

Marma Composite Ltd. (extension 2)

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(23.900679, 90.319027)

3rd November 2020

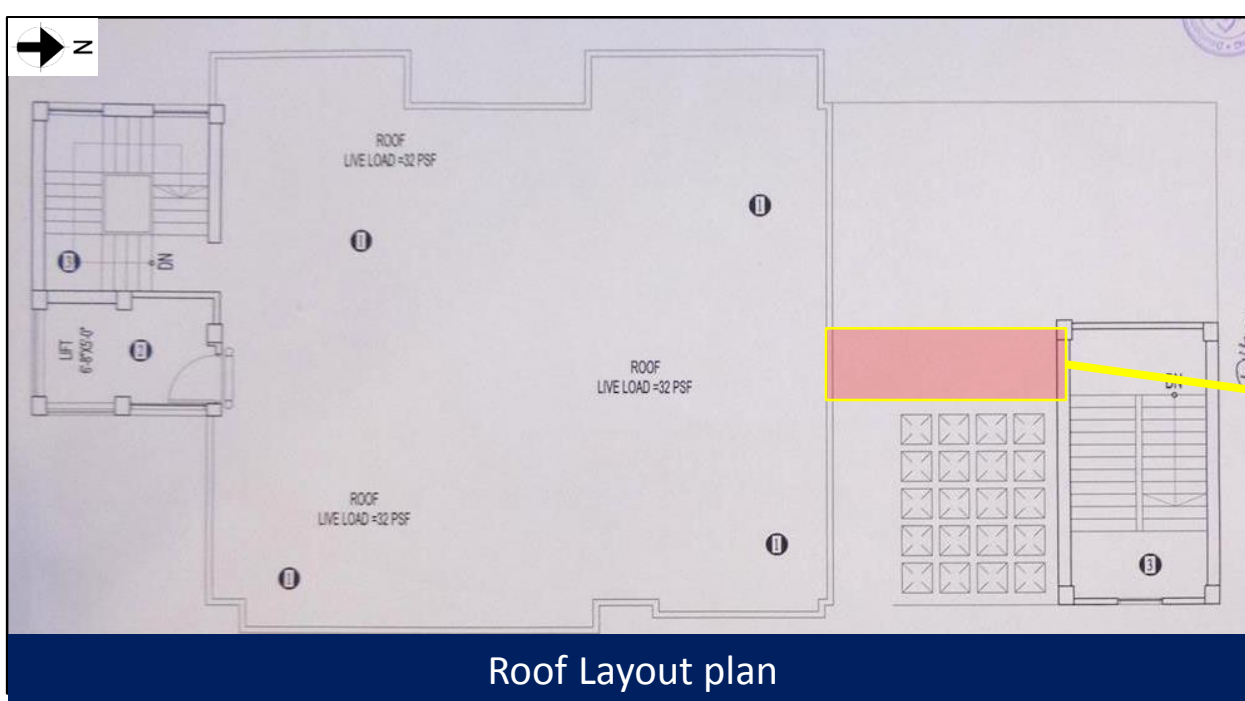


Building Information

1. Admin Building (B+G+2)
2. Security Building: (G+1)

Observations

Discrepancies in as-built drawing

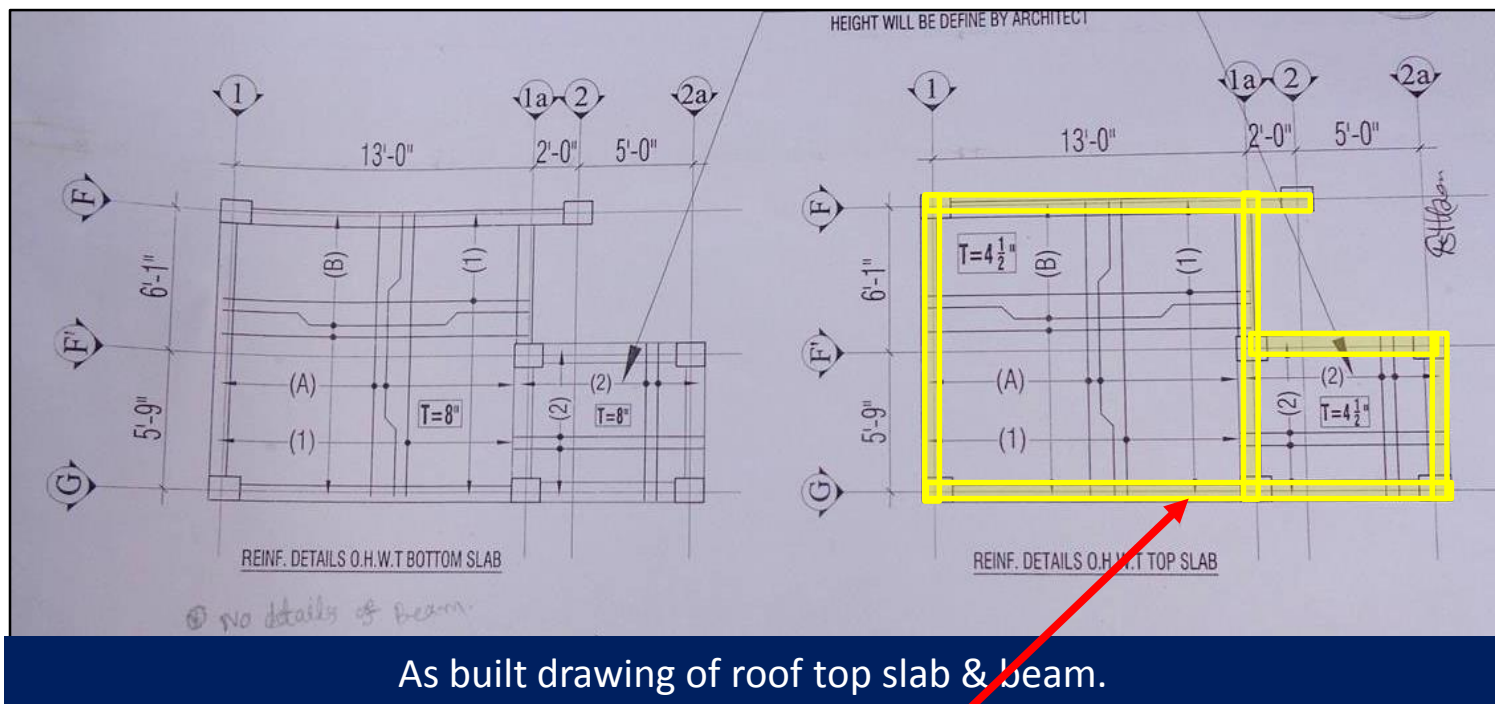


Passage from stair to roof slab



