

Body Fashion (PVT) Ltd.

Naogor kadda, Konabari, Gazipur, Dhaka.
(23.991440N, 90.356099E)

15 June 2014



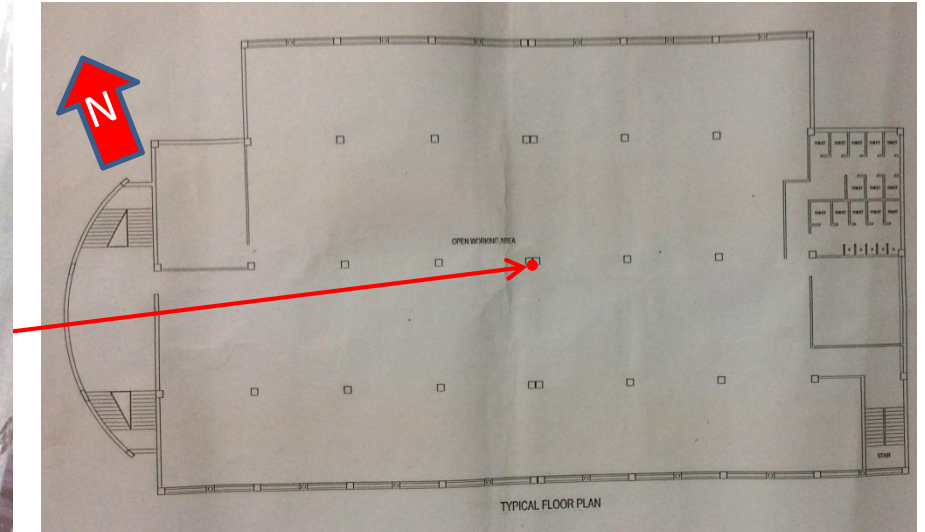
Observations

High column stress levels

Columns appear to be stressed to levels that require immediate action



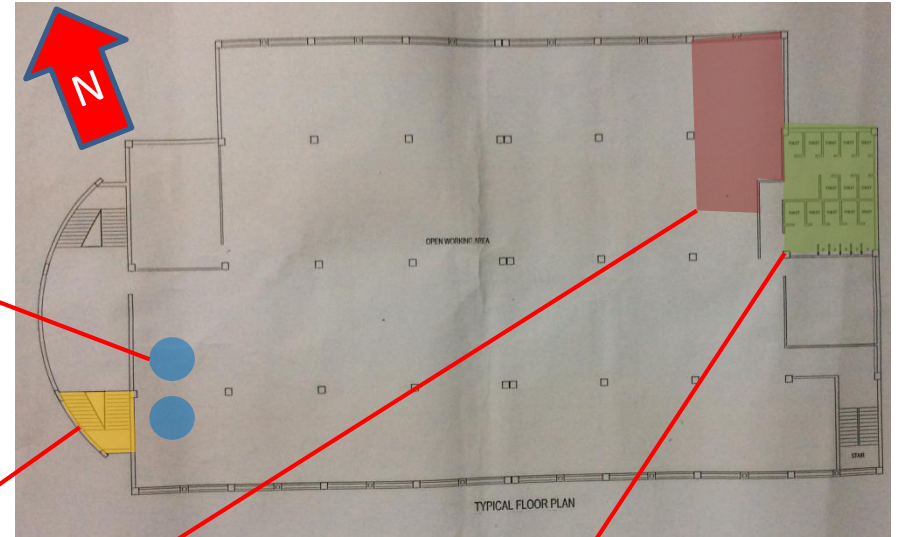
Brick aggregate exposed in columns on both sides of movement joint



