

.6. DESIGN DISCOURSE

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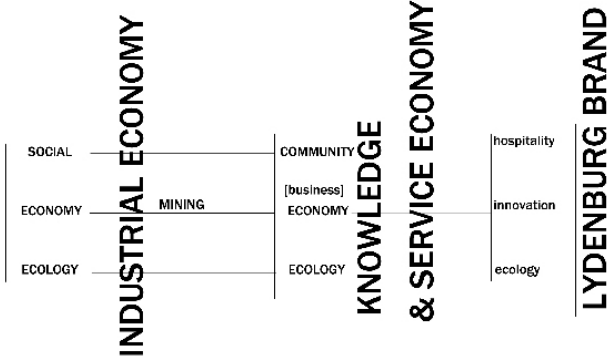
.6.1 INTRODUCTION

This dissertation adheres to a philosophy of flexible use and the accommodation of growth. This theory is applied in a primary solid construction order, is filled in with secondary structures which can adapt to programme requirements and programme changes in the life cycle of the building. The constructional detailing of the project was executed with the current skills resources available in Lydenburg held in mind. The same holds true for the materials that were chosen for the built form, therefore specifying materials locally found. The building is to be viewed as a 'work in progress', which would change over time in accommodating new needs.

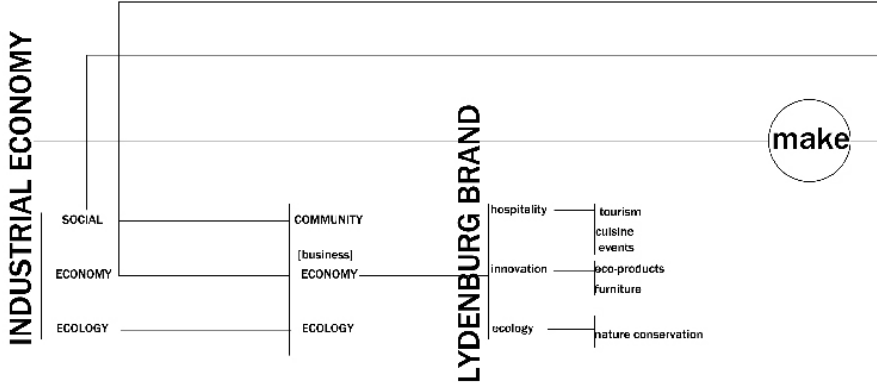
In developing a conceptual building form, an intuitive approach was adapted in response to the site and the surroundings of the terrain. This was in conjunction with the rational and systematic approach which led to the resolution of the building programme.

