

# MUSEOLOGY

ESTABLISHING THE VISITOR'S INTERACTION BETWEEN  
RESEARCH, EDUCATION AND EXHIBITION IN THE  
DITSONG: NATIONAL MUSEUM OF CULTURAL HISTORY

by CARLI DE KLERK

December 2015



## PROJECT SUMMARY

Project title                      Museology. Establishing the visitor's interaction between research, education and exhibition in the Ditsong: National Museum of Cultural History

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Submitted in fulfilment of part of the requirements for the degree Master of Interior Architecture (Professional) in the Faculty of Engineering, the Built Environment and Information Technology  
UNIVERSITY OF PRETORIA

Research field                      Heritage and Cultural Landscape

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Language editor                    Andries de Klerk

December 2015

Site                                      Ditsong: National Museum of Cultural History  
Location                                149 Visagie Street, 25°45'09.7"S 28°11'05.7"E

## DECLARATION

In accordance with Regulation 49(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree Master of Interior Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.



Carli de Klerk



## ABSTRACT

This dissertation originated from a lifetime of museum visits and thus a passion for museum design.

The site is the Ditsong: National Museum of Cultural History located in Pretoria. The dissertation will argue that the Ditsong: National Museum of Cultural History has a well thought out organisational approach within their collection management. The museum's design approach to the interior however is not successful. The research surrounding the artefacts, the learning experience of the visitor and the exhibition design should all be linked.

This will create an opportunity to establish a physical and experiential link between the above mentioned aspects and to engage the visitor to create a lasting memory after their visit is complete. User experience will be argued to be the connecting element between research, education and exhibition.

This dissertation considered the interface between the museum visitor and the museum facilities, and how they can be connected through a design intervention to provide an optimum visitor experience at the Ditsong: National Museum of Cultural History.

The design intervention consisting of the ramped walkway, main entrance, foyer and atrium aims to create a positive first impression to visitors of the Ditsong: National Museum of Cultural History. The onset visitor experience of the museum aims to stimulate the visitor's curiosity and encourage them to keep returning.

## EkSERP

Die verhandeling se oorsprong lê in 'n lewe van museum besoeke en dus 'n belangstelling in museum ontwerp.

Die perseel is die Ditsong: Nasionale Museum van Kultuur Geskiedenis wat geleë is in Pretoria. Die verhandeling sal aanvoer dat die Ditsong: Nasionale Museum van Kultuur Geskiedenis 'n goed deurdagte organisatoriese benadering het in hul versameling administrasie. Die museum se ontwerp benadering to die interieur is nie suksesvol nie. Die artefakte se omringende navorsing, die besoeker se leer ervaring en die uitstalling ontwerp moet verbind wees.

Dit sal 'n geleentheid bied om 'n fisiese en ervaringsgewyse verbintenis te tref tussen die bogenoemde aspekte en om die besoeker te betrek om 'n blywende herinnering van die museum te skep. Besoekerservaring sal aangevoer word as die verbindende element tussen navorsing, leer ervaring en uitstallings.

Die verhandeling het die interaksie tussen die besoeker en museum fasiliteite ondersoek asook hoe bogenoemde aspekte verbind kan word deur 'n ontwerp ingryping.

Die ontwerp ingryping wat bestaan uit 'n aantrede, hoof ingang, portaal en atrium, poog daarin om 'n positiewe eerste indruk te vorm van besoekers aan die Ditsong: Nasionale Museum van Kultuur Geskiedenis. Die eerste besoek ervaring van die museum poog daarin om die besoeker se nuuskierigheid aan te wakker en om die besoeker aan te moedig om terug te keer.

## KEYWORDS

Museology  
Ditsong: National Museum of Cultural History  
Visitor interaction  
Atrium  
Reception

## SLEUTELWOORDE

Museum studie  
Ditsong: Nasionale Museum van Kultuur Geskiedenis  
Besoeker interaksie  
Atrium  
Ontvangs



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# CHAPTER 1

## INTRODUCTION



Figure 1.1.1. Ramped walkway to main entrance of the Ditsong: National Museum of Cultural History.



# “(IT) SHOULD MAKE YOU THINK, THERE IS NO POINT IN DOING IT IF IT'S NOT GOING TO CREATE SOME SORT OF EMOTION” (MQUEEN 2011:12).

## 1.1. BACKGROUND

This dissertation originated from a lifetime of museum visits and thus a passion for museum design. There are various definitions used to describe museums. Museums are, according to the International Council of Museums (ICOM) ...

“... a non-profit making, permanent institution in the service of society and of its development, open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, the tangible and intangible evidence of people and their environment” (ICOM 2010).

The South African Museums Association (SAMA) defines museums as ...

“... dynamic and accountable public institutions which both shape and manifest the consciousness, identities and understanding of communities and individuals in relation to their natural, historical and cultural environments, through collection, documentation, conservation, research and education programmes that are responsive to the needs of society” (SAMA 2013).

The process of establishing the discourse of this dissertation is the choice of site, the Ditsong: National Museum of Cultural History (Figure 1.1.1.), a museum located in Pretoria's CBD. The existing museum is outdated in terms of front of house, initial impression and its exhibitions and is in need of rejuvenation.

The way in which information and artefacts are made available to visitors is becoming increasingly interactive. Interactive in this sense means interacting with the visitor physically and experientially. “Designing today's exhibition spaces is about creating an atmosphere where visitors inherently understand that there is a magnetic attraction to the (object)” (Rumler 2009).

Visitors should be enticed into learning. In traditional museum design, information is communicated through text and images, and what or how the visitor absorbs this information is up to them. There are three basic methods of gathering information, through words (both heard and read), sensations and images (visual stimulation being the strongest, most memorable method). (Dean 1994:26).

Museums deprive objects of their contexts by bringing them to a central repository for interpretation to the public. In some instances the museum may reconstruct a context but the original spirit is lost. As technology's influence begins to increase, more museums begin to incorporate 'immersive', 'theatrical', 'state-of-the-art' or 'destination' experiences into their facilities. (McKenna-Cress 2013:175.) These types of environments are designed to evoke an emotional response from the visitor and to enhance their experience.

Visitors should be allowed to interpret the museum and its objects in their own way, while still understanding the facts supplied. This visitor interpretation starts with the initial glance at the museum and is reinforced by their first interaction with museum facilities. “(E)ach visitor learns in a different way, interpreting information from their previous knowledge, experience, and beliefs” (McLean 1997:82).

“You never get a second chance to make a good first impression” (Rumler 2009). The impression given by the museum may be altered by

the exhibitions within the museum, but the overall first impression will be the lasting impression.

The design intervention will aim to revitalise the museum, by investigating the user's interaction with museum facilities. According to McLean (1997:78) there are four factors that dictate the visitor's decision to visit the museum, these are “awareness, accessibility, relevance to the visitor and perceptions of the museum”.

The theory of museums – museology – is researched to understand how museums function, how international museums apply the standards set out by the International Council of Museums and thus how the Ditsong: National Museum of Cultural History should apply these standards as well.

## 1.2. PROBLEM STATEMENT

“Museums are always evolving, always adapting to changing circumstances” (Vollgraaff 2013:23). Although the Ditsong: National Museum of Cultural History has been designed specifically to host rotating and temporary exhibitions, this element of adaptability is not evident within the museum.

Many existing museums in South Africa are aimed at complying with council standards in terms of collection management and not in terms of the physical manifestation of these standards. Whereas new museum developments do strive towards excellence in museum design. (SAMA 2006.) The study will argue that the Ditsong: National Museum of Cultural History is on the verge of becoming obsolete as a visitor attraction due to its outdated design. The design challenge of the museum will be to attract new visitors and engage returning visitors.

Lighting plays an important role in museum design. The current lighting conditions of the Ditsong: National Museum of Cultural History is not appropriate to help shape the visitor's museum experience.

This dissertation will argue that the Ditsong: National Museum of Cultural History has a well thought out organisational approach within their collection management, the museum's physical approach with regards to research, education and exhibition are not connected. The museum's design approach to the interior however is not successful. The research surrounding the artefacts, the learning experience of the visitor and the exhibition design should all be linked. This will create an opportunity to establish a physical and experiential link between the above mentioned aspects and to engage the visitor to create a lasting memory after their visit is complete. User experience will be proven to be the connecting element between research, education and exhibition.

## 1.3. RESEARCH QUESTION

How can the visitor's interaction between research, education and exhibition be established in an integrated manner within the Ditsong: National Museum of Cultural History?

### 1.3.1. Sub-questions

- What is the underlying link between research, education and exhibition within the existing Ditsong: National Museum of Cultural History?
- How can the intervention allow for a better visitor interaction with museum facilities?
- How can the museum spaces be made understandable for various types of visitors?
- How does user interaction improve user experience?

#### 1.4. Aim / Objectives

- Define the link between research, education and exhibition.
- Encourage interaction between visitors, between visitors and displays and between visitors and museum facilities.
- Create a memorable onset to the visitors' museum journey.
- Establish an experiential environment for visitors to fulfil their museum journey.

#### 1.5. Methodology

##### 1.5.1. RESEARCH METHODS

###### 1.5.1.1. LITERATURE REVIEW

A review of relevant literature on museology, learning theory, and the history of the Ditsong: National Museum of Cultural History will be conducted. Where available, primary sources will be given preference, while secondary sources will be used as supporting research. According to Groat and Wang (2002: 60) primary sources are original sources relevant to the topic, secondary sources are sources that comment upon the primary sources.

###### 1.5.1.2. OBSERVATION AND DOCUMENTATION

Observations conducted as part of site visits are documented in the form of notes, sketches and photographs. "If you are observing people, you can choose between two common ways to observe: participant observation and unobtrusive observation" (Driscoll 2011:160). The observation method that will be used is unobtrusive observation. Unobtrusive observation will occur in public spaces where people will not notice an 'intruder' to their experiences. This relates to the flaneur who "removes himself from the world while he stands astride its heart" (Stephen 2013). The flaneur disassociates himself from his surroundings to observe at a distance, the flaneur is thus an unobtrusive observer.

##### 1.5.1.3. CRITICAL REFLECTION

Critical reflection will involve the documentation of multiple experiences within the Ditsong: National Museum of Cultural History. This will involve the denoting of feelings, reactions and evaluations. These situations will be critically analysed to come to a conclusion that will in turn influence further investigations. (Kenny 2010)

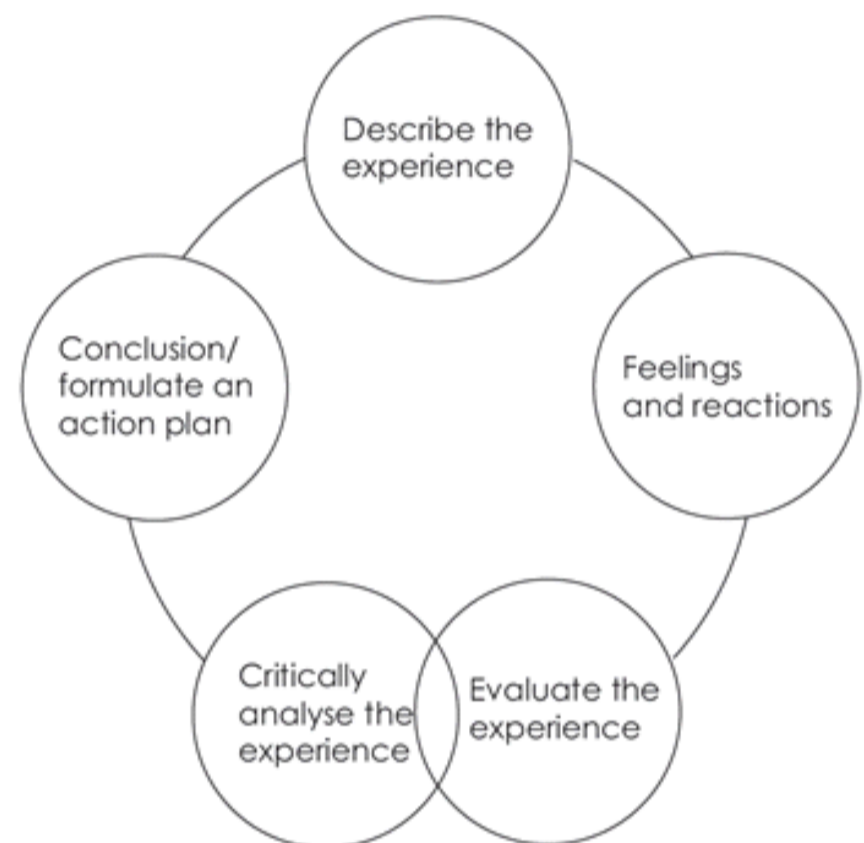


Diagram 1.1. Process of critical reflection. (Adapted from Kenny 2010).

##### 1.5.1.4. PRECEDENT AND CASE STUDIES

Appropriate precedent and case studies will be researched. These studies will relate to the project in terms of typology, conceptual approach and technical resolution. Museums that were physically visited will be used as case studies. These precedents will be critically analysed to help inform the design. Typological precedents will include entire museums and museum facilities (information area, exhibitions, wayfinding). Precedents on conceptual approach will be researched to inform the conceptual development of the design and act as inspiration to enrich the design. Precedents that will inform the technical resolution of the project will include the relation to technical aspects and theory application (museology, visitor interaction, learning environments, wayfinding systems). All these studies will enrich the design process and thus the final design as well.

## 1.6. DEFINITIONS AND ABBREVIATIONS

The following definitions and abbreviations are used in the study.

CBD	- Central Business District
D:NMCH	- Ditsong: National Museum of Cultural History This abbreviation is used to separate the Ditsong: National Museum of Cultural History from other Ditsong museums.
ICOM	- International Council of Museums
Museology	- The study of museums
SAMA	- South African Museums Association

## 1.7. AREA OF FOCUS

The study will focus on key areas within the D:NMCH. On a zoning level, the entire building will be considered, however on a detailing level the design intervention will be limited to the ramped walkway from the parking lot to the main entrance, the foyer and the open gathering space. These spaces have been purposely selected as they are the first spaces encountered before the visitor begins viewing the exhibitions. They are critical in creating a first impression and stimulating the visitor's curiosity. A temporary exhibition on ground level will also be included in the design. These key areas will serve as an introduction to a language for future intervention in the museum.

## 1.8. OUTLINE OF STUDY

The order in which the study chapters are arranged reflect the process I followed within the project. The dissertation starts with site choice and context study, a theoretical investigation, which informs the design development.

Chapter 1 - Introduction and problem statement.

An overview is given on the study. The research question is established: *How can the visitor's interaction between research, education and exhibition be established in an integrated manner within the D:NMCH?*

Chapter 2 – Context and site analysis

This chapter will investigate the context in terms of immediate site, the D:NMCH itself and personal museum experience at the D:NMCH.

Chapter 3 – Theoretical investigation

Museology and the evaluation of the D:NMCH are the main focus of this chapter.

Chapter 4 – Design discourse

Precedents, case studies and design development are analysed in this chapter. The final design will be explained and documented.

Chapter 5 - Technical investigation

The technical investigation will include detail design and other related technical aspects.

Chapter 6 – Conclusion

A resolution to the research question and problem statement will be given together with recommendations.

## 1.9. CONCLUSION

The project will focus on the key areas (ramped walkway, main entrance, the foyer and the open gathering space) in the D:NMCH to provide the visitor with a good first impression of the museum and to stimulate their curiosity.

The research questions highlight the visitor's interaction with the museum facilities and will inform the project going forward.





# CHAPTER 2

## CONTEXT

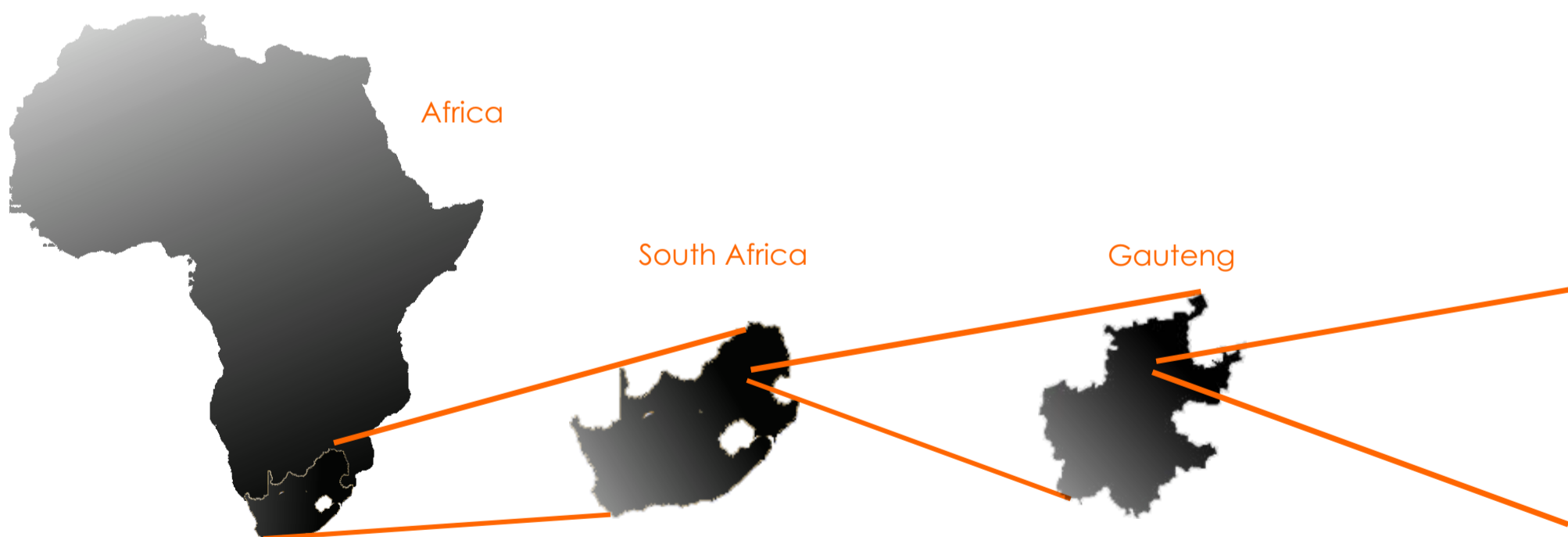


Figure 2.1. Location of museum in greater context



## 2.1. INTRODUCTION

This chapter investigates the chosen site within the context of Pretoria CBD, the chosen building, Ditsong: National Museum of Cultural History, and the client, Ditsong museums of South Africa.

## 2.2. PRETORIA

The site, Ditsong: National Museum of Cultural History (D:NMCH) is situated on Visagie Street between Bosman and Sophie de Bruyn Streets in Pretoria, Gauteng. The CBD is vibrant with diverse functions in close vicinity of one another. Activities are dispersed throughout Pretoria CBD, which also has “a growing tourism sector that contributes to job creation and investment” (Ganief and Thorpe 2013). A growing tourism sector indicates that increasingly more people, local and international, use these facilities. It includes the D:NMCH, which supports this dissertation's intention to revitalise the museum by means of investigating the visitor interaction with the museum facilities.

There are many tourist attractions in the city centre, as seen in figure 2.2.1. This image shows the location of other museums, some associated with Ditsong Museums of South Africa.

Ditsong museums visible on Figure 2.2.1 include: National Museum of Natural History, National Museum of Cultural History and Kruger Museum. Other Ditsong museums not seen on this figure are: National Museum of Military History; Pioneer Museum; Sammy Marks Museum; Tswaing Meteorite Crater and Willem Prinsloo Agricultural Museum. It is noteworthy that there are other museums also associated with Ditsong Museums of South Africa. These museums interact with each other on an organisational level in terms of collection management, as well as referring visitors to the other museums. There is the opportunity to include combination tickets where visitors can purchase tickets to visit more than one museum. This creates incentive to visit more museums in close vicinity to one another.

Pretoria CBD is accessible by various means of transport (Figure 2.2.); these include the Gautrain with its busses; metro busses; A Re Yeng bus system; private vehicles and pedestrian access. By investigating the access modes to the CBD, specifically the area surrounding the D:NMCH, an understanding is generated of the way in which visitors can arrive at the museum. There is an opportunity to view these modes of transportation as a possible place where the promotion of the museum can be exposed to the general public.

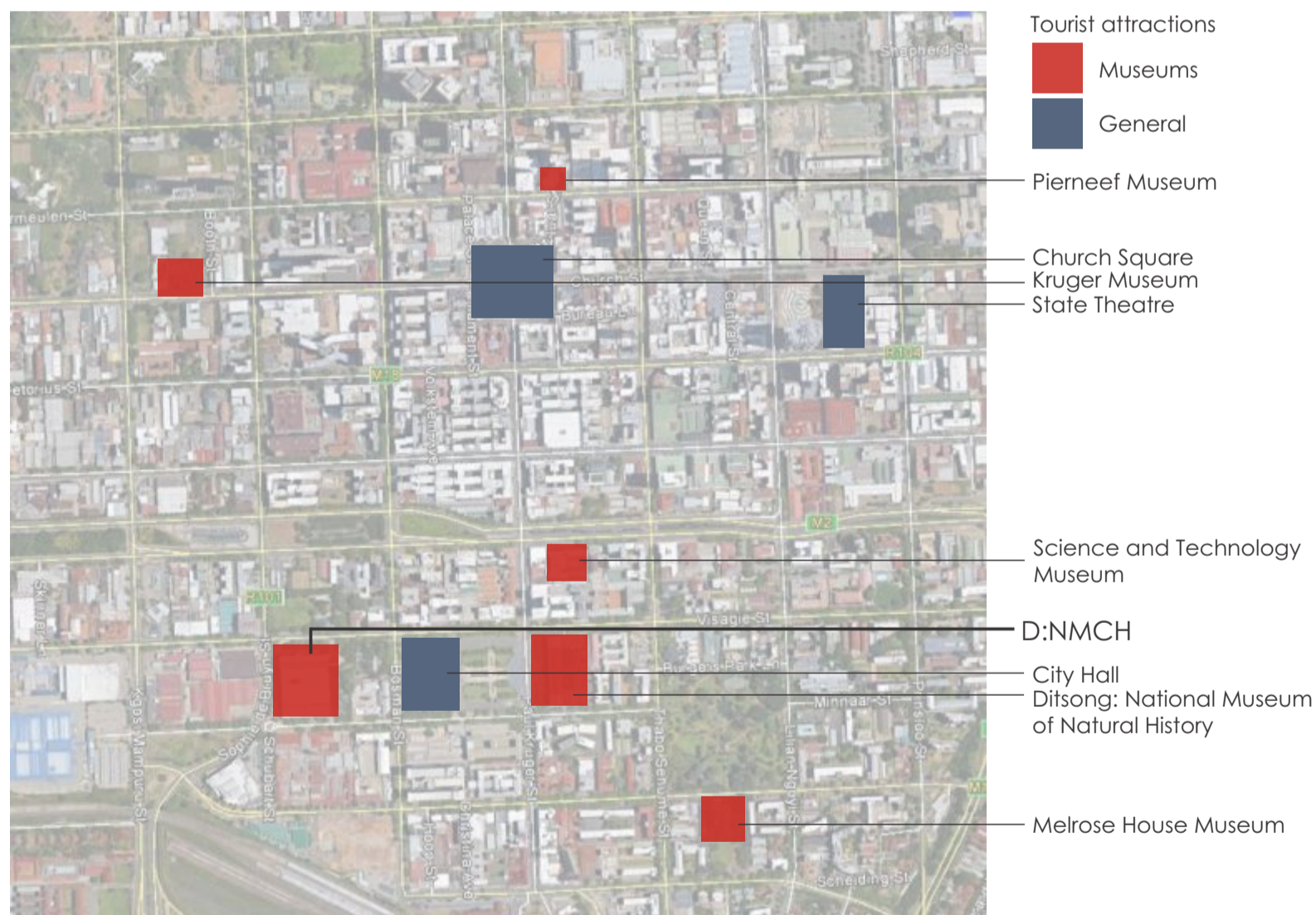


Figure 2.2.1. Pretoria CBD tourist attractions. (Adapted Google Earth image 2015)

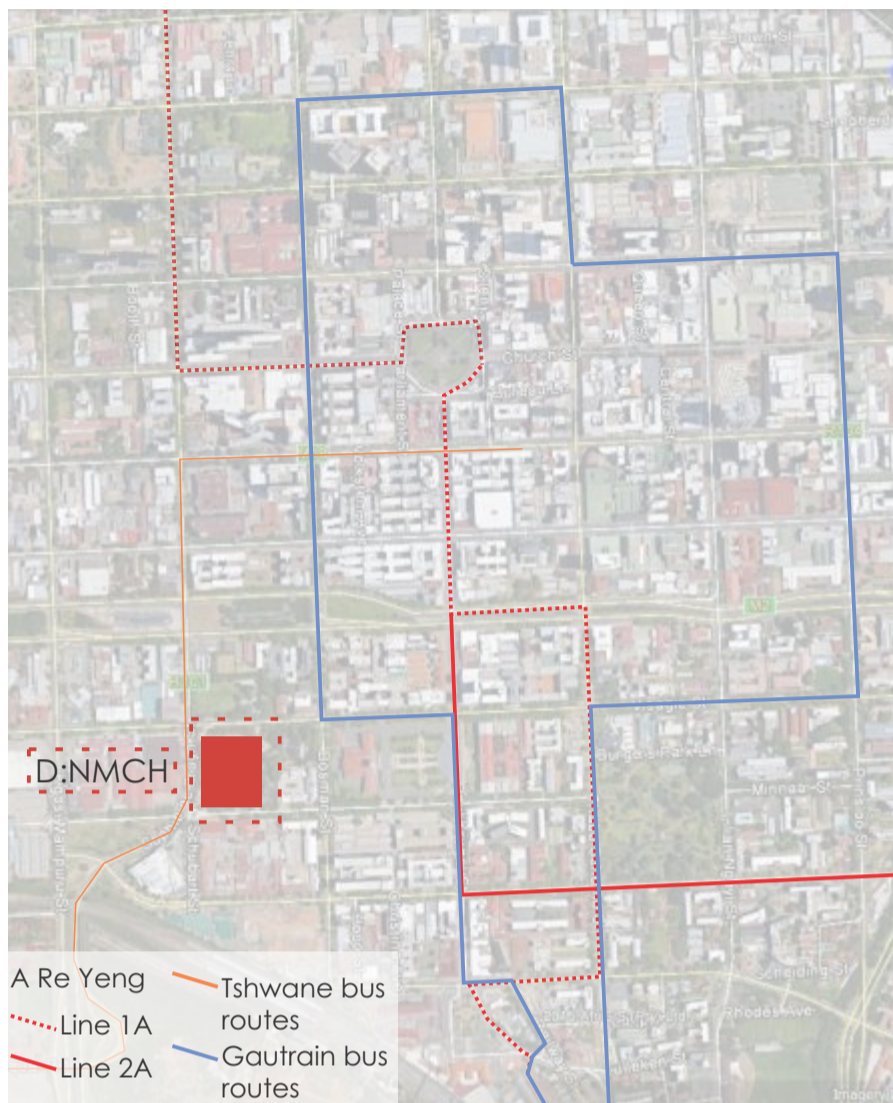


Figure 2.2.2. Transportation in Pretoria CBD.  
(Adapted Google Earth image 2015)

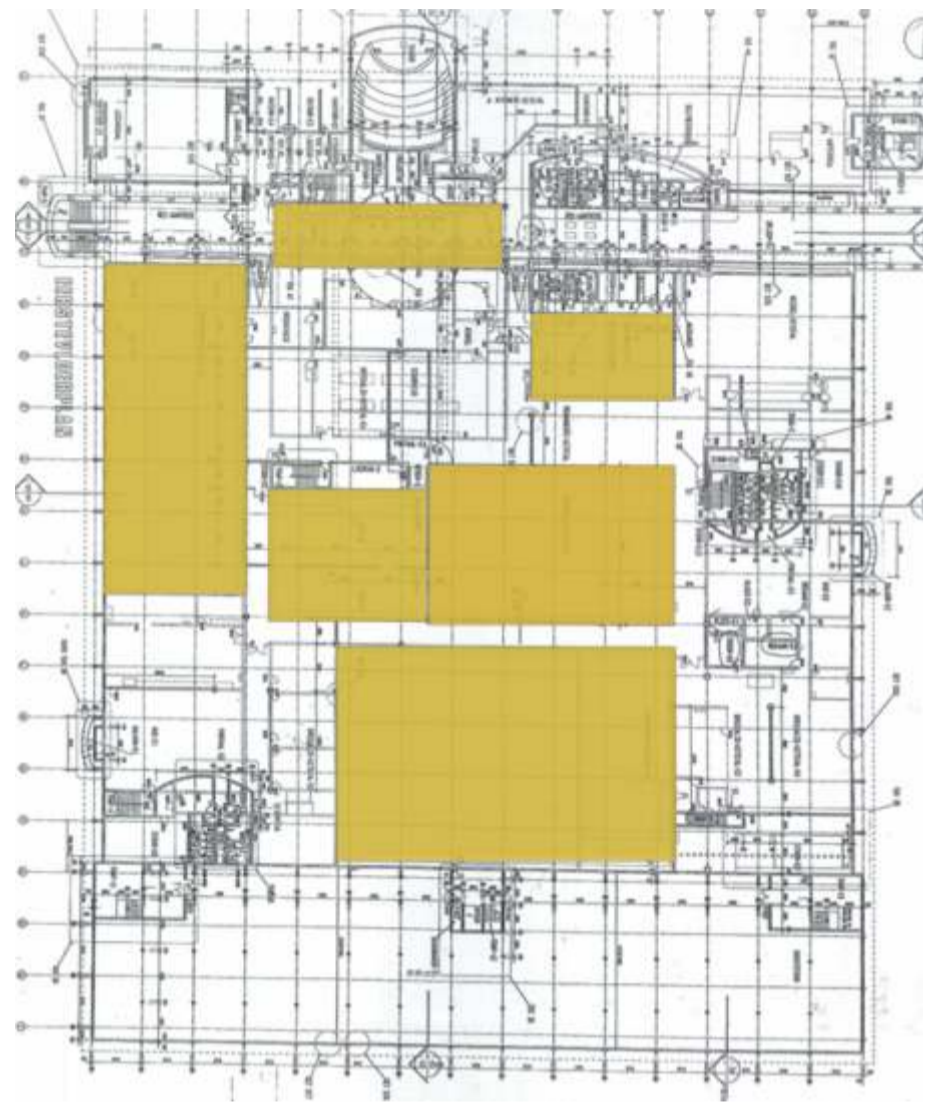


Figure 2.3.1.1. Original Museum plan indicating infill of double volumes.  
(Adapted original plan (KWP 1993)).

### 2.3. THE DITSONG: NATIONAL MUSEUM OF CULTURAL HISTORY

The D:NMCH is part of the Ditsong: Museums of South Africa (an amalgamation of eight national museums). Before a separate museum for cultural history emerged, it was part of the Ditsong: National Museum of Natural History (then Transvaal Museum). The original site of the museum was next to the Pretoria Zoological Gardens in Boom Street before it moved to its current location after a flood occurred in 1990. The old South African Mint building was identified and refurbished (by KWP architects and landscape architects) as the current museum building in 1997. (Department: Arts and Culture 2014.) Before any design intervention can occur it is important to understand all aspects of the D:NMCH, from site history, building structure to current impressions.

#### 2.3.1. SITE HISTORY

The site history is investigated with the primary use of the report by the design team, *Pretoria: Ou Munt gebou; omskepping in die Nasionale Kultuur Historiese Museum vir die Departement Plaasklike Bestuur, Behuising en Werke* (KWP 1993).

A prison was built on the site in 1874-1876. During the Transvaal war, 1880-1881, a viewing tower was erected on the south-eastern corner. The site was enclosed with a fence during this time. A fort was also located on the site and was known as the 'Convent Redoubt'. (KWP 1993.) These buildings were demolished at a later unknown stage.

The original Mint building (the Royal Mint) was built in 1921. In 1968 the first phase of the final Mint building was started, and completed in 1972. The Mint house, Minnaar Street house and other buildings on site were also built in 1921. The Director of the Mint lived in the Mint house. The site manager of the Mint lived in the Minnaar Street house.

The Mint moved to their current site next to the N1 highway in Midrand in 1991. The last of the Mint equipment was removed from the Mint building in December 1992 and January 1993. Part of the building was then temporarily used as storage depot by the Department of Education before the Cultural History Museum (now D: NMCH) moved in. (KWP 1993.)

The final Mint building consisted of a two storey office building with foyer on the northern side, separated from the Mint factory by four courtyards. Two corridors connected the offices to the factory. The factory space was large and in some places double volume. The main vault was located in the factory between the connecting corridors. There were two smaller vaults in the factory as well, and one vault in the office building. These vaults were to remain when the Mint was converted into the Cultural History Museum, as it would have been too expensive to demolish them. The vaults were to be used as storage for artefacts such as guns and ammunition.

There were two staircases in the office building and five staircases in the factory. To the southern side of the site, a steel structure was used as storage.

In 1993, when the architect's report was completed, the Cultural History Museum was contained in seven buildings (with a total floor area of 18400m<sup>2</sup>) throughout Pretoria. The Cultural History Museum has attempted to bring their collection together for 28 years, before they moved into the Mint building. (Roodt-Coetzee 1989:5.)

Some expectations from the Cultural History Museum as stated in a meeting with the architects on 14 September 1992 (KWP 1993:1.3):

- The current site should remain untouched, with the two houses and gardens included in the planning.
- The museum strives towards a cultural route with Minnaar Street as connection road.
- Relaxation spaces for the public are important.
- Planning only includes space planning. Exhibitions will be designed and completed by the museum staff themselves.
- The interior should allow for adaptability.
- Visitors' peak times are weekdays in school quarters when organised school groups visit the museum. Some schools send one group per visit, while others send the whole school in four to five busses.
- Toilet facilities should be located throughout the building and is especially important at entrances, rest areas and cafeterias.
- An orientation area is needed
- There is a need for an omnimax theatre.

Floor area in the museum is optimally used by infill of the double volumes and adding mezzanine levels in certain areas. The concrete infill (Figure 2.3.1.1.), adds an extra 2644m<sup>2</sup> floor area to the museum. The architect's approach was to keep walls where possible and to reuse the Mint vaults. The entrance ramp from the parking area has a large landing which connects the museum, Mint house and garden. This ramp leads to the

main access walkway from which visitors can disperse to different museum facilities. This walkway, covered with an arched roof is an addition to physically link the office building and factory to create one museum building. (KWP 1993.)

The site history has not only situated the building in its historical context, thereby highlighting its significance, but has also revealed the original structure and new infill.

### 2.3.2. SITE ANALYSIS

The site is L-shaped, 25516,95m<sup>2</sup>, and is bordered by Visagie Street to the North, Minnaar Street to the South, Sophie de Bruyn Street to the West and Bosman Street to the East. (Figure 2.3.2.1.). The site can be divided in two, the Mint building on the Western side and the Mint house, Minnaarstreet house and other buildings on the Eastern side.

Through site observation and the investigation of construction documentation, the following is apparent. The existing structure of the Mint building is in good condition and consists of structural columns on a 6x6m grid and 600mm reinforced concrete slab over the basement and ground floor. 2707m<sup>2</sup> of the first floor is a double volume over the ground floor, with viewing windows from the first floor.

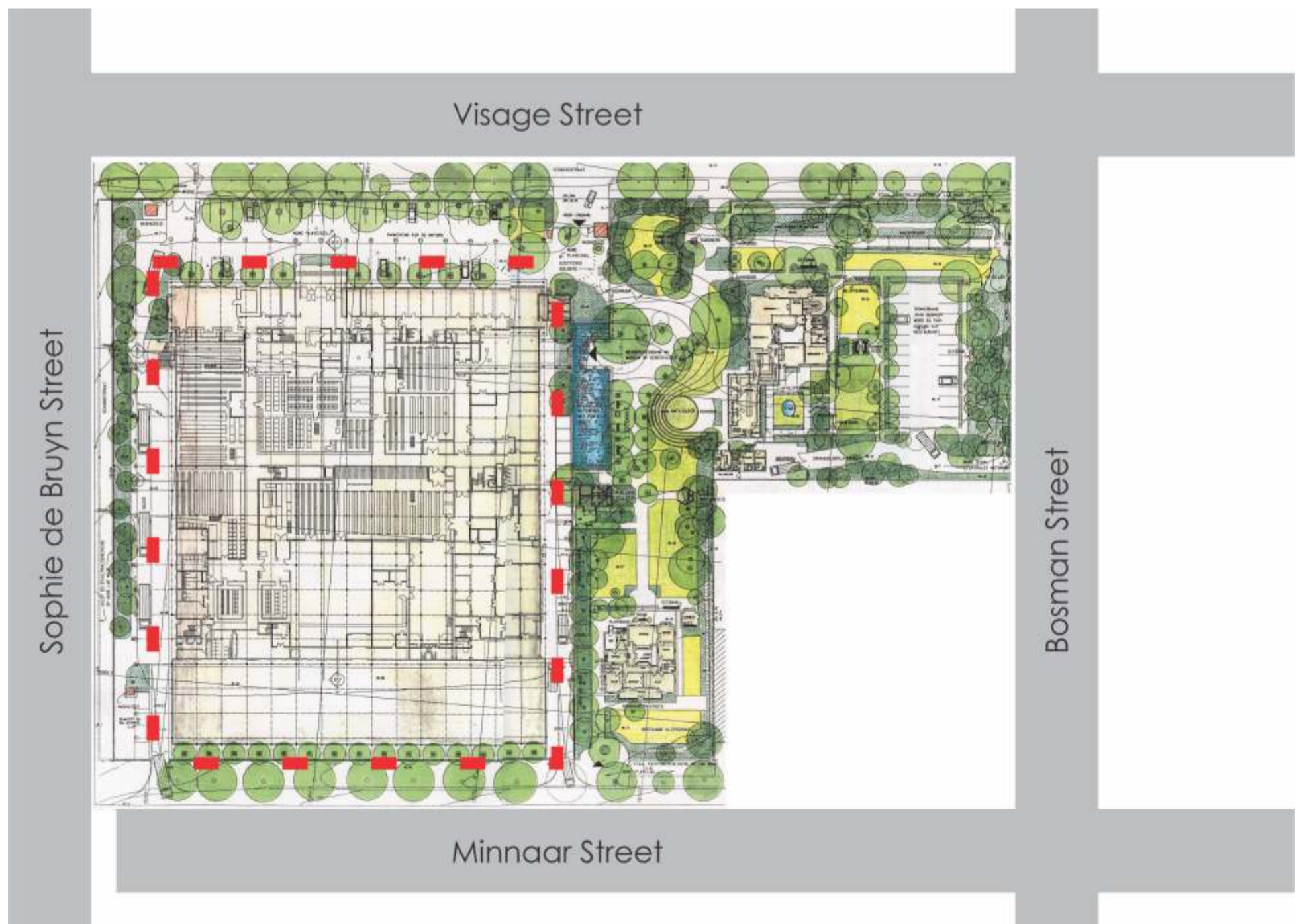


Figure 2.3.2.1. Site configuration. (Adapted site plan (KWP 1993).

The roof consists of steel beams with IBR sheets, which are interchanged with steel gutters. In some areas the sides of the gutter act as skylights. The roof is insulated on the underside. The roof is supported by eight columns dispersed in the column grid.

The museum building has a very distinctive covered arched walkway with Ndebele drawings on the walkway walls as seen in Figure 2.3.2.2.



Figure 2.3.2.2. Ndebele drawings on walkway walls.

The balustrade and column details are characteristically Postmodern in style and colour (Figure 2.3.2.3.). Curved walls are used throughout the building to demarcate certain functions (Figure 2.3.2.5). This is further investigated in Chapter 3.

As seen in figures 2.3.2.4. a and b, there are various sized spaces currently used for exhibitions and events.



Figure 2.3.2.3. Balustrade detail.

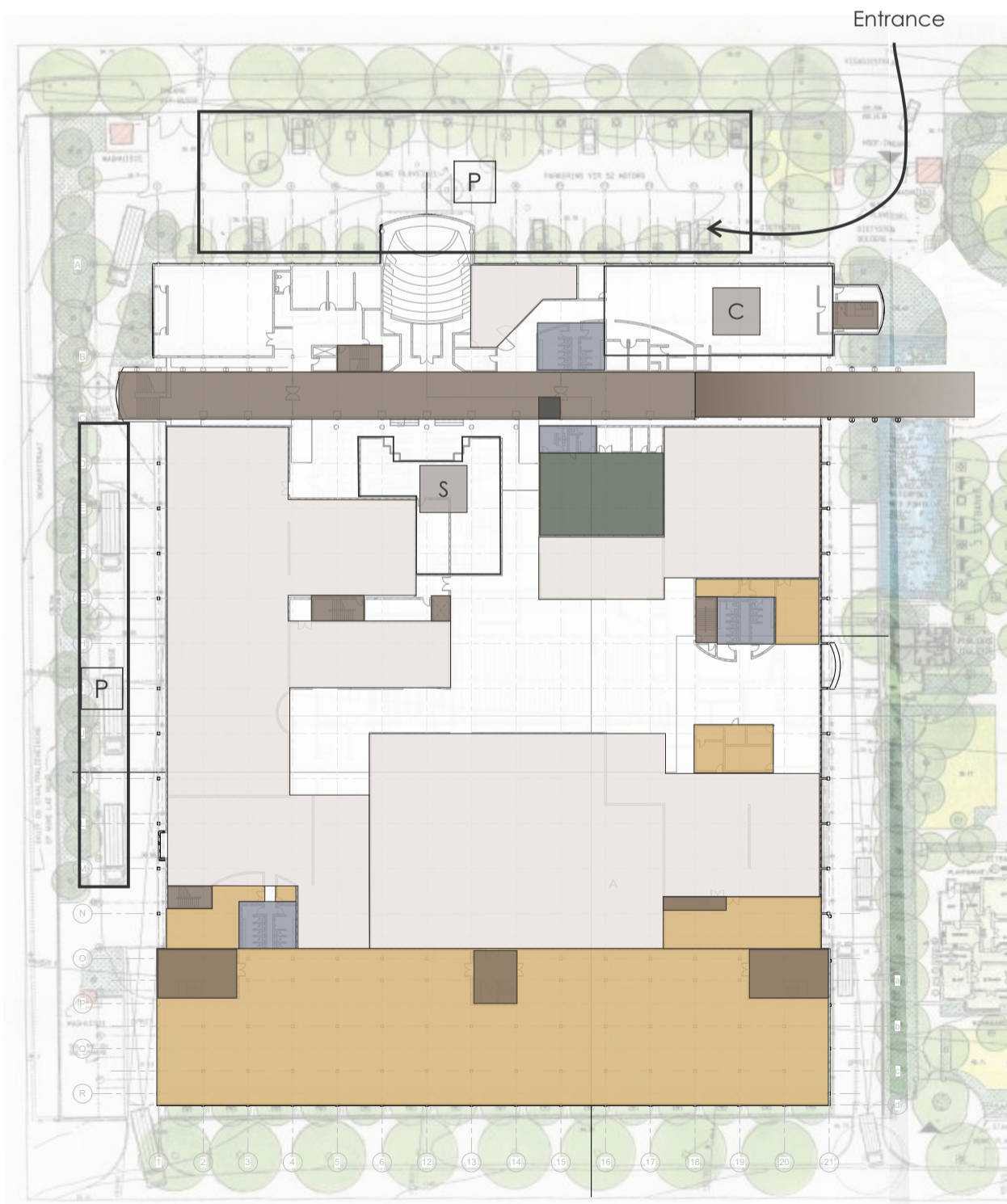


Figure 2.3.2.4.a. First floor plan (Adapted plan (KWP 1993)).

- P Parking
- Circulation
- Tickets and information desk
- WC
- Cafeteria
- Shop
- Activity area
- Exhibition
- Storage

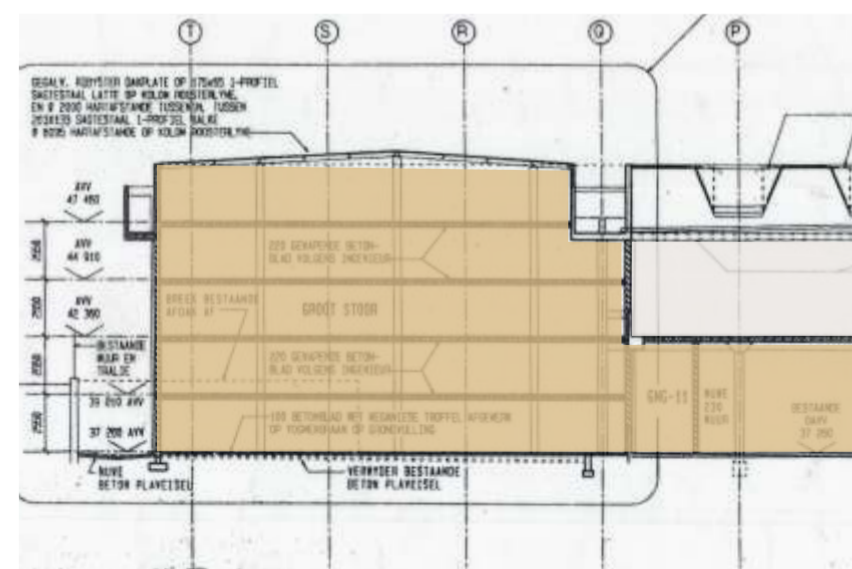


Figure 2.3.2.4.b. Section (Adapted section (KWP 1993)).

The basement is used for mechanical and electrical equipment, with minimal storage area. The ground floor is mainly used for storage, archive of artefacts, restoration workshops, receiving and packing of objects. Many workshops are located on the eastern and western side of the building to allow museum staff a view to the outside. The southern, five floor, addition is dedicated to storage areas. The storage area is a vital part of the museum and contains the larger part of the collection. It also plays an essential role in the development of the museum and is closely linked to other activities, such as research, consultation, exhibitions, education, conservation and loans. The air quality and safety aspects are extremely important in the storage areas as "...the storage areas guarantees the preservation of and accessibility to the collection..." (UNESCO 2010:3).

The first floor is mainly used for exhibitions. The main walkway divides the floor in two parts. To the north are lecture rooms, an auditorium, conference room and a cafeteria. The auditorium can seat 120 persons, and the conference room can accommodate 90 persons. To the south are the exhibition areas and shop. In this part of the museum is a multi-functional area available for events, which can accommodate 400 people.

The multi-functional area within the D:NMCH is used for various events unrelated to the museum. An event that does relate to museum activities is the International Museum Day celebrations on 16 May (Ditsong 2014). The International Museum Day is used at the D:NMCH, to launch a one week event across all Ditsong museums. At the 2014 International Museum Day launch, all Ditsong museums showcased their collections in an exhibition at the D:NMCH. "This will show that indeed at Ditsong collections are accessible to the visitors and the public in general" (Ditsong 2014).

#### 2.4. INTERVENTION LOCATION

This investigation has indicated appropriate areas for a design intervention within the D:NMCH. Any intervention would be able to easily occur in the location of the original double volumes. When investigating the ideal placement of an intervention, within these infill areas, certain issues arise. As seen in Figure 2.3.1.1, there are six areas where the intervention can take place. The southern area is too far from the interior to make an impact on the visitor's first impression of the museum. The northern areas are located above the vaults on ground level (Figure 2.4.1.), which dictates that an intervention in those areas can only be on the first floor. Thus the ideal location for a double volume intervention would be in the central area of the museum. Figure 2.4.2 shows the area for intervention to be located within the boundaries of an original double volume space.

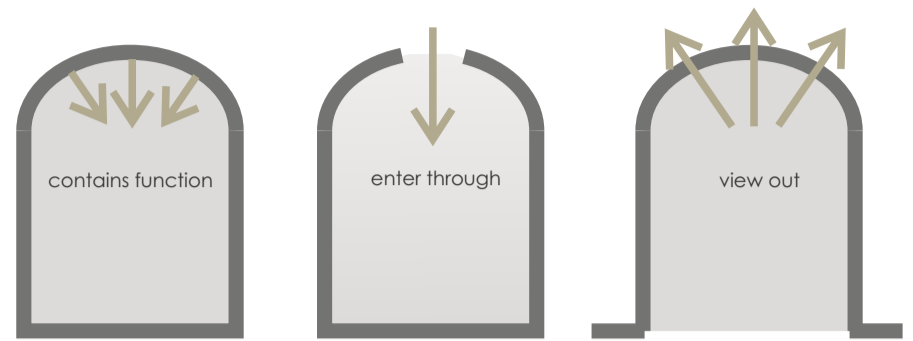


Figure 2.3.2.5. Curved wall functions.

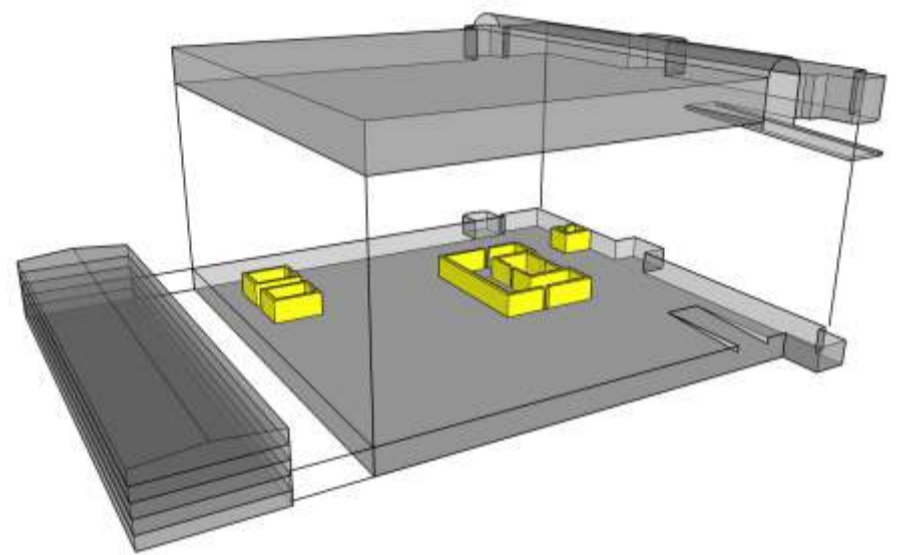


Figure 2.4.1. Vault location on ground floor.

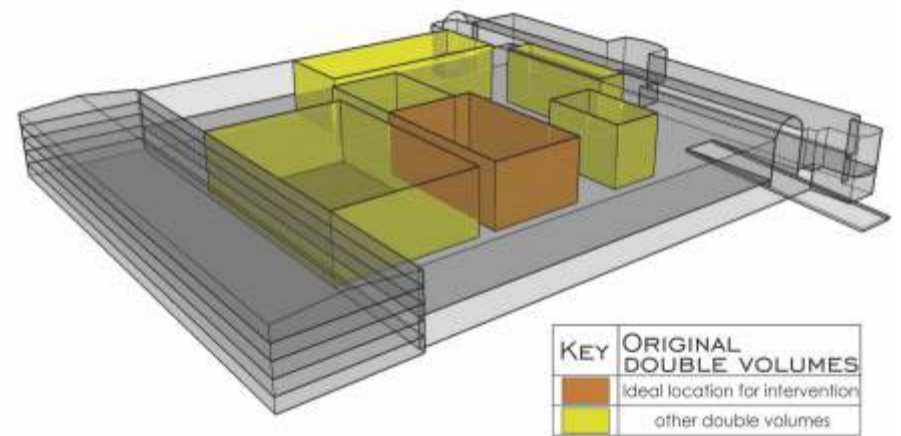
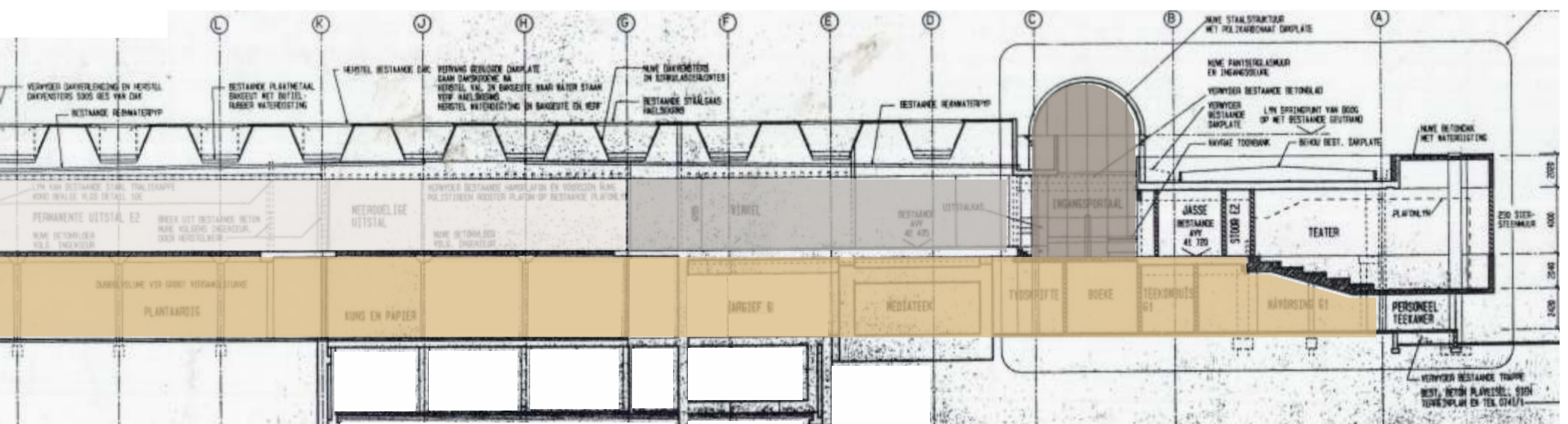


Figure 2.4.2. Original double volumes with ideal location for intervention.



## 2.5. MUSEUM EXPERIENCE

A number of visits to the D:NMCH contributed to the site investigation, documentation and analysis and serve to inform the design process.

### 2.5.1. Visit 1

Date: 3 October 2014, 10:00.

The intention of this visit was to experience the museum as a first time visitor would.

Entrance and orientation:

During this visit, a person with a walking impairment was observed using the unobtrusive observation method as explained in Chapter 1. Confusion arises as this is the first visit to the museum and there are no clear wayfinding cues.

The visitors enter the building from the western parking lot (1) via the staircase (Figure 2.5.1.2.), as there are no indications on how to proceed to the ramped walkway. In the main circulation walkway (Figure 2.5.1.3.), the visitor proceeds to the eastern information desk (2) as seen on Figure 2.5.1.4. The staff are helpful in showing the visitor how to proceed through the museum, as there is no other clear wayfinding system.

Exhibitions:

The museum staff member at the information desk indicates the first exhibition to view, *Sculptured in Clay* (3) (Figure 2.5.1.5. and 2.5.1.6.). This exhibition is new (2002) in relation to the other permanent exhibitions which were constructed in 1997. (Ditsong 2002). The staff member guides the visitor to the next exhibition, *San Access to Power* (4) (Figure 2.5.1.7.). This exhibition is designed in the "immersive environment" (Mckenna-Cress 2013:175) style. This exhibition's intent is to let the visitor experience the San objects on display as if they are in a cave-like environment.

After this exhibition the visitor is free to explore the rest of the exhibitions in any manner they wish. Without clear signage, the flow through the exhibitions was not clear. Orientation is a form of wayfinding, but with part of the central space (5) inaccessible due to an event, orientation becomes difficult with no interior landmarks to refer to. Recent additions (6) are exhibited in a corner hidden to the approaching visitor by different screens. (Figure 2.5.1.8. and 2.2.5.1.9.) The only temporary exhibition on display is the Steve Biko exhibition (7). This is also the only space with seating for visitors. *Objects with Stories* (8) is exhibited according to a timeline as seen in Figure 2.5.1.10. There are two entrances to this exhibition. The main problem with this exhibition is that there is no indication of where the timeline starts, thus it is easy to use the 'wrong' entrance. The last exhibition available to view is the Marabastad exhibition (9). This exhibition is more successful in the way the designers used different manners of display. Light and audio effects are incorporated as well as using the floor, walls and ceiling for display. (Figure 2.5.1.11. to 2.5.1.13.).

Other museum facilities:

The shop (Figure 2.5.1.14.) was closed at the time of the visit. The visitor walks past the ablution facilities (Figure 2.5.1.15. and 2.5.1.16.) to the restaurant, which is not a positive experience. This is the only known ablution facilities on the first visit. The restaurant (Figure 2.5.1.17.) has a seating area, bar area and take-away area. The restaurant design is not cohesive. Maroon leather chairs have been supplemented with silver painted timber chairs as the museum capacity has grown. Brown, orange and white textiles are stretched over some window areas to reduce the amount of natural light that enters the space.

Other noticeable issues:

Visitor fatigue becomes a problem as there are long distances to walk between exhibitions and there is no seating provided other than the seating in the temporary exhibition space and in the main circulation corridor.

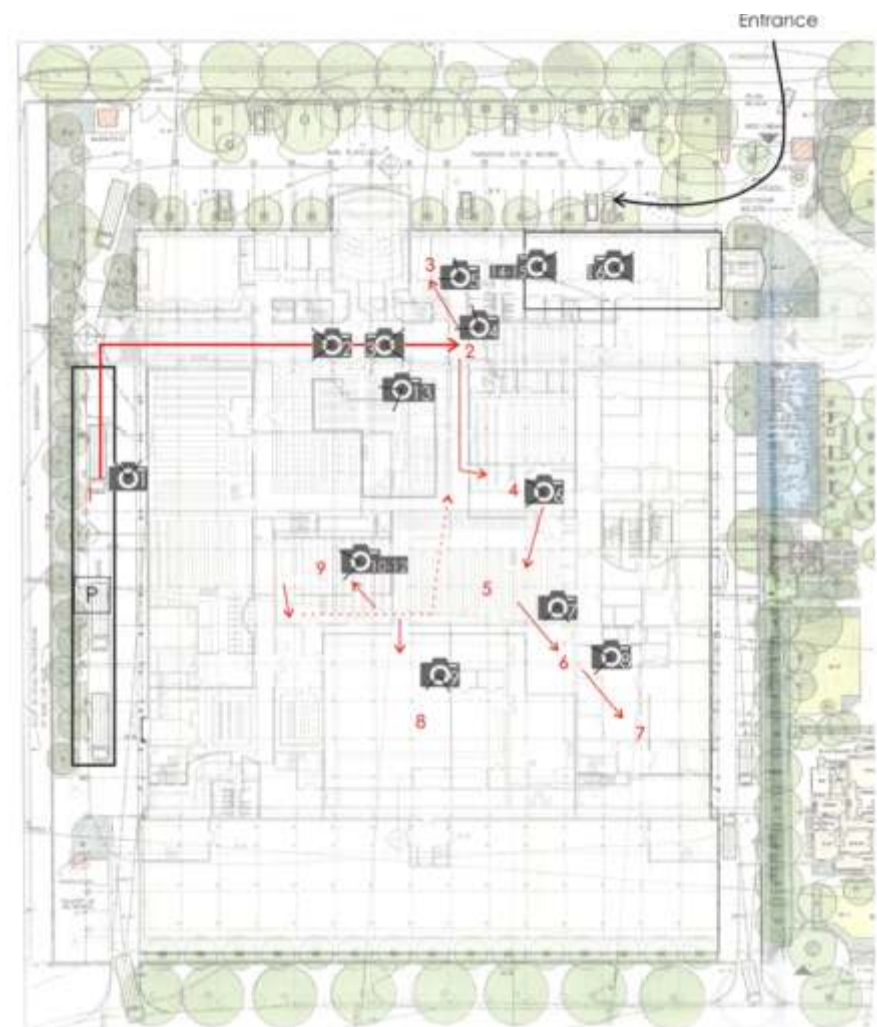


Figure 2.5.1.1. Visit 1 (Adapted plan (KWP 1993)).

Glare is another problem when moving towards the exit, this can clearly be seen in figure 2.5.1.18. There is too big a contrast when moving from the central space (5) with some skylights and general artificial lighting (Figure 2.5.1.19.), towards the main circulation corridor with natural lighting. The polished granulate floor finish contributes to this problem as well.

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is completed to help in assessing visit 1 to the D:NMCH.

Strengths

- Natural light in main walkway
- Variety of cultural exhibits
- Helpful staff
- Can be hired for events

Weaknesses

- Glare on polished floor
- Interior is very dark
- Internal spaces are not optimally used
- Almost no navigational signage
- No depth of information in exhibitions
- No museum map/ guide given
- No other wayfinding system
- Outdated exhibitions
- Event in central open space
- No seating – fatigue becomes a problem
- Empty exhibition rooms

Opportunities

- Create a new wayfinding system
- Revitalise the museum
- To create a better first impression to visitors
- Create a better learning environment
- To design a central, multi-functional gathering space
- To design a new artificial lighting system

Threats

- Existing users of building should not be disregarded
- Museum as event space should not take priority over museum as a learning facility
- Museum is becoming obsolete

Overall my first experience of the museum was negative. The first impression that the museum gives to visitors is that of an outdated museum that is becoming obsolete. It was confusing to navigate, as there is no wayfinding system in place. There is no clear interaction between the visitor and the museum facilities. There is nothing to attract the visitor to visit the museum again.






Figure 2.5.1.2. Western staircase to main circulation corridor. 




Figure 2.5.1.3. Sketch of main circulation corridor. 




Figure 2.5.1.4. Information desk 




Figure 2.5.1.5. Sculptured in Clay exhibition entrance. 




Figure 2.5.1.6. Sculptured in Clay exhibition. 




Figure 2.5.1.7. San Access to Power exhibition. 




Figure 2.5.1.8. Recent additions exhibition. 




Figure 2.5.1.9. View of screen towards the recent additions exhibition. 




Figure 2.5.1.10. Objects with stories exhibition. 



Figure 2.5.1.11. Marabastad exhibition 




Figure 2.5.1.12. Marabastad exhibition 




Figure 2.5.1.13. Marabastad exhibition 




Figure 2.5.1.14. Museum shop 




Figure 2.5.1.15. View towards restaurant. 




Figure 2.5.1.16. Ablution facilities 




Figure 2.5.1.17. Restaurant interior 



Figure 2.5.1.18. Glare problem.



Figure 2.5.1.19. Lighting conditions.

## 2.5.2. Visit 2

Date: 12 February 2015, 13:00

The intention of this visit was to investigate the 'behind the scenes' of the museum: the stored collection and processes of acquisition and documentation.

A limited number of photographs could be taken, due to the sensitive nature of objects stored in the storage areas on the ground floor.

The stored collection is the most important part of the museum, as it is where the management of the museum lies. The processes of the museum are: 1. Acquisition (documenting) of objects, 2. Collection, 3. Storage, 4. Research, 5. Exhibitions, 6. Educational program. Steps 1-4 are concerned with the collecting, conserving and storing of cultural objects, these are done with the outcome of display and education in mind.

Entrance and orientation:

This visit was conducted to understand the collection management of the D:NMCH. Access was via the northern staff entrance (1) on ground level (Figure 2.5.2.2.). A museum curator guided me through the ground floor facilities. The staff areas are intimate in size. The ground floor area is difficult to navigate without a guide, as signage is seen as not needed in an area where staff know their way around.

Ground floor facilities:

The library and archive are located in the large vault (2), these areas are functionally well executed (Figure 2.5.2.3. and 2.5.2.4.). Mobile shelving systems are used in the library and archive to save space and to provide easy access to documents. The next area visited was the ceramics laboratory (3) where restoration is completed on all ceramic objects. Figure 2.5.2.5 shows the amount of natural light that enters the ceramics laboratory as it is located on the western side of the building.

The next space we proceed to is the area where objects are received (4). The corridor to this area is very dark, with only wall mounted lighting in working condition (Figure 2.5.2.6.). The lighting in the corridors is not adequate for safe circulation. The area where objects are received is large enough to allow a vehicle to enter and the roller doors to be shut (Figure 2.5.2.7.). Next to this area is a storage unit where any timber objects are temporarily stored before they are taken to be smoked for protection against insects.

The vertical circulation (5) to the five storey, southern storage facility includes a fire escape and service lift. The only access point to these storage areas is on the ground floor. (Figure 2.5.2.8. and 2.5.2.9.)

The storage areas visited in this area (6) include textiles, timber furniture and other furniture. After viewing the storage facilities on the ground floor we proceed to a fire escape (7) that is used as vertical access to the main museum floor by museum staff.

Other noticeable issues:

It is important that the storage correlate with the exhibition, which it currently only does in terms of objects. "The nature and scope of collections define the exhibitions that can be mounted, the services that are offered, the research that is undertaken and the skills required to manage them" (SAMA 2006:6). The objects exhibited are fully researched within the collection they belong to. The exhibitions should showcase this research.

It is evident that the objects are stored in a manner in which deterioration is slowed or avoided. Within the exhibitions this care management becomes an issue. Figure 2.5.2.10 shows a display case which is not fully enclosed. This means that dust and other particles can enter the display case and lie on the objects. This would not be a

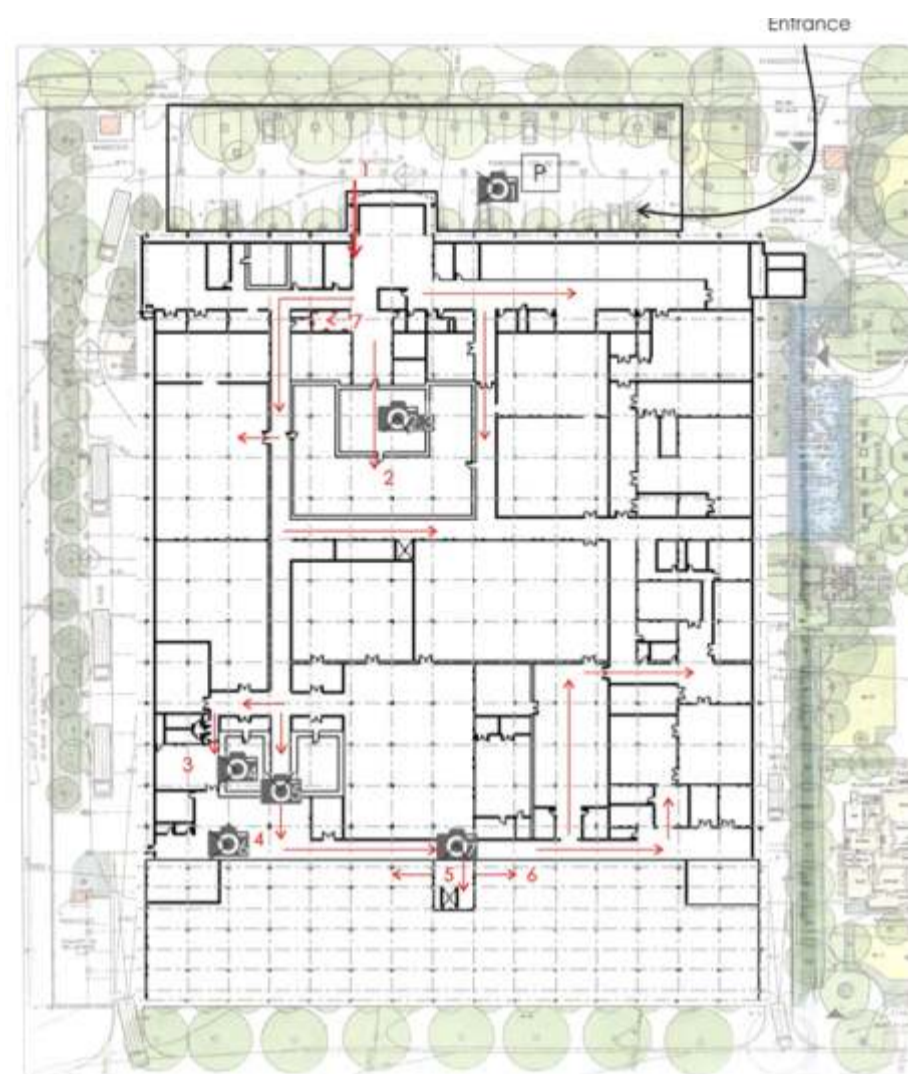


Figure 2.5.2.1. Visit 2. (Adapted plan (KWP 1993)).

problem if the objects are easily accessible for museum staff to clean the objects at regular intervals, such as with the *San Access to Power* exhibition (Figure 2.5.2.11.).

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is completed to help in assessing visit 2 to the D:NMCH.

Strengths

- Large, well organised storage areas
- Natural light in workshops and laboratories

Weaknesses

- Inadequate lighting in corridors on ground floor
- No wayfinding system on the ground floor
- Only connection to the public first floor is through a fire escape, or around the outside of the building
- No offices on public first floor
- The only access point to the southern storage areas is on the ground floor
- Vaults on ground floor will inhibit any vertical intervention on the first floor

Opportunities

- Create a physical link between the ground floor and public first floor
- Create a physical link between the southern storage areas and the first floor
- Incorporate a wayfinding system
- Incorporate offices on the first floor

Threats

- Existing users of building should not be disregarded
- Museum as event space should not take priority over museum as a learning facility

The second visit to the museum was important to help me understand how the museum functions and what the intentions of the museum are. The research areas located in the storage areas are available to use by appointment, but do not showcase the museum in a positive manner. It is clear that the ground floor and first floor need an intervention to link them and make both accessible to all users. This intervention should also address the inadequate lighting conditions of the museum.



Figure 2.5.2.2. View towards northern, staff entrance.



Figure 2.5.2.3. Library and research area.



Figure 2.5.2.4. Mobile shelving system.



Figure 2.5.2.5. Ceramics laboratory.



Figure 2.5.2.6. Ground floor corridor.



Figure 2.5.2.7. Area where objects are received.



Figure 2.5.2.8. Vertical circulation in five storey storage facility.

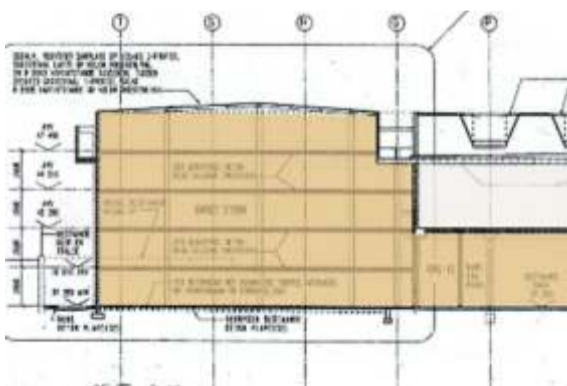


Figure 2.5.2.9. Five storey storage facility. (Adapted section (KWP 1993)).



Figure 2.5.2.10. Display case detail.



Figure 2.5.2.11. San Access to Power display.

### 2.5.3. Visit 3

Date: 22 April 2015, 11:00

The intention of this visit was to experience the museum as a return visitor would.

Entrance and orientation:

Access to the main museum floor was via the external ramped walkway (1) leading up to the main walkway Figure 2.5.3.2. This walkway is difficult to ascend as it is steep and no landings are provided. (Investigation of ramp see Chapter 4). At the information desk (2) a museum map was given. This map is helpful to show where exhibitions are located, but it is not successful in how it is presented (Figure 2.5.3.3.). The map is a black and white photocopy of poor quality, which is not a professional reflection on the D:NMCH.

Other museum facilities:

The activity area (3) for scholars is located near the entrance to the exhibitions. This area is aimed at 5-12 year olds. The connotation can be made that the children should sit quietly in rows and may only touch/view the object when they are called forward by the educator. (Figure 2.5.3.4)

The central space (4) was inaccessible due to an event. The majority of these events are unrelated to the museum. Event patrons can however view exhibitions on display while on a break. General visitors will not be able to view most of the exhibitions while an event is taking place. There were temporary exhibitions on display (5 and 6), but were inaccessible due to the event organisers using these areas as informal lecture rooms.

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is completed to help in assessing visit 3 to the D:NMCH.

Strengths

- Museum map given
- Natural light in main walkway
- Variety of cultural exhibits
- Helpful staff
- Can be hired for events

Weaknesses

- Exterior ramp is steep with no landings
- Activity area for children is too formal, and perceived to be an afterthought
- Museum map is not professional
- Temporary exhibition areas inaccessible due to an event
- Glare on polished floor
- Almost no navigational signage
- No depth of information in exhibitions
- Outdated exhibitions
- Event in central open space
- No seating – fatigue becomes a problem

Opportunities

- Create a new wayfinding system
- Revitalise the museum
- Rebranding of the museum
- Create a better impression of the museum to returning visitors
- Create a better learning environment
- Create a central, multi-functional gathering space

Threats

- Activity area in danger of becoming obsolete
- No attraction to returning visitors
- Existing users of building should not be disregarded
- Museum as event space can take precedence over museum as learning facility

The third visit was again negative. Even though I knew where most of the museum facilities were located, it was still difficult to navigate. Thus many of the strengths and weaknesses overlap with the first visit.

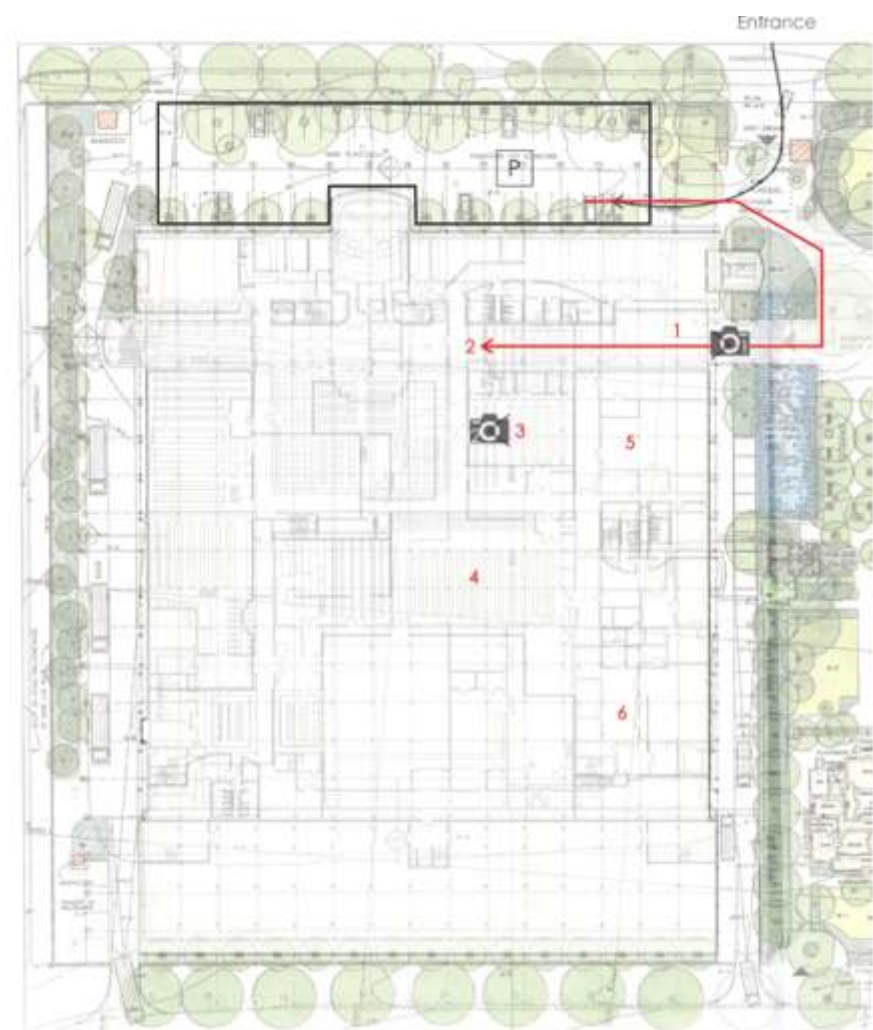


Figure 2.5.3.1. Visit 3. (Adapted plan (KWP 1993)).



Figure 2.5.3.2. Ramped walkway to entrance.

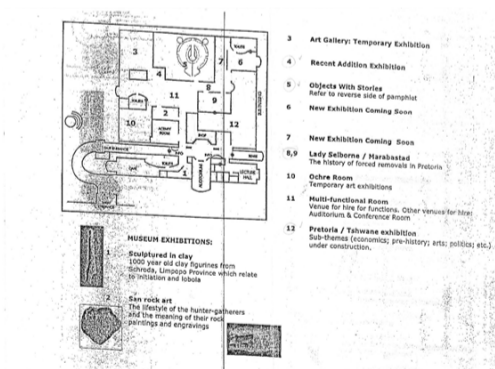


Figure 2.5.3.3. Museum map. (Ditsong 2015)



Figure 2.5.3.4. Activity area.

#### 2.5.4. Conclusion

From these museum experiences it is clear that the D:NMCH does not give a very good impression to visitors. The museum facilities do not create a memorable experience for visitors, as there is nothing that stands out and grabs the visitors' attention. Although the information displayed is well founded, the visitor does not have any encouragement to view the information in more depth. As observed, visitors glance at the objects and information on display, but will mainly look at an object in depth if there is something that guides their attention to it.

According to McLean (1997:81) there are different layers to the visitor's experience. The first is the museum experience which occurs in the 'physical context' – the museum building. The second experience is how the visitor perceives the world through his own 'personal context'. The third is sharing this experience with other people to create a 'social context'.

Currently within the D:NMCH these experiences are mainly negative. While there is currently no sharing of experiences to create a social context for general visitors, there is an educational area where scholars can share information and experiences. This educational area focusses on primary school learners.

#### 2.6. Client

Main client: Ditsong Museums of South Africa. Ditsong Museums is an amalgamation of eight national museums located in Gauteng, seven in Tshwane and one in Johannesburg. (Ditsong 2010.) These museums have diverse collections covering various fields such as cultural history, fauna and flora, palaeontology, geology, anthropology, archaeology and military history. "The target audience for these museums are children, youth, adults, students, tourists (foreign and local), researchers and the public in general" (Ditsong 2010).

The vision and mission of all Ditsong museums are to be leading African heritage institutions of excellence, that are accessible to all and to transform and enhance museums as vehicles for nation building and social cohesion. (Ditsong 2010.) This occurs through conservation, innovative research and relevant public programmes for the benefit of present and future generations. (Ditsong 2010.)

The Department of Arts and Culture will also have a vested interest in the redesign of the museum. (Department: Arts and Culture 2014.) The design of the onset of the visitor's journey through the museum and their interaction with museum facilities will attract new visitors and engage return visitors.

It is important that the Ditsong: National Museum of Cultural History is on par with international museum standards in terms of collections and design. This will be further investigated in Chapter 3. The museum should also adhere to the mission and vision as stated above. From the analysis, it can be concluded that the museum currently lacks an innovative, contemporary manner in which collections are stored and displayed for an optimum visitor experience.

#### 2.7. Conclusion

This chapter investigated the site history, site condition and my experiences as a visitor to the D:NMCH. The physical site analysis motivates for the ideal location for the design intervention. This overall site analysis indicates the need to revitalise the museum, which may be achieved by enhancing the visitor's experience of the museum space and its facilities, as well as the exhibitions. Key problems requiring attention are lighting and wayfinding.



# CHAPTER 3

## THEORY

**“IN A WORLD THAT HAS BECOME INCREASINGLY VIRTUAL, THE MUSEUM IS AN IMPORTANT REFUGE OF REALITY, MAKING BOTH ITS CONTENTS AND THEIR RELATION TO ARCHITECTURE MORE IMPORTANT THAN EVER BEFORE” (NEWHOUSE 1998:270).**

### 3.1. INTRODUCTION

In order to be able to re-design a museum such as the D:NMCH, the history of museums is investigated, which includes a general overview, as well as a study of contemporary approach to museum design. As a museum is a place with a diverse range of visitors, wayfinding is studied. This also relates to the different ways visitors learn, how they interpret information and their experience.

### 3.2. MUSEOLOGY

Museology is the study of museums, and how museums developed into their institutional role in education through social and political forces.

“A museum is a non-profit making, permanent institution in the service of society and of its development, open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, the tangible and intangible evidence of people and their environment” (ICOM 2010).

Diagram 3.2.1. illustrates the various parts of museology. Indicated on the right are the important, visible parts of museum design. The communication (education, exhibition, evaluation) is important to showcase the museum content in a successful manner to the visitor.

The word 'museum' is derived from the Greek word 'Museion', which means temple of the Muses, the goddesses protecting arts and sciences. (Bhatnagar 1999.) It is also a place for study and reflection. As seen in the timeline (Figure 3.2.1.), museums started as the grouping together of precious objects in Egyptian times. This later developed into paintings in corridors at the beginning of the 16<sup>th</sup> century. (Newhouse 1998.)

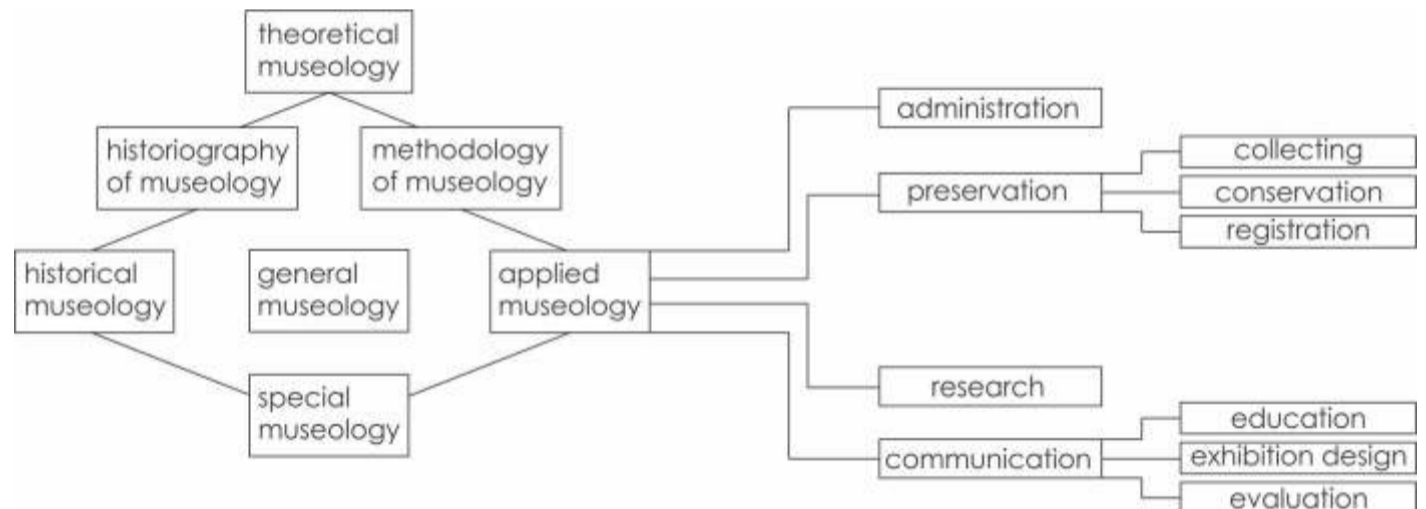


Diagram 3.2.1. Museology content. (Bhatnagar 1999:31).

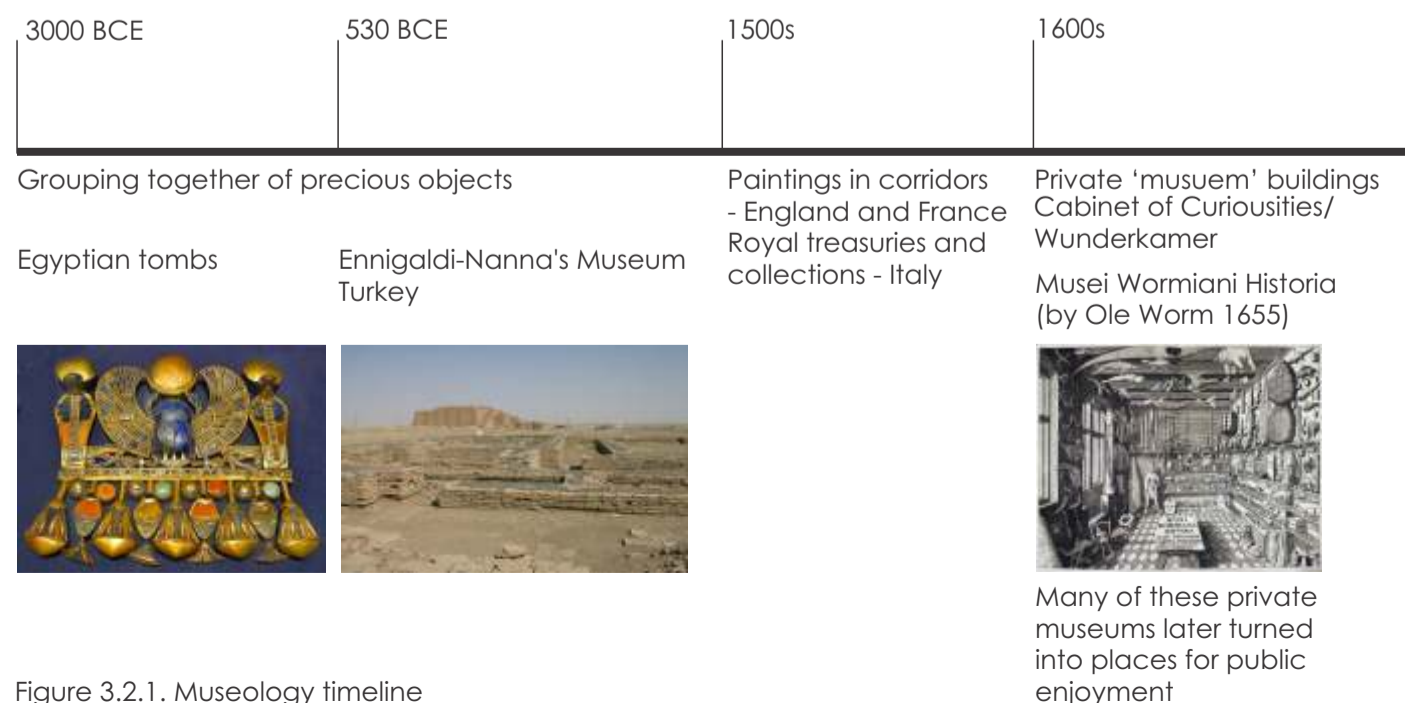


Figure 3.2.1. Museology timeline



Private museum buildings and the 'Wunderkammer', also known as the 'cabinet of curiosities', became popular in the 1600s. "(T)hese cabinets were intended primarily to "... entertain and amuse..." and only secondary to "... instruct or uplift..." (Newhouse 1998:15).

Many galleries that started as a place for private enjoyment developed into places for public enjoyment in the 18<sup>th</sup> century. An example is the Charleston Museum in South Carolina (Figure 3.2.2.) which was founded in 1773 and opened to the public in 1824. (Charleston Museum 2015.)



Figure 3.2.2. Charleston Museum (Charleston Museum 2015)

Painting Gallery (Figure 3.2.3.), 1965, by Philip Johnson in Connecticut. This gallery addressed the issues of storage and fatigue simultaneously by creating a space where the viewer can sit while paintings move past on panels. (Newhouse 1998.)






Figure 3.2.3. Painting Gallery (Favermann 2013)

A 21<sup>st</sup> century example of a successful museum is the Jewish Museum (Figure 3.2.4.), 1999, in Berlin by Daniel Libeskind. (Jewish Museum 2015.) The museum leads visitors through two millennia of German history. The design of the building is used as a tool to represent the Jewish lifestyle before, during and after the Holocaust. (Jewish Museum 2015.)



Figure 3.2.4. Jewish Museum (Jewish Museum 2015)

There is no formal entrance to the building, in order to enter the museum extension, the visitor must enter from the original museum in an underground corridor. "A visitor must endure the anxiety of hiding and losing the sense of direction before coming to a cross roads of three routes" (Kroll 2010). The journey through galleries, empty spaces and dead ends relate symbolically to the journey of Jewish people during World War II. The use of materials, light and volume are important to create a memorable experience. "(T)he building is less of a museum but an experience depicting what most cannot understand" (Kroll 2010). The Jewish Museum is successful in its approach that an important part of Jewish history is showcased in a way that everyone can understand and experience.

1773	1965	1993	2001
<p>Charleston Museum South Carolina, America Open to public 1824 Prominent scientific and natural history collections</p> 	<p>Painting Gallery, Philip Johnson New Canaan Connecticut The viewer sits while the paintings move past on panels, this addressed issues of fatigue and storage</p> 	<p>Private Museum, Montana Emilio Ambasz &amp; Associates Only certain pieces are displayed at a time, thus little space was needed</p> 	<p>Jewish Museum, Berlin Daniel Libeskind Exhibitions lead visitors through two millennia of German Jewish history</p> 

### 3.3. EVALUATION OF THE DITSONG NATIONAL MUSEUM OF CULTURAL HISTORY

The International Council of Museums (ICOM) and Ditsong Museums of South Africa are investigated in terms of their standards and requirements for all museums to successfully create an intervention that revitalises the D:NMCH.

#### 3.3.1. INTERNATIONAL COUNCIL OF MUSEUMS

"The International Council of Museums works for society and its development. It is committed to ensuring the conservation, and protection of cultural goods" (ICOM 2010).

ICOM was created in 1946. ICOM's purpose is to develop standards and improve the quality of the museum world. ICOM sets standards for museum design, management and collection organisation. ICOM carries out international missions in association with UNESCO, INTERPOL and WCO. (ICOM 2010.)

The ICOM mission includes general aspects such as risk management and fighting against the illicit traffic of cultural goods. According to ICOM, museums need to protect the tangible and intangible heritage of the cultural goods in their collections. These collections should be available for current use and it should be ensured that it is passed on to future generations.

An important part of ICOM's mission is that museums should develop their educational roles while attracting wider audiences. These professional standards should be implemented within the global museum community. (ICOM 2010.)

The D:NMCH does not comply with all the standards as set out by ICOM. The D:NMCH does comply with the management concerns of ICOM, but the museum does not comply with ICOM in terms of ensuring that the museum will be passed on to future generations.

#### 3.3.2. DITSONG MUSEUMS OF SOUTH AFRICA

The Ditsong Museum standards are applied according to the Cultural Institutions Act. (Ditsong 2010.) General obligations of Ditsong museums are to render heritage-based services to other museums as well as to individuals and tertiary institutions. All Ditsong museums should carry out research and publish such information for the cultural, social and economic use locally and internationally.

An important part of Ditsong's standards are the "...collection, conservation and safe management of national heritage collections on behalf of the South African nation" (Ditsong 2010). The vision of Ditsong Museums of South Africa is "to be a leading African heritage institution of excellence, accessible to all" (Ditsong 2010).

Exhibitions should be designed and managed together with public programmes with a view to supporting the national educational curriculum. Ditsong Museums of South Africa aim to transform and enhance museums as vehicles for nation building and social cohesion through active conservation, innovative research and relevant public programmes for the benefit of present and future generations. (Ditsong 2010.)

The D:NMCH does not comply with the mission statement of Ditsong Museums of South Africa. The D:NMCH does comply with the management concerns of Ditsong Museums of South Africa, but the museum is not a leading African heritage institution in terms of design and visitor experience. According to Ditsong Museums of South Africa, social cohesion through conservation is an aspect of enhancing museums for present and future generations. This is not clear in the current design of the D:NMCH. The D:NMCH should be a leading example of a cultural history museum, not only in Africa, but internationally as well.

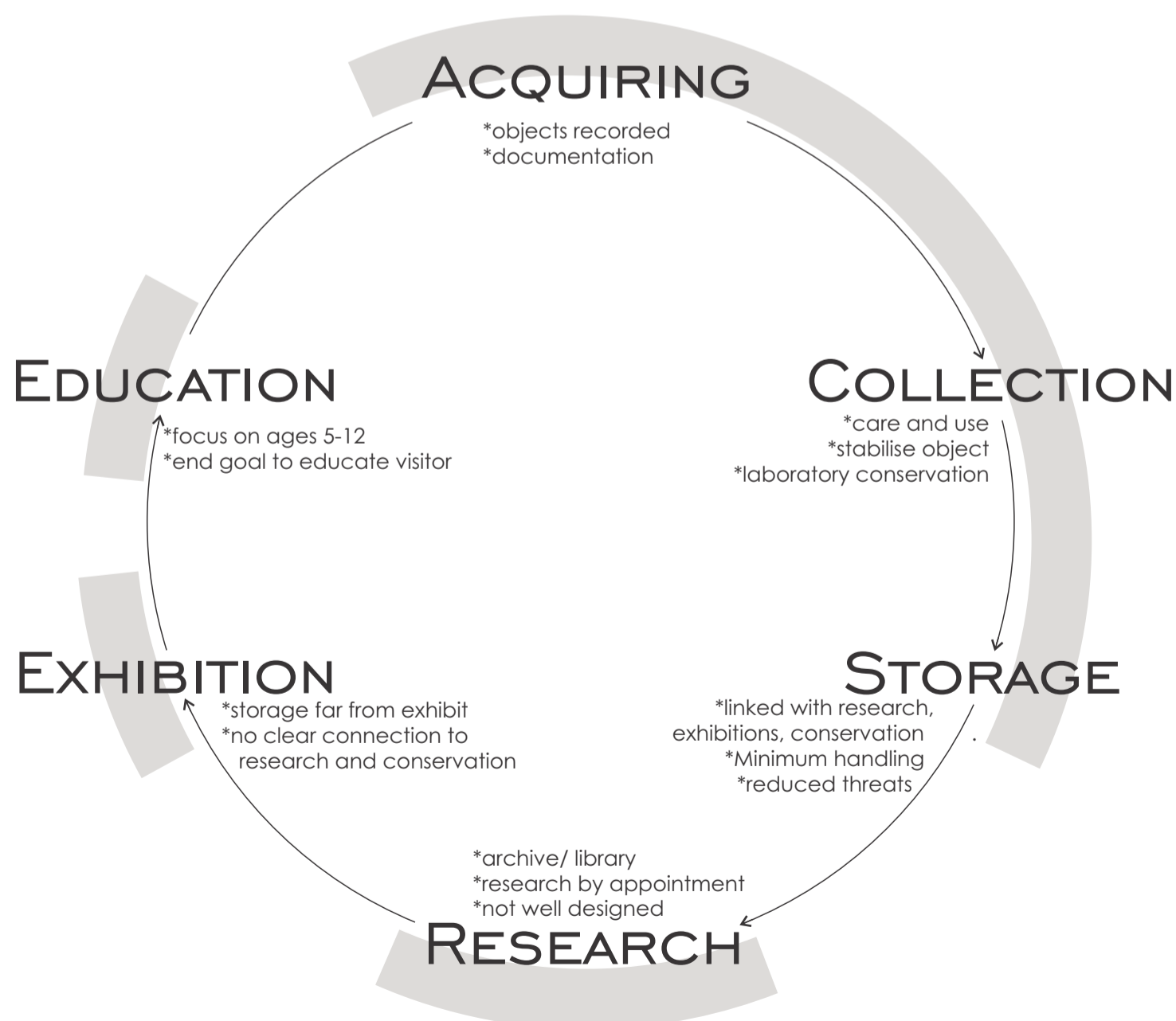


Diagram 3.3.1. Management and physical aspects of D: NMCH

### 3.3.3. Conclusion

The D:NMCH does not comply with the standards and missions as set out by ICOM and Ditsong Museums of South Africa.

The intervention to be designed should convey the mission and vision as set out by the above mentioned institutions. As the collection is at the heart of museum activities, it is important to showcase it in an innovative manner to enhance the museum experience for present and future generations. The overall visitor experience of the museum should not be neglected as this experience starts at the entrance to the museum.

### 3.4. VISITOR LEARNING

"A museum communicates with the visitor through presentation; the juxtaposition of objects with other objects; through interpretation; use of media; and creation of atmosphere" (McLean 1997).

The museum is an educational resource, thus it is important to look at learning theories. Learning theory (within the museum) is how information is absorbed, processed and retained during learning. There are different types of learning theories as seen in diagram 3.4.2. Socio-constructivism is the most appropriate learning theory within the museum setting.

Social constructivism was developed by Lev Vygotsky, a Soviet psychologist. Vygotsky (1978) viewed learning as a profoundly social process and also emphasized dialogue. Vygotsky also argued that cognitive functions originate in, and must therefore be explained as "products of social interactions and that learning was not simply the assimilation and accommodation of new knowledge by learners; it was the process by which learners were integrated into a knowledge community" (Berkeley 2015).

"Knowledge is not simply constructed, it is co-constructed" (Berkeley 2015).

Learning is voluntary and self-directed in the informal educational environment of museums. "(Learning) is driven by curiosity, discovery, free exploration and the sharing of experiences with companions" (Screven 1993). There is no reason for visitors to pay attention except for their own sake. "To achieve both visitor attention and communication, exhibitions need goal-directed and discovery activities that reward appropriate attention" (Screven 1993). Discovery activities include making predictions, completing a task or resolving a question. The quality of visitor attention varies from passive to active involvement.

The manner in which visitors absorb information starts with their initial experience of the museum. If a visitor's first impression of the museum is negative, they will move through the exhibitions and view the information with this negative outlook. Visitors are influenced to visit a museum by awareness, accessibility, relevance and perceptions of the museum. (McLean 1997.) Visitors often limit their time spent in museums, thus the more time a visitor perceives an exhibition or text to require, the less likely they will be to attend to it without compelling reasons to do so.

"(E)ach visitor learns in a different way, interpreting information from their previous knowledge, experience, and beliefs" (McLean 1997:82). Exhibitions make information accessible to the public eye, by making it visible in an explanatory way.

The entrance, foyer and open gathering space of the D: NMCH are critical in creating a first impression and stimulating the visitor's curiosity. These key areas will facilitate learning by establishing a central space where visitors can access new information. Visitors will also be able to socially experience the museum environment in these public spaces. The foyer and open gathering space should draw attention to curiosity, discovery, free-exploration and sharing of experiences with companions.

**"TO ATTRACT, TO INTEREST, AND FINALLY TO INSTRUCT THE AVERAGE SENSATION-SEEKING SIGHTSEER IS AT ONCE THE FUNCTION AND THE PROBLEM OF THE PUBLIC MUSEUM"** (Cain 2012:758)

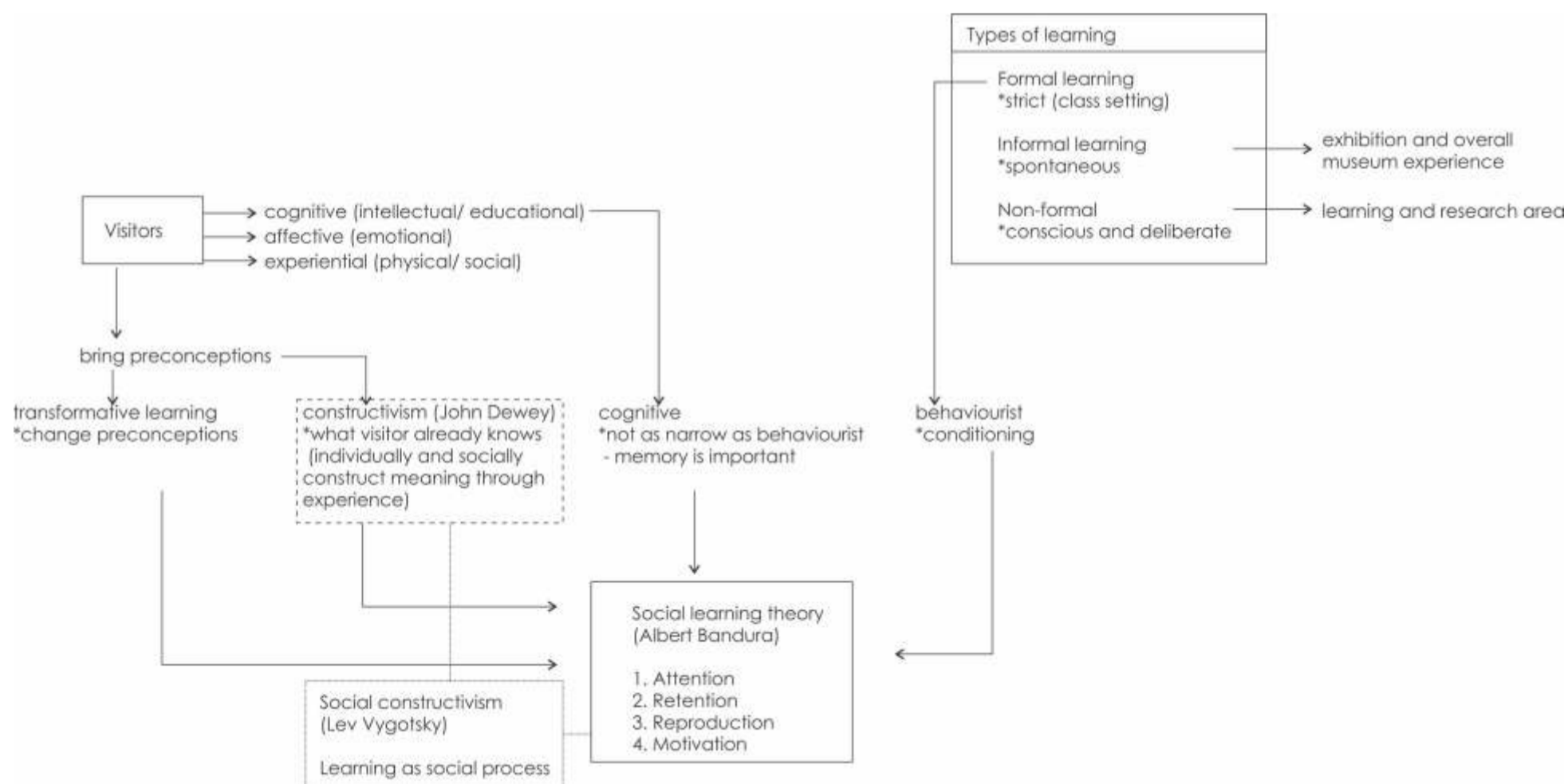


Diagram 3.4.1. Learning diagram

The current way in which the D:NMCH displays information is not successful. Two exhibitions at the D:NMCH will be investigated with regards to learning. *Sculptured in Clay* and *San Access to Power*, as seen in Chapter 2, Museum Visit 1, will be investigated.

The *Sculptured in Clay* exhibition (Figure 3.4.1.) contains information panels on the wall and display cases with clay figurines. The exhibition is to be viewed from left to right. The information panels are graphically successful in the manner in which information is displayed. A multistage text system is used. This system contains overarching text, main text, exhibit text, text as titles and historical quotes. (Bertron, Schwarz, Frey 2012.) This system allows visitors to view and absorb the information according to their learning needs. Figure 3.4.2. shows text as titles, overarching text and main text.

There are three levels of learning through exploration which is 1. The overall exhibition, 2. The informational level as adjacent display case, 3. The informational level as information in drawers (hidden). The *Sculptured in Clay* exhibition only incorporates the first two levels of learning through exploration which is the overall exhibition content with adjacent display cases.

The *Sculptured in Clay* exhibition is encompassing of the objects on display, but there is no real attraction for visitors to learn more about the figurines on display. Even though the graphic quality of the information panels is successful, another layer of information is needed to fully allow for various learning abilities.

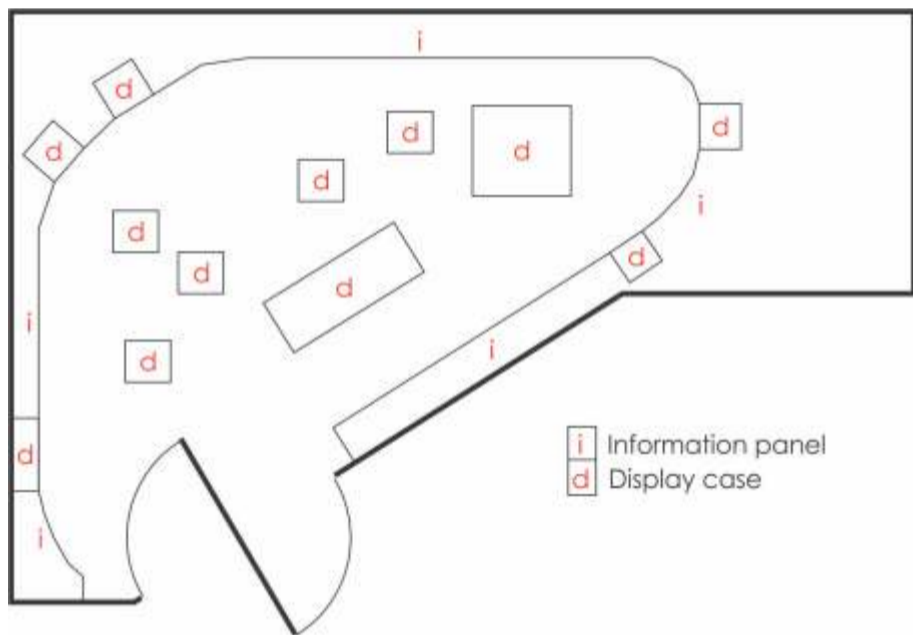


Figure 3.4.1. *Sculptured in Clay* exhibition diagram.



Figure 3.4.2. Multistage text system

The *San Access to Power* exhibition (Figure 3.4.3.) contains information panels on the wall, rocks on display platforms and display cases. This exhibition is intended to be viewed from the entrance (indicated at the bottom of figure 3.4.3.) to the exit (at the top of figure 3.4.3.). The information panels can however be seen as free standing elements, and not according to a specific timeline, and can thus be viewed as the visitor desires. The panels are lit from behind to attract the visitor to read the information. A problem when reading the information is fatigue due to the length and size of the text. Visitors will usually avoid these type of panels due to the amount of information provided on one level of display. This exhibition only incorporates the first two levels of learning through exploration which is the overall exhibition content with adjacent display platforms.

The rocks on display are highlighted with spot lights (Figure 3.4.4.). This attracts the visitor's attention to the rocks. There are twelve rocks on display in this exhibition, but there is no information provided on the rocks displayed so visitors cannot learn more about these rocks.

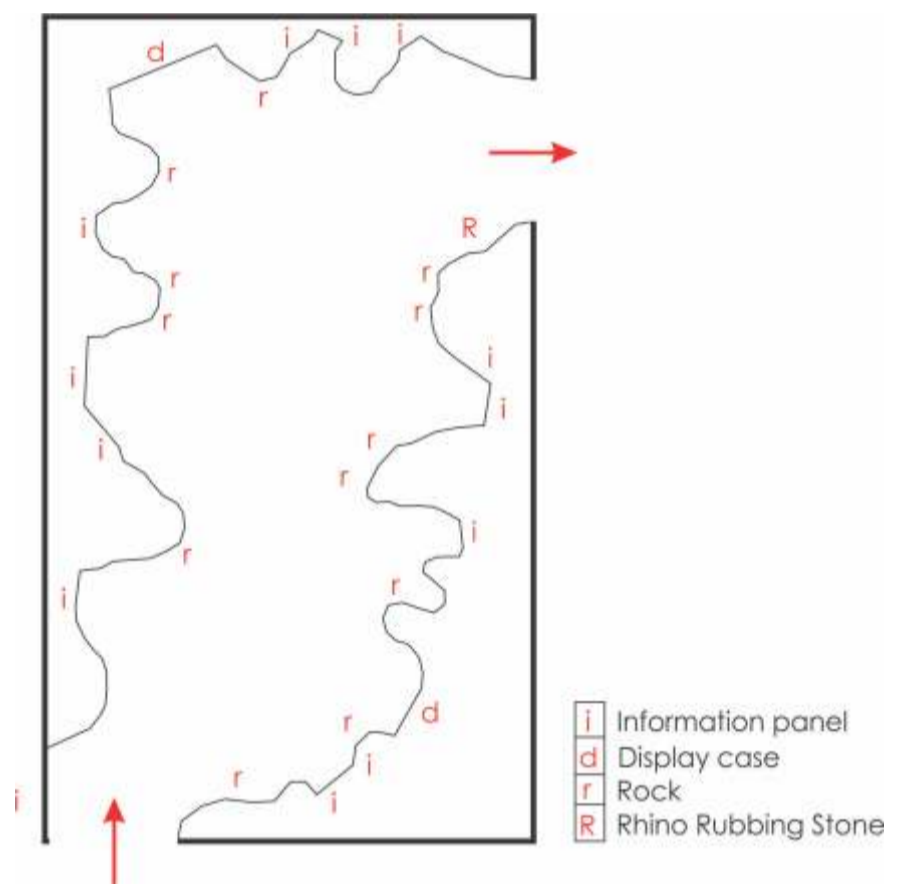


Figure 3.4.3. *San Access to Power* exhibition diagram.



Figure 3.4.4. Rock on display pedestal.

Exhibitions should become forums for the public where they can fulfil educational tasks as well as respond to demands for entertainment and recreation. "(T)he exhibition is not only a medium but also an interface for the information that is stored in repositories, collections and research projects" (Bertron et al. 2012).

According to Dean (1994) there are three basic types of museum visitors. First there are people who move through a gallery quickly and display exit-oriented behaviour – these people spend very little time closely examining exhibition content. The second group are those who show a genuine interest in the museum collections and experience. But they do not spend much time reading, especially texts that appear difficult or that require too much effort to understand. The object is their main focus. The third group is the minority. They will examine exhibitions with much more attention. These visitors are willing, and usually able to understand the presented materials no matter how technical. They are often frequent visitors to museums and require little enticement to come. "Evoking emotion would compel visitors to learn more about the objects presented" (Cain 2012:760).

Furthermore within these groups there are visitors with different abilities and needs. These range from various physical and mental abilities to people who go to museums for different reasons. Reasons for museum visits can be for entertainment (individual and families), educational (school and university groups) and research (individual and groups). "Museums now focus on creating learning environments, within which people are expected to actively craft their own learning experiences" (Fors 2013: 272).

Visitors have three basic needs when visiting a museum; cognitive (intellectual/ educational), affective (emotional) and experiential (physical/ social). "Learning only takes place where the cognitive and the emotional meet for a specific visitor" (McKenna-Cress 2013) within an experiential context. "Cognitive and aesthetic experience must be mutually supportive" (Bertron et al. 2012:204).

Visitors have three principle means of gathering information:

1. Words – language, both heard and read. This requires the most effort and mental processing to extract meaning.
2. Sensations – taste, touch, smell and hearing are more immediate and associative than words.
3. Images – visual stimulus is the strongest, most memorable of the methods. (Dean 1994:26.)

When visitors utilize their minds beyond reading, when they are engaged to answer questions or solve puzzles, this mental action can stimulate visitors to absorb information. Visitors should use exhibition content as the framework for their learning activities. "(E)ffective educational exhibitions will deliver useful content and be more engaging when focused attention to this content takes place" (Screven 1993).

According to Gutwill, Hido and Sindorf (2015:156) there are four basic dimensions of learning: 1. engagement, the act of participating in an activity; 2. initiative and intentionality; 3. social scaffolding; 4. development of understanding. "Collaboration among visitors has been found to improve investigative inquiry at museum exhibits" (Gutwill et al. 2015:159). These aspects should be implemented in the exhibition intervention design.

It is important to integrate digital media into contemporary museums but also to "prevent that visiting museums become nothing more than 'public television'" (Schittich 2009:9). Traditional museums, as with the D:NMCH, can however overwhelm visitors with the endless rows of display cases. Thus the design intervention in the D:NMCH should lie between a traditional museum and a 'public television'.

Visitors inhabit the museum in terms of how they explore and continually contextualise the museum environment through their movement and multisensory experiences. The intervention design should be developed beyond sensory add-ons that correspond to the traditional "five-sense-sensorium" (Fors 2013: 285). Rather a unified sensory experience should be investigated.

### 3.4.1. Conclusion

Museums make information on their collections available through public programmes such as exhibitions. The D:NMCH exhibitions are traditional learning environments, and should develop into contemporary, multisensory learning environments.

Visitor learning needs to be a combination of cognitive, affective and experiential elements. Thus it is important to make the educational, emotional and social aspects of the museum clear in the first impression the visitor makes of the museum. These elements should provide guidelines for the design of the foyer and gathering space within the D:NMCH.

### 3.5. Wayfinding

**"Wayfinding is much more than just a family of signage collected together"** (DESIGN JD 2015).

Wayfinding can be defined as spatial problem solving, it is the process of making spaces effectively navigable. Three criteria determine the navigability of a space: 1. can the navigator determine his current location; 2. can a route to the destination be found; 3. how well a navigator can accumulate wayfinding experience in the space. (Foltz 2015.)

Cognitive maps, also known as stored memories, are also used to inform wayfinding. "(H)umans acquire, code, store, decode, and use cognitive information as part of their navigation and wayfinding activities" (Golledge 1999). Cognitive maps refer to when environmental information is encoded by the visitor so that it can be used to determine their location at any moment, where specific objects are in surrounding spaces, how to navigate from one place to another or how to communicate this spatial knowledge to others.

"When the environment is new or unexperienced, possible learning strategies include, 1. active search and exploration; 2. a prior familiarisation with secondary information sources; and 3. experience of the environment using controlled navigational practices" (Golledge 1999).

Visitors' prior knowledge of a setting can play a critical role in understanding the space. The visitor uses their memories of similar situations, for example previous visits to other museums, to inform their perception of their current museum visit.

Wayfinding should create an identity for a space, increasing accessibility and functionality of the space. Successful wayfinding will make visitors feel confident to use the space, relaxed and ideally leave them with positive memories of their visit. "When executed successfully, the system can reassure users and create a welcoming environment, as well as answer questions before users even ask them" (Aust 2006).

Ineffective wayfinding systems do not give the visitor enough information to decide their course action. The D:NMCH has an ineffective wayfinding system. The visitor devotes a lot of time and energy in searching for their desired location. Thus they rely on staff to direct them, which in itself becomes time consuming. Visitors become so frustrated with the environment that they may not return, this is clear in the museum visit analysis of Chapter 2.

Too much information can be as ineffective as too little. For example when too many different signs are used the visitor can become overwhelmed and still do not know how to navigate the space. Thus the development of a hierarchy of information is a critical component of wayfinding. This relates to the legibility of a space, which influences the rate at which an environment can be learned.

Attributes that determine the visitor's choice of exploring an environment relates to the following: physical distance, travel time, ease of wayfinding, safety and scenic beauty. (Golledge 1999.)

Principles for effective wayfinding include the creation of an identity at each location, the use of landmarks to provide orientation cues, well-structured paths, not too many choices, signage at decision points, and the use of sight lines.

### 3.5.1. IDENTITY AT EACH LOCATION

"This principle indicates that every place should function, to some extent, as a landmark – a recognizable point of reference in the larger space" (Foltz 2015).

The identity of the location is what makes the space distinguishable from surrounding spaces. Spaces are grouped together, physically or aesthetically, according to common attributes.

"Identifiable places form the building blocks of our cognitive maps and the spatial anchors for the decisions made during wayfinding" (Foltz 2015).

The D: NMCH does not have any distinguishable spaces, apart from exhibitions which are distinguishable by their content. Because the spaces are not distinguishable it becomes difficult for the visitor to determine and recover their location within the larger environment.

### 3.5.2. LANDMARKS TO PROVIDE ORIENTATION CUES

"Landmarks are the bricks of our spatial knowledge" (Golledge 1999).

Landmarks are memorable locations that help orientate the visitor. These can be distinguished spaces or memorable objects within general spaces. Memorable objects can be elements that communicate additional information. Too many landmarks in one space contradicts their usefulness. Thus nodes of various significance are used to mark points where wayfinding decisions are made.

"Landmarks associated with decision points, where the navigator must choose which path of many to follow, are especially useful as they make the location and the associated decision more memorable" (Foltz 2015).

Landmarks should be capable of attracting attention, being instantly recognised, contain individual significance and/or act as anchor points for organising other spatial information into a layout. (Golledge 1999.)

The D: NMCH does not have many landmarks that help in wayfinding. The entrance walkway is the first landmark the visitor encounters. The walkway arch can be seen from the parking area and acts as an initial orientation landmark. Curved walls are used to demarcate certain functions within the museum. These curved walls define landmarks to help orientate the visitor. Functions behind these curved walls include vertical access points, ablution facilities and the auditorium (Figure 3.5.1.). Both of these existing landmarks are successful on an architectural level, but do not contribute to visitor wayfinding as they are not clearly defined within the main exhibition areas of the museum. Thus these areas become difficult to navigate.



Figure 3.5.1. Curved wall indicating landmark as seen from exterior.

### 3.5.3. CREATE WELL-STRUCTURED PATHS

A well-structured path should have a clear beginning and end. "A well-structured path maintains a navigator's orientation with respect to both the next landmark along the path and the distance to the eventual destination" (Foltz 2015).

Exhibitions with timelines are examples of where there is a start, extent and end that form the well-structured path. Exhibitions with different messages, should have a clear introduction and conclusion, which encapsulates the path, progress on this path is marks by moving from one message to the next.

There are no well-structured paths within the D: NMCH. The entrance walkway is the main path from where visitors move into adjacent spaces. However, this path is not well-structured and defined. The walkway does not have diversity in appearance or any additional signage to inform the visitor of adjacent spaces. There are no paths between exhibitions, there is only the main event space that connects these spaces. The Objects with Stories exhibition is exhibited according to a timeline. The exhibition has two entrances which results in confusion when viewing the objects on display. This results in the exhibition to be viewed in a negative manner.

### 3.5.4. CREATE REGIONS OF DIFFERING VISUAL CHARACTER

Spaces should ideally be subdivided into regions with a distinct set of visual attributes to assist in wayfinding. These regions do not have to have sharply defined boundaries, but should show some indication of different attributes.

Regions assist wayfinding by providing another set of cues for recovering location. The use of enclosures create regions in large spaces or within exhibitions. Regions are reinforced by variations in colour and material treatment of interior elements, shape differences and lighting level changes.

The visual identity of each exhibition within the D: NMCH defines it as a region, apart from the rest of the museum. Different regions within the museum is unsuccessful as the museum looks like one large region with no defining elements. The same colour, material and lighting levels are used within the museum. The museum, apart from the walkway, is very dark and monotonous. This is an important aspect that will provide guidelines when designing the foyer and gathering space.

### 3.5.5. DON'T GIVE USER TOO MANY CHOICES IN NAVIGATION

The organisation of a space should have a primary path for visitors to follow. From this primary path visitors will take detours to other spaces. Navigation becomes difficult if there are too many detours available for the visitor to take. In some instances the visitor will miss some areas due to the many detours available. Diagram 3.5.1. illustrates the exponential result of too many detours.

This relates to the unsuccessful implementation of the walkway as a well-structured path within the D: NMCH. There are a lot of detours to take from this primary path, but no indication as to where these decision points will be located. Within the main museum level there are no detours that can become confusing as the exhibition spaces are accessed from the multi-functional event space.

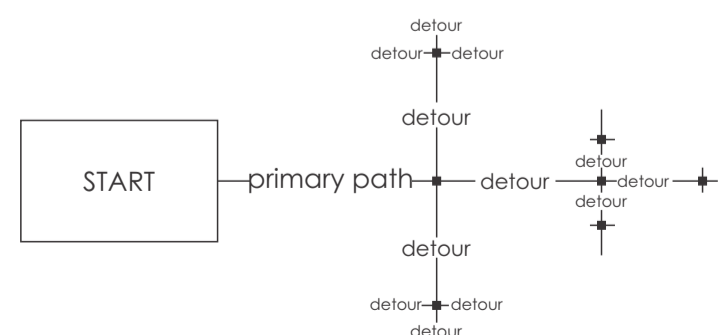


Diagram 3.5.1. Primary path and detours.

### 3.5.6. USE SURVEY VIEWS

A map is a valuable navigation aid. It places the entire space within the visitors' view, from where several judgements can be made. Some judgements include the location of the navigator, their immediate vicinity, routes and facilities available and approximate distances to these facilities. The physical map can provide the basis of the visitor mental map. These maps can be implemented as a general map at the entrance to the museum, a brochure map or maps mounted near specific exhibitions. A map serves as reference material and should not solely be relied on.

The map given at the D: NMCH is clear, but not professional. (As discussed in Chapter 2, Visit 3). This map helps the visitor navigate through the exhibitions, but gives a negative impression of the museum. Another negative aspect is that the map is not always available to visitors.

### 3.5.7. PROVIDE SIGNS AT DECISION POINTS TO HELP WAYFINDING DECISIONS.

Signs should be placed, where necessary at decision points. These decision points are where the visitor must make a wayfinding decision. Signs should help the visitor reach their eventual goal. Signs should be placed where it is important for the visitor to make the right wayfinding choice, or where there is no clear indication of what lies ahead and self-exploration is not desired.

The hierarchy of information to be used on signs is important. This results in the choice of typeface, font, size, spacing of letters, symbols and colour contrast.

Signage at the D: NMCH is unsuccessful in the way it is presented and the amount throughout the building. There are not many signs providing additional information to visitors. The signs that are there, are old and neglected (Figure 3.5.2.), and in some instances hidden behind objects, plants or additions. The fire safety signage (Figure 3.5.3.) is successful in the museum as it is large enough to be seen from a distance, has colour contrast between symbols and background, and sign to background surface. There are evacuation route maps mounted on the walls in certain areas (Figure 3.5.4.)

### 3.5.8. USE SIGHTLINES TO SHOW WHAT'S AHEAD

An extensive view in a particular direction is used to draw the visitor in that direction. This encourages the visitor to move further into the space. Sightlines generally have a goal, also referred to as "visual magnets" (Foltz 2015) to navigate towards. This goal is intended to spark the visitor's interest and acts as reward for choosing this path. Sightlines should be thought of as an alternative to signs.

There are no visual magnets within the D: NMCH. The spaces do not contain elements that draw visitors further into the space or that spark their interest. Sightlines are not successfully executed within the museum, as the interior is monotonous with no visual interest.

### 3.5.9. Conclusion

"The first class of principles develop a basic vocabulary of spatial features that assist wayfinding and imageability: identifiable places, landmarks, paths and regions... The second class are about the views that the navigator has into the space, and how designers can provide information necessary for wayfinding and decision making" (Foltz 2015).

The existing design of the D: NMCH does not incorporate a successful wayfinding system. The museum is difficult to navigate for first time visitors as well as returning visitors. The lack of wayfinding elements in a monotonous space leads to fatigue. The criteria to determine the navigability of the space are not met within the D: NMCH. A visitor cannot easily determine their location within the larger context of the museum, routes to the next destination are not well-structured and the overall difficulty of spatial problem solving make the spaces unnavigable.

Many people are unaware of consciously using specific wayfinding strategies.

### 3.6. Conclusion

The study of museology was used to determine best practice in museum design. The D: NMCH does not comply with the standards and missions as set out by ICOM and Ditsong Museums of South Africa. Visitor learning theory was studied to determine how the museum is used as an educational resource. The traditional visitor learning at the D: NMCH should develop into contemporary, multisensory learning environments. The navigability of the D: NMCH is difficult to manage for first time visitors as well as returning visitors. Principles of wayfinding was studied to establish current usage within the D: NMCH and to provide guidelines for further interventions.

The theories investigated, museology, visitor learning and wayfinding, will provide guidelines for the design of the entrance, foyer and gathering space within the D: NMCH.



Figure 3.5.2. Neglected signage



Figure 3.5.3. Fire safety signage



Figure 3.5.4. Evacuation route signage





# CHAPTER 4

## DESIGN DISCOURSE

The design generation and development process will be outlined in this chapter. Precedents that had an influence on the design are also investigated in this chapter. The development of the design through the course of the design process will be documented in written and visual explanations. This chapter will conclude with the final design.

The design process was influenced by the site restrictions and opportunities, theories investigated and programmatic requirements.



## 4.1. PRECEDENTS

The following precedents were chosen to investigate because of their applicability to the project. The Victoria and Albert Museum's (London) FuturePlan project and Seattle Central Library (Seattle) were chosen for their focus on visitor interface with the building's facilities and the focus on enhancing the visitor's experience. The Seattle Central Library's design also relates to the design approach for the D:NMCH. The Rose Centre at the American Museum of Natural History (New York) was chosen due to its applicability as a learning environment within a museum. Sci-Bono Discovery Centre (Johannesburg) was chosen as a case study which was visited to observe how groups interact with the centre facilities and with each other.

### 4.1.1. VICTORIA AND ALBERT MUSEUM



Figure 4.1.1.1. Exhibition Road courtyard. (Vinnitskaya 2011). London, England

Construction of Exhibition Road Building Project: 2014-2017

**Architect:**

**Original:** Captain Francis Fowke

**FuturePlan:** Various (2004 - )

**Exhibition Road Building Project:** Amanda Levete Architects

**Cromwell Road entrance:** PRS Architects

**Grand Entrance and Dome:** Eva Jiricna Architects

**Programme:** Gallery for temporary exhibitions, public courtyard and new museum entrance.

**Design relevance:** The visitor interface with the building's facilities is successfully implemented within this precedent. These aspects can be considered as guidelines when designing the entrance, foyer and open gathering space at the D: NMCH.

The Victoria and Albert Museum's FuturePlan was started in 2004 and will be completed in 2017.

FuturePlan is a programme of development which is transforming the V&A by revitalising visitor facilities. Designers are also creating new galleries, while revealing and restoring the original building. "FuturePlan aims to delight and to inspire visitors, and to continue the museum's tradition of championing new talent" (VAM 2014).

As part of FuturePlan, the Exhibition Road Building Project will provide a new entrance to the museum, a courtyard with a purpose built gallery for temporary exhibitions. The courtyard will act as venue for installations and events and will be served by a glass-fronted café. (Vinnitskaya 2011.) "(The design) unlocks the potential to bring new audiences into the museum by exposing it to passersby" (Vinnitskaya 2011).

Visitors will be drawn in from Exhibition Road by a large, light-filled public courtyard (Figure 4.1.1.1.). This space will serve as a temporary exhibition



Figure 4.1.1.2. View towards courtyard. (Vinnitskaya 2011).



Figure 4.1.1.3. Reception desk at the Grand Entrance and Dome. (EJAL 2003).



Figure 4.1.1.4. Cromwell Road entrance. (EJAL 2003).

'gallery' as well as an event space. The view from the courtyard will look into the museum and appeal to visitors to enter the museum. This aspect is seen on figure 4.1.1.2. from the interior of the museum, viewing out.

The existing Cromwell Road entrance has been transformed in 2003 to create a universally accessible entrance. The design "takes the form of a gentle radius and the steps merge into the slope with a tapering stone detail" (PRS Architects 2003). One of the criteria for the entrance was to create a place where people can meet and congregate. To achieve this, the entrance was enlarged with a more generous approach to the museum and thus creating a gathering place in front of the doors. (Figure 4.1.1.4.)

The "Grand Entrance and Dome" (VAM 2004) on Cromwell Road, was improved by making it a brighter, more welcoming arrival point for visitors. Eva Jiricna Architects resolved the reception area by rationalising the circulation patterns of visitors. (EJAL 2003). A new set of glass revolving doors was installed along with control points for museum attendants. The circular reception desk (Figure 4.1.1.3.) was installed to serve as ticket/ information desk during the day and usable as a bar for evening functions.

In addition to providing new public spaces inside and outside the museum, the project will also uncover the relationship between different London museums and between the visitor and conservators. "Increasingly conservators in museums around the world are spending time working in public gallery spaces in view of visitors" (Frost 2009.) At the V&A, conservators worked on objects for the Medieval & Renaissance Galleries in the Italian Cast Court, whilst it was closed to the public. Visitors were able to view the work in progress from an upstairs gallery. (Frost 2009.)

The V&A designers considered developing touch-screen interactions of the conservation process to stand along objects, but later it was decided that the information on the website will offer a "more immediate, appropriate and effective way of addressing this" (Frost 2009). In each gallery there is one object that visitors can touch. These objects were chosen because they could withstand the rigours of repeated touching whilst offering visitors a rewarding experience. The exhibitions will include a variety of display methods, for example the objects available to touch, short films, information posters, drawers to explore through and audio guides. (Frost 2009.)

**Design influence:**

The FuturePlan designs as described above all relate to enhancing the visitor's interaction with museum facilities and thus improving their overall experience at the museum. The Exhibition Road Project, entrance at Cromwell Road and the Grand Entrance and Dome all provide a legible first impression of the museum to passersby, new visitors and returning visitors.

The visitor's interaction is also an important aspect in the D:NMCH. The museum should provide a legible first impression to all visitors. The intervention can impact the visitor's first impression by focussing on the foyer and wayfinding opportunities.

## 4.1.2. SEATTLE CENTRAL LIBRARY



Figure 4.1.2.1. Seattle Central Library façade. (Ruault 2009)

2004

Seattle, WA, USA

**Architect:**

OMA – Office for Metropolitan Architecture

LMN Architects

**Wayfinding:**

Wayworks

**Client:**

The Seattle Public Library

**Program:** Central library, reading room, book spiral, mixing chamber, meeting platforms, lounge, administration department, children's collection, auditorium and carpark.

**Design relevance:** The visitor interface with the building's facilities is successfully implemented within this precedent. The faceted design of the building façade relates to the faceted design approach taken for additional internal elements at the D: NMCH. These aspects can be considered as guidelines when designing the entrance, foyer, open gathering space and interior objects at the D: NMCH.

The designers of the Seattle Central Library decided that the library should invite the public to enter and form part of its world (Sánchez Vidiella 2011:144). The concept was to define the library as an institution not solely devoted to books, but as a mine of information where all forms of communication are presented in a legible manner. Concerns of the designers were the public spaces and the relationships that can be established therein by the visitors.

Some critics argued that an “urban library's architecture should announce that this is the city's prime public building, a place that celebrates knowledge, imagination and self-improvement” (Mattern 2013:6). The above is clear in the Seattle Central Library, the building has become a recognized Seattle landmark and the interior functions and design do celebrate knowledge and imagination.

According to the designers, the faceted form of the building was derived rationally by defining internal functions and by structural soundness and efficiency. The form was also influenced by the surrounding context, the experience of views and daylight. (Mattern 2013). “To the architect, ‘place’ was something appreciated from inside, not enhanced from the outside” (Mattern 2013:15).

The designers divided the project into two areas; stable areas (traditional use), and unstable areas (uncertain use). The stable areas include administrative departments, offices, Book Spiral, staff rooms and parking areas. Unstable areas include the reading room, mixing chamber, lounge, children's area and multilingual sections.



Figure 4.1.2.2. Entrance to the library. (Herrera 2009).



Figure 4.1.2.3. Stacks and workspace. (Prat 2009).

The entrance (Figure 4.1.2.2.) to the library is large to allow for maximum pedestrian traffic and to give the impression of a clear and accessible library. The designers realised that the library should function efficiently for both the patrons and its librarians. The mixing chamber is centrally located on the third floor, this is an area of maximum librarian-visitor interaction. The designers described this as “a trading floor for information orchestrated to fulfil an essential need for expert interdisciplinary help” (OMA 2004).

The library's main collection will be organized into a continuous spiral that loops through four levels of the building. Other functions such as workspaces are interspersed throughout the stacks (Figure 4.1.2.3.) to create a break in the monotonous run of books. The book spiral has a capacity for 1.45 million books. (Jodidio 2006:334).

The wayfinding system designed by Wayworks is used to improve the overall experience of the building. The free standing directional signs (Figure 4.1.2.4.) were designed to create a bold presence with their size and colour. This is important to alert visitors to navigational decision points. The graphics on the information desk and book spiral (Figure 4.1.2.5.) were enlarged to be visible from multiple locations on the floor. The colour (chartreuse) of the general directories (Figure 4.1.2.6.) match the colour of the vertical navigation elements, such as the escalators. (Wayworks 2014).

The glass walls surrounding the book spiral were seen as a navigational hurdle for many visitors. To bring attention to the doorways, a dot pattern was applied around them as seen in figure 4.1.2.8.



Figure 4.1.2.4. Free standing directional signs. (Wayworks 2014).



Figure 4.1.2.5. Information desk graphics. (Wayworks 2014).



Figure 4.1.2.6. General directory. (Wayworks 2014).



Figure 4.1.2.7. Dot pattern around doorway. (Wayworks 2014).

**Design influence:**

The Seattle Central Library design focused on various interactions between visitors, librarians and different areas. These interactions are facilitated through spatial design and wayfinding.

The D: NMCH design should also allow for various interactions between visitors, museum staff, exhibitions and other museum facilities. Separate spaces or regions within larger spaces should be designated for these types of interactions.

The wayfinding system in the Seattle Central Library is successful in the manner in which visitors' experiences are improved by understanding how to navigate through the interior. This aspect of wayfinding is important within museum design, as it is also a public building where information is viewed and this should be understandable.

Design consideration in the D: NMCH will be given to spatial design and zoning as well as other wayfinding principles to optimise ease of navigability and understanding of the museum spaces.

### 4.1.3. ROSE CENTRE FOR EARTH AND SPACE, AMERICAN MUSEUM OF NATURAL HISTORY



Figure 4.1.3.1. Rose Centre for Earth and Space. (Ennead 2014).

2000

New York, NY, USA

**Architect:**

Polshek Partnership (now Ennead Architects)

**Exhibition designer:**

Ralph Appelbaum Associates

Jeff Kennedy Associates

**Programme:** Planetarium, additional exhibits, educational programmes and other visitor amenities.

**Design relevance:** The museum as a learning environment is successfully implemented within this precedent. The manner in which these learning environments are applied can be used as design inspiration for the design of the D: NMCH as an educational resource.

The expansion of the American Natural History Museum came at a time when the museum was “struggling to remain attractive to both children and adults” (Goldberger 1995). The Rose Centre is a 29 metre high glass cube that contains a theatre, exhibition space, other visitor amenities and a large sphere that houses the Hayden Planetarium. (Figure 4.1.3.2.) The lowest level of the Rose Centre contains the Cullman Hall of the Universe (Figure 4.1.3.3) where a physically and thematically linked sequence of exhibitions connect the new building with the old. (Arcspace 2012.) This linked sequence of exhibitions was approached from the perspective of creating a new journey for visitors through the natural world and human culture to the earth and space. (Goldberger 1995.)

The exhibitions use various display methods such as video screens, interactive displays, lighting and audio effects. The different display methods allow visitors to interact with the exhibit to learn on different levels. As stated in Chapter 3, learning is driven by curiosity, discovery, free exploration and the sharing of experiences with companions. Figure 4.1.3.4. shows flat display units that is low enough to sit on as well.

The sphere is “intended both as a powerful architectural abstraction and as a symbol of technology” (Goldberger 1995). The sphere is clad in white aluminium panels (these panels can be used as a screen) and is supported by three pairs of tapered steel legs. The legs also anchor a spiralling ramp that connects theatres inside the sphere with the lower level. The approach is that visitors experience the Rose Centre from the top down. (Arcspace 2012.) The ramp’s balustrade accommodates information panels with the history of the universe that is laid out in a linear manner. (Figure 4.1.3.5. and 4.1.3.6.)



Figure 4.1.3.4. Display and seating unit. (Ennead 2014).



Figure 4.1.3.5. Balustrade with information panels visible at bottom of figure. (Ennead 2014).



Figure 4.1.3.6. Walkways around the sphere. (Ennead 2014).

**Design influence:**

The Rose Centre is a successful example of a museum space where visitors' experiences of the exhibits and museum facilities are prioritised. The journey the visitor embarks on in the museum is well thought out, and incorporated in the manner in which information is displayed. Various types of visitors can enjoy this journey and learning experience. The D: NMCH should encompass these interrelated elements in the same manner.

The balustrade design of the ramp is directly applicable to the balustrade design in the D: NMCH. The balustrade at the Rose Centre is there for safety, but for learning as well. In this example, the balustrade is constructed from glass panels with information panels attached to the top of the balustrade. These panels provide additional information concerning the universe to visitors while they are navigating the space. This provides an interesting design opportunity within the D: NMCH, where the balustrade design can extend its functional purpose beyond that of a safety barrier.

The intervention will be critical in stimulating the visitor's curiosity and should facilitate learning. Social experience of the D:NMCH will influence learning through social constructivism as investigated in Chapter 3.



Figure 4.1.3.2. Rose Centre for Earth and Space. (Ennead 2014).



Figure 4.1.3.3. Cullman Hall of the Universe. (Ennead 2014).

#### 4.1.4. Sci-BONO DISCOVERY CENTRE



Figure 4.1.4.1. Sci-Bono Discovery Centre.

2009

Johannesburg, Gauteng, South Africa.

**Architects:**

**West wing building:** MMA Architects, Lbonico & Sack Architects.

**Programme:** Laboratories, conference rooms, offices and exhibition area.

**Design relevance:** This precedent is a local example where visitor interaction with the museum facilities and each other are observed. This interaction is important to note as the same types of interaction will occur within the D: NMCH. This can be considered as guidelines when designing the entrance, foyer and open gathering space at the D: NMCH.

Sci-Bono is a discovery centre where the focus lies in mathematics, science and technology. (Steenkamp 2014.) The majority of visitors to this discovery centre are school groups. The exhibition areas are located on different levels in one large volume. These levels are connected by stairs, ramps and an elevator. (Figure 4.1.4.2.) Various groups can visit Sci-Bono at the same time without hindering one another. An important space when dealing with school groups, is a secure place where scholars can leave their schoolbags unattended for the duration of their visit. This facility is located near the information desk at the entrance.

There are various types of display of which the majority is interactive. There are smaller display units where small groups of visitors interact with the display. Figure 4.1.4.3. shows many small groups and individuals at different activity stations. There are activity areas where only groups can participate such as the Building Africa area by Murray & Roberts. (Figure 4.1.4.4.) In this area, children are divided into smaller groups to execute certain objectives to build a house with foam bricks. Every group activity takes place under adult supervision.



Figure 4.1.4.2. Ramps leading up to other activity areas.

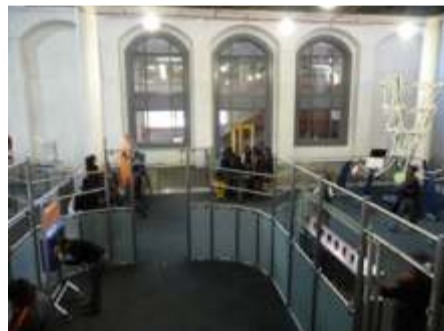


Figure 4.1.4.3. Various activity stations.



Figure 4.1.4.4. Building Africa activity area.



Figure 4.1.4.5. Periodic table of elements.



Figure 4.1.4.6. Element block turned to reveal more information.



Figure 4.1.4.7. Question panel lifts up to reveal answer.

A successful approach to learning can be seen in Sci-Bono display units. A question is asked, and to reach the answer the visitor must interact with the display, by either lifting something up or pushing buttons or even walking to a specific point to view the answer. The periodic table is explained in this manner. First the visitor sees the entire periodic table (Figure 4.1.4.5.), then to learn more, each element block can be turned around to reveal more information and images of the element as it is found in everyday life. (Figure 4.1.4.6.) There is a row of questions at the bottom of the periodic table, to reveal the answer, each question panel must be lift up. (Figure 4.1.4.7.)

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of Sci-Bono:

##### Strengths

- Circulation variety
- Various types of activity areas
- Explanatory text and images throughout exhibitions
- Well lit exhibition areas
- Information desk located in a noticeable position
- Schoolbag storage provided
- Provides various means of learning for individuals and groups

##### Weaknesses

- Limited seating provided
- Ablution facilities far away
- Limited navigational signage
- Exhibitions focus too much on children, and not the adults with them
- Ticket payment procedure unclear
- Schoolbag storage allows bags to lie on top of each other
- New west wing building does not associate with the main exhibition area

##### Opportunities

- Seating, especially in groups, can be improved
- Navigational signage should be designed and increased
- Information desk and ticket purchase point can be combined
- Schoolbag storage can be designed to improve storing method

##### Threats

- Association between west wing building and main exhibition area may be lost
- Children can get lost in the Discovery Centre and find it difficult to navigate

##### Design influence:

The interaction of groups with Sci-Bono directly relate to the D:NMCH as groups are the leading visitor type to the museum. This interaction range from the manner in which they enter the museum, wait while their supervisor organises their entry, and accessing information once inside. The interaction between school groups become important as well.

In Sci-Bono navigational signage is a problem, while exhibition information signage is successful. Signage is an important aspect in wayfinding in a museum as it enhances the visitor's experience. Signage relates to navigational signage throughout the museum and information signage within the exhibitions. Wayfinding will be considered as an important influence on the design of the D: NMCH.

#### 4.1.5. Conclusion

The precedents and case study will provide guidelines for the design of the entrance, foyer and open gathering space of the D: NMCH. These guidelines include the manner in which visitor interaction with museum facilities is implemented at the Victoria and Albert Museum, Seattle Central Library and Sci-Bono. Visitor learning at the Rose Centre for Earth and Space at the American Museum of Natural History and Sci-Bono can be used as a guideline for learning within the D: NMCH. Wayfinding principles as discussed in Chapter 3, and investigated within the Seattle Central Library and Sci-Bono will function as guidelines for the wayfinding design at the D: NMCH.

## 4.2. DESIGN DEVELOPMENT ONE (MARCH 2015)

This initial design development stage serves as exploration into which elements of the museum are important to emphasise. At this stage, after investigating museology within the D: NMCH, it was concluded that the most important part of the museum is not the exhibition, but the process behind the exhibition. The intention of this design investigation was to explore and showcase the conservation process for the benefit of the visitor.

The March design investigation included an exhibition that would serve as guideline for the rest of the museum exhibitions, a conservation laboratory visible to the visitor and research areas. These spaces are divided by the use of differing visual barriers. These visual barriers can be seen on figure 4.2.1 to figure 4.2.3.

### 4.2.1. CRITIQUE AND CONCLUSION

The gathering space becomes too separated by the use of screening elements. The approach however of using a screening element to guide the visitor's movement and sightlines should be further developed.

Even though a research area is designed, learning as a part of visitor experience is not investigated.

Visitor learning and wayfinding as discussed in Chapter 3 should become a design priority.

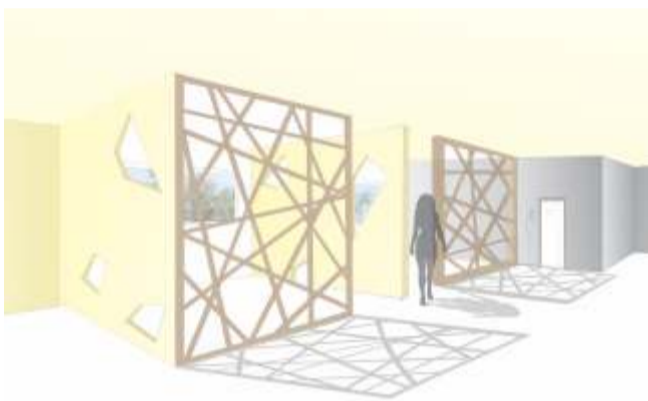


Figure 4.2.1. March design investigation.

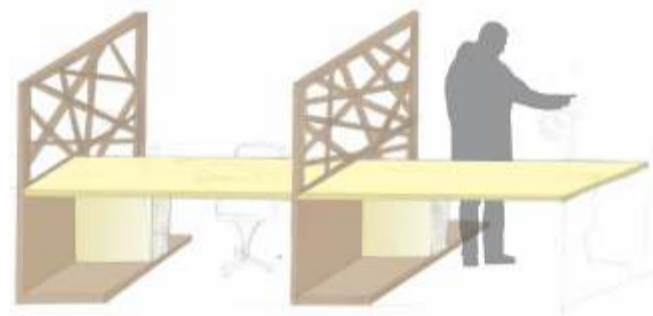


Figure 4.2.2. March design investigation.

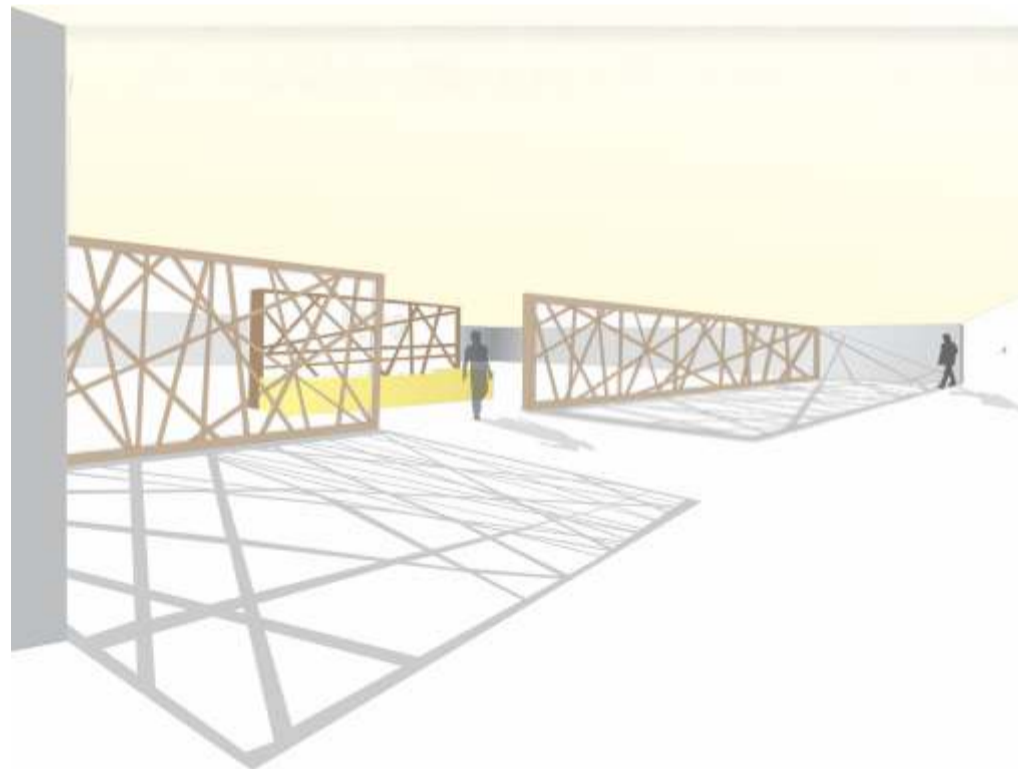


Figure 4.2.3. March design investigation.

### 4.3. DESIGN DEVELOPMENT TWO (April/May 2015)

The initial development stage with the conservation process as influence is developed during this stage. An important aspect explored during this stage is the linking elements between research, education and exhibition. The design developed to include an atrium intervention to physically and visually link the first floor with the ground floor of the museum. The existing ground floor is intended for use solely for museum staff. At this stage it is proposed that visitors should have selected access to the ground floor facilities.

The existing mood of the museum is visually represented (Figure 4.3.2.) with a contrasting proposed mood. The existing is dark and enclosed in terms of volume, light levels, material and colour choice. The newly designed mood is however light and open.

The atrium with emphasis on the supporting spaces is developed during the April/May design development. Figure 4.3.1 and figure 4.3.3 to 4.3.6 indicate these areas.

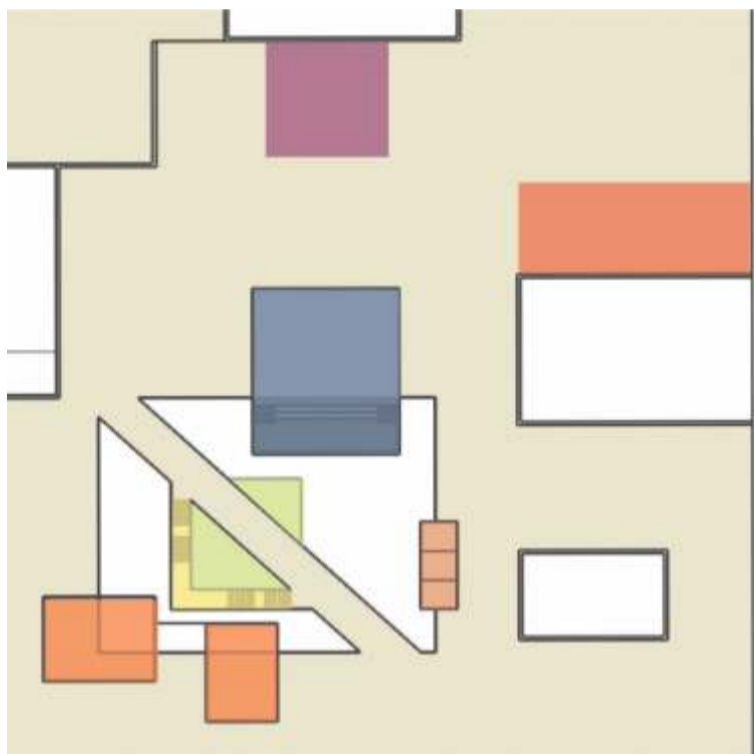


Figure 4.3.1. Atrium and supporting spaces plan diagram.

### 4.3.1. CRITIQUE AND CONCLUSION

The design of an atrium space is successful and should be developed further. The inclusion of separate rooms and a bridge enclose the volume created by the atrium. The atrium should remain open in any further development. The conservation room in the atrium should be developed in the following design stage.

The contrasting light quality as indicated by the moodboard (Figure 4.3.1.) is an important aspect to keep in mind.

The focus on an activity area is not the appropriate design focus. Learning should influence all parts of the design, not just the children's area.

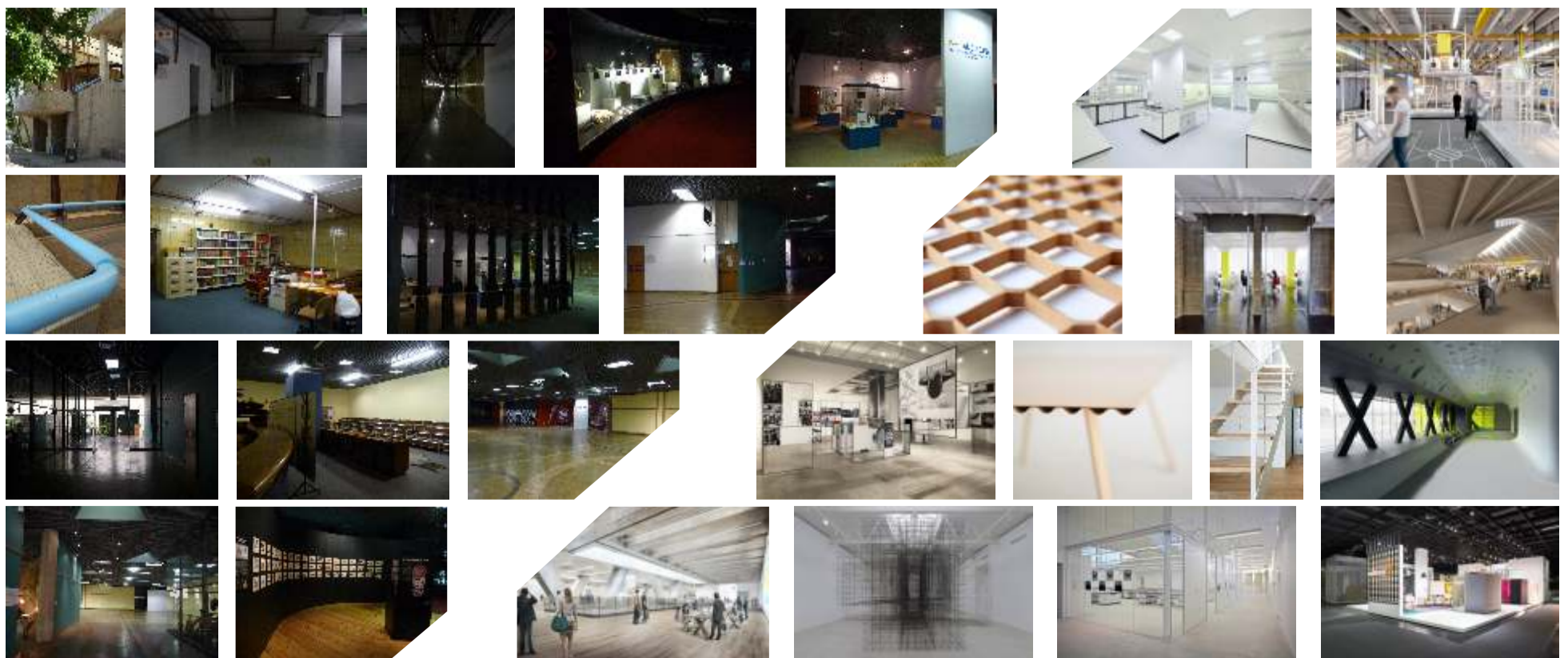


Figure 4.3.2. Existing and proposed mood contrast



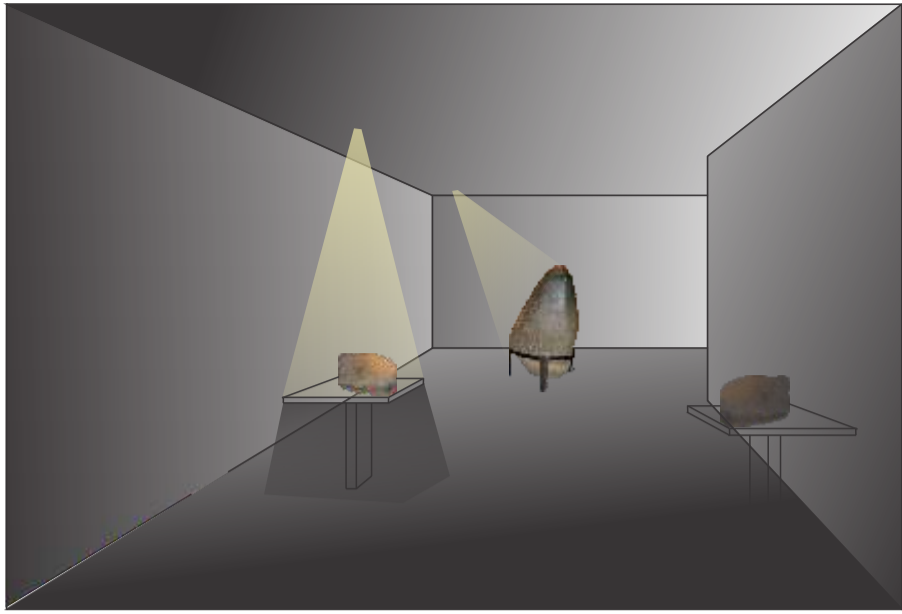


Figure 4.3.3. April/ May design development exhibition.

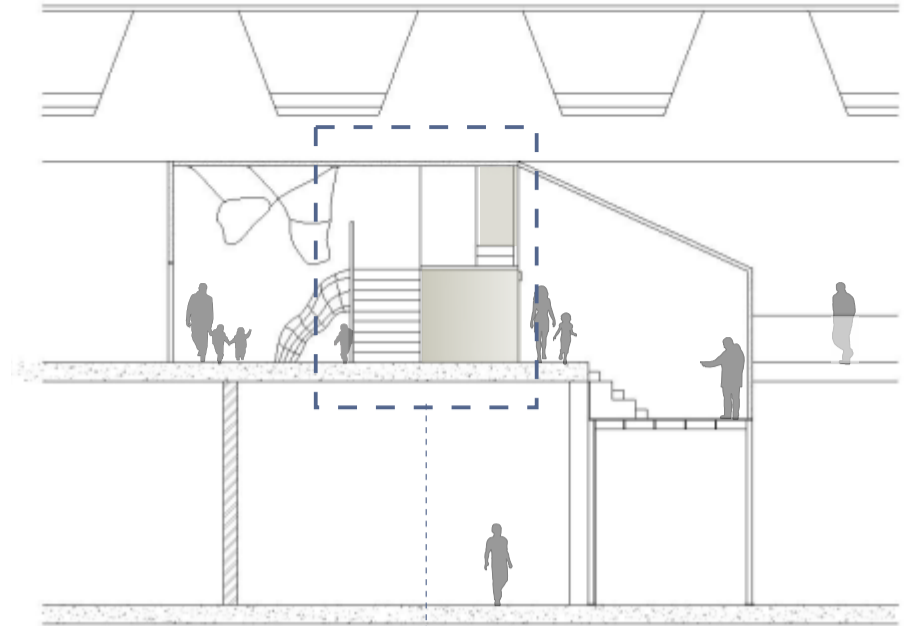


Figure 4.3.4. April/ May design development activity room

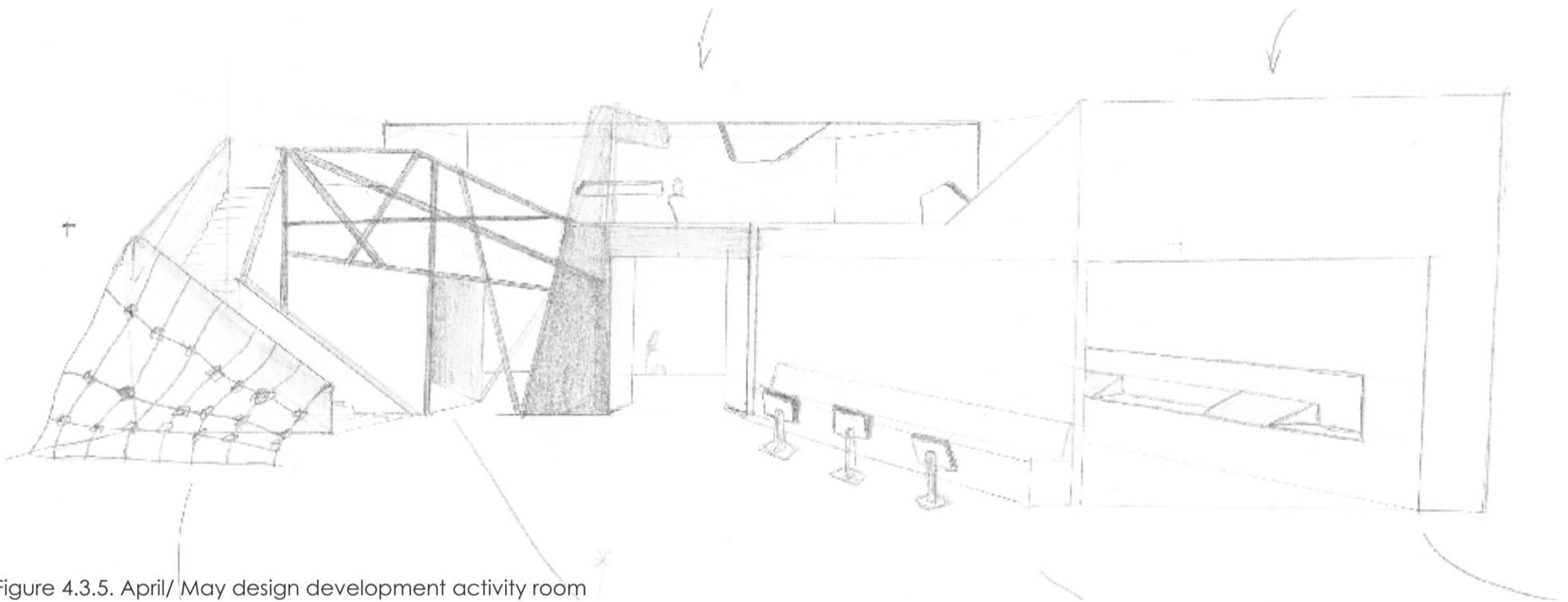


Figure 4.3.5. April/ May design development activity room

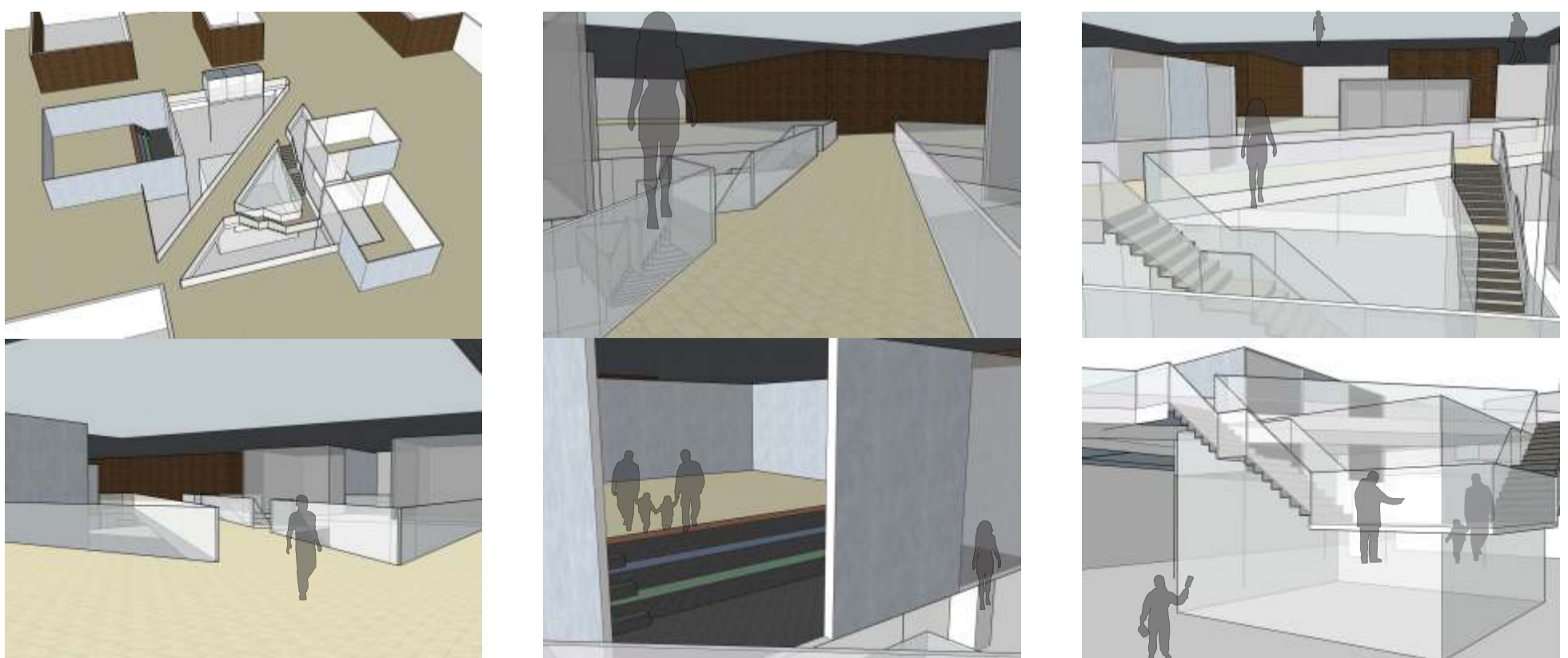


Figure 4.3.6.a-f. Atrium and supporting spaces views

#### 4.4. DESIGN DEVELOPMENT THREE (JUNE 2015)

The June design development phase's focus was to link research, education and exhibition within one central space and not separate spaces as with the previous development phases. The linking element during this stage is concluded to be learning. These spaces should be associated with the end goal of learning.

The zoning (Figure 4.4.2.) of the museum is completed during the June design development stage. The new museum spatial organisation will allow for an unstructured approach. A person may choose their own path without a suggested route that is right or wrong. Temporary exhibitions will be located in close proximity to the new circulation core.

The proposed zoning is compared with the existing zoning of the D: NMCH to ensure no unnecessary space usage is lost. (Figure 4.4.3.)

All aspects of the museum are linked through learning. The main interventionist approach is to provide a museum space where the visitor's interests are piqued and thus where further learning can occur. This space will result in an atrium wherein circulation occurs. The atrium provides the new circulation core that connects the first floor and the ground floor. The atrium is developed in the June development phase with attention to appropriate location and shape. The atrium will be used for staff and visitor access (guided tours) to the storage facilities on the ground floor.

As determined in Chapter 2, the appropriate location for an atrium intervention would be the central area of the museum where an original double volume was located. The atrium shape is explored through a series of drawings and models, figure 4.4.4. to 4.4.10. The atrium shape is developed by investigating different viewing angles within a base model. The curved side of the atrium relates to the usage of curves as landmarks within the D: NMCH. (As discussed in Chapter 3).

<span style="border: 1px solid black; padding: 2px;">P</span> Parking	<span style="display: inline-block; width: 15px; height: 15px; background-color: #8B4513; border: 1px solid black;"></span> Exhibition
<span style="display: inline-block; width: 15px; height: 15px; background-color: #654321; border: 1px solid black;"></span> Public circulation	<span style="display: inline-block; width: 15px; height: 15px; background-color: #D3D3D3; border: 1px solid black;"></span> Event area
<span style="display: inline-block; width: 15px; height: 15px; background-color: #FF8C00; border: 1px solid black;"></span> Tickets and information desk	<span style="display: inline-block; width: 15px; height: 15px; background-color: #2F4F4F; border: 1px solid black;"></span> Activity area
<span style="display: inline-block; width: 15px; height: 15px; background-color: #696969; border: 1px solid black;"></span> WC	<span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border: 1px solid black;"></span> Research area/ laboratory
<span style="border: 1px solid black; padding: 2px;">C</span> Cafeteria	<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black;"></span> Storage

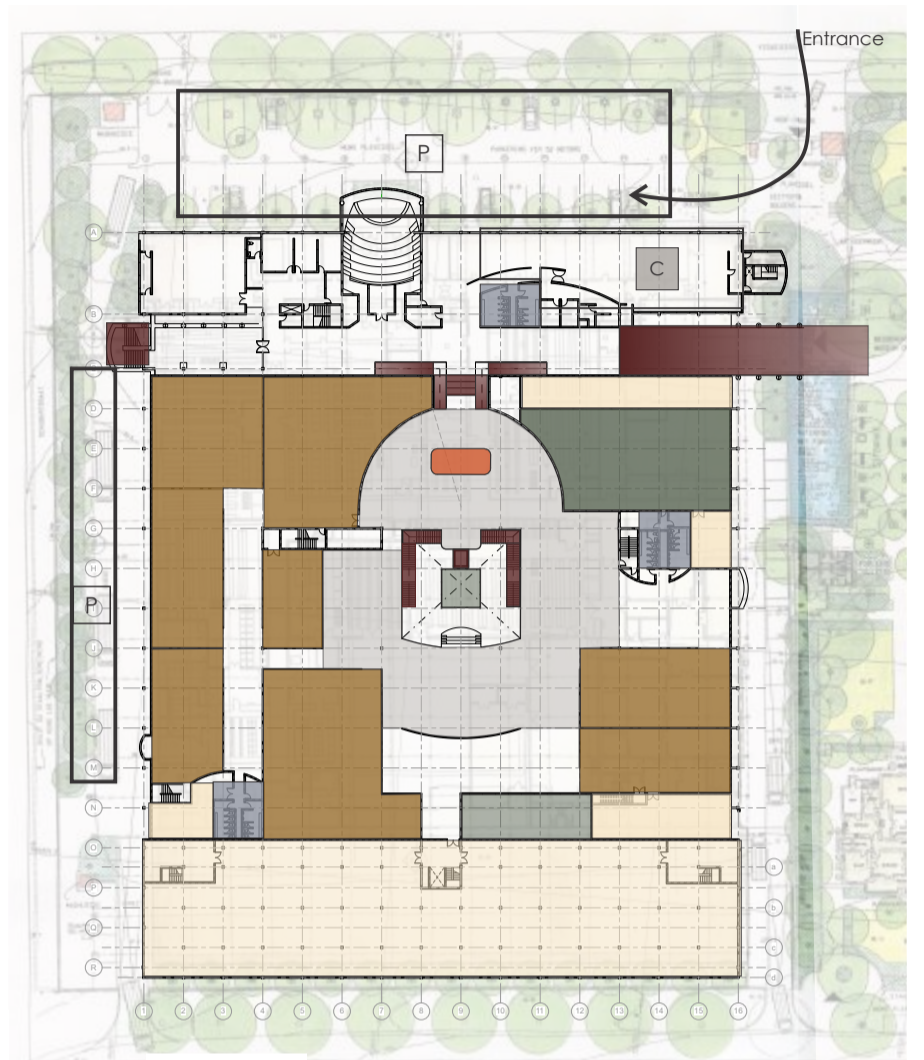


Figure 4.4.2. Zoning of museum

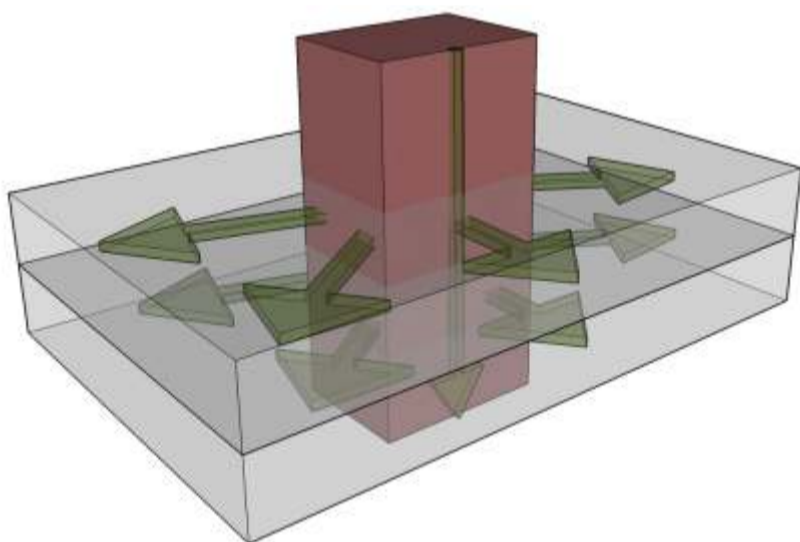


Figure 4.4.1. Connecting approach diagram.

1. Sculptured in Clay
2. San Rock Art
3. Marabastad
4. Recent additions
5. Objects with stories
6. Unused - to be temporary exhibition
7. Unused - to be temporary exhibition
8. Mixed exhibition (Tshwane exhibition and temporary exhibition)
9. Temporary exhibition
10. Temporary exhibition
11. Multi-functional area (Event area)
12. Children focussed exhibition

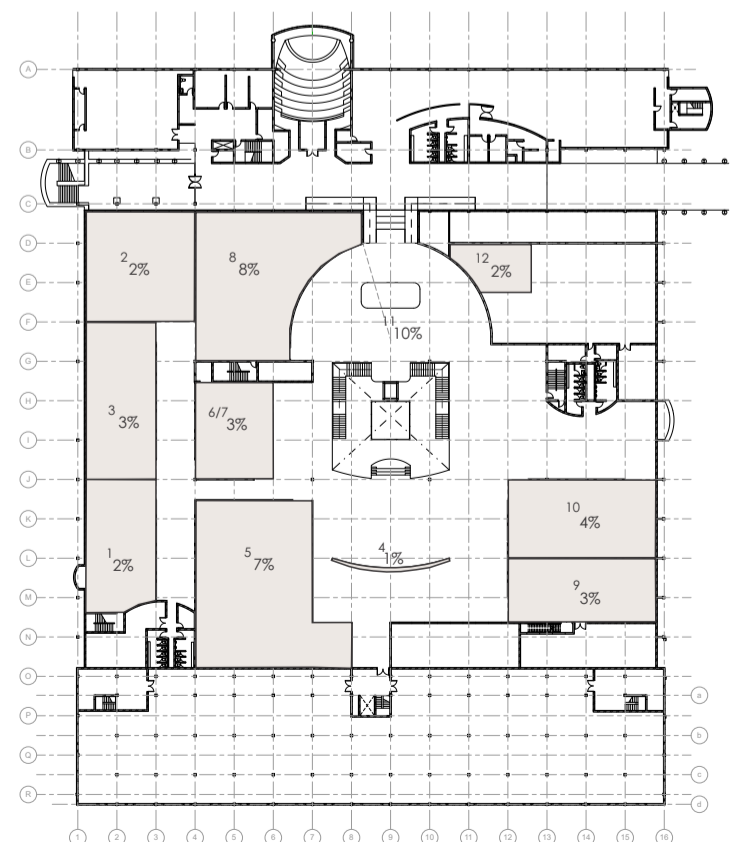
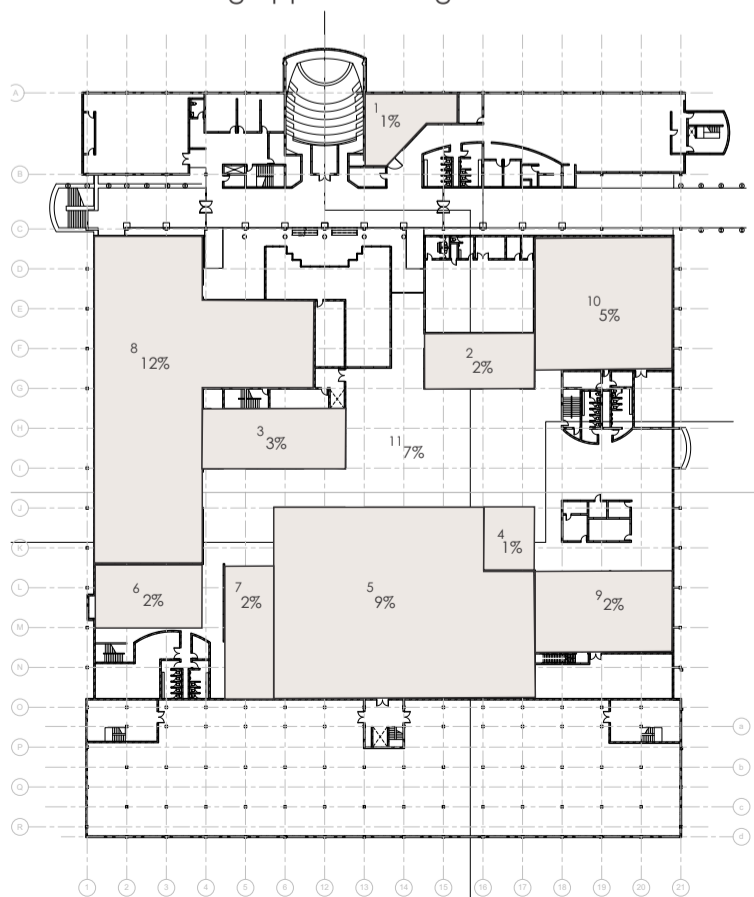


Figure 4.4.3. Zoning comparison.



Figure 4.4.4. a-c. Atrium design investigation 1.

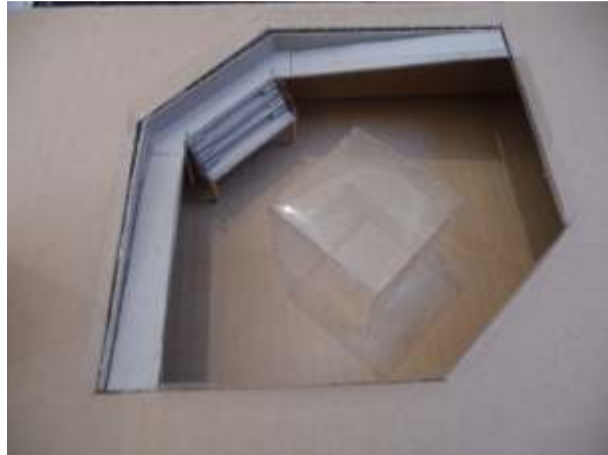


Figure 4.4.5. a-c. Atrium design investigation 2.



Figure 4.4.6. a-c. Atrium design investigation 3.

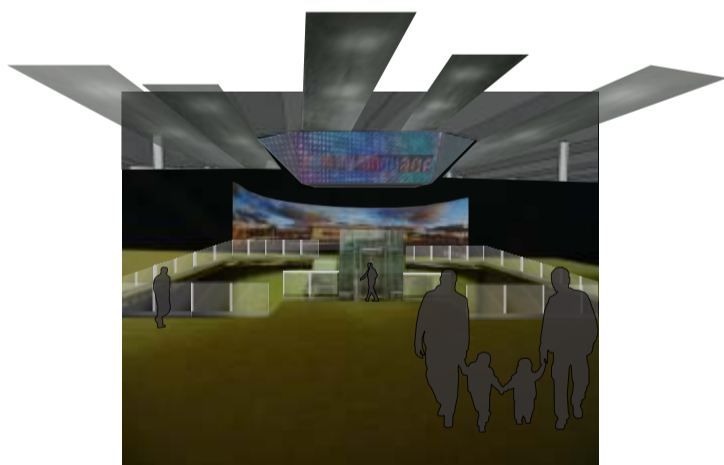


Figure 4.4.7. Collage view towards atrium

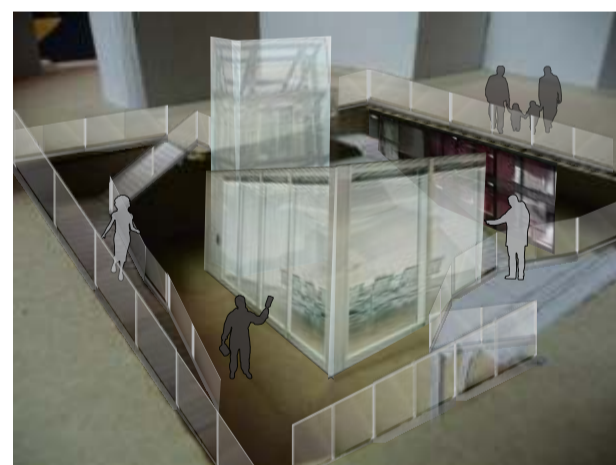


Figure 4.4.8. Collage view into atrium

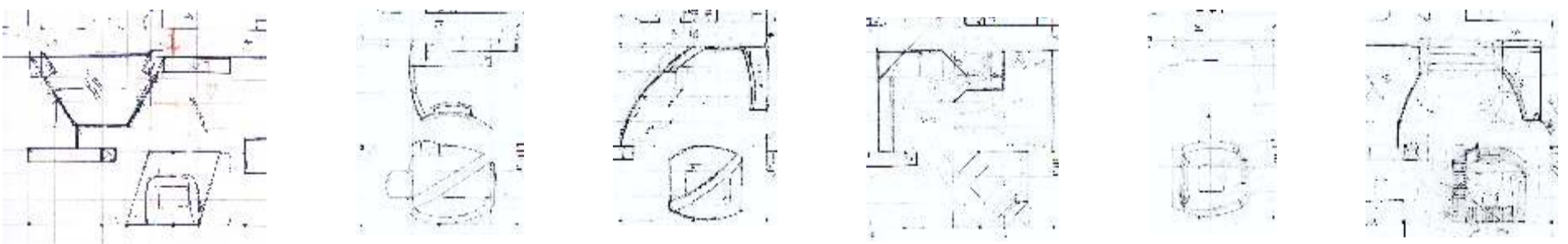


Figure 4.4.9. June atrium development.

#### 4.4.1. CRITIQUE AND CONCLUSION

The proposed zoning of the museum is proved to be successful in the layout as it provides clear navigational routes to aid in wayfinding. The percentage of space usage remains mainly the same and should remain as the finalised museum zoning.

The conservation laboratory in the atrium does not relate to the theory investigated and is not an appropriate space usage within the D: NMCH. A different function should be incorporated on the ground floor.

The raked seating within the atrium should not be developed further. It is clear that this type of seating will not be optimally used in this setting.

The design of a central gathering space should be developed further. The design should incorporate the visitor's impression of the museum from the entrance and not only within the central gathering space.

#### 4.5. DESIGN DEVELOPMENT FOUR (July/August 2015)

The July/August design development phase focusses on refining the atrium design and also the design of smaller interior elements. These aspects will be developed further and thereafter be investigated technically in Chapter 5 – Technical development.

The mood board developed into an overall mood (Figure 4.5.1.) and separate spatial moods (Figure 4.5.3 to figure 4.5.5.). It is clear in the spatial mood images that lighting will play a critical role in the design. The design will contrast the existing light levels of the D: NMCH through the brightness levels and through the design of special lighting conditions.

The image seen in figure 4.5.6 acts as inspiration during the July/ August design development stage. This image shows the relationship between light and dark, as well as the play of light against different facets.

The font and colour choices for materials is investigated by studying the Ditsong logo (Figure 4.5.2.). The logo text is a transitional serif font where there is a contrast between thick and thin strokes. (Carson 2013). The chosen font to be used in the D:NMCH should contrast the existing font (sans serif) and compliment (stroke thickness and overall shape of letters). Colours to be used in further design development is dark grey, red, orange and yellow. The colours used relate to that of flames and embers and thus also the lighting.

