BUILD YOU HOUSE
STEP BY STEP
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SAMPLE PLANS - HOUSE type 01
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General building notes
Every effort has been made to ensure the accuracy of the information given and contained herein. It is not possible for the Concrete Manufacturers Association NPC to accept the responsibility for the work prepared on the basis of this publication.
STAGE 1

STEP 1
WATER CONNECTION
BUILDING TERMS

STEP 2
SETTING OUT THE HOUSE

STEP 3
MAKING THE PROFILES
SETTING OUT THE FOUNDATIONS

STEP 4
DIGGING FOUNDATION TRENCHES

STEP 5
MIXING OF CONCRETE FOR FOUNDATIONS
POURING THE FOUNDATIONS
STAGE 1 : STEP 1
Water Connection

1.5m

NOT LESS THAN 2m

WOODEN Stake

BOUNDARY LINE

SCREW BIBCOCK (TAP) TO STAKE WITH BRASS SCREWS

150mm PVC PIPE WITH NOTCHES CUT INTO BORROM END TO FIT OVER THE PIPE

PRECAST COVER

350mm

COPPER PIPE MUNICIPAL MAIN

LAY A BED OF CONCRETE UNDER THE STOP COCK

COPPER PIPE

CAP END OF 'T'
STAGE 1: STEP 1

Building Terms

SQUARE

STEEL SQUARE

LINE

SPIRIT LEVEL

LEVEL

SPIRIT LEVEL

PLUMB
STAGE 1 : STEP 2
Setting Out the House
STAGE 1 : STEP 2

Setting Out the House

[Diagram showing steps 1 to 5 for setting out a house的基础上]
STAGE 1 : STEP 2

Modular Construction

It will be easier to build if the lengths and heights of walls are a multiple of 200m long and 100m high. (Half the length and height of a block.)

Modular co-ordination in a wall co-ordination.

Units laid dry to check modular spacing.
STAGE 1 : STEP 2
Checking that the House is Square

CHECK !!

REAR BOUNDARY
CORNER OF HOUSE
MEASUREMENT NO.
SIDE BOUNDARY
MEASUREMENT NO.
CORNER OF HOUSE
FRONT BOUNDARY

THE MEASUREMENTS OF 8 AND 9 SHOULD BE THE SAME.
IF NOT CHECK SIDE MEASUREMENTS, ONE OR MORE MUST BE WRONG.

DOUBLE CHECK !!

ALSO CHECK THAT FRONT CORNERS ARE 'RIGHT ANGLES.'

WHEN THESE MEASUREMENTS ARE EXACT YOU HAVE A 'RIGHT ANGLE.'

ADJUST THE SIDE ANGLE IF NECESSARY.

HOW TO CHECK THE RIGHT ANGLE (90°)
STAGE 1 : STEP 3

Making the Profiles
Setting out the Foundations
STAGE 1 : STEP 3
Making the Profiles

FOUNDATIONS
600 mm x 200 mm DEEP

WIDTH OF FOUNDATION EITHER SIDE OF WALL:
280 WALL = 160
240 WALL = 180
220 WALL = 190
190 WALL = 205

MEASURE OFF WIDTH OF FOUNDATIONS AT EACH CORNER.
KNOCK A NAIL INTO THE TOP OF THE PROFILE FOR EACH SIDE OF THE FOUNDATION.

LINE OF FOUNDATIONS
HOUSE WALL THICKNESS
STAGE 1 : STEP 3
Setting out the Foundations

MARK GROUND UNDER PROFILE LINES WITH SPADE.

FOUNDATION LINES FINISHED

REMOVE PROFILE LINES BEFORE DIGGING FOUNDATION TRENCHES.

MEASURE OFF THE WIDTH OF THE WALL AT EACH CORNER IN THE SAME WAY AS YOU DID THE FOUNDATIONS.

TRANSFER WALL LINES TO PROFILES.
STAGE 1: STEP 4
Digging Foundation Trenches
STAGE 1: STEP 4

TRY TO MAKE THE SIDES AS PLUMB AS POSSIBLE

COMPACT THE BOTTOM OF THE TRENCH

TRY TO MAKE THE BOTTOM AS LEVEL AS POSSIBLE

GROUND LEVEL

FIX PEGS IN THE TRENCHES TO INDICATE TO WHAT LEVEL THE CONCRETE IS TO BE Poured.

± 1.5m

METRE STICK

STEPS IN THE TOP LEVEL OF THE CONCRETE FOUNDATION SHOULD BE THE SAME HEIGHT AS A BLOCK COURSE.

200mm

600mm min

600mm
STAGE 1 : STEP 5
Mixing of Concrete for Foundations
Pouring of Foundations
STAGE 1: STEP 5
Mixing of Concrete for Foundations

USE A 25L (5 GALLON) DRUM FOR MEASURING QUANTITIES

STONE

SAND

CEMENT

WATER AS REQUIRED

WATER

MIX ON A LARGE SQUARE BOARD ON A LEVEL AREA.

POUR SAND FIRST, MAKE AN OPENING IN THE MIDDLE INTO WHICH THE CEMENT IS Poured.

MAKE AN OPENING IN THE MIDDLE AND ADD STONE.

MIX UNTIL THE SAND AND CEMENT IS EVENLY DISTRIBUTED.

MIX UNTIL EVENLY DISTRIBUTED. ADD A LITTLE WATER AT A TIME.

MIX THOROUGHLY UNTIL IT LOOKS LIKE LUMPY PORRIDGE.
STAGE 1: STEP 5
Pouring the Foundations

POUR THE CONCRETE FOR THE FOUNDATIONS IN ONE DAY!!

POUR IN CONCRETE TO THE HEIGHT OF THE PEGS

START POURING AT THE CORNER FURTHEST AWAY FROM THE MIXING SITE

LEVEL THE CONCRETE TO THE TOP OF THE PEGS WITH A BOARD

RAM DOWN THE CONCRETE INTO THE CORNERS WITH A STICK TO GET RID OF AIR BUBBLES AND SPACES

LEAVE THE FOUNDATION CONCRETE FOR 3 WHOLE DAYS BEFORE BUILDING ON IT!!
STEP 6
SETTING OUT THE FOUNDATION WALLS

STEP 7
MIXING MORTAR FOR WALLS
BUILDING UP THE CORNERS
BUILDING UP FOUNDATION WALLS

STEP 8
FILLING OF THE TRENCHES
STAGE 2: STEP 6
Setting out the Foundation Walls
STAGE 2 : STEP 6
Set out the Foundation Walls

1. Use a straight edge with block courses marked on it.
2. Mark off block courses on the peg situated at the highest ground level from the concrete foundation to about 200mm above the ground level.
3. Make sure the corner pegs are all level using a dumpy level or water level.
4. Check that the foundation is level.
5. Use a chisel to chip the line onto the concrete because the chalk line will not stay.
6. Mark the position of the wall onto the foundation concrete using a spirit level against the wall line. Mark a point at each end then draw a chalk line.
STAGE 2 : STEP 7
Mixing Mortar for Walls

MAKE YOURSELF A MIXING BOARD FOR YOUR MORTAR. NAIL A SHEET OF 12mm PLYWOOD ONTO SOME PIECES OF 50 X 38mm TIMBER (PIECES OF BATTEN). THIS WILL MAKE MIXING EASIER AND PREVENT THE WATER WASHING AWAY THE CEMENT AND LIME.
STAGE 2: STEP 7

Corners

PLACE FULL BLOCKS WITHOUT MORTAR SO THAT THEY FORM A CORNER JOINTS SEPARATING THEM SHOULD BE + - 10mm WIDE. MARK THE POSITION OF THE JOINTS ON THE CONCRETE FOUNDATION.

