



# ETHEKWINI MUNICIPALITY HOUSING TYPOLOGIES STUDY A MATRIX OF TYPOLOGIES



PRESENTATION 4/5

# PROJECT OVERVIEW

# INTRODUCTION AND BACKGROUND

## 1 INTRODUCTION

- THIS PROJECT HAS BEEN INITIATED BY THE ARCHITECTURE DEPARTMENT OF THE ETHEKWINI MUNICIPALITY TO DEVELOP HOUSING TYPOLOGIES FOR THE DELIVERE OF NEW PROJETS AND EXISTING SETTLEMENT UPGRADE PROJECTS IN THE ETHEKWINI MUNICIPAL REGION
- THE STUDY IS TO INTEGRATE TOWN PLANNING, URBAN DESIGN AND ARCHITECTURE COMPONENTS
- THE INTENTION IS TO IDENTIFY PRACTICES WHICH OPTIMISE BOTH THE QUALITY AND SUSTAINABILITY OF RESULTANT LIVING ENVIRONMENTS

## 2 BACKGROUND

- DESPITE THE DELIVERY OF ALMOST 2 MILL HOUSING UNITS BY GOVERNMENT SINCE 1994, THE DOMINANT HOUSING TYPOLOGY CONTINUES TO BE DETACHED, SINGLE FAMILY HOMES ON LARGER FREE HOLD PLOTS
- THE INCREASING PRESSURE ON URBAN LAND, DEMANDS FOR OPTIMISING EXISTING SERVICE INFRASTRUCTURE AND THE NEGATIVE SOCIO-ECONOMIC IMPLICATIONS OF DEVELOPING ON THE URBAN PERIPHERY HAVE NECESSITATED A REVIEW OF THE LOCATION AND DESIRED DENSITIES OF HOUSING SETTLEMENTS
- IT HAS BECOME NECESSARY THAT THE SUPPLY OF HOUSING BE MORE RECEPTIVE TO THE REDEVELOPMENT OF SITES LOCATED WITHIN ALREADY SERVICED AND DEVELOPED AREAS AS WELL AS THE UPGRADING OF EXISTING SETTLEMENTS
- A STUDY AND DEVELOPMENT OF AFFORDABLE HOUSING TYPOLOGIES APPLICABLE TO PREVAILING LOCAL CONDITIONS (TYPOGRAPHY, CLIMATE, TECHNOLOGIES AND FINANCE) WILL ASSIST IN MEETING THE URBAN HOUSING CHALLENGE WITH GREATER AUTHORITY, EFFICIENCY AND UNDERSTANDING

## 3 PROJECT OBJECTIVES

- TO INFORM THE OPTIMISATION OF QUALITY AND SUSTAINABILITY IN THE DESIGN AND ONGOING DELIVERY OF SUBSIDY HOUSING
- TO DETERMINE OPTIMAL HOUSING TYPOLOGIES FOR APPLICATION IN INFORMAL SETTLEMENT UPGRADING AND GREENFIELD PROJECTS WITHIN THE URBAN AREA OF ETHEKWINI

## 4 DEFINING HOUSING TYPOLOGY

- HOUSING TYPOLOGY ENCOMPASSES ATTRIBUTES OF FUNCTION AND CONFIGURATION CHARACTERISTICS OF PUBLIC AND PRIVATE BUILDINGS AND THE SPACES AROUND THESE BUILDINGS THROUGH CONSTRUCTION
- TYPOLOGY MUST CONSIDER ASPECTS OF TOWN PLANNING AND URBAN DESIGN AS WELL AS THE DETAIL OF MULTI-UNITS OR RESIDENTIAL CLUSTERS
- TYPOLOGY HAS A TIME DIMENSION AND THEREFORE MUST CONSIDER FLEXIBILITY, ADAPTABILITY AND TRANSFORMATION OVER TIME
- THE QUALITY OF HOUSING TYPOLOGY MUST CONSIDER CONTEXT WHICH IS DEPENDANT ON A NUMBER OF FACTORS INCLUDING THE LOCATION OF SERVICES, THE BALANCE BETWEEN PRIVATE, SEMI PRIVATE, COMMUNAL AND PUBLIC SPACE, THE MIX OF RESIDENTIAL AND NON-RESIDENTIAL USE AND THE END-USERS SOCIAL AND CULTURAL STRUCTURES
- IN ETHEKWINI THE CONSIDERATION OF TYPOLOGY IN RELATION TO TOPGRAPHY IS CRITICAL AS MANY INFORMAL SETTLEMENTS ARE FOUNDED ON STEEP AND UNSTABLE LAND. STEEP SLOPES IMPOSE HIGHER BUILDING AND INFRASTRUCTURE COSTS AND CREATE DIFFICULTIES OF ACCESS REQUIRING GREATER CARE IN THE DESIGN AND LAYOUT OF HOUSES

# PROJECT STRUCTURE

- 1 PRECEDENTS AND LITERATURE OVERVIEW
- 2 PILOT PROJECT OVERVIEW
- 3 BUILDING THE PRINCIPLES
- 4 MATRIX OF TYPOLOGIES**
- 5 DESIGN CONSIDERATIONS

# PROJECT STRUCTURE

## 1 PRECEDENTS AND BIBLIOGRAPHY

- KEY ISSUES TO INFORM THE BRIEF
- BIBLIOGRAPHY AND SYNOPSIS OF RELEVANT LITERATURE
- REVIEW OF CASE STUDIES
- FINDINGS TO OFF SET NEGATIVE TRENDS

## 2 PILOT PROJECT OVERVIEW

- AREA / INFRASTRUCTURE AUDIT
- SITE ANALYSIS
- READINESS FOR DEVELOPMENT AND IMPLICATIONS FOR TYPOLOGY SELECTION

## 3 BUILDING THE PRINCIPLES

- GUIDING PRINCIPLES FOR HOUSE DESIGN AND URBAN LAYOUTS

## 4 MATRIX OF TYPOLOGIES

- SUMMARY OF HOUSING TYPOLOGIES
- FINAL HOUSING TYPOLOGY DESIGNS
- COSTINGS

## 5 DESIGN CONSIDERATIONS

- DENSITY AND TOPOGRAPHICAL CONSIDERATIONS
- MATERIALS AND MINIMUM QUALITY LEVEL CONSIDERATIONS
- SERVICING AND SUSTAINABILITY CONSIDERATIONS

# A MATRIX OF TYPOLOGIES

# CONTENTS

## 1 BUILDING THE TYPOLOGY MATRIX

IN WHICH THE BUILDING BLOCKS OF THE BASIC TYPOLOGY MATRIX ARE UTILISED TO DEVELOP A COMPREHENSIVE MATRIX OF ALL FEASIBLE LOW-INCOME HOUSING TYPOLOGIES.

**(44 TYPOLOGIES)**

## 2 SELECTING APPROPRIATE TYPOLOGIES

IN WHICH CERTAIN TYPOLOGIES FROM THE COMPREHENSIVE MATRIX ARE ELIMINATED TO IDENTIFY TYPOLOGIES THAT MEET ALL SOUTH AFRICAN LEGAL, COSTING AND SUBSIDY CRITERIA REQUIREMENTS.

**(24 TYPOLOGIES)**

## 3 AN ARCHITECTURAL RESPONSE

IN WHICH A PROCESS IS FOLLOWED TO IDENTIFY A SELECT NUMBER OF TYPOLOGIES THAT ARE MOST APPROPRIATE TO ETHEKWINI SOCIAL, SPATIAL AND ENVIRONMENTAL CONDITIONS.

**(6 TYPOLOGIES)**

## 4 VARIATIONS AND APPLICATIONS

IN WHICH BROAD INDICATIONS ARE GIVEN ON HOW THE BASIC TYPOLOGY FOOTPRINTS CAN BE VARIED, COMBINED OR APPLIED TO SPECIFIC CONDITIONS TO SAVE TIME AND MONEY OR MEET ALTERNATIVE SOCIAL REQUIREMENTS.

## 5 COSTINGS

IN WHICH BROAD COSTINGS FOR THE 24 TYPOLOGIES AS WELL AS MORE DETAILED COSTINGS FOR THE 6 SELECTED TYPOLOGIES ARE PROVIDED.



# SYNOPSIS

THE BUILDING BLOCKS OF THE TYPOLOGY MATRIX ARE THE THREE BASIC HOUSE FORMS, NAMELY:

- NARROW FRONTAGE
- MEDIUM FRONTAGE; AND
- WIDE FRONTAGE

USING THESE BUILDING BLOCKS IT IS POSSIBLE TO GENERATE A MATRIX OF 44 POSSIBLE LOW-INCOME HOUSE TYPOLOGIES. HOWEVER OF THE 44 ONLY 24 TYPES QUALIFY FOR SOUTH AFRICAN HOUSING SUBSIDIES.

THESE 24 TYPES ARE ALL FEASIBLE FOR USE IN LOW INCOME HOUSING PROJECTS BUT 6 HAVE BEEN SELECTED AS BEING MOST APPROPRIATE FOR USE IN ETHEKWINI IN THAT THEY CAN BE DEVELOPED ON STEEP SLOPES, ARE RELATIVELY CHEAP TO CONSTRUCT, EMPLOY SIMPLE CONSTRUCTION MATERIALS AND METHODS AND USING APPROPRIATE LAYOUTS WOULD SIGNIFICANTLY INCREASE DENSITIES.

HOWEVER ALL 44 TYPES ARE FLEXIBLE ENOUGH TO ACCOMMODATE A RANGE OF ARCHITECTURAL RESPONSES, YET ROBUST ENOUGH TO LIMIT THE NEED FOR EXTENSIVE REDESIGN AND COSTING EVERY TIME A NEW SITE IS DEVELOPED.

FINALLY AN INDICATION OF HOW THE BASIC BUILDING BLOCKS CAN BE USED TO GENERATE ADDITIONAL ALTERNATIVE HOUSING TYPOLOGIES (SINGLE QUARTERS, ESSENTIAL SERVICE CORE PROVISION ETC) IS PROVIDED.

# THE COMPREHENSIVE MATRIX

# T TYPOLOGY BUILDING BLOCKS

THE BUILDING BLOCKS OF THE TYPOLOGY MATRIX ARE THE THREE BASIC HOUSE FORMS, NAMELY:

- NARROW FRONTAGE
- MEDIUM FRONTAGE; AND
- WIDE FRONTAGE.

THE BASIC FORMAT FOR THE COMPREHENSIVE TYPOLOGY MATRIX IS AS FOLLOWS:

- COLUMNS INDICATE SINGLE, DOUBLE AND MULTIPLE STOREY BUILDING OPTIONS,
- EACH COLUMN IS SUBDIVIDED INTO DETACHED, SEMI-DETACHED OR ROW HOUSING OPTIONS.
- ROWS INDICATE RESIDENTIAL BUILDINGS IN SINGLE OWNERSHIP, RESIDENTIAL USES IN MULTIPLE OWNERSHIP OR MIXED USE BUILDINGS WITH NON-RESIDENTIAL USES ON THE GROUND FLOOR AND RESIDENTIAL USES ON THE UPPER FLOORS.

ALL FEASIBLE TYPOLOGIES ARE INDICATED GRAPHICALLY, UNFEASIBLE LOW-INCOME OPTIONS ARE BLANKED OUT IN RED.

IN THE CASE OF NARROW FRONTAGE TYPOLOGIES IT WOULD, FOR EXAMPLE, BE UNFEASIBLE FROM A COST AND PRACTICAL POINT OF VIEW TO DEVELOP A MULTIPLE STOREY BUILDING COMPRISING DETACHED, LOW-INCOME, RESIDENTIAL UNITS.