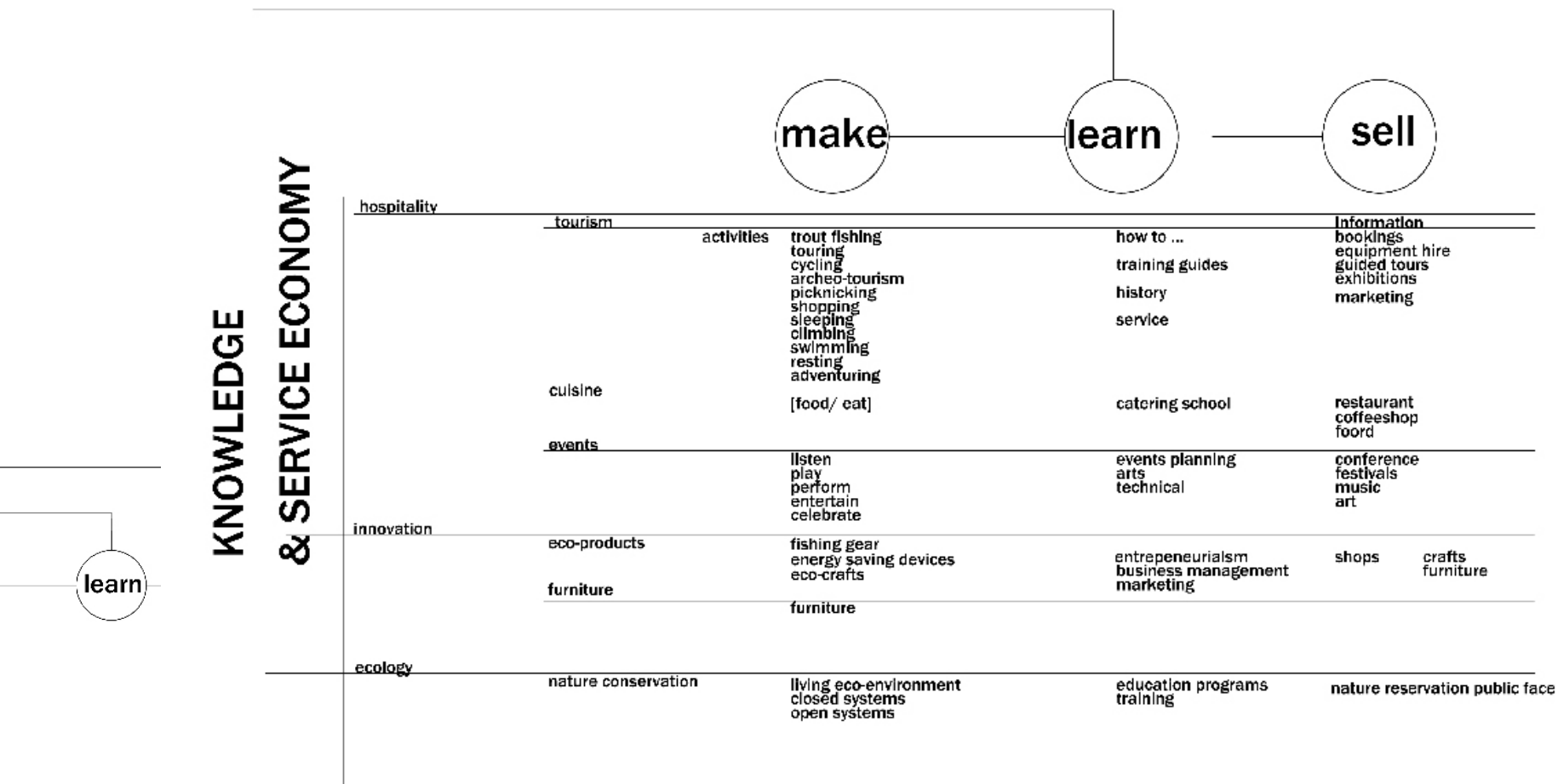
.6.2 PROGRAMME

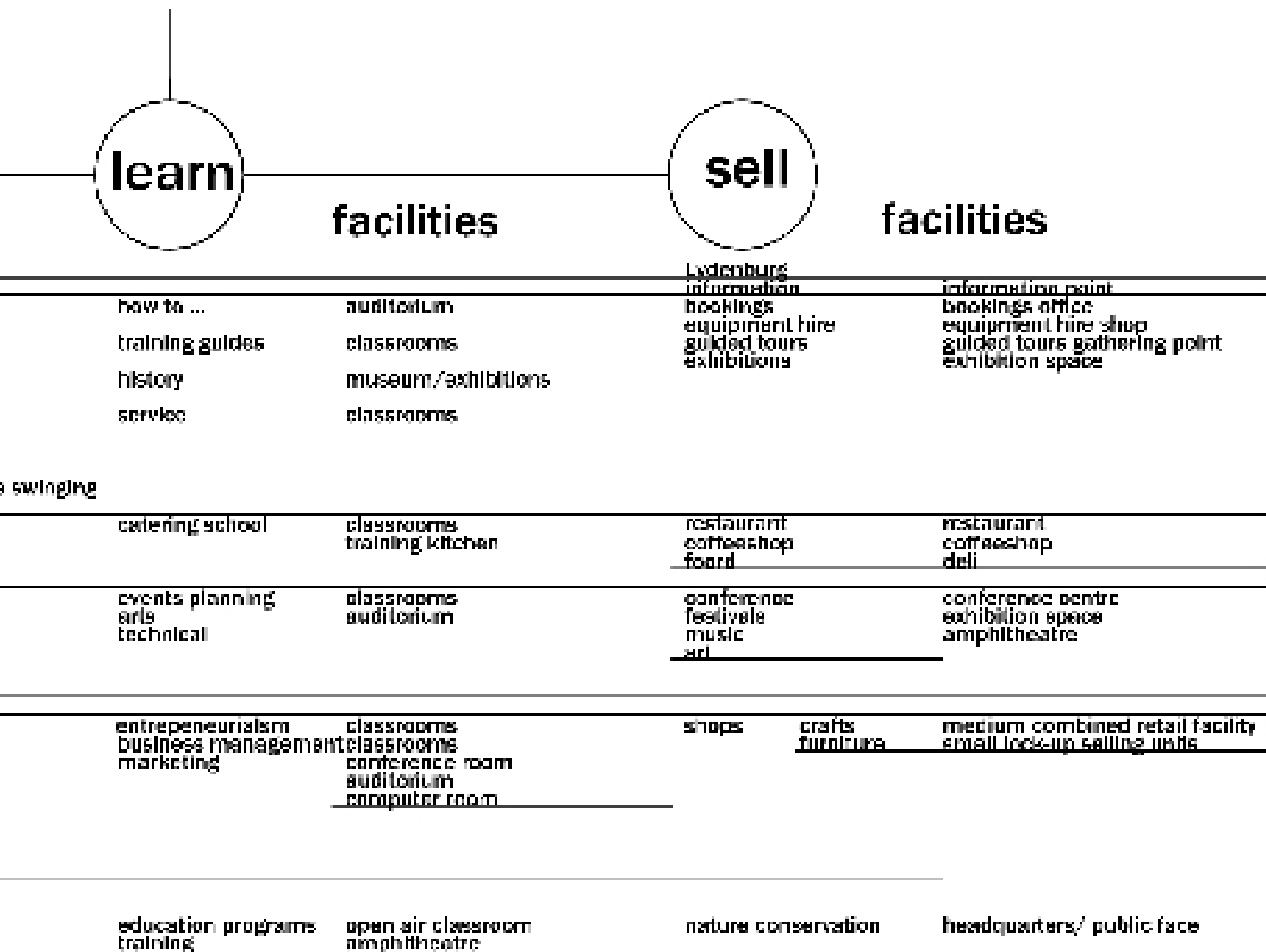
The programme for the Incubation Node was developed from the branding exercise. Three elements of the Lydenburg brand were identified, to which specific programmes were granted. The process in resolving the programme was as follows:

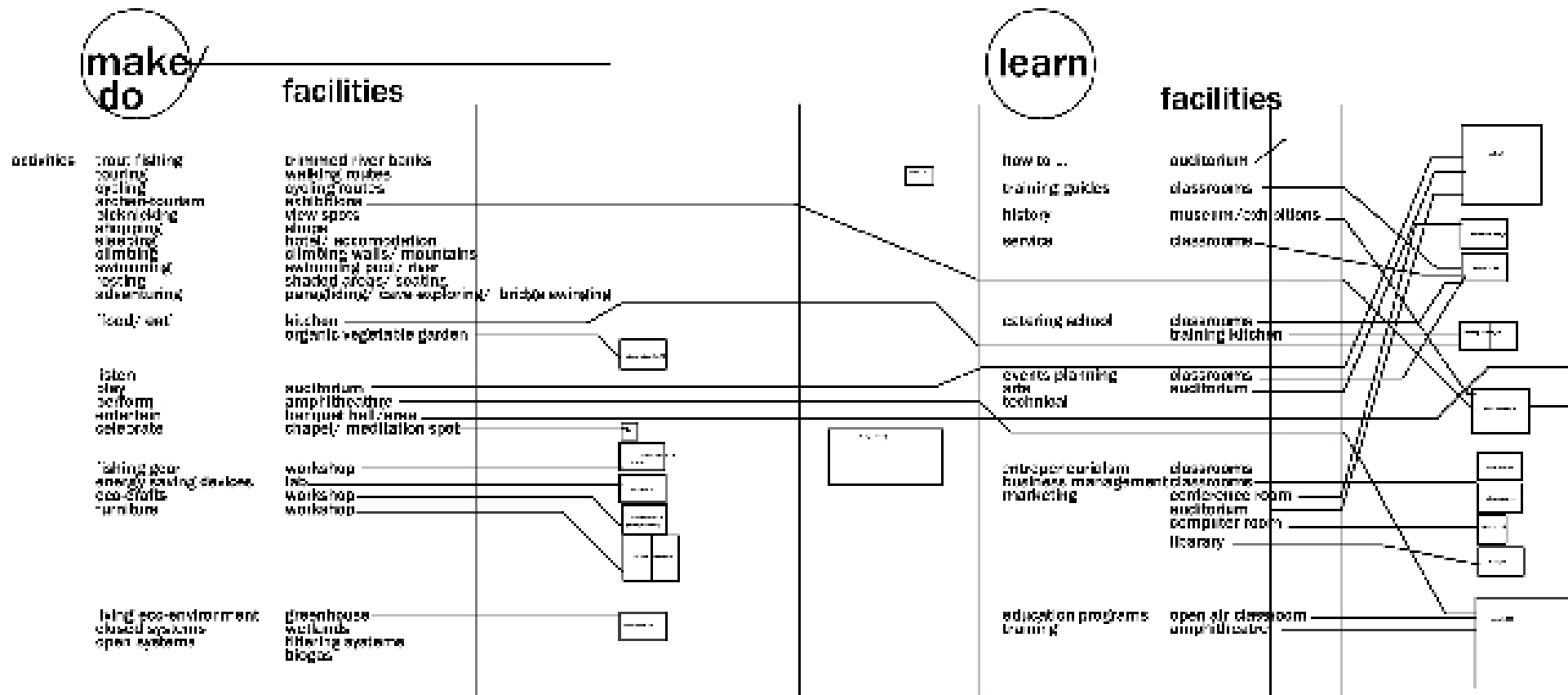


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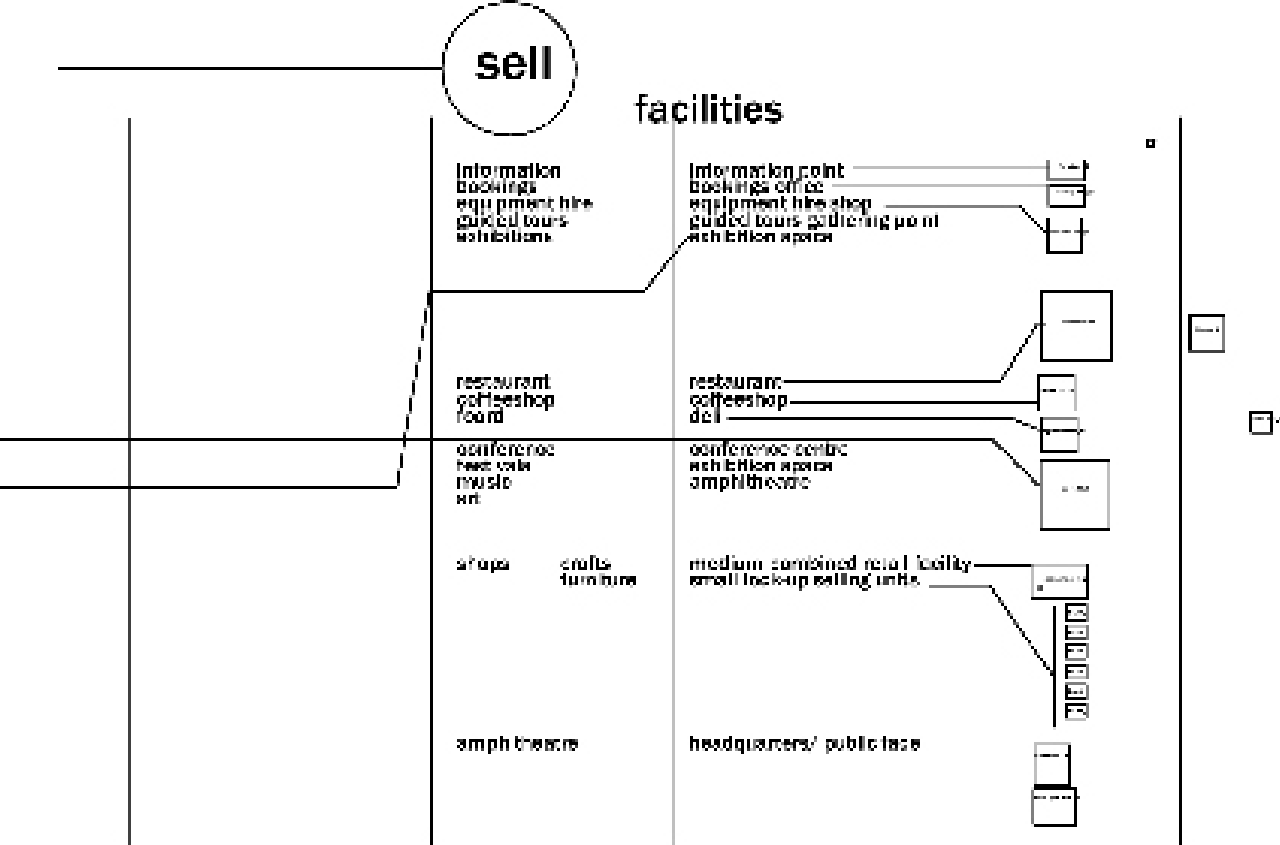