2 REMOVE BLOCKS AND LAY A BED OF MORTAR FOR 3 BLOCKS.

3 LAY BLOCK AND TAP INTO POSITION.

4 SMEAR THE ENDS OF THE ADJOINING BLOCKS AND LAY ACCORDING TO THE MARKINGS OF THE JOINTS.
STAGE 2: STEP 7
Laying Blocks

IF IN DOUBT PLEASE CONTACT THE CONCRETE MANUFACTURERS ASSOCIATION FOR ADVICE. BLOCK LAYING COURSES ARE AVAILABLE.

TURN BLOCK ON END. BUTTER ONE END WITH TWO 'EARS' OF MORTAR AT EDGES OF THE BLOCK.

PLACE BLOCK AGAINST PREVIOUS UNIT.

TWO STRIPS OF MORTAR ON EITHER SIDE OF BLOCKS. MAKE 'SHELL' BEDDING.

BLOCKS SHOULD BE LAID SO THAT THE WIDE SECTIONS ARE UPPERMOST.
STAGE 2: STEP 7

Corners

CHECK REGULARLY THAT THE WALL IS PLUMB AS IT IS VERY DIFFICULT TO ADJUST LATER.

CHECK OFTEN!!

ENSURE THAT THE BLOCKS ARE LEVEL AS YOU LAY THEM.

INCORRECT

LAY THE BLOCKS WITH THE VERTICAL JOINTS STAGGERED, HALF A BLOCK ACROSS.

THE TOP OF THE FOUNDATION WALL SHOULD BE LEVEL. THE NUMBER OF COURSES MAY DIFFER DUE TO THE POSSIBLE DIFFERENT GROUND LEVELS OR STEPS IN YOUR FOUNDATION.

BUILD UP THE CORNERS FIRST.

FILL BLOCKS WITH MORTAR AS YOU GO UP TO SLAB LEVEL.

LINE BLOCKS ON THE CORNERS TO GUIDE YOUR COURSES WHEN BUILDING BETWEEN THE CORNERS.
STAGE 2: STEP 7
Building up Foundation Walls

THE REQUIRED FLOOR LEVEL SHOULD BE AT LEAST 200mm ABOVE THE GROUND LEVEL.

THE HEIGHT OF THE FOUNDATION WALL DEPENDS ON THE NATURAL GROUND LEVEL.
STAGE 2: STEP 8
Filling of the Trenches

FILL EACH SIDE OF THE WALL EQUALLY.

COMPACT THE FILLING WELL IN 200mm DEEP LAYERS ON EITHER SIDE OF THE WALL. WET EACH LAYER WELL AS YOU COMPACT.

WATER THE FILLING WELL AS YOU RAM IT DOWN.

ALLOW 120mm TO THE TOP OF THE BLOCKWORK, 100mm FOR THE CONCRETE SLAB AND 20mm FOR A LAYER OF SIFTED SAND.
STEP 9
LAYING OF THE DAMP PROOF MEMBRANE BELOW FLOOR SLAB

STEP 10
MIXING OF FLOOR SLAB CONCRETE
POURING AND LEVELLING OF THE FLOOR SLAB
STAGE 3 : STEP 9
Laying of the Damp Proof Membrane
Below Floor Slab
STAGE 3 : STEP 9
Lay DPC below Floor Slab

Lay the polythene over the blocks and secure with loose blocks.

Tuck the sheet well into corners.

Lay the polythene membrane over the stone free sand ensure that it is level.

Tape the seam if possible.

Overlap sheet 300mm then fold over.

Plug the ends of the conduit with pieces of wood. Lay the electrical conduit on top of the polythene.

DPC Under Slab
STAGE 3 : STEP 10
Mixing of Floor Slab Concrete

USE 5 GALLON DRUM
FOR MEASURING
QUANTITIES.

STONE

SAND

CEMENT

15-20L
AS REQUIRED

POUR SAND FIRST, MAKE
AN OPENING IN THE
MIDDLE INTO WHICH THE
CEMENT IS POURED.

MIX UNTIL EVENLY
DISTRIBUTED. ADD A
LITTLE WATER AT A TIME.

MAKE AN OPENING IN
THE MIDDLE AND ADD
STONE.

MIX UNTIL THE SAND AND CEMENT IS
EVENLY DISTRIBUTED.
MIX THOROUGHLY UNTIL IT LOOKS LIKE
LUMPY PORRIDGE.

MIX ON A LARGE SQUARE BOARD ON A
LEVEL AREA.

ADD WATER SLOWLY UNTIL CONCRETE
HAS WORKABILITY FOR PLACING.
STAGE 3: STEP 10
Pouring and Levelling of the Floor Slab

START POURING AT THE CORNER FURTHEST AWAY FROM THE MIXING PLACE AND WORK ACROSS TO THE NEAREST CORNER.

THE WHOLE SLAB SHOULD BE POURED IN ONE DAY SO GET HELP AND START EARLY.

USING A STRAIGHT BOARD A BIT WIDER THAN THE HOUSE, LEVEL THE CONCRETE TO THE TOP OF THE WALLS.

LAY THE DPC OVER THE POLYTHENE. LAP THE DPC WELL AT THE CORNERS.

CAREFULLY MEASURE AND MARK DOOR AND INTERNAL WALL POSITIONS.
STAGE 4

STEP 11
POSITIONING THE DOORS
THE DOOR / WINDOW JOINT

STEP 12
BUILDING UP THE WALLS - STRAIGHT JOINT
BUILDING IN THE DOOR FRAMES

STEP 13
POSITIONING THE WINDOWS
(REMEMBER BRICKFORCE)
STAGE 4: STEP 11
Positioning the Doors
STAGE 4: STEP 11

Block course gauge.

Mark block courses from gauge on to window or door frame, starting at the top.

Ensure that the frame is plumb in both directions.

Check that the head is level.

Support the frames with boards nailed to the head and blocks at the bottom.

Carefully position door frame so that the block course marks line up with the corner block.
STAGE 4: STEP 11
The Door/Window Joint

FILL GROOVE WITH MASTIC BEFORE NAILING FRAMES TOGETHER. ENSURE THAT GROOVES LINE UP.
STAGE 4: STEP 12
Building up the Walls

- Block course gauges.
- Position door. Ensure that courses line up.
- Build up corners first. 2 courses then fill in between.
- Move wall line up according to the gauges for each course.
STAGE 4: STEP 12

BUILD THE WALL TIES IN EVERY 400mm (2 BLOCK COURSES) HORIZONTALLY FOR THE INTERNAL WALLS.

THE WIRE MUST BE BENT AWAY FROM THE STRAIGHT JOINT. BUILD TIES IN EVERY 400mm VERTICAL.

BUILD UP COURSES OF BLOCKWORK AT THE CORNERS FIRST, THEN FILL IN BETWEEN.

THEN WIRE MUST BE BENT EACH WAY. BUILD TIES IN EVERY 400mm VERTICAL.

