J K Knit Composite Ltd. (Extension)

10/1, South Dariapur, Savar, Dhaka-1340,
(23.8348N, 90.2547E)
9th June & 26th August 2021

RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

1. Building-6 (Generator Building) (G+2)
2. Shed-2 (single storied)
3. 3. All Over Print (AOP) Shed (single storied)
4. Wastage Store Shed (single storied)
5. Mechanical Workshop Shed (single storied)
6. Security post and Gate (single storied)

Observations

Lack of design documents

Observation: All building/sheds

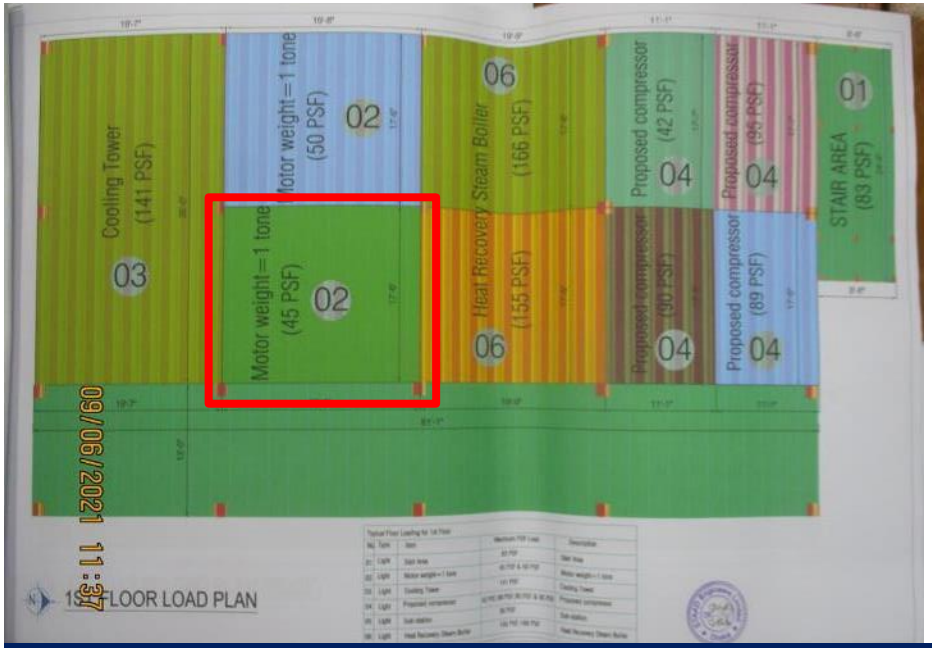
As per BNBC Section 1.9.1, every structure should have design documents.

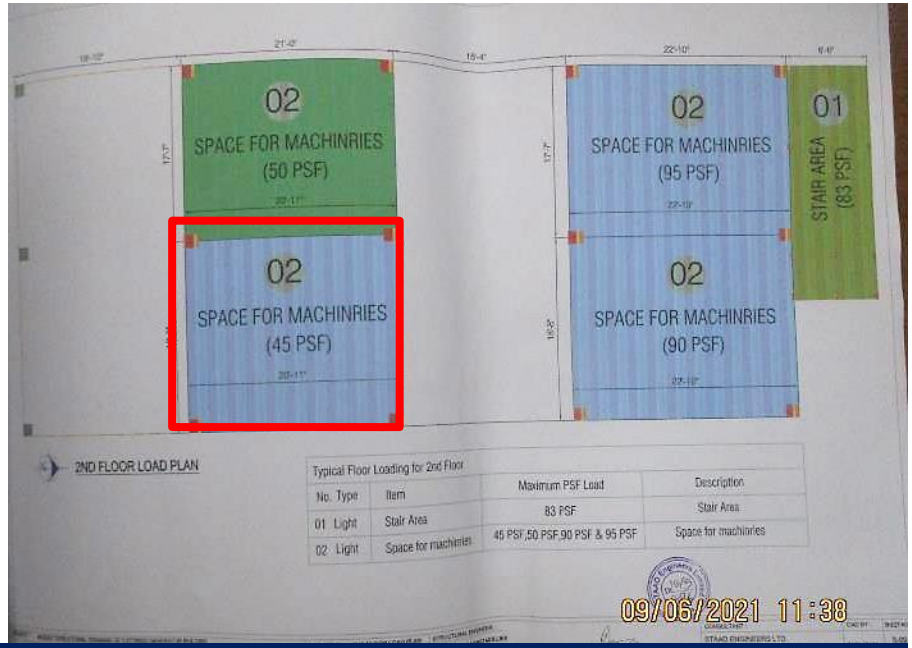
There is no design documents for above mentioned structures. So, the factory engineer is required to prepare a set of design documents for all structures as per BNBC part-6, section 1.9.1.

