

7.0 TECHNICAL CONCEPT

CHAPTER 07 TECHNICAL CONCEPT



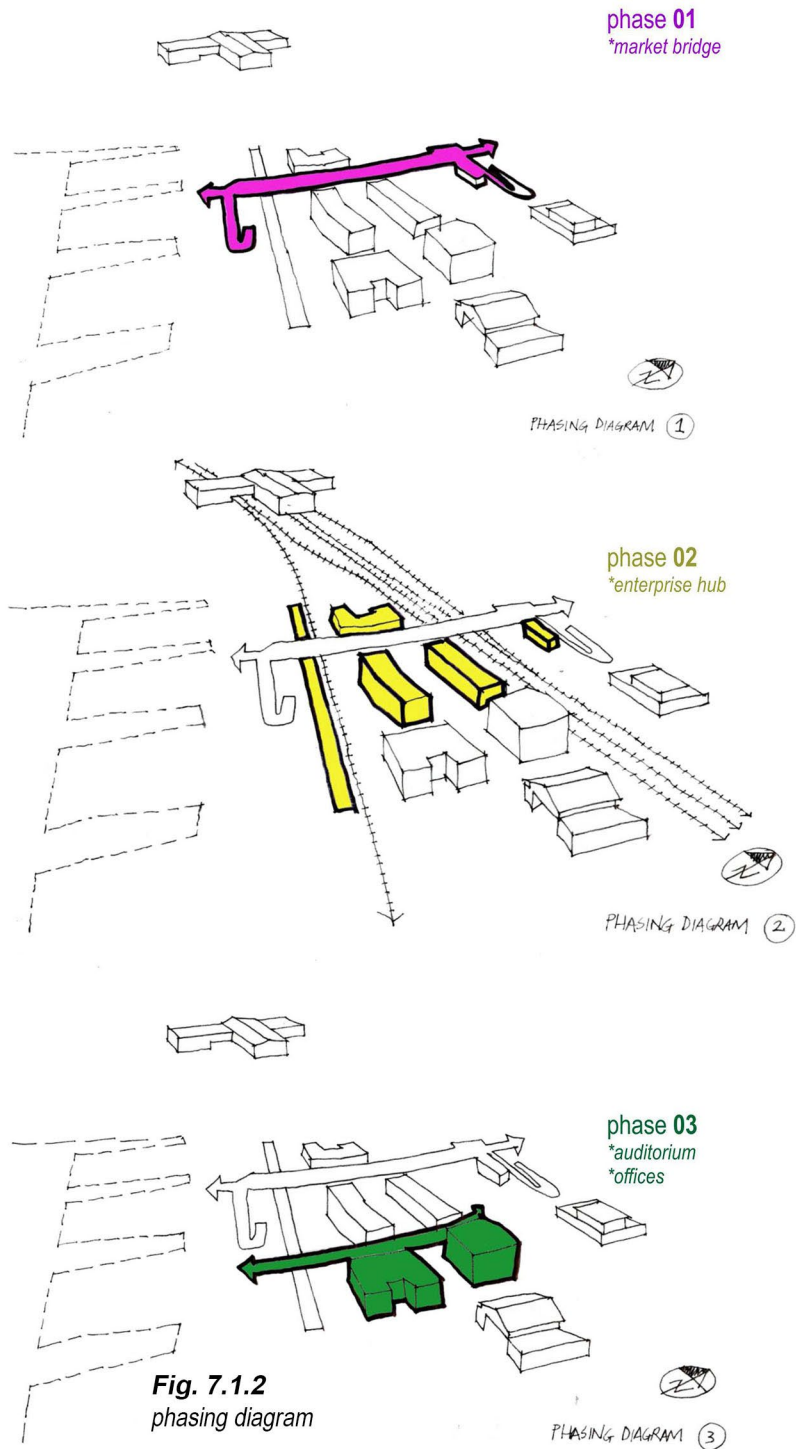


Fig. 7.1.2
phasing diagram

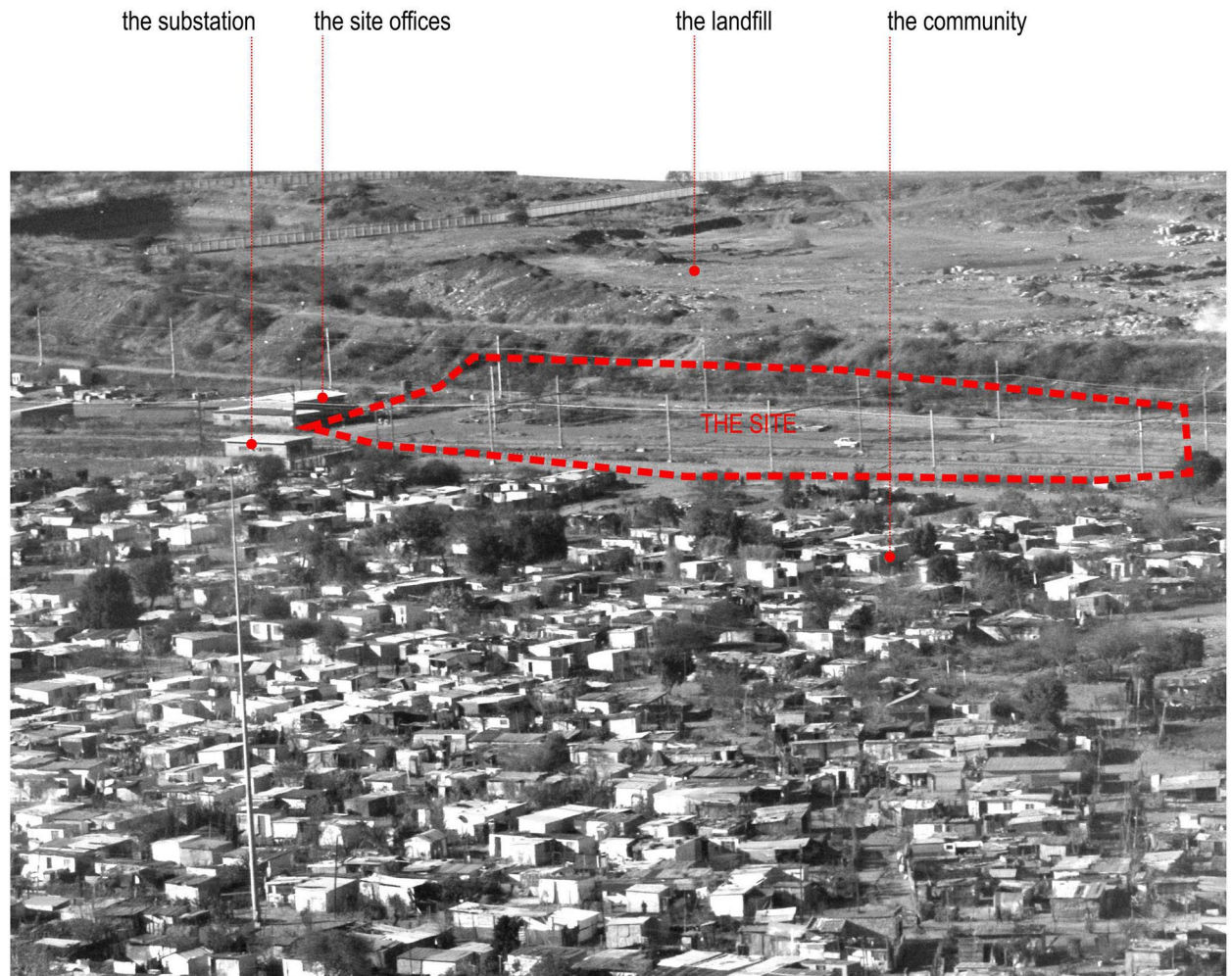


Fig. 7.1.2
Aerial image of Phumolong (Randall, 2015)



