

Eco Fab Ltd.

228/1, Jogitala, BRRI, Gazipur-1701, Bangladesh
(23.972848, 90.395301)

27th November 2016





Observations



Inadequate structural drawing and Mismatch between provided drawing & as built condition

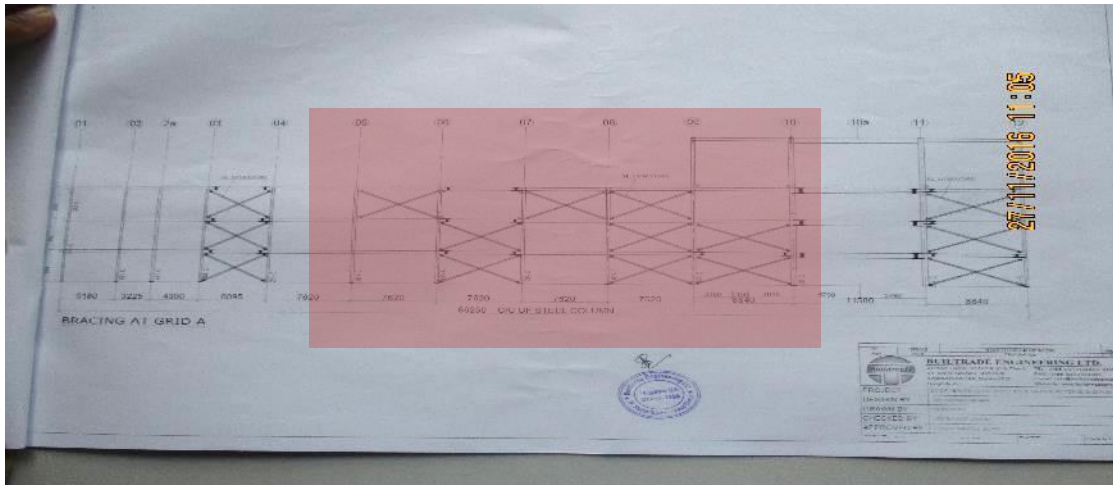
Observation: Main Factory Building



Structural drawings for external/internal steel stair for main building & utility building were not found

Connection details for steel section not found in provided drawings

Observation: Main Factory Building



Mismatch found with provided bracing layout & as built condition.



Loose cable bracings observed



Bracings are not installed properly and no bracings found at west .
Cross bracing found in single direction.

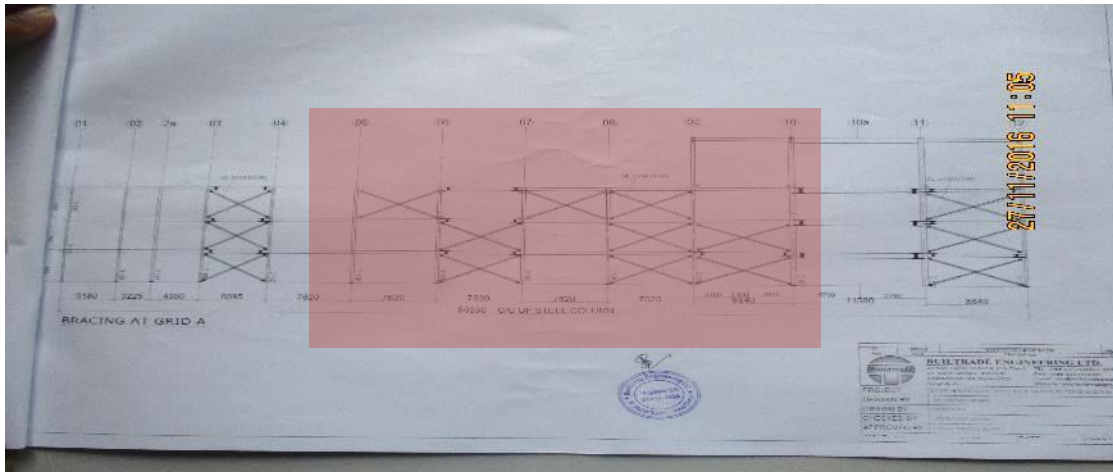


Cable Bracing are installed only
on 2nd floor at North.



