M.N. Dyeing, Printing & Washing Mills Ltd

Baniarchala, Bhabanipur, Gazipur sadar, Gazipur
(24.156644, 90.40876)
24 Sep & 09 Oct 2023

RSC RMG SUSTAINABILITY COUNCIL

Building Information

1. **2-Storied Utility Building:** The structure is a two storied (G+1) RC building.
2. **3-Storied Fiber & Yarn Dyeing Building:** The structure is a three storied (G+M+2) RC building with mezzanine & shed at roof.
3. **Printing Fabric Store:** The structure is a single storied (G) prefabricated steel shed.
4. **Printing Production Shed:** The structure is a single storied (G) prefabricated steel shed with mezzanine.
5. **6-Storied Printing Building:** The structure is a six storied (G+5) RC building.
6. **Bonded Warehouse:** The structure is a single storied prefabricated steel shed.
7. **3-Storied Car Parking & Dining:** The structure is a three storied (G+2) RC building.
8. **2-Storied Garments Printing Production Shed:** The structure is a two storied prefabricated steel shed.
9. **Garments Printing Sub-Station:** The structure is a single storied steel shed.
10. **Diesel Station:** The structure is a single storied steel shed.
11. **Sludge Storage & Screen Washing Shed:** The structure is a single storied bamboo & brick structure.
12. **Maintenance Workshop:** The structure is a single-storied steel roof truss shed.
13. **CP Room:** The structure is a single-story RC building.
14. **RMS Room:** The structure is a single storied RC building.
15. **Market & Fire Control Room:** The structure is a single-storied lightweight steel roof supported by brick columns; roof slab is supported by RC columns.

Observations

Concrete core layout plan not found on site

Centre for Advisory and Testing Services [CATS-MIST (CE)]
Military Institute of Science and Technology

Compressive Strength of Concrete Drilled Cores

CATS Reference	: 00490/Con/35120-123/07/2023	Date	: 05.07.2023
Client	: Build Raw		
Project Name & Address	: 6- Storied Printing Building for M.N. Dyeing Printing & Washing Mills Ltd. Baniarchala, Member Bari, Gazipur, Bangladesh.		
Sample Brought By	: Md. Saddam Hossain	Date of Receiving	: 25.06.2023
Test Method	: ASTM C 42/C 42-M	Date of Test	: 03.07.2023
Type of Sample	: Drilled Core	Sample Condition	: Unsealed
Construction Year	: Not Mentioned	Quantity of Sample	: 04 nos
No of Story	: 06-Storied	Type of Aggregate	: Stone Chips

Sl No.	Sample: ID, Location, Structure Type & Grid	Original Length	Sawed Length	Diameter	Crushing Load	Crushing Strength		Failure Type	Fracture Type
		mm	mm	mm	kN	MPa	psi		
1	(Core-5 (Printing)), Ground Floor Column, Q'-12a	175.0	133.0	69.0	122.7	32.8	4760	Combined	Shear
2	Core-6 (Printing)), Ground Floor Column, Q-5a	180.0	132.0	69.0	152.3	40.7	5900	Combined	Cone and Shear
3	Core-7 (Printing)), 1st Floor Column, R-2a	160.0	132.0	69.0	131.4	35.1	5090	Combined	Shear
4	Core-8 (Printing)), 2nd Floor Column, Q-11a	190.0	133.0	69.0	166.4	44.5	6450	Combined	Cone and Shear

REMARKS:

1. *Core sample collection and submission, location of the sample and other information are provided by the client, and CATS-MIST has not verified the information. CATS-MIST is only reporting the test results of the sample provided by the client.*
2. *Please compare the results with your corresponding design values and consult with your design engineer.*

Test Supervised By:
Gazi Algaj Hossain
Lecturer
Dept. of Civil Engineering
MIST, Mirpur Cantt, Dhaka

Countersigned By:
Khandaker Said Ahmed PhD, PEng
Lt Col & Associate Professor
Department of Civil Engineering
MIST, Mirpur Cantonment

Note: The results shown in this test report refer only to the samples tested, unless otherwise stated . It is recommended that samples are to be sent in secured and sealed cover/packet/container under the signature of the competent authority in order to avoid fraudulent fabrication of test results. It is also recommended that all test reports are to be collected by duly authorized person and not by the contractor/supplier himself. This test report can not be reproduced, except in full, without prior written permission of the client.

Web: ce-cats.mist.ac.bd

Provided concrete core test report (Typical)

Typical core location

At the time of inspection several sets of concrete core test report were available for the structures. However, no core test layout plan was found at site. Building engineer is required to produce a core layout and mark all the locations of the

Observations: All Structures

Material Test report not available

Observation: Bonded Warehouse

2.2 Steel Grade

The building is a steel structure. The strength of the steel has considered being A-572 GRADE 50, i.e. yield strength is 345 MPa (50 ksi).

2.4 Summary of Material Assessment

Table 0-1 : Strengths of material for the use in analysis and design review.