Site Plan and Program - Final
scale : nts



Fig. 7.2
site plan and programme

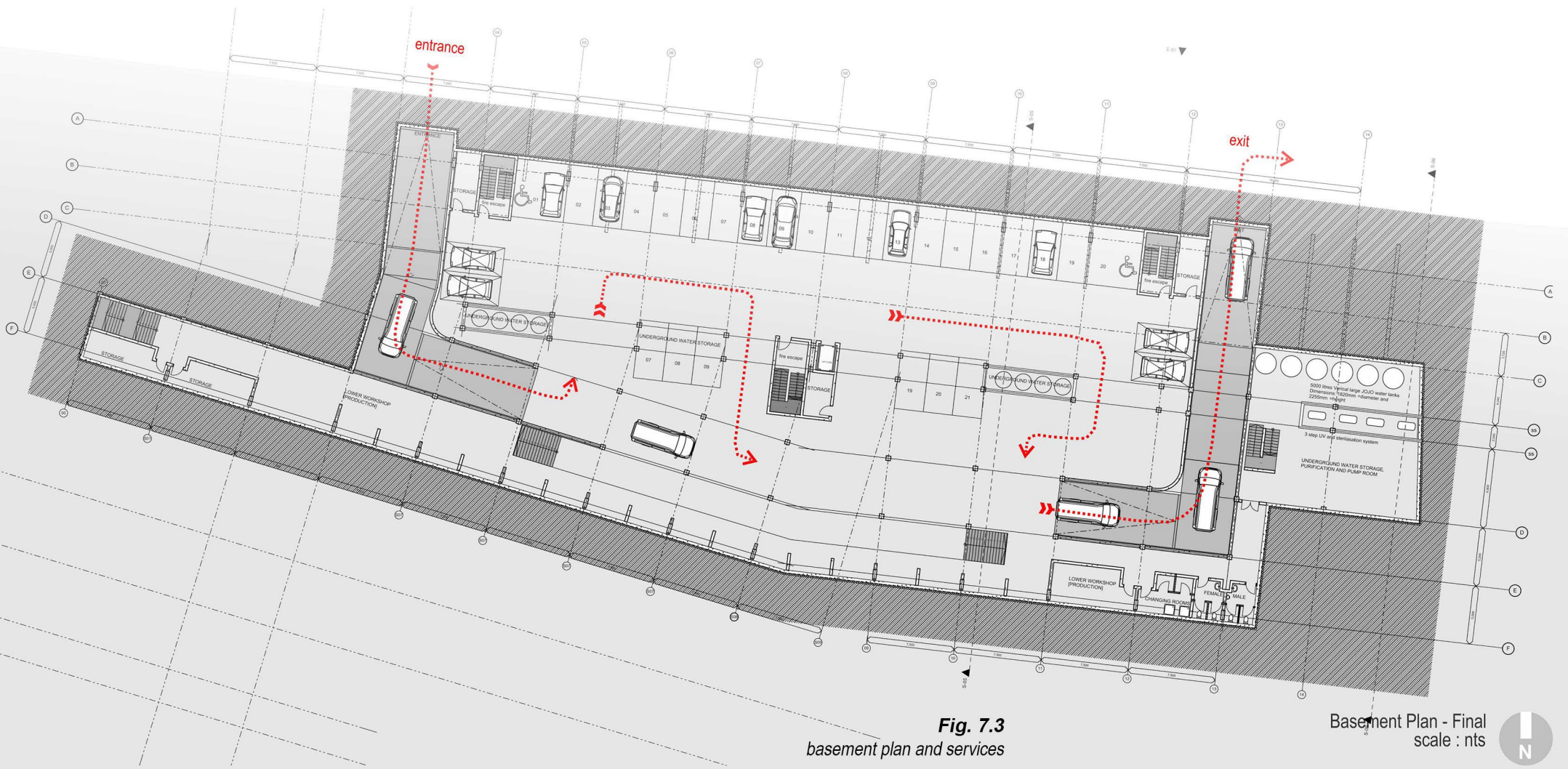


Fig. 7.3
basement plan and services

Basement Plan - Final
scale : nts





Fig. 7.4
ground floor plan

Ground Floor Plan - Final
