

# 5

# CHAPTER

*technical resolution*



This chapter aims to resolve all proposed concepts of the inner and outer interior in a technical fashion, which will exemplify the theoretical investigation of materiality as supplementary form of layering.





Figure 5.1. Mechanical Gears (Unknown, n.d)



## TECHNICAL INVESTIGATION

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*"If gold rusts, what then can iron and steel do?"*

Geoffrey Chaucer, 1478

Upon the finalisation of a **definite and tangible design response**, attention will be directed towards the **technical resolution** thereof. Following a similar methodology in terms of space classification, the **inner and outer interior** will be technically resolved, directing attention towards specific components. In addition to the **partial resolution of proposed mediations** on a **substantial scale** (dock layout and ship deck configuration), emphasis will be assigned to the **comprehensive resolution of individual modules**, representing a **holistic**, and not isolated, **spatial intervention** when unified. Determined by disciplinary rudiments and restrictions, the definite mechanical outcome of the proposed **stall development** and nature of **universal accessibility** must be addressed within the outer interior. Furthermore, all amendments brought about to improve the current **internal quality** of the inner interior through the **proposed brewery design**, will be undertaken.

As the act of nautical engineering dictates **structural integrity**, the envisioned interior intervention will command no less. As the history and memory of a structure need to be maintained in order to govern new appendages, it is essential that the **proposed setting be regarded as a ruin**. In addition to the strict devotion to all related historical components, adherence to **South African building regulations and standards** must be admitted. Likewise, the theoretical approach to materiality will continuously be charted as ascertained by aforementioned philosophies.

As concluded from the theoretical premises, avenues of material application permits **corrosion protection**, **historic decay preservation** and **intentional oxidation** techniques that can conceivably act as a **supplementary layer** against the **prevailing nature** of both the host and habitant.

## 5.1

# APPROACH TO MATERIALITY

As opposed to the induction of an actual approach to heritage, the introduction of a **new material layer is spatially envisioned**. Respectively to previous design development, the selection of resources is fortified by three distinct principles that outline a **resounding approach to materiality**.



### PRINCIPLE ONE PROTECT

#### - CORROSION PROTECTION -

Fortification should not merely be considered upon installation as a **mere after thought**, but as a **continuous technical aid** that dictates design decisions. The **active and passive protection** of materials will be employed, along with specific **technical considerations** that will **prolong the existence** of all newly introduced materials.



METALLIC  
COATING



ORGANIC  
COATING



### PRINCIPLE TWO PRESERVE

#### - HISTORIC DECAY PRESERVATION -

In order to **allow future layering**, the preservation of current conditions is permitted. In essence all technical endeavours will **not aim to restore, but rather stabilise** the host and habitant so that public accessibility is granted and the quality of all **interior conditions are amplified**. Methods include **rust transformation and desiccation**.



DECAY  
STABILISATION



RUST  
TRANSFORMATION



RESIN  
INFILLING



### PRINCIPLE THREE PREMEDIATE

#### - INTENTIONAL OXIDATION -

All newly introduced materials must **encourage deterioration in a controlled fashion**, which does **not endanger public health, nor compromise structural integrity**. This includes all methods of **production, shaping and fixing** associated with the selected material. Moreover, existing materiality must be treated similarly.



WEATHERING  
METALS



FAUX  
OXIDATION



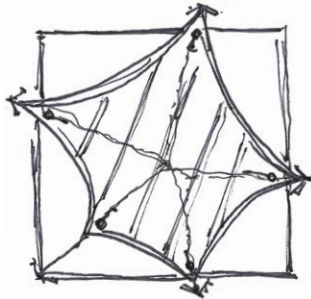
BIOLOGICAL  
CONCRETE



## 5.2

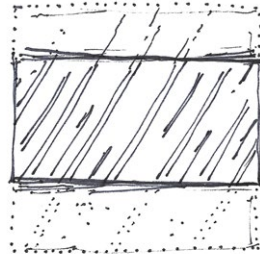
# APPROACH IMPLEMENTATION

In order to **perceptibly illustrate the approach to materiality**, five distinct implementation methods are proposed that **encompass the fundamental principles of corrosion beatification**. Along with their descriptive nature, each method proposes possible approaches that could be illustrated through their application.



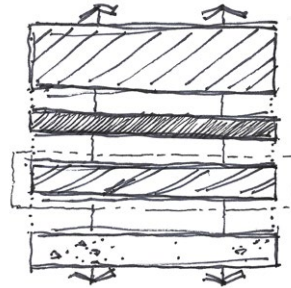
### - EXPOSE -

**Bare the true honesty** of the material through possible **demolition, divesting** and/or **intentional degradation**.



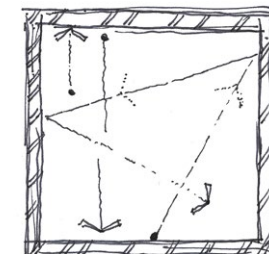
### - HIGHLIGHT -

**Seamlessly amplify** the current status of the material through possible **restoration, veneering** and/or **replacement**.



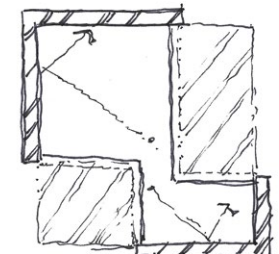
### - OVERLAY -

**Accentuate** the appearance and characteristics of a material in a method that **stresses its layered makeup**.



### - SHIELD -

**Fortify the appearance** of the material through possible **reinforcement, finishing** and/or **correct selection**.



### - STABILISE -

**Preserve and prolong** the existing nature of the selected material from **immediate degradation**.





## - STEEL -

The overall composition of an industrial ship's materiality is dedicated towards an amalgamation of **steel, timber and glass**. Diverting attention towards its principle fabric, various implementation strategies will be employed to all **present and newly proposed steel** in order to **protect, prevent en premeditate corrosion**.

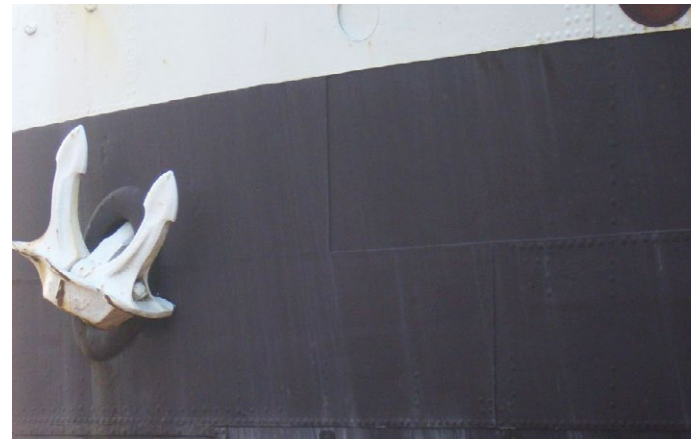
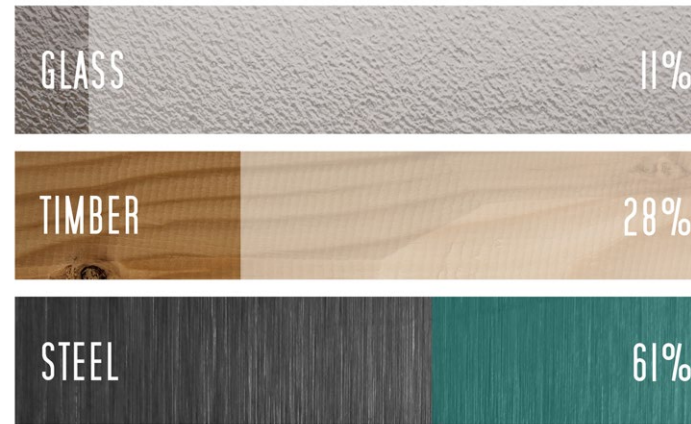


Figure 5.2. Steel Materiality (Author, 2016)



## - CONCRETE -

The overall construction of a dry dock's materiality is dedicated towards an amalgamation of **stone, steel and concrete**. Diverting attention towards its principle fabric, various implementation strategies will be employed to all **present and newly proposed concrete** in order to **protect, prevent en premeditate corrosion**.



Figure 5.3. Concrete Materiality (Author, 2016)



## 5.3 INCLUSIVE ACCESSIBILITY



- STAIRS -

Access is granted onto the market platform through **existing access chutes** of original dry dock. (refer to figure 5.6)

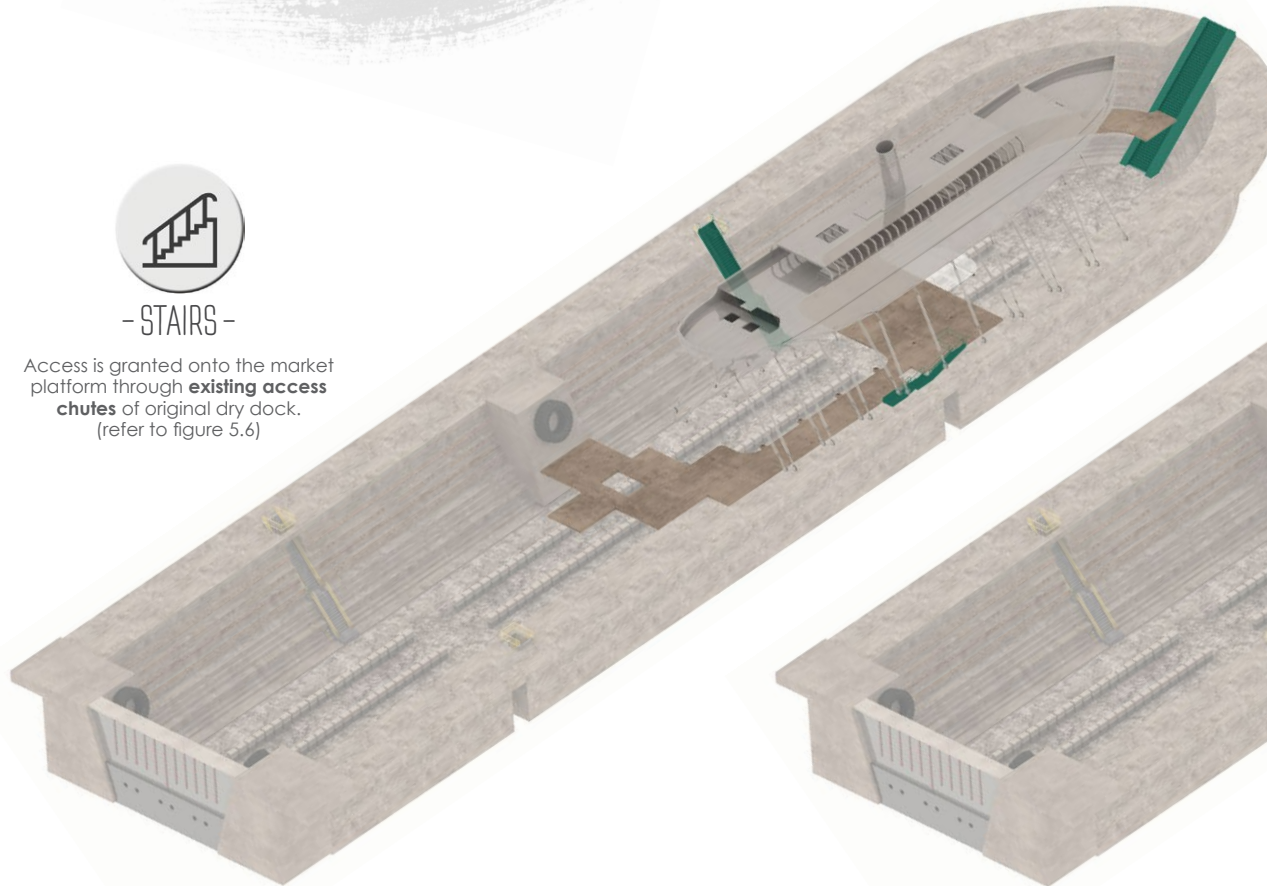


Figure 5.6. Stair Accessibility (Author, 2016)



- GANGPLANK -

Access is granted onboard the ship through **enclosed gangplanks** original to the SS Nomadic (refer to figure 5.7)

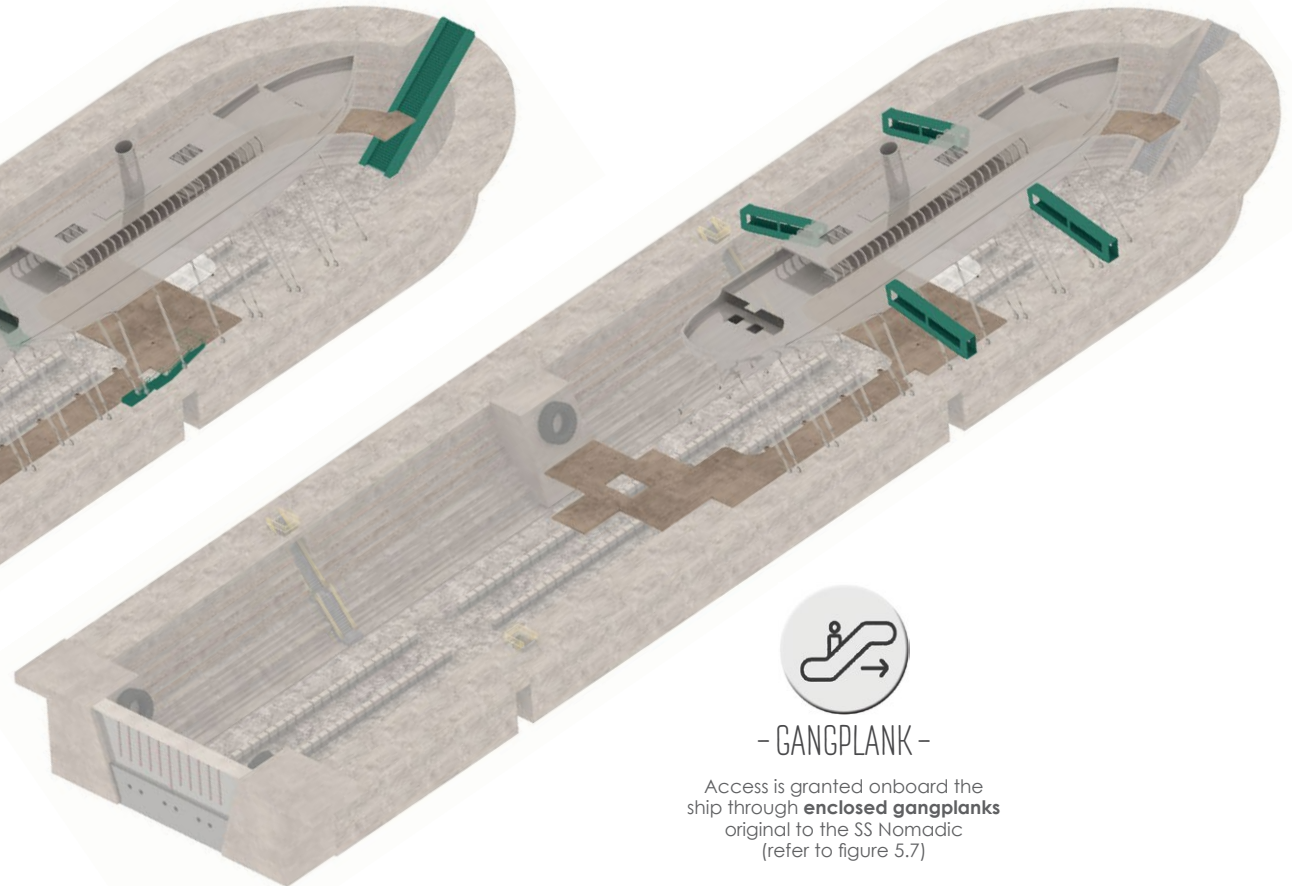


Figure 5.7. Gangplank Accessibility (Author, 2016)





- ELEVATOR -

Direct access between the host and habitant is granted through actual connection of an atrium (refer to figure 5.8)

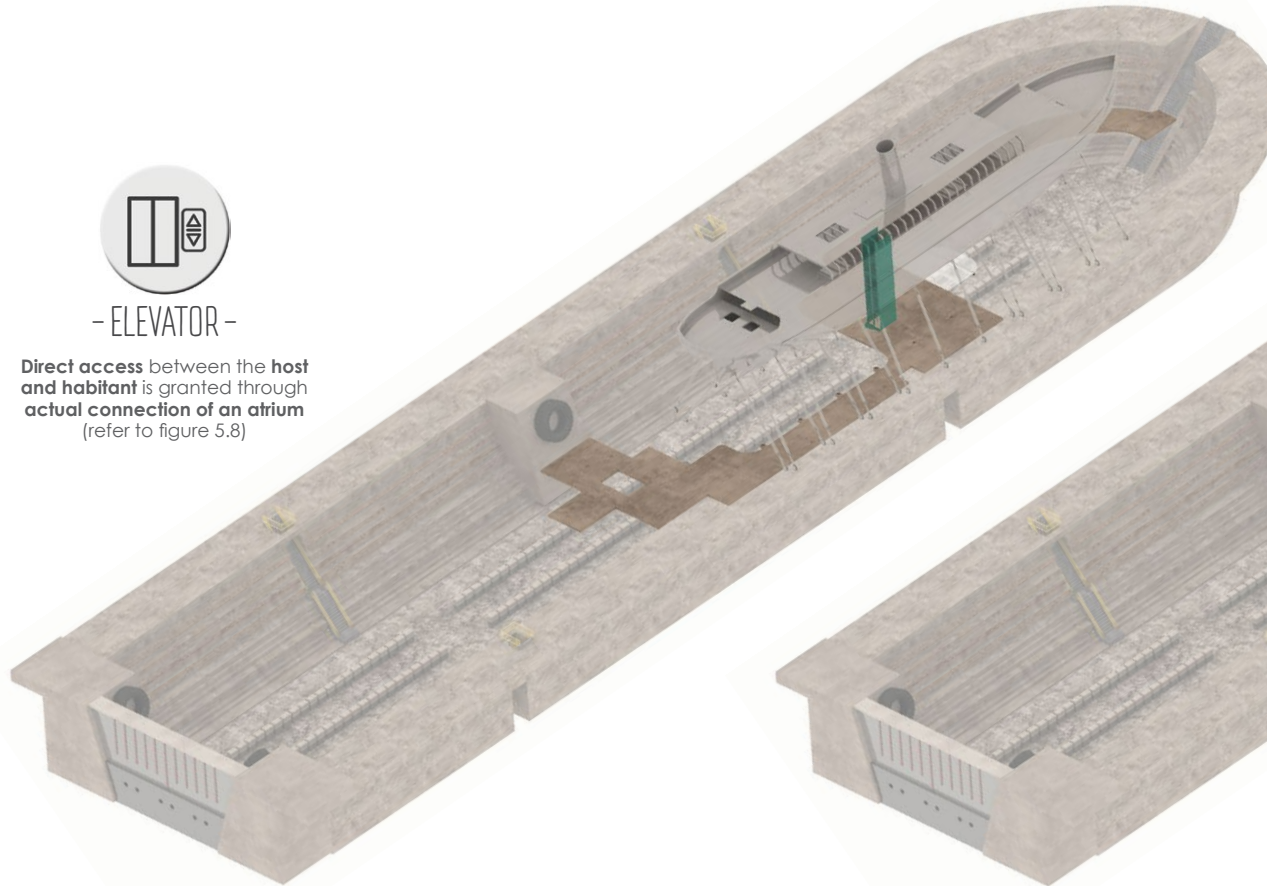


Figure 5.8. Elevator Accessibility (Author, 2016)



