chapter 09
TECHNIFICATION

01 | INTRODUCTION

As part of the design development of this dissertation, three degrees of use were identified, namely: safety, wayfinding (relating to orientation), and customisation (relating to familiarity). It is argued that these degrees of use can be achieved through a careful consideration of materiality. A thorough study of different materials and properties are compared, to ensure that selected materials can attempt to enhance the wellbeing of patients.

The technical investigation comprises of a critical understanding of the selected materials in order to make appropriate design decisions. This section of the dissertation requires a reflection back on to the conceptual premise derived from design informants, in order to provide a practical application of the concept, into a pragmatic design strategy and technification.

A technical question then emerges as to: how the degrees of use can be achieved through materiality? It is established that this question is resolved through an intensive understanding of the relationship between the degrees of use, and the connection between materials.

Figure 9.1: Cover page (Author 2018)

This chapter aims to refine the design through a technification strategy. This is a three step strategy that includes: the selection criteria of materials, connection between materials, and finally the sensorial effect therof through material combination. By following this strategy, an outcome of achieving a successful technical approach to detailing can be attained. Detailing of selected elements can therefore be refined by following the technical strategy.

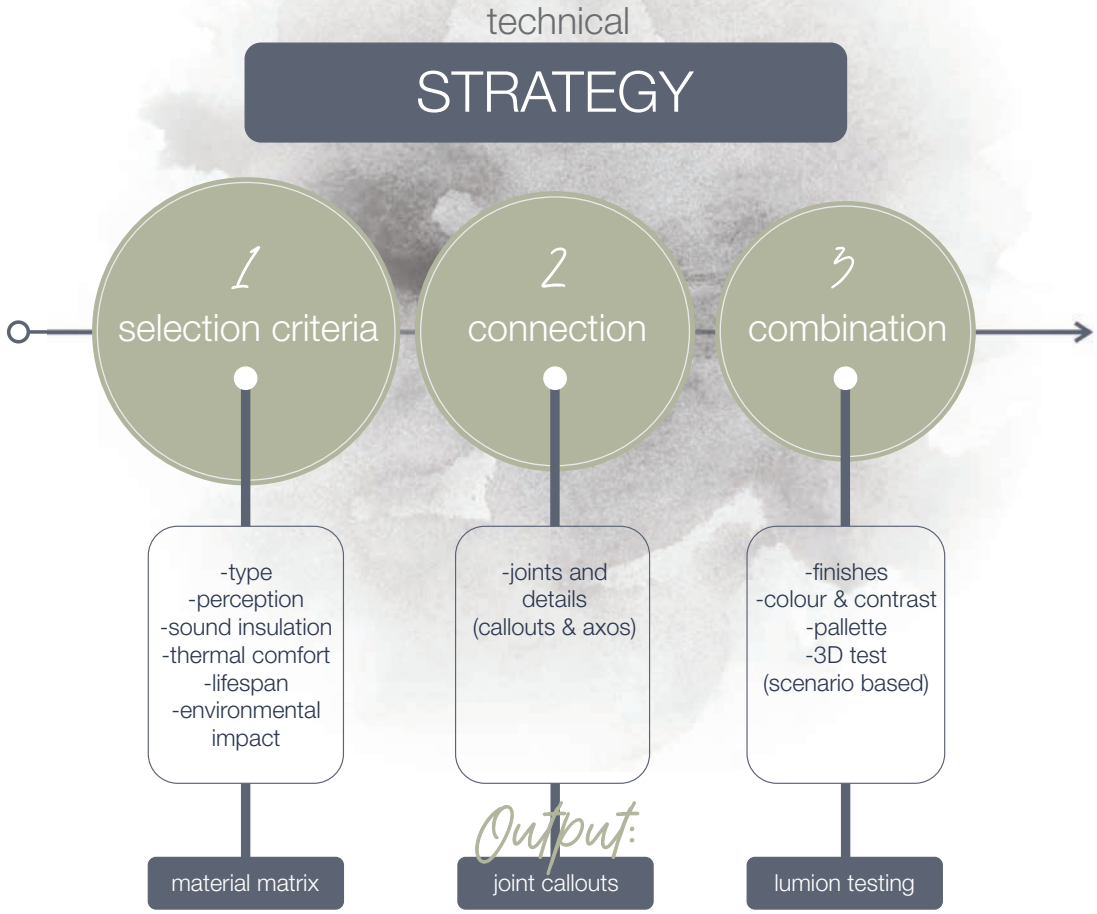


Figure 9.2: Technical Strategy Diagram (Author 2018)

03 | CATEGORY 1: SELECTION CRITERIA

A comprehensive material matrix is set up, to establish the best and most appropriate material for the following applications:

a. Flooring
b. Surface finish
c. Ceilings
d. Skirtings
e. Wallboard paneling

The selection criteria includes the following categories in order to understand the full potential and effect of the material choice not only on the physical environment, but also on the patient. All of the categories can be related back to one of the three degrees of use.

Table 1 to the left, explains the categories identified and set out in a table format in order to compare materials easily with one another. The table only showcases the 'Flooring' category. Refer to Appendix C for the full Material Matrix document.

HOW CAN THE DEGREES OF USE BE ACHIEVED THROUGH MATERIALITY? [Material Selection Matrix]

FLOORING

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSLUATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOM	Degree of Use: Safety, Wayfinding	Vinyl	Gerflor, 0528 Walnut Cream,		25m x 2m roll	Protecsol® 2 surface treatment	Heterogeneous Compact Taraly Impression Vunyl Flooring, in 0528 Walnut Cream from Gerflor	Domestic familiarity, warm	0.03 mm-8dB (Best acoustic performance on market) 0,02 absorption coefficient	Highest performance in TVOC emission <	Long lasting	{s1} the structural element may emit a very limited amount of combustion gases	100 % Recycled	High Traffic resistance, Anti Slip Flooring
	Anti Slip, High Sound Insulation, high thermal comfort, warm feel, easy to clean, water resistant	Laminate	Kronotex Exquisit Plus D4164 Village Oak		8mm x 244mm x 1380mm	AC 4 protective layer	Kronotex Exquisit Plus	Domestic familiarity, warm, comfortable	Very Good - Has a sound block underlay (reduces sound by 25%) 0,03 absorption coefficient	Good Thermal Comfort, wood creates an illusion of a warmer space	Non Fading, and remain colour brilliance over the years	Flame resistant.	Produced from natural sustainable products	High traffic, Low maintenance, hard wearing, stain resistant, load and impact resistant, scratch proof
		Loose Carpet	Area Rug		1200 x 2000mm	As provided by supplier	Loose carpet in desired colour and style	Domestic familiarity, creates the illusion of a warm space - increases perception of thermal comfort	0,1 absorption coefficient	0,04 W/m².K	Long Lasting			Tripping Hazzard
BATHROOM	Degree of Use: Safety, Wayfinding	Tile	Textured Porcelain Tile		900 x 900 / 600 x 600mm x 10mm	Protected with wear layer, matt glazed	900 x 900mm textured porcelain tile Ritual sand matt glazed from Italtile	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting	N/A	Eco Friendly	Easy to clean, slip resistant when textures
	Slip and skid Resistant, Waterproof, easy to clean (dirt resistance)		Textured Ceramic Tile		600 x 600mm	Protected with wear layer, matt glazed	600 x 600mm textured ceramic tile from Italtile	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting			Easy to clean, slip resistant when textures
		Vinyl (look at gerfloor catalogue for drain and skirting for inside showers)	Gerflor, 0704 Rasberry Grey Taradouche Vinyl Shower Flooring		20ml x 2m roll	Wear layer surface treatment (SPARCLEAN)	Taradouche Grey Shower Flooring System from Gerflor	Domestic familiarity, warm	6dB sound Insulation 0,02 absorption coefficient	< 10 µg/ m3	Long lasting	{s1} the structural element may emit a very limited amount of combustion gases, Bfl-s1	100 % Recycled % TVOC after 28 days, Very low VOC with installation	Anti Slip Flooring, waterproof, high hygiene control, 10µg/m3 => indoor air quality, < 4.0 wear resistance, Very high anti-bacterial qualities- less than 99%

Table 2: Extract from Material Selection Matrix (first section) (Author 2018)

Specifically designed areas

1. Wandering Path
2. Foyer and Private Lounges
3. Bedrooms
4. Private Bathrooms
5. Internal Courtyard

04 | CATEGORY 2: CONNECTION

After a clear understanding of the appropriate materials required to enhance the three degrees of use, an attempt is made to technically resolve selected elements are explored a few times, to be able to identify the best solution possible.

A key has been developed to guide the reader through the study of technification on the specific spaces.

05 | CATEGORY 3: COMBINATION

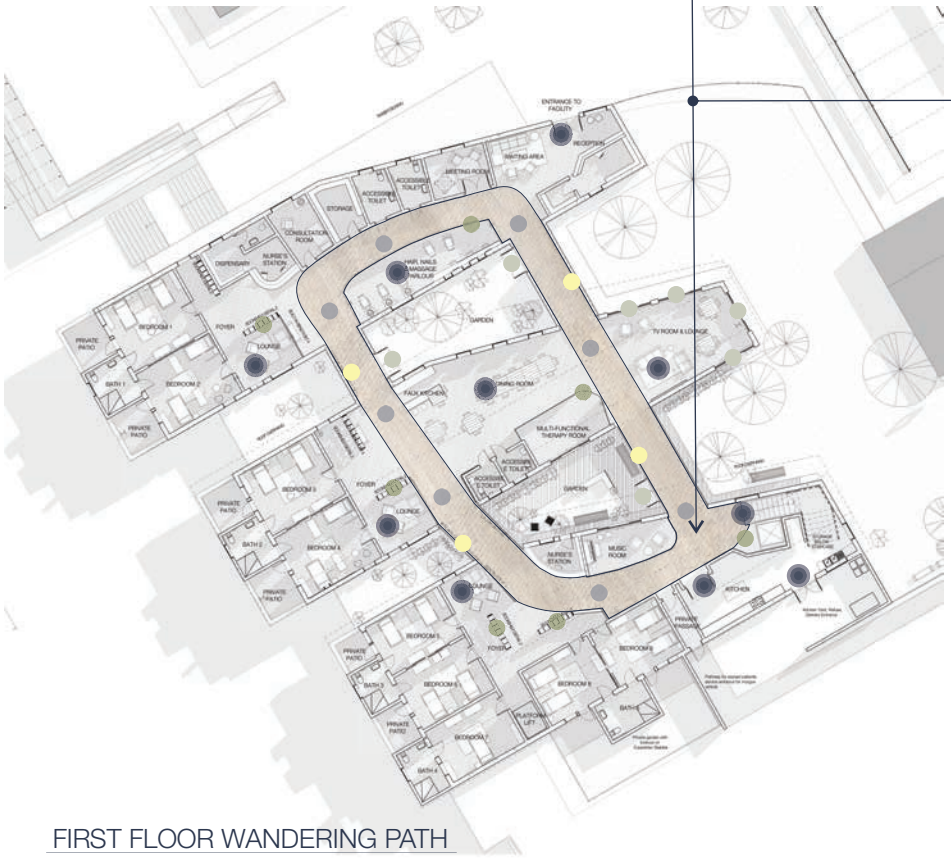
After spaces and objects are designed and detailed, selected areas are tested according to the technical strategy's 'combination' category. Within this category, colour and contrast amongst finishes are very important, and are tested in a 3D simulation effect in order to determine the aesthetic quality of the selected materials. This testing, relates directly to the material combinations and the degree to which they support comprehensibility, manageability and meaningfulness.

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)

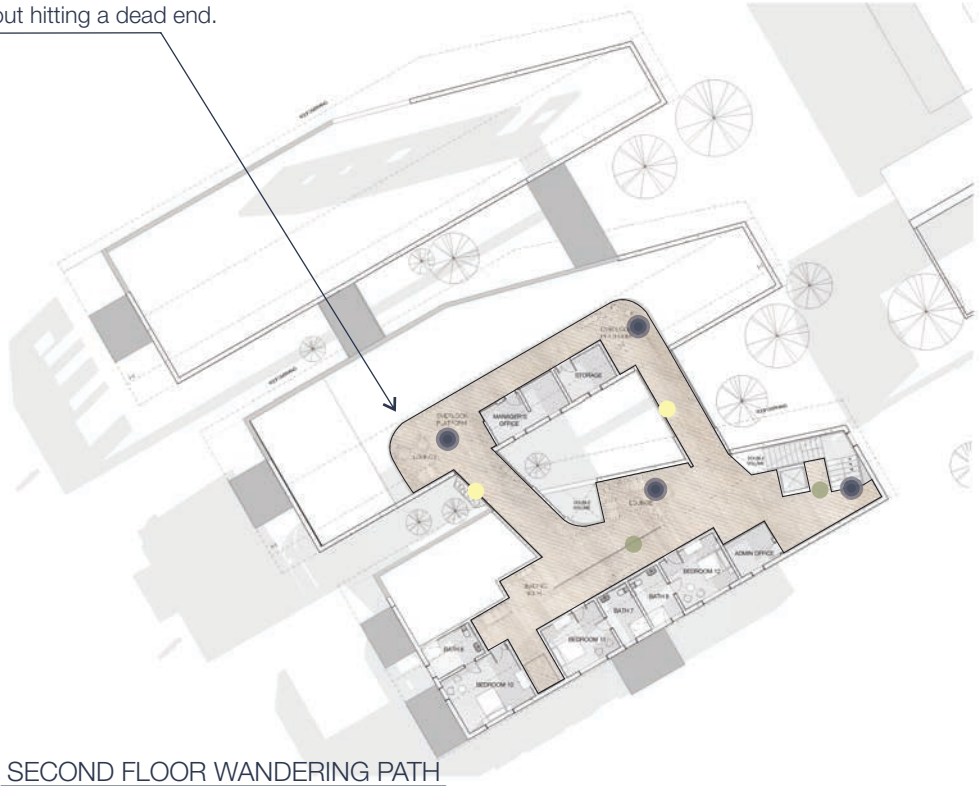
Wandering Path

WANDERING PATH

Continuous onto Mezzanine level by means of lift or staircase. This will allow residents to roam and wander without hitting a dead end.



FIRST FLOOR WANDERING PATH
nts



SECOND FLOOR WANDERING PATH
nts

Principles

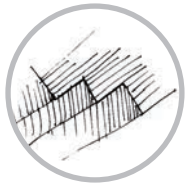
NO [CONFUSING] DEAD ENDS

EASE OF MOVEMENT AND CIRCULATION

PLATFORM FOR PERSONALIZATION

CONSTANT VIEW OF NATURE

EASY TRANSITION FROM ONE SPACE TO ANOTHER



SLIP, FALL & LEVEL THRESHOLDS:
with smooth / easy transition between materials

IDENTIFIABLE BEACONS / LANDMARKS

COMFORTABLE CONTINUOUS HANDRAIL

PLACES FOR REST

Visual

LANDMARK / BEACONS:
Points of interest are required along the wandering path to become points of recognition or familiarity for the users.

THRESHOLDS TO OUTSIDE:
Thresholds into the internal courtyard , need to be highlighted differently than other doors and thresholds in the facility. This will allow patients to easily distinguish areas where they are allowed to go outside when desired.

Aromatic

AROMA'S AS ORIENTATION:
Aromatic planters to be designed, to enhance an aromatic experience within the facility. Certain areas are dedicated to use different aromas to allow a patient to orientate themselves easily.

3 Different aromas have been identified with a distinct smell, to assist a patient with orientation.

Sound

AIRBORNE SOUND:
White Noise,
Background talking
Low level sounds,
Dogs barking in background,
Radio/Music in background

IMPACT SOUND:
Pedestrian movement,
Sudden Buzzers,
Ambulance drive by,
Alarms.

Comfort

THERMAL COMFORT:

Important to create the illusion of thermal comfort when sunlight isn't present in space.

materiality lighting colour

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)

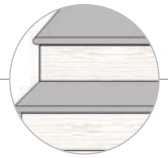
DETAIL A

Staircase

Figure 9.8: Detail A components (Author 2018, Acara 2014, I.pin 2016)
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)

COMPONENTS

BALLUSTRADE



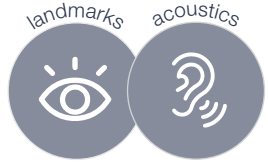
TREADS AND RISERS

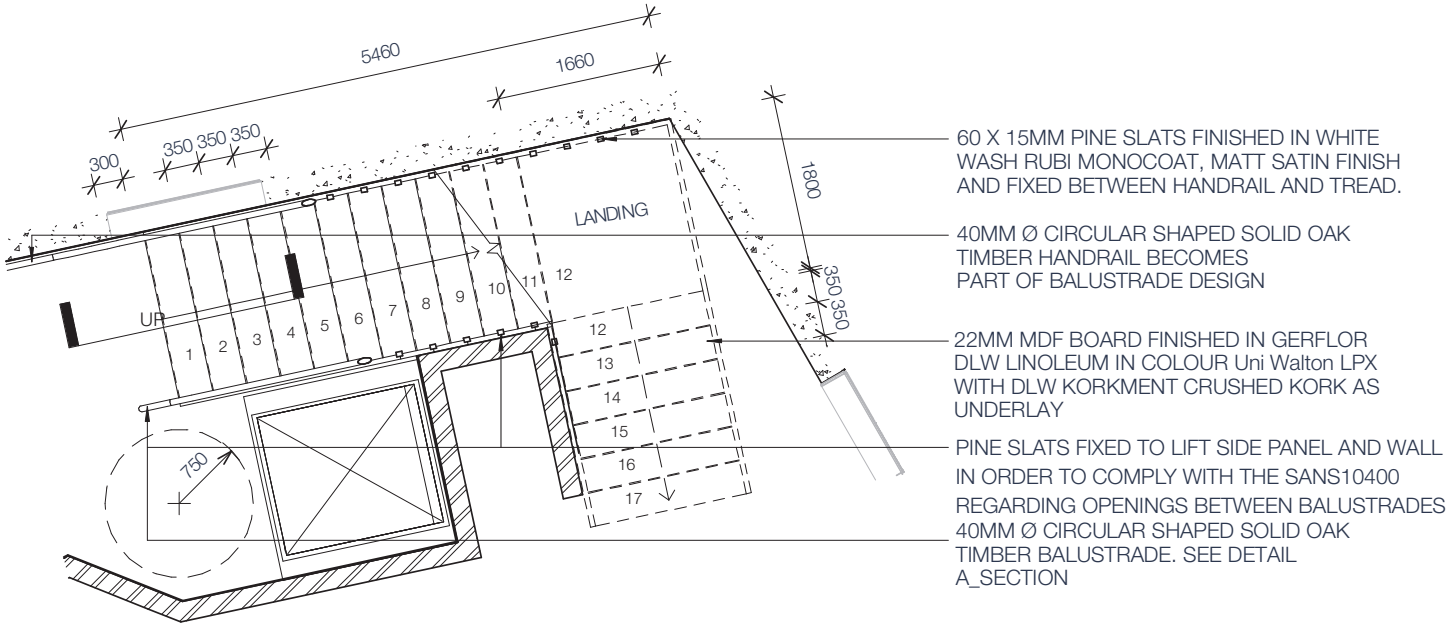
CONCEALED LED LIGHTING STRIP

9.8

NIGHT LIGHT WIRING TO BE CONCEALED BEHIND PINE SLATS.

NIGHT LIGHT CONTROLLED BY NURSE'S AND STAFF MEMBERS AND MERELY USED TO ASSIST WITH ORIENTATION AT NIGHT.



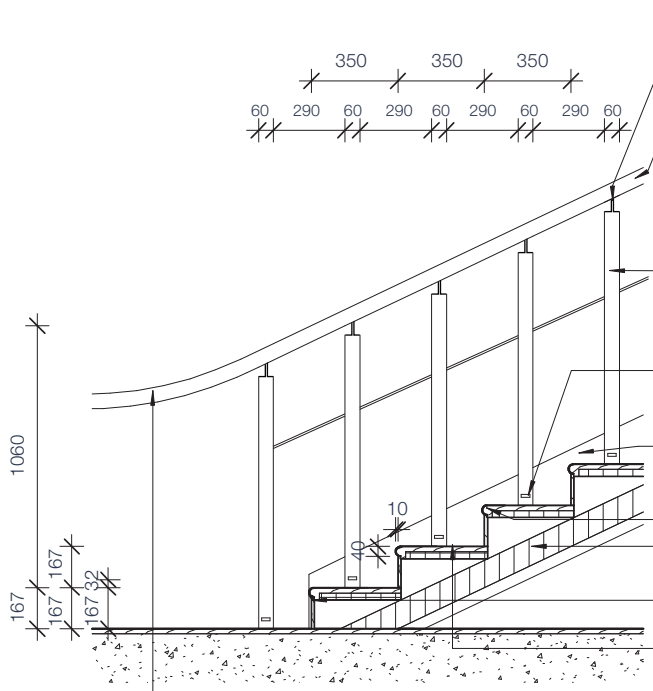


9.9 DETAIL A_ Staircase Plan
nts

SAME CIRCULAR TUBE BRACKET DETAIL AS IN DETAIL B, CONNECTING THE HANDRAIL TO THE WALL.

BALUSTRADE: TIMBER VERTICAL SECTION CONNECTING CIRCULAR SECTION WITH SMALL TIMBER PIN TO CREATE A SHADOW LINE

9.11



SUBTLE TIMBER PIN ATTACHING THE CIRCULAR ELEMENT TO THE RECTANGULAR VERTICAL SLAT, CREATING A SHADOW LINE

40MM CIRCULAR TIMBER ELEMENT FINISHED IN WHITE WASH RUBI MONOCOAT, MATT SATIN AND FIXED TO WALL WITH BRACKET AS INDICATED IN DETAIL B

4MM CABLE WITH CABLE FIXING TO SECURE TIMBER VERTICALS

60 X 15MM PINE SLATS FINISHED IN WHITE WASH RUBI MONOCOAT, MATT SATIN FINISH AND FIXED BETWEEN HANDRAIL AND TREAD.

CONCEALED LED NIGHT LIGHT INCORPORATED INTO VERTICAL TIMBER SECTION

50 X 400MM TIMBER STRINGER PAINTED DOVE GREY AND FIXED TO TREADS AND RISERS

40MM SOLID TIMBER NOSING PROFILE

50X100MM STRUCTURAL TIMBER CARRIAGE FIXED TO CENTRE OF STAIRCASE

130MM TIMBER RISER SLOTTED IN UNDER LINOLEUM TREAD

18MM MDF BOARD FINISHED IN GERFLOR DLW LINOLEUM IN COLOUR Uni Walton LPX WITH DLW KORKMENT CRUSHED KORK AS UNDERLAY

HANDRAIL BECOMES BALUSTRADE FOR STAIRCASE

9.10 DETAIL A_Staircase Section
nts

40MM SOLID TIMBER NOSING PROFILE COVERED IN GERFLOR DLW LINOLEUM IN COLOUR Uni Walton LPX

CONCEALED LED NIGHT LIGHT INCORPORATED INTO VERTICAL TIMBER SECTION

167 MM TIMBER RISER WITH 5MM SHADOW LINE

BALUSTRADE STRETCHES 300MM PAST THE START OF THE FIRST TREAD

DETAIL B

Wandering Path Handrail

COMPONENTS

SOLID TIMBER SECTION

CONCEALED WALL BRACKET

CONCEALED LED LIGHTING STRIP

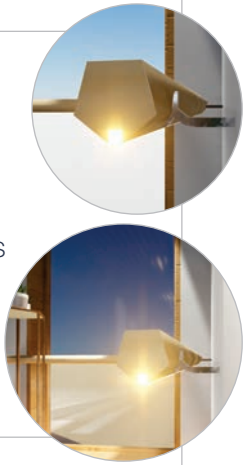
9.12

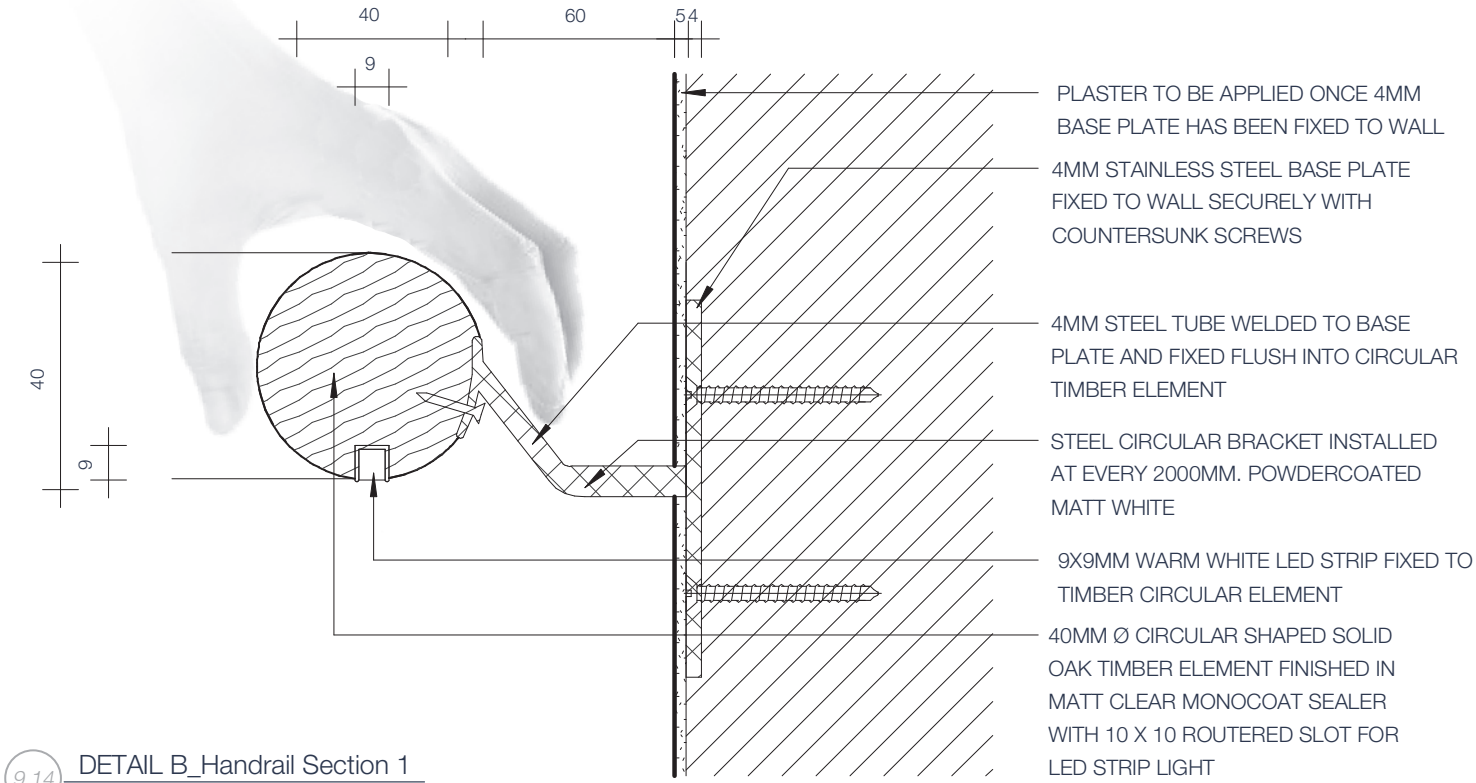
LED STRIP LIGHT CABLES RETICULATED ALONGSIDE BRACKET INTO WALL. CONNECTION TO BE HIDDEN IN SIMILAR MANNER AS BASE PLATE.

LED STRIP LIGHTING TO BE CONTROLLED BY NURSES AND STAFF MEMBERS. SWITCHES ARE ALLOCATED IN NURSES STATION.

LED STRIP LIGHTING TO BE USED AT NIGHT FOR DIRECTIONAL WAYFINDING AND TO ASSIST WITH ORIENTATION.

