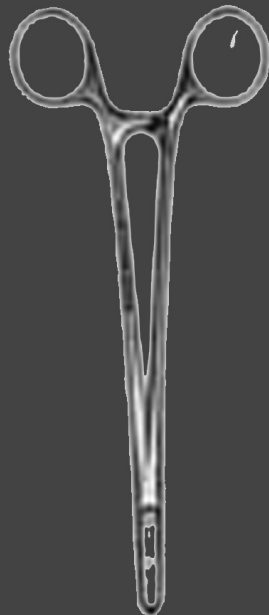

SURGERY

DESIGN REFINEMENT

The juxtaposition of contextualism & abstraction
or
It takes a community to raise a (building)



[06] Refinement

Introduction

In response to the issues raised about the architecture of healthcare facilities, the design process was guided by salutogenic design principles, and the aim to bring together western and traditional medical practitioners together in one intervention. The intentions focused on improving the patient experience, reducing the risk of inter-patient pathogen transmission, , and creating an intervention informed and responsive to the context.

The design methodology immersed the designer into the context and engaged them with the community, in an attempts to allow the innovation of grass roots approaches to be enabled and empowered by the spatial intelligences of top-down providers - such as architects.

In the design, the deepening of thresholds and transitions from public to private spaces is an example of this interpretation of grass roots knowledge.

The final design solution successfully realises the intentions of the project on a basic planning and spatial level. The technical chapter now investigates how these design intentions may manifest through form and materiality.

The investigation focuses on the design and manipulation of the roofs in order to ensure optimal natural ventilation of the spaces.

[6.1] The Mediation between Contextualism & Abstraction

The technical Concept and Intentions

The design methodology followed a process of community engagement. The process allowed for the grass roots knowledge to influence the design. While the design process engaged with the community, the technical development questions how the construction process can be transformed into a development strategy. Thus there is an emphasis placed on the use of local building materials, construction techniques and employment of local craftspeople.

As previously discussed (refer back), the simple repetition of local aesthetic does not empower or enhance the vernacular.

The technical concept: the mediation between contextualism and abstraction, intends to use local materials, to create a sense of familiarity, but to manipulate them through their assembly methods or aesthetic expression. Mediation is a common theme running throughout the dissertation and here it is explored through the manipulation and expression of materials, mediating between local low-tech materials and construction, and the modern materials need in clinic design.

Following on from the intentions that were not fully realised in the design development, the technical investigation focuses on achieving the required ventilation rates for healthcare settings (as per WHO) and on designing a structure and building system that is easily adaptable.

[6.2] SANS

Building classification

- A1- public assembly 1person /m²
- A4- worship
- B3- low risk commercial service 1person/15m²
- E2- Hospital 1 person/m²
- E4- healthcare 4people/room
- H3- Domestic residence 2people/room

Climatic zone 2

- non masonry walls: R-value min 1.9
 - Roof assembly: R-value min 3.2 (metal purlins need thermal break > 0.2
 - Metal roof assembly:
 - R-value of roof covering: 0.3
 - R-value of ceiling: 0.05
- Added R-value of insulation: 2.85

[6.3.1] Plan

Understanding clinical design principals

Having established the general layout of the plan to be most appropriate in realising the design intentions, the technical investigation began by refining the plan.

The last design crit (PAGE) raised valid points concerning the technical norms and standards of clinics.

A set of clinic design principles were established to order to ensure the design could function efficiently as a Primary Healthcare Facility.

The principles are based on design guidelines outlined in the Infrastructure Unit System and Support documents (IUSS), coupled with the design principles established for the design process. (PAGE)

Using the design principles, the plan was rearranged.

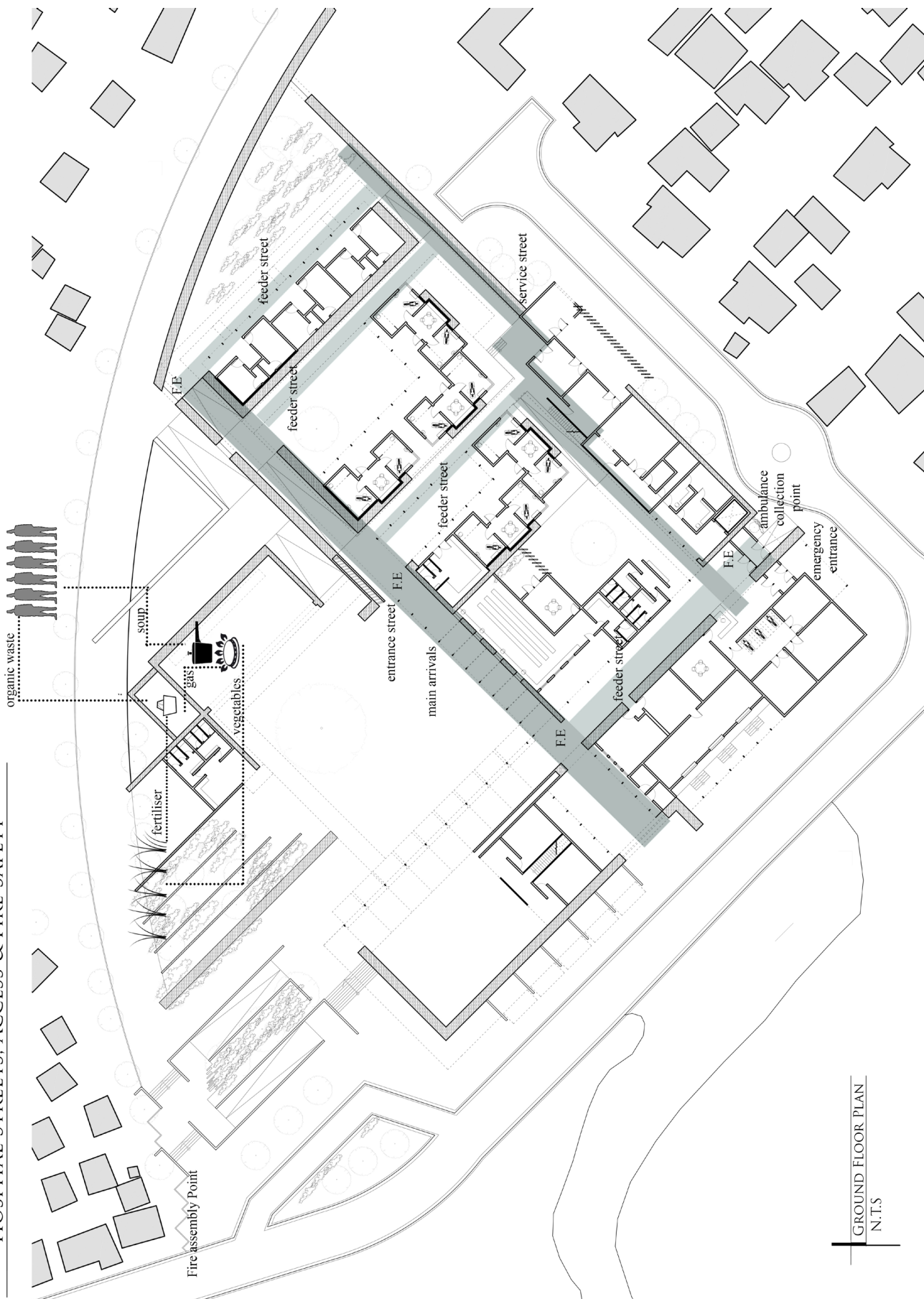
The establishment of the hospital ‘streets’ allowed for patients to enter one way and exit another. The departments created around the courtyards are connected to the main patient feeder street and the back service street. The service street allows patients to pass the x-Ray and bloods department on their way out, should they need these services (fig). The configuration allows patients to drop their record file off at the records office or make a future appointment, before finally leaving.