Observation: All building/sheds

Prepared live load plan need to be revised

Observation: Building 6





Prepared live load plan for 1st and 2nd floor

The factory engineer prepared a live load plan for 1st and 2nd floor considering 45 psf (2 kPa). As per BNBC requirement, the minimum floor live load for factory building is 3 kPa. So, the factory engineer is required to revise the floor load plan based on minimum live loading requirements of BNBC and column, floor & foundation capacity.

Observation: Building 6

Slenderness effect of column

Observation: Building 6

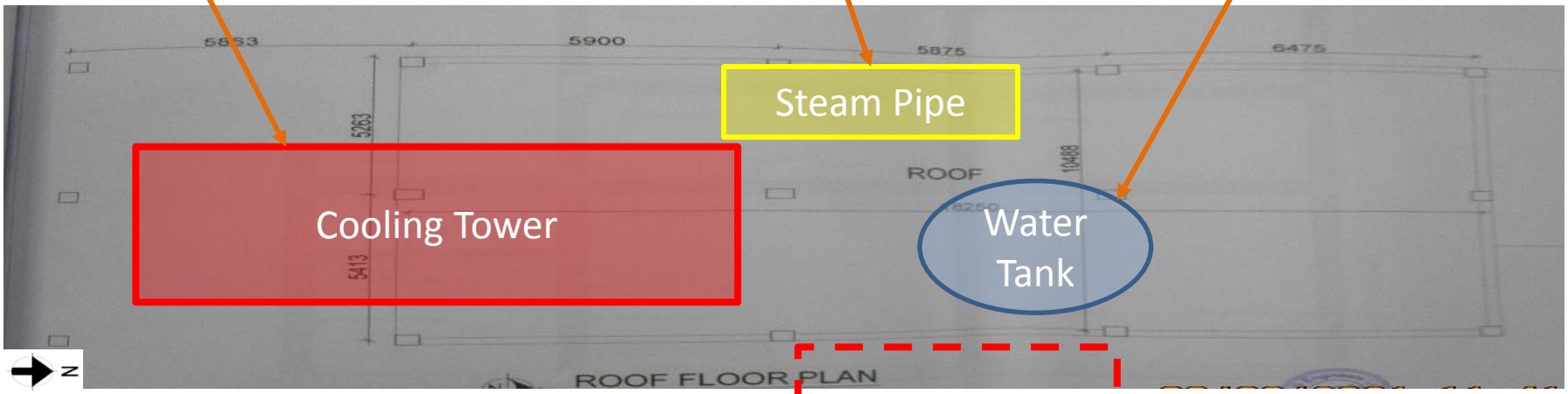
Central column Size: 375 mm x 450 mm

The ground floor height is 6 m and clear height of column is 5.5 m. The least dimension is 375 mm. There is no intermediate tie beam. The factory engineer is required to check the slenderness effect of the column.

