

N.A.Z. Bangladesh Ltd. (10232)

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15.MAY.2014



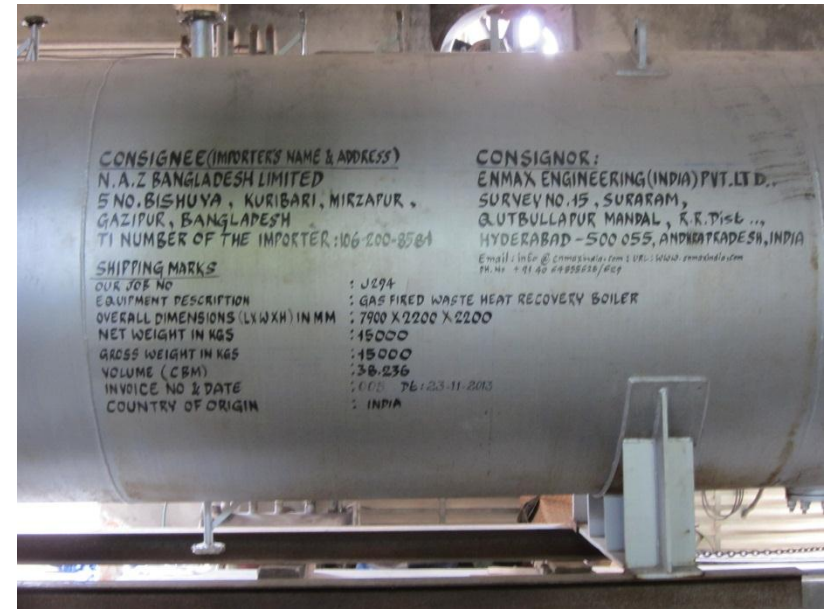
Identified Priority 1 Concerns

- Stability/Capacity check for connecting bridge, slab supported heat exchanger, spiral staircase, customized steel racks and cantilevered beam

1st Priority 1 Concern



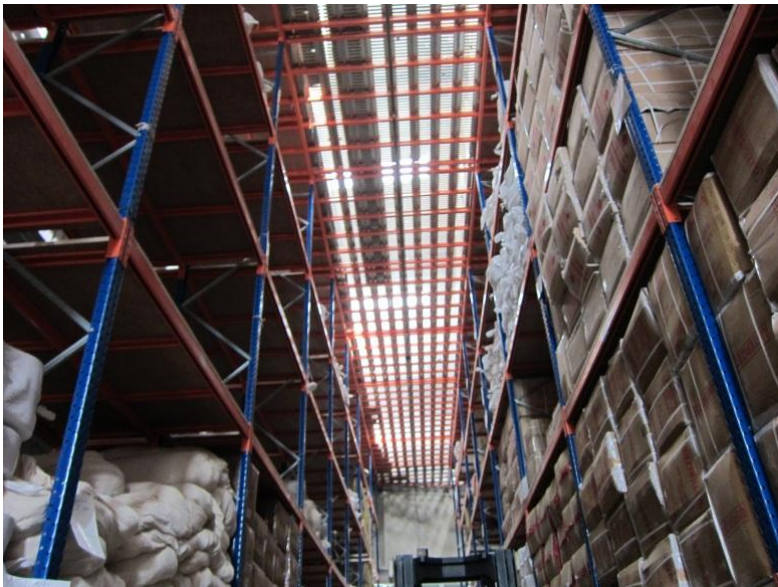
Steel column supporting the ventilation platform is buckled. The column should be replaced and a capacity check should be carried out.



Two span of continuous 150 mm thick slab (5.50x6.50 m) is currently used for the new 15 tons heat exchanger on 1st floor of Utilities building. Capacity check should be carried out.



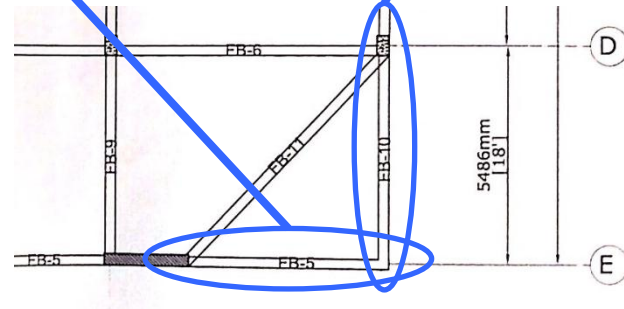
Steel connection of spiral staircase and balustrade of ETP are not attached to the reinforced concrete structure.