- RAMP -

In order to grant universal accessibility to both the dock and ship, the introduction of a multi-functional ramp is proposed (refer to figure 5.9)

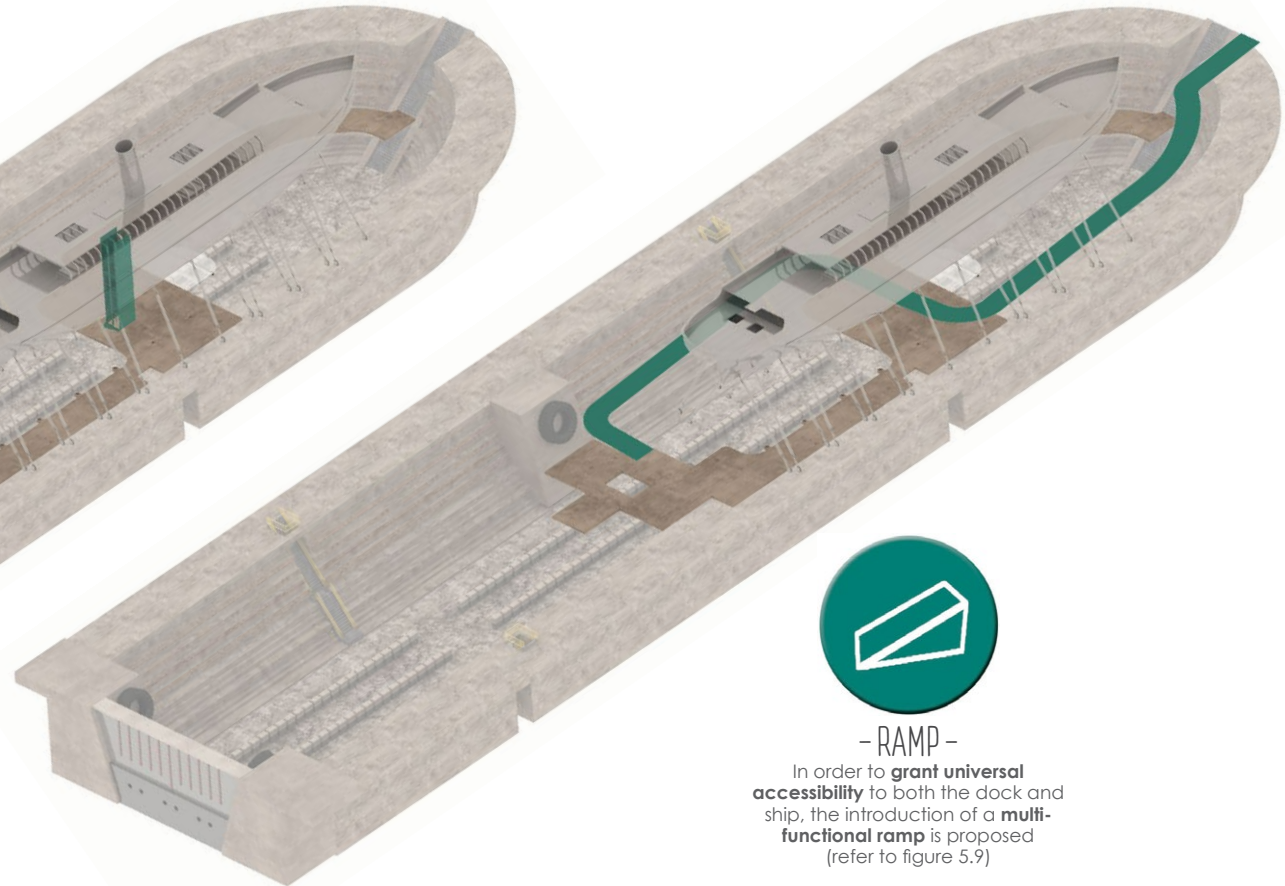


Figure 5.9. Ramp Accessibility (Author, 2016)

## 5.4 SCENIC RAMP CIRCULATION

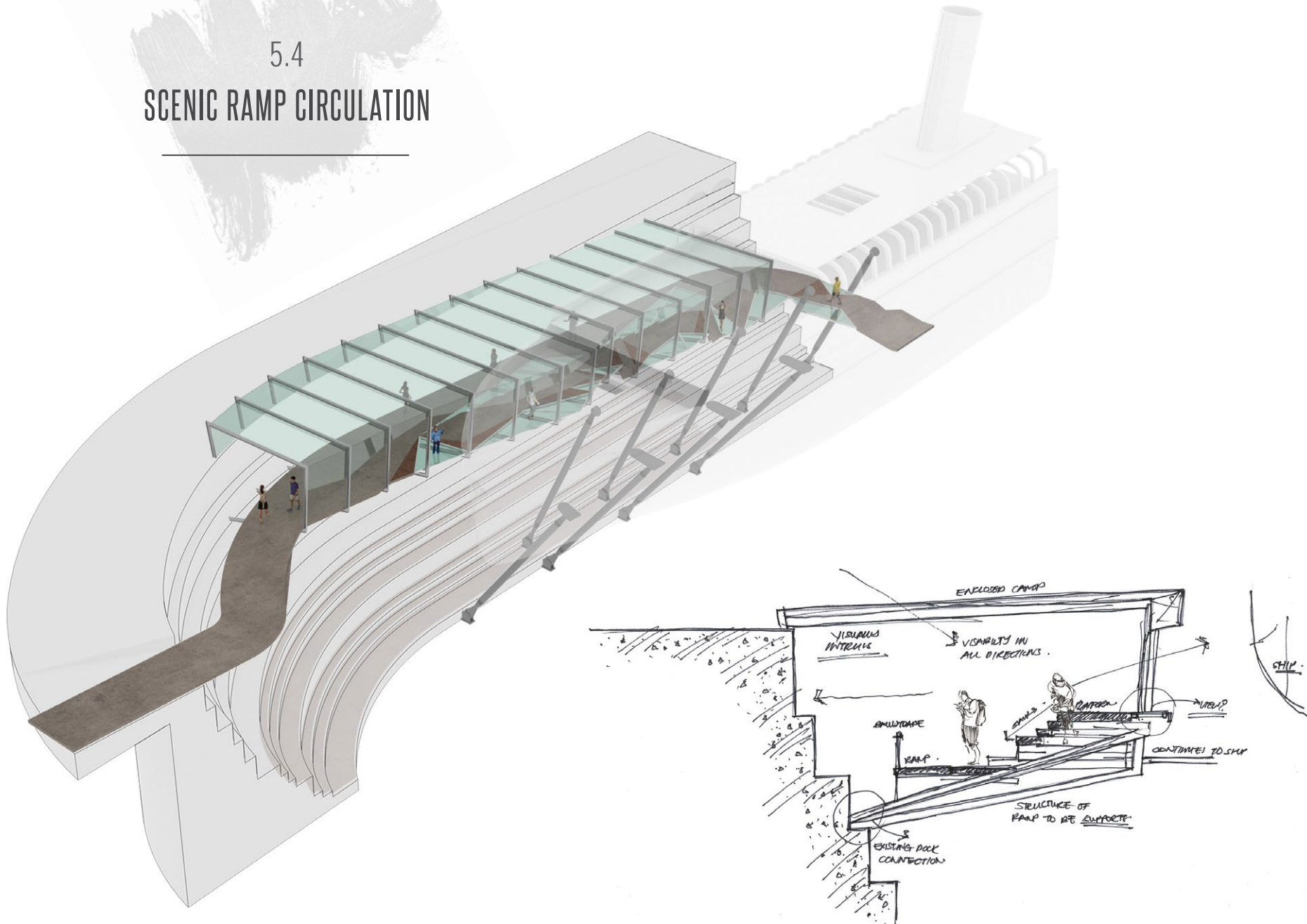


Figure 5.10. Initial Ramp Proposal (Author, 2016)



- INITIAL PROPOSAL -

As opposed to the mere institution of a traditional ramp, the continuous idea of **multi-functionality** is conveyed through the proposal of a **scenic ramp**. Based on the conceptual response of the previously mentioned canopy design in chapter 4 (refer to page 167), the ramp will act as **mediator that connects the host with the habitant** - similarly to that of water in a flooded dock.

Being that the proposed market platform is located approximately 7 meters below the natural ground level of the dry dock, the overall distance of the proposed ramp is of a substantial length in order to provide an attainable slope. Regardless of this auxiliary involvedness, the added advantage of utilising the ramp as an **interweaving element provides panoramic views** of both the host and the habitant - thus referring to the gradient as a scenic ramp. As illustrated in figure 5.11, the initial proposal made

provision of appended platform landings, acting as **observation decks with surplus seating and aesthetical planters**. The provision of **one-way transparent glass inserts** permits both **visual connectivity** with the proposed **stalls underneath** and allows **natural light to penetrate the market**.

At a minimum fall ratio of 1:12, the resulting slope was deemed too **steep**. Furthermore, the **lack of sufficient landings** and **universal accessibility onto the attached platforms** proved problematic. In addition to the ramp's layout, the supporting structure (figure 5.10) did **not correspond visually** with the introduced ramp. Overall its appearance was deemed to 'bulky' and nature of **attachment to intrusive**. Moreover, the lack of **incorporating the exiting steel armature** as structural support presented a missed opportunity.

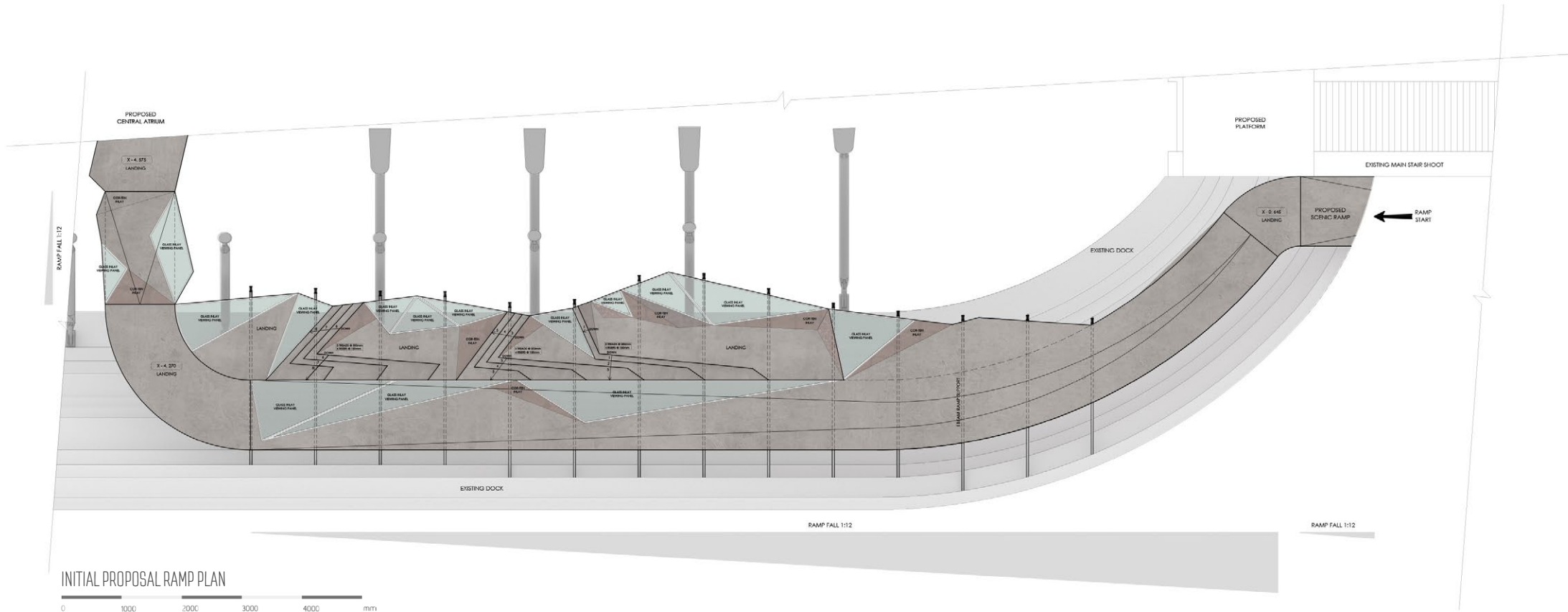


Figure 5.11. Initial Layout of Proposed Scenic Ramp (Author, 2016)

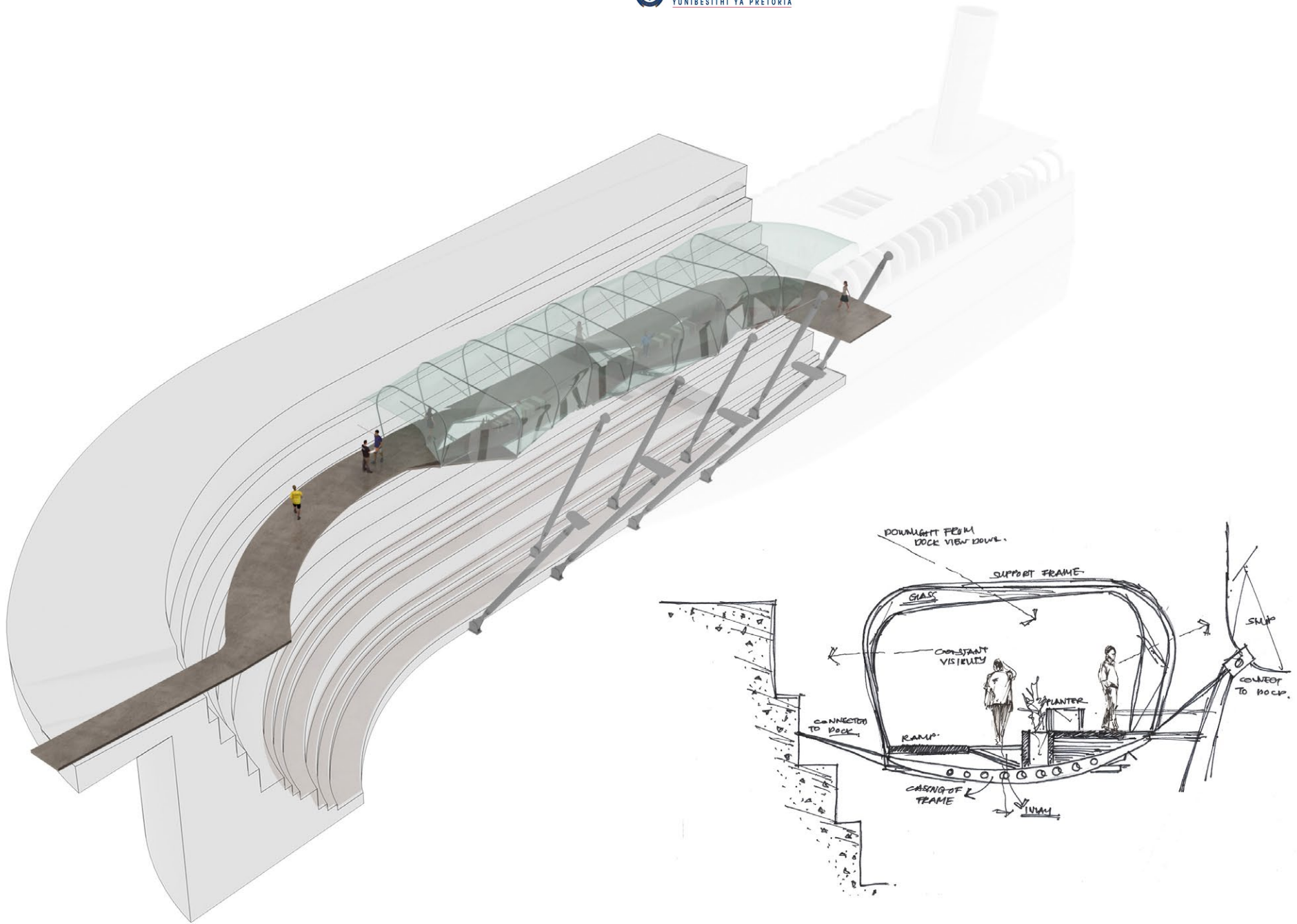


Figure 5.12. Iteration 1 Ramp Proposal (Author, 2016)



- RAMP ITERATION 1 -

As a point of departure, the **steep incline was revised** during the initial iteration (refer to figure 5.13). As opposed to a gradient of 1:12, the angle in slope was **decreased to 1:15**. Moreover, as per **SANS 10400 Parts S**, the introduction of a landing (1.5m in length and 1.2m in width) is provided every 10m. Given that the change in direction as one enters the ramp is continuously consistent and fairly modest, no supplementary landings are required. Additionally, the introduced landings provide **access onto the adjoining platforms**, with an adequate clear width of 1.5m. The overall layout of the observation decks were also simplified in order to abridge navigation and provide **more seating**.

Averting consideration towards the attachment of the scenic ramp to the existing dock, the overall supporting structure was reconsidered (refer to figure 5.12). Utilising the already present steel armature as a point of connection, the design of curved steel frame profiles which **elevate the platform through suspension** was proposed.

Furthermore, the adequate enclosure of the ramp **promotes spatial quality** through the provision of **protection against the elements**, which could pose possible hazards over sloped areas if left completely open. A **transparent enclosure permits panoramic visibility** and **lowers the visual intrusiveness** of the overall structure.