The emergency entrance was considered in terms of after-hours access. Its position allows the majority of the clinic to be secured at night, while still allowing the emergency patients and personal access to records, X-ray and ablution facilities. It was for this reason that the x-ray department further down from the TB department. Its position allows it to be accessible to all departments.

Mother and child was moved from the street edge and replaced with the pharmacy. This adjustment allows for patients who are only collecting medication to move straight to the pharmacy waiting area. The proximity to the emergency centre again ensures medication can be accessed by emergency staff, while still allowing the majority of the facility to be secured. This new position also meant that the public dispensary could be positioned adjacent to the clinic pharmacy. Deliveries to the public dispensary are made inside the clinic, but dispensing happens on the street edge. This street edge was identified as a commercial edge (REFER BACK TO SITE INFORMANTS PAGE) and the inclusion of the public dispensary allows for the continuation of the commercial edge along the building.

The first floor was resolved to include audiology, dentistry and optometry examination spaces (fig). And the residential component of the design was resolved.

HOSPITAL STREETS, ACCESS & FIRE SAFETY

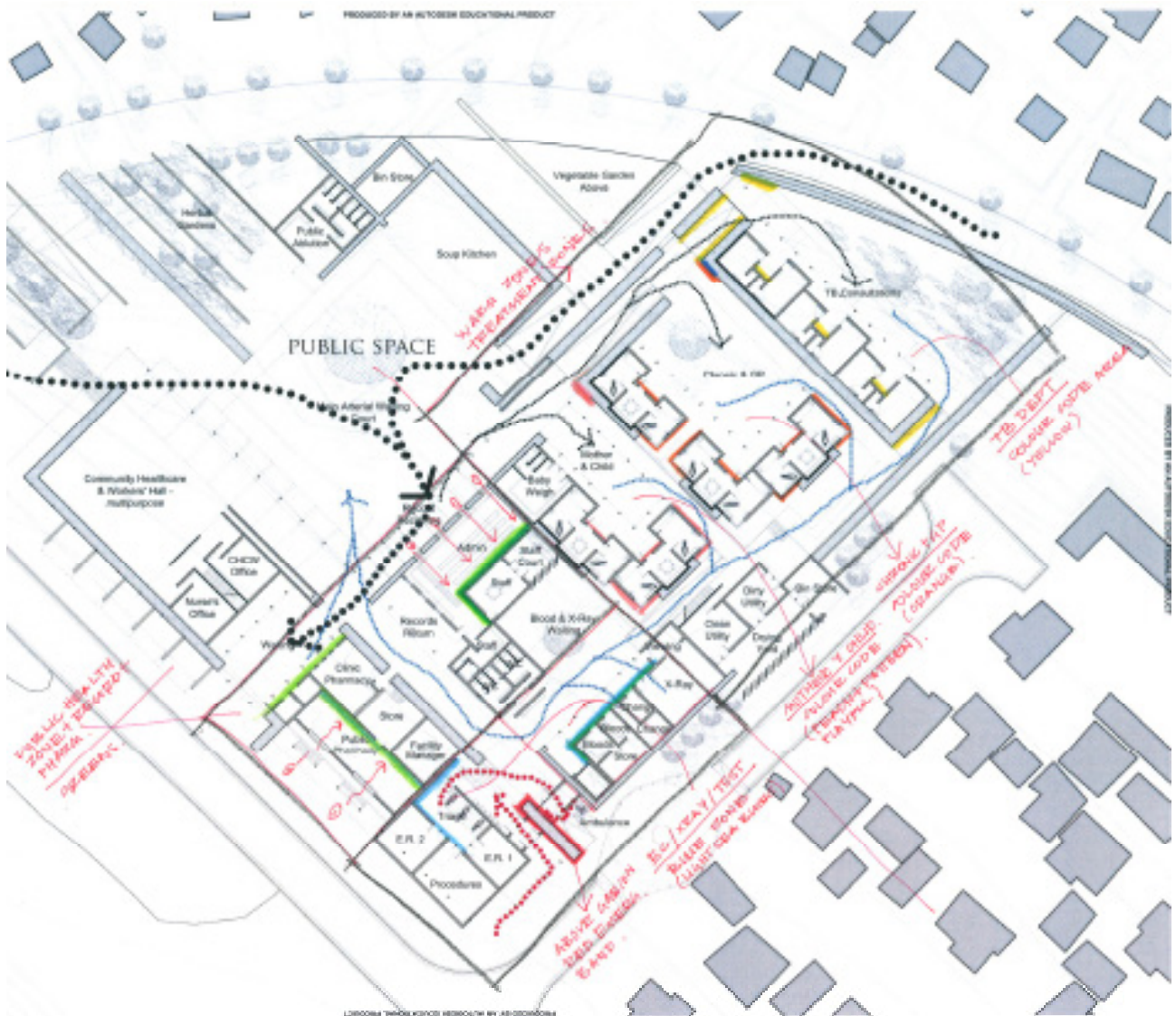


GROUND FLOOR PLAN
N.T.S

[6.3.2] Plan Way-finding

