

Rose Intimates Ltd.

Baroipara, Ashulia, Savar, Dhaka, Bangladesh
(24.021676N, 90.243656E)

8th and 21st January 2019





Observations



Discrepancies in as-built drawings

Observations: Main Factory Building



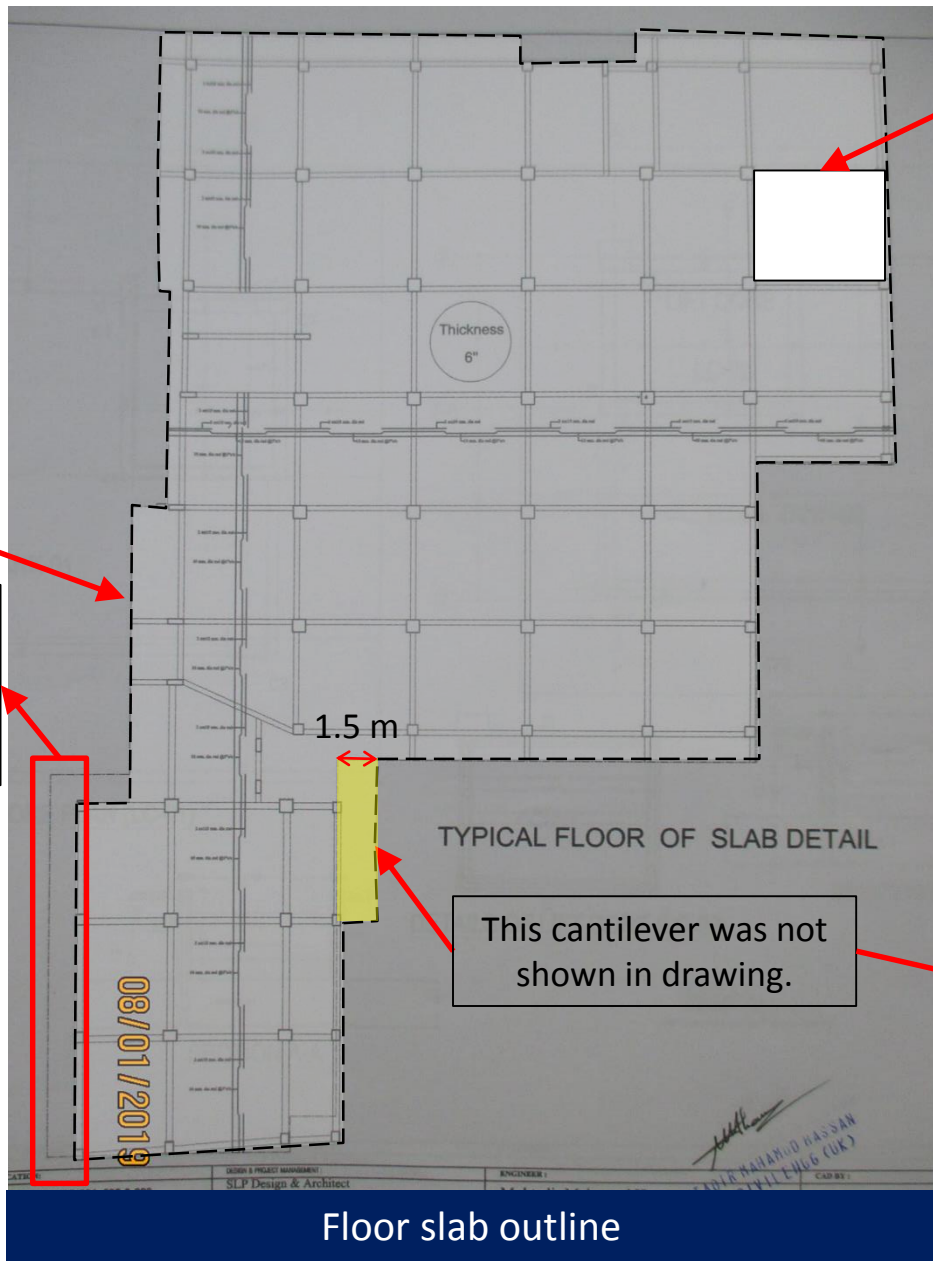
The slab layout (cantilever) of this building was not matched with provided drawings.

Slab outline

There was no cantilever in the marked portion but shown in layout drawing.



No barrier found on 5th floor



Floor slab outline

There was a void at 1st floor level (over loading/unloading zone) but shown in slab layout.



Loading/unloading zone

This cantilever was not shown in drawing.



