

Newport Sanctuary & Community Center

by Jeffrey Allen Mayfield

Thesis submitted to the faculty of
Virginia Polytechnic Institute
&
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in partial fulfillment for the degree of

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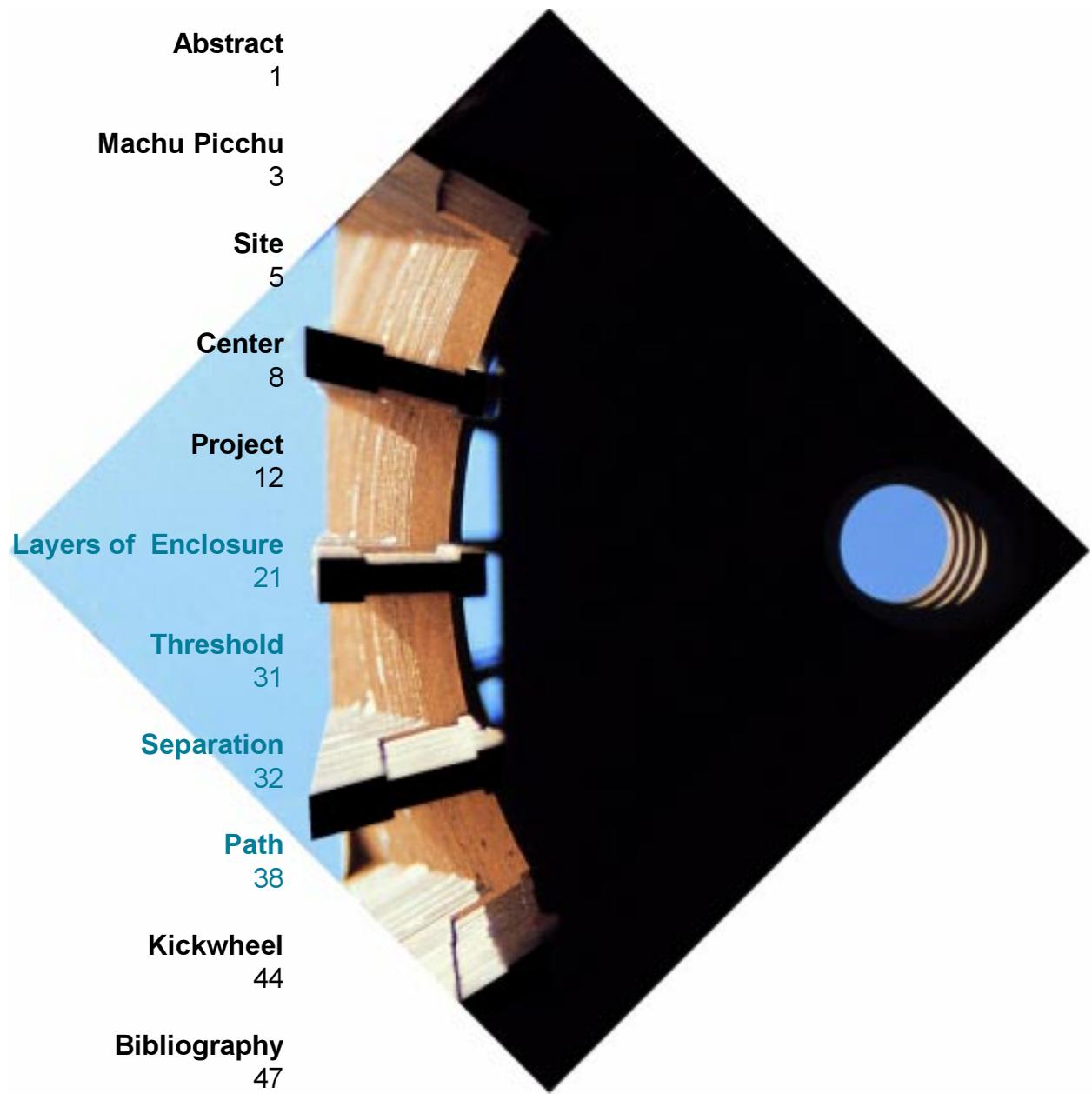
Approved by

Hunter Pittman, Chairman

Michael O'Brien

William Brown

February, 1999
Blacksburg, Virginia



Abstract	1
Machu Picchu	3
Site	5
Center	8
Project	12
Layers of Enclosure	21
Threshold	31
Separation	32
Path	38
Kickwheel	44
Bibliography	47

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Abstract

Architectural treatment of sacred and non-sacred space is the primary focus of this thesis. The sacred space is enclosed by a cylinder making known the presence of center. A cube endures the non-sacred space that exists outside the sanctuary. Corbelling reveals the thickness of the threshold that simultaneously separates the two types of spaces and geometries. The secondary objective of this inquiry is a harmonious balance between light, material, and shape. The project is a structure, in Clover Hollow of Giles County Virginia, that will be used for worship, meditation, and social functions for the community of Newport.



Residential sector, Machu Picchu, Jan. '98

Machu Picchu

Machu Picchu, recognized as 'the lost province of the Inca', stands alone on the western edge of the Amazon Jungle. The Inca Civilization created architecture that established a harmonious alliance with the natural environment. Agricultural terracing, observation platforms, and magnificent ceremonial architecture bring to light a reverence for place.

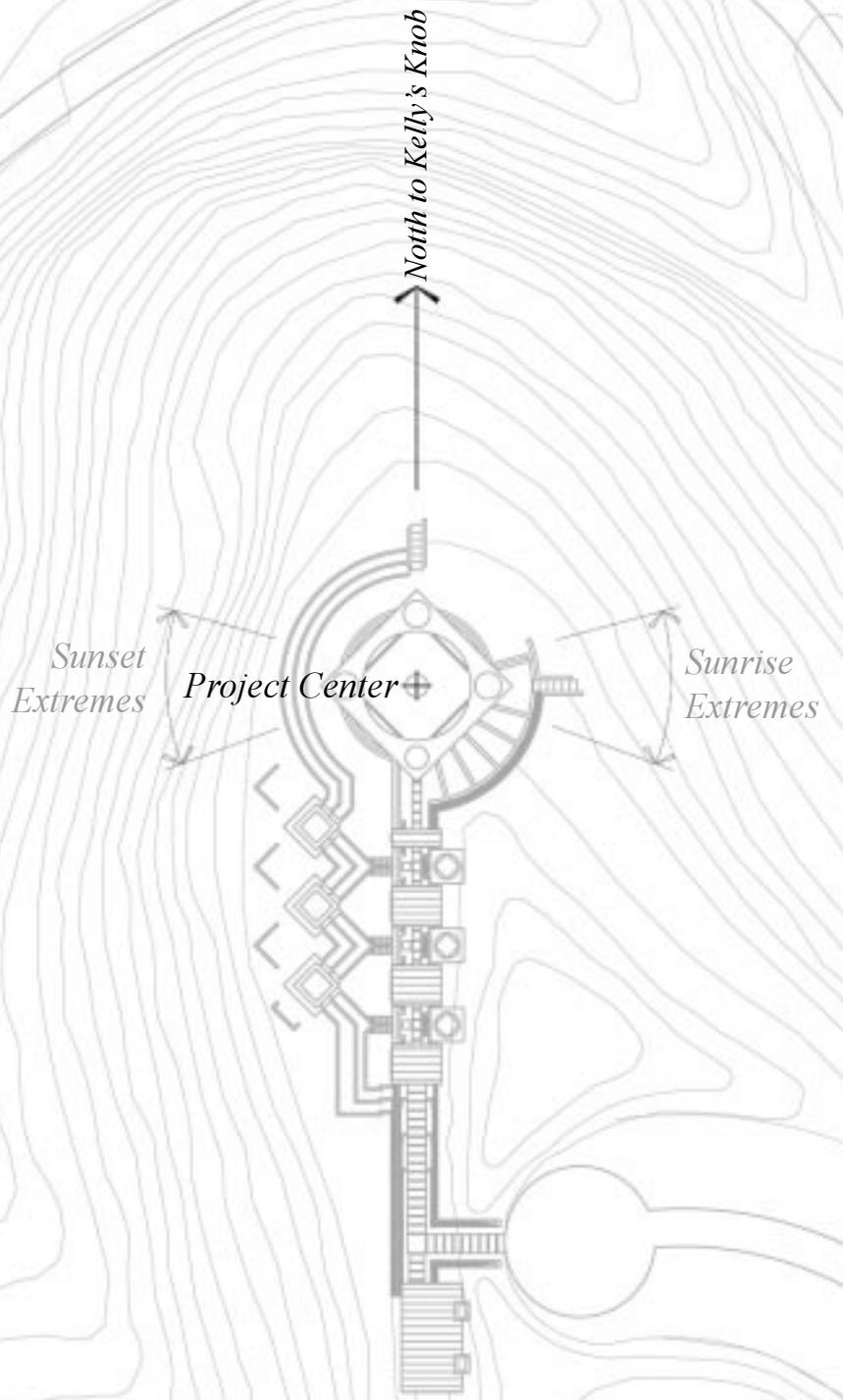
Architecture, whether as a town or a building, is the reconciliation of ourselves with the natural land. At the necessary juncture of culture and place, architecture seeks not only the minimal ruin of landscape but something more difficult: a replacement of what was lost with something that atones for the loss. In the best architecture this replacement is through an intensification of the place, where it emerges no worse for human intervention, where culture's shaping of the place to specific use results in a heightening of the beauty of the landscape. In these places we seem worthy of existence.
W. G. Clark. Essay on "Replacement", in *Modulus*, p. 2.



Machu Picchu, Jan. '98

The non-secular precinct (left) is divided from secular (right) by a central courtyard. Huayna Picchu is the sacred mountain to the north of the site and is the focus of the lines created by the balanced union of the city and the topography.

Summer Sunset
Mountain Lake





Clover Hollow from Kelly's Knob, Carol Noblit

Site

The Newport Sanctuary is placed on a site that is in view of a well known pinnacle of Clover Hollow, known as Kelly's Knob. Kelly's Knob is a natural rock formation, located near the Appalachian Trail, that overlooks the Hollow. From this outcropping the setting sun can be observed immersing Clover Hollow and the New River Valley in a spectacular orange wash.

The topography of the project site allows for the main axis of the complex to be aligned with Kelly's Knob. The north corner of the sanctuary, which holds the baptismal pool, points toward the formation. The east and west corner of the main sanctuary each hold a small chamber for private prayer. Sunlight filters into the sanctuary through screened doorways. The sunset is the focus of three private chapels along the path to the main sanctuary.





Center

The aspect of center is an essential element for ceremonial architecture. In the following examples center is a point, a space, an axis, or a geometric necessity, with an underlying experiential truth.

The Big Horn Medicine Wheel, in the Big Horn Mountains of Wyoming, represents interlocking themes valued by Native American peoples. Myth, magic, and meaning are centrally anchored to this highest point in Wyoming. The medicine wheel, the sweat lodge, and the bowl of a peace pipe are symbols of an infinite cycle in which they participate. With no beginning and no end, the circle represents the cycle of life and interconnectedness of all things. There are 28 spokes connecting the outer circle to a inner hub (suggesting an occult of the moon). Conical heaps of stones on the perimeter mark stellar backsites that occur on each of the three “warmest moons” of the year (Aveni, 288). This is the only time the site is approachable. The Big Horn Medicine Wheel sights the summer solstice sunrise and sunset revealing an astronomical consciousness consistent with prehistoric Mesoamerican and South American cultures.

A line carved into the indigenous rock of Machu Picchu perfectly bisects the June solstice morning sunlight as it shines through the temple window. Archaeo-astronomers speculate that a rod was used to cast a shadow accurately marking this event on the rock (Frost & Bartle, 15). The peculiar geometry of this structure is exclusive to temples of the sun.

The Pantheon is one of the most universally symbolic religious structures ever built. A beam of light through an oculus in the top of a hemisphere tracks the passing of each day.

The spiral minaret, of The Great Mosque in Samarra, circumambulates vertically about a central axis into the sky where an Imam calls out for prayer five times a day.

Partially underground and circular, *kivas* were the ceremonial structures for the Anasazi culture. All other Anasazi structures are rectilinear. The contrast in geometry represents a different attitude toward secular and non-secular architecture.



Big Horn Medicine Wheel, Wyoming, *Sacred Places in North America*, Courtney Milne, p. 11



The Torreón, or Temple of the Sun, Peru, *Machu Picchu Historical Sanctuary*, Frost & Bartle, p. 15



Pantheon, Rome, *Round Buildings, Square Buildings, & Buildings That Wiggle Like a Fish*, Philip M. Isaacson, p. 66



The freestanding spiral minaret, The Great Mosque, Samarra, Iraq, *The Mosque*, Dogan Kuban, p. 81



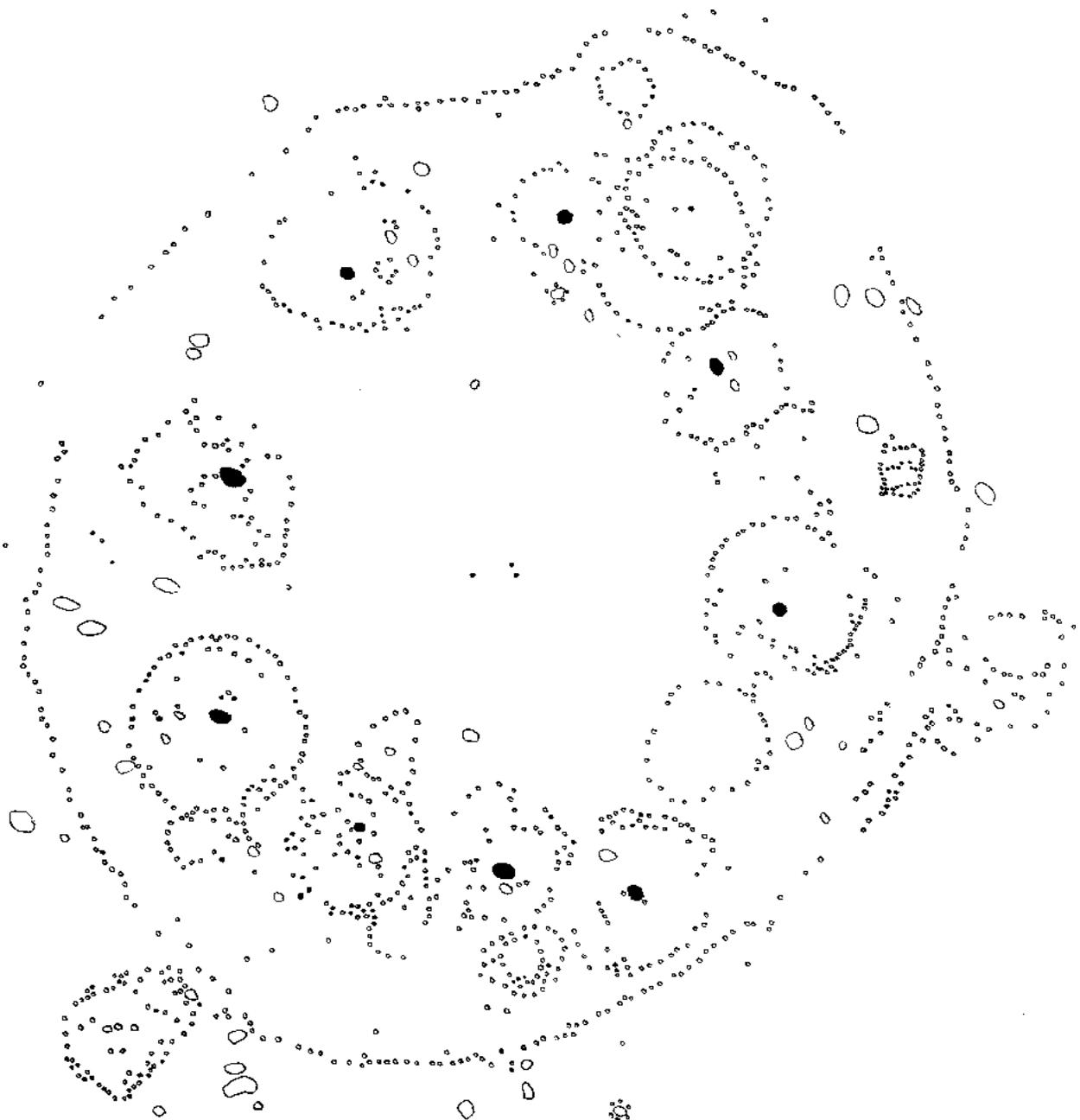
*Kiva, Pueblo Bonito,
Chaco Culture National Park,
Sacred Places in North America,
Courtney Milne, p. 61*

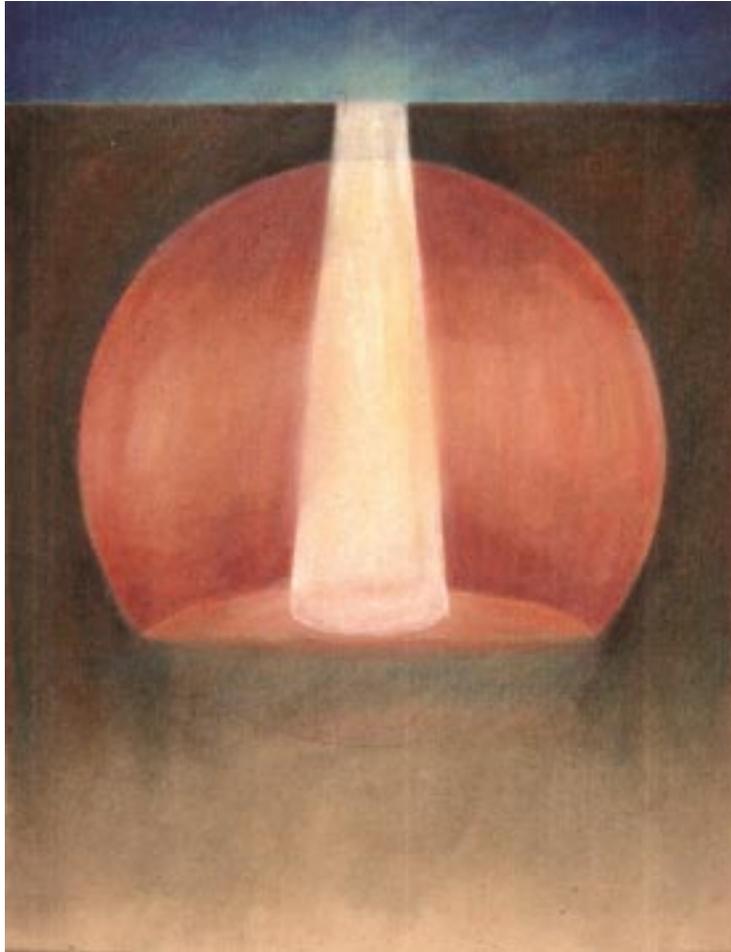


*Wolf Creek State Park,
Bland County, Virginia,
June '96*

Postholes in Bland County at Wolf Creek State Park reveal the pragmatic dependence on center for the organization and fortification of a village. The village was constructed with an abundantly available material that possesses characteristics desired for creating shelter (the principle role of architecture). Saplings from the surrounding forest efficiently provide a structural frame that would then be clad with large pieces of bark. Sinking the saplings into the ground in a circular plan made the structures stable. Each “wigwam” is centered over a firepit and the entire village is centered around a “Spirit Pole” used for ceremonial purposes.

