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SPRING 2014

ENHANCING SENSORY ENVIRONMENTS OF CREMATORIA
- THROUGH CONNECTIONS TO NATURE-

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How can technology today enhance or amplify the social interactions of people in crematoria through the simulation of nature?

Crematoria typically, are religious and neutral spaces appropriate to those who want to participate. One of the most significant aspects of crematoria is location. Most crematorium complexes today are located next to either a noisy motorway or in an industrial park. The reasoning behind this is usually to make sure it is not open to the public for viewing unless they want to be a part of it. Usually the crematoria end up in an open landscape, but have walls that would screen this in order to maintain some kind of privacy. Another important aspect of the location of crematoria is that it needs to be by a water body - where part of the ritual involves dispersing the remains in the water.

Why situate these crematoria in remote locations? The crematoria is there to be experienced by those who want to be a part of the process – in order for this to happen the crematoria should be made accessible. By locating the crematoria in a location which can be easily available to anyone the opportunities to have a new or different experience open up.

In order to make this experience celebratory in honor of those who have deceased my proposal is to bring the landscape into the crematoria rather than placing the crematoria in remote locations. Similar to crematoria designed in the past – the simulation of nature being a part of the architecture will play a major role in the project. This proposal involves integrating the ideas and processes of an active architecture (one that engages the occupant through sensory technologies) with the ideologies and theories of a passive architecture (one that uses typical means of achieving the simulation of nature in the space).

By unifying the advancement of sensory technologies with a passive architecture the location and experience of crematoria can be improved immediately - the space automatically evolves from being a space that limits the amount of time you can spend there versus one that can be made available for an extended period of time.



2 \ HISTORY

Cremations date to at least 20,000 years ago in the archaeological record with the Mungo Lady, the remains of a partly cremated body found at Mungo Lake, Australia. Throughout history there have been alternative death rituals which, emphasize a specific method of disposing of the deceased - burial, cremation, and exposure.

It is evident in the Middle Eastern and European archaeological records that burials and cremations have taken place in the Neolithic period. Each individual culture had their own preferences and restrictions.

For example in ancient Egypt, a complex transmigration of soul theology, which forbid cremation, and this custom was adopted widely among many other Semitic peoples (cultures that speak Arabic or Hebrew).

In the case of the Babylonians, the dead were embalmed. Early Persians practiced cremation, but this eventually was prohibited during the Zoroastrian Period.

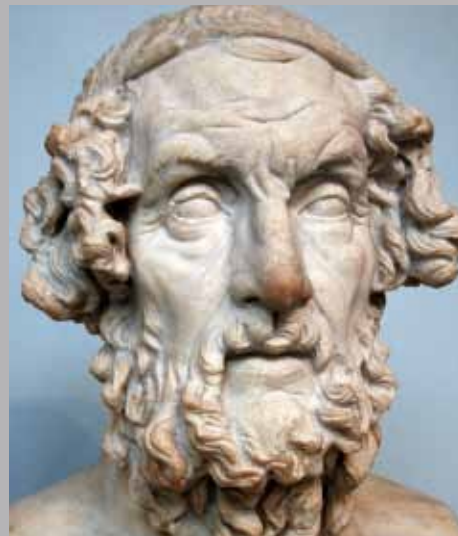
Phoenicians practiced both cremation and burial. From the Cycladic civilization in 3000 BC until the SubMycenaean era in 1200–1100 B.C., Greeks practiced burying the deceased. Cremation appearing around the 12th century B.C. constitutes a new practice of burial and is probably an influence from Minor Asia. Until the Christian era, when burial becomes the only practice, both combustion and inhumation had been practiced depending on the era, and area.

Romans practiced both, with cremation generally only associated with military honors.

In Europe, there are traces of cremation dating to the Early Bronze Age (ca. 2000 B.C.) in the Pannonian Plain and along the middle Danube. The custom becomes dominant throughout Bronze Age Europe with the urn field culture (from ca. 1300 B.C.). In the Iron Age, inhumation becomes again more common, but cremation persisted in the Villanovan culture and elsewhere. Homer's account of Patroclus burial describes cremation with subsequent burial in a tumulus similar to Urnfield burials, qualifying as the earliest description of cremation rites. This is mostly an anachronism, as during Mycenaean times burial was generally preferred, and Homer may have been reflecting more common use of cremation in the period in which the Iliad was written centuries later. Criticism of burial rites is a common aspersion in competing religions and cultures, and one is the association of cremation with fire sacrifice or human sacrifice. Hinduism and Jainism are notable for not only allowing but prescribing cremation. Cremation in India is first attested in the Cemetery H culture (from ca. 1900 B.C.), considered the formative stage of Vedic civilization.

The RigVeda contains a reference to the emerging practice, in RV 10.15.14, where the forefathers "both cremated (agnidagdhá) and uncremated (ánagnidagdhá)" are invoked.

Cremation remained common, but not universal, in both Ancient Greece and Ancient Rome. According to Cicero, in Rome, inhumation was considered the more archaic rite, while the most honoured citizens were most typically cremated—especially upper classes and members of imperial families. Christianity frowned upon cremation, both influenced by the tenets of Judaism, and in an attempt to abolish GraecoRoman pagan rituals.



The practice of cremation had practically disappeared by the 5th century, from Europe. In early Roman Britain, cremation was typical however, it was diminished by the fourth century. It then reappeared in the fifth and sixth centuries during the migration era, when sacrificed animals were sometimes included with the human bodies on the pyre, and the deceased were dressed in costume and with ornaments for the burning. This was also very widespread among the Germanic peoples of the northern continental lands from which the AngloSaxon migrants are supposed to have been derived, during the same period. These ashes were usually thereafter deposited in a vessel of clay or bronze in an "urn cemetery." The custom again died out with the Christian conversion among the AngloSaxons or Early English during the seventh century, when inhumation of the corpse became general.

In the Middle Ages, throughout parts of Europe, cremation was forbidden by law it was even punishable by death. Cremation was sometimes used by authorities as part of punishment for atheists, and this did not only include burning at the stake. For example, the body of John Wycliff was exhumed years after his death and cremated, with the ashes thrown in a river, explicitly as a posthumous punishment for his denial of the Roman Catholic teachings. Mass cremations were often performed out of necessity, when there was a fear of contagious diseases, this was typical after major battles. Retributory cremation continued into modern times. For example, after World War II, the bodies of the 12 men convicted of crimes against humanity at the Nuremberg Trials were not returned to their families, but were instead cremated, then disposed of at a secret location as a specific part of a legal process intended to deny their use as a location for any sort of memorial. In Japan, however, erection of a memorial building for many executed war criminals, who were also cremated, was allowed for their remains.

The first crematoria in Europe were built in 1878 in Woking, England and Gotha, Germany. The first cremation in Britain took place on 26 March 1886 at Woking. Cremation was declared as legal in England and Wales when Dr. William Price was prosecuted for cremating his son; formal legislation followed later with the passing of the Cremation Act of 1902 (this Act did not extend to Ireland), which imposed procedural requirements before a cremation could occur and restricted the practice to authorised places. Crematorium Stuttgart 1906 Ruppmann cremation system Some of the various Protestant churches came to accept cremation, with the rationale being, "God can resurrect a bowl of ashes just as conveniently as he can resurrect a bowl of dust." The 1908 Catholic Encyclopedia was critical about these efforts, referring to them as a "sinister movement" and associating them with Freemasonry, although it said that "there is nothing directly opposed to any dogma of the Church in the practice of cremation." In 1963, Pope Paul VI lifted the ban on cremation, and in 1966 allowed Catholic priests to officiate at cremation.



GARDEN



MEMORIAL
DIAMOND



URN



GATHERING



PICKING
BONES



COFFIN
(DEATH)



CREMATION
(TRADITIONAL)



WATER



CREMATION
(FURNACE)



3 \ CULTURES



3 \ CULTURES - JAPAN

In Japan, when one dies - they are cremated instead of burying them. Japan has one of the highest cremation rates in the world, reporting a cremation rate of 99.85% in 2008 (compared to the USA at ~40%). Cremated remains usually end up in smaller sizes and therefore can be shared amongst the surviving relatives.

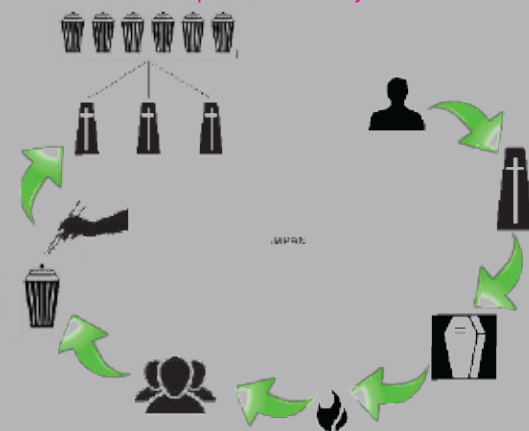
In a Japanese cremation, the coffin is placed on a tray in the crematorium - the family witnesses the body being slid into the cremation chamber - usually cremation times vary depending on the size of the body - the family leaves and returns once the cremation is complete. At the appropriate time - the relatives go back and pick the bones out of the ashes and put them into an urn using large chopsticks/ metal picks (sometimes two members of the family move a bone at the same time - this is the only time in Japan when it is proper for two people to hold the same item at the same time with chopsticks).

At any other time if two people were to hold anything with chopsticks simultaneously it will remind people of the funeral of a close relative causing everyone pain. To ensure comfort for the deceased the bones of the feet are placed first and the bones of the head placed last.

Sometimes the ashes are divided between many urns: some ashes may go to a family grave, a temple or a company grave. Many companies have their own graves in the largest graveyard in Japan, OKU-NOIN (typically for former employees and their relatives. Some company businesses feature grave-stones that are related to the company: the Coffee Company, UCC - has a gravestone in the shape of a coffee cup.

A typical Japanese grave is usually a family grave consisting of a stone monument with a place for flowers, a place for incense, water in front of the monument, and a chamber or crypt underneath for the ashes. You'll often see sprigs of Japanese star anise in the vases. At the bottom is a sealed chamber for the ashes which are held in ceramic pots. The front of the stone pillar generally states what family the grave belongs to.

The names of the family members are sometimes carved all at once on one side of the topmost stone, and the names of those still living are colored red. The red is then removed when that person dies. The reason for this is largely economical with it being cheaper to have the names all carved on at the same time, however this practice is less frequent these days.



3 \ CULTURES - SWITZERLAND

The cemetery is no longer the "final resting place" for many. Scattering ashes out in the open, or burying the urn in a forest or even compressing the ashes into a diamond - is typical of swiss funeraks.

Funeral rights in Switzerland have become increasingly diverse as they are moving away from the traditional and respond to new practices of spirituality.

Switzerland and the Czech Republic are two among European countries that allow a large amount of freedom to families and loved ones following a death and also have the highest cremation rate of 80%.

In 20% of cremation cases - ashes are scattered in the open - this is no longer a problem for the environment because these days - the ashes are very fine.

"Society evolves notably by its migrants," notes Julie Montandon, a religious sociologist from the inter-cantonal Centre for Information on Beliefs in Geneva. And it is the movement of migrants which ensures different beliefs in the community are in constant evolution and new funeral rituals regularly appear.

Previously banned religious rites in Switzerland have now recieved authroization:
 - Hindus are now allowed to throw ashes into the River Reuss
 - cities like Bern & Zurich also allow this



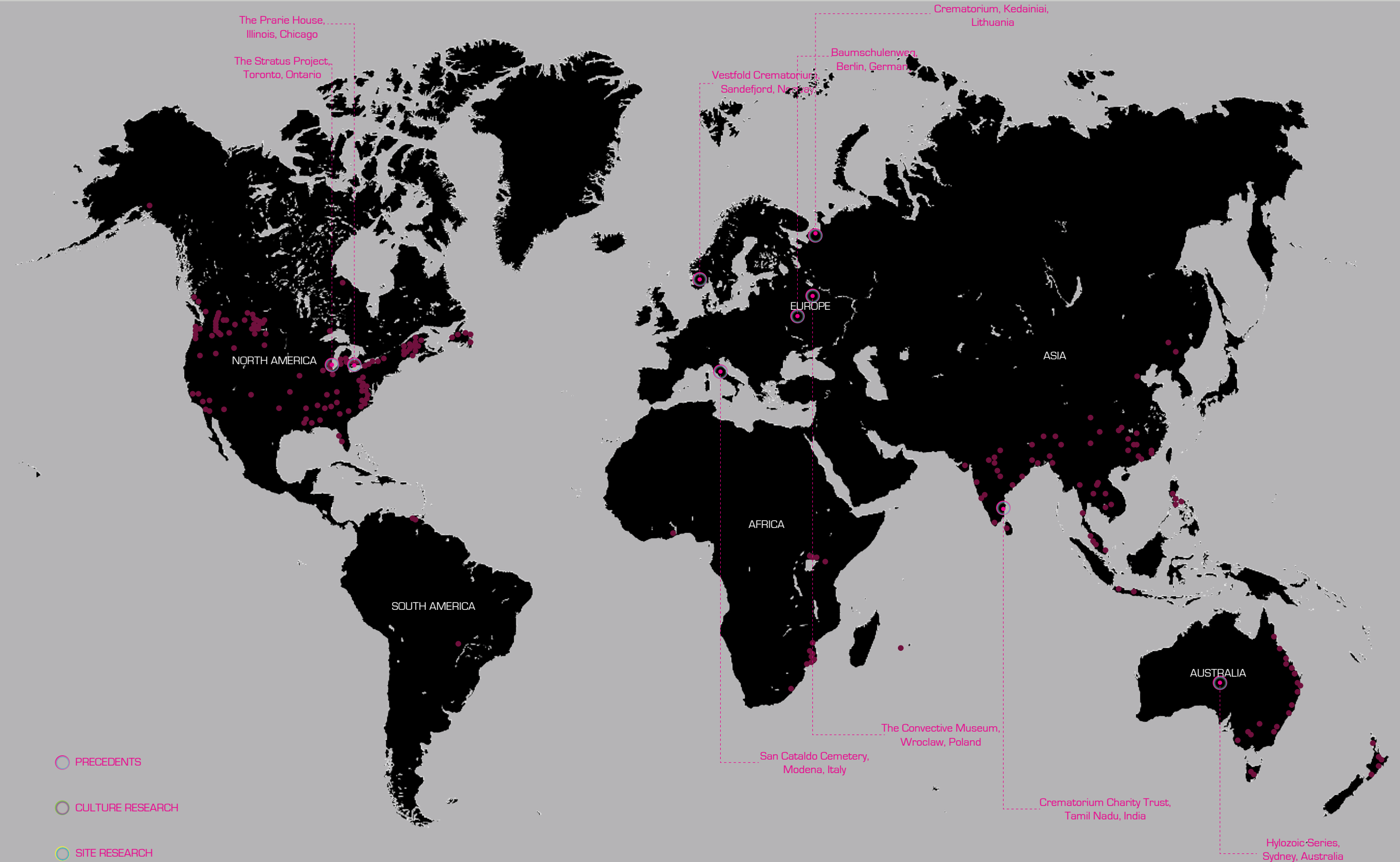


4 \ PRECEDENTS
-LOCATIONS -

The image illustrates the locations of:

- the crematoria locations (worldwide)
- passive precedents
- active precedents
- cultural research locations
- current sites that are being researched for potential locations of the crematorium.

The precedents have been chosen from a variety of different locations on the map in order to discover different backgrounds and experiences that take place in those areas.