Lack of lateral stability

Observation: Main Factory Building



Mismatch found with provided bracing layout & as built condition.



Bracings are not installed properly and no bracings were found at west . Cross bracing were found in single direction.



Cable Bracing are installed only on 2nd floor at North.

Over all stability was not clear and inadequate drawing was observed . Factory engineer is required to check the stability of the building against lateral load.

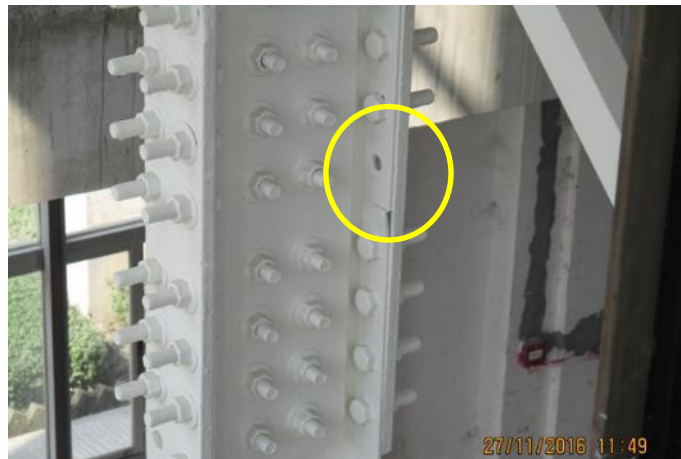
Observation: Main Factory Building



Bolt missing in several connection



Main Factory Building



Capsule Lift at admin building



Stair at utility building

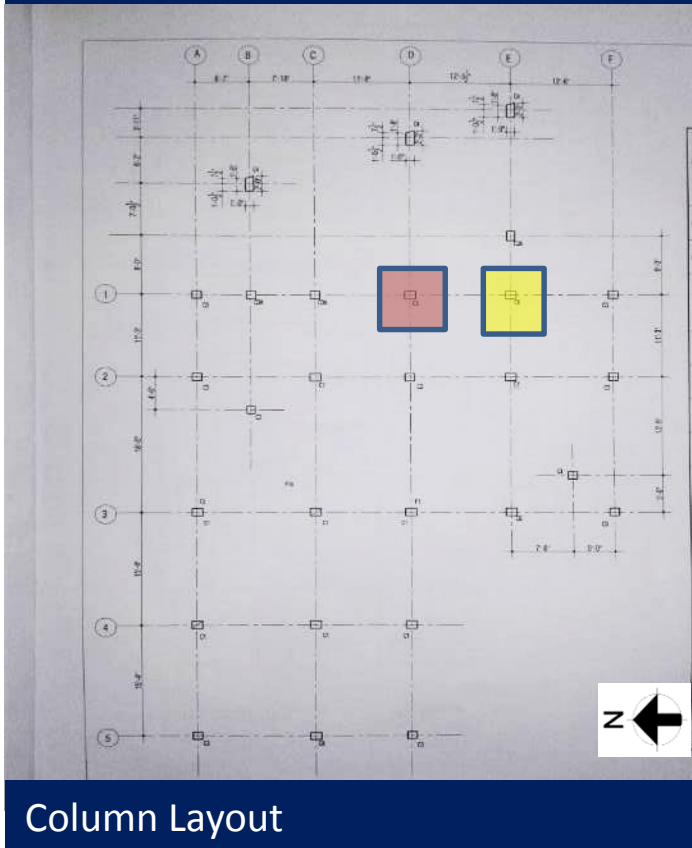


Mismatch between provided drawing & as built condition

Observation: Admin Building

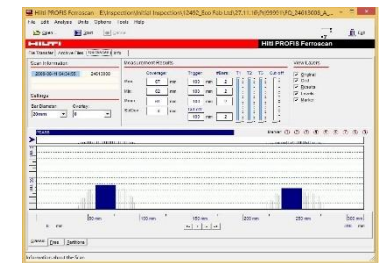
