GENERAL NOTES:

1. Issued for Tender

HOMES FOR NGARANNAM,
MAFA LGA, BORNO.

REINFORCED CONCRETE

1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS
FOLLOWING WITH AGGREGATE
CONCENTRATED GRADE 5AS MAXIMUM SIZE
ASSIGNED.
3. FOUNDATION:
4. WALLS:
5. DOWNSPOUTS MAY BE PRECISELY CAST
WITH A LAYERS OF 100MM TROWEL FINISH.
6. DESIGNER TO BE RESPONSIBLE FOR ALL
DESIGN RATING FOR CLAUSATION.
7. DESIGNER TO BE RESPONSIBLE FOR ALL
CHECKING ALONG WITH OTHER WAYS PRESSURE OF
8. DESIGNER TO BE RESPONSIBLE FOR ALL
GENERAL NOTES.

TOWER ELEVATION

LEVEL 1

50 x50 x 4 Angles
roof trusses with 1.5mm Roofing sheet

LEVEL 2

50 x50 x 6 Angles
column

LEVEL 3

50 x50 x 4 Angles
Hand Rail

LEVEL 4

50 x50 x 4 Angles
Ladder

50 x50 x 4 Angles
Bracings

127 x 76 x 13 UB
Secondary Beams

152 x 89 x 16 UB
Primary Beams

127 x 76 x 13 UB
Bracer Beam

152 x 152 x 37 UB
H- COLUMN

50 x50 x 4 Angles
Bracings

6mm thick gusset plate

GROUND FLOOR LEVEL

COVERAGE TO REINFORCEMENT SHALL
BE THE
FOUNDATION:

CONCRETE GRADES ARE TO BE AS
FOLLOWS WITH FIGURES IN BRACKET DENOTING MAXIMUM SIZE
AGGREGATE:
-FOUNDATION   30(25)
- COLUMNS   30(20)
-BEAMS & SLABS     30(20)

UNLESS OTHERWISE INDICATED,
REINFORCEMENT SHALL BE HIGH YIELD
STEEL TYPE 2, DESIGNATED BY "Y" HAVING
CHARACTERISTIC STRENGTH NOT LESS
THAN 410N/MM²

COVER TO REINFORCEMENT SHALL
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**Foundation Details (Section 2-2)**

- **450x450x15mm Base Plate** welded to UC H-Column connected with 4No. 20mm Dia. Long HD Bolts and washer and 350x350x8mm Anchor Plate at the bottom.

**Foundation Layout**

- Column footing of 1200 x 1200mm
- Blinding of 50mm thick and footing depth of 350mm

**Pad Foundation**

- **1200 x 1200mm Ground Level**
- **152 x 152 x 37 UB Stanchion**
- **450x450x15mm Base Plate**
- **4No. 20mm Dia. Long HD Bolts**
- **350x350x8mm Anchor Plate**
- **50mm Blinding Concrete**

**General Notes**

1. **Design is to BS 8110**
2. **Concrete Grades are to be as follows with figures in brackets denoting maximum size aggregate:**
   - Foundation: 30(25)
   - Columns: 30(20)
   - Beams & Slabs: 30(20)
3. **Reinforcement shall be High Yield Steel (Type 2), denoted by 'Y', having characteristic strength not less than 410N/mm²**
4. **Cover to reinforcement shall be:**
   - Foundation: 50mm (bottom) 75mm (sides)
   - Columns: 25mm
   - Beams: 25mm
   - Slabs: 20mm
5. **Drawings must be read in conjunction with the relevant architectural drawings and in case of any discrepancy refer to the design engineer for clarification.**
6. **Dimensions are in millimetres (mm) and must not be scaled at any time.**
7. **Foundation was designed for an assumed allowable soil bearing pressure of 150kN/m².**
8. **This design engineer will not take responsibility for any job not supervised by him.**

**Blockwork**

1. **Hollow block walls below ground slab level are to be filled with mass concrete. Backfilling is to be carried out simultaneously on both sides.**
2. **The wall thickness of the blocks should not be more than 250mm.**
3. **The maximum crushing strength of the hollow block is to be 20N/mm² of gross area of block at 28 days.**
4. **Blockwork ties between blockwork wall and columns/footings are to be provided at every course. Ties to be 6mm bar staples 700mm long into the blockwork.**
5. **Maximum pour height for all filled block blockwork to be 2 courses at a time.**
6. **All service pipes shall only be put inside blockwall after due consultation with structural engineers. Putting service pipes inside load bearing blockwork corners must be avoided.**

**Drawing Title:**

- Foundation Details

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**Project:**

- Homes for Ngarannam, Mafa LGA, Borno.
1.5mm thick Anti-Rust coated roofing sheet

Tower Roof Top

127 x 76 x 13 UB
Secondary Beams

8mm thick Anti-Rust Coated Steel Sheet

152 x 89 x 16 UB
Primary Beams

Tower Frame Top

GENERAL NOTES:

1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS FOLLOWING:
   - FOUNDATION: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)
   - COVER TO REINFORCEMENT SHALL BE:
     - FOUNDATION: 50MM (BOTTOM), 75MM (SIDES)
     - COLUMNS: 25MM
     - BEAMS: 25MM
     - SLABS: 20MM
3. DRAWINGS MUST BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL DRAWINGS AND IN CASE OF ANY DISCREPANCY REFER TO THE DESIGN ENGINEERS FOR CLARIFICATION.
4. DIMENSIONS ARE IN MILLIMETRE (MM) AND MUST NOT BE SCALABLE AT ANY TIME.
5. FOUNDATION WAS DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M²
6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER CONCRETE HAS BEEN HARDENED, FITTING SERVICE PIPES INSIDE LONG BEARING BLOCKWORK CORNERS MUST BE AVOIDED.

BLOCKWORK:

1. Hollow block walls below ground slab level are to be filled with mass concrete. Back filling is to be carried out simultaneously on both sides.
2. The wall thickness of the block shall not be more than 25MM.
3. The maximum crushing strength of the hollow block is to be 20N/MM² of gross area of block at 28DAYS.
4. Blockwork ties between blockwork wall and columnary elements are to be provided at every course, ties to be 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.
5. Maximum pour height for all filled blockwork to be 2 courses at a time.

1. Issued for Tender
2. HOMES FOR NGARANNAM,
   MAFIA LGA, BORNO.
GENERAL NOTES

REINFORCED CONCRETE
1. DESIGN IS TO BS 8110
2. CONCRETE GRADES ARE TO BE AS FOLLOWS WITH FIGURES IN BRACKET DENOTING MAXIMUM SIZE OF AGGREGATE:
   - FOUNDATION: 30(25)
   - COLUMNS: 30(20)
   - BEAMS & SLABS: 30(20)
3. UNLESS OTHERWISE INDICATED, REINFORCEMENT SHALL BE HIGH YIELD STEEL (TYPE 2) DENOTED BY “Y” HAVING CHARACTERISTIC STRAIGHT NOT LESS THAN 410N/MM2
4. COVER TO REINFORCEMENT SHALL BE THE FOUNDATION: 50MM(BOTTOM)75MM(SIDES)
5. DRAWINGS MAY BE MADE OR CONSTRUCTION MAY BE ALTERED ONLY BY ARCHITECTURAL ENGINEER
6. ALL DESIGNER AND CHECKER SIGNATURES MUST BE VISIBLE ON ALL DRAWINGS FOR CLARIFICATION
7. DRAWINGS ARE DESIGNED FOR AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 150KN/M2
8. THE DESIGN ENGINEER WILL NOT TAKE RESPONSIBILITY FOR ANY JOB NOT SUPERVISED BY HIM

BLOCKWORK
1. HOLLOW BLOCKWALLS BELOW GROUND SLAB LEVEL ARE TO BE FILLED WITH MASS CONCRETE. BACK FILLING IS TO BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES.
2. THE WALL THICKNESS OF THE BLOCKS SHOULD NOT BE MORE THAN 250MM.
3. THE MAXIMUM CRUSHING STRENGTH OF THE HOLLOW BLOCK IS TO BE 20N/MM2 OF GROSS AREA OF BLOCK AT 28 DAYS.
4. BLOCKWORK TIES BETWEEN BLOCKWORK WALL AND COLUMNS/STATIONS ARE TO BE PROVIDED AT EVERY COURSE. TIES TO BE 6MM BAR STRAPS 700MM LONG INTO THE BLOCKWORK.
5. MAXIMUM POUR HEIGHT FOR ALL FILLED BLOCKWORK TO BE 2 COURSES AT A TIME.
6. ALL SERVICE PIPES SHALL ONLY BE PUT INSIDE BLOCKWORK AFTER CONSTRUCTION AND WILL REQUIRE CONSULTATION WITH STRUCTURAL ENGINEERS. PUTTING SERVICE PIPES INSIDE NON-BEARING BLOCKWORK CONSIDERED MUST BE AVOIDED

Project:
HOMES FOR NGARANNAM,
MATA LGA, BORNO.

Drawing Title:
CONNECTION DETAILS

No. Revision/Notes:
1 Issued for Tender

Date: MARCH, 2021

CAD DESIGN CHECKED DATE

Issue: 04 SHEET No.

CONNECTION DETAILS

125 x 70 x 10 UB
Bracer Beam

50 x50 4mm thick Angles
Bracings

6mm thick Gusset plate welded to H-column,
Bracer Beam and bracing

50 x50 x4mm thick Angles
Bracings

6mm thick Gusset plate welded to H-column,
Bracer Beam and bracing

50 x50 x4mm thick Angles
Bracings

152 x 152 x 37 UB
Stanchion

450x450x15mm Base Plate welded to UC H-Column connected with 4No. 20mm Dia. Long HD Bolts and washer and 350x350x8mm Anchor Plate at the bottom