scale : nts



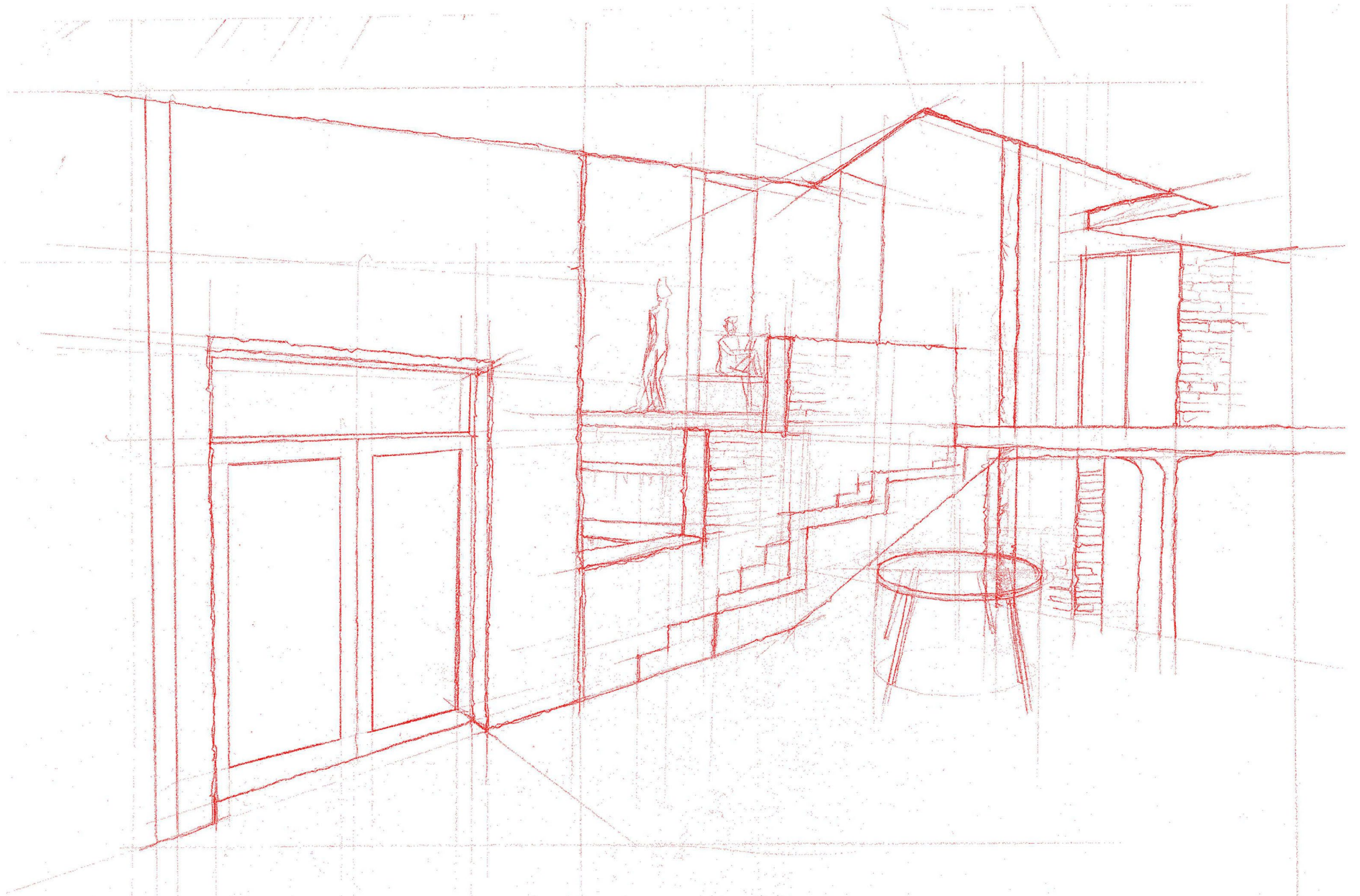


Fig. 7.5
sketch (SMITH, 2015)

interior perspective - social area

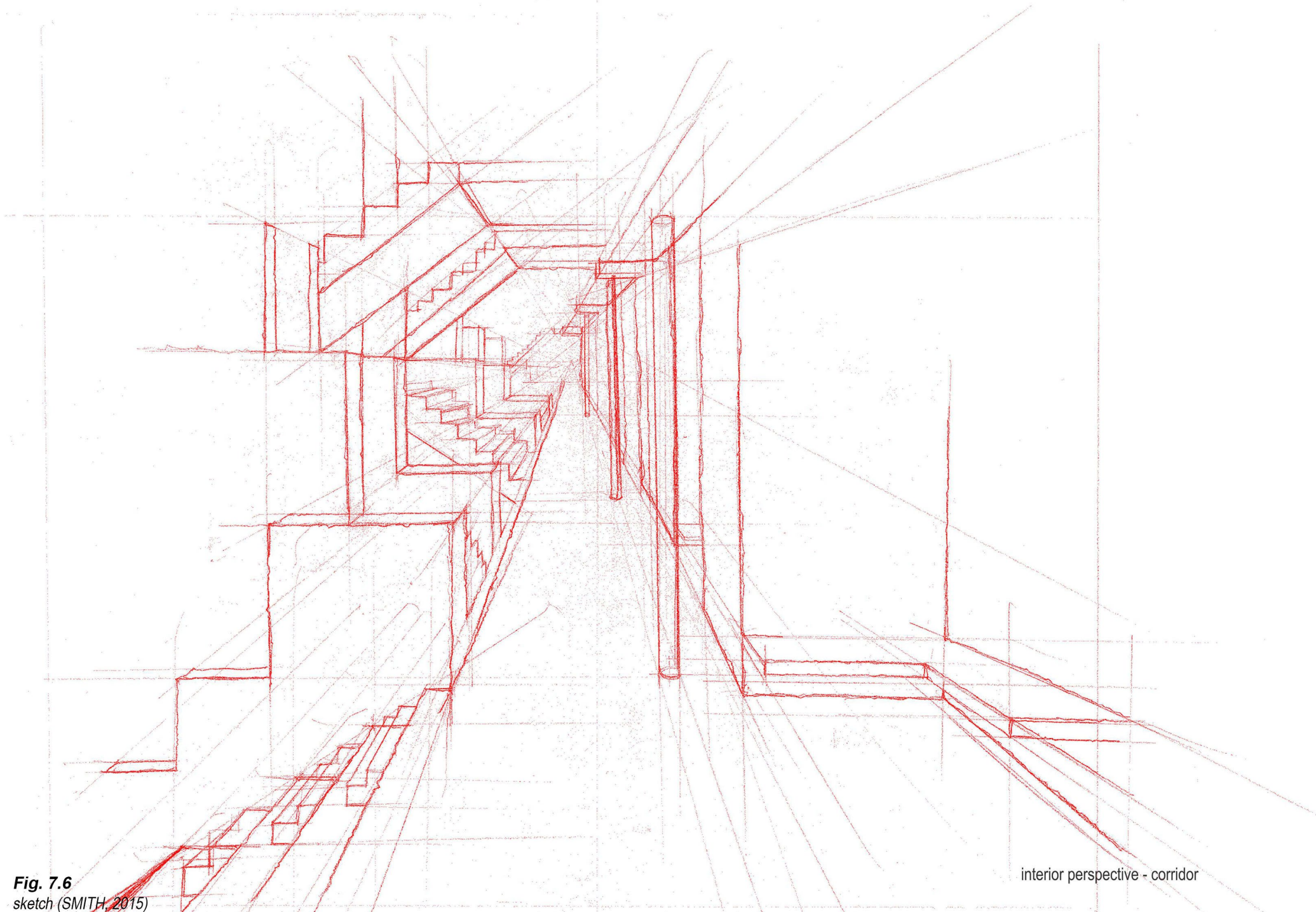
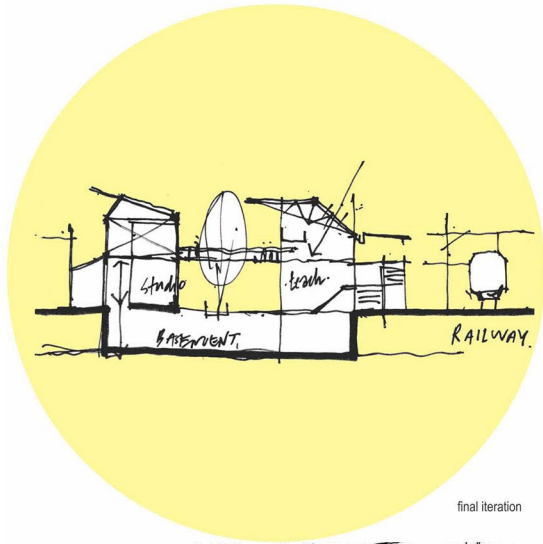
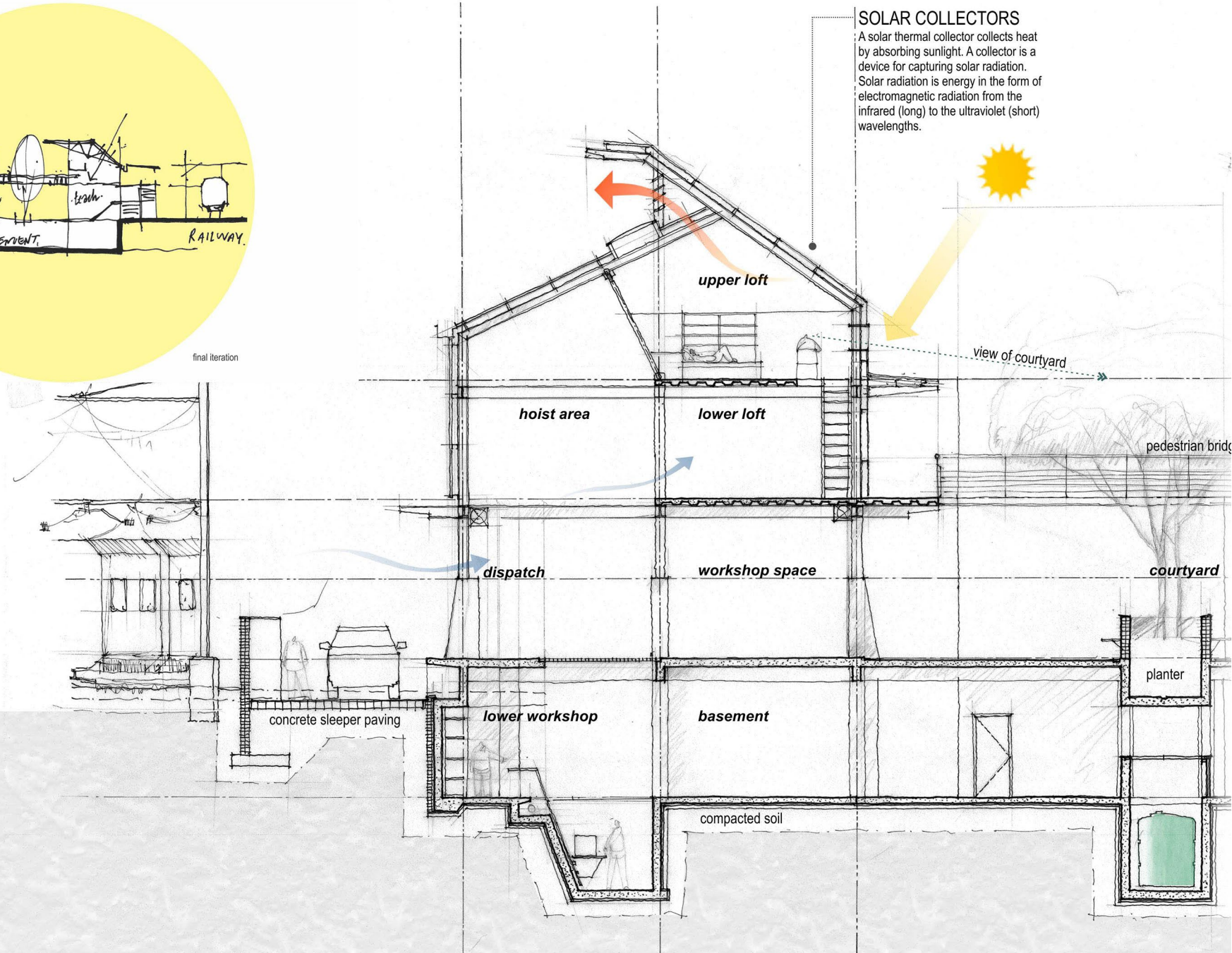


