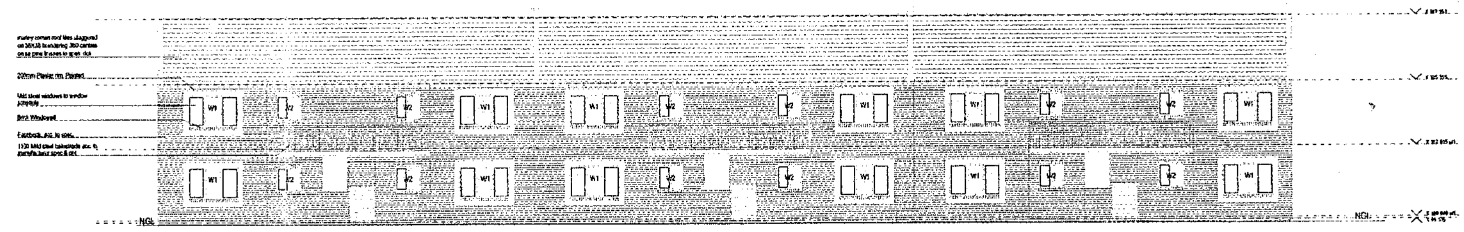
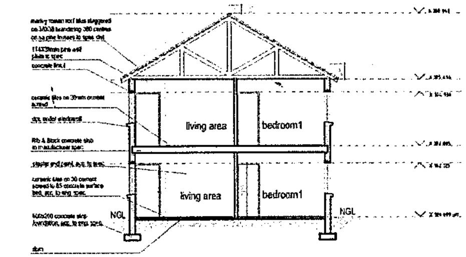
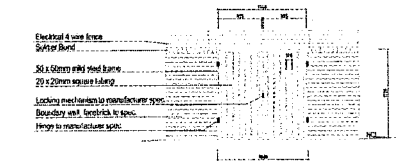


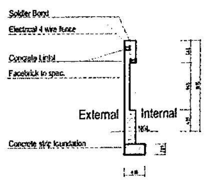
north elevation (Block B) scale 1:100



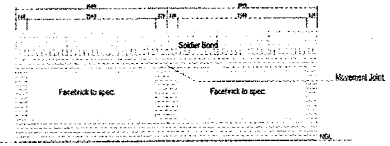
section C-C scale 1:100



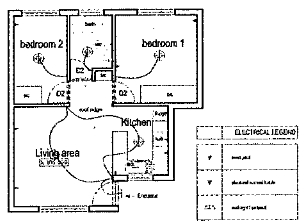
refuse storage gate scale 1:50



boundary wall section scale 1:50



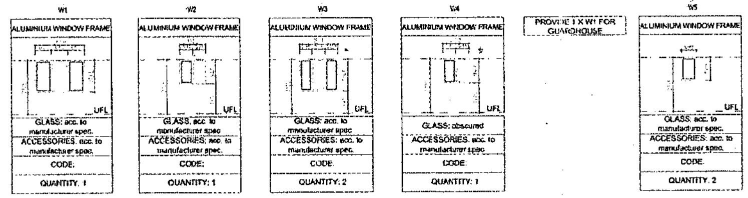
boundary wall elevation scale 1:50



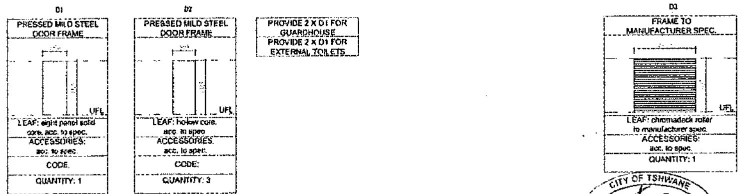
electrical plan per unit scale 1:100

(PER UNIT) - WINDOW SCHEDULE SCALE 1:100

EXTERNAL TOILET



(PER UNIT) - DOOR SCHEDULE SCALE 1:100



External Wall Calculations

Occupancy	H4 (Dwelling House)
Climatic Zone	2
Minimum R-value	0.35
Wall Type	Double Skin Masonry, plastered internally
R-value of wall type	0.35 (comply with minimum R-value of 0.35)

Roof Assembly Thermal Resistivity

Concrete roof tiles

Notes	Climatic Zone	Total required resistivity	Direction
Total R value is a combination of roof assembly & isolation	2	3.2	UP
R value of Roof and Ceiling material calculated for concrete roof tiles & plaster board ceiling		0.4	
Minimum Value of added thermal resistivity		2.8	

Hot Water System

Type of Accomodation	Dwelling House 80-115 L/capita/day
Assumed hot water consumption	115L
Number of persons	4 Per Day
Assumed daily hot water consumption	460L
Assumed annual hot water consumption	167.9kL (Based on daily occupance per week)
Installation requirements:	
Intern diameter of hot water service pipes	Less than 80mm
Minimum required R-Value of pipe insulation	1.0 (As per SANS 204 4.5.2)
Minimum required R-Value of Vessel/tank	2.0

Dwelling to be provided with 1 x 200L hot water tanks to comply with SANS 10254 provision must be made to use alternative energy hot water supply of min 50%, to comply with SANS 10400

Estimated energy consumption

Electrical installation endorsed by specialist

Legend	Amount	Calculation	Total Watt
Standard Ceiling light fitting - 40 Watt	5	5 x 40 Watt	200 Watt
Standard Exterior light fitting - 40 Watt	1	1 x 40 Watt	40 Watt

Estimate Maximum Energy Demand as per SANS 10420

5 W/m² x 53.85m² = 269.25W

Total for residence	240 Watt
House area m²	53.85m²
W/m²	4.45 W/m²
permitted = 5 W/m²	

Estimate Annual Energy Consumption:
Assume lights are on 4h p/day
52(weeks) x 7(days) x 4h = 1456h.a
Lights = 240W or 0.24kW
0.24kW x 1456h.a = 349.44kWh.a

CITY OF TSHWANE 2018 -08- 01 MUNICIPAL HEALTH SERVICES

RECEIVED S 2015 -04- 2 5 U 27/04/2016

2018 -08- 02

CITY OF TSHWANE CITY PLANNING AND DEVELOPMENT Pr. Eng 790366 2018 -07- 30

GENERAL SPECIFICATIONS:

GENERAL

- Boundary pegs to be pointed out by owner
- Contractor must check all levels, dimensions, steps etc. on site and report all discrepancies to the architect prior to commencement of work.
- All materials to be SABS or Agreement Board approved.
- All work to comply with the National Building Regulations (SANS 10400), the applicable SABS codes and building society regulations.

FIRE PREVENTION

- Any roof space between garage and habitable areas will be divided by a wall with a 30 minute fire rating.
- Any door between garage and habitable areas to be a solid timber core door, 40mm thick.

FOUNDATIONS, BRICKWORK AND PARTITIONS

- All works to comply with Parts B, H and K of SANS 10400
- All foundations to be 10 mpa concrete (2 bags cement, 4 wheelbarrows river sand, 5 wheelbarrows 22mm stone) at 28 days, at least 200x600mm, min 200 under ground level to eng. details.
- Boundary walls' foundations must not encroach on boundary and walls are to be plastered and painted both sides.
- Parapet walls to be at least 300mm high and max 500mm, with brickforce in every course.
- All screen walls to be at least 1,8m high above gl.
- Lintels to be supported min. 150mm for openings up to 4,8m. Brickforce built in every course below floor level an above window level, every third course between, in continuous bands
- No toothing or block bonding will be allowed under any circumstances.
- Any partition to be rodent proof.
- Mortar used in construction to be portland cement, and have compressive strength, not less than 7Mpa at 28 days

FLOORS AND WATERPROOFING

- All works to comply with Parts J of SANS 10400.
- Ground floor slab: 85 thick, 20 mpa concrete, perfectly level, min 150 above gl. on properly compacted hardcore. 25 thick screed and finishes as indicated.
- Where underfloor heating (u.f.h.) is shown on the plan, slab to be 120mm thick 20 mpa concrete with ref. 193 mesh at bottom. These floors must be cast on min 50mm thick polystyrene foam and foam is to be installed around perimeter of room to insulate floor from wall.
- Suspended concrete floors to eng. details.
- DPC under all walls (except free standing) and windowsills and to all vertical changes in floor levels
- Flashing to all parapets and changes in roof level
- Atriums & courtyards to be fitted with at least 1x100 diameter outlet pipe from catchpit fitted with grating and silt trap.
- Planters to be waterproofed and drainage installed

ROOF

- All wood S.A.B.S approved S.A PINE
- Roof covering on 38x38mm S.A PINE battens on GUNDLE white waterproofing membrane on 76x114mm S.A PINE rafters. Slope: as shown. (built into walls with wire for 6 brick courses) on 38x115mm S.A PINE wallplate.

DRAINAGE

- All works to comply with Parts P of SANS 10400.
- All plumbing and drainage work and installation of sanitary fittings to comply with the relevant Local Authority by-laws, regulations and requirements.
- NB: No back-venting required!
- Provide a chemical temporary toilet (before inspection of foundation excavations) in an inoffensive position; keep it in a hygienic and odorless state.
- All sewers to be 100 dia. PVC min. fall 1:40, max fall 1:10
- Open end of vent pipe to be min. 2,0m above any opening into building within a 5m radius. Stub vents to be fitted with an approved 2-way vent valve.
All vents, stacks, geysers, down pipes etc. to be concealed.
Stacks in ducts to be accessible for cleaning purposes.
- All bends and junctions in sewer to be fitted with io's, all io's under paving to be fitted with marked covers. Protect drain under foundations in accordance with Part P of SANS 10400
- All waste fittings to have reseal traps and pipe to be fully accessible if under floors, with io's either end or clamped to wall.
- Any sewer pipe not deeper than 350mm under ground level (fl. -40) to be covered with a concrete slab, wide and strong enough to protect the sewer, with min 100mm soil between pipe and concrete.
- The radius at the centerline of bend at the foot of discharge stack will be not less than 300mm and other bends 600mm.
- The vertical distance between the invert of the lowest branch discharge pipe connected to and the invert of the drain at the point of connection of the stack and the drain to be min 500mm.
- Where any waste or soil branches are connected to a stack the centre line of the waste branch shall not intersect the stack within 200mm below the centre line of the soil branch. All waste branches to connect separately to stack.
- Where a french drain is required a percolation test will be executed complying with Section 4.8 of Part P of SANS 10400, and the french drain will run parallel to the contours of the site.
- Sewer connection: as shown with rodding eye or manhole within 1,5m from connection.

PIPE SIZES	GRADIENT MIN	MAX
50 dia: sink, veg basin, shower, washing machine, dishwasher, wash trough, bath	1,25	2,5
50mm dia. bidet	2,5	5
100mm dia: toilets	5	11
50mm min. combined waste		
100mm: vents to toilets		

Class of occupancy (SANS 10400-A:2010, pg 43-44)
H4 - Dwelling House

Climatic Zone (SANS 204:2011, pg 30-31)
Temperate Interior, Pretoria (Zone 2)

Energy demand and consumption per building (SANS 204:2011, pg 9/ SANS 10400-XA:2011, pg 6 - 8)

Net area:48.37 m² (according to SANS 204 3.14 sum of all areas between the vertical building components)

1. Orientation and shading
(SANS 10400-XA:2011, pg 9, pg 32-37, Annex D/SANS 204:2011, pg 7-8)
A compact building plan, with rooms with highest occupancy and majority of glazing placed on the northern side of the building to allow for solar heat to penetrate during the winter months.

2. External walls
(SANS 10400-XA:2011, pg 10/SANS 204:2011, pg 10-12)
The plan indicates double skin masonry with cavity, plastered internally. According to the referenced SANS documents, this exceeds the minimum R-value of 0.35 and is deemed to satisfy requirements in all climatic zones.

3. Fenestration
(SANS 204:2011, pg 13-17, 55-56/ SANS 10400-XA:2011, pg 10)
Net floor area 154.96 m² (according to SANS 204 3.14 sum of all areas between the vertical building components)
Conductance allowed (table 5, SANS 204): Net floor area x 1.4 (Climatic zone 2)
=48.37m² x 1.4 = 6 102 SHGC allowed (table 5, SANS 204): Net floor area x 0.12 (Climatic zone 2)
=5.20 m² x 0.17 = 18 5052

All windows assumed to consist of aluminium frames with clear single glazing and emissivity of 0.2 or better (table 6, SANS 204)
All fenestration complies with all requirements for fenestration according to SANS 204 (2011)

4. Roof assembly
(SANS 204:2011, pg 17-21/ SANS 10400-XA:2011, pg 11)
Minimum required R-value of 3.2 in climatic zone 2 with upward heat flow (table 7, SANS 10400-XA). According to table F3 (SANS 204), the total R-value for an uninsulated roof construction fitting the description as indicated on plan would be an R-value of 0.35.

site area	3298.00m²
FLOOR AREAS:	
ground floor:	
general	701.42 m²
covered pats	47.58 m²
total	749.00 m²
first floor	
general	640.70 m²
balcony	32.67 m²
total	673.37 m²
TOTAL	1422.37 m²
coverage	22.66%
floorplan (per unit)	53.85 m²

April 2016	0143
Shown	jbr-0143-04
	4

Proposed new development for Exakto Projects, Erf - 2131 Cultura Park, Erasmus X8, Bronkhorstspruit

window schedule, elevation,section, detail, elctrical layout, energy

S° fr ARCHITECTS