

BUILDING MANUAL



STUMBELBLOC

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STRUCTURES BUILT IN HOURS



42_{M2} COTTAGE

67_{M2} GARAGE



LIVESTOCK TROUGH

ILLUSTRATED USE OF STUMBELBLOC

STEP 1: FOUNDATION



Cast Foundations to standard building regulations requirements.

Foundations must be **cast completely level**, 600mm wide by 230mm deep for single storey, double storey is not allowed by NHBRC.

If stepping is required, **step at 180mm** as seen in this picture.

STEP 2: SET OUT BLOCK WORK



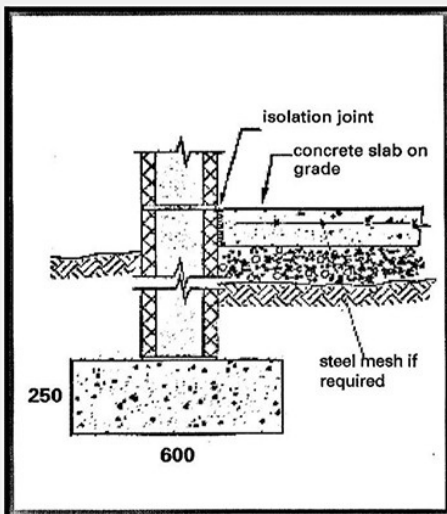
You **MAY NOT** use a half block on your set out layer when building a house, your module will be wrong.

Create the spacing of the module by packing out 2 courses of blocks by dry stacking them first.

The second course determines the correct interlock spacing, and then once fitted properly lift the top row and dip into Blockgrip and pack.

If the foundations are not level you have to place the blocks on a mortar bed like conventional building in order to create a level base.

STEP 3: BUILD FOUNDATION WALL ACCORDING TO APPROVED PLAN



Dry stacking the foundation walls are acceptable if you fill them with concrete.

Small houses with foundation wall not exceeding 2 courses do not need concrete in plinth, but walls must be built to roof height before compacting floor.

More than 3 courses high must have steel and concrete. 4 courses high get 1 x Y10 steel per course. 5 courses and more add vertical steel as per engineer.

Knock off middle teeth and insert reinforcing steel per course, determined by engineer.

Then fill with concrete.

Clean top of block with brush and water, insert damp course to be level with top of slab.

**STEP 3 (CONT...) : BUILD FOUNDATION
ACCORDING TO APPROVED PLAN**



Chop off middle teeth when fitting steel between layers in plinth.

STEP 4: HOW TO LAY STUMBELBLOC



The blocks have a convex and flat ends; **always build the flat ends in the same clockwise direction.**

Mix sufficient amount of Blockgrip at a time.
(See Leaflet)

Dip the bottom of the block into NHBRC approved Blockgrip and simply place.



Where a reveal finishes with a half block at every 2nd course the system has a tendency to dip down. Eliminate this by **double dipping the block**. Remove the block when you notice it is lower and dip it again

The mixture remains soft and wet for a few minutes so that you can adjust the blocks.

Only build two courses at a time and then correct while glue is wet. Use a spirit level and a straight edge to correct block work after every 2 courses.



If you find that you have gone too fast and your levels are slightly out, then mix a slightly thicker batch of Blockgrip and correct your levels

Build outer walls to roof height on small dwellings before compacting floor for floating slab to stabilize foundation walls with the weight.

This is only done when no concrete is cast into plinth.



STEP 5 : SPACING OF DOOR OPENINGS



Always create a complete module on the foundation and only remove blocks for door openings when the spacing is correct, maintain the interlock spacing.



The one meter concrete door frame supplied by Betcrete as well as the standard steel door frame (**The 760 door size**) fits perfectly in the module as seen in the pictures.



STEP 6: HOW TO CREATE A LINTEL

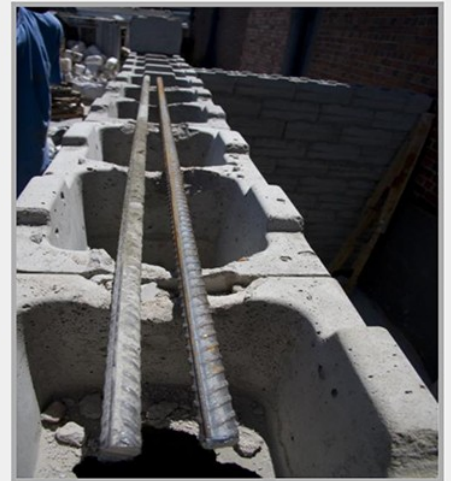


Prop a soffit plank in opening and simply carry on with block work for 1 course.