Passage from stair to roof slab

Roof plan does not match with the as-built drawing. A Passage was found from stair to floor. But in roof plan layout of as-built drawing the passage has not been shown. Factory engineer is required to survey the structures and prepare as-built drawings.

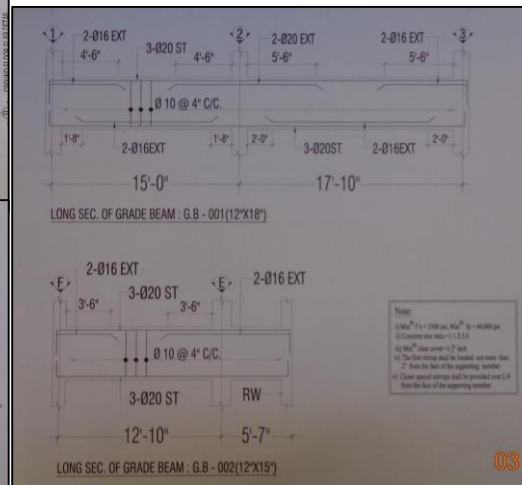
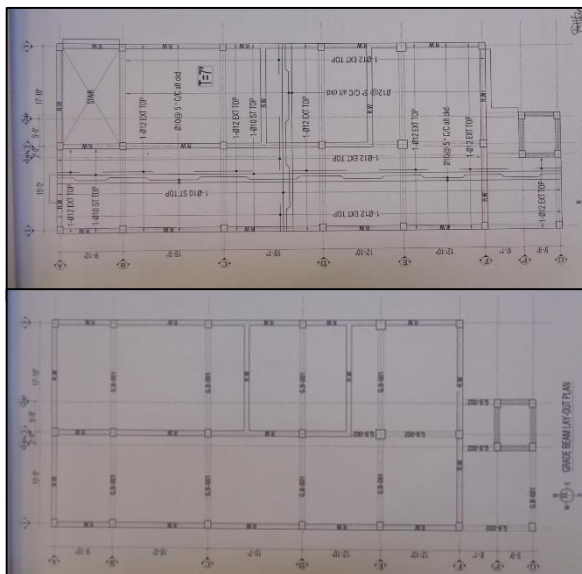


