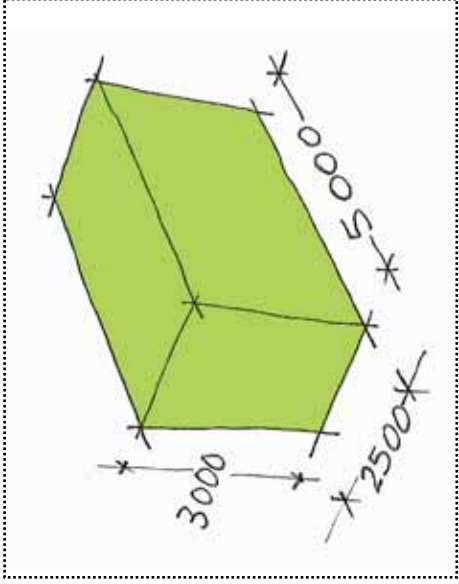




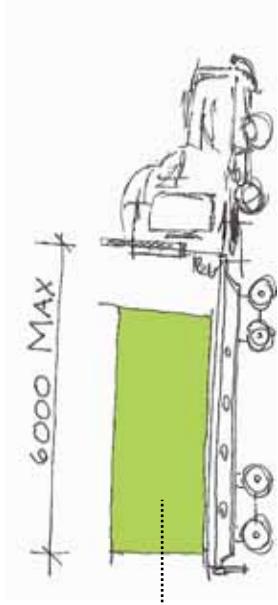
- A
- B
- C
- D
- E
- F**
- G
- H



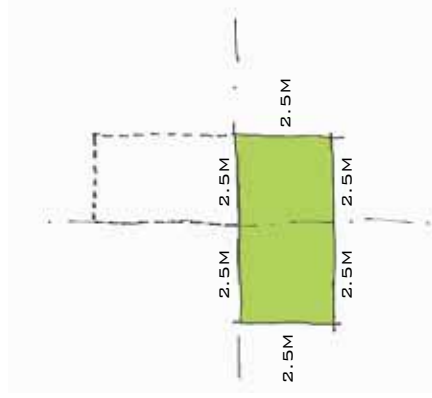
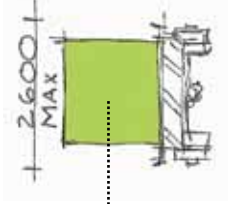
# DESIGN DEVELOPMENT MODULAR



THERE ARE A LOT OF FACTORS PLAYING A ROLE IN THE CHOICE OF THE MODULAR SIZE FOR THIS DISSERTATION. THE CHOSEN MODULAR SIZE ARE USED THROUGHOUT THE WHOLE BUILDING.

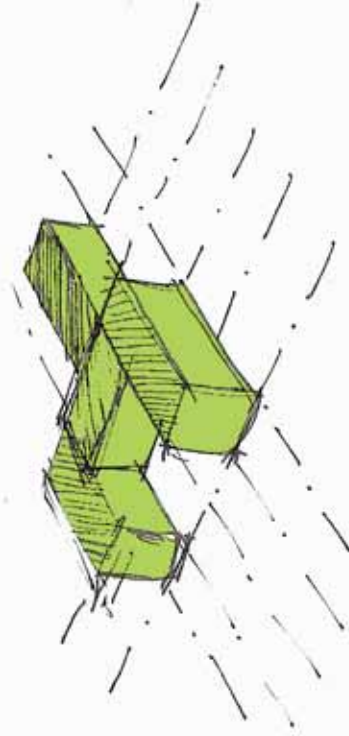


EXISTING TRANSPORT SYSTEMS PLAYED A MAJOR ROLE IN THE LAYOUT SIZES. TRANSPORTABLE SIZES ARE MET AS OFF SITE PREFABRICATION FORMS THE BACKBONE FOR THIS DISSERTATION.

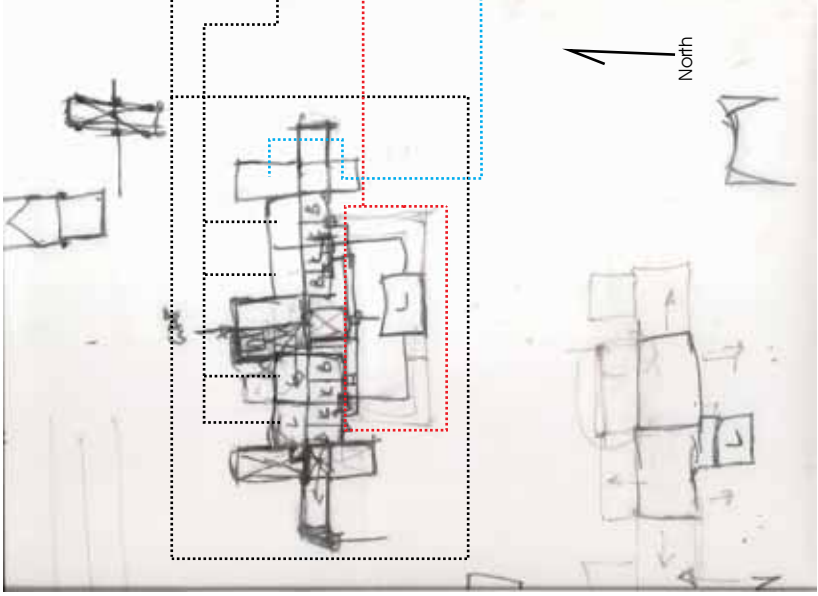


HAVING RATIOS TO GIVE OPTIMAL VARIATIONS AND EASY ASSEMBLY SOLUTIONS WAS AN IMPORTANT ASPECT IN THE ADAPTABILITY FOR THE PROPOSED SYSTEM. THE TRANSPORT SIZES GAVE THE RATIO OF 2.5 M TO 5 M. THE RATIO FOR 5 M WERE CHOSEN TO FIT INTO CAR ASSEMBLY PLANT.

STUDIES WERE FIRSTLY MADE TO ASSURE THAT THESE SIZES GIVE A LIVABLE SPACE, AND THE RESULTS WERE POSITIVE.