Then knock off the middle teeth and place two Y10 reinforcing bars in the next 2 courses at least. The span may not exceed 1.6 meters if the span is larger than 1 meter use 2 x Y12. For 1.6m use 3 x Y12.

A bigger span than 1.6 meters requires standard beams:
These must conform to SABS National Building Regulations.

The Y-bar length must exceed the opening by 200mm on each side.



When filling with concrete the lintel automatically fills the two cores of the upright reveals to which windows or door are fitted.

Betcrete windows work the best with the Stumbeibloc system. It is very cost effective. It fits in the module and works as a prop at the same time. It is glued in with Blockgrip.

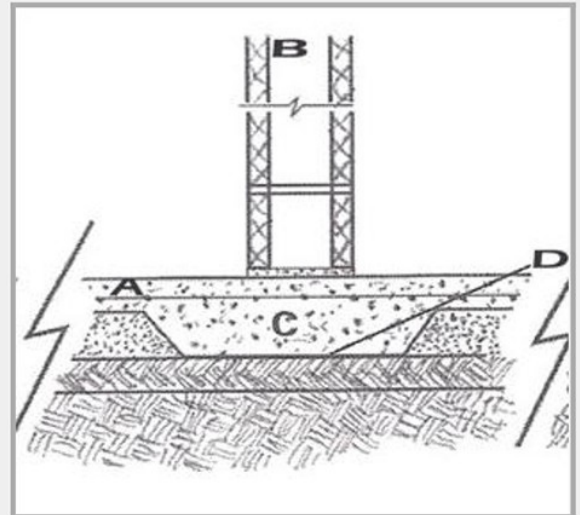


STEP 7 : TYING IN (T CONNECTIONS)

A: Raft Foundation Slab
B: Modular 200 Blocks
C: Thickened Slab
D: DPC under Slab

Internal walls can be built on a stiffener or thickened slab.

Internal walls can be built afterwards but make sure to place bracing straps in outer wall during construction **at every 3rd course**.



Make sure that the module spacing is correct on the outer walls to accept the inner walls.
Check squareness.



Place a bracing strap (galvanised hoop iron) between the blocks at position of 'T'.



Fill afterwards with concrete in both cavities of outer and tying walls.

STEP 8: CORNERS



Corners are built normal stretcher bond style.



STEP 9: REVEALS AND HALF BLOCKS



Reveals are finished with the half block.



STEP 10: ROOF BRACING STRAPS



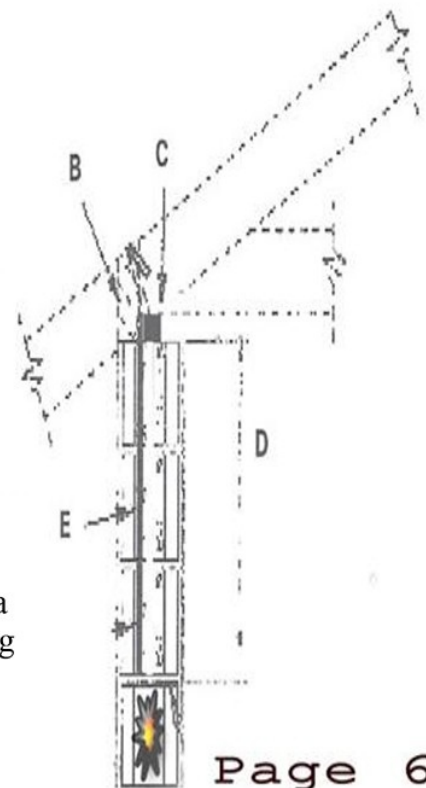
Single leaf (hollow units)

B = beam filling

C = wall plate

D = minimum anchor depth

E = anchor



Push a cement bag down the core of the correct truss position, according to the roof plan. Place a bracing strap down the core, bend the bottom of the bracing strap like a fishing hook and fill with 20Mpa concrete 3 blocks deep. Knock off middle teeth of block before placing wall plate in centre of wall to spread load evenly.

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STEP 11: DOORS

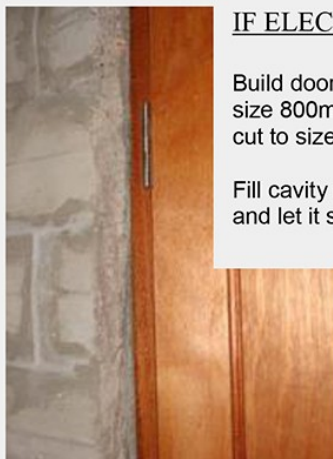


IF THERE IS NO POWER:

Leave an opening larger than the door frame, one meter.

Build the door frame in, with bracing straps, into the wall on both sides.

Fill the gap on one side with bricks.



