CHAPTER NINE

CONCLUSION

Exhibition Presentation and Photographs
Conclusion
9.1

FINAL PROJECT PROPOSAL:
Exhibition drawings and photographs
South facade view from the recreational landscape
North facade perspective of the structure from the ceremonial boulevard
South facade perspective from the recreational landscape
North facade perspective from Stanza Bopape Street
CONCLUSION

Structural and Tectonic Intentions

Explored monuments illustrating the structural and tectonic intentions of the building. sculpting the landscape through the constructed water channels:

The continuous sculpted landscapes, water channels, and boundary wall are constructed as a continuous tectonic concrete platform, delivering a continuous translation between the ground and lower boundary wall conditions.

The Service and structural core:

The extended structural and service spine is supported by the continuous lightweight roof structure, creating a continuous translation between the structural and service spine, forming the interface between the structural and service spine the suspended nature and structural integrity of the continuous service spine is expressed through the robust nature and bearing of the structural components.

The internal and external edge conditions are serviced by the structural and service core:

The circulation and public space activities skin is constructed as a tectonic steel frame to expose the permeability and cross-sectional organization of the structure, responding to the public, social, and functional requirements.

The internal activities are supported by circular steel members to express the lightness and transparency of the structure and translate its relationship to the constructed material landscape through structure and spaces that are adaptable, organic, and less restricted by commercial and functional conditions.

Continuous Roof Structure:

- Galvanized Corrugated steel sheets
- Cold formed steel sheet channels
- Polycarbonate rooflight
- Galvanized and Humidproof painted steel beams
- Cast-in-situ reinforced concrete gutter

Internal and External Facade:

- Steel circulation ramps as external facade, extending public movement along the facade
- Pre-cast concrete panels
- Expanded metal galvanized mild steel mesh

Structural and Service Core:

- Galvanized and pre-cast concrete columns and beams designed as structural cores and vehicular circulation
- In-situ cast concrete structure for supporting the continuous roof structure, functional circulation, services, and internal and external facade structures

Sculpted Landscape as continuous boundary wall:

- Concrete Service areas as end structures
- Continuous cast in-situ boundary wall as a public circulation ramp

Sculpted Landscape:

- Artfully constructed water channels, wetland and reservoir system
- Concrete outdoor sports areas as detention flooding structure
- Public swimming pool
Development of the exhibition structure spanning the Apies River stormwater Channel

Continuous Roof Structure:
- Galvanized concealed fix roof sheeting
- Cold formed steel lipped channels
- Seamless Aluminum gutter with neoprene sleeve
- Polyurethane insulation ceiling
- Galvanized and intumescent painted steel I-beams roof trusses
- Frameless structural double glazing envelope with stainless steel spider clamps, fixed to steel channel as end to floor slab.
- 260mm cast in-situ suspended floor slab between floor I-beams

Wall as beam structure
Galvanized steel I-Sections, H-columns and angle bracing to create custom composite 500mm deep beam, supporting the roof structure above and first and ground floor suspended structure below.

- Galvanized expanded metal mesh
- Galvanized cold-formed steel substructure fixed to galvanized H-columns and I-beams
- Steel circulation ramp fixed to H-columns and I-beams, projecting from the main structure

Suspended entrance lobby
Concrete cast-in-situ floor slab between steel floor I-beams, suspended from the first floor structure with 114mm Ø circular steel columns.
Development of the structural and service spine supporting internal and external edge conditions

Detail development of the column footings

Sectional diagram of structural intentions: Continuous Structural and Service Core supporting internal and external edge conditions
CONCLUSION

Detail A _ NTS
Structural and Service spine: Concrete gutter as structural continuous structural beam

Detail B _ NTS
Waern deck concrete accessible roof as extension of circulation on external facade

Detail C _ NTS
Service window detail within the concrete end structures

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CONCLUSION

Detail D _ NTS

Column, beam, floor and ceiling connection of auditorium structure expressing acoustic considerations through structure and detail

100mm x 25mm Galvanised steel angles, fixed to a 10mm Galvanised steel frame, with rubber acoustic insert located at the base of the frame, with an elegant thin cavity based for added acoustic control, with a 10mm thick Polystyrene panel.

22mm Galvanised steel floor on a 40mm Magnesium Oxide board fixed to high acoustic ceiling tile at 1.5mm thickness, capable of supporting weights above 2.7 tonnes, fixed to underground concrete floor with 20mm x 25mm timber acoustic spacers in rubber sleeves.