- PRECEDENTS
- CULTURE RESEARCH
- SITE RESEARCH

4 \ PRECEDENTS

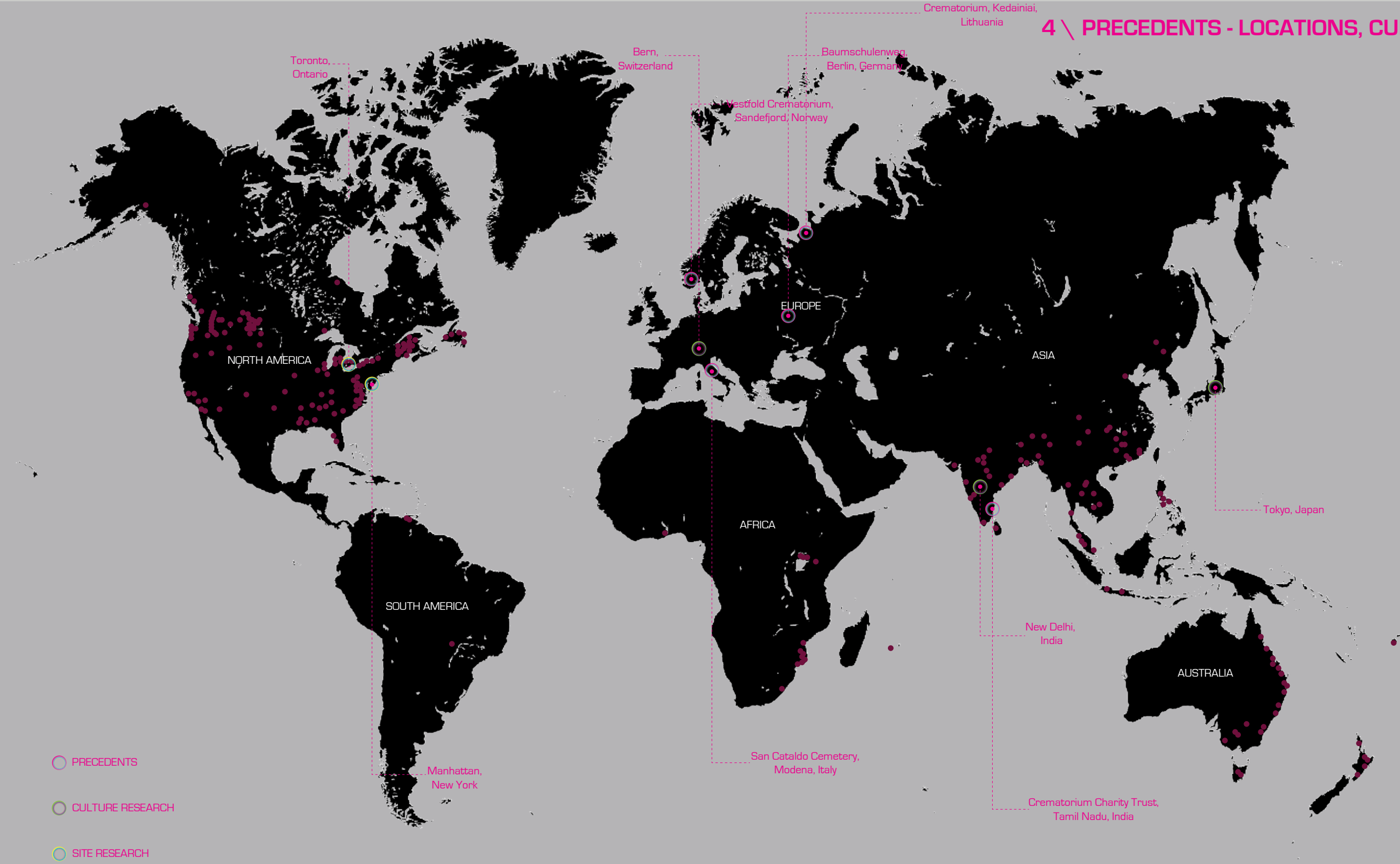
- LOCATIONS, CULTURAL RESEARCH SITES, SITE RESEARCH -

The image illustrates the locations of:
- the crematoria locations (worldwide)
- passive precedents
- active precedents
- cultural research locations
- current sites that are being re-researched for potential locations of the crematorium.

Through this map - it is clear that there are clusters in certain continents of where the crematoria are located.

Specifically, North America and Asia have the largest number of crematoria.

The precedent studied throughout this process have been picked from various different countries in order to get a wide range of knowledge of rituals, customs, and backgrounds on crematoria.



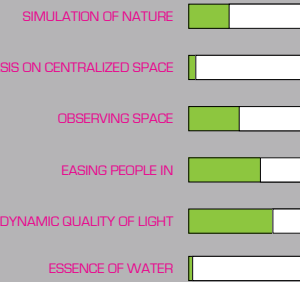
5 \ PRECEDENTS - PASSIVE

5 \ SAN CATALDO CEMETERY \ ALDO ROSSI, MODENA ITALY, 1971

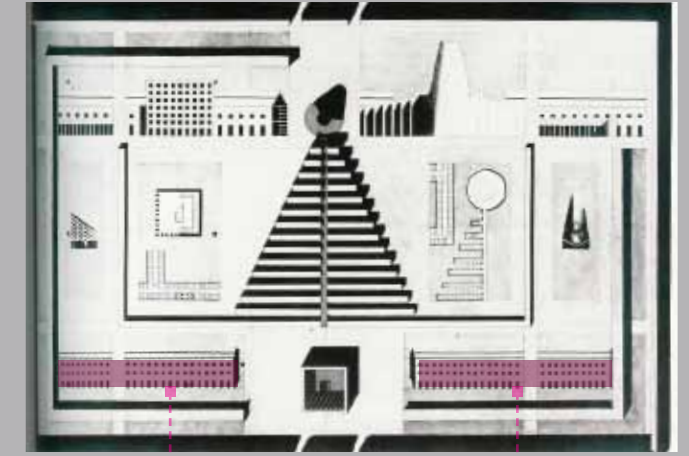
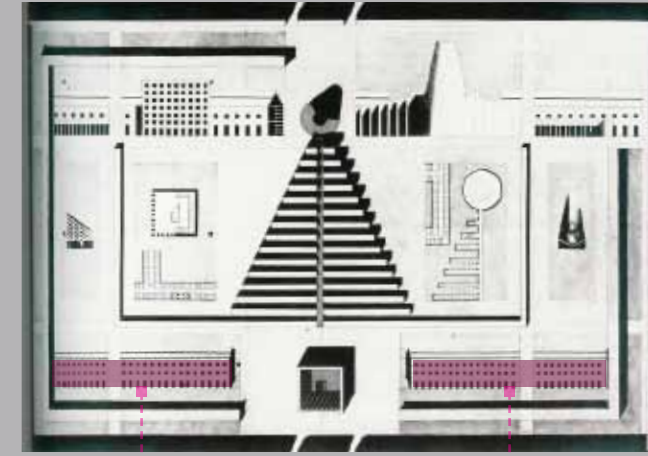
The San Cataldo Cemetery located in Modena, Italy is different to most of the crematoria I have been looking at in the research projects. The simulation of nature is much lower than that of the others however, the San Cataldo cemetery's intention was to creation this kind of atmosphere. Although there is some simulation of nature it is limited which was an intention of the Architect. The simulation of nature is visible in the San Cataldo cemetery however, the analysis shows that this simulation is limited in comparison to other crematoria.

- San Cataldo is simulating nature (water, light, centralized space) through NON - REPRESENTATIONAL methods therefore being a PHENOMENOLOGICAL simulation of nature.
- Design to be an osuary (a chest/building/well) which will serve as the final resting place of the skeletal remains
- Competition project entered as "The Blue of the sky" - represented a mockingly distant feature (metaphorical)

DESIGN CRITERIA ANALYSIS



Simulation of Nature: PHENOMENOLOGICAL
Created through a sense of emptiness - and feeling of being alone - emphasis of the departed being gone

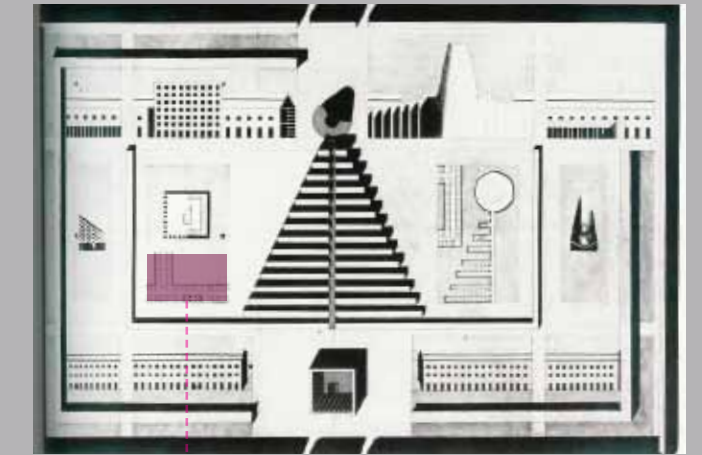
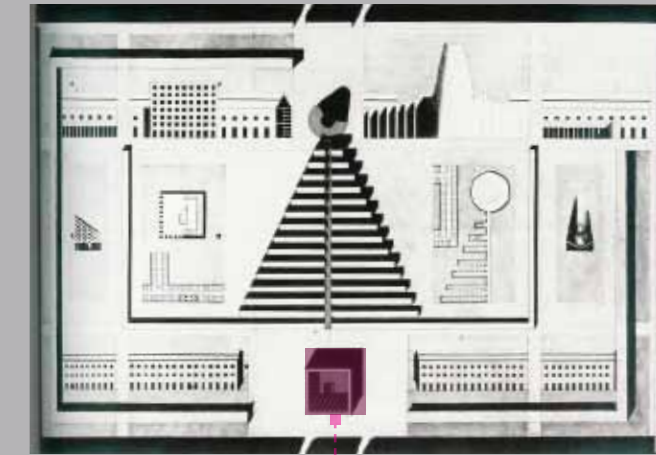
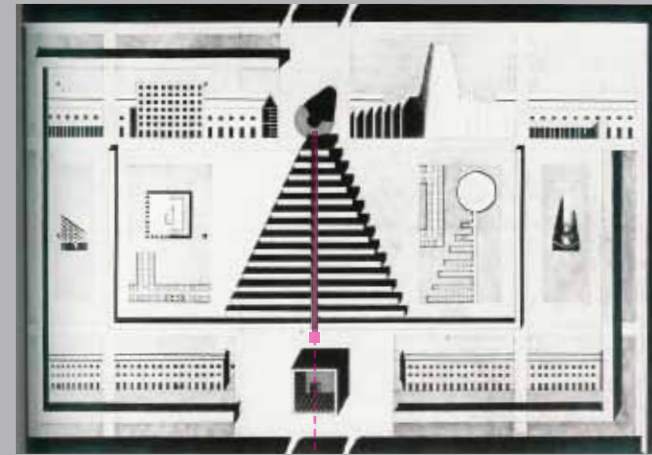


5 \ PRECEDENTS - PASSIVE

Within each of the spaces of the San Cataldo cemetery the aim was to create a feeling of emptiness and loss. As each image shows this sensation is created by the very plain, large, monumental building in a wide open space. The idea behind this project was mocking the "distant future" which is why Rossi's competition submission was called "the Blue of the Sky" - something that is impossible when one has deceased.

Simulation of Nature: PHENOMENOLOGICAL
Created through a sense of emptiness - and feeling of being alone - emphasis of the departed being gone

Simulation of Nature: PHENOMENOLOGICAL
Created through a sense of emptiness - and feeling of being alone - emphasis of the departed being gone



Dendera Temple, Egypt.

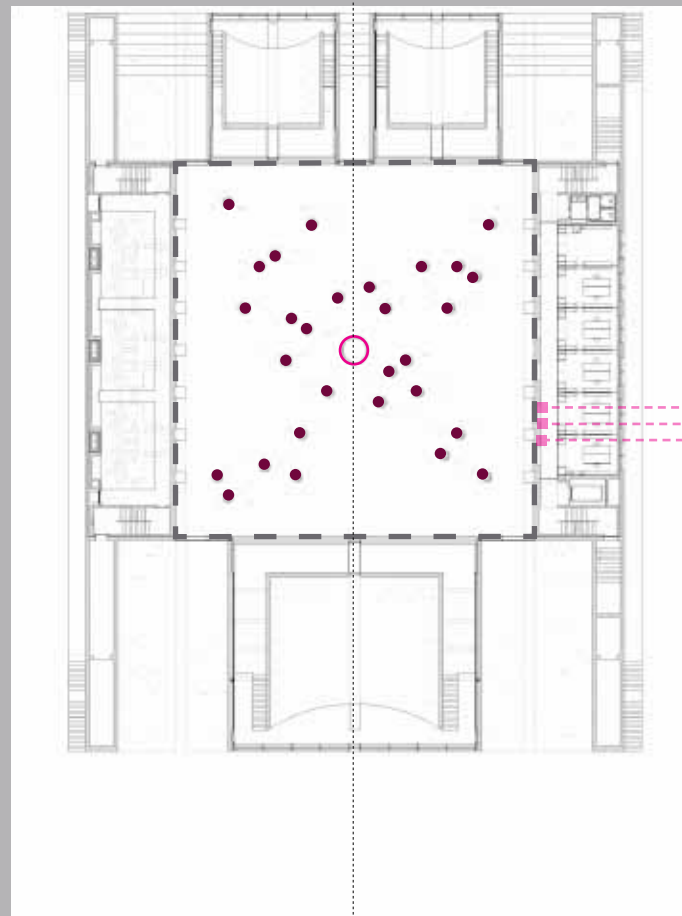
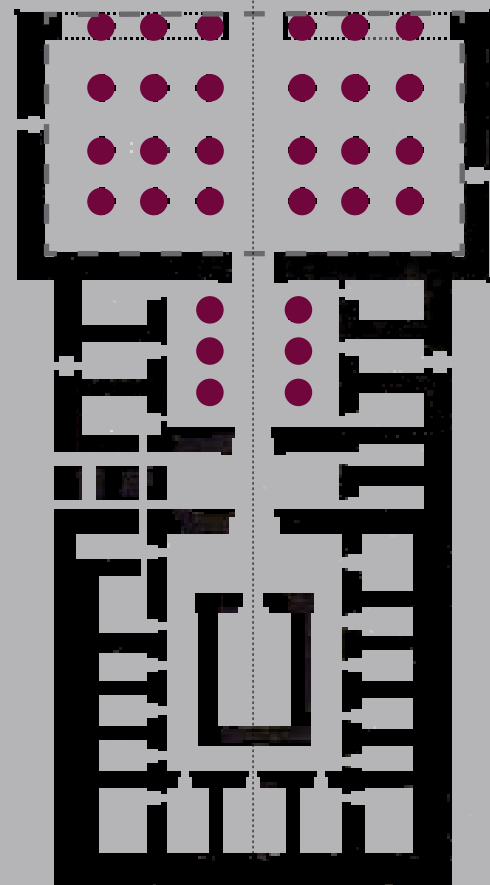


Krematorium Baumschulenweg, Germany

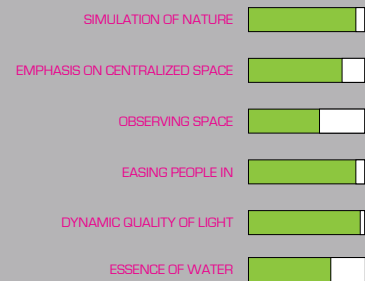


In the Krematorium Baumschulenweg the simulation of nature is evident especially through the use of materiality in order to enhance light and also through the essence of water. The centralized space and the observation spaces are all also contributing to the overall simulation of nature. Through the comparison of the Krematorium Baumschulenweg and the Dendera Temple in Egypt you can a lot of similarities in the overall layout of the spaces.

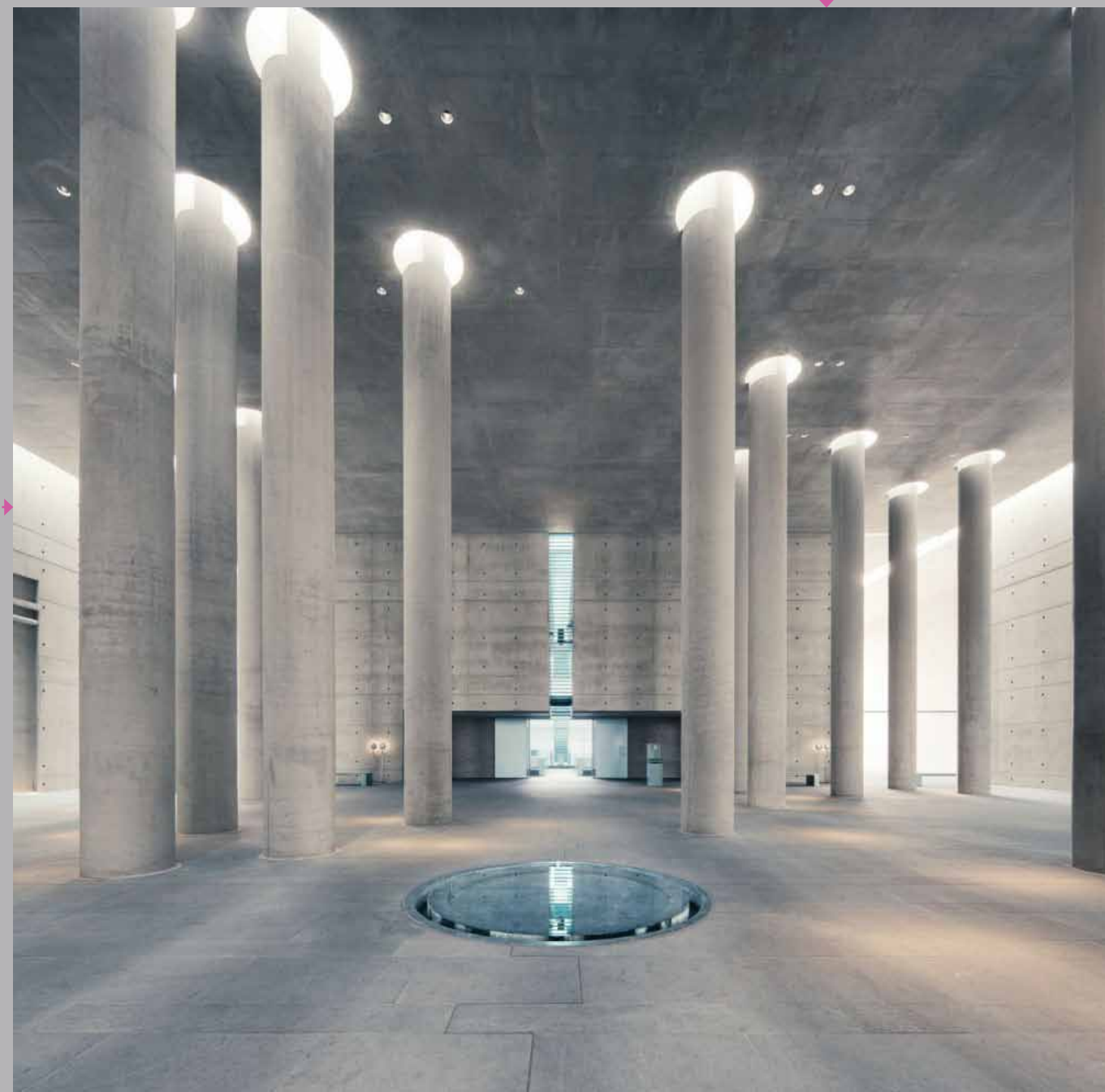
- Baumschulenweg Krematorium is literally simulating nature (water, light, centralized space) this is therefore REPRESENTATIONAL + LITERAL. Through the visual aspect it looks like Baumschulenweg is addressing the life-death relationship as a means to ease visitors through the process through the REPRESENTATIONAL simulation of nature and it could be argued that this is therefore PHENOMENOLOGICAL (this is being achieved through the deep spiritual experience - enhanced by the quality of light/centralized space/water etc. It is also considered a MULTI - CULTURAL crematorium



DESIGN CRITERIA ANALYSIS



Simulation of Nature: REPRESENTATIONAL - simulating nature through a "forest like" layout of the central atrium space



Dendera Temple, Egypt.

