UNESCO

Return to Sender
Joe Travers-Jones
Unit 21 Year 4 - 2017

BENVGA 08 Design Realisation Report
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U N E S C O

24th June 2017

FAO:

Mr Nils Ludwig
Administration Office,
Skogskyrkogården. Sockenvägen.
122 33 Stockholm, Sweden.

RE:
Skogskyrkogården site concerns

Mr Ludwig,

It is my understanding that as custodian of the Skogskyrokgarden World Heritage Site it is you who is responsible for all issues relating to your current UNESCO listing and World Heritage Status. Regrettably I am writing to inform you that it has come to the attention of the World Heritage Committee that the ability of the Skogskyrokgarden site to satisfy selection criteria ii and iv is under threat. This is of great concern to the Europe and North America Unit as a site encapsulating such unique natural and cultural significance is rare. It would be regrettable to see the placement of the site upon the Danger List or lost of World Heritage status altogether. To ensure that the site is to remain on the World Heritage List the World Heritage Centre have reviewed the case file and have investigated into the potential of further development on the site.

During the World Heritage Committee meeting held on 17th September2017 it was unanimously agreed that an architectural solution would be most suitable to reaffirm the ability of the Skogskyrokgarden to meet the criteria for World Heritage Status. It is paramount that any enterprise must not impinge on the existing natural and cultural qualities of the site but should serve to improve the sites management, preservation and promotion of the site to a wider community of people.

The following document has been produced by architects as part of a commission funded by the Europe and North America Unit to devise a strategy that meets more than one selection criteria upon completion, critically improving the site from the original listing. We believe that this project could formulate a sustainable model for development across all sites, also acting as means of promotion on an international platform.

Please study the following manual to gain a better understanding of how the Skogskyrokgarden site can be saved from de-listing.

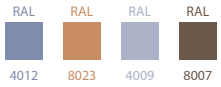
Kind Regards,

Ms Anatole-Gabriel
UNESCO Chief Officer
Europe and North America Unit

E S

SENDER:
Isabelle Anatole-Gabriel
Maison de l'UNESCO
7 Place de Fontenoy.
75007 Paris, France.

C O



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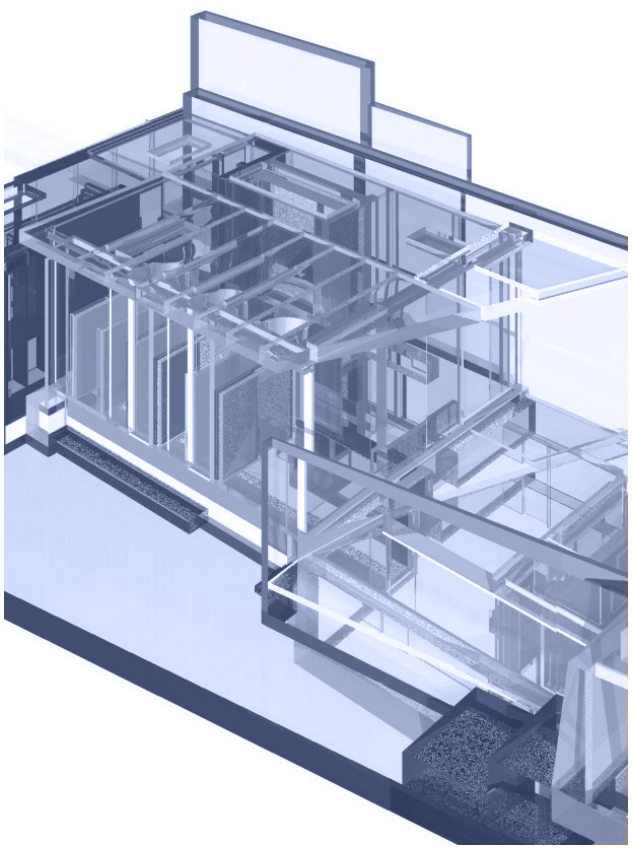
SECTION 1 : BUILDING FORM, SYSTEMS, PLANNING AND CONTEXT



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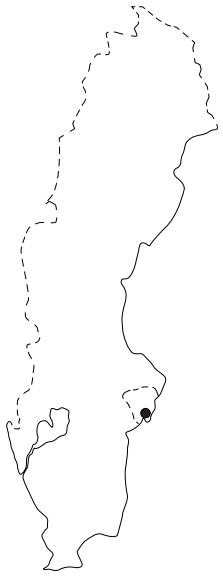

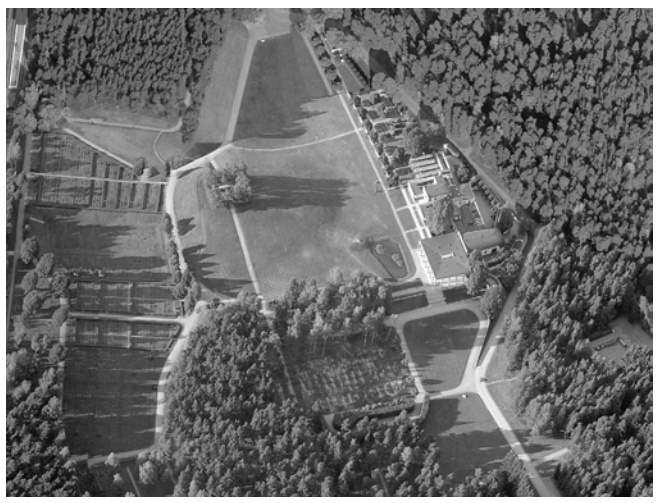

SKOGSKYRKOGÅRDEN CEMETERY, STOCKHOLM

Skogskyrkogården's history begins at the beginning of the 1900s, when it became apparent that Stockholm's cemeteries were insufficient and needed complementing. Stockholm City Council decided to build a new cemetery south of the existing Southern Cemetery. At the time, cemeteries were generally considered "Gardens of the Dead", with grandiose parks, tree-lined avenues and impressive headstones raising a kind of memorial for the dead. The city's cemetery committee had a desire to move away from this ideal and to instead create a cemetery centred on the landscape that already existed on the chosen site.

Over the next two decades, the unique cemetery gradually took shape. The two architects, Asplund and Lewerentz designed interventions that brought focus to the surrounding woodland forest. A thoughtful landscape was created between buildings that nestled into the immersible forest providing intimate sheltered gardens, blocks of graves within forest and a pine covered boulder hilltop at the entrance to the site, highlighting key vistas within the site.

Some of Sweden's foremost artists, including Sven Erixson, Carl Milles and Otte Sköld, also contributed with decorative elements embedded within the scheme to delivery the 'Harmonic whole' the architects set out to achieve with the scheme.

The cemetery now formed a harmonic whole combining nature, architecture and artistic ornamentation — a contrast to typical urban cemeteries that characteristically exhibit linear rows of monuments and hard surfaces. The site was considered to be a great success and set precedent for places of worship and mourning across the world. It was agreed by Stockholm City Council that the Skogskyrkogården site must be "frozen" in its original form, with any calls for adaptation to modern demands rebuffed. The result is that even the smallest details have remained true to the original design, often with significant elements archived in storage and replicas taking the place of the original on the site.

It is this unique heritage and need for architectural and cultural preservation that enabled the site to be listed on the UNESCO World Heritage List of cultural and natural heritage sites of outstanding universal value in 1994. The world heritage listing ensures Skogskyrkogården preservation and protection for future generations.

1912
The Stockholm City Council decides to allocate an area of land in the south of Stockholm as a cemetery. The 100 hectare area consists mainly of a gravel and sand ridge covered in coniferous forest.

1914
To find the designer of the new cemetery, an international architectural competition is announced. In brief stated that architectural and artistic expression was paramount but must preserve the original natural values of the site. The area was to be given a dignified, harmonious air, and it also had to be easy for the public to find their way around it.

When the Cemetery Committee announced the international competition to design Skogskyrkogården in 1914 two great Swedish architects, Erik Gunnar Asplund and Sigurd Lewerentz, decided to produce their entry together.

Their entry "Tallum" won the competition and work started a year or so later. Together they created a unity of landscaping and buildings that has become one of the world's leading architectural sites. Lewerentz was responsible for much of the landscaping. He also designed the classicist Chapel of Resurrection in the southern part of Skogskyrkogården. Asplund designed the other main buildings in a modern functionalist style: the Woodland Chapel, the Woodland Crematorium with its three different chapels, and the Tallum Pavilion visitors center. Asplund and Lewerentz both came to be seen as leading architects of the 20th century.

1915
The competition is closed, and first prize is awarded to the young architects Gunnar Asplund and Sigurd Lewerentz for their "Tallum" proposal.

1920—32
The wall around Skogskyrkogården is built by unemployed people from Stockholm. It is made of stone and is approximately 3.6 km long.

1940
The Woodland Crematorium and the three chapels, Tron (faith), Hoppet (hope) and Heliga korset (the holy cross), are completed after three years of construction. The buildings are inaugurated in June, and Asplund passes away three months later.

1961
Inauguration of the Remembrance Garden. It was designed by Lewerentz and is the first of it's kind in Stockholm.

1994
Skogskyrkogården is entered onto the UNESCO World Heritage List. The list consists of cultural and natural environments that are of outstanding universal value. This means that Skogskyrkogården must be cared for and preserved for future generations.

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CHOSEN SITE OF DEVELOPMENT

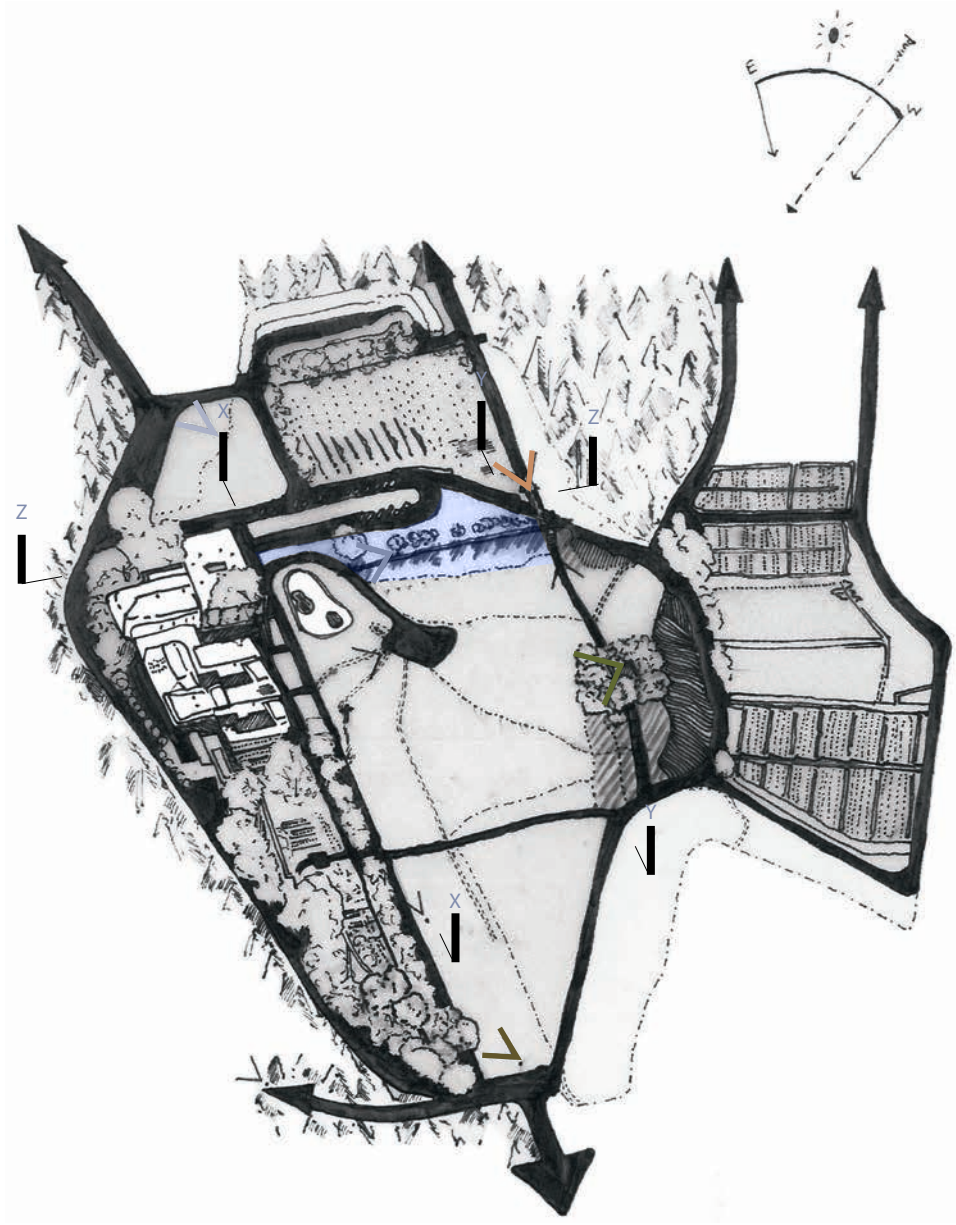
Upon arrival to Skogskyrkogården visitor enjoy a number of constructed views that start to provide glimpses of the different building and landscape characters. It is only by proceeding further into the site that these architectures moments reveal themselves in clearly choreographed moments designed by Asplund and Lewerentz . Each self contained moment is distinct, yet connected to the next, forming a procession of sequential spaces that are intimate and highly considered.

As the visitor moves further into the site the buildings begin to reveal themselves through the woodland or beyond the undulating landscape. The first, The Chapels of Hope and Faith is one of the most significant and recognisable buildings on the site . This complex arrangement of buildings forms three chapels and a crematorium emerges from the treetops and the viewer proceeds up the sloping columbarium lined footpath. It is only at the top of this gentle slope that the terrain starts to level off and the building can be seen in its entirety. This constructed platform that sits behind the hilltop creates an apex of several key intersections of routes through the site. It is from this position that the visiting population can re-orientate themselves within the site by experiencing a number of key vistas, enjoying views extending towards several other buildings such as the Woodland Chapel and Chapel of Resurrection.

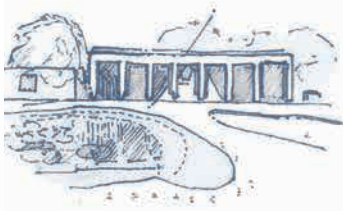
The chosen site (see adjacent images) lies at this intersection of routes directly opposite the Colonnade structure that extends from the Chapels of Hope and Faith. This site has been chosen due to the prominence in its positioning, enable the project to directly address the existing significant architectures of the site and act as a commentary on how to develop on a site of World Heritage.

Although the site is in close proximity to the Chapels the location also benefits from the seclusion of the nearby hilltop. This will allow for the proposal to remain unseen by much of the visiting population unless they decide to engage with the Skogskyrkogården site by proceeding up the footpath towards the Chapels of Hope and Faith, following the curvature of the hilltop and gradually revealing the new development. It is at the intersecting site where new development can further act as a means of navigating the site by highlighting the existing architecture and showcasing the significant moments of reflection and observation designed by Asplund and Lewerentz.

Site Analysis - Circulation and moments of significance



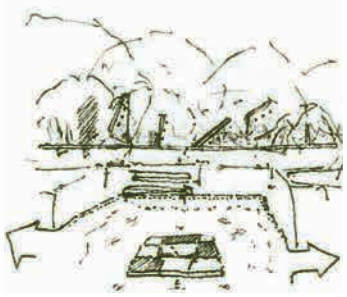
Arriving Vista



Chapels of Hope and Faith

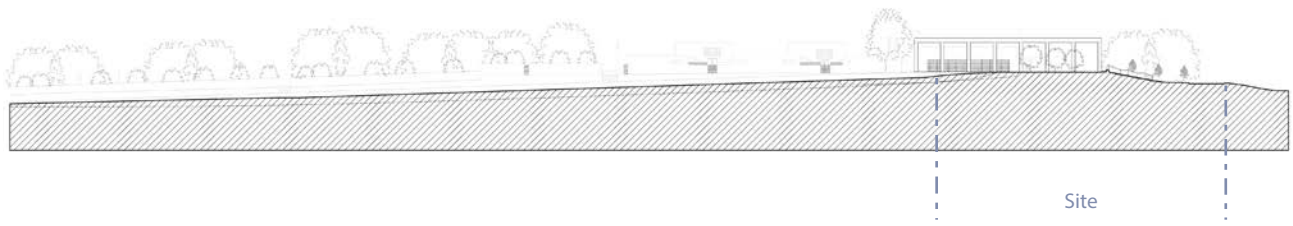
Woodland Chapel

Chapel of Resurrection

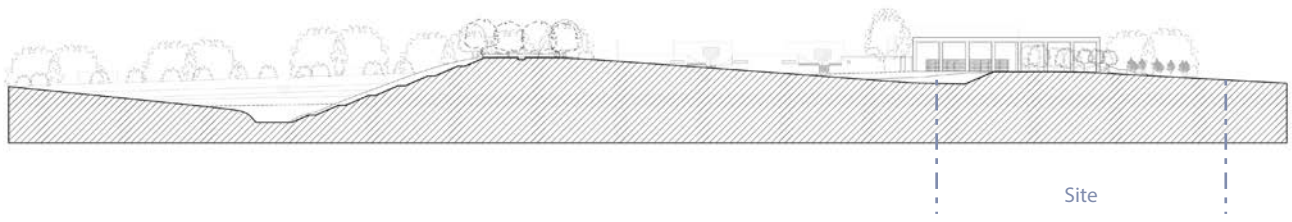


Hilltop Vista

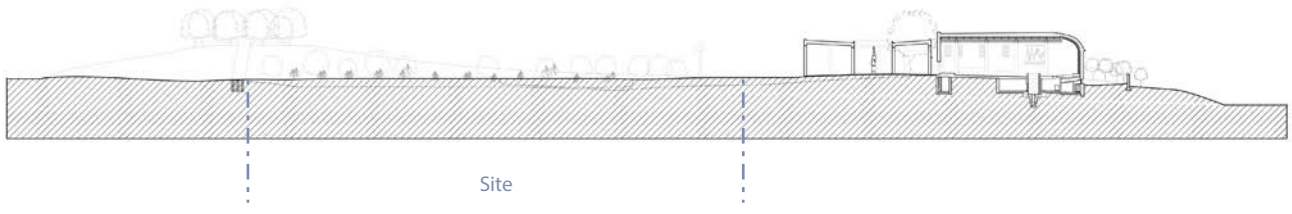
Topographical Studies
Site Section X-X



Site Section Y-Y



Site Section Z-Z



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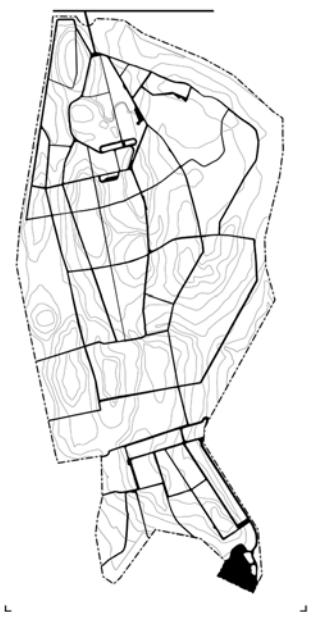
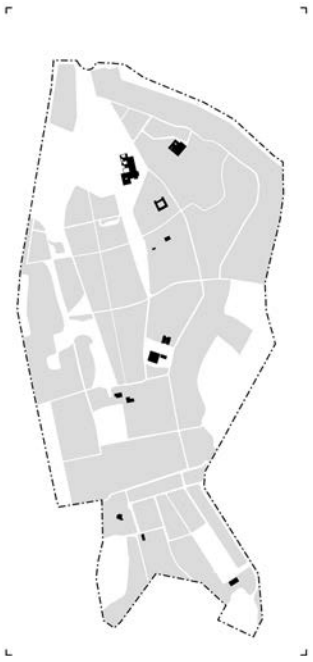
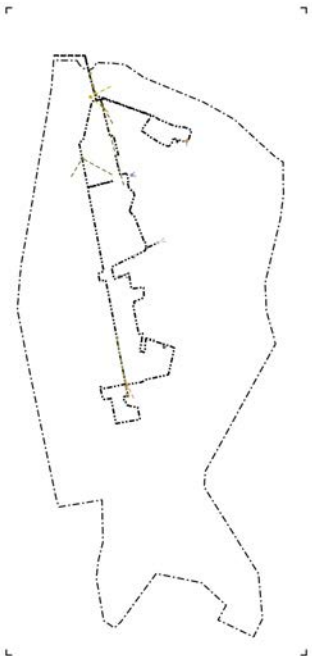


1_BOUNDARIES

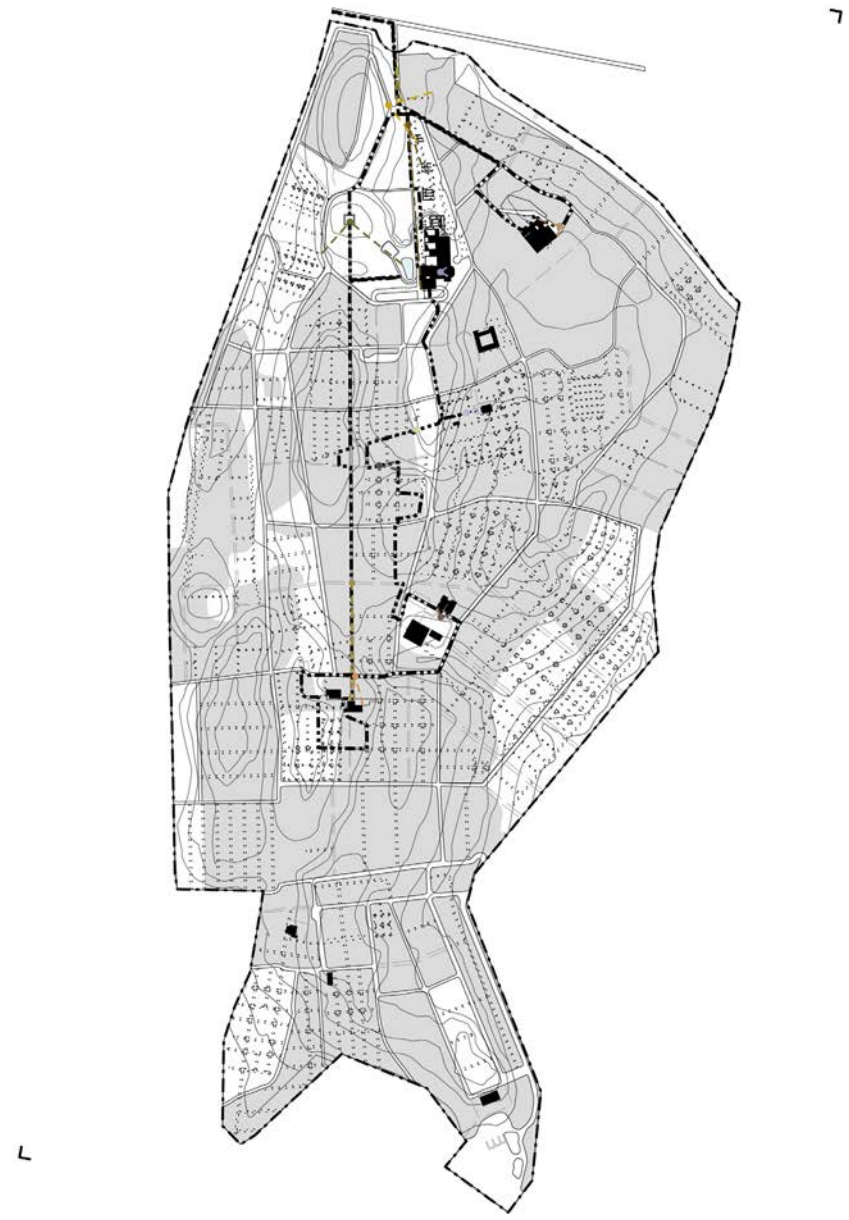
2_PATHWAYS



3_HARD AND SOFT



4_PERSONAL JOURNEY



5_COMPOSITE

SKOGSKYRKOGÅRDEN MASTERPLAN ANALYSIS

See images to left

Buildings and Supporting Infrastructure

Dense Pine Woodland

The adjacent images of the Skogskyrkogården masterplan form a analysis investigating key components that give the site its unique planning and character. The composed undulating landscape designed by Lewerentz carves out clear routes through the site between boundaries of planting and woodland. It is this topographical terrain that acts as a unifying element across the whole site and gives rise to unique moments of differing character by highlighting significant features of the site, acting as a means for self reflection as well as a tool for way finding. In contrast to these soft moments discovered through a seemly more intuitive journey through the site hard surfaces and built forms create more purposeful statements that give the landscape rhythm. Often these buildings are hidden beyond a length of greenery of partially concealed from view often exaggerating the extent of the vistas throughout the site.

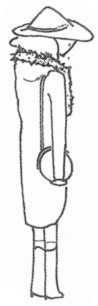
It is this contrast between hard and soft that is most apparent while walking through the site by presenting a number of significant and signature 'postcard moments' that invite a visitor to engage with a space and reflect on their purpose for being there. The sizing of spaces and the openness in circulation / permeability of boundaries allows for the transition between zones to be visible. This control allows for individuals journeying through the site to gain the foresight into a space where one can see those already using the space before making the journey to enter it themselves.

This language and interplay between spaces allows for a variety of users to follow an experiential procession through the site throughout the same period without the clashing of different groups of users in an indecent way. This is essential for the 2,000 funerals that take place in the chapels each year to remain intimate and sensitive whilst presenting an engaging and enjoyable cultural site for all to visit and enjoy.

The drawing opposite represents a commission undertaken by UNESCO to document the journey of individuals through the site. This drawing records a number of experiential postcard moments choreographed by the significant views and vistas. This means of notation presents a distinct colour palette that communicates the existing architectural language defined by the original architects; Asplund and Lewerentz. This colour palette will be key in establishing a means of representing and communicating with the existing conditions on site for any development that could be considered to be built on such a significant site.

It is paramount that any new development placed on a UNESCO World Heritage site does not impinge on the existing aesthetic and operational qualities of the site and acts in support of the existing user groups present on the site whilst in occupation.

VARIED VISITING POPULATION



MOURNERS
Attendees of services and ceremonies to mark the death of a loved one

LOVED ONES
Repeating visitors to tend to graves, place flowers as a mark of remembrance for the departed

RUNNERS
People who use the site to clear their head and partake in recreational exercise

TOURISTS
Foreign visitors who know of the site and its wish to experience it for themselves

FAMILIES / DOG WALKERS
Leisurely strollers through the open site for enjoyment

ARCHITECTS
Those seeking to experience the buildings and landscape to pursue special interests

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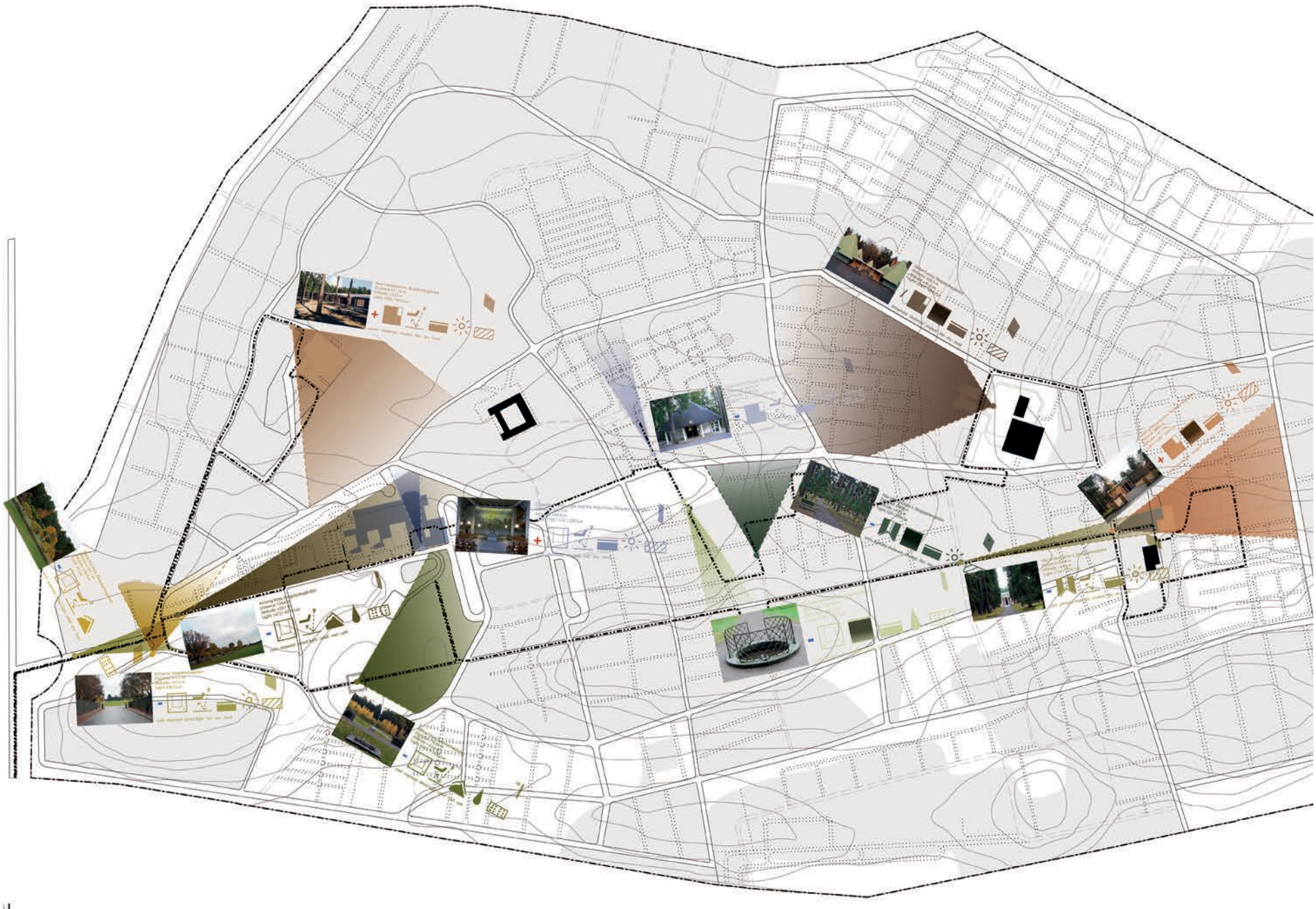
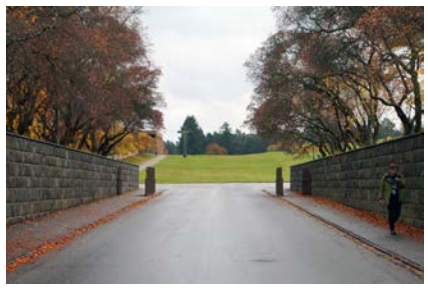
Journey through the site highlighting significant postcard moments



ENTRANCE



ARRIVING VISTA

CHAPELS OF FAITH: HOPE AND THE HOLY CROSS

WOODLAND CHAPEL

WOODLAND WELL

WOODLAND SHORT VISTA

VISITOR CENTRE

CHAPELS OF RESURRECTION

WOODLAND LONG VISTA

HILLTOP VISTA

NEW CREMATORIUM

DEPARTING VIEW

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POSTCARD MOMENTS ON SITE / MOMENTS OF STUGA

SKOGSKYRKOGÅRDEN - Colour Palette
In order to develop this form of notation further into a proposal the architect has taken a colour swatch of the most dominant colour from the palette of each postcard moment experienced by the users on site when the number of colours within the image. Typically the external moments are green and the interior spaces are contrasting blues or reds.

ENTRANCE

C 41
M 29
Y 88
K 5

VISITOR CENTRE

C 49
M 57
Y 66
K 31

ARRIVING VISTA

C 52
M 52
Y 91
K 36

CHAPELS OF RESURRECTION

C 16
M 46
Y 64
K 6

CHAPELS OF FAITH: HOPE AND THE HOLY CROSS

C 53
M 40
Y 16
K 1

WOODLAND LONG VISTA

C 42
M 35
Y 79
K 8

WOODLAND CHAPEL

C 32
M 35
Y 10
K 0

HILLTOP VISTA

C 60
M 41
Y 96
K 26

WOODLAND WELL

C 23
M 9
Y 44
K 0

NEW CREMATORIUM

C 28
M 44
Y 61
K 4

WOODLAND SHORT VISTA

C 73
M 47
Y 69
K 37

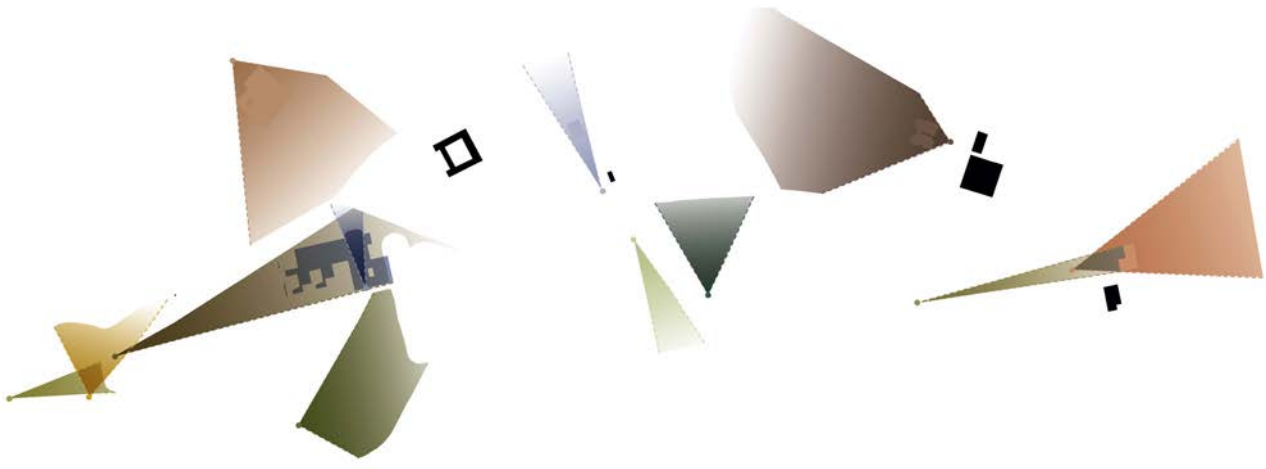
DEPARTING VIEW

C 25
M 34
Y 100
K 0

PROGRAM - COLOUR

It is paramount that any new development on the Skogskyrkogarden site must compliment and showcase the unique conditions of the site. In order to do this the architect proposes that the new building elements will act as a means of framing and exhibiting these significant moments of landscape and architecture that exist on the site. Some of which are directly visible from the site and should have a visual connection while other moments are distant from the site and should be reinterpreted within the architectural language of the new development to capture qualities of these spaces in a new way, acting as a new way to learn, map and experience the site. The colours sampled in the previous study will play a large part in creating a means of identifying elements of the building with postcard moments from the site.

Original moments of colour on the site



Green to brown palette
(External spaces)

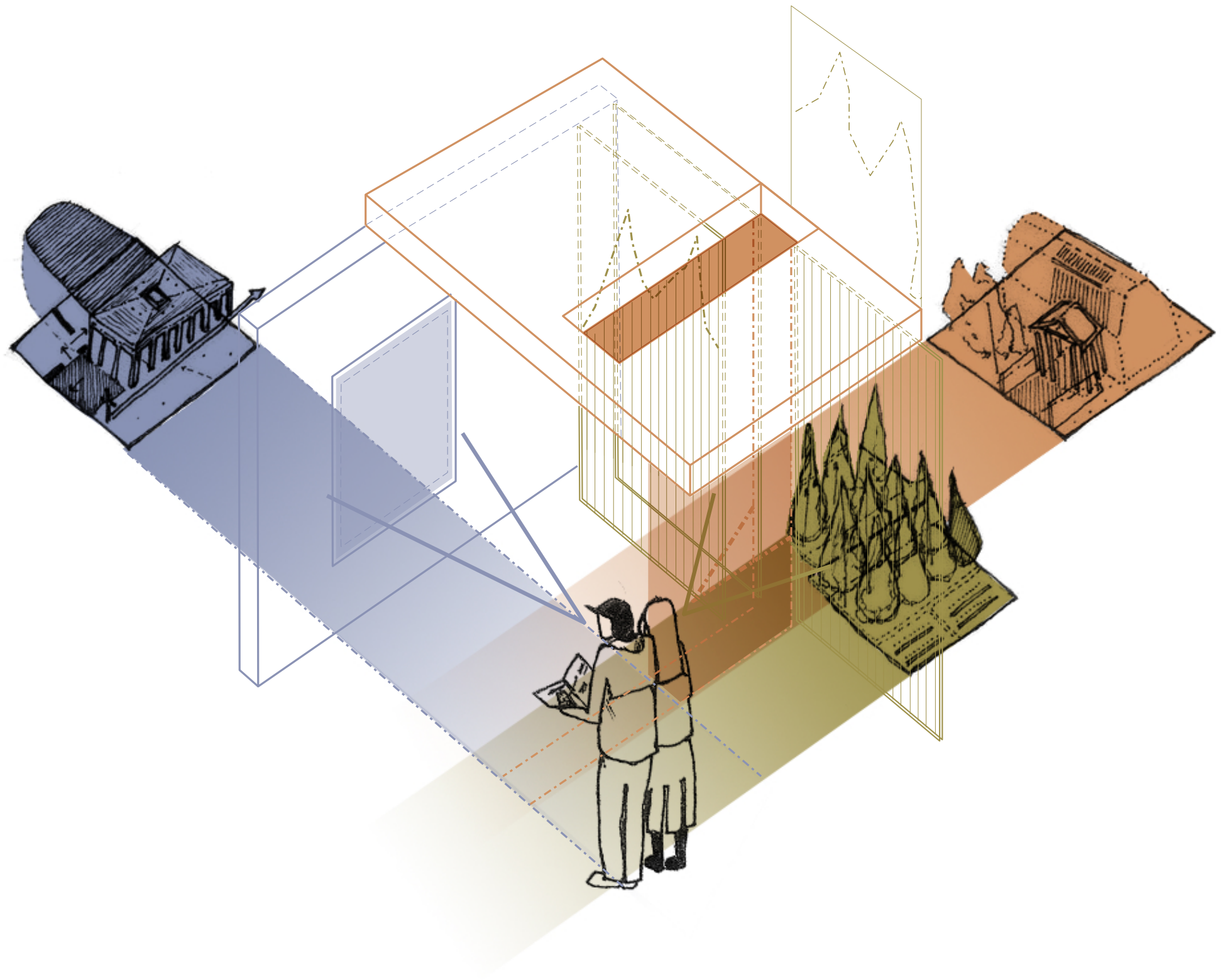
Blue to red palette
(Internal spaces)

SITE POSTCARD MOMENTS → COLOUR → **NEW BUILT SPACE** → **BUILT SPACE - COLOUR**

BUILDING FABRIC - REINTERPRET PLACE ON SITE

BUILDING CONSTRUCT - VIEWFINDER

Postcard moments from the site are reinterpreted within the new architecture



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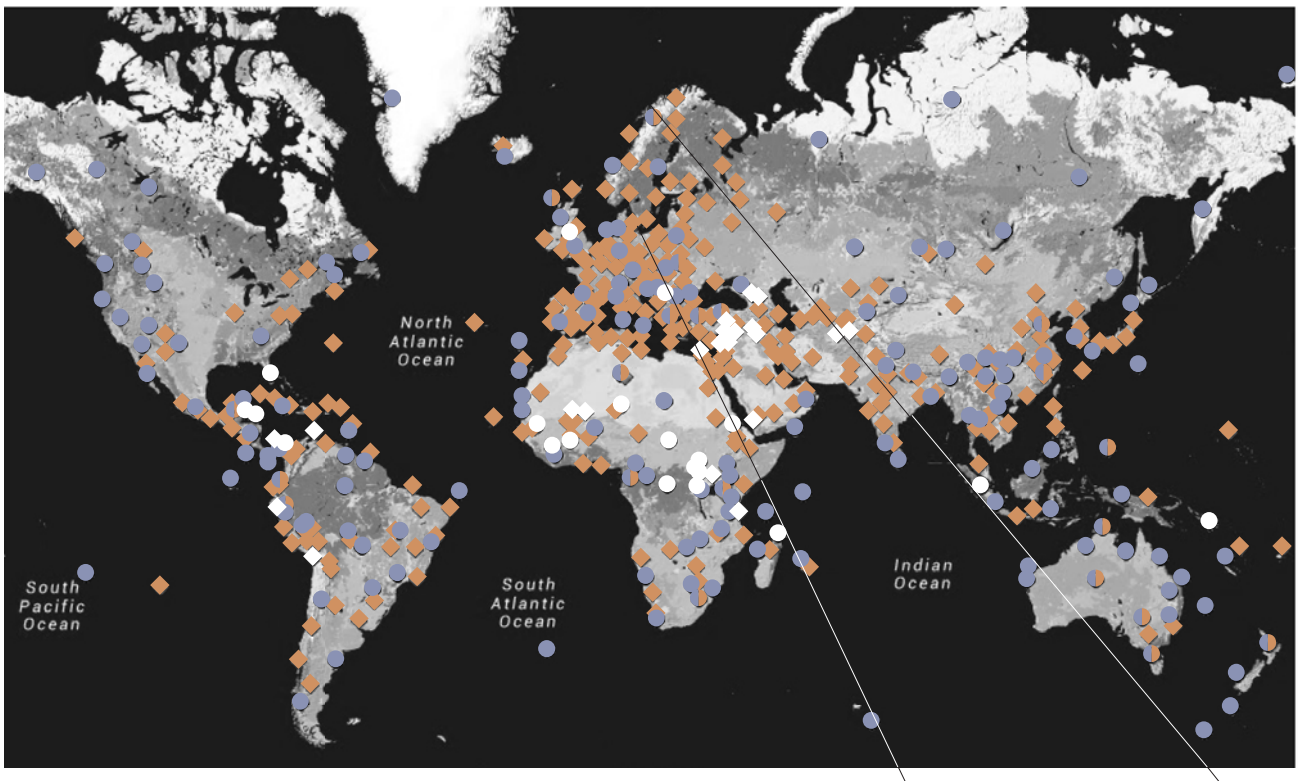
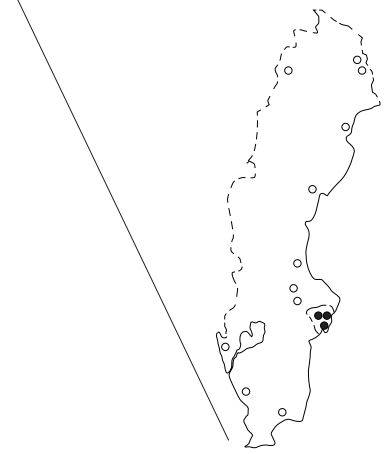
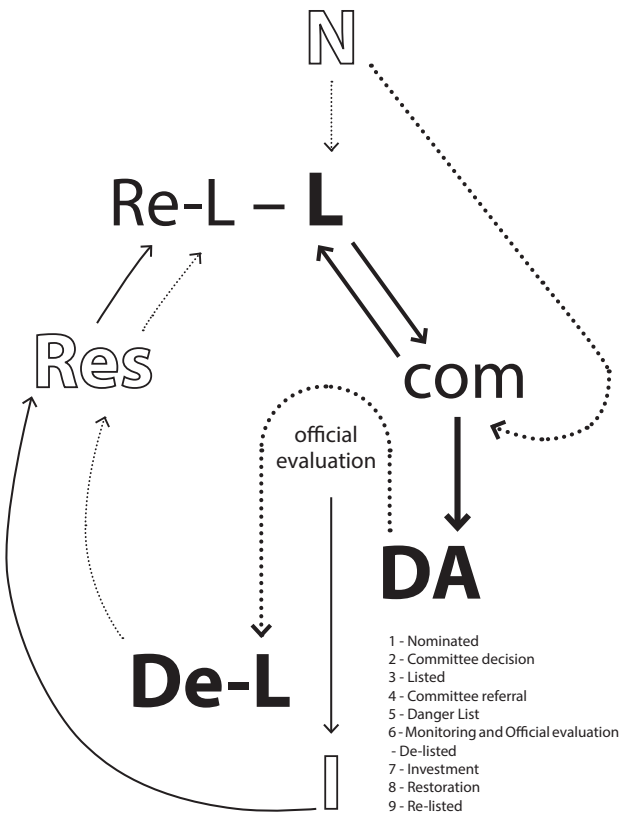


UNESCO WORLD HERITAGE SITES: GLOBAL SURVEY

KEY

- Natural Site
- Cultural Site
- Mixed Site
- Natural / Mixed Site under threat - DANGER LIST
- Natural / Mixed Site under threat - DANGER LIST





UNESCO WORLD HERITAGE

The aim of UNESCO (UN organisation for cooperation in education, science, culture and communication/media) is to contribute to a more peaceful world through collaboration between nations. The World Heritage List is based on UNESCO's convention for the protection of world natural and cultural heritage, which was adopted in 1972. The list was established to protect world heritage from decay and destruction.

The World Heritage List is part of the convention. The list includes properties that are of 'outstanding universal value' — also known as world heritage. There are a total of 1,007 world heritage properties.The World Heritage Convention was adopted by the UNESCO General Conference in 1972. Some 180 nations have signed the convention, which entails the obligation to protect world cultural and natural heritage. Sweden signed the convention in 1985. The Swedish government agencies in charge are the Swedish National Heritage Board and the Swedish Environmental Protection Agency.

In order for a property to be inscribed on the list it must fulfil at least one of a ten of UNESCO's critical criteria for selection (see opposite for the full list of criteria). The process of becoming listed as a site of World Heritage is complex and subject to the committee of UNESCO's approval. Unfortunately this process is subject to much discussion and controversy due to its cyclical pathway and (at times) contradictory nature with the presence of a danger list and the ability to de-list sites, stripping them of World Heritage Status without consultation with other relevant governments and agencies.

WORLD HERITAGES IN SWEDEN AND THE WORLD

The World Heritage List is getting increasingly longer and currently includes 1007 properties. A total of 15 Swedish sites are listed, those in addtion to Skogskyrkogården in Stokcholm alone include the Royal Domain of Drottningholm and the Birka and Hovgarden Viking archaeological site, the Rock Carvings in Tanum, the Hanseatic Town of Visby and the Laponian Area.

UNESCO's grounds for Skogskyrkogården:
Skogskyrkogården was admitted to the UNESCO World Heritage List in 1994 based on the criteria II and IV.

Criteria II
The architects Gunnar Asplund and Sigurd Lewerentz designed Skogskyrkogården in a way that established a new form of cemetery, which has fundamentally influenced the design of burial sites around the world.

Criteria IV
The unique qualities of Skogskyrkogården consist of its early 20th-century architecture and landscape design, which has been adapted to suit a cemetery.

UNESCO WORLD HERITAGE SITES: STOCKHOLM

07

SKOGSKYRKOGÅRDEN
Stockholm County
N59 16 32.016 E18 5 57.984
Date of Inscription: 1994
Criteria: (ii)(iv)

This Stockholm cemetery was created between 1917 and 1920 by two young architects, Asplund and Lewerentz, on the site of former gravel pits overgrown with pine trees. The design blends vegetation and architectural elements, taking advantage of irregularities in the site to create a landscape that is finely adapted to its function. It has had a profound influence in many countries of the world.

ROYAL DOMAIN OF DROTTNINGHOLM
Province of Stockholm, Region of Ekero
N59 19 23.016 E17 52 59.988
Date of Inscription: 1991
Criteria: (iv)

The Royal Domain of Drottningholm stands on an island in Lake Mälar in a suburb of Stockholm. With its castle, perfectly preserved theatre (built in 1766), Chinese pavilion and gardens, it is the finest example of an 18th-century north European royal residence inspired by the Palace of Versailles.

BIRKA AND HOVGÅRDEN
Stockholm County, Region of Uppland
N59 20 6.504 E17 32 33.504
Date of Inscription: 1993
Criteria: (iii)(iv)

The Birka archaeological site is located on Björkö Island in Lake Mälar and was occupied in the 9th and 10th centuries. Hovgården is situated on the neighbouring island of Adelsö. Together, they make up an archaeological complex which illustrates the elaborate trading networks of Viking-Age Europe and their influence on the subsequent history of Scandinavia. Birka was also important as the site of the first Christian congregation in Sweden, founded in 831 by St Ansgar.

Return to Sender

DE-LISTED SITES:
Top: The Arabian Oryx Sanctuary, Oman
Bottom: Dresden Elbe Valley, Germany
Right: Walled City of Baku, Azerbaijan

DANGER LIST AND DE-LISTED SITES

A properties listing as a world heritage site is not always permenant. The Walled City of Baku was listed as a cultural site in 2000 although sustained significant damage during an earthquake shortly after inscription, quickly being moved onto the Danger List. Since being added to the danger list extensive restoration has taken place and the was once again welcomed back onto the World Heritage List in 2009.

In the past only two sites have been permenantly stripped of World Heritage status completly. The first, The Arabian Oryx Sanctuary in Oman, due to Oman's decision to reduce the size of protected area by 90% to accomodate hydrocarbon prospection, in contravention of the Operational Guidelines of the Convention. This was seen by the Committee as destroying the outstanding universal value and integrity of the site which was inscribed in 1994 and de-listed in 2007. The population of the Arabian Oryx has since declined with only about four breeding pairs making its future viability uncertain. The second Dresden Elbe Valley, an 18th century cultural landscape in Germany, on the basis of the construction of the Waldschlösschen Bridge that bisect the valley in 2007.A referendum had been conducted in 2005 about building the bridge without informing the voters that the UNESCO designation was at stake. In 2006 the site was placed on the endangered list until 2008, at which time a one-year extension was granted. With construction of the bridge ongoing it was declined to grant a second extension, and at the 2009 meeting in Seville the committee voted 14 to 5 to delist the site.

Development on the Skogskyrkogården Site

In order to justify any development on the Skogskyrkogården site it is proposed that the cumulative effect of the future development must satisfy all 10 critical selection criteria. In the case of this project the proposal must form a precedent for all future developments on other UNESCO World Heritage Sites by showcasing the legacy of UNESCO World Heritage Sites as an international organisation. It is propoosed that the new developments on the Skogskyrkogården site will include a small photography gallery exhibiting images of the two de-listed sites in memory of the importance of World Heritage status. By delivering this addition to the sites brief for the project UNESCO will permit that the criteria(iii, v, x) once met by the de-listed sites can be offset from the deliverables of the project, meaning that the project must satisfy the remaining seven criteria upon completion.

SKOGSKYRKOGÅRDEN
Sweden
(Speculative - This criteria is now met by the site through its estblishment over time)
SKOGSKYRKOGÅRDEN
Sweden
(ACTUAL CRITERIA MET)

DRESDEN ELBE VALLEY
Germany

SKOGSKYRKOGÅRDEN
Sweden
(ACTUAL)

DRESDEN ELBE VALLEY
Germany

SKOGSKYRKOGÅRDEN
Sweden
(Speculative)

ARABIAN ORYX SANCTUARY
Oman

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CRITERIA FOR SELECTION

CULTURAL CRITERIA

(I)
TO REPRESENT A MASTERPIECE OF HUMAN CREATIVE GENIUS

(II)
TO EXHIBIT AN IMPORTANT INTERCHANGE OF HUMAN VALUES, OVER A SPAN OF TIME OR WITHIN A CULTURAL AREA OF THE WORLD, ON DEVELOPMENTS IN ARCHITECTURE OR TECHNOLOGY, MONUMENTAL ARTS, TOWN-PLANNING OR LANDSCAPE DESIGN

(iii)
to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

(IV)
TO BE AN OUTSTANDING EXAMPLE OF A TYPE OF BUILDING, ARCHITECTURAL OR TECHNOLOGICAL ENSEMBLE OR LANDSCAPE WHICH ILLUSTRATES (A) SIGNIFICANT STAGE(S) IN HUMAN HISTORY

(v)
to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change

(VI)
TO BE DIRECTLY OR TANGIBLY ASSOCIATED WITH EVENTS OR LIVING TRADITIONS, WITH IDEAS, OR WITH BELIEFS, WITH ARTISTIC AND LITERARY WORKS OF OUTSTANDING UNIVERSAL SIGNIFICANCE. (THE COMMITTEE CONSIDERS THAT THIS CRITERION SHOULD PREFERABLY BE USED IN CONJUNCTION WITH OTHER CRITERIA)

NATURAL CRITERIA

(vii)
to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

(viii)
to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features

(ix)
to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

(x)
to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Criteria which the Skogskyrkogarden site does not meet, these were also not met by the de-listed sites

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CURRENT THREATS AND RISKS TO THE SITE

One problem that the Skogskyrkogården site currently suffers from is the level of staffing and management over the whole masterplan. This plays an important part in the preservation of the unique conditions of the site and the number of visiting population to the site. Thus threatening the preservation of the site and its educative and cultural role within modern society.

Current Statistics:
Staffing and Management

Number of full time staff: 5
Site manager, Priest (2), Crematorium Staff, Grounds Keeper

Access to adequate professional staff across the following disciplines:

Good: management; visitor management

Average: conservation; promotion; interpretation; education

These current levels could indicate an inability to support the existing conditions of the site and could potentially threaten the original criteria met by the site upon listing in 1994. Any subsequent failure to meet the original criteria would be deemed unacceptable by the Committee for World Heritage and could result in permanent removal from the list of World Heritage Sites.

THREAT 1

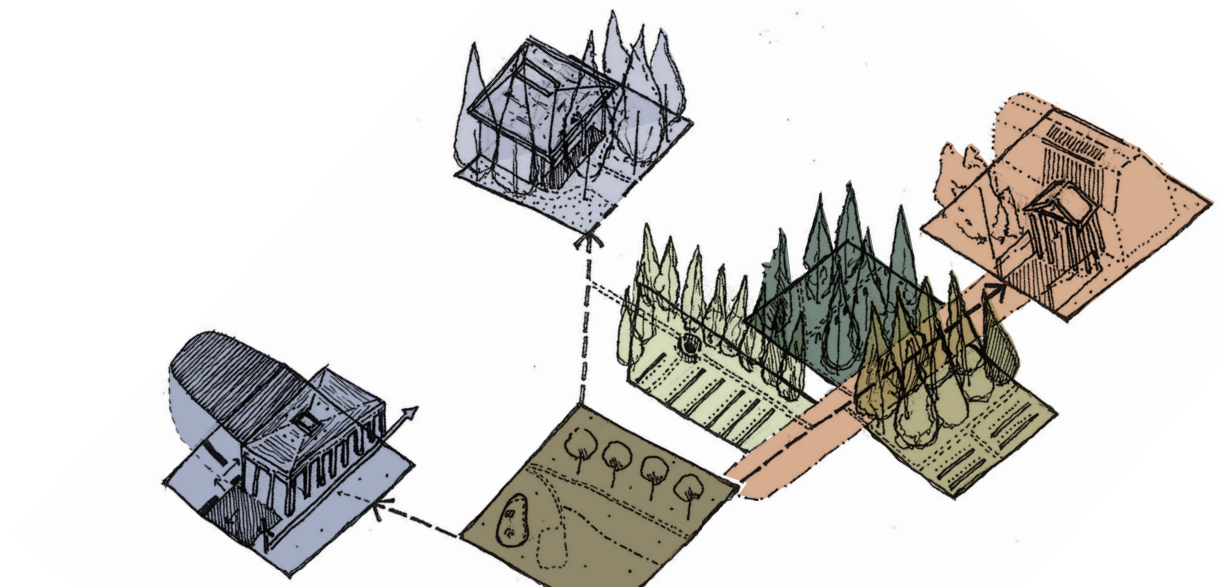
Threats and Risks to the Site:

- Main benefits of WH status: conservation, social
- The knowledge of the site and the World Heritage Convention is low
- Weaknesses of management: the knowledge, responsibility and management of the site are concentrated to very few persons. The site requires a responsible webmaster and information coordinator for implementing information services to partners, clients, visitors and staff
- Staffing over the whole site is low, employing a larger pool of staff will help in supporting conservation and maintenance on such a large and complex site

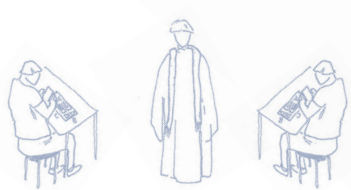
Proposed Staffing and Management Zones

Woodland Chapel
Priest, Tree Surgeon, Grounds Keeper

Chapel of Resurrection
Priest, Gardener, Grounds Keeper



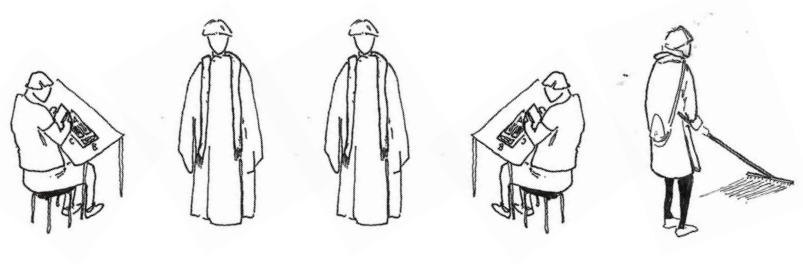
Chapels of Hope and Faith
Site Manager, Tree Surgeon, Crematorium Staff



Pillar Hall of Pines
Gardener, Tree Surgeon, Grounds Keeper, Florist

Hilltop
Grounds Keeper, Pruning/ Feature Planting Artist

Existing Levels of Staff Today
Site Manager, Priest (2), Crematorium Staff, Grounds Keeper



CURRENT THREATS AND RISKS TO THE SITE CONT.

