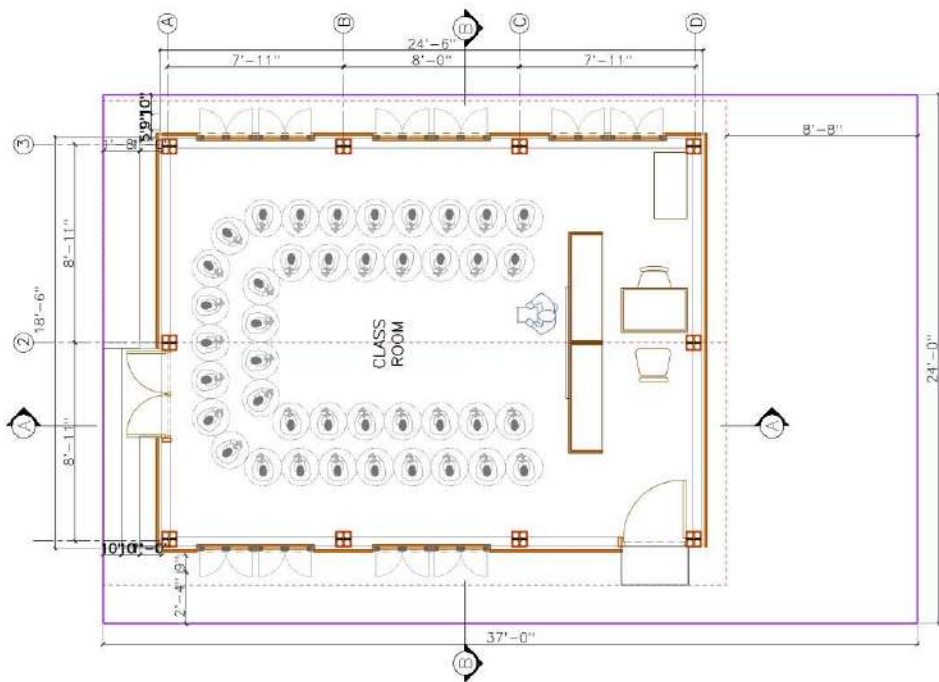


NOTE:

1. Proposed Building Area Should be Filled By Sand Upto FGL (Minimum FM >1.2)



 **FLOOR PLAN LAYOUT
WITH FURNITURE &
SEATING**

STRUCTURAL DRAWING

STRUCTURAL REINFORCED CONCRETE

01. REBAR:

a) Rebar yield strength, $f_y = 500$ MPa (72.5 ksi). The ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 16% and 8% respectively.

b) The following tests for reinforcing bars from random samples shall be conducted as per BDS ISO 6935-2: 2006 and test result shall be submitted to the concern design office.

- i) Tensile strength test.
- ii) Percentage elongation test.

For $f'_c = 29$ MPa and $f_y = 500$ MPa

02. LAP LENGTH OF BARS SHALL BE:

| BAR DIA (mm) | Lap Length for Top bars (mm) | Lap Length for Bottom bars (mm) | Lap Length for COLUMN (mm) |
|--------------|------------------------------|---------------------------------|----------------------------|
| 10 | 535 | 495 | 495 |
| 12 | 635 | 495 | 495 |
| 16 | 835 | 595 | 595 |
| 20 | 1035 | 695 | 695 |
| 25 | 1285 | 895 | 895 |
| 32 | 1635 | 1195 | 1195 |

N.B. Increase lap length 30% if more than 50% rebar is spliced at same level.

Analysis & Design Parameters:

| Parameters | Values | Reference(s) |
|--------------------------------------|-----------------------|------------------|
| Yield Strength, f_y | 500 MPa | |
| Concrete Compressive Strength, f_c | 24 MPa | |
| Structural Steel | 25 MPa | |
| Importance factor | 1.0 | UBC 94/BNBC-2006 |
| Soil profile | Variable | BNBC-2006 |
| Wind speed | 86 kmph | |
| Exposure Category | A | BNBC-2006 |
| Dead load | As constructed | BNBC-2006 |
| Roof Live Load | 0.8 kN/m ² | BNBC-2006 |
| Load Combination | Service Load | |

03. CONCRETE STRENGTH :

* Concrete compressive strength considered as follows
 $f'_c = \text{Min. } 24 \text{ MPa (3500 psi)}$ at 28 days on standard cylinders.

* These strength requirements are to be confirmed by mix design before the commencement of work.

* Laboratory test on random taken samples must be performed to ensure the required strength during execution of work as per BNBC.