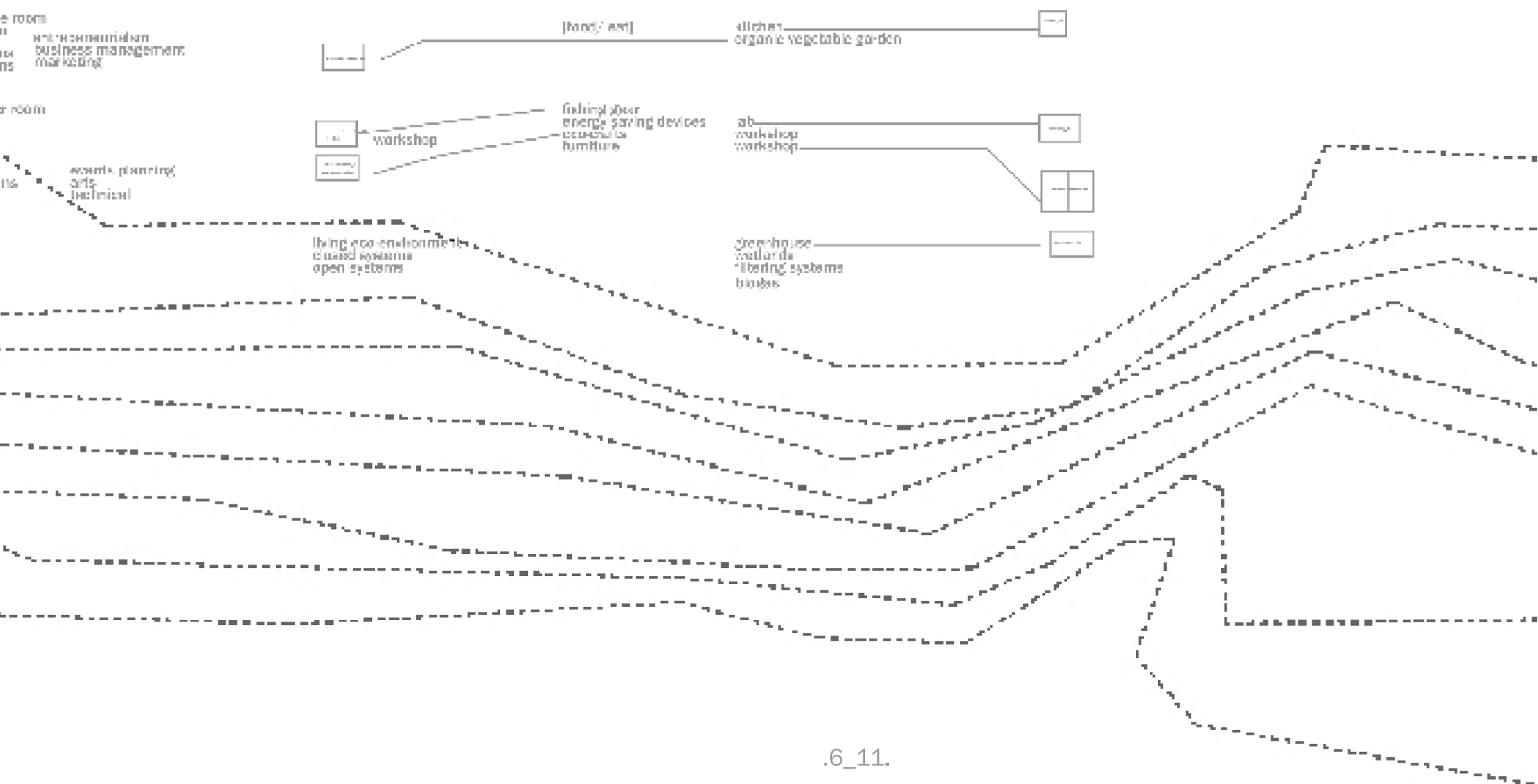


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.6.3 SITE USE

In analysing the site, three main influences determined that planning and layout of the node: The first element that had to be taken into account was the significant noise source that was experienced along the north-south axis of Viljoen Street. Another influence was the transition from the urban realm to the natural landscape, while the physical limitations of natural barriers such as the flood lines on the river plain dictated the site use to a large extent as well.

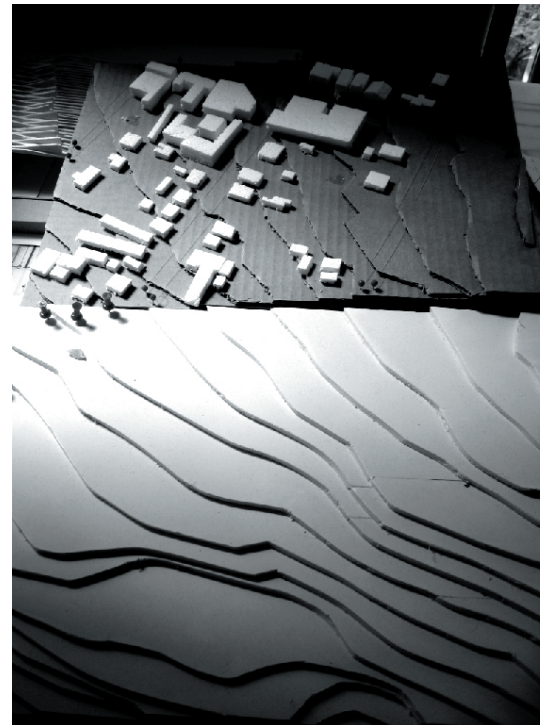
In addressing the noise issue, the site was planned according to mass and structure. The structure of the greatest volume and mass was to be placed next to Viljoen Street, in order to act as a berm and buffer some of the noise from the traffic. With regards to a transitional design it was decided that a canopy structure was to draw visitors from the CBD. This canopy is to rise into the Exhibition Space as the site dips into the valley where the Sterkspruit River flows. The edges of the site bordering

Viljoen Street and Potgieter Street were developed to create a permeable wall along the street edge, in a response to the urban context. The wall is not continuous, in accordance with the loose and fragmented urban fabric.

In communicating the loose grain of the CBD and its fragmentation towards the Sterkspruit River, the structures of the Incubation Node are to start in a densely packed fashion in the north-west corner of the site, and then slowly dissipate into the landscape. This disintegration will be reinforced through a reduction in scale towards the east, as well as spacing the buildings further apart from each other. An analogy of this concept of transitional space would be to take a bucket of paint and to drop it on the western corner of the site. As the paint spatters towards the south-east, the paint spots become easier distinguishable and less dense.

The footprint of the buildings in the Incubation Node echoes that of the meandering

river, and is developed in such a way that it can accommodate floods and in fact assimilates the rising water level in such a way as to seem to have been built with a flood in mind. In 2001 a cloudburst resulted in a flood along the Sterkspruit River which took the lives of four residents and resulted in thousands of Rands of damage. The Incubation Node is instrumental in creating an awareness of working with nature, instead of against it.

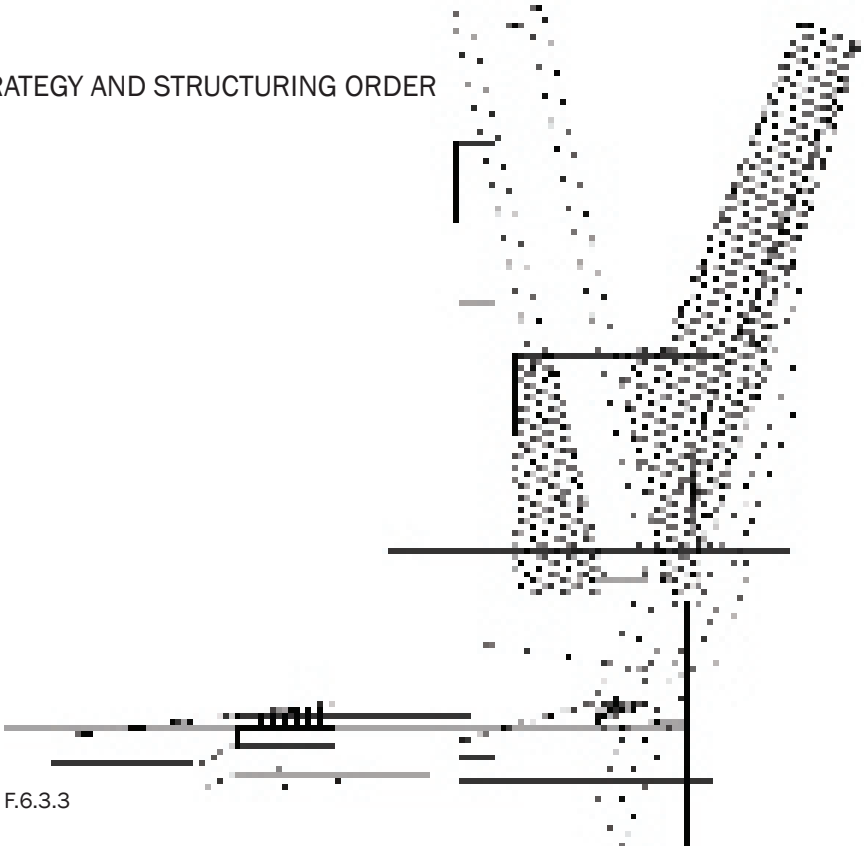


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.6.4 DESIGN STRATEGY AND STRUCTURING ORDER



