

KAC Fashion Wear Ltd (Extension)

12/13 Tetui Bari, Sarabo, Gazipur

(23.976707, 90.260770)

14th September and 11th October 2021

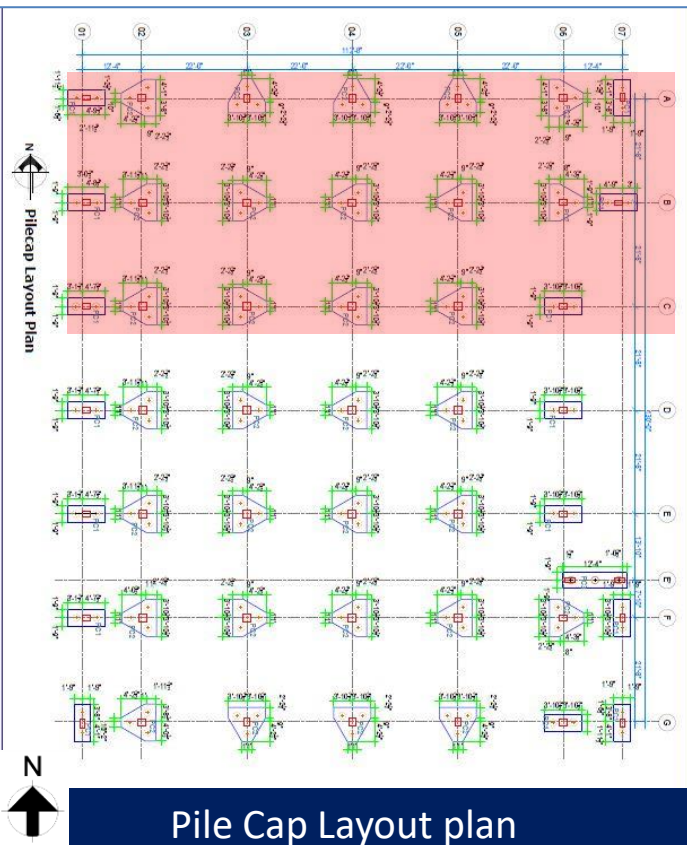


Buildings Information

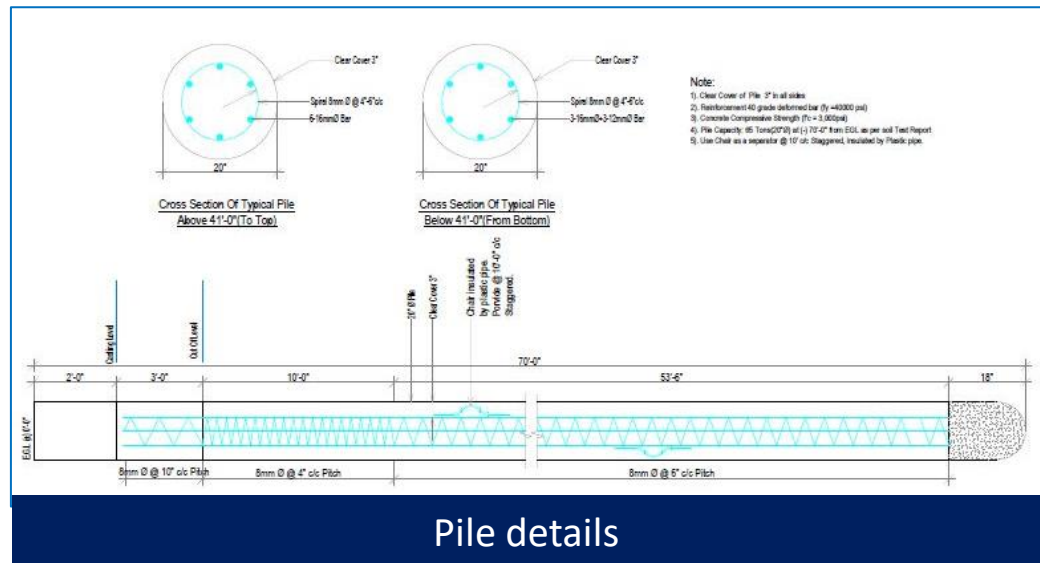
1. Fashion-2 (G+4)
2. Jute Boiler (single storied)
3. Godown (single storied)
4. Fashion-3 (G+4)
5. Pump House (single storied)
6. Generator Building (single storied)
7. Accessories Shed (single storied)
8. Washing Shed (single storied)
9. Yarn Dyeing Shed (single storied with mezzanine).
10. Shed 3 (Boiler & Transformer) (single storied)
11. Canal Shed (single storied)

Observations

Foundation stressed above normal design limit



Cursory calculation indicates that bearing capacity of pile exceeds the normal design limit under dining area, considering 3 kPa live load on typical floors. Factory Engineer to review design, loads and foundation stresses.



In case of cast in situ piles, use Bored R.C.C. piles of 18" dia & 73' length, from EGL. It's bearing capacity = 100 Kips/pile.

In case of cast in situ piles, use Bored R.C.C. piles of 20" dia & 73' length, from EGL. It's bearing capacity = 125 Kips/pile.

The bearing capacity of the bored R.C.C. Pile, as recommended above, must be confirmed from the Load Tests.

Finally, it is noted here that the design engineer will take the appropriate decision about the type, depth and extent of foundation considering economy and safety of the proposed structure.

Engr. Md. Ibrahim Khalil Ullah
(Mamun)
M.Sc Engg (Geotechnical)
MEB - 20049

Discrepancies in as-built drawing



OHWT (not shown in drawing)

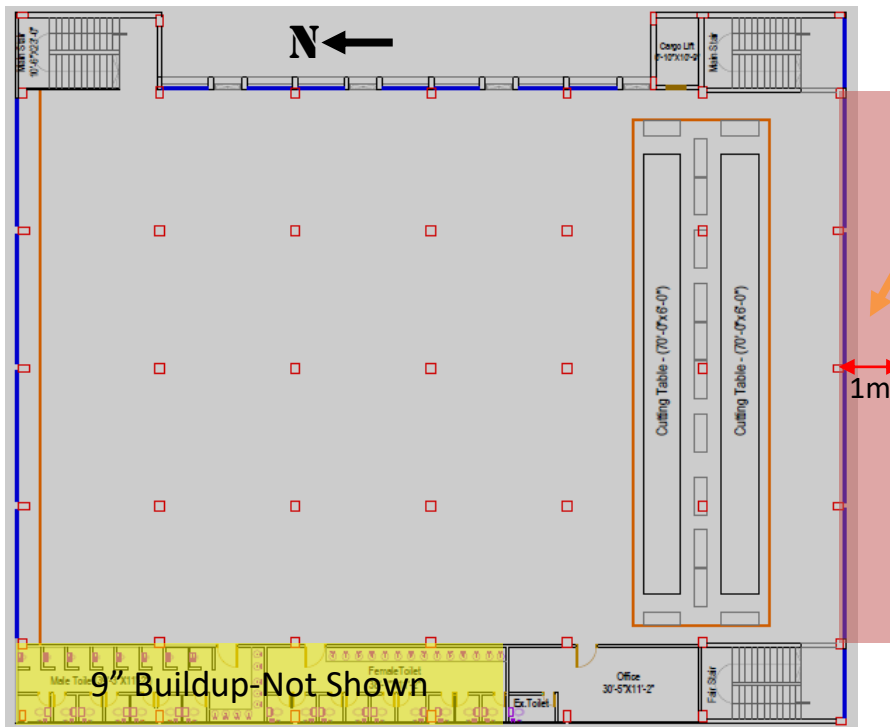
Dining shed (not shown in drawing)

Southside cantilever portion at 3rd floor (not shown in drawing)

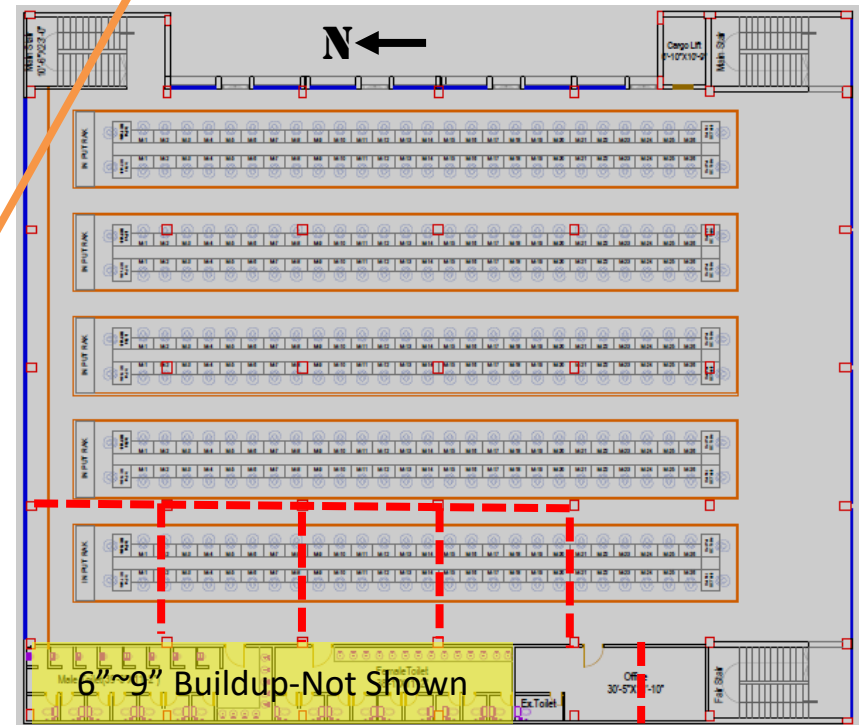


Buildup

125 mm brick wall



3rd floor layout plan



1st & 2nd floor layout plan

Observations: Fashion 2

Lack of lateral stability system



No roof bracing and lateral load transfer media

Factory engineer is required to check the stability system and suggest proper actions accordingly.

Water ponding on roof

Water Ponding on roof



Factory is required to develop proper drainage system on roof with adequate slope or apply water proofing compound on roof slab to resist water ingress.

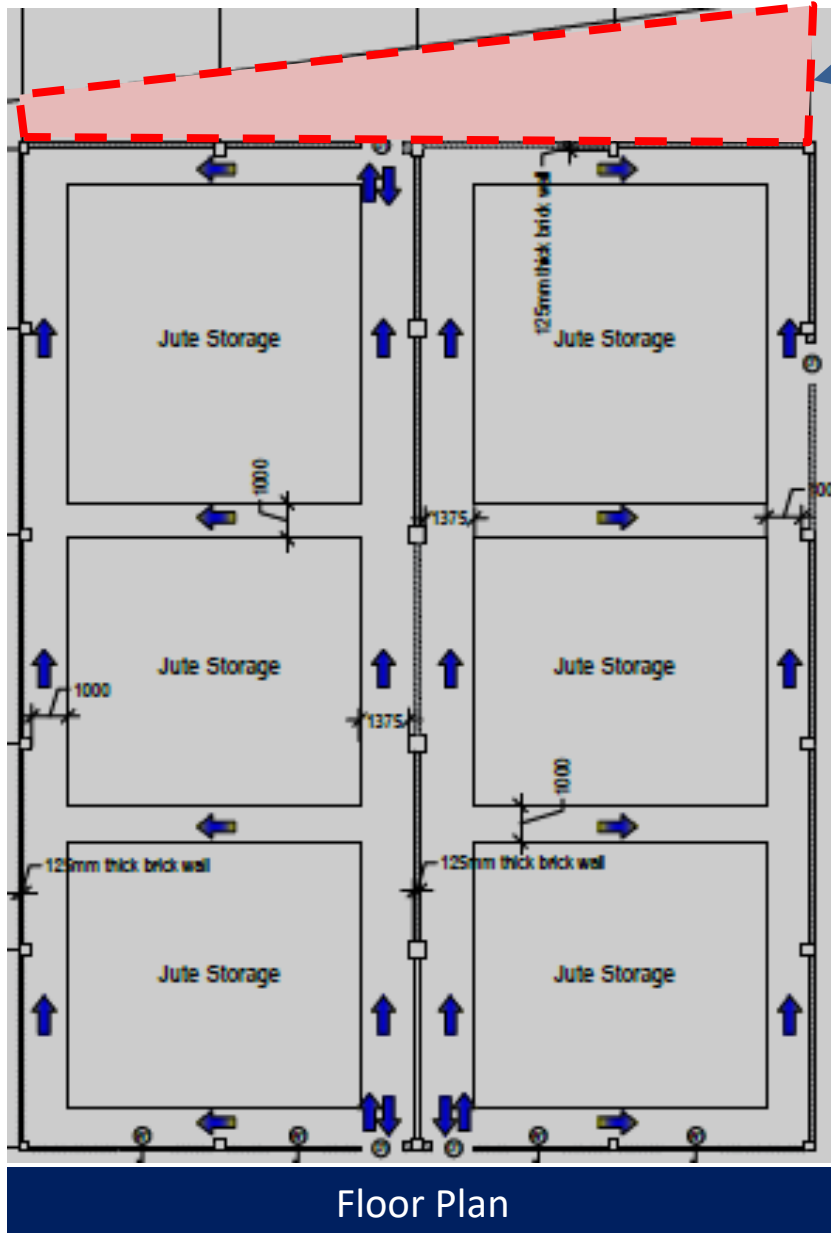
Lack of lateral stability system



No roof bracing and lateral load transfer media

Factory engineer is required to check the stability system and suggest proper actions accordingly.

Inconsistency in as-built drawing



Undocumented extension



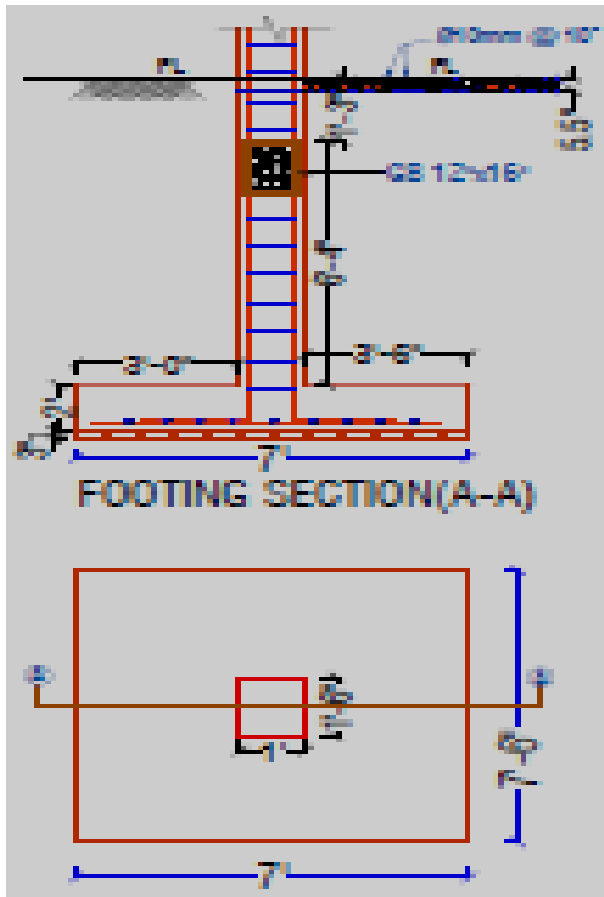
No gusset plate at joint between top & vertical chord

Factory Engineer is required to survey the structure and prepare accurate as-built (architectural and structural) drawings.

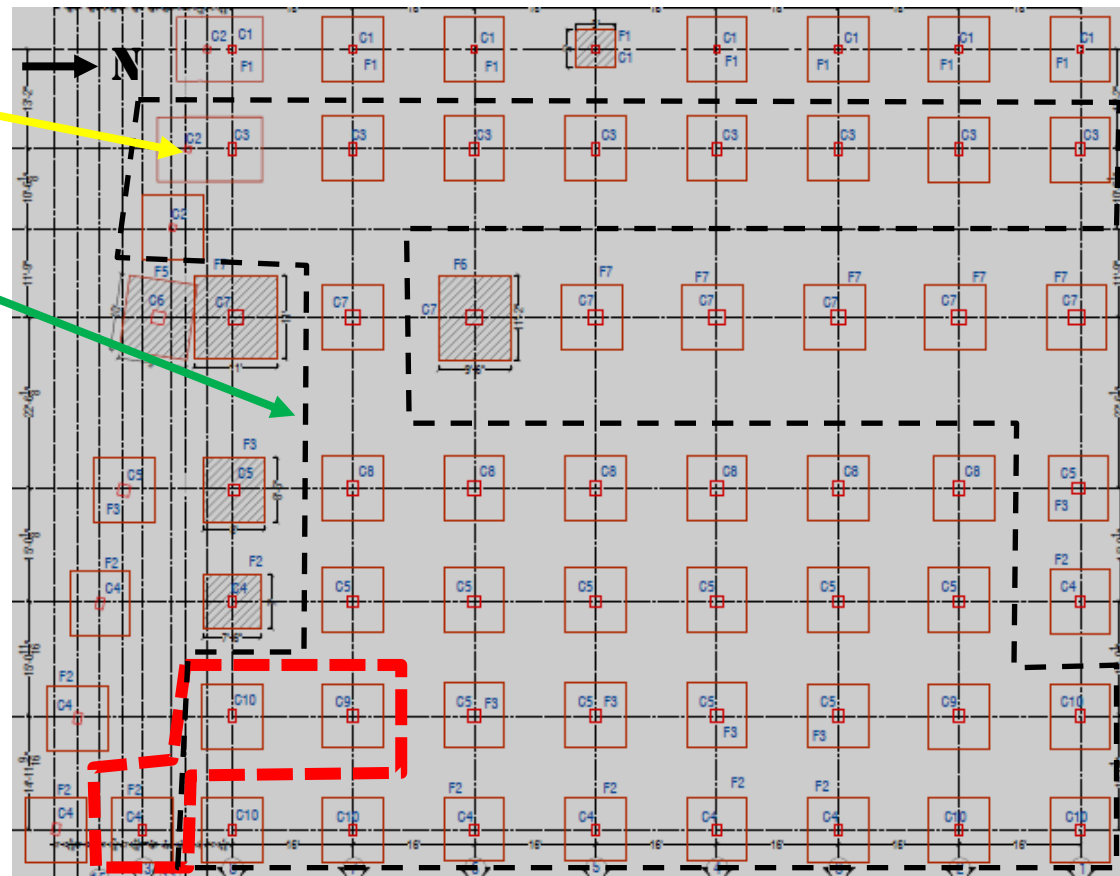
High stress in foundation and column

No details of combined footing was found in drawing.

Footing type not mentioned in layout

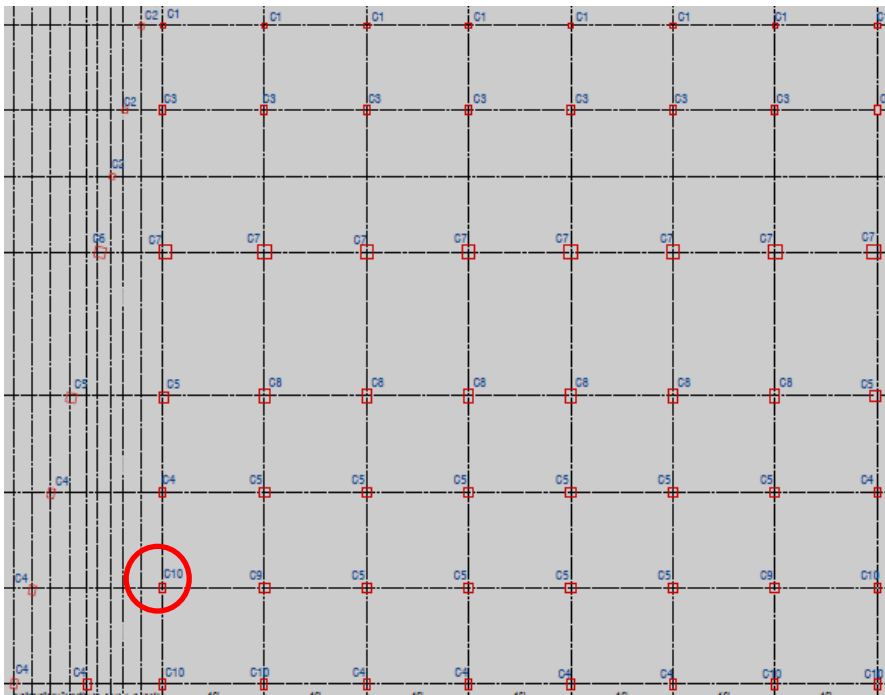


Footing rebar not mentioned



Footing Layout Plan

Cursory calculation indicates that red marked footings are stressed above normal design limit considering observed live load (2 kPa), minimum concrete strength (14.1 MPa) based on aggregate type and ultimate soil bearing capacity 6.88 ksf (330 kPa). Factory engineer is required to review design, load & footing stresses of the building and suggest remedial actions accordingly.



Column Layout Plan

Cursory calculation indicates that columns are stressed above normal design limit considering observed 2 kPa live load and minimum concrete strength (14.1 MPa) based on aggregate type. Factory engineer is required to review design, load & column stresses of the building.



OHWT Loading



Floor Loading

Observations: Fashion 3

Mismatches in as-built drawing



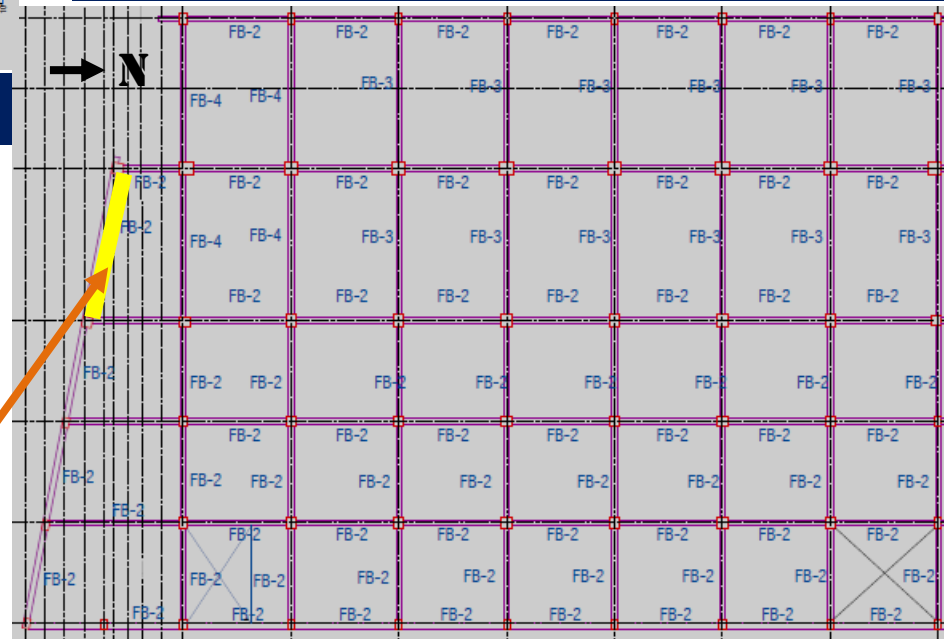
1st floor layout plan

Toilet with 275 mm buildup-not shown in drawing

Beam size –
250mm X 425mm (d/s)
instead of
250mm X 350mm (d/s)

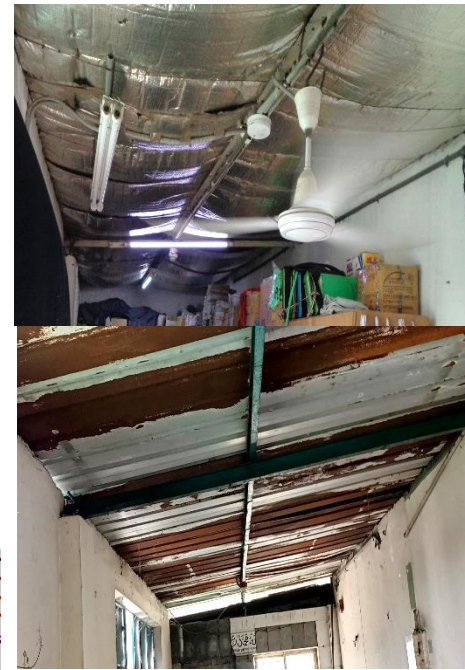


150~275 mm Buildup at each floor toilet area

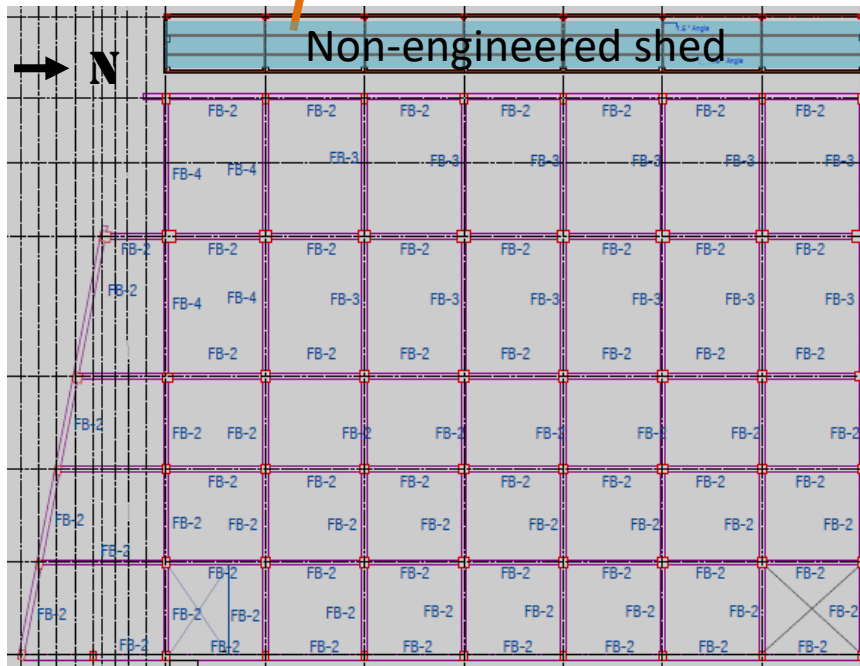


3rd & 4th floor roof beam layout plan

Non-engineered shed at 1st floor



Roof sheet worn out



3rd & 4th floor room beam layout plan

Factory engineer is required to check the member adequacy of the shed for both gravity and lateral forces or replace the shed by an engineering structure.

Observations: Fashion 3

Lack of information in provided drawings



Basement



Roof Truss

Foundation details and roof truss connection details are not found in provided drawings. The building engineer is required to survey the whole structure and produce accurate as-built drawings with connection details.

Lack of connection details and mismatches in drawings



Mismatch has been found in member size



No connection details found for seat connection at grid-7

As per above discrepancies building engineer is required to survey the structural components and produce accurate structural details.

Lack of lateral stability system



No roof bracing has been found on roof



Lateral load transfer media is missing

The factory engineer is required to check the stability system and determine the size & position of bracing & compression strut accordingly.

Discrepancies between drawings with as-built condition & lack of connection details



No tie beam has been found at 5m level where drawing shows at 3.0 m level.



Brick column support of truss



Missing gusset plate at some points



At grid 1/11 half truss shown but full truss found onsite

Building engineer to survey the structural components and produce accurate structural details.

Lack of lateral stability system



No roof bracing has been found on roof and lateral load transfer media is missing

The factory engineer is required to check the stability system and determine the size & position of bracing & compression strut accordingly.

RC tie beam resting on a circular steel column



Tie beam has been found supported by a steel pipe column. Building engineer is required to check the connection of tie beam & steel column also need to check the capacity of that steel column

Lack of lateral stability system



No roof bracing



Undocumented mezzanine



Poor connection

Factory engineer is required to check the adequacy of shed & mezzanine floor for gravity, lateral & moving load due to crane movement and suggest remedial actions accordingly.

Mismatches in drawings & lack of connection details



Member size mismatch has been found at grid 2,4 in part 1, 11-13 in part 2, grid dimension mismatch has been found in part 2



No details has been found for suspended slab, on grade slab details has been found instead of suspended slab.

As per above discrepancies building engineer is required to survey the structural components and produce accurate structural details.

Suspended slab at grade level



Suspended slab has been found instead of on grade slab.

The factory engineer is required to check the adequacy of the suspended slab considering maximum loading condition.

Proximity of Lake/Surface water channel

Lake is very close to structure. Building engineer to check the footing adequacy considering high flood level and take necessary steps to prevent soil erosion during high flood.



Water body near Canal Shed

Observation : Canal Shed

Problems Observed

Fashion-2:

- Item-01: Foundation stressed above normal design limits.
- Item-02: Discrepancies in as-built drawing.
- Item-03: Lack of lateral stability system.
- Item-04: Water ponding on roof.

Godown:

- Item-05: Lack of lateral stability system.
- Item-06: Inconsistency in as-built drawing.

Fashion-3:

- Item-07: High stress in foundation and column.
- Item-08: Mismatches in as-built drawing.
- Item-09: Non-engineered shed at 1st floor.

Pump House:

- Item-10: Lack of information in provided drawings.

Accessories Shed:

- Item 11: Lack of connection details and mismatches in drawings.
- Item 12: Lack of lateral stability system.

Problems Observed (Continued)

Washing Shed:

Item 13: Discrepancies between drawings with as-built condition & lack of connection details.

Item 14: Lack of lateral stability system.

Item 15: RC tie beam resting on a circular steel column.

Yarn Dying Shed:

Item-16: Lack of lateral stability system.

Canal Shed:

Item 17: Mismatches in drawings & lack of connection details.

Item 18: Suspended slab at grade level.