The details of the roof top beam over the stairs & lift core has not been provided in as built drawing. Factory engineer is required to survey the structures and prepare as-built drawings.

Roof top beam-slab



Ground floor slab & beam was found in inclined alignment.



Ground floor slab & beam over the fire pump room was found in inclined alignment but no structural details have been provided in as-built drawing. Factory engineer is required to survey the structures and prepare as-built drawings that are compliance with section 1.9.1.2 as per BNBC

Ground floor slab, beam layout and beam details

Design report need to be revised.



Ground floor columns at parking area.



C4 Column

C4	20" 2 1/2" clear cover 20" 4-Ø 20+8-Ø 16, Ø10 @ 5" C/C	18" 1 1/2" clear cover 18" 4-Ø 20+8-Ø 16, Ø10 @ 5" C/C
ty	Below GL	Ground & Mezzanine

Ground floor column are 5.72 m in length and 450X450 mm in size. The length/width=12.7 indicate that the columns are critical for slenderness effect. So, the factory engineer is required to check and address this issue in the design report.



85 mm

Floor Finishes was found 85 mm at 2nd floor.

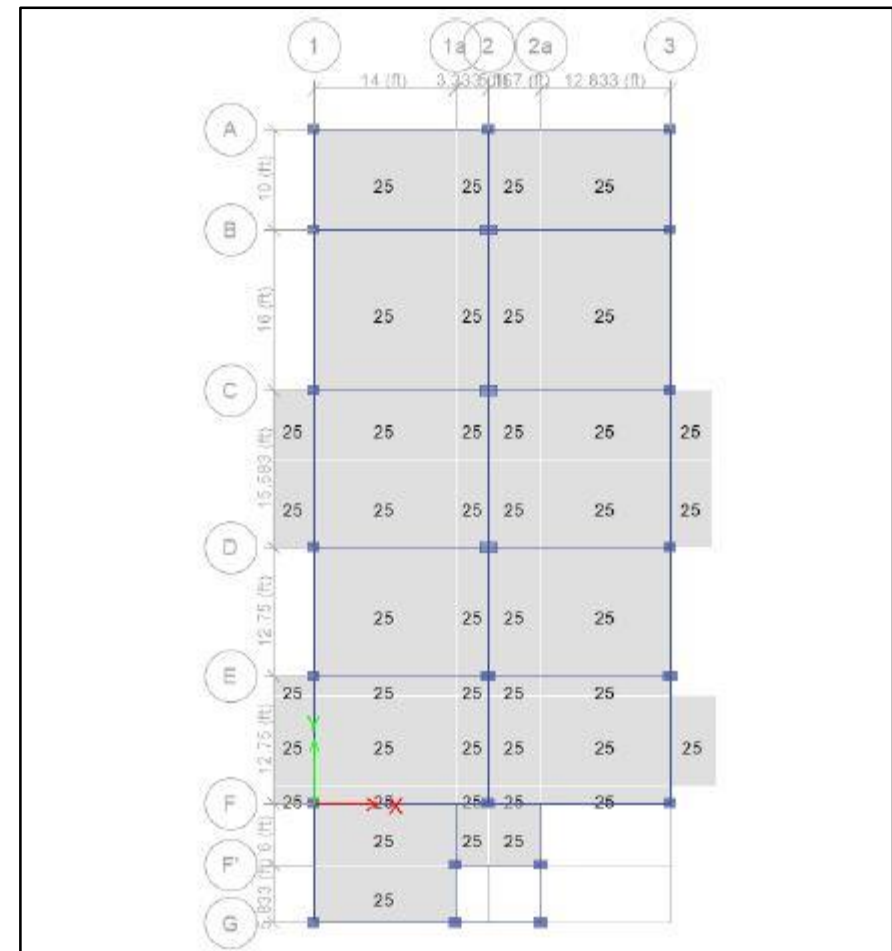
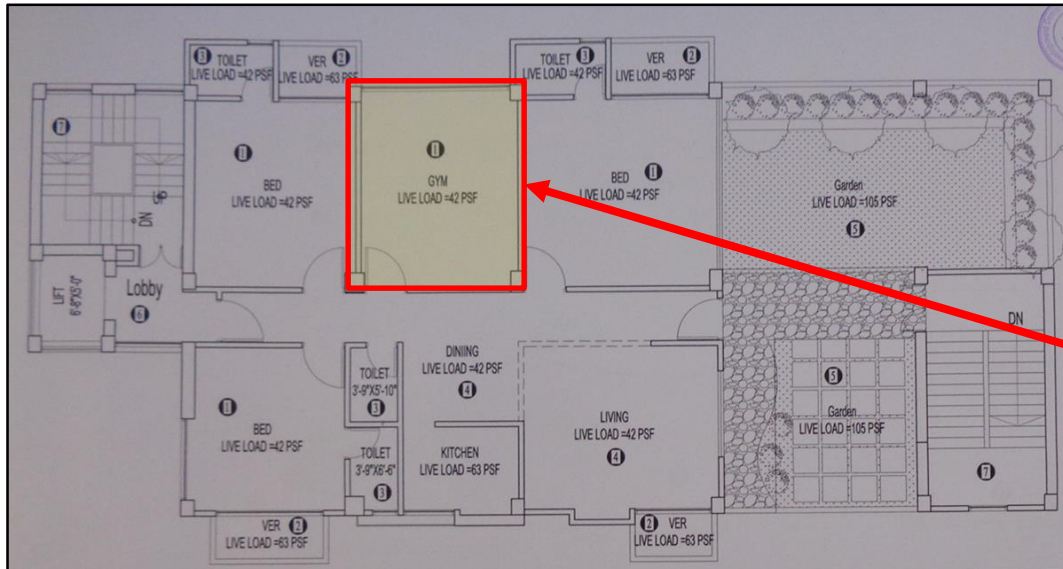


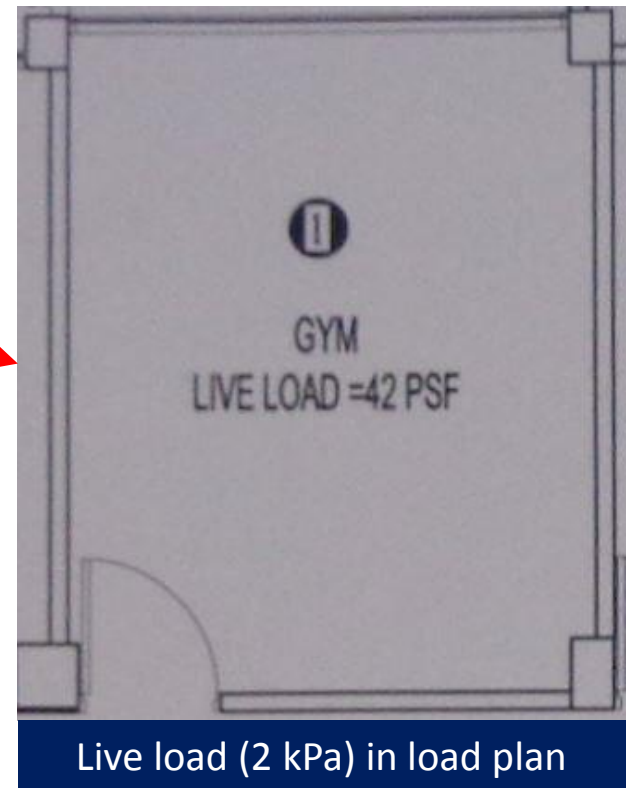
Figure 3-4: SDL in ETABS on 2nd floor (unit = psf)

Super imposed Dead Load was found 25 psf.

