#### - mosque -

Shaping an Architecture for the Muslim Community of Northern Ontario

By

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abstract

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The role of a mosque in a minority community, such as Northern Ontario, shifts from its common role as solely a sacred place. There is a consistent conflict that arises in western mosque architecture: western mosques have become isolated entities, located on the edges of cities and disconnected from the communities that need them.<sup>01</sup> In a minority community the mosque must transcend the singular program of prayer/religious practice and begin to serve the secular along with the religious communities.02 This integration of community allows the mosque to become a more integral part of the society as a whole. Beyond the traditional roles they play in Muslim majority communities, mosques become places for both secular and non-secular programs through secular spaces, such as, educational, cultural, art, and social places.

Thus, this thesis will re-investigate western contemporary mosques to understand how these mosques could be able to provide for both the secular and religious communities in Northern Ontariowhile still maintaining the sacred qualities that make these spaces unique.

The thesis will tackle this issue through three different categories of communities: non-Muslim community, current community, and new community. In this discussion, the three categories represent the following demographics. Non-Muslim communities refer to the secular society of the region along with the indigenous population. Current community is the first, second, and third generation of Muslims who are currently navigating their own identities and require a place to learn and grow in a healthy environment. New community refers to the population of people who have recently immigrated or been displaced to the region; for example refugees, or converted Muslims, the communities who are in transition and need help establishing their new lives.

The key to this thesis is taking agency in the approach as a first generation Muslim-Canadian and tackling tackling the issues through this particular perspective

#### KEY WORDS

Mosque

Identity

Candian-Muslim

Ornament

Community

Traditional/Contemporary

acknowledgments



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KEY TERMS	
Mosque	/mäsk/
a Muslim place	f worship.
Quran	القرانالقران القران
Muhammad by t Koran consists of sura is said as p	d book, believed to be the word of God as dictated to be archangel Gabriel and written down in Arabic. The f114 units of varying lengths, known as suras; the firs. art of the ritual prayer. These touch upon all aspects ce, including matters of doctrine, social organization
Hadith	الحديث /həˈdēTH/
which, with acc	nditions containing sayings of the prophet Muhammadunts of his daily practice (the Sunna), constitute the quidance for Muslims apart from the Koran.
Salat	/səˈlät/
the ritual prayer	of Muslims, performed five times daily in a set form.
Tafseer	/ taf sīr/
Tafsir is the Ara	ic word for exegesis, usually of the Qur'an.
Hajj	/haj/
	image to Mecca that takes place in the last month of all Muslims are expected to make at least once during
Shahada	الشهادها
	fession of faith ("there is no god but Allah, and e messenger of Allah").
Zakat	الزكاه الزكاه
	ent made annually under Islamic law on certain kinds ised for charitable and religious purposes.
Fast	/fast/
	or some kinds of food or drink, especially as a religious before sunrise until sunset.

Definitions sourced from Merriam-Webster Online Dictionary

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search?q=al+rashid+mosque&rlz=1C1CHBD\_

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#### Islam

With a total of 1.8 billion adherents<sup>01</sup>, Islam is one of the largest growing religion in the world and is growing. Being the youngest of the Abrahamic Faiths, Islam shares many of the historic details and figures from Religions that came before. Islam is a monotheistic religion and the fundamental teaching a Muslim must believe in is: 'There is one God, and Muhammad is his messenger'. This proclamation is known in Islam as the first *Kalima*, which is one of five rulings from the Quran that Muslims live by.02 The Muslim's have the *Quran* as their sacred text and also use *Hadith*, which are a collection of narrations from the Prophet Muhammad's life and are considered the ideal way of life. Islam is divided in two major sects and each sect has its respective school of thought- shown in the figure 01.03

This thesis will discuss the role of architecture in Islam as a tradition and the aspects of worship and the sacred. It will also draw a conclusion on how to re-frame the role of a mosque in a western contemporary lens. Ultimately to better serve both the religious and secular communities.

Islam formally began in Mecca, with the Prophet Muhammad receiving divine revelations in the year 610 CE. Although informally Muslims believe in the fact that this religion has always existed, with prophets receiving new word from God ranging all the way back to Jesus, David, Moses, Abraham, Noah and Adam. Community and worship play a large role in Islamic architecture and history because the role of the sacred place becomes a place for the community in the traditional sense. The religion literally promotes community engagement and prayer by allocating larger blessings upon those who worship in gatherings in the house of God. Islamic architecture becomes the vessel for which the sacred and the community come together.

In Islamic history a schism occurred after the death of the Prophet and the key difference between the beliefs falls under the successor of the Prophet. Sunni teachings believe that Abu-Bakar, the father in-law of the Prophet, was the successor. On the other hand, Shia Muslims deny this lineage, they believe Ali, the Prophet's cousin and son in law was the true successor. The practices of each sect also differ, where Islamic text and rulings are concerned. Sunni Muslims believe in all *Hadith* that have a chain of narrations leading back to an appropriate source. Shia Muslims deny specific *Hadith* that relate to the wife of the Prophet, Aisha. The sacred spaces of both sects share majority of their fundamental characteristics with each other. <sup>04</sup>

Historically, Islam has spread wide geographically with many minority and majority populations. A lot of echoes from these cultures can be seen in both art and architecture in the contemporary time period. Each region creating a moment of overlap with their culture and traditions with Islamic practices. This cultural hybridity defined the specific architecture and art in that era and region. The sacred space was used as a tool to begin to represent the identity of the land. Acting as a beacon for the traditional individuality of the place. <sup>05</sup>

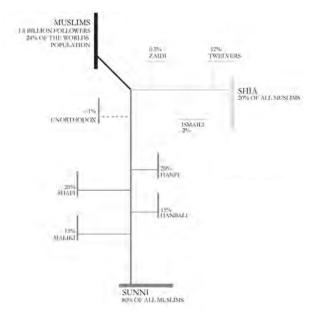


figure. 01 diagram by author, breaking down the Muslim population and each sect according to schools of thought

Jenkins Marilyn, Islamic Art and Architecture 650-1250 (Yale University Press, 2017).

Part.

<sup>01</sup> https://www.cnn.com/2013/11/12/world/islam fast-facts/index.html

<sup>&</sup>quot;The Six Kalimas," accessed December 6, 2019, http://www.quranfocus.com/knowledge/kalimas.
"Islam," ReligionFacts, accessed December 6, 2019, http://www.religionfacts.com/islam

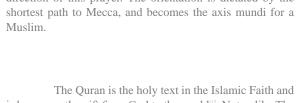
<sup>1615</sup> L. St NW, Suite 800Washington, and DC 20036USA202-419-4300 | Main202-857-8562 | Fax202-419-4372 | Media Inquiries, "Pew Research Center," Pew Research Center, accessed December 6, 2019, https://www.pewresearch.org/.

#### *Islam | the religion*

The Islamic principles of religion are based on five teachings, referred to as the Five Pillars of Islam. These rulings act as the path towards practice for a Muslim. Islamic scholars express the importance these Pillars play in ones life-a Muslim must practice each and everyone as best as they can or the foundation to their Religious life begins to weaken. Within each Pillar one can find a form of worship and prayer in their own way- creating a microcosm of sacred practices within the lager whole. These foundational Pillars are in their own way a form for the Muslim to find connection with their God.

01 https://www.britannica.com/topic/Islam

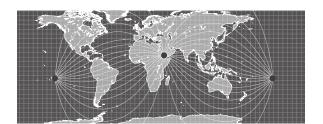
The religion of Islam is heavily based around the act of prayer, where a series of verses are recited from the sacred text in a practiced ritual. This ritual must be done facing Mecca, no matter where a Muslim is across the world. The *Kaaba*, or house of god located in Mecca, is the direction of this prayer. The orientation is dictated by the shortest path to Mecca, and becomes the axis mundi for a Muslim



is known as the gift from God to the world<sup>02</sup>. Not unlike The Bible and The Torah, The Quran holds stories and teachings about the history of the world. Since the beginning of the Islamic age, scholars have done research trying to decode the teachings held within. Each school of thought in Islam has a set of scholars who's interpretation of the Quran is preferred. Muslims children begin learning to read the Quran in Arabic, regardless of which language is their mother tongue. Most Muslims can read fluent Quranic Arabic but without knowledge of the translation. Muslims then go to lectures and classes where the stories in the Ouran are explained in a thorough manner, this practice is called *Tafseer*. To Muslims listening to the recitation of the Quran in a melodic manner, whether in Salat (prayer) or casually, is also considered a form of worship and contemplation. The idea of knowing how to read the Quran without understanding the messages being told is a highly critiqued practice. This is because the action of reading becomes this passive habit in which the reader is at a loss for the meanings and lessons being told through the Quran. A more involved manner of recitation is where the reader begins to take the time out and read less but



understand each verse.



I figure. 02
photo by author, the axis mundi - orientation to prayer from across the world



figure. 03
photo by author, The Holy Quran the sacred text for Muslims

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#### Pillars of Islam

Shahda: The initial proclamation of a Muslim's faith- the Shahada is a saying that each Muslim, or new converted Muslim must believe in to consider themselves followers of Islam. The Shahada translates directly to the fundamental idea that "There is only one God, and Muhammad is his messenger." The Shahada is the one saying that is said to have the ability to refresh the believers Iman (belief).

Salat (prayer) is the formal practice of praying and is performed through a set of defined actions. Salat (prayer) is considered the most pious and fundamental form of worship. Muslims have five obligatory daily prayers each assigned by the position of the sun. The process first begins at the ablution stage, where one washes their body in a specific way working from their hands to their feet to cleanse the body and spirit. Then the call to prayer is announced and the actual prayer begins. Salat (prayer) can be performed in groups or alone. During prayer, when the Muslim comes to the Sajdah (bowing) they are believed to be the closest to God as they can get, the axis mundi.

The *Hajj* takes place only once a year, in the 12th and final month of the Islamic lunar calendar; pilgrimages to Mecca made at other times in the year are encouraged but do not count as the *Hajj*. Because the Islamic lunar

calendar is about 11 days shorter than the 365 days of the standard Gregorian calendar, the timing of the *Hajj* moves backward each year. Over the five days of the *Hajj*, pilgrims perform a series of ritual practices meant to symbolize their unity with other believers and to pay tribute to God. Because of the financial cost associated with *Hajj* not every person can go in their lifetime.

Fasting for Muslims takes place during the Islamic Month of Ramadan. Muslims all over the world do not eat, drink and abstain from other bodily pleasures from sunrise (Fajr) to sunset (Mahgrib). This practice helps teach lessons about self control and being grateful. Muslims also partake in extra prayer and religious practices because during the month of Ramadan all good deeds are multiplied in the eyes of God.

Zakat (donation) is a way for Muslims to give back and help their community. The main principle of Zakat is to donate an approximate 2.3-2.5% of the persons net savings. One key ruling in this practice is to ensure your donation is in the hands of the needy- one cannot just donate to a charity, but must confirm the donation has reached the appropriate party before the end of Ramadan.



Shahda Salat Hajj Fasting Zakat

figure. 04 diagrams by author, icons representing the 5 pillars of Islam

#### *Islam | the mosque*

The mosque for a Muslim is a place of refuge and connection to their God, Allah. All mosques are known as a 'House of God' a place of peace for the community regardless of the shape or size of the physical architecture. 01 There are mosques which are extravagant/ornate and celebrate the culture of the land, and there are mosques which are simple rooms rented in basements- each with unique qualities. The fundamental factors which create the sacred atmosphere in a mosque lie within the ritual and spiritual practices of worship and community.<sup>02</sup> Architecture can then be appropriately applied to reflect the traditions and enhance the spirituality in the space- linking to the culture and traditions of the specific place. The best mosques act as catalysts for religion, not only as shelters, but places where Muslims and non-Muslims a like can learn and grow.<sup>03</sup> In a typical mosque the main programmatic functions that take place lie under two of the five Pillars of Islam: Salat and Quran. But these functions differ in areas where Islam is a minority vs a majority. To succeed in a minority community such as a Canadian city, the mosque becomes a place shaped by the needs of the community. 04

Mosques in majority Muslim communities take the shape of the given culture. Not unlike in European Church architecture, the largest and most extravagant sacred places are done to showcase devotion to the faith. Similarly, in Muslim majority communities, large extravagant mosques are built, and they succeed as sacred places because the whole community utilizes them for their religious needs and connect with the architecture at that level. The same cannot be said in minority communities because the needs of that community shift when the larger non-Muslim demographic is considered. A different set of programs are

required to allow the architecture to succeed in that social environment.

Mosques in Muslim minority communities pose a design issue that in effect creates unique and interesting architecture. This is in situations where land and funding are not as readily available and communities need to find spaces to congregate but also use as religious spaces. Mosques in these areas then merge community with prayer programs and are in turn multivalent spaces which transform to support the needs of the community, all in one major architectural project. Here community is of high importance because it is through the communion of religion that people can feel a sense of home and identity. People using these mosques are in search of identity and a form of connection to their roots. 06 They are typically people who have immigrated, in search of refuge, or are a form of transition. Regardless of the reason, each person is able to find solace in the mosque because it is always the house of God.

<sup>01</sup> Nekuee, Shervin. "Throw Open the Doors." In In The Mosque Political, Architectural and Social Transformation, 57–59. Rotterdam: NAi Publishers, 2009.

O2 Avcioglu, Nebhat. "The Contemporary Mosque." In The Mosque Political, Architectural and Social Transformations, 61–68. Rotterdam: NAi Publishers, 2009.

<sup>03</sup> Saleem, Shahed. The British Mosque: An Architectural and Social History. Historic England Press, 2018.

<sup>04</sup> Saleem, Shahed. The British Mosque: An Architectural and Social History. Historic England Press, 2018.

<sup>05</sup> Kahera, Akel Ismail. Deconstructing the American Mosque: Space, Gender, a Aesthetics University Of Texas Press 2008

<sup>6</sup> Aksamija, Azra. Mosque Manifesto: Propositions for Spaces of Coexistence. Istanbul, R: Revolver Publishing, 2015.

#### *Islam | traditional architectural elements*

figure. 05 Minbar



Minbar - in traditional Islam were the pulpits from which the Friday Khuthba (sermon) is delivered. In its most humble form the *minbar* is a seat raised on top of three steps, often it is constructed as a domed box at top of the steps. <sup>07</sup>Muhammad originally delivered his khutbahs while leaning against a palm-trunk pillar in the mosque at Medina. Hadith (accounts of Muhammad's life and sayings) report that Muhammad later used a seat with two steps for receiving delegations in the mosque and also that he preached from this portable minbar, which was fashioned from tamarisk wood by a Greek or Abyssinian carpenter. His successors, the caliphs, used his *minbar* as a symbol of their authority.





Mihrab - or prayer niche is a recession or void in the Qibla Wall (wall facing Mecca). Usually acting as a focal point for prayer space, the mihrab acts as a place for ornament and design. The Mihrab originated in the reign of the Umayyad Prince Al-Walid I (705-715 CE). <sup>02</sup> The structure was adapted from the prayer niches common to the oratories of Coptic Christian monks. Most prayer rugs also have a mihrab, a segment of the design shaped like a niche. Before kneeling, the user places the rug so that the *mihrab* is facing Mecca. In a mosque the mihrab becomes the literal axis-mundi.

figure. 07 Minaret

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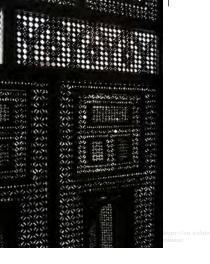
Minaret - (Arabic: "beacon") is the tower from which the call to prayer is announced five times each day by a muezzin, or reciter for the call to prayer. At the time of the Prophet Muhammad, the call to prayer was made from the highest roof in the vicinity of the mosque, or at a high point on the landscape. The earliest minarets were inspired from lighthouses and the bell towers of Christian churches. The oldest minaret in North Africa is at al-Qayrawan, Tunisia. It was built between 724 CE and 727 CE and has a massive square form. Minarets are constructed in a wide variety of forms ranging from thick, squat spiral ramps, as at Samarra, Iraq (built 848-852 CE), to soaring, delicate, pencil-thin spires. The structure of the Minaret is usually square at the base where it is connected to the Mosque, and then a series of geometric shapes make up the remainder. At the top is a bulbous dome, an open pavilion, or a metal-covered cone. The upper parts of the minaret are usually decorated with carving, or a form of signage- acting as a visual beacon. The steps leading up may be internal or external. The number of minarets per mosque also varies, from one to as many as six. These towers were built to be "landmarks of Islam"—to be visible from afar and to mark a site with Islamic identity.

Mashrabia - in Islamic culture is an oriel, screen-wall or projecting second-story window of latticework. The mashrabia is a common feature of residences in cities of North Africa and the Middle East; in France, where it was introduced from colonial sources, it is known as moucharabieh.<sup>01</sup> These windows are identified by the use of grills or lattices to replace glass and shutters. The grills are composed of small, turned (shaped on a lathe) wooden bobbins put together in a set of unique and intricate geometric patterns. Mashrabia work is ornate and intricate, while still providing the interior with light and air as it shades it from the heat of the sun. Architecturally these provide passive cooling to the rooms they are integrated within. By placing these screen with small openings near a body of water, the air passing through the openings speeds up and cools the water- the water is then transported throughout the building using pipes and gravity.

