

Fair Design Printing LTD.

Shi-140/1, Chandpara, Bashon Sorok, Gazipur Sodor
(23.973972, 90.357666)
05 September 2023



Buildings Information

1. Main Factory Building is three storied (G+2) reinforced concrete (RC) building.
2. Utility Building is a two storied reinforced concrete structure.
3. ETP is a single storied reinforced concrete (RC) structure.
4. ETP storage room is a single storied steel shed.
5. ETP dry sludge storage room.

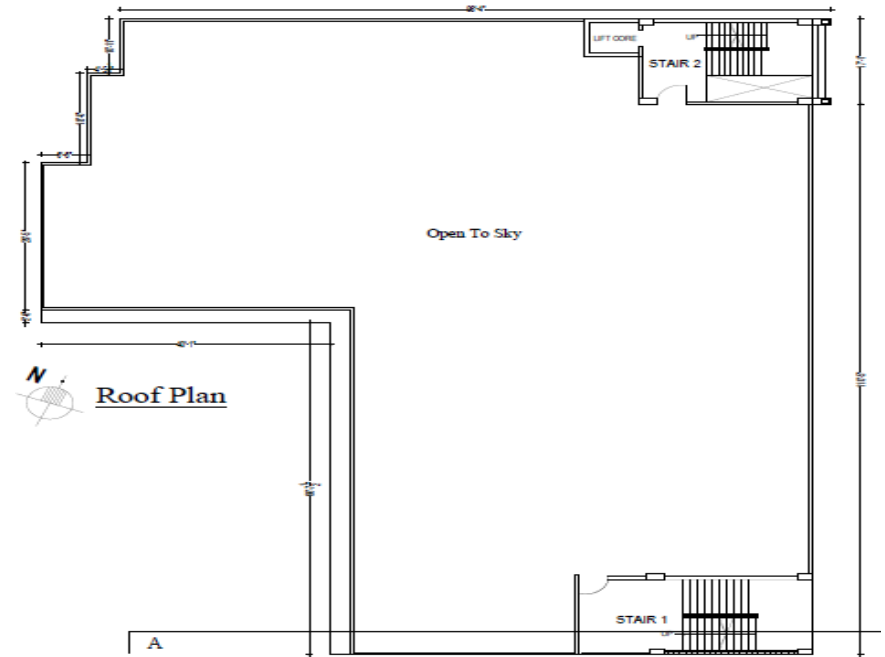
Observations

**Structural irregularity check not included in
the design report**

As per building plan, it has an irregular shape which induced torsion into the structure. Also, there is re-entered corner in the building. Building engineer is required to check all type of irregularities & incorporate it in the software-based FEA model & design report.