# TYOLOGY BUILDING BLOCKS

- NARROW,**



- MEDIUM AND**



- WIDE FRONTAGES**



- DETACHED,**



- SEMI-DETACHED AND**



- ROW COMBINATIONS**



- SINGLE,**



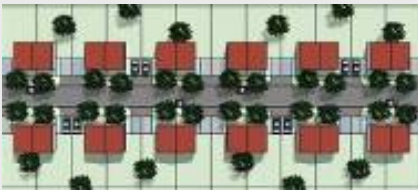
- DUPLEX AND**



- DOUBLE STOREYS**



- STREET,**



- CLUSTER AND**

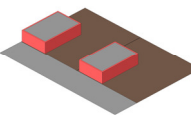
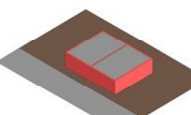
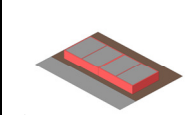


- COURTYARD LAYOUTS**

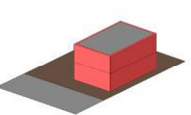
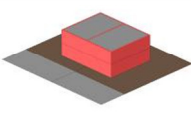
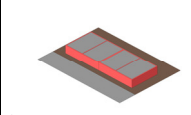


## Narrow frontage house typologies

### Single storey

Detached	Semi-detached	Row
		
1	2	3
All res		

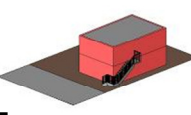
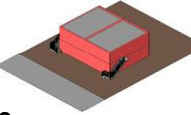
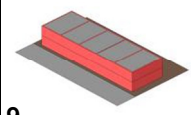
### Double storey

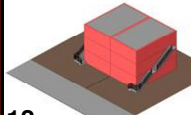
Detached	Semi-detached	Row
		
4	5	6
All res - duplex		

### Triple / multiple storey

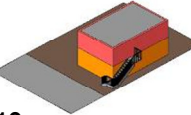
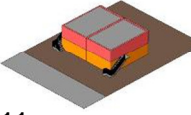
Detached	Semi-detached	Row
All res - duplex		

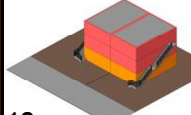
Detached	Semi-detached	Row
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
7	8	9
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
All res - separate ownership on each floor		

Detached	Semi-detached	Row
Non-res use on groundfloor		

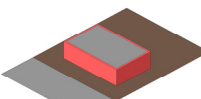
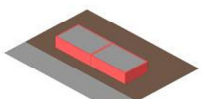
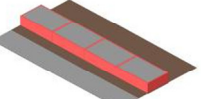
Detached	Semi-detached	Row
		
10	11	
Non-res use on groundfloor		

Detached	Semi-detached	Row
		
Non-res use on groundfloor		

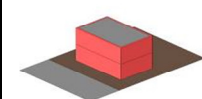
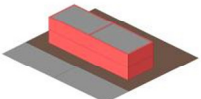
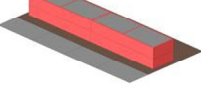
**13 POSSIBLE TYPOLOGIES**

## Medium frontage house typologies

### Single storey

Detached	Semi-detached	Row
		
14	15	16
All res		

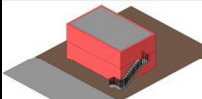
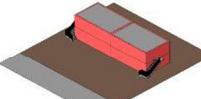
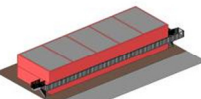
### Double storey

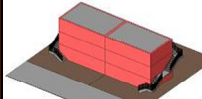
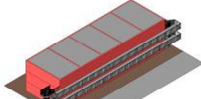
Detached	Semi-detached	Row
		
17	18	19
All res - duplex		

### Triple / multiple storey

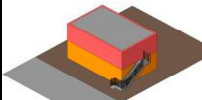
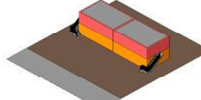
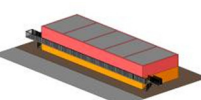
Detached	Semi-detached	Row
All res - duplex		

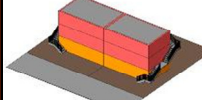
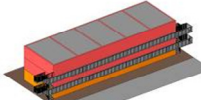
Detached	Semi-detached	Row
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
20	21	22
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
	26	27
All res - separate ownership on each floor		

Detached	Semi-detached	Row
Non-res use on groundfloor		

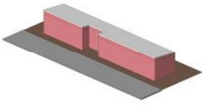
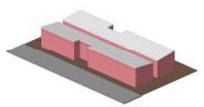
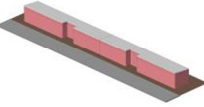
Detached	Semi-detached	Row
		
23	24	25
Non-res use on groundfloor		

Detached	Semi-detached	Row
		
	28	29
Non-res use on groundfloor		

**16 POSSIBLE TYPOLOGIES**

## Wide frontage house typologies

### Single storey

Detached	Semi-detached	Row
		
30	31	32
All res		

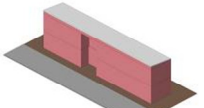
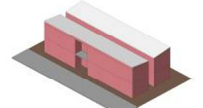
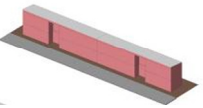
### Double storey

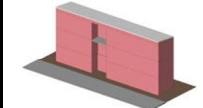
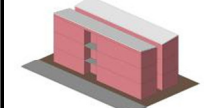
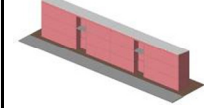
Detached	Semi-detached	Row
All res - duplex		

### Triple / multiple storey

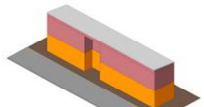
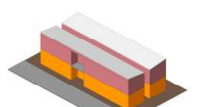
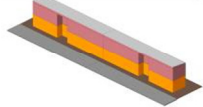
Detached	Semi-detached	Row
All res - duplex		

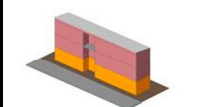
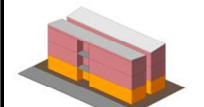
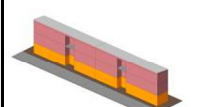
Detached	Semi-detached	Row
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
33	34	35
All res - separate ownership on each floor		

Detached	Semi-detached	Row
		
39	40	41
All res - separate ownership on each floor		

Detached	Semi-detached	Row
Non-res use on groundfloor		

Detached	Semi-detached	Row
		
36	37	38
Non-res use on groundfloor		

Detached	Semi-detached	Row
		
42	43	44
Non-res use on groundfloor		

**16 POSSIBLE TYPOLOGIES**

THE FOLLOWING SLIDE COMBINES THE NARROW, MEDIUM AND WIDE FRONTAGE OPTIONS IDENTIFIED ABOVE INTO A SINGLE, CONSOLIDATED MATRIX.

TO ASSIST IN SELECTING AN APPROPRIATE TYPOLOGY WHEN UNDERTAKING A SPECIFIC PROJECT AN ANALYSIS OF EACH TYPOLOGY IS PROVIDED TO INDICATE:

- THE MOST APPROPRIATE SLOPE ON WHICH THE UNIT COULD BE DEVELOPED (FLAT, GENTLE, MODERATE, STEEP OR VERY STEEP),
- THE MOST SUITABLE URBAN LAYOUT FOR THE UNIT (WHETHER IT CAN BE USED IN STREET, CLUSTER OR COURTYARD APPLICATIONS),
- ITS BUILDABILITY (WHETHER IT CAN BE SELF BUILT OR REQUIRES SPECIALISED PROFESSIONAL INPUTS FROM ENGINEERS OR ARCHITECTS),
- ITS EXPANDABILITY (HOW SUITABLE IT IS FOR FUTURE ALTERATIONS AND ADDITIONS BY OWNERS),
- ITS SUSTAINABILITY (WHAT ECO- FRIENDLY APPLICATIONS COULD BE ADDED TO THE UNIT (SOLAR PANELS, RAIN WATER TANKS, SEPTIC TANKS ETC),
- WHETHER OR NOT THE UNIT QUALIFIES FOR A HOUSING SUBSIDY OR NOT INDICATED AS FOLLOWS:

Yes
No

- THE LIKELY DENSITIES TO BE ACHIEVED ON THE VARIOUS SLOPES INDICATED AS FOLLOWS:

High (> 60 units / ha)
Medium (30 -60 unit / ha)
Low (<30 units / ha)

- THE COST OF CONSTRUCTION PER APPORTIONED UNIT INDICATED AS FOLLOWS:

High (> R110 000)
Medium (R90-110 000)
Low (< R90 000)

**NOTE: STATED DENSITIES ARE INDICATIVE AND FOR COMPARATIVE PURPOSES AS THEY DO NOT TAKE INTO ACCOUNT CHANGING TERRAIN, AND THE NEED FOR NON-RESIDENTIAL FACILITIES. LAYOUTS ARE ALL BASED ON MINIMAL ROAD PROVISION BY USING PANHANDLE LAYOUTS**



House type	Narrow frontage house typologies						Medium frontage house typologies						Wide frontage house typologies																	
Stories	Single storey		Double storey		Triplex / multiple storey		Single storey		Double storey		Triplex / multiple storey		Single storey		Double storey		Triplex / multiple storey													
Option 1	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row									
All res.	All res. - separate ownership on each floor						All res. - separate ownership on each floor						All res. - separate ownership on each floor																	
Option 2	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row						
All res.	All res. - separate ownership on each floor						All res. - separate ownership on each floor						All res. - separate ownership on each floor																	
Option 3	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row						
Non-res. use on ground floor	Non-res. use on ground floor						Non-res. use on ground floor						Non-res. use on ground floor																	
Topography applications	Flat (< 8)						Gentle (1:5 - 1:8)						Moderate (1:2 - 1:4)						Steep (1:2.5 - 1:3)						Very steep (> 1:2.5)					
Layout applications	Street						Cluster						Riverside						Suburban						Self-build extensions					
Flexibility	Adaptability						Flexibility						Adaptability						Flexibility						Adaptability					
Accessibility	Mobility						Accessibility						Mobility						Accessibility						Mobility					
Energy	Energy						Energy						Energy						Energy						Energy					
Water	Water						Water						Water						Water						Water					
Waste	Waste						Waste						Waste						Waste						Waste					
Health	Health						Health						Health						Health						Health					
Security	Security						Security						Security						Security						Security					
Cost	Cost						Cost						Cost						Cost						Cost					
Units per hectare for flat slope	Units per hectare for gentle slope						Units per hectare for moderate slope						Units per hectare for steep slope						Units per hectare for very steep slope											
Costs per appointed unit	Costs per appointed unit						Costs per appointed unit						Costs per appointed unit						Costs per appointed unit											

**NOTE: FOR PURPOSES OF CLARITY, PLEASE REFER TO THE ORIGINAL SPREADSHEETS WHICH HAVE BEEN INCLUDED IN THE FOLDER 'FINAL REPORTS, DRAWINGS AND SPREADSHEETS - FEB 2010'**

## 44 POSSIBLE TYPOLOGIES

# TYOLOGY SELECTION

# SELECTION CRITERIA

THIS SECTION APPLIES A SET OF CRITERIA TO THE FULL SUITE OF TYPOLOGIES IDENTIFIED IN THE COMPREHENSIVE MATRIX TO SELECT A LIMITED NUMBER OF TYPOLOGIES THAT WOULD BE MOST APPLICABLE FOR DETAILED DEVELOPMENT.

A THREE STEP PROCESS IS FOLLOWED IN THIS SECTION:

- APPROPRIATE CRITERIA ARE IDENTIFIED;
- THE CRITERIA ARE APPLIED TO EACH TYPOLOGY IN A SYSTEMATIC WAY TO IDENTIFY THE TYPOLOGIES THAT WOULD QUALIFY FOR HOUSING SUBSIDIES  
IN THIS WAY THE 44 TYPOLOGIES OF THE COMPREHENSIVE MATRIX ARE REDUCED TO 24 POSSIBLE TYPES
- THESE 24 TYPES ARE THEN SUBJECTED TO A FURTHER SELECTION PROCESS TO IDENTIFY 6 TYPES THAT COULD BE CONSIDERED FOR DEVELOPMENT IN THE ETHEKWINI CONTEXT.

# ESTABLISHING THE CRITERIA

1. HOUSING SUBSIDY QUALIFICATION
2. COST
3. DENSITY
4. URBAN FORM

# THE MATRIX

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 1 All res	 2	 3	 4 All res - duplex	 5	 6			
			 7 All res - separate ownership on each floor	 8	 9	 12 All res - separate ownership on each floor		
			 10 Non-res use on groundfloor	 11 Non-res use on groundfloor		 13 Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 14 All res	 15	 16	 17 All res - duplex	 18	 19			
			 20 All res - separate ownership on each floor	 21	 22	 26 All res - separate ownership on each floor	 27	
			 23 Non-res use on groundfloor	 24 Non-res use on groundfloor	 25	 28 Non-res use on groundfloor	 29	

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 30 All res	 31	 32						
			 33 All res - separate ownership on each floor	 34	 35	 39 All res - separate ownership on each floor	 40	 41
			 36 Non-res use on groundfloor	 37 Non-res use on groundfloor	 38	 42 Non-res use on groundfloor	 43	 44

**44 POSSIBLE TYPOLOGIES**

# TYOPOLOGY SELECTION

# HOUSING SUBSIDY QUALIFICATION

- EXCLUDE ALL TRIPLE / MULTIPLE STOREY UNITS
- EXCLUDE ALL UNITS WITH NON-RESIDENTIAL USES ON GROUND FLOOR

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

**ELIMINATE 20 = 24 TYPOLOGIES**

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
1	2	3	4	5	6			
All res			All res - duplex			All res - duplex		
			7	8	9			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
14	15	16	17	18	19			
All res			All res - duplex			All res - duplex		
			20	21	22			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
30	31	32						
All res			All res - duplex			All res - duplex		
			33	34	35			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		



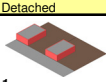
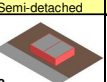
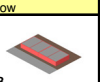
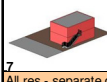
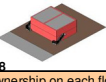
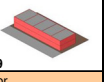

**HIGH (> R110 000.00 PER UNIT)**

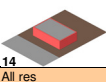
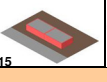
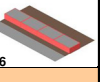


