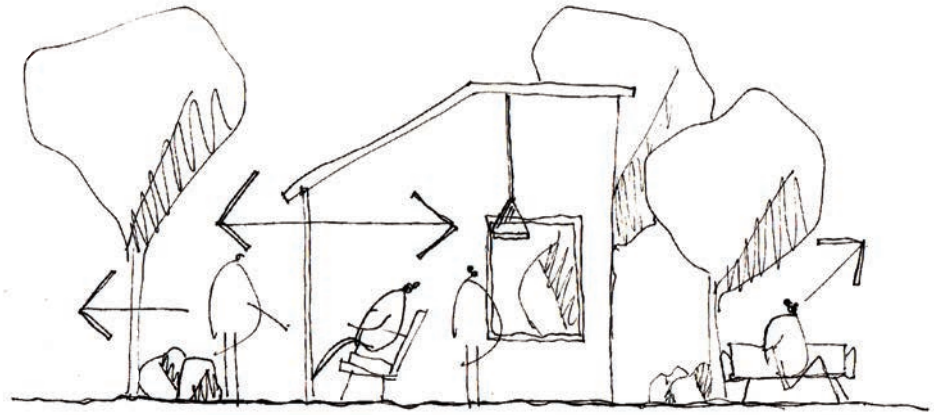


Project Information

DISSERTATION TITLE:	Memory and Being: A Salutogenic approach to the design of an Alzheimer's Facility in Cullinan.
PROJECT DESCRIPTION:	An investigation of design principles for the design of specialised healthcare facilities, with the objective of improving the wellbeing of patients diagnosed with Alzheimer's disease.
PROGRAMME:	Alzheimer's Residence.
SITE LOCATION:	Old Mining Compound, Cullinan.
GPS COORDINATES:	25 °40'53"S 28 °30'51'E
RESEARCH FIELD:	Human Settlements and Urbanism
CLIENT(S):	Elderly patients diagnosed with Alzheimer's disease accompanied with possible age related impairements.
KEYWORDS:	Institutionalisation, Alzheimer's disease, interior design, healing environment, wellbeing, salutogenic approach.
THEORETICAL PREMISE:	Salutogenesis, and Wellbeing Theory.
INTERIOR ARCHITECTURAL APPROACH:	This dissertation addresses how to achieve a reversal of institution with the associated ill-effects through the thorough investigation of the literature on Alzheimer's disease, institutionalisation, as well as the notion of healing environments and the design for wellbeing. The approach includes the application of the theoretical premise.

Submitted in partial fulfilment of the requirements
for the degree Master of Interior Architecture
(Professional) to the faculty of Engineering,
Built Environment and Information Technology.

By Kim Vermaak

Department of Architecture
University of Pretoria
2018
Study Leader: Catherine Karusseit
Course coordinator: Catherine Karusseit

DECLARATION

In accordance with Regulation 4(c) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree Master of Interior Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

Kim Vermaak

ABSTRACT

Healthcare environments in South Africa are designed with the main focus of primarily receiving patient satisfaction and furthermore providing shorter healing processes (Life Healthcare Group, 2017). Medical centres are designed according to functional requirements that ensure their efficacy. As a result they have been established as institutions designed according to established universal standards.
This becomes problematic in facilities for people with Alzheimer's disease. In these facilities, the patients are usually elderly people whose perception of the world and surrounding environments have been reoriented and compromised by a neurological disease (Gramegna & Biamonti, 2017). Patients with Alzheimer's have not only lost their reference of spatial satisfaction, but also their reference of self-dignity. Alzheimer's is an incurable disorder. Thus the institutionalisation of these facilities needs to be diffused to directly ameliorate the loss of independence and individuality that these elderly patients experience.

This dissertation aims to investigate how to achieve a diffusion of institution and the resulting ill-effects through the thorough investigation of the literature on healing environments and design for wellbeing, including salutogenic design and theory on institutionalisation. A salutogenic approach to design will be taken in an endeavor to design spaces that ensure the wellbeing of the elderly patients residing at the facility.

A site for sanctuary to empathetically facilitate this diffusion is identified. A dissertation done by Natasha Laurent in 2014 was chosen, which is located at the disused mining compound in Cullinan, 30 km east of Pretoria. The tangible and intangible heritage of the site will serve as conceptual generator, acknowledging the silence that fills cognitive space through the gradual erosion of the mind as memory is lost.

As a theoretical departure, the execution of Aaron Antonovsky's Sense of Coherence model (1996), and the application of Roger Ulrich's theory (2001) regarding visual access to natural elements, are both components that are related into design principles that could increase patient wellbeing.

EKSERP

Gesondheidsorgomgewings in Suid-Afrika is ontwerp met die hoof fokus om hoofsaaklik pasiëntetevredenheid te ontvang en bied daardeur ook korter genesingsprosesse aan (Life Healthcare Group, 2017). Mediese sentrums is ontwerp volgens funksionele vereistes wat hul doeltreffendheid verseker. As gevolg hiervan is hulle ingestel as instellings wat ontwerp is volgens gevestigde universele standaarde. Hierdie is problematies in fasiliteite vir mense met Alzheimer's. In hierdie fasiliteite is die pasiënte gewoonlik bejaardes wie se persepsie van die wêreld en omliggende omgewings geherorienteer is deur hierdie neurologiese siekte (Gramegna & Biamonti, 2017). Pasiënte met Alzheimer's het nie net hul verwysing van ruimtelike bevrediging verloor nie, maar ook hul verwysing na selfwaardigheid. Alzheimer's is 'n ongeneeslike siekte. Die institusionalisering van hierdie fasiliteite moet dus verander word om die verlies aan onafhanklikheid en individualiteit wat hierdie bejaarde pasiënte ervaar, direk te verbeter.

Hierdie tesis poog om te ondersoek, hoe om 'n verandering van die instelling te bewerkstellig, deur die deeglike ondersoek van die literatuur oor omgewings wat genees, sowel as die ontwerp vir welsyn, salutogene ontwerp en teorie oor institusionalisering. 'n Salutogene benadering tot ontwerp sal geneem word in 'n poging om ruimtes te ontwerp wat die welsyn van bejaarde pasiënte wat by die fasiliteit woon, te verseker.

'n Terrein word geïdentifiseer waar hierdie verandering van instelling kan plaasvind.'n tesis wat deur Natasha Laurent in 2014 gedoen is, is gekies, wat by die ontbinde mynbouverband in Cullinan, 30 km oos van Pretoria, geleë is. Die tasbare en ontasbare erfenis van die terrein sal dien as konseptuele genereerder, sowel as die stilte wat kognitiewe ruimte vul deur die geleidelike erosie van die verstand, aangesien die geheue verlore gaan.

As 'n teoretiese benadering, is die uitvoering van Aaron Antonovsky se 'Sense of Coherence model' (1996) en die toepassing van Roger Ulrich se teorie (2001) oor visuele toegang tot natuurlike elemente, beide komponente wat verband hou met ontwerpbeginsels wat die pasiënt se welstand kan verhoog.

Table of Contents

CHAPTER 01_ STUDY PROPOSAL

01 | Introduction....01
02 | Background....02
03 | Problem Statement....03
04 | Aim....06
05 | List of Definitions....06
06 | Study Objectives....06
07 | Significance of Study....07
08 | Research Method....07
09 | Limitations....07
10 | Overview of study....07
11 | Conclusion....11

CHAPTER 02_ CASE STUDIES

01 | Introduction....13
02 | Case Study A....17
03 | Case Study B....19
04 | Case Study Analysis....21
a. Design....23
b. Activities....23
c. Staff and Management....23
05 | Conclusion....25

CHAPTER 03_ PROGRAMME

01 | Introduction....27
02 | Spaces....32
02.1 | Private....33
a. Bedrooms....33
b. Bathrooms....33
c. Nurse's Station....33
d. Storage....33
e. Consultation Room....33
f. Dispensary....33
g. Quiet Room....33
h. Gymnasium....33
02.2 | Semi Private....33
a. Dining room....33
b. Lounge....33
c. Parlour....33
d. Kitchen and faux kitchen....33
e. Reception and Meeting Room....33
f. Toilets....33
g. Multi-functional room....34
h. Laundry room....34
02.3 | Public....34
a. Restaurant....34
b. Day-clinic....34
c. Outdoor Market....34
03 | Model Inhabitants....35
04 | Conclusion....37

CHAPTER 04_ CONTEXT

01 | Introduction....39
02 | Macro....40
03 | Meso....43
04 | Micro....47
05 | Reasoning....51
1. Suitable Site....51
2. Programmatic Intention....51
3. Conceptual approach....51
06 | Conclusion....53

CHAPTER 05_ THEORETICAL APPROACH

01 | Introduction....55
02 | Alzheimer's Disease Defined....56
02.1 | Early....56
02.2 | Mid....56
02.3 | Late....57
03 | Theoretical Understanding....58
03.1 | Introduction....58
03.2 | Salutogenesis Defined....58
03.3 | Design Methods: The three realms 61
a. Comprehensibility: read the environment....62
b. Manageability: control the environment....62
c. Meaningfulness:embrace environment....63
03.4 | Sense of Coherence....63
03.5 | Wellbeing & the Environment....64
04 | Conclusion....65

CHAPTER 06_ PRECEDENT STUDIES

01 | Introduction....67
02 | Precedent A: Maggie's Cancer Centre....68
02.1 | Critical Analysis....68
02.2 | Design Guidelines....71
03 | Precedent B: Sayanomoto Clinic for Dementia...72
03.1 | Critical Analysis....72
03.2 | Design Guidelines....73
04 | Precedent C: Le Grange Alzheimer's Residence.74
04.1 | Critical Analysis....74
04.2 | Design Guidelines....75
05 | Precedent D: Urban Day Centre for Alzheimer's..76
05.1 | Critical Analysis....76
05.2 | Design Guidelines....77
06 | Precedent E: The Pratt Institute, New York....78
07 | Conclusion....83

CHAPTER 07_CONCEPTUAL APPROACH

01 | Introduction....85
02 | Design Informants....86
a. Chapter 2: Case Studies....87
b. Chapter 4: Context....88
c. Chapter 5: Theory....89
d. Chapter 6: Precedents....90
03 | Theory as Premise....91
04 | Set of Guidelines....93
05 | The Realms....94
a. Comprehensibility: Read the environment....94
b. Manageability: Control the environment....95
c. Meaningfulness: Enhance the environment....96
06 | Conclusion....97

CHAPTER 08_DESIGN DEVELOPMENT

01 | Introduction.....99
02 | Part 1: Tangible.....101
a. Spatial Requirements.....103
b. Space Planning Iterations.....109
c. Spatial Allocations.....116
03 | Part 2: Intangible.....120
1. View of Nature.....120
2. Daylighting.....120
3. Landmarks.....120
4. Colour.....120
5. Sounds.....121
6. Smell.....122
7. Thermal Comfort.....122
8. Familiarity with physical loose object...122
9. Furniture.....123
04 | Degrees of Use.....124
05 | Detailing Strategy.....125
06 | Conclusion.....129

CHAPTER 09_ TECHNIFICATION

01 | Introduction.....131
02 | Technical Strategy.....133
03 | Category 1: Selection Criteria.....134
04 | Category 2: Connection.....136
05 | Category 3: Combination.....136
06 | Wandering Path.....137
Detail A.....140
Detail B.....142
Signage Strategy.....144
Detail C.....145
Detail D.....147
07 | Foyer & Private Lounge.....152
Detail E.....155
Detail F.....157
Detail G.....158
Detail H.....160
08|Bedrooms.....166
Detail I.....170
09 | Bathrooms.....176
Detail J.....180
Detail L.....182
Detail K.....184
10 | Internal Courtyard.....186
11 | Section BB.....192
12 | Additional Considerations.....194
13 | Conclusion.....199

CHAPTER 10_ CONCLUSION

01 | Conclusion.....201
02 | Contribution.....202
03 | Future Future Investigation &Testing.....202
04 | List of References.....203
05 | Sources consulted.....204
06 | Interviews conducted.....204
07 | Figure References.....205
08 | Appendix A.....207
09 | Appendix B.....209
10 | Appendix C.....217
11 | Appendix D.....221
12 | Appendix E.....226
13 | Appendix F.....227

Thank You.....232

List of Figures

01_STUDY PROPOSAL

Figure 1.1 Preface cover page: Conceptual Graphic (Author 2018)
Figure 1.2: Chapter cover page (Author 2018)
Figure 1.3: World wide statistic (Author 2018)
Figure 1.4: Types of Dementia (Author 2018)
Figure 1.5: Stages of Alzheimer's disease (Author 2018)
Figure 1.6: Institution vs. Institutionalisation (Author 2018)
Figure 1.7: Design as mediator (Author 2018)
Figure 1.8: Research Questions (Author 2018)
Figure 1.9: Overview of Study (Author 2018)

02_CASE STUDIES

Figure 2.1: Chapter 2 cover page (Author 2018)
Figure 2.2: Comparative study of two different facilities (Author 2018)
Figure 2.3 - 2.12: Photos of facility (Author 2018)
Figure 2.13 - 2.20: Photos of facility (Author 2018)
Figure 2.21: Design Analysis of case study A (Author 2018)
Figure 2.22: Design Analysis of case study B (Author 2018)
Figure 2.23: Activities and Managerial Structure Comparison (Author 2018)
Figure 2.24: Strengths and Weaknesses of both facilities (Author 2018)

03_ PROGRAMME

Figure 3.1 Chapter Cover page:
Figure 3.2: Map tracking all Old Age Facilities surrounding Pretoria (Author 2018)
Figure 3.3: Map indicating Location within Gauteng (Author 2018)
Figure 3.4: Map indicating location of new developments (Author 2018)
Figure 3.5: Private, Semi-Private and Public Spatial Requirements (Author 2018)
Figure 3.6: Main model inhabitants of this facility (Author 2018)
Figure 3.7: Model inhabitant design hierarchy (Author 2018)

04_CONTEXT

Figure 4.1: Chapter 4 cover page (Author 2018)
Figure 4.2: Macro, meso and micro scale indications. (Author 2018)
Figure 4.3: Location of Cullinan (Author 2018)
Figure 4.4: Map indicating 2 other Rehabilitation facilities, as well as the Private Hospital (Author 2018)
Figure 4.5: M.Prof 2014 Framework intentions and location of Mining Compound in relation to the town (Author 2018)
Figure 4.6: Diagrammatic Timeline (Author 2018)
Figure 4.7: Historical Timeline and accompanying photos (Author 2018)
Figure 4.8: Site Plan indicating design by Natasha Laurent in 2014 (Author 2018)
Figure 4.9: Diagrammatic plan indicating new vs. old buildings, as well as programmatic intentions (Author 2018)
Figure 4.10: View of Research Facilities (Laurent 2014)
Figure 4.11: Exhibition Space interior view (Laurent 2014)
Figure 4.12: Proposed greenhouse superimposed onto ruins (Laurent 2014)
Figure 4.13: First floor "bridge" inside greenhouse (Laurent 2014)
Figure 4.14: Map A - Access and Circulation (Author 2018)
Figure 4.15: Map B - Climate (Author 2018)
Figure 4.16: Map C - Sensory, sound and views (Author 2018)
Figure 4.17: Map D - Programmatic Attempt (Author 2018)
Figure 4.18: (Left) Simple explanation of Site (Author 2018)
Figure 4.19: (Above) Exploded Axonometric diagram to explain space. (Author 2018)

05_THEORETICAL APPROACH

Figure 5.1: Cover page (Author 2018)
Figure 5.2: 3 Major Stages of Alzheimer's disease (Author 2018)
Figure 5.3: Typical Symptoms of Alzheimer's disease (Author 2018)
Figure 5.4: Wellness - Illness Continuum (Author 2018)
Figure 5.5: The Salutogenic effect (Author 2018)
Figure 5.6: Diagram illustrating that Salutogenics can enhance wellbeing (Author 2018)
Figure 5.7: The Sense of Coherence Model (Author 2018)
Figure 5.8: The Sense of Coherence Model conversion into read-control-embrace for practical design purposes (Author 2018)

06_PRECEDENT STUDIES

Figure 6.1: Chapter cover page (Author 2018)
Figure 6.2: Precedent Scales (Author 2018)
Figure 6.3: Briefly analysed plan of Maggie's Cancer Centre (Archdaily 2016)
Figure 6.4: Internal view down central passage (Archdaily 2016)
Figure 6.5: Natural Flooring material resembling outdoor tile (Archdaily 2016)
Figure 6.6: Interior merging with exterior spaces (Archdaily 2016)
Figure 6.7: View from mezzanine up into skylights (Archdaily 2016)
Figure 6.8: Natural sunlight penetrates into interior space (Archdaily 2016)
Figure 6.9: Internal greenhouse attached to the interior space (Archdaily 2016)
Figure 6.10: Large skylights giving one a constant view of the sky (Archdaily 2016)
Figure 6.11: Exterior view of facility (Archdaily 2016)
Figure 6.12: Building is integrated into nature (Archdaily 2016)
Figure 6.13: Front view of facility (Archdaily 2016)
Figure 6.14: Original drawings of the design of the facility (Archdaily 2016)

Figure 6.15: Briefly analysed plan of Sayanomoto Clinic for Dementia (Archdaily 2016)
Figure 6.16: View from garden into interior (Archdaily 2016)
Figure 6.17: View parallel to bookshelf (Archdaily 2016)
Figure 6.18: Majority of natural diffused daylight (Archdaily 2016)
Figure 6.19: Subtle signage on bookshelf (Archdaily 2016)
Figure 6.20: Outdoor lighting (Archdaily 2016)
Figure 6.21: Outdoor garden at night (Archdaily 2016)
Figure 6.22: Outdoor view at night (Archdaily 2016)
Figure 6.23: View from street (Archdaily 2016)
Figure 6.24: Briefly annotated plan of Le Grange Alzheimer's Residence (Archdaily 2014)
Figure 6.25: Natural daylight penetrating in (Archdaily 2014)
Figure 6.26: Central core with handrail (Archdaily 2014)
Figure 6.27: Definitive colour for orientation (Archdaily 2014)
Figure 6.28: Parlour with 70's artwork (Archdaily 2014)
Figure 6.29: Pattern in bathrooms (Archdaily 2014)
Figure 6.30: Pattern in bedrooms (Archdaily 2014)
Figure 6.31: Outdoor view of entrance (Archdaily 2014)
Figure 6.32: Garden and entrance (Archdaily 2014)
Figure 6.33: Garden with familiar furniture (Archdaily 2014)
Figure 6.34: Briefly annotated plan of Urban day Centre for Alzheimer's (Archdaily 2012)
Figure 6.35: View from Street (Archdaily 2012)
Figure 6.36: Sunlight in interior foyer (Archdaily 2012)
Figure 6.37: Little contrast between floor & wall (Archdaily 2012)
Figure 6.38: Different colours around core (Archdaily 2012)
Figure 6.39: Monotone finishes (Archdaily 2012)
Figure 6.40: Substantial handrails around core (Archdaily 2012)
Figure 6.41: Different colours for orientation (Archdaily 2012)
Figure 6.42: Signage from Street edge (Archdaily 2012)
Figure 6.43: Contrast between floor and core (Archdaily 2012)
Figure 6.44: Foyer with diffused sunlight (Archdaily 2012)
Product Item 1: Mirror Table by Sean Wang, 2017
Product Item 2: Out of Sight Drawer by Caitlin McIver, 2017
Product Item 3: Hug Chair by Nick Petcharatana, 2017
Product Item 4: Velcro Wallpaper by Brayden Young, 2017
Product Item 5: Mobile Garden by Kate Cutlip, 2017
Product Item 6: Clothing organizer by Aaron Green, 2017
Product Item 7: No country for Old Men – Monolight by Lanzavecchia + Wal, 2012
Product Item 8: No country for old men – Assunta by Lanzavecchia + Wal, 2012
Product Item 9: No country for old men - Together by Lanzavecchia + Wal, 2012
Product Item 10: Chairless chair by Sapette Studio, 2018
Product Item 11: Dressing Unit by The Helen Hamlyn Centre, 2010
Product Item 12: Desks Unit by The Helen Hamlyn Centre, 2010
Product Item 13: Pegboard by The Helen Hamlyn Centre, 2010
Product Item 14: Plate by The Helen Hamlyn Centre, 2010
Product Item 15: Cup by The Helen Hamlyn Centre, 2010
Product Item 16: Bowl by The Helen Hamlyn Centre, 2010
Product Item 17: Cup by The Helen Hamlyn Centre, 2010

07_CONCEPTUAL APPROACH

Figure 7.1: Chapter 7 cover page (Author 2018)
Figure 7.2: Diagrammatic outline of Design Informants (Author 2018)
Figure 7.3: Spatial design analysis (Author 2018)
Figure 7.4: Activities analysis (Author 2018)
Figure 7.5: Systems analysis (Author 2018)
Figure 7.6: Medical Precinct mapping (Author 2018)
Figure 7.7: Understanding the design of virtual site (Author 2018)
Figure 7.8: Mapping of current conditions (Author 2018)
Figure 7.9: The Wellness-Illness continuum (Author 2018)
Figure 7.10: The Salutogenic effect (Author 2018)
Figure 7.11: The SOC model (Author 2018)
Figure 7.12: Precedents on Macro scale (Author 2018)
Figure 7.13: Precedents on Meso scale (Author 2018)
Figure 7.14: Precedents on Micro scale (Author 2018)
Figure 7.15: The sense of coherence model (Author 2018)
Figure 7.16: Visual interpretation of Comprehensibility (Author 2018)
Figure 7.17: Visual interpretation of Manageability (Author 2018)
Figure 7.18: Visual interpretation of Meaningfulness (Author 2018)

08_DESIGN DEVELOPMENT

Figure 8.1: Cover page (Author 2018)
Figure 8.2: Opportunity exists between guidelines and application thereof (Author 2018)
Figure 8.3: Final Site Plan - not to scale (Author 2018)
Figure 8.4: Spatial Requirements for the facility (Author 2018)
Figure 8.5: Programmes intact vs. New Programmes (Author 2018)
Figure 8.6: Existing Plan (Author 2018)
Figure 8.7: New Construction Plan (Author 2018)
Figure 8.8: Public to Private orginisation (Author 2018)
Figure 8.9: Path development- circular vs square (Author 2018)
Figure 8.10: Plan development iterations (Author 2018)
Figure 8.11-8.13: Space Planning iterations (Author 2018)
Figure 8.14: Space Planning process work (Author 2018)
Figure 8.15: Final First Floor Plan Layout (Author 2018)
Figure 8.16: Final Second Floor Plan Layout (Author 2018)
Figure 8.17: Spatial Allocations: Bedrooms & Bathrooms (Author 2018)
Figure 8.18: Spatial Allocations: Nurse Station & Music Room (Author 2018)
Figure 8.19: Spatial Allocations: Dining Room (Author 2018)
Figure 8.20: Spatial Allocations: Lounge & Parlour (Author 2018)
Figure 8.21: Spatial Allocations: General Kitchen & Faux Kitchen (Author 2018)
Figure 8.22: Spatial Allocations: Reception, Meeting Room, Multi-functional therapy Room & General WC's (Author 2018)
Figure 8.23: Spatial Allocations: Consultation Room & Dispensary (Author 2018)

Figure 8.24: Sensory Scale (Author 2018)
Figure 8.25: Colour (Author 2018)
Figure 8.26: Sound (Author 2018)
Figure 8.27: Aroma (Author 2018)
Figure 8.28: Thermal Comfort (Author 2018)
Figure 8.29: The degrees of Use (Author 2018)
Figure 8.30: (top left) Design Criteria (Author 2018)
Figure 8.31: (top) Areas of Design (Author 2018)

09_TECNIFICATION

Figure 9.1: Cover page (Author 2018)
Figure 9.2: Technical Strategy Diagram (Author 2018)
Figure 9.3: (Top) Location of specifically designed areas (Author 2018)
Figure 9.4: (Bottom right) Key for orientation throughout the rest of the chapter (Author 2018)
Figure 9.5: (Right) Wandering path cover page (Author 2018)
Figure 9.6: (Left) Plan and principles of Wandering Path (Author 2018)
Figure 9.7: (Above) Sensory elements considered as part of design (Author 2018)
Figure 9.8: (Below) Plan of Detail A_Staircase (Author 2018)
Figure 9.8: Detail A components (Author 2018)
Figure 9.9: (Below) Plan of Detail J_Staircase (Author 2018)
Figure 9.10:(Right) Section and axonometric of Detail J_ Staircase (Author 2018)
Figure 9.11: 3D callouts of Detail A (Author 2018)
Figure 9.12: Detail B components (Author 2018)
Figure 9.13: LED Strip lighting of Detail B (Author)
Figure 9.14: (Right) Section of Detail B (Author 2018)
Figure 9.15: Process Iterations of Detail B (Author)
Figure 9.16: (Far Right) Section and iterations of Detail B (Author 2018)
Figure 9.17: (Above) Signage Strategy and wing colours (Author 2018)
Figure 9.18:(Right) Types of Signs and according icons required(Author 2018)
Figure 9.19: (Right) Signage location (Author 2018)
Figure 9.20: Detail C components (Author 2018)
Figure 9.21: (Far Right) Detail C and 3D (Author 2018)
Figure 9.22: (Above) Locality Plan and Detail D (Author 2018)
Figure 9.23: (Right) Foyer & Private Lounge cover page (Author 2018)
Figure 9.24: (Above) Different iterations and Principles (Author 2018)
Figure 9.25: (Below) Floor plan of Foyer & Private Lounge (Author 2018)
Figure 9.26: Detail E components (Author 2018)
Figure 9.27: (Right) Detail E elevation (Author 2018)
Figure 9.28: (Far Right) Detail E Section (Author 2018)
Figure 9.29: Detail F components (Author 208)
Figure 9.30: (Above left) Detail drawing of Detail F_singage panel (Author 2018)
Figure 9.31: (Above Right) Front door regulations and guidelines derived from the design guideline document (Author 2018)
Figure 9.32: (above) Detail G components (Author 2018)
Figure 9.33: (Right) Section 1 of Detail G (Author 2018)
Figure 9.34: 3D representation of Detail G (Author 2018)
Figure 9.35: (Far Right) Section 2 of Detail G (Author 2018)
Figure 9.36: Detail H components (Author 2018)
Figure 9.27: (Below) Plan of Detail H (Author 2018)
Figure 9.38: Section 1 of Detail H (Author 2018)
Figure 9.39: (Right) 3D representations of Detail H (Author 2018)
Figure 9.40: Section 2 of Detail H (Author 2018)
Figure 9.41: (Above) 3D of foyer space (Author 2018)
Figure 9.42: (Right) 3D of private lounges (Author 2018)
Figure 9.43: (Left) Bedroom cover page (Author 2018)
Figure 9.44: (Above) Different iterations and principles (Author 2018)
Figure 9.45: (Below) Bedroom Plan (Author 2018)
Figure 9.46: (Right) Different specifications of bedroom space (Author 2018)
Figure 9.47: Detail I components (Author 2018)
Figure 9.48: Axonometric of Detail I in context (Author 2018)
Figure 9.49: (Below) Section of Detail I (Author 2018)
Figure 9.50: (Above) 3D axo's of Detail I (Author 2018)
Figure 9.51: (Right) Shelving and Storage possibilities for Detail I (Author 2018)
Figure 9.52: Individual components for Detail I (Author 2018)
Figure 9.53: (Above) Scenario A vs. Scenario B (Author 2018)
Figure 9.54: (Right) Bathroom cover page (Author 2018)
Figure 9.55: (Above) Bathroom iterations and principles (Author 2018)
Figure 9.56: (Below) Bathroom plan (Author 2018)
Figure 9.57: (Right) Bathroom Specifications (Author 2018)
Figure 9.58: (Left) Detail J components (Author 2018)
Figure 9.59: Axonometric of Detail J (Author 2018)
Figure 9.60: Section 1 of Detail J (Author 2018)
Figure 9.61: Iterations of Detail J (Author 2018)
Figure 9.62: (Below) Section 2 of Detail J (Author 2018)
Figure 9.63: Section 3 of Detail J (Author 2018)
Figure 9.64: Detail L components (Author 2018)
Figure 9.65: Axonometric of Detail L (Author 2018)
Figure 9.66: Plan of Detail L (Author 2018)
Figure 9.67: Section 1 of Detail L (Author 2018)
Figure 9.68: Section 2 of Detail L (Author 2018)
Figure 9.69: Detail K components (Author 2018)
Figure 9.70: Axonometric of Detail K (Author 2018)
Figure 9.71: Plan of Detail K (Author 2018)
Figure 9.72: Section of Detail K (Author 2018)
Figure 9.73: 3D realization of Detail K (Author 2018)
Figure 9.74: (Left) Internal Courtyard cover page (Author 2018)
Figure 9.75: (Above) Iterations and principles (Author 2018)
Figure 9.76: (Left) Internal Courtyard plan (Author 2018)
Figure 9.77: (Below) Specifications within Internal Courtyard (Author 2018)
Figure 9.78: (Above) Flora Selection (Author 2018)

Figure 9.79: (Right) 3D realization of Internal Courtyard (Author 2018)
Figure 9.80: Section BB_not to scale (Author 2018)
Figure 9.81: Escape Routes (Author 2018)
Figure 9.82: Natural vs. Mechanical Ventilation (Author 2018)
Figure 9.83: Circulation (Author 2018)

10_CONCLUSION

Figure 10.1: Cover page (Author 2018)

LIST OF TABLES:

Table 1: Design Guidelines (Author 2018)
Table 2: Material Selection Matrix (first section) (Author 2018)

APPENDICES:

Appendix A: Signed letters of consent
Appendix B: Design Guideline document
Appendix C: Material Selection Matrix
Annexure D: Photos of final crit on 2018/11/23

Toegewy aan
Hellies, God se grootste geskenk aan my.

Preface

On Sunday 18 January 2015, my Grandad looked up at me from his hospital bed and uttered with complete calmness, “Hello, Miss Flossy!”, accompanied by the biggest smile I had ever seen him give in my 22 years of knowing him. This was such a lovely moment, as he had not addressed me by my nickname in seven months. One year prior to this peaceful Sunday morning, my grandad Noel Thomas was diagnosed with early-stage Alzheimer’s disease. Little did I know the nicknames Flossy and Madam that he had given to myself and my sister, would not only fade from his memory, but also from his reality. At the time, I also did not know that this would be the last time my Grandad would grasp a quick glimpse of me, passing away peacefully a week later.

In 2013, my grandad was diagnosed with this deeply intensifying neurological disease that had a ghastly effect on my family members. Looking back at him, and remembering the suffering that was conveyed by this destructive disease, is a memory that I would rather not have. In the later stages of his diagnosis, he struggled to speak, he could not walk, or change his own clothes. He battled to feed and cleanse himself. He was in constant pain and grimaced when we try to lift him in his bed. I clearly remember two instances; the first was visiting him when he still resided at home, and the second, was two weeks later when he moved into a high-care retirement facility. These two instances are completely opposite to one another. The loss of dignity and self-respect completely faded once he became dependent on receiving 24-hour care. The loss in confidence that followed, drastically hindered his decision making abilities.

In 2013, when he was initially diagnosed, the doctor told us that he would easily live for another ten years with Alzheimer’s disease. The first phase of diagnosis included loss of short term memory, and this lasted for about four months, after which the following phase commenced; which included isolation and exhaustion. During this period, small senseless activities seemed to stimulate him, such as watering the driveway twice a day. At first this did not bother us, until the water bill escalated and became an issue for my grandmother. Five months after his diagnosis, my grandad decided to go for a walk, and did not return for five hours. Finally, after a long search he was found sixteen kilometers away from home, carrying a bunch of bright orange artificial flowers that he had picked up along the way. He was dehydrated and sunburnt, and terribly excited to give my grandmother the flowers.

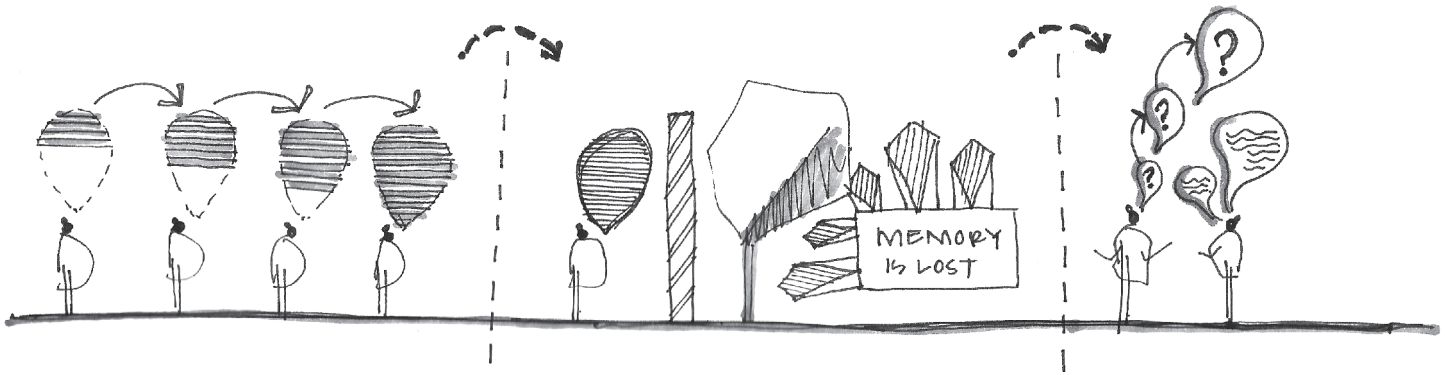
At ten months, the exhaustion had taken over his bodily functions and he struggled to get out of bed without feeling pain. After noticing one morning that he was dragging his left foot, we were told by the doctor that he had had two strokes the previous evening, while he was asleep. At this point in time the disorientation and confusion was a pertinent part of his being. He seemed to always have a far-off look in his eyes that saddened us deeply. He refused to bathe, and only woke up for a sandwich every few hours. We were told that most patients suffering from Alzheimer’s disease develop a fear of water in the later stages of this disease. It is connected to the neurological damage caused to the brain that creates confusion between hot and cold temperatures. Not to mention the vulnerability caused when having to undress, the uncertainty of water hitting the skin, and finally the cold clinical feel of bathrooms, also effects these patients greatly.