# DESIGN DEVELOPMENT CONCEPT

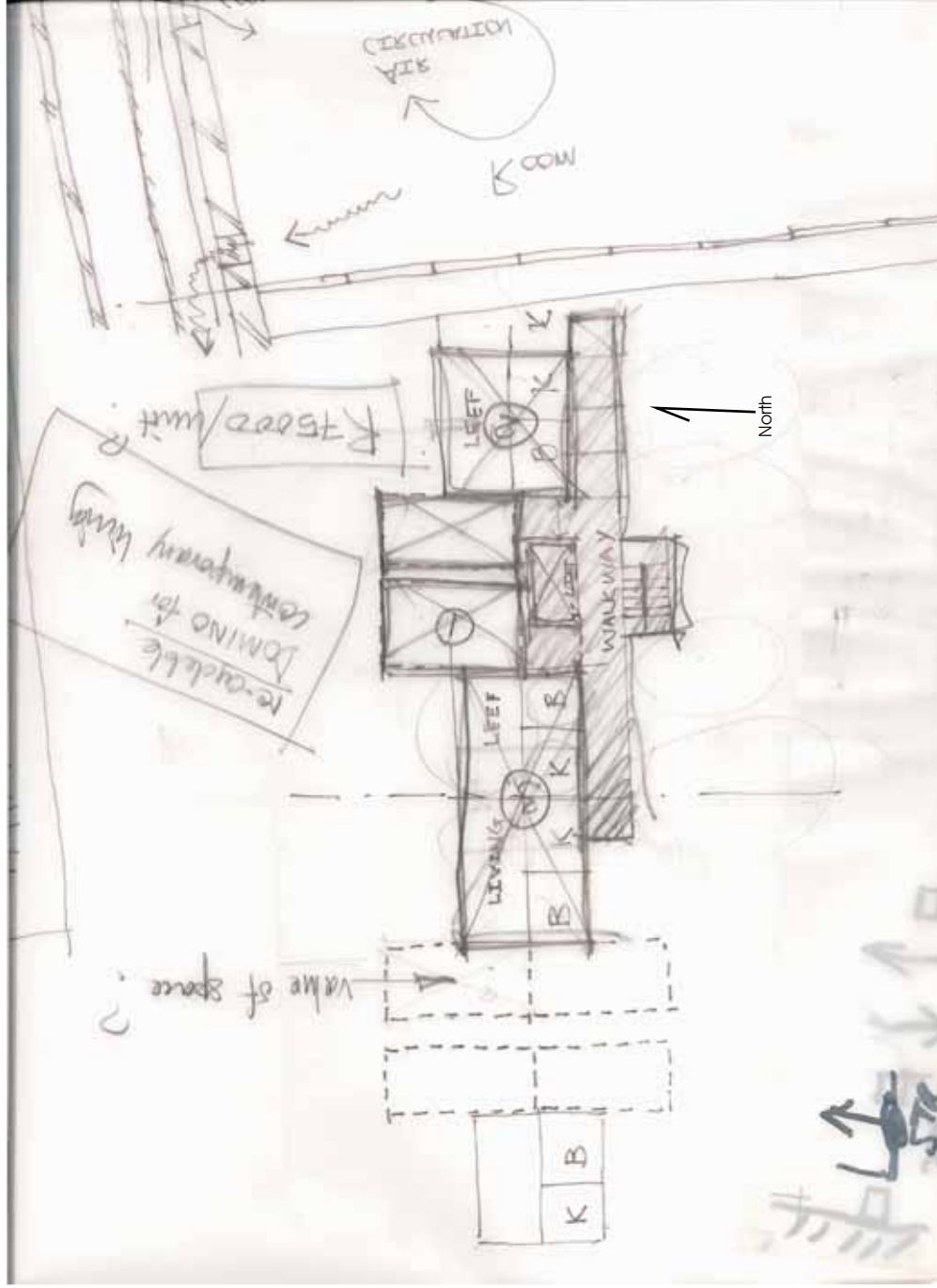


THE PLAN LAYOUT CAME TO THIS SHAPE AND LAYOUT DUE TO SEVERAL FACTORS THAT INFLUENCED IT.

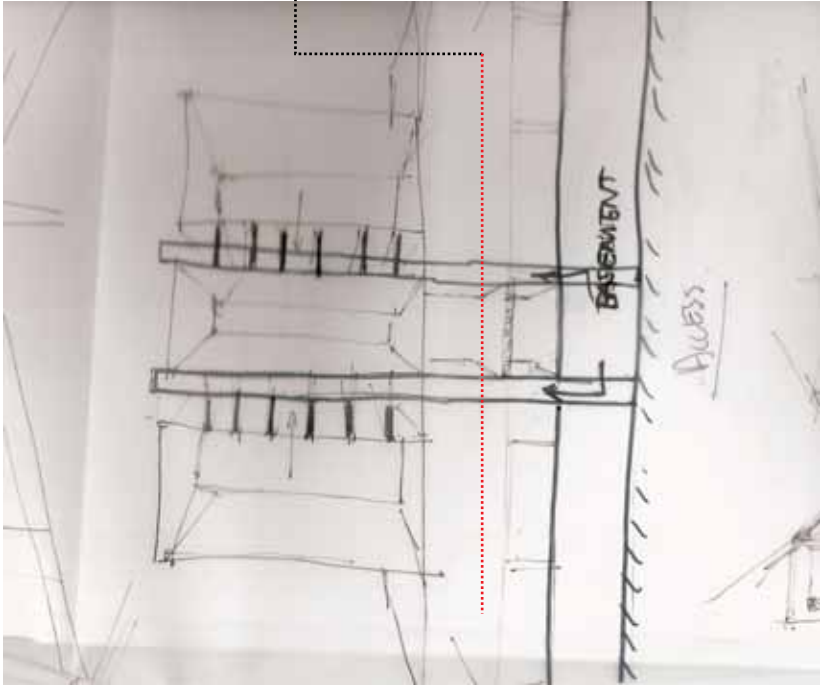
FIRSTLY LETTING ALL UNITS FACE NORTH WAS IMPORTANT.

ACCESS WAS A VERY IMPORTANT CONSIDERATION ESPECIALLY TO MINIMIZE THE SPACE UTILIZED.

THE PLUG-ON UNITS WAS POSITIONED FOR THE CRANE TO LOAD THEM INTO PLACE.



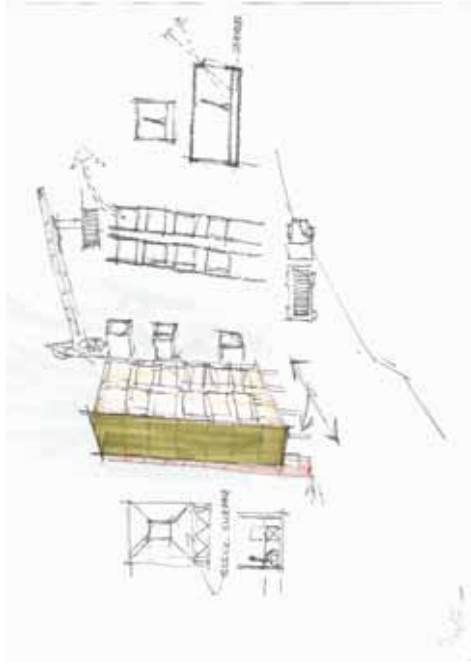
# SECTIONS CONCEPT



1

VERTICAL ACCESS WAS CRITICAL AS BASEMENT PARKING WAS PROPOSED AND ENTRANCE TO THE RESIDENTIAL UNITS HAD TO BE PROVIDED.

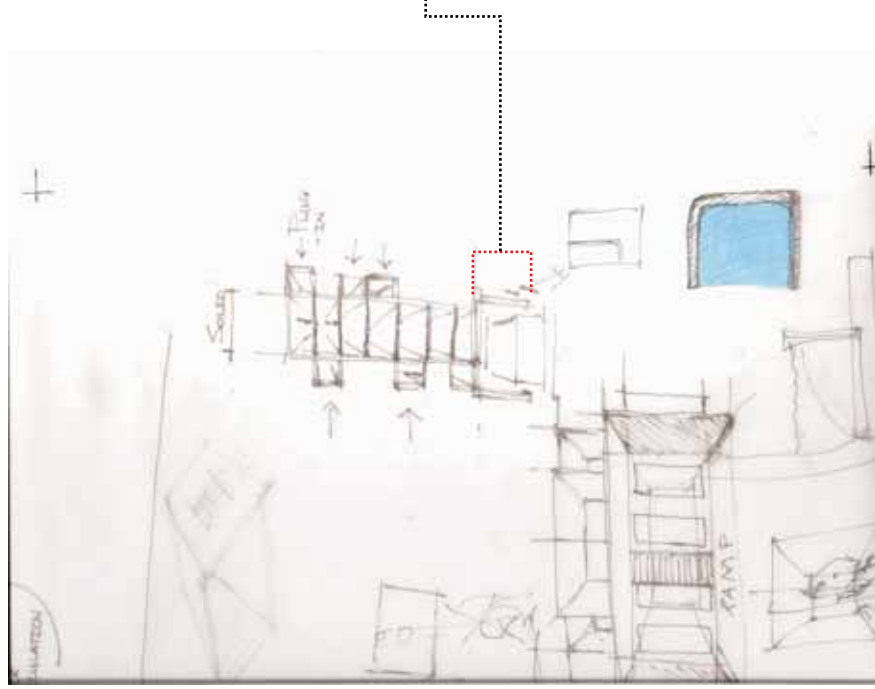
ON **GROUND FLOOR** IT WAS IMPORTANT TO PROVIDE A SEPARATION ORDER BETWEEN PUBLIC SPACE AND PRIVATE ENTRANCE TO THE RESIDENCES. THIS SEPARATION WAS HANDLED BY THE USE OF A CHECK-IN SECURITY ENTRANCE.



3



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2

HAVING A LIGHT FOOTPRINT OPENS UP THE GROUND FLOOR FOR PUBLIC MOVEMENT.

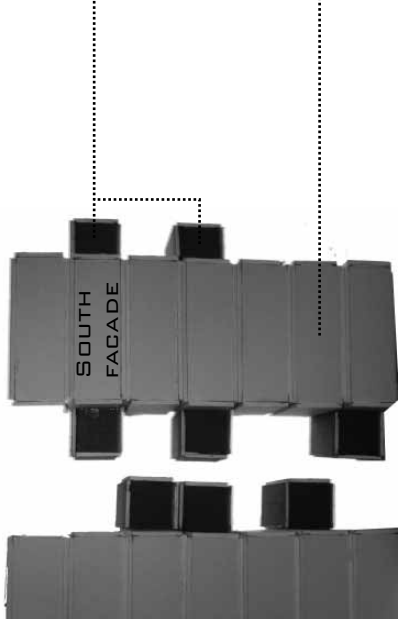
THE TWO STOREY HEIGHT CLEARANCE BEFORE THE FIRST RESIDENTIAL UNIT STARTS, CLEARLY SEPARATES THE PRIVATE FROM THE PUBLIC, AND IT SHOWS A LIGHT FOOTPRINT.

DECIDING WHAT HAD TO BE FIXED AND WHAT MOVABLE WAS IMPORTANT TO START WITH THE LAYOUT SUITABLE FOR THE SPECIFIC SITE.

THE NARROW SITE ALLOWED ONLY FOR A LONG THIN DESIGN IN THE FLOORPLAN LAYOUT.

