

Powertex Fashion Limited (Relocation)

Dr. Panjabali-Dr. Assaduzzaman Industrial Park, Kathora, National University, Gazipur
(23.948446N, 90.363503E)

6th January 2019



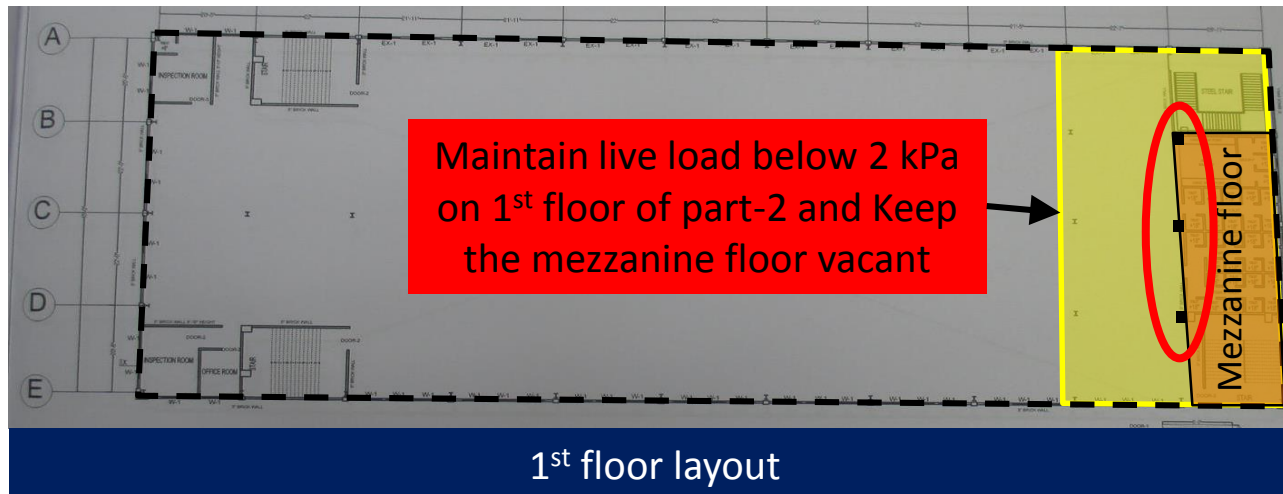


Executive Summary

We have important and urgent concerns in relation to the adequacy of the structural support columns for the Building-1. Columns appear to be stressed to levels that require immediate review. The following **immediate actions** are required to be carried out:

- 1. Remove plastic water tank load from the roof.**
- 2. Maintain live loading below 2 kPa on 1st floor level and keep the mezzanine floor vacant.**
- 3. A Detail Engineering Assessment of Building-1 must commence immediately to the requirements of the scope attached and addressing the concerns as noted.**

If the building owners are not in a position to complete these actions immediately the Building should be re-classified as **Category Red**.