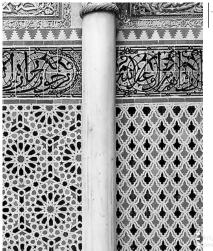
Dome - mosques also feature one or more domes, called *qubba* in Arabic. The dome does not tie into a ritual practice, like the *mihrab*- but still holds symbolic importance as the representation of the vault of heaven. On many occasions, the interior of the dome is also a space for emphasis of art and ornate symbolism through the use of intricate geometric pattern. In mosques with only a single dome, it is common to find surmounting the qibla wall, the holiest section of the mosque. The Great Mosque of Kairouan, in Tunisia has three domes: one atop the minaret, one above the entrance to the prayer hall, and one above the qibla wall.

Geometry - From decorations to mashrabia walls to the art on the frames in the Ouran- geometry is a fundamental element in Islamic design. This is due to the fact these designs are rooted in the perfect and relate the person to the sacred. Geometry begins to evoke the sacred through the use of numbers and organization to express the ineffable. Islamic geometric patterns represent metaphors for specific Islamic teachings. For example, no written documents associate that the five-point star to the five pillars of Islamic teachings. Although, we can begin to infer the role it played in evoking the ineffable associated with the religious connection to their creator. Designers can use this as an expression of stories or emotions or just as a symbolism to identity. Geometry was used as a form of exploration and innovation where designers could push current limits and create new visuals to tell their stories.









"You cannot simply put something new into a place. You have to absorb what you see around you, what exists on the land, and then use that knowledge along with contemporary thinking to interpret what you see."

-Tado Ando



"Those will have gardens of perpetual residence; beneath them rivers will flow."

Quran [18:31]

Sudbury was selected as a site because of the clear conflict associated with the local mosques and their relationship with society. As it currently stands, Sudbury has two local mosques: the first, is a purpose built structure that is located in New Sudbury, on the outer residential area of the city, detached from the urban context. The second is retrofit warehouse building, located within the footprint of the downtown core. Both buildings have their respective pros and cons, but the most outstanding issue is that none have ample space to provide to the community members using each site. The programmatic elements in each space lack the minimum spacial needs that a community requires to function. The purpose built mosque can hold up to 40 people on average, while the warehouse building typically holds up to 75 people. The buildings cannot serve the Muslim population of Sudbury, with Islam being the second largest religious community, with over



figure. 11
Lambert Azimuthal Equal Area Projection Map of Qibla
Direction from Sudbury ON to Mecca, Saudi Arabia
drawn by author

50,000 followers in the Greater Sudbury Area.<sup>01</sup>

Furthermore, they do not provide any program for the secular community, thus not promoting community socialization. The demographic of Sudbury is slowly increasing and diversifying. With upwards of 500 new refugee families looking for housing in Sudbury just in 2019<sup>02</sup>, Sudbury requires more spaces where people in transition can better integrate themselves into the social environment. As the hub for Northern Ontario, Sudbury acts as the center for congregation for the whole population and can become a catalyst for diversity and education in the north.

01 https://areascore.ca/area/sudbury\_on/religion\_religious-faith-statistics
02 https://areascore.ca/area/sudbury\_on/religion\_religious-faith-statistics

Oibla

N.E.

The Qibla direction is always the shortest distance towards the Kaaba, in Mecca. This commonly creates the misconception that being north of Saudi Arabia the Qibla would be in the Southern direction, but because the 3-Dimensional curves of the globe the quickest and shortest path of travel to the Kaaba is in fact North East.

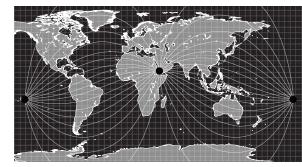


figure. 12
Mercator projection highlighting direction of the qibla from all points on the globe drawn by author

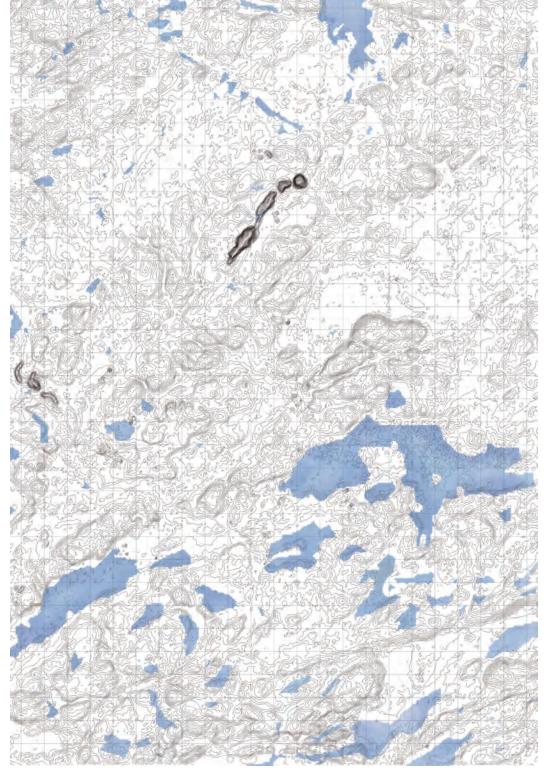


figure. 13
Topographic map of Sudbury highlighting bodies of water. Sudbury is known for having the most lakes in any municipality with a total of 330. Landscape integration is a vital part of mosque design, the local language of the land begins to inform the architecture of that area, tying the sacred to the place.

drawn by author

026

#### Northern Muslim Association

The Northern Muslim Association is a conversion of an existing warehouse building. Located in the inner peripheral of the downtown core, this mosque serves the local residents in the urban core of Sudbury. The location of this project allows for easy accessibility which is one of the prominent factors that contribute to the success of the mosque. Accommodating around 75 people on average, this site is the larger of the

The building itself falls short in terms of its programmatic and architectural qualities. The architectural qualities that evoke emotion found in successful sacred places is completely missing in this building. The prayer hall is an open structural frame with no views, light or sense of sacridity. The women's prayer space is minute and tucked away in the back corner, pushing people away from wanting to use the space. The mosque also lacks the space required for the Muslim community to properly integrate into the secular fabric. A mosque in western society requires community spaces for both the secular and Muslim community to come together. They also require places to learn and grow and socialize together, which this building does not provide.

Northern Muslim Association. "Northern Muslim Association." Accessed December 6, 019. https://nmasudburv.com/?page\_id=13.



figure. 15 Entrance of Northern Muslim Association. photo from NMA website

key plan showing site of existing mosque,

Northern Muslim Association.

drawn by author

existing mosques

#### Islamic Association of Sudbury

As the only purpose built mosque in Sudbury, this building stands as the foundation for the Islamic community in Northern Ontario. Through discussion and personal experience this building performs to a much higher standard as compared to the other mosque. The architectural experience encourages community involvement, people interact through community events and gathering. Being able to hold about 40 on average the building itself cannot accommodate the larger community as a whole. On the other hand the small space is designed eloquently with proper light entering the prayer areas and providing equal space to women to pray.

The two mosques tend to cause a rift in the community due to the fact that the community running this mosque does not segregate the men and women to the extent that the other mosque.

The main issue with this mosque lies in its location, proximity and accessibility. This building is located in the outer area of the New Sudbury community.<sup>01</sup> Making it very difficult to access for the ever day user and people in the downtown core. Public transit is also very limited to only two buses and it is not in walking distance to any other amenities.



figure. 16 key plan showing site of existing mosque, Islamic Association of Sudbury. drawn by author

01 Islamic Association of Sudbury. "Islamic Association of Sudbury Islam." Accessed
December 6, 2019. http://www.iasudbury.com/history.html.



figure. 16 Entrance of Islamic Association of Sudbury. photo from IAoS website

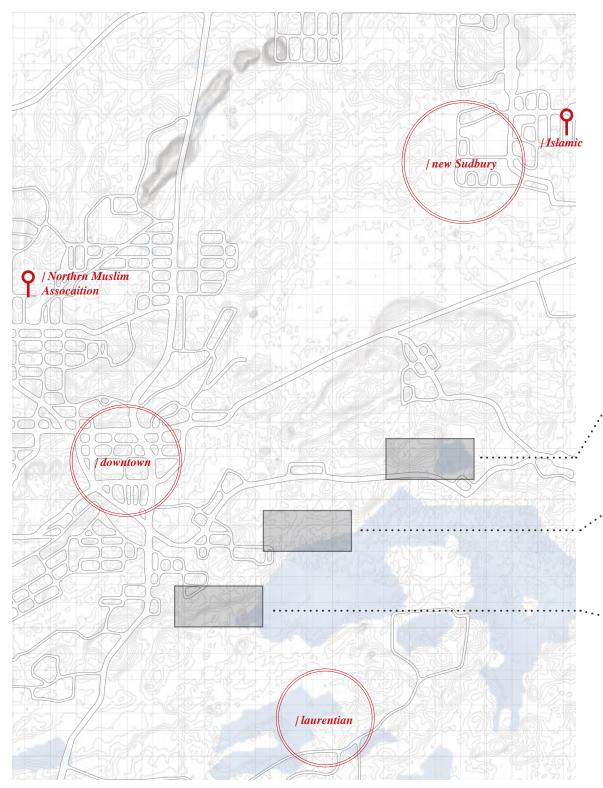


figure. 17
Central Sudbury Area: Downtown Sudbury and New Sudbury connected through two major paths, highlighting potential site locations off of water bodies. This site map begins to identify key area that would be important to link together with a new mosque building. By understanding this I can select three potential sites, each off the body of water to begin to tie the mosque to the landscape of Sudbury.

drawn by author



figure. 18
Possible site highlighted:
Minnow Lake Site
Old Canoe Club Site
Bell Park Site
drawn by author

#### Minnow Lake

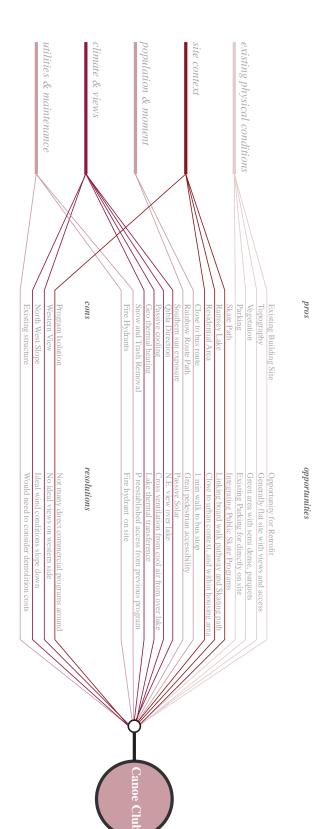
Minnow lake site is a very attractive location for its ambiance and environment. The landscape in this site is tucked away within the park and trees. The nature on this site begins to seclude it from the urban context around the site. Being the most secluded and topographically interesting site it opens itself to opportunities formally. Although it is located in between two halves of the city it still is too secluded for a community project. If a mosque was to be built here it would be too far out of the way and not accessible enough.

## Bell Park

Bell park as a site would be a very prominent location for a mosque. Putting the building in the center of the park would attract existing traffic but may seem as an attempt to take an already heavily used public space and convert it to a private religious space. But the park and its amenities begin to play a strong role in the possibility of integrating multiple programs. We also see this site become opportune in terms of natural site conditions. Along the lines of sun and weather patterns. Furthermore, Ramsey lake boardwalk is adjacent all along the site and works in conjunction with existing paths.

## Old-Canoe Club

This site is the most centrally located while still being on the coast of the body of water. This is important because it opens potential to tie the architecture of the building to the site through the use of the lake, through views, program, and direct physical links. Being located on the book end of the Ramsey lake boardwalk along the northern end of Bell Park, it opens itself to the existing fabric of the park while not intruding too heavily on the pathways and functions of the park as a whole. The key element here is accessibility, it is a 1 minute walk to the nearest bus stop while also being located close enough to downtown that it is within walking distance. There is also parking already located on the site and it is still tucked away from the city noise.



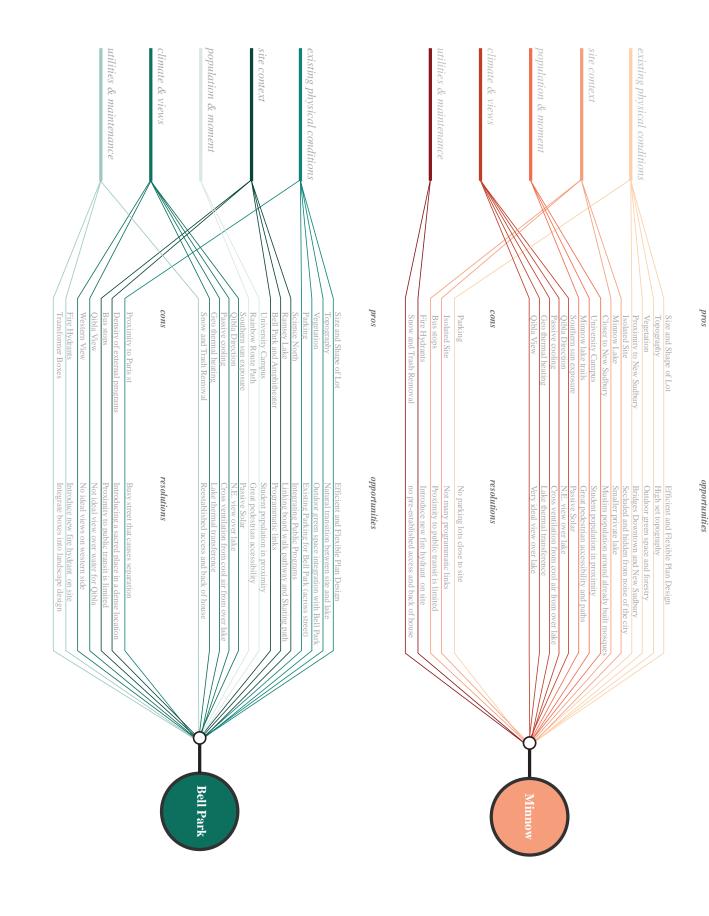


figure. 19 Site map highlighting chosen site of the Old Canoe Club. drawn by author

034

site selection

The proposed site is the end of the bell park trail, where the old canoe club currently sits. This site is currently used as the launch site for the Ramsey lake ice skating trail along with change rooms and support facilities for the city.

This location was selected for its proximity and location. It sits directly south of the downtown core, and is located within the urban fabric while still being tucked away in a quiet neighborhood. The site also is adjacent to Ramsey lake, providing great views and connection to one of Sudbury's most prominent bodies of water. This location presents many opportunities in terms of landscape integration and ability to create moments of tranquility and spirituality. The site is regularly visited by the community of Sudbury as a whole. By providing a new campus of secular and religious buildings here, the architecture can begin to bridge different communities through programmatic functions (education, cultural events, art, social gatherings).

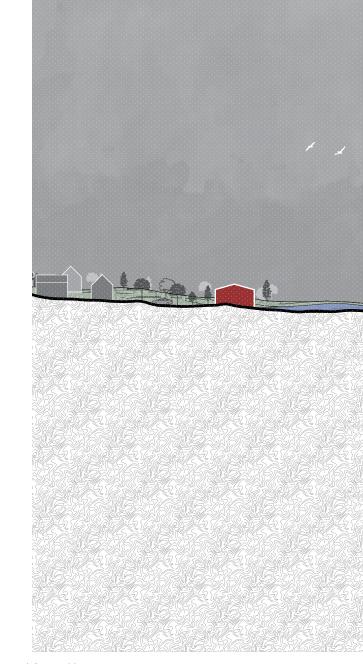
Accessibility to the site is also an

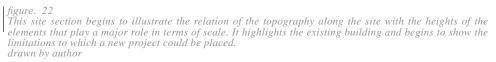
important factor, while this site is located at the end of the trail, it still provides good accessibility via public transit, car and walking. The downtown bus terminal is 12 min away, New Sudbury is 15 min away and Laurentian University is a 20 min bus ride (which can be seen, in figure 19).