Material property	Value
For Steel Design yield strength of structural steel, f_y	345MPa (50,000 psi)
For RCC, Rebar strength, f_y	500MPa (72,500 psi)

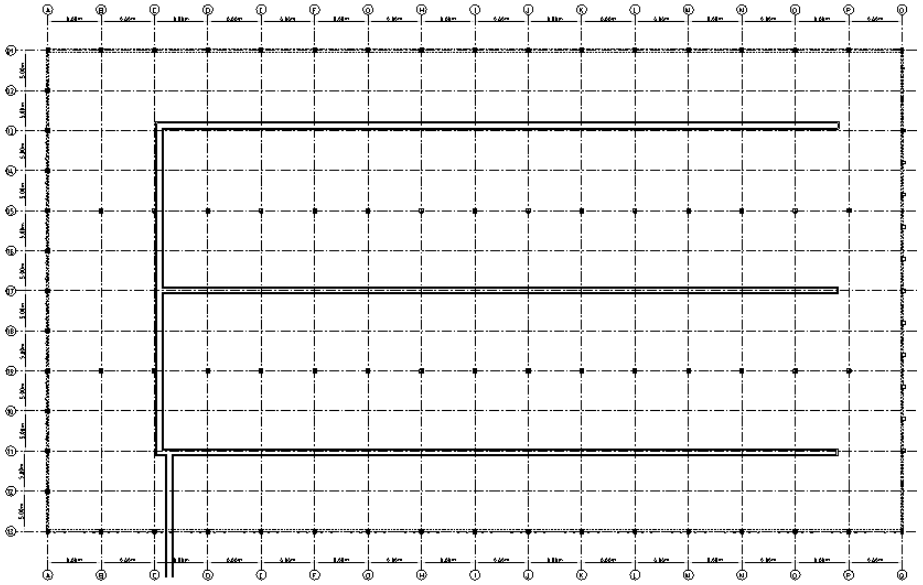
Structural steel strength considered 50 ksi and rebar strength considered 72.5 ksi in EA report

In EA report, the strength of structural steel was considered 50 ksi and rebar strength considered 72.5 ksi. But there was no test report available on-site. Building Engineer is required to prepare necessary test reports and revise EA documents accordingly.

Observation: Bonded Warehouse

Foundation Adequacy not shown in drawing (mezzanine portion)

Observation: Printing Production Shed



Foundation Adequacy not shown in drawing (mezzanine portion)

Foundation adequacy and details was not shown in as-built drawing of mezzanine floor. Building Engineer is required to revise the as-built drawing and other documents as per actual site condition.

Observation: Printing Production Shed

Apparently non-engineered steel stair

Observation: Printing Production Shed

Apparently non-engineered steel stair with inadequate member and connection

The stability system of steel stair and its connections are apparently non-engineered. Also, the member size seems to be inadequate. The building engineer is required to suggest proper alternatives to make the structure adequate and prepare necessary design documents accordingly.

Observation: Printing Production Shed

Load plan not posted in Mezzanine Floor

Observation: Printing Production Shed

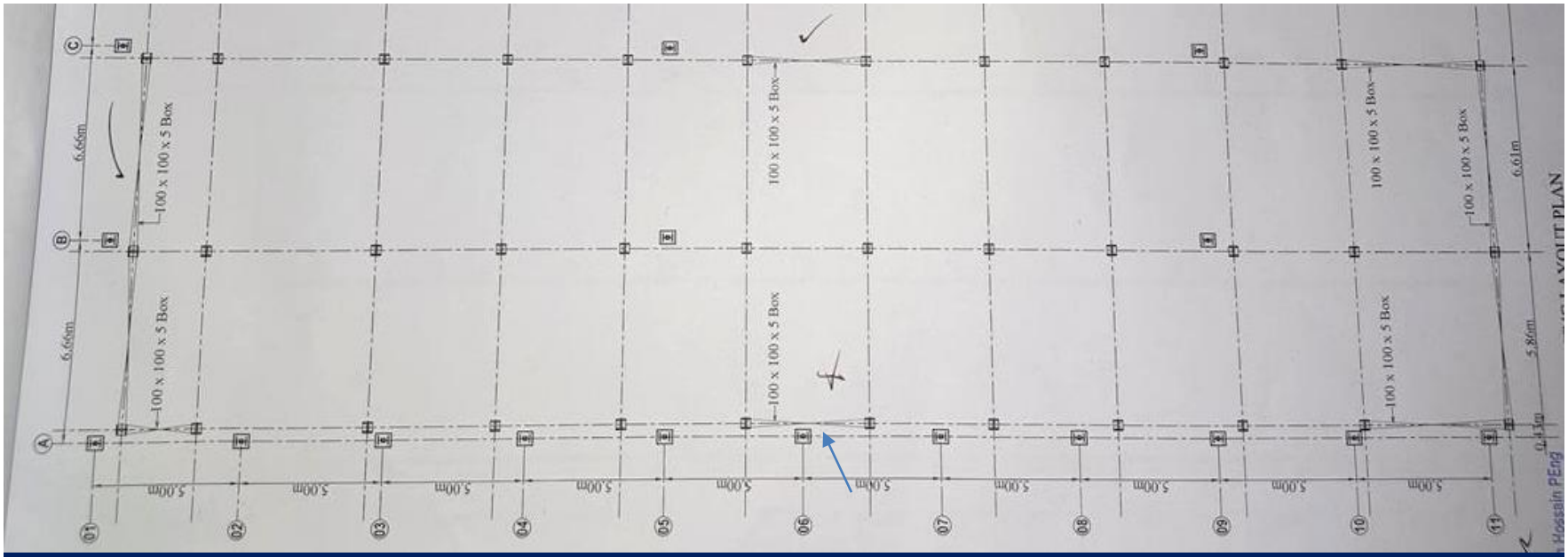
Mezzanine floor having no load plan

During inspection, load plan was not found posted in mezzanine floor, which is required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC). Also post the load