Way-finding in healthcare facilities should be as clear and as obvious as possible. The paving is used as a way finding device. The lines of movement, outside of the clinic itself, are expressed through larger pavers, orientated in the direction of the movement. Smaller, squarer pavers are used in pause spaces, while even smaller pavers are used to edge the seating elements (fig). Internally, the movement routes are concrete walkways and ramps. The smooth surface is imperative for noise control (see appendix b: noise in wards: a case study).

Singage is vital in a healthcare facility. In addition, the use of images and colours to indicate various spaces is important, to ensure all patients are able to navigate around the facility. The details have not been resolved, but the initial plan is included here.



[6.4] Roof

Once the plan was resolved in terms of the clinic design principles, the roof became the focus of the technical iteration. The roof is arguably one of the more important design elements.

In an iterative investigation, it was established that the slope of the roof played a critical role in enhancing naturally ventilated air movement through a consultation space (du Trevou 2013). Along with the size and position of the windows.

The following series of diagrams unpacks the evolution of the roof, from conceptual interpretation, through to functional requirements and scale considerations. (see following page fold out)

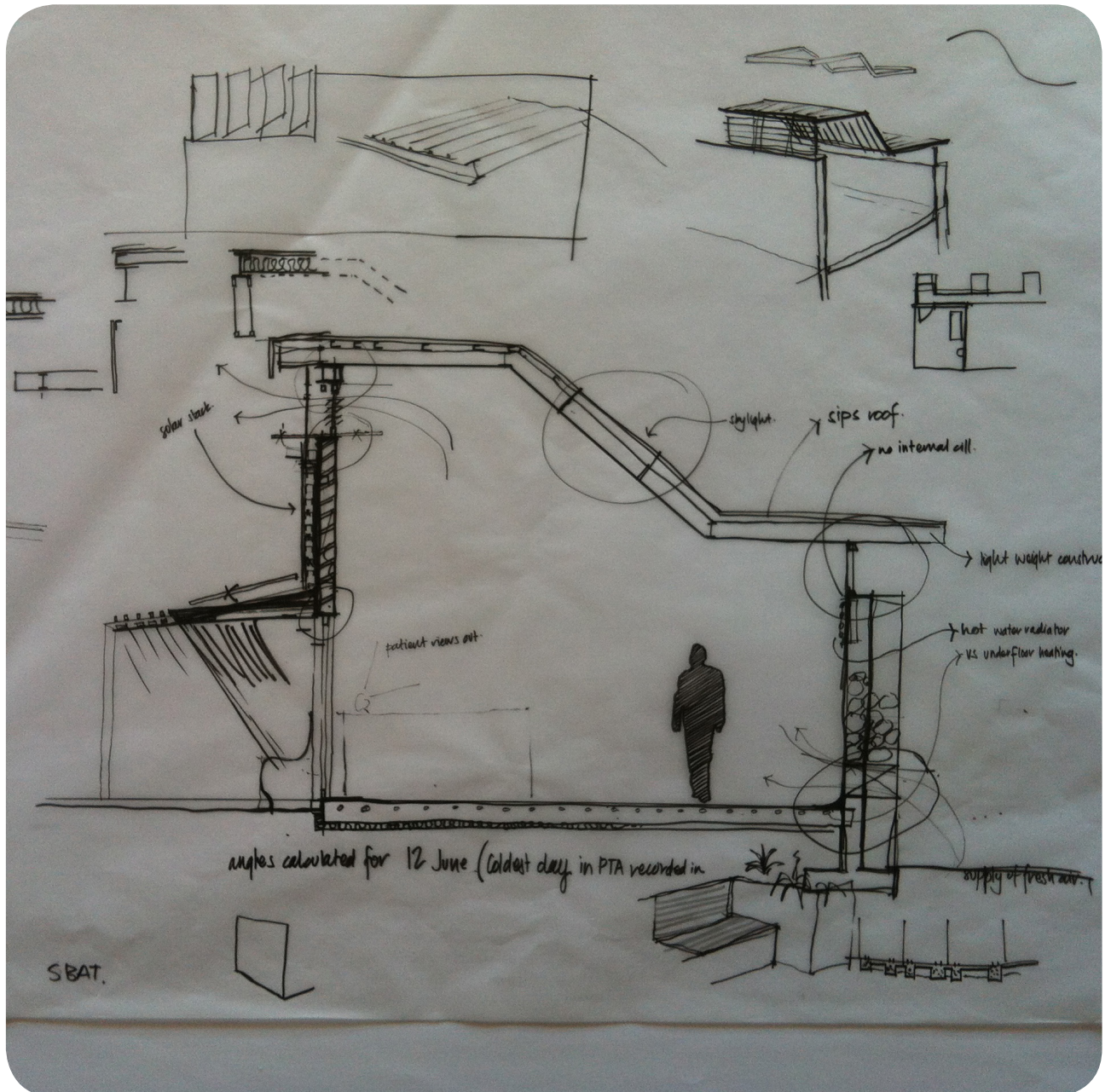
The final roof plan reverts to the original simplified foot print diagram (refer back to fig). While the roof is simplified, the ground floor plan still steps back in places, creating different spatial qualities beneath the roof, emphasising the thresholds created by the plan (refer back to consultation room plans).

