

Rich Cotton Apparels Limited

Sardaganj, Kashimpur, Gazipur Sadar, Gazipur, Bangladesh

(23.981481, 90.294059)

29 April 2024



1. Building Information

Factory Shed Building is a two-storied pre-fabricated steel structure.

Utility Building is a two-storied (G+1) RC building.

Facility Shed: is a single storied steel shed.

Office Shed: is a single storied steel shed.

Guard Room: is a single storied masonry structure with a portion of steel shed.

Wastage shed: is a masonry structure with a wooden frame roof.

Car Parking shed is a single storied steel shed.

Water Tank Platform is a steel beam-column frame structure.

2. Observations

Observation-1: The design report required to be revised. (Factory Shed Building)

3.5 Assessment of Materials Strength
Materials like MS Plates, concrete, rebars are investigate against their perspective strength and details are given below.

3.5.1 Concrete Strength
During the construction of the building the concrete was investigated very carefully. The concrete strength was considered in this assessment **3.5 ksi**.

3.5.2 Rebar Scanning
Rebar strength was considered 60 grades.

3.5.3 Plate test
MS plates for pre-engineered building shed were considered 50 grades.

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)
DEPARTMENT OF CIVIL ENGINEERING
CONCRETE LABORATORY

BUET No: 1182/7988-02-Z/ICE: 01/20/2022
Serial No: LA-01/2022, 01/20/2022
Date: 01/20/2022
Project: 02 Classroom Building (Pre-Cast Concrete) (UG, Technology, Dhaka, Bangladesh, Bangladesh)
Sample: Concrete Cylinder (Pre-Cast Concrete) (UG, Technology, Dhaka, Bangladesh)
Location: Dhaka
Test: Compressive Strength Test of Concrete Cylinder (IS 10138)
Date of Test: 10/01/2022

Sl. No.	Serial No. of Casting as per the Test	Specimen Shape	Specimen Area (sq. cm)	Specimen Length (cm)	Compressive Strength (kg/cm ²)	Average Compressive Strength (kg/cm ²)	Remarks
1	101/0002	Rock Column	30.18	30.18	34.5	34.5	Compressed
2	101/0003	Rock Column	30.18	30.18	34.5	34.5	Compressed

BUETCE 01A.7774

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)
DEPARTMENT OF CIVIL ENGINEERING
CONCRETE LABORATORY

BUET No: 1182/7988-02-Z/ICE: 01/20/2022
Serial No: LA-01/2022, 01/20/2022
Date: 01/20/2022
Project: 02 Classroom Building (Pre-Cast Concrete) (UG, Technology, Dhaka, Bangladesh)
Sample: Concrete Cylinder (Pre-Cast Concrete) (UG, Technology, Dhaka, Bangladesh)
Location: Dhaka
Test: Compressive Strength Test of Concrete Cylinder (IS 10138)
Date of Test: 10/01/2022

Sl. No.	Serial No. of Casting as per the Test	Specimen Shape	Specimen Area (sq. cm)	Specimen Length (cm)	Compressive Strength (kg/cm ²)	Average Compressive Strength (kg/cm ²)	Remarks
1	101/0002	Rock Column	30.18	30.18	34.5	34.5	Compressed
2	101/0003	Rock Column	30.18	30.18	34.5	34.5	Compressed

BUETCE 01A.7774

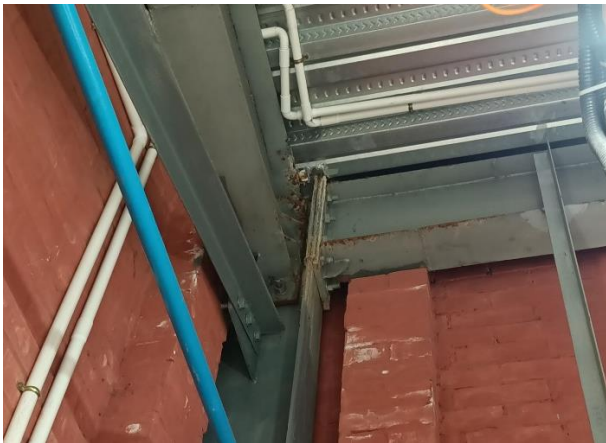
Description: In the design report, the compressive strength of concrete was considered 3500 psi. The factory has provided only 2 sets of concrete cylinder test reports from the footing & slab, but no cylinder test report was found from the short column, which doesn't comply with the frequency of testing requirement of BNBC (section- 5.12.2).

