

P.A. Knit Composite Ltd.

Hobirbari, Jamirdia, Valuka, Mymensingh
Coordinates: 24.289696, 90.390687

20th April 2014



Observations

Concrete stress levels in columns in Main Building



Stone aggregate in columns



6 no. 2000 litre water tanks at roof level

Preliminary calculations indicate that column working stress is above that recommended by the code for the given materials and loading

High Column Loads

Steel superstructure at 3rd Floor - Roof



Typical portal brace – 3rd to 5th floors

Lateral stability to steel frame appears to be reliant on portal braces at locations shown. These are provided in one direction only. Connections of braces to main structure and ability to act as lateral frame to be reviewed



Approx location of “portal braces”



Weld quality appears poor and should be reviewed



Columns out of plumb at 5th floor

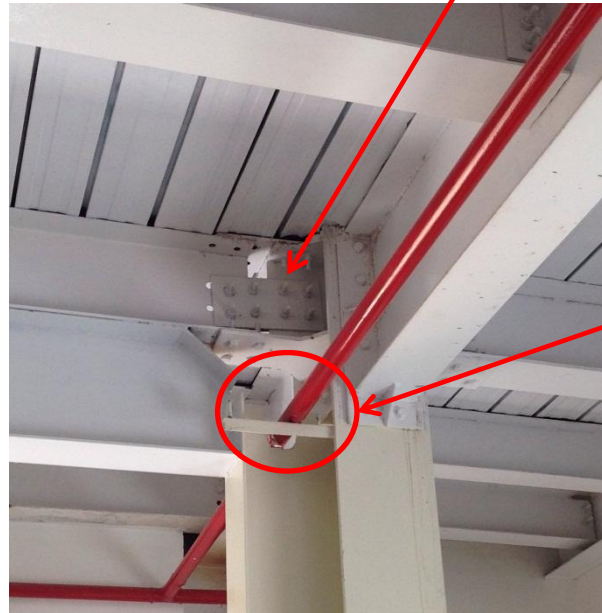
Fire protection details of steel members not known



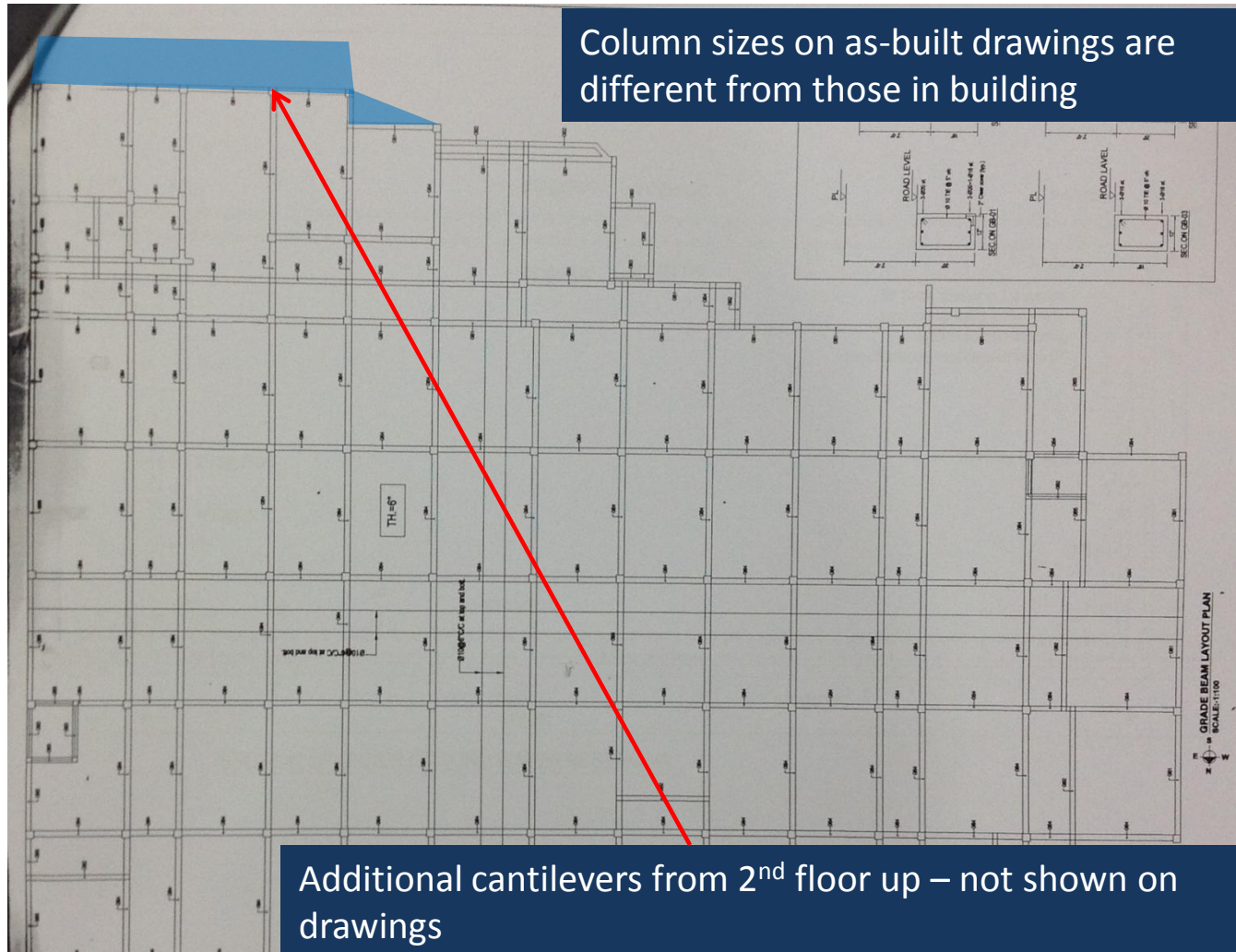
General lack of fit of connections in steel frame