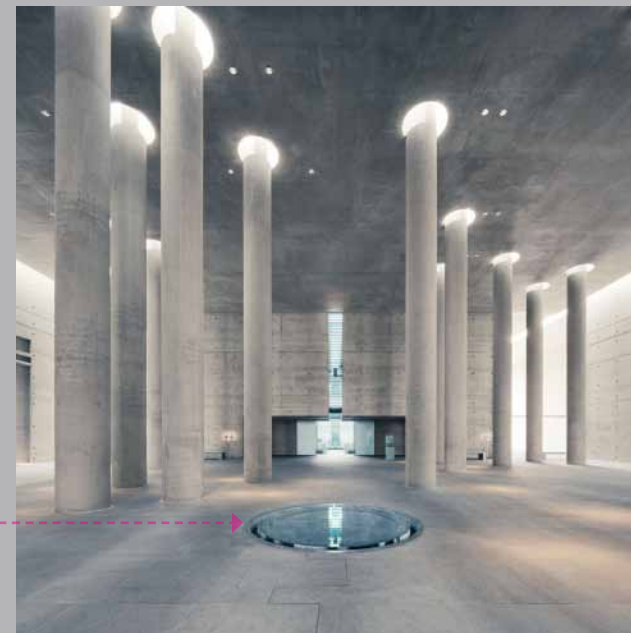
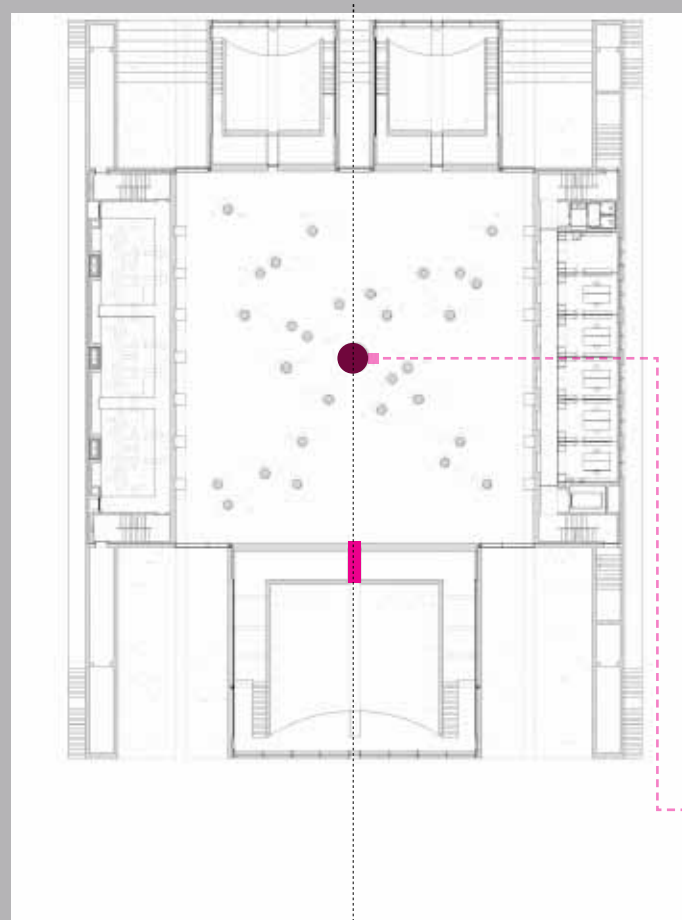
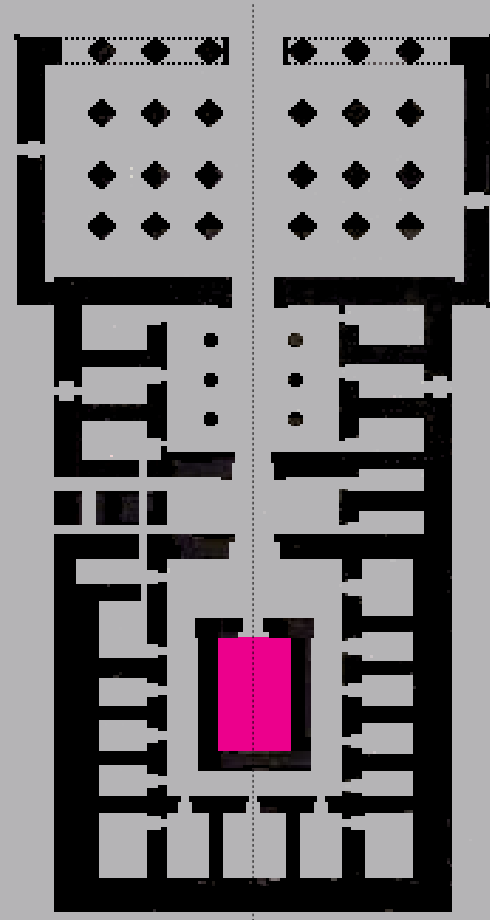


Krematorium Baumschulenweg, Germany



The similarities in the spatial organization between the Dendera Temple in Egypt and the Krematorium Baumschulenweg are obvious in the images shown below and to the right - the centralized water body is placed in the large atrium of the Krematorium Baumschulenweg and comparably there is a centralized atrium in the Dendera Temple.

Simulation of Nature: LITERAL
Open air space + Dynamic Quality of Light
(courtyard space)



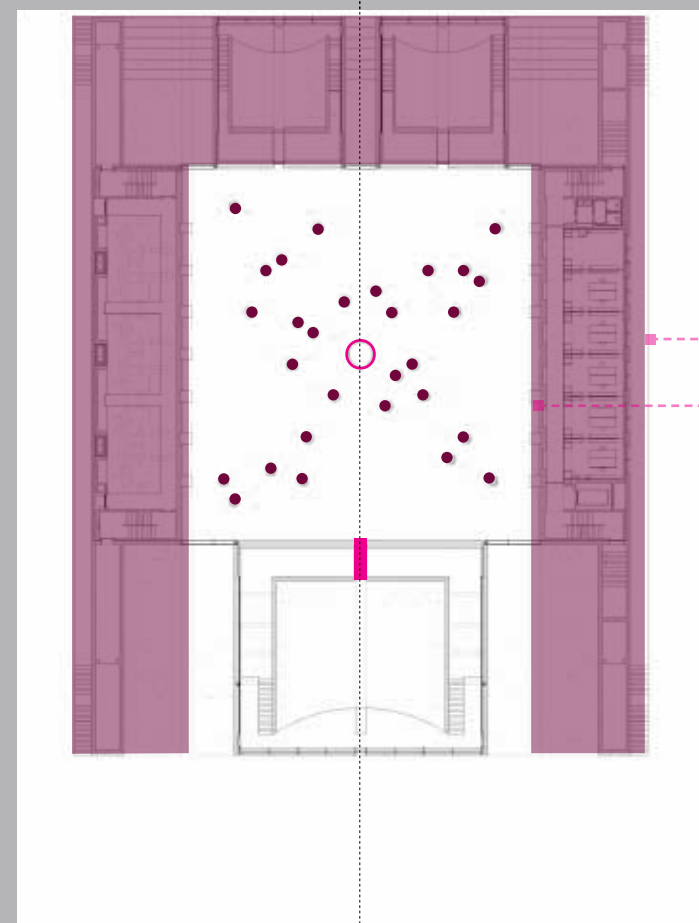
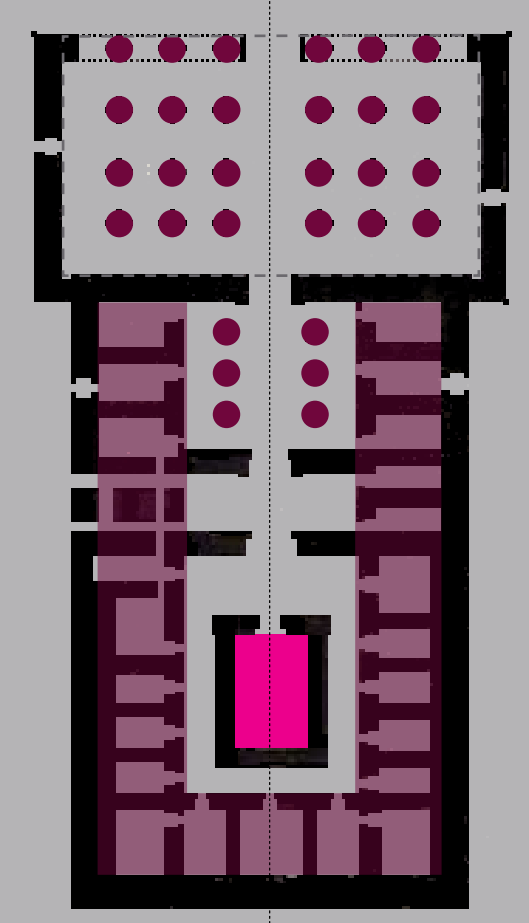
Dendera Temple, Egypt.



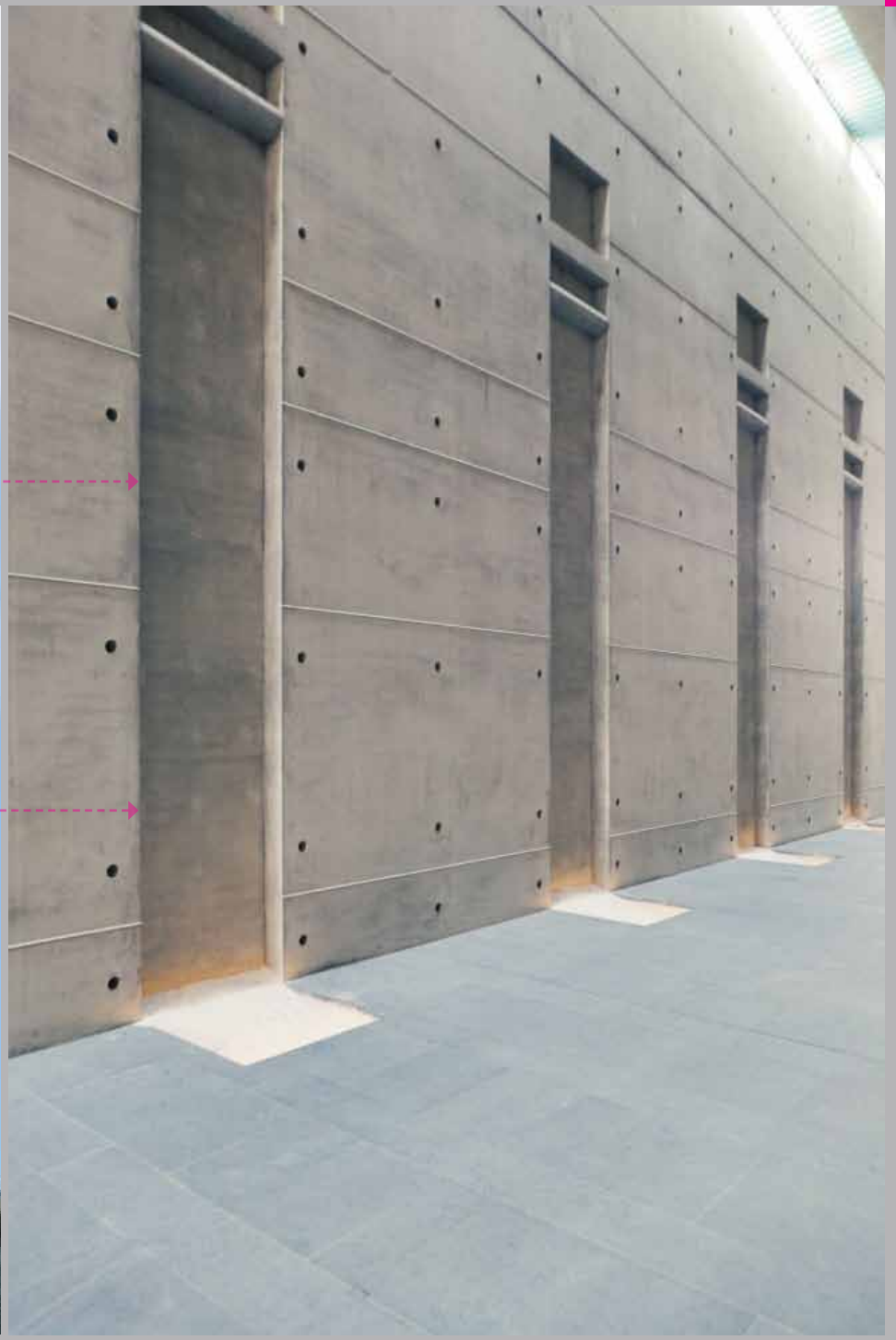
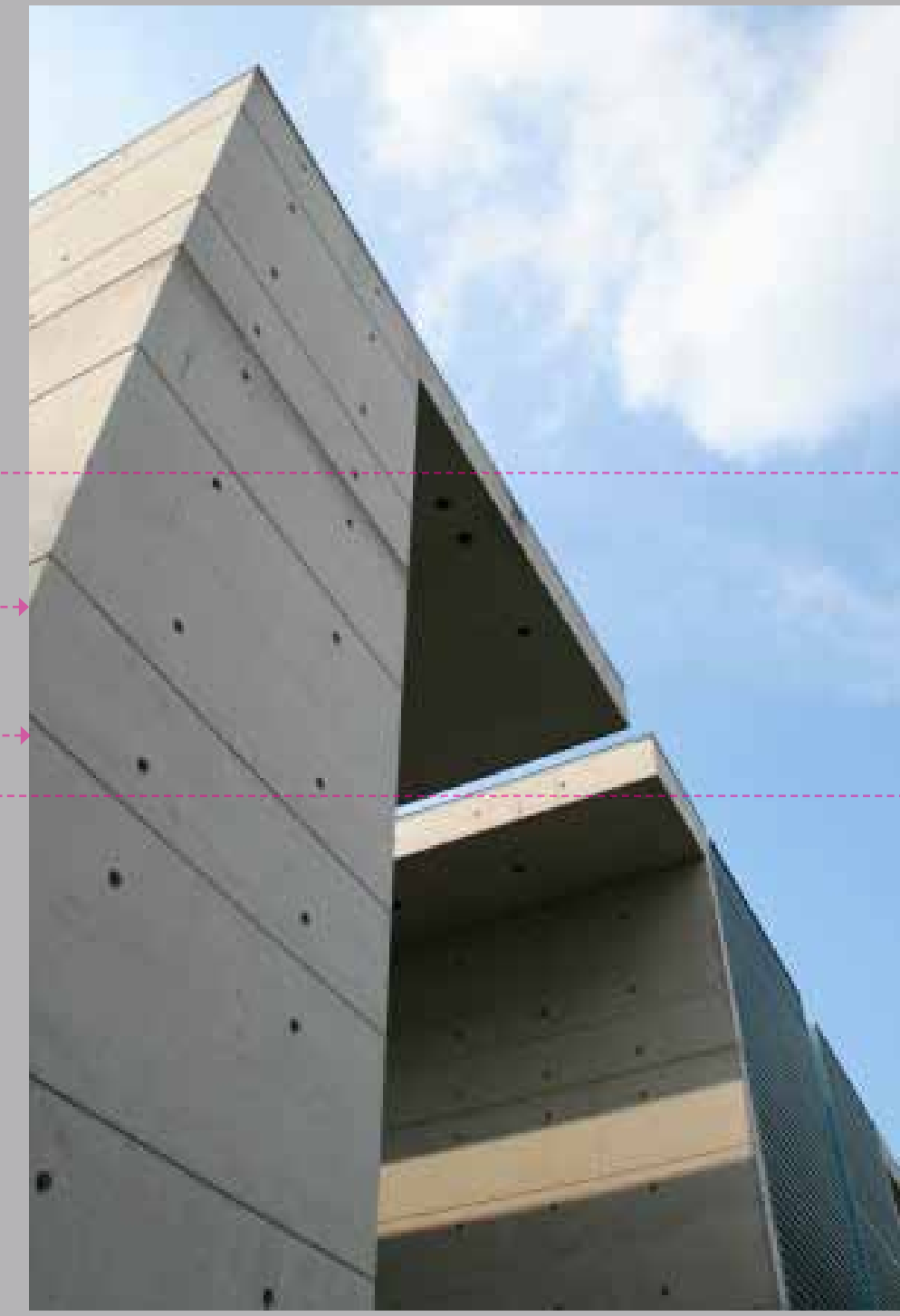
Krematorium Baumschulenweg, Germany