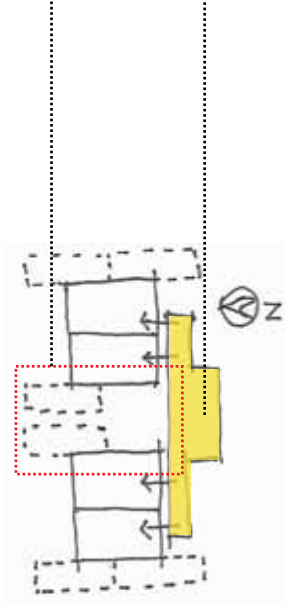
# CONCEPT MODEL DEVELOPMENT

## FIXING OR REMOVING EXTENDING UNITS



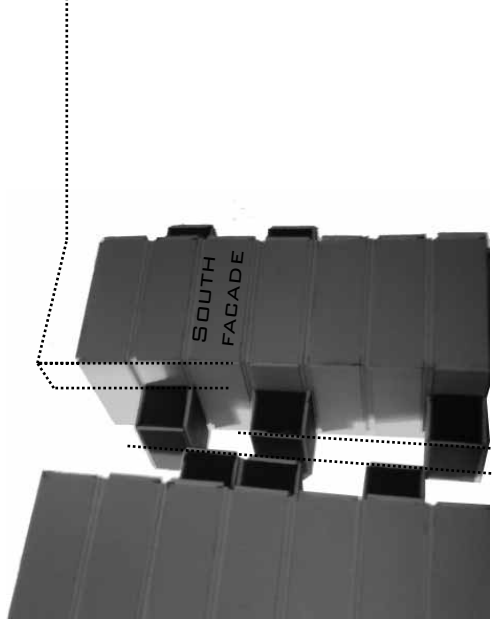
THE ADDED UNITS ARE FIXED TO THE SIDES OF THE RESIDENTIAL UNITS TO KEEP THE NORTH FACADE FREE FROM ANY OBSTRUCTIONS TO HAVE MAXIMUM USE OF THE NORTHERN SUN IN WINTER, EXTENDING THE UNIT TO THE NORTH FACADE WILL OBSTRUCT THE SUN INTO THE LOWER UNIT.

CLEARING THE FACADES ALLOWS ACCESS FROM THE SOUTH AND NO OBSTRUCTIONS FOR THE SUN INTO THE UNIT FROM THE NORTH.



THE ACCESS SYSTEM CAUSES THAT ONLY ONE UNIT CAN BE ADDED.

### ACCESS SYSTEM

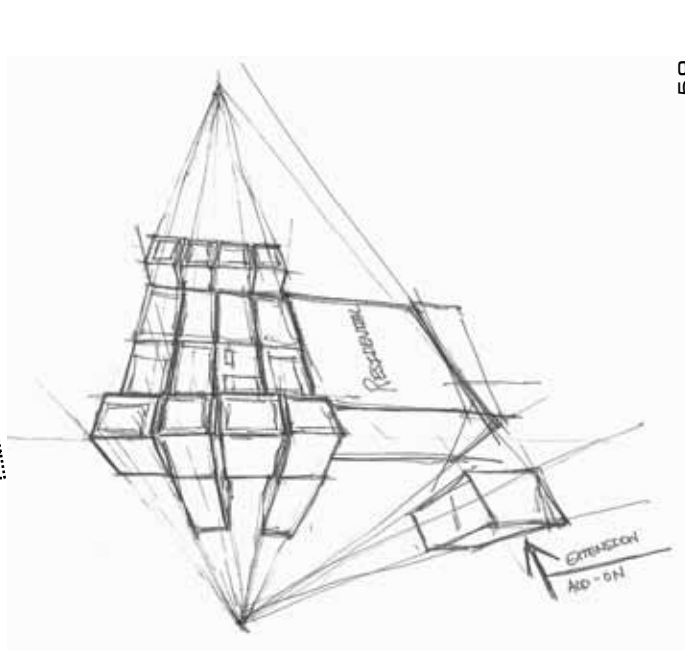


HAVING THE RATIO 2:1 THE ADDED UNITS EXTENDS HALFWAY TO ALLOW TWO UNITS ADDED ON THE SIDES WHERE THE ACCESS TO THE SOUTH HAVE NO INFLUENCE.

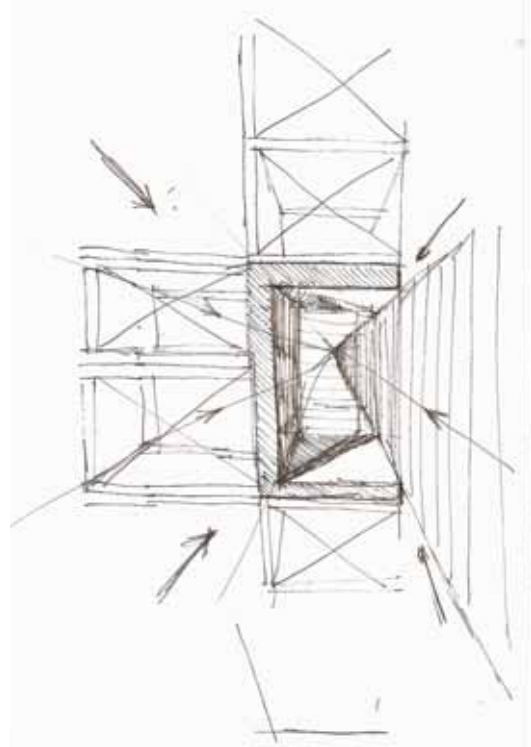


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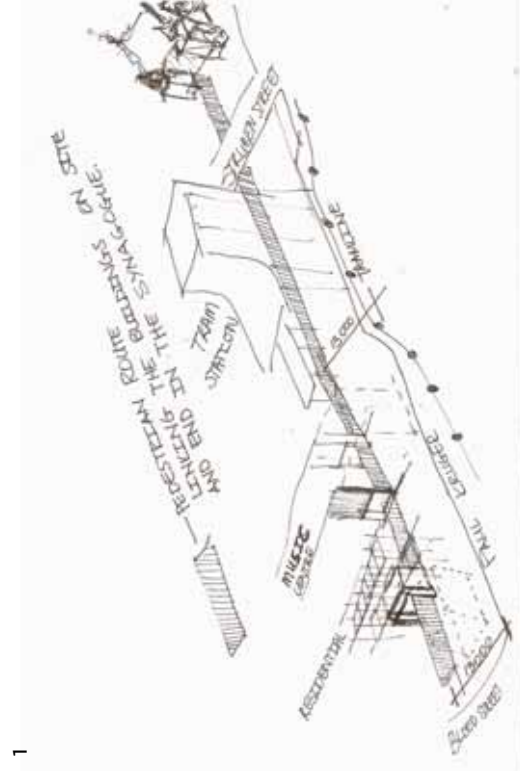
GAP BETWEEN THE EXTENDING UNITS WAS GIVEN TO EASILY OPERATE THE C-FRAME LOADER WHEN FIXING OR REMOVING THE UNITS.



# PEDESTRIAN WALKWAY



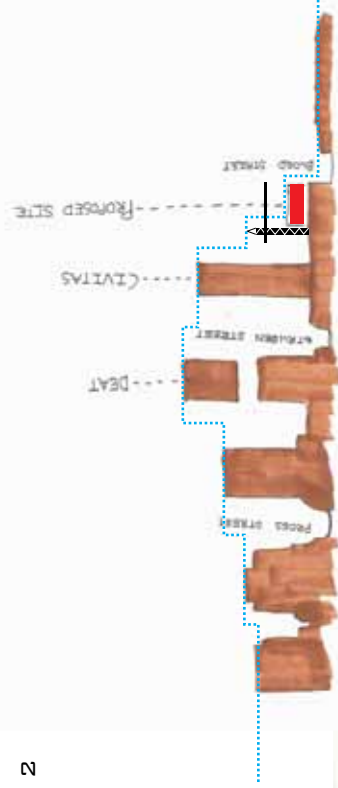
A PEDESTRIAN WALKWAY TO LINK THE SYNAGOGUE WITH THE SITE RUNNING THROUGH THE PROPOSED MUSIC CENTRE AND TRAM STATION. THE ARCH SERVES AS AN INDICATOR FOR THE PEDESTRIAN TOWARDS THE DIRECTION OF THE WALKWAY. AND THE ARCH WILL ALSO SERVE AS A STRUCTURAL ELEMENT.