Observation: Printing Production Shed

Bracing missing in Mezzanine Floor

Observation: Printing Production Shed



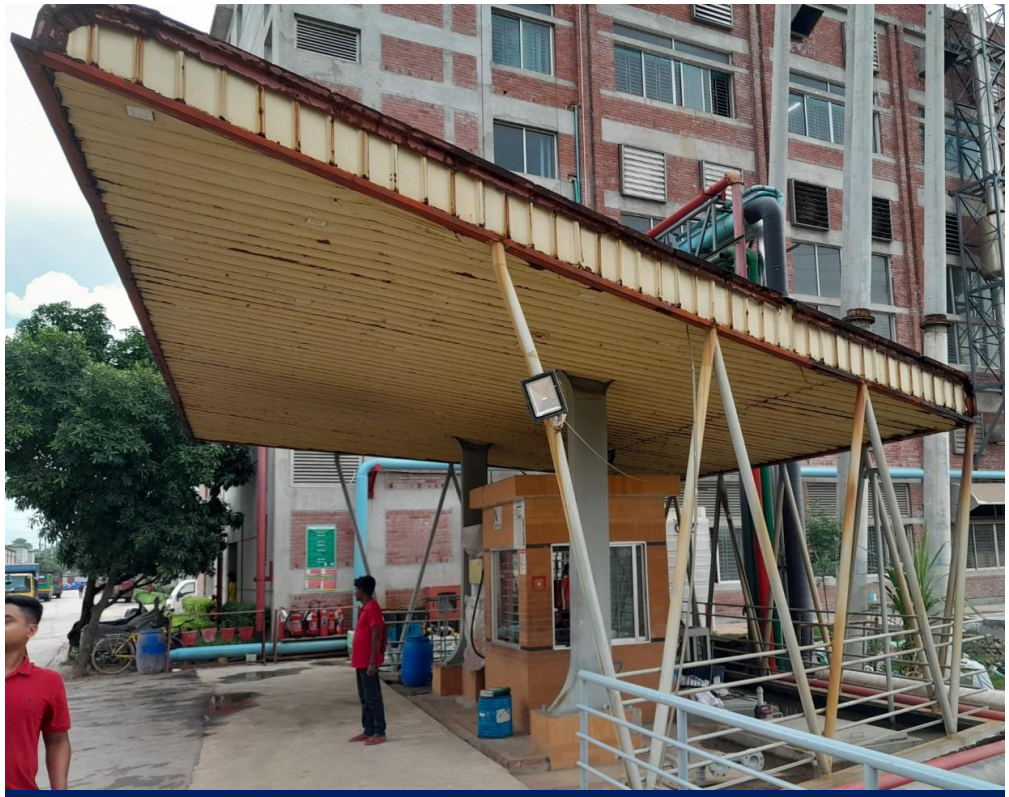
Bracing found missing in marked location

During inspection, as-built bracing layout was not matched with on-site condition. Building Engineer is required to revise the as-built drawing as per actual on-site condition.

Observation: Printing Production Shed

Corrosion on steel member

Observations: Diesel Station



Corroded steel member

Corrosion found in steel members at several locations. Building engineer is required to identify all corroded member, remove the corrosion and apply suitable anti-corrosive coating to the affected steel members.

Observations: Diesel Station

Structural connection between two buildings

Observation: 3-Storied fiber & yarn dyeing building

Building engineer is required to revised the design report and submit to RSC for review considering connections between two buildings (3-Storied fiber & yarn dyeing building and 2-storied utility building).

Observation: 3-Storied fiber & yarn dyeing building

Significant Vibration

Observation: 3-Storied fiber & yarn dyeing building

Vibrating machine

Significant amount of vibration was observed on the floor due to operation of machine without any damper. The building engineer is required to suggest installation of proper damping elements.

Observation: 3-Storied fiber & yarn dyeing building

RCC Column suspectable for trolley Impact

Observation: 3-Storied fiber & yarn dyeing building

Damage RC Column due to trolley

During inspection, Damage in RC Column was found due to trolley Impact. Building engineer required to provide barrier around the RC column to protect from possible trolley impact.

Observation: 3-Storied fiber & yarn dyeing building

Water ponding on the roof

Observation: 3-Storied fiber & yarn dyeing building

Water ponding observed on the roof slab due to poor drainage system. The building engineer is required to develop proper drainage system with adequate sloping on roof.

Observation: 3-Storied fiber & yarn dyeing building

Additional Crane Loading

Observation: 3-Storied fiber & yarn dyeing building

Over-head crane was observed during inspection. The building engineer is required to check the structural adequacy due to additional