In the above mentioned precedents, the aspect of center is achieved with strict geometric order, or an informal arrangement of materials. Each precedent represents the respective culture’s beliefs and state of technological advancement at the time of construction.





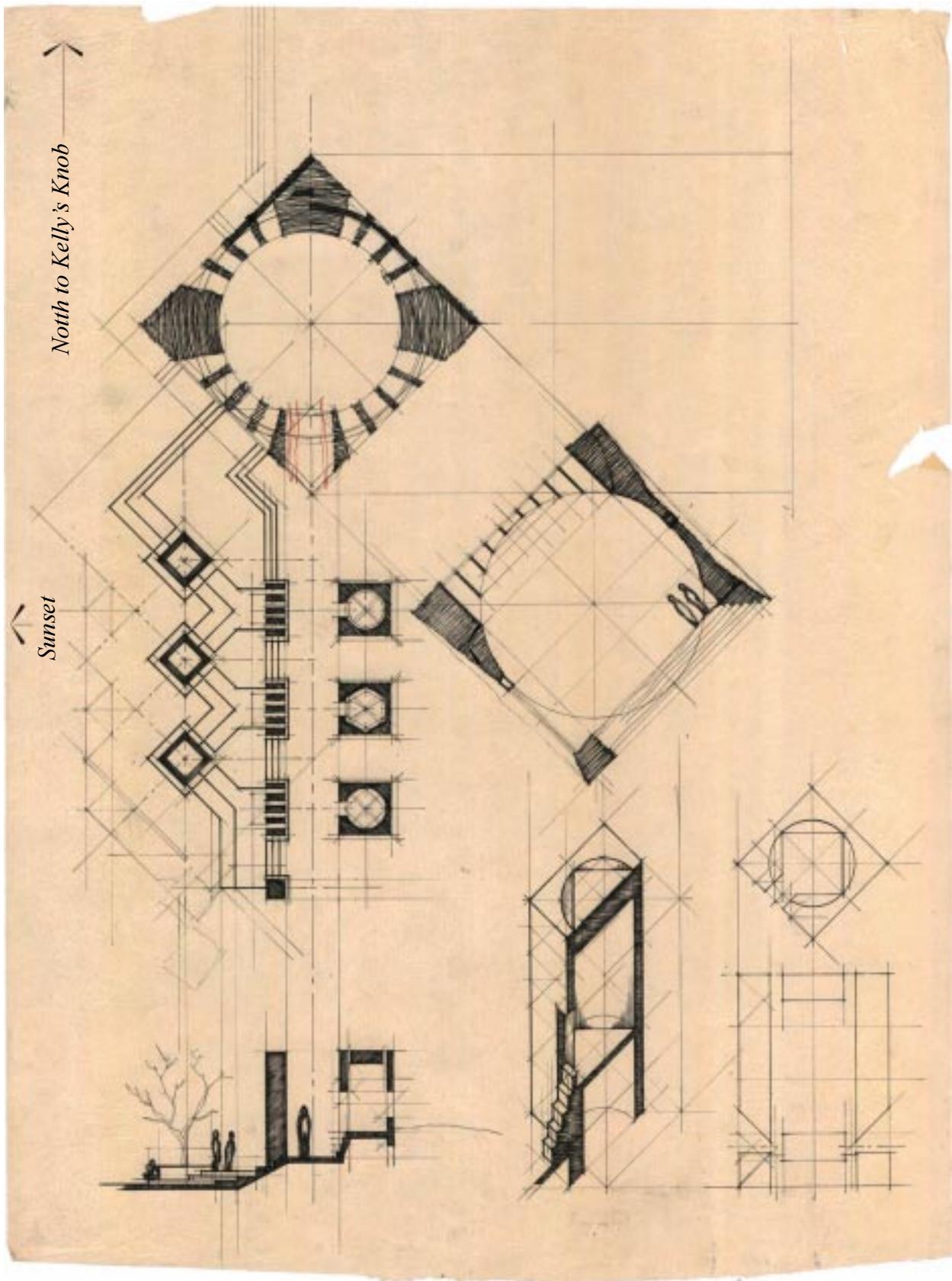
The idealization of center.



Brion Family Cemetery, S.
Vito d'Altivole near
Treviso, by Carlo Scarpa,
a + u, p. 164



Chiesa della Sacra famiglia
a Fratte, Salerno, *Paolo
Portoghesi*, Mario Pisani,
p. 16



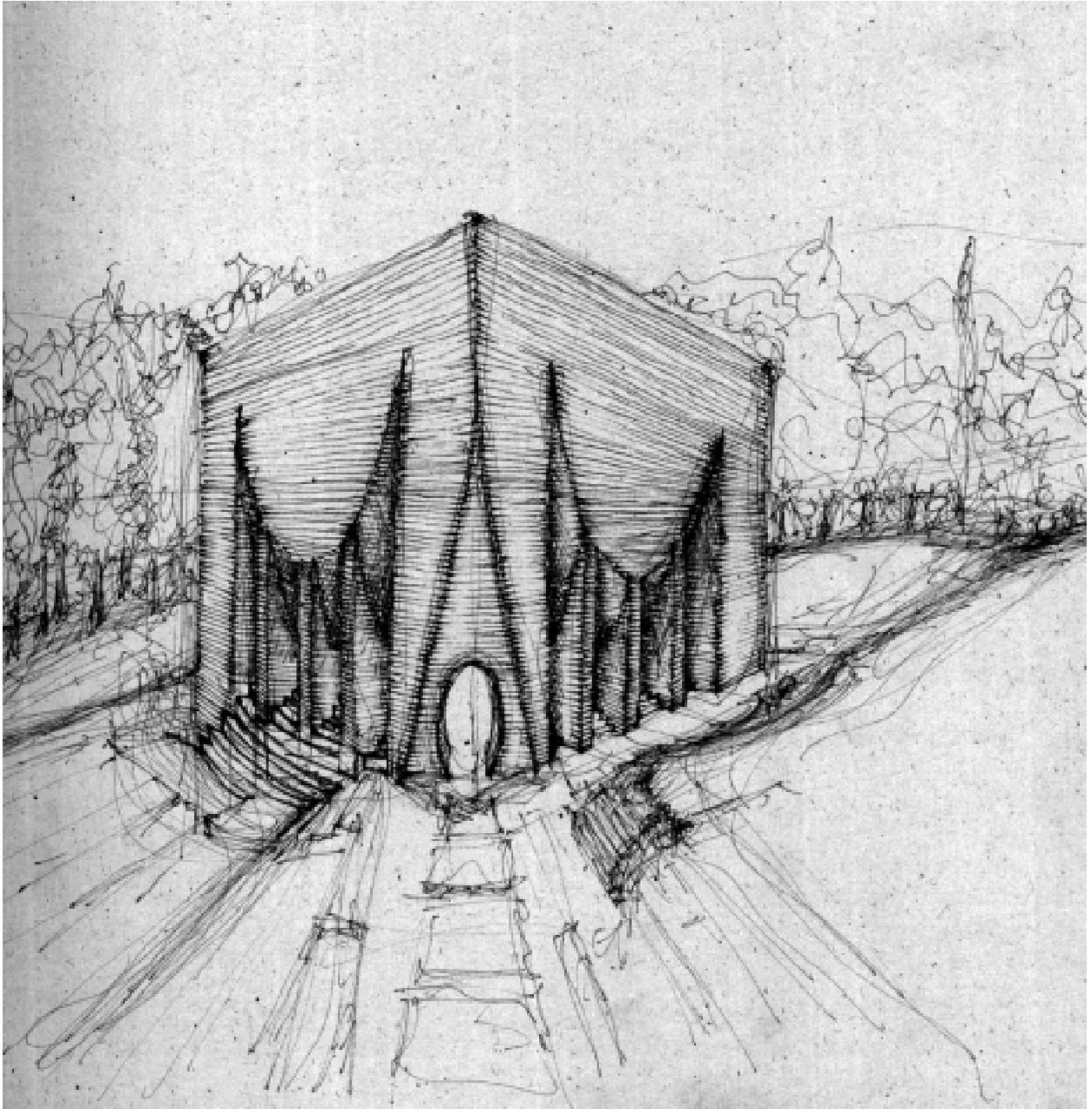
The initial idea of the project is to affirm center, as point in plan and axis in section, with plane geometry. An axial path leading to the main enclosure divides the complex into two sectors. Left of the path is the communal portion. This part is terraced for informal seating. Three willow trees (*Salix Matsudana*) provide shade in the summer and an attractive silhouette in the winter. Right of the path are three meditation chambers facing the setting sun.

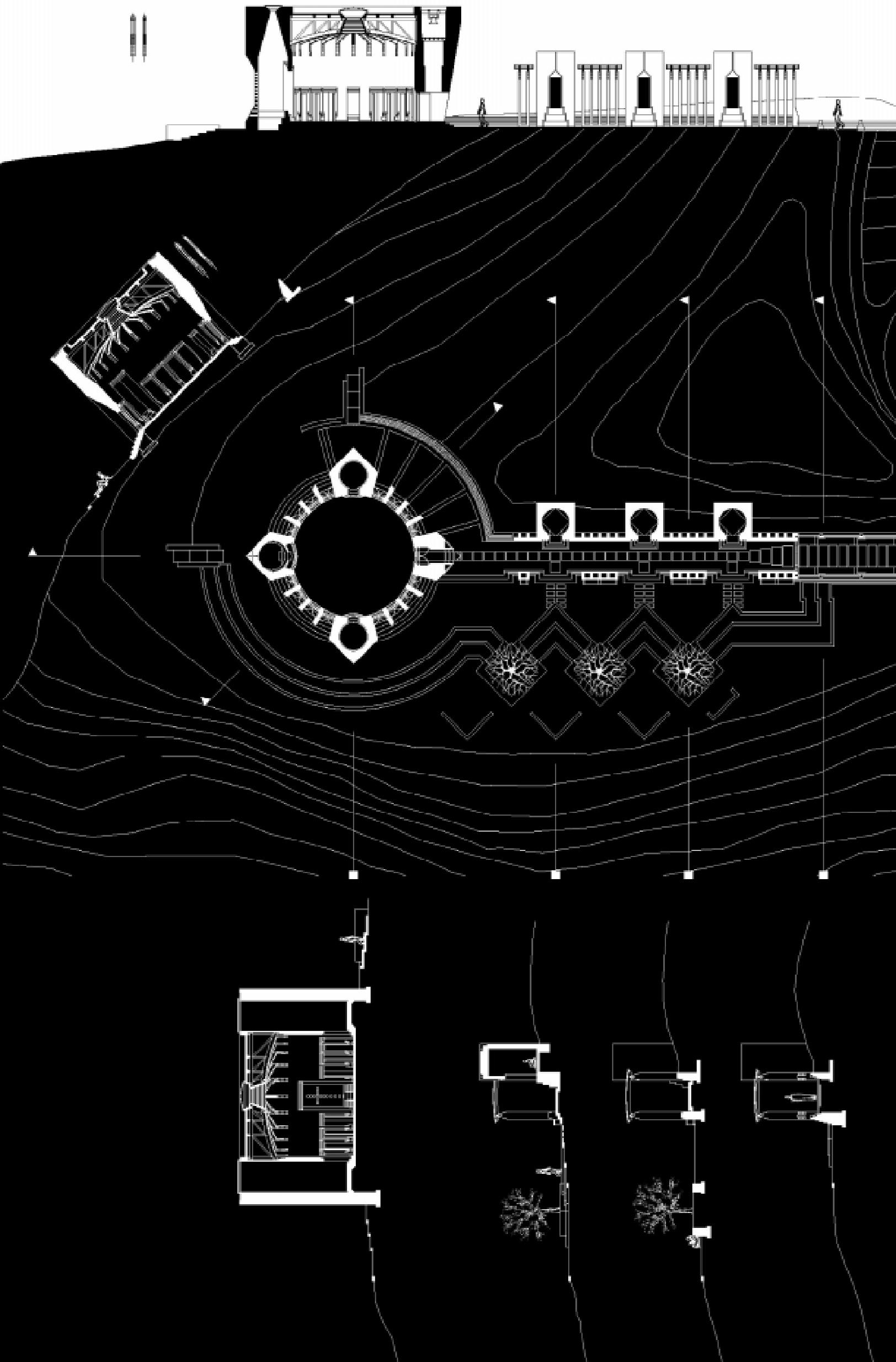
Salix Matsudana,
All About Trees,
 Barbara Ferguson,
 p. 45