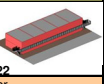
**MEDIUM (R90 – 110 000.00 PER UNIT)**

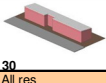
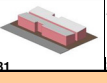
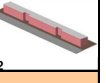
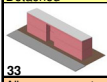
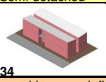
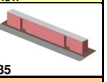
**LOW (< R90 000.00 PER UNIT)**

**MODERATE SLOPE SITES ONLY**

- EXCLUDE ALL UNITS COSTING MORE THAN THE SUBSIDY LIMIT

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 1 All res	 2	 3	 7	 8	 9	 19		
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 14 All res	 15	 16	 20	 21	 22			
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
 30 All res	 31	 32	 33	 34	 35			
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

**FROM 24 SUBSIDY QUALIFICATION UNITS  
ELIMINATE 5 = 19 TYPOLOGIES**





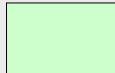
# TYOLOGY SELECTION

# DENSITY IMPLICATIONS

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
1	2	3	4	5	6			
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
14	15	16	17	18	19			
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
30	31	32						
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

 HIGH (> 60 UNITS PER HA)  
 MEDIUM (30-60 UNITS PER HA)  
 LOW (< 30 UNITS PER HA)

MODERATE SLOPE SITES ONLY

- EXCLUDE ALL LOW DENSITY UNITS

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
1	2	3	4	5	6			
All res			All res - duplex			All res - duplex		
			7	8	9			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
14	15	16	17	18	19			
All res			All res - duplex			All res - duplex		
			20	21	22			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
30	31	32						
All res			All res - duplex			All res - duplex		
			33	34	35			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

**FROM 24 SUBSIDY QUALIFICATION UNITS  
ELIMINATE 4 = 20 TYPOLOGIES**

# HOUSING SUBSIDY BREAKDOWN

## KZN DEPT OF HOUSING BREAKDOWN OF COST PER UNIT

THE NEW QUANTUM OF THE NATIONAL HOUSING SUBSIDY FOR OWNERSHIP HOUSING IS BROKEN DOWN AS FOLLOWS:

- R56,000 BASIC SUBSIDY FOR TOP STRUCTURE
- R8,400 EXTRA 15% ON R56,000 FOR ADVERSE GEOTECHNICAL/TOPOGRAPHIC CONDITIONS + GOOD LOCATION
- R22,000 PROVINCIAL TOP-UP FOR INTERNAL INFRASTRUCTURE SERVICES
- R20,000 MUNICIPAL INFRASTRUCTURE GRANT / BULKS
- R3,500 LAND PRICE SUBSIDY

**TOTAL R109,900**



# SELECTED TYPOLOGIES ARCHITECTURAL RESPONSE

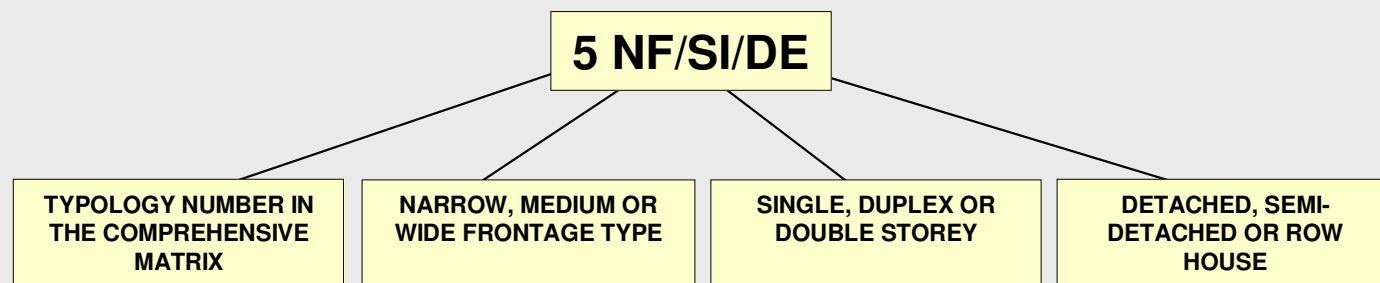
# T TYPOLOGY SELECTION

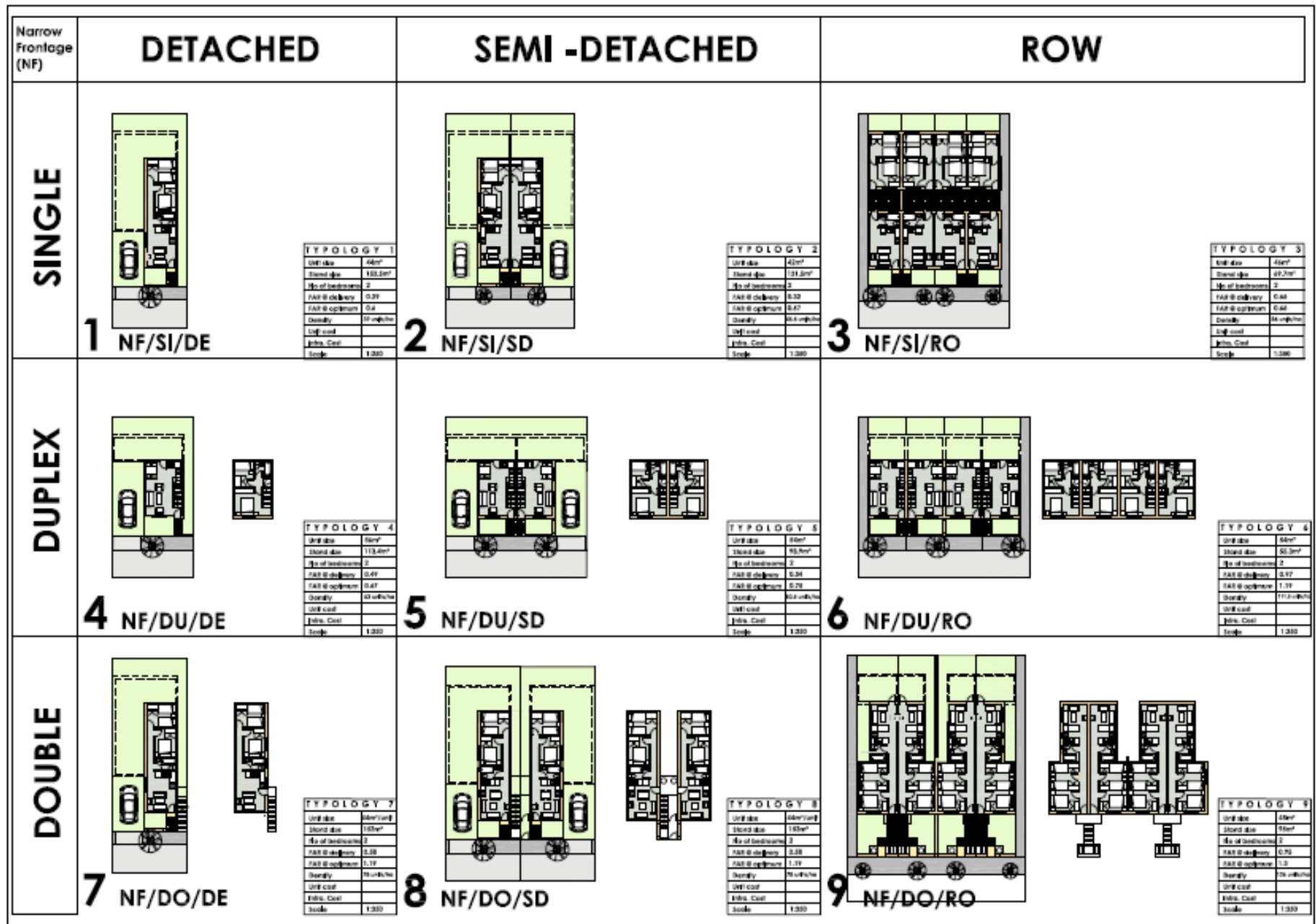
THIS SECTION PROVIDES DETAILS FOR THOSE UNITS THAT QUALIFY FOR HOUSING SUBSIDIES **(24 TYPOLOGIES)**.


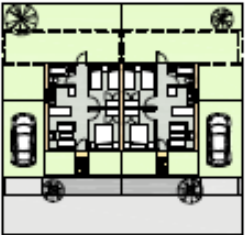
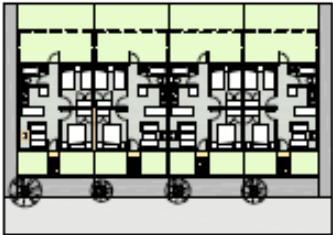

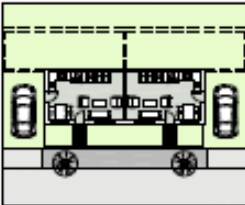

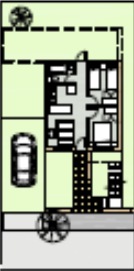
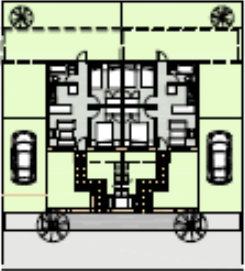
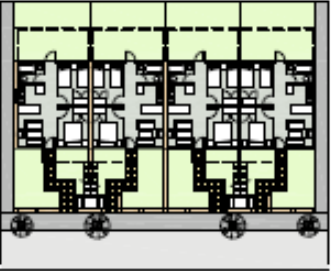
DETAILS PROVIDED INCLUDE:

- DIMENSIONED FLOOR PLANS
- UNIT SIZE
- STAND SIZE
- FLOOR AREA RATIO (FAR) AT DELIVERY
- FAR AT OPTIMUM TAKING INTO ACCOUNT MAXIMUM PRIVATE EXPANSION POTENTIAL
- ESTIMATED DENSITIES

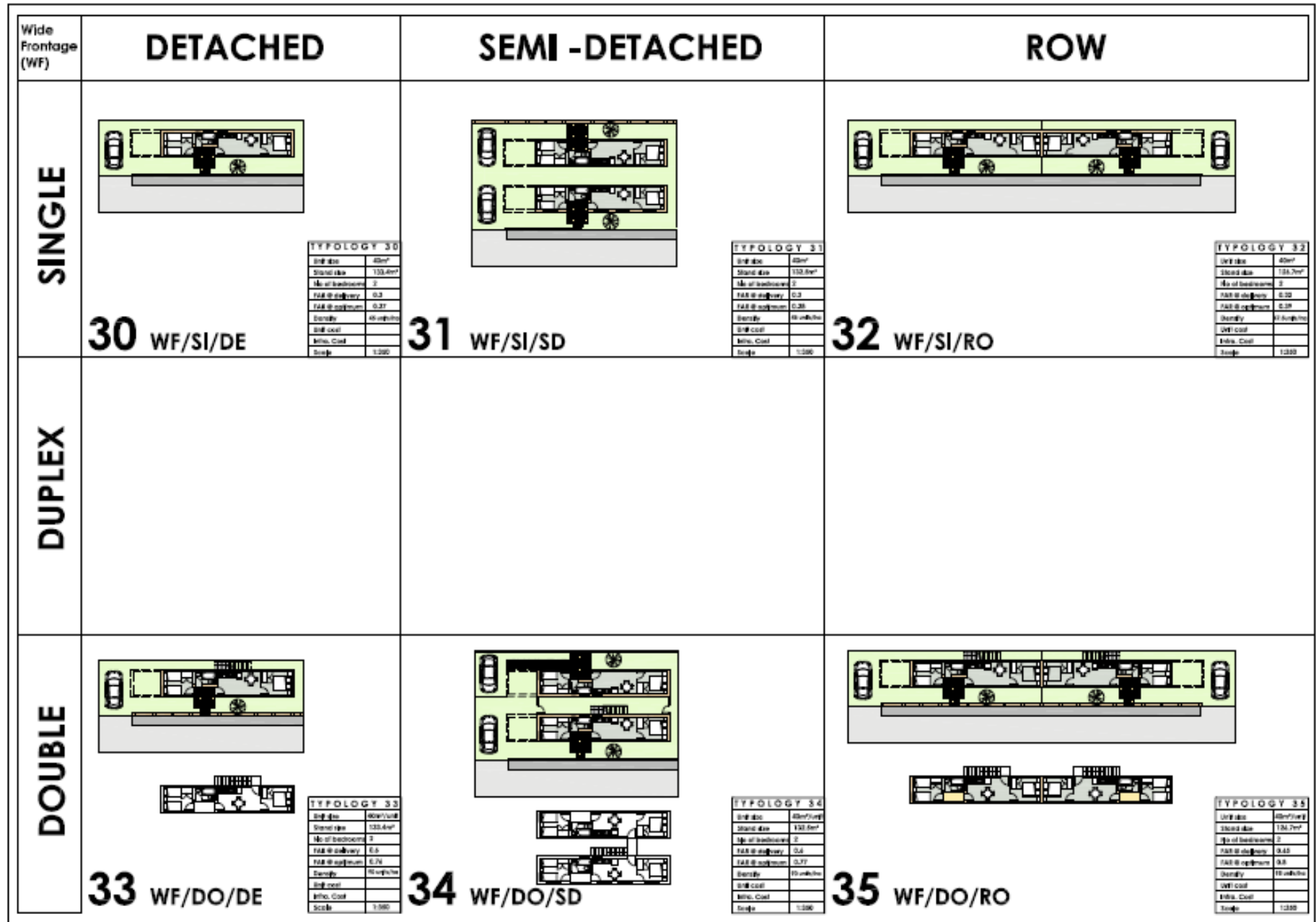
HOUSE TYPES ARE CODED AS PER THE FOLLOWING EXAMPLE:





Medium Frontage (MF)	DETACHED	SEMI-DETACHED	ROW																																																												
<b>SINGLE</b>	 <p><b>14 MF/SI/DE</b></p> <table border="1"> <tr><td>Typology</td><td>14</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>142.7m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>41 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	14	Site Area	42m <sup>2</sup>	Stand Area	142.7m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	41 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>15 MF/SI/SD</b></p> <table border="1"> <tr><td>Typology</td><td>15</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>139m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>41 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	15	Site Area	42m <sup>2</sup>	Stand Area	139m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	41 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>16 MF/SI/RO</b></p> <table border="1"> <tr><td>Typology</td><td>16</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>91.8m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>34 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	16	Site Area	42m <sup>2</sup>	Stand Area	91.8m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	34 units/ha	Site Cost		Info. Cost		Scale	1:300
Typology	14																																																														
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Stand Area	139m <sup>2</sup>																																																														
No. of bedrooms	2																																																														
FAR @ 0.25	0.25																																																														
FAR @ 0.35	0.35																																																														
Density	41 units/ha																																																														
Site Cost																																																															
Info. Cost																																																															
Scale	1:300																																																														
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Site Area	42m <sup>2</sup>																																																														
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FAR @ 0.25	0.25																																																														
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Density	34 units/ha																																																														
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<b>DUPLEX</b>	 <p><b>17 MF/DU/DE</b></p> <table border="1"> <tr><td>Typology</td><td>17</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>113.4m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>36 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	17	Site Area	42m <sup>2</sup>	Stand Area	113.4m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	36 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>18 MF/DU/SD</b></p> <table border="1"> <tr><td>Typology</td><td>18</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>111.4m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>35.2 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	18	Site Area	42m <sup>2</sup>	Stand Area	111.4m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	35.2 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>19 MF/DU/RO</b></p> <table border="1"> <tr><td>Typology</td><td>19</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>72.3m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>49 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	19	Site Area	42m <sup>2</sup>	Stand Area	72.3m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	49 units/ha	Site Cost		Info. Cost		Scale	1:300
Typology	17																																																														
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<b>DOUBLE</b>	 <p><b>20 MF/DO/DE</b></p> <table border="1"> <tr><td>Typology</td><td>20</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>173.8m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>14 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	20	Site Area	42m <sup>2</sup>	Stand Area	173.8m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	14 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>21 MF/DO/SD</b></p> <table border="1"> <tr><td>Typology</td><td>21</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>142m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>29 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	21	Site Area	42m <sup>2</sup>	Stand Area	142m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	29 units/ha	Site Cost		Info. Cost		Scale	1:300	 <p><b>22 MF/DO/RO</b></p> <table border="1"> <tr><td>Typology</td><td>22</td></tr> <tr><td>Site Area</td><td>42m<sup>2</sup></td></tr> <tr><td>Stand Area</td><td>151m<sup>2</sup></td></tr> <tr><td>No. of bedrooms</td><td>2</td></tr> <tr><td>FAR @ 0.25</td><td>0.25</td></tr> <tr><td>FAR @ 0.35</td><td>0.35</td></tr> <tr><td>Density</td><td>28 units/ha</td></tr> <tr><td>Site Cost</td><td></td></tr> <tr><td>Info. Cost</td><td></td></tr> <tr><td>Scale</td><td>1:300</td></tr> </table>	Typology	22	Site Area	42m <sup>2</sup>	Stand Area	151m <sup>2</sup>	No. of bedrooms	2	FAR @ 0.25	0.25	FAR @ 0.35	0.35	Density	28 units/ha	Site Cost		Info. Cost		Scale	1:300
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Scale	1:300																																																														





# T TYPOLOGY SELECTION

THIS SECTION PROVIDES DETAILS FOR THOSE UNITS SELECTED FROM THE 24 AS BEING MOST APPROPRIATE TO ETHEKWINI (6 TYPOLOGIES).

THE SELECTED TYPES AIMED TO OFFER UNITS THAT MEET ALL THE ORIGINAL PRINCIPLES FOR ACHIEVING GOOD HOUSE AND URBAN FORM AS WELL AS PROVIDING A RANGE OF TYPES THAT INCLUDE COMBINATIONS OF EACH OF THE FOLLOWING CATEGORIES:

- NARROW, MEDIUM AND WIDE FRONTAGE TYPES
- SINGLE STOREY, DUPLEX AND DOUBLE STOREY TYPES
- DETACHED, SEMI-DETACHED AND ROW TYPES
- TYPES SUITED TO FLAT, MODERATE AND STEEP SLOPES
- TYPES THAT ACHIEVE LOW, MEDIUM AND HIGH DENSITIES
- TYPES THAT VARY IN COST FROM LOW TO HIGH

THE 6 SELECTED TYPOLOGIES ARE THE FOLLOWING:

**T TYPOLOGY 5:** NARROW FRONTAGE/DUPLEX/SEMI-DETACHED

**T TYPOLOGY 8:** NARROW FRONTAGE/DOUBLE STOREY/SEMI-DETACHED

**T TYPOLOGY 21:** MEDIUM FRONTAGE/DOUBLE STOREY/SEMI-DETACHED

**T TYPOLOGY 22:** MEDIUM FRONTAGE/DOUBLE STOREY/ROW

**T TYPOLOGY 30:** WIDE FRONTAGE/SINGLE STOREY/ DETACHED

**T TYPOLOGY 34:** WIDE FRONTAGE/DOUBLE STOREY/SEMI DETACHED

# TYOPOLOGY SELECTION

# QUALITY OF URBAN FORM PRINCIPLES

1. MINIMUM HOUSE SIZE (40m<sup>2</sup>)
2. NARROW STREET FRONTAGE
3. HOUSE POSITIONED CLOSE TO THE STREET
4. SHORT SERVICE RUNS FROM STREET TO BUILDING
5. PRIVATELY EXPANDABLE
6. REPLICABLE AND COMBINABLE DESIGN
7. INCREASED DENSITIES
8. PUBLIC / PRIVATE THRESHOLDS
9. ROOM DIMENSIONS BASED ON BASIC FURNITURE LAYOUTS
10. CLEAR THRESHOLDS BETWEEN PUBLIC AND PRIVATE SPACE
11. VARIATION OF STREET FACADES
12. MINIMAL HEIGHT OF STREET BOUNDARY WALLS
13. STAND DIMENSIONS TO ALLOW INCREMENTAL SUBDIVISION

**ELIMINATE 7 = 6 TYPOLOGIES**

Narrow frontage house typologies									
Single storey			Double storey			Triple / multiple storey			
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	
All res			All res - duplex			All res - duplex			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor			
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor			
Medium frontage house typologies									
Single storey			Double storey			Triple / multiple storey			
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	
All res			All res - duplex			All res - duplex			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor			
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor			
Wide frontage house typologies									
Single storey			Double storey			Triple / multiple storey			
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row	
All res			All res - duplex			All res - duplex			
All res - separate ownership on each floor			All res - separate ownership on each floor			All res - separate ownership on each floor			
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor			

# TYOLOGY SELECTION

# SUMMARY STATEMENT

Narrow frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex 			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor 			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Medium frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor 			All res - separate ownership on each floor 		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

Wide frontage house typologies								
Single storey			Double storey			Triple / multiple storey		
Detached	Semi-detached	Row	Detached	Semi-detached	Row	Detached	Semi-detached	Row
All res			All res - duplex			All res - duplex		
All res - separate ownership on each floor			All res - separate ownership on each floor 			All res - separate ownership on each floor		
Non-res use on groundfloor			Non-res use on groundfloor			Non-res use on groundfloor		

**TYOLOGY 5**  
**NARROW FRONTAGE/DUPLEX/SEMI-DETACHED**

- HIGH COST
- MEDIUM DENSITY

**TYOLOGY 8**  
**NARROW FRONTAGE/DOUBLE STOREY/SEMI-DETACHED**

- MEDIUM COST
- MEDIUM DENSITY

**TYOLOGY 21**  
**MEDIUM FRONTAGE/DOUBLE STOREY/SEMI-DETACHED**

- LOW COST
- MEDIUM DENSITY

**TYOLOGY 22**  
**MEDIUM FRONTAGE/DOUBLE STOREY/ROW**

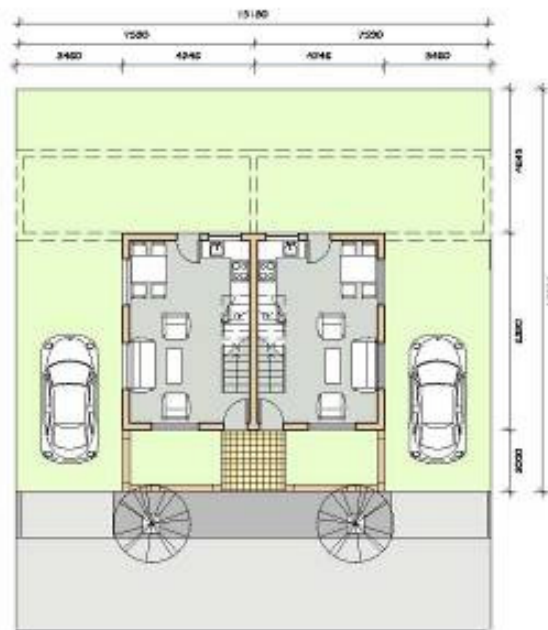
- LOW COST
- HIGH DENSITY

**TYOLOGY 30**  
**WIDE FRONTAGE/SINGLE STOREY/ DETACHED**

- MEDIUM COST
- LOW DENSITY

**TYOLOGY 34**  
**WIDE FRONTAGE/DOUBLE STOREY/SEMI DETACHED**

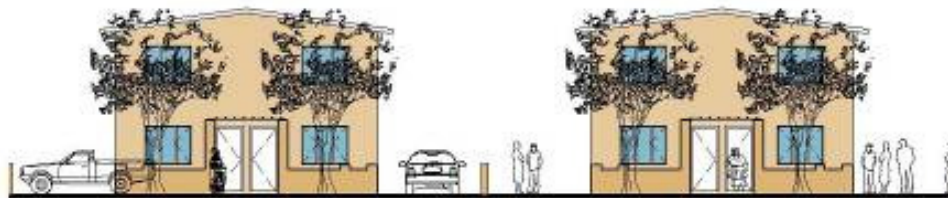
- LOW COST
- MEDIUM DENSITY



Ground Floor



First Floor

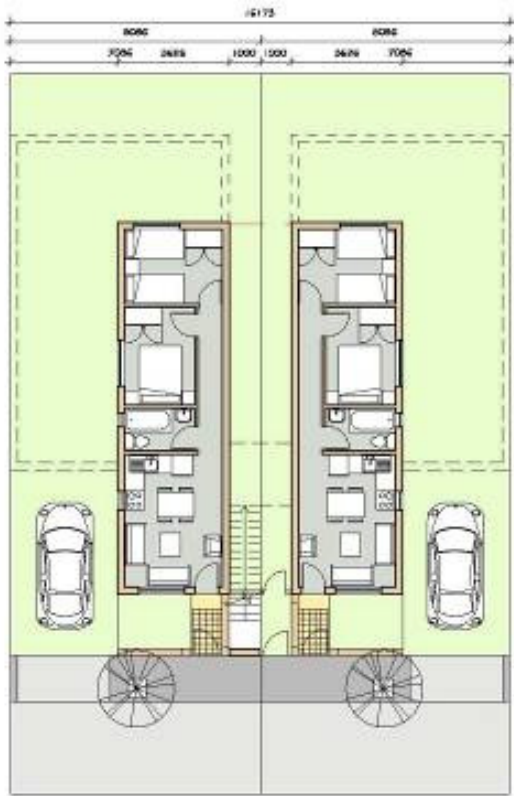


## T Y P O L O G Y 5

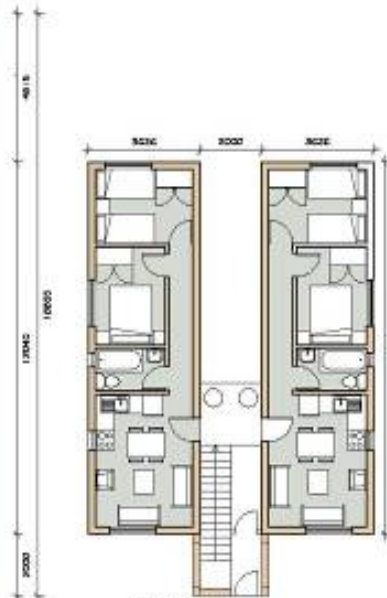
5 NF/DU/SD

Narrow Frontage -  
Duplex - Semi- Detached

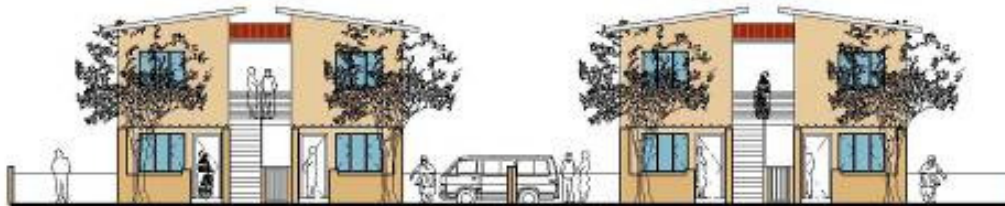
Unit size	54m <sup>2</sup>
Stand size	98.9m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.54
FAR @ optimum	0.75
Density	60.5 units/ha
Unit cost	
Intra. Cost	
Scale	1:200