Pillar Hall of Pines
Due to natural life cycle of vegetation the majority of the pine trees are mature and very tall in height although this forms an attractive landscape it is a concern in terms of critical longevity of the site. As the pine trees continue to age further death and vulnerability to invasive species increases. Animal and insect species have been know to invade the pine trees during maturity where they can nest in the softer bark. One species know to do this is bees.

To combat this loss of pine within the site numerous new trees are planted to maintain the distinctive 'Pillar Hall of Pines' although through this process the authenticity of the pine forest will diminish. This is problematic as the site will loose its characteristic as a natural landscaped phenomena(criteria iv); potentially leading people to question the credibility of the sites' World Heritage status and by extension UNESCO as an organisation.

An alternative means to ensuring the longevity of the existing pine trees could be to remove the insect infestation altogether. As pines are pollinated by wind and due to their dull, unattractive foliage, this woodland environment does not typically form habitat for bee species. An adjacent field of colour could be seen as attractive by the bees and help deter them from re-entering the dull woodland landscape.

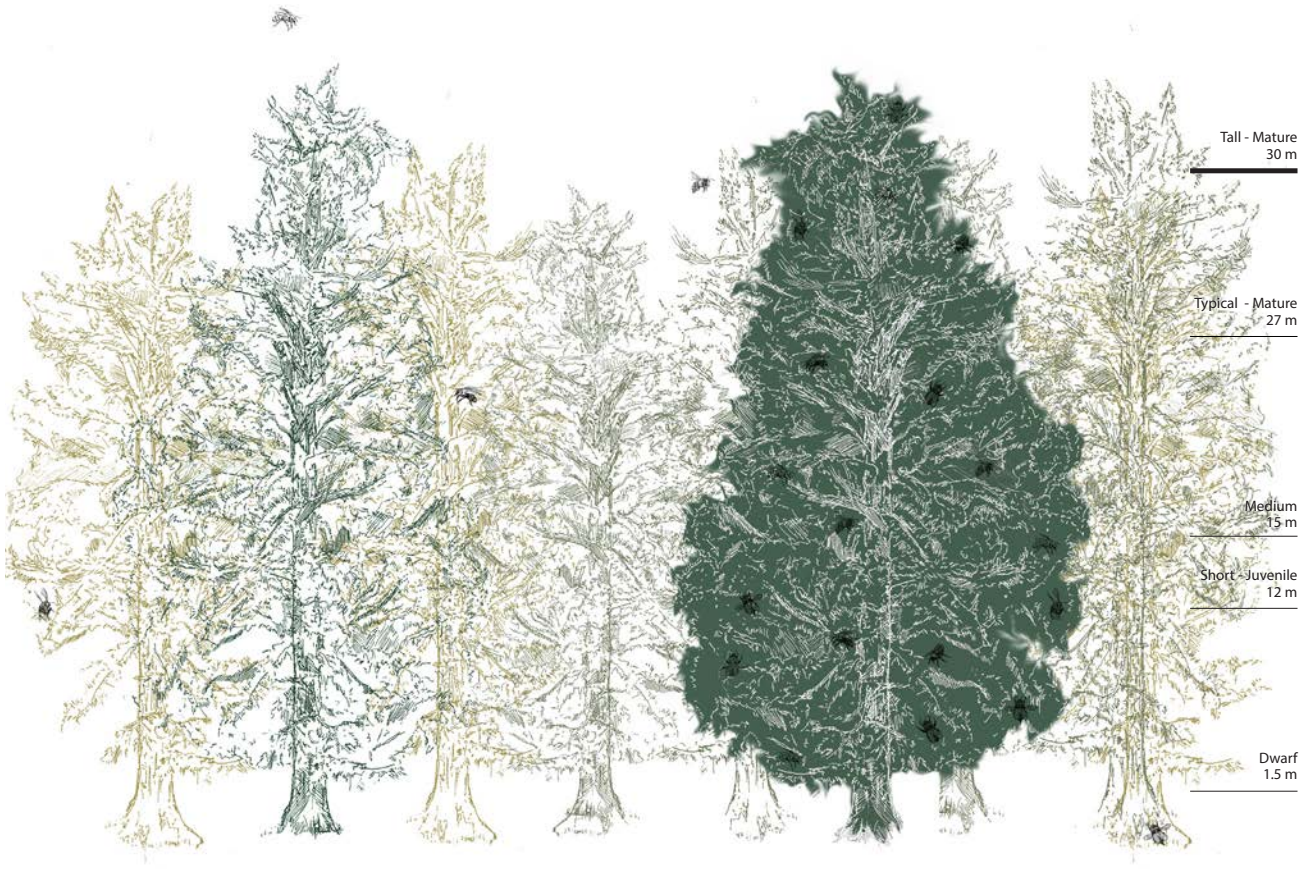
Any development on the Skogskyrkogården site must support the existing criteria, the further five criteria as outlined earlier in this document and must also assist in alleviating the current threats and risks that pressure the site in order for the new development on the Skogskyrkogården site to set precedent for new developments on all UNESCO World Heritage Sites worldwide.

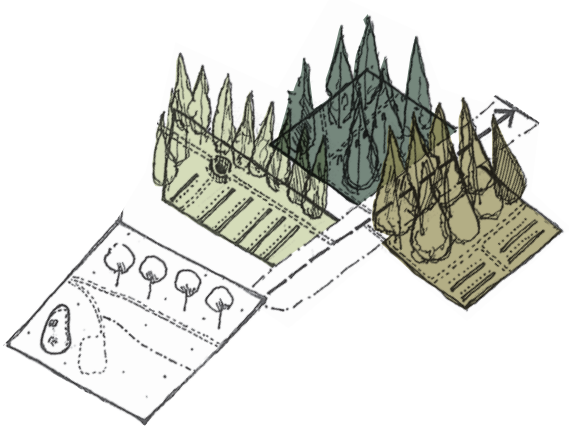
THREAT 2

Threats and Risks to site:

- Development pressure, environmental pressure
- Specific issues if mentioned: one of the major problems at Woodland Cemetery is the replanting of the pine forest. The majority of the trees have now reached a high age and the number of pine trees is decreasing. One of the issues is how to re-create the characteristic "pillar hall of pine" at the cemetery

The aging pine trees are more susceptible to decay and death from conditions such as blight and insect infestation. Bees are a common species known to invade and nest in pine trees, inducing rapid decay and death.





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BUILDINGS OF SIGNIFICANCE

Chapels of Faith, Hope and the Holy Cross

The Woodland Crematorium and its three chapels: Faith, Hope and the Holy Cross were completed in 1940 and were designed by Asplund to intematly communicate with the undulating landscape and entrance to the complex. It is functional in design and at the same time it is very thoughtful. In order to allow funerals to be held undisturbed in all three chapels small gardens and waiting rooms were placed between the chapels. Here mourners can look out through the doors and onto landscape beyond.

The Woodland Chapel

The cemetery's first and smallest chapel was designed by Gunnar Asplund and inaugurated in 1920. The surrounding woodland is dense and enclosing, before gradually opening out in front of the chapel to allow for congregation before a service. The chapel itself is square and inside there is a circular dome through which indirect light permeates into the plan. The Woodland Chapel has been carefully thought out with many features and symbols inviting the users into the building, including death who is treated as a welcome member in the service. An example of this is the skull keyhole in the main door to the chapel.

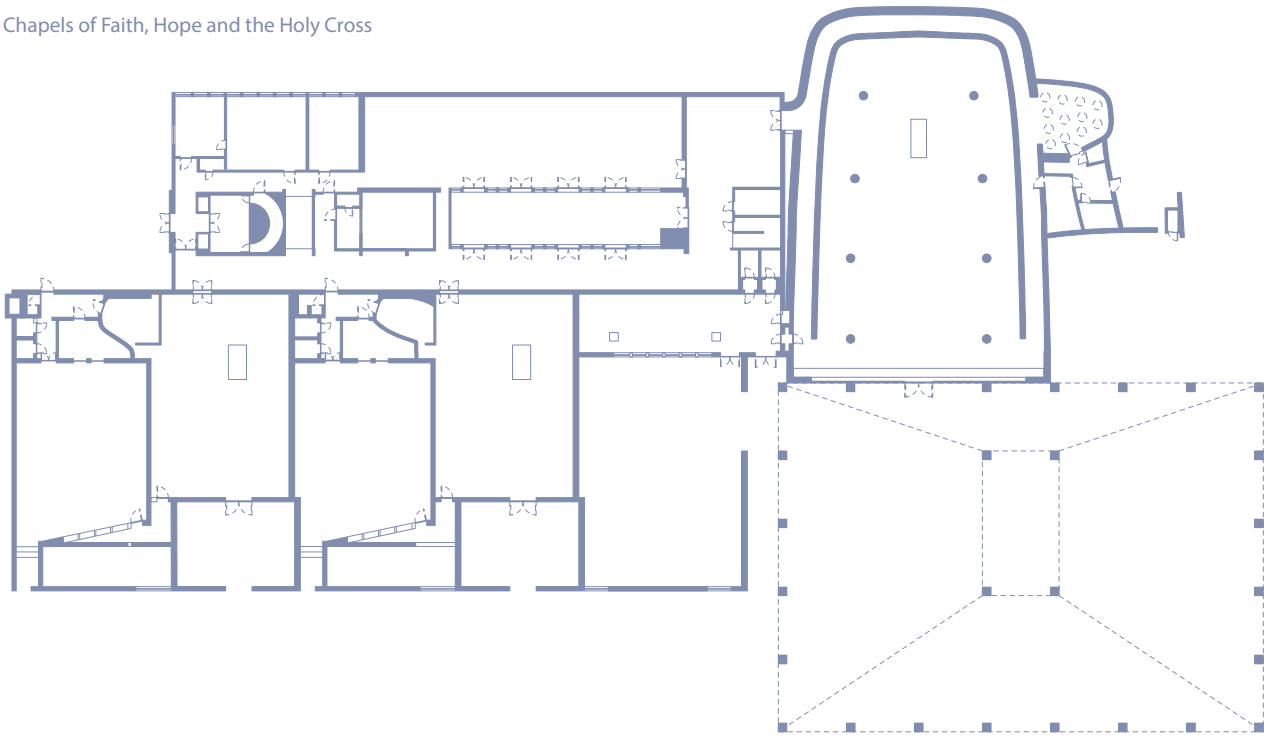
Chapel of Resurrection

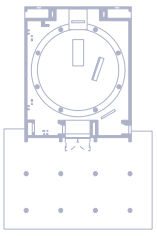
The chapel was designed by Lewerentzand completed in 1925. The design is reflective of a neoclassicist temple nestled within a break between the 'Pillar Hall of Pines'. The portico is mounted on twelve columns, which directs visitors into a quiet chapel with attractive mosaic details. The elegant single window signifies the importance of the chapel as a link with heaven.

New Crematorium

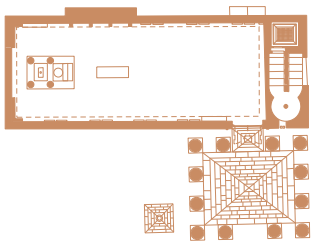
Architect Johan Celsing designed the New Crematorium at the Woodland Cemetery as part of the winning entry in an international competition. The building was completed in 2014 and was cited as being 'A stone in the forest' for focus on the surrounding landscape and the support that it offers the site.

Chapels of Faith, Hope and the Holy Cross

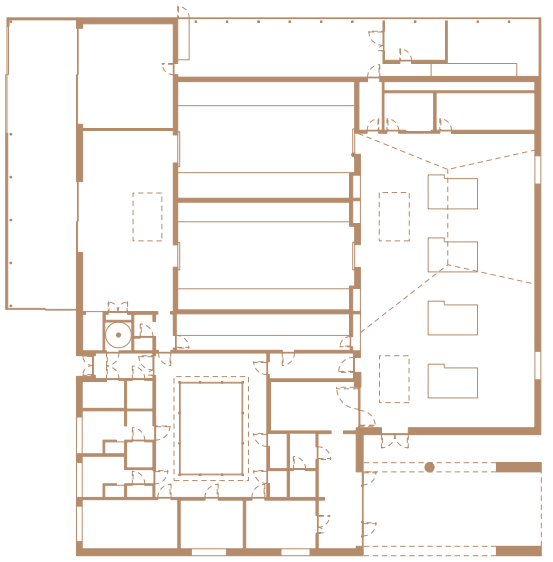




Woodland Chapel



Chapel of Resurrection

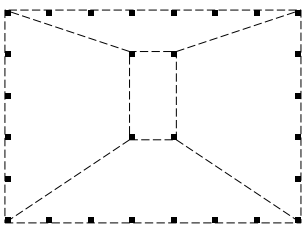


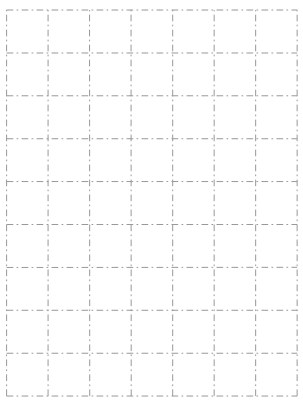
New Crematorium

FORMULATING THE GRID

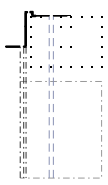
To create the building grid the original 5 x 5m colonnade spacing from the Chapel of Faith was extruded onto the site. This gave a baseline grid from which a sub grid was overlayed to capture the deviations and form of the chapel that sits behind the colonnade setting parameters for the new building that directly reflect the spacing present in the Chapel of Faith. Over the top of this arrangement the existing pathways have intersect the underlying grid, abstracting this uniformity and introducing something that is more contextualised.

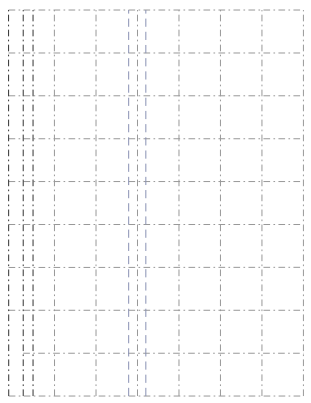
5x5 Existing Grid



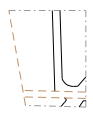


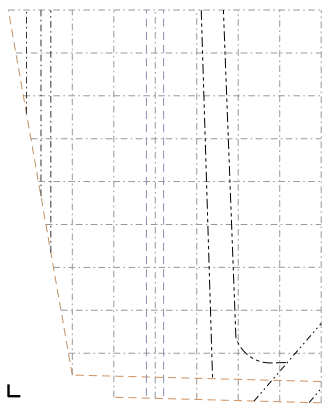
Existing Deviations





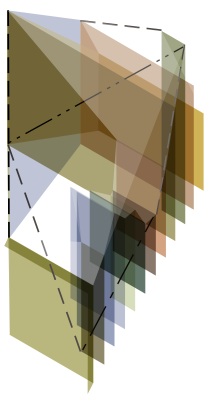
Cutting Pathways





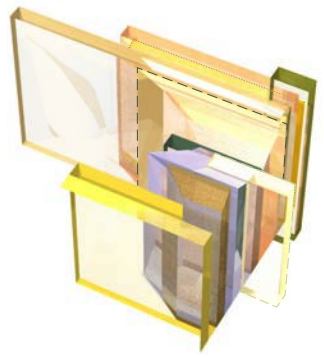
SPATIALISING THE POSTCARD MOMENTS

By plotting the data from the initial postcard drawing as planar elements that were directly attributed to the significant postcard moments on site an initial outline envelope was creates that is illustrative of the individuals experiences on site. The architect then translates this planar information into a subjective spatialised massing diagram. These forms were then reconfigured to reflect the actual complexities in the relationships from postcard to postcard moment whilst also introducing the grid defined above. This means of notation provided an outline design to be reconfigured once again on site that could be inhabited with spaces to create an initial form and proposal for the new development.

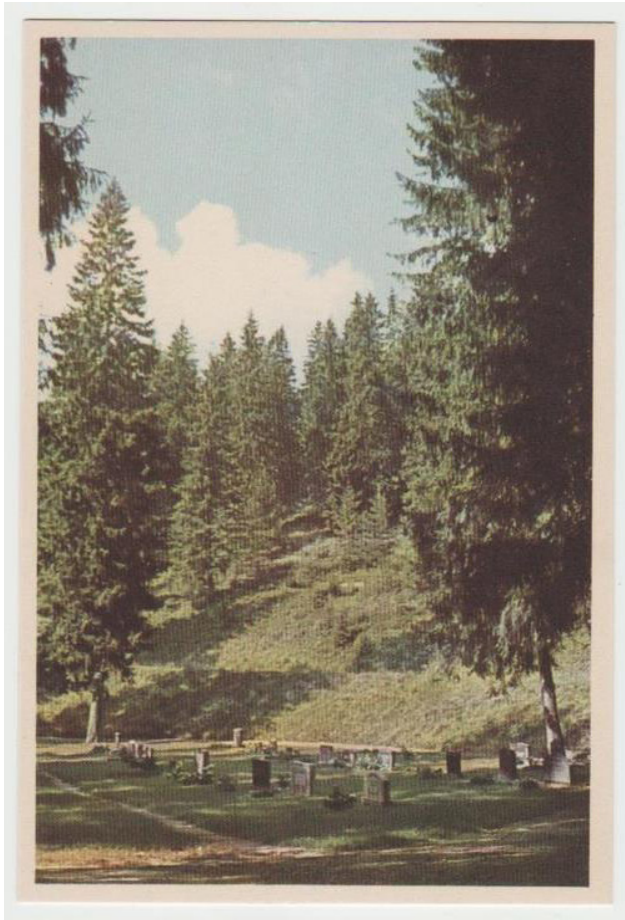


Planar - data from postcard drawing

Spatialising - Comparable relationships between places recorded within data



Reconfiguring - Data represents a set of environmental and spacial qualities on site



PROJECT BRIEF

The project aims to formulate an exemplary model for the sustainable development on the Skogskyrkogarden site under a commission from The UNESCO World Heritage Committee. Thus creating a manual on how to protect this prestigious status in response to the ambiguity surrounding the criteria of listing and de-listing. It is suggested that a strategy of phased development that supports and showcases the existing conditions should be employed as a model to demonstrate how sustainable development can occur over all sites occur as a continuous process over time.

The project outlines three built phases on the Skogskyrkogarden site: the first a postcard shop, second staff facility and the third a photography gallery exhibiting images of the de-listed sites from the World Heritage list. To create a proposal that it ultimately contextualised the new buildings act as viewing devices to heighten the users experiences of the site; reinterpreting a number of existing postcard moments on site within the architecture.

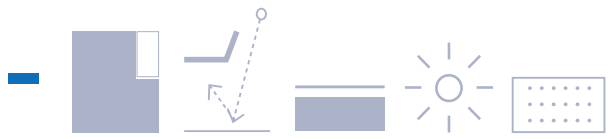
To complete the project in accordance with the aspirations set by UNESCO the project seek out to meet all ten selection criteria to evidence how development can be a stimulus for positive change over UNESCO World Heritage Sites. To achieve this aspiration to meet all ten criteria on the Skogskyrkogarden site the new developments must satisfy three currently outstanding criteria (vii, viii, ix) upon completion of the development, defining the main deliverables of the project.

WOODLAND CHAPEL

Distance: 302.5 m
Altitude: +49.9 m
Light: 1185 / 175 / 280 Lux

C	32
M	35
Y	10
K	0

temperate - sheltered - shaded - flat - dry - soft



CHAPELS OF RESURRECTION

Distance: 289.6 m
Altitude: +45.7 m
Light: 1326 / 1040 Lux

C	16
M	46
Y	64
K	6

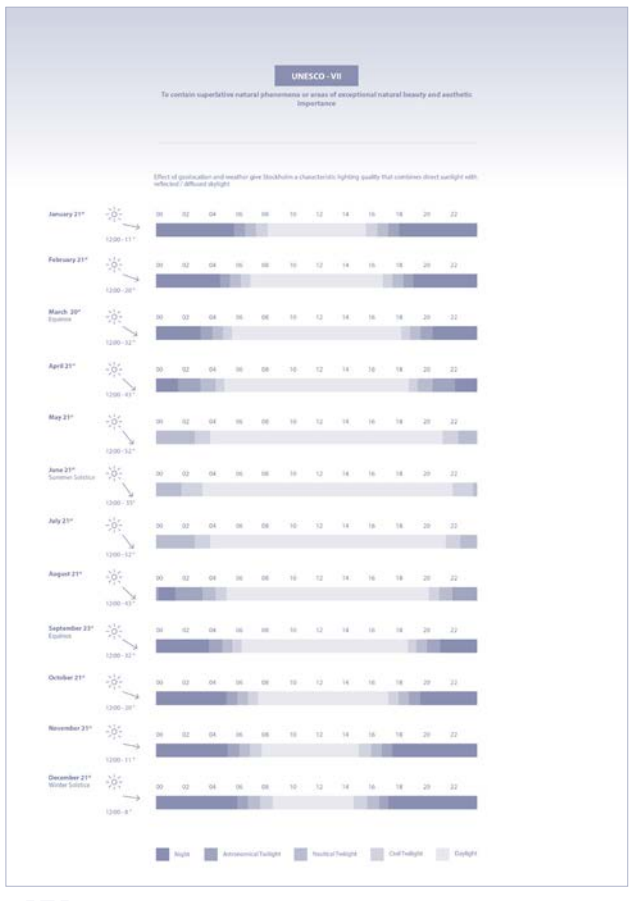
warm - sheltered - shaded - flat - dry - hard

VISITOR CENTRE

Distance: 209.3 m
Altitude: +41.5 m
Light: 2345 / 1608 Lux

C	49
M	57
Y	66
K	31

temperate - sheltered - shaded - flat - dry - hard

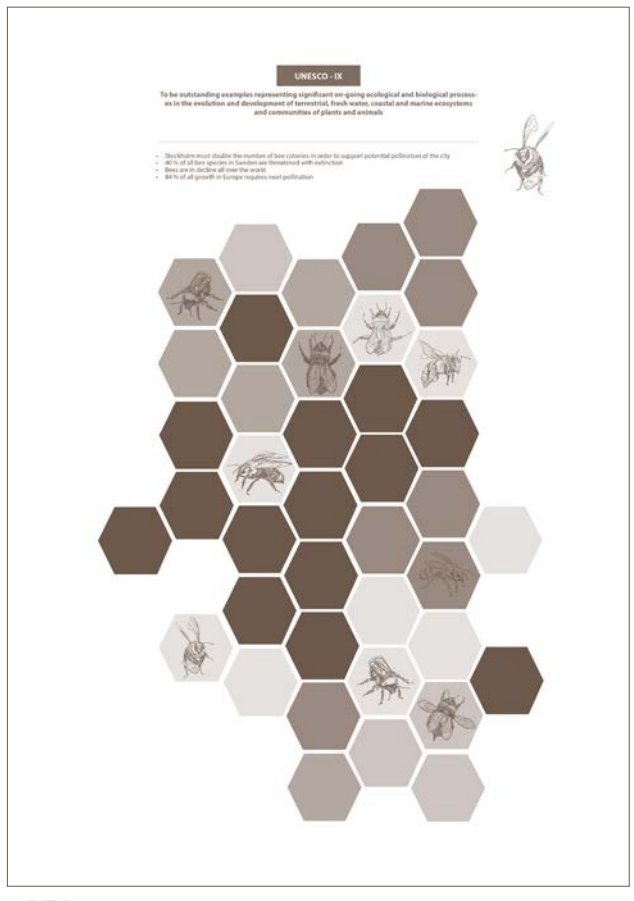


UNESCO-Crit VII

To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

UNESCO-Crit VIII

To be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features



UNESCO-Crit IX

To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

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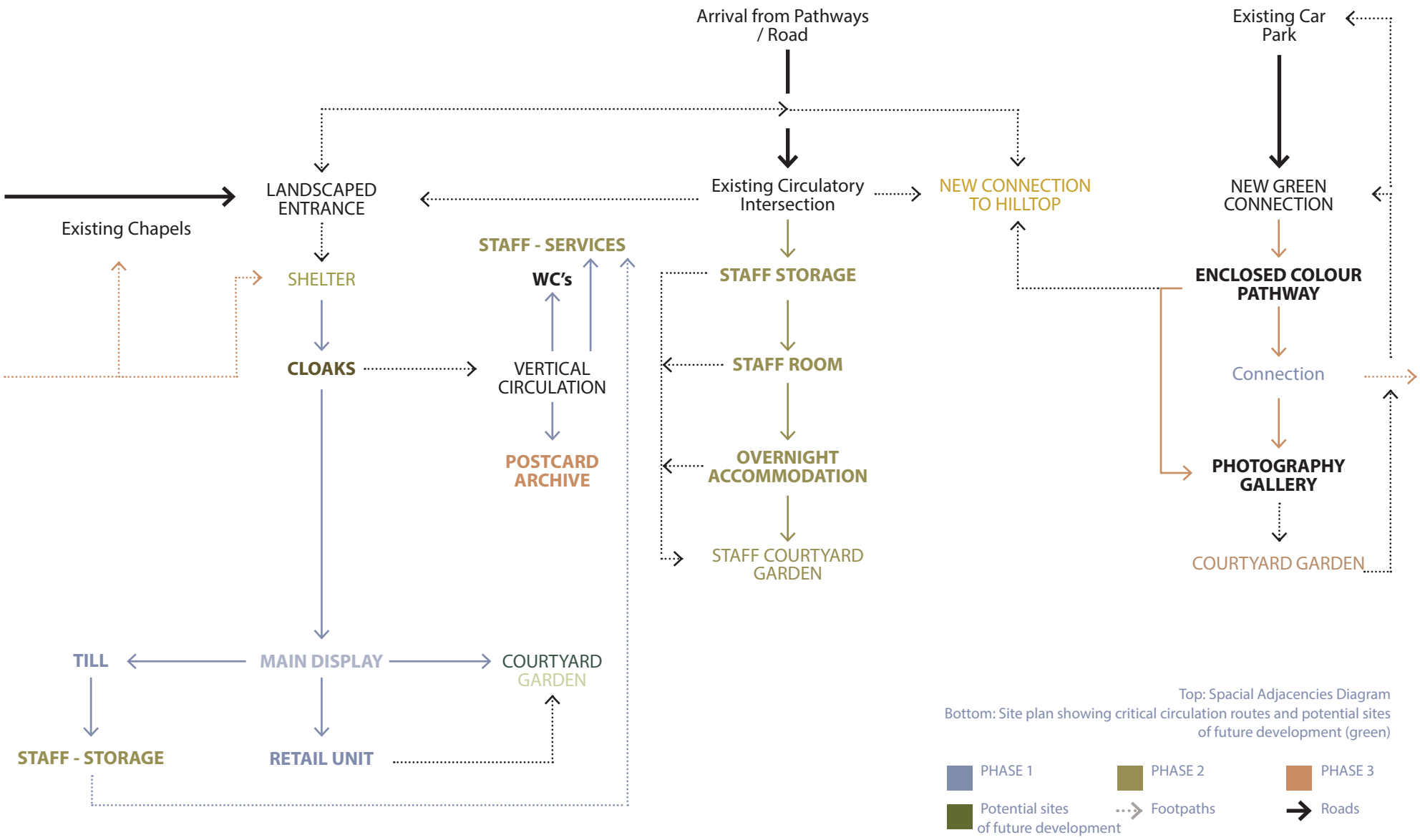
PHASE 1
POSTCARD SHOP

PHASE 2
STAFF FACILITY

PHASE 3
DE-LISTED SITES
PHOTOGRAPHY GALLERY



Top: Spacial Adjacencies Diagram
Bottom: Site plan showing critical circulation routes and potential sites of future development (green)

PHASE 1 · PHASE 2 · PHASE 3
Potential sites of future development · Footpaths · Roads

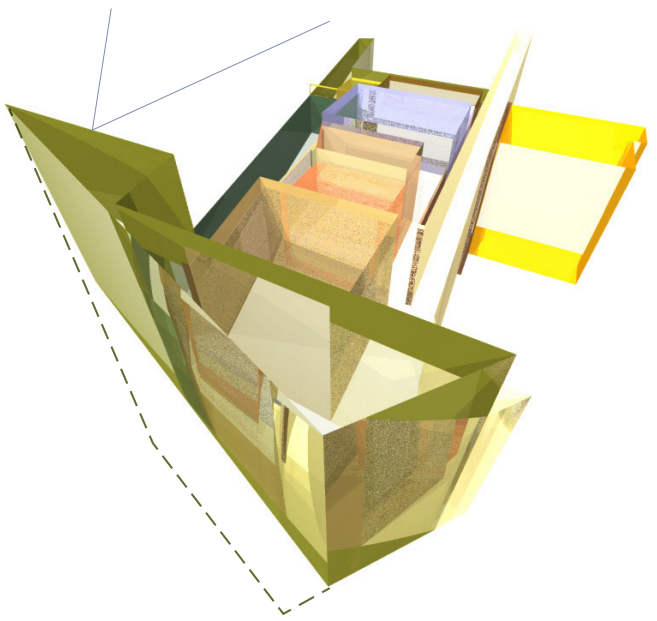
SPATIAL PLANNING

The original data translation has been mapped into spaces in plan and reconfigured into an arrangement that creates a consolidated scheme that is broken into elements of similar use that creates the three distinct blocks surrounded by landscaped gardens and terraces. Each space interacts directly with those within the same block and also the adjacent spaces of different uses, these transitional spaces adopt a character to respond to the surrounding environment comprised of the new proposal and the existing site. The adjacent massing diagrams outline a few design decisions that have dictated the form and configured several key features within the scheme. Key spaces are outlined adjacent and below to illustrate adjacencies and occupation.

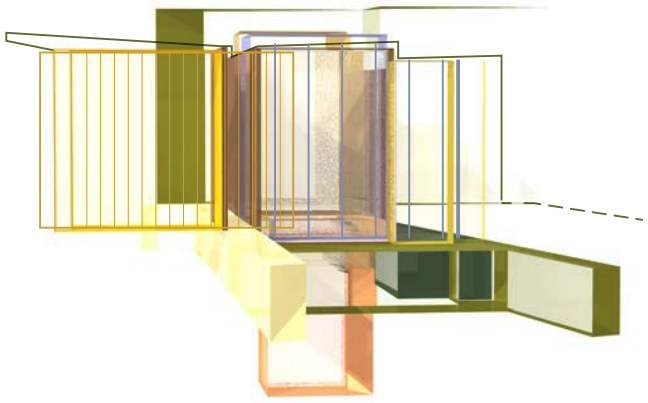
Principle Spaces	Colour	Internal/ External	User No.	Area sqm	Min. Width (incl. doors) m	Summer Temperature	Winter Temperature
Cloak room		I	8	40	1.3	22	19
Retail Unit		I	22	112	1	23	20
Main Display		I	3	15	0.9	23	19
Postcard Archive		I	10	108	0.9	21*~	21*~
BOH - Staff		I	2	48	0.9	22	19
Shop Courtyard 1		E	8	140	1	N/A	N/A
Shop Courtyard 2		E	7	134	1	N/A	N/A
Staff Room		I	12	25 (+46)	0.9	22	20
Staff Store		I	12	17	0.775	22	19
Staff Accommodation (overnight)		I	2	7	0.775	22	19
Staff Courtyard		E	12	98	1	N/A	N/A
Photography Gallery	Varied	I	10	100	1	23	19
Photography Gallery Courtyard		E	10	40	1	N/A	N/A

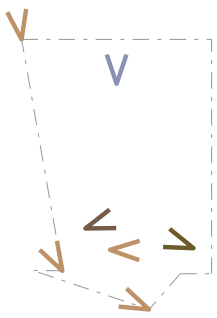
* Fluctuations in temperature acceptable to +/- 1 °C over 24 hours
~ Humidity Regulated between 30-40%, fluctuations acceptable to 5% over 24 hours
^ Humidity Regulated between 30-50%

Viewing Platforms



Visible Grid - reflect Chapels of Hope

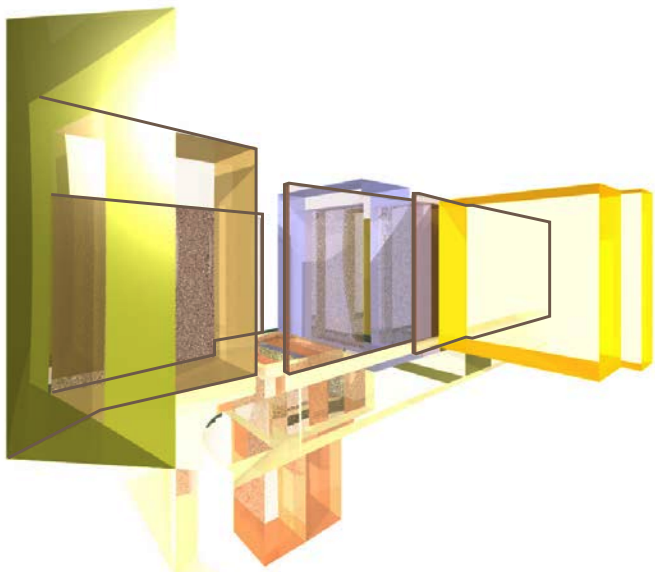


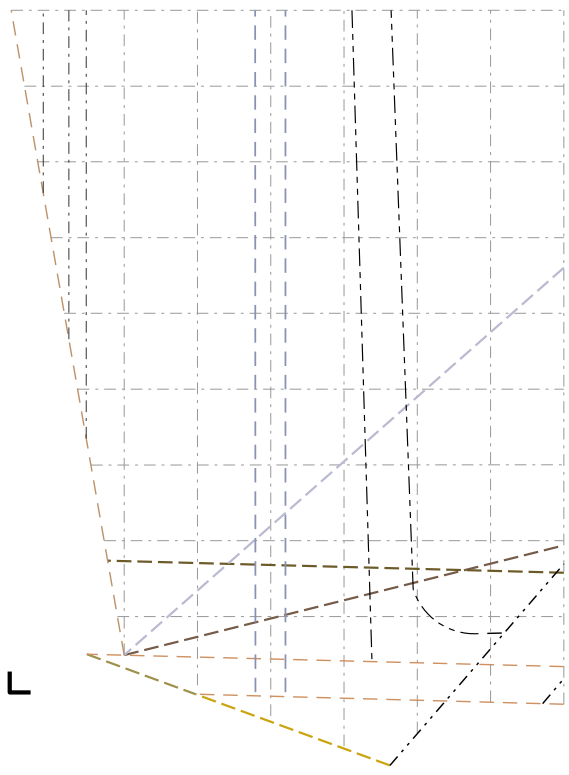


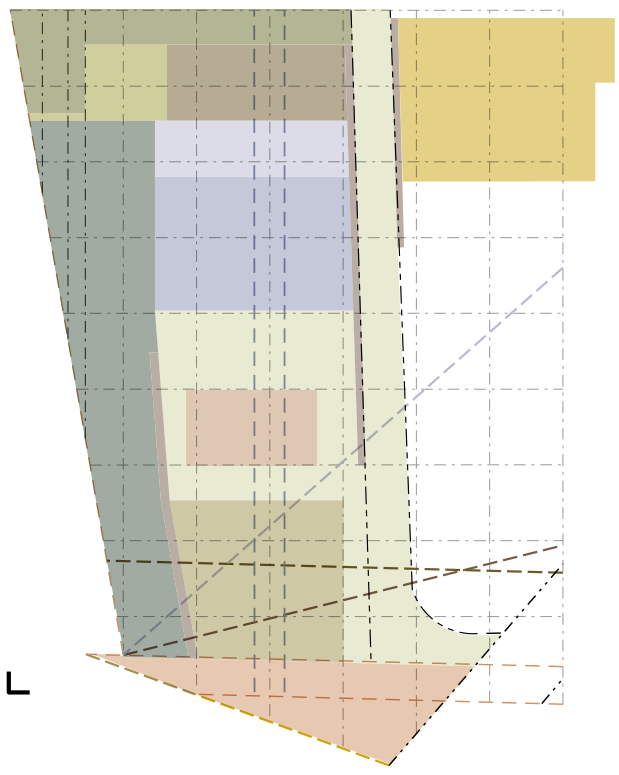
RE-CONFIGURING THE GRID

To further contextualise the buildings and create more of a relationship between the new spaces and the existing postcard moments that they reflect an amendment to the grid was made by introducing axis to these key moments.. These site lines that cut through the proposed scheme opens up views to the visible significant surrounding spaces and creates directional pathways through the new development to direct the user to move further into the site to discover these moments for themselves. It is this new grid that has shaped the current proposal and has introduced critical building components into the design to frame existing views and create new vistas looking towards the significant moments on site or moments of reflection within the new scheme that ties back to the contextual postcard moments.

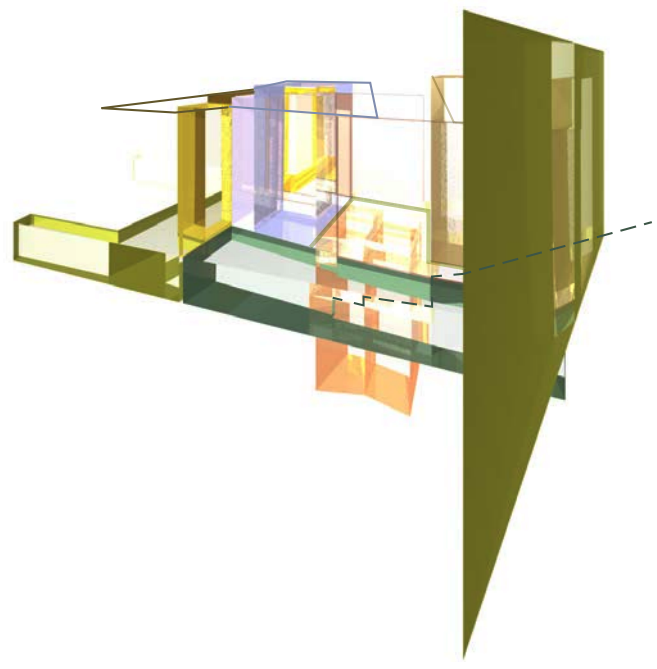
Framing Walls







Courtyard gardens - open / closed



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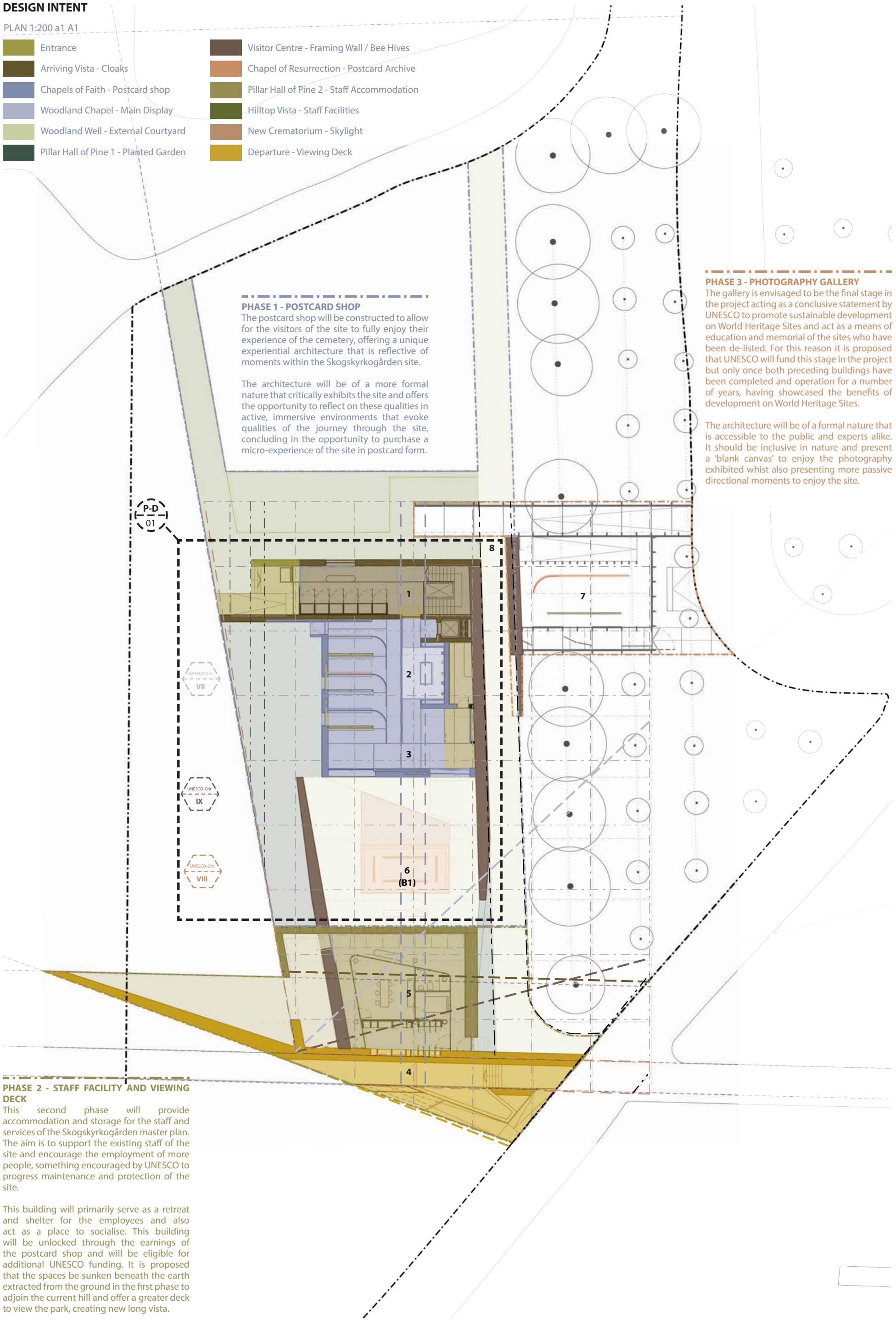
DESIGN INTENT

PLAN 1:200 a1 A1

- Entrance
- Arriving Vista - Cloaks
- Chapels of Faith - Postcard shop
- Woodland Chapel - Main Display
- Woodland Well - External Courtyard
- Pillar Hall of Pine 1 - Planted Garden
- Visitor Centre - Framing Wall / Bee Hives
- Chapel of Resurrection - Postcard Archive
- Pillar Hall of Pine 2 - Staff Accommodation
- Hilltop Vista - Staff Facilities
- New Crematorium - Skylight
- Departure - Viewing Deck



PHASE 1 - POSTCARD SHOP

The postcard shop will be constructed to allow for the visitors of the site to fully enjoy their experience of the cemetery, offering a unique experiential architecture that is reflective of moments within the Skogskyrkogården site.

The architecture will be of a more formal nature that critically exhibits the site and offers the opportunity to reflect on these qualities in active, immersive environments that evoke qualities of the journey through the site, concluding in the opportunity to purchase a micro-experience of the site in postcard form.

PHASE 2 - STAFF FACILITY AND VIEWING DECK

This second phase will provide accommodation and storage for the staff and services of the Skogskyrkogården master plan. The aim is to support the existing staff of the site and encourage the employment of more people, something encouraged by UNESCO to progress maintenance and protection of the site.

This building will primarily serve as a retreat and shelter for the employees and also act as a place to socialise. This building will be unlocked through the earnings of the postcard shop and will be eligible for additional UNESCO funding. It is proposed that the spaces be sunken beneath the earth extracted from the ground in the first phase to adjoin the current hill and offer a greater deck to view the park, creating new long vista.

PHASE 3 - PHOTOGRAPHY GALLERY

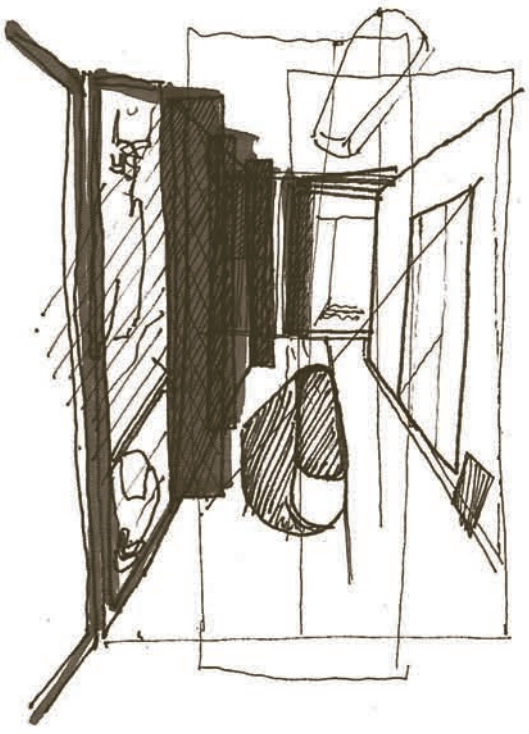
The gallery is envisaged to be the final stage in the project acting as a conclusive statement by UNESCO to promote sustainable development on World Heritage Sites and act as a means of education and memorial of the sites who have been de-listed. For this reason it is proposed that UNESCO will fund this stage in the project but only once both preceding buildings have been completed and operation for a number of years, having showcased the benefits of development on World Heritage Sites.

The architecture will be of a formal nature that is accessible to the public and experts alike. It should be inclusive in nature and present a 'blank canvas' to enjoy the photography exhibited whist also presenting more passive directional moments to enjoy the site.

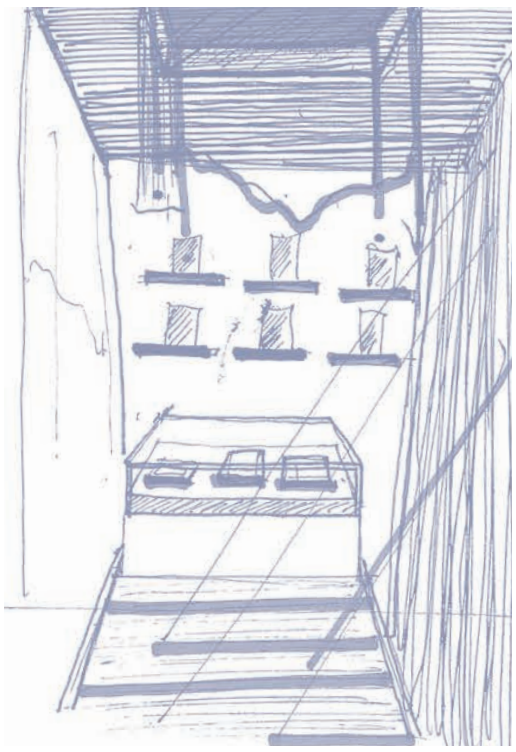
UNESCO

BUILDING CONSTRUCTS - POSTCARD MOMENTS

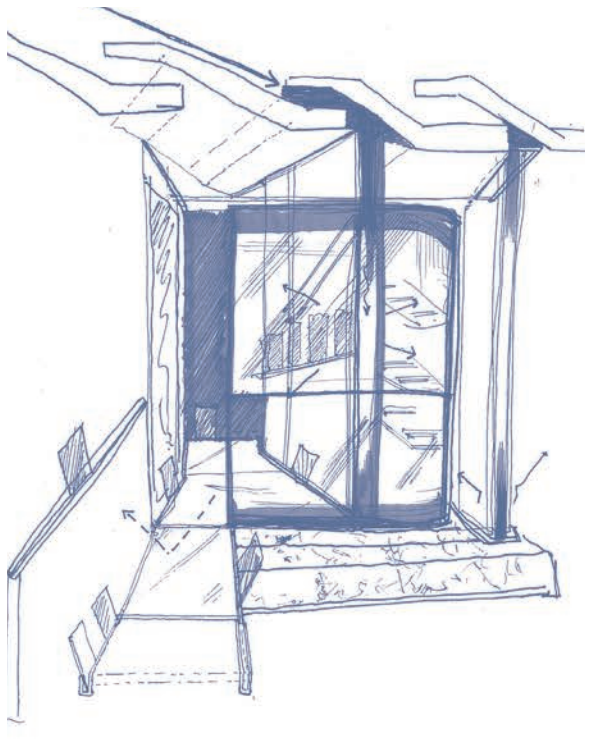
In order to truly represent and compliment the qualities and moments of transition present within the existing site the new architecture must create a dialogue with these existing conditions. This communication will create an enhanced user experience on the site that is most evident within the internal spaces of the new buildings. These buildings will introduce a sequence of spaces that interlink and transition from one to another, framing views onto the existing conditions of the site and offering reflective spaces that evoke qualities of the existing postcard moments on the site at an experiential human scale.



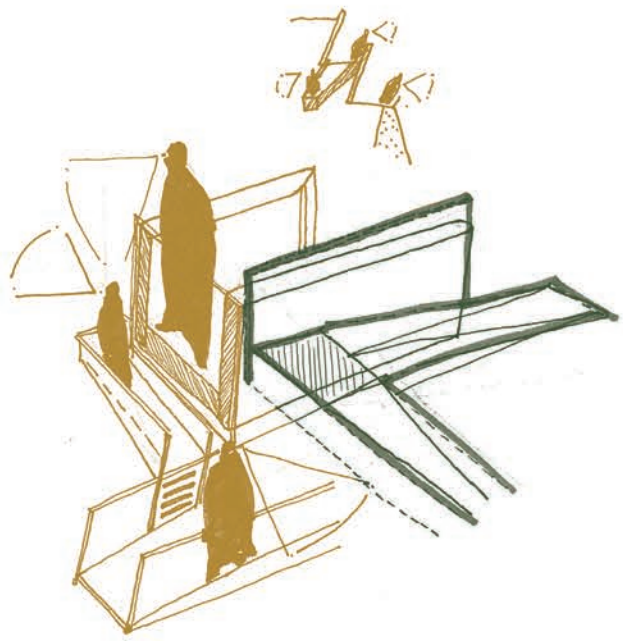
1 - Stone clad storage lockers



2 - Glass and Fabric lined main display

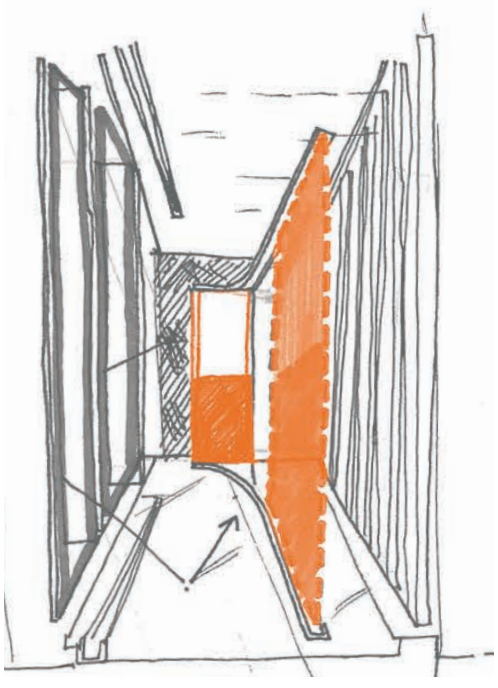


3 - Transparent fabric screened booths

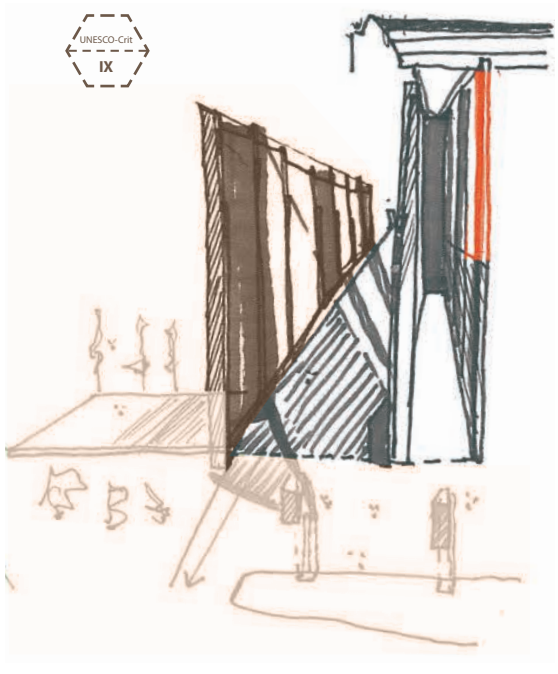


4 - Yellow stone clad lookouts with coloured glazing

5 - Translucent fabric, Textured stone walls



7 - Glazed curtain wall, photography printed on fabric



8 - Glazed External Wall, exposed bee hives

6 - String fabric walls between coloured glass units

1 _CLOAKS - Arriving Vista

The cloakroom allows the visitors to store possessions before proceeding into the shop or further into the site. This area presents the first view of the site (to the Chapels of Faith) framed from the interior spaces.

2 _DISPLAY - Woodland Chapel

The entryway of the postcard shop is lined with the main feature display before the main retail space begins, an atmospheric space that reflects the drama of the postcard photography.

3 _RETAIL SPACE- Chapel of Faith

This space is flexible in nature and open to partial reconfiguration for the expansion of displays as more postcards of the site are printed. Supporting storage draws house postcards prior to purchase, each with carefully considered lighting and material qualities.

4 _RAMP TO HILLTOP - Departing Vista

The ramp forms the main viewing point in the new scheme and offers hight to enjoy the key vistas present on the site.

5 _STAFF ACCOMMODATION -Pillar hall of pines

The staff room creates a varied and interesting space that creates spaces for break and relaxation, promoting a social atmosphere between staff.

6 _ARCHIVE - Chapel of Resurrection

This underground sunken space acts as a fortress in protecting the most valuable stock to be viewed by interested individuals and purchased by collectors. Conditions in this space must be regulated to maintain and protect the rare stock.

7-8_GALLERY - De-listed Sites

The gallery presents a blank canvass for the photography which can be reconfigured and adapted for arrangements/ images of the de-listed UNESCO sites. This space is influenced by adjacent areas with colours bleeding into the space, exaggerated by the choice of materials.

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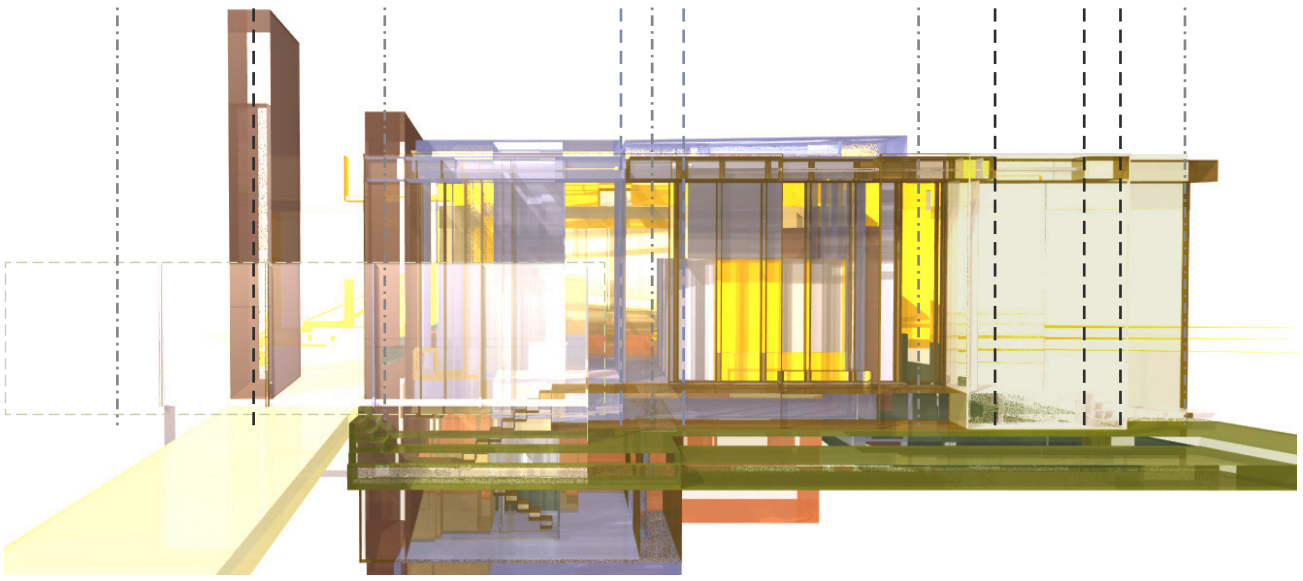
DESIGN INTENT

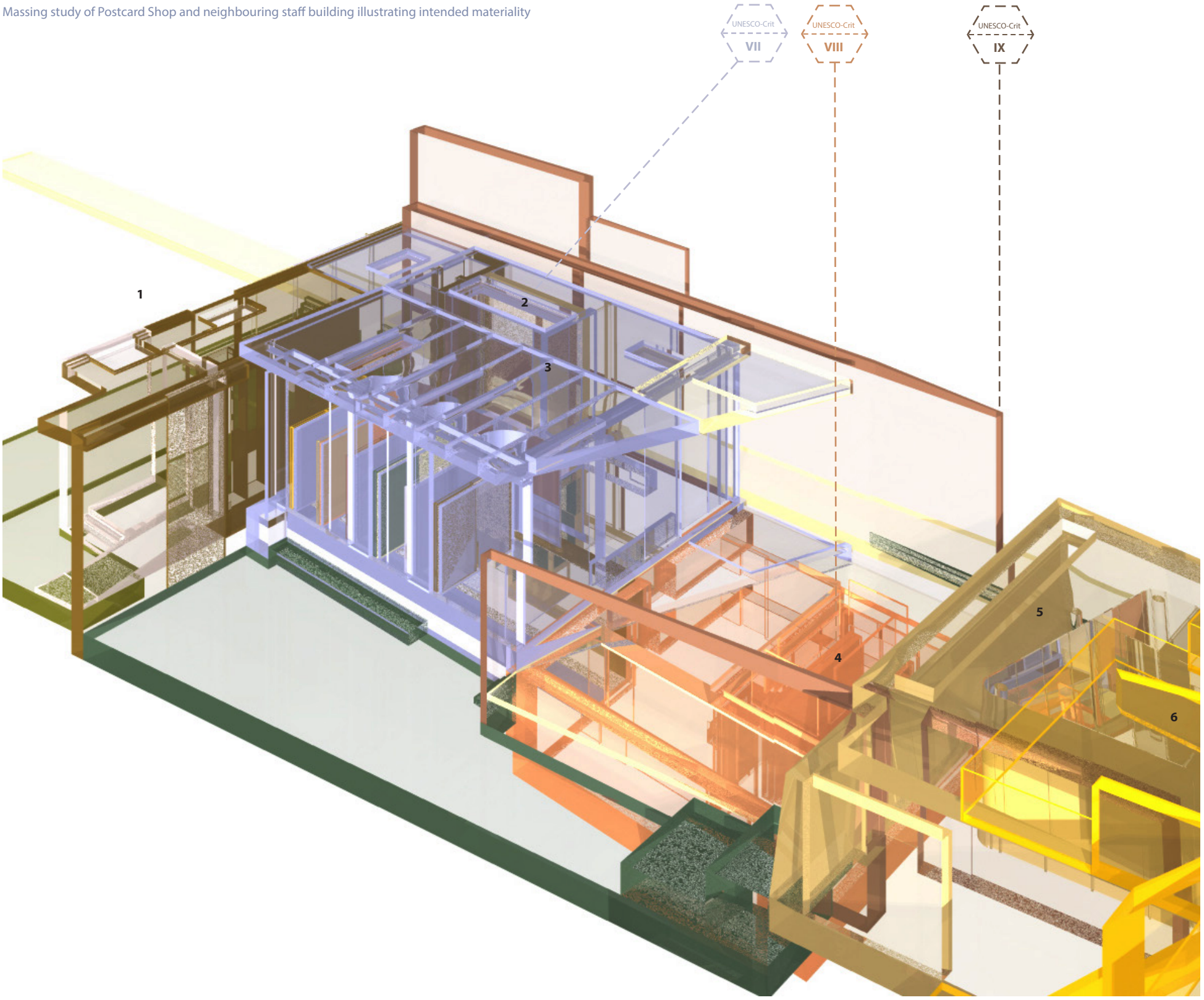
- Entrance
- Arriving Vista
- Chapels of Faith - Postcard shop
- Woodland Chapel - Retail Main Display
- Woodland Well - Shop Courtyard Garden 1
- Pillar Hall of Pine 1 - Shop Courtyard Garden 2
- Visitor Centre - Framing Walls / Beehives
- Chapel of Resurrection - Postcard Archive
- Pillar Hall of Pine 2 - Staff Rooms
- Hilltop Vista - Courtyard Approach
- New Crematorium - Basement Visual Connection
- Departure - Viewing Platforms

The new developments are arranged into three blocks that exhibit their own individual characters whilst together creating a uniform 'harmonyous whole' as per the original desaign intent set out by Asplund and Lewerentz for the site. This is further evident in the selection of materials and the presence of colour in the building, that reflecting the exsiting site conditions into the new buildings. The material palette is true to the postcard colour swatches taken to that on site with a varying level of transparency between the materials selected to offer carefully controlled and vrying amounts of visiblity to view and interact with these postcard moments within the new buildings and out onto the exsiting postcard moments that exist on site. This range in material definitions can at times seem disjointed although has been unified and considered within each phase of the development and by the data set that originally defined each space. Also consolodating the development as a whole beside the woodland crematorium is the precence of the same rigorous 5m building grid within primary elevation of the new building.



