Mango Tex Limited

Hossain plaza,2, Tungabari, asulia, savar, Dhaka

(23.906028, 90.322808)

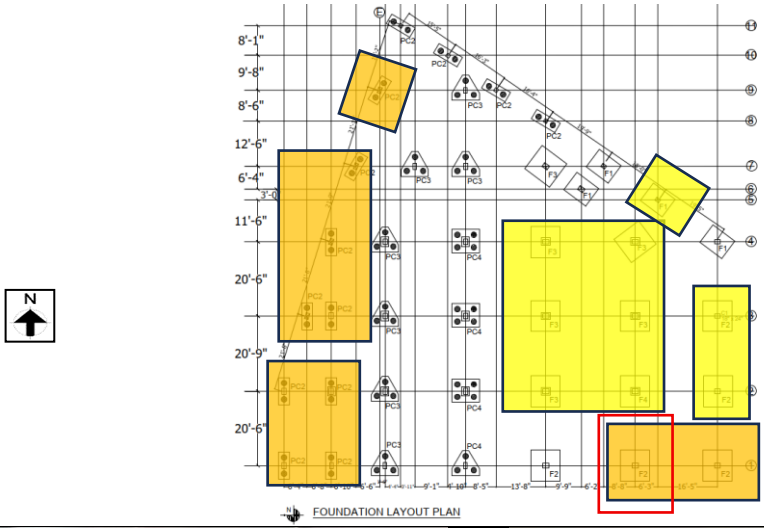
23 September 2025

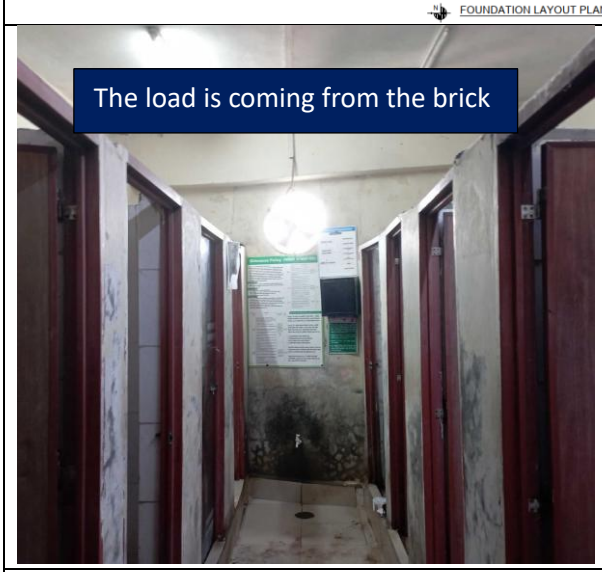
1. Building Information

1. **Production Building:** The structure is a 5-storied (B+G+4) RC building with a basement.
2. **Shed-1 (Utility Shed-1):** The structure is a single-storied steel shed.
3. **Shed-2 (Utility Shed-2):** The structure is a single-storied steel shed with an RC part.
4. **Shed-3 (Security & Doctors' Room):** The structure is a single-storied steel shed.
5. **Fire Pump Room:** The structure is a single-storied masonry structure.

2. **Observation:**

Observation-01: High stress in the foundation, considering BNBC prescribed floor live loads, which requires immediate design review (Production Building).





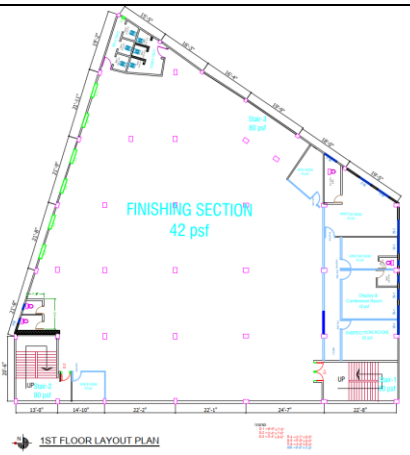
Description: Cursory calculation indicates high stress (bearing) in the pile foundation and isolated footing (amber marked), stress (bearing) in the foundation exceeds the normal design limit (yellow marked). Considering the allowable pile capacity of 454 KN (FoS- 2.50), the allowable soil bearing capacity is 11.46 Ton/m2 (FoS- 3.0). Also, the punching shear stress of the foundation (red marked) exceeds the normal design limit.

For both cases, we considered the live load of 3 kPa for a typical floor, 6 kPa for storage, 5 kPa for stair areas, and a concrete strength of 15 MPa from the available core test report of the column. No concrete test report was available for retrofitting part of the column, but the core location was found.

The building engineer is required to take the following actions:

1. Verify the in-situ concrete strength of the footing. Also, confirm the concrete test report of the retrofitted column.
2. As part of the Detailed Engineering Assessment (DEA), review design, loads, foundation stresses, and suggest necessary remedial actions.
3. Produce and actively manage a loading plan according to the floor, column & foundation capacity.

