

Vintage Denim Studio Ltd.(Extended Building)

MSSFB-2, EPZ, PAKSHI, ISHWARDI, PABNA
(24.089065, 89.033439)

2nd June 2021



Building Information

Main Building: Four storied (G+3) reinforced concrete (RC) building.

Utility Shed: Single storied shed.

Fire Pump Room: Single storied shed.

Fire Command & Security Room: Single storied shed supported by RC Columns.

Observations

Design report needs to be prepared

Main Building

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
OFFICE OF THE PRINCIPAL
PABNA POLYTECHNIC INSTITUTE, PABNA.
Civil Technology

Memo No.: PTC/CE/2015/350
Ref Memo No.: 03.382.007.00.00.796.2015-510
Date: 11/05/2015
Date: 20/05/2015

Sample used by: Mr. Dr. Kamruzzaman
Rajshahi University of Engineering & Technology, Rajshahi.
Subject: ১৪তম ইঞ্জিনিয়ারিং সার্টিফিকেট প্রদানের পরীক্ষার জন্য ০২ নম্বর কক্ষের জন্য (MSSPB-02) সিলিন্ডার ৩২ কম্প্রেসিভ স্ট্রেন্থ
সিলিন্ডার তৈরি
Sample Condition: Sealed.

No.	Contents	Materials Mixed Ratio	Date of Sample	Date of Test	Size of Sample (mm)	Area of Surface (mm ²)	Weight (kg)	Crushing Strength (N)	Crushing Strength (N/mm ²)	Remarks
1	Concrete	Concrete Sand Stone chips	20.05.15	07.05.15	100	7850	347	44.20		
2	Compressive Strength of C.C. Column	1:1.5:3	No	No	No	7850	114	40.00		
3	Concrete	Concrete	No	No	No	7850	136	41.00		
4	Concrete	Concrete	No	No	No	7850	136	41.00		
Average:								42.80	42.80	

Testing Officer: Civil Technology
Principal: Pabna Polytechnic Institute, Pabna.

Total 14 set of the cylinder test report was found. Four set of test report was found from RUET and rest 10 set of test report was found from Pabna Polytechnic Institute. None of the test report mentioned the location of cylinder test.

Heavenly Light is Our Guide
DEPARTMENT OF CIVIL ENGINEERING
RAJSHAHI UNIVERSITY OF ENGINEERING & TECHNOLOGY, RAJSHAH
(Tel.: 0721-750372, Fax no: 0721-750372, E-mail: head_c@ruet.ac.bd)

TEST RESULT OF COMPRESSIVE STRENGTH OF CONCRETE CYLINDER.

Memo No.: CET/2015/350
Sample Sent by: জনাব মোঃ কামরুজ্জামান, নির্মাণ প্রকৌশল (১ম), ই-পিসি, ঢাকা বিশ্ববিদ্যালয়, ঢাকা, পদ্মা, পাবনা।
বিষয়: ১৪তম ইঞ্জিনিয়ারিং সার্টিফিকেট প্রদানের পরীক্ষার জন্য ০২ নম্বর কক্ষের জন্য (MSSPB-02) সিলিন্ডার ৩২ কম্প্রেসিভ স্ট্রেন্থ সিলিন্ডার তৈরি
Ref. No. 03.382.007.00.00.796.2015-510
Date: 20-12-2015
Test Standard: ASTM
Sample Condition: Sealed

Sl. No.	Specimen Designation	Date of Casting	Date of Testing	Proportion	Crushing Strength (N/mm ²)	Average Crushing Strength (N/mm ²)	Type of Failure
1	Cylinder (Sample-1) Stone Chips	01-11-2015	30-12-2015	1:1.5:3	46.80 43.44 44.50 36.88	44.24	Combined Failure
2	Cylinder (Sample-2) Stone Chips	01-11-2015	30-12-2015	1:1.5:3	38.11 41.82	39.94	Combined Failure
3	Cylinder (Sample-3) Stone Chips	16-11-2015	30-12-2015	1:1.5:3	42.09 44.40 38.28	41.89	Combined Failure
4	Cylinder (Sample-4) Stone Chips	21-11-2015	30-12-2015	1:1.5:3	45.70 41.50 41.20	42.80	Combined Failure

Testing Officer: (Dr. Md. Kamruzzaman) Professor
Dept. of Civil Engineering, RUET, Rajshahi.

Warning:
• It is recommended that samples are sent in a secure and sealed cover/packet/container under signature of the competent authority.
• To avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by duly authorized person, and not by the Contractor/Supplier.