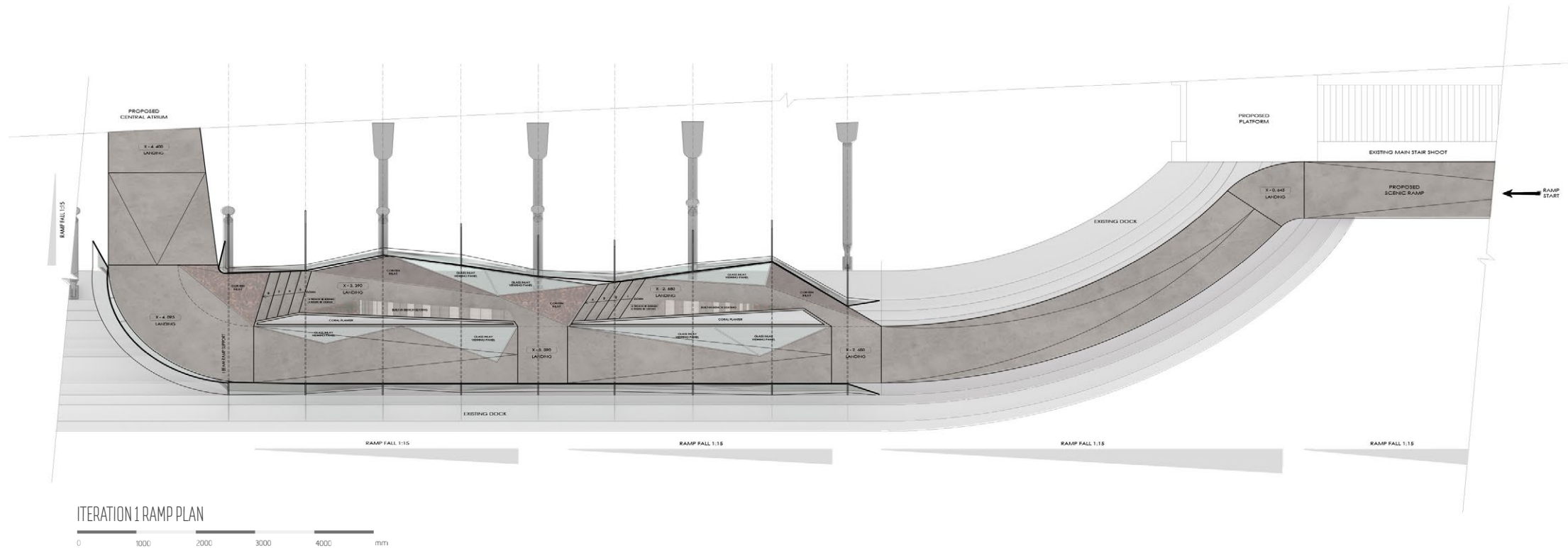
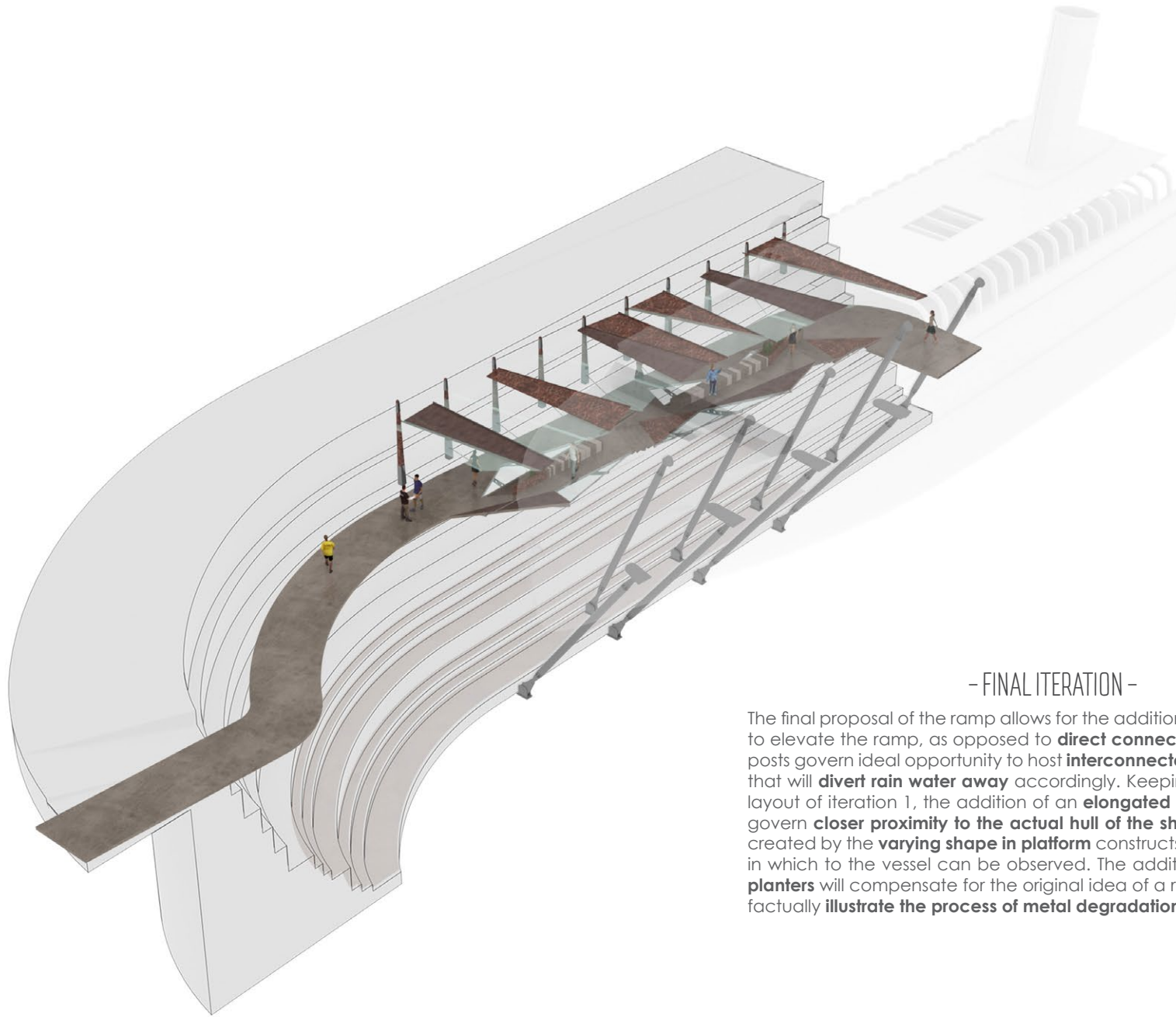


Figure 5.13. Iteration 1 of Proposed Scenic Ramp (Author, 2016)



- FINAL ITERATION -

The final proposal of the ramp allows for the addition of **strut post supports** to elevate the ramp, as opposed to **direct connectivity to the dock**. The posts govern ideal opportunity to host **interconnected angled roof panels** that will **divert rain water away** accordingly. Keeping with the proposed layout of iteration 1, the addition of an **elongated deck** is introduced to govern **closer proximity to the actual hull of the ship**. Distance variation created by the **varying shape in platform** constructs a variety of methods in which to the vessel can be observed. The addition of **feature rusticle planters** will compensate for the original idea of a rusticle reef in order to factually **illustrate the process of metal degradation**.

Figure 5.14. Final Iteration of Ramp Proposal (Author, 2016)



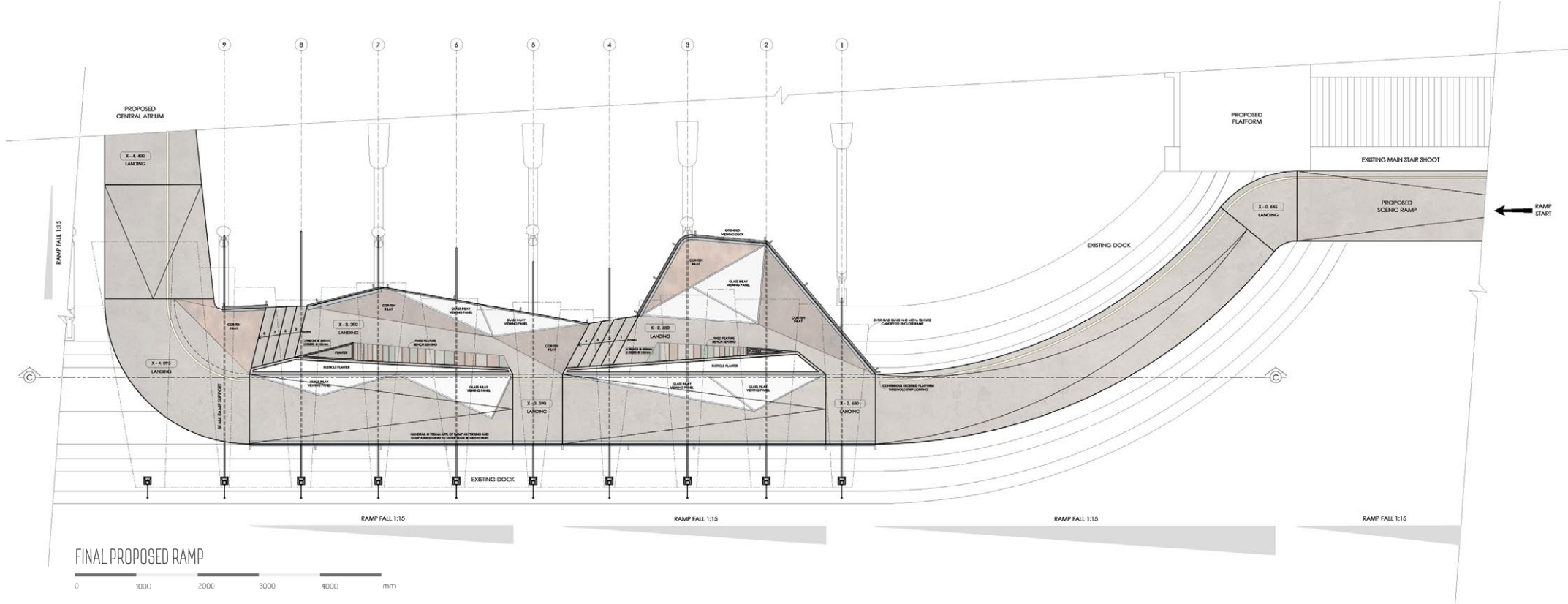
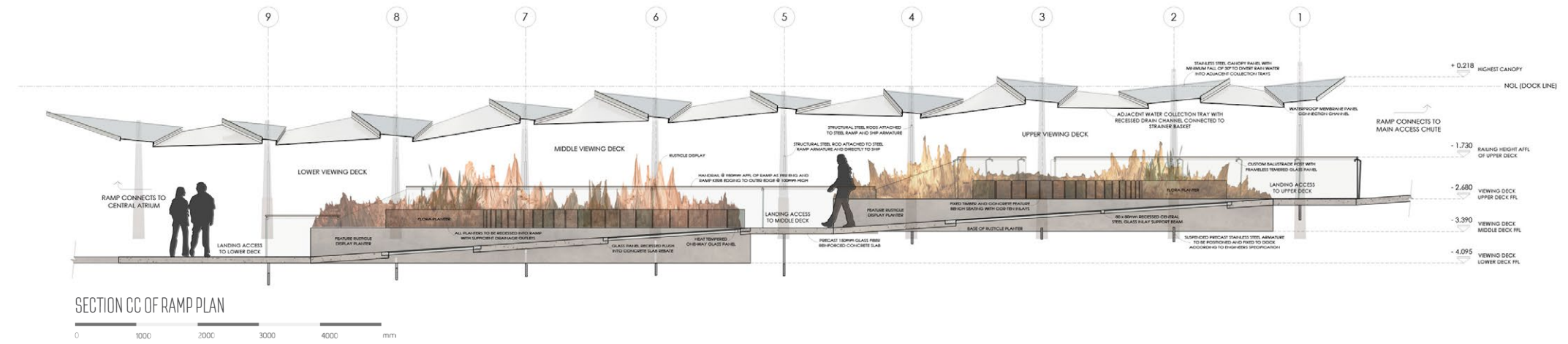


Figure 5.15. Final Iteration of Proposed Scenic Ramp Section and Layout (Author, 2016)

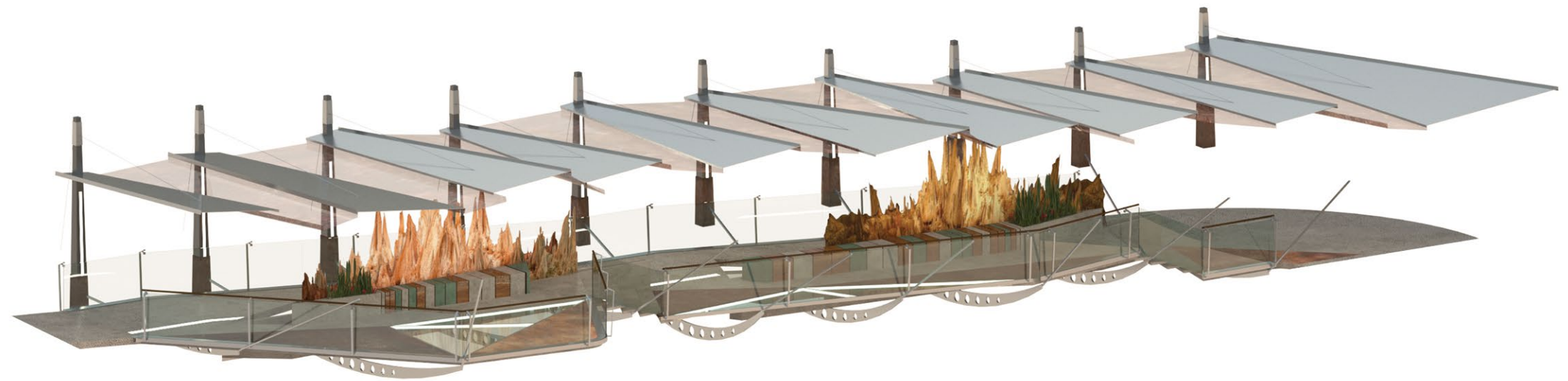


Figure 5.16. Three Dimensional View of Final Proposed Scenic Ramp (Author, 2016)



# 5.5 WAYFINDING



Figure 5.17. Proposed Wayfinding Systems (Author, 2016)

## - WAYFINDING SIGNAGE -

Directional signage boards located on the **dock's platform** in order to provide **orientation and context** for all visitors. All signage specifications to conform with **SANS 10400(S)** regulations and will be **designed by specialist**.

## - LEVEL ANNOUNCEMENT SIGNAGE -

**Level way finding** located on the **original fabric of the dock** through method of **ash stained concrete**. This **temporary form signage** will **enhance multi-functionality**. All signage specifications to conform with **SANS 10400(S)** regulations.

## 5.6 PROPOSED ELUCIDATION

### - DOCK LAYOUT -

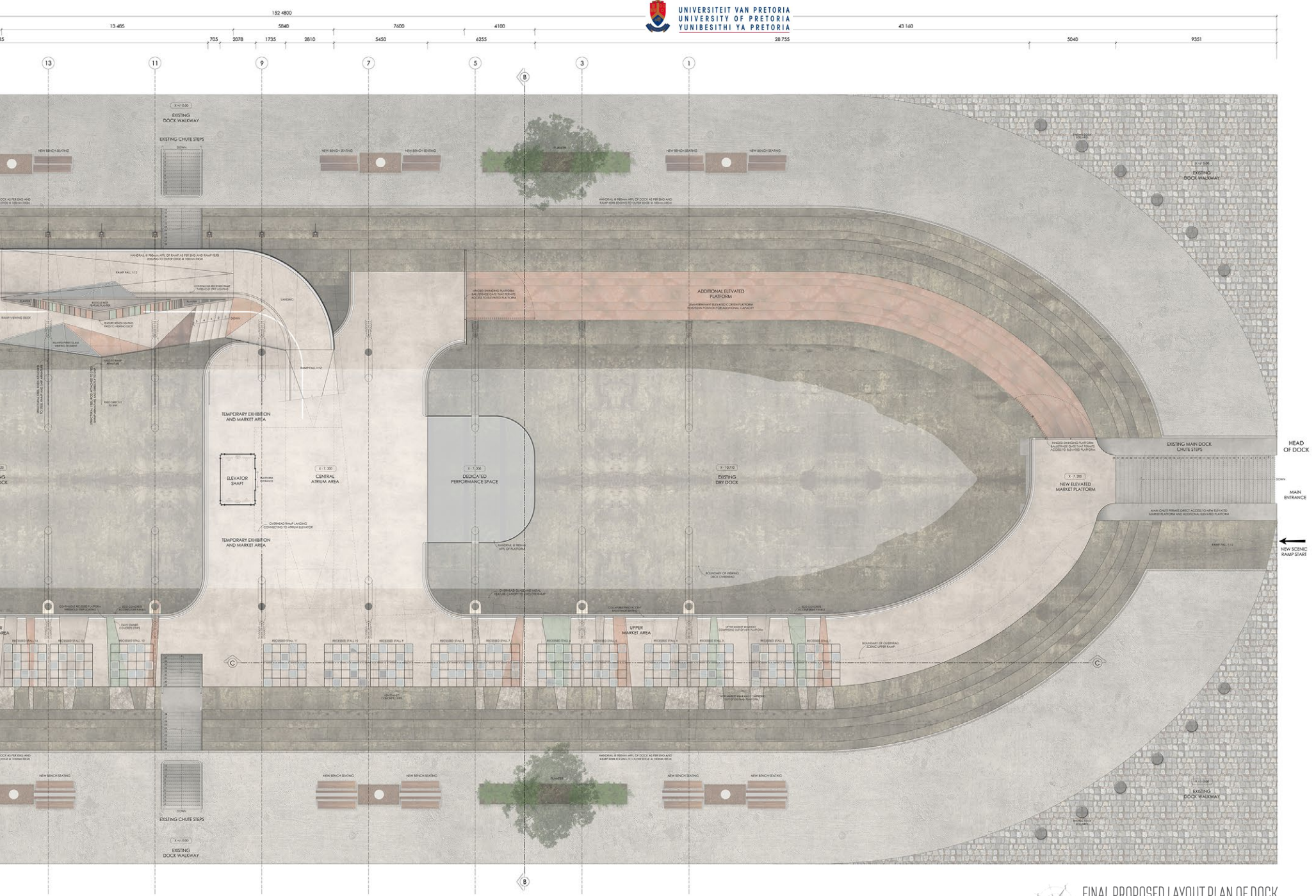
By means of actual positioning and design, a final layout (figure 5.18) of the dock is proposed that clearly shows **relativity amongst all facets of design**. Having introduced several methods of **host and habitant accessibility**, an overall view is achieved of the desired spatial intervention. As visitors descend down the main chute, the **vast appreciation of the ship's bow** can be comprehended, followed by the **arrival onto the market platform**. The arrangement of the upper permanent stalls **direct flow** from the head of the dock to the central atrium space. Depending on occasion, these stalls will either be **elevated or recessed**. A continuous line of additional stalls **connect the central walkway to the observation deck**, with adequate **ablution facilities** positioned below on the lower level of the dock. A smaller elevator with an enfolding staircase permits access to this lower level of the dock. The positioning of the observation deck and restroom amenities within the **demolished secondary sill's footprint licenses watertight division** between the frontal and aft section of the dock.

Whilst the aft section nearest to the primary caisson can be **completely flooded**, provision is made to allow **partial flooding** of the frontal section to **enhance acoustics** and add **visual interest**. The overall **layout conforms to the existing footprint** and provides novel opportunity for future additions. Furthermore, the allowance of the dock to still **partially function as a service station** will allow additional **income and ensure continuous interest**.



Figure 5.18. Final Proposed Dock Arrangement (Author, 2016)





FINAL PROPOSED LAYOUT PLAN OF DOCK



- SECTIONAL ELEVATION -

Sectional resolution (figure 5.19) of the dock shows evident association between the inner and outer interior. As a method of granting **direct access** onboard the ship at **natural ground level**, the introduction of the **original gangway planks**, used during tendering, will be **enclosed and fixed to the host and the habitant**. This arrangement of accessibility will act as a **nostalgic prompt** showcasing the **original intention (layer)** of the SS Nomadic as a **tender vessel**. The upper section of the introduced scenic ramp situated on the northern side of the ship, **shades the platform below**, whilst still governing **visual accessibility and natural light**. Access to the central elevator can be obtained through the **permanent market walkway, connecting scenic ramp** or associated **decks onboard** the ship.