04. AGGREGATE : (Confirming BDS/ASTM C33)

a) Fine aggregate : Sand of FM 2.4 (min.)

b) Coarse aggregate : $\frac{3}{4}$ " downgrade crushed stone chips shall be used as coarse aggregate in R.C.C. work.

05. CEMENT:

BDS EN 197-1- CEM-II (42.5N)

06. WATER:

Potable water is to be used in concrete mix.

GENERAL

1. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STANDARD STRUCTURAL NOTES. TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE. REFER TO SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE NOTES OR DRAWINGS. THESE NOTES TAKE PRECEDENCE OVER ANY OTHER BOOK SPECIFICATIONS.

2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK, AND THE ENGINEER/ ARCHITECT SHALL BE IMMEDIATELY NOTIFIED, IN WRITING, OF ANY DISCREPANCIES. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.

3. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF, AND RESOLVED WITH, THE ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.

4. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.

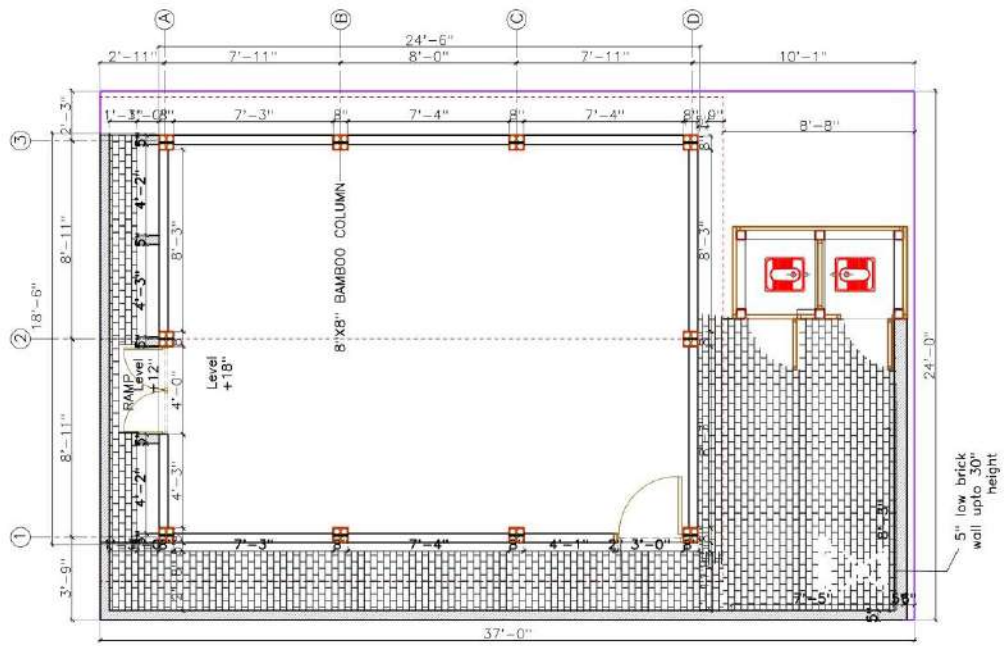
5. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED, BEFORE BEGINNING EXCAVATION.

6. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE BNBC 2006.

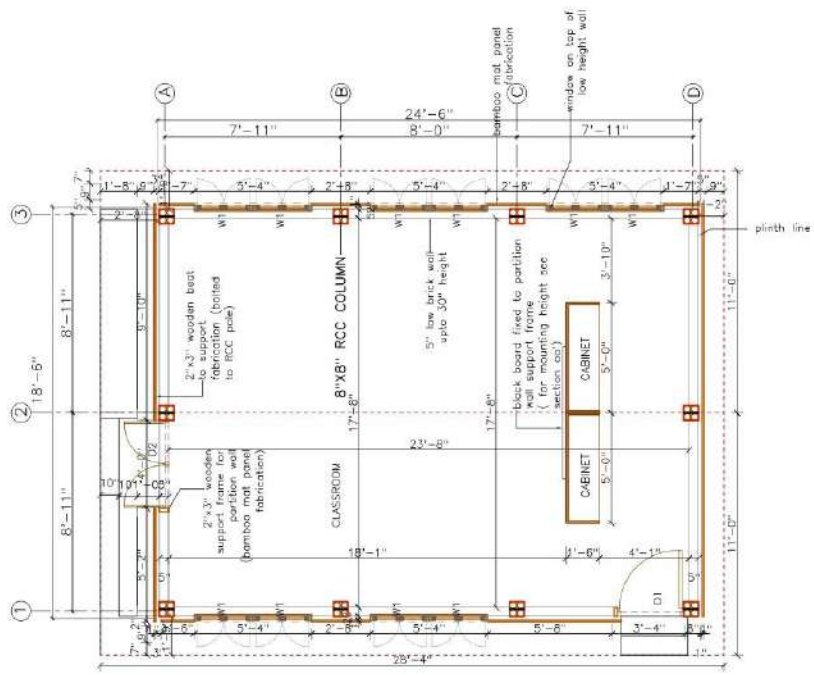
7. THE CONTRACTOR SHALL ASSUME SOLE & COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY & NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER FREE AND HARMLESS FROM ALL CLAIMS, DEMANDS AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