3.2mm GALVANISED WIRE TIES.

SHOWING HOW THE INTERNAL WALL IS BONDED IN.
STAGE 4: STEP 12
Straight Joint for Future Openings

The straight joint is built through from the outside to the inside wall.

Build the blocks close together (touching). In about 3 weeks a gap will form which must be sealed with mastic.

After 3 weeks, build with blocks together. Seal with mastic.

The joint extends from slab level to the door lintel.
STAGE 4: STEP 12
Building in the Door Frames

DAMP PROOF COURSE.

BRUSH OUT ALL MORTAR AND SHARP BITS FROM BENEFIT BENEATH DPC.

DOOR THRESHOLD WITH WEATHER BAR AND DPC.

POLYTHENE MEMBRANE FROM UNDER SLAB.

TUCK DPC INTO CORNERS.

BE CAREFUL NOT TO PUNCTURE THE DPC.

USE A PIECE OF GALVANISED HOOP IRON AS A WEATHER BAR.

WRAP THE DPC OVER THE METAL FROM THE BACK AND WEDGE IT INTO THE BACK GROOVE UNDER THE THRESHOLD.
STAGE 4 : STEP 12
Internal Metal Door Frames

1. Fill the core of the hollow block next to the door frame with mortar.

2. Bend the door lug down into the block hole and fill the hole with mortar core.

Fold the lugs out. Build in the door lugs as the block work progresses.

Fill the back of the frame with mortar as you build.

Future plaster line.
STAGE 4: STEP 13

Positioning the Windows
(remember Brickforce)

Block course gauge to measure block courses on to window frame starting at the top.

Check that the frame is level.

Window head and door head to be at the same level.

Check that the window is plumb.

Board with nail to support window.

Brickforce under window.
STAGE 5

STEP 14
BUILDING IN THE LINTELS

STEP 15
BUILDING IN THE ROOF TIES
STAGE 5: STEP 14
Building in the Lintels
STAGE 5: STEP 14

CHECK THAT THE LINTEL IS LEVEL.

WINDOW HEAD HEIGHT TO BE THE SAME AS DOOR HEAD.

CAREFULLY SUPPORT THE CENTRE OF THE LINTEL BEFORE BUILDING OVER IT FOR SPANS WIDER THAN A METRE.

BRICKFORCE IMBEDDED IN MORTAR

FILL WITH MORTAR AFTER LINTELS ARE POSITIONED AND BEFORE YOU LAY BLOCKS.

LINTEL TO REST ON BRICKWORK 200mm EACH SIDE.
STAGE 5 : STEP 14

Brickforce

Fold at corners. Do not cut.

Do not cross an expansion joint. Cut the Brickforce at this point.

600mm

600mm

600mm either side of each window.

±300mm

To join the Brickforce overlap ± 300mm and tie together.
STAGE 5: STEP 15

Building in the Roof Ties

1m

$\pm 200\text{mm}$

4mm GALVANISED WIRE DOUBLE STRAND.

WRAP GALVANISED WIRE THROUGH BLOCK AND TIE.

ROOF TIES SHOULD BE BUILT IN FROM LINTEL LEVEL.

YOU NEED TO MARK THE POSITION OF EACH ROOF TRUSS AS WELL AS THE MID-POINT BETWEEN EACH TRUSS. IF YOU HAVE 8 TRUSSES YOU NEED 15 TIES EACH SIDE.
STAGE 6

STEP 16
FIXING WALL PLATES IN POSITION
POSITIONING OF ROOF TRUSSES
FIXING OF ROOF TRUSSES

STEP 17
BUILDING THE GABLE WALL ROOF TIES

STEP 18
FIXING PURLINS IN POSITION
FIXING THE ROOF COVERING
BEAM FILLING
ROOF SHEETING
ROOF TILES

STEP 19
THE CEILING
STAGE 6: STEP 16
Fixing the Wall Plates in Position

4 mm GALVANISED WIRE ROOF TIES.

WRAP THE GALVANISED WIRE AROUND THE INSIDE WALL OF THE BLOCK HOLE AND TIE.

WRAP TIE OVER THE WALL PLATE AND NAIL IT TO THE INSIDE FACE OF THE WALL PLATE. THIS ONLY APPLIES TO THE WALL TIE IN BETWEEN THE TRUSSES.

WALL PLATE TIE SHOULD BE 3 COURSES (600mm) DOWN.
STAGE 6: STEP 16

CUT 3 PIECES OF TIMBER 25mm THICK AND NAIL THEM TO THE INSIDE OF THE GABLE. YOUR FIRST TRUSS WILL BE NAILED TO THESE TIMBERS FOR SUPPORT WHILE YOU PUT UP THE REMAINING TRUSSES.

REMOVE THESE NAIL FIXINGS BEFORE SHEETING ROOF.

WRAP THE TIE TIGHTLY OVER THE RAFTER, TWIST IT AND NAIL IT FLUSH WITH THE INSIDE FACE OF THE WALL PLATE.
STAGE 6: STEP 16
Positioning of Roof Trusses

Position trusses and brace them with battens nailed diagonally across. This bracing is temporary and will be removed later.

Line up trusses at the ridge, string a line from the trusses at each end.

Check that the trusses are in line at the eaves by stringing a line across.

Ensure that the eaves line up.

Check that the trusses at the ridge are in line.

Line along eaves, marked batten, check plumb, line along eaves, check level, packing under wall plate if necessary.
STAGE 6: STEP 16

NAIL PERMANENT BRACES TO UNDERSIDE OF THE RAFTERS WITH TWO NAILS PER RAFTER, AND TO THE WALL PLATE AGAINST THE THIRD TRUSS.

REMOVE TEMPORARY BRACKETS.

75 x 50 SUPPORTS FOR THE HOT WATER CYLINDER NAILED TO TIE BEAMS.

200 OVER HANG
STAGE 6: STEP 17
Building the Gable Wall
Roof Ties

BUILD IN GABLE TIES FOR A MINIMUM OF 2 COURSES.

WRAP WIRE AROUND SECOND TRUSS AND TIE IT ABOVE.

3.2mm DIAMETER GALVANISED WIRE.

WRAP GALVANISED WIRE IN THROUGH BLOCK AND TIE.
STAGE 6 : STEP 18
Fixing Purlins in Position

BUILD IN GABLE TIES FOR A MINIMUM OF 2 COURSES.

WRAP WIRE AROUND SECOND TRUSS AND TIE IT ABOVE.

3.2mm DIAMETER GALVANISED WIRE.

WRAP GALVANISED WIRE IN THROUGH BLOCK AND TIE.
STAGE 6: STEP 18

NOTE:

SHEET OR ROOF TILE COVERING?

THE SPACING OF GABLES AND PURLINS OR BATTENS DEPEND ON THE TYPE OF ROOF COVERING.

YOU SHOULD CONSULT WITH THE SUPPLIERS AS TO THE EXACT REQUIREMENTS.

SEE YOUR OWN ROOF PLAN FOR PURLIN SPACING.
STAGE 6 : STEP 18
Fixing the Roof Covering

MITRE A

MITRE C

MITRE D

MITRING, LAYING AND FIXING

WEATHER DIRECTION

FIXING DIRECTION

MITRING

EVERITE 'BIGSIX' SHEETS ARE DESIGNED FOR A 45mm SIDE LAP
AND CORNERS MUST BE MITRED FOR CORRECT LAYING.