Main Factory Building



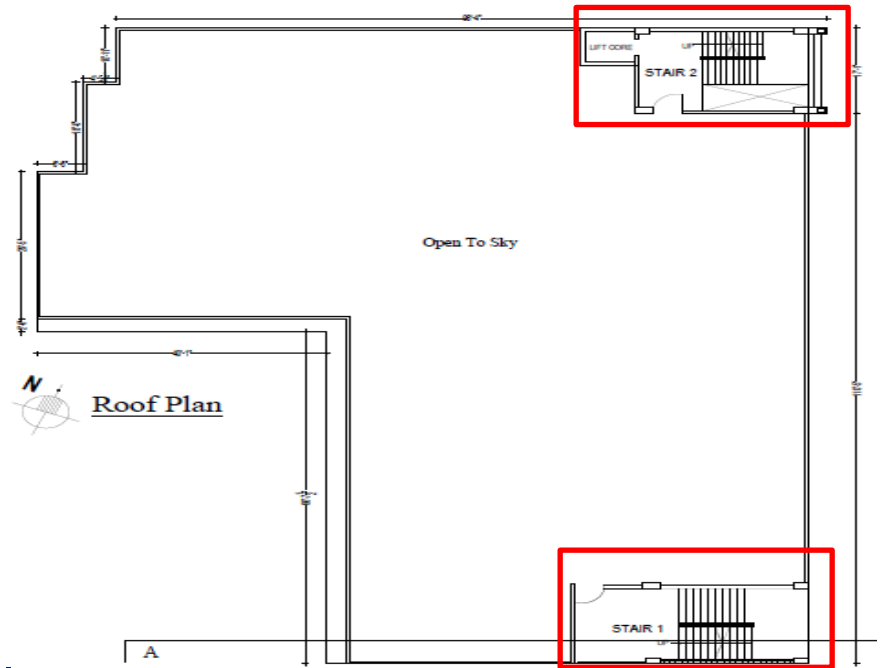
Building plan

Observations: Main Factory Building

Non-Engineered lightweight steel roof on staircase



Non engineered staircase roof



Non engineered staircase roof

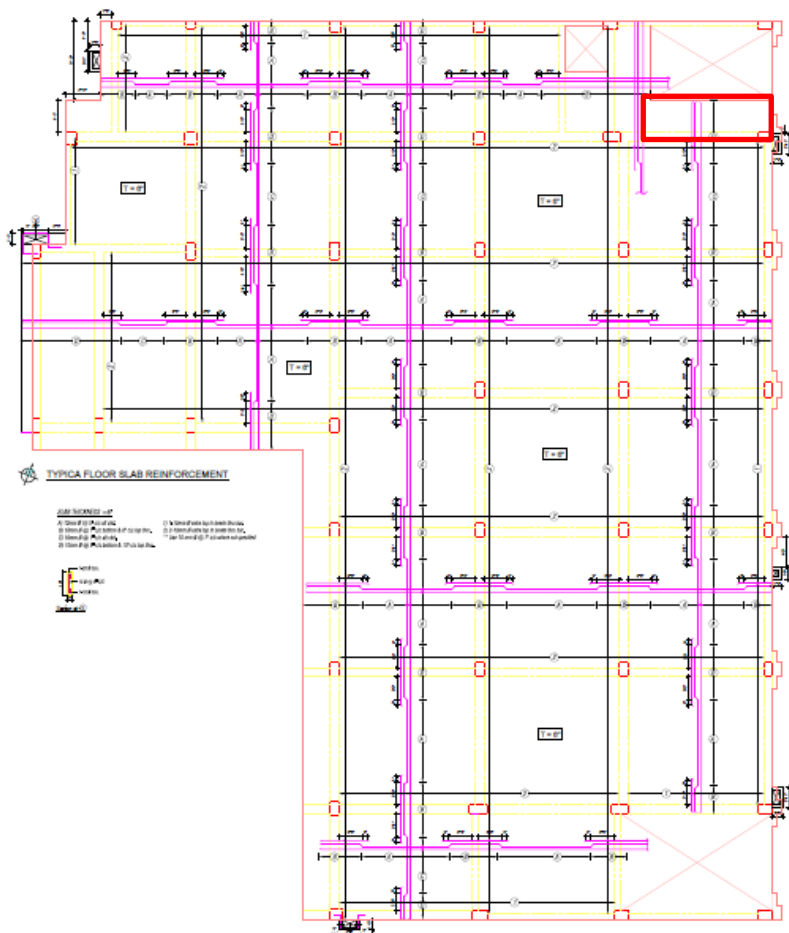


Steel angle member resting on the brick wall

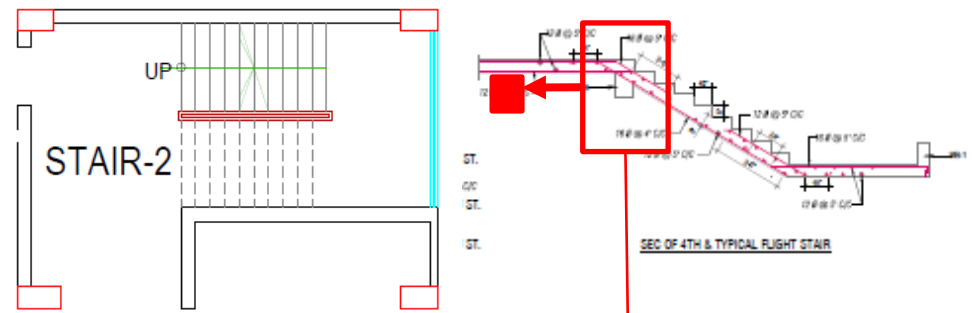
Light weight steel roof resting on the peripheral brick walls. The connection between steel roof & brick wall is apparently non-engineered. The building engineer is required to check the adequacy of stair roof connection against uplift force.

Observations: Main Factory Building

Inconsistency and lack of information in as-built drawing



Slab reinforcement layout



Stair details



Slab reinforcement layout

Mismatch found in beam layout and slab reinforcement layout at stair portion; and void portion was not shown in as built drawing. Also marked beam was not in position as per as-built drawing. Building engineer is required to survey the full structure and update the as built drawing and design report accordingly.