Going through this experience as a family member alongside a patient suffering from this disease, has shaped the overall perception of not only people suffering from this disease, but elderly people in general. There is no strategy for treating this disease and certainly no talk of a cure or recovery from it.

Towards the end, my grandfather had completely lost his dignity and strength. Prior to this disease, he was a strong healthy man, who had completed the Comrades Marathon fifteen times during his adult years. He was a man who I had unwavering adoration for, and seeing him be defeated by this disease was devastating.

Figure 1.1 Preface cover page: Conceptual Graphic (Author 2018)

chapter 01
STUDY PROPOSAL



01 | INTRODUCTION

This dissertation seeks to investigate design principles for the design of specialised healthcare facilities, with the objective of improving the wellbeing of patients diagnosed with Alzheimer's disease. This is in an endeavor to maintain the patient's strength and dignity, while they spend their last days, months and years in these facilities. An effort to improve working conditions for staff and medical professionals working in these facilities is also of concern and will be researched, serving as a secondary design informant.

In this chapter, the background to the design problem and the research problem is described as a point of departure for the study. Research questions are outlined, and direct the research and design process. The research method is described, thereby setting out the processes undertaken to uncover design informants. Finally, an overview of the study is presented as a graphic, illustrating the structure of the dissertation.

Figure 1.2: Chapter 1 cover page (Author 2018)

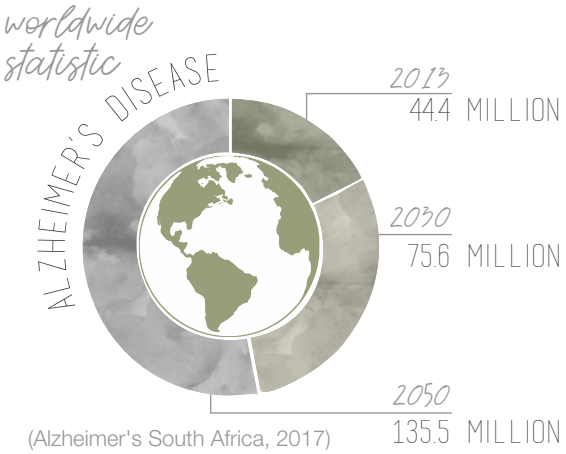


Figure 1.3: World Wide Statistic (Author 2018)

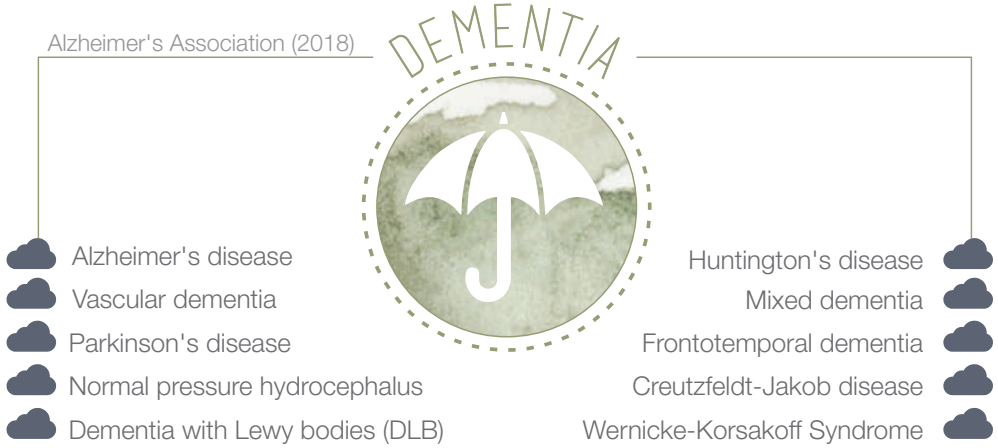


Figure 1.4: Types of Dementia (Author 2018)

02 | BACKGROUND

It was calculated in 2013 that an estimated 44.4 million people suffer from dementia worldwide (Alzheimer's Association, 2018). Alzheimer's South Africa (2017) projects that this figure will increase to 75.6 million by 2030, after which it could escalate to an astounding 135.5 million people diagnosed by 2050. (Figure 1.3) Alzheimer's is a disorder that cannot be cured while Dementia is the overall syndrome that describes a series of symptoms associated with the decline in memory, or other thinking skills severe enough to reduce a person's ability to perform everyday activities. Dementia causes neurological damage to the brain that intensely effects emotions, memory, performance, communication and thinking. Huntington's and Parkinson's disease are also types of Dementia, of which Alzheimer's the most common form (Alzheimer's Association, 2018) (Figure 1.4).

The risk of being diagnosed with dementia increases dramatically with age, and it has been proven that one out of five people in their eighties will be diagnosed with Dementia (Alzheimer's South Africa 2017). It is stated that patients diagnosed with the disease, will experience symptoms that will progressively worsen over time (Timlin & Rysenbry, 2010:13).

"Dementia is not a normal part of ageing. It knows no social, economic, ethnic or geographical boundaries. Although individuals experience dementia in their own way, eventually those affected are unable to care for themselves and need help with all aspects of daily life." (Alzheimer's South Africa, 2017)

Alzheimer's disease is a neurological disorder that affects memory, thinking and actions. The Alzheimer's Association (2018) describes Alzheimer's to be a progressive disease where short-term memory loss is part of the early stages. The disease worsens incrementally over time, and it is proven that elderly people lose their primary ability to recognise their environment, as well as follow and partake in conversations (Alzheimer's Association, 2018). The disease can be categorised into three stages: early, mid, and late (Figure 1.5).

When patients reach the mid-stage of the disease, family members often find themselves unable to care for the patient, and it becomes necessary to book them into a facility where they can be looked after with proper supervision (Alzheimer's Association, 2018). Here the afflicted family member is provided with 24-

"Those with dementia are still people and they still have stories and they still have character and they're all individuals and they're all unique. And they just need to be interacted with on a human level."
Carey Mulligan, Alzheimer's Society's Global Dementia Friends Ambassador

Figure 1.5: Stages of Alzheimer's disease (Author 2018)

hour care. It is note worthy that in South Africa, these facilities are not typically designed for Alzheimer's, however, with the marked rise in prevalence of the disease, facilities ('homes') providing general live-in facilities for elderly people, are having to be retrofitted to accommodate the special requirements necessitated by Alzheimer's disease. In accordance with medical norms and standards, these facilities are exclusively concerned with functionality and efficiency, while the consideration for the emotional and physiological wellbeing of the patients is being overlooked.

Ongoing research on this phenomenon indicates that this is typical across all forms of medical facilities, from hospitals to cancer units, to homes for the elderly. Subsequently, these facilities have become institutionalised. It is evident from the literature that the institutionalisation has a detrimental effect on the wellbeing of elderly patients (c.f. Chapter 05), in particular those diagnosed with Alzheimer's disease. It is argued that there is an urgent need for specialised facilities designed specifically with patients diagnosed with Alzheimer's disease in mind. Further, it is contended that interior design can play a vital role in the facilitation of Alzheimer patients' wellbeing (c.f. Chapter 05).

03 | PROBLEM STATEMENT

Healthcare environments in South Africa are designed with the chief concern for patient satisfaction, and thereby ensuring healing (Life Healthcare Group, 2017). Their mandates are propagated through images of happy and healthy patients walking out of these facilities. However, medical centers are designed according to functional and regulatory requirements that ensure their efficacy and patient's health and safety. In so doing, they have been established as institutions designed according to necessary, established universal standards.

It is argued that this institutionalisation becomes problematic in specialised healthcare facilities for people with Alzheimer's. In these facilities, the patients are usually elderly people, whose perception of the world and surrounding environments have been compromised by a neurological disease (Gramegna & Biamonti, 2017).

INSTITUTION

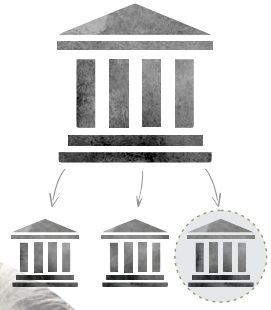
An organisation providing residential care for people with special needs mental/physical)

- organisation, establishment, institute, facility, centre

A person similarly long established in a place, position or field.
"she is not just a scholar, she is a institution.")

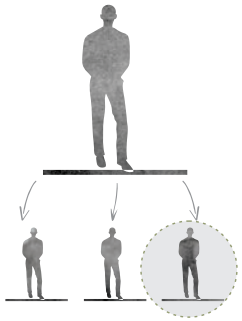
- knowledge, old, heroic

INSTITUTIONALISATION



'PLACE'

act of establishing something as a convention or norm



'SELF'

a state of being kept in a residential institution = loss of independency which arises from spending long periods of time in these institutions.

A design approach to be developed to create spaces that become a HEALING CATALYST [physically & psychologically]

association

PSYCHIATRIC INSTITUTIONALISATION

- Restriction of freedom;
- alienation and estrangement

= PHYSICAL, PSYCHOLOGICAL & SOCIAL ESTRANGEMENT

EFFECT: patients become dependant on receiving care, they loose their confidence to make decisions and consequently become institutionalised. They develop a deficiency in social & life skills; ultimately they are deprived of independence and responsibility.

1.6

Figure 1.6 (left): Institution vs. Institutionalisation and the effect thereof (Author 2018)
Figure 1.7: Design as mediator (Author 2018)
Figure 1.8: Research Questions (Author 2018)

1.7

Patients with Alzheimer's have not only lost their reference of recognisable space and spatial satisfaction, but also their sense of dignity. Alzheimer's is an incurable disease, and consequently there are no happy, healthy individuals walking out of the facilities that house them. Therefore, the quality of life and wellbeing during their time spent at these facilities is critical, as patients will see their last days, months or years there. The institutionalisation of these facilities needs to be reversed to directly ameliorate the loss of independence and individuality that these patients with Alzheimer's experience (Figure 1.6).

The patients that are housed in these institutions, tend to become institutionalised as they lose their independence from spending long periods of time there. An endeavour to reverse this institutionalisation of patients is the goal of this study. It is further argued that *interior design* could become a mediator between the deinstitutionalisation of place and self as an attempt to reverse this institutionalisation (Figure

Research Question

How can interior architecture for specialised healthcare facilities support the wellbeing of patients diagnosed with Alzheimer's disease?

Sub Questions

1. Theory — RESEARCH

What are the implications of a **salutogenic design approach** and **wellbeing theory** on facilities designed for patients with Alzheimer's disease?

2. Design — ARCHITECTURAL

How can the interior architecture of the Agricultural Research Facility be **altered** with the consideration for space and object; to facilitate the **wellbeing** of patients with Alzheimer's disease?

3. Technical — DETAIL

How can the **degrees of use** be achieved though materiality in order to achieve the positive outcome of salutogenic theory?

1.8

04 | AIM

This dissertation adresses how to achieve a reversal of institution with the associated ill-effects through the thorough investigation of the literature on Alzheimer's disease, institutionalisation, as well as the notion of healing environments and the design for wellbeing. With regard to the latter, a salutogenic approach is undertaken and design guidelines are identified for the design of interior spaces contributing to the wellbeing of patients.

05 | LIST OF DEFINITIONS

a. *Wellbeing:* Subjective wellbeing is a comprehensive concept, but in this context specifically refers to a general, positive state of mind, which is linked to the architectural space one is staying in (Stevens, R., Petermans, A., Vanrie, J. & van Cleempoel, K., n.d.).

b. *Salutogenesis:* Salutogenics can be defined by understanding that health and illness are in different planes in the same continuum (Golembiewski, 2010). The concept of salutogenesis is an attempt towards health promotion, whereas pathogenesis is a factor that challenges illness and death. Salutogenics is mainly affected by physical environments, and therefore can be positively manipulated through skilfully designed spaces.

c. *Dementia:* "…is a general term for a decline in mental ability severe enough to interfere with daily life. Memory loss is an example. Alzheimer's is the most common type of dementia" (Alzheimer's Association, 2018).

d. *Alzheimer's:* "…is a type of dementia that causes problems with memory, thinking and behavior. Symptoms usually develop slowly and get worse over time, becoming severe enough to interfere with daily tasks" (Alzheimer's Association, 2018).

06 | STUDY OBJECTIVES

The objective of this study is to design empathetic interior spaces that can enhance wellbeing and quality of life for Alzheimer's patients. This will be achieved through the creation of sensory stimulating and regulating environments for patients, staff, family members and medical professionals. An endeavour is made to establish a set of principles and guidelines for the design of therapeutic interior environments, drawn from the literature in an endeavour to close the gap between design theory and design application. Negative stigmas surrounding facilities for Alzheimer's will be challenged by understanding psychological attitudes associated with these facilities, and an attempt will be made to change perception through interior design. The research serves to inform the conceptual approach, which will generate a method toward design that addresses the aforementioned objectives. Finally, a set of design guidelines will be established through literature that might serve as a policy of instruction that can increase wellbeing for established retirement facilities that house Alzheimer's patients.

07 | SIGNIFICANCE OF STUDY

There is a large gap between the growing body of research regarding design for the wellbeing of patients diagnosed with Alzheimer's, and the actual application thereof in the South African built environment. Thus, this study endeavours to begin to fill the gap by mediating wellbeing theory and application in interior environments. A set of design principles and guidelines from the literature is collated towards the formulation of a booklet with corresponding audit for future interventions similar to that of this dissertation.

08 | RESEARCH METHOD

This dissertation adopts a qualitative research methodology, by placing emphasis on natural settings in existing retirement villages (Groat & Wang, 2013). A literature review is conducted so as to provide a comprehensive understanding of Alzheimer's disease and theory on wellbeing in relation to interior architecture. Furthermore, the literature review, in conjunction with case and precedent studies, will serve to inform a comprehensive set of design guidelines for wellbeing that are in-line with established norms and standards, for the design of facilities for Alzheimer's patients. The process of historical and medical mapping is conducted in understanding the identified macro and meso-context. A SWOT (strengths, weaknessess, opportunities and threats) analysis is applied to the identified site as part of the micro-context.

A subjective autoenthnographic method is followed to acknowledge the personal involvement with the subject. For this reason, sections of this dissertation are written in a first person narrative style, thereby acknowledging the personal experience of the author.

09 | LIMITATIONS

A limitation exists in the use of a virtual site, which may limit the physical information available. However, access has been gained for all of Laurent's (2014) construction drawings, 3D model, perspectives and construction details. These will be scrutinised in an endeavour to establish a comprehensive understanding of the design. Further, the designer is consulted regularly for clarification when necessary.

10 | OVERVIEW OF STUDY

The figure below refers to the overview of the chapters to follow. This is an attempt to create a clear understanding of the consecutive order in which this dissertation has been developed. Also refer to the table of contents for outlined structure.

Study Proposal

- Background
- Problem Statement
- Approach
- Research Questions
- Aim
- Definitions
- Study Objectives
- Significance of Study
- Method
- Limitations

Case Studies

- Olive Crescent Retirement Village, Olympus, Pta
- Susan Strijdom Ouetehuis, Colbyn, Pta
- Case Study analysis

Programme

- Spaces
- Model Inhabitant

Context

- Macro
- Meso
- Micro
- Reasoning

Theory

- Alzheimer's defined
- Salutogenesis Defined
- The three realms
- Wellbeing & the environment

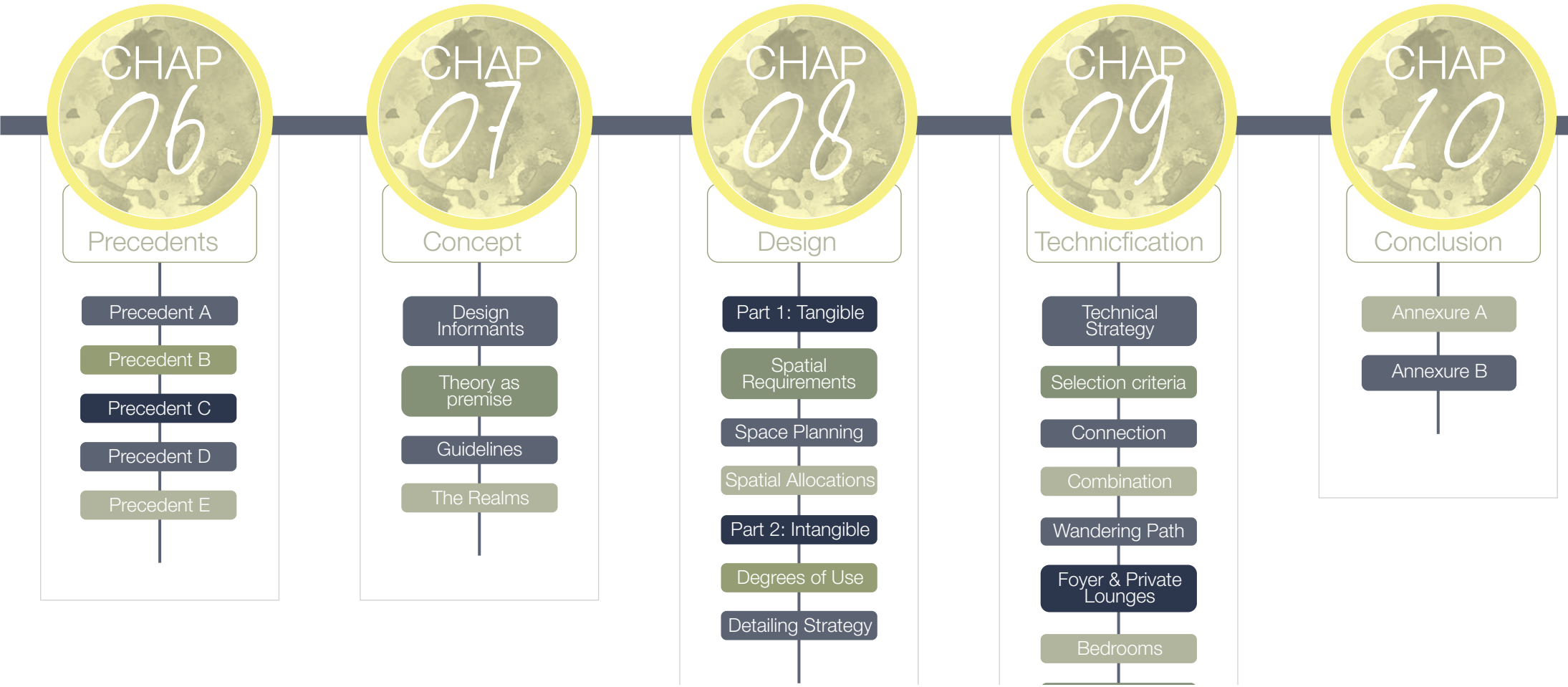


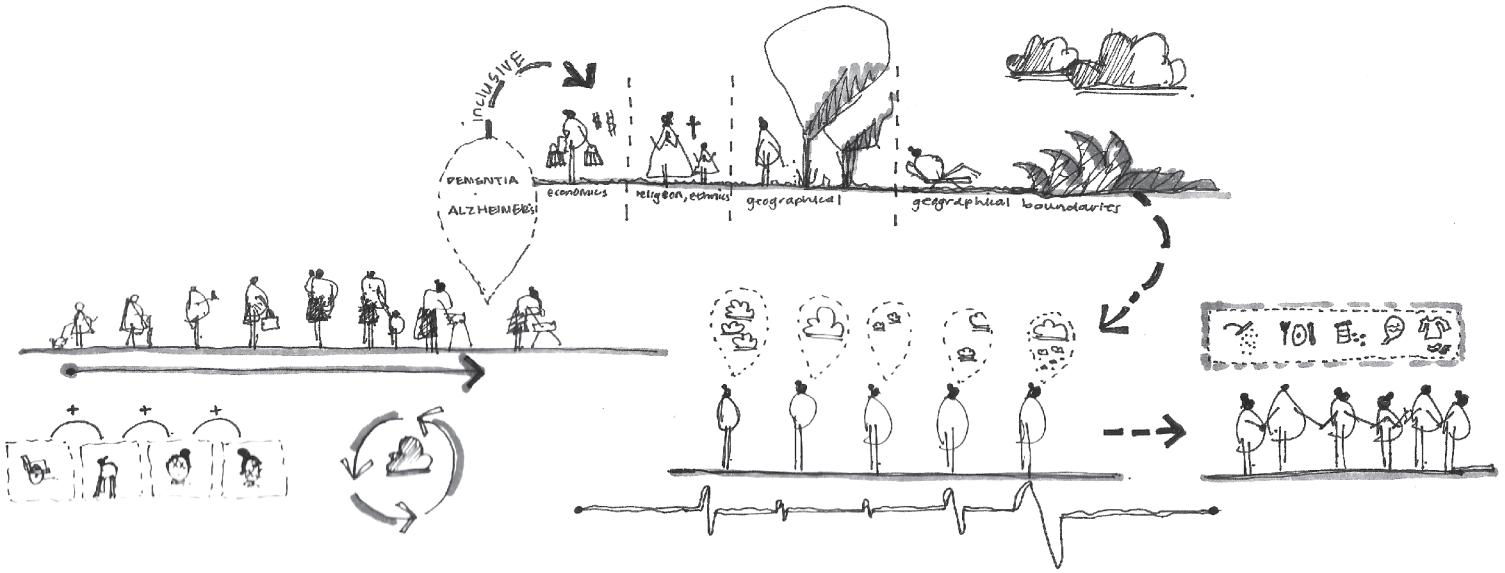
Figure 1.9: Overview of Study (Author 2018)

11 | CONCLUSION

In this chapter, it was established that this dissertation will endeavour to design environments that maximise the wellbeing of patients with Alzheimer's disease, based on salutogenic guidelines that are related into design principles. It is argued that this will also have a positive effect on visiting family members and staff. The aim is to offer insight into the design of specialised facilities for Alzheimer's disease, which can empower patients to maintain what remains of the ability to fulfill day to day tasks, thereby, promoting a level of independence. It is argued that this can result in a more meaningful existence, encouraging social interaction, and leading to improved quality of life for patients with Alzheimer's. By way of conclusion, interior design will serve as the mediator for the de-institutionalisation of place (referring to building) as well as the de-institutionalisation of self (referring to person). It is argued that this approach could become a possible solution to creating spaces of wellbeing.

chapter 02

CASE STUDIES



01 | INTRODUCTION

Chapter Two presents two case studies of homes for the elderly in Pretoria that also house patients with Alzheimer's disease, namely, Olive Crescent Retirement Village in Olympus and Susan Strijdom Retirement Home in Colbyn (Figure 2.1). The case studies serve to document the effect that institutionalisation of specialised facilities has, on the general health and wellbeing of patients diagnosed with Alzheimer's disease. Data was gathered through semi-structured interviews with managerial and medical staff (Refer to Appendix A for the signed letters of consent).The objective of the interviews was to ascertain the relationship between patients and their physical environments. Further, to gain a general understanding of the formalities and logistics of facilities such as these. The chapter is written in a narrative style, so as to highlight the experience of the design of the physical environment of the facilities on the author.

Figure 2.1: Chapter 2 cover page (Author 2018)

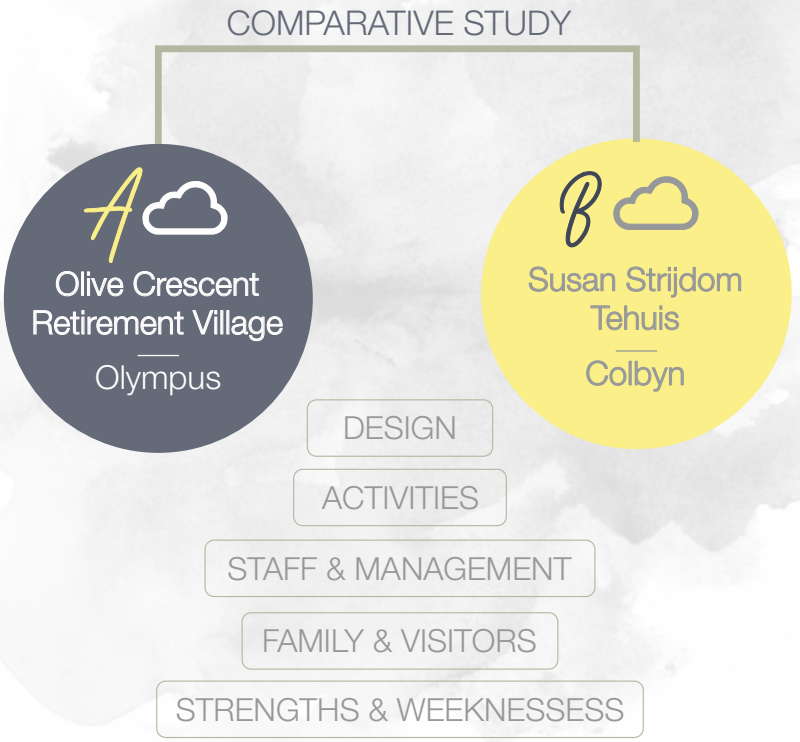


Figure 2.2: Comparative study of two different facilities. (Author 2018)

A

Olive Crescent Retirement Village, Olympus

These photos indicate the current condition of the facility as well as the attempt to retrofit their facility to accommodate patients with Alzheimer's.

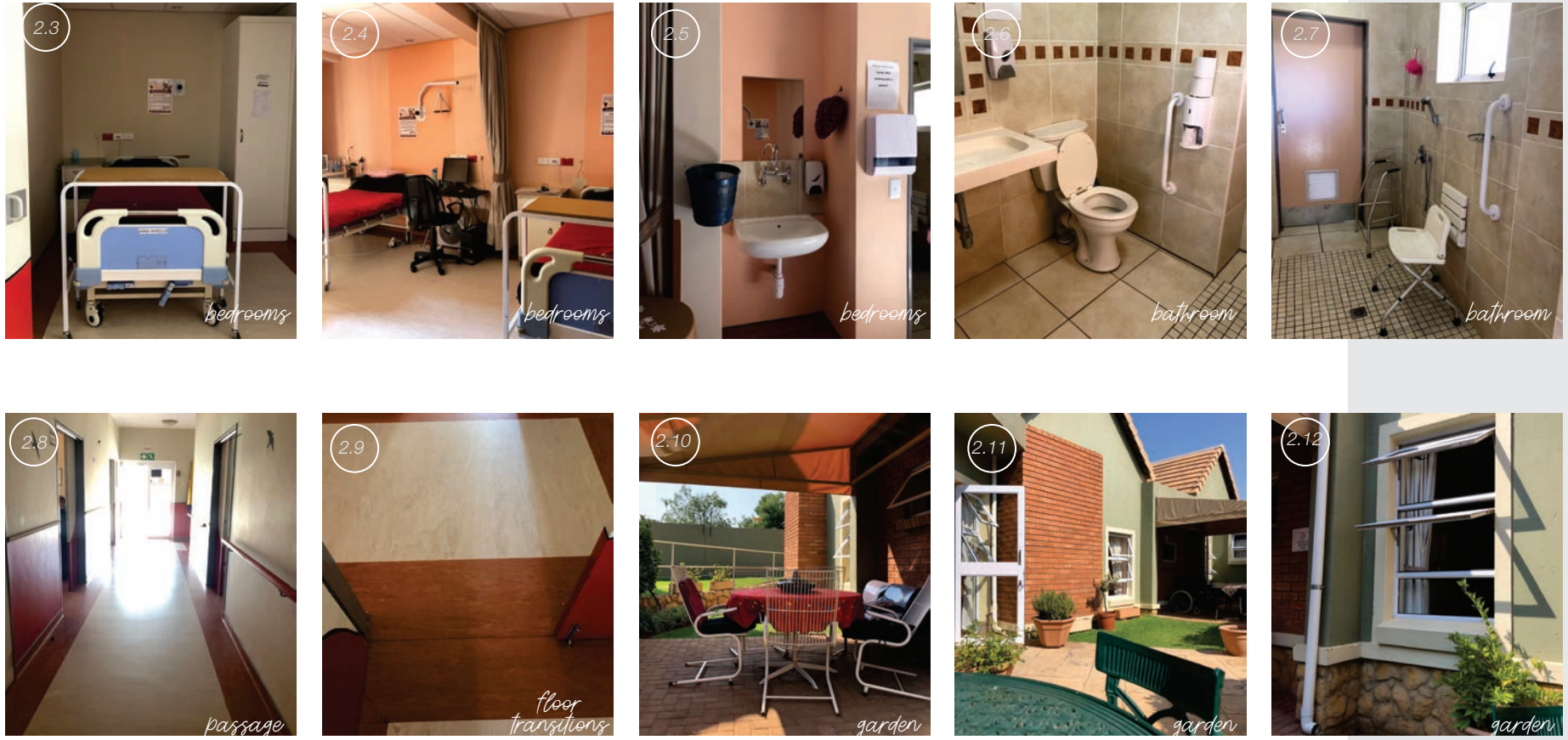


Figure 2.3 - 2.12: Photos of facility (Author 2018)

02 | CASE STUDY A:
Olive Crescent Retirement Village, Olympus

Olive Crescent has a frail care section where they can accommodate up to 21 patients with Alzheimer's disease.

Walking into this facility, I was immediately confused as to where to find the reception. I entered a set of double leaved doors, and started walking down a long dark passage. I noticed an elderly woman walking toward me. Suddenly, she stopped abruptly. I could see a flush of confusion in her face and I stopped too, not wanting to frighten her. I could see she was confused at the sight of me: a young woman dressed in a bright pink dress coming in through the front door. For a moment, we both stood still, staring at each other, uncertain of what to do next. Suddenly, she started to smile, a smile so bright, it seemed that she lit up the dark passageway and in an instant dispensed with my apprehension. She resumed walking toward me and on reaching me, put out her arms and embraced me. She kissed me on my forehead and then on my shoulder and then on both my hands.

A caregiver arrived and escorted her away. She had been on her way to the bathroom and had got lost along the way. No words were spoken between us, however when she turned around to go with the caregiver, she looked back at me and mumbled "sei carina", which I later found out means 'you are pretty' in Italian. It was such a poignant introduction to Olive Crescent.

The facility is not necessarily state of the art, not being specifically designed for Alzheimer patients. Financially, this facility is not well prepared to be retro-fitted to accommodate the unique behaviour of Alzheimer's patients.

As I reached the very small and cluttered reception area, I was introduced to the manager, who is also the social worker for Olive Crescent. She directed me through the dining area, where about fifteen patients were seated in their dedicated chairs and wheelchairs. Some were watching a children's show on a television, mounted high up against a wall, while others were colouring-in with brightly coloured crayons on paper. Still others were gazing vacantly into the distance. Whilst moving through this tiny space, having to watch my footsteps so not to step on any of the patient's feet, a rush of emotion engulfed me as I could feel some of the patients staring at me confounded. I wondered at them, perhaps it triggered memories from their youth, searching their subconscious for family and friends erased from their conscious by the disease.

The air in the dining-room was stale and stifling. Once through the backdoor and out into the garden beyond I was able to take a deep breath of fresh-air for the first time since entering at reception. In the garden I observed three ladies having a tea party to my left. They were all dressed up, no words were spoken between them. Their caregivers were enthusiastically trying to entertain them and make them laugh. The ladies looked up now and again, after which they would just bow their heads peacefully. The manager and I sat in the garden for the interview. She shared from her experience of running a variety of similar facilities through her career. By comparison she related what made this specific facility so special.

Afterwards the manager showed me around the facilities. On my way out, back through the dining-room, I said my goodbyes. A few of the patients waved hesitantly, and more than half waved with enthusiasm. A few of the women were having their nails done by some of the caregivers, and as I turned around to leave, one lady touched me on my back softly. I looked down at her happy face, and she smiled and then asked me; "How do you always know what day it is?" I smiled back at her and said; "I don't…really!" She started giggling, and her giggle turned into a laugh. Before long, her laugh had become contagious and four other patients were laughing for no apparent reason. I walked out of the facility thinking about my own grandparents and feeling both warm and sad at the same time.

B

Susan Strydom Ouetehuis, Colbyn

These photos indicate the current condition of the facility as well as the attempt to retrofit their facility to accommodate patients with Alzheimer's.

Figure 2.13 - 2.20: Photos of facility (Author 2018)

03 | CASE STUDY B:
Susan Strijdom Retirement Home, Colbyn

This is an old age facility in Colbyn in Pretoria that accommodates 80 patients, 35-40 of whom have been diagnosed with Alzheimer's disease. This institution is a registered retirement facility that has been running for 52 years.

I was welcomed into the facility by the manager, we walked through to his office and sat down for the interview. His office was situated in a room off of the dining area, which gives him quick access to patients at all times. He is a compassionate man that knew each patient by name, and I observed that he knows the importance of physical touch and making patients feel special.

As the interview started, one of the first things Mr. Erasmus explained to me was that the degradation of Alzheimer's disease is quick and severe. He further stated that most patients, once booked in to the facility, on average only live another six months. He also explained the importance of not moving patients as their condition becomes more acute, and that it becomes more of a disruption than a comfort upgrade. After our conversation, we walked through the building so he could show me their facilities. Patients were sitting in their wheelchairs, alone, some appeared to me to be in a state of disquiet, along the long passages that lead us to the bedrooms. The facility is quite large and is divided into two large wings, each consisting of multiple bedrooms, communal bathrooms and a nurse's station.