R-L FIXING

L-R FIXING

ALTERNATIVELY
CHECK MITRES
MAY BE USED.

STARTER SHEET
STAGE 6 : STEP 18A
Sheet Roof Covering

R-L FIXING

45mm SIDE OVERLAP
DIRECTION OF WEATHER
FIXING POINTS
DIRECTION OF FIXING

L-R FIXING

DIRECTION OF WEATHER
FIXING POINTS
45mm SIDE OVERLAP
DIRECTION OF FIXING

INDICATES EXTRA FIXING POINTS TO BE USED IN EXPOSED OR WINDY CONDITIONS.
NORMAL FIXING POINTS.

STARTER SHEET

NOTE: SIDE CLADDING TO BE FIXED IN A SIMILAR METHOD.

FIXING SHEETS

ALL FIXING ACCESSORIES ARE 8mm IN DIAMETER AND ALL HOLES DRILLED THROUGH THE CROWN OF THE CORRUGATION SHOULD BE 10mm IN DIAMETER.

END LAP

ENDLAP TO SUIT PITCH

DRIVE SCREW

FIXING TO TIMBER PURLINS

UNDER NORMAL CIRCUMSTANCES END LAPS SHOULD BE ALLOWED BUT FOR ROOF PITCHES BELOW 10° SEALING OF SIDE AND END LAPS MAY BE NECESSARY AND THE MANUFACTURERS SHOULD BE CONSULTED.
STAGE 6 : STEP 18A
Beam Filling

Fill the gap between the wall and the sheets with mortar.

To prevent birds nesting in your roof, fill the gap between the top of the wall and sheets with mortar or 'eaves filler pieces' as supplied by the roof sheet manufacturer.

Build up wall between rafters with blocks.
STAGE 6 : STEP 18A
Sealing the Roof Sheets

At joints and laps, use the sealer for roofs under 10° slope, as recommended by the roof sheet manufacturer.

70mm overhang to eaves for roof sheets.
STAGE 6 : STEP 18B
Battening a Roof for Concrete Roof Tiles

Setting out procedure

1. MARK THE POSITION OF THE PLASTER BATTEN DIRECT IN LINE WITH THE EXTERIOR WALL FACE AT BOTH GABLE ENDS.

2. MARK THE POSITION OF THE RIDGE BATTEN 25MM FROM THE ROOF APEX AT BOTH GABLE ENDS AND STRIKE A CHALK LINE BETWEEN THE TWO POINTS.

Battening procedure

1. PLACE TOP EDGE OF PLASTER AND RIDGE BATTEN ON THE CHALK LINE AND NAIL INTO RAFTER.
2. DIVIDE THE DISTANCE BETWEEN THE PLASTER AND RIDGE BATTENS INTO EQUAL BATTEN CENTRES.
3. MARK THE BATTEN CENTRES ONTO RAFTERS AND STRIKE A CHALK LINE.
4. PLACE THE BATTENS INTO POSITION AND NAIL TO THE RAFTERS.
5. USE THE SAME BATTEN CENTRES AT THE ROOF OVERHANG.
STAGE 6 : STEP 18B
Tiling a Roof with Concrete Roof Tiles

Setting out procedure

1. SET OUT ONE COURSE OF TILES AT EAVES AND RIDGE ENSURING AN EQUAL OVERHANG IS ATTAINED AT EITHER END. IF NECESSARY ADJUST THE ROW OF TILES UNTIL OVERHANGS ARE EQUAL.

Tiling procedure

1. ONCE SETTING OUT PROCEDURE IS COMPLETE MARK EACH THIRD TILE POSITION ON THE BATTENS.

2. START TILING FROM RIGHT TO LEFT AND FROM BOTTOM TO TOP TAKING THREE ROWS OF TILES UP AT THE TIME.
STAGE 6: STEP 18B
Tiling a Roof with Concrete Roof Tiles

Mortar for Ridge Tiles

1. Mix mortar for bedding and positioning of ridge/tiles to the desired workability.
2. The mix consists of 3 parts plaster sand and one part of cement.
3. Tint mortar with pigment to the colour of the roof tiles.

Bedding of Ridge Tiles

1. Place suitable dampcourse 150mm wide over the top course of tiles.
2. Place mortar with a trowel onto the top course of tiles to form a continuous bed into which the ridge tiles are pressed.
3. Point the mortar at right angles to the tiles and wetbrush for a smooth finish.

Eaves detail

1. The gutter overhang of tiles at the fascia board is normally 50mm.
2. Use tilting fillet or the fascia board to keep the tiles at eaves in the correct plain.
STAGE 6: STEP 18B
Tiling a Roof with Concrete Roof Tiles

Verge detail

FIG. 8
ONCE THE VERGE OVERHANG HAS BEEN ESTABLISHED USING FULL TILES, MARK THE TOP AND BOTTOM BATTENS ONLY. STRIKE A CHALK LINE BETWEEN THE TWO POINTS. CUT THE BATTENS ON THE CHALK MARK.

FIG. 9
FIX THE COUNTER BATTEN TO THE ENDS OF THE TILING BATTENS FLUSH WITH THE TOP EDGE OF THE BATTENS.

FIG. 10
POSITION THE FIRST RAKE TILE AGAINST THE SECOND COURSE OF TILES AND NAIL INTO POSITION.

POSITION THE REMAINING RAKE TILES ONE AT THE TIME AGAINST THE NEXT COURSE OF TILES AND FIX INTO POSITION USING NON CORRODIBLE NAILS.
STAGE 6 : STEP 19
The Ceiling

1. MARK THE CENTRES OF YOUR BRANDERING ONTO THE TRUSSES AT EACH END.
   KNOCK A NAIL AT EACH MARK AND USING A CHALK STRING, MARK THE TRUSSES IN BETWEEN.

2. FIND OUT WHICH IS THE LOWEST TRUSS TIE BEAM. THIS WILL INDICATE THE LEVEL OF THE TOP OF THE BRANDERING THROUGHOUT.
   NAIL THE BRANDERING TO THE UNDERSIDE OF THE TIE BEAMS USING THE CHALK MARKS TO KEEP THEM IN LINE.

3. USING FISHING LINE AND NAILS KNOCKED INTO THE ENDS OF THE TIE BEAMS, EXTEND THE LINE ALONG THE TIE BEAMS FROM SIDE TO SIDE.
STAGE 6: STEP 19

4a CHECK THE GAP BETWEEN THE BRANDERING AND THE FISHING LINE.

HAMMER GENTLY ON TOP OF THE BRANDERING UNTIL IT JUST TOUCHES THE LINE. USE PACKING TO FILL THE GAP BETWEEN THE BRANDERING AND THE TIE BEAM THEN FIX PERMANENTLY WITH A 75mm LONG SCREW NAIL.

4b IF THE GAP IS MORE THAN 12mm USE A PIECE OF BRANDERING AS A CLEAT.

CHECK LEVEL

TRY TO USE SCREW NAILS FOR ALL BRANDERING FIXINGS OF AT LEAST 75mm LONG.