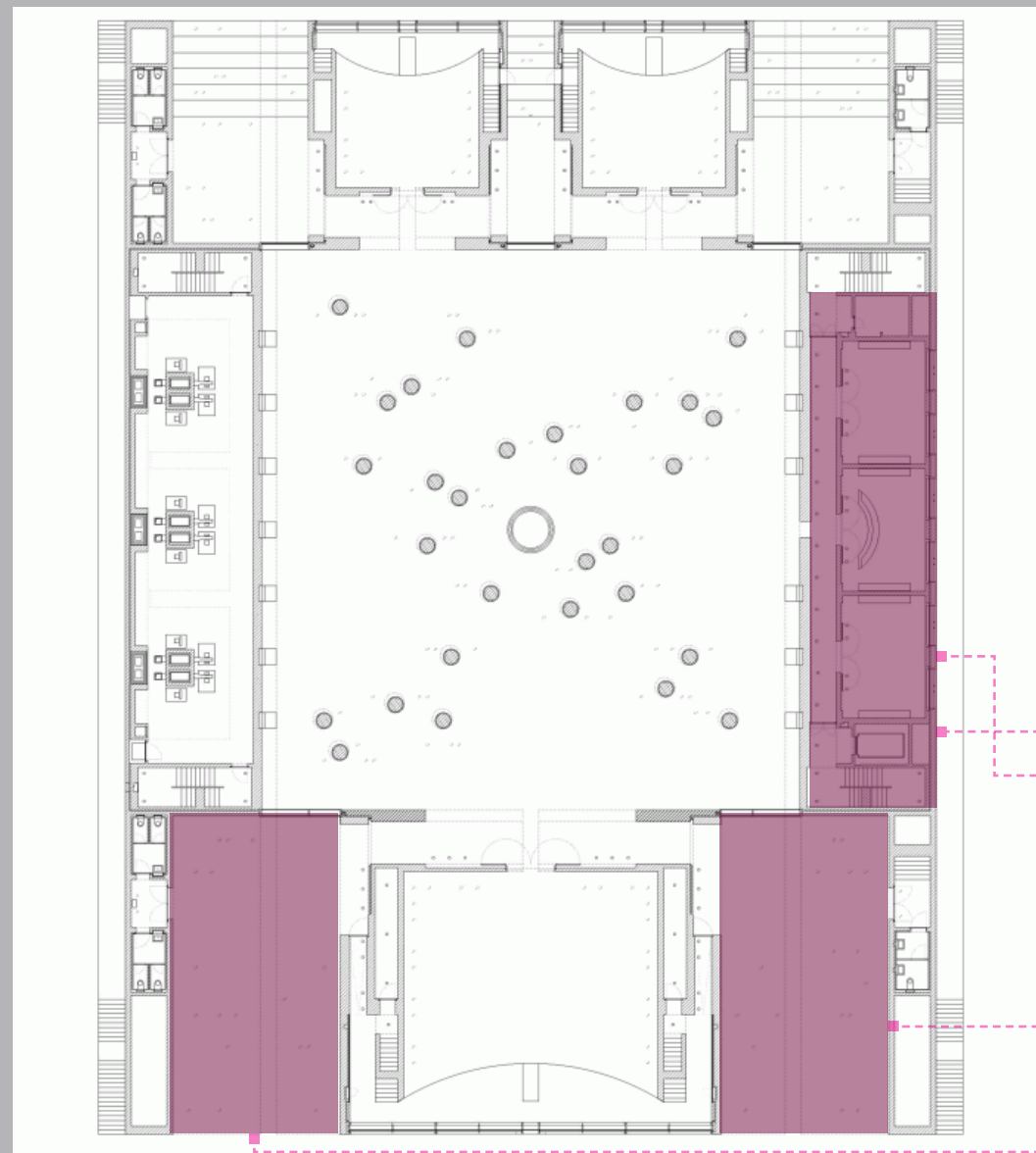


Both the Krematorium Baumschulenweg and the Dendera Temple have large apertures and crevices to let natural light into the space - this is one of the major design criteria that simulate nature in these religious spaces.

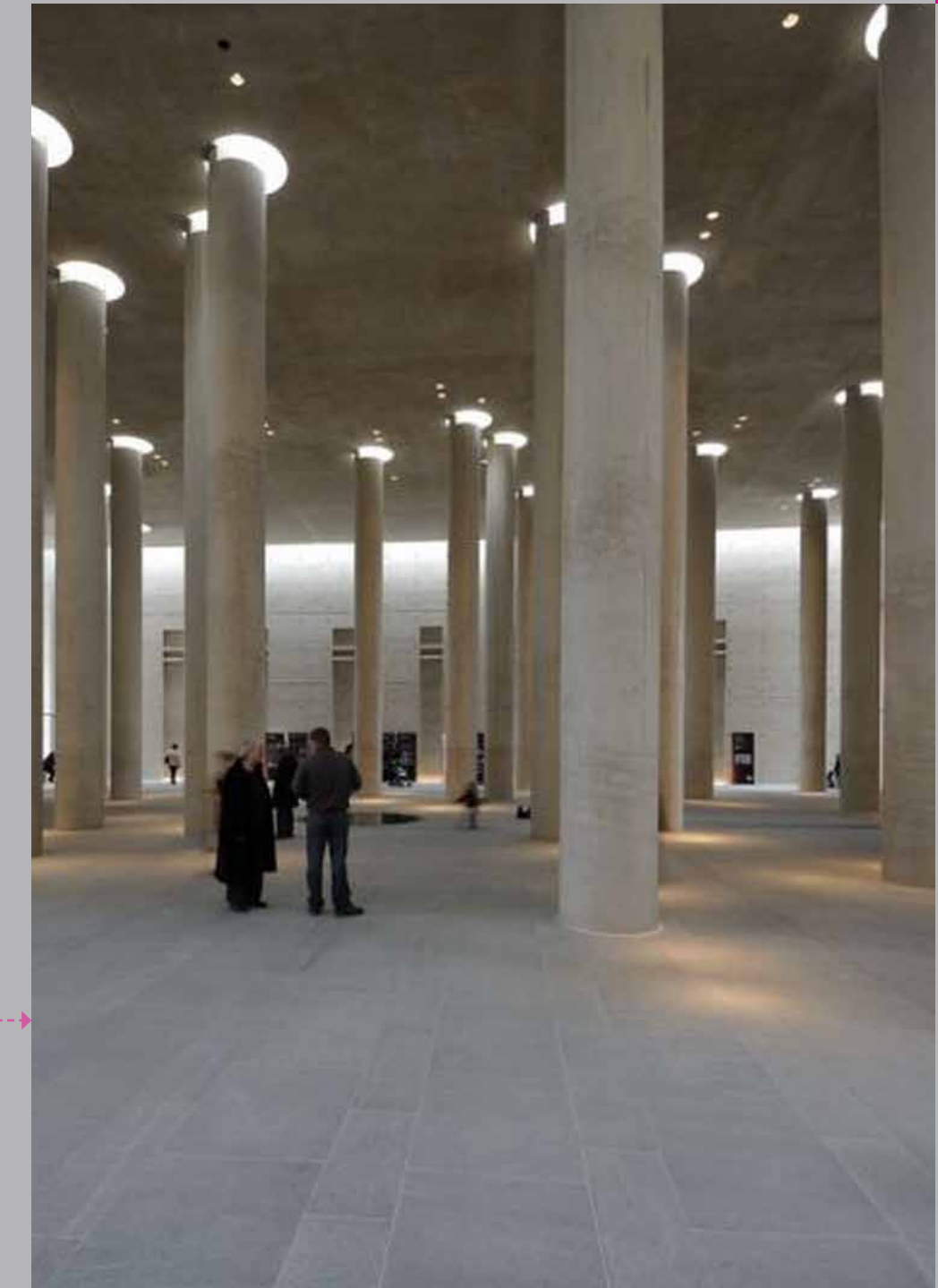
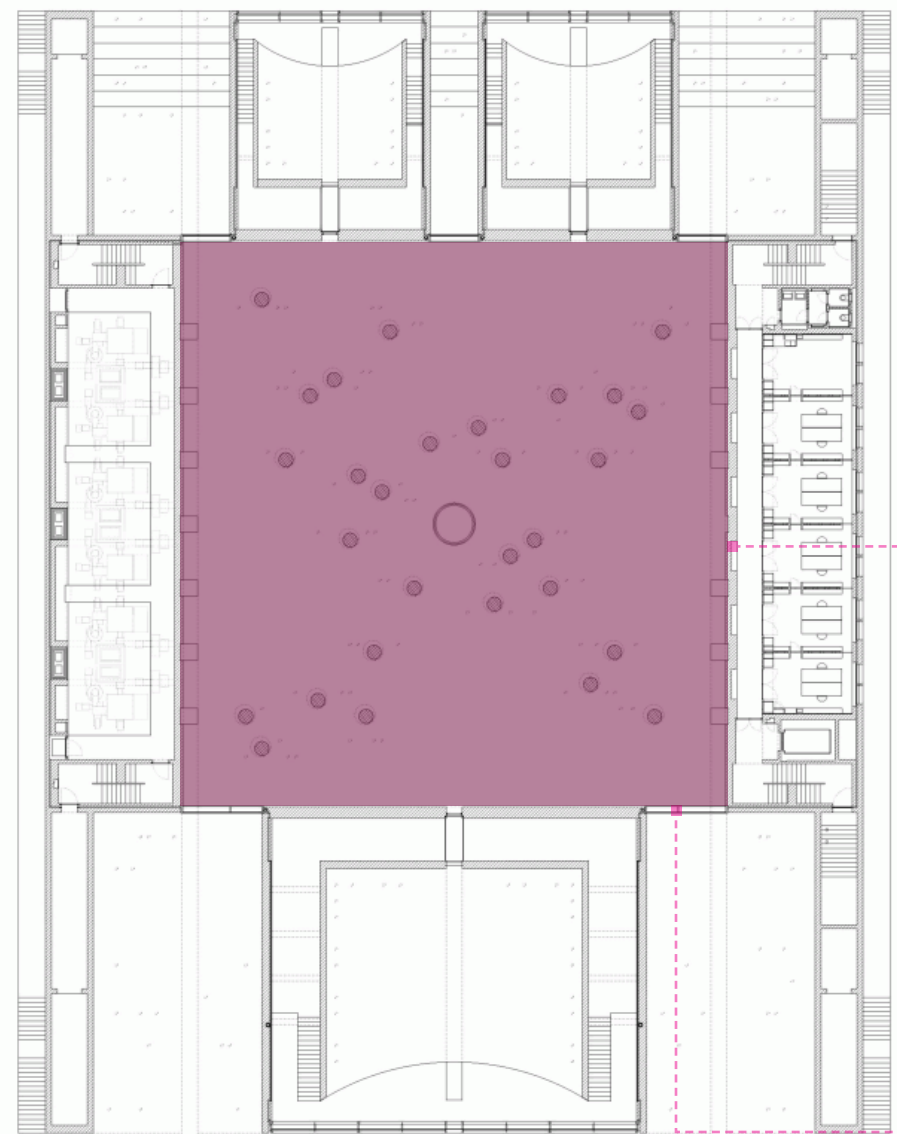


Simulation of Nature: LITERAL
Open air space + Dynamic Quality of Light
(courtyard space)



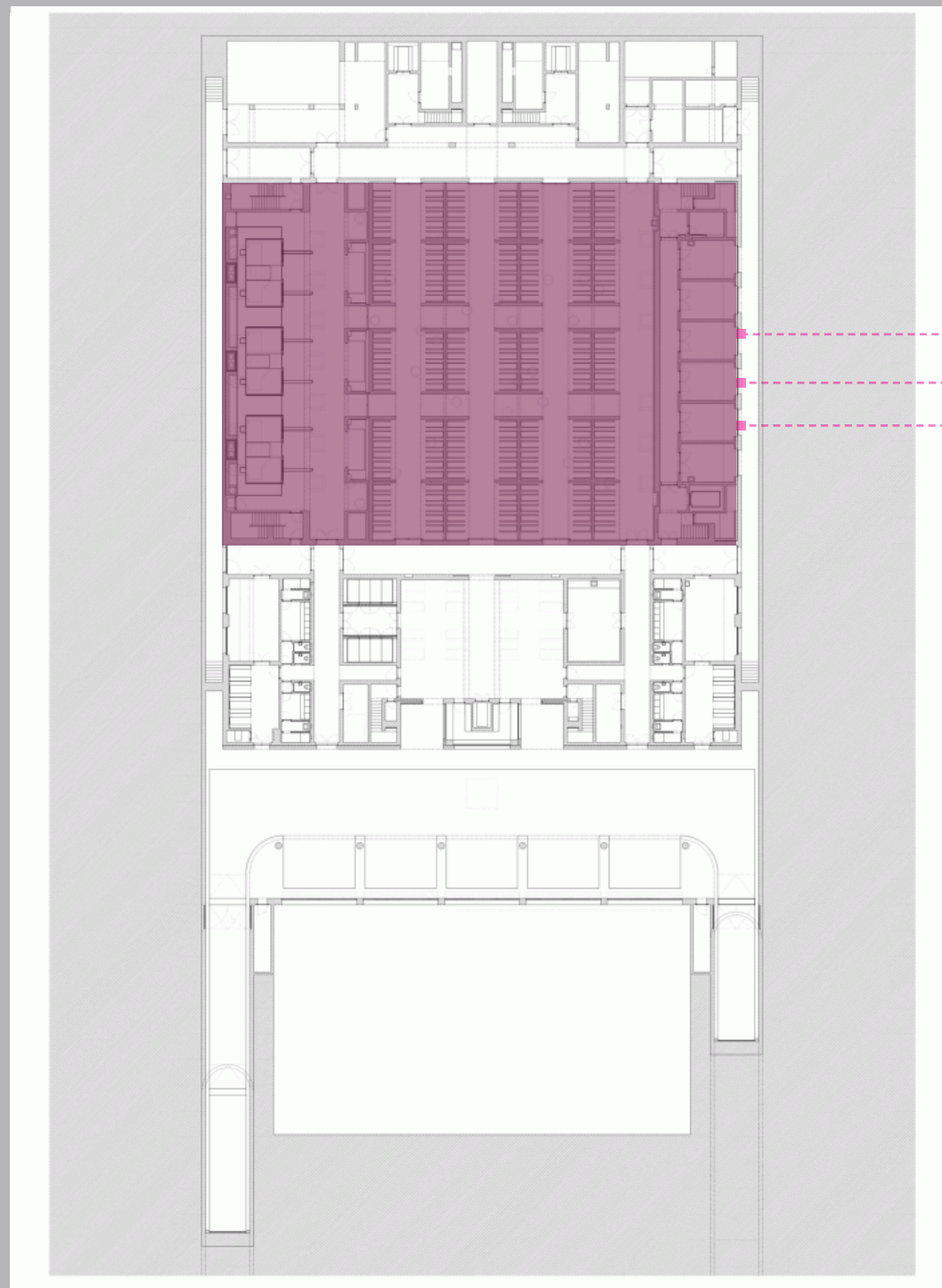


Simulation of Nature: LITERAL
 Open air space + Dynamic Quality of Light
 [courtyard space]



Simulation of Nature: LITERAL
Open air space + Dynamic Quality of Light
[courtyard space]

All the "services" for are located in the basement level of the Krematorium Baumschulenweg . These services include storage space, and spaces for where the cremation actually takes place as well as the preparation for the body in order for it to be cremated. Typically, this type of space would not be open to the public but maybe accessible for the family - for those who choose to be a part of the process.



Although the crematoria in Lithuania is unlike the monumental crematoria we see in other countries the principles and elements which were taken into consideration during the design process remain similar. Some of these are the relationship to nature, the easing of people in, the dynamic quality of light. Some of these qualities however, are not applied (again) here such as the centralized gathering space. Once again this is not a requirement of crematoria. The crematorium in Lithuania is a small intimate space unlike the other monumental crematoria we have seen however, the simulation of nature is enhanced by its location and the influence of japanese courtyards.