During inspection, Floor finishes was found 85 mm. In the software analysis, 25 psf (1.2 kPa) has been considered as super imposed dead load which is equivalent to 50mm floor finishes. Factory engineer to revised the analysis and design report for actual floor finish loads.



2nd floor Layout Plan. Proposed for gym at marked area.

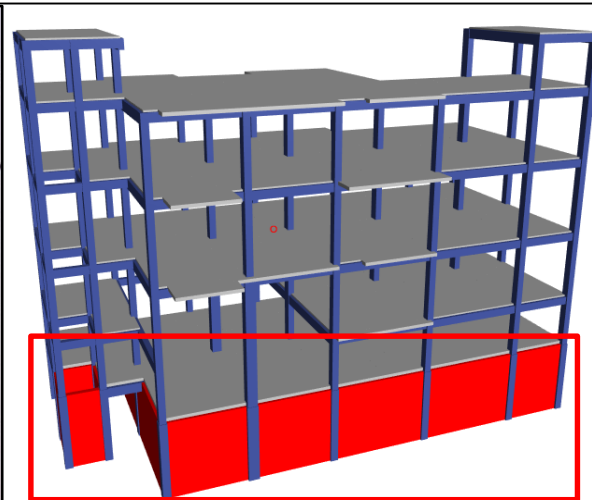
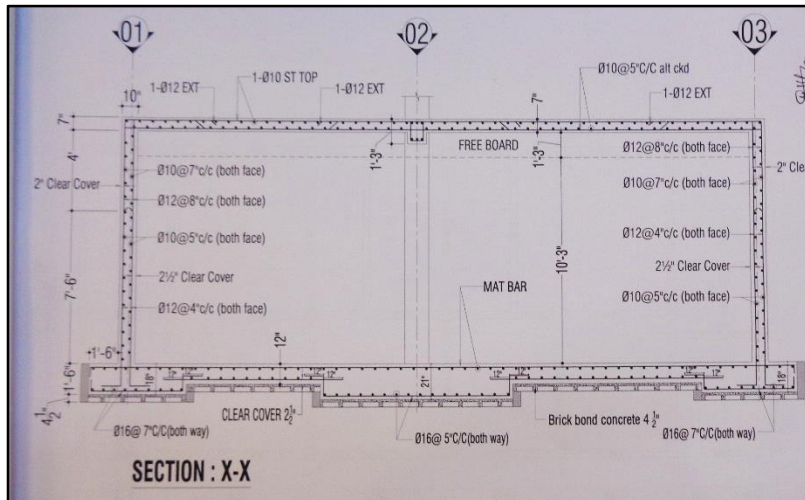


Live load (2 kPa) in load plan

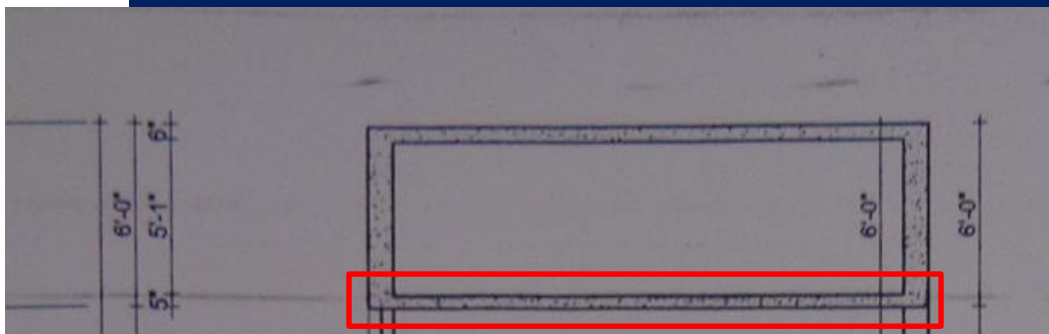
ASSEMBLY (Occupancy - E)	Library, auditorium, cinema, lecture hall, restaurant, bar, mosque, church (E1 - E4)	1 Assembly room:		
		with fixed seat	3.0	2.7
		without fixed seat	5.0	4.5
		2 Stages and projection room	5.0	4.5
		3 Library:		
	Stadium, art gallery, grand stand, museum, gymnasium (E5)	Reading room - without book storage	2.5	4.5
		with book storage	4.0	4.5
		Stack room for book	6.5 ⁽³⁾	7.0
		1 With fixed seats	3.0	2.7
		2 Without fixed seats	5.0	4.5
		3 Corridor, stair and passage way	5.0	4.5

