

1. Design Criteria

- 1.1 Governing building code
All building loads are to be in accordance with SANS 10160:2011.
Design working life category (table 1)Cat 3 = 50years
- 1.3 Roof Live Loading
All roof live loads are in accordance with SANS 10160-2:2011
A. Accessible Flat Roof(Category J or the governing occupancy category).....2.0kNm2
B. Inaccessible Roof (Category H1 – during construction).....0.75kNm2<3m2 ...0.25kNm2>3m2
C. Inaccessible Roof (Category H2 – normal maintenance).....0.50kNm2<3m2 ...0.25kNm2>3m2
- 1.4 Earthquake Loading
In accordance with SANS 10160-4:2011 (Figure 1) the site falls outside of any natural or mining induced seismic zones. Seismic loading does not need to be considered.
- 1.5 Wind Loading
Basic Wind Speed vb40m/s
Terrain Category A - B(canopy)
Peak wind pressure qp(z) 16m.....1.135kPa - 0.937kPa

2. General

- 2.1 All construction to conform to the following codes:
SANS 1200, SANS 2001 and SANS 10400.
- 2.2 Do not scale these drawings.
- 2.3 Work in figured dimensions only. Any discrepancies on this drawing to be brought to the engineers attention prior to implementation of any work.
- 2.4 Refer to all relevant drawings by:-
Architects Structural Engineers Electrical Engineers Mechanical Engineers
- 2.5 All columns, beam and walls are centred on grid/centre lines u.n.o.

3. Concrete

- 3.1 All construction to conform to the following codes:
SANS 1200, SANS 2001 and SANS 10400.
- 3.2 Concrete strength at 28 days:-
All concrete (u.n.o.).....30 MPa
Foundations30 MPa
Columns30 MPa
Surface Beds.....35 MPa
Suspended Slabs.....30 MPa
Beams30 MPa
Blinding15 MPa
- 3.3 Concrete finish to:-

Item	Formwork Type	Degree of Accuracy
Foundations.....	Rough.....	III
Columns.....	Smooth.....	II
Walls.....	Smooth.....	II
Suspended Slabs.....	Smooth.....	II
Beams.....	Smooth.....	II
- 3.4 All concrete sizes do not include finishes u.n.o.
- 3.5 25x25 chamfers to all exposed concrete corners.
- 3.6 All columns, walls and beams to be placed centrally on grid/centre lines unless dimensioned otherwise.
- 3.7 Preference should be given to reinforcing suppliers whose materials contain more than 90%, by mass, post consumer recycled content.
- 3.9 The absolute quantity of Portland cement must be reduced by 40%, as an average across all concrete mixes, when compared to a standard concrete mix of the same grade with 100% Portland cement, by substituting it with industrial waste product(s).

4. Reinforcement Notes

- 4.1 Steel reinforcing shal comply with SANS 920
- 4.2 Bending of reinforcing shal comply with SANS 282
- 4.3 Minimum laps in reinforcement to be 50x bar diameter unless shown otherwise
- 4.4 Reinforcement that is too long shall be 'pulled' into element rather than cutting it.
- 4.5 Slab stools at 1000mm centres both ways are to sit on B1 layer and are to support T2 layer unless shown otherwise
- 4.6 Reinforcing Steel Strengths Y bars fy = 450 N/mm² R bars fy = 250 N/mm²
- 4.7 Cover to Reinforcement
Foundations..... 50mm (75mm on bottom)
Exposed Columns, Beams, Walls, slabs 45mm
Non Exposed Columns, Beams, Walls, slabs..... 40mm+
- Reinforcement Estimates

Pad Foundation.....	80kg/m³
RC Retaining wall Foundation.....	80kg/m³
RC Strip Footings.....	50kg/m³
RC Beams.....	160kg/m³
RC Stub Columns.....	200 kg/m³
225shk RC Wall.....	120kg/m³
RC Columns.....	200 kg/m³
200shk RC Slabs.....	130 kg/m³