Observation: Building 6

Discrepancies between drawings and as-built condition

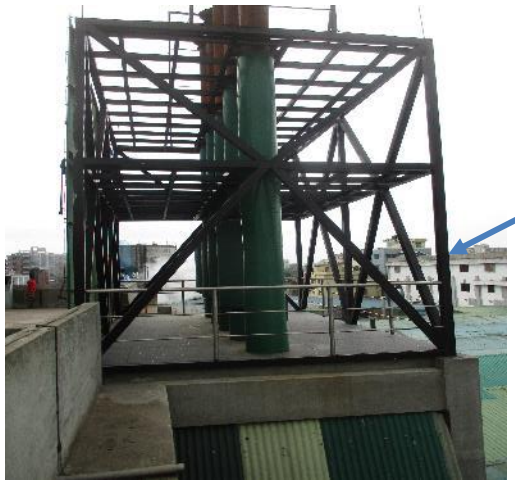
Observation: Building 6



Steam Pipe

Cooling Tower

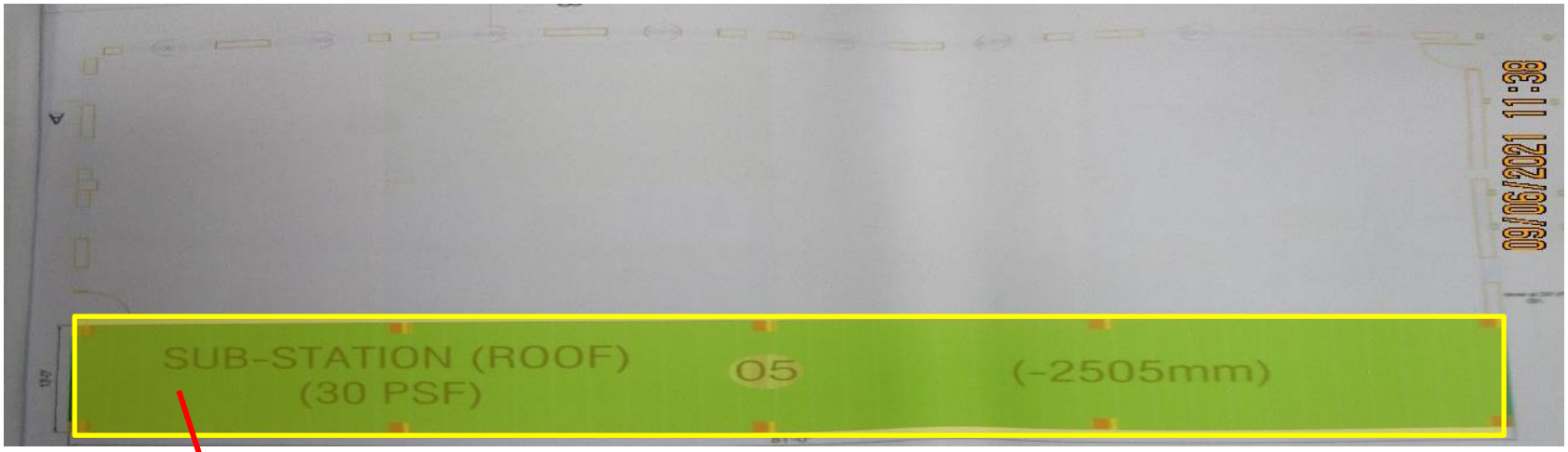
Water Tank



Undocumented horizontal expansion

Cooling tower, steam pipe and water tank were not mentioned in the roof layout plan. Undocumented horizontal expansion at east side of the building with steel framing was observed.

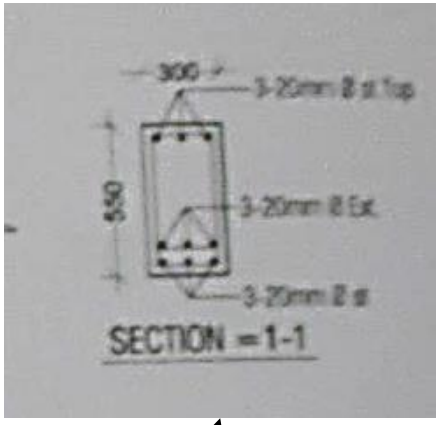
Observation: Building 6



Mezzanine level not mentioned in as-built drawing. Only load plan was found.

Undocumented water reservoir was found on the 1st Floor.

