

**FLISP SPECIFICATIONS AND MINIMUM STANDARDS FOR SINGLE AND DOUBLE STOREY UNITS: LOUIS FOURIE**

**Minimum Standards for FLISP Subsidised Housing units**

This specification to be read in conjunction with the Minimum Norms and Standards as Published by Western Cape Government for BNG Housing, April 2018:

**Section A: Pre-Construction**

**General**

- 1.1 All new houses must be enrolled with the NHBRC & comply with the Home Builders manual and Guide.
- 1.2 All construction methods, materials & workmanship to comply with the relevant SABS/SANS codes of practice, SAN 10400 (including XA), NBR & the Technical & General Guidelines and Part 3 of the National Housing Code – this housing standards document must be seen as the Department's summary to the above. These specifications must be read in conjunction with the above.
- 1.3 Second hand materials will not be considered for Individual Subsidy Projects (second hand structural and electrical items are not allowed).
- 1.4 Patented building systems to have Agreement SA certification & accepted by the NHBRC. All other relevant standards in this document shall apply. Such systems may not cause any deviation from any architectural or structural designs without prior approval
- 1.5 All approved products must be installed/ fixed strictly in accordance with the manufacturer's details/specifications.
- 1.6 All plans (including electrical) to be approved by the Department & Local Authority before construction commences.

**House Design**

- 2.1 Design strictly in accordance with plans provided. Architectural drawings to be read in conjunction with structural engineers drawings.

**Section B: Site Preparation, Ground Beams and Raft Foundation Work**

All foundation work, back fill and compaction, ground beams, retaining structures and raft foundations to be in accordance with Engineering design, specifications and drawings as provided separately.

**Strip Footings**

- 3.1 Strip footings to be certified by a Competent Person (Structural).
- 3.2 Reinforced concrete to be specified by a Competent Person (Structural)
- 3.3 Internal 140mm load bearing walls to be provided with a 600mm x 200mm (min 10 MPa) strip footing.
- 3.4 Internal non-load bearing walls to be provided with a 450mm x 200mm (10 MPa) strip footing or a slab (25 MPa) thickening of the same size including steel mesh (ref. 193) across the whole slab. (The excavated area to be compacted).
- 3.5 Top of footing shall be minimum 200mm below NGL.
- 3.6 When footings are stepped, the overlaps shall be twice the thickness of the concrete (not closer than 1m from any corner).
- 3.7 No hand-mixes are allowed.

**Raft foundations**

- 4.1 Must be designed & certified by a Competent Person (Structural) for each house.
- 4.2 Must be designed with a minimum 10mm rebate at the top edge for the external wall to prevent water penetration onto the slab.
- 4.3 Appropriate shuttering to be provided and approved by the Competent Person.

**Blockwork – General**

- 5.1 Blocks to be low moisture absorbing and sourced from SABS approved suppliers.
- 5.2 Brick force to be 2.8 mm diameter wire on every third layer and every layer in foundations.
- 5.3 Walls to be plastered internally and externally and painted externally with an active/ valid Agreement SA certified external coating system to be approved by the Architect. Colour scheme by Architect to later drawings.

**Foundation Blockwork**

- 6.1 On a sloping site, where the foundation wall height of a 140mm wide wall exceeds 400mm above FGL the wall shall be classified as a retaining wall and designed by a Competent Person (Structural).
- 6.2 Foundation walls as per engineer's details.
- 6.3 Mortar mix to be 1:1:6 (2x50kg cement: 2x50kg lime: 6 wheelbarrows sand).
- 6.4 Each layer to have brick force (2.8mm diameter)