Columns tested for aggregate type on either side of movement joint

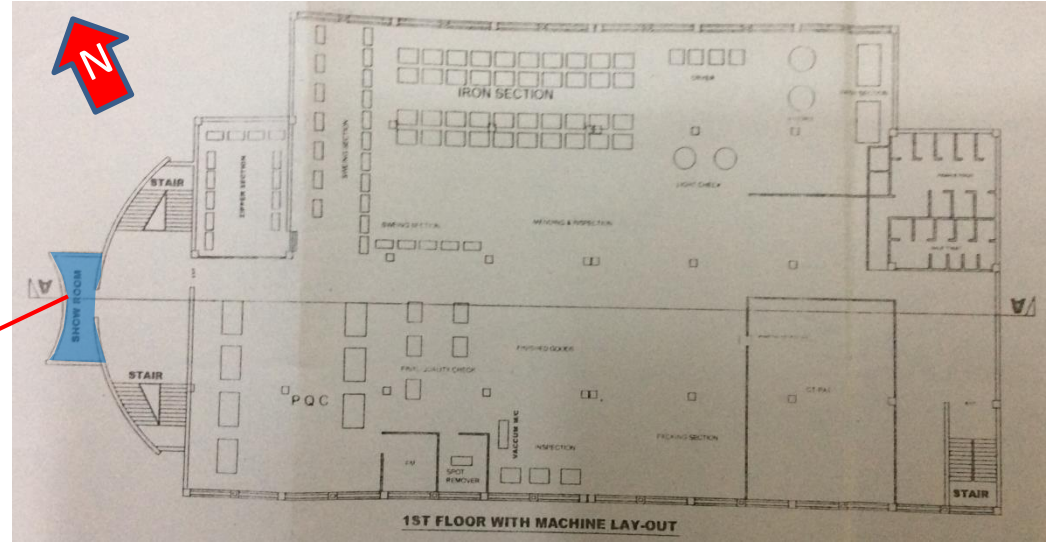
High loading on floor slabs

Design check required to assess the structural capacity of the floor slab to support (a) the toilet plinths and build-up, (b) the water tanks and (c) the yarn storage



New extension over entrance

Structural capacity check required for floor extension at the West façade



Building engineer to check slab capable of carrying load from masonry piers.

Cracking in beams supporting roof slab

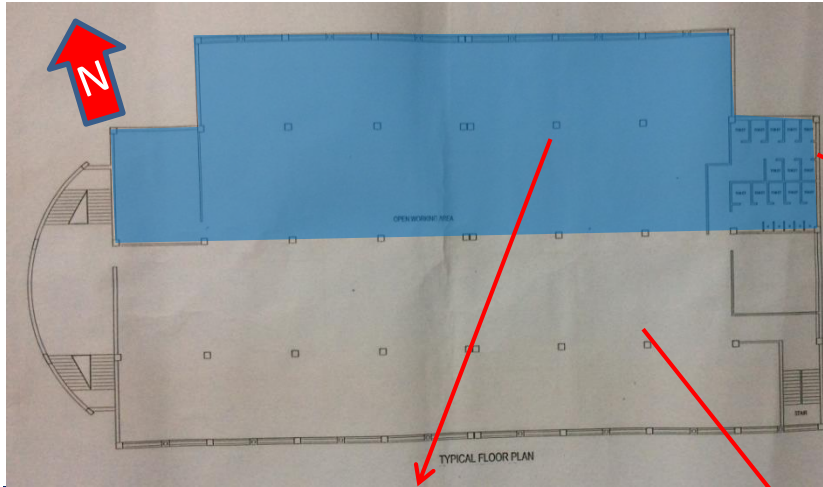
Repaired cracks on roof slab beams



Crack repairs on beams supporting roof slab

Undocumented steel roof structure

Structural capacity of steel roof elements to be checked



Highlighted part indicates steel roof area. Steel roof not shown on engineers drawings. In-plane bracing to be confirmed and checked by engineer.