Observation: 3-Storied fiber & yarn dyeing building

Inconsistencies in Design Report

Observation: 3-Storied fiber & yarn dyeing building

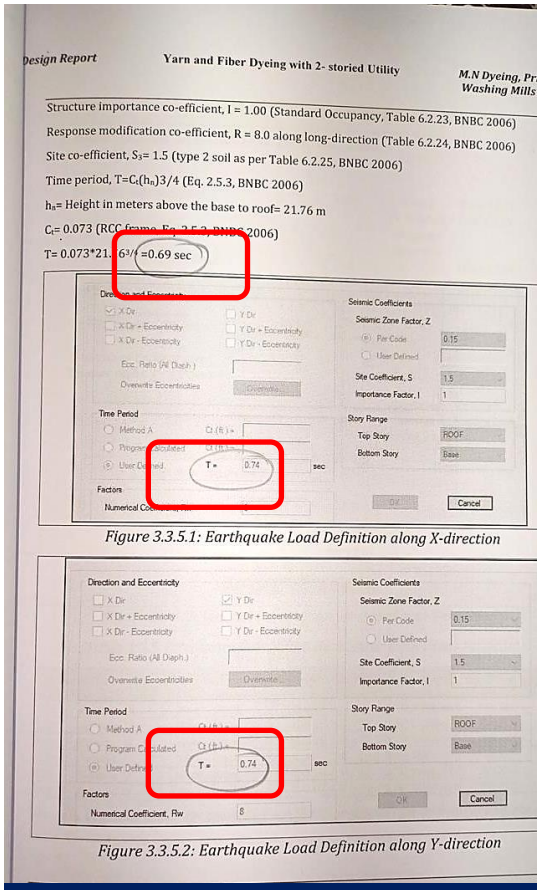
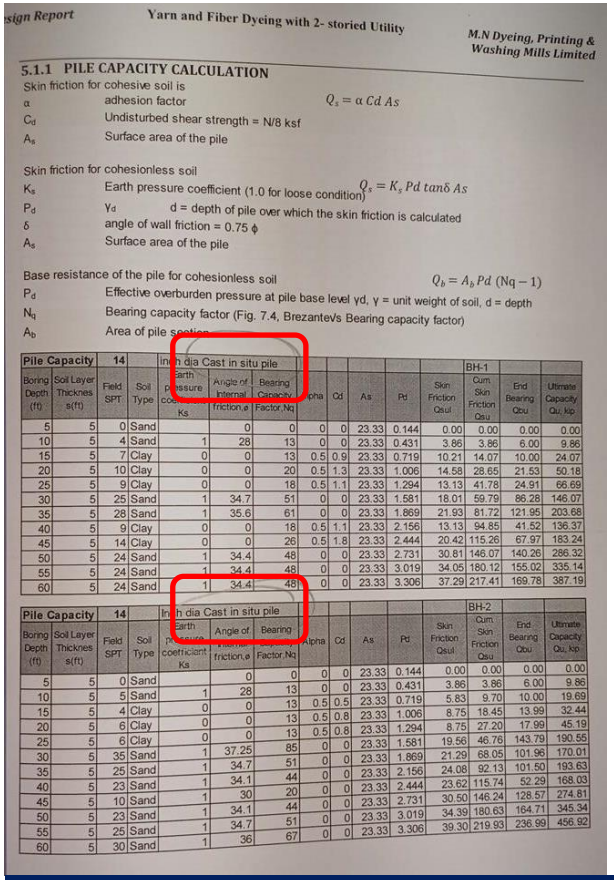


Figure 3.3.5.1: Earthquake Load Definition along X-direction

Figure 3.3.5.2: Earthquake Load Definition along Y-direction

Mis-match in time-period (t)



Calculation considering Cast-in-situ pile where drawing shows pre-cast pile

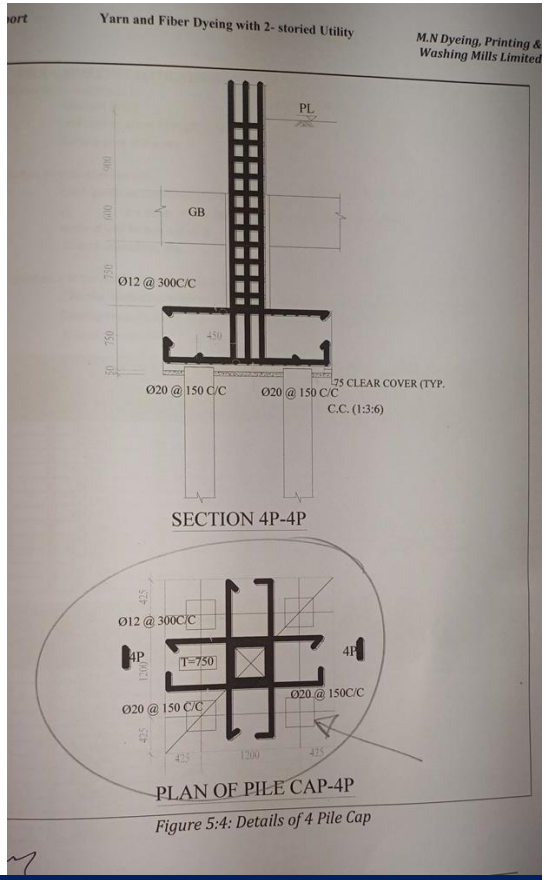


Figure 5:4: Details of 4 Pile Cap

Building engineer is required to revised the design report and submit to RSC for review.

Observation: 3-Storied fiber & yarn dyeing building

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Significant Crack on Brick wall

Observation: Fiber & yarn dyeing sub-station

During inspection, significant crack on brick wall was observed. Building engineer is required to repair the crack using suitable methodology.

Observation: Fiber & yarn dyeing sub-station

Long column check need to address

Observation: Fiber & yarn dyeing sub-station

Long Slender column

During inspection, long slender column was observed. Building engineer is required to check the slenderness adequacy of the column and suggest proper remedial actions accordingly.

Observation: Fiber & yarn dyeing sub-station

Long column check need to address

Observation: 2-Storied utility building

Long Slender column

During inspection, long slender column was observed. Building engineer is required to check the slenderness adequacy of the column and suggest proper remedial actions accordingly.

Observation: 2-Storied utility building

Water ponding on the roof

Observation: 2-Storied utility building

Water ponding observed on the roof slab due to poor drainage system. The building engineer is required to develop proper drainage system with adequate sloping on roof.

Observation: 2-Storied utility building

Lack of anchorage of storage rack

Observation: 6-Storied printing building

Lack of anchorage of storage rack

During inspection, lack of anchorage of storage racks was found. Building engineer is required to brace/anchor all the non-structural elements.