Fig. 7.6
sketch (SMITH, 2015)

interior perspective - corridor



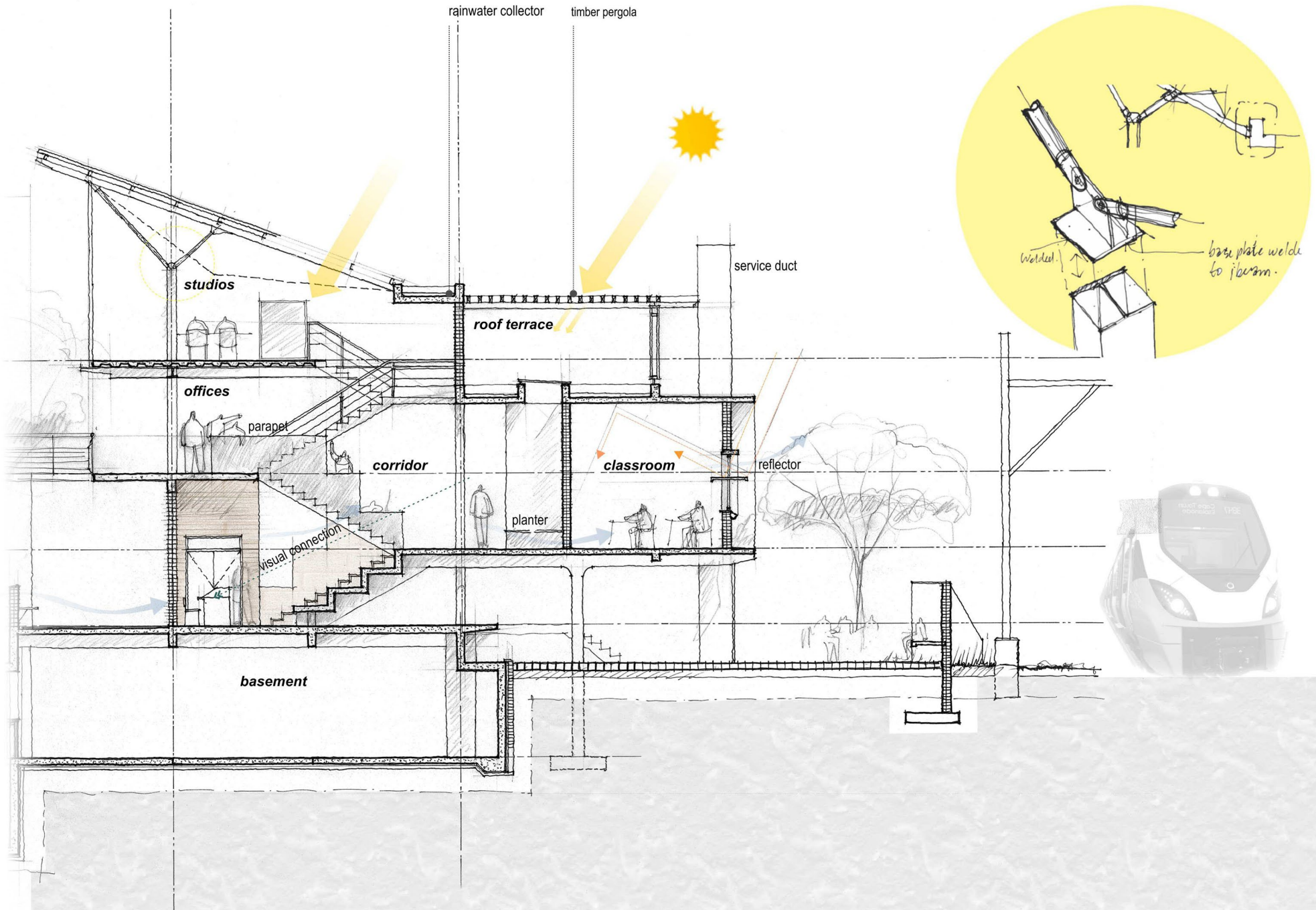
final iteration



SOLAR COLLECTORS

A solar thermal collector collects heat by absorbing sunlight. A collector is a device for capturing solar radiation. Solar radiation is energy in the form of electromagnetic radiation from the infrared (long) to the ultraviolet (short) wavelengths.

