

Fancy Fashion Sweaters Ltd.

1153-54, Shahid Siddique Road, Khailkur, Board Bazar, Gazipur-1704, Bangladesh
(23.942443N, 90.388539E)

23 March 2014



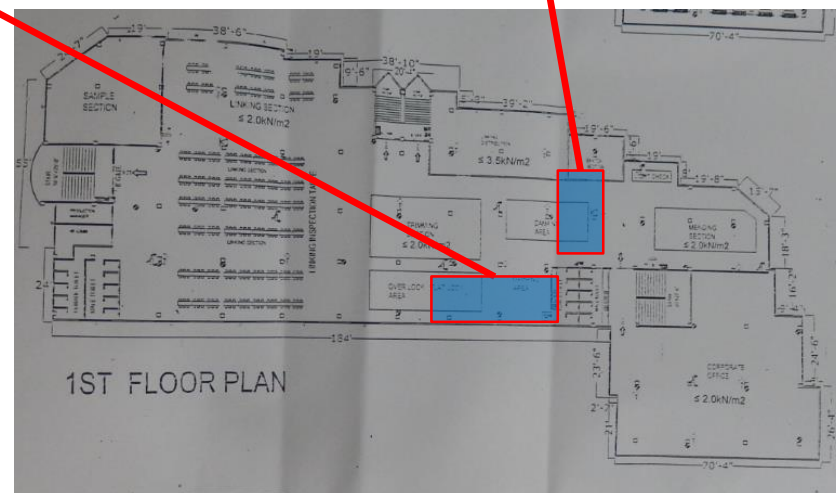
Observations

Loading in uncontrolled areas



Uncontrolled loading on 1st floor

All loading to be managed according to loading plan.



Uncontrolled loading

Concentrated high loading from water tanks on roof slab

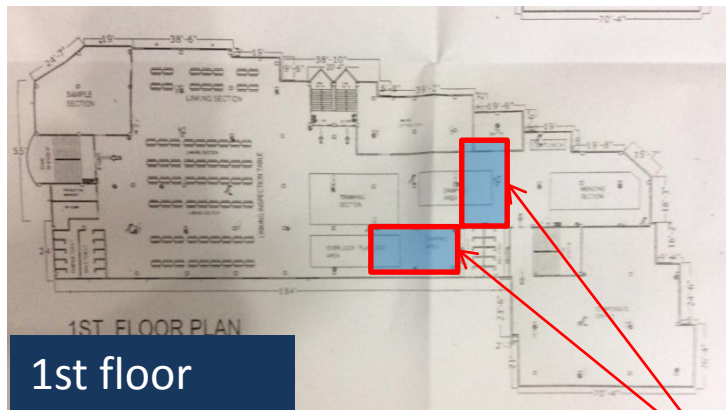


Four 5000 litres water tanks mounted on flat concrete plinth on flat slab close to columns. Tenant confirmed only half full with valve to electrically control.

Building Engineer to check that slab has been designed to accommodate loads in flexure and punching shear.