Observation: 6-Storied printing building

Water ponding on the roof

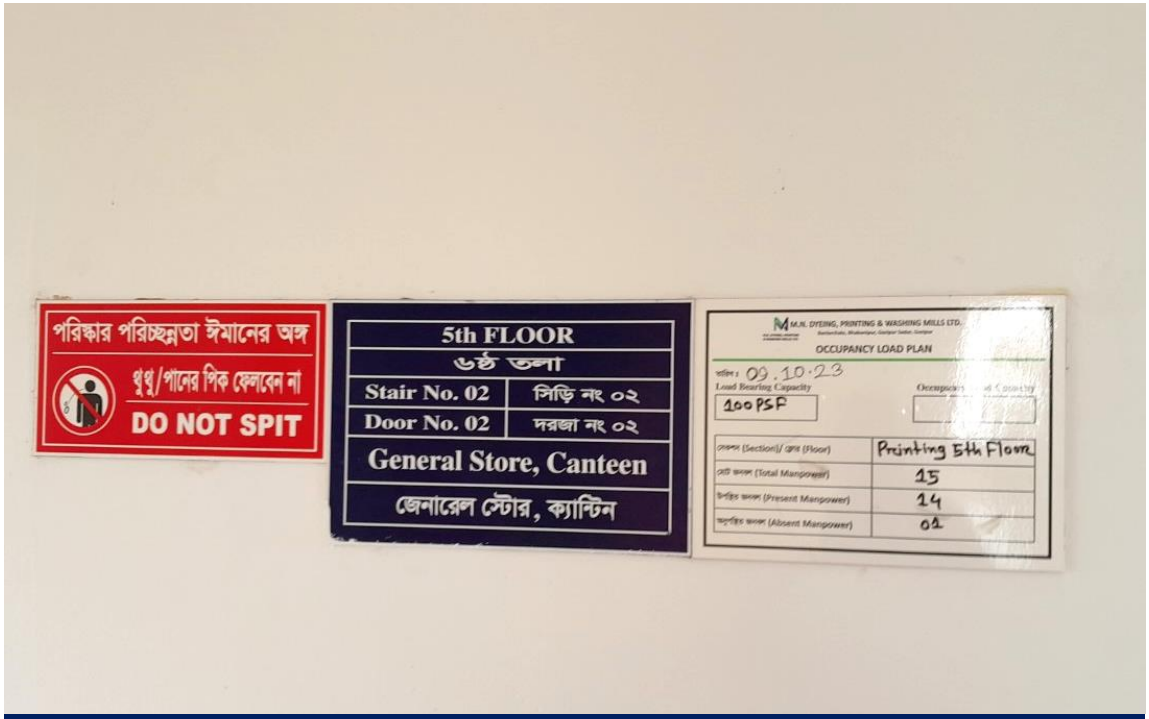
Observation: 6-Storied printing building

Water ponding observed on the roof slab due to poor drainage system. The building engineer is required to develop proper drainage system with adequate

Observation: 6-Storied printing building

Lack of posting load plan

Observations: 6-Storied Printing Building



Printing Building without load plan (Typical)

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1, part-6 of BNBC. 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 inspection, floor load plan was not found which is required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

Observations: 6-Storied Printing Building

Lateral stability need to check in details

Observations: 6-Storied Printing Building

1. INTRODUCTION

The 6-Storied printing building for "MN Printing and Washing Mills Limited" located at Baniarchala, Member Bari, Gazipur, Bangladesh has been analyzed & designed. The building is an RCC beam column frame structure. The slab thickness is 6 inches. The beam sizes are 10" x 18", 12" x 24", 10" x 20". The column sizes are 15" x 20", L-20" x 20" x 10", 10" x 30". The foundation is on precast RCC pile (14-inch square). The soil test has been done by **ICON Engineering Services.** This report summarizes all the design, drawings, analysis details and design checking related findings.

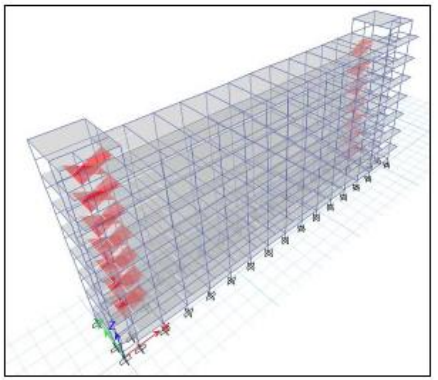


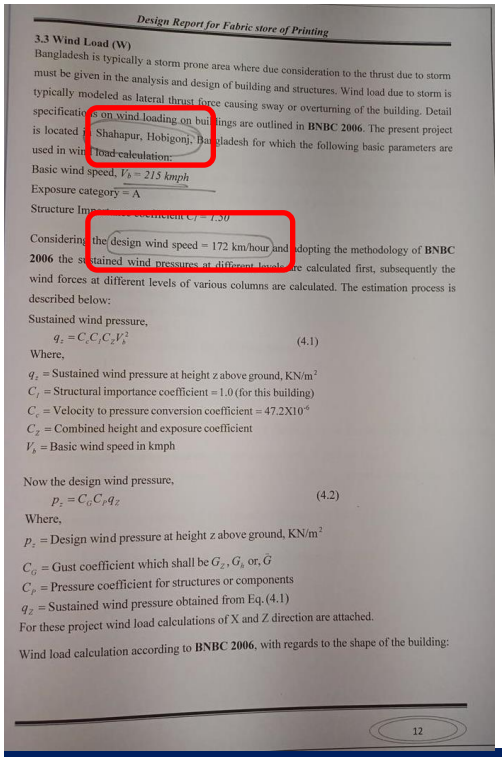
Figure 1: 3-D VIEW OF 7–STORIED PRINTING BUILDING FOR "MN PRINTING AND WASHING MILLS LIMITED"

The building is apparently slender (length to width ratio > 7). The building engineer is required to check the lateral stability of the structure as per BNBC in details and suggest proper remedial actions if required.