Cladding frame with no secondary steel work

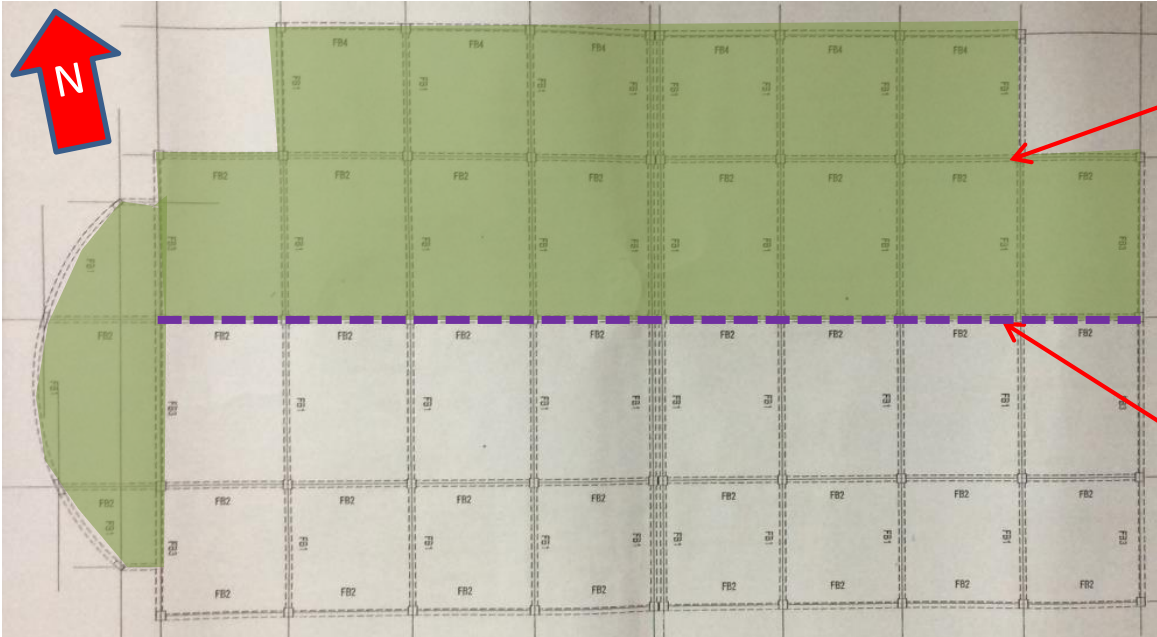


General note:
Limited access/visibility to steel roof structure. Load path and bracing system to be verified by building engineer.



Original structural plans differ from as-built condition

Beam supporting roof slab does not match the beam depth shown on the structural engineers drawings.

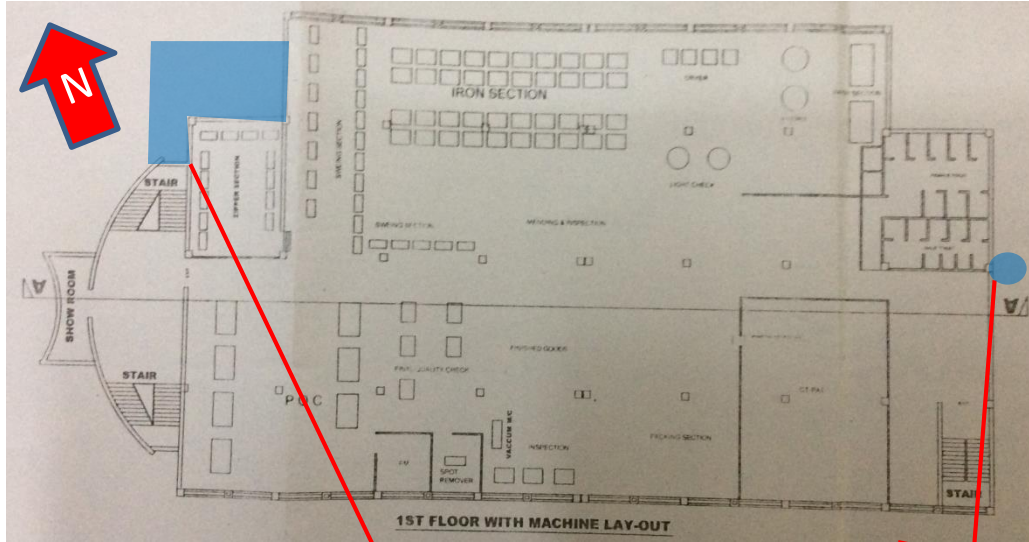


Steel frame roof over 4th floor.

Beam constructed is shallower than on drawings.

Non-engineered utility structures

Structural capacity check required for non-engineered utility buildings surrounding main building



Brick building under construction on north-west side of main building. No record drawings. Building engineer to check.

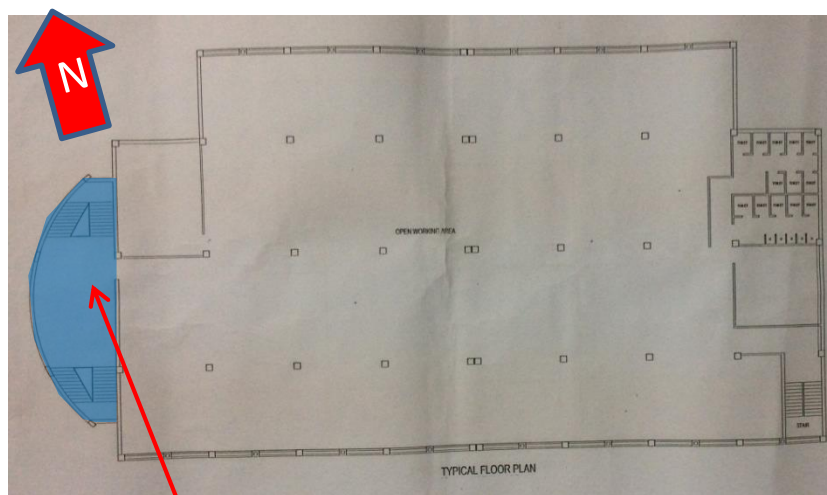


Steelwork supporting water tank at east façade.