During inspection, two plastic water tanks at roof floor and two canopies at ground floor were found which has not shown in as-built drawing. Building engineer is required to incorporate all loading elements in the drawing, floor load and revise the design report accordingly.



Undocumented water tank and telecom mast at roof



Undocumented canopy

Dampness on brick wall



Dampness at peripheral brick wall

Dampness was found on brick wall at stair of north side. Building engineer is required to investigate the reason of dampness and carry out proper remedial measure.

Seismic design provision of connecting slab

Observation: Main Factory Building & Utility Building.



Main factory building and utility building structurally connected by slab

Main Factory Building and Utility building was found structurally connected with the extended RC slab. As per design documents no information was mentioned about this connection. Building engineer is required to check the seismic design provision of the connecting slab.

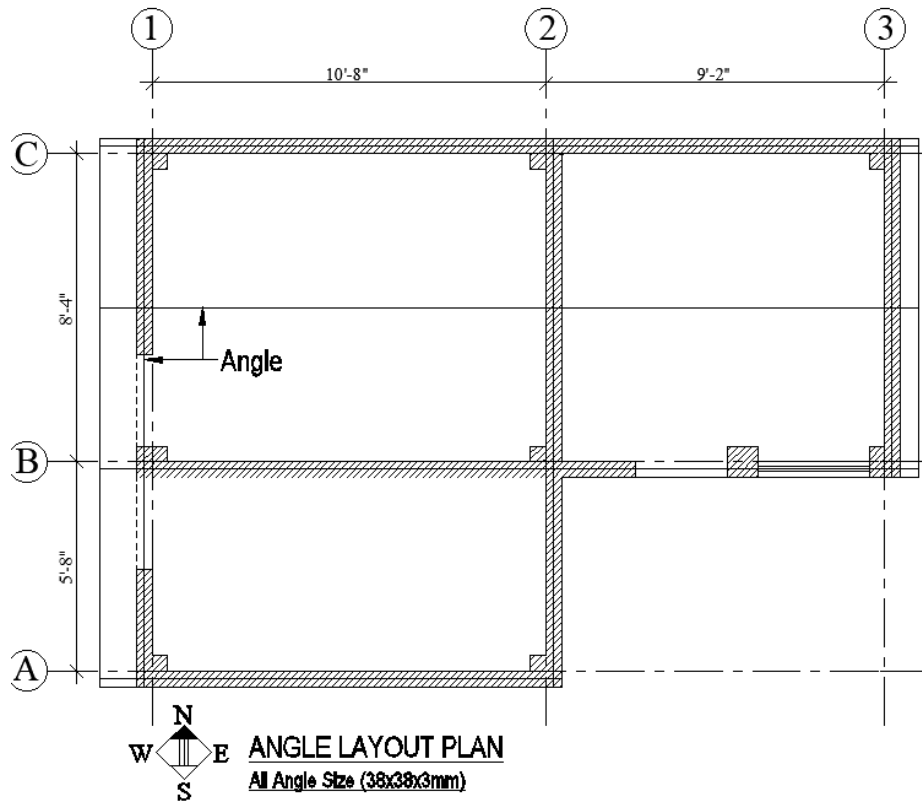
Non-engineering roof shed



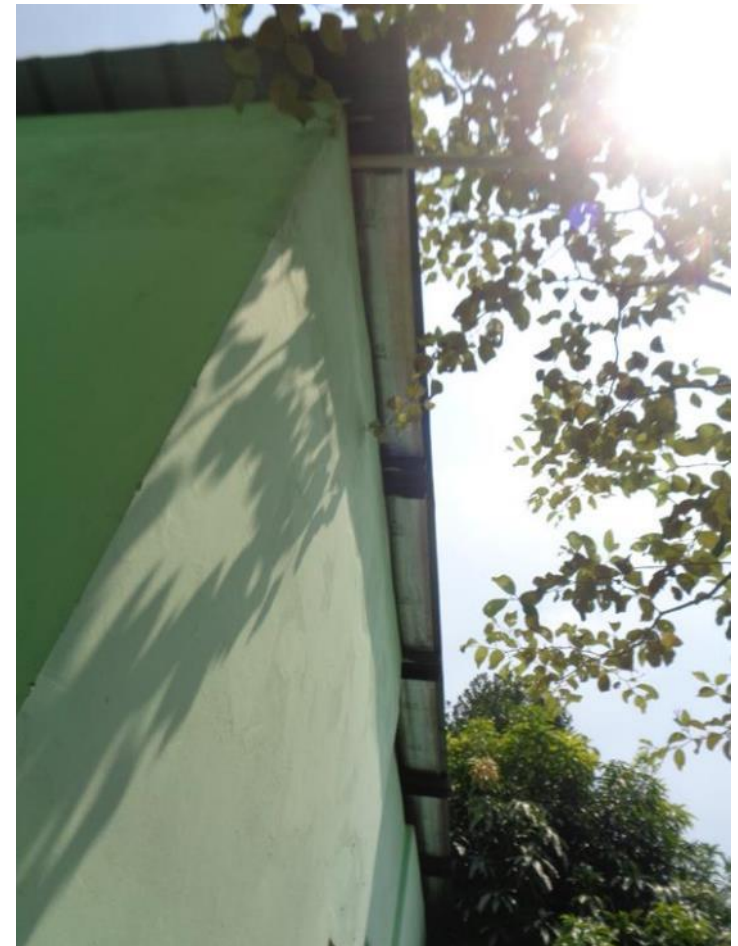
ETP

Apparently non-engineered connection was observed in the lightweight roof shed. No obvious lateral stability was provided. Building engineer is required to check the adequacy of roof connection against uplift force.

Mismatch in as-built drawing



Rafter layout plan



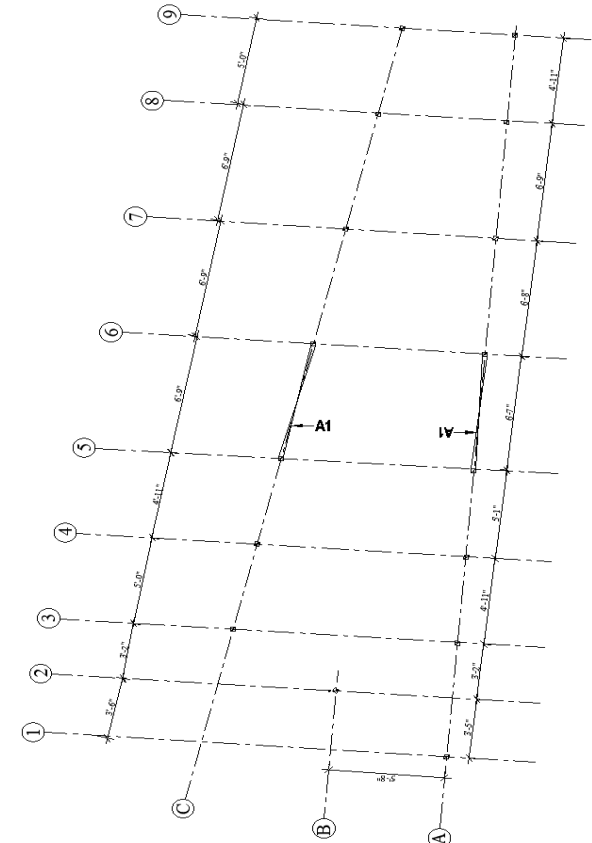
Onsite 5 nos rafter at roof.

During inspection mismatch was found in rafter layout. 5 channel rafter was found in roof where 4 angle rafter was shown in the provided drawing. Also, connection details was found missing. Building engineer is required to survey the full structure and produce accurate as-built drawing.

Lack of lateral stability



ETP dry sludge storeroom farming system.



Bracing layout

As-built drawing was found for single storied ETP dry sludge storeroom. During inspection, no bracing was found installed as per the bracing layout of as-built drawing. No obvious lateral stability system was observed. Building engineer is required check the lateral stability of the structure and suggest proper remedial actions.

Tests carried out



Brick aggregate in column of
Utility Building



Exposed rebar on roof to
confirm quantity

Centre for Advisory and Testing Services (CATS-MIST)
Military Institute of Science and Technology

Compressive Strength of Concrete Drilled Cores

CATS Reference	2376/11065-11069/03/17	Date	11.01.2017
Client	Fair Design Printing Ltd.		
Project Address	Sho-1407, Chandpara, Barishan Sharik, Gampur, Bangladesh.		
Sample Brought By	Ashraf Hossain	Date of Receiving	26.02.2017
Test Method	ASTM C 42/C 42 M	Date of Test	06.03.2017
Sample	Drilled Core	Sample Condition	Unsealed
Sample Location	Ground Floor Column		
Construction Year	-	Quantity of Sample	05 Nos
No of Story	-	Aggregate Type	Stone Chips