Item 19: Proximity of Lake/Surface water channel.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Foundation stressed above normal design limits. [Fashion-2]	Factory Engineer to review design, loads, and footings stresses.	6-weeks
02	Foundation stressed above normal design limits. [Fashion-2]	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
03	Foundation stressed above normal design limits. [Fashion-2]	Complete implementation of any remedial works.	6-months
04	Foundation stressed above normal design limits. [Fashion-2]	Continue to implement loading plan.	6-months
05	Discrepancies in as-built drawing. [Fashion 2]	Factory Engineer is required to survey the structure and prepare accurate as-built (architectural and structural) drawings in compliance with section 1.9.1.2 as per BNBC.	6-weeks
06	Lack of lateral stability system. [Fashion 2]	Factory engineer is required to carry out lateral stability check of the shed against lateral forces.	6-weeks
07	Lack of lateral stability system. [Fashion 2]	Implement remediation work where required.	6-months
08	Water ponding on roof. [Fashion 2]	Factory engineer is required to develop proper drainage system on roof with adequate slope or apply water proofing compound on roof slab to resist water ingress.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Lack of lateral stability system. [Godown]	Factory engineer is required to carry out lateral stability check of the shed against lateral forces.	6-weeks
10	Lack of lateral stability system. [Godown]	Implement remediation work where required.	6-months
11	Inconsistency in as-built drawing. [Godown]	Factory engineer is required to survey the structure and prepare accurate as-built drawings.	6-weeks
12	High stress in foundation and column. [Fashion 3]	Factory Engineer to review design, loads and column stresses in all column and foundations.	6-weeks
13	High stress in foundation and column. [Fashion 3]	Produce and actively manage a loading plan for all floor plates within the factory building considering floor, column and foundation capacity.	6-weeks
14	High stress in foundation and column. [Fashion 3]	Detail Engineering Assessment to be completed.	6-weeks
15	High stress in foundation and column. [Fashion 3]	Carry out the remedial works as per DEA recommendation.	6-months
16	High stress in foundation and column. [Fashion 3]	Continue to implement floor load plan.	6-months
17	Mismatches in as-built drawing. [Fashion 3]	Factory Engineer is required to survey the structure and prepare accurate as-built (architectural and structural) drawings in compliance with section 1.9.1.2 as per BNBC.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
18	Non-engineered shed at 1st floor. [Fashion 3]	Factory engineer is required to check the member adequacy of the shed for both gravity and lateral forces or replace the shed by an engineering structure.	6-weeks
19	Lack of information in provided drawings. [Pump House]	The building engineer is required to survey the whole structure and produce accurate as-built drawings with connection details.	6-weeks
20	Lack of connection details and mismatches in drawings. [Accessories shed]	The building engineer is required to survey the whole structure and produce accurate as-built drawings with connection details.	6-weeks
21	Lack of lateral stability system. [Accessories shed]	Factory engineer is required to carry out lateral stability check of the shed against lateral forces.	6-weeks
22	Lack of lateral stability system. [Accessories shed]	Implement remediation work where required.	6-weeks
23	Discrepancies between drawings with as-built condition & lack of connection details. [Washing shed]	The building engineer is required to survey the structure and produce accurate as-built drawings.	6-weeks
24	Lack of lateral stability system. [Washing shed]	Factory engineer is required to carry out lateral stability check of the shed against lateral forces.	6-weeks
25	Lack of lateral stability system. [Washing shed]	Implement remediation work where required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
26	RC tie beam resting on a circular steel column. [Washing shed]	Factory engineer is required to verify the connection and prepare structural details.	6-weeks
27	RC tie beam resting on a circular steel column. [Washing shed]	Carry out the adequacy checks for the connections.	6-weeks
28	RC tie beam resting on a circular steel column. [Washing shed]	Implement remediation work if required.	6-months
29	Lack of lateral stability system. [Yarn Dying Shed]	Factory engineer is required to check the adequacy of shed & mezzanine floor for gravity, lateral & moving load due to crane movement and suggest remedial actions accordingly.	6-weeks
30	Lack of lateral stability system. [Yarn Dying Shed]	Implement remediation work where required.	6-months
31	Mismatches in drawings & lack of connection details. [Canal shed]	The building engineer is required to survey the structure and produce accurate as-built drawings.	6-weeks
32	Suspended slab at grade level. [Canal shed]	The building engineer is required to check the adequacy of the suspended slab.	6-weeks
33	Suspended slab at grade level. [Canal shed]	Produce and actively manage a floor loading plan for suspended slab considering floor, column and foundation capacity.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
34	Suspended slab at grade level. [Canal shed]	Carry out remedial action actions if required.	6-months
35	Suspended slab at grade level. [Canal shed]	Implement floor load management program (Posting load plan, load restriction height marking, signage, maintaining load resister).	6-months
36	Proximity of Lake/Surface water channel. [Canal Shed]	Check the foundation adequacy based on soil capacity.	6-weeks
37	Proximity of Lake/Surface water channel. [Canal Shed]	Building Engineer to monitor the structure for signs of water ingress and take preventative action if necessary.	6-months