Ground Floor



First Floor

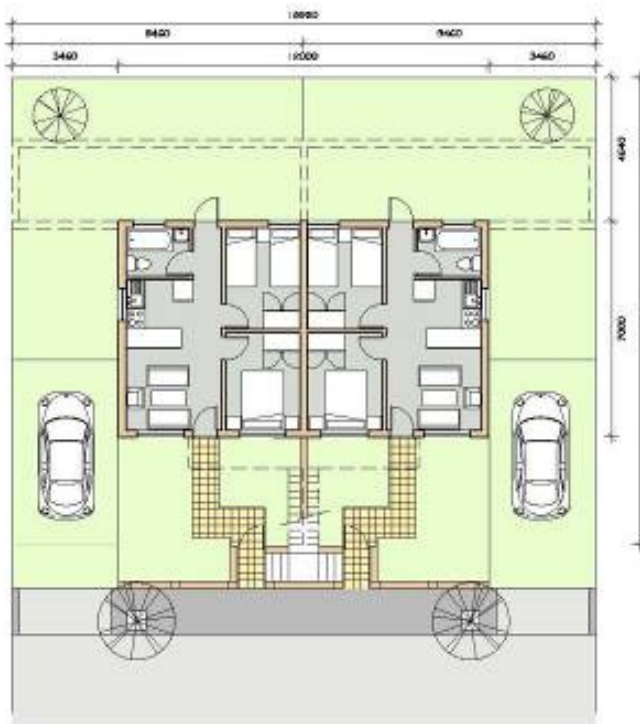


### TYPOLGY 8

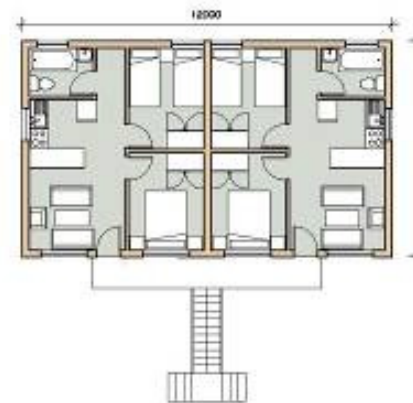
8 NF/DO/SD

Narrow Frontage - Double Storey - Semi-Detached

Unit size	44m <sup>2</sup> /unit
Stand size	153m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.58
FAR @ optimum	1.19
Density	78 units/ha
Unit cost	
Infra. Cost	
Scale	1:200



Ground Floor



First Floor

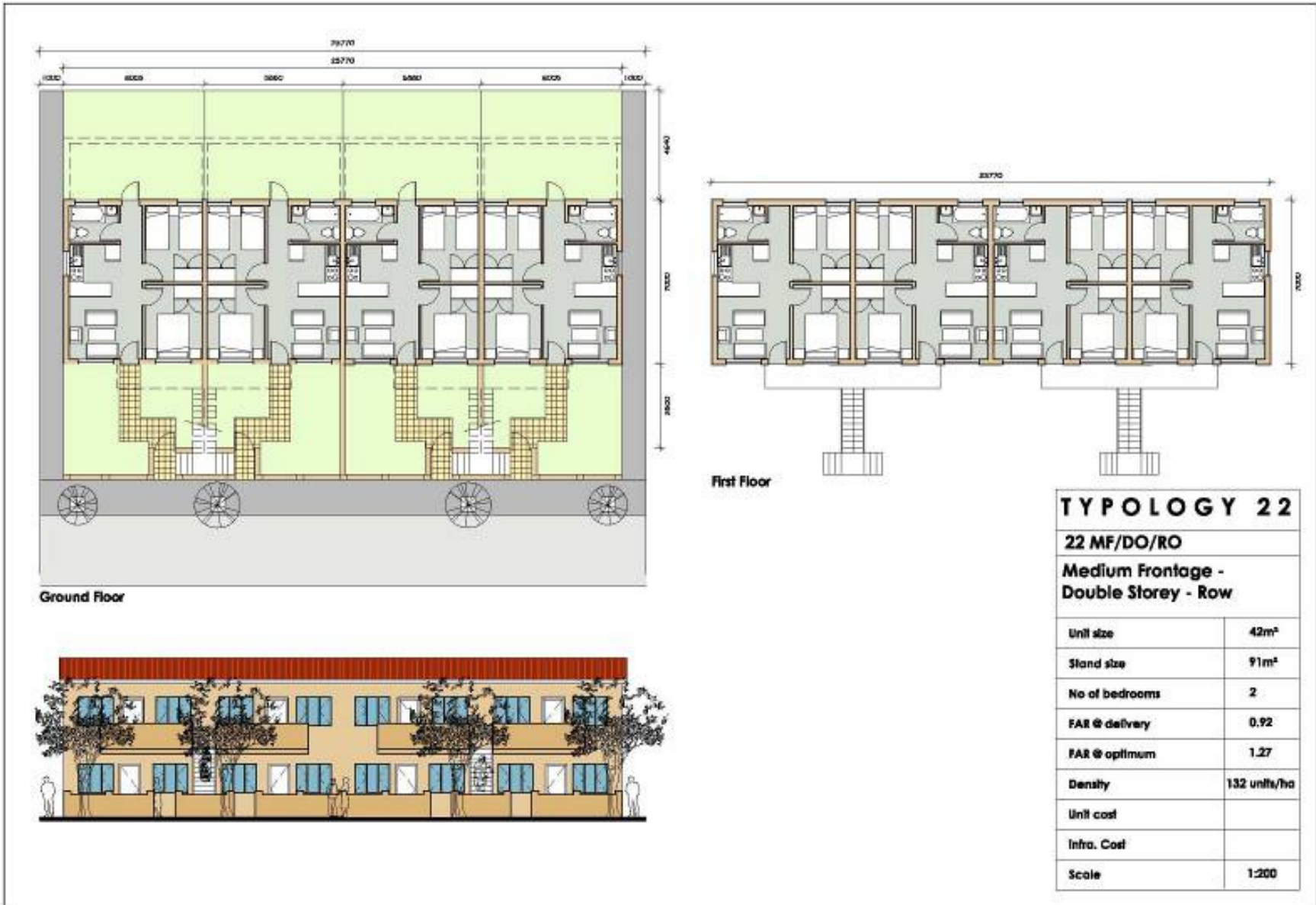


### TYOLOGY 21

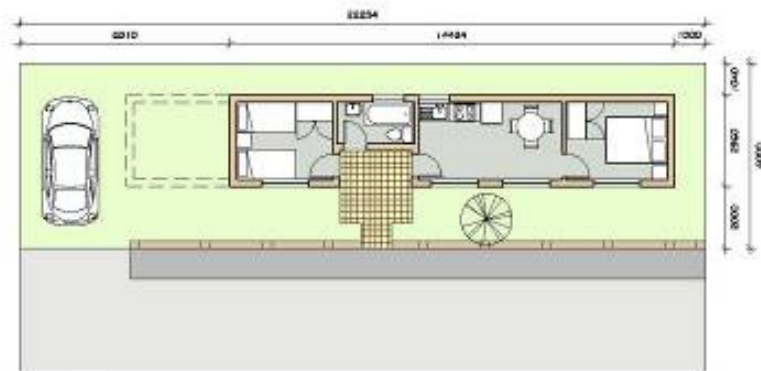
21 MF/DO/SD

Medium Frontage - Double Storey - Semi-Detached

Unit size	42m <sup>2</sup>
Stand size	143m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.58
FAR @ optimum	0.95
Density	84 units/ha
Unit cost	
Intra. Cost	
Scale	1:200







Ground Floor



### TYPOLGY 30

30 WF/SI/DE

Wide Frontage -  
Single Storey - Detached

Unit size	40m <sup>2</sup>
Stand size	133.4m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.3
FAR @ optimum	0.37
Density	45 units/ha
Unit cost	
Infra. Cost	
Scale	1:200



Ground Floor



First Floor



### TYOLOGY 34

34 WF/DO/SD

Wide Frontage - Double Storey - Semi - Detached

Unit size	40m <sup>2</sup> /unit
Stand size	132.5m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.6
FAR @ optimum	0.77
Density	90 units/ha
Unit cost	
Intra. Cost	
Scale	1:200

# TYOLOGY SELECTION

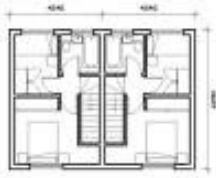
THIS SECTION ILLUSTRATES ONE POSSIBLE ARCHITECTURAL RESPONSE TO THE 6 SELECTED TYOLOGIES.

THE TYOLOGIES ARE INTENDED TO BE FLEXIBLE ENOUGH TO ACCOMMODATE A RANGE OF ARCHITECTURAL RESPONSES, YET ROBUST ENOUGH TO LIMIT THE NEED FOR EXTENSIVE REDESIGN AND COSTING EVERY TIME A NEW SITE IS DEVELOPED.

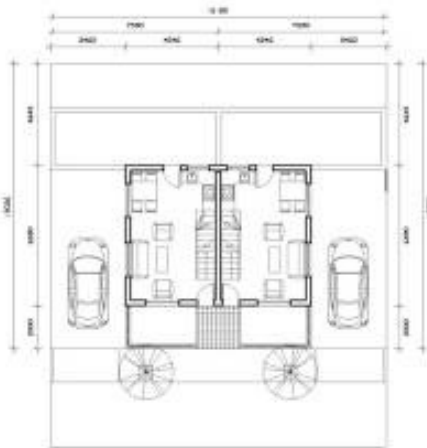
IT IS IMPORTANT THAT THE SAME DESIGN IS NOT APPLIED TO MASSIVE AREAS WHICH WOULD ONCE AGAIN CREATE THE BLAND LIVING ENVIRONMENTS AND SAMENESS TYPICALLY ASSOCIATED WITH LOW-INCOME HOUSING PROJECTS.

IT IS IMPORTANT THAT IN ADDITION TO THE HOUSE ITSELF, DESIGN ATTENTION MUST BE PAID TO THE URBAN LAYOUT, PUBLIC ENVIRONMENT, ROAD AND SERVICE INFRASTRUCTURE AND SOCIAL AND ECONOMIC FACILITIES TO CREATE INTEGRATED HARMONIOUS LIVING ENVIRONMENTS.