Observation-2: Inconsistencies in as-built drawings. (Factory Shed Building)



Description: Sub-beam at the toilet portion didn't fully match with drawings. All sub-beams were found as SB1 [W(250x5), F(100x6)] instead of SMB [W(450x6), F(175x8)]. Also, the connection bridge (at the West) was not shown in the drawings. The building engineer is required to update the as-built drawing reflecting the actual site condition.

Observation-3: Corrosion in steel member. (Factory Shed Building)



Description: Corrosion was in the steel member. The building engineer is required to provide rust-proof paint on corroded steel member to protect from corrosion.

Observation-4: Connection gap and bolt missing. (Factory Shed Building)



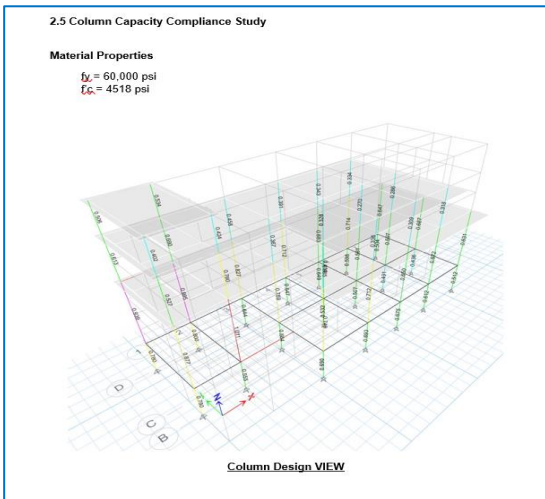
Description: Connection gaps and bolt missing were observed in the steel joint. The building engineer is required to carry out suitable remedial works.

Observation-5: Non-structural elements not anchored or braced. (Factory Shed Building)



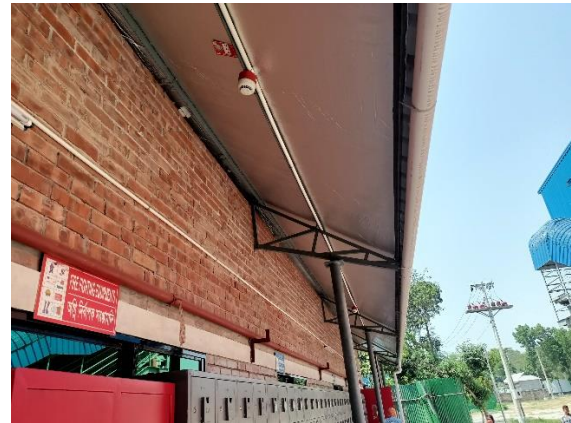
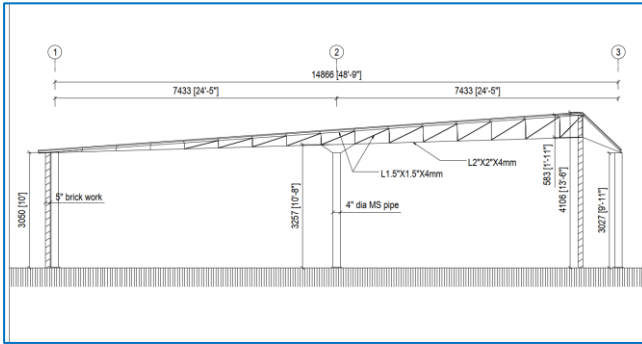
Description: Some racks on floors are not anchored or braced to resist lateral (earthquake) forces. The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.

Observation-6: The design report required to be revised. (Utility Building)



Description: In the design report, the compressive strength of concrete was considered more than 4500 psi. The factory didn't provide any cylinder test report for the building. Also, a 10,000 L PVC water tank was found at the stair top. Slab adequacy check needs to be incorporated in the revised EA and submitted to RSC.

Observation-7: Lack of information in as-built drawings. (Facility Shed)



Description: Sectional details were not fully matched with the drawings. Also, connection details were not found. The building engineer is required to update the as-built drawing providing all connection details.

Observation-8: Lack of lateral stability. (Facility Shed)



Description: Lateral load transfer media was found missing in North-south direction. Also, truss frames were welded with the steel pipe column. Building engineer is required to check the connection adequacy and lateral stability of the structure.