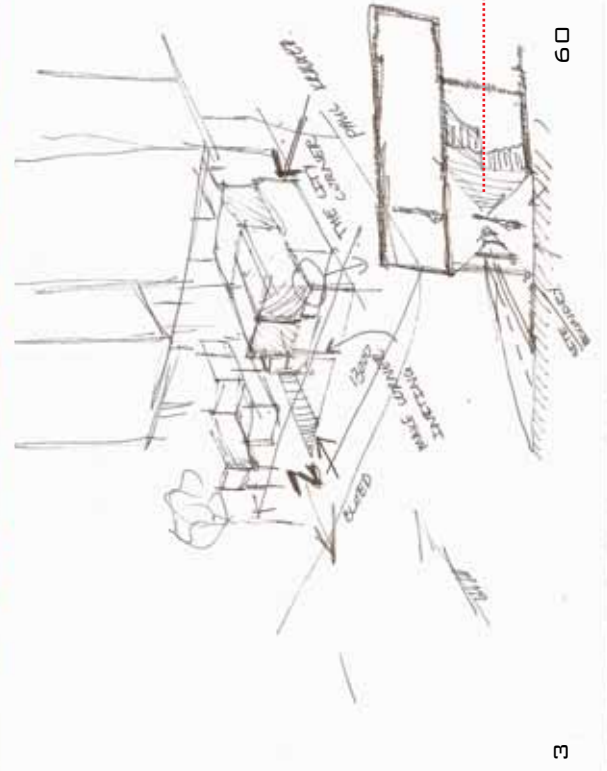
THE WALKWAY WAS PROPOSED FOR A NON-OBSTRUCTIVE PASSAGE THROUGH THE SITE, AS THE TRAM LINE CROSSES WITH THE EXISTING WALKWAY NEXT TO THE ROAD. SO THE NEW WALKWAY IS AT AN OFFSET DISTANCE OF 1 INTO THE SITE.



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THE PROPOSED SITE IS SITUATED AT THE EDGE OF THE HIGH RISE BUILDINGS WHERE THE CITY STARTS TO FLATTEN DOWN TOWARDS THE NORTHERN PART OF THE CITY. THE HEIGHT OF THE BUILDING FITS INTO THE STEP DOWN OF THE CITY. THE HEIGHT OF THE BUILDING WILL BE THE LAST STEP DOWN IN THE CITY SCAPE, AND IT WILL BE HELPED WITH AN IN BETWEEN HEIGHT OF THE TOWER CRANE.

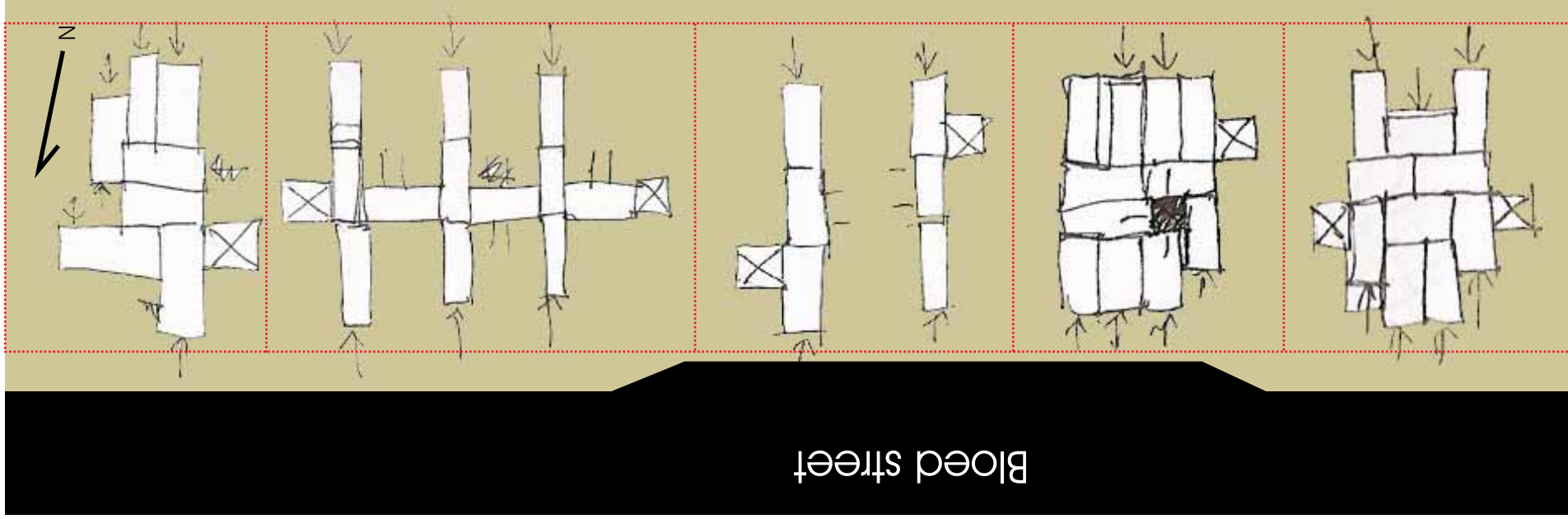


THE CORNER PLAYS A BIG ROLE IN THE SHAPE AND EXPERIENCES OF A CITY.

IN THE INNER CITY OF PRETORIA ONE OF THE MAIN CHARACTERISTICS IS THE COVERED WALKWAYS, SO THIS CONSIDERATION PLAYED A BIG ROLE IN THE LAYOUT OF THE COMMERCIAL UNITS AT STREET LEVEL



# COMMERCIAL LAYOUT



TO ACHIEVE MAXIMUM FLEXIBILITY WITHIN THE COMMERCIAL SPACE EACH SHOP FITS ON ITS OWN SITE SO THAT VARIATIONS TO THE FLOOR LAYOUT CAN BE ACCOMMODATED FOR WITHIN THIS CONTAINED SITE. THE SECOND REASON FOR SEPARATING THE SHOPS IS TO MAKE THE SITE AS PENETRABLE AS POSSIBLE FOR PEDESTRIANS TO FILTER THROUGH THE BUILDING TO THE PUBLIC SQUARE ON THE SITE AND TO ACCESS THE TRAM STATION TO THE SOUTH OF THE SITE.

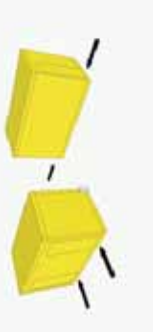
## All units Prefabricated off site

- TOILET UNIT
- STORAGE UNIT
- STAIRCASE UNIT
- RETAIL FLOORSPACE UNIT

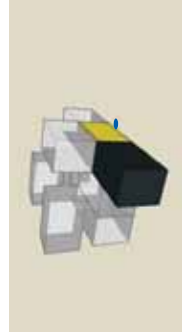
- SERVICED POINT



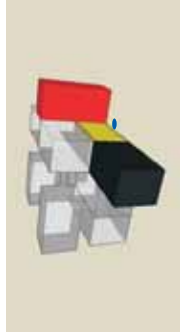
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PROVIDING TWO WAYS TO ACCESS THE TOILET UNITS GIVES MORE VARIATIONS TO CHOOSE IN THE LAYOUT OF THE SHOP.



THE TOILET UNIT DETERMINES THE STARTING POINT FOR THE LAYOUT, THE OTHER UNITS CAN BE ADDED TO THE CLIENTS NEEDS AND REQUIREMENTS.



THE SIZE OF THE UNITS AND THE SHOP LAYOUT WILL REQUIRE AN APPROACH OF OPTIMAL SPACE UTILIZATION. EVERY SHOP WILL HAVE ITS OWN REQUIREMENTS FOR DISPLAY DEPENDING ON THE PRODUCTS ON SALE. A GREAT EXAMPLE OF SUCH AN APPROACH IS THE FREITAG SHOP IN ZURICH, REFER TO CASE STUDIES.

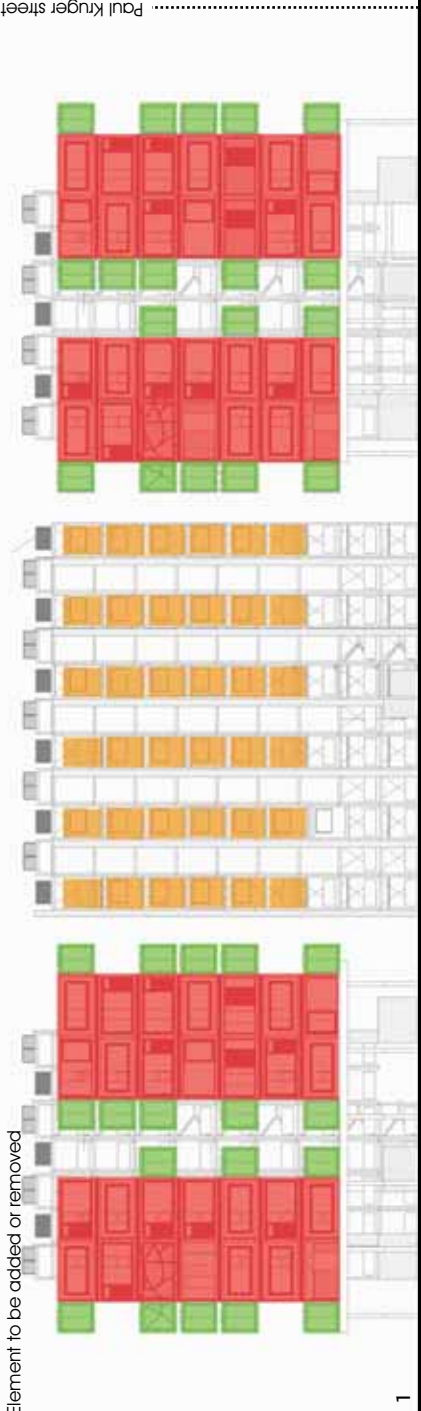


THE VARIOUS CHOICES IN PANELING AND WINDOWS FOR THESE COMMERCIAL UNITS WILL GIVE EACH SHOP ITS OWN IDENTITY.

