REEDISHA TEXSTRIPE LTD. (EXTENSION)

TEKNOGPARA, CHANDONA, SALNA, GAZIPUR

(24.013200, 90.383750)

26 January 2025

RSC RMG SUSTAINABILITY COUNCIL

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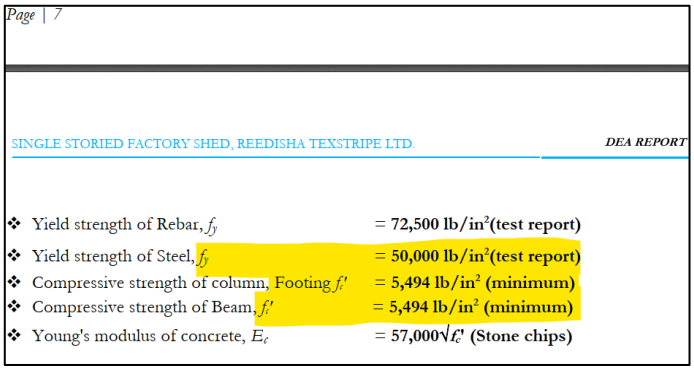
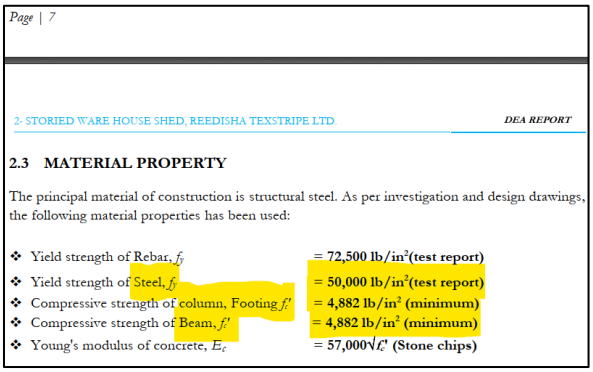
1. Building Information

1) **Building 6 [New Boiler]:** Single-storied masonry structure with a steel deck roof.
2) **Building 11 [Factory Shed Unit-2]:** Single-storied steel structure.
3) **Building 12 [Idle Machine Shed]:** Single-storied mono-slope steel structure.
4) **Building 13 [Warehouse Shed]:** Two-storied steel structure.

2. Observations

Observation-1: Inconsistency and lack of information in the EA report (Building 11, Building 13).





Concrete strength (f'c) was considered 37.8 MPa and 33.67 MPa but core strength evaluation calculation, was not incorporated. Also, all steel member strength was considered 345 MPa but adequate number of plate test reports were not provided.

Regarding the earthquake resistant structural design, it essential that the specific design code is followed. For the analysis and design checking of this building, *Equivalent Static Force Method* of BNBC (2006) is followed. The main considerations for calculation of earthquake load are given below.

- Zone co-efficient, Z = 0.15 (Zone 2, As Per BNBC 2006)
- Structure importance co-efficient, I = 1.00 (Standard Occupancy, Table 6.2.23, BNBC 2006)
- Where Numerical co-efficient, Ct = 0.03 in SI unit for RCC moment resisting frame.
- Response modification co-efficient, R (For RCC) = 8 (IMRF, Table 6.2.24, BNBC)
- Response modification co-efficient, R (For Steel) = 6 (OMF, Table 6.2.24, BNBC)
- Site co-efficient, $S3$= 1.5 (type 3 soil as suggested in Table 6.2.25, BNBC)

2.5 METHOD OF ANALYSIS

Seismic response modification coefficient R=8 was considered but no checks were provided to confirm the IMRF system for the RCC portion.

Description: The building engineer is required to conduct necessary testing of the steel member (plate & angle) to confirm the 345 MPa design strength for all steel members. Incorporate all IMRF checks as per BNBC Part-VI section 8.3.10 and the core strength evaluation calculation in the EA report.

These checks should be verified and incorporated into the design report to ensure full alignment with the code provisions.

Observation-2: Lack of geotechnical investigation report (Building 11, Building 13).

3. Considered Bore Hole No=3
4. Allowable Bearing capacity for FOS 2.5 at 9.2 feet depth = 3.84 ksf

Foundations are found to adequate in both bearing & punching capacity.