In addition to the scenic ramp, direct **universal accessibility** onto the market walkway level can be obtained through the addition of a **lift platform to the northern chute**. The installation of the Savaria Omega inclined foldaway lift hosts a **platform with a fold out seat and an audio visual movement alarm** for abetting those with a **visual impairment**.



Figure 5.19. Final Sectional Dock Arrangement (Author, 2016)









Figure 5.20. Proposed View of Observation Deck as Exiting Ramp (Author, 2016)





Figure 5.21. Proposed View of Overall Dock Looking Aft (Author, 2016)





Figure 5.22. Proposed View of Observation Deck at Day (Author, 2016)





Figure 5.23. Proposed View of Observation Deck at Night (Author, 2016)



## 5.7 PROPOSED STALL DESIGN

### - SECTIONAL ELEVATION -

Having resolved the proposed market stalls conceptually (page 163), the **technical resolution** thereof is required in order to **showcase feasibility and materiality**. The illustrated floor plan (figure 5.24) exemplifies the typical layout of these **modular stall** configurations in **context with the surrounding fabric**. A **seamless permutation between the standing and proposed elements** are governed through the **selection of appropriate materials**. Accent ribbons, which imitate the geometrical form of the overhead ramp, **aesthetically tie** the adjoining platform to the existing docks alters. Utilising electric actuators, (refer to figure 5.25) the positioned podiums permit **two way circulation**. Inside flow will oversee **direct contact with the dock**, whereas the outside permit **visual convenience of the ship** by means of a **multifunctional balustrade/seating system** (figure 5.26 and 5.27).

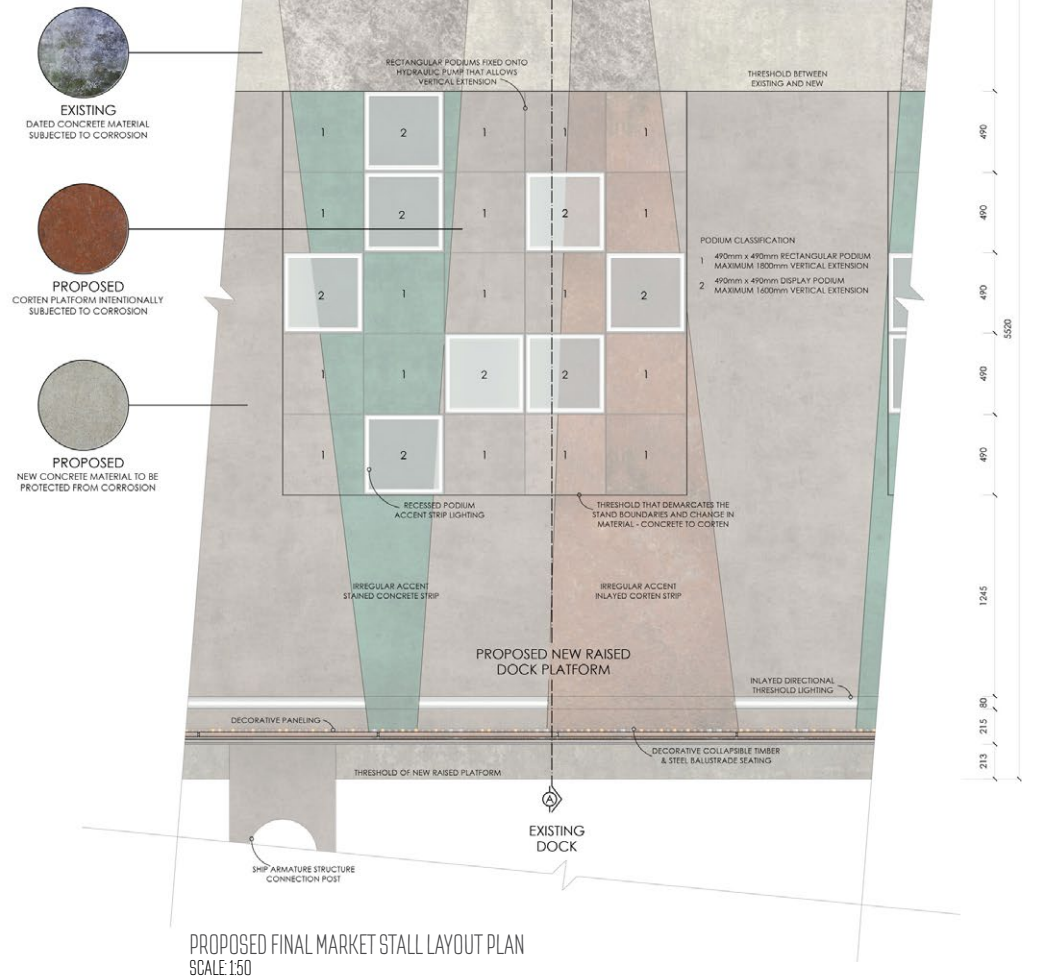
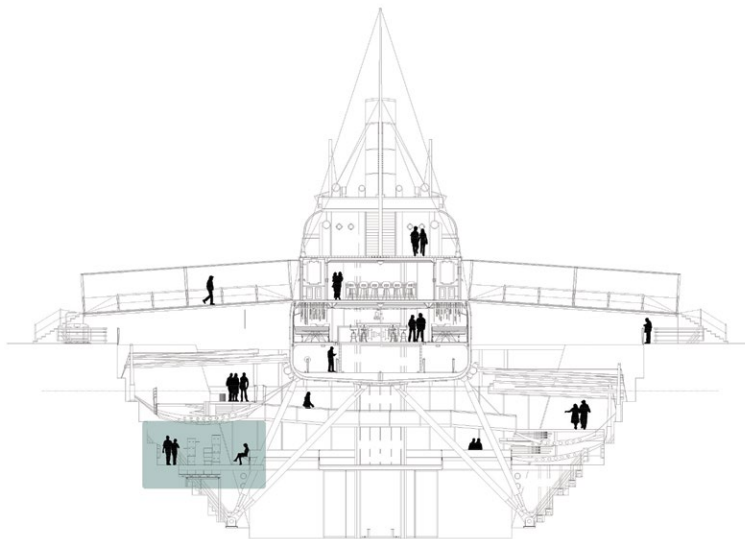


Figure 5.24. Final Proposed Stall Layout (Author, 2016)



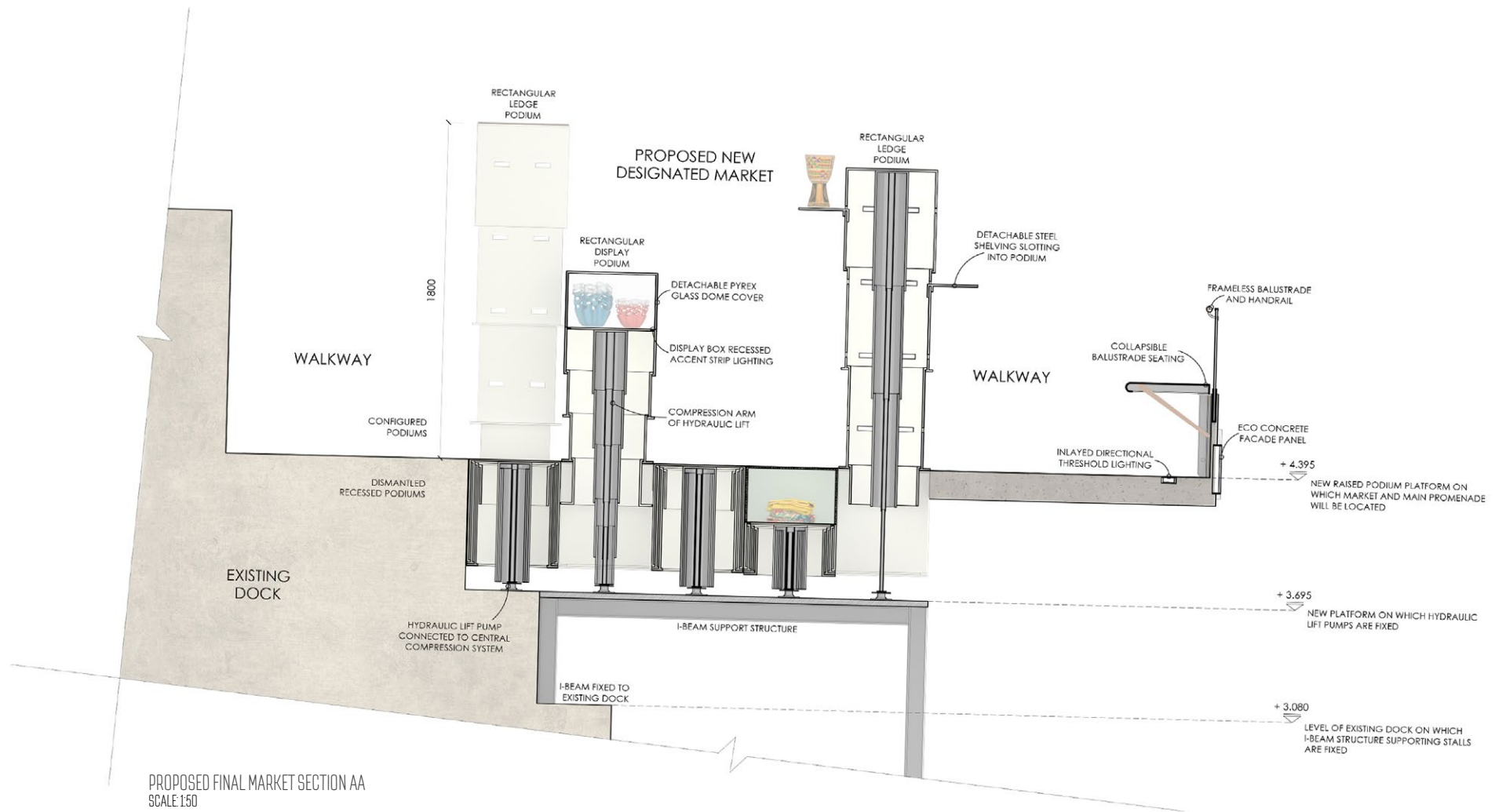
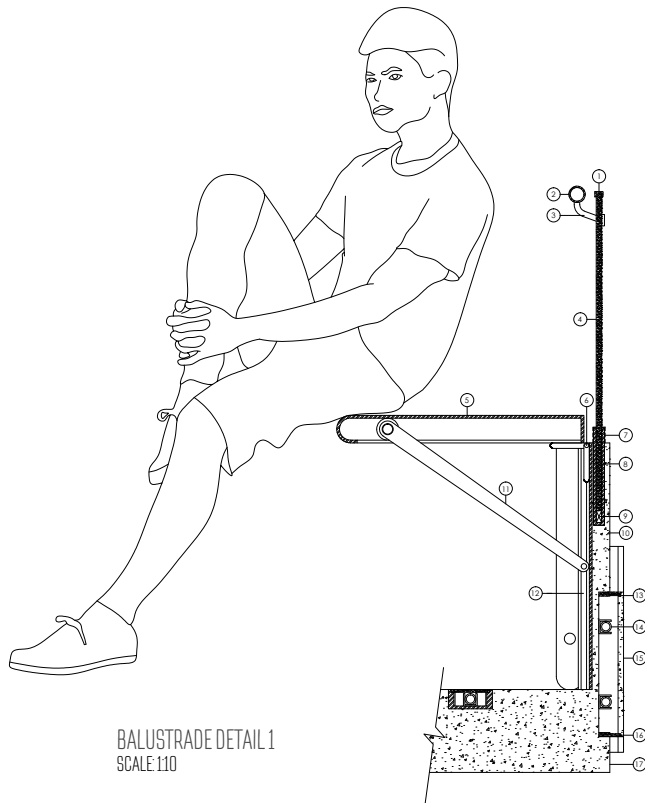
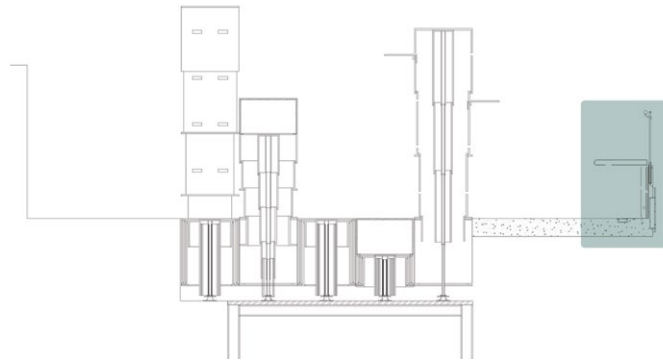
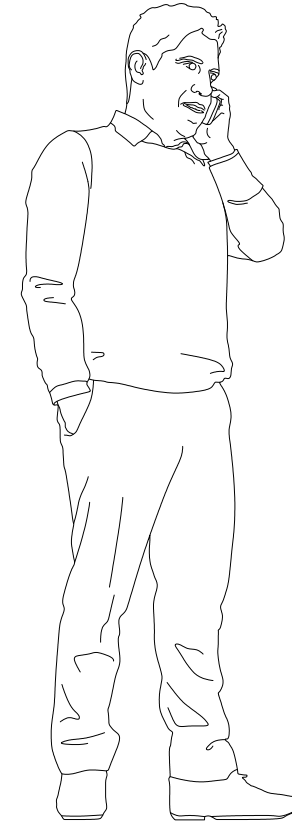


Figure 5.25. Final Sectional Elevation of Proposed Stall Configuration (Author, 2016)



BALUSTRADE DETAIL 1  
SCALE 1:10

- ① 5mm STAINLESS STEEL GLASS RAIL CAP WITH SILICONE FIXED INSERT
- ② 30mm Ø CORTEN HOLLOW ROUND STEEL HANDRAIL WITH A MINIMUM OF 60mm CLEARANCE BETWEEN RAILING AND GLASS PANEL
- ③ STAINLESS STEEL CUSTOM HANDRAIL BRACKET AS PER MANUFACTURERS SPECIFICATIONS. FIXED FLUSH WITH GLASS PANEL. 1100mm APART
- ④ CLEAR 20mm TOUGHENED AND HEAT-SOAKED SAFETY GLASS FIXED IN RECESSED BASE CLAMP. THICKNESS OF GLASS PANELS TO SUIT LOADING CAPACITY
- ⑤ 10mm CENTRAL TREATED BRASS ENCASUREMENT WITH OPENING CHANNEL TO ACCOMMODATE SLIDING LATCH
- ⑥ TREADED BRASS FLANKED HINGE FIXED TO TIMER AND STEEL SEATING PANELS AND CONCRETE PARAPET ENCLOSURE WITH 10mm GALVANIZED CAP SCREWS
- ⑦ GLASS SET IN ARBOCAL TO A MINIMUM DEPTH OF 110mm AND FINISHED WITH ALGOLIN SILICON SEALANT
- ⑧ 2mm RECESSED STAINLESS STEEL GLASS ENCASUREMENT U-CHANNEL EMBEDDED WITH CONTINUOUS NON-SHRINKABLE GROUT
- ⑨ 100mm NEOPRENE SETTING BLOCK FIXED AT 760mm CENTRES WITH 12mm Ø WEDGE BOLT TO CONCRETE
- ⑩ 450mm HIGH CONCRETE PARAPET ENCLOSURE ONTO WHICH COLLAPSIBLE BENCHES AND HANDRAIL IS FIXED
- ⑪ 450mm TREATED BRASS SLIDING SEATING LATCH SUPPORT FIXED ON INLAYED STAINLESS STEEL TRACK
- ⑫ 20mm RECESSED STAINLESS STEEL LATCH GUIDING TRACK WITH 10mm REBATE OPENING
- ⑬ 10 x 30mm CORNER MILD STEEL BRACKET TO JOIN PLEXIGLAS INLAYS AT INTERSECTING CORNERS
- ⑭ COMBINATION OF T3 (54W) NARROW CHANNEL LIGHT FITTING AND T3 (21W) NARROW CHANNEL LIGHT FITTING. COLOUR: WARM WHITE
- ⑮ 15mm EXTRUDED TRIANGULAR ECO-CRETE FEATURE LIGHT PANEL WITH 20mm OFFSET ACCENT BACKLIGHTING
- ⑯ PRIMARY 3mm CRYSTAL WHITE OPAQUE SATINICE™ PLEXIGLAS DIFFUSER PANEL CUT TO SPECIFICATIONS AND RECESSED INTO 7mm ECO-CRETE PANEL REBATE
- ⑰ 250mm REINFORCED RAISED CONCRETE MARKET PLATFORM STAINED WITH PETROPRES™ NON-PETROLEUM BASED PHENOLIC RESIN AND PROTECTED WITH CONCRETE EPOXY



BALUSTRADE DETAIL 2  
SCALE 1:10

- ① SOLENOID STEEL COIL RELEASE WITHIN SLIDING LATCH. 20mm COIL SUSPENSION AND 10mm COIL COMPRESSION
- ② 10mm CENTRAL TREATED BRASS ENCASUREMENT WITH OPENING CHANNEL TO ACCOMMODATE SLIDING LATCH
- ③ 450mm TREATED BRASS SLIDING SEATING LATCH SUPPORT FIXED ON INLAYED STAINLESS STEEL TRACK
- ④ 20mm CIRCULAR RELEASE VOID VACANT WHEN SEAT IS COLLAPSED AND OCCUPIED WHEN SEAT IS ERECTED
- ⑤ 1mm REFLECTIVE DECORATIVE PANEL FIXED INTO OPENING HEIGHT OF RECESSED LIGHTING
- ⑥ PRIMARY 3mm CRYSTAL WHITE OPAQUE SATINICE™ PLEXIGLAS DIFFUSER PANEL CUT TO SPECIFICATIONS AND RECESSED INTO 6mm STAINLESS STEEL U-CHANNEL REBATE
- ⑦ 10mm RECESSED STAINLESS STEEL LIGHT ENCASUREMENT U-CHANNEL EMBEDDED WITHIN CONCRETE WITH CONTINUOUS NON-SHRINKABLE GROUT

Figure 5.26. Balustrade Bench Detail 1 (Author, 2016)

Figure 5.27. Balustrade Bench Detail 2 (Author, 2016)



Figure 5.28. Proposed Market Stall Contextualised (Author, 2016)



## 5.8 INNER INTERIOR

### INTERIOR QUALITY IMPROVEMENT

The design of the brewery will be advocated as illustrated in figure 5.30 . Special attention will be directed towards the improvement of **artificial lighting, acoustics and passive ventilation.**