**Plumbing and Electrical Foundations (First Fix)**

- 7.1 Plumbing work to foundations
  - 7.1.1 Water supply pipes to be 15mm Ø min laid at a minimum depth of 450mm with an approved stopcock
  - 7.1.2 All soil drain pipes (110mm Ø) to have a minimum of 1:60 with minimum cover of 450mm with a vented stub stack all waste pipes to be 40mm external diameter.
  - 7.1.3 Two-way vent valve to be placed 150mm above the seal of the highest trap.
  - 7.1.4 Rodding eyes to be installed at max distances, change of direction and fall (as prescribed in SANS/SABS)
  - 7.1.5 Plumbing (especially water supply) up to edge of building to comply with civil engineering minimum standards.
  - 7.1.6 All plumbing pipes (including harnesses) to be secured to walls with appropriate brackets with the correct intervals
  - 7.1.7 Vertical plumbing waste pipes to be fixed on internal wall surfaces where possible and exit as low as possible above finished floor level, preferably through foundation wall cavities or slab at plumbing point.
  - 7.1.8 All plumbing to conform to Local Authority by-laws
  - 7.1.9 Open gully at external tap from Jojo tank to be 50mm above finished ground level.

**7.2 Electrical conduits**

- 7.2.1 See electrical details and specifications
- 7.2.2 Electrical conduits to rise in wall cavities, no cutting or chasing permitted

**Ground Floor – Floor Slabs**

- 8.1 Floor slabs (unreinforced) shall be a minimum of 80mm thick and of 10MPa concrete. Reinforced slabs with ref 193 mesh to be 25 MPa concrete.
- 8.2 Floor slabs must be finished with ceramic tile on a 20mm steel floated screed.
- 8.3 On flat and gently sloping sites, the floor slab level shall be a minimum of 150mm above the lowest top of kerb on the street boundary.
- 8.4 Movement joints to be provided wherever a reinforced slab exceeds 4 linear meters.
- 8.5 A DPM of 250 microns must be laid on a 50mm sand bed under the slab or raft with 200mm overlaps & turned up around the perimeter.
- 8.6 The maximum height of fill beneath floor slabs measured at the lowest point shall not exceed 400mm unless certified by a Competent Person (Civil). Fill shall be moistened prior to compaction so that a handful squeezed in the hand is firm, but does not show signs of moisture. Fill shall be placed in un-compacted layers not exceeding 100mm in respect of hand compaction or 150mm in respect of comparison by mechanical means. Each layer shall be well compacted before additional fill material is added. Compaction shall be such that in excess of 3 blows of a dynamic cone penetrometer are required to penetrate 100mm of fill. Fill & compaction to be approved by Engineer.
- 8.7 Slabs to be properly cured for 3 days by means of covering it with a layer of damp sand or DPM which covers the entire slab, air sealed at the periphery.

**Section C: Ground Floor Superstructure**

**External Walls – Structural Blockwork**

- 9.1 Double storey; minimum of 7 MPa (clearly identified) at lower level is required.
- 9.2 Cement blocks to be cured for 21 days
- 9.3 Blocks shall be of a good standard with a high water absorption resistance.
- 9.4 Contractors shall provide the Department and Local Authority with certification on the above.
- 9.5 Mortar joints shall be shell bedded with Concave or Vee joints externally for plaster.
- 9.6 375 micron DPC to be placed under all walls (DPM should not be used as DPC).
- 9.7 Brick force (wire of 2.8 diameter) shall be placed in every 3<sup>rd</sup> course.
- 9.8 All openings larger than 400mm to have reinforced block work over openings.
- 9.9 In 140mm block wall u-blocks with 1xY10 steel bars filled with 20MPa concrete over openings between 400mm and 3000mm
- 9.10 Mortar (bedding and plaster) mix to be 1 volume cement x 1 volume un-hydrated lime x 6 volumes of sand (2x50kg cement: 2x50kg lime: 6 wheelbarrows sand)
- 9.11 External walls shall be plastered (min. 12mm thick). External walls to be plastered to top of raft foundation. See detail of raft foundation/ground beam to external wall detail.
- 9.12 Control joints on cement blocks to be placed in all walls exceeding 8 meters in length unless otherwise specified by Engineer. Joints to receive & be pointed with an appropriate filler & sealant
- 9.13 Shared fire walls to be built to underside of roof covering. No timber to breach the fire wall. The 50mm gap between purlin ends to be filled with mortar. Fire wall cavity to be filled with mortar or sand.
- 9.14 Fire walls (Dividing common walls) cavities to be sand filled
- 9.15 Block work on both sides of the external door frame to receive a 1 x Y10 steel bar & the blocks filled with 20 MPa concrete (vertically) up to roof or slab level.
- 9.16 The height of walling built in a day must not exceed 1.3m to 1.5m.

