ABSTRACT

Title of Thesis: TEMPLE IN THE WOOD:
BEYOND SENSING ARCHITECTURE

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Thesis directed by: Luis Diego Quiros, Assistant Professor, School of Architecture, Planning, and Preservation

The idea that we understand the world through our senses has been expressed time and again, yet modern architectural solutions have largely ignored or dismissed their potential to create beautiful or profound sensory experience. Too often, buildings turn inward, absorbing their occupants in a lifeless environment devoid of meaningful connection to nature.

Through the design of a Center for Jewish Life for Congregation Beth Israel – The West Temple in Cleveland, Ohio, this thesis endeavors to explore an architecture which is rooted in the sensory experience, but which does not ignore the interpretive and meaning-seeking nature of people. It is an architecture which does not intend to impose meaning, but which allows itself to be a repository of meaning and provides an opportunity for realizable ontological experience.

TEMPLE IN THE WOOD:

BEYOND SENSING ARCHITECTURE

by

Arik Lubkin

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of the requirements for the degree of

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DEDICATION

This thesis is for to all those Jewish children who have no synagogue to turn to, no community in which to discover and celebrate their Jewish heritage. To those who feel alone in their spiritual journey. To those who search for the menorah in the window.

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Architecture of Perception

The search for an architecture of sense and spirit must begin with an consideration of how we perceive and understand the built environment. Though the investigation of architectural solutions often begins in plan, in the course of building design, there must also be an understanding that buildings are not perceived in planometric orthography, but through human scale sensory engagement. The eyes take in their surroundings from a perspective of 67 inches above ground level for the average U.S. adult while standing and at 50 inches above ground while sitting.[1] While plans are useful for investigating and describing the relationships between spaces and the organization clarity of the building – both of which have direct impact on the experience of using the building – the direct perceptive experience cannot be investigated purely in terms of the orthographic.

This experience does not exist purely in the visual realm. Though for the majority of a buildings occupants there is a bias toward sight, the experience of architecture includes the aural, tactile, olfactory, and gustatory senses as generally understood as relating to the eyes, ears, skin, nose and tongue, and the proprioceptive[2] or kinesthetic sense, the vestibular sense[3], and the temporal sense.

---

[1] 1. K. R. W. Incorporated, Transit Cooperative Research Program, and National Research Council (U.S.). Transportation Research Board, Guidelines for transit facility signing and graphics (Transportation Research Board, 1996) 27.

[2] "The unconscious perception of movement and spatial orientation arising from stimuli within the body itself." *American Heritage Stedman's Medical Dictionary*

[3] "A complex sense concerned with the perception of bodily position and motion, mediated by end organs in the vestibular system, and stimulated by alterations in the pull of gravity and by head movements called also labyrinthine sense." *Merriam-Webster's Medical Dictionary*

Scales of Interpretation

The information received via these senses cannot be received independently of interpretation. Rather, certain mental and emotional interpretive and associative processes are immediate and simultaneous with the input of sense stimuli. This interpretation may be understood to occur at three primary scales: the universal, the communal, and the individual.

Universal associations may be understood as primal or archetypal knowledge common to all humankind, inherent in the human experience. For instance, references to the elements or basic needs may draw upon universal associations. Water is necessary for life and anyone, regardless of their background, understands this at some level. Therefore the connection between water and life can be made. Similarly, shelter, which has a reciprocal association with womb and home, connotes protection or safety.

Communal associations are those which are shared amongst a group, whether it be geographic, political, religious, etc. Individuals belong to multiple and diverse communities, yet within a particular location, there are likely to be communal overlaps and perhaps dominant communities. Interpretations and associations within community groups rely on its common history, mythology, education, beliefs, symbols and values and may be said to stem from its shared cultural consciousness. Associations which are made at the universal level may be imbued with additional relevance at the communal level. Water, which has already been associated with life, might be understood in very different ways to a Greek living by the sea (η θάλασσα)

and a farmer living in the Midwest. Even in this simple example, one can identify multiple communal groups to which each person belongs and may begin to imagine the range of communal values which may inform their interpretations. The interpretation of various marks into letters and words is another act which is derived from shared education within a communal language group.

Individual associations result from a lifetime of personal experience and may be more influential in one's interpretation of phenomena than communal and universal associations. In such cases where a perceived experience relates directly to a significant life event, the individual association can be so powerful as to dominate the interpretative process, eliminating all but the most subtle connection to the communal and universal. One may imagine a situation where for one who has experienced water in terms of death or danger – a friend or relative drowning for instance – the personal association of water and death could trump the communal association of water and growth or the universal association of water and life.

In designing a space, the architect may exert some influence on the interpretive process to the extent that he may create experiences which reference universal archetypes and communal symbology. The universal is essentially a community inclusive of the entire human race, and so the architect, as any member of that community, has inherent understanding of these archetypal references, even if such understanding is at a subconscious level. The architect must however be able to differentiate between what is universal and his own communal and individual interpretive influences. In the second case, of communal symbology, the architect may

act as anthropologist and conduct research to better understand opportunities for communal interpretation. Such research may include a study of the community's history, common narratives, value, etc. and conversation with the clients. It is important to note here that "client" refers not only to the individual or group who commissioned the building but also to those individuals whom the building is meant to serve.

The relationship of sensory input, interpretation and memory is complex and recursive. One may experience input of a particular nature, for instance touch or taste, which may then be interpreted by our minds subconsciously and may invoke a memory or associative trigger which causes a further imagined sensory response.

In *Dandelion Wine*, Bradbury writes:

> Douglas's mouth was slightly open and from his lips and from the thin vents of his nostrils, gently there rose a scent of cool night and cool water and cool white snow and cool green moss, and cool moonlight on silver pebbles lying at the bottom of a quiet river and cool clear water at the bottom of a small white stone well.
>
> It was like holding their heads down for a brief moment to the pulse of an apple-scented fountain flowing cool up into the air and washing their faces.[4]

Here again, a sensory response triggers a memory which causes further sensory response, this time imagined, as part of a recursive process. The actual sense input, in this case, is merely the sight of marks upon a page. As discussed, one's understanding of these marks is influenced by an education which teaches one to associate marks with letters, letters with words, words with meanings. This association is so ingrained that it has become difficult, if not impossible, to see these marks and not associate them with letters and words. Further, these words can be crafted to describe an

[4] Ray Bradbury, Dandelion Wine (Random House, Inc., 1976) 221.

experience in such a way as to make it seem tangible. What began as mere marks on a page becomes imagery – when reading the words, one may begin to smell "cool night" and "green moss", to see the "moonlight on silver pebbles". Our imagination turns what is essentially a intellectual process into an emotional narrative.

Figure 1: The Olive Trees, Van Gogh, Oil, 1889. *Source: ArtStor*

This process is not limited to a text-based narrative, but occurs across media. When viewing a Van Gogh painting, again our true sensory input is merely visual: we see the painting. Yet, the painting, through the visual expression of lived experience may resonant with the memory of one's own experiences to the extent that it might it evoke the sensation of "entering the painting" through imagined or extra-sensory response. Regarding hyper-realistic images, one often encounters the aphorism "it seems so real I can taste it." More expressive images or constructions can induce the same reaction by targeting the emotional or associative response to a sensory experience rather than by direct reference to the experience itself.

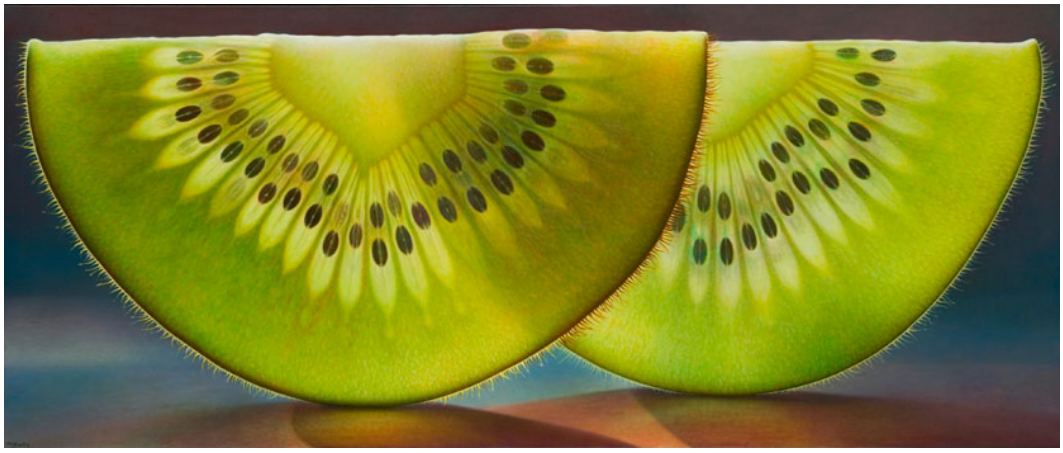

Figure 2: Kiwi Series #3, Dennis Wojtkiewicz, Oil. *Source: jcacciolagallery.com*

Such a reaction may be understood as a phenomenopathic response, wherein the interpretation itself causes and informs a newly perceived sensory experience which may complement and heighten the initial sensory experience. Synesthesia may be a form of phenomenopathic response, particularly in cases such as those where letters or emotions are associated with a sense. In the case of letters, a synesthetic response is predicated on a communal association of the marks with letters and then those letters upon another sense. An emotional synesthetic response, for instance where one perceives a change of color dependent upon their mood, suggests a connection with an individual associative process.

In architecture, as in painting, an understanding of the phenomenopathic response might assist the designer in creating opportunity for such a response which might cause further investment by the perceiver in the experience of the building. A common architectural elucidation of such a response is feeling a texture with the eyes. Without the need for touch, the sight of a textural surface as revealed through the play of light and shadow implies a tactility which can be both intellectually understood and

phenomenopathically felt. The phenomenopathic response may be in harmony or discord with the direct sensation of the subject: In the grain of smooth sanded wood, one might perceive a particular rough texture which is contrary to the actual smooth surface.

Again, it is important to emphasize that the architect/artist may only create a circumstance where the opportunity for an interpretive or phenomenopathic response is more likely to arise. Further, if one endeavors to relate the design to the relevant communities (including the universal community), one may, to an extent, predict a response, yet one cannot impose such a response, just as one cannot impose specific meaning. Rather the response will vary based on the interpretive variables within each perceiver as previously discussed, and specific meaning will derive from that interpretation.

Michael Benedikt writes: "Just being a man or a woman and alive is enough to guarantee the world's meaningfulness... you cannot catch the world unaware and naked of meaning." [5] This may be true, but the architect may, to some extent, guide the interpretive process which leads to the personal revelation of that meaning.

---

[5] 1. Michael Benedikt, For an Architecture of Reality (Lumen Books, 1992).

Beth Israel

Beth Israel, The West Temple is a reform Jewish congregation in the greater Cleveland, Ohio area. The congregation was formed in 1954 by 25 families and originally met in various local churches but moved into its first dedicated synagogue, where it still resides today, in 1958.[6] While there are several synagogues, Jewish communities and Jewish schools on the east side of Cleveland, Beth Israel is geographically unique, being the only Jewish congregation in Cleveland's west side. Whereas Jews growing up and living on the east side will likely get significant exposure to Jewish social life, Jewish children on the East side are likely to one of few, if not the only, Jewish child in their school.

The synagogue itself, off Triskett Road south of Lakewood, is a two story brick building which has begun to present many challenges to the congregation. The entrance to the building is raised, with stairs to the door, and the sanctuary is located on the second floor. Without ramps or an elevator, many of the older members of the congregation have been unable to reach the sanctuary. Compounding the problem, the sanctuary, with large, unprotected windows facing southeast gets uncomfortably hot in the summer and the building has no air conditioning system. Additionally, the site cannot accommodate the parking needs of the congregation, which has had to request the use of a nearby church's parking lot. Recently, the congregations ability to

[6] "Our History | Beth Israel The West Temple," n.d. http://www.thewesttemple.com/about/history.

use that lot in the future has come into question. These issues have forced the congregation to frequently hold services in the atrium of a nearby church.

In order to address this problem, the congregation's long range planning committee examined several options for new facilities, including minor and major renovation of the existing facility and retrofitting another building to serve as a new sanctuary, but determined that the best course of action was the establishment of a new Center for Jewish Life on a site further west of the Triskett Road location. The proposal called for educational space, a social hall, sanctuary and library on a "green campus".

Figure 3: Sanctuary at Beth Israel

Figure 4: Bima at Beth Israel

Figure 5: Social Hall at Beth Israel

Figure 6: One of several library rooms at Beth Israel

Figure 7: Coffee lounge at Beth Israel

Figure 8: Sample classroom at Beth Israel

Symbols in Judaism

Judaism has a rich symbolic tradition, and in designing a new temple, one must first consider the relevant symbols of the Jewish community as it relates to that community's interpretive process, and the specific interpretations which are practiced by the reform movement.

Numbers are imbued with significance in Jewish thought. In Hebrew, numbers and letters use the same symbols, and numbers are counted by adding together the values of the letters, so words may be easily associated with numbers. This association of words or phrases with numbers is called *gematria*. For instance, the Hebrew word for life, *chai* is spelled using the letters which also represent 8 and 10, so 18 is associated with life. Because of this, many Jews make donations in multiples of $18. 26 is the *gematria* for the name of God. Kabbalah uses *gematria* to find hidden meaning in the Hebrew Scriptures.[7]

Seven is the most sacred number in Judaism, and is associated with the seven days of creation, the Sabbath, the planets, and many other Biblical references.[8] Ten is the number of men (men or women in most reform congregations) required for a *minyan* and so represents completeness.

---

[7] Jordan Wagner, *The Synagogue Survival Kit* (Jason Aronson, 2000), 12.

[8] Levias, Caspar. "Numbers and Numerals." JewishEncyclopedia.com. http://www.jewishencyclopedia.com/view.jsp?artid=366&letter=N&search=numbers.

The twelve tribes of Israel are often referenced in synagogue architecture: "A traditional synagogue might have twelve window, one for each of the twelve tribes… there might be twelve columns holding up the roof." [9]

The twelve tribes are each also associated with a symbol, stone and color as noted in the chart below:

Twelve tribes of Israel

Re-u-ven	mandrakes	carnelian / ruby	flesh / red
Shim-mon	Shechem (city)	topaz / chrysolite / emerald	green
Le-vi	urim & thumim	smaragd / emerald	white / black / red / green
Ye-hu-dah	lion	carbuncle / chalcedony	sky blue
Issachar	sun & moon	sapphire	red / dark blue
Ze-bu-lun	ship	beryl / emerald / amethyst	green / white
Dan	snake	jacinth / carbuncle	orange / dark blue

[9] Jordan Wagner, *The Synagogue Survival Kit* (Jason Aronson, 2000), 54.

Naf-ta-li	deer	agate	light red / wine /striped grey
Gad	encampment	amethyst / crystal	violet / black & white
A-sher	tree	beryl / chrysolite	bluish green / olive green
Yo-sef	ox / bull	onyx / lapis-lazuli	black
Bin-ya-min	wolf	jasper	multi-colored

Figure 9: The twelve tribes of Israel and their associated symbols. [10]

Marc Chagall used these various symbols in his 1961 stained glass depiction of the twelve tribes for the synagogue at Hebrew University's Hadassah Medical Center in Jerusalem. Regarding the windows, Gaston Bachelard remarked, "Chagall reads the Bible and suddenly the passages become light." [11]

[10] Jordan Wagner, *The Synagogue Survival Kit* (Jason Aronson, 2000), 59-60.

[11] 1. Miriam Kottler Freund, Jewels for a crown (McGraw-Hill, 1963).

Figure 10: Stained glass windows by Marc Chagall depicting the twelve tribes of Israel.

Source : CasaIsrael

Aside from the association of colors with the tribes, several colors have relation to Jewish life and tradition:

Blue has the common association with the sky and heaven, but also has very specific significance relating to the wearing of the *tallit*, the prayer shawl. The Torah prescribes wearing the *tallit* as a reminder of the 613 commandments[12] and wrapping

[12] The Hebrew word for fringes, *tsi-tsit*, has a numerical value of 600. Each of the corners of the *tallit* has a fringe with 8 threads and 5 knots. 600 + 8 + 5 = 613 commandments.

a blue thread through the fringes. The blue dye came from a rare snail through an intensive (and expensive) process, and was generally reserved for royalty. The directive that every Jew wear a blue thread suggests that everyone "shares a spark of the divine."[13] The Israeli flag itself was designed to resemble a *tallit*.[14]

Other significant colors include white, which is associated with salt and ritual, and signifies purity, peace and death; red, which signifies blood, life and love; amber, the color which emanates from God; and purple, which represents the sea and divinity.[15] Referencing his Beth Sholom Synagogue, Frank Lloyd Wright declared:

> Let God put his colors on. He's the great artist. When the weather is sunny, the temple will glitter like gold. At night, under the moon, it will be silvery. On a gray day it will be gray. When the heavens are blue, there will be a soft blue over it.[16]

---

[13] Jordan Wagner, *The Synagogue Survival Kit* (Jason Aronson, 2000), 42-43.

[14] Wayne D. Dosick, *Living Judaism* (HarperCollins, 1995), 335.

[15] 1. L. K. Peterson and Cheryl Dangel Cullen, Global graphics (Rockport Publishers, 2000), 130.

[16] Sam Gruber, American Synagogues: A Century of Architecture and Jewish Community (Rizzoli, 2003), 105.

Figure 11: Beth Sholom Synagogue, Frank Lloyd Wright, Elkins Park PA, 1957.
Source: Businessweek

Metals and their associated colors also have significance in Judaism: Gold symbolizes divine light while silver symbolized moral innocence.

In Mendelsohn's Park Synagogue, golden light suffuses the sanctuary, filling it with "divine light" while in Bruder's Kol Ami, one moves from purifying white light through a silver zone of "moral innocence" before reaching the golden sanctuary. In Midrash, the golden altar corresponded to the soul, while a copper altar corresponded to the body. Yet gold is also associated with sin in reference to the false idol of the golden calf. Copper is also associated with strength.[17]

[17] Wurzburger, Uri Shraga. "Metals and Mining" in *Encyclopedia Judaica*, 2nd ed. (Gale Cengage, 2006), 123-126.

Figure 12(left): Park Synagogue, Eric Mendelsohn, Cleveland OH, 1995.

Figure 13 (right): Kol Ami Synagogue, Will Bruder, Scottsdale AZ, 1995.

Source: Jewish Identity in Contemporary Architecture

Perhaps the most recognized symbol of Judaism is the *Magen David* (Shield of David), the six-pointed star more widely known as the Star of David which is used on the Israeli flag. This symbol has been used since the Bronze Age, but has only been specifically associated with Judaism since the 17th century.[18]A much older sign of Judaism is the *menorah*, a seven-branched candelabra. The design for the *menorah* is given by God to the Jewish people in Exodus who created it for use in the Tabernacle in the wilderness. (Ex. 37:17-24) Thus, the *menorah* has held a place in Jewish ritual since even before the First Temple.[19]

Another geometric form which may be considered in the golden rectangle. The Torah specifies the proportions for the Ark of the Covenant: "And they shall make an

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[18] Scholem, Gershom. "Magen David" in *Encyclopedia Judaica*, 2nd ed. vol. 13(Gale Cengage, 2006), 336-339.

[19] Haran, Menahem. "Menorah" in *Encyclopedia Judaica*, 2nd ed., vol. 14 (Gale Cengage, 2006), 49-51.

ark of acacia-wood: two cubits and a half shall be the length thereof, and a cubit and a half the breadth thereof, and a cubit and a half the height thereof." (Ex. 25:10) This proportion, 3:5 is a simple number approximation of the golden section.

Ritual and Tradition

In synagogue design, there is a tradition of either the sanctuary itself facing toward Jerusalem – eastward in the western hemisphere. Often at least one window in the sanctuary will also face eastward. The Torah scrolls are kept in the ark , a cabinet or covered niche which is also generally located on the eastern wall so that those facing it are also facing Jerusalem. The Torah is read on the bimah, a raised platform which is centralized in traditional synagogues, but generally toward the front of most American synagogues. Moving upward onto the bima is symbolic of climbing Mt. Sinai. Jewish holidays begin and end at sundown, and the Shabbat begins on Friday evening and ends on Saturday evening. Synagogues hold services at the beginning of Shabbat on Friday evenings, although in many congregations, including Beth Israel, there is an additional Saturday morning service.

Site Selection

As previously discussed, the congregation of Beth Israel is increasing moving westward. By relocating to North Olmsted, Beth Israel hopes to better accommodate these congregants and attract new congregants as well.

Figure 14: North Olmsted relative to downtown Cleveland

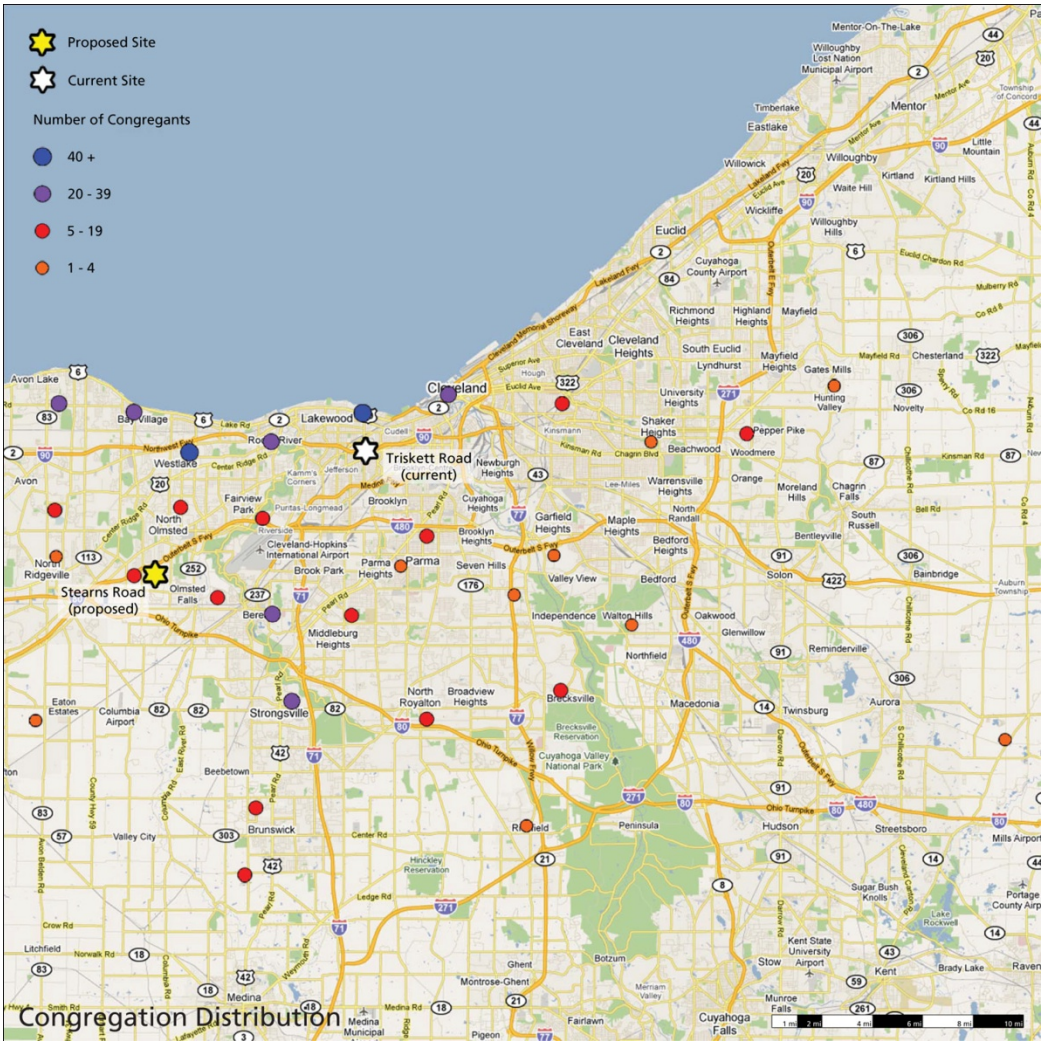

Figure 15: Distribution of congregants *Source: Beth Israel*

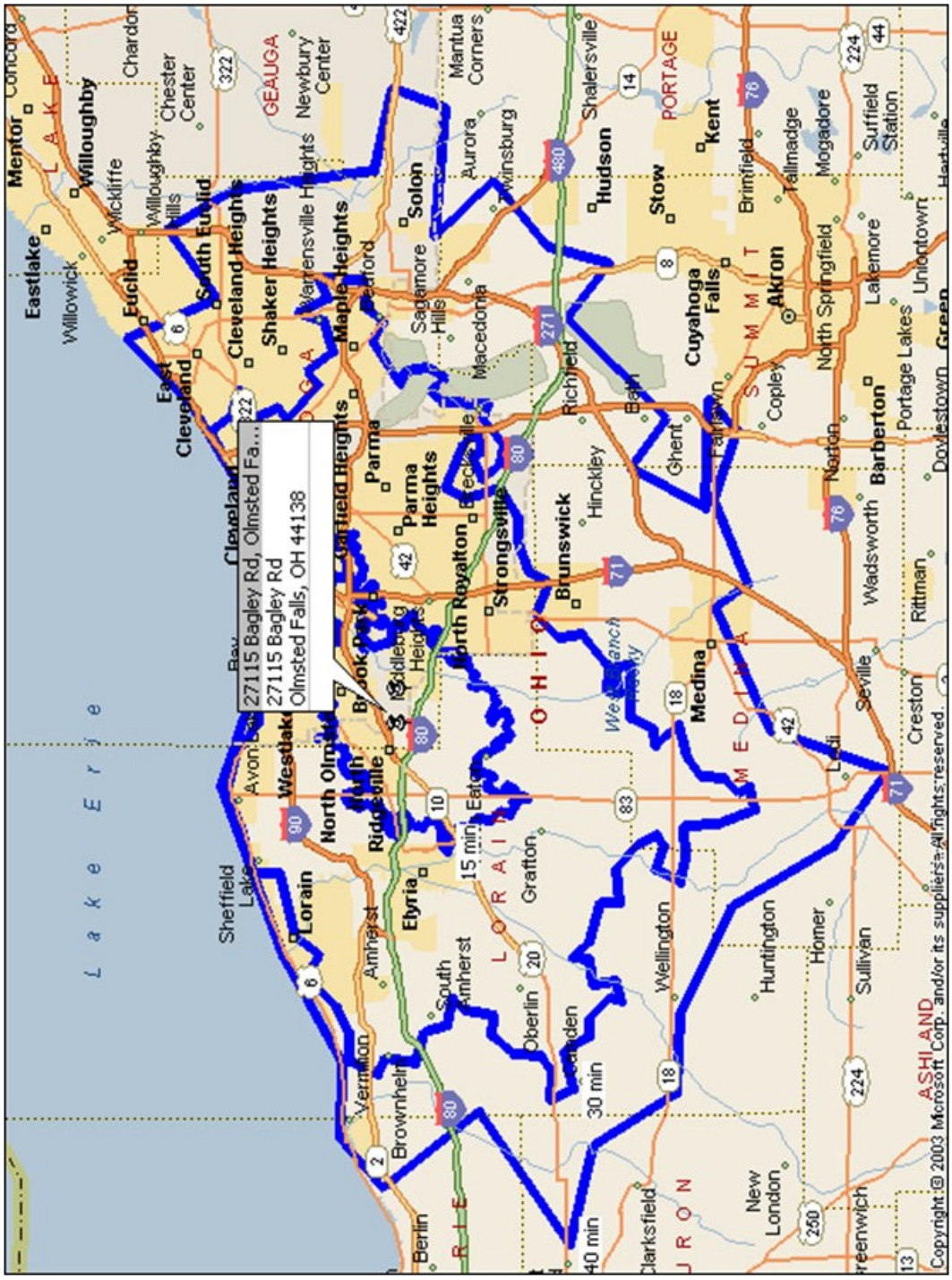

Figure 16: Distance from Stearns Road site. Each blue ring represents 15 minutes travel time.
Source: Beth Israel

