Aboni Knitwears Ltd

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25 September 2013

ACCORD on Fire and Building Safety in Bangladesh

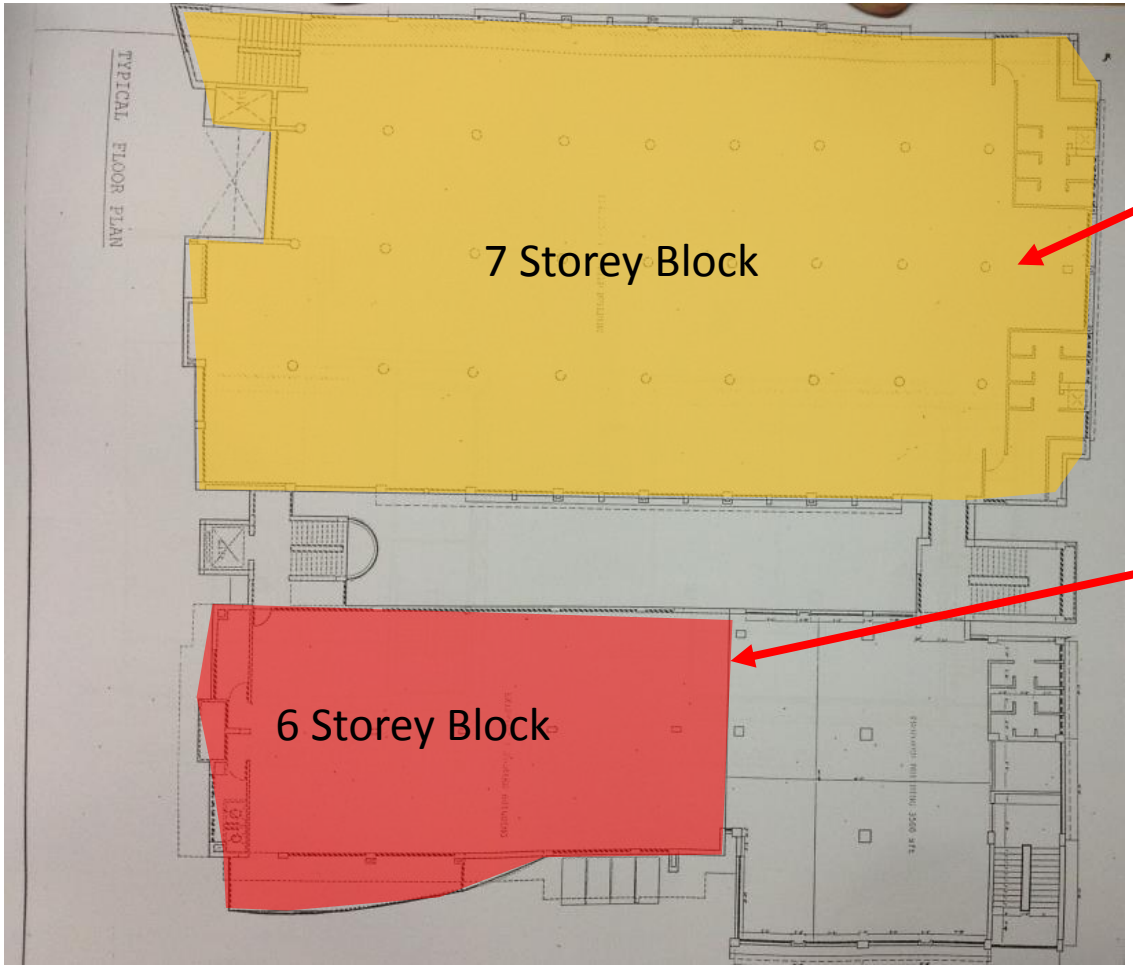
ARUP

Check on Column stress levels immediately required

ARUP

Item 1 High Stress to Building internal columns

Verify concrete strengths in internal columns and reduce loads



No storage in this area on any level, limit all live load to a maximum of 2.0kN/m2, on any floor, immediately

Remove all personnel from this building until results of columns strengths and Building Engineering assessment is complete

ARUP

Check on roof additions required

Non-engineered lightweight steel roof additions does not appear to be strong enough for severe wind events or access loading

Check on roof additions required

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Check on roof additions required

Water causing damage and corrosion

Unmanaged roof drainage causing damage to building. At the time of the survey, structural damage was not observed, but is likely to occur over time

Water causing damage and corrosion

Non-Engineered Steel Structure

Large, non-engineered steel roof structure is unlikely to be able to withstand strong wind events.

