

STRUCTURAL DESIGN CRITERIA & MINIMUM REQUIREMENTS FOR STANDARD SIZE (30'X 25') 750 SFT CGI SHEET ROOF RURAL MOSQUE

1) GENERAL NOTE: The foundation of the proposed building has been designed based on the assumption of ideal soil conditions for construction. If required, the foundation design will be revised according to the actual soil and site conditions. The design shall be appropriate under the following site, soil, and land requirements:

1. Site Accessibility

The construction site shall be conveniently accessible for material delivery, machinery, and construction activities. The following conditions shall be met:

- a) The site shall be located within 20–30 m of an accessible road, where at least a mini pick-up or small truck can reach.
- b) Site access shall be free from obstructions such as trees, electric poles, or drainage channels that may hinder construction traffic.
- c) The road and site entrance shall be strong enough to carry light to medium construction vehicles without damage.

2. Soil Condition (Ideal Soil Requirements)

The soil shall meet the following conditions so that no extraordinary foundation treatment is required:

- a) Soil shall be hard, dense, and stable, capable of bearing structural loads without excessive settlement.
- b) Soil shall be non-expansive (not clayey or highly plastic that swells or shrinks with moisture).
- c) Soil shall be well-drained and not waterlogged.
- d) Soil shall be free from organic matter, peat, loose fill, or debris.
- e) Soil shall be uniform in strata without abrupt changes in layers.
- f) Soil shall not be prone to liquefaction during seismic activity.
- g) Soil shall not be saline or chemically aggressive (avoiding risk of concrete or steel corrosion).
- h) Soil shall have minimal compressibility to avoid differential settlement.

3. Land Condition

- a) Land shall be level or naturally elevated compared to the existing road.
- b) Land shall not currently be filled or require additional filling.
- c) Land shall be easily accessible from the nearby existing road with minimum site clearance.
- d) Land shall not be prone to flooding or water stagnation.
- e) Land shall not be located on a steep slope, hillside, or unstable ground.
- f) Land shall not be in a wind-prone zone or cyclone-exposed area.
- g) Land shall have adequate drainage, ensuring stormwater can flow away naturally.
- h) Land shall be free from legal encumbrances, encroachments, or right-of-way restrictions.
- i) Land shall have sufficient setback space for construction equipment, material storage, and worker movement.

2) FOUNDATION:

- a)** Foundation Type and Depth of foundation - As per drawing.
- b)** Any loose pocket found in the foundation bed must be filled with compacted sand of FM 1.2 minimum.

3) CONCRETE:

- a)** Concrete mixing proportion 1:1.5:3 [Cement Portland Composite Cement (PCC) (CEM-II): 50% Sylhet Sand (FM=2.5) + 50% Local Sand (FM=1.5): 3/4" Downsize Brick chips] up to grade Beam and Column all through.

- b)** Concrete mixing proportion 1:2:4 [Cement Portland Composite Cement (PCC) (CEM-II): Local Sand (FM=1.5) : 3/4" Downsize Brick chips] for Mass Concrete.

- c)** Concrete Compressive Strength (Cylinder) $f_c' = 3,000$ psi for Foundation, Column, and Grade Beam which are to be confirmed by trial mix design.

d) Concrete Compressive Strength (Cylinder) $f_c' = 2,500$ psi for Foundation, Column, and Grade Beam which are to be confirmed by trial mix design.

4) STEEL REINFORCEMENT: **a)** Deformed bar (Billet) Yield Strength $f_y = 60,000$ psi (60 Grade) Should be used in Foundation Column, Grade Beam, Beam, Stair, and Slab.

b) Deformed bar (Billet) Yield Strength $f_y = 40,000$ psi (40 Grade) Should be used in Lintel, Drop wall, and mix design.

5) LAP LENGTH: **a)** Lap Length Tension Zone = $60 \times \text{Re-bar Diameter}$. Column laps shall be Tension laps.
b) Lap Length Compressive Zone = $40 \times \text{Re-bar Diameter}$.

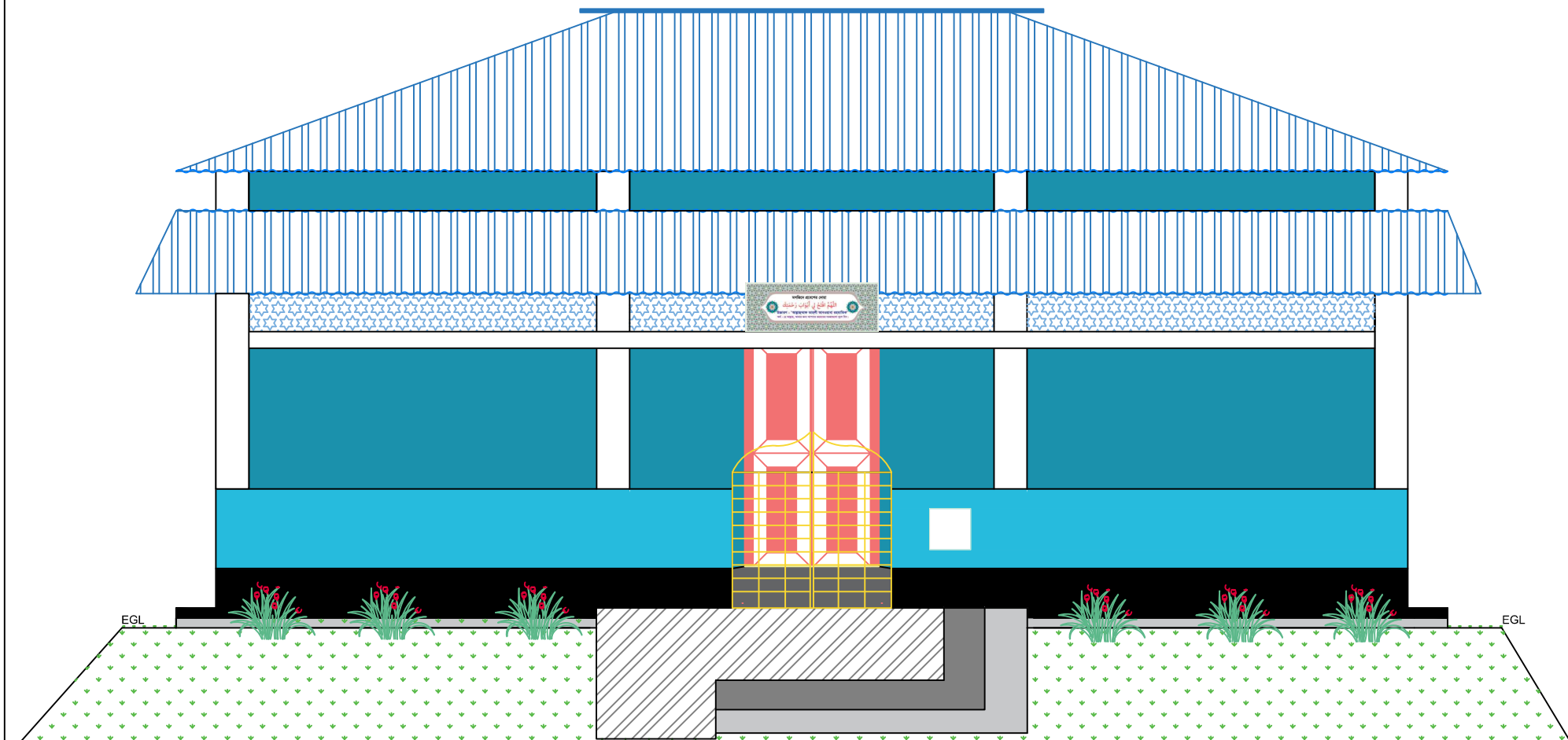
6) LAP LOCATION: **a)** For the Beam Bottom Bar, a lap is not to be provided at the middle third zone of the Span.
b) For the beam top bar, a lap may be provided in the middle third zone of the span.

