

Majumder Garments Ltd (relocation) (Extension)

Majumder Center, 113/1, Mudafa Paschim Para, Tongi, Gazipur
(23.901078, 90.366939)

16 October 2024



1. Building information

Two Storied Steel Shed Building is two-storied pre-fabricated steel structure.

Loading-Unloading Shed is a single-storied steel shed.

Security Building: is single storied reinforced concrete (RC).

2. Observations

Observation-01: Inconsistencies in provided design document. (Two Storied Steel Shed Building).

3.2.2 EARTHQUAKE LOAD:		
Earthquake Load Calculation:		
Earth load calculation of the building has been performed based on the Part 6, Chapter 2 Titled "Loads" of the Bangladesh National Building Code (BNBC 2020). The Factors considered for earthquake load		
Seismic zone co-efficient, Z	Table 6.2.22	Zone-2
Structural importance co-efficient, I	Table 6.2.23	Standard Occupancy Structures 1.00
C_t	2.5.6.2 a. Method A	0.083 (MKS unit)
Response modification co-efficient, R	Table 6.2.24	OMRF= 3.25
Site co-efficient, S	Table 6.2.25	$S_3 = 1.35$
Seismic Design Category	Table 6.2.18	D

R. S. SOIL & FOUNDATION ENGINEERS			
SITE:- DAG NO. C. S. - 662, 633 (648, 647, 649, 663), R. S. - 1163, 1162 (1156, 1154), J. L. NO. - 125, PLOT. - 113/1, MOUZA - KAKIL SATTAISH, MODAFA PACHIM PARA, TONGI, GAZIPUR, BANGLADESH.			
Bore Hole No.01			
Date of Start	Type of drilling: Manual drive (Hand Wash)		
Date of Completion	TBM taken on top of Carpeting road, TBM = 100.00		
Weather	SUNNY	RL= (+) 0'-0"	GWL = (-) 0'-0"
Total Depth = 70'-0"			

Seismic consideration in DEA report

SPT up to 21.34m

Description: The referred section (marked above) in the DEA report does not match BNBC-2020. The response modification co-efficient, $R=3.25$ has been considered for the structure. The seismic force-resisting system along the east-west direction is the Moment Resisting Frame system. But for the Soil site classification of SD ($S=1.35$) and Seismic design category- D, OMRF is not permitted for the Moment Resisting Frame (BNBC-6.2.19-C). Building engineer is required to clarify the issue. Also for the soil site classification, average Soil properties of 30m in top is required. Provided soil test report was showing the soil boring of 21.34m.



Description: Connection adequacy check for the bracing and other collector members has not been provided in the DEA report. The building engineer is required to revise the prepared design document and submit it to RSC for further review.

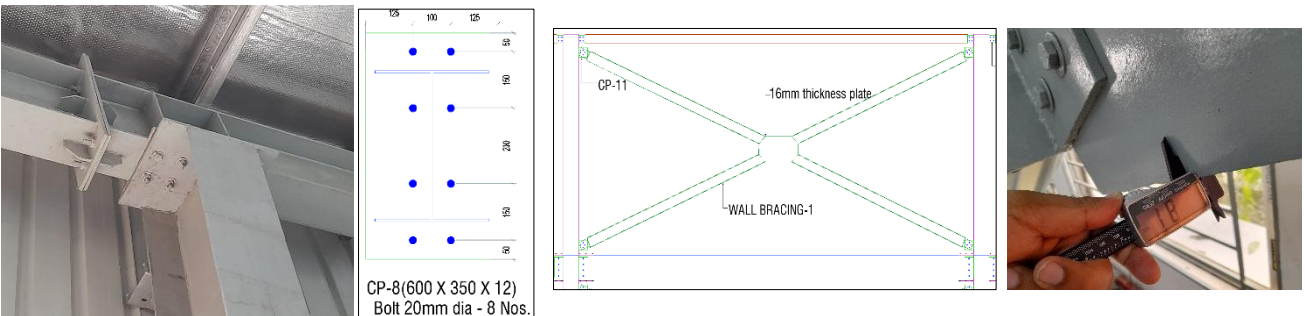
Observation-02: Inconsistencies in as-built drawings. (Two Storied Steel Shed Building)



Wall bracing was found missing at 1st floor and ground floor at Grid-1,2&3.



SC2 & SC6 columns were found regular shape on 1st floor, but the column has been mentioned as a tapered shape in the drawing.



Connection details of CP-8

Connection details of bracing

Description: Connection details of CP-8 do not match with site conditions. The bolt arrangement does not Match. The orientation between the column and rafter was found mismatched. The connection details of the wall bracing do not match the site condition. The thickness of the gusset plate was found 8mm instead of 16mm. The building engineer is required to update the as-built drawing for the structure as per site condition

Observation-03: Corrosion in steel member. (Two Storied Steel Shed Building)



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

Observation-04: Gap found in connection. (Two Storied Steel Shed Building)



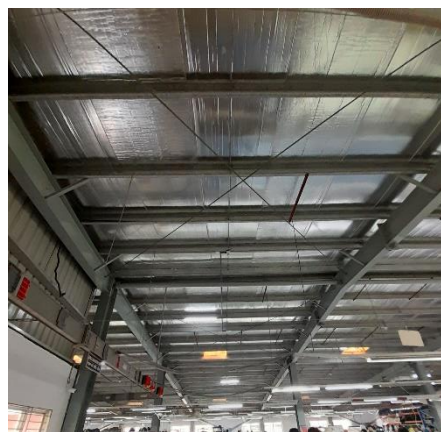
Description: Connection gaps and bolt missing were observed in the steel joint. The building engineer is required to carry out suitable remedial works.