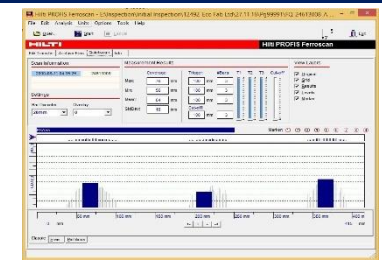


Column size & nos. of rebar didn't matched with provided structure drawing.



■ C5 & ■ C6 Column sizes are measured (16x12) inch and (3x2) 8 nos. of rebar observed by ferro scan but column schedule shows different.

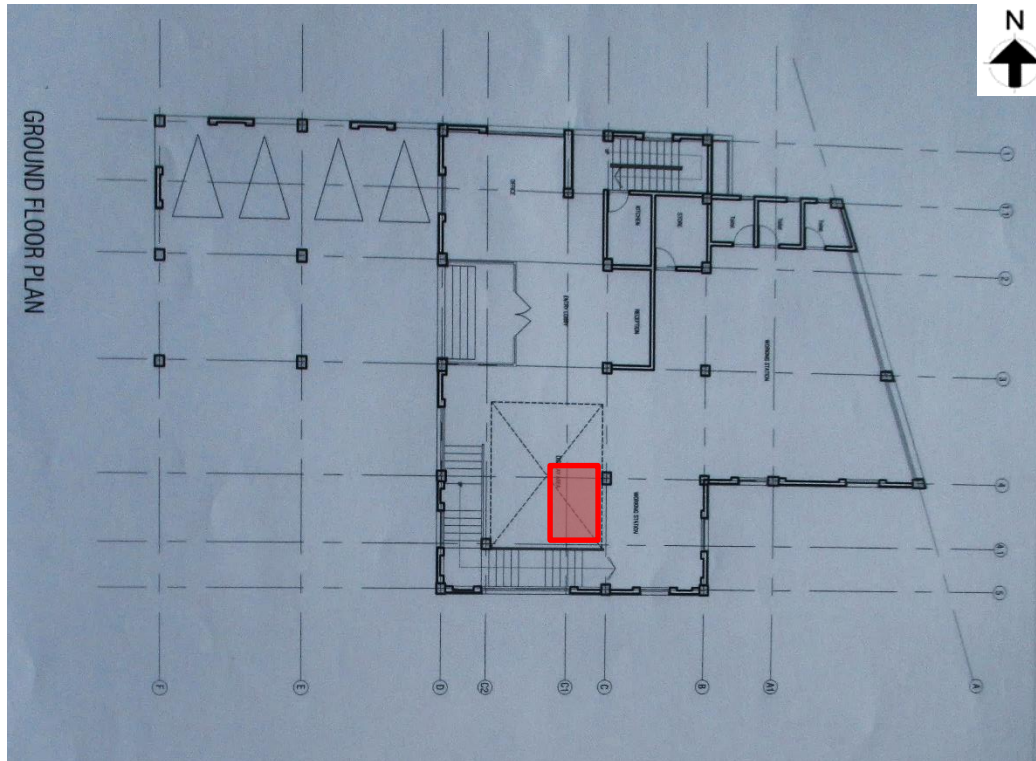
COLUMN (ID)	DIMENSION		SECTION	REINFORCEMENT	
	L	W		MAIN BAR	TIE BAR
C1 (Below PL)	14"	18"		4 - Ø 20 mm + 2 - Ø 16 mm	Ø 10 mm @ 5"8"/5"C/C
C1 (Above PL)	12"	16"			
C2	12"	12"		4 - Ø 16 mm	Ø 10 mm @ 5"8"/5"C/C
C3 (Below PL)	14"	16"			
C3 (Above PL)	12"	14"		6 - Ø 16 mm	Ø 10 mm @ 5"8"/5"C/C
C3A (Below PL)	14"	18"			
C3A (Above PL)	12"	16"		8 - Ø 16 mm	Ø 10 mm @ 5"8"/5"C/C
C4 (Below PL)					
C4 (Above PL)				8 - Ø 20 mm	Ø 10 mm @ 5"8"/5"C/C
C5 (Below PL)	14"	24"		6-20Ø+6-16Ø	Ø 10 mm
C5 (Above PL)	12"	22"			
C6 (Below PL)	14"	22"		10-16Ø	Ø 10 mm
C6 (Above PL)	12"	20"			