Separate interior elements that are focussed on during the July/ August development phase are the reception desk, wall cladding and lighting system. These separate interior elements should contrast the curved interior space making elements.



Figure 4.5.2. Ditsong logo. (Ditsong 2010)



Figure 4.5.1. Overall mood



Figure 4.5.3. Reception area spatial mood



Figure 4.5.4. Atrium from above spatial mood

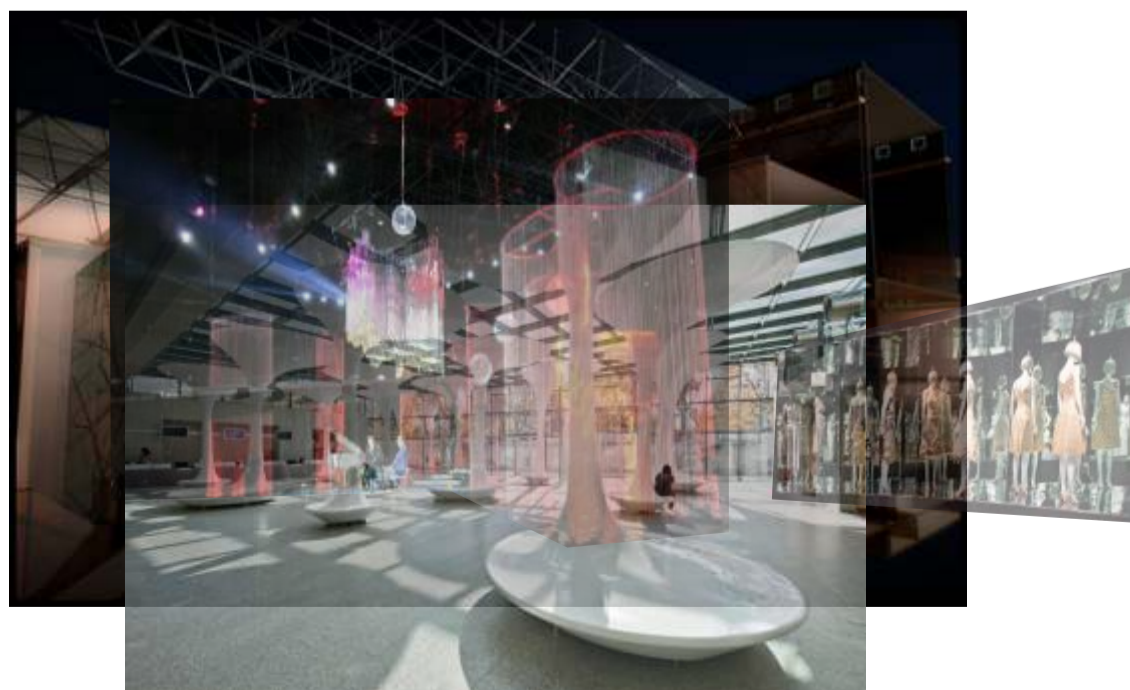


Figure 4.5.5. Atrium from below spatial mood

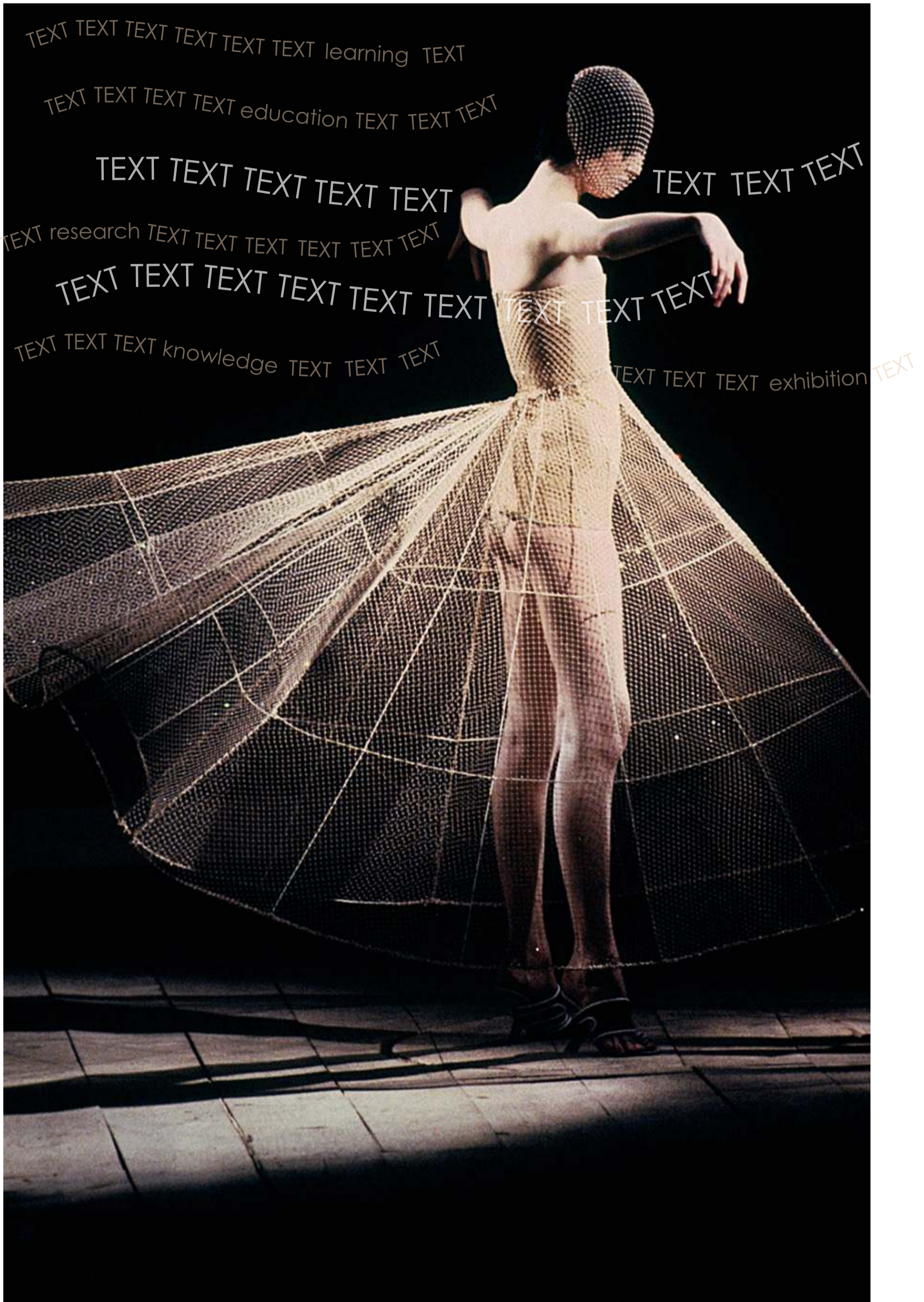


Figure 4.5.6. Inspirational concept image. (Adapted image (Mcqueen 2011))

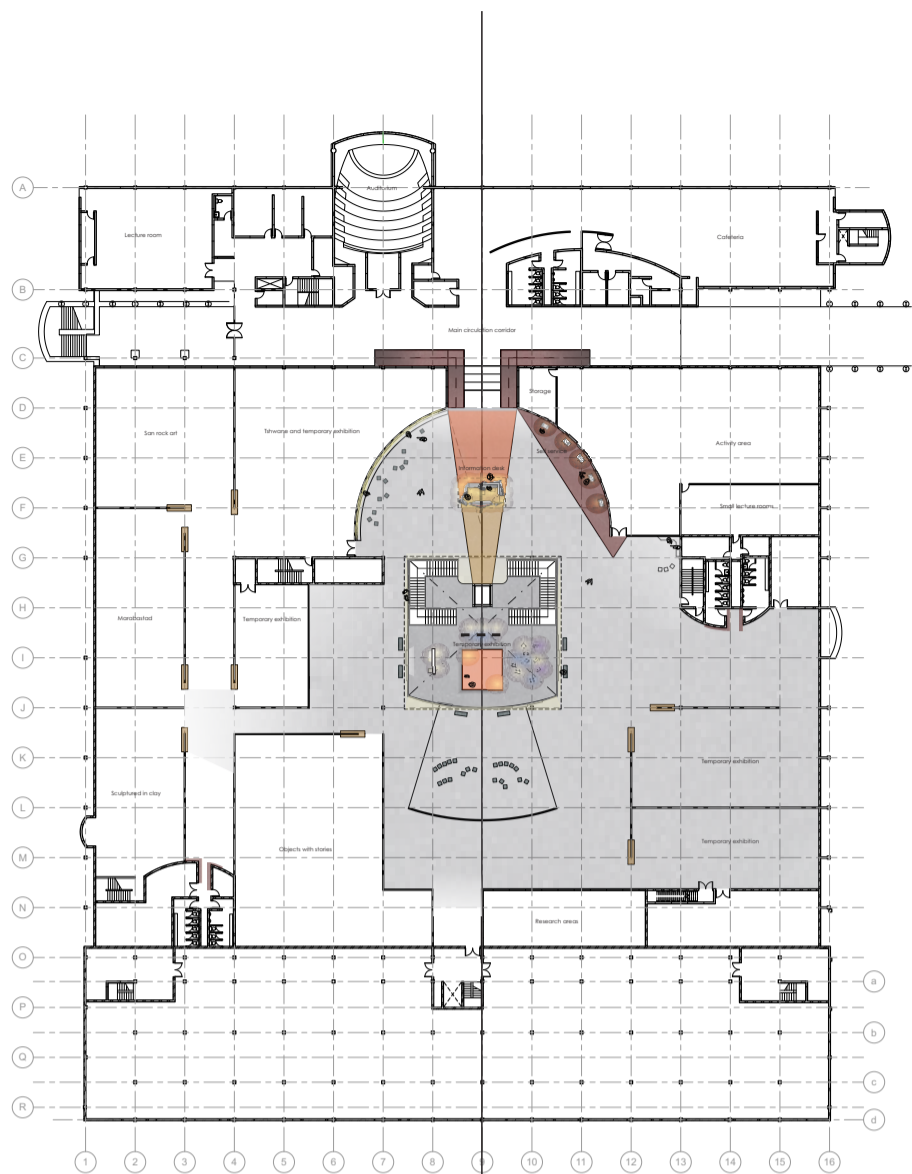


Figure 4.5.7. July/ August design investigation plan.

#### 4.5.1. CRITIQUE AND CONCLUSION

The atrium design is successful in the manner it achieves the aim of connecting the ground and first floor. The temporary exhibition on ground level draws visitors to this space and allows returning visitors to continually enjoy the space.

The design is a successful representation of the moodboards developed during this stage.

Lighting calculations need to take place during the next stage (as part of technical development) to prove the design. Wayfinding should be further investigated, as it is currently not fully implemented.

The design should continuously be measured against the concept.

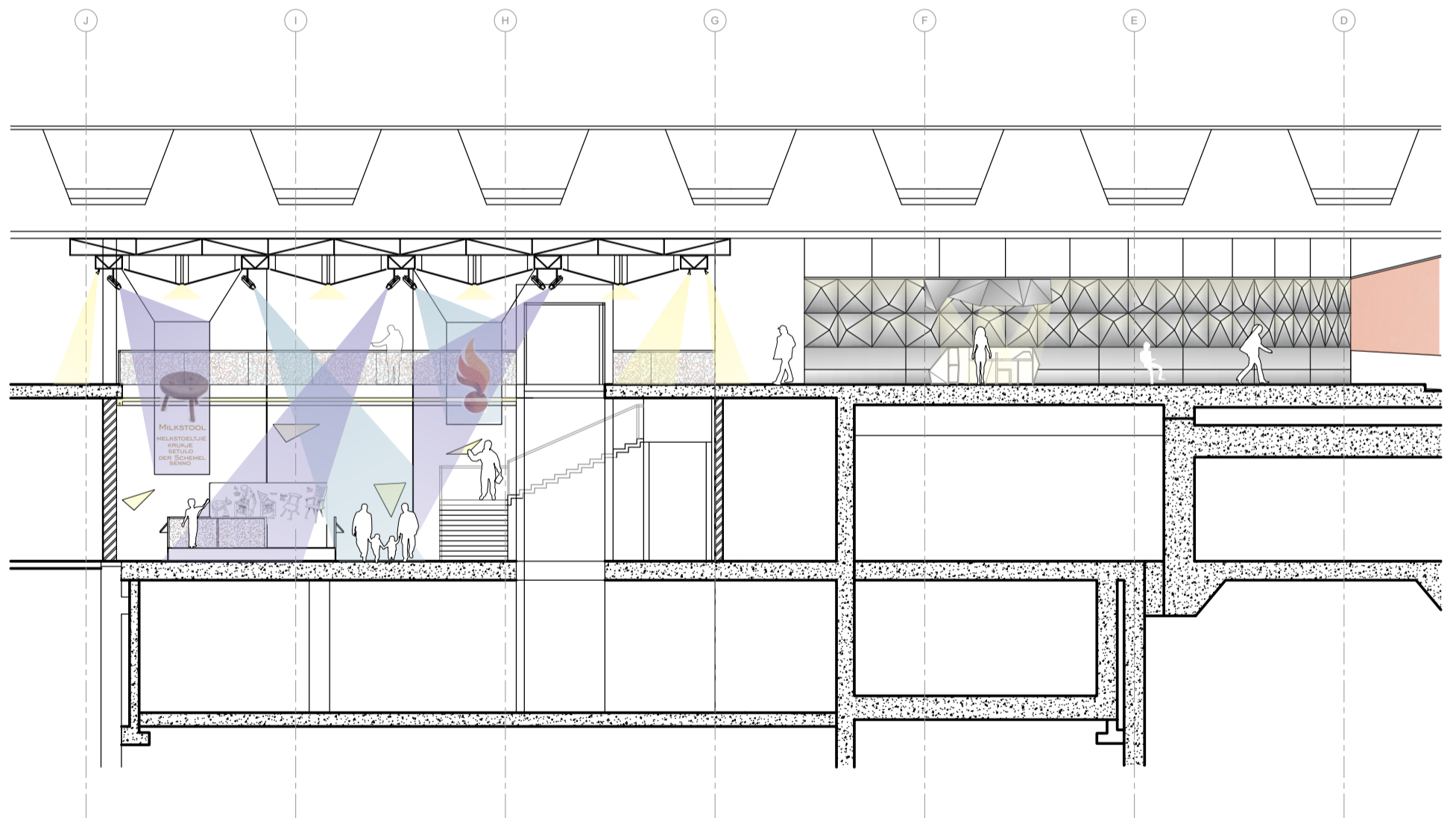


Figure 4.5.8. July/ August design investigation section.





#### 4.6. DESIGN DEVELOPMENT FIVE (SEPTEMBER 2015)

The final design consists of the entrance walkway, foyer and atrium and is a result of the design development stages one through four.

The first design component that the visitor will experience is the ramped entrance and the central walkway. The ramp gradient is corrected by making the gradient more comfortable. The gradient is altered from 1:13 without any landings to 1:15 with two landings every 1,5 meters vertical height. (SANS Part S 2011). The walkway arch is covered with translucent polycarbonate sheets, which allows ample natural light to filter through. The lighting level difference between the walkway and the foyer will be addressed in the following chapter.

Figure 4.6.1 to figure 4.6.4 show the design on plan and section. The final design will be discussed further according to the wayfinding guidelines investigated in Chapter 3.



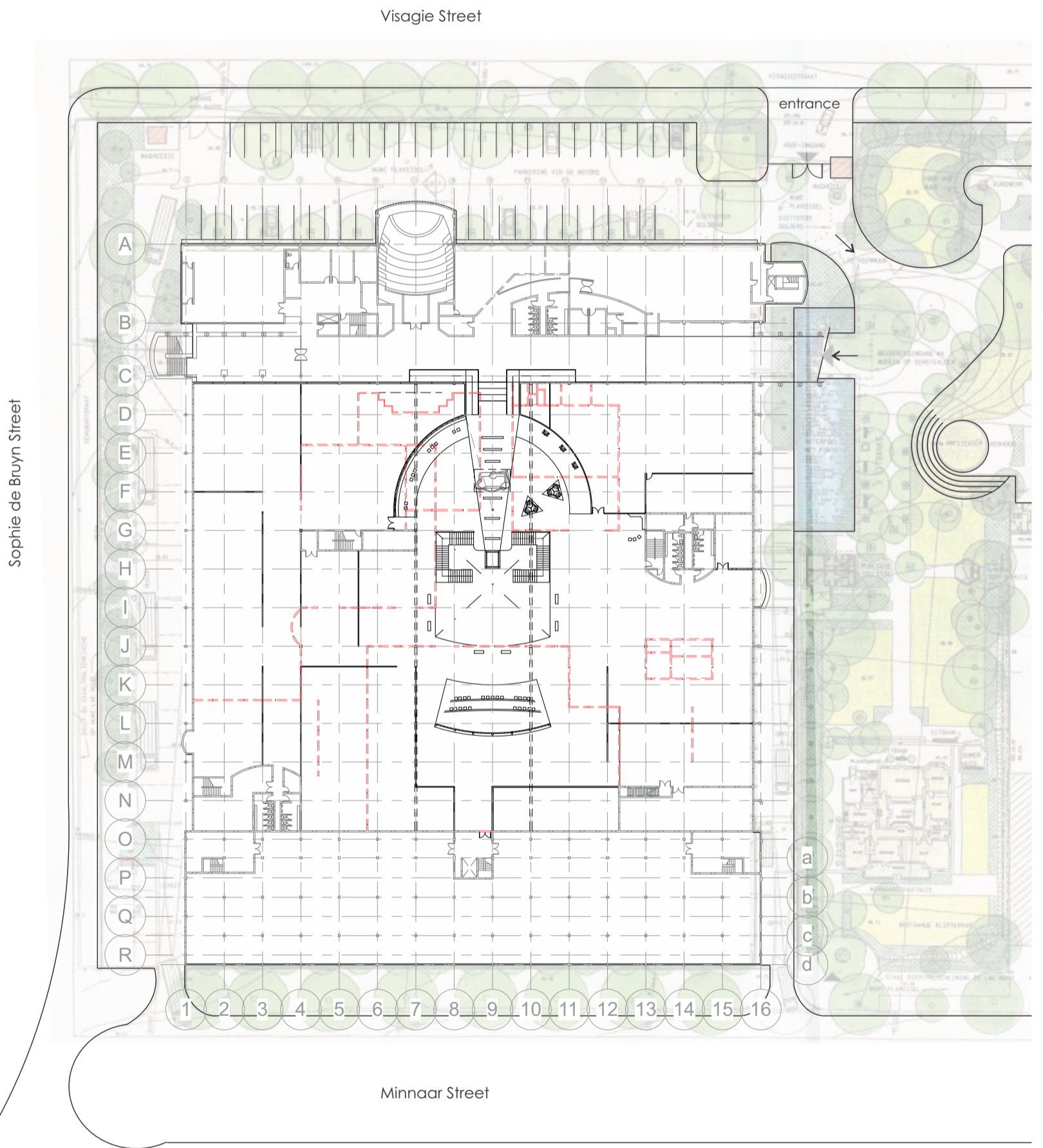


Figure 4.6.1. Final design site plan

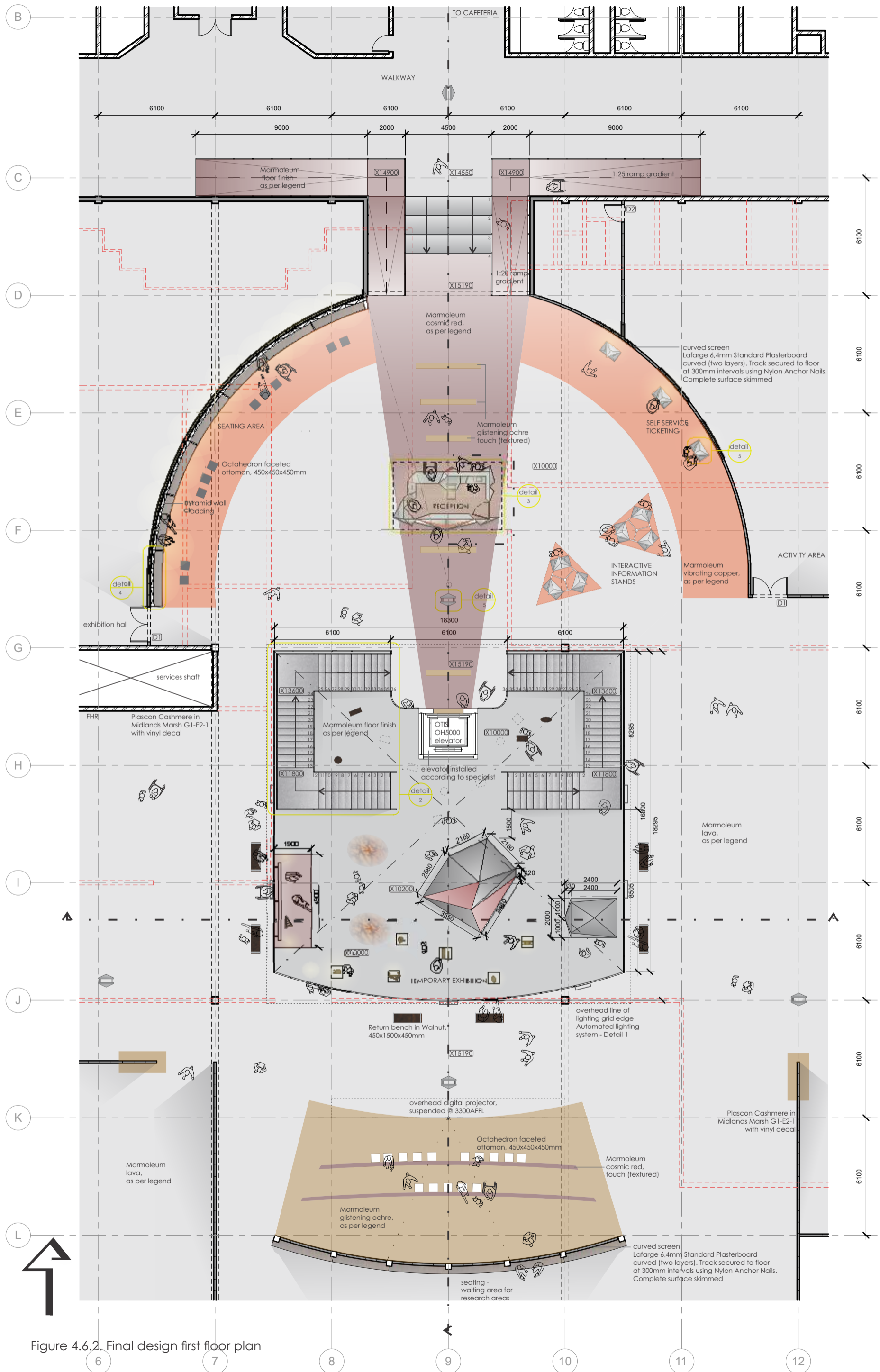


Figure 4.6.2. Final design first floor plan

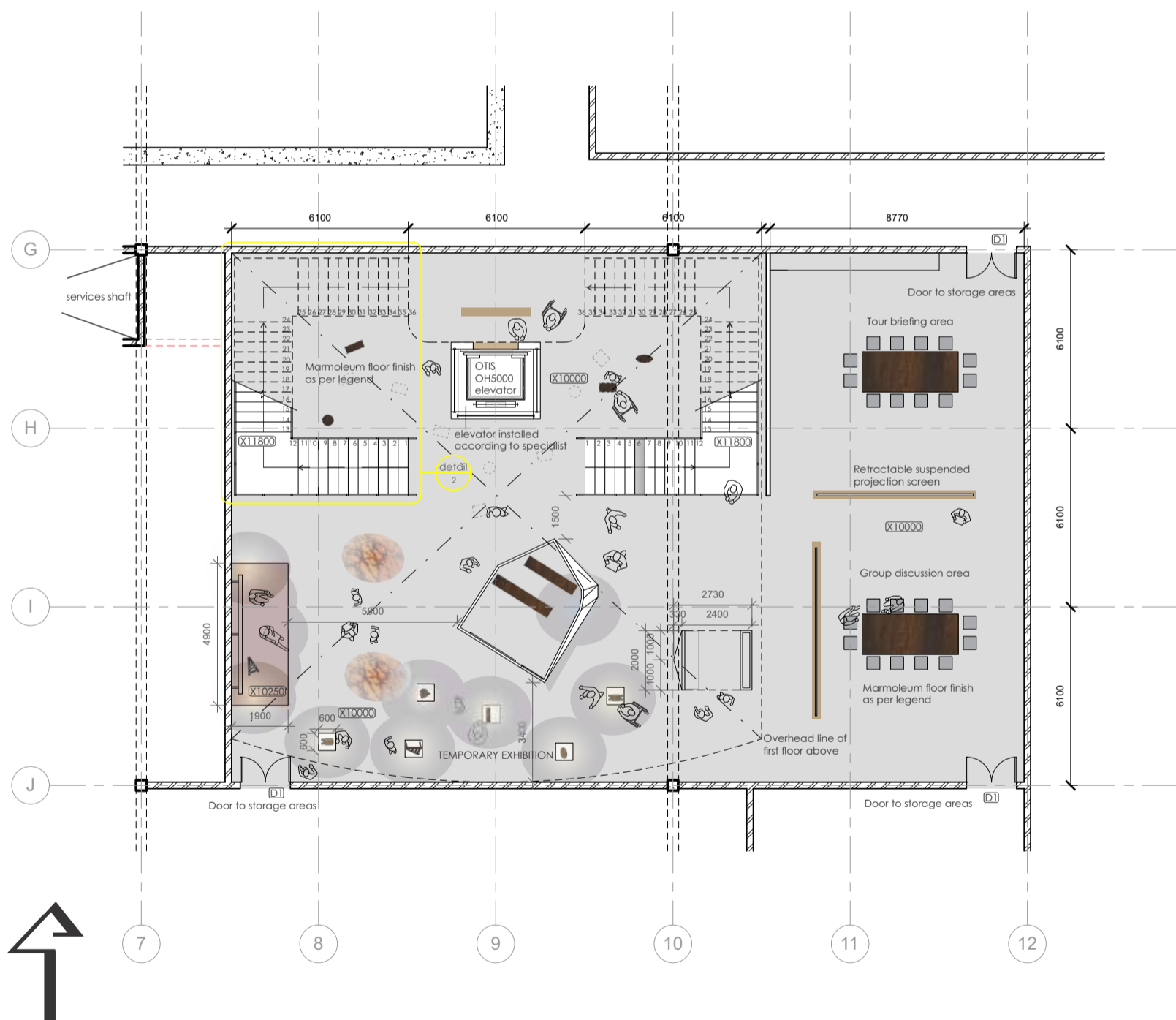


Figure 4.6.3. Final design atrium ground floor plan

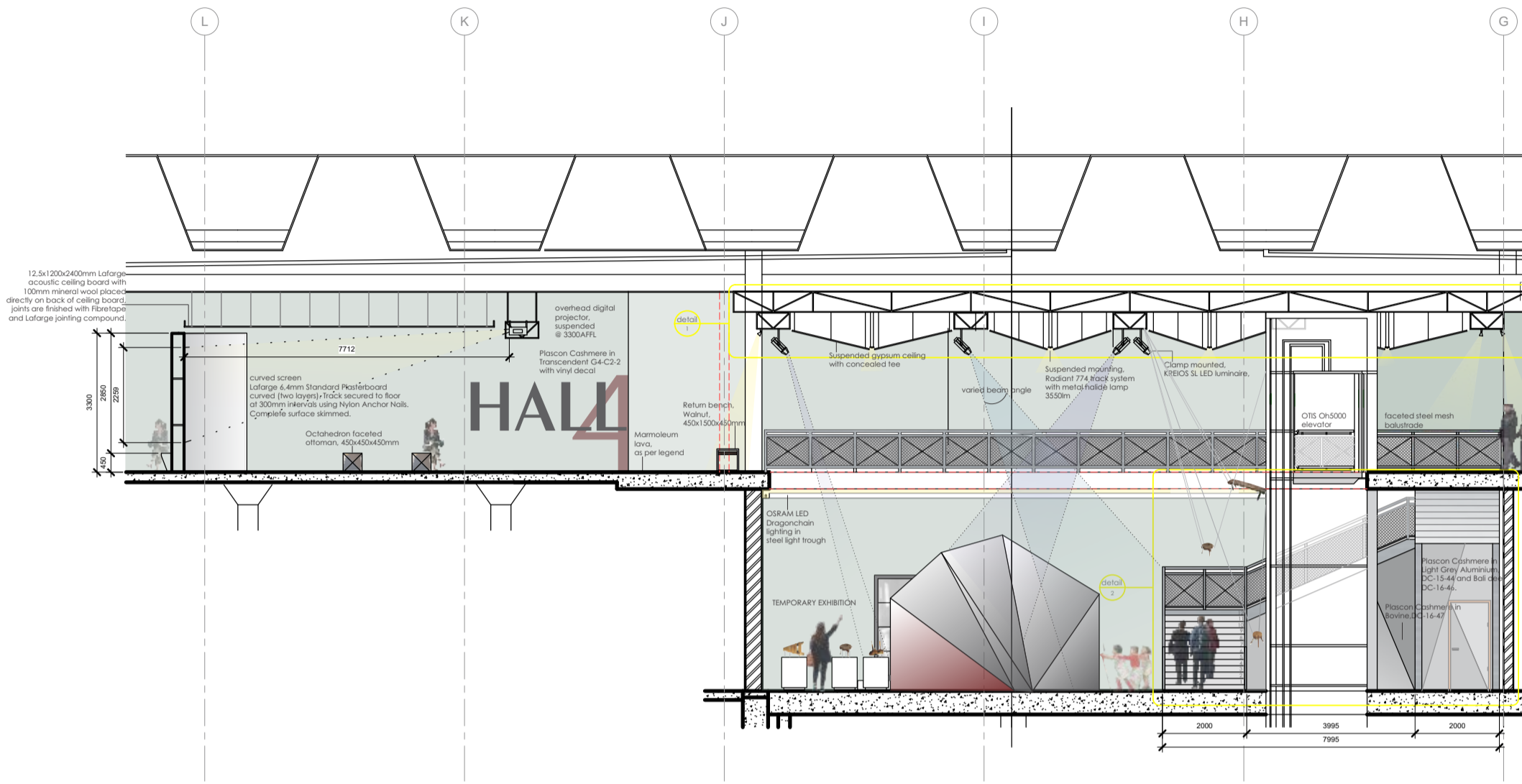


Figure 4.6.4. Final design longitudinal section

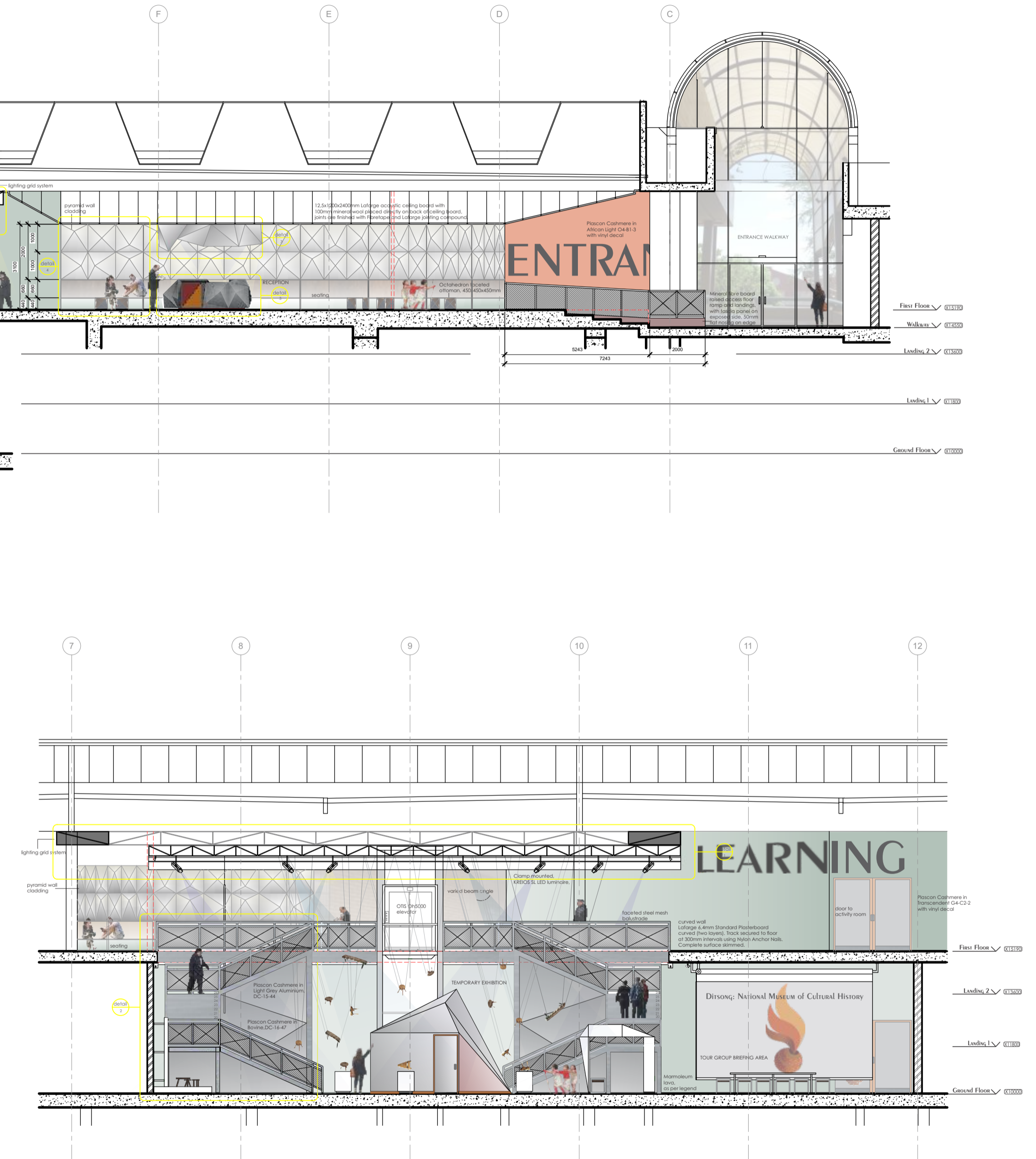


Figure 4.6.5. Final design cross section

#### 4.6.1. IDENTITY AT EACH LOCATION

The identity of the various locations within the final design of the D: NMCH is different to the extent to make them recognizable, but not to be seen as separate elements. The main distinguishable elements of the locations are the differing lighting levels, for example, walkway – bright, foyer – gradient lighting with bright reception desk, atrium – bright with theatrical lighting and exhibitions – mainly spotlights.

A physical aspect that is implemented to create a different identity in the foyer, is the use of faceted elements throughout this space. These elements include the faceted wall cladding and reception desk. (Figure 4.6.6.)

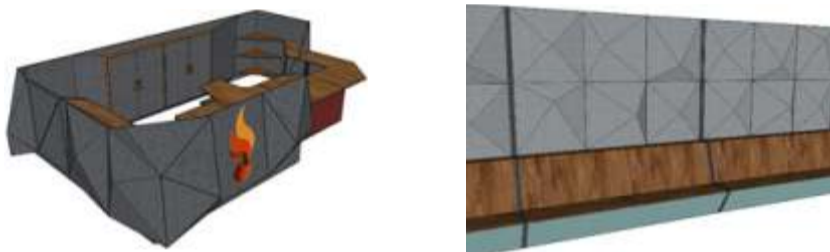


Figure 4.6.6. Faceted design elements.

#### 4.6.2. LANDMARKS TO PROVIDE ORIENTATION CUES

The identifiable locations described above relate to these spaces' usage as landmarks. As discussed in Chapter 3, curved walls are used within the existing building to indicate certain functions and to provide cues for visitors. There are three main uses of the curved walls: 1, it can contain a function, 2, the visitor enters through the curve, and 3, it acts as vantage point.

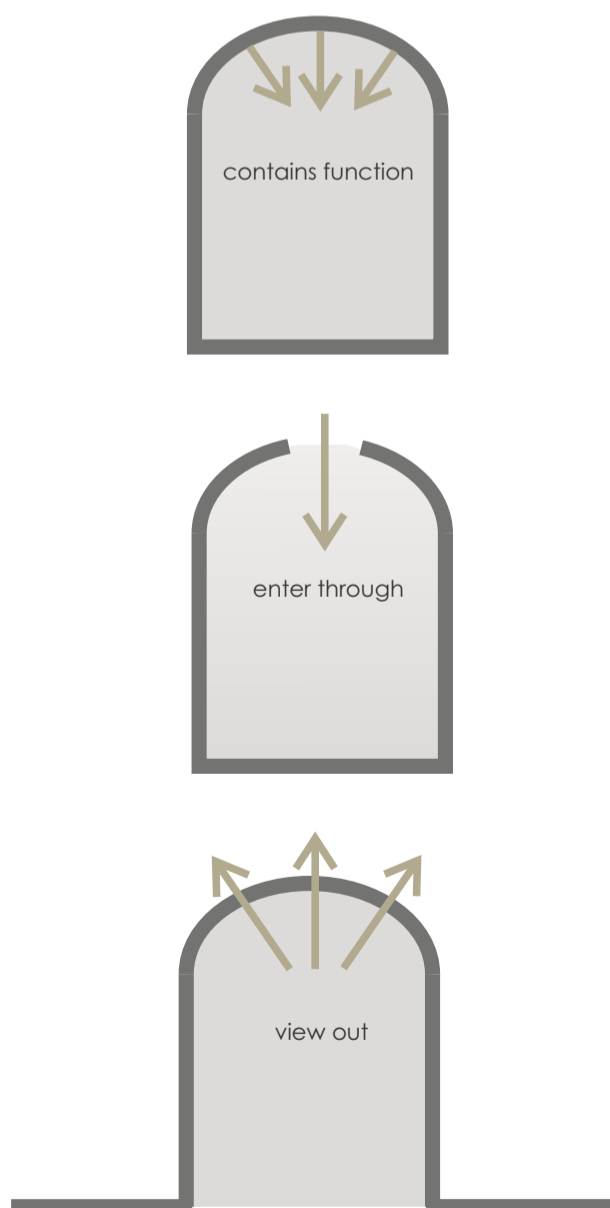


Figure 4.6.7. Curved wall functions.

Curved walls are used in three areas in the final design:

1. The foyer is encapsulated on the northern side with curved walls. The visitor enters through this curve. These curved walls act as guiding elements in this space. To the right, the wall cladding system is located with general seating for visitors. To the left, there are self-service ticket stands and interactive information stands.
2. The southern edge of the atrium is curved to provide interest and the feeling of an enlarged atrium. The curved edge guides visitors around the atrium. This curve is used to contain the function of the atrium and to act as vantage point.
3. The curved wall to the south of the atrium is used as presentation screen and visual barrier between the central space and research areas behind.

#### 4.6.3. CREATE WELL-STRUCTURED PATHS

The walkway is mostly influenced by this guideline. The design will alter the walkway by creating one main decision point along it. (Figure 4.6.8.) This decision point is highlighted through the use of signage and by enlarging the openings adjacent to this point. The visitor's attention is guided to the foyer with the use of the red floor finish along the ramp and steps on the South side of the walkway.

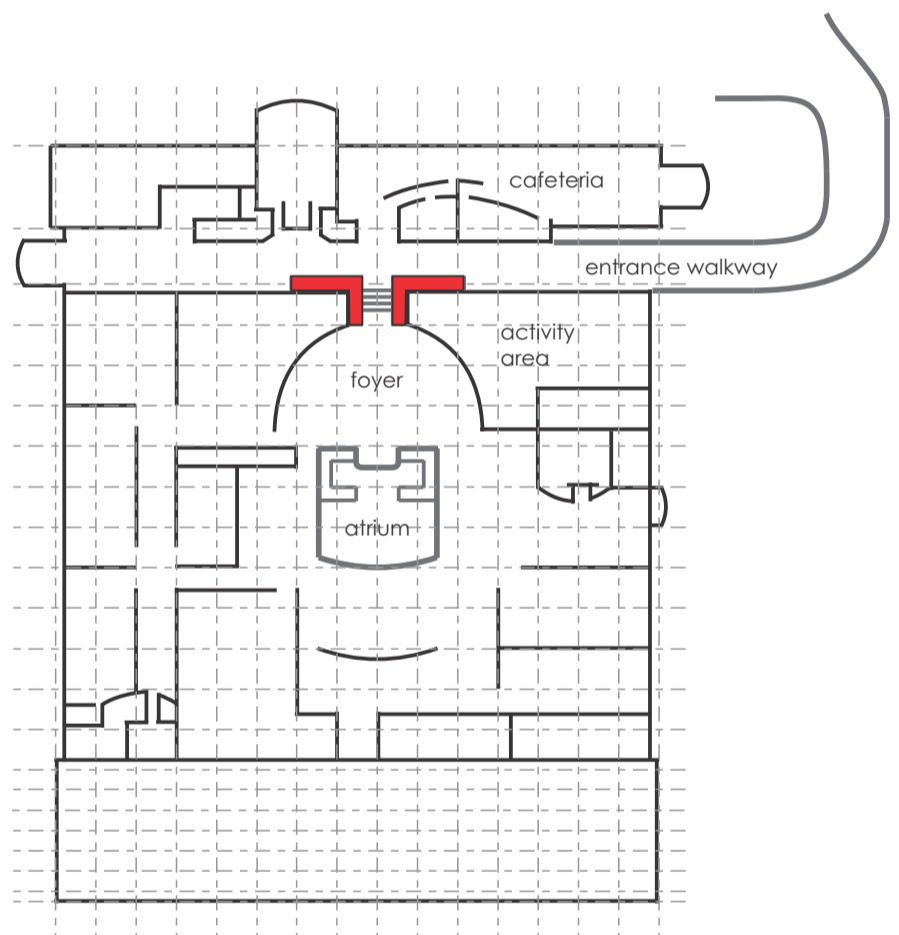


Figure 4.6.8. Decision point along walkway.



Figure 4.6.9. Perspective of walkway



#### 4.6.4. CREATE REGIONS OF DIFFERING VISUAL CHARACTER

This directly relates to the identities described in 4.6.1. The final design will provide regions of differing character.

#### 4.6.5. DON'T GIVE USER TOO MANY CHOICES IN NAVIGATION

Detours are eliminated by establishing a central space along the walkway to be used as orientation point. (See 4.6.3.)

The spatial organisation will allow for an unstructured approach in viewing the exhibitions. This would not be confusing for visitors as this approach is centred on the atrium which will serve as main orientation point. In the Western wing of the museum all spaces lead off a single walkway with no external detours. (Figure 4.6.10.)

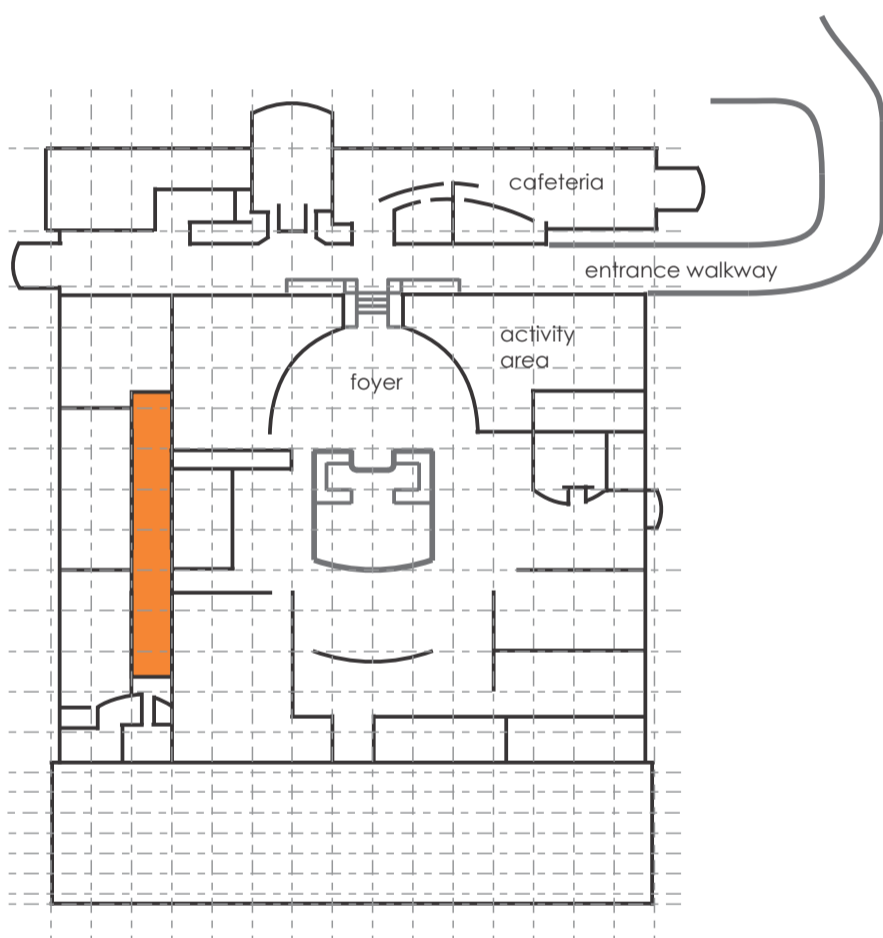


Figure 4.6.10. Plan diagram showing West wing walkway

#### 4.6.6. USE SURVEY VIEWS

Interactive information stands are available in the foyer to virtually explore the D: NMCH. Newly designed brochures and maps will also be available at the back of the reception desk in the foyer.

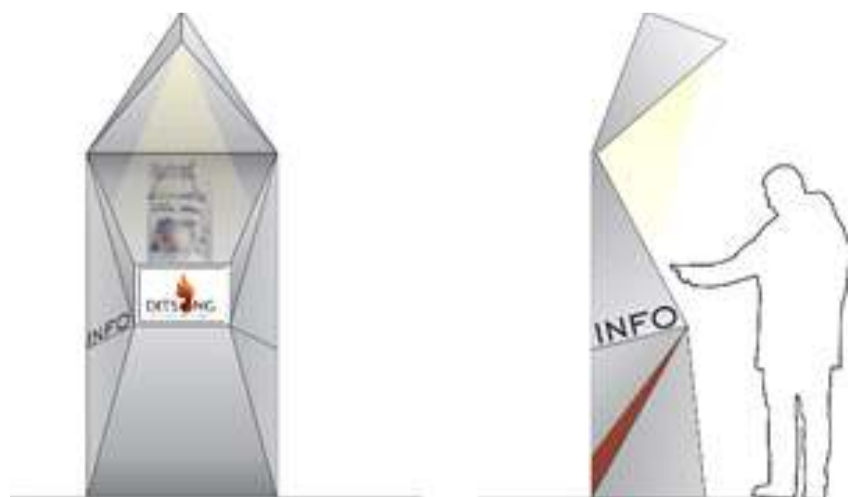


Figure 4.6.11. Information stands

#### 4.6.7. PROVIDE SIGNS AT DECISION POINTS TO HELP WAYFINDING DECISIONS.

Signage will be implemented on various scales within the D: NMCH. Signs are located at all possible navigational decision points. Signs include free-standing directional signs, signs mounted on walls indicating exhibition information, exhibition content signs, large vinyl decals indicating room allocations and emergency signs. These elements are visible in figure 4.6.12 to 4.6.13.



Figure 4.6.12. Room allocation signage.



Figure 4.6.13. Free standing directional signs.

#### 4.6.8. USE SIGHTLINES TO SHOW WHAT'S AHEAD

Sightlines are implemented to reinforce the suggested direction of travel. The visitor's sightline is focused on free standing directional signs as they move up the entrance ramp. Sightlines from East and West within the walkway is focused on the red ramp guiding the visitor to the foyer. (Figure 4.6.9.). As the visitor enters the foyer they immediately visually encounter the reception desk. (Figure 4.6.18.) The desk is emphasised by change in lighting levels surrounding it. Once the visitor moves past the reception desk their sightline opens up to include the atrium, suspended lighting system (Figure 4.6.14.) and curved screen past the atrium.



Figure 4.6.14. View of suspended lighting system

#### 4.6.9. TEMPORARY EXHIBITION

The visitor interaction with the museum extends in this project to the proposed space usage of the atrium. The temporary exhibition is located in the atrium. This provides incentive to the visitors to move down into this space. The milkstool collection of the D: NMCH is the focus of this exhibition. There are eighteen milkstools in the collection, as documented in *Melkstoeltjies in die versamelings van die Nasionale Kultuurhistoriese Museum: 'n ondersoek na tipologie*. (Botes 2009.)

This exhibition has five parts:

- Twelve milkstools suspended at various heights.
- A central (permanent) enclosure. The outside walls of the enclosure are smooth to allow for removable information decals, while the interior of the enclosure is used for short films pertaining to the temporary exhibition.
- Milkstool reproductions on a 'stage' with a digital screen behind.
- Six milkstools are displayed on podiums. Sound spots are implemented in this area as well.
- A faceted 'pod' which seats 2-3 people will present short videos with information on the milkstools.

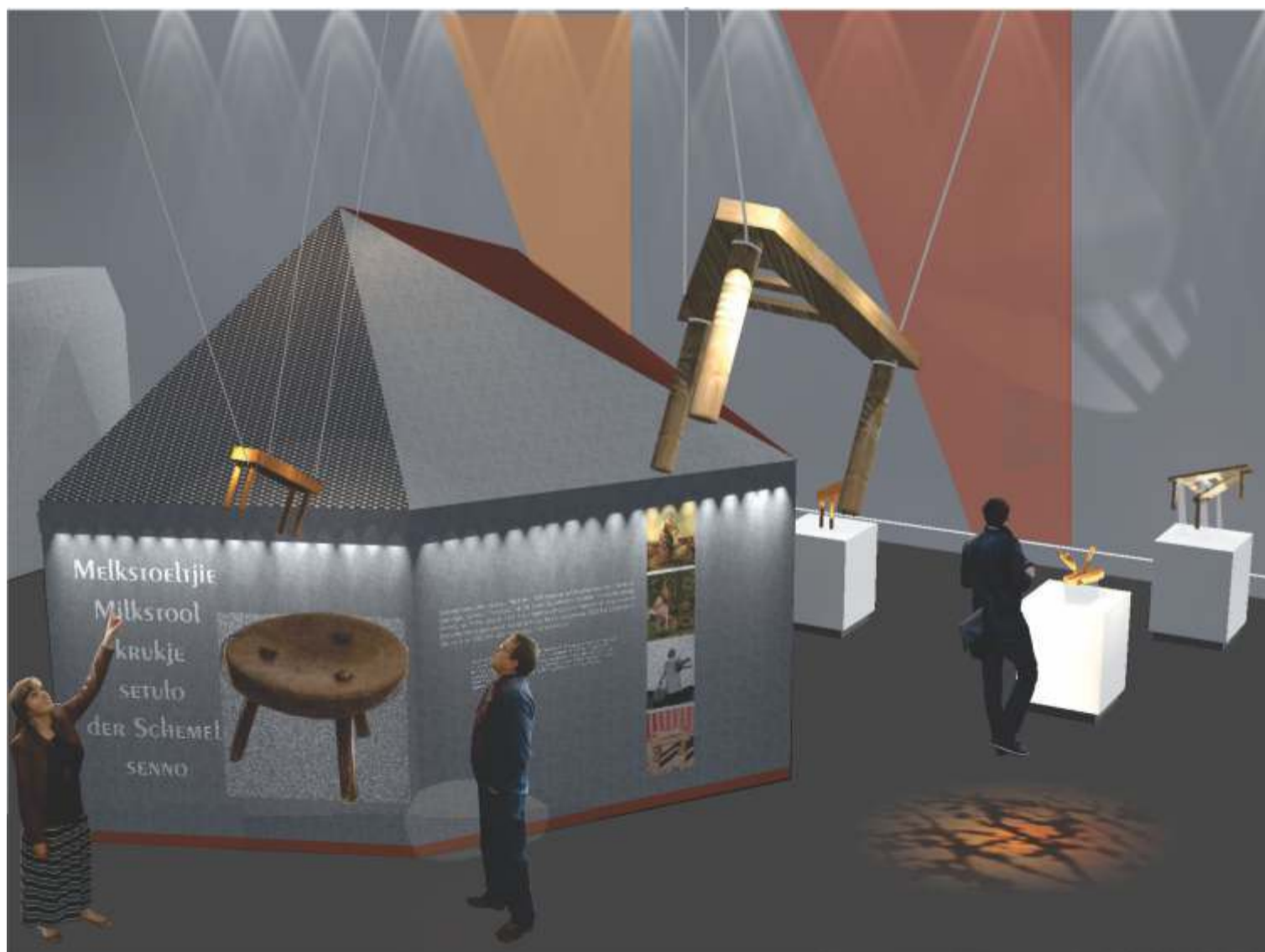


Figure 4.6.15. View of temporary exhibition from staircase



Figure 4.6.16. View of temporary exhibition



Figure 4.6.17. View of selected milkstools on podiums

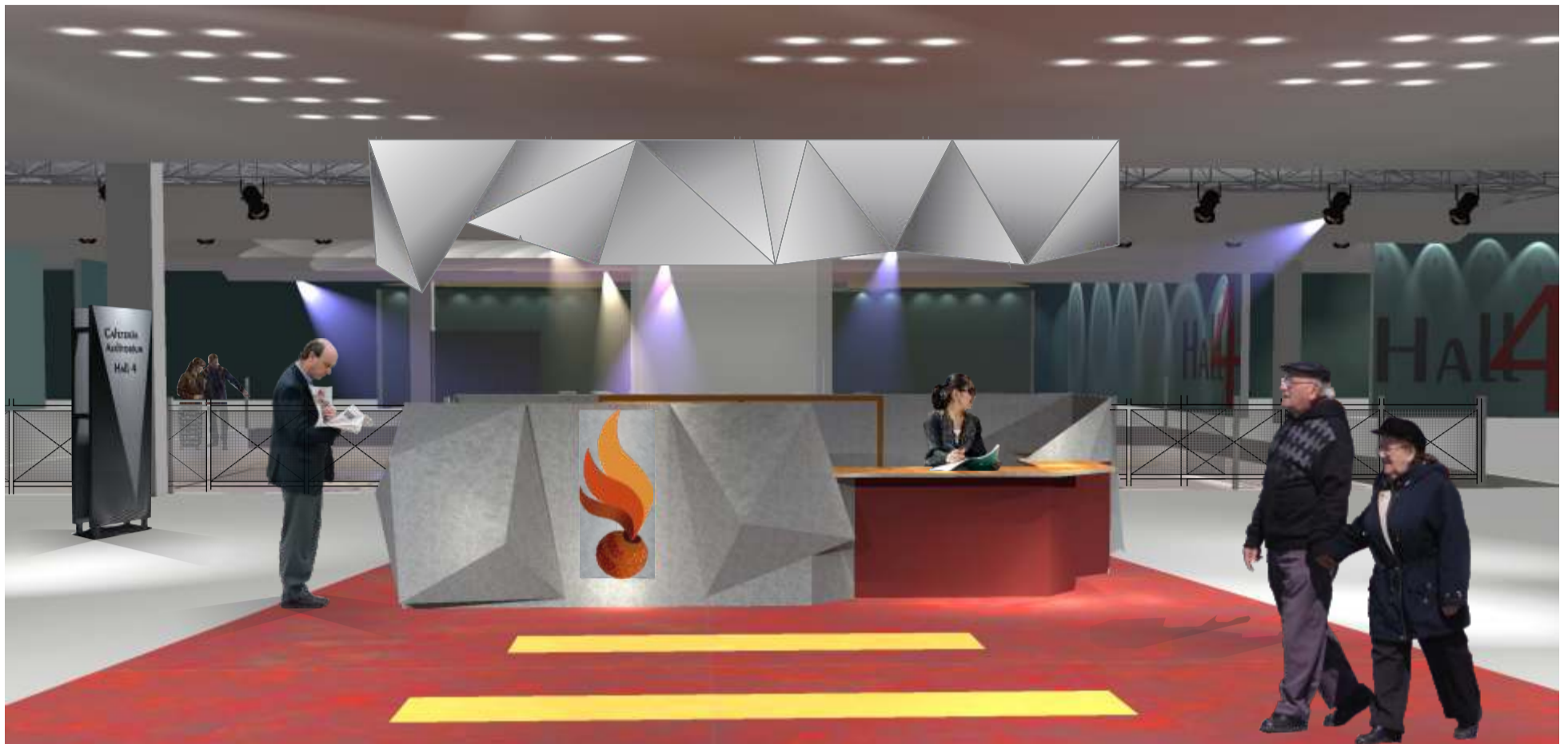


Figure 4.6.18. View towards reception desk

#### 4.7. Conclusion

This chapter is an overview of the design development of the intervention within the D: NMCH. The final design is explained through the manner in which wayfinding was incorporated into the design.

The focus of the initial March design phase, to redesign the outdated D: NMCH, developed through research and an iterative design process into the final design. The final design aims to answer the research question, *How can the visitor's interaction between research, education and exhibition be established in an integrated manner within the Ditsong: National Museum of Cultural History?* User experience is this connecting element and was the underlying guideline in the design process.

The final design successfully creates a legible interior where the visitor's impression of the D: NMCH is positive from the onset. The visitor's interaction with museum facilities such as the entrance walkway, foyer and atrium should stimulate their curiosity and leave a positive lasting memory of the D: NMCH.

# CHAPTER 5

## TECHNICAL INVESTIGATION

This chapter will elaborate on the technical development and resolution of the design intervention for the D: NMCH. General technical aspects will be discussed as well as materials, wayfinding and lighting. Specific design elements will be resolved in this chapter.

Occupation classification: C2 - Museum  
Design population: 1 person per 20m<sup>2</sup>  
6300m<sup>2</sup> - population = 315

(SANS 2011)

## 5.1. MATERIALS

The technical approach to material choices is influenced by various factors.

The existing and new material and colour palette can be seen in figure 4.3.2 moodboard images in Chapter 4. The existing materials are dark and is perceived to be heavy, while the new materials should contrast the existing. Even though the new materials contrast the existing materials used within the D: NMCH, the new materials should be appropriate to be used in a museum environment.

Characteristics that influenced material choice are: aesthetics, durability, temperature, sustainability, acoustics, light on surface and hygienics.

The colour palette of materials is chosen due to its relevance to the aesthetic concept of creating visual elements that link to the Ditsong logo, thus reminding of flames and embers. (As discussed in Chapter 4). The basis paint colour for walls is Plascon Cashmere, Midlands Marsh, a cool colour to complement the red, orange and yellow colours visible in the Ditsong logo.

Matte and brushed materials are used in the design intervention. The lighting above the reception desk (page 73) is bright to create a landmark in the foyer. The matte Interpon powder coated steel (Charcoal) desk will not reflect light to cause disabling glare for visitors approaching the reception desk. Matte surfaces will not show fingermarks as distinctly as gloss surfaces. The smooth surface finishes of the chosen materials are durable and easy to clean.

Lighting on materials are influenced by their surface finishes. Most of the materials used in the design have smooth finishes. The design concept of shaping elements with facets introduce depth to the material usage, The play of light and shadow create visual interest in the large foyer space.

Even though steel (a material cold to the touch) is used throughout the design intervention, other materials (warm to the touch) are incorporated to create comfortable environments. This includes the usage of American Walnut Formica on a Bisonboard substrate on the bench below the faceted steel clad wall.

The safety and health of visitors are also taken into account in the material decision making process. This aspect was considered with the floor finish, Marmoleum. Marmoleum is anti-slip, hypoallergenic and anti-bacterial. These characteristics results in Marmoleum being an appropriate floor finish in the D: NMCH.

Lafarge Acoustic Ceiling Boards and partitions are used to absorb and reduce sound, but not completely remove sound from the space. The faceted wall (page 77) along one curved wall mainly reflects sound at different angles, which aids in achieving comfortable room acoustics.

The steel sheets used in various design elements are stabilised by bending it and supporting it from the back.

The sustainability of a material is an important consideration in material choice. Sustainability relates to above mentioned characteristics as well as to the life cycle of the material.

Some characteristics of the chosen materials follow:

### Marmoleum

- Anti-static properties that repel dust and dirt (hypoallergenic)
- Anti-bacterial
- Resilient underfoot
- Durable
- Acoustic impact noise reduction index of  $\geq 10$  dB.
- Biodegradable (Forbo 2014)

### Rubber flooring

- Slip resistant
- Good impact sound reduction
- Resilient underfoot
- Durable
- Good resistance to water and fire (Truco 2015)

### Interpon powder coating

- No VOCs
- Low wastage
- Durable
- Consistent colour (Interpon 2015)

### Plascon paint colour

- Hides imperfections
- Anti-bacterial
- Stain resistant
- Low VOC emissions (Plascon 2015)

### Formica

- Durable
- Anti-bacterial
- Low VOC emissions
- Impact resistant (PG Bison 2015)

Marmoleum available at (Forbo 2014)  
 Truco available at (Truco 2015)  
 Voldeo available at (Voldeo 2015)  
 GKD Metal Fabrics available at (GKD 2015)  
 Lafarge available at (Lafarge 2015)  
 Plascon available at (Plascon 2015)  
 Interpon available at (Interpon 2015)  
 Formica available at (PG Bison 2015)

	Location	Specification		Location	Specification
	flooring	Marmoleum Acoustic 33139 lava		walls	Plascon Cashmere, Transcendent G4-C2-2
	flooring	Marmoleum Unexpected Nature 3562 cosmic red		walls	Plascon Cashmere, African Light O4-B1-3
	flooring	Marmoleum Unexpected Nature 3561 vibrating copper		walls	Plascon Cashmere, Bovine DC-16-47
	flooring	Marmoleum Unexpected Nature 3564 glistening ochre Marmoleum Touch 3564 glistening ochre		walls	Plascon Cashmere, Bali Deep DC-16-46
	staircase treads	Truco rhomboid rubber flooring 3mm black. Roll size: 20m x 1,2m. Usage: 2m x 300mm.		walls	Plascon Cashmere, Light Grey Aluminium DC-15-44
	staircase risers (structure)	Magnus Steel mild steel perforated plate, staggered round holes		reception desk	Formica on 22mm Bisonboard substrate, American Walnut
	ceiling	Lafarge Acoustic Ceiling Board, joints finished with Fibretape and Lafarge Jointing Compound, 12,5 x 1200 x2400mm		reception desk	Formica on 22mm Bisonboard substrate, New Burgundy
	wall cladding	Magnus Steel, steel alloy perforated plate, staggered round holes		reception desk	Formica on 22mm Bisonboard substrate, Orange
	reception desk information stand free-standing signs	Interpon, Powder coating, Charcoal, ANP 3055		staircase balustrade infill	GKD Metal Fabrics stainless steel diagonal woven mesh
	reception desk information stand free-standing signs	Interpon, Powder coating, New Orange, CEP 1130			

Table 5.1. Material palette.

**“TO BE ORIENTED IS POSITIVE, BECAUSE IT BRINGS CERTAINTY, REASSURES, GIVES US TIME TO THINK” (Kling AND KRUGER 2013:11)**

## 5.2. Wayfinding

The approach to wayfinding taken in this design is to use the principles to wayfinding set out in Chapter 3 as starting point. These principles are further explained according to the design in Chapter 4.

Wayfinding should create an identity for a space, increasing accessibility and functionality of the space. Successful wayfinding will make visitors feel confident to use the space, relaxed and ideally leave them with positive memories of their visit.

### 5.2.1. Lighting

Detail 1, page 64

Lighting is used as guiding element within the D: NMCH design intervention. The light quality is very bright in the entrance walkway and gradually decrease as the visitor moves further into the museum. There are bright elements throughout the space to act as landmarks. This includes the reception desk as landmark in the foyer and the atrium as a central landmark.

### 5.2.2. Staircase

Detail 2, page 73

The staircase shape is conventional to create a familiar circulation identity to visitors. The staircase is mirrored around the elevator, which creates one central vertical circulation starting point.

The staircase uses sightlines to show what is ahead. For example a visitor descending the staircase will have a view of the temporary exhibition in the atrium. This will act as a “visual magnet” (Foltz 2015) to navigate towards. Banners that are suspended from the automated lighting system above the staircase add visual interest as visitors use the staircase.

The faceted steel mesh handrail aesthetically relates to the faceted steel elements in the foyer. This creates a visual connection to the identity created in the foyer.



Figure 5.2.2.1. Staircase.



### 5.2.3. RECEPTION DESK

Detail 3, page 77

The reception desk is the main landmark in the foyer. It is visible from all angles when approaching the foyer. Lighting aids in emphasising the desk. The cosmic red Marmoleum floor finish guides the visitor towards the reception desk. Textured glistening ochre Marmoleum Touch inserts create a tactile notification of the coming desk.

The desk and bullhead are the largest of the faceted design elements. This results in them being the main landmark the visitor encounters in the space.

The design allows a variety of visitors to comfortably use the reception desk. The front side of the desk has two heights, a counter and lower horizontal surface. This results in the desk being accessible to all. The back of the reception desk is wider to inhibit visitors standing on this side waiting for help from museum staff. This side includes diagonal brochure holders to supply museum maps and extra information.

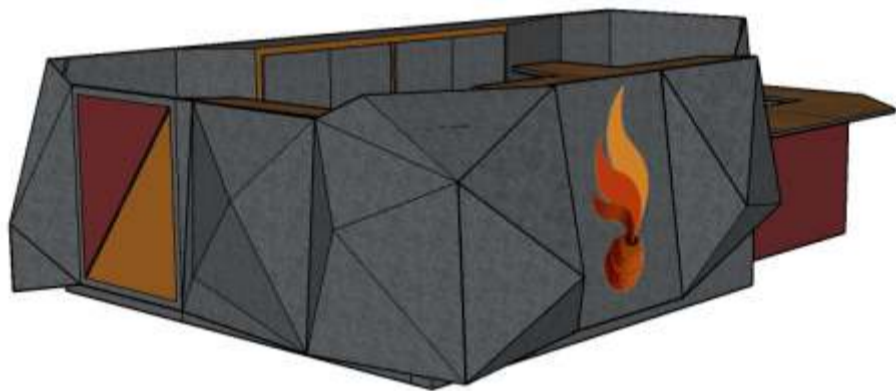


Figure 5.2.3.1. Reception desk.

### 5.2.4. WALL CLADDING AND SEATING

Detail 4, page 81

The wall cladding and seating is located to the right as a visitor enters the foyer. The faceted design identity is continued through the wall cladding.

Effect lighting from above and below the wall cladding create visual interest in the foyer and creates an identifiable seating area. The floor finish (vibrating copper Marmoleum) in this area differs from the rest of the foyer. This creates another region within the larger foyer space.

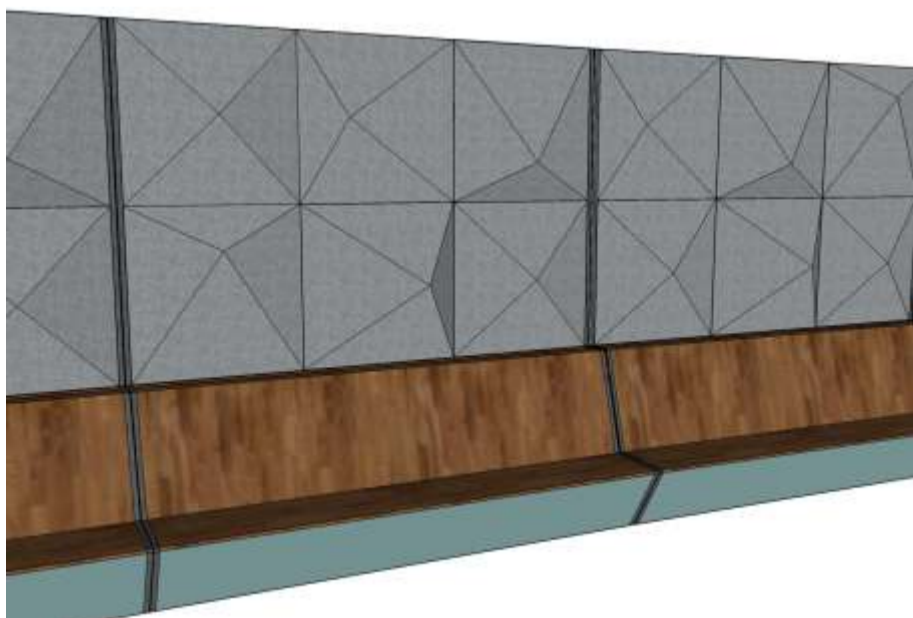


Figure 5.2.4.1. Wall cladding and seating.

### 5.2.5. SELF SERVICE STATION AND FREE STANDING SIGNS

Detail 5, page 85

The self service stations include interactive information stations and self service ticket purchase stations.

The floor finish beneath the self service stations throughout the museum are vibrating copper Marmoleum. The faceted design and floor finish emphasises the stations as smaller landmarks throughout the museum.

Backlit signage is incorporated between grouped stations. Photoluminescent films are used as lettering on the free standing signs. These signs are to be used throughout the museum complex, and should be visible outside.

The free standing signs take the faceted design concept to the exterior. These signs are large enough to be seen from a distance, and is installed at critical decision points along the visitor's route through the museum complex.

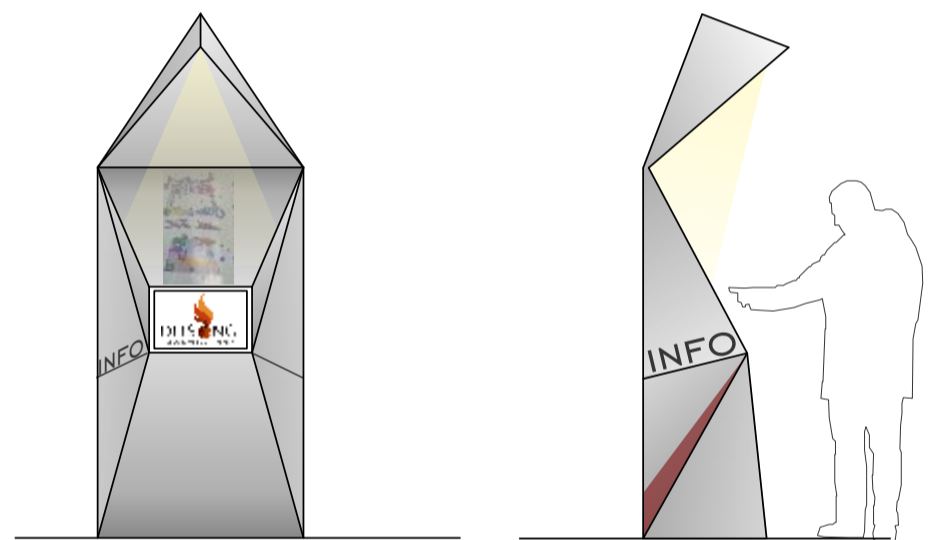


Figure 5.2.5.1. Self service station.

“IT IS LIGHT THAT MAKES SPACES INTELLIGIBLE FOR US IN THE FIRST PLACE”  
(HAUSLADEN AND TICHELMAN 2010:46)

5.3. Lighting

Detail 1

Lighting plays an important role in museum design. The lighting design within the D: NMCH is an important aspect to improve the visitor's experience of the museum. The existing lighting conditions are very dark and monotonous (Figure 5.3.1.). The final lighting design is used as part of wayfinding and to create a positive experience for visitors. There is a large lighting level difference between the walkway and exhibition areas, this results in disabling glare (Figure 2.5.1.18.).



Figure 5.3.1. Existing lighting conditions of the D: NMCH.

In the final design, daylighting that visitors experience gradually decrease as they move from the exterior to the exhibition areas. This gradual decrease is supplemented with artificial lighting.

General lighting of the foyer plays an important part in the establishment of the visitor's first impression of the museum. Luminaire placement can be seen on the ceiling and lighting plan, figure 5.3.2. The luminaires are placed in this manner to improve the progression of light from the walkway into the main museum floor.

Artificial lighting should adhere to the minimum requirements set out in SANS 10400–Part O and SANS 10114-1. The recommended lighting levels are, a museum (C2) – 200 lux, foyer – 100 lux (soft general illumination), and circulation – 150 lux.

The lighting approach within the intervention relates to contrasting and improving the existing lighting levels within the museum to improve the

visitor's experience as well as relating to the concept of the Ditsong logo representing fire. The foyer's overall illumination is 100 lux. The reception desk is lit from above (300 lux) to create a focus point to draw visitors to this area.

General illumination throughout the museum is 200 lux. The same luminaires (Recessed Kit Hal Pro sq) are used in the general areas and foyer but with different lamps. (See calculations on page 65-67 for specifications.) Colour rendering of all artificial lighting within the museum is warm white to reinforce the warm colours seen within a fire. LED lighting used has changing light colours.

Exhibition lighting and focussed lighting along walls will include spotlights (Modario Spot LED). The spotlights directs the visitor's focus to specific elements. These elements include objects on display and signage.

LED lighting (Dragonchain colourmix DC24B-RGBW) is installed within light troughs above and below the wall cladding to wash the wall with changing coloured light. This will enhance the texture created by the pyramid cladding and provide a backdrop to the seating area in the foyer. LED lighting (Lightify Flex – RGBW) is also used in the light trough that covers the newly exposed concrete slab edge within the atrium. This implementation of the light trough transmits a sliver of light which subtly highlights the atrium edge.

The Lightify LED lighting is also employed as backlight to the translucent signage screens between the interactive information stands (Detail 5, page 81).

The atrium, which acts as a landmark within the museum is lit using an automated lighting system (page 63). The automated lighting system is based on the lighting and prop systems used in theatre design. The lighting used within the atrium is warm white general lighting and exhibition specific lighting. The exhibition specific lighting relates to the temporary exhibition installed in the atrium at ground level. The lighting effect creates a theatre like atmosphere. The luminaires used are Kreios SL LED luminaires which has a frame for various filters and gobos. General lighting within the museum is achieved by installing metal halide lamps. These lamps are an appropriate choice for a large volume that requires even lighting at ground level.

This system (Detail 1, page 63) incorporates four main components:

1. Rigging system
2. Power distribution system
3. Data distribution and control system
4. Luminaires and fixtures

The structure of the automated lighting system is constructed from aluminium trusses. A primary truss structure is fixed to four existing structural columns. These columns will be strengthened according to the engineer's recommendations. The luminaires and banners are suspended from a secondary truss system.

The rigging system is based on a counterweight system. The counterweight system is installed in the existing services shaft.

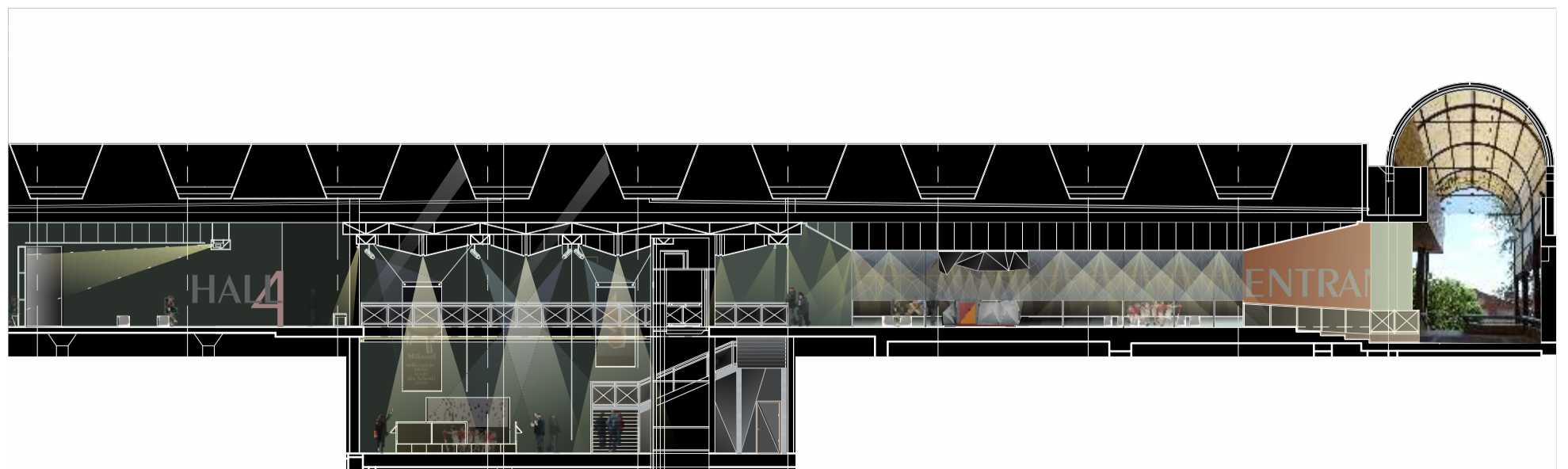
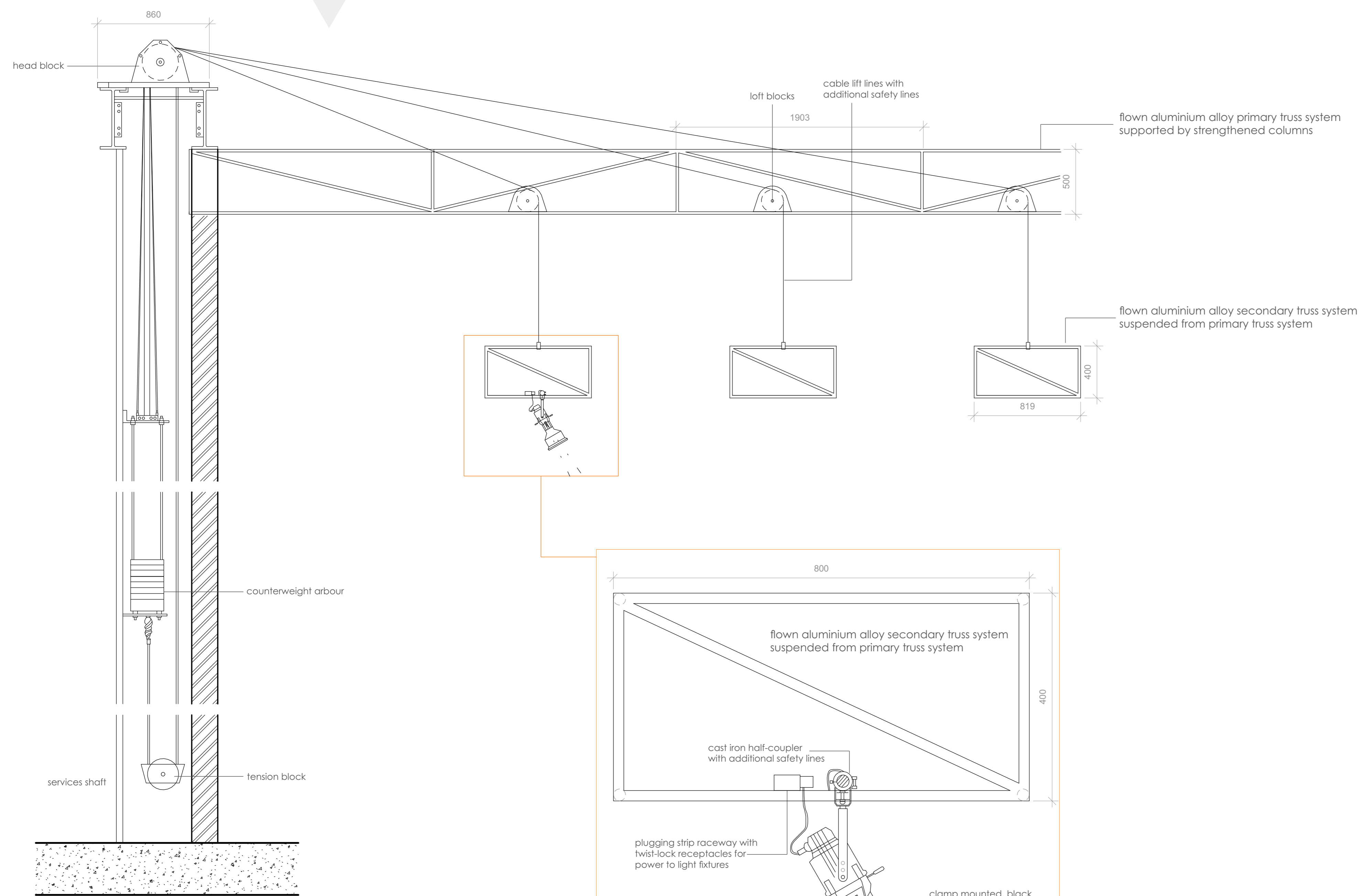


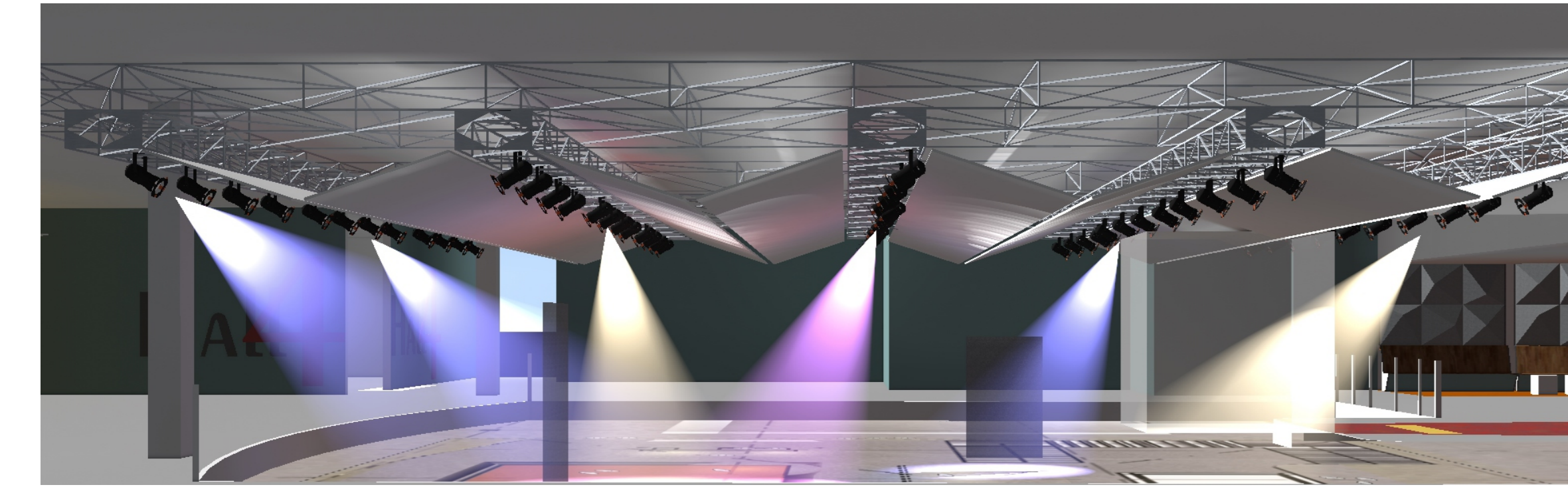
Figure 5.3.2. Lighting section.



# DETAIL 1



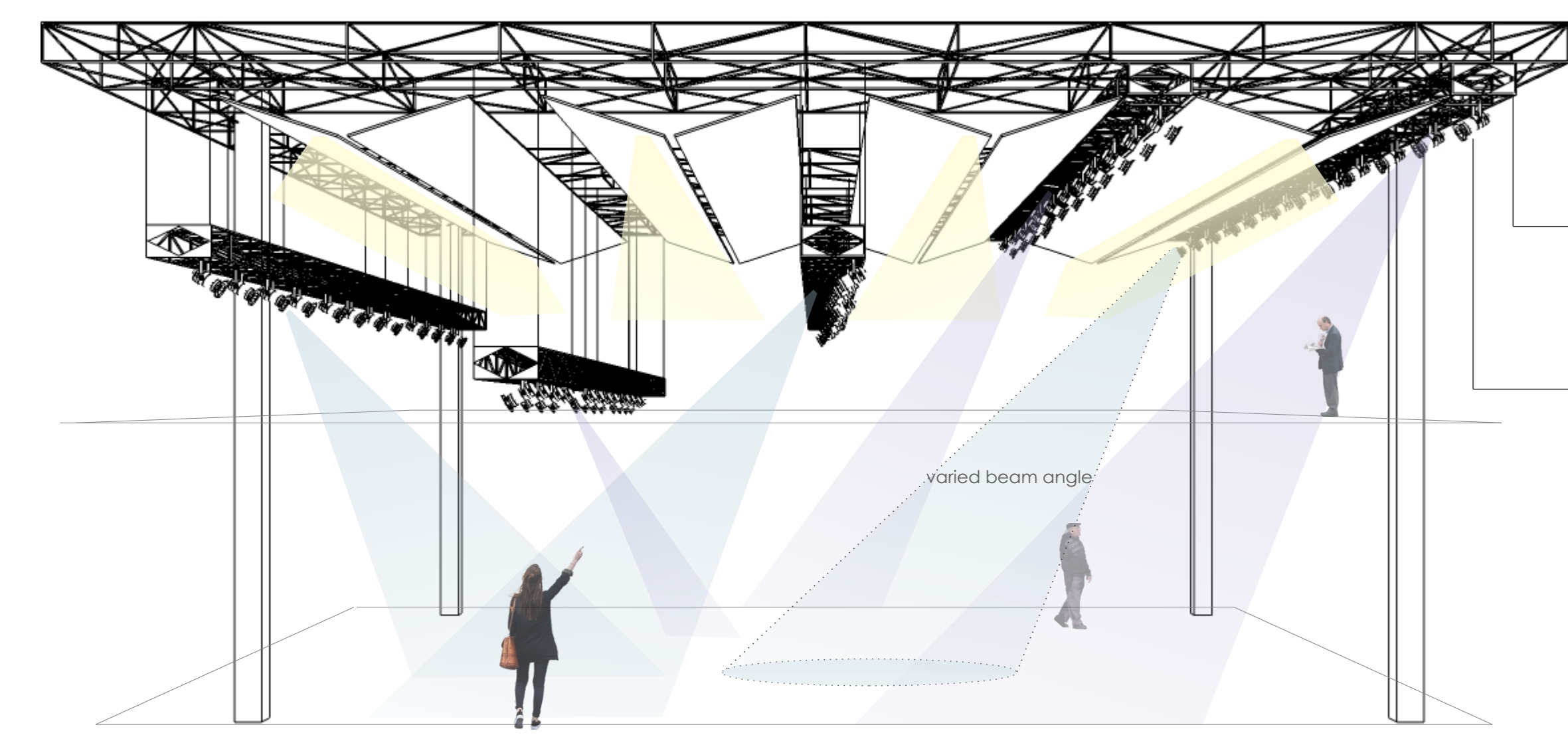
## SECTION OF COUNTERWEIGHT RIGGING SYSTEM SCALE 1:20



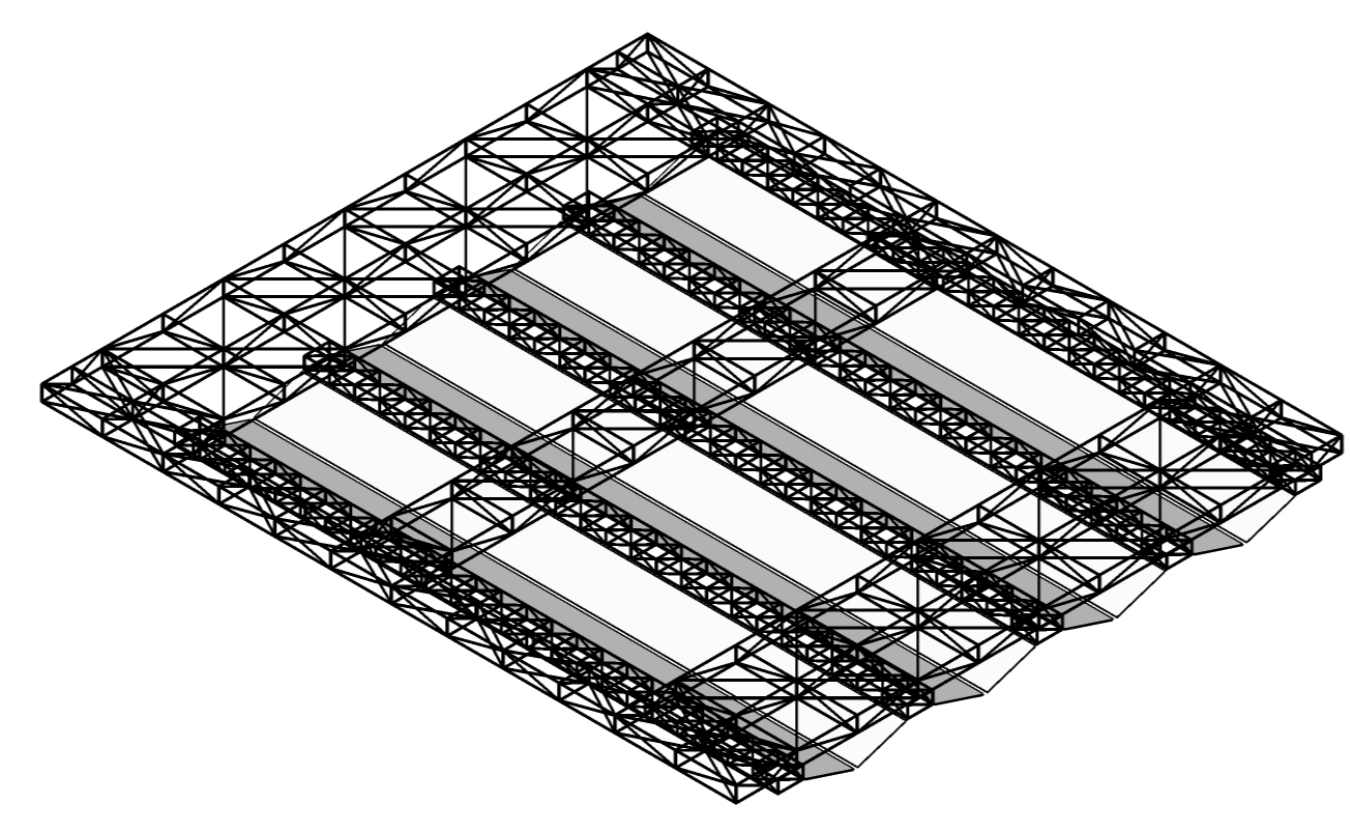
Theatrical lighting effect



Overall lighting effect

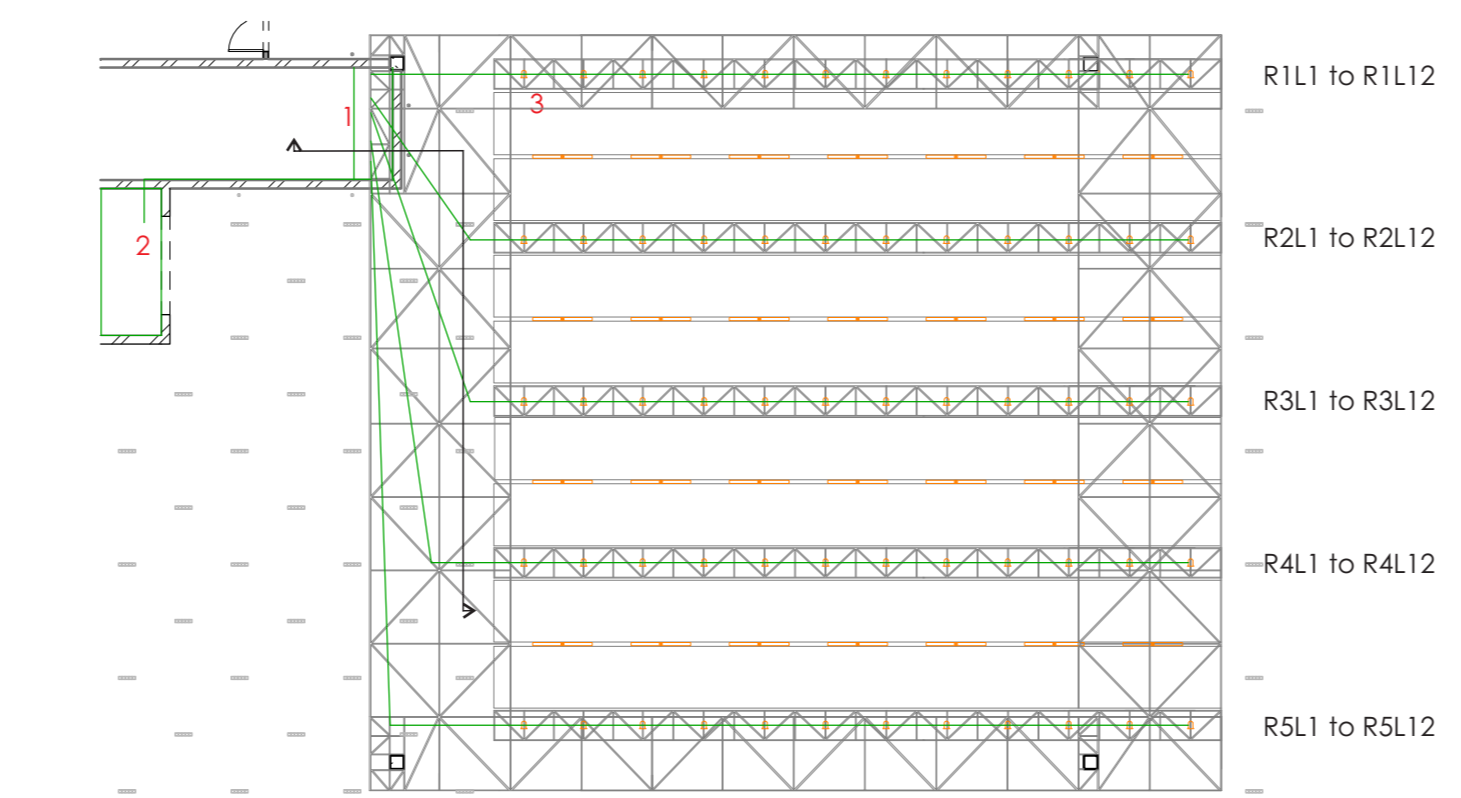


Lighting system with beam angles indicated

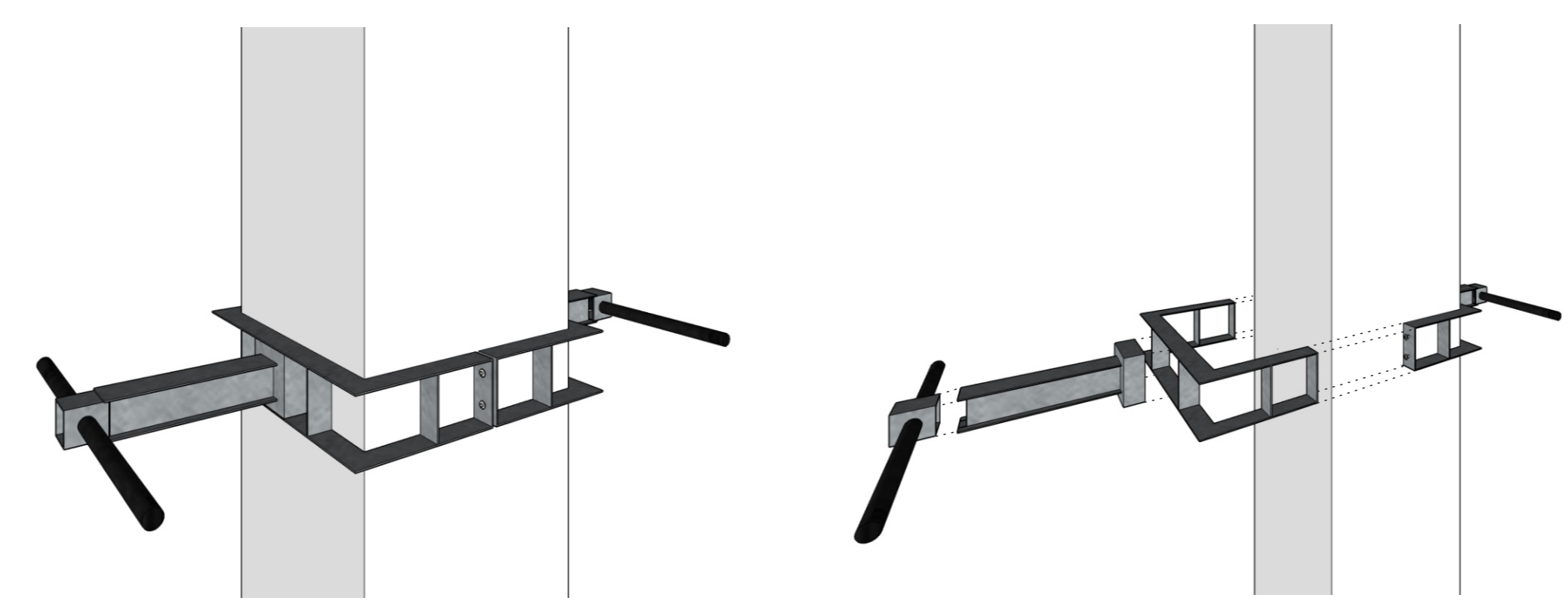


Lighting system from above

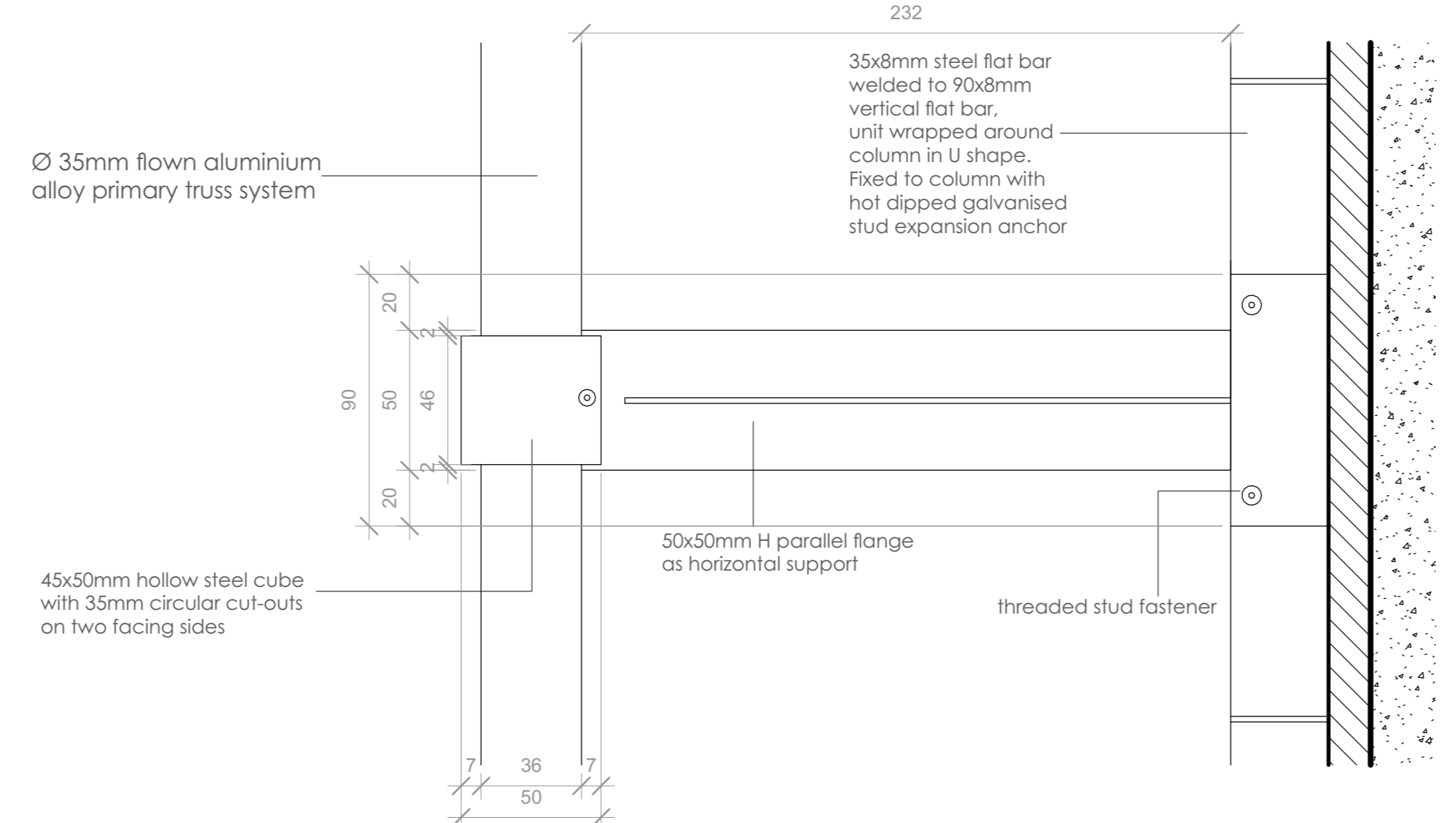
- Automated lighting system components:
- (1) Rigging system (counter weight system)
  - (2) Power distribution system
  - (2) Data distribution system
  - (2) Control system
  - (3) Luminaires and fixtures
- Hanging location of luminaires:
- Row 1 Luminaire 1 to Row 1 Luminaire 12: R1L1 to R1L12
  - Row 2 Luminaire 1 to Row 2 Luminaire 12: R2L1 to R2L12
  - Row 3 Luminaire 1 to Row 3 Luminaire 12: R3L1 to R3L12
  - Row 4 Luminaire 1 to Row 4 Luminaire 12: R4L1 to R4L12
  - Row 5 Luminaire 1 to Row 5 Luminaire 12: R5L1 to R5L12



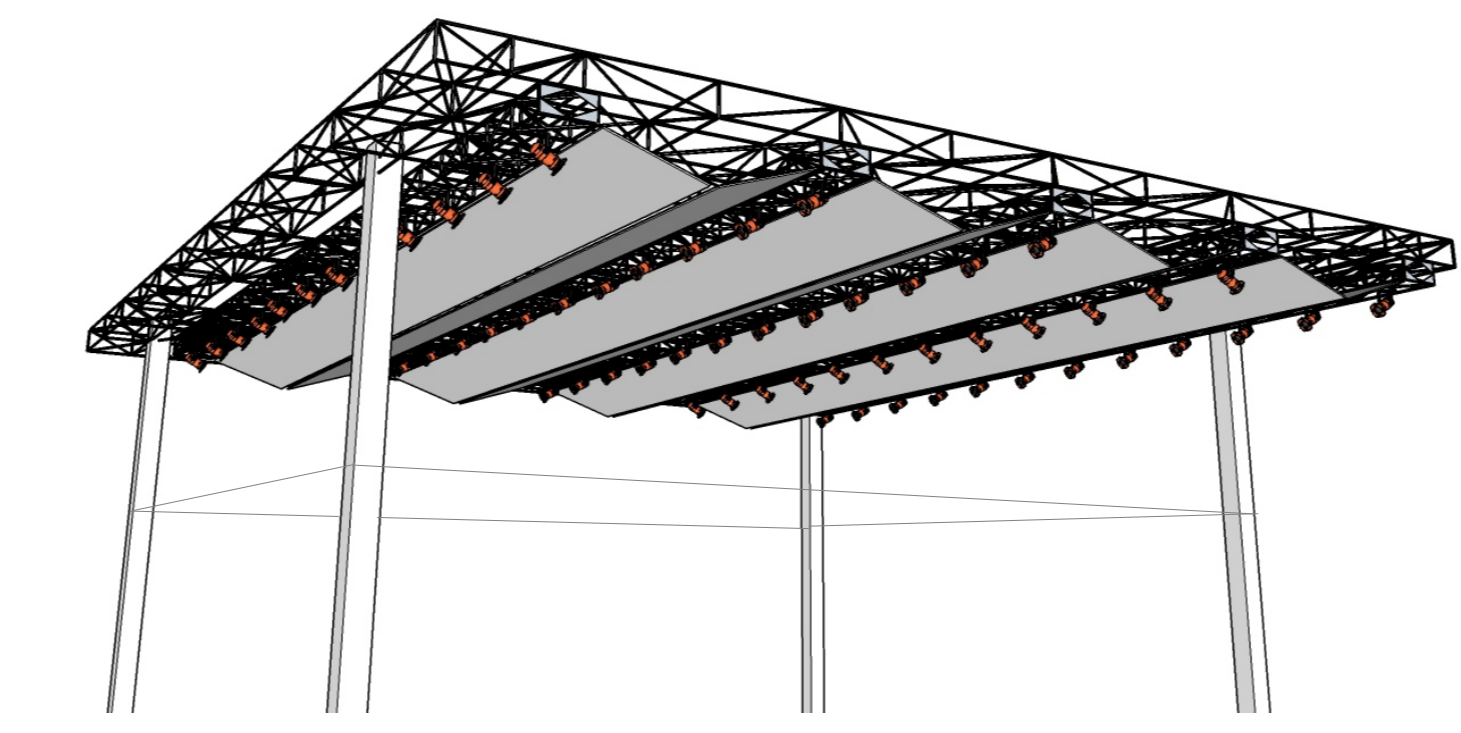
## AUTOMATED LIGHTING SYSTEM DIAGRAM SCALE 1:200



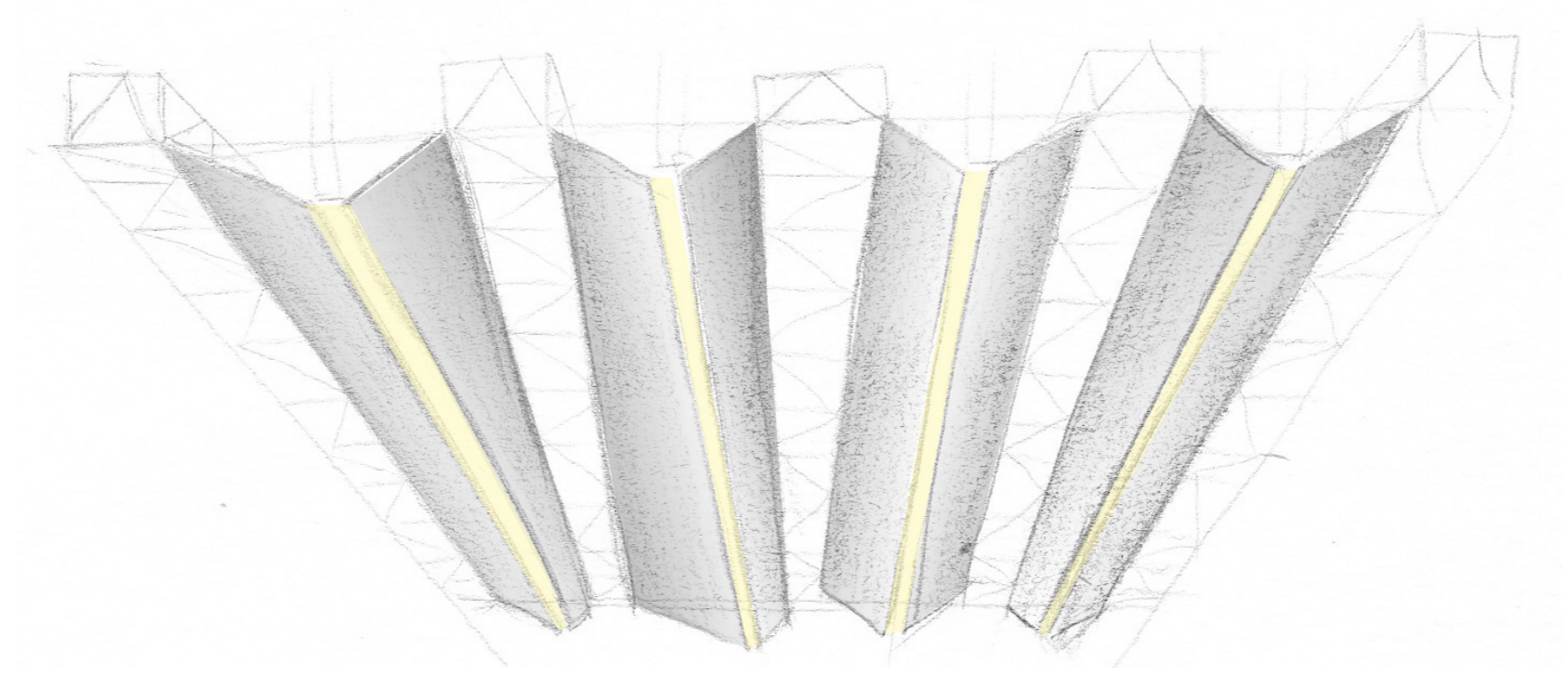
## Column support



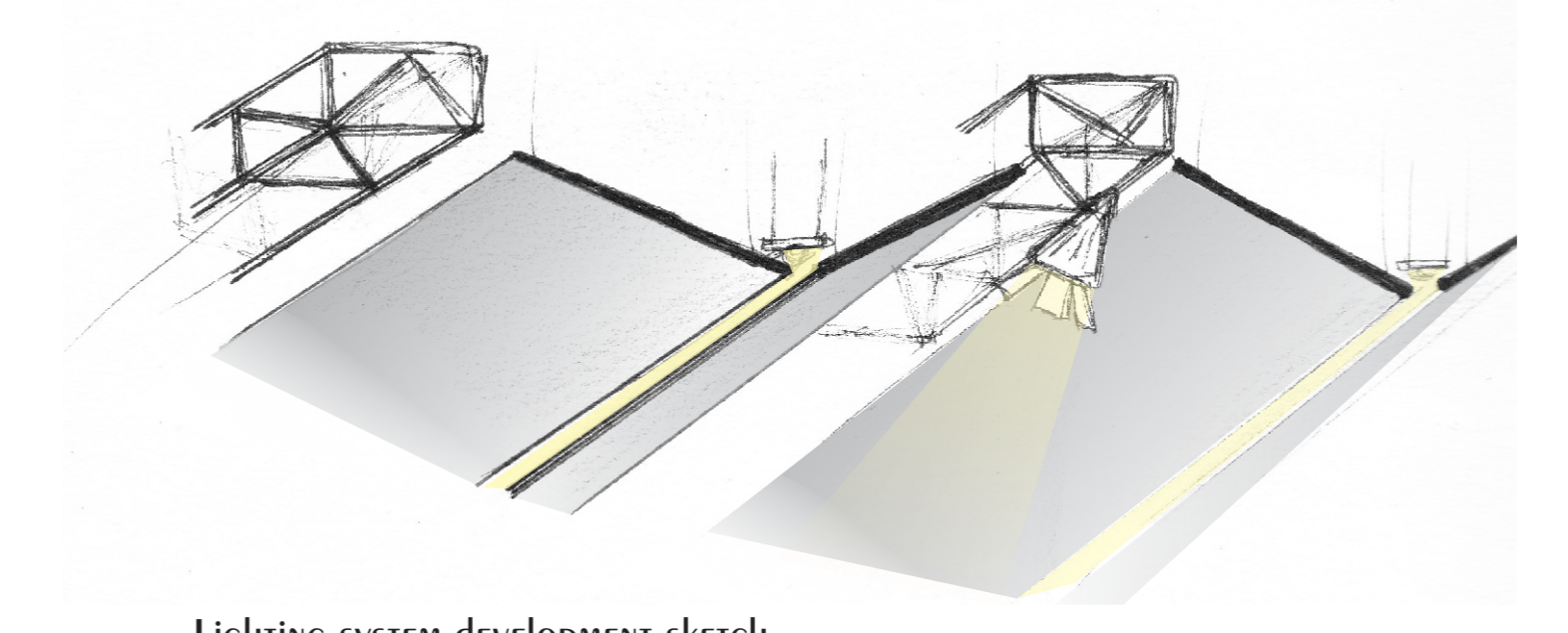
## Column support DETAIL 1 SCALE 1:2



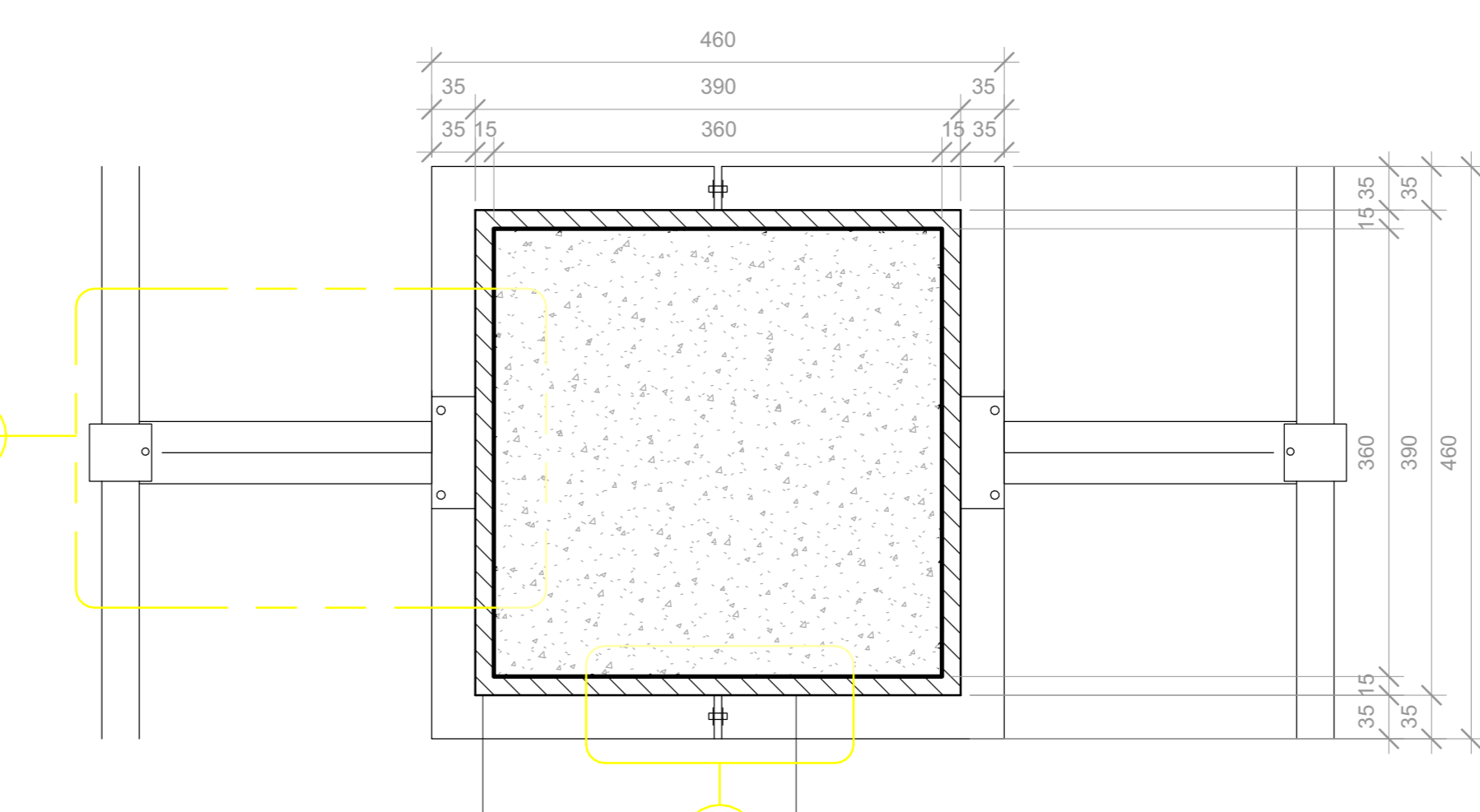
Lighting system indicating KREIOS luminaires in orange  
© University of Pretoria



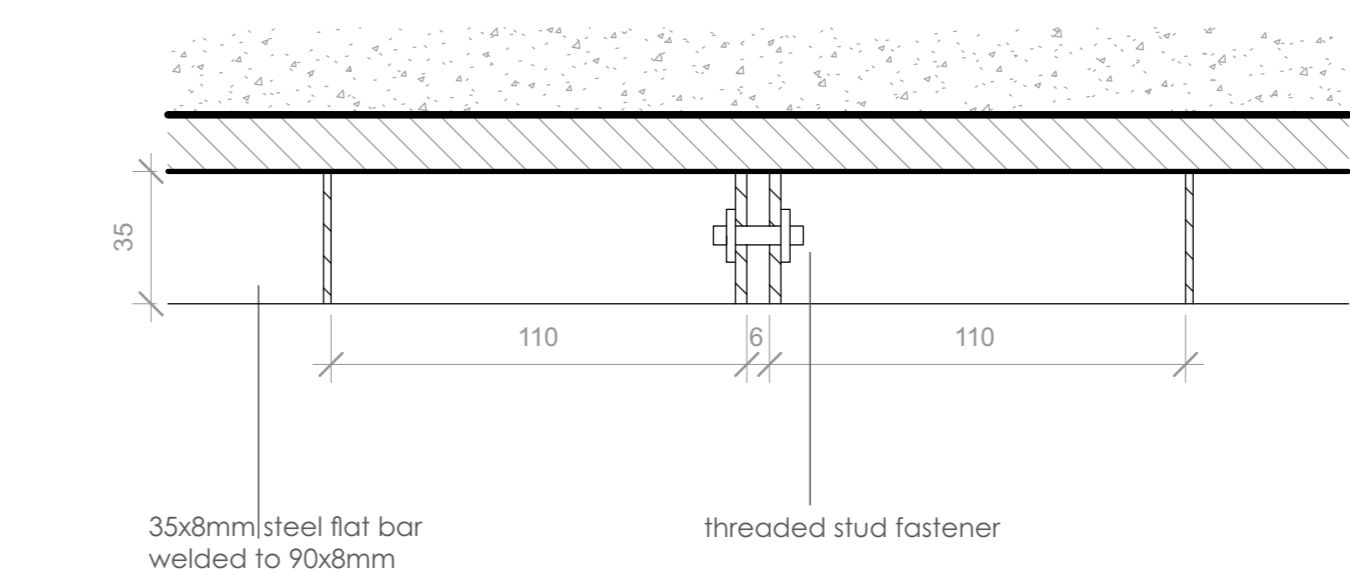
Design development sketch



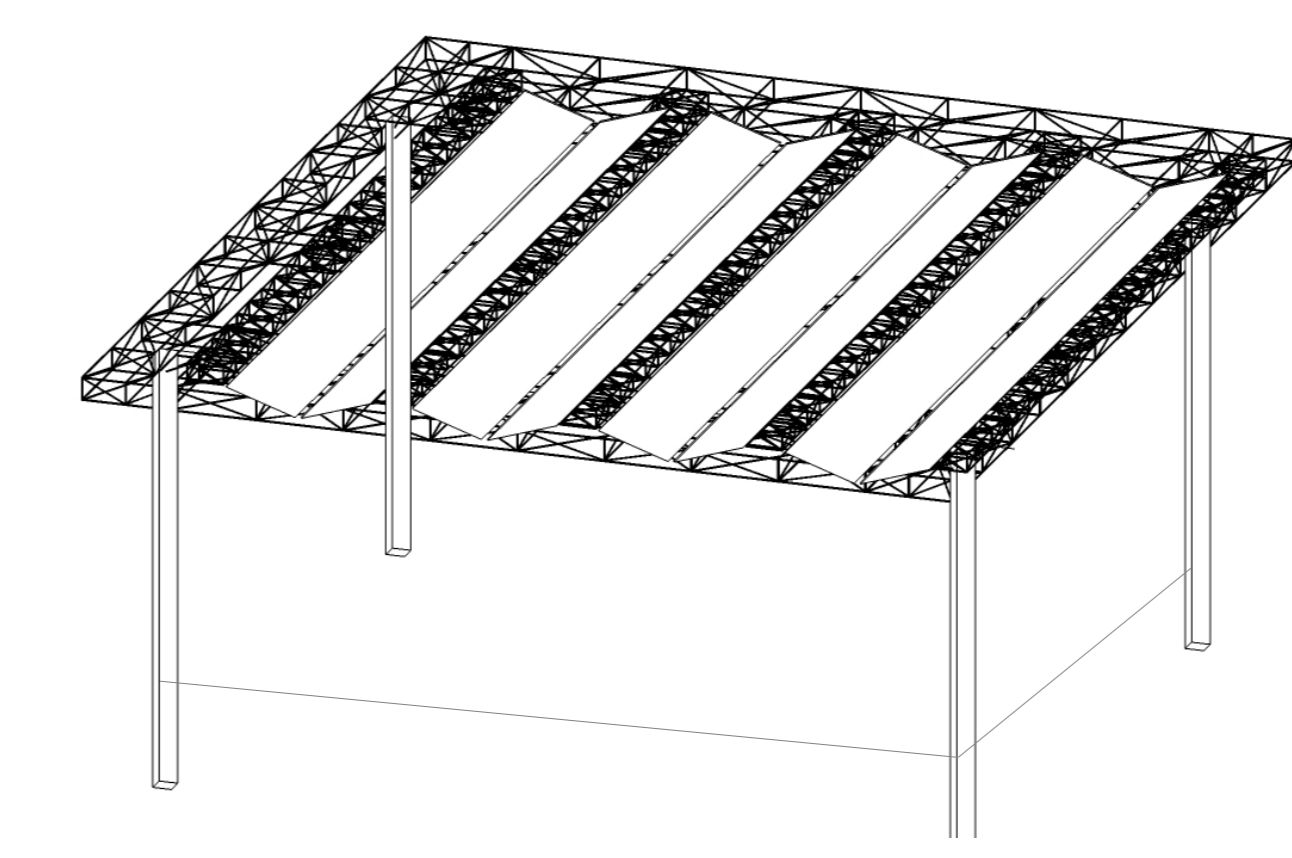
Lighting system development sketch



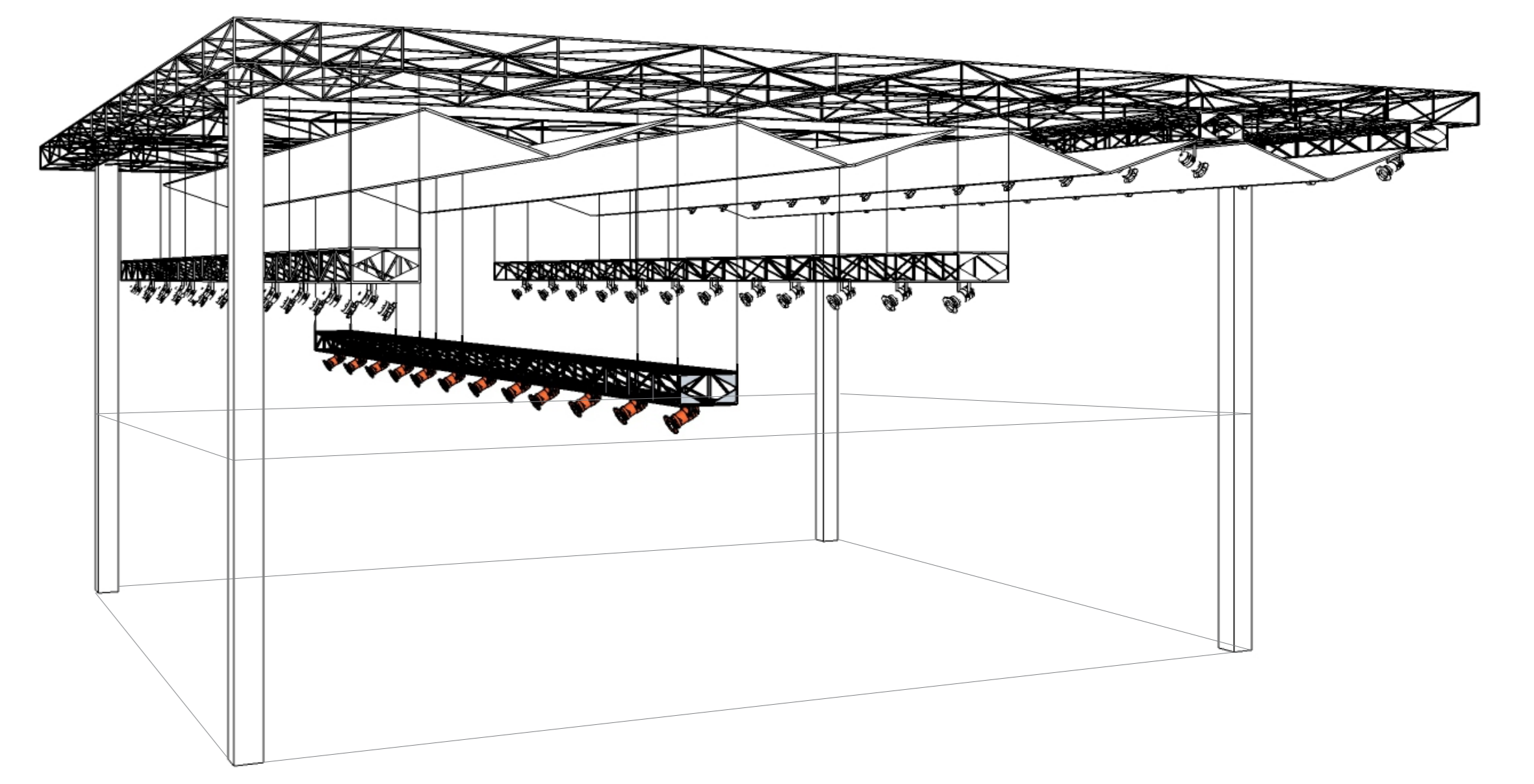
## Column support SCALE 1:5



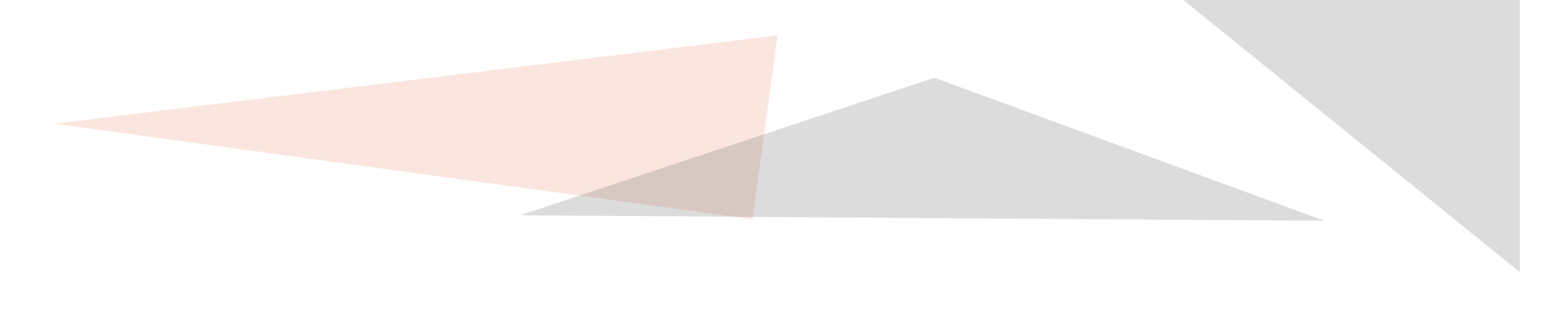
## Column support DETAIL 2 SCALE 1:2



Lighting system viewed from below



Lighting system with lowered secondary truss system



## INCORPORATING FACETS IN ANOTHER MANNER

Theatrical lighting and prop elements to be used above atrium. KREIOS LED luminaires (Gobos and focus spots) will be suspended from steel frame, to be adjusted and used in temporary exhibitions. Permanent metal halide lighting will be used for general illumination.

Lighting Legend			
symbol	luminaire and lamp specification	luminaire dimensions	
	KREIOS SL LED luminaire Black Lightweight (1.5kg) Almost silent air cooling system Low energy consumption Beam angle - Varied Luminous flux - 3000lm Colour temperature - 3200K Colour rendering index RA - 95 Average lifespan - 30000h Beam door to minimize light spill included Frame holder for various filters and gobos included Spot reflector (beam angle - 24°) Included		
		178mm	202mm
			134mm



Secondary support - supports projector  
System fixed to column with expansion bolts  
Main horizontal brace



This mounting system is a small scale example of the system used as column support.

Technical precedent - Freedom park museum, projector mounting system



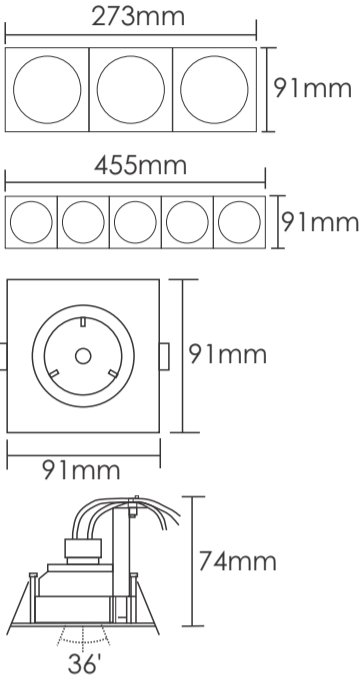
Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	luminaire specification	luminaire dimensions
Foyer		 Recessed KIT HAL PRO SQ Brushed nickel Adjustable Holder designation GU 5.3  Beam angle - 36'  Mounting diameter - 80 mm Mounting depth - ≥ 150 mm	

Table 5.3.1. Foyer luminaire specification



Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	lamp specification	illuminance calculations
Foyer		 Osram PARATHOM PRO Ar111 50 with retrofit pin base  8,5 W Luminous intensity - 8500 cd Luminous flux - 450 lm Colour temperature - 2700 K Colour rendering index RA - 90 Light colour - Warm white Beam angle - 9'  Common application in museums and galleries. Long life Low energy consumption No UV and near-IR radiation in light beam	$MF = LLMF \times LSF \times LMF \times RSMF$ $= 0,7 \times 0,7 \times 0,86 \times 0,96$ $= 0,4$ $\text{Average illuminance} = \frac{F \times UF \times MF}{\text{area of working plane}}$ $100 = \frac{F \times 0,48 \times 0,4}{432}$ $F = 225000$ $F = n \cdot \text{luminaires} \times n \cdot \text{lamps} \times \text{lumen of lamp}$ $225000 = n \cdot lu \times n \cdot la \times 450$ $n = 500$ <p>Five lamps per luminaire = 100 luminaires</p>

Table 5.3.2. Foyer lamp specification and calculations



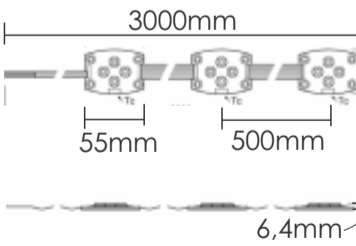
Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	luminaire and lamp specification	luminaire dimensions
Wall wash lighting		 DRAGONchain Colourmix (DC24B-RGBW) Red, green and blue LED, plus a cold-white (6500K) LED.  Uniform backlighting - wide angle optics Flexible chain UV and IR-free light (preserves exhibits)  Beam angle - 135' Colour temperature - 2700 - 6500K Luminous flux - 1770lm Lifespan - 40000h	

Table 5.3.3. Wall lighting lamp specification



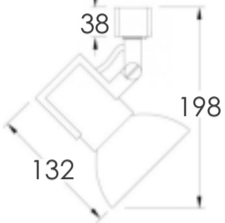
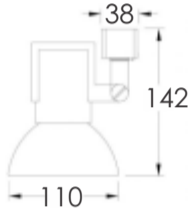
Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	luminaire specification	
Atrium		 <p>Radiant 774 track line system</p> <p>Suspended mounting Body material - Die-cast aluminium, Brushed Nickel finish</p> <p>Used with PAR 30 lamps</p>	 <p>preferred position</p> 

Table 5.3.4. Atrium luminaire specification



Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	lamp specification	illuminance calculations
Atrium		 <p>HCl - PAR30 metal halide lamp</p> <p>70 W Luminous flux - 3530 lm Colour temperature - 4200 K Colour rendering index RA - <math>\geq 90</math> Light colour - Neutral white Beam angle - 30° Service life - 12000 h</p> <p>High efficiency Base up installation Good colour stability UV values low</p>	$MF = LLMF \times LSF \times LMF \times RSMF$ $= 0,63 \times 0,77 \times 0,74 \times 0,95$ $= 0,34$ $\text{Average illuminance} = \frac{F \times UF \times MF}{\text{area of working plane}}$ $200 = \frac{F \times 1,1 \times 0,34}{335}$ $F = 179144$ $F = n \cdot \text{luminaires} \times n \cdot \text{lamps} \times \text{lumen of lamp}$ $179144 = n \cdot lu \times n \cdot la \times 3530$ $n = 50$

Table 5.3.5. Atrium lamp specification and calculations



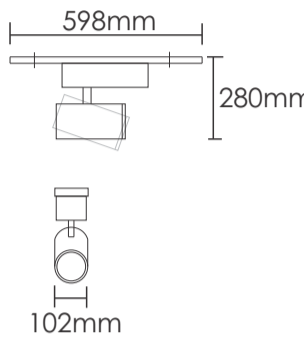
Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	luminaire and lamp specification	luminaire dimensions
Spotlight		 <p>MODARIO Spot LED Aluminium grey (RAL 9006) Adjustable</p> <p>Beam angle - 24' Light distribution - Rotational symmetric Rotation - 360', pivoting 60' Luminous flux - 2700lm Colour temperature - 3000K Colour rendering index RA - 80 Light colour - Warm White Average lifespan - 50000h</p> <p>Long lifespan Glare-free light</p>	

Table 5.3.6. Spotlight luminaire and amp specification.



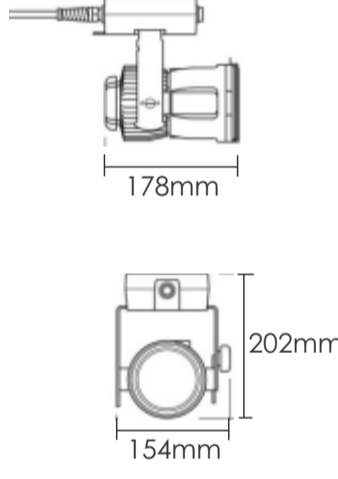
Lighting Legend		All luminaires and lamps available from OSRAM	
	symbol	luminaire and lamp specification	luminaire dimensions
Theatre lighting for use with lighting grid		 <p>KREIOS SL LED luminaire Black Lightweight (1,5kg) Almost silent air cooling system Low energy consumption</p> <p>Beam angle - Varied</p> <p>Luminous flux - 3000lm Colour temperature - 3200K Colour rendering index RA - 95 Average lifespan - 30000h</p> <p>Barn door to minimize light spill included Frame holder for various filters and gobos included Spot reflector (beam angle - 24') included</p>	

Table 5.3.7. Atrium luminaire and lamp specification.

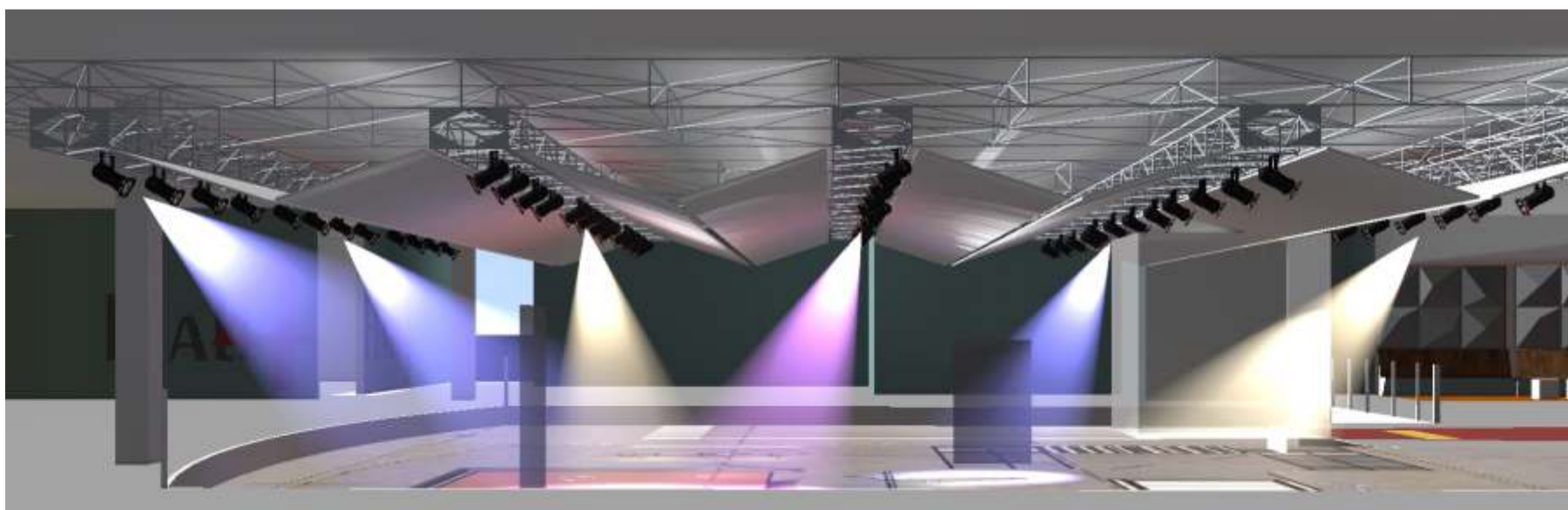


Figure 5.3.4. Atrium theatrical lighting effect.

## 5.4. DESIGN ELEMENTS

The following design elements were chosen for development and resolution due to their expression of the theories investigated and design concept.

The design elements all contribute to the overall visitor experience of the D: NMCH. These elements come together as the physical manifestation of the programmatic and technical requirements and conceptual approach.

### 5.4.1. STAIRCASE

The double staircase and elevator is located on the northern edge of the atrium. These vertical circulation elements physically connect the first and ground floor of the museum.

The staircase provides sightlines towards the temporary exhibition on the ground floor. The temporary exhibition is incentive to navigate to the ground floor via the staircase or elevator.

The balustrade design incorporates the faceted design identity created in the foyer through the use of faceted stainless steel infill panels.



Figure 5.4.1.1. View towards staircase.

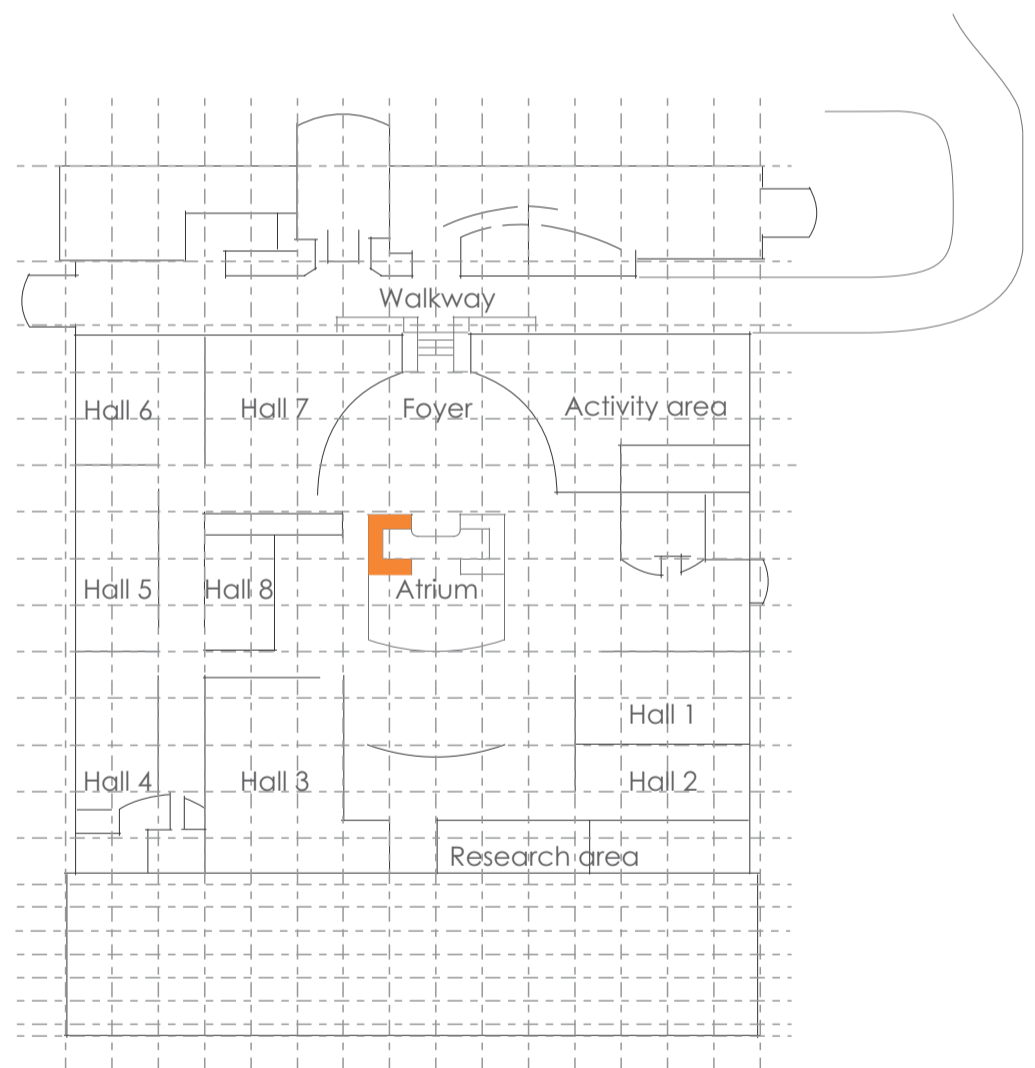
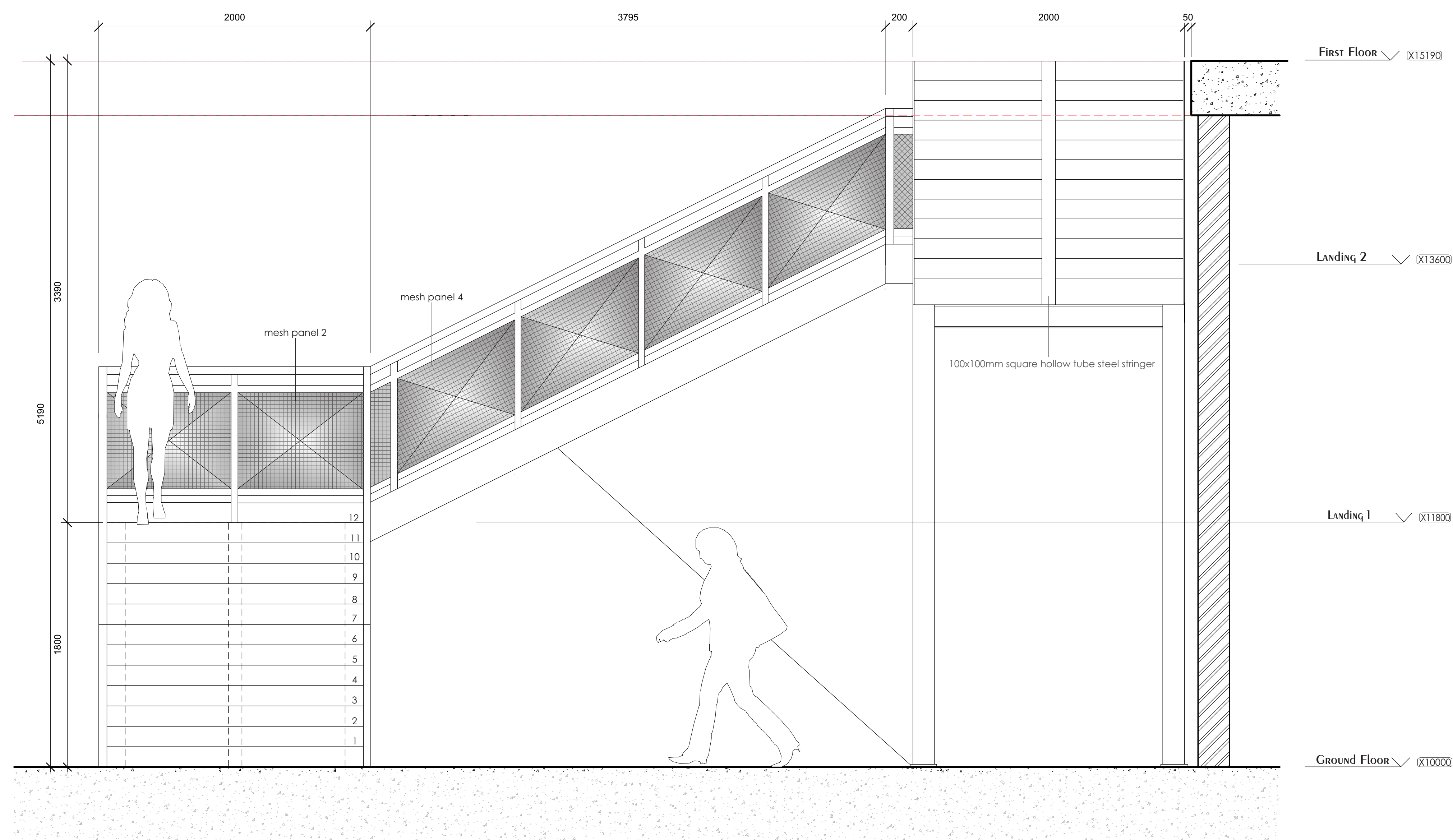


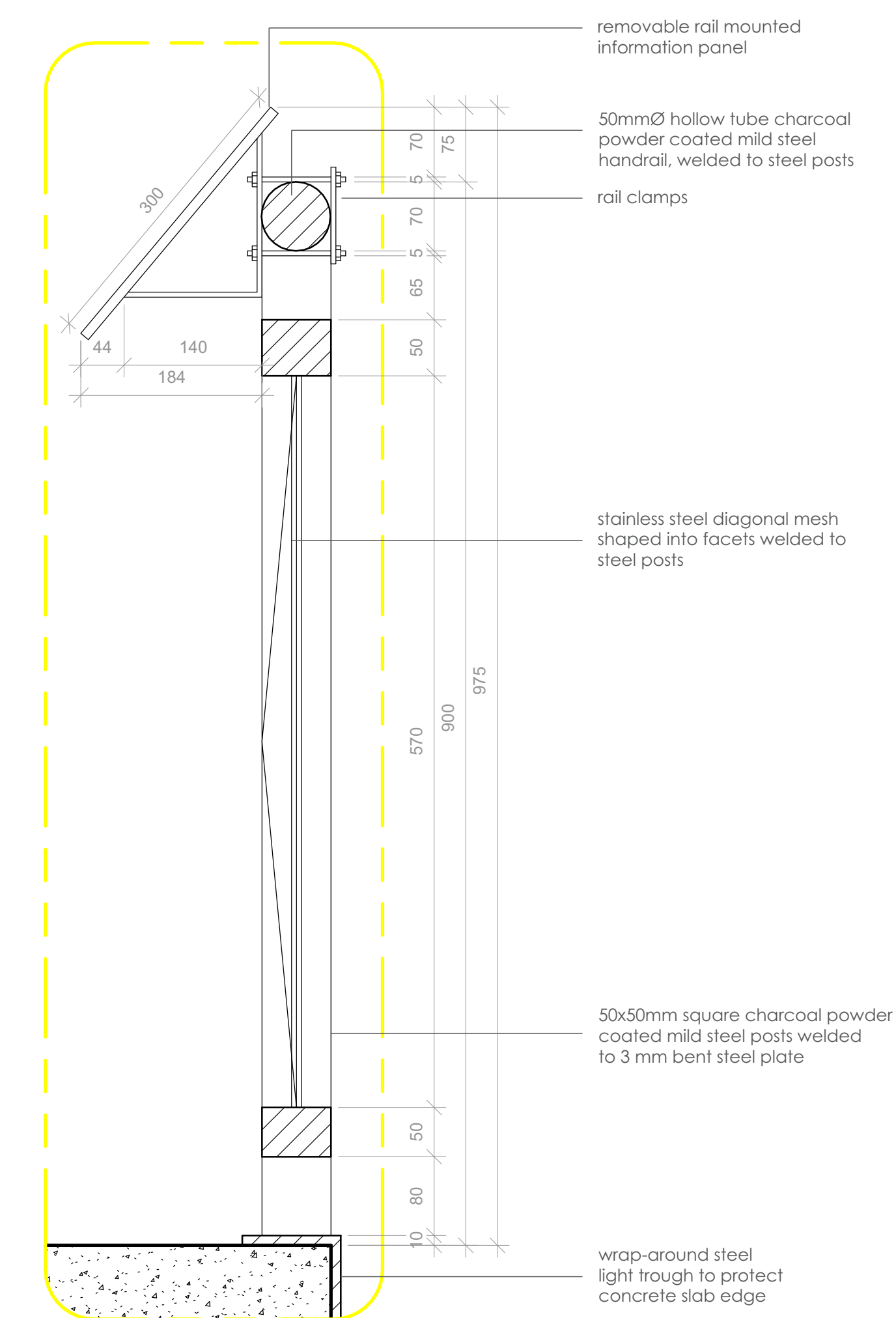
Figure 5.4.1.2. Location of staircase.





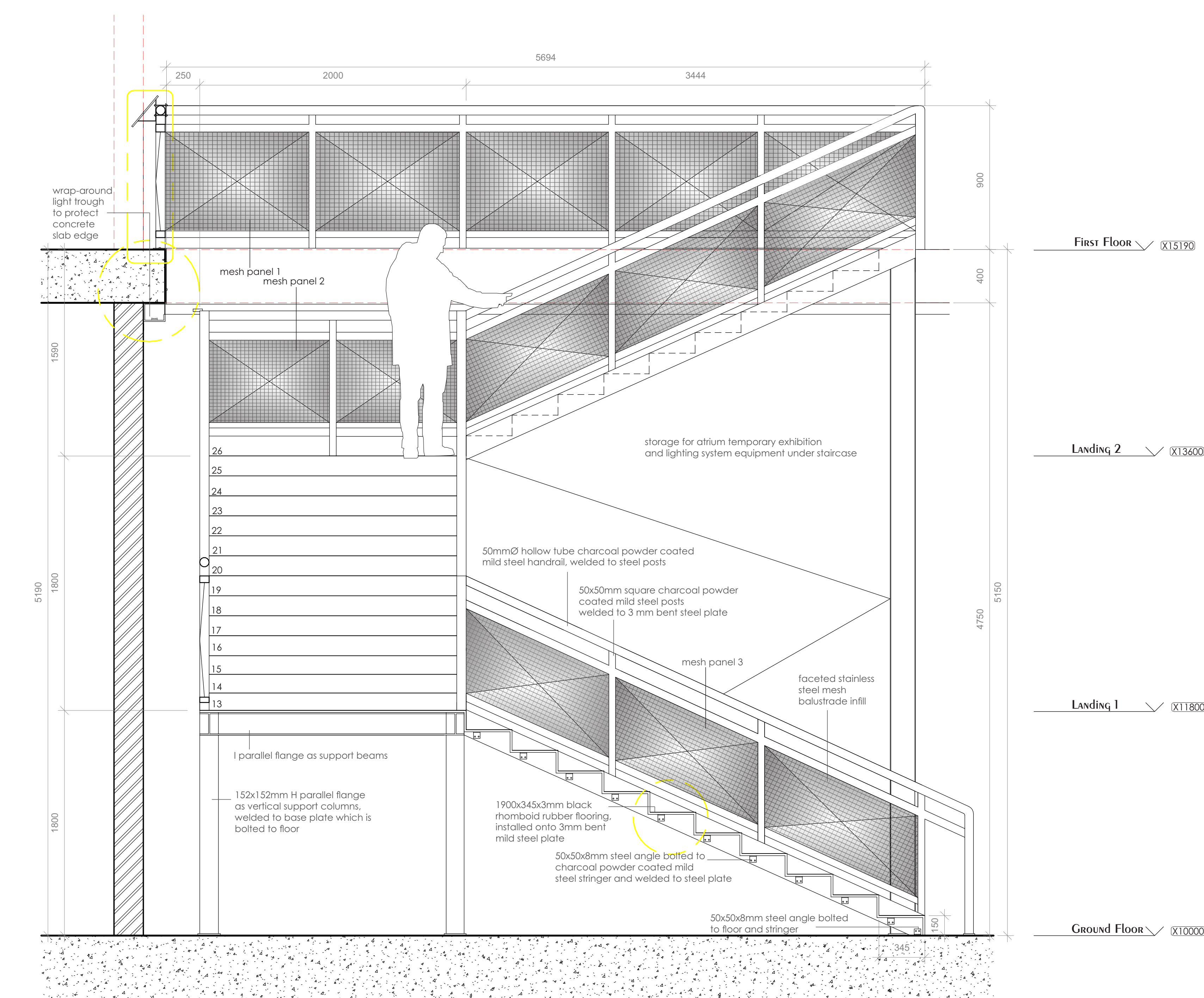
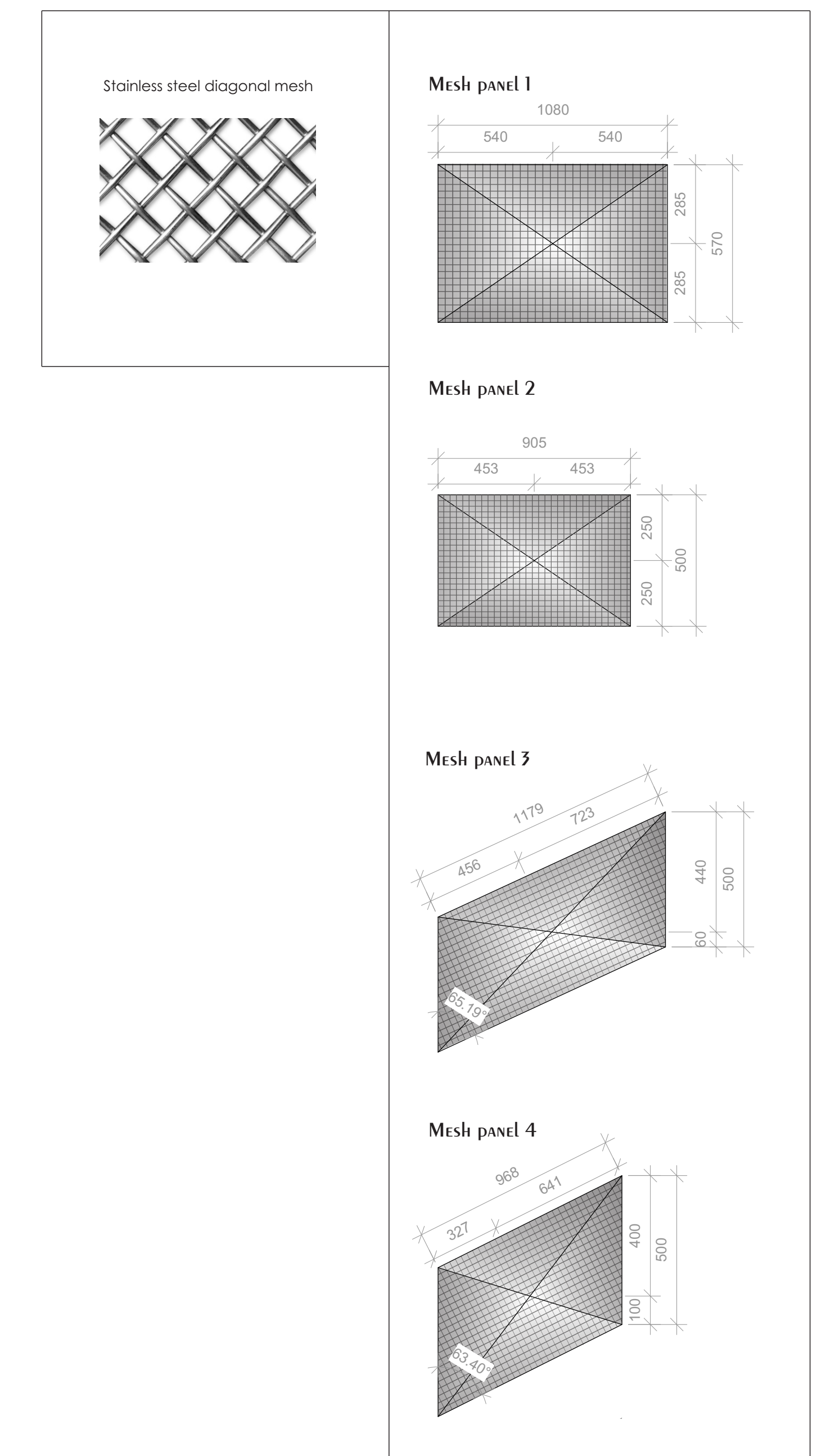


ELEVATION OF STAIRCASE  
SCALE 1:20

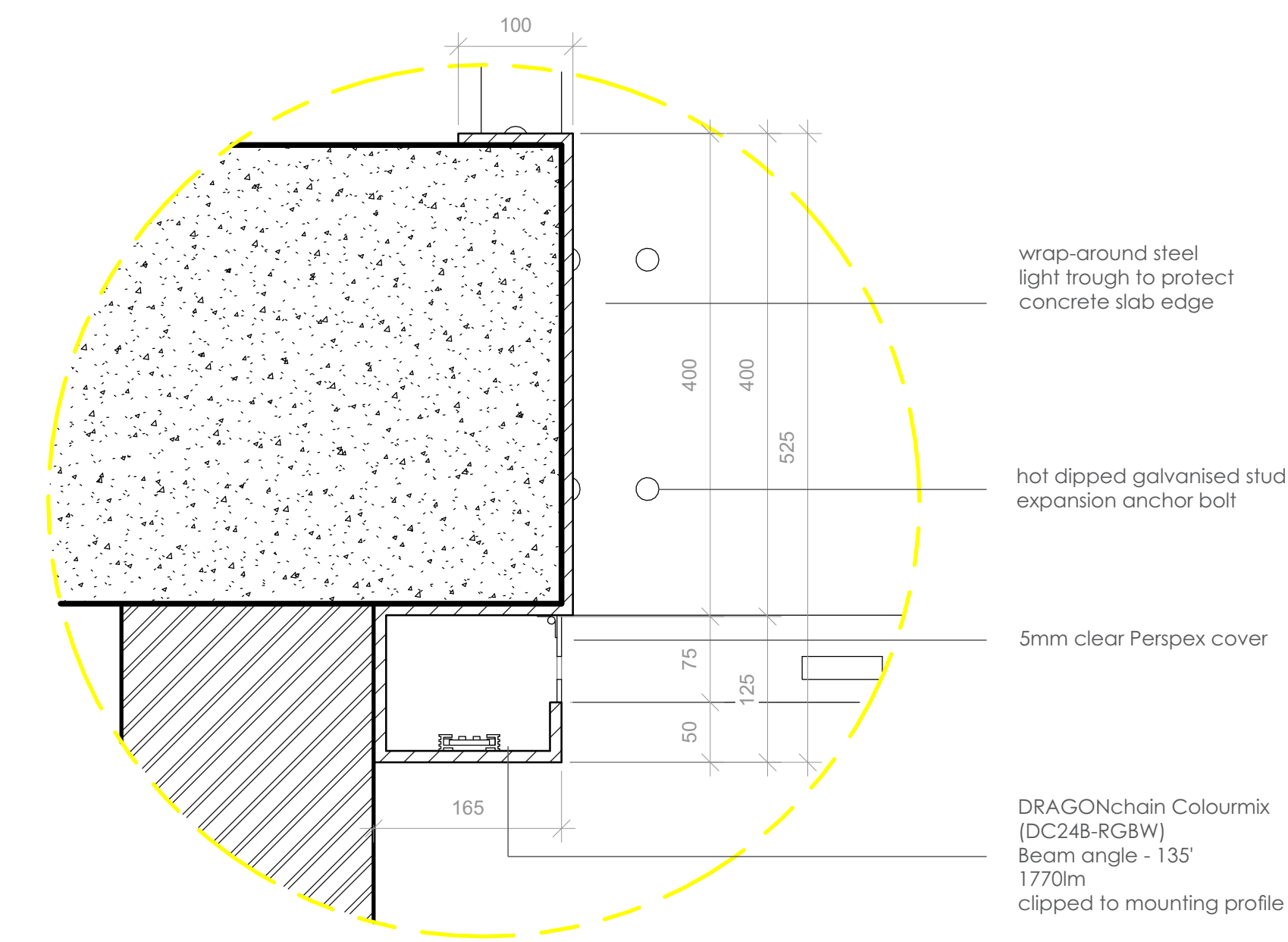


BALUSTRADE DETAIL 1  
SCALE 1:5

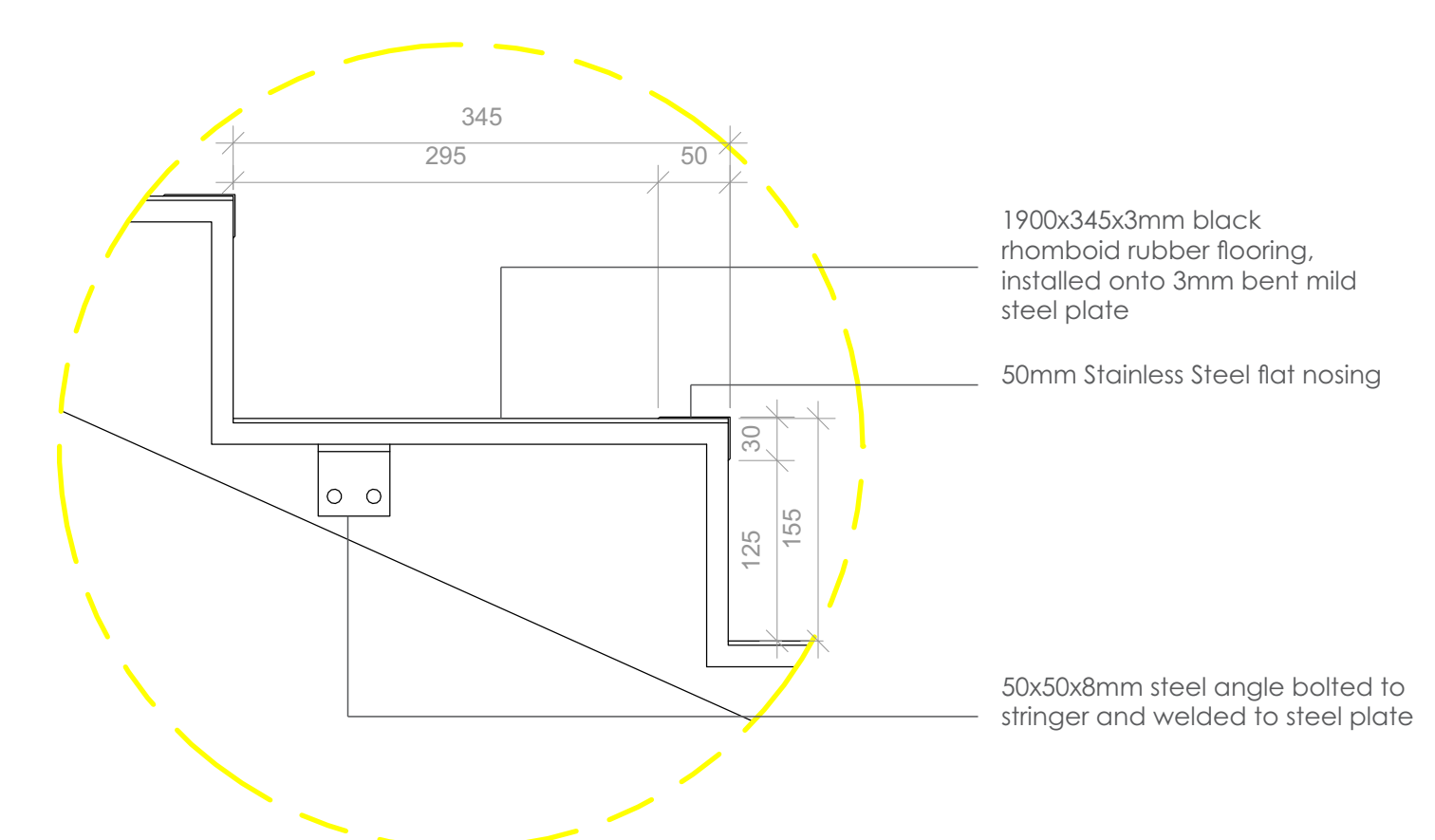
FACETED MESH BALUSTRADE INFILL PANELS



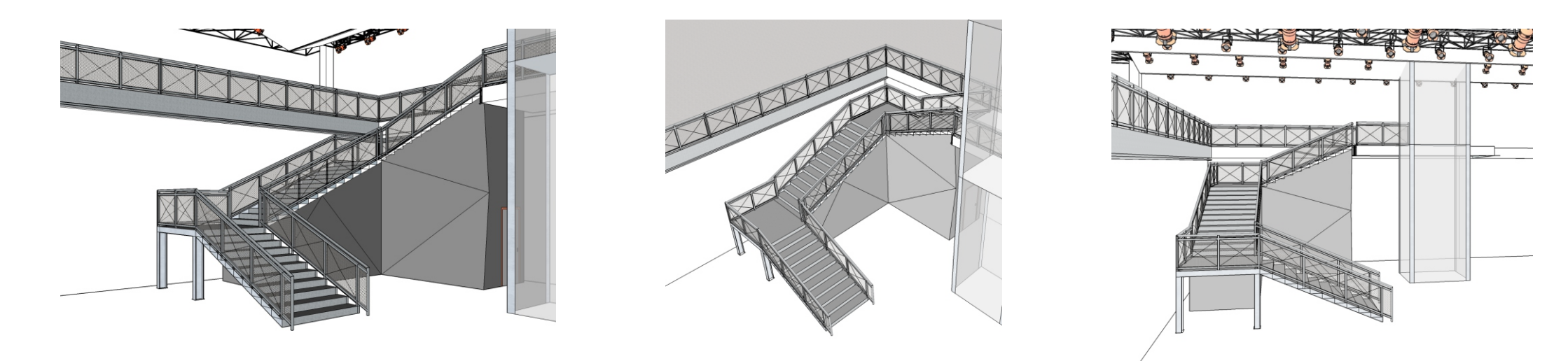
SECTION OF STAIRCASE  
SCALE 1:20



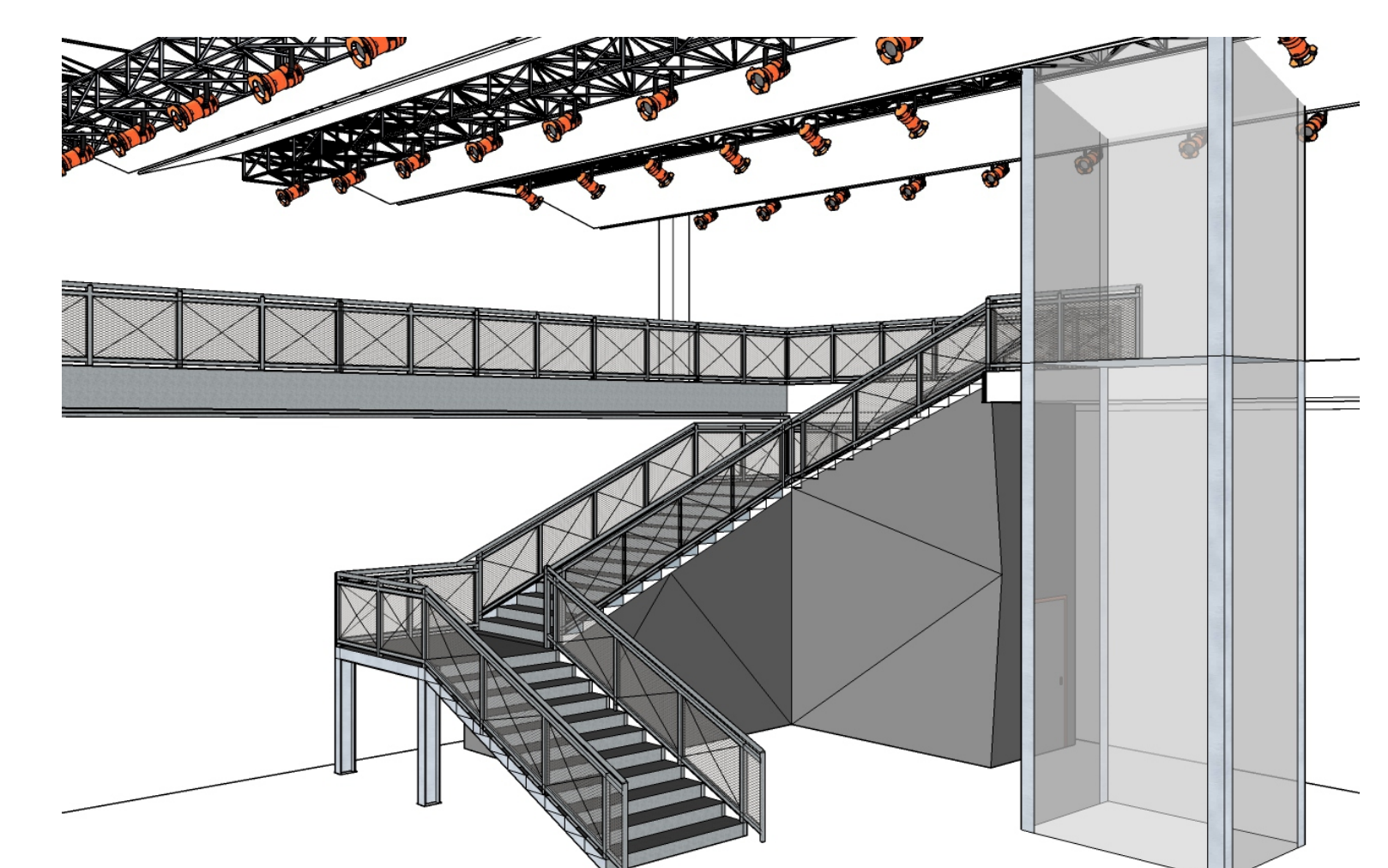
LIGHTING TROUGH DETAIL 2  
SCALE 1:5



STAIR CONSTRUCTION DETAIL 3  
SCALE 1:5



VIEWS TOWARDS STAIRCASE



VIEW TOWARDS STAIRCASE

### 5.4.2. RECEPTION DESK

The reception desk is the first design element that the visitor visually encounters in the foyer. The reception desk acts as landmark and orientation point in the foyer.

The faceted design is implemented on a larger scale in the reception desk design. Direct lighting from above and indirect lighting from below emphasises the reception desk as landmark.

The reception desk is inclusively designed to allow for a variety of visitors to be able to use the desk. The reception desk provides a place of contact with museum staff. Brochures are available at the back of the reception desk.



Figure 5.4.2.1. View towards reception desk.

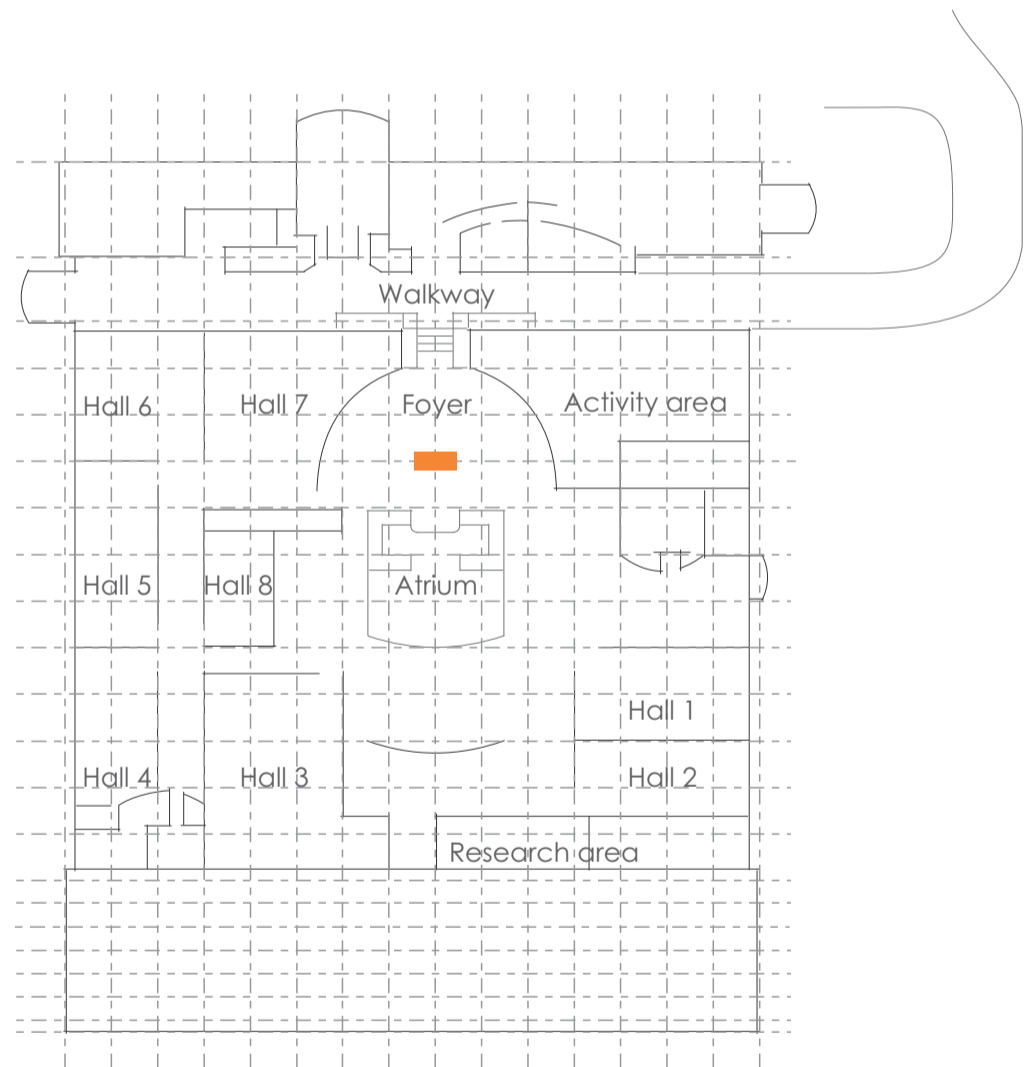
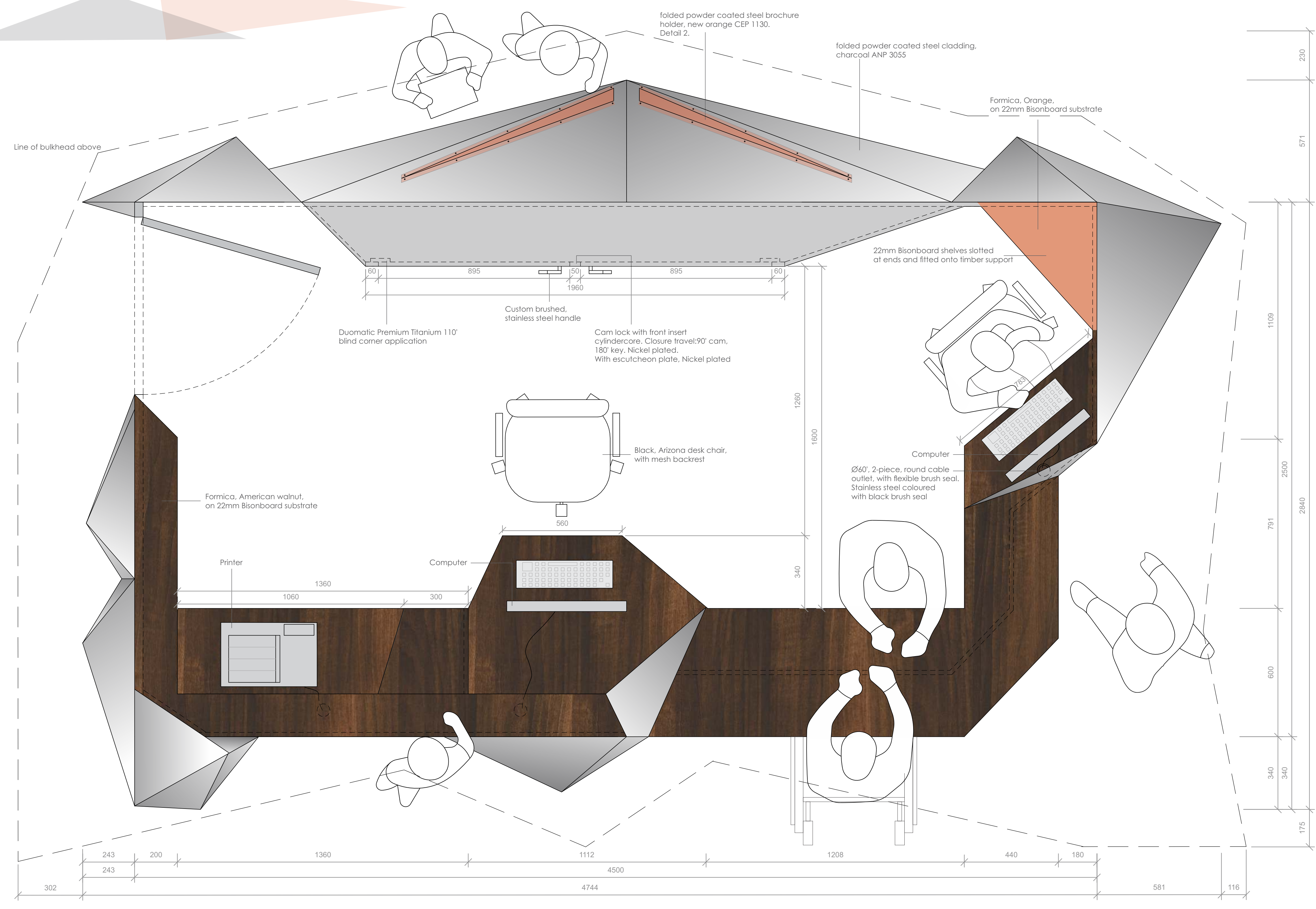
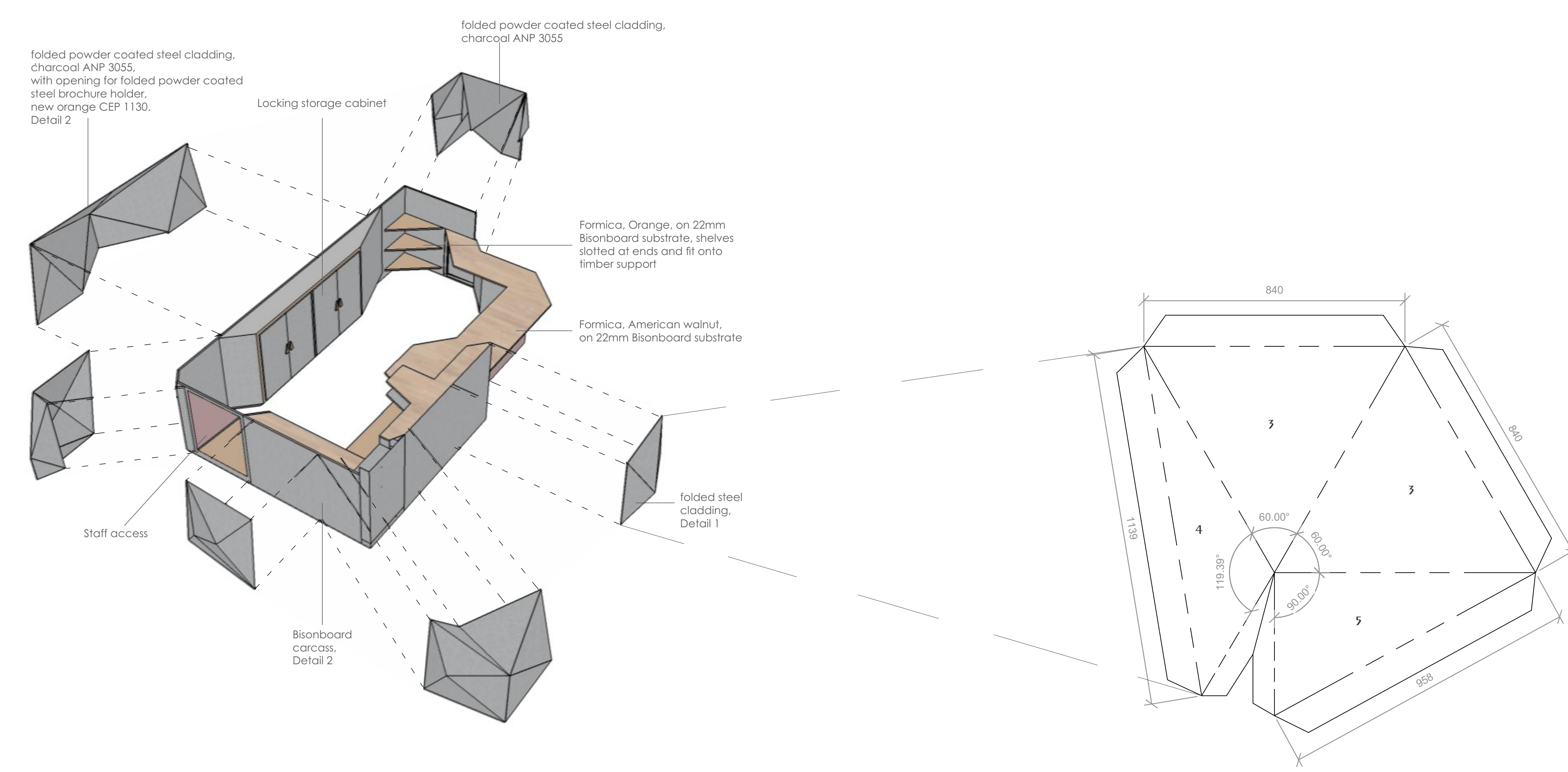


Figure 5.4.2.2. Location of reception desk.



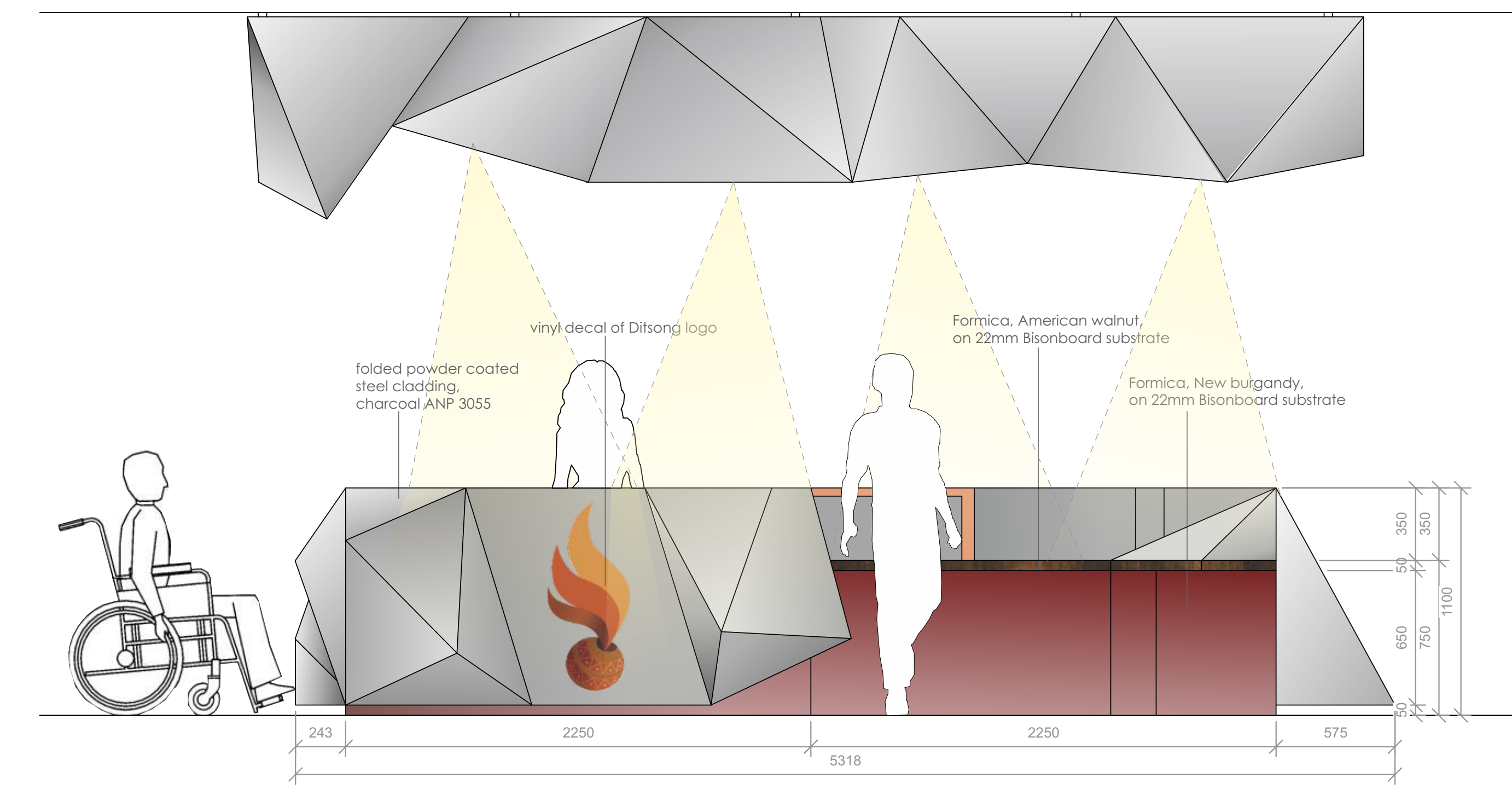


PLAN OF RECEPTION DESK  
SCALE 1:10

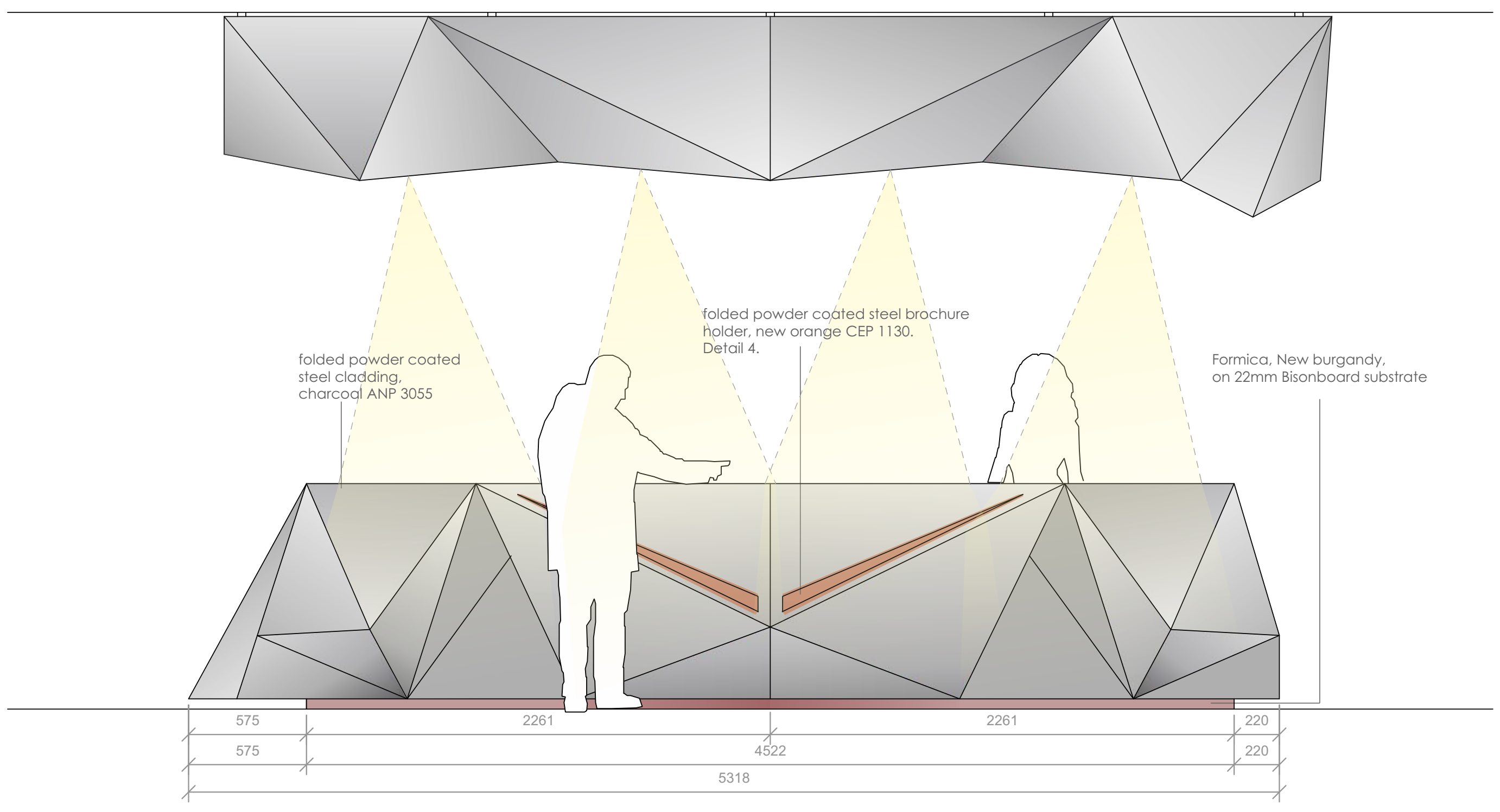


EXPLODED AXONOMETRIC OF RECEPTION DESK

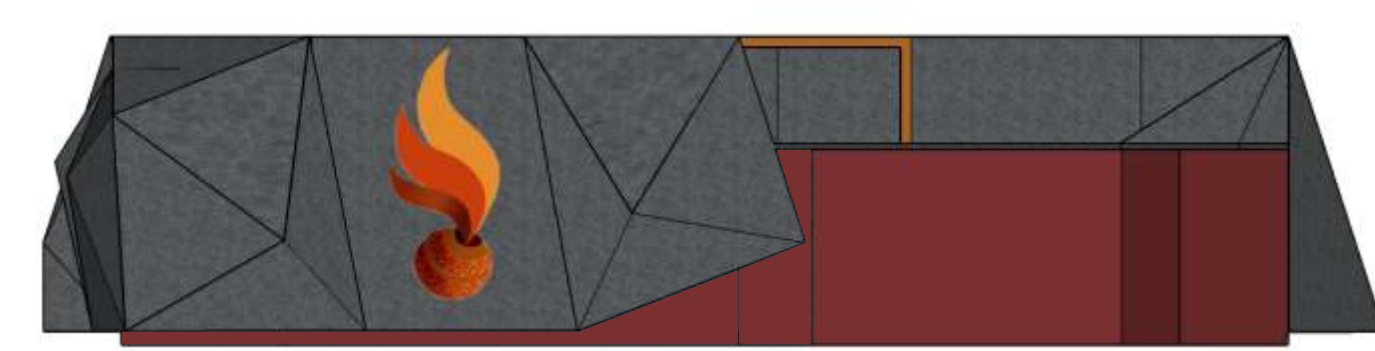
FLAT CLADDING UNIT



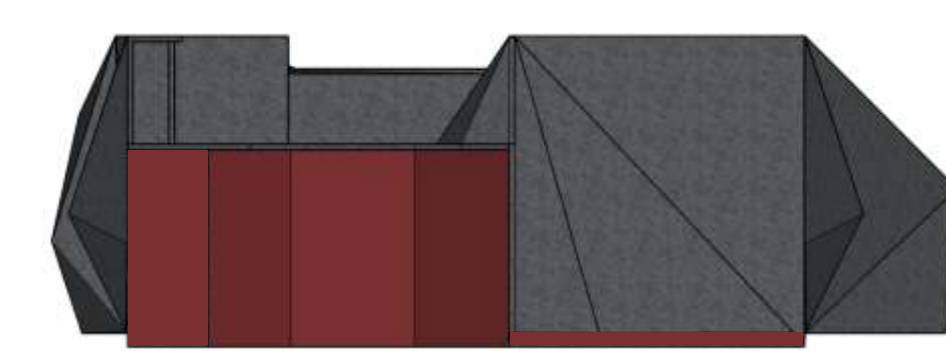
FRONT ELEVATION OF RECEPTION DESK AND BULKHEAD  
SCALE 1:20



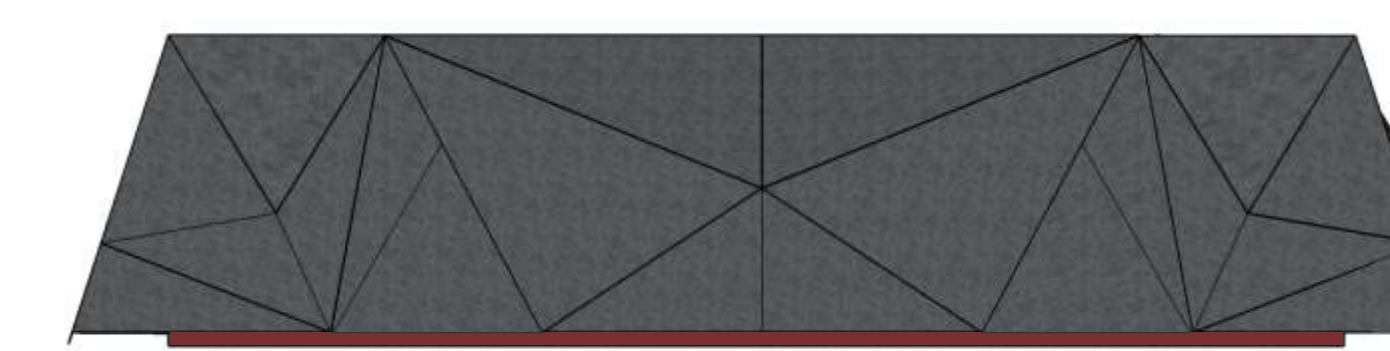
BACK ELEVATION OF RECEPTION DESK AND BULKHEAD  
SCALE 1:20



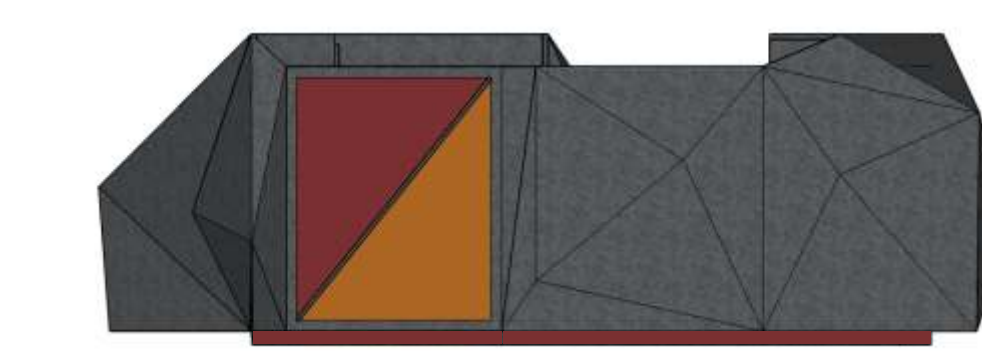
FRONT ELEVATION



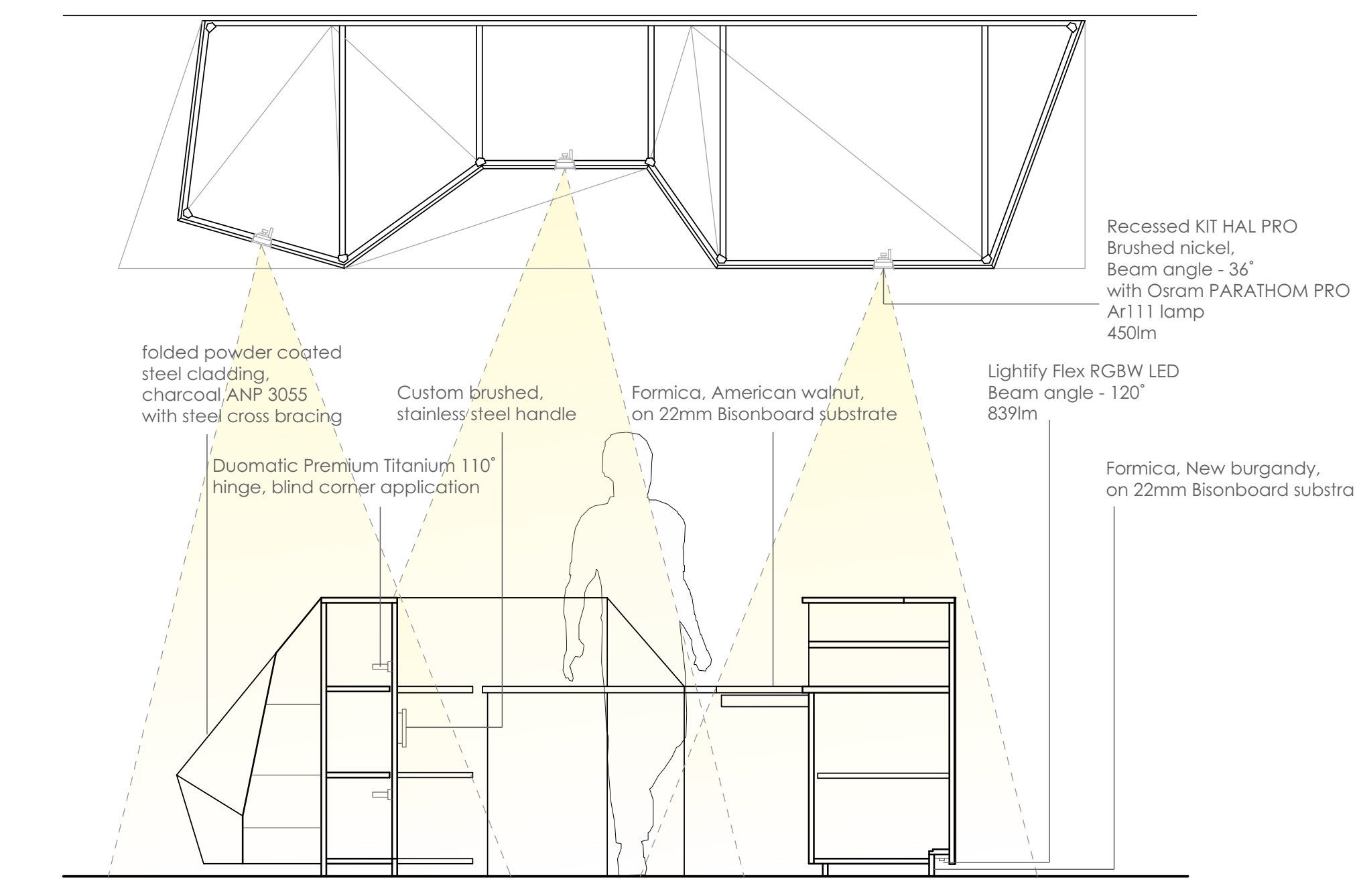
RIGHT ELEVATION



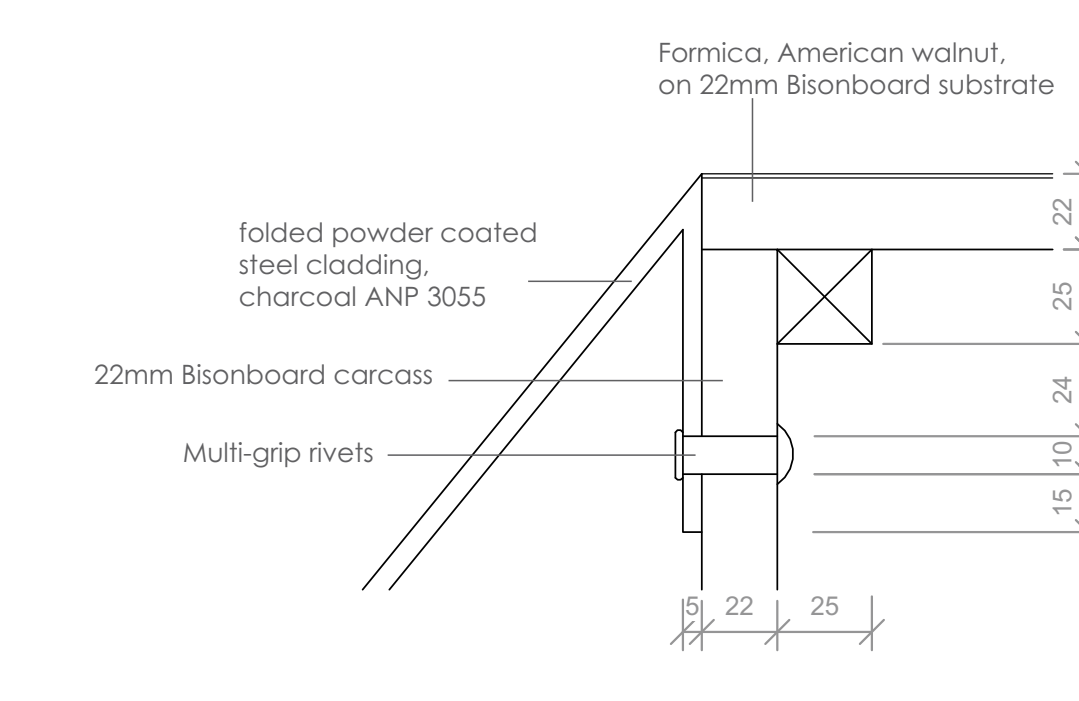
BACK ELEVATION



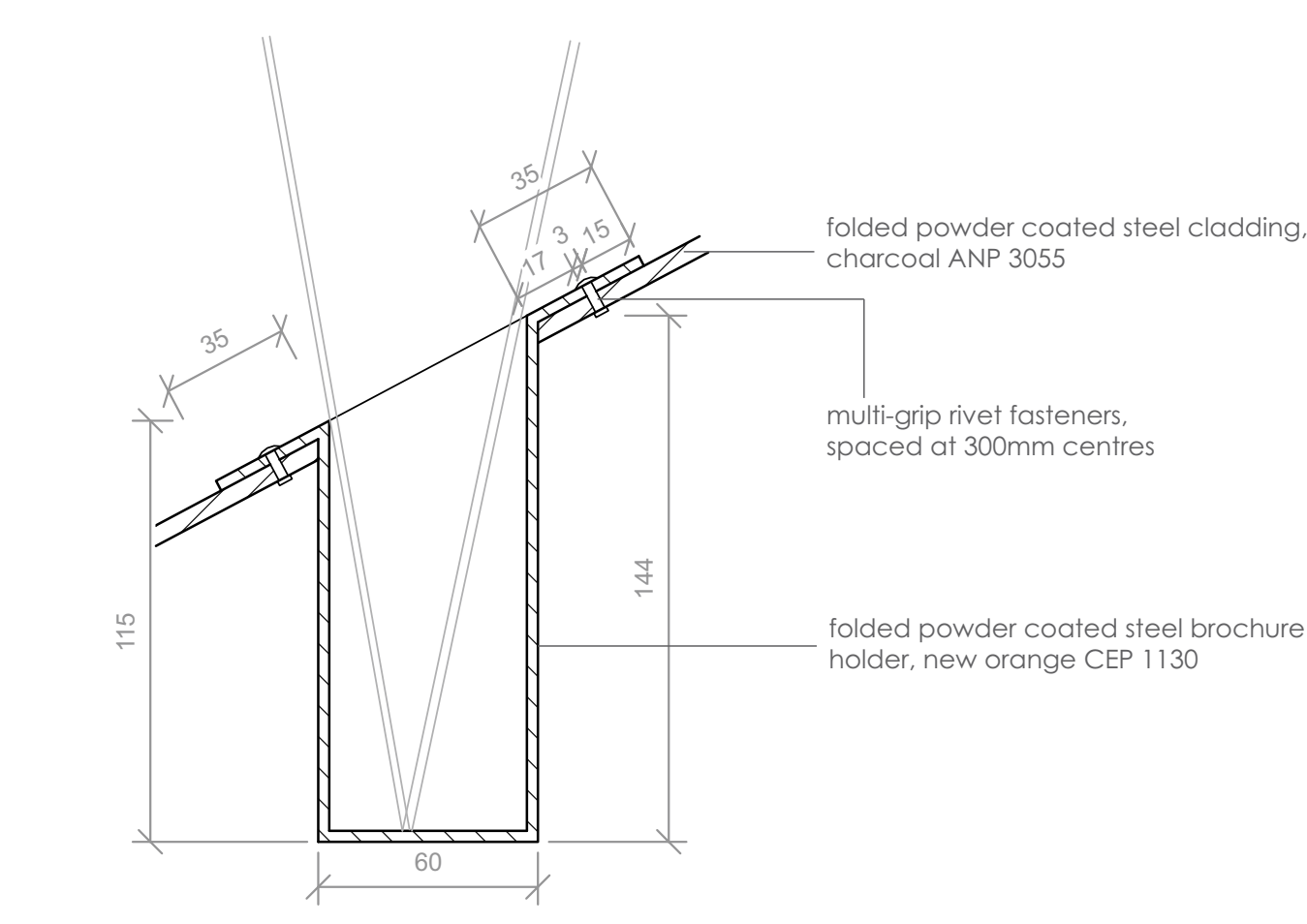
LEFT ELEVATION



SECTION  
SCALE 1:20



CLADDING FIXED TO CARCASS, DETAIL 1  
SCALE 1:2



BROCHURE HOLDER, DETAIL 2  
SCALE 1:2

**RECEPTION DESK MATERIALS**

Use	Material	Properties	Colour
Carcass	Formica on 22mm Biorboard substrate	Formica Resistance to wear Low maintenance Durable Hygienic	New Burgundy
	High pressure laminate on a Biorboard substrate	Biorboard excellent structural strength superior screw-holding capability smooth surface	Orange
			American Walnut
Cladding	Interpon powder coating, matte	No VOCs Solvent free Overgrey can be reclaimed Durable Matte - do not show fingerprints or quick or gloss (Interpon 2015)	Interpon D1025 Charcoal ANP 3055
	Folded steel sections, fixed with rivets to Biorboard carcass		Interpon 700, New Orange, CEP 1130

TRIANGLES USED TO DETERMINE FACETS

	Size	AMOUNT USED IN DESK	TO BE USED NEXT TO
1		4	2, 6
2		8	1
3		9	4, 5
4		6	3, 5
5		4	3, 4, 6
6		2	1, 5

### 5.4.3. Wall cladding and seating

The wall cladding and seating is located to the right as visitors enter the foyer. The bench seating is supplemented with free standing ottomans. The seating provides a rest area to visitors to inhibit fatigue.

The faceted wall cladding provides a focus wall within the foyer. The facets are emphasised with LED colour changing lighting. The concealed lighting units are located above and below the faceted cladding.

The faceted wall cladding reflects sound at different angles which prevents echoes within the foyer. Some facet units are perforated to allow a small amount of sound to be absorbed by an absorbent backing material.



Figure 5.4.3.1. View towards wall cladding and seating.

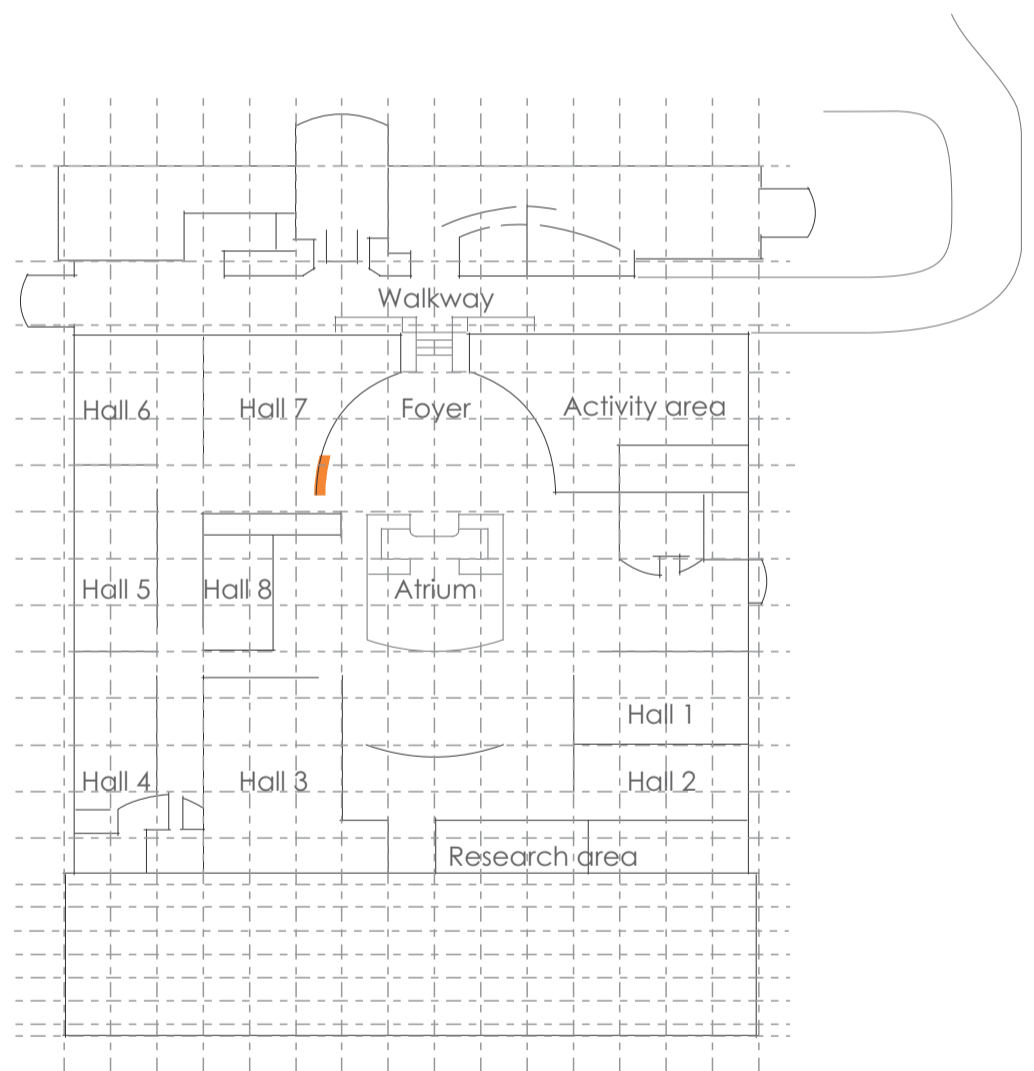
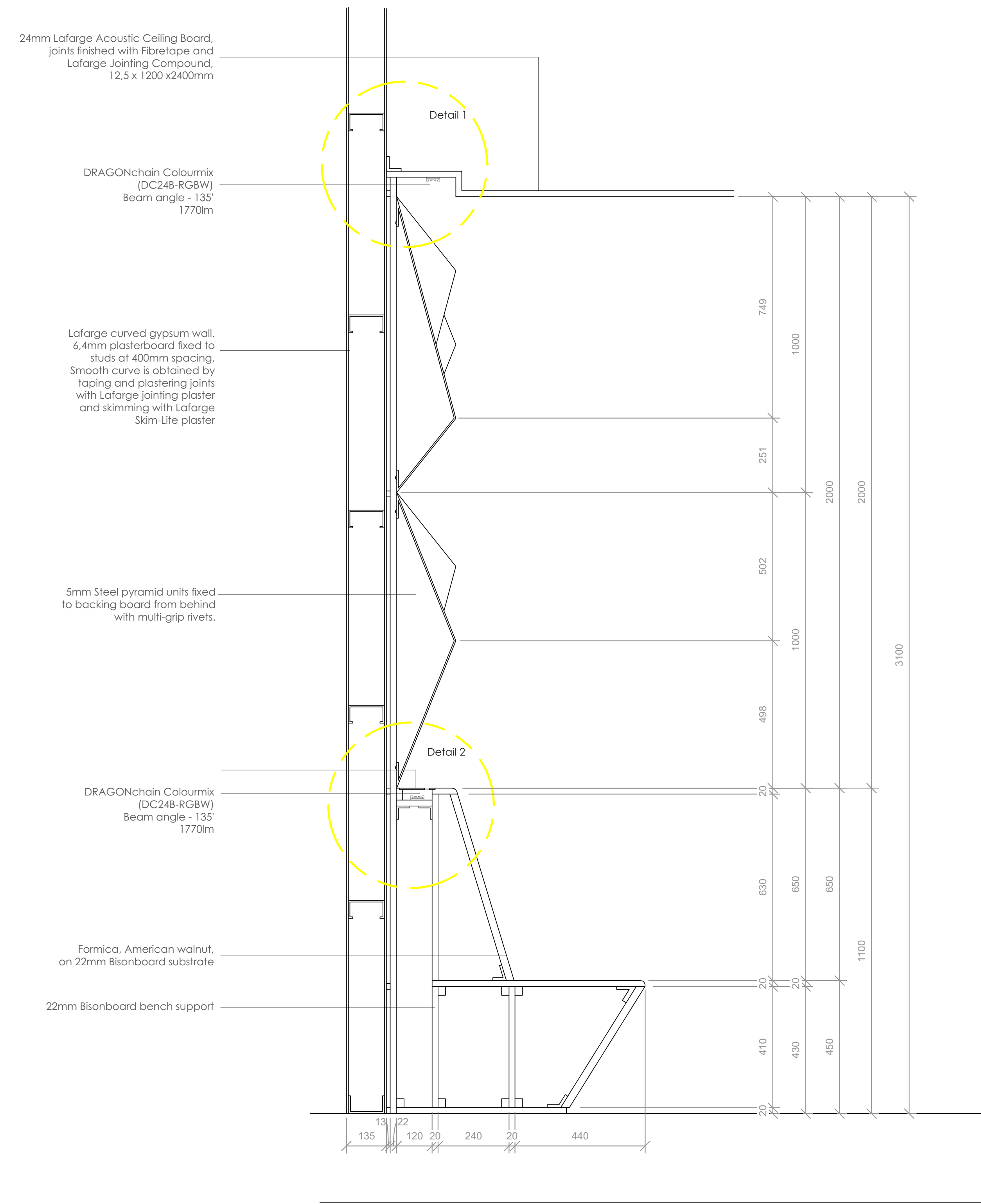
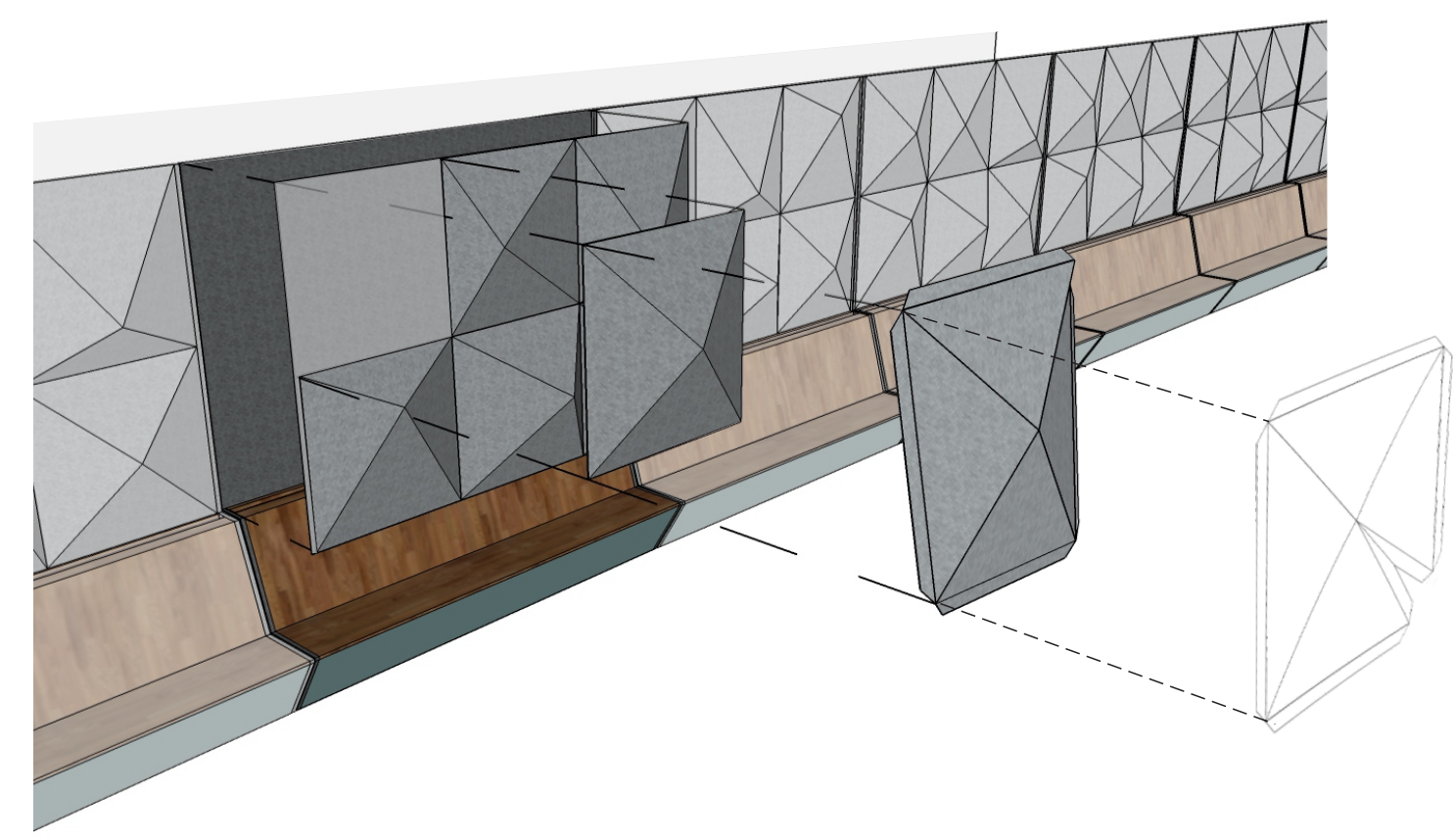


Figure 5.4.3.2. Location of wall cladding and seating.

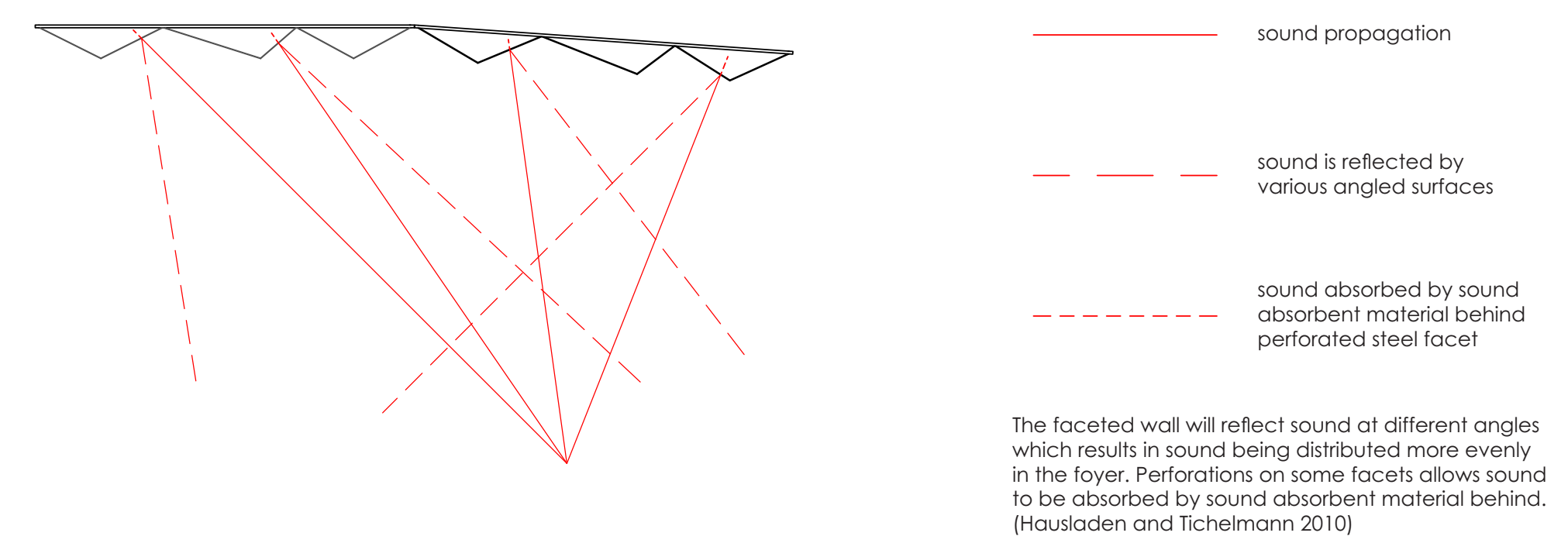




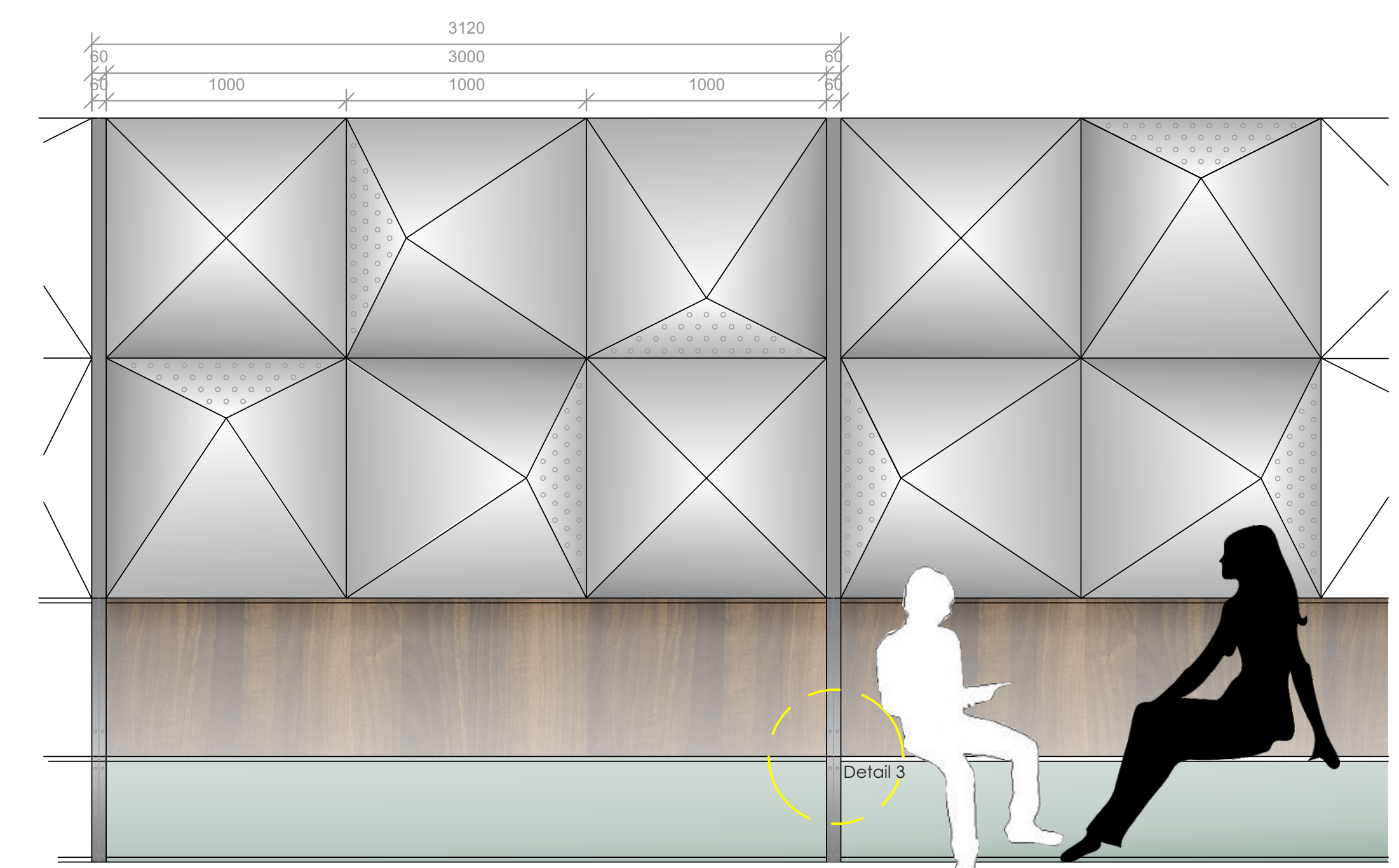
SECTION  
SCALE 1:10



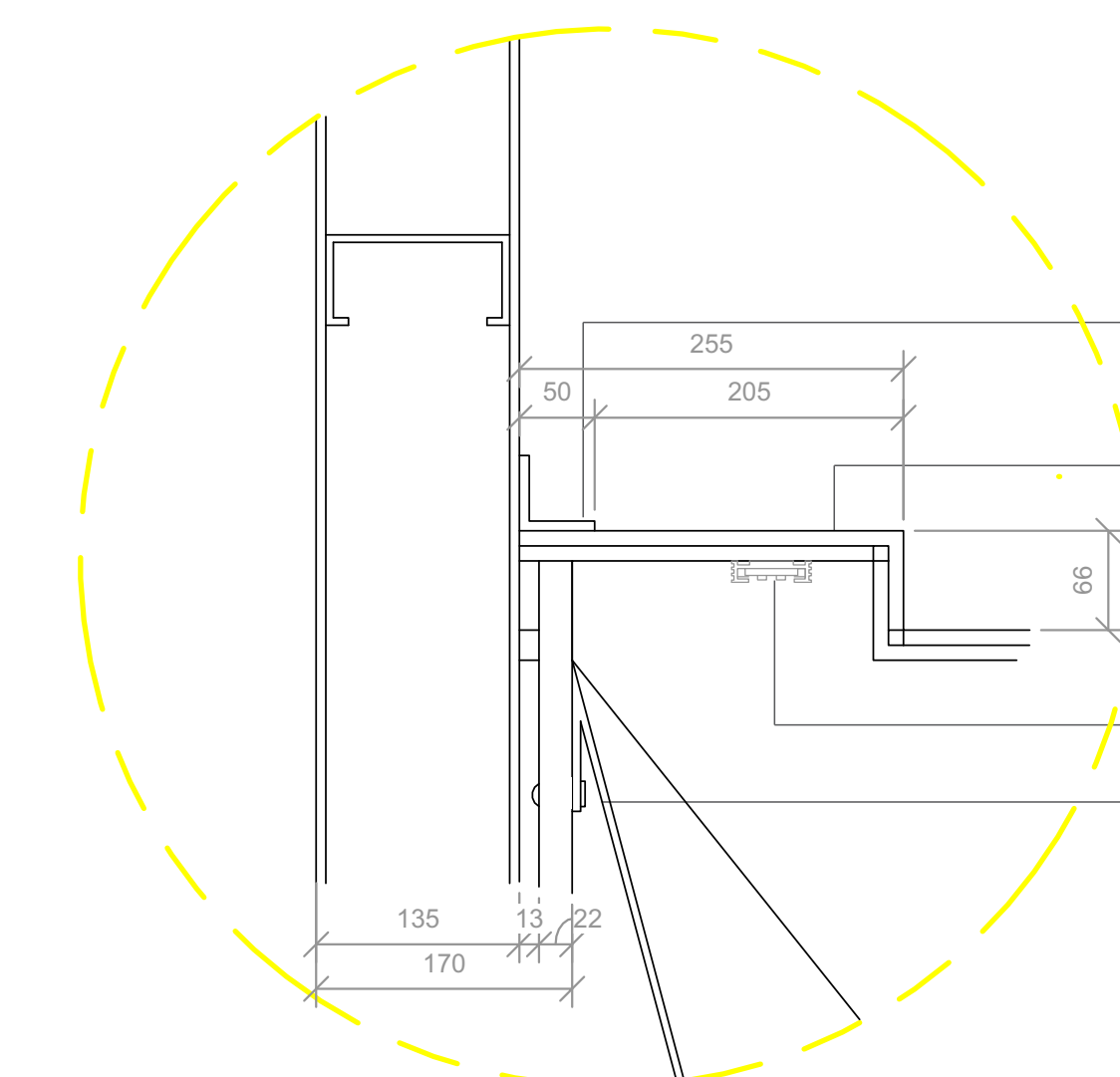
Exploded AXONOMETRIC of wall cladding



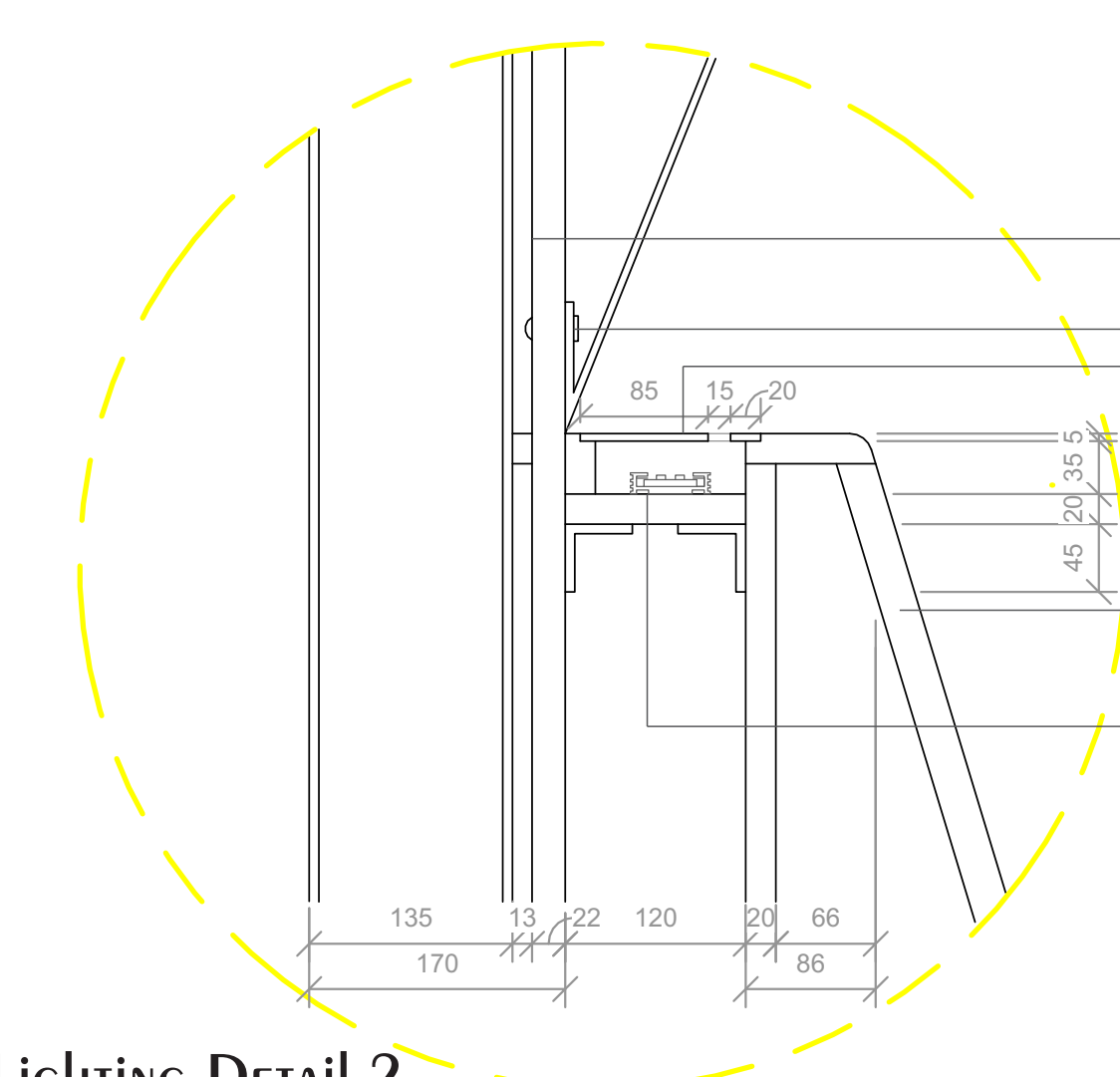
Acoustics diagram



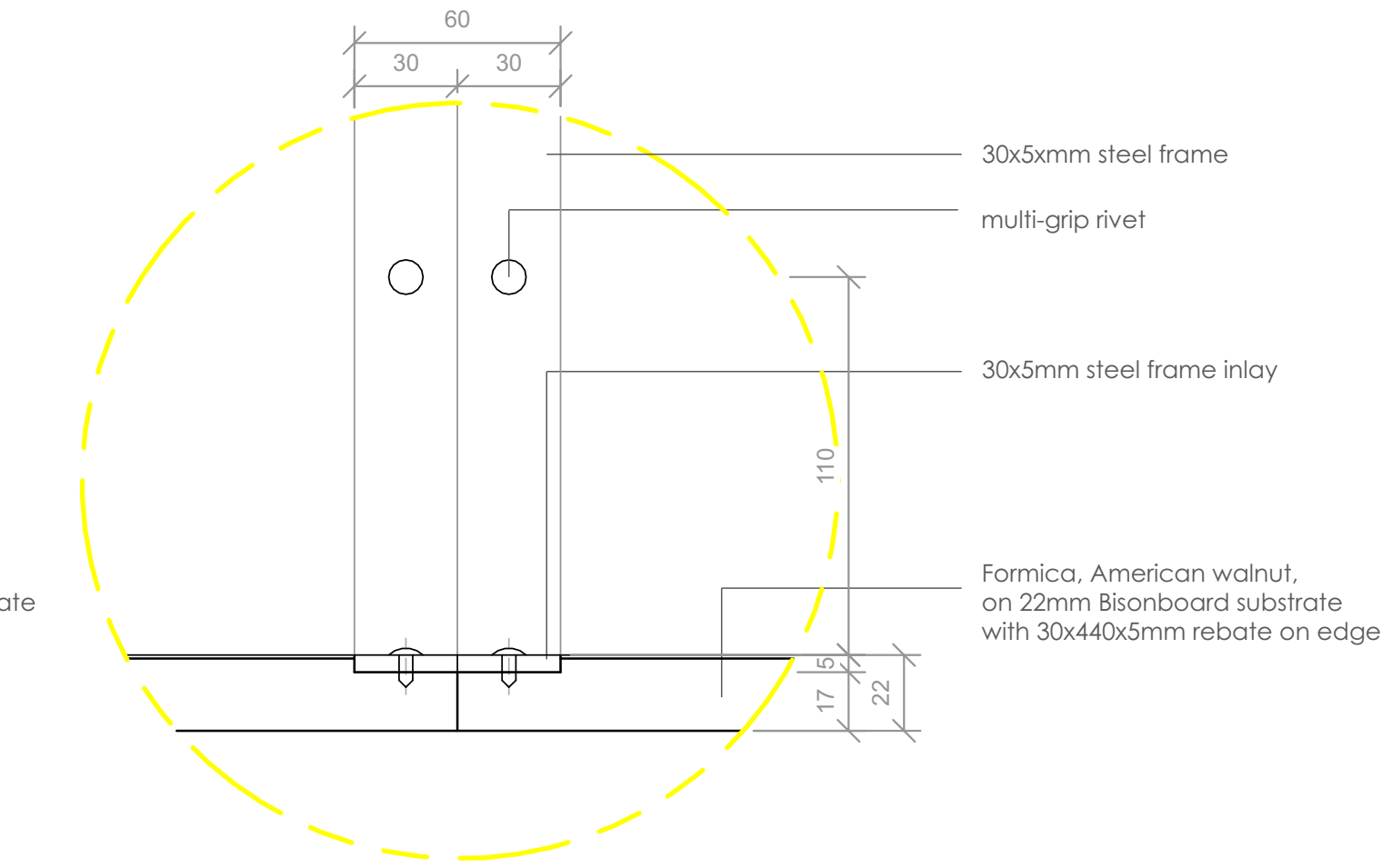
Elevation  
Scale:1:20



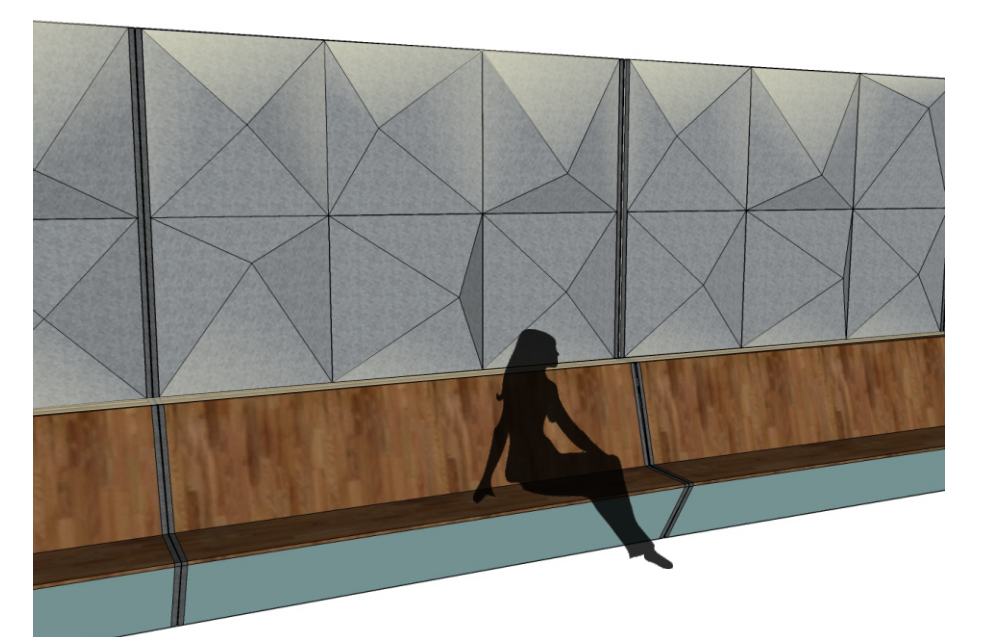
Lighting Detail 1  
Scale 1:2



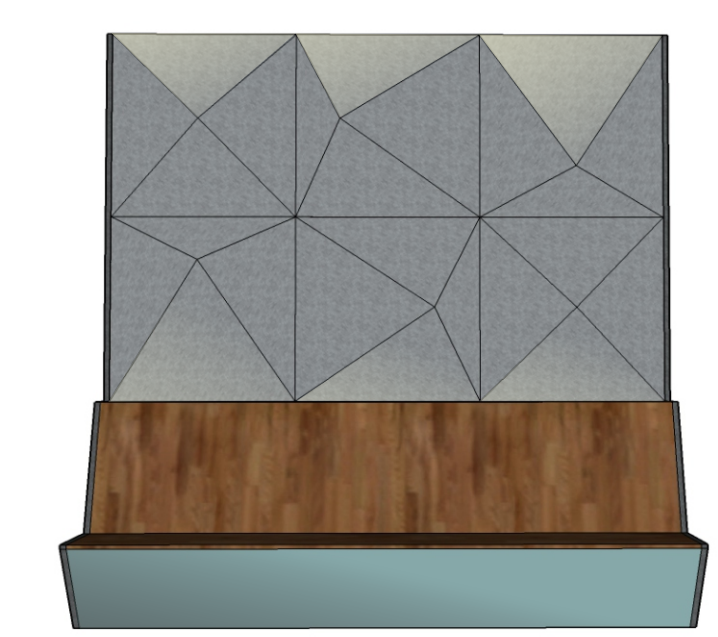
Lighting Detail 2  
Scale 1:2



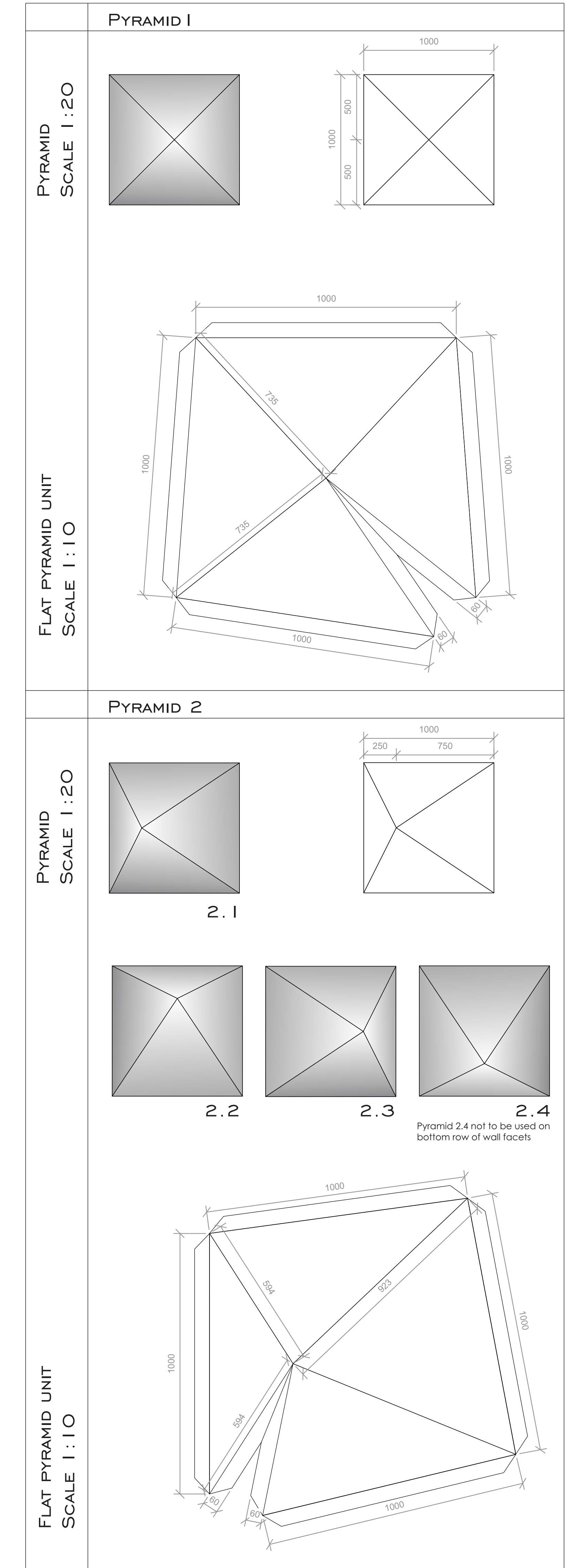
Steel inlay on bench Detail 3  
Scale 1:2



Views of wall cladding and seating



Pyramid units used to create facet wall





#### 5.4.4. SELF SERVICE STATION AND FREE STANDING SIGN

The self service stations and free standing signs provide navigational aids for visitors.

The self service stations include free standing units to be used for electronic ticket purchasing and three-station units to be used for interactive maps.

The free standing signs are located throughout the museum complex at navigational decision points. The text on the signs is covered by a photoluminescent vinyl film which will emphasise the sign in darker lighting conditions.

Lighting and floor finishes will emphasise these units as secondary landmarks within the museum. The self service station and free standing signs have a minimum height of 2200mm which allows them to be visible from afar.

The self service stations and free standing signs incorporate the faceted design identity of the intervention.



Figure 5.4.4.1. View towards self service stations.

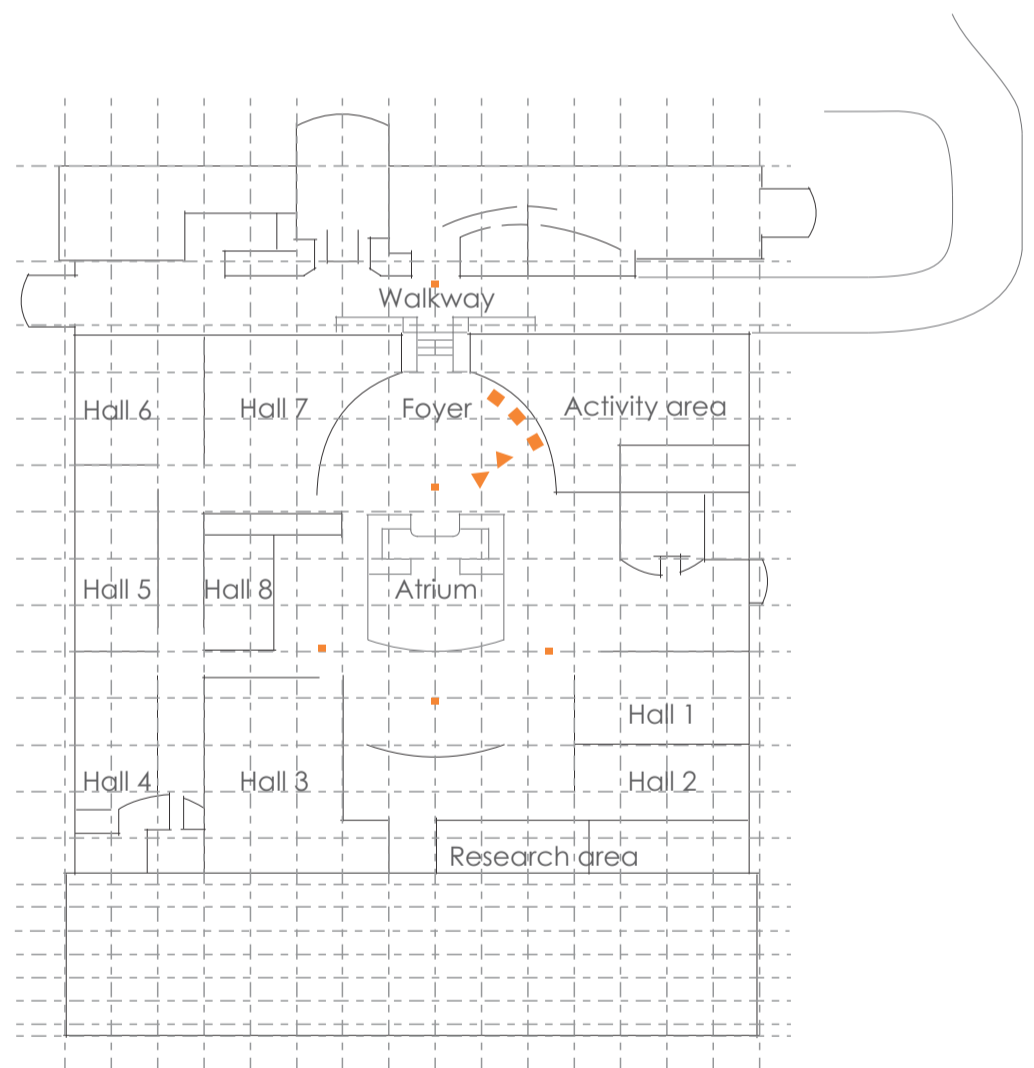
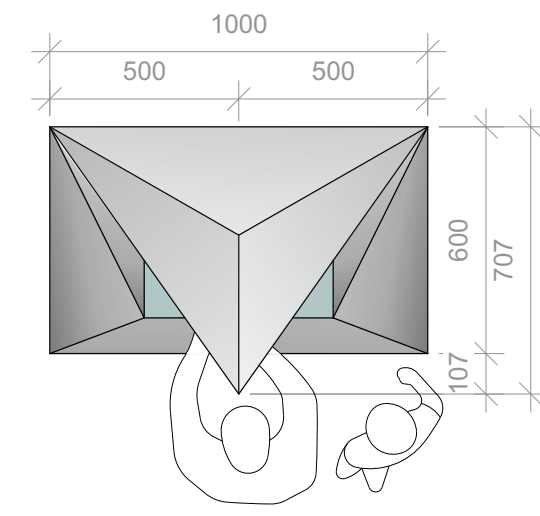
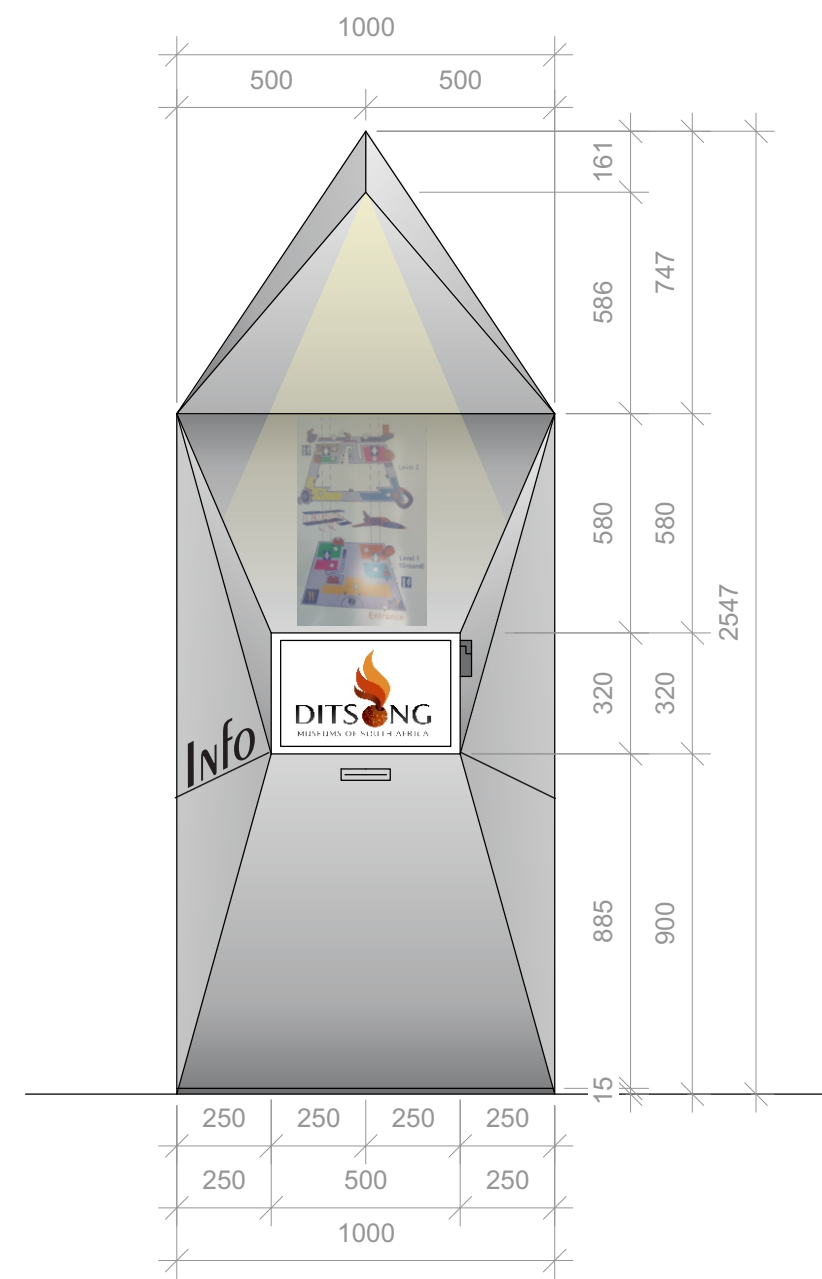


Figure 5.4.4.2. Location of self service stations and free standing signs.

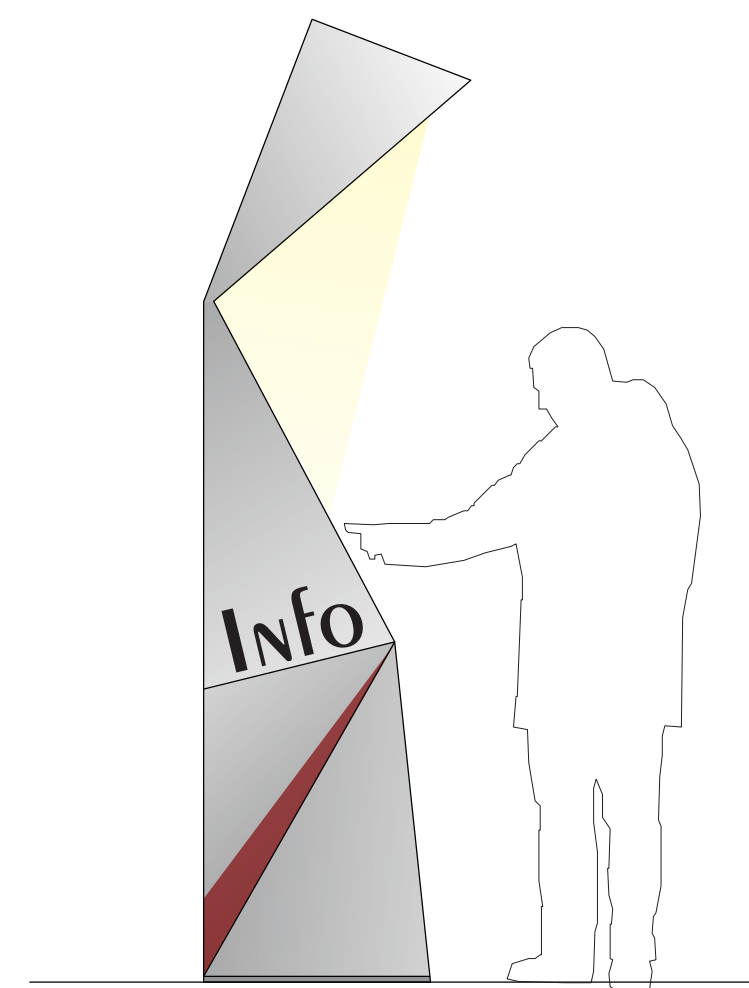




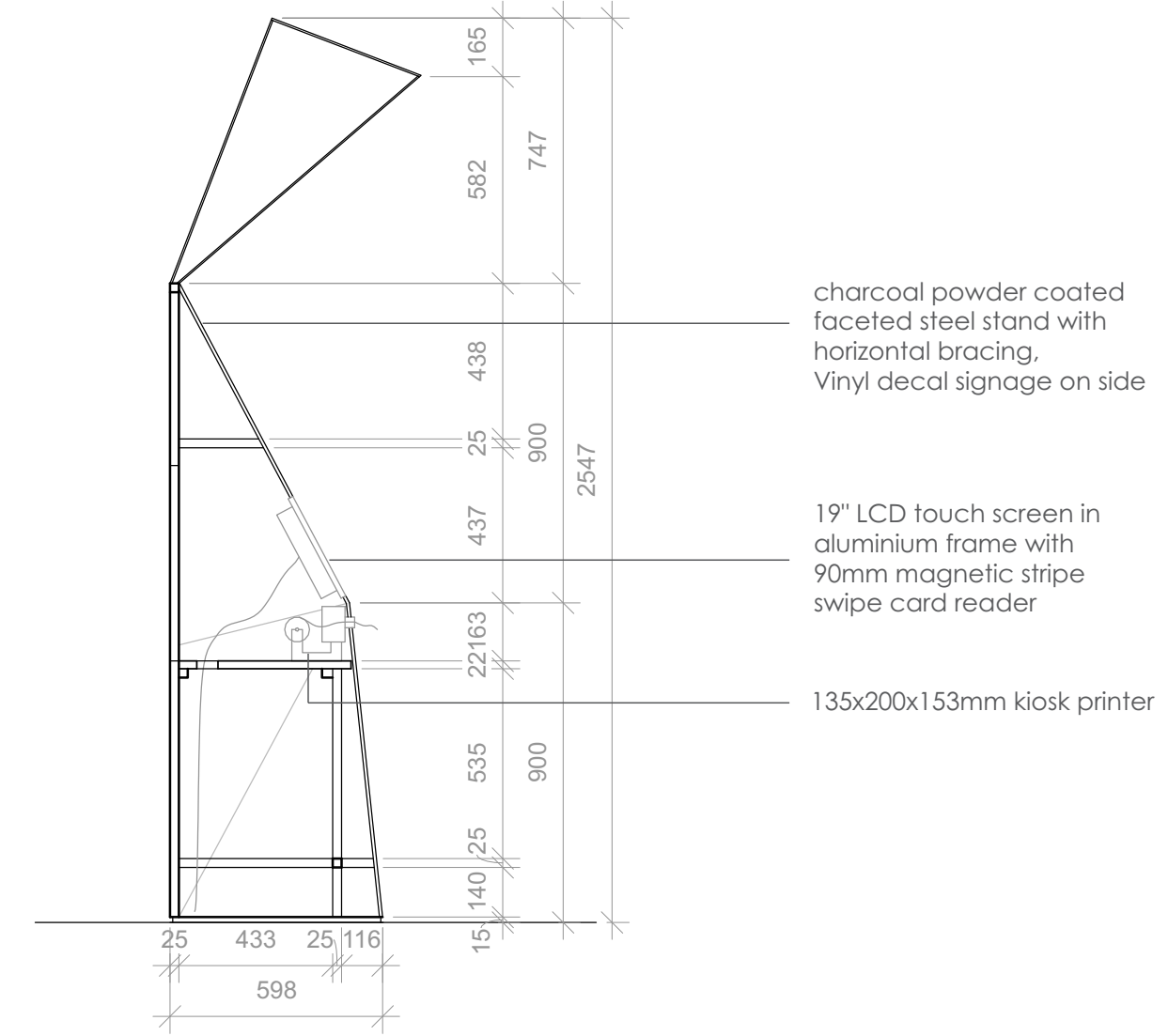
PLAN  
SCALE 1:20



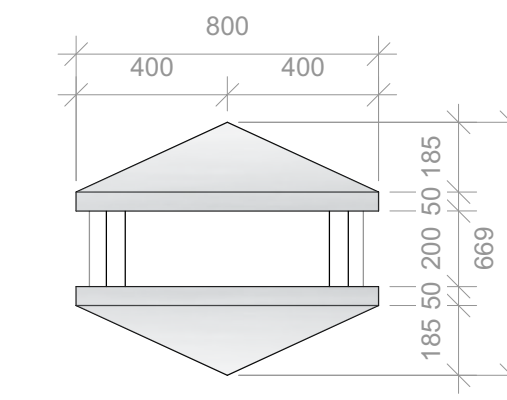
FRONT ELEVATION  
SCALE 1:20



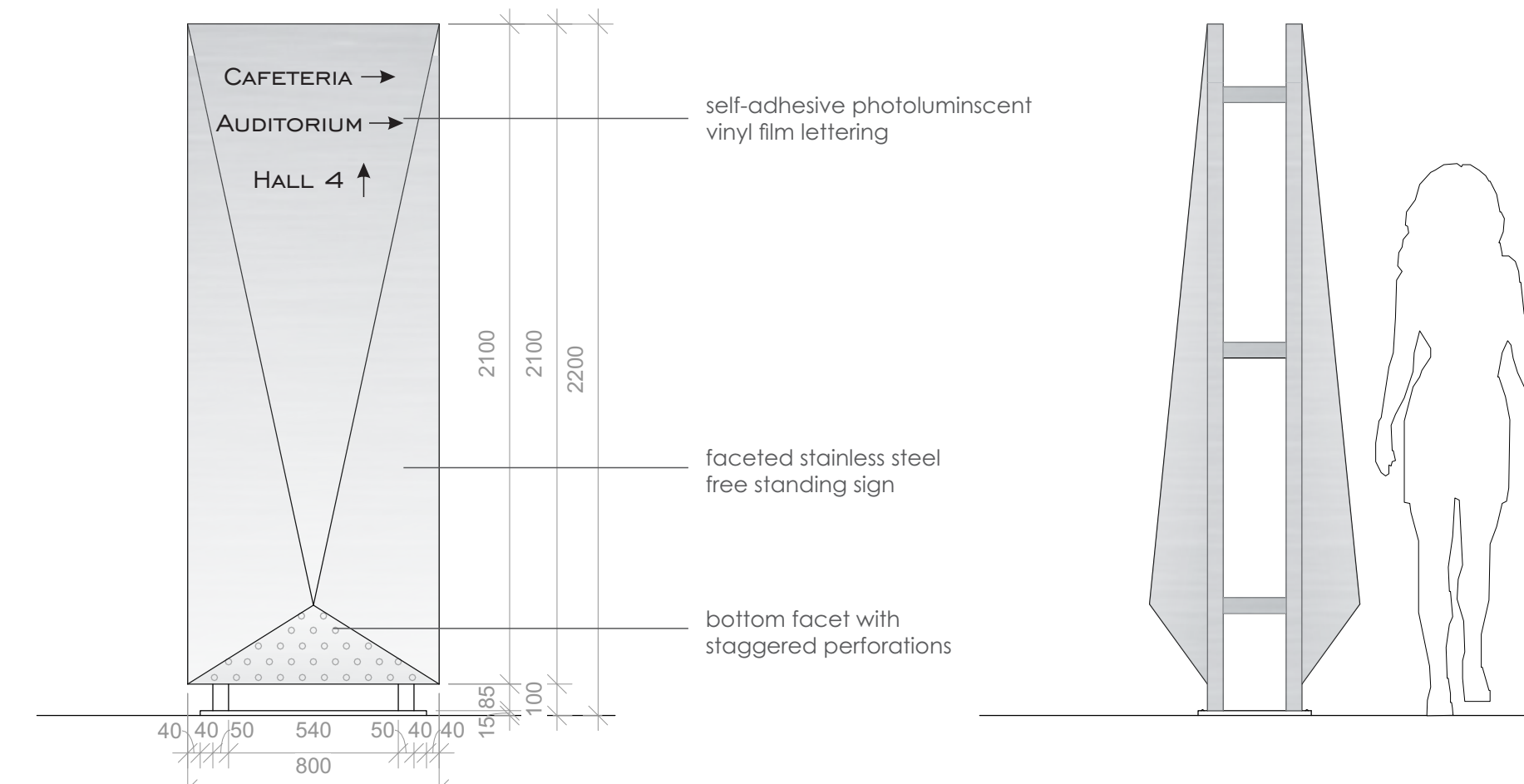
SIDE ELEVATION  
SCALE 1:20



SECTION  
SCALE 1:20

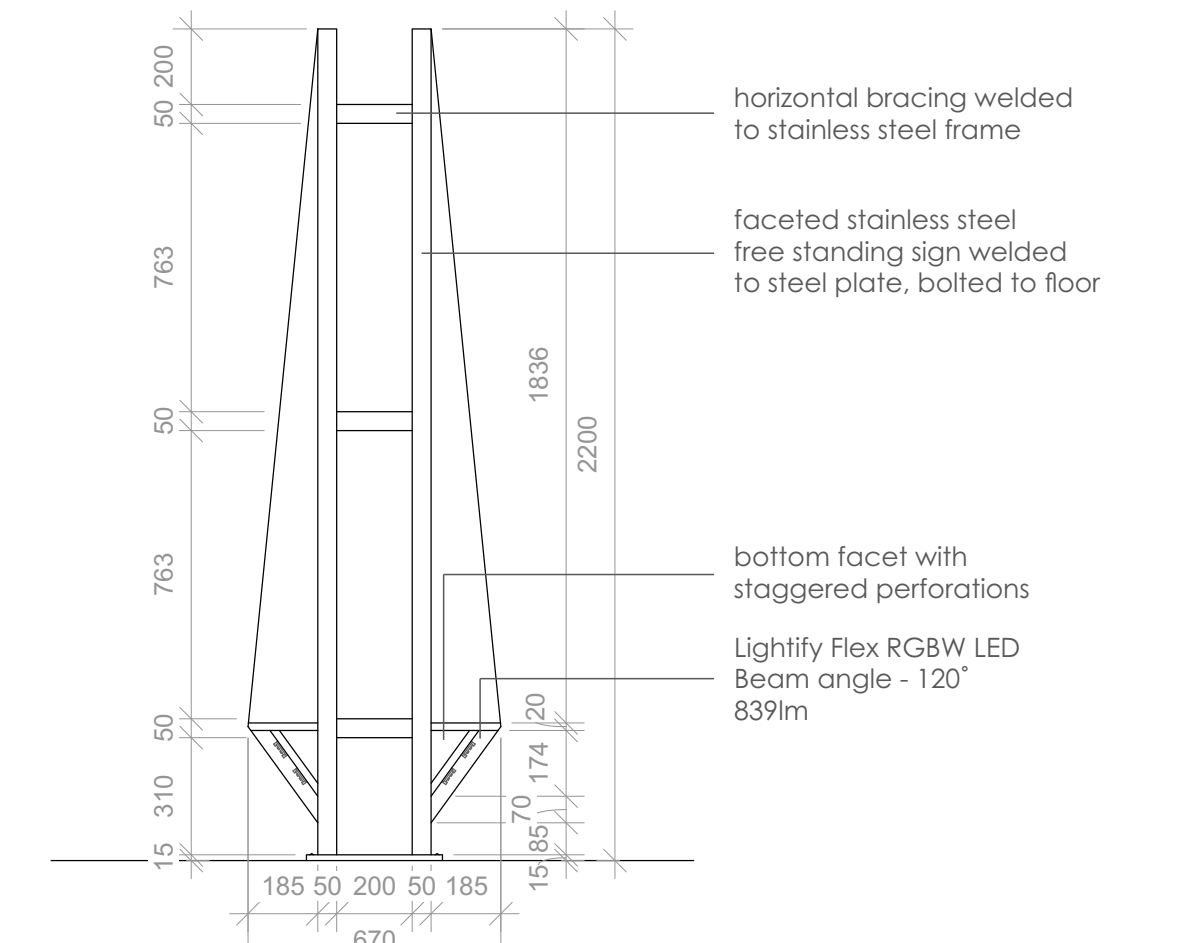


PLAN  
SCALE 1:20

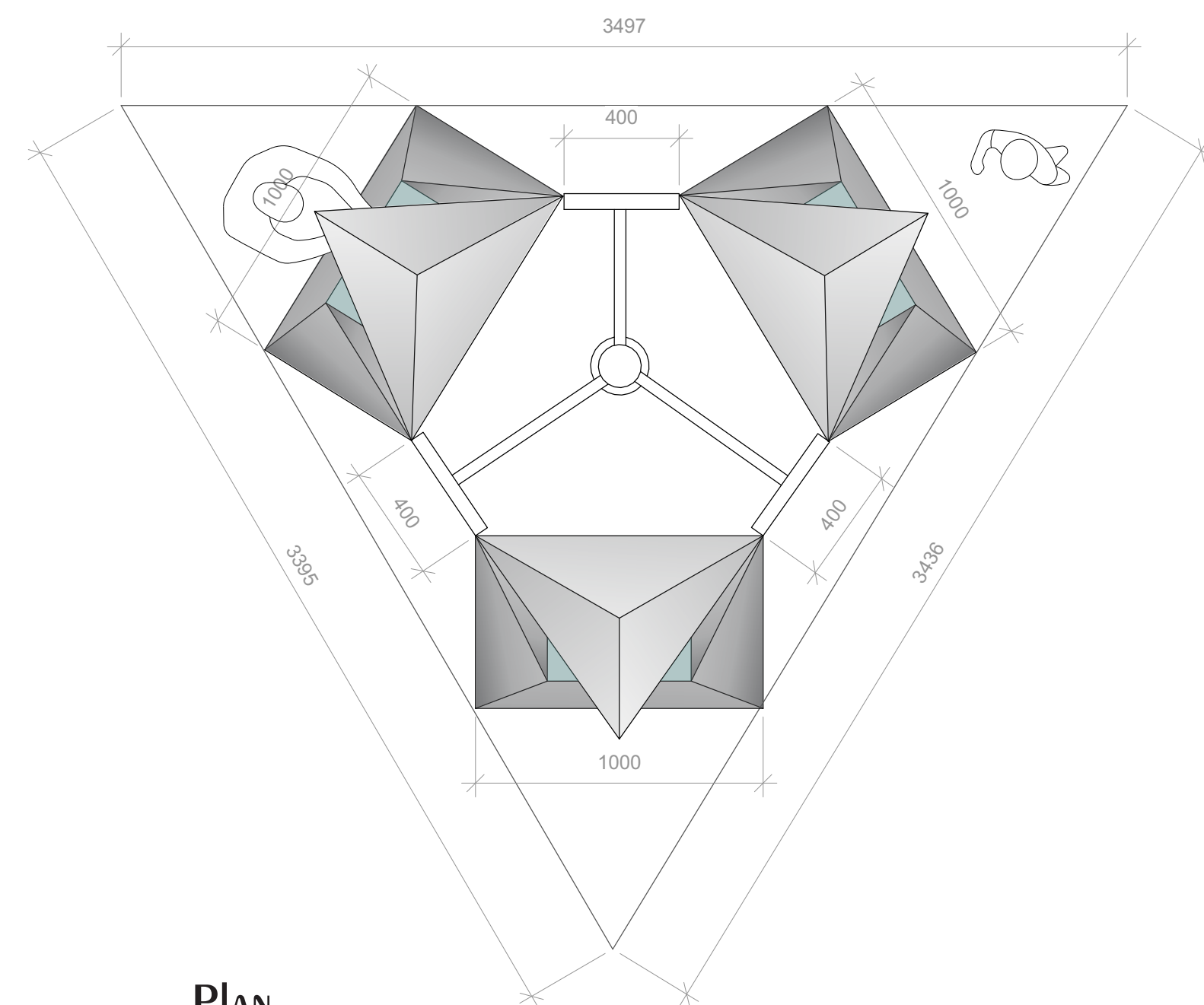


FRONT ELEVATION  
SCALE 1:20

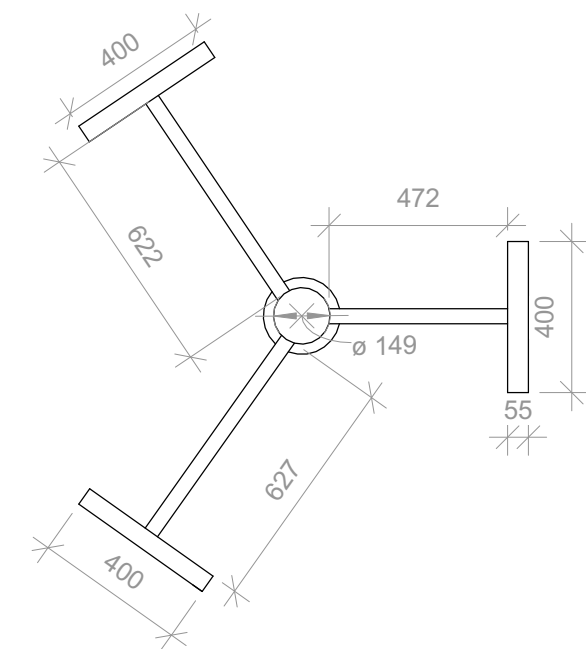
SIDE ELEVATION  
SCALE 1:20



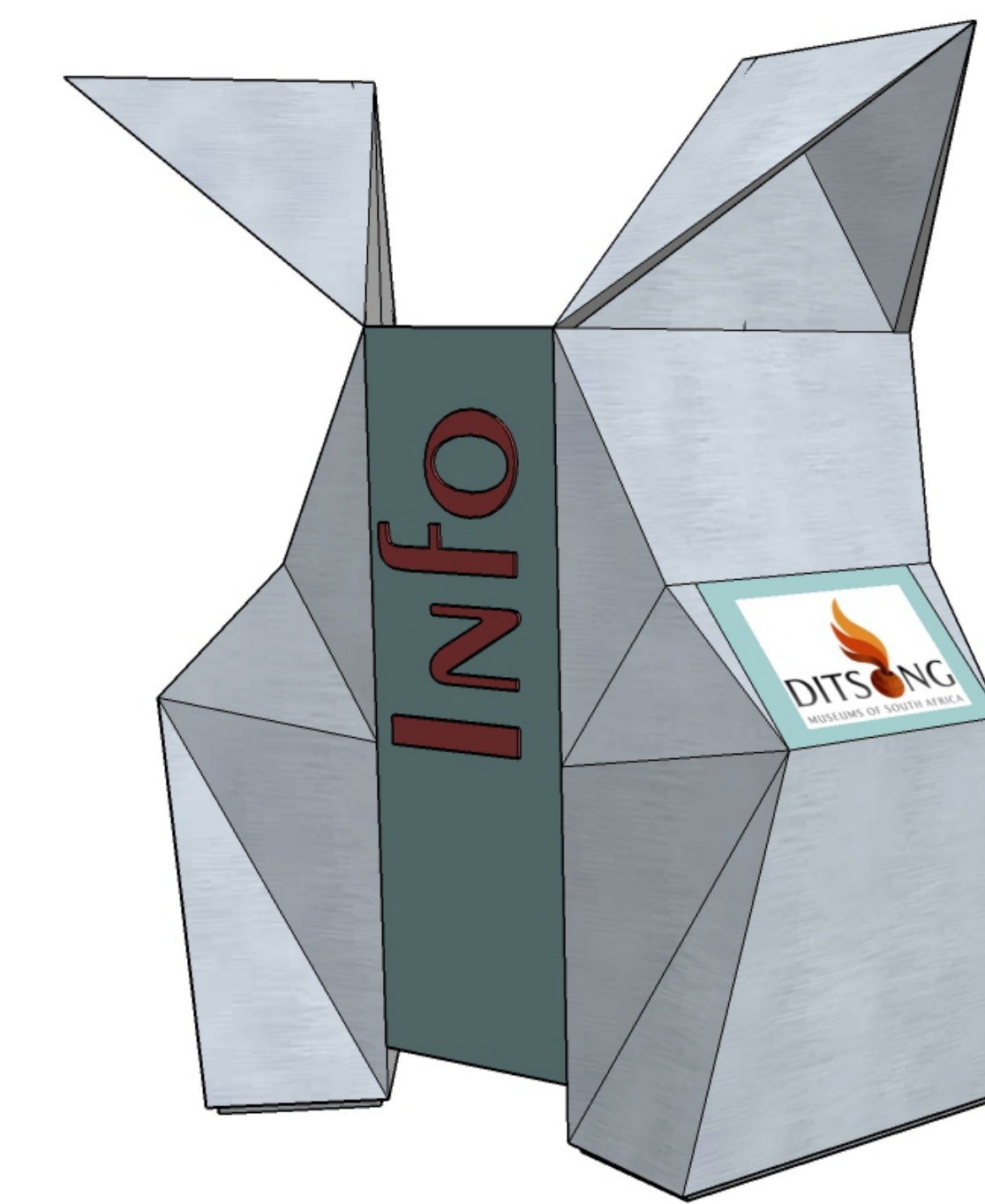
SECTION  
SCALE 1:20



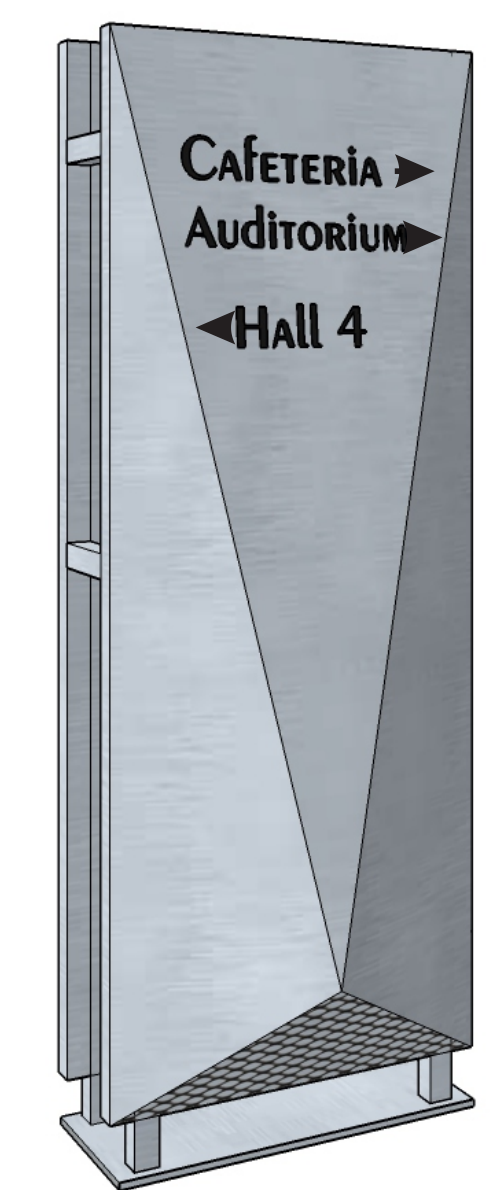
PLAN  
SCALE 1:20



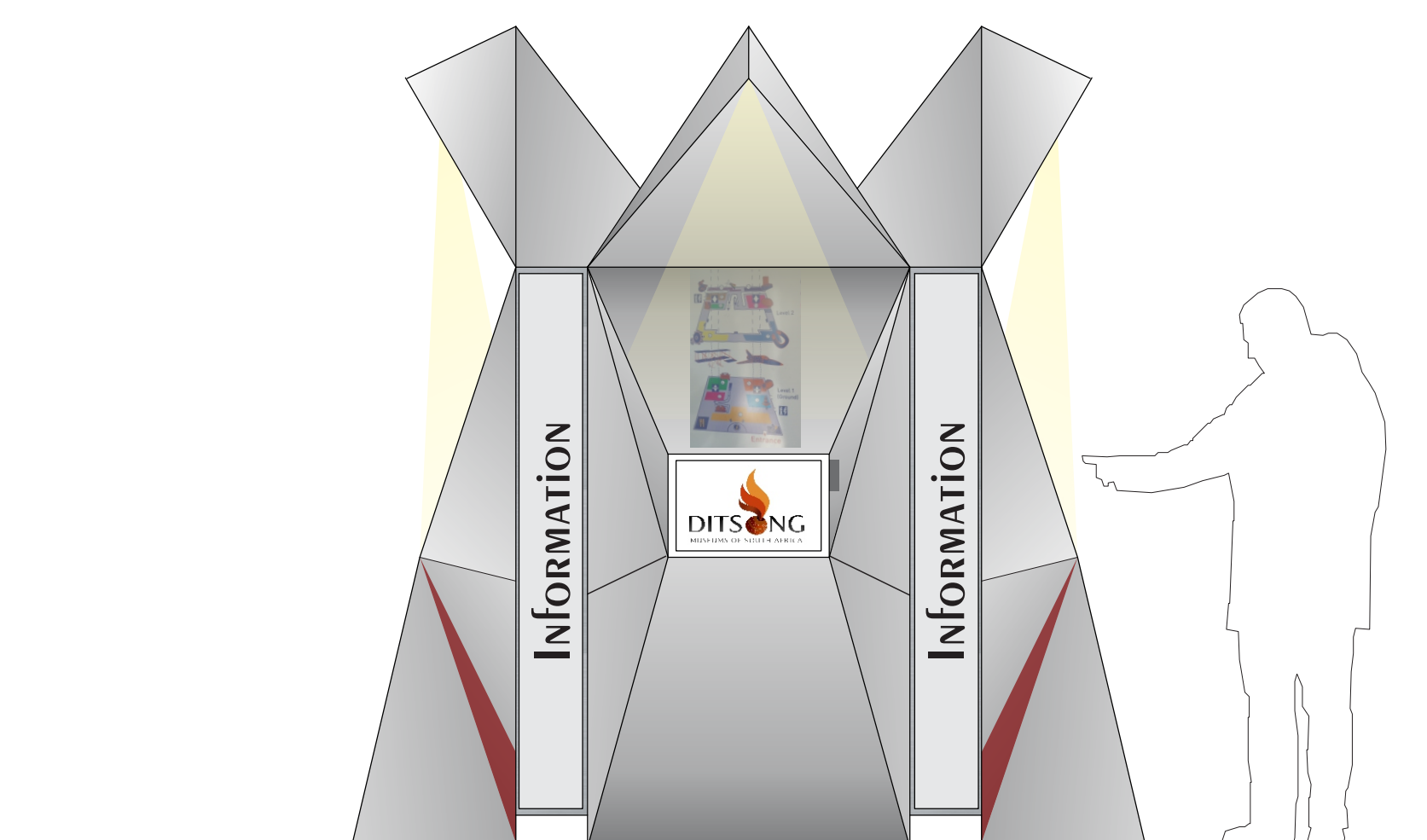
PLAN  
SCALE 1:20



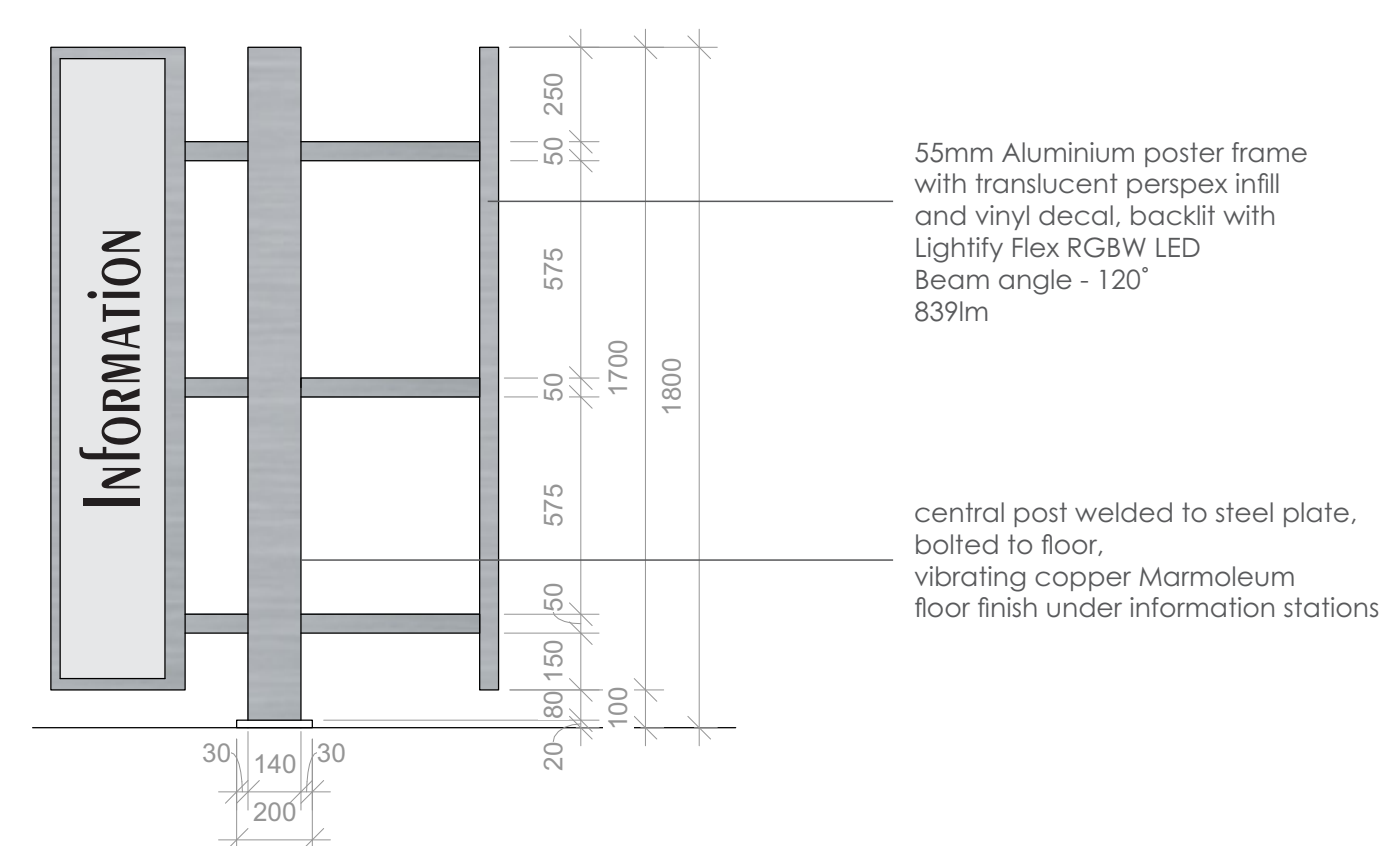
View of THREE-STATION UNIT



View of FREE STANDING sign



ELEVATION  
SCALE 1:20



ELEVATION  
SCALE 1:20

# CHAPTER 6

## Conclusion

**“DESIGNING TODAY’S SPACES IS ABOUT CREATING AN ATMOSPHERE WHERE VISITORS INHERENTLY UNDERSTAND THAT THERE IS A MAGNETIC ATTRACTION TO THE PRODUCT” (RUMLER 2009).**

This dissertation considered the interface between the museum visitor and the museum facilities, and how they can be connected through a design intervention to provide an optimum visitor experience at the D:NMCH.

The design intervention consisting of the ramped walkway, main entrance, foyer and atrium, aims to create a positive first impression to visitors of the D: NMCH. The onset visitor experience of the museum aims to stimulate the visitor's curiosity and encourage them to keep returning.

The final design is the result of various museum visits, site analysis of the D: NMCH and theoretical investigation. The theoretical investigation provides insight into the definition of museums, international and local standards of museology, visitor learning within museums and wayfinding within the context of the D: NMCH. It is important that visitors to the D:NMCH find the interior logical, positive and internationally competitive.

The physical link between research (surrounding artefacts), education (visitor learning) and exhibition design is user experience. The final design engages the visitor to create a lasting memory of the museum. This positive memory will aim to engage returning visitors, and also to attract new visitors. The foyer and atrium are the main design interventions which will strengthen the identity of the museum as a whole.

The atrium attracts visitors to the ground floor and thus makes visitors aware of the ground level. Tours through the storage and conservation areas will commence in the briefing area adjacent to the atrium. Visitors will be made aware of the importance of the conservation process of the museum during these tours.

The technical investigation of lighting and wayfinding explores the approach of the interior to be legible of the interior to a variety of museum visitors.

### 6.1. CONTRIBUTIONS

- Many museums in South Africa had to adapt to an existing building's interior where the visitor's experience have not been taken into consideration. This project illustrates how the visitor's experience should be the basis of designing a museum environment in an existing building.
- This project contributes to exhibition design within the field of interior design. The project creates a proposed temporary exhibition which can be used to assist in further exhibition redesigns within the D:NMCH.

### 6.2. RECOMMENDATIONS

The dissertation recognizes that museum design is a complex field. The final design focusses on the visitor's first impression of the museum and thus not on all aspects relating to the D: NMCH.

Some recommendations which could enrich the project are elaborated below.

- If the study is taken further, it is recommended that ethics clearance is obtained to extensively interview and photograph museum employees and visitors. This can be used to enhance the overall user experience.
- This project investigated lighting as the main issue relating to indoor environmental quality. Other aspects that are deemed satisfactory such as the air quality, thermal conditions and overall sustainability should be investigated further to optimise these aspects.
- The final design should act as catalyst within the D:NMCH. Iteration of other spaces within the museum should be considered with the focus remaining on the visitors' experience.
- The temporary exhibition included in the final design is an example of how the entire atrium volume can be used. It is recommended that all the existing exhibitions be redesigned and rendered interactive.
- The brand of Ditsong: Museums of South Africa can be further investigated and incorporated into the seven other Ditsong museums throughout Gauteng.

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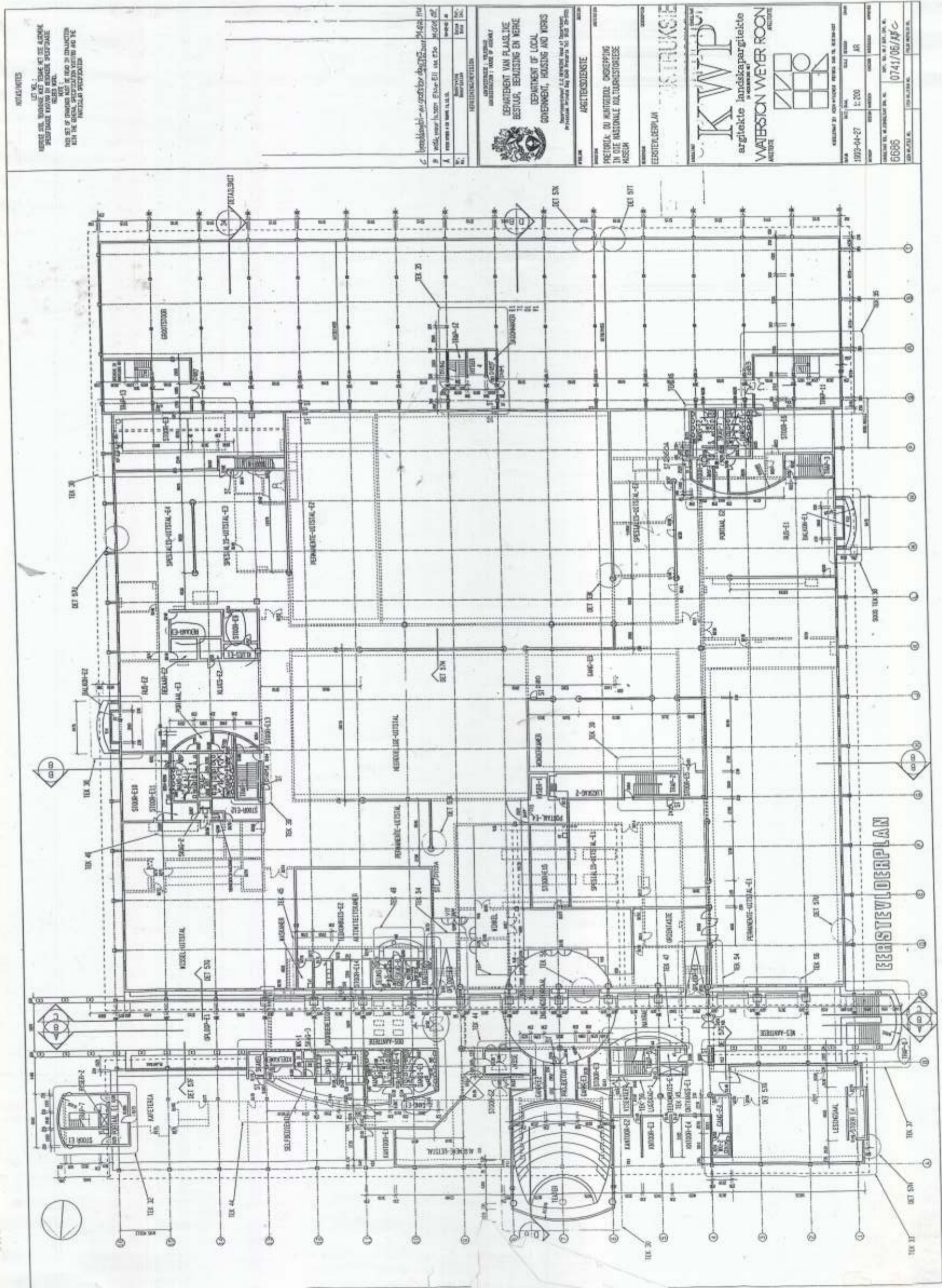
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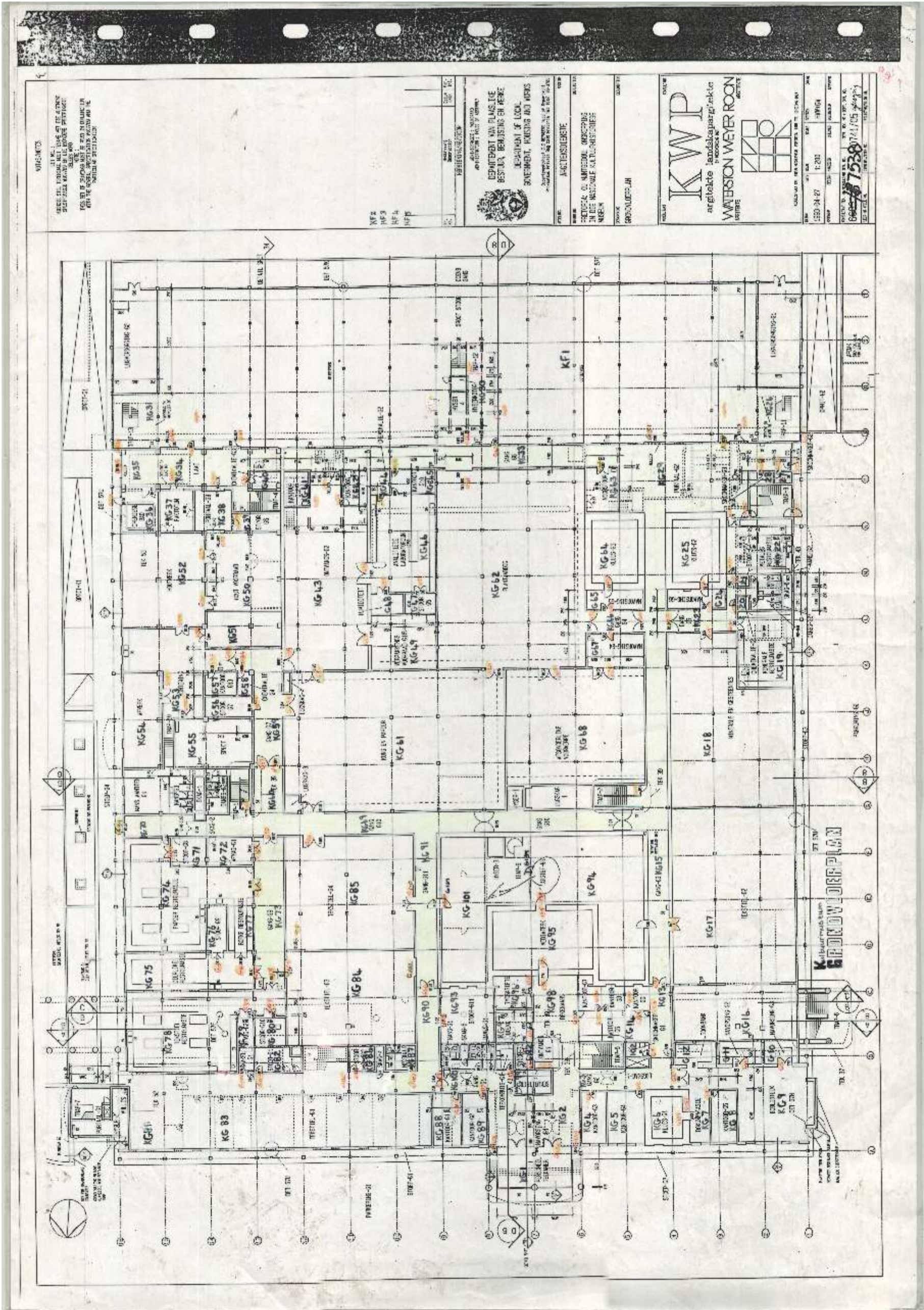
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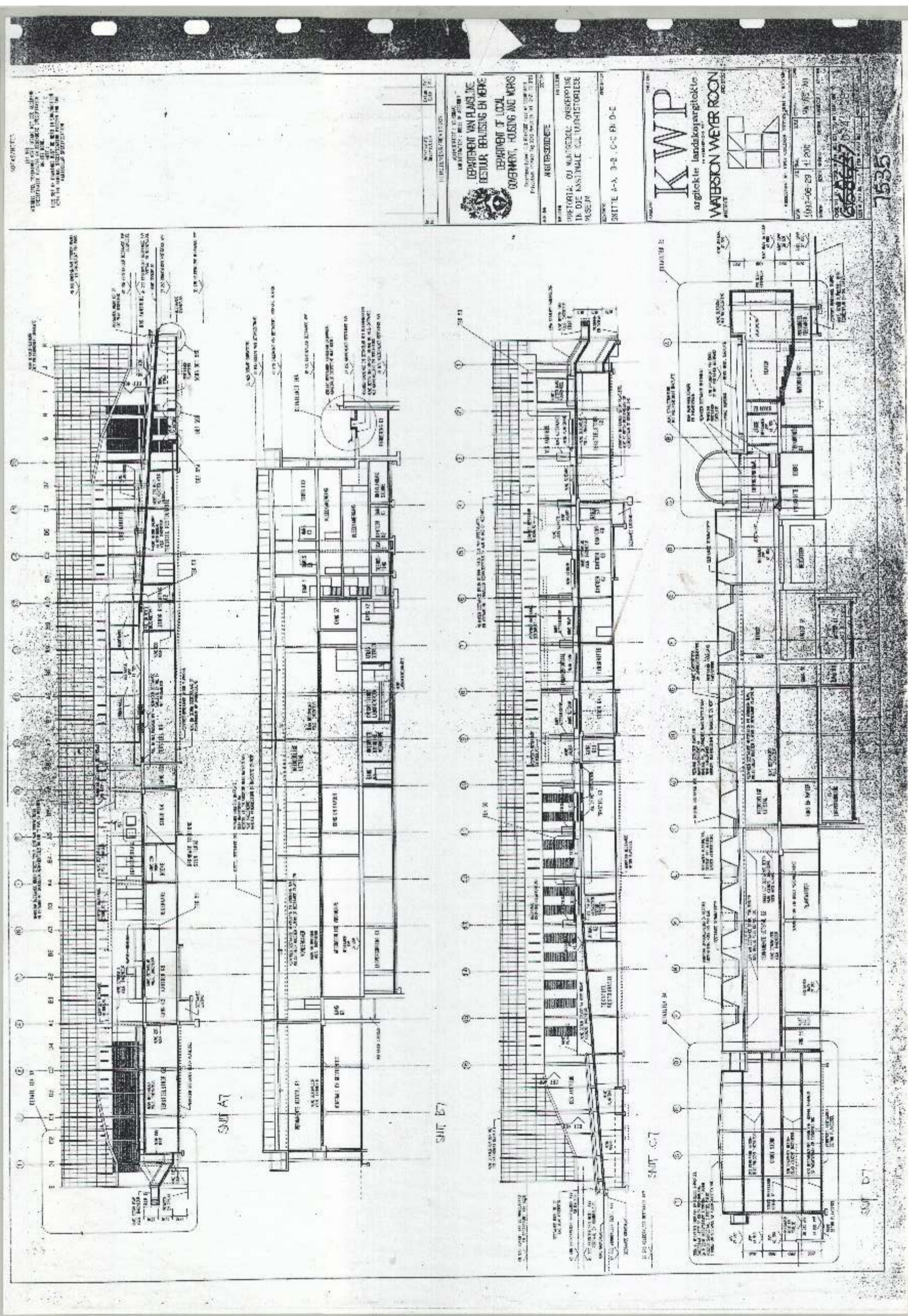
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# Appendix - A. Existing documentation

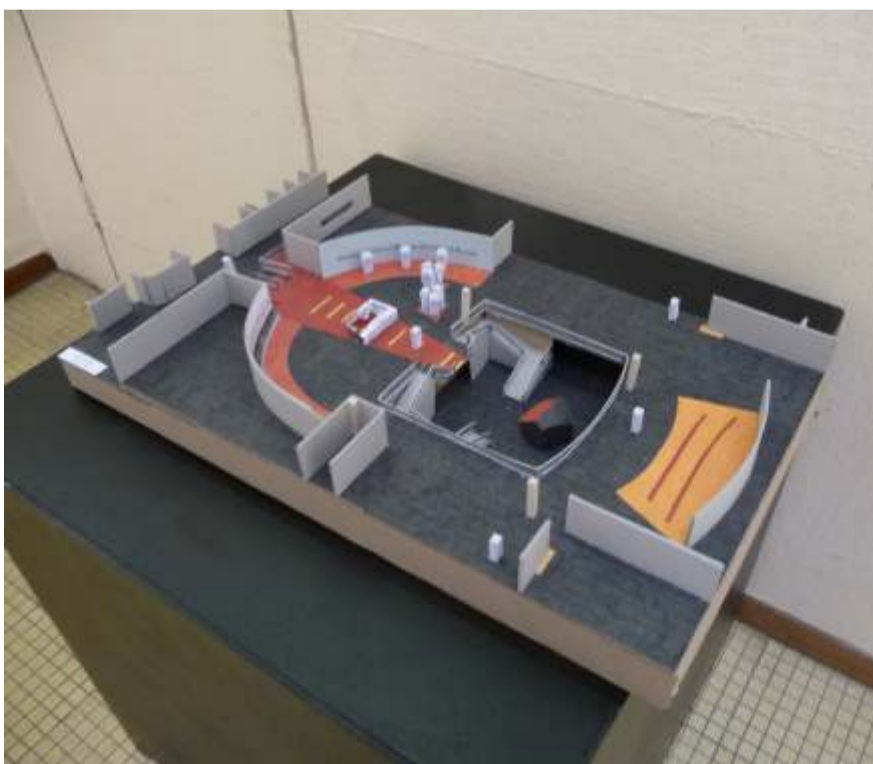








# Appendix - B. EXAM PRESENTATION



Final design intervention model



Final wall cladding model



Design development models



Sample board