Observation: Building 6



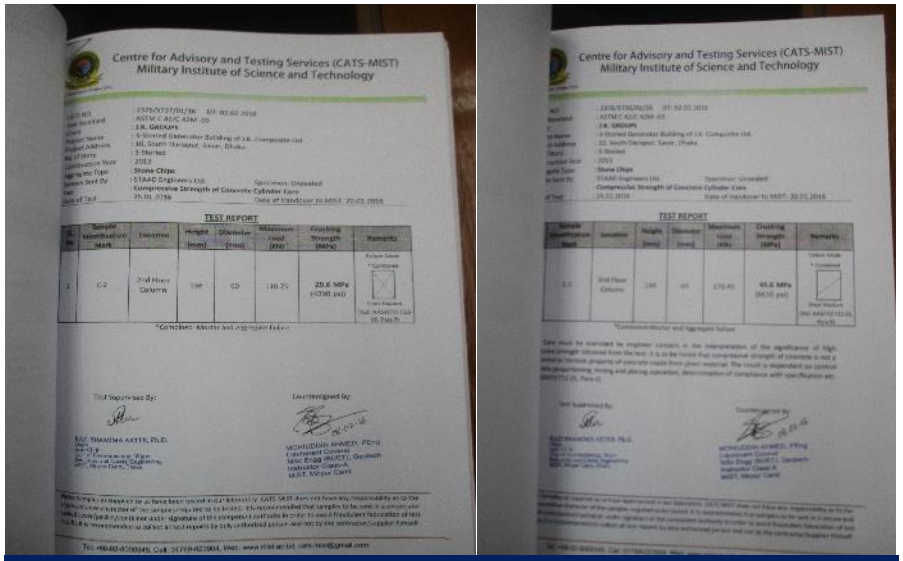
Beam width for ground floor, second floor and staircase does not match with provided drawing.

75mm build up at 1st floor not mentioned.

Observation: Building 6

Mismatch of concrete core number

Observation: Building 6



Concrete core test reports

13 number of concrete cores were taken from different locations of beam and column. But we identified only 5 core locations. Core layout plan was not available. Factory engineer to prepare core layout plan properly.

Concrete core sample location

Observation: Building 6

Undocumented and apparently Non-engineered steel stair

Observation: Building 6

South side

North side

Undocumented and apparently non-engineered Steel Stair found at South-East and North-West corner of the building. No as-built drawing was found. These stairs are structurally attached to the Building-6. The factory engineer is required to prepare as-built drawing and check the structural integrity for the steel stairs.

Observation: Building 6

Corrosion in steel member

Corrosion found in steel stair

Observation: Building 6

Stagnant water on roof, Hair line crack in slab and beam

Observation: Building 6

Stagnant water found at roof.

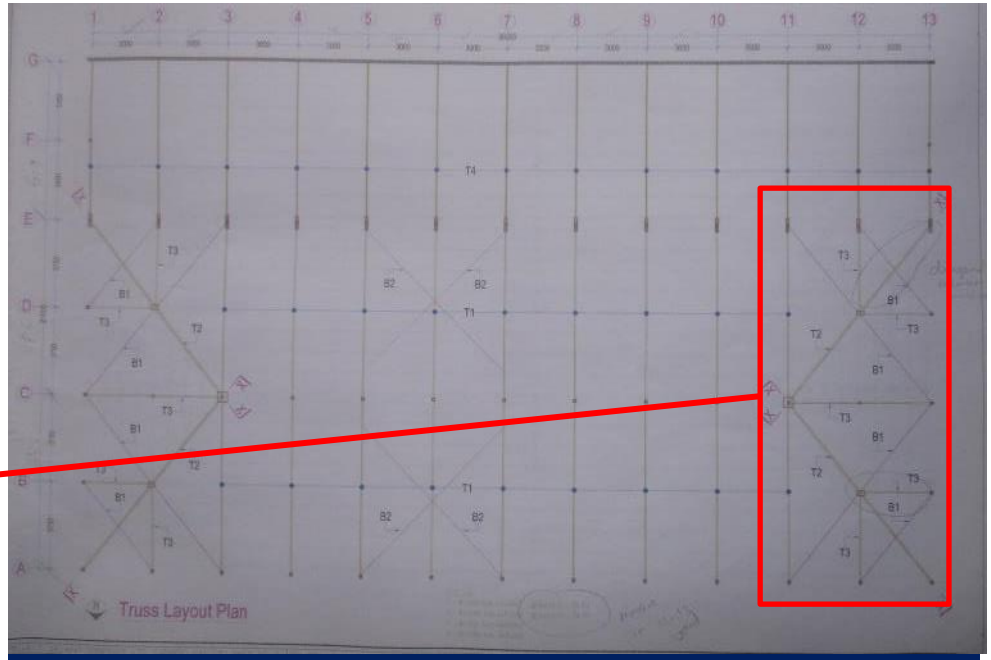
Crack at roof slab and stair beam

Observation: Building 6

Missing truss member and roof bracing

Observation: Shed-2

Diagonal truss chord was cut off and roof bracing between grid 11 & 13 was missing.