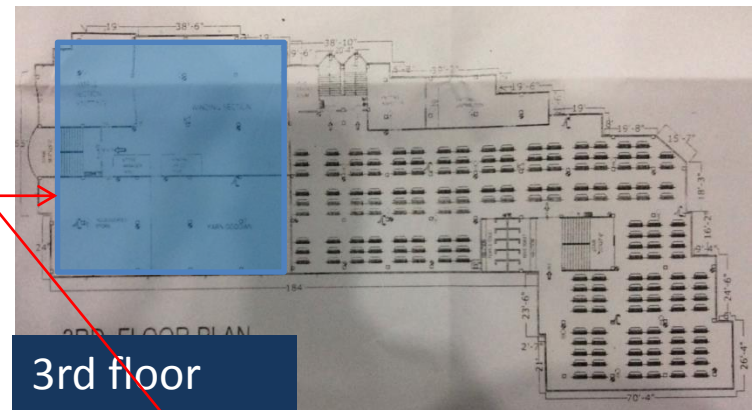
Loading from water tanks

Loading in uncontrolled areas



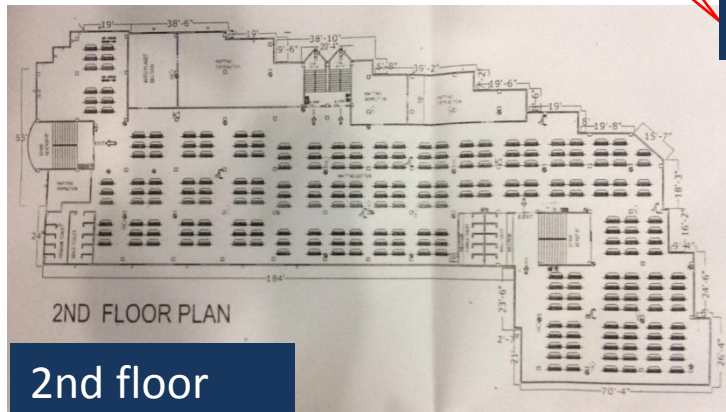
1st floor

Controlled

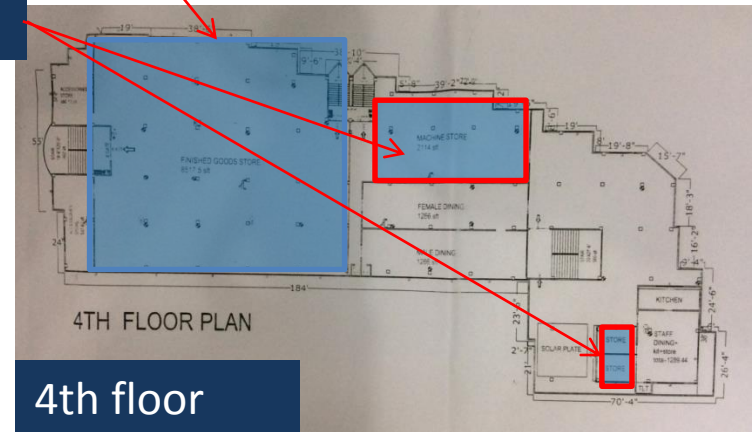


3rd floor

Uncontrolled



2nd floor



4th floor

Material stacked within storage areas and other areas.

Plan and height restrictions to be introduced to currently uncontrolled areas, to prevent future overloading.

In area labelled uncontrolled loading should be limited in accordance with loading plans until DEA complete and results available.

Non engineered steel and masonry structures on 5th and 6th storeys



Prayer room primary trusses smaller than secondary trusses. Design to be checked.
Masonry wall stability to be checked.
Connections to be designed and checked for uplift



Open sided shelter adjacent to prayer room.
Detailed design check required for vertical and lateral stability.
insufficient for loads in severe winds.
Engineered structure required.
Current structure to be removed

Non engineered structures



Dining rooms.
40x40mm RHS posts and beams
insufficient for loads in severe winds.
Engineered structure required.
Current structure to be removed



Non engineered structures



Free standing single leaf parapet walls with intermediate piers at approximately 3 to 6m. Piers insufficient. Parapet wall to be strengthened or to be removed.



3.5m high free standing masonry walls generally on upper floors have inadequate head restraint and piers. To be strengthened or removed.

Lateral stability of single leaf masonry walls

Service hole close to column



Service void formed in slab very close to column and beam strip. Hole sides irregular and beam strip reinforcement exposed. Punching shear to be verified.



Service void formed in cantilever very close to column. Punching shear to be verified.

Service hole close to column

Movement joint



Movement joint repair required to maintain durability of concrete and prevent plaster falling from height.