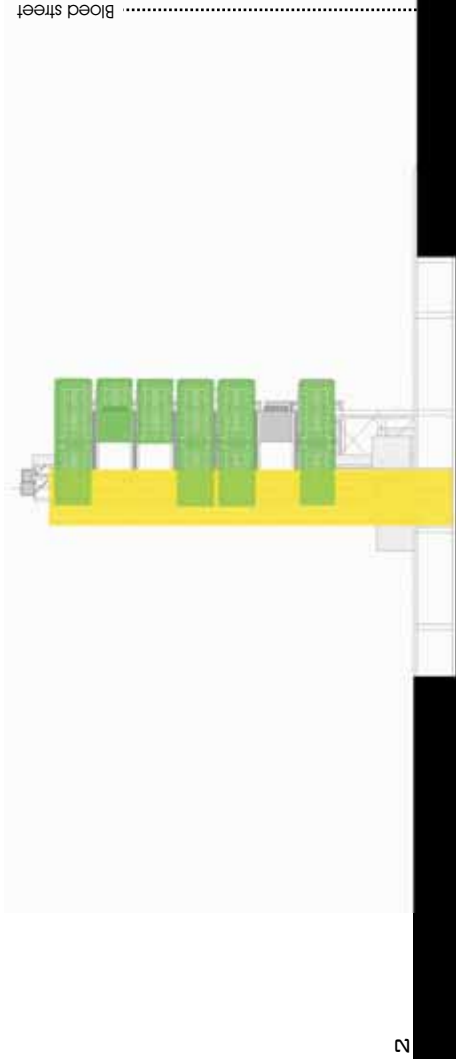
1 The image illustrates the difference in layouts that can be achieved with the flexibility of the units on its own site.

# RESIDENTIAL / NOMAD PLUG IN FACILITY

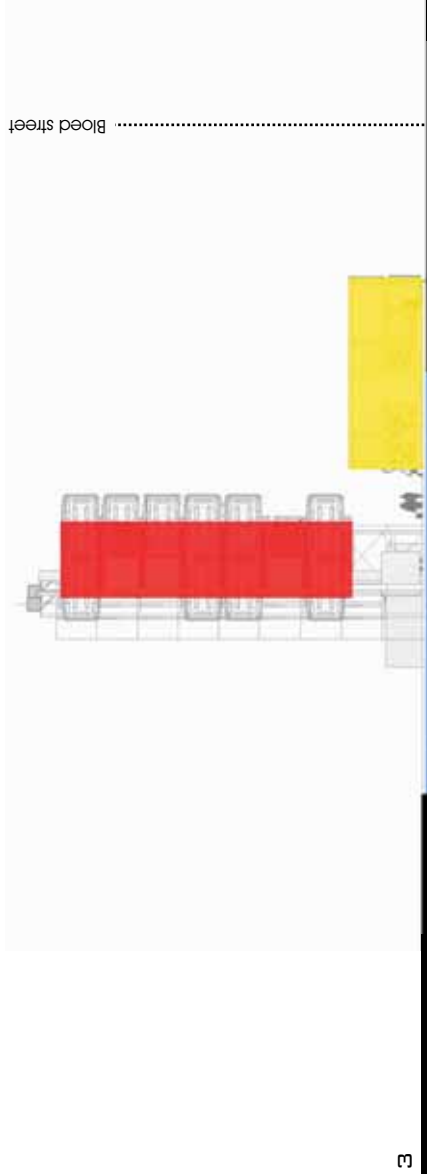
- Residential fixed stacked units
- Nomad plug-in facility
- Element to be added or removed



- Element to be added or removed
- Access at the south side of building



- Residential fixed stacked units
- Commercial
- Basement parking



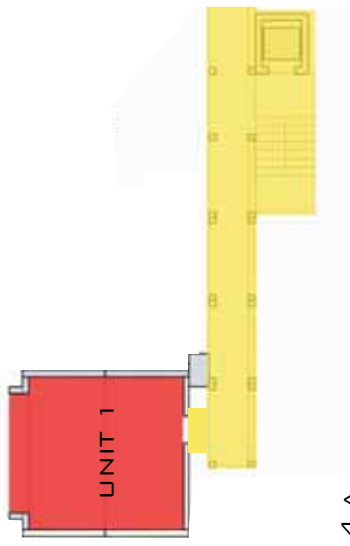


# RESIDENTIAL ADAPTABILITY



1

.....

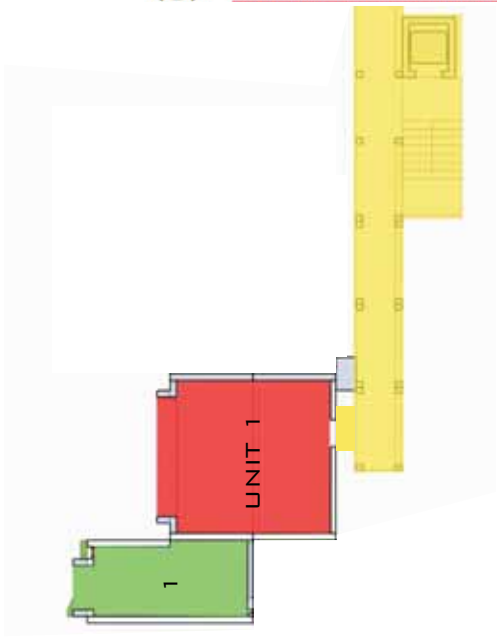


4 A



2

.....

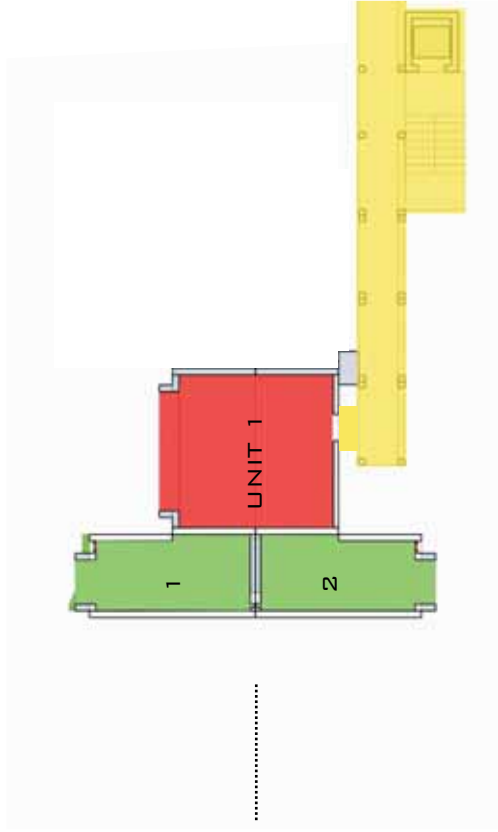


4 B



3

.....