Bracing Layout.

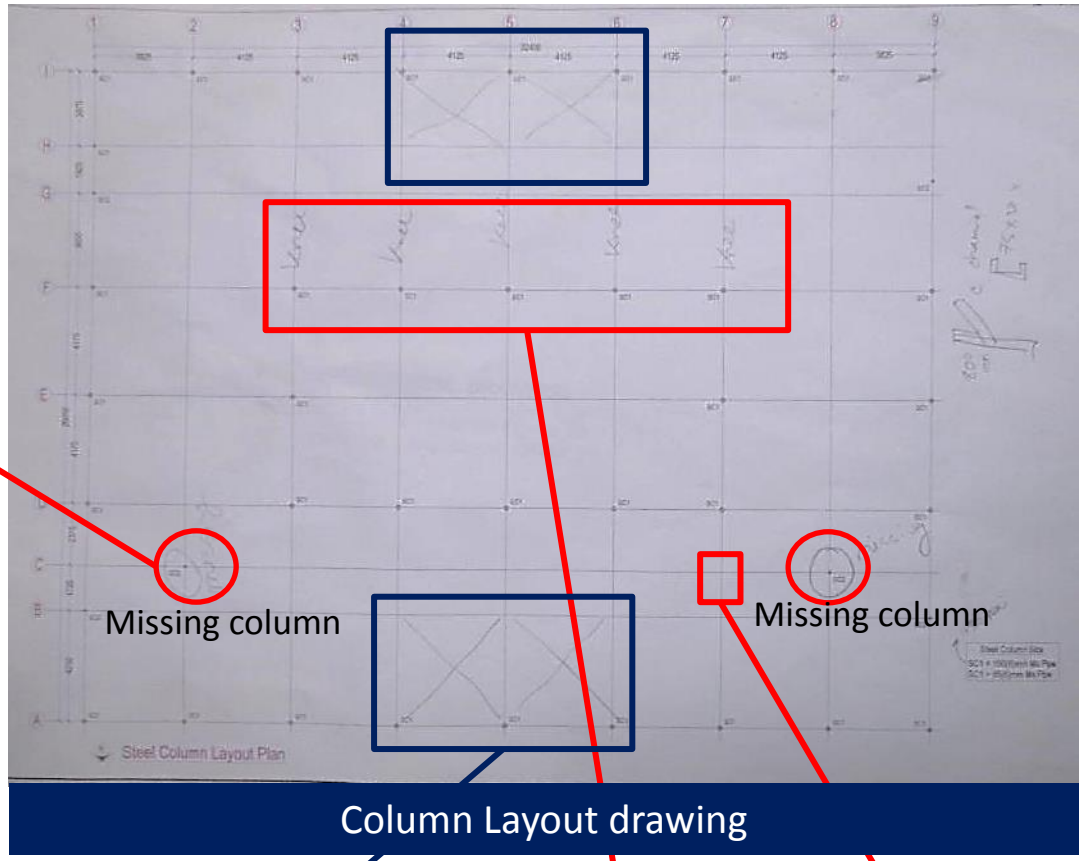
The factory is required to reinstall the diagonal truss chord. Also, the factory is required to analyze the structure to confirm the bracing requirements.

Observation: Shed-2

Incomplete as-built drawings

Observation: Shed-2

Steel column missing in marked location.