Fig. 7.7
final section



Section - AA
scale : nts

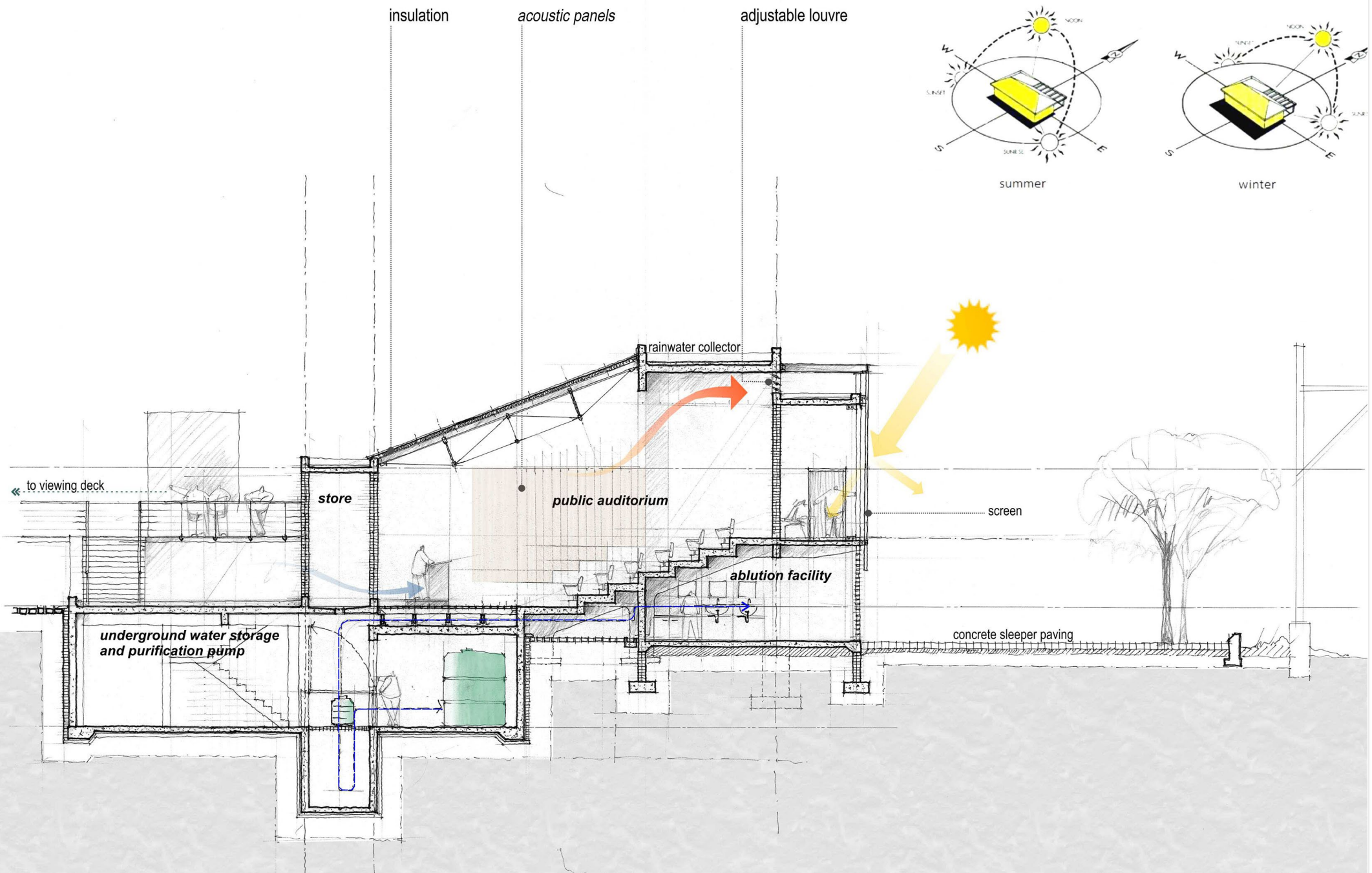


Fig. 7.9
auditorium section B B

Section - B B
scale : nts



Fig. 7.10
material and systems diagram

Section - AA
water harvesting strategy

7.0 TECHNICAL CONCEPT

The technification of the scheme is split into three parts: Primary, Secondary and Tertiary.

1. The Primary Structure is the concrete basement, where the earth is excavated, then the concrete column and beam structure are constructed in order to serve as base for the multi-functional programme above.

2. The Secondary Structure is located on the ground floor, the structural elements are rigid (stereotomic) and serve as thermal mass and insulator of sound as this is where the teaching facilities are located.

3. The Tertiary method of construction is a light steel frame structure, designed as generic modular system in order to allow for future development vertically, should the original programme of the building change in the future.

The technological and sustainable systems have been integrated into the design process in order to allow the building to adapt to its context in robust and future proof manner. The sleepers scattered on site will be reused at structural and landscape elements in order to respond to the immediate environment and develop a new architectural language.