In general note of concrete, design strength has been considered 3500 psi but no concrete mixing ratio has been mentioned.

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, the design report was not found which is required to be prepared in compliance with section 1.9.1 (part-6, BNBC).

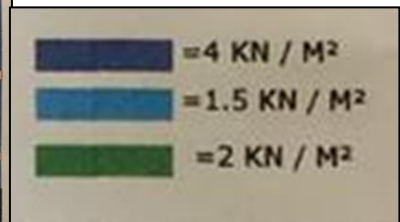
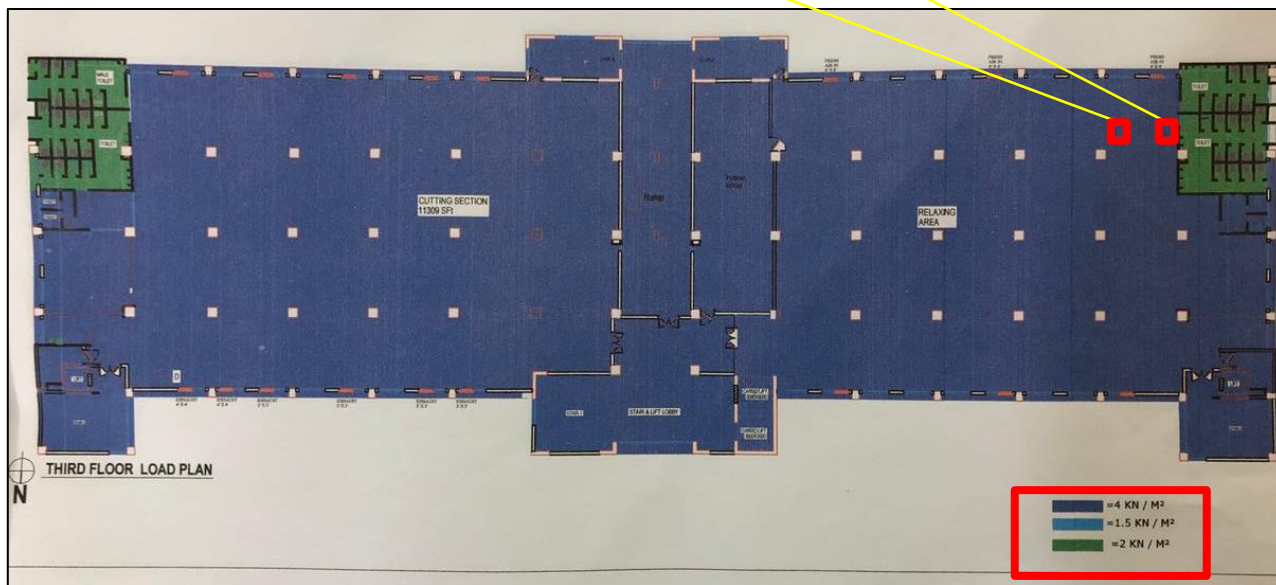
Observations: Main Building