Cantilever on roof

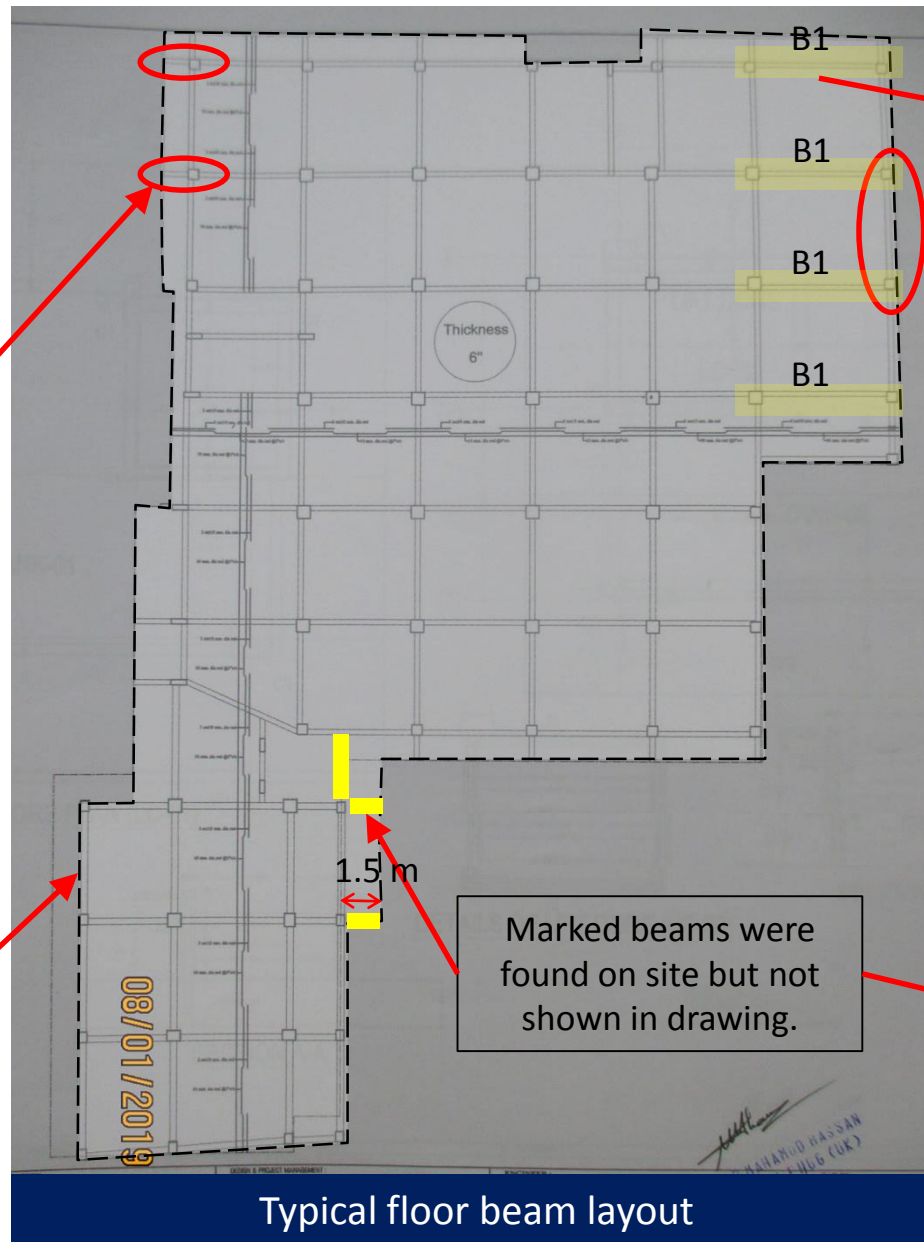
Observations: Main Factory Building



The floor beam layout of this building was not matched with provided drawings.

There was no cantilever beam on site but shown in drawing.

Slab outline



Beam B1 (300x600mm) was found instead of B2 (300x750mm) in the marked locations.

There was no beam in the marked portion at 1st floor level but shown in drawing.



