

Fuli Industrial Ltd.

Plot # 148-151, Dhaka EPZ (Old Zone), Ashulia-1349, Savar, Dhaka.

(23.950617, 90.265258)

25 August 2024



1. Building Information

1. Partially six-storied Production Building.
2. Single Storied Utility Building
3. Single-storied fire Pump Shed with an underground pump room.
4. Single-storied Wastage Shed
5. Single Storied Guard Room

2. Observation:

Observation-1: Inconsistencies in DEA report. (Production Building)

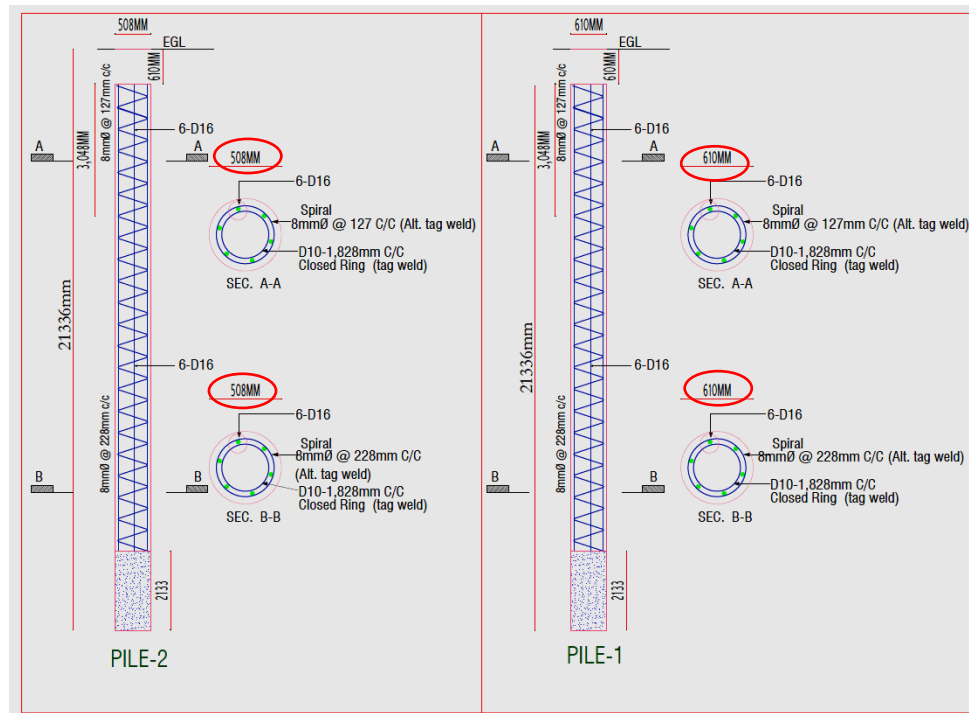


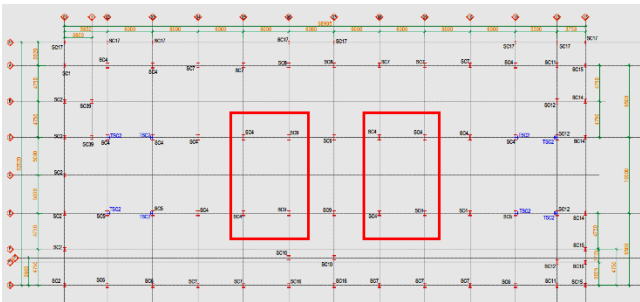
Table 4.2.1: Bearing Capacity Check of Pile