The facility consists of double (two single beds) and single bedrooms. Patients with Alzheimer's are typically placed in double rooms, to encourage social interaction. The bedroom wings are fitted with communal bathrooms rather than private ensuite ablutions. This is so as to facilitate the necessary supervision and assistance of patients using the facilities.

Each bedroom includes an emergency bell, for when a patient is in danger or distress. This bell is alerted in the nurse's station, which allows for patients to be supervised even when they are alone in their bedrooms.

The passages seemed dark, stuffy and had a cold, clinical quality (Figure 2.17). The floors are covered in beige vinyl flooring that are easy to clean and maintain. Hand railings are installed along the walls, to assist patients when unsteady. We passed the bedrooms, back through to the reception space, and out into the garden, where many patients were seated on the patio under a canopy. The garden is surrounded by a high concrete wall, and I was told, that this is not to keep people out, but to keep patients in, as they tend to wander off. The garden is spacious, peaceful and shaded. I observed an elderly lady feeding the birds while seated in her wheelchair under a large tree. Another man was sitting alone on a bench just staring at the grass beneath his shoes. He seemed at once lonely and content.

As I walked from the garden through the facility, similar emotions experienced at Olive Crescent engulfed me, as these elderly patients stared at me passing by. A look of nostalgia filled their otherwise blank expressions and many of them just smiled. Mr. Erasmus introduced me to a lady who used to be music teacher. She has no recollection of the last 10 years of her life, but she remembers every musical note she has ever played. My visit to Susan Strijdom Retirement Home ended with this lady playing peacefully but passionately on the piano. It was as if this disease that had erased all other elements of being, could not corrode what had been at the very essence of her life's existence.

A Olive Crescent Retirement Village, Olympus

Design

3 major elements; accessibility, comfort and inclusivity	3 major elements; accessibility, comfort & colour & personalization	3 major elements; accessibility, comfort and adaptability	3 major elements; accessibility, inclusivity and welcoming
Bathrooms	**Bedrooms**	**Common Room**	**Reception**
2X doors on either side of bathroom	Are accessible to all patients (old & ill)	Are accessible to all patients (old & ill)	Unaccessible, counter far from entrance
Ample handrails in shower & around toilet	Attempted by painting walls bright colours	Uncomfortable chairs no dining table	Not inclusive to wheelchair users
Wheelchair friendly (wheelchair circle)	Bedside items and pictures on walls	Can't accommodate too many activities (space too small)	Not welcome to public (very high, not inclusive)

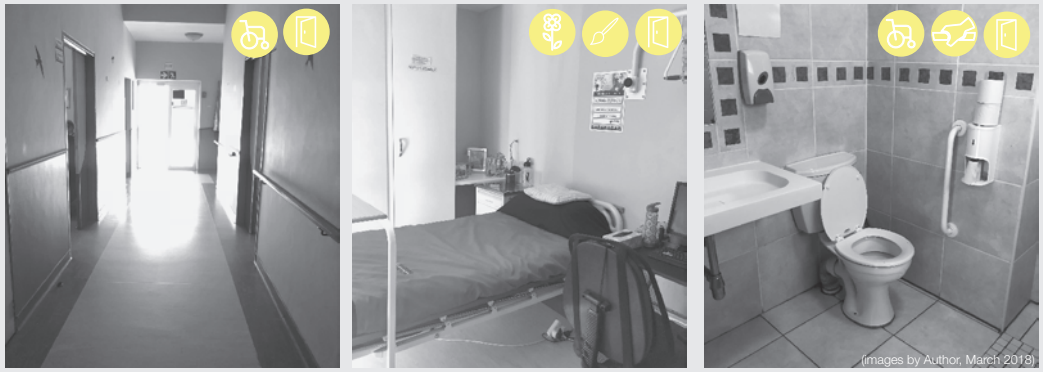


Figure 2.21: Design Analysis of case study A (Author 2018)

B Susan Strydom Ouetehuis, Colbyn

Design

3 major elements; accessibility, comfort and inclusivity	3 major elements; accessibility, comfort & colour & personalization	3 major elements; accessibility, comfort and adaptability	3 major elements; accessibility, inclusivity and welcoming
Bathrooms	**Bedrooms**	**Common Room**	**Reception**
built up toilet for comfort for patients	Are accessible to all patients (old & ill)	Are accessible to all patients (old & ill)	Unaccessible, counter not suitable for wheelchair
Ample handrails in shower & around toilet	Very bland, no bright colours on walls	Comfortable chairs in old style - creates familiarity	Not inclusive to wheelchair users
Wheelchair friendly (wheelchair circle)	Very little personalization on bedside tables	Large enough to accommodate many activities	semi-welcome to public, receptionist behind glass

Figure 2.22: Design Analysis of case study B (Author 2018)

04 | CASE STUDY ANALYSIS

Both facilities were analysed in terms of the following factors: design, activities, staff and management structures, and lastly family members and visitors.

a. Design:

Spaces were identified and categorised from a design perspective. Four spaces were identified: bathrooms, bedrooms, common rooms and receptions. These spaces were assessed in terms of accessibility, comfort, colour, personalisation and adaptability (refer to figures 2.21 and 2.22). These spaces were specifically chosen because they are used by patients, staff and family members alike. The strengths and weaknesses are compared. The strengths will serve as design guidelines for the design of the Alzheimer's facility in Cullinan. The weaknesses serve to as guide of what should be avoided.

Summary and Comparison:

In terms of bathroom design, Case Study A's facilities have been designed with two doors to a communal bathroom. This is to prevent patients from locking themselves in. Even though the doors are not equipped with lock systems, there is the possibility of a patient falling in front of the door and being unable to get up again, where they could at once block entry for help. With the second door, a caregiver can enter, unhindered to assist if the need arises. In both facilities, the bathrooms are shared and are sufficiently spacious to accommodate one patient in a wheelchair and two caregivers or nurses at the same time. Most of the patients require help cleansing themselves, and ample space has been allocated for, on either side of the shower. There are no baths in these facilities, as these pose a drowning hazard. Moreover, it is more difficult, and therefore dangerous, for an elderly patient to climb in and out of a bath than to simply walk into a shower. In both facilities, the showers, toilets and washbasins have been equipped with standard grab-rails, which provide additional support for all patients. In Case Study B, the toilet has been raised by about 120mm from its standard position to assist patients in not having to squat down as low as one typically would with a standard height toilet (Figure 2.22).

The bedrooms in both facilities sleep between 3-5 patients per room. The materiality in both facilities includes light coloured vinyl flooring and white ceilings. The lack of contrast between these critical surfaces can confuse patients who are visually impaired. Case Study A, has at painted the walls in different shades of a peach colour so as to introduce a sense of upliftment in the bedrooms. In this facility, patients are also allowed to personalise the space around their bed with photos, paintings and decorations. In Case Study B, rooms are significantly more clinical, and all rooms basically look the same. The walls are painted in shades of blue and grey, which while supposed to have a calming effect on the patients, is perceived as cold and institutional. Personalisation with decorations are kept to a minimum. Due to a large number of patients that need to be attended to, and by implication, a lesser degree of control, personal items tend to get lost or stolen.

Common rooms and Reception spaces of Case Study A are very small and cluttered. There is no dining room table, and patients tend to eat on their laps with a tray. As a result of the limited space of the common room, not many activities take place there. Case Study B's common room is much larger and provides a collection of comfortable old-fashioned furniture, creating a familiarity amongst the patients. There is a dining room table where meals are served, and games can be played. There is ample space for the patients to move around without bothering each other. The reception of this facility is much larger, as it accommodates four receptionists. The reception is also more accessible to the public, even though it is behind a glass screen.

A Olive Crescent Retirement Village, Olympus

Activities

These are activities that are stimulating to the patients at this facility (therapy types)

Activities untertaken by Patients themselves

feed the birds

go for a walk

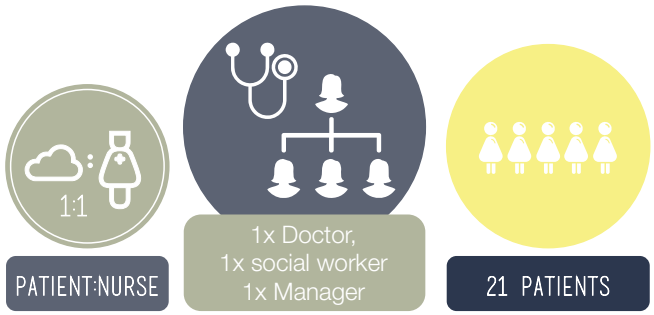
B Susan Strydom Ouetehuis, Colbyn

Activities

These are activities that are stimulating to the patients at this facility (therapy types)

Staff and Management

Managerial information was also investigated to understand the relationship thereof to wellbeing.



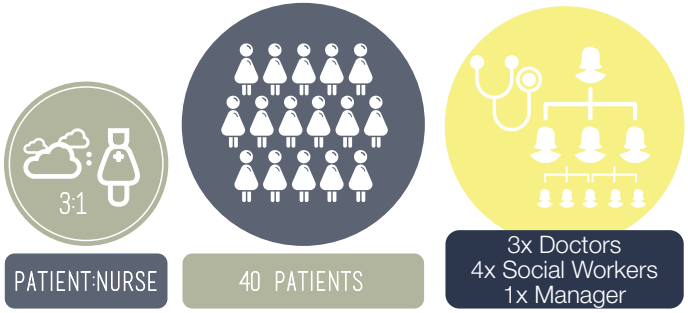


Figure 2.23: Activities and Managerial Structure Comparison (Author 2018)

b. Activities :

Various activities with the patients at both facilities were observed and assessed (Figure 2.23). Some of the activities are a form of therapy and are critical as they are usually simple tasks that have a very stimulating effect on the patients. Some of the activities are carried out in groups. It was observed that not all patients have the desire to take part in the games and activities, in doing so they become inactive and do not 'socialise' with the other patients. Elderly patients that have become very frail seem to remove themselves from group activities because they find it too taxing. As seen in both facilities, the caregivers and nurses are constantly trying to involve all the patients, especially those not keen to take part, so as to keep them active and involved.

Summary and Comparison:

Due to the limited number of patients residing at Olive Crescent, a lot more activities can be performed. Group activities include playing with a balloon, singing and dancing, washing dishes, playing bingo, building blocks and listening to music. Individual activities include planting a seed and tending over it, building a puzzle, colouring and painting, playing with sand and reading. Activities undertaken by the patients out of their own include feeding the birds and going for walks.

c. Staff and Management :

The management of the two facilities is considered so as to appreciate the role that it plays in the creation of places of wellbeing. Case Study A accommodates 21 patients who are diagnosed with early-, mid-, or late-stage Alzheimer's disease. This facility is comprised of a low patient to nurse ratio (1:1), which allows for personalised interaction and care. I am of the opinion that this has huge benefits for these patients and contributes to a greater degree of wellbeing amongst them. Olive Crescent provides a resident general practitioner (GP), a social worker, a manager and a receptionist.

Case Study B facilitates about 120 elderly patients, of which 40 are diagnosed with Alzheimer's disease. The ratio of nurse to patient in Case Study B is 1:3. From discussion with the manager, this ratio is sufficient, however, in a situation such as this, the considered design of interior spaces could play an even more critical role in ensuring the wellbeing of the patients. This facility provides three resident GP's, four social workers, a manager, an assistant manager and four receptionists/ administration staff.

A Olive Crescent Retirement Village, Olympus

STRENGTHS:

- This facility only houses 21 patients which allows for personal care.
- Very invested on personal comfort, own furniture and decorations are allowed to be brought.
- More activities can be done because of controlled environment & small group of patients.
- Facility has been retrofitted to suit Alzheimer's patients needs and behavioral requirements.

WEEKNESSES:

- This is a very small facility that can only house 21 patients; many patients get shown away.
- This site is very small and does not allow for future expansion. (physical built fabric)
- Indoor activities are preferred due to small garden.
- Differentiation and separation between elderly and patients with Alzheimer's.

B Susan Strydom Ouetehuis, Colbyn

STRENGTHS:

- This facility has the capacity to house 50-60 patients which reduces the 'showing-away factor'.
- This facility has the possibility of expansion or the future - allowing more patients in.
- Outdoor facilities are preferred- large garden and walking area.
- Alzheimer's patients are not separated, because of managerial reasons
- Facility has been retrofitted to suit elderly - not specifically Alzheimer's patients

WEEKNESSES:

- This facility houses about 40 patients which allows for less personal care.
- This facility is very strict on personalization due to the fact that items get stolen.
- Very big facility, which is very expensive to run and maintain. (staff, security)
- Not all Alzheimer's patients are included in activities

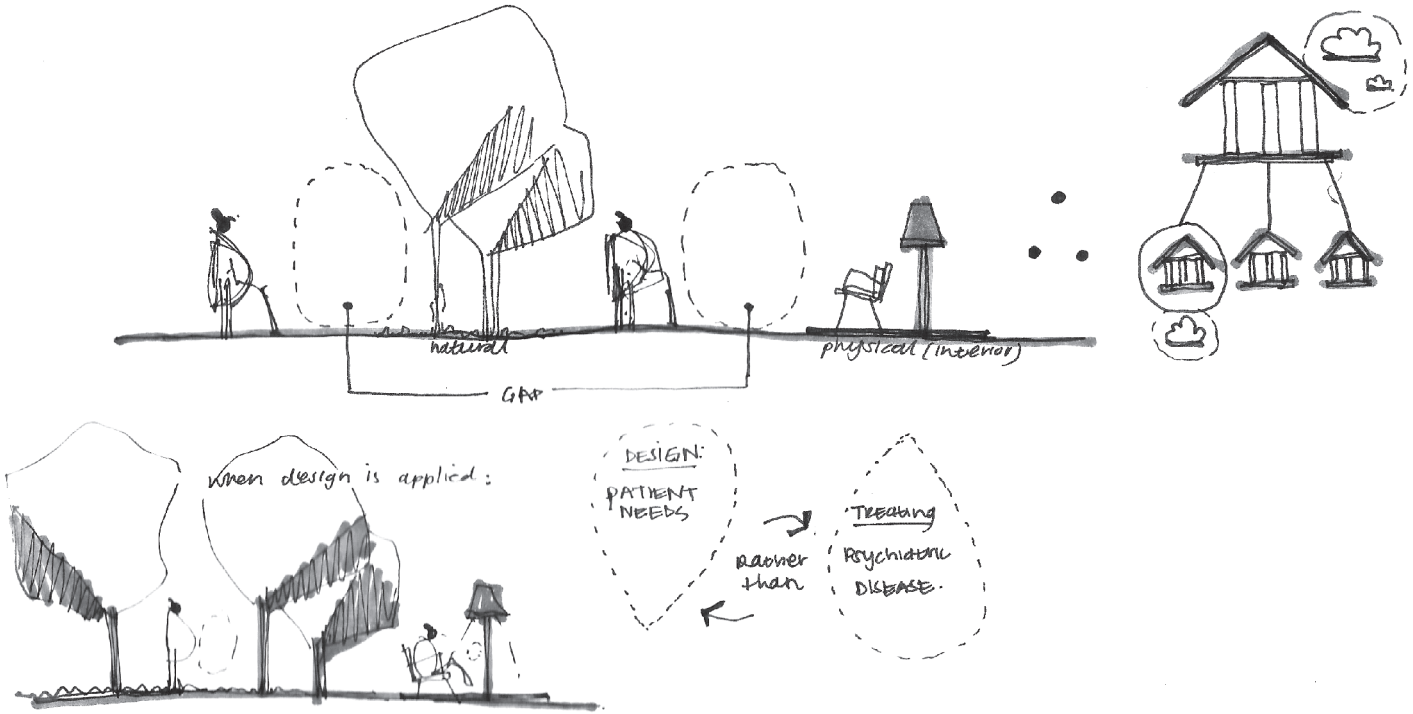
Figure 2.24: Strengths and Weaknesses of both facilities (Author 2018)

05 | CONCLUSION

As part of the study, it was intentional to identify two different types of facilities for the following reasons: to be able to look at the diverse systems that are implemented, and to be able to establish what the facility should become for the purposes of this dissertation. By comparing the design principles in terms of the process of retrofitting these facilities to suit the needs of elderly patients with Alzheimer's disease, it was clear that the intentions of both facilities came down to the same principles. Both facilities had a solitary objective to accommodate the user. Even though these facilities are very different, they have succeeded beyond comparison in achieving the principles of human-centered design. By retrofitting their facilities, they have made an attempt to create a platform where wellbeing could possibly flourish. By weighing up the strengths and weakness of each facility (Figure 2.24), a set of guidelines can be set out for the intended design for the purposes of this dissertation.

chapter 03

PROGRAMME



01 | INTRODUCTION

After witnessing my grandfather struggling with Alzheimer's disease in frail care at a retirement facility, I came to the realisation that these facilities function well in treating the medical condition of their patients, however, they lack in consideration for the emotional wellbeing endured by the patients. I argue here that there is a valid need for the considered design of facilities that will not only function well medically, but also facilitate patient's emotional, psychological and physiological wellbeing.

Figure 3.1 Chapter cover page: (Author 2018)

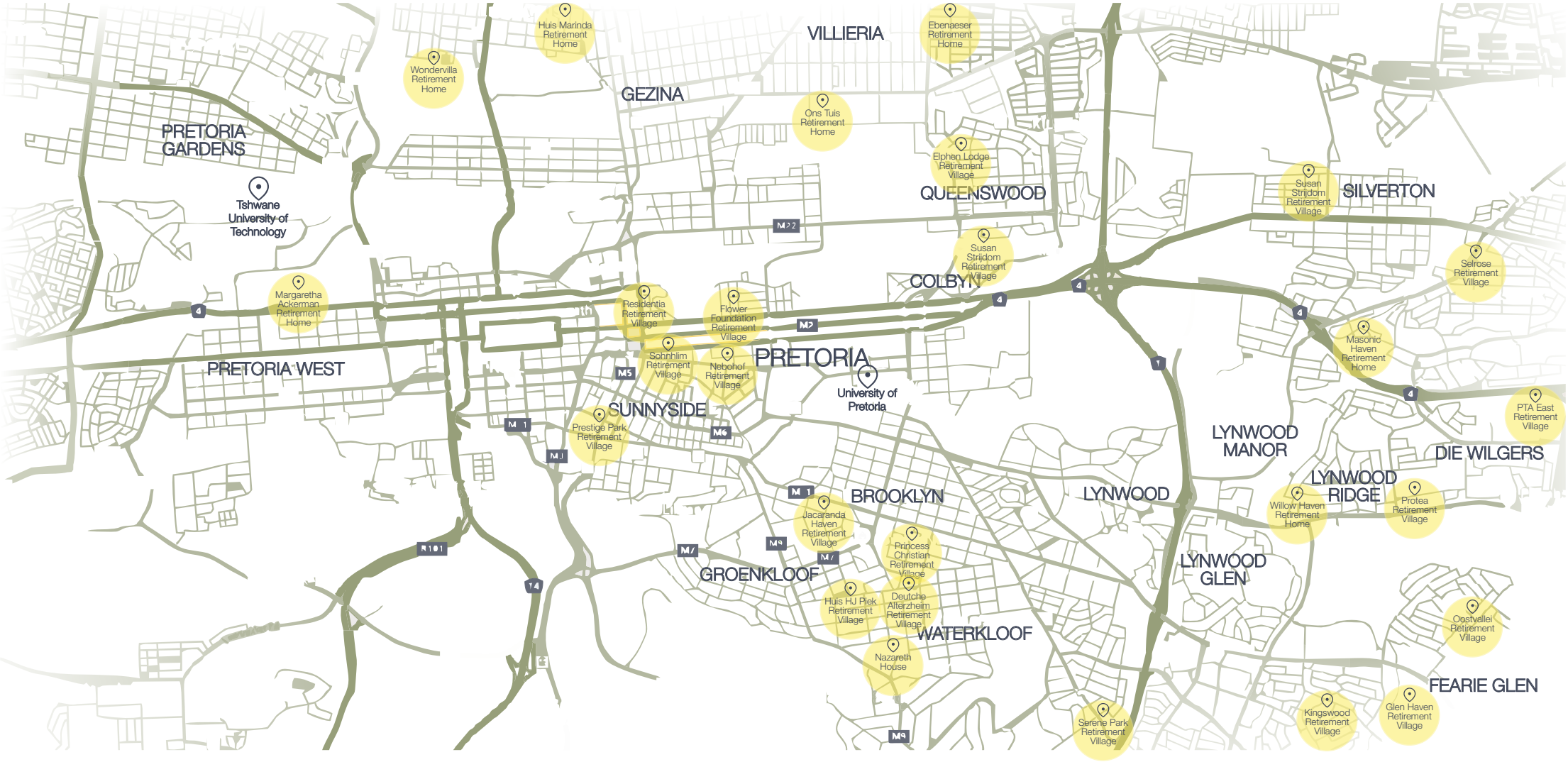


Figure 3.2: Map tracking all Old Age Facilities surrounding Pretoria (Author 2018)

Figure 3.2 maps the Old Age Homes and Retirement Villages around the centre of Pretoria. All of these facilities are designed for the needs of elderly people with typical age related impairments. Following a telephonic census of 21 number of homes for elderly people, it is evident that in recent years the number of residents with Alzheimer's disease is a relatively new and increasing phenomenon. This is supported by the literature and statistics stated by the Alzheimer's Association (2018), where a prediction has been made that by 2050, 135.5 million people will be diagnosed with dementia. As a result, these homes and villages have had to retrofit their facilities to accommodate for the special psychological and physical needs that accompany this disease. As seen in the case studies (c.f. Chapter 2), a simple action such as raising a toilet 120mm from the floor has a marked positive effect (ease and safety in use), which benefits all elderly residents. Figure 3.2 also indicates the retirement facilities that have been specially retrofitted to accommodate Alzheimer's patients.

Furthermore, it can be seen in Figure 3.4, that many of the newer retirement facilities in Gauteng are being developed on the outskirts of large cities such as Pretoria and Johannesburg. Another observation is that newly built retirement villages are typically developed toward the east of Pretoria. This statement leads to the general area in site choice. Cullinan, which is situated north-east of Pretoria, has therefore been selected as a site location for the design of an Alzheimer's Facility as part of this study. This facility becomes a destination, where all retirement villages and homes in Gauteng, could possibly refer their Alzheimer's patients as either a day or in-patient. Figure 3.4 serves to illustrate that Cullinan is a perfectly central location to house this facility.

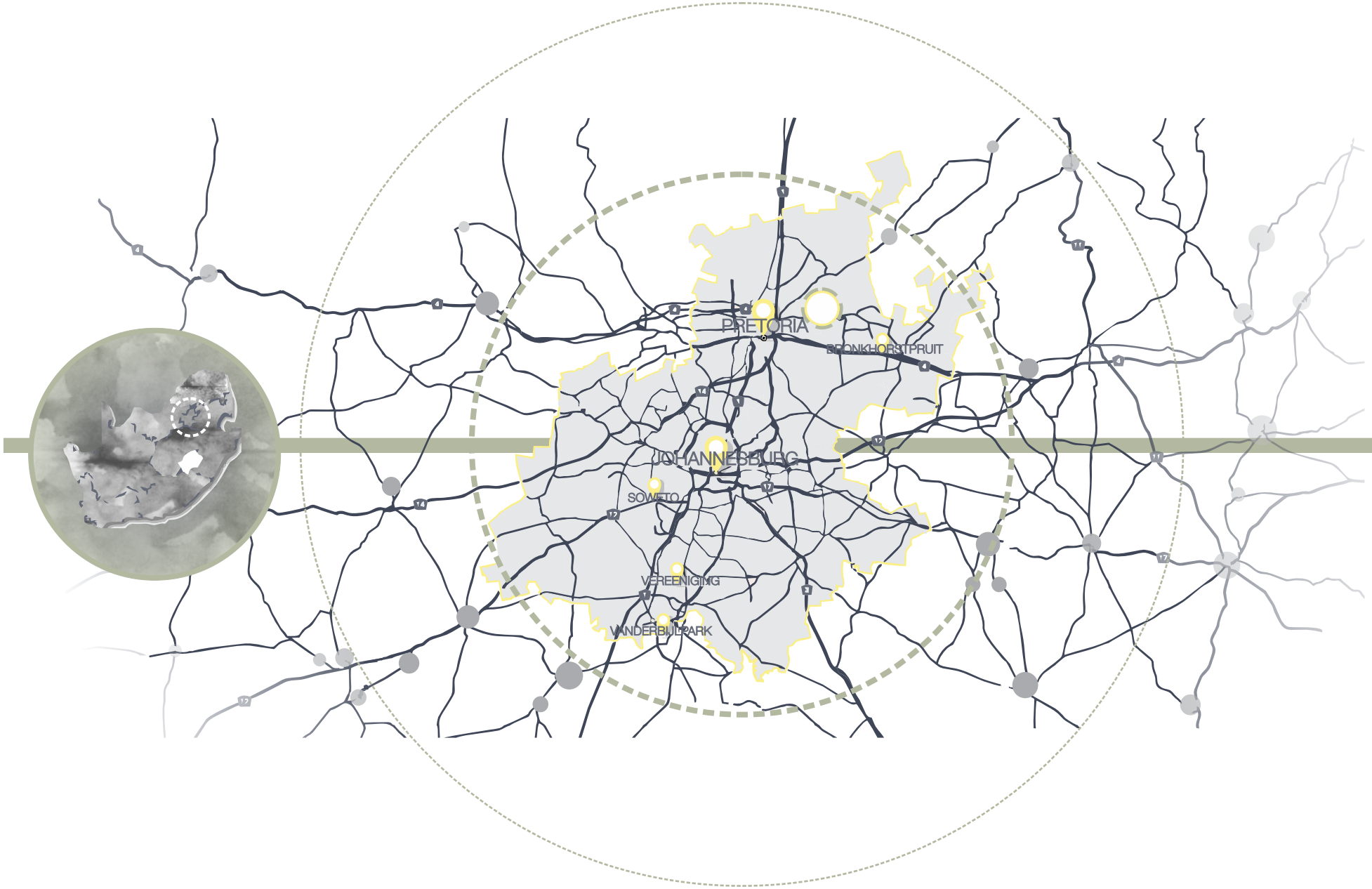


Figure 3.3: Map indicating Location within Gauteng (Author 2018)

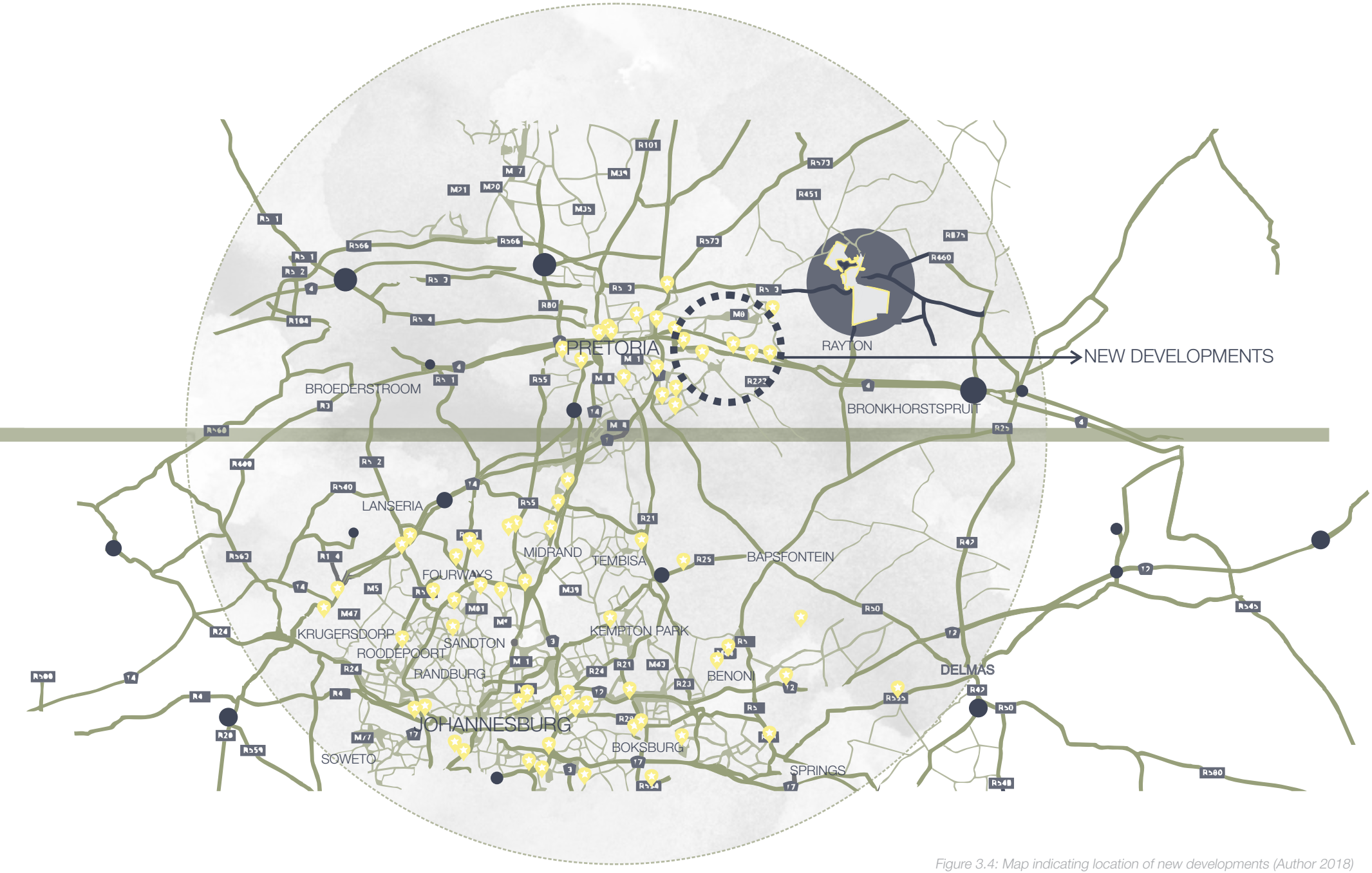
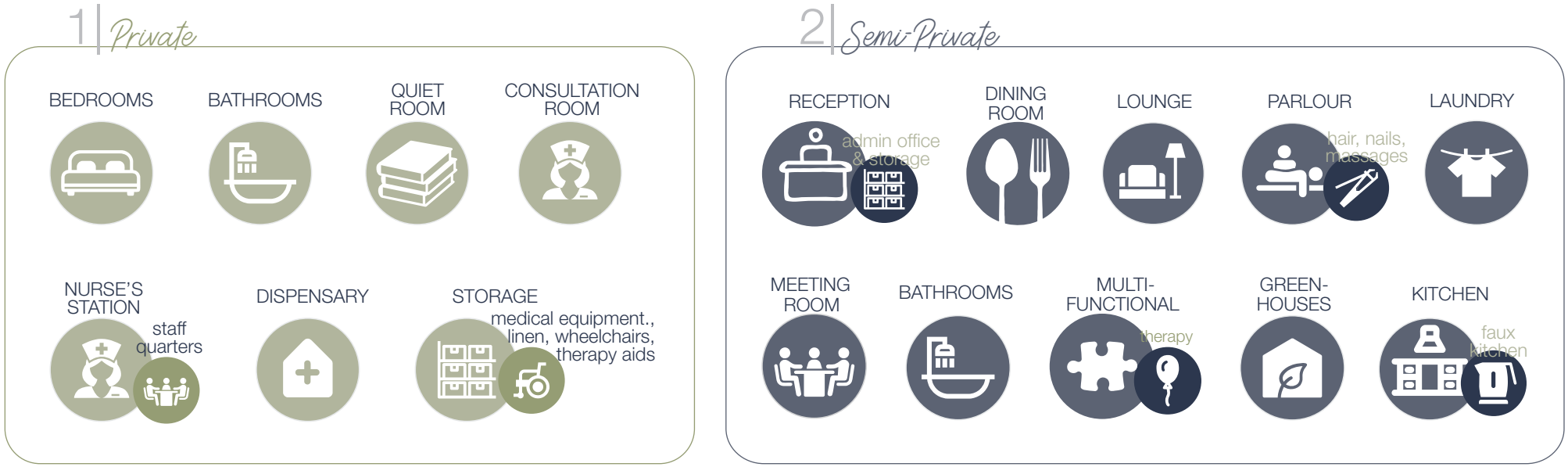


Figure 3.4: Map indicating location of new developments (Author 2018)



02 | SPACES

The proposed facility will exclusively house the elderly diagnosed with Alzheimer's disease. As part of this programme, certain spaces are required that can accommodate particular activities. According to a report published by the Alzheimer's Society, it was stated that the more simply spaces are designed, the better (Alzheimer's Disease International, 1999:5). Spaces should essentially be of a welcoming domestic nature, to activate a sense of familiarity and comfort amongst patients (Alzheimer's Disease International, 1999:9)

After reflecting back on the case studies, and looking specifically at the activities and spatial layouts, a set of programmatic requirements can be generated. The following spaces have thus been identified to be beneficial to an Alzheimer's facility (c.f. Chapter 2) and can be categorised into three different categories:

1. *PRIVATE: Individual patients or staff*
2. *SEMI PRIVATE: Grouped patients, staff, nurses, family & visitors*
3. *PUBLIC: Community of Cullinan*

(Figure 3.5)

Figure 3.5: Private, Semi-Private and Public Spatial Requirements (Author 2018)

Herewith an explanation and brief summary of the general requirements for each space.