WHEN YOU ARE SURE THAT ALL BRANDERINGS ARE SECURE AND LEVEL, REMOVE ALL THE NAILS YOU USED FOR THE LINES.
STAGE 6: STEP 19

PLASTERED RHINOBOARD

GREY SIDE UP

6mm

GREY SIDE DOWN

5a

FIX RHINO BOARD WITH 38mm
GALV CLOUT NAILS +/- 150mm
CENTRES.

UNPLASTERED RHINOBOARD

GREY SIDE UP

6mm

IVORY SIDE DOWN

5b

FIX RHINO BOARD WITH 38mm
GALV CLOUT NAILS +/- 150mm
CENTRES.

FIX CORNICE TO BRANDERING THROUGH THE
CEILING USING 38mm GALVANISED NAILS AT
350mm CENTRES.

6a

TACK ON MESH WIRE
REINFORCING OVER
ALL JOINTS.

6b

FIX COVER STRIPS
WITH IVORY FACE
DOWN WITH 38mm
GALV NAILS AT
150mm CENTRES.

7a

PLASTER ENTIRE
SURFACE WITH 6mm
CRETESTONE
PLASTER FOLLOWED
BY A SKIM COAT OF
'GLADSTONE' /
CRETESTONE TO
SMOOTH SURFACE.

7b

APPLY CRETESTONE
FILLING BEFORE
FIXING CORNICE.

APPLY CRETESTONE
FILLING BEFORE
FIXING CORNICE.
STAGE 6 : STEP 19

ACCESS PANEL

600mm

900mm

THE BEAM OF ROOF TRUSS.

CEILING BRANDERING

LOOSE PANEL OF SKIMMED RHINOBOARD RESTING ON 16 X 50mm SUPPORT NAILED TO CEILING BRANDERING.

50mm

10mm

16mm

20mm

ACCESS PANEL
STAGE 7

STEP 20
ELECTRICAL INSTALLATION
STAGE 7: STEP 20

Electrical Installation

THE ELECTRICAL INSTALLATION MUST BE DONE BY A QUALIFIED ELECTRICIAN.

TO PREPARE FOR THE ELECTRICIAN YOU SHOULD:

1. CONSTRUCT SUPPORTS FOR THE HOT WATER CYLINDER.

2. CUT CHASES (GROOVES) IN THE WALLS TO CONCEAL CONDUITS (IF REQUIRED).

A HOT WATER CYLINDER OF 150 LITRES CAPACITY IS ADEQUATE FOR A SMALL FAMILY (4-6).

75 X 50mm SUPPORTS NAILED BETWEEN TRUSSES.
STAGE 7 : STEP 20

KITCHEN PLUG POSITIONS

IT IS CHEAPER TO BUILD IN PLUGS BACK TO BACK.

OTHER PLUG POSITIONS

250-300 HIGH

ROOM 1

ROOM 2
STAGE 7: STEP 20

3 Ways to Run Wiring

A: CONCEALED CONDUIT

B: EXPOSED CONDUIT

C: SURFACE FLEX

THE FLEX IS FLAT SO THAT IT CAN BE PLASTERED OVER.
STAGE 8

STEP 21
WATER SUPPLY

STEP 22A
OPEN DRAINAGE
GULLEY AND INSPECTION CHAMBER
DRAINAGE

STEP 22B
CLOSED DRAINAGE SYSTEM
GULLEY

STEP 22C
SEPTIC TANK DRAINAGE
GULLEY AND INSPECTION CHAMBER
SEPTIC TANK
SOAKAWAY
STAGE 8 : STEP 21
Water Supply

This is a very important and difficult installation and should be done by a licenced plumber.

FOR FIXING SINKS, BASINS ETC TO HOLLOW BLOCKS, FILL THE APPROPRIATE CORE WITH MORTAR TO TAKE ANCHOR BOLTS.
STAGE 8 : STEP 22A
Open Drainage System

VENT

SINK  BASIN  BATH

GULLEY

1 METRE MINIMUM
FROM HOUSE
OR BOUNDARY TO
FIRST INSPECTION
CHAMBER.

DEPTH 450mm MINIMUM

SEWER PIPE TO FALL
17mm IN 1 METRE.

LENGTH SHOULD NOT
BE MORE THAN 25
METRES.

DEPTH OF LAST
MANHOLE TO SUIT
DEPTH OF COUNCIL
CONNECTION.

COUNCIL CONNECTION

DRAINAGE FOR
CONNECTION TO
COUNCIL SEWER.

1 METRE FROM
BOUNDARY.
STAGE 8 : STEP 22A
Gulley and Inspection Chamber

BUILD BOX WITH PAVING SLABS AROUND GULLEY AND ENCASE IN CONCRETE.

150 HIGHER THAN GROUND LEVEL.

GULLEY ‘P’ TRAP AND GRATING.

50 CONCRETE BASE

Gulley

BENCHING

150

150

220

900mm

PLASTER

STONEWARE CHANNEL

220

610mm X 450mm CI FRAME

150

450 DEEP MINIMUM

75

600mm

220 WALL THICKNESS

Inspection Chamber
STAGE 8 : STEP 22A

Drainage

32mm PVC 'P' TRAP

40mm PVC PIPE

32mm PVC PIPE

40mm PVC CLEANING EYE JUNCTION

40mm PVC PIPE

110mm PVC 'P' GULLEY

THIS MEANS A 17mm DROP IN LEVEL FOR EVERY 1 METRE LENGTH OF SEWER PIPE Laid.
STAGE 8 : STEP 22A
Drainage

HEIGHT OF VENT ABOVE ROOF TO SUIT LOCAL COUNCIL REQUIREMENTS.

50mm VENT COWL
50mm VENT PIPE

40mm ‘P’ BATH TRAP
40mm PVC 90° CLEANING EYE JUNCTION
110mm PVC 95° ACCESS JUNCTION
2m MAXIMUM, 1m MINIMUM
110mm PVC 90° LONG RADIUS SLOW JUNCTIONS
THE DISTANCE BETWEEN THE INSPECTION CHAMBERS SHOULD NOT EXCEED 25 METRES.

45° MAX
1000mm BOUNDARY LINE

ALL PIPES TO BE LAID AT A FALL OF NOT LESS THAN 1:60
STAGE 8: STEP 22B
Closed Drainage System

32mm PVC 'P' TRAP
40mm 'P' TRAP
32mm PVC PIPE
40mm PVC PIPE
110mm PVC 'P' GULLEY

THIS MEANS A 17mm DROP IN LEVEL FOR EVERY 1METRE LENGTH OF PIPE.
STAGE 8 : STEP 22B
Closed Drainage System

50mm VENT COWL
50mm VENT PIPE

40mm 'P' BATH TRAP
40mm PVC 90° CLEANING EYE BEND
110mm PVC 95° ACCESS VENT JUNCTION RODDING EYE

110mm PVC 90° LONG RADIUS JUNCTION
110mm X 135° PLAIN JUNCTION

110mm PVC PLAIN JUNCTION

THIS ANGLE MUST NOT EXCEED 45°.

ALL PIPES TO BE LAID AT A FALL OF NOT LESS THAN 1:60

DISTANCE BETWEEN RODDING EYES MUST NOT EXCEED 25m.

1m MAXIMUM

BOUNDARY LINE

110mm X 135° PLAIN JUNCTION

CLOSED SYSTEM
STAGE 8: STEP 22B
Closed Drainage System

- Sink
- Basin
- WC
- Basin
- Gulley
- Vent Pipe
- Boundary

350 DEEP MINIMUM
THIS LENGTH SHOULD NOT EXCEED 6m.

This drain to have 17mm fall for every 1m length.

