

GM Apparels Ltd.

280/2, Meher Nagar, Dobadia, Uttar Khan, Dhaka - 1230

(23.862359, 90.446187)

22nd November 2021



Building Information

Production Building (G+1)

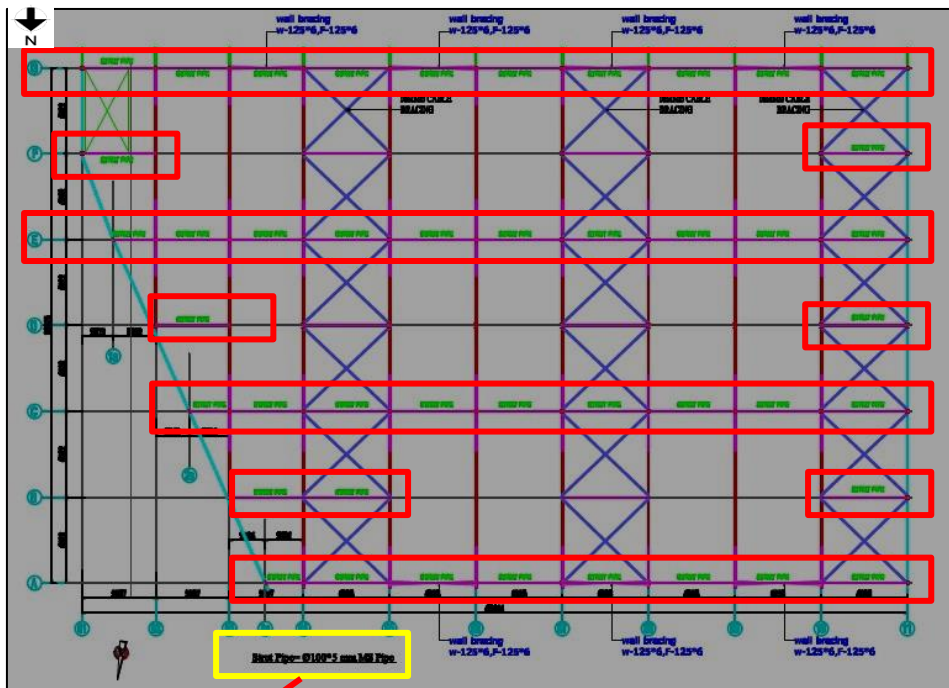
Administration Building (G+1)

Utility Building (G)

Security Building (G)

Observations

Lateral stability system



Strut Pipe was found missing at Marked location.

Strut pipe- 100 mm diameter and thickness 5 mm mentioned in the drawing

Strut bracing missing



Strut pipe was not found at site as per drawing

Lateral load transfer media (compression strut) along the ridge, eave and other positions are missing that have been shown in as-built drawing. Building engineer to check the lateral load path and review the stability of the structure accordingly.

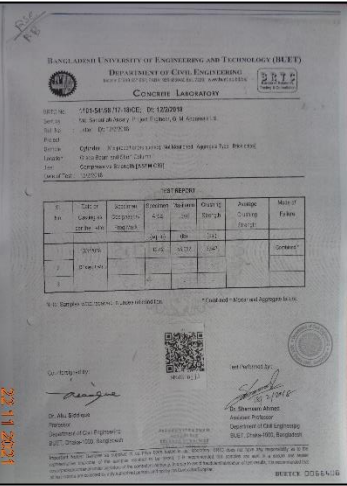
Inconsistencies in the design report

Story	Label	Design Section	Load Case/Combo	Service Load	Soil B.C F.S.= 2.5 Depth 9.5ft From Soil Report	Required Footing Area	Provided Footing Area	Remarks
Base	493	C5-12"x19"	DL+LL	87.1	3.8	23	42	ok
Base	489	C1-12"x24"	DL+LL	107.7	3.8	28	36	ok
Base	502	C3-16"x19"	DL+LL	54.5	5.8	9	25	ok
Base	496	C4-19"x26"	DL+LL	100.5	5.8	17	42	ok
Base	497	C6-12"x23"	DL+LL	91.9	2.7	34	42	ok
Base	498	C5-12"x19"	DL+LL	97.7	2.7	36	42	ok
Base	495	C1-12"x24"	DL+LL	122.8	3.0	40	36	ok
Base	503	C3-16"x19"	DL+LL	69.8	1.9	37	25	ok
Base	500	C3-16"x19"	DL+LL	85.7	3.8	23	25	ok
Base	499	C2-16"x24"	DL+LL	70.2	3.8	18	25	ok

Foundation adequacy check table

In design report, the foundation adequacy check table (marked location) shows that the provided footing area is less than the required footing area; which indicate that the footing area is inadequate. Also, no sample calculation was provided to represent the considerations.