9.13

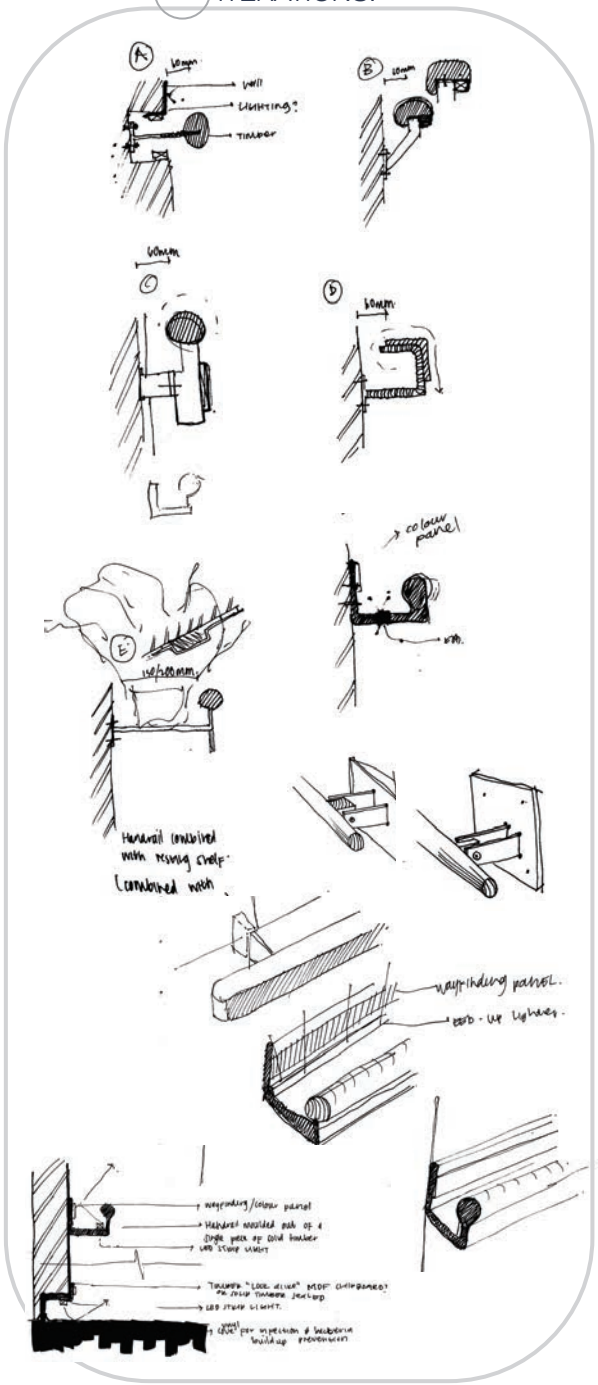


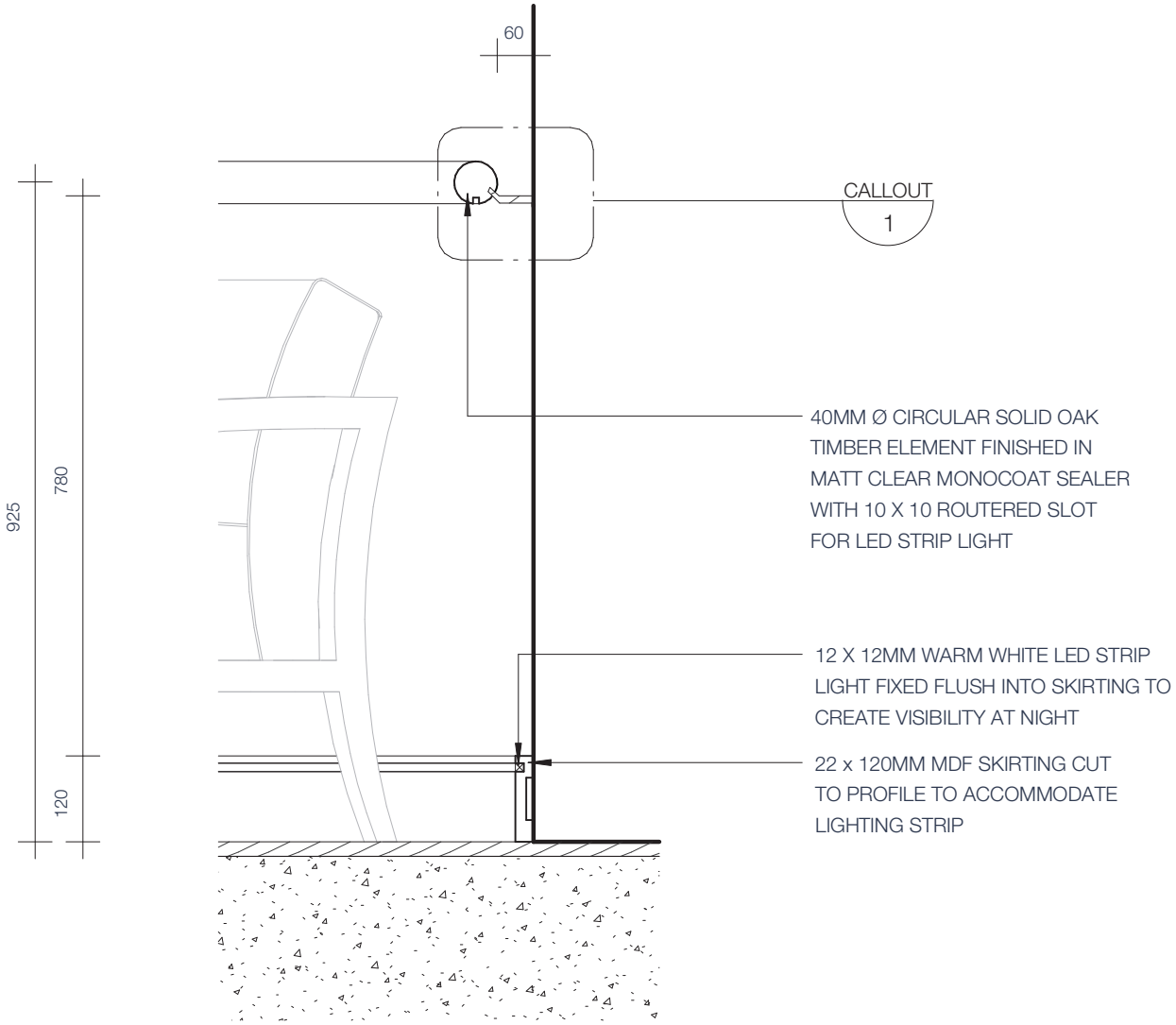


9.14 DETAIL B_Handrail Section 1
scale 1 : 2

Figure 9.12: Detail B components (Author 2018, I.pin 2016)
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)

9.15 ITERATIONS:





9.16 DETAIL B_Handrail Section 2

scale 1 : 10

Signage Strategy

HIERARCHY:
1. Main info: large text
2. Sub info: smaller text
3. Sub info: easy icon

PRINCIPLES:
- Highly Contrasting
- Portray Action rather than space
- Icons to be easily understood
- Signs placed at eye level
- Signs to have adequate (soft) lighting at night
-Upper and Lower case for easy identification

Bedroom Wing Colour System

01	03	05	08	10
02	04	06	09	11
		07		12

9.17

Icon Selection

PRIVATE

Bathroom | Bedroom | Consultation Room | Toilet

SEMI PUBLIC - PUBLIC

Dining Room | Lounge | Music Room | Kitchen | Garden | Parlour | Nurse's Station

CIRCULATION

Lift | Staircase | Outside

EXIT & SAFETY SIGNS

9.18

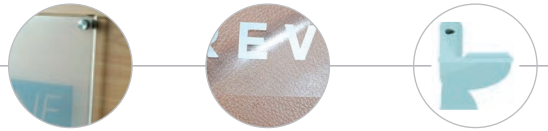
Figure 9.17: (Above) Signage Strategy and wing colours (Author 2018)
Figure 9.18:(Right) Types of Signs and according icons required(Autor 2018)
Figure 9.19: (Right) Signage location (Author 2018)
Figure 9.20: Detail C components (Author 2018)
Figure 9.21: (Far Right) Detail C and 3D (Author 2018)

9.19

landmarks colour

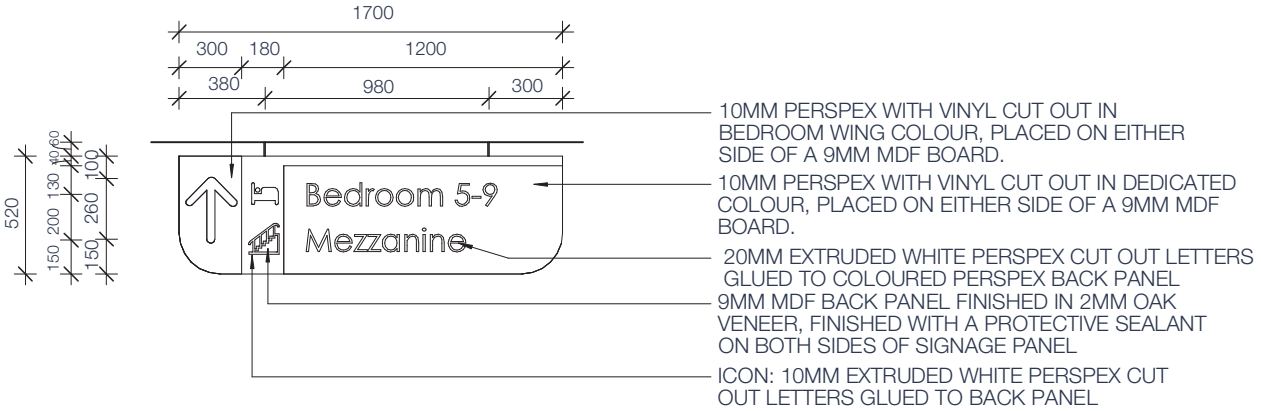
DETAIL C
Wandering Path double sided Signage Panel

COMPONENTS



PERSPEX VINYL CUT OUT DESCRIPTIVE ICON

9.20



9.21 DETAIL C_Signage Panel Elevation
nts

different iterations

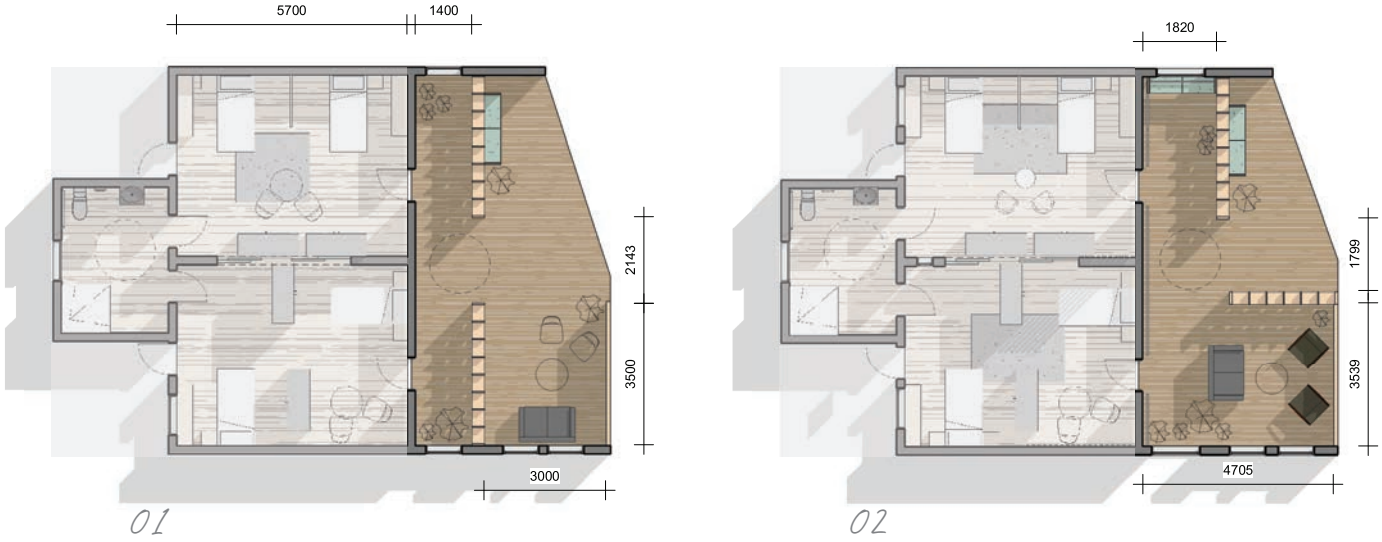
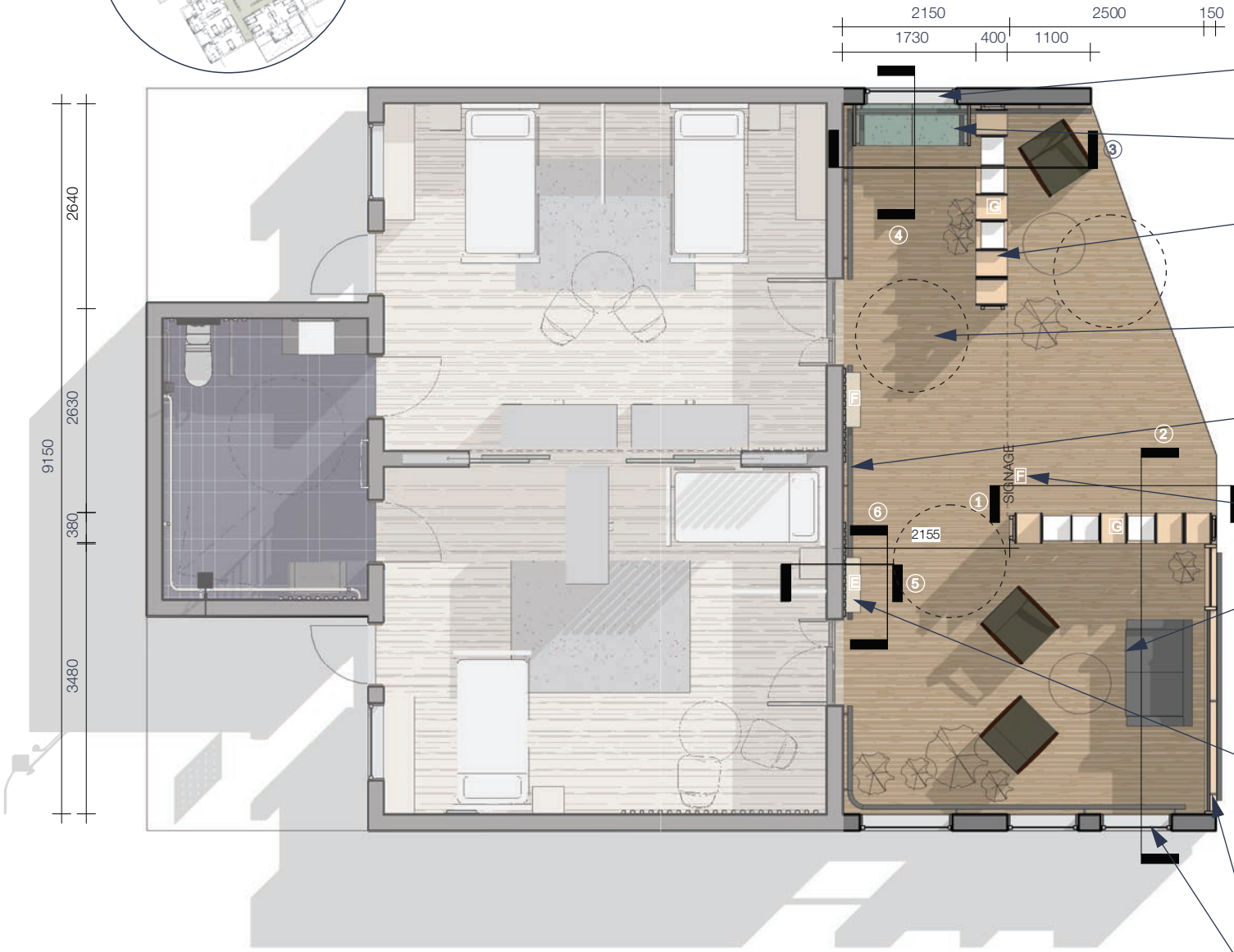


Figure 9.23: (Right) Foyer & Private Lounge cover page (Author 2018)
Figure 9.24: (Above) Different iterations and Principles (Author 2018)

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)



2100 x 1200mm WINDOW INSTALLED AT 100MM AFFL. WITH BALUSTRADE AND BUILT IN BENCH REFER TO DETAIL H.

BUILT IN WINDOW BENCH INSTALLED ALONG THE WANDERING PATH AS POINTS OF REST OR PAUSE. REFER TO DETAIL H.

DOUBLE SIDED BOOKSHELF, TO CREATE POINTS OF CURIOSITY ALONG WANDERING PATH AND TO SERVE AS A PLATFORM FOR PERSONALI-ZATION FOR BEDROOM USERS. SEE DETAIL G

CORRIDOR LARGE ENOUGH TO ACCOMMODATE A WHEELCHAIR USER ACCORDING TO THE SANS10400 PART S REGULATIONS

COMFORTABLE HANDRAIL REFER TO DETAIL B, IN CONJUNCTION WITH THE SANS10400 PART S REGULATIONS

SIGNAGE PANEL, INDICATING THE 'BEDROOM WING' - COLOUR IS A BIG CONSIDERATION, AS NOT ALL PATIENTS WILL BE ABLE TO READ SIGNAGE. SEE SIGNAGE DETAIL F BELOW

COMFORTABLE LOUNGE WHERE PATIENTS CAN ESCAPE FROM THEIR BEDROOMS WITHOUT ENTERING INTO THE MAIN COMMUNAL LOUNGE AREA. FAMILY AND FRIEND COULD ALSO VISIT PATIENTS WITHOUT GOING INTO THEIR BEDROOMS, BUT STILL HAVE A SENSE OF PRIVACY.

CORRIDOR BECOMES A PLATFORM FOR PERSON-ALIZATION, WHERE PATIENTS CAN FILL IN AND ATTACH THEIR PERSONAL ITEMS TO CREATE A SENSE OF RECOGNITION AND FAMILIARITY. FOR MEMORY BOX WALL UNIT SEE DETAIL E

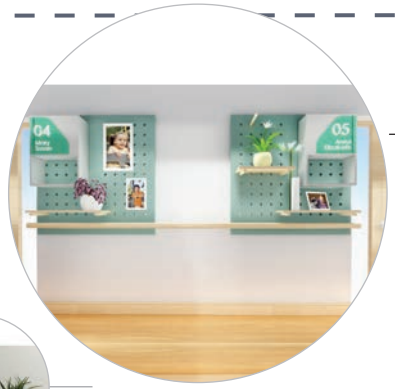
PERFORATED/TRANSPARENT SCREEN DIVIDING SEMI-PRIVATE LOUNGE FROM WANDERING PATH. REFER TO DETAIL D AND 3D

WINDOWS LOOKING OUT ONTO THE INTERNAL COURTYARDS, SO PATIENTS ALWAYS HAVE A VIEW OF NATURE.

FOYER & PRIVATE LOUNGE PLAN
nts

DETAIL E

Foyer Memory Box



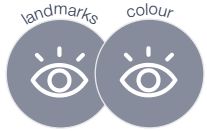
COMPONENTS

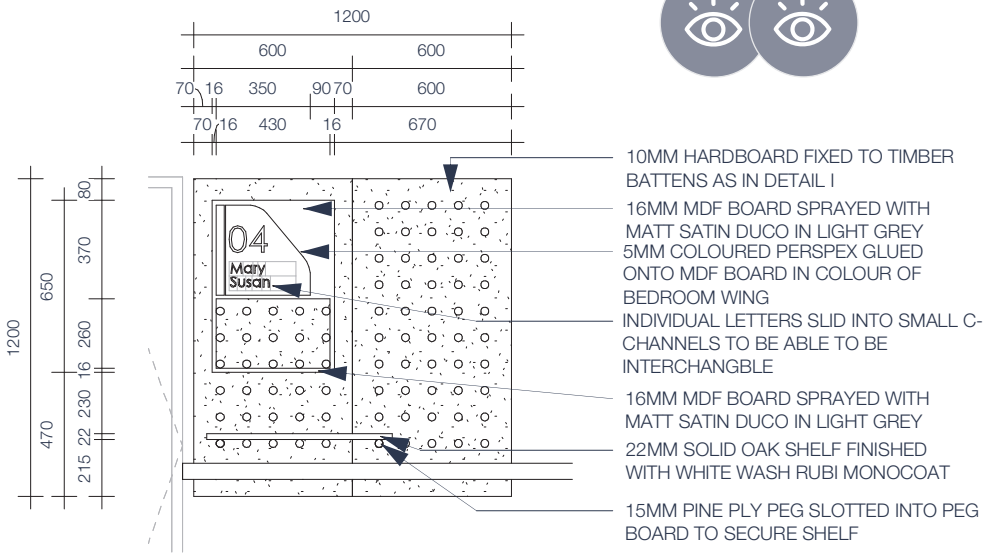
CLEAR, CONTRASTING ROOM NUMBER

FAMILIARITY PLATFORM

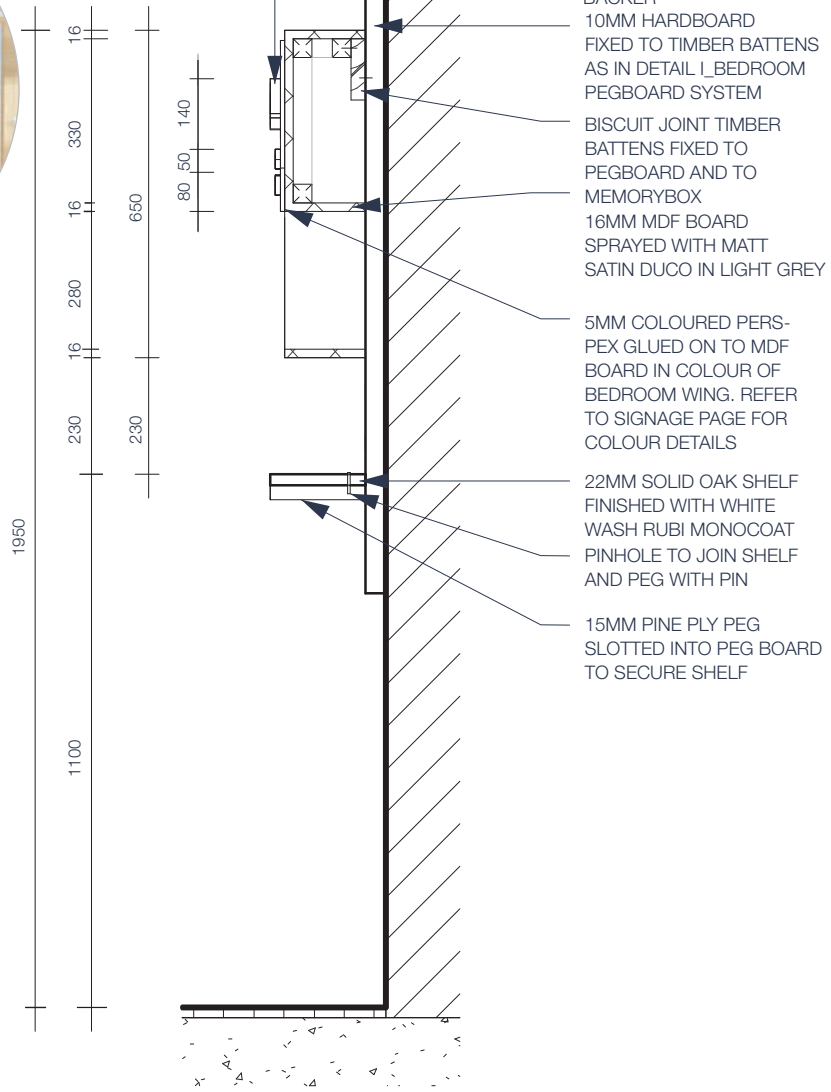
ADAPTABILITY FOR A SHELF/HOOK

9.26





9.27 DETAIL E_Memory box elevation
nts



9.28 DETAIL E_Memory box Section
nts

DETAIL F

Foyer single sided Signage Panel

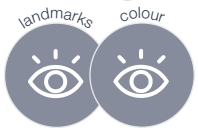
COMPONENTS

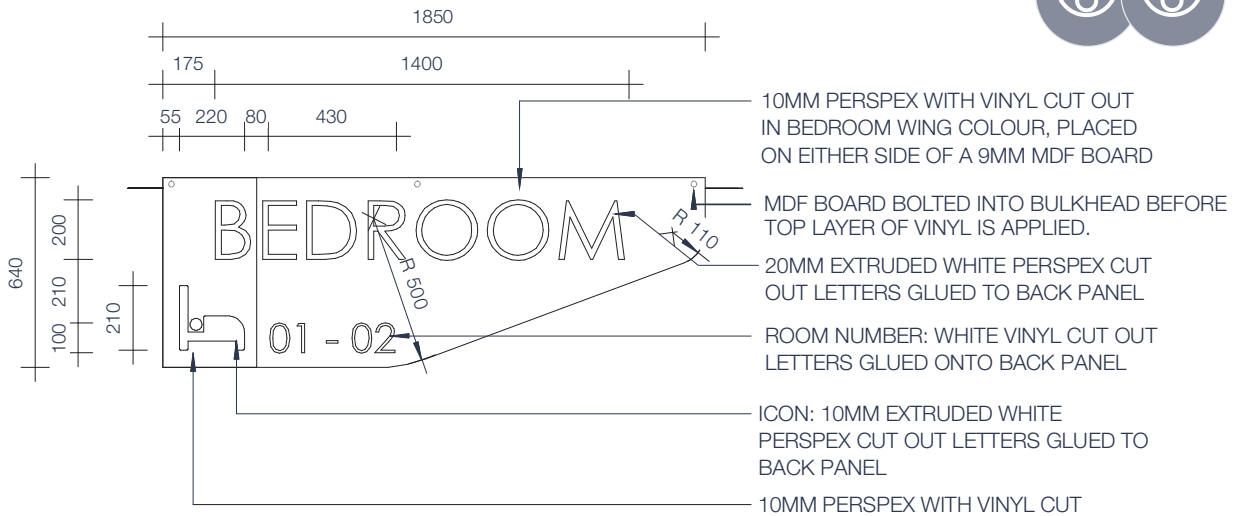
PERSPEX

VINYL CUT OUT

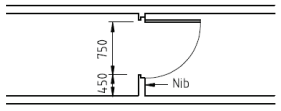
DESCRIPTIVE ICON

9.29

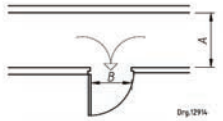




9.30 DETAIL F_Foyer Signage Panel elevation
nts



SANS10400 PART S: Regulations for door widths to accommodate all users



Passage width A mm	Door width B mm
1 200	750
1 100	850
1 050	900
1 000	950
950	1 000
900	1 050

Figure 7 — Access dimensions

Front door resembles domestic front door with welcome mat and mailbox that can act as an object of familiarity

9.31

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)

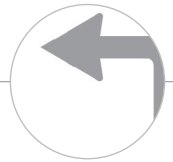
DETAIL G

Foyer bookcase and screen

COMPONENTS

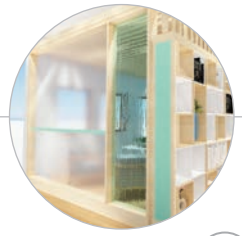
DOUBLE SIDED

CREATE CURIOSITY



CLEAR, DISTINCTIVE SIGNAGE

9.32



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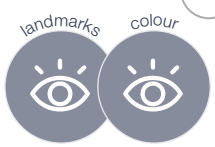
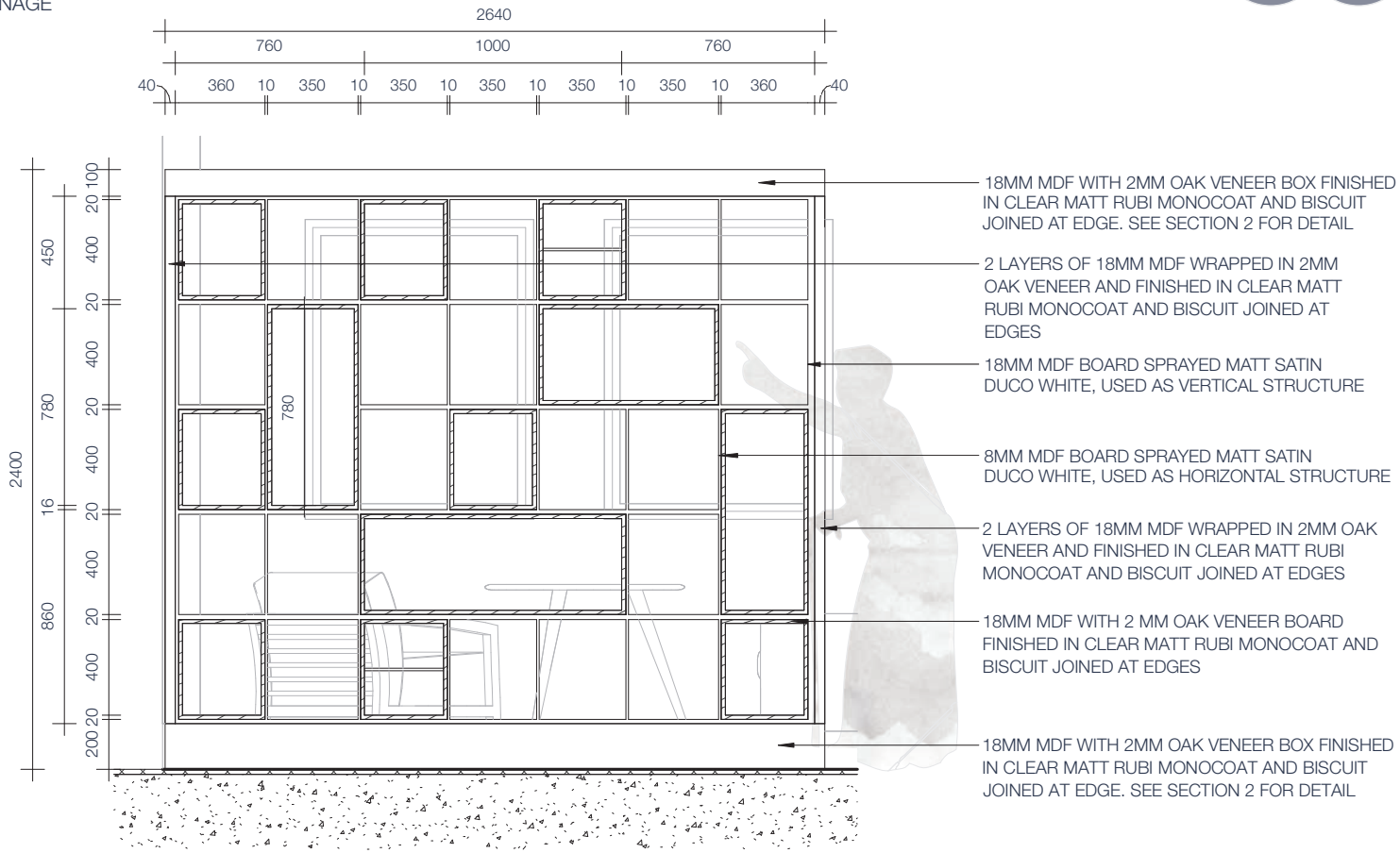
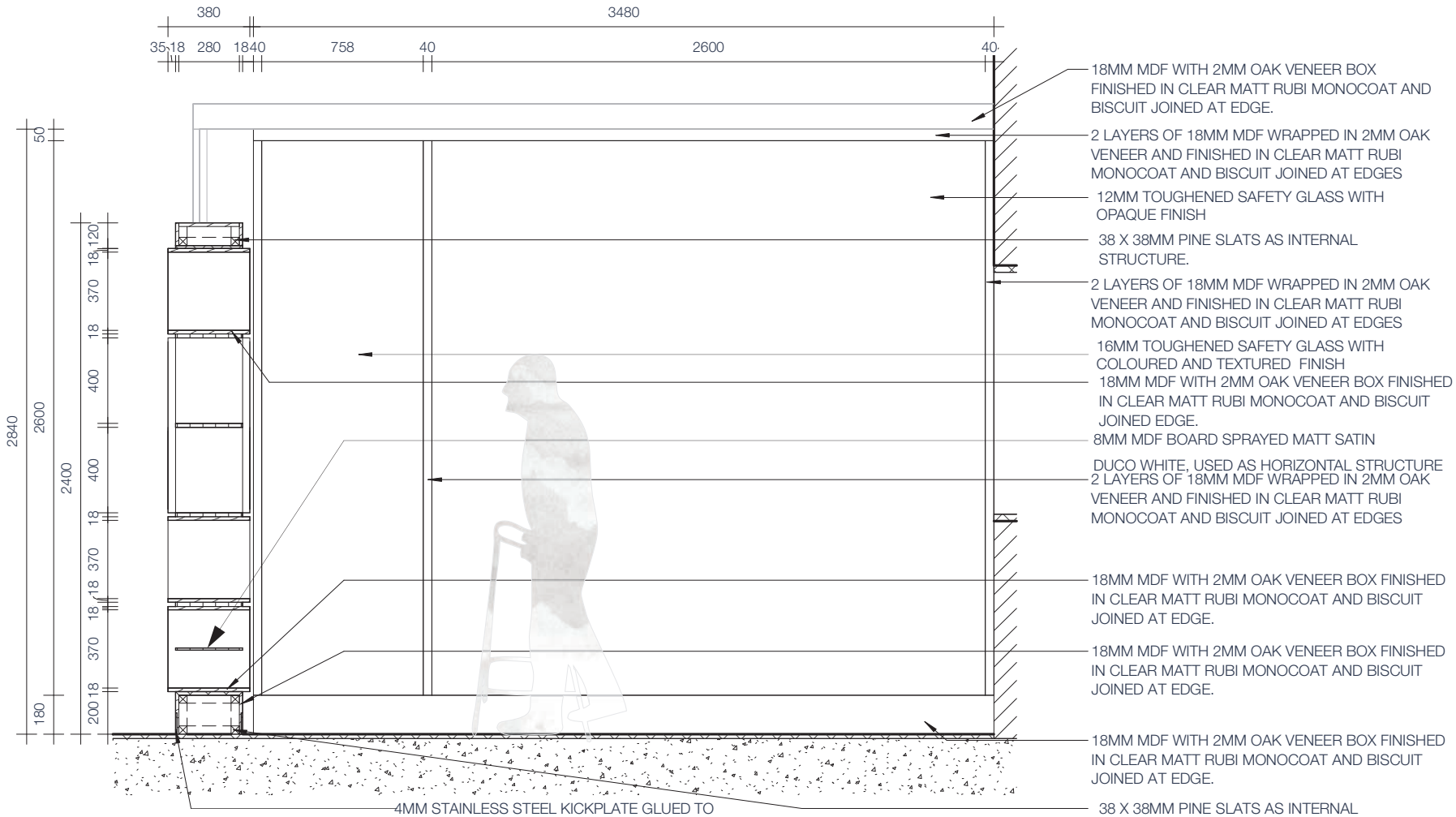