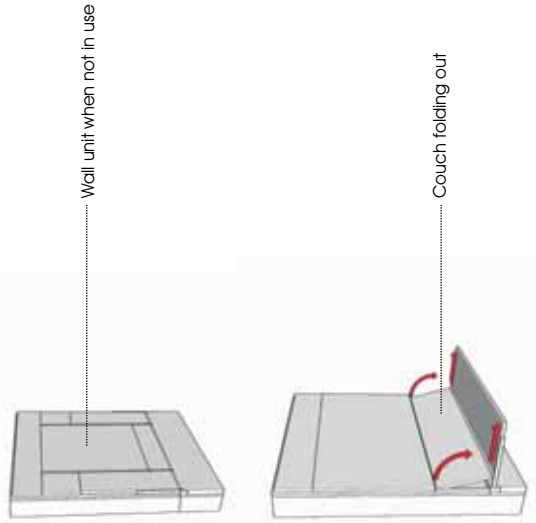


4 C



# RESIDENTIAL LAYOUT

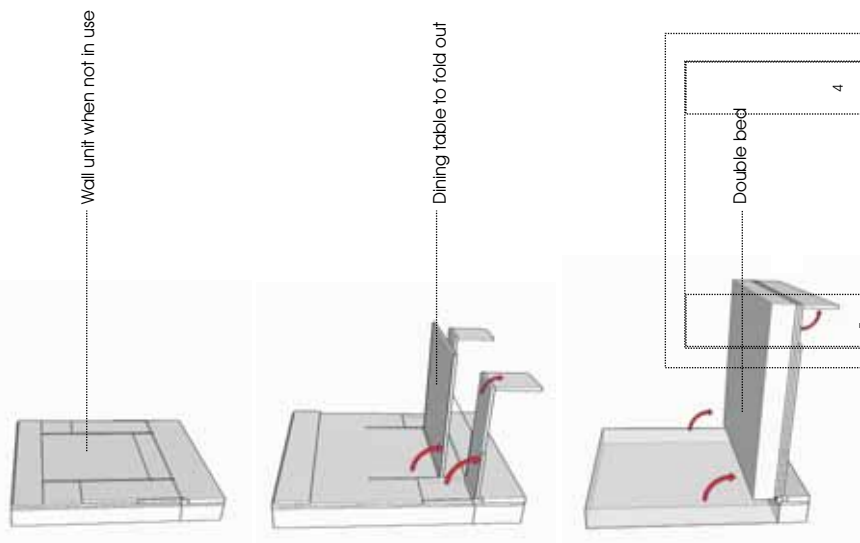
Bed and Couch unit



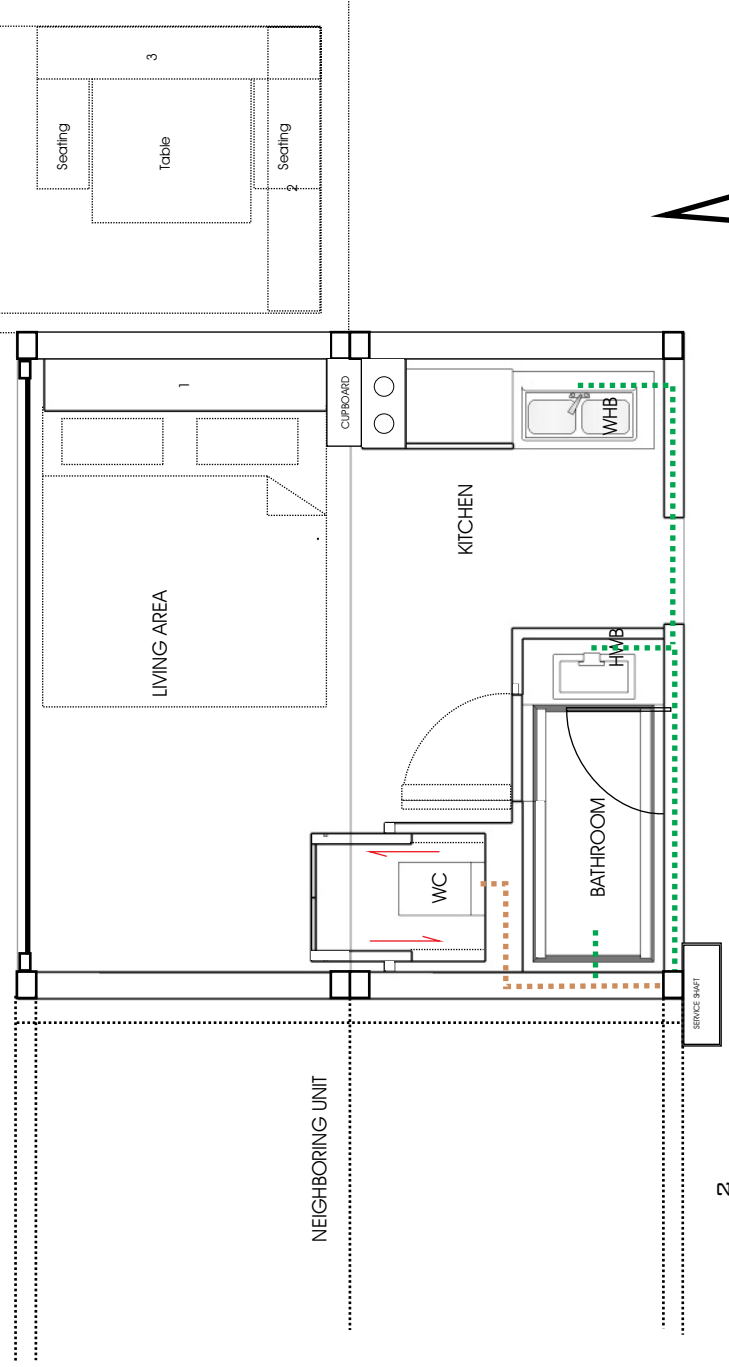
Possibilities to place this wall unit

Bed and Dining table unit

Positions 1, 3, 4 and 5 on plan



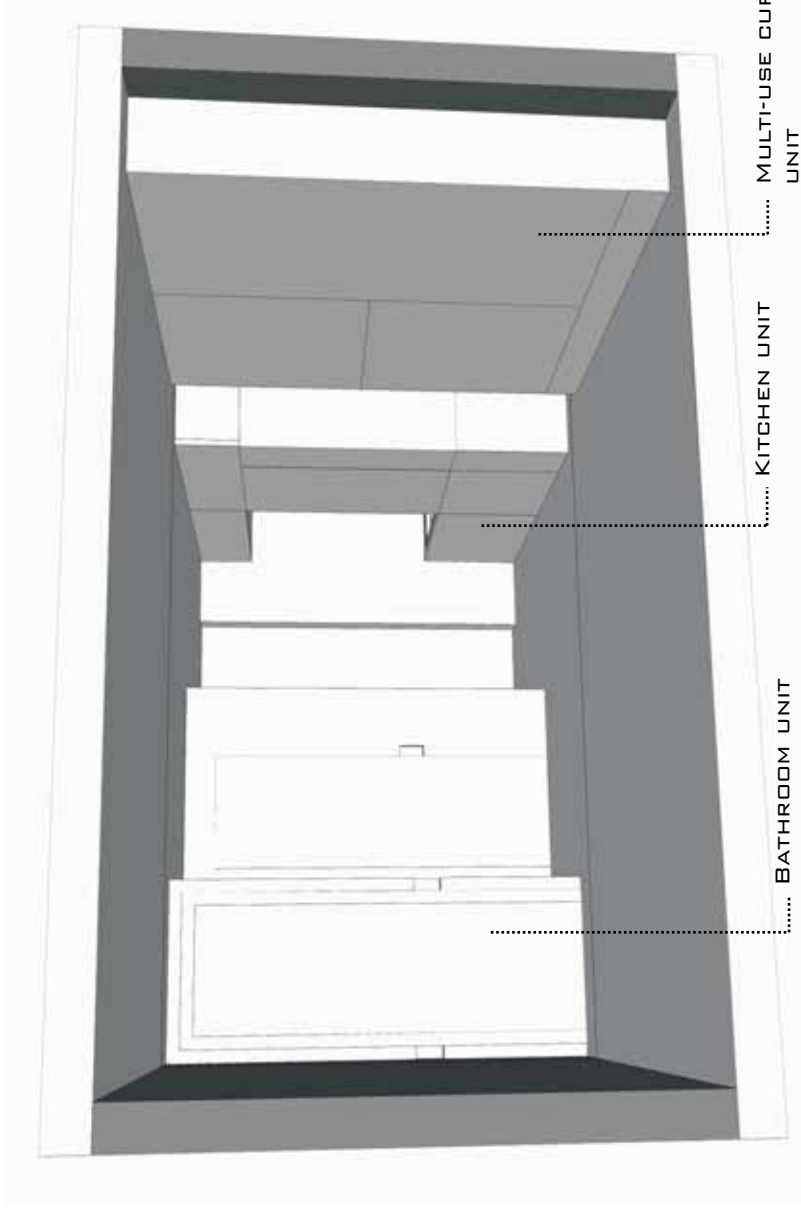
1



FLOOR PLAN BACHELOR UNIT

NORTH

# RESIDENTIAL LAYOUT

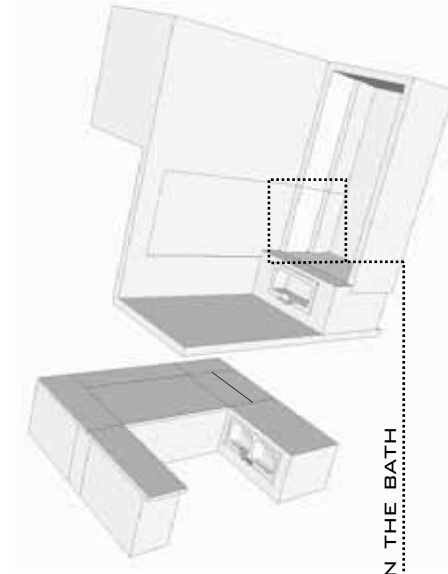


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..... MULTI-USE CUPBOARD  
UNIT

..... KITCHEN UNIT

..... BATHROOM UNIT



DOOR IN THE BATH



TO USE THE LIMITED SPACE OPTIMALLY  
WHEN DESIGNING THESE UNITS THE  
REQUIRED SPACE NEEDED FOR THE  
FUNCTIONS WILL BE SHARED. FOR EXAMPLE  
THE BATH BECOMING THE BATHROOM FLOOR  
SPACE.