Principle elevation facing Asplunds' and Lewerentzs' Woodland Crematorium and Chapels of Faith

Massing study of Postcard Shop and neighbouring staff building illustrating intended materiality



UNESCO

BUILDING CHARACTERS AND MATERIAL LANGUAGE

PHASE 1
POSTCARD SHOP

PHASE 2
STAFF FACILITY

PHASE 3
DE-LISTED SITES
PHOTOGRAPHY GALLERY

Courtyard

Courtyard

Courtyard

Opaque

- Polished Reflective Stone
- Textured Matte Stone
- Planting

3 4 5 6 1

Translucent

- Fabrics - String, Block, Layered
- Thin Back-lit Stone
- Glass - Clear, Coloured, Reflective

Transparent

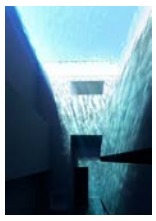
- Glass - Reflective, Matte, Coloured

2

Colour Varied

Colour Varied

Precedents

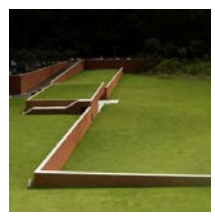


Left: Musée de l'archéologie, Ateliers Jean Nouvel
Middle: Maison de Verre, Pierre Chareau + Bernard Bijovet
Right: Santa Maria Formosa Square, Carlo Scarpa



Left: Archery Range, Enric Miralles
Middle: Knut Hamsun Center, Steven Holl
Right: Trollstigplatået, Reiulf Ramstad Architects





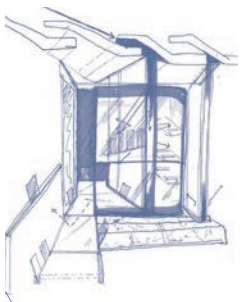

Left (top): Daeyang Gallery, Steven Holl
Left (Bottom): Oxford Univesity building, Hawkins Brown
Middle: Planar House, Steven Holl
Right: Amore Pacific Research & Design Center, Alvaro Siza

Long Section through Postcard Shop (PHASE 1) and Staff Facility (PHASE 2)

1 - Cloaks

2 - Main Display

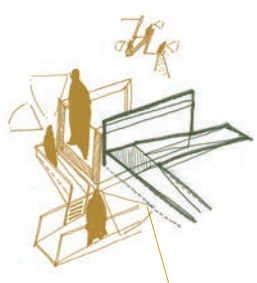
3 - Retail Space

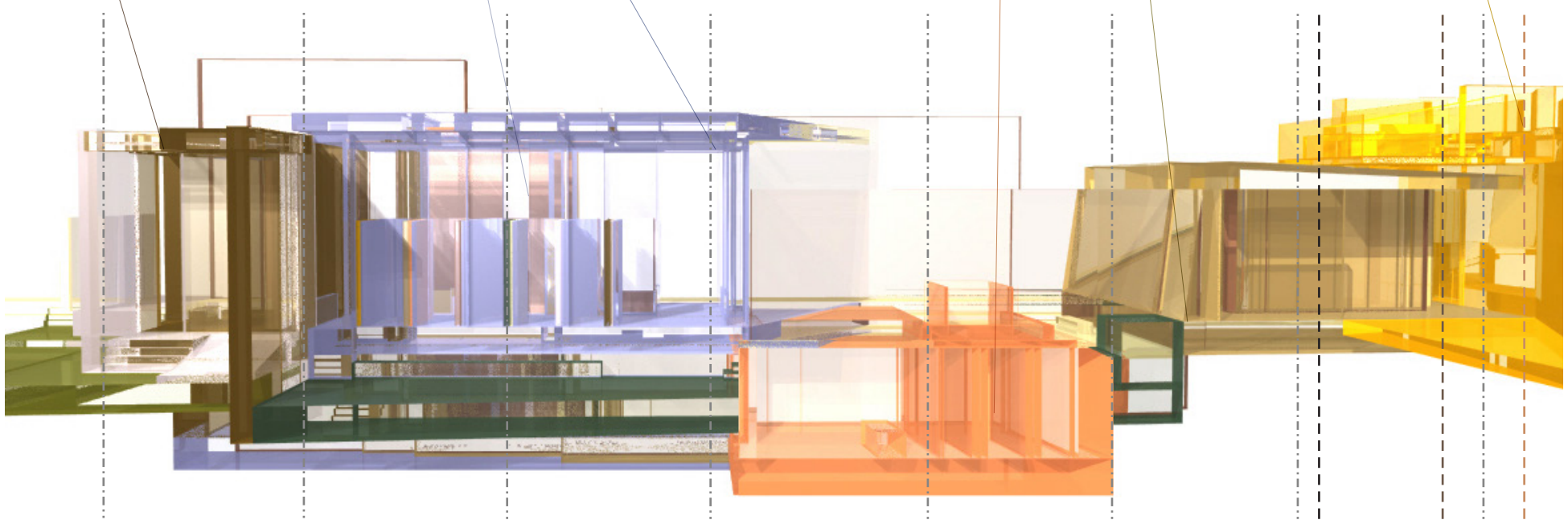


4 - Postcard Archive

5 - Staff Facility

6 - Viewing Platforms





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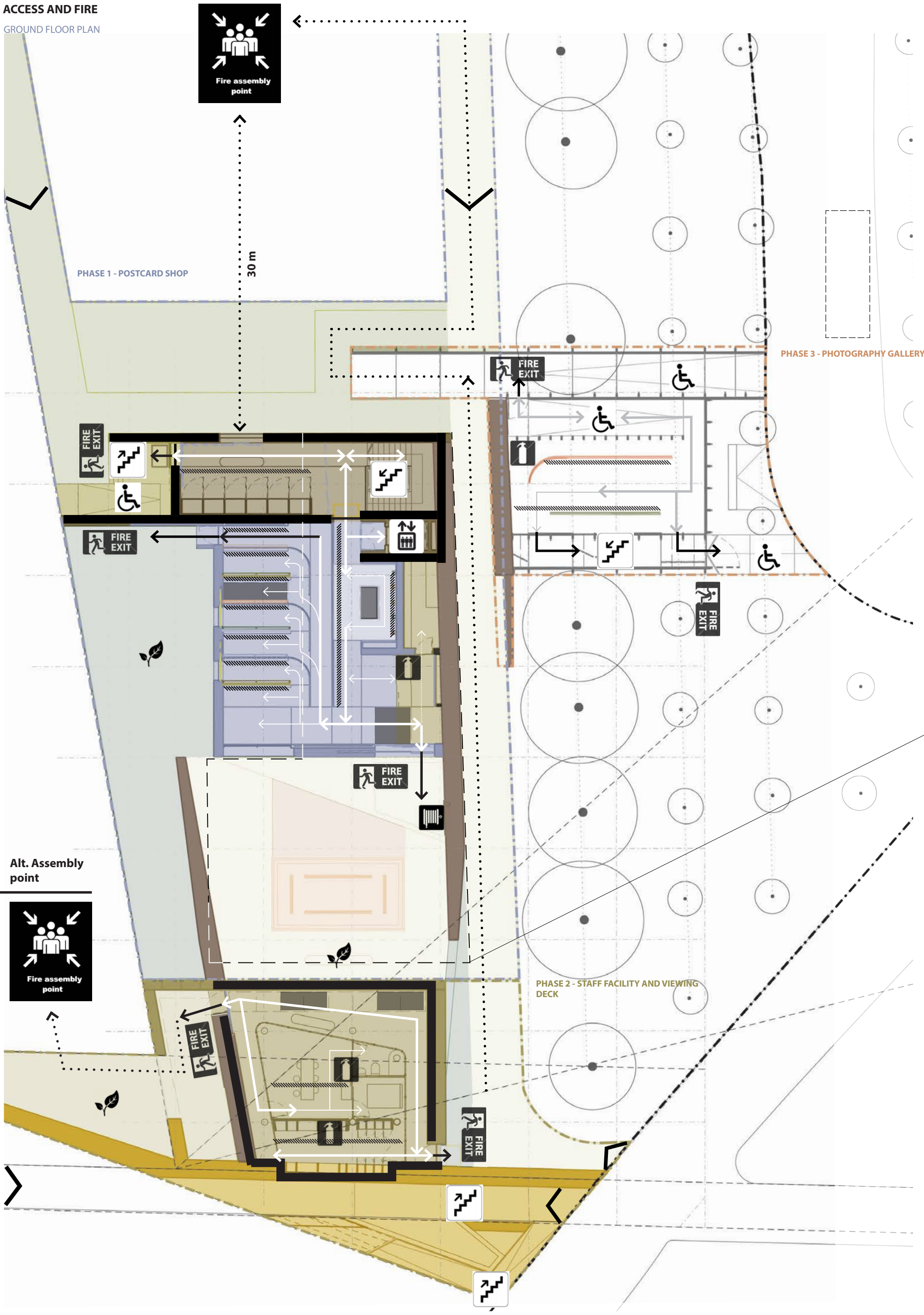
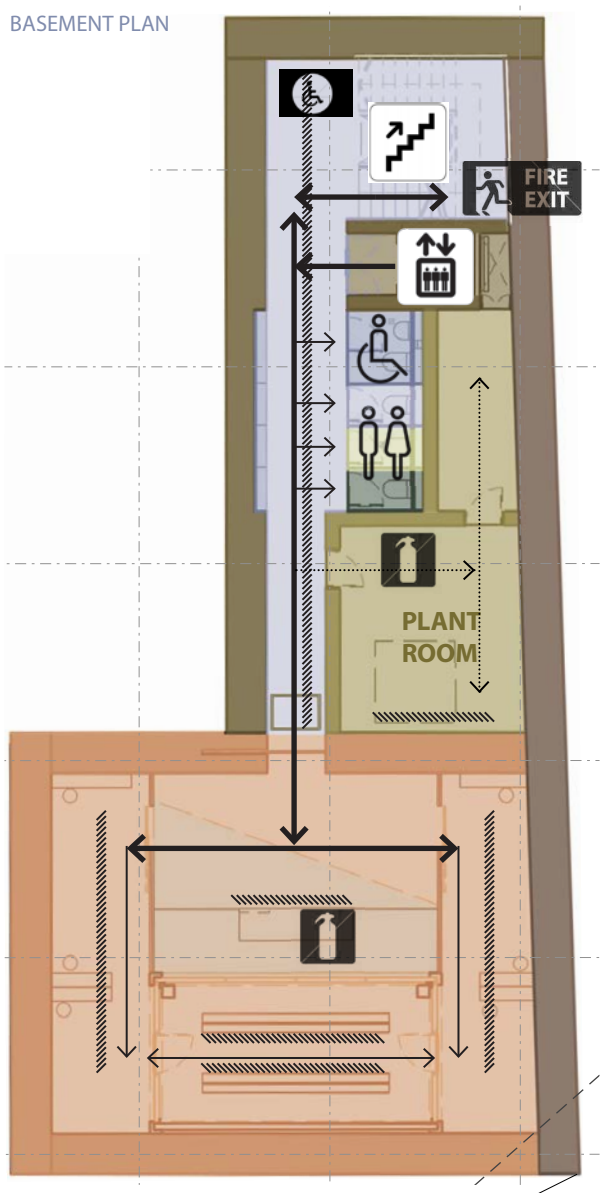
ACCESS AND FIRE

GROUND FLOOR PLAN



Return to Sender

BASEMENT PLAN



Design Features

- Primary circulatory route
- Emergency escape route (multiple per building)
- Defined routes of interest
- Private secondary routes (Staff)
- FD 60 min fire rated construction
- Fire Door 30mins (>750mm, automatic, power assisted)
- Integrated Overhead Sprinkler System
- Fire Engine Parking
- Fire Roof Vent

Access Measures

- Stairs up (>cc1000mm)
- Stairs down (>1000mm)
- Disabled Access Ramp @1:12
- Elevator 1000x1400mm
- WC's (3x unisex, 1 ambulant disabled WC cubicle)
- Landscaped Terrain

Fire Precautions

- Fire Assembly Point (at least one alternative route is provided from all buildings)
- Fire signs to be appropriately installed and illuminated to direct to emergency exit
- Wheelchair Refuge 900x1400mm
- Fire Extinguisher Location
- External Wall mounted hose

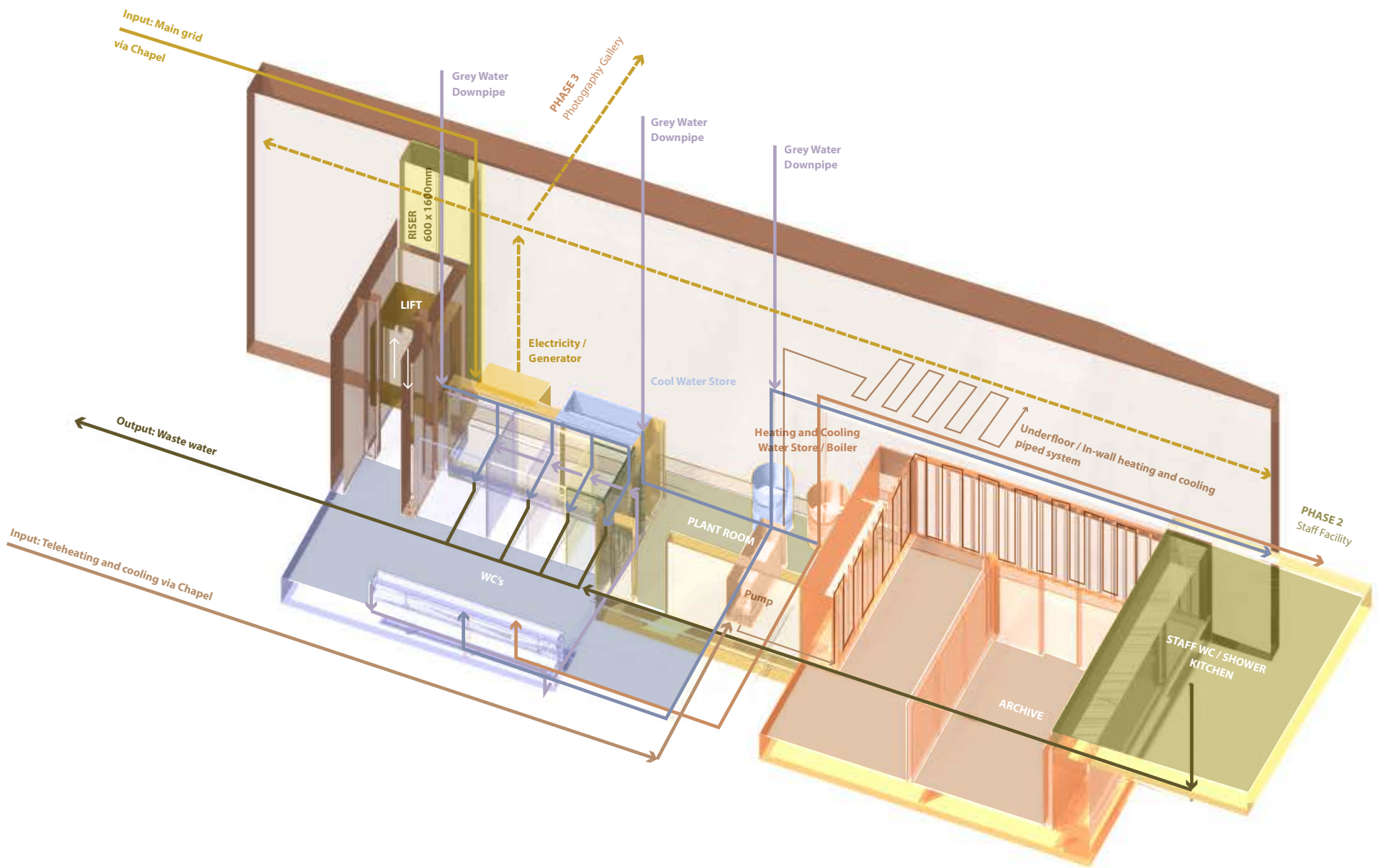
NB: All main entrance doors are power assisted and can be controlled with a low level button for disabled access

Fire detectors would be installed to meet Part B UK Building Regulations
Emergency Lighting integrated into light fittings to illuminate exit route in the event of a fire in each building
Escape distances from building all less than 45m, in accordance with Shop/Commercial/Ofiice buildings stated in part B

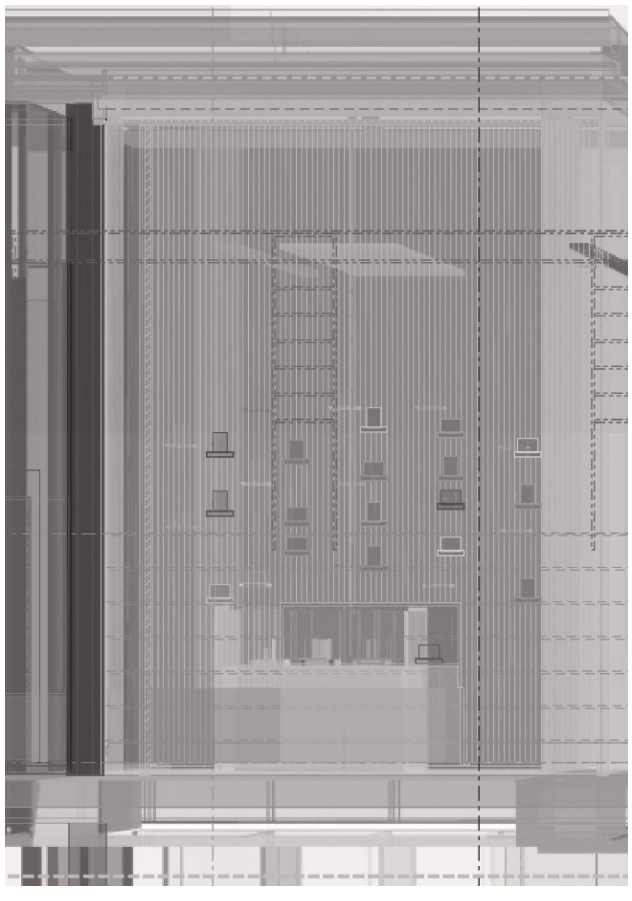
BASEMENT PLANT ROOM - SERVICING AND MEP

The new development plugs into Stockholm's city wide teleheating and cooling systems which are already operational on site. This provides a sustainable means of space and water heating and cooling throughout the year as over 50% of energy used from this system is generated through renewable energy sources, primarily biomass incineration. This method of heating currently serves over 60% of homes in Stockholm.

All plant and services will be located in the basement level plant room accessed below the postcard shop. From here energy, water etc can be distributed out to each pahse of the development. The servicing strategy for the development operates as a closed cyclical system which is separate from that of the existing buildings. Greywater collection occurs at roof level before it can be brought down into the plant room before it is pumped to wash hand basins etc (from which it can be reused to flush WC's before begin expelled from the buildings.



GA: GENERAL ARRANGEMENT DRAWING PACKAGE



P1-3-P-cxt Return to Sender

Context Plan - PHASE 1-3
1:1000 @ A3

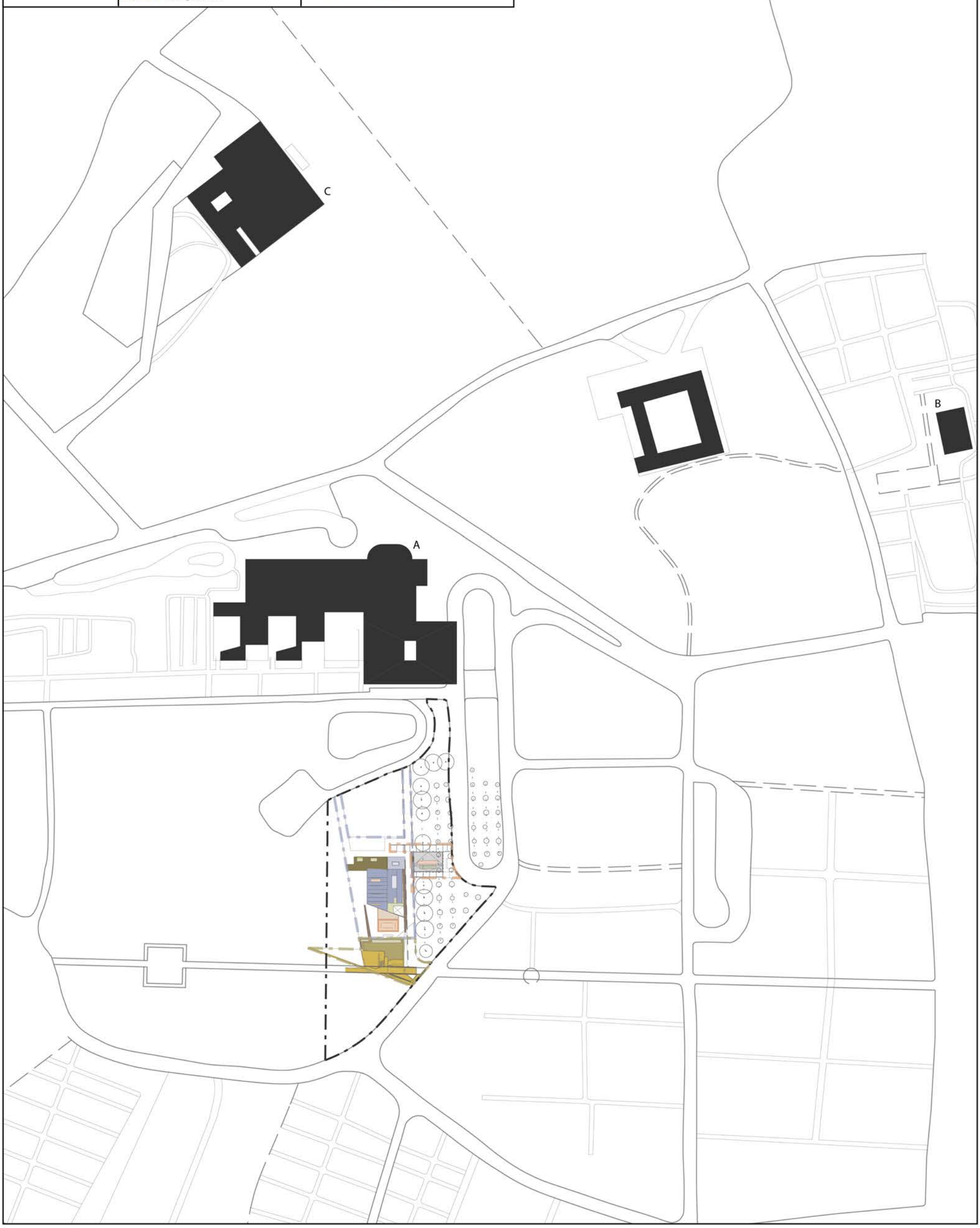
Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

Postcard Moments on Site

A  Chapels of Faith, Hope and The Holy Cross

B  Woodland Chapel

C  New Crematorium



P1-3-P-RF Return to Sender

Roof Plan - PHASE 1-3
1:200 @ A3

Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

PHASE 1 - POSTCARD SHOP

PHASE 3 - PHOTOGRAPHY GALLERY

PHASE 2 - STAFF FACILITY AND VIEWING DECK

P1-3-P-GF | Return to Sender

Ground Floor Plan - PHASE 1-3
1:200 @ A3

Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

PHASE 1 - POSTCARD SHOP

PHASE 3 - PHOTOGRAPHY GALLERY

P-D
01

PHASE 2 - STAFF FACILITY AND
VIEWING DECK

P1-3-P-B1 Return to Sender

Basement Floor Plan - PHASE 1-3
1:200 @ A3

Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

PHASE 1 - POSTCARD SHOP

PHASE 3 - PHOTOGRAPHY GALLERY

P-D
02

PHASE 2 - STAFF FACILITY AND
VIEWING DECK

D-P-01 Return to Sender

Detail Plan - Ground Floor - PHASE 1
1:50 @ A1

Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

D-P-02 Return to Sender

Detail Plan - Basement - PHASE 1
1:50 @ A3

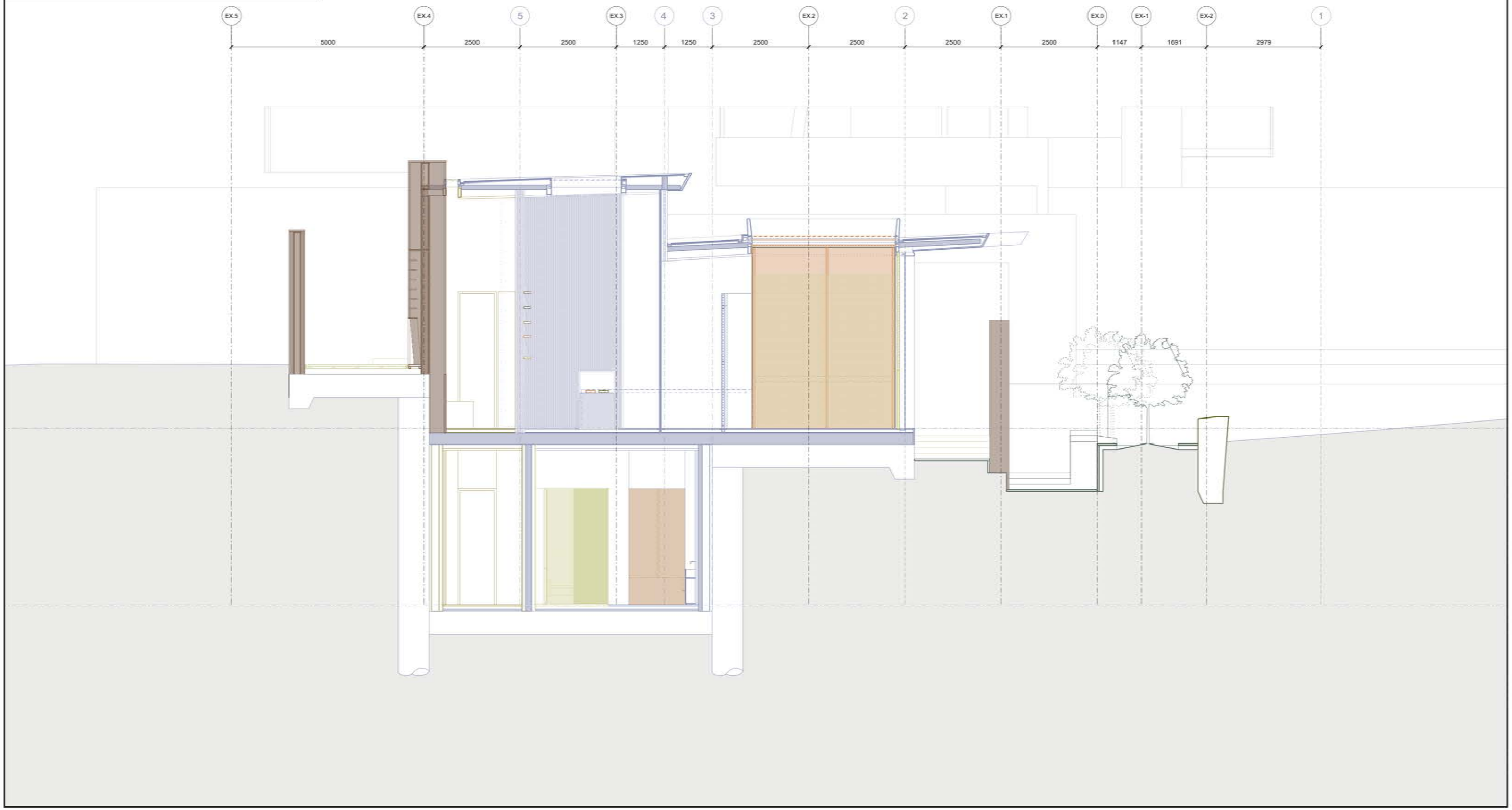
Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

EX.2
3
4
EX.3
5
EX.4
EX-F
EX-G
2500
5000
5000
B1-D-5
B1-D-5

S-AA | Return to Sender

Section A-A - Short Section through PHASE 1
1:50 @ A1

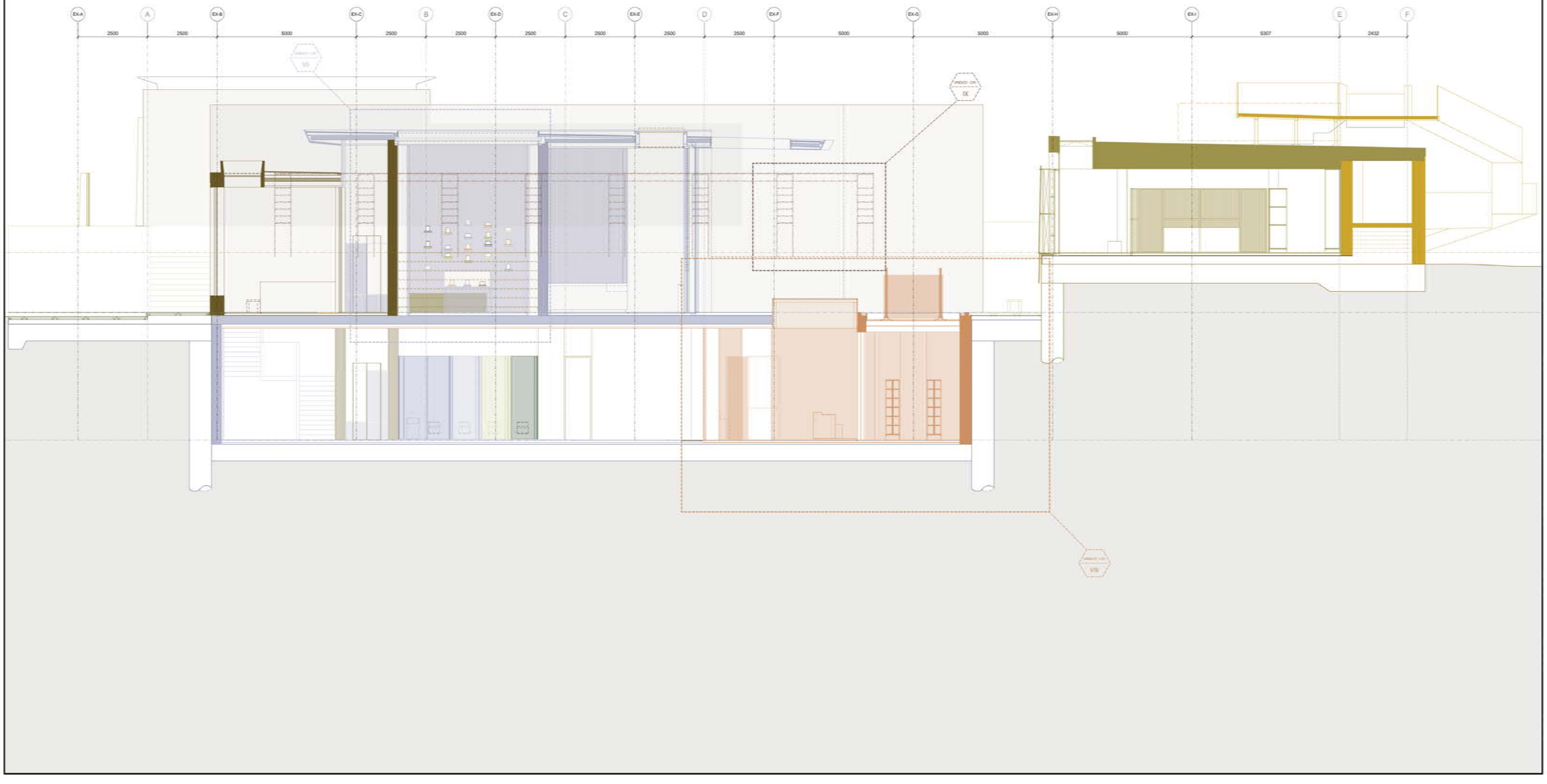
Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms



S-BB | Return to Sender

Section B-B - Long Section through PHASE 1 and 2
1:50 @ A0

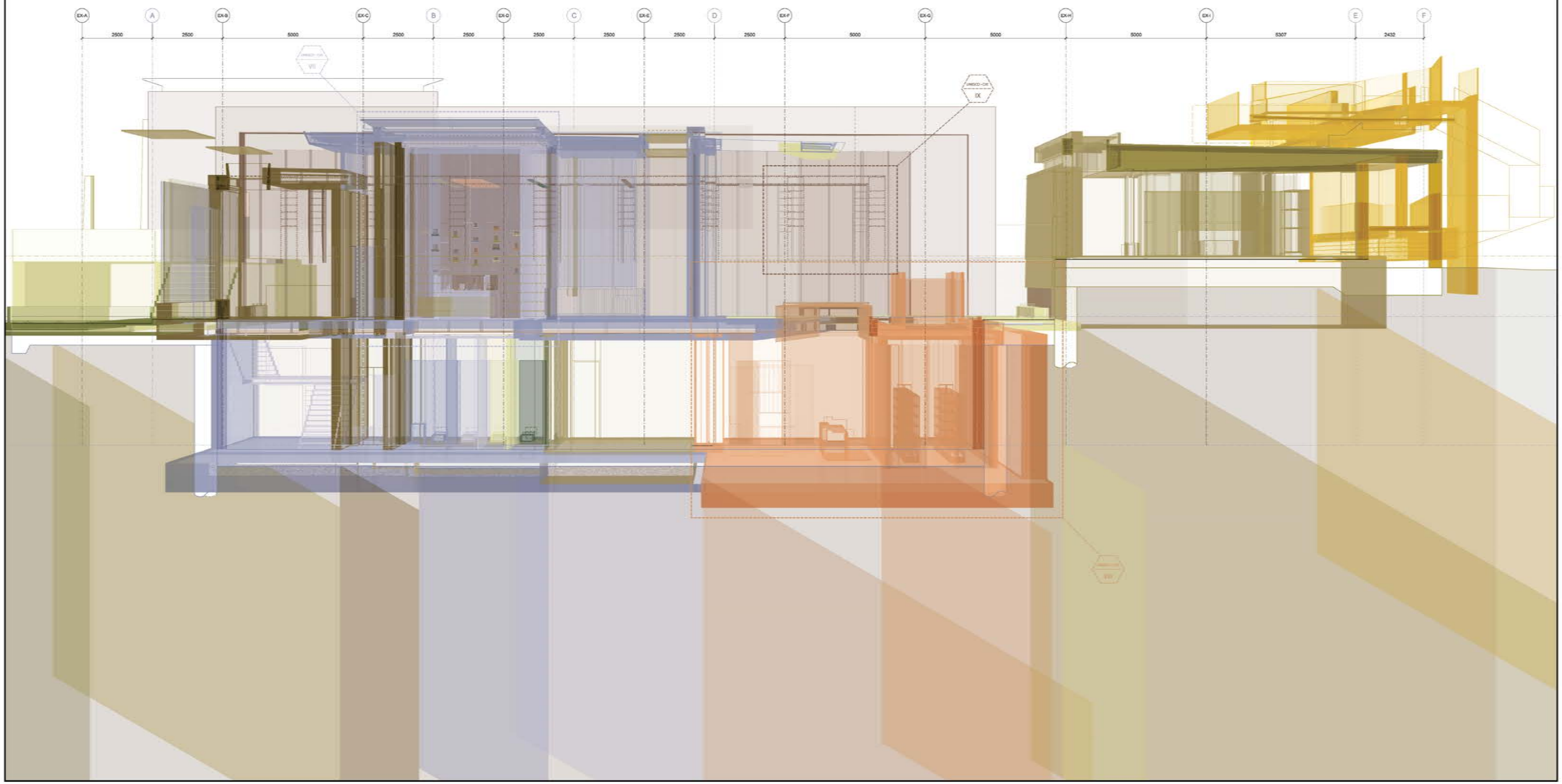
Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms



S-BBren | Return to Sender

Section B-B - Rendered Long Section
1:50 @ A0

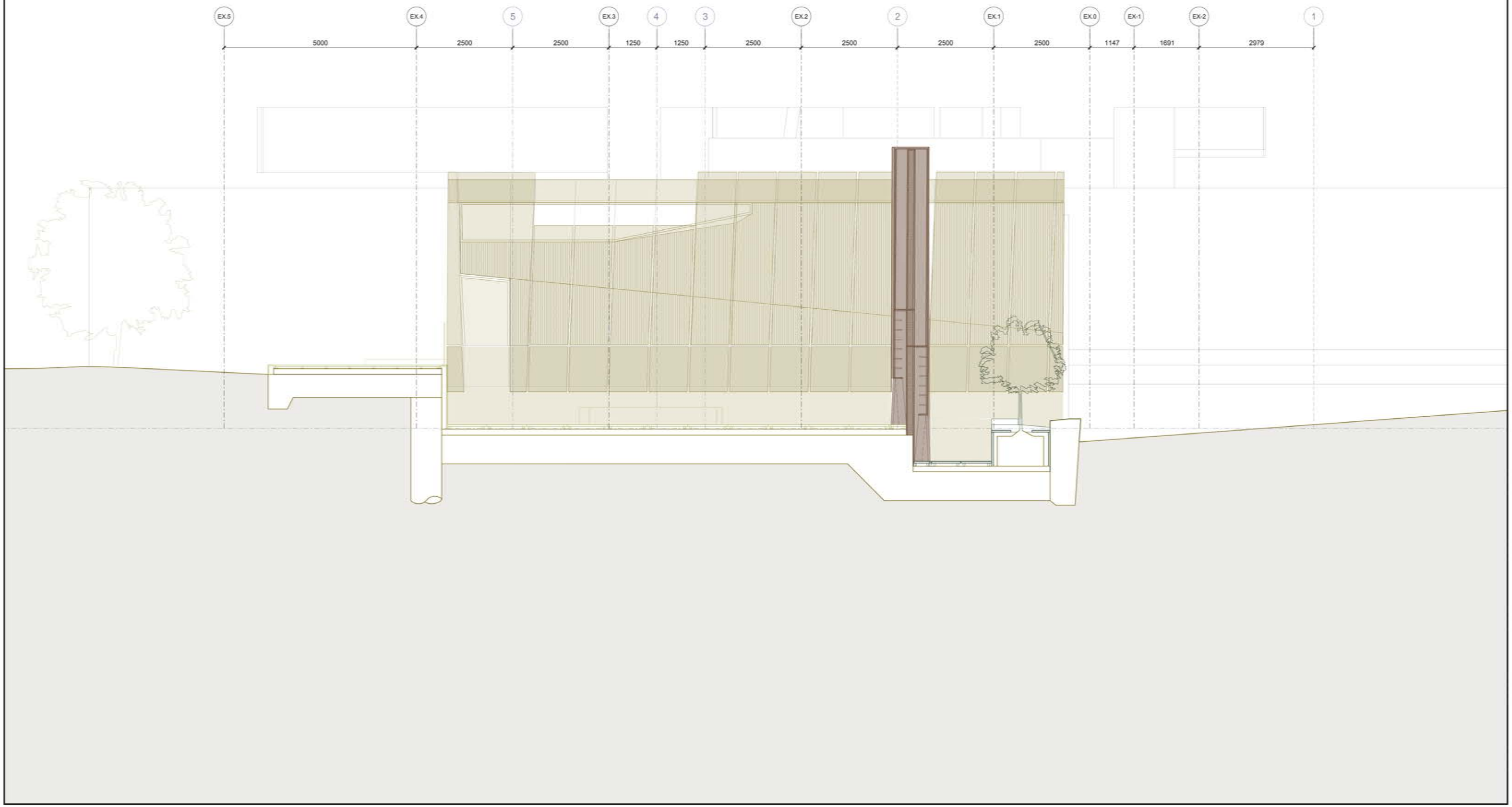
Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms



P1-E-E | Return to Sender

East Elevation - Postcard Shop Garden - PHASE 2
1:50 @ A1

Entrance
Arriving Vista - Cloaks
Chapels of Faith - Postcard shop
Woodland Chapel - Retail Main Display
Woodland Well - Shop Courtyard Garden 1
Pillar Hall of Pine 1 - Shop Courtyard Garden 2
Visitor Centre - Framing Walls / Beehives
Chapel of Resurrection - Postcard Archive
Pillar Hall of Pine 2 - Staff Rooms
Hilltop Vista - Courtyard Approach
New Crematorium - Basement Visual Connection
Departure - Viewing Platforms

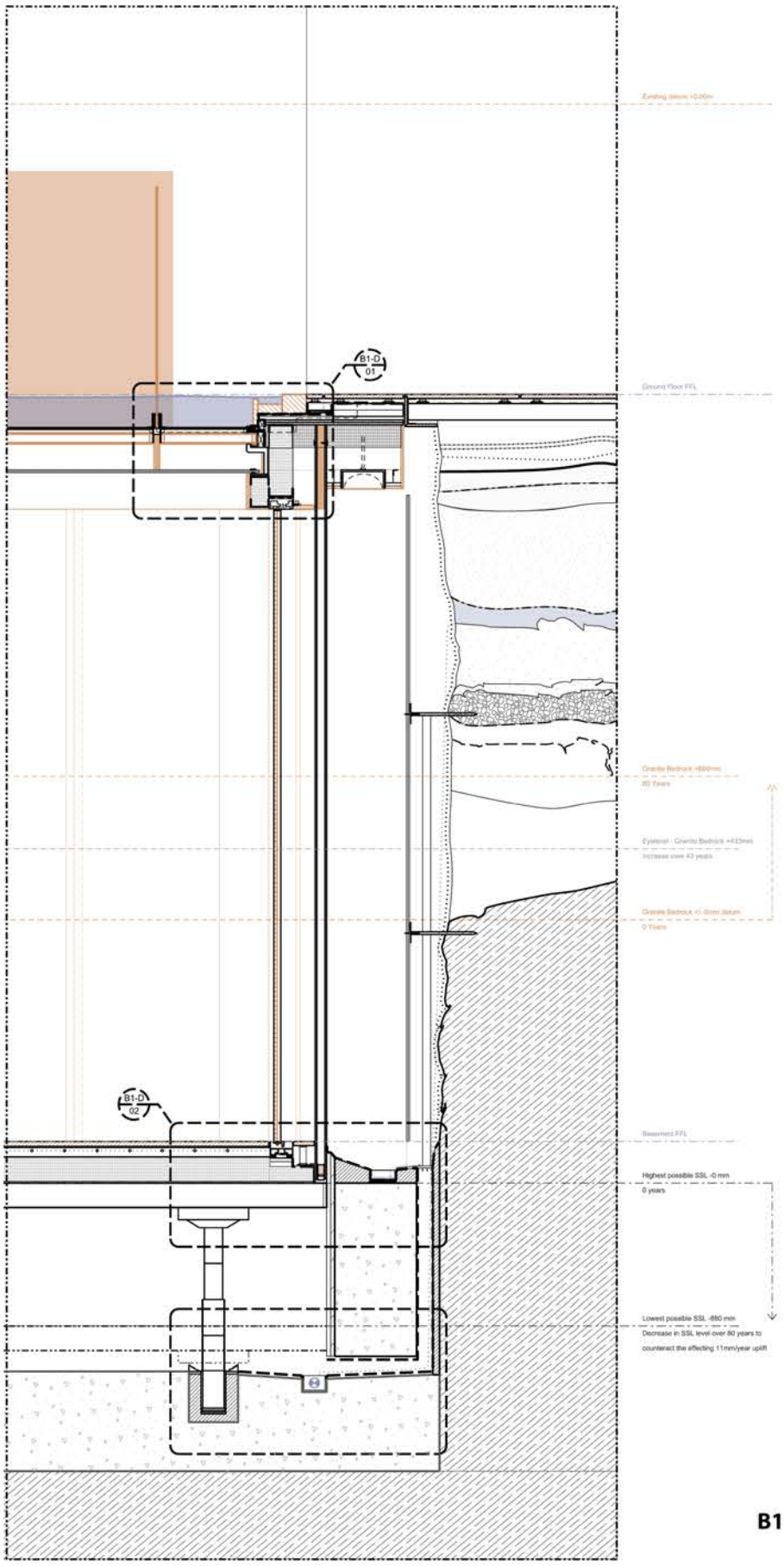


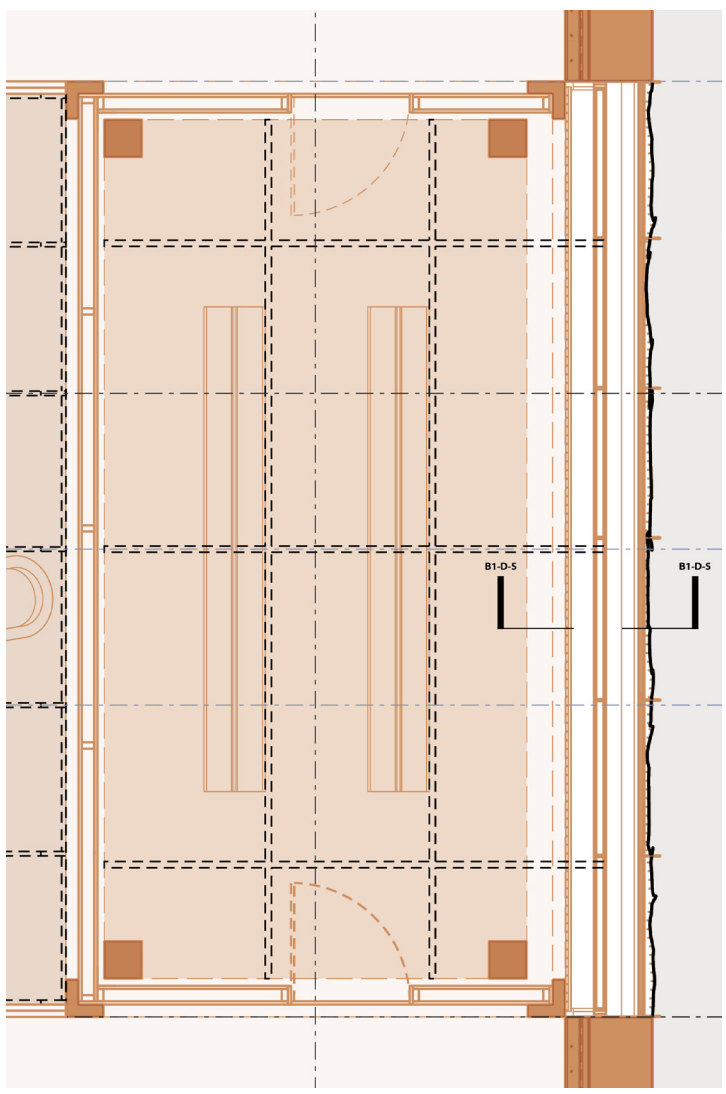
B1-D-S	Return to Sender

Basement Floor Postcard Archive - Details
PHASE 1
1:20 and 1:5 @ A1

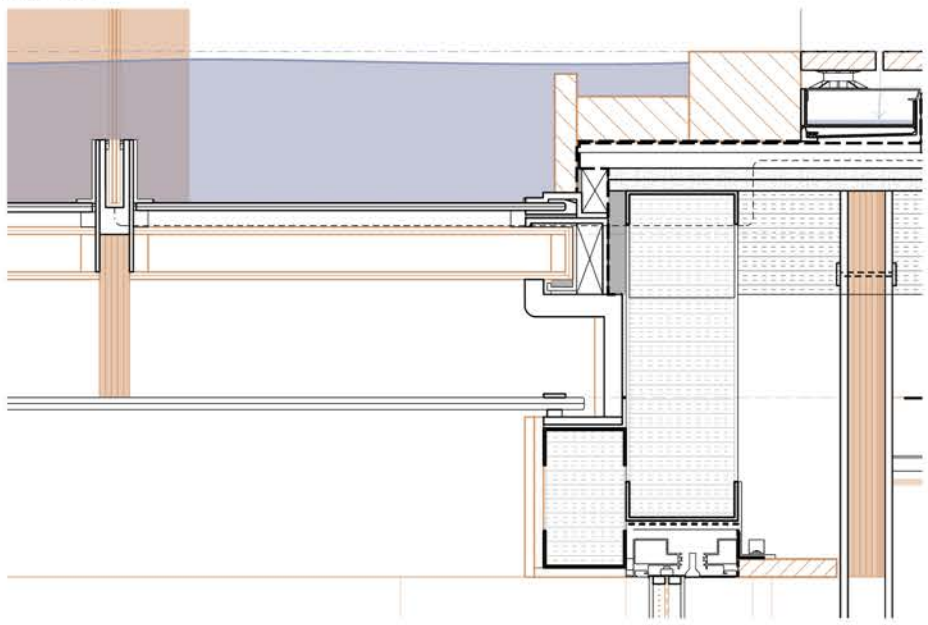
B1-D-S - 1:20 Detail Section through Postcard Archive and Triple Glazed Retaining Wall
B1-D-01 - 1:5 Glazed Pool Skylight Detail
B1-D-02 - 1:5 Sinking Foundation Detail

Chapels of Faith - Water
Chapel of Resurrection - Postcard Archive

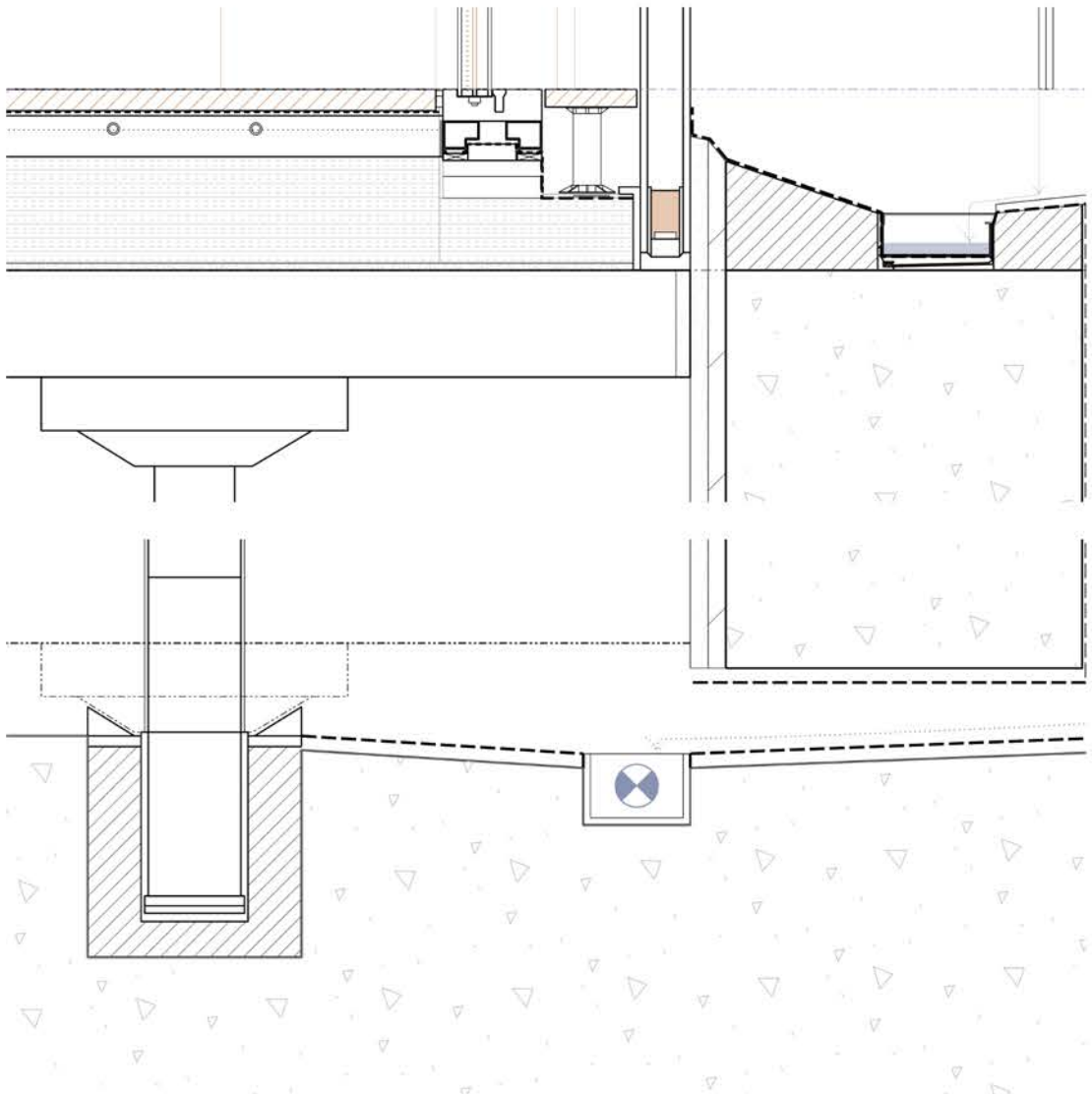




B1-D-01



B1-D-02



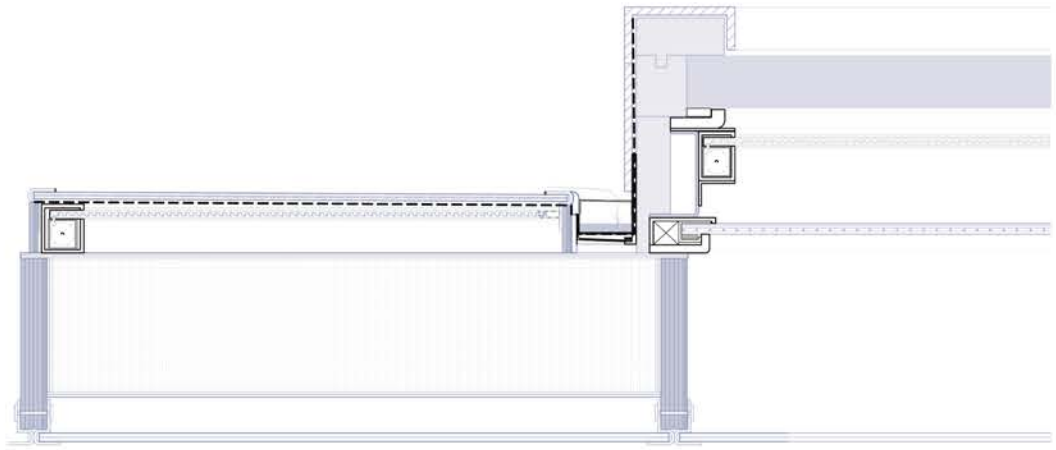
RF-D-01-03	Return to Sender

Ground Floor Postcard Retail Unit - Roof Details
PHASE 1
1:5 @ A0

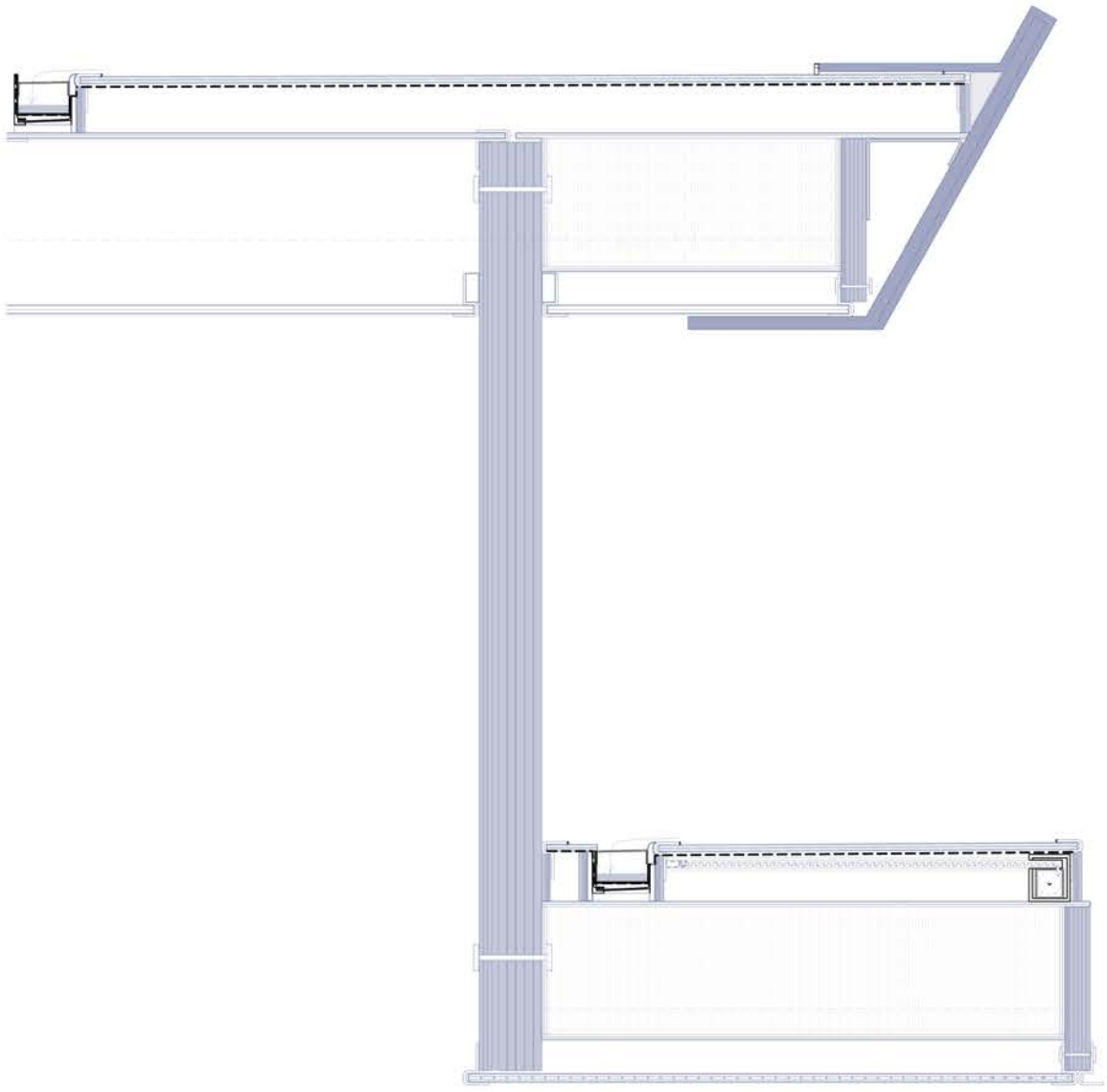
RF-D-01 - 1:5 Glazed Pool Skylight Detail
RF-D-02 - 1:5 Sinking Foundation Detail
RF-D-03 - 1:5 Sinking Foundation Detail