Site modifications to bracing members



As-built drawings do not match as-built structure



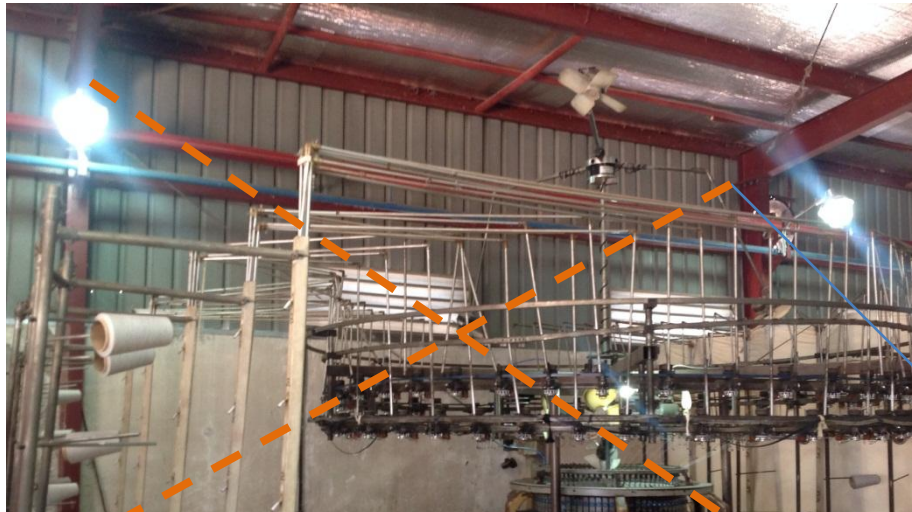
As-built drawings not accurate

Flat slab structure at 3rd Floor



Flat Slab Structure at 3rd Floor

External shed buildings – engineering checks required



Knitting Shed – vertical bracing missing or disconnected in two locations



Godown Shed – discontinuity of vertical and roof bracing with no apparent eaves beam to transfer loads



Printing Shed – no roof bracing

External Sheds – Engineering Checks Required

Priority Actions

Problems Observed

1. Concrete stress levels in columns in Main Building
2. Main Building steel structure – 3rd floor to roof
3. As-built drawings for Main Building do not match as-built structure
4. Flat slab structure at 3rd floor of Main Building
5. External shed buildings – engineering checks required.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Concrete stress levels in columns in Main Building	A Detail Engineering Assessment of Factory is to be commenced – see attached scope	Immediate - Now
2	Concrete stress levels in columns in Main Building	4th and 5th floors are to remain unoccupied (personnel, plant and storage), pending outcome of Detail Engineering Assessment.	Immediate - Now
3	Concrete stress levels in columns in Main Building	Building Engineer to review design, loads and column stresses in structure.	Immediate - Now
4	Concrete stress levels in columns in Main Building	Verify insitu concrete stresses by taking 100mm diameter cores from min. 4 columns at ground floor level.	Immediate - Now
5	Concrete stress levels in columns in Main Building	Verify number and diameter of reinforcement bars in ground floor columns.	Immediate - Now
6	Concrete stress levels in columns in Main Building	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-weeks
7	Concrete stress levels in columns in Main Building	Detail Engineering Assessment to be completed.	6-weeks

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 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 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	Main Building Steel structure – 3rd floor to roof.	Building Engineer to review the design and construction of the main building steelwork as part of the required Detail Engineering Assessment (see Item 1) and ensure frame stability is addressed.	Immediate - Now
9	Main Building Steel structure – 3rd floor to roof.	Fire protection of steel members to be assessed as part of Detail Engineering Assessment.	Immediate - Now
10	Main Building Steel structure – 3rd floor to roof.	Detail Engineering Assessment to be completed.	6-weeks
11	The “as-built” drawings for the Main Building do not match the as-built structure.	Building Engineer to survey the structure and prepare a full set of “as-constructed” drawings as part of Detail Engineering Assessment (see Item 1).	6-months
12	Flat slab structure at 3rd floor of Main Building	Building Engineer to check on punching shear to the 3rd floor slab as part of the required Detail Engineering Assessment (see Item 1).	Immediate - Now
13	Flat slab structure at 3rd floor of Main Building	Detail Engineering Assessment to be completed.	6-weeks
14	External shed buildings – engineering checks required.	Building Engineer to check the design and capacity of the lightweight roof structures, including stability and connections details, and make any necessary alterations.	6-weeks