Joint Label	Pile Cap Type	Provided Number of Pile	Allowable Pile Capacity	FoS (From Soil Test Report)	Ultimate Load Bearing Capacity	Reaction (DL + LL)	Available FoS (For Existing Foundation)	Remarks (Minimum FoS=2.5)
		Nos	kip		kip	kip		
1	PC2	2.0	210	2.5	1050.00	80.459	13.05	OK
2	PC2	2.0	210	2.5	1050.00	153.603	6.84	OK
3	PC3	3.0	210	2.5	1575.00	152.497	10.33	OK
4	PC2	2.0	210	2.5	1050.00	152.019	6.91	OK
5	PC3	3.0	210	2.5	1575.00	156.864	10.04	OK
6	PC2	2.0	210	2.5	1050.00	129.825	8.09	OK
7	PC2	2.0	210	2.5	1050.00	164.292	6.39	OK
8	PC2	2.0	210	2.5	1050.00	207.387	5.06	OK
9	PC4	4.0	210	2.5	2100.00	191.728	10.95	OK
10	PC4	4.0	210	2.5	2100.00	596.811	3.52	OK
11	PC3	3.0	210	2.5	1575.00	509.091	3.09	OK
12	PC5	5.0	210	2.5	2625.00	792.623	3.31	OK
13	PC3	3.0	210	2.5	1575.00	338.492	4.65	OK
14	PC3	3.0	210	2.5	1575.00	320.198	4.92	OK
15	PC5	5.0	210	2.5	2625.00	806.074	3.26	OK
16	PC5	5.0	210	2.5	2625.00	784.572	3.35	OK
17	PC3	3.0	210	2.5	1575.00	485.768	3.38	OK
18	PC3	3.0	210	2.5	1575.00	327.69	4.81	OK
19	PC5	5.0	210	2.5	2625.00	710.447	3.69	OK
20	PC5	5.0	210	2.5	2625.00	713.469	3.68	OK
21	PC3	3.0	210	2.5	1575.00	335.194	4.70	OK
22	PC3	3.0	210	2.5	1575.00	293.799	5.36	OK
23	PC5	5.0	210	2.5	2625.00	781.509	3.36	OK
24	PC5	5.0	210	2.5	2625.00	796.293	3.30	OK
25	PC3	3.0	210	2.5	1575.00	340.797	4.62	OK
26	PC2	2.0	210	2.5	1050.00	200.23	5.24	OK
27	PC3	3.0	210	2.5	1575.00	334.037	4.72	OK
28	PC4	4.0	210	2.5	2100.00	656.353	3.20	OK
29	PC5	5.0	210	2.5	2625.00	787.052	3.34	OK
30	PC3	3.0	210	2.5	1575.00	430.463	3.66	OK
31	PC2	2.0	210	2.5	1050.00	207.058	5.07	OK
32	PC3	3.0	210	2.5	1575.00	386.755	4.07	OK
33	PC4	4.0	210	2.5	2100.00	580.04	3.62	OK
35	PC3	3.0	210	2.5	1575.00	453.898	3.47	OK
36	PC3	3.0	210	2.5	1575.00	327.412	4.81	OK
37	PC5	5.0	210	2.5	2625.00	796.679	3.29	OK
38	PC5	5.0	210	2.5	2625.00	775.847	3.38	OK
39	PC3	3.0	210	2.5	1575.00	318.712	4.94	OK
40	PC3	3.0	210	2.5	1575.00	319.352	4.93	OK

40	PC3	3.0	210	2.5	1575.00	315.352	4.93	OK
42	PC5	5.0	210	2.5	2625.00	792.448	3.31	OK
43	PC5	5.0	210	2.5	2625.00	796.352	3.32	OK
44	PC3	3.0	210	2.5	1575.00	320.867	4.91	OK
45	PC3	3.0	210	2.5	1575.00	328.243	4.80	OK
46	PC5	5.0	210	2.5	2625.00	707.624	3.71	OK
47	PC5	5.0	210	2.5	2625.00	708.481	3.71	OK
48	PC3	3.0	210	2.5	1575.00	322.827	4.73	OK
50	PC6	6.0	210	2.5	3150.00	751.507	4.19	OK
51	PC5	5.0	210	2.5	2625.00	737.621	3.58	OK
52	PC3	3.0	210	2.5	1575.00	438.069	3.44	OK
53	PC6	6.0	210	2.5	3150.00	386.994	8.27	OK
54	PC3	3.0	210	2.5	1575.00	18.49	79.19	OK
55	PC4	4.0	210	2.5	2100.00	214.635	3.71	OK
56	PC5	5.0	210	2.5	2625.00	41.174	63.75	OK
57	PC2	2.0	210	2.5	1050.00	72.11	14.58	OK
58	PC4	4.0	210	2.5	2100.00	517.232	4.06	OK
60	PC4	4.0	210	2.5	2100.00	526.332	4.01	OK
61	PC3	3.0	210	2.5	1575.00	231.82	6.79	OK
62	PC2	2.0	210	2.5	1050.00	232.79	4.51	OK
63	PC3	3.0	210	2.5	1575.00	151.556	6.93	OK
65	PC2	2.0	210	2.5	1050.00	132.549	7.92	OK
66	PC5	5.0	210	2.5	2625.00	706.909	3.71	OK
67	PC3	3.0	210	2.5	1575.00	296.672	5.91	OK
68	PC5	5.0	210	2.5	2625.00	316.724	5.97	OK
70	PC2	2.0	210	2.5	1050.00	205.604	5.11	OK

Description: The drawing provided shows two different diameter piles (508 mm and 610 mm). However, in the pile capacity checks, capacity was taken only for one type of pile (610 mm).