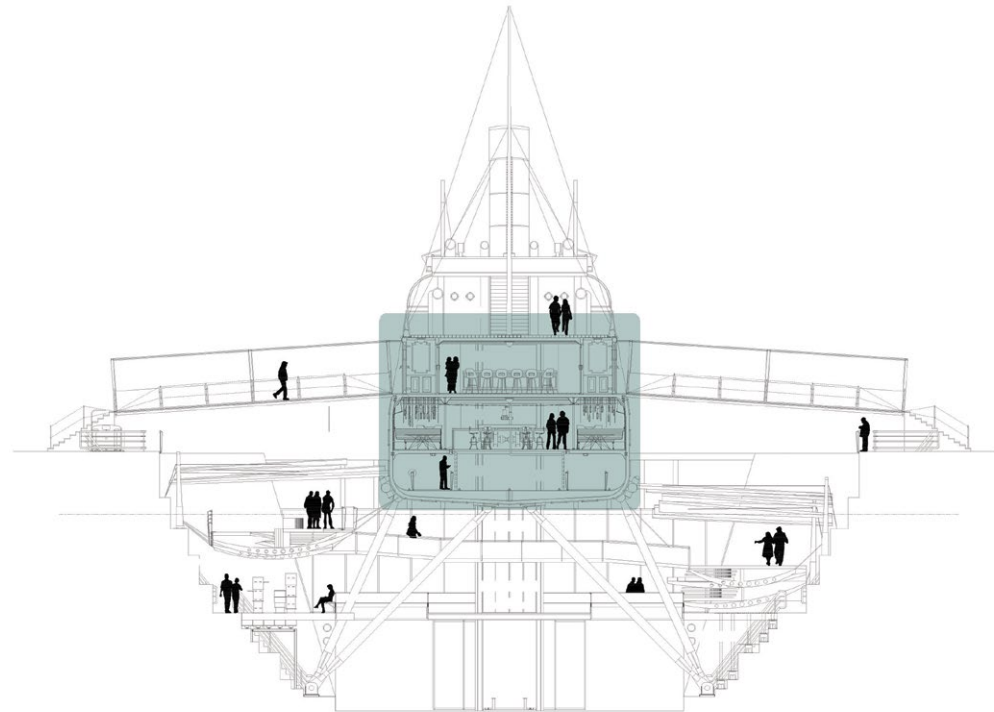


Figure 5.29. Brewery Callout (Author, 2016)

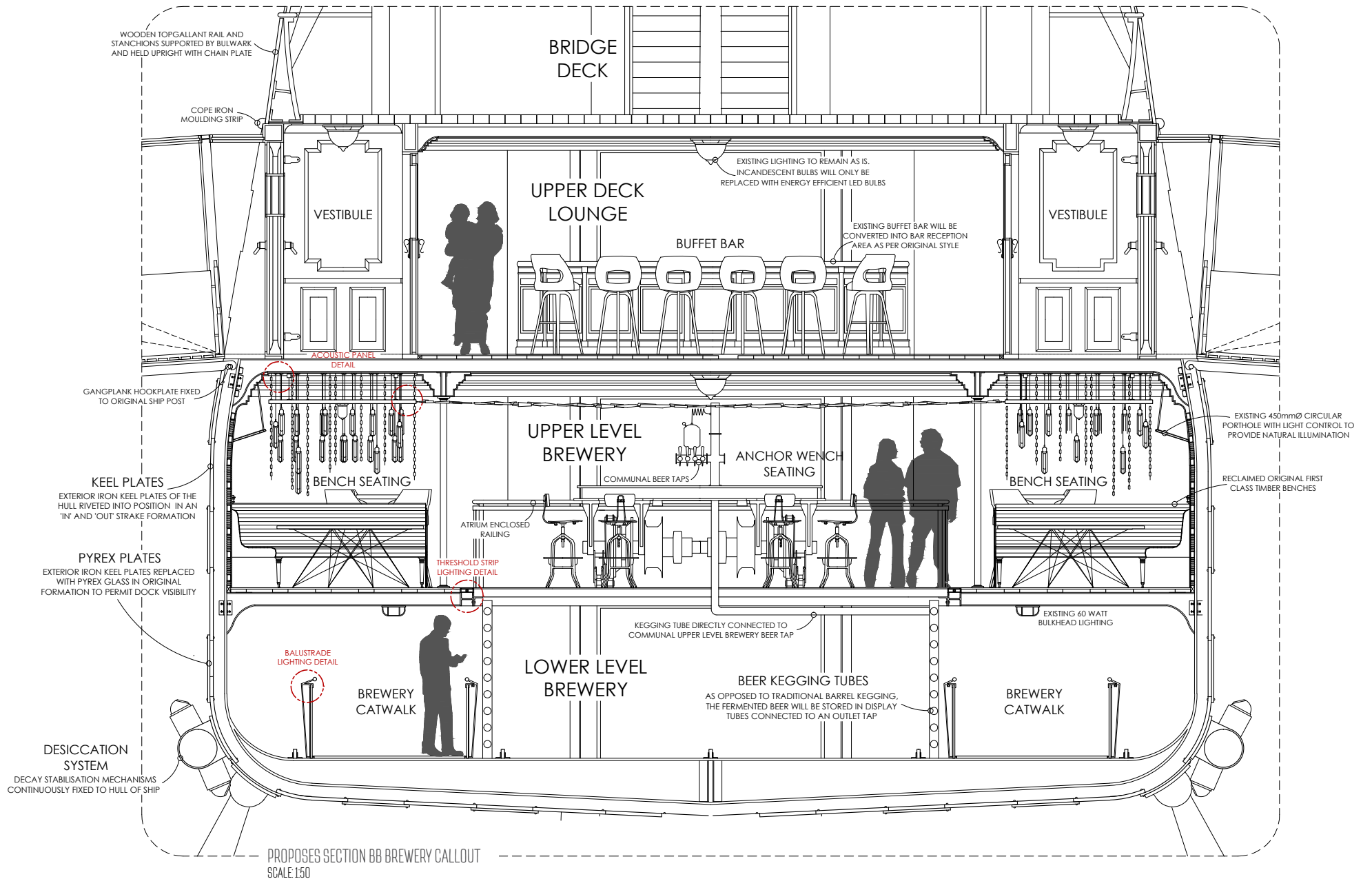


Figure 5.30. Final Section BB Callout of Brewery (Author, 2016)



- LIGHTING -

In addition to the introduced **pendant chain screens**, ambient **strip lighting** will be provided through the **distinct acme of the outer threshold** of the transparent platform (figure 5.31). Furthermore, the addition of **recessed lighting in all railings** (figure 5.32) will provide general **supplementary illumination and dictate direction**. The overall approach to illumination administrates mere **installment of ambient lighting to supplement existing lighting**. These additions should **accentuate, and not supersede the surviving** - both in **aesthetics and radiance**.

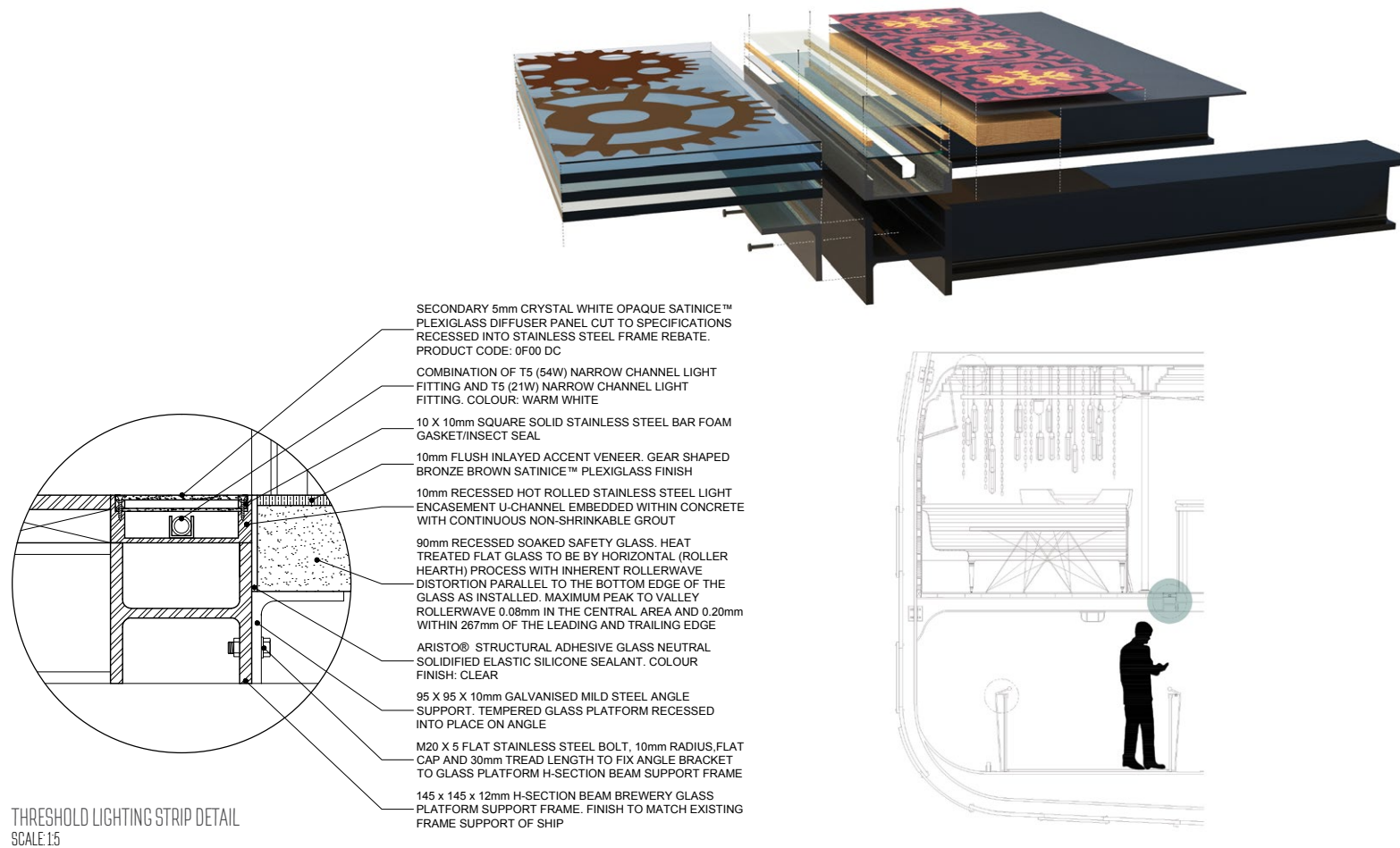
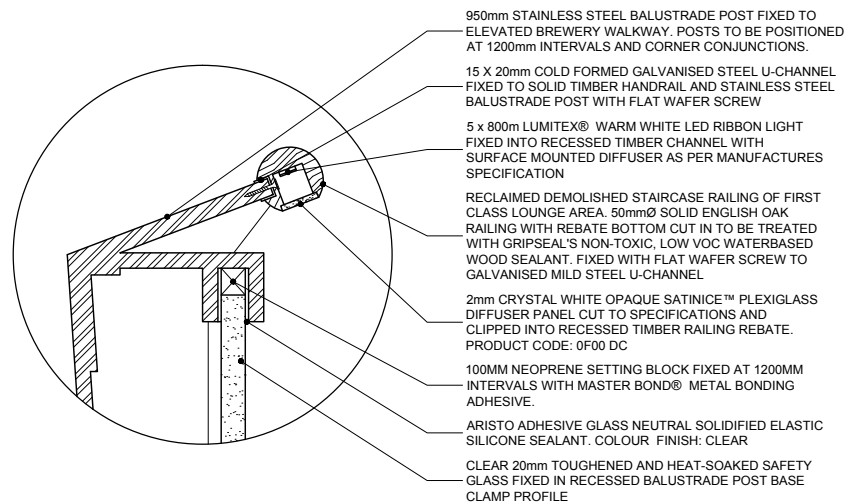


Figure 5.31. Threshold Lighting Strip Assembly and Construction Detail (Author, 2016)



BALUSTRADE LIGHTING DETAIL  
SCALE 1:5

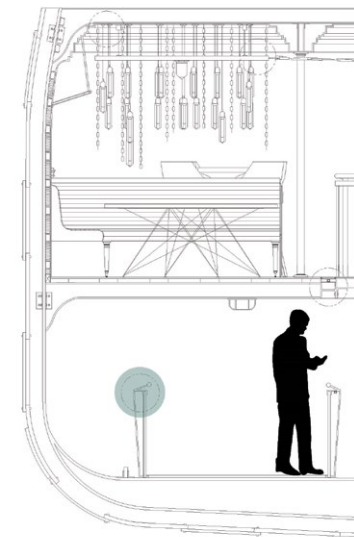
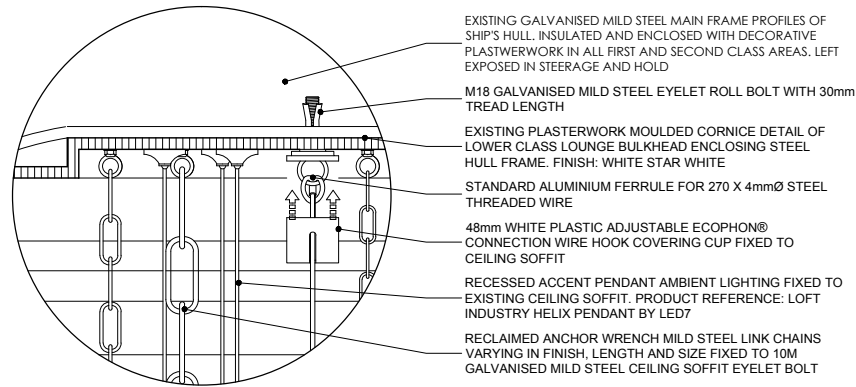


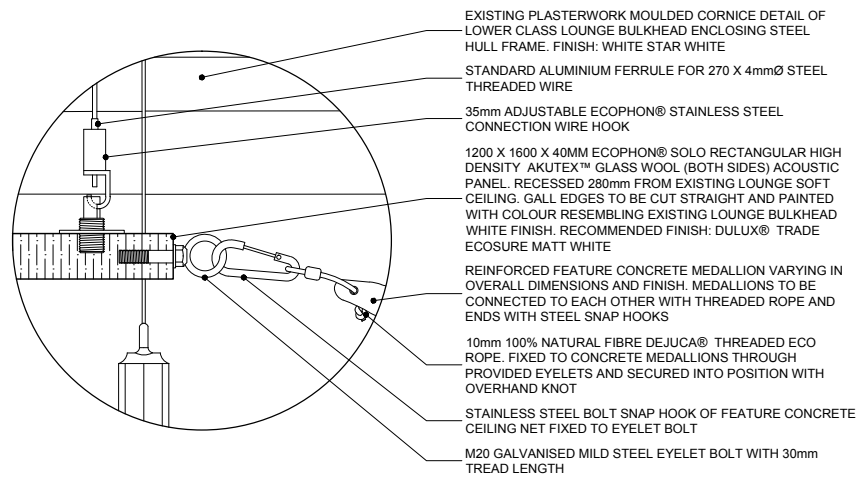
Figure 5.32. Balustrade Lighting Assembly and Construction Detail (Author, 2016)

-ACOUSTICS-

In order to provide **acoustic insulation and limit sound diffusion** on the upper level of the brewery, recessed **Ecophon panels** are inserted over seating areas in bulkheads cavities with the original lighting installed thereon (figure 5.33). The addition of a feature **ceiling lattice**, comprised out of concrete medallions and inspired by a traditional fishing net, provide **supplementary auditory absorption and limits sound generation** (figure 5.34).



ACOUSTIC PANEL DETAIL 1  
SCALE: 1:5



ACOUSTIC PANEL DETAIL 2  
SCALE: 1:5

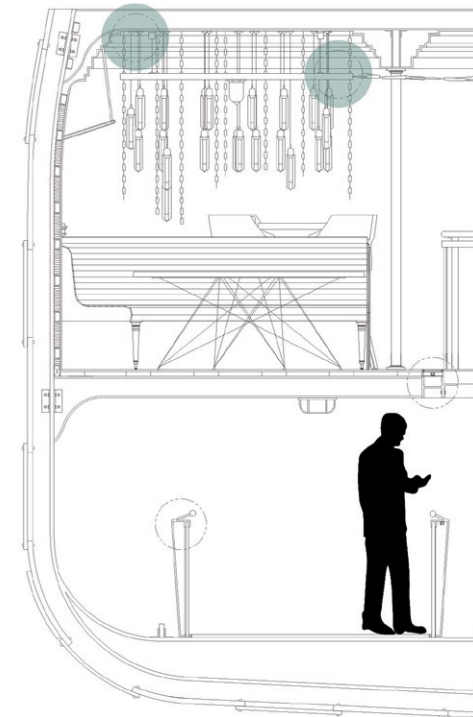


Figure 5.33. Acoustic Construction Detail (Author, 2016)

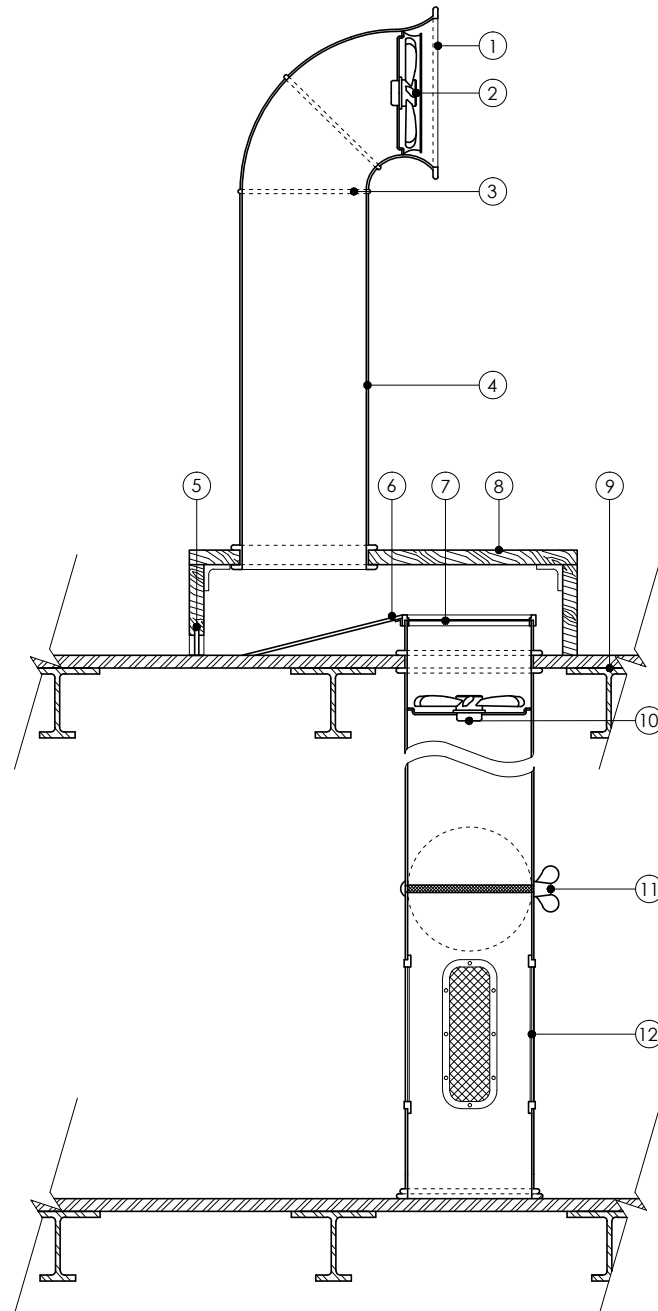




Figure 5.34. Acoustic Assembly and Concrete Medallion Feature (Author, 2016)

- PASSIVE VENTILATION -

The amendment of the existing dorade box ventilation is proposed in order to **reinstate and improve the interior quality** of the brewery. Being that the ship is **stationary**, these vents **no longer perform optimally**. Resolution advises the addition of an **encircled energy efficient line-in ventilation fan**, which will draw cool air into the existing baffle, and **amplify circulation and inlet pressure**. Furthermore, an **auxiliary fan** is located in the secondary baffle that will **intensify volume flow rates** and provide **adequate interior ventilation**. The addition of a **control plate** will **consent jurisdiction** over the incoming air.