02.1 | PRIVATE:

a. Bedrooms: for the accommodation of this programme, live-in facilities are required, and should be designed with the necessary requirements derived from literature. Bedrooms to accommodate two or three patients depending on the amount of assistance required.

b. Bathrooms: private bathrooms adjacent to bedrooms to be accessible to all users, including wheelchair users. Bathrooms should also be big enough to accommodate a patient and two nursing staff if a patient requires assistance showering. As stated in Chapter 2, baths should be avoided as this may not only cause slipping hazards, but patients also struggle to get in and out of baths, and therefore showers are preferred.

c. Nurse's Station: these spaces are very important, as they serve not only as a resting spot for staff, but also as a viewing platform for nurses. This station should include staff quarters where staff could rest, and patients are always visible.

d. Storage: private storage spaces are required, where medical equipment, linen, additional wheelchairs and therapy aids could be stored. These spaces should be inaccessible to patients, and should only be accessed by nurses and staff members.

e. Consultation Room: a room is required where patients could be examined when feeling ill. This room should also only be accessible to staff members, and should therefore be locked when not in use.

f. Dispensary: a small dispensary is required where medication can be stored and prepared for patients. This room is to be designed according to standards in terms of lighting, ventilation, and safety features. The dispensary is only to be accessed by qualified nurses and staff members, and should be hidden from patients if possible. It should be allocated as close to the Nurse's station as possible, for efficient circulation throughout the facility.

g. Quiet Room: a quiet room is required where patients can read, pray, meditate, or escape the activity around them. This room could also act as a one-on-one therapy room if a patient requires special attention.

h. Gymnasium: this space would serve as a therapeutic platform, where physiotherapists or biokineticists could oversee exercise. Reflecting back on the case studies (c.f. Chapter 2), it is notable that elderly patients' muscles tighten when in a seated position for most of the day, therefore physical exercise is of utmost importance.

02.2 | SEMI PRIVATE:

a. Dining room: a large dining room that can accommodate many patients is required where patients could enjoy their meals. Activities could also be done around this table. It is important for the dining room to resemble that of a domestic setting to activate familiarity amongst the patients. The table ought to be designed at the correct height and width to accommodate different types of chairs including wheelchairs (Timlin & Rysenbry, 2010:30). The table should also be designed with round contrasting edges, to lessen the impact when a patient falls or walks into the corners (Timlin & Rysenbry, 2010:30).

b. Lounge: the lounge area should be a comfortable space where patients could relax and watch TV. This room should resemble that of a home, with comfortable furniture and soft lighting.

c. Parlour: this room will house different activities, such as hairdressing, manicures, and massages. Referring back to the case studies, (c.f. Chapter 2); physical touch constitutes a crucial factor in ensuring the wellness of patients with Alzheimer's disease. Patients in the later stages of Alzheimer's disease tend to develop a fear of water (Alzheimer's Association, 2018). Therefore, a platform ought to be created where patients' hair can be washed, undertaken as a form of pampering, rather than trauma.

d. Kitchen and faux kitchen: two different kitchens are required in this facility. A faux kitchen where patients could gather around a table and have tea or take part in a creative theraputic activity such as icing cupcakes or washing dishes. A general kitchen where meals are prepared, food is stored and dishes are washed is also required. The faux kitchen serves more as a therapeutic environment, where patients could be reminded of a domestic setting. It is important for this kitchen to resemble that of a standard kitchen including appliances (that are plugged out, or safe to use), sink and cupboards.

e. Reception and Meeting Room: this is an important threshold into the facility, as it is the first space that families, patients and other visitors experience. The function of the reception space is to welcome visitors and to receive new patients. The reception area will comprise of back of house offices for admin staff, as well as a manager's office, with a small lounge for families to discuss items of interest if necessary.

f. Toilets: these toilets will be used by all users within

the facility, and therefore need to be inclusive for all patients, including those with physical impairments. These spaces need to comply with all SANS10400 requirements with sufficient handrails, door openings etc.

g. Multi-functional room: a space is required where group therapy sessions can take place. This could also become a space where visitors and family members can partake in activities along with patients.

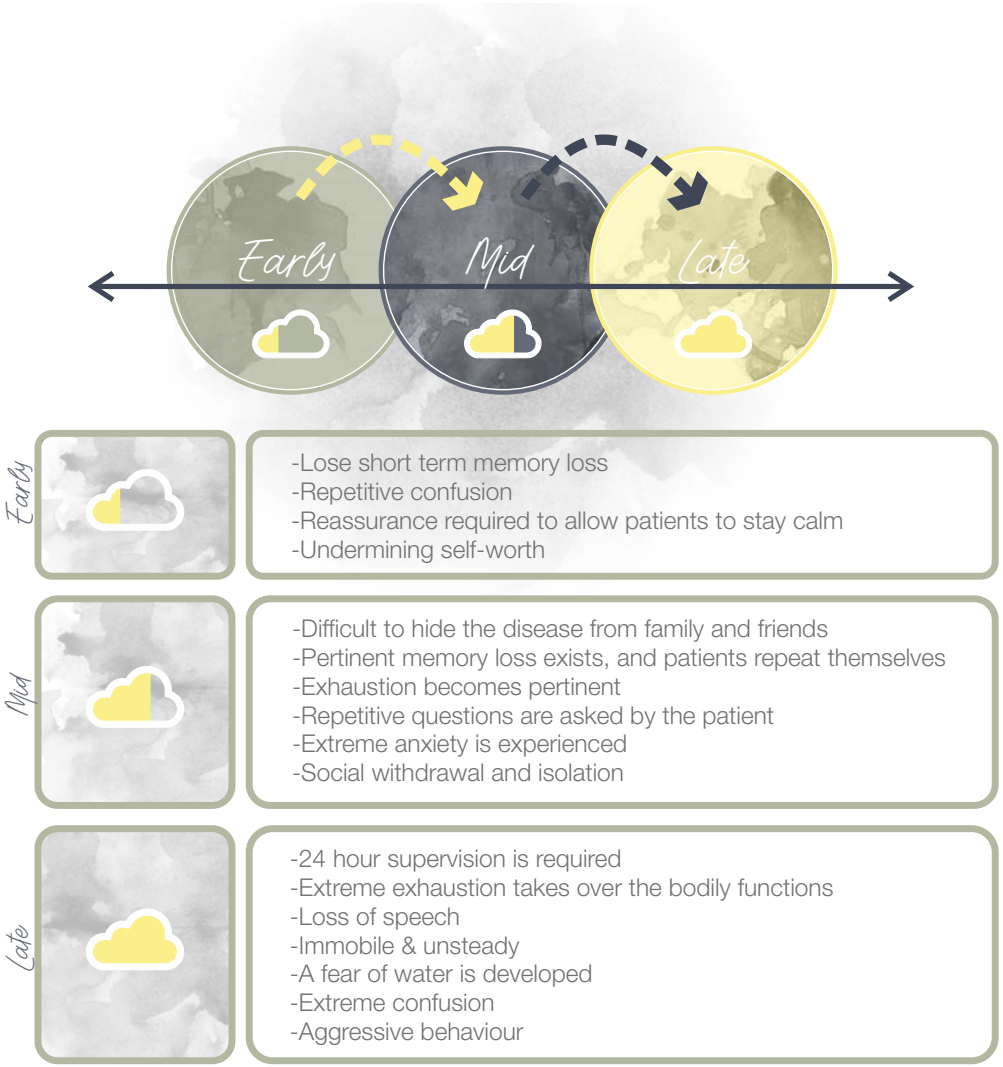
h. Laundry room: a laundry room is required where all linen and washing could be washed in-house. This could also become a space where patients could assist staff members as a platform for therapy (c.f. Chapter 2).

02.3 | PUBLIC:

a. Restaurant: a restaurant should be designed where visitors and family members can have a meal with patients if desired. This restaurant will also be open to general public, separate from the Alzheimer's facility.

b. Day-clinic: this facility will lodge Alzheimer's patients on a 72-hour basis, from which they would then be sent to the nearest hospital if required. Patients would be transferred from the consultation room in the Alzheimer's facility to the day-clinic when their illness worsens. This day-clinic facility would also house public out-patients from the community surrounding the facility. A platform for a psychologist, psychiatrist, medical doctor, physiotherapist, and an optician would be created, which would all be beneficial to the Alzheimer's facility, as well as to the general public.

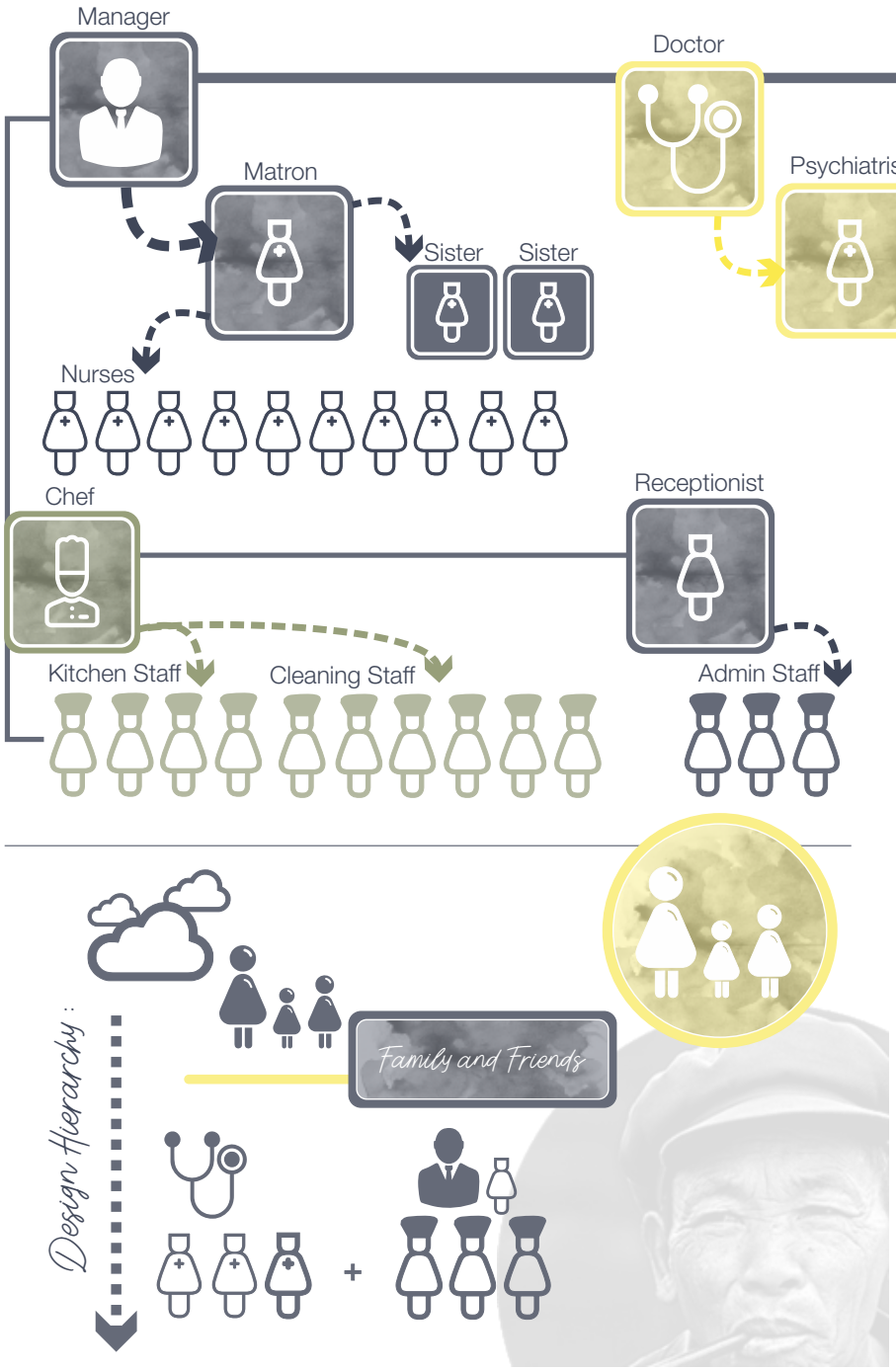
c. Outdoor Market: a platform to be created where items made by patients in workshops could be sold back to the community. This could also serve as a space where patients and community members might enjoy certain activities together.



03 | MODEL INHABITANTS

A variety of people are affected by the design of an Alzheimer's facility, namely: patients diagnosed with the disease; staff (nurses, doctors, occupational therapists, social workers, cleaning staff, management); visiting staff (physiotherapists, hairstylists, spiritual councilors); and private visitors (family members, friends). Figure 3.6 summarises the three stages and effects of Alzheimer's disease. In many cases, Alzheimer's is accompanied by age-related impairments, where an inclusive approach to the design of the facility is critical.

Figure 3.6: Main model inhabitants of this facility (Author 2018)



Further model inhabitants include staff and management systems of a typical Retirement Village structure. This information was derived from the case study visits (c.f. Chapter 2) and an average compilation is suggested in the diagramme below. These systems are dependent on the amount of patients that require personal assistance, especially with bathing and feeding. It is also important to establish the ratio between patient and nurse/caregiver that is required within the facility. As seen in the diagram below, the manager, matron, doctors and psychiatrists are of utmost importance in these systems. Furthermore the chef, kitchen staff, receptionist and administrative staff are also of high significance, as they usually work on back of house tasks.

Finally, visitors need to be considered. These include private visitors in the form of family and friends and 'service' visitors, such as biokineticist, hair-stylists, musicians and so forth. Private visitors in particular may be deeply affected by the experience of visiting loved ones that no longer recognise them, observing their cognitive and intellectual decline. At the same time, they find themselves in the uncomfortable position of being party to another patient's violent outbursts or similar disturbing behaviour. This sort of negative experience, compounded by a medical institutional environment, may habitually decrease their visits, until they find themselves alienated entirely, and unable to visit anymore.

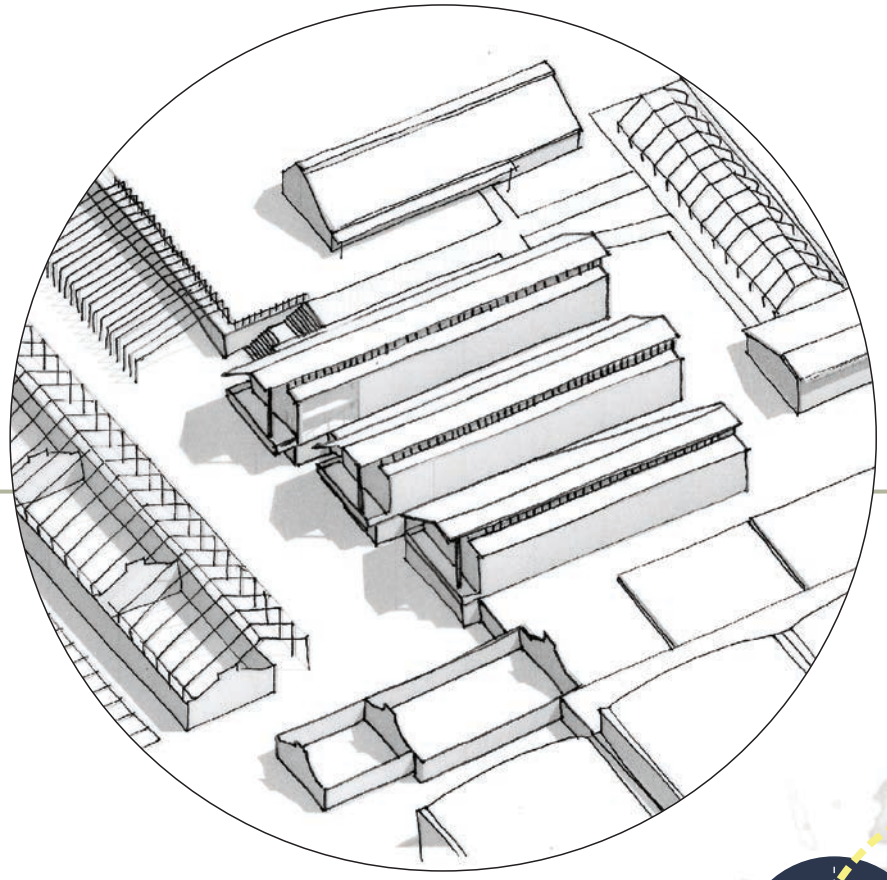
After considering all the model inhabitants of this facility, a design hierarchy can be set up indicating that patients and their friends and family members are of utmost importance, as indicated in figure 3.7, where the consideration towards their experience of the facility should be considered first and most importantly. Thereafter, the consideration ought to be given to the rest of staff and medical team.

Figure 3.7: Model inhabitant design hierarchy (Author 2018)

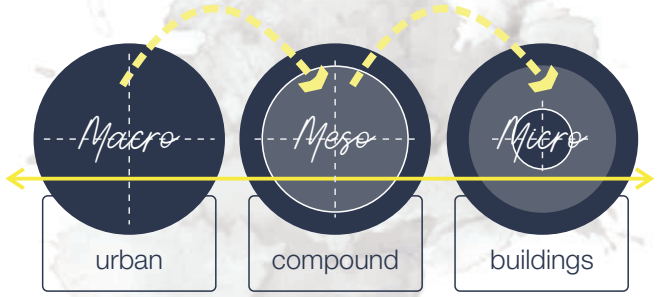
04 | CONCLUSION

By exploring the different model inhabitants in this chapter, it has been established that a facility that houses Alzheimer's patients is highly complex, and therefore needs to be considered carefully. A sensitive design approach needs to be applied to all users of the space, even though there is a design hierarchy.

In this chapter, an explanation of the different spaces that are required has been conveyed, to provide a better understanding of the spatial requirements that are required in a facility for elderly Alzheimer's patients. It is important to note that these patients not only suffer from Alzheimer's, but could also have typical age-related impairments, where an inclusive design approach is necessary to this study.



chapter 04
CONTEXT



01 | INTRODUCTION

Chapter 4 investigates across macro- and micro-contexts of the site location. The macro-context includes the town of Cullinan, and extends to Tshwane as a regional municipality, as pertinent to old age homes and existing facilities for Alzheimer's patients. The meso context refers to the mining compound in which the site is located. The micro-context concerns the design proposal of Natasha Laurent, which will serve to house the proposed Alzheimer's facility. The design proposal is thoroughly investigated, including an interview with the designer. Thereafter it is critically assessed in terms of architectural value, opportunities, constraints, and shortcomings. Finally, a proposal is made for the re-development of the programme to include a facility for Alzheimer's patients.

Figure 4.1: Chapter 4 cover page (Author 2018)
Figure 4.2: Macro, meso and micro scale indications. (Author 2018)

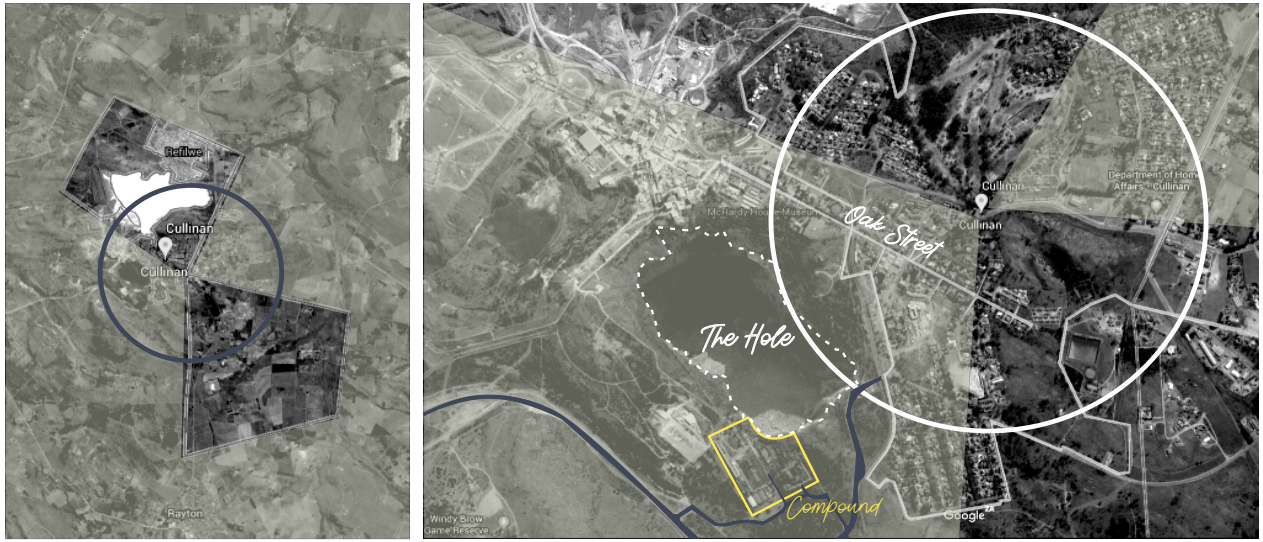


Figure 4.3: Location of Cullinan (Author 2018)

A series of mapping exercises were undertaken in an endeavour to document the context. The site was visited several times for documentation and spatial assessment. Existing documentation on the site was consulted so as to gain a comprehensive understanding of the history and heritage significance associated with the site. Throughout the chapter, a preference for graphic representation of findings is provided.

02 | MACRO

As point of departure for this dissertation, it was decided that the appropriate site would be Cullinan, a small mining town 30km north-east of Pretoria. As seen in figure 4.4, there are currently two rehabilitation facilities within the vicinity of the town, which also hosts a small private hospital. This creates an opportunity for the establishment of a medical rehabilitation precinct. As stated in Chapter 03, many of the newer retirement facilities in Gauteng are being developed on the outskirts of large cities such as Pretoria and Johannesburg. Another observation was made that newly built retirement villages are under development in the east of Pretoria. This statement leads to the general area in site choice. This facility becomes a destination, where all retirement villages and homes in Gauteng, may possibly send their Alzheimer's patients to either visit a day centre, or choose for them to reside. Figure 4.3 indicates that Cullinan is a perfectly central location in which to house this facility.

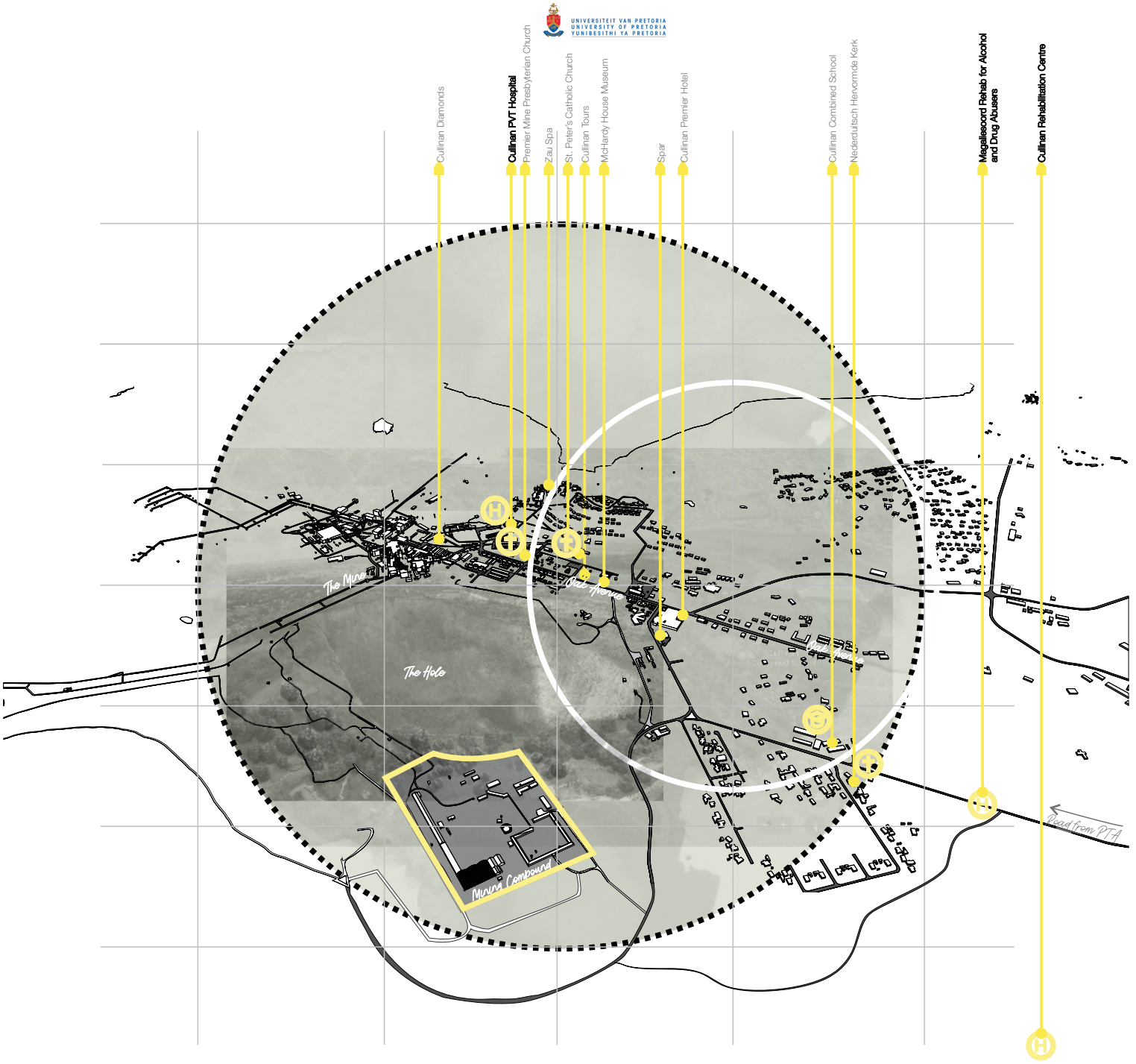
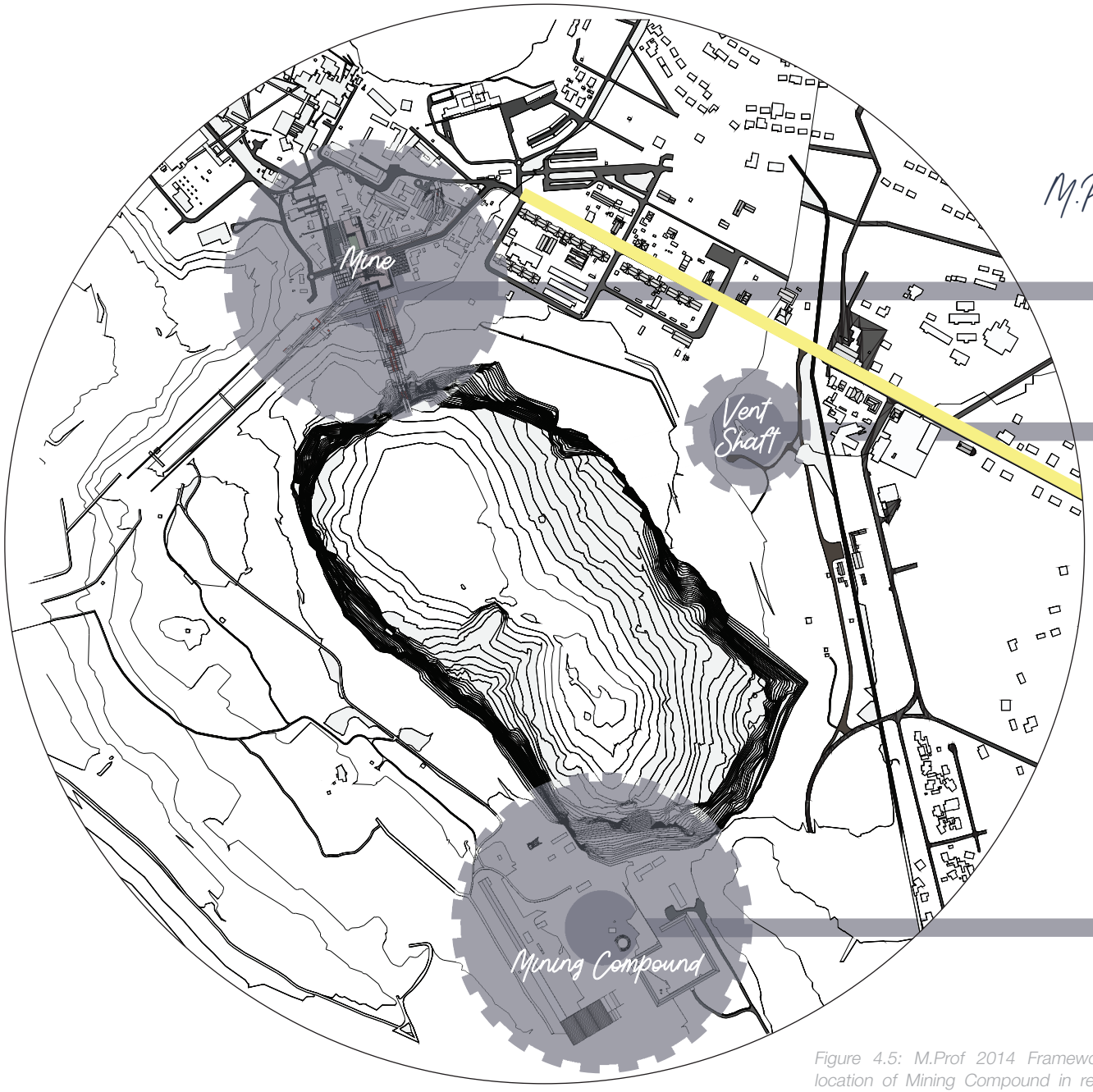


Figure 4.4: Map indicating 2 other Rehabilitation facilities, as well as the Private Hospital (Author 2018)



derived from a

M.Prof 2014 Framework

Study Area A
Marcel Nattheus
Walter Raubenheimer

Study Area B
Nikita Edwards

Intentions
- Creating a guide to SUBVERT the 'machine' (mine)
- Investigate RESILIENCE and REGENERATION
- Reintroduce CRAFTSMANSHIP into local context
- Create connection between tangible and intangible
- Ensure protection of cultural and industrial heritage
- Address disturbed ECOLOGICAL SYSTEM
- Address fragmentation of town, mine and landscape

Study Area C
Paige du Toit
Natasha Laurent
Hugo van Niekerk

chosen dissertation

Figure 4.5: M.Prof 2014 Framework intentions and location of Mining Compound in relation to the town (Author 2018)

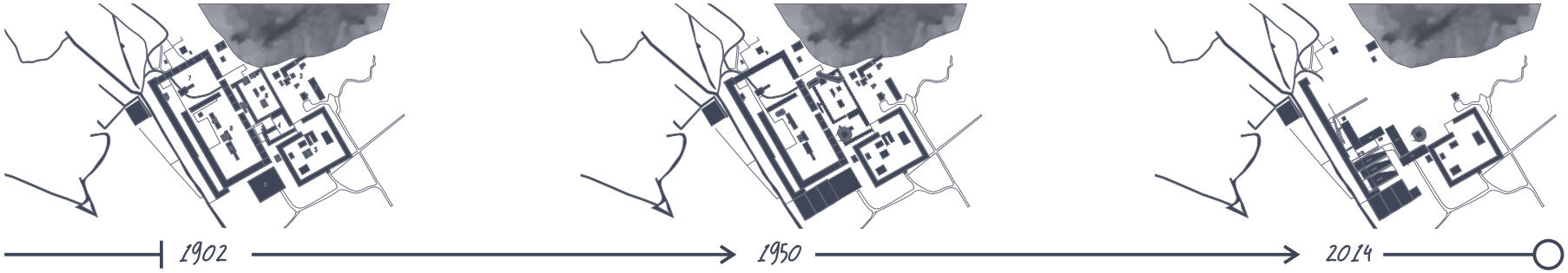


Figure 4.6: Diagrammatic Timeline (Author 2018)

Thorough research was done in and around Cullinan to be able to identify an appropriate site for the programme intended for this project. An urban framework was identified, developed by group from the 2014 M.Arch (Prof) at the University of Pretoria. This framework included three precincts surrounding the town, namely the mine, the number two vent shaft, and the mining compound (see figure 4.5 to right). The objective of their framework was to create a new regenerative system that could establish resilience for Cullinan in 2034, when it is predicted that the mine will shut down. A secondary goal was to protect the cultural and industrial heritage of the town and the mine. The framework further addressed, through individual student projects, topics surrounding agriculture, tourism, heritage, industry, ecology, and education.

The town developed as a result of the mine and is subsequently quite small. However, it is the location of a large tourist attraction in the form of a heritage site, preserving the world's deepest man made diamond mine (see figure 4.5). One of three of the originally built mine shafts are currently still in working condition, while the other two have become obsolete over time. The mining compound and location of the selected site (design proposal by Laurent 2014) lies to the south of the hole. The compound was built in 1902 to accommodate 7 000 mine workers, although it would come to house 15 000 men. Figure 4.6 (above) illustrates the evolution of the compound from 1902 up until 2014.

03 | MESO

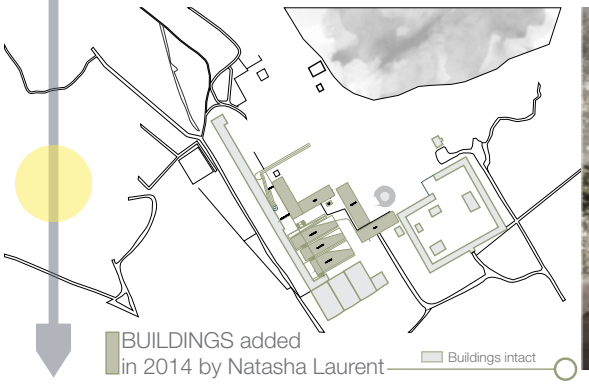
The site has undergone many changes over time. It was constructed with the purpose of being a residence for the miners, as these were itinerant workers, travelling from far afield. It consisted of sleeping quarters; outhouse for ablutions; outhouse laundry and dishwashing facilities; a tuckshop and a hospital designated under apartheid according to race for black miners. Circa 1952, additional facilities were constructed, including an amphitheatre; a larger detention house and workshop. At the same time, a number of the smaller original buildings were demolished.

