

Progress Apparels (Bangladesh) Ltd. (Extension)

MS-SFB 01& 02, Adamjee EPZ, Shiddirganj, Narayanganj.
(23.670782419, 90.5122804642)

11 December 2023



1. Building Information

Utility Building: The structure is a four-storied (G+3) reinforced concrete (RC) building.

Wash & Maintenance shed: This is a single storied steel shed.

LAB room: This is a single storied RC building.

ETP: This is a single storied RC building.

Fire Pump room: This is a single storied RC Building with basement.

Generator Room-1: This is a single storied RC Building.

Compressor Room: This is a single storied RC beam-column moment resisting frame building.

Security Control room: This is a single storied RC Building.

Childcare Room: This is a single storied RC beam-column moment resisting frame building.

Disel Storage Shed: This is a single storied steel shed.

Pump room -01, 02, Electrical Waste Room, & Cleaning Materials Room: These are single storied RC beam-column moment resisting frame building with single basement (B+G).

2. Observations

Utility Building:

Observation-1: Inadequate number of concrete cylinder test report (Utility Building).

According to the need of assessment our Sr. Engineers and team of Jr. Engineers have done the assessment. For completing the assessment we have done Ferro-scanning in number of locations, in-situ core testing of column concrete has been conducted to judge the existing cylinder strength test report, slab & beam strength has been considered from the equivalent strength of cylinder strength test report found from Factory, rebar grade has been confirmed by taking sample from the building and by testing from BUET.

Cylinder strength test confirms that the Column, slab & beam concrete strength is 4470 psi (we consider minimum concrete strength from Cylinder strength test Report). Rebar strength considered as 500+ (72.5 ksi) as per test report.

The building structure is 4(Four)-storied frame structure consisting of RCC slab, RCC beam and RCC column supported by Pile Foundation. Structural analysis has been conducted

Description: Number of cylinder test report doesn't satisfy the frequency test as per BNBC requirements although design strength is considered as 30.82 MPa (4470 Psi). The building engineer is required to conduct the in-situ concrete strength by taking adequate number of concrete core sample from low tier to confirm the design strength.

Name of pile		Pile (Size)	Pile Length (ft)	Ultimate capacity Based on Soil (kip)	
PC1		14"x14"	75'	207.75	

Bore Hole No.	Pile Length	F.S	Ultimate Q (Kip)	Total Ultimate Q (Kip)	Average Ultimate Q (Kip)
1	75	3	123.91	4154.95	207.75
2	75	3	127.91		
3	75	3	126.12		
4	75	3	176.95		
5	75	3	178.6		
6	75	3	162.71		
7	75	3	167.38		
8	75	3	155.83		
9	75	3	273.88		
10	75	3	223.84		
11	75	3	188.47		
12	75	3	252.13		
13	75	3	246.49		
14	75	3	236.36		
15	75	3	233.11		
16	75	3	213.32		
17	75	3	235.15		
18	75	3	250.83		
19	75	3	290.27		
20	75	3	291.69		

So we considered based on Bore hole 01, 02, 03, 04, 05,07,08, 09,10,11,12,13,14,15,16,17,18,19 & 20 Single Pile Capacity Q = 207.75 kip (F.S=3)

Description: 20 number of actual boreholes covered for premises & this building covers only 8 boreholes. Ultimate pile capacity is considered as 207.75 Kip which is an average value of 20 boreholes located at different locations including boreholes located away from this structure. Also, detailed calculation of pile capacity is not provided for the borehole covered for this structure. The building engineer is required to update the design report considering the actual pile capacity for the specific borehole with detail calculation.

Observation-2: Discrepancy in as-built drawing (Wash & Maintenance Shed)

SCHEDULE OF STEEL RAFTER

NAME	D (mm)	TW (mm)	BF (mm)	TF (mm)
R-101	490~300	8	175	12
R-102	300	8	175	12
R-103	300~490~300	8	175	12
R-104	300	6	150	10

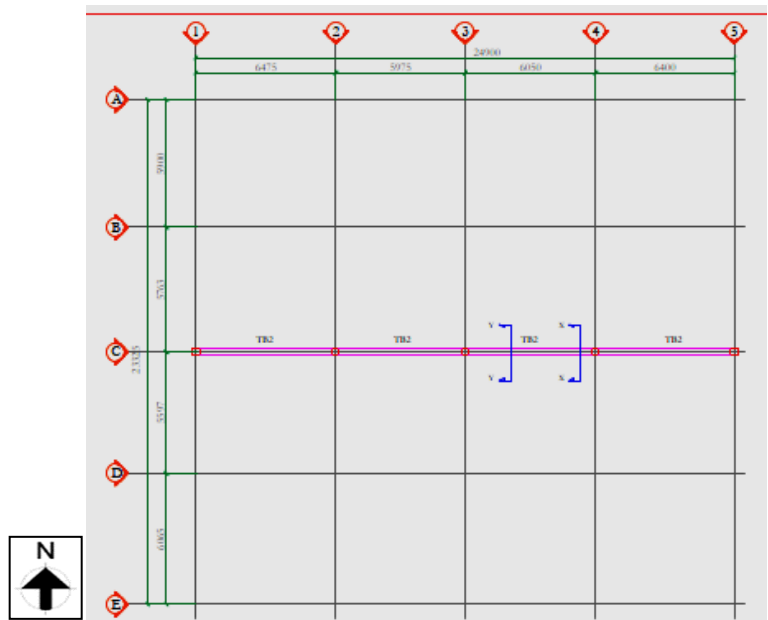


Schedule of Steel Rafter

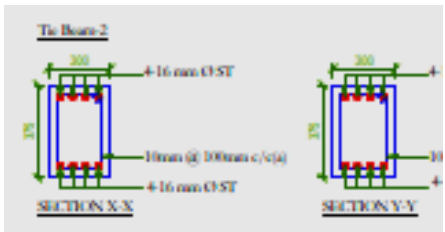
~9mm Flange thickness
of R101 onsite



~8mm Flange thickness
of R104 onsite



Tie Beam Layout Plan (+5682 mm)



Tie Beam Size (300mm X 375mm)



Tie Beam Size found.
(300mm X 300mm)

Description: During the inspection, flange thickness of R101, R102 and R104 were found 9mm instead of 12mm, and 8mm instead of 10mm respectively. And the depth of tie beam at level +5682mm was found 300mm instead of 375 mm.

Observation-3: Loose roof bracing (Wash & Maintenance Shed)



Description: Roof wire bracing was found as loosened state.

3. Action Plan

Observation	Action Plan	Timeline
Inadequate number of concrete cylinder test report (Utility Building).	The building engineer is required to confirm the design strength of in situ concrete by taking minimum 4 number of cores from lower-tier columns.	within 6 weeks
Inadequate number of concrete cylinder test report (Utility Building).	The building engineer is required to revise the design report based on in-situ material strength & actual soil bearing capacity and submit it to the RSC for review.	within 6 weeks
Inadequate number of concrete cylinder test report (Utility Building).	Carryout remedial works if required.	within 6 months
Discrepancy in as-built drawing (Wash & Maintenance Shed)	Building engineer is required to survey whole structure, prepare accurate as-built drawings as per site condition and update design report along with analysis file.	within 6 weeks
Discrepancy in as-built drawing (Wash & Maintenance Shed)	Carry out suggested remedial works if required.	within 6 months
Loose roof bracing (Wash & Maintenance Shed)	Building engineer is required to tighten the loose bracing.	within 6 weeks