Observations: 6-Storied Printing Building

Inconsistencies in Design Report

Observations: Printing fabric store



Design Report for Fabric store of Printing

3.3 Wind Load (W)

Bangladesh is typically a storm prone area where due consideration to the thrust due to storm must be given in the analysis and design of building and structures. Wind load due to storm is typically modeled as lateral thrust force causing sway or overturning of the building. Detail specifications on wind loading on buildings are outlined in **BNBC 2006**. The present project is located at Shahapur, Hobigonj, Bangladesh for which the following basic parameters are used in wind load calculation:

Basic wind speed, V_b = 215 kmph

Exposure category = A

Structure Importance coefficient C_I = 1.50

Considering the design wind speed = 172 km/hour and adopting the methodology of **BNBC 2006** the sustained wind pressures at different levels are calculated first, subsequently the wind forces at different levels of various columns are calculated. The estimation process is described below:

Sustained wind pressure,

$$q_z = C_c C_I C_z V_b^2 \quad (4.1)$$

Where,

q_z = Sustained wind pressure at height z above ground, KN/m^2

C_I = Structural importance coefficient = 1.0 (for this building)

C_c = Velocity to pressure conversion coefficient = 47.2X10^{-6}

C_z = Combined height and exposure coefficient

V_b = Basic wind speed in kmph

Now the design wind pressure,

$$p_z = C_G C_P q_Z \quad (4.2)$$

Where,

p_z = Design wind pressure at height z above ground, KN/m^2

C_G = Gust coefficient which shall be G_Z, G_s or, $\bar{G}$

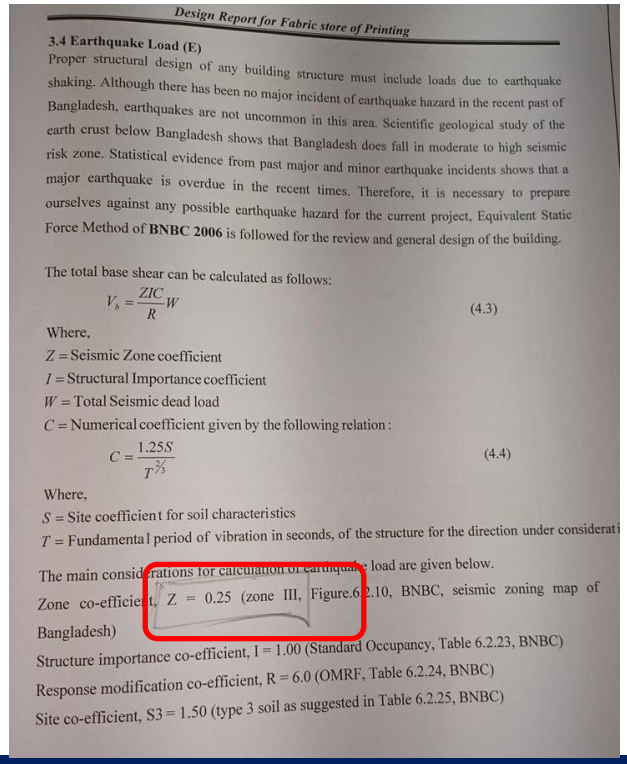
C_P = Pressure coefficient for structures or components

q_Z = Sustained wind pressure obtained from Eq. (4.1)

For these project wind load calculations of X and Z direction are attached.

Wind load calculation according to **BNBC 2006**, with regards to the shape of the building:

12



Design Report for Fabric store of Printing

3.4 Earthquake Load (E)

Proper structural design of any building structure must include loads due to earthquake shaking. Although there has been no major incident of earthquake hazard in the recent past of Bangladesh, earthquakes are not uncommon in this area. Scientific geological study of the earth crust below Bangladesh shows that Bangladesh does fall in moderate to high seismic risk zone. Statistical evidence from past major and minor earthquake incidents shows that a major earthquake is overdue in the recent times. Therefore, it is necessary to prepare ourselves against any possible earthquake hazard for the current project, Equivalent Static Force Method of **BNBC 2006** is followed for the review and general design of the building.

The total base shear can be calculated as follows:

$$V_b = \frac{ZIC}{R}W \quad (4.3)$$

Where,

Z = Seismic Zone coefficient

I = Structural Importance coefficient

W = Total Seismic dead load

C = Numerical coefficient given by the following relation :

$$C = \frac{1.25S}{T^{\frac{2}{3}}} \quad (4.4)$$

Where,

S = Site coefficient for soil characteristics

T = Fundamental period of vibration in seconds, of the structure for the direction under consideration

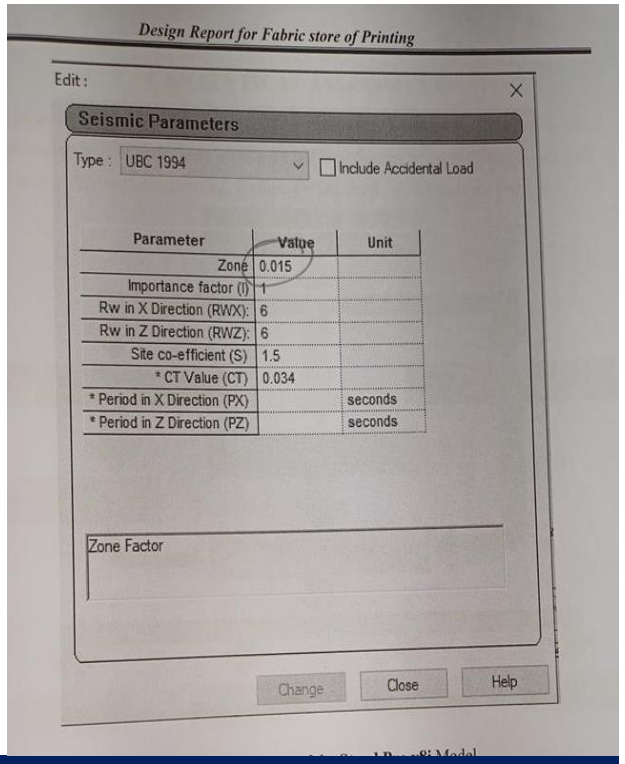
The main considerations for calculation of earthquake load are given below.

Zone co-efficient, Z = 0.25 (zone III, Figure.6.2.10, BNBC, seismic zoning map of Bangladesh)

Structure importance co-efficient, I = 1.00 (Standard Occupancy, Table 6.2.23, BNBC)

Response modification co-efficient, R = 6.0 (OMRF, Table 6.2.24, BNBC)

Site co-efficient, S3 = 1.50 (type 3 soil as suggested in Table 6.2.25, BNBC)



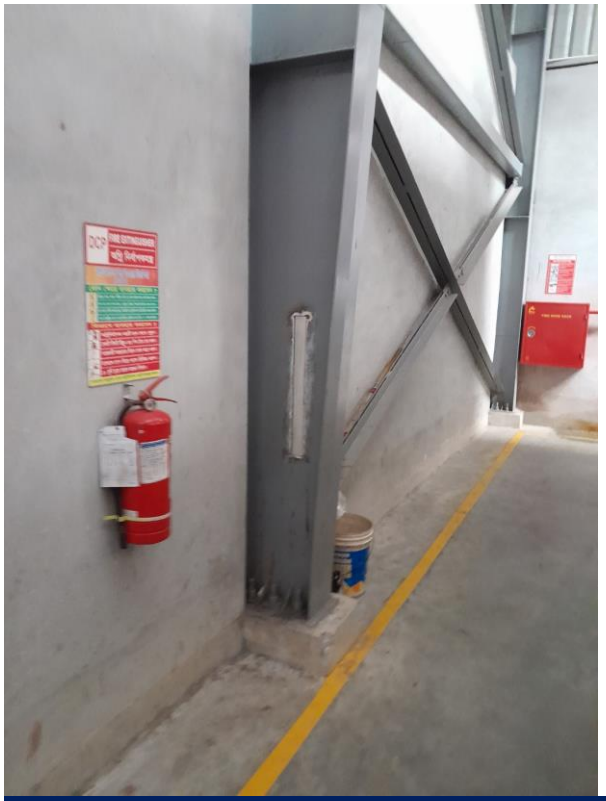
Mis-match in location and zone (Z)

Inconsistencies in design report was observed. Building engineer is required to revised the design report as per actual condition and submit to RSC for review.

Observations: Printing fabric store

Tested area not filled with specification

Observations: Printing fabric store



Unfilled tested areas

Tested areas of steel structures were found not-filled during inspection. Building engineer is required to fill all the tested area immediately by suitable method.

Observations: Printing fabric store

Apparently non-engineered structure

Observation: Sludge Storage & Screen Washing Shed

Apparently non-engineered structure with inadequate member and connection

The stability system of roof & peripheral walls and their connections are apparently non-engineered. The building engineer is required to suggest proper alternatives to make the structure adequate and prepare necessary design documents accordingly. Otherwise, the factory is required to replace the shed with well-designed structure.

Observation: Sludge Storage & Screen Washing Shed

Lack of lateral stability System

Observation: Maintenance workshop

Truss along short direction was observed but no bracing or load transfer media was provided along long direction. Building engineer is required to check the lateral stability of the structure.

Observation: Maintenance workshop

Water ponding on the slab

Observation: ETP

Water ponding observed on the slab due to poor drainage system. The building engineer is required to develop proper drainage system with adequate sloping on

Observation: ETP

Dampness on exterior walls

Observation: ETP

Dampness on Exterior wall

Dampness was observed at the exterior wall of ETP. The factory is required to seal the source of water and repair the damped area with suitable method.

Observation: ETP

Poor connection against uplift pressure

Observation: Market & fire control room

Apparently inadequate connections were observed at the lightweight roof of the single storied Sheds. The building engineer to check the connection adequacy of the lightweight roof against the uplift pressure of wind.

Observation: Market & fire control room

Marginally stressed beam

Observation: 3-Storied car parking & dining

Table 6.2.2.1: Comparison Between Max Rebar Provided and Max Required of Floor Beams

Beam ID	Top Reinforcement		Comments	Bottom Reinforcement		Comments
	Required	Provided		Required	Provided	
B1-250X450	0.36	1.11	ok	0.42	1.28	ok
B2-300X450	0.84	2.08	ok	0.95	2.44	ok
BX-375X400	0.77	1.87	ok	0.33	1.25	ok
BY-450X400	0.47	1.08	ok	0.16	0.72	ok
FB1-250X525	1.2	1.95	ok	0.79	1.46	ok
FB2-250X525	1.64	1.95	ok	1.03	1.46	ok
FB3-250X525	2.05	1.95	ok	1.35	1.46	ok
FB4-250X525	1.02	1.6	ok	0.63	1.46	ok
FB5-250X525	1.23	1.6	ok	0.88	1.46	ok
FB6-250X525	1.12	1.6	ok	0.67	2.44	ok
FB7-250X525	0.28	0.97	ok	0.55	1.60	ok
SB-300X450	0.22	1.95	ok	0.67	1.46	ok

Therefore, all the beams are adequate.

Marginally stressed beam was observed in the design report. The building engineer is required to check the beam adequacy and revise the report as well as take necessary measures accordingly.