Orientation is also an important element that needs to be considered, because the qibla is North East it is important to consider how the building will sit on the site and resolve the orientation based on the grid of the city. The goal for this project is to have a maximum impact on experience while intruding as little as possible on the site. This then provokes the questions of views and access. The design of the landscape becomes as important as the design of the architecture. Through the use of landscape design, the site can be curated to frame views and access points to and from the site. This curating can also become a means for connecting different landscaped elements and the architecture itself. Tying the architecture to place.



figure. 20 Site sketch of Ramsey lake drawn by author

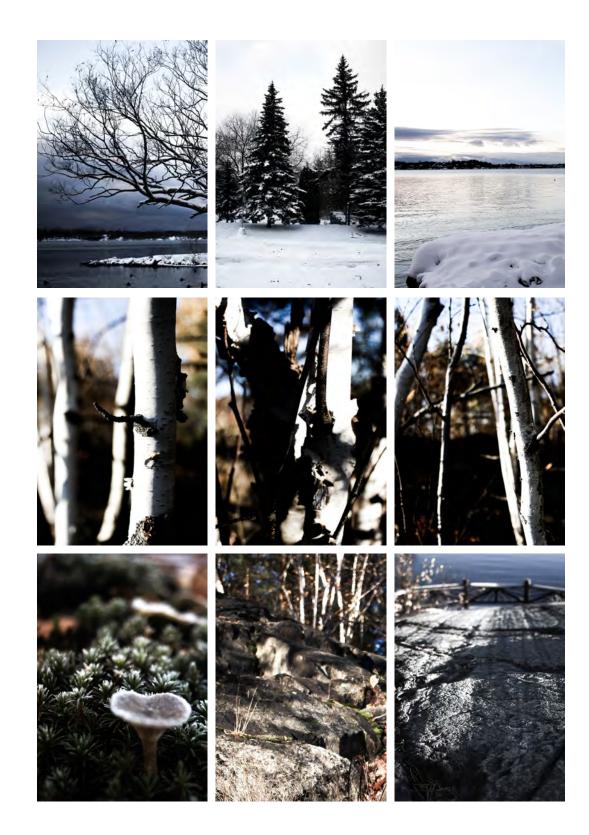


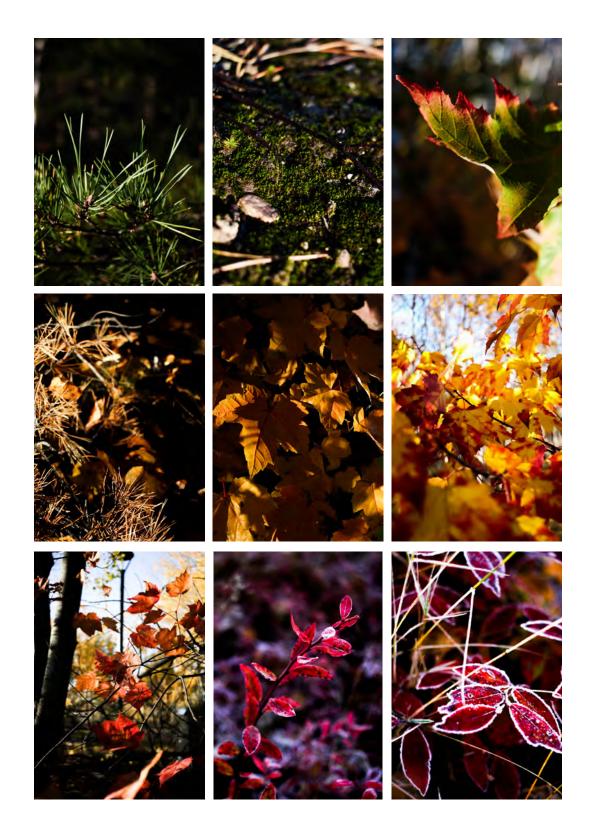


David st & Elizabeth st Ramsey Skate Trail Loading -- Old Canoe Club site Residential Area/Parking ... Bell Park Path Infrastructure Solar Context Existing Vegetation ---... Ramsey Lake Landscape

figure. 21
Site Axonometric Diagram analyzing the relationship of existing conditions and deconstructing the various effecting factors. Landscape begins to highlight the major natural elements acting on the site. For example, the location of trees and water. Solar context breaks down the sun path in winter and summer along with when the time of prayer is called based on the position of the sun. Infrastructure represents the existing built environment along side the man made landscape and utilities on this site.

site photographs
by author





case studies

The following case studies are analyzed to better understand the programmatic and architectural elements in contemporary mosques. These case studies are deconstructed to their key elements to help define a language that can then be applied to the new proposed project in a justifiable manner.

The categories of the projects are as followed: archetypal mosque, to be able to understand the foundation of Islamic architecture and where the fundamental principles and rules lie. This also without the bias of tradition or local heritage being applied unto it. Second, four Canadian examples, to better grasp the role a mosque plays in a Canadian communities and what programmatic elements are key to help it succeed. And finally, a series of selected successful contemporary examples for better architectural understanding, also in minority communities. These are done to better understand the key elements that help relate the religious liturgical symbols for a religion that fundamentally has no 'icon'.

The process of analysis is as important as the projects being studied. To appropriately understand the program along with the architecture, the case studies are broken up into analytical factors that run common across the board. Each factor is then investigated for each project one by one, this allows us to draw conclusions within the realm of each programmatic and architectural factor and apply it to the proposed program being developed.

## House of the Prophet

**Location** | Medina, Saudi Arabia

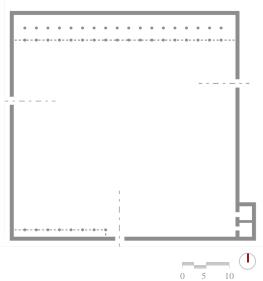
**Year** | *approx.* 622

Architect | The Prohpet Muhammad (pbuh)

Capacity | approx. 750 people

The house of the Prophet is the primary and most fundamental archetype for Islamic sacred spaces. The reason this building is so important comes from the fact that it did not start as a mosque. It was first a home and only transitioned into a mosque later on.<sup>01</sup> In turn this space has qualities that were lost in mosque architecture as the years went by. The fundamental principles of this space begin to formulate a more uncomplicated and pure idea of a sacred place. As stated at the beginning of this thesis, a mosque is the home for worship hence it should be considered a home for religion and in a way we can derive a very inspirational formula to design this home from the house of the Prophet. The primary first plan, figure 23, illustrates the initial layout of the house before the change of

Cresswell and Gautier-Van Berchem Marguerite, Early Muslim Architecture, vol. 1, 3 vols. (Hacker Art Books, 1979).



the *qibla* from Jerusalem to Mecca. Here the *qibla* is on the North wall.

Ideas of humility and humbleness are clear in the design; there are no 'extravagant' qualities. The Prophet's home was a simple courtyard with a series of rooms for each of his wives and prayer space along the *qibla* wall. The Prophet utilized the courtyard as the ultimate multi-functional space, using it for: storage of animals, daily tasks, and meetings with his followers, contemplation, rest and prayer. <sup>02</sup> This ideology is similar to the one being implemented in Muslim minority communities; where the place of worship becomes the hub for social meetings and community gatherings.

The house of the Prophet becomes a case study that grounds the fundamental programmatic elements that should be present in a mosque design. It also stands as a precedent to highlight the role that segregation played in Islamic community before cultural and traditional practices blurred the rulings. In our current conservative communities, women's spaces are tucked away, hidden and forgotten- all in the name of segregation and 'modesty'. This can be due to the lack of money and inherent lack of attention to the needs of the women in Muslim communities. People begin to justify their neglecting behavior by stating the segregation of the original mosques but never investigate deep enough and look at true unaltered examples such as the house of the prophet, or even the Ka'aba in Mecca, where segregation is non-existent, and women are given equal importance.

042

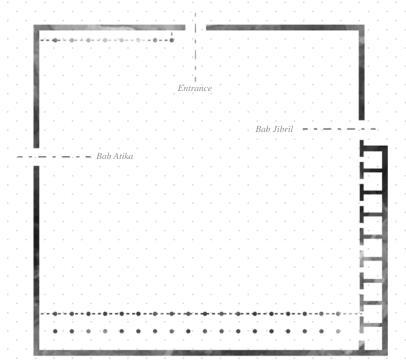




figure. 24.

Plan of the orignal house of Prophet: Highlighting the open concept nature of the building, where the improtance is given to multi valent spaces and program.

drawn by author after Cresswell

figure. 23 Plan of the house of the Prophet before the shift of the qibla from Jerusalem to Mecca. drawn by author after Cresswell

Cresswell and Marguerite; Azra Aksamija, Mosque Manifesto: Propositions for Spaces of Coexistence (Istanbul, TR: Revolver Publishing, 2015).

## Al Rashid Mosque

**Location** | Edmonton, Alberta

Year | 1938 Architect | Mike Drewoth Capacity | approx. 75

Al Rashid mosque is the first mosque in Canada that was a purpose built space which began to integrate the secular community along with the Muslim community. This building, along with the community who built it, set up the frame work architecturally and programmatically for a mosque to act as a catalyst for community growth. As the first purpose built mosque Al Rashid identified a few major issues and aimed to address them. Firstly, the Canadian-Muslim identity; for first, second or third generation Muslims growing up in Canada can be a challenge.<sup>01</sup> This is because they are constantly navigating the self-discovering journey trying to define who they are in terms of cultural background. Al Rashid provides a space to foster growth and exploration for the youth to be able to understand their traditional culture while acclimatizing to contemporary western culture. Secondly, Al Rashid understood the social role of the mosque and the importance of having the religious space that functioned as a hub for the greater community as well<sup>02</sup>. The Secular integration becomes vital for the survival for any minority community. Without integration to

Earle Waugh, Al Rashid Mosque: Building Canadian Muslim Communities (The University of Alberta Press, 2018).

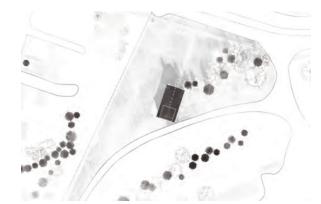


figure. 25 Site plan of Al Rashid drawn by author after Gaber, T.

the community as a whole the minority Muslim society becomes isolated and abandoned. Within the mosque the basement doubled as an event space, for weddings, meetings and many other social events. This method of overlapping worship and community beings to create a richer, more diverse and understanding environment for the Muslim society to thrive in, among the wider secular community as a whole. Finally, Al Rashid becomes a refuge for the transition period of a new Muslim<sup>03</sup>. For anyone transitioning in the Muslim scope, the mosque is a place to find solace and aid in their transition. Al Rashid also had an addition built in 1981<sup>04</sup>, to be able to accommodate the growing population of Muslim users along with a larger set of community programs.

The plan of Al Rashid is fundamentally a multipurpose space with a prayer room at the heart of the building. As mentioned before the program aimed to integrate Muslim the community into the larger community as a whole, to do so the building needed to function as a secular space for the non-Muslim community as well. In this building the basement becomes the secular environment and multi-function space, while the religious space is reserved for the main floor. The women's prayer space was originally not divided.

Al Rashid and the newly added building, are located directly in the heart of a residential neighborhood. Putting a mosque in the center in this manner can be a risk because it can cause conflict in the community if not handled with care. Some mosques tend to become 'outlandish'05 with their iconography, and make too big of a statement- they stand out and turn the remainder of the community off. For a community to accept a building it needs to sit humbly on the land<sup>06</sup>, but straddle the line of still being read as a mosque typology.

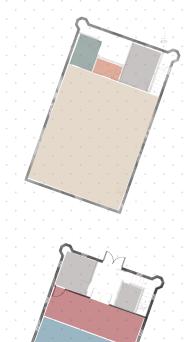






figure. 26 Plan of Al Rashid drawn by author after Gaber, T.

Waugh. Waugh

Shahed Saleem, The British Mosque: An Architectural and Social History (Historic England Press, 2018).

Saleem: Saleem

The Al Rashid did exactly that, it was able to represent the Islamic heritage of the place while still being open ended and welcoming enough to allow the secular community to feel comfortable. The orientation of the building is NE and the mosque sits according to the *qibla*, it is justified based on the grid of the city.

Today the building stands as icon for Islam in the region, housing the one of most diverse set of secular and religious based activities. As a case study the program analysis stands precedent with; early childhood education, youth programs, seniors programs, family based services, interfaith tours and education, dawa

046

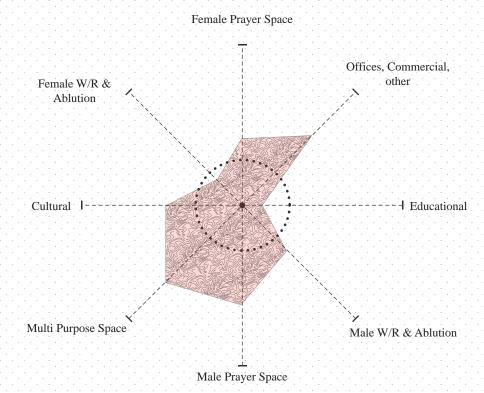
(preaching) and outreach, new to Islam, Islamic studies, and funeral society.<sup>01</sup> As an entity the building becomes a hub for everyone, Muslim and non-Muslim alike. By integrating itself in the community fabric a mosque becomes a catalyst for acceptance and diversity while enriching the culture.

Waugh, Al Rashid Mosque: Building Canadian Muslim Communities.



| figure 27. | Orignal Al Rashid Mosque | https://www.google.com/search?q=al+rashid+mosque&rlz=1C1CHBD\_ | enCA803CA803&oq=al+ras&aqs=chrome.1.69i57j69i59j35i39j0l3j69i60l2.2215j0j4&sourceid=chrome&ie=UTF-8

programatic analysis diagram



foot print of building

Al Rashid

Programmatic analysis diagram of Al Rashid as seen here the Multi purpose space and the auxiliary spaces are heavily focused on, giving the space back to the secular and social programs.

drawn by author

**Location** | Burnaby, British Columbia

Year | 2008 Architect | Studio Senbel

Capacity | approx. 250 (prayer hall)

The Al Salaam Mosque becomes a important architectural icon for the Muslim community in Burnaby, as it stands a prominent purposed built mosque in the city and acts as a hub for the Islamic community and secular community as well.<sup>01</sup> The building houses an educational facility with three classrooms, a library, youth center and gym, as well as prayer area. <sup>02</sup> The building uses the landscape to inform views and transparencies in the architectural form. Such as the qibla wall that opens onto the natural vegetation beyond it, connecting the sacred to the land. Light is a key material that is used to evoke ephemerality and openness. Using the typology of the courtyard as the central architectural element and wrapping the other programs around it, the building begins to flood

BCMA, "Masjid Al-Salaam & Education Centre," Foundation Website, October 2, 2019, https:// www.bcmaburnaby.org/.

Senbel, "Architectural Portfolio, Studio Senbel Architectural Portfolio, Studio Senbel Architecture and Design Inc, October 2, 2019, https://www.studiosenbel.com/projects/masjid-al-salaam.

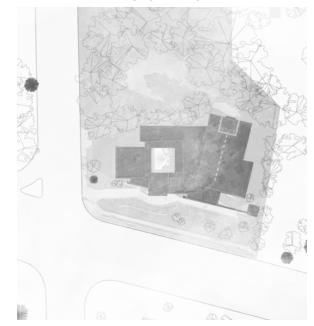


figure 29. Site Plan of Al Salaam Mosque drawn by author after Gaber, T.

light into all spaces. Through the use of Arabic calligraphy and geometric patterns the architect is able to ornament the facades to give the building identity. The use of materiality in a vernacular sense ties the building to local craft and culture. As a landmark the Al Salaam mosque is actively looking for ways for outreach and integration into the wider secular population in Burnaby, with community and social events on a regular basis.

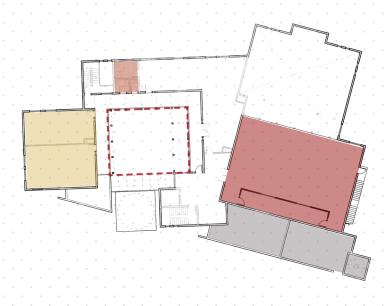
The building sits between a major artery in the city fabric and the greenbelt in Burnaby<sup>04</sup>. Contextually the *qibla* orientation is accommodated for in the eastern portion of the building where the prayer space is located. The building itself is accessed directly off of the main street with parking located underground, this allows direct vehicle access and opens up space for the building to utilize as program. The main entrance itself faces the main street opening itself to the public that drives along the street the building then transitions from public to more private spaces from the south west to the north east. The site of the project is situated in between a populous area of the neighborhood, not hidden away in the outer rim of the city<sup>05</sup>. There is also two lake parks located within walking distance and it is right off of the highway. In summary the site is a vibrant area that bridges two residential areas together while adding character to the existing cultural fabric.

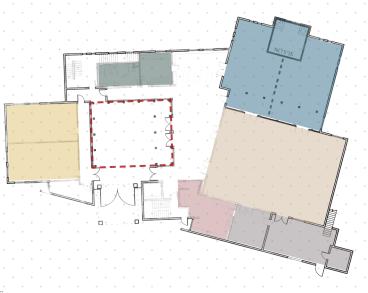
The plan of the building is organized around the central courtyard and the goal was to provide multi-functional space as much as possible. The courtyard brings natural light into the adjacent corridors that begin to brighten up the space. As discussed in Al Rashid, one of the most important spaces for a minority community becomes the gym space. This space functions as a multipurpose area for children to play and the community to appropriate into any function they need.