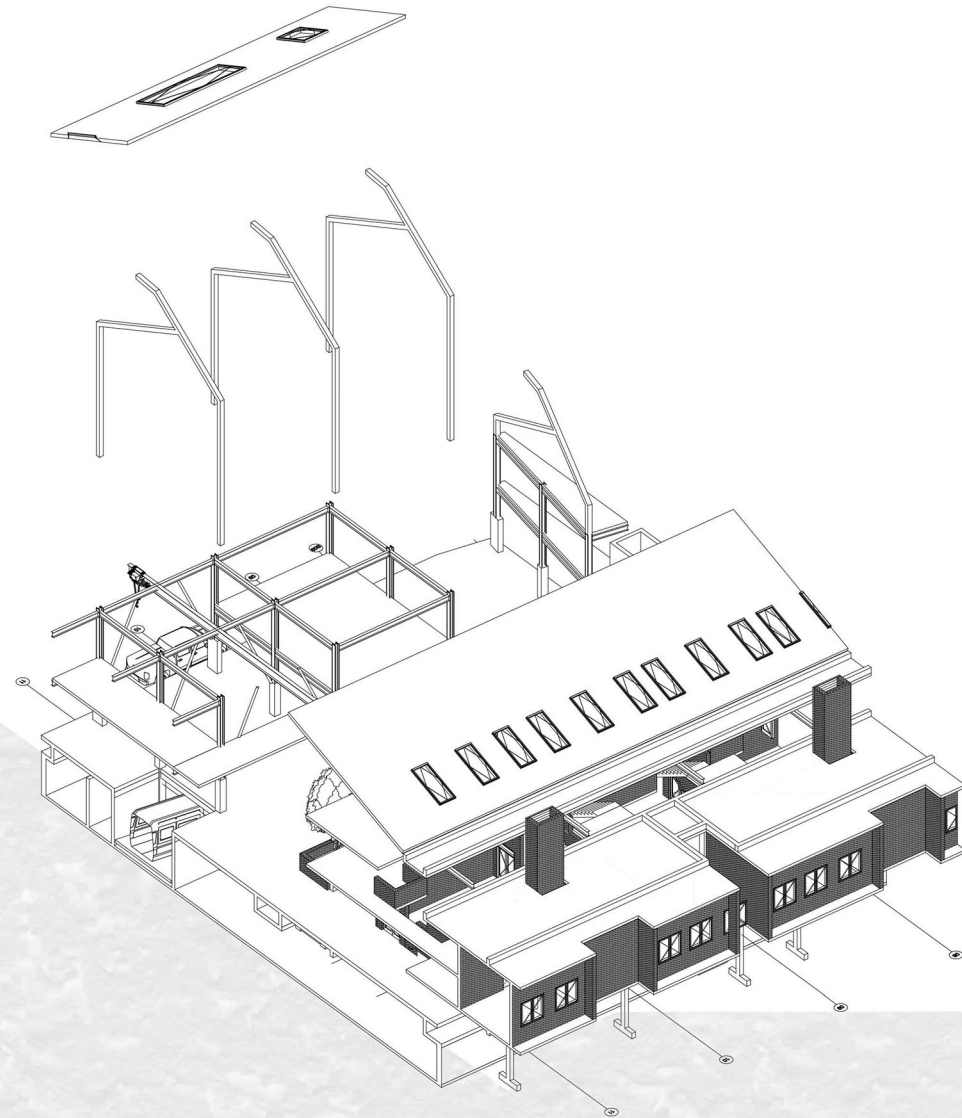


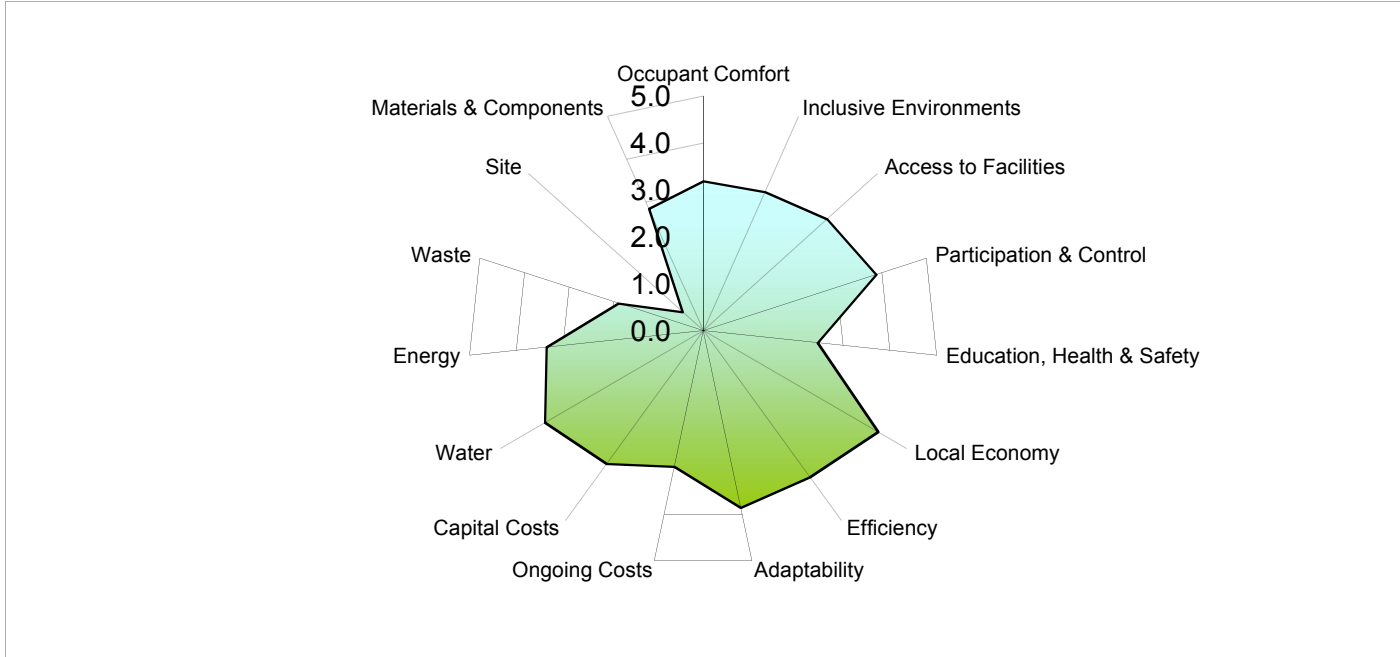
fig 7.11 exploded axo

exploded axonometric
structural analysis

7.12 SBAT RATING TOOL

SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT- P) V1

PROJECT	ASSESSMENT
Project title: The Mamelodi Youth Enterprise HUB	Date: 2015/12/10
Location: Mamelodi	Undertaken by:
Building type (specify): Community	Company / organisation:
Internal area (m2): 2100 mqs	Telephone: Fax:
Number of users: 120	Email: msizimkhize01@yahoo.com
Building life cycle stage (specify): Design/Construction/Operation	



Social 3.3

Economic 3.7

Environmental 2.5

Overall 3.2

8.0 REFERENCES

Pieterse, (2014). In: International Union of Architects (UIA) world congress. [online] Available at: <http://www.uia2014durban.org/> [Accessed 21 Oct. 2015].

Statistics South Africa, (2015). National and provincial labour market: Youth. Pretoria, p.1.

Mahajan, S. (2014). Economics of South African townships, special focus on Diepsloot. Washington: The World Bank, p.1.

Dewar, D. and Uytendogaardt, R. (1991). South African cities: A Manifesto for change. [Cape Town]: Urban Problems Research Unit, University of Cape Town.

City of Tshwane, (2012). Metropolitan Spatial Development Framework. Pretoria, pp.1, 45.

South African History online. 2015. Available from: <http://www.sahistory.org.za/article/segregated-city-2> [Accessed: 29 November 2004].

Gottsmann, D. 2009. Servant Core in Support of multi-functional service facilities. Unpublished master's thesis, University of Pretoria, Pretoria, Gauteng province, South Africa

National Treasury, (2007). Physical intervention framework at the macro (city and 'regional') scale. Cape Town.(National Treasury, 2007)

Christopher, A.J. 1994. The Atlas of changing South Africa, Routledge, Second Edition, 1-260. Available from: UP Library, Pretoria, South Africa [Accessed: 16 October 2015]

OGBU, L. 2001. South Africa After Apartheid. From Township to Town: South Africa. Available from: <https://placesjournal.org/article/south%ADafrica%ADfrom%AD-township%ADto%ADtown/16/19> [Accessed: 09 October 2015].

Judin, H., Vladislavic, I., J. 1999. Blank Reconstruction and the making of urban planning in 20th – century South Africa, E7, 276-277.