Loading/unloading zone

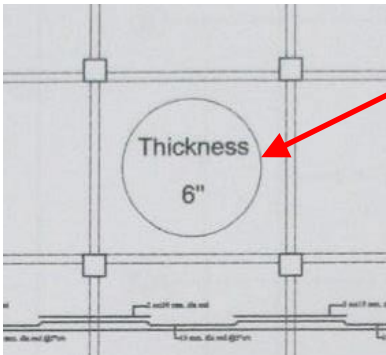


Cantilever at floor level

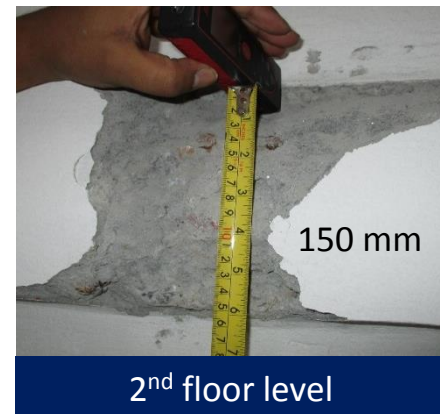
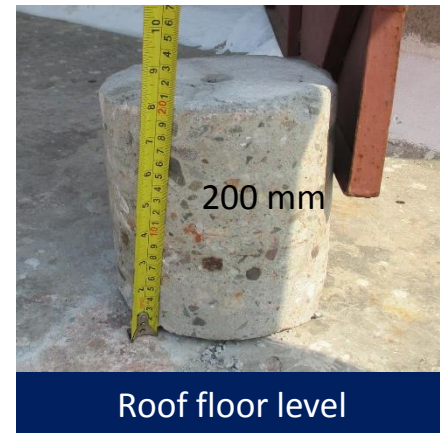
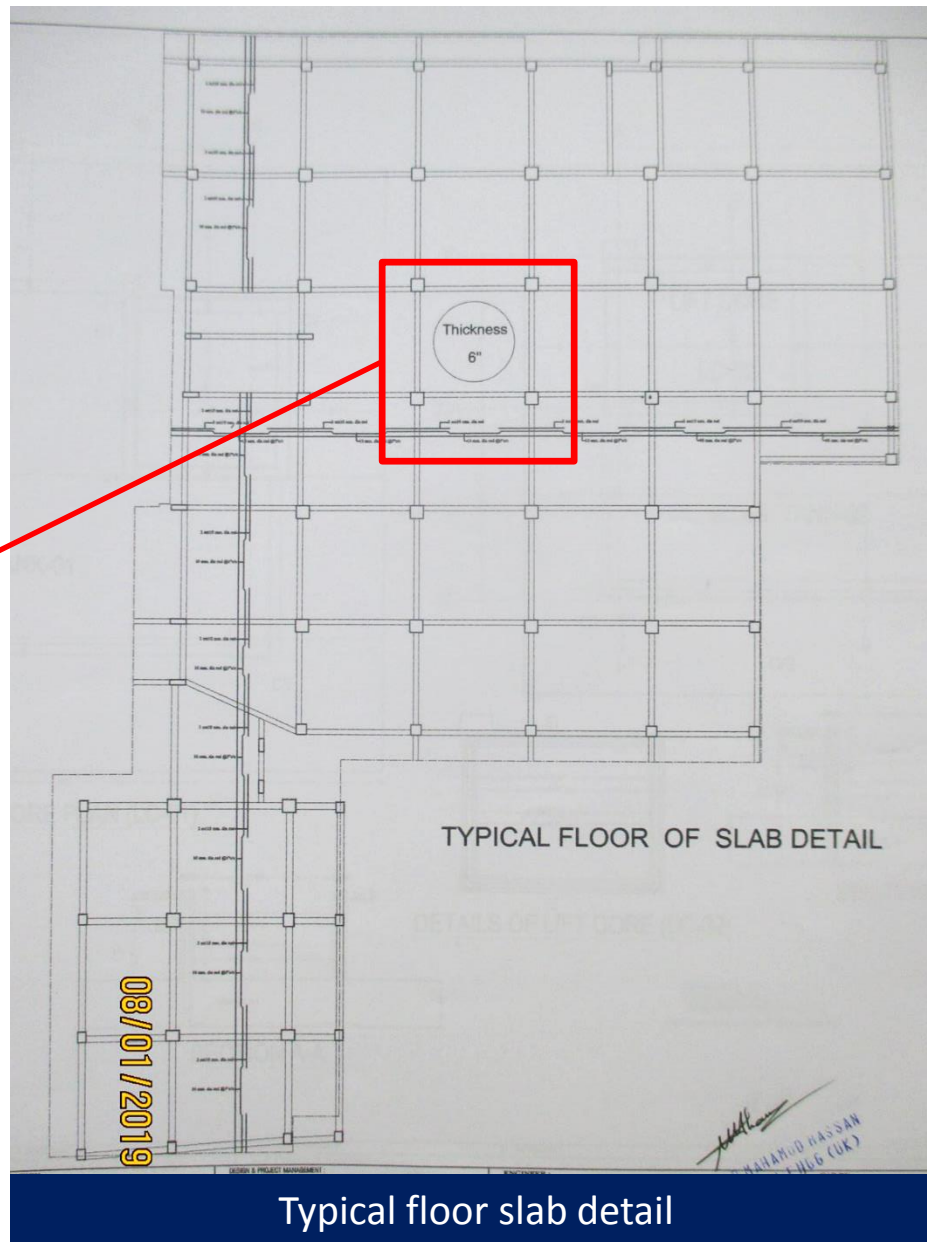
Observations: Main Factory Building



The floor slab thickness was not matched with provided drawings.



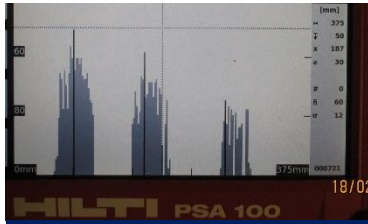
150mm (6") slab thickness was shown in drawings. But it varies floor to floor from 150mm to 200mm.