**Internal Walls**

- 10.1 Minimum of 90mm wide hollow block walls with 3.5 MPa strength are required.
- 10.2 Internal walls shall be bound to the external wall (intersection of internal wall with external wall) with 1.2mm x 32mm hoop iron (minimum length 700mm) every 2<sup>nd</sup> course and the joints pointed (trowel cut)
- 10.3 Internal wall to have brick force at every 3<sup>rd</sup> course (2.8mm diameter)
- 10.4 All internal walls to be plastered (min. 12mm thick) and finished with the trowel cut in the plaster at the connection with the external wall to create a movement joint on all surfaces. Mortar (plaster) mix to be 1 volume cement x 1 volume unhydrated lime x 6 volumes of sand.
- 10.5 375 micron DPC to be placed under all internal walls at floor slab level.

**Plumbing & Drainage to ground floor superstructure (second fix)**

- 11.1 Bath to be 1,7 meter Fiberglass/Acrylic bath to be approved by client/architect.
- 11.2 Sink to be stainless steel, 800mm x 460mm min, 202 grade, 0,5mm thick drop in sink on a melamine sink cupboard with post formed top. Colour to Architect.
- 11.3 Toilet pan & hand wash basin (min bowl size 210mm x 330mm) to be porcelain.
- 11.4 Sinks, basins and baths to be silicone pointed. Splash back wall tiles around sink basin and bath.
- 11.5 Appropriate devices such as water conserving taps (max 6l/min flow), low flow rate shower-heads (max 10l/min flow) & low-volume or dual flush toilet cisterns (standard flush of max 6 litres) to be installed.
- 11.6 All taps if fixed to the wall to be attached to an approved back plate (100mmx100mmx2mm galvanised steel)
- 11.7 An appropriate access panel (minimum 300mmx300mm), with a frame (38mm x 38mm SAP) & removable cover (6mm min f/c board), needs to be installed to service the bath plumbing.

**Windows**

- 12.1 Windows to be polymer concrete external frames and window sills, with aluminium inserts to openers and fixed panels. See window schedule for sizes and detail.
- 12.2 Polymer Concrete window frames and window sills to be left unpainted. Aluminium insert powder coat colour to Architect
- 12.3 Glass panes shall be in accordance with SANS 10400 N/ SABS 0137-2000 code of practice
- 12.4 All windows must conform to the mechanical performance criteria of SANS 613.
- 12.5 All window frames to be externally pointed all-round with an external waterproofing agent (silicone)
- 12.6 All houses must be issued with a glazing compliance certificate on completion.

**External Doors and Frames**

- 13.1 Doors shall be of an approved hardwood, framed, ledged, braced, battened door or with a closed back or BB CLASS 1, full external use (may be directly exposed to weather once sealed), and presenting the SABS/SANS 545 mark, 40mm thickness, painted with approved eggshell finish paint applied strictly according to manufacturer's specifications. Colour by Architect, with a 3 lever lock set. Veneered covered engineered doors will not be allowed.
- 13.2 Door locks and handles to carry a 1 year guarantee against rust.
- 13.3 Polymer Concrete door frames to be installed strictly according to manufacturer's specifications.
- 13.4 Polymer Concrete door frames to be left unpainted.
- 13.5 External doors to be fitted with a properly sealed weather board (70mmx40mm).
- 13.6 Fire rated doors (1 Hour) as per door schedule.