8.1 ABBREVIATIONS

Statistics South Africa STATS SA

National Treasury DNT

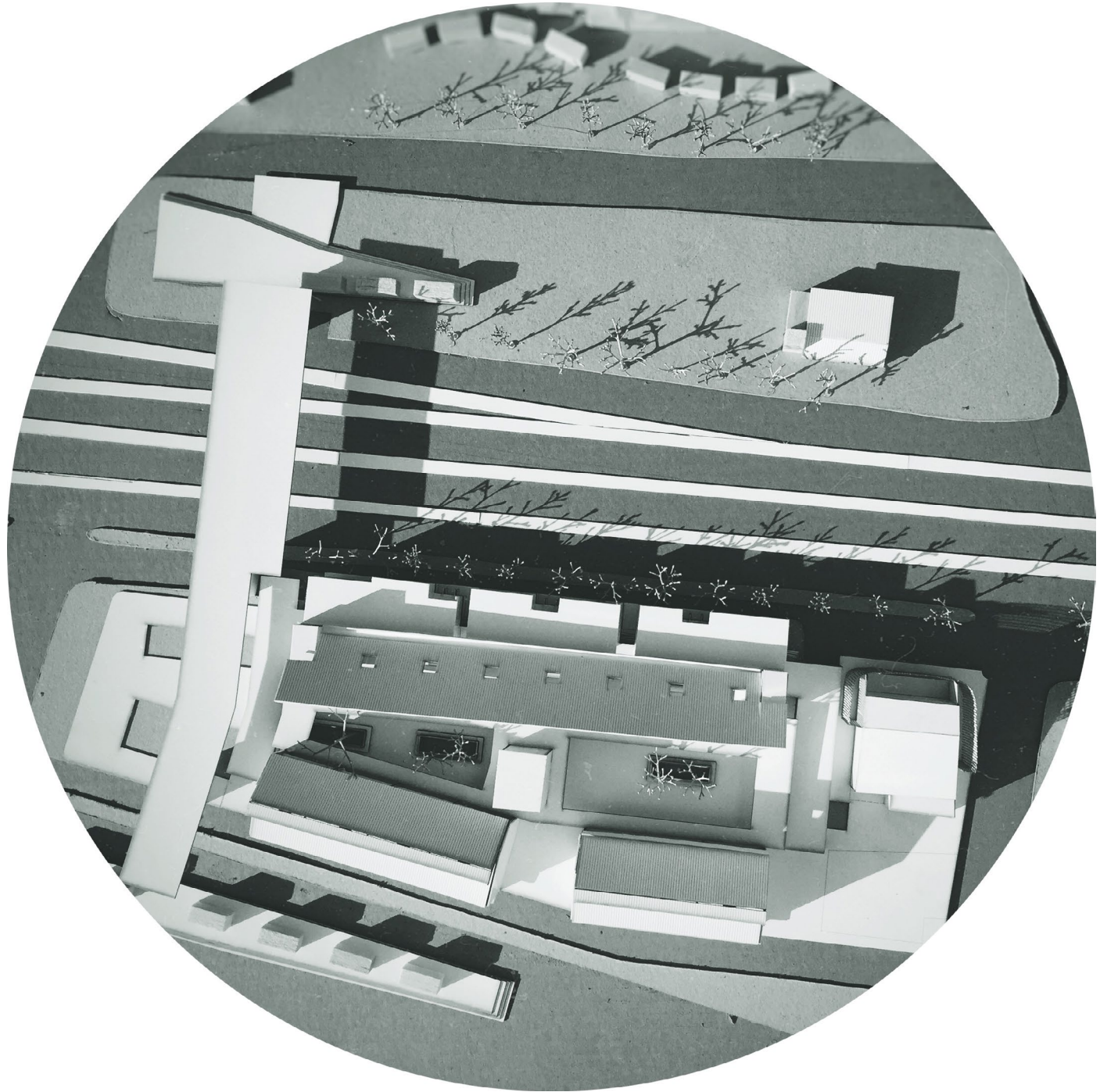
The National Development Plan NDP

Spatial Development Framework SDF

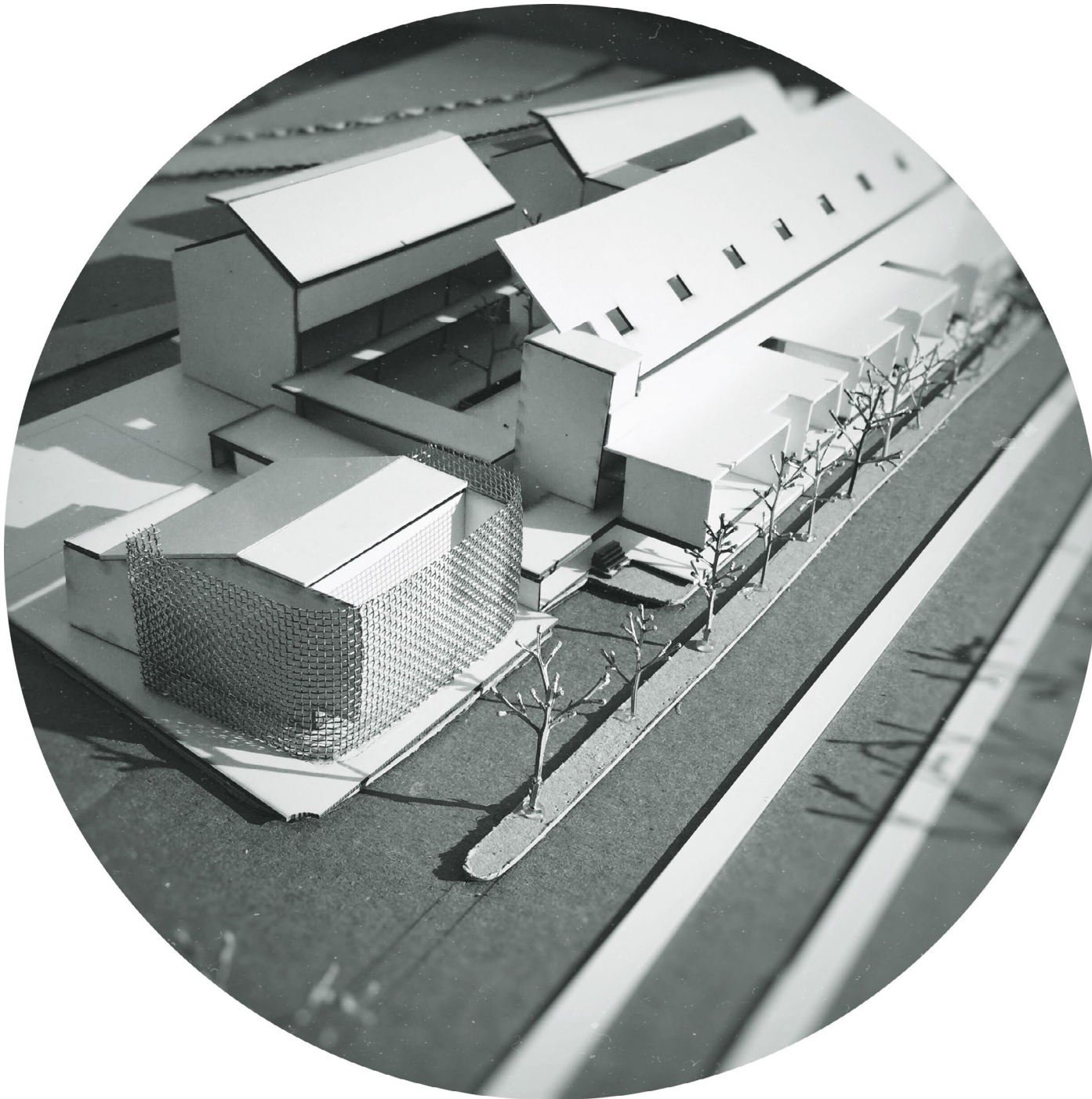
Transit Orientated Development TOD

South African Cities Network SACN

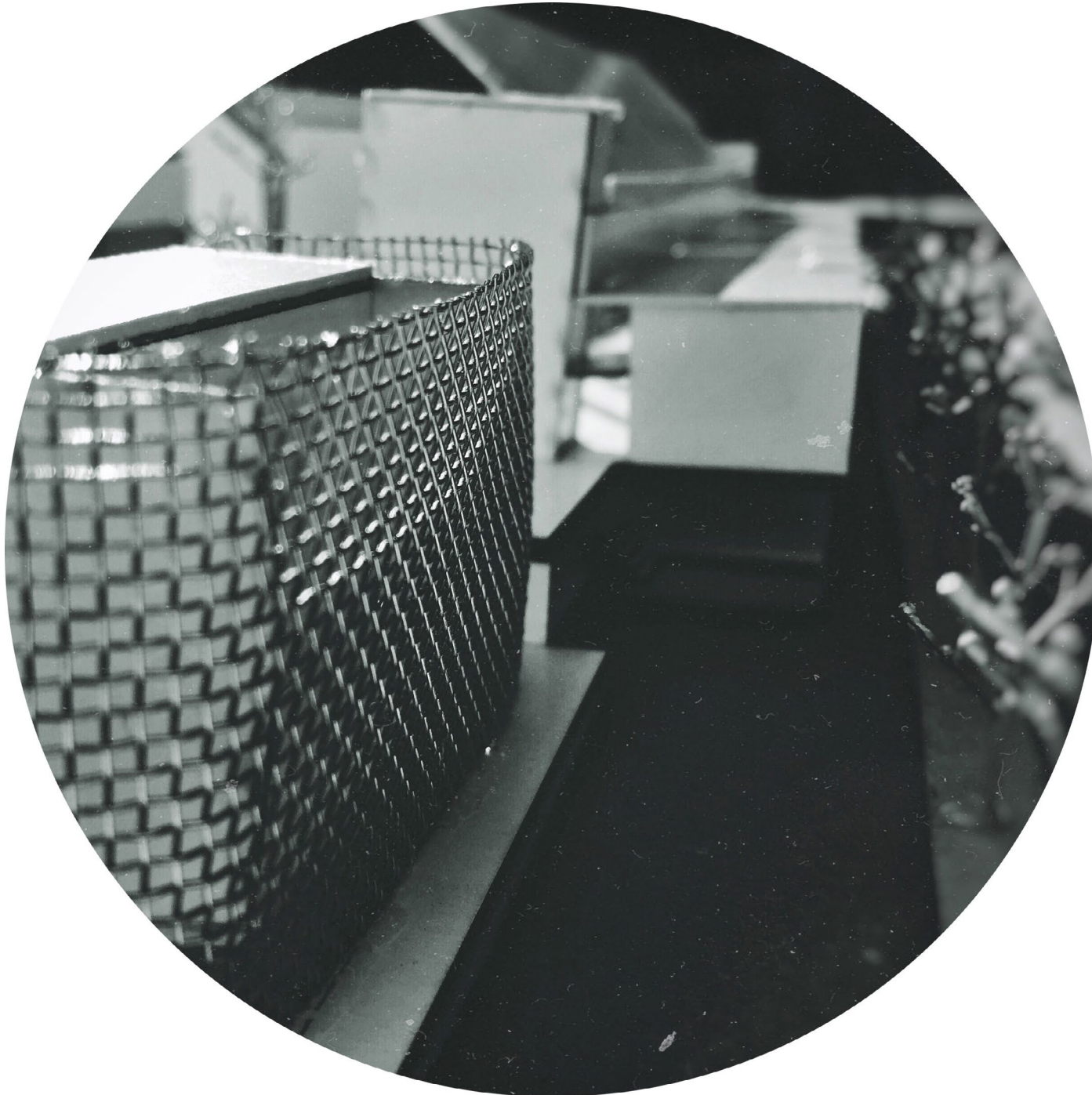
9.0 PHOTOS OF MODEL











10. LIST OF FIGURES

- Fig. 1.1 The youth 1976 during apartheid era
 Fig. 1.2 Youth in Post Apartheid South Africa
 Fig. 1.3 Children in Phumolong with reclaimed objects from landfill
 Fig. 1.4 Minister of Higher Education and training (left) Edgar Pieterse (Middle)
 Fig. 1.6 Illustrating concept of Mediation of the physical barriers
 Fig. 1.7 Women of Pumolong migrating daily to the landfill
 Fig. 1.8 Waste reclaimers on the Hartherly landfill
 Fig. 1.9 Newly renovated Greenview station
 Fig. 1.10 Tshwane Johannesburg Interrelationships (City of Tshwane, 2012)
 Fig. 2.1 Vlakfontein Native Location in 1947
 Fig. 2.2 Mamelodi Township in 1976
 Fig. 2.3 Physical issues faced by Mamelodi (GAPP, 2010)
 Fig. 2.4 Harthely Landfill, extraction of recouces
 Fig. 2.5 The railway crossing
 Fig. 2.6 The informal settlement of Phumolong
 Fig. 2.7 Strategies for improving spatial disadvantage
 Fig. 2.8 Image showing urban condition
 Fig. 2.9 Locality diagram
 Fig. 2.10 Locality diagram
 Fig. 2.11 Panorama of chosen site
 Fig. 2.12 Envisaged incremental growth on site
 Fig. 2.13 City of Tshwane locality
 Fig. 2.14 proposed nodes and industrial areas
 Fig. 3.1 City of Tshwane locality