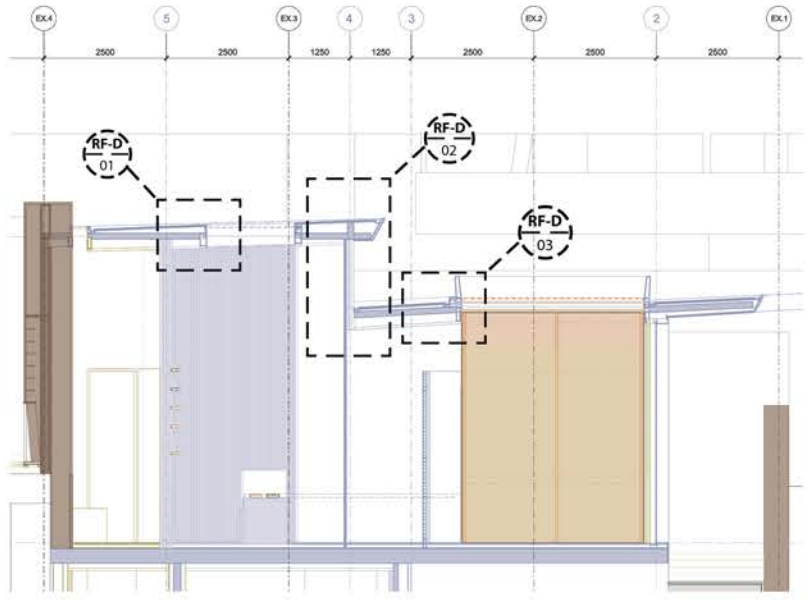
Chapels of Faith - Retail Space
Woodland Chapel - Main Display Area
Chapel of Resurrection - Postcard Archive

RF-D-01

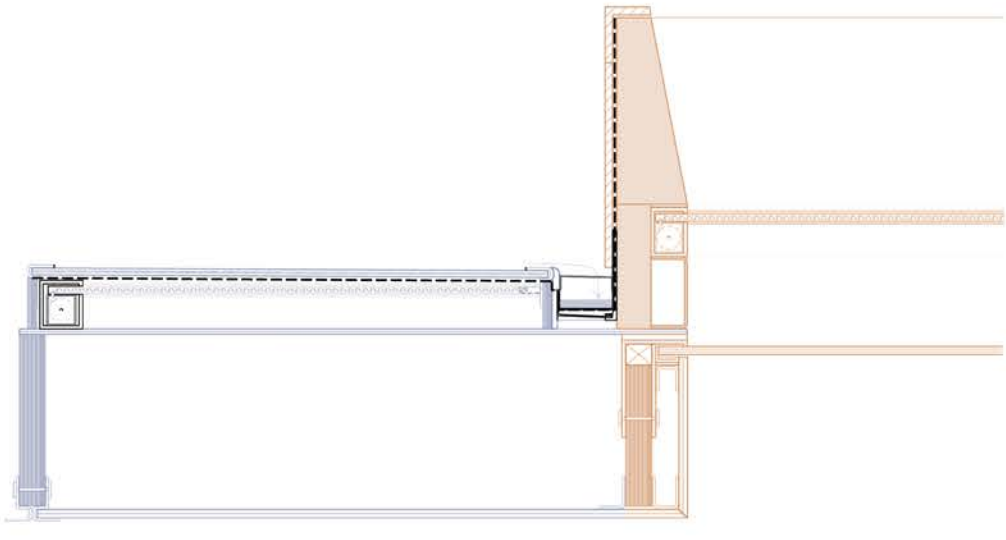


RF-D-02





RF-D-03



UNESCO-Crit
VIII

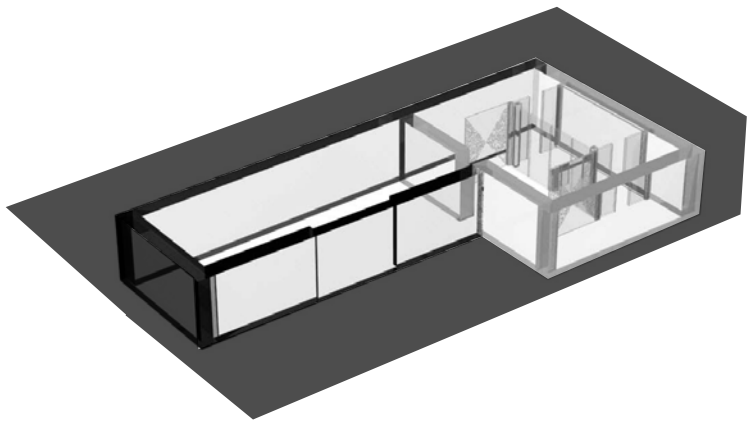
SECTION 2 : BUILDING CONSTRUCTION

To be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features

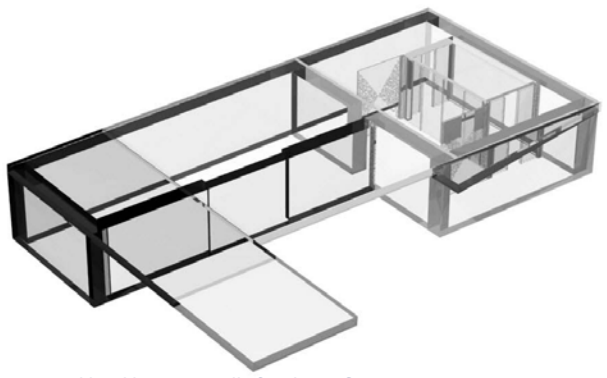
RAL 4012 RAL 8023

PHASE 1: THE POSTCARD SHOP
CONSTRUCTION SEQUENCE

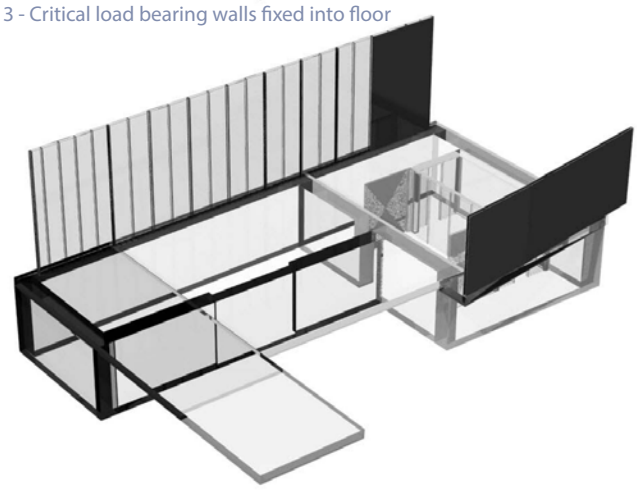
1 - Basement works - retaining walls, raft foundations and core cast



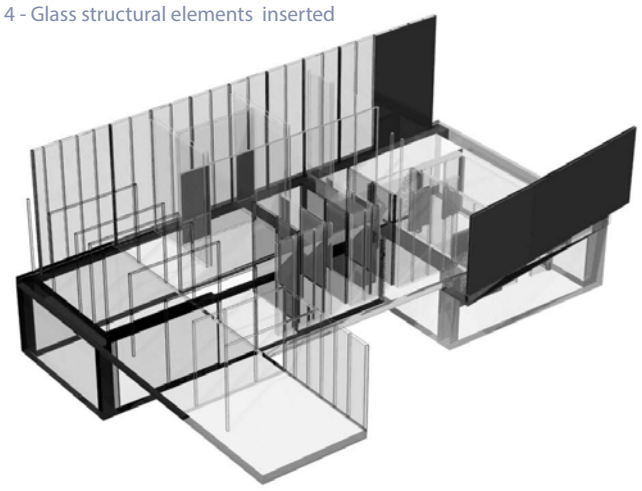
2 - Floor plate inserted to form ground floor



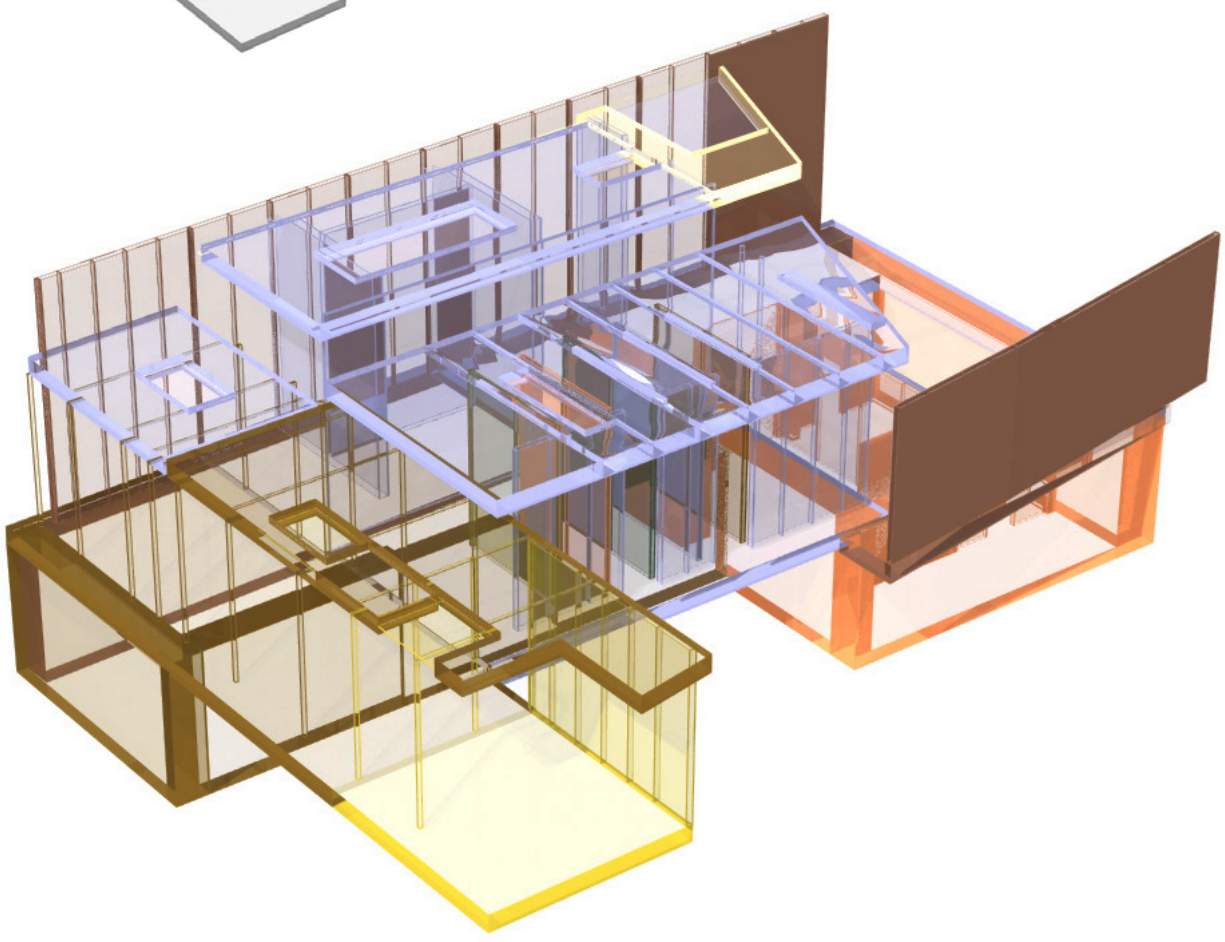
3 - Critical load bearing walls fixed into floor



4 - Glass structural elements inserted

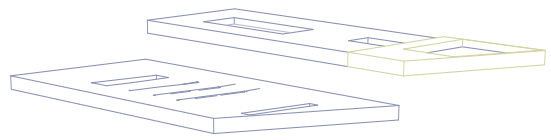


5 - Prefabricated internal glazed units fitted, prefabricated roof elements fixed prior to final fit out

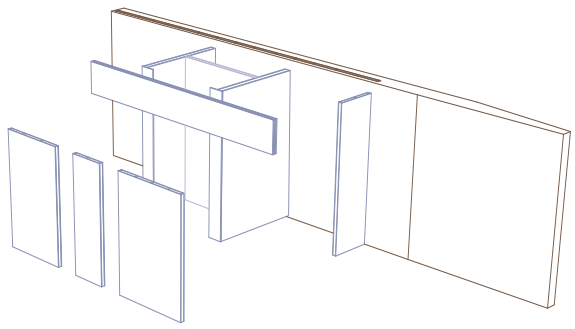


GROUND FLOOR STRUCTURAL ELEMENTS

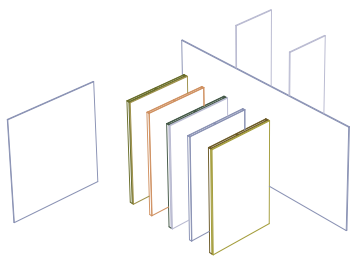
Prefabricated Roof Structure



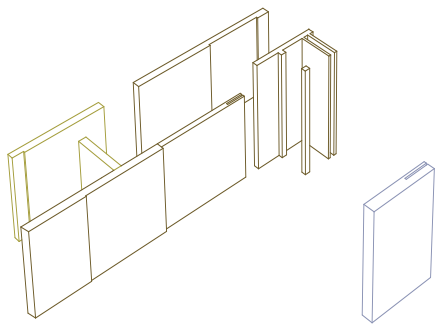
Primary Glass Structural Elements



Secondary Glazed Internal Partitions



Tertiary Steel Frame Construction - Stone Cladding



ORDER OF CONSTRUCTION

Site Preparation

Security Fence Erected
▼
Signage Installed
▼
Site cabins setup
▼
Service connections
▼
Service roads and Traffic Measures

Building Construction

Excavation site for foundations
▼
Raft reinforcement and boardings erected for hard core concrete raft foundation, kicka formed at edge to allow for retaining wall boardings (1500mm)
▼
Isolate rock to be exposed in postcard archive, supports erected alongside formwork for retaining walls
▼
Pour concrete for retaining walls and secondary raised slab
▼
Formwork and shuttering removed, exposed rock face cleaned and supported with composite retaining wall
▼
Backfill behind retaining walls and structure where required
▼
Casting Fire Escape stairs and entrance stairs
▼
Erection of primary glass structure at basement level by specialist glazing contractor
▼

Basement

Glass Skylights inserted and fixed to primary glass structure
▼
Basement Level made weather proof
▼
Installation into service pipework and ducts (electrical, sanitary, HVAC equipment run through basement to plant room)
▼
Installation of remaining glazed walls
▼
Sanitary fittings and cubicles in WC's
▼
Internal Finishes
▼
Temperature and humidity controlled and environmental conditions regulated in postcard archive
▼
Final Fit out - Installation of fabric screens,postcard display and final fixtures and fittings (feature desk, fitted furniture etc)
▼
Postcards brought into archive for permanent storage

Upper Levels

Ground Floor Concrete Slab cast
▼
Erection of primary glass structure on ground floor
▼
Temporary roof erected
▼
Internal prefabricated glazed walls installed, secondary structure
▼
Installation of primary glass beams above ground floor
▼
Final glazing installed
▼
Temporary roof removed
▼
Prefabricated roof fitted and fixed to glass structure and bespoke footing system
▼
Sealing building envelope (final glazing/ Stone cladding installed)
▼
Connection to services
▼
Internal Finishings
▼
Doors and remaining windows installed
▼
Final Fit out - Installation of fabric screens, retail display elements and final fixtures and fittings (feature cashier desk, fitted furniture etc)

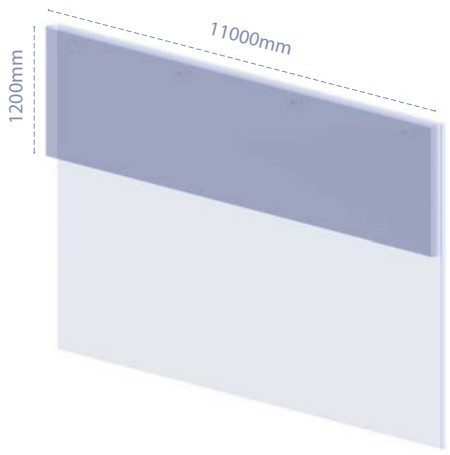
GLASS STRUCTURAL SYSTEMS - OVERVIEW

The main structural stresses will be exerted on a critical beam (component D in the adjacent image) that stretches the length of the postcard shop, diving the space in two. This division in span connects two roof elements at a crank in the section, raising the ceiling height in the feature display area.

• See detail RF-D-02 on page 52

Order of processes to meet the specification of the architect:
Float Glass - Cut - Drill - Toughen - Laminate - Autoclave Vaucum

Structural Assumptions:
• Designed in accordance with Eurocode 1 with standard formula for rectangular beams to support an ultimate load(γl)of 1.5kN and a permanent load (γpl) of 1.35kN
• Deflection is not an issue because of low stress levels used in glass design by specialist manufacturers
• Glass beam is assumed to be solid - ignore effects of lamination slipping to simplify calculations
• The cleaner the drill holes the greater the stress the glass can withstand
• Glass has a density of 25 kN/m^3



6 x 15mm toughened structural glass
2mm interlayers
102 mm

Cavity 24mm

3 x 8mm inner layers of heat strengthened float glass
24mm
Total: 150mm

Glass Beam breadth=150mm depth=1200mm span=11000mm spacing between supports=5000mm/5m
Thickness of glass in RF build up incl. finishes =250mm
Insulation thickness=250mm

Elastic modulus: db^2/6 -> (150x1200)^2 /6 =36,000,000
36 x 10^6 mm^3
(standard proportions for a rectangular beam)

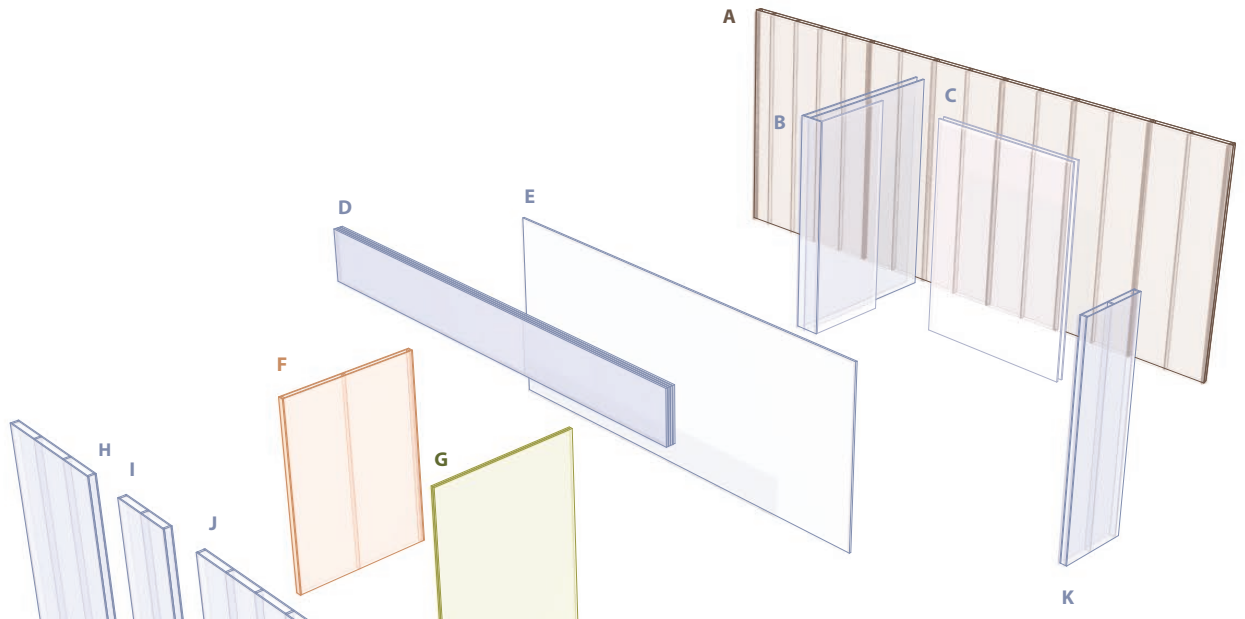
Variable RF Load: 5m x 0.75 x 1.5 = 5.6kN/m
Permanent RF Load: 0.025 x25 x 1.35 x 5 =4.2kN/m
Insulation Load: 0.05 x 0.25 x 1.35 =0.17kN/m
Self weight: 1.2 x 0.15 x 25 x 1.35 =6.075kN/m
Total (ultimate load exerted on beam): 16.1kN/m

Applied bending moment: wL^2/8 -> (16.1 x 11)^2 / 8 = 243 kN/m
Applied ultimate stress: (243 x 10^6) / (36 x 10^6/) = 6N/mm^2

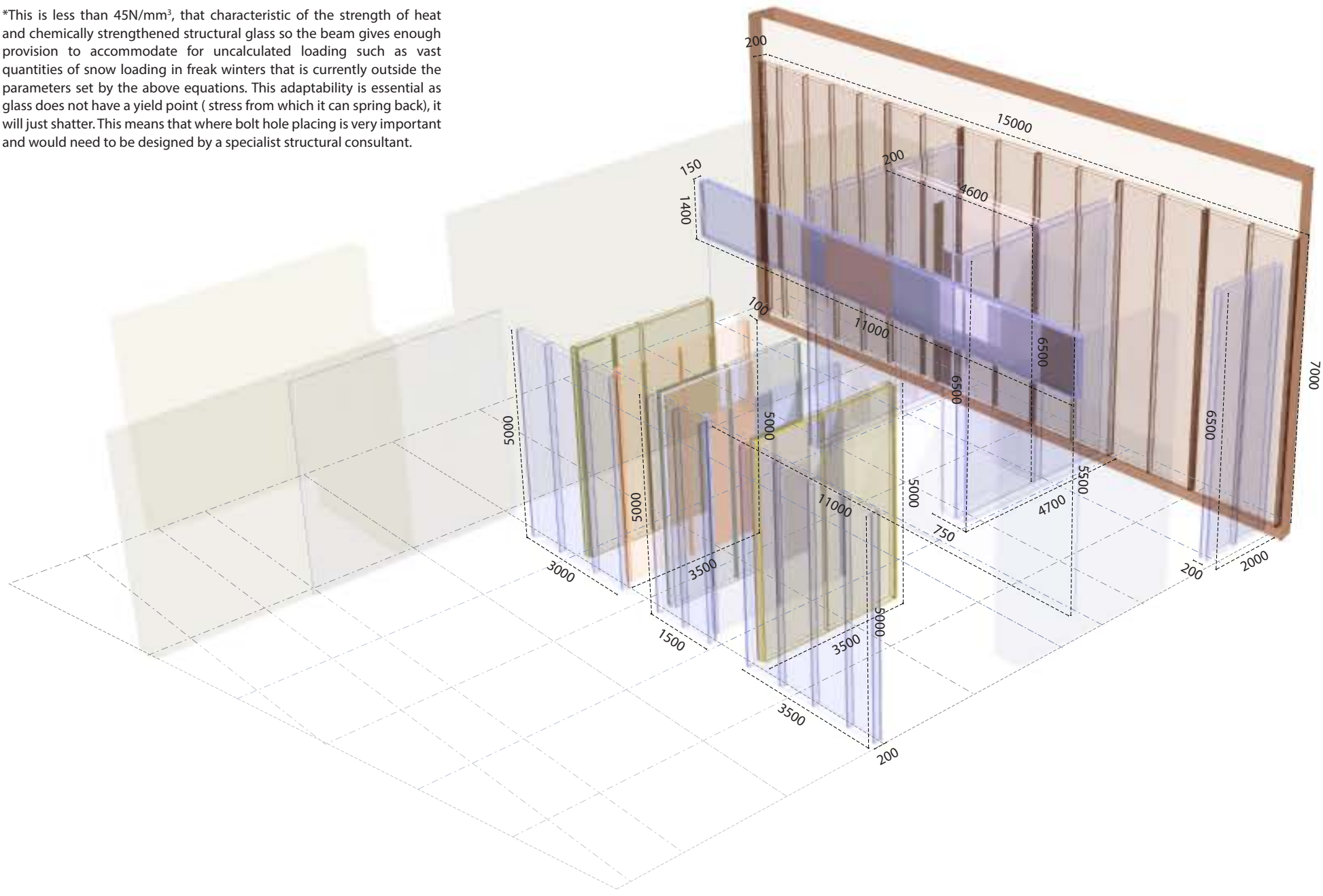
*This is less than 45N/mm^3, that characteristic of the strength of heat and chemically strengthened structural glass so the beam gives enough provision to accommodate for uncalculated loading such as vast quantities of snow loading in freak winters that is currently outside the parameters set by the above equations. This adaptability is essential as glass does not have a yield point (stress from which it can spring back), it will just shatter. This means that where bolt hole placing is very important and would need to be designed by a specialist structural consultant.

Light and Colour - Glass Structural Elements
(before modularisation)
The main purpose of the glass structure is to allow for transparency through the building to the surrounding landscape and to introduce light and colour into the internal spaces. The significant use of this material in the building creates some challenges for the manufacturing and construction of these glazed elements. The first being the size of the panes of glass within the project. Modern manufacturing processes for glass currently restrict pane sizing to 8m x 3.5-4m. The longer the length of the glass the lower the width must be to fit on the flat bed production line. This process and method of fabrication will dictate the panellisation of some of the largest glazed components in the postcard shop (those listed in bold below) . This will require for smaller panes to be used side by side to make up the larger sized modules. To ensure that weak faults do not exist within the building elements by overlaying the joints between sheets they must be placed in a staggered position in the lamination process.

A - Composite Glass Structural External Walls - Primary Structure
7000 x 15000 x 200 mm
B - Composite Glass Structural Internal Light Box - Secondary Structure
6500 x 4700 x 750 mm x 2
C - Composite Glass Structural Internal Light Box TYPE 2 - Secondary Structure
6500 x 4600 x 200 mm



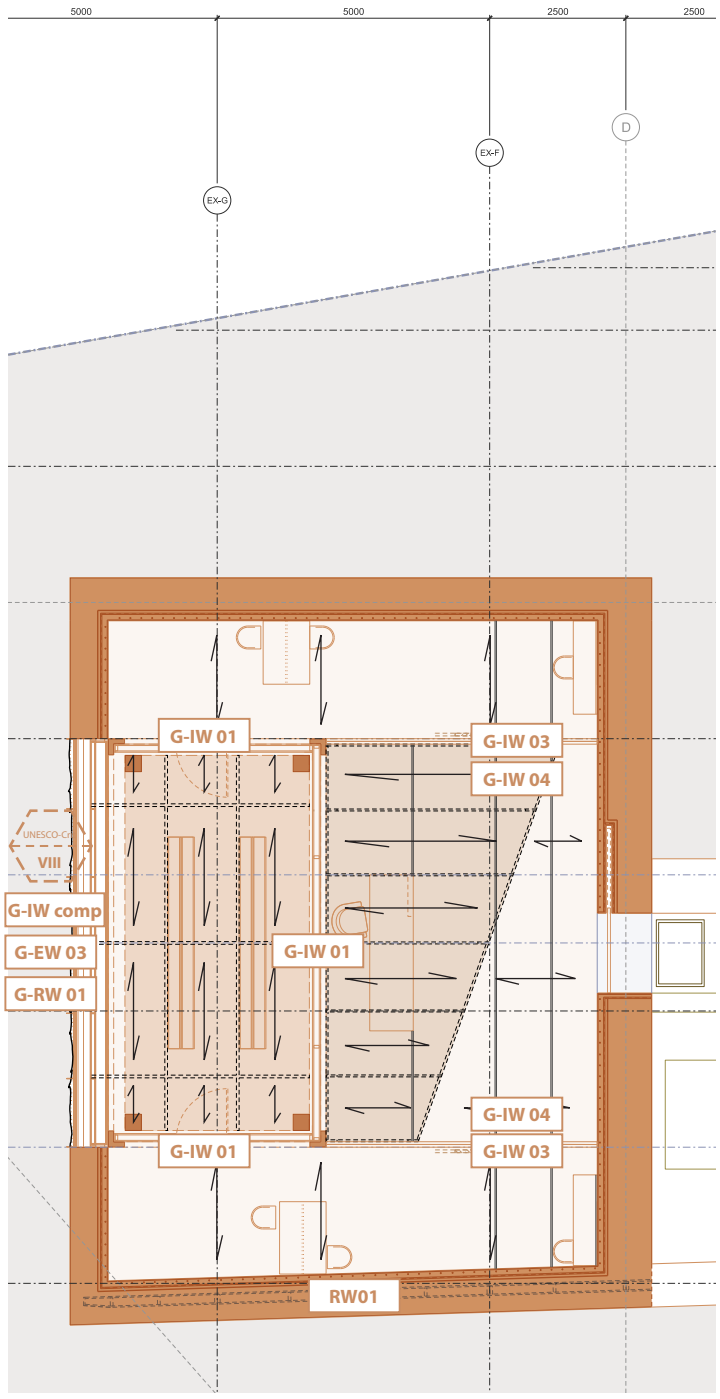
D - Glass Beam - Primary Structure
11000 x 1200 x 150 mm
E - Gazed Internal Partition
1100 x 5000 x 25 mm
F - Composite Glass Structural Internal Walls - Secondary Structure
5000 x 3500 x 100 mm x 6
G - Gazed Internal Partition
5000 x 3500 x 25 mm x 6
Composite Glass Structural External Walls - Primary Structure
H - 5000 x 3000 x 200 mm
I - 5000 x 1500 x 200 mm
J - 5000 x 3500 x 200 mm
K - 5000 x 2000 x 200 mm



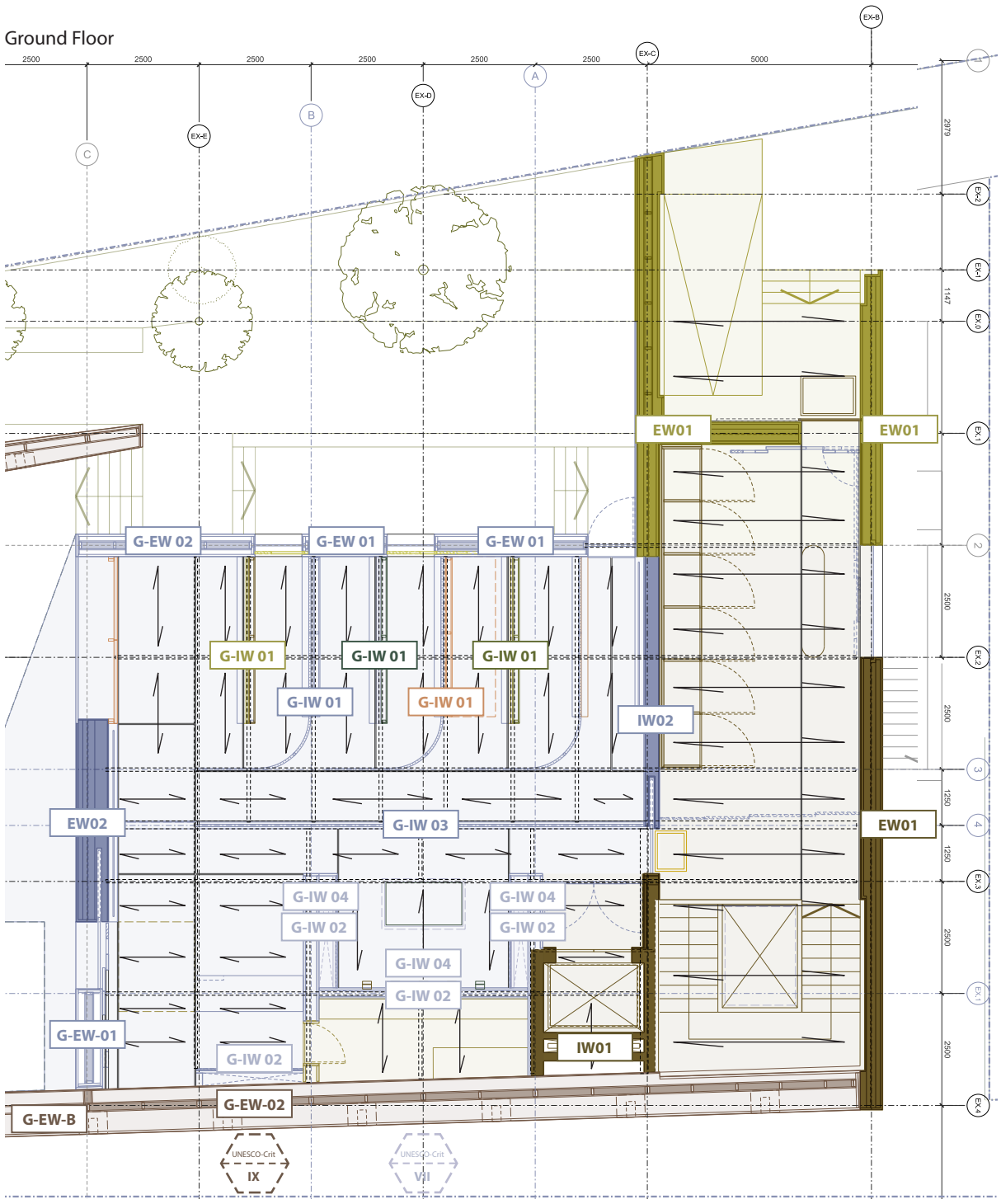
RAL 4012 RAL 8023

STRUCTURAL PRINCIPLES

Span Plan - Basement



Ground Floor



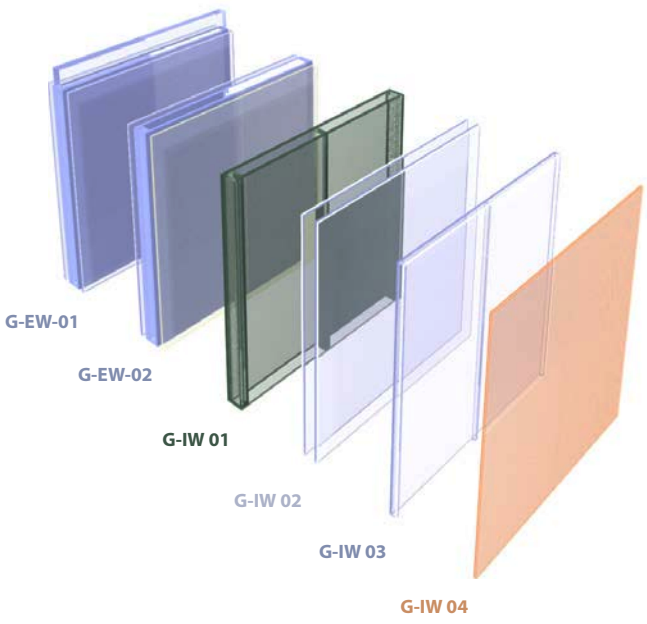
WALL TYPES

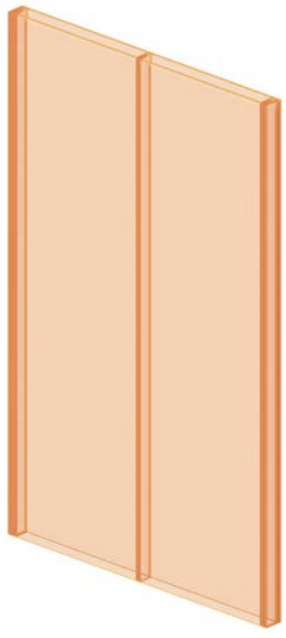
Steel Framed Construction

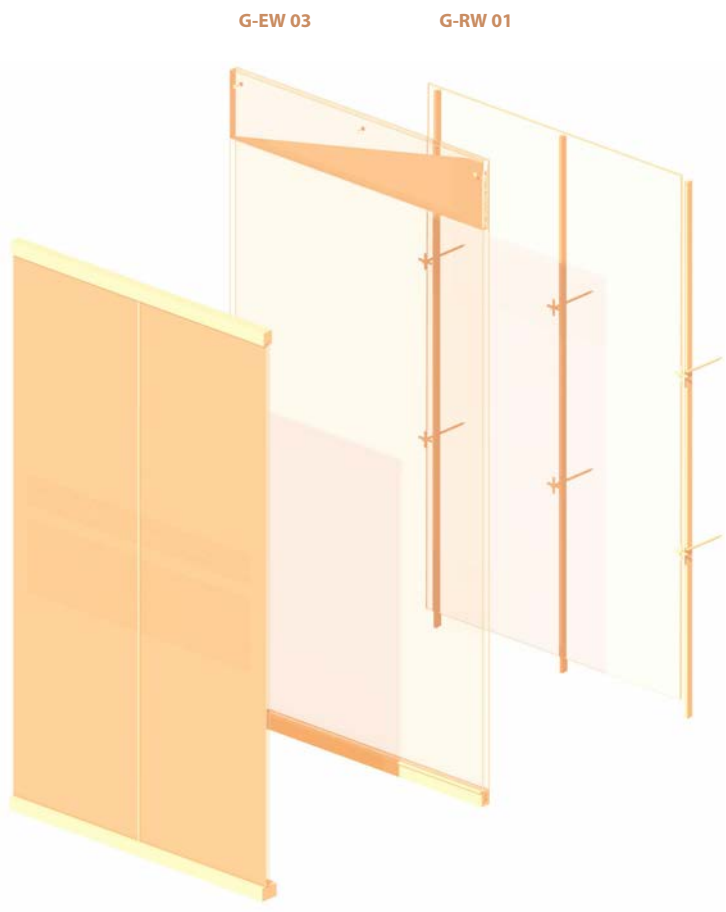
EW01	Primary structural wall, insulated, stone cladding - colour varies
EW02	Primary structural wall with pocket door, insulated, stone cladding - colour varies
IW01	Primary structural wall, stone cladding - colour varies
IW02	Primary structural wall with pocket door, stone cladding - colour varies
RW01	Hard core concrete retaining wall, tanking drainage cavity, bitumin coating, internal finish varies

Glass Construction

G-EW 01	Primary structural wall, prefabricated glazed unit insulated with animal wool, embedded glass structural beam - opaque, RAL 4012 coloured glass
G-EW 02	Primary structural wall, Prefabricated glazed unit with built in insulating cavity with embedded glass structural beam - transparent, RAL 4012 coloured glass
G-EW 03	Secondary structural walls, top and bottom hung, embedded glass structural beam - transparent, RAL 8032 coloured interlayers
G-EW-B	Glazed external partition surrounding External primary structural wall - transparent, RAL 8007 coloured glass
G-IW 01	Secondary structural glass columns within a coloured glass light box - transparent, coloured glass, varied
G-IW 02	Primary structural walls, adjoining beam above - partially transparent, RAL 4009 coloured interlayer
G-IW 03	Internal glazed partition - coloured interlayer, varied
G-IW 04	Glazed module with coloured fabric inserts - opaque, colour varies
G-RW 01	External glass retaining wall set within a steel frame, mesh frame clamped to bedrock behind - transparent, glass clear, steel RAL 8023



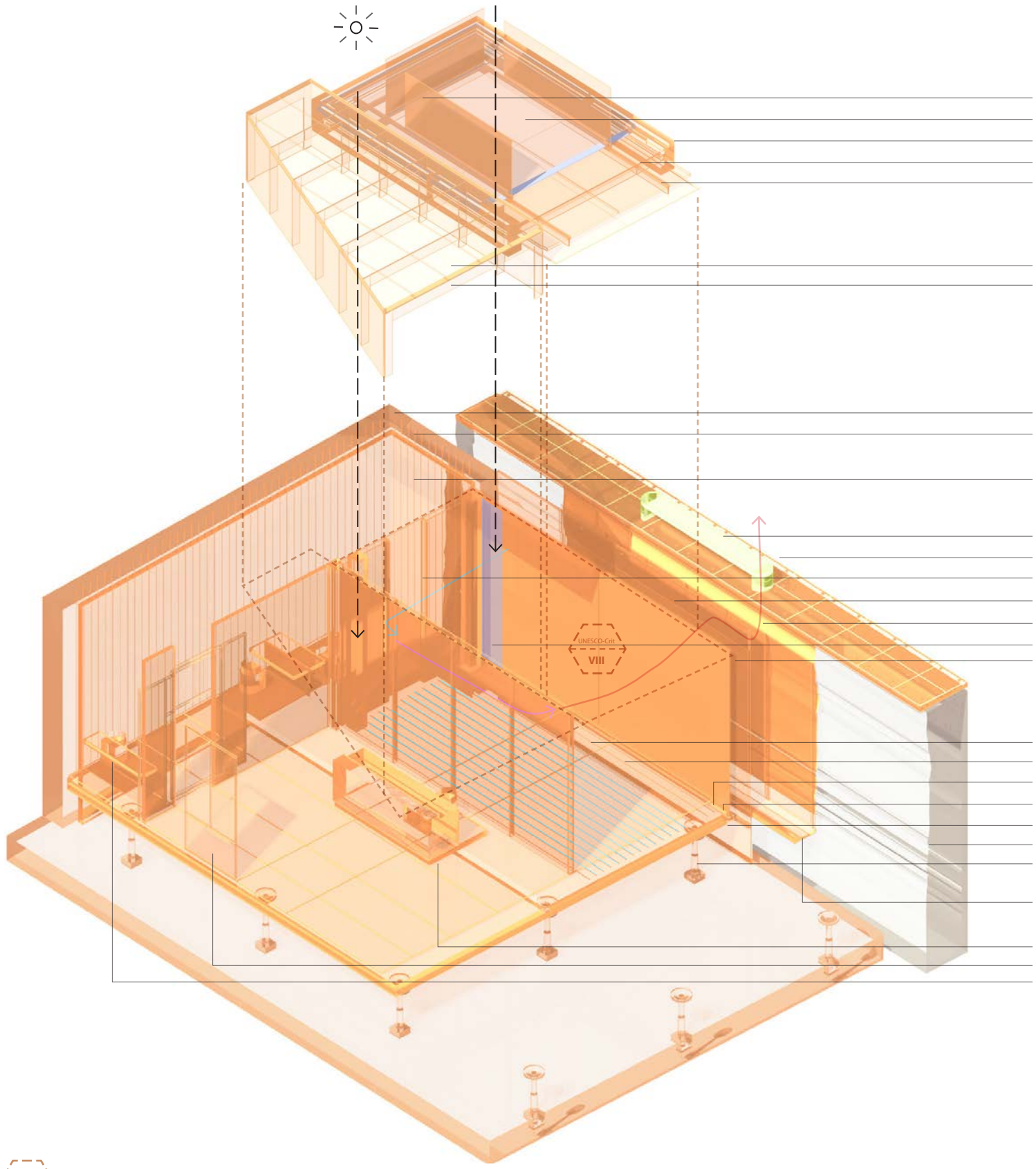




Return to Sender

UNESCO

DETAILED CONSTRUCTION STUDY - BASEMENT POSTCARD ARCHIVE



GROUND FLOOR

SUNKEN SKYLIGHT / VIEWING POND
CHAPEL OF RESURRECTION
Heated glass plates
Water
Stone Perimeter
Triple glazed skylight
Laminated glass supporting sub structure

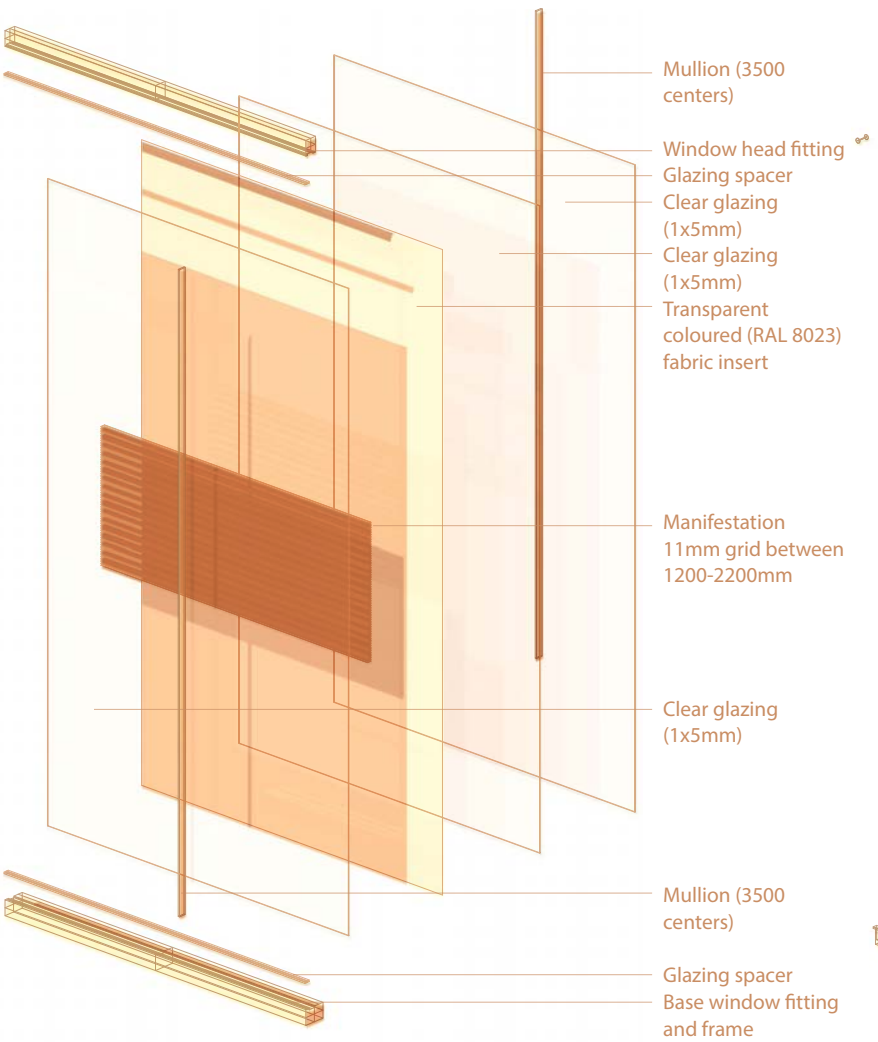
RAISED SKYLIGHT
NEW CREMATORIUM
Toughened glass roof
Laminated glass supporting sub structure

BASEMENT

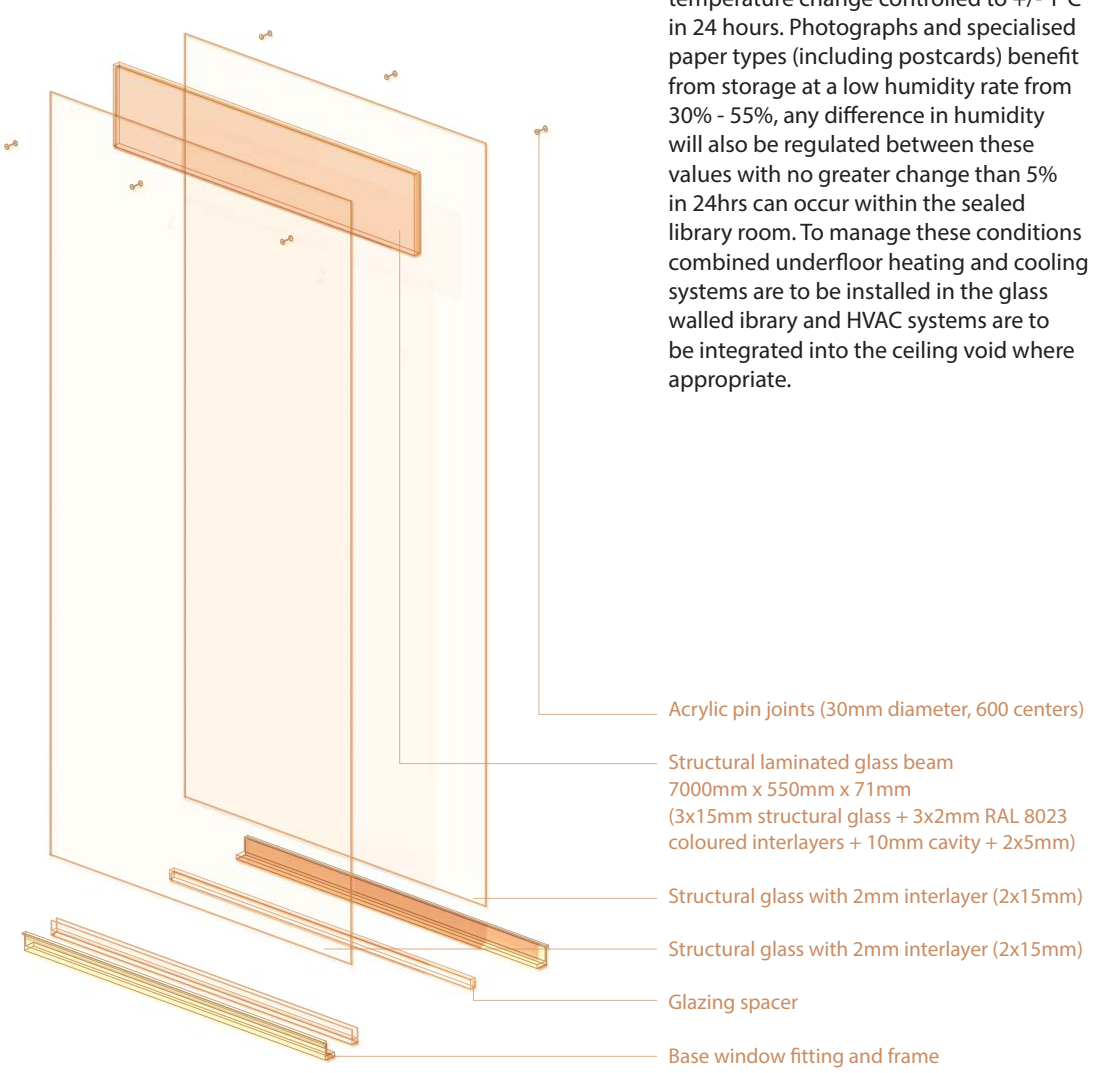
POSTCARD ARCHIVE
CHAPEL OF RESURRECTION
Concrete Retaining Wall
Inner Wall Lined with pipework for integrated heating and cooling systems
Glass wall finish - heated / cooled as required through heating and cooling system
GF External courtyard bench
External courtyard hard paving
Postcard Archive Library*
Triple glazed retaining wall (G-RW 01)
Critical Glass Beam
Maintenance access door - to wall cavity
HVAC mechanical systems
Summer - cool air input, warm air extracted - (illustrated)
Winter - warm air input, cool extract
Marble floor finish
Underfloor heating system
Screed
Insulation
Concrete slab
Surrounding Ground - Granite Bedrock
Mechanised hydraulic lift to raise building by 11mm/year
Drainage tanking system (B1-D-02)
Raft Foundation
Front Desk
Fabric Screens
Workstations

* The library requires specialised conditions in both temperature and humidity. High temperatures and high humidity speed up chemical change in archived materials although the duration of time these conditions change over is more damaging the quantitative change. Temperatures in the library will be set to 23 °C summer and 19 °C with any temperature change controlled to +/- 1°C in 24 hours. Photographs and specialised paper types (including postcards) benefit from storage at a low humidity rate from 30% - 55%, any difference in humidity will also be regulated between these values with no greater change than 5% in 24hrs can occur within the sealed library room. To manage these conditions combined underfloor heating and cooling systems are to be installed in the glass walled ibrary and HVAC systems are to be integrated into the ceiling void where appropriate.