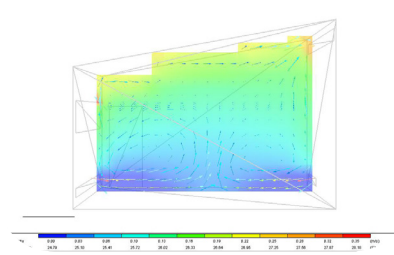
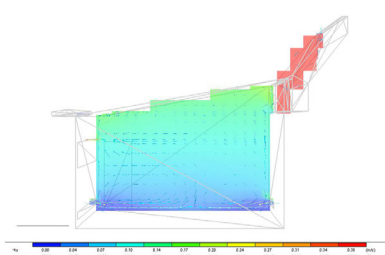
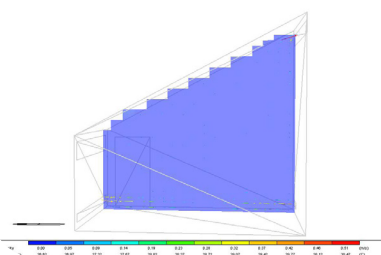
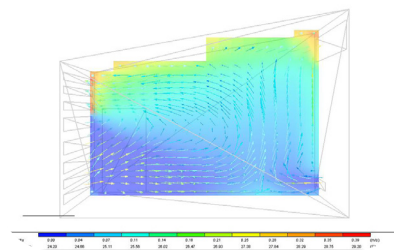
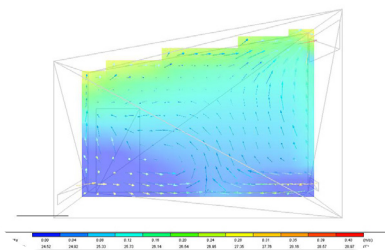
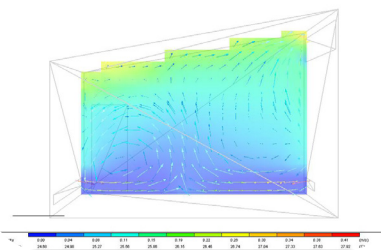