**Internal Doors and Frames**

- 14.1 Internal doors to be hollow core Masonite clad.
- 14.2 All door frames to be painted (1 x undercoat and 1 x acrylic)
- 14.3 Polymer Concrete door frames to be installed strictly according to manufacturer's specifications.
- 14.4 Doors to be painted (1 x undercoat and 1 x enamel paint coat).

**Section D: 1<sup>st</sup> Floor Slab and Stairs**

Pre-cast stair and rib & block floor slab to be design and supply elements to engineering design and approval. Design and supply specifications, drawings and details to be provided for approval of Architect and Structural Engineer.

Specific attention must be given to stair/slab integration, side overhangs (see drawings) and cantilever slabs support to rainwater tanks.

**Rib and Block Slab System Complete**

- 15.1 The underside of the Rib & Block concrete slabs to have a smooth finish with edge finish approved by Architect.
- 15.2 Rib & Block concrete slabs to be appropriately skimmed to ensure a smooth soffit finish.
- 15.3 Underside of slabs to be painted.

**Pre-Cast Stair Unit**

- 16.1 Balustrades must be removable to allow for furniture to be moved.
- 16.2 Balustrades to be 1m high with openings not to allow a 100mm diameter ball through.
- 16.3 Hot dipped galvanised removable steel balustrade as per detail

**Electrical Third Fix**

- 17.1 Electrical conduiting and junction boxes to slab.
- 17.2 Conduits protrude to extend to upper block work cavities

**Plumbing Third Fix**

- 18.1 Water supply to roof for low-pressure solar hot water system. Solar hot water system by specialist.
- 18.2 Plumbing to 5000l vertical UPVC rainwater tanks, (Jojo or equal) beige colour, with tap at ground floor level (See plans and elevations).

**Section E: 1<sup>st</sup> Floor Superstructure**

**External Walls – Structural Block Work**

- 19.1 1<sup>st</sup> floor blockwork to double storey units; minimum of 3,5 MPa (clearly identified).
- 19.2 Cement blocks to be cured for 21 days.
- 19.3 Blocks shall be of a good standard with a high water absorption resistance.
- 19.4 Contractors shall provide the Department and Local Authority with certification on the above.
- 19.5 Mortar joints shall be shell bedded with Concave or Vee joints externally for plaster.
- 19.6 375 micron DPC to be placed under all walls (DPM should not be used as DPC).
- 19.7 Brick force (wire of 2.8mm diameter) shall be placed in every 3<sup>rd</sup> course.
- 19.8 All openings larger than 400mm to have reinforced block work over openings
- 19.9 In 140mm block wall u-blocks with 1x Y10 steel bars filled with 20MPa concrete over openings between 400mm and 3000mm to engineer's specification and approval.
- 19.10 Mortar (bedding and plaster) mix to be 1 volume cement x 1 volume unhydrated lime x 6 volumes of sand (2x50kg cement: 2x50kg lime: 6 wheelbarrows sand)
- 19.11 External walls to be plastered (min. 12mm thick). External walls to be plastered to 100mm below ground level with a v-joint at floor level.
- 19.12 Control joints on cement blocks to be placed in all walls exceeding 8 meters in length. Joints to receive & be pointed with an appropriate filler & sealant (a 1 x Y8 reinforcing bar on both sides of the movement joint filled with 20 MPa concrete) to engineer's specification and approval.
- 19.13 Shared fire walls to be built to underside of roof covering. No timber to breach the fire wall. The 50mm gap between purlin ends to be filled with mortar.
- 19.14 Block work on both sides of the external door frame to receive a 1 x Y10 steel bar & the blocks filled with 20 MPa concrete (vertically) up to roof level, to engineer's specification and approval.
- 19.15 The height of walling built in a day must not exceed 1.3m to 1.5m.
- 19.16 Top of Parapet walls to be closed off with concrete coping as per detail