Uncontrolled loading at 3rd Floor



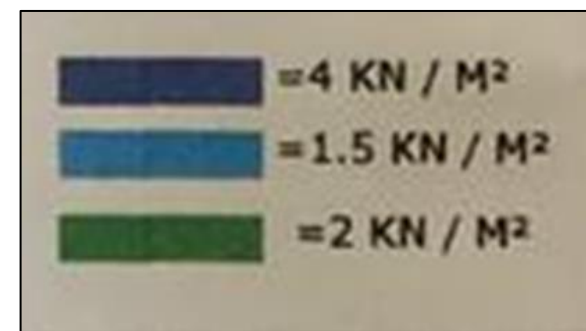
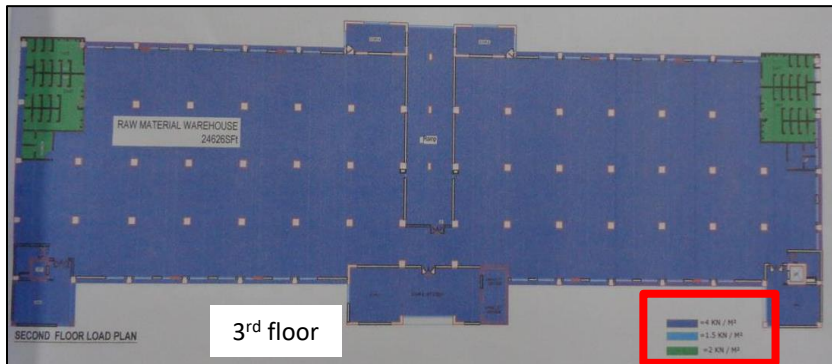
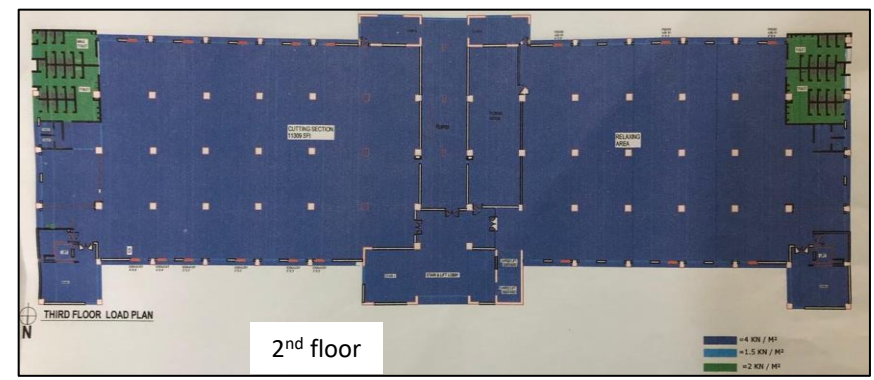
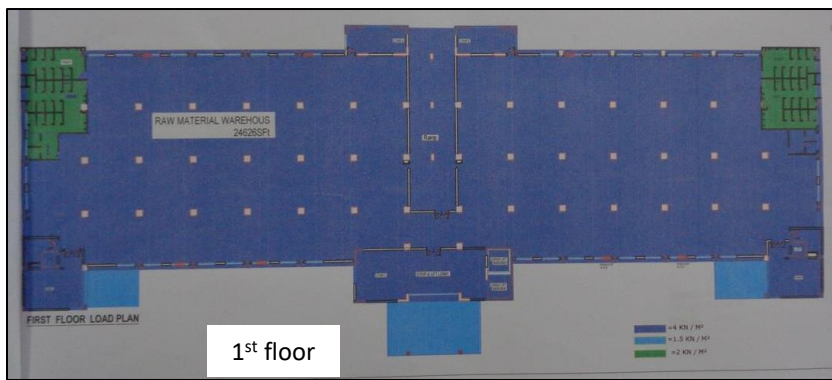
Uncontrolled loading was found on 3rd floor of the building due to stack of the denim roll. Loading was found more than 4 kPa. Factory is required to maintain the floor live load within 4 kPa as per prepared live load plan.

Overloading on 3rd floor



Factory is required to maintain the floor live load within 4 kPa as per prepared live load plan. Also provide the load limit marking or notice at storage area.

Load plan needs to be revised



Floor loading for 1st to 3rd Floor has been shown 4 kPa.

INDUSTRIAL, STORAGE & HAZARDOUS (Occupancy - G, H & J)	Workshop, factory, warehouse	1 Light workroom without storage	3.0	2.7
		2 Machinery hall & circulation area	4.0	4.5
		3 Factory, workshop etc.	5.0	4.5
		4 Manufacturing : light	6.0	4.5 ^(S)
		heavy	12.0	9.0 ^(S)
		ice	15.0	9.0 ^(S)
		5 Printing plant :		
		Press room	7.0	11.0 ^(S)
		Composing and linotype room	5.0	9.0 ^(S)
		Paper storage room	12.0	9.0 ^(S)
		6 Motor room, fan room etc. including the weight of machinery	7.5	4.5
		7 Cold storage, grain storage	15.0	9.0 ^(S)
		8 Storage warehouses : light	6.0	4.5 ^(S)
		heavy	12.0	9.0
		9 Foundries	20.0	12.0

As per BNBC, 6 kPa is required to consider as floor loading for the light storage facilities. During inspection, load plan was found posted considering 4 kPa from 1st to 3rd floor.

Factory engineer is required to update the live load plan as per live load Table-6.2.3 of BNBC-2006 and updated load plan is required to be considered while preparing the Design Report.