C6 (Below PL)	14"	22"	
C6 (Above PL)	12"	20"	



Undocumented steel capsule lift found under construction inside Admin building during inspection.



Foundation system is not clear for the capsule lift.
No connection detail was available for the lift in the time of inspection.

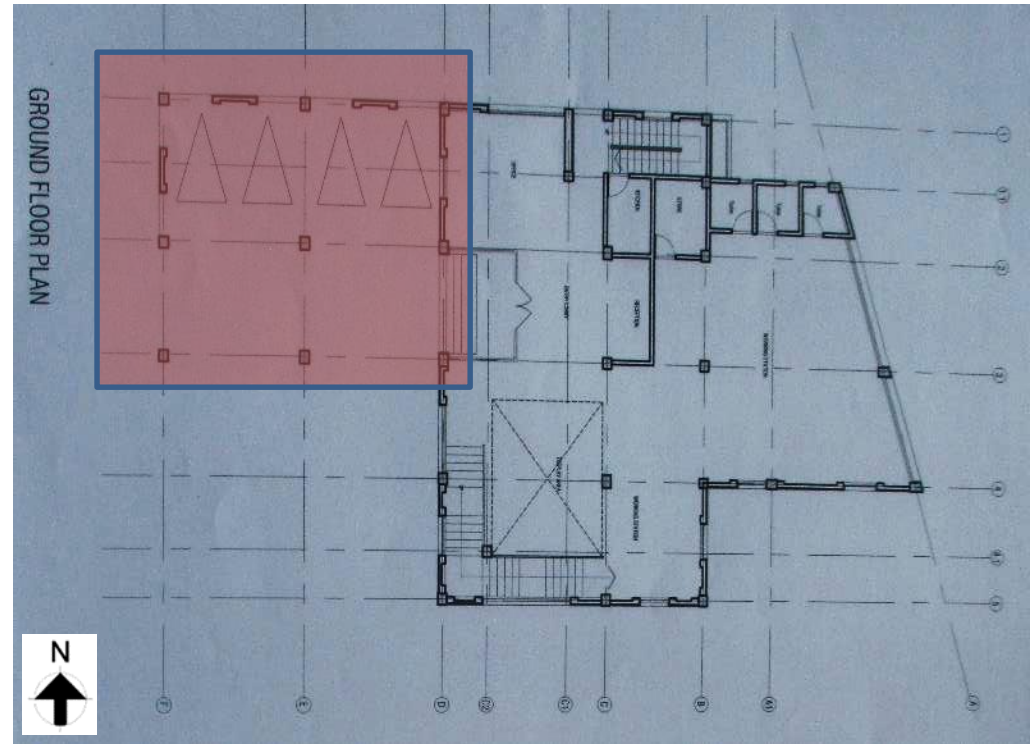