IF ELECTRICITY IS AVAILABLE:

Build door opening smaller than frame size 800mm, place frame, and mark and cut to size with diamond blade grinder.

Fill cavity next to frame with concrete and let it set for two days before cutting.

Fix frame with 8 x 8mm Fischer Plugs



STEP 12: PLASTERING



Mix water with left over blockgrip and brush walls for plaster keying.

As it is waterproof before painting.

'Skimplaster' is the best option when available.

Conventional plaster can be used with a good acrylic paint.

STEP 13: HOW TO MIX AND USE BLOCKGRIP (DIP AND PACK)



Mix, Dip and Pack
(see Blockgrip leaflet)



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STEP 14: PLUMBING



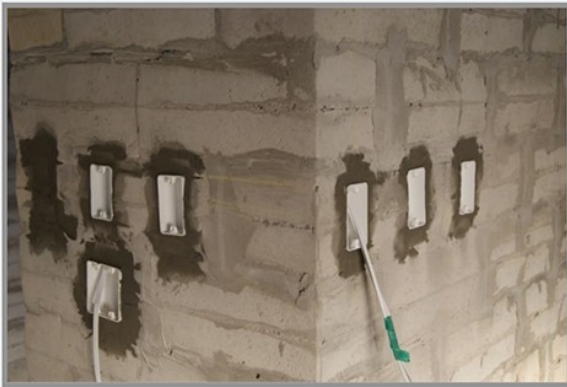
All water supplies comes from the roof, no cutting of walls is necessary.

Simply grind a small hole in the block and put pipes in cavity which is always clean with this system.

Only drainage goes in the slab where necessary, the preference is straight through the wall.



STEP 15: ELECTRICITY



No Cutting of walls, all supply is from the top through the cavity.

Take a small diamond blade grinder and simply cut a hole the size of an electric box.

Glue in the box with Blockgrip.

Drop the cutting into the wall and no rubble is created.

Simply draw SABS approved twin and earth wire through the draw box.

STEP 16: CONTROL JOINTS



Example of control joint ↑ cut afterwards with a grinder.

Control joints are necessary in long walls. Break the wall up into maximum 5m sections.

Build the joints by placing 2 half blocks on either side of the joint position every second course or simply cut a joint with a grinder after construction. When plastering a control joint make sure to plaster a V-joint and waterproof with silicone after painting.



Expansion/Control joints are compulsory at a maximum of 5 meter intervals.

When building a boundary wall lateral support is required by creating a rebate step at the columns.

These columns must have Y12 rebar as in picture. The rebar must curl into the foundation with a 600mm bend when casting the foundation.

Fill columns with concrete after construction.



Example of control joint in retaining wall.

STEP 17: COLUMNS



These structures are load bearing immediately.

Rotate the flat side of the block on each course to remain vertical.



STEP 18: LATERAL REINFORCEMENTS



Use brickforce 2.8 to 3.55 diameter wire x 75mm wide.

brickforce has to be placed right through an entire course of the house to keep it level and have the desired effect.

only 1 course of brickforce is required, midway between door soffit and wall plate

STEP 19 : FITTING OF WINDOW FRAMES



Place lugs of window inside core and fill with concrete.

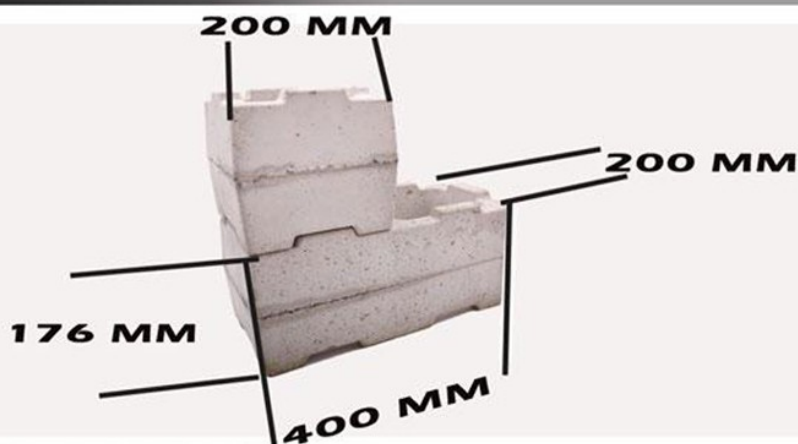


STEP 20: CAVITY / WEEP HOLE



Using the 'Blockgrip', Dip and Pack method keeps the hollow core clear so that weep holes are effective and thermal features are not compromised.

STEP 21: BLOCK DIMENSIONS



STEP 22: HOW TO FIT WALL PLATE



Knock off middle teeth and place wall plate in centre of wall.