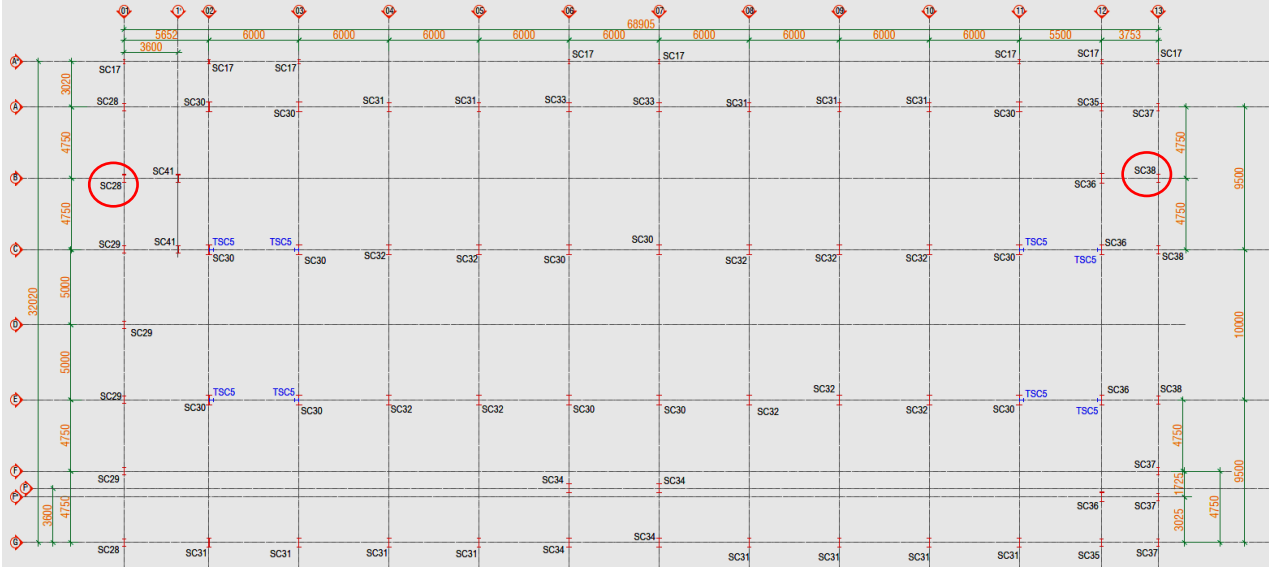
Observation-2: Lack of information in as-built drawings. (Production Building)



Portal frame layout

Portal frame

Description: In the provided as-built drawing portal frame was shown only at four locations. However, the portal frame was found in twelve locations on each floor.

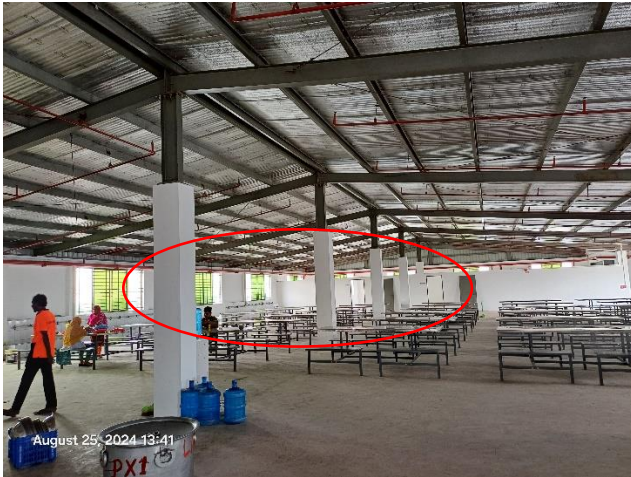


SCHEDULE OF STEEL COLUMN				
NAME	D (mm)	TW (mm)	BF (mm)	TF (mm)
SC33	600	6	325	10
SC34	600	6	300	10
SC35	600	6	225	8
SC36	650	6	300	10
SC37	500	5	175	6
SC38	550	5	225	8
TSC5	300-700	6	200	10
SC41	500	5	225	8

SCHEDULE OF STEEL COLUMN				
NAME	D (mm)	TW (mm)	BF (mm)	TF (mm)
SC1	500	8	300	12
SC17	300	4	150	6
SC28	500	5	200	8
SC29	500	6	200	8
SC30	650	6	350	12
SC31	600	6	250	10
SC32	650	6	325	12