Observations: Main Factory Building



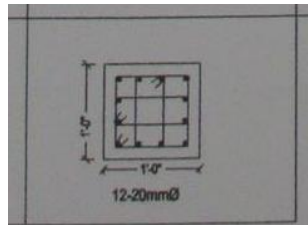
The size of C7 column was measured 300mmx 450mm instead of 300mm x 300mm. Also, 10 number rebar was found instead of 12.



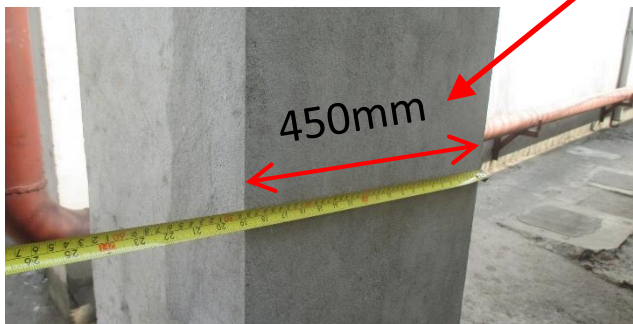
Rebar in short face



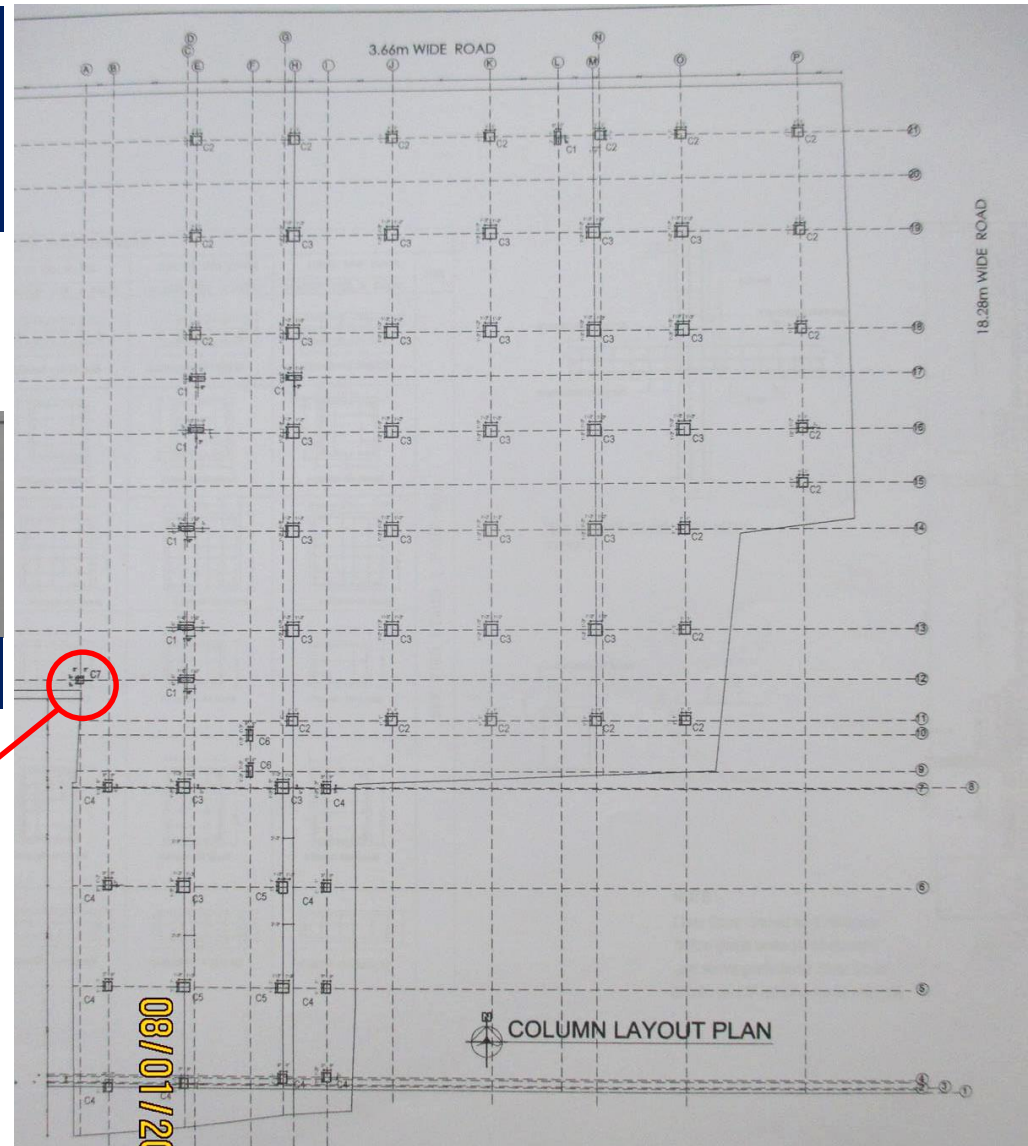
Rebar in long face



C7 column



Ground level



Column Layout

Observations: Main Factory Building



Design report to be verified

Observations: Main Factory Building

4.5.1.5 LOAD COMBINATIONS

Load combinations are considered as per ACCORD/ ALLIANCE Standard.