Live load Table- BNBC 2006



Floor loading at 2nd floor – Storage area



Floor loading at 1st floor – Storage area

Cracks in brick wall



Crack in brick wall

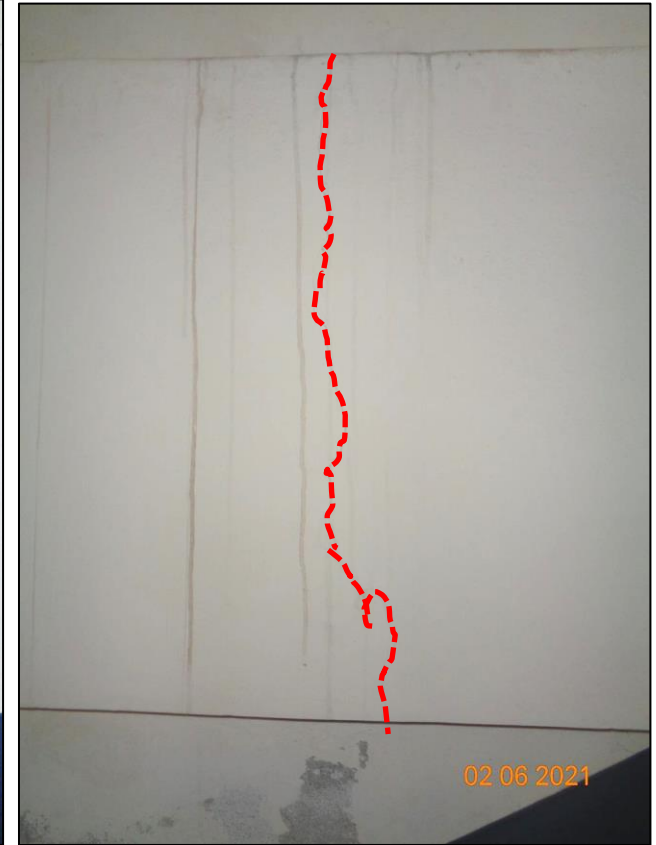
Severe crack was found in brick wall at 3rd floor toilet zone area. Also, cracks were found at façade wall. These cracks may have been generated due to the torsional irregularity of the structure or/and deflection of slab.

Factory engineer is required to investigate the cause of crack and repair the crack as per recommendation from investigation report.



Crack in
Façade wall

Hairline cracks in beam



Hairline crack was found in the North-West side stair beam. Factory engineer is required to investigate the crack and carry out suitable repair works.