8. RETAIN A REGISTERED CIVIL ENGINEER TO DESIGN ALL TEMPORARY BRACING, SHORING, AND SUPPORT REQUIRED DURING CONSTRUCTION.

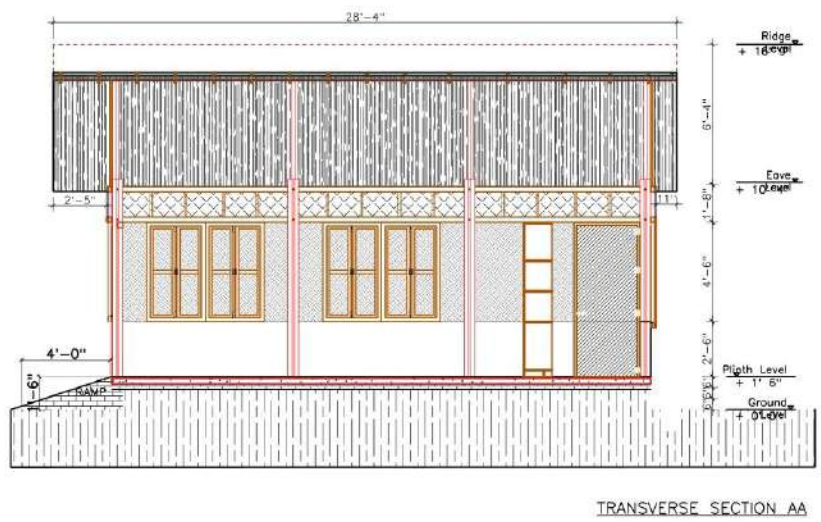
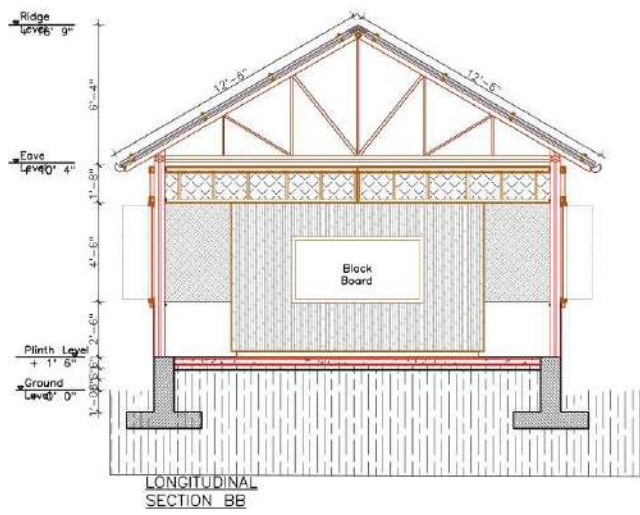
9. ACTUAL DIMENSIONS HAVE TO BE VERIFIED BY THE RESPONSIBLE ENGINEER BEFORE STARTING ANY TYPE OF CONSTRUCTION.



MASONRY WALL LAYOUT



 **WORKING PLAN**



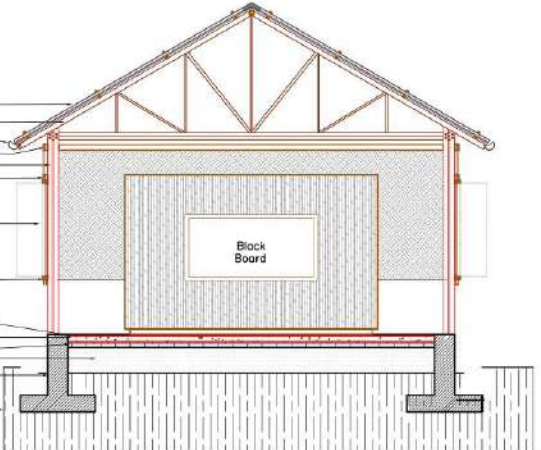


FRONT ELEVATION

BAMBOO ROOF FRAMING LAYOUT

thatched roof fixed with roofing GI wire with angle purlin.
 for purlin detailing please see the attached photograph.
 5" Dia Rain water gutter
 bamboo truss
 timber beat bolted to Bamboo post to support fabrication
 bamboo slit and transparent poly made high window
 high window attached with timber beat with GI wire
 window panel
 timber beat bolted to Bamboo post to support fabrication.