Observation-09: Lack of structural drawings. (Office Shed Part-1)



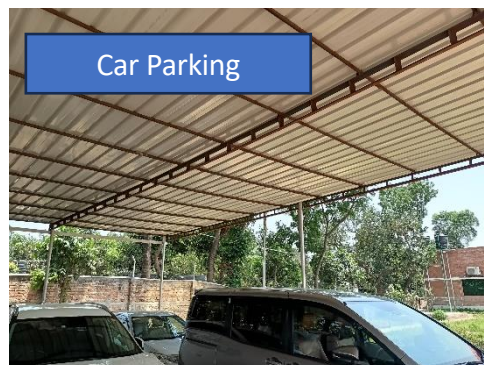
Description: Structural drawings were not available for the Office Shed (South Part). Building engineer is required to prepare a full set of structural drawing for the shed.

Observation-10: Apparently inadequate connection. (Office Shed Part-2)



Description: Inadequate connections were observed at the lightweight roof of the single-storied wooden sheds. The building engineer is required to check the connection adequacy of the lightweight roof against the uplift forces.

Observation-11: Lack of as-built drawings (Guard Room, Waste Shed, Car parking and Water tank platform).



Description: As-built drawings were not available for the single-storied Guard Room, Waste Shed, Car parking and Water tank platform. The building engineer is required to survey the whole structure and prepare a full set of as-built drawings.

Observation-12: Deflected beam under water tank platform. (Water tank platform)



Description: Deflected beam was observed under water tank platform by visual inspection. The building engineer is required to check the adequacy of the steel beam and suggest proper remedial methods.

3. Action Plan:

Serial No	Observation	Action Plan	Timeline
1	The design report required to be revised. (Factory Shed Building)	The building engineer is required to check & confirm the material strength in the design report and revise the design accordingly. Submit the revised documents to the RSC for review.	within 6 weeks
2	The design report required to be revised. (Factory Shed Building)	Implement the remedial works if required.	within 6 months
3	The design report required to be revised. (Factory Shed Building)	Implement floor load plan.	within 6 months
4	Inconsistencies in as-built drawings. (Factory Shed Building)	The building engineer is required to update the as-built drawing reflecting the actual site condition.	within 6 weeks
5	Corrosion in steel member. (Factory Shed Building)	The building engineer is required to provide rust-proof paint on corroded steel member to protect from corrosion.	within 6 months
6	Connection gap and bolt missing. (Factory Shed Building)	The building engineer is required to carry out suitable remedial works. Also, install missing bolts where necessary.	within 6 months
7	Non-structural elements not anchored or braced. (Factory Shed Building)	The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.	within 6 months
8	The design report required to be revised. (Utility Building)	The building engineer is required to check & confirm the material strength in the design report and revise the design accordingly. Submit the revised documents to the RSC for review.	within 6 weeks
9	The design report required to be revised. (Utility Building)	Implement the remedial works if required.	within 6 months
10	The design report required to be revised. (Utility Building)	Implement floor load plan	within 6 months
11	Lack of information in as-built drawings. (Facility Shed)	The building engineer is required to update the as-built drawing including all connection details.	within 6 weeks
12	Lack of lateral stability. (Facility Shed)	Building engineer is required to check the connection adequacy and lateral stability of the structure.	within 6 weeks
13	Lack of lateral stability. (Facility Shed)	Carry out remedial works if required.	within 6 months
14	Lack of structural drawings. (Office Shed-Part-1)	Building engineer is required to prepare a full set of structural drawing for the shed.	within 6 weeks

15	Apparently inadequate connection. (Office Shed Part-2)	The building engineer is required to check the connection adequacy of the lightweight roof against the uplift forces.	within 6 weeks
16	Apparently inadequate connection. (Office Shed Part-2)	Carry out remedial works if required.	within 6 months
17	Lack of as-built drawings (Guard Room, Waste Shed, Car parking and Water tank platform).	The building engineer is required to survey the whole structure and prepare a full set of as-built drawings.	within 6 weeks
18	Deflected beam underwater tank platform. (Water tank platform)	The building engineer is required to check the adequacy of the steel beam and suggest proper remedial methods.	within 6 weeks
19	Deflected beam underwater tank platform. (Water tank platform)	Carry out remedial works if required.	within 6 months