Observations



High stress column |

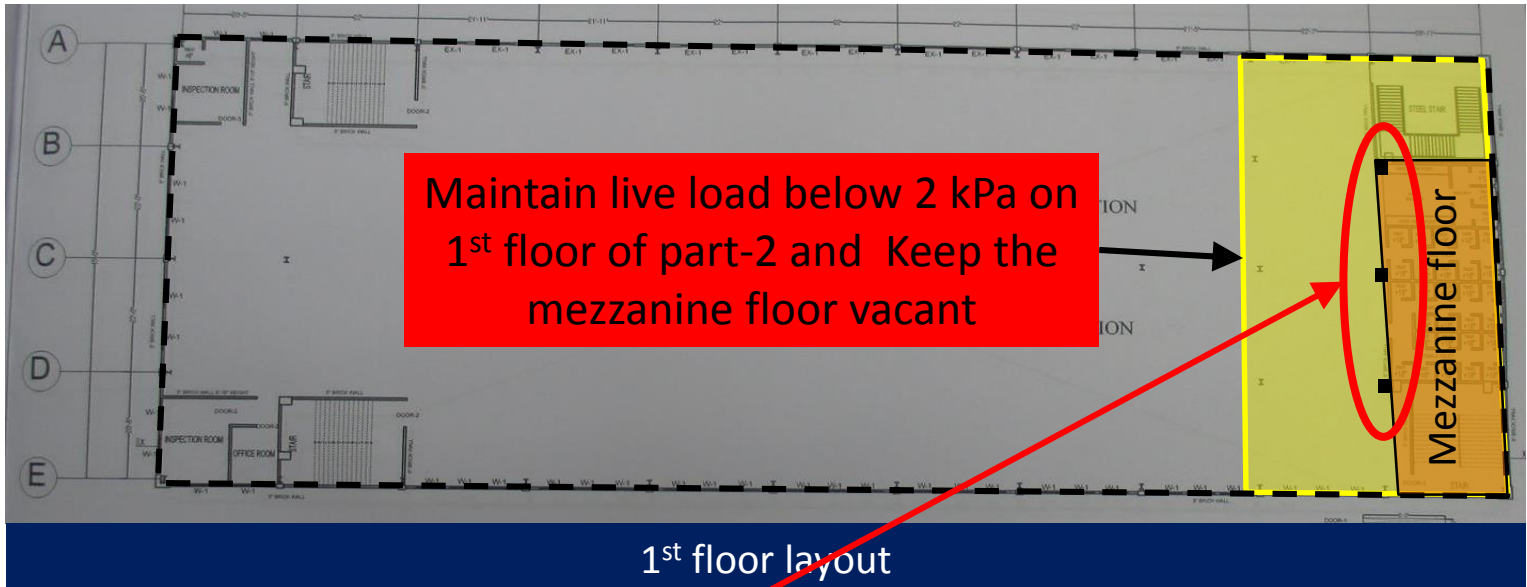
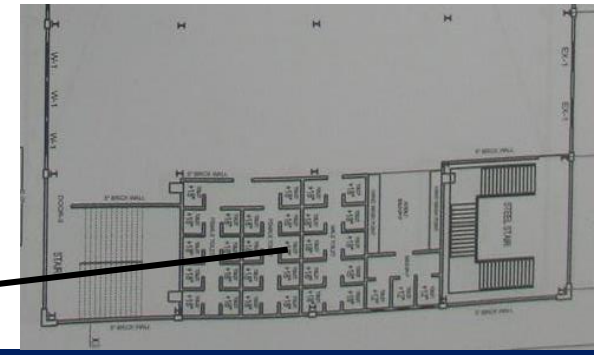
Observations: Factory building -1



5000 ltr. Water tank



Approximate 450mm floor raised in toilet zone



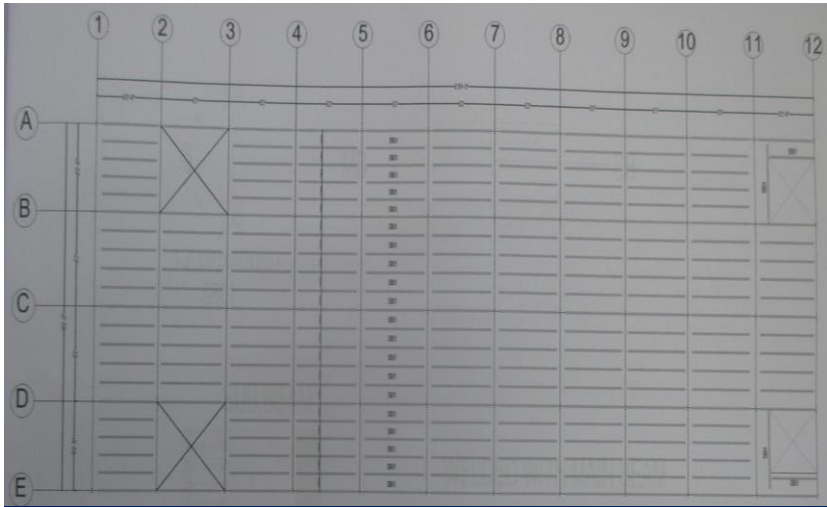
Cursory calculation shows that the stresses of internal columns in mezzanine area exceed the normal design limit at ground level. Immediate actions mentioned in page-4 have to be followed and a Detail Engineering Assessment (DEA) to be commenced immediately based on in-situ material strength.