- ① EXISTING HORN-SHAPED FORWARD FACING MILD STEEL DORADE VENT COWL OPENING WITH CLEAR WIDTH OF 400Ø. POWDER COATED AS PER ORIGINAL WHITE STAR APPLICATION STANDARDS. COLOUR: YELLOW GOLD
- ② PROPOSED ENERGY EFFICIENT LINE-IN VENTILATION FAN WITH AEROFOIL SECTION ALUMINIUM DIE-CAST BLADES. VOLUME FLOW RATES UP TO 62,000 m<sup>3</sup>/h AND STATIC PRESSURE INCREASE UP TO 300 Pa. AXIAL BOLTED, MOUNTED FOR SHORT BELL MOUTH FLOW WITH APPROPRIATE GUARD GRILLE AND PRESSURE SIDE
- ③ VERTICAL BAFFLE WORKING JOINT TO PERMIT CHANGE OF ANGLE AS DICTATED BY CHANGE OF WIND DIRECTION
- ④ PRIMARY INTERLEAVING VERTICAL BAFFLE WITH A CLEAR WIDTH OF 350Ø, ELEVATED FROM DECK AND FIXED TO DORADE CASING TO PERMIT FREE FLOWING VENTILATION
- ⑤ STAINLESS STEEL PERFORATED LIMBER HOLE MESH WITH TO PERMIT OUTFLOW OF EXCESSES CHAMBER VAPOR ACCUMULATION
- ⑥ STAINLESS STEEL DOWN-FLOW CHAMBER PANEL TO DIRECT IMMEDIATE SEA WASH AND CONDENSED VAPOR TOWARDS AVAILABLE OUTLET
- ⑦ PROPOSED STAINLESS STEEL FLY SCREEN MESH CANOPY TO ENCLOSE SECONDARY INLET BAFFLE
- ⑧ EXISTING TIMBER DORADE BOX CASING WITH ENCLOSED CHAMBERS AND FIXED INLET AND OUTLET BAFFLES
- ⑨ EXISTING FLUSHED STEEL DECKING FIXED ON GALVANISED MILD STEEL MAIN FRAME PROFILES OF SHIP'S HULL
- ⑩ PROPOSED SECONDARY ENERGY EFFICIENT AXIAL VENTILATION FAN WITH AEROFOIL SECTION ALUMINIUM DIE-CAST BLADES. VOLUME FLOW RATES UP TO 62,000 m<sup>3</sup>/h AND STATIC PRESSURE INCREASE UP TO 300 Pa. AXIAL BOLTED, MOUNTED FOR ADDITIONAL SHORT BELL MOUTH FLOW
- ⑪ PROPOSED CONTROL PLATE TO MEDIATE PERMITTED INLET AIR INTO INTERIOR. CALIBRATED WITH PRIMARY LINE-IN AND SECONDARY AXIAL FAN TO ADJUST/STOP FLOW RATE
- ⑫ SECONDARY BAFFLE AIR OUTLET VENTILATION OPENING POSITIONED 500mm AFLL. ENCLOSED WITH DECORATIVE STAINLESS STEEL MESH GRILL AS PER ORIGINAL MANUFACTURING SPECIFICATIONS

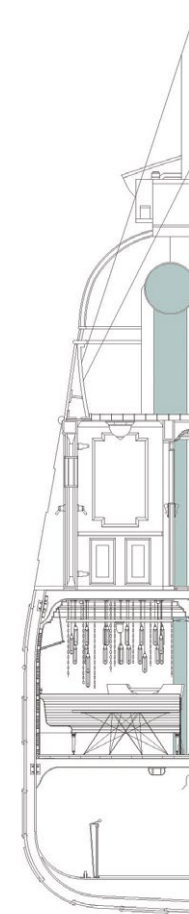


Figure 5.35. Proposed Dorade Vent (Author, 2016)

## 5.9 DOCK ILLUMINATION

Subsequently to the **addition of any element** to a once desolated setting, **spatial alteration will occur**. One of these amendments that were noted upon technical resolution, is the **lack of natural light in the lower dock areas** due to the **addition of an outer interior**. Figure 5.38 - 5.41 analytically illustrates the effect of the added components on **light availability** atop the dock's bed. The final arrangement, as depicted in figure 5.37, shows the **fractional hindrance of natural illumination** and consents intercession. The addition of **adjustable track lighting fixed to the hull's desiccation system**, enables **equal distribution of light** to the **platform, ramp and lower dock area** (refer to figure 5.36). Auxiliary resolution is to follow.

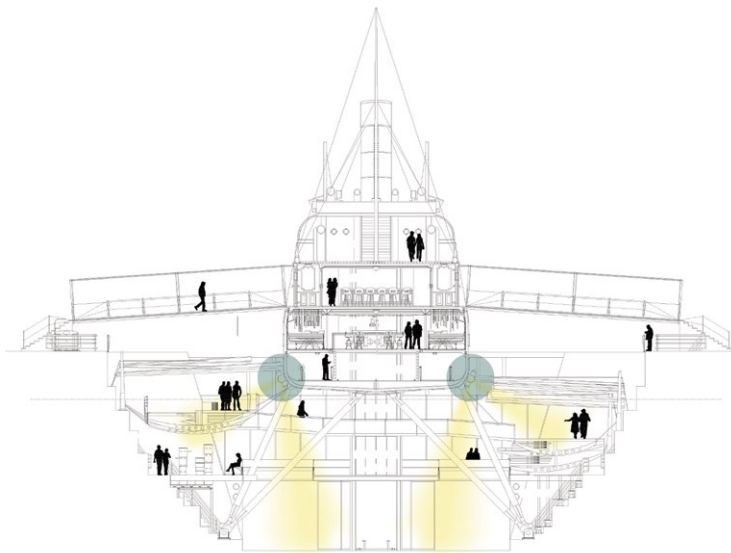


Figure 5.36. Artificial Light Rail Attached to Hull Desiccation System (Author, 2016)

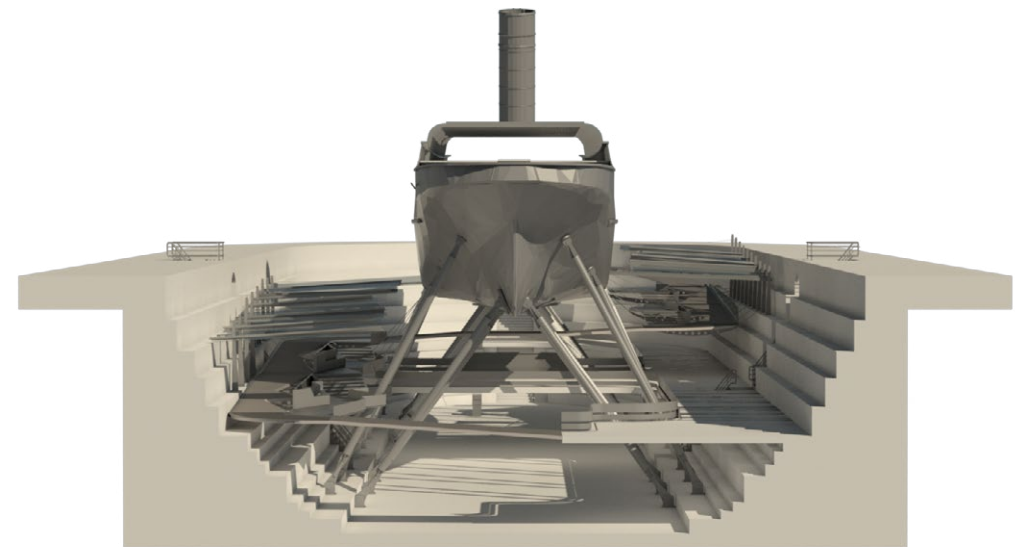
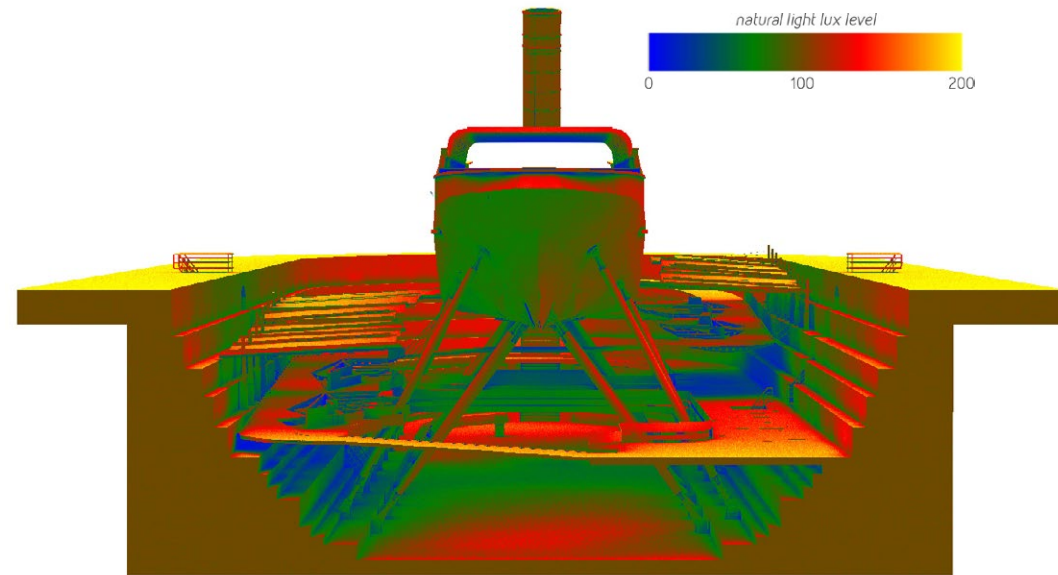


Figure 5.37. Illumination and Shadow Cast in Dock by New Intervention (Author, 2016)



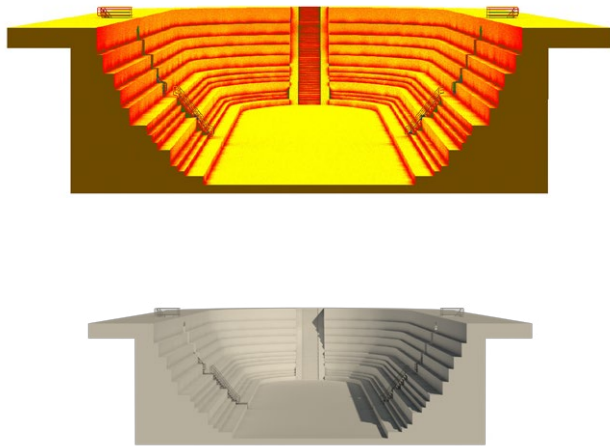


Figure 5.38. Original Illumination and Shadow Cast (Author, 2016)

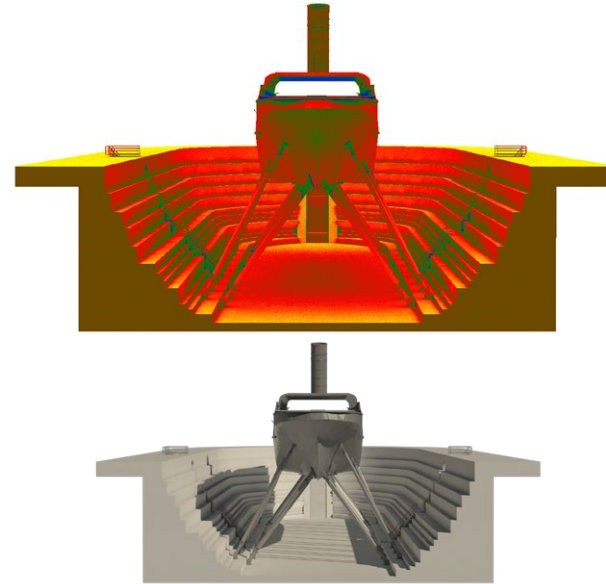


Figure 5.39. Illumination and Shadow Cast by Ship (Author, 2016)

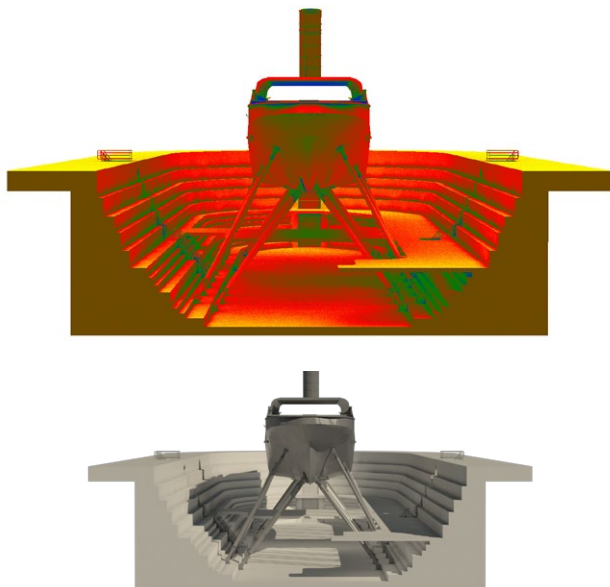


Figure 5.40. Illumination and Shadow Cast by Ship and Platform (Author, 2016)

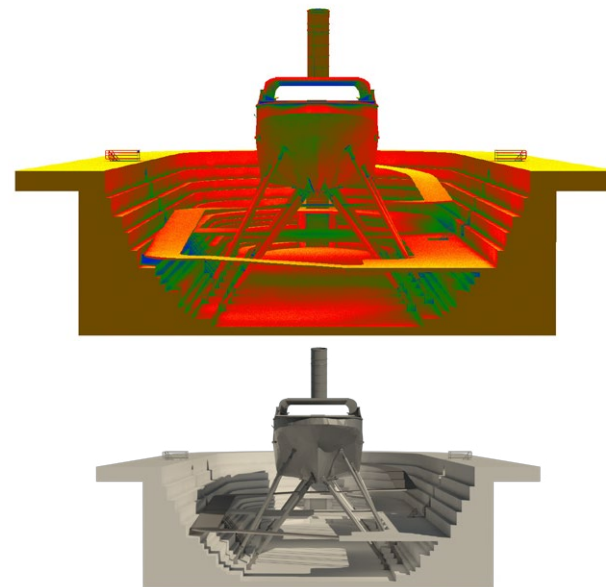


Figure 5.41. Illumination and Shadow Cast by Ship, Platform and Ramp (Author, 2016)

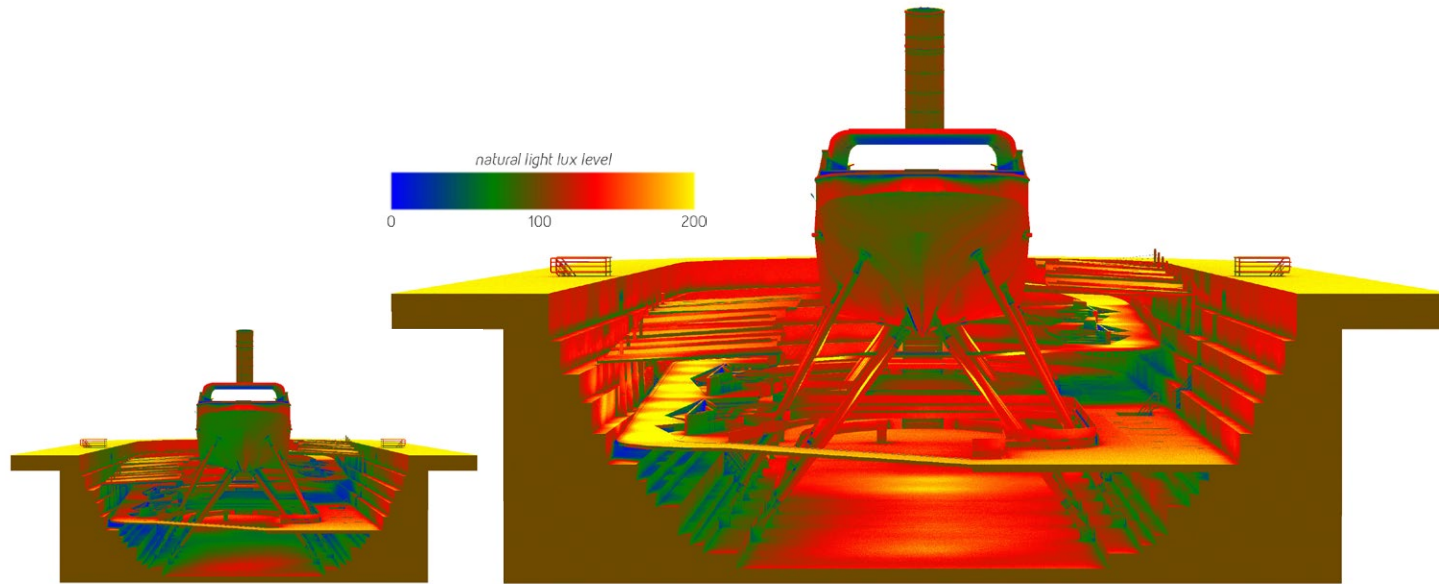
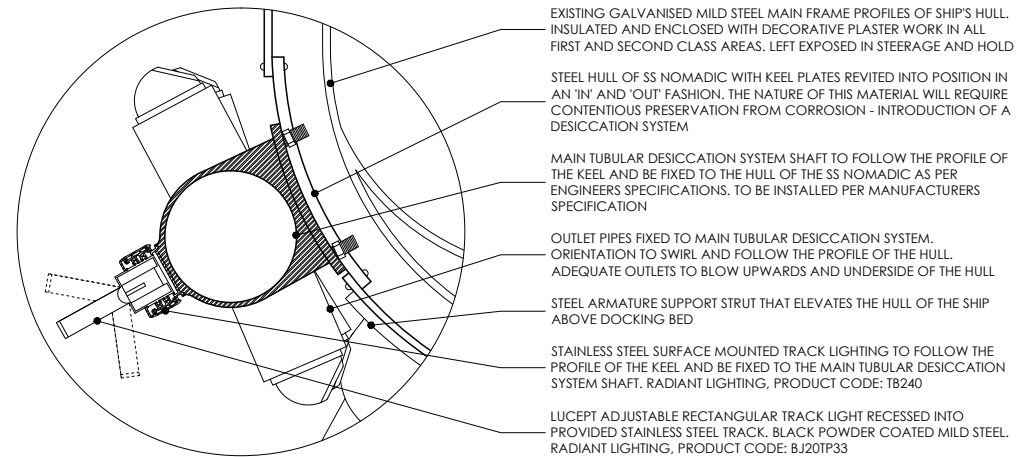


Figure 5.42. Proposed Dock Illumination Levels with Desiccation Lighting (Author, 2016)



LIGHT DESICCATION DETAIL  
SCALE: 1:10

Figure 5.43. Proposed Dock Desiccation Detail (Author, 2016)



## 5.10 LAYERED MATERIALITY

Before immediate material application commenced, precedent investigation was directed towards possible **product selection**. Utilising the **obtained theoretical knowledge** associated with metallic and organic coated metals, a selection of **layered metals** produced by **ArcelorMittal** is dissected in order to determine their characteristics. As observed in the below chart, the actual representation of these metals create a **material palimpsest**, which exemplifies the envisioned implementation of **materiality as a tool of layering**.