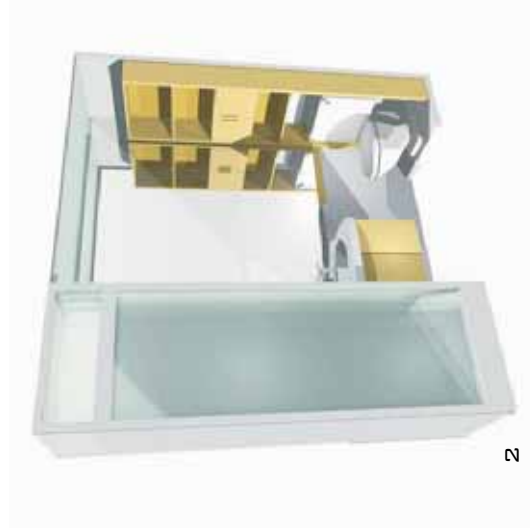
# RESIDENTIAL

## SUB SYSTEMS



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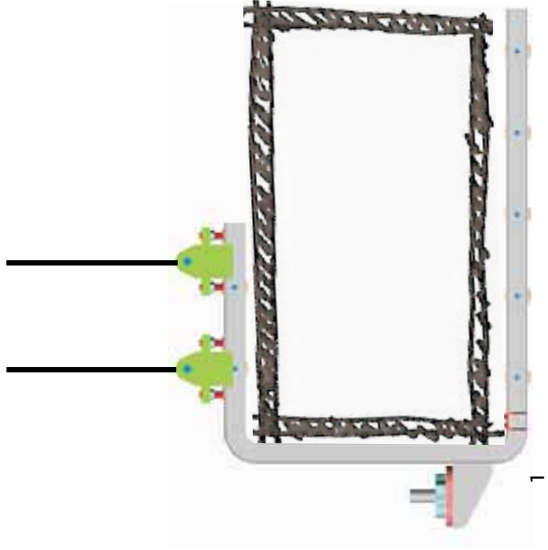
1



2

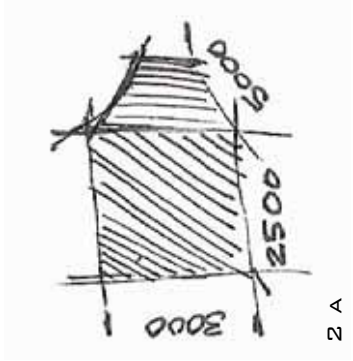
VARIATIONS WITHIN THE SUBSYSTEMS LIKE THE KITCHEN, BATHROOM AND CLOSET ARE ENDLESS, AND THESE SYSTEMS CAN BE DEVELOPED TO FIT WITHIN THE TECHNOLOGY PLATFORM. STANDARDS WITHIN THE STRUCTURE OF THESE SUBSYSTEMS CAN BIND ALL THE VARIATIONS. SIZE LIMITS WILL ALSO BE A LIMITING FACTOR, BUT ENDLESS VARIATIONS CAN BE DEVELOPED, ESPECIALLY WHEN TECHNOLOGY DEVELOPS AND ALLOWS THE DESIGNER PUSHING THE LIMITS WITHIN THESE DESIGN PARAMETERS.

# NOMAD POD CONCEPT

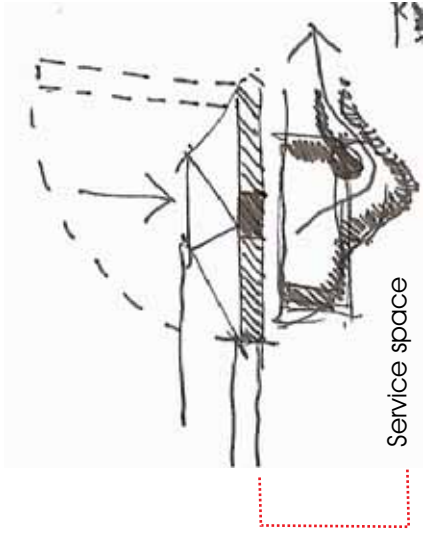


THE SIZE AND STRUCTURE OF THE POD IS THE SAME AS ALL THE OTHER UNITS USED IN THE COMMERCIAL AND RESIDENTIAL UNITS.

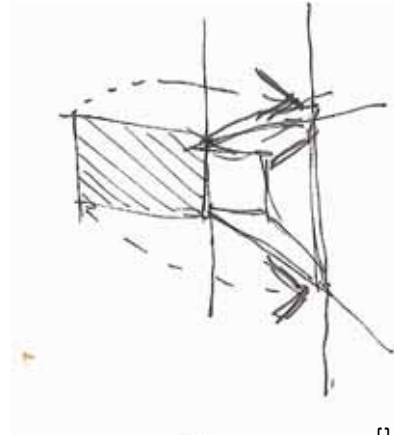
THE LAYOUT WAS DESIGNED TO OPTIMIZE THE USE OF SPACE AND IT WAS ACHIEVED BY INTRODUCING A SERVICE SPACE UNDER THE FLOOR. THIS SERVICE SPACE MAKES IT POSSIBLE TO MIX REQUIRED SPACE PER FUNCTION.