9.33 DETAIL G_Bookcase Section 1
nts

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)



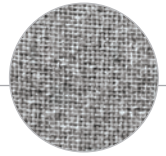
9.35 DETAIL G_ Bookcase Section 2
nts

DETAIL H

Foyer built in bench

COMPONENTS

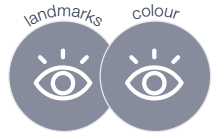
TIMBER FRAME

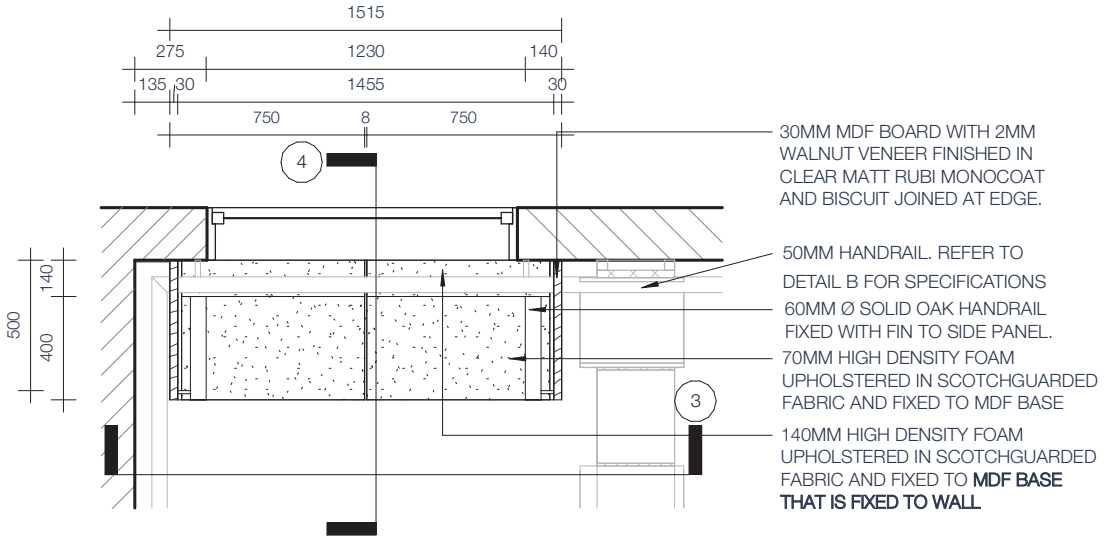


UPHOLSTERED SEAT

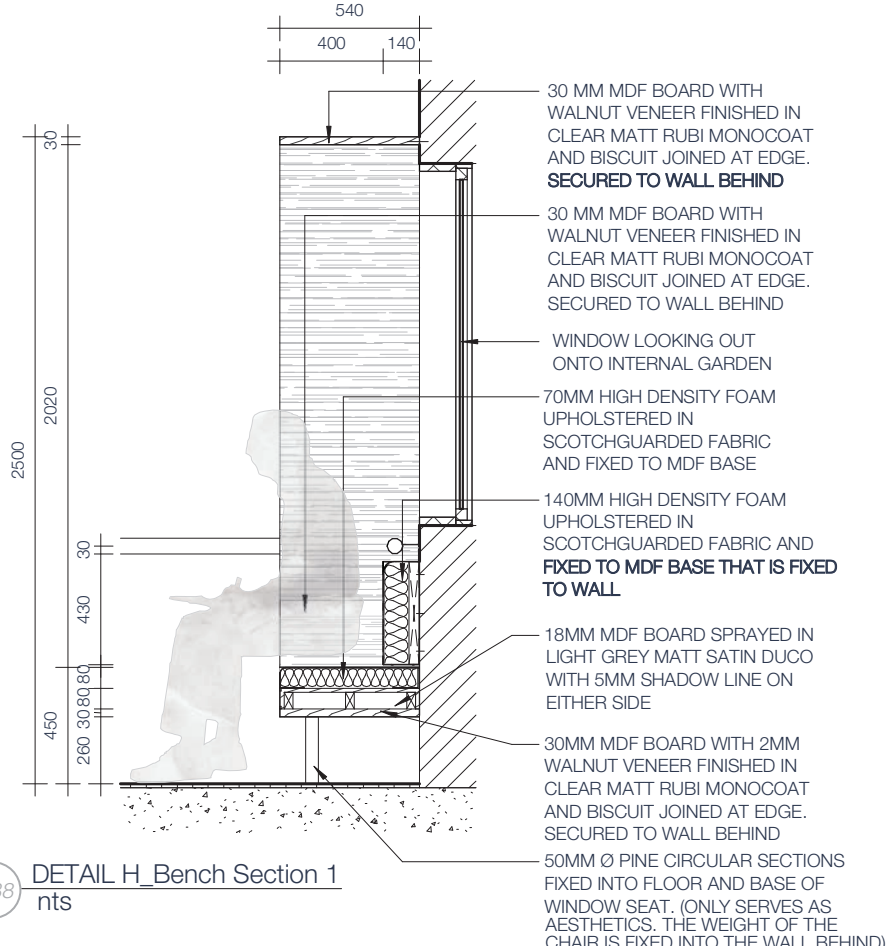
FLOATING EFFECT

9.36

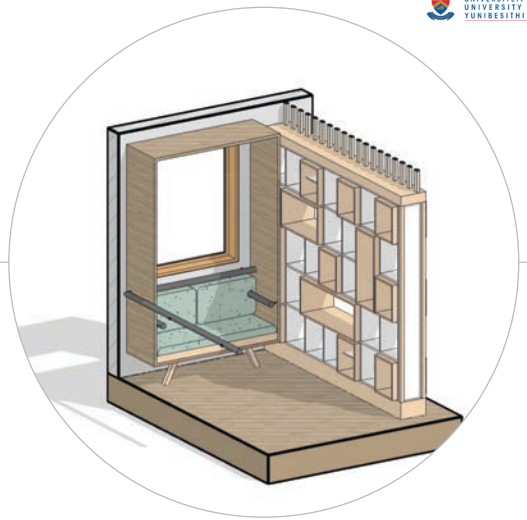




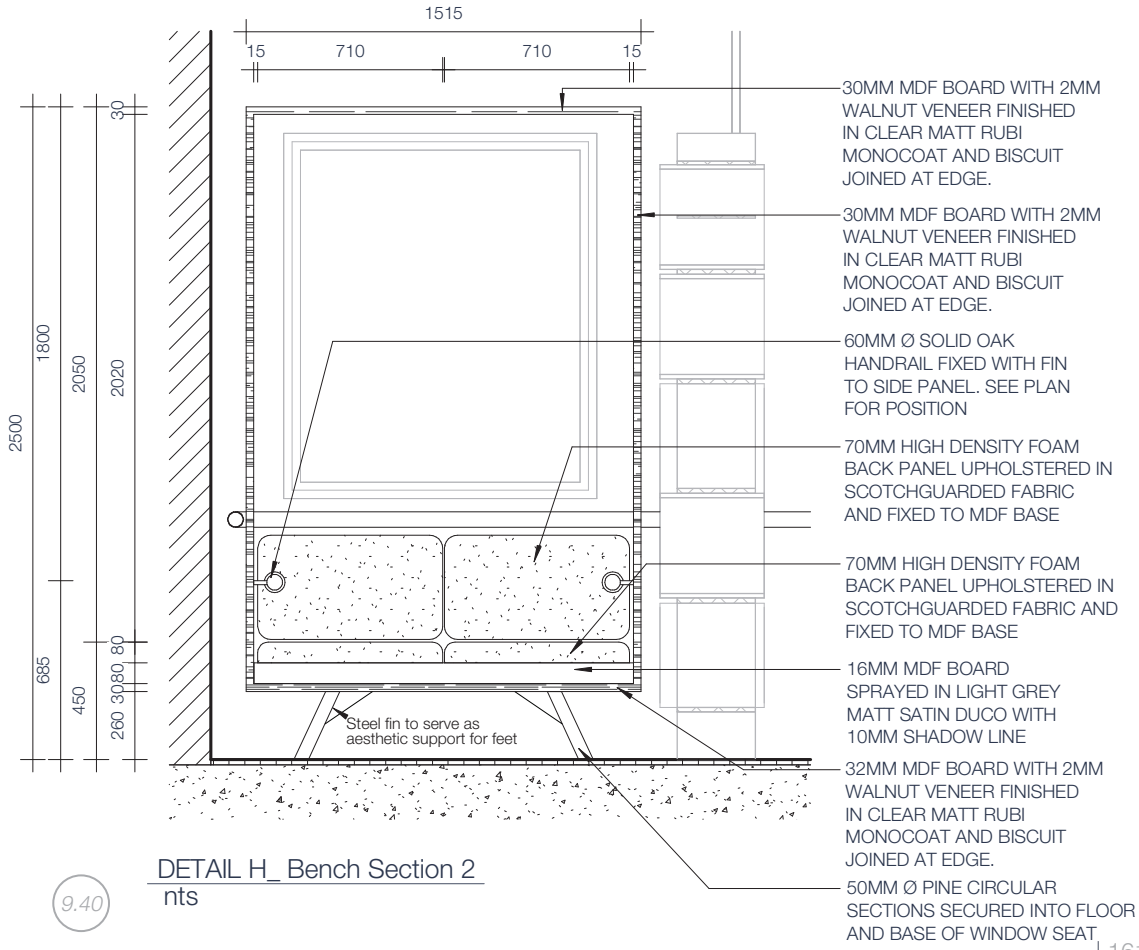
9.37 DETAIL H_Bench Plan
nts



9.38 DETAIL H_Bench Section 1
nts



9.39

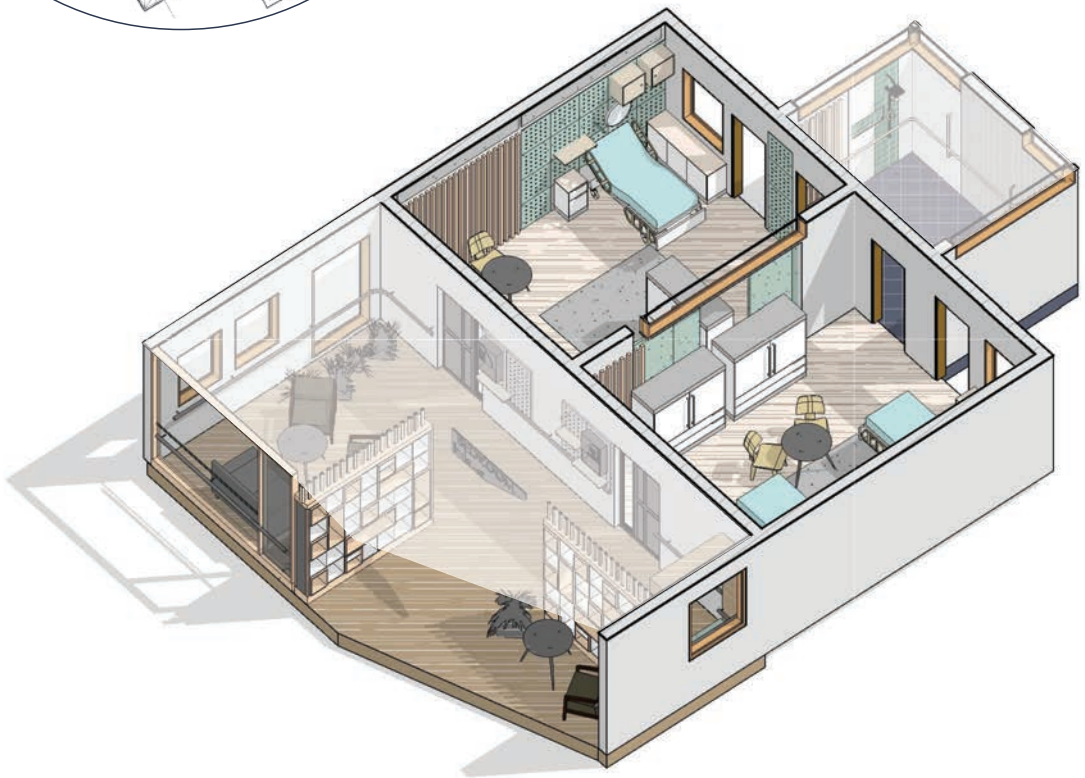


9.40

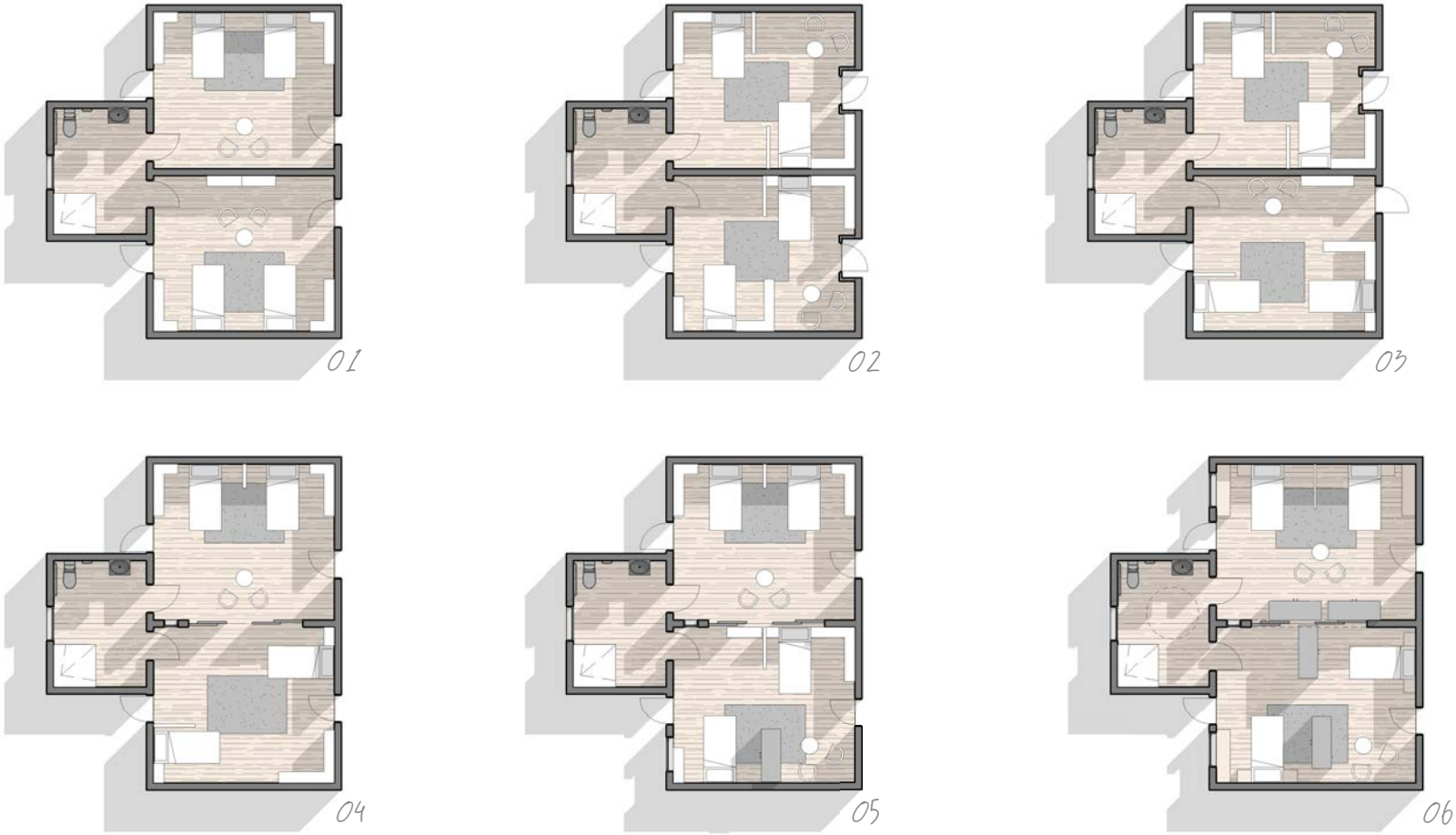
DETAIL H_ Bench Section 2
nts

Figure 9.41: (Above) 3D of foyer space (Author 2018)
Figure 9.42: (Right) 3D of private lounges (Author 2018)

Bedrooms



different iterations



Principles

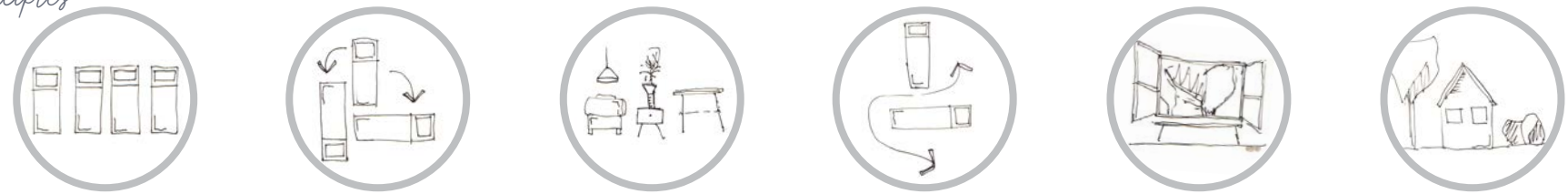
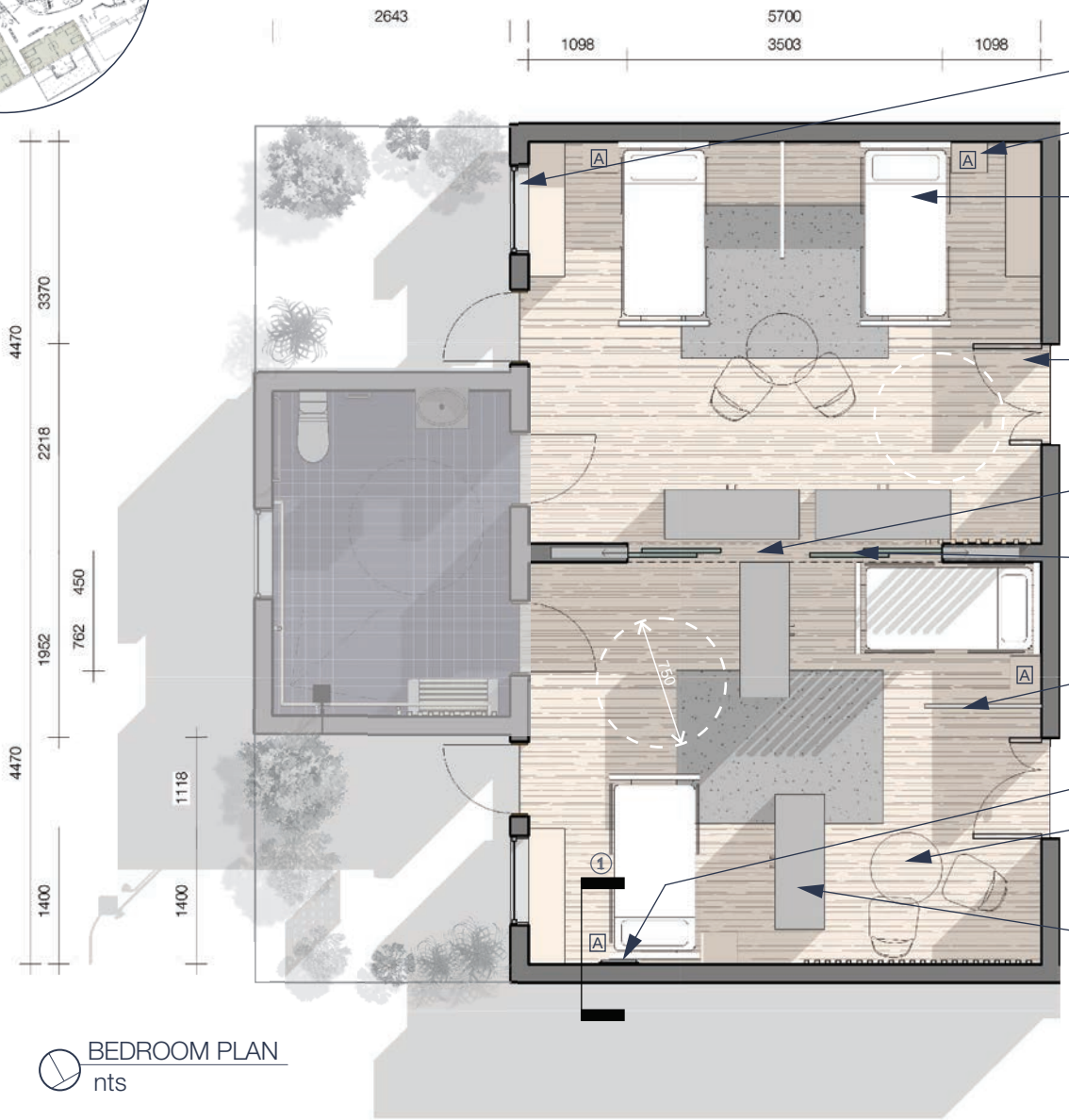


Figure 9.43: (Left) Bedroom cover page (Author 2018)
Figure 9.44: (Above) Bedroom principles (Author 2018)

Figure 9.45: (Below) Bedroom Plan (Author 2018)
Figure 9.46: (Right) Different specifications of bedroom space (Author 2018)



BEDROOM PLAN
nts

1200 x 900mm WINDOW WITH 850MM SILL HEIGHT. TIMBER FRAME TO MATCH EXISTING

BEDSIDE TABLE AND BUILT IN BENCH

BEDROOMS SO AS TO ACCOMMODATE A STANDARD SIZE SINGLE BED OF APPROXIMATELY 1900 X 900MM. DOUBLE BEDS ARE SUITABLE FOR DOUBLE BEDROOMS ON MEZZANINE LEVEL. CLINIC BEDS SPECIFIED AS FOLLOWS:

DOOR TO RESEMBLE THAT OF A FRONT DOOR (SEE FOYER FOR MORE DETAILS ON ENTRANCE THRESHOLD)

CLERESTORY WINDOW ABOVE TO ALLOW NATURAL DAYLIGHT BETWEEN BEDROOMS

MOVEABLE SCREEN TO DIVIDE ROOM INTO TWO IF NECESSARY. SCREEN TO BE DESIGNED ON SAME PRINCIPLE OF PEGBOARD WALL PANELLING

MOVEABLE ROOM DIVIDER. SPECIFICATION TO FOLLOW

PEGBOARD SYSTEM. SEE **DETAIL I** BELOW

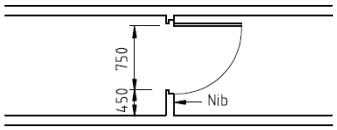
SMALL LOUNGE AREA CONSISTING OF A COFFEE TABLE AND TWO ARM CHAIRS. SPECIFICATIONS OF LOOSE FURNITURE TO FOLLOW

CUPBOARD UNIT AS DESIGNED BY THE HELEN HAMLYN INSTITUTE AS PART OF THE DESIGN FOR DEMENTIA BOOKLET (Timlin & Rysenbry, 2010)

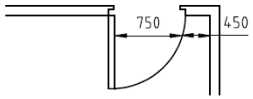
Bedside table and Built-in window bench designed to match the cupboard unit designed by the Helen Hamlyn Institute (Timlin & Rysenbry, 2010).

Stiegelmeyer PRO clinic bed:
1. Comfortable
2. Home-like
3. Fully adjustable
4. Helps to increase mobility
5. Digital assistive system
6. Timber finish
7. Night light
8. 2145 x 995mm size

Front door resembles domestic front door with welcome mat and mailbox that can act as an object of familiarity



SANS10400 PART S: Regulations for door widths to accommodate all users



Drg.12915

Double uneven door specified. To be opened only when required by staff member or resident.

