

SQ Celsius Ltd. (Unit 3)

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(24.28319, 90.39518)

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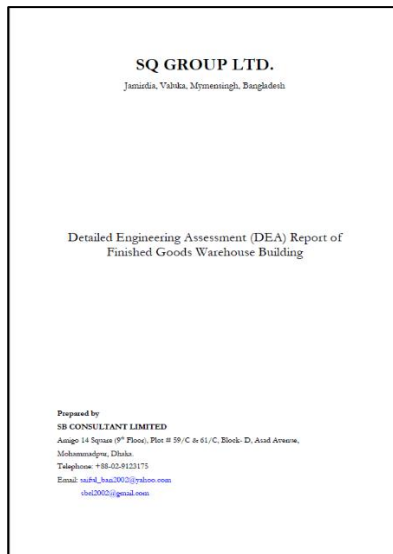


1. Building Information

Finished Goods Warehouse is a two (G+1) storied steel building.

2. Observations

Observation-1: Prepared design documents need to be reviewed against lateral loading (Finished Goods Warehouse).



Design report

Sl. No.	Sample Identification	Length (mm)	Diameter (mm)	Compressive Strength (MPa)	Compressive Strength (psi)	Failure Type	Remarks
1	24.10.2021	300	100	36.0	5200	Concrete	Concrete
2	24.10.2021	300	100	36.0	5200	Concrete	Concrete
3	24.10.2021	300	100	36.0	5200	Concrete	Concrete

Test report of footing dated 24 Oct 2021

Description: As per the cylinder test report, the construction of the building foundation was 24-Oct-2021. The factory verbally confirmed that the construction of the building was between December 2018 to July 2022. But the approval from the permit authority is dated 28 April 2022. The design report has been prepared based on the building code BNBC-2006. The building engineer is required to justify the applicability of the building code and update the design report accordingly.

Observation-2: Verify in-situ concrete strength (Finished Goods Warehouse).

3.3 MATERIAL PROPERTY	
The principal material of construction is steel. As per investigation and design drawings, the following material properties has been used:	
❖ Yield strength of purlin	= 36,000 lb/in ²
❖ Yield strength of Structural Steel,	= 50,000 lb/in ²
❖ Yield strength of Bracing ,	= 36,000 lb/in ²
❖ Yield strength of Rebar, f_y (Both Condition)	= 60,000 lb/in ²
❖ Compressive strength of concrete for footing, f'_c	= 3,600 lb/in ²
❖ Compressive strength of concrete for column, f'_c	= 3,600 lb/in ²
❖ Compressive strength of concrete for beam, f'_c	= 3,600 lb/in ²
❖ Young's modulus of concrete, E_c (Stone Chips)	= 57,000 $\sqrt{f'_c}$

Strength consideration in Design report

Sl. No.	Sample Identification	Length (mm)	Diameter (mm)	Compressive Strength (MPa)	Compressive Strength (psi)	Failure Type	Remarks
1	18.10.2022	300	100	24.1	3500	Concrete	Concrete
2	18.10.2022	300	100	24.1	3500	Concrete	Concrete
3	18.10.2022	300	100	24.1	3500	Concrete	Concrete

Cylinder test report of 1st floor

Description: Total Six sets of cylinder test of report was available during the inspection: two sets from ground floor slab, two sets from 1st floor slab, one set from short column & one set from footing. Adequate number of concrete cylinder test reports were not available as per BNBC to meet the frequency of test.

The cylinder test report was not available for the grade beam.

Additionally, concrete compressive strength f'_c has been considered 3600 psi (24.83 MPa) in the design report. But in the cylinder test report, concrete strength achieved 3500 (24.13 MPa) for the 1st floor slab. Also, in the test report it is mentioned that the design strength (target strength) is 4000 psi (27.59MPa).

Observation-3: Corrosion on steel member (Finished Goods Warehouse).



Image of corrosion

Description: Appearance of the corrosion was found at several locations of the steel section. Periodic maintenance is required to protect the steel sections from corrosion.

3. Action Plan

Observation	Action Plan	Timeline
Prepared design documents need to be reviewed against lateral loading (Finished Goods Warehouse).	The factory is required to submit the full set of design documents to the RSC for detailed review against lateral forces.	within 6 weeks
	Carry out suggested remedial works if required.	within 6 months
Verify in-situ concrete strength	Verify in-situ material strength by providing required number of cylinder test report or by taking concrete core from the RC members.	within 6 weeks
Corrosion on steel member	Remove the corrosion from steel member and apply anti-corrosive coating.	within 6 months