Collapse/Strength Design Load Combinations

1. $1.2 \text{ DL} + 1.6 \text{ LL}$
2. $1.05 \text{ DL} + 1.25 \text{ LL} + 1.0 \text{ W}$
3. $1.05 \text{ DL} + 1.25 \text{ LL} - 1.0 \text{ W}$
4. $1.05 \text{ DL} + 1.25 \text{ LL} + 1.0 \text{ E}$
5. $1.05 \text{ DL} + 1.25 \text{ LL} - 1.0 \text{ E}$

The building was constructed in between February 2014 and January 2017. NTPA (Accord/Alliance) load combination has been used in design report. BNBC-2006 load combination to be used in design report.

Beam designation	Beam size	Provided Reinforcement at Top near column (in ²)	Required Reinforcement at top near column (in ²)	Provided Reinforcement at mid span (in ²)	Required Reinforcement at mid span (in ²)	Remarks
1ST B10-B11	24"x12"	3.57	5.28	2.85	3.52	Adequate
1ST K16-K17	24"x12"	2.95	5.28	2.05	3.52	Adequate

Table-3-B Adequacy of beam reinforcement at 1st floor slab beam

The amount of provided reinforcement in beams are less than required amount. But remarks shows adequate. The beam adequacy to be rechecked in design report.

4.4 DESIGN DATA

R.C Structure: Ultimate Strength Design (USD) method (Chapter 6, Part 6 of BNBC) will be adopted for design /check of all R.C structure member/elements.

No of storied-7

Concrete Strength – 4000 psi

The concrete strength from cylinder test data to be calculated following BNBC.

Observations: Main Factory Building



Lack of floor load management program

Observations: Main Factory Building



Neither visible load plan nor load restriction height marking was observed in any floor to maintain the design live load. The factory is required to implement floor load management program.