**Leakage in water supply line and signage of water
ponding at roof**



Leakage in water supply line

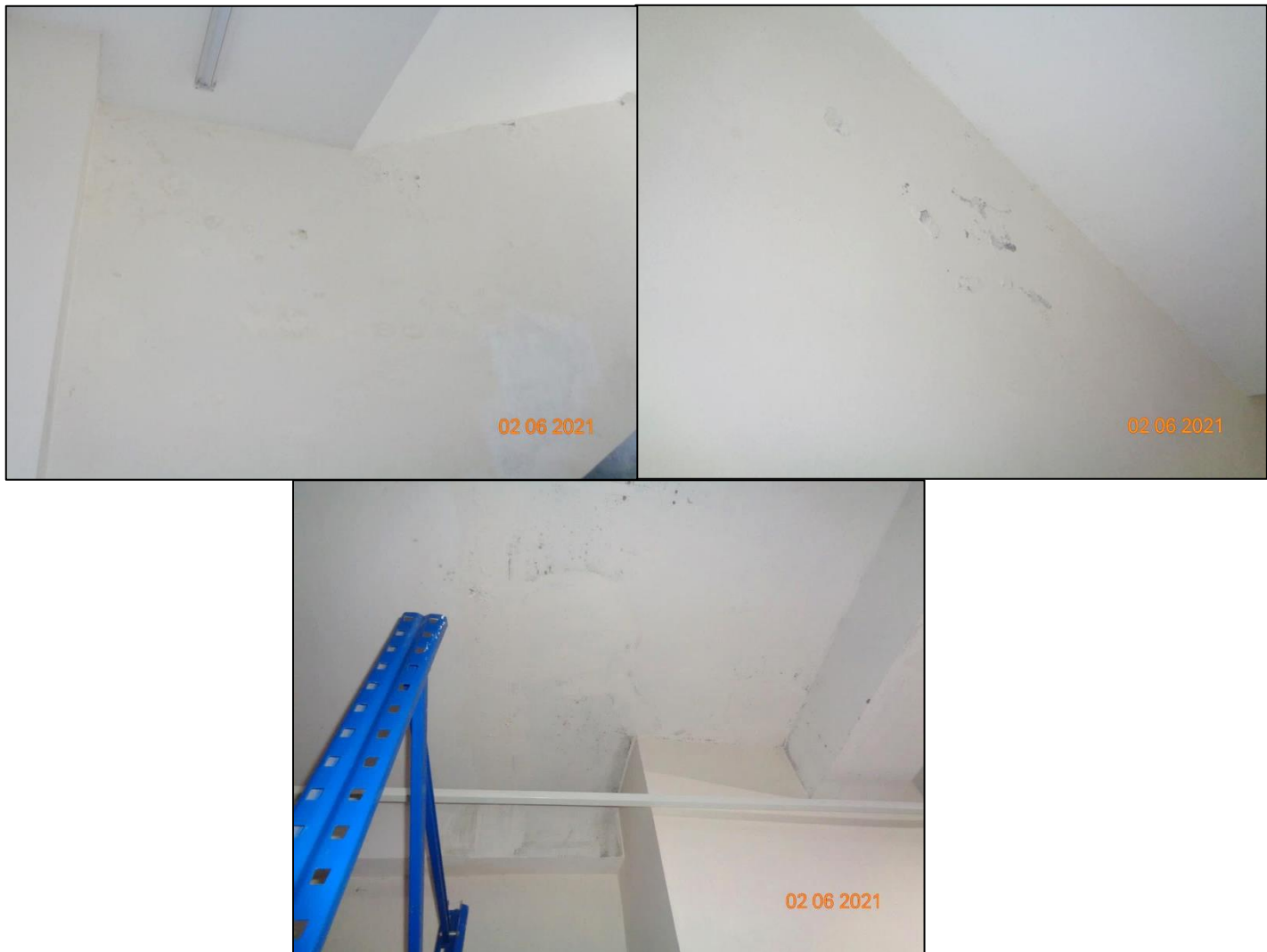


Signage of water ponding

Due to leakage in the water supply line water ponding found at roof. Also, signage of water ponding found at roof due to depression in water proofing layer.

Factory engineer is required to take necessary measures to repair the leakage in the water supply line and improve the drainage system to prevent the water ponding at roof.

Dampness at several locations



Dampness was found several locations of the structure. Factory engineer is required to investigate the source of dampness and take necessary measures to prevent the dampness.

Lack of lateral stability



Truss roof System



Poor connection details

The steel roof truss is supported by RC column. There is no vertical & roof bracing was found. As a result, there is no apparent load path to transfer the lateral loading along the long direction. Building Engineer is required to check the lateral stability of the steel shed and check the adequacy of the connection.

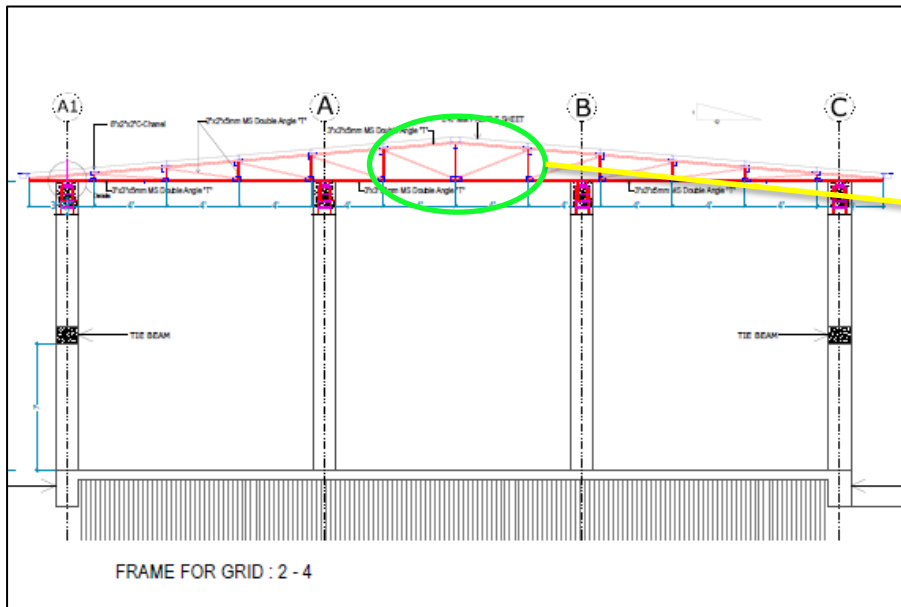
As per BNBC every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2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