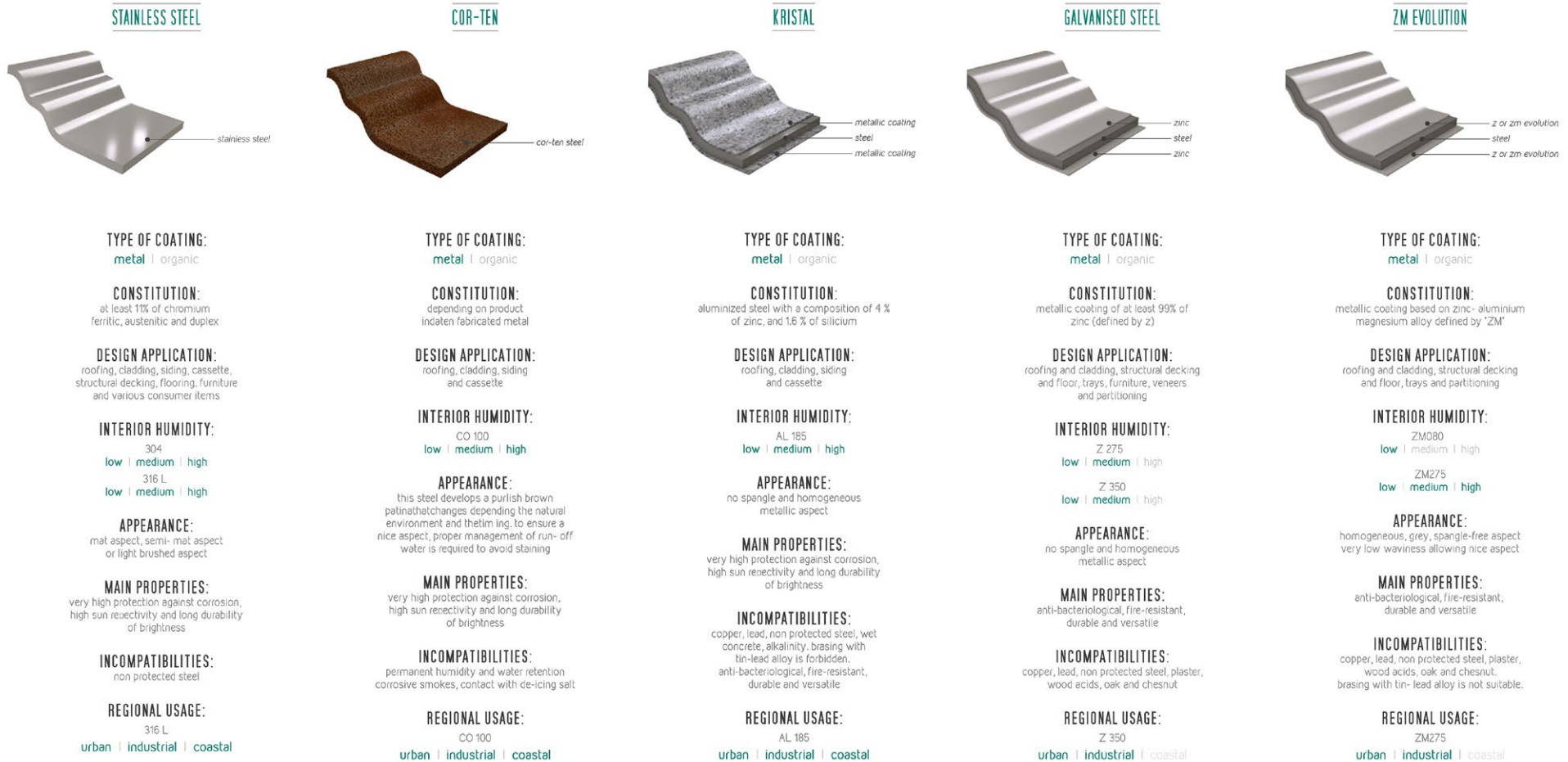


Figure 5.44. Charted Layered Metals - Part 1 (Author, 2016)

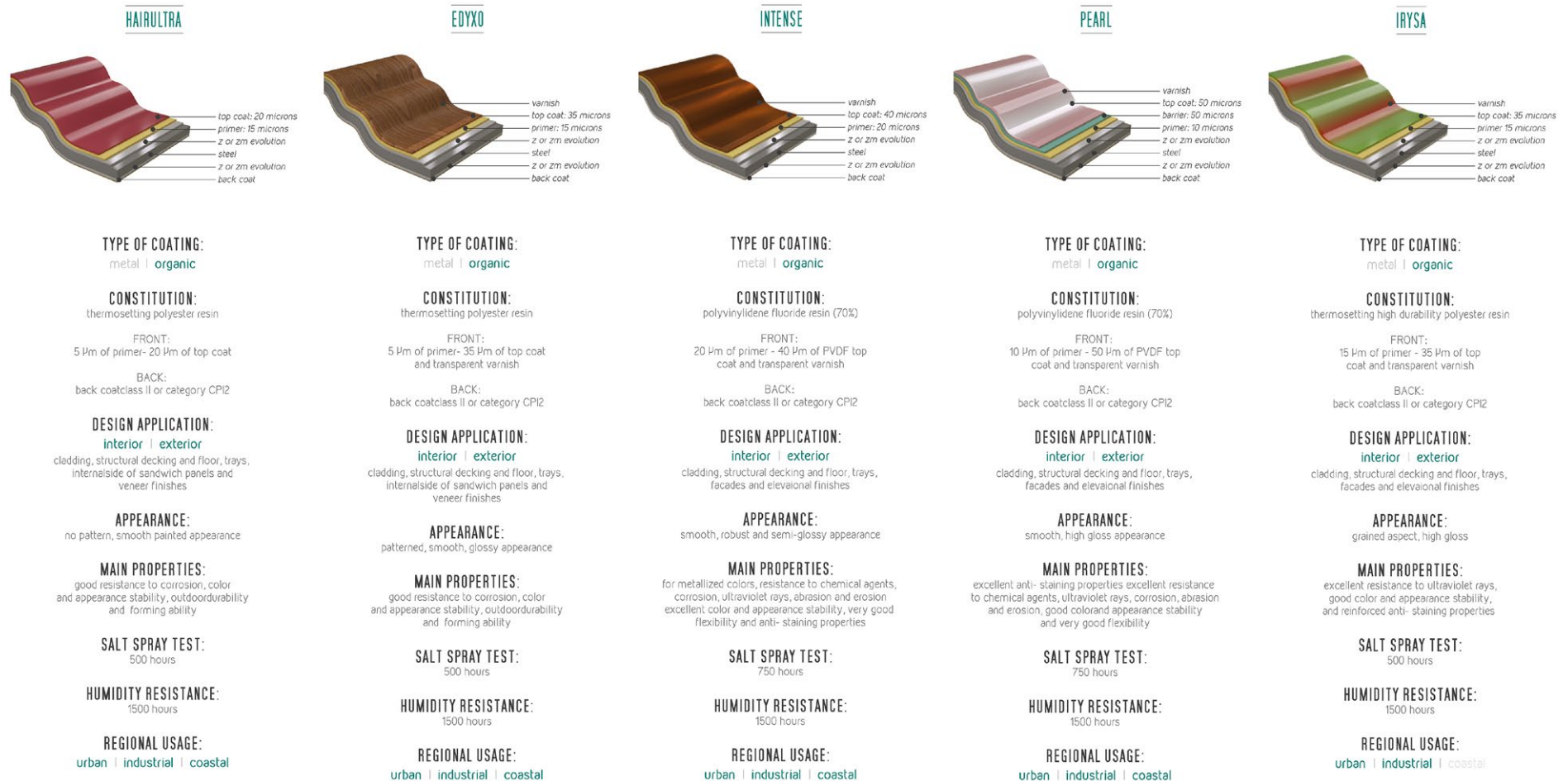
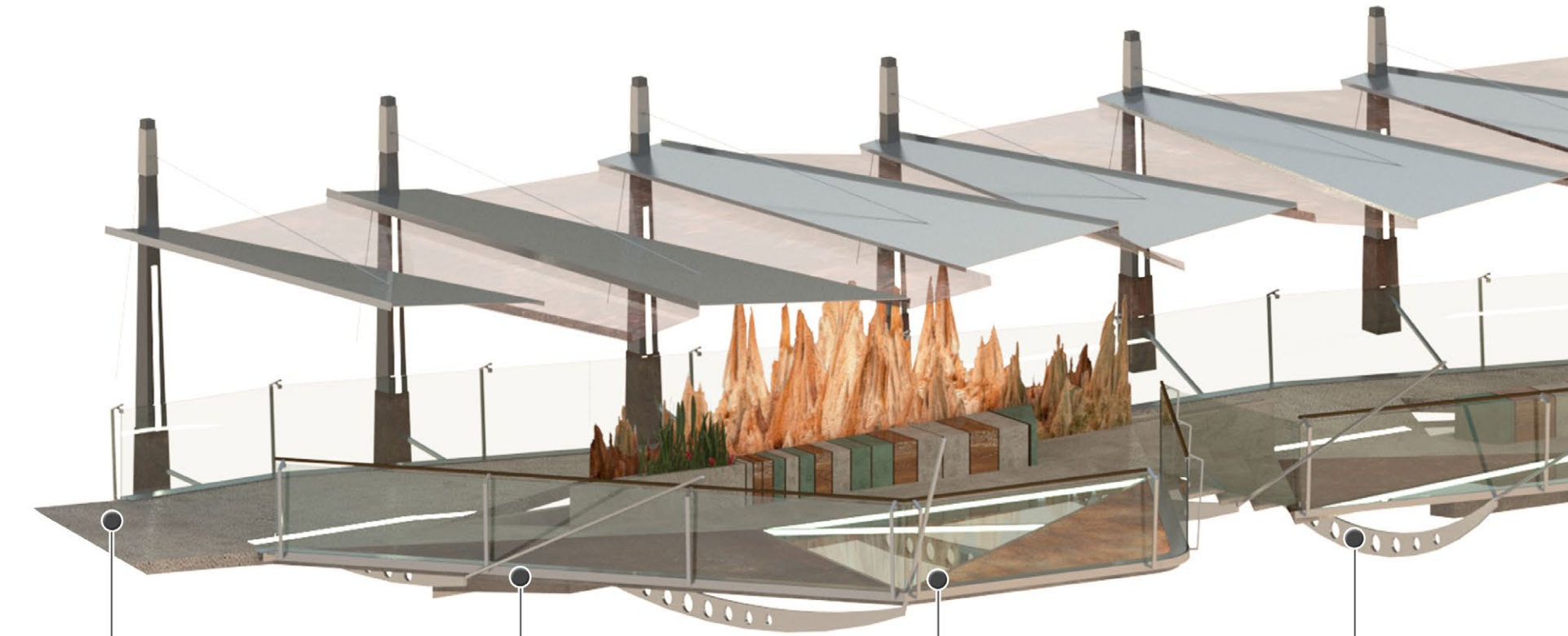


Figure 5.45. Charted Layered Metals - Part 2 (Author, 2016)





PRODUCT  
*lafarge ultra light concrete*

APPLICATION  
*scenic ramp walkway*

APPEARANCE  
*light textured, dove grey surface*

SPECIFICATION  
*structural lightweight 150mm slab as per engineers specification, reinforced fiberglass aggregate*

PRESERVATION STRATEGY  
*agent against structural degradation, appearance to fade with time*



PRODUCT  
*316 L stainless steel*

APPLICATION  
*ramp railing and kerb*

APPEARANCE  
*light brushed, semi-gloss finish*

SPECIFICATION  
*very high protection against corrosion, high sun reflectivity and long durability of brightness*

PRESERVATION STRATEGY  
*agent against structural and aesthetical degradation*



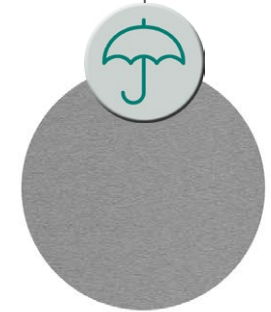
PRODUCT  
*arcilormittal indaten steel*

APPLICATION  
*accent walkway cladding*

APPEARANCE  
*rough surface, brown patina layer*

SPECIFICATION  
*when exposed to the natural environment a protective patina armor develops that imitates aged steel*

PRESERVATION STRATEGY  
*agent against structural and controlled aesthetical degradation*



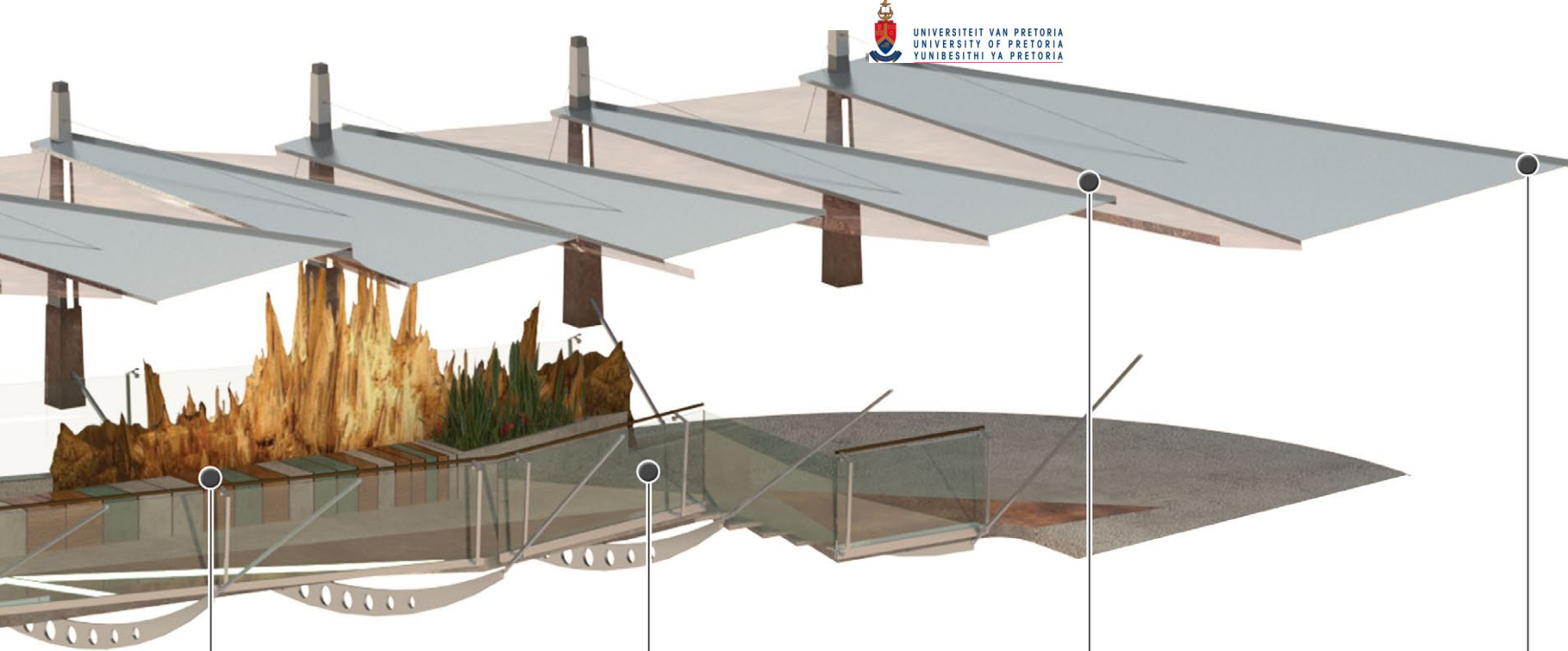
PRODUCT  
*arcilormittal kristal steel*

APPLICATION  
*suspended structural frame of ramp*

APPEARANCE  
*homogeneous metallic aspect*

SPECIFICATION  
*very high protection against corrosion, high sun reflectivity and long durability of brightness*

PRESERVATION STRATEGY  
*agent against structural and aesthetical degradation*



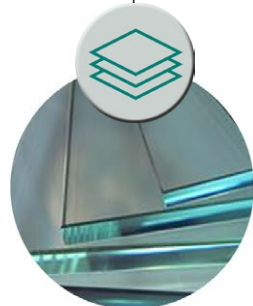
PRODUCT  
*arcilormittal edyzo steel*

APPLICATION  
*accent cladding for ramp seating*

APPEARANCE  
*smooth & glossy timber veneer*

SPECIFICATION  
*very high protection against corrosion, high sun reflectivity and long durability of brightness*

PRESERVATION STRATEGY  
*varnished against structural and aesthetical degradation*



PRODUCT  
*tempered smartglass armourplate*

APPLICATION  
*ramp inlay and railings*

APPEARANCE  
*clear or sandblast appearance*

SPECIFICATION  
*bolted structural glazing and frameless application as per safety glass requirements of SANS 1263, Part 1*

PRESERVATION STRATEGY  
*material resistant to actual degradation and corrosion*



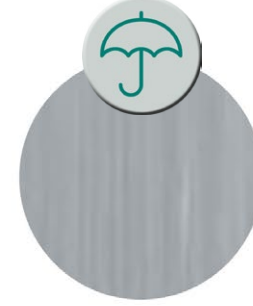
PRODUCT  
*rust stained duroplastic polycarbonate*

APPLICATION  
*accent canopy panel of ramp*

APPEARANCE  
*semi-transparent sandblasted rust overlay*

SPECIFICATION  
*toughened transparent plastic to be bolted in place with connected zm evolution panels*

PRESERVATION STRATEGY  
*stain and corrosion resistant with limited colour fading*



PRODUCT  
*arcilormittal zm evolution steel*

APPLICATION  
*canopy roof panel of ramp*

APPEARANCE  
*smooth & matte brushed finish*

SPECIFICATION  
*light weight protected steel used at angles to direct water into basins. corrosion and stain resistant*