UNESCO-Crit VIII **G-IW composite**



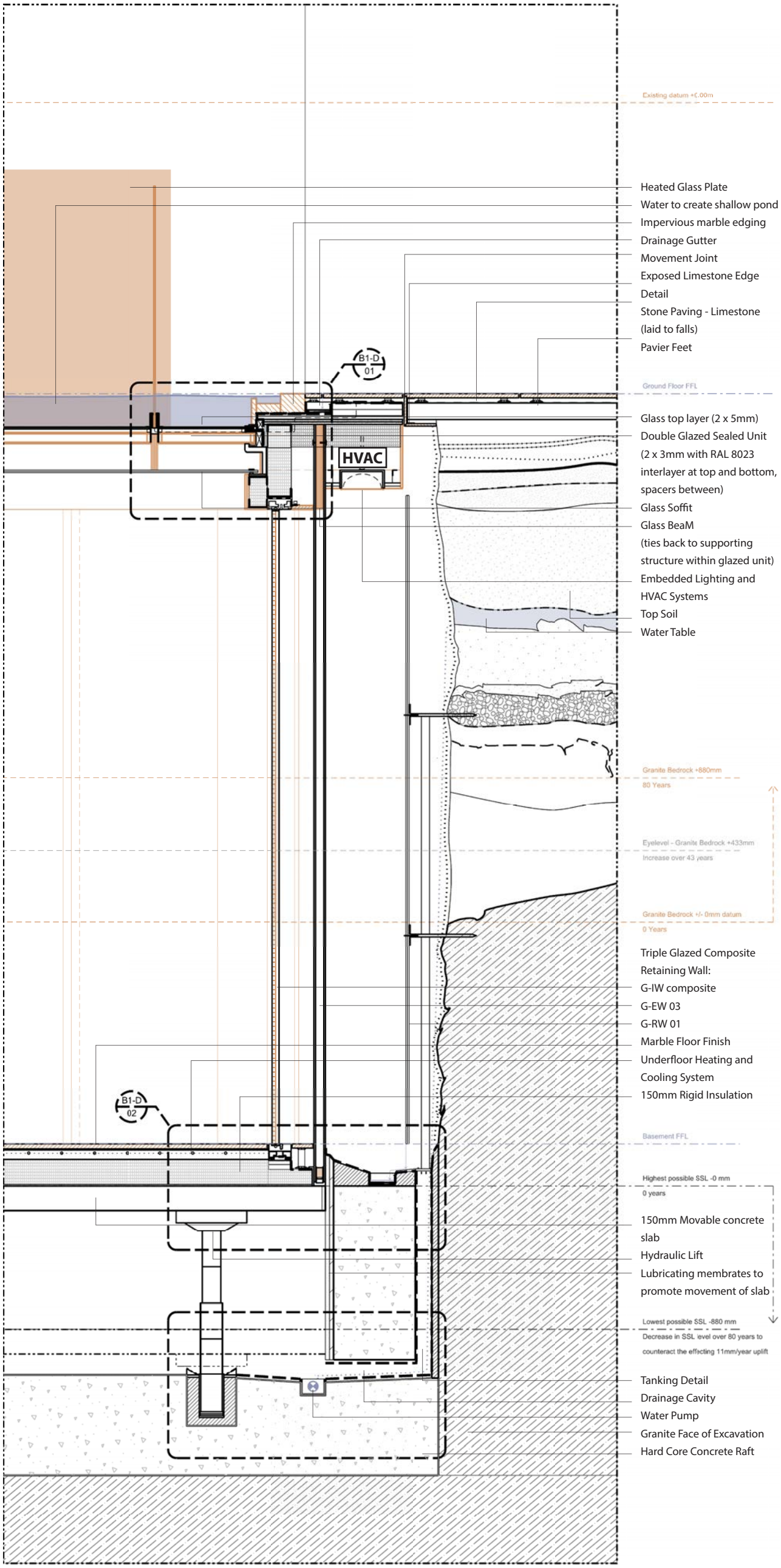
G-EW 03



RAL 4012 RAL 8023

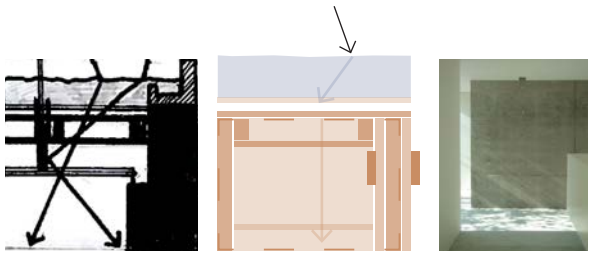
UNESCO-Crit VIII

In order for the project to meet the aspirations of UNESCO and have a positive effect on the site three new critical criteria must be satisfied upon the competition of the first phase. To meet criteria viii the building must record significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features. To do this the postcard shop will structurally realign each year, lowering by 11mm/ year in response to the 11mm/year Scandinavian tectonic uplift. This means that although the ground is continuously rising the structural level of the building will remain unchanged throughout its lifetime. This uplift will be exhibited within the postcard archive beyond the triple glazed retaining wall that exposes the continuously moving granite bedrock that sits alongside the building creating a unique experiential feature that showcases this geological process.

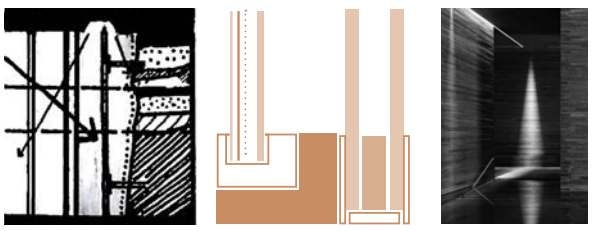


TRIPLE GLAZED RETAINING WALL

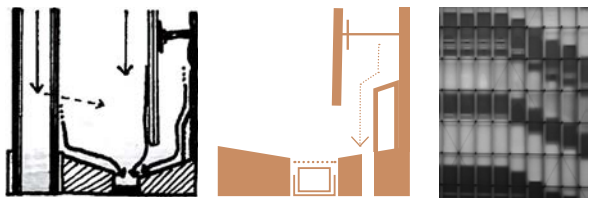
Architectural Aspiration - Enabling Structural Principles



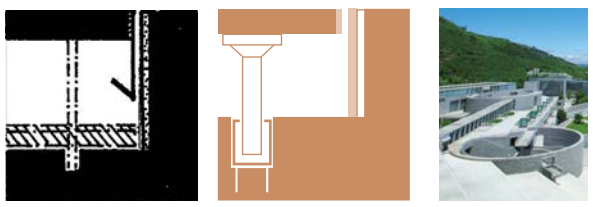
The final structural element to be installed in the postcard archive is the glass bottomed pond skylight. This unit is supported by a glass beamed structure that sits within the three layers of glazing and ties back to a critical glass beam that creates the opening to reveal the granite back wall. This structural element allows for the transfer of natural light into the basement space below and in this instance reflects light through a shallow surface of water, projecting caustics onto the floor below.



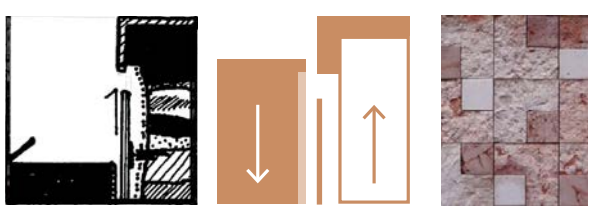
The composite glass retaining wall exposes the granite bedrock edge beyond the building. Integrated lighting and HVAC equipment set within the soffit of the wall cavity regulate the climatic conditions by removing moisture and illuminating the rock with a top-light that allow for visibility through numerous layers of glazing that keep the internal environment within carefully controlled to project the precious postcards.



This wall cavity between the postcard archive and the granite bedrock will suffer from water ingress due to the exposed edge and movement of the water table. To address this issue the building has two integrated gutter systems. The first sits alongside the glazing catching and removing any moisture that may condense on the glass. The second is a larger drainage cavity that allows for water to fall down to a hard core concrete wet layer that is laid to falls, from here water can be collected and removed with an assisting pump.



This waterproofed drainage cavity also allows for the movement of the basement SSL down by 11mm/ year. This hydraulic system supports the whole building inside of the retaining walls meaning that the whole postcard shop that forms phase 1 of the development will be lowered by this system throughout the lifespan of the building.



By dropping the building by 11mm/ year the effect of subsidence is mimicked. To avoid damage to the buildings and to exhibit this change a movement joint has been integrated into the perimeter of the building. This exposes the rising geology as a piece of artwork behind a layer of glazing that makes up the retaining wall, also acting as a safety screen to prevent falling etc.

POSTCARD MOMENT - ENGINEERING COLOUR

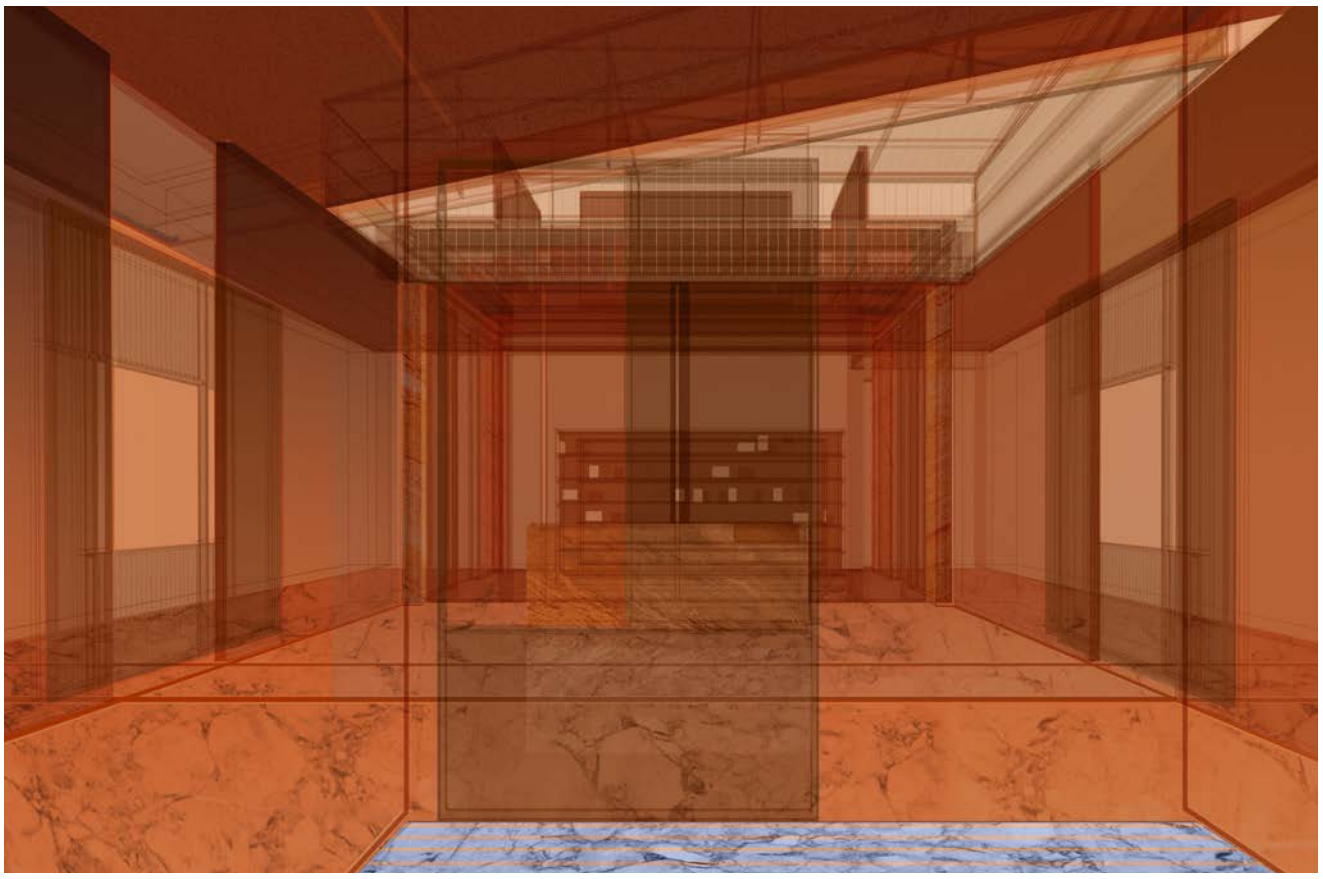
Through the development of the design of the postcard archive has changed in detail in order to achieve the aspirational effect shown in the initial design intent imagery produced by the architect. Although these changes have been made to make the building feasible in terms of construction and performance there have been resulting implications on the design especially when looking at the aspirational postcard moments constructed within the internal spaces.

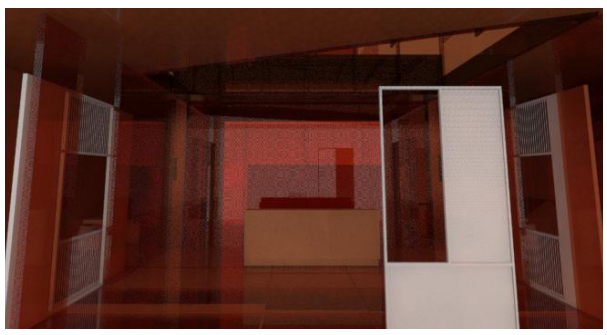
Precedents:
Opposite
Aikira Sakamoto- Private House, Japan, Peter Zumthor - Therme Vals/ Kunsthaus Bregnez Switzerland, Tadao Ando - Awaji Yumebutai Conference Centre, Japan - Earthquake-proof structure and Carlo Scarpa - Olivetti Showroom, Italy.



Peter Zumthor - Kunsthaus Bregnez Switzerland, John Pawson - Jigsaw Store, UK, Treptow - Berlin Crematorium, Germany

1 / 2





1 / 2 - Initial Design Intent
The Chapel of Resurrection Postcard Moment constructed within the basement Postcard Archive set out to reflect view constructed by the original architects looking towards the Chapel of Resurrection through the Pillar Hall of Pines. The new architect aimed to create a space that enjoys uninterrupted views through a framing field of colour reflecting that of the original postcard moment. To achieve this intent a lightweight glazing system was intended to be used as internal partitions that could sub divide the spaces and control access without affecting the colour and views through the achieve to reveal the rare postcards within.

3 - Resulting Architecture
In test renders the actual effect of the space was tested. The great expanses could not be achieved without the assistance of a structural system to support the roof and large skylights set out in the initial design package. In order to still work within the parameters of the design intent a glass structural system was considered to be the most appropriate. The resulting effect of this supporting structure with numerous coloured interlayering was a dense field of colour that created an opaque, dark imposing space. Numerous changes were made in the detailed design of the postcard archive to capture the methods of building construction whilst aligning with the initial design intent as best as possible.

4 - Lightening the colour palette
- Lighting conditions were corrected in the software to match that of reality at the brightest time of the year (Summer Solstice - June 21st at 12:00pm in Stockholm), this gave for a more accurate means of testing the design
- The architect reduced the number and saturation(30%) of coloured interlayer between the lines of glazing to achieve a colour palette closer to that of the initial aspiration

5 - Increasing Transparency
- Saturation of colour reduced to 20% to achieve the desired colour with the bare minimum coloured interlayer
- Spacing between lines of glazing increased to allow for greater penetration of light into the glazing cavities, reducing reflectivity and providing more transparency

6 - Detailed Design
- Assigning a lighter material palette to the solid elements (desk, floor, ceiling) than initially intended gave the desired effect when tinted with the real world reflective light off the coloured elements
- Structural glass reduced in thickness to minimum (whist still meeting the required loading standards) to achieve maximum transparency when layering numerous glazed systems
- Glazed skylights increased in hight above ground to maximise daylight received into the space throughout the year
- Summer visual demonstrates the requirement for lighting to be integrated into the ceiling to ensure adequate lighting levels are maintained so that the space can be used throughout the whole year

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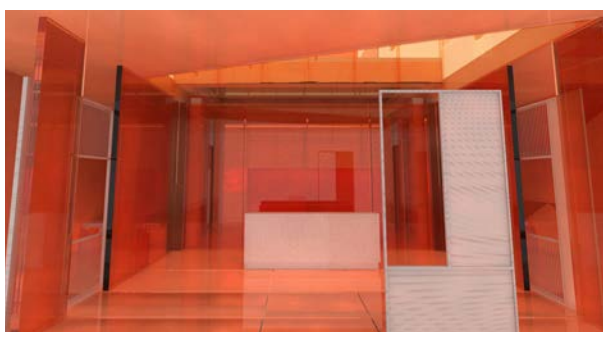

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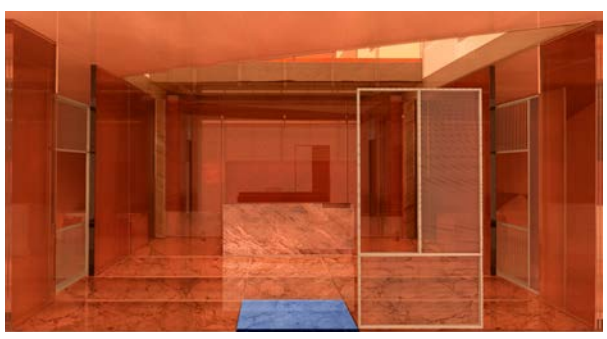

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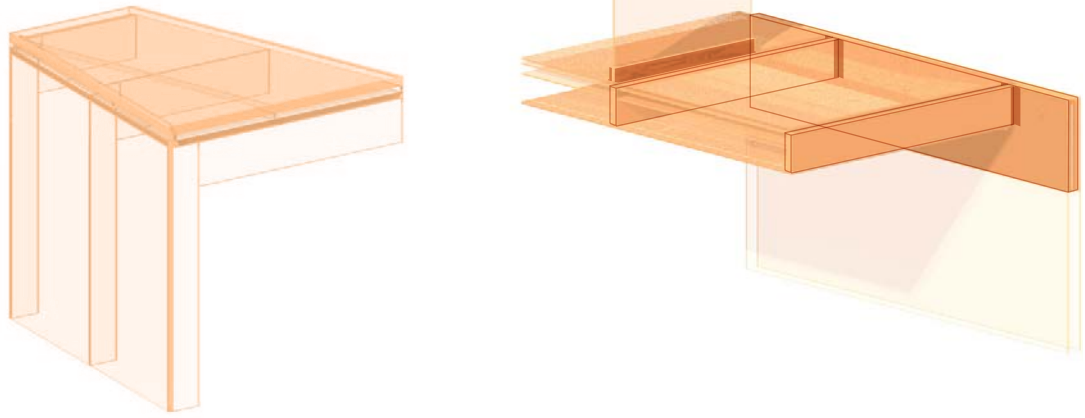
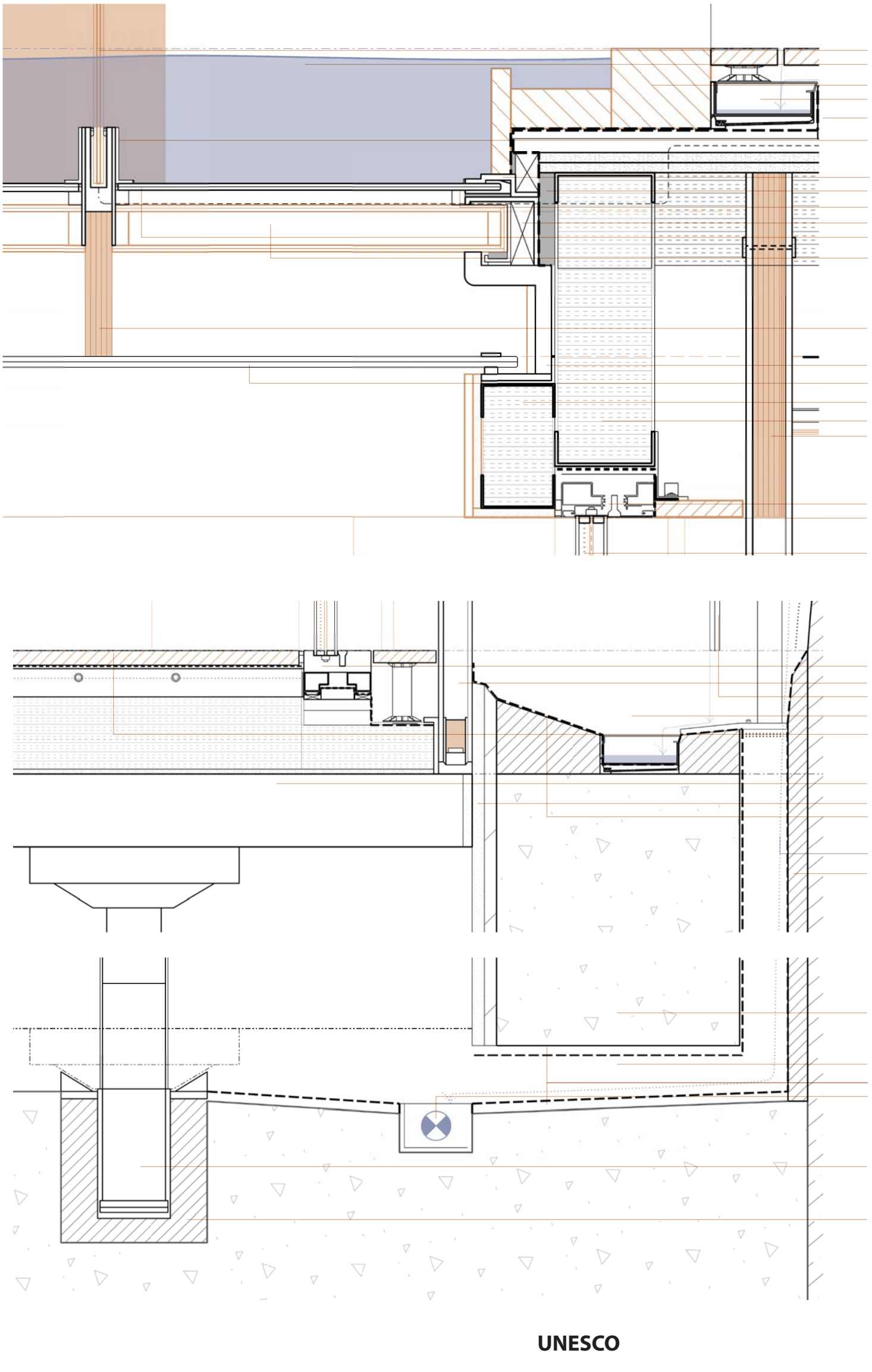
DETAILED DESIGN



Monocoque Glass Supporting Structures

Left - Raised Skylight with vertical and horizontal beam supports
Right - Sunken Glass-bottomed Pool with embedded sub structure between glazed layers that ties back to the critical glass beam over composite glass retaining wall cavity
Top - Precedent
Eckersley O'Callaghan - Apple Flagship New York, USA

Details of RF Skylights can be found on page 52



GLAZED POOL SKYLIGHT
B1 - D - 01
Heated glass plates
Water to create shallow pond
Impervious marble edging
Drainage Gutter
Waterproofing membrane
Silicon Sealed fixing attaching heated glass plate to laminated glass beam through triple glazed unit
Triple Glazed Skylight with rubber fitting
Silicon Sealed edging
Window fitting detail
Upper layer - 2 x 5mm toughened float glass
Sealed Double Unit - 2 x 3mm chemically treated toughened glass with RAL 8023 coloured interlayer - top and bottom, 100mm spacing between
Intersecting Laminated glass sub structure (tied back to critical beam over retaining wall)
Rubber Seal
Glass soffit 2 x 10mm float glass
Metsec Wall system
Insulation Line (150mm rigid insulation)
Critical Laminated Glass beam - 5 x 8mm chemically treated structural glass with interlayers, 3 x 3mm toughened glass (embedded in wall G-EW 03
Window Fitting
Glass internal Finish
Limestone soffit
G-IW composite

SINKING FOUNDATION
B1 - D - 02
Triple Glazed Composite Retaining Wall:
G-IW composite
G-EW 03
G-RW 01
Wall cavity (accessible for mantenance)
Floor Build Up (35mm marble, surface matt, underfloor heating system embedded in 60mm screed, 150mm rigid insulation)
Concrete Slab
Lubricating layer to concrete edges
Waterproofing
100mm Window Gutter
Downpour of Ground Water
Highest cat. of waterproofing system:
Waterproofing Impervious Edging
100mm Tanking Drainage Cavity

Concrete Foundation (300mm openings at 1200mm intervals)

100mm Drainage Cavity (laid to falls)
20mm Delta MS 20 Cavity Drain membrane
150mm Sump in slab with integrated pump to remove water

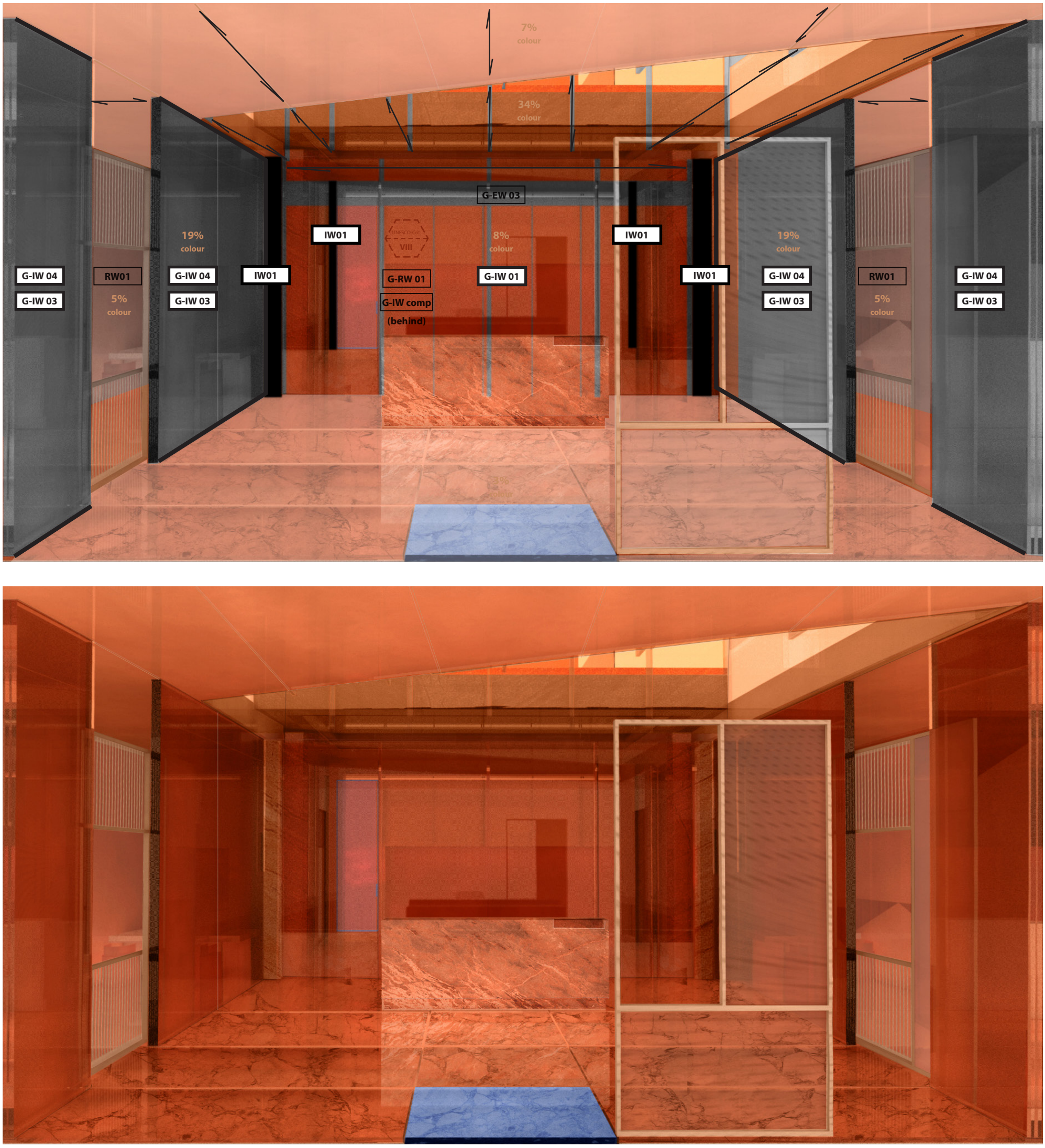
Hydraulic Jack Lowering System

High Strength cementiguous grout fixing

ARCHITECTURAL OUTCOME

The images below illustrate the key construction elements that construct the critical postcard moment within the postcard archive. The greyscale elements show primary glass structure (beams, columns and top and bottom hung toughened structural walls), the black illustrates the opaque stone clad steel columns that assist in supporting the skylight pool and roof loading, spans above. It is the detailed design of these important structural element that have allowed for the glass structure to act as a means of delivering light, colour and transparency within the postcard archive. It is through this iterative process that the architect has been able to achieve the closest possible buildable outcome to that of the original design intent.

Postcard Moment illustrating the heirachy of the structural glass elements
Wall Types (key structural elements greyscale), quantitative chromatic effect and satisfied criteria highlighted



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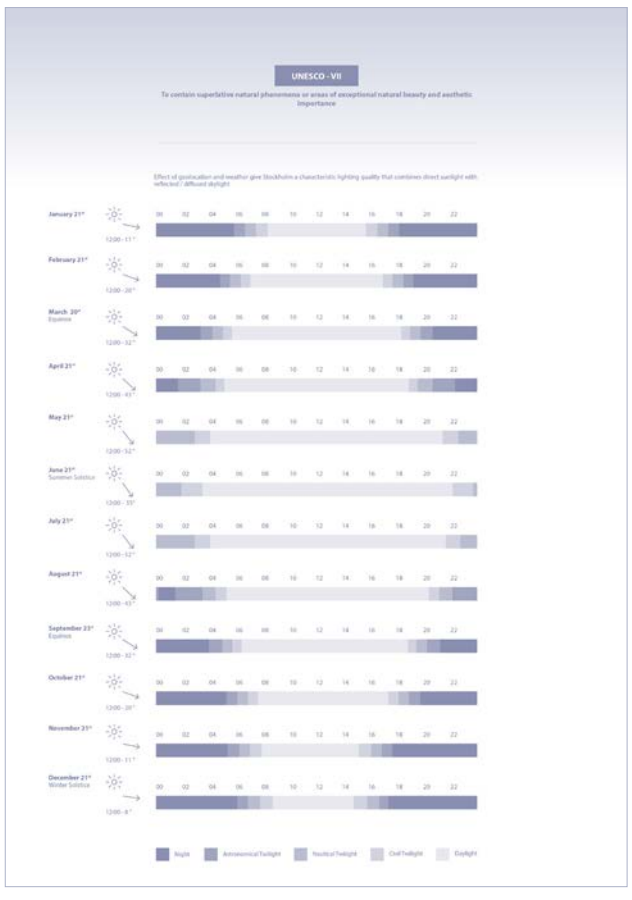
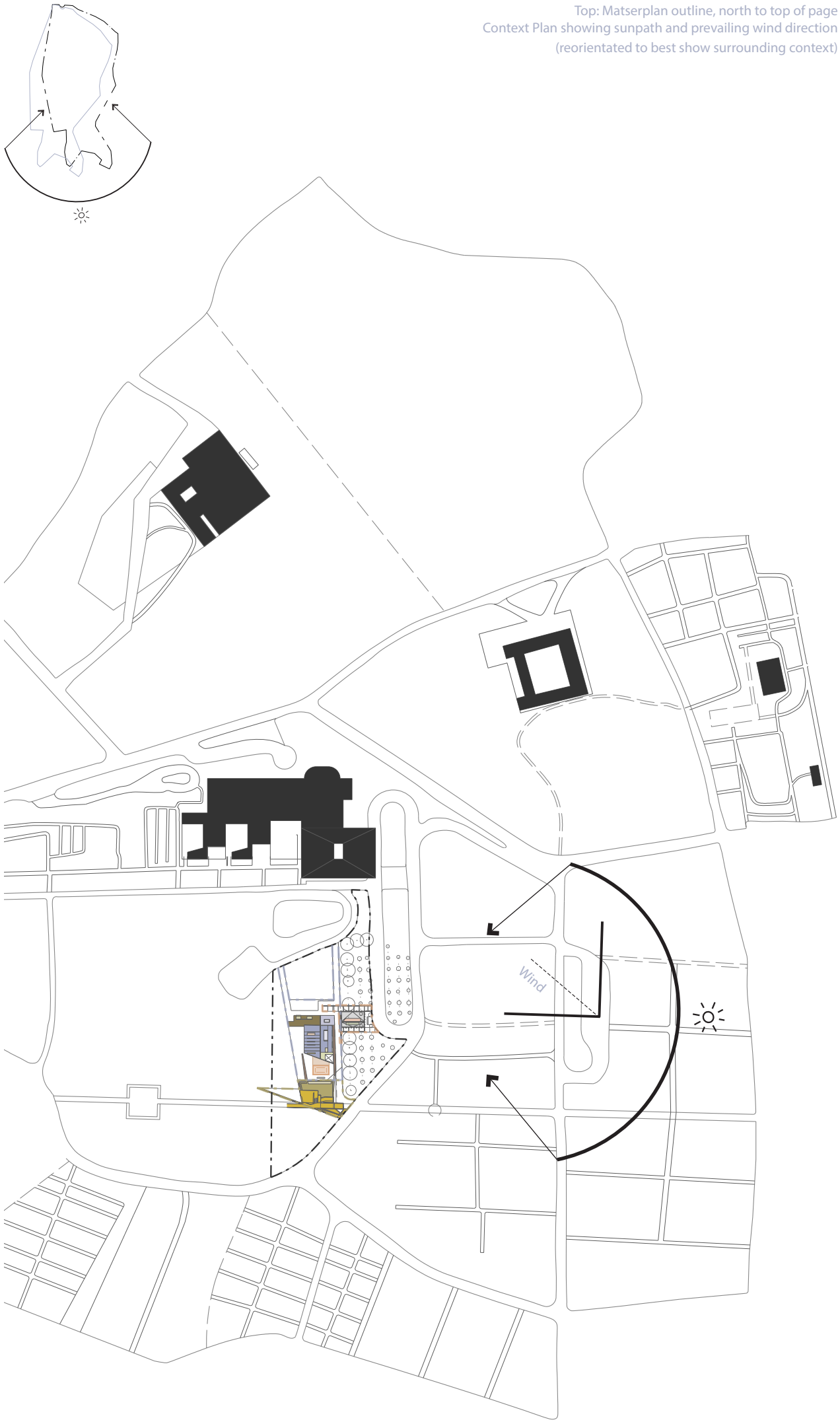
VII

SECTION 3 : BUILDING PERFORMANCE

To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance



RAL 4012 RAL 8023 RAL 4009



Top: Matserplan outline, north to top of page
Context Plan showing sunpath and prevailing wind direction
(reorientated to best show surrounding context)

ENVIRONMENTAL DESIGN - OVERVIEW

The postcard shop takes advantage of the site orientation to exploit the climatic and environmental conditions present on site in Stockholm, Sweden. The climatic data below shows that Stockholm experiences warm, wet summers with days extensive periods of sunlight, it is common for days to extend into one another throughout the summer months meaning that the difference between seasons is very evident. The winter months experience very little daylight and prolonged darkness with temperatures falling to 0 °C even on the warmest of days, this low temperature combined with precipitation results in snowfall within the city. The effect of these varied conditions throughout the year is likely to be evident on my site as it is located on the periphery of the city with little influence from light pollution and temperature influences from dense population and movement. The prevailing wind is of a SSW / SW direction which blows diagonally through the site, this should be exploited within the proposals to promote natural ventilation of the internal spaces.

The building is north facing in design, like a studio/ gallery space, to avoid harmful southern light that could cause damage to the postcard collections inside. The glass structure creates a transparent barrier from which users of the building can look out onto the landscape and reveal intimate coloured postcard moments choreographed within the shop itself also creating an interesting shop window for the passers by outside. At the southern edge of the site the mature dense woodland blocks much of the direct sunlight. Select views are highlighted on this elevation to highlight postcards views through the woodland although these openings are not relied upon as part of the lighting strategy.

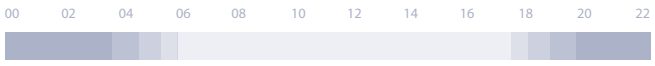
Adaptable Design

The environmental conditions within the building are mostly adaptable with regard to heating, cooling and lighting strategies to allow for varied control of the internal spaces to suit the fluctuating conditions outside. An example of this adaptable, responsive design is the presence of fabric screens which provide shading at roof level and can be positioned to offer protection over openings within the facade, presenting a semi-physical barrier between the inside and outside that can be moved to maximise airflow through the postcard shop.

Right: Graphs showing monthly precipitation, temperature and hours of sunlight
Left: Wind Rose

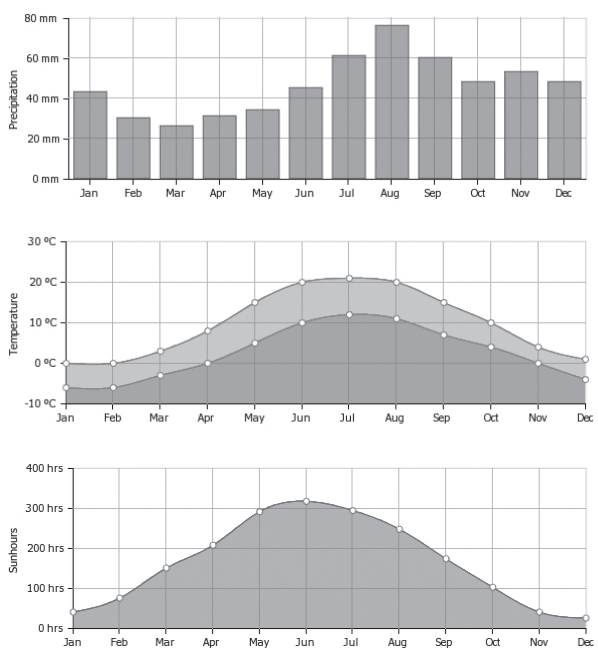
Middle: Sunpath Diagram
March 20st/ September 23st (Equinox): 12:00 - 32 ° angle of sun

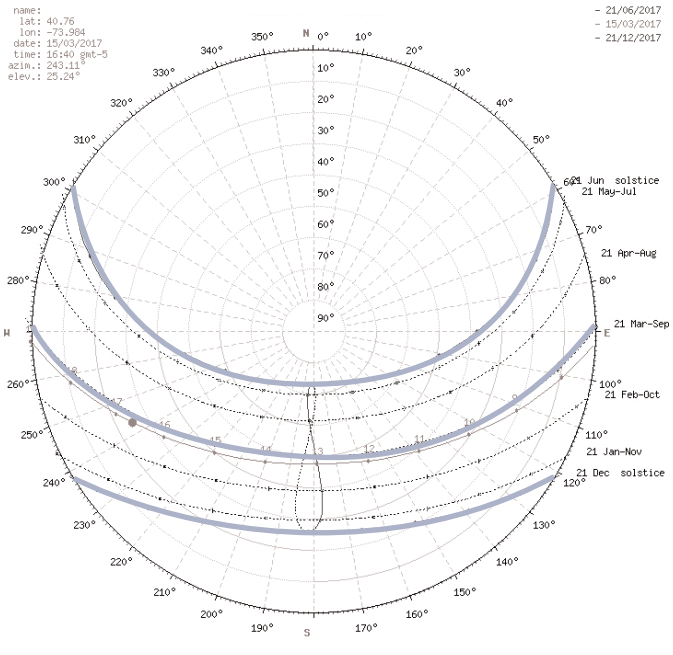
June 21st (Summer Solstice): 12:00 - 55°

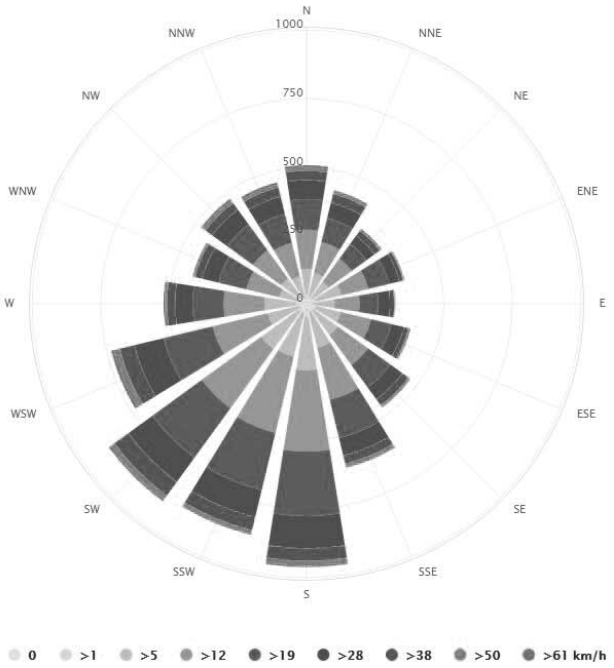


December 21st (Winter Solstice): 12:00 - 8 °

Night Astronomical Twilight Nautical Twilight Civil Twilight Daylight







Return to Sender

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SOLAR GAIN / OVERHEATING - COOLING SYSTEMS

Due to the materiality of the building and its nature as a sealed glazed unit the greatest concern in terms of the performance of the building is overheating through solar gain. This will be most apparent within the building during the hottest couple of hours on the summer solstice, potentially overheating the building and creating an uncomfortable environment. The following calculations capture the resulting heating potential within these hours. The building has undergone several design iterations to promote cooling with the addition of multiple layers of glazing with full body tints and coloured films to reduce transmittance, the incorporation of movable fabric and screens of water at roof level to reduce solar gain and the integration of underfloor cooling(/heating) systems underfloor. These amendments align with the original design intent and will have no implications for planning etc although will make for a more adaptable building that will increase comfort levels all year round.

Worst case scenario:

Heating potential of building during summer solstice (June 21st)

Heating Power of building through glass : H

H = Heating power of sun at ground level x Area of glazing within transparent envelope (roof, external walls) x Transmittance of glass

50,400 J/sec = 1,120 w/m2 x 150 m2 x 0.3 (30% transmittance for three panes of insulating glass with 90% argon vacuum)

Heating effect of people = Occupancy x Activity (light walking)

2,200 watts = 22 x 100

Heating Power = 52, 600 J/sec

Cooling potential of building during summer solstice (June 21st)

Natural Cooling Power:

It is assumed that if the ambient temperature outside is similar to that of the temperature inside the postcard shop (21/22°C) therefore natural cooling through conduction will not occur during the worst hours of the summer solstice. Mechanical methods must be used to compensate during this period.

Cooling Power through mechanical systems : C

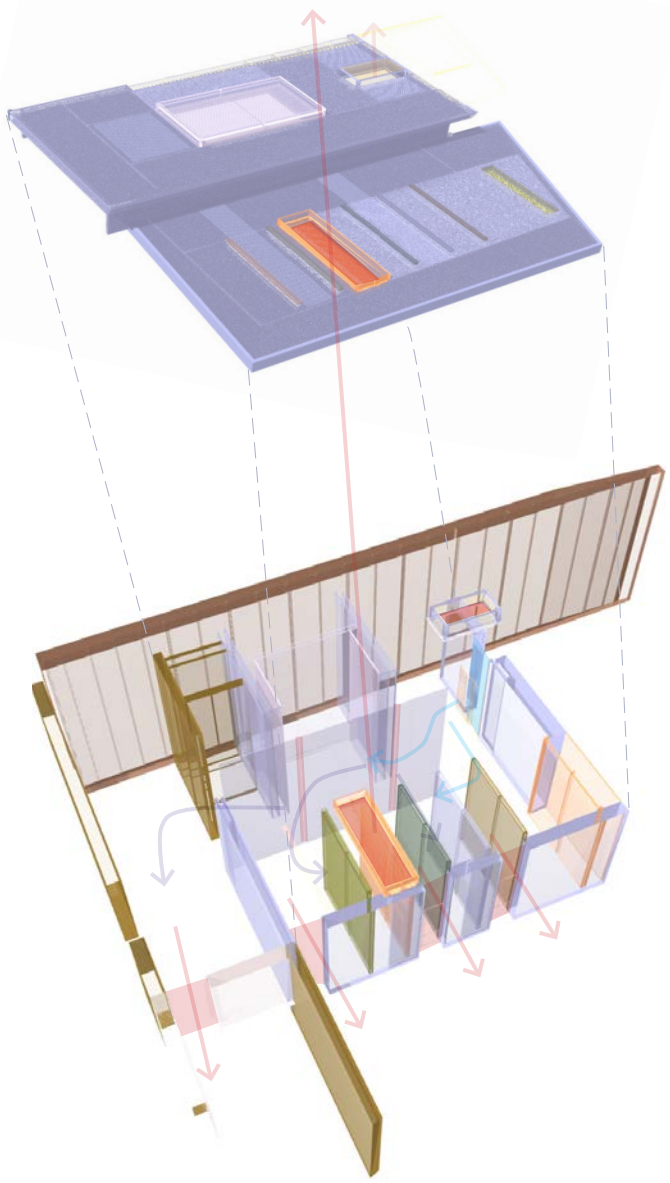
Due to the significant use of glass in the building and requirement for significant mechanised cooling throughout the summer months a bespoke underfloor cooling system must be developed alongside specialised MEP consultants. This will comprise of a piped network that creates a large surface area of coverage to pump cold water under high pressure/flow rate to remove heat energy from the spaces above by heating the water. A high temperature gradient will need to be used to meet the requirements of the space so the pumped water should be maintained above freezing point at around 5 ° C. This can be seen in detail B1-D-02 within section 2.

Typical flow rate within system = 5 litres/minute
to seconds: 5/60 =0.083 / 83.3 ml/sec
Temperature gradient: 22 ° C - Air temperature inside = 22 ° C, required water temperature = 0 ° C
Specific heat Capacity of Water = 4.184 J/C/g

Cooling Power every second:
7,667.6 J/sec = 83.3 x 22 x 4.184

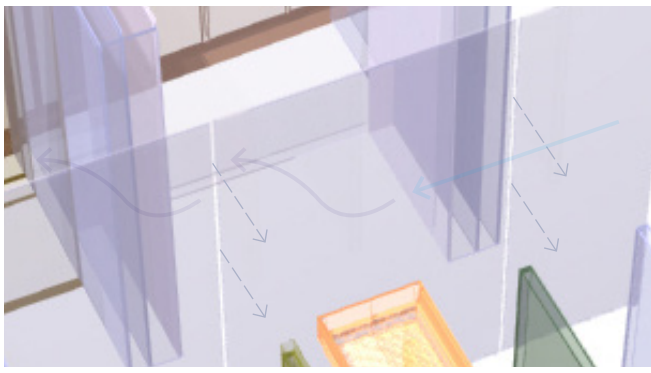
Due to the large disparity between the heating and cooling power of the building during the warmest hours of summer days summer additional cooling measures must be taken. This will involve increasing the flow through the system to 35 litres/minute and extracting more heat per second. This can be achieved with additional loops within the system either as 7 underfloor systems alongside one another or more realistically by increasing the loops to 7 from each manifold. The under-powered nature of this cooling system could also be offset with night-time cooling to pre-cool the concrete slab and retaining structures before the shop opens to the public (9:30am - 5:30pm) during the worst case scenario summer months.

This system can also be employed during the winter months as a method of heating the building with warm water. See Servicing and MEP diagram on page 20 to see how this system connects to the water chillers and boiler within the basement plant room.

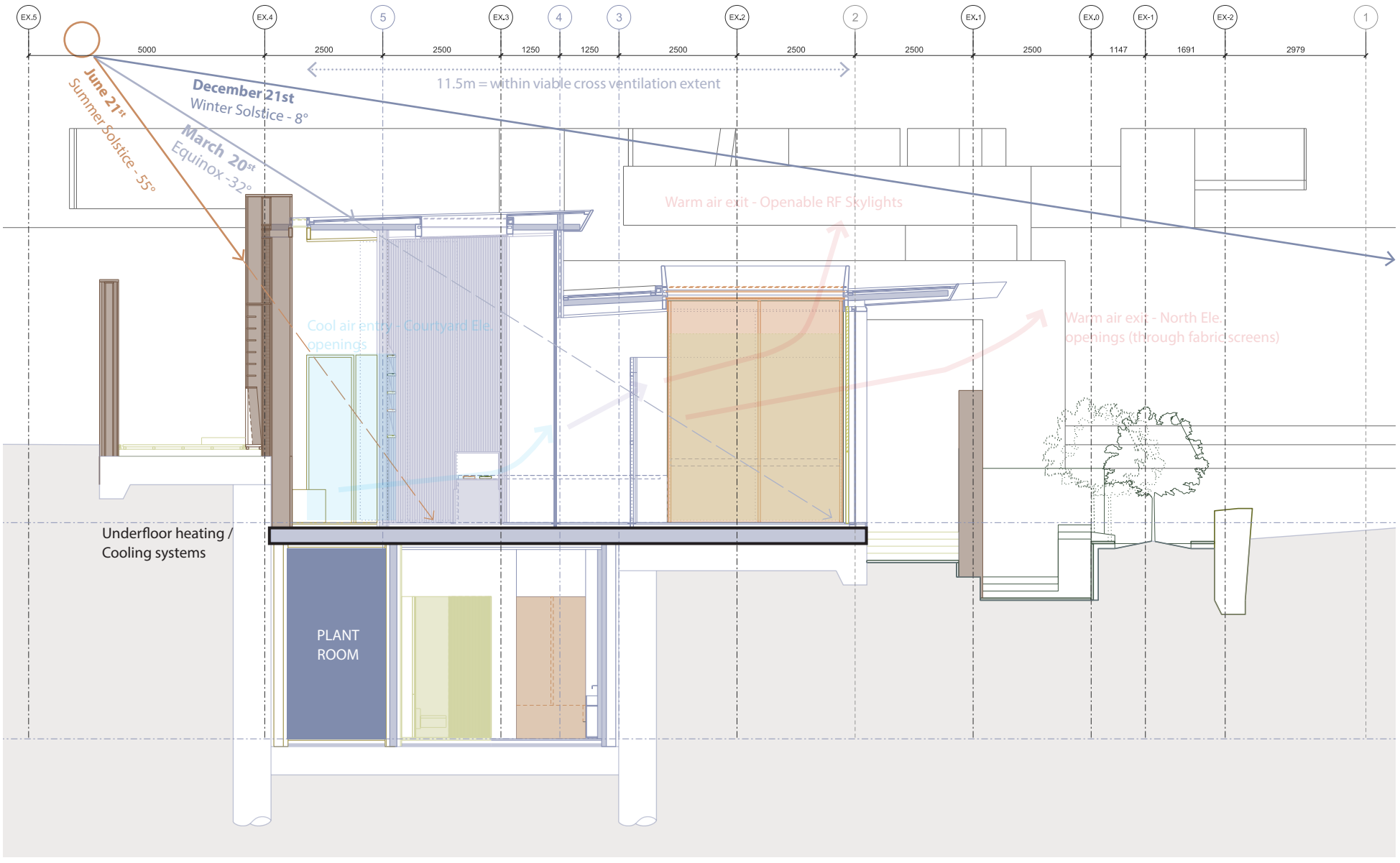


Ventilation Strategy

Detail below showing 50mm gap breaking up large extent of glazing to promote the flow of air within the internal space



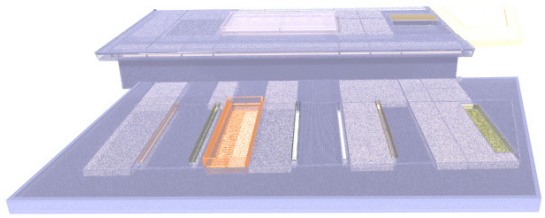
Environmental Processes in Section

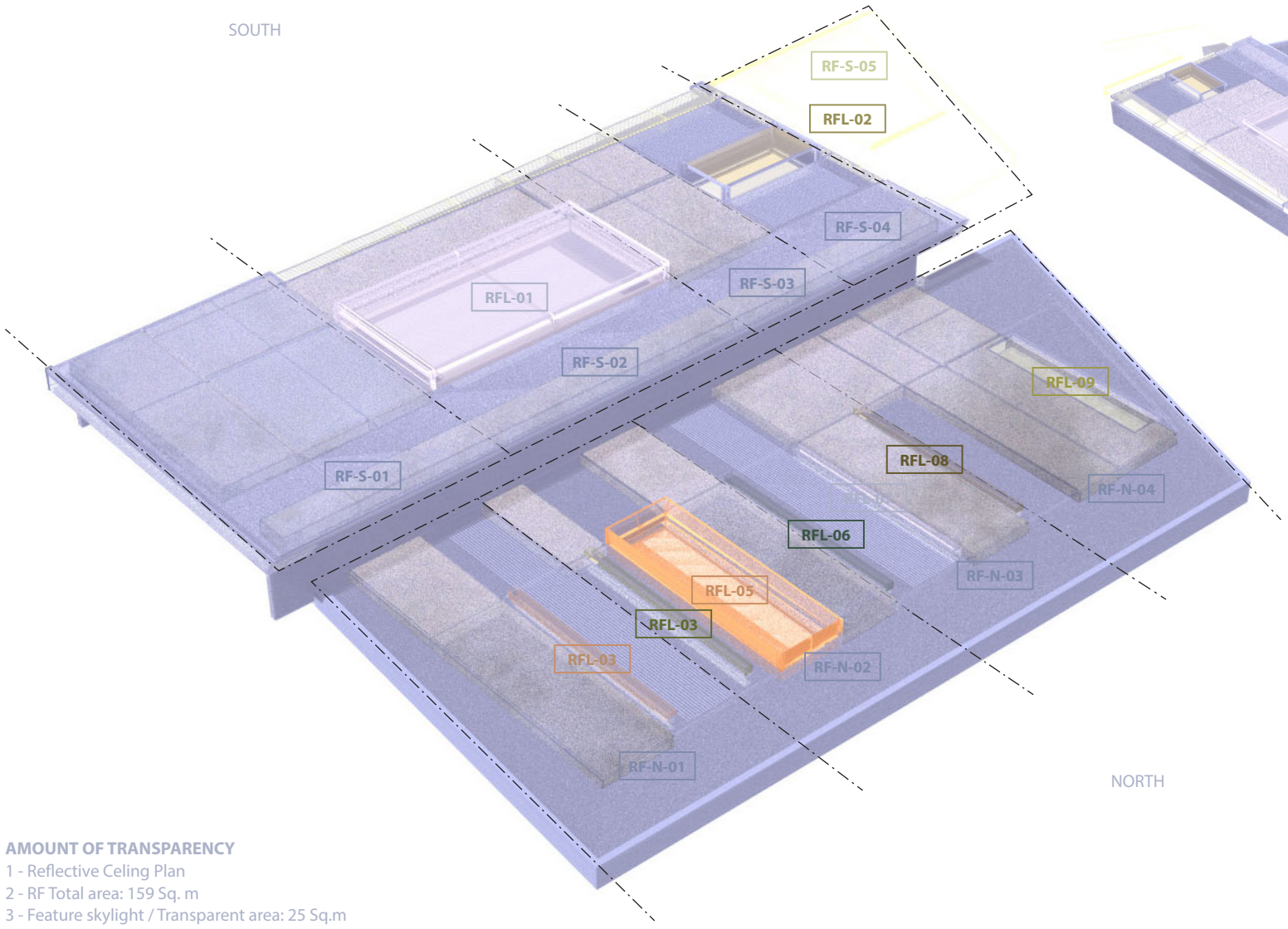


RAL 4012 RAL 8023 RAL 4009

ROOF SKYSCAPE

Prefabricated roof - component identification





AMOUNT OF TRANSPARENCY

1 - Reflective Celing Plan
2 - RF Total area: 159 Sq. m
3 - Feature skylight / Transparent area: 25 Sq.m
4 - Opaque / insulated area: 89 Sq.m
Transparent area: 45 Sq.m
5 - Transparent skyscape: 70 Sq.m

UNESCO-Crit VII

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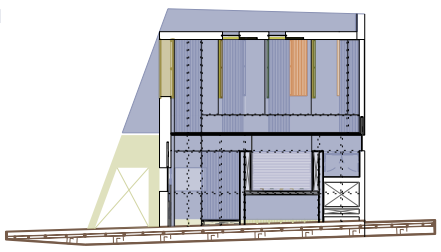

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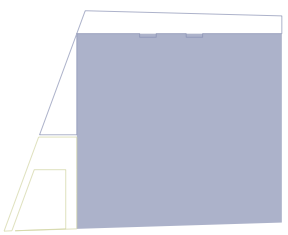

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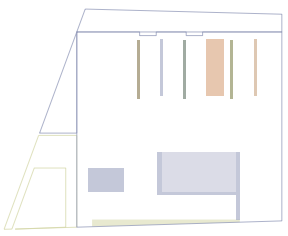

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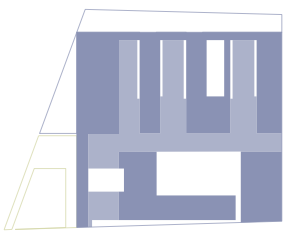

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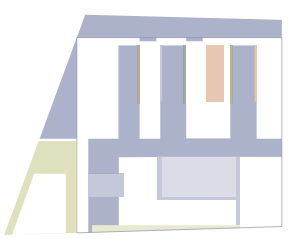


In order to meet Criteria vii of the UNESCO Selection Criteria the building must: contain superlative natural phenomena or exhibit areas of exceptional natural beauty and aesthetic importance. The roof will act as a skyscape, a viewing instrument allows for visibility through the built fabric to the sky outside. This building component will be used to showcase the unique lighting conditions that exists within Stockholm and Scandinavia, creating an ever changing skyscape all year round therefore exhibiting 'superlative natural phenomena' and satisfying UNESCO Criteria vii.

DETAILED DESIGN

The roof, like most of the building, is constructed using a laminated glass system: glass structure with glazed external and internal skins. For the postcard shop to comply with the performance requirements for buildings in Sweden the roof will have to meet a u-value of 0.13 w/m2K. In order to achieve this insulation must be incorporated into the roof build up to regulate the buildings temperature to an acceptable comfort standard. The glazed roof system will comprise of various levels of transparencies to provide visibility through to the sky beyond in some places and a more cloudy backlit light in others whilst allowing for the inclusion of insulation within a 450mm roof build up that is not detrimental to the visual spectacle that the roofscape presents to the users. Due to the unique nature of the design and requirement to deliver a roof that satisfies UNESCO criteria vii a bespoke system will need to be devised that encases a highly insulative product within the limited roof build up. As this insulation will be partially visible beneath the glass soffit any product used should be of free in form and of high aesthetic quality, creating the illusion of clouds in the sky. This sort of product will permit the transmittance of some light through the roof build up, creating a more unified design strategy for the roofscape design and interest at intersections of transparency changes. This modular panellised ceiling and roof system will also be more feasible in terms of manufacturing and installation.

Three differing insulative materials are outlined below to illustrate how the 0.13 w/m2K u-value could be met within the parameters of the design intent illustated in the images above for each single insulative component.