In 2014, the site was selected and investigated for the M.Arch (Prof) dissertation by Natasha Laurent, entitled Land of the Scattered Seeds. Laurent (2014) designed an Agricultural Research Facility that reused the crumbling structures remaining from the compound, as well as adding six additional buildings. Laurent (2014) took a sensitive approach to the tangible and intangible heritage of the site, as can be seen in figure 4.6 (timeline).

Historical Timeline

(Cullinan archives, 2014)

(Cullinan archives, 2014)



(Natasha Laurent, 2014)

Figure 4.7: Historical Timeline and accompanying photos (Author 2018, Cullinan archives 2014, Laurent 2014)

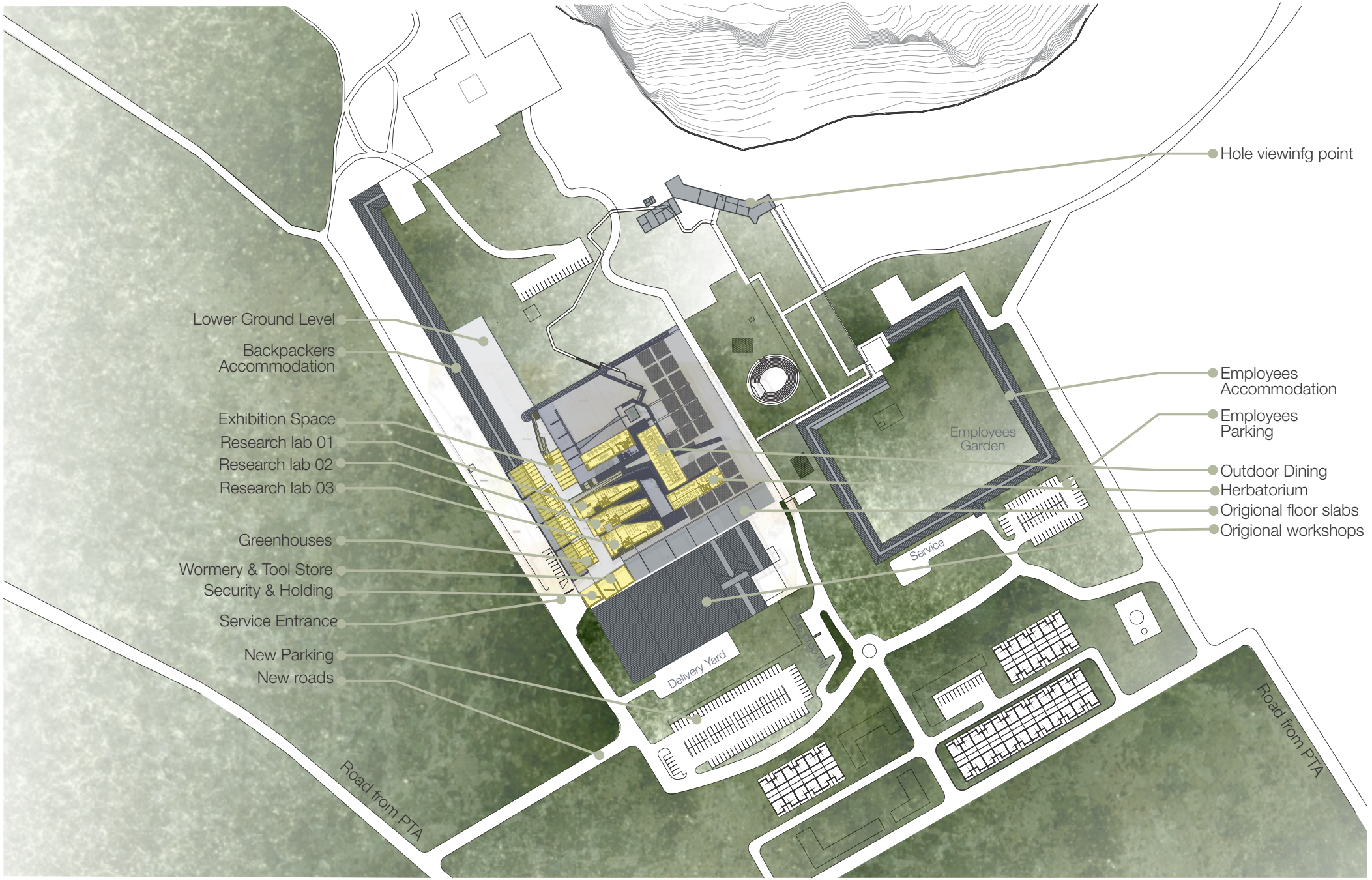


Figure 4.8: Site Plan indicating design by Natasha Laurent in 2014 (Author 2018)

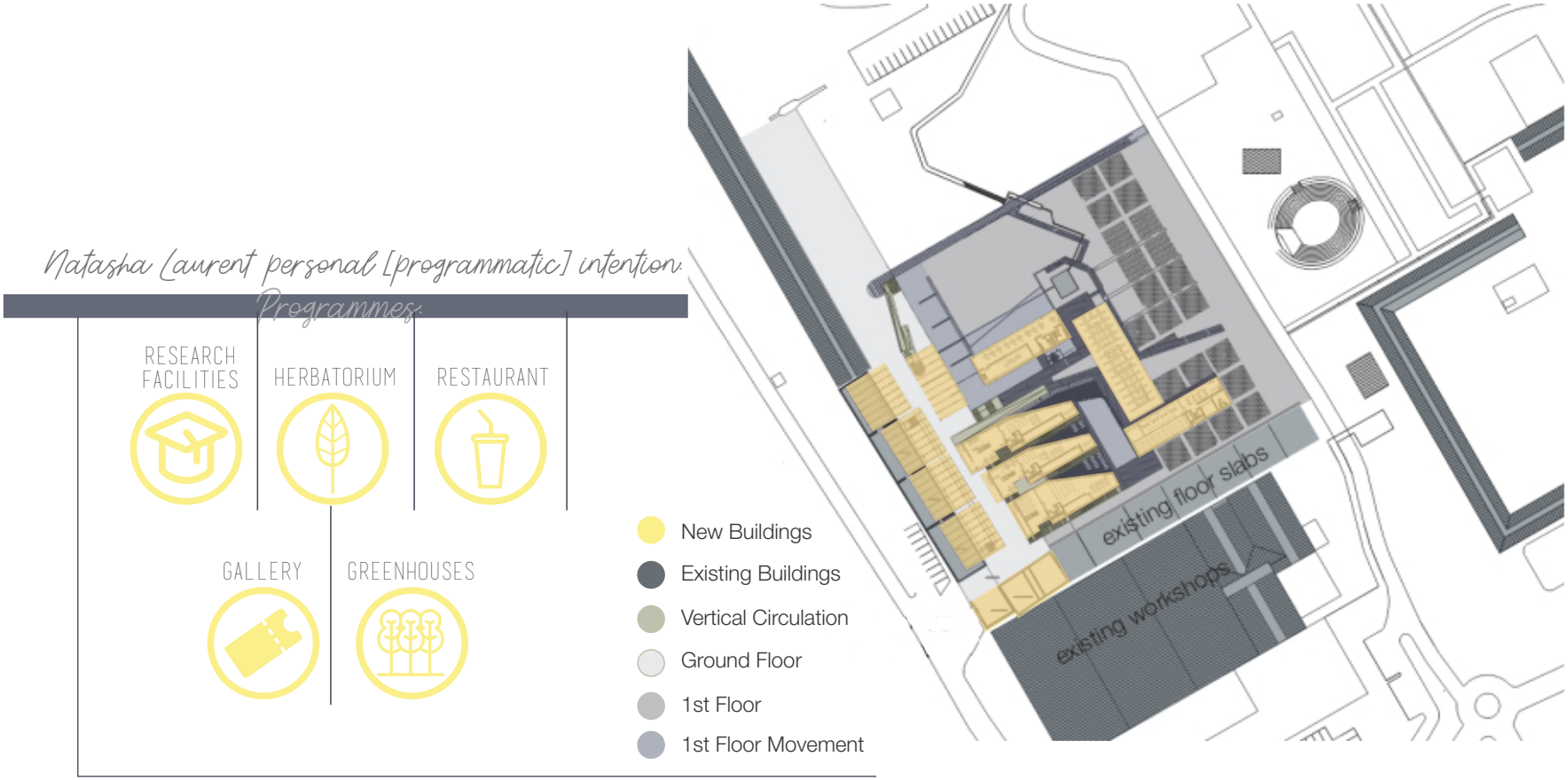


Figure 4.9: Diagrammatic plan indicating new vs. old buildings, as well as programmatic intentions (Author 2018)

Laurent's (2014) intervention was situated in the aforementioned M.Arch (Prof) 2014 framework. For the purpose of this dissertation, Laurent's (2014) proposal is taken as realised, and will serve as a virtual site.

The intention of Laurent's proposal was to bring to light the controversial nature of the compound's history. Laurent's (2014) programmatic intention included research facilities for the investigation into efficient and sustainable methods of food production through vegetable farming. A tourist route was incorporated into the design. The proposal included the following spaces: greenhouses (incorporating the ruins from the compound), a herbatorium, a wormery, a restaurant, an outdoor seating area, and a gallery.

04 | MICRO

ANALYSIS: Land of the scattered seeds, a mini dissertation by Natasha Laurent:

The proposed Agricultural Research Facility includes three new buildings (1070m ^{2} in total) that have been designed responsively to the sloping site. The three buildings vary only slightly in size and are orientated with the longest elevation to north (see figure 4.10). The buildings are designed to house research laboratories. They are rectangular with mono-pitched roofs (see figure 4.10). The long rectangular shed-like typology lends itself to a variety of functions and provides opportunity for spatial development and programmatic change. The buildings have been designed according to innovative building methods and reliable materials such as timber, masonry and concrete. Each building consists of two floors, viz.: ground, and below ground, that resulted from the natural slope in the landscape. This becomes an opportunity for future programmatic interventions that can be added to the buildings.

An exhibition space, seen in figure 4.11, has also been designed to showcase local crafts as part of a monthly market. This space has the potential to become a threshold, as it is a space that leads one up to the first floor level. The outside space is covered by a pergola, which creates a harmonious connection to the exterior environment. This building provides an opportunity to be filled with a new programme that can enhance the threshold.

Greenhouses have been superimposed onto the original ruins of the mining compound as seen in figure 4.12 and 4.13. They have been designed on ground floor level across from the research labs. The construction of these buildings has been designed modestly, using simple glass and steel materials. These greenhouses consist of a first floor mezzanine level that only covers a small area of the space.

On the first floor level, a large outdoor dining area has been designed that looks out onto the gardens. This is a tranquil space with the potential of adapting very easily into a different programme. It is a light construction building that faces a North-Eastern direction, allowing plenty of sunlight and daylight to enter into the linear space. Perpendicular to this building, a herbatorium has been designed, where the cleaning, sorting and packaging of herbs take place. This is a very similar building to that of the outdoor dining area. Lastly, a restaurant has been designed on first floor level to the North of the site, with large glass facades and open decks that create lovely connections to the exterior landscape of the site.

As part of the group framework, other programmes were designed in the buildings that are still intact on the compound site, which included: backpacker's accommodation, food packaging facilities, a fungi-culture room, compost production workshops, a food garden, and a viewing point of the hole.

Figure 4.10: View of Research Facilities (Laurent 2014)
Figure 4.11: Exhibition Space interior view (Laurent 2014)
Figure 4.12: Proposed greenhouse superimposed onto ruins (Laurent 2014)
Figure 4.13: First floor "bridge" inside greenhouse (Laurent 2014)

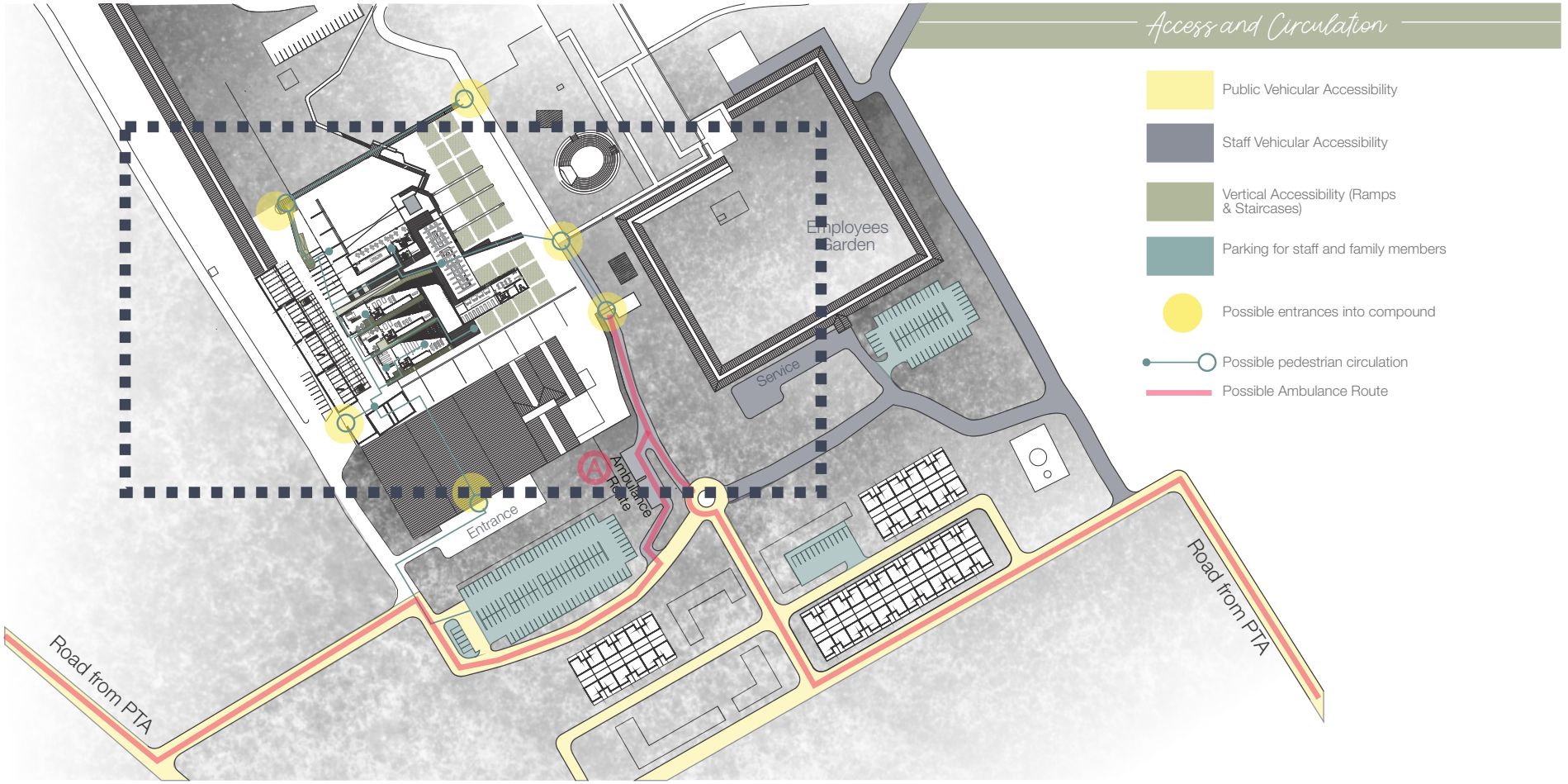


Figure 4.14: Map A - Access and Circulation (Author 2018)

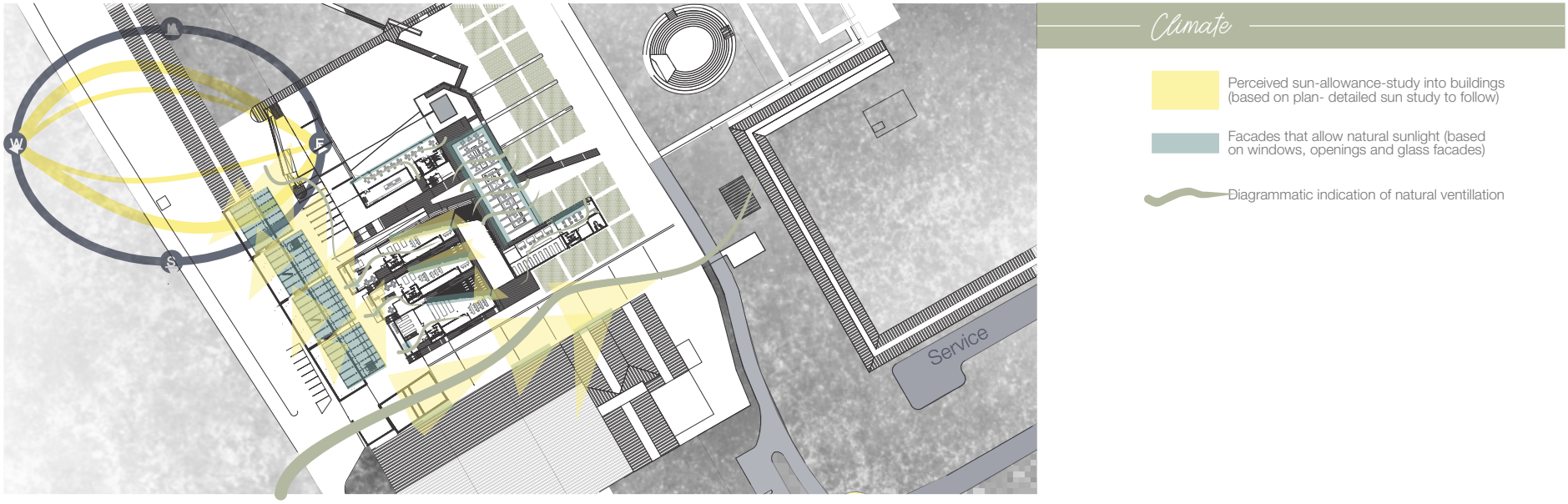


Figure 4.15: Map B - Climate (Author 2018)

Maps A and B (Figure 4.14-4.15) indicate spatial analysis of the buildings within the compound. Map A refers to an investigation done regarding access and circulation. Elements such as public vehicular access, staff vehicular access and parking are indicated. Vertical accessibility in terms of ramps and staircases were mapped as well as possible pedestrian circulation. Possible entrances were proposed as well as a possible Ambulatory Route.

Map B is an initial climatic investigation, where a perceived sun allowance study was conducted into the buildings based on plan. Facades that allow natural sunlight and daylight in were also analysed and mapped based on windows, openings and glass facades. Lastly, a diagramme of natural ventilation was conducted.

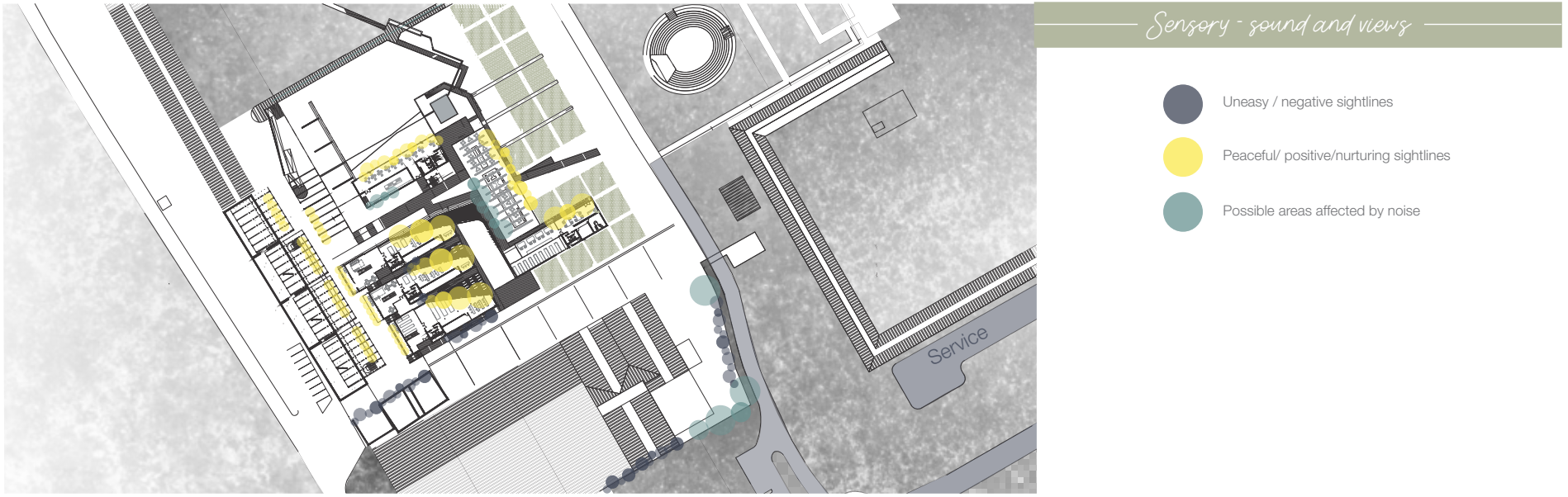


Figure 4.16: Map C - Sensory, sound and views (Author 2018)

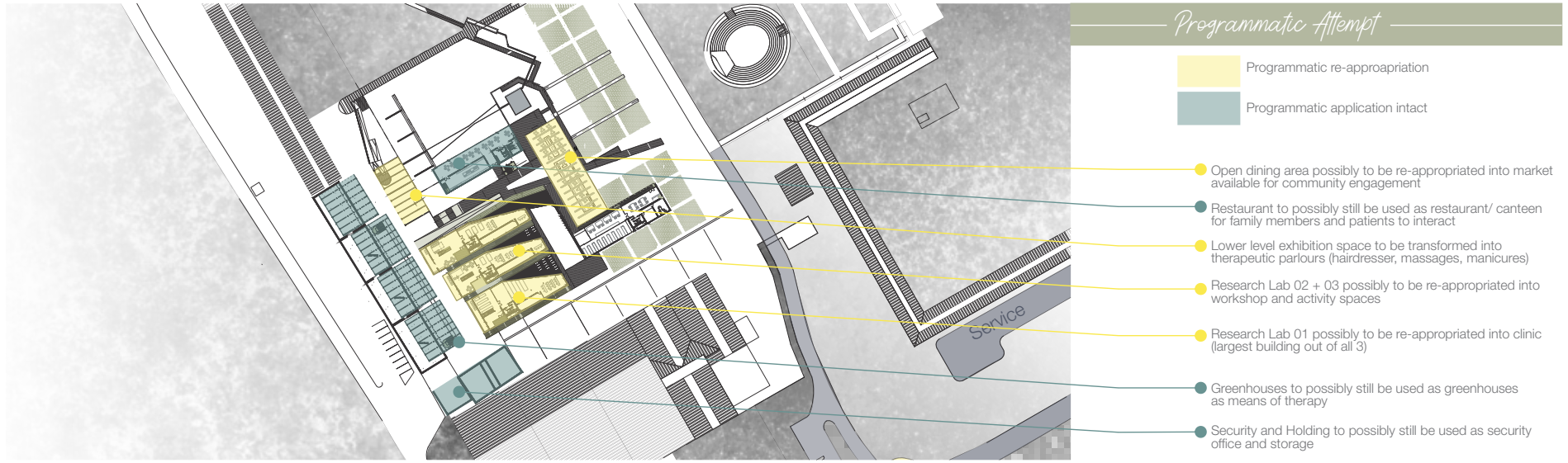


Figure 4.17: Map D - Programmatic Attempt (Author 2018)

Sensory mapping was conducted and indicated on Map C (Figure 4.16). Uneasy and negative sightlines were identified, to be acknowledged during the spatial design phase. Peaceful and positive sightlines were also identified to be highlighted further in the project. Possible areas affected by noise were also identified and indicated on Map C (Figure 4.17).

Map D is a 'Programmatic Attempt'. During this part of mapping, intended programmes of the different buildings were identified, and possible programmatic changes were proposed. It is important to note that not all the programmes will be re-appropriated. Some of the intended programmes designed by Natasha Laurent (2014) will remain as-is, so as not to disregard the entire design intention. The Greenhouses, security house, and restaurant could possibly remain exactly as intended. Whereas the research labs, herbatorium and outdoor dining area could be re-appropriated into programmes appropriate for the new Alzheimer's intervention. As seen in map D to the left, new programmatic intentions have been proposed in yellow, whereas blue indicates where programmes are kept intact. Reflecting back on Chapter 3, intended spatial programmes that were derived from the Case studies (c.f. Chapter 2), can be comfortably accommodated into the three main buildings.

05 | REASONING

There are various reasons why this specific framework and M.Arch (Prof) project was chosen:

1. Suitable Site

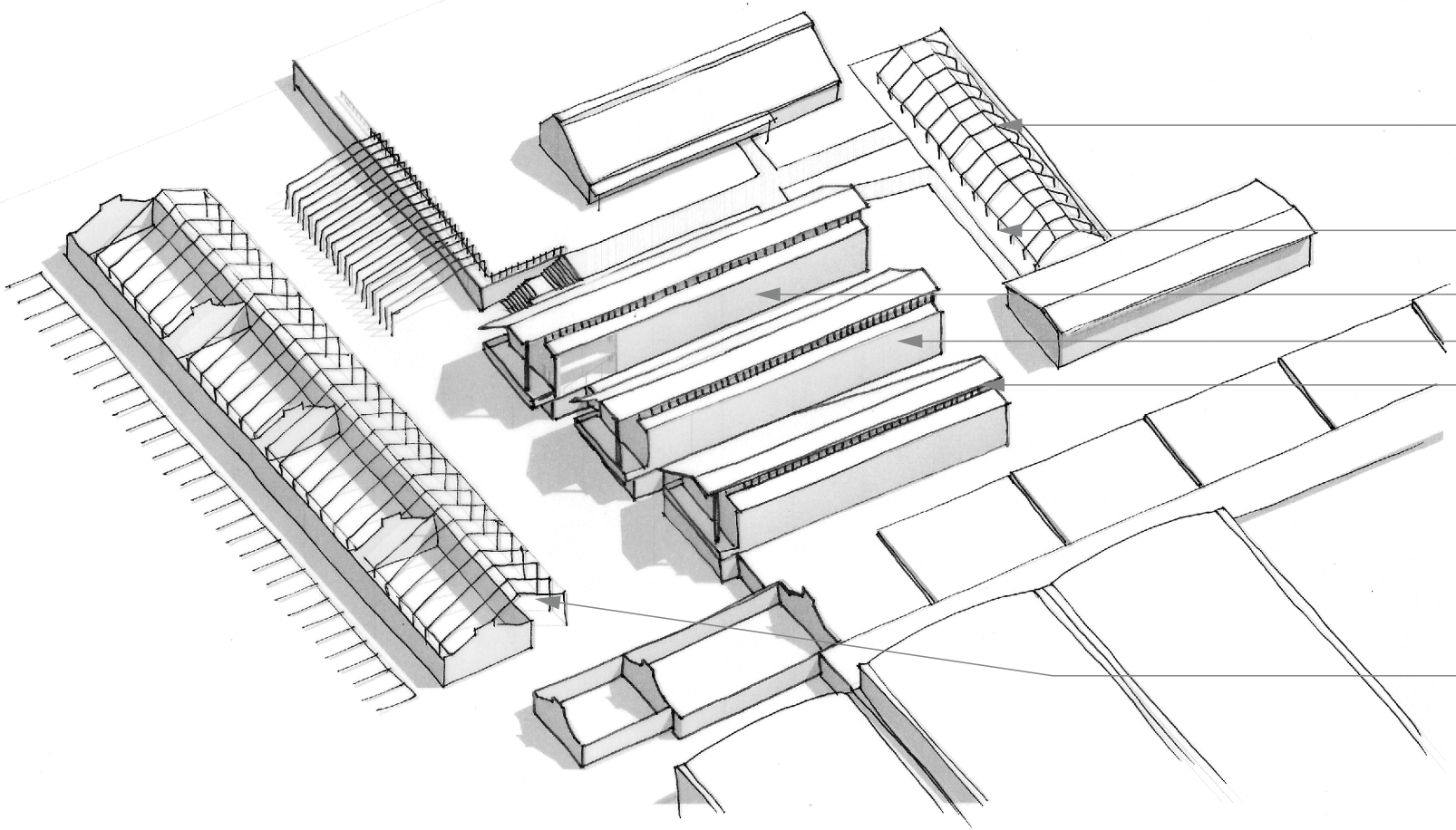
Alzheimer's facilities are increasingly developing toward the outskirts of large cities, and therefore Cullinan presented itself as a suitable area for a flagship facility that could be repeated throughout the country. Cullinan itself also provides the opportunity to add to a preexisting medical precinct, where three other medical facilities already exist within the vicinity of the small town. As proposed in Chapter 3, a day-clinic is recommended to be added onto the site, from which a patient may be housed for 72 hours, and after which they may be transferred to the town hospital. An intertwined connection can then be established between the new proposed Alzheimer's facility, and the already established medical facilities in the vicinity.

2. Programmatic Intention

The physical form that has been designed, creates many opportunities for the development of a physical community that can be designed specifically surrounding elderly people diagnosed with Alzheimer's disease. It is important that the site chosen for this study, already consisted of programmes that could easily slot into the new programmatic intentions of an Alzheimer's facility. This virtual site was designed with the view that the architecture is to be integrated with nature, and this provides the potential for a platform to be created where patients could be integrated with natural environments as form of therapy. By not disregarding all the intended programmes designed by Laurent (2014), a connection could be made between the new and the established virtual site. The outdoor market space, restaurant and greenhouses are some of the programmes that could be kept intact and integrated easily with an Alzheimer's facility.

3. Conceptual approach

The conceptual approach of Natasha Laurent's project (2014) is very much focused on the nature of memory. This is an appropriate approach to Alzheimer's patients, as memory loss constitutes a significant part of the cognitive disease.