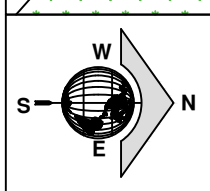

7) HOOKS OF REBAR: **a)** For all Rebar, provide 135° standard hooks if not shown in the Span.
b) For Column tie and Beam Stirrup, the hook length will be 100 mm, and for the lintel, the hook length will be 75 mm.

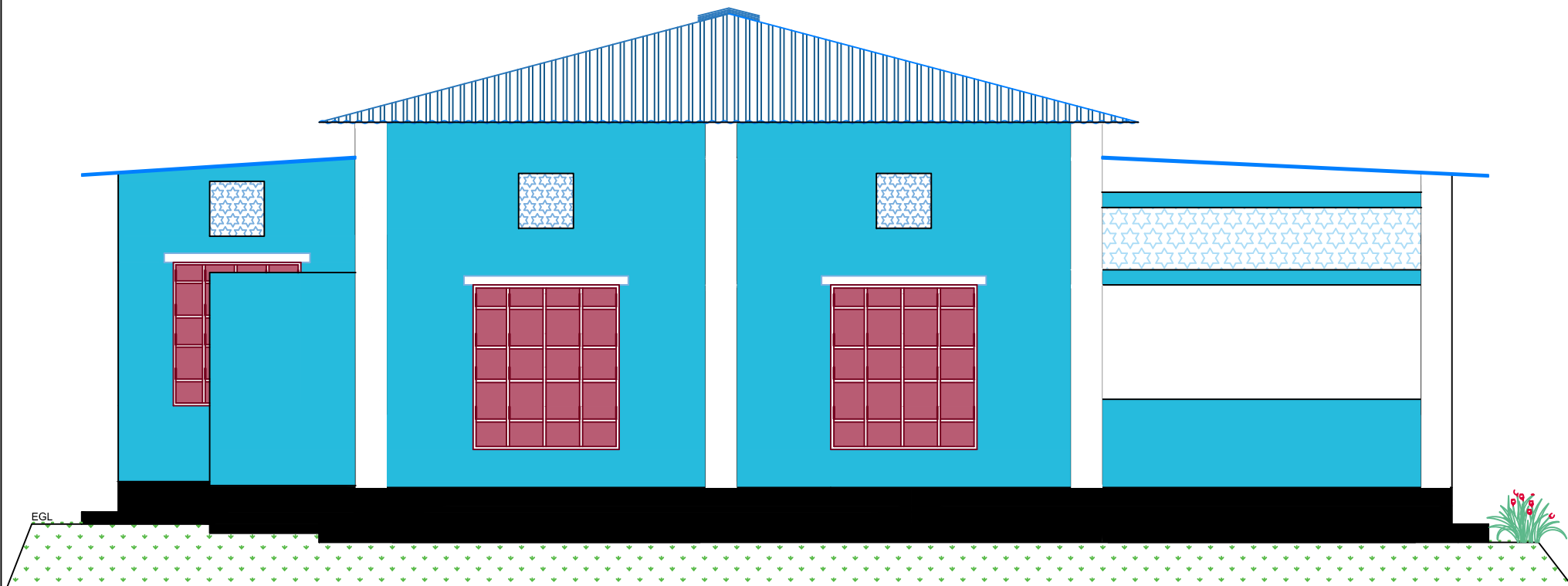
8) CLEAR COVER:	a) Below E.G.L.:	a) Above G.L.:
	i) Foundation : 3"	i) Column: 1.5"
	ii) Grade Beam: 2"	ii) Beam: 1.5"
	iii) Column: 2"	iii) Lintel : 1"



9) Curing Procedure: **a)** Curing time minimum 28 days.
b) Method of Curing:
i) Horizontal surface by ponding water.
ii) Vertical Surface by wrapping moist jute fabric and frequently sprinkling water by a hose pipe.

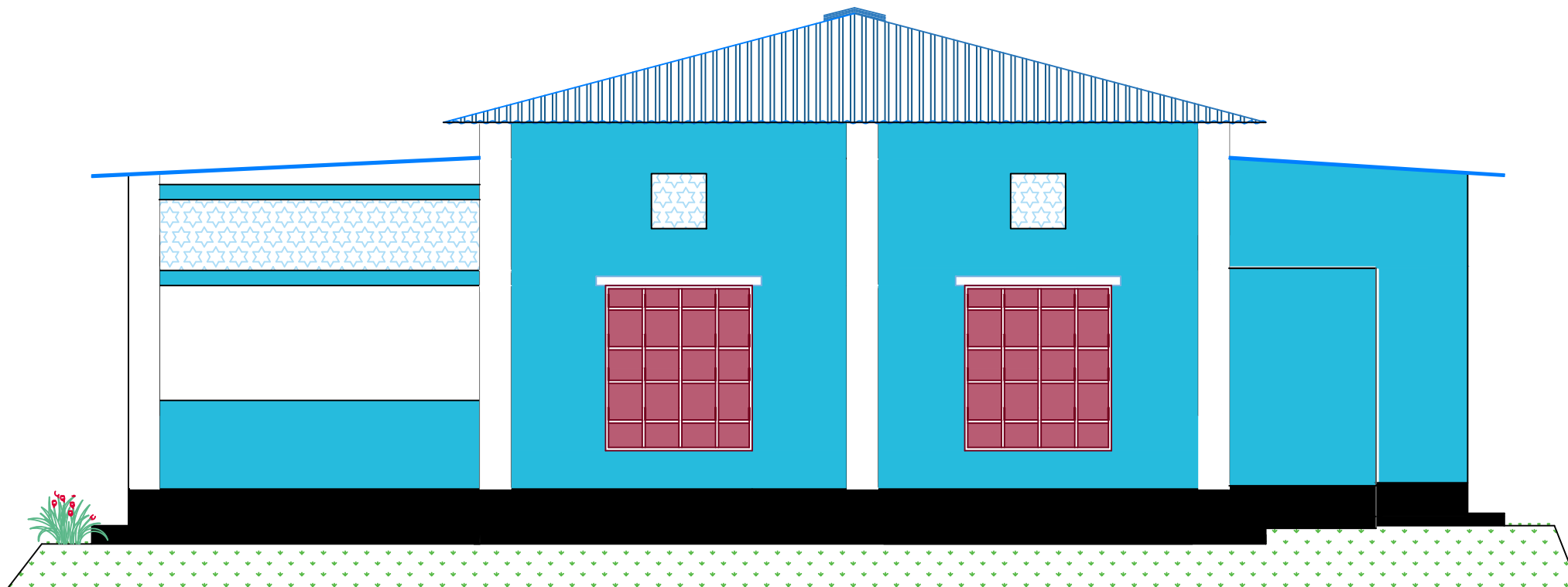
10) Admixture: Water proofing admixture, Plasticiser, and Joint Admixture shall be used as mentioned in the respective drawings and specifications after approval by the Engineer.