Purlin was found sagging

Discrepancies in as-built drawing

**Observations: Utility Shed, Fire pump room and Fire command
& Security room**



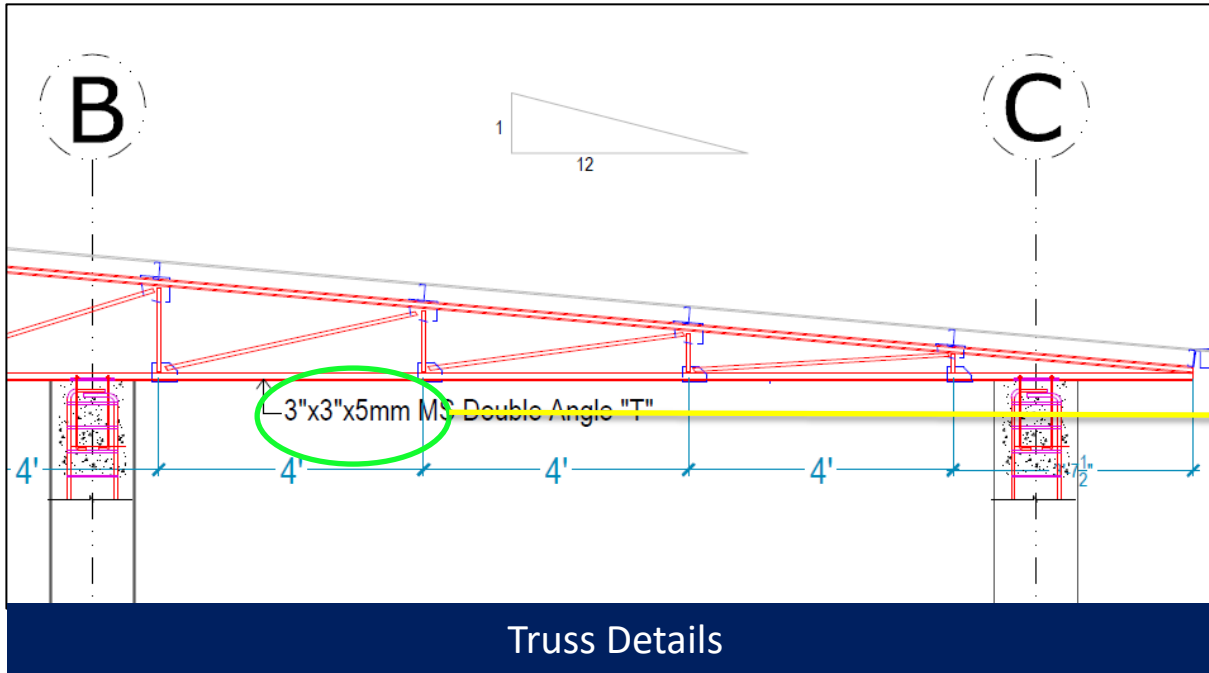
Truss layout in as-built drawing



Orientation of truss diagonal members

Orientation of truss diagonal members were found different from as-built drawing. Building Engineer is required to survey the whole structure and prepare accurate as-built (both architectural & structural) drawings.