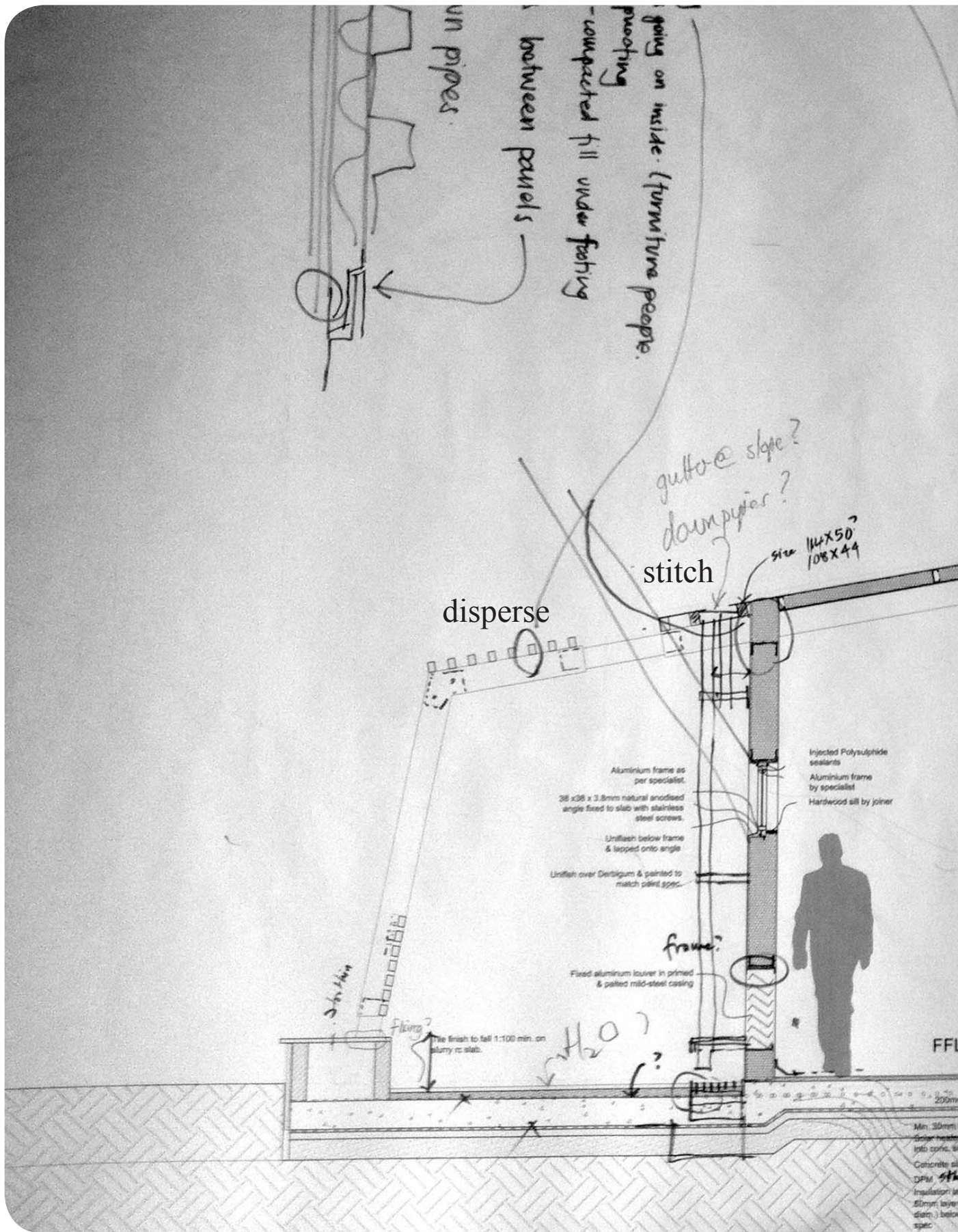
[6.5] Ventilation

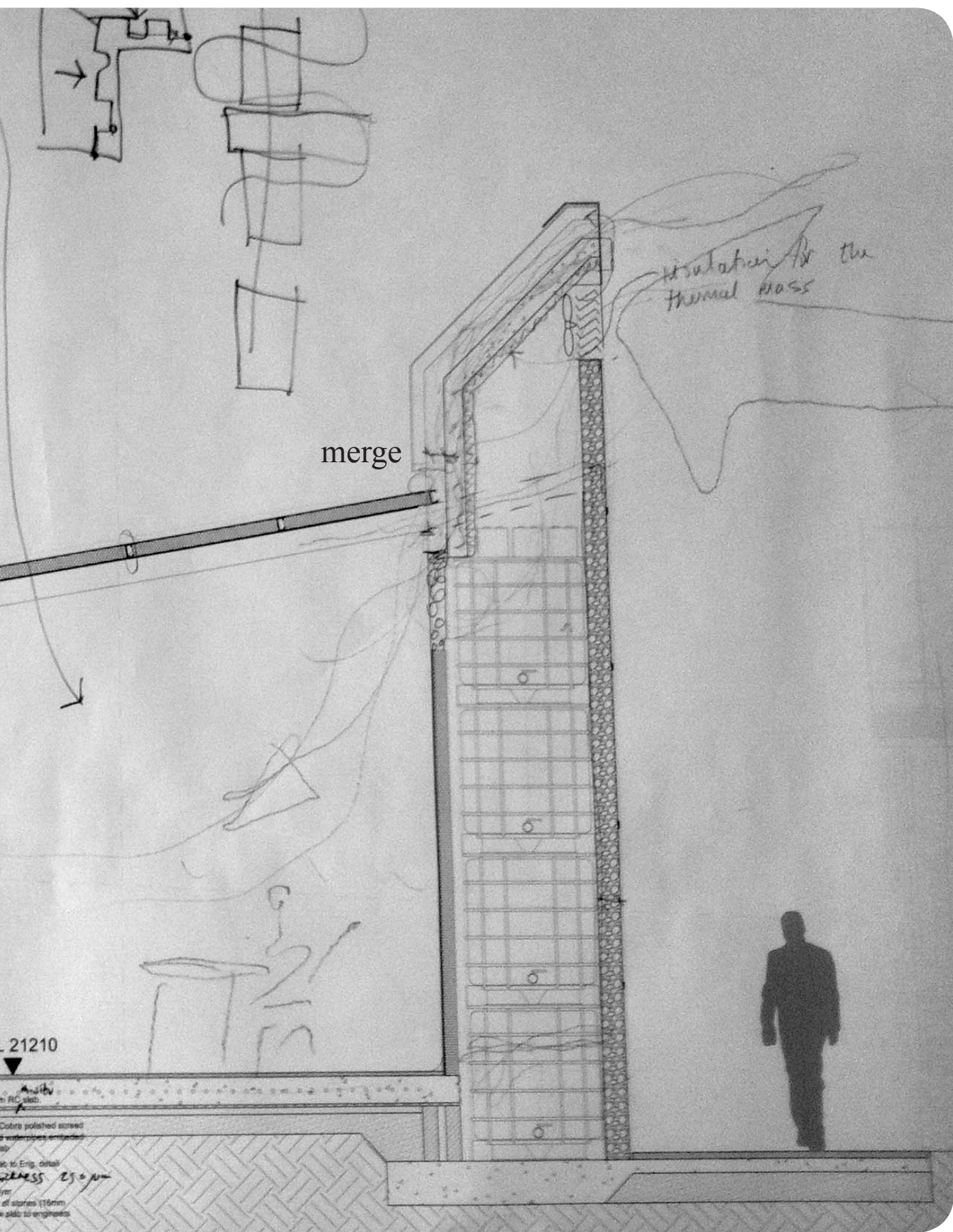
The detail section continues to evolve according to the effectiveness of the roof and stacks in ventilating the space. The three original conceptual notions - disperse, stitch and merge - are expressed through the connection details in the section.