Observations: Building -1



Discrepancies in between as built drawing and actual site condition

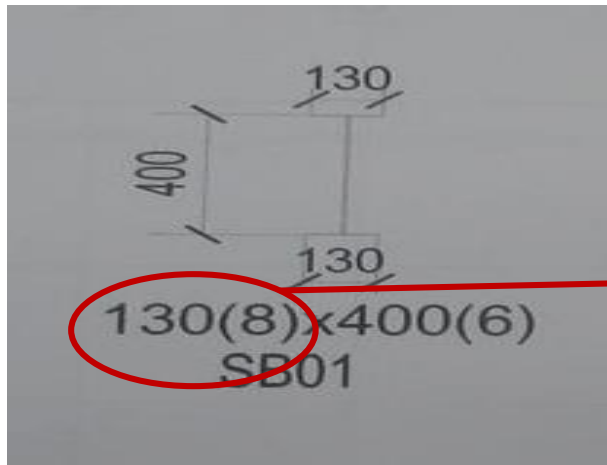
Observations: Building -1



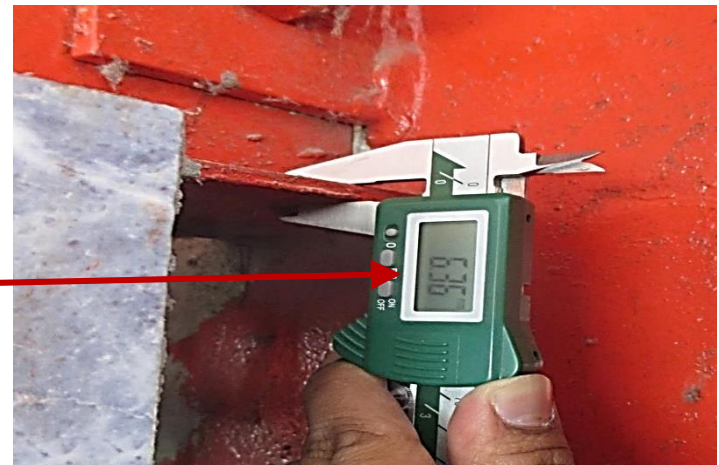
Sub-beam layout



Sub-beam on site



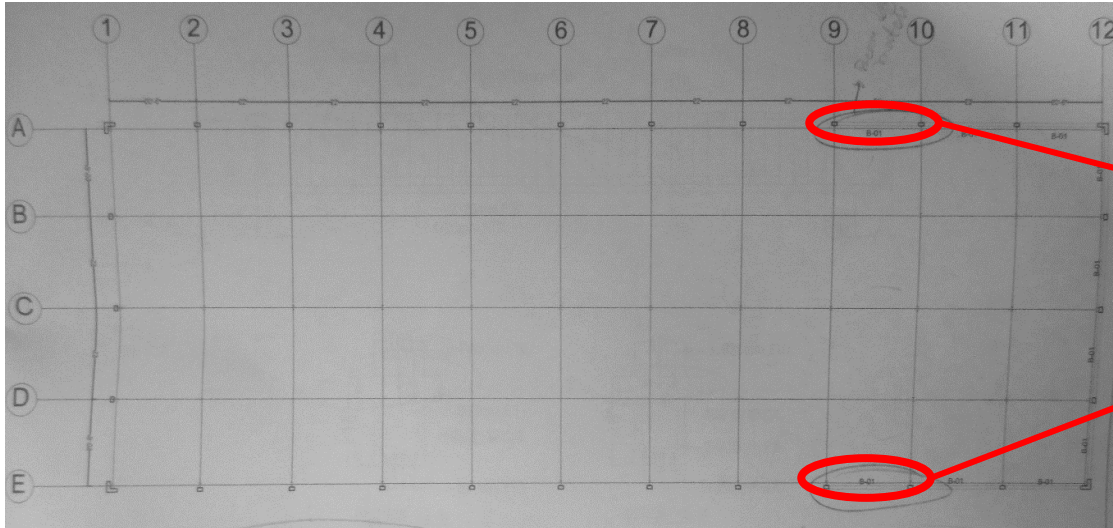
Sub-beam detail



6 mm thick. flange of sub-beam

Flange thickness of sub-beam (SB-01) was found 6mm instead of 8mm

Observations: Building -1



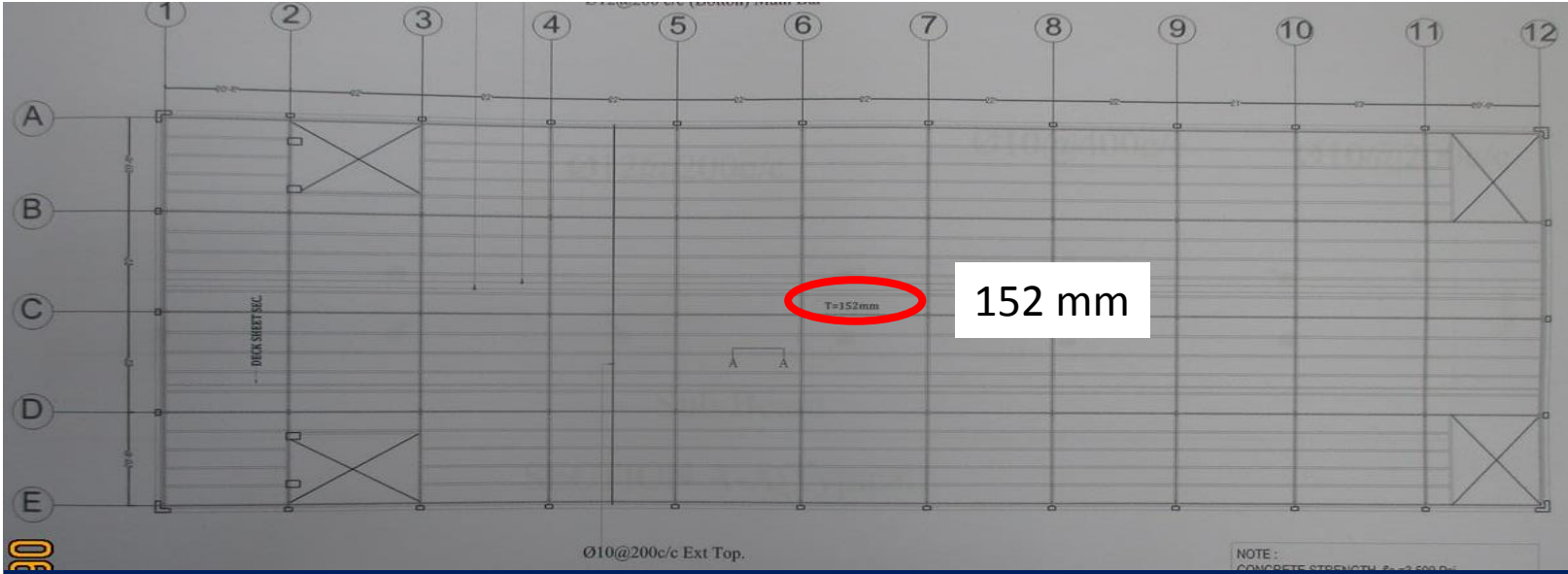
Roof layout

1st floor tie beam at the marked location did not match with as built drawing. Beam depth found 250mm where 450mm was shown in provided drawing.

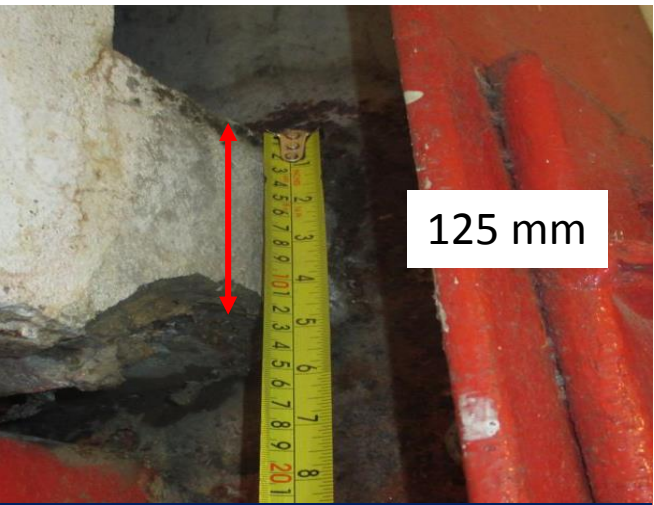


1st floor tie beam layout plan does not match with the on site condition.

Observations: Building -1



1st floor slab layout



Slab thickness was found 125mm

Slab thickness was found 125mm in 1st floor level where 152 mm was shown on provided drawings.

Observations: Building -1



Loose bracing

Observations: Building -1



But horizontal & vertical bracing was found loose on site.

Observations: Building -1



Corrosion in steel members

Observations: Building -1



Corrosion in steel members at stair zone.

Corrosion in steel members was observed at stair zone. The extent of corrosion to be investigated by a qualified structural engineer.

Observations: Building -1



Water intrusion in exterior façade

Observations: Building -1



Water intrusion in exterior façade from sanitary pipe.