Observations: Main Factory Building



Lack of detail for roof floor and adjacent steel stair

Observations: Main Factory Building



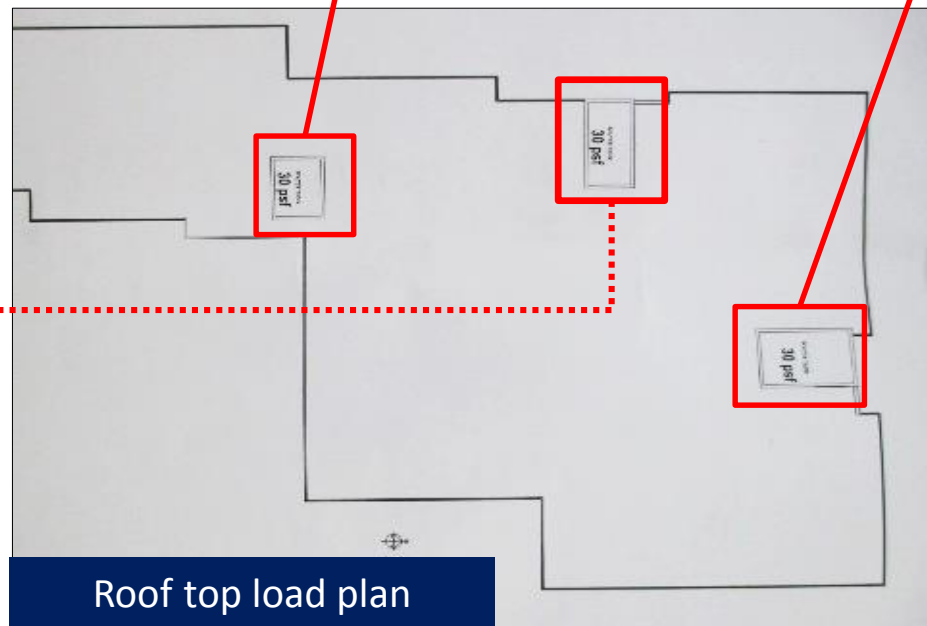
O.H.W.T with lift core



No O.H.W.T, No Lift core



No O.H.W.T; Only lift core



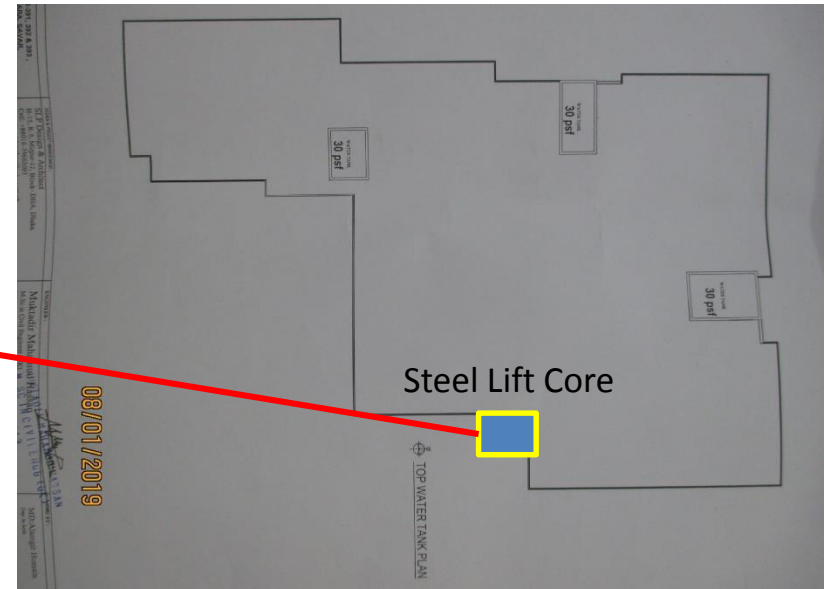
Roof top load plan

On the roof level, there three RC over head water tanks were shown whereas only one RCC water tank was found on the marked location. In addition, no roof top detail was found in as-built architectural drawing.

Observations: Main Factory Building



The steel lift core adjacent to main building.



Roof top layout in load plan



Connection (bolted) between steel frame to building

A steel stair adjacent to main factory building have no architectural and structural details.
The connection between main building and steel stair seems to be non-engineered.
Structural redundancy of vertical member not to be verified.

Observations: Main Factory Building



Falling Hazard

Observations: Main Factory Building



No peripheral railing/barrier was observed at 5th floor level which may causes any falling hazard. The factory is required to provide barrier around the floor.

Observations: Main Factory Building



Column is susceptible to vehicle impact.

Observations: Main Factory Building



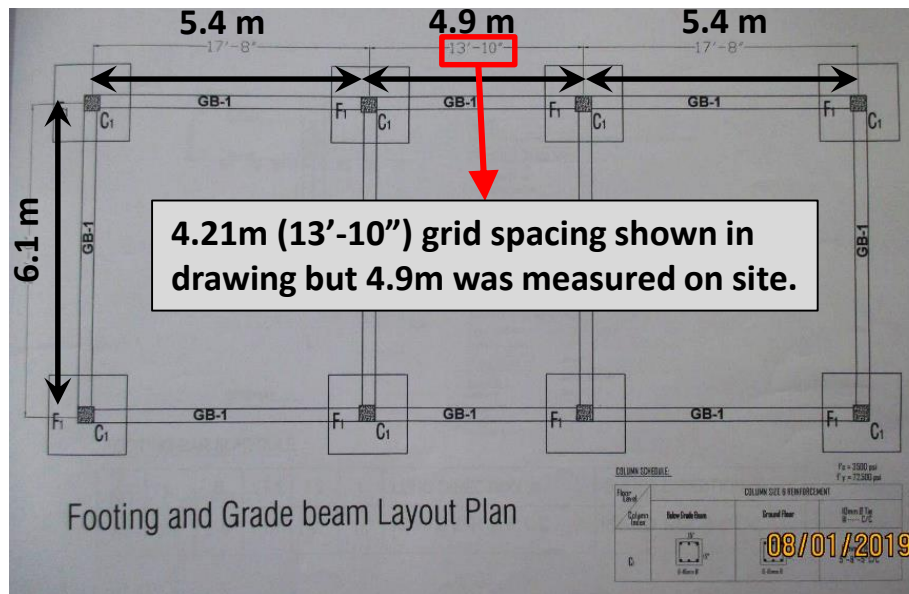
No barrier and signage was observed to protect the columns in loading-unloading zone which are susceptible to vehicle impact.