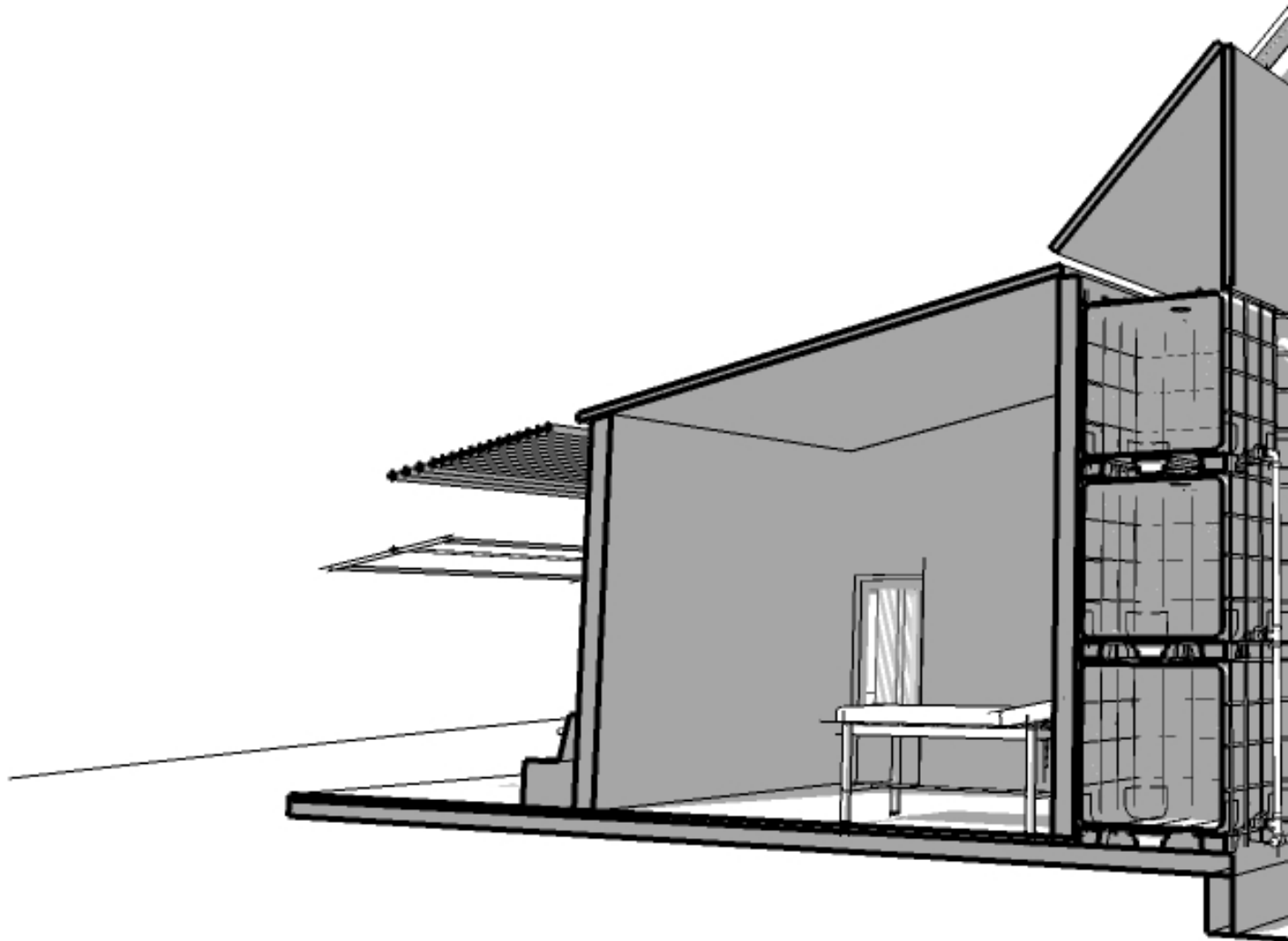
(DesignBuilder CFD modelling is used to create and test the effectiveness of the design.)



