

Triple Apparels Ltd.

Kewa, Sreepur, Gazipur
(24.213105, 90.432718)

24th September 2020



Buildings Information

1. Main Factory Building (Existing G+2, Proposed G+5)
2. Utility Building (Existing B+G+1, Proposed B+G+2)
3. Substation Building (single storied)

Observations

**Prepared design report required to
be revised**

This building is permitted for 6 (G+5) storied from local authority. Currently, the building is partial 3 storied. Factory has provided a proposed drawings and design report for six storied building.

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Design Report

Executive Summary

1. Basic information of the building is given in following table.

7	Bldg Name & No	Nagar Apartment 10A
8	Address	Krishna Nagar, Sanganur, Bangalore.
9	Type of Work	Residential RCC framed R/C Building (3 Staired / 2 Storey)
10	Floor Area	5000 Sq.ft
11	Type of Construction	Under construction
12	Building Occupancy	None today
13	As built Drawing Prepared by	Factory, checked by Akshay Chandra

2. Site Observation:

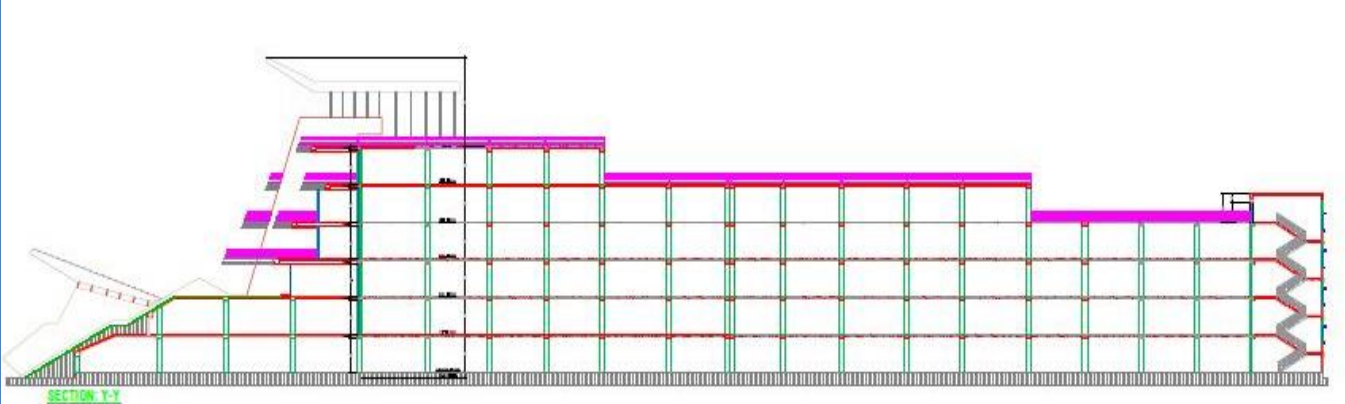
Sedimentation: No significant differential settlement was detected (by measuring plumb level at four corners) and no cracks were noticed in beam joints with columns and ground level which indicates no risk.

3. Results & Materials Evaluation:

Sl. No.	Item with Description	Evaluated Strength All per ACI 308	Remarks
G1	Concrete Compression Strength for Columns, Ft.	4300 psi	As per Minimum Strength
G2	Concrete Compression Strength for Footing, Slabs, Stab, Ft.	4000 psi	As per Minimum Strength
G3	Steel Yield Strength, Ft., for All members	72,500 psi	As per Minimum Strength


 Address:
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Design report



Proposed Building



Existing building

Shear wall adequacy check was not provided in the design report. Also, No irregularity check was provided in the design report. Incorporate all kinds of irregularity (Torsional, mass, Diaphragm Discontinuity, stiffness, etc.) check in design report according to BNBC.