Observations: Main Factory Building

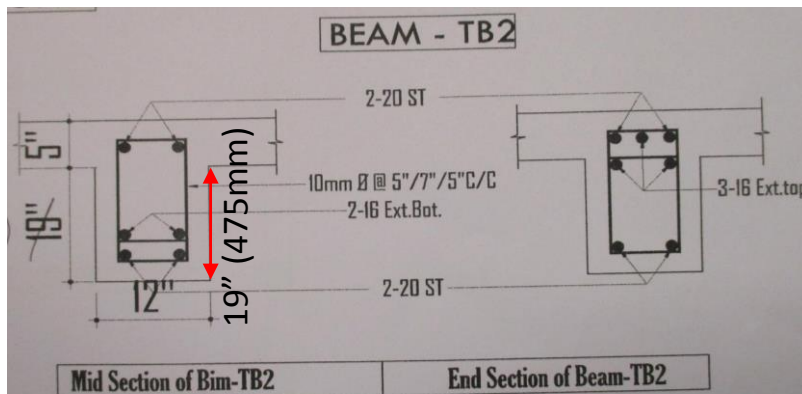


Discrepancies in as-built drawings

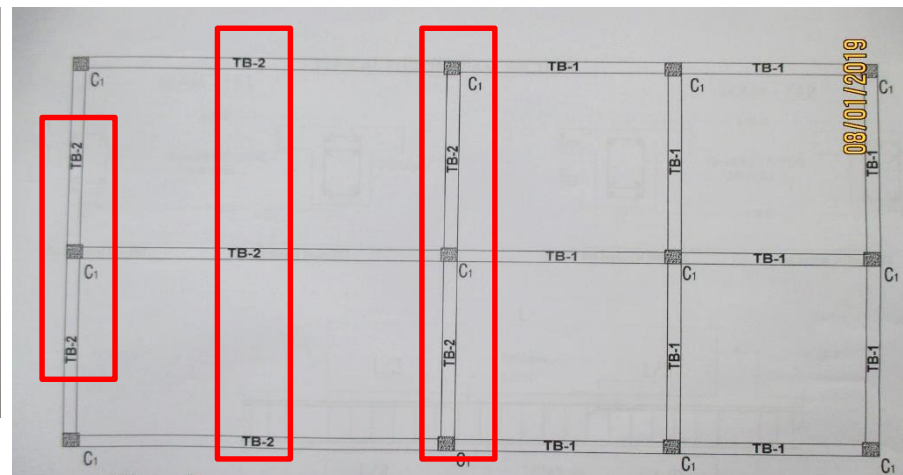
**Observations: Sub-station/Generator and
Doctor's Building**



The grid spacing of Doctor's and Child-care building was not similar with provided drawings.



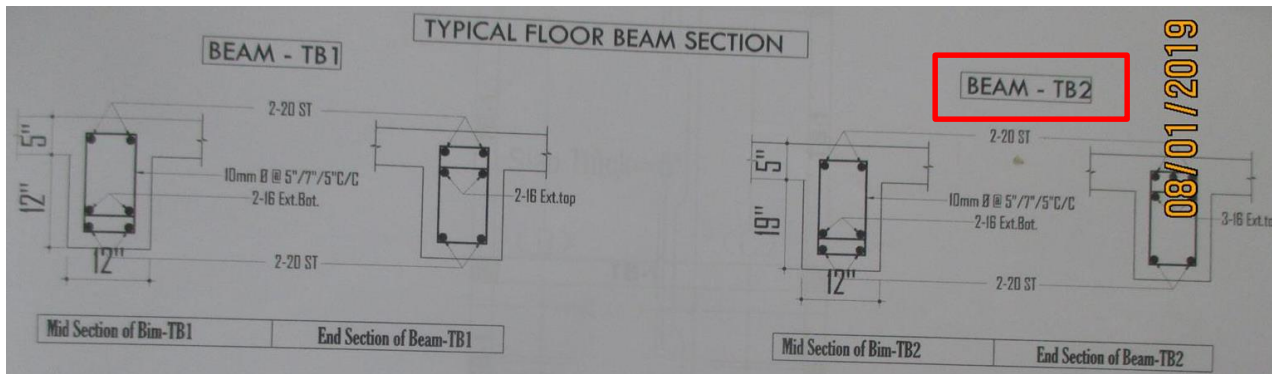
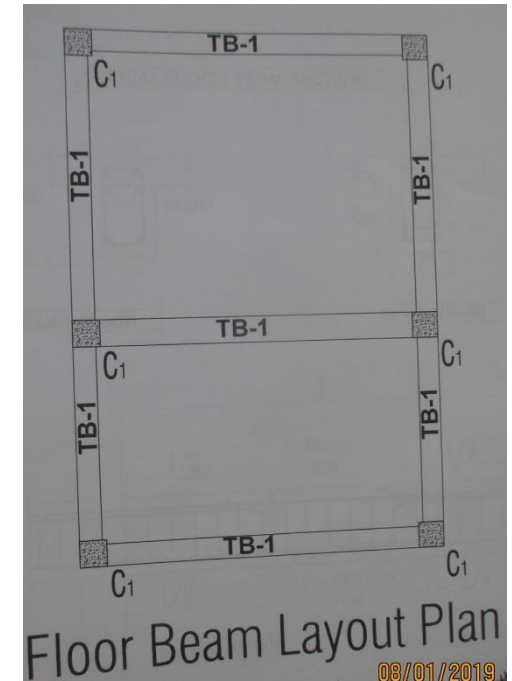
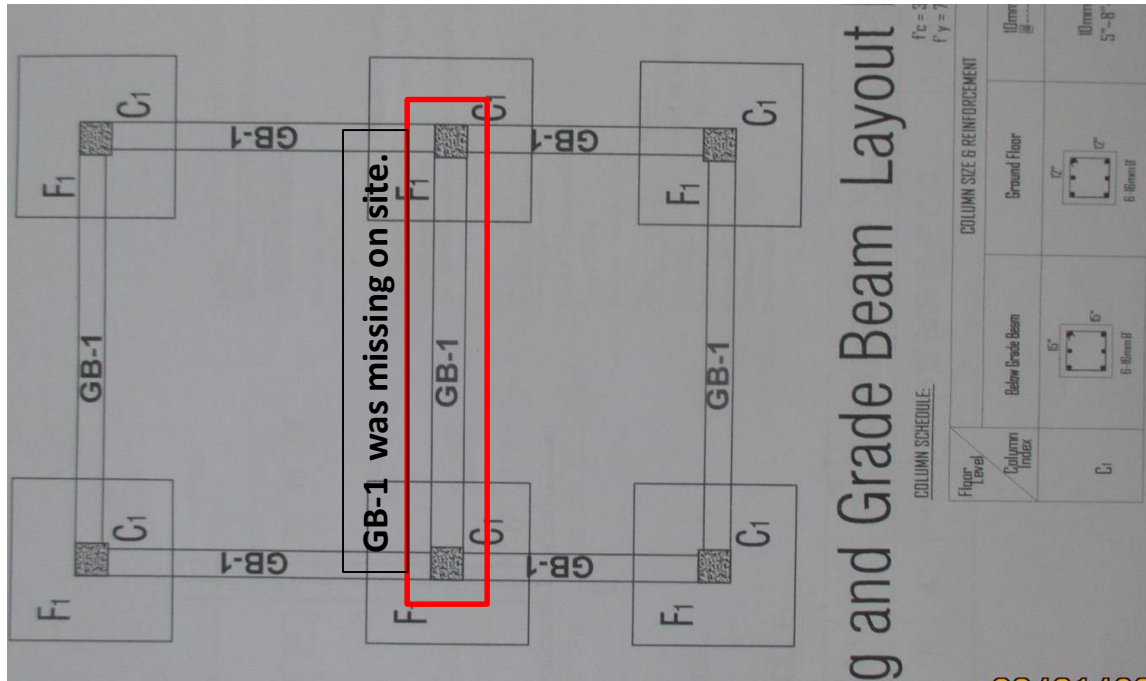
On site, down stand of TB-2 was measured 425mm (17") instead of 475mm (19").