Water intrusion was observed in exterior façade due to leakage of sanitary pipes. Factory engineer to investigate location of leakage and suggest proper remedial actions.

Observations: Building -1



Priority Actions



Problems Observed

Building-1

- 1: High stress column
2. Discrepancies in between as built drawing and actual site condition
- 3: Loose bracing
- 4: Corrosion in steel members
- 5: Water intrusion in exterior façade



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	High stress column (Building-1)	Maintain floor live load below 2 kPa on first floor of part-2 and keep the mezzanine floor vacant until completion of DEA.	Immediate - Now
2	High stress column (Building-1)	Detailed Engineering Assessment (DEA) to be commenced following BNBC-2006 provision (please see the attach scope).	Immediate - Now
3	High stress column (Building-1)	Verify in-situ material strength.	Immediate - Now
4	High stress column (Building-1)	Building Engineer to review design, loads and stresses in all columns as part of a Detailed Engineering Assessment (DEA).	6-weeks
5	High stress column (Building-1)	Produce and actively manage a loading plan for all floor plates as per requirement of BNBC-2006.	6-weeks
6	High stress column (Building-1)	Carry out remedial works as per DEA recommendation.	6-months
7	High stress column (Building-1)	Continue to implement allowable floor loading plan.	6-months



Detail Engineering Assessment

This Schedule develops a minimum level of information, Analysis and testing expected as part of a Detail Engineering Assessment. The Building(s) have been visually assessed and it is deemed necessary that a detailed engineering assessment be carried out by a competent Engineering Team employed by the factory Owner.

This Request should be read in conjunction with the ACCORD DEA guideline , ACCORD standard for Assessment of Structural Integrity of Existing RMG Factory Buildings in Bangladesh (Tripartite Document), the latest version of these document should be referenced. These document also gives guidance on required competency of Engineering Team.

We expect that the following will be carried out:

1. Development of Full Engineering As-Built Drawings showing Structure, loading, elements, dimensions , levels, foundations and framing on Plan, Section and Elevation drawings .
2. The Engineering team are to carry out supporting calculations with a model based design check to assess the safety and serviceability of the building against loading as set out in BNBC-2006, Lower rate provisions can be applied in accordance with the ACCORD DEA guideline , ACCORD standard following international engineering practice, justification for these lower rate provisions must be made.
3. A geotechnical Report describing ground conditions and commenting on foundation systems used/proposed.
4. A report on Engineering tests carried out to justify material strengths and reinforcement content in all key elements studied see ACCORD DEA guideline & ACCORD standard more details.
5. Detailed load plans shall be prepared for each level showing current and potential future loading with all key equipment items shown with associated loads.
6. The Engineering team will prepare an assessment report that covers the following:
 - As-Built drawings including
 - Plans at each level calling up and dimensioning all structural components
 - Cross sectional drawings showing structural beams, slabs, floor to floor heights, roof build-ups and Basic design information of the structure
 - Highlight any variation between As-built compared to the designed structure
 - Results of testing for strength and materials
 - Results of geotechnical assessment and testing/investigation
 - Details of loading, inputs and results of computer modelling
 - Commentary on adequacy/inadequacy of elements of the structure
 - Schedule of any required retrofitting required for safety or performance of Structure

Any proposals for Retrofitting to follow guidance developed in the ACCORD DEA guideline & ACCORD standard (<http://bangladeshaccord.org/factories/resource-centre/>).



Item No.	Observation	Recommended Action Plan	Recommended Timeline
8	Discrepancies in between as-built drawing and actual site condition (Building-1)	Factory Engineer is required to survey the structure and develop as-built drawings which reflect the on site condition.	6-weeks
9	Discrepancies in between as-built drawing and actual site condition (Building-1)	Factory Engineer to check the capacity of floor beams and slab as a part of DEA.	6-weeks
10	Discrepancies in between as-built drawing and actual site condition (Building-1)	Carry out remedial works as per DEA recommendation if necessary.	6-months
11	Loose bracing (Building-1)	Factory is required to tighten the loose bracings.	6-weeks
12	Corrosion in steel members (Building-1)	Factory is required to take necessary measures to prevent further corrosion and repair the corroded steel members as per engineers suggestion.	6-weeks
13	Water intrusion in exterior façade (Building-1)	Factory is required to take necessary measures to prevent water intrusion and repair damaged area.	6-weeks