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Design
“...our society is not one of spectacle, but one of surveillance; we are neither in the amphi-theatre, nor on the stage, but in the panoptic machine.” –[Foucault, 1977: 217]

Concept development

The design concept is an amalgamation of the theoretical investigation. The design is an extensive process manifesting from the theoretical premise, discussed in the previous chapters. The project investigates the quotidian [or everyday] context of the city, where the urban environment is seen to contain both the ‘settings’ and the ‘props’ for these everyday activities. The mapping of the public realm reveals the quotidian context of the city, by using Bernard Tschumi’s three squares principles [Tschumi, 2000: 14] [a system developed to read the narrative of film and architecture; fig. 5.2] as a design generator for the intervention. As a response to the extensive mapping of the context (Van der Walt Street), a series of public infrastructures are conceptually proposed to respond to each public condition [fig. 5.1]; thereby both celebrating and enhancing the everyday context of the city. Such a response attains Crawford’s (2008: 18) ‘everyday urbanism’ whereby a series of small scale public interventions are proposed along Van der Walt Street (fig. 5.1).

The critique on Tschumi’s la Villette and Price’s Magnet projects’ sets the planning approach for the interventions. The project is therefore an investigation of architecture on multiple scales. Inspired by Eames’s ‘powers of ten’ [see note left] the intervention is an adventure in exploring Pretoria; and Van der Walt Street from these varying levels of scale, where the architecture provides a platform for viewing and engaging with the city. The proposed interventions planned along vd. Walt street are seen in the mapping (fig. 5.2) and placed on the model (fig. 5.1), setting both physical and theoretical macro context for the project.

‘Powers of Ten’ is a 1968 American documentary short film written and directed by architects Ray Eames and her husband, Charles Eames, rereleased in 1977. The film depicts the relative scale of the Universe in factors of ten (Powers of ten, 2010).
fig. 5.1 Concept Model of Van der Walt street and interventions [June 2011]
Liminal Public Space / Concept // Concept Development

1. Bloed st. Taxi Rank
2. Church Square
3. Shopping arcade
5. State Theatre / Public Square

Observations:
- Vending
- Shopping
- Theatre
- Sitting
- Urban tables
- Stairway
- Arcade
- Peeping window
- Waterspace

Munitoria Urban Cavity

Tramshed v.d. Walt st.
Church Square
Holland St. Road Rank
fig. 5.2 Mapping and analysis of Van der Walt street with proposed interventions [June 2011]
Stairway

#3 the “Stairway” at the site of the urban cavity [at the burnt down West-wing] at Munitoria is developed further in detail. At this key site along Van der Walt street, a conceptual inhabited “stairway” is provided to bridge the level change [threshold] of the urban cavity and the street. As seen from the mapping, the burnt down basement creates a negative inaccessible void within the urban fabric, in turn creating inhumane edges [fig. 5.3]. Through the manipulation of the urban surface the stairway brings together a multiplicity of programmes celebrating and enhancing the everyday context through its inhabitation. The stairway thus forms a new public building typology [defining liminal public architecture for an active public space, rather than the static form of public space which we find within the city].

Rather than designing for a fixed program, the architecture responds directly to the context [as observed in the “sit city” case study: fig. 2.6]. Whereby the overlapping of activities of the quotidian define the urban surface allowing for its appropriation and inhabitation. Thus the stairway responds to Cruz and Gage’s [2009: 114] notion of an “inhabitable interface”, whereby the surface is programmable for the spontaneity of the everyday. This potential and complexity is understood through Davis’ “telesopic text” [2007] which illustrate the multiple scenarios and possibilities within the everyday. The Stairway’s multi-directional surface forms an extension of the street interface, linking both levels of public activity; offering potential to provide multiple configurations of the Stairway. This allows for various programming of the public space and its liminal infrastructure that responds to these varying narratives and events of this spectacle - as explained by de Graafland’s “gameboard strategy” [2008: 24].
**fig. 5.3 Concept of #3 Stairway [July 2011]**

*urban cavity* as unknown space within the city, the need to link with surrounding context of the city.

*activating the street edge* by placing an architecture to activate both the street and the urban cavity.

*stairway links both levels* of the public realm, allowing for the continuation of public space.