Column & beam layout

Also, column schedule and grid spacing of generator building was not available in the drawings.

Observations: Sub-station/Generator and Doctor's Building



TB-2 beam was not found in beam layout as well as on site

The column grid spacing of Fire pump building was not shown in provided drawings. Also, internal grade beam was not found on site. There is no TB2 beam but shown in drawing.

Observations: Fire Pump Building



Priority Actions



Problems Observed

Main Factory Building:

- 1: Discrepancies in as-built drawings.
- 2: Design report to be verified.
- 3: Lack of floor load management program.
- 4: Lack of detail for roof floor and adjacent steel stair.
5. Column is susceptible to vehicle impact.

Utility Buildings:

- 6: Discrepancies in as-built drawings.



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Discrepancies in as-built drawings. (Main Factory Building)	Factory Engineer to survey the structure and prepare a full set of “as-built” drawings which reflect the as-constructed status.	6-weeks
2	Design report to be verified. (Main Factory Building)	Factory Engineer to check the load combinations, design parameters, and adequacy of column and floors and revise the design report as per BNBC-2006.	6-weeks
3	Design report to be verified. (Main Factory Building)	Produce and actively manage a loading plan for all floor plates giving consideration to floor capacity and column capacity.	6-weeks
4	Design report to be verified. (Main Factory Building)	Continue to implement allowable floor loading plan.	6-months
5	Lack of floor load management program. (Main Factory Building)	Provide proper signage and load restriction height marking in each floor level and maintain floor live loading according to floor load plan.	6-weeks
6	Lack of floor load management program. (Main Factory Building)	Implement the allowable floor loading plan.	6-months



Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Lack of detail for roof floor and adjacent steel stair. (Main Factory Building)	Factory engineer to prepare the floor layout for roof level.	6-weeks
8	Lack of detail for roof floor and adjacent steel stair. (Main Factory Building)	Factory engineer to prepare the detail drawing and check the effect of steel stair to the main building and incorporate the analysis/calculation in the design report.	6-weeks
9	Lack of detail for roof floor and adjacent steel stair. (Main Factory Building)	Implement the recommendation of engineering assessment report.	6-months
10	Falling Hazard. (Main Factory Building)	Factory is required to provide railing/barrier for the under construction zone to protect any falling hazard.	Immediate - Now
11	Column is susceptible to vehicle impact. (Main Factory Building)	Factory is required to provide barrier for the columns susceptible to vehicle impact in loading unloading zone.	6-weeks
12	Lack of as-built drawings. (Utility Buildings)	Factory Engineer to survey the structure and prepare a full set of "as-built" drawings which reflect the as-constructed status.	6-weeks