	NAME OF WORK: Construction of (30' x 25') Standard size Rural Mosque <i>(The design follows a common, standard layout suitable for rural areas. It is not site-specific. After the site selection should be reviewed and modified according to the actual site conditions.)</i>	IMPLEMENTED BY:  Muslim Hands International Bangladesh	DESIGNED BY: SHAFIQU ALAM KOWSAR Programme Associate (Engineering) Muslim Hands International Bangladesh	RECOMMENDED BY: SHEIKH AHAMMED ISTIEAK Senior Programme Officer Muslim Hands International Bangladesh	REVIEWED BY: MD. MUZIB ULLAH Programme Coordinator Muslim Hands International Bangladesh	APPROVED BY: NELSON SAMIRON HALDER Head of Programmes Muslim Hands International Bangladesh	DWG TITLE: Front Elevation	SHEET: A-01
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IMPLEMENTED BY:



Muslim Hands
International
Bangladesh

DESIGNED BY:

SHAFIQU ALAM KOWSAR
Programme Associate (Engineering)
Muslim Hands International
Bangladesh

RECOMMENDED BY:

SHEIKH AHAMMED ISTIEAK
Senior Programme Officer
Muslim Hands International
Bangladesh

REVIEWED BY:

MD. MUZIB ULLAH
Programme Coordinator
Muslim Hands International
Bangladesh

APPROVED BY:

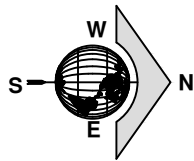
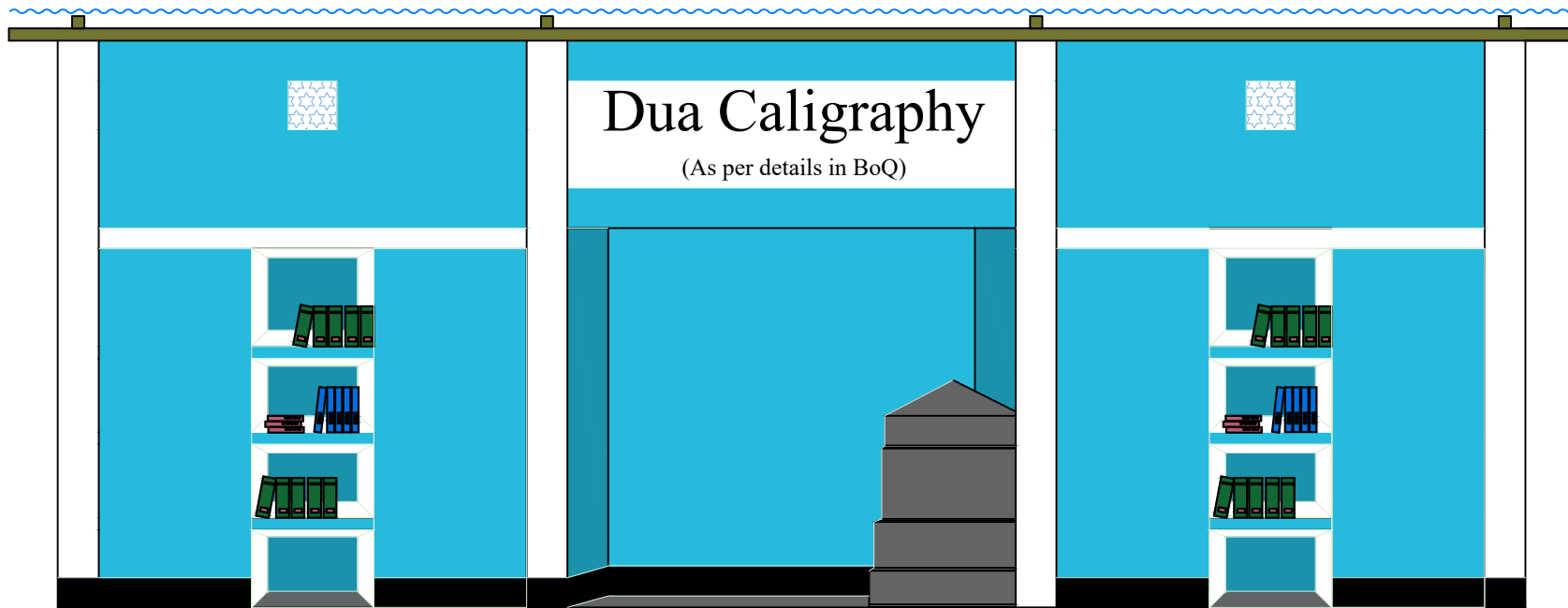
NELSON SAMIRON HALDER
Head of Programmes
Muslim Hands International
Bangladesh


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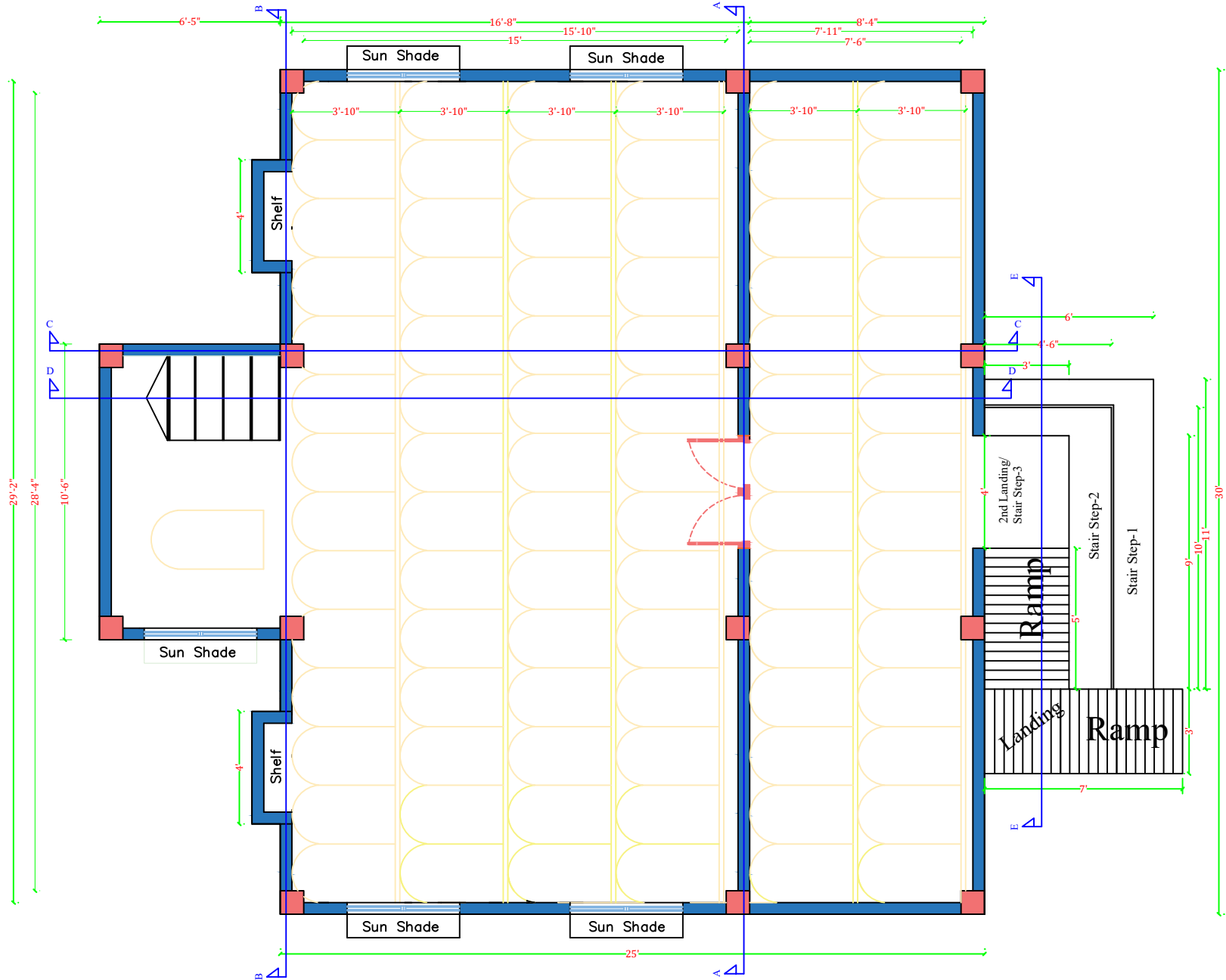
North
Elevation