**Internal walls**

- 20.1 Minimum of 90mm wide hollow block walls with 3.5 MPa strength are required.
- 20.2 Internal wall shall be bound to the external wall (intersection of internal wall with external wall) with 1.2mm x 32mm hoop iron (minimum length 700mm) every 2<sup>nd</sup> course and the joints pointed (trowel cut)
- 20.3 Internal wall to have brick force at every 3<sup>rd</sup> course (2.8mm diameter)
- 20.4 All internal walls to be plastered (min. 12mm thick) and finished with the trowel cut in the plaster at the connection with the external wall to create a movement joint on all surfaces. Mortar (plaster) mix to be 1 volume cement x 1 volume unhydrated lime x 6 volumes of sand.

**Windows**

- 21.1 Windows to be polymer concrete external frames and window sills, with aluminium inserts to openers and fixed panels. See window schedule for sizes and detail.
- 21.2 Polymer Concrete window frames and window sills to be left unpainted. Aluminium insert powder coat colour to Architect
- 21.3 Glass panes shall be in accordance with SANS 10400 N/ SABS 0137-2000 code of practice.
- 21.4 All windows must conform to the mechanical performance criteria of SANS 613.
- 21.5 All window frames to be externally pointed all-round with an external waterproofing agent (silicone)
- 21.7 All houses must be issued with a glazing compliance certificate on completion

**Internal Doors and Frames**

- 22.1 Internal doors to be hollow core Masonite clad.
- 22.2 Polymer concrete door frames to be left unpainted.
- 22.3 Doors to be painted all-round (1 x undercoat and 1 x enamel paint).

**Section F: Roof Structure Complete**

**Ceilings**

- 23.1 All units must have a 4mm painted Nutec ceiling with an appropriate insulation for the minimum zone nailed to 38mmx50mm bracing @ 450mm c/c, using 32mm serrated galvanised nails, laid to manufacturer's specifications, finished with matching cover strips and cornices. No clout nails permitted on f/c ceilings. Other ceiling systems to be approved by the Department/Local Authority.
- 23.2 Polystyrene only cornices not permitted. (paper covered polystyrene cornices will be accepted). No pieces (off-cuts) shorter than 1m linear will be permitted.
- 23.3 135mm approved insulation wool to be installed according to manufacturer's specifications.
- 23.4 No black XXX battens will be allowed.
- 23.5 Accessible roof spaces to receive a 600mmx600mm trap door.

**Roof Structure**

- 24.1 The structure shall be designed by a Competent Person (Structural) or an accredited factory design system accepted by the Department and Architect.
- 24.2 Purlins or purlin-beams must have a minimum width of 50mm to accommodate the roof nail/screw.
- 24.3 All roofs to have fascia and bargeboards (wood: 225mmx22mm (treated to the appropriate class) or f/c; (225mmx12mm) to be installed as per manufacturers specifications.
- 24.4 Where bargeboard cappings and sidewall flashings are used they must span at least 2 roof sheet ridges. Cappings to be rolled as per Architect's specifications.
- 24.5 Aluminium gutters to be fixed to fascia boards and completed with 80mm diameter downpipes. See sections and elevations.
- 24.6 The roof structure must be anchored to the structure with 2 strands of galvanised wire (minimum 2.4mm diameter) or galvanised hoop irons (minimum 32mm wide & 1.2mm thick) directly under roof trusses or beams and anchored at least 600mm deep in the walls, including load bearing internal walls.
- 24.7 Roof trusses over opening for rainwater tanks to be fixed to 225x50 mm timber beam, fixed to wall with truss hangers.
- 24.8 Pre-punched hoop iron is to be used since the trusses get damaged when nailing normal hoop iron.
- 24.9 Wall plate (50mmx38mm) to be placed flush with the internal face of the 140mm external wall (this will allow for a 90mm block beam fill on the outside face)
- 24.10 External ends of purlin beams and trusses to be treated with carbolinum before fascias are fitted.
- 24.11 The roof design must make adequate provision for the additional load on the roof to accommodate solar geysers.
- 24.12 An A19 roof certificate to be issued by the contractor for every house on completion.