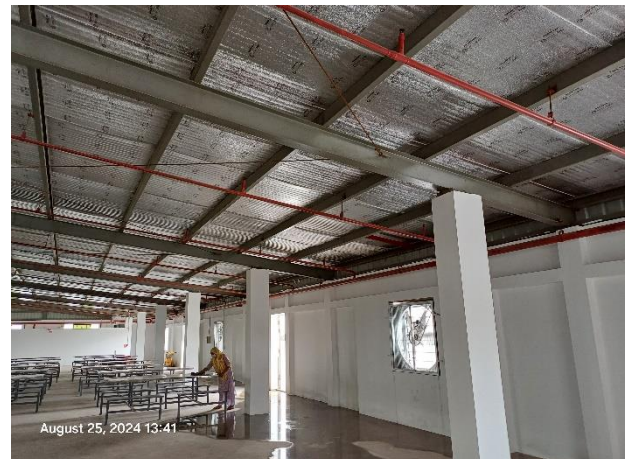
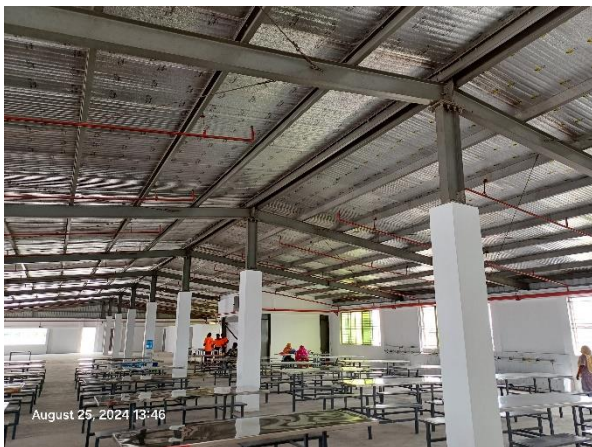
Description: In the marked locations an extra column was found connected to regular 'I' section.



The building engineer is required to survey the full structure and prepare complete as-built structure drawings. Also, provide construction drawings as the reference for the foundation.

Description: Marked columns are RC columns at the roof level. But immediate below level columns are steel I-sections. No connection details were provided for the steel to RC column connections.

Observation-3: Lack of lateral stability. (Production Building)



Description: Lateral load transfer media compression struts were missing along the ridge. So, the lateral stability system of the structure is incomplete. No structural evaluation is provided in the DEA report. However, the DEA report needs to be updated against lateral loading and submitted to the RSC for detailed review. Once the review of DEA documents is finalized, implement the proposed remedial works.

Observation-04: Connection gap. (Production Building)



Description: Connection gaps were observed in the steel joint. The building engineer is required to identify the locations and carry out suitable remedial works.

Observation-05: Missing bolts. (Production Building)



Description: Bolts are missing in several connections. The building engineer is required to identify the locations and install the missing bolts where necessary.

Observation-06: Standing water on the roof and floor of Dining. (Production Building)



Standing water on the roof level



Standing water on the floor of the Dining

Description: Standing water observed on the roof and dining floor. The factory engineer is required to improve the drainage system on the roof with proper slopes & provide an adequate number of water outlets.

Observation-07: Corrosion on steel member. (Production Building)



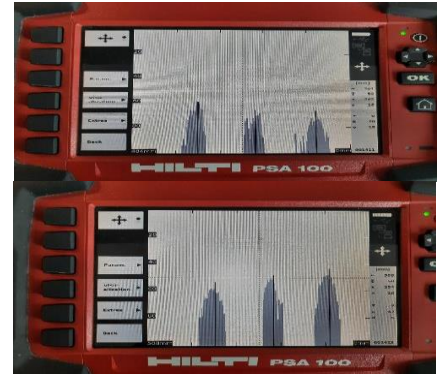
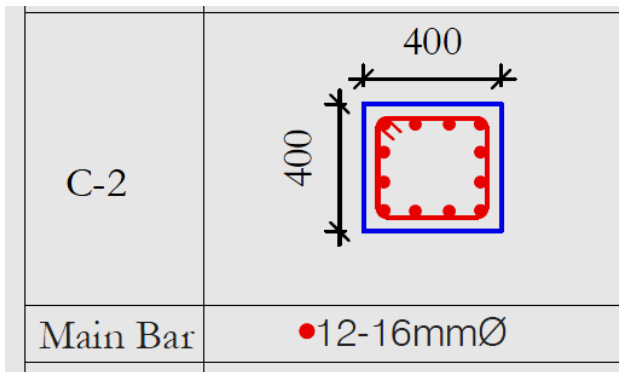
Description: Corrosion was observed on steel columns. The building engineer is required to remove the corrosion and provide rust-proof coating on corroded steel members to protect them from corrosion.