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.

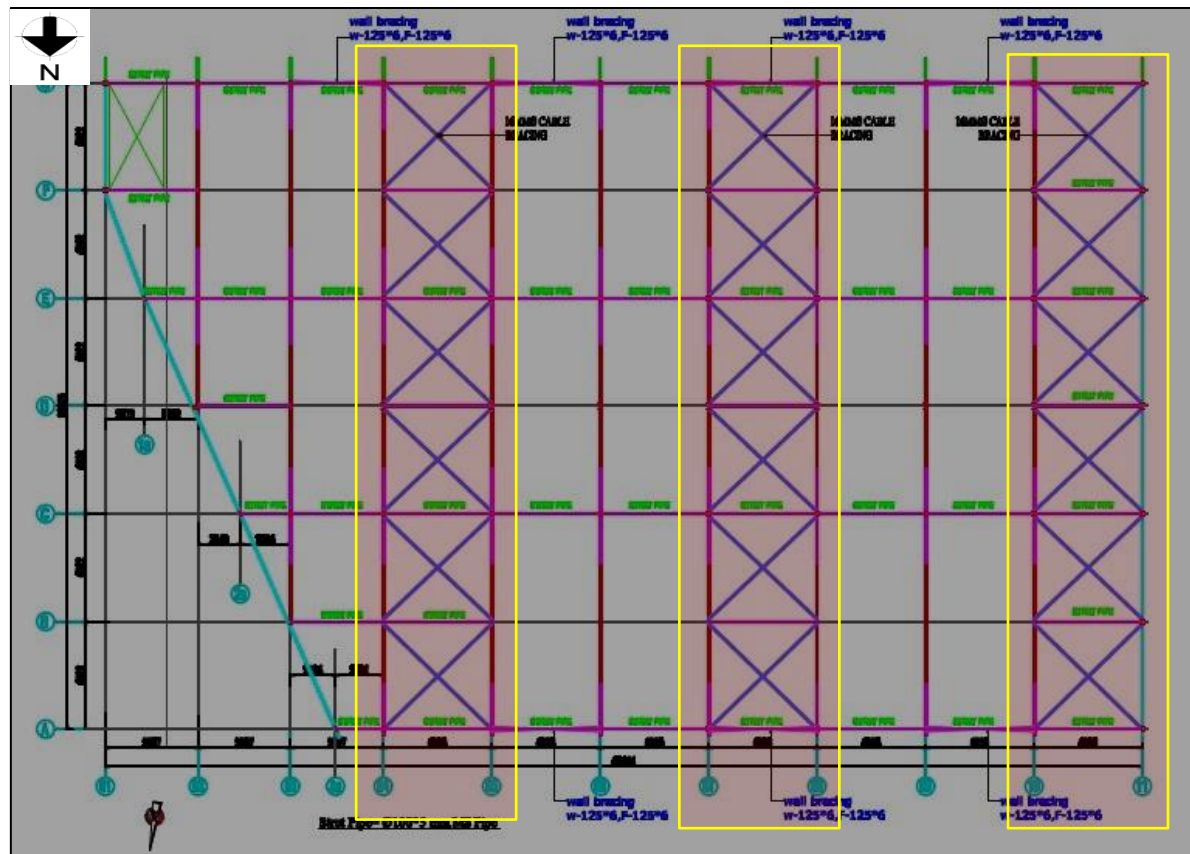


NOTE :
CONCRETE STRENGTH, $f'_c = 3,000$ Psi
CONCRETE MIX = 1:1.5:3 (With Brick Chips)
STEEL (f_y) = 6,0000 psi (60 grade)

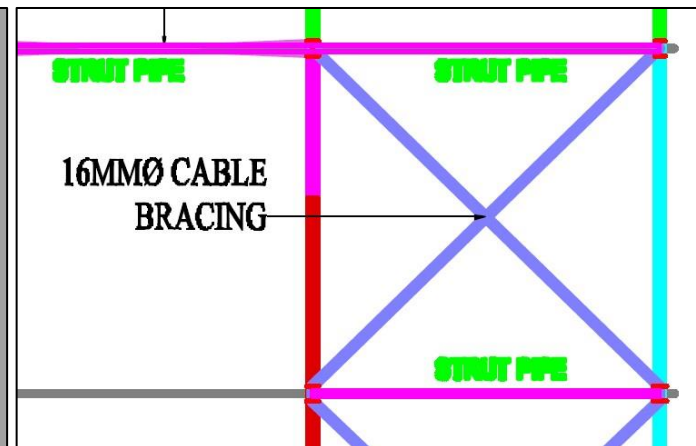
Concrete strength has been considered 20.7 MPa but only one set of cylinder test report was available. Factory engineer is required to verify in-situ concrete and rebar strength and revise the design report accordingly.

Factory engineer is required to revise the design documents including material strength, floor loading and foundation capacity as per BNBC requirements.

Discrepancies in as-built drawing



Roof Bracing Layout plan



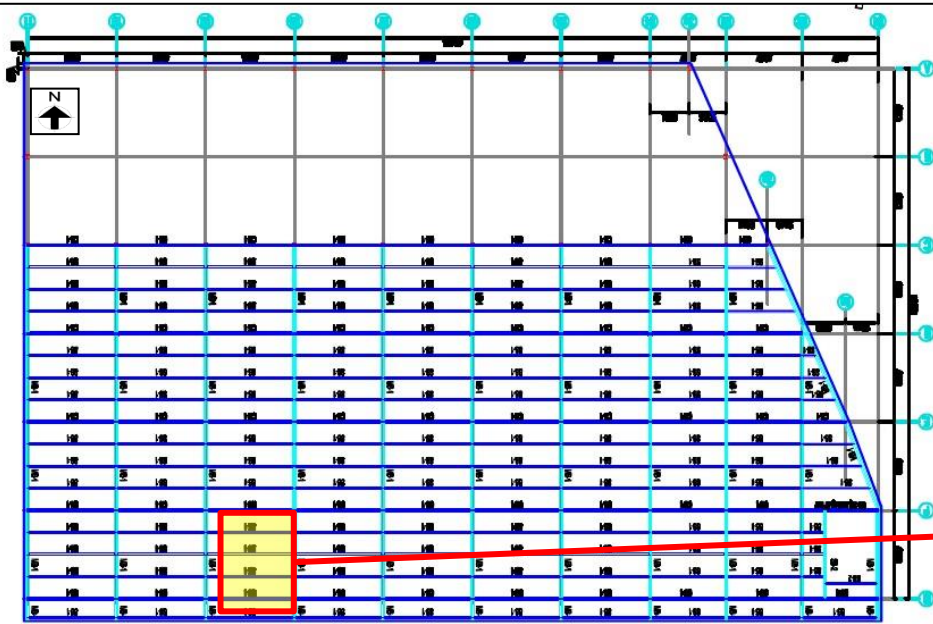
Cable Bracing of diameter 16 mm



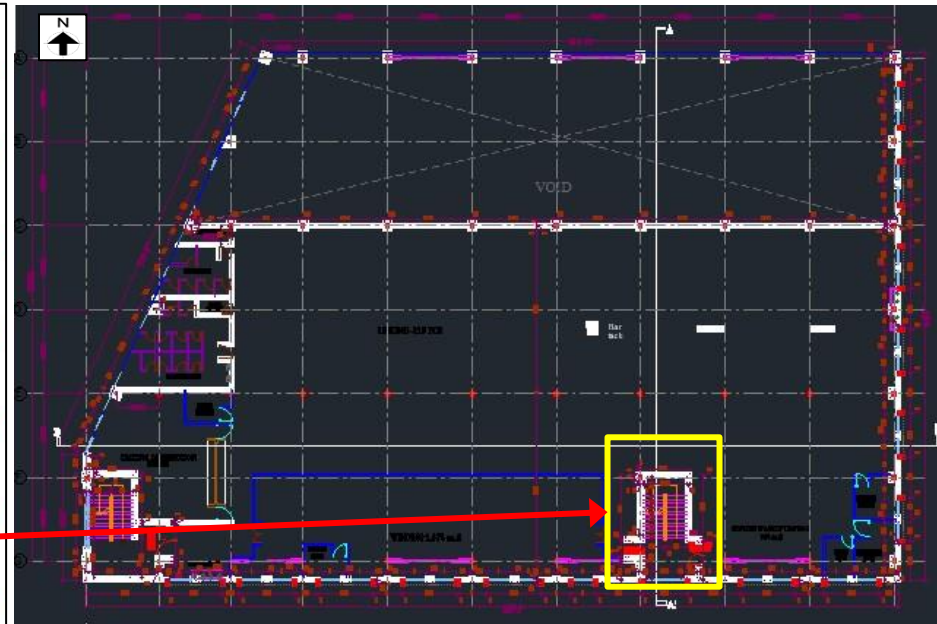
Diameter of cable bracing was found 14 mm at site

In as-built drawing diameter of cable bracing has been shown in 16mm. But at site condition, the bracing diameter was found as 14 mm diameter.

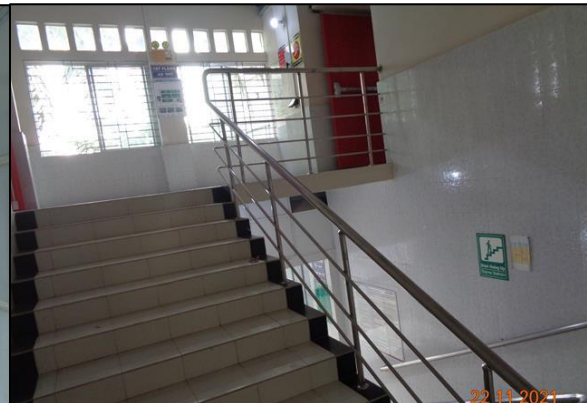
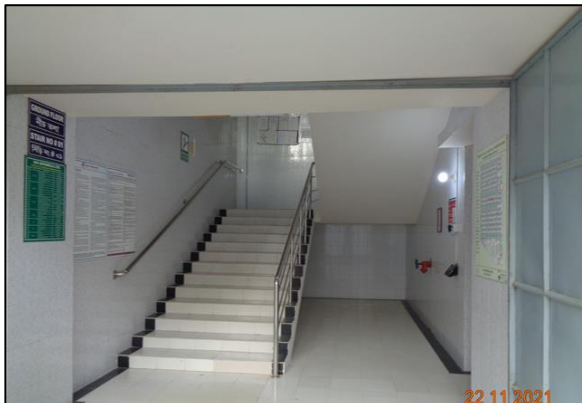
Factory engineer is required to survey the whole structure and develop accurate as-built drawing.



1st floor beam Layout plan



1st floor Layout plan



Stair was found at marked location

In as-built drawing of 1st floor beam layout plan (marked location), beam and sub-beam has been shown. But in floor layout plan and actual site condition, stair was found at the marked location. Factory engineer is required to survey the whole structure and develop accurate as-built drawing.

Column size needs to be verified



Steel Column are enclosed by brick masonry -1st Floor



Steel Column are enclosed by brick masonry –
Ground Floor

Steel Column are enclosed by the Brick masonry. The size of the steel column could not be verified.
Factory engineer is required take necessary measures to verify the steel column size.