Length must not exceed 25m

Rodding Eye
1 metre maximum
STAGE 8 : STEP 22C
Gulley and Inspection Chamber

BUILD BOX WITH PAVING SLABS AROUND GULLEY AND ENCASE IN CONCRETE.

150 HIGHER THAN GROUND LEVEL. GULLEY WITH 'P' TRAP AND GRATING.

Inspection Chamber

220 WALL THICKNESS
STAGE 8 : STEP 22C
Septic Tank Drainage

GULLERY

1m MIN FROM BUILDING

SEPTIC TANK 3m MINIMUM FROM ANY BUILDING OR BOUNDARY.

INSPECTION CHAMBER

SEPTIC TANK SEE PAGE 82

SOAKAWAY SEE PAGE 83

LENGTH OF SOAKAWAY AS APPROVED PLAN.

SOAKAWAY MUST BE 6m FROM ANY BUILDING, 100m FROM ANY WATER SOURCE.
STAGE 8 : STEP 22C

Gulley and Inspection Chamber

BUILD BOX WITH PAVING SLABS AROUND GULLEY AND ENCASE IN CONCRETE.

150 HIGHER THAN GROUND LEVEL. GULLEY WITH 'P' TRAP AND GRATING.

Inspection Chamber

220 WALL THICKNESS
STAGE 8 : STEP 22C

Septic Tank

- Reinforced concrete slab with 12mm rods at 230mm centres both ways.
- Airtight I.C 640 x 450
- 100mm pipes
- 150 x 150 openings through baffle wall
- 100 concrete
STAGE 8 : STEP 22C
Soakaway

LENGTH AS PER APPROVED PLAN.

INLET PIPE AS HIGH AS POSSIBLE.

CONCRETE PAVING

THE DEPTH WILL DEPEND ON THE NATURE AND ABSORPTION OF THE SOIL.

DAMP PROOFING

FORM CAVITY WITH ROUGH STONES DRY PACKED.

DISTRIBUTION DRAIN

40-80mm STONE FILLING OR HALF BRICKS.
STAGE 9

STEP 23
MIXING THE PLASTER
SPRAY AND PLASTER
LEVEL AND FLOAT
PLASTERING REVEALS

STEP 24
PARAPET WALL FLASHING

STEP 25
THRESHOLDS

STEP 26
WINDOWS
STAGE 9 : STEP 23
Mixing of plaster

CEMENT
1 BAG = 33 LITRES

25 LITRE DRUM MEASURE.

SAND

THE ADDING OF THE CORRECT AMOUNT OF WATER IS IMPORTANT SO AS TO MAKE THE PLASTER MIX EASY TO USE.

MIX THE SAND AND CEMENT BEFORE ADDING WATER

BUT NOT TOO WET !!

WATER

MIX ON A LARGE FLAT BOARD WITH SIDES.
STAGE 9: STEP 23
Spray and Plaster

GREAT SKILL IS NECESSARY TO OBTAIN A GOOD SMOOTH FINISH. IF POSSIBLE ASK AN EXPERIENCED PLASTERER TO HELP YOU.

WET THE WALL THOROUGHLY.

MAKE A HAWK: A SQUARE PIECE OF BOARD WITH A PIECE OF BATTEN 38 X 38 AS A HANDLE.

SCOOP THE PLASTER FROM THE HAWK AND APPLY DIRECTLY TO THE WALL IN A SMOOTH UPWARD SWEEP.

PLASTER SMALL AREAS AT A TIME. A COMPLETE WALL MUST BE PLASTERED IN ONE OPERATION.
STAGE 9 : STEP 23
Level and Float

Level the plaster by pulling a wooden straight edge over the plastered area with a sawing movement.

The plaster should be 12mm thick.

Wet the levelled plaster a little then use a wood float to smooth the surface.
STAGE 9 : STEP 23

Plastering Reveals

1. The lining board must extend 12 mm from the brickface. This is the plaster thickness.

2. Place lining boards along the top and sides of the door and window openings. Plaster to the edge.

Brace the boards across the opening.
PLASTER THE REVEALS FROM THE FACE TO THE FRAME.

ROUND OFF THE CORNERS WITH AN ANGLE TOOL.

90° ANGLE TOOL.

12mm
STAGE 9: STEP 24

1. The last but one row of blocks, stuff cement bags into the block holes or use fine mesh.

2. Put the brickforce in place and then lay the final row of blocks.

3. Fill the block holes with mortar.
STAGE 9: STEP 24

Parapet Wall Flashing

WARNING:
IF THE FLASHING IS NOT DONE
STRICTLY ACCORDING TO THE
MANUFACTURERS INSTRUCTIONS,
YOUR ROOF WILL LEAK!!

HEADWALL APRON
FLASHING

ROOF SHEETING

80mm MINIMUM FLASHING
ON FRONT FACE

PLACE THE FLASHING
PIECE OVER THE APRON
FLASHING TO THE TOP OF
THE CORRUGATIONS
+-100mm.

THE PLASTER ON TOP OF
THE PARAPET SHOULD
SLOPE SLIGHTLY
TOWARDS THE ROOF.

IT SHOULD BE 40mm
THICK AT THE FRONT AND
20mm THICK AT THE BACK.
STAGE 9: STEP 25

Thresholds

LAY REINFORCING MESH OVER THE JOINT BETWEEN THE CONCRETE SLAB AND FOUNDATION WALL DIRECTLY BEHIND THE THRESHOLD.

WEATHER BAR

BED THE DPC ON A THIN LAYER OF MORTAR.

CUT BLOCKS LENGTH WAYS AND LAY IN MORTAR.

SLOPE KEEP THE GROOVE CLEAN.

PLASTER THE THRESHOLD WITH A SLOPE, LEAVING A GAP BETWEEN THE THRESHOLD AND PLASTER.
Stage 9: Step 26
Steel Window Frames

At the bottom of the window fill the gap with a sealant.

Lay DPC on a thin bed of mortar.

Lay asbestos cill on a bed of mortar.

Cut blocks to fill in under window frame.
STAGE 9: STEP 26

Steel Window Frames

MORTAR FORMED CILL.

BED DPC ON A THIN LAYER OF MORTAR.

CUT BLOCKS TO FILL IN UNDER WINDOW FRAME.

SEAL WITH MASTIC.

FORM CILL IN PLASTER AND SLOPE AWAY FROM WINDOW FRAME. FORM GROOVE FOR A DRIP.

BED DPC ON A THIN LAYER OF MORTAR.

TILE OR ASBESTOS CILL BEDDED ON MORTAR.

CUT BLOCKS TO FILL IN UNDER WINDOW FRAME.

SEAL WITH MASTIC.

CUT FACEBRICKS LAID ON EDGE ON BED OF MORTAR.

40mm
STAGE 9: STEP 26
Wooden Window Sills

LEAVE A SMALL GAP BETWEEN THE CILL AND PLASTER AND KEEP THE GROOVE CLEAN.

FORM CILL IN PLASTER AT SLOPE OUTWARDS.

25mm OVERHAND

DPC AND WEATHER BAR.

BED DPC ON A THIN BED OF MORTAR.