BNBC live load requirements for Gymnasium

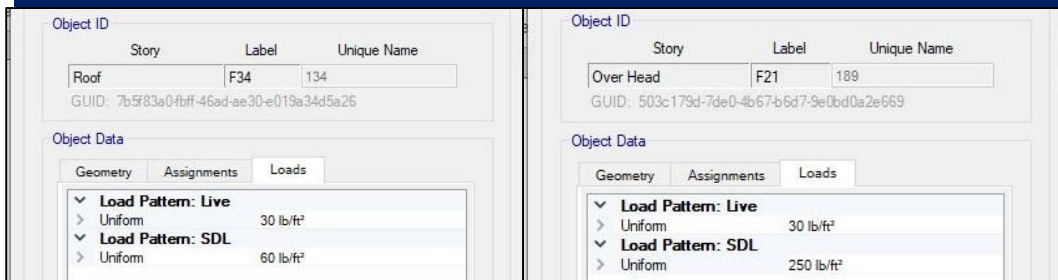
Gymnasium has been proposed at 2nd floor at marked area. The live load of that area has been considered 42 psf (2 kPa). As per BNBC, minimum loading 3 Kpa is required for the fixed seat gymnasium. Factory engineer is required to update the floor loading plan, software-based analysis and design report following BNBC loading requirement.



In design report, adequacy of the retaining wall has not been mentioned.



Bottom slab of the water tank is 125mm



Dead load of the bottom slab has not been assigned in FEA model.

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. Revise the software-based analysis model, design report and load plan following BNBC requirements.

Water ponding

Observation: Admin Building



Water ponding at 2nd floor (open to sky area)

Water ponding was found at 2nd floor open area. The water drainage system and adequate sloping was not found. And there is no water proofing layer on this area. The factory engineer is required to develop proper drainage system with adequate sloping on the mentioned area.

Observation: Admin Building

Column susceptible to vehicle impact



Columns having no barrier/protection at ground floor

Columns of the parking area are susceptible to vehicle impact. The factory engineer is required to take necessary measures to prevent the vehicle impact by providing the barrier around the columns.

Observation: Admin Building

Exposed column re-bar at roof



Exposed reinforcement was found on roof top columns. Factory engineer is required to take necessary measures to prevent the corrosion in exposed rebar.

Problems Observed

Admin Building

Item 1: Discrepancies in as-built drawing.

Item 2: Design report need to be revised.

Item 3: Water ponding.

Item 4: Column susceptible to vehicle impact.

Security Building

Item 5: Exposed column re-bar at roof.

Priority Action

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Discrepancy in as-built drawing (Admin Building)	Building Engineer to survey the structure and prepare accurate as-built (architectural and structural) drawings.	6-weeks
2	Design report need to be revised (Admin Building)	Building engineer to update the design document including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC.	6-weeks
3	Design report need to be revised (Admin Building)	Implement the recommendations of design report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
4	Water ponding (Admin Building)	The factory engineer to develop proper drainage system with adequate sloping to resist water ponding on roof.	6-months
5	Column susceptible to vehicle impact (Admin Building)	The factory engineer is required to take necessary measures to prevent the vehicle impact by providing barrier around the columns.	6-months
6	Corroded and exposed rebar at roof (Security Building)	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks