

Raidha Collections Ltd.

Zamirdia, Valuka, Mymensingh, Bangladesh

(24.306872N, 90.38664E)

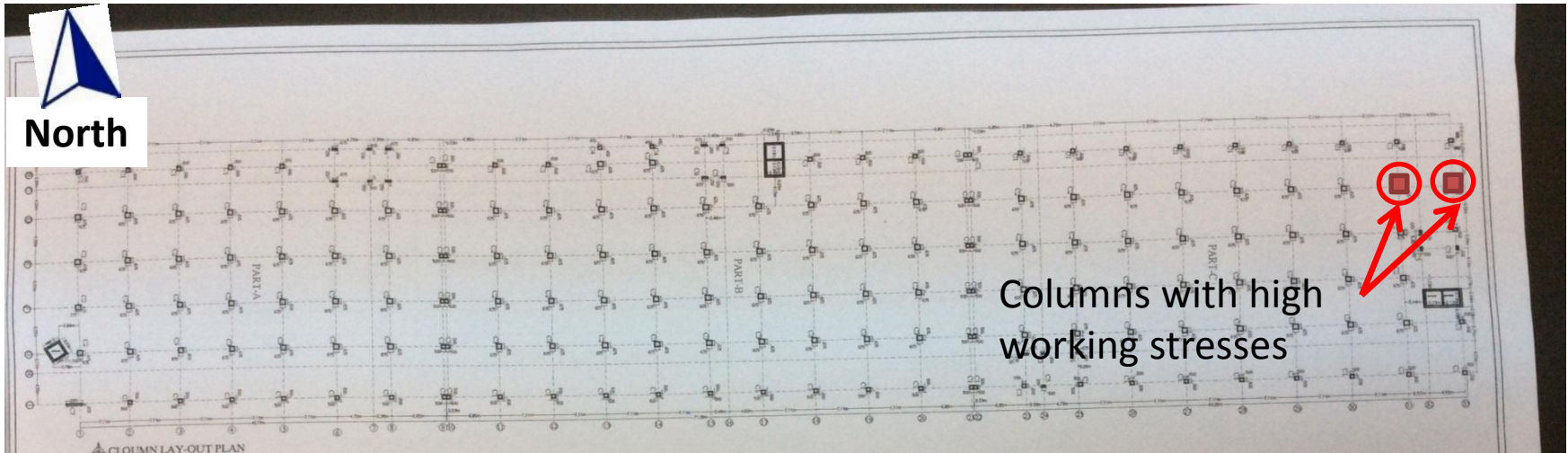
25 June 2014



Observations

Cursory calculations indicate columns to be stressed in excess of normal design limits

Observation 1: Cursory calculations indicate columns to be stressed in excess of normal design limits



Main Factory Building – Column Layout



Testing of columns confirmed Stone aggregate.

Cursory calculations indicate that working stresses exceed normal acceptable levels in the columns supporting the toilet block.

Building Engineer to perform detailed calculations based on “as built” dimensions and loadings. Material data from concrete tests to prove column strength.

Observations

Design check required due to discrepancies between ‘as-built’ drawings and building structure

Observation 2: Design check required due to discrepancies between 'as-built' drawings and building structure



West Elevation Architectural Feature

A large architectural concrete box feature has been added to the front (west) elevation of the factory. The feature does not appear on the Architectural or Structural drawings that were presented. The support structure is a cantilever beam slab and has been modified introducing an additional edge beam which is not indicated in the documentation



North Elevation Slab Cantilever

Cantilever slab provided on the North Elevation to support the toilets. No increase in structure or beams provided to support the additional load of the brickwork partitions and additional concrete ceilings. Beam indicated on drawings not provided.

Observations

Observation 2: Design check required due to discrepancies between 'as-built' drawings and building structure



Column Reinforcement at Roof Level

The column reinforcement at roof level has been cut down to 600mm to provide planter boxes. Should vertical expansion be proposed the building engineer should confirm that a sufficient lap length can be achieved or provide a detail capable of adequately transferring the vertical load.

Localised areas of high loading on suspended slabs

Observation 3: Localised areas of high loading on suspended slabs



Areas of High Loadings were observed in all floors. A load management plan is required for the factory. The building engineer should prepare a set of loading plans and aid in the implementation of the management plan for all floor plates within the factory giving consideration to floor capacity and column capacity.

Observations

Lightweight structures

Observation 4: Lightweight structures



Transformer and Switch Room LW Roof Structure

Apparently non-engineered roof structure, no bracing provided, connection of truss to RC columns does not appear to be designed



Laundry Room LW Steel Roof Frame

Steel rafter beams span onto steel columns on one side and RC columns at the other, connection of truss to RC columns does not appear to be designed. No bracing provided, lateral stability system not apparent.

Observation 4: Lightweight structures



Laundry Room LW Steel Roof Frame

Column member was cut short in a number of locations. Top bolts omitted in what appears to be a moment connection.



Laundry Room LW Steel Roof Frame

Steel rafter appears to have been designed as a moment transferring member but is currently resting on top of an RC column. Connection does not appear to have been designed and lateral restraint system not evident

Edge protection to slab edges

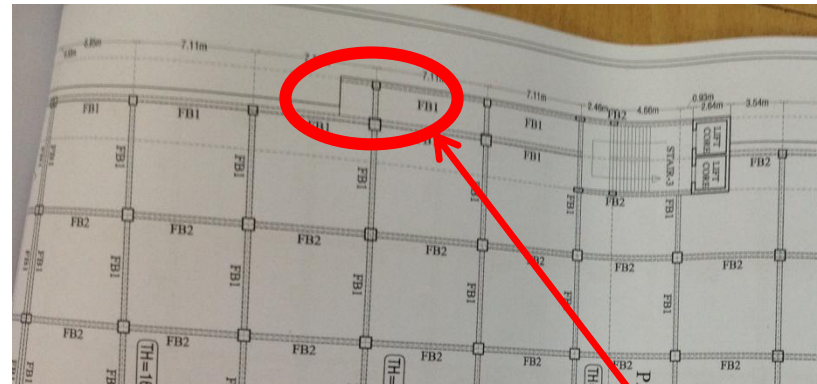
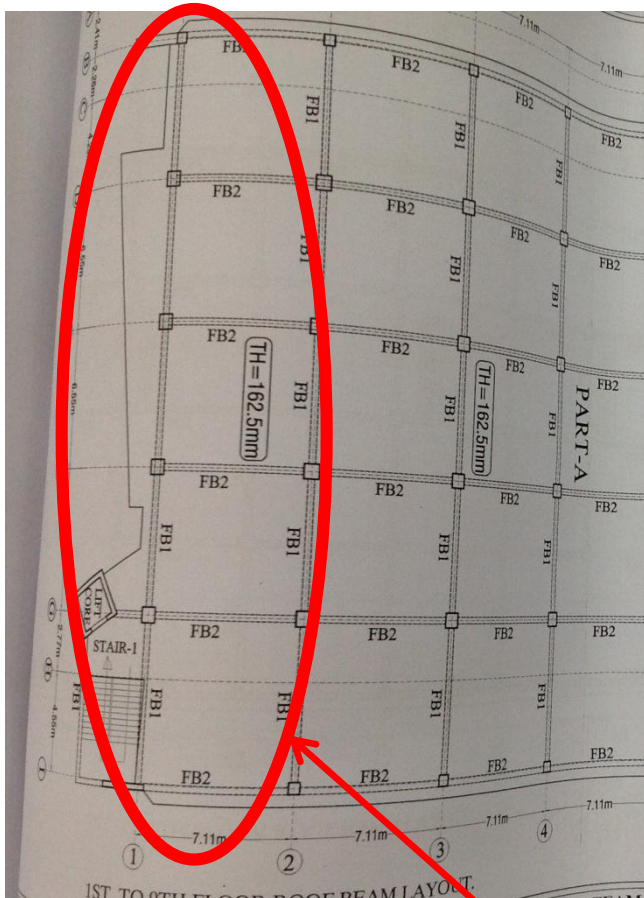
Observation 5: Edge protection to slab edges



No handrail or edge protection provided on the floors currently under construction.

**Structural drawings not consistent with the
as-constructed arrangement of the factory**

Observation 6: Structural drawings not consistent with the as-constructed arrangement of the factory



Cantilever beam indicated on the drawings not provided

Cantilever Beams provided not indicated on the drawings

Observations

Priority Actions

Problems Observed

- ITEM 1:** Cursory calculations indicate columns to be stressed in excess of normal design limits.
- ITEM 2:** Design check required due to discrepancies between 'as-built' drawings and building structure
- ITEM 3:** Localised areas of high loading on suspended slabs
- ITEM 4:** Lightweight structures
- ITEM 5:** Edge protection to slab edges
- ITEM 6:** Structural drawings not consistent with the as-constructed arrangement of the factory

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Cursory calculations indicate columns to be stressed in excess of normal design limits.	Building Engineer to review design, loads and column stresses in Building 1	6-weeks
2	Cursory calculations indicate columns to be stressed in excess of normal design limits.	Verify insitu concrete stresses either by 4 no. 100mm dia. Cores or existing cylinder strength data for the columns	6-weeks
3	Cursory calculations indicate columns to be stressed in excess of normal design limits.	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity and foundations.	6-weeks
4	Cursory calculations indicate columns to be stressed in excess of normal design limits.	Continue to implement load management plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
5	Design check required due to discrepancies between 'as-built' drawings and building structure	Complete as-built survey and commence calculations for verification of Concrete Architectural Feature box to the West Elevation and the omission of the beam below the toilet block.	6-weeks
6	Design check required due to discrepancies between 'as-built' drawings and building structure	Calculations to consider the impact on all slabs, beams and columns affected.	6-weeks
7	Design check required due to discrepancies between 'as-built' drawings and building structure	Building Engineer to survey as constructed building and update drawings as required.	6-months
8	Localised areas of high loading on suspended slabs	Produce and actively manage a loading plan for all floor plates within the Main Building giving consideration to floor capacity and column capacity.	6-weeks
9	Localised areas of high loading on suspended slabs	Continue to implement load management plan	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Lightweight structures	Building engineer to check the capacity of non-engineered lightweight structures under horizontal and vertical loading and make any necessary alterations required.	6-weeks
11	Edge protection to slab edges	Handrails to be provided to all open slab areas or access to be prohibited.	6-weeks
12	Inconsistencies noted between as built drawings and as built construction	Building engineer to prepare a set of “as built” drawings for all structures linked to the factory’s activities.	6-months
13	Inconsistencies noted between as built drawings and as built construction	Permit documentation and drawings also to be updated.	6-months