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 20m²
6300m² - 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 fingerprints as distinctly as glossy 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 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 ≥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)
Valdeo available at (Valdeo 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)
The sustainability of a material is an important consideration in material decision making process. This aspect was considered with the intention to enhance the visitors’ experience, health and safety and to create a timeless, home-like museum environment.

### Characteristics

Characteristics that influenced material choice are:
- **Durability**
- **Temperature**
- **Sustainability**
- **Acoustics**
- **Light on Surface**

### Materials

The materials used within the D: NMCH, the new materials should be incorporated to create comfortable environments. This includes the incorporation of appropriate floor finish in the D: NMCH.

#### Table 5.1. Material palette.

<table>
<thead>
<tr>
<th>Location</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td>Marmoleum Acoustic 33139 lava</td>
</tr>
<tr>
<td><strong>Flooring</strong></td>
<td>Marmoleum Unexpected Nature 3562 cosmic red</td>
</tr>
<tr>
<td><strong>Flooring</strong></td>
<td>Marmoleum Unexpected Nature 3561 vibrating copper</td>
</tr>
<tr>
<td><strong>Flooring</strong></td>
<td>Marmoleum Unexpected Nature 3564 glistening ochre</td>
</tr>
<tr>
<td><strong>Flooring</strong></td>
<td>Marmoleum Touch 3564 glistening ochre</td>
</tr>
<tr>
<td><strong>Staircase Treads</strong></td>
<td>Truco rhomboid rubber flooring 3mm black. Roll size: 20m x 1.2m. Usage: 2m x 300mm.</td>
</tr>
<tr>
<td><strong>Staircase Risers (Structure)</strong></td>
<td>Magnus Steel mild steel perforated plate, staggered round holes</td>
</tr>
<tr>
<td><strong>Ceiling</strong></td>
<td>Lafarge Acoustic Ceiling Board, joints finished with Fibretape and Lafarge Jointing Compound, 12.5 x 1200 x2400mm</td>
</tr>
<tr>
<td><strong>Wall Cladding</strong></td>
<td>Magnus Steel, steel alloy perforated plate, staggered round holes</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Interpon, Powder coating, Charcoal, ANP 3055</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Interpon, Powder coating, New Orange, CEP 1130</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Plascon Cashmere, Transcendent G4-C2-2</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Plascon Cashmere, African Light O4-B1-3</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Plascon Cashmere, Bovine DC-16-47</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Plascon Cashmere, Ball Deep DC-16-46</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Plascon Cashmere, Light Grey Aluminium DC-15-44</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Formica on 22mm Bisonboard substrate, American Walnut</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Formica on 22mm Bisonboard substrate, New Burgundy</td>
</tr>
<tr>
<td><strong>Reception Desk</strong></td>
<td>Formica on 22mm Bisonboard substrate, Orange</td>
</tr>
<tr>
<td><strong>Staircase Balustrade Infill</strong></td>
<td>GKD Metal Fabrics stainless steel diagonal woven mesh</td>
</tr>
</tbody>
</table>

Table 5.1. Material palette.
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.

"TO BE ORIENTED IS POSITIVE, BECAUSE IT BRINGS CERTAINTY, REASSURES, GIVES US TIME TO THINK" (Kling and Kruger 2013:11)

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 bulkhead 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.

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.

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.
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.).

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 61).

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 5.3.1. Existing lighting conditions of the D: NMCH.](image)

![Figure 5.3.2. Lighting section.](image)
The lighting approach within the intervention relates to contrasting and placing luminaires in this manner to improve the progression of light from the exterior to the exhibition areas. This results in a gradual decrease as they move from the exterior to the exhibition spaces. The existing lighting conditions are very dark within the D: NMCH, making it important to improve the visitor's experience and relate to the concept of the Ditsong logo. The existing lighting is gradually decreased, to create a gradual walkway further into the foyer. This approach to improving the existing lighting levels within the museum to enhance the visitor experience is critical.

In the final design, daylighting that visitors experience gradually decreases, to create a gradual walkway further into the foyer. This approach to improving the existing lighting levels within the museum to enhance the visitor experience is critical. The rigging system is based on a counterweight system. The luminaires and banners are suspended from a secondary truss system.

LED lighting used has changing light colours. The lighting used within the atrium is warm white general lighting and temporary exhibition installed in the atrium at ground level. The lighting specific to the exhibition relates to the lighting and prop systems used in theatre design. The exhibition specific lighting relates to the lighting and prop systems used in theatre design. The atrium, which acts as a landmark within the museum, is lit using an even lighting at ground level.

The system (Detail 1, page 63) incorporates four main components: 3. Data distribution and control system, 2. Power distribution system, 4. Luminaires and fixtures, and 1. Counterweight system. This system transmits a sliver of light which washes the wall with LED lighting (Dragonchain colourmix DC24B-RGBW) installed within light troughs above and below the wall cladding. These elements include objects on display and signage. The lighting used has changing light colours. In the atrium, the specific lighting relates to the lighting and prop systems used in theatre design. The exhibition specific lighting relates to the lighting and prop systems used in theatre design. The atrium, which acts as a landmark within the museum, is lit using even lighting at ground level.

