

Manel Fashion Ltd.

79/1, Bason, Viti Para, Gazipur.
(23.962769N, 90.357361E)
26th January 2021

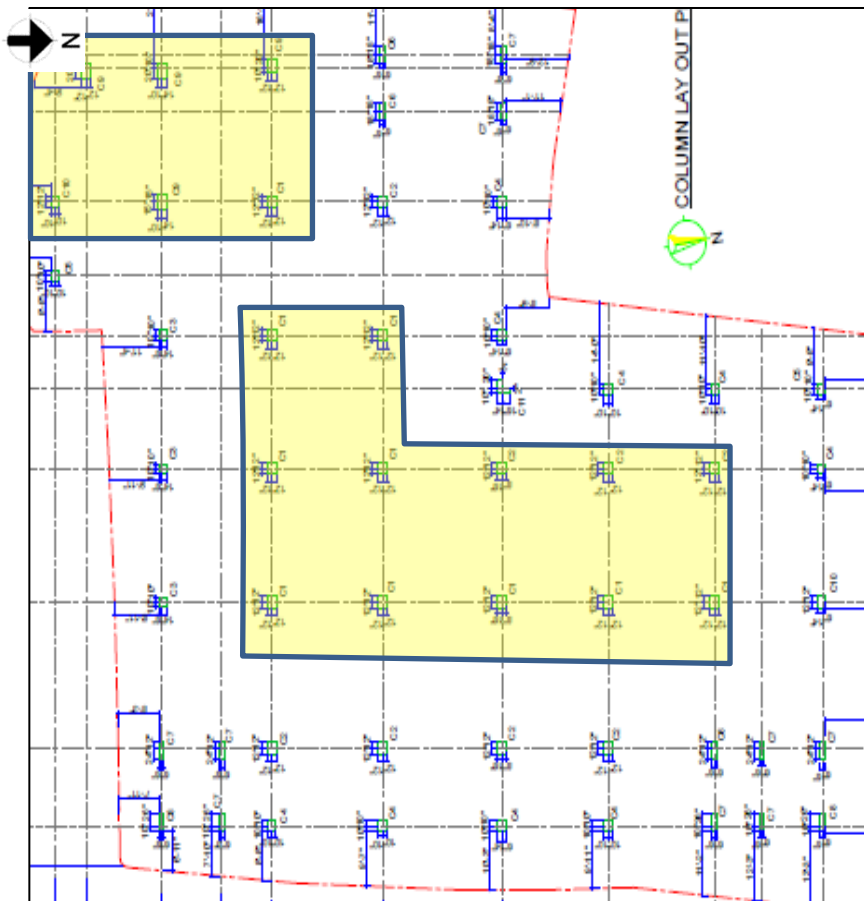


Buildings Information

1. Production Building (G+6)
2. Utility building (G+2)
3. Wastage Store Building (G+1)
4. Boiler Shed (single storied)
5. Canteen Shed (single storied)

Observations

Column to be stressed above normal design limit



Column Layout Plan



Typical floor loading

Cursory calculation indicates that the working stress of ground floor column exceeds the design limits and that requires immediate design review. 6 kPa live load (As per provided load plan) on typical floor & 2 kPa live load on roof top and minimum concrete strength for stone chips are considered. Factory engineer is required to review design, load & column stress in the area identified above.

Stress in foundation exceeds normal design limit



Foundation layout

FOOTING MARK	FOOTING SIZE		THICKNESS AT COL FACE (T)	THICKNESS AT END (t)	θ	FOOTING REINFORCEMENT			
	LENGTH (L)	BREADTH (B)				LONG DIRECTION	L1	SHORT DIRECTION	B1
F1	15'-0"	15'-0"	33"	24"	30°	16mmØ @ 3" c/c	15"	16mmØ @ 3" c/c	15"
F2	13'-6"	13'-6"	30"	22"	27°	16mmØ @ 3½" c/c	15"	16mmØ @ 3½" c/c	15"
F3	12'-6"	12'-6"	30"	22"	27°	16mmØ @ 4" c/c	12"	16mmØ @ 4" c/c	12"
F4	11'-6"	11'-6"	27"	20"	24°	16mmØ @ 4" c/c	12"	16mmØ @ 4" c/c	12"
F4A	15'-0"	9'-0"	30"	24"	27°	20mmØ @ 4½" c/c	15"	16mmØ @ 7" c/c	0"
F5	10'-0"	10'-0"	24"	18"	21°	16mmØ @ 5" c/c	9"	16mmØ @ 5" c/c	9"
F6	17'-0"	17'-0"	36"	27"	33°	20mmØ @ 4" c/c	18"	20mmØ @ 4" c/c	18"
F7	16'-0"	16'-0"	36"	27"	33°	20mmØ @ 4½" c/c	18"	20mmØ @ 4½" c/c	18"
F7A	19'-0"	13'-6"	36"	27"	33°	25mmØ @ 4½" c/c	24"	16mmØ @ 4½" c/c	12"
F8	13'-0"	11'-0"	27"	20"	24°	16mmØ @ 3" c/c	12"	16mmØ @ 4" c/c	9"
F9	11'-0"	7'-0"	24"	18"	21°	16mmØ @ 5" c/c	0"	16mmØ @ 5" c/c	0"

Footing schedule (existing & retrofiting)

Cursory calculation indicates that the stress in foundations of the highlighted area exceeds normal design limit. Considering 6 kPa live load on typical floor & 2 kPa live load on roof top (As per provided load plan) and minimum concrete strength for stone chips, these footings have been found stressed in excess of normal design limit against the soil bearing capacity available from Geotechnical investigation report. Building engineer is required to carryout foundation adequacy check to justify the load carrying capacity.