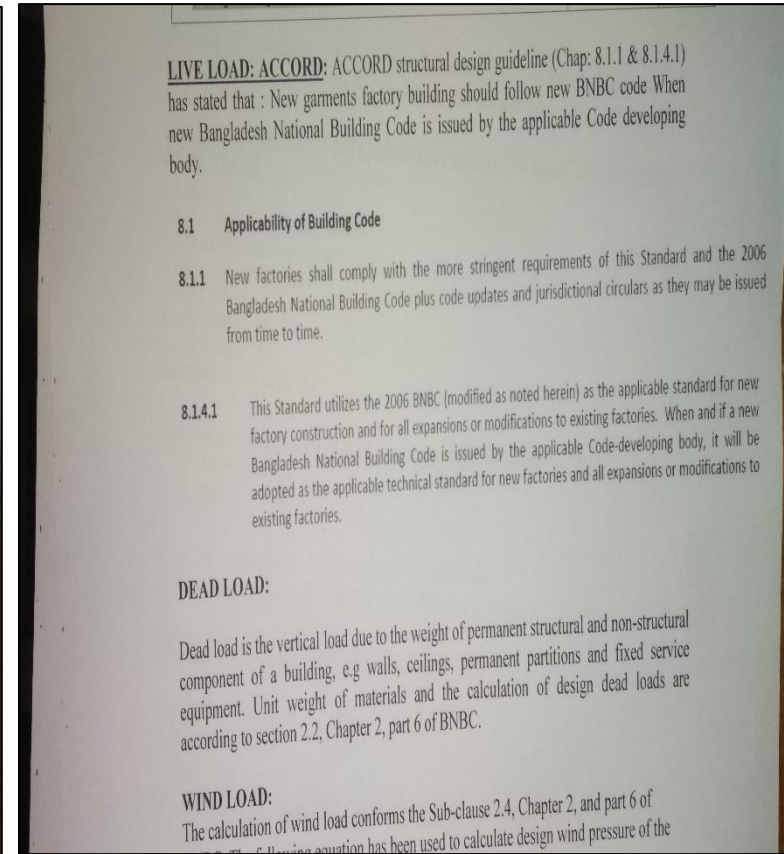
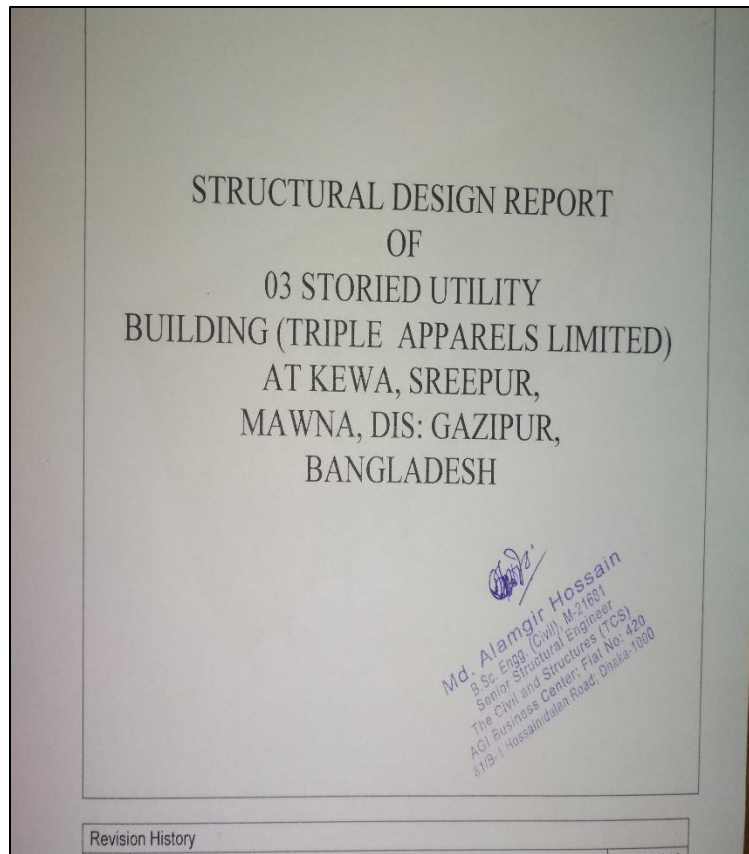
Improper drainage and stacking of construction material on existing roof



Proper drainage system has not applied at current roof of the main factory building. Also, stacking of construction materials were found at roof.



Incomplete Design Report



According to BNBC 2006 Part 6 Section 1.9.1.1 , Design Report must include computer model analysis results including all axial force, shear force, bending moment etc. But in the Design report of the Utility building, only the deflections have been listed. Moreover, responsible engineer's statement about the validity of the design also wasn't available in the design report

Table 1: Floor occupancy and live load

Serial	Floor	Use of floor	Live load (kN/m ²)
1	Ground floor	Substation room	20
2	1 st floor	Compressor room	12
3	2nd floor	Light manufacture	5
4	3rd floor	Roof	5

LIVE LOAD: BNBC - 2010: As per BNBC 2010 (Table 2.3.1 Minimum Uniformly Distributed and Minimum Concentrated Live Loads) Live load for Light manufacturing (Garments) is 5 kN/m². But to be on safe side "

In the Design Report a live load of 20 kPa is considered for ground floor and 12kPa is considered for 1st floor. But slab adequacy check for this heavy loading is not included in the design report.