Continuous 250mm Galvanized steel channel as primary support between 250mm and 150mm deep, with 300mm stand-off at 800mm c/c spacing, maximum depth to the base plate with a resonant bracketing device for acoustic coupling.

Beam channel to be bolted back to back with a resonant panel and 50mm thick Polystyrene insulation for acoustic control.

400mm x 250mm x 28mm Suspended timber acoustic ceiling panels, fixed to high ceiling, fixed with 250mm x 25mm Galvanized steel angle bars, with 100mm Polystyrene insulation at 800mm c/c spacing.

Detail E _ NTS

Structural and Service spine:
Concrete gutter as structural continuous structural beam

400mm x 8mm Galvanized and Insulated spaced circular steel columns at 900mm x 800mm c/c spacing, welded to 1500mm x 1000mm bar, fixed to the concrete floor with a reinforced steel doubler.

160mm Filler backed, cast in situ reinforced concrete surface test to atmospheric exposure, with acrylic sealer and intumescent paint around circular steel columns and separator joints at maximum 300mm x 400mm distance from the floor with isolation layers.

Surface to be level within 5mm on 400mm centimetre square with minimum 400mm clearance and insulated with pressure sensitive tape. Unit and 100mm radiators on 150mm layers of wall construction glue. It is replace existing cavity with 150mm of the same.

110mm polished steel
The dissertation set out to address the spatially fragmented public realm of the present condition of our cities, resulting from the great divide between nature and culture of the modern paradigm, and from the development of industrialisation and urbanisation that control natural resources in isolated networks of infrastructural systems. Regardless of the multiplication of artificial environments, our cultural influences cannot be removed from our interpretation of nature that establishes us as living beings. Both the cultural constructs and natural entities of cities are manifestations of the relations between natural and cultural developments over time, and collectively influence a city’s distinctive existence (Whiston Spirn 2002:4). Infrastructure has the potential to facilitate an integrated continuum of this nature-culture exchange between natural systems and the resources operating in and shaping our artificially constructed built environments.

Through a concentrated investigation of the spatial consequences of the bureaucratic approach to development and infrastructural implementation in the City of Pretoria, the Apies River Corridor and the identified site, a reinterpretation of our development processes is proposed – a reinterpretation that is concerned with the acknowledgment of non-human natural systems and processes as agents in interventions, and that emphasises the constraints of our cultural practices through the construction of an artificial environment that stimulates a symbiotic relationship between our ecological and socio-cultural existences. Such a reinterpretation requires a fundamental change in perspective concerning the demands that necessitate flexible and resilient infrastructure design to meet the more variable conditions of our future cities.

The programmatic response of a decentralised urban stormwater filtration system and cultural memory park with social, economic and recreational facilities, aims to conserve and sustainably reclaim and reuse water, towards establishing an ecosystemic relationship between ecological processes and socio-economic activities, with the architectural intervention as facilitating agent. The proposed recreational and socio-economic appropriations represent possible scenarios for the animated infrastructure, and therefore an alternative reimagining of a hybrid typology is proposed as an extension of the existing infrastructure of the urban realm, Stanza Bopape Street, and the regenerated Apies River Island, that:

- contains and activates the potential of the recreational landscape;
- offers new public spaces through a relationship between Stanza Bopape Street and the river;
- increases the area’s ecological contribution through reinscribing an identity for it;
- amplifies its historic and cultural significance through relationship between the proposed interventions and historical remnants surrounding the site;
- capitalises on the spatial, material and socio-economic possibilities of infrastructure; and
- provides an enigmatic experience beyond its infrastructural use.

By reimagining existing infrastructure as part of the production of form and space, through innovative design interventions, alternative occupation, and public appropriation of disenfranchised urban spaces, the spatial, material, and socio-economic potential of infrastructure is exploited towards enhancing the precinct’s ecological contribution to and historic significance for the city, and reinstating an enigmatic and recreational experience as well as ecological awareness beyond its infrastructural use.
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The "final" proposal and investigation of the project is therefore rooted in a broader spatial vision – from the scale of the site to the scale of the city – that aims to become a didactic metabolism for activating the specific condition and similar consequential conditions prevalent in the City of Tshwane.
Bibliography:


Accessed March 2015.


Accessed 10 08 2015.


[Accessed 10 09 2015].


Accessed 11 August 2015.


Wuppertal Institut für Klima, 2013. Emscher 3.0, From grey to blue, Bonen: Wuppertal Institut für Klima.
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