Customized steel racking system is used for storage with an upper platform over the entire area. Some horizontal frame are sagging. A capacity check should be carried out.



Capacity check of these beams should be carried out.

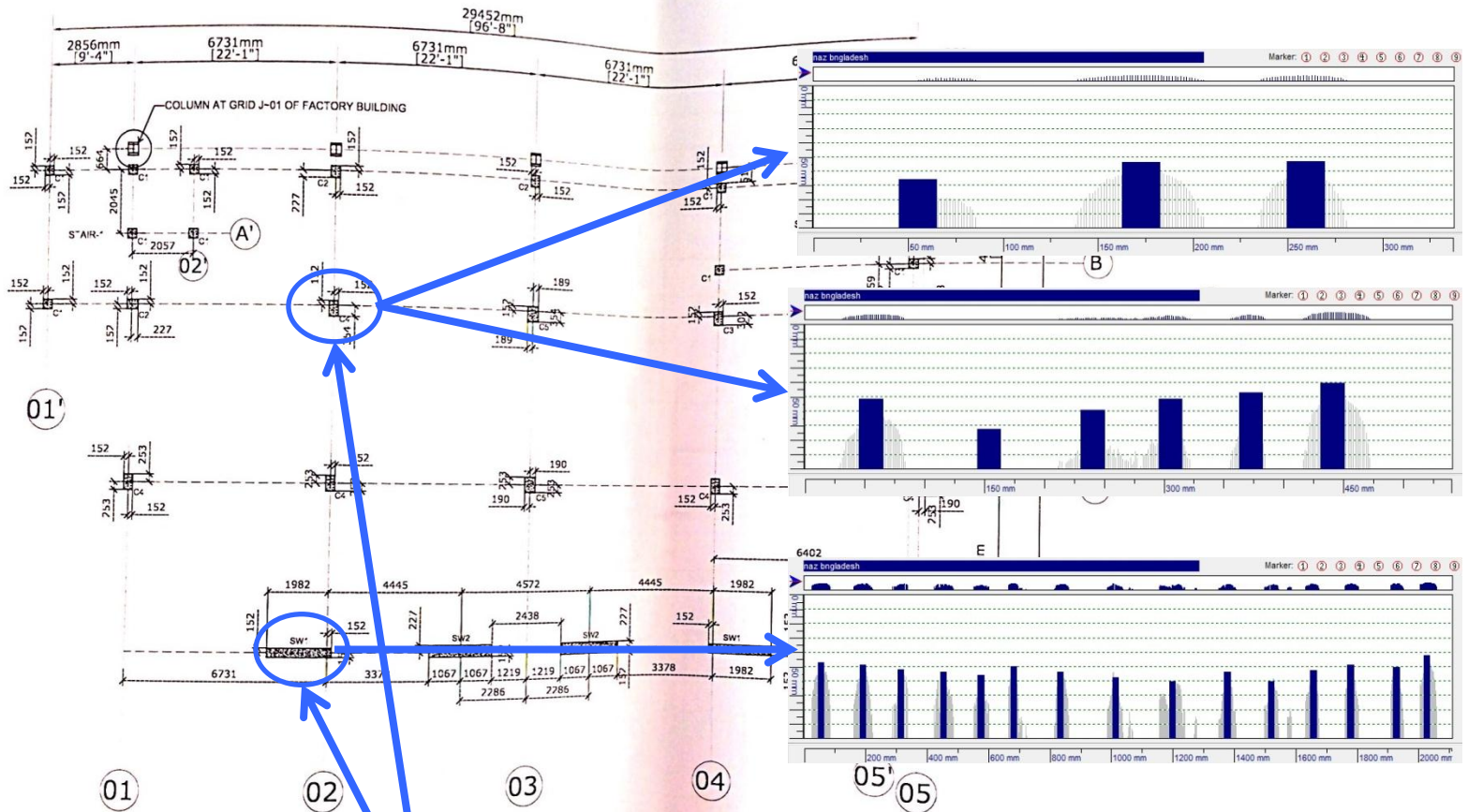


Identified Priority 2 Concerns

- Inconsistencies between drawings and actual as-built conditions,
- Cracks appear on the 1st floor of Main building and
 - Corrosions on steel roof frame



The drawings do not show any of steel staircase, ventilation platform and connecting bridge.



The no. of reinforcement of C4 and SW1 are less than what are shown in the drawing.