Performance of Insulative Component:

ThermalConductivity (λ) / Required U-Value (0.13 w/m2K) = Thickness (m - R-value for a single element)

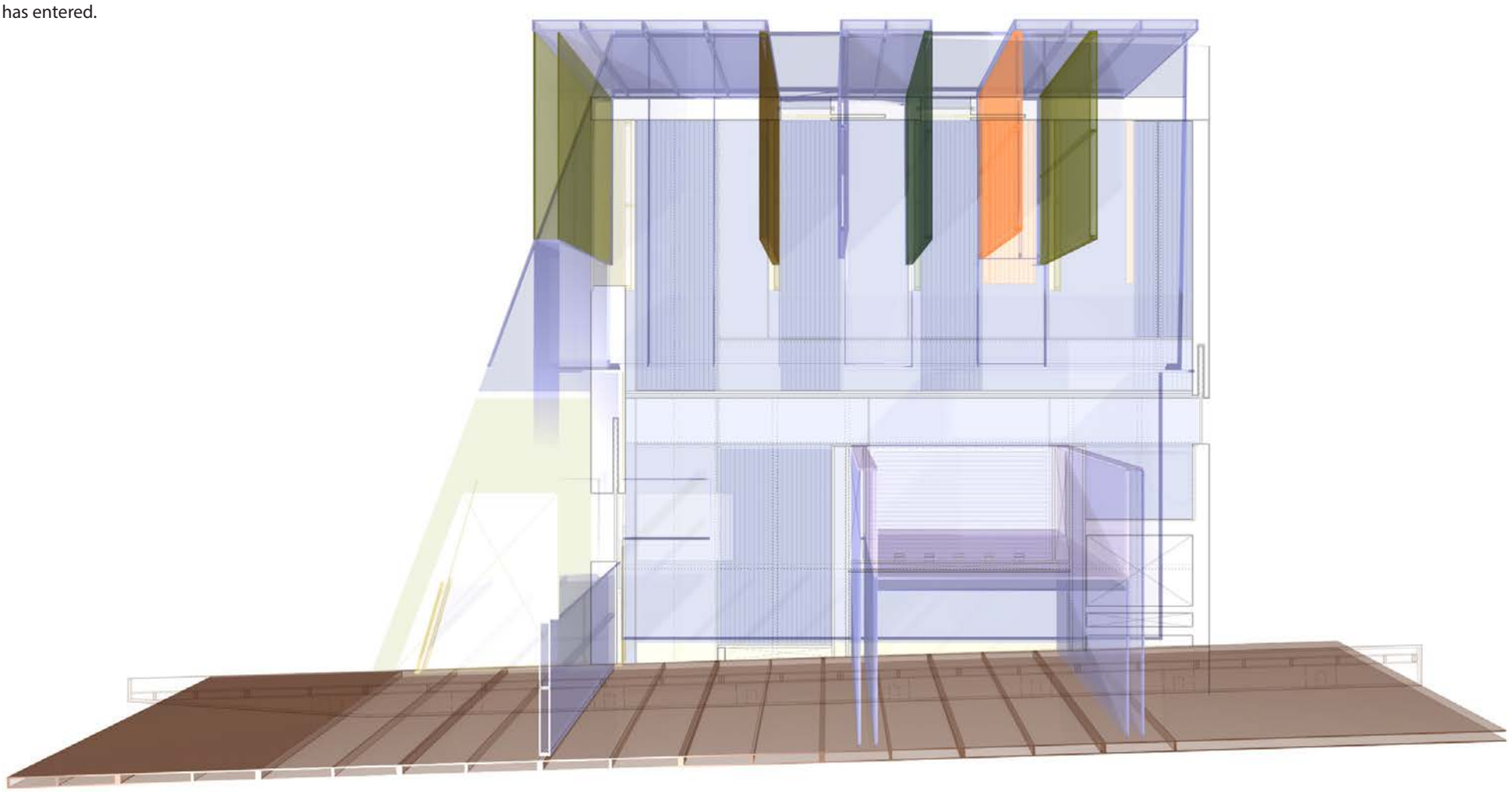
Sheep Wool: 0.042 / 0.13 = 0.323 (323mm)
Down Feathers: 0.02 / 0.13 = 0.150 (150mm)
High Performance Synthetic Insulation (BENDHEIM Wacotech™ TIMax Glass Insulation):
0.028 / 0.13 = 0.215 (215mm)

As this insulation will not run throughout the whole roof the thermal properties will have to be considered as a whole system rather than within individual panels of the roof. For this reason I have chosen the down feather insulation as this is the most efficient material in reaching the desired u-value. When used in a greater thickness than the above 150mm the thermal requirements of the roof will better in the areas placed. This will allow for the insulated panels to offset those areas without insulation that have a lower thermal performance, creating an overall system of varying positive and negative thermal performance that works when considered as a whole.

Down Feathers: Potential U-Value for 250mm insulative fill in 450mm Roof Build Up:
ThermalConductivity (λ) / Thickness (m - R-value for a single element) = U-Value (w/m2K)
0.02 / 0.250 = 0.08 w/m2K

REDUCING THE IMPACT OF SOLAR GAIN

The most likely foreseeable environmental issue is how much the building will overheat in the summer months. To address this the building has undergone numerous detailed design changes to reduce the amount of thermal energy entering the building and promote cooling once this heat has entered.



TECHNICAL SPECIFICATION

Performance of Roof Build Up:
U-Value = 1/(Sum of all R-Value)
R-Value = L/λ
λ Glass = 1.1 λ Sealed air cavity = 0.026

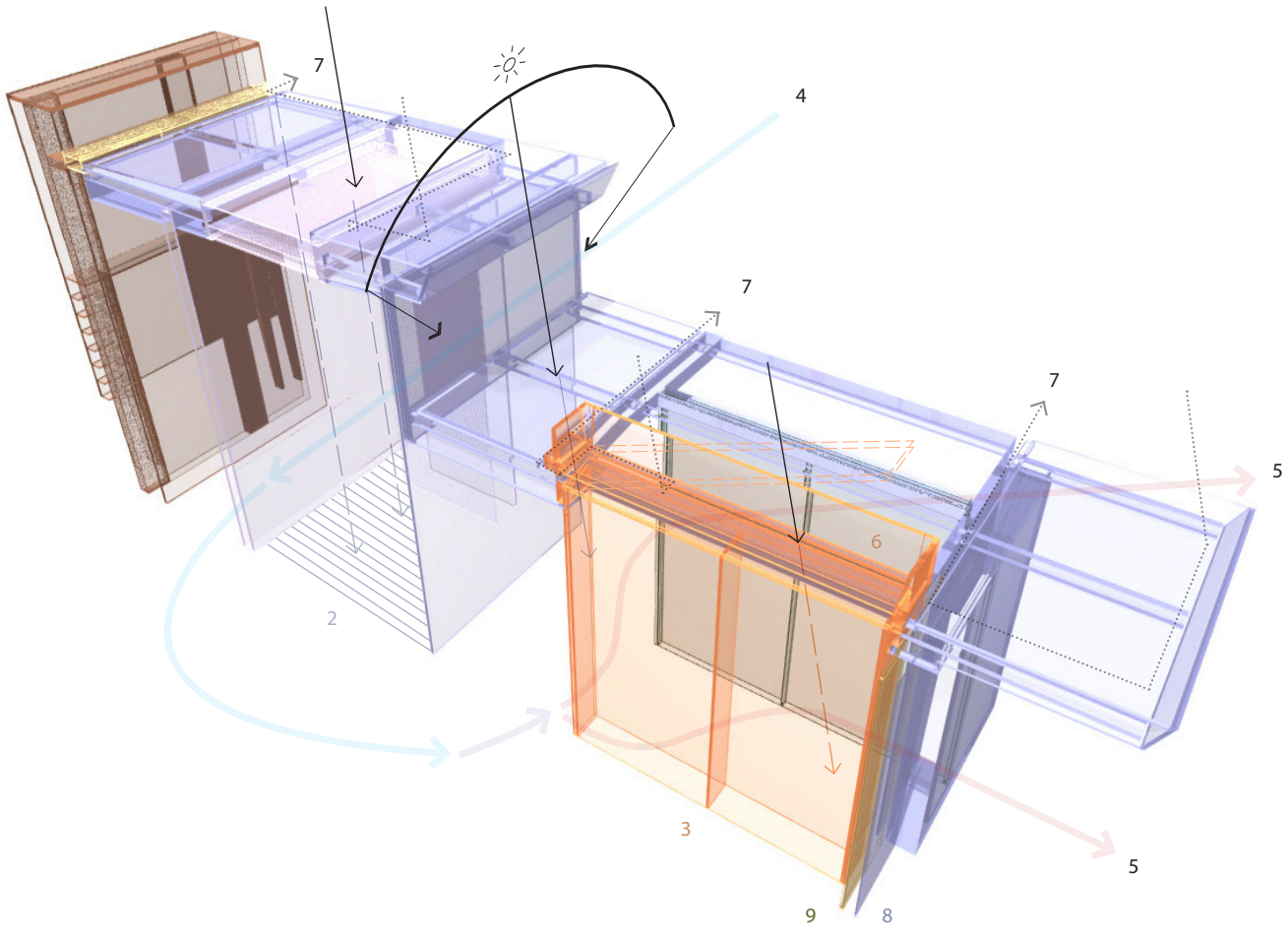
R-values
16mm Glass - 0.015
80mm Air Cavity No.2 - 3.0 Addition to boost performance in non-insulative low performance panels
10mm Glass - 0.009
250mm Down Insulative Fill -12.5
16mm Glass - 0.015
60mm Air Cavity - 2.3
10mm Glass internal finishes / soffit - 0.009
U-Value = 1/(2x0.015+3+2x0.009+12.5+2.3)
U-Value for insulated Roof panels = 0.05 w/m2K (67% RF Construction)
U-Value for non- insulated Roof panels = 0.19 w/m2K (33% RF Construction)
Overall Performance of Roof= 0.09 w/m2K
Wall - 0.11 w/m2K (0.18 required)
Floor - 0.13 w/m2K (0.15 required)
All exceeding that required by Swedish Standards

This system relies on the roof coming to site as a prefabricated modularised sealed system assembled under low tolerances, ensuring that upon installation the assembly meets specification and the performance meets the required U-values.

SOLAR SHADING

Although the building is orientated to be north facing the transparent roofscape poses a great overheating risk to the building. As a result the building has a number of automated fabric screens within the roof build up that can roll out to create additional shading during the summer months. This tactile fabric partition has also been incorporated as a design feature in some translucent and opaque roof modules as fixed additions to the soffit to create depth and scatter any light that does permeate through the translucent insulation layer. The movable fabric screens set within the transparent roof panels are located in two positions: internally, within the first air cavity above the glass soffit or externally as a roof finish, this typology of screen is exposed to the elements and can create moments of interest during periods of rainfall or snow when water/ ice can collect/ freeze on the fabric panels creating caustic/ ice reflective patterns on the floor below.

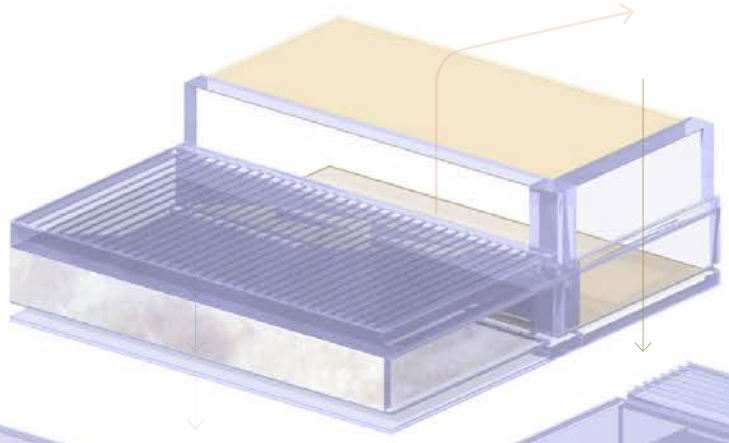
Top: Reflective Ceiling Plan illustrating the fabric canopy extended to provide shading during the summer months
Bottom: Detail section through components RF-S-02 and RF-N-02
1 - Solar Gain
2 - RFL-01 with integrated fabric screen providing solar shading
3 - RFL-05 ral 8023 colour tinted light
4 - Flow of cool air in
5 - Flow of warm air out
6 - RFL-05 openable roof skylight
7 - Water channels
8 - Openable Window Pane
9 - Fabric Screen (Retractable within wall)



RAL 4012 RAL 8023 RAL 4009

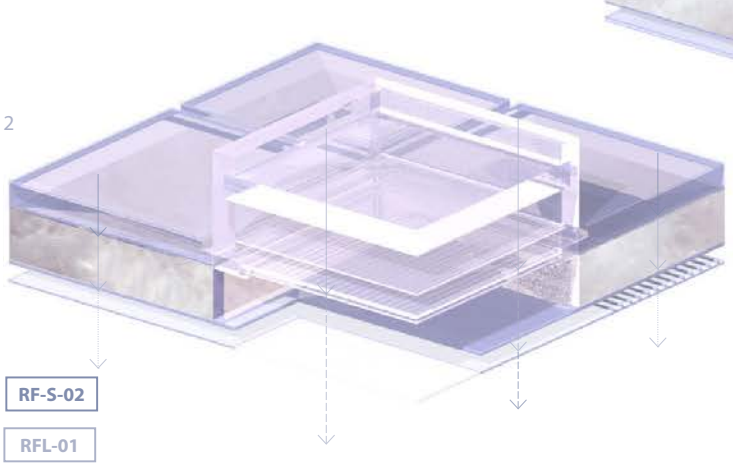
Warm air escaping through openable roof skylight
Direct light entering
Coloured light
Dappled light through fabric screens
Dappled, softened light through down insulation layer

1



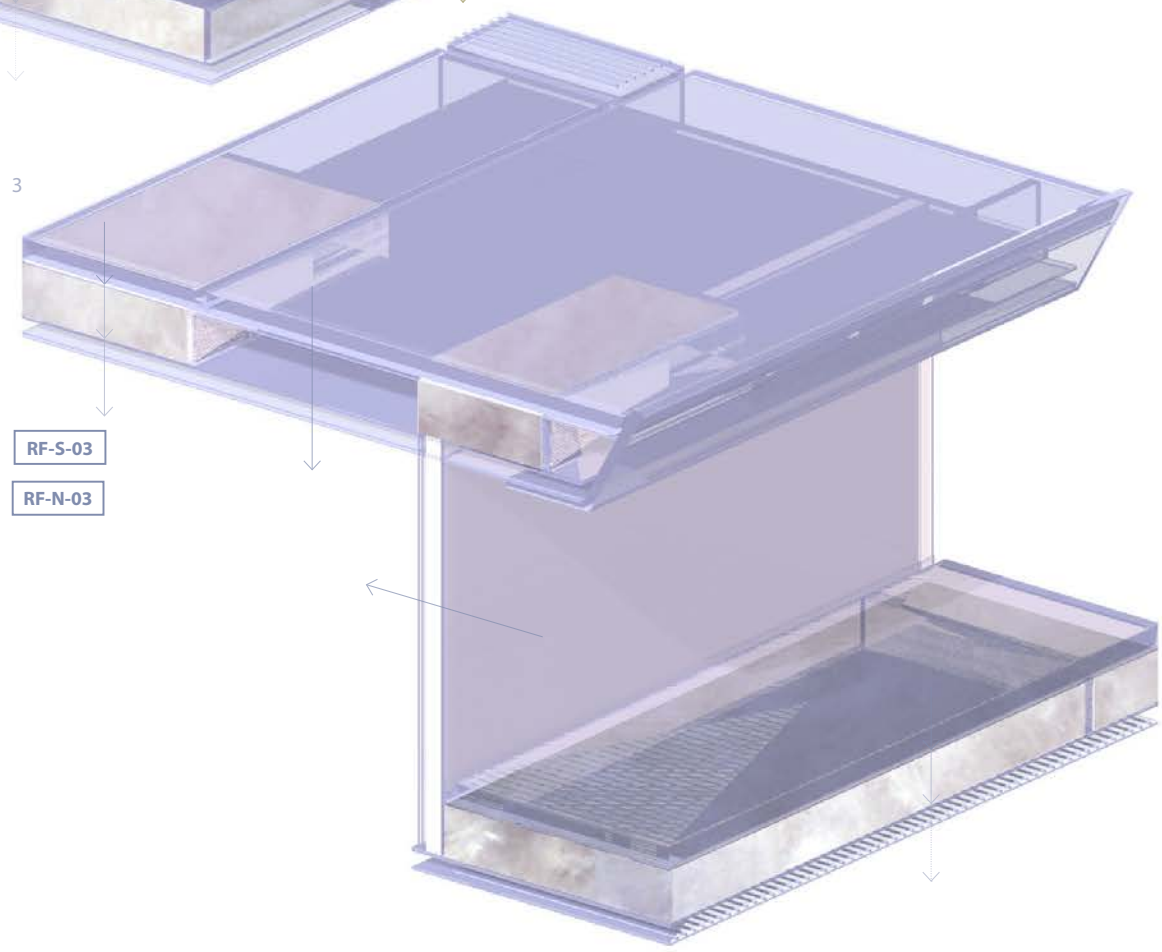
RF-S-04
RFL-02

2

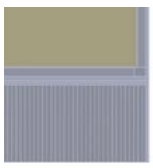


RF-S-02
RFL-01

3



RF-S-03
RF-N-03



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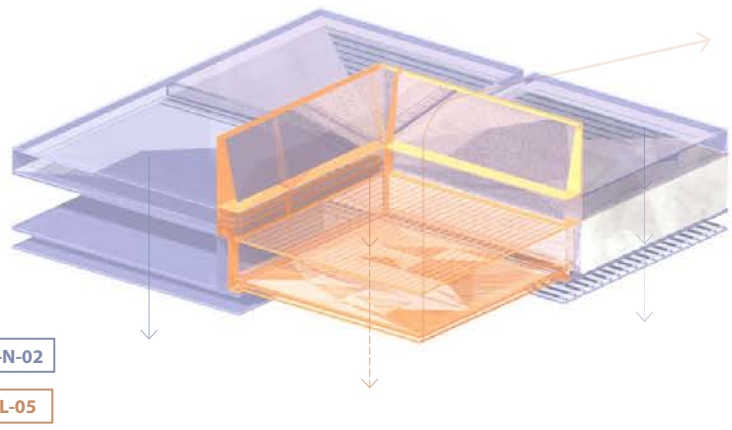
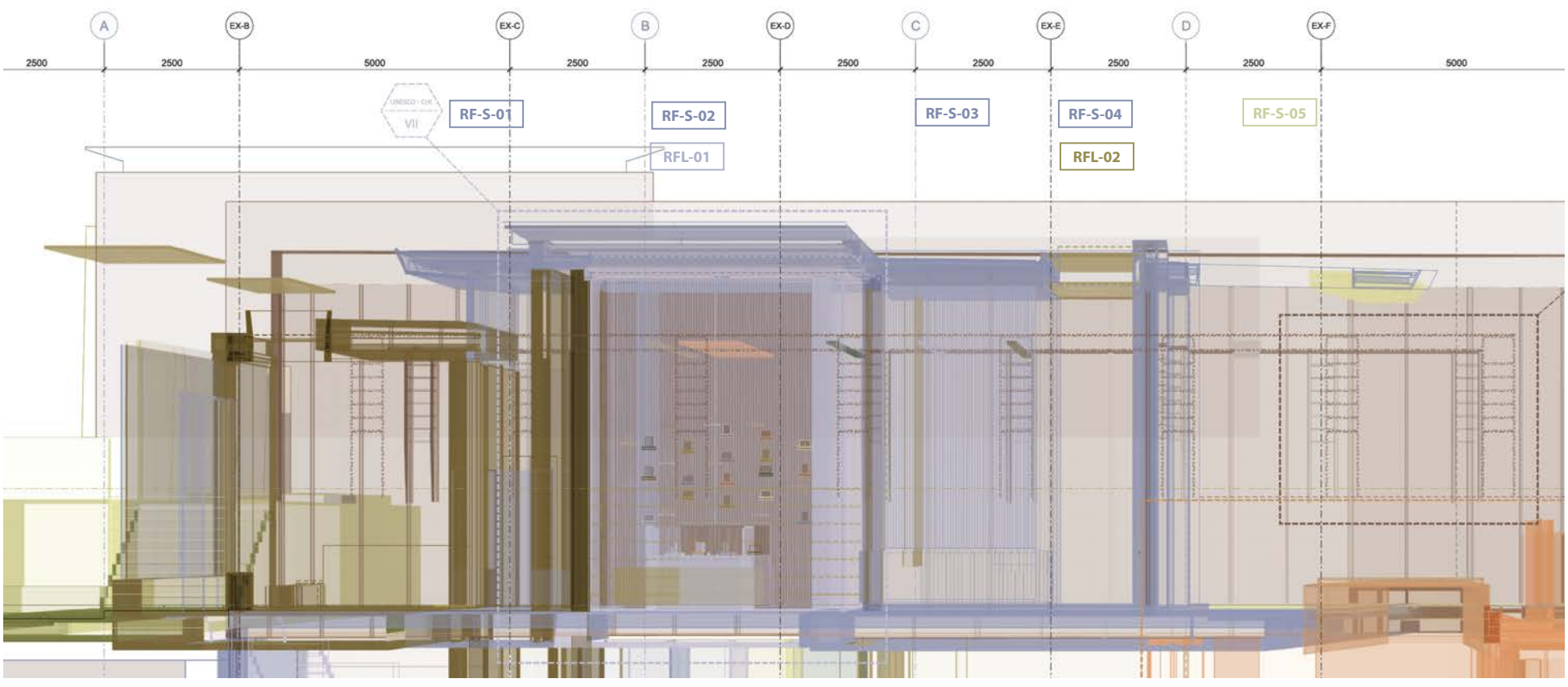


RF-N-02
RFL-05

Sectional Details of Roofscape
1 -RF-S-04 : Openable skylight over cashiers desk, insulated roof with external fabric screen
2 - RF-S-02: RFL-01100mm thick RAL 4009 solid acrylic skylight with embedded fabric screens, insulated roof surrounding, internal fabric screens forming soffit
3 - RF-S-03 / RF-N-03: Critical glass beam at crank in roof section, partially insulated on top level with transparent feature walkway, insulated bottom level, internal fabric screens embedded in glazed hung ceiling
4 - RF-N-02: RFL-05 Openable RAL 8023 tinted skylight over retail area with fabric embedded, transparent roof(left), insulated rood(right) with fabric screen forming soffit

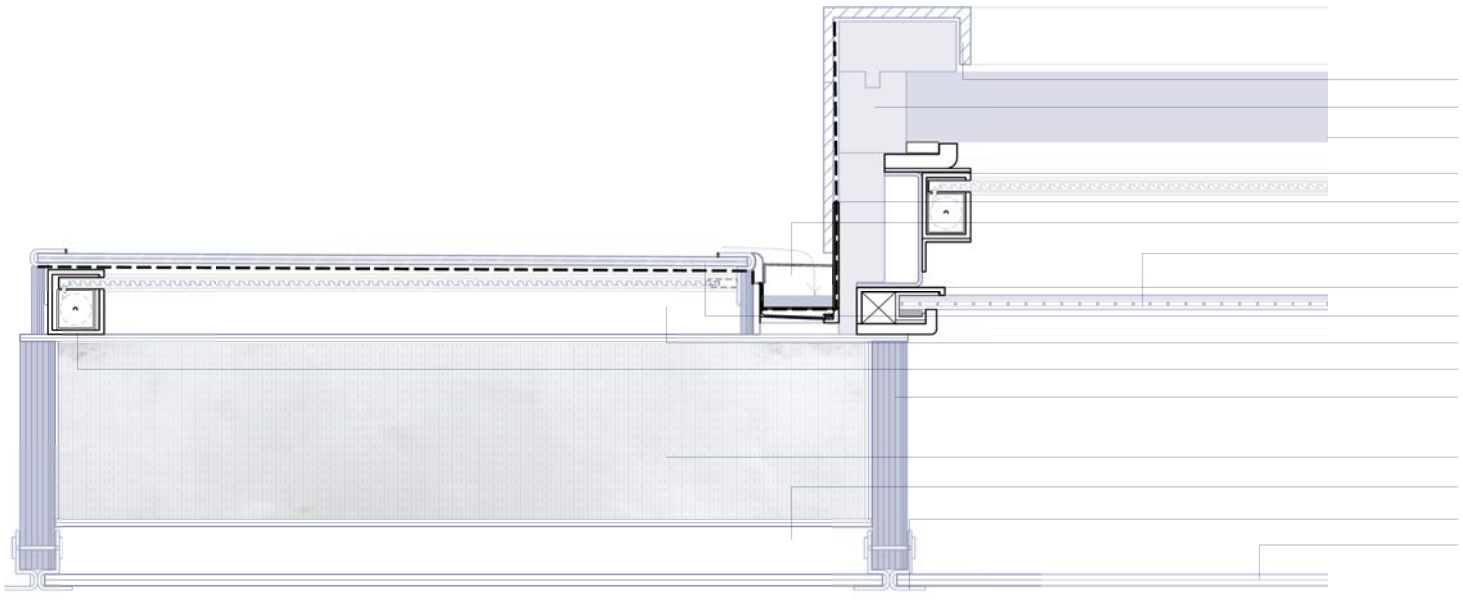
S-BBren - Design Intent of Roofscape



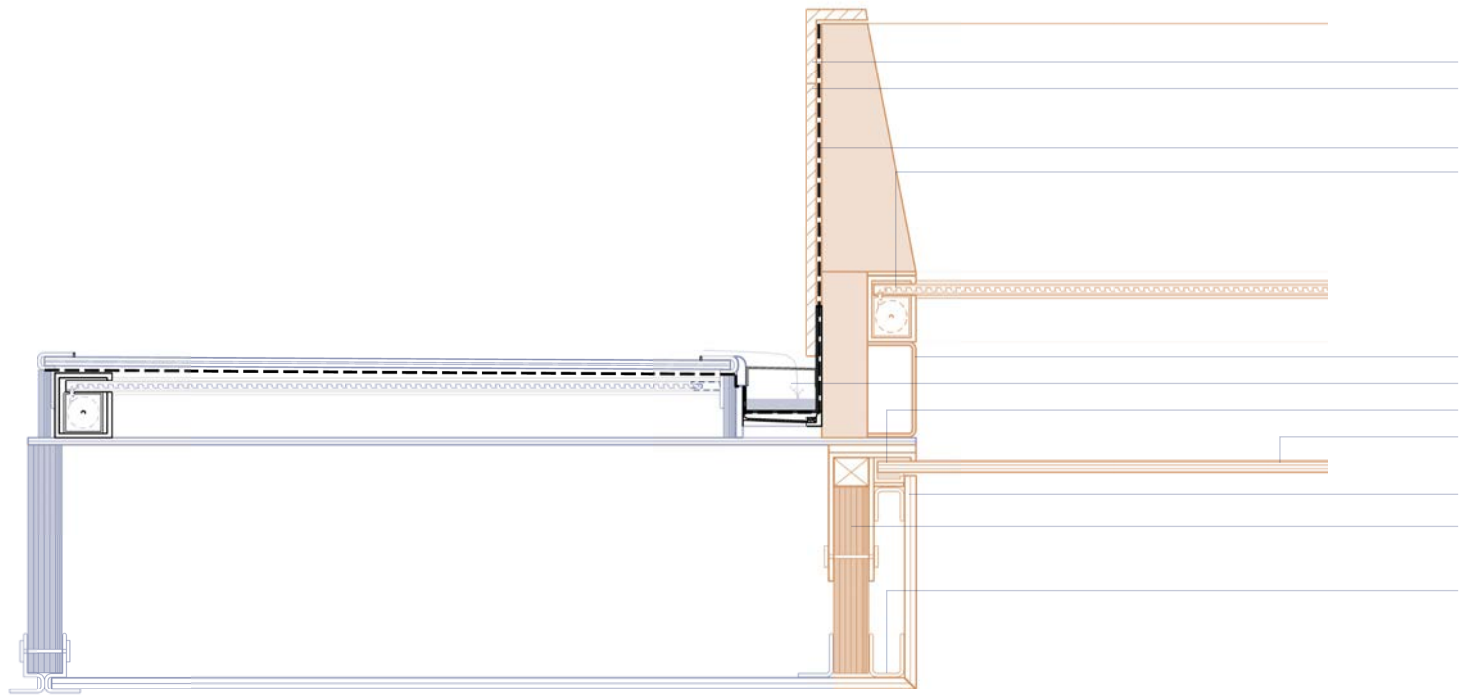
UNESCO

DETAILED DESIGN

Precedent:
Bohlin Cywinski Jackson - Apple Store, Fifth Avenue, NY, Yoshiaki Yamashita - Light grain house, Bratislava Ferdinand Konček - Trade Union House

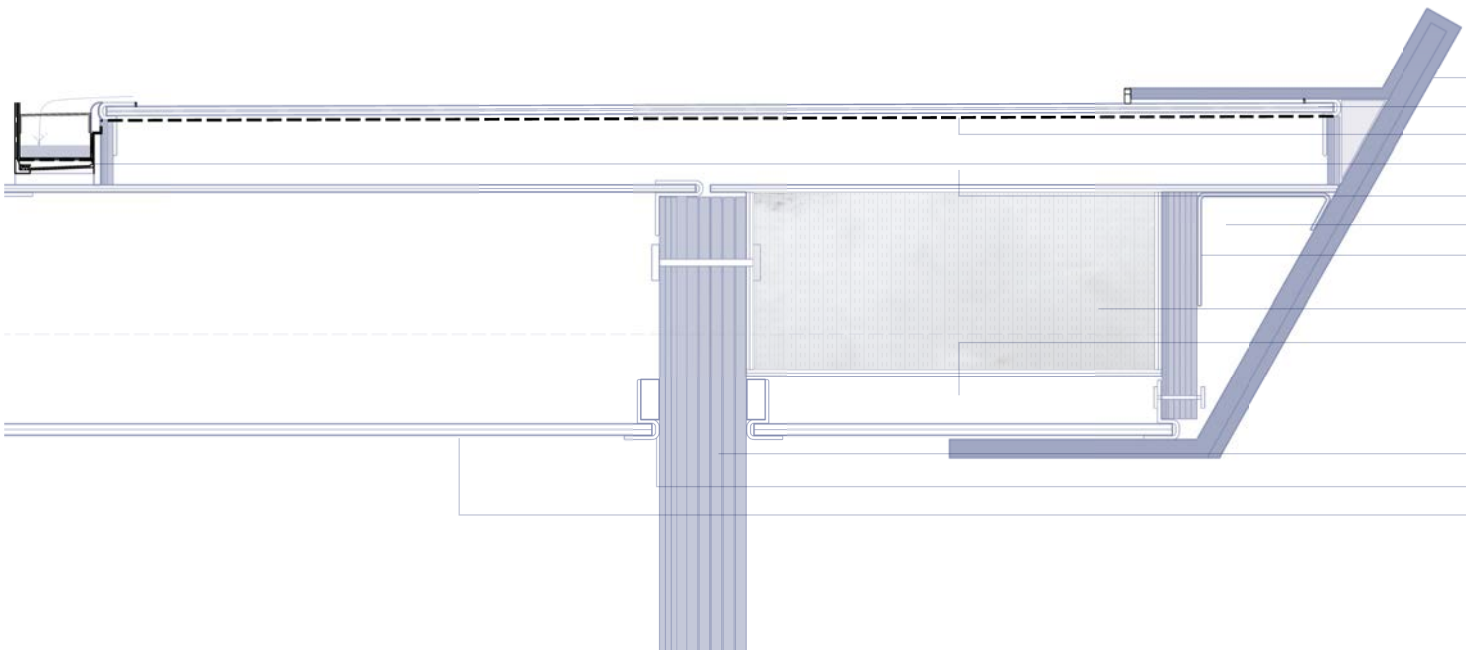


RF-S-02 / RFL-01
RF - D - 01
Limestone capping
Interlocking acrylic lightweight frame
100mm thick RAL 4009 tinted skylight
Automated retractable fabric screen on rollers
Waterproofing membrane
Gutter detail to catch RF surface runoff
Glass Skylight with embedded fabric screen
Window Fitting
16mm Glass external RF finish (laid to falls)
80mm Air Cavity
Automated retractable fabric screen on rollers
320mm laminated glass structure (5x8mm, 3x3mm)
250mm Sealed insulative unit with down fill
60mm Air cavity
Cast acrylic suspended ceiling fixings
10mm Internal finshies (2x5mm)

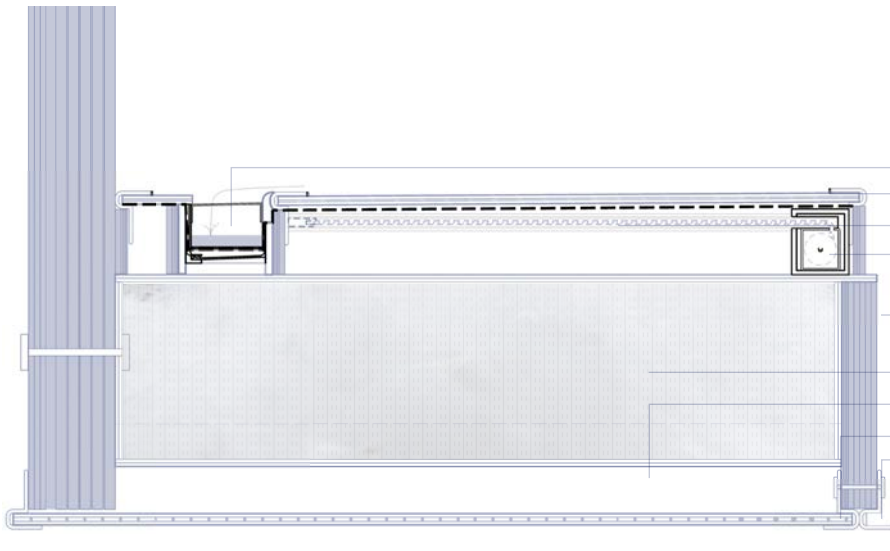


RF-N-02 / RFL-05
RF - D - 03
Limestone capping
Cast acrylic lightweight frame RAL 4023 tinted
Waterproofing membrane
Automated retractable fabric screen on rollers

Cast acrylic angle RAL 4023 tint
Gutter detail to catch RF surface runoff
Window Fitting
Triple glazed skylight RAL 4023 interlayers
10mm Internal finshies (2x5mm) fused glass at colour intersections
320mm laminated glass structure (5x8mm, 3x3mm)
Cast acrylic suspended ceiling fixings
Roof build up as above excluding down insulation fill



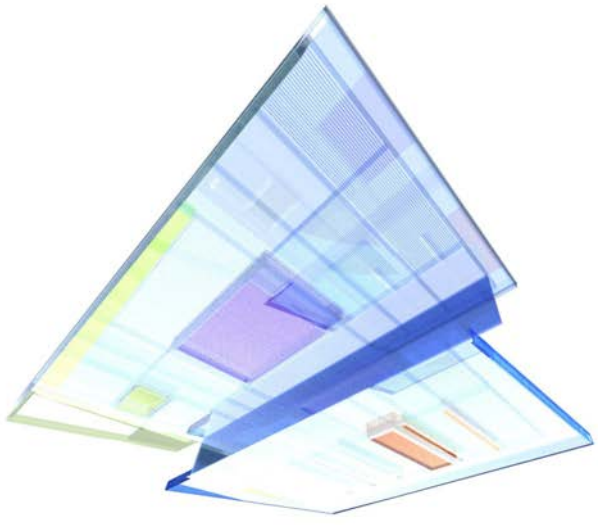
RF-S-03 / RF-N-03
RF - D - 02
Reflective RAL 4009 aluminium flashing
16mm glass external rf finish (laid to falls)
Waterproofing membrane
Drainage gutter
80mm air cavity
Cast acrylic angles at edging
320mm laminated glass structure (5x8mm, 3x3mm)
250mm sealed insulative unit with down fill
60mm air cavity
Primary structure laminated glass beam: 11000 x 1200 x 150 mm (6 x 15mm structural glass + 2mm interlayers, 24mm cavity, 3 x 8mm inner layers)
Cast acrylic suspended ceiling fixings
10mm internal finshies (2x5mm)

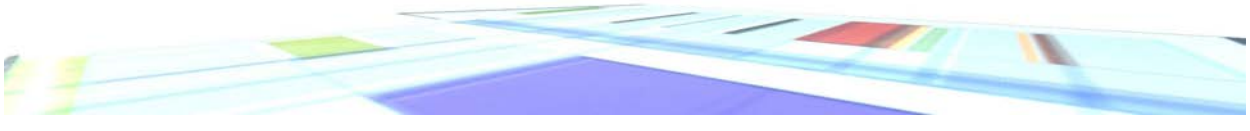


Drainage gutter
16mm glass external RF finish (laid to falls)
80mm air cavity
Automated retractable fabric screen on rollers
320mm laminated glass structure (5x8mm, 3x3mm)
250mm sealed insulative unit with down fill
60mm air cavity
Cast acrylic suspended ceiling fixings
15mm internal finishes (2x5mm float glass with embedded fabric screen)

RAL 4012 RAL 8023 RAL 4009

INTERNAL ENVIRONMENT - SEASONAL CHANGES





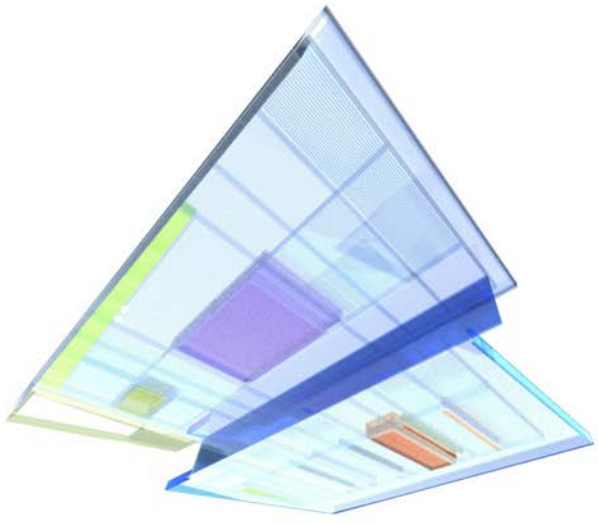
UNESCO-Crit VII

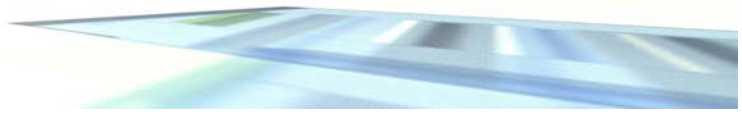
The detailed design of the roof has enabled the building to meet UNESCO Criteria vii by exhibiting 'superlative natural phenomena' through the transmittance of light into the building creating one of the most interesting atmospheric effects within the building. As the external lighting conditions change from day to day and season to season the roof responds with choreographed colour changes and evolving projections onto the floor below. Skylights create blocks of illuminated and projected colour which vary in saturation and location according to the sunoath. The visible glass structure and fabric screens embedded within the built up aid in the evidencing this movement by recording how these projections warp and abstract from the strict grid of the building, both structurally and chromatically.

SUMMER SOLSTICE

June 21st: 12:00 - 55° angle of sun

The many layers of the roof build up are revealed through the direct illumination of the summer sun. At mid day, when the sun is overhead, defined blocks of saturated colour and a sharp grid (from the fabric and structure) are projected onto the floor below. This creates moments of interest during summer visits to the postcard shop, encouraging people to inhabit and enjoy these warm colour tinted solar pockets.

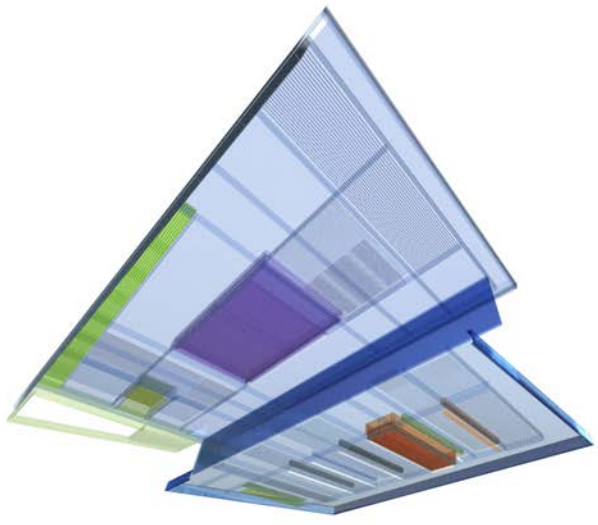




EQUINOX

March 20st/ September 23st: 12:00 - 32 ° angle of sun

During the equinox the postcard shop becomes a more ambiguous and free flowing space that can be negotiated at the users leisure. The large coloured skylights cast elongated projections of colour onto the floor below, also extending up the walls and through partitions onto spaces beyond due to the transparent material palette and shallower angle of the sun. It is during these cooler months that people are able to discover more in the postcard shop by exploring these transitional moments of overlapping colour beneath the pale roofscape. This presents many interesting moments, designed to be discovered by the regular-visiting postcard enthusiast and not a summer passer-by.



WINTER SOLSTICE

December 21st (Winter Solstice): 12:00 - 8 ° angle of sun

tOP LIGHT AND ILLUMINATED ROOFSCAPE

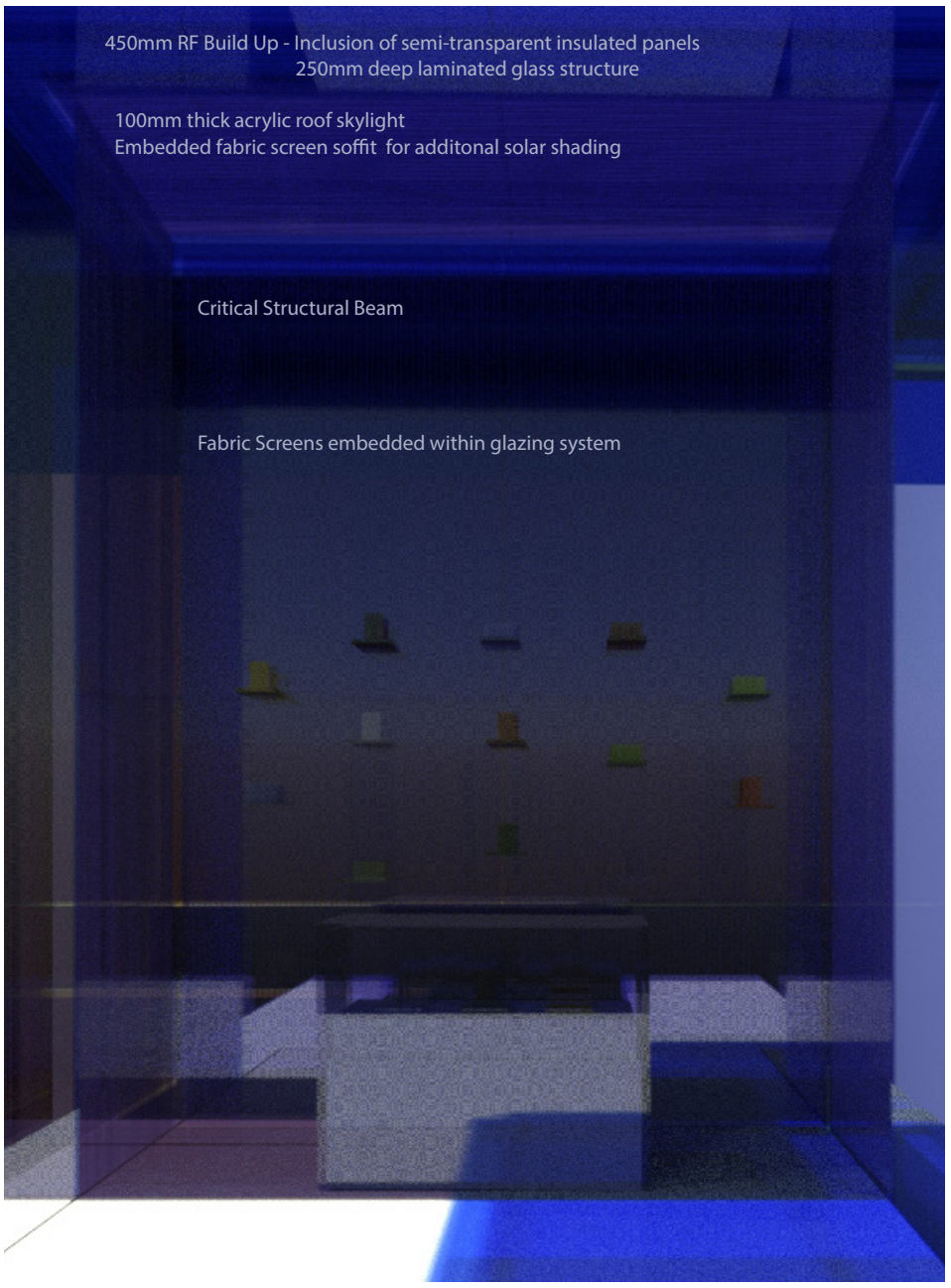
During the winter the angle of the sun is shallow and the direct light a dull yellow. During this time of the year the roof relies mainly on the even skylight rather than directional sunlight. This evenly illuminates the roofscape with little differentiation between the opaque insulated panels and the now yellow tinted transparent ones. This uniform backlit effect, desaturated colour palette and lack of projections illustrate the 'superlative' daylight extremes that exist within Scandinavia and creates the perfect conditions for collectors to examine the postcards under soft even lighting conditions.

ARCHITECTURAL OUTCOME - ENGINEERING THE VIEW

The images below illustrate the initial design intent and design outcome for the main display area within the postcard shop. It is through the detailed design of the structural, environmental strategies and by introducing adequate build ups and materials to make for a comfortable internal environment that this key postcard moment has evolved over time. Whilst still aligning with the initial design intent and requirement to satisfy UNESCO criteria vii these changes have resulted in design changes that deliver a more buildable and higher performing space.

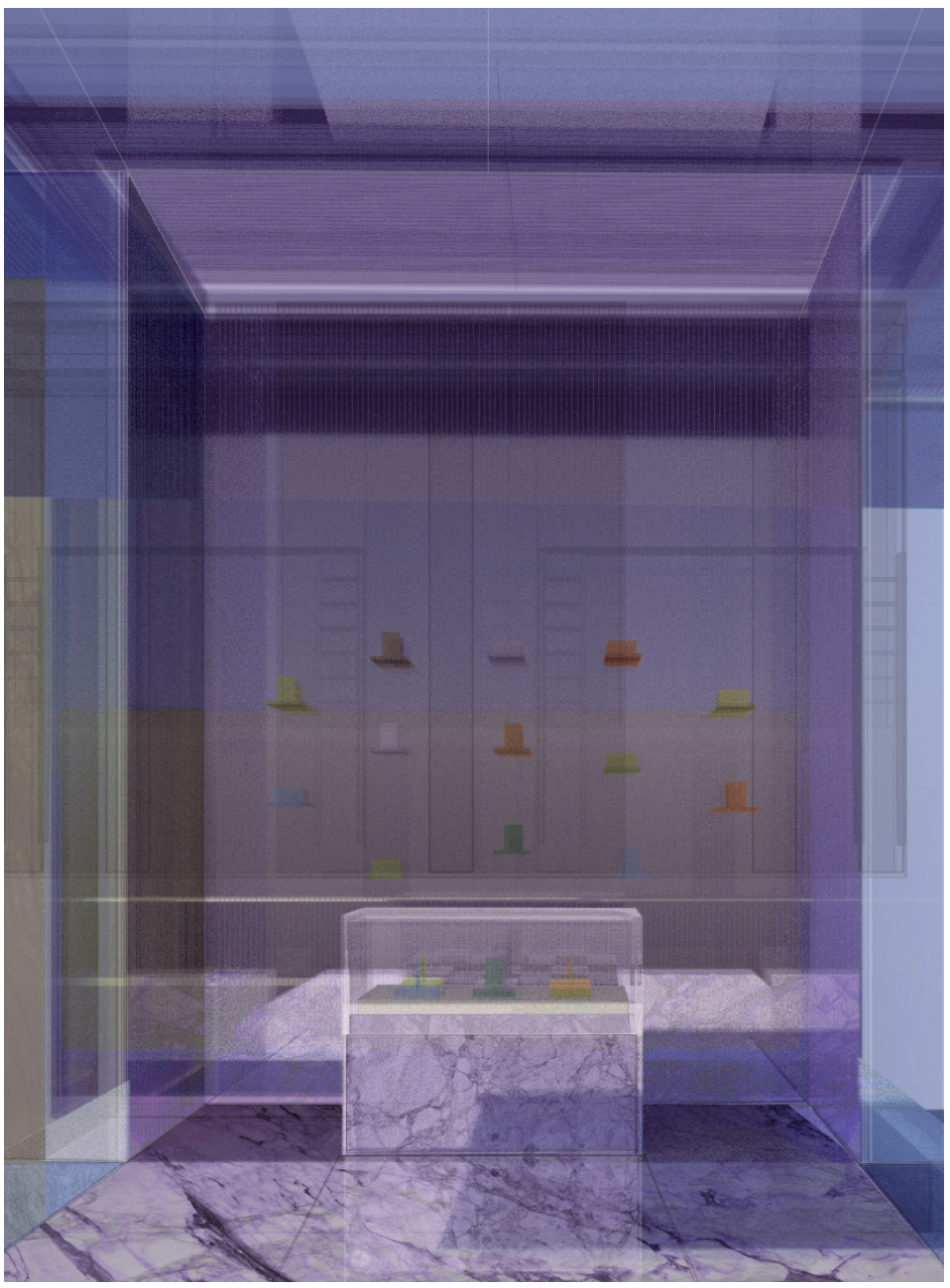
Design Intent

Detailed Design Process



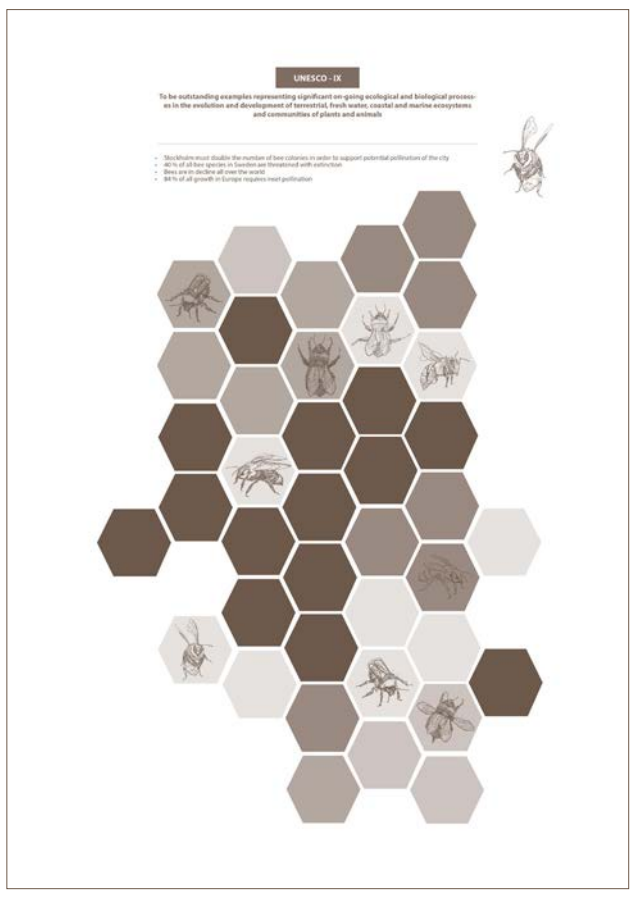
Engineering Colour
Wall Types (key structural elements greyscale), quantitative chromatic effect and satisfied criteria highlighted

Architectural Outcome



SECTION 4 : BUILDING DELIVERY

To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals



RAL 4012 RAL 8023 RAL 4009 RAL 8007

DELIVERING THE POSTCARD SHOP

The project aims to demonstrate a timeless significance through the buildings adaptive and evolving nature which supports new World Heritage listing criteria, critically improving the site. To achieve this the project does not see protection and restoration of the original architecture and landscape as being the only method of preserving the significance of the site. It is through a method of continuous assembly changes can be choreographed within the building to respond to changes to the site conditions on site.

The client will be a collective between the Skogskyrkogården site and UNESCO Europe and North America Unit: Development Division. Skogskyrkogården will be charged with coordinating the project, gaining funding and organising the management, maintenance and preservation of the project upon competition. UNESCO, as partner, will offer support to the site by gifting them with the outline design and initiating the first meeting between the architect and client representative for the site. UNESCO Europe and North America Unit: Development Division will also serve as the overarching body when concerning all design decisions, program and costing changes and inspection of the consignment of critical criteria vii-xi.

PROCUREMENT / CONTRACT PROFILE

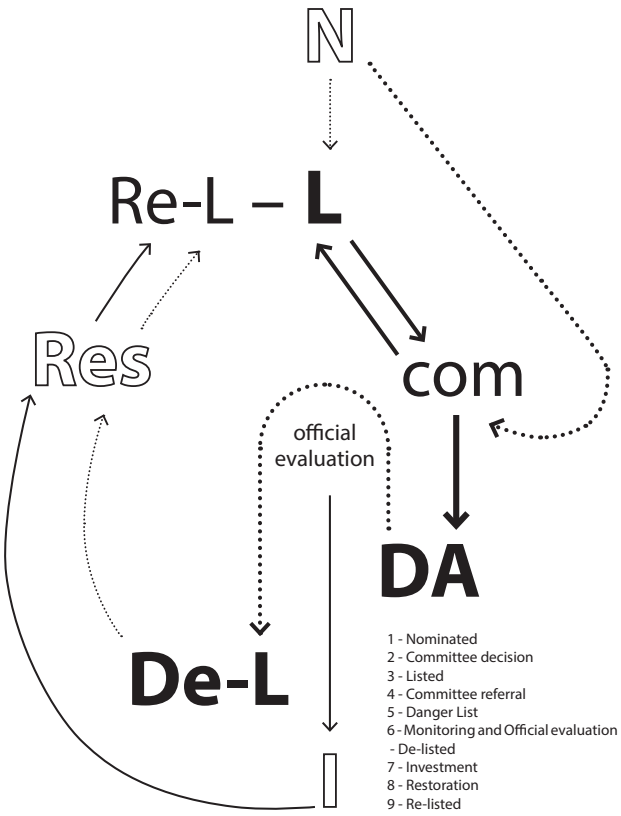
TRADITIONAL

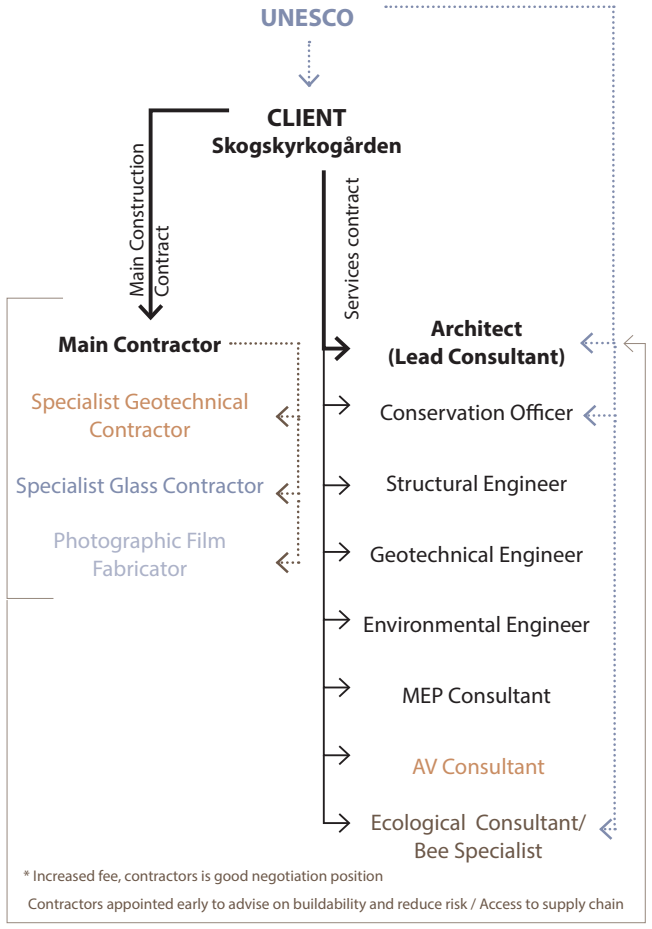
To ensure the maximum quality of design and construction within the project a traditional contract type has been chosen to deliver the highest of specification in line with the aspirations of UNESCO.

A traditional contract not only benefits the architects and design team but balances the risk between all parties in achieving the standards and ambitions set by UNESCO. This contract is designer led and will allow for separate consultants/ specialist contractors to be procured and managed as and when required for the project, allowing for streams of work to move through each discipline. As a result the design can be split into many design packages that can run in consecutively (Ground/Basement works, Structural glass, Performance glazing) lead by the lead consultant (the architect) and supported by the relevant consultants. This division of work allows for the involvement of specialists at an early stage in the project, a method of ensuring quality, a priority set by UNESCO. For this reason the level of risk during construction is minimised with the responsibility of design control and timings remaining with the architect and specialist consultants with any changes incurring additional cost and project delay, less of a priority for UNESCO.

PROFESSIONAL FEES

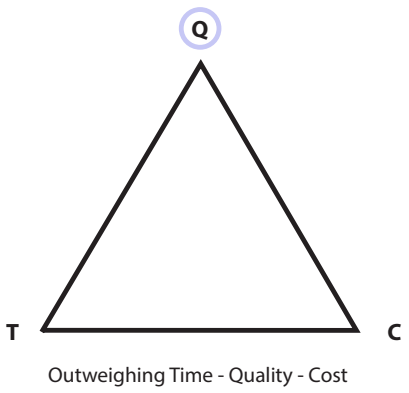
Due to the unprecedented design strategies and significant work required to deliver such a complex conservation project the professional fees for the architect would be beyond the typical 9.4% for a traditional conservation project of this scale (/7.8% new build). It is proposed that the fees would be increased to circa 15% in response to the potential construction and financial risk.