.6.4.1 EXTERNAL TREATMENT

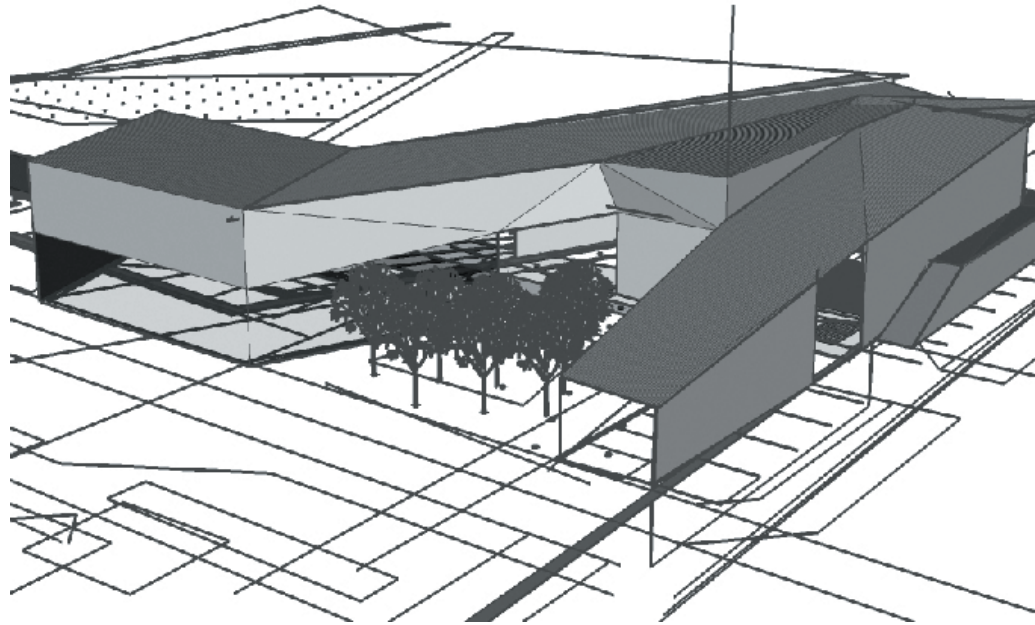
.6.4.1.1. Architectural treatment of the street and other spaces

The main measure of climate control applied is that of internal heat gain through high massed structures. The implication of this is that the north-facing façade is not to be shaded by trees or a canopy during winter. A space of discomfort is purposely created on this north-facing sidewalk so as to draw pedestrians into the interior corridor of the precinct. The corridor opens up into public 'pools' of communal spaces, which act as shaded and protected waiting areas as well as play areas for the public. The transport nodes are positioned so as to minimise walking or waiting on the unprotected north facades of the complex

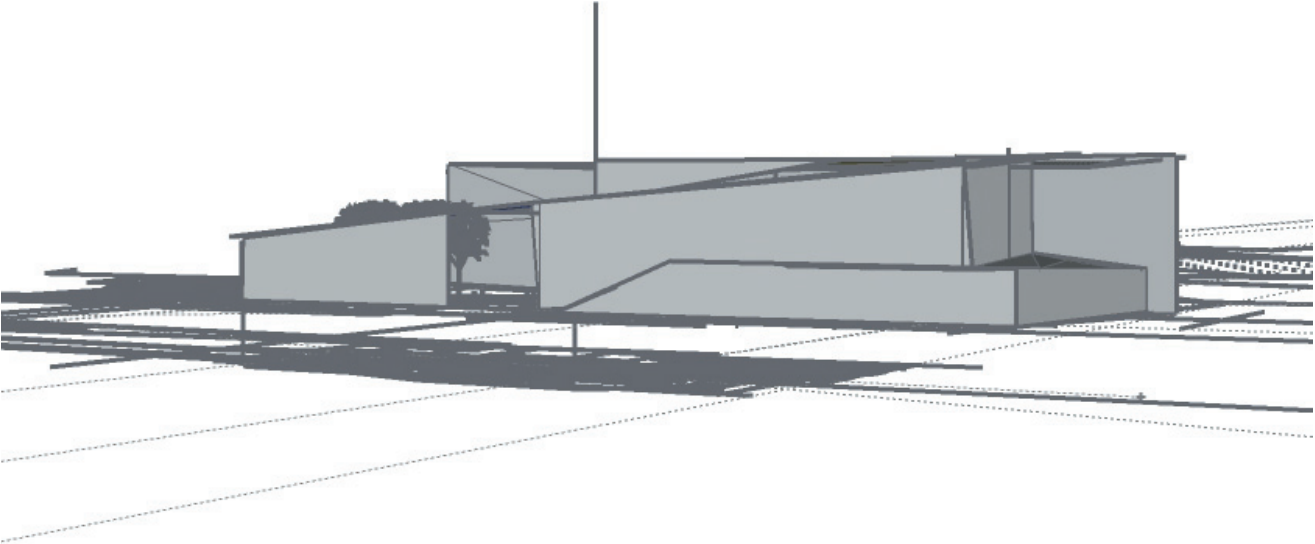
.6.4.1.2. Facades

The northern façade is designed protected from summer heat gain with a roof overhang. The overhang has been deliberately developed to allow for winter heat gains.