Plaster + Net Cement Finishing (NCF)
 3" CC casting
 3" Brick Flat Soiling
 sand fill
 peripheral brick work around plinth
 earth

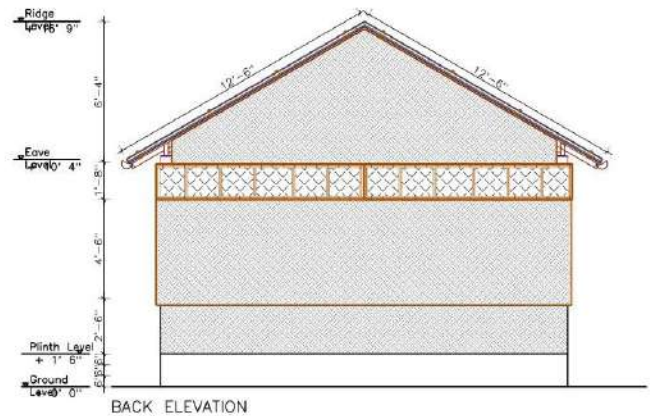


BLOW UP OF SECTION AA

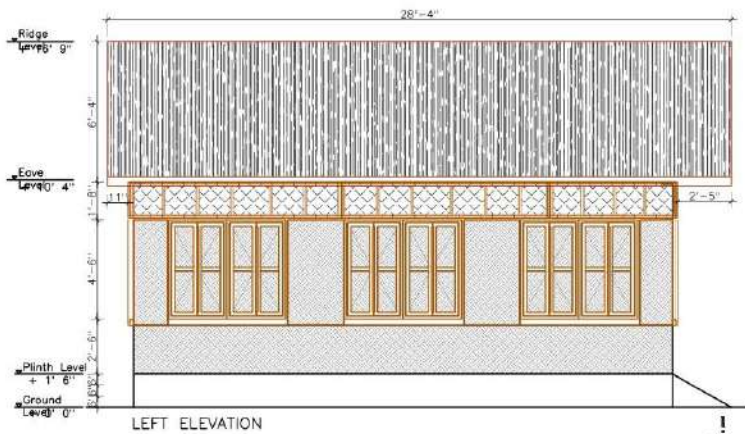
SECTION AA'



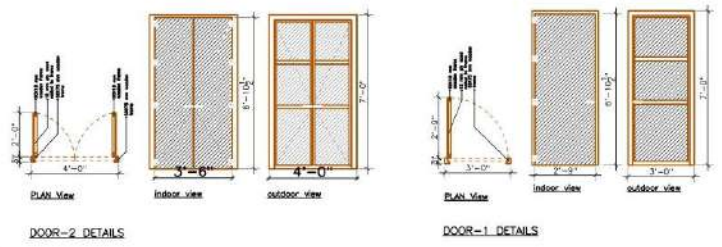
RIGHT ELEVATION



BACK ELEVATION

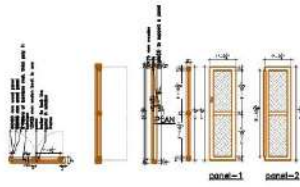


LEFT ELEVATION

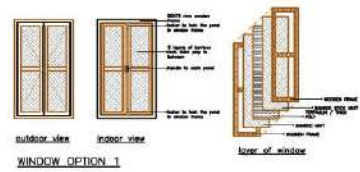


DOOR-2 DETAILS

DOOR-1 DETAILS

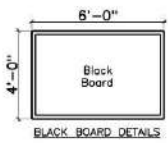


panel-1 panel-2

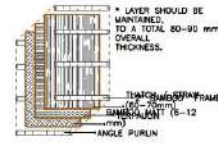
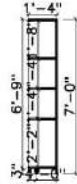
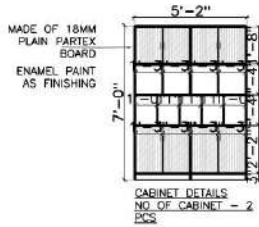