Single storey brick building on south side of main building. No record drawings. Building engineer to check.

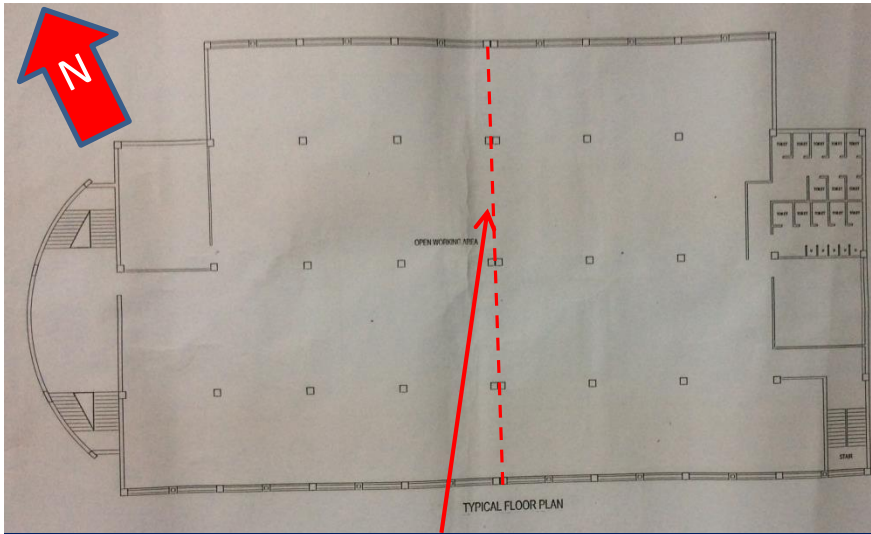
Structural capacity check required for non-engineered utility buildings surrounding main building



Steel roof supported by bamboo and rebar

Movement Joint

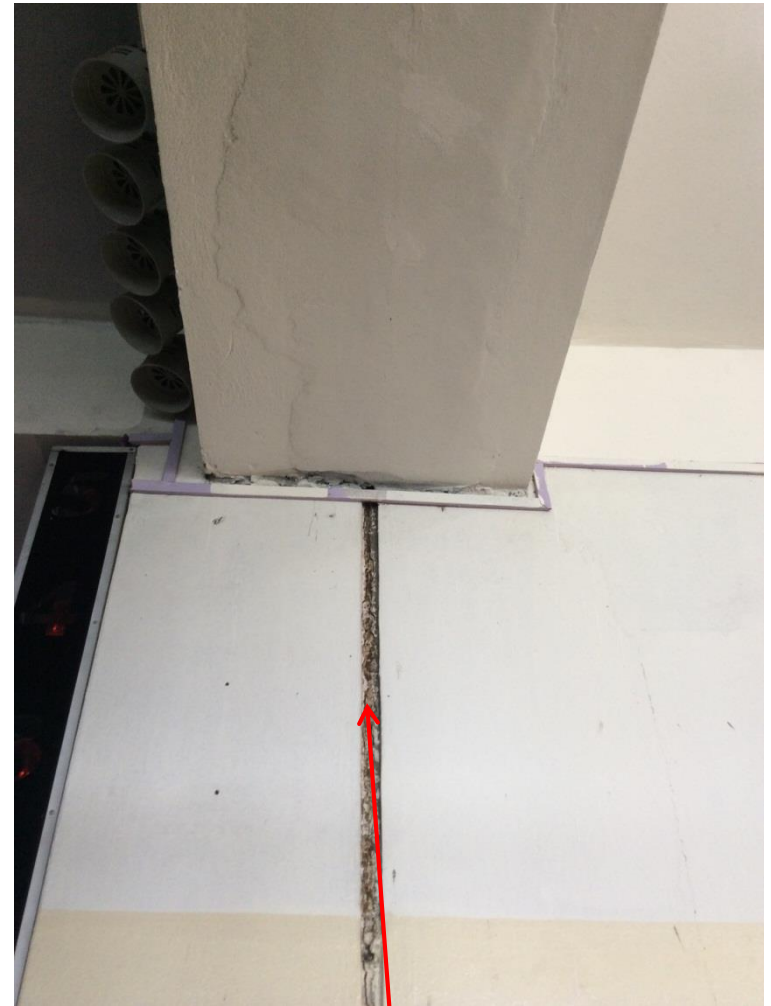
Movement joint not carried through at roof level and potentially prone to water ingress