The eastern facades are louver systems that have been taken from an analogy of the poplar forest that the south-eastern vies overlook. When these facades are viewed perpendicularly from the side, the wall structure seems solid. When viewed from the perspective of a window, the view of the river and the distinct horizon if Lydenburg is visible. The louvers are to be made of solid Saligna timber planks, locally treated in the joinery workshop with Chromated Copper Arsenate (CCA). This treatment serves as protection against decay, fungi and termites, but is also chosen due to the greenish patinated tint it lends to the wood: The louvers are to be fixed to large profiled steel frames, threaded to resemble a large scale abacus. The effects of the wooden louvers catching the sunlight at different angles will be similar to that of the



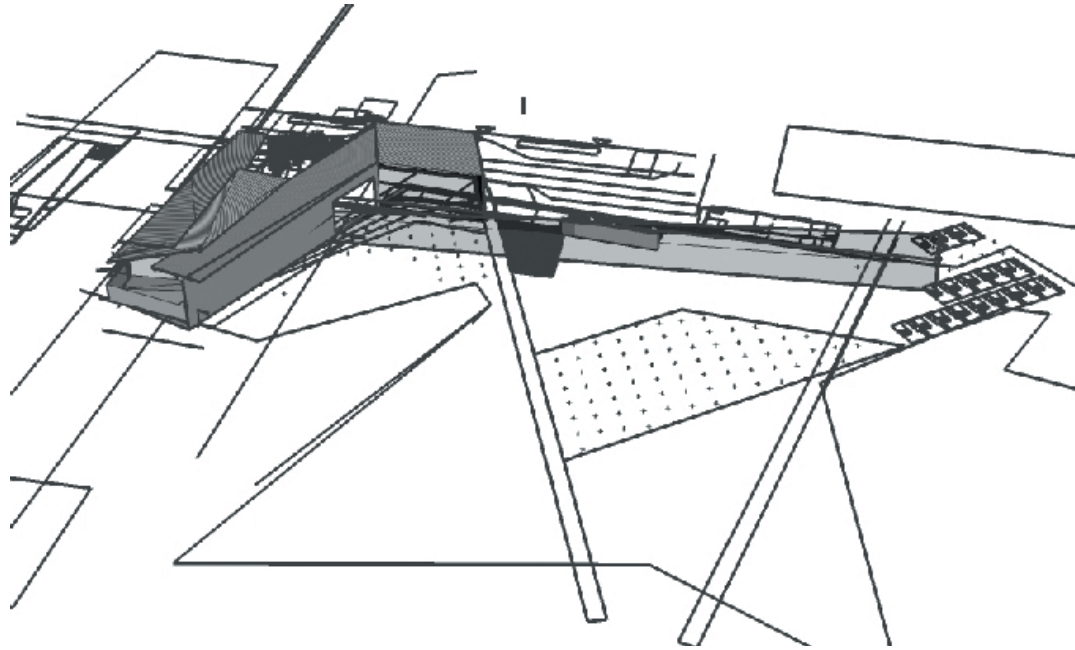
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poplar forests leaves shimmering in the sun. This is another way in which the building is to compliment the site.

The western façade consists of a three layered system to accommodate the occupants of the building at different times: the first layer of occupant protection would be the balustrade, specifically designed to communicate the Lydenburg brand. The second layer is a series of abacus-like louvers, in the same vein is the louvers placed on the eastern facades of the building. The last layer is a series of sliding doors, specified to be double glazed and treated in order to block out western sun glare and the noise from the trucks which frequent Viljoen Street. This layering system will allow the occupants to exert control over the climatic environment, and will allow for discretionary use such as allowing light penetration while excluding noise, or alternatively to open all the layers up in creating a balcony overlooking the street and the western part of the river.



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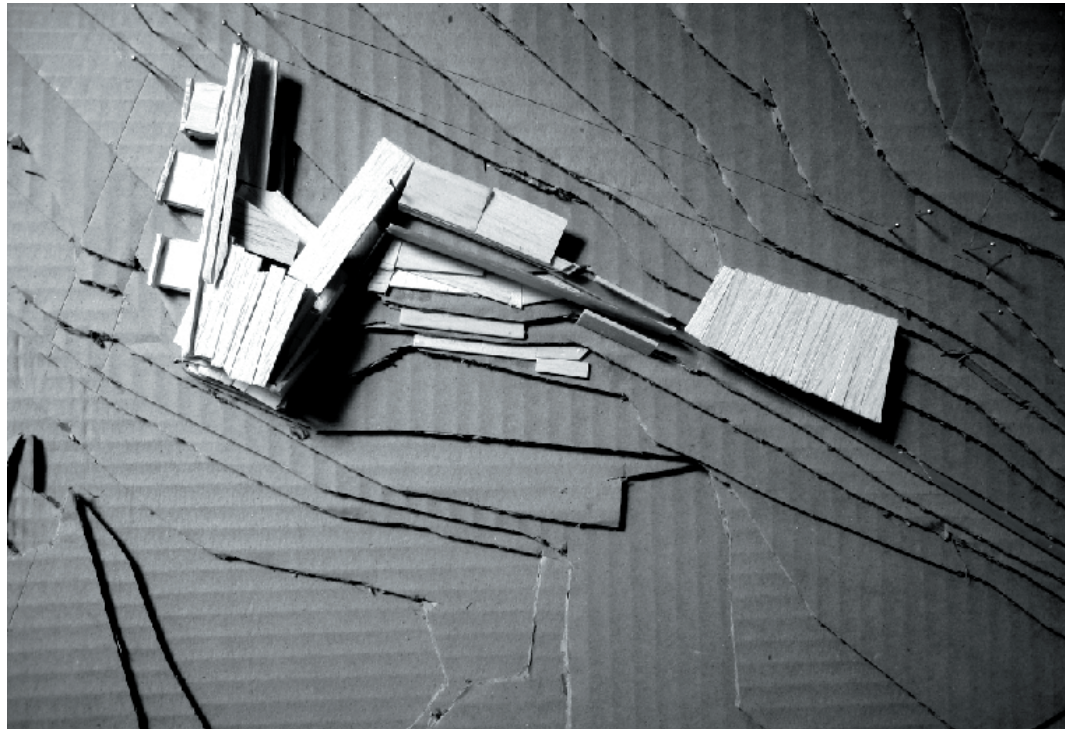
.6.4.1.3. Roof form

The roof form is a defining architectural element for the Incubation node, as it acts as a dissolving agent for the solid structural order, and also knits the whole precinct together as a whole. The roof proved to be the most problematic of the design, and was investigated through a series of 1:500 scaled models. The results were the following:

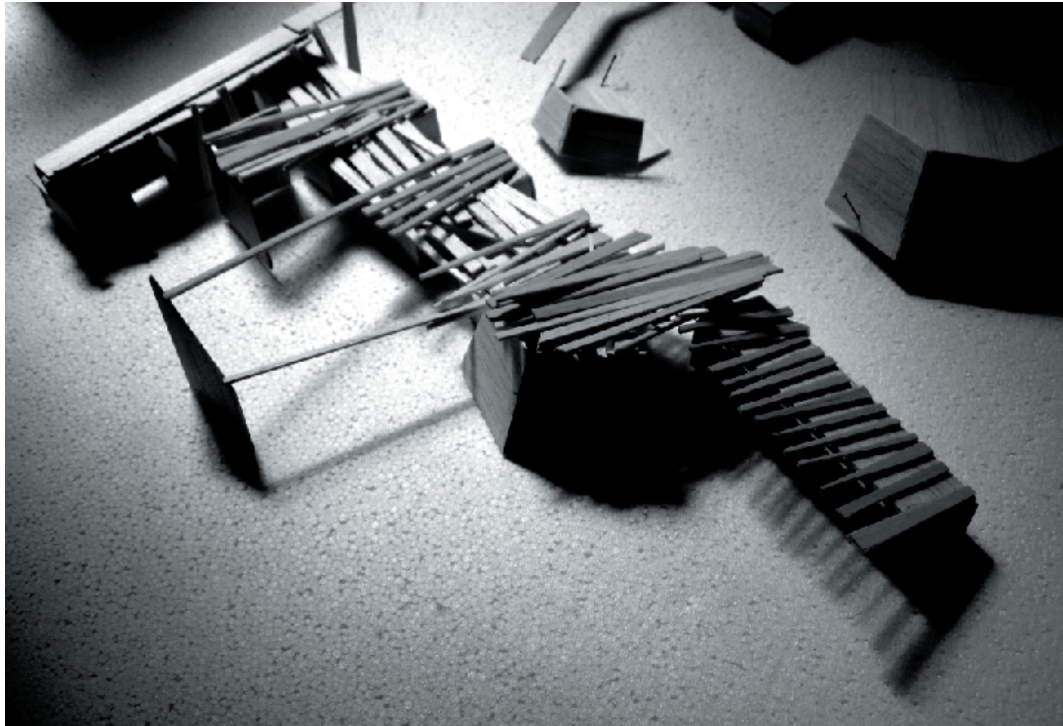
.6.4.2 CONSTRUCTION ARCHETYPES AND STRUCTURING ORDER

.6.4.2.1. Filigree Construction

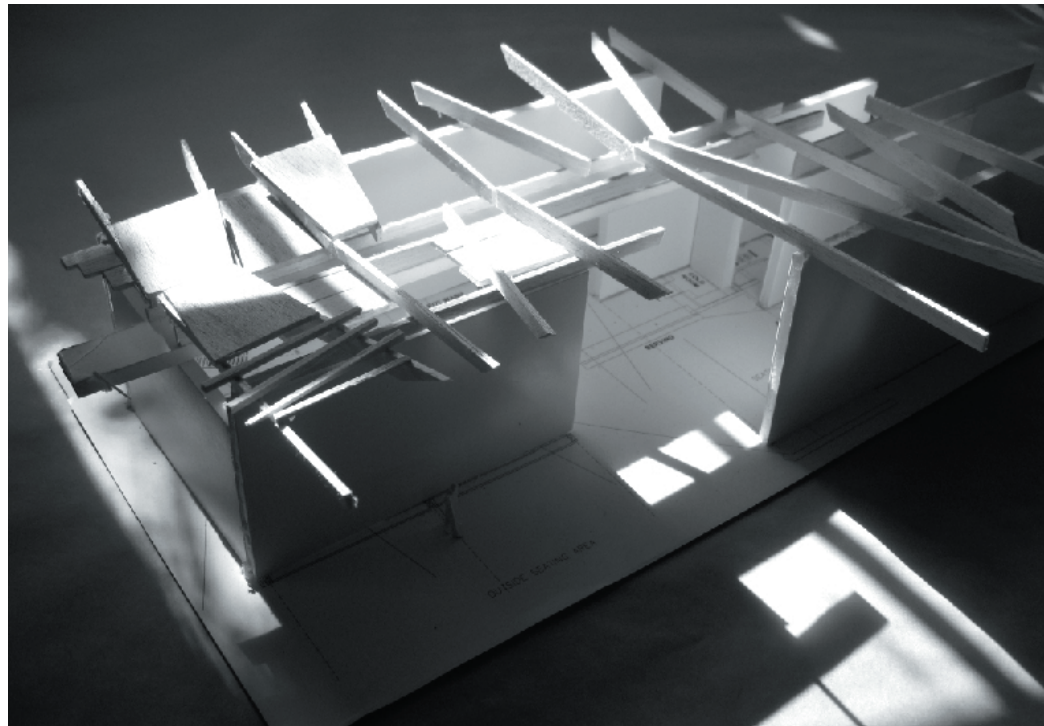
In *Constructing Architecture, the materials, processes and structures handbook*, Deplazes and Wiezer distinguishes between the two primary construction archetypes: Solid construction (stereotomy) and filigree construction (tectonics). According to Deplazes and Wiezer, all subsequent forms of construction are derived from these archetypes. The origin of the term “filigree construction” denotes the way that these slender forms are constructed. Since the 17th century the noun “filigree” (or alternatively



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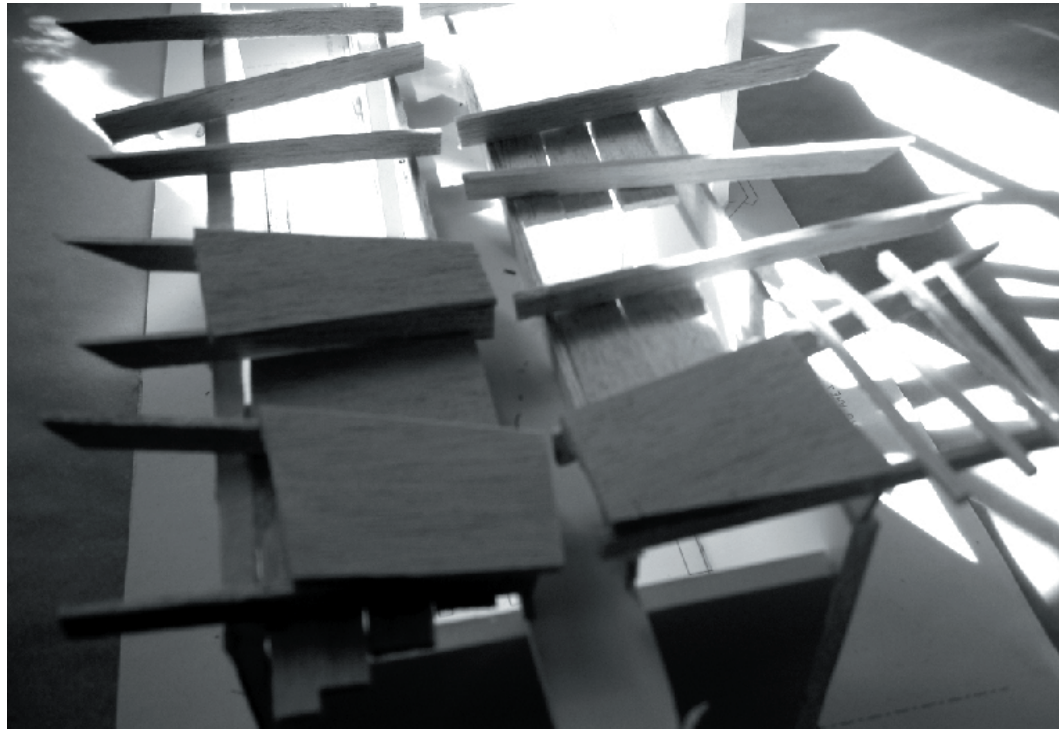