TILE OR ASBESTOS INTERNAL CILL BEDDED ON MORTAR.

LEAVE A GAP UNDER THE CILL AND KEEP THE GROOVE CLEAN.

DPC AND WEATHER BAR.

DPC LAID ON A THIN BED OF MORTAR.

CUT FACE BRICKS LAID ON EDGE ON A BED OF MORTAR.

25mm OVERHAND
STAGE 10

STEP 27
GLAZING WINDOWS

STEP 28
HANGING THE DOORS

STEP 29
PAINTING THE HOUSE
STAGE 10 : STEP 27
Glazing Windows
STAGE 10: STEP 27
Glazing Windows

MARK THE WINDOW FRAME WITH A NUMBER FOR EACH PIECE OF GLASS. MAKE A NOTE OF THE NUMBER WITH THE MEASUREMENTS OF THE GLASS.

Compile a list of the measurements of each piece of glass.

If you are cutting the glass allow 4mm off the vertical and off the horizontal measurements.
STAGE 10 : STEP 27

Puttying Windows

PAINT NON-GALVANISED WINDOW FRAMES WITH A RUST PROOF PRIMER COAT BEFORE GLAZING.

PRESS A THIN LAYER OF SOFTENED PUTTY INTO THE GLASS RECESS.

CAREFULLY PRESS THE GLASS FIRMLY AND EVENLY INTO THE PUTTY ENSURING THAT THE GLASS IS EVENLY POSITIONED IN THE RECESS.

PRESS A THICK LAYER OF PUTTY INTO THE REMAINING RECESS AND THUMB IT FIRMLY INTO PLACE. KNIFE IT SMOOTH TO A 30° SLOPE AND CLEAN OFF EXCESS.
**STAGE 10: STEP 28**

**Hanging the Doors**

Double check measurements before cutting!!

Measure the hinge positions from the frame head and transfer the measurements to the door.

Do the same with the striker plate and lock.

Check that the slot for the lock is not chiselled out deeper than the depth of the lock.

Check that the hinges are fixed flush with the surface of the door edge.

Check the size of the door in the frame. If you have to cut the door, do so on the lock side and at the bottom of the door.
STAGE 10 : STEP 29
Painting the House

ROLLER AND TRAY FOR PAINTING LARGE AREAS SUCH AS WALLS AND CEILINGS.

BRUSHES, 100mm AND 50mm: FOR PAINTING SMALL AREAS, THE CORNERS AND FRAMES WHEN USING A ROLLER.

MAKE A WIRE HANDLE FOR A LARGE COFFEE TIN. POUR THE PAINT INTO IT FROM THE BIG DRUM.

TO PREPARE THE SURFACE FOR PAINTING, IT IS IMPORTANT TO USE A MEDIUM TO FINE SANDPAPER.

CLEAN YOUR BRUSHES CAREFULLY. IF YOU HAVE TO CONTINUE WITH THE SAME PAINTWORK THE NEXT DAY, LEAVE YOUR BRUSH IN WATER IN AN UPRIGHT POSITION OVERNIGHT.
GENERAL PAINTING GUIDE

Consult the paint supplier and follow his advice using the paint he has supplied to you. If you omit applying the required coats or steps your house will soon look shabby and need repainting.

WALLS
- Do not paint before all the plaster is quite dry and ensure that there are no damp patches.
- Remove all mortar droppings, dirt, etc.
- Apply one coat of acrylic filler coat and allow to dry completely.
- Apply two coats of acrylic PVA.

CEILINGS
- Clean the ceiling.
- Apply one coat of acrylic PVA thinned with 20% (1/5) of water or PVA sealer, and allow to dry completely.
- Then apply two coats of acrylic PVA.

METAL
- Clean off all dirt, grease, etc.
- Apply one coat of red lead primer to steel if it is not galvanised.
- When dry apply one coat of undercoat and allow to dry.
- Apply one coat of gloss enamel.

NATURAL WOOD
- Sand smooth, round edges and wipe clean.
- Apply two coats of wood dressing.

PAINTED WOOD
- Sand smooth, round edges and wipe clean.
- Apply one coat pink wood primer.
- Apply one coat universal undercoat.
- Apply two coats of acrylic top coat.

ROOF
Asbestos Sheets
You can leave it unpainted or:
- Clean the surface and allow to dry.
- Apply two coats of acrylic roof paint.

Metal Roof Sheets
- Clean the surface and allow to dry.
- Apply one coat calcium plum bate primer.
- Apply two coats of roof paint.
GENERAL PAINTING GUIDE

Paint is an important part of building. Not only does it add to the looks, it can improve the durability and reduce moisture penetration through walls. Certain paints may even eliminate the need to plaster.

The choice of a good quality paint is essential. The better paints are more expensive, but in return they will outlast the cheaper ones and you will be more certain of their performance.
STAGE 11

FASCIAS
EAVES CLOSERS
BARGE BOARDS
GUTTERS
DOWNPIPES
STAGE 11
FASCIAS

For single pitch roof

1. Cut down truss ends to 100mm deep. Nail on the 225mm x 15mm fascia.

For double pitch roof

2. Nail 225mm x 15mm fascia to rafter ends.
STAGE 11
EAVES CLOSERS

2. Fix 38mm x 38mm battens to wall and underside of rafter. Nail fascia to batten and rafter end.

3. Fix soffit to the underside of the battens. Nail 10mm quadrants through soffit into battens.
STAGE 11
BARGE BOARDS

CUT OFF PURLIN 40mm FROM PLASTERED WALL.
USE GALVANISED NAILS.

FIX BATTEN TO PLASTERED WALL DIRECTLY UNDERNEATH THE PURLIN.

TUCK THE 225mm X 15mm BARGE BOARD UNDER THE ROOF SHEETS AND NAIL TO BATTENS.
STAGE 11
GUTTERS

12mm MAXIMUM

GUTTER
BRACKET
FASCIA

70mm

ROOF COVERING
BATTEN / PURLIN

FC GUTTER
RAFTER
NAIL OR WOOD SCREW

6mm X 25mm GALV. VERANDAH BOLTS AND NUTS

FIX GUTTER BRACKETS TO FASCIA AT 1 METRE CENTRES USING PLUGS RECOMMENDED BY SUPPLIER.

GUTTER MUST SLOPE DOWN TOWARDS THE DOWN PIPES.
Type 01 House - 42m² - 2 bedroom

Elevations/section

Proposed future addition to existing unit. Refer to CMA House Type 02

FRONT elevation

SIDE elevation

BACK elevation

SIDE elevation

Proposed future door edition in place of existing window. Control joint to be created.