Movement joint location



Movement joint on roof



Movement joint not apparent in beam supporting roof

Priority Actions

Problems Observed

1. Highly-stressed columns
2. Localised areas of high loading in all buildings
3. New extension over entrance
4. Cracking in beams supporting roof slab
5. Undocumented lightweight roof structure
6. Inconsistent RC roof beam size between drawings and as constructed
7. Non-engineered utility structures
8. Movement Joint at roof level

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Highly-stressed columns at ground floor level	The replacement of the steel roof structure with a concrete slab is to be put on hold, pending the outcome of the Detail Engineering Assessment.	Immediate - Now
2	Highly-stressed columns at ground floor level	Building Engineer to review design, loads and column stresses.	Immediate - Now
3	Highly-stressed columns at ground floor level	The Imposed Loading on any floor is not be increased from current levels pending the outcome of the Detail Engineering Assessment.	Immediate - Now
4	Highly-stressed columns at ground floor level	A Detail Engineering Assessment of the Factory is to be commenced, see attached scope.	Immediate - Now
5	Highly-stressed columns at ground floor level	Detail Engineering Assessment to be completed	6-weeks
6	Highly-stressed columns at ground floor level	Produce and actively manage a loading plan for all floor plates within the Building, giving consideration to floor capacity and column capacity	6-weeks
7	Highly-stressed columns at ground floor level	Continue to implement loading plan.	6-months
8	Highly-stressed columns at ground floor level	Actions identified in the Detail Engineering Assessment to be fully implemented on site	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 BUET developed Tripartite Guideline document for Assessment of Structural Integrity of Existing RMG Factory Buildings in Bangladesh (Tripartite Document), the latest version of this document should be referenced. This 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 Elevational 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 Tripartite Guidelines 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.
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 Tripartite Document

Item No.	Observation	Recommended Action Plan	Recommended Timeline
9	Localised areas of high loading	As part of Detail Engineering Assessment (see Item 1), Building Engineer to check if beams/slabs have sufficient capacity to support fully-filled water tanks, toilet plinths & build-up, and yarn storage.	6-weeks
10	Localised areas of high loading	Continue to implement loading plan	6-months
11	New extension over entrance	As part of Detail Engineering Assessment (see Item 1), Building engineer to check the 1st floor slab for loading from brick piers under lateral and vertical load.	6-weeks
12	New extension over entrance	Building engineer to check lateral stability of extension and how it is connected to main building.	6-weeks
13	New extension over entrance	Implement any actions arising from checks.	6-months
14	Cracking in beams supporting roof	As part of Detail Engineering Assessment (see Item 1), Building engineer to investigate cause of cracking and the need for any remedial works / structural repairs	6-weeks
15	Cracking in beams supporting roof	Carry out remedial works / structural repairs as required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
16	Undocumented and lightweight roof structure	As part of Detail Engineering Assessment, Building Engineer to provide detailed calculations for the lightweight steel roof structure. These should confirm its ability to withstand all wind loading pressure, suctions and uplift forces.	6-weeks
17	Undocumented and lightweight roof structure	Implement any remedial works arising from Detail Engineering Assessment.	6-months
18	Undocumented and lightweight roof structure	Provide accurate as-built drawings.	6-months
19	RC beam size constructed on roof does not match the section size shown on the original drawings	As part of Detail Engineering Assessment, Building Engineer to provide detailed calculations for the roof beam noted above.	6-weeks
20	RC beam size constructed on roof does not match the section size shown on the original drawings	Carry out remedial works / strengthening to beam as required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
21	Non-engineered utility structures	Utility structures to be checked by the Building Engineer for their capacity to withstand code vertical and horizontal loads	6-weeks
22	Non-engineered utility structures	Carry out remedial works as required, or vacate and remove.	6-months
23	Movement Joint at roof level	As part of Detail Engineering Assessment, movement joint details at roof level to be developed by Building Engineer.	6-weeks
24	Movement Joint at roof level	Carry out works to incorporate movement joint at roof level.	6-months