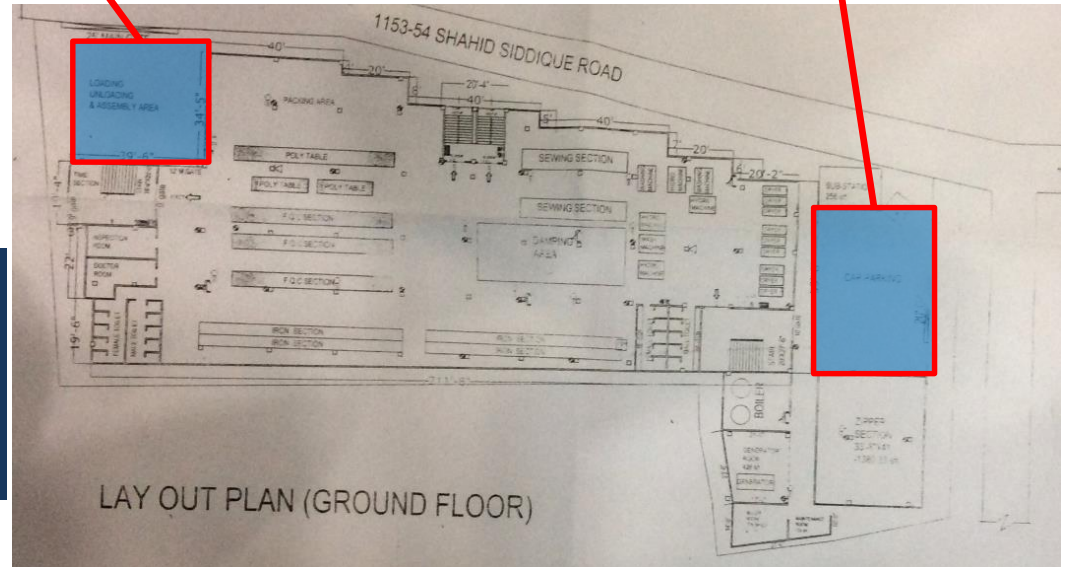
Movement joint

**Column at ground floor should be
protected from vehicle impact in the
loading bay**



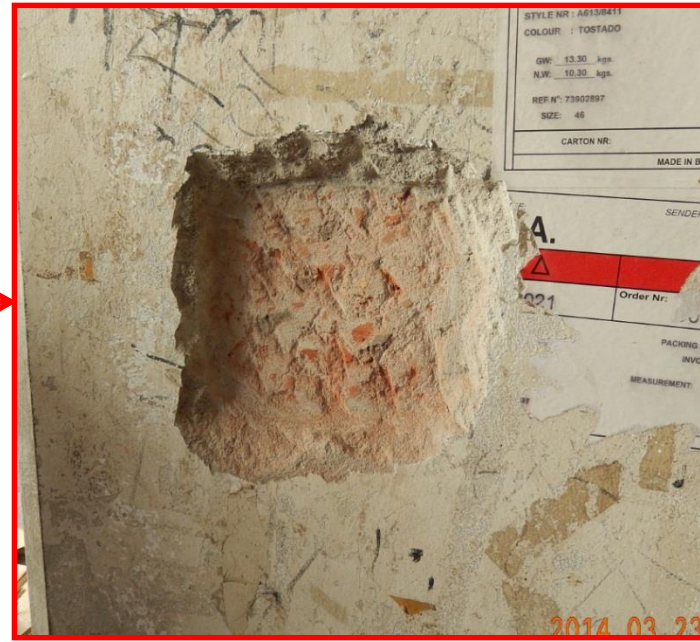
Large cantilever at corner of building. Engineer to justify in the Detailed Engineering Assessment

Loading bay and parking area columns to be protected for vehicle impact or strengthen for vehicle impact load



Vehicle Impact on Ground floor columns

Tests carried out



Ferrosan tests carried out on several ground floor columns.



Site Tests

Priority Actions

Problems Observed

ITEM 1: Concrete strength in columns

ITEM 2: Loading in uncontrolled areas

ITEM 3: Concentrated high loading from water tanks on roof slab

ITEM 4: Service hole close to column location

ITEM 5: Non engineered steel structure in 5th and 6th stories

ITEM 6: Lateral Stability of single leaf of masonry

ITEM 7: Column at ground floor should be protected from vehicle impact in the loading bay

ITEM 8: Sealing of movement joint

Item 9: large slab cantilevers at corner of building

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Verify concrete strengths in internal columns type C3 and C4	Maintain current use of the floors and don't change use or increase occupation, either of which could increase loading. Loading not to exceed 2kN/m ²	Immediate - Now
2	Verify concrete strengths in internal columns type C3 and C4	Factory Engineer to review design, loads and columns stresses in all columns at ground and first floor.	Immediate - Now
3	Verify concrete strengths in internal columns type C3 and C4	Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns.	Immediate - Now
4	Verify concrete strengths in internal columns type C3 and C4	A Detail Engineering Assessment of Factory to be commenced, see attached Scope.	Immediate - Now
5	Verify concrete strengths in internal columns type C3 and C4	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-weeks
6	Verify concrete strengths in internal columns type C3 and C4	Detail Engineering Assessment to be completed.	6-weeks
7	Verify concrete strengths in internal columns type C3 and C4	Continue to implement load 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 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
8	Loading in uncontrolled areas	Reduce loads where noted previously. Loading not to exceed 2kN/m ²	Immediate - Now
9	Loading in uncontrolled areas	Factory Engineer to review design, loads and columns stresses in all columns at ground and first floor.	Immediate - Now
10	Loading in uncontrolled areas	Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns.	Immediate - Now
11	Loading in uncontrolled areas	A Detail Engineering Assessment of Factory to be commenced, see attached Scope.	Immediate - Now
12	Loading in uncontrolled areas	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-weeks
13	Loading in uncontrolled areas	Detail Engineering Assessment to be completed.	6-weeks
14	Loading in uncontrolled areas	Continue to implement load plan	6-months
15	Concentrated high loading from water tanks on roof slab	Building engineer to check the slab for punching shear and flexural strength.	6-weeks
16	Service hole close to column locations	Building engineer to check the slab for punching shear. Holes sides to be made good. Exposed reinforcement to be cleaned of all rust and holes sides to be formed providing adequate cover to the reinforcement.	6-months

Item No.23	Observation	Recommended Action Plan	Recommended Timeline
17	Non engineered steel frames at 5th and 6th stories	Detail Engineering Assessment to access and design remedial works if possible.	Immediate - Now
18	Non engineered steel frames at 5th and 6th stories	Temporary structures to be removed or strengthened to meet current design standards. Work to be carried out within 6 weeks.	6-weeks
19	Lateral Stability of Single Leaf Masonry Walls	Detail Engineering Assessment to access and design remedial works if possible.	Immediate - Now
20	Lateral Stability of Single Leaf Masonry Walls	Remedial works to be carried out to make wall stable.	6-weeks
21	Column at ground floor should be protected from vehicle impact in the loading bay	Provide impact protection at all columns that are in risk of impact from vehicles, either by stopping vehicles approaching the columns, or by strengthening the columns.	6-weeks
22	Sealing of movement joint	Engineer to propose adequate movement joint repair.	6-months
23	Sealing of movement joint	Install maintain proposed repair.	6-months
24	Cantilever Slab	A Detail Engineering Assessment to justify large cantilever corners	Immediate - Now