Not a standard height unit, for ease of wheelchair users

Hangers: allows caregiver to give patient 2 full outfit choices

Panel provided for personalizaion

Automatic indoor cupboard lighting when doors are opened

Panel to possibly become a mirror

Internal drawer fronts are provided with panel to allow for signs/graphics to indicate easily that this is a sock drawer

Drawers are placed high enough for user not to have to bend down too low

Low drawers with concealed handles for seasonal clothes to be stored

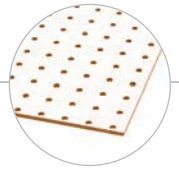
Large oversized handles in contrasting colour or material for easy identification

(Timlin & Rysenbry, 2010)

DETAIL I

Bedroom Pegboard Wall panelling system

COMPONENTS



1220 x 2440 MM STANDARD SIZE BOARD PRODUCT (HARDBOARD)

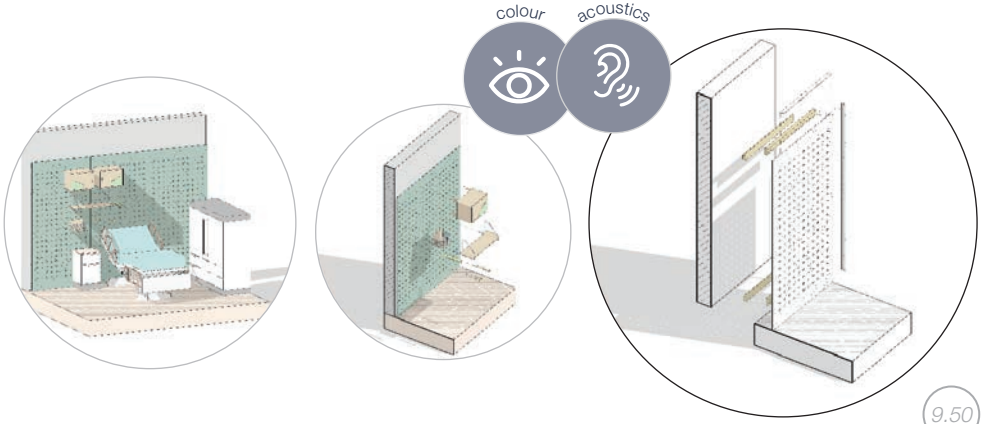
TIMBER CLEAT WALL BRACKET

INSULATION

9.47

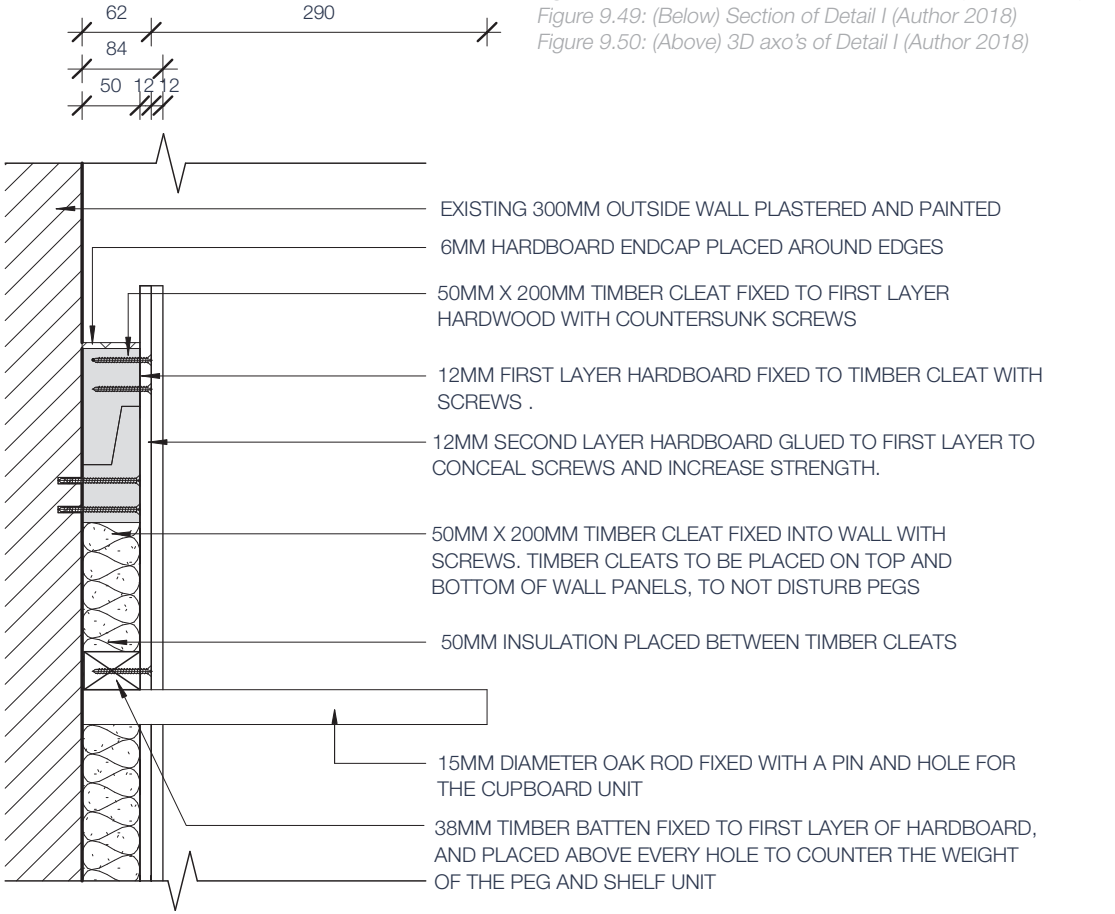
9.48

Axo illustrating base scenario with objects provided by facility. Refer to final renders for personalized scenario



9.50

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)



9.49 DETAIL I_Wall Panel Section
nts

SHELVING / STORAGE POSSIBILITIES

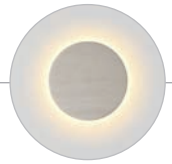
Figure 9.51: (Right) Shelving and Storage possibilities for Detail I (Author 2018)
Figure 9.52: Individual components for Detail I (Author 2018)


CUPBOARD

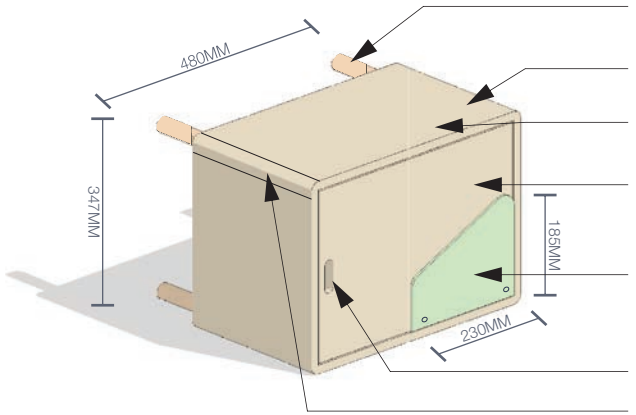

SHELF


BASKET


HOOK


NIGHT LIGHT

9.51



15MM RADIUS X 350MM PINE PLY PEG WITH FOR CUPBOARD UNIT

CUPBOARD UNIT SECURED ONTO PEG FROM INSIDE WITH AN EYE AND PIN FIXING

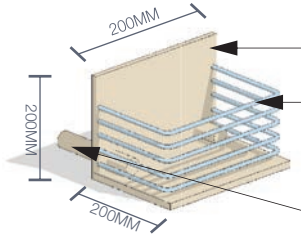
16MM OAK SIDE AND TOP PANELS FINISHED WITH WHITE WASH RUBI MONOCOAT

12MM OAK DOOR FRONT FINISHED WITH WHITE WASH RUBI MONOCOAT AND FIXED TO FRAME WITH HINGES

4MM MATT PERSPEX SIGNAGE PANEL FIXED TO TIMBER DOOR FRONT WITH REMOVABLE DOME NUTS TO ALLOW THE PANEL TO BECOME INTERCHANGEABLE.

FINGER CUT OUT HANDLE IN DOOR FRONT

12MM SOLID TIMBER EDGING TO CREATE CHAMFERD EDGE, BISCUIT JOINTED TO REST OF FRAME

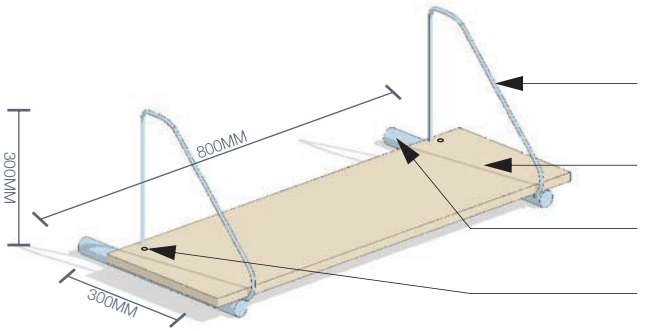


200 X 200 X 9MM PINE PLY BACK BOARD FINISHED WITH WHITE WASH RUBI MONOCOAT

5MM STEEL HOLLOW TUBE BENT TO PROFILE AND POWDER COATED DIFFERENT COLOURS TO SUIT NEEDS OF RESIDENT (SEE COLOUR CHART BELOW). FIXED TO TIMBER BACK BOARD

15MM RADIUS PINE PLY PEG IN A COLOUR (BELOW)TO SUIT RESIDENT'S PREFERENCE .

Colour choices.

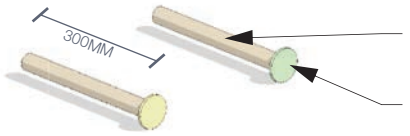


5MM STEEL HOLLOW TUBE BENT TO PROFILE AND POWDER COATED IN THE THREE DIFFERENT COLOURS AS SPECIFIED ABOVE. FIXED TO PEGS FROM BELOW

800 X 300MM X 15MM SOLID OAK SHELF FINISHED WITH WHITE WASH RUBI MONOCOAT.

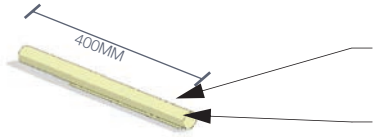
15MM RADIUS PINE PLY PEG PAINTED IN COLOUR CHOICES AS INDICATED ABOVE, TO SUIT RESIDENT'S PREFERENCE .

PIN HOLE FOR PIN TO JOIN SHELF AND PEG.



15MM RADIUS PINE PLY PEG PAINTED IN COLOUR TO SUIT RESIDENT'S PREFERENCE .

30MM RADIUS PERSPEX PEG FRONT.



15MM RADIUS PINE PLY PEG PAINTED IN COLOUR TO SUIT RESIDENT'S PREFERENCE .

BATTERY POWERED LED LIGHT WARM WHITE WITH SWITCH.

SCENARIO A VS. SCANARIO B

There are two different scenarios for the residents in this facility. Scenario A is when all the furniture is provided by the facility. This includes the bed side tables and cupboard units as spevified earlier.

Scenario B allows a resident to bring in their own furniture such as a headboard, a dresser, side units, dressing tables, a comfortable chair, an area rug, curtains or blinds.

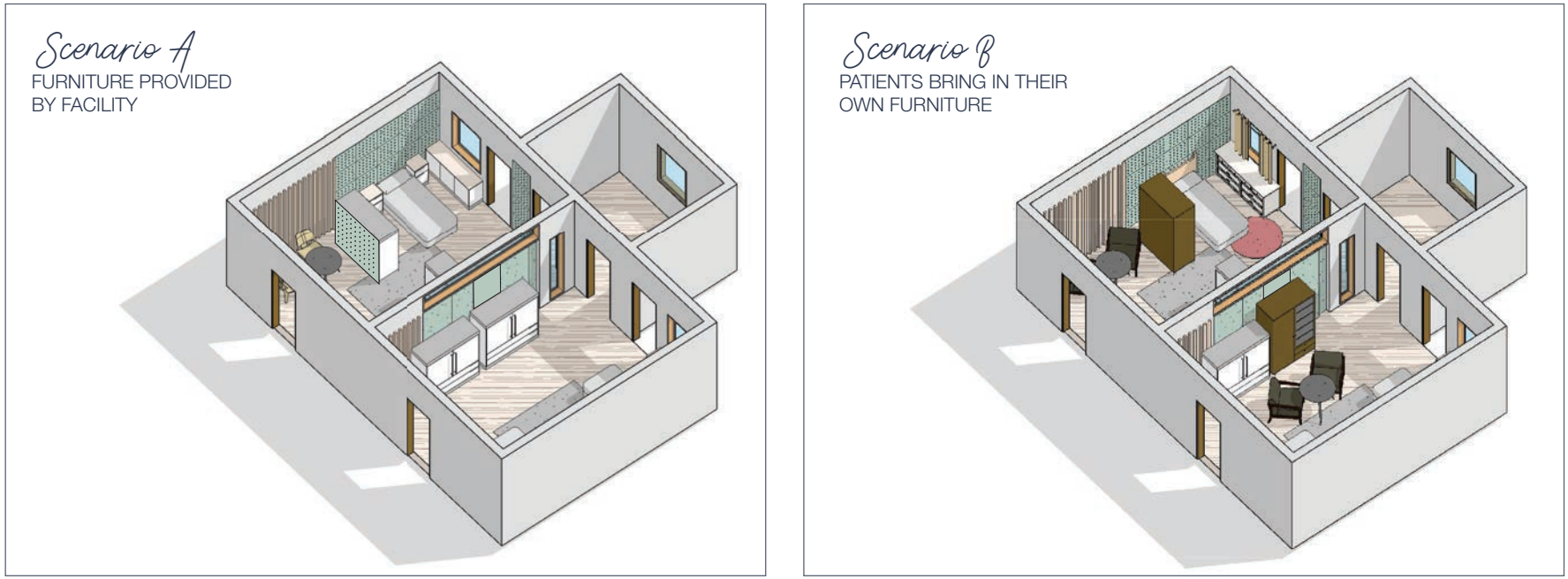
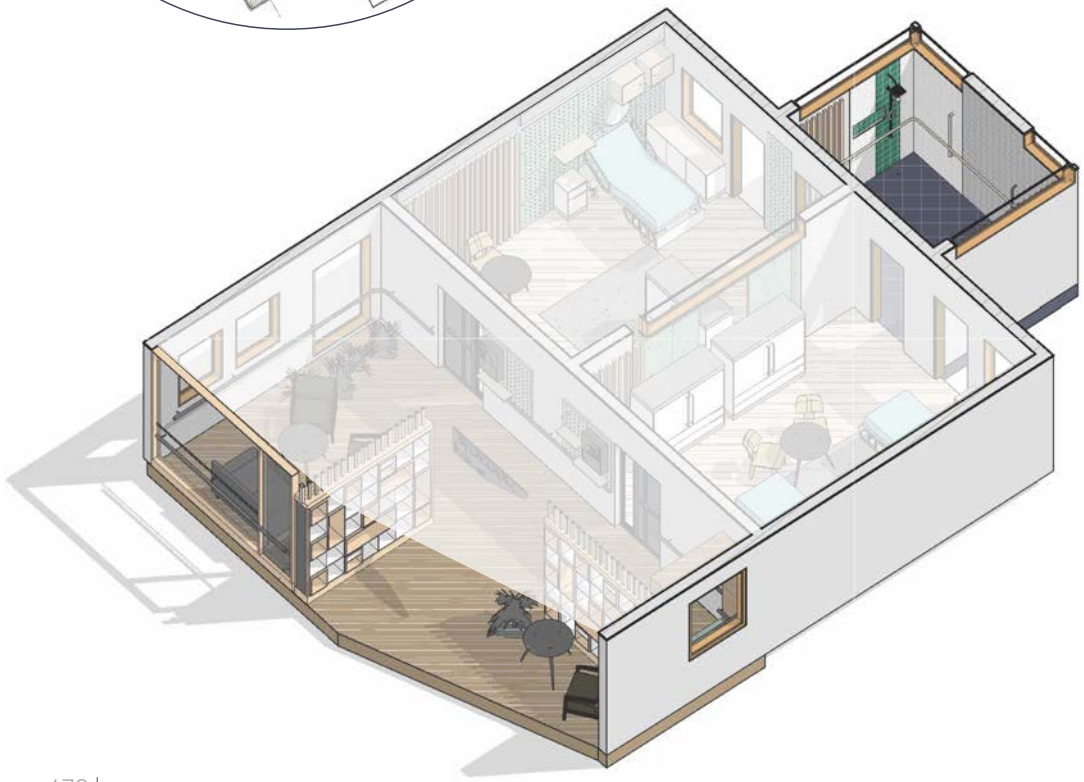


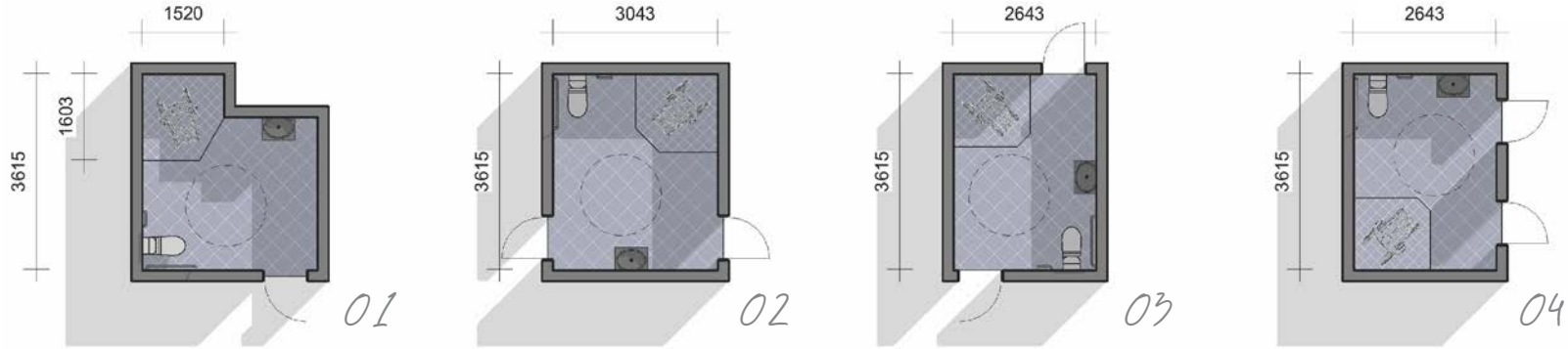
Figure 9.53: (Above) Scenario A vs. Scenario B (Author 2018)

Bathroom



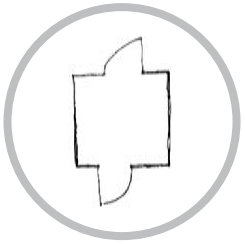
Forest Green:
Pleasing to the senses, good luck, generosity, masculinity, wealth, conservative

different iterations



Principles

COMPLY WITH SANS
10400 PART S

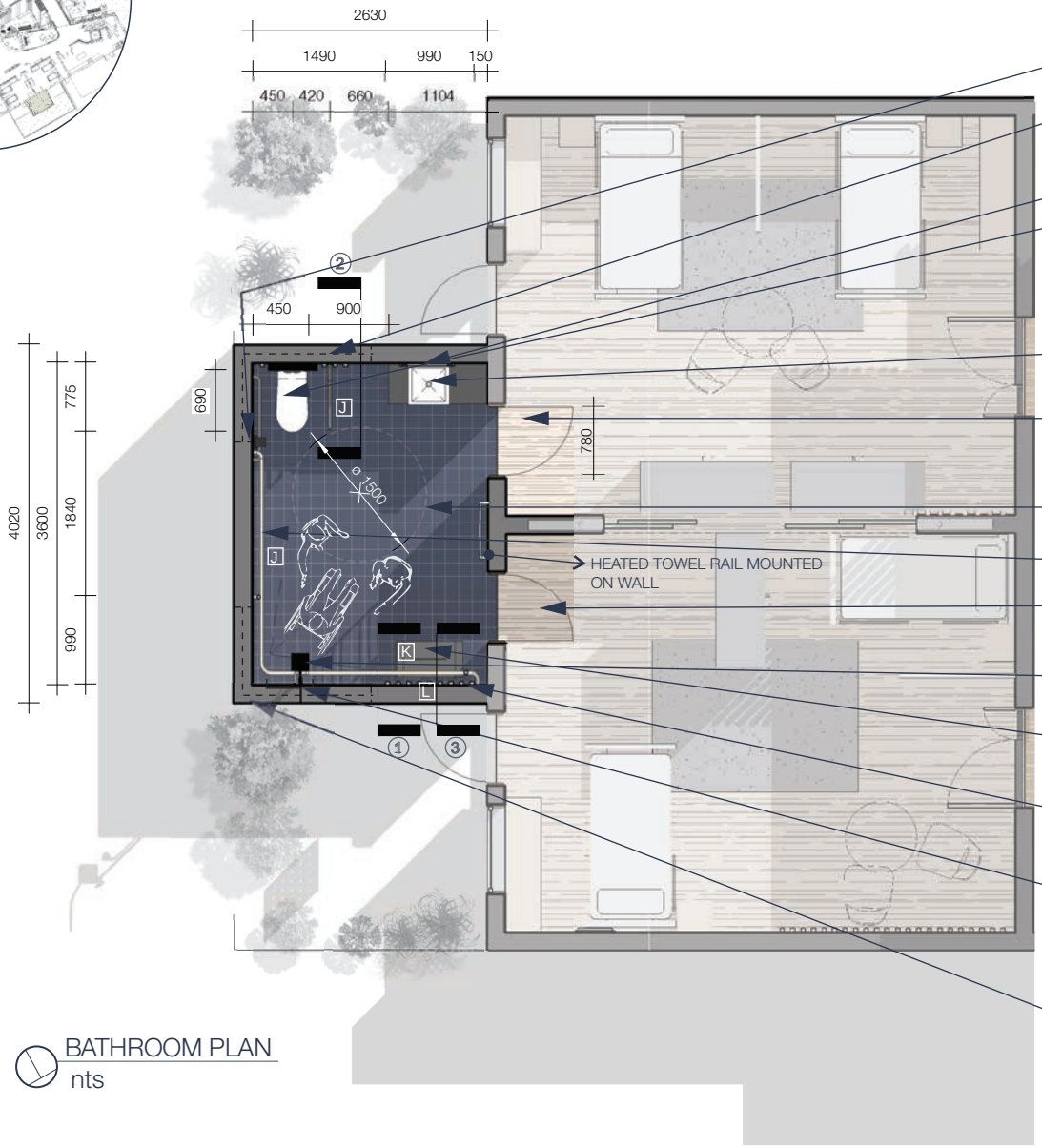


TWO DOOR REQUIREMENT
FOR SAFETY OF USERS

LARGE ENOUGH TO FIT
A WHEELCHAIR USER AND 2
CAREGIVERS

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)



BATHROOM PLAN
nts

TOILET ROLL HOLDER INCORPORATED INTO DOG LEG GRAB RAIL

HIGH CLERESTORY WINDOW ABOVE THAT WRAPS AROUND CORNER TO ALLOW NATURAL DAYLIGHT IN. SEE 3D'S

TAPS TO BE WITH AUTOMATIC OFF SWITCHES

CONCEALED CISTERN SYSTEM REQUIRED FOR THE APPLICATION OF THIS FACILITY. SEE RIGHT FOR TOILET SPECIFICATIONS

TOILET FITTED WITH ADEQUATE HANDRAILS. SEE BELOW FOR SPECIFICATIONS

HANDWASH BASIN INSTALLED 820MM AFFL ON TOP OF CAESERSTONE TOP. SEE 3D

BATHROOM DOORS TO OPEN TO OUTSIDE WITH A 450MM NIB BETWEEN WALL AND DOOR HANDLE. SEE SANS10400 SPECIFICATION ON 03 BEDROOM PAGE

WHEELCHAIR TURNING CIRCLE (1500MM DIA)

40MM CONTINUOUS OAK CIRCULAR ELEMENT HAND RAIL. SEE DETAIL C FOR SPECIFICATIONS

BATHROOM DOORS INSTALLED WITH OCCUPANCY SENSOR AND AUTOMATIC DOOR CLOSER FROM DORMA. CODE: TS 71. (Non hold open system)

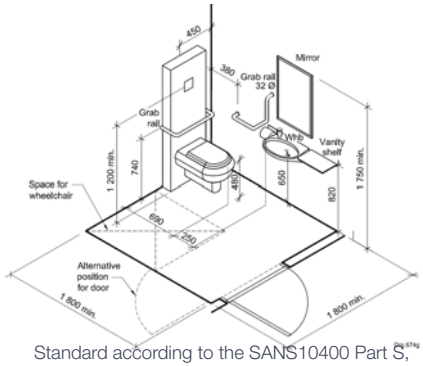
ADEQUATE HANDRAILS REQUIRED IN SHOWER, SEE DETAIL C FOR SPECIFICATIONS

CORIAN MOVEABLE SHOWER SEAT. SEE DETAIL K FOR SPECIFICATIONS

TIMBER SLATS INSTALLED ON A WATERPROOFED PLASTER FINISH AND FINISHED IN MOISTURE RESISTANT VENEER

660 X 320MM TILED NICHE IN SHOWER FOR SOAP AND SHAMPOO BOTTLES. ROUNDED EDGES AND SMALL WATER CHANNEL TO ALLOW WATER TO DRAIN BACK INTO SHOWER AREA.

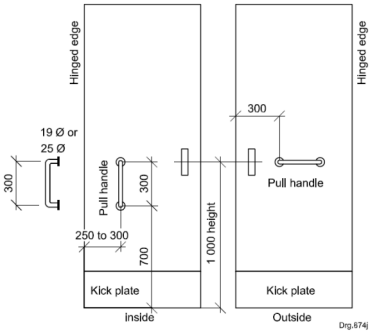
HIGH CLERESTORY WINDOW ABOVE THAT WRAPS AROUND CORNER TO ALLOW NATURAL DAYLIGHT IN. SEE 3D'S



Standard according to the SANS10400 Part S, for concealed cistern toilet system, page 47

MEDICAL RANGE wall mounted toilet from Duravit
#220309 Design by Philippe Starck (Starck 3)
Colour: White Alpin
Size: 360 x 700 x 450mm

CAPECOD HWB from Duravit
Washbowl #234046 Design by Philippe Starck
Colour: White Alpin
Size: 460 x 460 x 100mm



Standard according to the SANS 10400 Part S for door handles specific bathroom doors, page 47

Occupancy:

E2: Hospital (1 person per 10m²)
E3: Institutional Residence (2 people p. bedroom)
E4: Healthcare

E2 + E3: patients	male	female
< 40 people =	2wc's 3 urinals 2whb	4wc's 3whb
< 60 people =	3wc's 4 urinals 4whb	6wc's 4whb

Product Precedents

ADJUSTABLE SHOWER SEAT
Pressalit Care Plus Manually Adjustable Shower Seat 450 With Aperture Backrest and Armrests. Height adjustable 195 mm (seat), soft feel with anthracite cover plate on vertical track.

CORNER SHOWER RAIL
Left hand corner shower rail (KV1(LH)) from BOYCO. Wall mounted shower rail system. Options; left or right hand Fixing; sliding shower head.

RAISED TOILET SEAT WITH ARMRESTS
Plastic raised toilet seat with armrests to assist patient in getting up and sitting down onto toilet.

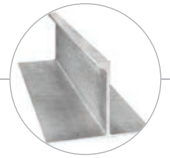
RAISED TOILET SEAT WITHOUT ARMRESTS
Plastic raised toilet seat either fixed to toilet or just laid on top when required.

GRAB RAILS
Different grab rails are required near the toilet and should be installed at the correct heights to be able to be used optimally. Plastic or metal options are available.