The architect here has oriented the gym towards the qibla wall, allowing the space to become an overflow area for larger prayer congregations such as *Eid* or *Juma* (Friday) prayer. The women prayer space is located on the

Aga Khan Foundation, "Archnet," Database, Archnet, October 8, 2019, http://archnet.org/.
Aga Khan Foundation.

os Studio Senbel, "Masjid Al-Salaam - Studio Senbel."





Female Prayer Space

Male Prayer Space

Male Washroom and Ablution

Female Washroom and Ablution

Offices, Cemetery & other programs

Multi Use Space



figure 30.

Plan of Al Salaam Mosque
drawn by author after Gaber, T.



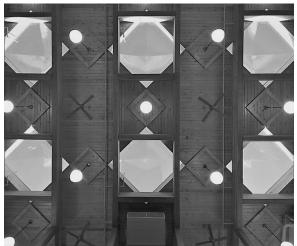




figure 31. Qibla Wall
photo from Studio Senbel
figure 32. Mosque Ceiling with Geometry Organization
photo from Studio Senbel
figure 33. Mosque Courtyard
photo from Studio Senbel

050

upper level of the building which overlooks the men's area below via a balcony. The *qibla* wall itself is transparent and opens onto the naturally landscaped yards that wrap the northern face of the building and allow the prayer hall to become more secluded and intimate, as seen in figure 31.

Landscape and geometry are intertwined as architectural tools to begin to define a new tectonic expression that begins to express Islam and the Canadian vernacular. Using traditional geometry with local materials the architect is able to symbolically create a hybrid identity that bridges the gap between traditional heritage and contemporary place, a Western-Muslim hybrid. This is done through the use of mass timber construction as the vernacular and applying the geometric rules of traditional geometry as a system of ordnance, as seen in the ceiling structure in figure 32. Geometry is utilized for special organization; within the prayer hall the ceiling is constructed with a system of traditional geometry. Architectural elements such as; sky lights and artificial lighting are organized in an ordinance with the geometry system and become the ornamental elements in the building- while still standing as symbol for Islam. As defined by, Serageldin, who wrote 'Architecture of a Contemporary Mosque', the adaptive modern approach<sup>01</sup> is what the architect uses, taking into consideration the modern language of the vernacular in the area and applying traditional lenses to make it resonate with the community which it is set in.

Multi-functional program and adaptive use allows the building to transform depending on the needs of the community. Similar to the Al Rashid, this mosque attempts to provide for a multitude of programmatic elements, one of the most important being education. Education as a system of integration and activation is ideal; it allows the religious program to overlay with the secular. Muslim students can attend Islamic classes along with general studies, while also providing class rooms for use for the general non-Muslim community. A class room can be used to teach Arabic to the youth in the morning and then English to a group of refugees in the evening. The ultimate goal becomes to ensure the building is continuously staying active and used. The problem with many religious places is that they turn into temporarily inhabited spaces that are sitting dormant when prayer is not occurring.02 This ultimately causes the building to be underused and isolated from the community, standing as an empty vessel waiting to be repurposed.

### programmatic analysis diagram

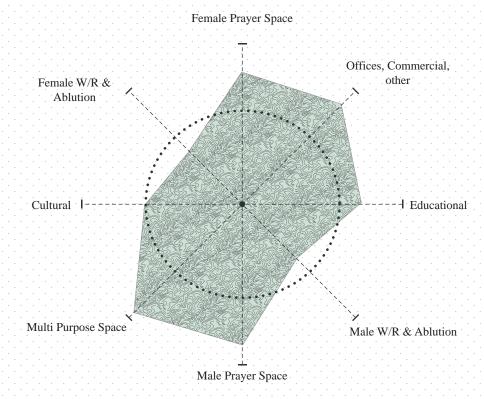


figure. 34
Programmatic analysis diagram of Al Salaam as seen here how the large footprint of the site allows for program to expand into the social and secular realm with ample space for education and cultural activities.

drawn by author

foot print of building

Al Salaam

I Serageldin and J Steele, Architecture of the Contemporary Mosque (London Academy Editions, n.d.).

Nebhat Avcioglu, "The Contemporary Mosque," in The Mosque Political, Architectural and Social Transformations (Rotterdam: NAi Publishers, 2000) 61-68

#### Ismaili Center of Toronto

**Location** | Toronto, Ontario

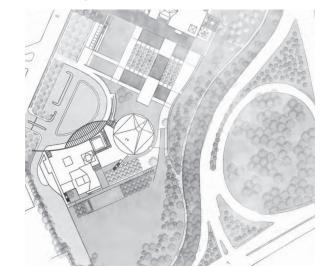
2013

Architect | Charles Correa Associates & Moriyama & Teshima Architects

Capacity | approx. 350

The Ismaili Centre, while still being a place of worship for the Muslim community, is not a traditional mosque. As the name infers, this building houses prayer and other programs for the Ismaili-Muslim community. The Ismailis are a sect of Shia Muslims that branched off from the other largest interpretation of traditional Islam, the Sunnis.<sup>01</sup> This happened following the death of the Prophet Muhammad (PBUH), following the passing of the Prophet, the Ismailis believed that the Prophet's son-inlaw and cousin, Ali was the true successor. The Ismaili tradition is to follow under their branche's leader the Ismaili hereditary Imam, the Aga Khan and his family, whose ancestry leads directly back to Ali. The Shia house of prayer is known as a Jamathkhana, and the Ismaili Centre is one of the largest in the Greater Toronto Area. <sup>02</sup> This building becomes a hub for the whole Ismaili

Aga Khan Foundation, "Ismaili Centre, Foundation Website, The.Ismaili, October 8,



| Figure 35. Site Plan of Ismaili Centre drawn by author after Gaber, T.

community to gather for public events and private religious rituals. The center also becomes a school, gallery and transition place for families taking their first steps in the new community. The Ismaili Centre also bridges the Shia community with the secular community with events such as academic lectures and political events.03 The Ismaili Centre opens its doors to the local people regardless of race, ethnicity or belief- and becomes a catalyst for social growth both within and outside of the Ismaili community.

The Ismail Center is situated on the site complementary to the Aga Khan Museum, who both have the same patron the Aga Khan. The orientation to the qibla is justified in the round prayer hall that uses pure geometries to orient the inner layout towards the NE direction of the qibla. The central area of the building acts as the welcome and gathering space where large congregations of people can come together during social events. There is a large open story space placed in the center of the building allowing natural light to envelope the space. Sky lights and open-story windows are used many times in locations to allow the natural light to wash the walls with soft ambient lighting. The southernmost program is the lecture hall, which takes advantage of the southern sunlight with a completely transparent glazed wall that wraps the hall and floods light into the space. The more private educational rooms, both used for classes for children and meetings for adults are located on the western side of the building. The administration areas used by the Ismaili community leaders are located on the upper floor tucked away from the social and public areas. Procession is fundamental to prepare the users with a series of thresholds each to embed

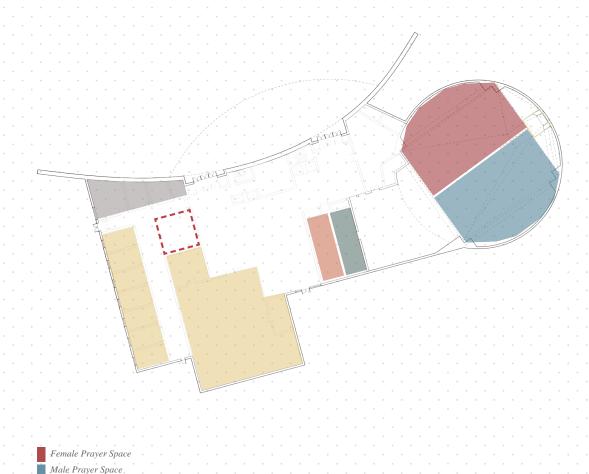


Figure 36. Plan of Ismaili Centre drawn by author after Gaber, T.

Male Washroom and Ablution

Offices, Cemetery & other programs

Female Washroom and Ablution

Multi Use Space

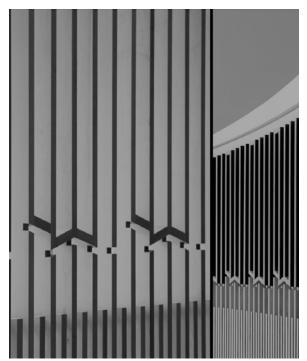




Figure 37. Screen Wall- With Arabic Calligraphy photo from Ismaili Centre
Figure 38. Threshold to Prayer Hall photo from Ismaili Centre

themselves in a different level of ephemerality of the space, the final stage in the process ultimately leading them into the prayer hall.

The plan of the building is organized based on programmatic layout. Similar to the importance placed on procession and approach to the building, the same emphasis on controlling the path is used in the interior. A religious user would approach the space and be directed through the lobby to the change rooms and into the prayer hall to the north east, going through a series of thresholds that begin to compress as they arrive at the final gathering space before the prayer hall opens up to the final reveal. The prayer hall itself is divided right down the center to accommodate both men and women, providing equal and ample space for both.

For a user who is there for a public or more secular, social, or educational reasons the south western portion of the building is activated. The class rooms and academic lecture hall are all located on that wing of the building.

Although the building plan has such a divided and clear separation of program, the shift between the programs is seamless because of the transition/multifunction space that ties both religious and secular programing together. The lobby hall and atrium area acts as a central space, housing post prayer gatherings, art exhibitions and social events whenever needed. Approach and ritual are intertwined in this case, one informing the other. The architect takes into account the process and the user, understanding the needs of each stage in the progression through the space and allowing each space to respond to the needs of that step. This is done for both the secular and religious users, allowing the program to adapt to the needs of the user themselves.

Program is once again instrumental in making this building successful in integrating into the social fabric while providing for the religious needs of the community. Similar to the Al Salaam mosque becomes an education and cultural center, for both the religious and





Figure 39. Entrance photo from Ismaili Centre

Figure 40. Prayer Hall photo from Ismaili Centre

secular society. The class rooms are used on a daily basis for all ages to learn about Islamic teachings while the main gallery space is utilized for cultural exhibitions and performances. The lecture hall is a unique element in the building that is only seen in buildings that have the funding to be able to afford it, but adds a lot of value to the building as it becomes a prestigious space for keynote lectures, high formal gatherings and political events to occur.

As a standalone building one may not perceive it to be a mosque, or even a religious building, a passerby would only read it to be a well done contemporary space. It is only through further examination and use that a person is able to read into the detail and craft to see the Islamic traditional geometry being represented. Calligraphy is also decorated

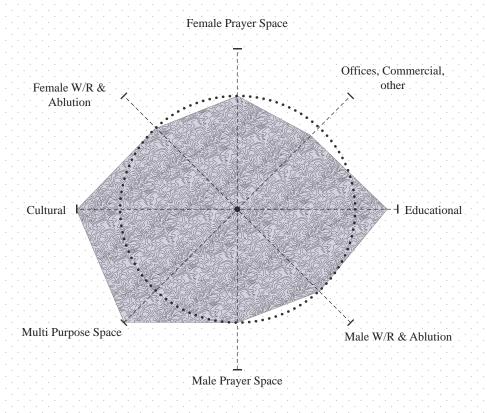
abstractly throughout the building, it is left as an open ended understanding- abstracted to the point of being art more then Arabic characters. Each person who experiences the space reads it in a different way, for a Muslim who understands and knows the Quranic Arabic langue they are able to understand the message behind the text, but for a non-Muslim the text reads as complex art conveying scariditiy in its attention to craft and detail.



Figure 40. View from across pond photo from Ismaili Centre

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## programmatic analysis diagram





Ismaili Center

gure 41. coorammatic analysi

Programmatic analysis diagram of the Ismaili Centre, here it is clear that the success of this building programmatically speaking, is due to the fact that the diversity of program and how they come together on the site. The social and religious both thrive in each aspect of the program, from prayer to education.

drawn by author

#### Noor Cultrual Centre

Location | Toronto, Ontario

**Year** | 2001

Architect | Raymond Moriyama
Capacity | approx. 150 people

The Noor Cultural Centre is one of the leading examples of forward thinking programmatic development in the Muslim community of Toronto<sup>01</sup>. Their mission statement is as followed:

We aim to be a center for Islamic practice and learning, and celebration of Islamic culture, while respecting the diversity in peoples and religions as directed by the Qur'an [49:13]; and in pursuance of that goal: to promote the sharing of knowledge and wisdom in a spirit of humility and respect; to foster an appreciation of the diversity and beauty of the cultural heritages in the world of Islam.<sup>02</sup>

"Toronto Mosque Promotes Gender Equality, Interfaith Conversations," Global News,
"Noor Cultural Centre, About Us," accessed November 20, 2019, https://noorculturalcentre.ca/about-2/.



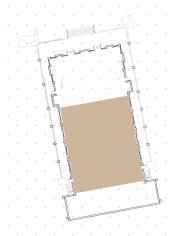
Figure 42. Site plan of Noor Cultural Centre drawn by author

058

As stated their building houses some of the most diverse social outreach programs while trying to foster a richer environment for the both men and women within the Muslim communities. The building itself is a retrofit of the original Japanese Canadian Community Cultural Centre- done by Raymond Moriyama. Noor in Arabic directly meaning 'light' is one of the key themes carried throughout the building. The original architecture firm was reassigned to do the renovation so that the original essence of the space was not lost, but only transformed to reflect the realm of Islamic architecture. Subtle alterations to the façade through the use of wood screens to disrupt the light gave opportunities to implement Islamic calligraphy while not requiring heavy renovations. The building was also slight altered on the interior to accommodate the new prayer room, ablution rooms, wheelchair accessible washroom, children's area, caretaker's suite, resource center, barrier-free ramp, and elevator.03

On a macro scale the Noor Cultural Centre is the third building in the Wynford area that is an Islamic building. Located in the center of a commercial/residential neighborhood the Noor Cultural Centre is tucked away in a slight topographical inset that isolates the building from all the noise and external business of the highway and streets. Landscaping is used to further buffer the building from the exterior and create a more intimate site. The parking is located adjacent to the building and the site is directly accessed off the main street. Due to the urban setting the landscaping is the key to create the more spiritual atmosphere required in a sacred place, this is vital in the area directly across the qibla wall. The gibla here opens up to a parking lot and high-rise

"Noor Cultural Centre About IIs







Offices, Cemetery & other programs

Multi Use Space

0. 5. 10

Figure 43.
Plan of Noor Cultural Centre
drawn by author after Gaber, T.

residential buildings therefore to give it the more ephemeral quality local trees are used as a barrier between the urban infill and the qibla wall.

The ideology of non-segregation of men and women in the prayer hall is what connects the building to the programmatic intentions of the mosque. As previously mentioned this is one of the handfuls of Muslim worship places that believe in women empowerment, 01 from leading the prayer sermons to heading up the board of trustees that lead the foundation. The majority of the space is centered on the prayer area that is multi-functional and opens itself to the adjacent hall to be able to house community events. The kitchen is also located adjacent to the prayer hall that doubles as an event space and allows food permeation to take place on site. The other auxiliary spaces fall on the northern half of the building.

"Toronto Mosque Promotes Gender Equality, Interfaith Conversations." but at the Noor Cultural Centre women and men pray together.",



Figure 44. Architectural Detail from Retrofit. The screen wall highlight how simple wood strips are able to play with light and transparency.

photo from Noor Cultural Centre

060

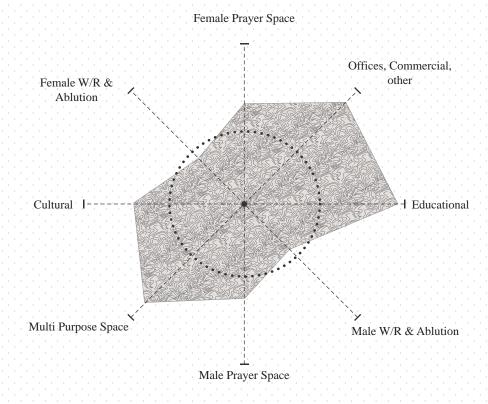




Figure 45. Architectural Detail from Retrofit . Previous ornamental detail abstracted a simple minaret or beacon.

photo from Noor Cultural Centre Figure 46. Prayer Hall highlighting both the men and women prayer rugs, equally divided and placed together side by side photo from Tammy Gaber

# programmatic analysis diagram





Noor Cultural Centre

Figure 47.

Programmatic analysis diagram of the Noor Cultural Centre, here the breakdown being to illustrates the importance put on the cultural and multi purpose spaces. The prayer hall is shared equally between the men and women and serves the community for their day to day prayers. For the larger prayers the MPU space can be re-purposed for prayer. drawn by author

#### Sancaklar Mosque

**Location** | *Istanbul, Turkey* 

**Year** | 2013

Architect | Emre Arolat Architects

Capacity | 311 people, 700m<sup>2</sup>

This project is located with-in the landscape that is isolated from the suburban gated communities of Istanbul. The site is defined by the large walls that run the perimeter of the site and define the boundary where chaos is left behind. The wooden oak canopy stretching out from the landscape becomes the main integrated element between the architecture and place- the building entrance is located under the canopy and blends into the topography of the site. The site of this mosque becomes the initial threshold through which the user is transported through to enter into the sacred.