WINDOW OPTION 1

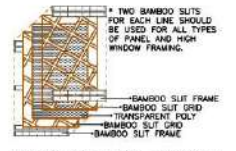
layer of window



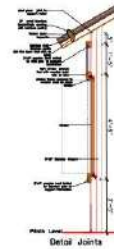
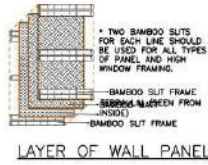
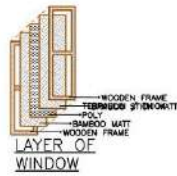
BLACK BOARD DETAILS

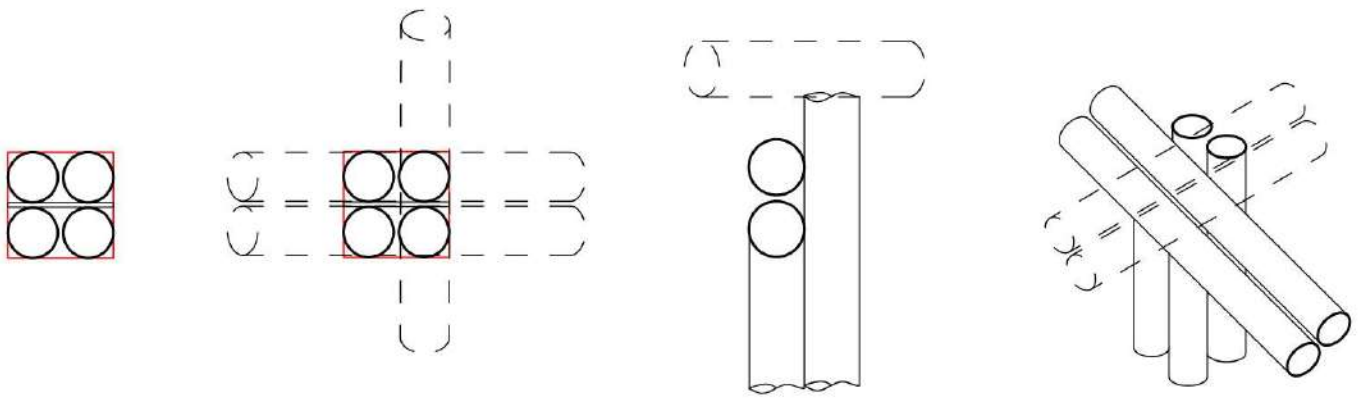


LAYER OF ROOF

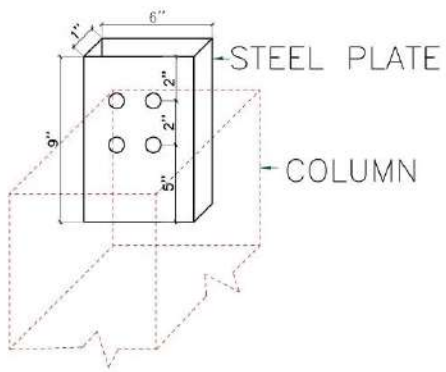


LAYER OF HIGH WINDOW

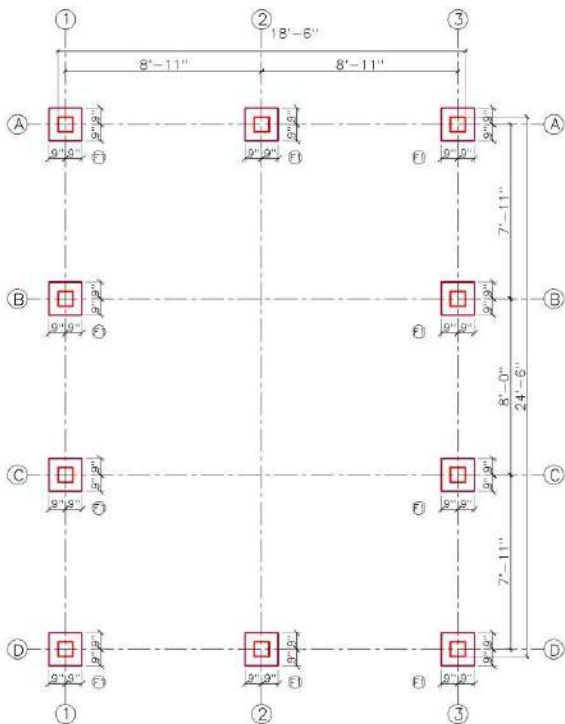




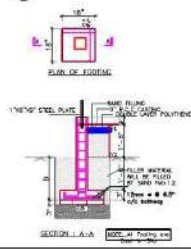
BAMBOO STRUCTURE



STEEL PLATE DETAILS

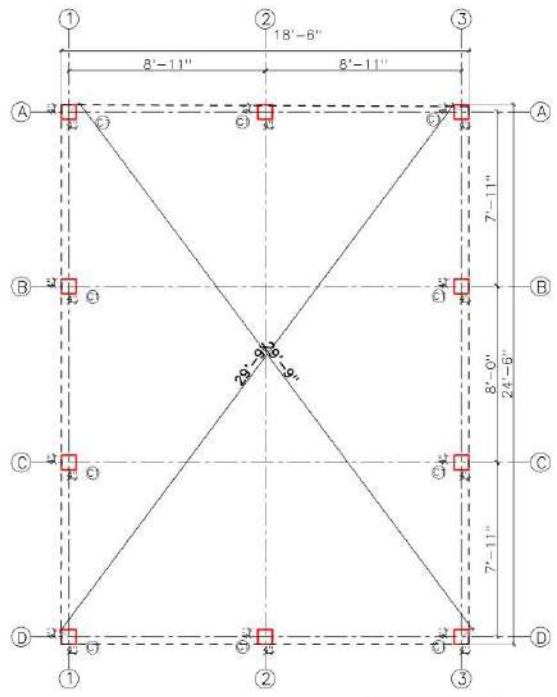


FOOTING LAYOUT