The existing lighting conditions of the D: NMCH are very dark, making it important to improve the visitor's experience as well as relating to the concept of the Ditsong logo. The existing lighting is gradually decreased, to create a gradual walkway further into the foyer. This approach to improving the existing lighting levels within the museum to enhance the visitor experience is critical.
### Lighting Legend

All luminaires and lamps available from OSRAM

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Foyer</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Symbol" /></td>
<td><strong>Lighting Specification</strong></td>
</tr>
<tr>
<td><img src="image2" alt="Symbol" /></td>
<td><strong>Lighting dimensions</strong></td>
</tr>
</tbody>
</table>

#### Foyer

According to SANS 10400-O and SANS 10114-1:
- Museum (C2): 200 lux
- Foyer: 100 lux
- Circulation: 150 lux
- Above stairs: 150 lux

**Recessed KIT HAL PRO SQ**
- Brushed nickel
- Adjustable
- Holder designation GU 5.3
- Beam angle - 36°
- Mounting diameter - 80 mm
- Mounting depth - ≥ 150 mm

#### Foyer Luminaire Specification

- **Recessed KIT HAL PRO SQ**
- **Brushed nickel**
- **Adjustable**
- **Holder designation GU 5.3**
- **Beam angle - 36°**
- **Mounting diameter - 80 mm**
- **Mounting depth - ≥ 150 mm**

#### Foyer Lamp Specification and Calculations

- **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

#### Foyer Illuminance Calculations

- **MF** = \( \text{LLMF} \times \text{LSF} \times \text{LMF} \times \text{RSMF} \)
  - **MF** = 0.4

- **Average illuminance** = \( \frac{F \times UF \times MF}{\text{area of working plane}} \)
  - **F** = 22500
  - **UF** = 0.4
  - **MF** = 0.4

- **F = n \times \text{luminaires} \times n \times \text{lamps} \times \text{lumen of lamp}**
  - **F** = 225000
  - **n** = 500

- Five lamps per luminaire = 100 luminaires

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### Table 5.3.1. Foyer Luminaire Specification

- **Symbol**
- **Lighting Specification**
- **Lighting Dimensions**

### Table 5.3.2. Foyer Lamp Specification and Calculations

- **Symbol**
- **Lighting and Lamp Specification**
- **Lighting Dimensions**

### Table 5.3.3. Wall Wash Lighting Lamp Specification
### Table 5.3.4. Atrium luminaire specification

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Luminaire Specification</th>
</tr>
</thead>
</table>
| ![Atrium Icon](image) | Radiant 774 track line system  
Suspended mounting  
Body material - Die-cast aluminium  
Brushed Nickel finish  
Used with PAR 30 lamps  

According to SANS 10400-O and SANS 10114-1:  
- Museum (C2): 200 lux  
- Foyer: 100 lux  
- Circulation: 150 lux  
- Above stairs: 150 lux |

### Table 5.3.5. Atrium lamp specification and calculations

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Lamp Specification</th>
</tr>
</thead>
</table>
| ![Atrium Icon](image) | HCI - PAR30 metal halide lamp  
70 W  
Luminous flux - 3530 lm  
Colour temperature - 4200 K  
Colour rendering index RA - >90  
Light colour - Neutral white  
Beam angle - 30°  
Service life - 12000 h  
High efficiency  
Base up installation  
Good colour stability  
UV values low  

Average illuminance = \[ \frac{F \times UF \times MF}{200} \]

= \[ \frac{179144 \times 1.1 \times 0.34}{335} \]

= 179144

= n x lu x n x la x 3530

n = 50

MF = LLMF x LSF x LMF x RSMF

= 0.63 x 0.77 x 0.74 x 0.95

= 0.34

Average illuminance = \[ \frac{F \times UF \times MF}{200} \] area of working plane

= \[ \frac{F x 1.1 x 0.34}{335} \]

= 179144

= n x lu x n x la x 3530

n = 50
### Spotlight

- **MODARIO Spot LED**
  - Aluminium grey (RAL 9006)
  - Adjustable
  - 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
  - Long lifespan
  - Glare-free light

According to SANS 10400-O and SANS 10114-1:
- Museum (C2): 200 lux
- Foyer: 100 lux
- Circulation: 150 lux
- Above stairs: 150 lux

Table 5.3.6. Spotlight luminaire and lamp specification.

### Theatre lighting for use with lighting grid

- **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
  - Barn door to minimize light spill included
  - Frame holder for various filters and gobos included
  - Spot reflector (beam angle - 24°) included

According to SANS 10400-O and SANS 10114-1:
- Museum (C2): 200 lux
- Foyer: 100 lux
- Circulation: 150 lux
- Above stairs: 150 lux

Table 5.3.7. Atrium luminaire and lamp specification.

Figure 5.3.4. Atrium theatrical lighting effect.

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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.
The reception desk is the first design element that the visitor visually encounters in the foyer. The reception desk acts as a 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.
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.
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.
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.
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 5.4.4.2. Location of self service stations and free standing signs.

Figure 5.4.4.1. View towards self service stations.
The faceted wall will reflect sound at different angles which results in sound being distributed more evenly in the foyer. Perforations on some facets allow sound to be absorbed by sound absorbent material behind. (Hausladen and Tichelmann 2010)
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.