- Crematorium Kedainiai is literally simulating nature (water, light, centralized space) this is therefore REPRESENTATIONAL + LITERAL + CULTURAL but is also simultaneously representing a PHENOMENOLOGICAL simulation of nature (this is being achieved through the deep spiritual experience - enhanced by the quality of light/centralized space/water etc)



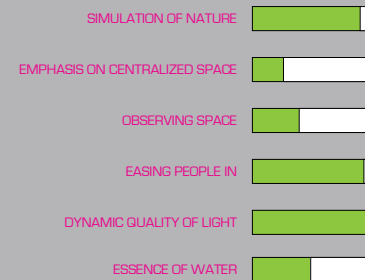
Simulation of Nature: **LITERAL**
Open air space + Dynamic Quality of Light
(courtyard space)



Simulation of Nature: **REPRESENTATIONAL + PHENOMENOLOGICAL** - Open air space + Dynamic Quality of Light (courtyard space)



DESIGN CRITERIA ANALYSIS





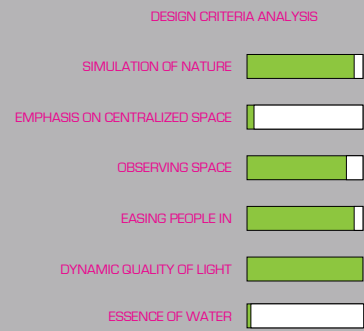
Simulation of Nature: LITERAL
Open air space + Dynamic Quality of Light
(courtyard space)

Simulation of Nature: REPRESENTATIONAL +
PHENOMENOLOGICAL - Open air space + Dy-
namic Quality of Light (courtyard space)



5 \ VESTFOLD CREMATORIUM \ PUSHAK, SANDEFJORD, NORWAY, 2010

Each crematoria is organized in a different way to accommodate the local culture, city and context it is located within. Most crematoria are split into spaces for specific ritual that takes place - typically there are spaces for relatives, spaces for staff and spaces for cremations. The emphasis in the vestfold crematorium is higher in the simulation of nature rather than the centralized space as that is not one of its prime requirements. Through the simulation of nature there is the development of other criteria which become important in the crematoria such as the observation space, easing people in and the dynamic quality of light. The Vestfold Crematorium enhances the simulation of nature through materiality and the cultural landscape that it is located within



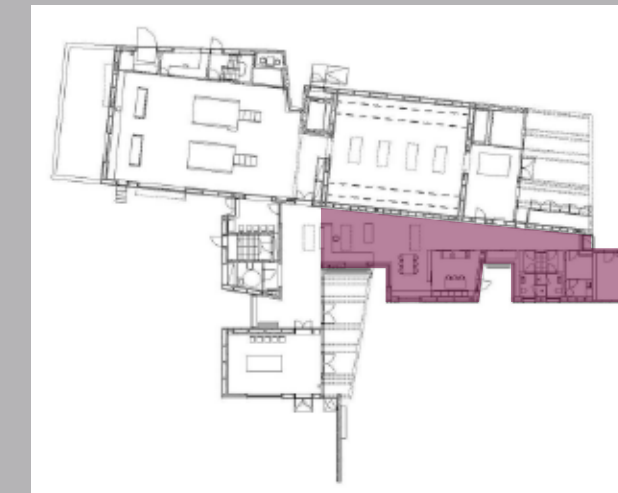
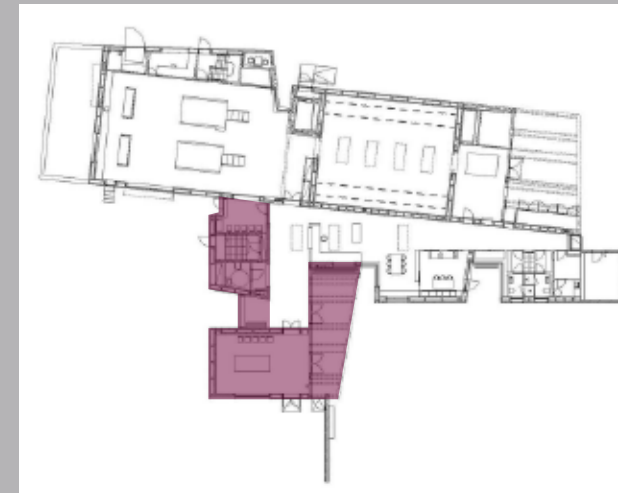
Simulation of Nature: PHENOMENOLOGICAL
atmospheric quality of daylight



- Vestfold Crematorium again is a REPRESENTATIONAL + LITERAL + CULTURAL simulation where the PHENOMENOLOGICAL is achieved through this simulation.



5 \ PRECEDENTS - PASSIVE



Simulation of Nature: LITERAL Dynamic quality of light

Simulation of Nature: REPRESENTATIONAL
Dynamic quality of light LITERAL & Water body



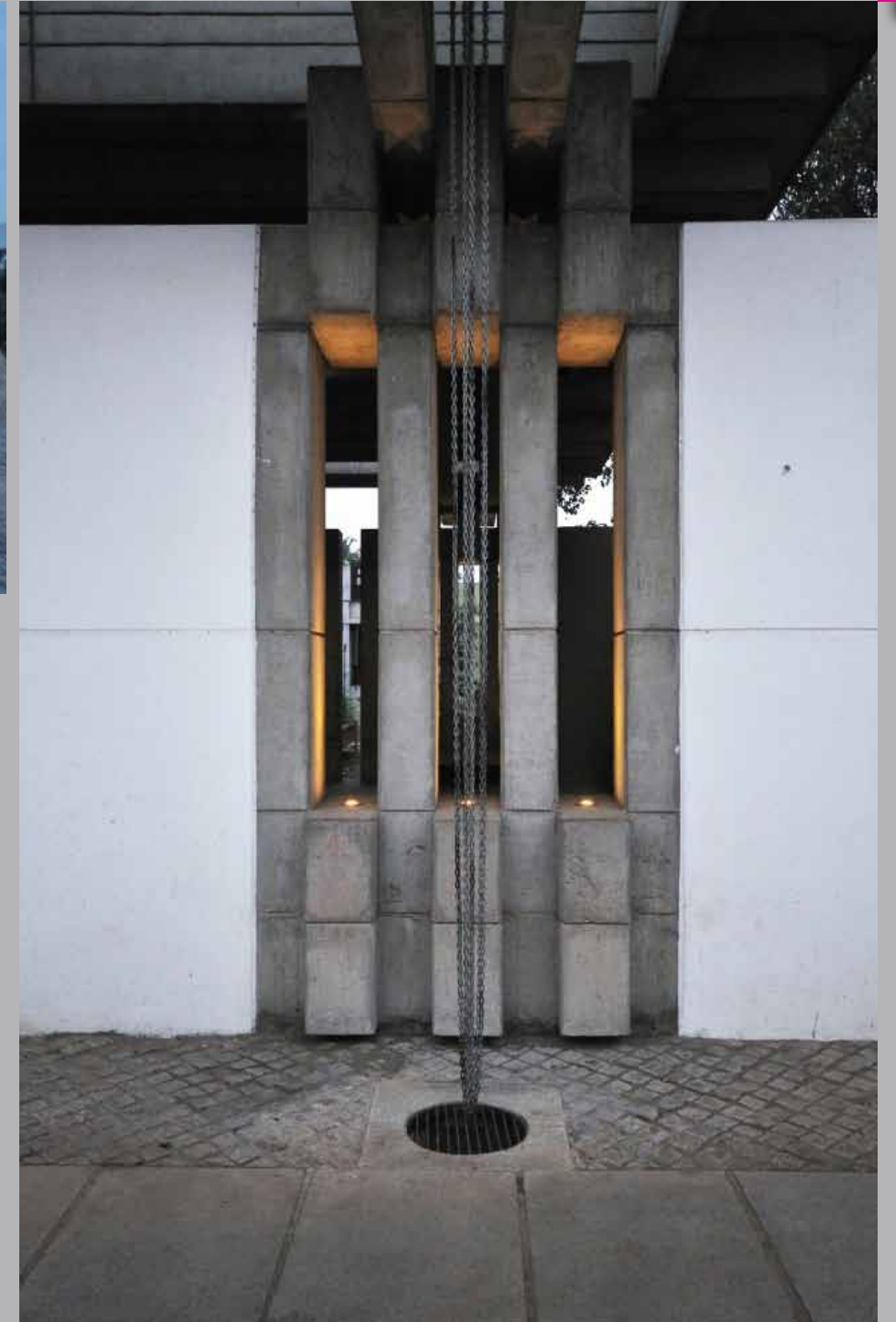
This particular crematorium is located in Tamil Nadu, India where the entirety of the program is located outdoors - most of the simulation of nature is achieved merely through the literal fact that the site is located outdoors (within nature). However, despite being located outdoors the crematorium lacks many of the other design criteria - there is not one specific centralized space, the essence of water is not on the site itself therefore it is most likely located elsewhere. Although the centralized space is not a requirement of cultures and religions it would be an important factor in terms of achieving the perfect simulation of nature through a balanced natural environment. The crematorium in India is a large open, almost monumental space. This is typical of most cremation sites in India - where the majority of rituals and ceremonies take place in the privacy of one's home. However, the actual cremation process is done at a cremation ground.

- The Crematorium charity trust is a completed outdoor space with designated areas for gathering/cremation (all other rituals are carried out in other locations)
- LITERAL + CULTURAL
- This crematorium once again is a literal simulation of nature (natural light/apertures/water feature)
- PHENOMENOLOGICAL





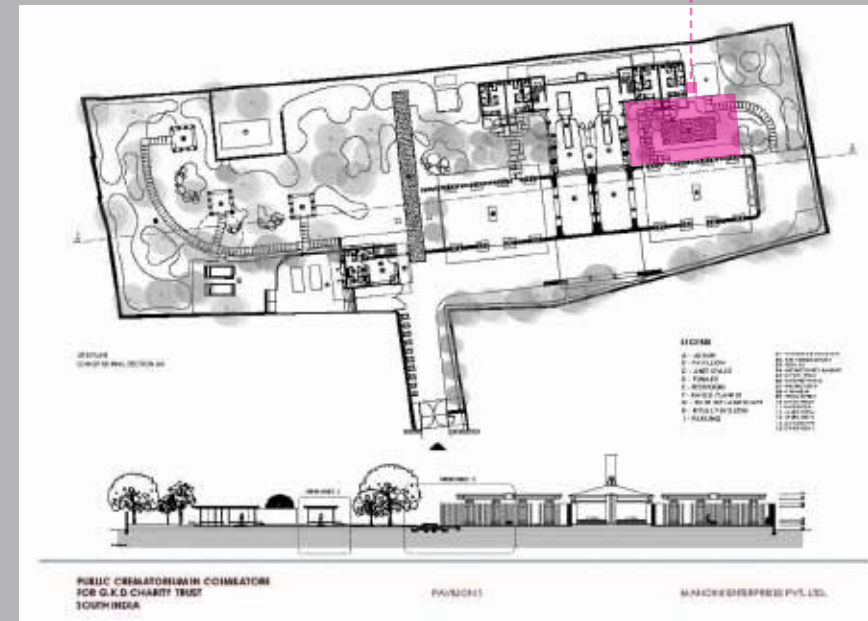
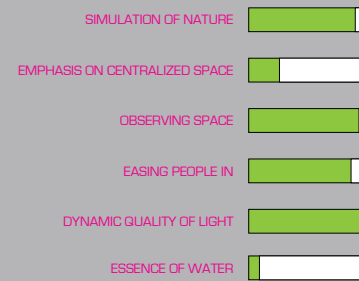
Typically, religious facilities (cremation grounds) in India are public, outdoor events that take place. It is know for the family to have individual ceremonies for specific rituals at home or at a temple.



Simulation of Nature: CULTURAL. Open air space for cremations to take place + dynamic quality of light within the courtyard area - located in a natural environment

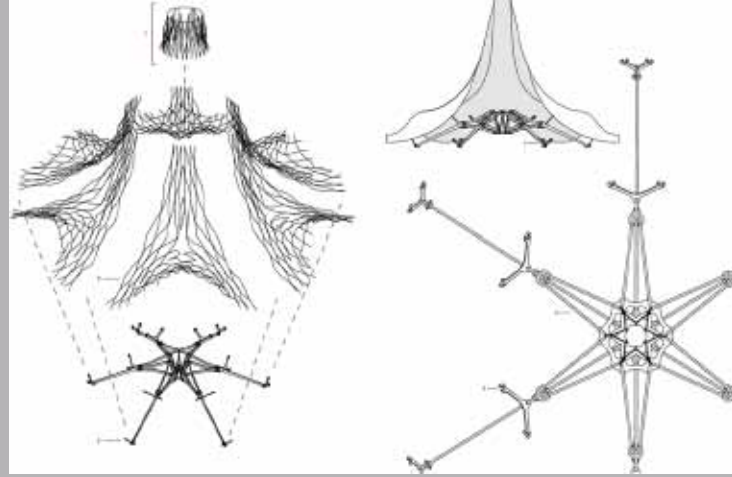
Simulation of Nature: LITERAL. Open air space + Dynamic Quality of Light within the courtyard area - located in a natural environment

DESIGN CRITERIA ANALYSIS



6 \ PRECEDENTS - ACTIVE

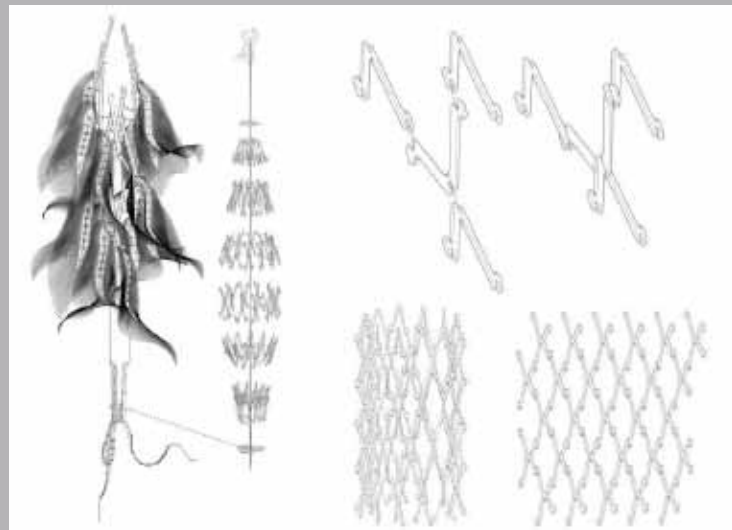
The Hylozoic series is an example of simulating nature through sensory technologies in order to amplify this simulation. The simulation is one that if integrated into the crematoria. The integration can amplify the entire design criteria. Not only will the crematoria have the three primary spaces but also the sensory technology which will enhance the simulation of nature and together these elements can completely change the experience one has in crematoria along with elongate the amount of time one is allowed to spend there (typically a 6-8 hour affair).



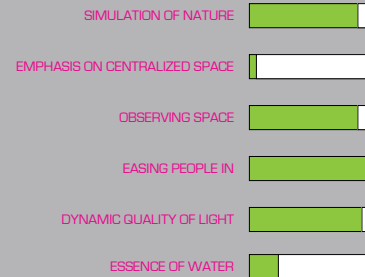
Simulation of Nature: [REPRESENTATIONAL] dynamic quality of light

Simulation of Nature: [PHENOMENOLOGICAL] Creates a sense of phenomena/magical environment for occupants

- All sensory/responsive architecture is primarily REPRESENTATIONAL however, much like the passive precedents - it can use the REPRESENTATIONAL factor in order to achieve the PHENOMENOLOGICAL
- most of the REPRESENTATIONAL aspects of design are visual - some of these are audible (sound of water, sound of movement)



DESIGN CRITERIA ANALYSIS

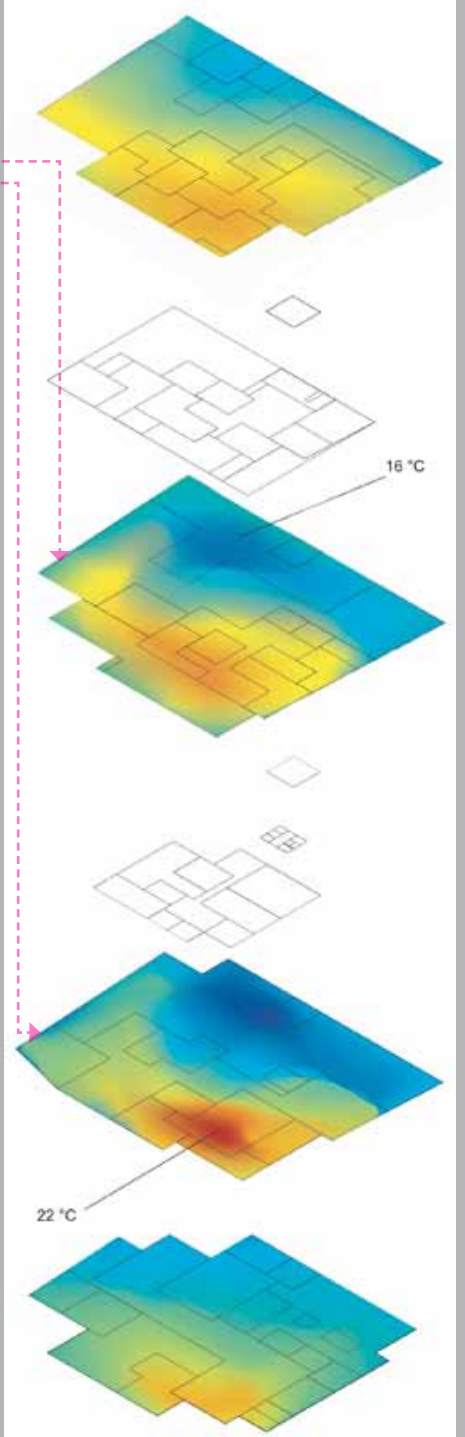
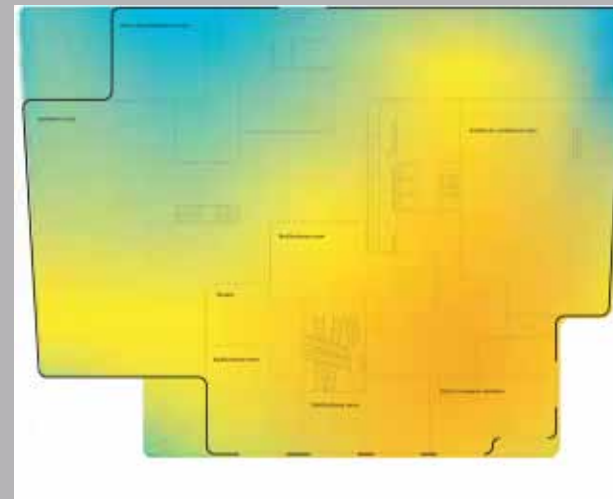
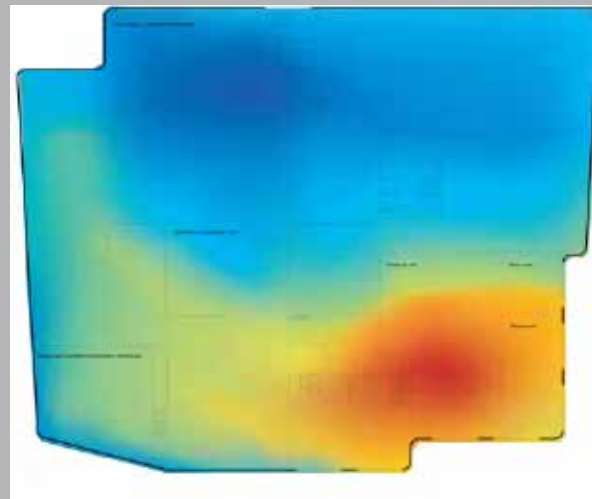
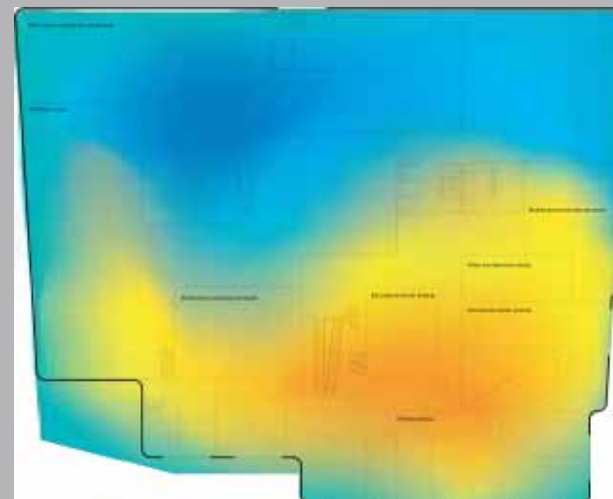
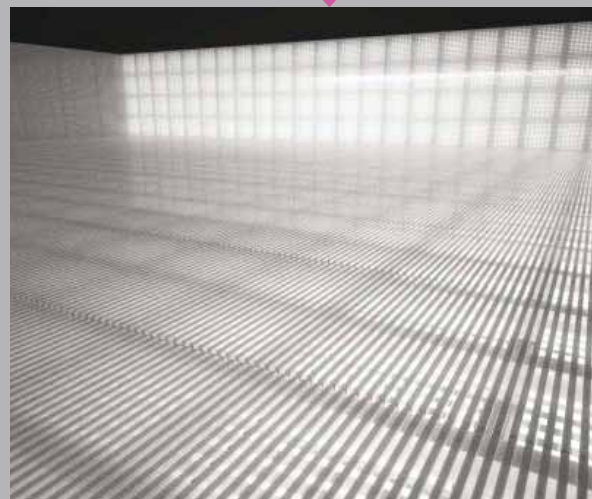