DETAIL J

Bathroom Handrail and Grab rails

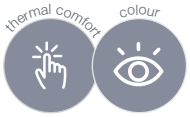
COMPONENTS



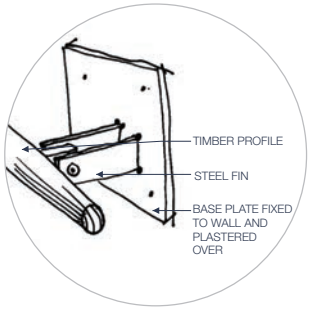
STURDY STRUCTURE AND FIXING TO WALL

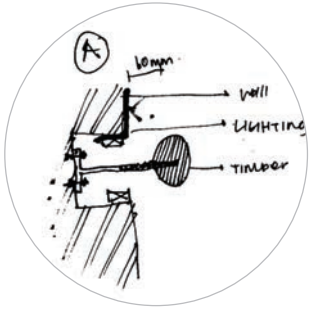
TIMBER CIRCULAR SECTION

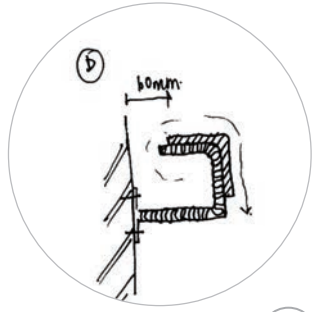
9.58



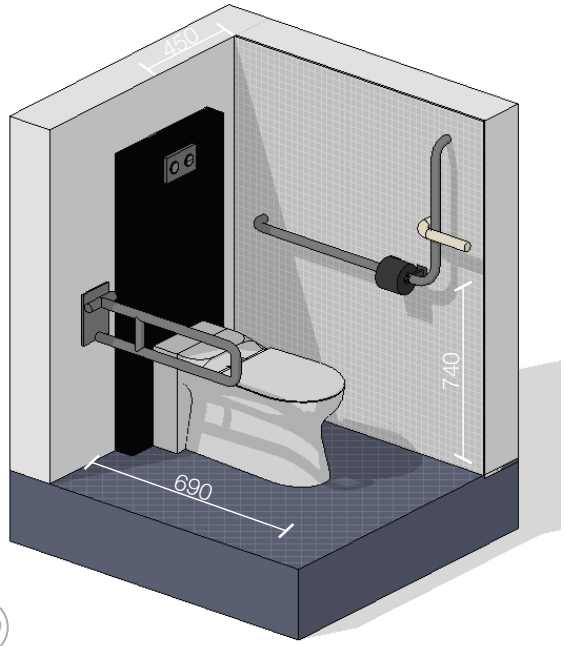
Iterations



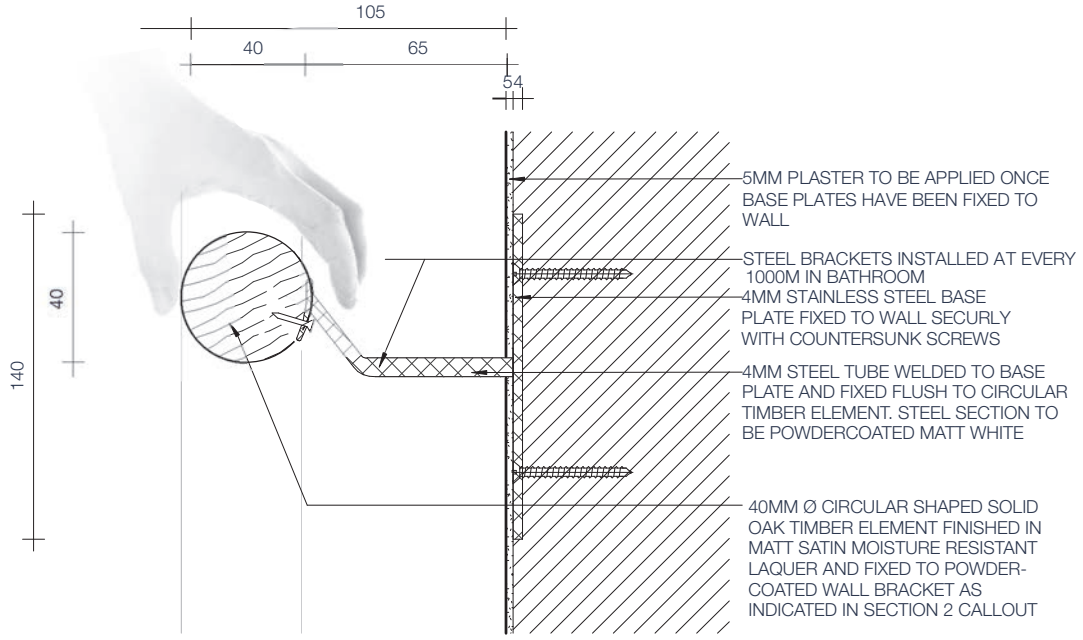




9.61

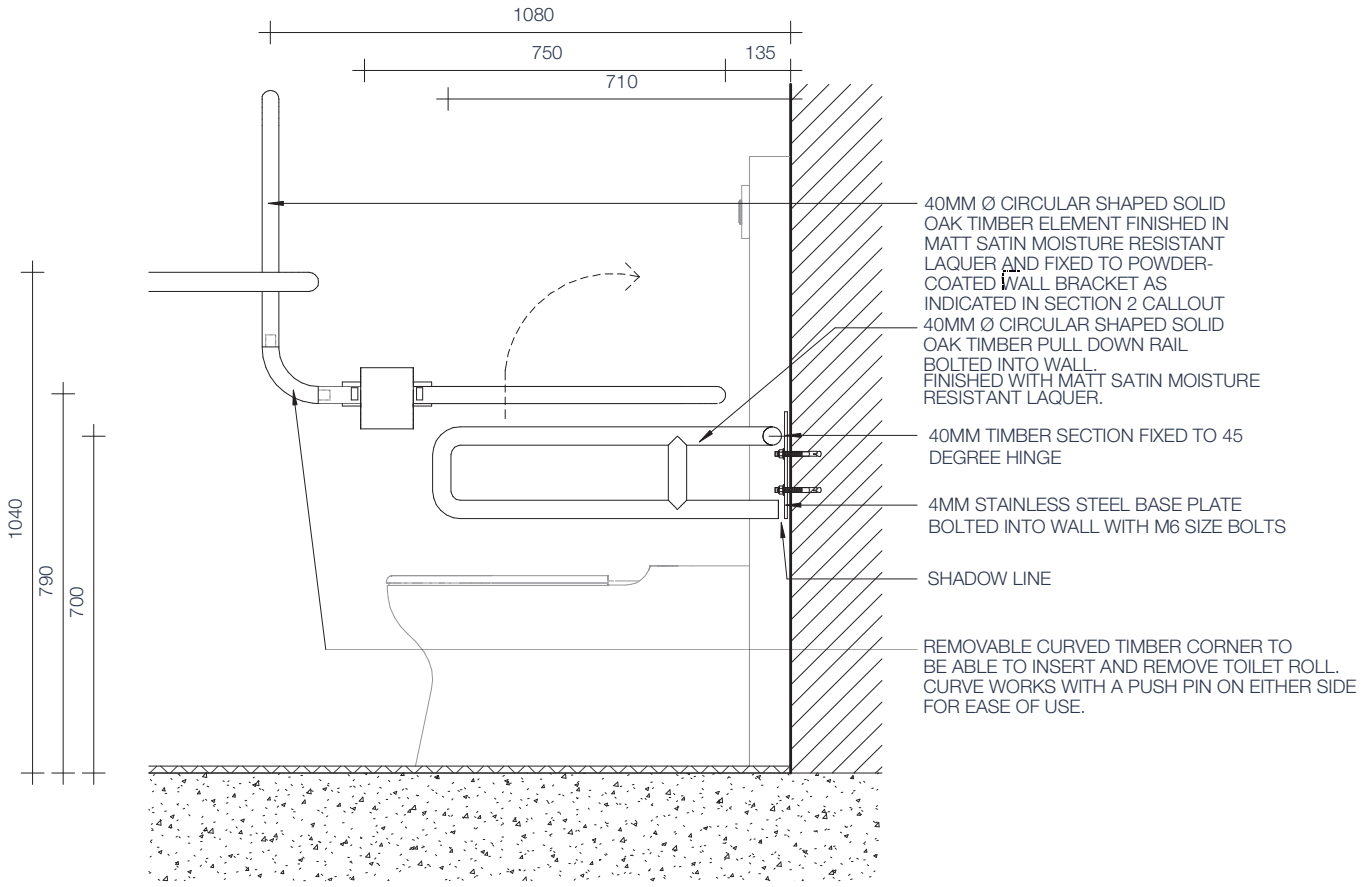


9.59

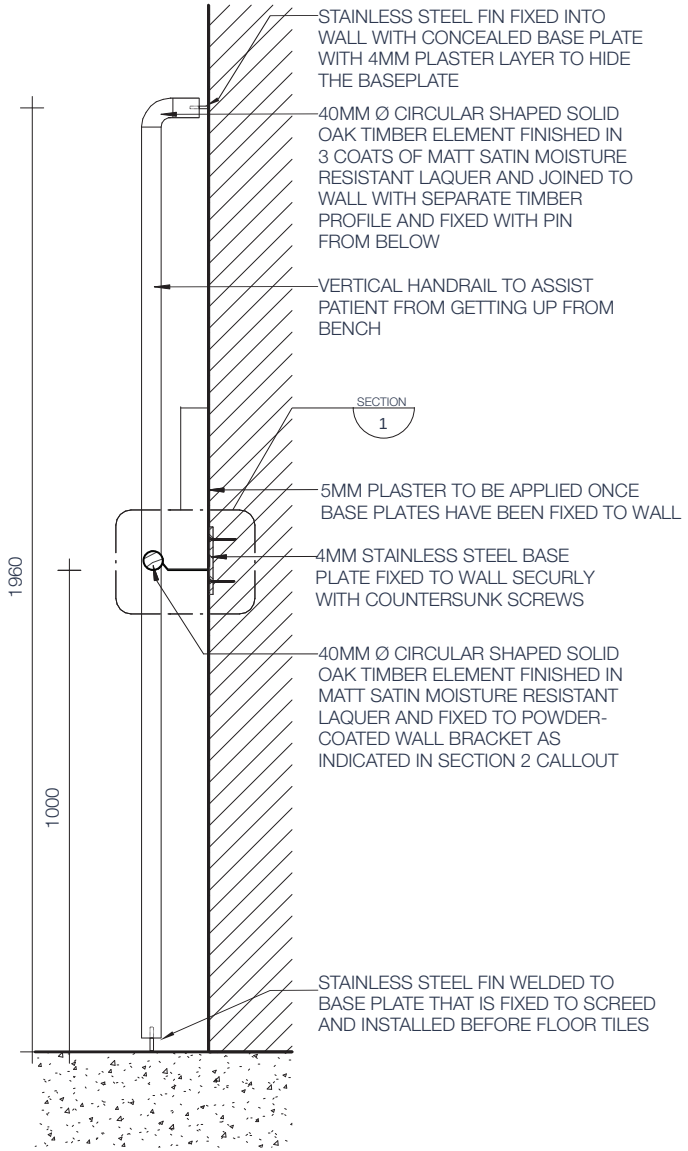


9.60 DETAIL J_Handrail Section 1
nts

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)



9.62 DETAIL J_Handrail & Grabrail Section 2
nts



9.63 DETAIL J_Handrail Section 3
nts

DETAIL L

Bathroom Timber Slats

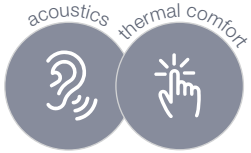
Figure 9.64: Detail L components (Author 2018)
Figure 9.65: Axonometric of Detail L (Author 2018)
Figure 9.66: Plan of Detail L (Author 2018)
Figure 9.67: Section 1 of Detail L (Author 2018)
Figure 9.68: Section 2 of Detail L (Author 2018)

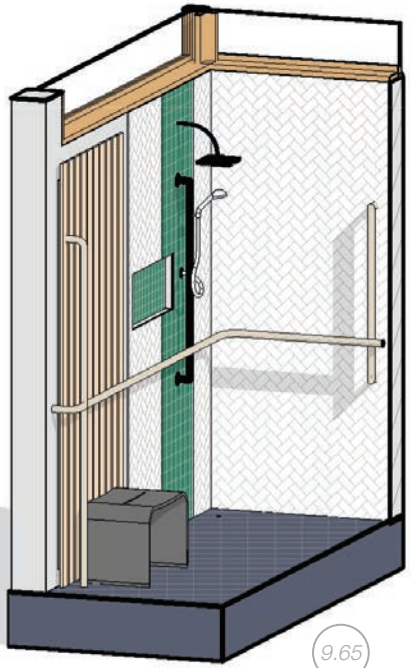
COMPONENTS

STURDY STRUCTURE AND FIXING TO WALL

TIMBER SLATS

9.64





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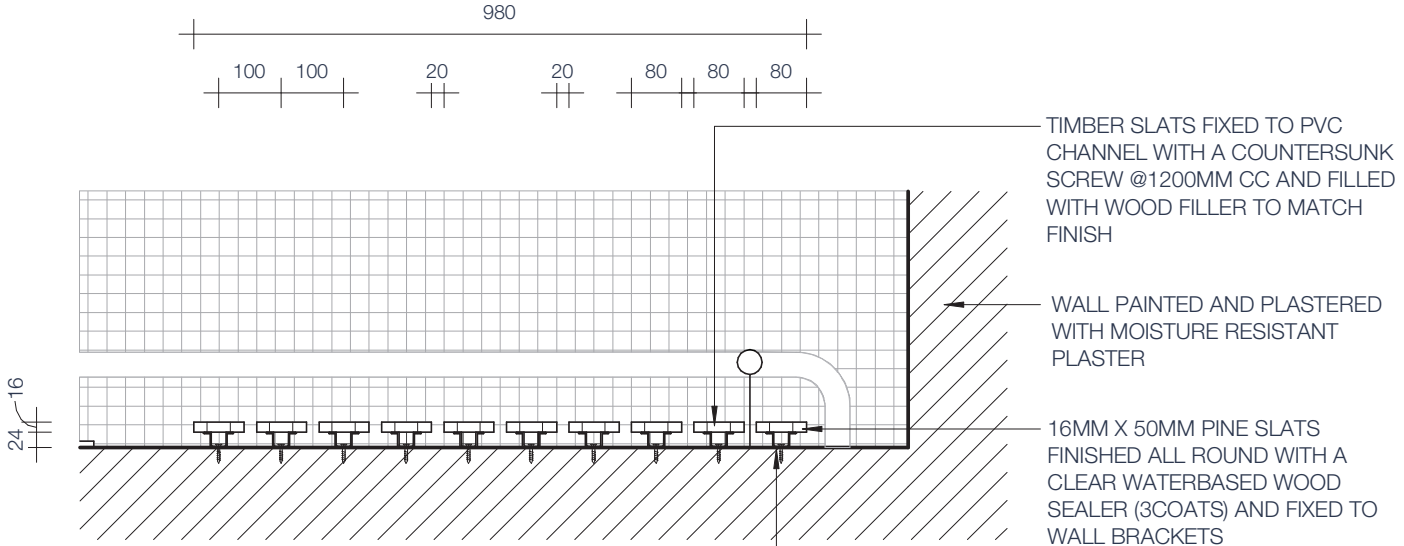
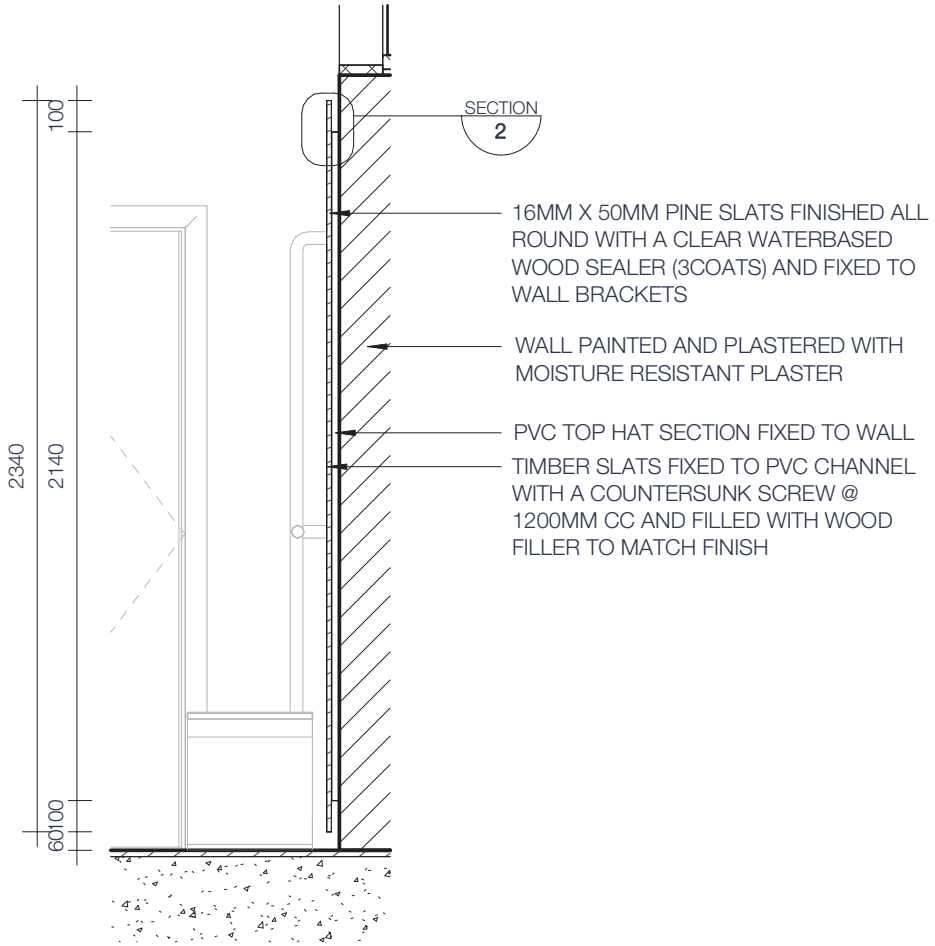
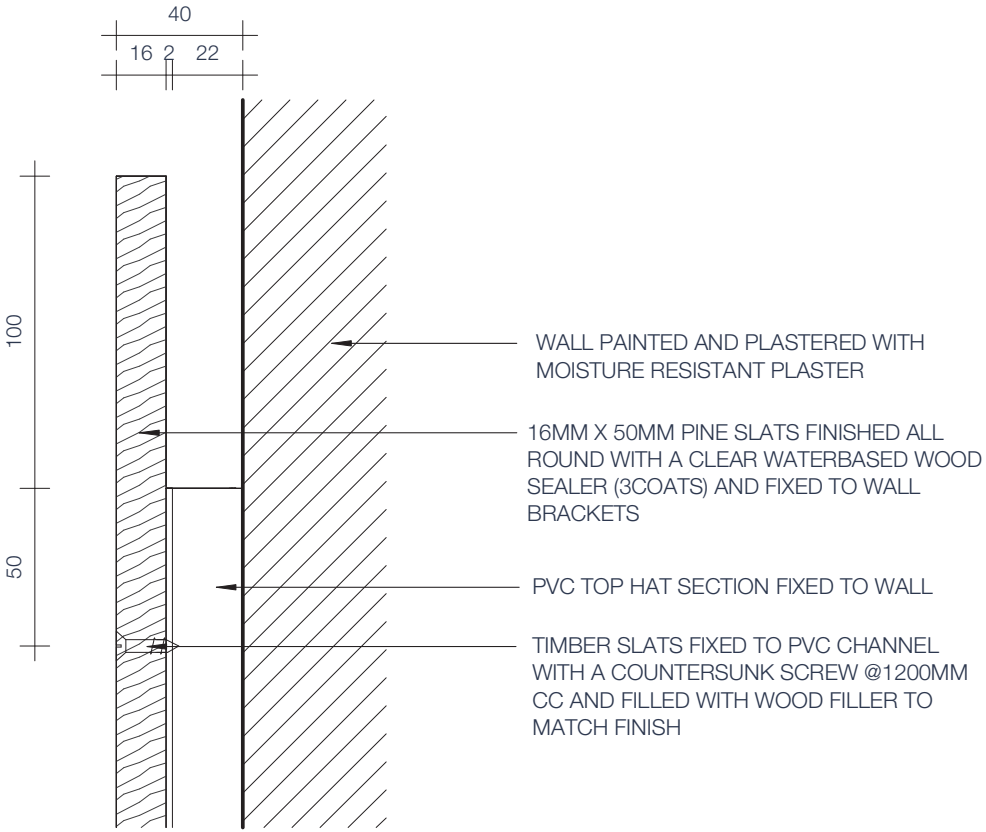


9.66 DETAIL L_Timber Slats Plan
nts



9.67 DETAIL L_ Slats Section 1
nts



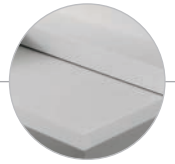
9.68 DETAIL L_ Slats Section 2
nts

DETAIL K
Bathroom Shower Seat

COMPONENTS

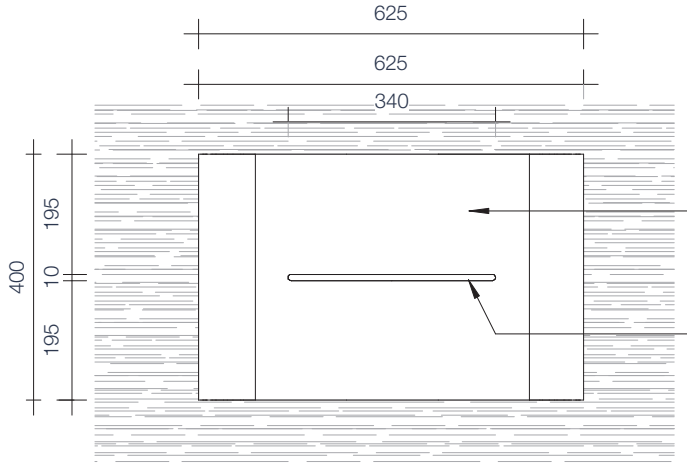
CORIAN SEAT
AND FEET

SHADOWLINE
(TO REDUCE MOULD)



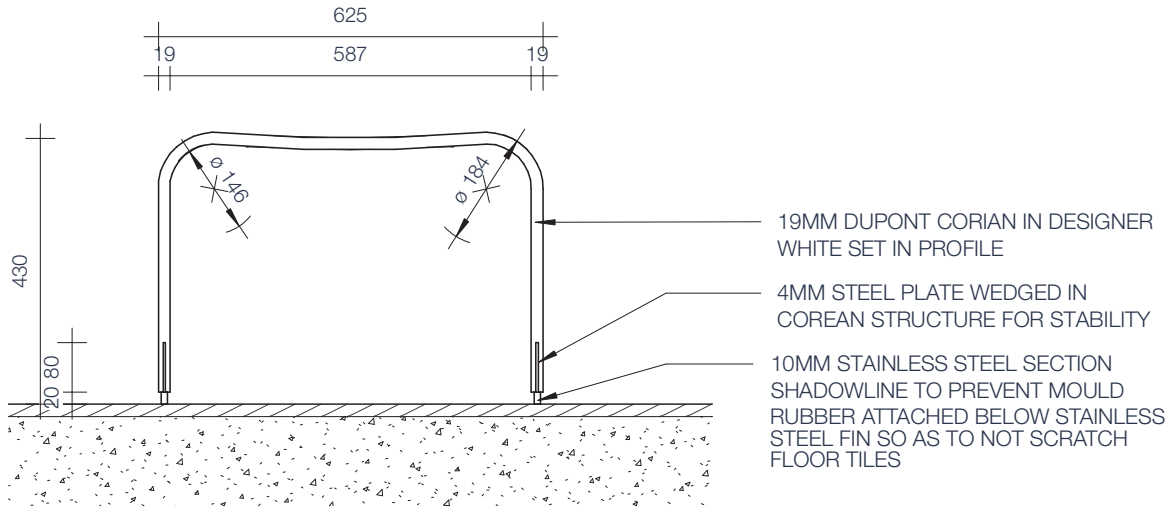
WATER OUTLET

9.69



9.71 DETAIL K_Seat Plan
nts

9.70

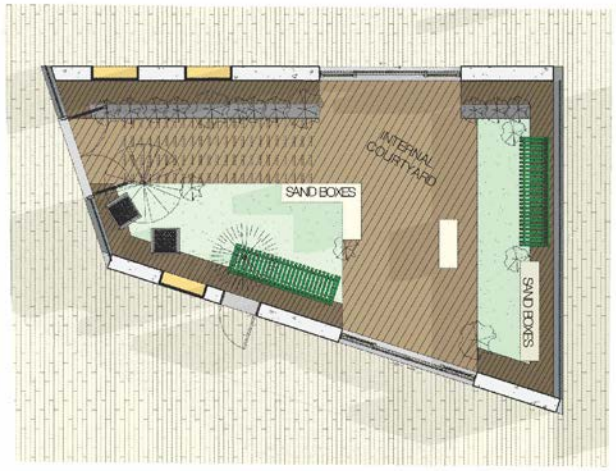


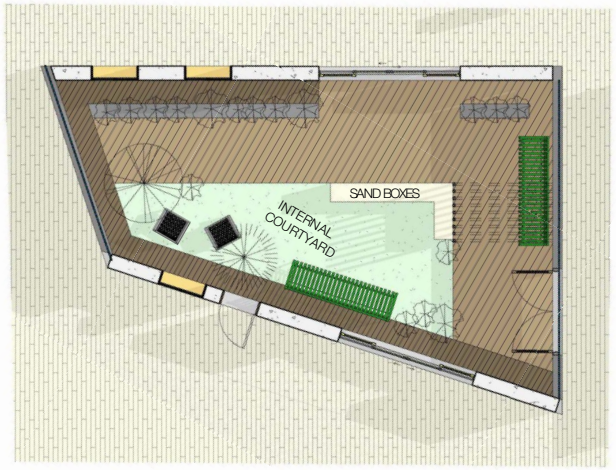
9.72 DETAIL K_Seat Section
nts

3d realization

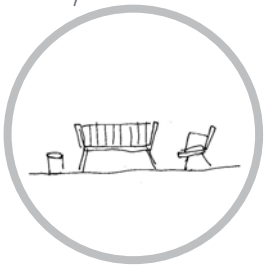
Internal Courtyard

different iterations



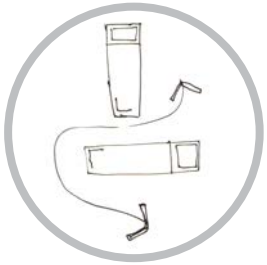


Principles



2 DIFFERENT SEATING OPTIONS

SAND BOXES / HERB GARDEN FOR THERAPY



EASE OF MOVEMENT AND CIRCULATION

CONSTANT VIEW OF NATURE

DOMESTIC FAMILIARITY

Figure 9.74: (Left) Internal Courtyard cover page (Author 2018)
Figure 9.75: (Above) Iterations and principles (Author 2018)

300MM WATER CHANNEL TO FOLLOW INTO INACCESSIBLE GARDEN ON EITHER SIDE OF INTERNAL WANDERING PATH.

300MM WATER CHANNEL COVERED WITH MENTIS GRATE. WETLAND PLANTS GROW THROUGH GRATE CREATING A WATER FILTERING/DRAINING SYSTEM FOR THE INTERNAL COURTYARD.

740mm HIGH SAND BOXES FILLED WITH DIFFERENT TEXTURED SAND AS FORM OF THERAPY FOR THE PATIENTS.

DOUBLE GLAZED DOOR LEADING FROM WANDERING PATH INTO INTERNAL COURTYARD. (EASY TRANSITION)

COMPOSITE DECKING WITH EASY TRANSITION ONTO GRASS AREA.

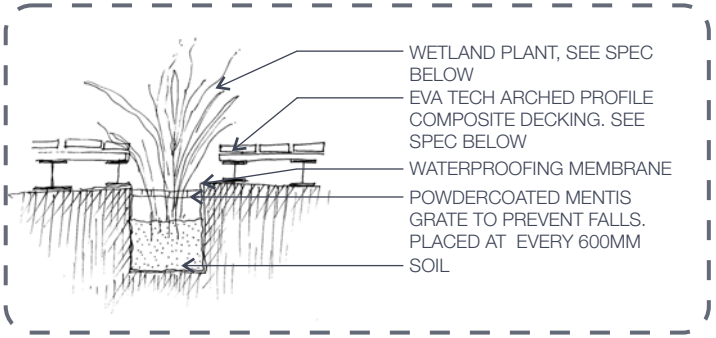
COMPOSITE DECKING TO SERVE AS SERVICE PASSAGE FOR MAINTENANCE PURPOSES.

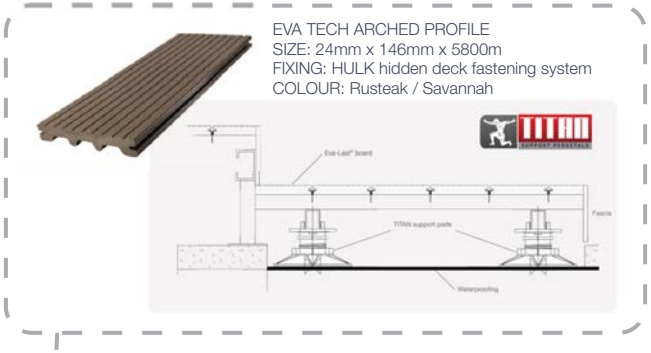
TIMBER PERGOLA ABOVE.

TYPICAL OUTDOOR FURNITURE TO CREATE FAMILIARITY AMONGST PATIENTS / RESIDENTS. SEE SPEC BELOW

300MM WATER CHANNEL TO FOLLOW INTO INACCESSIBLE GARDEN ON EITHER SIDE OF

Figure 9.76: (Left) Internal Courtyard plan (Author 2018)
Figure 9.77: (Below) Specifications within Internal Courtyard (Author 2018)





Typical Outdoor furniture

Creeper

Jasminum Sp

Serenio Sp

Rhoicissus Sp

Wetland Plant

Miscanthus Junceus

Cyperus Marginatus

Cyperus Papyrus

Internal Aromatic

Jasminum Sp

Lavender Sp

Aromatic Orchid Sp

Figure 9.78: (Above) Flora Selection (Author 2018)
Figure 9.79: (Right) 3D realization of Internal Courtyard (Author 2018)

WALL MOUNTED PLANTER BOX, PLANTED WITH FLOWERS AND HERBS TO CREATE AN AROMATIC ATMOSPHERE IN THE INTERNAL COURTYARD
.

COMFORTABLE GARDEN FURNITURE WITH COMFORTABLE ARMRESTS TO ASSIST PATIENTS IN STANDING UP EASILY

WALL MOUNTED PLANTER BOX, LIFTED OFF OF THE FLOOR AND PLACED A HEIGHT THAT ALLOWS PATIENTS/RESIDENTS TO NOT HAVE TO BEND TOO FAR DOWN TO TOUCH THE PLANTS

TIMBER PERGOLA STRUCTURE CREATING A SHADED AREA. CREEPER PLANTS TO GROW UP PERGOLA

OUTDOOR FURNITURE TO CREATE A SENSE OF FAMILIARITY.

WATER CHANNEL CREATES THE SOUND EFFECT OF A WATER STREAM THAT RUNS THROUGH THE BUILDING. WETLAND PLANTS TO INHABIT WATER CHANNEL AND GROW NATURALLY

COMPOSITE DECKING INSTALLED AS CLOSE AS POSSIBLE ON LEVEL WITH GRASS TO AVOID TRIPPING HAZZARD.

3195 | 2640 | 2362 | 2572 | 6150 | 1104 | 929 | 332 | 906 | 1433 | 2812

FIRST FLOOR ROOF LEVEL 2 10 00MM

CHARCOAL IBR ROOF SHEETING FIXED TO PURLINS WITH ALLEN RIBBE SYDUPON MASTPUC

125 X 50MM TIMBER P.PURLIN FIXED TO I-BEAMS. SUPPORTS IBR SHEETING

254 X 146MM I-BEAM INSTALLED AT 4500MM INTERVALS TO CARRY THE WEIGH OF THE ROOF STRUCTURE

FIRST FLOOR ROOF LEVEL 1 8400MM

FIRST FLOOR LEVEL 5800MM

LOWER GROUND FLOOR LEVEL 0000MM

CLUSTER OF STROKES 3 PENDANTS FROM SPAZIO. WHITE ALUMINUM GLASS SHADE. 160 MM DIA x 400MM H. 230V E27

ALUMINUM CEILING STRUTS FIXED TO 125MM PERLIN (ROOF STRUCTURE)

TIMBER CLADDING WITH CONCEALED ACOUSTIC INSULATION BEHIND

HEAVY FURNITURE IN LOUNGE AREA THAT IS DIFFICULT TO MOVE, WITH STURDY ARMRESTS TO ASSIST RESIDENTS IN STANDING UP AND SITTING DOWN.