NOTE: All Footing are Cast-in-Situ

| CASTING SCHEDULE | | | |
|------------------|-------|-----------|--------------------------|
| TYPE | DEPTH | THICKNESS | REINFORCEMENT |
| F1 | 1'-4" | 3" | 12mm @ 4.5" C/C BOTH WAY |

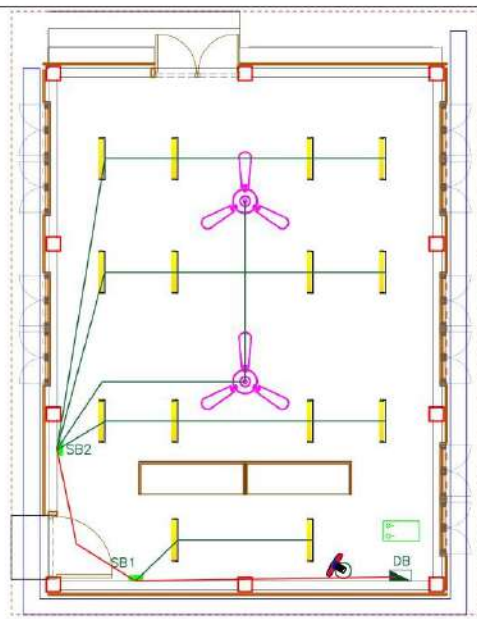
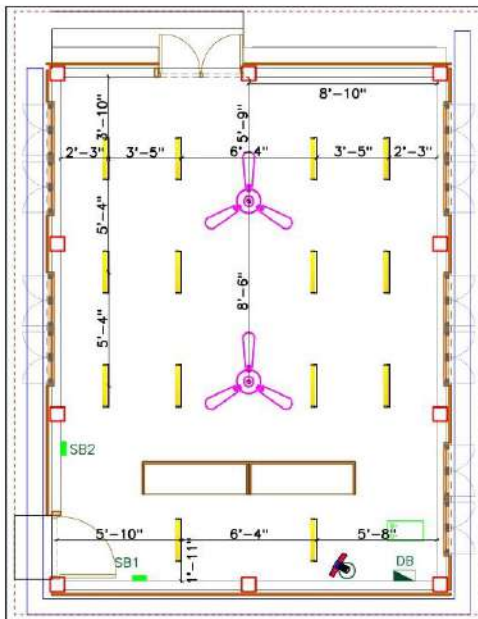


COLUMN & SLAB LAYOUT

NOTE: All Columns are Cast-in-Situ








| RCC COLUMN SECTION | | |
|--------------------|-------------------|--------------------|
| TYPE | UP TO PLAIN LEVEL | IN SHADES |
| C1 | 18" x 18" | 18" x 18" @ 9" C/C |