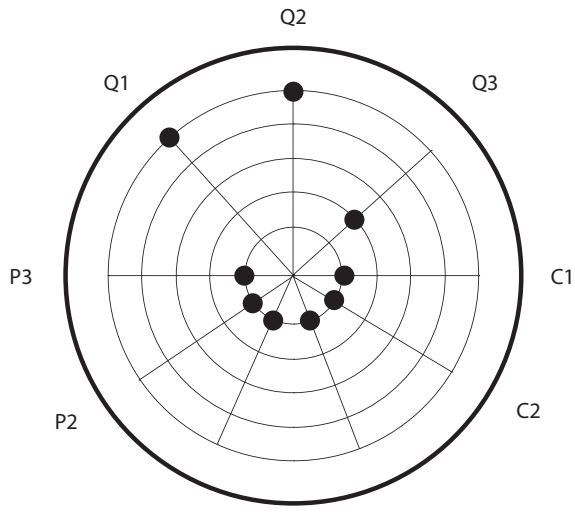


CONTRACT PROFILE

		Lowest - Highest Priority 1 2 3 4 5
QUALITY		
Q1	Highest specification - limited maintenance	○ ○ ○ ○ ●
Q2	Sensitivity in design influenced by employers authority	○ ○ ○ ○ ●
Q3	Least emphasis on detailed design - contractor to author	○ ● ○ ○ ○
COST		
C1	Lowest possible capital expenditure	● ○ ○ ○ ○
C2	Certainty over contract price - fixed	● ○ ○ ○ ○
C3	Best value for total capital	● ○ ○ ○ ○
PROGRAM		
P1	Earliest possible date to start on site	● ○ ○ ○ ○
P2	Certainty over duration of contract	● ○ ○ ○ ○
P3	Shortest possible contract date	● ○ ○ ○ ○



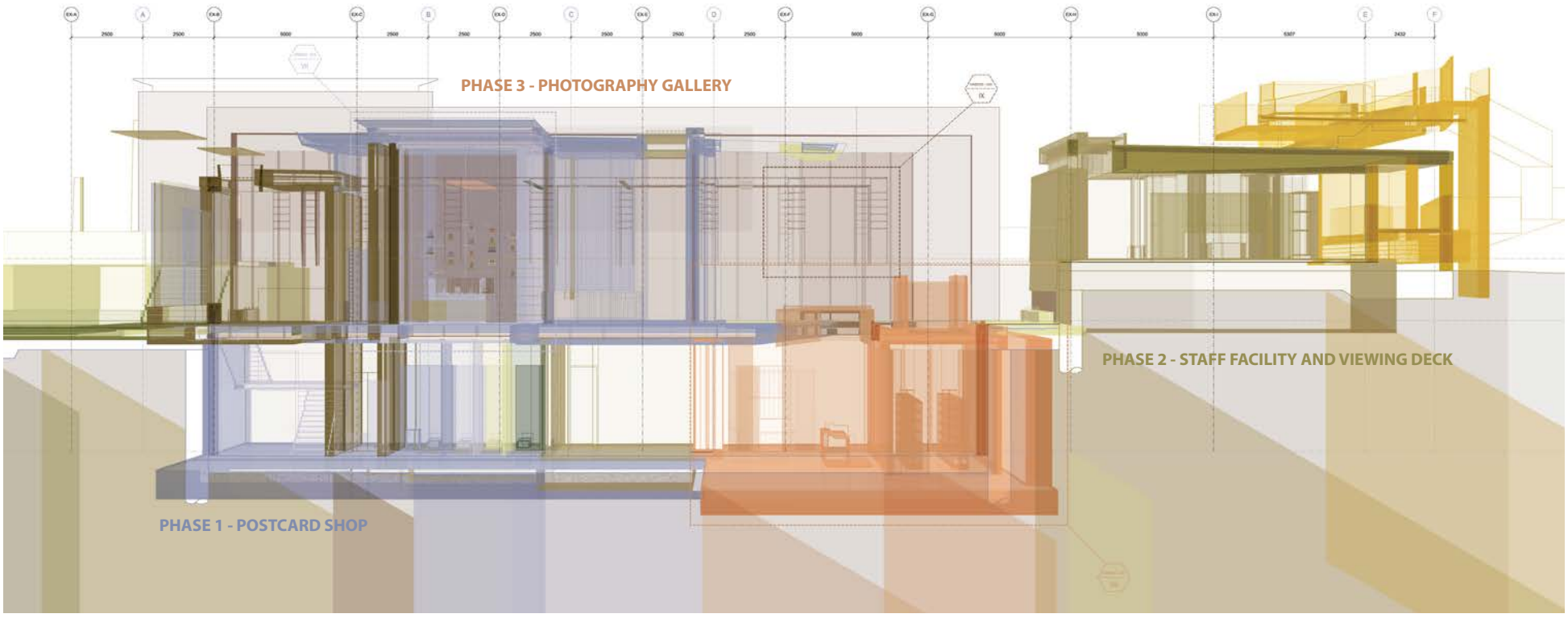
Outweighing Time - Quality - Cost



P1 C3

Top left: Cyclical contradictory pathway to World Heritage status acts as an incentive for the site to implement the project and not remain stuck within an uncertain system
Top right: Roles appointed and relationships within the design team
Middle: Contract profile that suggests the suitability of a traditional contract

S-BBren: Long section through PHASE 1 and PHASE 2



UNESCO

PHASING AND FINANCIAL MODEL

PHASE 1 - Postcard Shop

The first phase of the development plan is the largest building, complex in design and high in specification. This phase will be the most costly and will require much investment from the site. Potential avenues of investment will be individual benefactors who have an interest in creating a timeless significance through the project, Stockholm city or (Inter)National conservation and Heritage agencies which offer support through grants. In order to justify this investment,the postcard will need to be promoted by UNESCO as a positive method for development and endorsed as a driver for international prestige. The final avenue in financing the project will be to approach glazing specialists and manufacturers directly to form a partnership in order to invest in the project to invent, fabricate and showcase unprecedented systems.

PHASE 2 - Staff Facility

On completion of the first phase the revenue generated from increased visitors and rare postcard sales can be put forward to pay for the second phase in the development. It is at this time, when three additional criteria have been met, that the site will be eligible to apply for partial funding from UNESCO to implement the second phase and increase the staffing of site.

PHASE 3 - Photography Gallery

The final phase of the development will showcase how UNESCO sites can grow and change over time in a sustainable way that supports the protection and conservation of the site by exhibiting photography of the de-listed sites, acting as a fearful deterrent/ stimulus for development. It is envisaged that this final phase will begin in the distant future once support has been raised from interested individuals that could be matched by UNESCO to reach the overall construction costs.

Precedent - David Chipperfield - Hepworth Gallery Wakefield

Wakefield council invested £18 million in the new gallery. This has a positive multiplier with over £20 million raised within the economy during the first 3 years of operations after completion.

RISKS AND MANAGEMENT

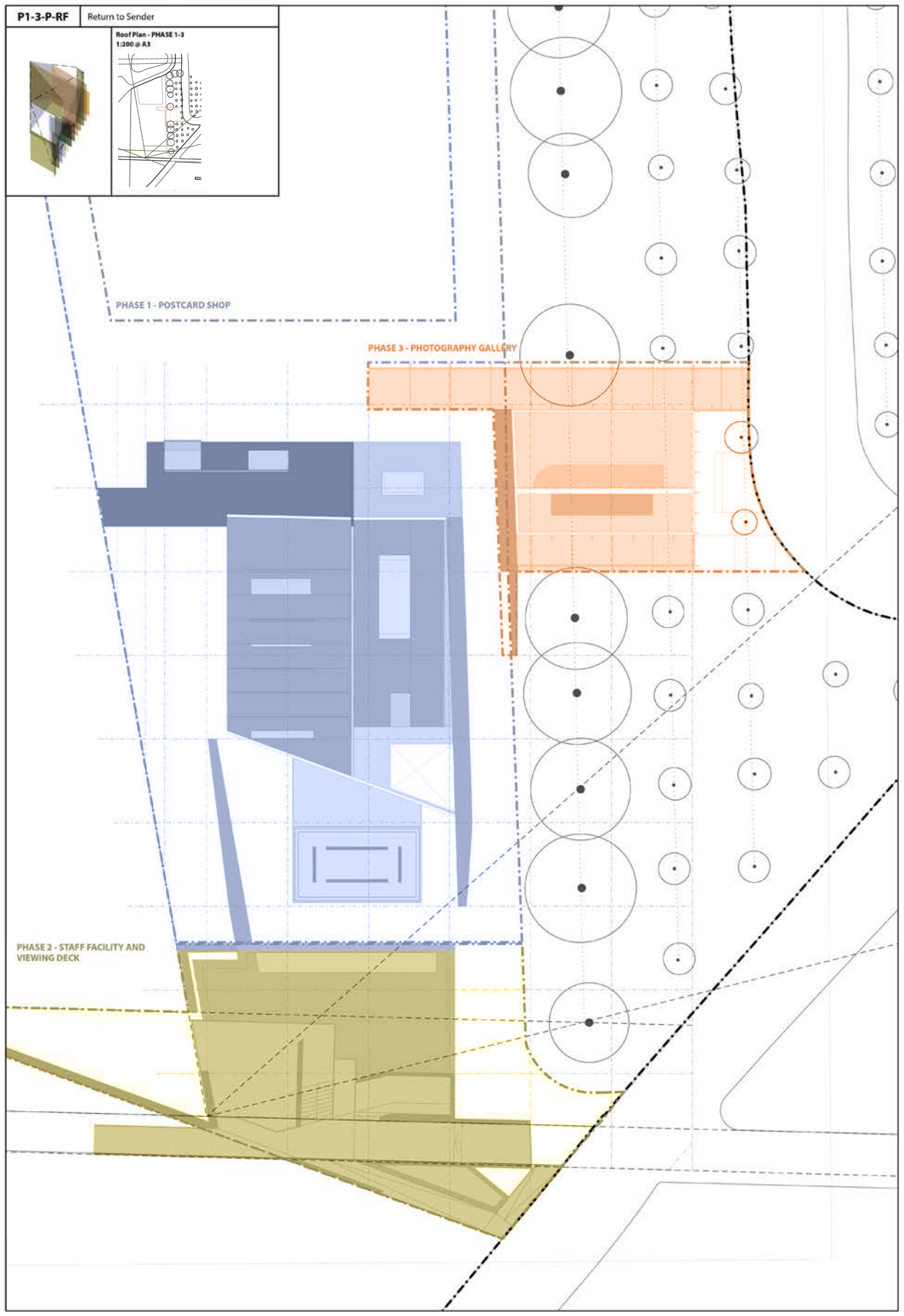
The main aspiration of the project by UNESCO is to full-fill three additional criteria, critically improving the significance of the site and therefore justifying the development on such a unique cultural site of World Heritage. For this reason the project serves as a model for development on sites of significant natural and cultural heritage. Due to the substantial value placed on these sites the project carries with it a potential risk that could threaten or cause damage to the particular conditions that currently exist on the site. It is for this reason that the project must be constructed as per the design intent in accordance with the architects specification that has been approved by UNESCO. By keeping the relationship with UNESCO active throughout the project (especially when concerning the specification) the level of risk when considering the potential of relocating the site onto the danger list or by de-listing the site altogether from the World Heritage List. For this reason a continuous process of review and ongoing defects inspection by UNESCO must occur annually throughout the life of the building to monitor the performance of the building, ensuring that the three additional criteria are met.

Due to the conclusive research and definite design thesis devised to deliver the three additional criteria by the new development should the additional criteria fail to be met upon UNESCO's defects inspection the Skogskyrkogården site would be liable for the short-comings of the project. It is in this circumstance that the site would automatically be moved onto the Danger List, safeguarding the prestigious reputation of UNESCO World Heritage. The site could use this move as an incentive to interrogate the reasons for the failure of the project, to raise funds and propose how this could be rectified and the project reinstated of its listing. This proposal must be presented before the annual World Heritage Convention panel in a disciplinary hearing.

ROLLING DEFECTS PERIOD

Post completion the construction of the building should be considered as an ongoing process assessed through an annual defects inspection. This is to monitor the changes within the building in response to the live criteria, providing a detailed assessment into the new additions/ input required to continue the ongoing process of recording and evidencing the delivery of the criteria. Thus continuing the assembly of the building indefinitely in order to ensure that the criteria are still being met by the site. This clause will be integrated into the specification and maintenance strategies for the postcards moments and building elements associated with the new criteria satisfied upon the competition of the project.

P1-2-P-RF: All buildings in context



OUTLINE RISK REGISTER

It will be the role of the principle designer to monitor the pre-construction phases to co-ordinate CDM, health and safety inspection and reduce any possible risks by ensuring that all consultants cooperate and execute their duties within their own contractual appointment. The principal designer is responsible for the selection of consultants based on relevant skills, knowledge and experience to deliver the work with minimal risk from conception to operation. A detailed risk assessment must be undertaken to remove or manage potential threats to the project or individuals on the construction team or during use.

RISK	LOW-MID-HIGH-CATASTROPHIC	MITIGATION
PROJECT		
Funding	○ ● ○ ○	Preliminary planning to secure grants and other means of funding, early contact and discussions with specialist fabricators and contractors with the intent of sponsoring the project.
Planning refusal	● ○ ○ ○	Engagement of planning consultant, early consultation and pre-application.
Failure in delivering criteria	○ ○ ○ ●	Thorough design and construction process with input from specialist consultants thorough the duration of the project. Ongoing rolling defects period to monitor criteria regularly, taking appropriate action where needed. Management plan in place for site to rectify failure - see opposite.
CONSTRUCTION		
Ground works and controlled excavation	○ ● ○ ○	Geotechnical engineer ans specialist contractor to work alongside design team and main contractor throughout the design and ground works phase on site.
Access of vehicles and building components to site	● ○ ○ ○	Traffic measures placed on site/ the surrounding area. Access to be controlled on site with pathways and road closures temporarily during construction.
Insertion into site and accurate assembly	○ ● ○ ○	Accurate and detailed measured survey to be obtained as a 3D scan of the site to illustrate precise junctions that currently exist on site for insertion/ reinstatement after construction has completed. Setting out points and datum to be set on site.
Delivering the desired colours	○ ● ○ ○	1:1 mock ups to be constructed through the detailed design stages after development with specialist chromatic and glass consultants, mock ups taken to site and tested as installation pieces.
Loss of existing criteria	○ ○ ○ ●	Introduction of beehives into the new development should assist in the continued growth/ heath of the pine forest. Careful and considerate measures to be taken for by managing site office for vehicles, construction and reinstatement of any conditions that must be altered/ adapted to accommodate the new development. The new staff facility (PHASE 2) will also increase the number of staff employed on the site, supporting the management and preservation of the woodland and the existing buildings.
OPERATION		
Accessibility resulting from 11mm uplift	○ ○ ● ○	Integration of adaptive measures into design for the foreseeable future. Defects inspections to record resulting effect outside of these parameters and compliance with Building Regs/ Health and Safety requirements. Design solutions devised by architects as part of PHASE 2 / 3 extended works as required.
Maintenance and cleaning	○ ● ○ ○	Self cleansing systems employed where possible with experienced cleaners assisting as and when required. Maintenance to be undertaken as per architects intent with the use of temporary scaffold / man-safe systems.
Migration of bees	○ ○ ○ 	Defects inspections to record changes and highlight any concerns. New bee colonies can be purchased and moved into the hives on site. Specialist bee ecologists can also be engaged if this problem cannot be managed internally to devise a more innovative solution that can be integrated into the design / as part of the continuous construction phase post completion.

RAL 4012 RAL 8023 RAL 4009 RAL 8007

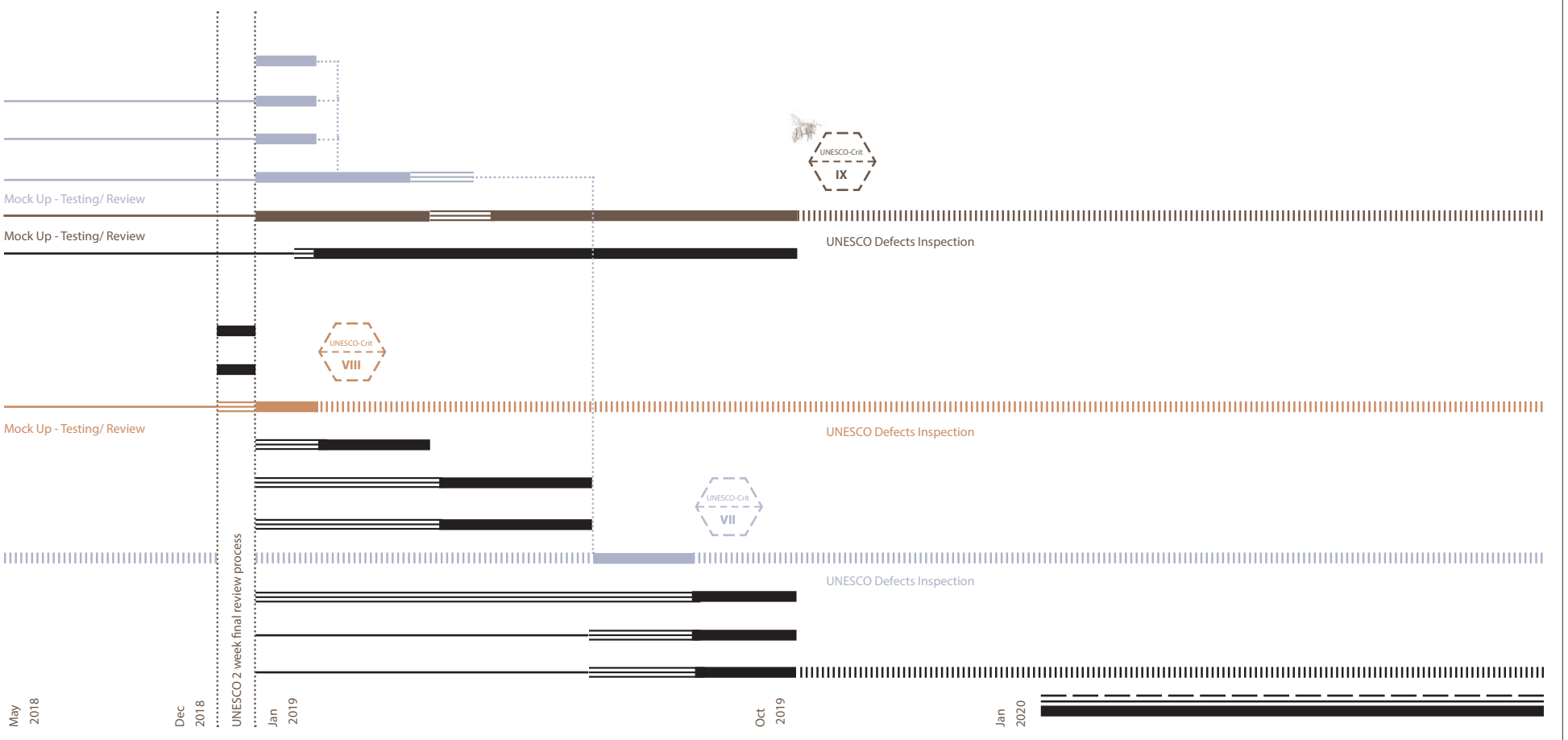
DELIVERING A UNESCO BUILDING

The diagram opposite illustrates the program and flow of work required to deliver the postcard shop by Jan 2020 marking 80 years of UNESCO Listing on the site.

- Additional Design Work
- Fabrication Processes
- Transportation Processes
- Storage/ Contingency Period
- Construction
- Review/ Inspection Process

RIBA STAGE KEY TASKS	00 STRATEGIC DEFINITION	01 PREPARATION AND BRIEF	02 CONCEPT DESIGN	03 DEVELOPED DESIGN
Off Site Production: Laminated Glass Structural Beams Glazed RF Skylights Fabric Systems Sealed RF Components RF-N/S-01/04 Sealed Glass Systems eg: G-EW-01 / G-EW-B Specialist Acrylic Fittings **On Site Works:** Enabling Works Ground Preparation G-RW-01/RW01/ Basement Works Primary Glass Structure Secondary Glass Structure Steel Structure Prefabricated Roof Internal Glazing Systems Landscaping Finishes and Fit Out Additional Works	March 2017	May 2017 Ecological Specialist Consultant Appointed Geotechnical Engineer Appointed Scandinavian Environmental Expert Appointed	Aug 2017	Dec 2017
Core Objectives	Identify Strategic Brief and UNESCO's aspirations for the project (delivery of critical criteria vii, viii and ix).	Develop conceptual project objectives and key deliverables of project: - Scandinavian Light Response - 11mm Geological Reference - Act as a stimulus for rapid evolution of a Species Site Survey 3D Scan	Outline strategies for the protection of existing conditions and intersection with new build elements - service / structural design. Coordinated design strategy developed in accordance with final project brief. Pre-application reviews of design to relevant parties.	Prepare Developed Design, including coordinated and updated proposals for structural design, building services systems, outline specifications and costings. Engagement of Site within Client body, financial outline forwarded after second letter.
Procurement / Program	Initial considerations for a highly complex coloured glass structure suggests the requirement of a specialist glass consultant early on in the project.	Begin the assembly of the project team, define key project and consultant roles, draw up contracts.	Appointment of Conservation Officer, Structural and Environmental / MEP Engineers. Information exchange between consultants. Conservation reviews held.	Design to collaborate in progressing the detail of the design up to an early level of detail ensuring that all planning enquires may be addressed prior to planning application to begin stage 03.
Key Deliverables to be reviewed by UNESCO	Strategic Brief and Project Aspirations	Initial design theses in delivering the 3 new criteria. Early design illustrations / visuals. Ecological study of site highlighting species causing damage to pine tree species.	Parameters of alterations to site set - Detailed set of as built drawings produced protection/ reinstatement existing conditions on site and highlight possible intersections.	Design and Access Statement and full drawing pack submitted to UNESCO upon submission to Stockholm city council.
Progressive List of Agents	UNESCO Architect	Geotechnical Contractor Specialist Glass Contractor Scandinavian Environmental Expert Ecological Consultant Digital Surveyors	Conservation Officer Structural Engineer Environmental / MEP Engineer Planning Consultant	Quantity Surveyor Main Contractors considered and approached to deliver project.
Payments	UNESCO Europe and North America Unit to create a new Development Division to manage project and handle payments. Architect paid lump sum at end of Stage 01.	Full consultants to be paid by UNESCO Europe and North America Unit: Development Division as a lump sum to close stage. Part time consultants to receive an hourly rate.	Full consultants to be paid by UNESCO Europe and North America Unit: Development Division as a lump sum to close stage.	All payments now covered by Skogskyrokgarden Site as leading administrative client, UNESCO retain role with architect to review design changes and compliance with initial intent and aspirations.
Risks	Minimal	Through the early appointment of these specialist consultants technical design can be considered from an earlier stage in the design - increasing the understanding of buildability within the design team and reducing the risk of failing to deliver 3 additional critical criteria.	Quantity surveyor appointment delayed to reduce risk in changes in design quality through VE, engagement prior to the involvement of the overall financing client: Skogskyrokgarden Site as to provide a detailed outline of costings upon involvement in the project.	Planning application made, - Continued work through determination stage to develop design in detail to respond to any planning queries and move project forward in accordance with project timescale outlined by UNESCO. Mitigating any risk of planning refusal.

04 TECHNICAL DESIGN	05 CONSTRUCTION	06 HAND OVER / CLOSE OUT	06-B ONGOING CONSTRUCTION	07 IN USE



Technical design developed in accordance with design team responsibilities matrix. Project strategies to be developed as a coordinated proposal between consultants to tackle any areas of technical ambiguity, especially when concerning the delivery of the new criteria.	Off-site fabrication to run in parallel with technical design changes following 2 week client review period. Unchanged elements to be manufactured first following prototype review. Full construction to begin, resolution of Design Queries as they arise.	Hand Over of building and conclusion of building contract where possible. Due to a specialised rolling defects clause an on-going post completion secondary phase of construction will run throughout the lifetime of the project.	Annual defects inspection undertaken by UNESCO to record changes within the building over time and monitor any defects in delivering the criteria. New design solutions commissioned as and when required to keep the building operational.	Undertake In Use services in accordance with UNESCO's aspirations for the space.
Appointment (/greater involvement) of specialist contractors/ fabricators to assist in the technical design/ shop drawings of select elements (structural glass/ glazed retaining wall).		Conclude administration of construction following first defects inspection. Set up and installation of equipment and devices to record and evidence the new criteria, post final fit out.	Administrative monitoring job undertaken by UNESCO. Architects and specialist consultants engaged to implement changes in the design to continue the life of the criteria.	Storage library and sale of postcards. Exhibition of critical criteria met by the site, old and new through the postcard moments constructed within the build fabric.
Drawing pack/ visuals & full specification sent to the client for final review. Final client review(inc. UNESCO) held as a meeting on site to assess compliance and review 1:1 prototype testing on site. Client to review and make final design/ specification changes during two week break period.	Administration of Building Contract, including regular site inspections and review of progress. Concurrent works run between main contractor and sub contractors in line with a construction program that is to be reviewed by UNESCO prior to the commencement of works on site. UNESCO to attend site visits at key landmark points in the project: Ground Works / Construction of Glass Retaining Wall, Prefabricated RF installation, Insertion of Bee hives into external walls for promotional purposes to be advertised internationally.	UNESCO to investigate and review the ability of the building to capture and record the delivery of the new critical criteria, evidencing the timeless significance of the building.	Defects / qualifying evidence of criteria met examined.	
Photographic Film Fabricator High Performance Glazing Consultant	Site Manager Main Contractor Geotechnical Contractor Specialist Glass Contractor	UNESCO Europe and North America Unit: Development Division to run defects inspection AV Consultant	UNESCO Europe and North America Unit: Development Division to run defects inspection	Retailer Library Manager Services Manager
Full consultants to be paid by site to close stage, part time consultants to receive an hourly rate. 1:1 mock ups commissioned with full fee paid in advance.	Full consultants to be paid as a lump sum to close stage.	Full consultants to be paid to close stage. Subconsultants paid an hourly rate to visit and inspect site.	UNESCO Europe and North America Unit: Development Division and subconsultants paid an hourly rate after inspection. Architect paid initial fee to investigate potential works.	All staff to be paid an hourly rate to work within the postcard shop and archive.
Potential risk in the project not meeting the design intent/ delivering the criteria. For this reason specialist contractors/ fabricators are to be commissioned to manufacture 1:1 mock ups of select sections of the components delivering the criteria. Material performance to be tested on site, design adjusted as required to reflect results of prototype testing.	Unexpected costs which usually arise during the tender process should be less apparent due to the early appointment of the specialist contractors and consultants. Other risks: Bad Weather delaying construction, Late delivery, Tolerances not met	Contractor / Consultants may demand additional payment due to unforeseen design changes made during the construction. Financial penalties implemented should building fail to satisfy new criteria upon completion following substantial R+D and testing prior to construction.	Failure of building elements in performance to continue delivering the live criteria throughout the lifetime of the project. Bee Migration	Failure in compliance with Building Regs with the changes in the level of the building and site over time. Normal operating risks, cleaning and maintenance, fire etc.

RAL 4012 RAL 8023 RAL 4009 RAL 8007

CLIENT RELATIONSHIP AND OBLIGATIONS

U N

03rd December 2017

FAO:

Mr Nils Ludwig
Administration Office,
Skogskyrkogården. Sockenvägen.
122 33 Stockholm, Sweden.

RE:

Skogskyrkogården site concerns

Mr Ludwig,

It is with great joy that I propose a pioneering new business venture for Skogskyrokgarden in the hope of restoring a timeless significance to your beautiful site. As you are aware we have selected you to implement and deliver the first UNESCO approved development project. This project will assist your site in restoring its critical acclaim against the ten UNESCO selection criteria. The project is currently running with some select members of the design team already appointed. We would like you to take over our current role as client adopting all contractual responsibilities and acting as the driving force behind the project, leading up to, and extending beyond, the planning application. The proposals represent a sustainable approach to development that sets out to preserve and enhance the existing qualities of your site to deliver a series of support buildings that align with the original design intent for the site. We believe that this project will be of great commercial benefit to the site and will also alleviate some of the current pressures that endanger your current listing criteria.

As a precautionary measure your site will be temporarily withdrawn from the listed sites to avoid being de-listed altogether of it's previous World Heritage Status. The site will be reinstated upon the delivery of the three criteria outlined in the architectural proposals.

61 E S

Finally, the newly assembled Development Division team within the Europe and North America Unit will be present throughout the duration of the project for support when reviewing design theses and specifications for critical compliance in delivering the criteria. Should you have any comments or queries we invite you to submit a formal document outlining these issues to be reviewed at the next World Heritage Committee meeting held on 18th March 2017.

We look forward to seeing what's to come,

Ms Anatole-Gabriel
UNESCO Chief Officer
Europe and North America Unit

SENDER:
Isabelle Anatole-Gabriel
Maison de l'UNESCO
7 Place de Fontenoy.
75007 Paris, France.

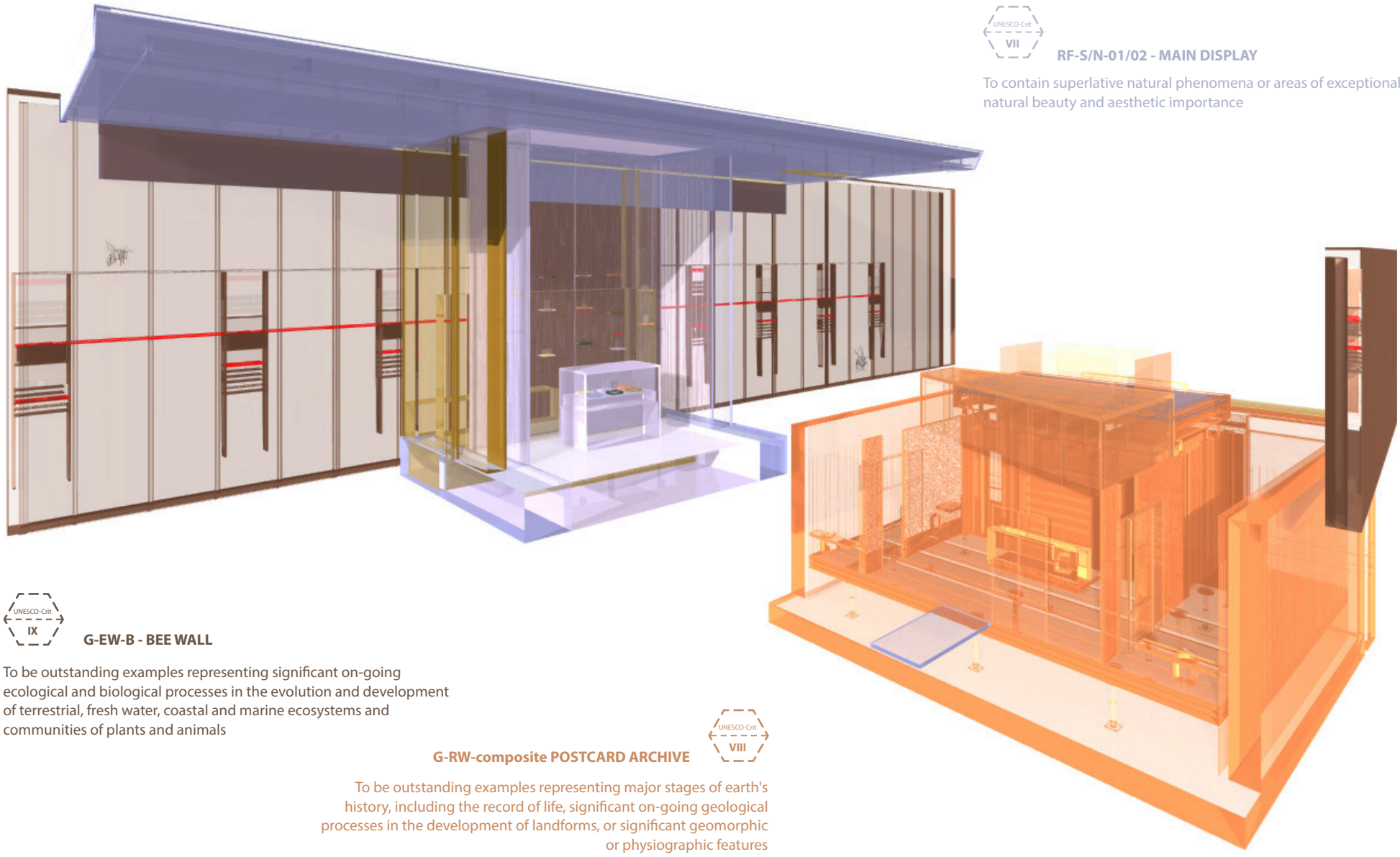
Return to Sender

C O

World Heritage Convention

UNESCO

DELIVERING UNESCO CRITERIA - POSTCARD MOMENTS



UNESCO-Crit VII

RF-S/N-01/02 - MAIN DISPLAY

To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

UNESCO-Crit IX

G-EW-B - BEE WALL

To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

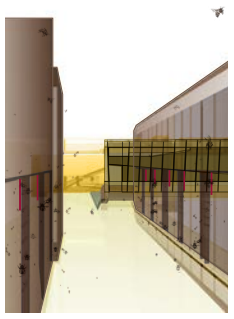
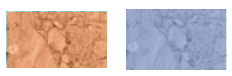
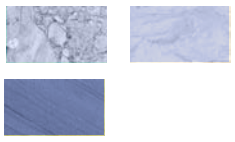
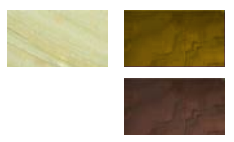
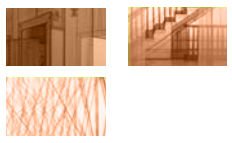
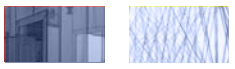
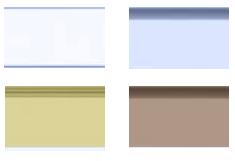
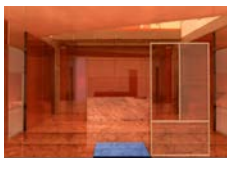
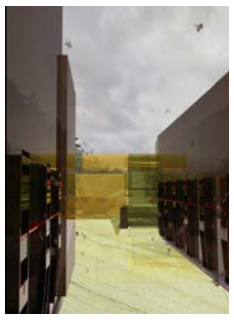
UNESCO-Crit VIII

G-RW-composite POSTCARD ARCHIVE

To be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features

COLOUR ENGINEERING - FINAL OUTCOME

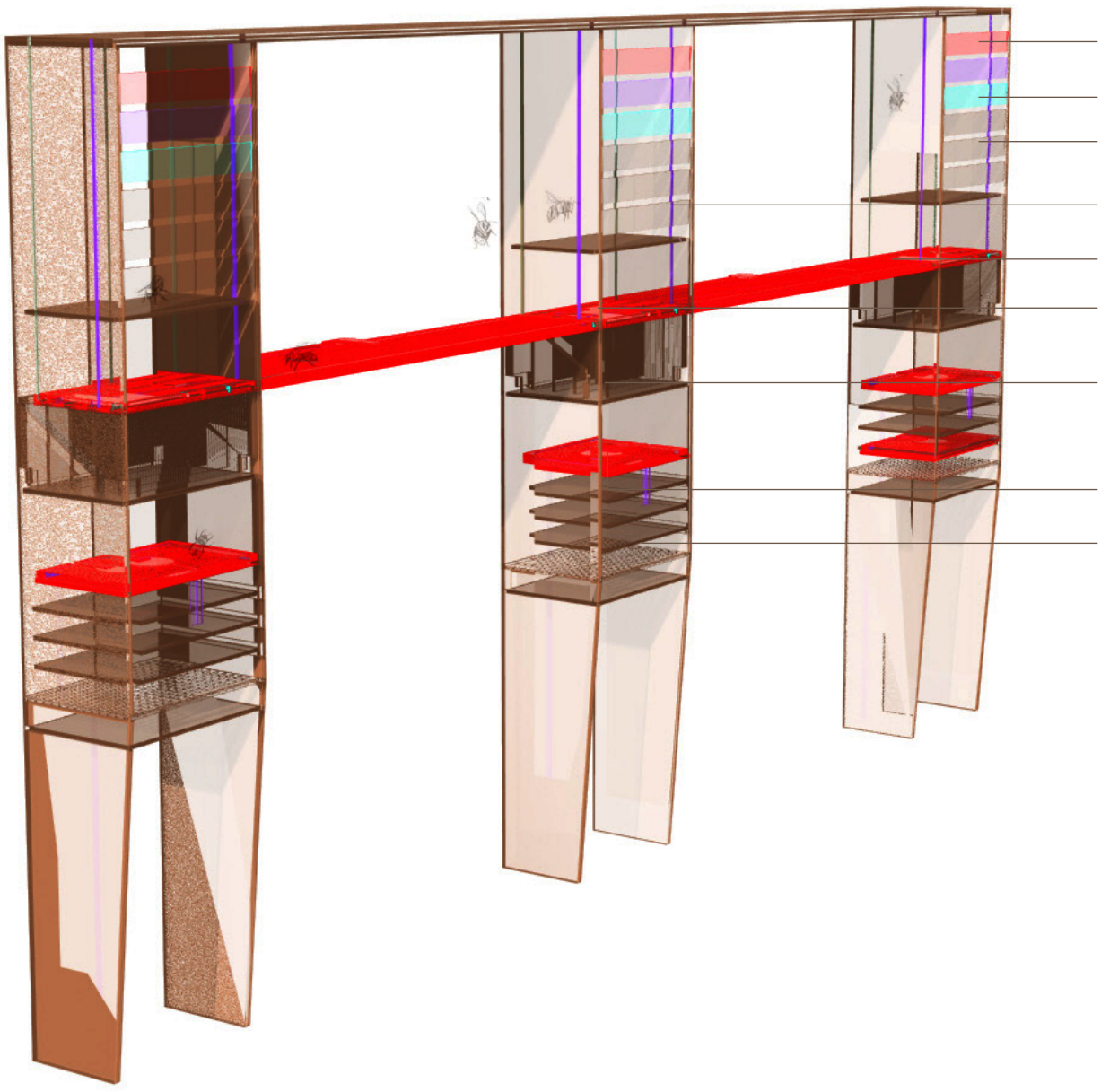
This document has evidenced the requirement for the involvement of specialist consultants to assist in the detailed design and fabrication of the coloured glass elements within the building. To ensure that the material palette of the building delivers the designed postcard moments, that correspond with the criteria satisfied within the project, the saturation, layering and space between coloured layers must be carefully controlled. 1:1 prototypes should be constructed throughout the process of detailed design and set up on site to calculate the accuracy of each material and colour in meeting the original design intent, the specification can then be altered to suit - with final approval from UNESCO.

	POSTCARD ARCHIVE		MAIN DISPLAY		BEE WALL	
	Design Intent	Actual Specification	Design Intent	Actual Specification	Design Intent	Actual Specification
						
Opaque - Polished Reflective Stone - Textured Matte Stone		Lighter colour Darker colour		Lighter colour Lighter colour		Lighter colour Lighter colour
Translucent - Fabrics		50% colour 40% colour 60% colour		50% colour 60% colour		
- Glass - Clear, Coloured, Reflective		3% colour 8% colour		5% colour 10% colour		90% colour 85% colour
Transparent - Glass - Reflective, Matte, Coloured		5% colour 13% colour		5% colour 7% colour 19% colour 63% colour		5% colour 20% colour 83% colour 19% colour
Architectural Outcome						

RAL 4012 RAL 8023 RAL 4009 RAL 8007

G-EW-B - LIVING BEE WALL

Bespoke glazed bee modules are inserted within G-EW-B to provide accommodation for bees in the hope of housing the existing bee colonies that currently live parasitically within the pine trees. This process will encourage the preservation of the pine trees for a longer period of time, ensuring that UNESCO criteria iv continues to be met, also assisting with delivering the third and final criteria(ix) within the new development.



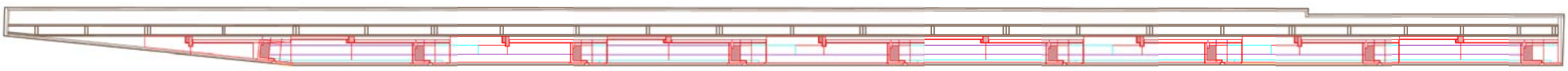
Red / Infrared Fabric inserts embedded in the laminated glazing system
UV Fabric inserts embedded in the laminated glazing system
Openings to ensuring the Bee modules inserted into the G-EW-B glazed module is breathable and does not suffer from poor visibility as a result of condensation build up
UV Directional strips leading to red network and sugar pools
The Evolutionary Gym
Continuous base tray linking red network

Sugar pools which act as a means of delivering a reward to the bees after negotiating their way through the wall by using the UV assisted Red network
Main hive for honey production
The Training Ground (Self contained unit with controlled access for Queen, juvenile bees and invited guests only - size of openings and queen behaviour restrict access)
Lower red tray, single sugar pool - easily accessed by juvenile bees through UV gates and void space above hive
Microhive

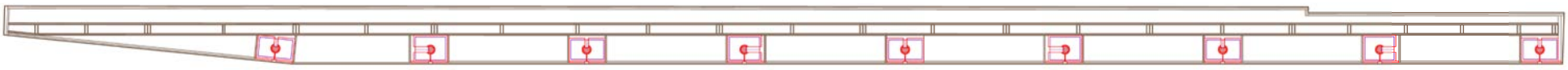
INCLUSIVE DESIGN

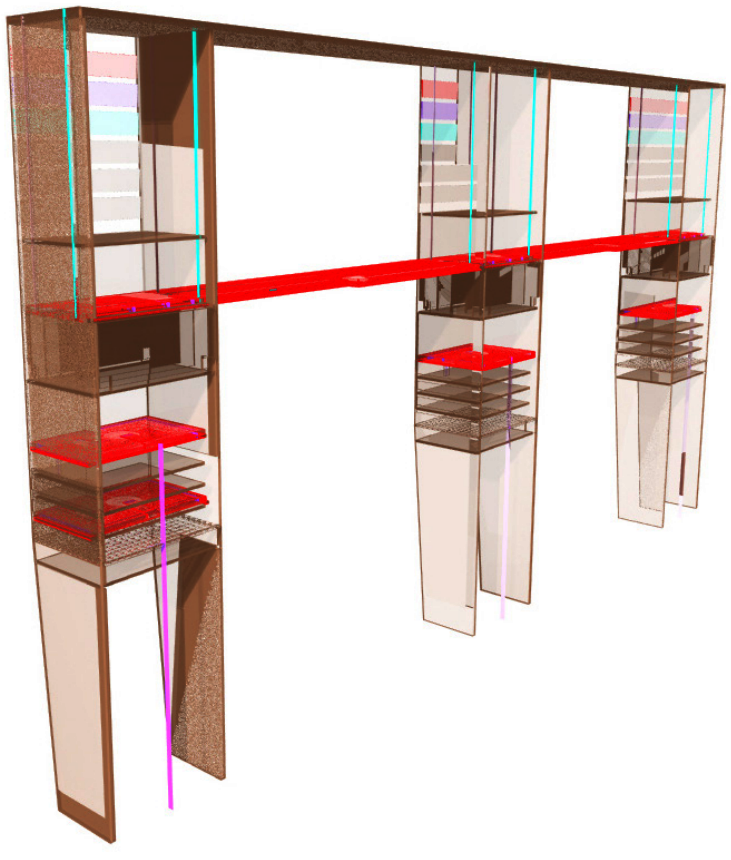
Like human, bees are trichromatic with three photoreceptors within the eye which their colour combinations are based on. Humans base is of red, blue and green, while bees is ultraviolet light, blue and green. For this reason bees visible colour spectrum is different from a humans. The scale is broadened to contain an ultraviolet colour although reduced at the other end of the spectrum so that they can't see the colour red (see images below).Bees have a very acute sense of sight with the ability to see colour much faster than humans. This means that bees can quickly distinguish flower types from one another especially which flying / quickly moving, supported by the iridescence and flicker sense visible to their eyes. Bees are most attracted to flower types have evolved to have UV tracks or guides that lead bees to the pollen at the centre of flowers. This UV palette is associated with sugar for bees and forms a main pull of attraction to particular surroundings. For this reason the design process has developed an invisible UV network of fabric inserts and stained acrylics to be placed within the glazing systems as a means for attracting the bee population to next within the external walls.

G-EW-B - Upper Level: Evolutionary gym



G-EW-B - Lower Level: The training ground





BEE POPULATION 1:1 STUDY

A. Drone Bee (Introverted, Limited visits outside hive) - Bound to hive to serve as a reproductive partner to Queen Bee. Freedom to move through hive, evolutionary gym and the training ground to carry out duties and pay conjugal visits to the queens private quarters.

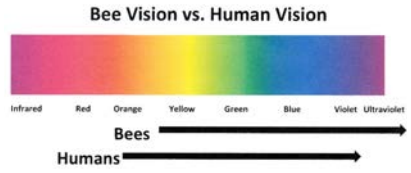
B. Worker Bee (Extroverted, Regular expeditions outside hive) - Access restricted to the evolutionary gym and main hive to carry out honey production. This bee experiences maximum exposure to the Red/ Infrared networks and should be monitored closely.

C. Queen Bee (Introverted, Selfish, will not travel far from hive) - In each hive module resides a single queen who births the population of the hive. She is free to roam where she desires. She will restrict access to unwanted guests, namely worker bees within her extended quarters - the training ground.

D. Undifferentiated Juvenile Bee - Access limited to the training ground.

E. Undertaker Bee (Socially Exiled) - The undertaker bee is left to her own devices and focuses on the job at hand - to carry the dead rotting corpses from the hive and drop them into nooks below the hive.

A



B

C

D

E

UNESCO

UNESCO-Crit

IX

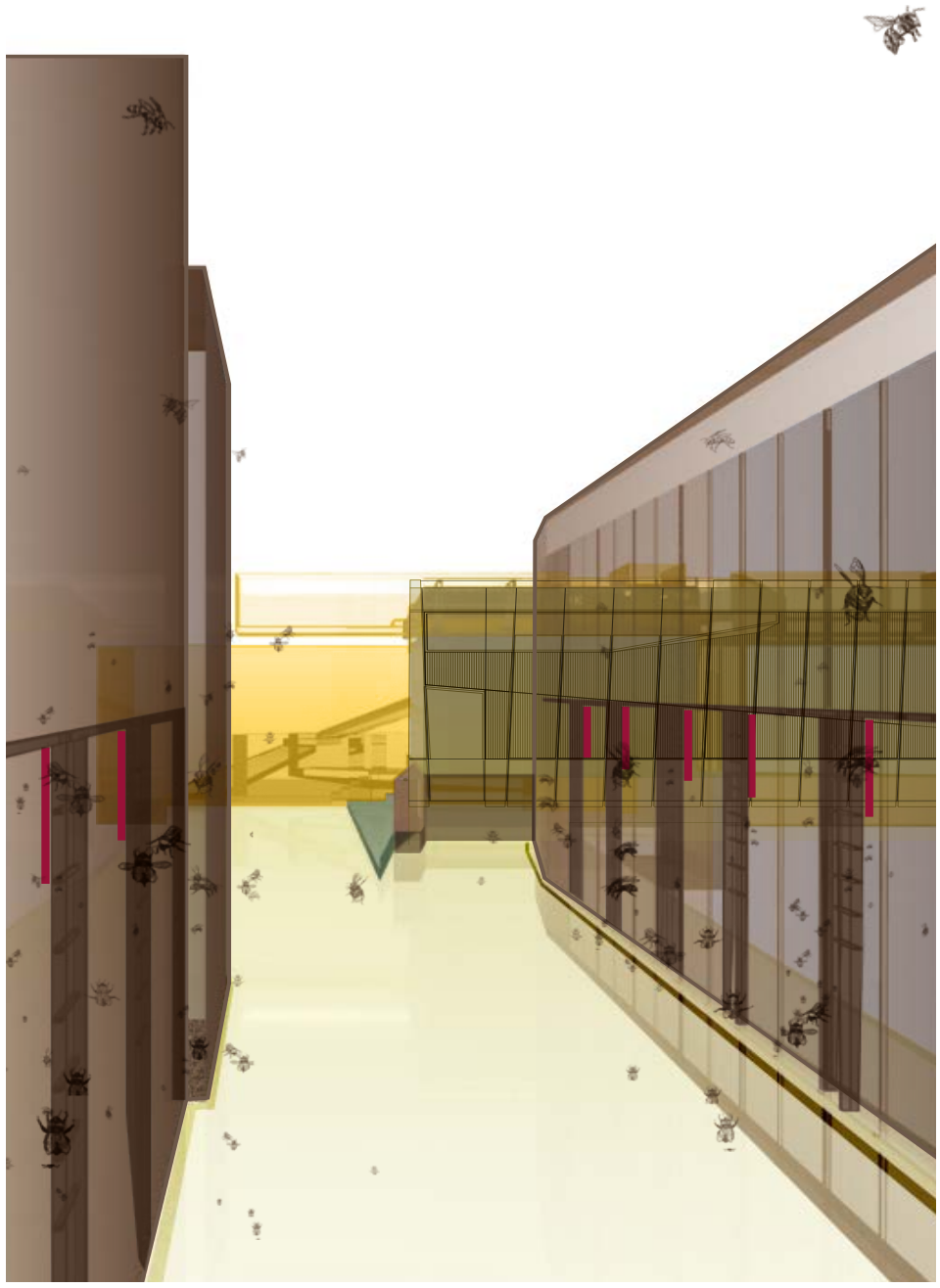
To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

ARCHITECTURAL OUTCOME - ENGINEERING THE VIEW

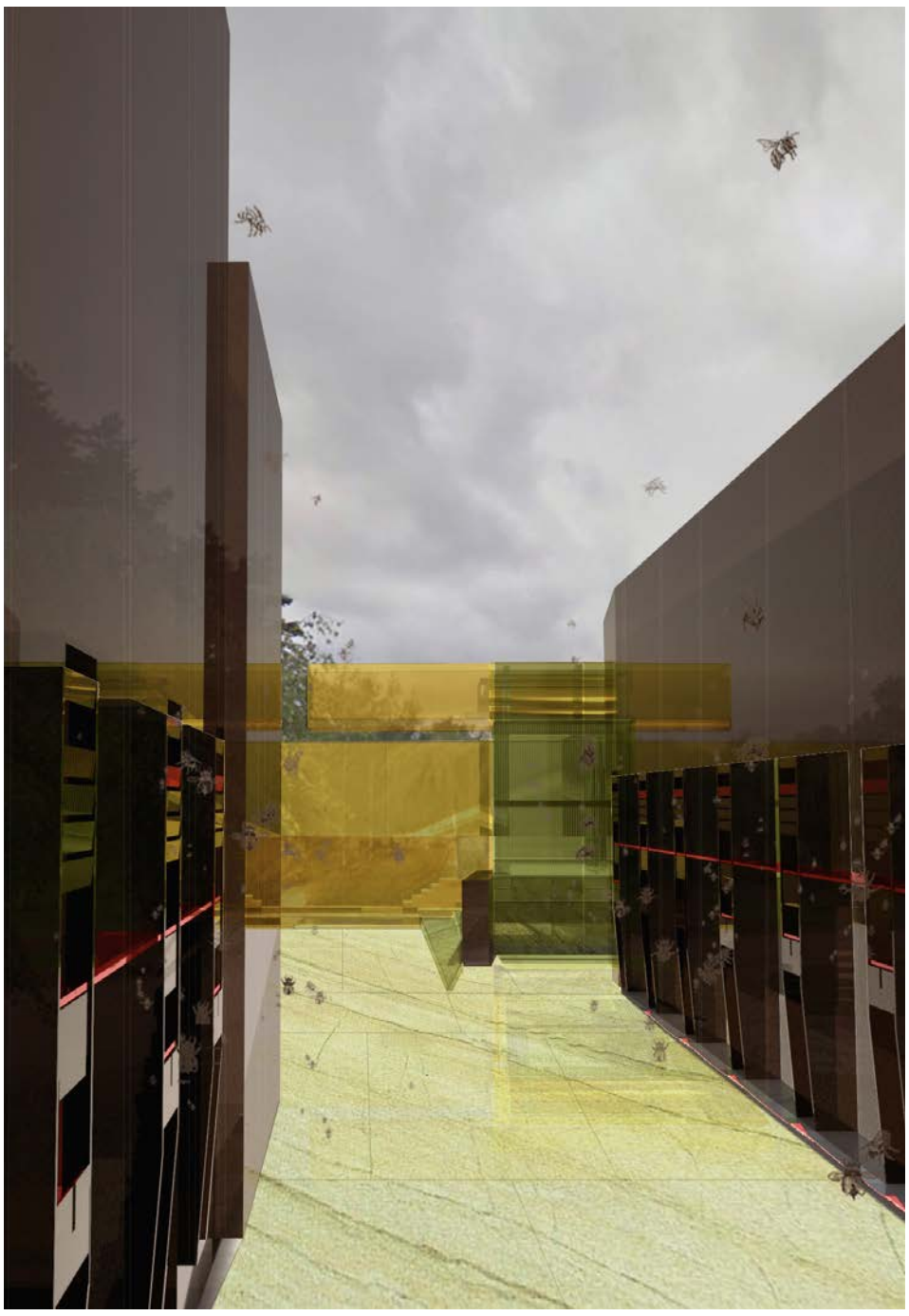
The surrounding images demonstrate how the External Bee Wall Postcard Moment has undergone a process of detailed design development. Like the other Postcard moments outlined within the document the aesthetic changes lie in the details of construction and performance such as increased build ups between layers of glass and the desaturation of RAL 8007 coloured interlayers to counteract the effect of laminating the glass elements. Another key factor that has resulted in developments from the early design intent image is the impact of inclusive design for the bee species. In order to create an attractive environment for bee colonies to settle within the glass hives a network of UV interlayers has been placed within the laminated glass structures. This is designed to form clearly marked out pathways and routes that assist in navigating through the attractive field of colour created within the development. A secondary red network has been developed to promote the rapid evolution of the bee species through a sugar based rewards system, satisfying criteria ix. This network can partially be seen by humans and must therefore be recorded in views submitted for planning.

Carlo Scarpa - Santa Maria Formosa Square, Steven Holl - Knut Hamsun Center, Reiulf Ramstad Architects - Trollstigplatået

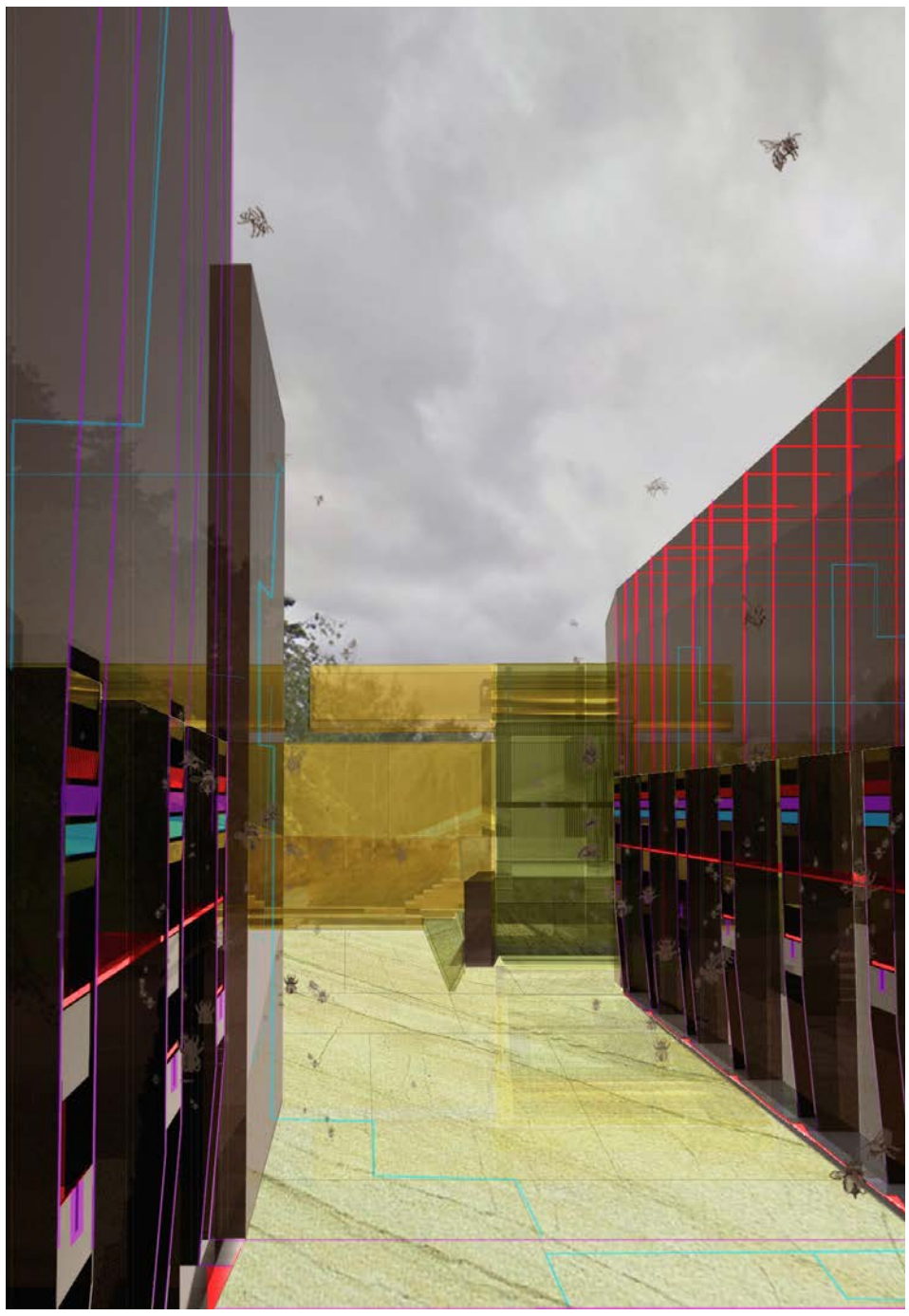
Design Intent - Layered glazing system to house bee colonies in framing external walls, red troughs to promote rapid evolution of the bee species to see red through a sugar rewards based system



Architectural Outcome
Rendering showing the resulting image of the layering of glass within the external wall to create the bee hives



Bee Vision - Visible UV , Red and Infrared networks within building components G-EW-B

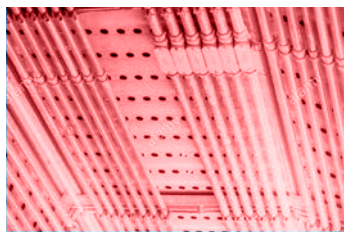


RAL 4012 RAL 8023 RAL 4009 RAL 8007

ONGOING EVOLUTIONARY DEVELOPMENT
G-EW-B

There are three key components within the building that will critically improve the site by satisfying three additional World Heritage selection criteria thus justifying the development on such sensitive sites. It is the delivery of these criteria that will set precedent to other World Heritage sites seeing to implement development, without the loss of UNESCO World Heritage status. Providing quantifiable evidence that these criteria are met will be difficult as the building continues to undergo periodical environmental and geological changes after the construction phase has completed. For this reason the criteria should be construed as being live with substantial input required from people and assembled additions to ensure that the criteria live on, constructing a timeless significance within the project.