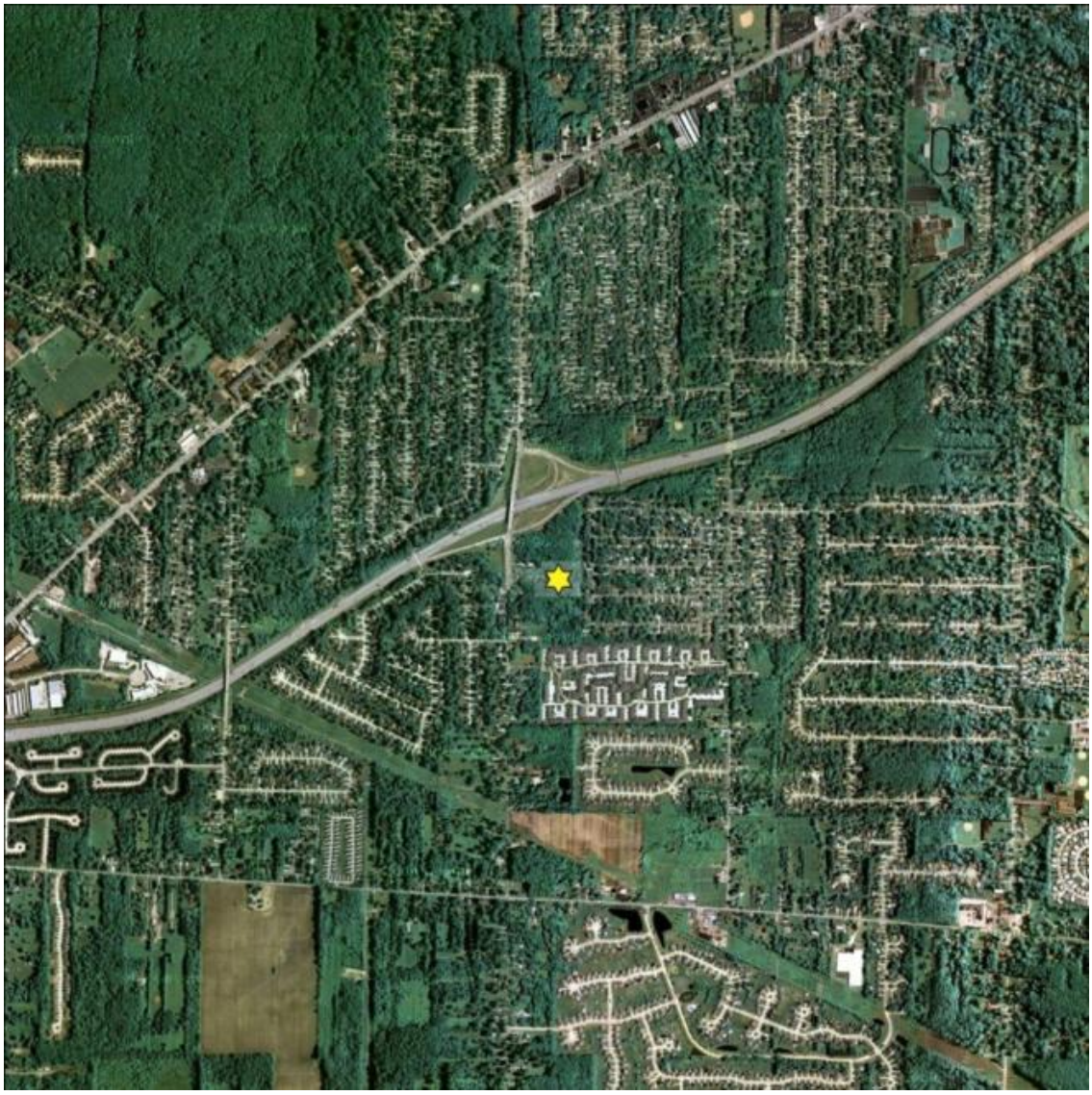

Figure 17: The site and its surroundings (approx. 2 miles)

Source: Google Earth

Figure 18: Site and surrounding neighborhoods. Scale 1" = 400' - 0"

Source: Google Earth

Figure 19: Site and immediate vicinity.

Source: Google Earth

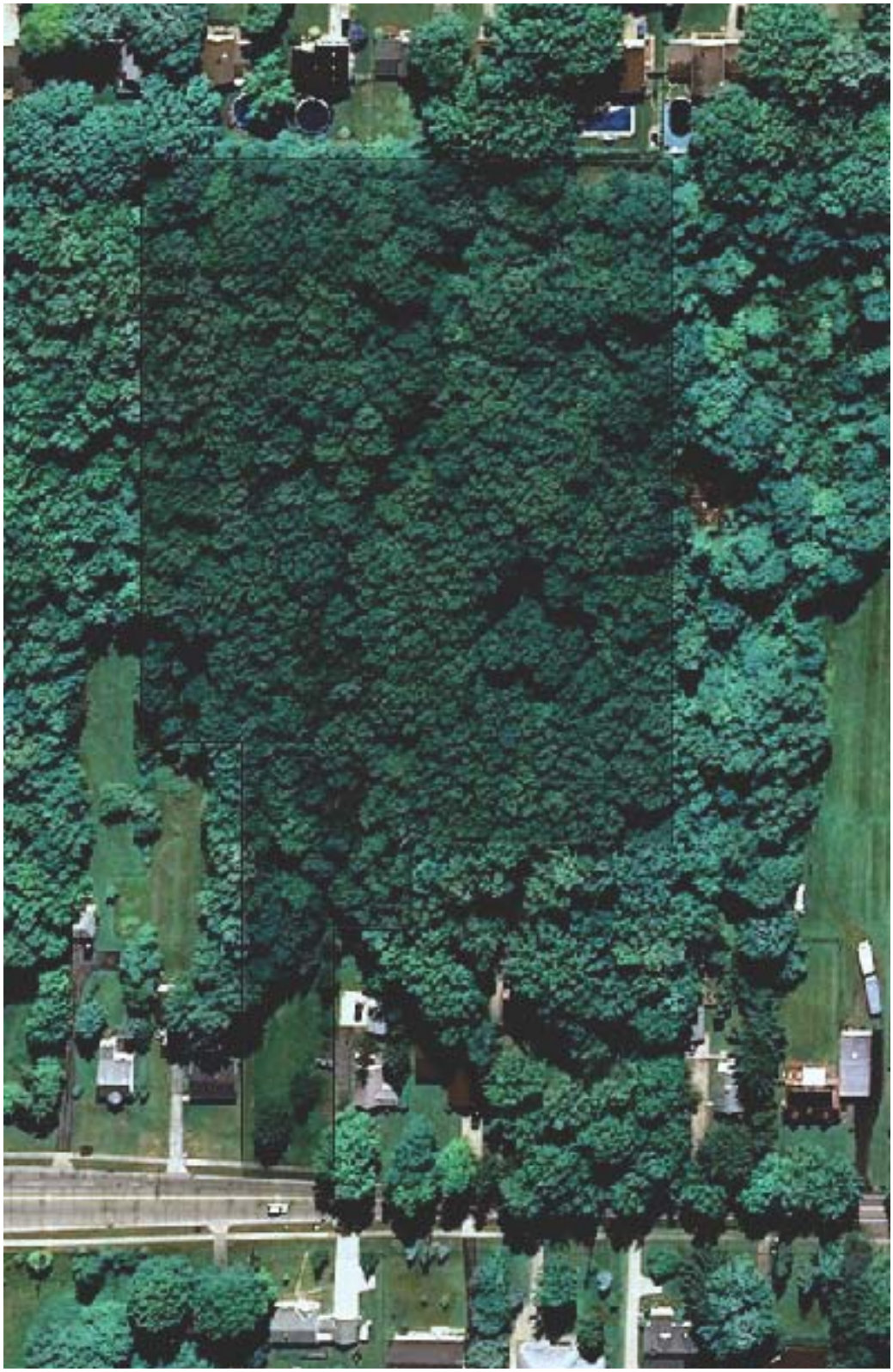

Figure 20: Site. North to left. Scale 1" = 100' - 0 "

Source: Google Earth

Figure 21: Stearns Road, from north looking south

Figure 22: Arrival sequence: B. From Stearns Road looking south to site. C. From front of site looking east. D. From mid-front of site looking east to forest. E. From forest entrance looking east.

Figure 23: Panoramic view from site

Figure 24: Stream at east end of site.

Figure 25: Views of site in Spring

Figure 26: Views of site in Summer

Figure 27: Views of site in Autumn

Site History

As recently as the 1950s the site was mostly non-wooded and was likely used as farmland prior to that. No structure is known to have ever been built on the site. Today the site is densely wooded.

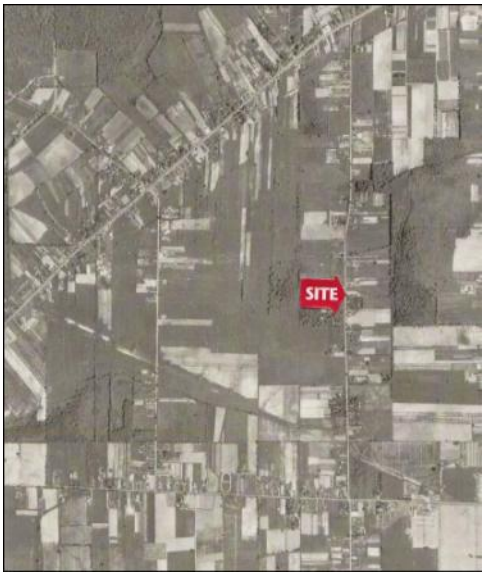

Figure 28: 1951 aerial photo of site and vicinity

Figure 29: 1959 aerial photo of site and vicinity

Figure 19: 1977 aerial photo of site and vicinity

Figure 30: 2009 aerial photo of site and vicinity

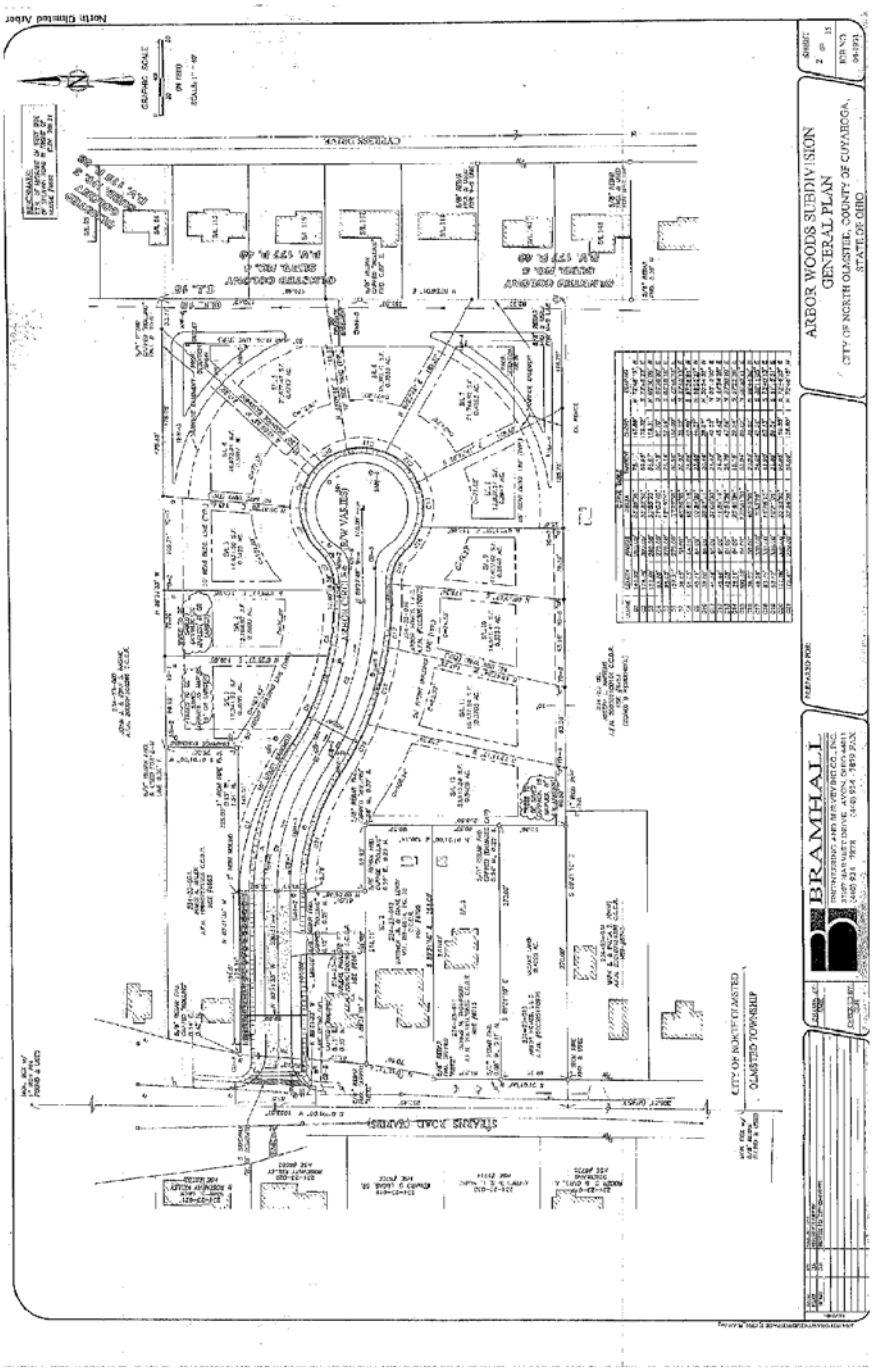

Figure 31: Previous design for site: Arbor Woods Subdivision

Source: Bramhall Engineering and Surveying, Courtesy Beth Israel

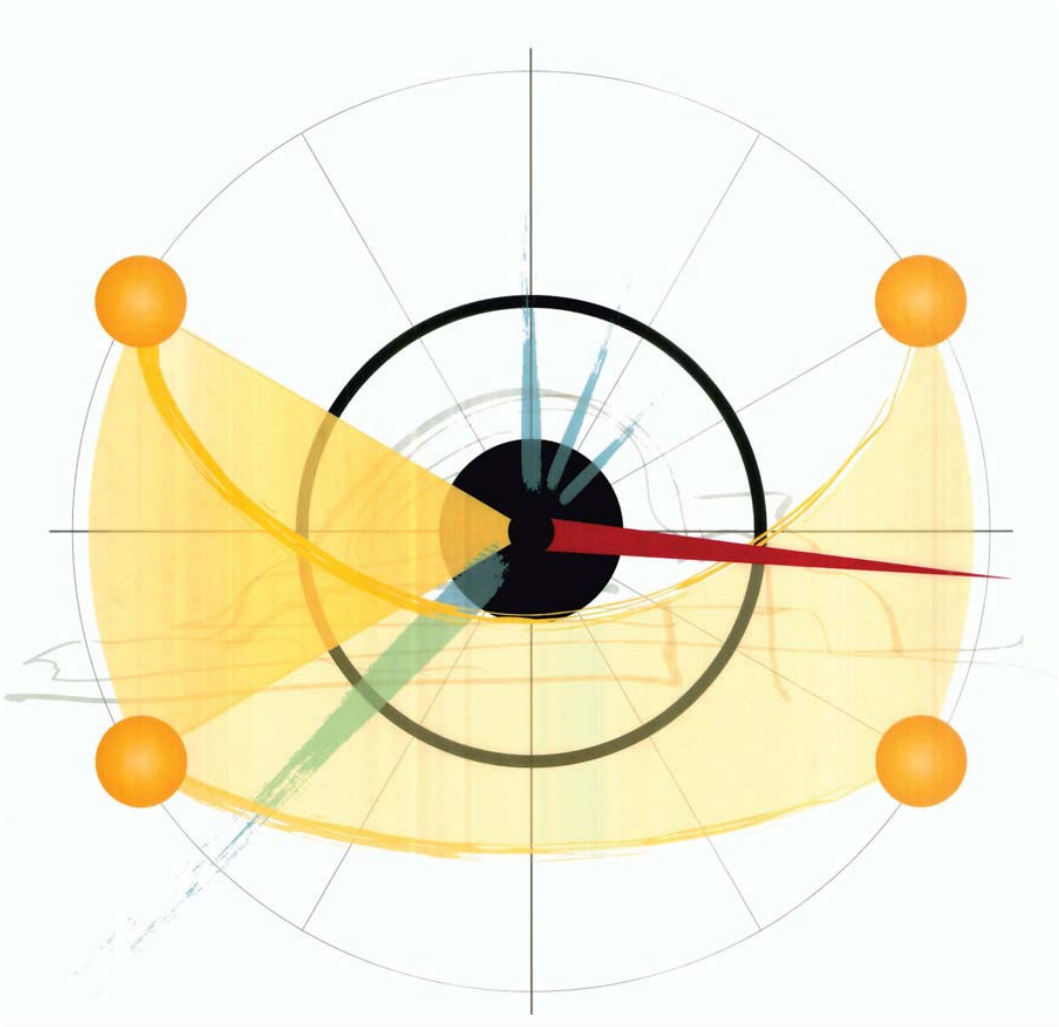

Figure 32: Sun path diagram with wind rose and axis to Jerusalem

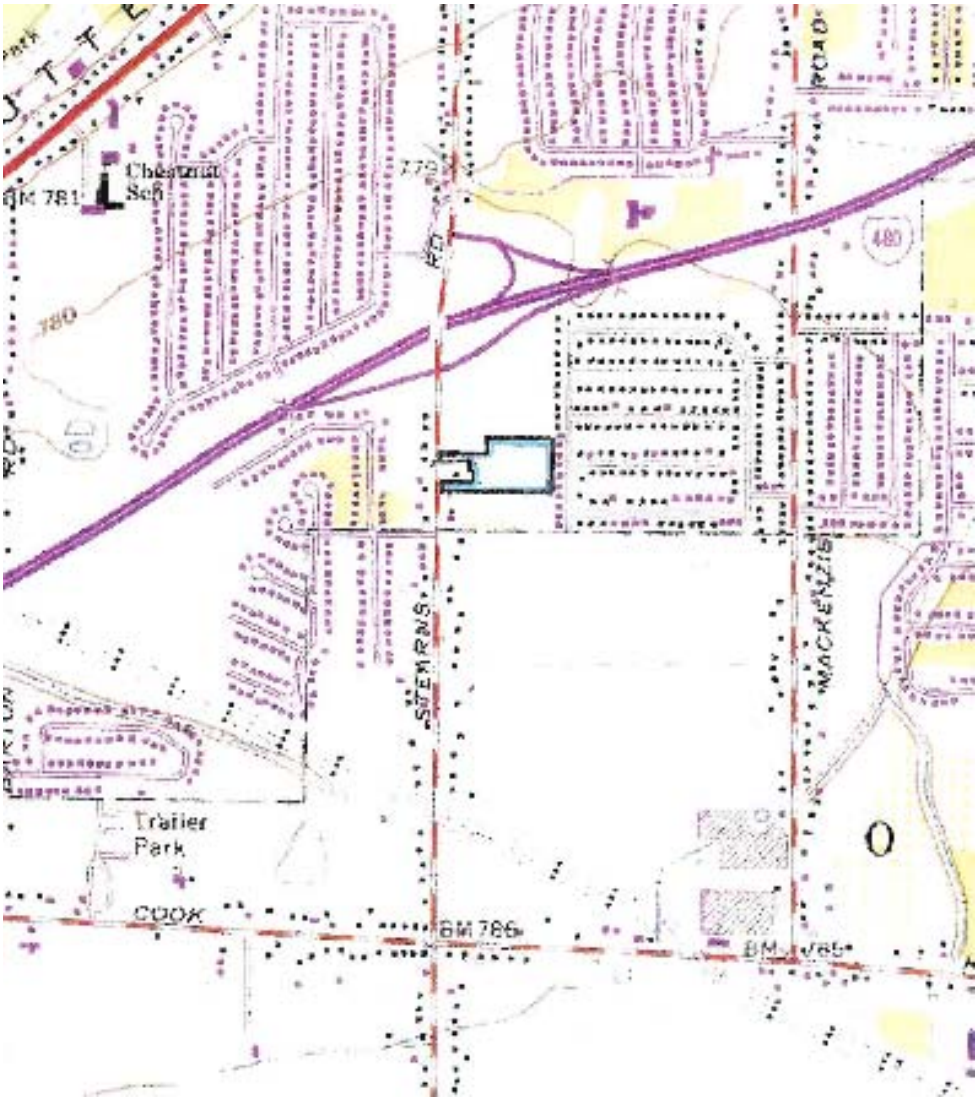

Figure 33: USGS Wetlands Report.

Source: Flickinger, Courtesy Beth Israel

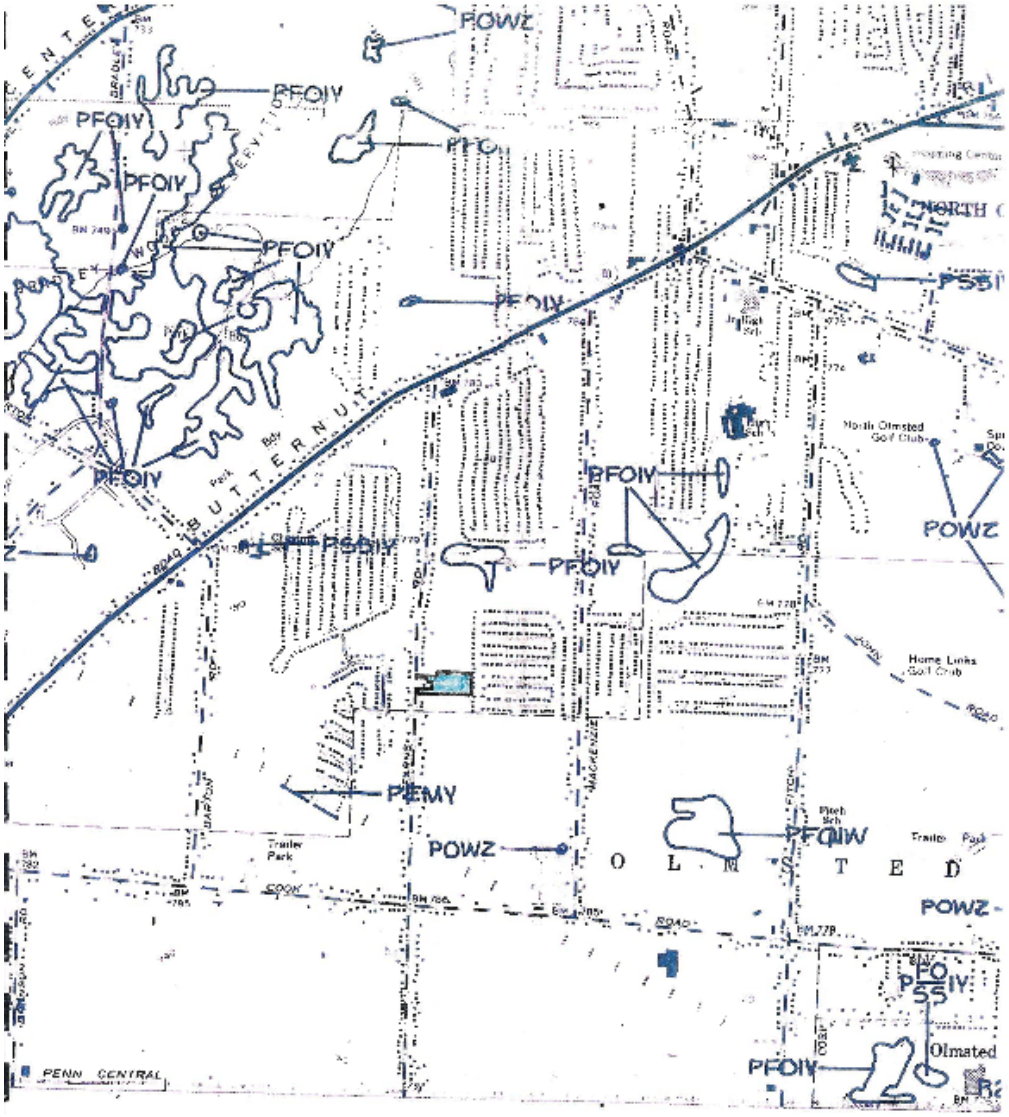

Figure 34: Area wetlands

Source: Flickinger, Courtesy Beth Israel

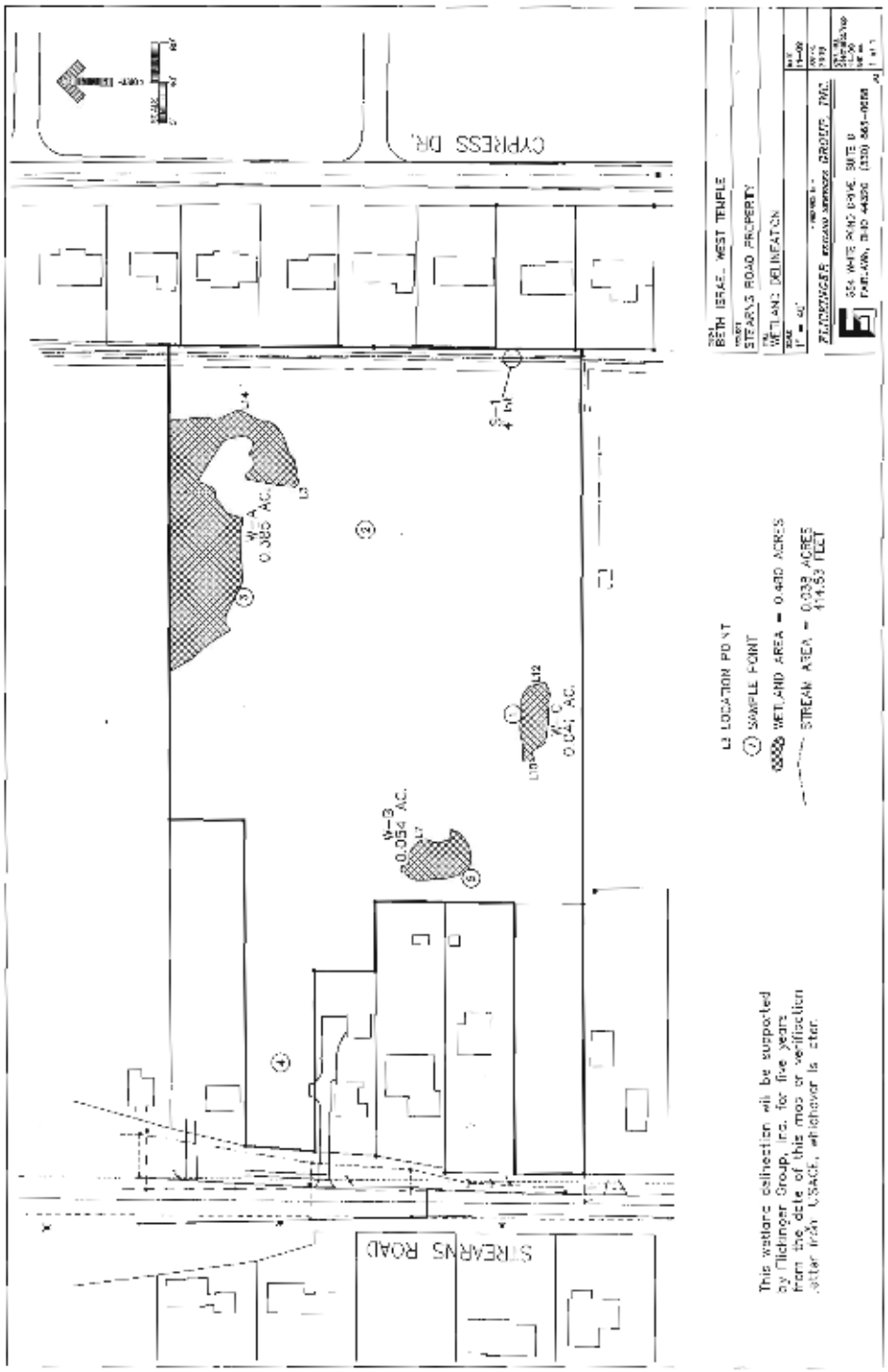

Figure 35: Wetlands on site

Source: Flickinger, Courtesy Beth Israel

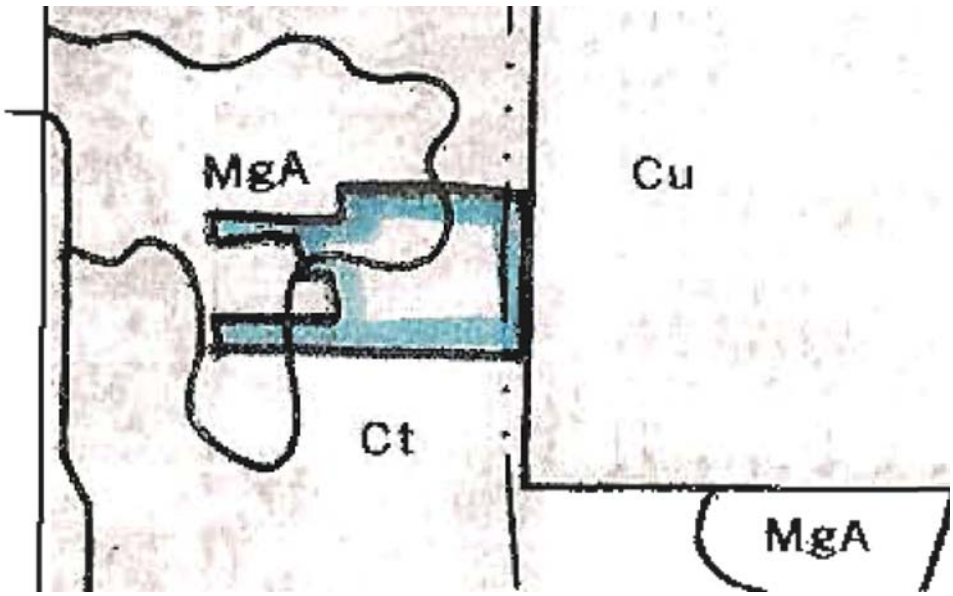

Figure 36: Site soil conditions

Source: Flickinger, Courtesy Beth Israel

The primary soils onsite are Mahoning silt loam (MgA) and Condit silty clay loam (Ct). The base infiltration rate of Mahoning silt loam .39 - .79 in/hr. The base infiltration rate of Condit silty clay loam is .2 - .39 in/hr. As pervious pavement and porous concrete pavers require a minimum infiltration rate of .27 in/hr, it may be possible to employ either throughout the site, however further testing may be required on the portion of the site containing Condit silty clay loam. The portion of the site on which the driveway will be built is suitable for porous solutions.

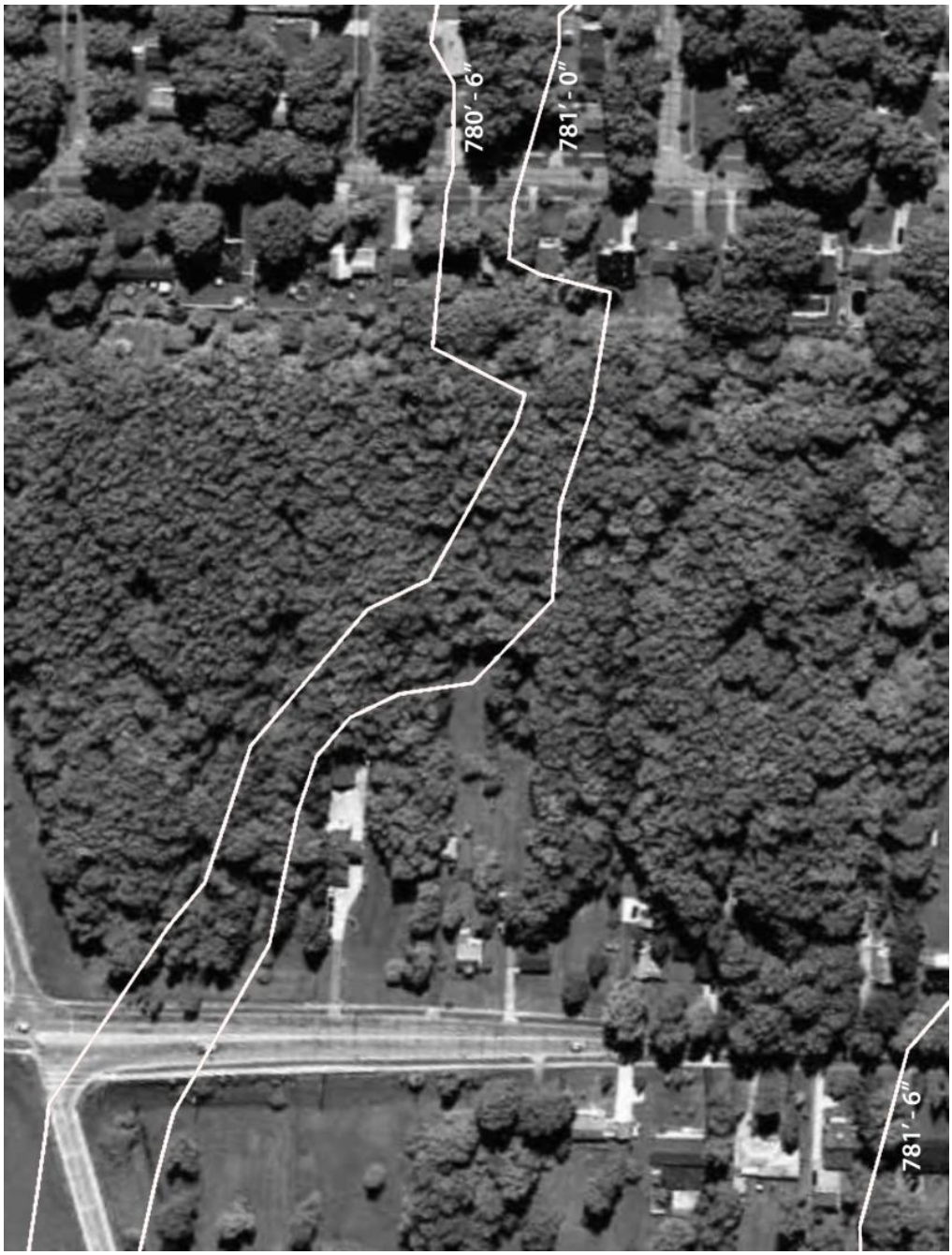

Figure 37: Topography.

Source: Google Earth

Figure 38: Land Cover Study

Source: Flickinger, Courtesy Beth Israel

Figure 39: Site Inventory

On the site there are several varieties of trees, including a large number of various maples and oaks. Generally these trees are estimated between 4 and 12 inches diameter. As shown in figure 38, there exists a row of evergreens separating the northern and southern portions of the site. This line may have been planted as a wind buffer for crops or to delineate the edge of a parcel.

Figure 40: View from entrance to woods looking east, showing a line of evergreen trees

What appears at first to be a stream at the eastern edge of the property most likely served as a main irrigation ditch when the area was farmland. Several treads or shallow trenches run through the site, perpendicular to the main channel, and may also have been part of the irrigation system.

Figure 41: Stream at eastern edge of lot

Figure 42: One of several treads running east-west across site

Program Development

When this thesis began, the program for the Center for Jewish Life was fairly general. Early in the design process, the author worked with Luis Fernandez, Tina Keller and Rabbi Alan Letoffsky to understand the present and future needs of the growing congregation and develop a more detailed program. This was then tested and refined through design. For comparison, both the first and final detailed program are provided.

Originally envisioned as a single building, concern over the viability of fundraising and construction led toward the adoption of a phased approach. The first phase consisted of the driveway, a parking lot for 40-50 cars, one building containing five religious school classrooms, a distance learning classroom, youth lounge, library, café and adult lounge. Phase two would add a social hall and kitchen, offices, and expand the parking to 120 car capacity. The final phase would add the sanctuary, library, a retreat building and an activities cabin.

Figure 43: Early program diagram showing relative sizes of program spaces

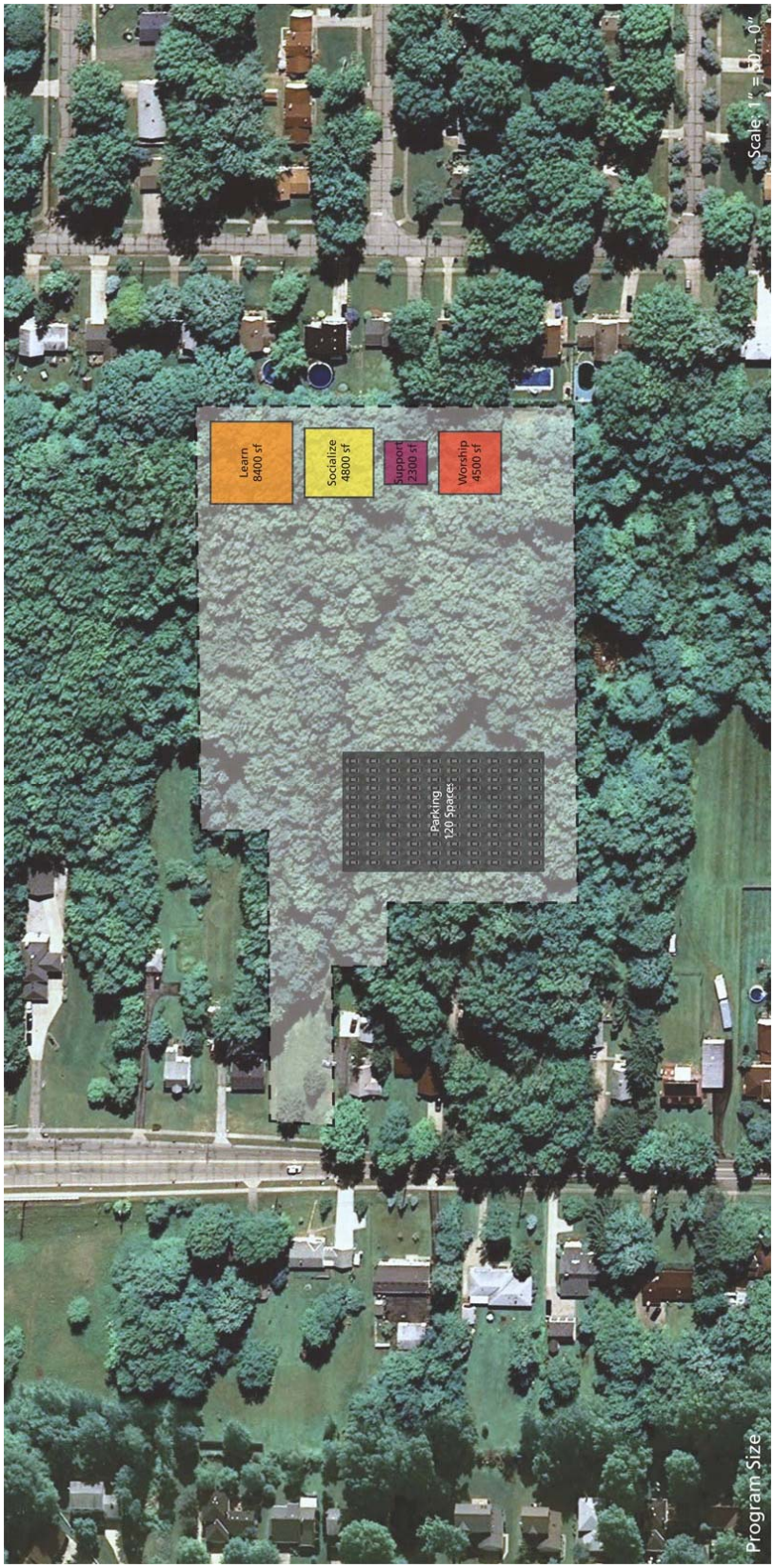

Figure 44: Final program diagram

Synagogue		
	Sanctuary	3500 ft^2
	Movable seating for at least 300.	
	Reception Area	
	Meeting Space	600 ft^2
	40 people max for onegs	
	Preparation Space	
	For events in sanctuary. Able to be set up while sanctuary is in use.	
	Rabbi's Office	180 ft^2
	Also used for small group discussion and study	
Education		
	Classrooms (5-6)	2000 ft^2
	12 - 14 students per classroom	
	High school lounge	
	Distance Learning Center	
	Library	
	Shelving for 600+ linear feet of materials (7000+ items) in adult and children's sections	
	Study Pavillion	500 ft^2
Community		
	Meeting Rooms	3000-5000 ft^2
	Offices	
	Kitchen	
	Picnic Pavillion	1000 ft^2
Other		
	Landscape Equipment	200-300 ft^2
	Circulation	
	Mechanical	
	Geothermal heat/air	
	Parking for 250 cars	

Figure 45: Early program

Building	Function	#	Size	Total Size (sf)
The Westside Jewish Education Center				
	Classrooms	5@	360 sf	1800
	Distance learning lab	1@	400 sf	400
	Youth lounge	1@	500 sf	500
	Restrooms	2@	250 sf	500
	Library			1300
	Chapel	1@	500 sf	800
	Café and lounge	1@	600 sf	1000
	Restrooms	2@	250 sf	500
	Tare @ 25%			1700
	WJEC Total			8500
The Westside Jewish Community Center				
	Social Hall	1@	2500 sf	2500
	Kitchen	1@	500 sf	500
	Restrooms	2@	250 sf	500
	Tare @ 20%			700
	WJCSC Total			4200
The Westside Jewish Outreach Center				
	Offices	1@	1300 sf	1300

	Rabbi's Office	1@	150 sf	150
	Kitchen	1@	250 sf	250
	Conference	1@	180 sf	180
	Restrooms	2@	50 sf	100
	Tare @ 20%			396
	WJCSC Total			2376
The Westside Jewish Religious Center				
	Sanctuary	1@	2500 sf	3000
	Preparation	1@	200 sf	250
	Reception			
	Restrooms	2@	200 sf	400
	Tare @ 20%			730
	WJRC Total			4380
	Main Total			19456
Site				
	Picnic Pavillion			1000 sf
	Study Pavillion			500 sf
	Landscape Eq. Shed			200-300 sf
	Parking for 100 cars			

Figure 46: Final program

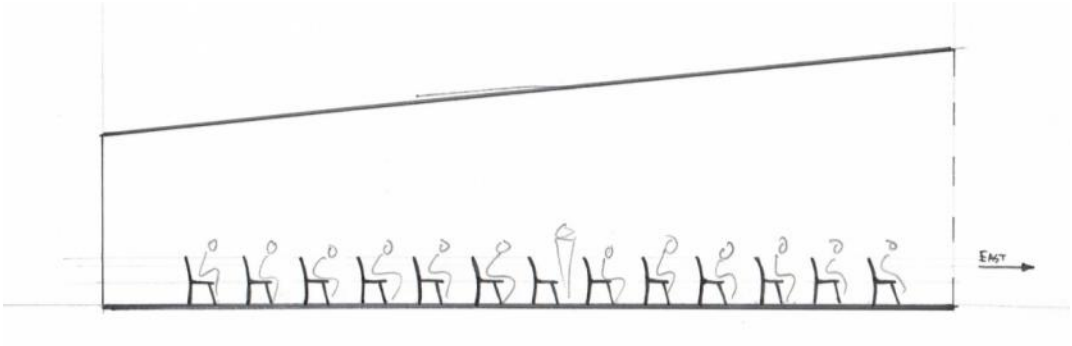

Figure 47: Activity: Community worship

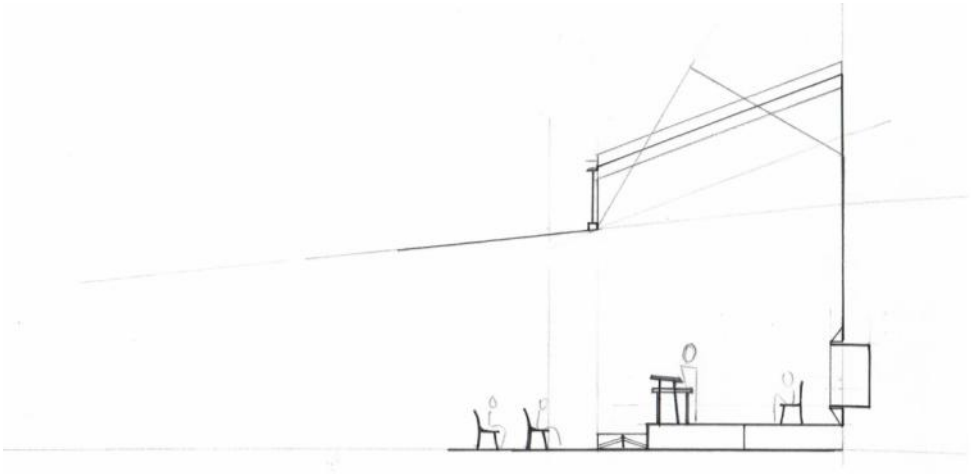

Figure 48: Activity: Worship (lead)

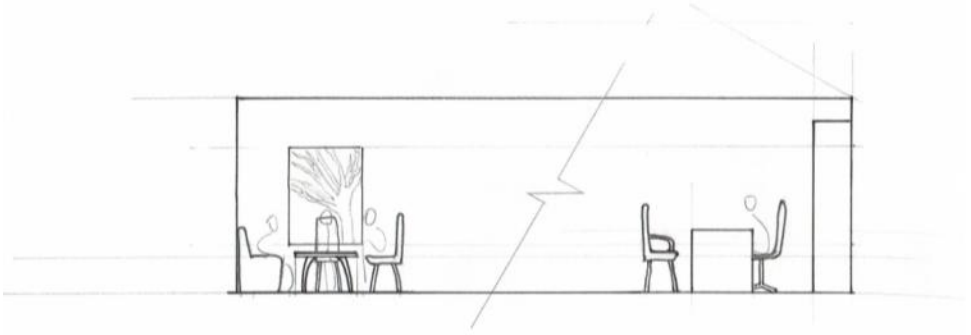

Figure 49: Activity: Advise and reflect (Rabbi)

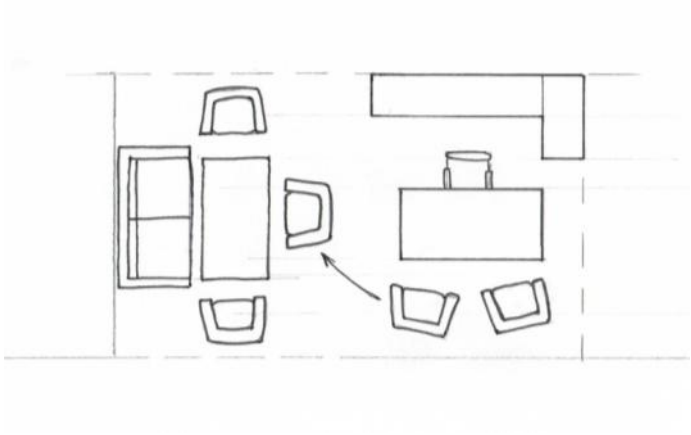

Figure 50: Activity: Study Group (Rabbi)

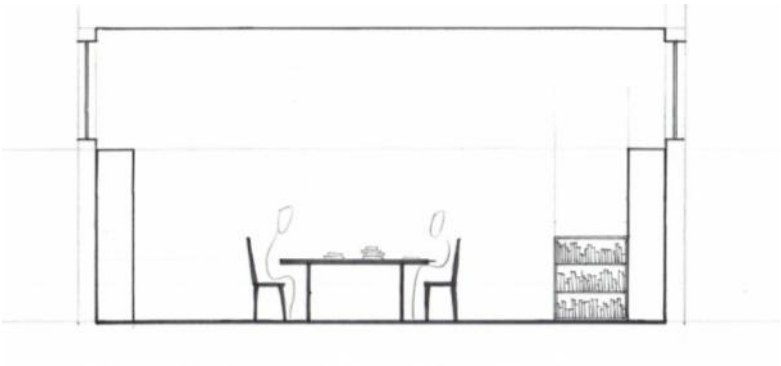

Figure 51: Activity: Read

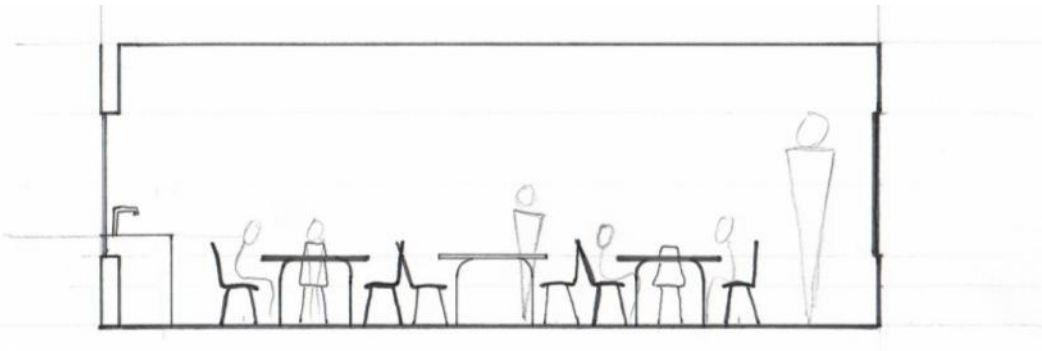

Figure 52: Activity: Learn

Design Process and Approach

While contemporary practice generally demands the speed, editability and electronic communicability of digital documentation, in endeavoring to create an architecture of the senses, one should not neglect the use of hand drawing and physical modeling in design development. The engagement of the tactile body in the design process fosters a more thorough consideration of the role of the experiential body in the built form.

Throughout the design process, effort was made to consider and reconsider design decisions through sketches, paintings and models. These works were used to examine a particular issue through a variety of viewpoints: perspectival, orthographic, axonometric, diagrammatic and, often most helpfully, abstractly. The process of moving from question to abstract contemplation – whether in terms of graphic investigation or through philosophical dialogue – to architectural solution facilitated moving beyond the known, mundane or obvious to find more appropriate and potent solutions.

Figure 53: Procession A

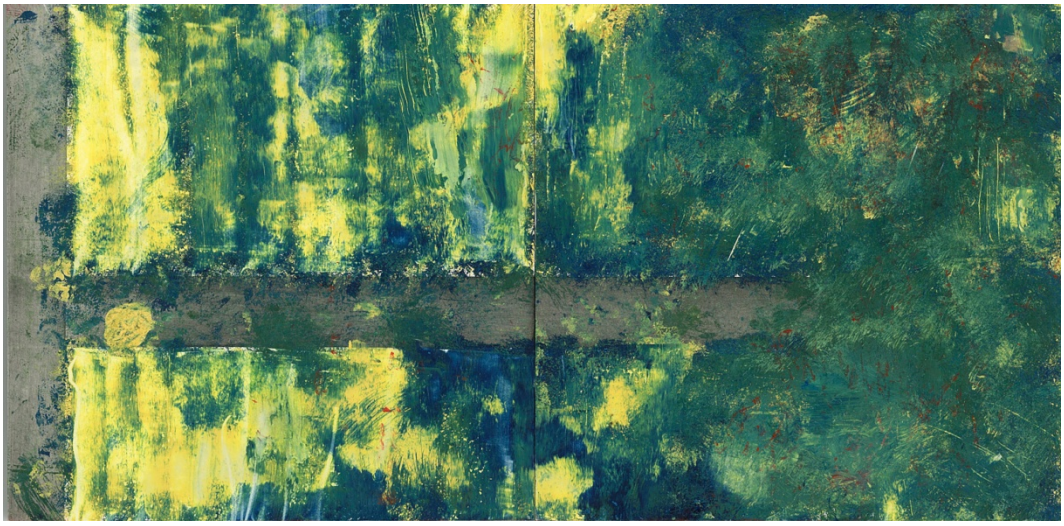

Figure 54: Procession B

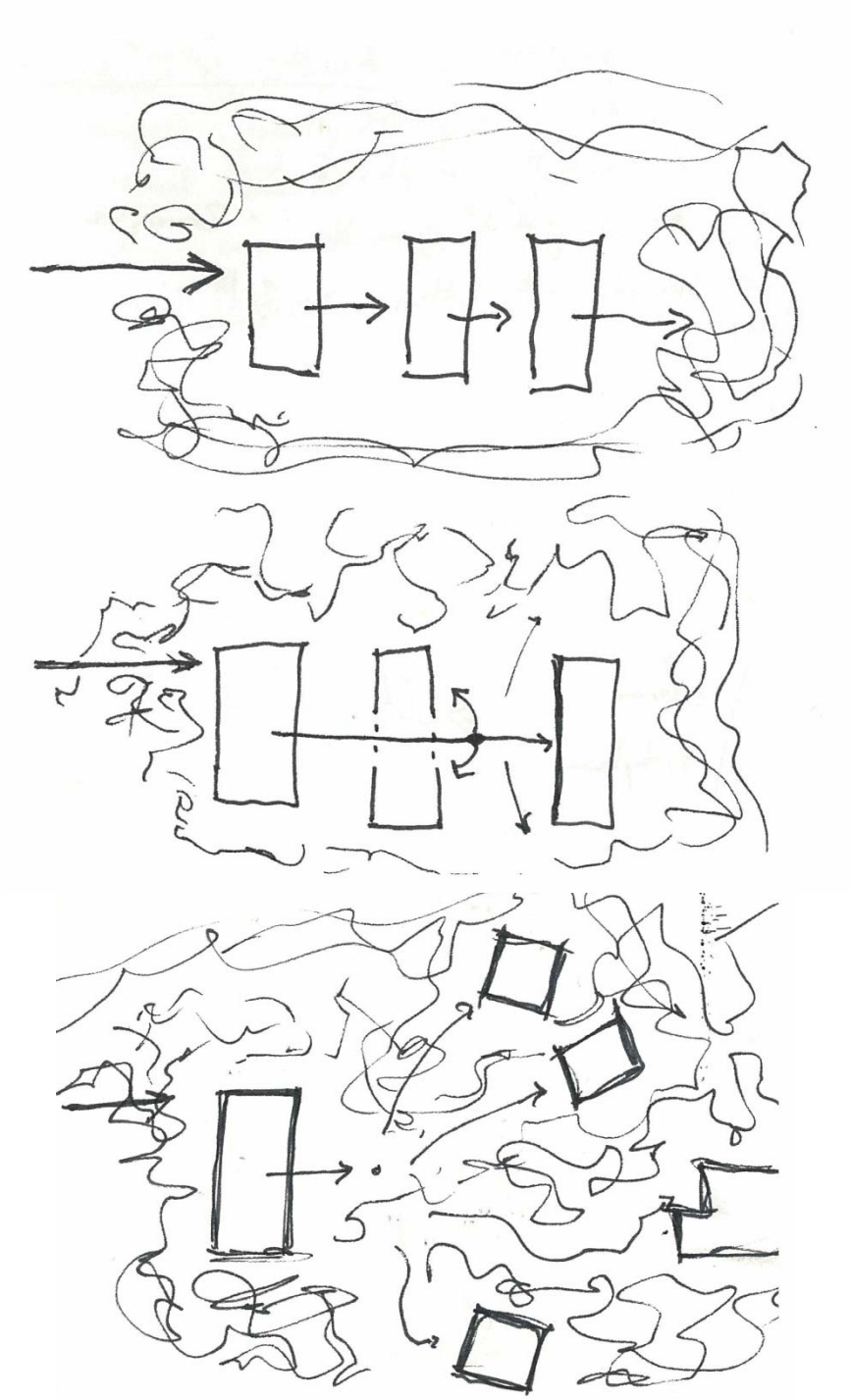

Figure 55:Parti studies

From Top: 1) Layers moving eastward, 2) Courtyard, 3) Scattered oasis

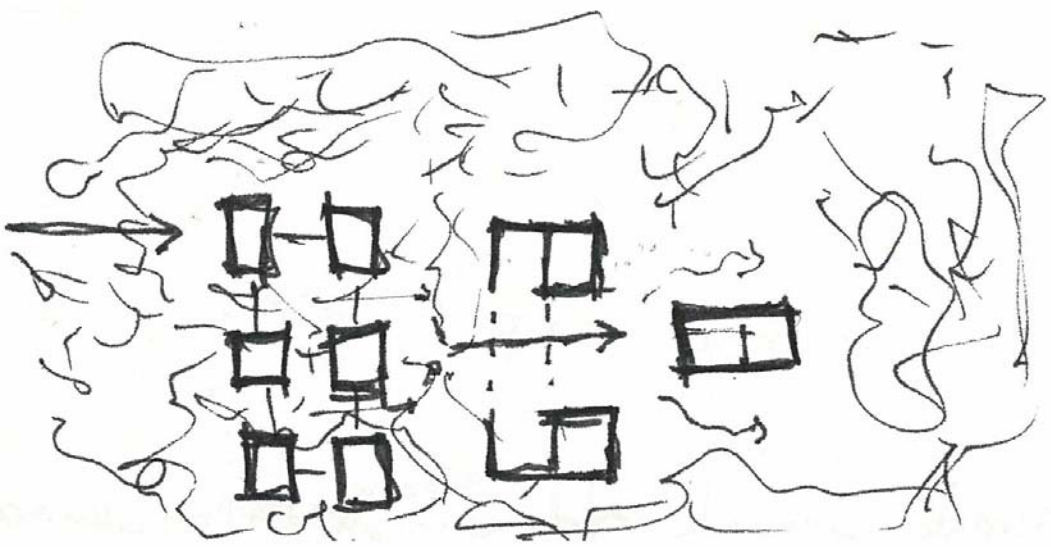

Figure 56: Parti study

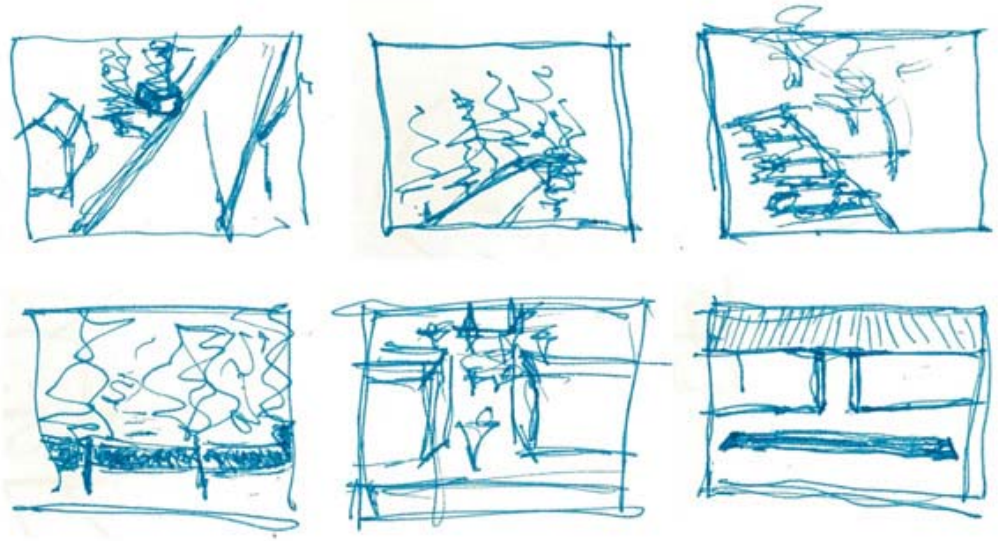

Figure 57: Sketch of arrival sequence.

Top row: 1) View from Stearns Road, 2) Into the wilderness, 3) Parking garden.

Bottom row: 4) Out of the wilderness, 5) New orientation, 6) Purification.

Figure 58: Parti study

Top row: Buildings in a clearing, Buildings defining clearing
Middle Row: Geometric nodes, Nodes and paths
Bottom Row: Disengagement, Partial engagement

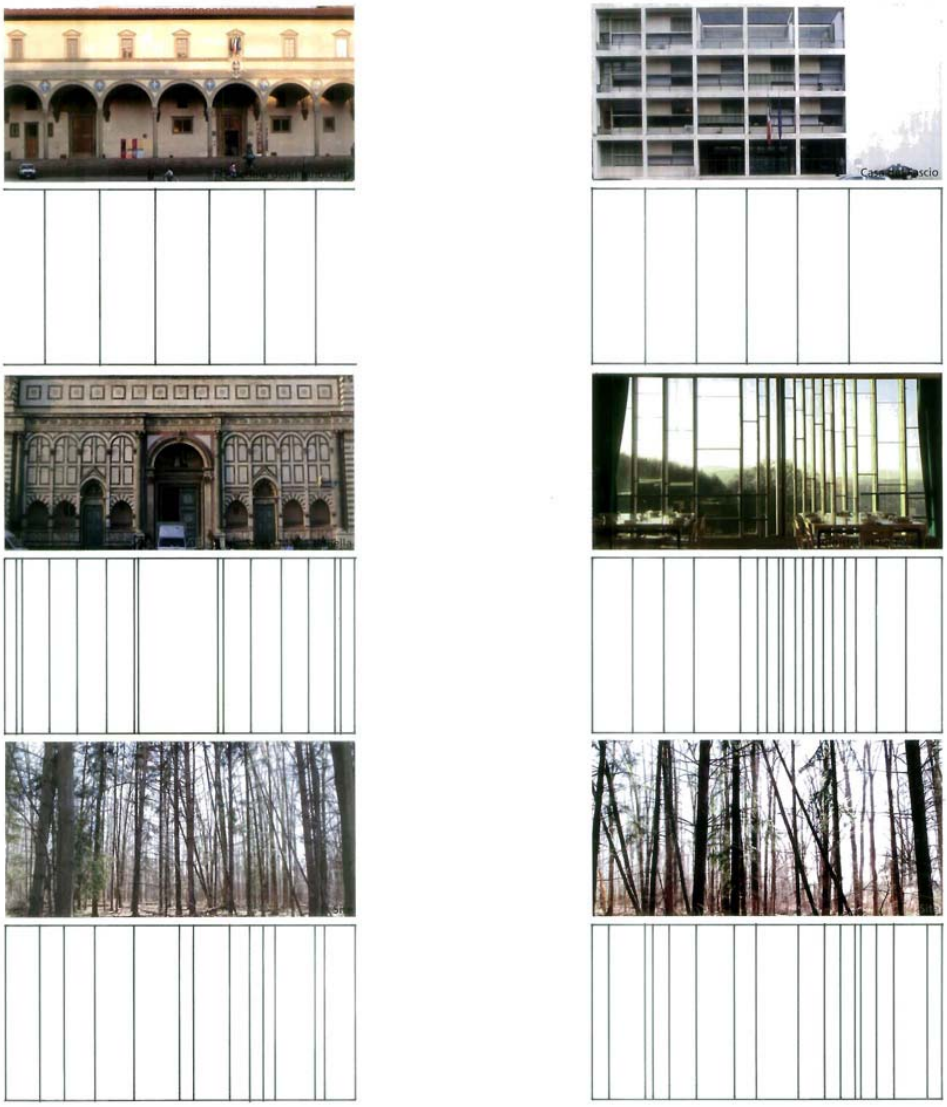

Figure 59: Rhythm study

Early Building Studies

Early in the design process, the building was considered as a gateway between the rest of the world and this sacred place. The buildings were generally arranged to turn inward, toward a communal courtyard, and eastward toward the forest and Jerusalem.

Movement inside of the buildings occurs along a glassed in corridor, allowing the occupant to engage with both the building and the surrounding forest. This idea survives in later schemes and revisions, accompanied by non-rhythmic timber columns which echo the surrounding trees.

In several early schemes, the sanctuary stood apart, oriented toward Jerusalem, disappearing into the forest.

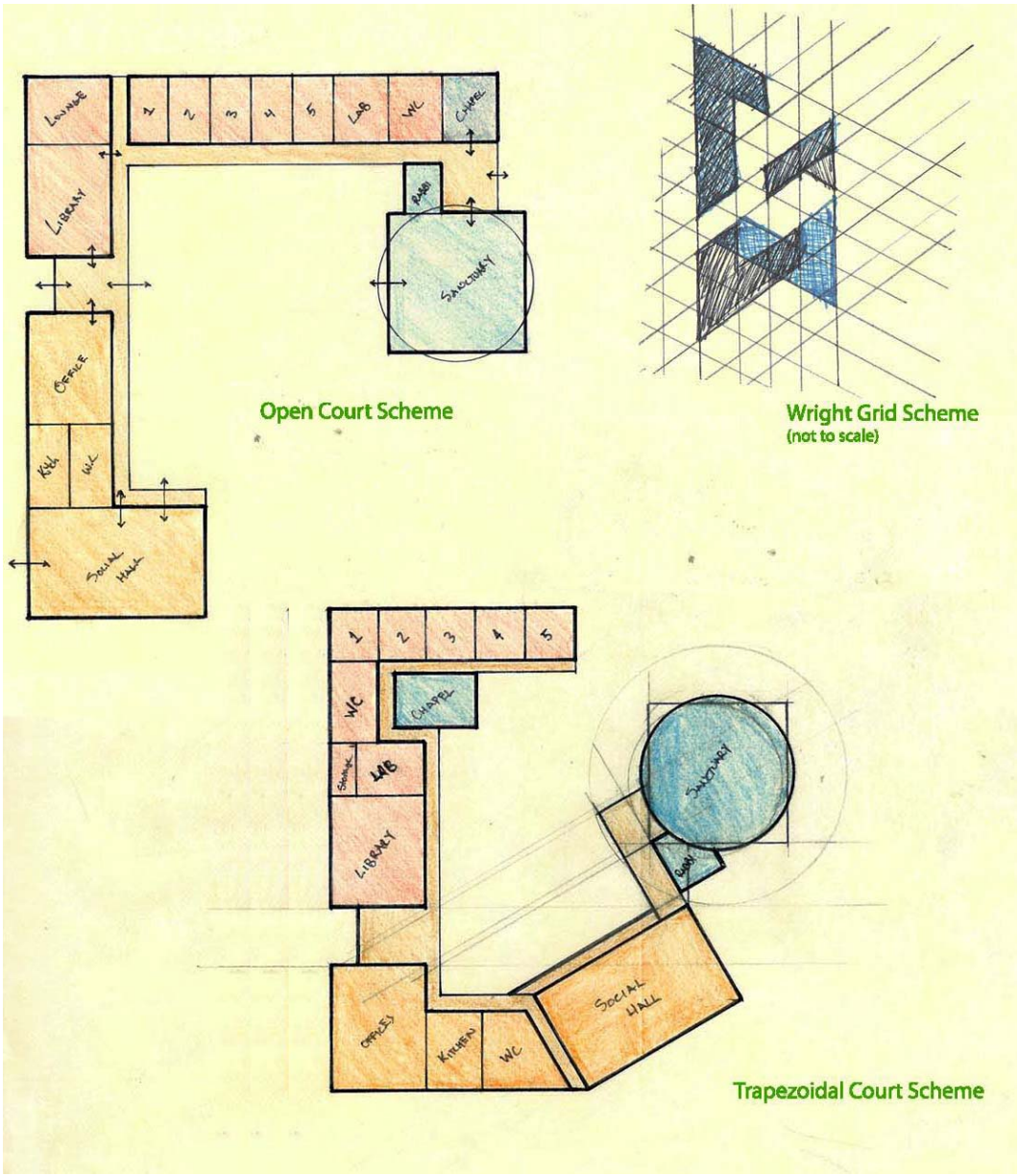

Figure 60: Early single building courtyard schemes

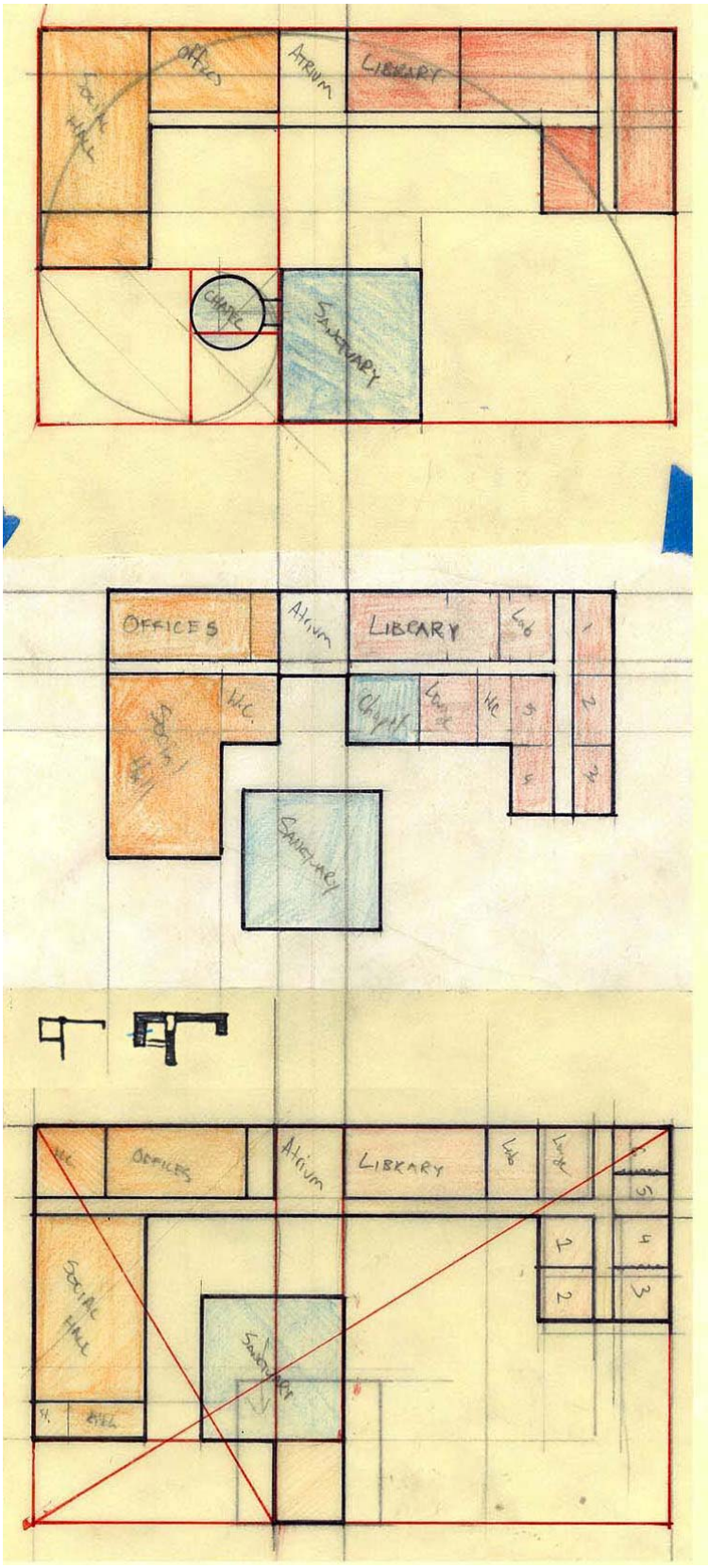

Figure 61: Early two building half-court schemes

Figure 62: Early passageway study

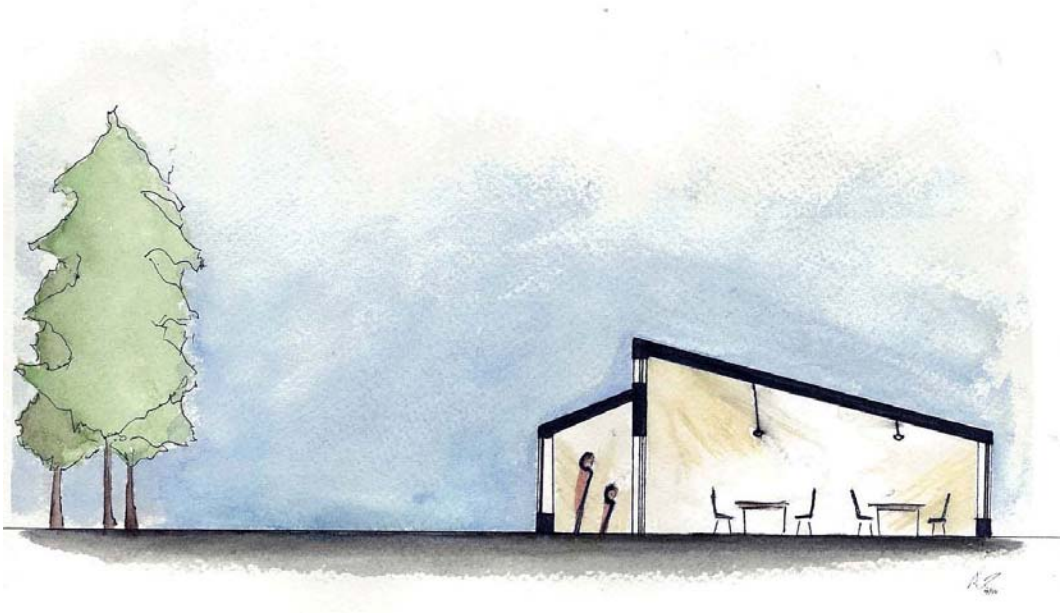

Figure 63: Early classroom sectional study

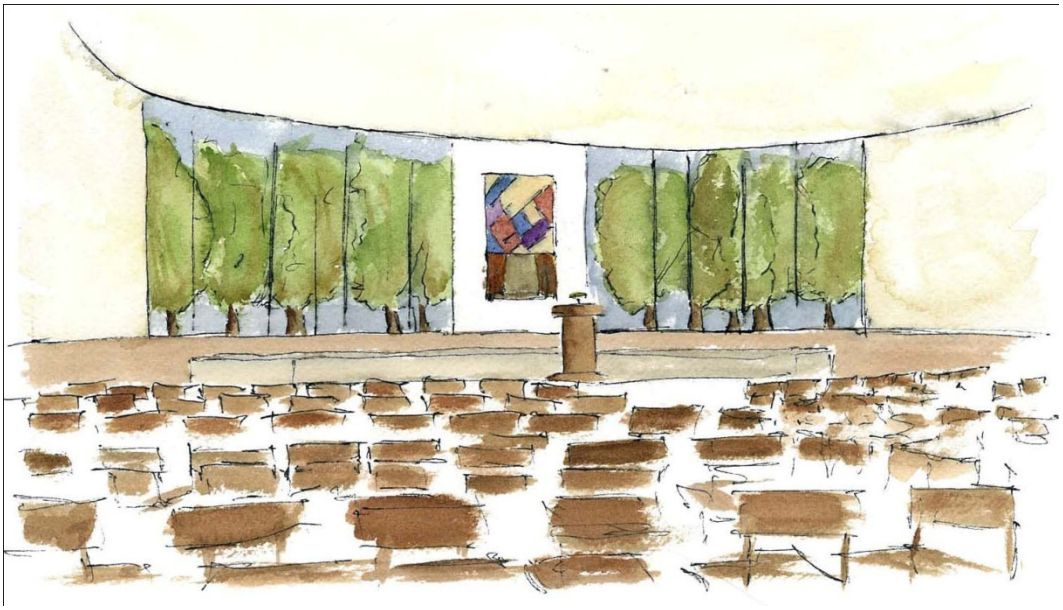

Figure 64: Early sanctuary study

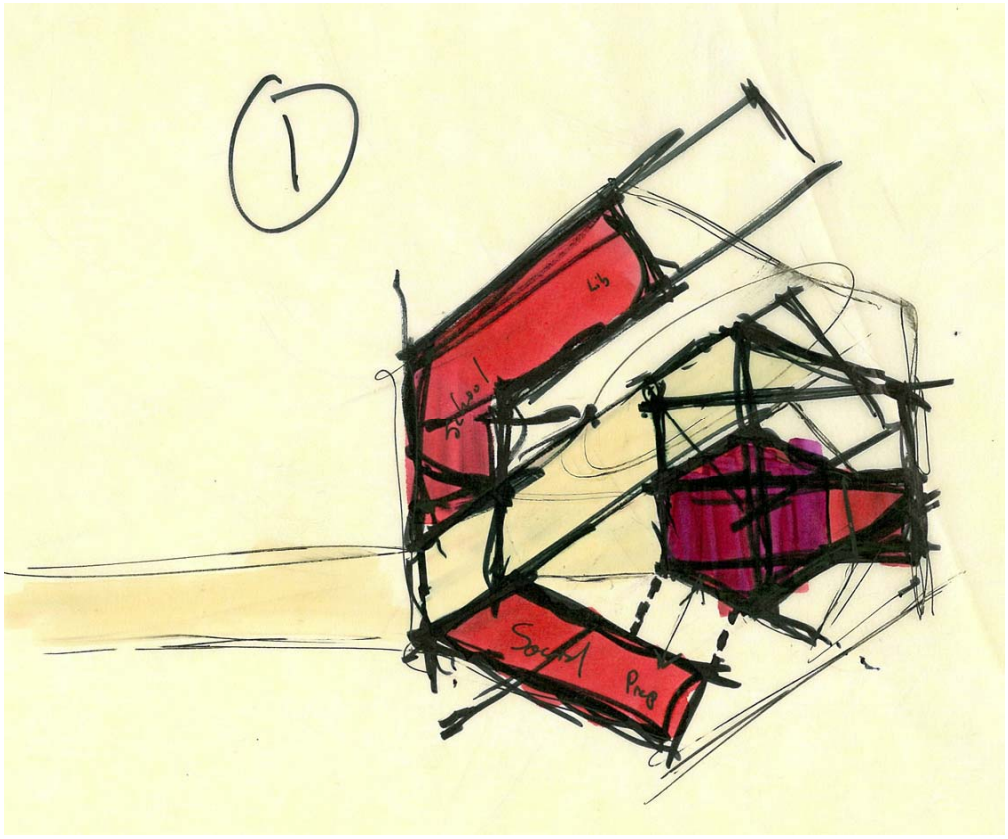

Figure 65: Early development of Wright-grid scheme

Campus Development

While early schemes tended to focus on one or two buildings placed at the eastern edge of the site, as the project developed, it became apparent that this would allow little actual engagement with the forest. In response, the buildings were separated and placed around the site as with the nodes and paths parti previous shown (Figure 58).