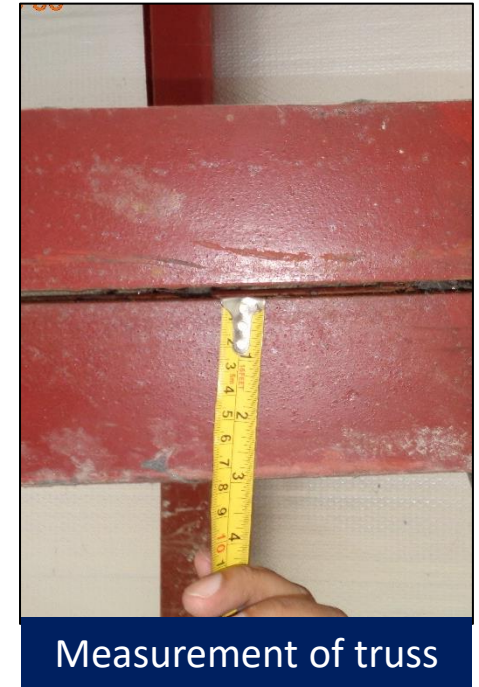
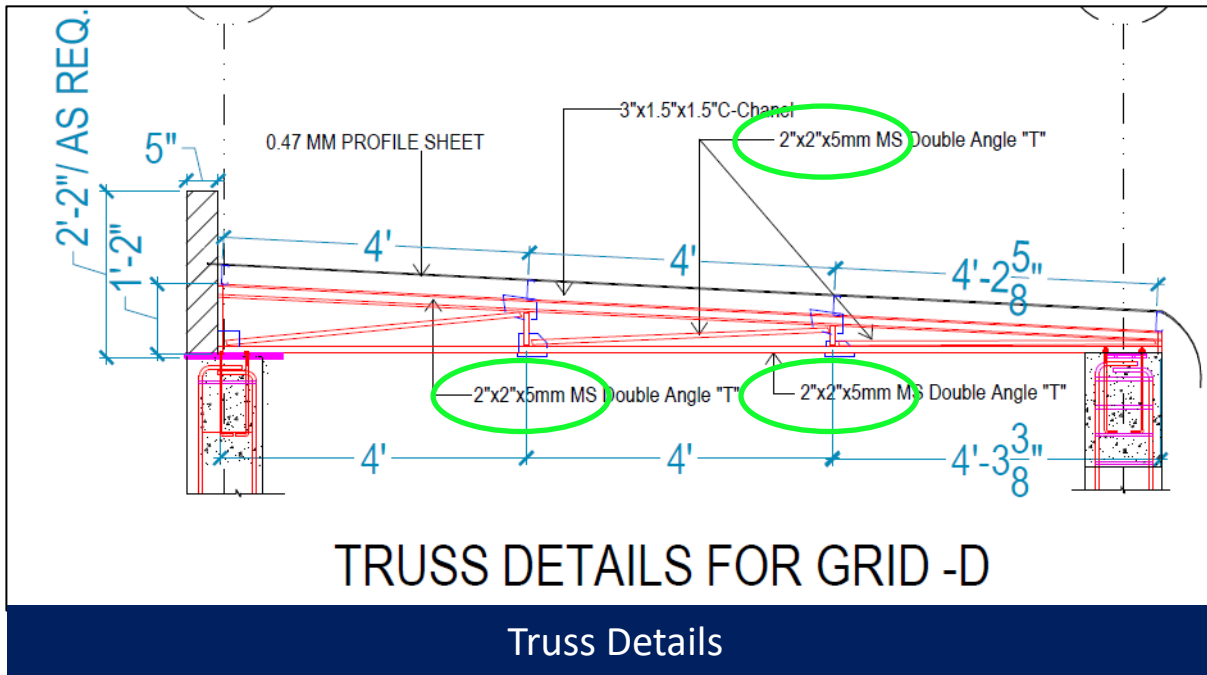
Observations: Utility Shed



Measurement of truss bottom angle thickness

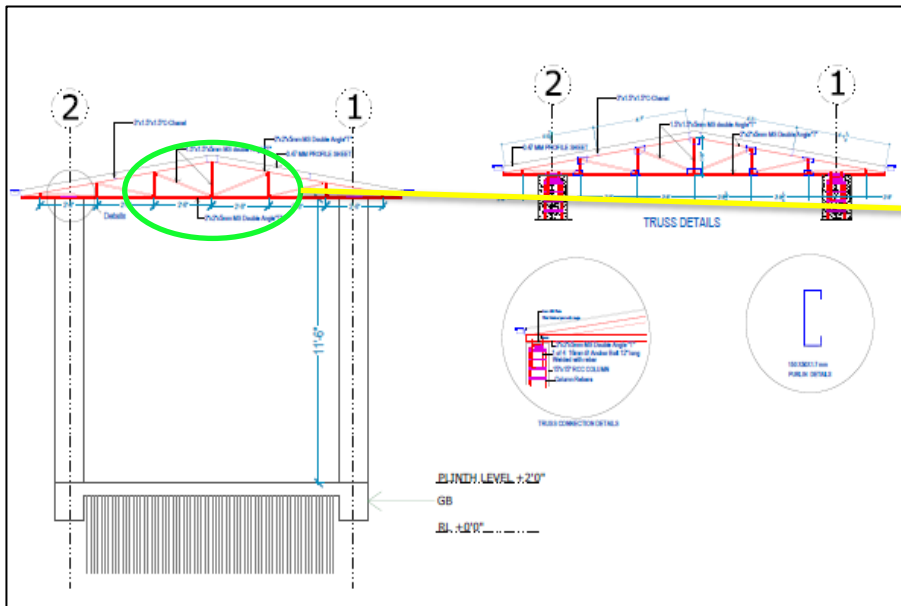
Truss bottom angle thickness was measured 4.5 mm but in as-built drawing it was found 5 mm. Building Engineer is required to survey the whole structure and prepare accurate as-built (both architectural & structural) drawings.

Observations: Utility Shed



Truss section was measured 75X75X5 mm but in as-built drawing it was found 50X50X5 mm. Building Engineer is required to survey the whole structure and prepare accurate as-built (both architectural & structural) drawings.