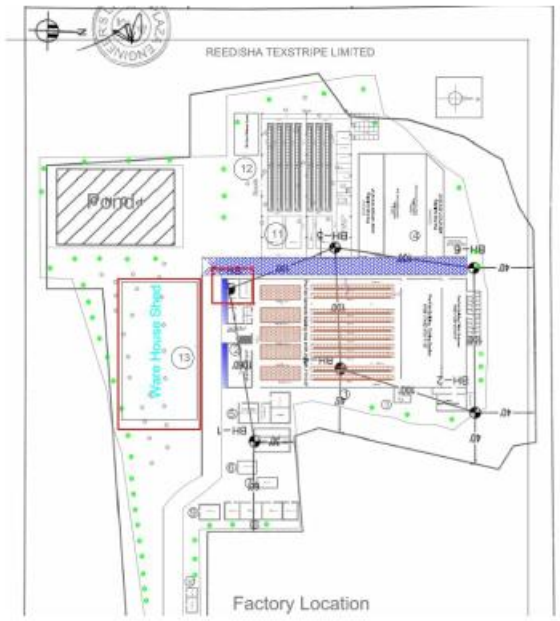


Figure 3.1.1: Bore Hole Layout Plan

Description: Foundation adequacy checks were incorporated in the EA report considering one borehole of data from the nearest existing building location. But no geotechnical investigation report was conducted in the mentioned building locations.

As per the BNBC, on uniform soils, at least three borings should be made for small buildings and at least five borings one at each corner and one at the middle should be made for large buildings.

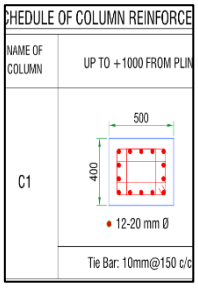
The building engineer is required to conduct necessary geotechnical testing/investigation to confirm the foundation adequacy checks.

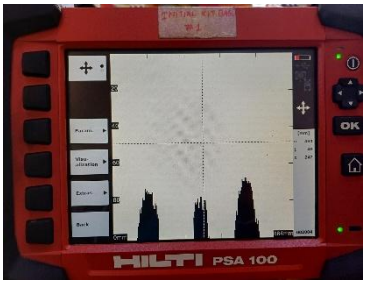
Observation-3: Lack of lateral load transfer media (strut) and load resisting system. (Building 11)

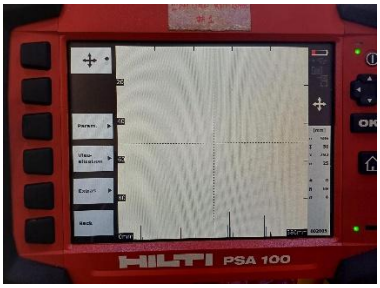
Building 11: lack of compression strut in E-W direction.

Description: Lack of bracing system along the long direction of the shed was observed. The building engineer is required to check the lateral stability and suggest adequate size of strut member. Submit the EA report to RSC for review.

Observation-4: Discrepancy between the provided drawing and site condition (Building 11).







As per drawing, all RC column is C1 with 12 no's re-bar profile

On-site ferro scanning, the RC column C1 re-bar profile found 10 no's instead of 12 no's

Description: During inspection, the discrepancy was found between the provided as-built drawing and the actual site condition. The building engineer is required to survey the structure and update the as-built drawing as per the actual site condition.

Observation-5: Distorted steel column (Building 11).

Description: During the inspection, distorted steel column flange was observed in several locations. The factory is required to identify the location and repair the damaged steel column flange with suitable method.

Observation-6: Loose cable bracing (Building 11).

Description: During the inspection, loose bracings were observed. The factory is required to tighten up the loose bracings.

Observation-7: Lack of lateral load transfer media (bracing & strut) and load resisting system. (Building 12).

Building 12: lack of bracing & strut in E-W direction.

Description: Lack of bracing system along the long direction of the shed was observed. The building engineer is required to check the lateral stability and suggest adequate size of bracing and strut member. Prepare a safety check report as per the Accord Building Standard and submit to RSC for review.