Connection gap at several locations

Observation: Production Building



Rafter – Rafter connection



Vertical bracing connection

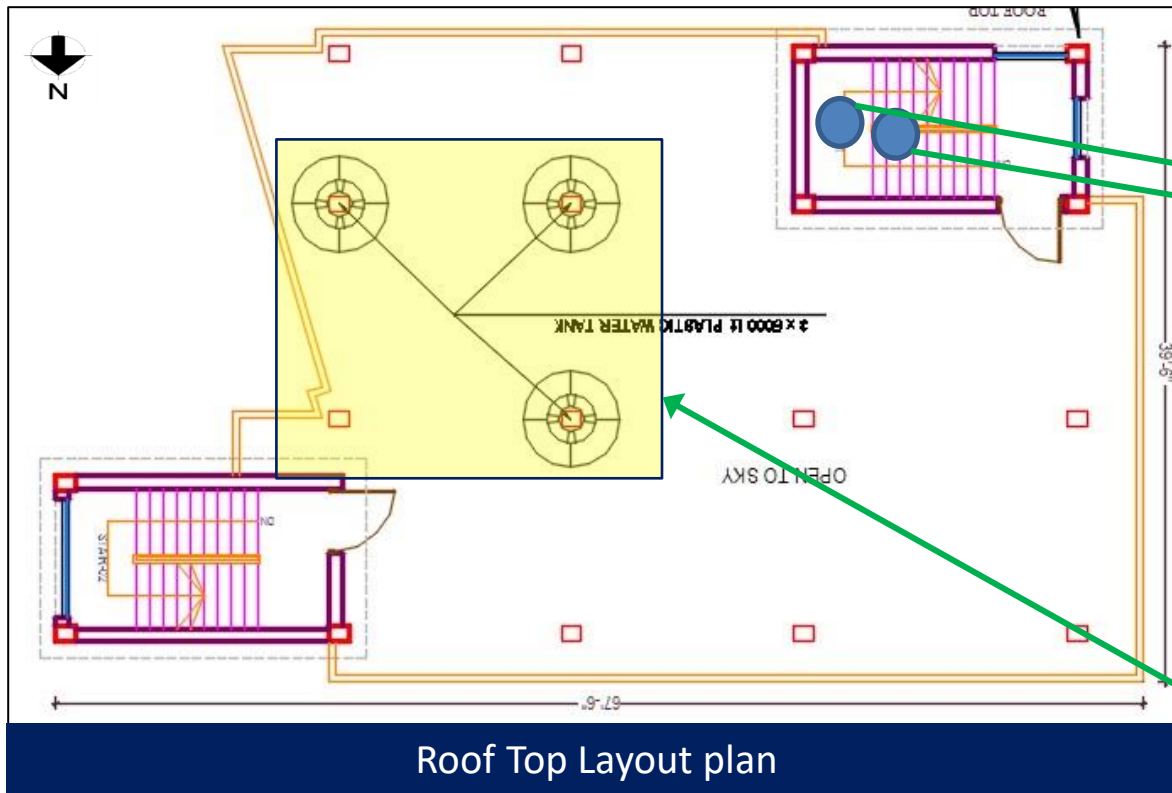
Significant gaps was found several location of the structure. Factory engineer is required to identify the location and carry out suitable remedial works.

Loose cable bracing at roof



Loose cable bracing observed at roof. Factory is required to take necessary measures to tighten the roof bracings.

Discrepancies in as-built drawing



These three water was not found at roof

In as built drawing three number of water tank has been shown at roof which was not found at site. Additionally, two number water tank was found at staircase roof top. Factory engineer is required to survey the whole structure and develop accurate as-built drawing in compliance with section 1.9.1.2 as per BNBC.

Problems Observed

Production Building:

Item 01: Lateral stability system.

Item 02: Inconsistencies in the design report.

Item 03: Discrepancies in as-built drawing.

Item 04: Column size needs to be verified.

Item 05: Connection gap at several locations.

Item 06: Loose cable bracing at roof.

Administration Building:

Item 07: Discrepancies in as-built drawing.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lateral stability system	Building Engineer is required to confirm the lateral load path & verify the lateral stability of the steel shed.	6-weeks
02	Lateral stability system	Implement the remediation if required.	6-months
03	Inconsistencies in the design report	Address all the observation and update the design document including a design report in compliance with section 1.9.1, part-6 of BNBC.	6-weeks
04	Inconsistencies in the design report	Implement the recommendations of design report.	6-months
05	Discrepancy in as-built drawing	Building Engineer to survey the structure and prepare accurate as-built (architectural & structural) drawings in compliance with section 1.9.1.2, part-6 of BNBC.	6-weeks
06	Column size needs to be verified	Factory engineer is required take necessary measures to verify the steel column size.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Connection gap at several locations	Identify the locations and carryout suitable repair works where necessary.	6-weeks
08	Loose cable bracing at roof	Keep tighten the roof bracings.	6-weeks
09	Discrepancy in as-built drawing	Building Engineer to survey the structure and prepare accurate as-built (architectural & structural) drawings in compliance with section 1.9.1.2, part-6 of BNBC.	6-weeks