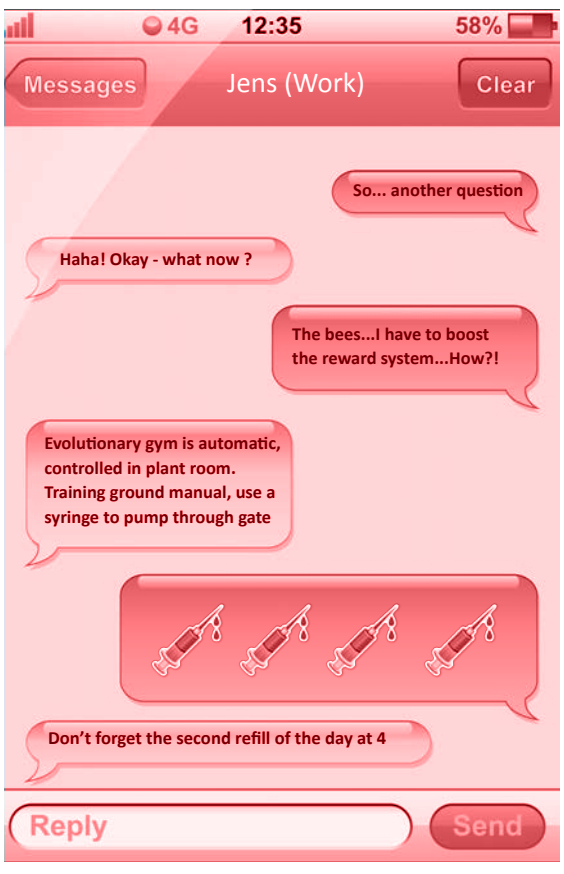
To preserve the life of criteria ix in an environment with constantly changing conditions a management strategy is critical for maintaining the optimum setting to encourage the evolution of the bee inhabitants. A management strategy and maintenance plan should be designed alongside the development of the bee modules during RIBA Stage 04 : Technical Design and outlined within the specification to be referenced throughout the operational lifespan of the building.

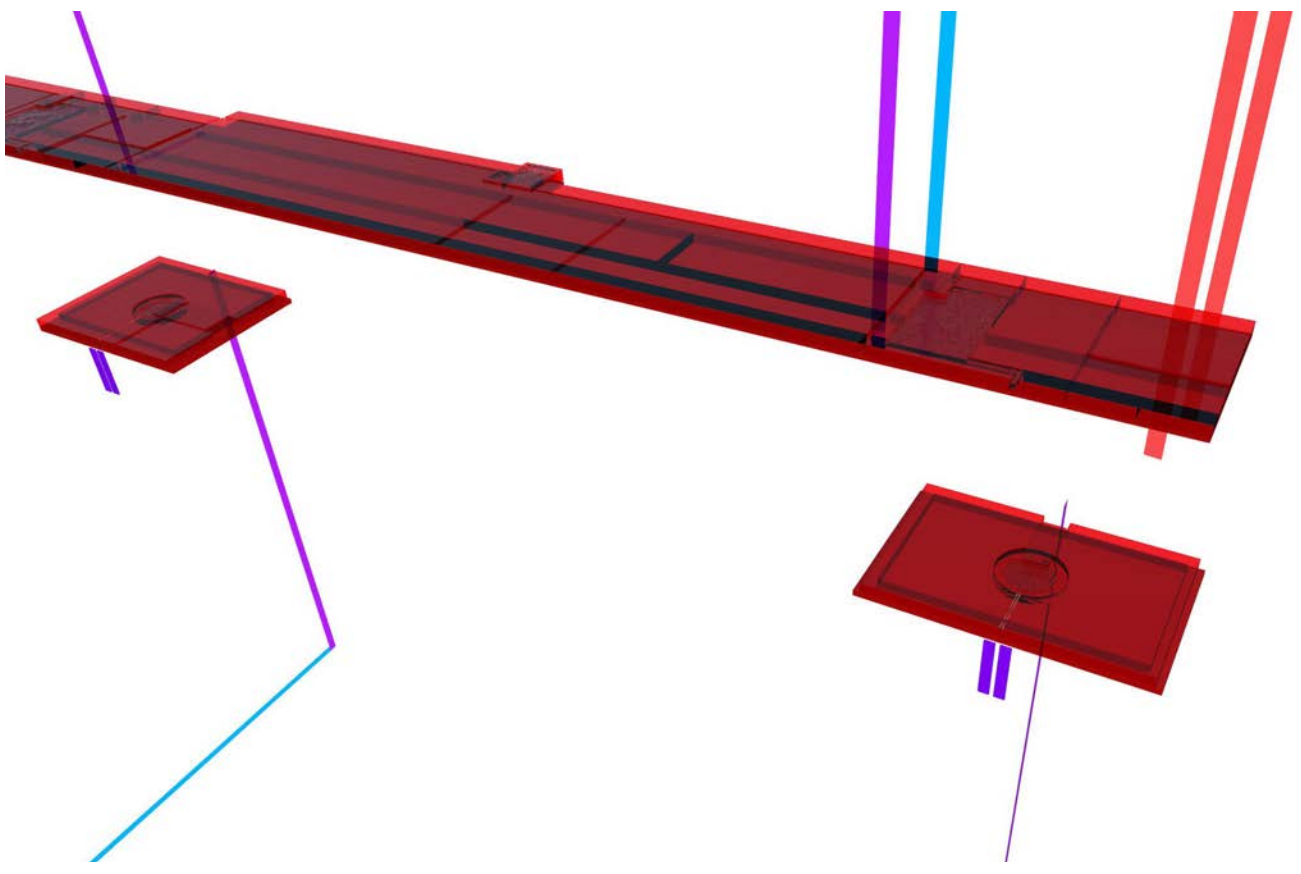


Automated pump to deliver sugar solution to the evolutionary gym through a micro tubed network set within the glazing system

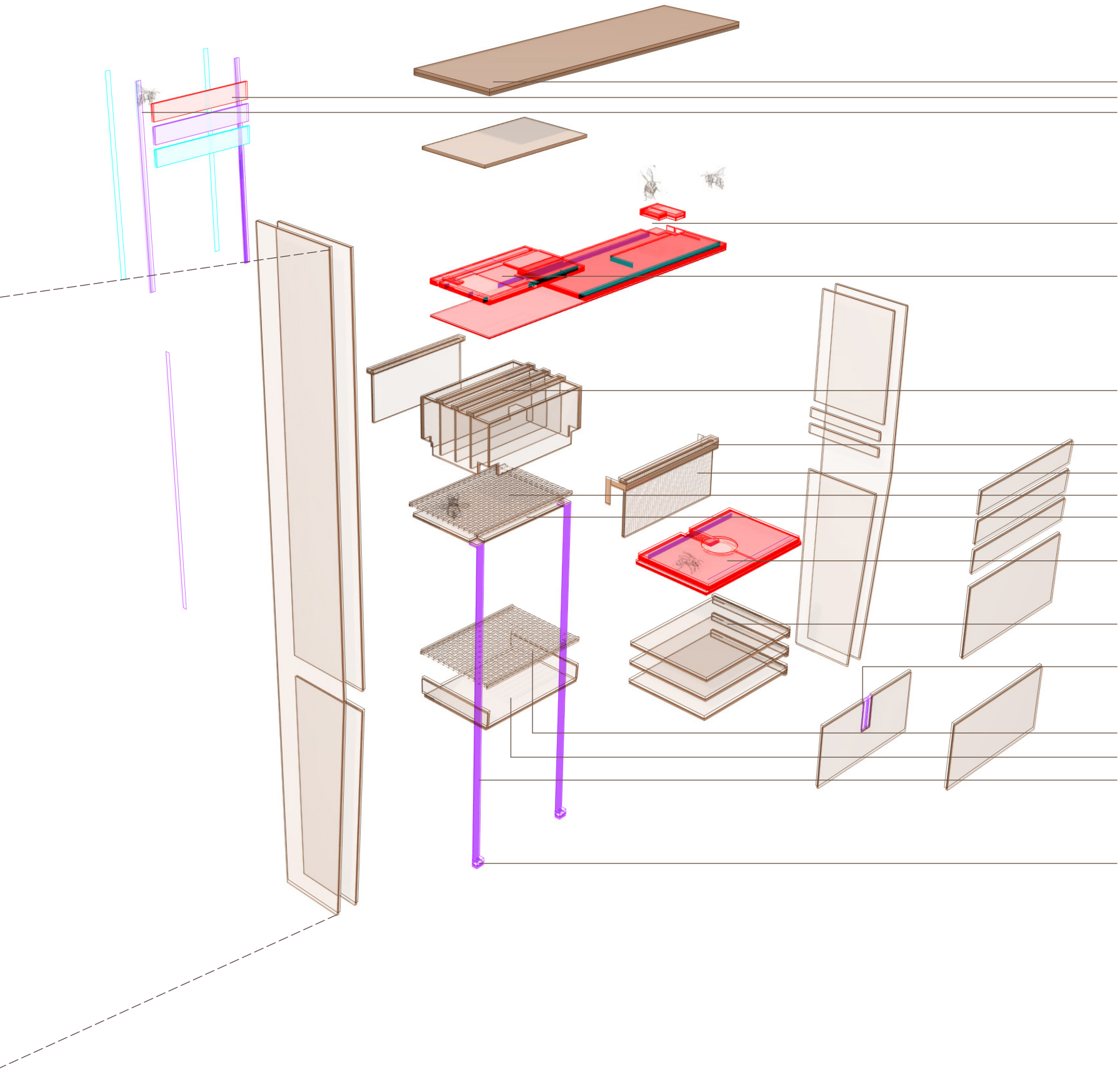
The overlay of UV information is invisible to the human eye and will only be seen using ultraviolet imaging(as shown in the opposite image). The red/ infrared network is partially visible to humans and must be more considered throughout the design of the bee networks for aesthetic effect. Integrating the networks within the existing pattern of layered glass build ups present within the walls and roof will create a unified proposal with subtle coloured accents without adding too much complexity to the design and fabrication/ construction methods. These pathways represent designed and predicted pathways of bee inhabitation which may not align with future changes in environment/ bee behaviour. In response to these unforeseen changes adhesive films can be applied to the glazing to alter and add to the network without deviating from the desired aesthetic and initial design intent set by the architects.

The rewards system should be monitored regularly to ensure that the bees are actively participating in the evolutionary strategy. Levels should be check twice a day and topped up as required with varying concentrations of sugar syrup used to create periods of greater interest





QUALIFYING EVIDENCE 03
BEE CASTS

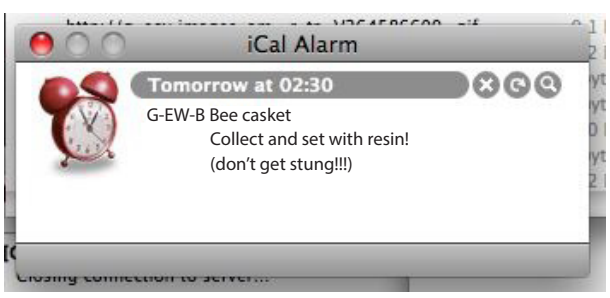


Specification: UNESCO clause for building element G-EW-B

G-EW-B must have provision for the removal of deceased bees.

This clause within the specification for building component G-EW-B ensures that removable components are integrated within the design of G-EW-B for the extraction of bees from the site to serve as examples of significant on-going evolutionary development within an animal species. These portable B-Caskets provide a mould for which to cast an individual bee into resin so that it can be sent to a UNESCO approved lab facility off site for evolutionary analysis. This serves in documenting the outstanding evolutionary processes that G-EW-B stimulates within the native bee population on site, satisfying criteria ix.

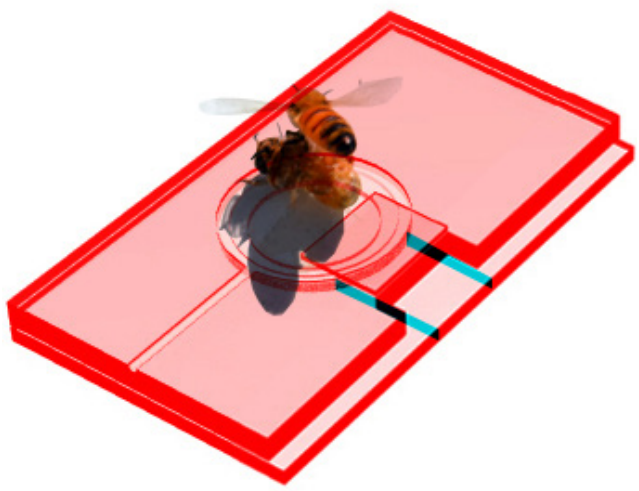
To provide substantial evidence to support the claim that this process is having an evolutionary effect on the bee species on the site a single bee must be collected each year. Once the new development has aged by 80years (the age of the existing site conditions upon competition of the new development in 2020) the 80 sacrificial bees collected over the lifespan of the development must be sent to UNESCO for further analysis to investigate the certainty and rate of evolution present within the bee sub-species.

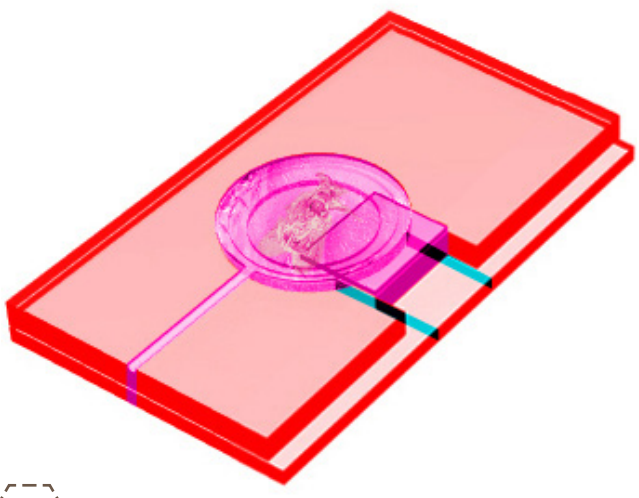


EVOLUTIONARY CHANGE - CONTROLLED SAMPLING

1. Undertaker bee to follow UV tracks from hive to drop off deceased bee in cast acrylic casket docked at the base of the bee module.

2. Member of the site staff to collect sample, by removing acrylic B-Casket from dock. Resin or similar can be used to cast bee into place for preservation purposes, like in amber. Control sample retained and stored on site until sample of 80 sent to UNESCO for analysis.





UNESCO-Crit IX

1:2 Details: Cast Acrylic Casket

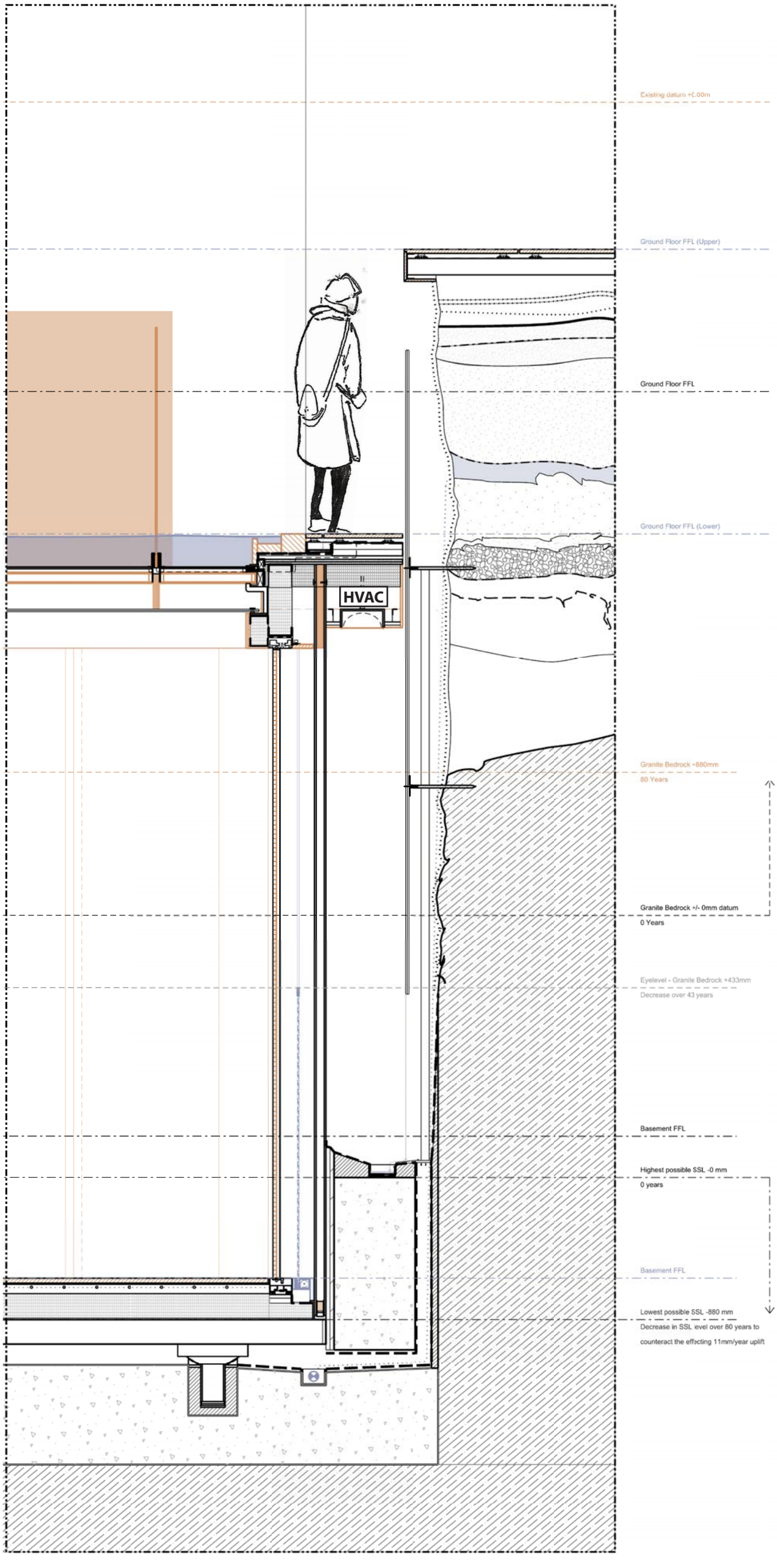
UNESCO

RAL 4012 RAL 8023 RAL 4009 RAL 8007

ONGOING GEOLOGICAL PROCESSES
G-RW-Composite

Although the progressive offset in level between the building and the uplifting ground has been incorporated into the design from the offset the cumulative effect of this disparity over time is unpredictable. Additional uncertainties such as a variation in rate of uplift for both the ground and the building or issues such as ground water interference could disrupt or inhibit the recording of this responsive shift. For this reason it is critical that relations with the Geotechnical Engineer and contractor is maintained to provide consultation throughout the defects period.

The most likely process to influence this recording of uplift is as a result of settlement within the ground works and foundation systems. A built in tolerance should allow for a datum to be set within the construction that can calibrate the building to offset any sinking. This one off ceremonial lowering of the building could serve as a marker for opening the building on site. UNESCO will make use of this opportunity in an event to showcase and publicly display the building.

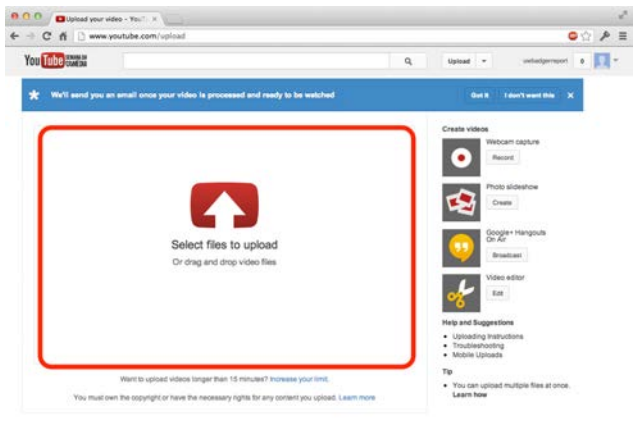


B1-D-S +80 years / +880mm
B1-D-S +0 years / +0mm acn be found on page 41
The effect of this conflicting movement is most evident within the Postcard Shop Courtyard Garden. As the ground shifts up a movement joint in the slab gradually exposes the earth's composition beneath. This is screened by a layer of safety glass for protection from falling elements and to depict the image of display in a gallery.

Any disparity between levels greater than 150mm will create problems concerning access and health and safety over the duration of use, adaptive construction measures will need to be taken to accommodate the offset in levels as part of the rolling defects inspections. Overtime this will require an additional assembly of elements around the consented proposal with a likely chance that additional planning consent will be required for construction. For this reason it is essential that the client (Skogskyrkogården site) will need to once again appoint the architect and contractor to deliver these adaptive solutions.

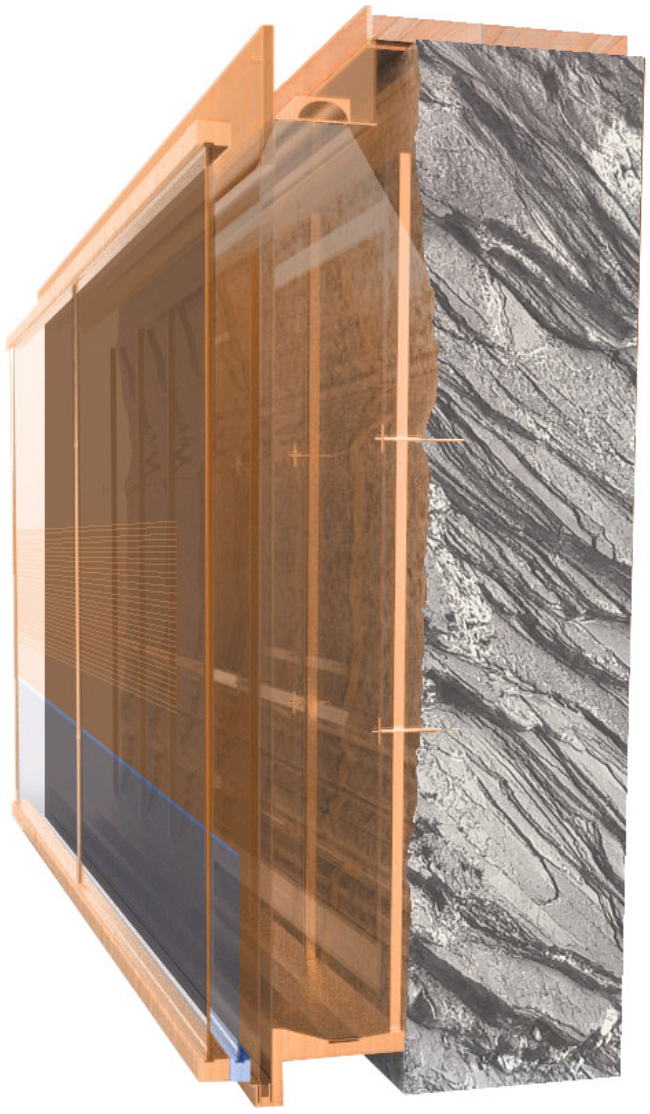
Specification: UNESCO clause G-RW-Composite
The postcard archive must observe and record the uplift experienced on site.

This clause evidences the on-going significant geological processes that causes the site to uplift by 11mm each year. In order to observe this tectonic uplift the building must counteract the movement to allow for this process to be visible. To achieve this the basement slab is fitted to a mechanised hydraulic lift foundation system that lowers the building continuously, balancing this uplift. This process will be recorded continuously as video footage throughout the year that captures the chromatic and compositional changes within the basement postcard archive postcard moment. This video footage can be played back in real time or quickened in speed to emphasise Stockholm's' outstanding example of geomorphic change demonstrating compliance with criteria viii.

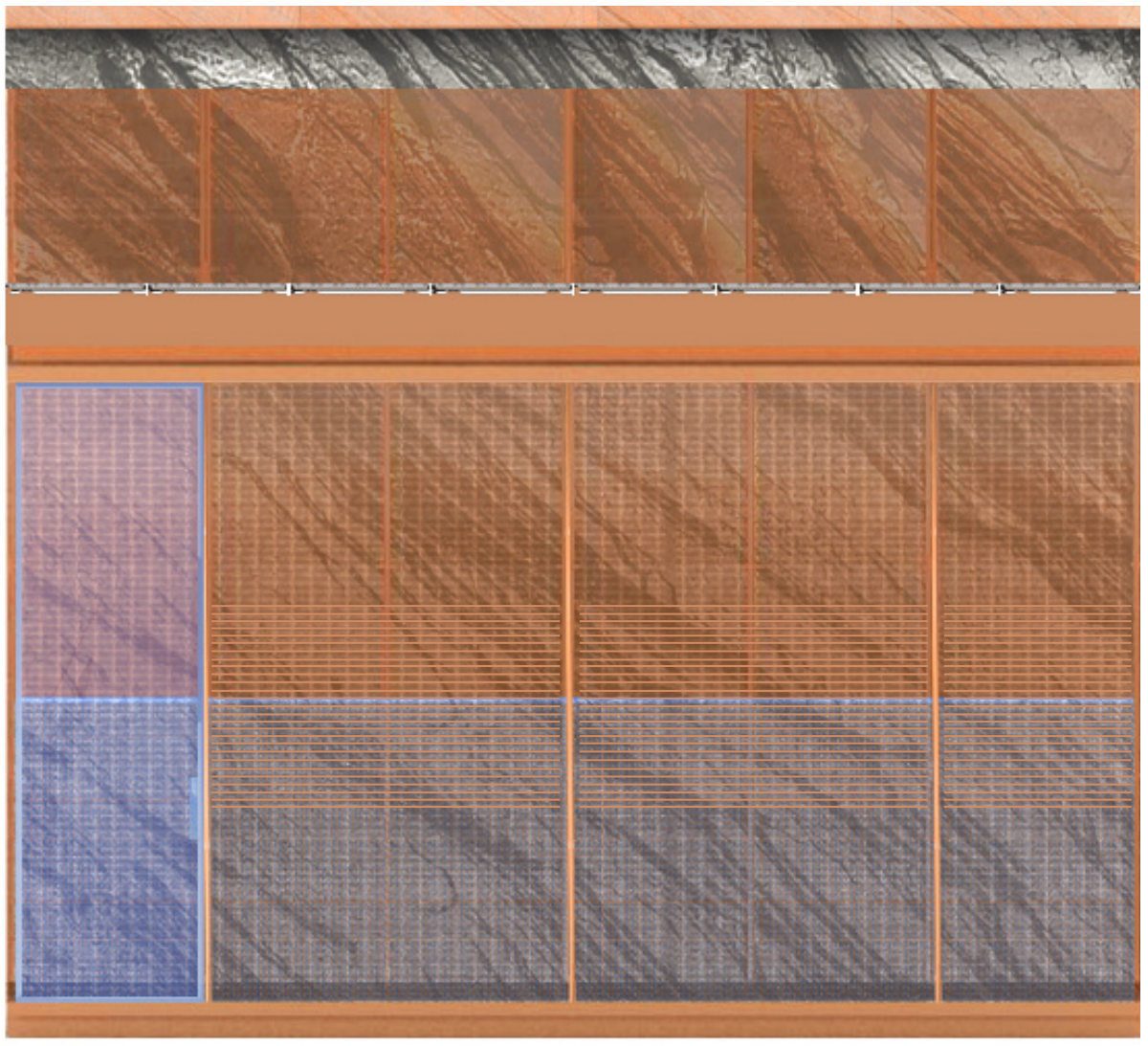


To provide complete quantifying evidence to support the delivery of criteria viii it is essential that the video footage recorded over the 80 year period is archived prior to the submission of evidence to UNESCO for investigation. It is proposed that all footage should be publicly assessable as a promotional tool for sustainable development on World Heritage sites. Video footage should not only be stored but can be shared onto sites such as You Tube for constant monitoring by UNESCO staff. These films can also be shown in cinemas and as arts installations exhibiting this unique record of timeless significance.

QUALIFYING EVIDENCE 02
VIDEO RECORDING



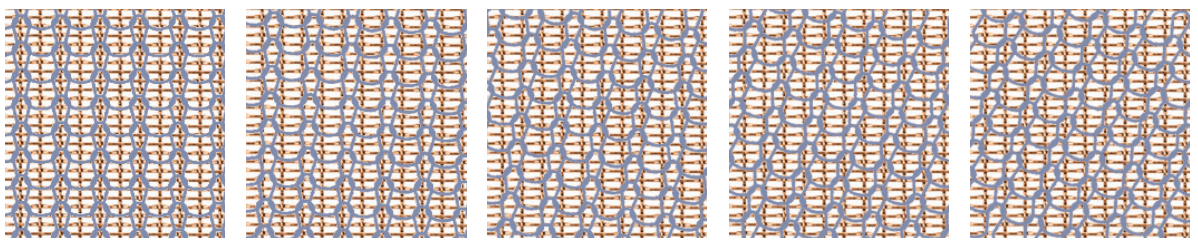
Left: Perspective section illustrating the conditions upon initial completion in 2020, blue fabric screen elevated to indicate location only
Right: Detail elevation showing building component G-RW-composite above and below ground in 2100 after +80 years / +880mm

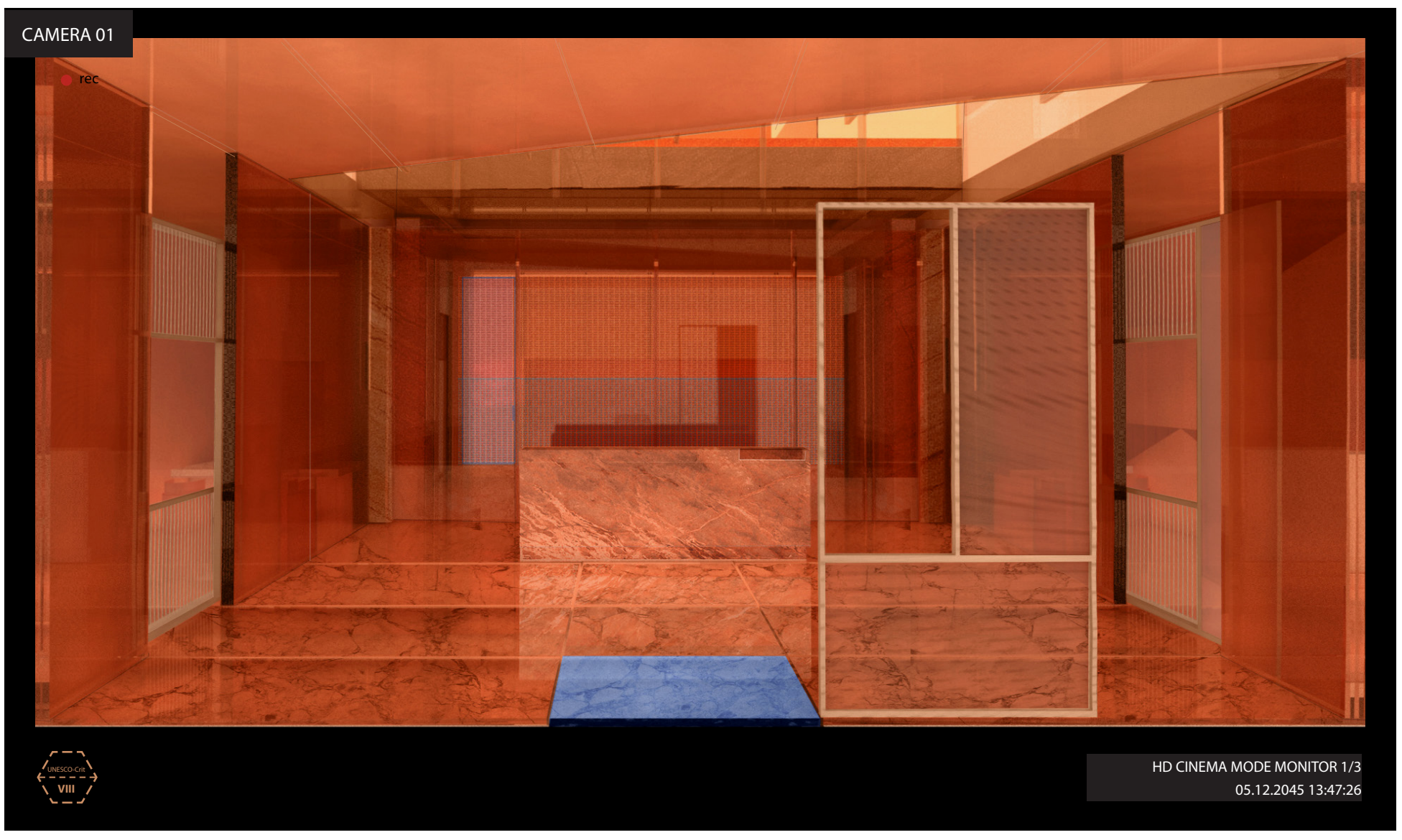


Accurate Recording

The delivery of criteria viii will ultimately be captured as video footage of the Postcard Archive Postcard Moment (see below) due to the distance of the granite from the camera lens and inability to accurately record the continuous changes hour by hour/ day by day, a coloured screen has been introduced into the design to provide a chromatic colour change that magnifies this change. Over time fabric rollers set within the floor will deploy a RAL 4012 wired fabric whose pattern overlays with that of the RAL 8023 mesh layer in the retaining wall and the 11mm spaced manifestations to create an overlapping interference pattern that quantitatively captures the geological performance of the building mm by mm for the close observer and as a definite chromatic change within the wider Postcard Moment.

1:2 Detail: Interference pattern created by overlapping 2 types of coloured mesh/ fabric





RAL 4012 RAL 8023 RAL 4009 RAL 8007

ONGOING SUPERLATIVE NATURAL PHENOMENA
RF-S-02

Due to the transparent qualities of the roof elements the light in the building is ever-changing in colour and quality, projecting a constantly evolving chromatic skyscape onto the floor surface within the postcard shop. The controlled fabrication and installation of the roof elements will play a key part in catching these projections accurately and delivering criteria vii. The accuracy when fabricating the individual glass components and when assembling the whole roof will determine the quality of the lighting effect and projections at ground level. The junctions between each component must be carefully crafted and sealed to avoid discrepancies in the recording of this climatic data.

For this reason 1:1 testing prototypes will be vital in developing the design of the glass elements in terms of performance and aesthetic effect to match that of the design intent (Postcard Images). These mock ups are likely to be commissioned as a separately costed exercise outside of the standard fee allocated for the specialist glazing fabricator. Although these test pieces should be considered as necessary landmark points within the program in order to achieve the whole building. The critical junctions/ colour effects tested on individual pieces on site at 1:1 will help define principles for all elements of that type and specification reducing the risk during actual fabrication and construction/ assembly.

During the design stages of the project basic parameters such as working tolerances, datum levels and Setting Out Points(SOP) should be agreed early on with the design team. These standards should be carried forward throughout the duration of the project to ensure that all consultants information is aligned, coordinated and constructed as accurately as possible within the realities of construction on site. The provision of low tolerances is fundamental when considering how much of an impact errors in accuracy could have on a predominantly glass building; slight errors in placement could completely alter how a reflective surface is perceived within the space. See images below for a comparison in the effect tolerance levels can have when accumulated over a Postcard Moment. Inability to meet the agreed tolerances could result in under-performance of the building or failure to deliver an additional criteria, a project requirement set by UNESCO. This shortcoming would result in a financial penalty to the responsible parties due to the in depth research and design that went into the design of the critical postcard moments alongside specialist consultants/ fabricators.

Specification: UNESCO clause RF-S-02

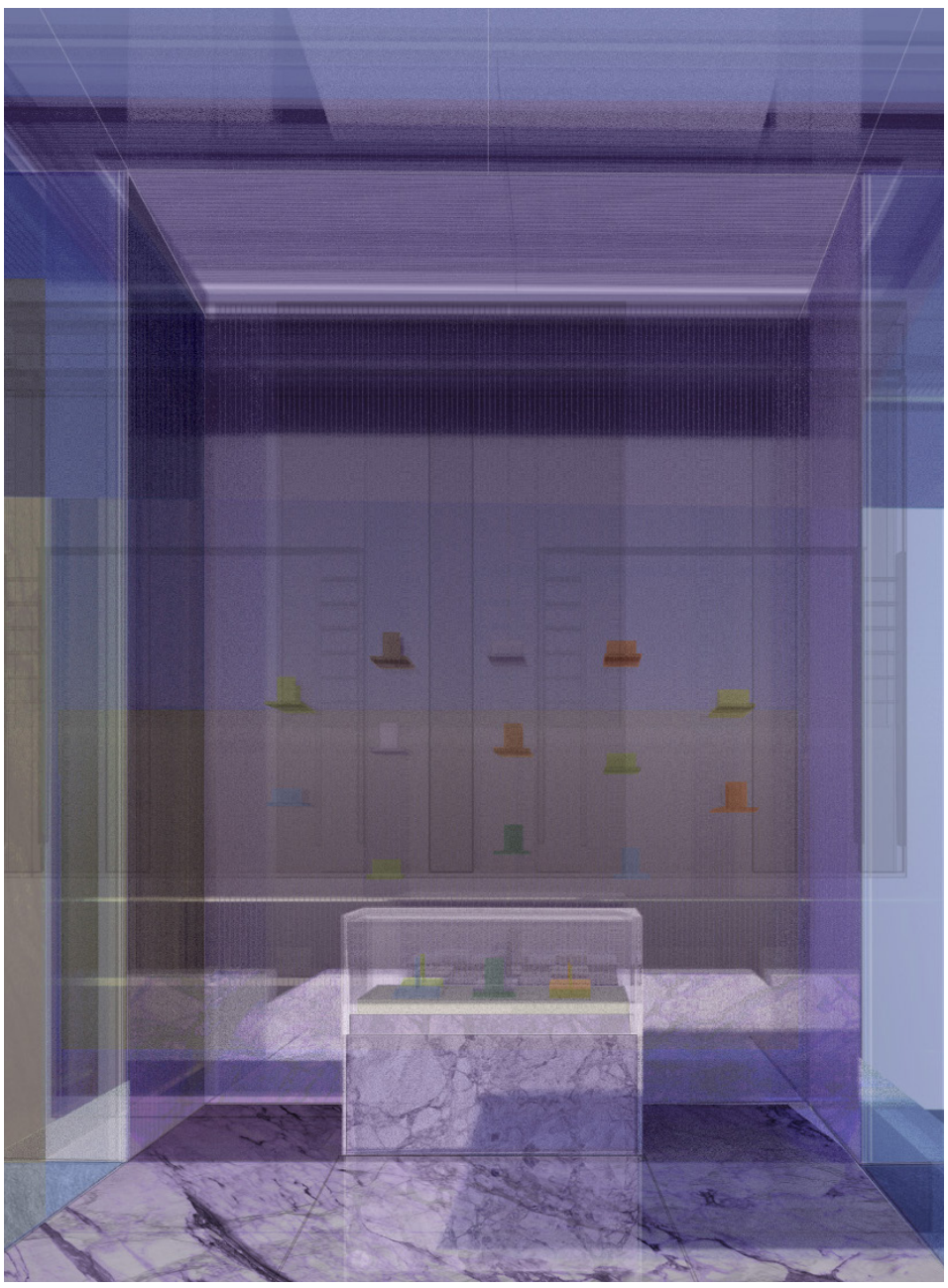
RF-N/S-02 must assist the floor surface within the postcard shop in accurately reflecting the external daylight conditions on the site over the period of 1 year and 1 day.

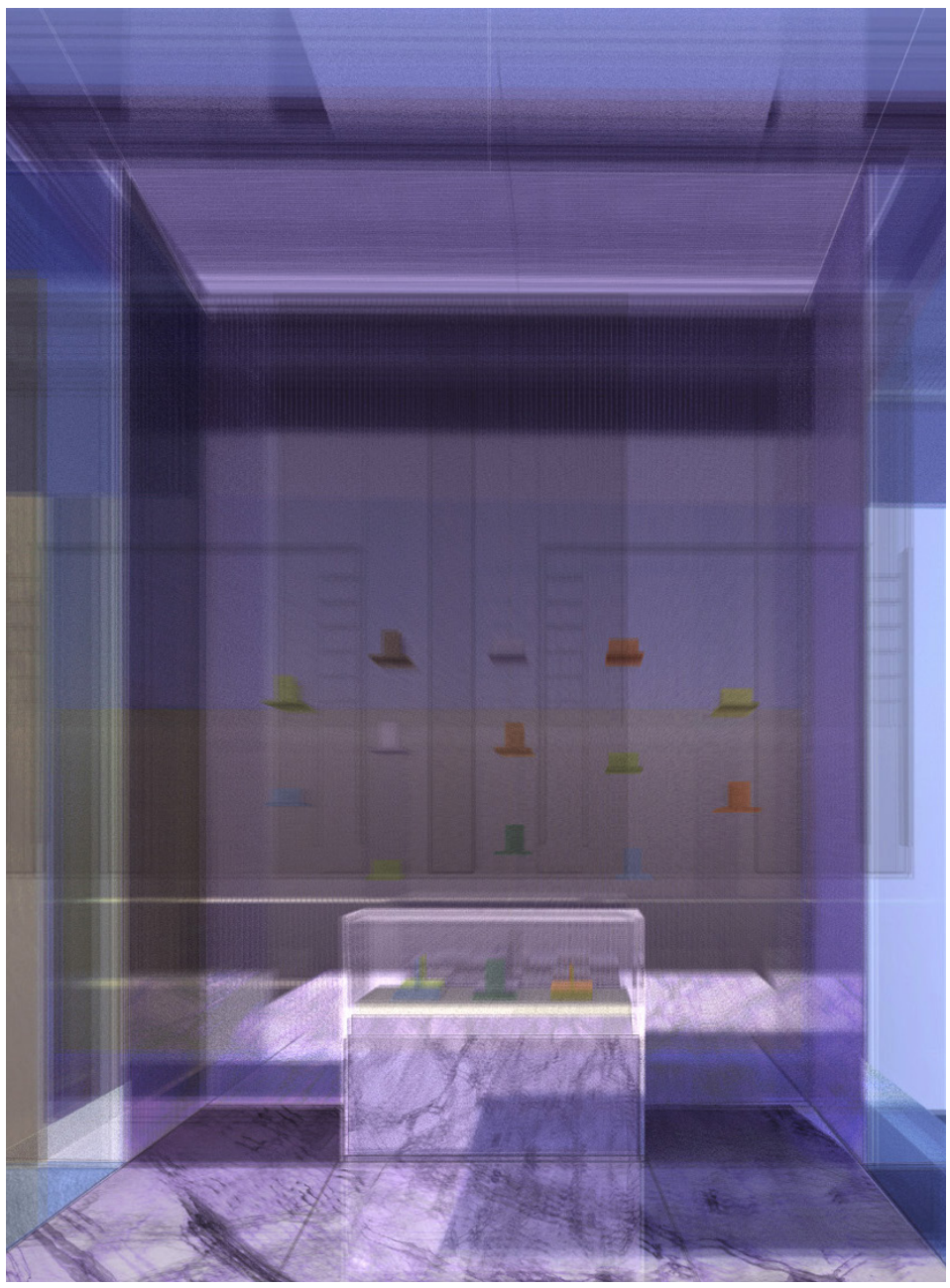
This clause secures the exhibition of superlative natural phenomena and aesthetic importance within the postcard shop by stipulating that a new photographic film must be fitted each year within the building as part of the post competition ongoing construction phase. The addition of each film will begin the recording of the following years lighting conditions, which will be unique. In order to accommodate for the installation of this new film each year the building will close for one day a year to reset for the upcoming year.

RF component RF-S-02 will be the most significant in safeguarding criteria vii as this elements sits over the postcard display, a key postcard moment within the building designed to best record the 'superlative natural phenomena'. The large 100mm thick acrylic skylight(RF-D-01 - Details can be found on page 51-52) has been designed as a sealed prefabricated unit to be manufactured under tight tolerances to record the finest of changes in light against an 11mm fabric screen that will cast measuring shadows against the floor.

Critical lighting qualities period the course of a year

Below Left: Main Display Area in Postcard Shop constructed to a tolerance of 0.5mm
Below Right: Main Display Area in Postcard Shop constructed to a tolerance of 11mm





QUALIFYING EVIDENCE 01
PHOTOGRAPHIC ARCHAEOLOGY

To complete the set of three deliverables required by the project to prove compliance with the required live criteria a filmic tapestry will build over the lifespan of the building. Each year a new film is overlayed onto the floor build up creating a laminated glaze. This filmic tapestry can be excavated from the building as an environmental archaeology to illustrate the variations in Scandinavian light as a chromic image.

Email Correspondence between Skogskyrokgarden site and specialist Photographic film fabricator

Re: 2100 Building Excavation
Eugnus replied on 17/11/2099 13:17.
To:
Hajalmar, Elsa
text.

159sqm/ 400mm thick filmic tapestry to be excavated over a 2 week period by a team of 6 archaeologists - there will definitely be something to see!

_____

On 3 Nov 2099, at 11:15, Hajalmar, Elsa <elsa.hajalmar@chromicfilm solutions.com> wrote:

Eugnus,
Yes this was brought up by Isabelle in during our last defects inspection. Do we get to see the dig?
Looking forward to it

E

_____

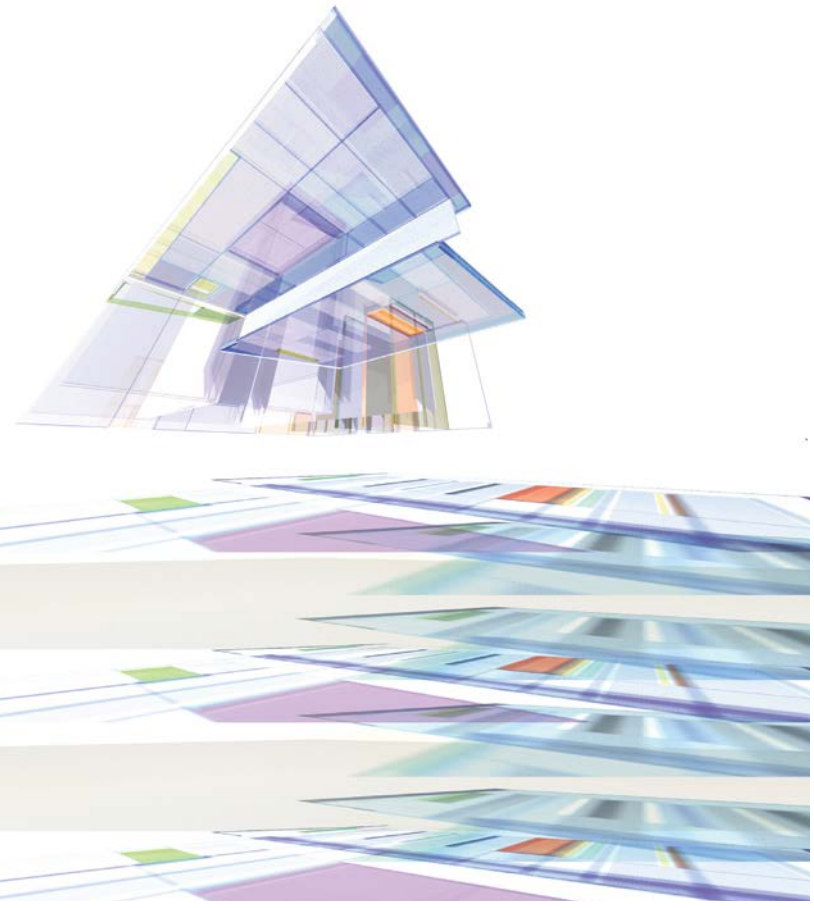
From: Folke, Eugnus
Sent: 01 November 2099 12:15
To: Travers-Jones, Joseph
Subject: Re: 2100 Building Excavation

Hi Elsa,

21st January 2100 marks our 80 year anniversary of the completion of Skogskyrokgarden's Return to Sender Postcard Shop. Under strict instruction from UNESCO we have begun to organise a celebratory event to mark the occasion with the seminal archaeological dig to remove the Photographic Film which you have provided for almost the last 80 years! Formal invite to follow but I just wanted to let you know so you could keep the date free in your diary.

I wanted to

Eugnus
Managing Director
Return to Sender Postcard Shop



kimkardashian

kimkardashian VII SKOGSKYRKOGÅRDEN ROOF
Kiki: Pinky Nude
Kim: Peachy Nude
Kimmie: Deep Nude
Kimberly: True Nude

load more comments

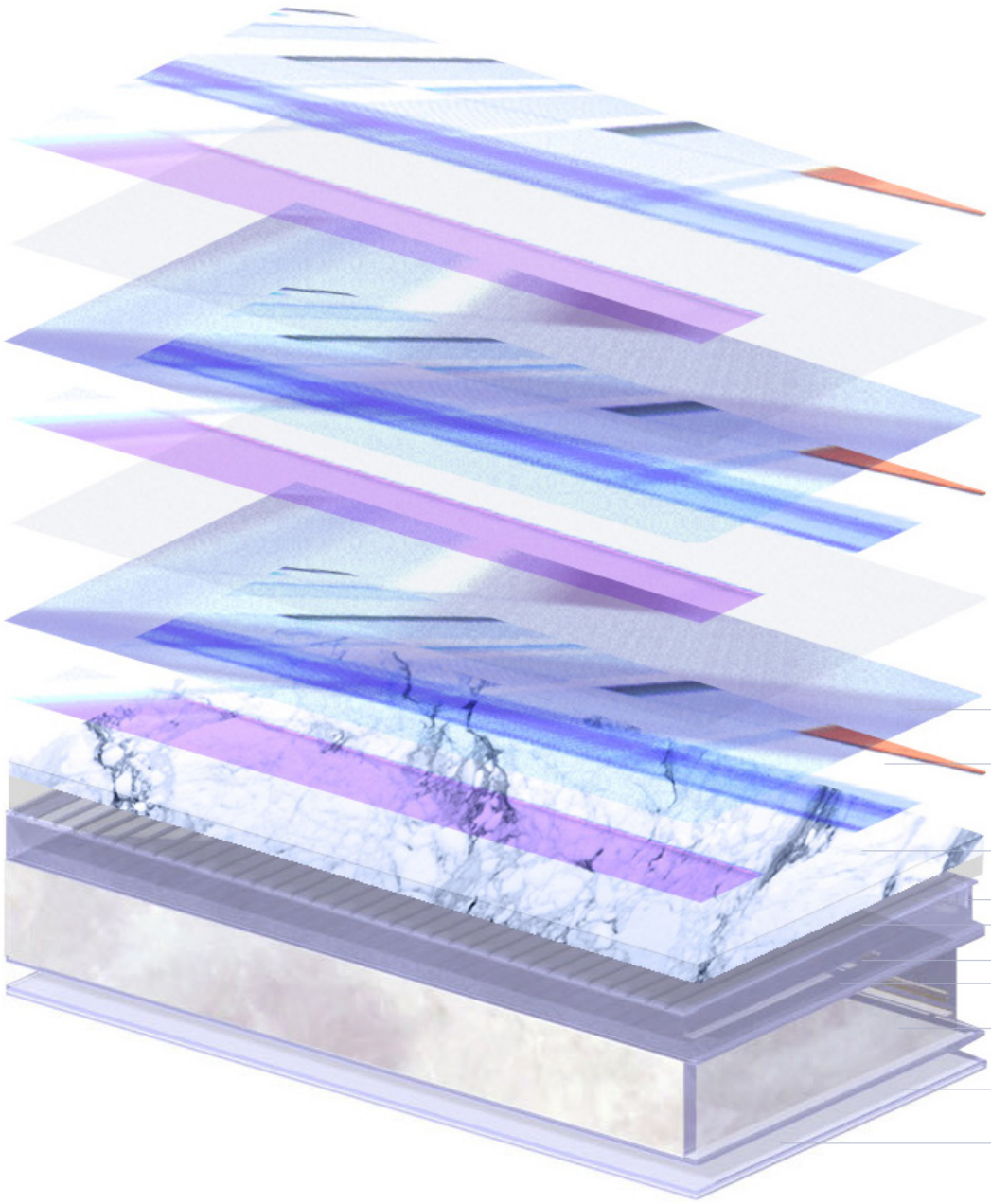
melicabrera_ Lb
mora_kyra Jaja plastic surgery same
igormaatheusss Wow
ygrmari Eu queria ter o cabelo lambido assim
vmes_
kseniya.makarova не реальная красотка
riya12_11 hotyy love you
laurabayybee Kylie went to the plastic surgeon like, "make me look just like Kim"
richardrafaeltoyo Eres demasiado

1,625,971 likes

2 DAYS AGO

Opposite Top: Cumulative recording of lighting qualities over time
Opposite: Celebrity interest and endorsement will assist in promoting the project, raising awareness and prestige of UNESCO Development Projects

William Morris - Tapestry The Brook
Layered Tapestry capturing a moment of superlative natural phenomena



UNESCO-Crit VII

1:10 Detail: Ascending Floor Build Up

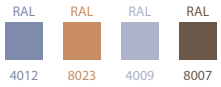
Lamination of films over time (increased build up by 5mm each year)
5mm Adhesive photographic film laid onto finished floor substrate

35mm RAL 4009 coloured marble floor slab

40mm concrete screed
Underfloor heating/ cooling system (embedded)
60mm base layer of concrete screed
Ply layering to form SSL

150mm Rigid Insulation
180mm Steel Structure
100mm additional service zone to allow for duct cross over etc
Suspended ceiling:
10mm Glazed internal finshies (2x5mm) RAL 4009 coloured
Cast acrylic suspended ceiling fixings at 1000mm intervals

UNESCO



PROOF TO ACKNOWLEDGE NEW LISTING CRITERIA

Return to Sender

UNESCO

U

N

10th December 2099

FAO:

Mr Nils Ludwig Jnr
Administration Office,
Skogskyrkogården. Sockenvägen.
122 33 Stockholm, Sweden.

RE:

80th Anniversary

Mr Ludwig,

Firstly I would like to thank you for the invitation to join you on the 21st January 2300 to celebrate the 80th Anniversary of the Return to Sender Postcard Shop on the Skogskyrkogården Site. I would be delighted to attend and I look forward to witnessing the excavation of the tapestries on the 27th January. With this in mind, I would like to take the opportunity to remind you that the due date for your submission of qualifying evidence in support of your application for listing as a UNESCO World Heritage Site is due for submission on 12th February 2300.

Articles provided should be as follows:

- Article 01: 1no 400mm Laminated Tapestry (80no x 5mm Photographic Film)
  - In support of Criteria vii application
- Article 02: 1no 700, 800 hour Video footage - In support of Criteria viii application
- Article 03: 80no Preserved sacrificial bee samples cast in resin - In support of Criteria ix application

On receipt of the submission of the above articles of qualifying evidence the submissions will be logged and processes within 4-6weeks. Should your application show conclusive evidence that the Skogskyrkogården Site now satisfies the above criteria by demonstrating the relevant natural, geological and evolutionary phenomena you will be awarded these additional titles and the site will be reinstated of its World Heritage Status. Should the articles fail to evidence these criteria then your site will be stripped of its previous World Heritage Status and all communication concerning the ongoing defects inspection and construction processes in relation to the Return to Sender project will cease with immediate effect.

Kind Regards,

Ms Anatole-Gabriel
UNESCO Chief Officer
Europe and North America Unit

E

S

SENDER:
Isabelle Anatole-Gabriel
Maison de l'UNESCO
7 Place de Fontenoy.
75007 Paris, France.

C

World Heritage Convention

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B - BIBLIOGRAPHY

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Return to Sender
A model for development on UNESCO World Heritage Sites