SHEET:

A-03



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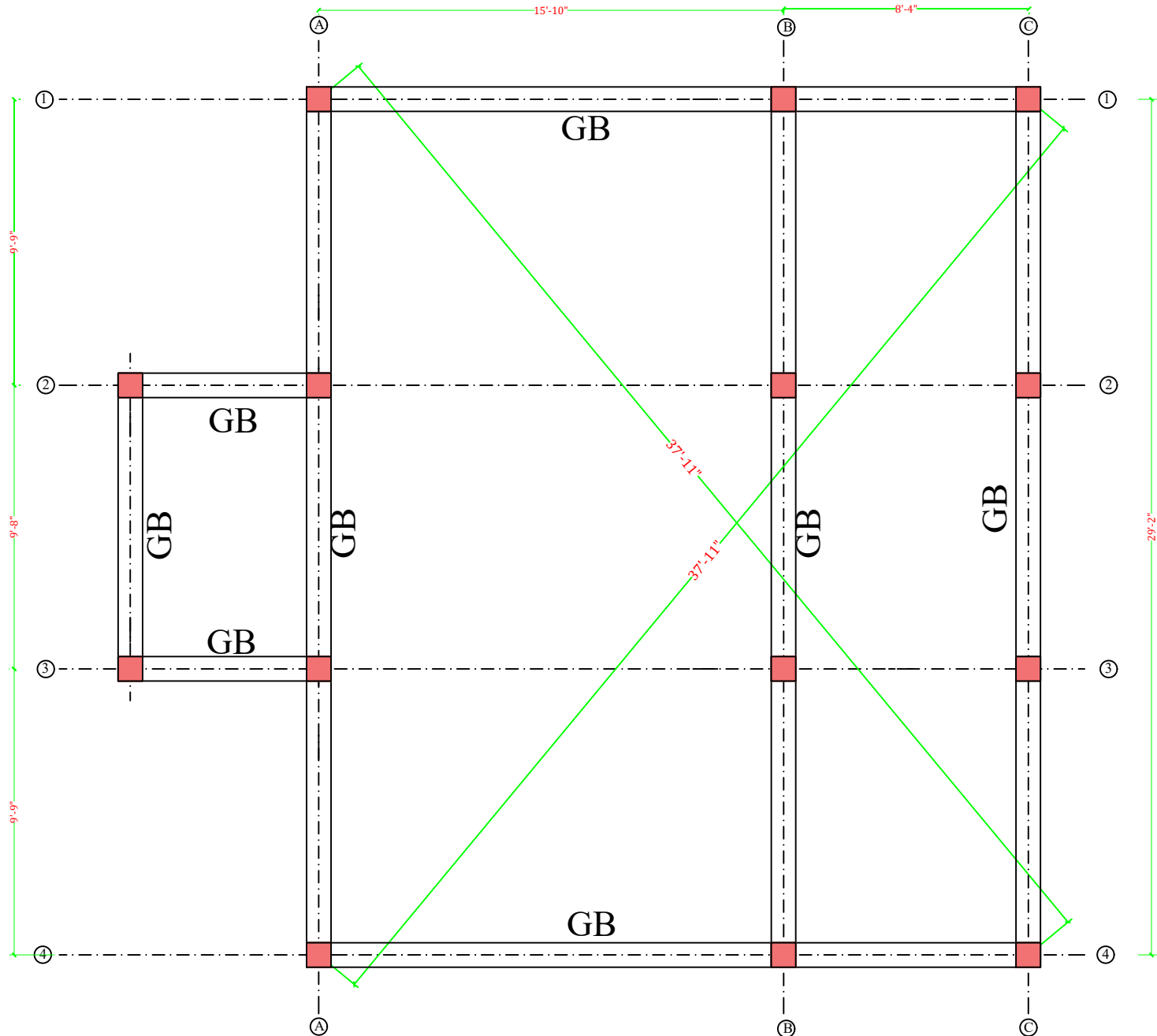
RECOMMENDED BY:
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Senior Programme Officer
Muslim Hands International
Bangladesh

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Programme Coordinator
Muslim Hands International
Bangladesh

APPROVED BY:
NELSON SAMIRON HALDER
Head of Programmes
Muslim Hands International
Bangladesh

DWG TITLE:
Plan of Standard
Size (30' x 25') 750 sq ft
Rural Mosque

SHEET:
A-05



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Programme Associate (Engineering)
Muslim Hands International
Bangladesh

RECOMMENDED BY:

SHEIKH AHAMMED ISTIEAK
Senior Programme Officer
Muslim Hands International
Bangladesh

REVIEWED BY:

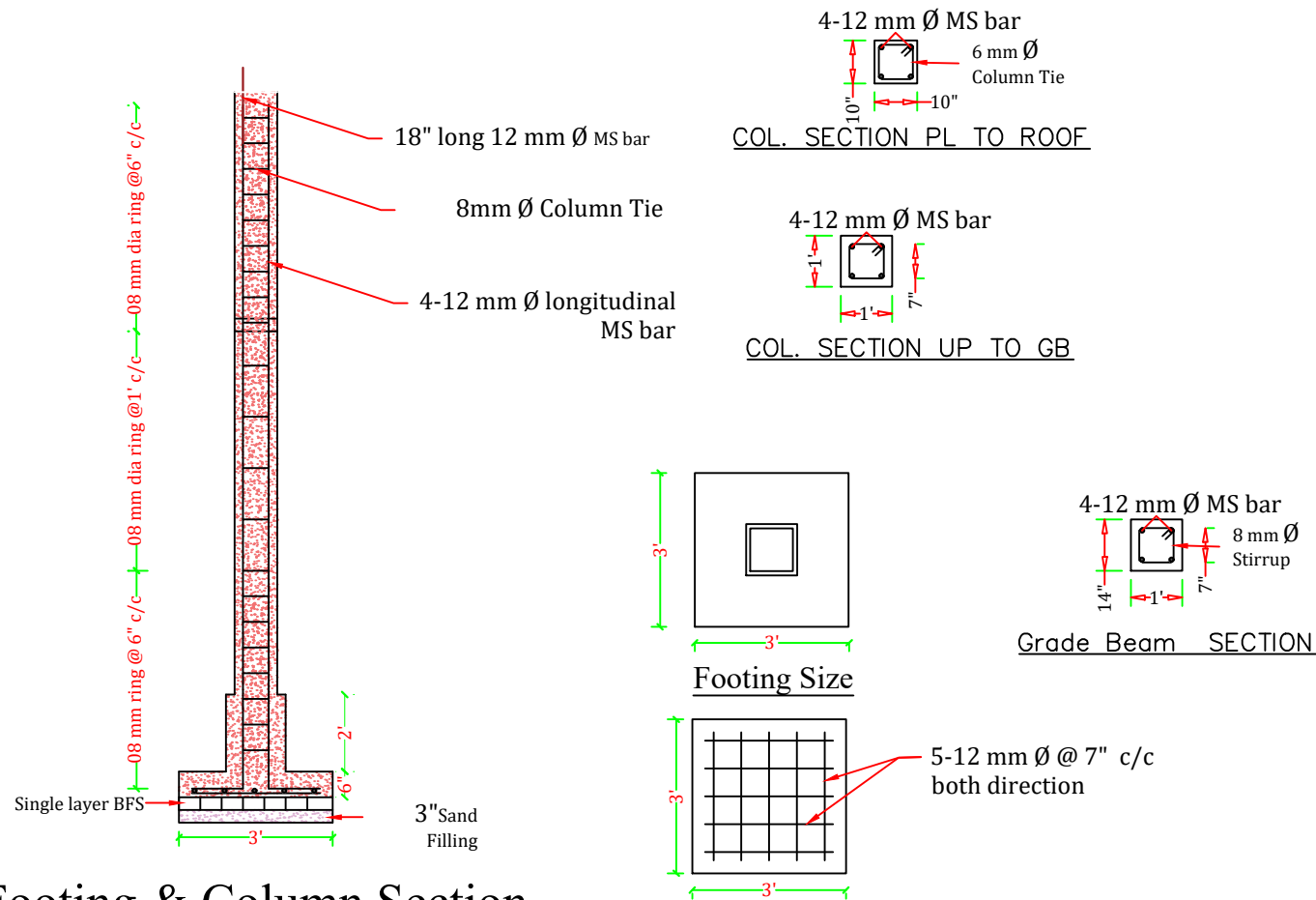
MD. MUZIB ULLAH
Programme Coordinator
Muslim Hands International
Bangladesh

APPROVED BY:


NELSON SAMIRON HALDER
Head of Programmes
Muslim Hands International
Bangladesh

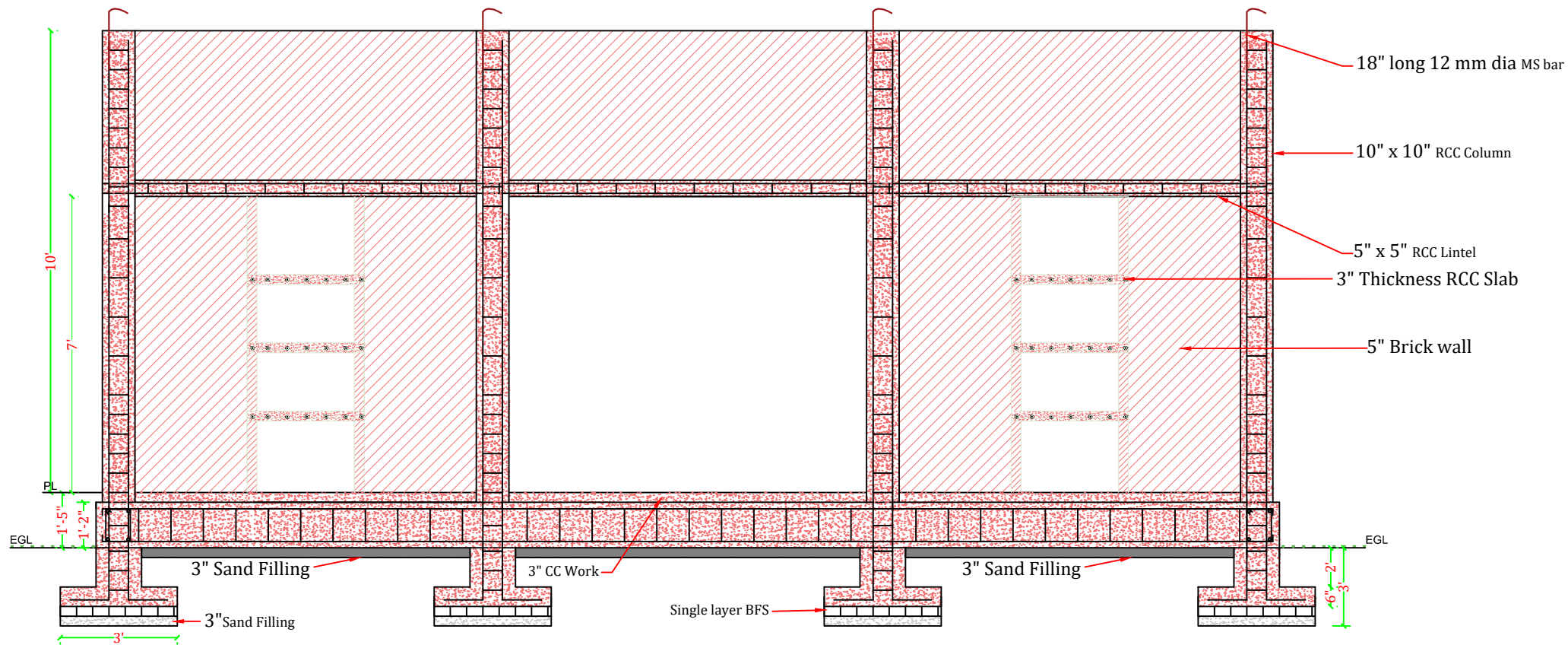
DWG TITLE:
Column & Grade
Beam Layout

SHEET:
A-06



Footing & Column Section

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Bangladesh

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SHAFIQL ALAM KOWSAR
Programme Associate (Engineering)
Muslim Hands International
Bangladesh

RECOMMENDED BY:

SHEIKH AHAMMED ISTIEAK
Senior Programme Officer
Muslim Hands International
Bangladesh

REVIEWED BY:

MD. MUZIB ULLAH
Programme Coordinator
Muslim Hands International
Bangladesh

APPROVED BY:

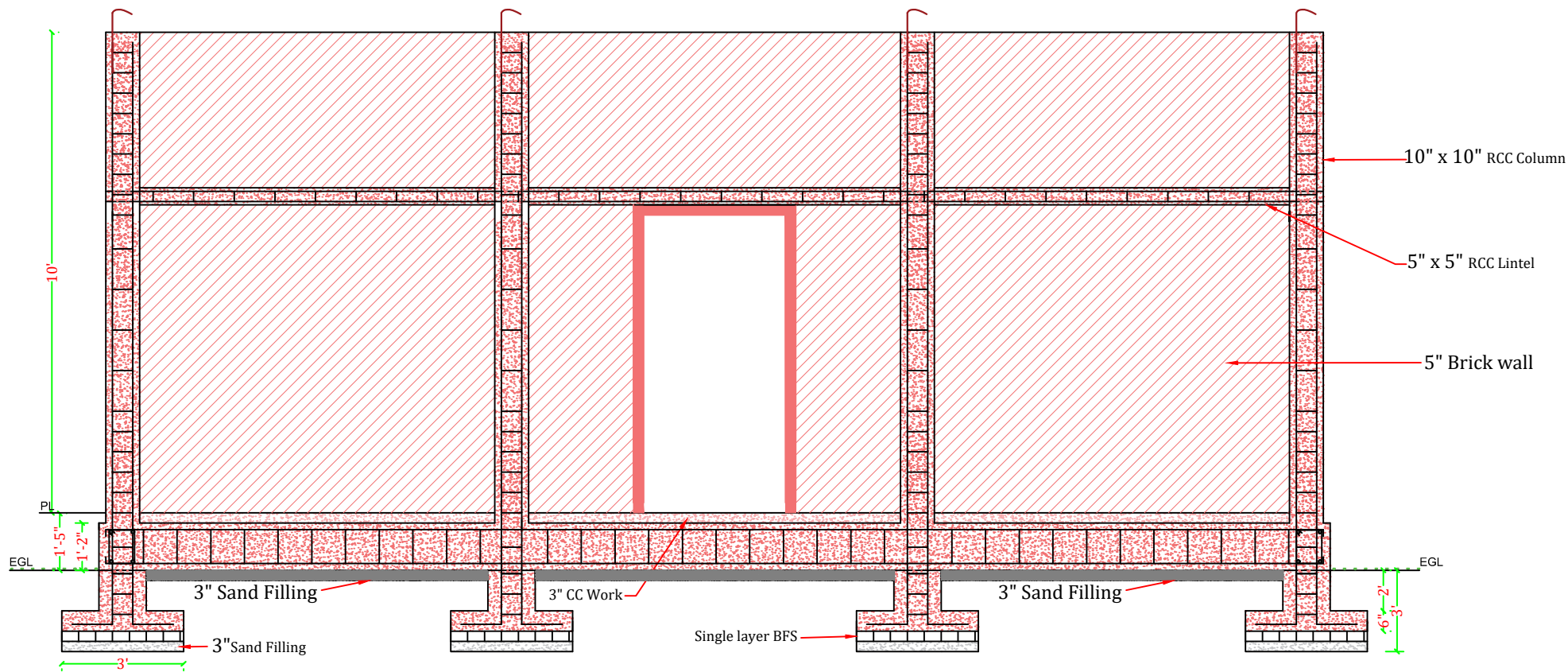
NELSON SAMIRON HALDER
Head of Programmes
Muslim Hands International
Bangladesh


DWG TITLE:

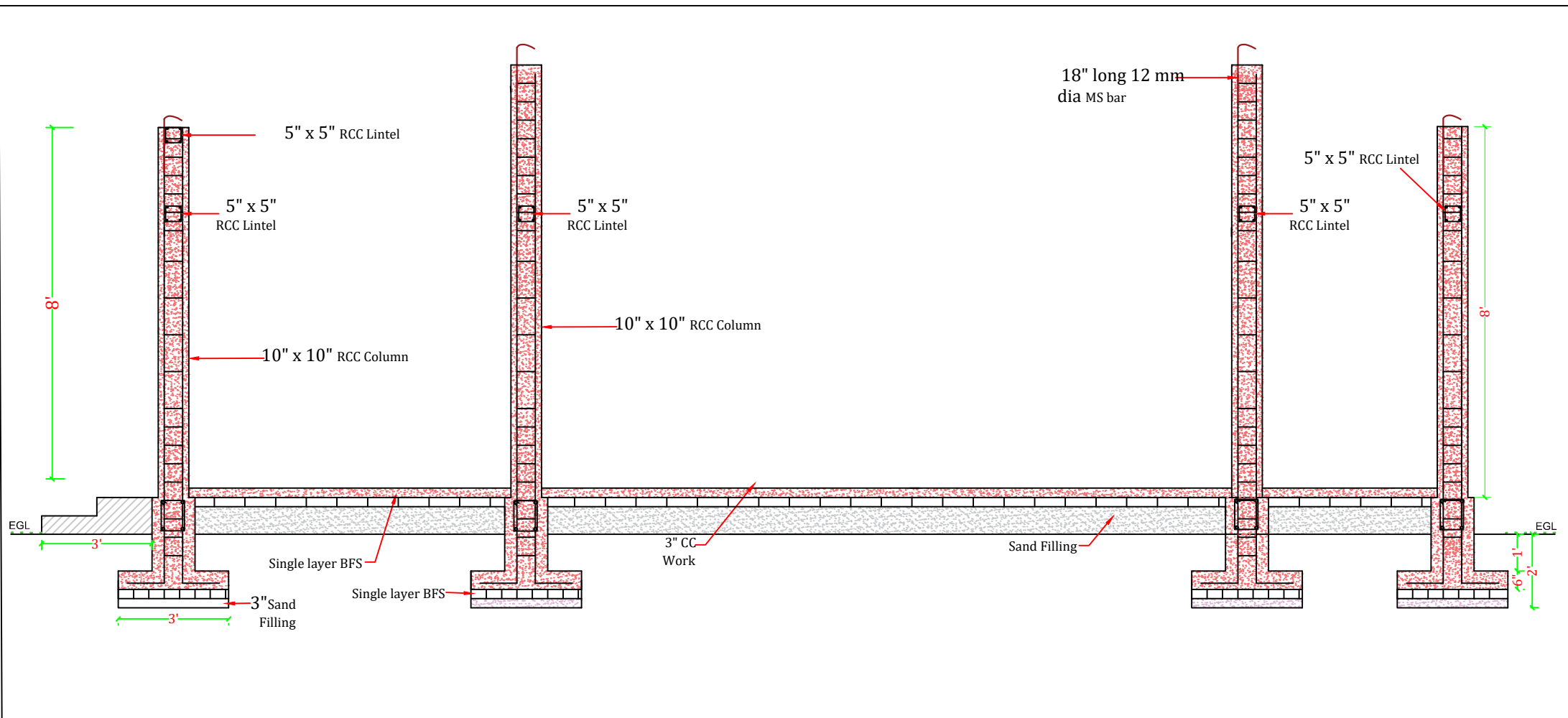
Section B-B


SHEET:

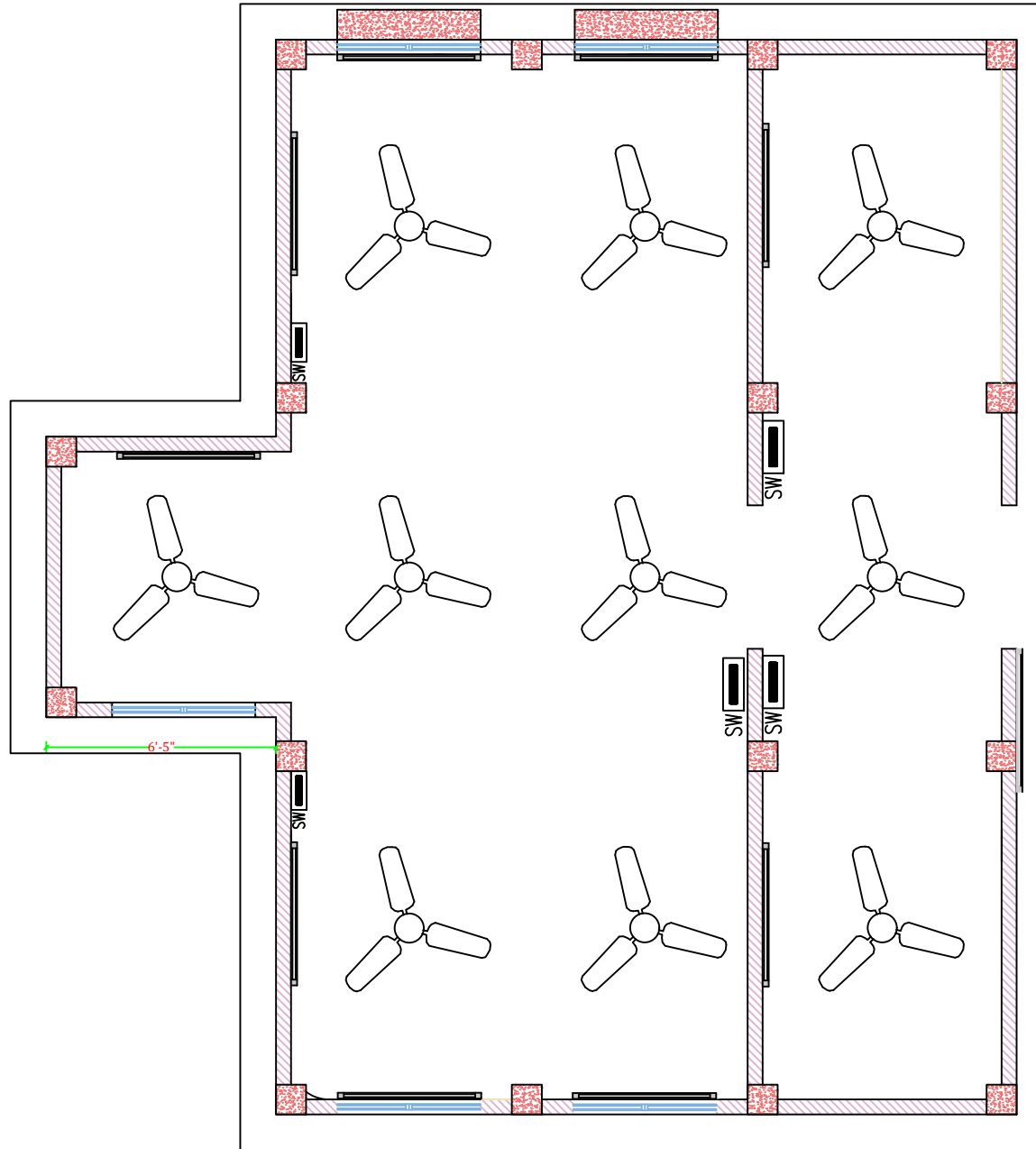
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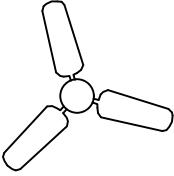

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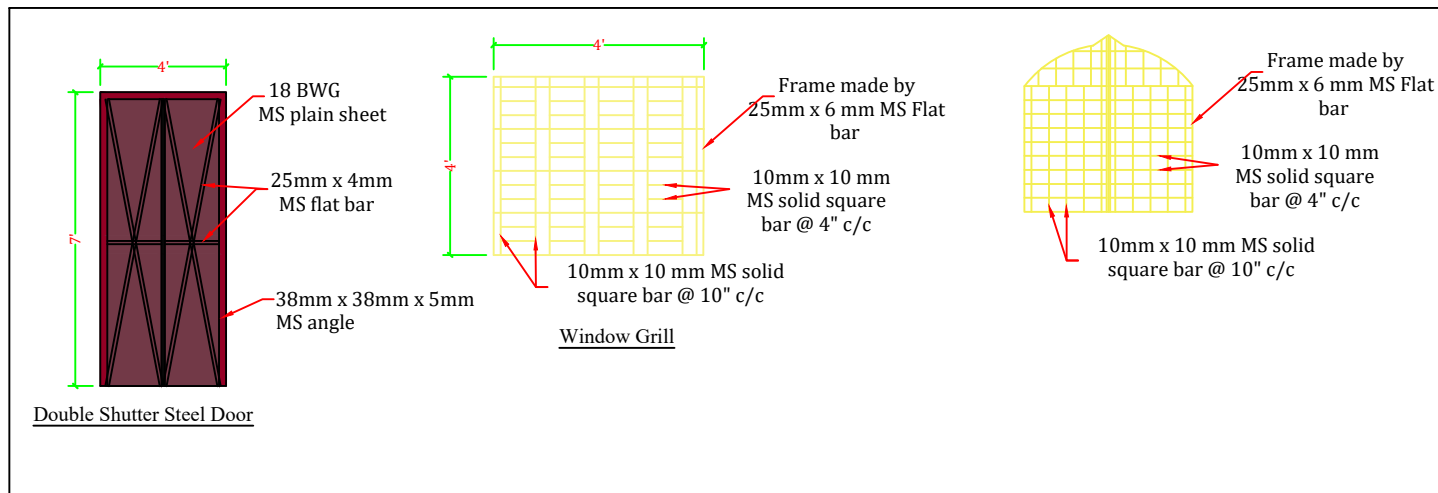


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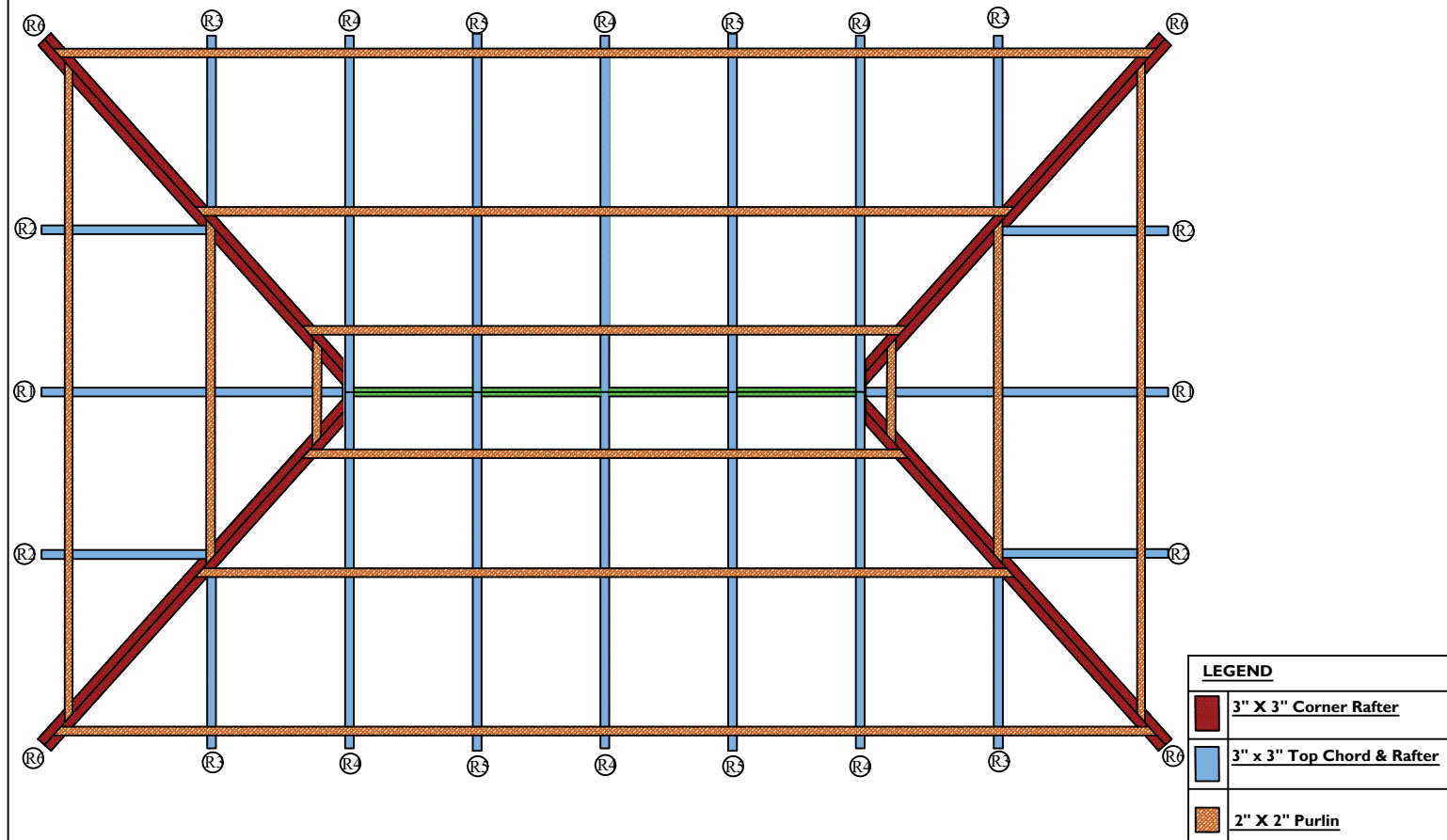