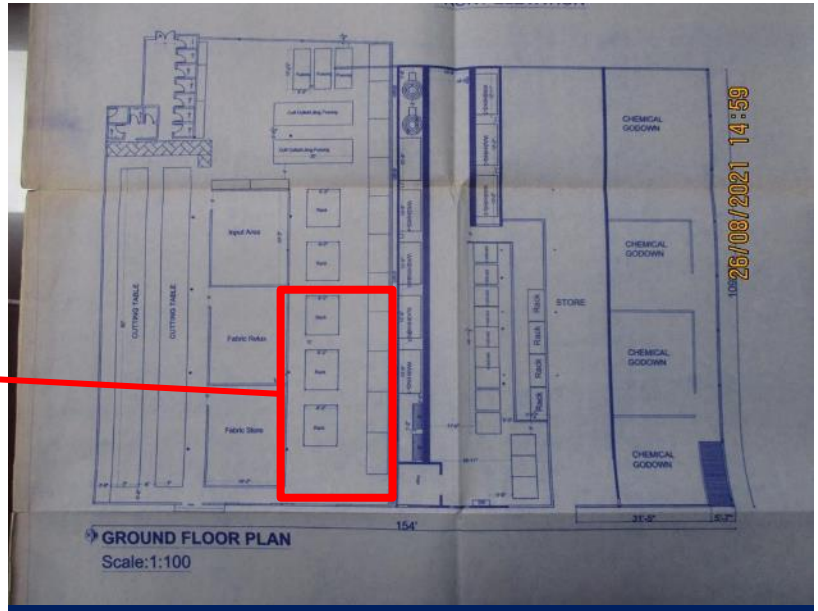
Column Layout drawing

Discontinuous roof bracing.

Undocumented knee bracing.

Observation: Shed-2

This portion was not shown in the drawing.