2nd floor



1st floor

Corroded and exposed rebar at roof.

Corrosion was observed on all exposed reinforcement on existing roof top columns. Factory must provide adequate protection to the structural elements from corrosion.



Exposed rebar at Column

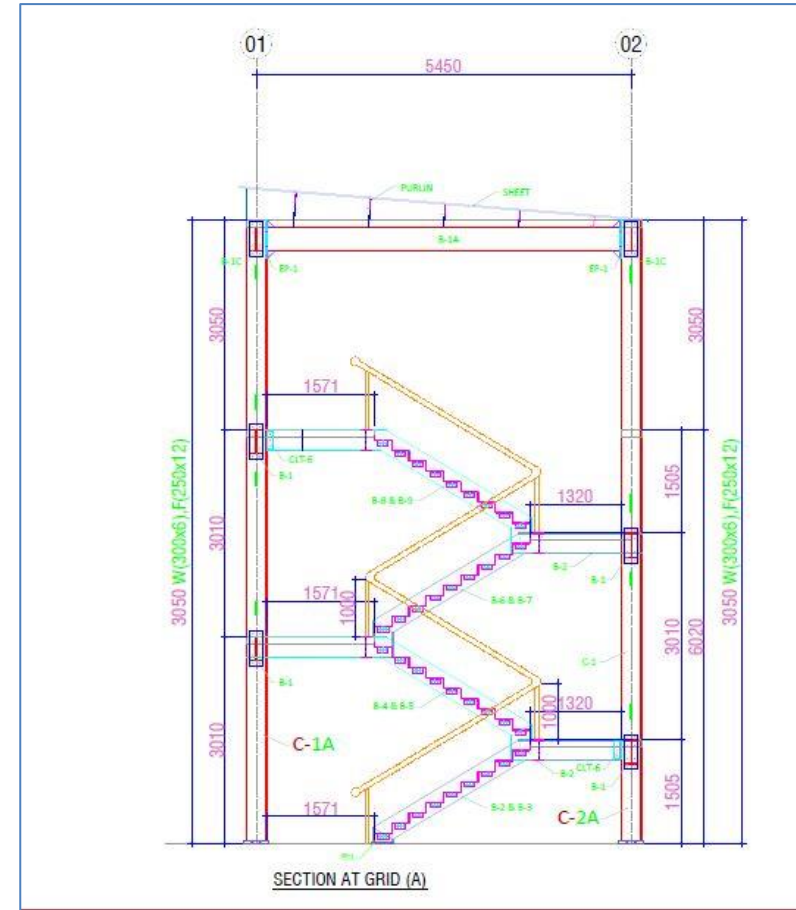


Exposed rebar at Column

Incomplete as-built drawings of external steel stair



Steel stair



During inspection, flange width of steel column was found 240 mm instead of 250 mm. On the other hand, connection details were not found in provided drawings.

Problems Observed

Main Factory Building:

Item-01: Prepared design report required to be revised.

Item-02: Improper drainage and stacking of construction material on existing roof.

Utility Building:

Item-03: Incomplete design report.

Item-04: Corroded and exposed rebar at roof.

Item-05: Incomplete as-built drawings of external steel stair.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Prepared design report required to be revised.	Factory is required to check the adequacy of shear wall and incorporate all kinds of irregularity (Torsional, mass, diaphragm discontinuity, stiffness, etc.) check in design report according to BNBC.	6-weeks
02	Prepared design report required to be revised.	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
03	Prepared design report required to be revised.	Complete implementation of any remedial works deemed necessary by the design report.	6-months
04	Prepared design report required to be revised.	Continue to implement loading plan.	6-months
05	Improper drainage and stacking of construction material on existing roof.	Factory is required to improve the water drainage system to avoid water clogging in future.	6-weeks
06	Improper drainage and stacking of construction material on existing roof.	Remove construction materials from roof top.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Incomplete Design Report.	Factory Engineer is required to complete design report as per BNBC Part 6 Sec 1.9.1.1 requirements and submit for review along with other relevant documents.	6-weeks
08	Incomplete Design Report.	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
09	Incomplete Design Report.	Complete remedial works if arising from design report after reviewed by RSC.	6-months
10	Incomplete Design Report.	Implement floor loading plan after getting acceptance.	6-months
11	Corroded and exposed rebar at roof.	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks
12	Incomplete as-built drawings of external steel stair.	Prepare “as constructed” drawings which reflect the actual site dimensions and provide connection details with complete structural information.	6-weeks