*manipulation of urban surface* to celebrate the everyday performances of the city, allowing for the inhabitation of the edge.
fig. 5.4 An investigation of the conceptual inhabited #3 stairway, as the extension of the urban surface.
Liminal Public Space / Concept // #3 Stairway

Proposed extensions of Munitoria

Digital Arts Pavilion

Proposed public green space

Proes street

National Reserve Bank
fig. 5.6 Site plan of Stairway and relationship to Munitoria and Van der Walt street. Urban surface seen as an extension of the urban topography.
fig. 5.8 Urban cavity and shadow: inhabitation of architecture and surface for the performance of the everyday and quotidian.
fig. 5.7 Ground floor plan of Stairway, extending urban surface for everyday praxis.
fig. 5.8 Urban cavity plan, and public space, where secretive surveillance spaces are enclose below Stairway surface.
fig. 5.9 Conceptual cross-section of the spatial quality and experience of space below stairway.
Program

The concept of surveillance becomes the medium by which the spectacle of the everyday is viewed and celebrated. Accordingly, the stairway encloses a series of private and public spaces (fig. 5.10). The program of surveillance can be understood on two levels, public and private. On a public level, the stairway responds directly to the context by providing a multi-directional inhabitable urban surface, with public infrastructures that enhance and celebrate the quotidian. Through a public interface of surveillance, an alternate platform for experiencing the city is provided; a form of ‘augmented urbanism’ (Bartle, 2007: 157). At the same time the surveyed spaces are made ‘public’ through the ‘eyes on the street’.

While on a private level the spaces below the stairway, which are perceived as ‘secretive’ spaces, are occupied by the city’s closed-circuit television cameras surveillance control centre, where the city is surveyed on a detailed level. The concept of Jeremy Bentham’s (1995: 30) “Panopticon” is challenged (see left note), as the architecture exposes threads of the ‘private’ narrative to the public. In turn the public interface of the surveillance forms a typology of a ‘participatory panopticon’ as it has been experimented with in London (BLDGBLOG, 2006).
fig. 5.10 Concept model of #3 Stairway
fig. 5.11 An investigation of the public interface of the program, as well as the tower as a "liminal public infrastructure".
fig. 5.12 Conceptual section of the tower as liminal public infrastructure, creating connections to everyday context.
Meanwhile this intensive video surveillance is then filtered and carried over to the neighbouring digital arts pavilion, where artists can re-interpret the data and use it to generate various art forms. The stairway and its adjacent infrastructures thus become an interplay between public and private, viewer and performer... which challenges the ‘panopticon’ model, allowing for the exposure of the quotidian. At the same time the relationship between the stairway and the neighbouring digital arts pavilion [design by L. Kruger, 2011; fig. 5.13] animates the urban cavity, allowing for a multiplicity of activities and events (Fig. 5.14).

L. Kruger Project summary:

The project focuses on architecture in the information age. Information technology is evolving at an alarming rate, which opens up a vast landscape of possibilities within the architectural realm. These possibilities are discussed and implemented into an architectural intervention, with a specific focus on the relationship between the real and the virtual.

A digital art pavilion is proposed on the corner of Proes and Van der Walt Street in Pretoria CBD, where the Munitoria Complex is currently situated.
providing new Edges and thresholds of stairway

fig. 5.14 Architectural response of Stairway to quotidian context.
fig. 5.15 Ground floor plan of Stairway within Munitoria cavity, showing tower and other public infrastructures (Public Ablutions)
fig. 5.16 Basement plan of the Stairway, showing interior spaces below; of surveillance control space (public and private), as well as surface textures of the urban cavity.
fig. 5.17 Conceptual exploration of tectonics and spatiality of spaces below Stairway.
Conceptually the building is comprised of 4 main components (fig. 5.18):

1) The existing urban cavity, where the architecture is to respect and celebrate the present everyday; as well as the burnt down of the Munitora West Wing and its memory.

2) The spaces created both above and below the stairway, coupled with the surveillance programs that are accommodated therein.

3) A primary timber (Pine ThermoWood) support structure responding to both the urban cavity and the street; providing the inhabitable stairway.

4) The surface or stairs, which is an extension of the urban surface, stitching the urban cavity back to the city.