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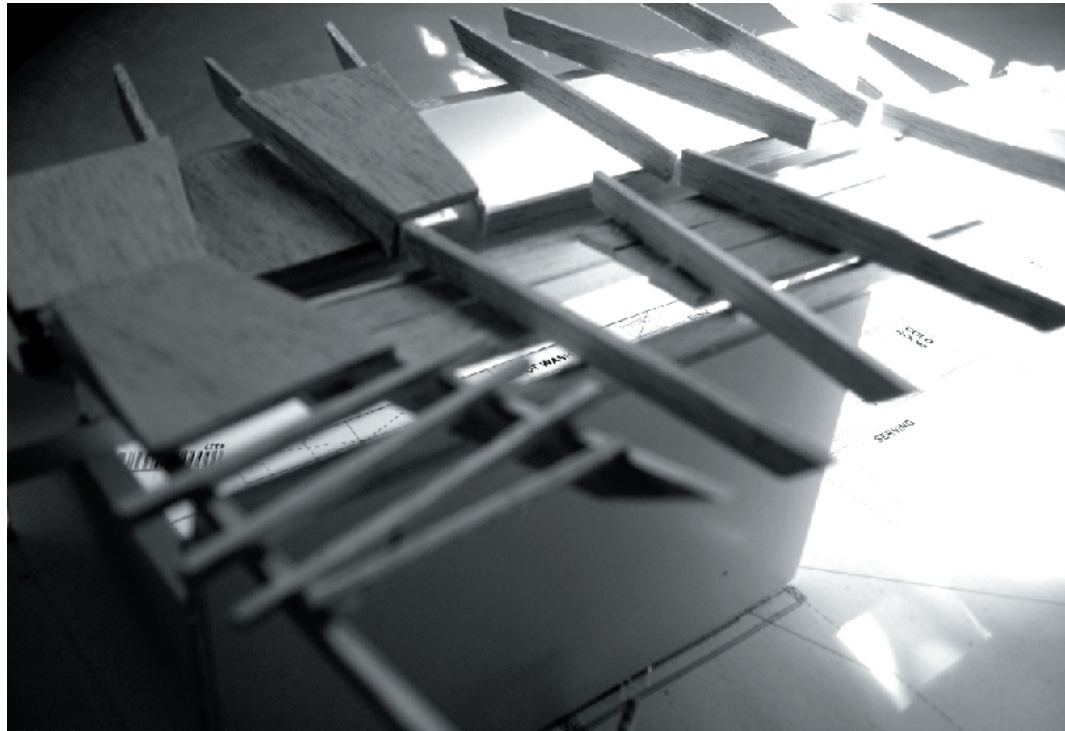


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spelled “filagree”) stood for an ornamental work of fine metallic (normally gold or silver) wire, twisted, braided or soldered into intricate openwork designs. It is understood that these words are derivations from the Latin words *filum* (thread) and *granum* (seed). (Constructing Architecture, 2005:14) A filigree construction is thus a construction of “slender members, a weave of straight or rod-like elements assembled to form a planar or spatial lattice in which the load bearing and separating functions are fulfilled by different elements.” (Constructing Architecture, 2005:14) Deplazes draws attention to the fact that this static framework consists of many openings (“voids”) which needs to be closed in order to create an “architecturally defined space”. The differentiation between the inner and external parts of the building is therefore achieved through derivative elements, and not through the load bearing construction itself.



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.6.4.2.2. Solid Construction (Stereotomy)

Solid construction (stereotomy), as opposed to filigree construction, signifies heaviness and compactness, resulting from a primary element such as a massive wall made up of a construction method of “casting and layering”. (Constructing Architecture, 2005:14) According to Deplazes stereotomy stands for the art of cutting stone into measured forms so that the simple layering of dressed stone and the pull of gravity are sufficient for the stability of the structure. Because solid constructions can only handle compressive forces, and not tensile forces (like filigree construction), the load bearing and enclosing functions are identical. Therefore the structural shell corresponds to that of the final structure with limited openings as a result in order not to weaken the load bearing qualities of the wall. The author is sympathetic to the fact that all such walls are without structural hierarchy in that functions are limited to load bearing and enclosing tasks. With all parts tending to be of equal importance, the wall stands as a symbol of creating balance and equality and as being a part of

a larger interdependent system. However, in order to preserve a matter of flexibility and movement, an interior column system is employed, in order to facilitate larger openings within the wall system.

These two elements are employed in the design of the project as archaic elements, and signify a rootedness in history as well an embrace of freedom. The massiveness of stereotomy expresses an archaic and monumental character, while the space-drawn sublimation of massiveness of filigree construction renders an ethereal quality to a volume. (Constructing Architecture, 2005:13)

.6.4.3 ENVIRONMENTAL ISSUES

.6.4.3.1. Natural Lighting

Natural light is incorporated through two principles, firstly through the interior corridor in the core of the building, and secondly through the roof structure, of which two kinds are implemented. The first type of roof structure is a fragmented apparently 'arbitrary' structure of laminated timber beams, which are placed at odd angles to generate interplay of light and an unpredictability of structure. This apparent arbitrariness is achieved through the repetition of a pattern of angled beams. The second roof type is a concrete slab roof, applied in the smaller, loose-standing buildings as well as the berm-structure at the western edge of the site (the office block) which has glass-covered slits cast into it through which the light is filtered. The slits resemble the scattered ness of the laminated roof beams in being at odd angles in relation with each other. This effect is also echoed in the slits built into the floor of the plain, which resemble the water furrows originally part of Lydenburg's street character, and will in

parts be fitted with lights for orientation and ambience at night.

.6.4.3.2. Sun control and ventilation

The interior corridor has a split in the roof to effect, through which sunlight is filtered through horizontal louvers. Overhangs have been designed so that summer sunlight is barred, but winter sunlight penetration allowed for heat gain. The depth of the buildings does not exceed twelve meters, and the buildings are placed perpendicularly towards the predominant wind directions to facilitate optimal natural ventilation.