Observation-02: The load plan and design report don't comply with BNBC 2006 (Production Building).



3.1.5.1 LOAD COMBINATIONS

Load combinations are considered as per ACCORD/ ALLIANCE Standard.

Collapse/Strength Design Load Combinations

1. 1.2 DL + 1.6 LL
2. 1.05 DL+ 1.25 LL + 1.0 W
3. 1.05 DL+ 1.25 LL - 1.0 W
4. 1.05 DL+ 1.25 LL + 1.0 E
5. 1.05 DL+ 1.25 LL - 1.0 E

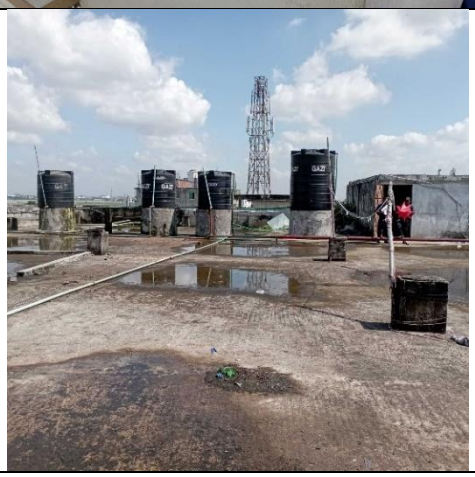
4.0 DETERMINATION OF ADEQUACY OF ALL MEMBERS

The design check of various members was carried out as per provisions design check carried out on various RC members for the critical con following are the observations made.

Description: A load plan and design report were available on site, with a floor live load of 2 kPa for a typical floor. Also, the design report is prepared following the ACCORD standard. However, the building was constructed between March 2011 & January 2014, and building approval was taken from the local authority (LGED) in November 2016. As per the building construction & permit date, BNBC-2006 needs to be followed. The building engineer is required to update the live load plan and design report as per BNBC 2006.

Observation-03: Discrepancy/missing information in the as-built (Production Building).

TYPE	COLUMN SIZE UPTO GF	GF TO ROOF
C1	(27X21) 12-20mm Ø	(24X18) 12-20mm Ø
C2	(27X21) 14-20mm Ø	(24X18) 14-20mm Ø
C3	(21"X 18") 12-20mm Ø	(18"X 15") 12-20mm Ø

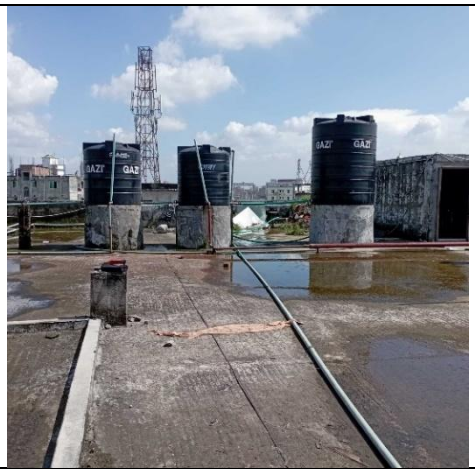


Description: Column C2 was found 500mmX375mm instead of 600 mm x 450 mm. Besides, some undocumented plastic water tanks and a steel frame were found on the roof. Also, the building has a basement, but no information was shown in the drawing. The building engineer is required to survey the whole structure and produce an accurate as-built drawing. Also, remove the undocumented steel frame.

Observation-04: Crack and dampness on the wall (Production Building).

Description: Crack and dampness were found on the wall. The building engineer is required to repair cracks and dampness with a suitable method.

Observation-5: Non-structural elements found unbraced/unanchored (Production Building).



Description: Non-structural elements were found unbraced/unanchored. The building engineer is required to brace/anchor all non-structural elements.

Observation-06: Water ponding/vegetation on the roof slab (Production Building).

Description: Water ponding/vegetation on the roof slab (brick chips). Remove vegetation, apply a proof layer, and improve the drainage system on the roof slab.

Observation-07: Stacking of construction material on the roof slab (Production Building).

Description: Stacking of construction material on the roof slab. The building engineer is required to remove the construction material from the roof slab.

Observation-08: Column plaster damaged due to trolley impact (Production Building).

Description: Column plaster was found damaged due to the trolley impact. Repair damaged plaster and provide a column guard.

Observation-09: Cut off truss, inadequate member size and connection, Shed-1 (Utility Shed-1).

Description: Inadequate member size and connection were found. Also, some truss members were found cut off at the end. The building engineer is required to check the member and connection adequacy, submit it to RSC for review. Also, insert the cut-off members into the truss.

Observation-10: Inadequate member size and connection of steel part (Shed-2: Utility Shed-2).