- **HIGH COST**
- **MEDIUM DENSITY**



FIRST FLOOR



GROUND FLOOR



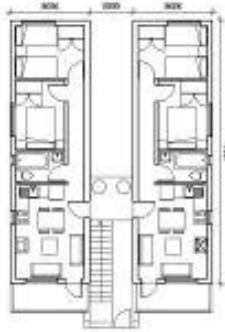
ELEVATION



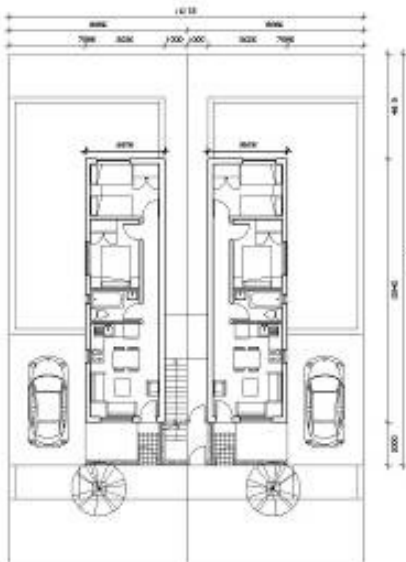
3D VIEW

TYPOLOGY 5	
5 NF/DU/SD	
Narrow Frontage - Duplex - Semi- Detached	
Unit size	54m <sup>2</sup>
Stand size	98.5m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.54
FAR @ optimum	0.75
Density	40.4 units/ha
Unit cost	
Inst. Cost	
Scale	1:200

- **MEDIUM COST**
- **MEDIUM DENSITY**



FIRST FLOOR



GROUND FLOOR



3D VIEW

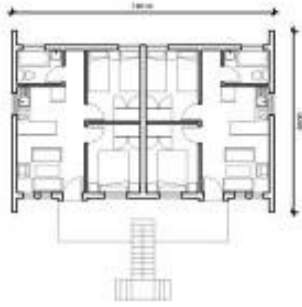


ELEVATION

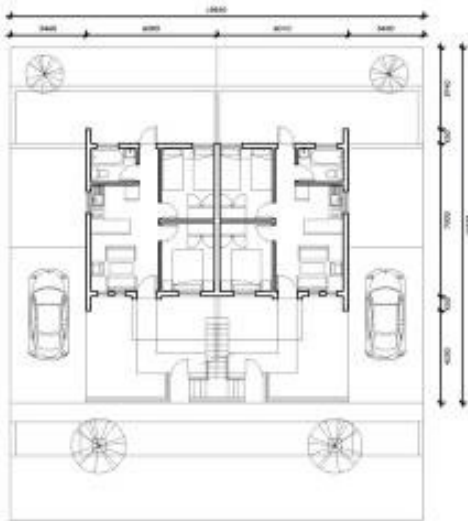
TYPOLGY 8	
8 NF/DO/SD	
Narrow Frontage - Double Storey - Semi-Detached	
Unit size	44m <sup>2</sup> /unit
Storey size	1.53m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.88
FAR @ optimum	1.19
Density	78 units/ha
Self cool	
Intra. Cool	
Scale	1:500

# TYOLOGY 21 (MF/DO/SD) **MEDIUM FRONTAGE / DOUBLE STOREY / SEMI-DETACHED**

- **LOW COST**
- **MEDIUM DENSITY**



FIRST FLOOR



GROUND FLOOR



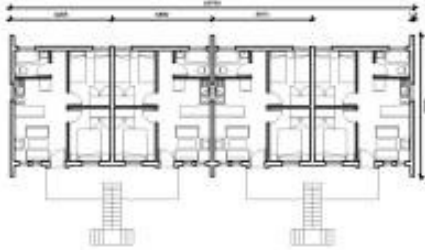
3D VIEW



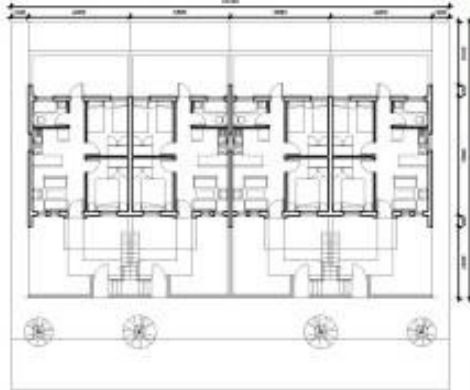
ELEVATION

TYPOLOGY 21	
21 MF/DO/SD	
Medium Frontage - Double Storey - Semi-Detached	
Unit size	43m <sup>2</sup>
Stand size	143m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.88
FAR @ optimum	0.85
Density	84 units/ha
Unit cost	
Intnl. Cost	

- **LOW COST**
- **HIGH DENSITY**



FIRST FLOOR



GROUND FLOOR



3D VIEW



ELEVATION

**TYOLOGY 22**

22 MF/DO/RO

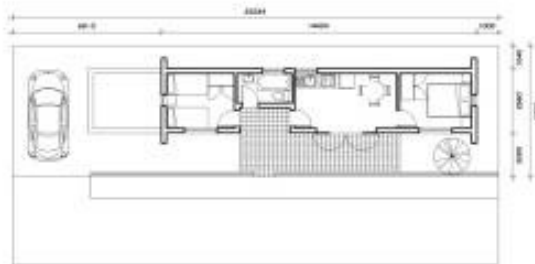
Medium Frontage -  
Double Storey - Row

Unit size	41m <sup>2</sup>
Stand size	91m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.52
FAR @ optimum	1.27
Density	122 units/ha
Unit cost	
Intro. Cost	

- MEDIUM COST
- LOW DENSITY



3D VIEW



GROUND FLOOR



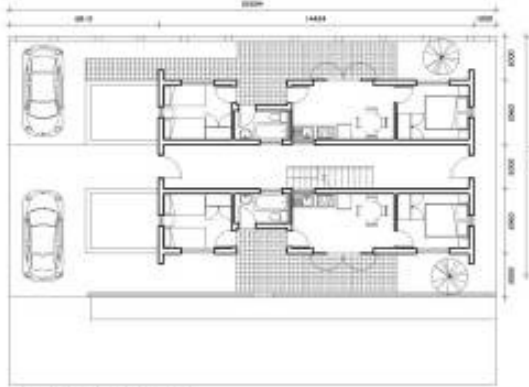
ELEVATIONS



TYPOLOGY 30	
30 WF/SI/DE	
Wide Frontage - Single Storey - Detached	
Unit size	43m <sup>2</sup>
Stand size	133.4m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	0.3
FAR @ optimum	0.37
Density	45 units/ha
Unit cost	
Infra. Cost	
Scale	1:200



- **LOW COST**
- **MEDIUM DENSITY**



GROUND FLOOR



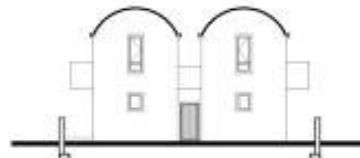
FIRST FLOOR



ELEVATIONS



3D VIEW



TYPOLOGY 34	
34 WF/DO/SD	
Wide Frontage - Double Storey - Semi - Detached	
Unit size	40m <sup>2</sup> /unit
Stand size	132.5m <sup>2</sup>
No of bedrooms	2
FAR @ delivery	3.4
FAR @ optimum	0.77
Density	90 units/ha
Unit cost	
Info. Cost	
Scale	1:200

Description	Typology 5	Typology 8	Typology 21	Typology 22	Typology 30	Typology 34
	5 NF/DU/SD Narrow Frontage : Duplex Semi-detached	8 NF/DO/SD Narrow Frontage : Double Storey Semi detached	21 MF/DO/SD Medium Frontage : Double Storey Semi detached	22 MF/DO/RO Medium Frontage : Double Storey Row	30 WF/SIDE Wide Frontage : Detached	34 WF/DO/SD Wide Frontage : Double Storey Semi detached
Number of units	2	4	4	8	1	4
Construction Area (m2)	108.54	176.00	168.00	336.00	40.00	160.00
<b>Stand Size</b>						
Stand Size for flat (m2)	198	306	284	364	133.40	265
Average Stand Size for gentle (m2)	252	388	388	492	170	338
Average Stand Size for moderate (m2)	302	466	464	588	204	406
Average Stand Size for steep (m2)	468	720	718	912	315	628
Average Stand Size for very steep (m2)	644	992	988	1252	434	862
<b>Units per Hectare</b>						
> 70 units / ha						
< 40 units / ha						
Units per Hectare for Flat	67.7	78	84	132	45	96
Units per Hectare for Gentle	47.5	62	62	96	35	71
Units per Hectare for Moderate	39.5	51	52	81	29.5	58
Units per Hectare for Steep	25.5	33	33	53	19	38
Units per Hectare for Very steep	18.5	24	24	38	14	28
<b>Total Unit Cost (Flat)</b>						
Cost per Unit	R 97,850.00	R 76,243.75	R 67,982.50	R 65,890.00	R 77,060.00	R 66,537.50
Land Value (estimated @ R10/m2) ha	R 1,980.00	R 3,060.00	R 2,840.00	R 3,640.00	R 1,334.00	R 2,650.00
Services	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00
Professional fees (10%)	R 12,183.00	R 10,130.58	R 9,232.25	R 9,153.00	R 10,039.40	R 9,118.75
<b>Total Unit Cost (Flat)</b>	<b>R 134,013.00</b>	<b>R 111,434.13</b>	<b>R 102,104.75</b>	<b>R 100,683.00</b>	<b>R 110,433.40</b>	<b>R 100,306.25</b>
Rate per m2	R 2,469.38	R 2,532.59	R 2,431.07	R 2,397.21	R 2,760.84	R 2,507.66
<b>Total Unit Cost (Gentle)</b>						
Cost per Unit	R 99,295.90	R 77,444.95	R 69,101.80	R 66,982.00	R 79,348.00	R 67,655.50
Land Value (estimated @ R10/m2) ha	R 2,520.00	R 3,880.00	R 3,880.00	R 4,920.00	R 1,700.00	R 3,380.00
Services	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00
Professional fees (10%)	R 12,381.58	R 10,332.50	R 9,438.18	R 9,390.20	R 10,304.80	R 9,303.55
<b>Total Unit Cost (Flat)</b>	<b>R 136,197.49</b>	<b>R 113,657.45</b>	<b>R 104,479.98</b>	<b>R 103,292.20</b>	<b>R 113,352.90</b>	<b>R 102,339.95</b>
Rate per m2	R 2,509.63	R 2,583.12	R 2,467.62	R 2,459.34	R 2,833.82	R 2,558.48
<b>Total Unit Cost (Moderate)</b>						
Cost per Unit	R 100,743.80	R 78,646.15	R 70,221.10	R 68,074.00	R 81,636.00	R 68,773.50
Land Value (estimated @ R10/m2) ha	R 3,020.00	R 4,660.00	R 4,660.00	R 5,880.00	R 2,040.00	R 4,060.00
Services	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00
Professional fees (10%)	R 12,576.38	R 10,330.58	R 9,438.18	R 9,390.20	R 10,304.80	R 9,303.55
<b>Total Unit Cost (Flat)</b>	<b>R 138,340.18</b>	<b>R 115,836.77</b>	<b>R 106,547.21</b>	<b>R 105,549.40</b>	<b>R 116,243.60</b>	<b>R 104,316.85</b>
Rate per m2	R 2,548.11	R 2,632.65	R 2,536.84	R 2,513.08	R 2,906.09	R 2,607.92
<b>Total Unit Cost (Steep)</b>						
Cost per Unit	R 102,190.70	R 79,847.35	R 71,340.40	R 69,166.00	R 83,924.00	R 69,891.50
Land Value (estimated @ R10/m2) ha	R 4,680.00	R 7,200.00	R 7,134.00	R 9,120.00	R 3,150.00	R 6,280.00
Services	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00
Professional fees (10%)	R 12,887.07	R 10,304.74	R 9,438.18	R 9,390.20	R 10,304.80	R 9,303.55
<b>Total Unit Cost (Flat)</b>	<b>R 141,757.77</b>	<b>R 119,952.09</b>	<b>R 110,572.44</b>	<b>R 110,314.60</b>	<b>R 119,981.40</b>	<b>R 107,988.65</b>
Rate per m2	R 2,612.08	R 2,726.16	R 2,632.68	R 2,626.54	R 2,999.54	R 2,699.72
<b>Total Unit Cost (Very Steep)</b>						
Cost per Unit	R 103,637.60	R 81,048.55	R 72,459.70	R 70,258.00	R 86,212.00	R 71,009.50
Land Value (estimated @ R10/m2) ha	R 6,440.00	R 9,920.00	R 9,880.00	R 12,520.00	R 4,340.00	R 8,620.00
Services	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00	R 22,000.00
Professional fees (10%)	R 13,207.76	R 11,296.86	R 10,433.97	R 10,477.80	R 11,255.20	R 10,162.95
<b>Total Unit Cost (Flat)</b>	<b>R 145,285.36</b>	<b>R 124,265.41</b>	<b>R 114,773.67</b>	<b>R 115,255.80</b>	<b>R 123,807.20</b>	<b>R 111,792.45</b>
Rate per m2	R 2,677.08	R 2,824.21	R 2,732.71	R 2,744.19	R 3,095.18	R 2,794.81
<b>Cost of units per Hectare (excl. bulk services)</b>						
Cost per Hectare (Flat)	R 8,134,589.10	R 8,691,861.75	R 8,576,799.00	R 13,290,156.00	R 4,969,503.00	R 9,027,562.50
Cost per Hectare (Gentle)	R 6,469,380.78	R 7,046,781.59	R 6,477,738.76	R 10,122,635.60	R 3,967,348.00	R 7,266,672.55
Cost per Hectare (Moderate)	R 5,464,437.11	R 5,907,675.02	R 5,540,454.92	R 8,549,501.40	R 3,429,186.20	R 6,154,694.15
Cost per Hectare (Steep)	R 3,614,823.14	R 3,958,418.81	R 3,958,890.52	R 5,846,673.80	R 2,279,646.60	R 4,103,568.70
Cost per Hectare (Very steep)	R 2,687,779.16	R 2,982,369.72	R 2,754,568.08	R 4,379,720.40	R 1,733,300.80	R 3,130,188.60
<b>Bulk services per Hectare</b>						
Services (roads, stormwater, water supply, sewer drainage, electrical, etc) for Flat	R 3,562,162.00	R 3,562,162.00	R 3,562,162.00	R 3,562,162.00	R 3,562,162.00	R 3,562,162.00
<b>Total costs per apportioned unit</b>						
< R90 000						
R90-100 000						
> R100 000						
Flat (0)	R 119,850.00	R 98,243.75	R 89,982.50	R 87,890.00	R 99,060.00	R 88,537.50
Gentle (1.1)	R 109,344.00	R 84,982.00	R 76,982.00	R 74,982.00	R 86,348.00	R 75,655.50
Moderate (1.2)	R 122,743.80	R 100,586.15	R 92,221.10	R 90,074.00	R 103,636.00	R 88,773.50
Steep (1.3)	R 144,190.70	R 101,847.35	R 93,340.40	R 91,166.00	R 105,624.00	R 91,891.50
Very steep (1.4)	R 155,637.60	R 103,048.55	R 94,459.70	R 92,258.00	R 108,212.00	R 93,009.50
<b>Extra over cost to Fascade</b>						
Face brick (R175/m2 extra over rate from plaster and paint)	R 11,550.00	R 16,825.00	R 10,150.00	R 20,300.00	R 1,750.00	R 6,825.00
Textured plaster (R20/m2 extra over rate from normal plaster)	R 180.00	R 380.00	R 480.00	R 1,020.00	R 0.00	R 0.00
Palisade fencing (R490/m extra over cost from brick balustrading)	R 5,390.00	R 6,370.00	R 4,900.00	R 9,900.00	R 9,310.00	R 3,325.00
<b>Total cost</b>	<b>R 17,100.00</b>	<b>R 23,375.00</b>	<b>R 15,530.00</b>	<b>R 31,120.00</b>	<b>R 11,060.00</b>	<b>R 10,150.00</b>
<b>Total cost per unit</b>	<b>R 8,550.00</b>	<b>R 5,843.75</b>	<b>R 3,882.50</b>	<b>R 3,890.00</b>	<b>R 11,060.00</b>	<b>R 2,537.50</b>

COSTING SPREADSHEETS HAVE BEEN PREPARED BY LDM QUANTITY SURVEYORS AS PART OF THIS PROJECT.

DENSITY AND COST RANGES PER APPORTIONED UNIT WITH AN LOCATION FOR BULK SERVICES ON VARIOUS SLOPES ARE INDICATED AS FOLLOWS:

> 70 units / ha
40 -70 unit / ha
<40 units / ha
< R90 000
R90-100 000
> R100 000

HIGHEST OVERALL DENSITIES ARE ACHIEVED BY MEDIUM-FRONTAGE DOUBLE-STOREY ROW TYPES ON FLAT AND GENTLE AND SLOPES.

ON STEEP AND VERY STEEP SLOPES THE WIDE-FRONTAGE, DOUBLE-STOREY SEMI-DETACHED TYPES ACHIEVE THE HIGHEST COMPARATIVE DENSITIES.

THE MEDIUM-FRONTAGE DOUBLE-STOREY ROW AND THE WIDE-FRONTAGE DOUBLE-STOREY SEMI-DETACHED TYPES ON ALL SLOPES ACHIEVE LOWEST COSTS PER U APPORTIONED UNIT.

NOTE: FOR PURPOSES OF CLARITY, PLEASE REFER TO THE ORIGINAL SPREADSHEETS WHICH HAVE BEEN INCLUDED IN THE FOLDER 'FINAL REPORTS, DRAWINGS AND SPREADSHEETS - FEB 2010'

# VARIATIONS AND APPLICATIONS

# VARIATIONS AND APPLICATIONS

**THIS SECTION LOOKS AT HOW THE BASIC TYPOLOGIES CAN BE ADAPTED, VARIED OR APPLIED IN VARIOUS WAYS TO MEET THE NEEDS OF A RANGE OF PROJECT TYPES OR REQUIREMENTS.**

**THE INTENTION IS TO DEMONSTRATE BOTH THE INHERENT ROBUSTNESS AND FLEXIBILITY EMBEDDED WITHIN THE BASIC TYPOLOGIES IN THAT THEY CAN BE APPLIED IN WAYS THAT GENERATE COMPLETELY NEW HOUSE TYPES WITHOUT THE NEED FOR EXTENSIVE REDESIGN ON A PROJECT-BY-PROJECT BASIS.**

**VARIATIONS AND APPLICATIONS INCLUDE:**

- **COMBINING THE TYPOLOGIES**
- **MINIMISING THE UNIT DELIVERABLE**
- **INVESTIGATING SINGLE QUARTERS**
- **ADAPTING THE UNIT TO SUIT VARYING SLOPES**

***ALTHOUGH BEYOND THE SCOPE OF THIS PROJECT BECAUSE THEY DO NOT QUALIFY FOR HOUSING SUBSIDIES ARE MULTI-STOREY (3 OR MORE) WALK-UPS AS WELL AS UNITS WITH NON-RESIDENTIAL GROUND FLOOR FUNCTIONS.***

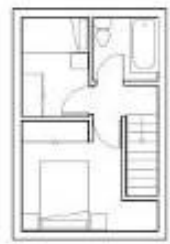
COMBINING A GROUND FLOOR SIMPLEX AND UPPER FLOOR DUPLEX MODEL IS BASED ON A DESIGN BY ELEMENTAL ARCHITECTS USED IN IQUIQUE CHILE. IT ALLOW FOR LATERAL EXPANSION BY OWNERS OR AUTHORITIES TO MEET THE NEEDS OF EXPANDING FAMILIES AND FILLS IN THE VOIDS BETWEEN UNITS.



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

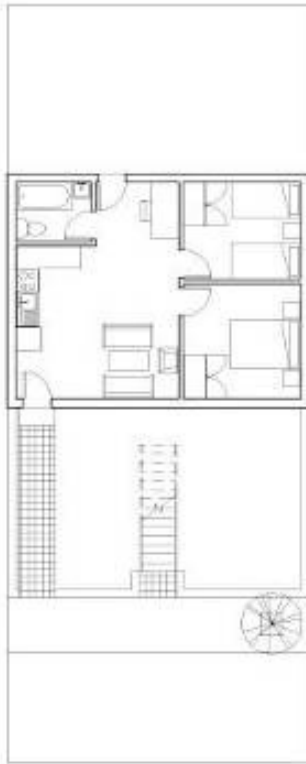


ELEVATIONS



3D VIEW

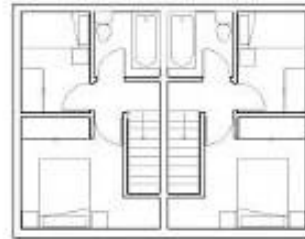
COMBINING A GROUND FLOOR SIMPLEX AND UPPER FLOOR DUPLEX MODEL IS BASED ON A DESIGN BY ELEMENTAL ARCHITECTS USED IN IQUIQUE CHILE. IT ALLOW FOR LATERAL EXPANSION BY OWNERS OR AUTHORITIES TO MEET THE NEEDS OF EXPANDING FAMILIES AND FILLS IN THE VOIDS BETWEEN UNITS.



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



ELEVATIONS



3D VIEW

COSTING SPREADSHEETS HAVE BEEN PREPARED BY LDM QUANTITY SURVEYORS AS PART OF THIS PROJECT.

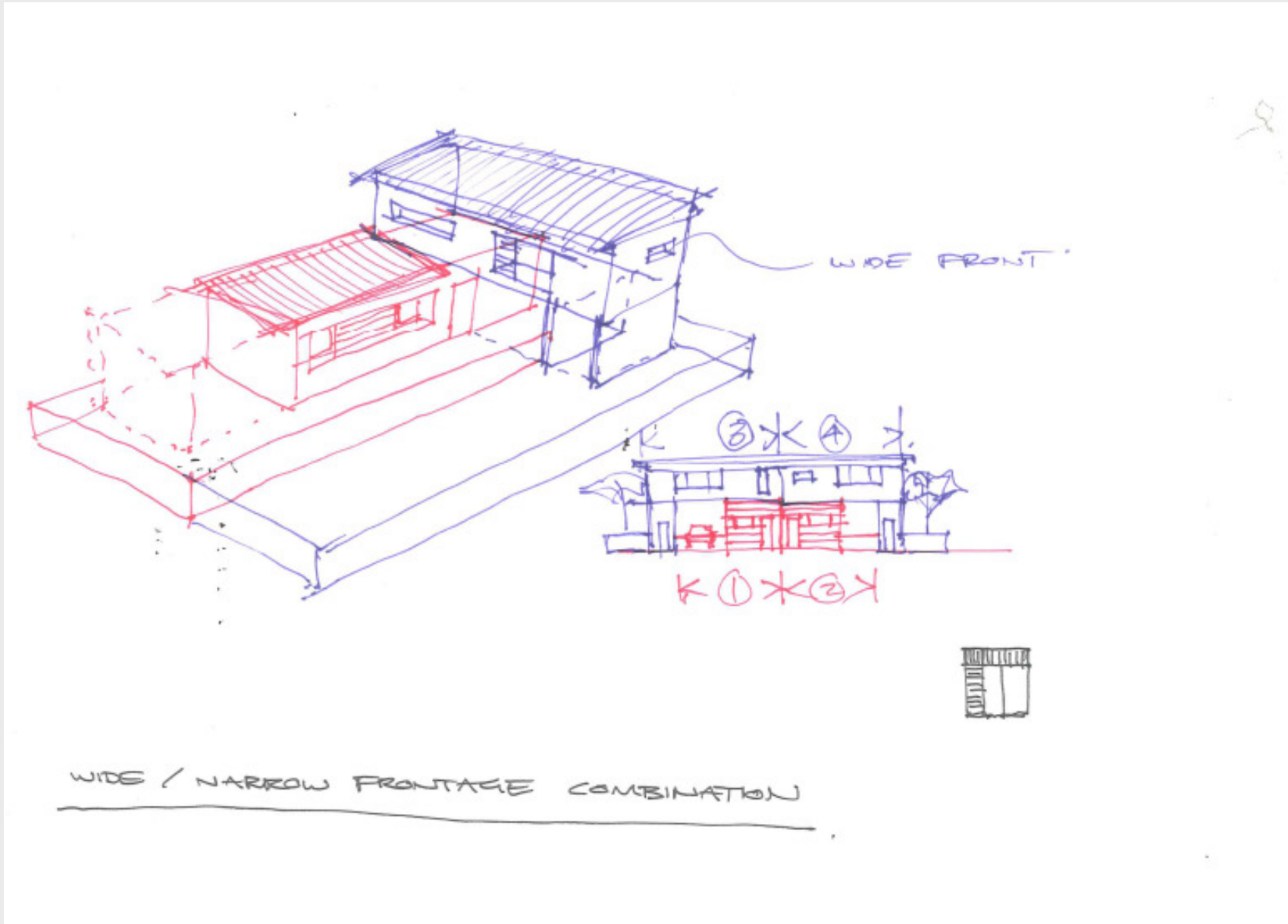
Description	Typology	Typology
	MF/DO/DU/DE	MF/DO/DE/DU/SD
	Medium Frontage - Double Storey - Detached with Duplex Detached	Medium Frontage - Double Storey - Detached with Duplex Semi-Detached
Number of units	2	3
Construction Area (m2)	107,10	161,41
<b>Stand Size</b>		
Stand Size for flat (m2)	141	141
Average Stand Size for gentle (m2)	181	181
Average Stand Size for moderate (m2)	217	217
Average Stand Size for steep (m2)	337	337
Average Stand Size for very steep (m2)	463	463
<b>Units per Hectare</b>		
<=40 units / ha		
<=40 units / ha		
Units per Hectare for Flat	95	103
Units per Hectare for Gentle	71	78
Units per Hectare for Moderate	60	63
Units per Hectare for Steep	39	41
Units per Hectare for Very steep	28	30
<b>Total Unit Cost (Flat)</b>		
Cost per Unit	R 198,195.00	R 294,046.67
Land Value (estimated @ R10/m2) ha	R 1,406.68	R 1,406.68
Services	R 22,000.00	R 22,000.00
Professional fees (10%)	R 22,160.17	R 31,745.33
<b>Total Unit Cost (Flat)</b>	<b>R 243,761.85</b>	<b>R 349,198.68</b>
<b>Rate per m2</b>	<b>R 4,552.19</b>	<b>R 6,490.22</b>
<b>Total Unit Cost (Gentle)</b>		
Cost per Unit	R 202,086.40	R 299,219.37
Land Value (estimated @ R10/m2) ha	R 1,810.00	R 1,810.00
Services	R 22,000.00	R 22,000.00
Professional fees (10%)	R 22,589.64	R 32,302.94
<b>Total Unit Cost (Flat)</b>	<b>R 248,486.04</b>	<b>R 355,332.30</b>
<b>Rate per m2</b>	<b>R 4,640.42</b>	<b>R 6,604.22</b>
<b>Total Unit Cost (Moderate)</b>		
Cost per Unit	R 205,979.40	R 304,392.07
Land Value (estimated @ R10/m2) ha	R 2,170.00	R 2,170.00
Services	R 22,000.00	R 22,000.00
Professional fees (10%)	R 23,014.94	R 32,856.21
<b>Total Unit Cost (Flat)</b>	<b>R 253,164.34</b>	<b>R 361,418.27</b>
<b>Rate per m2</b>	<b>R 4,727.78</b>	<b>R 6,717.34</b>
<b>Total Unit Cost (Steep)</b>		
Cost per Unit	R 209,871.60	R 309,564.77
Land Value (estimated @ R10/m2) ha	R 3,370.00	R 3,370.00
Services	R 22,000.00	R 22,000.00
Professional fees (10%)	R 23,524.16	R 33,493.48
<b>Total Unit Cost (Flat)</b>	<b>R 258,765.76</b>	<b>R 368,428.24</b>
<b>Rate per m2</b>	<b>R 4,832.39</b>	<b>R 6,847.62</b>
<b>Total Unit Cost (Very Steep)</b>		
Cost per Unit	R 213,763.80	R 314,737.47
Land Value (estimated @ R10/m2) ha	R 4,630.00	R 4,630.00
Services	R 22,000.00	R 22,000.00
Professional fees (10%)	R 24,039.38	R 34,136.75
<b>Total Unit Cost (Flat)</b>	<b>R 264,433.18</b>	<b>R 375,504.21</b>
<b>Rate per m2</b>	<b>R 4,938.23</b>	<b>R 6,979.14</b>
<b>Cost of units per Hectare (excl. bulk services)</b>		
Cost per Hectare (Flat)	R 23,157,375.35	R 35,967,463.95
Cost per Hectare (Gentle)	R 17,642,508.84	R 26,649,922.75
Cost per Hectare (Moderate)	R 15,189,860.40	R 22,769,351.22
Cost per Hectare (Steep)	R 10,091,864.64	R 15,105,557.98
Cost per Hectare (Very steep)	R 7,404,129.04	R 11,265,126.40
<b>Bulk services per Hectare</b>		
Services (roads, stormwater, water supply, sewer drainage, electrical, etc) for Flat	R 3,562,162.00	R 3,562,162.00
<b>Total costs per appointed unit</b>		
= R30,000		
= R10,000		
= R100,000		
Flat (0)	R 220,195.00	R 316,046.67
Gentle (1.1)	R 220,086.40	R 321,219.37
Moderate (1.2)	R 222,099.40	R 326,392.07
Steep (1.3)	R 221,871.60	R 331,564.77
Very steep (1.4)	R 225,763.80	R 336,737.47