Observation: Admin Building



Columns exposed to impact loading from vehicle

Observation: Admin Building



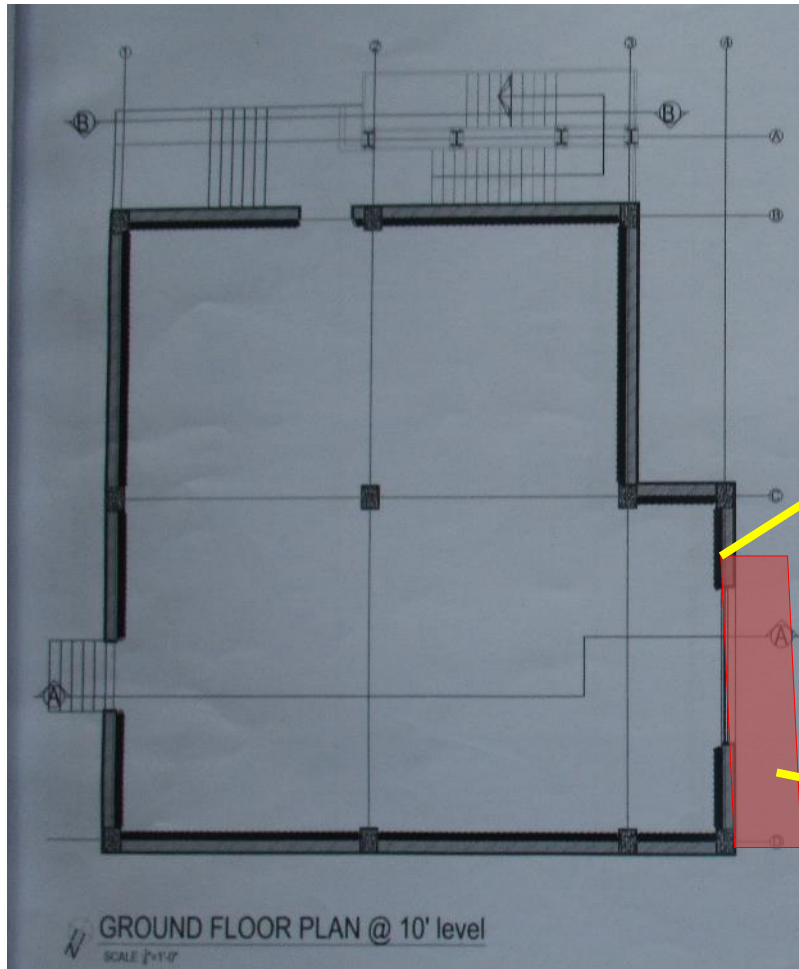
Impact protection not provided to columns on parking area at Admin building. Columns are susceptible to impact loading from vehicles.