Observations: Fire pump room



Truss layout in as-built drawing



Orientation of truss diagonal members

Orientation of truss diagonal members were found mismatch with as-built drawing. Building Engineer is required to survey the whole structure and prepare accurate as-built (both architectural & structural) drawings.

Observations: Fire command & Security room

Problems Observed

Main Building:

Item 01: Design report needs to be prepared.

Item 02: Uncontrolled loading at 3rd Floor.

Item 03: Load plan needs to be revised.

Item 04: Cracks in brick wall.

Item 05: Hairline cracks in beam.

Item 06: Leakage in water supply line and signage of water ponding at roof

Item 07: Dampness at several locations.

Utility Shed:

Item 08: Lack of lateral stability.

Utility Shed, Fire pump room and Fire command & Security room:

Item 09: Discrepancies in as-built drawing.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Design report needs to be prepared (Main Building)	Building engineer to prepare the design document 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
02	Design report needs to be prepared (Main Building)	Complete any remedial works arising from design report after reviewing by RSC.	6-months
03	Uncontrolled loading at 3rd Floor (Main Building)	Factory is required to maintain the prepared floor live load plan.	6-weeks
04	Load plan needs to be revised (Main Building)	Factory engineer is required to revise the live load plan as per live load Table-6.2.3 of BNBC-2006 and based on capacity of structural members.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Load plan needs to be revised (Main Building)	Continue to implement loading plan.	6-months
06	Cracks in brick wall (Main Building)	Factory engineer is required to investigate the cause of crack and repair the crack as per recommendation from investigation report.	6-weeks
07	Hairline cracks in beam (Main Building)	Factory engineer is required to investigate the cause of crack and repair the crack as per recommendation from investigation report.	6-weeks
08	Leakage in water supply line and signage of water ponding at roof (Main Building)	Factory management is required to take necessary measures to proof the leakage in water supply line.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Leakage in water supply line and signage of water ponding at roof (Main Building)	Improve the roof drainage system.	6-weeks
10	Dampness at several locations (Main Building)	Building Engineer is required to investigate the reason of dampness & apply suitable method to repair dampness.	6-weeks
11	Lack of lateral stability (Utility Shed)	Building Engineer is required to check the lateral stability of the steel shed.	6-weeks
12	Lack of lateral stability (Utility Shed)	Building engineer to prepare the 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

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Lack of lateral stability (Utility Shed)	Complete any remedial works arising from design report after reviewing by RSC.	6-months
14	Discrepancies in as-built drawing (Utility Shed, Fire pump room and Fire command & Security room)	Building Engineer to survey the structure and prepare accurate as-built (both architectural & structural) drawings in compliance with section 1.9.1.2 as per BNBC.	6-weeks

Survey Limitations and Assumptions

This report is for the private and confidential use of RSC for whom it was prepared together with their professional advisors as appropriate. It should not be reproduced in whole or in part or relied upon by third parties for any use without the express written permission of RSC.

This report can be used in discussion with the supplier or factory owner as a means to rectify or address any observations made. The report is not comprehensive and is limited to what could be observed during a visual inspection of the building.

This Report is not intended to be treated as a generalised inspection and does not cover the deterioration of structural members through dampness, fungal or insect attack, nor does it deal with problems and defects of a non-structural nature. Other non structural aspects of the building such as fire safety have not been assessed in this survey.

Except as otherwise noted, drains and other services were not viewed or tested during our inspection and are therefore similarly excluded from this Report. We have not inspected any parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

External inspection of the façade walls has generally been carried out from ground level only by visual sighting. No opening up works were carried out (except as noted) and we rely on the Architects and Engineers drawings provided to us for our views on concealed parts of the structure and in particular foundations. Strengths of materials and components are untested and we recommend that the factory owners Building Engineer carries out in situ testing over and above those suggested to satisfy themselves with the material strengths and component details.

Recommendations, where given, are for the purpose of providing indicative advice only, are not exhaustive, relate solely to identifying key and obvious structural defects as identified in this presentation, and do not take the form of or constitute a specification for works. We take no responsibility for the works as constructed. This report does not interfere with the factory owners Building Engineers responsibility for the structural performance of this building, The Building Engineer remains fully responsible for the structural adequacy of the building.

This report does not comment in detail on the future seismic performance of the building and only highlights the fact that the building may experience significant damage or collapse in a seismic event along with many others in the Dhaka region.

The observations in this report are based on the Engineering Judgement of the lead surveyor/engineer at the time of the survey. We assume in making these observations that no covering up of faults defects, filling or plastering over cracking or significant repair work has been carried out by the building owner. Any future alteration or additional work by the building owner will void this report.