The stairway’s tectonics are designed at a humane scale, allowing for a haptic and positive experiential interaction with the architecture. The choice of materials thus responds to the existing urban cavity and the experiential qualities of the urban context. The following section will expand on the spatiality and tectonics of the architecture, in relation to the space, structure and surface (the urban cavity has been previously discussed on page 68):
fig. 5.18 Concept of #3 Stairway [July 2011]
The stairway encloses various forms of spaces, both private and public; above and below ground spaces. These spaces respond to the previously described urban cavity at the site of the burnt down West wing of Munitoria. The Stairway reciprocates the existing urban context, allowing for the public inhabitation of the stair surface, which is folded to provide edges and surfaces allowing the structure’s inhabitation of everyday performances (fig. 5.19).

The concept of surveillance is used to experience the spectacle of the everyday performances of the urban environment. The building will accommodate a control centre for the existing and network of closed-circuit television cameras throughout the CBD. This venture is said to reduce crime by 80% through ‘aggressive surveillance’ (Sensormatic, 2010). The interventions is to be financed by the City Council of Tshwane, working with private bodies such as Sensormatic SA (Pty) Ltd. for the installation and maintenance of such equipment. This control centre requires a certain level of privacy and security in aspects of access and function, where the perceived spaces below the stairway can accommodate these aspects of the ‘secretive’ program. The paradoxical cross-programming such a private program within a public space sector of the city can thus lend itself to an interesting architectural typology, as stressed by Tschumi (1994: 173).

In turn the public is made aware of itself, through an augmented relationship with the city. The stairway thus becomes the platform to experience of this spectacle, allowing for the inhabitation of the everyday within a liminal public architecture.
fig. 5.19 Conceptual spatial experience of Stairway.
Perspective view from
entrance gates and wall.
fig. 5.20-21 An investigation of the spatial qualities of the urban surface.
fig. 5.22 Conceptual section of tectonics and spatial experiences of space, as well as the adaptability and inhabitation of space.
fig. 5.23 Secretive surveillance spaces below Stairway, where the urban surface above folds.
The structure of the Stairway is to be constructed of local Pine which has been thermally-treated. Timber is selected as a structural material as it responds to both the design and spatiality of the architecture, for the following reasons (ThermoWood, 2003: 18-42):

1) Wood presents a ‘soft’ tactile quality, responding to the everyday on a humane detail level.
2) Modulation and prefabrication of members, allowing for ease of construction and experimentation of form.
3) Considered as “new light” material, as it is a sustainably conscious renewable material.
4) Timber construction is a lightweight building typology, suitable for the infill of the existing Munitoria basement.
5) Wood is used to highlight and express elements of the design.

The primary support structure consists of prefabricated CNC timber members (fig. 5.24). The thermally treated soft-wood (local Pine) gains the characteristics of a hardwood, giving it greater resistance to weather fluctuations (ThermoWood, 2003: 20). The primary structure is segmented into smaller members to be assembled on site, and reduce wastage during fabrication.
fig. 5.24 Structural exploration of Stairway
fig. 5.25 Detail exploration of structure tectonics
fig. 5.26 Concept exploration of structure tectonics
fig. 5.27 Axonometric A of stairway: public interface
fig. 5.28 Section A of stairway: public interface
fig. 5.29 Axonometric B of stairway: administrative section
fig. 5.30 Section B of stairway: administrative section
fig. 5.31 Axonometric C of stairway: surveillance space
fig. 5.32 Section C of stairway: surveillance space
fig. 5.33 Axonometric D of stairway: public surveillance tower
fig. 5.34 Section D of stairway: public surveillance tower
Surface

The Stairway surface is an extension of the urban surface, where it provides a continuation of the habitable urban plane, seamlessly linking both the urban cavity and the street. This is housed on the Stairway’s surface, while enclosing surveillance spaces below. The surface is the physical manifestation of Cruz and Gage’s (2009: 114) ‘inhabitable interface’. As the concept lies in extending the urban surface, a material associated with the quotidian context is used, concrete (steel fibre reinforced concrete) (fig. 5.35). It is this surface that creates the stage for the spectacle of the everyday to be realized (fig. 5.36).
fig. 5.35 Surface exploration of Stairway
fig. 5.36 Detail exploration of surface tectonics
fig. 5.37 Concept exploration of surface tectonics
Skin

The skin of the structure can be compared to that of a conventional building. Usually a building’s skin is comprised of an exterior finish, a supporting structure, insulating material and internal finish (fig. 5.38) [Brand, 1994: 23]. Within the stairway surface the skin follows the same principle; however it is compacted into the stair member. Through innovative use of concrete and recent research, it is then possible to combine these elements to provide the same concept as a conventional skin, but in a compacted member, where the skin is the structure, finish and insulation at the same time.