Observation-8: Lack of lateral load transfer media (bracing & strut) and load resisting system. (External Steel Stair & Parking (Building 13))

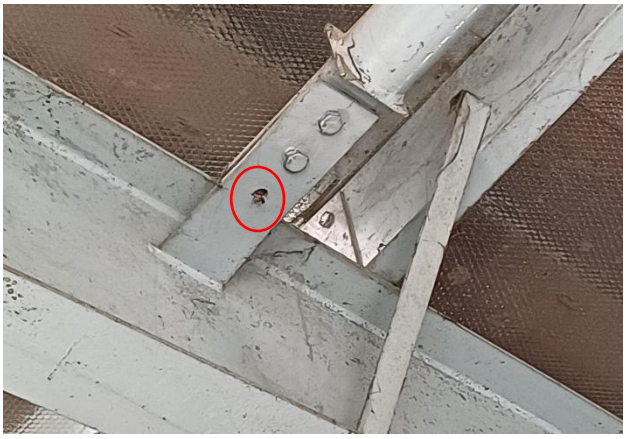
Building 13: lack of lateral stability in Steel stair & parking

Description: Lack of bracing system along the long direction of the shed was observed. The building engineer is required to check the lateral stability and suggest adequate size of bracing and strut member. Prepare a safety check report as per the Accord Building Standard and submit to RSC for review.

Observation-9: Connection gap on steel plates (Building 13).

Description: During the inspection, connection gaps were observed in several rafter-column joints. The factory is required to identify the location and tighten up the connection joints or fill the connection gap with shim plate if required.

Observation-10: Nut-bolt missing (Building 13).



Description: During the inspection, the missing nut-bolt was found in several locations. The factory is required to identify the location and install all missing nut bolts.

Observation-11: Possible falling hazard in the load-unload zone (Building 13).

Description: During the inspection, it was noted that the elevated loading-unloading platform lacked railings or barriers at its edges, creating a potential falling hazard.

The factory is required to install appropriate safety barriers or railings to mitigate the risk of falls and ensure compliance with safety standards.

3. Action Plan:

Item No	Observation	Action Plan	Timeline
1.	Inconsistency and lack of information in the EA report. (Building 11)	The building engineer is required to revise the EA report and submit to RSC for review.	within 6 weeks
2.		Carry out remedial work if required.	within 6 months
3.	Lack of geotechnical investigation report. (Building 11)	The building engineer is required to conduct necessary geotechnical testing/investigation to confirm the foundation adequacy checks.	within 6 weeks
4.	Lack of lateral load transfer media (strut) and load-resisting system. (Building 11)	The building engineer is required to check the lateral stability and suggest adequate size of strut member. Submit the EA report to RSC for review.	within 6 weeks
5.		Carry out remedial work.	within 6 months
6.	Discrepancy between the provided drawing and site condition (Building 11).	The building engineer is required to survey the structure and update the accurate as-built drawing as per actual site condition.	within 6 weeks
7.	Distorted steel column. (Building 11)	The factory is required to identify the location and repair the damaged steel column flange with suitable method.	within 6 months
8.	Loose cable bracing. (Building 11)	The factory is required to tighten up the loose bracings.	within 6 weeks
9.	Lack of lateral load transfer media (bracing & strut) and load resisting system. (Building 12)	The building engineer is required to check the lateral stability and suggest adequate size of bracing and strut member. Prepare a safety check report as per the Accord Building Standard and submit to RSC for review.	within 6 weeks
10.		Carry out remedial work.	within 6 months
11.	Inconsistency and lack of information in the EA report. (Building 13)	The building engineer is required to revise the EA report and submit to RSC for review.	within 6 weeks
12.		Carry out remedial work if required.	within 6 months
13.	Lack of geotechnical investigation report. (Building 13)	The building engineer is required to conduct necessary geotechnical testing/investigation to confirm the foundation adequacy checks.	within 6 weeks

Item No	Observation	Action Plan	Timeline
14.	Lack of lateral load transfer media (bracing & strut) and load resisting system. (External Steel Stair & Parking (Building 13))	The building engineer is required to check the lateral stability and suggest adequate size of bracing and strut member. Prepare a safety check report as per the Accord Building Standard and submit to RSC for review.	within 6 weeks
15.		Carry out remedial work.	within 6 months
16.	Connection gap on steel plates (Building 13).	The factory is required to identify and tighten up the connection joints or fill the connection gap with shim plate if required.	within 6 weeks
17.	Nut-bolt missing (Building 13).	The factory is required to identify and install all missing nut-bolts.	within 6 weeks
18.	Possible falling hazard in the load-unload zone (Building 13).	The factory is required to install appropriate safety barriers or railings to mitigate the risk of falling and ensure compliance with safety standards.	within 6 weeks