- The Convective Museum in Poland - uses a high temperature of 22 degrees celcius and a low of 16 degrees celcius derived from the requirements of a museum program. The two poles are placed in a diametrically opposed fashion so that the higher pole is cold and the lower pole is warm. Therefore they create an atmospheric quality within the museum through a multitude of temperatures.



Simulation of Nature: REPRESENTATIONAL atmospheric qualities are created through temperature change.

Simulation of Nature: LITERAL - the literal quality is generated through the dynamic quality of light.

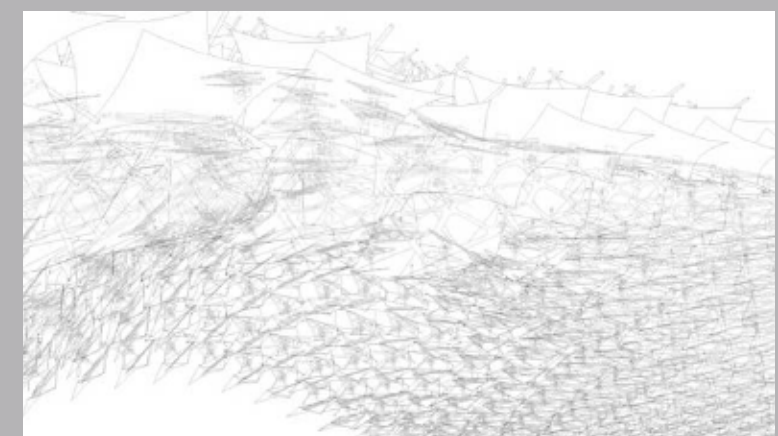
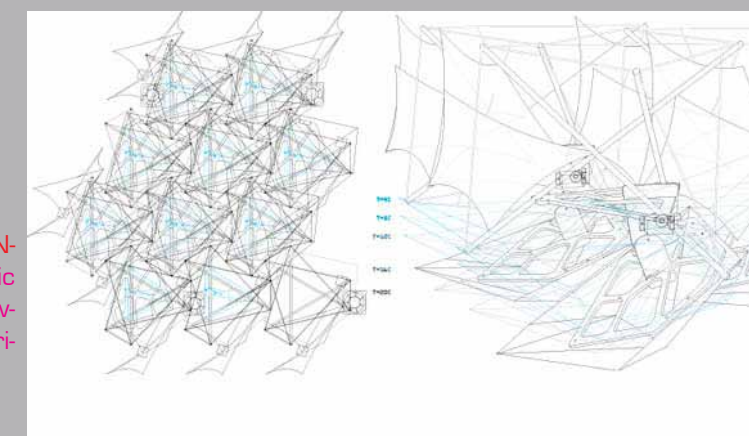
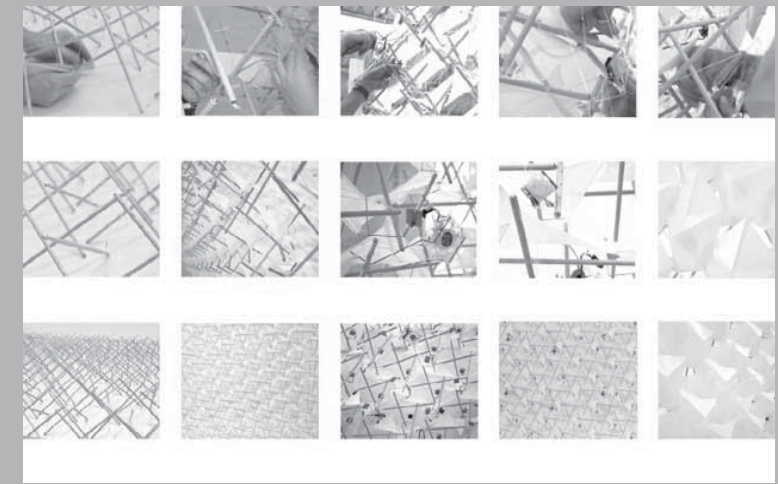
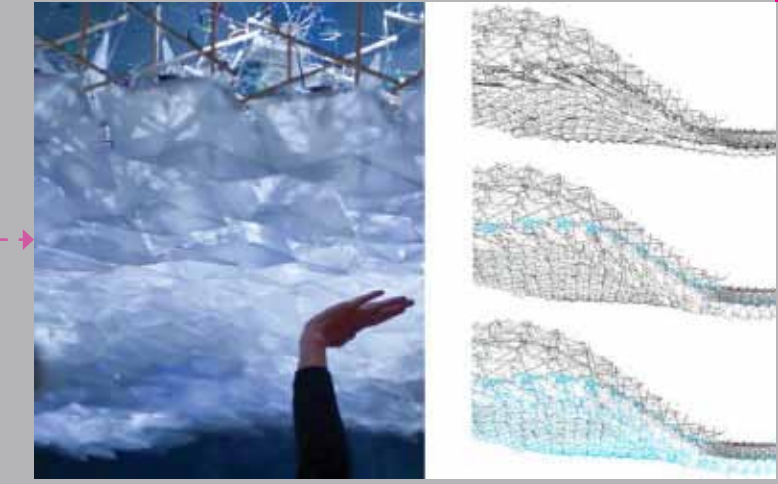
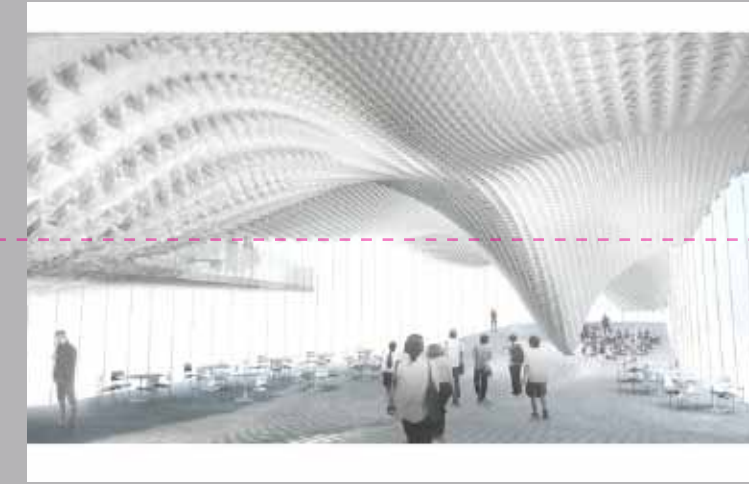
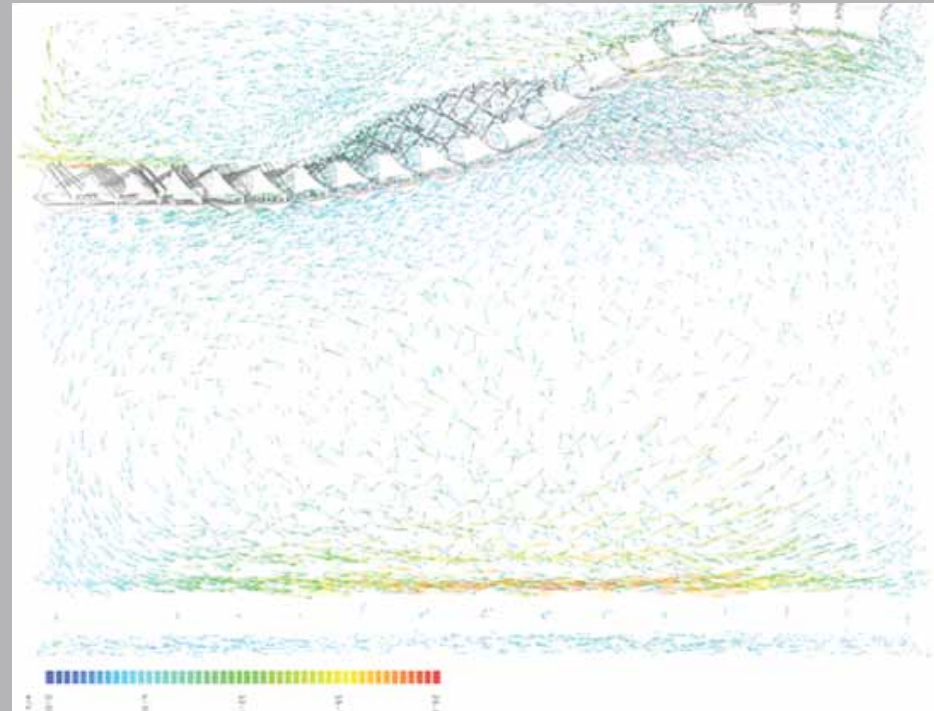


- The Convective Museum in Poland - purely REPRESENTATIONAL + LITERAL in that it uses two temperatures to create a specific atmospheric quality which then generates a dynamic quality of light .

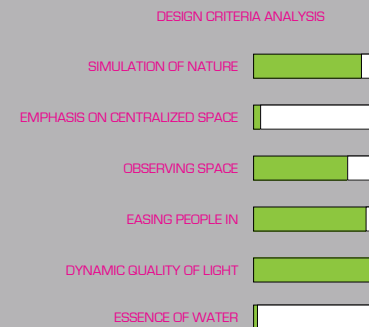
DESIGN CRITERIA ANALYSIS

- SIMULATION OF NATURE
- EMPHASIS ON CENTRALIZED SPACE
- OBSERVING SPACE
- EASING PEOPLE IN
- DYNAMIC QUALITY OF LIGHT
- ESSENCE OF WATER

The Stratus Project, although just a research project is also one that is potentially quite high in the simulation of nature. Being a type of responsive architecture it could be intensified when integrated with a passive architecture. These active (responsive) architecture projects can be superimposed and integrated into passive architecture projects in order to achieve the most effective experience one can have in the crematoria. The simulation of nature is almost as inherent in the sensory precedents as it is in passive projects which shows how much more these simulations can be made visible in responsive architecture such as the stratus project. One of the aims of this project aside from creating a specific atmospheric quality was to develop a conversation between the occupants and the installation - this was to be achieved through temperature, materiality and a continuous informational exchange.



- The Stratus Project is REPRESENTATIONAL but in order to achieve the PHENOMENOLOGICAL it borrows from the primary aspect of this type of architecture - the primary aspect being the dynamic quality of light. Another simulation of nature achieved in the Stratus Project is the LITERAL. This simulation of nature is achieved through the thermal qualities that are being played out in the installation.

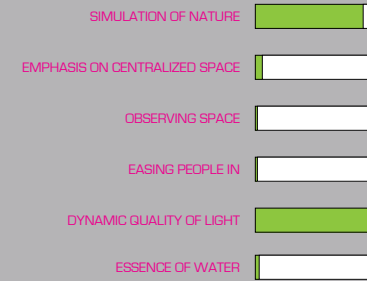


Simulation of Nature: REPRESENTATIONAL through the dynamic quality of light - therefore achieving PHENOMENOLOGICAL- experience.

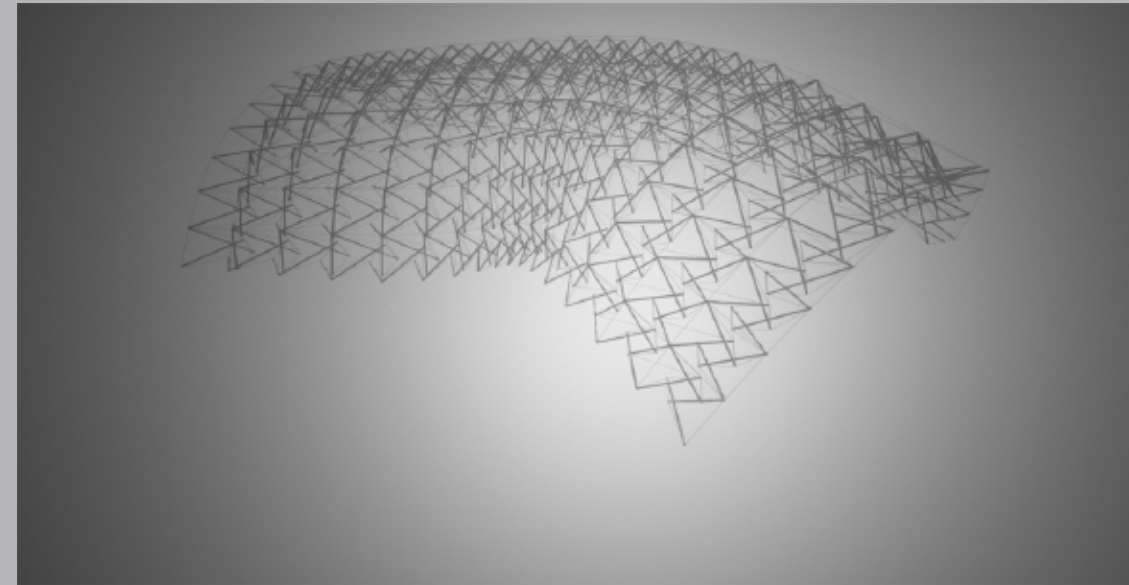
The Prarie House is a project that uses a tensegrity system in addition to a new cladding system in order to improve the environmental performative levels through a new aesthetic. The goal is to reduce the impact of heat on the hot days and reduce the amount of heat required on cold days .

Simulation of Nature: **LITERAL** Created through the dynamic quality of light in the entire site. The reflection of the Sun does seem to achieve some kind of **PHENOMENOLOGICAL** qualities as well.