ACOUSTIC WALL PANELLING TO REDUCE THE REVERBERATION IN SPACE. INSTALLED ON A MDF BACKER PANEL WITH VELT FABRIC COVERING

310 X 120MM PORTICO CEILING LIGHT WITH WHITE ALUMINUM BODY AND TEMPERED GLASS DIFFUSER. 230V LED 3000K WARM WHITE (SPAZIO

OPENABLE GLASS SLIDING DOOR TO OUTSIDE GARDEN WITH WHITE ALUMINUM DOOR FRAME

9.5MM RHINO BOARD FLUSH PLASTERED, PAINTED WHITE & FIXED TO ALUMINUM SUB-STRUCTURE. SAINT GOBAIN (GREEN STAR ACCREDITED)

BOOKCASE DETAIL D

LOUNGE & TV ROOM

Lounge Staircase & Lift

ACTROS 25 DOWNLIGHTER WITH DIE CAST ALUMINUM BODY (WHITE) FROM SPAZIO (2640Lm)

100MM PERSPEX WITH VINYL CUT OUT IN DEDICATED COLOUR PLACED ON EITHER SIDE OF A 9MM MDF BOARD. FOR MORE DETAILS REFER TO DETAIL G

LONE PAR 30 PENDANT WITH EXTRUDED ALUMINUM SHADE. DIA 65MM x 100MM H. 230V 3000K WARM WHITE

EXISTING CLERESTORY WINDOWS WITH ALUMINIUM AUTOMATIC LOUVRES TO CONTROL DAYLIGHT AND SUNLIGHT

STORAGE

MANAGER'S OFFICE

TIMBER SLATS WITH ACOUSTIC INSULATION. REFER TO DETAIL K FOR FIXING SPECIFICATIONS

TOP HUNG SIDINGLE PANEL. REFER TO DETAIL I

Bedroom 10-12 Staircase

Garden Music Room

MULTIFUNCTIONAL THERAPY ROOM

Toilet

Toilet

Bedroom 5-9 Mezzanine

degree of acoustic absorption required according to the three zones as indicated on the First Floor Plan diagram

minimum lighting requirements according to the minimum lux required as set out in the design guideline booklet

SECTION BB
1 : 20

Figure 9.80: Section BB_not to scale (Author 2018)

Additional Considerations

Figure 9.81: Escape Routes (Author 2018)
Figure 9.82: Natural vs. Mechanical Ventilation (Author 2018)
Figure 9.83: Circulation (Author 2018)

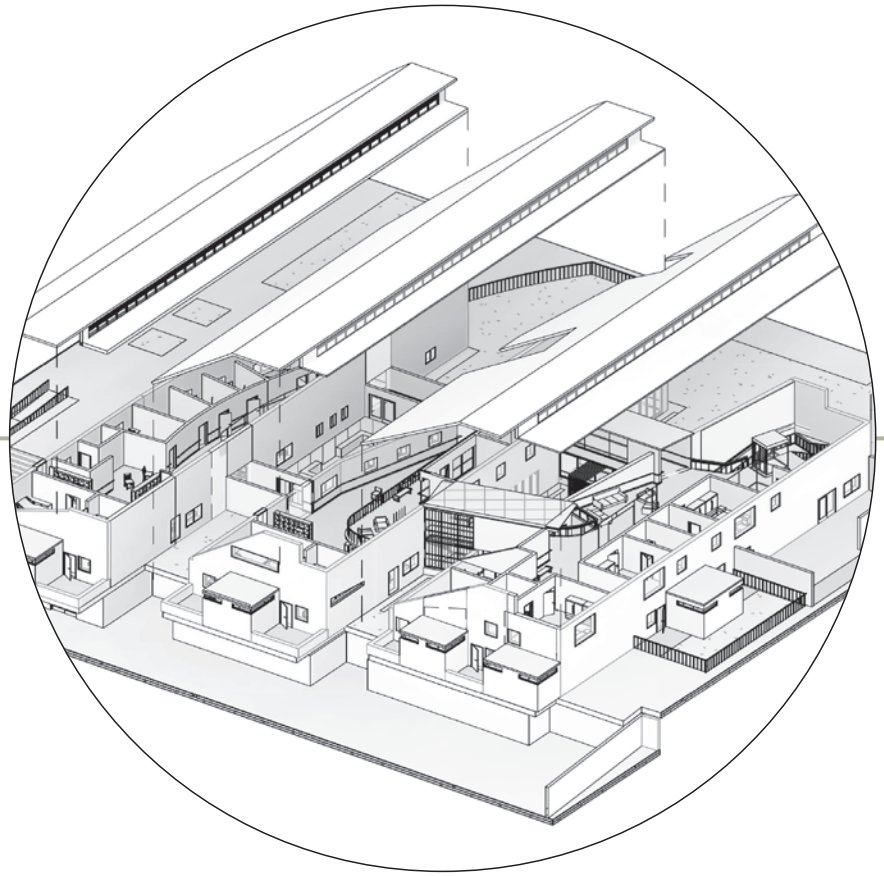
2

3

13 | CONCLUSION

The identified three degrees of use: safety, wayfinding and personalization have been ensured through carefull consideration for materiality, material combination and connections.

A critical selection of materials and rigorous process f iteration of design detail has ensured that the theory of salutogenics is carried through from design to technical resolution



chapter 10
CONCLUSION

Figure 10.1: Cover page (Author 2018)

01 | CONCLUSION

This dissertation set out to achieve a reversal of institution along with the ill-effects thereof. A literature review on Alzheimer's disease and wellbeing led to the adoption of a salutogenic approach as a means to achieve this reversal. A thorough understanding of Alzheimer's disease was required to ensure an authentic design resolution. This understanding was gained not only through the literature but also from personal experience with the disease, thus conclusions could be drawn quickly.

The two case studies and related interviews added additional insight that theoretical research alone could not provide regarding this topic. After the analysis, the strengths and weakness of the facilities could be weighed up and were added a comprehensive set of guidelines that went on to direct the design development stage.

The Agricultural Research Centre, by March(Prof) graduate Natasha Laurent, provided an mode location for an Alzheimer's Residence and was successfully

adapted to accommodate the new programme. Thereby demonstrating that it is possible to adapt or retrofit existing retirement homes to suit the specific physical and psychological needs of patients with Alzheimer's disease.

An extensive mapping exercise was undertaken to fully understand the identified site so as to respond responsibly to the existing, albeit virtual, building. The virtual nature of the project presented both opportunities and challenges, it is believed that the design outcomes demonstrates a successful exploitation of the former, as well as overcoming the latter.

Precedents were critically analyzed in order to gain an accurate understanding of design intent and the effect that it has had on patients and residents. Moreover, the precedent studies served as informants for the design development and technical resolution of the project.

The theory of Salutogenics proved to be the most important design informant. Salutogenics was interpreted into practical design principles and guidelines. This set of guidelines then became the main design generator for all the design decisions that followed.

02 | CONTRIBUTION

Establishing a comprehensive design guidelines for facilities for Alzheimer's disease makes a contribution to discipline of interior architecture in South Africa. The guideline document provides a valuable tool with which to conduct audits of existing and proposed Alzheimer's facilities.

The objective of creating empathetic interior spaces that can enhance wellbeing and quality of life for Alzheimer's patients has been achieved through merging all the interdependent parts (such as theory, case studies and precedents) to create an efficient and effective outcome.

03 | FUTURE INVESTIGATION AND TESTING:

- It is recommended that the guidelines set out in this dissertation be refined through further research and testing.
- It is recommended that further research be undertaken to identify which of the guidelines could be applied to domestic situations where an Alzheimer's patient is to remain at home in the care of their family and / or a professional carer. With the aim to comfortably and safely extend the patient's stay in their familiar environment of home, with the minimum of stress to the patient and their family.

List of References

Alzheimer's Association, 2018. What is Alzheimer's?. [Online]
Available at: https://www.alz.org/alzheimers_disease_what_is_alzheimers.asp
[Accessed 22 Febuary 2018].

Alzheimer's Disease International, 1999. *Planning and Design guide for community-based day care centre*, UK: Alzheimer's Society.

Alzheimer's South Africa, 2017. Prevalence of Dementia. [Online]
Available at: https://alzheimers.org.za/prevalence-of-dementia/
[Accessed 22 Febuary 2018].

Antonovsky, A., 1996. The Salutogenic model as theory to guide health promotion. *Health Promotion International*, 11(1), pp. 11-18.

ArchDaily, 2012. Urban Day Care Center for Alzheimer Patients / Cid + Santos. [Online]
Available at: https://www.archdaily.com/295469/urban-day-care-center-for-alzheimer-patients-cid-santos
[Accessed 30 April 2018].

ArchDaily, 2014. Alzheimer residence for the "Foyer la Grange" / Mabire Reich. [Online]
Available at: https://www.archdaily.com/532737/alzheimer-residence-for-the-foyer-la-grange-mabire-reich
[Accessed 29 April 2018].

Archdaily, 2016. Maggie's Cancer Centre Manchester / Foster + Partners. [Online]
Available at: https://www.archdaily.com/786370/maggies-cancer-centre-manchester-foster-plus-partners
[Accessed 28 April 2018].

ArchDaily, 2016. Sayanomoto Clinic / Yamazaki Kentaro Design Workshop. [Online]
Available at: https://www.archdaily.com/795348/sayanomoto-clinic-yamazaki-kentaro-design-workshop
[Accessed 28 April 2018].

Biamonto, A. & Imamogullari, B., 2017. Designing Theraputic Support for the People with Alzheimer's disease. A designerly way of Investigation. *The Design Journal,* 20(sup1), pp. 2230-2237.

Dilani, A., 2008. Psychosocially Supportive Design: A Salutogenic Approach to the design of the physical environment. ResearchGate, Volume 1, pp. 55-65.

Golembiewski, J. A., 2010. Start making sense: Applying a salutogenic model to architectural. EmeraldInsight, 28(3/4), pp. 100-117.

Gramegna, S. M. & Biamonti, A., 2017. Environment as non pharmacological intervention. *The Design Journal*, 20(1), pp. 2284-2292.

Greasley-Adams, C., Bowes, A., Dawson, A. & McCabe, L., 2010. Good practice in the design of homes and living spaces for people with dementia and sight loss, Scotland: University of Stirling.

Groat, L. & Wang, D., 2013. *Architectural Research Methods.* 2nd ed. New Jersey: Wiley.

Howarth, D., 2017. Pratt Institute students tackle Alzheimer's with Design for the Mind project. [Online]
Available at: https://www.dezeen.com/2017/06/23/pratt-institute-students-tackle-alzheimers-design-for-the-mind-icff/
[Accessed 01 May 2018].

Lanzavecchia + Wal, 2012. No Country for Old Men - Asunta. [Online]
Available at: http://lanzavecchia-wai.com/projects/asunta/
[Accessed 09 July 2018].

Lanzavecchia + Wal, 2012. No Country for Old Men - Monolight. [Online]
Available at: http://lanzavecchia-wai.com/projects/monolight/
[Accessed 09 July 2018].

Laurent, N., 2014. Land of the Scattered Seeds, nature, memory and silence, s.l.: University of Pretoria.

Life Healthcare Group, 2017. Quality Policy, s.l.: Life Healthcare Group.
Lindström, B. & Eriksson, M., 2018. Salutogenesis. Journal of Epidemiology and Community Health, pp. 440-442.

Lindström, B. & Eriksson, M., 2018. Salutogenesis. *Journal of Epidemiology and*

Community Health, pp. 440-442.

Maggie's Centres, 2017. How Maggie's Can Help. [Online]
Available at: https://www.maggiescentres.org/about-maggies/
[Accessed 30 April 2018].

Osmond, D. H., 1958. The seclusion room-cell or sanctuary?. Mental Hospitals, Volume 9, pp. 18-19.

SANS 10400. 2011. *South African National Standard: The application of the National Building Reglations Part S: Facilities for persons with disabilities.* Pretoria: SABS Standards Division

Sapetti Studio, 2018. Chairless Chair. [Online]
Available at: https://www.sapetti.com/chairless-chair
[Accessed 2 June 2018].

Stevens, R., Petermans, A., Vanrie, J. & van Cleempoel, K., n.d. Well-being from the perspective of interior architecture: Expected experience about residing in residential care centres, Belgium: Hasselt University Facuty of Architecture and Art.

The Center for Health Design, 2017. Roger S. Ulrich, Ph.D., EDAC. [Online]
Available at: https://www.healthdesign.org/about-us/meet-team/roger-s-ulrich-phd-edac
[Accessed 14 May 2018].

Timlin, G. & Rysenbry, N., 2010. Design for Dementia - Improving dining and bedroom environments in care homes, s.l.: The Helen Hamlyn Centre.

Ulrich, R. S., 2001. Effects of Interior Design on Wellness: Theory and recent Scientific Research. *Journal of Healthcare Interior Design*, Issue 1, pp. 97-109.

Van den Berg, A. E., Hartig, T. & Staats, H., 2007. Preference for Nature in Urbanized Societies: Stress, Restoration,. *Journal of Social Issues*, 63(1), pp. 79-96.

Wohlwill, J. F., 1968. They Physical Environment: A Problem for a Psychology of Stimulation. *Journal of Social Issues*, Volume 22, pp. 29-38.

Sources consulted:

Brawley, E. C., 2001. Environmental design for Alzheimer's disease: A. Aging and Mental Health, Volume 5, pp. 79-83.

Erikson, S., 2012. Restoritive Garden Design. JAD - Art and Design Discource, Issue 02, pp. 89-102.

Langeland, E. et al., 2005. The effect of salutogenic treatment principles on coping with mental health problems. A randomised controlled trial. Elsevier, Volume 62, pp. 212-219.

Ulrich, R. S. & Parsons, R., 1990. Influences of passive experiences with plants on individual well-being ans health., Washington D.C.: Paper presented at the National Symposium on the Role of Horticulture in Human Well-Being and Social Development.

Interviews conducted:

Erasmus, B. J., 2018. *Interview at Susan Strijdom Ouetehuis* [Interview] (14 March 2018).

Schultz, A., 2018. *Interview at Olive Crescent Retirement Village* [Interview] (14 March 2018).

Figure References

Acara Concepts, 2014. TImber Slats. [image] Available at: https://www.acaraconcepts.com/room-acoustics/surface-finishes/ [Accessed 26 Oct. 2018].

Angels 4 Peace, 2018. Green Colour Palette. [image] Available at: http://angels4peace.com/green-paint-colors.html/green-paint-colors-popular-martin-senour-18 [Accessed 15 Jul. 2018].

ArchDaily, 2012. Urban Day Care Center for Alzheimer Patients / Cid + Santos. [Online]
Available at: https://www.archdaily.com/295469/urban-day-care-center-for-alzheimer-patients-cid-santos [Accessed 30 April 2018].

ArchDaily, 2014. Alzheimer residence for the “Foyer la Grange” / Mabire Reich. [Online]
Available at: https://www.archdaily.com/532737/alzheimer-residence-for-the-foyer-la-grange-mabire-reich [Accessed 29 April 2018].

Archdaily, 2016. Maggie’s Cancer Centre Manchester / Foster + Partners. [Online]
Available at: https://www.archdaily.com/786370/maggies-cancer-centre-manchester-foster-plus-partners [Accessed 28 April 2018].

ArchDaily, 2017. Built in Bench Office. [image] Available at: https://www.archdaily.com/870249/office-space-in-poznan-metaforma [Accessed 19 Oct. 2018].

ArchDaily, 2016. Sayanomoto Clinic / Yamazaki Kentaro Design Workshop. [Online]
Available at: https://www.archdaily.com/795348/sayanomoto-clinic-yamazaki-kentaro-design-workshop [Accessed 28 April 2018].

Behr Color Charts, 2018. Yellow Colour Palette. [image] Available at: http://www.materials-world.com/paint-colors/behr/behr-colorsmart/behr-colorsmart-17.htm [Accessed 18 Jul. 2018].

Berry for the Bath, 2015. Bathroom Moodboard. [image] Available at: https://www.ad-magazin.de/article/2015-08-beere-fuers-bad [Accessed 8 Nov. 2018].

Best4Hedging, 2014. Jasmine. [image] Available at: https://www.best4hedging.co.uk/star-jasmine-pp216 [Accessed 26 Sep. 2018].

Cloudmind, 2013. Beautiful Smile. [image] Available at: http://cloudmind.info/smile-and-start-to-love-your-life-with-photos-of-beautiful-smiles/ [Accessed 15 Apr. 2018].

Cullinan Archives. A collection of digital resources scannes by J.Lincoln, a local historian. These comprise of a number of historical photographs, none of which are dated or authored.

Design you trust, 2013. Elderly man. [image] Available at: https://designyoutrust.com/ [Accessed 15 Apr. 2018].

Designlisticle, 2017. Built in bench - Retail. [image] Available at: https://www.designlisticle.com/urban-public-seating/ [Accessed 20 Oct. 2018].

Durnibar Foundation, 2018. On matters of Feminism. [image] Available at: https://durnibar.org/2018/04/11/on-matters-of-feminism/ [Accessed 29 Mar. 2018].

Fabulous faces.com, 2014. Women - Great Grandma. [image] Available at: https://www.fabulousfaces.com/product/women/p1552 [Accessed 18 Mar. 2018].

Flink, T, 2018. Old Hands. [image] Available at: https://www.livekindly.co/plant-based-diet-may-prevent-chronic-disease-among-elderly-says-study/ [Accessed 11 Mar. 2018].

Gerflor, 2018. Cove Skirting. [image] Available at: https://www.gerflor.co.za/professionals-products/flooring/cove-former.html [Accessed 9 Oct. 2018].

Howarth, D., 2017. Pratt Institute students tackle Alzheimer’s with Design for the Mind project. [Online]
Available at: https://www.dezeen.com/2017/06/23/pratt-institute-students-tackle-alzheimers-design-for-the-mind-icff/ [Accessed 01 May 2018].

I.Pin, 2016. LED strip light in ballustrade. [image] Available at: https://i.pinimg.com/originals/58/8b/cb/588bcb29dbe6413c3478cc2b71436ea2.jpg [Accessed 26 Oct. 2018].

Jackson & Perkins, 2015. White Roses. [image] Available at: https://www.jacksonandperkins.com/white-dawn-rose/p/37406/ [Accessed 26 Oct. 2018].

Lanzavecchia + Wal, 2012. No Country for Old Men - Asunta. [Online]
Available at: http://lanzavecchia-wai.com/projects/asunta/ [Accessed 09 July 2018].

Lanzavecchia + Wal, 2012. No Country for Old Men - Monolight. [Online]
Available at: http://lanzavecchia-wai.com/projects/monolight/
[Accessed 09 July 2018].

Laurent, N., 2014. Land of the Scattered Seeds, nature, memory and silence, s.l.: University of Pretoria.

Mattamatikk, 2009. Old hands. [image] Available at: https://www.deviantart.com/mattamatikk/art/Old-

hands-120309146 [Accessed 26 Mar. 2018].

Moximoms, 2011. Coffee. [image] Available at: https://moxiemoms.com/event/friday-mom-recharge-kid-play-at-ozo-coffee-longmont/ [Accessed 26 Sep. 2018].

Murals Wallpaper, 2018. Coral Wallpaper. [image] Available at: https://www.muralswallpaper.com/shop-murals/orange-blend-watercolour-wall-mural/ [Accessed 26 Oct. 2018].

Nadu, T., 2012. A heart melting smile. [image] Available at: https://joshidaniel.com/2012/04/20/heart-melting-smile/ [Accessed 14 Mar. 2018].

Neledesaeger, 2013. Old Hands. [image] Available at: https://www.deviantart.com/neledesaeger/art/Old-hands-379114482 [Accessed 26 Mar. 2018].

Pxhere, 2018. Old Hands Biblia. [image] Available at: https://pxhere.com/en/photo/1170390 [Accessed 13 Mar. 2018].

Sapetti Studio, 2018. Chairless Chair. [Online] Available at: https://www.sapetti.com/chairless-chair [Accessed 2 June 2018].

Shutterstock, 2014. Colour Palettes. [image] Available at: https://www.shutterstock.com/search/color+palette [Accessed 17 Aug. 2018].

Tesco, 2012. Fresh Bread [image] Available at: https://realfood.tesco.com/recipes/fresh-white-loaf.html [Accessed 22 Sep. 2018].

Timlin, G. & Rysenbry, N., 2010. Design for Dementia - Improving dining and bedroom environments in care homes, s.l.: The Helen Hamlyn Centre.

Urban Gardens, 2014. Vertical Garden Trellis. [image] Available at: http://www.urbangardensweb.com/2015/04/10/frederic-malphettes-previews-vertical-garden-design-jardins-jardin/?crlt.pid=camp.jMCV8psaXBcb [Accessed 26 Oct. 2018].

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Engineering, Built Environment and Information Technology
Department of Architecture

To whom it may concern

14 February 2018

MASTERS IN ARCHITECTURE

Students associated with the above-mentioned program at the University of Pretoria are in the process of accessing information for their 2018 Design Dissertation projects.

Can you please assist them with access to sites under investigation and any relevant information that they may need to successfully complete their research projects? Any data obtained will only be used for academic purposes and not for any commercial gain.

If you have any queries, please do not hesitate to contact me.

Yours sincerely

Prof. Arthur Barker
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PhD(UP), MSc(dist)(Bartlett), BArch(dist)(UCT), BAS(dist)(UCT), NHDAT(cum laude)(Cape Tech), PrArch, SAIA
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Interview done by Kim Vermaak, student at the University of Pretoria

Interview Agreement

I, Annatjie S. Lultz understand the purpose of this interview. I understand that any information that the researcher gathers from the interview will only be used in reports and findings for the dissertation. I also have a right to review the final submission.

I understand that my participation is voluntary. I may choose not to answer some of the questions asked by the research student. I understand that I have the option, at the end of the interview, to revoke my consent for any of the information to be used in this assignment.

I grant permission for this interview to be recorded. Please note that this recording, will not be made publically, and will only be used for information purposes for this dissertation.

Yes X No

Participant Signature A Lultz

Date of interview 14 de Maart 2018

Interview done by Kim Vermaak, student at the University of Pretoria

Interview Agreement

I, BAREND J ERASMUS understand the purpose of this interview. I understand that any information that the researcher gathers from the interview will only be used in reports and findings for the dissertation. I also have a right to review the final submission.

I understand that my participation is voluntary. I may choose not to answer some of the questions asked by the research student. I understand that I have the option, at the end of the interview, to revoke my consent for any of the information to be used in this assignment.

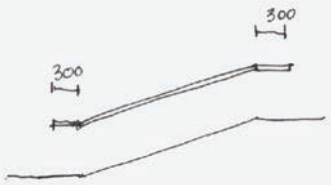
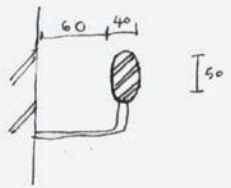
I grant permission for this interview to be recorded. Please note that this recording, will not be made publically, and will only be used for information purposes for this dissertation.

Yes ✓ No

Participant Signature

Date of interview 14 March 2018.

DESIGN GUIDELINES

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 centre 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 diameter	e.g. For a wheelchair, guide dog or person on crutches to move easily	Comprehensibility (read)	SANS 10400 Part S page12
		Entrance should be suitable for wheelchair and assisted access	Turning circle as benchmark: 1550mm	This allows for all patients to enter the facility with ease and independently  	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

MEETING ROOM		This space should be located close to main entrance	An appropriate size is 6m2 (2x3m)	This help visitors orientate themselves easily	Comprehensibility (read)	(Alzheimer's Disease International, 1999:11)
		This space could possibly also be used for consultations		When a office room is not provided, family members can meet with manager	Comprehensibility (read)	(Alzheimer's Disease International, 1999:11)
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)
DINING ROOM		Dining sections to be kept relatively small - similar to a domestic setting		Patients can easily be over-stimulated when a dining area is too big, the result equals social isolation	Comprehensibility (read)	Designing for Dementia (pg. 29)
		A Possible solution: Mobile Dividers (perhaps up to 1,6m can be provided so that patients can look over them when standing)		Staff can still easily see all patients, however there is more privacy and less distraction		
		Layout should mimic a domestic layout		Residents may have memories from their own homes, this increases comfort	Comprehensibility (read)	Designing for Dementia
		No visual or physical barriers		Patients can move freely without the need for constant supervision from caregivers	Manageability (control)	Designing for Dementia
		Typical domestic layout = dining room placed beside kitchen. Dining room also leads onto a patio, and beyond the patio lies the garden		Patients can orientate themselves easily because the layout reminds them of home	Comprehensibility (read)	Designing for Dementia (pg. 21)
		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
TOILETS	WC'S	Toilet compartments to be wheelchair accessible	Minimum size of 1.8 x 1.8m	This will provide the patient with enough space to use the toilet	Manageability (control)	SANS 10400 Part S page21
		Bathrooms to be spacious enough to accommodate 1 patient and possible 2 caregivers at the same time	Turning circle benchmark: 1550mm to be considered	Some patients require the help of 2 caregivers when showering	Comprehensibility (read)	Olive Crescent Retirement Village Interview
		Toilets to be in close proximity to major communal spaces	Patients not to travel further than 45m to use toilet	Several patients might not get to the toilet quick enough if it is located far from this space	Manageability (control)	SANS 10400 Part S page21
		Lift toilets from floor in a new facility	120mm from finished floor level	This allows a patient to not have to squat down as far as they usually would	Manageability (control)	Susan Strydom Tehuis Interview
		Toilets to be provided with removable raised toilet seats for a retrofit	This item lifts the toilet seat by an additional 140mm	This accommodates patients with stiff hip problems	Manageability (control)	Planning and Designing Guide, pg11
		Toilets could be supplied with toilet rails on wheels		This device can be used if required to help with standing up and sitting down	Manageability (control)	Planning and Designing Guide, pg11
		Toilets to be positioned far from the wall with a grab rail in between	Not less than 450mm and not more than 500mm		Manageability (control)	SANS 10400 Part S page21
		Toilet flushing control to be positioned on the other side of the toilet	On top or behind the toilet	To be operable from the transfer space of the toilet, so that it is easy to use.	Manageability (control)	SANS 10400 Part S page21
	HWB'S	Hand wash basins to be mounted to the wall without legs or pedestals	Top edge of basin to not exceed 820mm	To be comfortable and usable for all patients	Manageability (control)	SANS 10400 Part S page21
	RAILS	Grab rails to be installed at the side and back of toilet	Outside diameter of tube: 32-38mm	To be comfortable and usable for all patients	Manageability (control)	SANS 10400 Part S page21

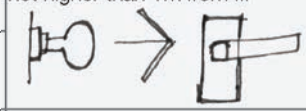
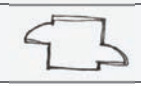
BATHROOMS		Ample space to be provided on either side of shower		Some patients require the help of 2 caregivers when showering - caregivers can then stand on either side of patient	Comprehensibility (read)	Susan Strydom Tehuis Interview
		Do not provide a bath for the patients in the facility		Baths have a drowning hazard, and some patients struggle to get in and out of a bath compared to a shower	Comprehensibility (read)	Olive Crescent Retirement Village Interview
		Bathrooms to be spacious enough to accommodate 1 patient and possible 2 caregivers at the same time	Turning circle benchmark: 1550mm to be considered	Some patients require the help of 2 caregivers when showering	Comprehensibility (read)	Olive Crescent Retirement Village Interview
BEDROOMS		Provide infrastructure for personal photos and pictures		Can alleviate fears born out of confusion and help resident feel safe and more at ease	Meaningfulness (enhance)	Designing for Dementia (pg. 46)
		Allow infrastructure for personalization of bedrooms		This can provide fundamental cues to their identity	Meaningfulness (enhance)	Designing for Dementia (pg. 46)
				Staff and family can use these items as cues to communicate with patients (for reminiscence)	Meaningfulness (enhance)	Designing for Dementia (pg. 46)
				Separates personal space from communal environment	Meaningfulness (enhance)	Designing for Dementia (pg. 46)
GARDEN & PATIO		Infrastructure to allow patients to grow their own food	Height to be 820mm to be accessible for wheelchair users	Help patients retain physical and cognitive strength	Meaningfulness (enhance)	Designing for Dementia (pg.29)
		Gardens should be safe and navigable	No tripping hazards	Patients can enjoy unrestricted access (essential for their independence and wellbeing)	Comprehensibility (read)	Designing for Dementia (pg. 32)
WAYFINDING						
GENERAL	SIGNAGE	Keep signage simple - minimum text and easy to read icons		Patients will struggle to comprehend a complex language	Manageability (control)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Signs to be placed at eye level	1220 -1500mm from floor finish	This will allow all users to see clearly (incl wheelchair users)	Manageability (control)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		All signs to be legible and consist of the information, identification and direction.	Lettering Height: not smaller than 50mm		Manageability (control)	SANS 10400 Part S page10
		Use contrasting colours, to distinguish text to sign, and sign to wall.		Allows patients to distinguish spaces and information easily	Manageability (control)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Hanging signs, lights, awnings and objects that protrude into circulation spaces should:	Have a clearance of at least 2m above the trafficable surface	Allows patients to move freely without disturbance	Manageability (control)	SANS 10400 Part S page12
		Create landmarks leading into bedrooms (as passages are usually bland = institutional) (large photos, plants etc.)		This provides markers for identification. (create street-like entrances)	Manageability (control)	Designing for Dementia (pg. 52)
GARDEN & PATIO		Garden - lean rails to be provided in walking trail		This provides opportunity for patients to rest. Also increase mobility when necessary	Comprehensibility (read)	Designing for Dementia (pg. 33)
		Gardens should be visually accessible from inside the home		Out of sight means out of mind	Comprehensibility (read)	Designing for Dementia (pg. 32)

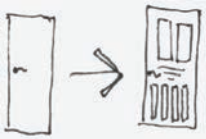
LIGHTING						
GENERAL		Well-lit without creating pools of light		Pools of light could become intimidating and affect depth perspective	Manageability (control)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Light fittings to include an acrylic diffuser		This allows the eye to never be exposed to a naked bulb, which can be disturbing to elderly patients	Comprehensibility (read)	Designing for Dementia (pg30)
		Avoid pools of light and provide even lighting throughout		Pools of light could become intimidating and affect depth perspective	Manageability (control)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
RECEPTION		Minimum Lux Required	200Lux		Manageability (control)	Department of Labour Report 1987
WAITING ROOM		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
MEETING ROOM		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
CONSULTATION ROOM		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
NURSES STATION		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
PARLOUR		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
MULTI-FUNCTIONAL ROOM		Minimum Lux Required	300Lux		Manageability (control)	Department of Labour Report 1987
READING/MUSIC ROOM		Minimum Lux Required	200Lux		Manageability (control)	Department of Labour Report 1987
DINING ROOM AND LOUNGE		Minimum Lux Required	200Lux		Manageability (control)	Department of Labour Report 1987
TOILETS		Minimum Lux Required	100Lux		Manageability (control)	Department of Labour Report 1987
FAUX KITCHEN		Minimum Lux Required	200Lux		Manageability (control)	Department of Labour Report 1987
WANDERING PATH		Minimum Lux Required	75Lux		Manageability (control)	Department of Labour Report 1987
BEDROOMS		Minimum Lux Required	75Lux		Manageability (control)	Department of Labour Report 1987
BATHROOMS		Minimum Lux Required	100Lux		Manageability (control)	Department of Labour Report 1987