Section A-A

Living
Kitchen
House plans are available from Concrete Manufacturers Association at a nominal fee.
# Type 01 House - 42m² - 2 bedroom

## Materials

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Qty</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls to be built using either hollow 140mm concrete blocks or Maxi blocks. Quantities are given for both types. For calculating and ordering, you must choose only one (a) or (b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>a) MASONRY WALLS USING 140MM HOLLOW BLOCKS</strong></td>
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<tr>
<td>Foundation Walls:</td>
<td>no. 135</td>
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<tr>
<td>- 390 x 190 x 140mm hollow blocks</td>
<td>no. 6</td>
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<tr>
<td>- 190 x 190 x 140mm hollow blocks</td>
<td>bags 7</td>
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<td></td>
</tr>
<tr>
<td>- Cement</td>
<td>m³ 1.2</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>- Mortar sand</td>
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<td>Walls:</td>
<td>no. 34</td>
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<td>- 390 x 190 x 140mm hollow blocks</td>
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<tr>
<td>- 190 x 190 x 140mm (half blocks)</td>
<td>no. 70</td>
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<td>- Corner Blocks</td>
<td>bags 5</td>
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<tr>
<td>- Cement</td>
<td>m³ 1.2</td>
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<td>- Mortar Sand</td>
<td>no. 1</td>
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<tr>
<td>- DPC (140mm wide) 40m roll</td>
<td>Reinforcement (to reinforce lintel above openings)</td>
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<tr>
<td>- 10mm dia. mild steel bars</td>
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<tr>
<td><strong>- OR -</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>b) MASONRY WALLS USING MAXI BLOCKS</strong></td>
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<tr>
<td>Foundation Walls:</td>
<td>no. 530</td>
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<td>- 290 x 90 x 140mm hollow blocks</td>
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<td>- Cement</td>
<td>m³ 1.2</td>
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<tr>
<td>- Mortar Sand</td>
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<td>Walls:</td>
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<td>- mortar sand</td>
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<td>- DPC (140mm wide) 40m roll</td>
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<td><strong>FLOOR SLAB</strong></td>
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<td>- Sand Filling</td>
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<td>- 250 micron damp proof plastic sheeting</td>
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<td>- River Sand</td>
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<td>- Stone</td>
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<td><strong>DOORS:</strong></td>
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<td>- Steel/Timber door frames 2000 x 1000 x 90 mm</td>
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<td>- Steel/Timber door frames 2000 x 800 x 90mm</td>
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<tr>
<td>- External doors</td>
<td>no. 2</td>
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<tr>
<td>- Internal doors</td>
<td>no. 3</td>
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<tr>
<td>- Hinges, handles &amp; locks</td>
<td>sets 5</td>
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</tbody>
</table>
## Type 01 House - 42m² - 2 bedroom

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<th>Units</th>
<th>Qty</th>
<th>Unit Cost</th>
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<td><strong>WINDOWS:</strong></td>
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<td>- As per Schedule and to include 6mm float glass</td>
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<td><strong>ROOF TIES:</strong></td>
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<tr>
<td>- 3mm thick by 30mm wide galvanised mild steel hoop iron</td>
<td>m</td>
<td>30</td>
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<tr>
<td><strong>ROOF TRUSS:</strong></td>
<td></td>
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<tr>
<td>- As per accredited factory design system (CMA Roof System) or approved by an engineer or competent person.</td>
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<td><strong>ROOF COVERING:</strong></td>
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<td>- Underlay (30m x 2m)</td>
<td>Roll</td>
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<td>- Roof tiles</td>
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<td>- Nails (75mm galvanised wire nails)</td>
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</tr>
<tr>
<td>- 6.4mm ceiling boards (3.0m x 1.2m)</td>
<td>no.</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 75mm cove cornice</td>
<td>m</td>
<td>47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Metal cover strips (3.0m)</td>
<td>no.</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Brandering (38mm x 38mm)</td>
<td>m</td>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 75mm galvanised wire nails</td>
<td>kg</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 32mm galvanised clout nails</td>
<td>kg</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Coverbond</td>
<td>kg</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PLASTERING: (External Walls)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Skimplaster (6mm thick)</td>
<td>bags</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Material:**
Building your home - General notes

The plan on page 110-111 is **House type 01**. House type 02 is a modified version of 01 that will include an additional single bedroom. House type 03 is a larger version of type 02, and House type 04 is designed for a double storey application.

<table>
<thead>
<tr>
<th>Phase/ House type</th>
<th>Description</th>
<th>Size of this phase/type</th>
<th>Total size</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Basic structure of starter house</td>
<td>42m²</td>
<td>42m²</td>
</tr>
<tr>
<td>02</td>
<td>Addition of extra bedroom</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Semi detached unit</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Two storey house</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The house has been designed to comply with the National Building Regulations of the NHBRC Standards and Guidelines. A building application must be submitted to your local authority for approval by them before any construction is to be carried out. Before submitting the plan to the municipal building inspector for approval, the following must be completed:

- check with the building inspector regarding the number of copies to be submitted;
- a draughtsman must draw in the site plan showing the drainage details and North point;
- colour in the plans as per the building inspectors requirements.

The quantities given on page 112 are to help you with estimating the cost of material and for ordering purposes. Allowance has been made for breakages and wastage. **Note:** The quantities do not include electrical and plumbing fittings or finishes and paintings.

Depending on the slope of the ground, additional bricks or blocks may be required for the foundation walls. **Note:** For foundations and walling, quantities are given for block work (390 x 140 x 190) and for maxi bricks (290 x 140 x 90). **You must only use one of these types of masonry for calculating cost and ordering.**

Ensure that you use good quality material, preferably dense concrete masonry with the SABS mark.

The plans show strip footing foundations which are suitable for building a house on good soil. Discuss the foundation requirements with the building inspector. In area’s with problem soils, stronger foundations will be necessary.

Although every endeavour is made to ensure that the plans are correct, the Concrete Manufacturers Association or its members cannot be liable or responsible for the correct construction of the house. House plans are available from Concrete Manufacturers Association at a nominal fee.
QUALITY

Building your houses is most probably the single biggest investment you will ever make. To make sure that the investment will last a lifetime and grow in value, there are two simple rules that you must follow:
- use quality building materials
- follow the correct building procedures.

For quality building material, buy products from a reputable manufacturer, preferably one with the SABS mark. (a list of CMA members is given on the back page of this booklet. These members will stand by their products.)

As far as the correct building procedures are concerned, this booklet details all the steps required to build a good house. Follow the steps and do not take short cuts. If you have a query, write or phone the CMA or its members for advice.

House plans are available from Concrete Manufacturers Association at a nominal fee.

BUILDING HINTS

Masonry units can differ greatly in quality. Density of block units indicate the moisture resistance to rain penetration into particular external walls. The proprietary product SKIM-PLASTER (Agrement approved) can greatly enhance the moisture resistance of blocks and mortar. Most low cost housing units are constructed with Modular 140mm wide blocks. Shell bedding of 140mm units has not been proven effective.

In addition to the basic block units (390 L x 140 W x 190 H), the supplier should be able to provide Half Blocks and Corner Blocks (340 L x 140 W x 190 H). One needs only 5 units per meter vertically). For Bond Beams U-Block units (or Ring Beams for tying down roof trusses), 5 units per linear meter are required. (190 L x 190 H x 140 W (or 190 W).

Mortar: (1:1:6) i.e. 1 pocket of cement (50kg) : 1 pocket of Builders Lime : 3 slightly heaped standard wheel-barrows of clean sand.

Plaster: (same as for mortar but up to 2 pockets of Builders Lime and 4 standard wheel-barrows of clean sand.

Pointing: Joints should be pressed after mortar has partially set (1 to 2 hours). Half-round jointing is best for appearance and moisture shedding. Avoid raked and square jointing in external walls.

Cutting: Avoid chopping blocks with a bolster, this is untidy and produces waste. Use a carborundum saw on well-soaked blocks and allow to dry before use. Preferably use complimentary blocks if they are available.

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