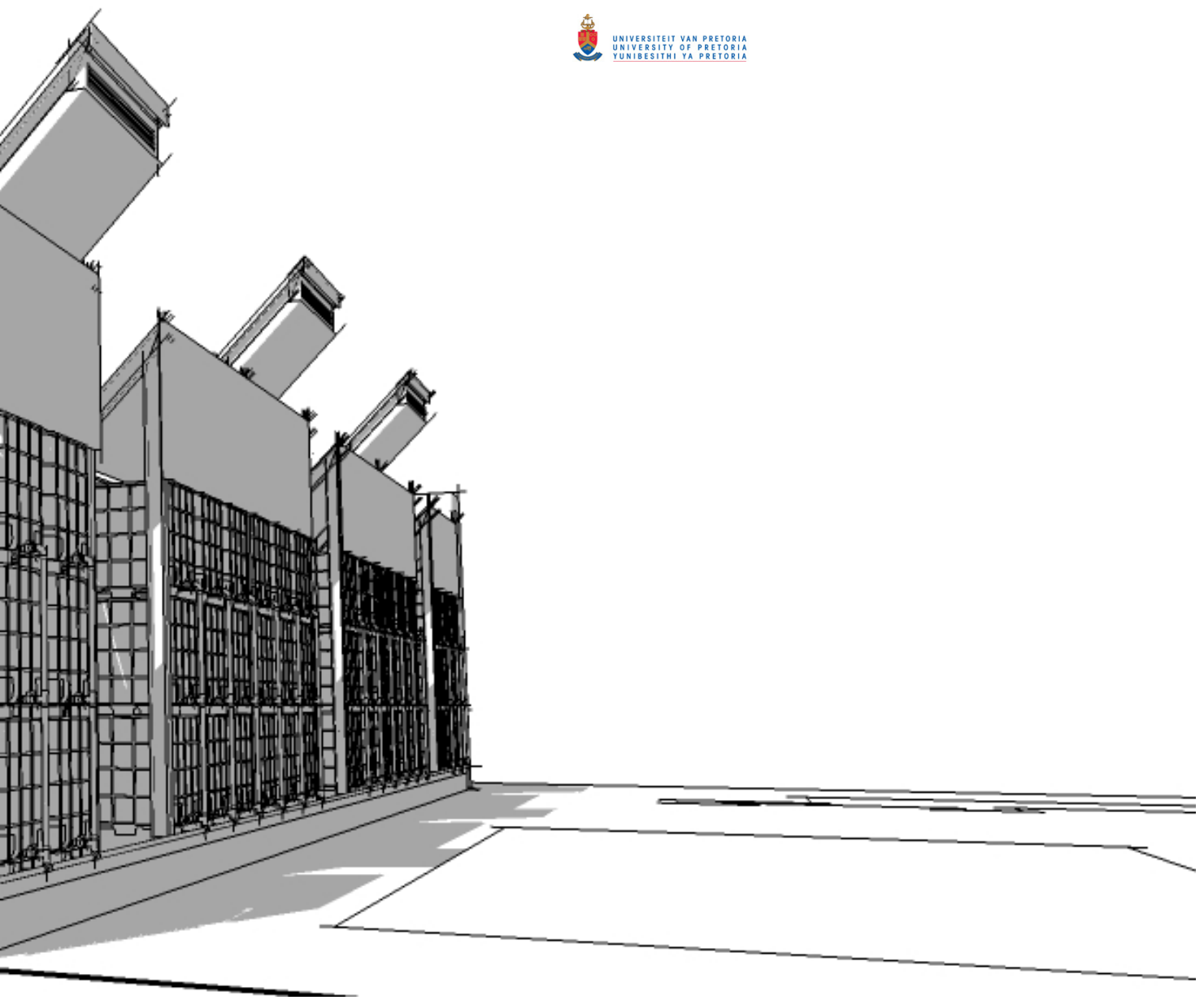




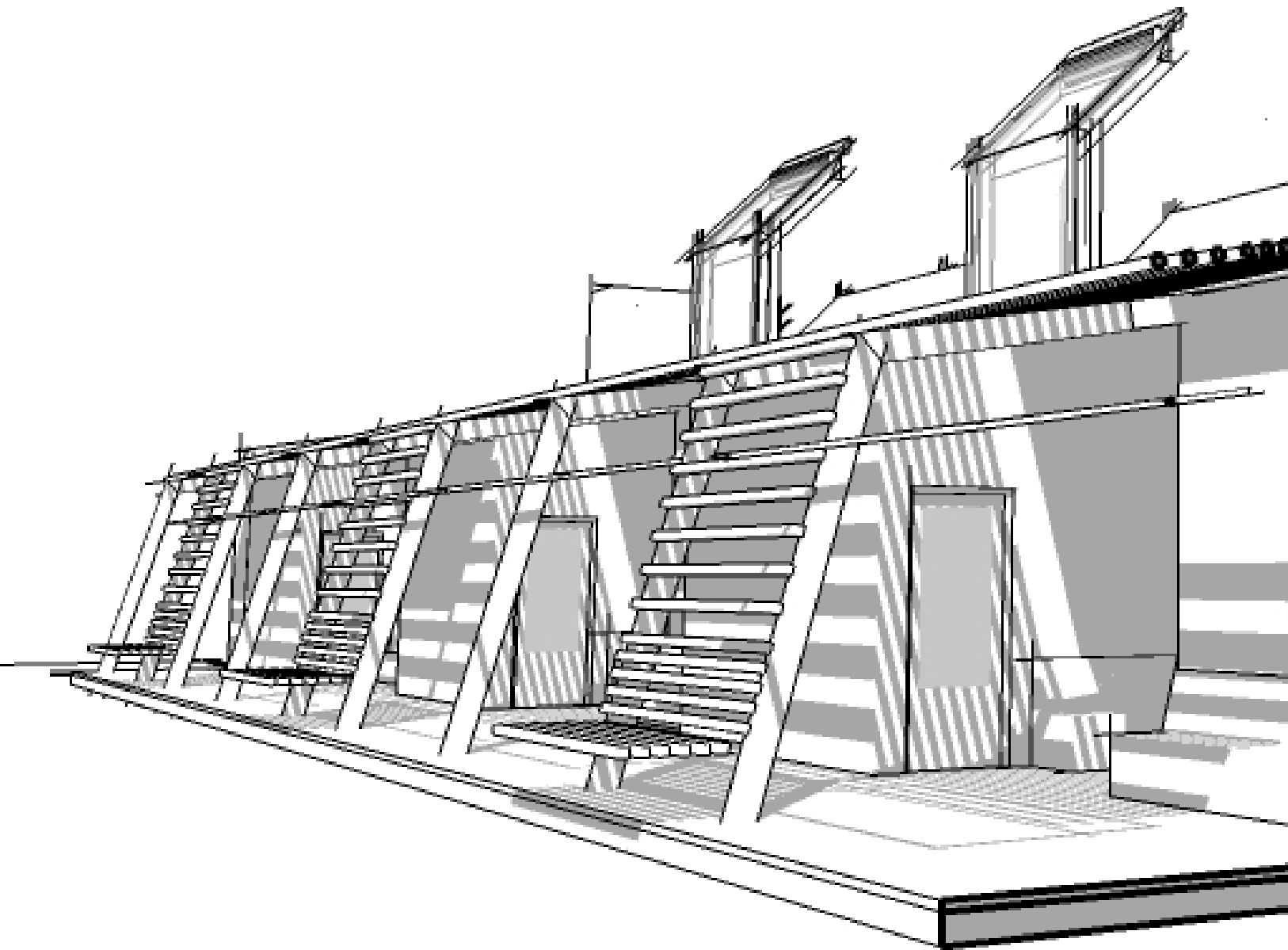


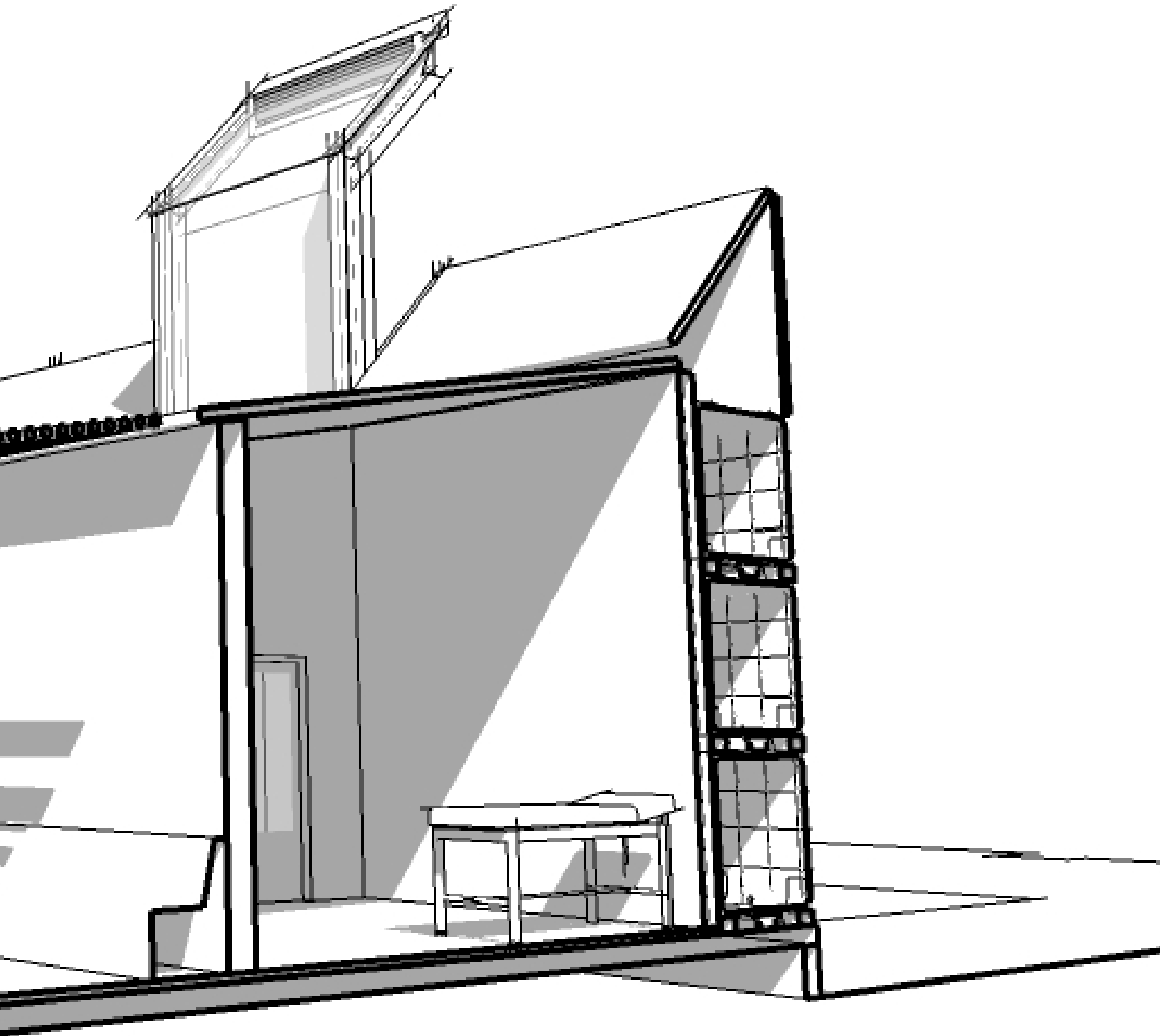


Section Perspective through TB consultation room



Section Perspective through TB consultation room - showing the layering of entrance thresholds





[6.6] Materiality

In line with the design strategies of other architects working in informal settlements and rural contexts, highlighted in chapter 4, the mapping focused on finding innovative material use, unique details and local materials.

The use of local stone, as a plinth was established as one of the common design elements across all shack designs.