MATERIALITY						
GENERAL	FLOORS	No change in floor surface in the middle of a space		If a patient has poor vision and depth of perception issues, a change in floor surface could become deceiving.	Manageability (control)	Designing for Dementia (pg. 22)
		Use the same colour and no contrasting pattern		This is easily readable to a patient that is visually impaired. Colour could be misinterpreted as a hole/step.	Manageability (control)	Designing for Dementia (pg. 22)
		Matt flooring material to be used		This will not reflect light and cause glare which might cause confusion and disorientation		
		No sudden change in surface level	Thresholds shall have a flush finish and shall not exceed 5mm in height.	To prevent falling, slipping and unnecessary confusion	Manageability (control)	Designing for Dementia (pg. 22) SANS 10400 Part S page14
		Floors in colour contrast to walls		To be easily recognizable	Manageability (control)	Designing for Dementia (pg. 22)

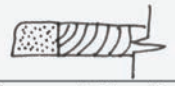
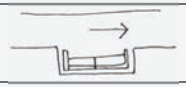
GENERAL	WALLS	Wall to be provided with leaning surfaces or handrails	Handrail to be provided on all walls in space, where walking is possible	Patients can lean on walls while moving through space	Manageability (control)	Designing for Dementia (pg. 25)
			Handrails to have a gripping profile that is approximately 50mm wide and 40mm deep	Patients can lean on walls while moving through space		
			Height of handrail to be 900-1000mm			
			Handrails to be 60mm from adjacent walls			
		Walls to be colour contrast to floors and ceilings		To be easily recognizable	Manageability (control)	Designing for Dementia (pg. 22)
	CEILINGS	Ceilings should resemble those of bedrooms in homes with rounded cornices		This will cause the patient to feel at home when looking up at ceiling	Manageability (control)	Ven Haitsma, Curyto, Saperstein & Calkins, 2004
BATHROOMS		Non-slip vinyl flooring to be used		Easy to clean, and doesn't create glare	Manageability (control)	Planning and Designing Guide, pg15
		Shower flooring material	Non-slip matt Tiles with level surface	This will prevent slipping and tripping	Manageability (control)	
BEDROOMS		Floor Options:	Carpet with short (polypropylene) synthetic piles	This will reduce glare from windows and provide acoustic insulation. These are easy to clean and don't absorb dirt. They are impervious to liquids with a waterproof backing	Comprehensibility (read)	Alzheimer's Association (https://alz.org/professionals_and_researchers_designing_a_car_facility.asp)
GARDEN AND PATIO		Circumference of garden to be paved smoothly		This allows for a walking trail - also easy for wheelchair users. Avoid trip hazard	Comprehensibility (read)	Designing for Dementia (pg. 33)
		No steps, level surface leading to garden	With appropriate slope for water and recessed gutter	This could become a tripping hazard when going inside	Comprehensibility (read)	Designing for Dementia (pg. 32)
		Recessed gutter/drainage grating to be provided	To be set flush with the surface of the path. Such grating shall be placed so that its longitudinal elements are perpendicular to the main walking direction, and the gap between them shall not exceed 13 mm	This could become a tripping hazard when not installed properly	Comprehensibility (read)	SANS 10400 Part S page12

ACOUSTICS & NOISE						
GENERAL		Alarm system should not disturb rest of facility when one patient wanders off	Alarm only goes off in reception and in Nurses station	This could become a disturbance to other patients	Manageability (control)	Cornel Cooperative Extension Brochure Publication: Design of long term care facilities for Alzheimer's patients
		Absorbent materials to be used in furniture and finishes	Curtains, cork, fabric	Has a domestic feel, and reduces noise that creates disturbances	Manageability (control)	Designing for Dementia (pg. 30)
BEDROOMS		No overhead speakers in bedrooms above beds		This creates confusion as to where sound is coming from	Comprehensibility (read)	Cornel Cooperative Extension Brochure Publication: Design of long term care facilities for Alzheimer's patients

COLOUR & CONTRAST						
GENERAL		Skirtings' - contrast in colour to walls and floors		Helps to be easily located and distinguished	Comprehensibility (read)	Designing for Dementia (pg. 22)
		Handrail - contrast in colour to walls and floors		Helps to be easily located and distinguished	Comprehensibility (read)	Designing for Dementia (pg. 22) & Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Floors in colour contrast to walls		To be easily recognizable	Manageability (control)	Designing for Dementia (pg. 22)
		Walls to be in colour contrast to floors and ceilings		To be easily recognizable	Manageability (control)	Designing for Dementia (pg. 22)
		Ceilings in contrast to walls		To be easily recognizable	Manageability (control)	Designing for Dementia (pg. 22)
		Reception counter	Reception counter to be at 1100mm height with a lower section of 900mm	This allows the counter to be accessible to all users	Comprehensibility (read)	
		Furniture to be in contrasting colour to floors and walls		Allows for leaning objects to be easy distinguishable	Comprehensibility (read)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Table tops and edges to be contrasting material/colour		This helps patients with low vision to distinguish surfaces easier	Manageability (control)	Designing for Dementia (pg. 30)
DOORS						
GENERAL		Door should be suitable for wheelchair and assisted access	Min width: 750mm	This allows for all patients to enter the facility with ease and independently	Manageability (control)	(Alzheimer's Disease International, 1999:12). SANS 10400 Part S page 14
		Provide a nib at the handle side of each door to accommodate wheelchair users	Nib: at least 450mm to be provided			SANS 10400 Part S page 15
		All doors should have lever handles that are easy recognizable and easy to use	At least 150mm long and installed not higher than 1m from ffl 	This will allow patients to quickly understand how to use the door handle, as this could sometimes cause confusion	Manageability (control)	Planning and Designing Guide, pg15. SANS 10400 Part S page 15
		Round door knobs do not provide adequate grip for patients with disabilities		This will provide confusion and frustration if a patient is unable to open a door		SANS 10400 Part S page 15
		Provide front door with a motion buzzer		This allows staff to be aware of wandering patients	Manageability (control)	(Alzheimer's Disease International, 1999:12)
		Doors that patients aren't allowed to use should be blended - same colour as wall, and locked	Key card system that only nurses and staff can access	Patients won't seem interested if the door is camouflaged	Comprehensibility (read)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
BATHROOM		Bathroom doors to open to outside		This will assist patients with access impairments	Manageability (control)	Planning and Designing Guide, pg. 12
		Doors to be fitted with an easy-to-use grab rail on the inside of the bathrooms		This will allow a person in a wheelchair to open and close the door easily		SANS 104001 Part S page 21
		Doors fitted with an easy locking device that can be opened in case of emergency		This allows access in case a patient required help or perhaps has fallen in front of the door		SANS 104001 Part S page 21
		Doors of wheelchair accessible toilets to have a clear opening	Opening width: 900mm	This will allow a patient in a wheelchair to access the toilet with ease		SANS 104001 Part S page 21
		Provide 2 doors on either side of bathroom		This prevents patients from locking themselves in, and perhaps falling in front of the door	Manageability (control)	Olive Crescent Retirement Village Interview

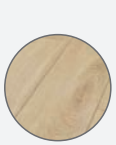
WANDERING PATH		Windows and doors shall not open across a walkway, corridor, stair or ramp		This will crate obstacles for patients using the path	Comprehensibility (read)	SANS 104001 Part S page 12
		Doorstops shall be so positioned that any door will open to its maximum, and that they will not create a hazard		This will create obstacles for patient using the path	Comprehensibility (read)	SANS 104001 Part S page 12
BEDROOMS		Doors to be marked with a memory box (a box that resembles a mail box on which photos and items of memory can be stuck)		This helps the patient distinguish their own room	Meaningfulness (enhance)	Designing for Dementia (pg. 43) & Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Install a mailbox before each front door (even if it doesn't work) A trip proof door mat is also a method		It creates a welcoming threshold from private to public space - as in a domestic instance. Also creates familiar routine that used to take place	Manageability (control)	Designing for Dementia (pg. 52)
		Bedroom doors should resemble domestic front doors (solid wood with front door handle) - should not look like internal doors to a hospital		Reminds the patients that it is the front door to their home - might also ameliorate familiarity	Manageability (control)	Designing for Dementia (pg. 53)
GARDEN		Allow free & secure access to garden	Unlocked doors from inside to outside during the day	This provides a connection to the outside, recognition of the changing seasons = chance to engage in food growing activities	Meaningfulness (enhance)	Designing for Dementia (pg. 32)
		Doors going outside should never be locked during the day		Gives the patient control to go outside	Manageability (control)	Designing for Dementia (pg. 22)
		Doors should be made of glass panes		Patient feels welcome to go outside, also doesn't make the patient feel locked in	Comprehensibility (read)	Designing for Dementia (pg. 22)
		Door to outside - distinctive frame colour	i.e Green (colour of nature)	Reminds/encourages patients that they are allowed to go outside	Manageability (control)	Designing for Dementia (pg. 22)

FURNITURE						
GENERAL		Furniture to be in contrasting colour to floors and walls		Allows for leaning objects to be easy distinguishabe	Comprehensibility (read)	Alzheimer's Association (https://www.alz.org/professionals_and_researchers_designing_a_care_facility.asp)
		Provide dryer			Meaningfulness (enhance)	Planning and Designing Guide, pg 11
	CHAIRS	Chairs should be different all around the facility		This prevents pressure ulcers to form from patients constantly sitting in the same type of chair & in the same position	Manageability (control)	Cornel Cooperative Extension Brochure Publication: Design of Long tern care facilities for Alzheimer's patients
			Low seat: 420mm, with sloped arm rests and low back	Chair for sitting in groups or at a table	Manageability (control)	Planning and Designing Guide, pg 16
			Higher seat: 460mm with sloping arm rest, higher back	Dining seat for when sitting at a table when meals are served	Manageability (control)	Planning and Designing Guide, pg 16
			Seat hight: 470mm with either straight or sloping arms and high back, with head rest area	For patients who are stiff and require extra support	Manageability (control)	Planning and Designing Guide, pg 16
			Seat hight: 520mm with straight arm rests, high back and head rest	For patients who are very stiff or very tall. This will allow patients to not have to bend down too much and get up easily	Manageability (control)	Planning and Designing Guide, pg 16
			Low seat: 420mm, with sloped arm rests and low back	Chair for sitting in groups or at a table	Manageability (control)	Planning and Designing Guide, pg 16

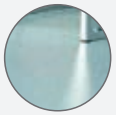
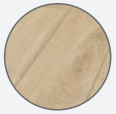
	TABLES	Tables should be at the correct height and width to accommodate wheelchairs. (with no preventative structure below)	740mm-760mm is a good [illegible] patients to sit as close to the table as possible		Manageability (control)	Designing for Dementia (pg. 30)
		Tables to be square	1200 x 1200m for example	This provides the possibility of them being grouped together easily - creates more flecibility for activities	Manageability (control)	Designing for Dementia (pg. 30)
		Tables to have rounded edges		This lessons the impact when a patient falls, or walks into the corners	Manageability (control)	Designing for Dementia (pg. 30)
		Table tops and edges to be contrasting material/colour		This helps patients with low vision distinguish surfaces easier	Manageability (control)	Designing for Dementia (pg. 30)
DINING ROOM		Dining room and lounge furniture to resemble that of a domestic environment	Dining room table with central pendant above, TV unit below wallmounted TV, coffee tables	Increase patient comfort and confidence because onjects could become familiar	Meaningfulness (enhance)	Designing for Dementia (pg. 21)
		Fill dining and lounge with objects that are typical of that space in a domestic environment	Vase with flowers on the counter	Increase patient comfort and confidence because onjects could become familiar	Meaningfulness (enhance)	Designing for Dementia (pg. 21)
		Provide dedicated seating for each patient		Patients like to sit in the same chair everyday - this creates familiarity and routine	Manageability (control)	Olive Crescent Retirement Village Interview
FAUX KITCHEN		Provide objects in eat-inkitchen like a clock, a mixer, kettle, and a weighing scale (all plugged out and safe to use - otherwise locked)		All these items will trigger memories of kitchen activities and increase comfort in the kitchen	Meaningfulness (enhance)	Designing for Dementia (pg. 27)
		Provide large family-style table in eat-in kitchen where patients can congregate and have tea parties	10/12 seater	Allows for comfort social interaction to take place	Meaningfulness (enhance)	Designing for Dementia (pg. 27)
WANDERING PATH		Furniture in the pathway of circulation should be sturdy, and set back out of the way		Patients often lean on furniture for support when passing by	Manageability (control)	Designing for Dementia (pg. 22)
		Provide puzzles along wandering path	Physical games along walls	This will calm patients, also increase discovery and inquisitiveness	Meaningfulness (enhance)	Cornel Cooperative Extension Brochure Publication: Design of Long tern care facilities for Alzheimer's patients
BEDROOMS		Customizable wall paneling on walls		This allows patients to re-arrange their rooms the way they want. This also allows personalization to not be disruptive when the next patient occupies the room.(patients remain in control of process)	Meaningfulness (enhance)	Designing for Dementia (pg. 49)
		Allow for curtains that can be opened and closed manually by patients instead of blinds		This gives patients the control to open and close the curtains as they wish with ease. Blinds also might hinder patients to open the windows	Manageability (control)	Van Haitsma, Curyto, Saperstein & Calkins, 2004
GARDREN & PATIO		Garden furniture to be heavy to move without assistance		This prevents residents climbing over the boundary wall	Manageability (control)	Designing for Dementia (pg. 33)
		Provide raised 'potting tables' that are wheelchair friendly		This allows for flower planting and flower arranging activities	Meaningfulness (enhance)	Designing for Dementia (pg. 33)
		Provide potting areas for gardening		Improves socail engagement and personal interaction	Meaningfulness (enhance)	Designing for Dementia (pg. 32)
		Provide familiar spaces in garden (like sheds)		This will increase familiarity and orientation	Meaningfulness (enhance)	Designing for Dementia (pg. 33)
		Provide a clearly marked, accessible outdoor tap	Mark with signage	This allows patients to water the garden as form of therapy	Meaningfulness (enhance)	Designing for Dementia (pg. 33)

HOW CAN THE DEGREES OF USE BE ACHIEVED THROUGH MATERIALITY? [Material Selection Matrix]

FLOORING

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOM	Degree of Use: Safety, Wayfinding	Vinyl	Gerflor, 0528 Walnut Cream,		25m x 2m roll	Protector® 2 surface treatment	Heterogeneous Compact Taraly Impression Vinyl Flooring, in 0528 Walnut Cream from Gerflor	Domestic familiarity, warm	0.03 mm-8dB (Best acoustic performance on market) 0,02 absorption coefficient	Highest performance in TVOC emission <	Long lasting	{s1} the structural element may emit a very limited amount of combustion gases	100 % Recycled	High Traffic resistance, Anti Slip Flooring
	Anti Slip, High Sound Insulation, high thermal comfort, warm feel, easy to clean, water resistant	Laminate	Kronotex Exquisite Plus D4164 Village Oak		8mm x 244mm x 1380mm	AC 4 protective layer	Kronotex Exquisite Plus	Domestic familiarity, warm, comfortable	Very Good - Has a sound block underlay (reduces sound by 25%) 0,03 absorption coefficient	Good Thermal Comfort, wood creates an illusion of a warmer space	Non Fading, and remain colour brilliance over the years	Flame resistant.	Produced from natural sustainable products	High traffic, Low maintenance, hard wearing, stain resistant, load and impact resistant, scratch proof
		Loose Carpet	Area Rug		1200 x 2000mm	As provided by supplier	Loose carpet in desired colour and style	Domestic familiarity, creates the illusion of a warm space - increases perception of thermal comfort	0,1 absorption coefficient	0,04 W/m².K	Long Lasting			Tripping Hazzard
BATHROOM	Degree of Use: Safety, Wayfinding	Tile	Textured Porcelain Tile		900 x 900 / 600 x 600mm x 10mm	Protected with wear layer, matt glazed	900 x 900mm textured porcelain tile Ritual sand matt glazed from Italtile	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting	N/A	Eco Friendly	Easy to clean, slip resistant when textures
	Slip and skid Resistant, Waterproof, easy to clean (dirt resistance)		Textured Ceramic Tile		600 x 600mm	Protected with wear layer, matt glazed	600 x 600mm textured ceramic tile from Italtile	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting			Easy to clean, slip resistant when textures
		Vinyl (look at Gerflor catalogue for drain and skirting for inside showers)	Gerflor, 0704 Raspberry Grey Taradouche Vinyl Shower Flooring		20ml x 2m roll	Wear layer surface treatment (SPARCLEAN)	Taradouche Grey Shower Flooring System from Gerflor	Domestic familiarity, warm	6dB sound Insulation 0,02 absorption coefficient	< 10 µg/ m3	Long lasting	{s1} the structural element may emit a very limited amount of combustion gases, Bfl-s1	100 % Recycled % TVOC after 28 days, Very low VOC with installation	Anti Slip Flooring, waterproof, high hygiene control, 10µg/m3 => indoor air quality, < 4.0 wear resistance, Very high anti-bacterial qualities- less than 99%

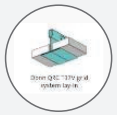
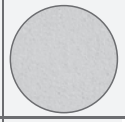
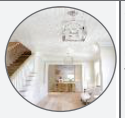
FLOORING (continue)

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
WANDERING PATH, FOYER, LOUNGE	Degree of Use: Safety, Wayfinding	Vinyl	Gerflor, 0528 Walnut Cream,		25m x 2m roll	Protector® 2 surface treatment	Heterogeneous Compact Taraly Impression Vinyl Flooring, in 0528 Walnut Cream from Gerflor	Domestic familiarity, warm	0.03 mm-8dB (Best acoustic performance on market) 0,02 absorption coefficient	Highest performance in TVOC emission <	Long lasting	{s1} the structural element may emit a very limited amount of combustion gases	100 % Recycled	High Traffic resistance, Anti Slip Flooring
		Laminate	Kronotex Exquisite Plus D4164 Village Oak		8mm x 244mm x 1380mm	AC 4 protective layer	Kronotex Exquisite Plus	Domestic familiarity, warm, comfortable	Very Good - Has a sound block underlay (reduces sound by 25%) 0,03 absorption coefficient	Good Thermal Comfort, wood creates an illusion of a warmer space	Non Fading, and remain colour brilliance over the years	Flame resistant.	Produced from natural sustainable products	High traffic, Low maintenance, hard wearing, stain resistant, load and impact, scratch proof

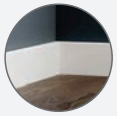
SURFACE FINISH (WALL)

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOM	Degree of Use: Safety, Wayfinding, Customization	High Acoustic Wallboard	Rhino board Soundbox - Saint Gobain		1200mm x 3000mm	Plastered and Painted in colour necessary	12,5mm Rhino board Soundbox wallboard fixed to aluminum drywalling studs	Domestic Familiarity - when plastered	Excellent - Very High Sound Absorption. 0,15 absorption coefficient	Moderate - Good with 0,045 W/m².K foam	Lifetime			Lightweight
		Wallboard (that improves indoor air quality)	Rhino board Activ'Air		1200mm x 3000mm	Finished in a Breathable Paint with Low VOC	12,5mm Rhino board Activ'Air wallboard fixed to aluminum drywalling studs	Domestic Familiarity - when painted	Good - 0,3 absorption coefficient	Moderate - Good	Lifetime			Removes formaldehydes from the air
		Plastered and Painted							0,01 absorption coefficient	0,13 W/m².K				
		Wallpaper			Coverage over wall (never mind sheet size)	Matt or textured			0,2 absorption coefficient	0,13 W/m².K		Burn Easily and Glue will create harsh chemicals in air		
BATHROOM	Degree of Use: Safety, Wayfinding	Tiles (mosaic)							0,3 absorption coefficient	1,5 W/m².K	Long Lasting	Will burn and composite will create harsh chemicals in air		
		Showerproof Walling							0,01 absorption coefficient	1,7 W/m².K				
		Plastered and Painted							0,01 absorption coefficient	0,2 W/m².K				
		Timber Slats	Pine slats with waterproof finish			Finished in Woodoc exterior sealer Marine (matt) clear sealer with coats	2140 x 50 x 16mm pine slats finished in moisture proof sealant from Woodoc	Easily identifiable	0,4 absorption coefficient	0,108 W/m².K	Long Lasting	Burn easily. Sealant is not fire resistant		
WANDERING PATH, FOYER, LOUNGE	Degree of Use: Safety, Wayfinding, Customization	Timber Slats	Pine Slats with clear monocoat finish			Finished in Rubi Monocoat white wash matt clear finish to give the resemblance of oak slats	2300 x 100 x 16mm pine slats finished in clear rubi monocoat white wash	Easily identifiable	0,4 absorption coefficient	0,14 W/m².K with 0,045 W/m².K foam	Long Lasting	Burn easily		

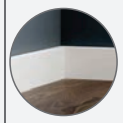
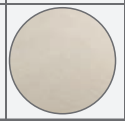
CEILING

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOMS, BATHROOMS, WANDERING PATH, LOUNGE, FOYER	Degree of Use: Safety,	High Acoustic	Gyprex Acoustic - Saint Gobain		1200mm x 600mm or 600mm x 600mm	As Provided	12,5mm Gyprex Board with exposed ceiling grid	Hospital or Office-like connotations	Excellent - Very High Sound Absorption (0,1 absorption coefficient)	Good: 0.21W/mK	Lifetime	System - fire resistant. Boards are not	Not recyclable	
	Good sound absorption, good thermal conductivity, easily maintained, moisture resistant (bathroom)	Flush Plastered Ceiling	Rhino board Flush Plastered- Saint Gobain		1200mm x 2400mm	Plastered and Painted White: Plascon Antique Petal 43, Essential Collection	9,5mm Rhino board Flush Plastered, painted white and fixed to aluminum substructure	Domestic Familiarity, Warm feeling	Excellent - Very High Sound Absorption	Good	Lifetime		Green Star accredited	Moisture Resistant
		Patterned Ceiling (tonge and groove)	IsoBoard		Standard Length: 4,8 m x 600mm. Thickness: 25mm	Isopine Surface Finish with grooves at every 100mm (similar to tounge and groove)	25mm IsoBoard panel with Isopine Surface Finish, fixed to timber brandering	Domestic Familiarity, Warm feeling	**Good**: Requires wool blanket for excellent sound insulation (0,2 absorption coefficient)	Excellent: R-Value: 1,042	Lifetime			Moisture Resistant
		Cornice	IsoBoard Cornice		60mm x 60mm	As Provided	ISP 027 IsoBoard Cornice Profile	Domestic Familiarity, Warm feeling	N/A	N/A	Lifetime	N/A	Not recyclable	

SKIRTING

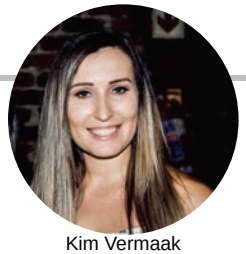
APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOMS, FOYER, LOUNGE, WANDERING PATH	Degree of Use: Safety,	Laminate skirting: MDF, paintable	Skirting Board KTEX F, shamfered		18 x 80 x 2400mm	Colour to match floor finish	Skirting Board KTEX F, painted white mdf and shamfered,	Domestic Familiarity, Warm feeling	N/A	Good Thermal Comfort, wood creates an illusion of a warmer space	Non Fading, and remain colour brilliance over the years when sealed correctly	N/A		
	Prevent accumulation of dirt and bacteria, maintenance free, easy to clean	Vinyl Skirting: PVC coved skirting	Gerflor Cove Former		2m x 0,2mm (20x20 or 38x38)	Colour to match floor finish	0,02mm Gerflor cove former with double bonding adhesive, dispersion contact adhesive or double sided tape compatible with the PVC skirting	Hospital like connotations	N/A	N/A			100 % Recycled	Very easy to clean with seamless joints, limits risk of piercing floor covering, prevents the accumulation of dirt and bacteria

SKIRTING (continue)

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BATHROOMS	Degree of Use: Safety,	Vinyl Skirting: PVC coved skirting	Gerflor Cove Former		2m x 0,2mm (20x20 or 38x38)	Colour to match floor finish	0,02mm Gerflor cove former with double bonding adhesive, dispersion contact adhesive or double sided tape compatible with the PVC skirting	Hospital like connotations	N/A	N/A			100 % Recycled	Very easy to clean with seamless joints, limits risk of piercing floor covering, prevents the accumulation of dirt and bacteria
	Prevent accumulation of dirt and bacteria, maintenance free, easy to clean	Tile Skirting	Textured Porcelain Tile		100 x 100 x 10mm	Protected with wear layer, matt glazed	100 x 100mm textured porcelain tile Ritual sand matt glazed from Italtile cut and installed as skirting	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting	N/A	Eco Friendly	Easy to clean, slip resistant when textures
			Textured Ceramic Tile		100 x 100 x 10mm	Protected with wear layer, matt glazed	100 x100 mm textured ceramic tile from Italtile cut and installed as skirting	Domestic familiarity, cold but appropriate	0,03 absorption coefficient	Low, very cold feeling	Long lasting			Easy to clean, slip resistant when textures

PEGBOARD PANELLING

APPLICATION	DESIRED FUNCTIONAL REQUIREMENTS	MATERIAL	TYPE	IMAGE	SIZE	FINISH	SPECIFICATION	PERCEPTION	SOUND INSULATION	THERMAL COMFORT	LIFESPAN	PERFORMANCE IN FIRE	ENVIRONMENTAL IMPACT	MISC
BEDROOMS, FOYER, LOUNGE, WANDERING PATH	Degree of Use: Customization	Hard Board with Insulation			1200 x 2440mm	Painted / matt clear varnished	6mm Masonite hardboard with drilled holes to accommodate timber pegs	Pegboard familiarity, timber creates a warm feeling	0,4 absorption coefficient	0,15 W/m².K with 0,045 W/m².K foam	Long lasting	Burn easily	No synthetic resins	Very strong in all directions
	High sound insulation, easily customizable, lightweight	Pine Ply Board with Insulation			1220 x 2400mm	Painted / matt clear varnished	4/8mm pine ply (shutter play) with drilled holes to accommodate timber pegs	Pegboard familiarity	0,5 absorption coefficient	0,13 W/m².K with 0,045 W/m².K foam	Long lasting	Burn easily	No synthetic resins	Very strong in all directions
	Degree of Use: Customization	Pine Ply Shelves			800 x 300 x 18mm	White wash rubi monocoat	800 x 300 x 20mm pine ply shelf finished with rubi monocoat. With raw edge	Pegboard familiarity, timber creates a warm feeling	N/A	0,13 W/m².K	Long lasting	Burn easily	No synthetic resins	Very strong in all directions
	Lightweight, sturdy	Solid Timber Oak Shelves			800 x 300 x 20mm	White wash rubi monocoat	800 x 300 x 20mm solid oak timber shelf finished with rubi monocoat	Pegboard familiarity, timber creates a warm feeling	N/A	0,17 W/m².K	Long lasting	Burn easily	No synthetic resins	Very strong in all directions



Kim Vermaak

Memory & Being

A salutogenic approach to the design of a medical facility to ensure the wellbeing of patients with Alzheimer's disease.

"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)

Fig. 01. Memory and Being (Author, 2018)

INTRODUCTION

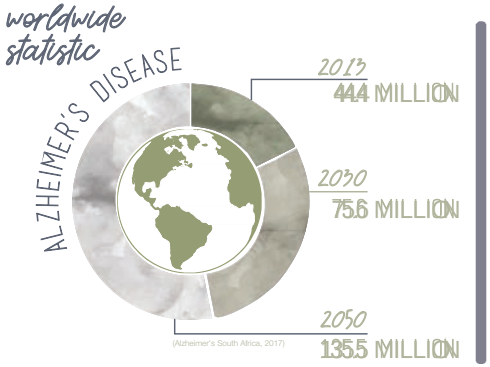
This article seeks to investigate design principles for the design of specialized healthcare facilities with the objective of improving the wellbeing[1] of patients diagnosed with Alzheimer's[2] disease. This is in an endeavour to maintain the patient's strengths and dignities while they spend their last days, months and years in these facilities. Two different design resolutions will be discussed in order for the reader to gain a better understanding of how environments can directly effect the wellbeing of patients. These resolutions are purely based on theoretical findings that can directly be related into an approach to design.

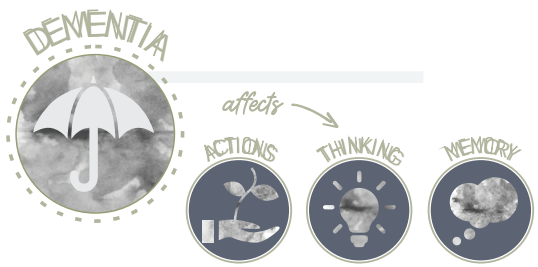
Healthcare environments in South Africa are designed with the chief concern for patient satisfaction and in so doing ensuring healing processes (Life Healthcare Group, 2017). Their mandates are propagated through images of happy healthy patients walking out of these facilities. However, medical centers 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 institutionalization becomes problematic in specialized 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). Patients with Alzheimer's have not only lost their reference of recognizable 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 institutionalization of these facilities needs to be reversed to directly ameliorate the loss of independence and individuality that these patients with Alzheimer's experience.
The patients that are housed in these institutions, also become somewhat institutionalized as they lose their independence from spending long periods of time in these facilities. An endeavour to reverse this institutionalization of patient will take place as part of this study.

Fig. 02. Below Left; Worldwide statistic (Author, 2018)
Fig. 03. Below Right; Effects of Dementia (Author, 2018)





BACKGROUND

It was calculated in 2013 that an estimated 44.4 million people suffer from Dementia[3] 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. Alzheimer's is a growing disorder that cannot be prevented or cured.

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. As seen in figure below, 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).