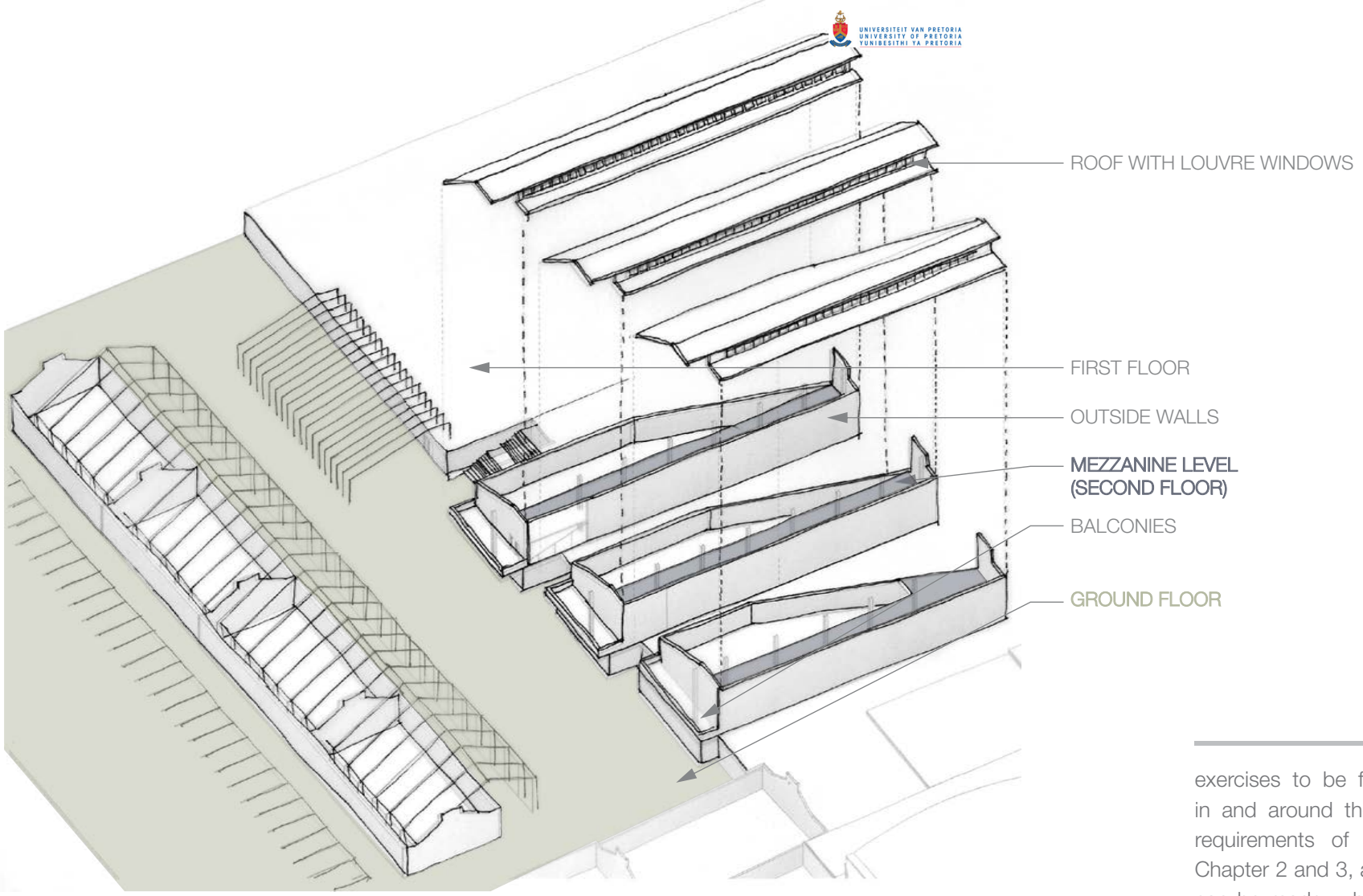


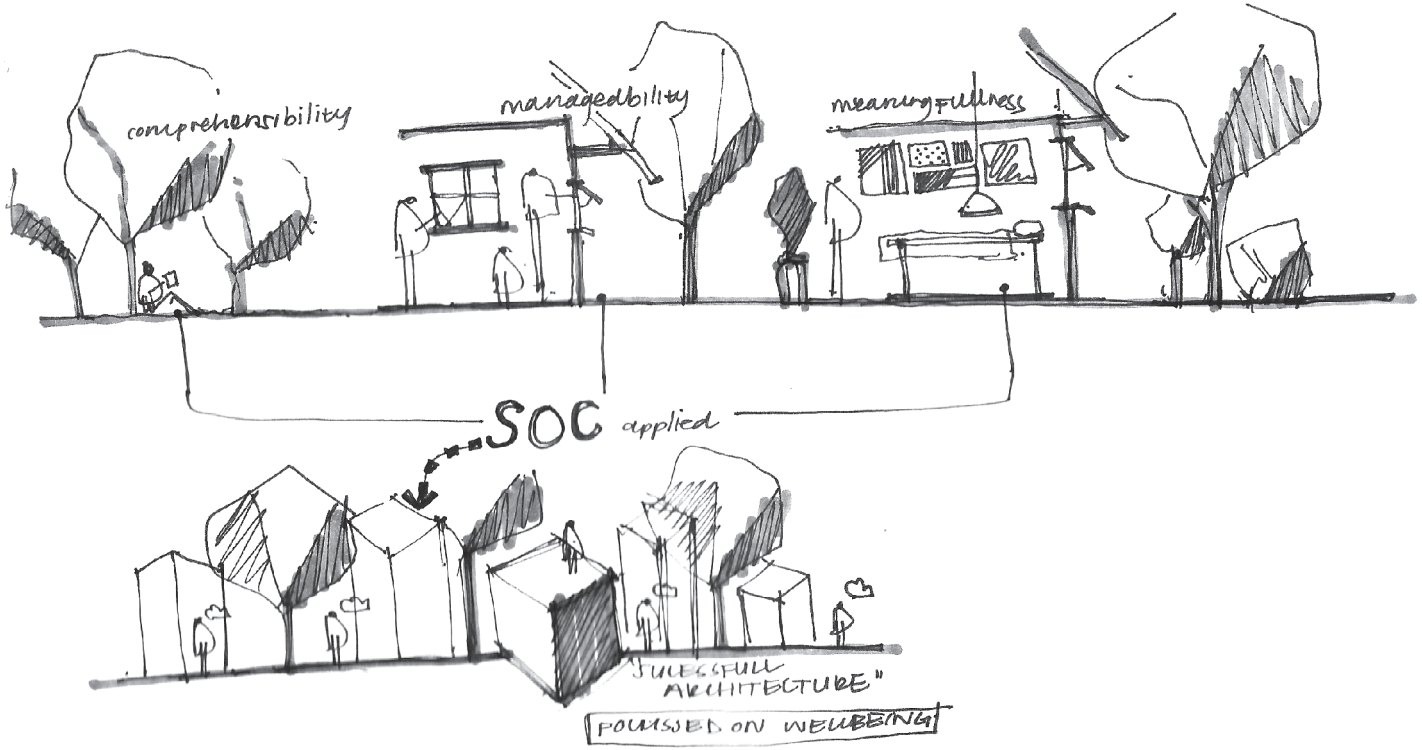
Figure 4.18: (Left) Simple explanation of Site (Author 2018)
Figure 4.19: (Above) Exploded Axonometric diagram to explain space. (Author 2018)

06 | CONCLUSION

After an extensive analysis was done on the compound, the new Agricultural Research Facility was easily understood, and therefore could be analysed appropriately. An attempt was made to diagrammatically understand the information. As a point of departure for the next phase of the project, it was important to go through various mapping exercises to be fully informed on the information in and around the site. Analysing the needs and requirements of a typical Alzheimer's facility in Chapter 2 and 3, an approach to programmatic infill can be made, where certain programmes are kept and others are deemed irrelevant, and therefore disregarded. The following conceptual phase of the project will be a cognisant palimpsest based on the mapping information proposed in this chapter.

As noted, the proposed interventions made by Laurent in 2014 are taken as realised in this study henceforth.

chapter 05
THEORY



01 | INTRODUCTION

This chapter aims to provide an understanding on salutogenics as a theoretical design generator for this study. An outline of Alzheimer's disease will be provided to present the reader with an empathetic appreciation for the model inhabitant: the elderly patient with Alzheimer's disease.

Figure 5.1: Cover page (Author 2018)

Figure 5.2: 3 Major Stages of Alzheimer's disease (Author 2018)

02 | ALZHEIMER'S DISEASE DEFINED

Our brains consist of 100 billion nerve cells, that connect with each other to create communication networks (Alzheimer's Association, 2018). When a person has Alzheimer's, these communication networks start to fail, creating cavities and breakages in the brain. Because the brain is such a strong organ that tries to heal itself, it works overtime, which results in extreme exhaustion. These breakages and cavities can be translated directly into the loss of memories. As the disease worsens, these breakages increase and ultimately create irreversible damage to the brain (Alzheimer's Association, 2018). Alzheimer's can be categorised into three major stages: early, mid, and late (Figure 5.2).

02.1 | EARLY

An indicator of early-stage Alzheimer's disease includes the loss of short-term memory, and repetitive confusion during conversations (Timlin & Rysenbry, 2010:14-15). Usually only family members or close acquaintances will notice these changes in behaviour. As a result, most diagnoses are made once the second stage of Alzheimer's has commenced. A person diagnosed during the early-stage ought to be supported, and offered constant reassurance in order for the patient to retain his/her independence. In an effort to not undermine their self-worth, simple tasks ought to continue to be executed by the patient themselves (Timlin & Rysenbry, 2010:15-16).

02.2 | MID

During the mid-stages of this disease, short-term memory loss becomes a pertinent part of the patient's daily lives. Confusion becomes more obvious which creates difficulty for the patient to hide the disease from people around them (Timlin & Rysenbry, 2010:14). Forgetfulness of people's names and routine events start to take place, which sees them repeatedly asking the same questions, and ultimately leading to extreme anxiety. At this point of diagnoses, physicians typically prescribe anti-depressant medication to ameliorate unease and apprehension. Progressively, daily tasks and routines become more difficult and family members can offer support by providing frequent reminders (Timlin &

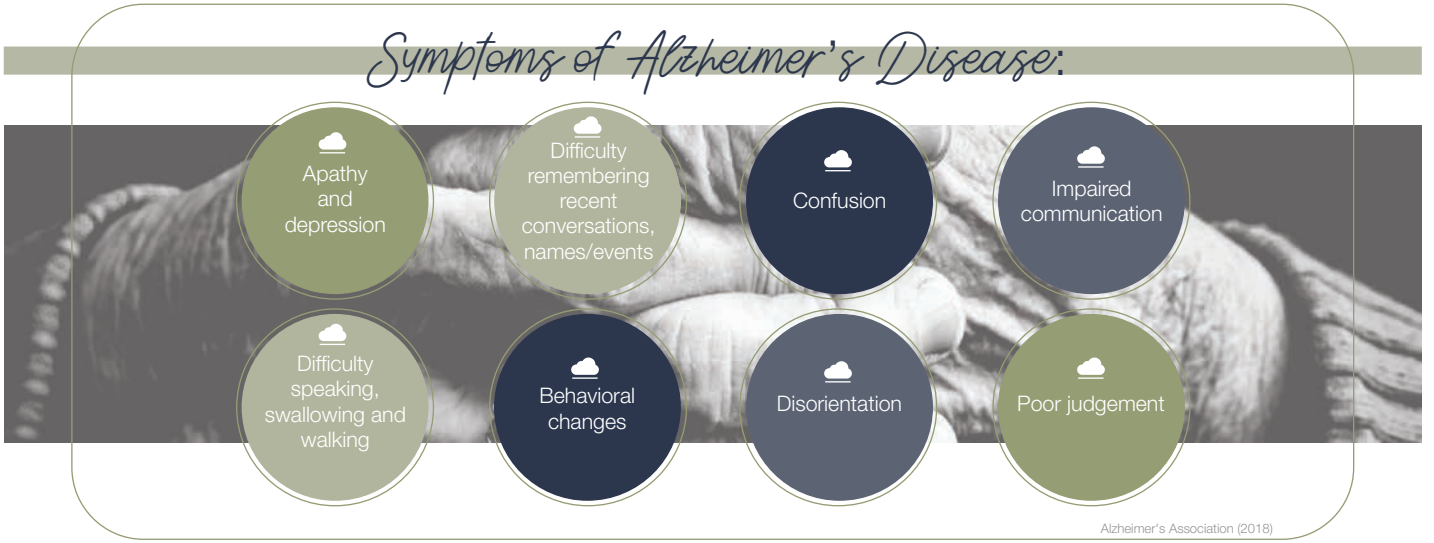


Figure 5.3: Typical Symptoms of Alzheimer's disease (Author 2018)

Rysenbry, 2010:15). A pertinent symptom of this stage includes social withdrawal and isolation. Timlin and Rysenbry (2010:15) states that the awareness of their changing environment becomes a relevant part of the struggle. The authors go on to describe that patients tend to wander off, even though they are in environments that are familiar to them (Timlin & Rysenbry, 2010:15). This could present dangers for not only the patient, but surrounding people as well, such as leaving the oven or iron on, not locking doors, or trying to drive. It is advised that the level of care and vigilance for these patients' increases heavily, hence consideration ought to be made to move the patient to a care facility (Timlin & Rysenbry, 2010:16) (Figure 5.3).

02.3 | LATE

This is the most acute and difficult stage of Alzheimer's as a disease. At this point, the patient usually requires 24-hour care and constant nursing assistance. Dependency on family members or medical professionals becomes critical. The memory loss now extends to all activities and conversations, and patients only tend to remember memories from when they were much younger. The patients also experience an increased loss of speech and social ability to interact (Timlin & Rysenbry, 2010:15). Due to the neurological confusion caused by dying brain cells, patients tend to become aggressive and agitated. Exhaustion starts to take over the bodily function and most activities take longer to complete than usual. Patients may become immobile or unsteady on their feet, which generates the need for 24-hour assistance and care (Timlin & Rysenbry, 2010:15) (Figure 5.3). Activities such as bathing, dressing and eating typically cannot be carried out independently. The ability to communicate verbally decreases markedly because of the exhaustion and unfamiliarity that the patient experiences (Timlin & Rysenbry, 2010:16). Despite the difficulty of verbal communication from the patient, there are other methods of communicating such as introducing elements of familiarity to the patient, for example the smell of freshly baked bread, the feel of an animal's fur, or the touch of a hand accompanied by a smile. These methods will put the patient at ease, and decrease aggressive behaviour and aggravation experienced by the patient.

03 | THEORETICAL UNDERSTANDING

03.1 | Introduction

The institutionalisation of psychiatric facilities are evident in the field of medical design. Architecture and design articulating these facilities are largely influenced by opinions created by societies over time, and as a result, have become a norm and a standard. Dilani (2008:55) contends that hospitals have been designed to look and work like factories, and that the patient's psychological, physical and social needs get lost in the process, as these facilities are primarily designed to treat the medical condition and not patient's wellbeing. The institutionalisation of psychiatric facilities creates a large gap between patient and environment (Golembiewski, 2010:100). The gap between patient and environment could be reduced through interior design, if design decisions take into account not only function, but also the patient's physical and emotional needs as well. The design of these facilities needs to shift from unsubstantiated policies and norms, to be primarily concerned with patient wellbeing. There is a growing body of research regarding the health outcomes and wellbeing of patients that can be directly affected by the design of healthcare facilities. This includes a substantial body of research conducted by R.S. Ulrich, who is the most widely cited author in terms of health care design (The Center for Health Design, 2017).

Health is a complex phenomenon. Dilani (2008:56) states that health is a "subjectively experienced condition" that is usually formed by previous life events and affected by general norms and expectations. Health can be divided into two different paradigmatic approaches, viz.: the holistic and the biomedical (Dilani, 2008:56). However, it is more common that from a research point of view, health is generally divided into pathogenic and salutogenic perspectives (Figure 5.4). Pathogenesis is concerned with finding cures or medical treatments for biomedical illnesses, while salutogenesis considers the enhancement of wellbeing and the addition of factors that promote health (Dilani, 2008:56).
alutogenesis argues that a good state of mind relates directly to better health and wellbeing. It is argued that a salutogenic approach to the design of the Alzheimer's Facility in Cullinan provides a strategy to ensure the wellbeing of patients inhabiting these facilities (Golembiewski, 2010:102).

03.2 | Salutogenesis Defined

Salutogenesis is a concept first written about by Aaron Antonovsky (1996). Salutogenics is based on the argument that health and illness occupy different planes along the same continuum (Golembiewski, 2010:101) (Figure 5.5). The concept of salutogenesis is an attempt towards health promotion whereas pathogenesis is a factor that challenges illness and death.

Salutogenics establishes a relationship between a patient's wellbeing and their immediate environment (Golembiewski, 2010:101). From a psychiatric point of view, it is important to understand that the relationship between environment and patient is ever-changing and requires an adaptability to be able to easily adjust to the patients' different behaviours

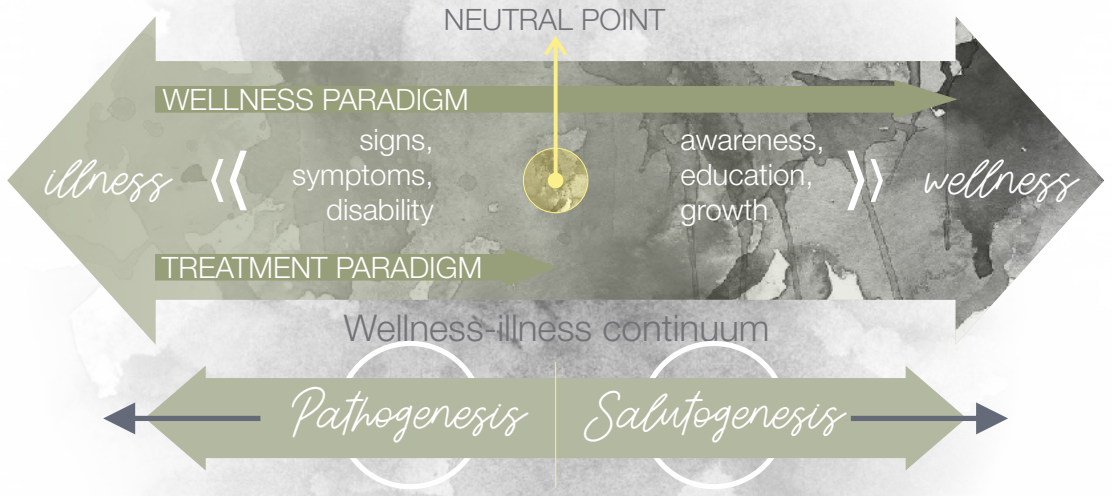


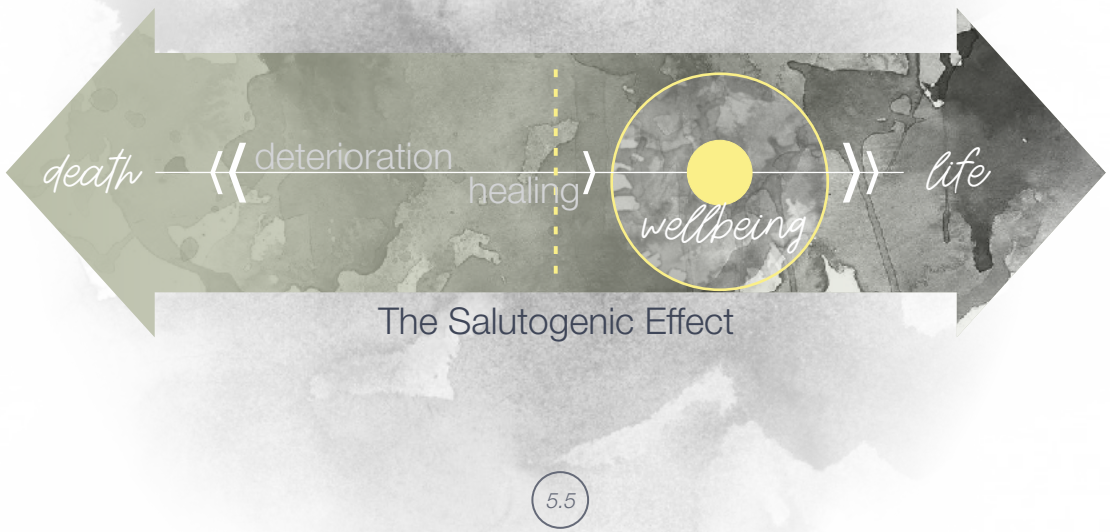
Figure 5.4: Wellness - Illness Continuum (Author 2018)

(Golembiewski, 2010:101).

Salutogenic theory can be translated into design principles when designing specifically for a "stress-sensitive" client base (Golembiewski, 2010:100). As defined by Lindström and Eriksson (2018:440) this movement toward health and wellbeing, is mainly orientated around stress and the manner in which stress is controlled and perceived by patients. Within the salutogenic model, stress is an ever-present factor experienced by psychiatric patients that could be reduced by bettering their environments. Antonovsky (1996:11) identifies the concept of 'sense of coherence' (SOC), which is designed to be able to asses people's ability to understand the current situation in which they find themselves, and secondly, to have a motivation to move towards promoting their own health, and finally to have the capacity to do so. These three actions have been defined as comprehensibility, meaningfulness, and manageability, respectively (Antonovsky, 1996:11). Sense of Coherence largely refers to a patient's capacity to respond positively to stressful situations (Lindström & Eriksson, 2018:441). It is an individual perception of life, and a way of thinking that is directly influenced by physical environments. The SOC states that a person with a high sense of coherence is able to cope significantly better in a stressful situation, compared to a person with a low sense of coherence.

Dilani (2008:56) further states that there is a direct relationship between the physical environment experienced by a patient, and the patient's sense of coherence. With that said, there is a large opportunity in our country to develop interior and exterior spaces that encourage the principles of 'psychosocial supportive design', to ultimately enhance wellbeing (Figure 5.6).

"The main effect of this syndrome is a slow, constant and unrelenting cognitive impairment, which severely compromises people's perception of the world and their environment. Currently, there is no cure..." (Gramegna & Biamonti, 2017)



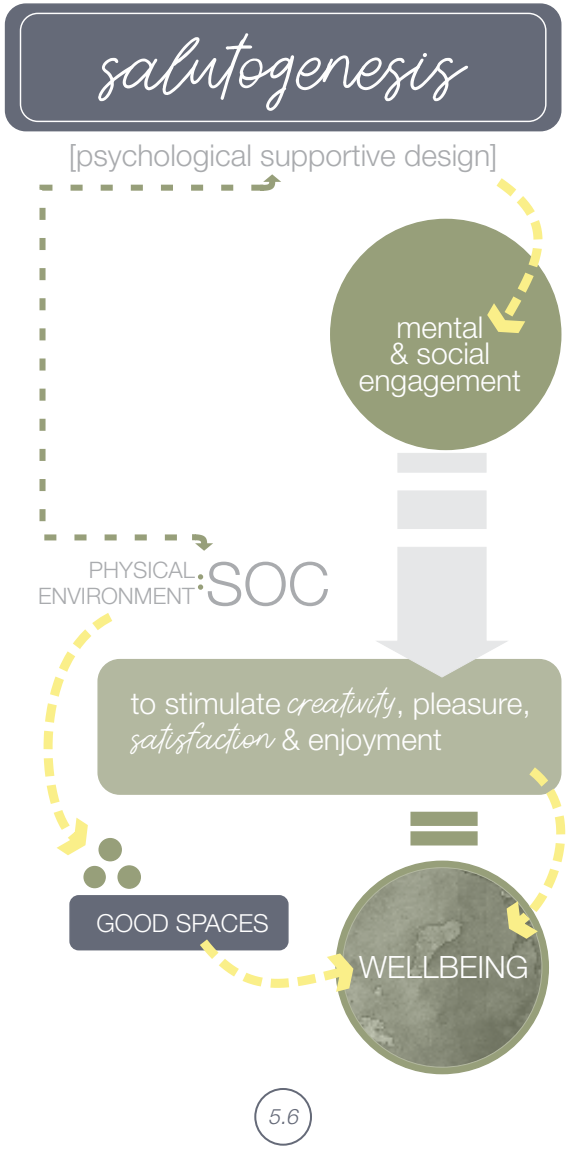
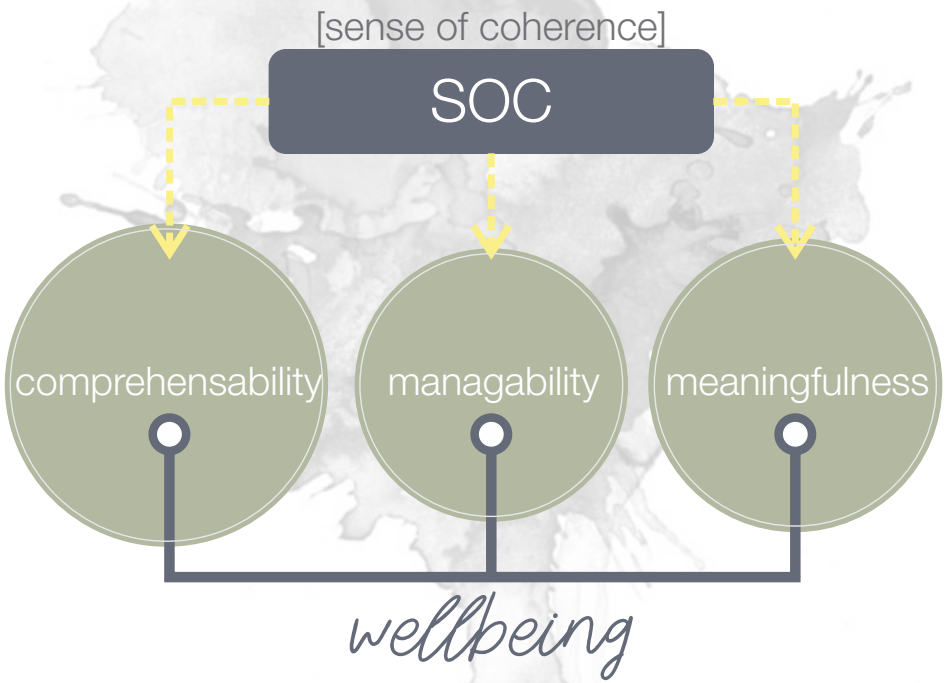


Figure 5.5: The Salutogenic effect (Author 2018)
Figure 5.6: Diagram illustrating that Salutogenics can enhance wellbeing (Author 2018)



03.3 | Design Methods: The three realms

Antonovsky (1996:15) contends that a patient that scores high on all three components, will experience high levels of wellbeing (see figure 5.7). The three realms within the SOC framework can be defined as follows:

Figure 5.7: The Sense of Coherence Model (Author 2018)

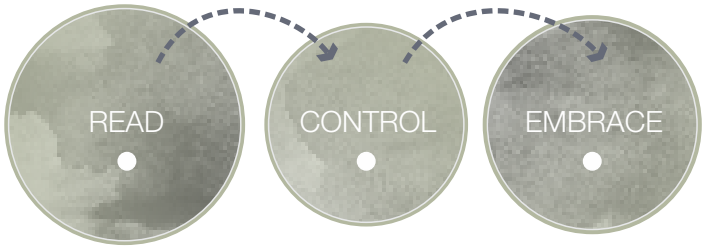


Figure 5.8: The Sense of Coherence Model conversion into read-control-embrace for practical design purposes (Author 2018)

A. Comprehensibility _ read the environment

This is the first step in achieving a sense of coherence, and refers to a patient's perception of the environment being logical and understandable (Dilani, 2008:56). This is an important factor in terms of Alzheimer's patients, as the loss of short term memory generally creates confusion regarding direct environments.

From a design perspective, it is important to understand that psychiatric patients, as well as patients diagnosed with Alzheimer's disease, sometimes experience hallucinatory episodes, and therefore it is of utmost importance for the designer to take into consideration that their environments can either intensify or alleviate these episodes (Golembiewski, 2010:104). The difficulty emerges where these carefully designed environments are perceived differently from patient to patient, therefore Golembiewski (2010:104) recommends that spaces be created to reduce the possibility of perceptual distortion. He further proposes that the physical perspective of size can be limited by designing small bedrooms and bathrooms for patients, to create comfortable proportions rather than large open volumes that might increase the stress levels of patients (Golembiewski, 2010:104).

There are various forms of perspectives to be considered:

a. Textural perspectives can be supported by textured surfaces such as brick compared to granite;
b.Linear perspectives can be supported by tall trees, horizontal courses in masonry and double volumes in space; and
c. Size perspective can be enhanced by outdoor objects such as trees, plants and exterior gardening features, as well as indoor objects such as furniture, paintings, light fittings, etc.

All these perspectives are part of the same cognitive realm that measures comprehensibility in the brain, and therefore by addressing these perspectives, a designer can reduce the likelihood of distress and possible hallucinations in space (Golembiewski, 2010:105).

B. Manageability _ control the environment

The second step toward a sense of coherence is manageability, which refers to the need of a patient to be consciously in control of his/her environment (Golembiewski, 2010:109). When patients suffering from Alzheimer's disease are admitted to facilities, there is a marked loss of control and independence. This loss of control mostly stems from the loss of cognitive memory generated by the disease; however, occasionally the loss of control is ameliorated by the design of the environment (Golembiewski, 2010:109). Therefore, what remains of the patient's sense of control needs to be enhanced and fortified (Osmond, 1958). Patients suffering from cognitive illnesses should not be placed in groups of five or six if they do not wish to be (Osmond, 1958). There is a common tendency amongst psychiatric institutions to place all patients together in common rooms. However, Osmond (1958), states that this lessens the potential for personal care and interaction for each patient, which could very easily create a sense of loss of control and confusion for patients, especially those suffering from short term memory loss. This loss of control of the environment, often results in patients having to be re-taught simple daily tasks such as bathing, cooking, and using the bathroom (Osmond, 1958). The author then suggests that designers ought to create provisions for these tasks to be applied simply, for example, bathrooms should be designed in a way that it is easy to recognise and easy to clean, when mistakes are made due to loss

of control (Osmond, 1958). Golembiewski (2010:109) claims that the re-learning of these simple daily tasks could become an effective type of therapy, which would improve the manageability and empowerment for the patients. A simple task, such as being able to open or close a window, is an example of maintaining control in a facility. This also has the added benefit of deinstitutionalising psychiatric facilities, as this is generally not allowed (Osmond, 1958).

C. Meaningfulness _ embrace the environment

The third step toward achieving a Sense of Coherence is meaningfulness. Antonovsky (1996) explains that meaningfulness refers to when a patient is able to thrive in their environment. When this step is achieved, a high sense of coherence is experienced (Antonovsky, 1996). This concept explains the contentedness that patients experience once their physical environments are fully understood, and activities are viewed by them as worth investing with their energy (Lindström & Eriksson, 2018:441). These activities are then seen as challenges, rather than burdens (Lindström & Eriksson, 2018:441). As mentioned earlier, currently there is a clear divide between patient and environment, and that is exactly where the presence of meaning is required. Osmond (1958) claims that patients that are perhaps more afflicted than others ought to be exposed to spaces that are extremely aesthetic, as this would create meaningfulness for that specific patient. Without determining the arbiter of taste, Osmond (1958) simply means that the predominant "drabness" of medical facilities ought to be avoided at all cost. Meaningfulness ought to be allowed to be added by patients themselves, such as decorating their rooms the way they would have at home. Pictures and photos should be added as part of the aesthetic quality of the bedrooms and common rooms to introduce a sense of familiarity amongst patients (Golembiewski, 2010:112).

03.4 | SENSE OF COHERENCE

A 'sense of coherence' (SOC) forms part of each patient's health continuum to ensure the increase of wellbeing. Strong SOC is supported by a high level of comprehensibility, manageability, and meaningfulness, all of which are directly influenced by the physical environment. If facilities are designed with the consideration towards textures and materiality, the size control of spaces and the number of patients that are forced to interact with one another, then the concept of comprehensibility has been achieved. When patients feel the freedom of control over their environments, such as being able to open a window on their own time, then the concept of manageability has been completed. Lastly, the concept of meaningfulness will be accomplished when patients are content in their environments, by allowing personalisation of bedrooms and common rooms. When all three concepts under the sense of coherence has been reached, one can make the assumption that a successful attempt has been made to the design of an Alzheimer's facilitie. Golembiewski (2010) concludes that when all three concepts are applied, a successful architecture is created, with an active focus on improving the wellbeing of the patients.

The SOC model further states, that when all three realms (comprehensibility, manageability, and meaningfulness) have been comprehended and understood, a state of wellbeing will take place. This model works in a linear process, where the second realm of manageability cannot be successfully understood if the first realm has not been comprehended. The same principle is applied to the last realm, where the first two realms need to be grasped by patients before moving on to the next realm. The aim of this dissertation is to apply

these realms as design guidelines to be able to reach a state of wellbeing for patients diagnosed with Alzheimer's disease.

03.5 | Wellbeing and the Environment

Ulrich (2001:97), states that healthcare facilities are usually functionally effective, however psychologically they can be termed 'hard'. The author further stipulates that these 'hard' designs, are simply unsatisfactory, and create stressful environments, as these spaces do not accommodate psychological needs for patients, staff and visitors (Ulrich, 2001:97).

"There is increasing scientific evidence that poor design works against the wellbeing of patients and in certain instances have negative effects on psychological indicators of wellness." (Ulrich, 2001:97).

A pertinent part of all three states of Alzheimer's disease is stress. Hard spaces, as defined by Ulrich (2001:97), can become stress factors within themselves, which will only burden the psychological state of patients to a greater extent. Therefore it is of fundamental importance that spaces rather be psychologically supportive that might accordingly, promote wellbeing. Stress experienced by patients in healthcare environments, can directly affect the negative manifestations that work against wellbeing (Ulrich, 2001:98). With regards to Alzheimer's patients, this stressed caused, can only increase anxiety, helplessness, sleeplessness, and depression experienced by patients.

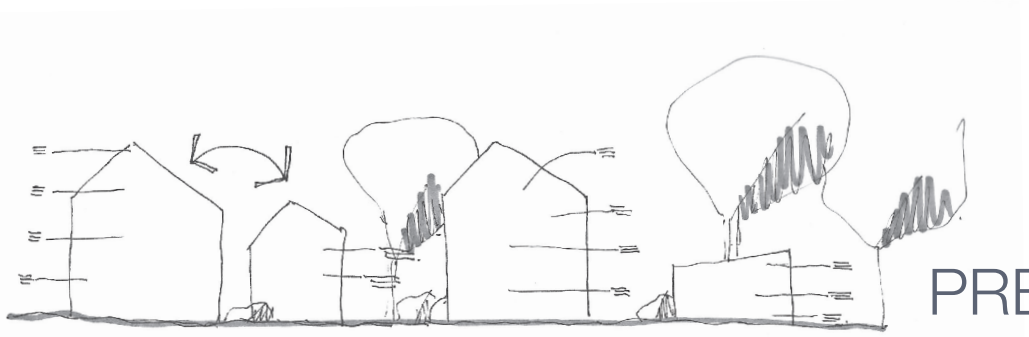
Wohlwill (1968) states that a moderate degree of positive stimulation needs to take place for wellbeing to be fostered. The author further explains that, if stimulation levels are too high, such as those that have too much interior lighting and unnecessary noise, that the collective impact of over stimulation will cause a patient to experience a level of stress (Ulrich, 2001:102). Wohlwill (1968) also states, that low levels of environmental stimulation could easily lead to aspects such as boredom and depression. Ulrich (2001:102) expands on this statement, by declaring that, under- or over-stimulation of elderly patients in nursing homes can be a significant threat to their wellbeing.

Positive distractions in healthcare settings can reduce stress and promote wellbeing (Ulrich, 2001:102). The most effective forms of positive distractions are happy and caring faces, animals, and and elements of nature, such as trees and plants (Ulrich, 2001:102). It can then be assumed, that these elements, when provided successfully, may afford a moderate degree of positive stimulation as defined by Wohlwill in 1968. Stress reducing elements, such as visual exposure to natural elements, date as far back, to some of the earliest large cities such as ancient Rome (Ulrich and Parsons, 1990). This is a common phenomenon that has been researched and applied for years. The application thereof on an Alzheimer's facility is therefore assumed to have positive, and moderately stimulating effects on the wellbeing of patients.