No.	Sample Identification Mark	Original Length (mm)	Sawed Length (mm)	Diameter (mm)	Crushing Load (kN)	Crushing Strength (MPa)	Failure Type	Fracture Type
1	A-1	180.0	138.0	69.0	131.0	35.2	5100	Combined
2	B-2	170.0	138.0	69.0	165.5	44.4	6440	Combined
3	C-3	165.0	136.0	69.0	168.3	45.0	6530	Combined
4	D-4	170.0	138.0	69.0	120.0	33.4	4840	Combined
5	E-5	175.0	137.0	69.0	127.0	33.9	4920	Combined

REMARKS:

1. Samples are received in unsealed condition without signatures from the competent authority. Therefore, authenticity of these samples and their history could not be verified.
2. High compressive strength of samples may not be truly representative of the actual structural strength, and hence, for further confirmation new samples may be collected and tested under supervision of CATS-MIST.
3. Without further confirmation care must be exercised by engineer concerned in the interpretation of the significance of high compressive strength obtained from this core test.

Test Supervised By: *M. H. Ahsan*
NATIZUL AHSAN
Capt
BRIEF 01/17
Dir of Environmental Water
Infrastructure and Coastal Engineering
MIST, Barishan Sharik, Dhaka

Countersigned By: *D. M. Faruque*
D. M. FARUQUE
Lt Col
Joint CI A, CE Dept
MIST, Mipur Cantonment

Note: Samples as supplied to us have been tested in our laboratory. CATS-MIST does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples to be sent in secure and sealed cover/packages/container under signature of the competent authority in order to fraudulent fabrication of test results. It is recommended to collect all test reports by duly authorized person and not by the contractor/supplier himself.

Core test report of main
factory building

Problems Observed

Main Factory Building:

Item 1: Structural irregularity check not included in the design report

Item 2: Non-Engineered lightweight steel roof on staircase

Item 3: Inconsistency and lack of information in as-built drawing

Item 4: Dampness on brick wall.

Main Factory Building & Utility Building:

Item 5: Seismic design provision of connecting slab.

ETP:

Item 6: Non-engineering roof shed.

ETP Storeroom:

Item 7: Mismatch in as-built drawing.

ETP Dry Sludge Storeroom:

Item 8: Lack of lateral stability.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Structural irregularity check not included in the design report. (Main Factory Building)	Building engineer is required to check all type of irregularities & incorporate in the software-based FEA model & DEA report.	6-weeks
02	Structural irregularity check not included in the design report. (Main Factory Building)	Carry out suggested remedial works where necessary.	6-months
03	Non-Engineered lightweight steel roof on staircase. (Main Factory Building)	Check the adequacy of the members and connections against uplift forces.	6-weeks
04	Non-Engineered lightweight steel roof on staircase. (Main Factory Building)	Carry out suggested remedial works where necessary.	6-months
05	Inconsistency and lack of information in as-built drawing. (Main Factory Building)	Building engineer is required to survey the full structure and update the as built drawing and design report accordingly.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Inconsistency and lack of information in as-built drawing. (Main Factory Building)	Building engineer is required to update the floor load plan based on BNBC requirement.	6-weeks
07	Inconsistency and lack of information in as-built drawing. (Main Factory Building)	Carry out suggested remedial works where necessary.	6-months
08	Inconsistency and lack of information in as-built drawing. (Main Factory Building)	Implement floor load plan	6-months
09	Dampness on brick wall. (Main Factory Building)	Building engineer is required to investigate the reason of dampness and carry out proper remedial measure.	6-months
10	Seismic design provision of connecting slab. (Main Factory Building & Utility Building)	Building engineer is required to check the seismic design provision of the connecting slab.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
11	Seismic design provision of connecting slab. (Main Factory Building & Utility Building)	Carry out suggested remedial works where necessary.	6-months
12	Non-engineering roof shed. (ETP)	Building engineer is required to check the adequacy of roof connection against uplift force.	6-weeks
13	Non-engineering roof shed. (ETP)	Carry out suggested remedial works where necessary.	6-months
14	Mismatch in as-built drawing. (ETP Storeroom)	Building engineer is required to survey the full structure and produce accurate as-built drawing.	6-weeks
15	Lack of lateral stability. (ETP Sludge Storeroom)	Building engineer is required to check the adequacy of roof connection against uplift force.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
16	Lack of lateral stability. (ETP Sludge Storeroom)	Carry out suggested remedial works where necessary.	6-months