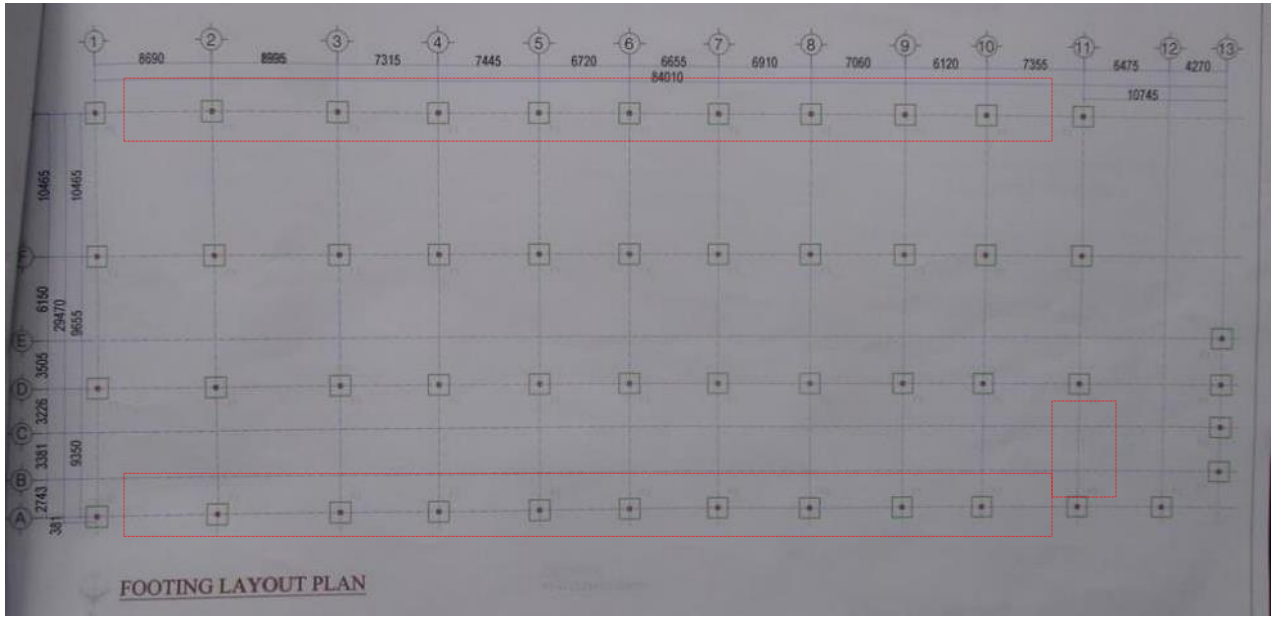


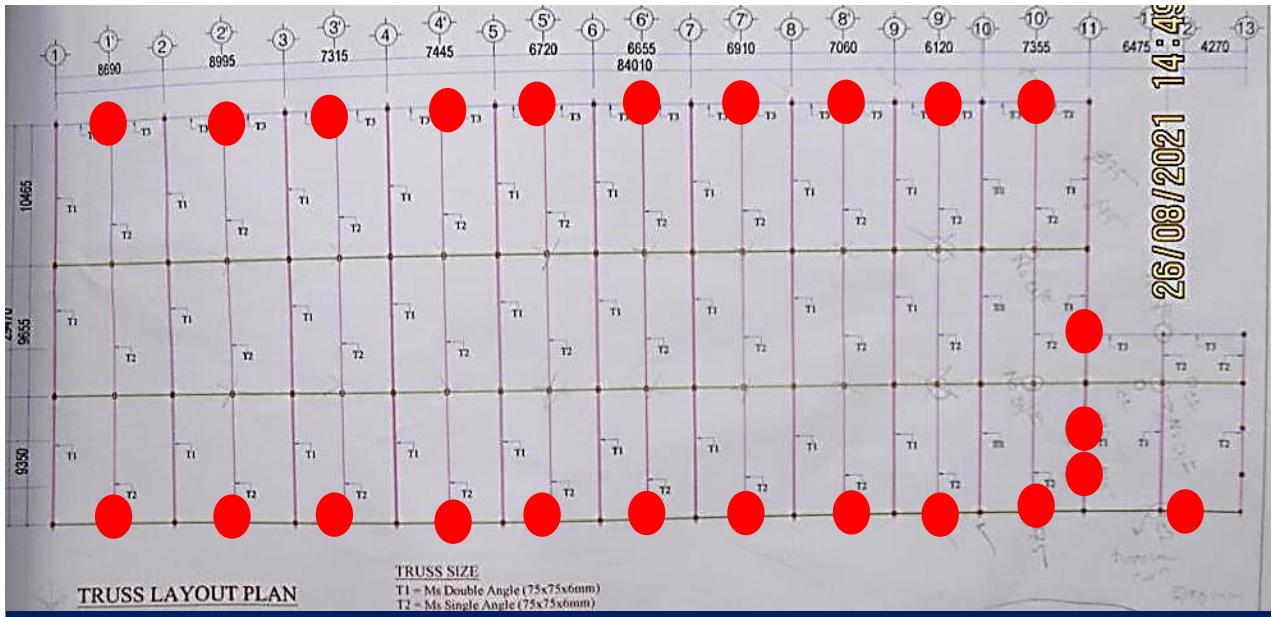
Architectural drawing.

Floor layout shown in the architectural drawings does not match with the as-built conditions. Factory engineer to survey the structure and update the as-built drawings and review the design accordingly.

Observation: Shed-2

Pipe column without foundation details





Truss and Footing Layout Plan.

Pipe column

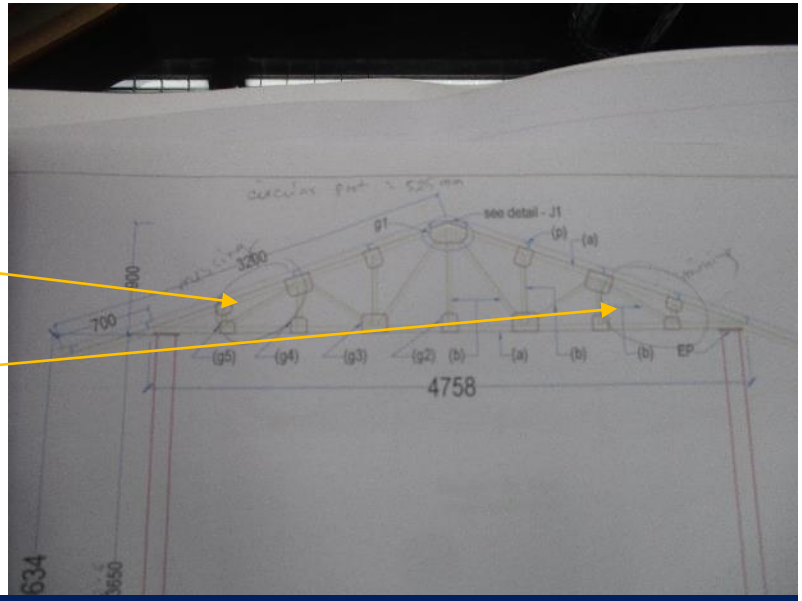
There are some steel pipe columns marked in the layout. The steel pipe columns along periphery and below the secondary trusses have no foundation details.

The factory engineer to update the as-built drawings and check the adequacy of the pipe columns for gravity and lateral loads, also provide necessary alternatives for the foundation of columns.