04 | CONCLUSION:

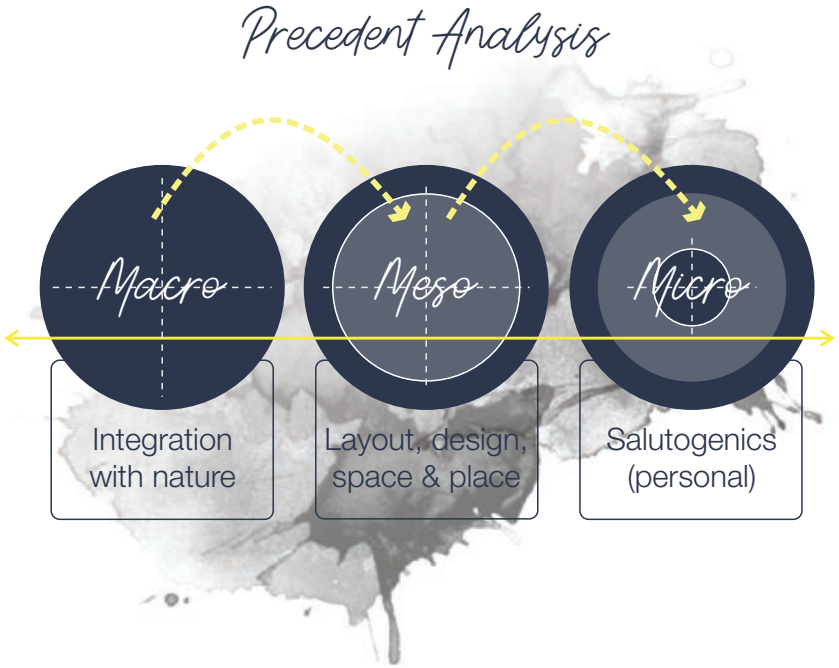
Following the literature review, it is concluded that the execution of Aaron Antonovsky's Sense of Coherence model (1996), and the application of Roger Ulrich's theory (2001) regarding visual access to natural elements, are both components that can be directly related into design principles that will increase patient wellbeing. This chapter presents an outline of enriched environments that will ultimately improve the wellbeing of patients diagnosed with Alzheimer's disease.

To conclude, it is imperative for designers to understand that every design decision should be in the greatest interest of the patient's wellbeing. By means of understanding salutogenic principles, guidelines can be set out to ensure that health facility planning is undertaken in a way that specifically prioritises patient needs. This research has provided a basic understanding of what elements could be supportive to environments directly affected by patients diagnosed with Alzheimer's disease.



chapter 06

PRECEDENT STUDIES



01 | INTRODUCTION

Chapter 6 investigates four architectural precedents that are analysed in terms of three different categories derived from salutogenic theory. The first category is entitled 'macro': and concerns the integration of interior spaces with nature. The second category is titled 'meso' and concerns layout, design, space and place. Lastly, the third category is titled 'micro', which comprises of products that have been designed on a personal scale, specifically for elderly patients and patients that have been diagnosed with Alzheimer's disease. The objective is to generate a list of guidelines that will serve as a tool in the design development phase. The precedents were critically selected to illustrate a salutogenic approach to the design of interior environments for Alzheimer's patients. The chapter argues, following from the literature review, that wellbeing can be affected by physical environments (c.f. Chapter 5).

Figure 6.1: Chapter cover page (Author 2018)
Figure 6.2: Precedent Scales (Author 2018)

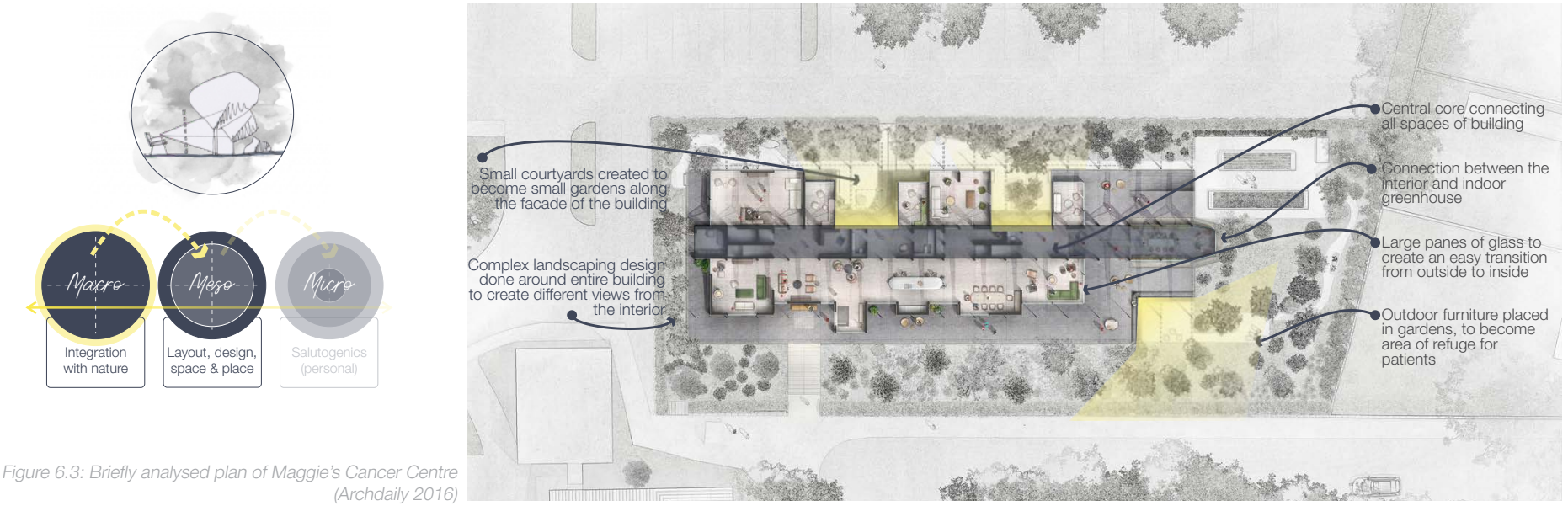


Figure 6.3: Briefly analysed plan of Maggie's Cancer Centre (Archdaily 2016)

02 | PRECEDENT A: MAGGIE'S CANCER CENTRE

This facility was conceived for patients suffering and recovering from cancer. It was designed in 2016 by Foster and Partners and is located in Manchester (Archdaily, 2016). The objective to create a "home away from home" for the patients (Archdaily, 2016). The Centre was designed as a place where patients could find refuge, as well as emotional and physical support (Archdaily, 2016). Foster and Partners state (2016), that during the design phase of the project, emphasis was placed on the role that architecture plays in accommodating therapy facilities that are required for cancer patients. This particular Maggie's Centre is one of thirty centres located in the United Kingdom, the essential objective of which is to create a building that is situated in a garden setting that is on a domestic scale (Archdaily, 2016). The design creates a seamless connection between interior and exterior. The architects aimed to create a therapeutic interior environment that resembles nature outside (Maggie's Centres, 2017).

In this precedent, two of the three scales are present and have been analysed accordingly. The scales are the Macro and the Meso.

02.1 | Critical Analysis:

The building has been designed in a long rectangular shape (Figure 6.3), with small gardens situated on the two longitudinal facades, creating permeable interior spaces that lead out into the exterior gardens. The building is situated on a very sunny site (Archdaily, 2016), and is comprised of large glass facades, which allow ample sunlight and daylight into designated internal spaces, at different times of the day. These large panes of glass also create an easy transition from the external spaces into the interior , and vice versa. A successful attempt has been made to blend the building into the landscape of the gardens. Complex landscaping has been designed surrounding the building, to create different views from the interior.

The building is a single storey building, with a slender mezzanine level throughout half of the building, allowing for a large double volume space, where light can infiltrate with ease. A greenhouse has been attached lightly to the interior of the building, to serve as an extension from the internal spaces to the exterior. This creates an internal greenhouse, where patients can interact with nature as a form of

therapy by planting and growing their own plants. The greenhouse provides a direct link to nature. It consists of large panes of glass, giving the patient the feeling of being outside.

The interior is organised around a central core that runs the length of the building. As indicated on the plan (Figure 6.3). The core creates a central space connecting all the interior spaces, thereby creating an ease of horizontal movement throughout the building (Figure 6.4).

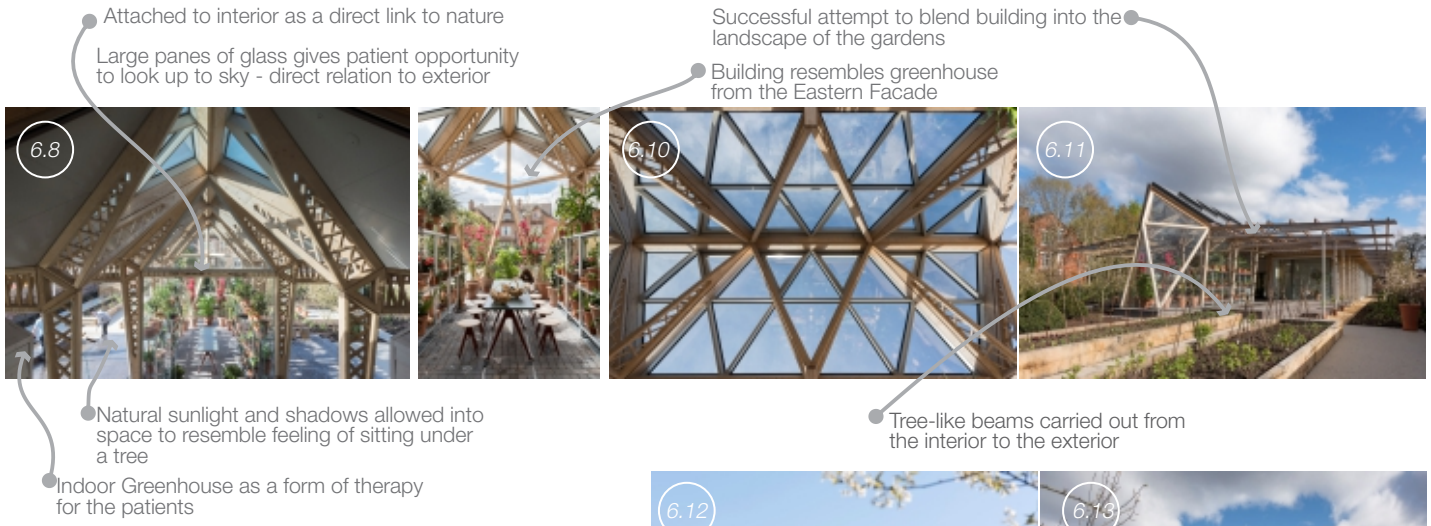
Natural materials, such as raw and treated timber, create a sense of nature on the interior. Natural timber flooring planks (Figure 6.6), resembling an outdoor tile, is continued to the outside spaces, creating a seamless transition. Moreover, the type of flooring is slip-resistant, which is a critical consideration when designing for the elderly and in particular patients with Alzheimer's, who typically in the late stage (c.f. Chapter 5) become unsteady on their feet and then tend to shuffle, and may make use of a walker or wheelchair.

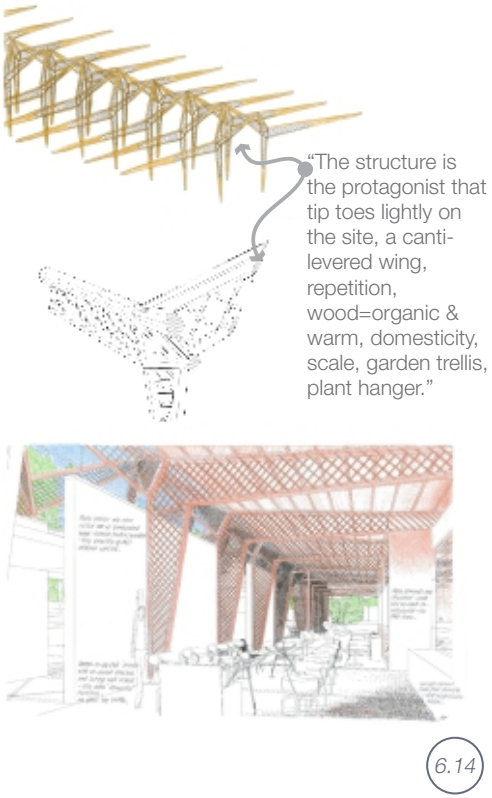
The choice of artwork has been selected specifically to depict fauna and flora (see figure 6.5). Indoor plants and plant-like sculptures have also been carefully placed in certain spaces. It is assumed that this has been done to act as a constant reminder of nature which creates a calming effect on patients. This is supported by Roger Ulrich (2001:102), where he states that the most effective forms of calming distractions are; happy and caring faces, animals, and elements of nature such as trees and plants.

Soft, diffused daylighting penetrates through the structural tree-like beams as seen in Figure 6.7. These beams are carried through from the internal spaces to the outside spaces, creating a large overhang surrounding all four facades (Figure 6.6). Light coloured ceilings contrast with the beams, thereby emphasising the beams and the tree-effect they create.

In Figure 6.7, double pane skylights have been placed selectively above the mezzanine to allow daylight to penetrate through the deep volumes of the internal spaces. It can be assumed that these large skylights could also create the effect of being outside, as one

Figure 6.4: Internal view down central passage (Archdaily 2016)
Figure 6.5: Natural Flooring material resembling outdoor tile (Archdaily 2016)
Figure 6.6: Interior merging with exterior spaces (Archdaily 2016)
Figure 6.7: View from mezzanine up into skylights (Archdaily 2016)





constantly has a view of the sky.

02.2 | Design Guidelines

The design features, supported by the literature (c.f. Chapter 5), are critical in the creation of spaces for wellness and wellbeing:

- The combination of natural light, views and physical connection to the outside, natural ventilation, materials, and art in the design of interior spaces, conveys the calming quality of nature.
- The use of natural materials and familiar, comfortable furniture contributes to the sense of a 'home away from home'.
- The use of a single floor material from inside to outside, not only underscores the concept of bringing nature inside, but is also an inclusive design consideration with regards to mobility impairments and independent use.
- Dissolving the boundary between interior and exterior: through the use of large panes of glass, which allow natural daylight to penetrate deep into the interior (Figure 6.11 and 6.13).
- The spaces read as non-clinical, dispelling the institutional effects of hospitals and healthcare facilities (Figure 6.8).
- Dissolve the interior into the exterior: interior spaces and gardens, allowing the building to become one with nature (Figure 6.9).

Figure 6.8: Natural sunlight penetrates into interior space (Archdaily 2016)
Figure 6.9: Internal greenhouse attached to the interior space (Archdaily 2016)
Figure 6.10: Large skylights giving one a constant view of the sky (Archdaily 2016)
Figure 6.11: Exterior view of facility (Archdaily 2016)
Figure 6.12: Building is integrated into nature (Archdaily 2016)
Figure 6.13: Front view of facility (Archdaily 2016)
Figure 6.14: Origional drawings of the design of the facility (Archdaily 2016)

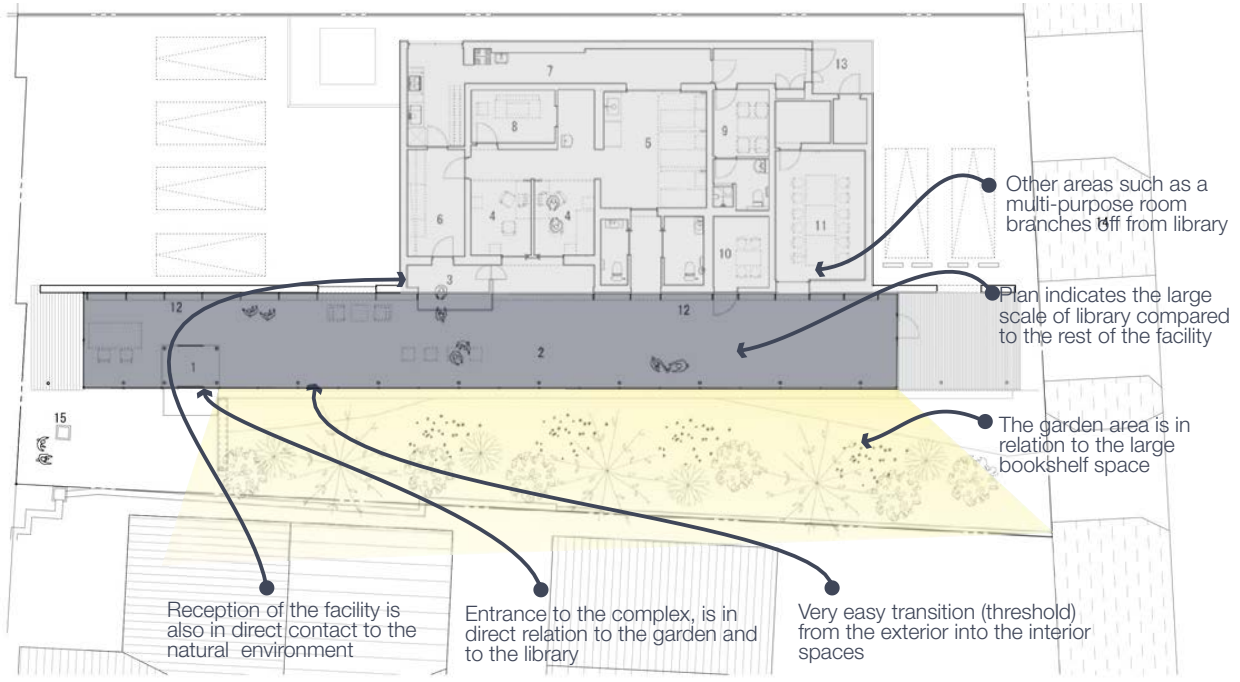
Figure 6.15: Briefly analysed plan of Sayanomoto Clinic for Dementia (Archdaily 2016)

03 | PRECEDENT B: SAYANOMOTO CLINIC FOR DEMENTIA

Sayanomoto Clinic was designed in 2014 for mental health patients in Saga City, Japan (ArchDaily, 2016). The aim of Yamazaki Kentaro Design Workshop was to design a space of therapy for elderly patients who have dementia (ArchDaily, 2016). Typically, facilities such as this are designed in conjunction with medical professionals, with the chief consideration being efficiency and safety (ArchDaily, 2016). However, in the design of Sayanomoto Clinic, equal concern was to create a space of 'learning', where patients could feel safe and comfortable (ArchDaily, 2016). This will allow a patient to be empowered by the environment, as referred to in the theory of Salutogenesis by Aaron Antonovsky (c.f. Chapter 05).

03.1 | Critical Analysis:

By planting local indigenous flora, the outdoor gardens were designed to resemble rural landscapes familiar to patients, such as the rice fields that surround Saga City (ArchDaily, 2016). This has the potential to stimulate distant memories, thereby establishing a sense of familiarity in patients to their environment. Outdoor lighting has been placed randomly to accentuate the natural environment at night, as seen in Figure 6.22. The building is single storey, consisting of a large longitudinal space that resembles a communal library, where patients can interact with one another as well as with their families (Figure 6.15). This space consists of a reception to the building, a caregiver's station, as well as a large bookshelf facing a parallel garden. The transition to the outside gardens is easily defined by large panes of glass that allow natural daylight and controlled sunlight in (Figure 6.21).



A thirty metre bookshelf has been designed along the length of the building, as seen in Figure 6.19 and 6.19. A variety of books constitute the collection, including picture-books, which are 'seen' rather than 'read' (ArchDaily, 2016). Thus, the library has a therapeutic effect in the form of: reading, casual encounters and calming neutral space for patients, carers and family to interact (ArchDaily, 2016). Moreover, this space creates an educational communal space of 'learning' (ArchDaily, 2016). The scale of the library space is much larger in relation to the rest of the building,

Figure 6.16: View from garden into interior (Archdaily 2016)
Figure 6.17: View parallel to bookshelf (Archdaily 2016)
Figure 6.18: Majority of natural diffused daylight (Archdaily 2016)
Figure 6.19: Subtle signage on bookshelf (Archdaily 2016)
Figure 6.20: Outdoor lighting (Archdaily 2016)
Figure 6.21: Outdoor garden at night (Archdaily 2016)
Figure 6.22: Outdoor view at night (Archdaily 2016)
Figure 6.23: View from street (Archdaily 2016)

thereby directly communicating its importance (Figure 6.15).

The materials for the construction of the bookcase were specifically selected to resemble outdoor masonry, thus establishing a connection to the outside. Light-coloured timber flooring is used throughout the space as seen in Figure 6.17. Timber, a natural material, has a 'warm' feeling and a good acoustic quality. Dark-coloured, comfortable furniture is specified and can be moved around according to the patient's needs. This effect can enable the 'manageability' realm as discussed in Chapter 5, which will allow a patient to feel in control of their environment. The signage is designed discreetly so as not to detract from the bookshelf and the connection thereof to nature.

03.2 | Design Guidelines

- Connection between the interior and exterior: through use of glass doors by opening library space to gardens (Figure 6.16),
- Contrasting colour: dark materials inside in contrast to greenery of the outdoor environment (Figure 6.17),
- Therapeutic quality of library: picture-books being 'seen' rather than 'read' as well as creating a calm neutral space for patients, carers and family members to interact. Moreover, a place for 'learning' as therapy,
- Outdoor gardens: designed to mimic natural landscapes with local flora,
- Longitudinal, spacious library can also facilitate other formal therapeutic activities, and
- Materiality: use of warm natural / natural-type materials, clay bricks and wood, emphasises connection to nature (Figure 6.19).

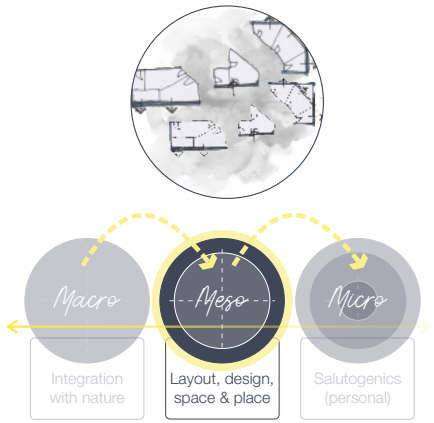


Figure 6.24: Briefly annotated plan of Le Grange Alzheimer's Residence (Archdaily 2014)

04 | PRECEDENT C: LE GRANGE ALZHEIMER'S RESIDENCE

The Le Grange Alzheimer's Residence was originally designed in 2014 by Mabire Reich in the town of Couëron in France (ArchDaily, 2014). An extension was added in 2016, specifically for patients with Alzheimer's disease (ArchDaily, 2014). The scale of the addition compliments the existing building and is designed on a human scale. It supports the need for uninterrupted linear perspective, which aids wayfinding and lessens the possibility of patients getting lost (c.f. Chapter 05).

04.1 | Critical Analysis:

As for the previous two precedents, the extension is longitudinally designed around a central core, that ensures clear orientation and circulation through the space for wandering patients (ArchDaily, 2014) (Figure 6.26). The materiality of the core is comprised

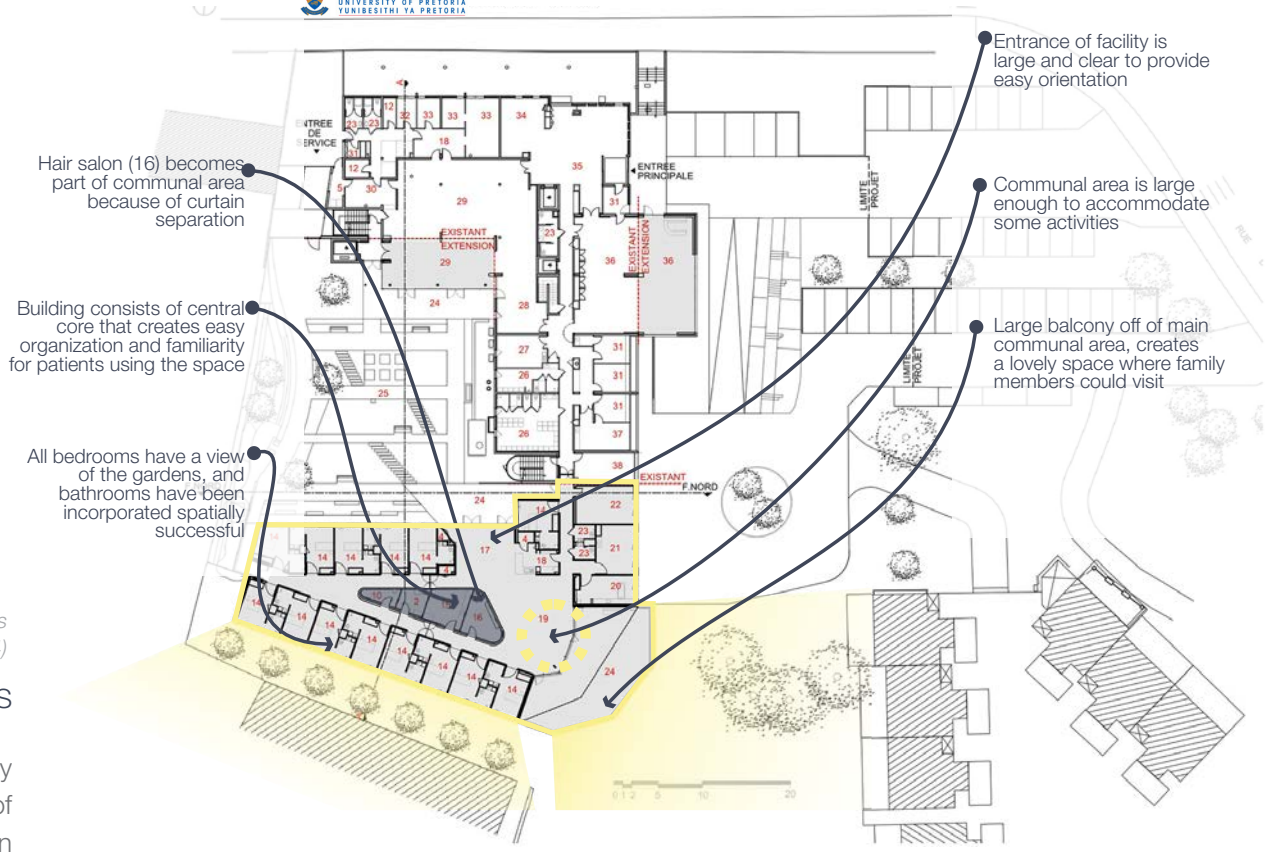
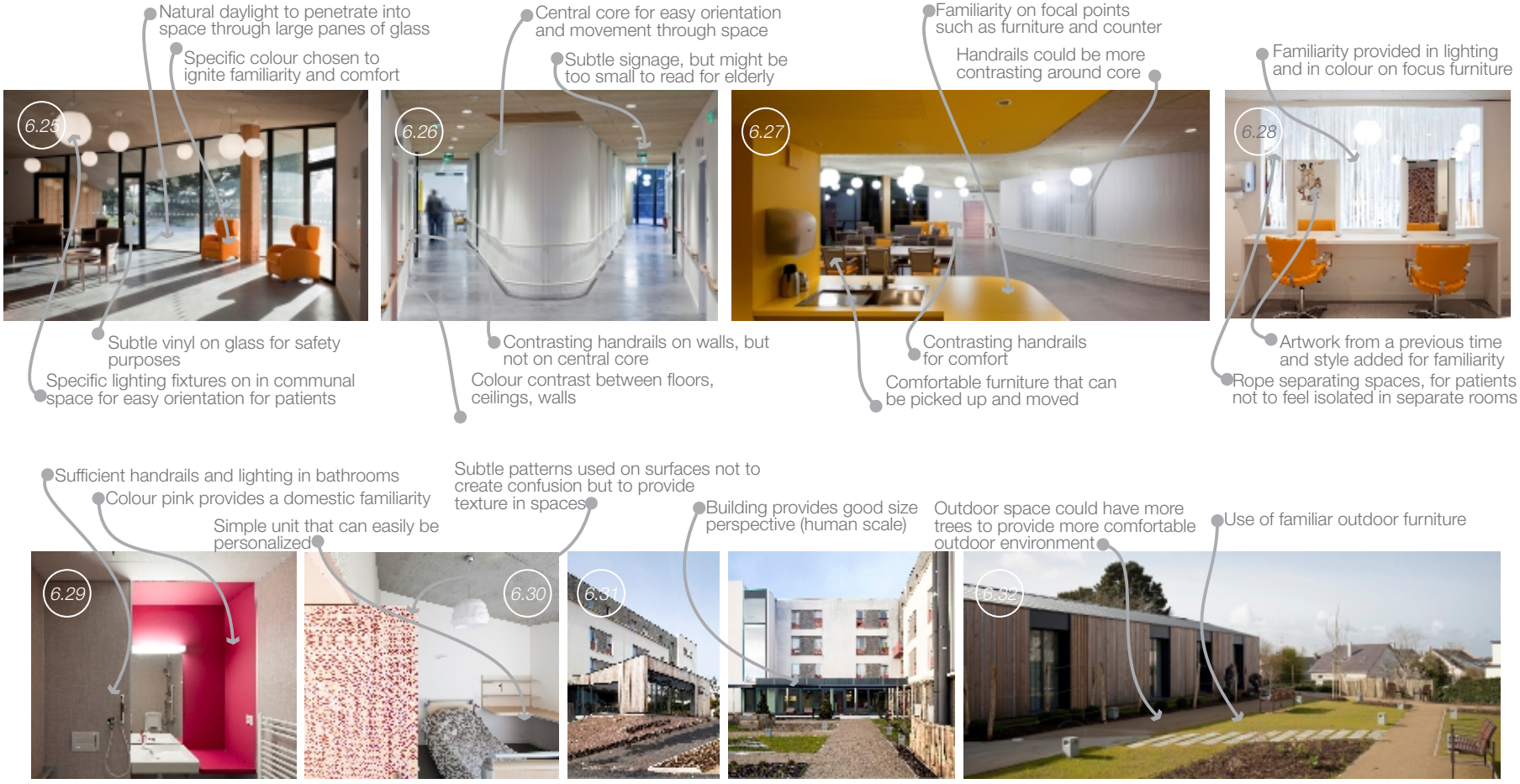


Figure 6.25: Natural daylight penetrating in (Archdaily 2014)
Figure 6.26: Central core with handrail (Archdaily 2014)
Figure 6.27: Definitive colour for orientation (Archdaily 2014)
Figure 6.28: Parlour with 70's artwork (Archdaily 2014)

of thin ropes (Figure 6.28), which allows glimpses through to space beyond, thereby maintaining the sense of orientation for patients. Moreover, these permeable dividers allow sounds and smells from the kitchen, to move throughout the building, creating a sense of home for the patients residing at the facility. In the same way, the hair salon is integrated into the communal circulation area around the core. The dining area is thus easy to locate when coming from all sections of the internal layout.

Figure 6.29: Pattern in bathrooms (Archdaily 2014)
Figure 6.30: Pattern in bedrooms (Archdaily 2014)
Figure 6.31: Outdoor view of entrance (Archdaily 2014)
Figure 6.32: Garden and entrance (Archdaily 2014)

Colour is used strategically to engender a sense of familiarity (Figure 6.27). Burnt orange and bright pink are selected as colours that hark back to the fashionable colours the generation of patient's youth, eliciting a sense of home (ArchDaily, 2014). These colours are used subtly in the furniture and wallpaper, which become focal points in this seemingly un-clinical environment. However, there is a noticeable lack of either distinguishing colour or contrast in the handrails that line the walls. Handrails are a critical device in a facility for the elderly, providing physical



support for the frail, as well as a visual and / or tactile guide for the visually impaired (Figure 6.27).

Furniture that is easy to move around by the elderly patients has been specified. Outdoor furniture both indoors and outdoors is consciously 'old fashioned', creating a sense of comfort and familiarity in the gardens (Figure 6.25).

As a continuation of the design strategy to remind patients of their younger days and stimulate familiarity, the art hung on the walls is typical of the 1960s and 70s (Figure 6.28). Even the light fittings are reminiscent of that era, and give the communal area a distinctive quality, which further serves to maintain a sense of orientation for the patients. The dark coloured frames (Figure 6.25) holding the large panes of glass also serve as familiar markers for patients that are cognitively disorientated (ArchDaily, 2014). The large windows allow for natural light to flood the communal areas, while at the same time, encouraging views to the garden and sky beyond, creating a comfortable space for patients as theorised by Roger Ulrich (Ulrich, 2001) in Chapter 05.

04.2 | Design Guidelines

- Comfortable, homely furniture that is easy to move around by the elderly (see figure 6.25),
- Art reminiscent of a bygone era of patient's youth (see figure 6.28),
- Pattern used to bring interest and render different spaces distinctive (see figure 6.30), and
- Colours strategically chosen to stimulate a sense of familiarity (see figures 6.27 & 6.39).

Figure 6.33: Garden with familiar furniture (Archdaily 2014)

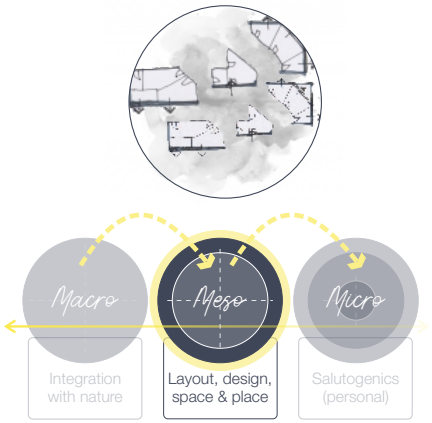


Figure 6.34: Briefly annotated plan of Urban day Centre for Alzheimer's (Archdaily 2012)

05 | PRECEDENT D: URBAN DAY CENTRE FOR ALZHEIMER'S

The Urban Day Centre (without-sleep in facilities) was designed by Jose Jorge Santos Ogando and Angel Cid Carballo in 2012 and is located in Pontevedra, Spain (ArchDaily, 2012). The architects state that the intent for this Alzheimer's Day Centre is to create a pleasant, warm, and cheerful environment that has a sympathetic relationship to the street, not only for the patients but for the passer by as well (ArchDaily, 2012).

