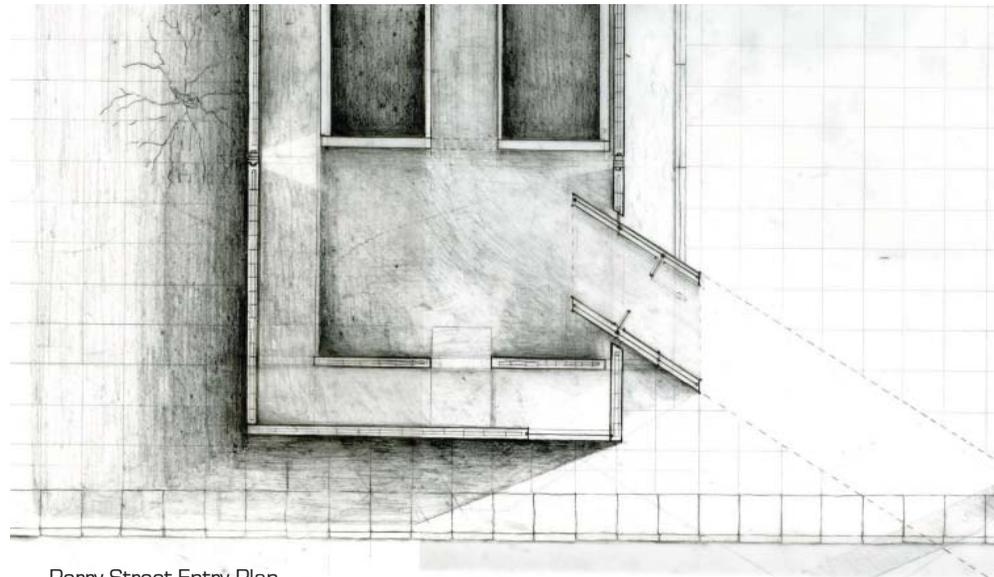
Tunnel Section

**ENTRANCE DEFINITION.** A major angled insertion defines both entrance into the building and public path through the building. The photograph below shows a large insertion cutting through the main building. This volumetric insertion is an important signal of public passage also through the building and also a sign of main entry into the otherwise impenetrable volume. On the ground level it slices through the archive sarcophagus, allowing a sectional view into the archive while passing. The insertion surface is dominated of perforated metal screen mounted on a steel frame, with enclosing glass panes. The perforated metal allows visual access and the steel gives a clear differentiation between entry at the upper level and public passage at the archive level. Inside the bisecting tunnel, vitrines are inserted into the perforated metal to both illuminate the public path and offer educational displays. A smaller companion to the major insertion contains the elevator from the archive to the gallery.



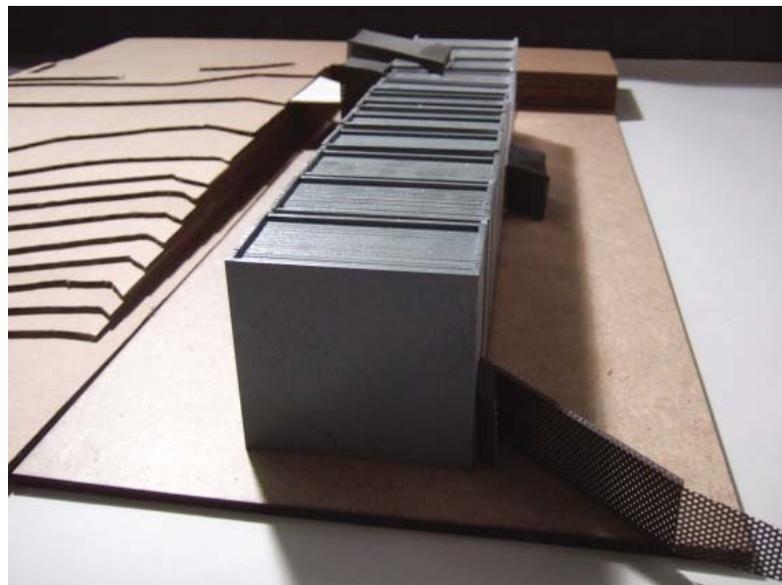


Photograph of Model: Archive Entrance

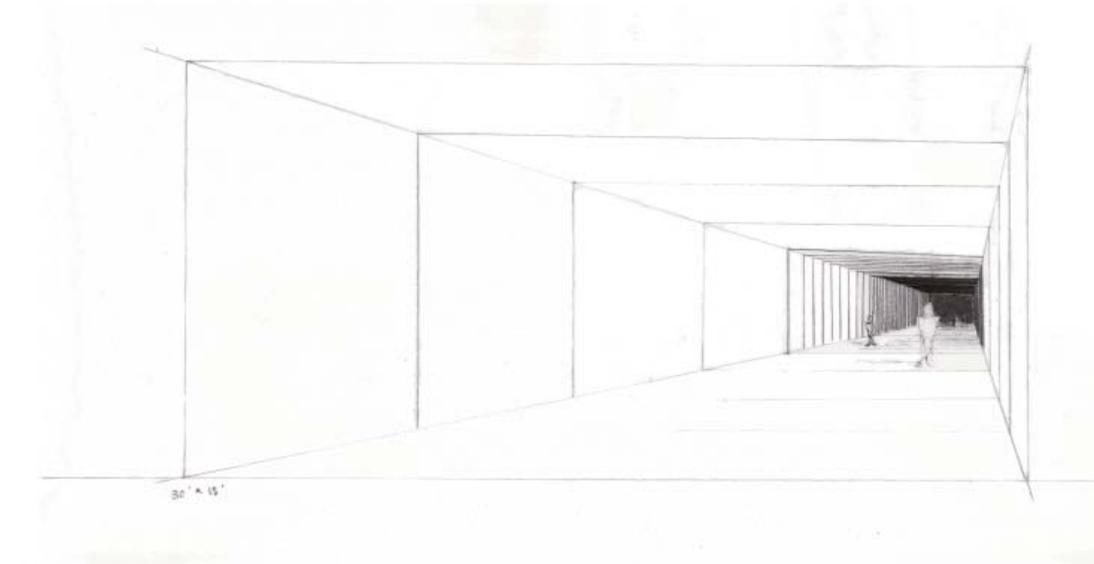


Perry Street Entry Plan

**Perry Street Entrance.** A smaller secondary entrance from Perry Street also employs perforated metal as an entry signal. It lines up directly with the inner entrance to the archive. The early model to the right shows the entry with a 6'-high wall that runs along the sidewalk, blocking a portion of the IAWA plaza. In the later plan to the right, a cantilevered steel roof extends along the same path and allows views and access from the sidewalk to the plaza.



Photograph of Model: Perry Street Entrance



## CONCLUSION

This work establishes the passage and its progression from light to dark as a signal for IAWA visitors making their way to a kind of archive sarcophagus. It is an investigation of the lamination of glass to form a dialog with concrete. An architectural passage connects the IAWA to the broader context of site and establishes the typology of archive as a sarcophagal building within another building.



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London: Lawrence King, 2006.

## PHOTOGRAPH CREDITS

### **Image 1, Page 3.**

[www.amis.org/meetings/2007/images/beinecke1.jpg](http://www.amis.org/meetings/2007/images/beinecke1.jpg) - April 28, 2008

Photograph by Michael Marsland

### **Image 2, Page 3.**

[www.ultimatehouse.tv/pics/laminata-small.jpg](http://www.ultimatehouse.tv/pics/laminata-small.jpg)  
- April 28, 2008

Photograph by Christian Richters and Luuk Kramer

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