

# BUILDING MANUAL

## STRUCTURES BUILT IN DAYS & HOURS



### 42m<sup>2</sup> Cottage

- Built in 3 days



### 67m<sup>2</sup> Garage

- Built in 4 days



### Livestock Trough

- Built in 3 hours

# ILLUSTRATED USE OF STUMBELBLOC

## STEP 1: FOUNDATION

Cast foundations to standard building regulation requirements. 600mm wide by 230mm deep for single storey, and to engineers drawing for double storey.



## STEP 2: SET OUT BLOCK WORK

You may not sue 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.



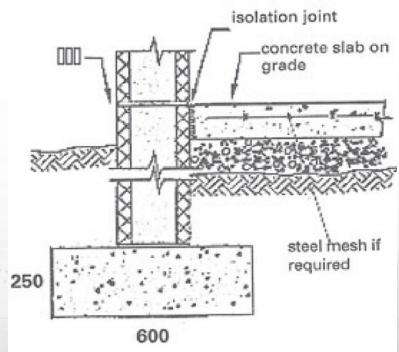
The second course determines the correct interlock spacing, then once fitted properly lift the top row and dip into Blockgrip and pack.

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

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

Then fill with concrete.





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



Build 2 or 3 courses above before casting floor slab.



## STEP 4: HOW TO LAY STUMBELBLOC

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



Mix sufficient amount of Blockgrip at a time (see leaflet). Dip the bottom of the block into NHBRC approved Blockgrip and simply place.

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



Use a spirit level and a straight edge to correct block work after every 2 courses.



## 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.



## 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 1.5 metres.

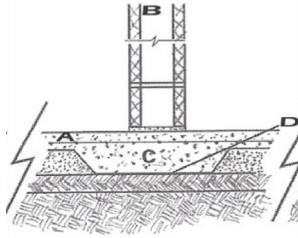
For double storey use Y12.

A bigger span than 1.5 metres requires standard lintels and beams: these must conform to SABS National Building Regulations.

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







## 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.

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

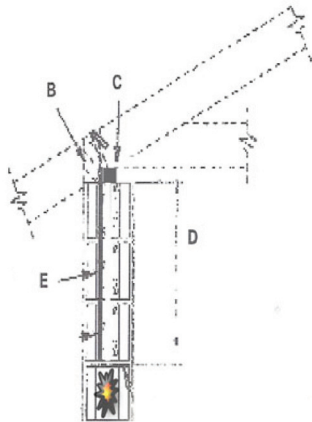
D: Minimum anchor depth

E: Anchor

Push a bag down the core of the correct truss position, according to the roof plan.

Place a bracing strap down the core and fill with 20Mpa concrete.

Knock off middle teeth of block before placing wall plate to spread load.



## STEP 11: DOORS

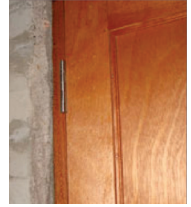
If there is no power:

Leave an opening larger than the door frame. Build the door frame in with bracing straps, into the wall on both sides. Fill the gap on one side with bricks.



If there is power:

Build door opening smaller than frame size, mark and cut to size. Fill cavity next to frame with concrete.



Fix frame with 8 x 8mm Fischer Plugs.



## STEP: 12 PLASTERING

Mix water with left over Blockgrip and brush walls for plaster keing.

As it is waterproof before painting 'Skimplaster' is the best option.

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)





## STEP 14: PLUMBING

All water supply 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: ELECTICITY

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



## STEP 16: CONTROL JOINTS

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.



## STEP 17: COLUMNS

These structures are load bearing immediately. Alternate 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.

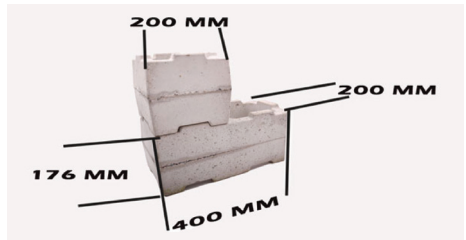


## STEP 20: CAVITY/WEEP HOLE

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.





## BLOCKGRIP AND BLOCKGRIP CONCENTRATE

Blockgrip is used to bond the courses of the Stumbelbloc together. It is much easier to use than conventional mortar (Dagha) and results in a much stronger wall. It also adds virtually no extra height to the structure and remains work-able in the wall for about 10 minutes allowing for the adjustment of the blocks as building progresses. Added to this, it is more economical, less wasteful and much faster than mortar.

Mixing a bag of Blockgrip requires between 8.5 and 9 litres of water. Add the Blockgrip to the water. Add extra water if necessary to get the consistency which is shown in the Building Manuals. It is important to get a thin liquid consistency to ensure the most economical results. Pour into a tray wide enough to take a full block. The mix can be used for 2 hours. Do not add water again. Dip and pack as fast as you can!

Blockgrip Concentrate is made for economy of transport to outlying areas where the convenience of a ready mixed product is outweighed by the saving. Blockgrip is made from the concentrate by mixing dry plaster, sand (no coarse particles, sift if necessary) with cement and the Concentrate. Measure out a full builder's wheelbarrow of the sand and add one pocket of cement for each 1kg packet of Concentrate. Mix thoroughly.

Provided the sand is dry, this mix can be kept in a dry place. Sand can be dried by spreading it out on a concrete or tiled surface. It will dry out in about a day. It is obvious when it is dry as it can be sifted, damp sand cannot be sifted.

Should damp sand be used, then the mix must be used immediately. Lesser quantities can be mixed by dividing the parts up evenly into 5. This will yield the equivalent of 1 bag of ready-mixed Blockgrip. Using damp sand results in a mix that will go hard after a few hours.

### PRICE GUIDE BETWEEN BUILDING WITH COMMON BRICKS & STUMBELBLOC

ITEM	UNIT	PRICE	BRICK		STUMBELBLOC	
			QUANTITY	COST	QUANTITY	COST
Block Brick	Number	Block - \$2.75 Brick - \$0.20	4800	\$960.00	600	\$1,650.00
Cement	50kg Pocket	\$14.00	22	\$308.00	1	\$14.00
Pit Sand	1 x Wheelbarrow	\$1.94	66.6	\$129.20	1	\$1.94
Block Grip	1 x 1kg	\$55.00	N/A	\$0.00	1	\$55.00
Labour	Man Hours	\$1.53	384	\$587.52	24	\$36.72
Plaster	Internal Walls (m <sup>2</sup> )	\$7.90	42.86	\$338.59	N/A	\$0.00
Total building cost for 42.86m <sup>2</sup> of BRICK versus STUMBELBLOC			<b>\$2,323.31</b>		<b>\$1,757.66</b>	