05.1 | Critical Analysis:

The façade is comprised of glass in shades of green, which creates a play of light in the interior (Figure 6.36). As with the previous precedents, the building is organised around a central core, which ensures deep sightlines and logical circulation (Figure 6.34). Similar to Le Grange, the core is designed with rounded corners to facilitate smooth movement around it

(Figure 6.41). With each side of the core painted in a different colour, it becomes a point of reference for wandering and cognitively disorientated patients.

The spacious area surrounding the core is used for daily activities. Other rooms in the building, are separated from the core with solid walls, creating smaller , more private spaces where patients receive private therapy and medical care. As explained above, this facility does not provide sleep-in facilities ,but serves to receive patients daily. As a result, the programme needs to accommodate a variety activities, therapies and treatments. It is also for this reason that the entrance is directly from the street and clearly marked for visitors to the centre (Figures 6.35 and 6.44).

Soft, diffused artificial lighting is installed in the interior, however the majority of light is provided by natural daylight that filters through green glass panes of the façade (Figure 6.36). The play of light that will be experienced on the interior, might cause confusion for patients suffering from Alzheimer's disease, as it can be cognitively disorientating (c.f. Chapter 05).

As seen in Figure 6.41, colour is a prominent feature

in the interior design, used to support wayfinding. However, the rest of the finishes are uniform, all in white, which create a clinical atmosphere. Moreover, the lack of contrast between critical surfaces: floor to wall, and wall to ceiling, is problematic for visually impaired patients. The floor material is smooth and reflective, which presents a potential slip-hazard for the elderly patients with walking impairments.

05.2 | Design Guidelines:

- Spacious circulation around a central core, with deep sightlines supports movement and wayfinding,
- Spacious circulation around central core double as communal spaces where formal and informal activities take place,
- Colour used strategically to support wayfinding,
- Central core is designed with round corners to facilitate ease of movement,
- Play of light that filters through the green-tinted glass gives the foyer a distinctive quality that supports a sense of orientation (Figure 6.44).

Figure 6.35: View from Street (Archdaily 2012)
Figure 6.36: Sunlight in interior foyer (Archdaily 2012)
Figure 6.37: Little contrast between floor & wall (Archdaily 2012)
Figure 6.38: Different colours around core (Archdaily 2012)
Figure 6.39: Monotone finishes (Archdaily 2012)
Figure 6.40: Substantial handrails around core (Archdaily 2012)
Figure 6.41: Different colours for orientation (Archdaily 2012)
Figure 6.42: Signage from Street edge (Archdaily 2012)
Figure 6.43: Contrast between floor and core (Archdaily 2012)
Figure 6.44: Foyer with diffused sunlight (Archdaily 2012)

06 | PRECEDENT E: THE PRATT INSTITUTE, NEW YORK

The following six products have been designed by students in 2017, at The Pratt Institute in New York (Howarth, 2017). A user-centred design approach was taken, with students consulting people with Alzheimer's, caregivers and medical professionals, ensuring an empathetic and comprehensive understanding of the requirements (Howarth, 2017). Each item is intended to assist the elderly person with their daily tasks (Howarth, 2017).

PRODUCT ITEM 1: Mirror table by Sean Wang (Howarth 2017): designed to assist patients relearn simple tasks such as brushing teeth and hair. Patients mirror the caregiver's opposite. This is designed to engender a sense of independence in the patient.

PRODUCT ITEM 2: Out of Sight Drawer by Caitlin McIver (Howarth 2017): designed to conceal sharp knives and objects in a kitchen. The design allows for patients to only view the top layer, housing the utensils that are safe to use.

PRODUCT ITEM 3: This is a chair by Nick Petcharatana (Howarth 2017): the intention is for the chair to 'hug' its occupant, satisfying an innate need of patients for physical touch. The chair provides comfort for patients in the absence of human touch.

PRODUCT ITEM 4: Velcro wallpaper by Brayden Young (Howarth 2017): wallpaper that incorporates velcro into the floral pattern. This potentially solves the common problem of patients losing personal items such as keys, cellphones, and glasses. By simply sticking items to the wall and having them visible at all times, it provides a consistent place to store and locate them.

PRODUCT ITEM 5: Mobile Garden by Kate Cutlip (Howarth 2017): by incorporating a garden into a walker, the patient is able to take nature with them wherever they go.

PRODUCT ITEM 6: Clothing-organizer by Aaron Green (Howarth 2017): the design for the clothing-organiser is based on the concept of an everyday pill-organiser. The idea is that colours of clothing items such as a shirt, pants, underclothes, socks and shoes are to be pre-coordinated, assisting patients with the task of dressing themselves, thus alleviating the need for assisted-dressing.

1 |

Product Item 1: Mirror Table by Sean Wang, 2017

2 |

Product Item 2: Out of Sight Drawer by Caitlin McIver, 2017

3 |

Product Item 3: Hug Chair by Nick Petcharatana, 2017

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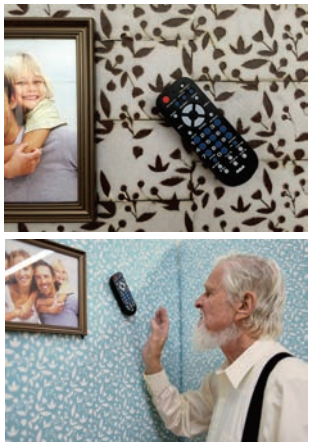


Product Item 4: Velcro Wallpaper by Brayden Young, 2017

5 |

Product Item 5: Mobile Garden by Kate Cutlip, 2017

6 |

Product Item 6: Clothing organizer by Aaron Green, 2017

7 |

Product Item 7: No country for Old Men – Monolight by Lanzavecchia + Wal, 2012

8 |

Product Item 8: No country for old men – Assunta by Lanzavecchia + Wal, 2012

9 |

Product Item 9: No country for old men - Together by Lanzavecchia + Wal, 2012

The following items were designed by different designers surrounding the needs of elderly people. These items could easily be used by patient suffering from Alzheimer's disease, as they occasionally also suffer from age related impairments.

PRODUCT ITEM 7: No country for Old Men – Monolight by Lanzavecchia + Wal (Lanzavecchia + Wal, 2012): this product is designed to illuminate and magnify items for elderly people with visual impairments. The design provides a large range of viewing angles to suit different patient requirements. Patients whose sight has deteriorated due to age, are made able to read and sew with ease.

PRODUCT ITEM 8: No country for old men – Assunta by Lanzavecchia + Wal (Lanzavecchia + Wal, 2012): due to a hip-replacement or stiff joints as a result of arthritis, or simply due to the incremental loss of muscle tone and strength that accompanies aging, the chair is designed to help the elderly person get up easily from a chair. The chair itself sways forward to give the patient momentum to stand up.

PRODUCT ITEM 9: No country for old men - Together by Lanzavecchia + Wal (Lanzavecchia + Wal, 2012): provides enhanced support and mobility for elderly patients. These canes are fitted with different tray options for different purposes. Patients can now carry items with them and still walk with ease.

PRODUCT ITEM 10: Chairless chair by Sapetti Studio (Sapetti, 2018): this 'chair' is designed to improve the mobility of elderly people. It alleviates the need to have to squat or bend down too low in the movement of sitting down and by the same design, assists with the rising up out of the chair to standing.

PRODUCT ITEM 11: Dressing Unit by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:79-88): this is a dressing unit that has been designed specifically for patients suffering from Dementia. Drawers have been placed down low for seasonal clothing, which will allow patients to only focus on the clothing items that are weather relevant. Good contrast between handles and door fronts are provided for patients to be able to distinguish the difference easily. Handles are also large and oversized for them to be seen easily. Knobs have been added to the door fronts in a contrasting colour, to allow caregivers to pull out two different outfit options for patients, otherwise the options become to many and confusing. Internal drawers to be in contrasting colour and opportunity for personalisation is provided on the inside of the doors. Good lighting on the inside has been provided without creating a disturbance or glare. Opportunity for personalisation has also been provided, for on the outside of the door fronts.

10 |

Product Item 10: Chairless chair by Sapette Studio, 2018

11 |

Product Item 11: Dressing Unit by The Helen Hamlyn Centre, 2010

12 |

Product Item 12: Desk Unit by The Helen Hamlyn Centre, 2010

PRODUCT ITEM 12: Desk Unit by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:79-88): this desk unit is designed to be multi-functional and to serve as a desk or a dresser. The drawer fronts are contrast with the top, with large and easy to use pull handles. Low -tech height adjusters, have been included to serve patients in wheelchairs as well. The feet of the unit is also in a contrasting colour for easy identification.

PRODUCT ITEM 13: Pegboard by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:73-77): this pegboard system has been designed with the sole focus of personalization for patient bedrooms. This gives patients the freedom to design and change their bedrooms as they would at home. Shelves, picture frames, art and plants can easily be shifted and moved to suit the patient's needs. This also allows for the next patient using the bedroom to do the same without major renovations required.

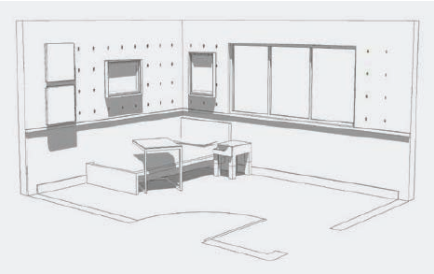
PRODUCT ITEM 14: Plate by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:49-62): this plate has been designed for patients that require assistance with eating. It can be easily held by a caregiver with the additional grip under the plate, and the extra lip allows the caregiver to have additional control of the plate when feeding a patient. A divider has been designed for soft food to be separated, so that patents can still enjoy the unique flavours of the different types of food.

PRODUCT ITEM 15: Cup by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:49-62): this cup has a double skin of ceramic with an air filled cavity in between the inside and the outside surfaces that allows patients to hold the cup with both hands without burning themselves. The inner surface is also sloped to the inside to allow a patient to not have to bend their neck too far back to drink the contents.

PRODUCT ITEM 16: Bowl by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:49-62): this bowl has been designed for easy grip for patients. It has also an extended lip, for patients to be able to drink from the bowl if necessary. This lip will also prevent patients from pushing food over the edge and onto the table.

PRODUCT ITEM 17: Cup by Helen Hamlyn Centre (Timlin & Rysenbry, 2010:49-62): This cup has been designed with similar features as the first example. It includes a lid that serves as a sippy-cup to prevent patients from spilling on themselves. It also includes a large handle for comfort.

13 |



Product Item 13: Pegboard by The Helen Hamlyn Centre, 2010

14 |

Product Item 14: Plate by The Helen Hamlyn Centre, 2010

15 |

Product Item 15: Cup by The Helen Hamlyn Centre, 2010

16 |

Product Item 16: Bowl by The Helen Hamlyn Centre, 2010

17 |

Product Item 17: Cup by The Helen Hamlyn Centre, 2010

07 | CONCLUSION

The selected precedents were critically analysed according to the three categories; macro, meso and micro. The precedents serve to illustrate how interior design can contribute to the wellness and wellbeing of patients with Alzheimer's. Furthermore, design guidelines have been identified that will be applied in the design of the Alzheimer's Residence in Cullinan. Finally, the investigation of the concept of a 'day centre', as it has been pioneered in Europe, brings to light an additional option that could be incorporated into the proposed facility in Cullinan, to provide care for Alzheimer's patients and support their families.

chapter 07

CONCEPTUAL APPROACH

01 | INTRODUCTION

This chapter aims to highlight design informants that have been established, to create a conceptual premise from which design decisions can be transformed into spatial elements. By reflecting back on the information researched and gathered until now, a summary can be made of the main design informants, which will enhance the spatial conceptualisation.

Figure 7.1: Chapter 7 cover page (Author 2018)

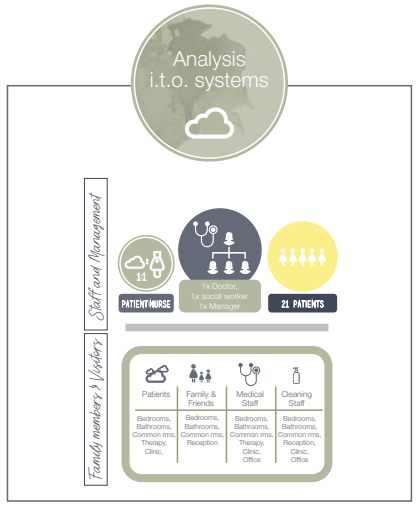
02 | DESIGN INFORMANTS

Four key categories are identified to guide the conceptualisation process in the form of; case studies, context, theory and precedents. Within these categories, certain elements haven been identified to enhance and inform the strategy of the conceptualisation process.

Figure 7.2: Diagrammatic outline of Design Informants (Author 2018)

7.3

7.4

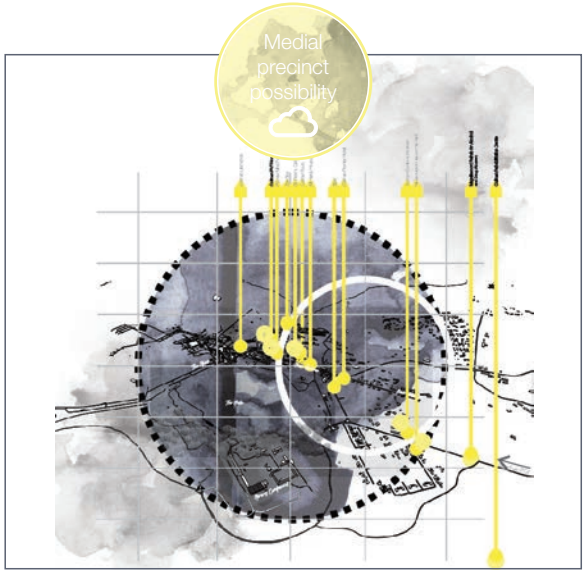


7.5

a. Chapter 2: Case Studies

By looking at two different types of facilities, a comparison could be established to fully understand the spatial requirements of an Alzheimer's facility. By comparing the design principles in terms of the process of retrofitting these facilities to suit the needs of elderly patients with Alzheimer's disease, it was clear that the intentions of both facilities came down to the same principles. Both facilities had a solitary objective to accommodate the user. Even though these facilities are very different, they have succeeded beyond comparison in achieving the principles of human-centered design. Facilities were analysed in terms of design principles with relation to bathrooms, bedrooms, common rooms and reception spaces (Figure 7.3). Activities and managerial systems were also analysed in order to gain a better understanding of how typical facilites are run and sustained (Figures 7.4-7.5). A list of strengths and weaknesses were weighed up, which becomes a suitable list of design guidelines that can be followed as part of the spatial design process. Refer to a summary of the design analysis in figures 7.3 - 7.5 above.

Figure 7.3: Spatial design analysis (Author 2018)
Figure 7.4: Activities analysis (Author 2018)
Figure 7.5: Systems analysis (Author 2018)



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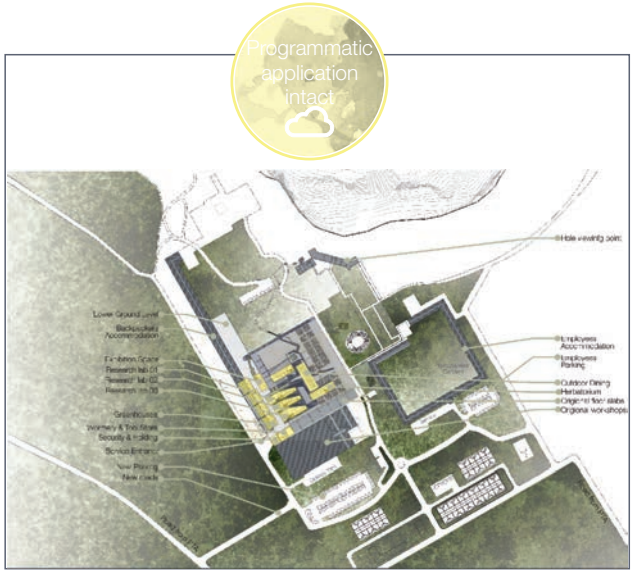

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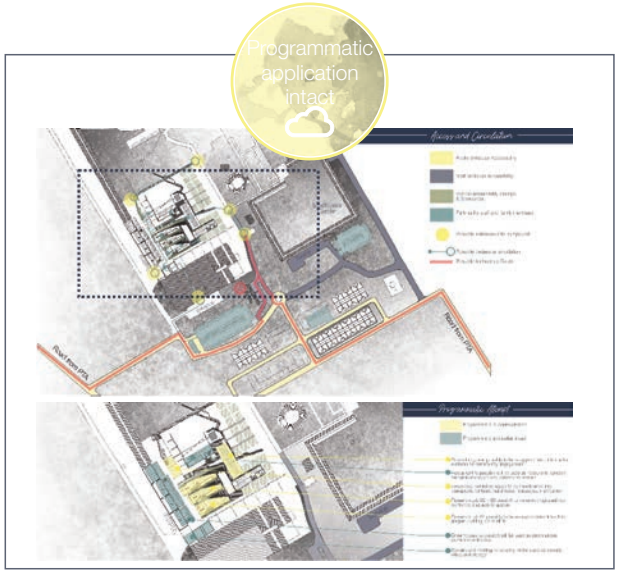
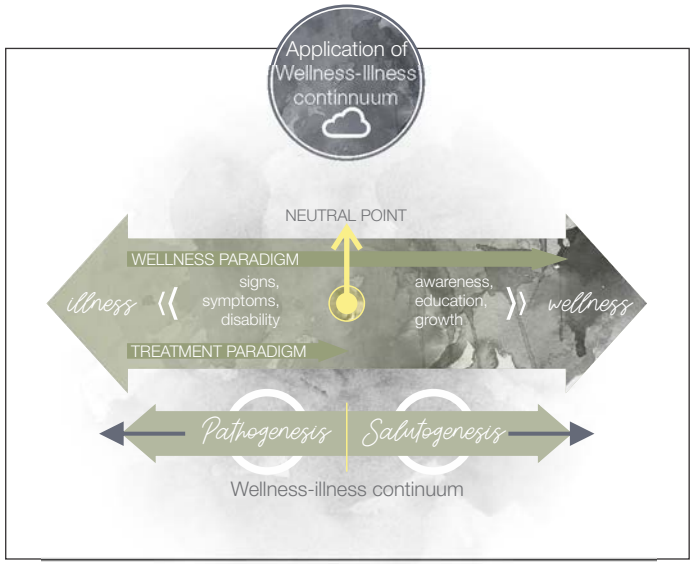


7.8

b. Chapter 4: Context

After an extensive analysis was done on the compound, the new Agricultural Research Facility was thoroughly comprehended, and therefore could be analysed appropriately. An attempt was made to diagrammatically understand the information. As a point of departure for the next phase of the project, it was important to go through various mapping exercises to be fully informed on the information in and around the site. From then on, design informants regarding site, architectural form, access and circulation could be established (Figures 7.6-7.8).

Figure 7.6: Medical Precinct mapping (Author 2018)
Figure 7.7: Understanding the design of virtual site (Author 2018)
Figure 7.8: Mapping of current conditions (Author 2018)



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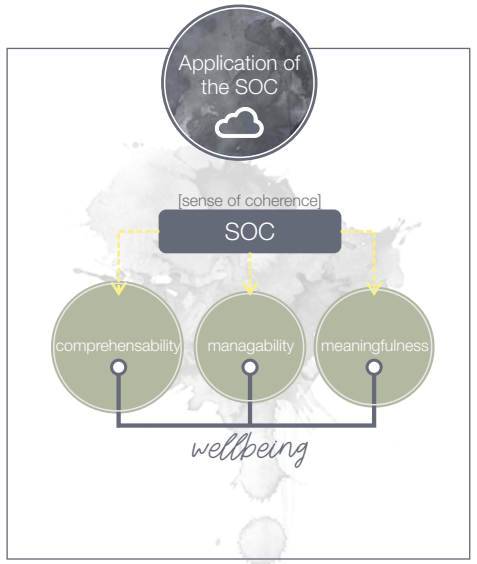


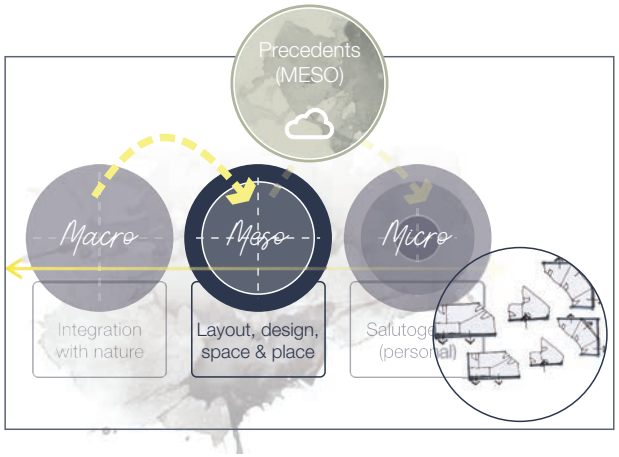
7.11

c. Chapter 5: Theory

Following the literature review, it was concluded that the execution of Aaron Antonovsky's Sense of Coherence model (1996), and the application of Roger Ulrich's theory (2001) regarding visual access to natural elements, are both components that can be directly related to design principles that will increase patient wellbeing. Therefore, the application of the wellness-illness continuum, the salutogenic effect and the sense of coherence model can be seen as a strong design informant for this dissertation (Figures 7.9-7.11).

Figure 7.9: The Wellness-Illness continuum (Author 2018)
Figure 7.10: The Salutogenic effect (Author 2018)
Figure 7.11: The SOC model (Author 2018)

7.12



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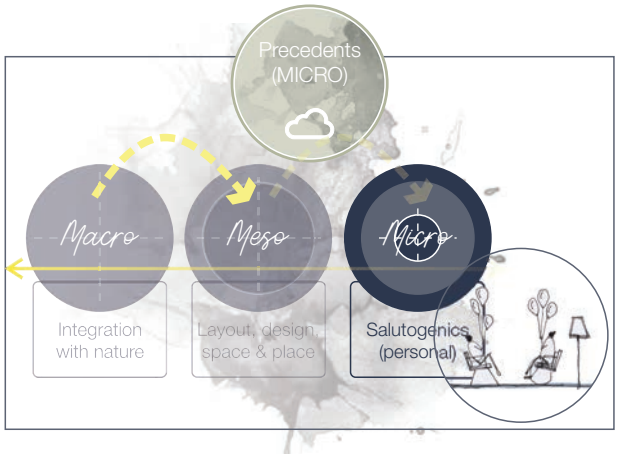


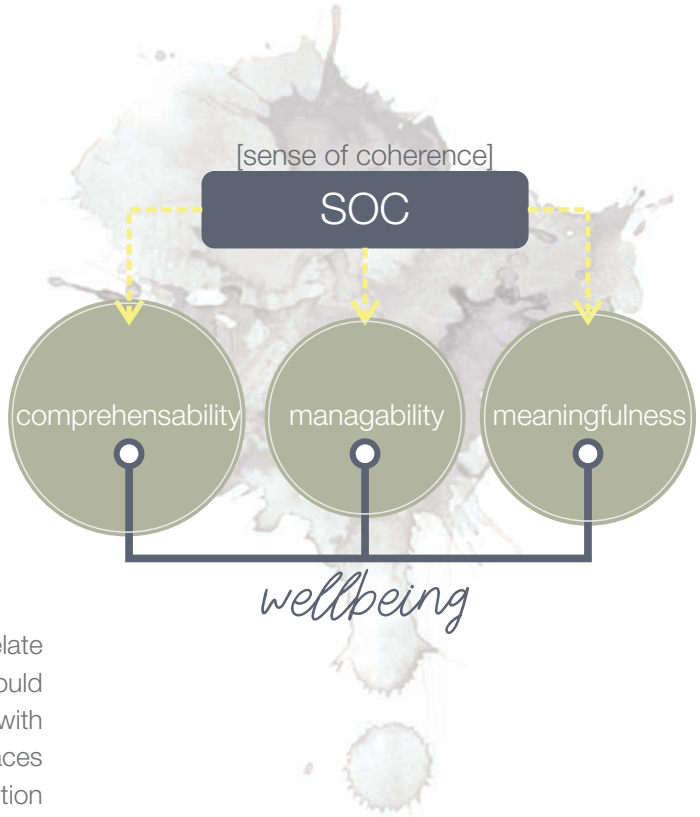
7.14

d. Chapter 6: Precedents

Precedent studies served to justify the means of the theory in a physical and realistic form. Precedent studies were analysed on three different scales; macro, which dealt with spaces that are integrated with nature, meso, dealing with general space planning, layouts and design, and lastly the micro scale, which analysed products on a personal scale. (Figure 7.12-7.14).

Precedents not only strengthened the application of theory, but also created interior design inspiration, for the development of a conceptual premise.

Figure 7.12: Precedents on Macro scale (Author 2018)
Figure 7.13: Precedents on Meso scale (Author 2018)
Figure 7.14: Precedents on Micro scale (Author 2018)



03 | THEORY AS PREMISE

The conceptual premise is largely based on the application of the theory stipulated by Aaron Antonovsky (c.f. Chapter 5), namely Salutogenesis (1996). This section aims to provide an understanding of the conceptual approach toward this theory, to ultimately become the main design generator in this study.

As stipulated in Chapter 5, the application of Antonovsky's Sense of Coherence (SOC) model, which is designed to be able to assess people's ability to understand the current situation they find themselves in, secondly to have a motivation to move into a health promoting direction, and finally to have the capacity to do so. As previously stated, these three actions have been defined as comprehensibility, meaningfulness, and manageability (Antonovsky 1996:11).

The aim of this conceptual approach, is to relate these three realms into spatial elements that could increase the state of wellbeing for patients with Alzheimer's disease. The goal is to create spaces that can encourage creativity, pleasure, satisfaction and enjoyment to appropriately deinstitutionalise certain standards and norms of typical frail care and old age facilities as stated in Chapter 1 and 3.

Finally, I argue that a salutogenic approach to the design of the Alzheimer's Facility in Cullinan provides a strategy to ensure the wellbeing of patients inhabiting these facilities, as shown in figure 7.15 (Golembiewski, 2010:102).

Figure 7.15: The sense of coherence model (Author 2018)

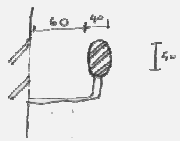
SPACE SPECIFIC	CATEGORY	GUIDELINE	SPATIAL/FUNCTIONAL REQUIREMENTS	IMPLICATION ON ALZ & ELDERLY PATIENTS	SALUTOGENIC REALM	REFERENCE
Planning, Layout, Circulation						
GENERAL		Windows to be large and placed throughout space		This allows patient to look outside all the time (positive effect)	Manageability (control)	Van Haitsma, Curyto, Saperstein & Calkins, 2004
		Provide an Eat-in-Kitchen (with typical appliances, décor & unobtrusive safety features		They provide excellent opportunity for interaction, also provide sensory orientation for patients	Meaningfulness (enhance)	Designing for Dementia (pg. 27)
		Staff facilities should be at the center of the floor layout		This will encourage personal interaction without distracting staff from their duties	Comprehensibility (read)	Designing for Dementia
		Activity coordinators' office to be placed next to kitchen with overview of dining/communal room and patio		Materials and props for activities can be kept close. Supervision is also increased	Manageability (control)	Designing for Dementia (pg. 22)
		Design a wandering path in the shape of an 0		To allow for wandering patients to always be visible by caregivers, to not get lost and to find their way back to start	Comprehensibility (read)	Planning and Designing Guide, pg17
		Pause areas with suitable seating to be provided throughout path	Intervals of pause areas to not exceed 25m	Patient will get tired, and look for seating options along the path	Comprehensibility (read)	SANS 10400 Part S page11
		Provide turning spaces	Minimum of 1,5 m in,diameteree.g. For a	wheelchair, guide dog or person on crutches to move easily	Comprehensibility (read)	SANS 10400 Part S page12
RECEPTION		Route between car and entrance to be as short as possible (possibly covered with pergola)		This allows for easy orientation for patients and visitors	Comprehensibility (read)	(Alzheimer's Disease International, 1999:10)
		Entrance should be suitable for wheelchair and assisted access	Tunring circle as benchmark: 1550mm	 This allows for all patients to enter the facility with ease and independantly 	Manageability (control)	(Alzheimer's Disease International, 1999:10)
	RAMPS	Ramp to be provided up to entrance if there is a change in level	Landings to be provided at top and bottom, at every 6m and at every change in direction. Not less than 1,2m in length		Manageability (control)	(Alzheimer's Disease International, 1999:12) SANS 10400 Part S page19
			Gradient to be provided not steeper than 1:12		Manageability (control)	SANS 10400 Part S page19
			Minimum width to be 1100mm		Manageability (control)	SANS 10400 Part S page19
	HANDRAILS		Handrail to be provided on both sides of ramp		Manageability (control)	SANS 10400 Part S page19
			Handrails to have a gripping profile that is approximately 50mm wide and 40mm deep		Manageability (control)	SANS 10400 Part S page21
			Height of handrail to be 900-1000mm		Manageability (control)	SANS 10400 Part S page21
			Handrails to be 60mm from adjacent walls		Manageability (control)	SANS 10400 Part S page21
			Handrails to extend 300mm past end and start of ramp		Manageability (control)	SANS 10400 Part S page21

Table 1: Design Guidelines (Author 2018)

04 | SET OF GUIDELINES

The three realms within the SOC framework can be conceptually related into design principles by means of a comprehensive set of design guidelines that comprise of a collection of documents previously published and compiled in a single format. This guideline document aims to become a contribution to the field of Interior Design.

The document has been set up into different spatial categories, according to the spatial requirements set out by Chapters 2 and 3. These spaces include:

- Reception
- Waiting room
- Meeting room
- Consultation room
- Nurse's station
- Parlour
- Multi-functional room
- Reading room
- Dining room and lounge
- Public toilets
- Faux kitchen
- Wandering path
- Bedrooms
- Private bathrooms
- Garden and patio

Guidelines are then set out for each of these spaces according to the following categories:

- Planning, layout and circulation
- Wayfinding
- Lighting
- Materiality
- Acoustics and noise
- Colour and contrast
- Furniture
- Doors

The table above, provides an exerpt from the design guideline booklet that has been comprised, to serve as an example. The design guideline booklet can be found in Appendix B.

05 | THE REALMS

Each guideline that was compiled from the various sources, was then categorised into the different SOC realms as stipulated by Aaron Antonovsky in 1966.

Figure 7.16: Visual interpretation of Comprehensibility (Author 2018)

Comprehensibility: READ the environment

This realm aims to allow a patient to consciously understand and grasp their immediate environments. Since Alzheimer's patients experience intense confusion throughout all three stages (Alzheimer's Association, 2018), it is important to create environments that can possibly ameliorate this confusion, and allow for the patient to feel at ease rather than distressed. Golembiewski (2010:104), states that physical environments can either intensify or alleviate this confusion, and therefore should be designed carefully. Golembiewski (2010:104) recommends that spaces be created to reduce the possibility of perceptual distortion. He further proposes that the physical perspective of size can be limited by designing small bedrooms and bathrooms for patients, to instead create comfortable proportions than large open volumes that might increase stress levels of patients (Golembiewski, 2010:104).

manageability

Manageability: CONTROL the environment

The second step toward a Sense of Coherence is manageability, which refers to the need of a patient to be consciously in control of his/her environment (Golembiewski, 2010:109). During the second stage of Alzheimer's disease, a patient starts to lose control of their daily routines, where what remains of the patient's sense of control needs to be enhanced and fortified (Osmond, 1958). This loss of control of the environment, often has the result of patients having to be re-taught simple daily tasks such as bathing, cooking, and using the bathroom (Osmond, 1958). The author then suggests, that designers ought to create provisions for these tasks to be applied simply, for example, bathrooms ought to be designed in a way that it is easy to recognise and easy to clean, when mistakes are made due to loss of control (Osmond, 1958). Golembiewski (2010:109) claims that the re-learning of these simple daily tasks, could become an effective type of therapy, which would improve the manageability and empowerment for the patients. A simple task such as being able to open or close a window is an example of maintaining control in a facility, this also has the added benefit of deinstitutionalising psychiatric facilities, as this is generally not allowed (Osmond, 1958).

Figure 7.17: Visual interpretation of Manageability (Author 2018)

Meaningfulness: ENHANCE the environment

The third step toward achieving a Sense of Coherence is meaningfulness. Antonovsky (1996) explains that meaningfulness refers to when a patient is able to thrive in their environment. This concept explains the contentedness that patients experience once their physical environments are fully understood, and activities are viewed as worth investing energy in (Lindström & Eriksson, 2018:441). Meaningfulness should be allowed to be added by patients themselves, such as decorating their rooms the way they would have at home. Pictures and photos should be added as part of the aesthetic quality of the bedrooms and common rooms to introduce nodes of familiarity amongst patients (Golembiewski, 2010:112).

Figure 7.18: Visual interpretation of Meaningfulness (Author 2018)

06 | CONCLUSION

This chapter discusses the need to conceptually relate the 'Sense of Coherence' (SOC) model as part of each patient's health continuum to ensure the increase of wellbeing. It is also indicated that a strong SOC is supported by a high level of comprehensibility, manageability and meaningfulness, all of which are directly influenced by the physical environment. When all three concepts under the Sense of Coherence has been reached, one can make the assumption that a successful attempt has been made to the design of the facility. Golembiewski (2010), concludes in that when all three concepts are applied, a successful architecture is created with the sole focus of improving the wellbeing of the patients. This concept can thus be related into a conceptual approach for the purposes of this study.

By establishing a set of guidelines, a sense of quality and control can be ensured throughout facilities, with the end goal of creating environments that stimulate a state of wellbeing.