Description: Inadequate member size and connection were found. The building engineer is required to check the member and connection adequacy, submit it to RSC for review.

Observation-11: Crack on the brick wall (Shed-2: Utility Shed-2).

Description: A crack was found on the brick wall. The building engineer is required to repair cracks with a suitable method.

Observation-12: Inadequate member size and connection, Shed-3 (Security & Doctors' Room).

Description: Inadequate member size and connection were found. The building engineer is required to check the member and connection adequacy, submit it to RSC for review.

Observation-13: Dampness and vegetation on the brick wall of Shed-3 (Security & Doctors' Room).

Description: Dampness and vegetation were found on the brick wall. Remove vegetation and repair dampness with a suitable method.

Observation-14: Slab supported on 125 mm thick brick wall (Fire Pump Room).

Description: Slab was found supported on a 125 mm thick brick wall. The building engineer is required to check the adequacy of the brick wall.

Observation-15: Lack of structural drawing (Shed-1, Shed-2, Shed-3, and Fire Pump Room).

Shed-1 (Utility Shed-1)

Shed-2 (Utility Shed-2)

Shed 3 (Security & Doctors' Room)

Fuel Pump Room

Description: At the time of inspection, only a set of architectural drawings was available, but no structural drawings were available for any of the structure. The building engineer produces a full set of as-built drawings, including structural drawings.

3. Action Plan

Item No	Observation	Action Plan	Timeline
1.	High stress in the foundation, considering BNBC prescribed floor live loads, which require immediate design review (Production Building).	As part of the DEA, the building engineer is required to review the design, loads, and foundation stresses.	within 6 weeks
2.		Verify the in-situ concrete strength of the footing. Also, confirm the concrete test report of the retrofitted column.	within 6 weeks
3.		Produce and actively manage the loading plan according to the floor, column & foundation capacity.	within 6 weeks
4.		Implement remediation work after acceptance from RSC.	within 6 months
5.		Implement floor load plan.	within 6 months
6.	The load plan and design report don't comply with BNBC 2006 (Production Building).	The building engineer is required to update the live load plan as per BNBC 2006.	within 6 weeks
7.	Discrepancy/missing information in the as-built (Production Building).	The building engineer is required to survey the whole structure and produce an accurate & detailed as-built drawing.	within 6 weeks
8.		Remove the undocumented steel frame from the roof.	within 6 weeks
9.	Crack and dampness on the wall (Production Building).	Identify all areas and repair cracks with a suitable method.	within 6 weeks
10.		Identify all areas and repair dampness with a suitable method.	within 6 weeks
11.	Non-structural elements found unbraced/unanchored (Production Building).	The building engineer is required to brace/anchor all non-structural elements.	within 6 weeks
12.	Water ponding/vegetation on the roof slab (Production Building).	Remove vegetation, apply a proof layer, and improve the drainage system on the roof slab.	within 6 weeks
13.	Stacking of construction material on the roof slab (Production Building).	The building engineer is required to remove the construction material from the roof slab.	within 6 weeks
14.	Column plaster damaged due to trolley impact (Production Building).	Repair damaged plaster and provide a column guard.	within 6 weeks

15.	Cut off truss/inadequate member size and connection, Shed-1 (Utility Shed-1).	Insert the cut-off members into the truss.	within 6 weeks
16.		The building engineer is required to check the member and connection adequacy as part of the safety check report, submit it to RSC for review.	within 6 weeks
17.		Implement remediation work after acceptance from RSC.	within 6 months
18.	Inadequate member size and connection of the steel part (Shed-2: Utility Shed-2).	The building engineer is required to check the member and connection adequacy as part of the safety check report, submit it to RSC for review.	within 6 weeks
19.		Implement remediation work after acceptance from RSC.	within 6 months
20.	Crack on the brick wall (Shed-2: Utility Shed-2).	The building engineer is required to repair cracks with a suitable method.	within 6 weeks
21.	Inadequate member size and connection (Shed-3: Security & Doctors' Room).	The building engineer is required to check the member and connection adequacy as part of the safety check report, submit it to RSC for review.	within 6 weeks
22.		Implement remediation work after acceptance from RSC.	within 6 months
23.	Dampness and vegetation on the brick wall of Shed-3 (Security & Doctors' Room).	Remove vegetation and repair dampness with a suitable method.	within 6 weeks
24.	Slab supported on a 125 mm thick brick wall (Fire Pump Room).	The building engineer is required to check the adequacy of the brick wall.	within 6 weeks
25.		Implement remediation work after acceptance from RSC.	within 6 months
26.	Lack of structural drawing (Shed-1, Shed-2, Shed-3, Fire Pump Room).	The building engineer produces a full set of as-built drawings, including structural drawings.	within 6 weeks