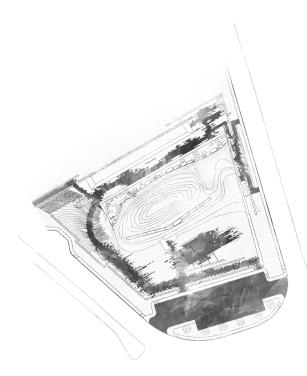


Figure 48. Site Plan of Sancaklar Mosque drawn by author after Emre Arolat Architects

062

The site for this project was a key design element. The architect plays with the integration of the existing elements and takes advantage of the gravity a place can have on the overall experience within. The white pattern in the stone landscaping indicates the tiles that create the path a user would walk to enter the mosque. In turn the mosque itself from the outside becomes a public park before a sacred space. In the plan the prayer space can be shown, this is one of the first mosques in the region to integrate the women's prayer area beside the men. The architect shows care for design by leaving room for the women's space adjacent to the men's and only separated with a screen wall. The use of architectural elements as the two thick walls at the entrance of the prayer space helps enforce the ideas of journey and threshold while allowing separate entrances for both men and women. 01

Light is a key architectural element at play here. By creating a hidden cove light, the architect connects the users to the outside while still being underground. The light washes the concrete wall creating a different atmosphere at different times of the day. This light wall physically manifests the connection to heaven as the light floods in during the day. Light also acts as the axis mundi within the Qibla wall, signifying further the ephemerality of the sacred place, that is dynamic and changes day to day based on the position of the sun.

The prayer room is a space that is a perfectly crafted experience. The architect is able to integrate light and materiality to create a sort of metaphysical environment. By reflecting the topographical lines from the site into the ceiling plan the architect brings the landscape into the interior as well. The prayer hall seems to feel

Philip Jodidio and Suha Ozkan, Emre Arolat Architects: Context and Plurality (Rizzoli International Publications, 2013).

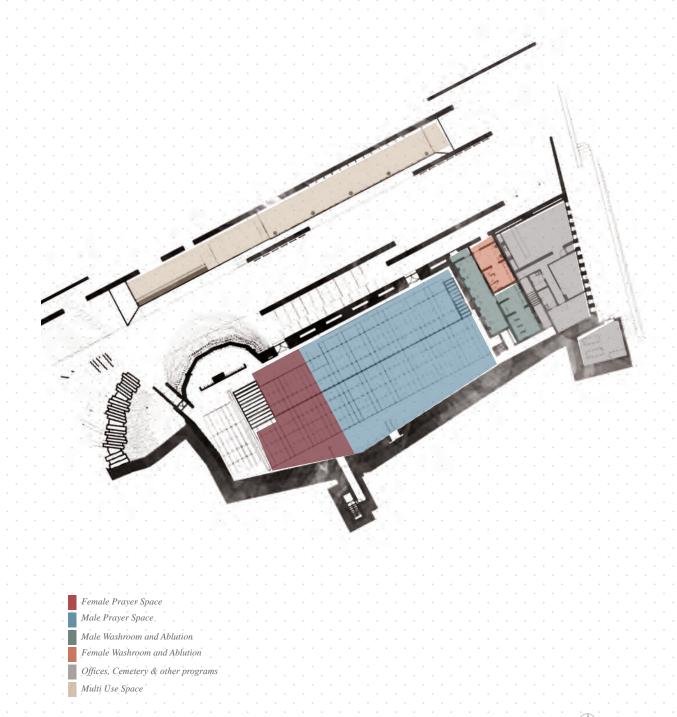


Figure 48. Plan of Sancaklar Mosque drawn by author after Emre Arolat Architects



atmospherically light and soft despite the use of heavy concrete and stone materials. The architect uses the site's natural conditions to inform the material palette that allows the building to not feel out of place or obtuse in any way.

The landscape is an integral part of this building. The careful attention to place allows the land to become an architectural element- a liturgical threshold for guiding the users into the sacred. The landscape also acts as the design principle that formulates the language on the interior of the space tying the building into the site physically and metaphorically.



Figure 50. Prayer Hall photo by Emre Arolat Architects Figure 51. Landscape photo by Emre Arolat Architects Figure 52. Entrance photo by Emre Arolat Architects

064



Figure 53. Tectonic Details photo by Emre Arolat Architects

## programmatic analysis diagram

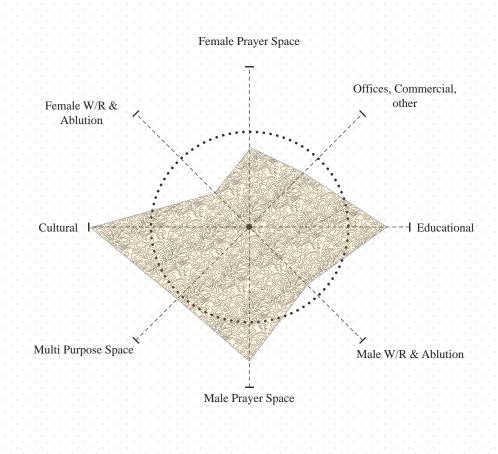


Figure 54

Programmatic analysis diagram of the Sancaklar Mosque, the success of this building comes from the architectural and tectonics of the building. The program here lacks in terms of female prayer space compared to men prayer space. The allocation of space is then given importance to the cultural and educational programs to help the building better integrate itself in the secular social fabric.

065

drawn by author

foot print of building

Sancaklar Mosque

#### Altach Cemetery

**Location** | Altach, Austria

**Year** | 2012

Architect | Adolf Bereuter, Nikolaus Walter, Peter Allgauer,

Bernardo Bader, Azra Aksamija

Capacity | 100 people

The main program of this site is to function as a place for the dead, but this building is important to study because the architectural elements and philosophies in the prayer room are fundamental to designing a building that is sustainable both environmentally and culturally. The interior design of the prayer room is done by designer, Azra Aksamija- and it is through her ideology that we can begin to understand how to ground Islamic designs in craft and place. <sup>01</sup>

The site plan shows the relationship between the graveyard, cemetery and the prayer room. The architects stressed the importance landscaping plays in a place for the dead.

01 Azra Aksamija, Mosque Manifesto: Propositions for Spaces of Coexistence (Istanbi

TR: Revolver Publishing, 2015)



Figure 55. Site plan of Altach Cemetery drawn by author by architect

The footprint of the prayer hall and gathering space is repeated to create the layout for the graveyard<sup>02</sup>: metaphorically connecting the users who pray with the after life. The cemetery can accommodate approximately 700 graves and is the second Islamic cemetery in Austria.

Geometry is a key architectural element in all the spaces in this building. The architect utilizes traditional wood joinery along with vernacular building materials to create these geometric wood screens.<sup>03</sup> This gives the local builders and users a sense of identity and oneness with the building as a whole.

The shingled qibla wall, designed by Azra Aksamija is the main feature element in the space. The wall is composed of a three layer steel mesh with wood shingles in-between to catch the light in different ways. The qibla wall represents the symbolic connection through the material choice and local building traditions as well as Islamic religious architecture. He is able to capture the moment of hybridity in a single frame using light, craft and religious symbolism. The carpet is also a local craft made by local artists and weavers to represent the gradient of light entering the space.

It is important to note the simplistic design of the prayer carpets, this is a key design element that helps the people praying focus. A common mistake is to over complicate the design to try and mimic traditional ornamentation but this usually causes carpets that distract from prayer.

The plan of the building shows the arrangement of the programs again. In this diagram we can see the hierarchy of programmatic distribution. From least sacred to most sacred towards the qibla wall.

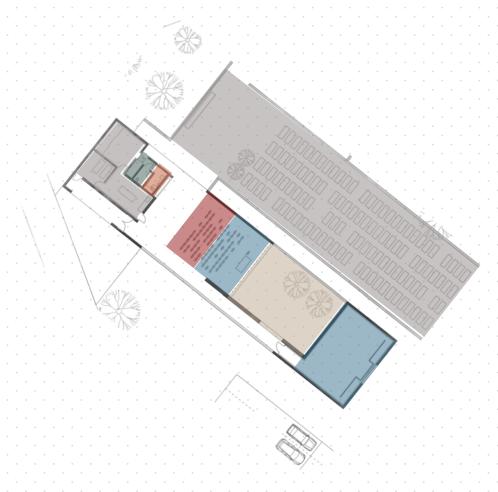






Figure 56. Plan of Altach Cemetery drawn by author after architect

<sup>02</sup> Azra Aksamija, Mosque Manifesto: Propositions for Spaces of Coexistence (Istanbul, TR: Revolver Publishing, 2015)

TR: Revolver Publishine. 2015).

Azra Aksamija, Mosque Manifesto: Propositions for Spaces of Coexist

Azra Aksamija, Mosque Manifesto: Propositions for Spaces of Co Revolver Publishina, 2015)







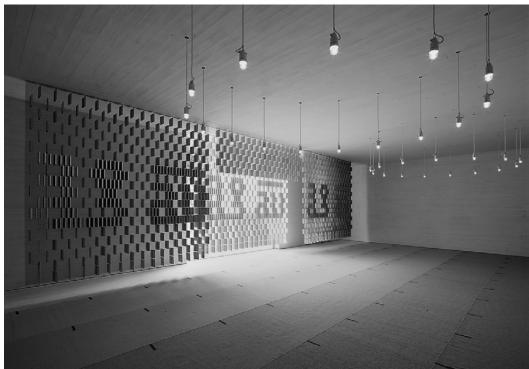
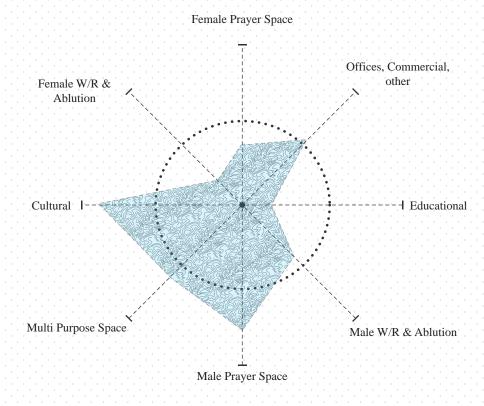


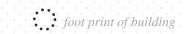
Figure 57. Landscape photo by architect Figure 58. Entrance Threshold photo by architect Figure 59. Prayer Hall photo by architect

068

Figure 60. Tectonic Details photo by architect

# programmatic analysis diagram





Altach Cemetery

Programmatic analysis diagram of the Altach Cemetery, the diagram begins to highlight how the foot print of the project is distributed. By reducing the washroom area they are able to minimize the footprint but still allow for maximum cultural and multi purpose space. drawn by author

synthesis

The case studies analyzed begin to layout the limitations and design guidelines that define what makes a western mosque successful in their local community. The program diagrams help visualize the relationships between each program and how to begin to balance each program in relation to the footprint of the building itself. The case studies also breakdown how architects create a vernacular language to define what Islamic architecture means to the community they serve.

The main underlying theme that allows the architecture to both; connect to the sacred but also be tied to the community is through the idea of vernacular traditional design. It is bridging the gap between contemporary design and traditional design. The architecture must take traditional design techniques and apply contemporary ideologies, for example, fabrication technology, new material products, modern architectural language etc.

The architectural language must stand as a symbol for the people of the community but as discussed before Islamic iconography is not fixed, it changes from region to region. One cannot staple a single culture's typology because it isolates and alienates the Muslims who are not from that given culture. The case studies explored tackle this issue by creating a new symbology, one defined not by the regions that people come from but rooted in the place they are currently in. This is done through understanding the place and the vernacular architecture of this place.

The case studies approach this understanding of site as a key design tool. Site places a major role not only in the scale and program of the project but the architectural tectonics and details as well. Landscape becomes

an architectural tool for these mosques, as orientation is a key design limitation. The architects use the orientation towards Mecca as the first design parameter and allow the building to form around it. The *qibla* wall becomes the axis mundi. connecting the users to the heavens above while the architecture forms shelter for prayer.

To test out the ideas proposed in this thesis, that is the need to create mosque spaces in western contexts that are more integrated in the lives of local Muslims and non Muslims, I will propose the design of a mosque complex in Sudbury. This breaks down to developing a refined program for the thesis, and highlighting space allocation for each program based on the needs of the community in Sudbury. Furthermore, material and tectonic studies need to be done to develop a new Islamic-Canadian language for Sudbury. Through using local materials and building techniques that are rooted in traditional indigenous knowledge along with Canadian building culture. Then bringing these together with Islamic design strategies, such as geometric design, traditional architectural elements and Islamic religious teachings. Through this synthesis of architecture and program based on the precedents studied a new Sudbury-Islamic architecture can be formed.

"Architecture is bound to situation. And I feel like the site is a metaphysical link, a poetic link, to what a building can be."

-Steven Holl

# Program development

Program development begins at the precedent research stage. Through the program diagrams done for each case study a set of patterns emerged in terms of program layout in relationship to footprint of building and site. Taking this information and how each precedent was successful and unsuccessful, I can apply these factors to the project site. Applying these limitations helps the architecture to begin to take shape and inform programmatic decisions.

The following diagrams are proposed program diagrams, each proposal takes a different approach and puts emphasis on a different set of programs. The goal is to visualize the program layouts in relationship to each other and the foot print of the site.

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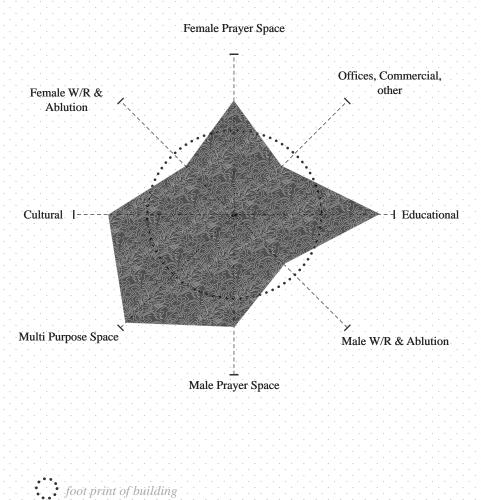


Figure 62. Proposal 1

An MPU focused program with emphasis on education and cultural activities. Sacred program area is smaller but has potential to over flow into the MPU and educational areas when needed.

done by author

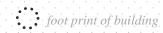
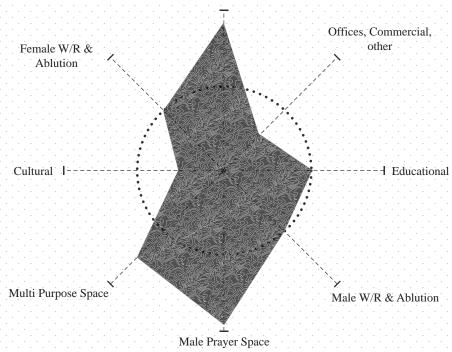


Figure 63. Proposal 2
A secular program is emphasized with religious programs falling on the peripheral. Allowing for a easier integration for the secular and community aspect of the building but begins to neglect the religious aspects.

done by author

Female Prayer Space



077

foot print of building

Figure 64. Proposal 3

A religious orientated building with all other programs being smaller in scale, allows for a grand sacred gesture but poor integration into the secular community. done by author

## Final program

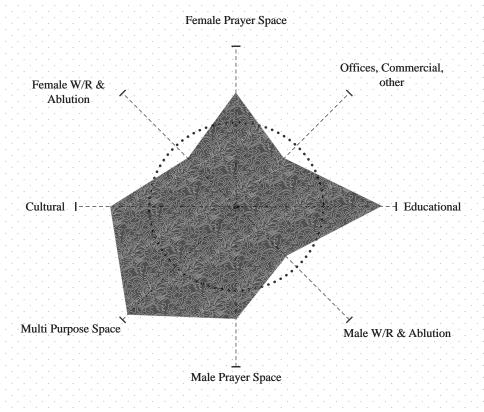
This is the final selected program breakdown. The choice was made in the clear understanding that social, secular aspect of the program takes up 2/3s of the community the thesis is targeting. Both the Muslim community and the secular community would need the multi purpose space and education facility.

This program break down allows for the religious space in the building to stand alone, independent and sacred, while still allowing there to be a over lap into the MPU/educational spaces when needed. The goal of this program selection is to create an atmosphere of continued use and integration into the community as a whole.

To be able to activate the site at all times during the day there must be a range of programs that tend to the widest range of people. This would allow the religious aspects of the building to be expressed in an open and inclusive environment. This means of expression and education would help teach both the secular community about the religion and also the Muslim community trying to understand their own roots and culture.

The building itself becomes a tool of expression and inclusion. The exact program is as follows:

- Prayer Hall
- Courtyard
- MPU/Gym
- Cafe
- Classrooms
- Cultural Exhibition Room
- Interactive Green Wall
- Kitchen
- Outdoor Patio
- Mens Ablution
- Womens Ablution
- MPU Garden
- Water View Garden
- Education Centre Garden
- Mosque Garden





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Figure 65.
Final program diagram done by author

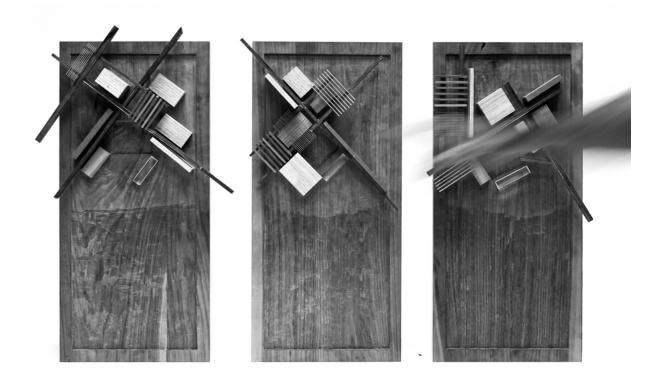
## Site & Programmatic Analysis

The following parti models are a study done to understand the site through program and synthesize the information derived from the case studies that were deconstructed. Utilizing the information from the programmatic diagrams a scale of each program was assigned as massing blocks and then arranged on the site using three different design strategies. Each design strategy takes into account standard passive design, site orientation and the city context as a whole.

Ultimately these become abstract models that allow for open interpretation while allowing me to work through ideas of user pathways, scale of building and program layout.

The models themselves are a scaled areas of the building site, where the paths are highlighted and the buildings become masses in proportionate scale in relation to the selected programs.

These models also begin to experiment with properties of light and shadow, playing with screens and openings to curate the atmosphere within the sight. The goal is to use these screens to create spaces of pause and wonder, while also utilizing them to curate movement of the users through the site.





Hand carved models of the site, made of various hard woods composed together with acrylic to represent the sacred. Each playing with materiality and craft along with light and massing. Applying these architectural elements on to the site and creating moments through making. done by author

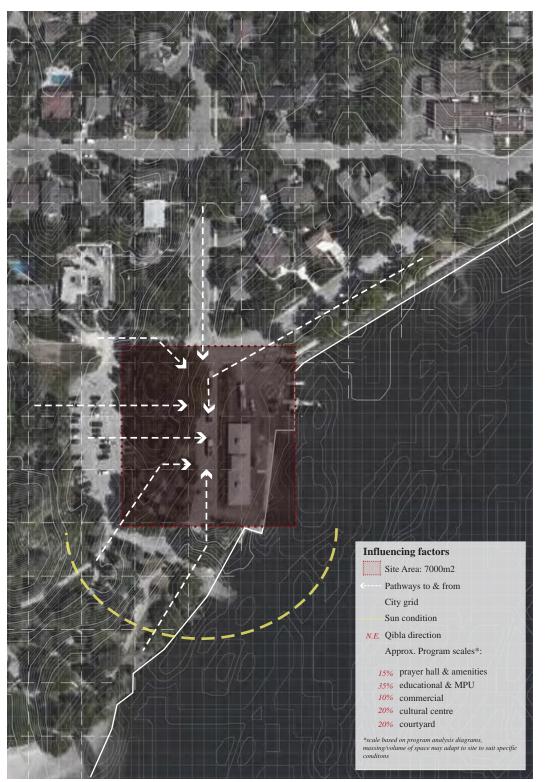


Figure 67.
Influencing factors site plan, laying out the detailed elements that will come together to form this campus of buildings. The factors effecting the design are, site area, pathways to and from the site, city grid, weather patterns, Qibla, and scales of each program based on the program diagrams.

drawn by author

## geometry & mass

The site organizes itself around the scale and proportions of the programmatic elements. The paths are laid out around these masses and fall where the main entry points and access areas are for the site. Attempting to situate programs that would need to be together in a seamless fashion. Allowing the multi-purpose space to fall furthest south with education bridging the gap between the sacred program and the secular.

Conflicts with this iteration are the fact that it is in contrast to the layout and grid of the city. The lines of the path do not integrate well with the city grid, and make the building stand out on the macro scale.

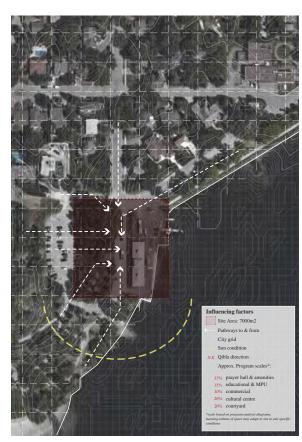


Figure 68.
Influencing factors site plan drawn by author



Figure 69.
Geometry & Mass
made by author

## procession & use

The site here is driven by the user and the paths they would take based on their programmatic needs. Secular and religious users are both taken into account and each path is laid out and then the building masses fall along the edges of the paths.

Although program is responding directly to the users and their movement through the site the layout becomes erratic and does not integrate well with the city grid or the buildings themselves.

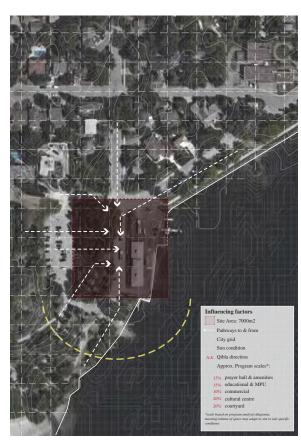


Figure 70.
Influencing factors site plan drawn by author



Figure 71.
Procession & Use made by author

### orientation

This model beings to use orientation and ordnance as key driving factors. The main entry points here are rooted to the city grid and allow the remainder of the pathways to integrate to the direction of the qibla. The buildings being to accept the directly vertical/horizontal lines but can still be pushed further to rationalize themselves with the grid of the city. Based on the case studies we can being to see possibilities where the qibla direction is justified within the prayer hall which allows it to become the sacred and unique element in the building.



Figure 72.
Influencing factors site plan drawn by author



Figure 73.
Orientation
made by author

# Collages

These collages are a series of initial ideas done during the early stages of the conceptual design. Each representing a different moment trying to be captured. The individual images are playing with layers of light, materiality and exploring different spacial qualities such as views and landscape.

As seen in each collage the atmosphere trying to be represented is one of integration to the land. The large walls framing views of the landscape also begin to curate movement through the site and how a user engages with the environment. The idea is that these large landscaped walls become apart of the landscape, tying the architecture to the site.

Another key element being captured is the use of light as a design tool. Light and shadow both play hand in hand in creating moments of ephemarlity. Through the curration of light through windows, screens and openings, the architecture becomes alive. In Islam all the prayers are based on the movement of the sun, hence it stands that a mosque should respond to that connection. By designing these perforations the building creates a conversation with the sun light, further rooting it ins landscape.



Figure 74.
Threshold
made by author



Figure 75.
Framing Site
made by author



Figure 76.
Light and Screen
made by author

"My hand is the extension of the thinking process - the creative process."

-Tadao Ando

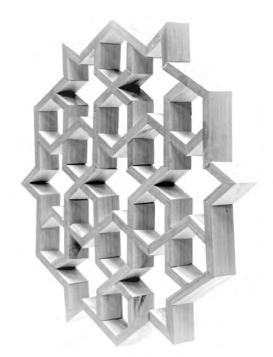
# Defining the Vernacular

As discussed in the previous sections, Islamic architecture has no icon or symbology. Therefore the Islamic architecture is then defined by the given region and their vernacular building techniques and art. For this thesis it is vital to begin to define a new Islamic-Sudbury vernacular, one that is informed both by traditional Islamic ideologies and the local vernacular. This following sections speaks to craft and tradition. Along with how the act of making can begin to define the Islamic architecture of this project.

In a site like Sudbury, the bridging between the Islamic and the local happens at the cusp of materiality and building techniques. Using local materials like wood and local indigenous building techniques like joinery, bending, and hand carving- I can look at the traditional Islamic elements such as geometry and calligraphy through a new lens.

The integration of the two typologies does not only occur in the final product or design, it happens through the process of creation. The traditional building techniques of Northern Ontario are not simply about the final object, it is about the making of the object. From sourcing the material and understanding the embodied energy to the means at which it is used.

This is why the process to create the objects through out the design are as well documented and as important as the final objects themselves. The objects each begin to inform an architectural approach and language that will define the final building.



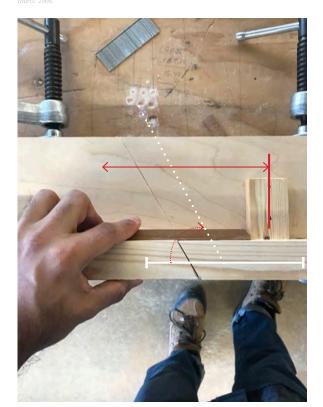
This geometric module was the first of the built projects. The exploration began in the 2-dimensional world, with explorations in drawing Islamic geometry. The goal of the exercise was to establish an understanding of the role geometry and numbers play in Islam.

Numbers in Islam directly relate to Islamic teachings. They begin to express narratives from the Quran or other Islamic text. By using these numbers an architect can tell a story or express a message through their art. <sup>01</sup>

Geometry in the traditional Islamic world was about ornament and decoration, to add this layer of expression to the architecture. This design build was done to see how the traditional geometric pattern can be re-investigated and innovated upon based on the building techniques of Northern Ontario.

This piece is done by taking a traditional 8 fold pattern and fabricating it through a hand cut,

01 Rendell, Jane. Art and Architecture: A Place in Between. London, New York: I.B.



| Figure 78. | Adjustable jig for cutting lap joint pieces | made by author

lap joint technique (very common in traditional building). The 8 fold pattern was selected because of the narrative tied to the number 8. It is said in the Quran that a Muslim would stand infornt of 8 gates of heaven before entering. This story will be reiterated throughout this thesis project as an underlying theme through the use of this pattern.

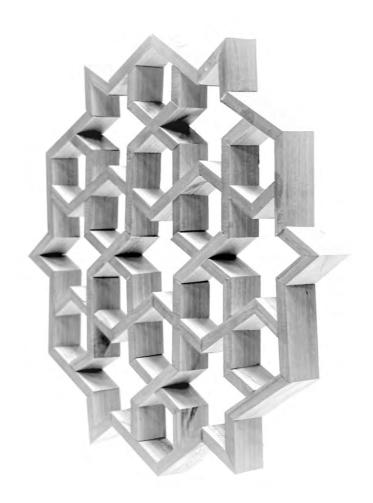
A jig was created to be able to measure and hand cut all needed joints. The jig was adjustable so that every cut was to able to be done with zero waste.

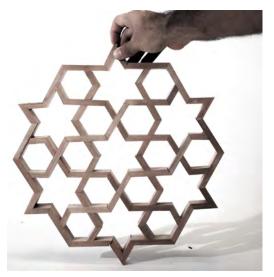
This lap joint piece takes the traditional 2-dimensional geometry and expresses it through the lens of Northern Ontario building techniques-by using this form of joinery method of fabrication but also the materiality (cherry wood).

As an exploration I was able to take away key ideas of abstracting and how a designer can begin to merge multiple realms of design and create a new language of architecture.

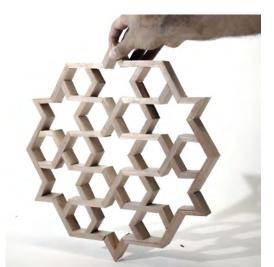


Figure 79.
Photo of lap joint pieces
made by author









The second iteration to this was actually a larger element which began to integrate laser cut technologies and Arabic calligraphy the letters framed here make the word Layl which is night in Arabic. This piece was made from traditional bent wood techniques and the interior was a laser cut a pattern for the 8 fold star. The goal was to innovate on both the bending construction method and traditional geometry by introducing the laser cutter and integrating both. The ultimate intention would be these inform a piece of the architecture in the final building.

The process in this design build was intensive and required a lot of preparation. The key to be able to build a bent wood project was the

wood selection, wet/dry time and an adjustable jig. The wood used here is a Black Walnut, for its hard wood qualities while still maintaining a soft grain structure. The wood is left over night to soak and absorb water, creating an elastic nature to the wood. The jig itself is made of small wooden brackets that are adjustable to allow an flexible assembly to suit new curves.

The difficulty in this assembly was where the laser cut pattern and the bent wood came together. The tolerance on the bent wood did not integrate well with the human touch in the bent wood ribs.









Figure 81.
Process photos of bent wood construction made by author







Figure 82.
Photos of final artifact made by author

A key contemporary technology available to us today is the computational power of parametric design. As discussed before, geometry is a key part of Islamic art, but the limitations of the past restricted what was possible in terms of fabrication.

By using the tools at my disposal I was able to create a new form of 3-dimensional representation for the 8-fold pattern, in the form of a screen system. This screen is an aggregated pattern modeled in the digital realm and then coded in Grasshopper to parametrically offset to be able to create a 3d form.

This screen system is not a literal architectural abstraction. It is an exploration of architectonic detailing and an attempt to refine a methodology for creating a new vernacular.

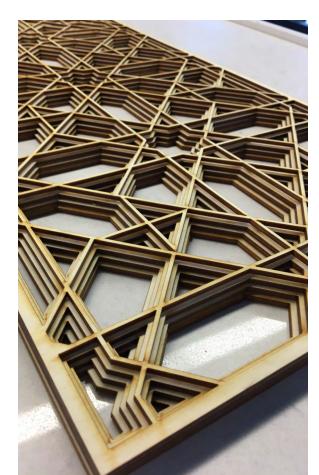
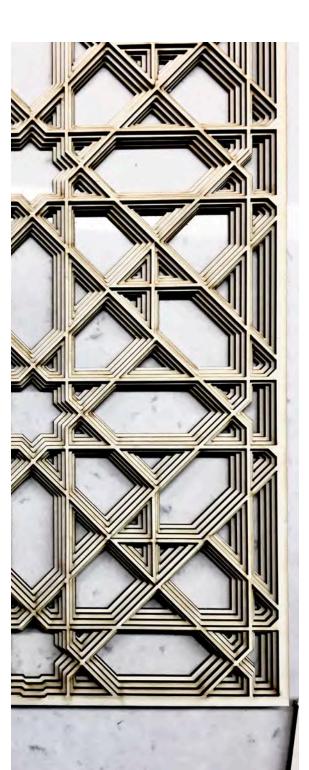


Figure 83.
Final photos of parametric screen made by author



This bent wood built project was an exploration of the bending properties of wood, Black Walnut in specific and how they could begin to form a qibla wall system. Inspired from the original bent wood project.

By taking the linear plane and twisting it we can play with light, while also adding a layer of structural resilience in the compressive nature. The bent screen also creates depth and variance in the wall, curating views and moments where the people passing by the wall can see selected scenes in the landscape.

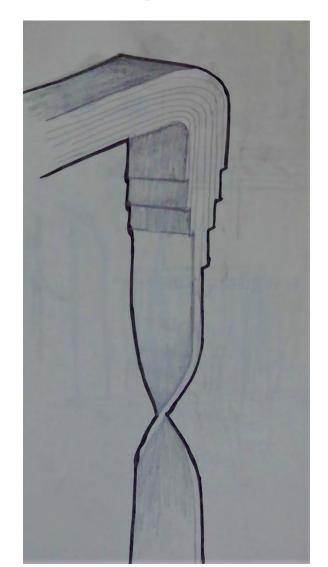


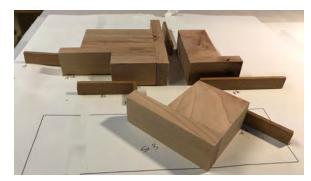
Figure 84.
Sketch of bent screen wall turning into a structural element done by author



Figure 85.
Final model of qibla panel wall done by author

I finally arrived at the massing you see here. The buildings are arranged around a central courtyard that all paths lead up to with the qibla wall facing onto the lake. The only element that breaks the grid of the city is the sacred space giving it a sense of individuality.

The plan of the building begins to show





Process photos of the carving process made by author

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the elements of the site and how this project really becomes about curating the moments on the landscape.

The site is organized as follows, the educational elements are the north mass, closer to the road for pick up and drop off purposed and they receive the most ambient northern light for longer working periods.

The southern area being the commercial social section being closest to the water and directly off the Ramsey lake pathway allows it opens the site up to the lake and provides ample southern light.

And finally the sacred mass behind located in orientation to the Qibla, or mecca and is the only element in the design that breaks the city grid.

We can being to see the relationship between these masses and how the intersection in the site is a vital element that needs to the designed. This moment here becomes the central hub in the architecture. The moment where all paths converge and is designed as such.

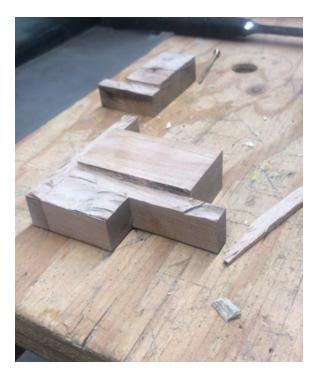




Figure 87. Process plan made by author



Figure 88.
Refined massing model. Top view made by author





Figure 89.
Photos of refined massing model made by author



Figure 90.
Cafe Patio perspective
made by author



Figure 91.
Approach from western parking lot perspective made by author



Figure 92.
Gym Garden Perspective made by author



Figure 93.
Perspective of central courtyard made by author

"Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses"

-Juhani Pallasmaa

### The Final Design

Sacred architecture above the rest must be an experience of all the senses, the individual becomes the vessel the through which the architecture is realized. As developed through the process of this thesis, the mosque evolves past just a prayer space for Muslims in a minority community. The role of a mosque develops into a community hub for social and educational programs for both the secular and religious people of the area. Rooted in the society for which it is designed, the proposed mosque bridges the gap between the traditional Islamic cultures and western society.

Developing further from the massing seen in the previous chapter, by rotating the courtyard and allowing the buildings to respond to the shift towards the qibla, each mass begins to open itself and become more permeable. The site organizes itself into three sectors; with each sector targeting a different program type.

The northern mass becomes the educational hub, this building houses three classrooms within an education facility. The educational programs hosted here range from Islamic classes for children to ESL classes for adults, ultimately responding to the needs of the community members. This facility also has an art exhibition hall and an interior green wall for interactive learning. The outdoor garden associated with this mass is a landscaped area for the users of the educational building. This garden has two sections for more intimate outdoor learning areas, it also has a larger garden section with planters so that the students can interact with and care for vegetation and learn in the process.

To promote diversity and cultural acceptance, a sacred space requires place for social interaction and large gatherings. Hence the southern mass becomes the social hub,

housing a multipurpose gym hall, along with a cafe. The gym interior naturally orients the viewer towards the Qibla with the gym atrium, reinforcing the program of over flow prayer area. The cafe opens itself onto the outdoor patio which looks onto the lake. The educational hub has an outdoor designed garden again, this garden uniquely designed to serve as auxiliary space to the interior gym. The planted and fountains become seating looking out onto the soccer area for kids to come out and enjoy during the warmer months.

Finally the eastern massing is the sacred portion of the project. This building is the only mass oriented towards the Qibla, NE. This gives the building a sense of individuality as the only sacred building on the site.

The massing of each building is tied together on the site through the use of rammed earth walls and gardens integrated in the landscape. Landscape design is used to stitch this building into place and feeds off of the vernacular on the site. The project uses these landscaped elements to give the outdoor public space back to the community.

This proposed project aims to critically tackle the issue of the role of mosques in contemporary western society; by providing the community with a campus of buildings, each addressing the various needs of that community. Every element in the project has been curated to allow for seamless blending of the three programs as to promote cultural diversity and integration between the Muslim community and the secular community. The building is allowed to be adaptable so that it can evolve in the future to respond to the needs of that community



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Figure 94.
Plan of final design
made by author

Figure 95.

Site composition Axo, highlighting the massing of each building in relation to the programmatic breakdown. The site is organized based on the program sub-divisions which were derived from the programmatic analysis diagrams. It is also clear that the courtyard element becomes the central point of the design, the converging area for all the programs. done by author

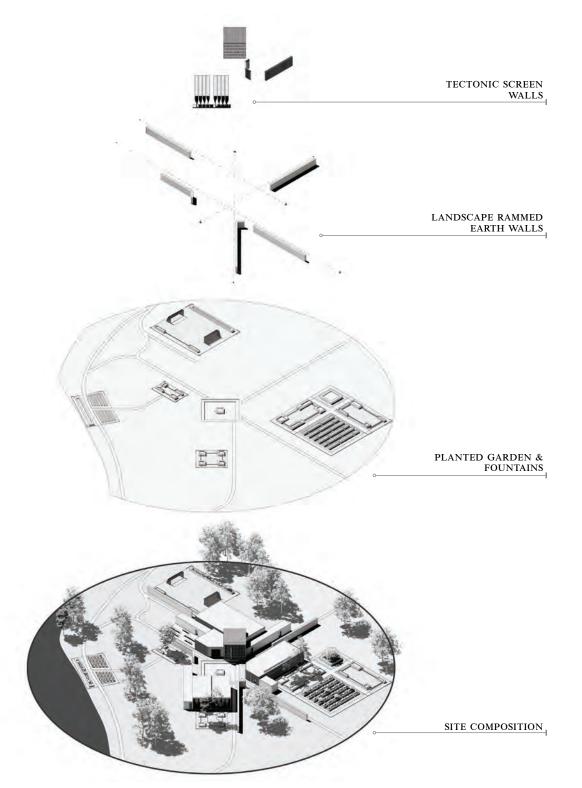


Figure 96.

Exploded site composition Axo, breaking down each major element used to curate the site. Each element here is uniquely designed to curate: light, movement, views, pathways and tie the landscape together with the architecture. done by author

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Site sections

This site Section highlights the relation of the Gym and mosque space to each other and how they sit on the site. The water elements here have been represented to show the importance that water plays in a mosque. This is because in the Quran heaven is described to be gardens flowing with streams of water underneath. Hence these designed gardens contain fountains elements that are interconnected with these streams of water.

"...they will have gardens in Paradise beneath which rivers flow." Quran [2:25]

This section demonstrates the picture of how both the social and educational buildings can begin to activate the site at all times. With classes and community events being held during the day even when prayers are not being held. During the day the classrooms can house secular educational programs for kids and during the night they can become continuing education classes for adults. The classrooms also become places where refugees and immigrants can come to learn about their new homes and meet people in the community that can help them get settled.



Figure 97.
Section facing West, cutting through the Gym and Education buildings done by author



Figure 98.
Section facing North-West, cutting through the Gym and Mosque done by author

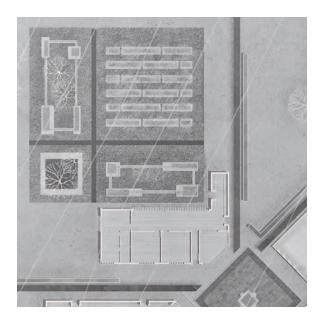


Figure 99.
Plan of Education Section
done by author

The educational section of the project plays a major role in activating the architecture throughout the day. As stated in Al Rashid Mosque: Building Canadian Muslim Communities, ensuring the building is being used at all times during the day, beyond just the prayer timings, allows the architecture to become truly unified in the community.01 By creating a building with class rooms the campus begins to act as a hub for both the secular and religious educational system. This building begins to act as a place of knowledge and learning. The key factor taking place is that the means of education must serve the larger community as a whole, and adapt to the situations based on the needs of the community at that moment. For example, when refugees enter in the community

01 Earle Waugh, Al Rashid Mosque: Building Canadian Muslim Communities (The University of Alberta Press, 2018).



Figure 100.
View approaching the garden bed done by author

this building can act as a place for them to learn about Canadian culture, and integrate themselves into the social fabric comfortably. Furthermore, it can house cultural programs for the secular communities to learn about the different people and where they are coming from, increasing acceptance and diversity.

Landscape design serves the educational and community aspects once again. Here the garden is designed as a larger landscape element, encapsulating multiple programmatic aspects, each meant to serve the educational program of the building. There are two fountain gardens, designed to be more secluded outdoor learning areas for classes to break out in and enjoy. There is a larger planter meant for independent working and lounging, and there is a large garden bed with planters organized to be used by the classes. Each bed

is meant to grow local species of plants and vegetation that can then be used both in the café or to take home when needed. This garden bed also acts as an extension of the interior green wall used to teach the children attending the school. Each bed is intended to grow local species of plants and vegetation that can then be used both in the café or to take home when needed.



Figure 101.
View approaching the educational building from the north done by author

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The exhibition hall acts as a tool to educate and increase diversity within the secular community of Sudbury. The arts and cultural sector of Sudbury has been on a rise since the opening of the school of architecture in the downtown. This exhibition hall becomes another addition to that growth. Acting as a place for displaying local art and talent, it begins to showcase work of all cultural and traditional backgrounds in a healthy manner. The exhibition hall itself opens up to the courtyard through this deep tectonic wall and provides views both in and out of the space. This hall becomes a place of overlap and permeation for both the secular and religious art and culture.

The interactive green wall is a secondary source of education and socialization. It is designed to be run and maintained by the students attending classes in the educational building. The hallway is intentional designed to be extra wide to promote social interactions. The wall itself is comprised of another tectonic wall screen that bleeds to the outside. The interior of the wall assembly makes up the framework for the vegetation, the older students are meant to curate the plants higher up the wall while the younger students maintain the plants closer to the ground. This wall creates spaces of learning and cross pollination of ideas as it promotes interactions between age groups, through a shared common activity.



Figure 102.
Cultural Exhibition Room

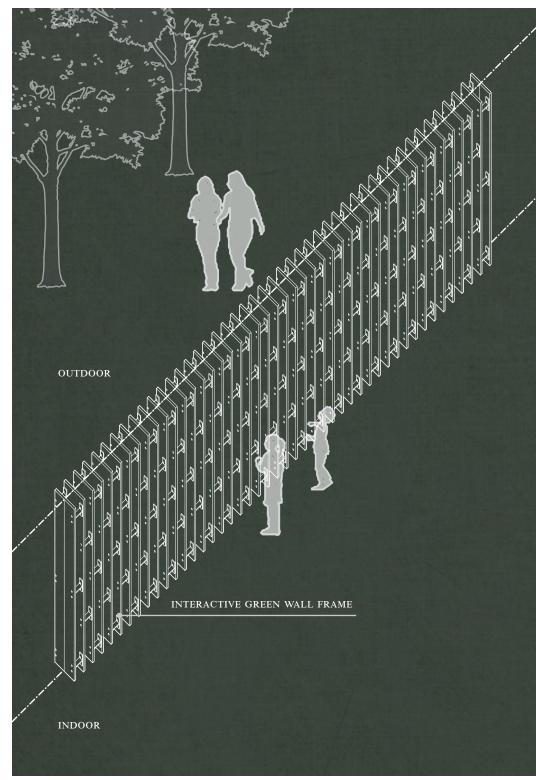
Here is a view of the cultural exhibition room and how it opens up to display the art to the central courtyard area. The idea behind this program is to have a place where people of different cultural background can express their roots and showcase their traditions. It would be a temporary exhibit changing on a regular basis, allowing both the secular and religious communities to learn about each other's cultures. done by author



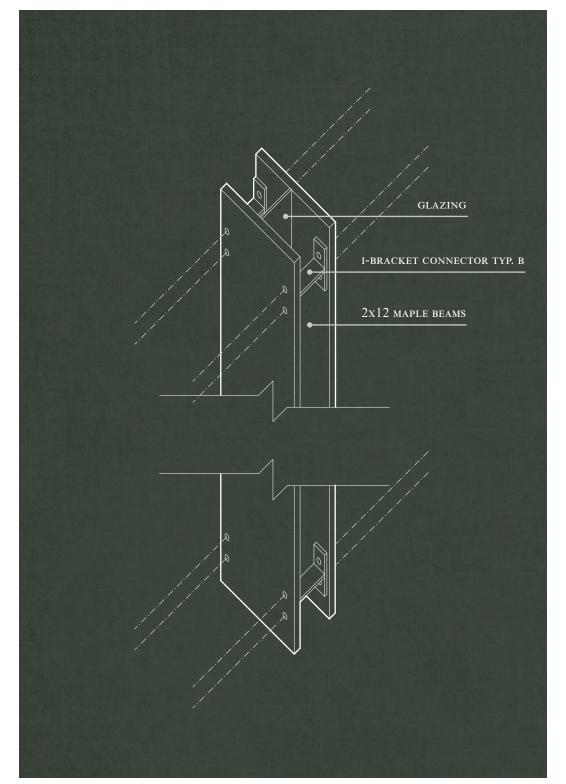
Figure 103.
Interactive Green Wall

This is the interior view of the interactive green wall and how the screen system bleeds from the outside to the inside to create that structure for the green wall. The youngest age groups can watch the older students work through ideas and learn directly from them as well.

done by author



| Figure 104. | Interactive green wall - Tectonic Screen Detail | The detail represents how the structure comes together to form both the facade on the exterior and the green wall structure | on the interior. | done by author



| Figure 105. | Interactive green wall - Tectonic Screen Connection Detail | done by author

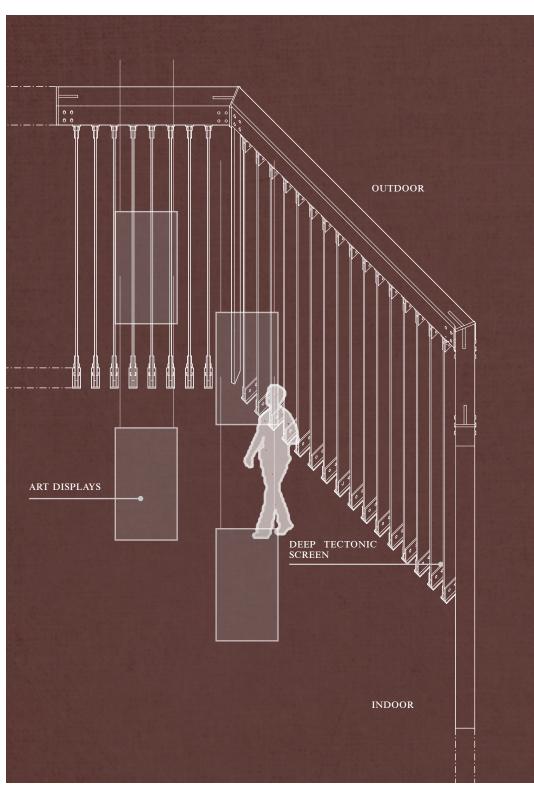
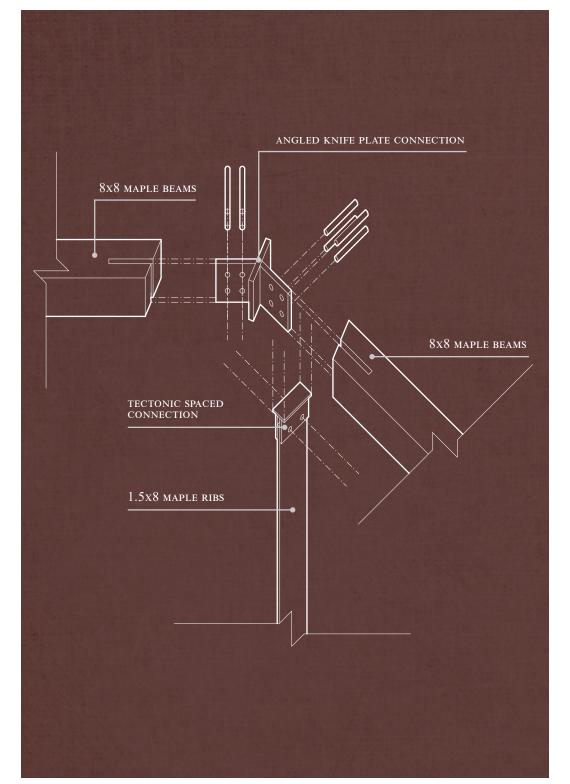


Figure 106.
Cultural Exhibition Room- Tectonic Screen Wall

This detail breaks down the tectonics of this screen system. The deep screens here are designed to shade the interior space from harsh lighting so the art pieces are protected from light damage.

done by author



| Figure 107. | Cultural Exhibition Room-Tectonic Screen Connection Detail | done by author



Figure 108.
Plan of Social Hub
done by author

The largest architectural elements on the site compose the social hub, this is the area where both secular and religious activities converge. The program of this space is to be left as open and adaptable as needed. The large gym space and the café kitchen work both hand in hand to provide the community with a hall for social gatherings, political events, parties and other large gathering events (both secular and religious). The outdoor elements here feed that aspect of multivalent programs, the outdoor garden element is a large field framed by the planter and fountain elements that are found on the rest of the site. The field acts as a place for games and sporting events for children while also being open enough to have picnics and other outdoor social events during the summer months. The café patio is an extension of the interior café, but is left to the user to adapt and



Figure 109.
Southern approach towards social hub

This view shows the relationship between the gym garden and the gym itself. The gym has a series of sliding doors that can be permanently open to allow the inside to spill out doors, during the summer months. Also it can illustrate how the landscape walls frame paths and views. done by author



Figure 110.
Southern approach towards cafe

This image expresses the intention of the cafe patio to become another adaptable yet intentionally designed space these benches are designed to be taken over by the user in their own respective manners.

done by author

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The gym itself is an open concept hall, so it can be used for social events and larger prayer gatherings. The ceiling is designed to orient the users towards the qibla. The subtle orientation is created by the ceiling grid and the tectonics of that assembly. The lines and timber framing in the ceiling are offset to a 45\* angle which orient the users attention toward the atrium hall which frames views of the courtyard and is facing the direction of the qibla. Furthermore, to compliment the idea of adaptable space and to feed the possibility of larger social gatherings there is also a

designed foldable stage that can be pulled out for shows and other community events. The gym is connected directly to the café kitchen allowing the facility to serve food during these events, such as Iftar (breaking of the fast during the month of Ramadan), or weddings.



| Figure 111. | View of the MPU space interior | Highlighting the orientation of the qibla framed through the structure in the ceiling | done by author

The atrium is the central point for the social mass; it is a space for both secluded activities and social gatherings. The screen wall on the exterior plays with the light while also applying the same architectural tectonic langue as seen before. This screen wall allows for the large glazed opening by becoming the structure on the exterior while also creating a dynamic tectonic façade. The water on the interior is to allow the building to still have a sense of this natural design element even in the winter season. The fountain also is a secondary means for evoking the sacred,

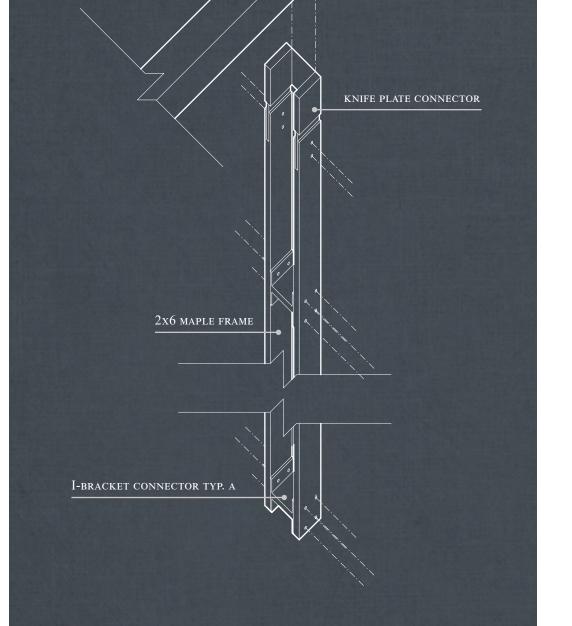
for when larger prayers are taking place. By placing it directly under the opening the water begins to play with the light and refract it, creating dynamic patterns on the interior of the space. These patterns are forever changing based on the position of the sun and the weather conditions on the exterior, creating a sense of ephemerality



Figure 112.

View of Gym Atrium

Expressing the way that the screen wall and fountain play with the natural light entering the space throughout the day done by author





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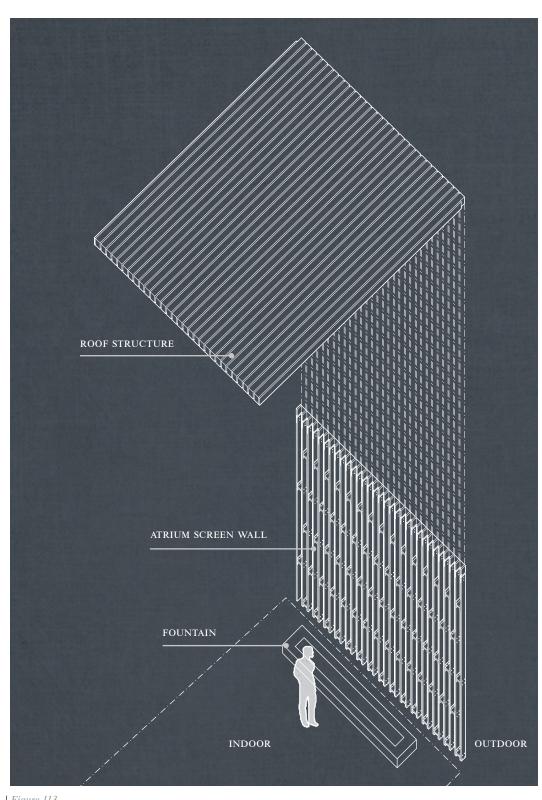


Figure 113. Atrium Screen - Tectonic Wall Assembly

This detail breaks down the assembly of the atrium screen and how this screen also relays the same architectural language while being unique and responding to the individual program of this space.

done by author

## Landscape

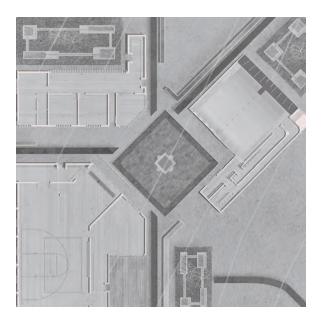


Figure 115.
Plan of Central Courtyard
done by author

Landscape design, as mentioned before, is an integral element in composing this architectural response. It not only helps to curate the user through the site but it in fact roots the architecture in the site physically and symbolically. The landscape of Sudbury plays a prominent role in defining the city's character; this can then be used as a design tool to help tie the buildings together to the rich history of landscape in Sudbury. As seen in the site composition diagram before, the central courtyard is the converging point of the site, programmatically and physically. Each path way on the site converges at this courtyard element and each building is centered around and responds to the geometry of the courtyard. The facades that face the courtyard are uniquely designed to help activate this central area through their programs. The mosque itself opens up and flows out in the courtyard, while the gym atrium and exhibition hall frame views to help provide function to this space. The courtyard itself is sunken in to respond to the natural drop in the topography and is oriented towards the qibla.



Figure 116.
View of Central Courtyard

This view of the central courtyard highlights how the masses of each building are stitched together at the core with the central courtyard element. We also see the screen systems begin to read as one architectural identity. Each building has an operable door or wall system that opens up onto the courtyard. Allowing for further permeability of program done by author

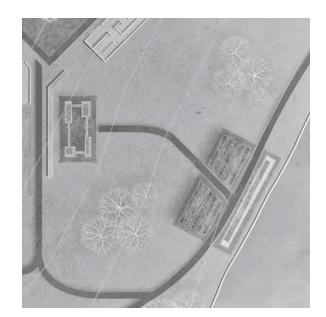


Figure 117.

Plan of Water View Garden and Lakeside Garden done by author

A key landscape element that helped to justify this site selection was Ramsey Lake, and to better integrate the site within the architecture the gardens were used and further developed. These two garden elements tie Ramsey Lake both visually and physically to the architectural project. The water view garden has a series of fountain elements that are designed with integrated seating, each seat uniquely framing views of the lake, while maintaining the architectural language being used throughout the site. The Lakeside garden psychically connects the architecture to the lake. By introducing a community garden bed, located on top of the existing Ramsey lake pathway the garden physically and metaphorically stitches the new architecture with the existing fabric. This community garden then becomes a place for the public, giving ownership to the entire community on the site. The vegetation grown here can be used to feed the local food banks, along with the café on the site.



Figure 118.
View of Lakeside Garden

Highlighting how the garden sits directly on top of the existing Ramsey Lake trail and ties the landscape of the architecture to the site done by author

### Sacred



Figure 119.
Plan of the Sacred section
done by author

The design of the sacred space is done in a manner to allow it stand alone, independent of the rest of the programs as it is the only soul religious building in the site. Although the programs of the other two masses allow and encourage religious activities, the mosque building stands alone as the primary place for prayer and is treated with care. The design of this building reflects its sacredness, by using the previously established architectonic language but pushing further. This begins in the mosque garden; located directly in front of the qibla wall this garden mirrors the prayer area on the interior of the mosque. This garden is composed up of four fountain elements each with seating facing the interior of the garden, creating a place of isolation and contemplation.

The design of this project also heavily considers the elemental and seasonal effects of

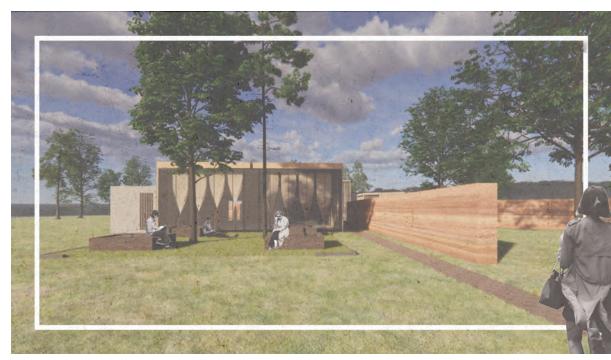


Figure 120.

View looking at qibla wall from outside garden

The eastern approach on the site faces the elevation of the mosque and the mosque garden. The mosque garden itself mirrors the prayer area, evoking a sense of the sacred program in the landscape.

done by author

its location. Through the use of local natural building materials the building itself becomes an extension of the landscape. The idea being, the building ages and changes as the years go by. The winter season being a prominent season on this site the build composition is done in a way that compliments the winter colours while allowing the building to sit humbly in the landscape.

The landscaped rammed earth walls can be seen framing the site and curating the movement of the users. They are placed in a manner that allows the paths to become quiet and controlled. They are located in areas that need to be shadowed from noise or unwanted views. They also help tie all three masses together.



Figure 121.
View looking at qibla wall from outside garden - Winter

This image begins to paint the picture of how the building blends and changes with the environment. The natural materials age and change based on the climate and allow the building to become a part of the landscape itself.

done by author

## Prayer hall



Figure 122.
Plan of the Mosque done by author

A series of design decisions also play an important role in the mosque building before entering the main prayer hall. The entrance hallway is a tunnel of concrete that compresses the users starting at the ablution areas. They are guided into the hall with a curved wall that catches the light from the interior of the mosque. The carved away slits of light also encourage movement and pull the users attention toward the prayer hall. These slits begin to relay the same tectonic language seen in the other screen walls but in a unique manner. The cold concrete walls prepare the body and the sense as the user makes their way through the ablution ritual into the main prayer hall. The user's senses are also activated further through the use of a small stream of water that carries floral scents along the hallway leading into the prayer hall.

The design of the mosque prayer hall is centered on the Qibla wall. This wall design stems from all the design build research done previously in this thesis. The wall is a series of glulam beams that are doubly bent and form both the structural system for the roof and gibla wall. The screen itself is a series of 8 deep panels that are bent in unique locations. This wall plays with the idea of views as well. As a person enters the space, the depth of the walls hides all views to the outdoors. Only when they stand in line with the prayer mats do the views become visible. These tectonic walls become the bridge between the traditional Islamic teachings and vernacular of the site. They begin to define Sudbury with a new Islamic architectural identity.

The prayer area itself is divided down the center evenly to provide women and men

with equal prayer space. The women pray closest to the door and the men travel along the wooden path located on the outside of the carpeted area to reach their half of the prayer area. The mosque prayer hall opens itself to the courtyard through a large concrete door that also acts as the exit for users, allowing for a linear path of travel through the entirety of the space. The shoes are then located adjacent to the entrance hall and can be retrieved on the exterior of the building.

The interior walls of the mosque are designed in a DLT or dowel laminated wall system that allows for other architectural integration opportunities. These walls can be integrated with shelves for Qurans, or vertical lighting elements.

The final moment in the building is the qibla wall. The 8 panel wall design

is chosen because in Islam it is said that before a person enters heave they must pass thru one of the 8 doors. So the user of this mosque metaphorically is praying in front of the doors of heaven. The tectonic details of the assembly are directly related to the other screen walls in the project but stand unique from the rest as this building has a sense of individuality by being the only sacred mass. The prayer hall is divided directly down the center for men and women to both have equal prayer space. Because the mosque is oriented NE the reveal in the center of the roof becomes a sundial, allowing the users to experience the passage of time from one prayer to the next. The screen walls themselves also catch light at different prayer times during the day. The mosque building evolves past a building for prayer to a vessel for evoking the sacred.



Figure 123.
Mosque Prayer Hall
done by author

Figure 124.
Mosque Entrance Hallway

The entrance hallway is a tunnel of concrete that compresses the users starting at the ablution areas. They are guided into the hall with a curved wall that catches the light from the interior of the mosque. The carved away slits of light also encourage movement and pull the users attention toward the prayer hall.

done by author

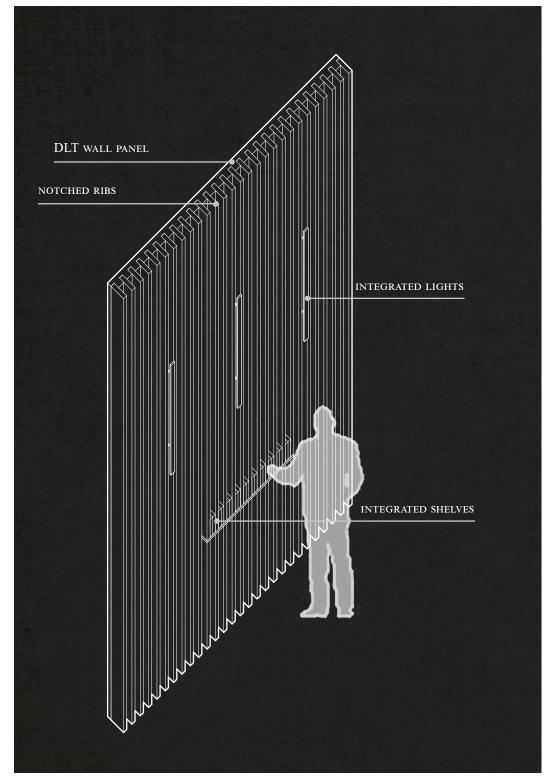


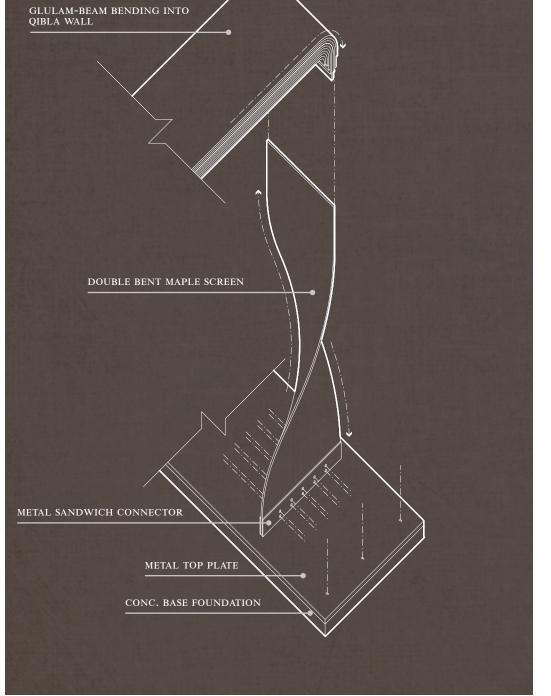
Figure 125.

DLT Interior Wall System

The interior walls of the mosque are designed in a DLT or dowel laminated wall system that allows for other architectural integration opportunities. Here you can see how a shelf for Qurans or a series of lighting modules can be designed in to the wall panel.

done by author





| Figure 127. | Qibla Wall Connection Detail | done by author

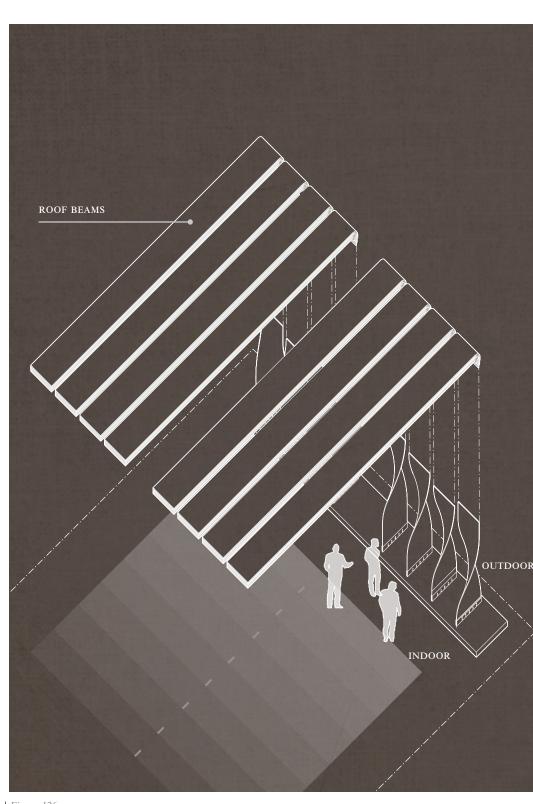


Figure 126.

Qibla Wall Assembly

Highlighting the depth and scale of the wall design, along with how the glulam beam shifts and is doubly bent to form the screen wall and structural element of the screen.

done by author

Conclusion

In summary, this proposal sits in the realm of permeability and rootedness in the community. The key is to understand that this is not an answer to the typology, it is an example on how the typology must respond critically to the place and community it is in. Contemporary mosques in secular communities do not have one design solution. This project cannot be replicated anywhere else because it is designed to the specific programmatic and architectural needs of this community.

Architects need to begin to define these needs and critically understand the fact that the only common factor these communities share is the fact that they are all diverse.

For each community group, whether that be the secular society, Muslim population or people in transition the building must be able to provide for all. In this process of opening itself to each need, the architecture begins to create an environment of diversity and acceptance. Allowing the religious community and secular community to thrive together.

The question, along with the answer, changes based on each place- continuously evolving and adapting. That permeability is the key. By keeping the architecture accessible, adaptable and open; it allows the programs to flow into each other and truly begin to integrate the community as a whole.

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