Extra over cost to Fascade		
Face brick (R175/m2 extra over rate from plaster and paint)	R 11,900.00	R 15,050.00
Textured plaster (R20/m2 extra over rate from normal plaster)	R 0.00	R 0.00
Palisade fencing (R490/m extra over cost from brick balustrading)	R 10,290.00	R 10,290.00
<b>Total cost</b>	<b>R 22,190.00</b>	<b>R 25,340.00</b>
<b>Total cost per unit</b>	<b>R 11,095.00</b>	<b>R 8,446.67</b>

**MEDIUM-FRONTAGE, DOUBLE-STOREY, DETACHED UNITS WITH DUPLEX-DETACHED UNITS ABOVE ACHIEVE DENSITIES FROM 95 UNITS/HA ON FLAT SLOPES TO 28 UNITS/HA ON VERY STEEP SLOPES. COSTINGS ARE FROM R220 195 TO R235 763 RESPECTIVELY.**

**THE SAME GROUND FLOOR UNITS WITH DUPLEX SEMI-DETACHED UNITS ABOVE ACHIEVE DENSITIES FROM 103 UNITS/HA ON FLAT SLOPES TO 30 UNITS/HA ON VERY STEEP SLOPES. COSTINGS ARE FROM R316 046 TO R336 737 RESPECTIVELY.**

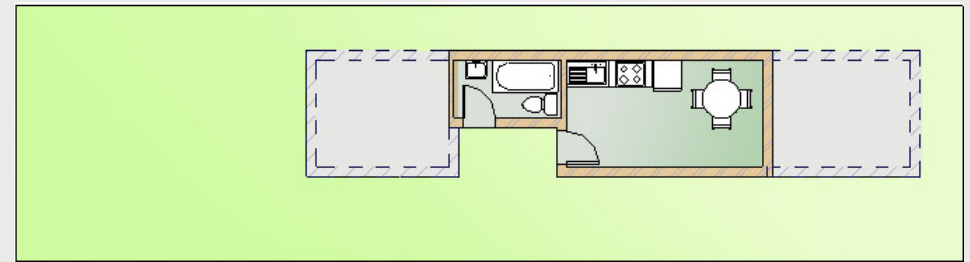
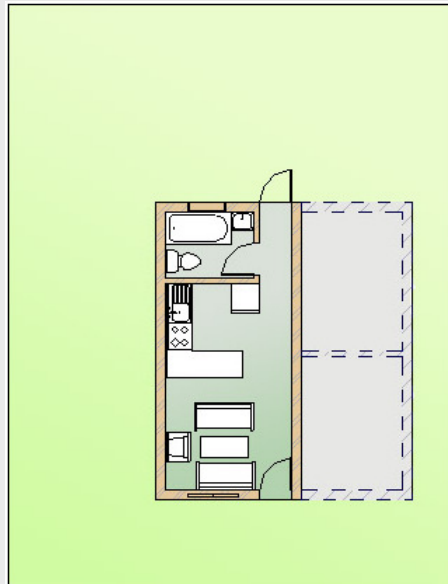
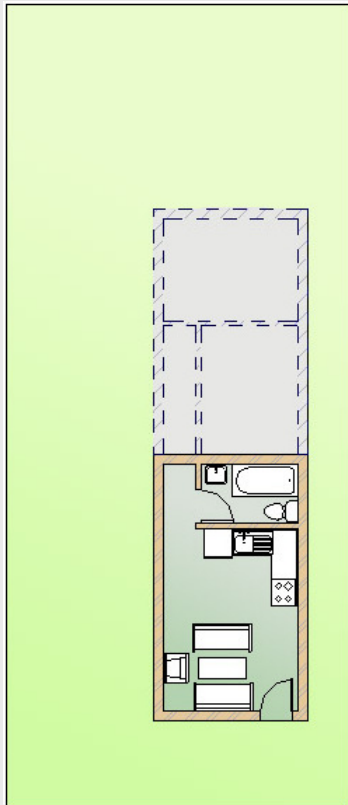
**NOTE: FOR PURPOSES OF CLARITY, PLEASE REFER TO THE ORIGINAL SPREADSHEETS WHICH HAVE BEEN INCLUDED IN THE FOLDER 'FINAL REPORTS, DRAWINGS AND SPREADSHEETS - FEB 2010'**





## MINIMISING THE UNIT DELIVERABLE

## PROVIDING AN ESSENTIAL CORE



IN ORDER TO DELIVER BASIC HOUSING QUICKLY, REDUCE COSTS OR ENCOURAGE BENEFICIARY INVESTMENT IT IS POSSIBLE TO REDUCE THE BASIC TYPOLOGY FOOTPRINTS. THIS WOULD PROVIDE A SERVICED 40M<sup>2</sup> SLAB BUT A REDUCED AREA UNDER ROOF CONSISTING OF BATHROOM, KITCHEN AND SLEEPING AREA.

### NARROW FRONTAGE

### MEDIUM FRONTAGE

### WIDE FRONTAGE

BUILT AREA = 22.7m<sup>2</sup>

BUILT AREA = 24m<sup>2</sup>

BUILT AREA = 19.6m<sup>2</sup>

CONCRETE SLAB = 43.6m<sup>2</sup>

CONCRETE SLAB = 42m<sup>2</sup>

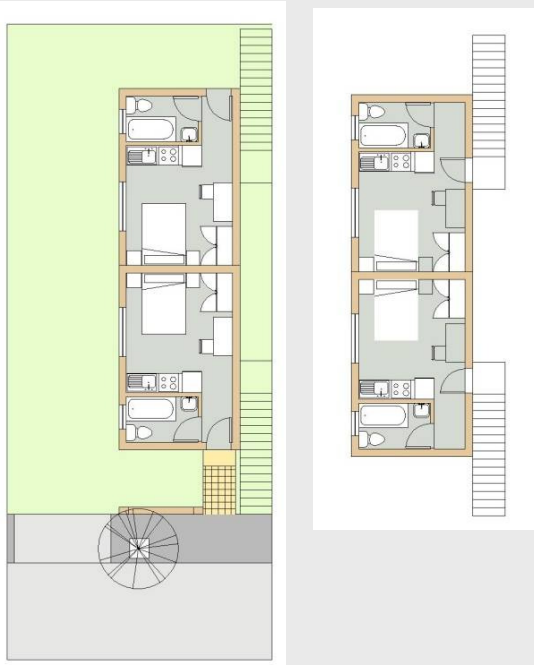
CONCRETE SLAB = 40m<sup>2</sup>

SITE AREA = 152.2m<sup>2</sup>

SITE AREA = 143m<sup>2</sup>

SITE AREA = 133.4m<sup>2</sup>

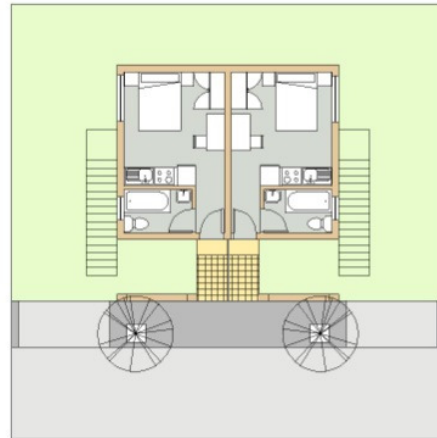
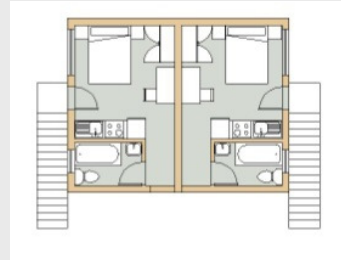
# INVESTIGATING SINGLE QUARTERS



## NARROW FRONTAGE

BUILT AREA = 21m<sup>2</sup>/unit

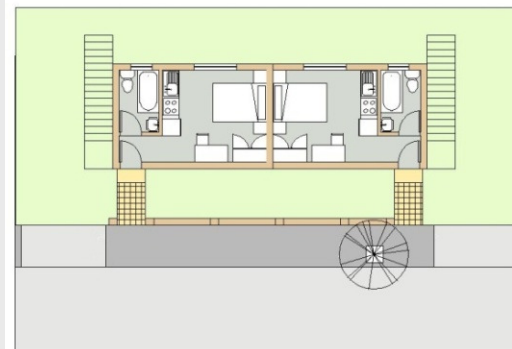
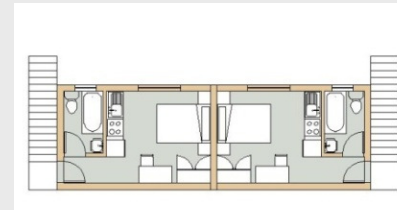
SITE AREA = 124.3m<sup>2</sup>



## MEDIUM FRONTAGE

BUILT AREA = 21m<sup>2</sup>/unit

SITE AREA = 137.4m<sup>2</sup>



## WIDE FRONTAGE

BUILT AREA = 21m<sup>2</sup>/unit

SITE AREA = 140m<sup>2</sup>

THERE APPEARS TO BE AN ASSUMPTION THAT THE GREATEST NEED FOR HOUSING IS FOR FAMILY HOUSES. HOWEVER IT BECAME APPARENT DURING THIS PROJECT THAT THERE IS A HUGE DEMAND FOR SINGLE PERSON HOUSING, PRIMARILY FOR WORKERS IN THE CITIES WHOSE FAMILIES LIVE ELSEWHERE.

SINGLE QUARTER ACCOMMODATION IS USUALLY ASSOCIATED WITH HOSTEL ACCOMMODATION WHICH IS GENERALLY REGARDED AS UNACCEPTABLE BECAUSE OF THE DEGRADING CONDITIONS UNDER WHICH PEOPLE ARE FORCED TO LIVE.

FAMILY HOUSING IS HOWEVER ALSO UNSUITED FOR SINGLES LIVING WHERE STRANGERS END UP SHARING A HOUSE WITH SHARED BATHROOMS, KITCHENS ETC.

THIS SLIDE PROPOSES AN ALTERNATIVE WHERE THE BASIC HOUSE TYPOLOGIES CAN BE ADAPTED TO PROVIDE DIGNIFIED LIVING CONDITIONS FOR SINGLE PEOPLE WHILST AT THE SAME TYPE ADDRESSING THE BASIC PRINCIPLES OF GOOD HOUSE LAYOUT AND URBAN FORM.

# ADAPTING THE UNIT TO SUIT VARYING SLOPES