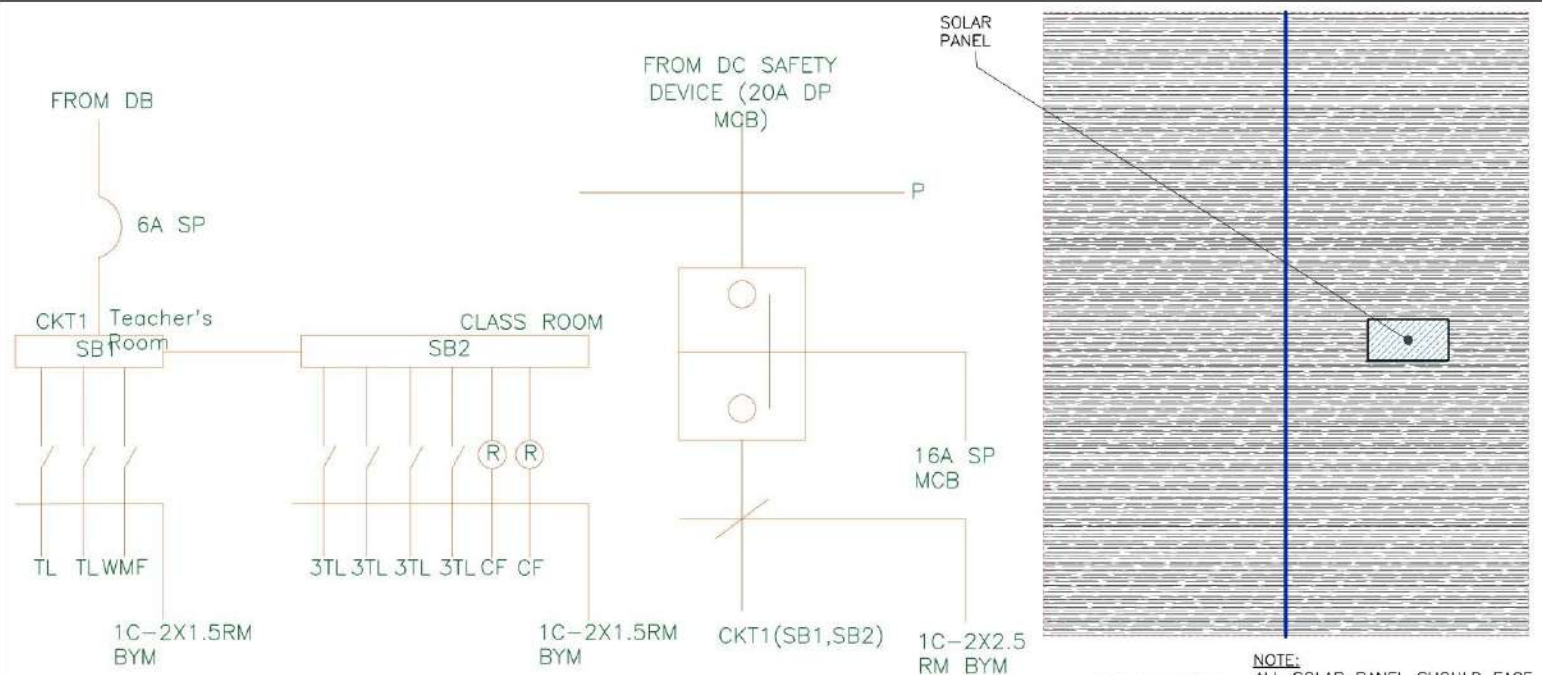
ELECTRICAL DRAWING



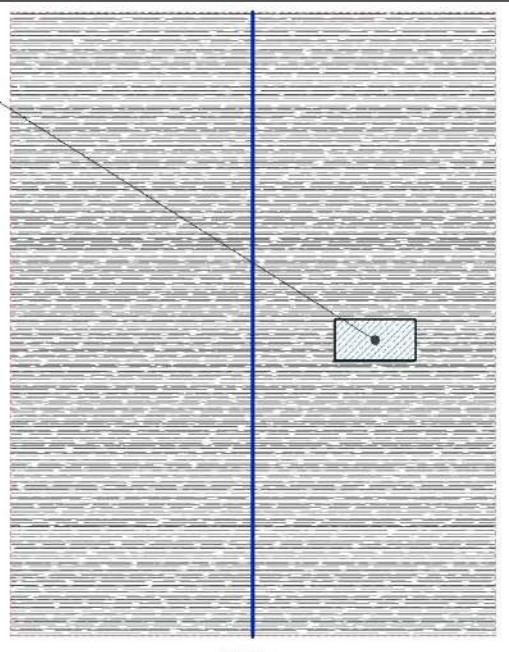
Electrical Layout
SCALE: AS SHOWN

Ground Floor Conduit
SCALE: AS SHOWN

| SYMBOL | | DESCRIPTION |
|---|-----|--------------------------|
|  | TL | 6W DC LED TUBE LIGHT |
|  | WL | 5W LED WALL LIGHT |
|  | CF | 30W DC CEILING FAN |
|  | SB | SWITCH BOARD (GANG TYPE) |
|  | DB | DISTRIBUTION BOARD |
|  | WMF | WALL MOUNTED FAN |
|  | SF | STAND FAN |