Observation: All Over Print (AOP) Shed

Discrepancies in as-built drawings

Observation: Wastage Shed



Missing vertical member

Top & Bottom Chord and bracing thickness 5mm instead 6mm

Observation: Wastage Shed

Purlin number found 10 instead 12 and section 38X38X5 instead 50x50x6

Observation: Wastage Shed

Lack of as-built documents

No drawing was available for Security Post and Gate .

Factory engineer to survey the structure and develop a set of as-built drawings for those structure.

Observation: Security Post and Gate

Priority Actions

Problems Observed

01: Lack of design documents

02: Prepared live load plan need to be revised

03: Slenderness effect of column

04: Discrepancies between drawings and as-built condition

05: Mismatch of concrete core number

06: Undocumented and apparently non-engineered steel stair

07: Corrosion in steel member

08: Stagnant water on the roof

09: Hair line crack in slab and beam

10: Missing truss member and roof bracing

11: Incomplete as-built drawing

12: Pipe column without foundation details

13: Discrepancies in as-built drawings

14: Lack of as-built documents

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lack of design documents. (All Buildings)	The factory engineer is required to prepare a set of design documents for all structures as per BNBC part-6, section 1.9.1	6-weeks
02	Lack of design documents. (All Buildings)	Factory engineer is required to review the design of structural members as a part of Engineering Assessment	6-weeks
03	Prepared live load plan need to be revised. (Building-6)	The factory engineer is required to revise the floor load plan based on minimum live loading requirements of BNBC and column, floor & foundation capacity.	6-weeks
04	Prepared live load plan need to be revised. (Building-6)	Implement floor live load plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Slenderness effect of column. (Building-6)	As part of Engineering Assessment (EA), the factory engineer is required to check the slenderness effect of the column.	6-weeks
06	Slenderness effect of column. (Building-6)	Implement the recommendation of EA Report.	6-months
07	Discrepancies between drawings and as-built condition . (Building-6)	Factory engineer to survey the whole building and produce as-built documentation reflecting the as constructed condition.	6-weeks
08	Mismatch of concrete core number. (Building-6)	Prepare the core layout plan as per location of sampling and location need to be marked for verification.	6-weeks
09	Undocumented and apparently non-engineered steel stair. (Building-6)	The factory engineer is required to prepare as-built documents and check the structural integrity as part of Engineering Assessment (EA) for the steel stairs.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Undocumented and apparently non-engineered steel stair. (Building-6)	Implement necessary remediation works as per EA Report.	6-months
11	Corrosion in steel members. (Building-6)	Apply suitable corrosion resistance paint to protect the steel members.	6-weeks
12	Stagnant water on the roof. (Building-6)	Provide adequate drainage with adequate slope or apply water proofing layer on the roof slab.	6-months
13	Hairline crack in slab and beam. (Building-6)	Factory engineer is required investigate the extend & reason of the crack and suggest proper remedial action accordingly.	6-weeks
14	Hairline crack in slab and beam. (Building-6)	Carry out repair works as per crack investigation report.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
15	Missing truss member and roof bracing. (Shed-2)	The factory is required to reinstall the diagonal truss chord.	6-weeks
16	Missing truss member and roof bracing. (Shed-2)	The factory engineer is required to carry out Engineering Assessment (EA) to confirm the bracing requirements.	6-weeks
17	Missing truss member and roof bracing. (Shed-2)	Implement necessary remedial action as per Engineering Assessment (EA).	6-months
18	Incomplete as-built drawing. (Shed-2)	Factory engineer to survey the structure and update the as-built drawings accordingly.	6-weeks
19	Pipe column without foundation details. (AOP Shed)	Verify the foundation type, size and produce as-built drawing.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
20	Pipe column without foundation details. (AOP Shed)	Check the adequacy of the pipe columns for gravity and lateral loads.	6-weeks
21	Pipe column without foundation details. (AOP Shed)	Carry out remedial works where necessary.	6-months
22	Discrepancies in as-built drawings. (Wastage Shed)	Factory Engineer to survey the structure and prepare accurate as built drawings.	6-weeks
23	Lack of as-built documents. (Security Post and Gate)	Factory Engineer to survey the structure and prepare accurate as built drawings.	6-weeks