**Roof Covering**

- 25.1 Roof sheets to be Clean Colourbond Zincalume 0.54 TCT Ultra metallic coating AZ200 (minimum 200g/m<sup>2</sup>), Grade G550 (550 Mpa) on SABS approved underlay with a R-Value of minimum 0.13, provided that the ceiling is 4mm Nutec with an R- value of 0.19 and has glass/mineral wool insulation of 135mm and an R-value of 3.38. The roof sheets have a minimal R-value of 0.0003. (colour to Architect)
- 25.2 Roof sheets must be laid according to manufacturer's details and specifications.
- 25.3 The last roof sheet fixing to be a maximum of 200mm from the end.
- 25.4 Beam filling to be done to underside of roof sheets.
- 25.5 Flashing to be an Agreement SA certified product to match roof sheeting.

NOTES

**Section F: Finishing Complete**

**External & Internal Paint Finish**

- 26.1 External and Internal walls shall be painted with an active/valid Agreement SA certified external coating system. Colours by architect.
- 26.2 Wooden doors, must be treated with an approved paint sealant before installation
- 26.3 Fascia's and bargeboards to be painted (approved undercoat and 2 final coats). Colour by Architect

**Electrical**

- 27.1 Each house to receive standard basic electrical installation comprising a pre-paid meter with a distribution board, lights in each room (external light at each external door) & double plugs to all living areas (the kitchen to receive a minimum of two double plugs).
- 27.2 No chasing is allowed into block work.
- 27.3 The electrical installation must comply with SANS/SABS 0142 (the code of practice for the wiring of premises) & the relevant municipal by-laws standards.
- 27.4 All installations to comply with the Departmental Electrical Minimum Standards Document. (Annexure A2)
- 27.5 All houses must be issued with an electrical certificate of compliance on completion.

**Pergola**

- 28.1 Each housing unit to have pergola at front door as per plan and detail. The material and fixing detail to be polymer concrete and fixed in accordance to manufacturers specifications.

**Rainwater storage tank**

- 29.1 5000 litre Beige coloured vertical storage tanks complete with accessories.

**ClearVu Fence**

- 30.1 ClearVu fence or similar approved to be installed to manufacturers specification and details along the eastern, southern and western boundary of site. Total length of 1030m long by 2.1m high.

Specifications and Drawings to be read in conjunction with Province Minimum Housing Standards for Subsidy Houses (FLISP) April 2018



**DRAWINGS FOR CONSTRUCTION**

NO.	DATE	REVISION DESCRIPTION	BY	TO
A	26-10-2018	Issue for Tender	JSA	
0	14-06-2019	Issue for Construction	JSA	

JSA PROJECT No.		CONTRACT No.	
<b>18/01/LF</b>			
SHEET NUMBER	DISCIPLINE	LOCATION	SCALE
Sheet 1 of 1	ARCHITECTURAL	XX	AS SHOWN
ORIGINATOR	VOLUME / SYSTEM	TYPE	ROLE
JSA	FZ	DR	AX

DRAWING No.	REV.
<b>LFH-JSA-FZ-XX-DR-AX-2380</b>	<b>0</b>

DESIGNED <b>Jac Snyman</b>	DRAWN <b>Morne Damon</b>	DRAWING CHECKED <b>Herman Potgieter</b>
DATE 14-06-2019	DATE 14-06-2019	DATE 14-06-2019

PROJ. PRINCIPAL / APPROVED

**MOSSELBAY**  
**LOUIS FOURIE DEVELOPMENT**

**FLISP SPECIFICATION**