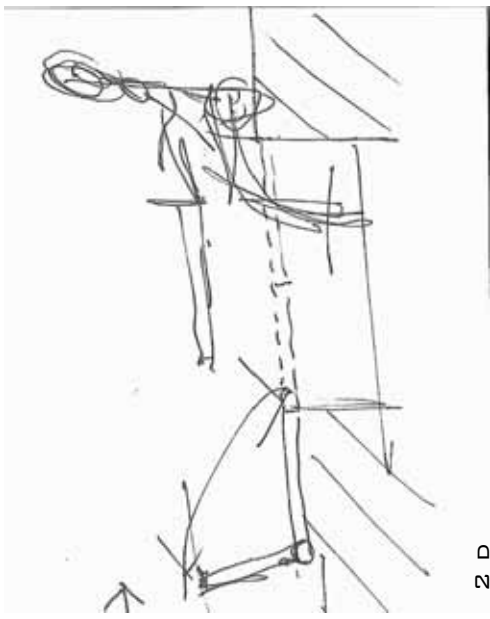
2 A



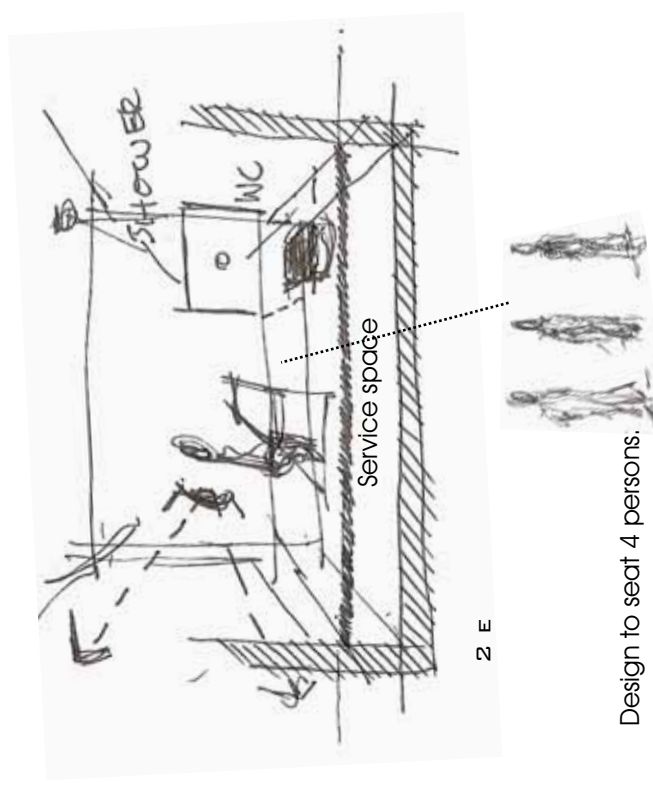
2 B



2 C



2 D



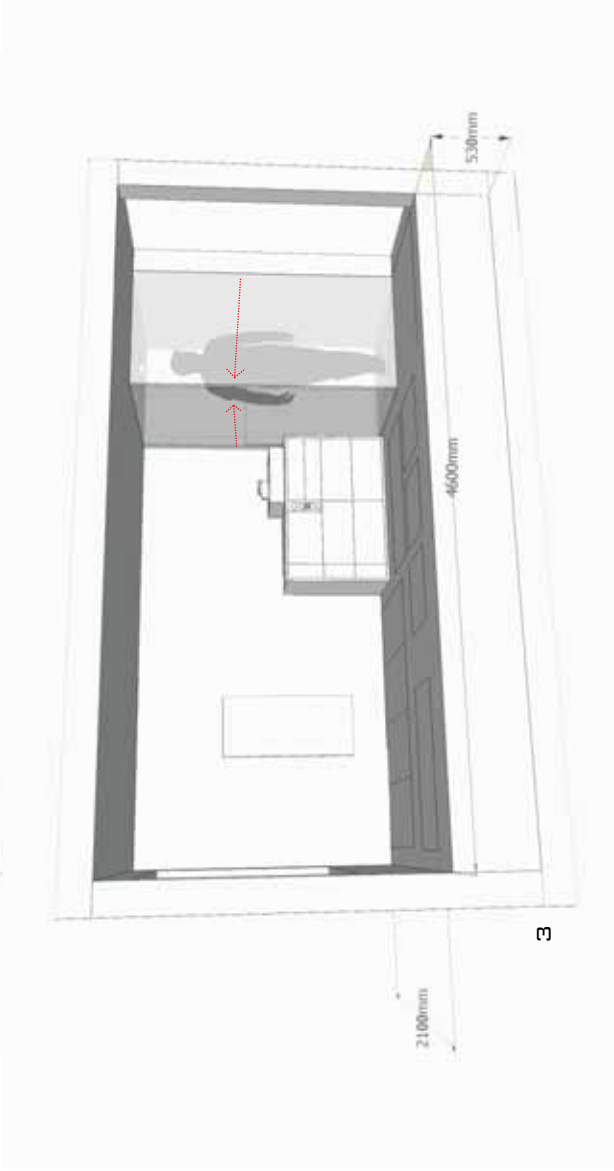
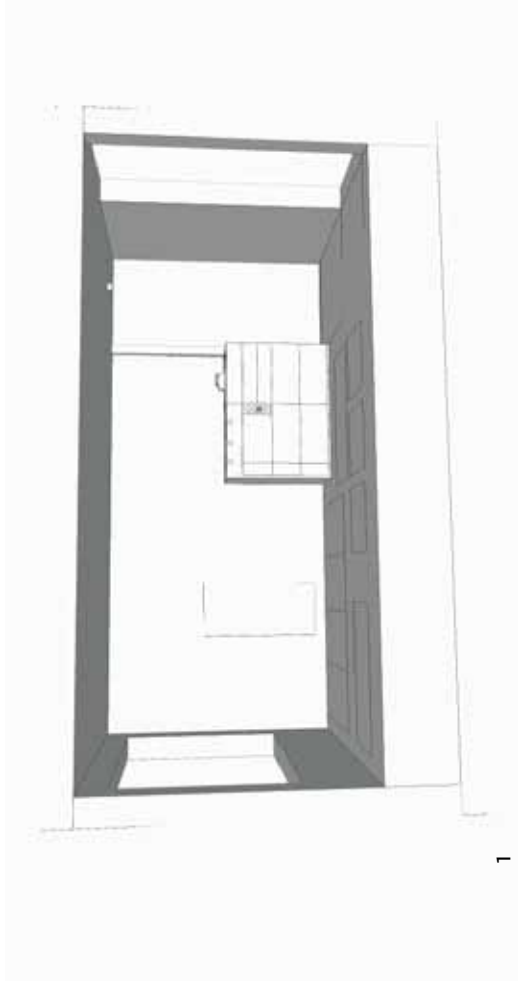
2 E

Design to seat 4 persons.





# NOMAD POD LAYOUT



CONTAINED IN THE NOMAD POD:

DOUBLE BED

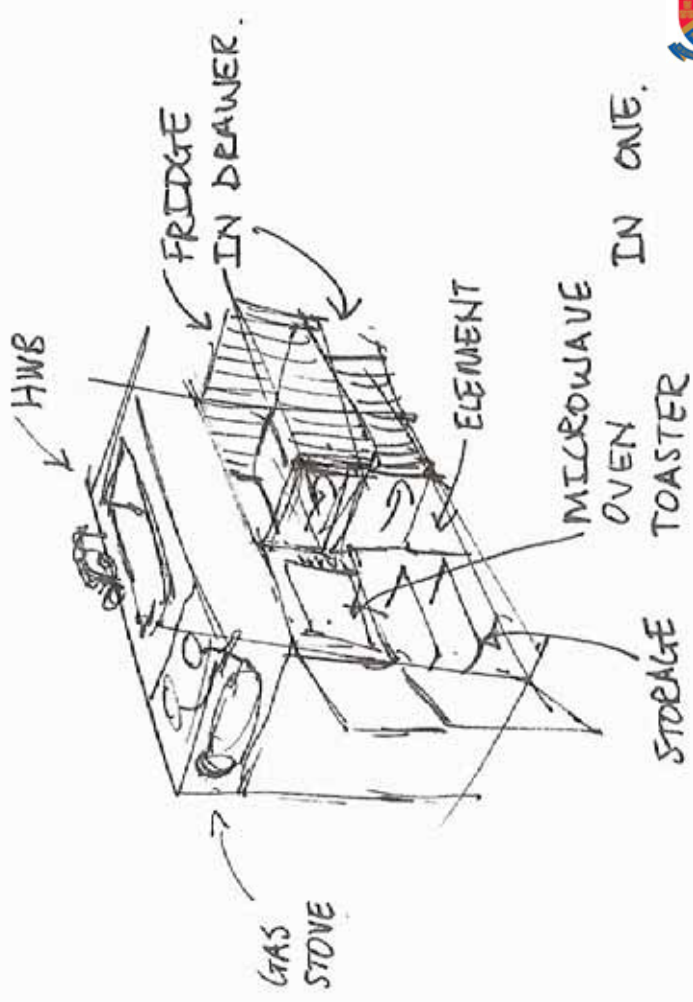
TWO DOUBLE SEAT CHAIRS WITH TABLE

KITCHEN UNIT WITH A FRIDGE, GAS STOVE AND WASHING BASIN (TO BE USED FOR BATHROOM AS WELL),

SHOWER

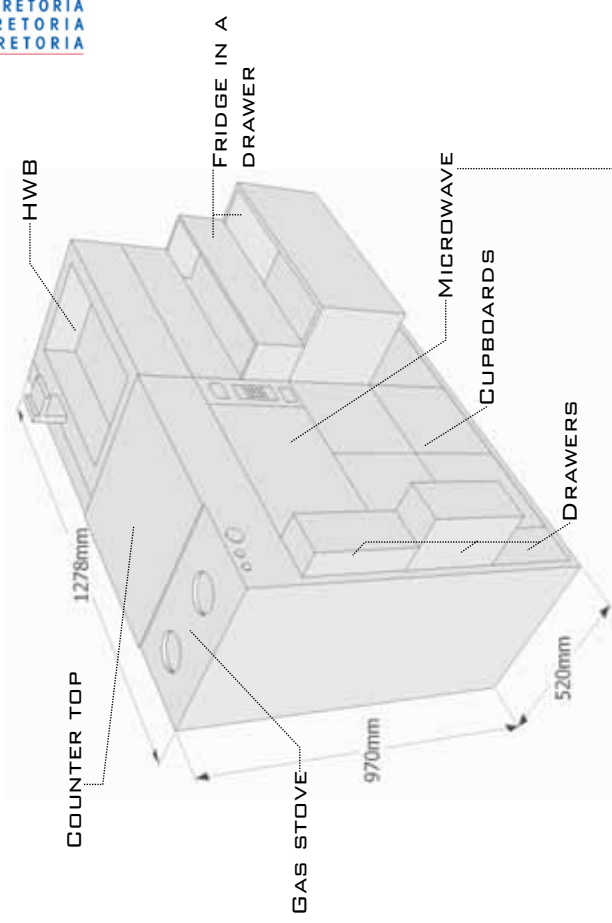
TOILET

# NOMAD POD KITCHEN UNIT



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FOR A SELF CATERING UNIT ONE NEED THE BASIC ELEMENTS OF A KITCHEN, THIS LAYOUT OF A KITCHEN UNIT SHOWS THE FEASIBILITY TO HAVE A SELF CATERING UNIT THE SIZE OF THE PROPOSED NOMAD POD.



0.9 CU. FT. COMBINATION MICROWAVE OVEN AND TOASTER WITH 900 MICROWAVE WATTS, 6 AUTO COOK OPTIONS & 9 TOASTER BROWNING LEVELS: STAINLESS STEEL