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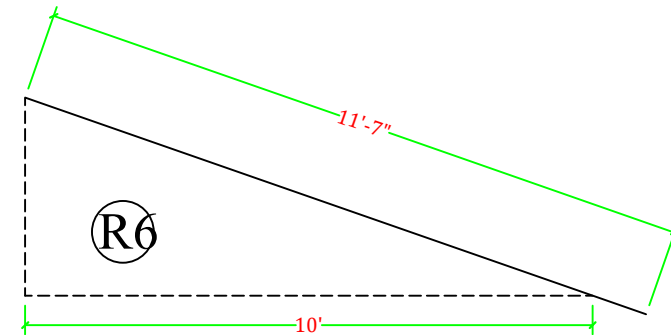
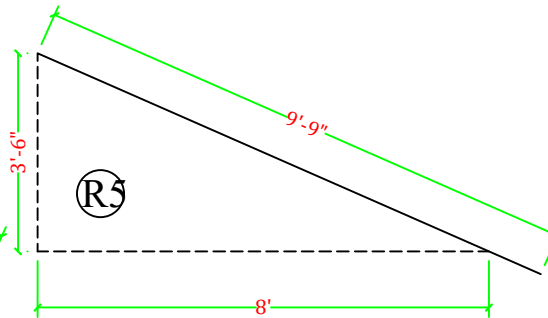
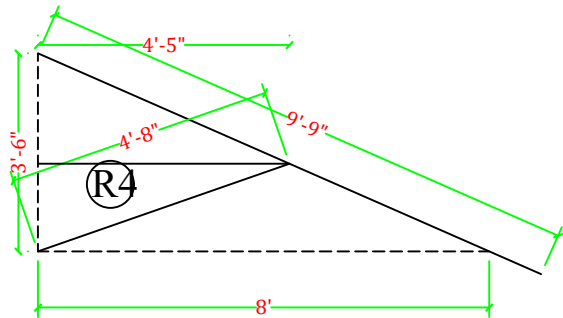
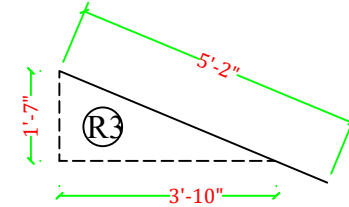
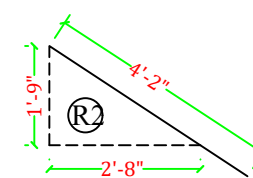
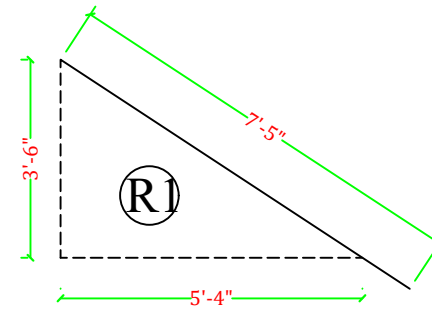
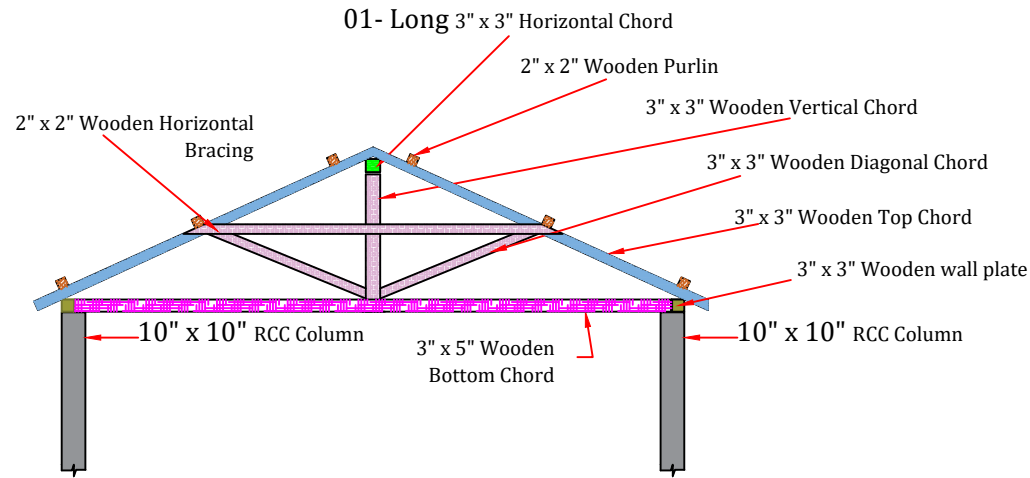
LEGEND	LEGEND Name
	Fluorescent Linear Luminaire 40 watt Light
	56" Ceiling Fan
	4-4 way Gang switch









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NAME OF WORK:	IMPLEMENTED BY:	DWG TITLE:	LEGENDS	SHEET:
Construction of (30' x 25') Standard size Rural Mosque <i>(The design follows a common, standard layout suitable for rural areas. It is not site-specific. After the site selection should be reviewed and modified according to the actual site conditions.)</i>	 Muslim Hands International Bangladesh	Roof Truss , Rafter, Purlin Layout	<div>3" X 3" Corner Rafter</div> <div>3" X 3" Rafter & Top Chord</div> <div>2" X 2" Purlin</div>	A-14
DESIGNED BY:	RECOMMENDED BY:	REVIEWED BY:	APPROVED BY:	
SHAFIQU ALAM KOWSAR Programme Associate (Engineering) Muslim Hands International Bangladesh	SHEIKH AHAMMED ISTIEAK Senior Programme Officer Muslim Hands International Bangladesh	MD. MUZIB ULLAH Programme Coordinator Muslim Hands International Bangladesh	NELSON SAMIRON HALDER Head of Programmes Muslim Hands International Bangladesh	



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			 3" X 3" Rafter & Top Chord		
			 2" X 2" Purlin and Horizontal Bracing		
			 3" X 3" Vertical chord , Diagonal chord Horizontal Chord		
DESIGNED BY:		RECOMMENDED BY:	REVIEWED BY:		APPROVED BY:
SHAFIQU ALAM KOWSAR Programme Associate (Engineering) Muslim Hands International Bangladesh		SHEIKH AHAMMED ISTIEAK Senior Pragramme Officer Muslim Hands International Bangladesh	MD. MUZIB ULLAH Pragramme Coordinator Muslim Hands International Bangladesh		NELSON SAMIRON HALDER Head of Programmes Muslim Hands International Bangladesh