DESIGN CRITERIA ANALYSIS



- The Prarie house in Chicago, IL (by ORAMBRA - The Office for Robotic Architectural Media & The Bureau for Responsive Architecture) again uses **REPRESENTATIONAL+ LITERAL** techniques in order to create this phenomenal lighting affect - this is dependant of the natural daylight that hits these surfaces



7 \ SITE RESEARCH

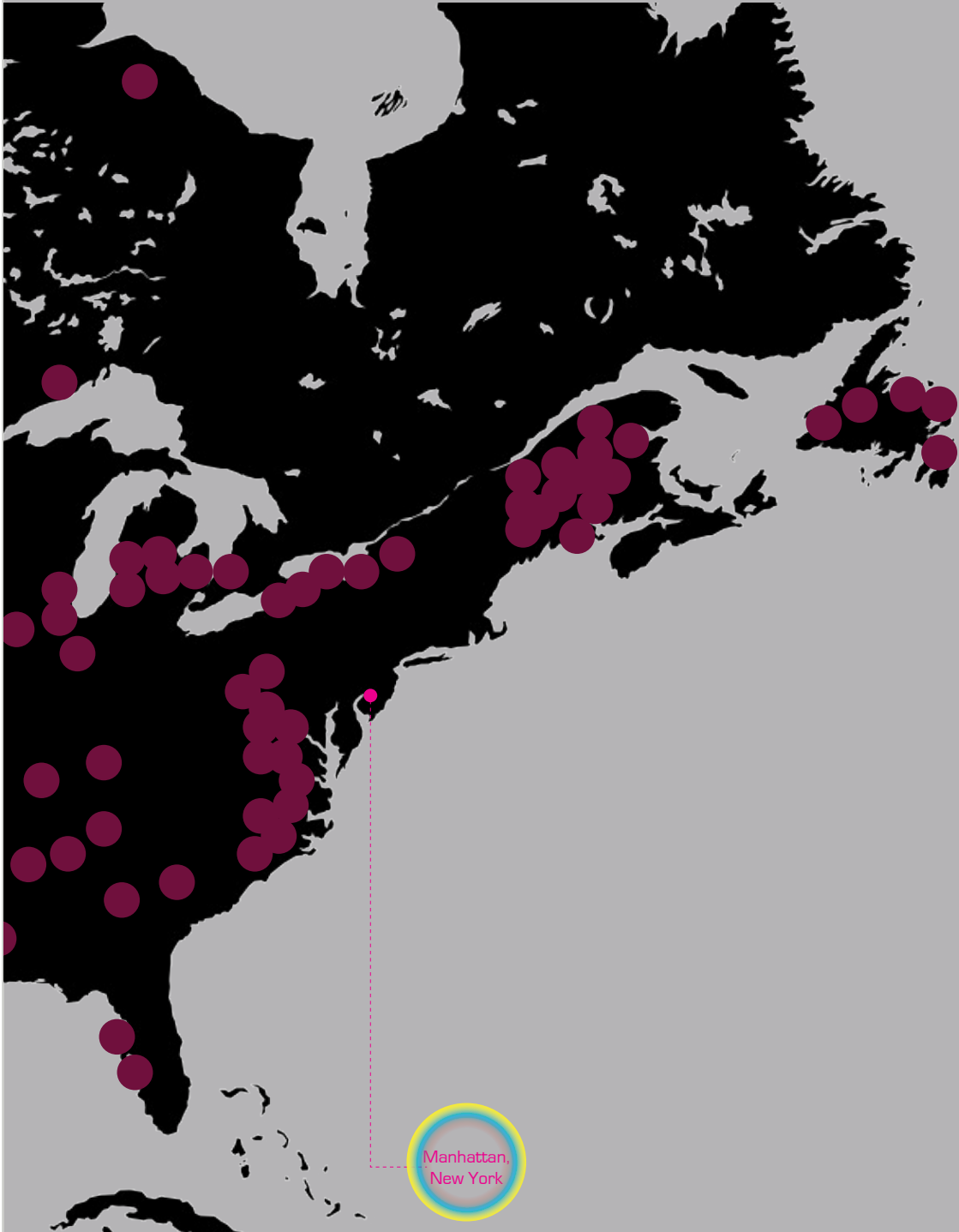
POTENTIAL SITE SELECTION

NEW YORK SAND AND STONE, BROOKLYN NAVY YARD, PIER J, BROOKLYN, NY

- this site is located in brooklyn, new york nearby a wastewater treatment plant and is on the coastline [relationship to nature]
- despite being in a semi-industrial area this could be a potential site because it is easily accessible by public transit and is also located near a waterbody which could play a major role in the final design idea

IMPORTANCE/ RELEVANCE OF SITE:

- has a literal relationship to nature [water,light]
- open/ accessible space - easy to get to in a large city



The map to the left indicates one of the two potential sites I am exploring. The first choice of locations is New York, NY because it has some potential in terms of crematoria.

Currently, the majority of crematoria in New York available to a wide range of cultures have most of the main ceremonies and rituals in house whereas the actual cremation process would take place elsewhere, or vice versa. The location of the funeral homes that carry out these processes are typically located within the city block in a dense neighborhood. Although, this would mean that the funeral homes are accessible - this does not meet the requirements of all the different cultures in New York City.

Being one of the most diverse cities in the world - these facilities should be made in order to host all cremations from different cultures in the world. The funeral home for example does not have a water body - most cultures disperse ashes after the cremation in water.

The location in the Brooklyn Navy Yards - has a immediate relationship to nature as it is located adjacent to a water body. The site is also easily accessible by the subway and therefore makes it out of the city limits (respecting other religions and the codes that need to be applied by).

CREMATION CONSULTANTS, 362 VAN BRUNT ST, BROOKLYN, NEW YORK



these two sites in New York are located within the city and the typical cremation rituals are performed elsewhere [outsourced] - this is probably a zoning code/ regulation

NATIONAL CREMATION SERVICE, 82-19 NORTHERN BOULEVARD, JACKSON HEIGHTS, NEW YORK



Manhattan, New York



Toronto, Ontario

POTENTIAL SITE SELECTION
 BIRCH CLIFF QUARRY, TORONTO, ONTARIO

- the area is a former quarry by the toronto brick company.
- From 1954 to 1960 the old quarry was used as a landfill. In 1960 the landfill was shut down and the site was sold to a development company.
- despite being a former quarry and landfill site this could be used as a potential site for the crematorium with regards to its close proximity to a water body (having a literal relationship to nature) and being in a accessible location via public transport.

- IMPORTANCE/RELEVANCE OF SITE:
- has a literal relationship to nature (water,light)
 - open/ accessible space - easy to get to in a large city
 - most multicultural/diverse city in North America



The map to the left indicates one of the two potential sites I am exploring. The second choice of locations is Toronto, Ontario because it has some potential in terms of crematoria.

Currently, the most culturally diverse city in the world is Toronto. Toronto has several funeral homes that carry out the cremation process but once again the majority of crematoria in Toronto regardless of being available to a wide range of cultures have most of the main ceremonies and rituals in house whereas the actual cremation process would take place elsewhere, or vice versa.

As the most culturally diverse city in the world - these facilities should be made in order to host all cremations from all cultures in the world. The funeral home for example does not have a water body - most cultures disperse ashes after the cremation in water.

The location in the Birch Cliff Quarry, in Toronto, Ontario - has a immediate connection to nature as it is located adjacent to a water body. The site was a former quarry site and may be potentially abandoned therefore making it a large open space adjacent to a water body and consequently being a good site for the new crematorium.

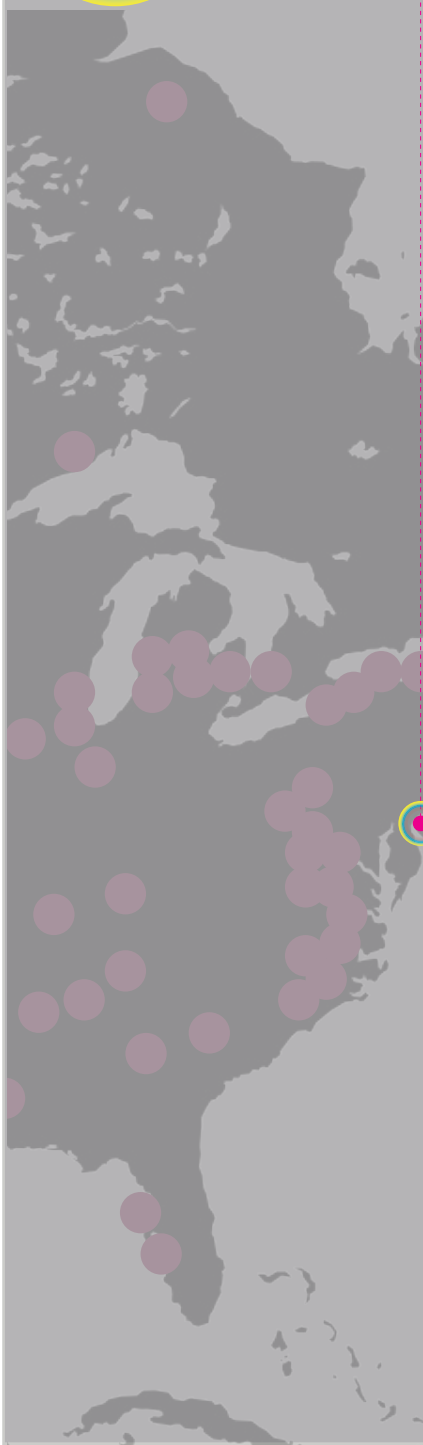
GIFFEN - MACK FUNERAL HOME
 2570 DANFORTH AVE, TORONTO, ON M4C 1L3, CANADA



these two sites in Toronto are located within the downtown area of the city and the typical cremation rituals are performed elsewhere [outsourced] - this is a zoning code/regulation

ST. JOHN'S NORWAY CEMETERY AND CREMATORIUM,
 487 WOODBINE AVE, TORONTO, ON M4E, CANADA





7 \ SITE - NEW YORK, NEW YORK

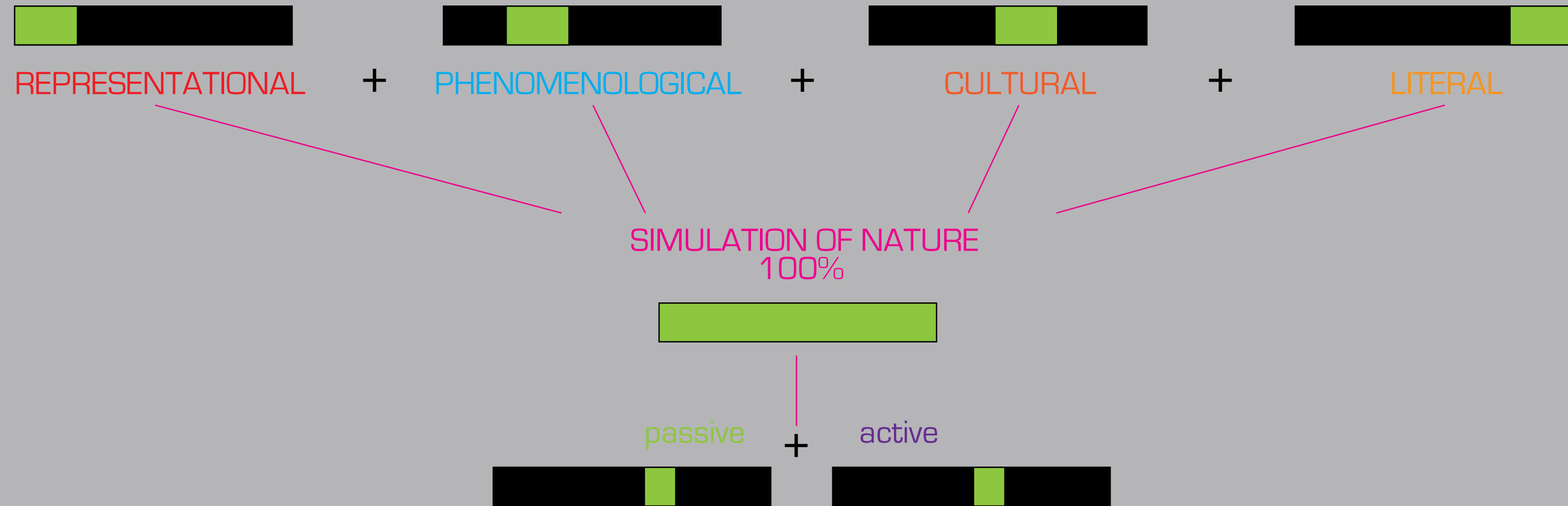
- New York is defined by its diverse ethnicity and is well known as a cultural metropolis. It is the largest city in the United States with a population of 8.4 million, this is defined by a long history of international immigration.
- Over the last 10 years New York City has been increasing faster than the entire New York region which, continues to be the leading metropolitan gateway for legal immigrants that are admitted into the United States.
- Throughout the history of New York City it has been well known as a point of entry for foreigners. The term "melting pot" was coined several years ago to describe the city and its large immigrant populated neighborhoods.
- Upto 800 different languages are spoken in NYC which would make it most linguistically diverse city in the world, however, it is also the largest English speaking city in the work. There are boroughs such as Brooklyn and Queens where on 20% or less of the people speak little to no English.
- About 25% of NYC's population is made up of Africans, Carribeans and African Americans. Less than 1% of the population in New York City are Native American
- Approximately 12% of the population in NYC is Asian American and only 0.1% of Pacific Islanders. 2% of the population are made up by Multiracial Americans and Hispanics and Latinos make up about 27%.



7 \ SITE - TORONTO, ONTARIO

- Toronto, with a population of 2.79 million people (5.5 million in the GTA - Greater Toronto Area) is heralded as one of the most multicultural cities in the world and is ranked as the safest large metropolitan area in North America by Places Rated Almanac. Over 140 languages and dialects are spoken here, and just over 30 per cent of Toronto residents speak a language other than English or French at home.
- In 2006, the City of Toronto was home to 8 per cent of Canada's population, 30 per cent of all recent immigrants and 20 per cent of all immigrants.
 - Between 2001 and 2006, Canada received 1,109,980 international immigrants. The City of Toronto welcomed about one quarter of all immigrants (267,855) to Canada during this period of about 55,000 annually.
 - Half of Toronto's population (1,237,720) was born outside of Canada, up from 48 per cent in 1996.
 - In 2006, half of all immigrants to the City of Toronto have lived in Canada for less than 15 years.
 - In 2006, more than half of all immigrants living in the City were age 25 and over; 7 per cent were pre-school age 5 and under; 16 per cent were school age 6 to 14; and 22 per cent were youth 15 to 24.
 - In 2006 the City of Toronto had 45 per cent of the GTA's population in 2006, and was home to:
 - The top five visible minority groups in Toronto were:
 - South Asian at 298,372 or 12.0 per cent of our population;
 - Chinese at 263,075 or 11.4 per cent;
 - Black at 208,555 or 8.4 per cent;
 - Filipino at 102,555 or 4.1 per cent;
 - Latin American at 64,860 or 2.6 per cent.

8 \ DESIGN CRITERIA



The diagram shows that if the simulation of nature is to be at it's highest there would have to be a combination of 6 aspects to achieve this:

- representational aspect - one that is illustrating nature through other means
- phenomenological aspect - creating an atmosphere through metaphorical imagery
- cultural aspect - of or relating to several/specific cultural practices
- literal aspect - place in a natural environment
- passive architecture - one that does not comprise of sensory technologies to simulate nature in artificial ways
- active architecture - one that does comprise of sensory technologies to simulate nature in artificial ways

NEW YORK

- Bodies are buried in established cemeteries

- ashes cannot be scattered anywhere - permission is required or it has to be a private property of the family

- cremation + rituals take place in two different spaces (rituals are typically outsourced)

- Some cemeteries or funeral homes provide gardens for scattering ashes

- Cremation ashes are harmless, there is no public health risk involved in scattering ashes. Use common sense and refrain from scattering ashes in places where they would be obvious to other

- You may scatter ashes in your own garden if you choose to do so.

- The federal Clean Water Act requires that cremated remains be scattered at least three nautical miles from land.

- If the container will not easily decompose, you must dispose of it separately.

- The EPA does not permit scattering at beaches or in wading pools by the sea.

SWITZERLAND

- Ashes can be scattered anywhere

- Ashes can also be scattered in the River Reuss (as of 2012)

- Scattering ashes in the open, or burying the urn in a forest or even compressing the ashes into a diamond - is typical of swiss funerals.

Switzerland and the Czech Republic are two among European countries that allow a large amount of freedom to families and loved ones following a death and also have the highest cremation rate of 80%.

In 20% of cremation cases - ashes are scattered in the open - this is no longer a problem for the environment because these days - the ashes are very fine.

Previously banned religious rites in Switzerland have now received authorization:

- Hindus are now allowed to throw ashes into the River Reuss

- cities like Bern & Zurich also allow this

INDIA

- Ashes are scattered in the River Ganges

- Generally, Hindus believe that life and death are part of the concept of samsara - rebirth.

- When a Hindu is approaching death - a priest and the family gather with the dying person and chant mantras or play recordings of mantras being chanted.

- When death seems imminent, the body should, if possible be transferred to a grass mat on the floor.

- When death has occurred those gathered will avoid touching the body, as it is seen as impure.

- The funeral should take place as soon as possible.

- The body is washed by family members and close friends.

- For the ritual washing, the deceased's head should be facing southward. A lighted oil lamp as well as a picture of the deceased's favorite deity should be kept by the deceased's head.

- The body may also be washed in purified water. While the body is being washed, those washing should recite mantras. Once the body is sufficiently cleaned, the big toes should be tied together, the hands should be placed palm-to-palm in a position of prayer, and the body should be shrouded in a plain white sheet. If the person who died was a married woman who died before her husband, she should be dressed in red.

- Generally, a brief wake is held before the cremation.

JAPAN

- The family (all members) must watch the coffin be placed into the furnace

- Once the cremation has taken place the ashes are separated from the bone (a typical ritual after the body has been cremated)

- Ashes are split into several urns (if the family requests) and then distributed throughout the family

-Cremated remains usually end up in smaller sizes and therefore can be shared amongst the surviving relatives.

- Gravestones have names engraved prior to people being deceased. Names of those deceased/alive are differentiated by color (white/red)

- At any other time if two people were to hold anything with chopsticks simultaneously it will remind people of the funeral of a close relative causing everyone pain.


