

Integra Design Ltd.

522,Dhour,Nishatnagar,Turag,Dhaka
(23.892847, 90.377118)

16 May 2022

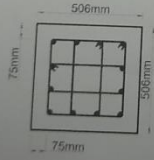


Building information

1. Building-1 (Production Shed Building)(G+M)
2. Building-2 (Production Building Finishing)(G+1)
3. Building 3 (Security Building)(G+1)
4. Building 4 (Warehouse Building)(G)
5. Building 5 (Utility Building) (G)
6. Building 6 (Childcare & Medical Building) (G)
7. Building 7 (Maintenance Building) (G)
8. Building 8 (Spot Removing Building) (G)
9. Building 9 (Bonded Warehouse-1) (G)
10. Building 10 (Bonded Warehouse-2) (G)
11. Tin Shed (Wastage Area) (G)

Observations

Inconsistency and lack of information in as-built drawing

MARK		
C-1		*Size: 506mm x 506mm *Reinf: 12-20mmØ *Ring: 10mmØ @ 150 c/c

C1 Column size in drawing (500x 500 mm)

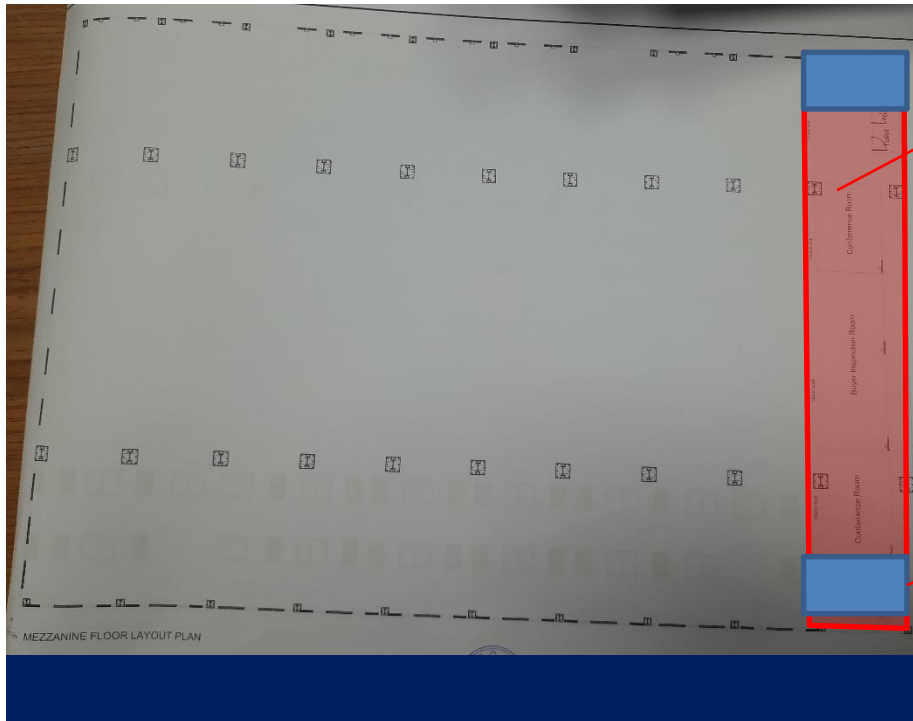


On site column size (375X500 mm)



C1 column rebar by ferro scanning

As per provided drawing C1 column was found 375mm X 500mm instead of 500mmX 500mm, Also rebar was found 4 nos (Ø20mm) by ferro scanning instead of 12 nos (Ø20mm). Building engineer is required to check the quantity of rebar and the adequacy of the column.



On site Mezzanine floor at north side



On site steel stair

No Structural design and drawing of RC mezzanine floor and steel stair was available.

Structural design report not available



Onsite typical structural system

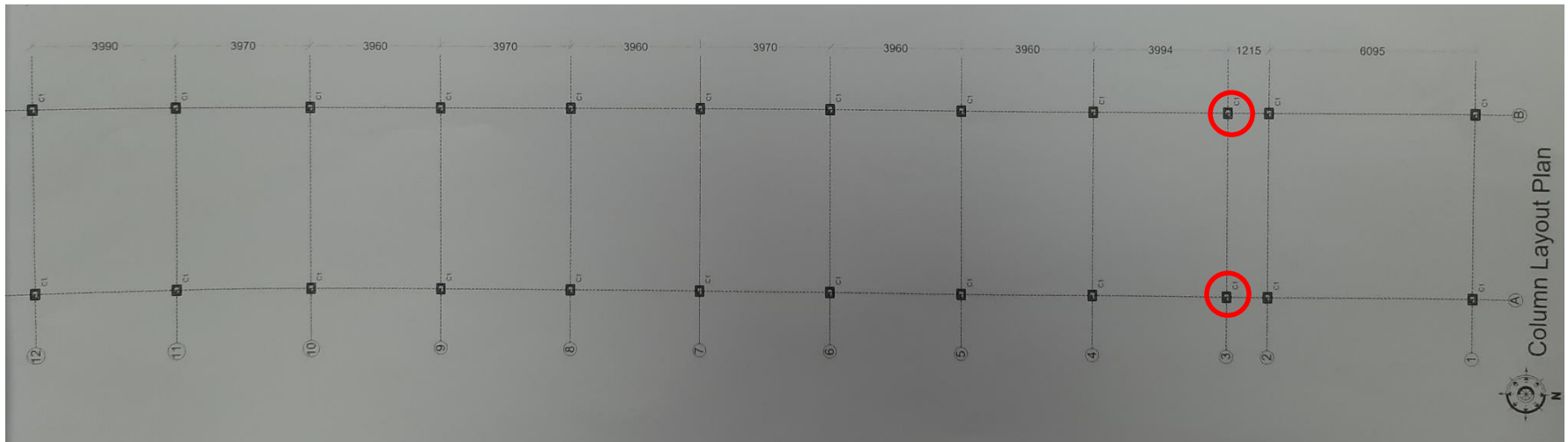
As per BNBC every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2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

Missing structural elements from frame

Discrepancies between drawings and as-built condition.



Missing column location

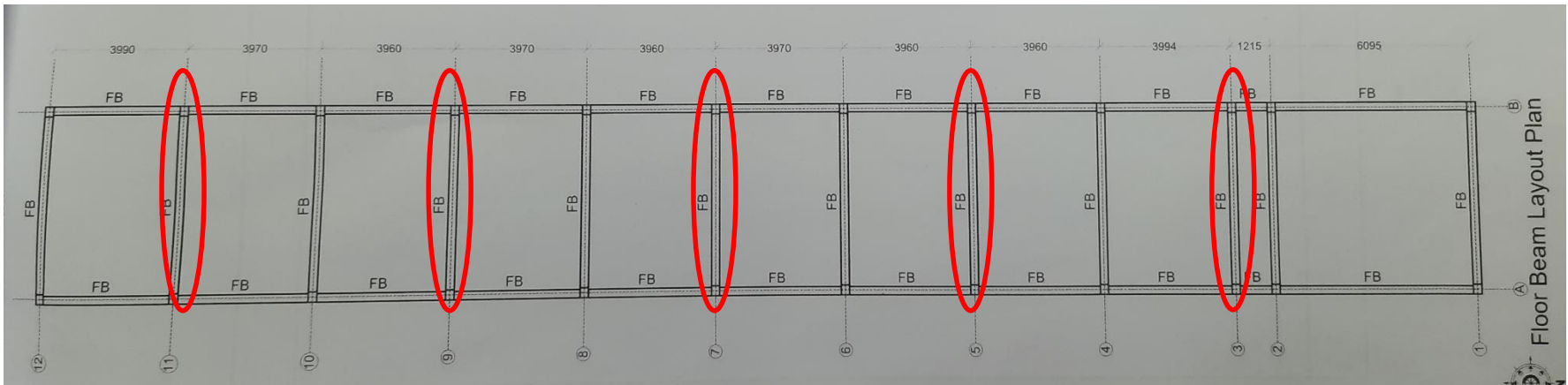


Column layout

Marked columns were found missing at 1st floor level as per column layout.



Missing beam location



Beam layout

Marked beam was found missing at ground floor roof beam layout.



Onsite condition of truss member

All truss member was found 2L-50mm X 50mm X 4mm which was not as per provided drawing.

Lateral stability system of roof shed



No roof bracing observed in the truss

Bracing system and load transfer media were not observed on the shed. As part of the Engineering Assessment (EA) building engineer is required to check the lateral stability system of the roof shed.

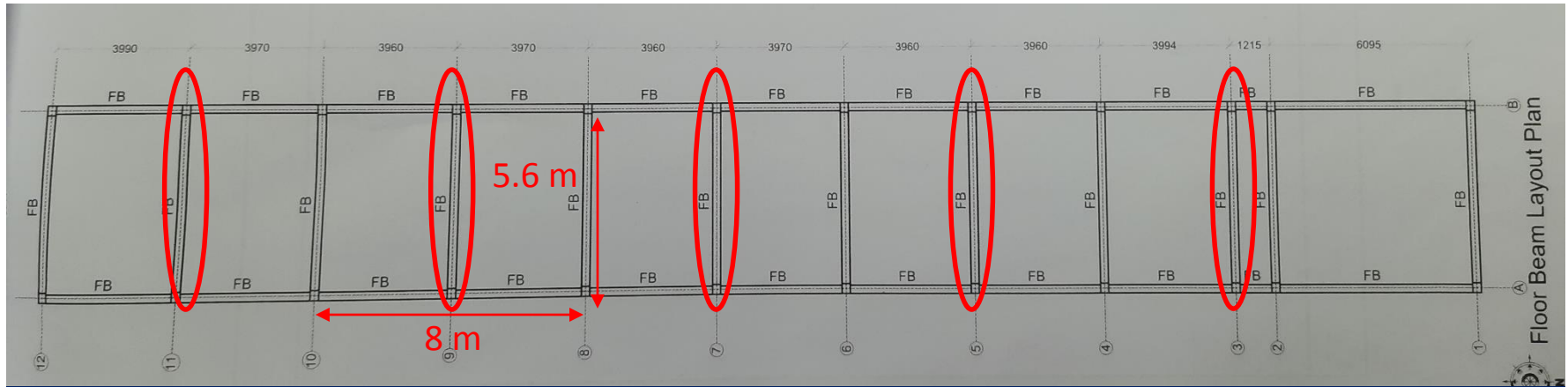
Structural design report not available



Onsite typical structural system

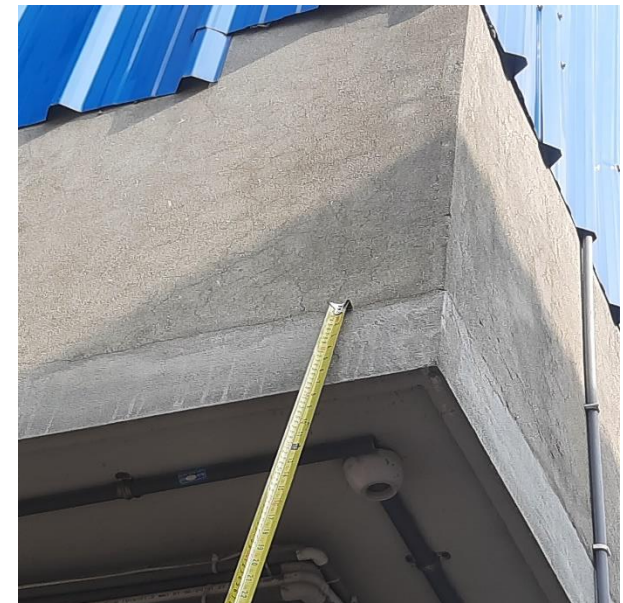
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Adequacy of large span slab



Beam & slab layout

Due to missing of floor beams (as marked in figure) span length was measured 8m X 5.6 m. Slab thickness was measured (T=125mm slab thickness) and no information of rebar was shown in drawing. Building engineer is required to check the adequacy of the slab.



T=125mm slab thickness

Water ponding & inadequate drainage system on the roof



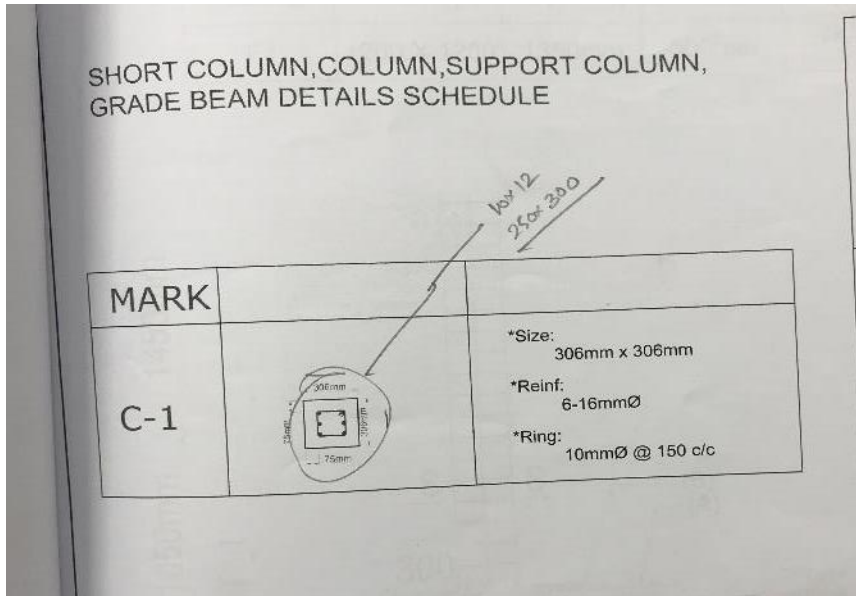
Water ponding on roof slab



Blockage of drainage by construction debris

Water ponding & blockage in drainage system was observed on the roof. The factory is required to develop a proper water drainage system on the roof.

Discrepancies between drawings and as-built condition.



Column size in drawing (300x 300 mm)



Existing column size (250X300 mm)

The building engineer to required to survey the structure & prepare accurate as-built structural drawings.

Falling hazard & construction debris on the roof.



Falling hazard & construction debris on roof

Falling hazard was observed on the roof due to no parapet wall on B-4,B-5,B-6, B-7 . The factory is required to provide edge protection/barrier at roof and remove construction debris from the roof.

Lack of as-built drawings



Building-5



Building-6



Building-7



Building-8



Building-10

No as-built drawings were available for B-5, B-6, B-7, B-8, B-10. Building engineer is required to survey the structures and prepare accurate as-built drawings for the above buildings.

Observations: Building-5, 6, 7, 8 & 10

Exposed rebar at roof



Corrosion on exposed rebar at roof

Corrosion observed on exposed rebar on roof of B-4, B-5, B-7, B-9. The factory is required to remove the corrosion and apply corrosion resistance coating to the exposed rebars.

Apparently non-engineered structure



Non-engineered bamboo dining shed observed. Building engineer is required to suggest alteration of the existing structure.



Tin Shed

Poor connections, inadequate members were observed on-site. Therefore, the structural system seems to be non-engineered. Building engineer to survey the structure, check the roof system, connections, member adequacy and suggest required actions. Otherwise, replace the structure with engineered one.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Inconsistency and lack of information in as-built drawing. (Building 01)	Building engineer is required to survey the structure and prepare accurate as-built drawing.	6-weeks
02	Inconsistency and lack of information in as-built drawing. (Building 01)	Building engineer is required to check the quantity of rebar and the adequacy of the column.	6-weeks
03	Inconsistency and lack of information in as-built drawing. (Building 01)	Carry out remedial works where necessary.	6-months
04	Structural design report not available. (Building 01)	Building engineer is required to be prepared design documents in compliance with section 1.9.1.1 (part-6, BNBC).	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Structural design report not available. (Building 01)	Carry out remedial works where necessary.	6-months
06	Missing structural elements from frame. (Building 01)	Building engineer is required to review the design of the portal frames at grid 9 & 10.	6-weeks
07	Missing structural elements from frame. (Building 01)	Carry out remedial works where necessary.	6-months
08	Discrepancies between drawings and as-built condition. (Building 02)	Building engineer is required to survey the structure and prepare accurate as-built drawing.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Lateral stability system of roof shed. (Building 02)	As part of the Engineering Assessment (EA) building engineer is required to check the lateral stability system of the roof shed.	6-weeks
10	Lateral stability system of roof shed. (Building 02)	Carry out remedial works where necessary.	6-months
11	Structural design report not available. (Building 02)	Building engineer is required to be prepared design documents in compliance with section 1.9.1.1 (part-6, BNBC).	6-weeks
12	Structural design report not available. (Building 02)	Carry out remedial works where necessary.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Adequacy of large span slab. (Building 02)	Building engineer is required to check the adequacy of the slab.	6-weeks
14	Adequacy of large span slab. (Building 02)	Carry out remedial works where necessary.	6-months
15	Water ponding & inadequate drainage system on the roof. Building- 4 (Warehouse Building)	The factory is required to develop a proper water drainage system on the roof.	6-weeks
16	Discrepancies between drawings and as-built condition. Building- 4 (Warehouse Building)	The building engineer to required to survey the structure & prepare accurate as-built structural drawings.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
17	Falling hazard & construction debris on the roof. (Building- 4, 5 & 7)	The factory is required to provide protection barrier at roof edges and remove construction debris from the roof.	6-weeks
18	Lack of as built drawings. (Building- 5, 6, 7, 8 & 10)	Lack of as built drawings. (Building- 5, 6, 7, 8 & 10)	6-weeks
19	Expose rebar at roof. (Building- 4, 5, 7 & 9)	The factory is required to remove the corrosion and apply corrosion resistance coating to the exposed rebars.	6-weeks
20	Apparently non-engineered structure. (Dining Shed & Tin shed)	Building engineer is required to suggest the alternation of the existing dining shed and carry out the replacement works.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
21	Apparently non-engineered structure. (Dining Shed & Tin shed)	Building engineer to survey the structure, check the roof system, connections, member adequacy and suggest required actions.	6-weeks
22	Apparently non-engineered structure. (Dining Shed & Tin shed)	Implement the actions suggested by the engineer.	6-months