 Fig. 3.2 Proposed nodes and industrial areas
 Fig. 3.3 Mamelodi locality (GAPP, 2010)
 Fig. 3.4 Mamelodi East Precinct (Cot, 2013)
 Fig. 3.5 Urban initial concept spatial structure
 Fig. 3.6 Urban initial concept spatial structure
 Fig. 3.7 Phumolong strategy
 Fig. 3.8 Group Urban Visions
 Fig. 3.9 Phumolong Urban Vision 01
 Fig. 3.10 Phumolong final Vision
 Fig. 4.1 Changing patterns of daily commuter traffic in Pretoria (Christopher, 2001)
 Fig. 4.2 The model of the Apartheid city (Christopher, 2001)
 Fig. 5.1 Bridge entrance precedent
 Fig. 5.2 Library facility precedent
 Fig. 5.3 tectonic precedent
 Fig. 5.4 The parapet and inbetween space
 Fig. 5.5 split level design
 Fig. 5.6 Mixed-use and adaptability
 Fig. 5.7 sustainable strategies
 Fig. 6.1 Conceptual exploration: beridging the devide
 Fig. 6.2 Conceptual exploration: structural exploration
 Fig. 6.3 Conceptual model showing justification of site
 Fig. 6.4 Bridge development
 Fig. 6.5 Conceptual Massing
 Fig. 6.6 Conceptual section: Final Iteration
 Fig. 6.7 Hoist Development
 Fig. 6.8 Conceptual section: Final Iteration
 Fig. 6.9.1 design development
 Fig. 6.9.2 design development
 Fig. 6.9.3 design development
 Fig. 6.9.4 design development
 Fig. 7.1.2 Phasing diagram
 Fig. 7.1.3 Aerial Image of Phumolong (Randall, 2015)
 Fig. 7.2 Site plan and Programme
 Fig. 7.3 Basement and services
 Fig. 7.4 Ground floor plan
 Fig. 7.5 Interior sketch (Smith, 2015)
 Fig. 7.6 Interior sketch (Smith, 2015)
 Fig. 7.7 Final Section
 Fig. 7.9 Auditorium Section B-B
 Fig. 7.10 Material and systems diagram
 Fig. 7.11 Exploed Axo