5. Structural Steel

- 5.1 Structural steelwork shall comply with the requirements of SANS 2001:CSI and the relevant project specifications.
- 5.2 All hot rolled steelwork shall be grade S355JR, all hollow tube steelwork shall be grade S355 and all cold formed steelwork shall be to SANS 10162 Part 1 with a minimum yield stress of 200 MPa and a minimum tensile stress of 365 MPa unless noted otherwise.
- 5.3 Corrosion protection.
- 5.3.1 Cold Rolled Steelwork (purlins)
- Internal Purlins (inside Sheeting Zone)
- To be fabricated from pregalvanized Z275 steel
- 5.3.2 External Purlins (outside of the sheeting Zone) - Refer to drawing
- To be hot dipped galvanized - Hot dip galvanise to SANS 121 (ISO 1461), minimum coating thickness of 75 micron and average 85 micron -
- 5.3.3 Hot Rolled steel work
- All steel to be hot dipped galvanized - Hot dip galvanise to SANS 121 (ISO 1461), minimum coating thickness of 75 micron and average 85 micron -
- 5.4 Structural fire Protection as per architect specification and Sans 10400 part T
- 5.5 All fixing bolts for structural steelwork shall be M16 grade 8.8 HDG unless noted otherwise.
- 5.6 All welds shall be 6mm continuous fillet welds unless noted otherwise.
- 5.7 When steelwork connects to existing structures, the steelwork contractor shall check all site dimensions and levels before fabrication and erection.
- 5.8 No flame cutting or site welding shall be carried out without the written approval of the engineer.
- 5.9 Shop drawings shall be submitted in duplicate to the engineer for approval before commencing any fabrication.
- 5.10 Traceability of steel.
All steel to be marked with the manufacturer's test certificate number to ensure full traceability and to facilitate re-use of the steel members.
- 5.11 Marking steelwork.
Completed components shall be marked with a durable and distinguishing erection mark, section size, steel grade and manufacturer's test certificate number in such a way so as not to damage the component. Marking shall be in a discrete location. Handstamping may be used unless noted otherwise.
- 5.12 Testing of welds.
10% of all fillet welds and 100% of butt welds to be subjected to non-destructive testing.
- 5.13 Roofing
The design and the responsibility for the sheeting/tiles, it's fixing systems and the flashings are those of the roofing contractor. The roofing contractor must provide a watertight system that can withstand all the necessary wind pressures. Where the requirements of the proprietary roofing system are inconsistent with the primary support structure, this must be brought to the attention of the Structural Engineer.
- 5.14 Temporary bracing is the responsibility of the steelwork contractor.

6. Brickwork Notes:

- 6.1 All brickwork and blockwork to comply with the NBR, SANS10400 and SANS 10164 parts 1 & 2.
- 6.2 All burnt clay bricks to comply with SANS 227 and all concrete bricks to comply with SANS 1215
- 6.3 No chases vertical or horizontal (for plumbing /electrical) are permitted without approval from the engineer.
- 6.4 Mortar shall be class II.
- 6.5 Brickforce to be used in every 4th course with a minimum lap of 150 mm.
- 6.6 Wall ties to comply with SANS 28 and to be a minimum 3.5mm thick, galvanized (750g/m2) and provided at not less than 3 no. per sq meter. (Plastic ties do not need to be galvanized)
- 6.7 Vertical movement joints, burnt clay units

Col	Max spacing (10 - 12mm joint)
1	16
2	12
3	8
- 6.8 Vertical movement joints (10-12mm) in concrete units to not exceed 10m c/c
- 6.9 Days between firing and laying for burnt clay units

Col	Days
1	100
2	200
3	200
- 6.10 Brick selection to be confirmed by the engineer before procurement
- 6.11 Placement of movement joints to be confirmed by the engineer prior to construction
- Loadbearing Brickwork
- 6.12 Minimum compressive strength of bricks - 14 MPa.
- 6.13 Concrete slabs cast onto brickwork to be cast on 2 no. layers of tempered hardboard with the smooth faces together.
- 6.14 Concrete slabs cast against bwk shall be cast against 13mm thick bitumen impregnated softboard or expanded polystyrene strips.
- 6.15 Mortar to be independently tested for conformity with SANS 10164
- 6.16 No holes or chases allowed in brickwall unless indicated on drawing, specifications or approved by the engineer.
- 6.17 Use 2x38x750mm long galvanised hoop iron ties at the same spacing as brickforce, nailed/shot fired to concrete columns and built into brickwork
- Cavity walls
- 6.18 Cavity to be kept free of debris and mortar and ties to be cleaned of mortar droppings. Openings to be provided at max 1000mm centers directly above DPC by leaving perpend joints open for approx 50mm
- 6.19 No crimp ties to be used in cavity wall construction
- 6.20 Minimum cavity width 50mm, maximum cavity width 110mm
- 6.21 Wall ties to conform with SANS 10164 - 1: 1980 section 5.2.1.4
- Brick Retaining walls
- 6.22 Minimum compressive strength of bricks - 14 MPa
- 6.23 No DPC to be used in brickwork retaining walls
- 6.24 Wall to be constructed of solid units (perforations less than 25% of volume)
- 6.25 Weepholes to be provided at max 1500mm centers, 300mm above the lower ground level by 50mm plastic pipes/built through the wall. The non exposed end of the pipe should protrude 150mm behind the wall into a geotextile wrapped gravel ball Non-Loadbearing Brickwork
- 6.26 Minimum compressive strength of bricks - 7 MPa 6.25 Infill brickwork to have a 20mm gap at slab sofft level.

NOTE:
Do not scale from this drawing. Check all given dimensions and site dimensions and/or levels prior to any pricing, manufacturing or construction of any item. Greater detail drawings take preference.
Please report any discrepancies to the Architect.
The copyright for the design and information on this drawing is vested and may not be copied or reproduced without the written authority of the Architects.

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Project Address: Mixed-use Development

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NOTES

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