By using new technologies of steel fibre reinforced concrete, according to Lafarge (2011) a strength of 125MPa can be achieved with members as slender as 30mm. Also much research has gone into finding new aggregates for concrete. Thus within this innovative member, we can achieve the same characteristics as that of a conventional skin, however within a single building component. The stair treads also become critical in creating the spatial qualities of the architecture. The tread allows for the opportunity for lighting and ventilation of the space, where the tread is either a Litracon translucent panel or a louvred member to allow cross ventilation.
fig. 5.38 Analogy of skin typologies
In the same manner that the stairway can achieve more, so is the conceptual thinking behind the handrail design. The handrail is used to act as a design tool to provide order within the stairway. It is used to soften space, acting as an infrastructural element. The handrail is to be constructed of a steam bent, laminated wood member, which folds to become a handrail, seating or light fixture (fig. 5.39).

Wood is chosen as it offers a tactile quality to the surfaces that a person interacts with and touches. The limitations of steam bending of wood are overcome through a segmented design of the handrail (fig. 5.40). The construction of the handrail is reminiscent to that of pipe work. As the wood can only be bent in a single direction, the wood member is adapted to suit the required form.
fig. 5.39 Handrail exploration of Stairway
fig. 5.40 Detail exploration of handrail tectonics
fig. 5.41 Concept exploration of handrail tectonics
Koolhaas [2002: 305] defines the concept of ‘flex-space’ as an “undifferentiated, all-accommodating, flexible surface... becoming whatever it needs to at any given moment.” While Bremner [2010: 280] indentifies the need for the surface to become infrastructural, containing the possibility for multiple programmes. Here the stairway [at Munitoria] provides an extension of the urban surface, seen as a ‘flex-space’ while housing a multiplicity of programmes and events (fig. 5.42).

The stairway responds to the everyday activities of the city, but can be adapted to the needs of the users accommodating various spatial configurations (fig. 5.43).
fig. 5.42 Programming public space and Stairway.
fig. 5.43 Multiplicity of programming of public space and Stairway.
Spatial response

The spatial quality of the surveillance space is dependent on the thermal comfort of the space. A series of strategies is implemented to enhance the experience of the space, to allow for a comfortable space.

A ground to air heat exchange (GAHE) is used to regulate the interior temperature of the space. At a depth of 2 to 3m the soil strata have almost no diurnal temperature fluctuations, with an average temp of 19°C (Kyasol, 2011). Thus as a result the space’s temperature is regulated to achieve a thermal comfort within the space in both summer and winter [fig. 5.44]. A vertical earth tube of about 25-30m is required to complete the heat exchange, where a 70% reduction in energy consumption is expected as compared to conventional HVAC (Sharan & Jadhav, 2003: 14).

The effect of lighting is also taken into regard, with the activities that occur within the space in mind. The space is to essentially be occupied as a surveillance control space, where the viewing of monitors is prevalent. Here a soft diffused level of lighting is required as to reduce glare given off the screens [fig. 5.44]. The spaces are equipped with task lighting where required to aid in the lighting of the space where necessary. The translucent risers allow for the penetration of natural lighting within the interior spaces and create a visual continuity with the external spaces.
fig. 5.44 Spatial quality of stairway, thermal comfort.
Materials»

The choice of materials responds to the quotidian context of the site. The site of the Urban Cavity contains a palimpsest of textures and meaning (fig. 5.45), where the design includes these materials to the design of the stairway, either highlighting them or blending in with the context (fig. 5.45). The primary materials used in the construction of the stairway are discussed below:

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<th>Material</th>
<th>Description</th>
<th>Application</th>
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| ThermoWood lightweight primary timber structure | 1. Timber is lightweight construction, allowing for the simple addition of a new structure within the existing basement (Urban cavity) of Mantra.  
2. ThermoWood heat-treated wood gives the timber the characteristics of a hardwood and makes its durable, weather resistance and finishes the wood.  
3. Pine is a locally harvested timber, and is a renewable resource (new light material). | - Used for the primary support structure of the Stairway, and other structural supports.  
- Interior floor spaces to be finished with suspended timber flooring.  
- Framing structure of existing basement wall textures.  
- Used to highlight spaces within the Stairway. |
| Steel fibre reinforced concrete extension of urban surface | 1. Steel fibre reinforced concrete is significantly stronger than conventional reinforced concrete, and has better impact resistance.  
2. The steel fibre reinforcing allows for a slender member, that is strong, durable and water-tight.  
3. The precast members provide an accurate surface finish and allows for standardization. | - Robust surface finish of Stairway's skin, where concrete is an extension of the everyday urban surface.  
- A weather tight finish to the Stairway, protecting the interior spaces from the elements.  
- Used as a lightweight faceting for the timber structure, distributing load to the existing basement.  
- Translucent finish to stair treads, to allow visual connection between inside and outside.  
- Allow soft lighting of the interior space of the surveillance control space.  
- A weather tight finish to the Stairway, protecting the interior spaces from the elements. |
| Litracon translucent concrete light transmitting surface | 1. Litracon is used to animate the interior spaces, below the stairway, providing a soft lighting of the interior spaces.  
2. The translucent concrete is allows for a connection between the spaces below and above the urban surface, giving a hint on the activities on the other side of the surface.  
3. Provides a water-tight finish to the Stairway's surface. | - Mesh screen used as robust public displays of surveillance footage from CCTV cameras.  
- Translucent screen display, creating a continuity of space, as well as providing an augment experience of the urban environment. |
| GKD MediaMesh translucent digital display screen | 1. The MediaMesh is a durable woven stainless steel / LED screen, used for external displays.  
2. Similar to the concept of the translucent concrete, the MediaMesh is used as a translucent screen to show the relationship between various spaces and the city.  
3. The LED display is a low energy screen, reducing energy consumption of the space. | - |

![Diagram of materials and their descriptions](image-url)
current Existing condition of Munitoria and urban cavity

proposed extended Urban Surface relinking the urban cavity

proposed Space both below and above the surface

proposed Structure to support new skin of the surface

fig. 5.45 Existing and new materials of Stairway
surveillance infrastructure

water as public infrastructure
fig. 5.46 Tower as liminal public infrastructure
Surveillance

The concept of everyday spectacle is an extension of the interpretation of surveillance. Surveillance is presented to the stairway on both a public and private level. The secretive spaces below the stairway, houses the control surveillance space for the city (fig. 5.46). While the spaces above allow for the viewing of the spectacle of the everyday, an augmented experience of the city (fig. 5.46).

Public surveillance is provided through a form of ‘participatory panopticon’ (BLDGBLOG, 2006). The concept of a public surveillance pod is developed, where both the possibility of public surveillance and an augmented form of experiencing the city is provided (fig. 5.47). In a sense, the pod creates a surreal digital experience of the city, extending the interpretation of spectacle, surveillance and experience (fig. 5.48).
fig. 5.47 Surveillance pod exploration of Stairway.
fig. 5.48 Detail exploration of surveillance pod tectonics
fig. 5.49 Concept exploration of surveillance pod tectonics
Water

Water is presented to the site on an everyday level of activity. Water as an infrastructure has been defragmented so as to respond on multiple levels to the user. At the one end of the spectrum water as an infrastructure is represented in the form of public ablutions; where the intimacy gradient has been extruded to respond to multiple levels of the quotidian context, stringing a narrative between the toilets, washing basins and the 'urban basin'. Rainwater is also harvested from the site and recycled to close the loop of this process, where the structure houses all the necessary services within the stairway [fig. 5.50].
Provision of Water System as a public infrastructure

fig. 5.50 Water as a public infrastructure
Design Synthesis

The architectural investigation lends itself to an iterative design process. The aim of the dissertation was to investigate the spectacle of the everyday within public space (fig. 5.51). Here the concept of the spectacle morphed into the idea of surveillance. The site selected revealed the potential of liminal space within the urban context. The design of the stairway manifested from the theoretical investigation, and allowed for a unique exploration of architecture dealing with the quotidian, experience and spectacle. Furthermore, the building’s design blurred the boundaries between conceptual development, design and technical investigation; where the identity of the design is encapsulated in an individual process.

The Stairway’s design explores the multiple opportunities of architecture and design, providing a window of possibility into architecture’s response to the urban context and its potential.
fig. 5.51 Spatial concept drawing of Project [March, 2011].