

FASHION.COM LIMITED

25/2, Durgapur, Kathgora, Zirabo, Ashulia, Savar, Dhaka-1341.
(23.907842, 90.301531)

01st Nov 2020



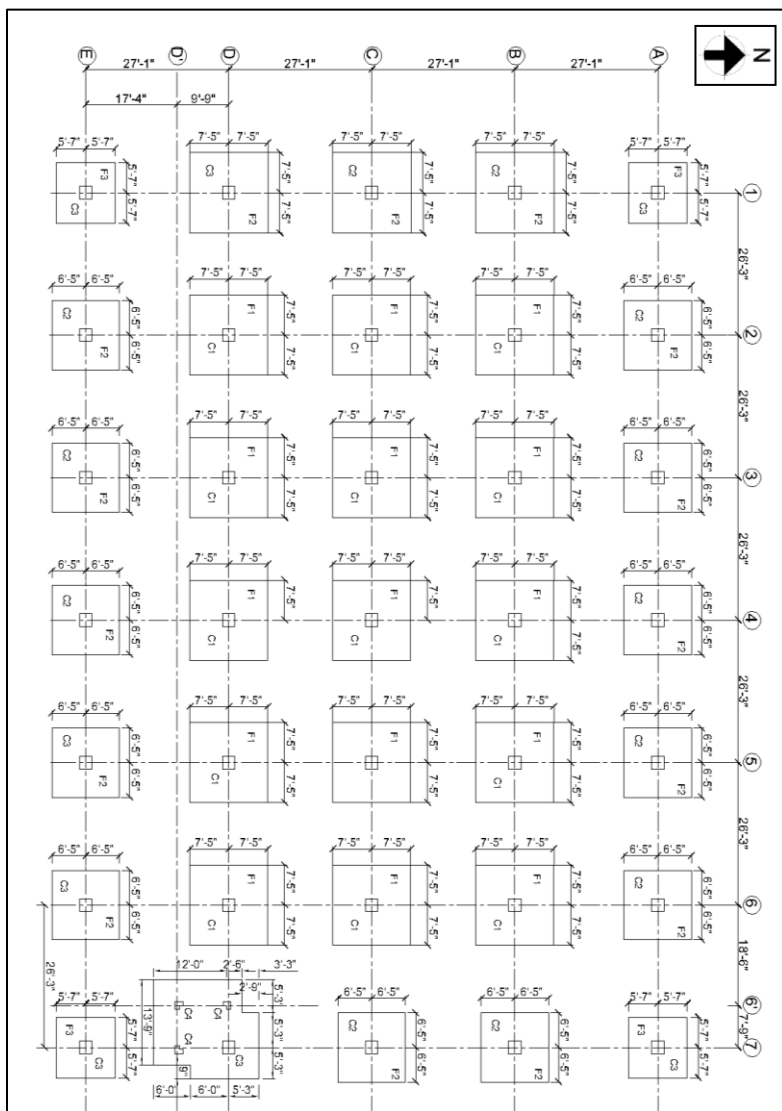
Buildings Information

1. Production Building (G+4)
2. Jhute building (Driver Waiting Room) (G+1)
3. Boiler Room (single storied)

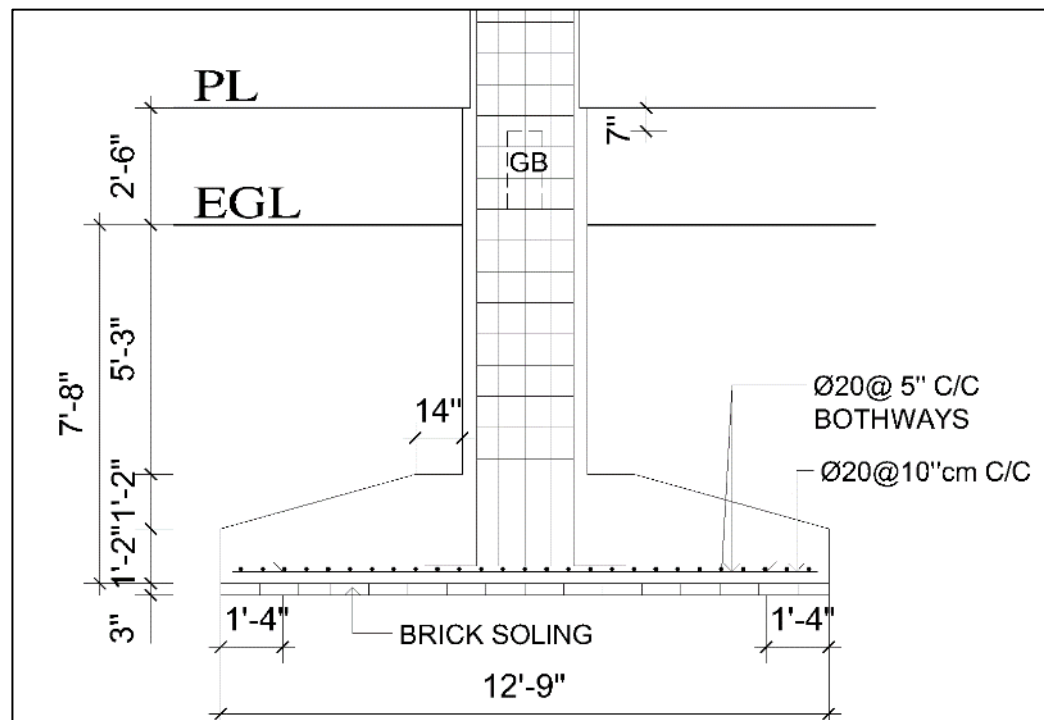
Observations

**Punching stress of foundation exceeds normal
design limit**

Observation: Production Building



Foundation layout

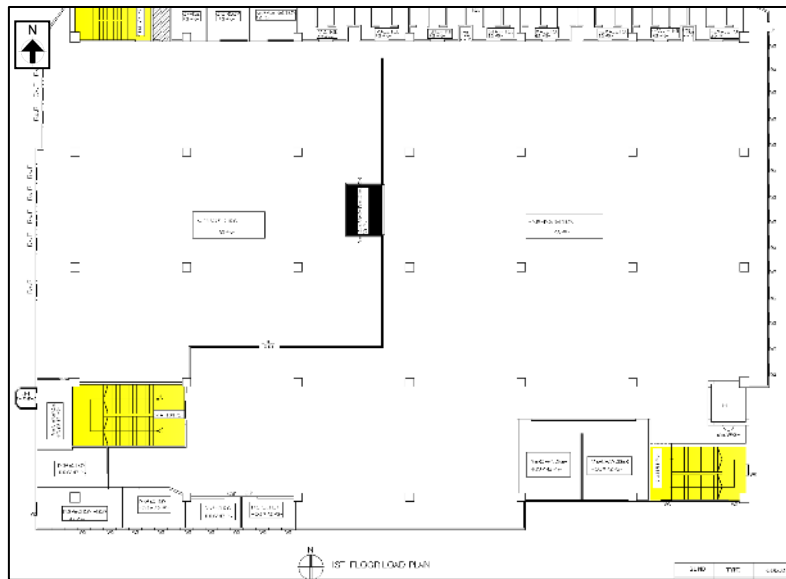


F 2 type Foundation section details

Cursory calculation indicates that, the punching capacity of the F2 foundation exceed normal design limit considering 3 kPa live load and provided material & soil test reports. Building Engineer to review design, loads and foundation stresses in compliance with section 1.9.1.2 of BNBC.

DEA report need to be revised

Observation: Production Building



Load plan of 2nd , 3rd and 4th floor 2 kPa

Building Loading Consideration:

Following loads are duly considered in the computer-generated Etabs model:

- Self- weight is considered as Dead load on entire areas of all members'
- Live load is considered 63 psf on "Finishing Section" & "Cutting Section" in 1st floor
- Live load is considered 42 psf on other floors and 30 psf on roof

All those considered above-mentioned dead loads and live loads have been assigned to each element

Load Combinations

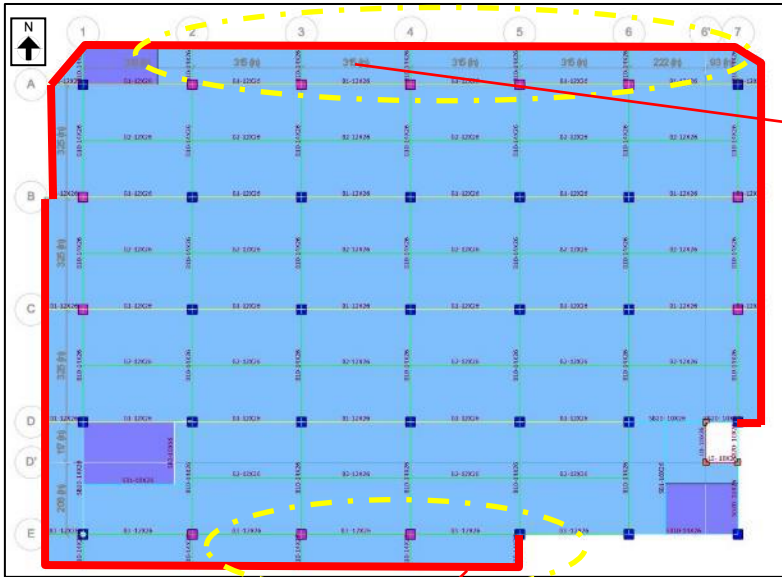
Alternate load factors and load combinations as being suggested within the Building Standard for assessment of structural integrity of existing RMG buildings in Bangladesh developed by "NTP A" are duly considered in the analytical computer model. NTPA Standard Alternate Load Factors and

Load Combinations are summarized in the following table.

Alternate Load Factors and Load Combinations	
Reinforced Concrete Structures	Structural Steel Structures
1.2D+1.6L	1.2D+1.6Lf+0.5 Lr
1.05D+1.25L+1.0W	1.2D+1.3W+0.5Lf+0.5Lr
1.05D+1.25L+1.0E	1.2D+1.5E+0.5Lf
D = Dead Load, L= Live Load, W= Wind Load from any direction, E = Seismic Load from any direction, Lr = Roof Live Load, Lf = Floor Live Load.	

The construction of the building was completed on 2017 but the load plan and design was developed considering 2 kPa for 2nd, 3rd and 4th floor and 3 kPa for 1st floor. Building engineer is required to revise the DEA report considering minimum floor live load (3kPa) as per BNBC (2006) load combination.

Edge beam (highlighted in red)not assigned on the FEA model

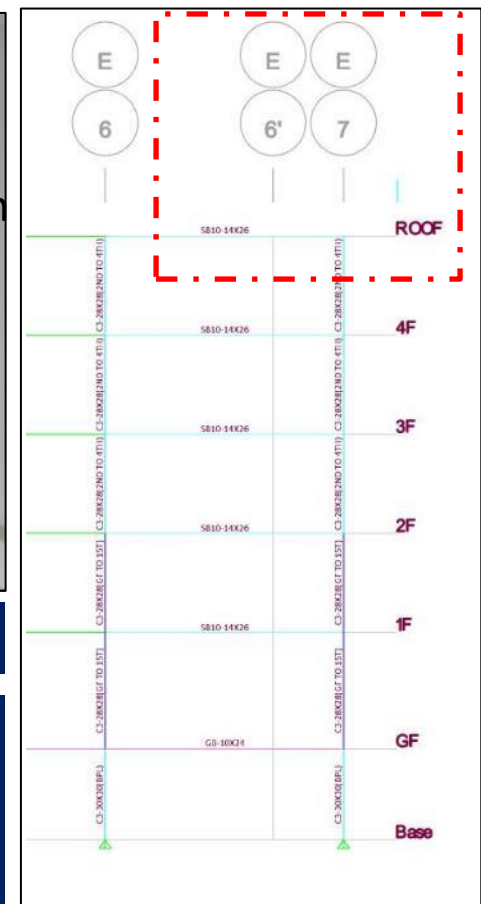
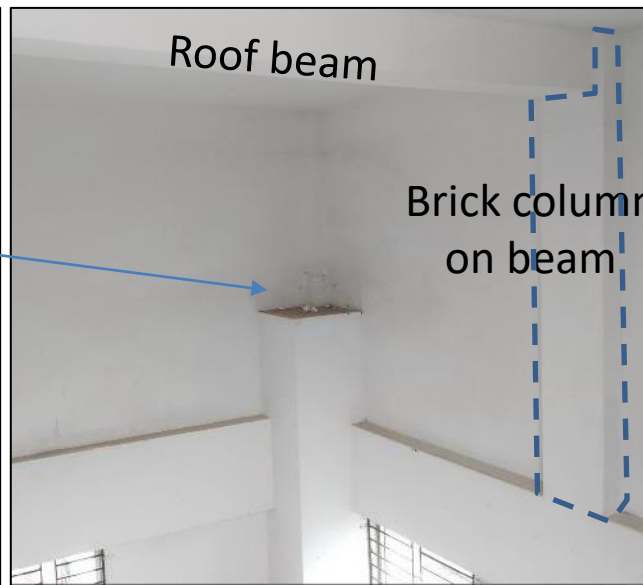
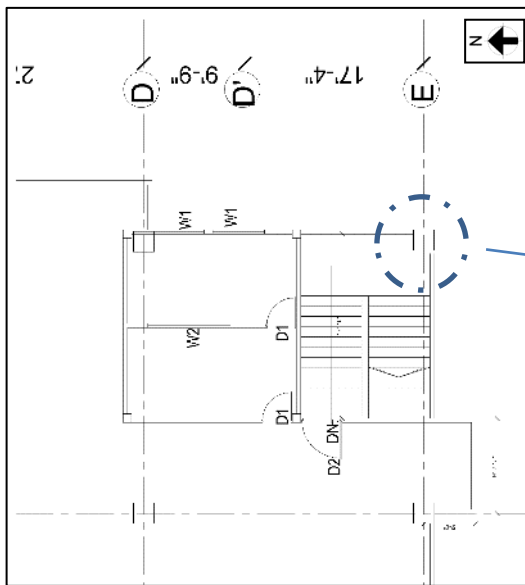


Edge beam on Toilet area

The edge beam was observed on the cantilever area as per the beam layout. This beam has not been addressed in both drawing or FEA model. But on the site, a continuous beam on the periphery was observed. The measured beam depth was 510 mm at ground floor. The drawing need to be revised along with DEA report.



Edge beam on south side



Column C3 (Grid E07) location on drawing and in site

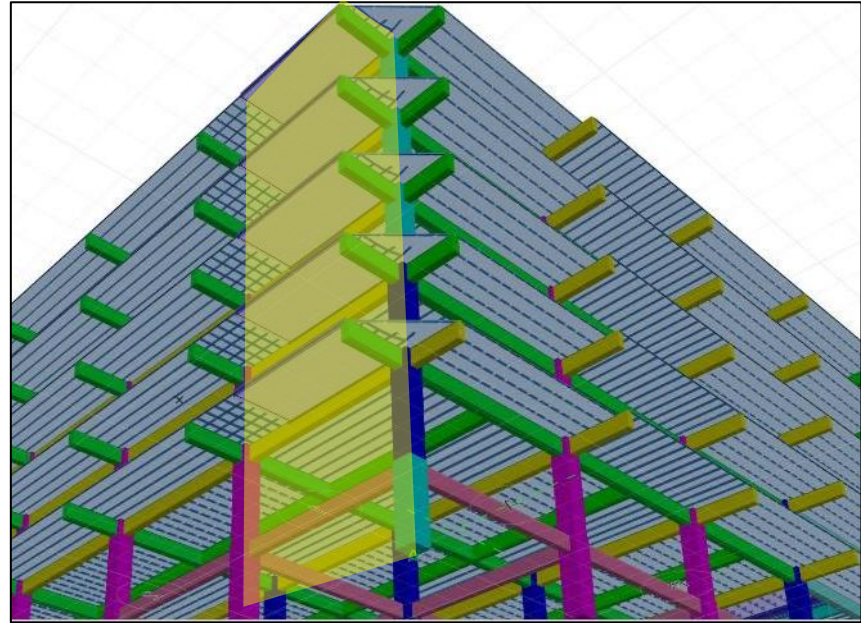
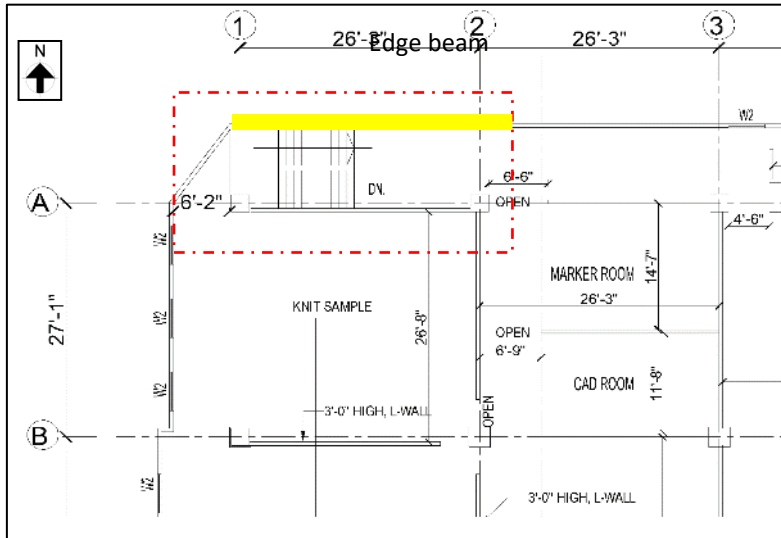
As per architectural drawing, there are a garret on the east and west stair case. On the east stair case, the column does not reach up to the roof level. On the FEA model non of this garret area has been assigned. The roof slab and roof beam is seems to be supported by the masonry wall around. This system may rise the issue of lateral instability of the roof. Building engineer is required to address this issue and revise the DEA report along with the drawing.

Column C3 on FEA model, no section defined on the garret

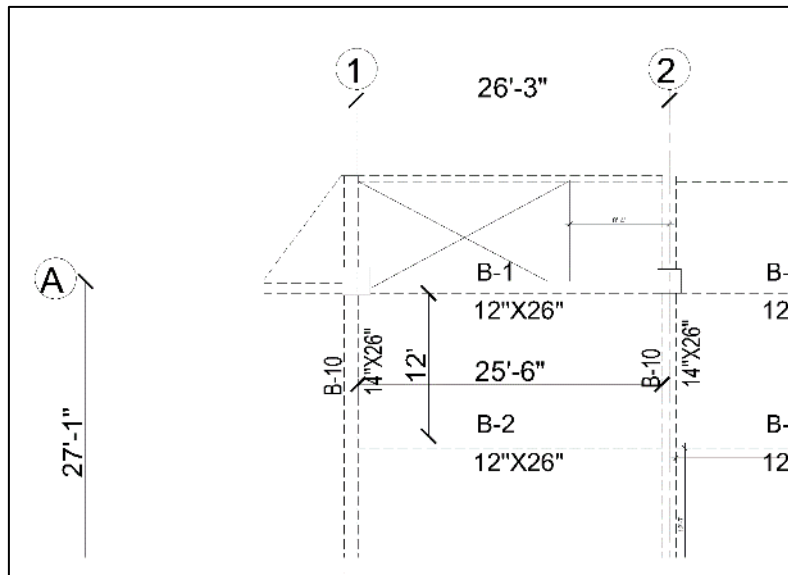
Verify Load Path of Stair at North West side

Observation: Production Building

Stair on north west direction



The highlighted area is the assigned stair on FEA model

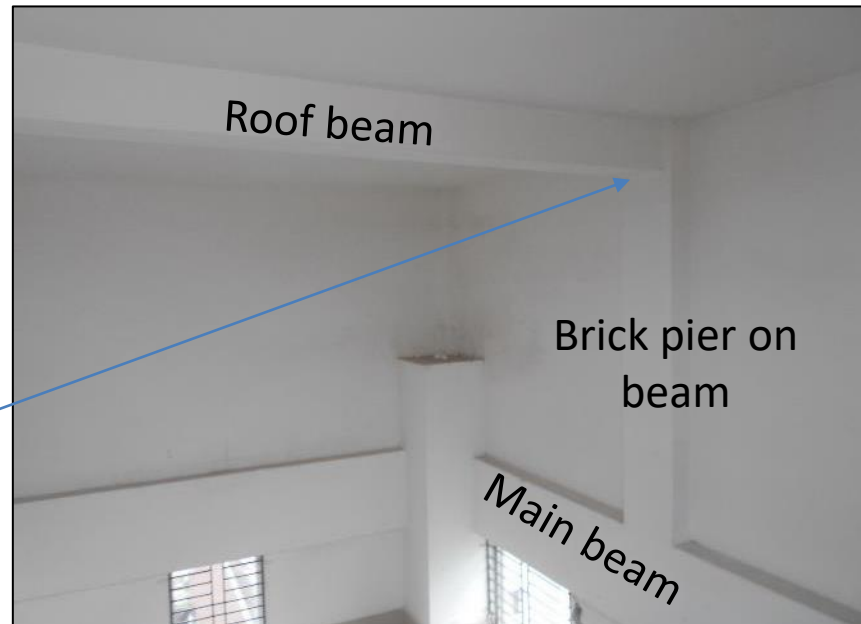
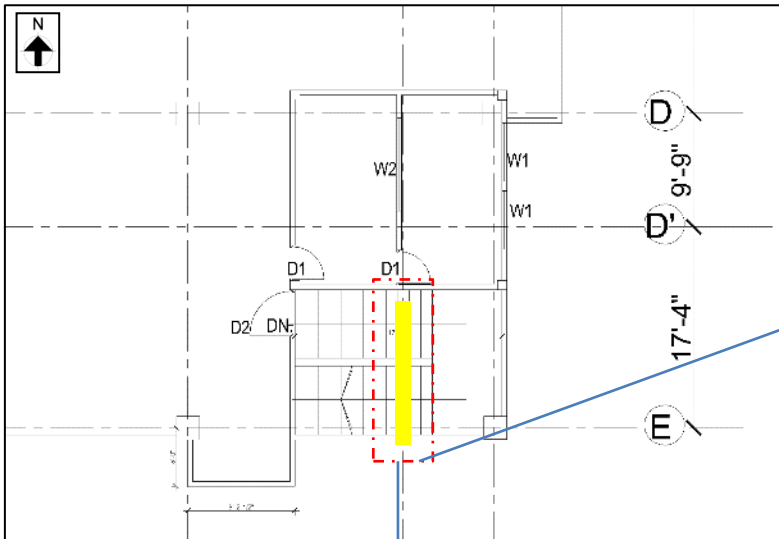


The stair is fully resting on the beam and two columns on the west. There is an edge beam to support on the north side of the stair. There is no beam on the transverse direction either, to support the landing slab. Thus, the load path of the stair is not clear. Building engineer is to check the overall stability of the stair along with the DEA report.

Appearance of Crack on Roof Beam

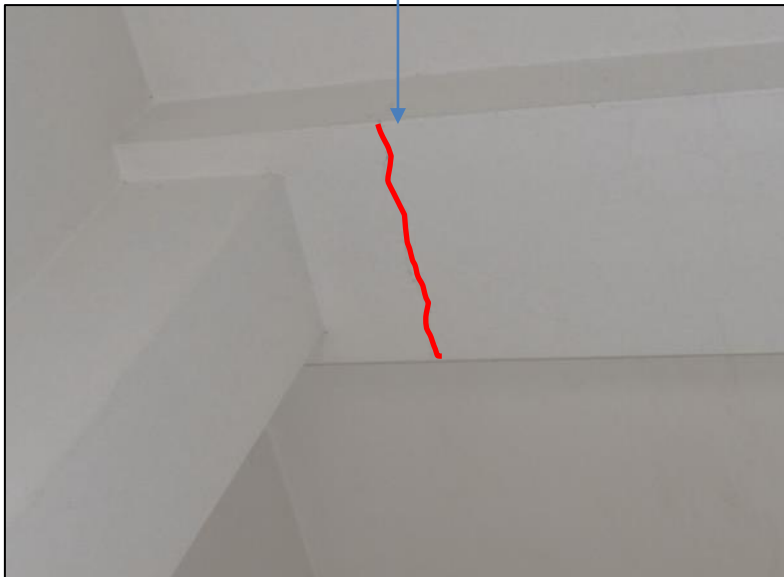
Observation: Production Building

Stair on south east direction



Roof beam is resting on brick pier which is resting on edge beam

Crack was observed near the support of the roof beam. The lateral stability of this roof beam along with the slab is unknown, as the beam-slab is resting on the periphery wall. Building engineer is required to investigate the crack as per part of DEA and suggest any remediation required.

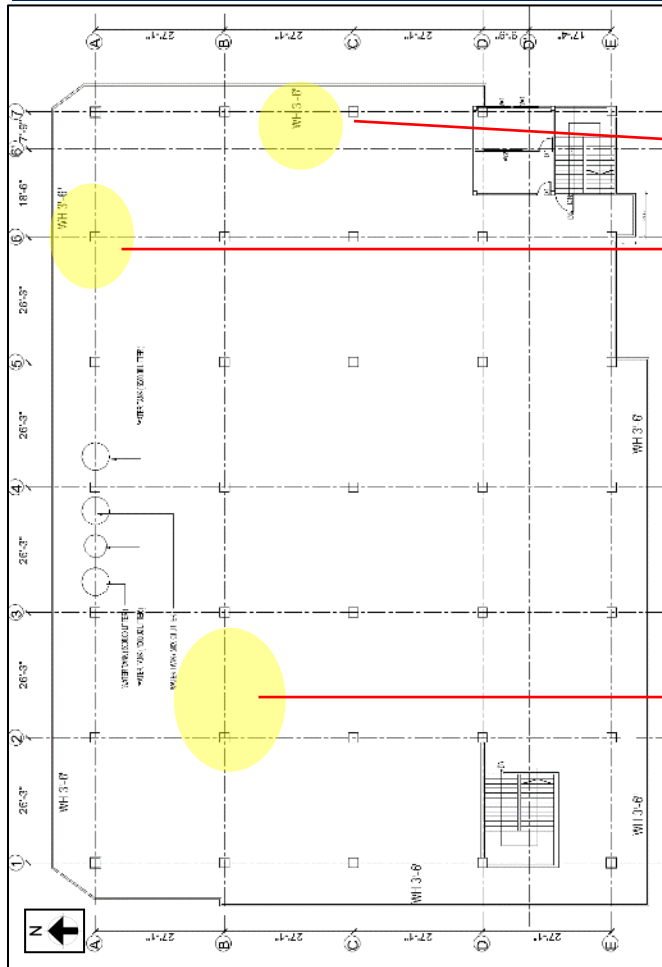


Crack on roof beam near the support

Roof slab susceptible to damage

Observation: Production Building

Roof layout (rubbish stacked area)

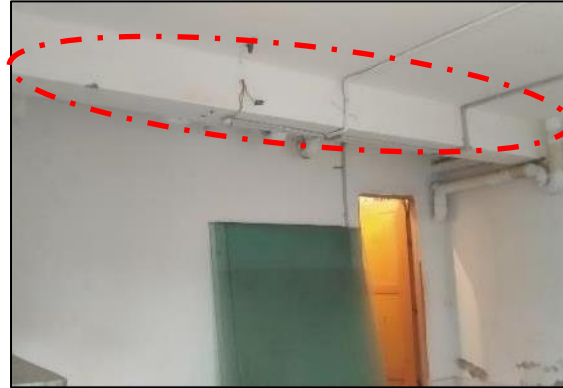
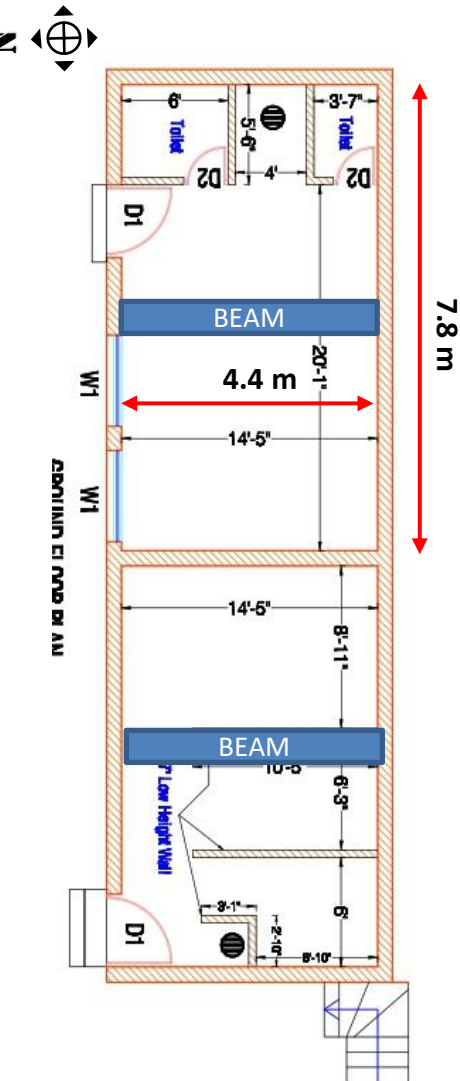


Rubbish was found on the different location of the roof slab. This stacking may deteriorate the structural integrity of the concrete of the slab by absorbing water in certain places. The drainage pipes were found on north and west direction only. Water stagnant was found on the north side. Building engineer is required to remove the rubbish materials from roof and develop proper drainage system.

Lack of as-built document and verify overall stability

Observation: Jhute building

Floor plan



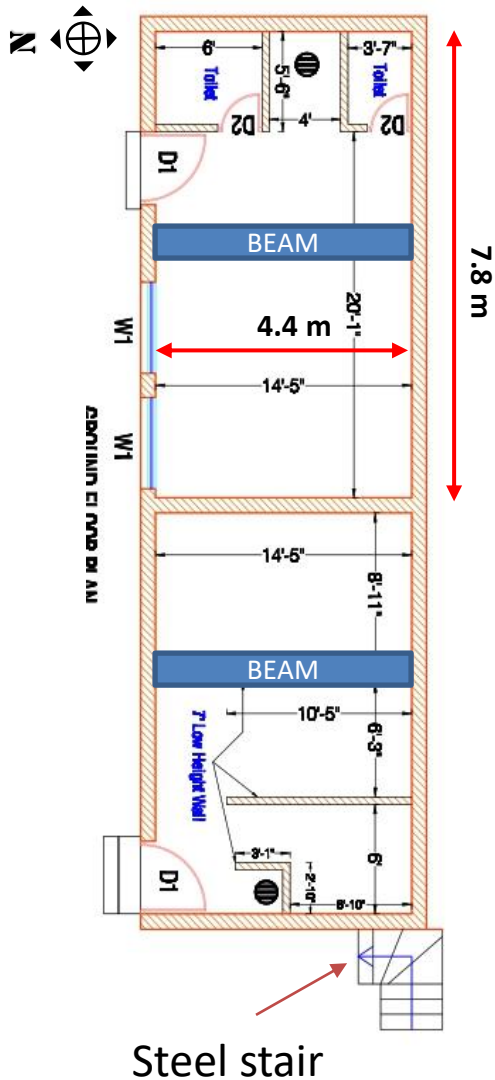
Beam on mid span



Roof plan

The architectural drawing was available during inspection. The structural system of jhute building is, RC Beam slab supported on load bearing masonry wall which is resting on the concrete walls of underground water reservoir (UGWT). There are two beams found on the mid span of this building on both ground floor and 1st floor. There was no structural drawing to confirm the dimension and rebar of these beams, opening of the masonry load bearing walls and UGWT. Drawing to confirm the foundation system is also unavailable. There is a plastic water tank on the roof. No drawing found for the steel stair either. Building engineer is required to produce as-built documents and check overall stability against vertical and lateral loads as part of DEA.

Ground floor Floor plan



The stair on the west side is also poorly connected with the building wall with one side. Non engineering connection for the steel stair was found.

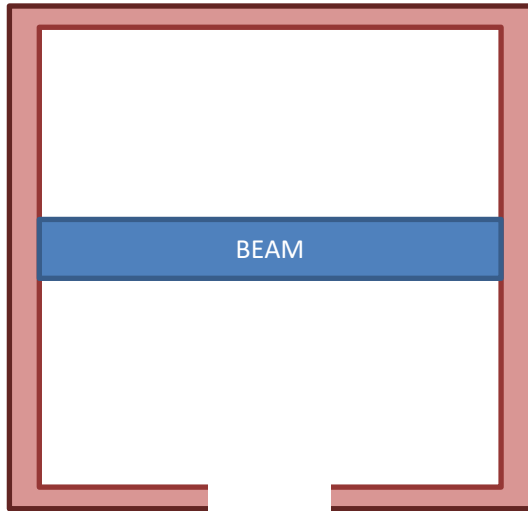


Steel stair

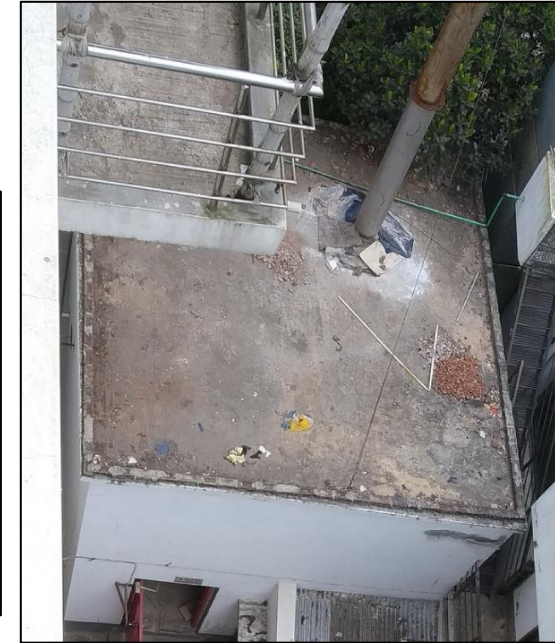
Lack of as-built document

Observation: Boiler Room

Floor plan



Beam on mid span



Roof plan

There were no credible as-built structural drawing or documents to review. This masonry structure with 5.36 height is totally resting on 250 mm brick wall. The Factory engineer is required to survey the structures and prepare as-built drawings.

Priority Actions

Problems Observed

Production Building

Item 1: Punching stress of foundation exceeds normal design limit

Item 2: DEA report need to be revised.

Item 3: Verify Load Path of Stair at North West side

Item 4: Appearance of Crack on Roof Beam

Item 5: Roof slab susceptible to damage

Jhute building:

Item 6: Lack of as-built document and verify overall stability

Boiler room

Item 7: Lack of as-built document

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Punching stress of foundation exceeds normal design limit (Production Building)	Building Engineer to review design, loads and foundation stresses as per BNBC (part-6; Article 1.9.1).	6-weeks
02	Punching stress of foundation exceeds normal design limit (Production Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
03	Punching stress of foundation exceeds normal design limit (Production Building)	Complete implementation of any remedial works deemed necessary.	6-months
04	Punching stress of foundation exceeds normal design limit (Production Building)	Continue to implement loading plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	DEA report need to be revised (Production Building)	Building Engineer to survey the structure and prepare accurate as-built (both architectural & structural) drawings.	6-weeks
06	DEA report need to be revised (Production Building)	Building Engineer to revise DEA report by reviewing design, loads and capacity of structural members & foundation.	6-weeks
07	DEA report need to be revised (Production Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
08	DEA report need to be revised (Production Building)	Complete implementation of any remedial works deemed necessary by the DEA.	6-months
09	DEA report need to be revised (Production Building)	Continue to implement loading plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Verify Load Path of Stair at North West side (Production Building)	Building engineer to check the load path and overall stability of the mentioned stair along with the DEA report.	6-weeks
11	Verify Load Path of Stair at North West side (Production Building)	Complete implementation of any remedial works deemed necessary by the DEA Report.	6-months
12	Appearance of Crack on Roof Beam (Production Building)	Building Engineer to investigate the cause of crack and continuous monitoring the status of the crack.	6-weeks
13	Appearance of Crack on Roof Beam (Production Building)	Carry out any structural remedial works arising from review and investigation.	6-months
14	Roof slab susceptible to damage (Production Building)	Building Engineer to remove rubbish material from roof.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
15	Roof slab susceptible to damage (Production Building)	Building engineer to check the load path and overall stability of the mentioned stair along with the DEA report.	6-weeks
16	Verify Load Path of Stair at North West side (Production Building)	Complete implementation of any remedial works deemed necessary by the DEA Report.	6-months
17	Appearance of Crack on Roof Beam (Production Building)	Building Engineer to investigate the cause of crack and continuous monitoring the status of the crack.	6-weeks
18	Appearance of Crack on Roof Beam (Production Building)	Carry out any structural remedial works arising from review and investigation.	6-months
19	Roof slab susceptible to damage (Production Building)	Building Engineer to remove rubbish material from roof.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
20	Roof slab susceptible to damage (Production Building)	Building Engineer to develop a proper drainage system on roof as BNBC provision.	6-weeks
21	Lack of as-built document and verify overall stability (Jhute building)	Building Engineer to survey the structure and prepare accurate as-built (both architectural & structural) drawings.	6-weeks
22	Lack of as-built document and verify overall stability (Jhute building)	Building engineer to carry out a Detail Engineering Assessment (DEA).	6-weeks
23	Lack of as-built document and verify overall stability (Jhute building)	Verify compressive strength of masonry construction using Table 6.4.1 of BNBC.	6-weeks
24	Lack of as-built document and verify overall stability (Jhute building)	Building engineer to check capacity of load bearing masonry wall and foundation considering vertical and lateral load as per BNBC provision.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
25	Lack of as-built document and verify overall stability (Jhute building)	Produce and actively manage a loading plan for all floor plates, considering floor, masonry walls and foundation capacity.	6-weeks
26	Lack of as-built document and verify overall stability (Jhute building)	Complete implementation of any remedial works deemed necessary by the DEA Report.	6-months
27	Lack of as-built document and verify overall stability (Jhute building)	Continue to implement loading plan.	6-months
28	Lack of as-built document (Boiler Room)	Building Engineer to survey the structure and prepare accurate as-built (both architectural & structural) drawings.	6-weeks