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Bricks laid on roof top, perhaps indicating previous wind uplift damage

Priority Actions

Problems Observed

1. High Stresses on Internal Columns Observed We require the production of a Detailed Engineering Assessment. For the internal columns in the 6 and 7 storey blocks we require load removal and control at all levels to a limit of 2.0kN/m^2

2. Lightweight steel roof additions do not appear to be strong enough for severe wind events or access loading

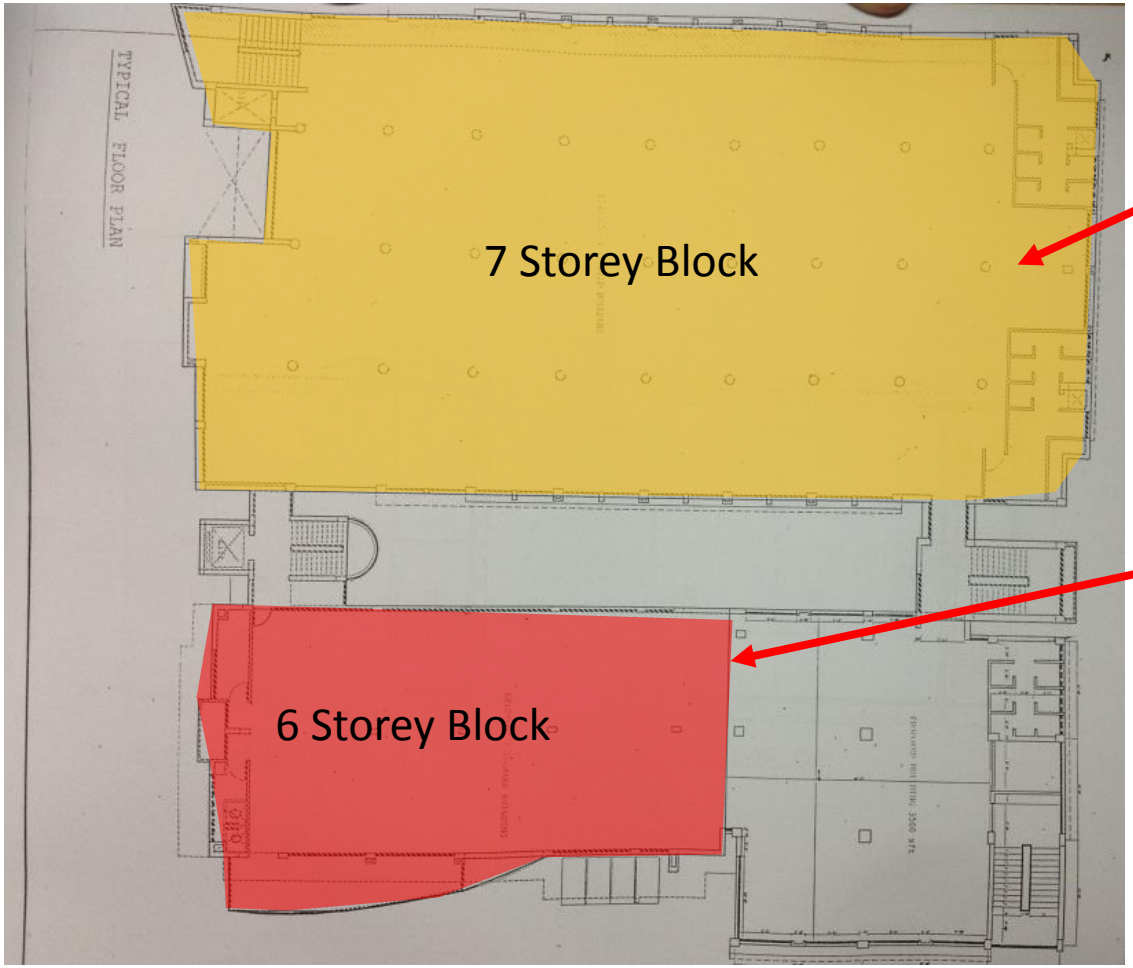
3. Lightweight steel storage structure do not appear to be strong enough for severe wind events or access loading

4. Water causing damage and corrosion

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	All imposed loads are to be removed from the roof slab externally.	**Immediate - Now**
2	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	All loads, including equipment, garments and personnel, at each floor level except ground floor are to be reduced to 2.0kN/m2 in 6 and 7 Storey Blocks	**Immediate - Now**
3	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	Detailed Engineering Assessment of as built structure to be commenced as per attached scope	**Immediate - Now**
4	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	Verify insitu concrete strengths and existing reinforcement for all columns	**Immediate - Now**

Item 1 High Stress to Building internal columns

Verify concrete strengths in internal columns and reduce loads



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Remove all personnel from this building until results of columns strengths and Building Engineering assessment is complete

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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. T his 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
5	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	Detailed Engineering Assessment to be completed	**6-weeks**
6	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	Produce and actively manage a loading plan for all floors within the building giving consideration to floor capacity and column capacity.	**6-weeks**
7	Verify the structural adequacy of all building columns at all levels based on as built dimensions and material properties and reduce loads as detailed below	Continue to implement load plan	**6-months**
8	Lightweight steel roof additions do not appear to be strong enough for severe wind events or access loading.	Addition structures should be Designed and upgraded to support code vertical and wind loads by the building Engineer, or they should be vacated and removed.	**6-months**

Item No.	Observation	Recommended Action Plan	Recommended Timeline
9	Large, non-engineered steel roof structure is unlikely to be able to withstand strong wind events	Vacate, relocate operations	**6-weeks**
10	Large, non-engineered steel roof structure is unlikely to be able to withstand strong wind events	Steel structures should be designed and upgraded to support code vertical and wind loads by the building Engineer, or they should be vacated and removed.	**6-months**
11	Water causing damage and corrosion	Engineer to design and install appropriate drainage system for all exposed slab areas	**6-months**