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)

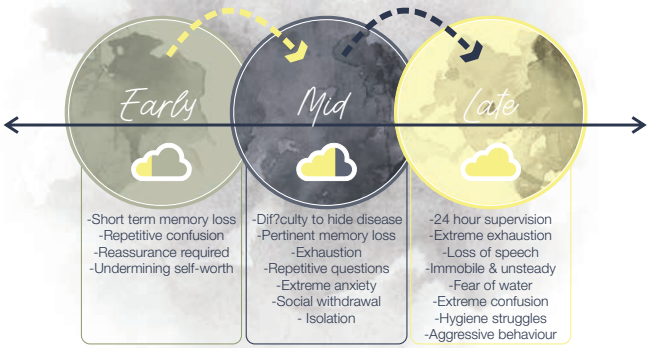


Fig. 04. Left; Stages of Alzheimer's (Author, 2018)
Fig. 05. Bottom Right; Opportunity exists between patient's wellbeing and environment (Author, 2018)

ALZHEIMER'S DEFINED

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 recognize their environment, as well as follow and partake in conversations (Alzheimer's Association, 2018).

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 and this 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 categorized into three major stages: early, mid and late, of which all are of equal importance. Figure 04 refers to the three different stages with their accompanying symptoms.

A summary of the symptoms experienced by patients diagnosed with Alzheimer's include; the loss of short term memory, aggressive behaviour, extreme confusion, social withdrawal, extreme exhaustion, loss of speech, fear of water, and difficulty completing familiar tasks, just to name a few.

Each patient experiences this disease differently, and therefore a challenge exists within the healthcare sector to ameliorate the conditions that accompany these symptoms.

THE INSTITUTIONALIZATION EFFECT

The institutionalization 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 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.

However, for the last fifteen years there has been a major shift in the healthcare sector in improving the wellbeing of patients. In consequence to this shift, the institutionalization of psychiatric facilities creates a large gap between patients and their environments (Golembiewski, 2010:100). Figure 05 indicates that an opportunity then exists, for this gap to be reduced through the application of interior design, if design decisions take into account not only function but also the patient's physical and emotional needs too. The design of these facilities needs to shift from unsubstantiated policies and norms, to be able to be primarily concerned with patient wellbeing.

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, and the consideration to emotional and physiological wellbeing of 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 institutionalized. It is evident from the literature that the institutionalization has a detrimental effect on the wellbeing of elderly patients in particular those diagnosed with Alzheimer's disease. It is argued that there is an urgent need for specialized 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.

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 singular most researched professor in terms of health care design (The Center for Health Design, 2017).

Subsequent to the institutionalization of specialized healthcare facilities, it can be contended that interior design can become the mediator to ameliorate the effects of environment on patient wellbeing.

Two theoretical resolutions have been discussed below as a response to firstly; the de-institutionalization of healthcare facilities, and secondly; as a primary attempt to enhance wellbeing. Both resolutions can very easily be applied to a facility designed specifically for Alzheimer's, because of the psychological similarities experienced by a patient with this disease.

ATTEMPTED RESOLUTION A:
SALUTOGENESIS

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 views; 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. 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).

Salutogenesis 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 an Alzheimer's Facility provides a strategy to ensure the wellbeing of patients inhabiting these facilities (Golembiewski, 2010:102).

Salutogenic Theory

Salutogenesis is a concept first written about by Aaron Antonovsky (1996). Salutogenics is based on the argument that health and illness are different planes in the same continuum (Golembiewski, 2010:101) as indicated in Figure 06. The concept of salutogenesis is an attempt towards health promotion whereas pathogenesis is a factor that challenges

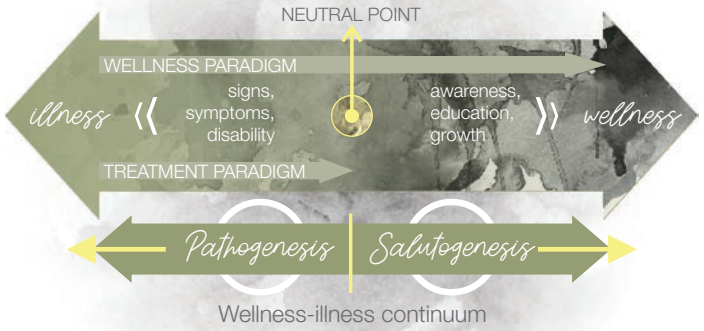


Fig. 06. Left; Wellness-illness continuum (Author, 2018)
Fig. 07. Bottom Right; Salutogenesis defined (Author, 2018)

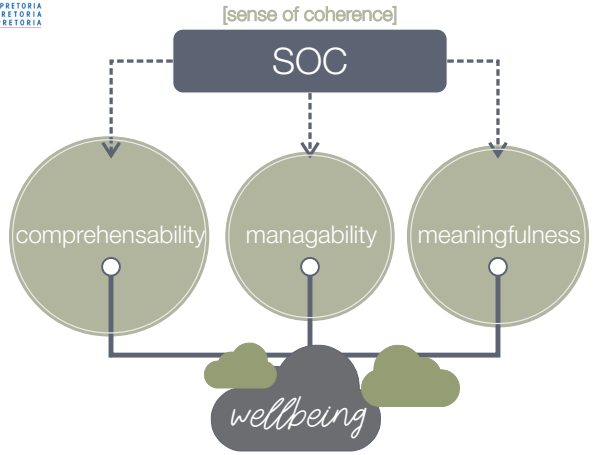


Fig. 08. Left; The three Salutogenic Realms (Author, 2018)
Fig. 09. Bottom; The Comprehensability Realm (Author, 2018)

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 (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 means of 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 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. These three actions have been defined as comprehensibility, meaningfulness and manageability (Antonovsky,1996:11).

The Sense of Coherence model 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 a lot better in a stressful situation compared to a person with a low sense of coherence.

It has been stated that salutogenesis, otherwise defined by Alan Dilani (2008:55), as 'psychosocial supportive design', provides a high sense of coherence as it stimulates an individual's mental and social engagement with the environment. The aim of 'psychosocial supportive design' is largely to stimulate creativity, pleasure, satisfaction and enjoyment. When these emotions have been experienced, it is then directly translated into wellbeing. Figure 07 indicates this statement.

Dilani (2008:56), further states that there is 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.

As part of this study, it is therefore argued that a salutogenic approach to an Alzheimer's facility, could ensure a positive state of wellbeing.

THE THREE REALMS
Antonovsky (1996:15) contends that a patient that scores high on all three components, will experience high levels of wellbeing. The three realms within the SOC framework can be understood as indicated in the figure above.

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 comes in as 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 rather create comfortable proportions than large open volumes that might increase stress levels of patients (Golembiewski, 2010:104).
There are various forms of perspectives to be considered;
1. textural perspectives can be supported by textured surfaces such as brick compared to granite,
2. linear perspectives can be supported by tall trees, horizontal courses in masonry and double volumes in space,
3. 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 fitting 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).

Fig. 10. Top; The manageability Realm (Author, 2018)

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 5 or 6 if they do not wish to (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 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 should create provisions for these tasks to be applied simply, for example, bathrooms should be designed in a way that it is easy to recognize 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 de-institutionalizing 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 environments. 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 viewed as worth investing energy in (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, should 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 usual "drabness" of medical facilities should be avoided at all cost. 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 a familiarity amongst patients (Golembiewski, 2010:112).

Essentially this section discusses the need for a 'Sense of Coherence' (SOC) 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. If facilities are designed within 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 personalization 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 psychiatric facilities. Golembiewski (2010), concludes in his journal article that when all three concepts are applied, a successful architecture is created with the sole 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. Refer to figure above. 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 study is to apply these realms as design guidelines to be able to reach a state of wellbeing for patients diagnosed with Alzheimer's disease.

Fig.11. Top; The Meaningfullness Realm (Author, 2018)

ATTEMPTED RESOLUTION B:
WELLBEING AND THE ENVIRONMENT

Ulrich (n.d.: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 for psychological needs for patients, staff and visitors (Ulrich, n.d.: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, n.d.:97). A pertinent part of all three states of Alzheimer's disease, is stress. Hard spaces, as defined by Ulrich (n.d.:97), can become stress factors within themselves, which will only burden the psychological wellbeing of patients. Therefore it is of empirical importance, that spaces rather be psychologically supportive which will accordingly promote wellbeing. Stress experienced by patients in healthcare environments, can directly affect the negative manifestations that work against wellbeing (Ulrich, n.d.: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 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, n.d.:102). Wohlwill (1968), also states, that low levels of environmental stimulation, could easily lead to aspects such as boredom and depression. Ulrich (n.d.: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, n.d.:102). The most effective forms of positive distractions are; happy and caring faces, animals, and elements of nature such as trees and plants (Ulrich, n.d.:102). It can then be assumed, that these elements, when provided successfully, could afford a moderate degree of positive stimulation as defined by Wohlwill in 1968. Stress reducing elements, such as visual exposure to natural elements, dates as far back, to some of the earliest large

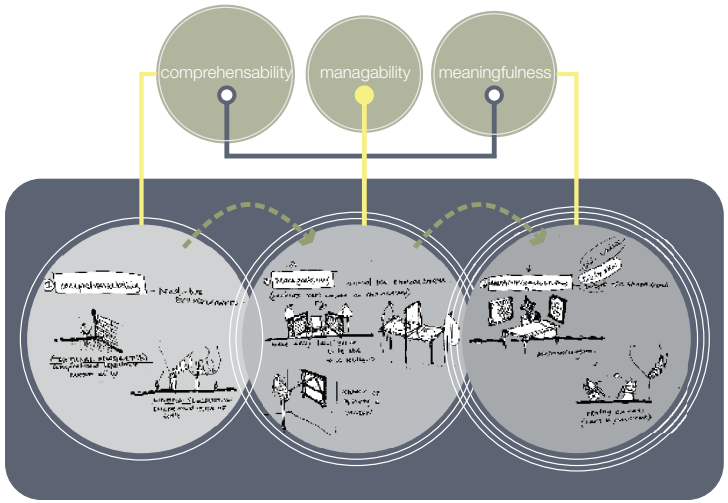


Fig.12. Left; Illustrated Salutogenic (Author, 2018)

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.

THE CONTRIBUTION

The execution of Aaron Antonovsky's Sence of Coherence model (1996), and the application of Roger Ulrich's theory (n.d.) regarding visual access to natural elements, are both components that can be directly related into design principles that will increase patient wellbeing. The aim of this article, is to be able to create an outline of enriched environments that will ultimately improve the wellbeing of patients diagnosed with Alzheimer's disease.

By looking at both of these attempts, it can be assumed that the gap that currently exists within the healthcare sector, can be filled or ameliorated, by creating design guidelines that are set out to ensure the wellbeing of patients diagnosed with Alzheimer's disease. This architectural contribution, would include a comprehensive set of design guidelines that can easily be applied to three different instances; a new facility, a retrofit project and a home improvement scenario, where alterations are required to suit the behavioural needs of a patient with Alzheimer's disease.

CONCLUSION

Following the research in this article, it is concluded that there are two attempted resolutions that can be applied to physical environments to accommodate wellbeing of patient's diagnosed with Alzheimer's disease.

By looking at both theoretical resolutions, a set of design guidelines can therefore be set up, to be applied throughout the country to establish a successful attempt at ensuring patient wellbeing.

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, design decisions can be made to ensure that health facility planning, is done specifically surrounding patient's needs. Lastly this research has provided a basic understanding of what elements could be supportive to environments directly affected by patients diagnosed with Alzheimer's disease.

ENDNOTES

1. 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, et al., n.d.)

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

3. 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).

LIST OF REFERENCES

Alzheimer's Association, 2018. What is Alzheimer's?. [Online]
Available at: https://www.alz.org/alzheimers_disease_what_is_alzheimers.asp
[Accessed 22 Febuary 2018].

Alzheimer's South Africa, 2017. Prevalence of Dementia. [Online]
Available at: https://alzheimers.org.za/prevalence-of-dementia/
[Accessed 22 Febuary 2018].

Antonovsky, A., 1996. The Salutogenic model as theory to guide health promotion. Health Promotion International, 11(1), pp. 11-18.

Dilani, A., 2008. Psychosocially Supportive Design: A Salutogenic Approach to the design of the physical environment. ResearchGate, Volume 1, pp. 55-65.

Golembiewski, J. A., 2010. Start making sense: Applying a salutogenic model to architectural. EmeraldInsight, 28(3/4), pp. 100-117.

Gramegna, S. M. & Biamonti, A., 2017. Environment as non pharmacological intervention. The Design Journal, 20(1), pp. 2284-2292.

Life Healthcare Group, 2017. Quality Policy, s.l.: Life Healthcare Group.

Lindström, B. & Eriksson, M., 2018. Salutogenesis. Journal of Epidemiology and Community Health, pp. 440-442.

Osmond, D. H., 1958. The seclusion room-cell or sanctuary?. Mental Hospitals, Volume 9, pp. 18-19.

Stevens, R., Petermans, A., Vanrie, J. & van Cleempoel, K., n.d. Well-being from the perspective of interior architecture:, Belgium: Hasselt University Faculty of Architecture and Art.

The Center for Health Design, 2017. Roger S. Ulrich, Ph.D., EDAC. [Online]
Available at: https://www.healthdesign.org/about-us/meet-team/roger-s-ulrich-phd-edac
[Accessed 14 May 2018].

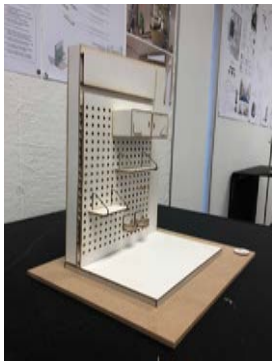
Timlin, G. & Rysenbry, N., 2010. Design for Dementia - Improving dining and bedroom environments in care homes, s.l.: The Helen Hamlyn Centre.

Ulrich, R. S., n.d. Effect of Interior Design on Wellness, Theory and recent scientific research. Journal of Healtcare Interior Design, pp. 97-109.

Wohlwill, J. F., 1968. They Physical Environment: A Problem for a Psychology of Stimulation. Journal of Social Issues, Volume 22, pp. 29-38.

APPENDIX E_ photos of final crit on 2018/11/23

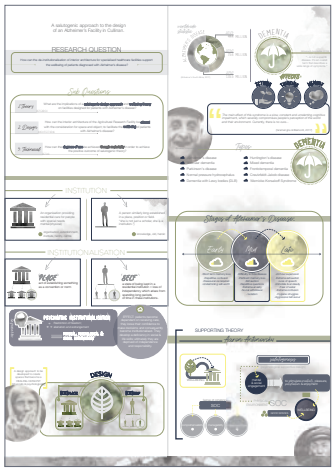


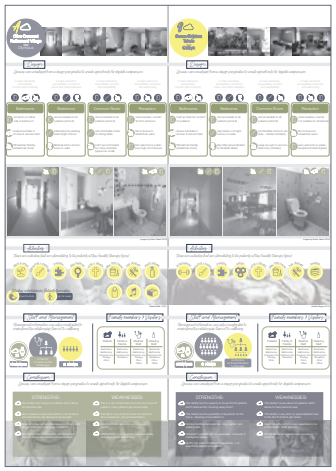



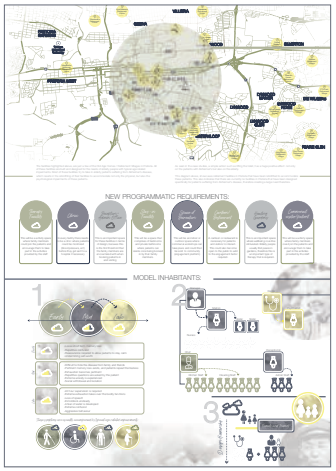


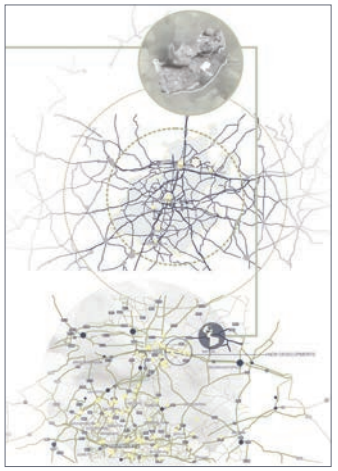


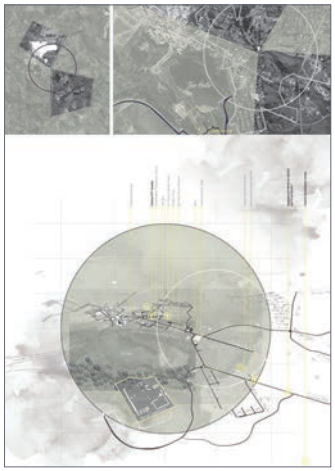


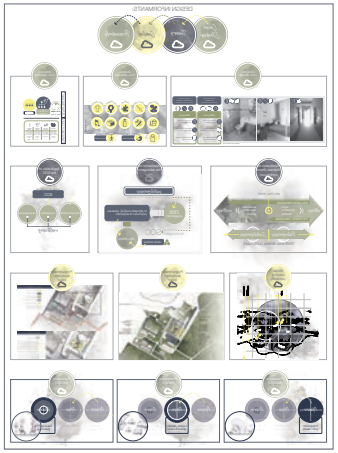



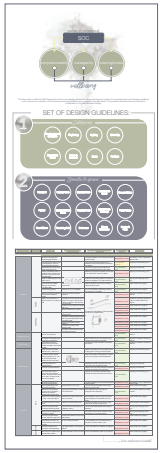


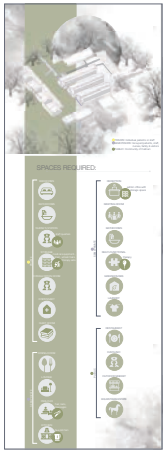


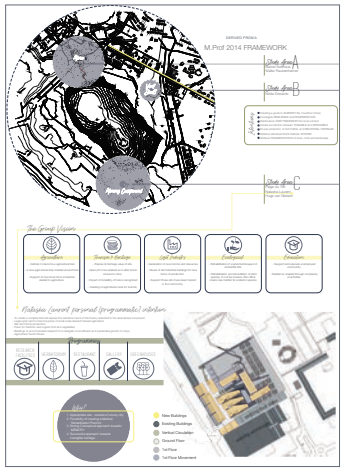


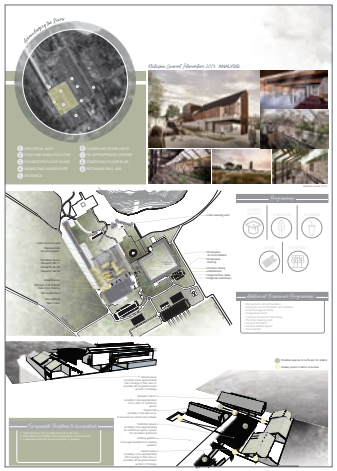


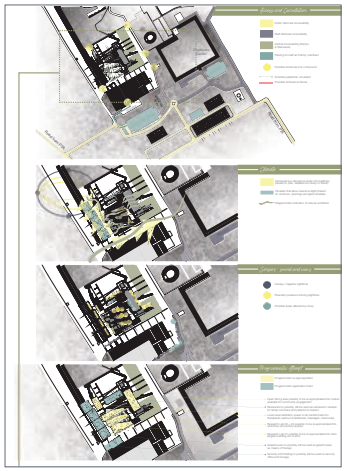


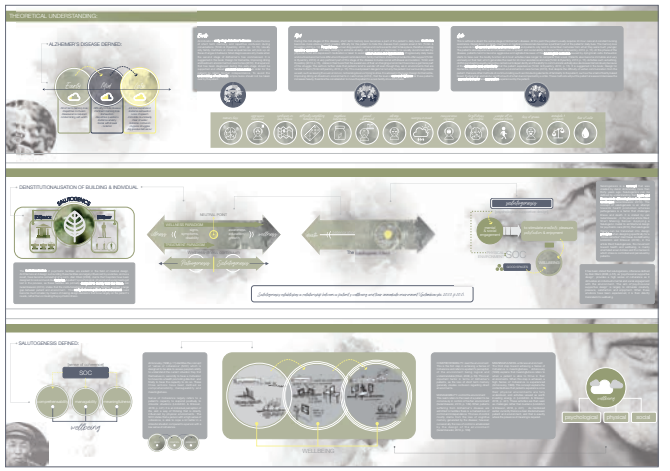


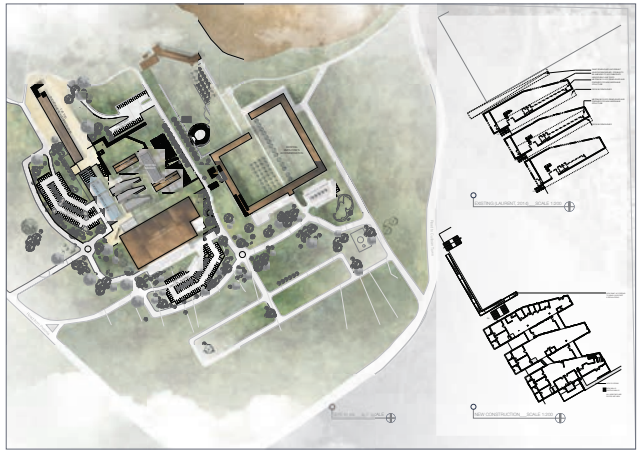


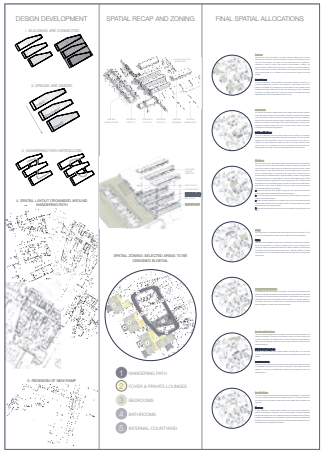


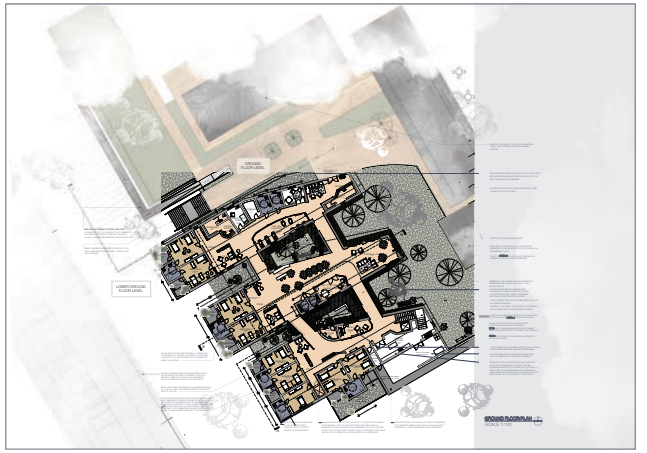


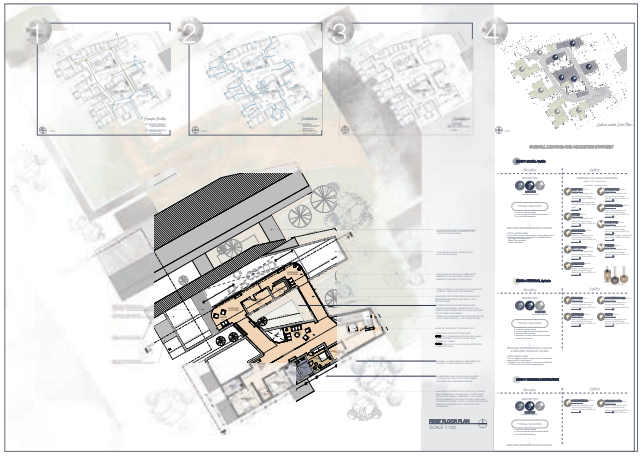


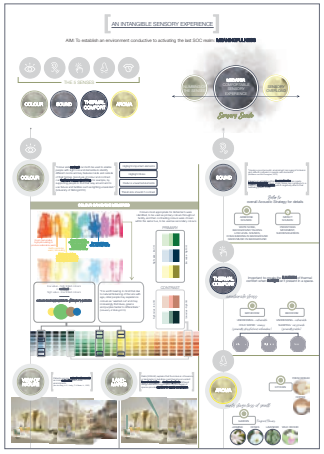


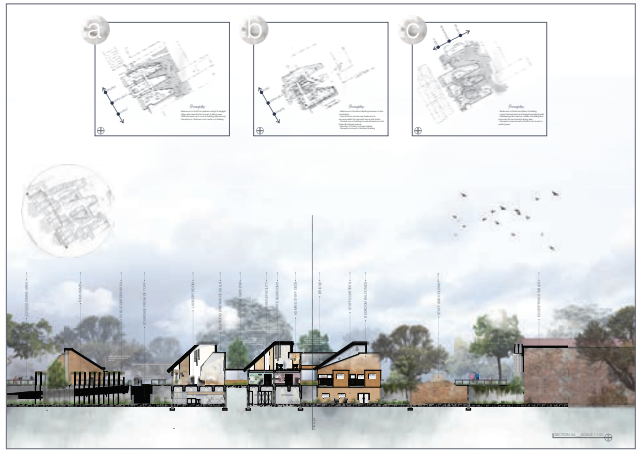


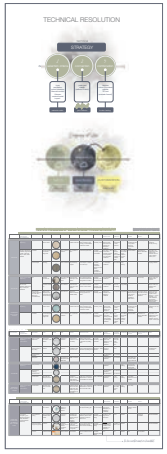


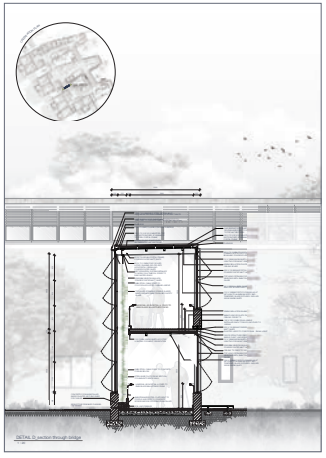


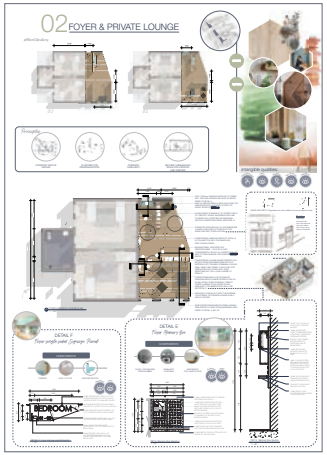


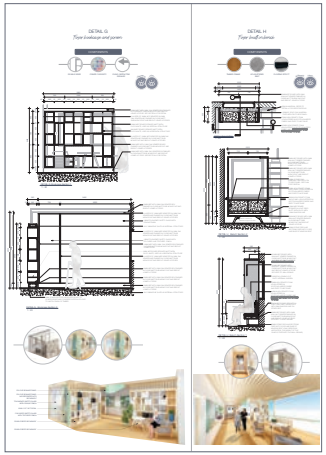


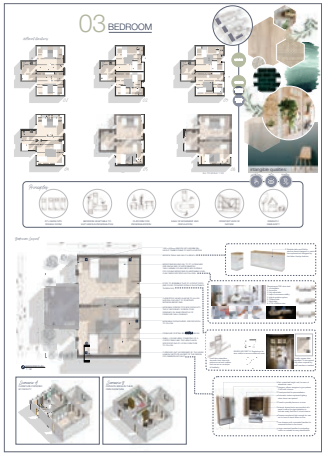


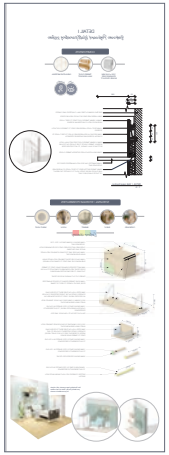


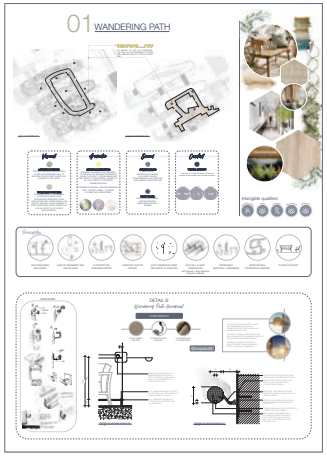


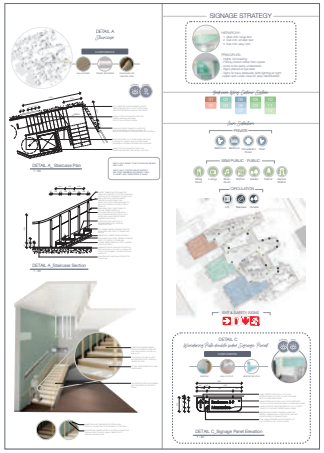


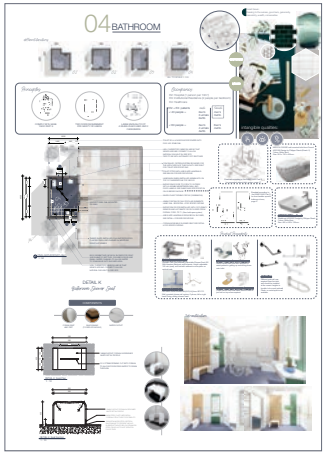


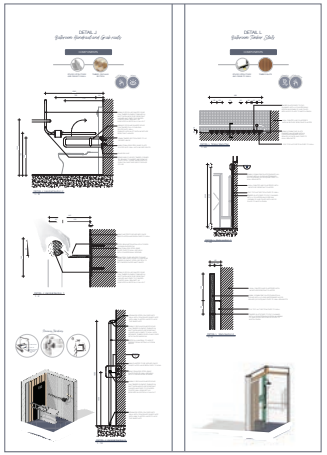












THANK YOU

Granddad...for being the inspiration behind this topic,
may my memories of you never fade.

My dearest parents... whose example will forever inspire my human existence.
Thank you for giving me the opportunity to follow my dreams.

My husband to be... you are truly God's most exquisite creation.
I thank you for being you, and helping me be me throughout this journey.

My girls... Simone, Nadine, Klara, Claire and Corien
for being in this thing together with me.

and finally,
Catherine... for being my mentor and becoming a friend.
Thank you for all the editing and guidance.