No design report was available



Interior of the building

As per BNBC every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. During the inspection, design report was not available which is required to be prepared in compliance with section 1.9.1 (part-6, BNBC).



Isometric view

Corroded and exposed rebar at roof



Corrosion was observed on exposed reinforcements on roof top columns. All exposed reinforcements are to be protected from corrosion which may cause degradation of the concrete.

No design report was available



Interior of the building



Isometric view

As per BNBC every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. During the inspection, as-built drawings and design report were not available which is required to be prepared in compliance with section 1.9.1 (part-6, BNBC).

No design reports were available and apparently non-engineered connection at roof shed



Interior of the shed



Isometric view



Non engineered connection

As per BNBC every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. During the inspection, as-built drawings and design report were not available which is required to be prepared in compliance with section 1.9.1 (part-6, BNBC).

Lack of lateral stability system



Interior of the shed

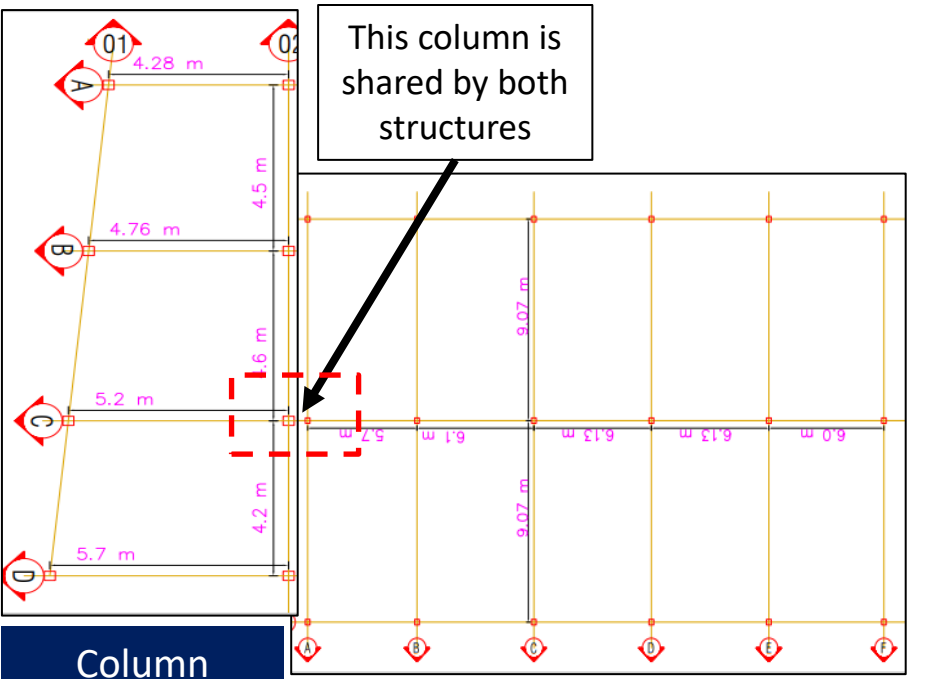
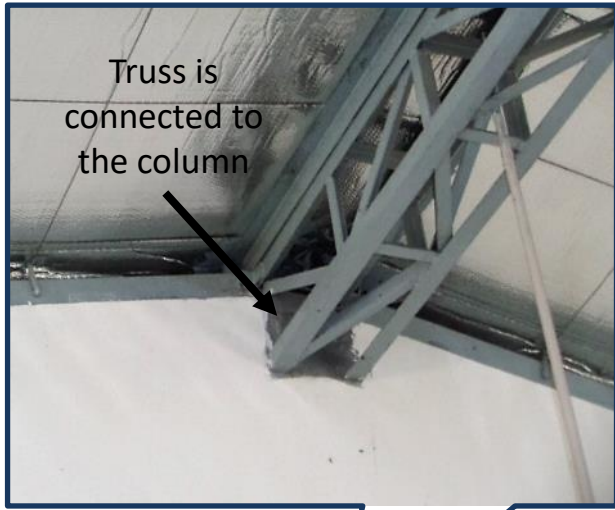


Non engineered connections

Apparently improper connection was observed in roof shed. Also, the stability system observed was found to be inadequate. Building engineer is required to check the lateral stability of the shed and prepare design report in compliance with section 1.9.1 (part-6, BNBC).

Structural connection between Wastage Store Building and Canteen Shed

During inspection, it was found that the central roof truss of the Canteen Shed is supported by the column of the Wastage Store Building. Therefore, the structures are found to be structurally connected. Factory is required to consider two structures as one and prepare design report accordingly.



Column layout of Wastage Store Building

Column layout of Canteen Shed



Two buildings are found structurally connected.

Priority Actions

Problems Observed

Production Building:

Item-01: Column to be stressed above normal design limit.

Item-02: Stress in foundation exceeds normal design limit.

Utility Building:

Item-03: No design report was available.

Item-04: Corroded and exposed rebar at roof.

Wastage Store Building:

Item-05: No design report was available.

Boiler Shed:

Item-06: No design reports were available and apparently non-engineered connection at roof shed.

Canteen Shed:

Item-07: Lack of lateral stability system.

Item-08: Structural connection between Wastage Store Building and Canteen Shed.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Column to be stressed above normal design limit. (Production Building)	Factory Engineer to review design, loads and columns stresses in area identified above.	6-weeks
02	Column to be stressed above normal design limit. (Production Building)	Verify in-situ concrete strength and aggregate type by taken min. 4 nos. 100mm dia. core samples from ground floor columns.	6-weeks
03	Column to be stressed above normal design limit. (Production Building)	Factory engineer to prepare Engineering Assessment (EA) including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC.	6-weeks
04	Column to be stressed above 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
05	Column to be stressed above normal design limit. (Production Building)	Complete implementation of any remedial works deemed necessary by the design review.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Column to be stressed above normal design limit. (Production Building)	<ul style="list-style-type: none"> Continue to implement loading plan. 	6-months
07	Stress in foundation exceeds normal design limit (Production Building)	Building engineer is required to carryout foundation adequacy check to justify the load carrying capacity.	6-weeks
08	Stress in foundation exceeds normal design limit (Production Building)	Implement any remediation work if required.	6-months
09	No design report was available. (Utility Building)	Building engineer to prepare the design documents including a design report for the full structure, in compliance with section 1.9.1.1 as per BNBC	6-weeks
10	Corroded and exposed rebar at roof. (Utility Building)	All exposed reinforcements are to be protected from corrosion.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
11	Carryout Detail Engineering Assessment (Wastage Store Building)	Factory Engineer to review design, loads, column and foundation stresses.	6-weeks
12	Carryout Detail Engineering Assessment (Wastage Store Building)	A Detail Engineering Assessment to be commenced.	6-weeks
13	Carryout Detail Engineering Assessment (Wastage Store Building)	Verify in-situ concrete strength and aggregate type by taken min. 4 nos. 100mm dia. core samples or existing cylinder test reports from ground floor columns.	6-weeks
14	Carryout Detail Engineering Assessment (Wastage Store Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-weeks
15	Carryout Detail Engineering Assessment (Wastage Store Building)	Complete implementation of any remedial works deemed necessary by the Detail Engineering Assessment (DEA).	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
16	Carryout Detail Engineering Assessment (Wastage Store Building)	Continue to implement loading plan.	6-months
17	No design reports were available and apparently non-engineered connection at roof shed. (Boiler Shed)	Building Engineer to survey the whole structure and prepare accurate as-built drawings in compliance with section 1.9.1.2 as per BNBC.	6-weeks
18	No design reports were available and apparently non-engineered connection at roof shed. (Boiler Shed)	Building engineer to prepare the Engineering Assessment including a design report for the full structure, in compliance with section 1.9.1.1 as per BNBC.	6-weeks
19	No design reports were available and apparently non-engineered connection at roof shed. (Boiler Shed)	Building engineer is required to check the connection adequacy of the steel roof shed against the up-lift pressure of wind.	6-weeks
20	No design reports were available and apparently non-engineered connection at roof shed. (Boiler Shed)	Complete implementation of any remedial works deemed necessary by the Design Report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
21	Lack of lateral stability system. (Canteen Shed)	Building Engineer to survey the whole structure and prepare accurate as-built drawings in compliance with section 1.9.1.2 as per BNBC.	6-weeks
22	Lack of lateral stability system. (Canteen Shed)	Building engineer is required to check the lateral stability and prepare Engineering Assessment drawings in compliance with section 1.9.1 as per BNBC.	6-weeks
23	Lack of lateral stability system. (Canteen Shed)	Building engineer is required to check the connection adequacy as part of Engineering Assessment (EA) drawings in compliance with section 1.9.1 as per BNBC.	6-weeks
24	Lack of lateral stability system. (Canteen Shed)	Implement the remedial works deemed necessary by the Engineering Assessment (EA).	6-months
25	Structural connection between Wastage Store Building and Canteen Shed. (Canteen Shed)	Factory engineer is required to specify the load path of the structure and check the adequacy of the connection	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
26	Structural connection between Wastage Store Building and Canteen Shed. (Canteen Shed)	Factory Engineer is required to prepare Engineering Assessment report in compliance with section 1.9.1 (part-6, BNBC).	6-weeks
27	Structural connection between Wastage Store Building and Canteen Shed. (Canteen Shed)	Carryout remedial works where necessary.	6-months