The technical concept of mediating between contextualism and abstraction focuses on the manipulation of stone within the building.

The walls that guide movement throughout the building are constructed from welded steel mesh baskets, filled with the local stone.

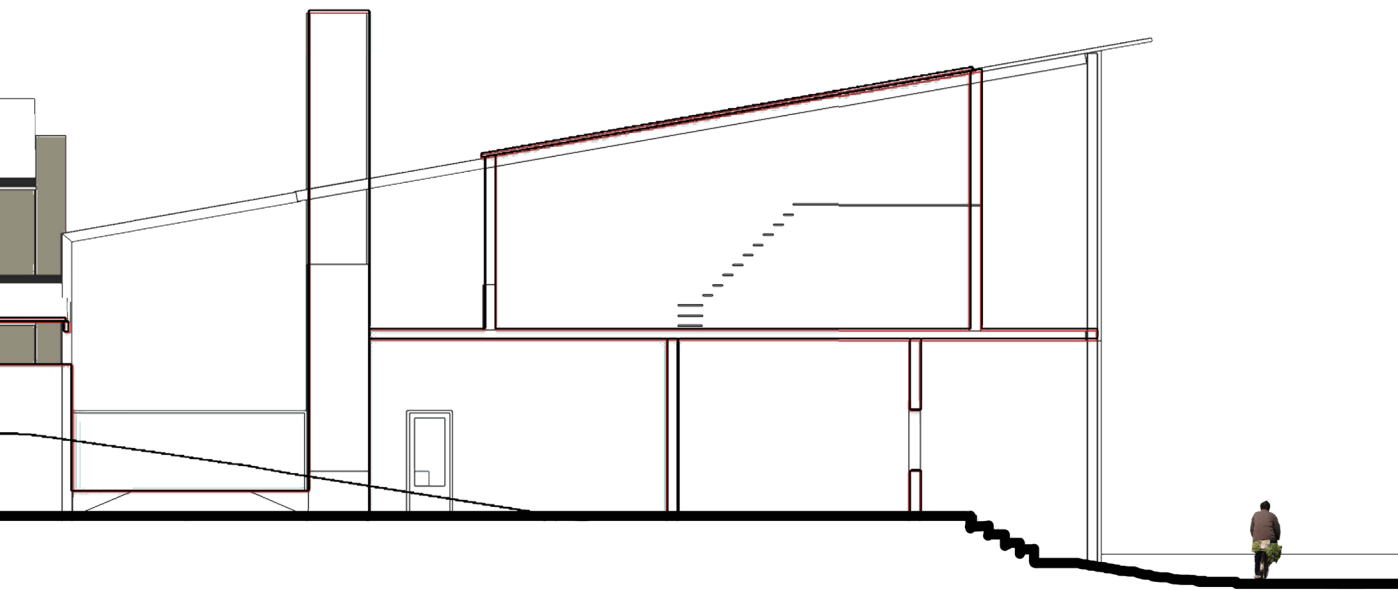
This construction method requires a steel frame structure - which could be understood as wasteful. However, the underlying structure, with gabion-like infill, allow for adaptation in the future.

ABSTRACTION



CONTEXTUAL





SECTION A|A