Observation-08: Crack on the brick wall. (Utility building)



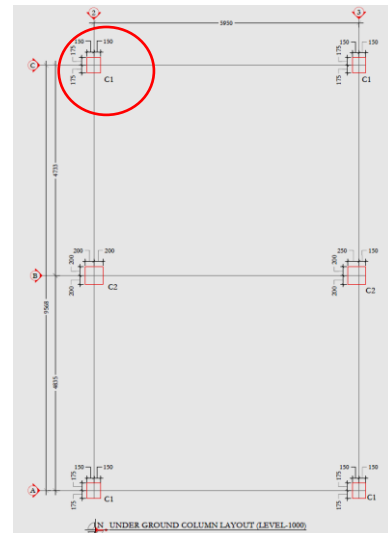
Description: Crack was observed on the façade wall of the utility building. The building engineer is required to investigate the reason for the crack and repair with suitable method.

Observation-09: Mismatches in as-built drawings. (Fire Pump Shed)



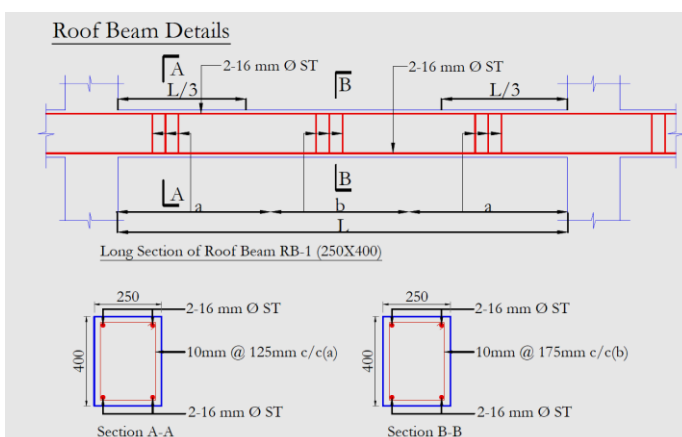
Description: C-2 type column rebar not matched with drawings. Three rebars were found at both faces instead of four. Building engineer is required to confirm the amount of re-bar in the column and update the drawing.

Observation-10: Damaged RC column. (Fire Pump Shed)



Description: A damaged column was found in the fire pump room. The building engineer is required to carry out suitable remedial work.

Observation-11: Mismatches in as-built drawings. (Guard Room)



Description: Roof beam down stand (without slab) measured 175 mm. But the provided drawing is shown 250 mm. Building engineer is required to confirm the size of the roof beam and update the drawing.

3. Action Plan:

Item No.	Observation	Action Plan	Timeline
1.	Inconsistencies in DEA report. (Production Building)	The building engineer is required to address the inconsistencies in the revised DEA report; submit the revised DEA to the RSC.	within 6 weeks
		Carry out suggested remedial works if required.	within 6 months
2.	Lack of information in as-built drawings. (Production Building)	The building engineer is required to survey the full structure and prepare complete as-built structure drawings.	within 6 weeks
3.	Lack of lateral stability. (Production Building)	The DEA report needs to be updated against lateral loading and submitted to the RSC for detailed review.	within 6 weeks
4.		Implement the proposed remedial work (if required).	within 6 months
5.	Connection gap. (Production Building)	The building engineer is required to identify the locations and carry out suitable remedial work.	within 6 weeks
6.	Missing bolts. (Production Building)	Building engineer is required to identify the locations and install the missing bolts where necessary.	within 6 weeks
7.	Standing water on the roof and floor of Dining. (Production Building)	The factory engineer is required to improve the drainage system on the roof with proper slopes & provide an adequate number of water outlets.	within 6 months
8.	Corrosion on steel member. (Production Building)	The building engineer is required to remove the corrosion and provide rust-proof coating on corroded steel members to protect them from corrosion.	within 6 weeks
9.	Crack on the brick wall. (Utility building)	The building engineer is required to investigate the reason for the crack & carry out suitable remedial works accordingly.	within 6 weeks
10.	Mismatches in as-built drawings. (Fire pump shed)	Building engineer is required to confirm the amount of re-bar in the column and update the drawing.	within 6 weeks
11.	Damaged RC column. (Fire pump shed)	The building engineer is required to carry out suitable remedial work.	within 6 weeks
12.	Mismatches in as-built drawings. (Guard room)	The building engineer is required to confirm the size of the roof beam and update the drawing.	within 6 weeks