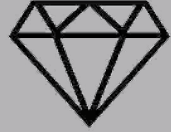







- To ensure comfort for the deceased the bones of the feet are placed first and the bones of the head placed last.

- Sometimes the ashes are divided between many urns: some ashes may go to a family grave, a temple or a company grave.

- Many companies have their own graves in the largest graveyard in Japan

- Some company businesses feature gravestones that are related to the company: the Coffee Company, UCC - has a gravestone in the shape of a coffee cup.

- A typical Japanese grave is usually a family grave consisting of a stone monument with a place for flowers, a place for incense, water in front of the monument, and a chamber or crypt underneath for the ashes. You'll often see sprigs of Japanese star anise in the vases. At the bottom is a sealed chamber for the ashes which are held in ceramic pots. The front of the stone pillar generally states what family the grave belongs to.

- GARDEN 
- MEMORIAL DIAMOND 
- URN 
- GATHERING 
- PICKING BONES 
- COFFIN (DEATH) 
- CREMATION (TRADITIONAL) 
- WATER 
- CREMATION (FURNACE) 

NEW YORK

- Some cemeteries or funeral homes provide gardens for scattering ashes

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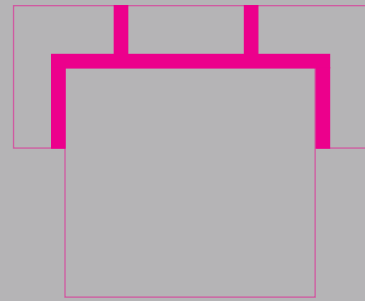
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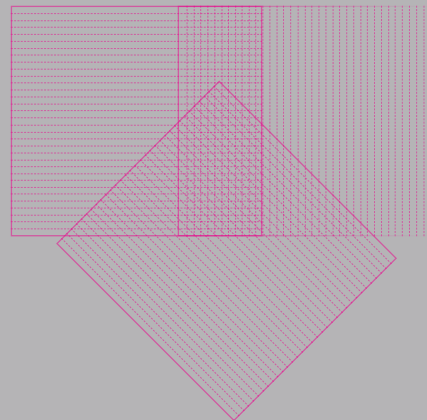
9 \ DIAGRAMS

- INITIAL EXPLORATION OF DESIGN CRITERIA-

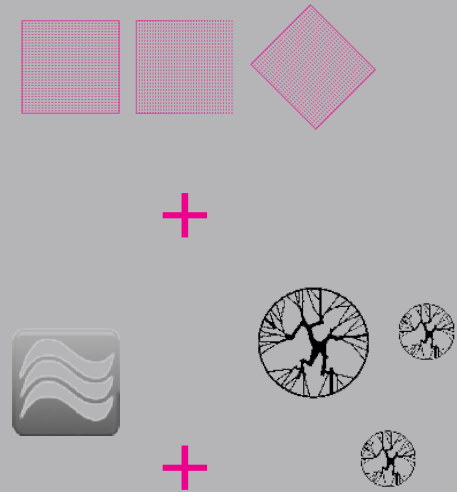
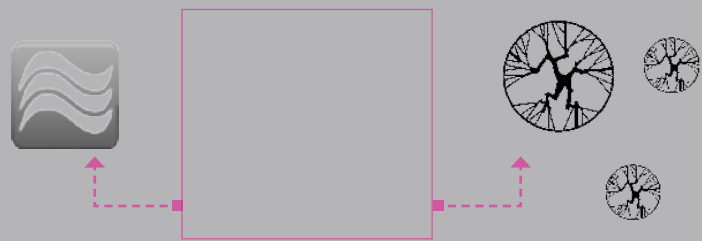


There are three primary spaces that need to be considered in the crematorium. The space for cremation, the space for relatives and gathering and the space for staff.

- CREMATION
- RELATIVES/GATHERING
- STAFF

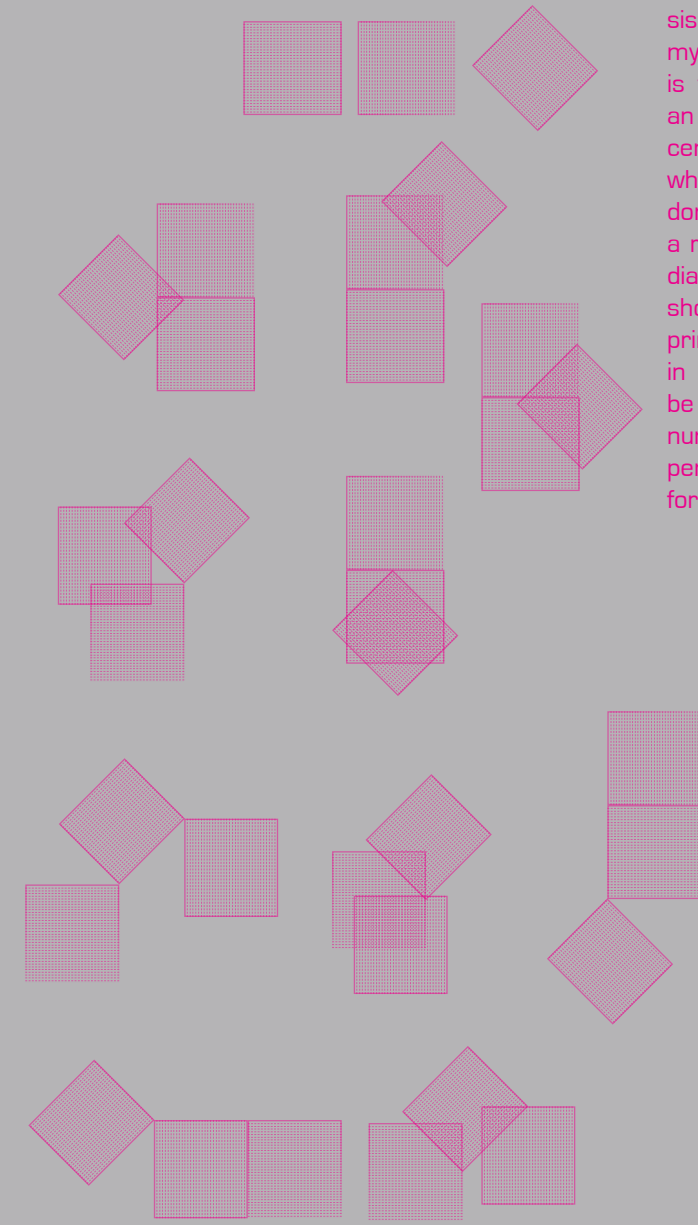
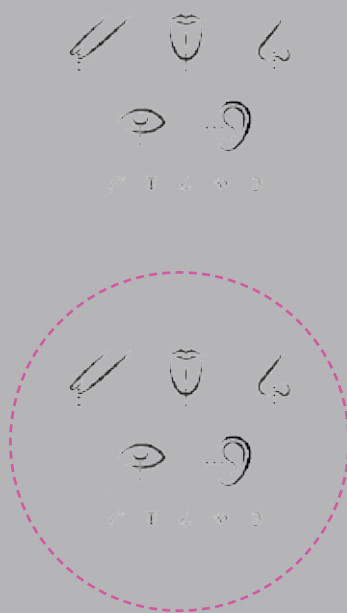


My proposal is integrating these spaces and simulating the entire crematorium to nature (green spaces / a water body/ daylighting)

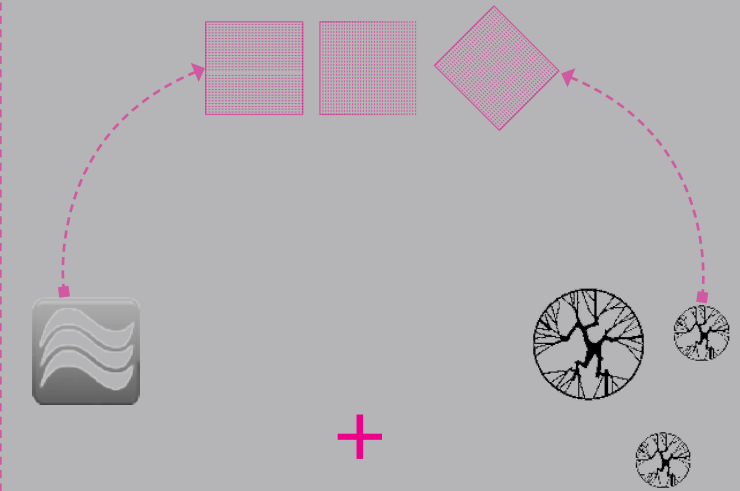


The diagram above is showing that if we can integrate the three primary spaces in crematoria with sensory technologies the most effective experience is created for those who visit crematoria. It becomes a lasting and memorable experience.

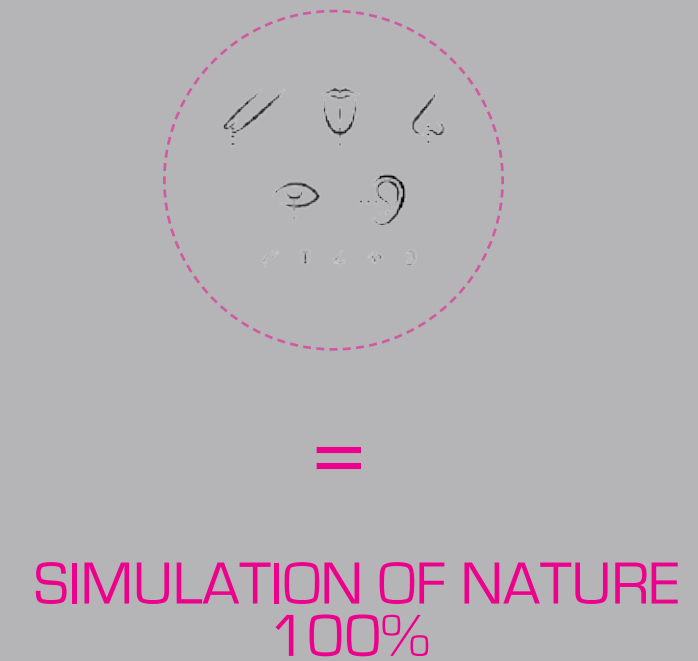
INTEGRATED WITH SENSORY TECHNOLOGY

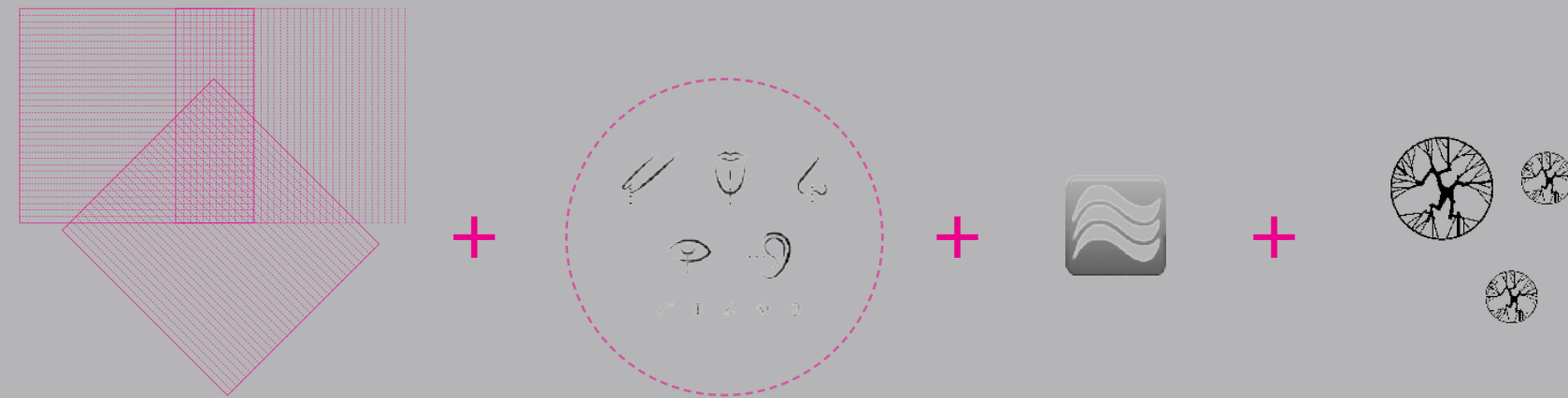


Through the analysis of crematoria my understanding is that some have an emphasis on centralized space whereas others don't consider this as a requirement. The diagrams above show how the three primary spaces in crematoria can be organized in a number of ways depending on the final form of the building.



In addition to the other design criteria explored bringing in the simulation of nature is an important aspect in the proposal. If the crematoria is located within city limits these qualities may need to be emulated that of crematoria that are typically outside of city limits. In order to amplify this simulation of nature - my proposal is to bring the nature in to the building.

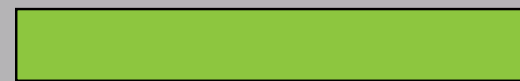




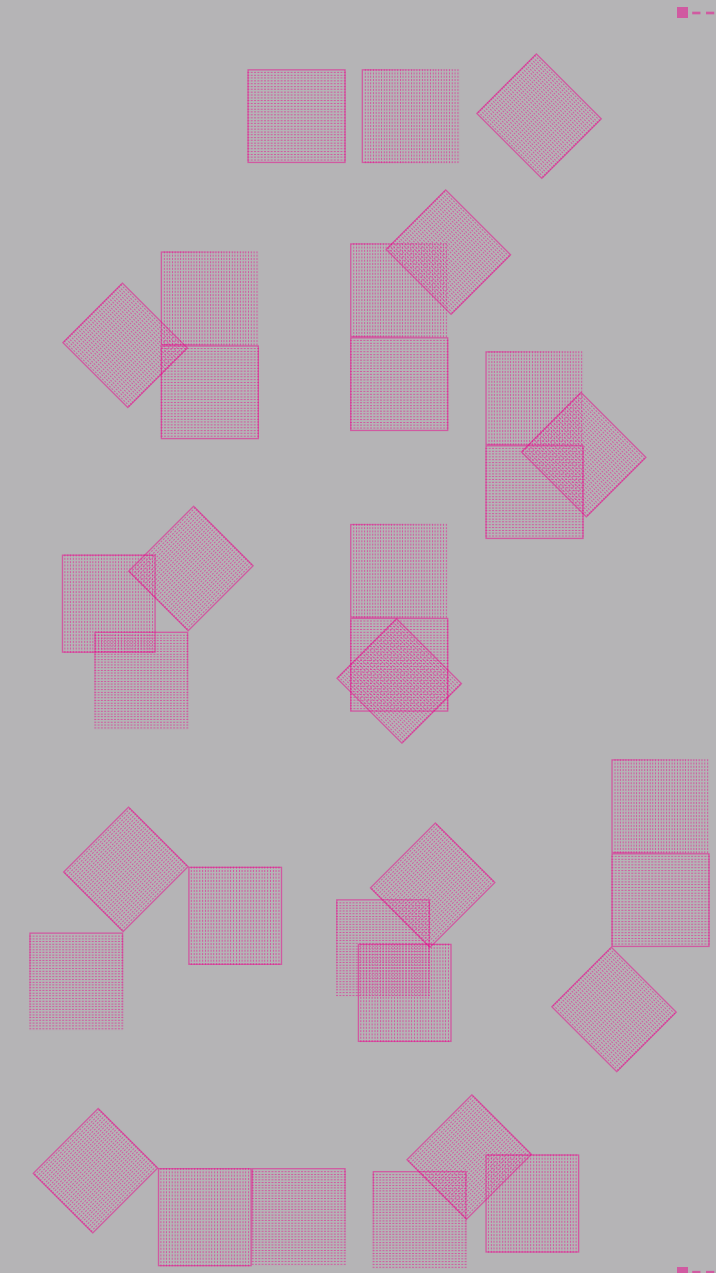
- CREMATION
- RELATIVES/GATHERING
- STAFF

=

SIMULATION OF NATURE
100%



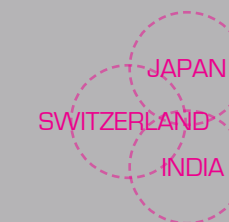
Through the integration of these three spaces (cremation areas, gathering and staff areas) in combination with sensory technologies and whether REPRESENTATIONAL, PHENOMENOLOGICAL, CULTURAL, or LITERAL aspects the maximum simulation of nature can be achieved. Through the integration of PASSIVE and ACTIVE architecture this would be even more enhanced and in addition to this - a secondary program of a hotel would compliment the entire space and what it is trying to achieve.



The three required spaces regardless of their orientation should be integrated in order to achieve the maximum simulation of nature. By integrating these three spaces the crematorium will be accessible to all cultures.

Certain spaces may be shared by two cultures and therefore they may be integrated in order to accommodate all of both of the cultures associated with that space.

This approach will also avoid unnecessary repetition of spaces.



= INTEGRATION + MULTI-CULTURAL

10 \ ADDITIONAL PROGRAM



Holiday Inn



Usually, cremations and the rituals to follow and planning an entire funeral when one has deceased takes 3-5 days, sometimes longer. In some cultures these rituals include a wake or dinner afterwards whether the family gather and mourn.

In order for this to be a completely accessible crematorium a possible additional program would be a hotel to help this process be easier.

Typically, crematoria are located on the outskirts of a city and therefore members of the family have to travel a long distance to attend this funeral.

Having a hotel as the additional program would be the solution to most families worries about where to stay and whether the wake would have to be organized in a different location.

Although the main program of the project is the sensory crematorium the hotel would be an addition to this as a way to solve this issue.



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