Observation: Admin Building



Discrepancies between Provided drawings and as built condition

Observation: Utility Building

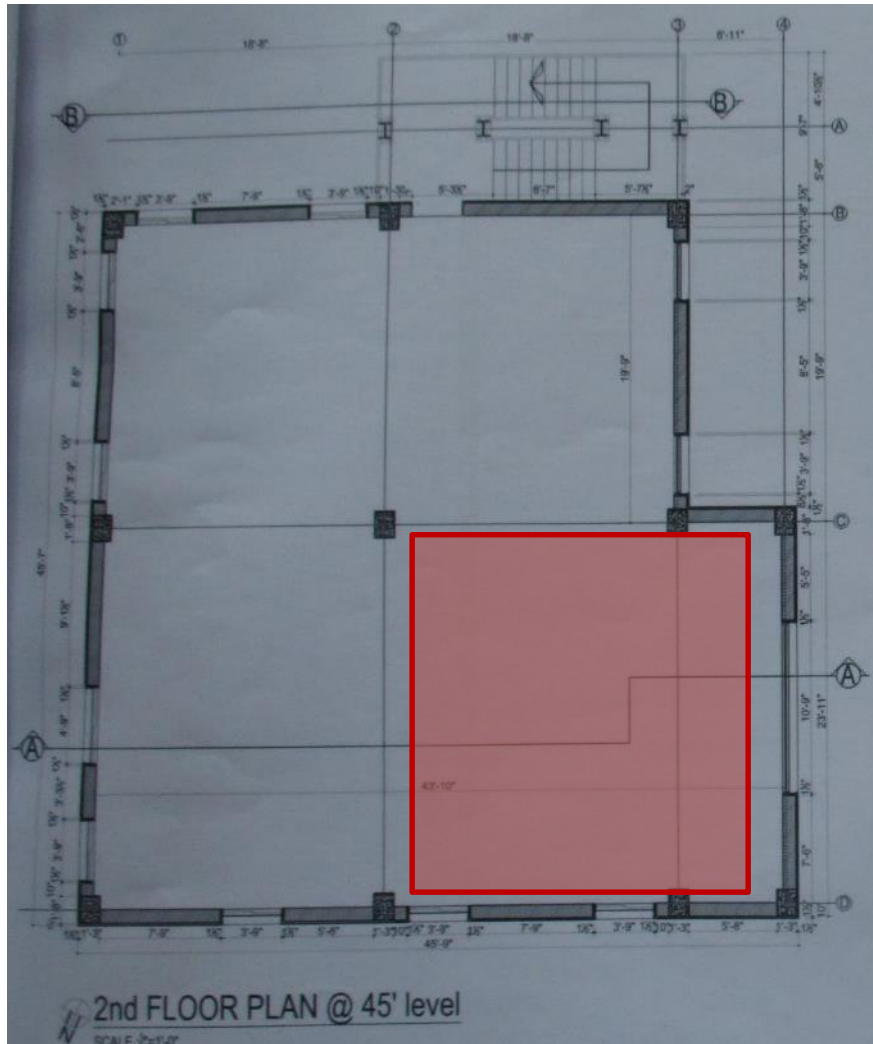


An extension were observed at west connected with main structure only on ground floor. No drawings were available for the extension. Foundation system is clear for the extension part.

Observation: Utility Building



Heavy machineries were found on 2nd floor



Heavy machineries were found at on 2nd floor shown in red in layout.



Water ponding found at roof

Observation: Utility Building



Due to overflow and lack of proper drainage system, water ponding were found at roof.

Observation: Utility Building



Problems Observed

Factory Building

- Item 1: Inadequate structural drawing and Mismatch between provided drawing & as built condition
- Item 2: Lack of lateral stability
- Item 3: Bolt missing in several connection

Admin building

- Item 4: Mismatch between provided drawing & as built condition
- Item 5: Columns exposed to impact loading from vehicle

Utility Building

- Item 6: Discrepancies between Provided drawings and as built condition
- Item 7: Heavy machineries were found on 2nd floor
- Item 8: Water ponding found at roof



Priority Actions



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Inadequate structural drawing and Mismatch between provided drawing & as built condition	Factory engineer to check, collect information and produce accurate and complete as-built documentation	6-weeks
2	Lack of lateral stability	Building Engineer to review stability system for lateral loading as per BNBC. Building Engineer to design and detail structural upgrading work where necessary to ensure adequate stiffness of bracing system.	6-weeks
3	Lack of lateral stability	Where required, remedial measures to steelwork to be carried out.	6-months
4	Bolt missing in several connection	Qualified Structural Engineer to investigate the connection of building and suggest necessary remediation.	6-weeks
5	Mismatch between provided drawing & as built condition	Building Engineer to update as-built drawing according to actual condition.	6-weeks



Item No.	Observation	Recommended Action Plan	Recommended Timeline
6	Columns exposed to impact loading from vehicle	Install a barrier to prevent vehicle impact in column.	6-weeks
7	Discrepancies between Provided drawings and as built condition	Building Engineer to prepare accurate as-built structural drawing	6-weeks
8	Heavy machineries were found on 2nd floor	Engage a Building Engineer to investigate the floor loading, and advise on any necessary alterations taking account of floor capacity and column capacity	6-weeks
9	Heavy machineries were found on 2nd floor	Make any structural alterations as advised by Building Engineer	6-months
10	Water ponding found at roof	Building engineer to review the roof drainage and implement any appropriate drainage system that will prevent water ponding on the roof.	6-months