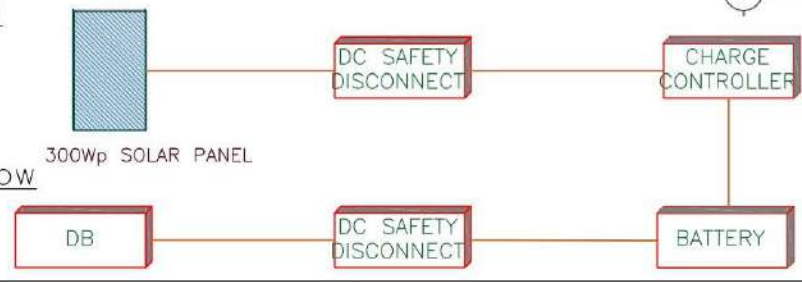
CIRCUIT DIAGRAM



SOLAR PENAL LAYOUT

NOTE: ALL SOLAR PANEL SHOULD FACE SOUTH CONSIDERING MAXIMUM POWER GAIN. THEREFORE IF THE ORIENTATION IS CHANGED,PANELS SHOULD BE RE-ORIENTATED TO SOUTH.

Solar Power Flow Diagram





- ✓ BEAM TIED DOWN TO COLUMN
- ✓ HOLE DRILLED BELOW FINAL NODE



- ✓ PURLINS TIED DOWN TO RAFTER
- ✓ RAFTER TIED DOWN TO BEAM
- ✓ BEAM TIED DOWN TO COLUMN



- ✓ COLUMN ANCHORED INTO GROUND
- ✓ BAMBOO LIFTED OFF GROUND USING STEEL PLATE

Nothing to stop roof pulling off column



No fish mouth connection

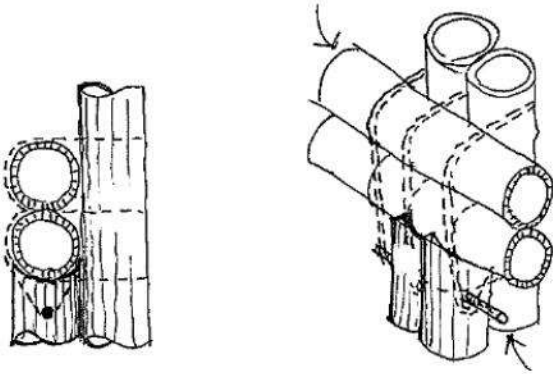
→ Beam can slip sideways off column



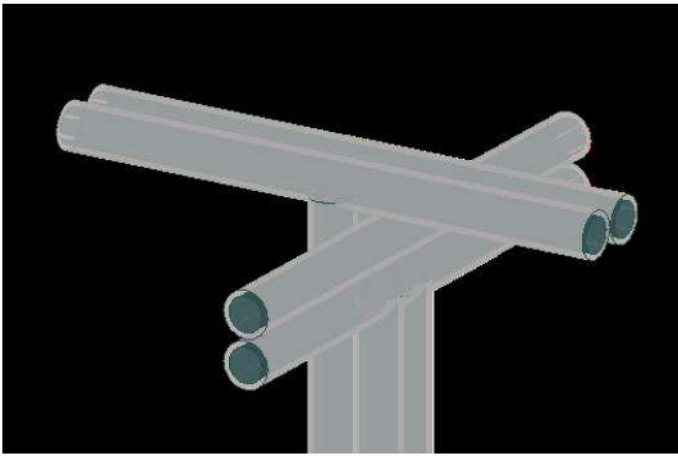
Beam has fallen off column



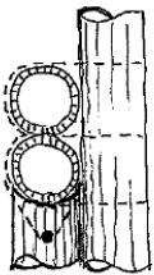
Beam not securely fixed on column



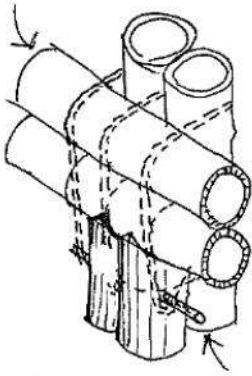
✓ CONNECT BEAM TO COLUMN WITH DOWELS & TIE DOWN
(DOWEL MUST BE BELOW BAMBOO NODE)



✓ REVISED CONNECTION



✓ CONNECT BEAM TO COLUMN WITH DOWELS & TIE DOWN
(DOWEL MUST BE BELOW BAMBOO NODE)



✓ CONNECT BEAM TO COLUMN WITH DOWELS & TIE DOWN
(DOWEL MUST BE BELOW BAMBOO NODE)