Cracks appeared on the 1st floor slab of Main building. It is unclear whether construction joint is properly established.



There are corrosions on steel roof frame at warehouse building. Maintenance/repair should be carried out.

Identified Priority 3 Concerns

- Reinforcement left exposed,
- No fireproofing for steel structure elements and
 - No waterproofing material at roof level



Steel reinforcement are left exposed on the top of reinforced concrete column. It is unclear whether rust-proof paint is applied.



No fireproofing material is applied to the steel structure of the Main building.



There is no distress of water ingress noted on the roof slab. But, it is unclear whether waterproofing material is applied.

Overall Stability System



Concerns on the stability system for lateral loading, façade brickwork walls lack of moment capacity in the connections between columns and beams, especially at the joint connection of steel structure.

We require that these items be investigated in a Detail Engineering Assessment.



Water Ingress at Roof Level



There is no distress due water ingress noted at roof top of each building. But it is still appeared on masonry wall at staircase hall of Utilities building.

Priority Actions

Problems Observed Summary

- ITEM 1: (Priority 1) Capacity check for connecting bridge, slab supported heat exchanger, spiral staircase, customized steel racks and cantilevered beam**
- ITEM 2: (Priority 2) Inconsistencies between drawings and actual as-built condition**
- ITEM 3: (Priority 2) Cracks appeared on floor slab**
- ITEM 4: (Priority 2) Corrosion of steel roof frame**
- ITEM 5: (Priority 2) Overall stability system**
- ITEM 6: (Priority 3) Reinforcement left exposed**
- ITEM 7: (Priority 3) Fireproof paint for steel structure**
- ITEM 8: (Priority 3) Water ingress at masonry wall**
- ITEM 9: (Priority 3) Water proofing material to be applied/maintained**

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Capacity check for connecting bridge, slab supported heat exchanger, spiral staircase, customized steel racks and cantilevered beam.	Factory Engineer to review design, loads and columns stresses in area identified above. A Detail Engineering Assessment of Factory to be commenced immediately in particular the stability and capacity of connecting bridge, slab supported heat exchanger, support of spiral staircase, customized steel racks and cantilevered beam.	Immediate – Now
2	Capacity check for connecting bridge, slab supported heat exchanger, spiral staircase, customized steel racks and cantilevered beam.	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity. A Detailed Engineering Assessment to be completed.	6-weeks
3	Capacity check for connecting bridge, slab supported heat exchanger, spiral staircase, customized steel racks and cantilevered beam.	Continue to implement loading plan. A Detailed Engineering Assessment is to be completed.	6-months
4	Inconsistencies between drawings and actual as-built condition.	Factory Engineer to survey the actual conditions and revise the drawings. Factory Engineer to review design, loads and columns stresses to confirm suitability for loads applied. Produce and actively manage a loading plan for all floor plates within this area giving consideration to floor capacity and column capacity.	6-weeks
5	Inconsistencies between drawings and actual as-built condition.	Continue to implement load plan.	6-months
6	Cracks appeared on floor slab.	A Detailed Engineering Assessment of this area to be carried out. The distress found is recommended to be repaired. Repair by simply re-rendering is not suitable.	6-weeks
7	Cracks appeared on floor slab.	Maintain standards of quality control to ensure that loading plan is correctly followed so that problems do not arise in the future.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
8	Corrosion of steel roof frame.	The distress found is to be suitably repaired and the cause rectified. Repair by simply re-rendering is not suitable.	6-weeks
9	Corrosion of steel roof frame.	Maintain standards of quality control to ensure that all rust is removed and rust-proof paint is applied so that problems do not arise in the future.	6-months
10	Overall stability system.	Request that the Detail Engineering Assessment of the overall building to be carried out and in particular, stability and foundation aspects should be investigated in detail.	6-weeks
11	Reinforcement left exposed	Rust-proof paint to be applied for the exposed steel reinforcement.	6-months
12	Fireproof paint for steel structure.	Fireproofing material for structural steel element needs to be applied (if required based on the provision of BNBC Codes). Maintain standard of quality control.	6-months
13	Water ingress at masonry wall.	Engineer to inspect water damaged structure and propose a suitable repair.	6-months
14	Water proofing material to be applied/maintained.	Engineer to inspect water damaged structure including the exterior and propose a suitable repair. For both durability and serviceability, waterproofing on the roof slab is recommended. Moreover the roof slab drainage system should be investigated.	6-months