In order to determine the relative placement of buildings, an approach to site evolved wherein movement toward Jerusalem coincided with the movement toward the sacred. Additionally, several "gateways" on the site were determined: First the entrance onto the site itself, then the entrance to the woods, thirdly the movement across the east-west column on evergreens and into the heart of the site. This third gateway was to mark the shedding of the concerns of the mundane and preparation for the experience of the sacred. A fourth gateway was established with the movement through a building, as before, bringing one from the fringes and into the heart of the site.

The organizational system established by these gateways determined that the sanctuary, where the explicit purpose is the full engagement with the sacred, be placed furthest from the entrance and closest toward Jerusalem. This allows the sanctuary to be fully engaged with the forest, hierarchically potent, and allows significant time for the journey from the mundane toward the sacred.

The outreach offices, which ostensibly serve as an interface between sacred life and everyday concerns, would seem naturally placed prior to the third gateway. This leaves the school and social hall situated between the outreach center and sanctuary. Functional concerns dictated that the school be nearer the sanctuary and the social hall be placed near the outreach center.

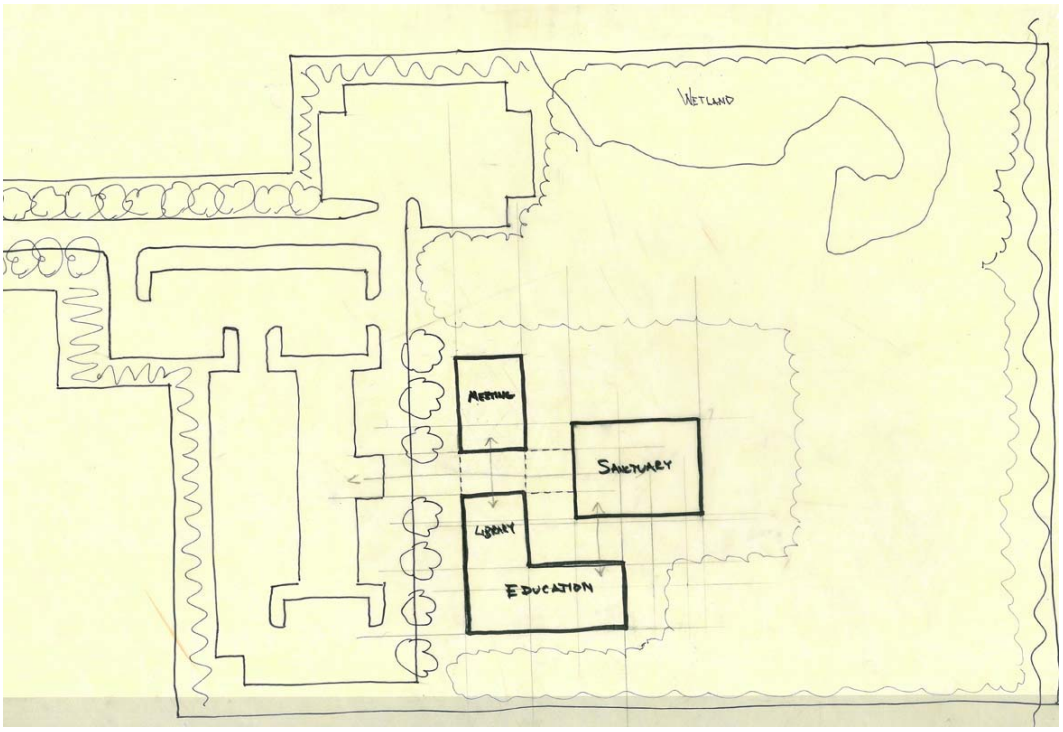

Figure 66: Beginning of building separation and building positioning

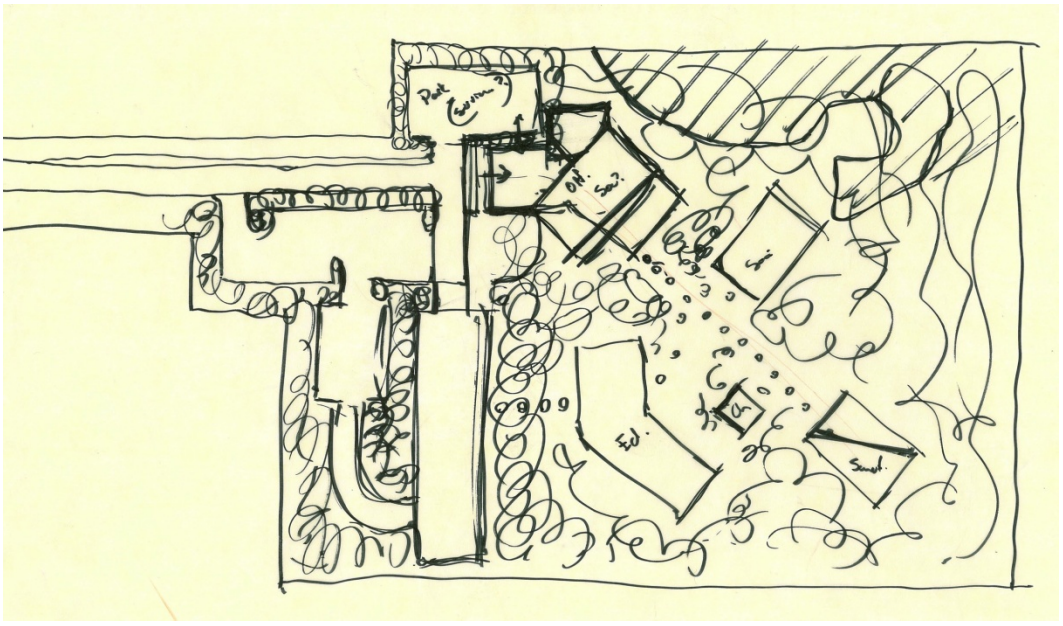

Figure 67: Spread of program across site and engagement with forest

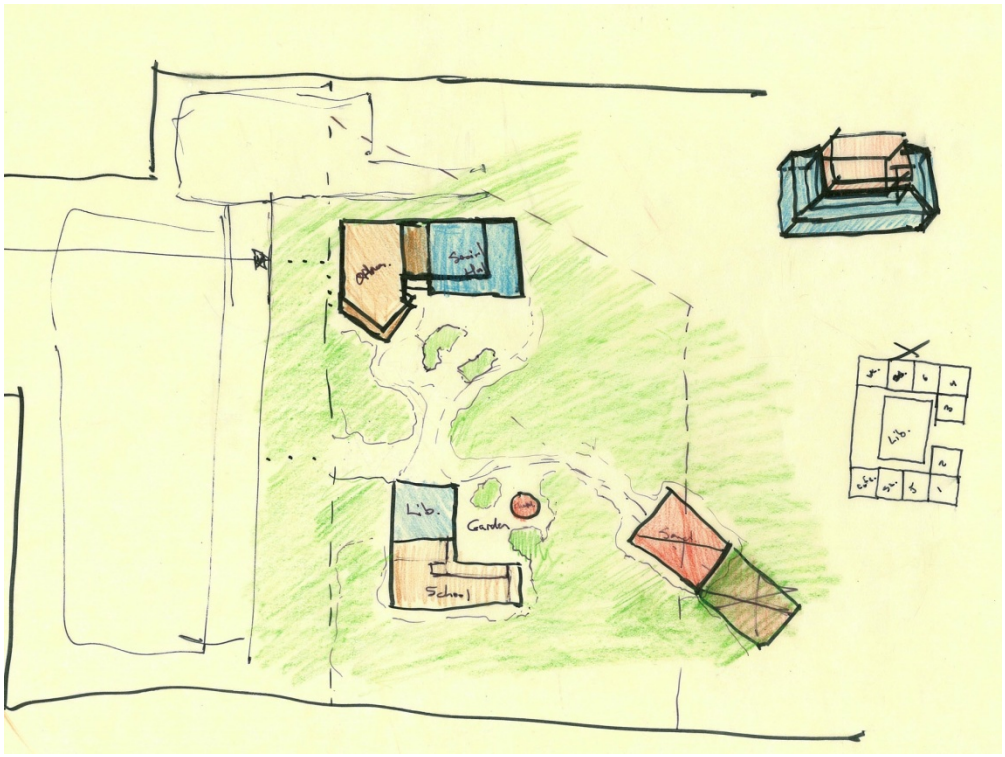

Figure 68: Introduction of winding, engaged paths and open spaces

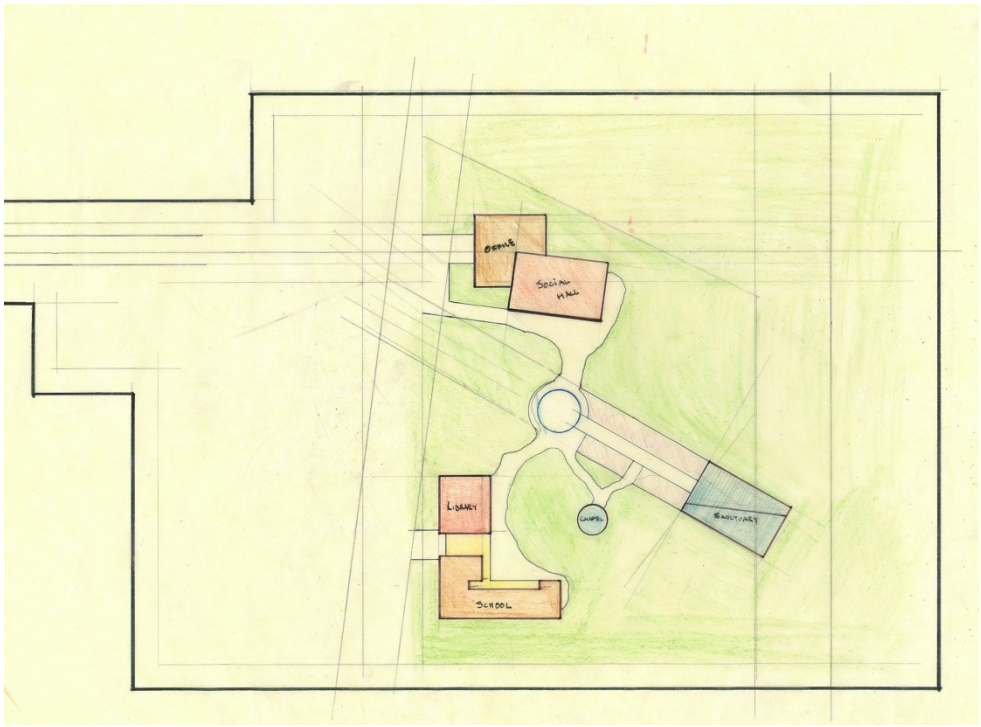

Figure 69: First use of both straight and organic paths

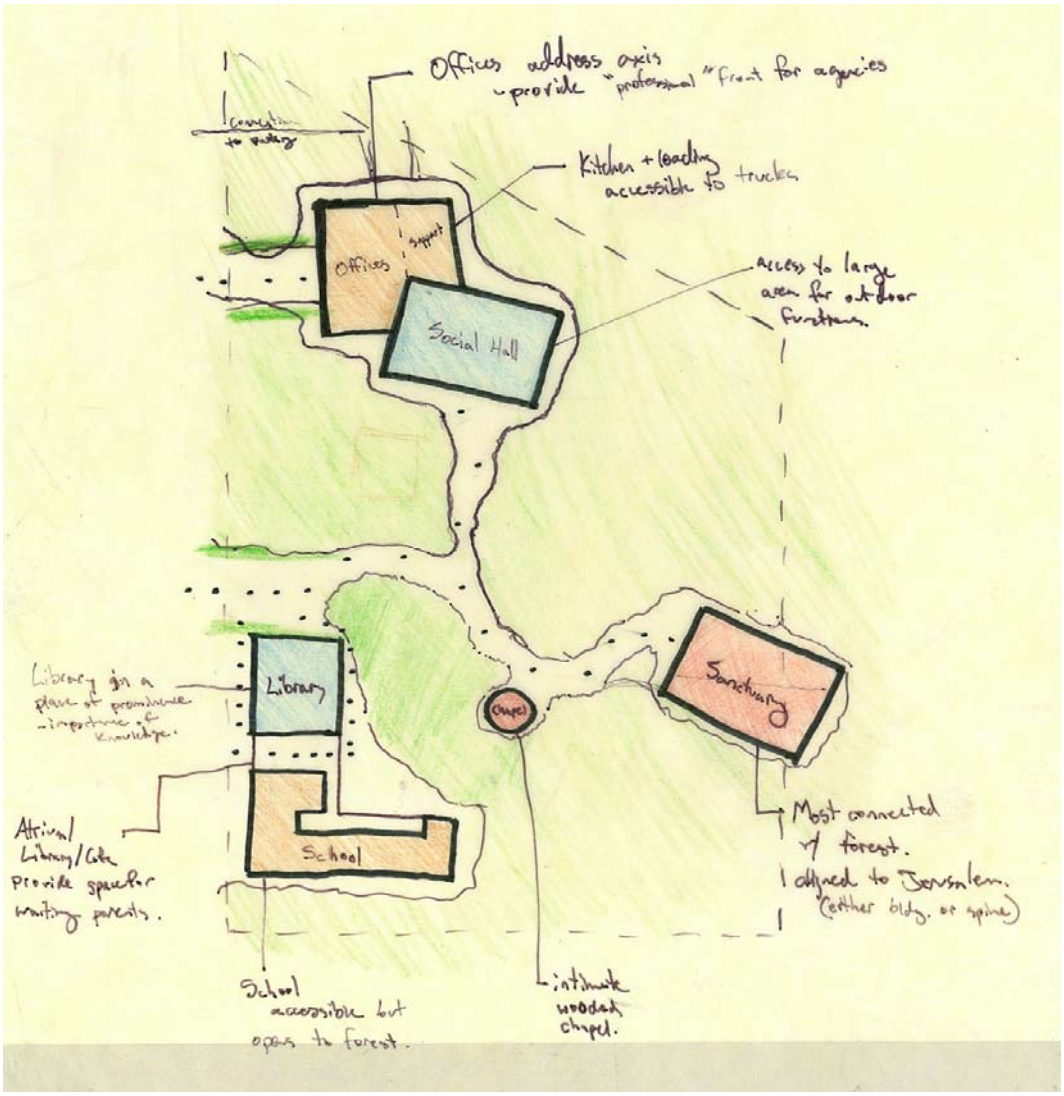

Figure 70: Elimination of direct, grand path to sanctuary.

Path of Heart, Path of Mind

With the establishment of relative building positions and the continual evolution of a sequential narrative through the site, focus turned toward building form and the movement system which connects them.

Experimentation with straight or winding paths alone led to unsatisfactory results. Straight paths cut through the forest with little engagement, whereas winding paths gave little sense of hierarchy or orientation.

An approach to two kinds of paths emerged: straight, logical paths became the path of mind, while the winding, romantic paths evolved into the path of heart. The path of mind gets one near the truth and the path of heart is circuitous, but brings one to the truth.[20] In the journey from the mundane to the sacred, one rarely occupies a single path, but moves back and forth between heart and mind.

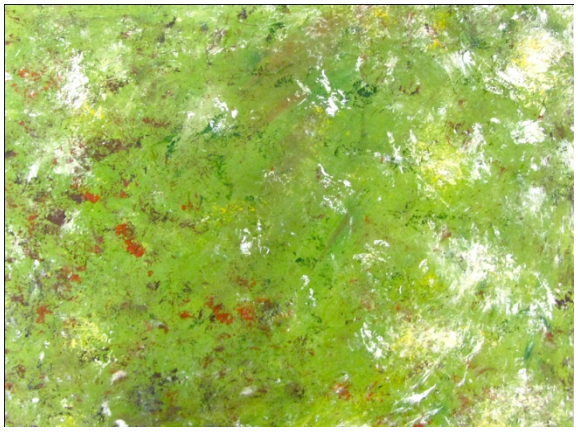

Figure 71: Investigation of sublime engagement with landscape

[20] In the establishment of this relationship, I am indebted to Hooman Koliji, whose insight and thoughtful discussion allowed this system to develop.