PRESERVATION STRATEGY  
*coating against structural and aesthetical degradation*



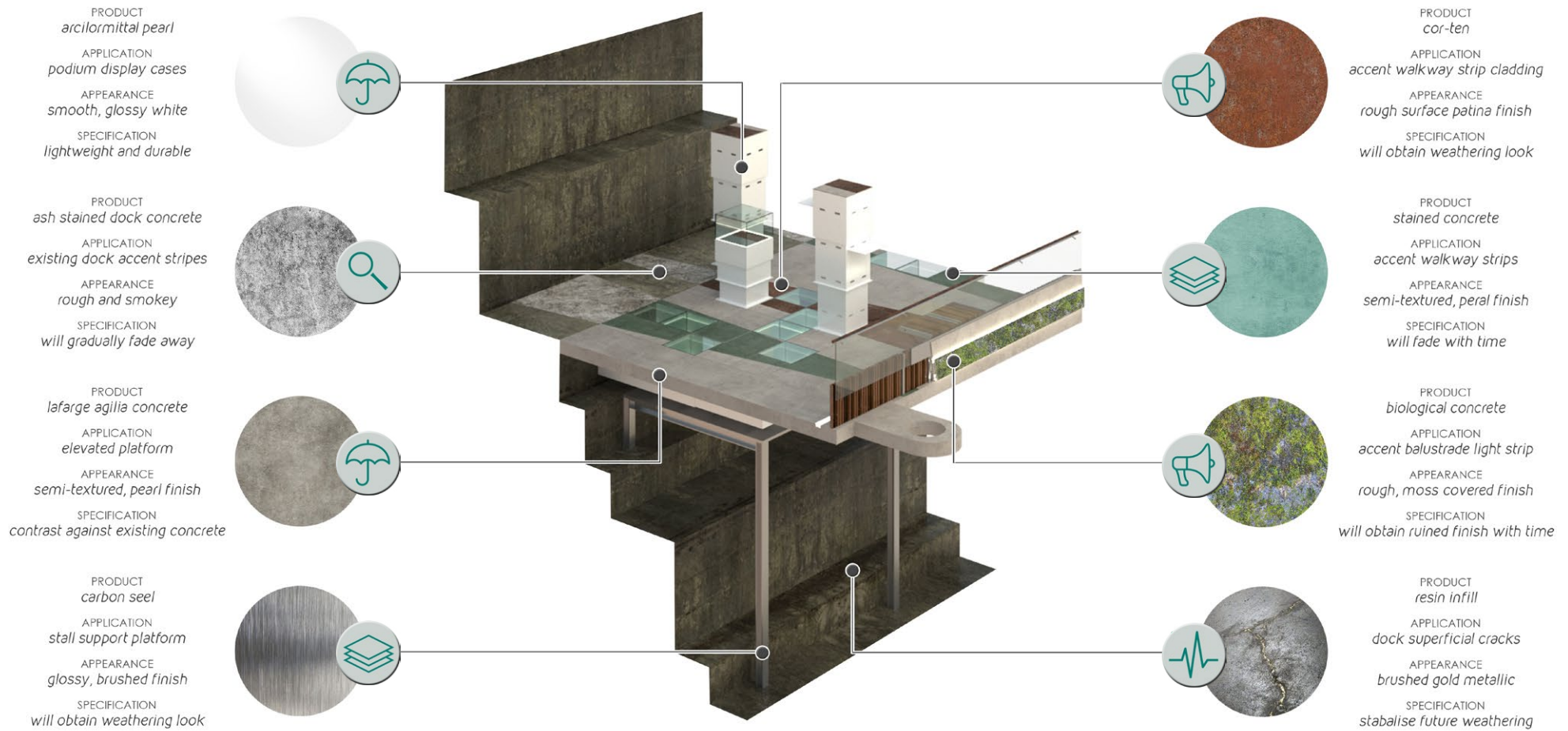


Figure 5.46. Stall Material Application (Author, 2016)



Figure 5.47. Brewery Interior Material Application (Author, 2016)



## 5.10 GREEN STAR RATING

Upon conclusion of the implemented design, the **overall ecological appraisal of the spatial mediation can be determined** through actual assessment. As governed under the field of **Environmental Potential, sustainable and ecological design** is desired that consider and promote **eco-systemic and holistic approaches**. The **Green Star** assessment of the **brewery as interior** will provide factual evidence regarding the overall **design nature** of the envisioned implementation.

As illustrated in figure 5.48, the overall design achieves a **five star rating**, recognising and awarding it **"South African Excellence"**. The overall score sheet with relevant criteria is depicted in figure 5.49.

### 1. Management Category

A high overall score was established in the first category. **Strict regulatory methods of implementation was followed**, along with frequent **consultation of specialists** and the **transparent nature** of all conducted activities.

### 2. Indoor Environmental Quality Category

A moderately high score was achieved in the category. Indoor quality was improved through **passive ventilation, supplementary acoustics and additional lighting**. The introduction of **greenery** along with the **prevention of mould encourages wellbeing**. Specific restrictions and limitations of the actual structure limited a higher score in certain areas.

### 3. Energy Category

A relatively high score was attained in the third category. The utilisation of **green energy** in the form of **solar powered brewing equipment** and **energy-efficient lighting** limits **greenhouse emission**. Provision of **sub-meeting** provided **continuous awareness** of ongoing consumption.

### 4. Transport Category

A full score was achieved based on **ideal locality**. Direct access to a **vast array of amenities** is located in **close proximity** to the dock. The utilisation of **public transport is encouraged** through the MyCity BRT System, and **pedestrian activity is welcomed**.

### 5. Water Category

Score achieved in this category is moderately high due to the associated **pragmatic response of saltwater desalination**. **Reverse Osmosis will provide potable water**, whereas adjacent **seawater and accumulated dock water** adequate **grey water for plumbing**.



Figure 5.48. Assessed Green Star Rating (Author, 2016)

### 6. Materials Category

A moderately high score was achieved in this category. The introduction of a **waste management facility** will be available for all patrons and staff to use. Most furniture and fittings will be **repurposed from the exciting ship**, with all new objects adhering to **ISO standards**. No new wall covering is used, and additional flooring is repurposed. **Transportation of sourced material proved problematic**.

### 7. Land Use and Ecology Category

**Limited availability of additional resources** other than water and sunlight contributed towards an average score in this category.

### 8. Emissions Category

A high score was achieved through the utilisation of light sources that **encourage and recognise the avoidance of substances that hinders the atmosphere**. The **minimisation of light pollution** is attained through the **recessed positioning of the enclosed dock** and followed **approach to illumination**.

### 9. Innovation Category

The final category proved highly beneficial towards the contribution of a high score. The proposed intervention is the **first of its kind in South Africa**, with **revolutionary techniques** that will be employed as pragmatic response. Furthermore, the repurposing of a decommissioned vessel will prevent the hazardous practice of shipbreaking.



### Score Sheet Green Star SA - Interiors v1

Credit	Credit Name	Aim of Credit	Points Available	Points Awarded
<b>Management Category</b>				
Int-Man-1	Green Star SA Accredited Professional	To encourage and recognise the engagement of professionals who can assist the project team with the integration of Green Star SA aims and processes throughout all stages of a fitout's design and construction phases.	1	1
Int-Man-2	Commissioning & Tuning	To recognise effective commissioning and tuning processes during a project's design and construction phase that ensure all services and installations can operate to their optimal design potential.	2	2
Int-Man-3	Occupant Users' Guide	To encourage and recognise the provision of information to fitout owners and users that helps them understand a project's systems, environmental attributes, and maintenance requirements.	1	1
Int-Man-4	Environmental Management	To encourage and recognise the adoption of a formal environmental management system in line with established guidelines during construction.	1.5	1.5
Int-Man-5	Construction Waste Management	To recognise and encourage management practises that minimise the amount of demolition and construction waste going to disposal.	2	1.5
Int-Man-6	Work space efficiency	To recognise the design of workspaces that provide spatial efficiency and improve productivity and occupant performance.	2	2
Int-Man-7	Green Lease	To recognise and encourage collaboration between the building owner and tenants in order to manage and operate the building along environmentally sustainable principles whilst realising mutual benefit.	2	2
Int-Man-8	Learning Resources	To encourage and recognise sustainability initiatives implemented in the development as learning resources for building users and visitors	1	1
<b>Management credits</b>			<b>12.5</b>	<b>12</b>
<b>Indoor Environmental Quality Category</b>				
Int-IEQ-1	Quality of Internal Air	To encourage and recognise projects that provide high quality air to occupants.	4	3
Int-IEQ-2	Thermal Comfort	To encourage and recognise fitouts that achieve a high level of thermal comfort.	2	2
Int-IEQ-3	Lighting Comfort	To encourage, recognise and reward well-lit spaces that provide appropriate levels of lighting comfort to occupants.	3	2
Int-IEQ-4	Visual Comfort	To recognise the delivery of well daylight spaces that provide high levels of visual comfort and views to fit-out occupants.	3	2
Int-IEQ-5	Acoustic Quality	To encourage and recognise buildings that are designed to provide appropriate acoustic qualities to enable the functionality of the space.	2	2
Int-IEQ-6	Reduced Exposure to Air Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	5	4
Int-IEQ-7	Mould Prevention	To encourage and recognise the design of services that eliminates the risk of mould growth and its associated detrimental impact on occupant health.	0.5	0.5
Int-IEQ-8	Ergonomics	To recognise the choice of equipment and design of spaces that promotes wellbeing, efficiency and effectiveness	2	1.5
Int-IEQ-9	Indoor Plants	To encourage and recognise the installation of indoor plants that improve indoor environment quality and also provides occupants with a connection to nature.	1.5	1.5
<b>Indoor Environmental Quality credits</b>			<b>23</b>	<b>18.5</b>
<b>Energy Category</b>				
Int-Ene-1	Greenhouse Gas Emissions	To encourage and recognise projects that minimise the greenhouse gas emissions associated with tenant fit outs.	12	8
Int-Ene-2	Electrical Sub-metering	To encourage and recognise the installation of electrical energy sub-metering to facilitate on-going management of electrical energy consumption.	2	2
<b>Energy credits</b>			<b>14</b>	<b>10</b>

<b>Transport Category</b>				
Int-Tra-1	Commuting Mass Transport	To encourage and recognise developments that select a site near public transport and facilitate the use of mass transport.	1	1
Int-Tra-2	Local connectivity	To encourage and recognise projects that are located within walking distance of high quality amenities such as shops and parks, thus reducing private vehicle use and the associated negative environmental impacts.	1	1
Int-Tra-3	Alternative Transport	To encourage and recognise projects that promote and facilitate the use of alternative modes of transport over the use of private cars.	2	2
<b>Transport credits</b>			<b>4</b>	<b>4</b>
<b>Water Category</b>				
Int-Wat-1	Potable Water	To recognise projects that minimise potable water consumption	6	4
Int-Wat-2	Water Sub-metering	To encourage and recognise the installation of sub-metering to facilitate on-going management of water consumption	2	2
<b>Water credits</b>			<b>8</b>	<b>6</b>
<b>Materials Category</b>				
Int-Mat-1	Operational Waste Management	To encourage and recognise developments which include space and an operational waste management plan that facilitates the recovery of resources used within the developments to reduce waste going to disposal.	2	2
Int-Mat-2	Furniture	To recognise the selection of fit-out furniture that has a reduced environmental impact when compared to available alternatives.	8	6
Int-Mat-3	Assemblies	To recognise the selection of fit-out assemblies that have a reduced environmental impact when compared to available alternatives.	8	6
Int-Mat-4	Flooring	To recognise the selection of flooring that has a reduced environmental impact when compared to available alternatives.	6	6
Int-Mat-5	Wall coverings	To recognise the selection of wall coverings that have a reduced environmental impact when compared to available alternatives.	3	3
Int-Mat-6	Local Sourcing	To encourage and recognise the environmental advantages gained, in the form of reduced transportation emissions, by using materials and products that are sourced within close proximity to the site.	2	0.5
Int-Mat-7	Sundries Materials Sourcing	To recognise the selection of fitout finishes that have a reduced environmental impact when compared to available alternatives through responsible manufacturing, product stewardship and resource efficient design.	1	1
<b>Materials credits</b>			<b>30</b>	<b>24.5</b>
<b>Land Use and Ecology Category</b>				
Int-Eco-1	Site selection	To recognise and reward a tenant for selecting their space in a building that reduces their environmental impact due to the building's base building design attributes.	4	2
<b>Land use and Ecology credits</b>			<b>4</b>	<b>2</b>
<b>Emissions Category</b>				
Int-Emi-1	Impacts from refrigerants and insulants	To encourage and recognise developments that minimise light pollution into the night sky.	3	2
Int-Emi-2	Light Pollution	To encourage and recognise the avoidance of substances that contribute to the deterioration and long-term alteration of the Earth's atmosphere.	1.5	1
<b>Emissions credits</b>			<b>4.5</b>	<b>3</b>
<b>Innovation Category</b>				
Int-Inn-1	Innovative Strategies & Technologies	To encourage and recognise pioneering initiatives in sustainable design, process or advocacy.	4	3
Int-Inn-2	Exceeding Green Star SA Benchmarks	To encourage and recognise projects that achieve environmental benefits in excess of the current Green Star SA benchmarks.	3	2
Int-Inn-3	Environmental Design Initiatives	To encourage and recognise sustainable building initiatives that are currently outside of the scope of this Green Star SA rating tool but which have a substantial or significant environmental benefit.	3	3
<b>Innovation credits</b>			<b>10</b>	<b>8</b>
<b>TOTAL POINTS AVAILABLE</b>			<b>100</b>	<b>88</b>

Figure 5.49. Green Star Rating Score Sheet (Author, 2016)



## - GREEN ENERGY & WATER CONSUMPTION -

In addition to the green star evaluation, the establishment of an overall approach towards **water and energy consumption** was established. Apart from the utilisation of energy and water efficient appliances, the strict application of components that make use of **solar powered energy** will be employed. As opposed to traditional hydraulics, the application of **electric actuators** powered by solar energy will be used for all the stall configurations. **Grey water systems** will also be used for all plumbing, along with the utilisation of **salt water**.

Furthermore, a selection of **passive systems** will be employed that utilise limited amount of actual energy and make use of **sustainable ecological resources** that are **abundant in the surrounding proximity**. In summary, **passive ventilation, solar energy** and **grey water systems** will be utilised in order to **lower carbon emission and ecological impact**.



### SOLAR POWERED ENERGY

*Solar powered machines will be utilised in conjunction with energy efficient appliances. Excess energy will be stored in a battery farm located in the ship's hold for later usage.*



### GREY & SALT WATER SYSTEMS

*In addition to the utilisation of grey water for the general WC plumbing onboard and at dock level, reverse osmosis salt water can be used for additional plumbing.*



### PASSIVE VENTILATION SYSTEM

*Existing dorade ventilation will be utilised onboard interior areas where adequate air circulation is required. This will replace conventional HVAC cooling systems.*

Figure 5.50. Green Energy and Water Consumption Approaches (Author, 2016)

## 5.1 SBAT RATING

In addition to the Green Star assessment of the spatial intervention, the **Sustainable Building Assessment Tool (SBAT)** will be used to measure the **social, environmental and economic** facets of the design. Outcomes (refer to figure 5.51) were primarily **consistent** with the classifications of Green Star, with the additional categories of **social, site and adaptability** that will be elaborated on for final examination.

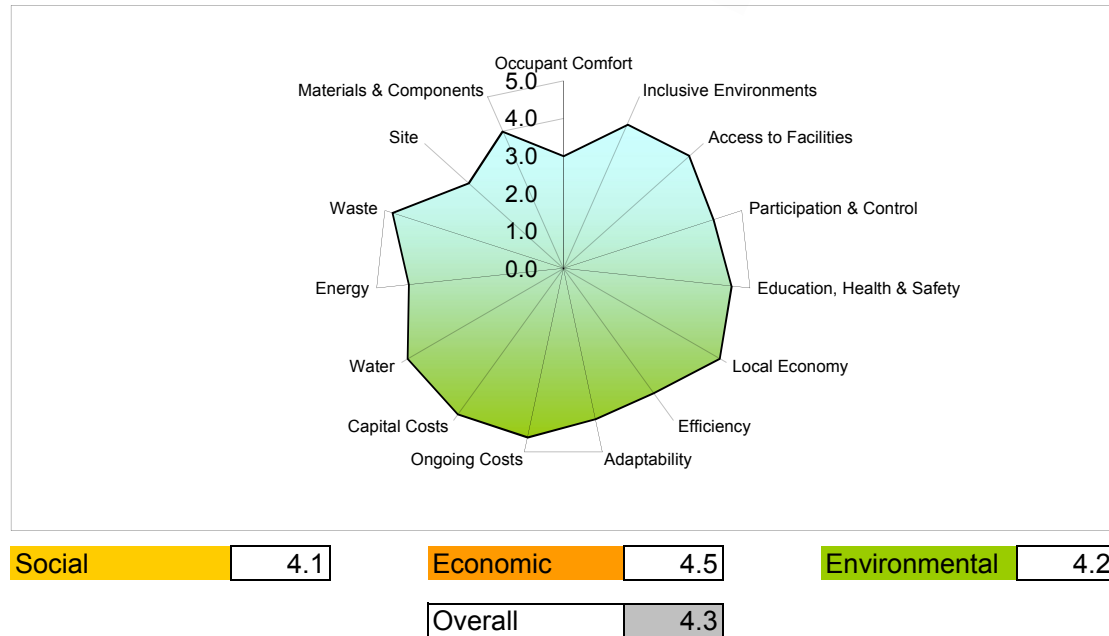


Figure 5.51. SBAT Analysis of the Proposed Intervention (Author, 2016)



## 5.12 EVACUATION PROTOCOL AND SYSTEMS



EVACUATION  
CHAIR



EMERGENCY  
ASSEMBLY POINT



EMERGENCY  
EXIT



FIRE  
EXTINGUISHER



FIRE  
HOSE REEL

ALL SIGNAGE AS PER SANS 1186-1: SYMBOLIC SAFETY SIGNS

In an emergency, it is essential that all available exits are used. Clearly indicate all available exit routes so that attendees and workers are aware of all the routes to leave the venue in an emergency. In addition, the provision of exit route signs that are clearly visible to everyone present will prevent panic in an emergency.

All fire safety signs, notices and graphic symbols shall comply with national regulations.

Exit signs shall take the form of a pictogram symbol and should be supplemented by text bearing the words "EXIT" or "FIRE EXIT" in conspicuous lettering. Any exit on an escape route shall be clearly indicated by suitable exit signs positioned, wherever possible, immediately above the door or opening.

Where an exit cannot be seen or where people escaping might be in doubt as to the location of an exit, directional exit signs shall be provided at suitable points along the escape route. Such signs shall be sufficiently large, fixed in conspicuous positions, and wherever possible be positioned between 2 m and 2,5 m above ground level.

Exit signs and signs incorporating supplementary directional arrows shall be lit whenever people are present. Signs at outdoor events shall be weatherproof and clearly visible above people and also lit at night, if necessary.



*name*  
EVAC CHAIR 300H MK4  
*size*  
1040mm H X 520mm W X 200mm D  
*finish & material*  
BLUE TEXTURED FINISH WITH  
CONTRASTING YELLOW HAMMOCK.  
*code*  
1-300H-MK4  
*specifications*  
TO BE WALL MOUNTED ON HOOKS.  
WEIGHT CAPACITY OF 182KG



*name*  
CO2 FIRE EXTINGUISHER  
*size*  
580mm H X 159mm DIA X 5kg  
*finish & material*  
ALUMINIUM ALLOY RED EPOXY POWDER  
COATED (AA6061)  
*code*  
ALUM-CO-5KG  
*specifications*  
CLASS C AND CLASS B FIRES. SANS  
1567:2003 AND SABS 1475 APPROVED



*name*  
HOSE REEL (SWING TYPE)  
*size*  
575mm DIA X 19.4kg x 3000mm HOSE  
*finish & material*  
ALUMINIUM ALLOY POWDERCOATED IN  
BRIGHT RED  
*code*  
HREEL\_19.4KG  
*specifications*  
DISCHARGE RATE: 30L/MIN@ 300 KPA.  
SANS 1086 EN694 AND SABS APPROVED