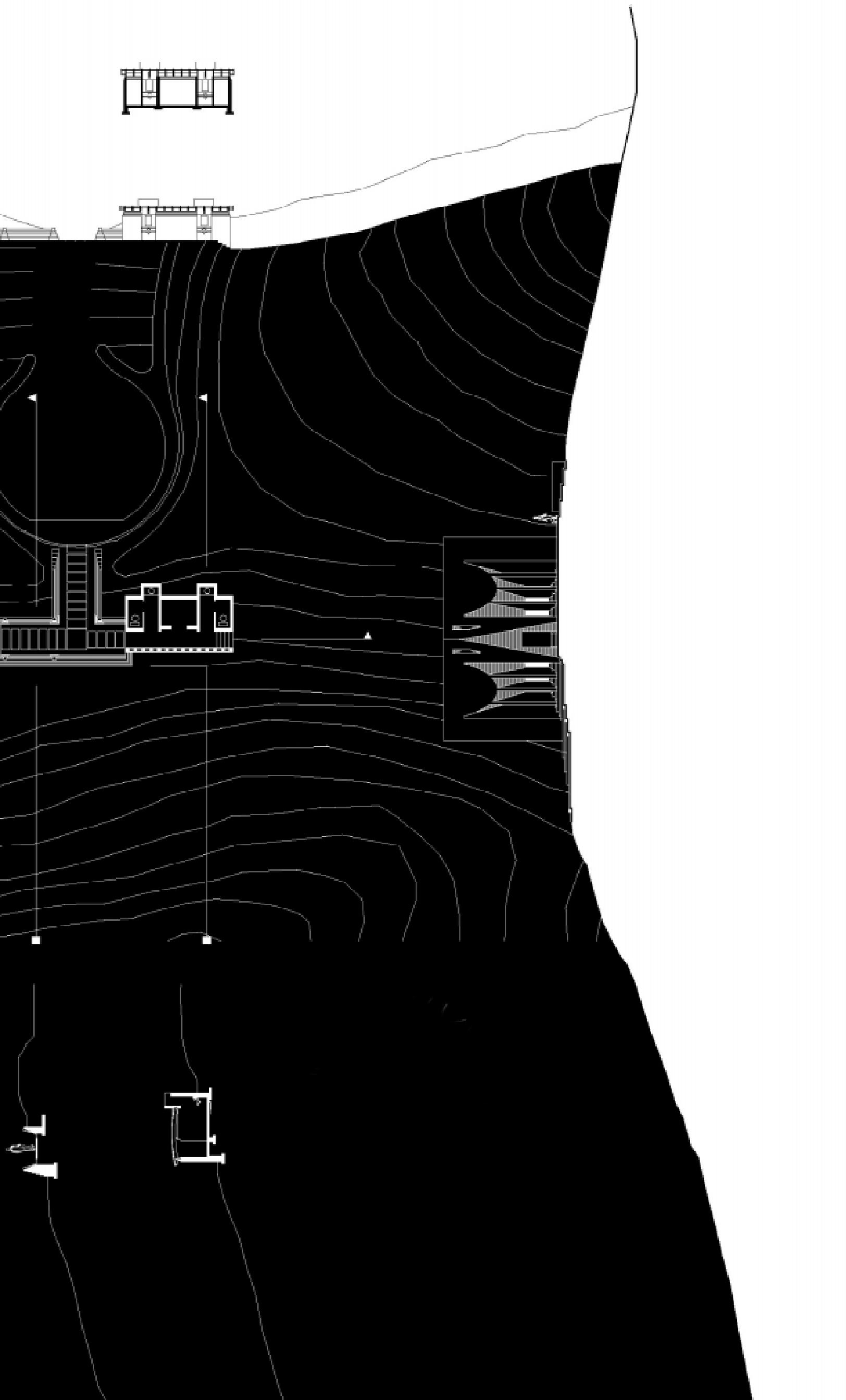


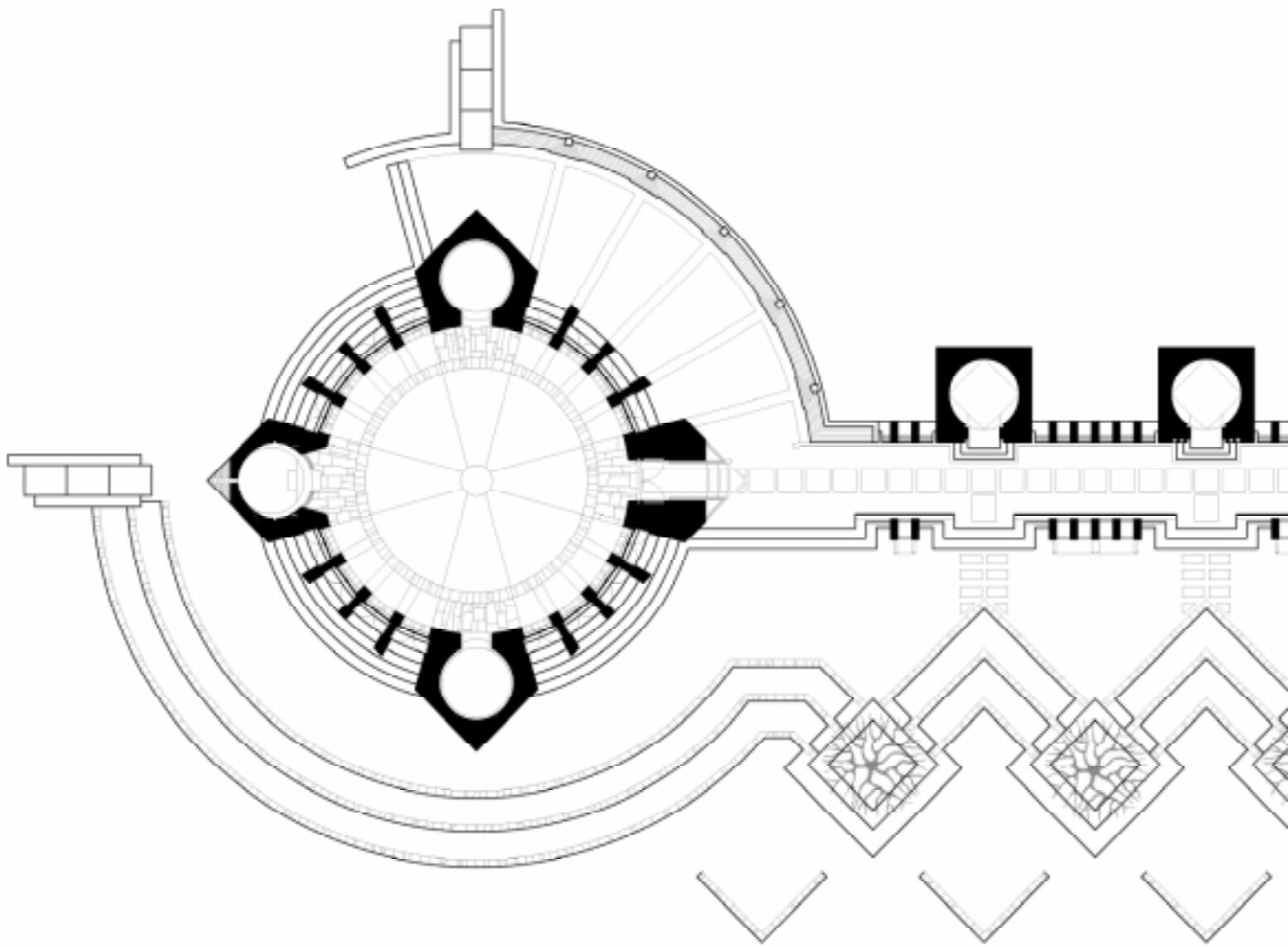
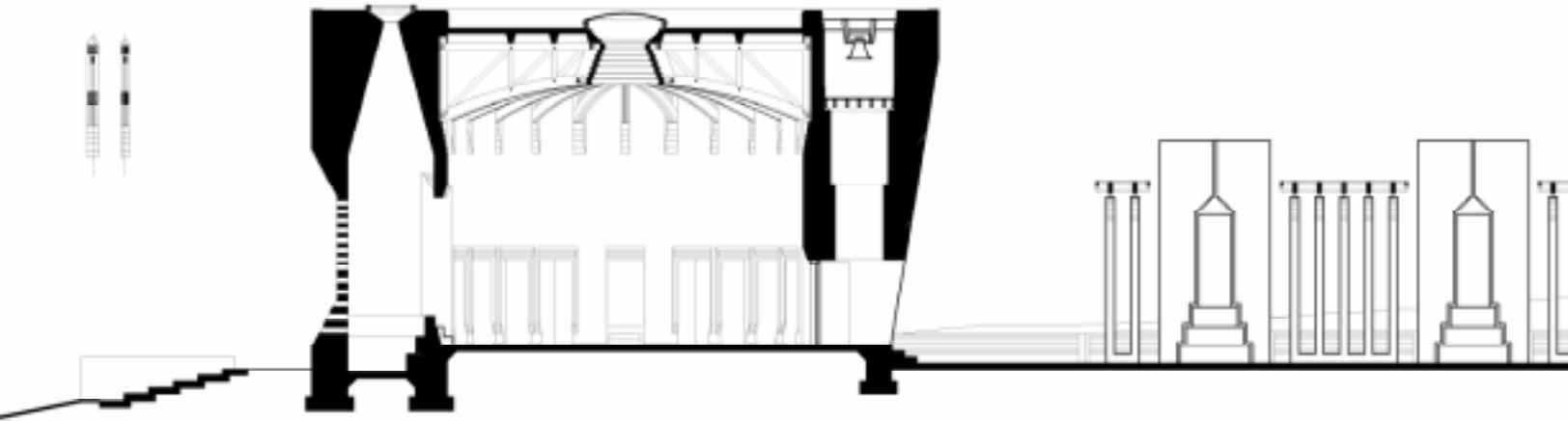
Project

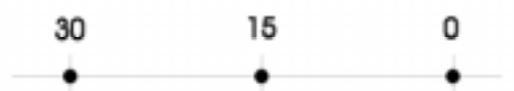
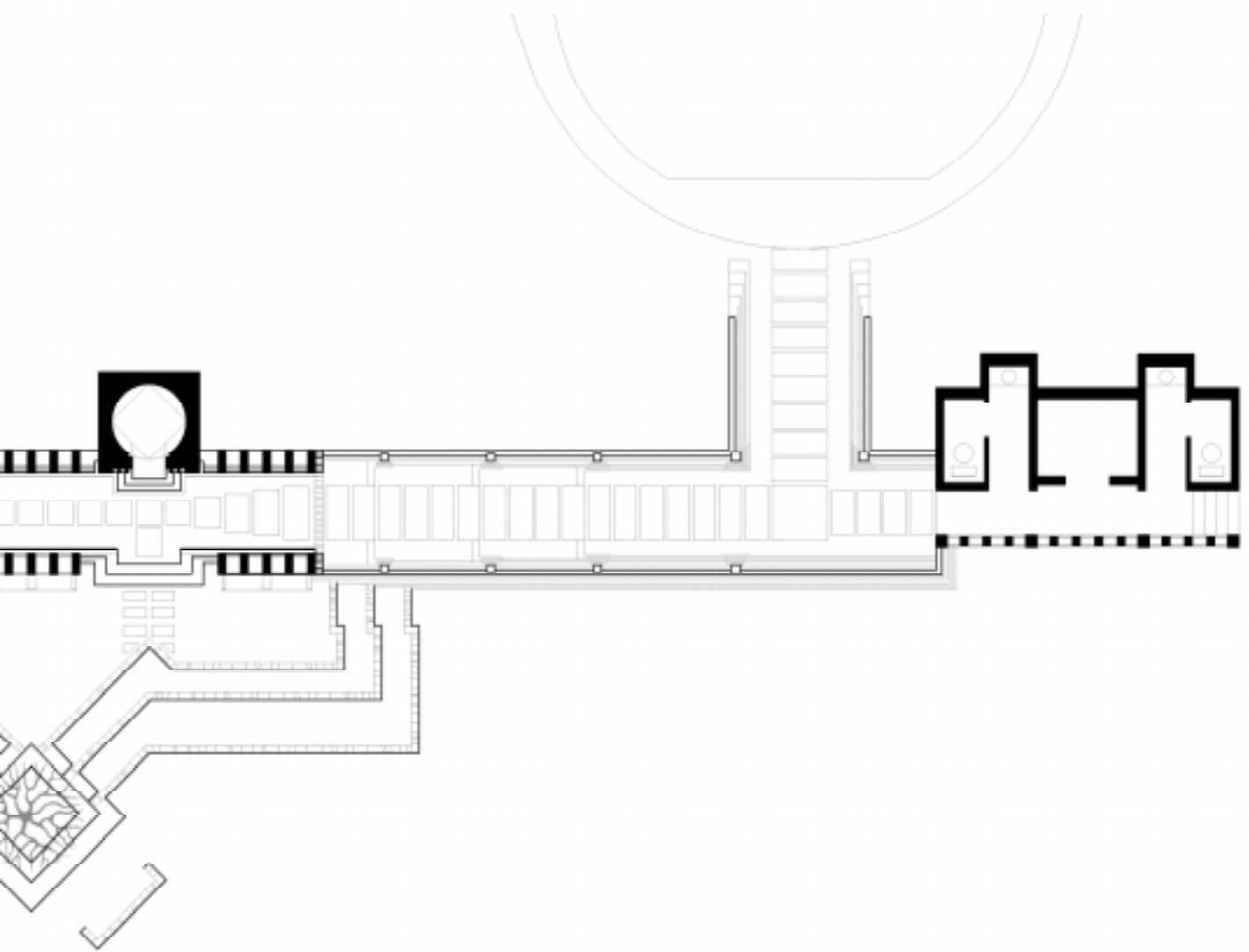
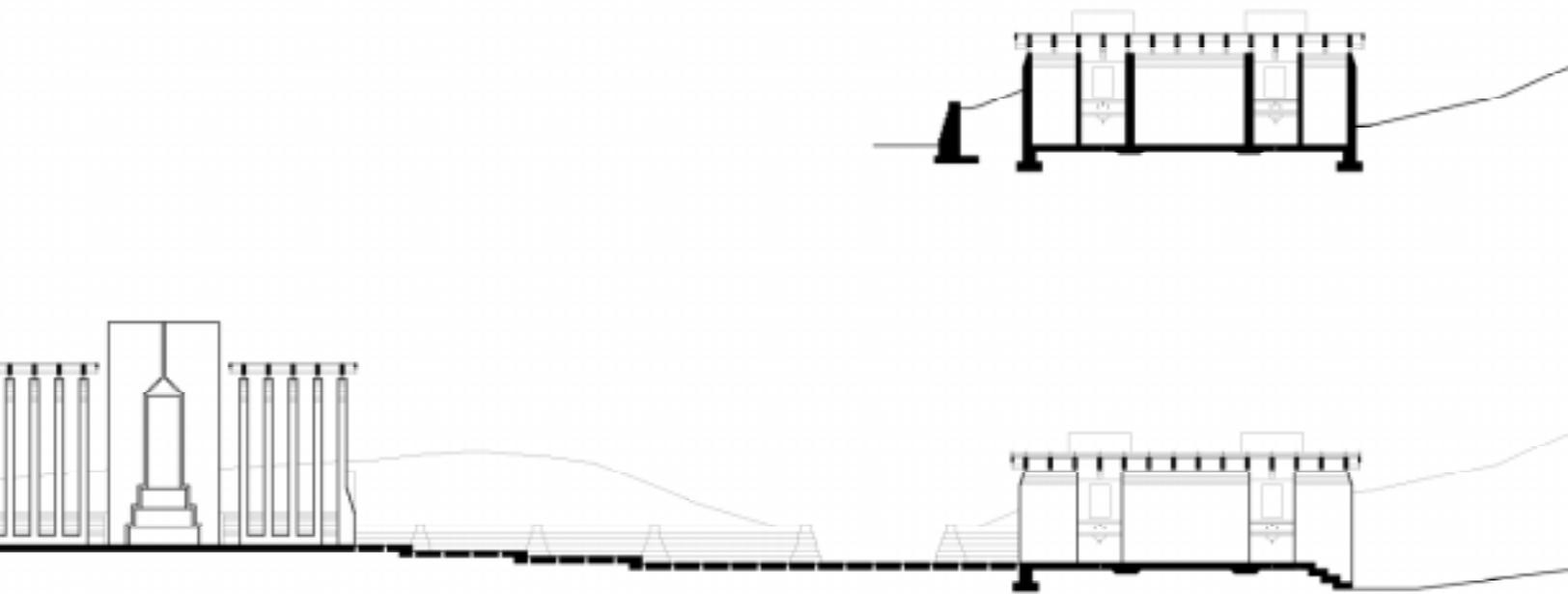
The enclosures for the main sanctuary and the individual chapels are the result of subtracting an inner cylinder from an outer solid cube. This is a specific architectural treatment delineating a boundary between inner and outer space. There are four doorways on each side of the chapel that cut through the difference of the two forms. This opens the building to the site for large ceremonies and social gatherings.

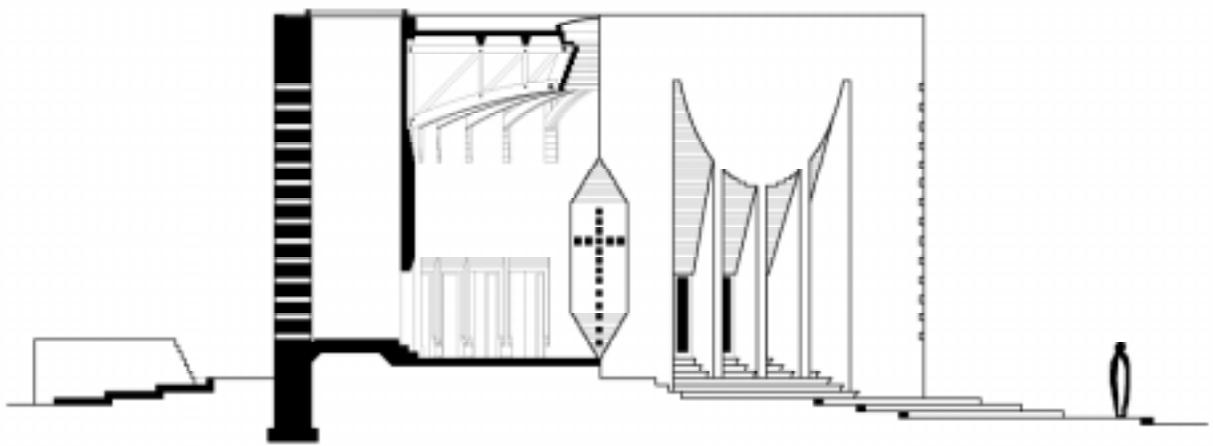
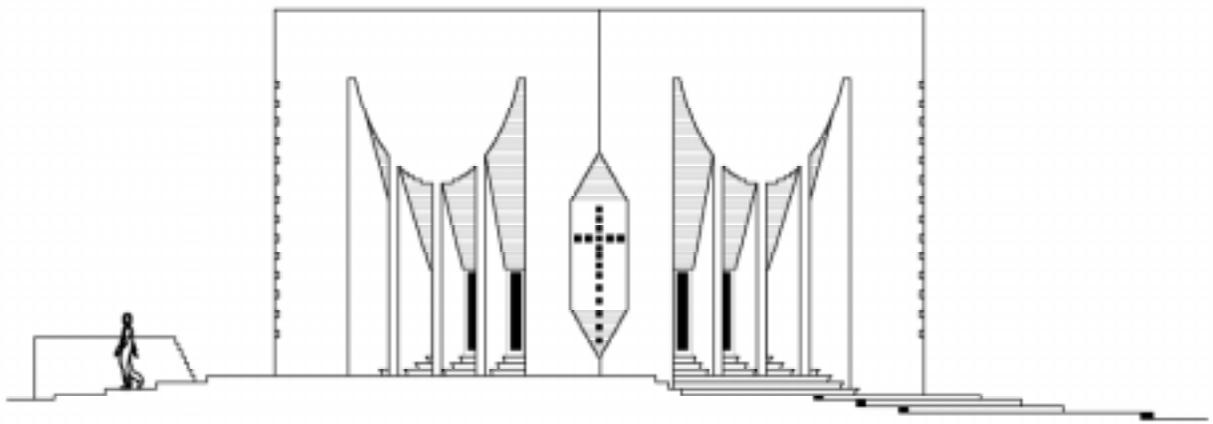


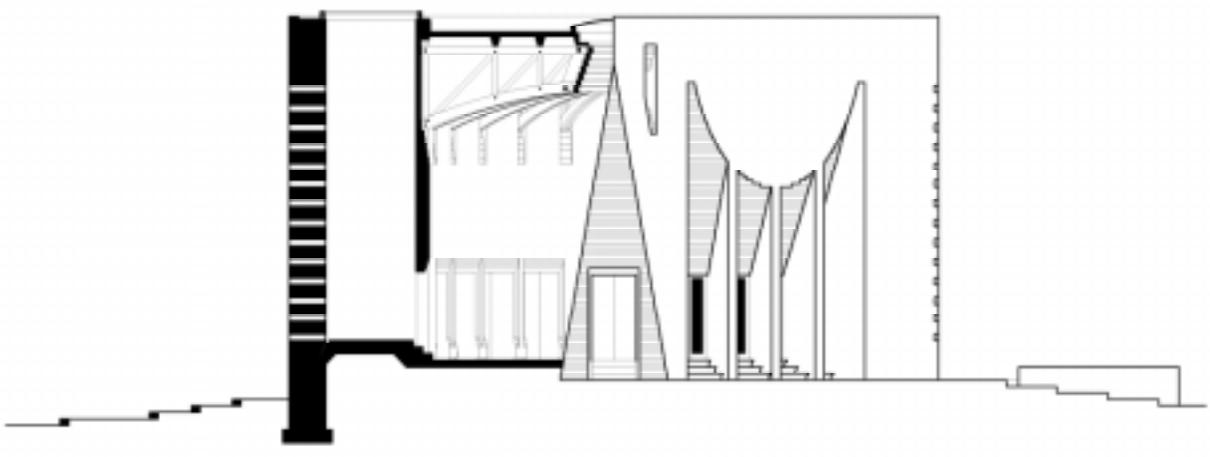
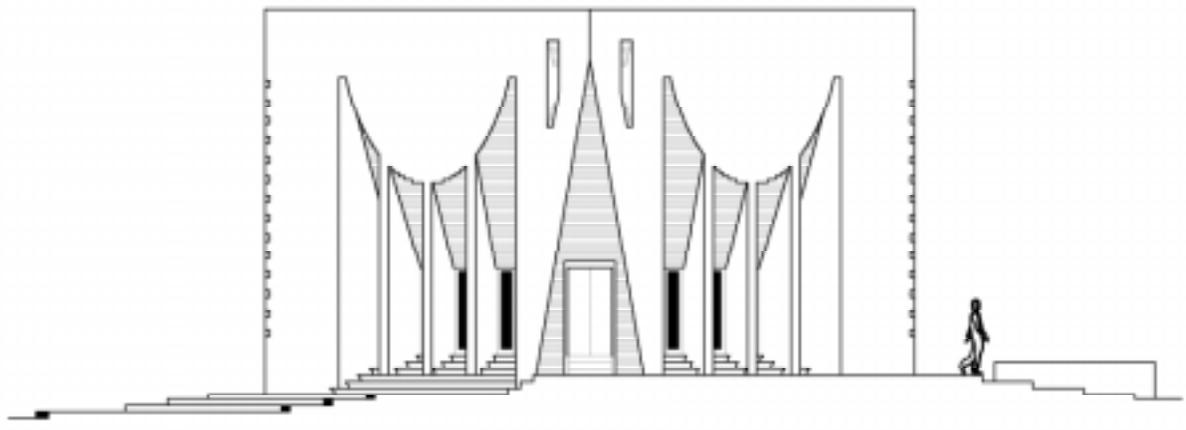


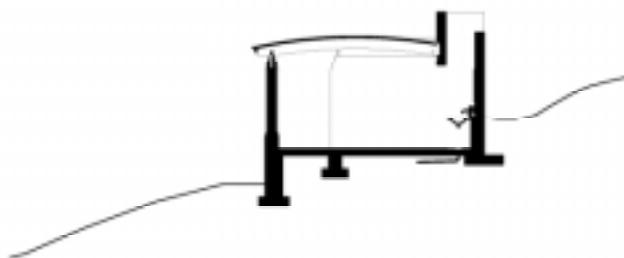
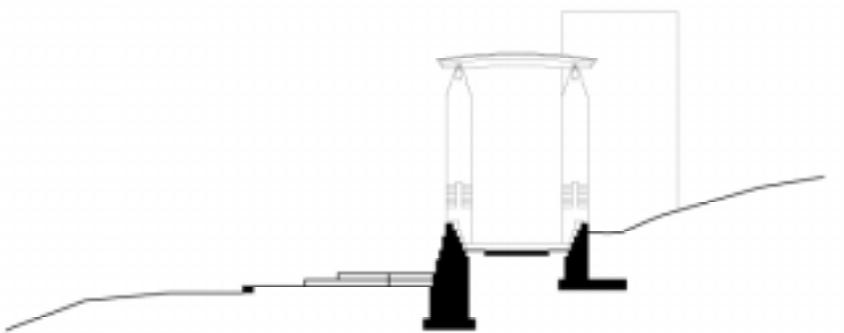
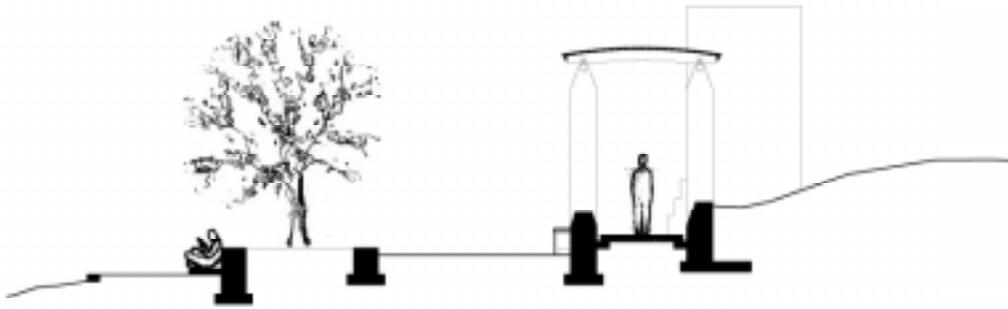
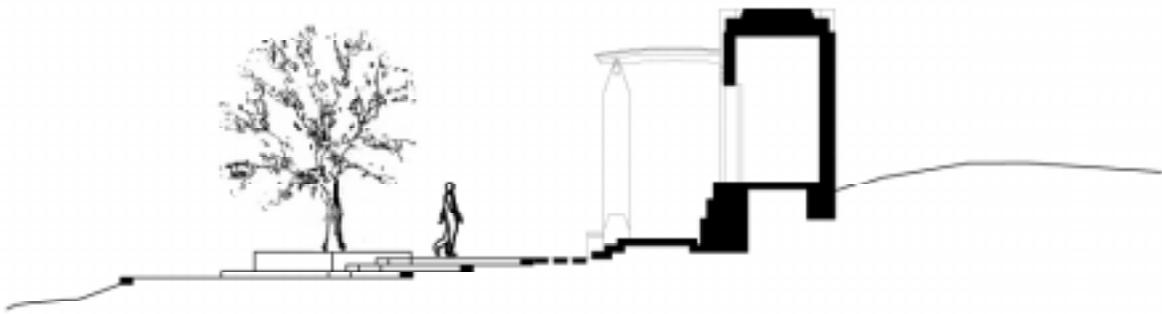
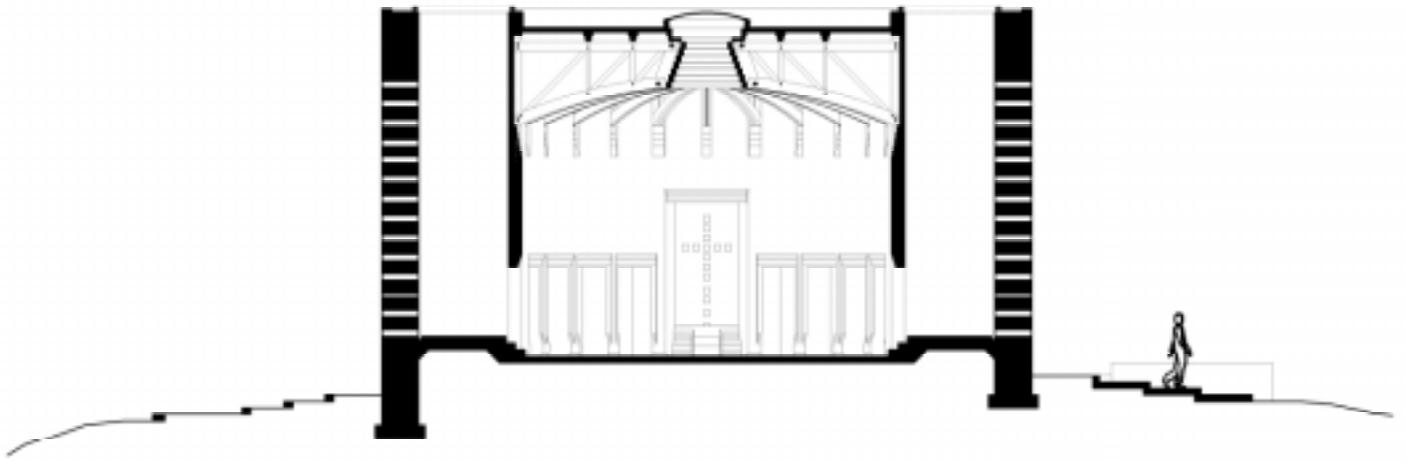










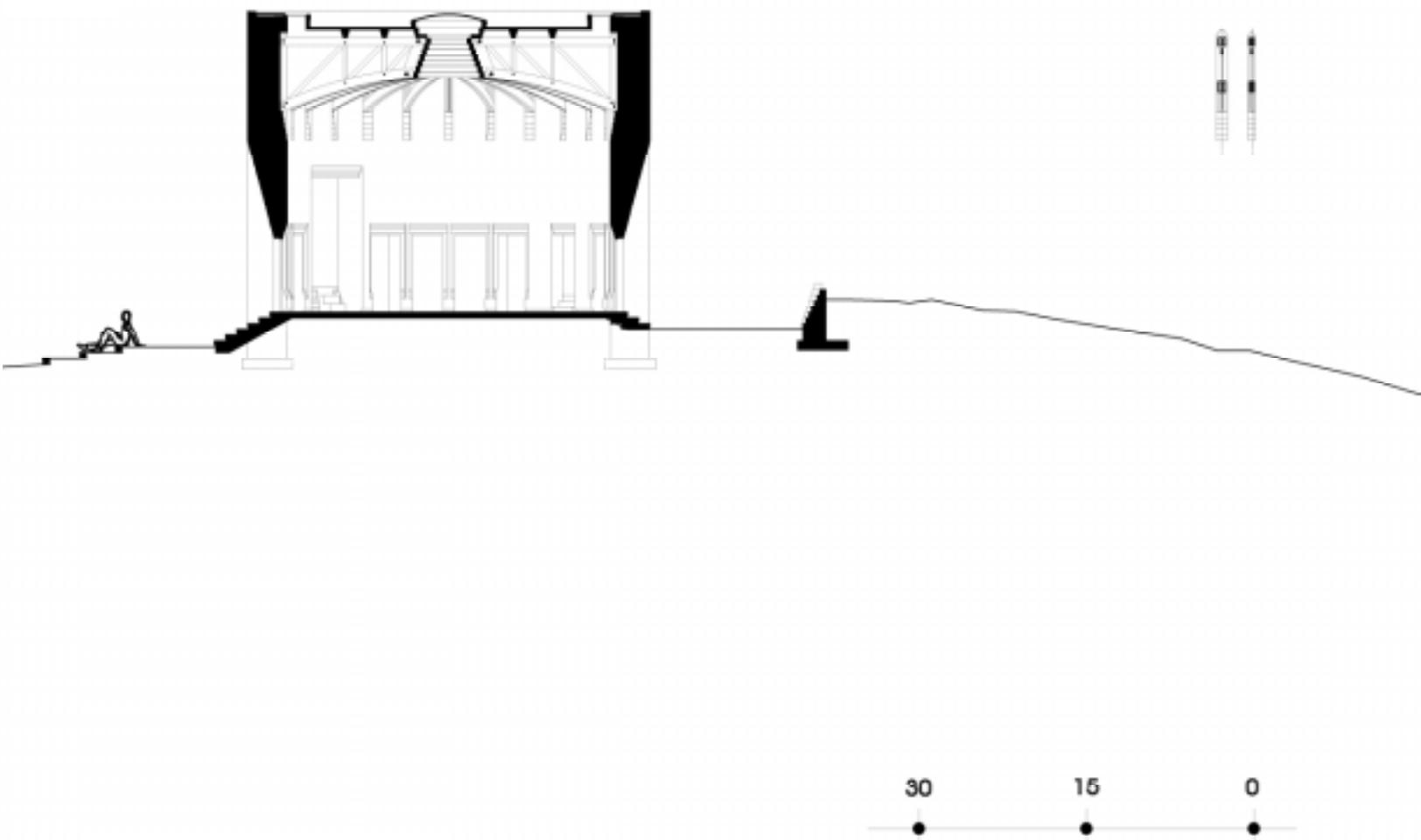


Layers of Enclosure

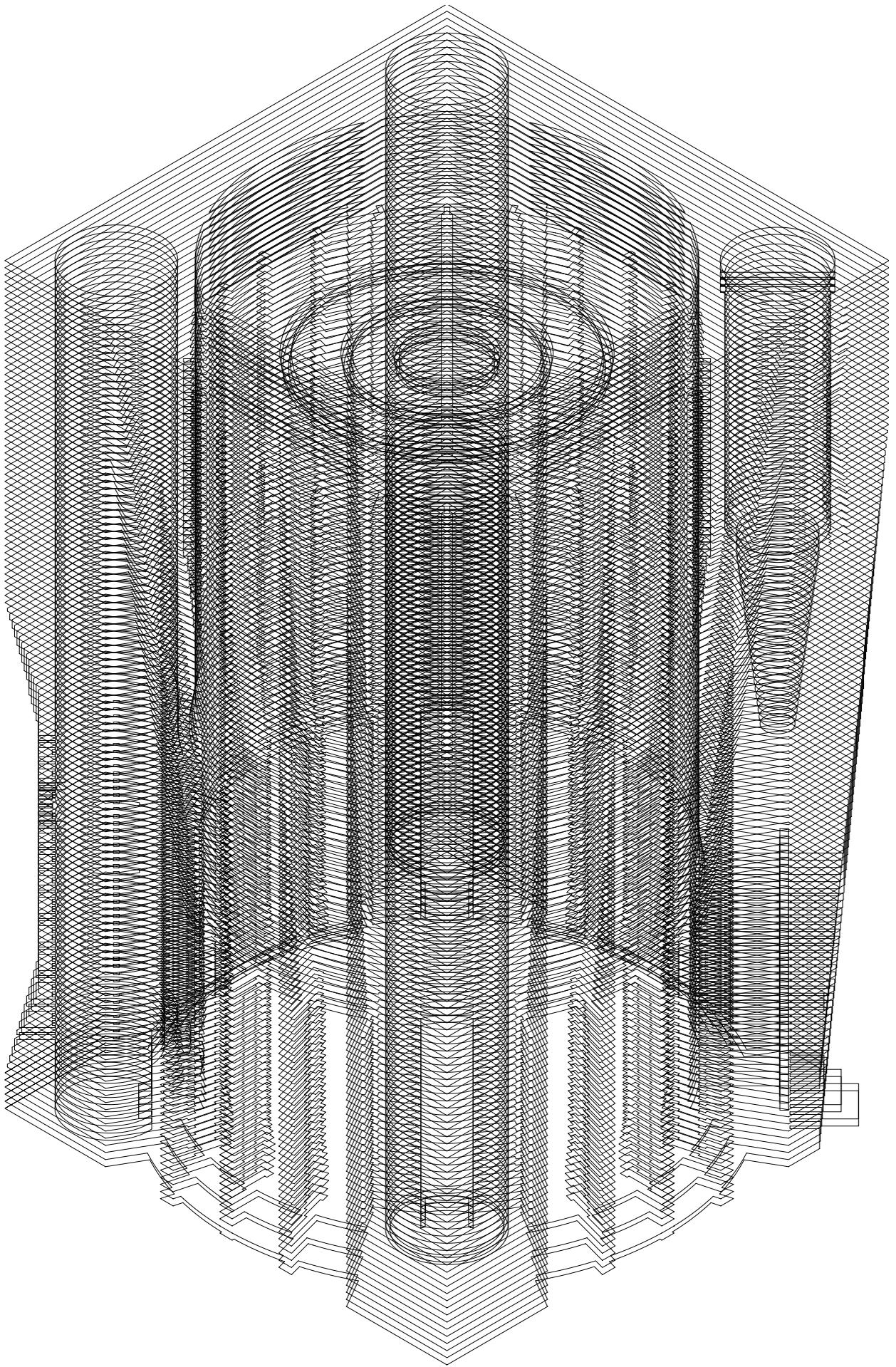
Sacred architecture is a space where we encounter the divine. A place bounded from the vast profane space that surrounds us.

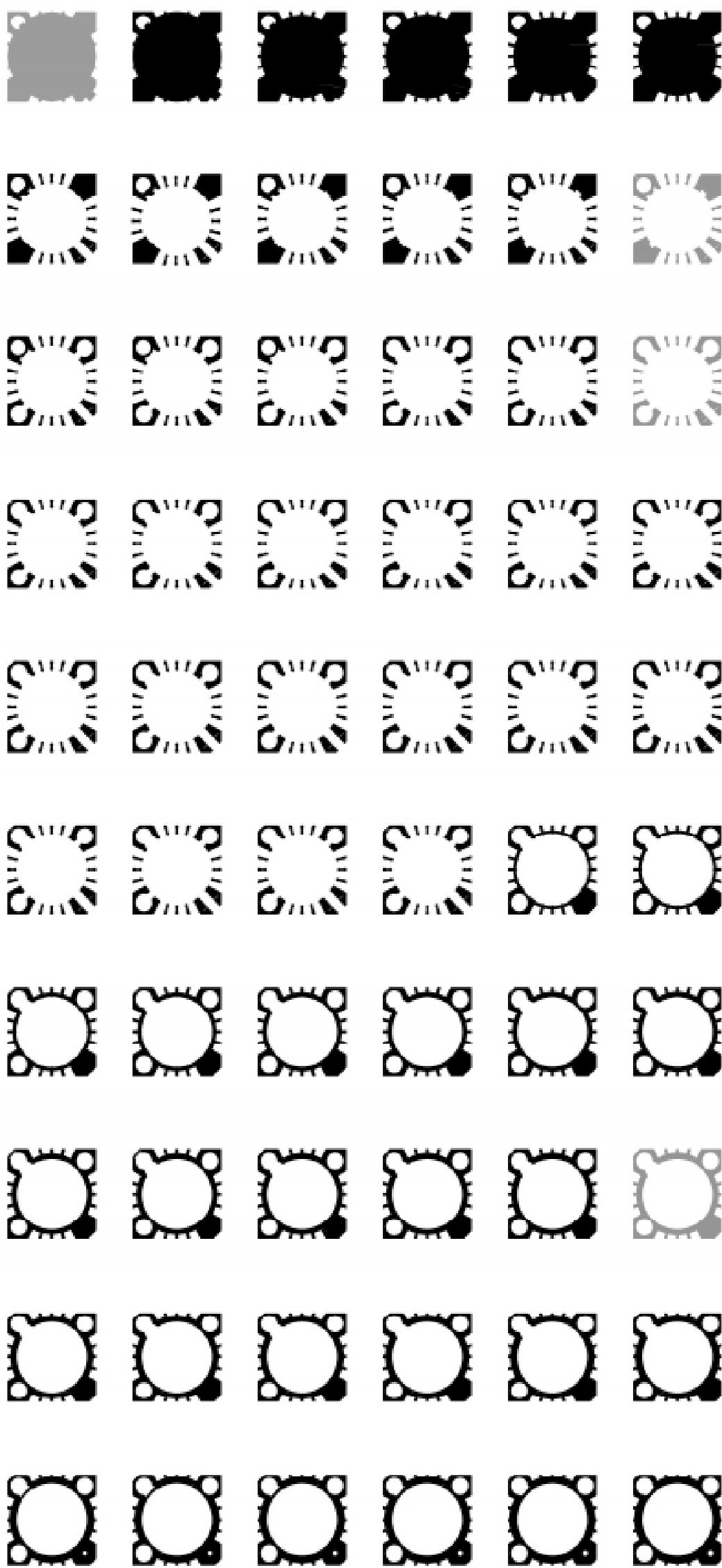
In this structure, layers of brick are used to gradually contour a cylindrical enclosure and make places for architectural elements, such as trusses and doors.

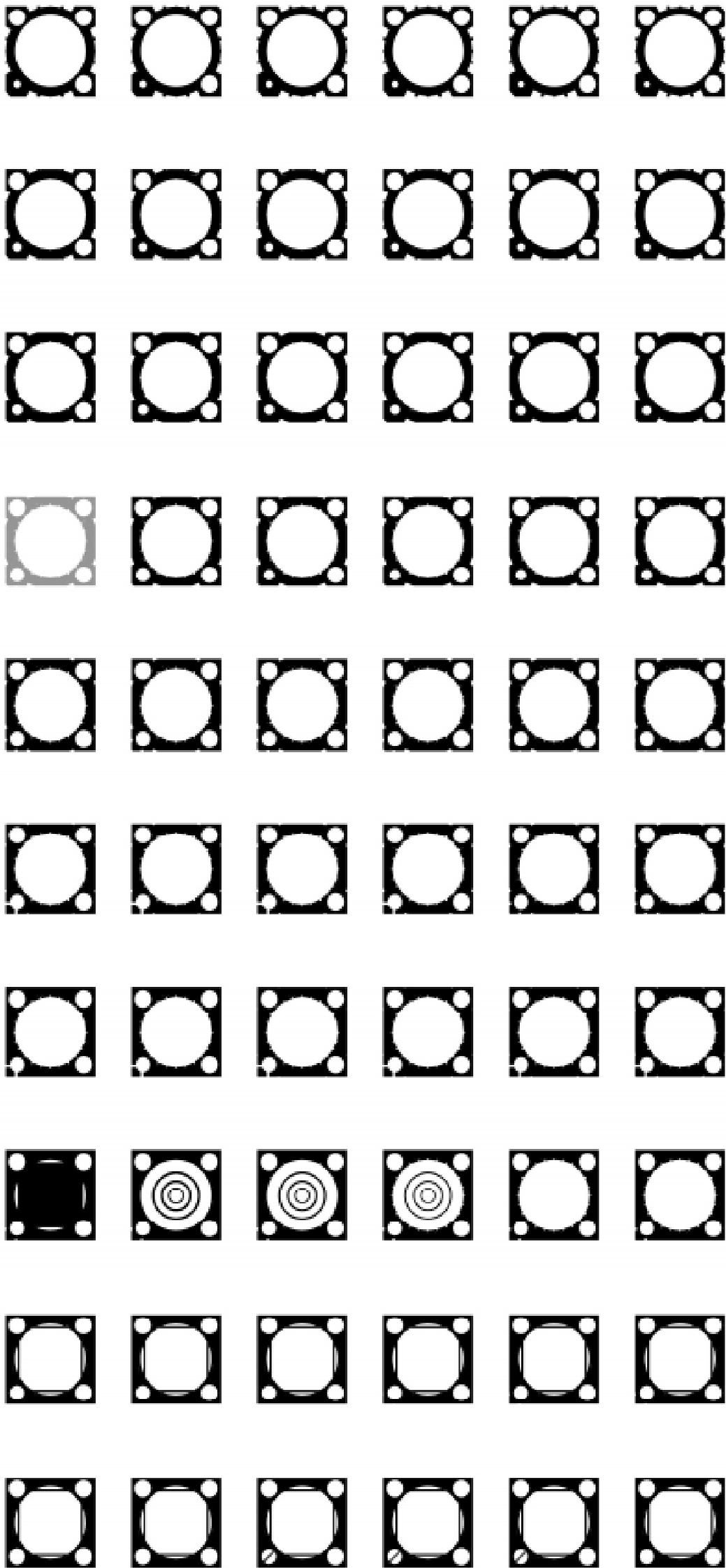
Sensitive to the incremental changes in each layer, brick and controlled natural light produce a visually tactile environment, rendering a sublime experience.

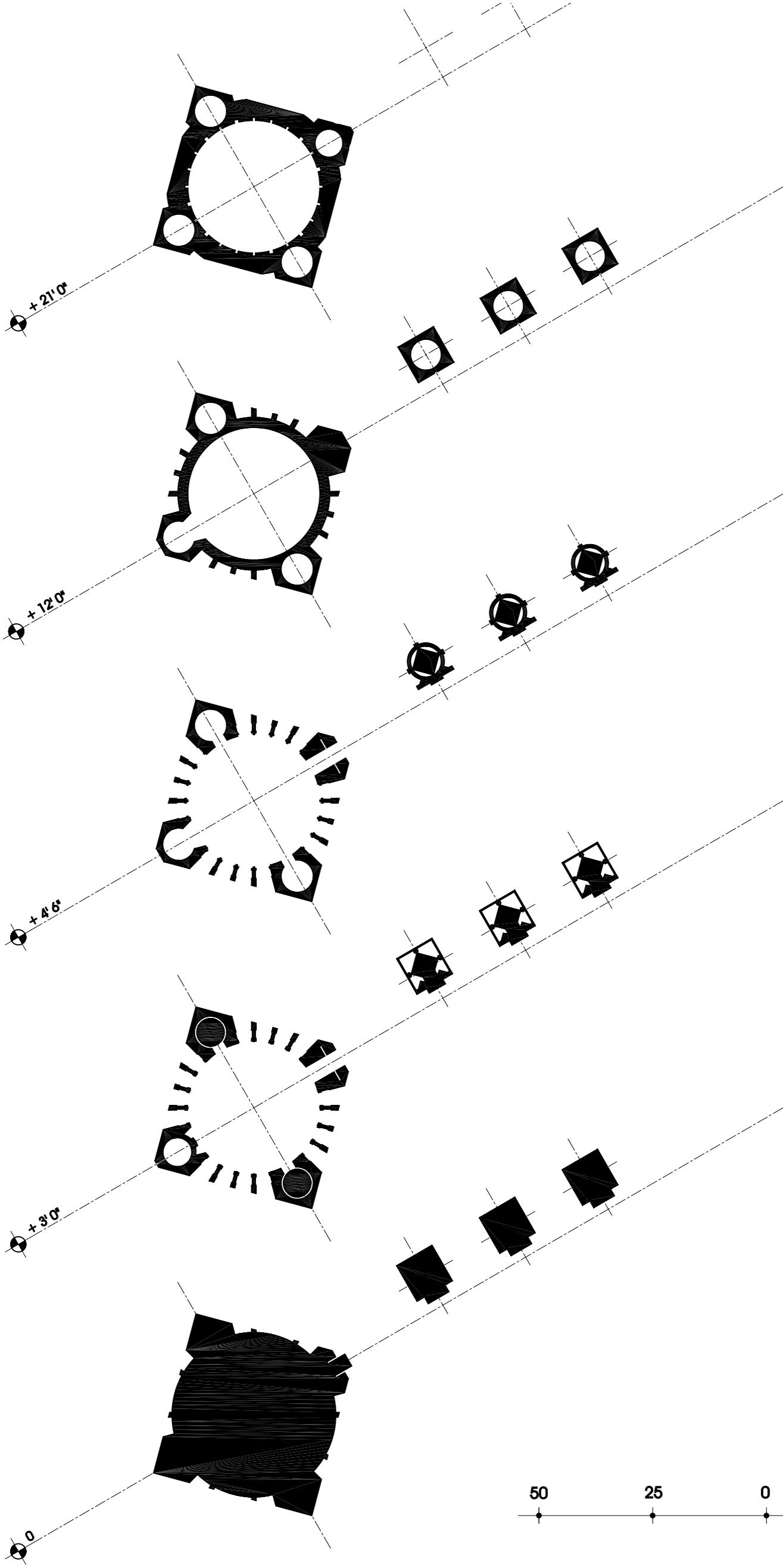


Horizontal sections in three inch increments show the inside and outside of the structure. The distance between each layer in this drawing is exaggerated. The 120 layers that make up the building are shown in plan on pages 24 and 25.









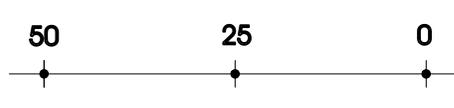
+21°

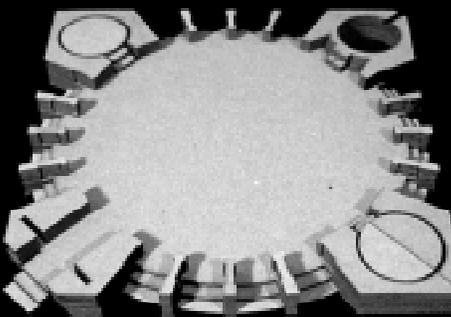
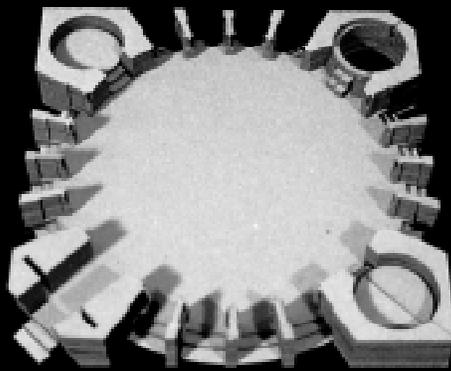
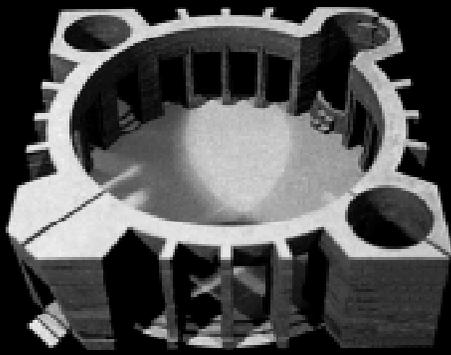
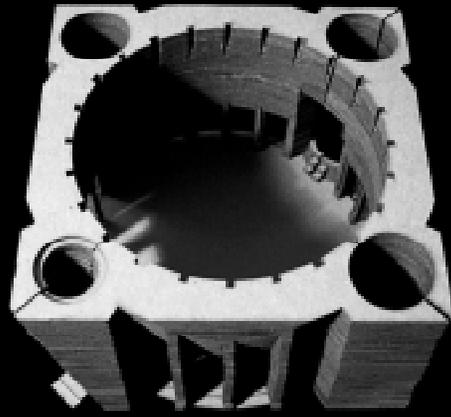
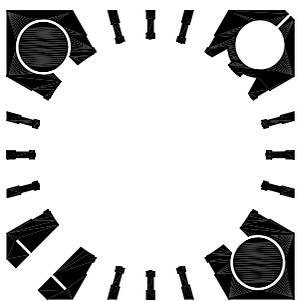
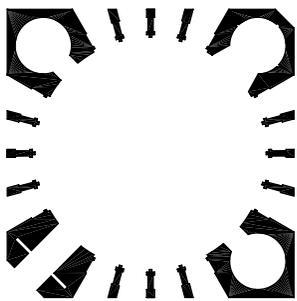
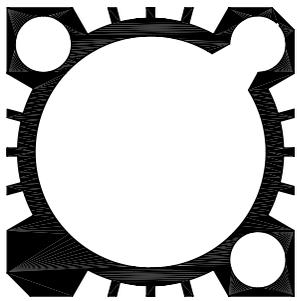
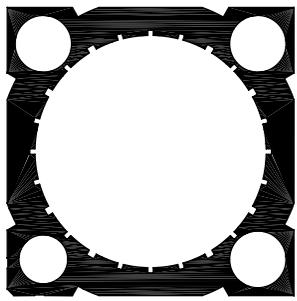
+12°

+4°

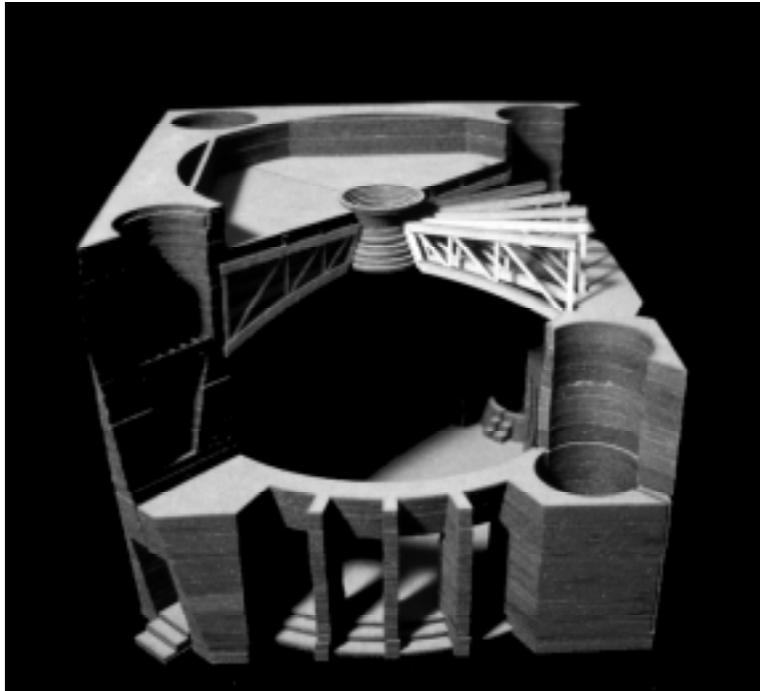
+3°

0

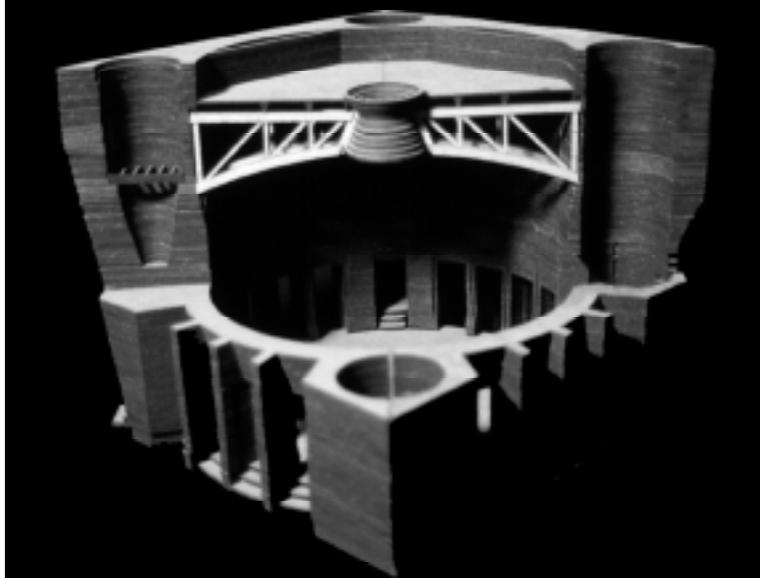




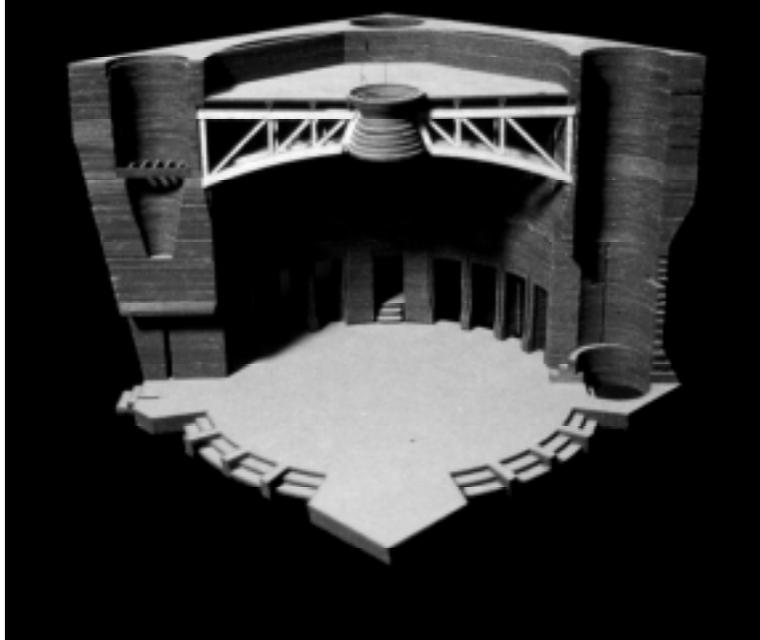
Quarter section through bell cavity (left) and east chamber (right).

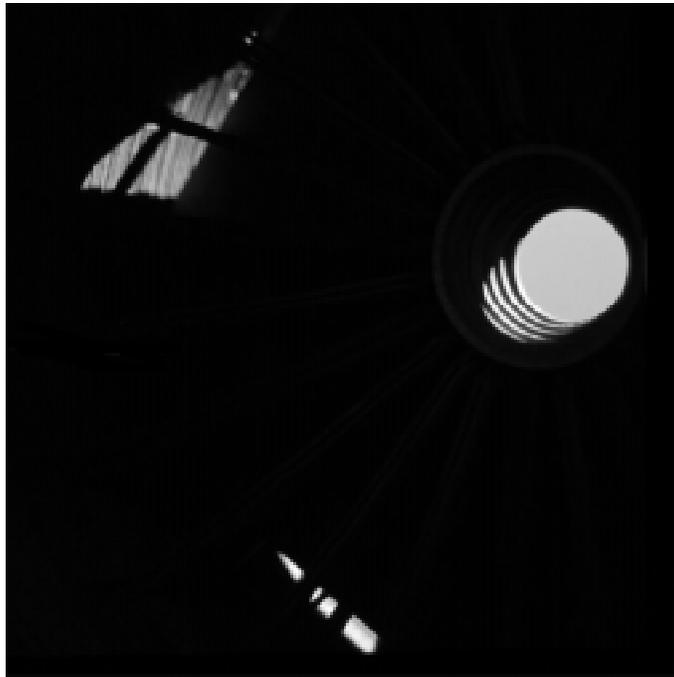
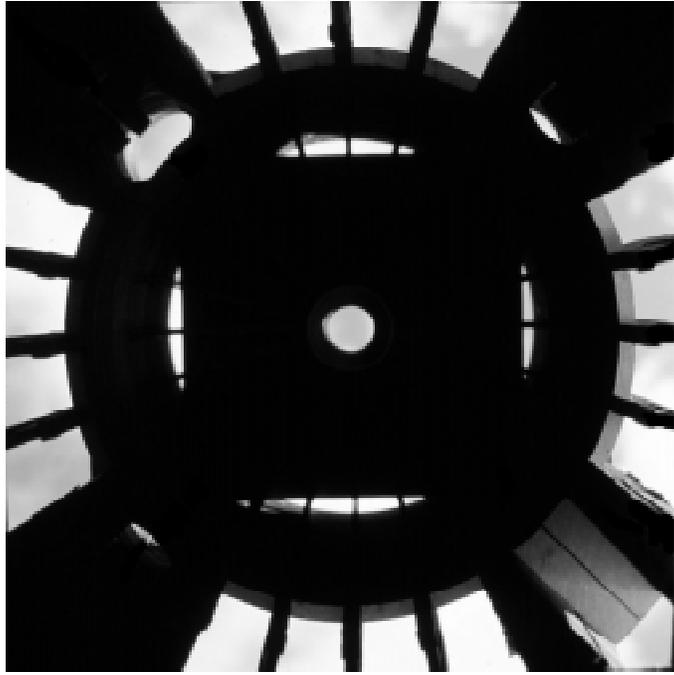


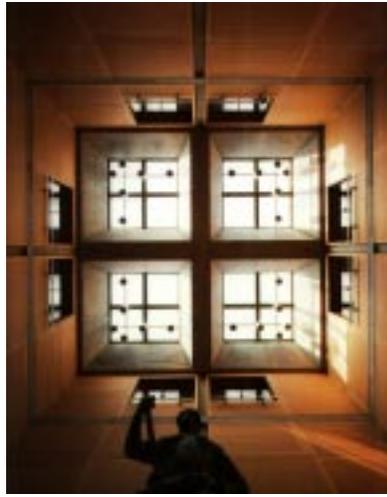
Half section through bell cavity (left) and baptismal pool tower (right).



Half section through bell cavity (left) and baptismal pool (right).







Yale Center for British Art,
Entrance Court, by Louis I. Kahn,
In the Realm of Architecture,
Brownlee & De Long, p. 233



Michelangelo's dome at St. Peter's,
*Round Buildings, Square Buildings,
& Buildings That Wiggle Like a
Fish*, Philip M. Isaacson, p. 64



Mediatheque, Villeurbanne,
by Mario Botto, *Architectures
1980-1990*, p. 143



Early Mycenaean tholos, Pylos,
Architecture of the Ancient Civilizations, Cichy, p. 260



Brion Family Cemetery,
S. Vito d'Altivole near Treviso, by
Carlos Scarpo, *a+u*, p. 161

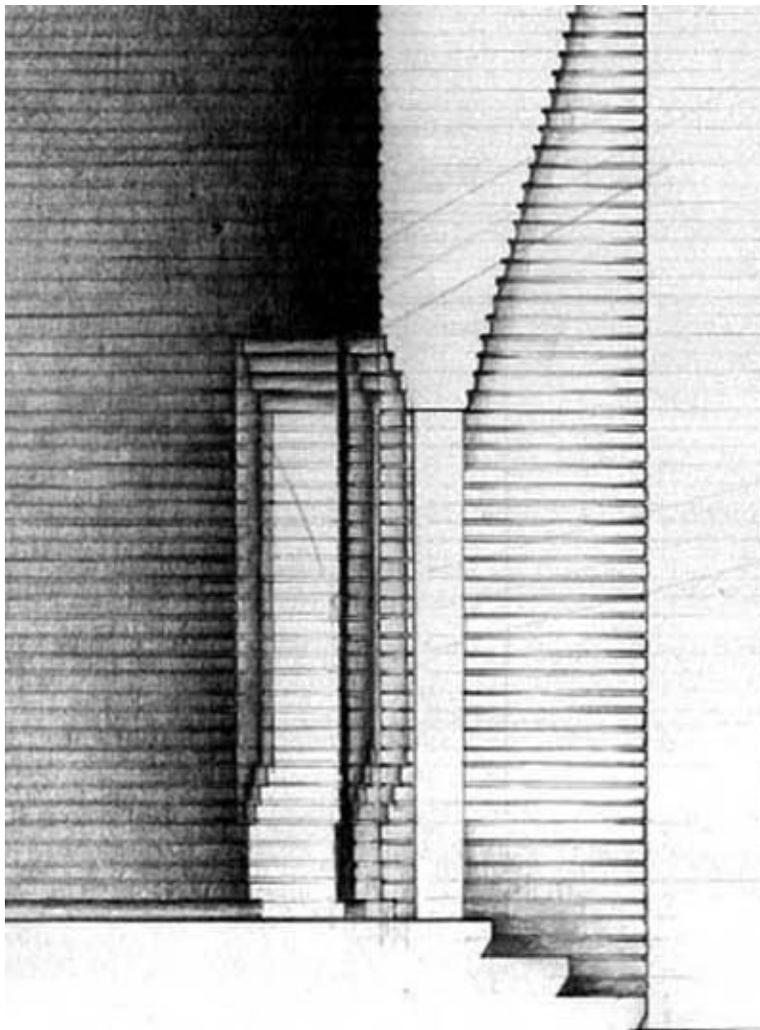


Moorish Baths of Granada,
*Round Buildings, Square Buildings,
& Buildings That Wiggle Like a
Fish*, Philip M. Isaacson, p. 47

Natural light knows a space through its thresholds of entry. Light, material, and geometry harmoniously balanced establishes a sureness of place, anything else is just building.

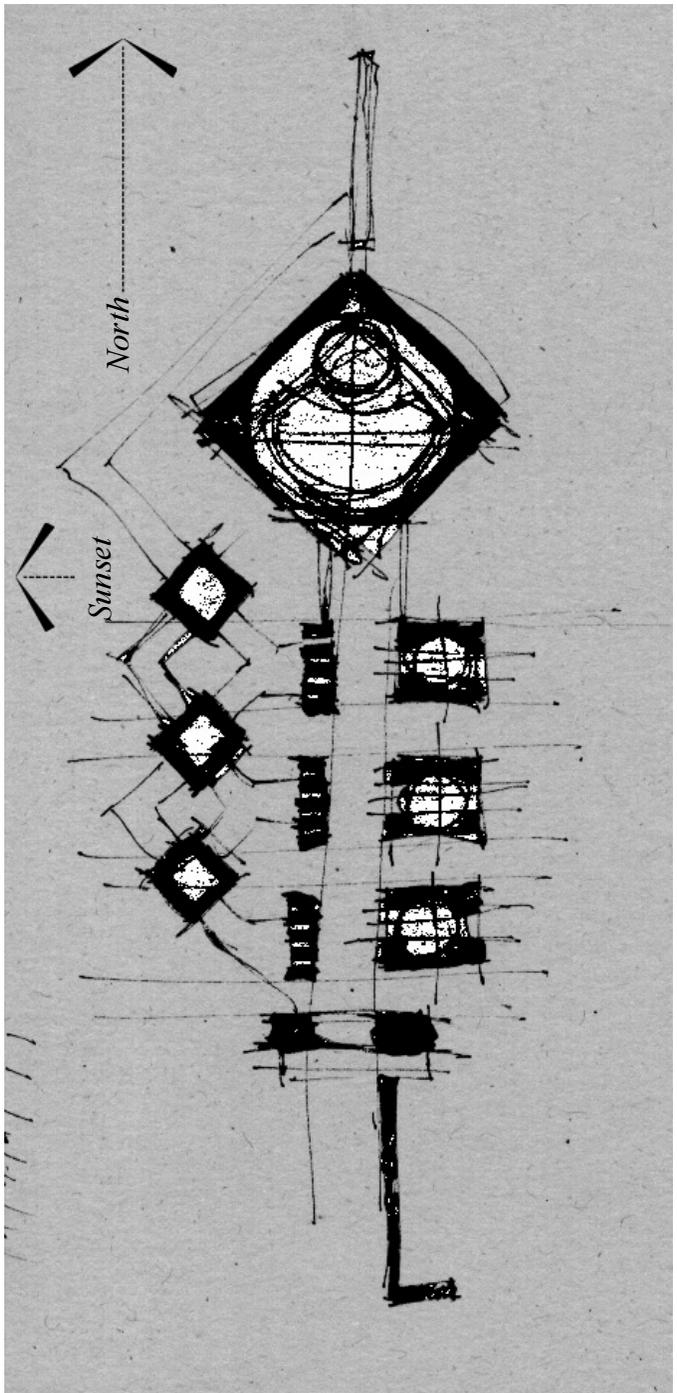
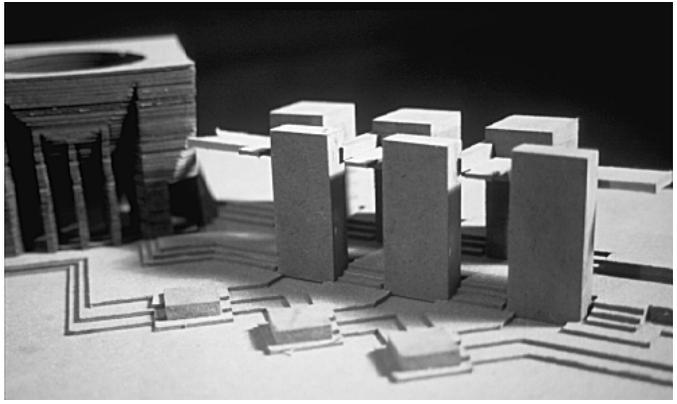


Lower entrance to religious sector, of Machu Picchu, looking east into the jungle, Peru, January '97



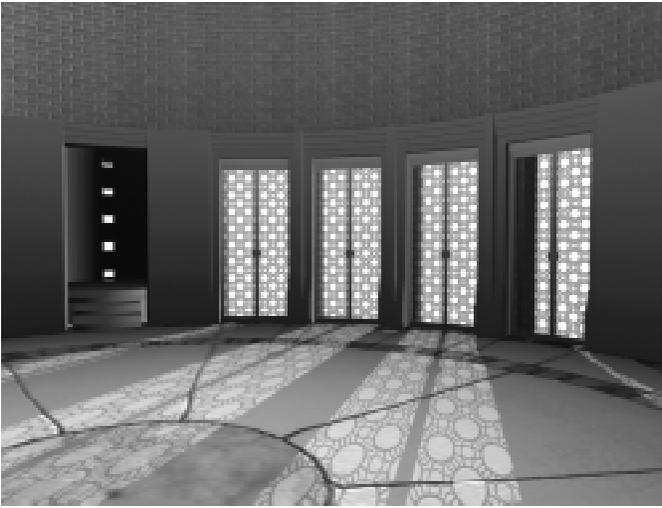
Threshold

The threshold marks a break in homogenous space and is symbolic of a ritualistic shedding of the outside world (Elaide, p. 97). The thresholds into the non-secular precinct of Machu Picchu are defined by double-jammed doorways. Corbelling on each side of the header, in the above section, reveals the thickness of the difference between the cylinder and the cube, thus placing architecture in a role of mediating between sacred and non-sacred space.

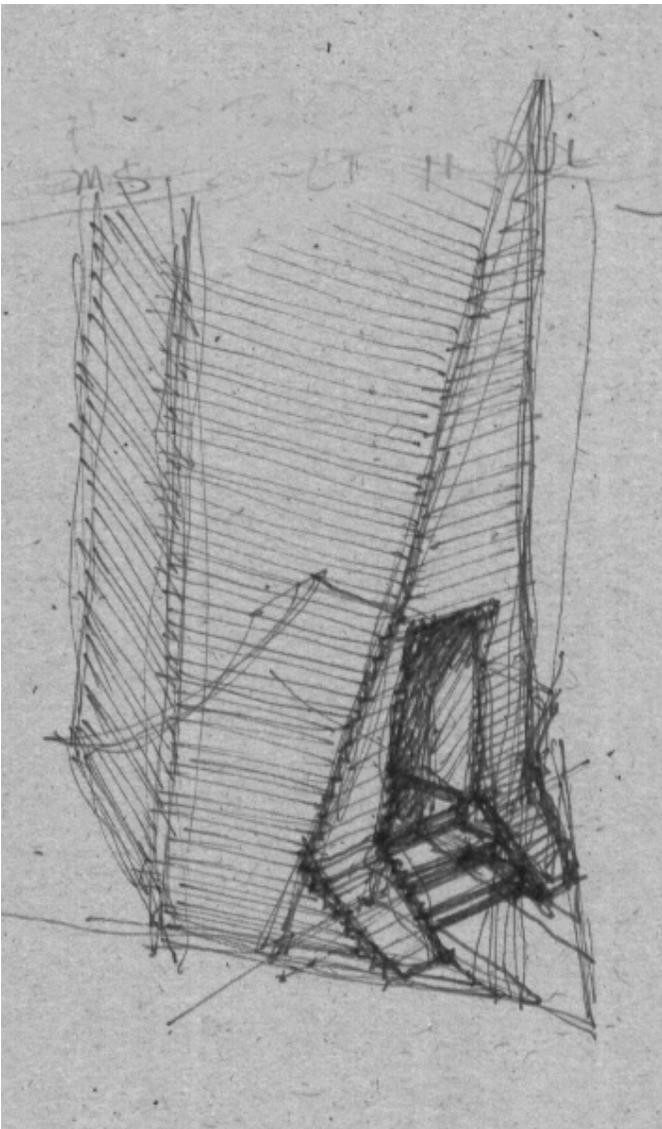


Separation

The principle of separation between inside and outside, or the sacred and the non-sacred, is analogous to the separation of private and public space within this complex. There is a need for isolation from public domain, for contemplation and reflection. Three private chambers are located on the path to the main sanctuary and face the setting sun.



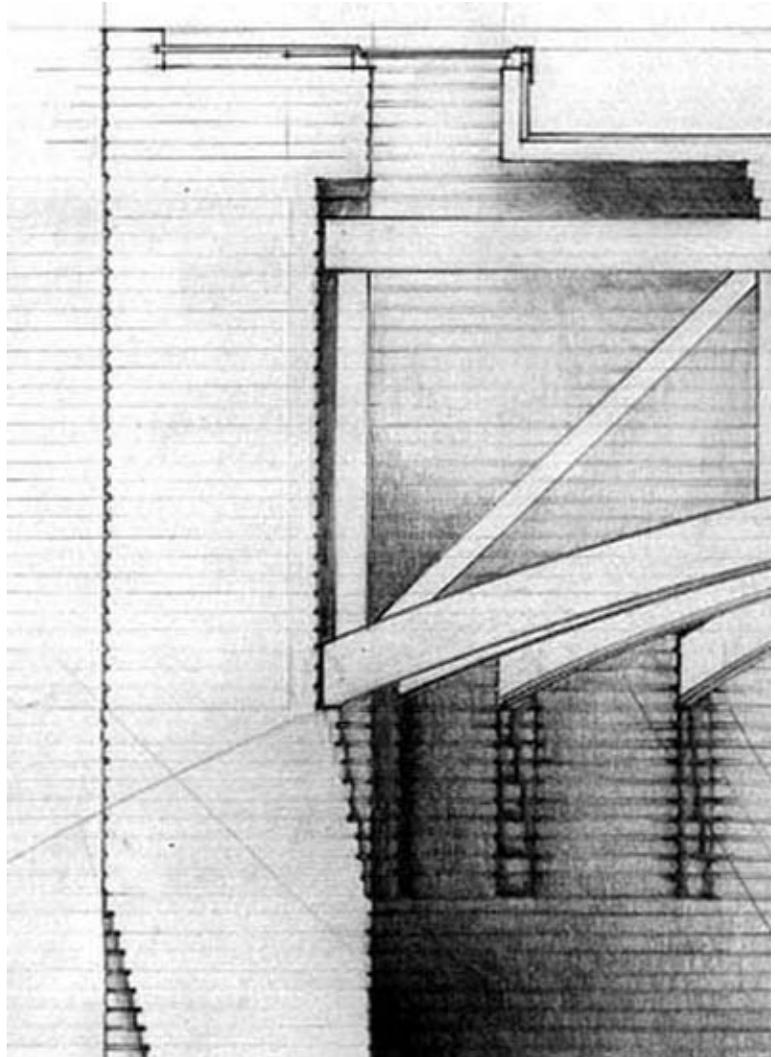
Inside



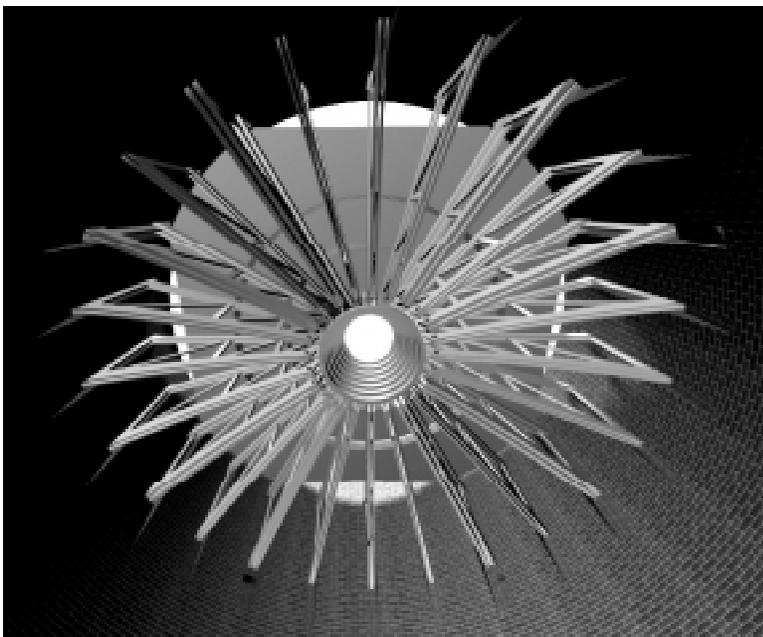
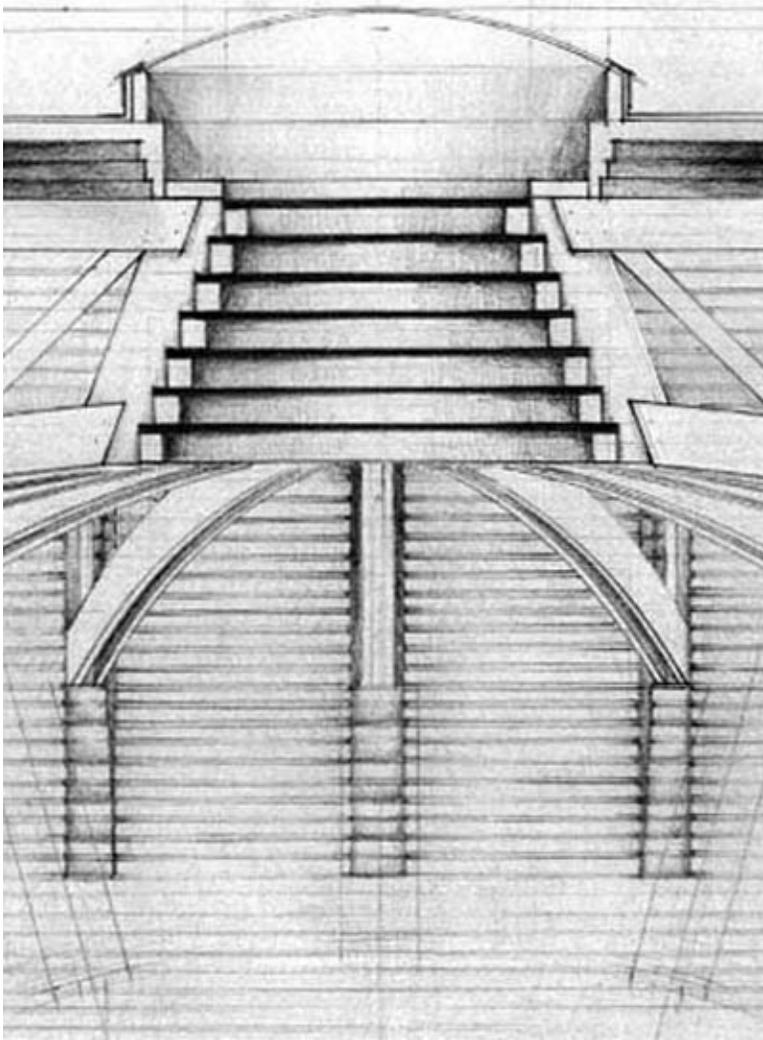
Intermediate



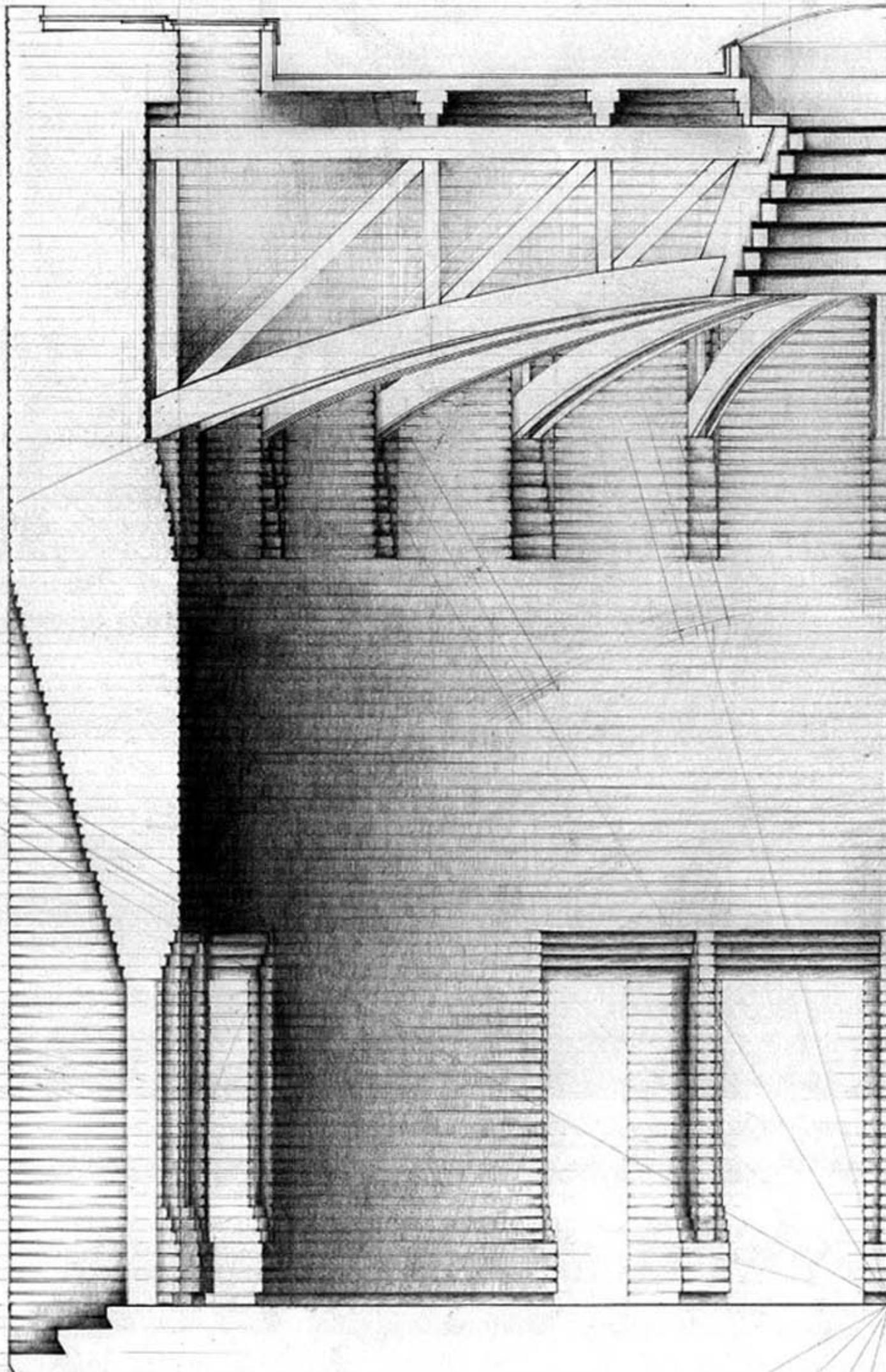
Outside

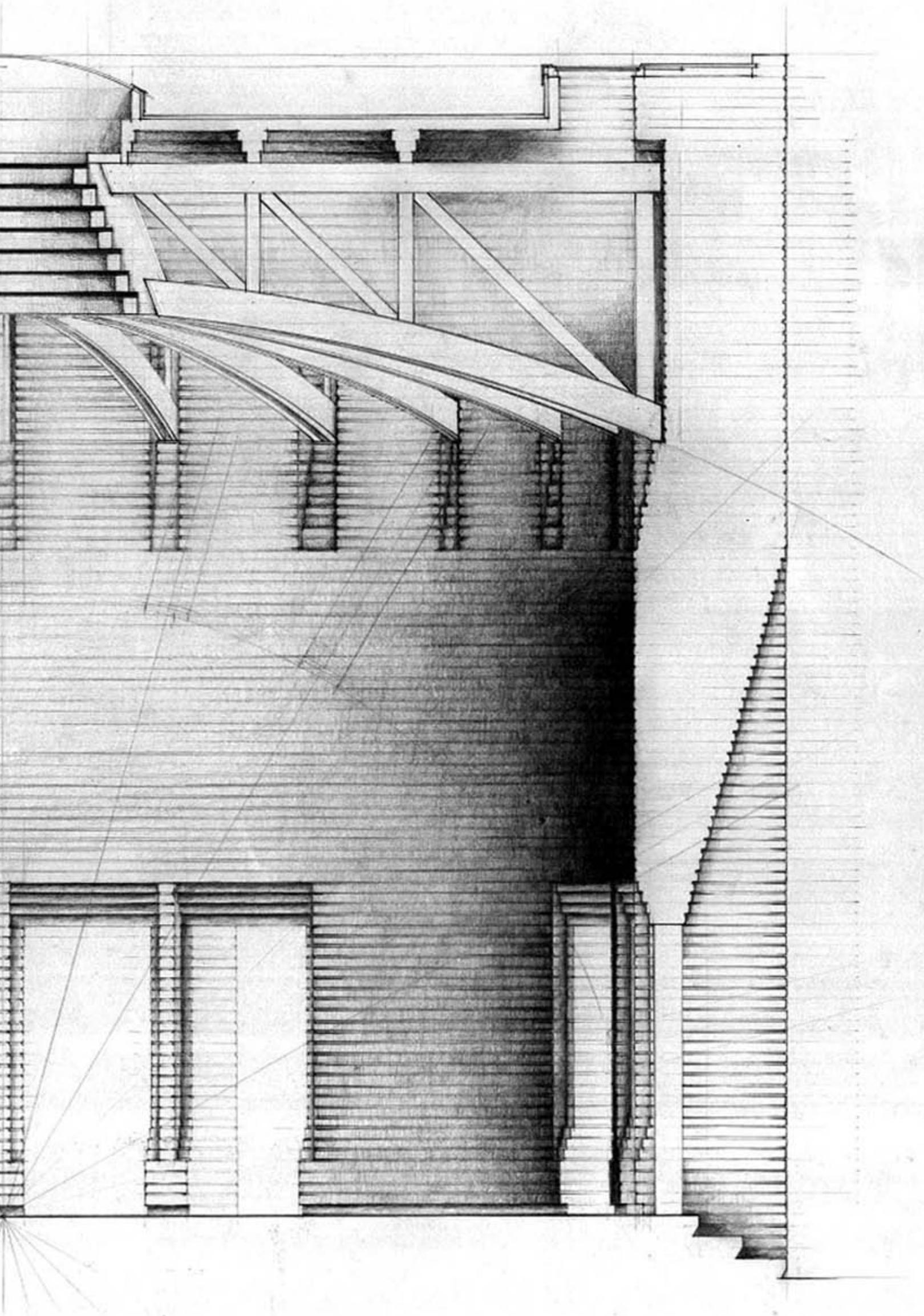


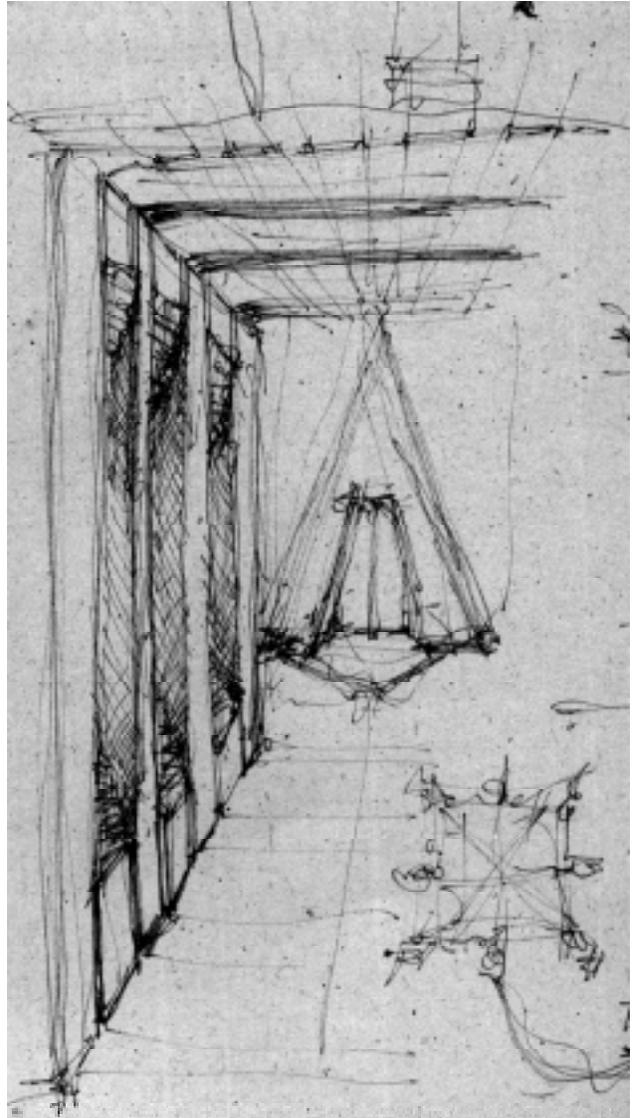
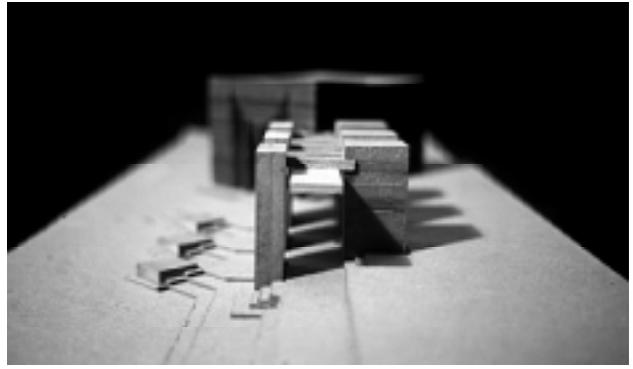
The truss pockets are recessed into the brick cylinder preserving the cylindrical form and creating a visual connection to the piers. The load on the trusses is transferred through the piers to the ground.



The eye of the structure marks the center of the project and symbolizes the ultimate threshold from the earthly domain to the realm of the divine. The bottom ring is in tension and transforms gradually to the smaller top ring which is in compression. The oculus and the four perforations on the sides control the amount of light that bleeds into the space. The light runs down the cylinder wall revealing the texture of the brick.

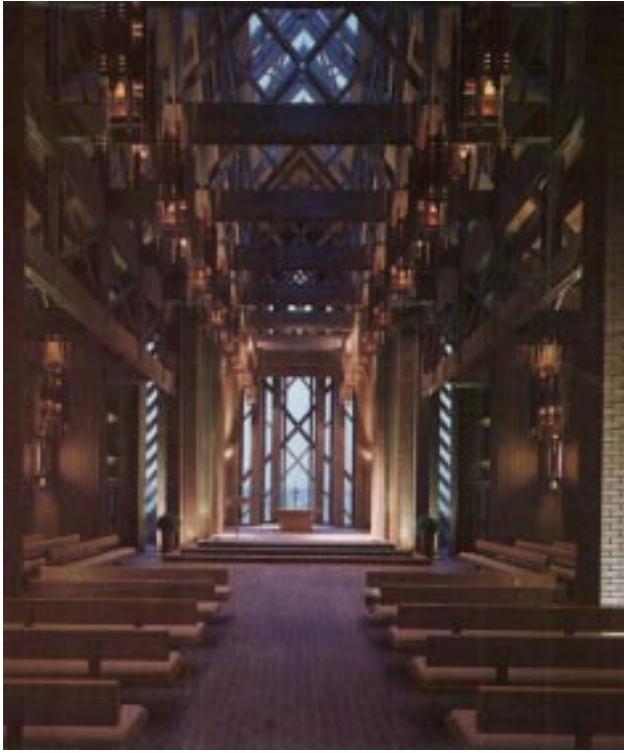






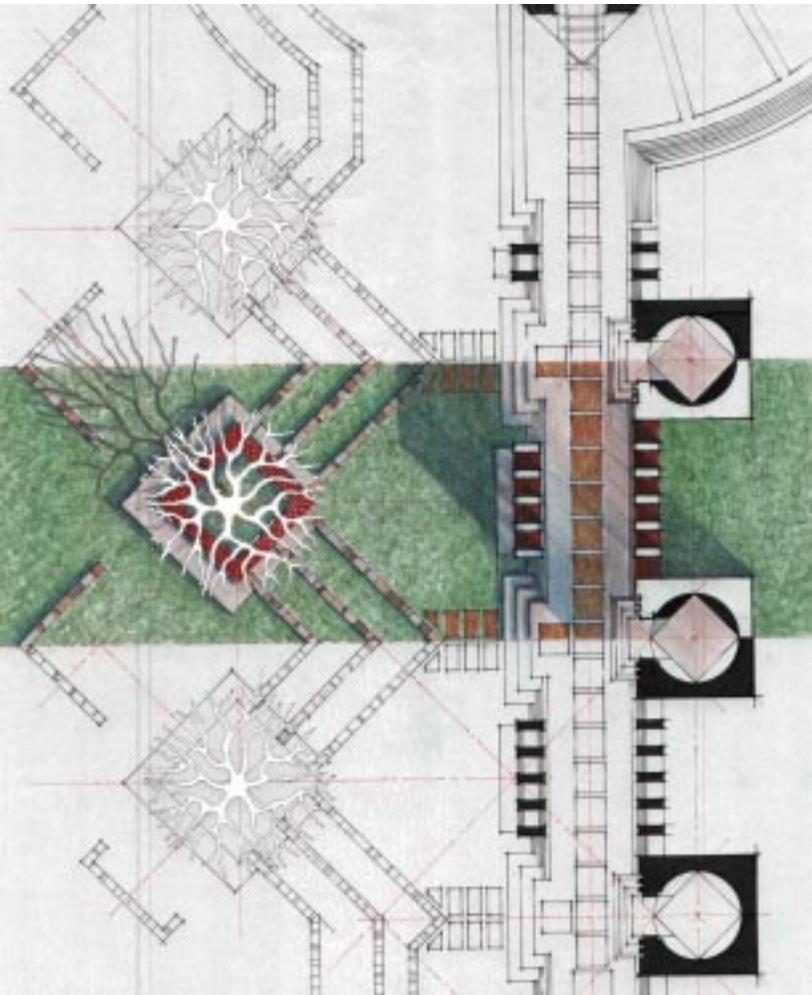
Path

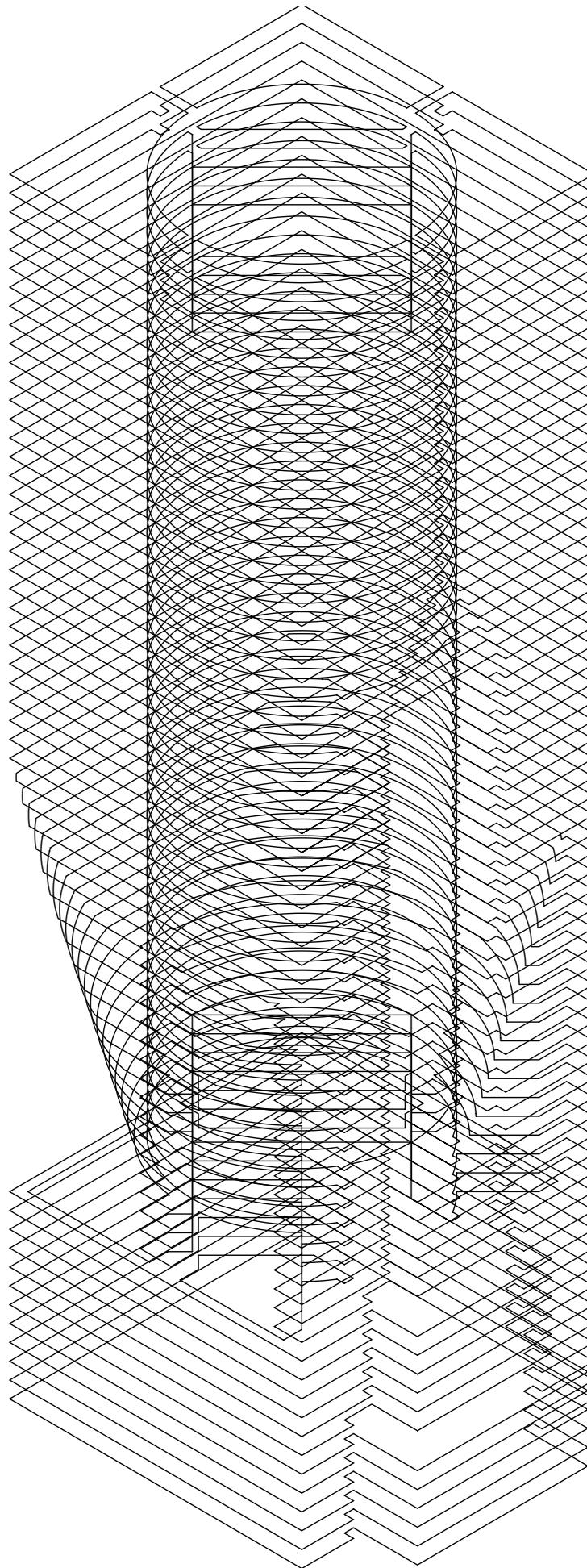
Repetition leads worshipers to their destination. A sequence of elements leads to a sacred precinct. Private chapels, covered brick piers, and sections of uncovered walkway create an axial path to the main sanctuary. Along the path, spaces grow increasingly holy, symbolizing a spiritual journey or transformation from one state of being to another.



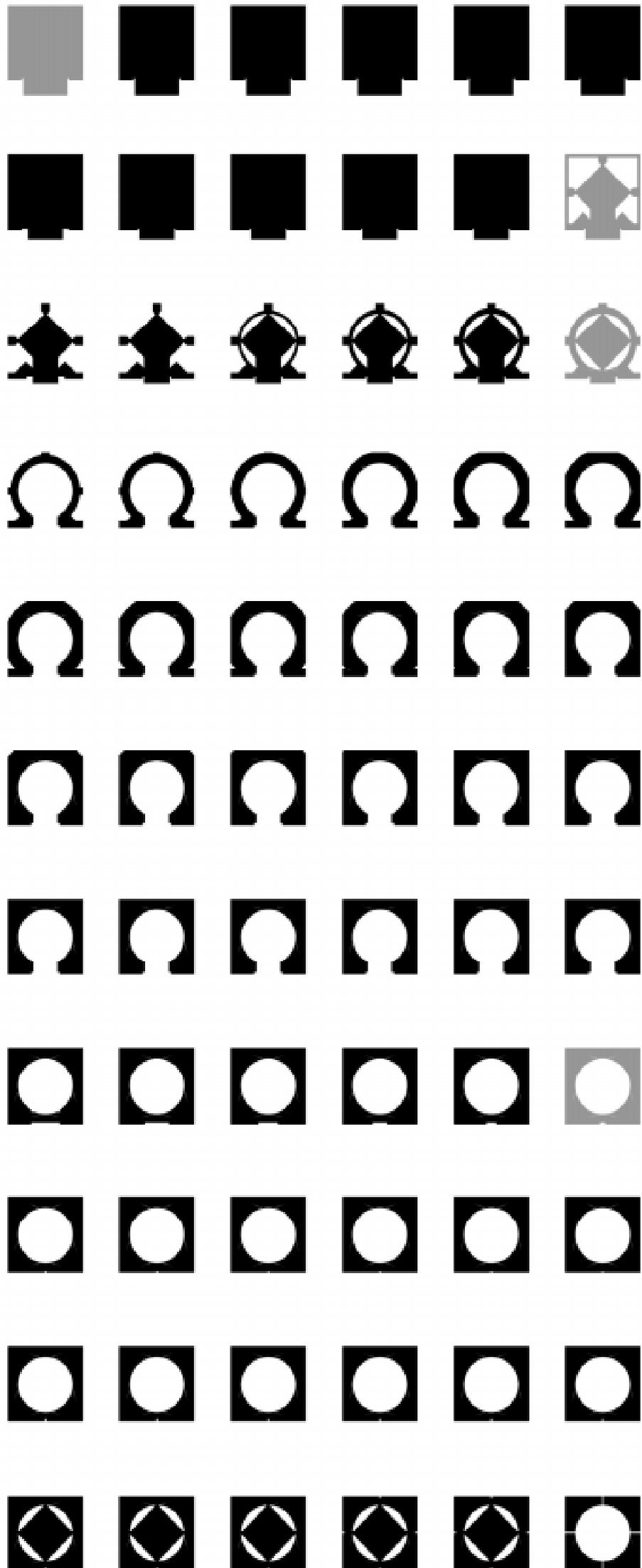
Marty Leonard Community Chapel, Forth Worth, by Fay Jones, *Architecture*, March 1991, p. 94

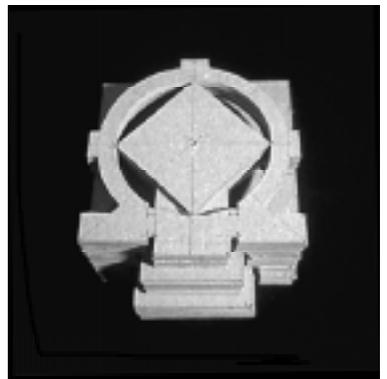
Constituent parts create repetitive architectural elements that lead to the altar.



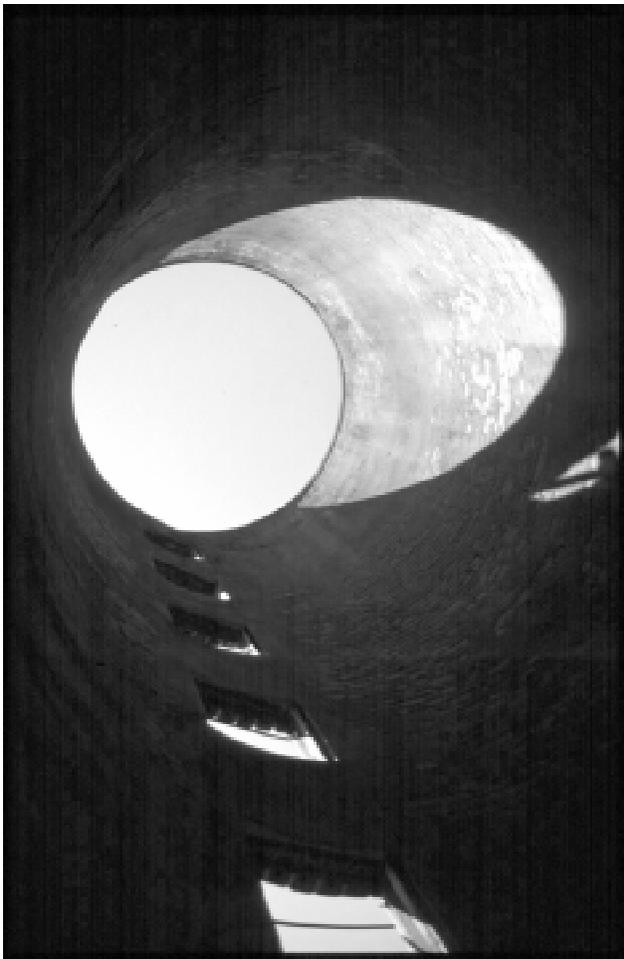
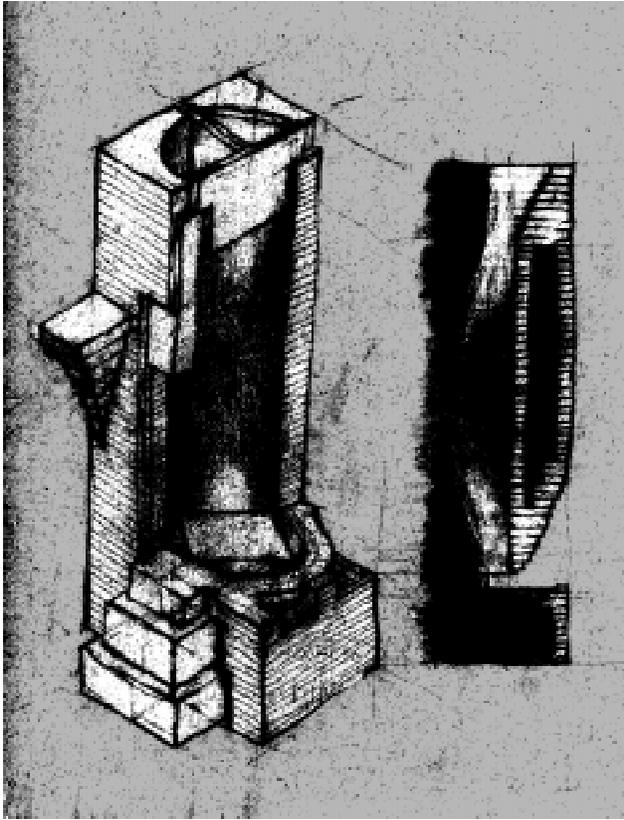


Sixty horizontal sections in three inch increments show the inside and outside of the private chapel. Each of these layers is shown in plan on page 41.





Sunset Extremes

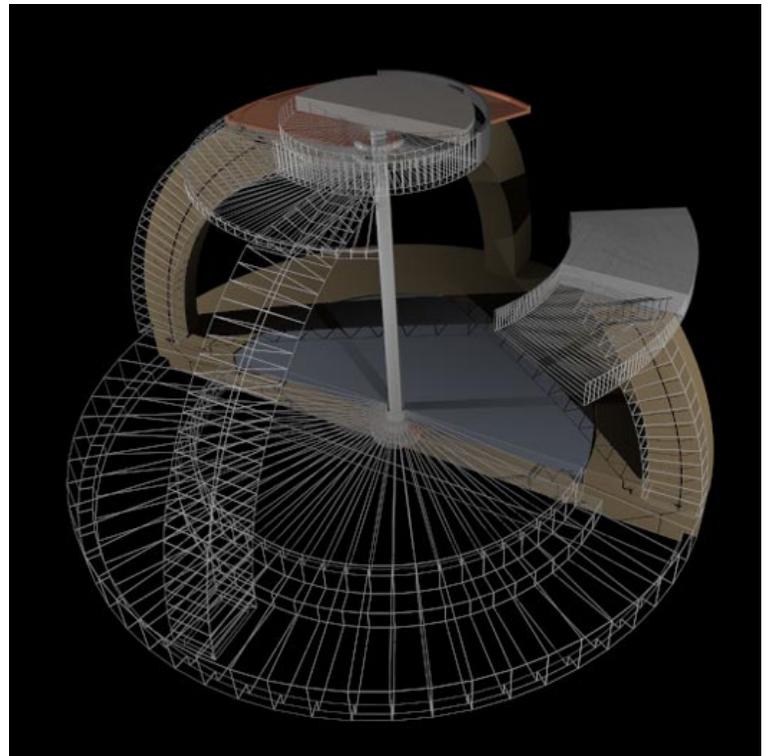
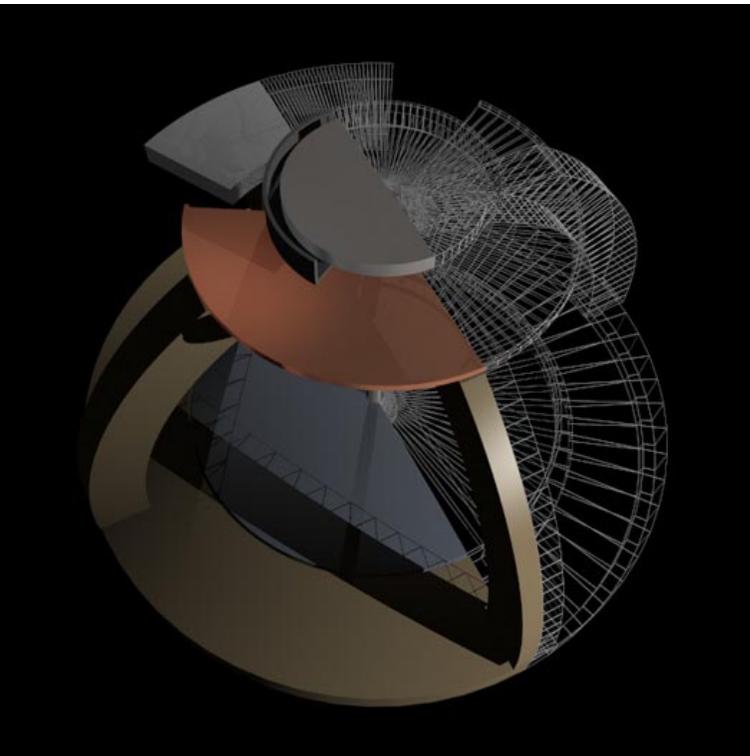


Brick silo, Ellet Valley, Virginia, July '97

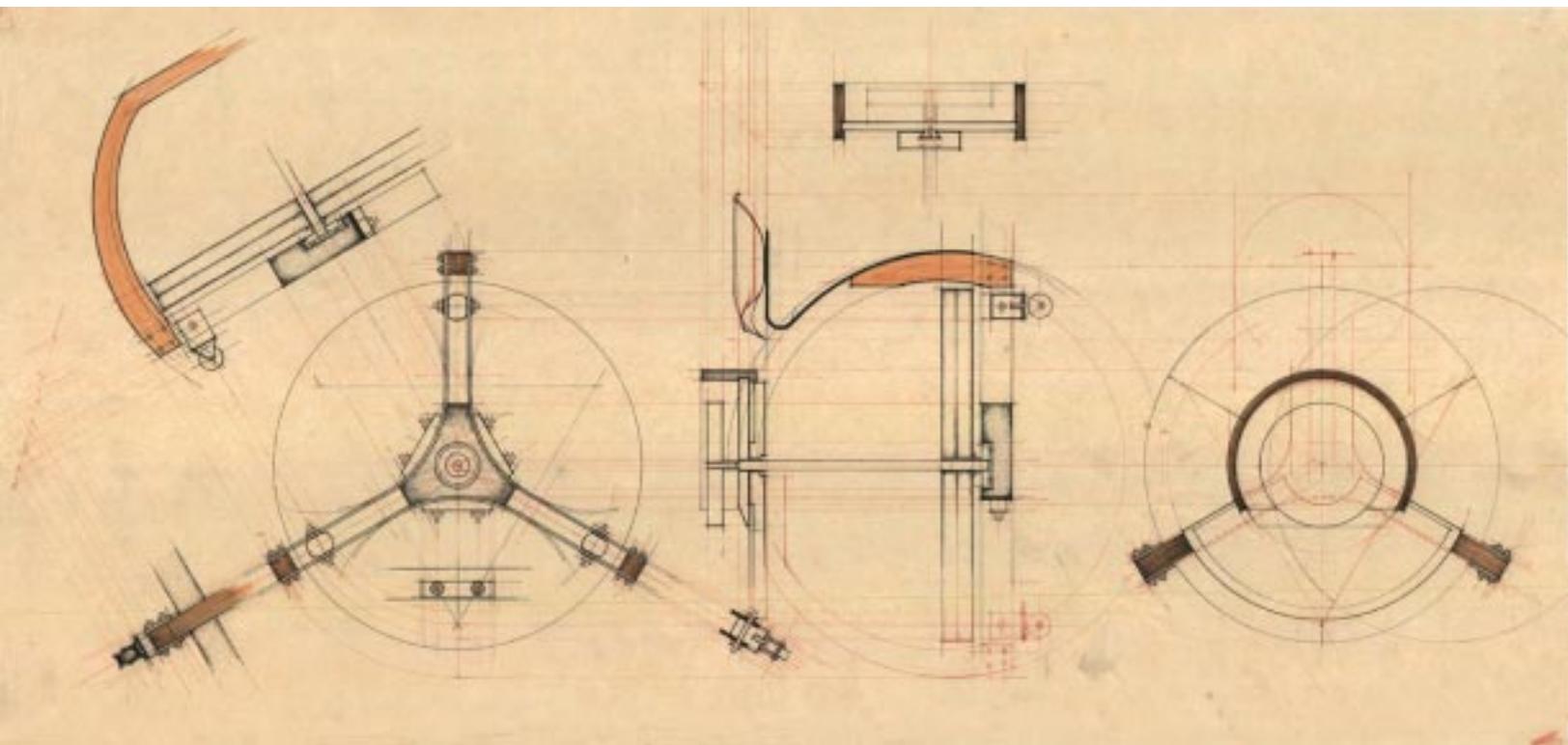
Deep shadows and darkness are essential, because they dim the sharpness of vision and invite unconscious peripheral vision and tactile fantasy. Homogeneous light paralyzes the imagination in the same way that homogenization eliminates the experience of place. Juhani Pallasmaa, "An Architecture of the Seven Senses", a + u, p. 34.

Kickwheel

The kickwheel is a project also ordered about center. The objective is to build a potter's wheel that is ergonomic, structurally sound, and light weight.



The first iteration is derived from a hemisphere divided into four quadrants that order the structural supports.



Center is a geometric necessity for function and structural integrity. All parts reference the center axis, which is a steel shaft. The rotation of the concrete slab is started by a kick from the potter. The momentum is transferred to the throwing surface, through the shaft, where the potter's hands touch the clay, completing the cycle.

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American Society of Civil Engineers, FSC Chapter, *President, '93-'94*
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AIAS International Forum 1992, *Council of Presidents, November '92*
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HONORS

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Associate Architectural Design Award Winner '92
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1st Place Fairmont State College Architectural Drafting Competition '85