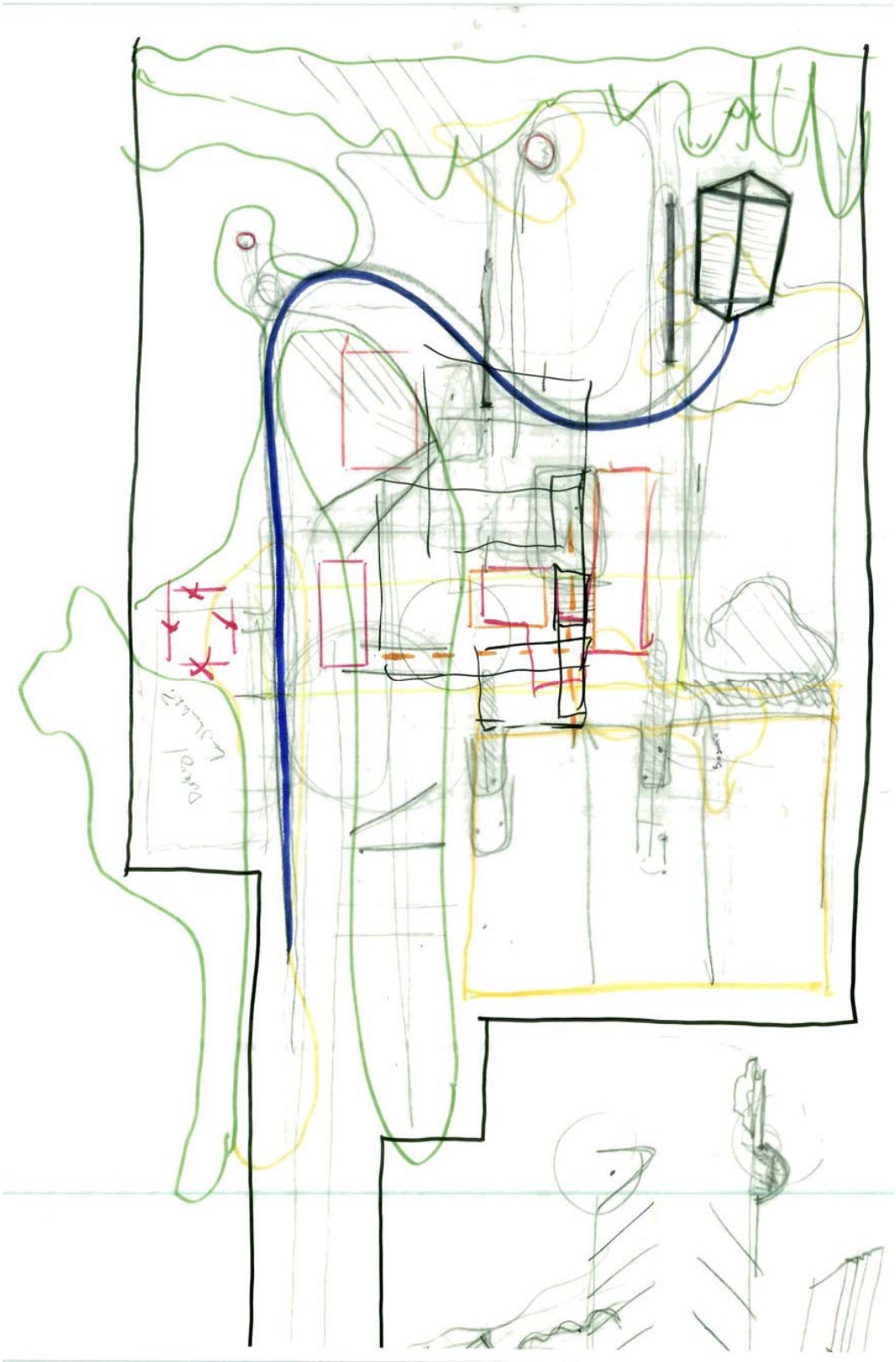

Figure 72: Development of path system

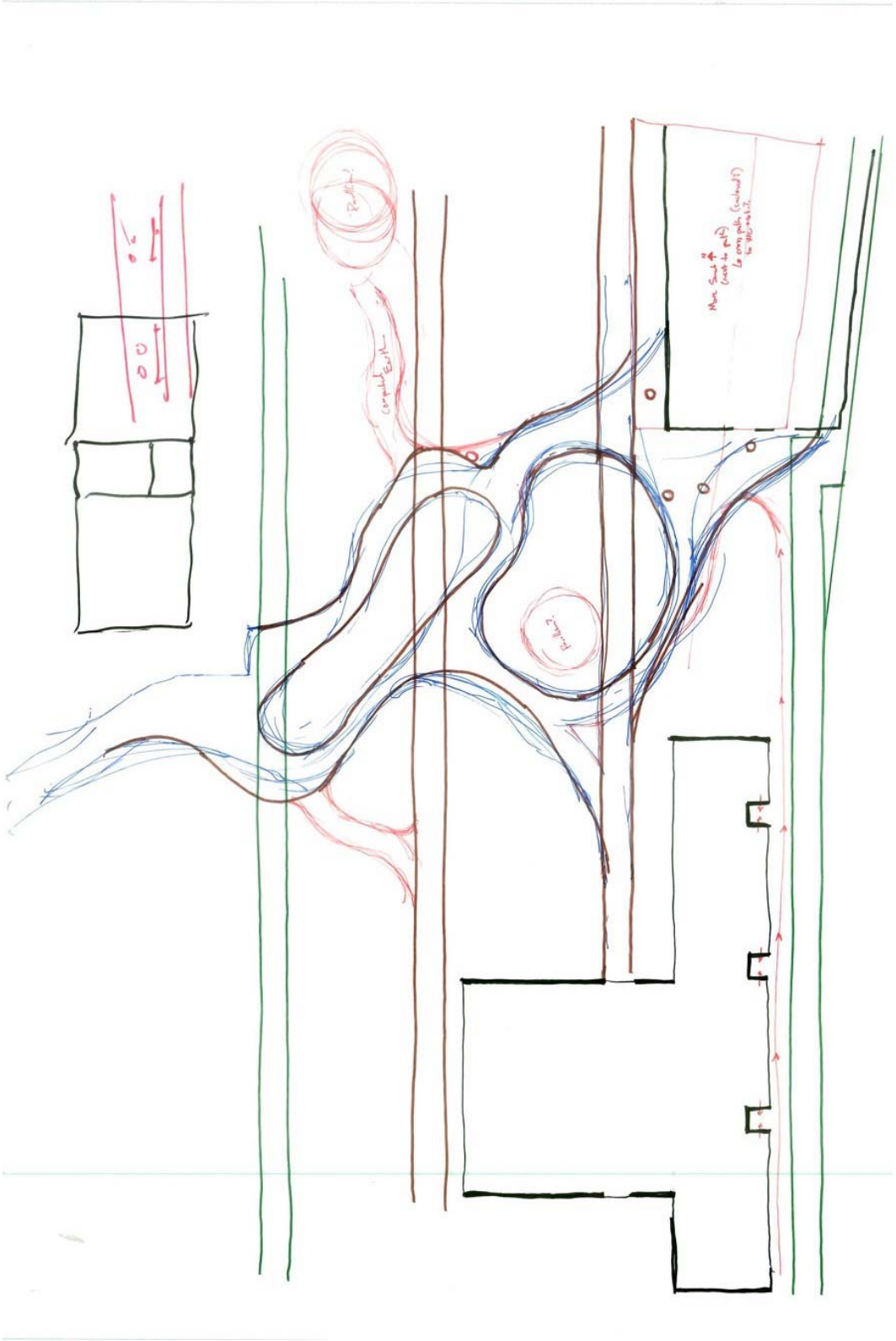

Figure 73: Path of heart, path of mind

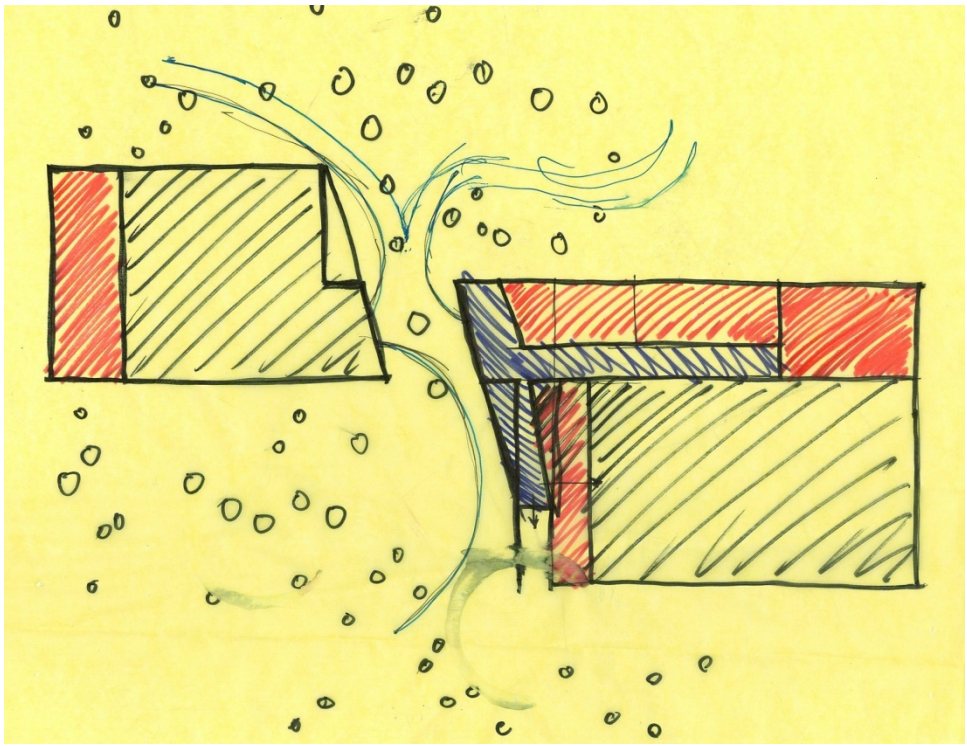

Figure 74: Natural paths dictate form of buildings

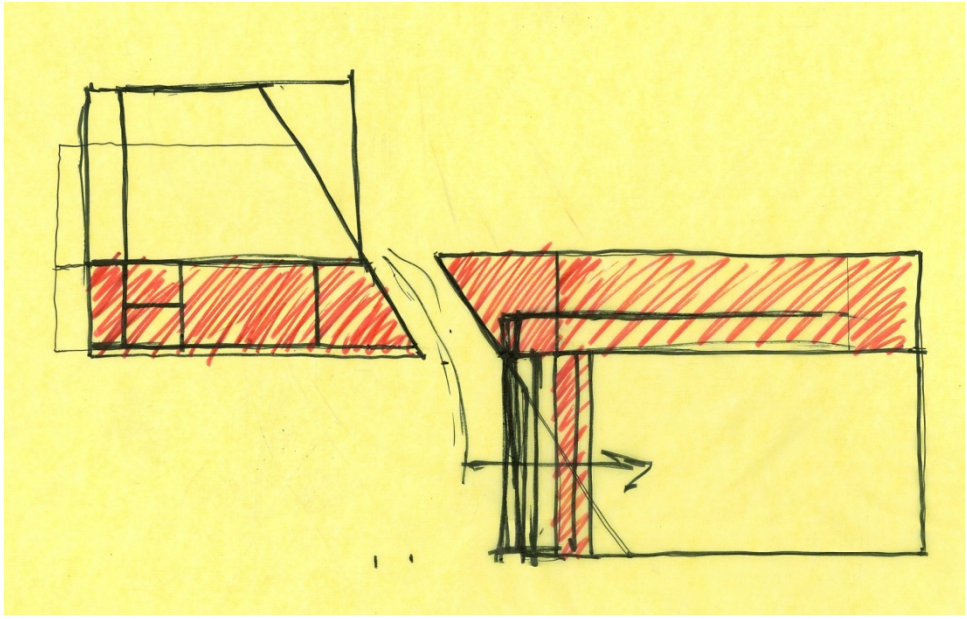

Figure 75: Buildings retain some degree of original geometry

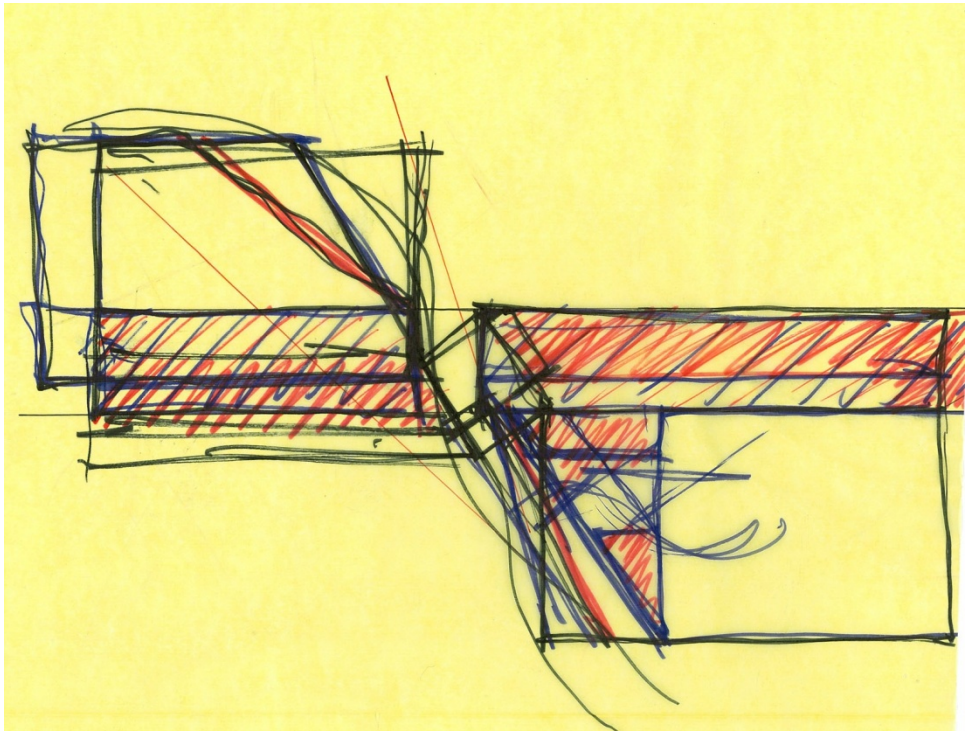

Figure 76: Interaction between building and path reflects two opposing forces

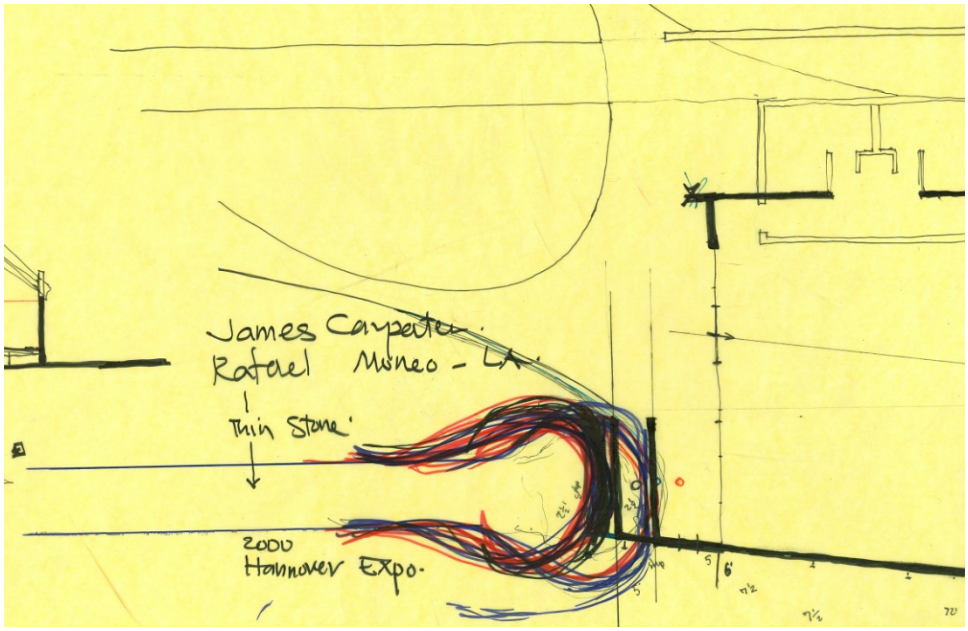

Figure 77: Force of swale repelled and changed by built intervention

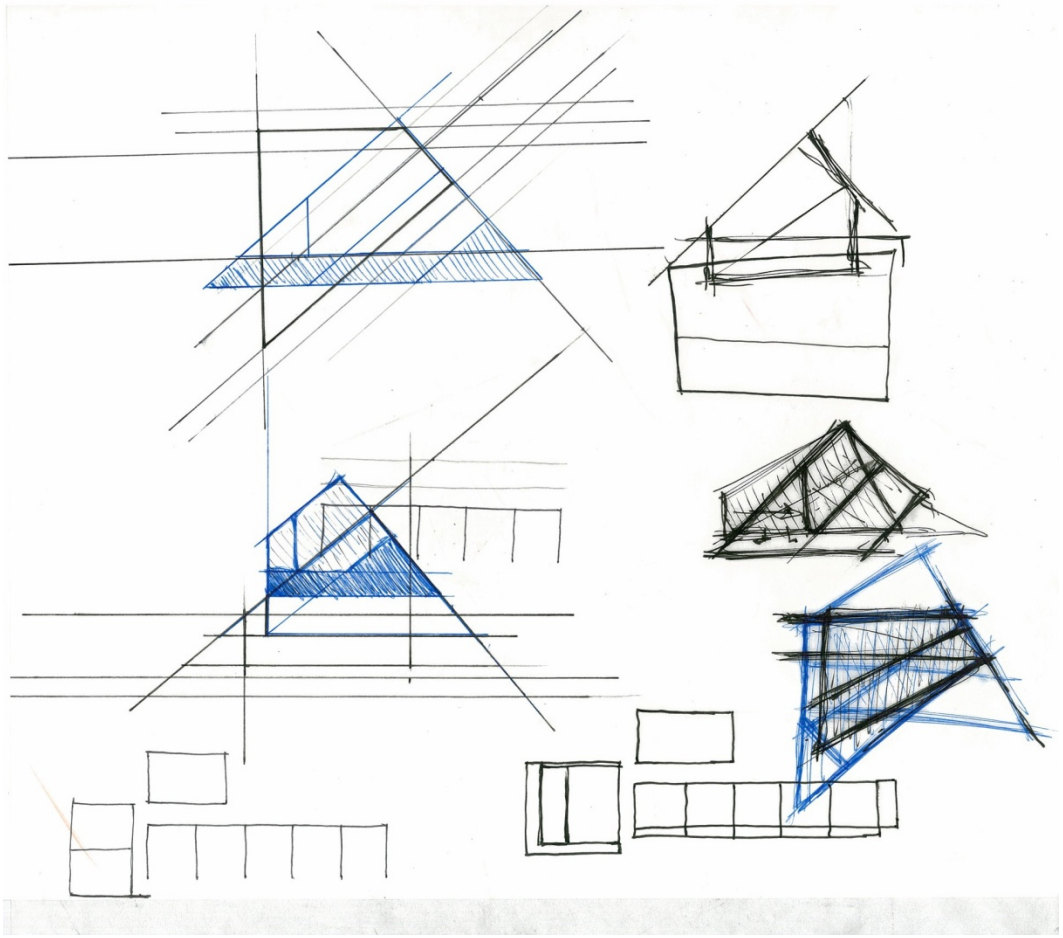

Figure 78: Investigation of great circle method of determining direction to Jerusalem and its effect on building form

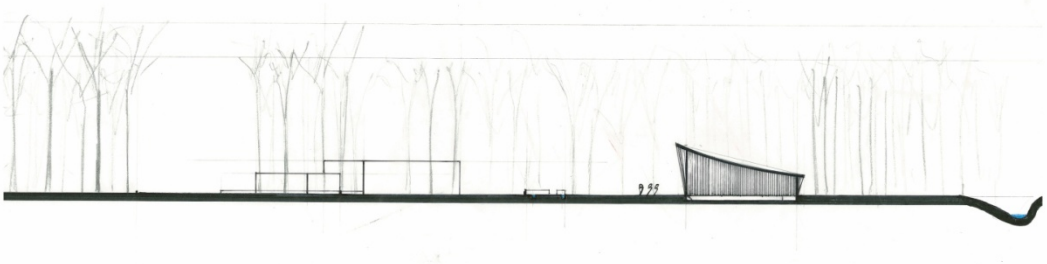

Figure 79: Sanctuary process scheme section through site

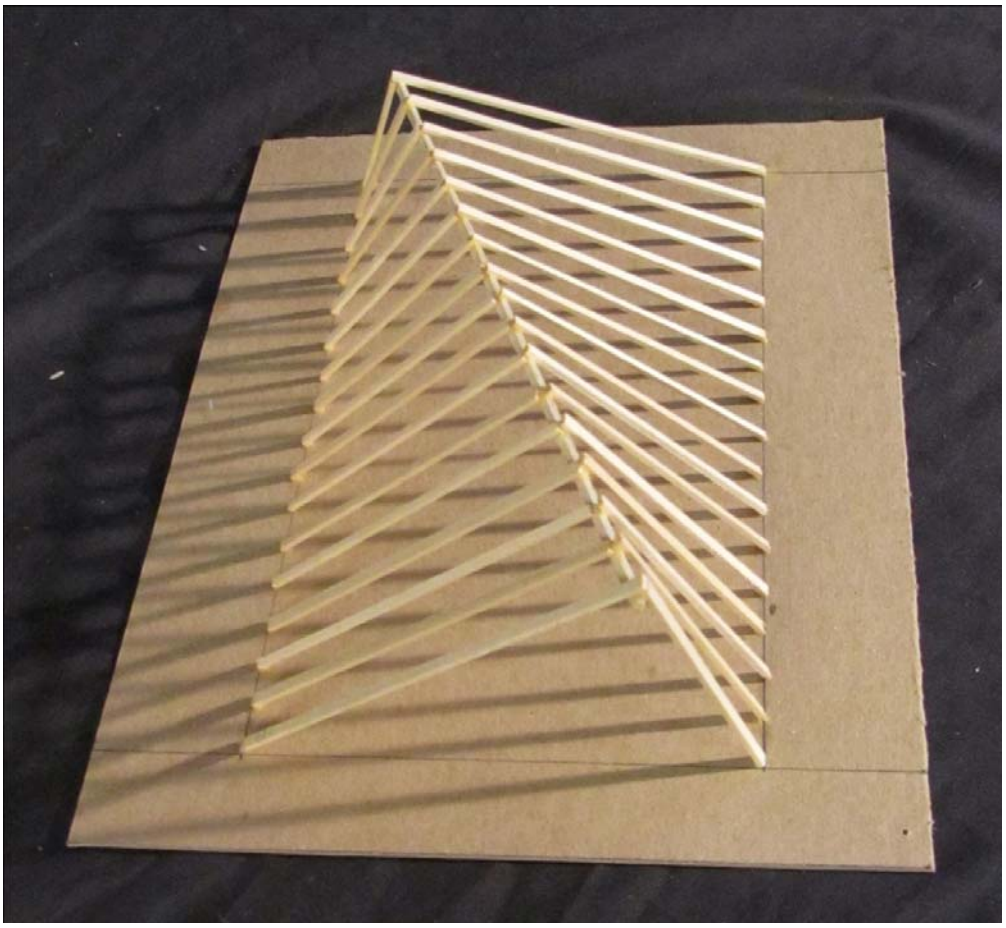

Figure 80: Preliminary model of sanctuary

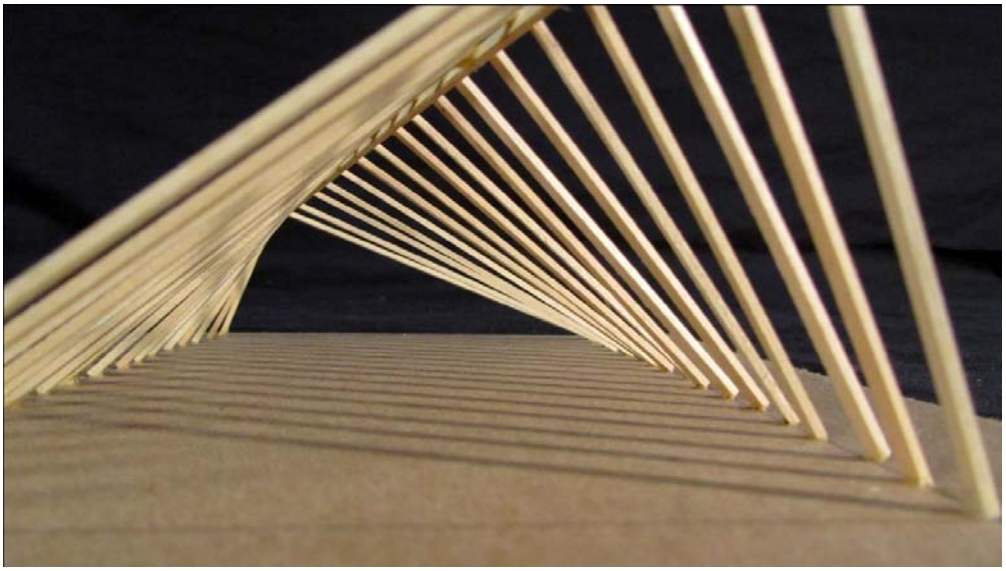

Figure 81: Human perspective of preliminary sanctuary

Elevational Development

Through the development of the buildings, particularly during the evolution of the elevations and structural system, a metaphor of body as structure began to emerge. In this system, the exterior walls, made of pressed strips of reclaimed wood, represent the skin. Where there occurs a layering of elevations (a lower portion of the building in front of a higher portion so that exterior walls on both the lower, nearer portion and the higher, further portion are exposed) the inner layer is regarded as tissue, behind the skin. Materially, this is treated as copper. The timber framing, which is exposed internally at irregular but modular intervals serves as the skeleton.

Where movement can be made through the skin of the building, something must change. In the body, there is a transition at these points where inside becomes outside and vice versa. The skin wraps inside but the tissue is visible, such as around the mouth, where the lips serve as transition between the mouth tissue within and the exterior skin. In the buildings it was decided that this transition be noted with a breakdown of the vertical organization. In such places horizontal lines and larger rectangular shapes begin to emerge, and the copper tissue appears in subtle ways.

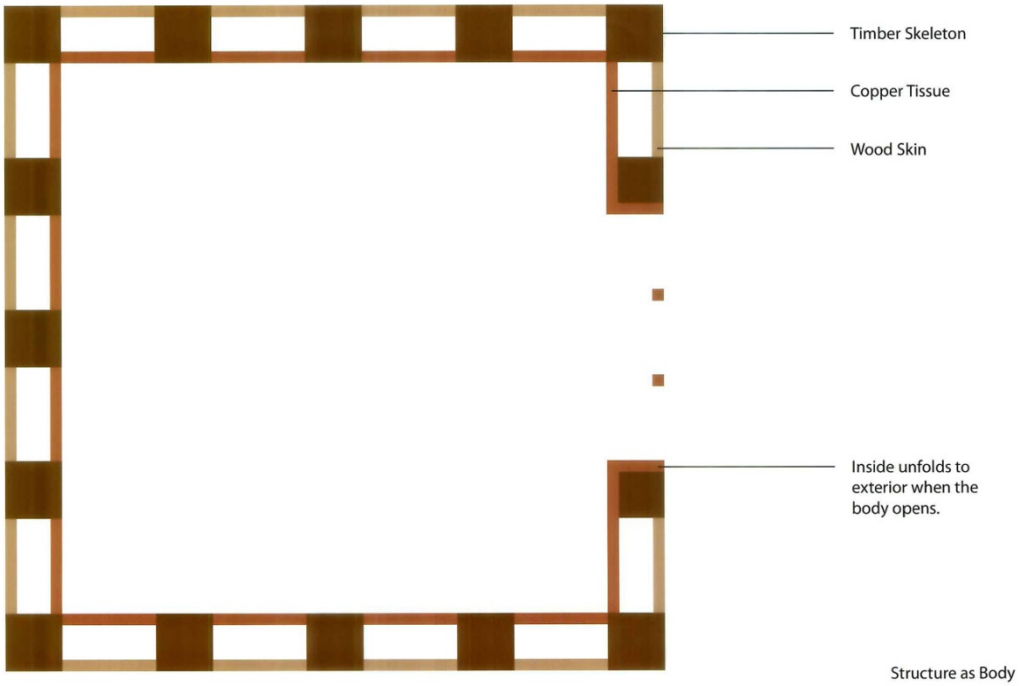

Figure 82: Structure as body

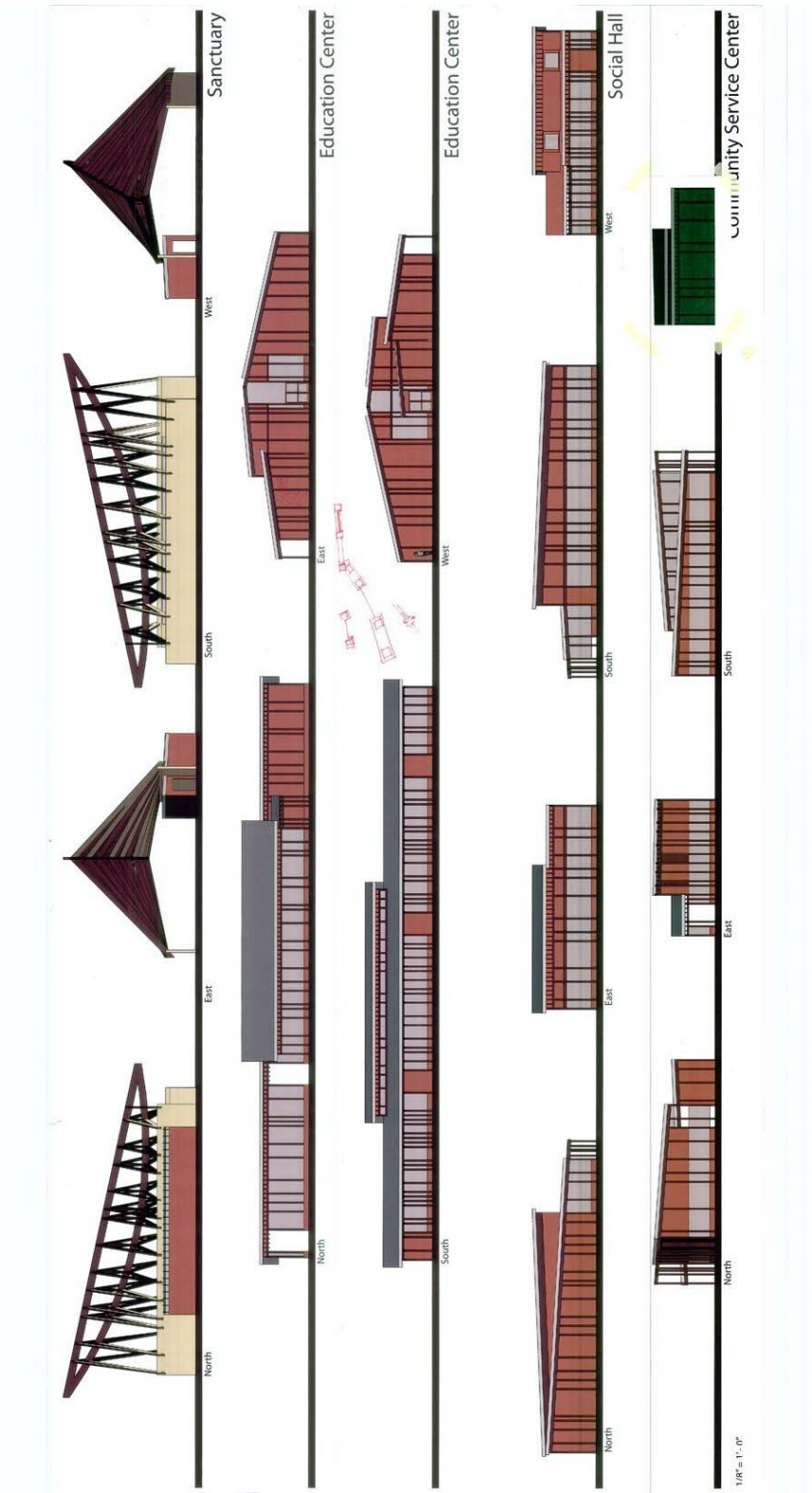

Figure 83: Elevations with direct exterior expression of timber columns

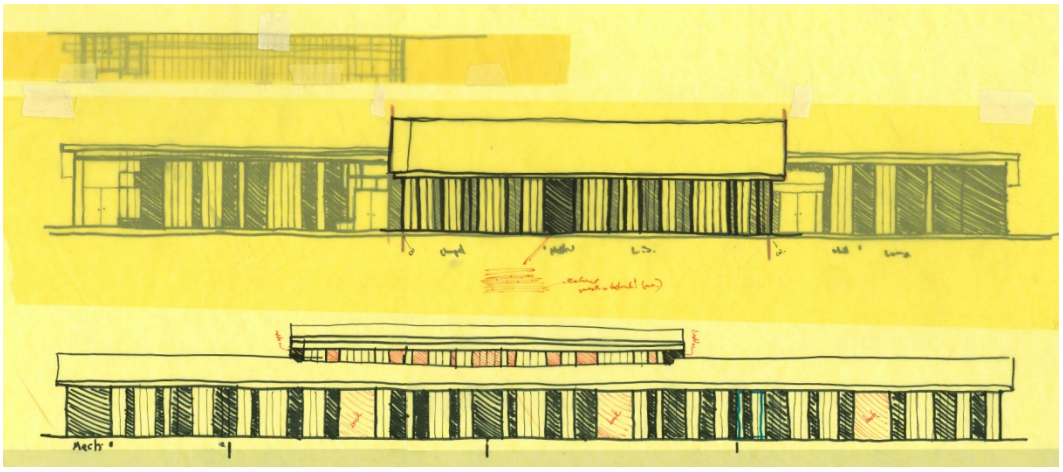

Figure 84: School elevation development (1)

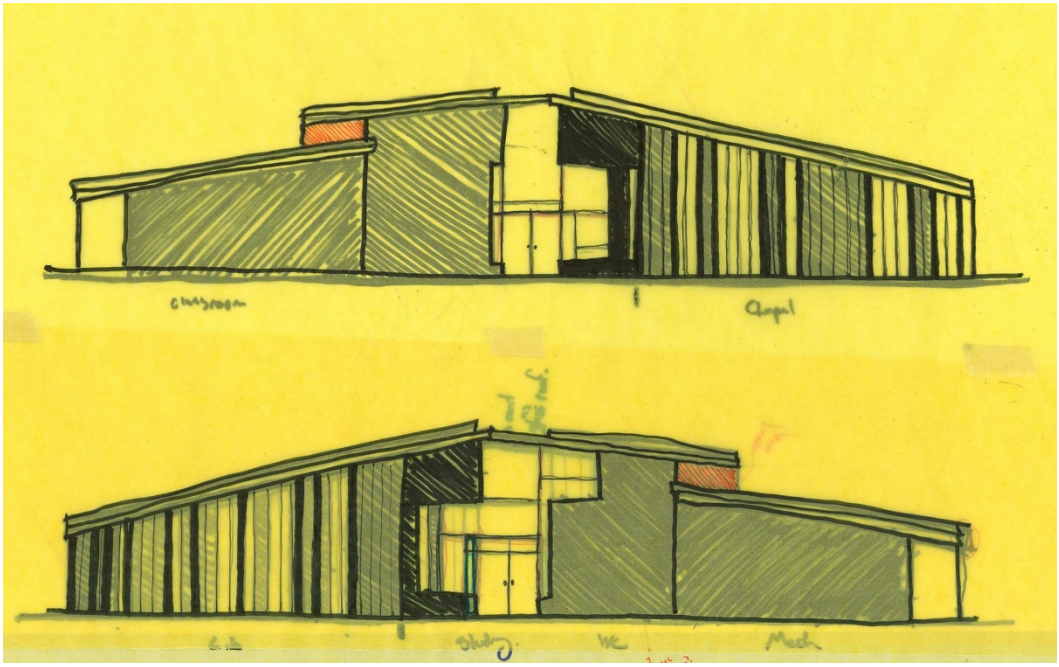

Figure 85: School elevation development (2)

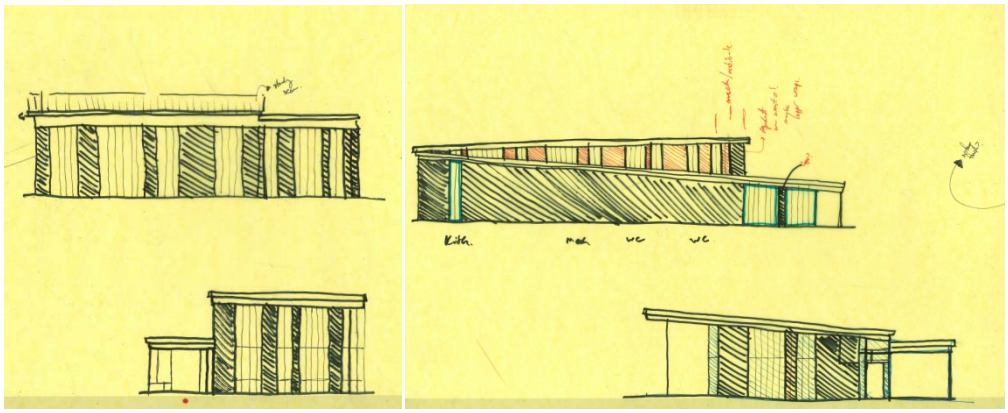

Figure 86: Office and social hall elevation development (1)

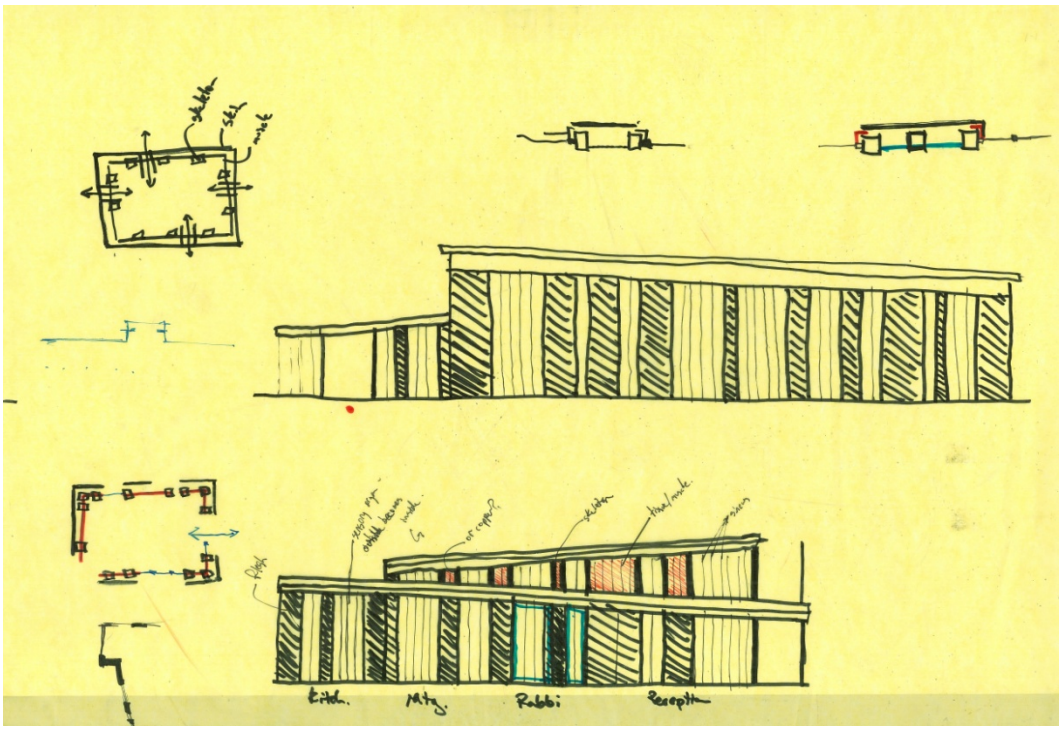

Figure 87: Office and social hall development (2) relating structure to skin, tissue and skeleton