Observation-05: Non-structural elements not anchored or braced. (Two Storied Steel 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-06: Loose cable bracing. (Two Storied Steel Shed Building)



Description: During inspection, roof Cable bracing was found loose. The building engineer is required to tighten the roof bracing.

Observation-07: Lack of as-built drawing. (Loading-Unloading shed).



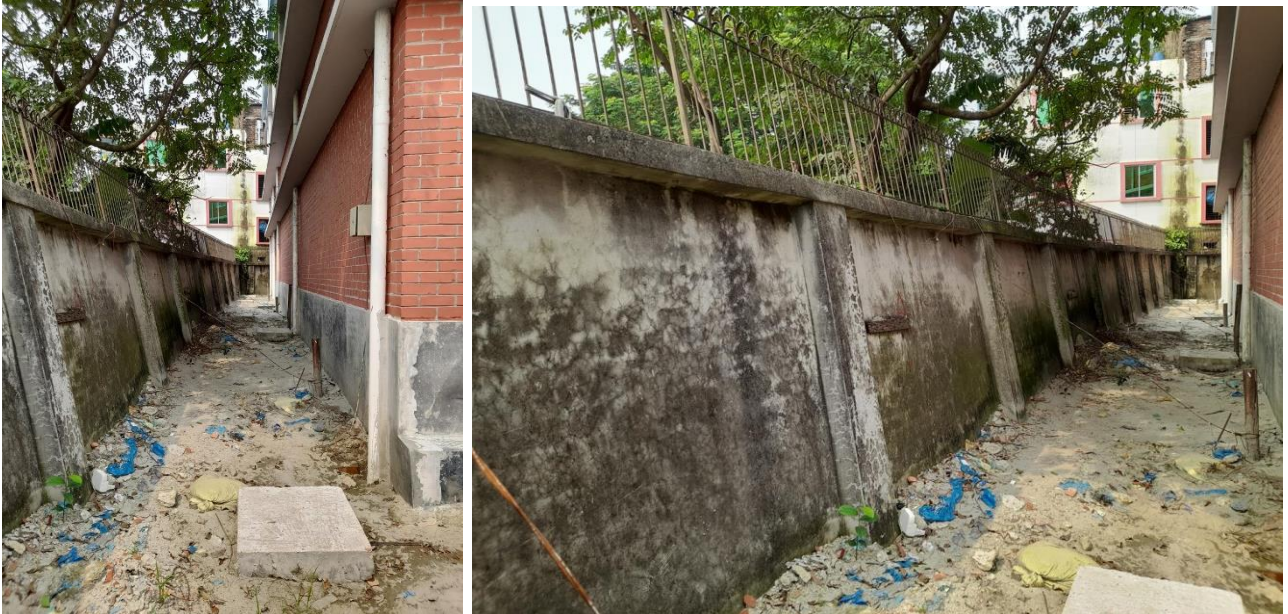
Description: As-built drawings (architectural and Structural) drawings were not available for the loading-unloading shed. Building engineer is required to prepare a full set of as-built drawing for the shed.

Observation-08: Lack of as-built drawing. (Security Building)



Description: As-built drawings (architectural and Structural) drawings were not available for the Security Building. Building engineer is required to prepare a full set of as-built drawing for the shed.

Observation-09: The boundary wall leaned to the west side of Two Storied Steel Shed Building.



Description: A boundary wall outward the factory premises. The outward side of the boundary wall is low land. The building engineer is required to investigate the reason for the tilting of the wall and suggest proper remedial action.

3. Action Plan:

Serial No	Observation	Action Plan	Timeline
1	Inconsistencies in provided design document. (Two Storied Steel Shed Building).	The building engineer is required to revise the EA of the structure and submit to the RSC for review.	within 6 weeks
2	Inconsistencies in provided design document. (Two Storied Steel Shed Building).	Implement the remedial works if required.	within 6 months
3	Inconsistencies in as-built drawings. (Two Storied Steel Shed Building).	The building engineer is required to update the as-built drawing reflecting the actual site condition.	within 6 weeks
4	Corrosion in steel member. (Two Storied Steel Shed Building).	The building engineer is required to repair the corrosion and provide rust-proof coating on steel member.	within 6 months
5	Gap found in connection. (Two Storied Steel Shed Building).	The building engineer is required to carry out suitable remedial works.	within 6 months
6	Non-structural elements not anchored or braced. (Two Storied Steel Shed Building).	The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.	within 6 months
7	Loose cable bracing. (Two Storied Steel Shed Building).	Building engineer is required to tighten the loose bracing.	within 6 weeks
8	Lack of as-built drawing. (Loading-Unloading shed).	The building engineer is required to survey the whole structure and prepare a full set of as-built drawings.	within 6 weeks
9	Lack of as-built drawing. (Security Building).	The building engineer is required to survey the whole structure and prepare a full set of as-built drawings.	within 6 weeks
10	The boundary wall leaned to the west side of Two Storied Steel Shed Building.	The factory is required to take necessary action to prevent the potential collapse of the boundary wall and provide the entry restriction to that location.	Immediate
11	The boundary wall leaned to the west side of Two Storied Steel Shed Building.	The Building is required to suggest remedial action for the boundary wall, otherwise reconstruct a properly designed wall.	within 6 months