Figure 88: Site plan

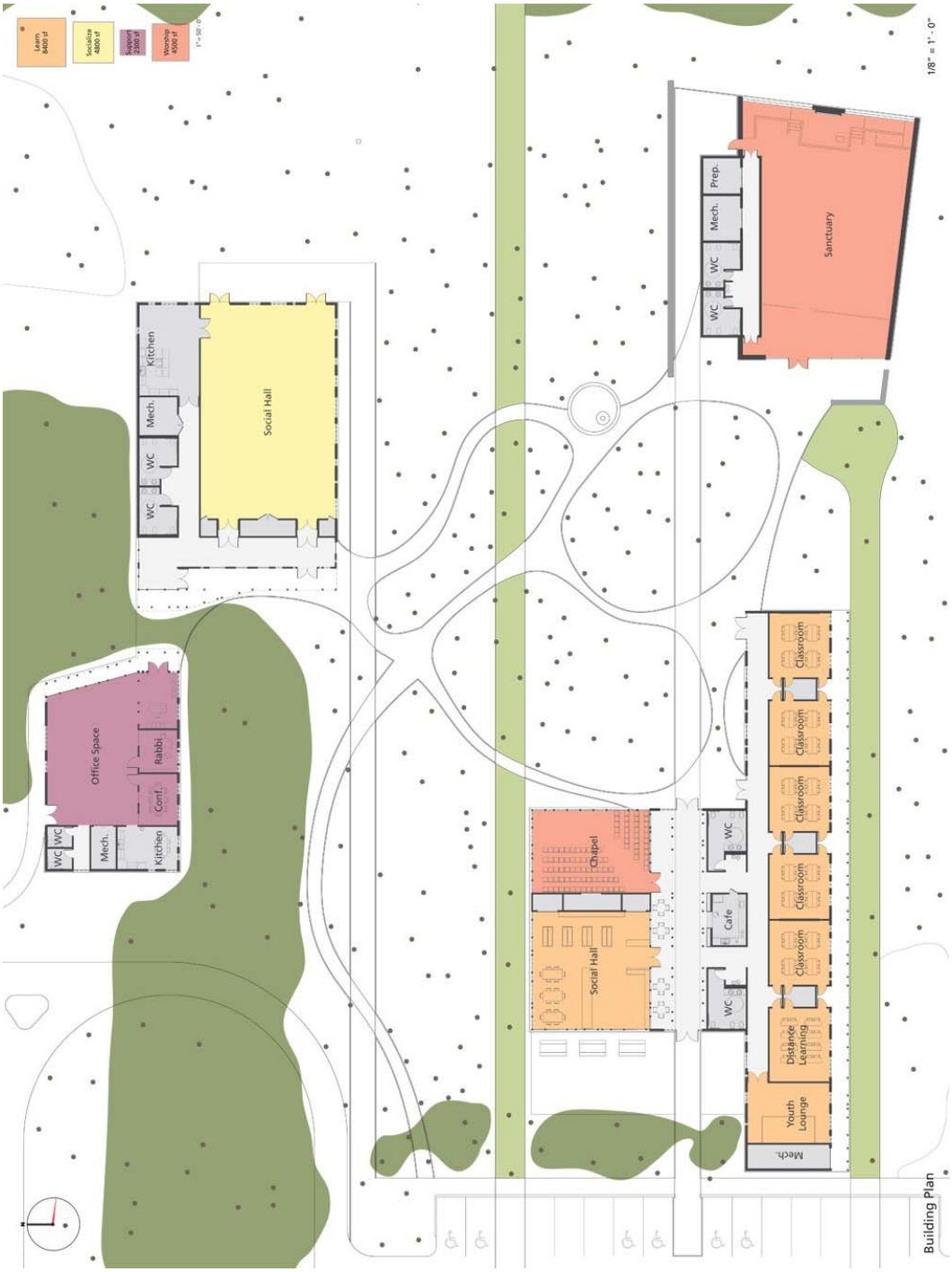

Figure 89: Building plan

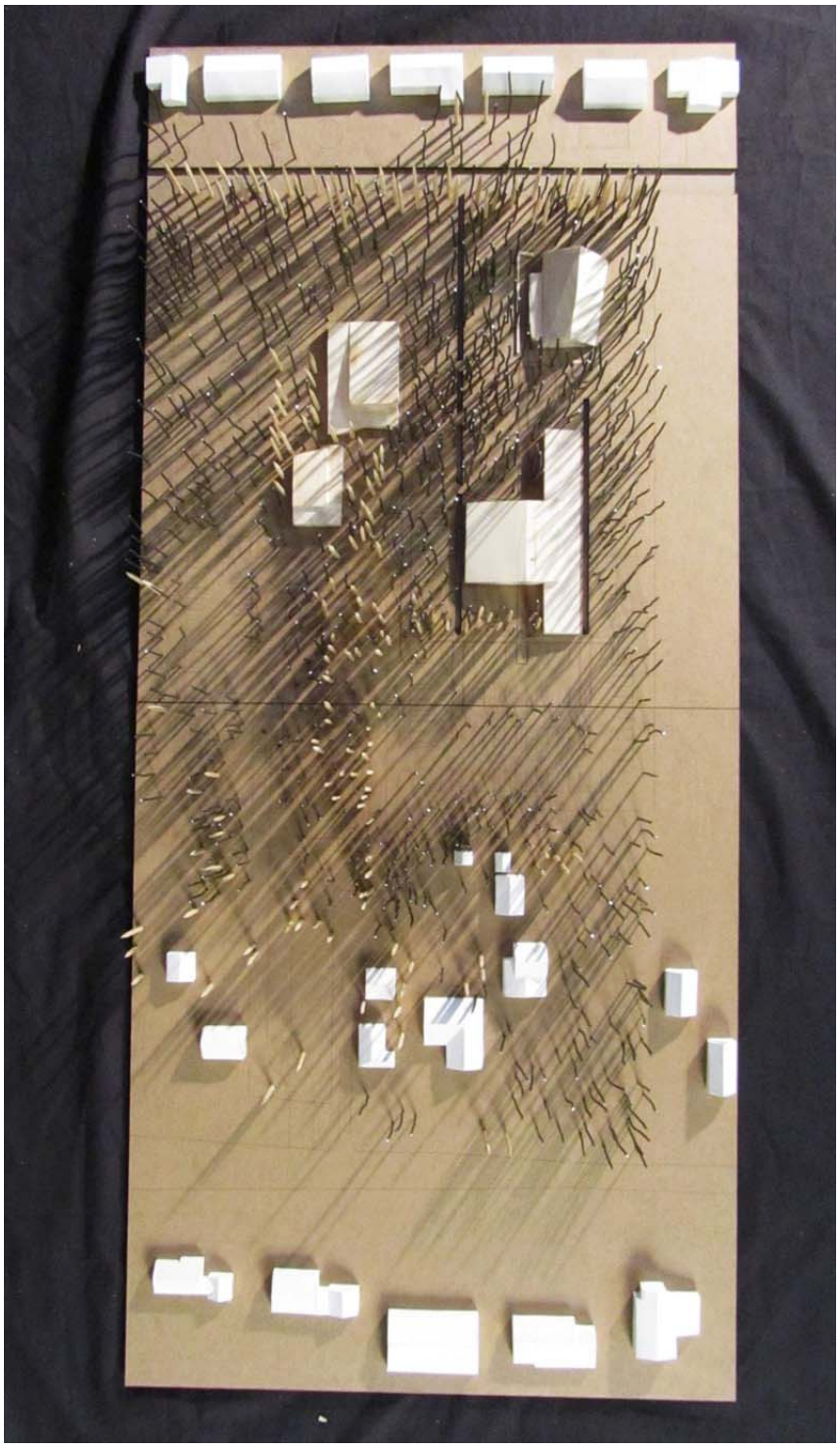

Figure 90: Site model showing forest shadows

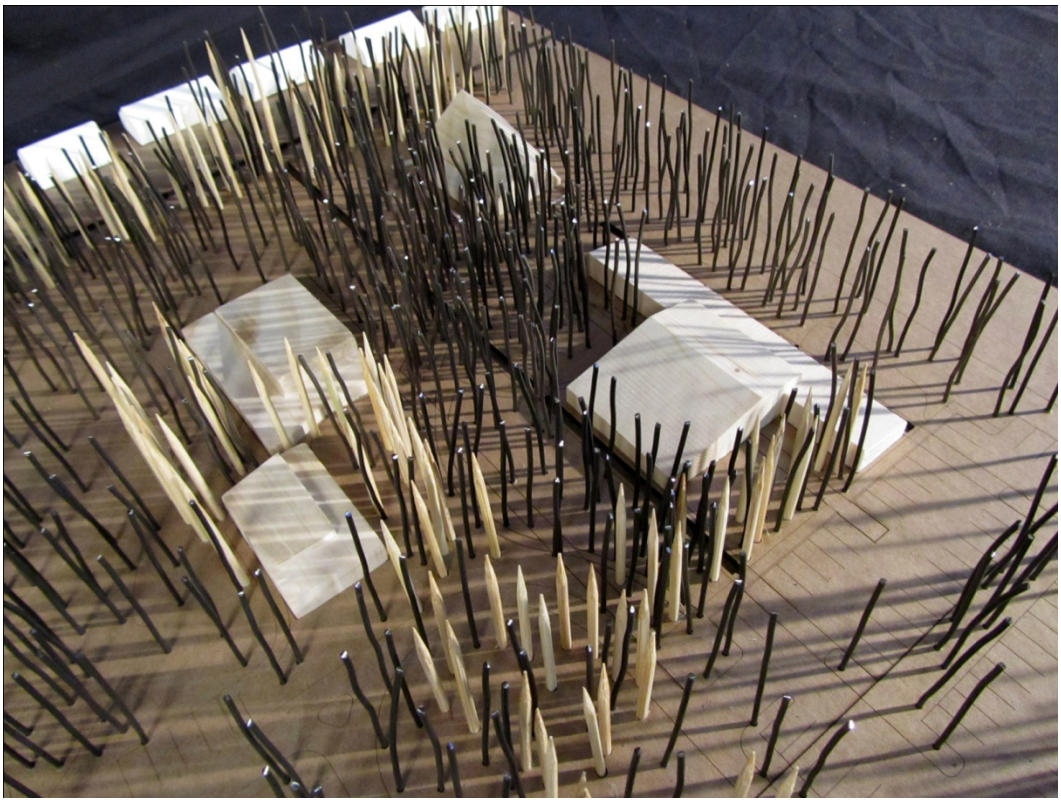

Figure 91: Detail of site model showing heart of campus

Figure 92: Elevations

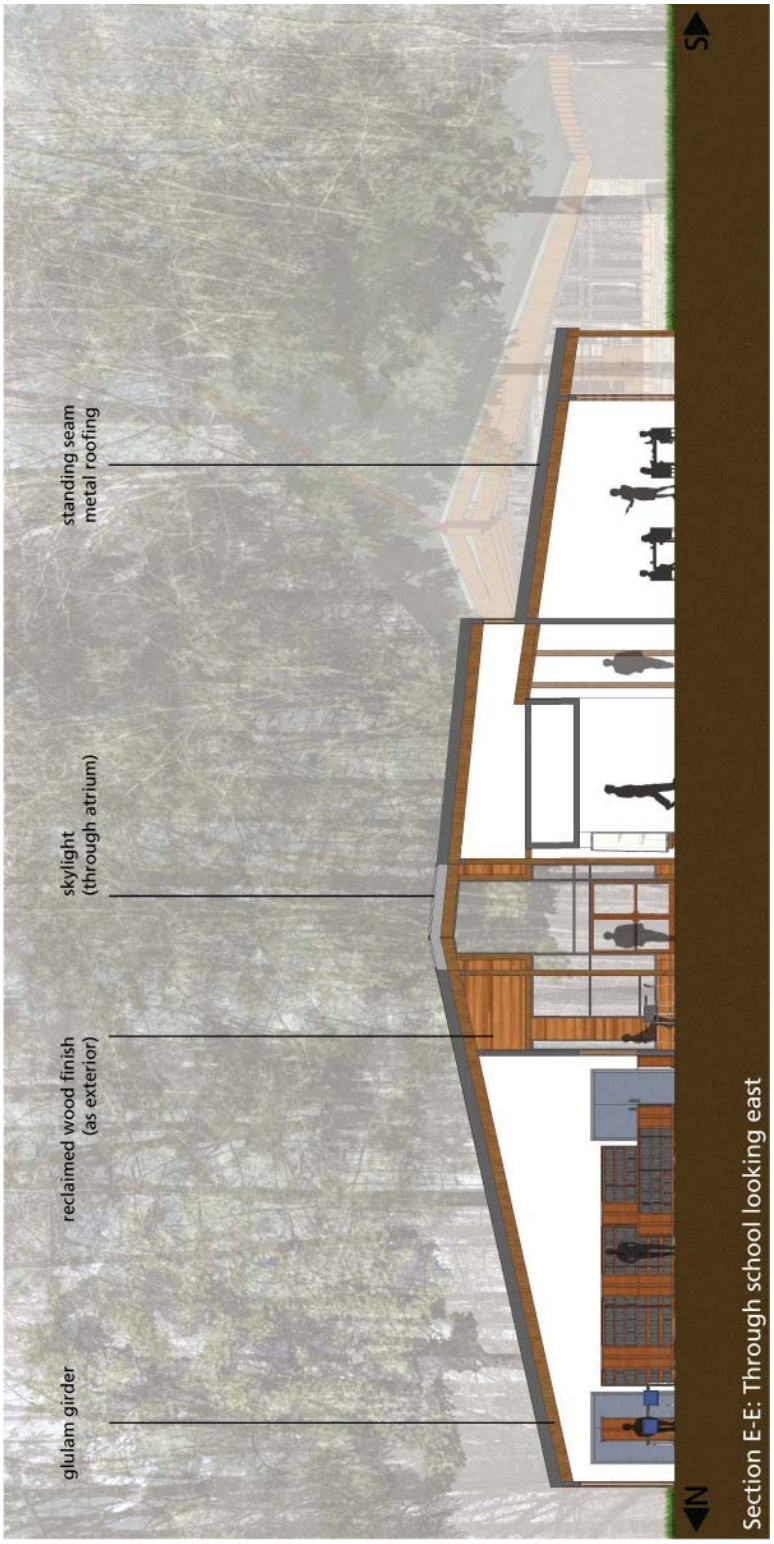

Figure 93: North-south section through school

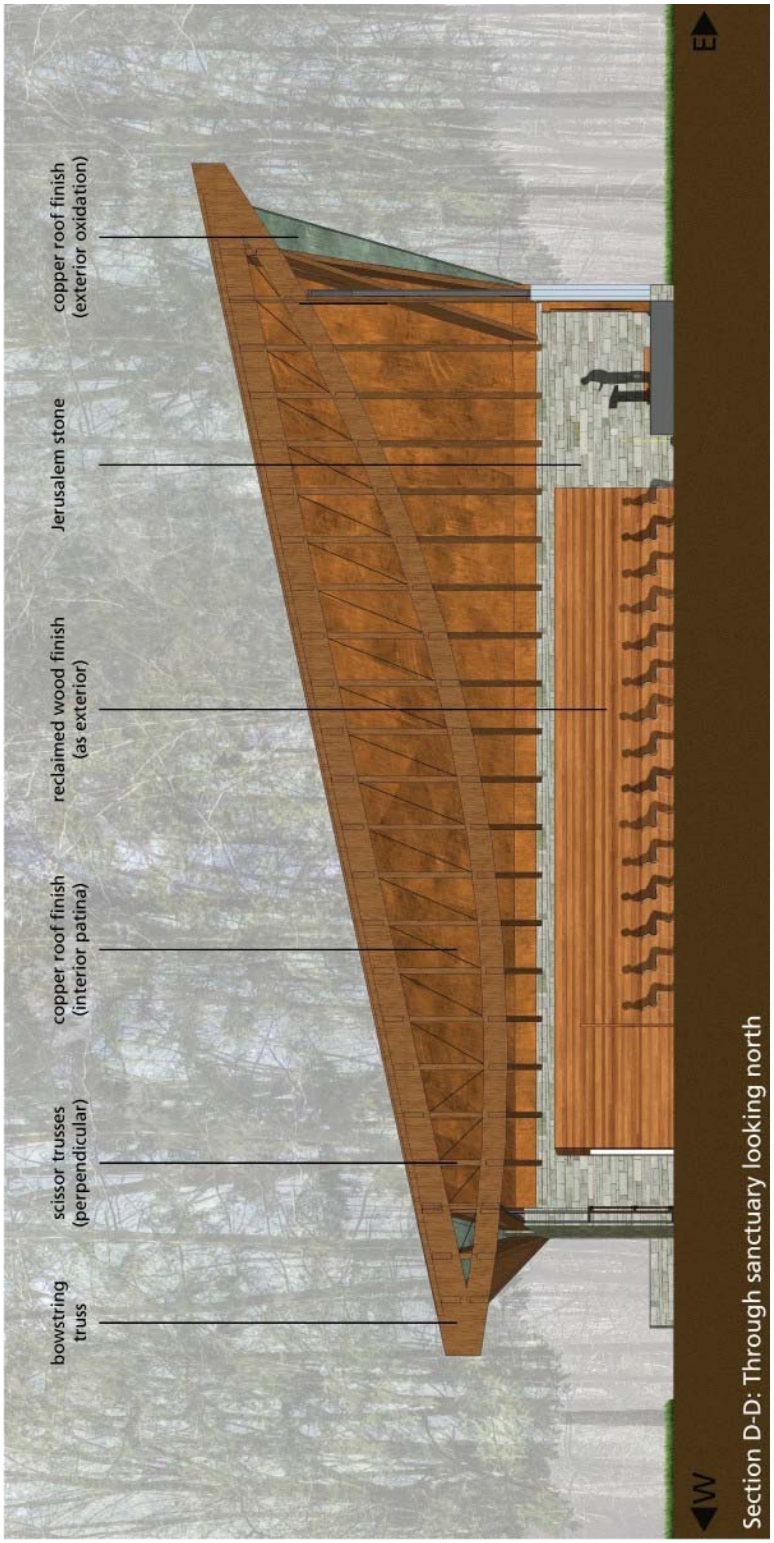

Figure 94: North-south section through sanctuary

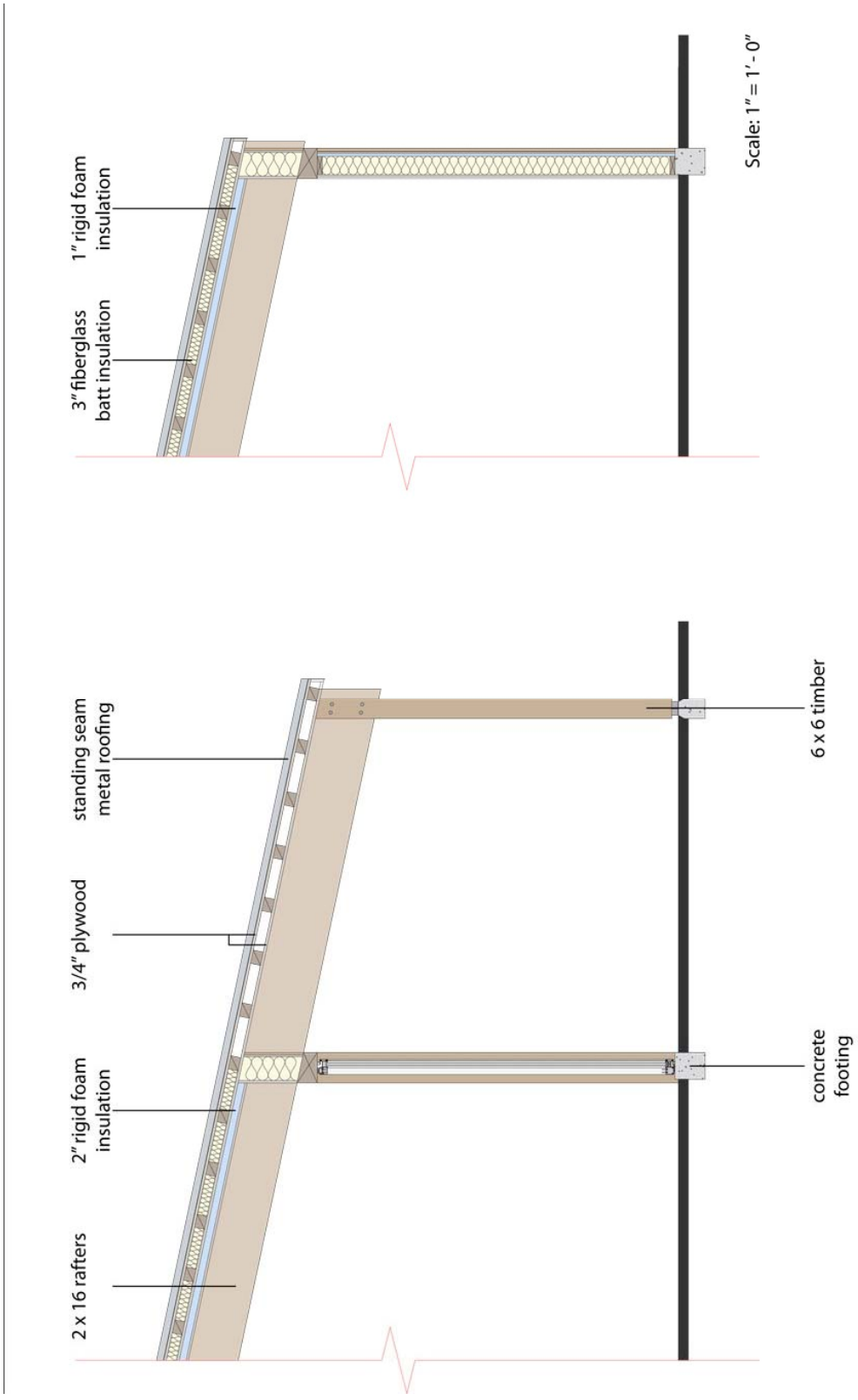

Figure 95: Roof and wall construction details

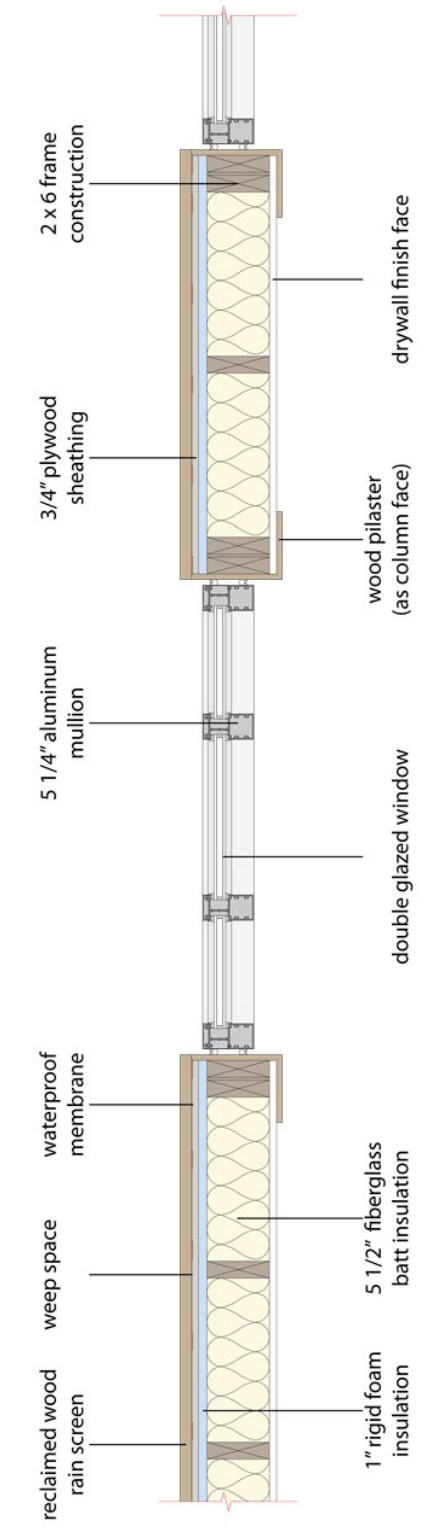

Figure 96: Wall construction details

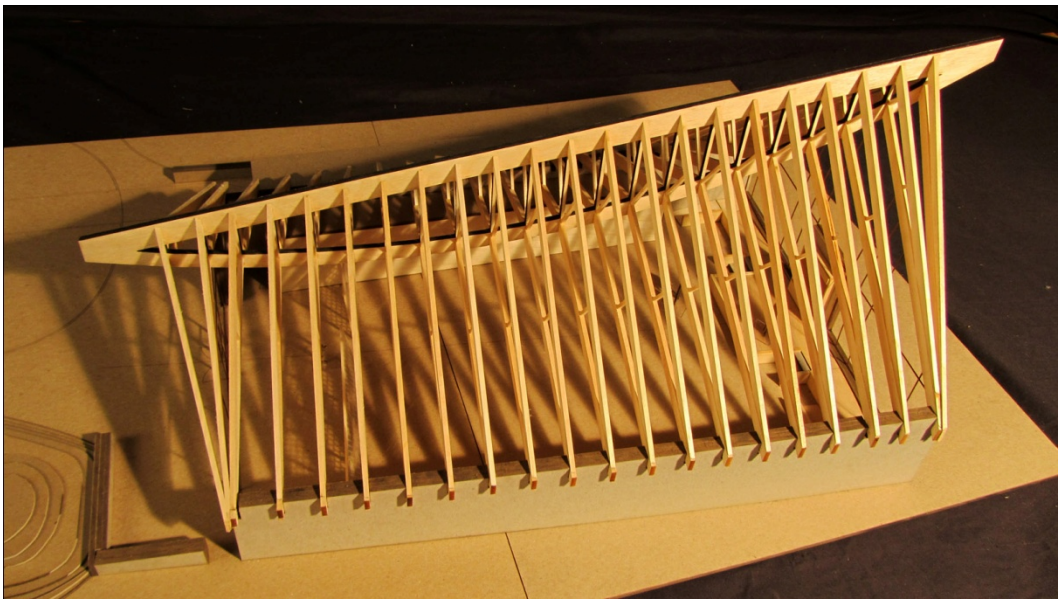

Figure 97: Model of sanctuary

Figure 98: View from bimah toward congregation

Figure 99: View toward front of sanctuary

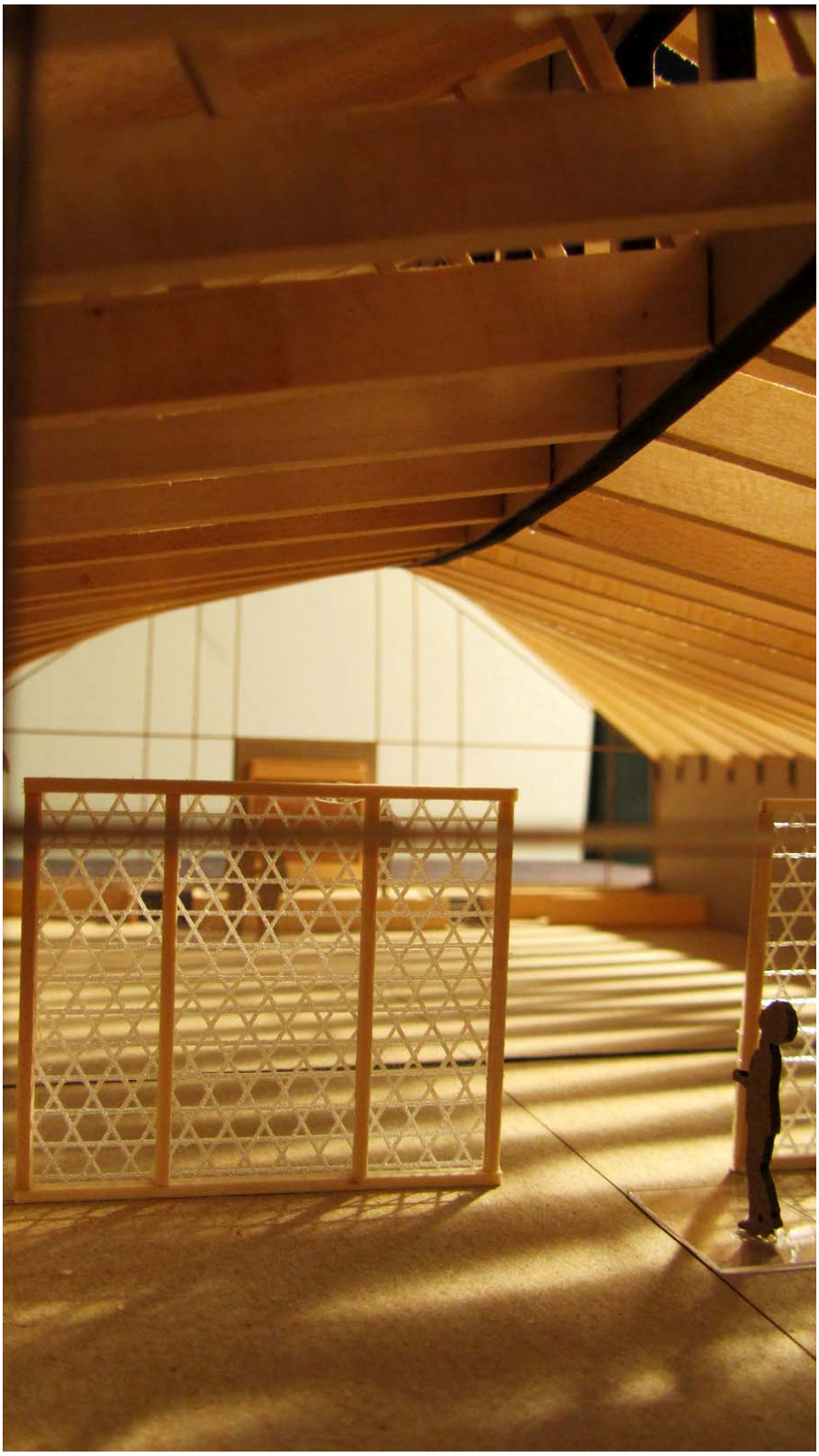

Figure 100: View toward bimah

Figure 101: View toward school

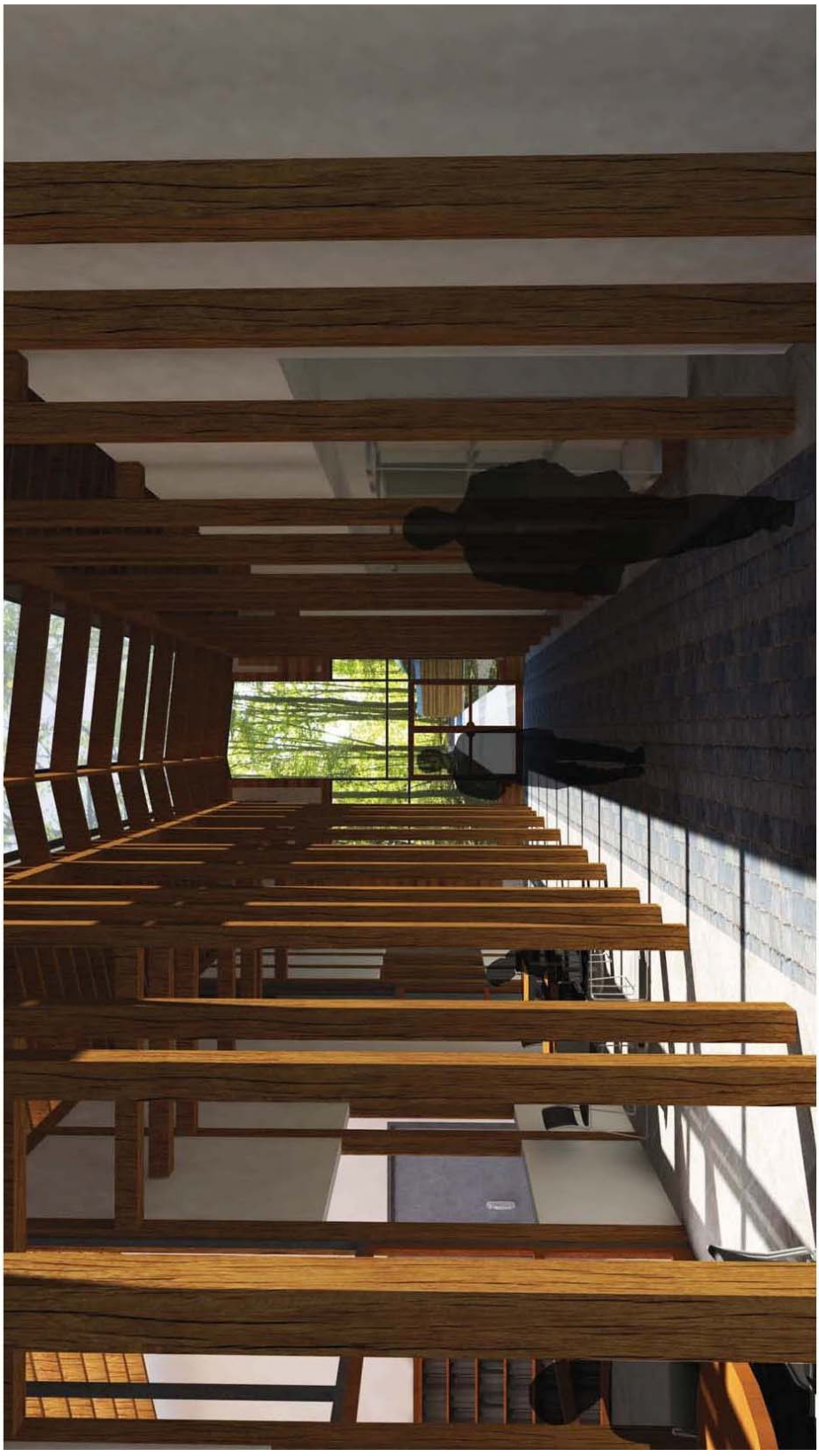

Figure 102: Inside school looking east

Figure 103: School courtyard looking toward sanctuary

Figure 104: View inside sanctuary

Figure 105: View from sanctuary north

Figure 106: View from social hall colonnade

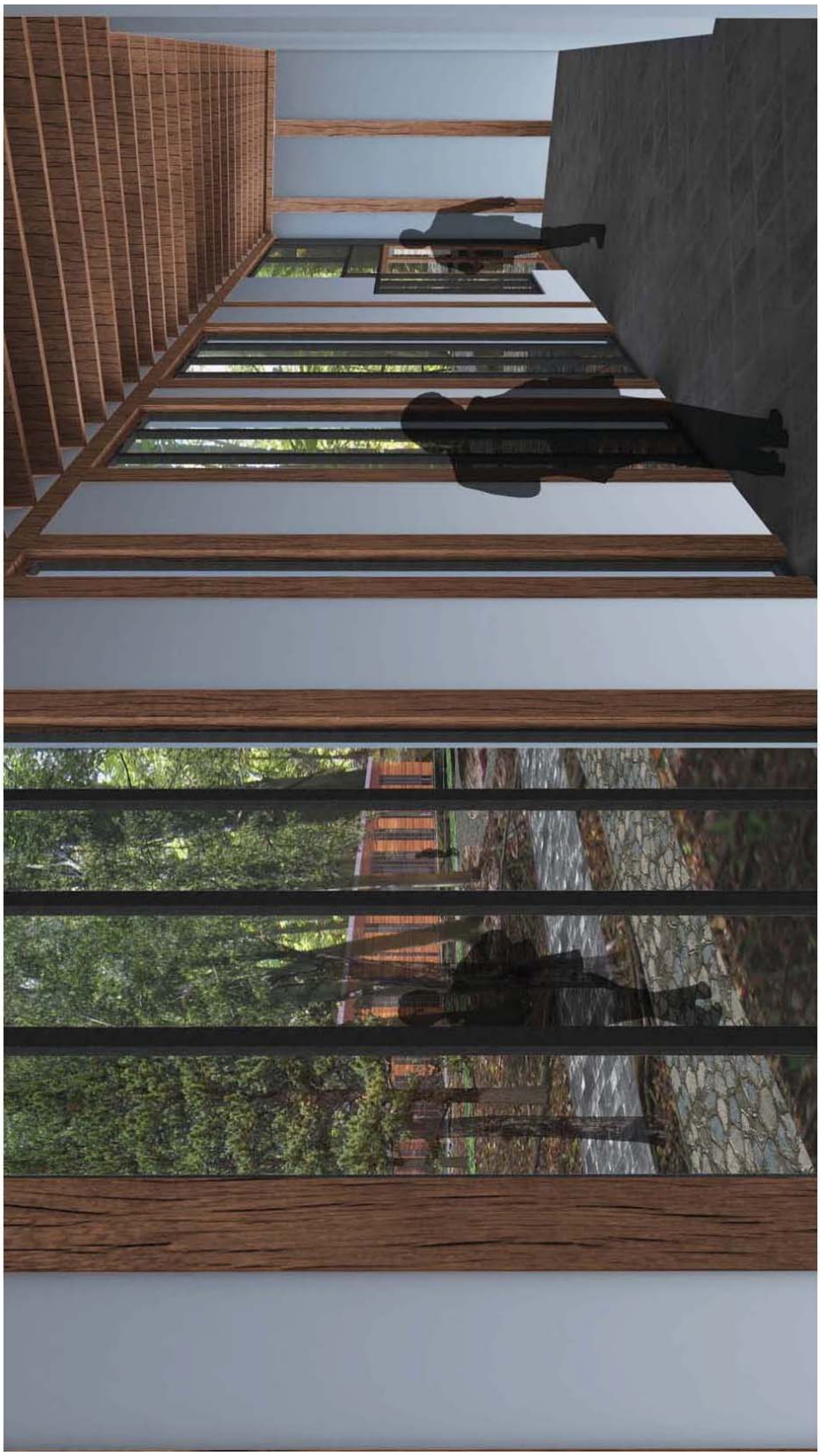

Figure 107: View from classroom hallway looking north

Figure 108: Menorah in the window

Criticism and Response

During the public review, it was suggested that there were too few paths to create any real idea of differentiation or choice. I believe this argument does not consider the temporal aspect of nature and its influence on the paths – that is to say how nature might modify the paths. For example, the overgrowth of branches or plants or the dripping of water from overhanging trees might one to move in a new way around the path. The most consistent affect of nature on the experience of path is the ever changing movement of shadows. Particularly on the path of heart, these shadows, which change with time, with every turn, and with each passing cloud or swaying tree, alter the experience of movement, even along the same path again and again.

Additionally, there was debate as to whether or not there should be a "gateway" where one moves into the network of paths, and whether or not there needs to be an immediate choice between the path of mind and path of heart. I see no reason for immediate choice as, following the metaphor of the search for truth, one moves back and forth along the two paths during the journey. Were there the rare soul who follows only the path of heart, there is nothing preventing them from stepping onto the soil of the wood and finding their own way. Regarding the question of gateway, I see at least two: The first gateway is right at the entrance to the site. This considers the driveway as part of the heart/mind sequence. In a way, this is preferred – as almost everyone will need to drive to the site, there is no sense in ignoring the car as a part of the

journey toward the sacred. The second gate is the school building which moves one from the exterior of the campus into the communal center. There are additional symbolic gateways – the entrance to the wood, the movement through the evergreen buffer, the path through the trees in front of the school and each crossing of a path over a swale.

The main graphic critique was the choice to show the materials as new, rather than in their aged state where they would be seen as more "a part of the forest". While I agree that it would be important to see the oxidized copper and grey, worn wood of the matured architecture, I would not wish to ignore the initial appearance and experience of the architecture either. It will take time for the building to age, and that aging process has ontological potential for the congregation. The best graphic resolution of the dilemma seems to be a "temporal elevation" which shows, proceeding from left to right, the architecture through the aging process.

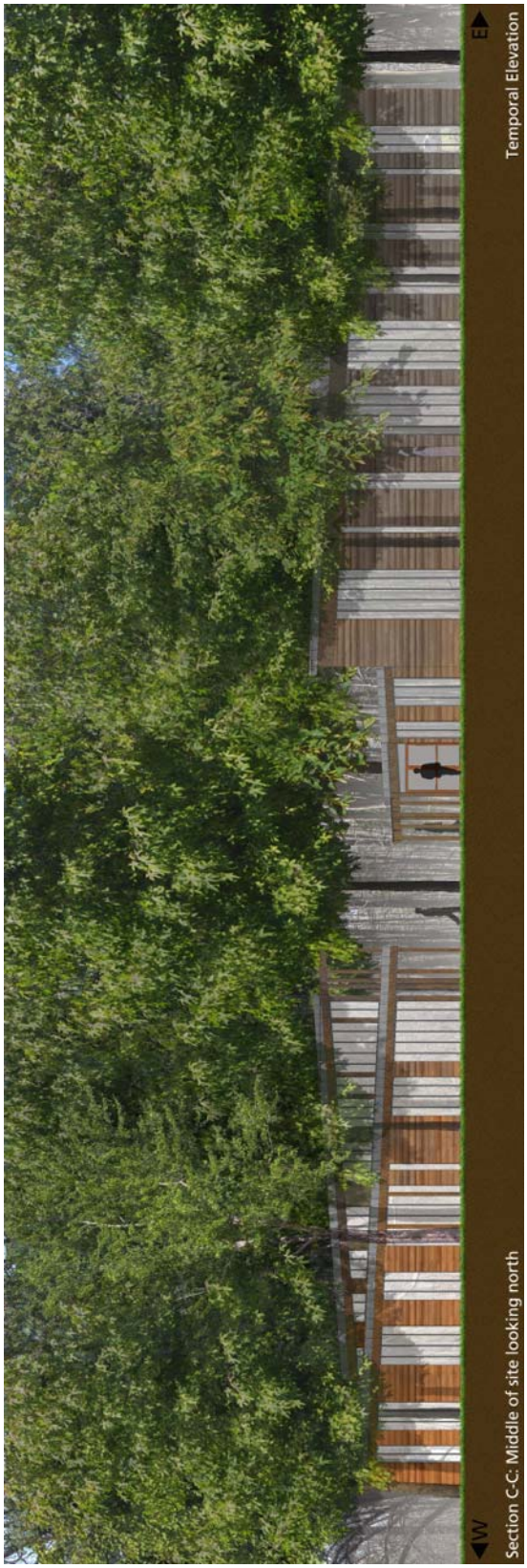

Figure 109: Temporal section / elevation through site looking north

It was discussed whether there ought to be a clearer definition of communal space in the interior of the site, and whether the removal of some trees might help to define this communal space. In consideration of this feedback, three possible solutions have been proposed. Either or both of the two pavilions indicated in grey, or the removal of trees in the dashed area.

Figure 110: Proposed resolution of exterior community spaces

Conclusions

In designing an architecture of the senses, particularly an architecture which also endeavors to reveal and revel in the beautiful and sublime natural world, a consideration of the dynamic nature of materials becomes of the utmost importance. Though all materials do, in fact, change over time, in some, such as the wood and copper used throughout this design, the change is more evident – wood wears to a dull grey, copper acquires a patina.

The particular way in which these materials weather is a result of the particular environmental conditions in which they are engaged and how they are used. The oils from running a finger along one of the exterior walls, tracing the path of a wooden strip or the scuffs from kicking dirt and stones at the base of a timber column determine the character of the material's aging. Each piece of material bears this quiet evidence of its history. While some materials seem immutable – the glass windows or Jerusalem stone walls of the sanctuary – with every touch material is rubbed off, stones get ever slightly smoother.

When one steps into Santa Reparata, buried under the Duomo in Florence, its history of use and of neglect is palpable. At the Nymphaeum of the Rain in Palatine Hill, water sprays off of racks and ancient statues, wearing them microscopically smoother. One can taste and smell the ancient rock in the air.

Nothing in this world is truly static as the world itself is dynamic. Natural forces are constantly changing. Architecture which engages with these natural forces overcomes the impression of stasis.

Though not studied in this instance, urban engagement could be seen to work in the same manner. Surroundings change and evolve. In both natural and urban settings, the building is both a definer of and defined by its context.

On the scale of building organization, adaptive space is not only sustainable in terms of anticipating other uses for architecture, but allows the space to be shaped over time by its inhabitants. Again contextual forces, in this case the functional needs of people, both define space and in turn are influenced by the space. Building which work with, rather than against or in spite of, the user in this way accommodate the potential for the occupants creative repurposing of space. This leads toward thinking about architecture in service of people and geared toward the experience of its use from the perspective of human scale and perception – a human's eye view of architecture.

The Next Step

The temple at Beth Israel was the perfect test bed for exploring an architecture of the senses and the sublime, yet one wonders how such an engagement with site and natural processes would translate into a less spiritual program or a less secluded site. In many public, urban buildings windows are scarce and rarely operable. Interiors rely more on electric light than on the sun, and the sound of the wind through the tree canopy is far from the mind. The reliance of this design on the forest around it would not be feasible or appropriate in an urban setting. Yet, much of what contributes toward the success of the temple in the wood is still viable in a city: Though nature may not be the first thought that comes to mind when considering an urban site, we are still on the earth, under the sun and moon, standing in the wind and rain. Additionally, the material influence on perception is still applicable, though the selection of materials would be influenced by context.

It should be stressed that with this thesis and with further studies in this vein, I do not intent to prejudice any material or form over another. This thesis is by no means an attempt to create or trumpet any particular architectural style, but rather to suggest that formal and material decisions be guided by a philosophy which approaches architecture from the experiential human perspective. This perspective is both functional and emotional in nature and is derived from sensory perceptions of place. Through such a consideration, one may approach an architecture which is not necessarily beautiful from satellite

photos or orthographic projections, but which communicates through its interaction with its occupant some degree of the beautiful and sublime experience of our existence as an individual, of cultures, of the human race, on the earth in this particular moment of a continuum of individual moments.

Figure 111: The sublime forest

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