Observation: 3-Storied car parking & dining

Lack of connection adequacy and lateral stability System

Observation: Garments printing sub-station

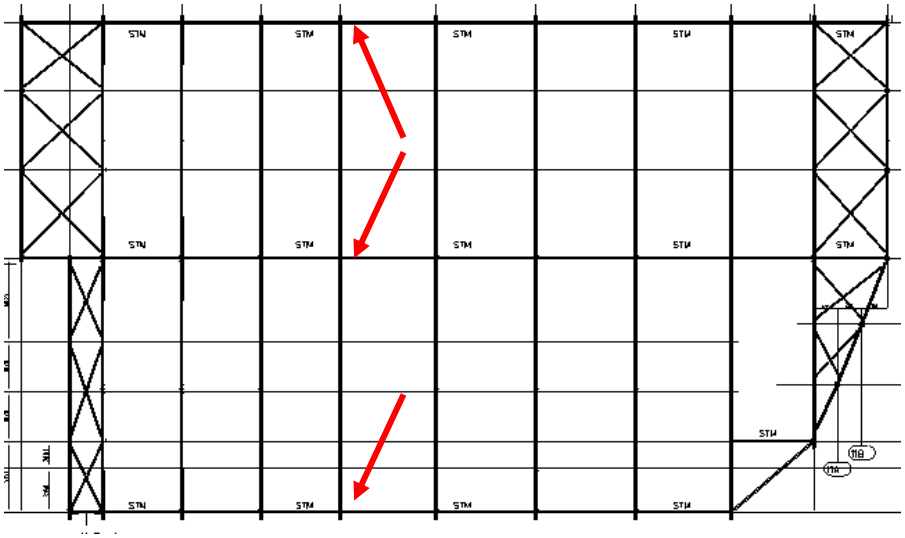
Apparently inadequate member size and connections were observed in the lightweight roof. Building engineer is required to check the connection adequacy and lateral stability system of the structure.

Observation: Garments printing sub-station

Lack of lateral stability system

Observation: 2-Storied garments printing production shed

No compression member or vertical bracing observed and Strut missing



Strut in drawing

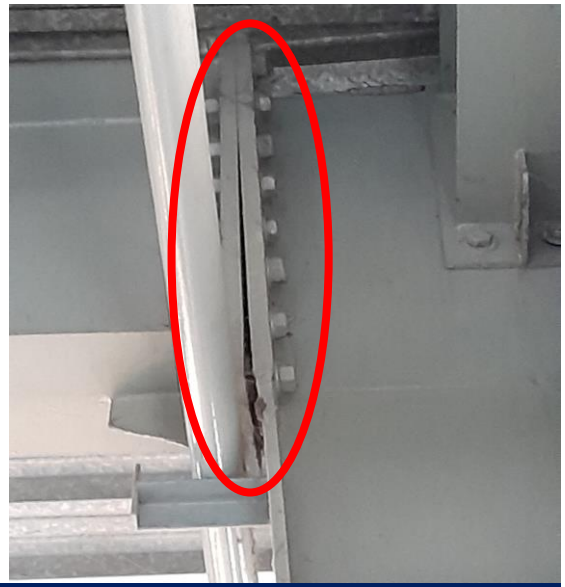
No vertical bracing and compression member was observed in the structure that indicates the lateral load path is not logical in long direction against lateral loading. Also strut members are shown in drawing, but no strut members are found during inspection. Building engineer is required to revise the drawing, design report, check the connection adequacy and lateral stability of

Observation: 2-Storied garments printing production shed

Bolt missing & connection gap

Observation: 2-Storied garments printing production shed

Bolt missing



Connection gap

Bolt missing & connection gap found in several connection joints. Building engineer is required to identify all the locations and install missing bolts & resolve connection gaps

Observation: 2-Storied garments printing production shed

Problems Observed

All structures

Item 01: Concrete core layout plan not found on site

Bonded Warehouse

Item 02: Material Test report not available

Printing Production Shed

Item 03: Foundation Adequacy not shown in drawing (mezzanine portion)

Item 04: Apparently non-engineered steel stair

Item 05: Load plan not posted in Mezzanine Floor

Item 06: Bracing missing in Mezzanine Floor

Diesel Station

Item 07: Corrosion on steel member

3-Storied fiber & yarn dyeing building

Item 08: Structural connection between two buildings

Item 09: Significant Vibration

Item 10: RCC Column suspectable for trolley Impact

Item 11: Water ponding on the roof

Problems Observed

Item 12: Additional Crane Loading

Item 13: Inconsistencies in Design Report

Fiber & yarn dyeing sub-station

Item 14: Significant Crack on Brick wall

Item 15: Long column check need to address

2-Storied utility building

Item 16: Long column check need to address

Item 17: Water ponding on the roof

6-Storied printing building

Item 18: Lack of anchorage of storage rack

Item 19: Water ponding on the roof

Item 20: Lack of posting load plan

Item 21: Lateral stability need to check in details

Printing fabric store

Item 22: Inconsistencies in Design Report

Item 23: Tested area not filled with specification

Problems Observed

Sludge Storage & Screen Washing Shed

Item 24: Apparently non-engineered structure

Maintenance workshop

Item 25: Lack of lateral stability System

ETP

Item 26: Water ponding on the slab

Item 27: Dampness on exterior walls

Market & fire control room

Item 28: Poor connection against uplift pressure

3-Storied car parking & dining

Item 29: Marginally stressed beam

Garments printing sub-station

Item 30: Lack of connection adequacy and lateral stability System

2-Storied garments printing production shed

Item 31: Lack of lateral stability system

Item 32: Bolt missing & connection gap

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Concrete core layout plan not found on site (All structures)	The factory is required to prepare core layout plan.	6-weeks
02	Material Test report not available (Bonded Warehouse)	Building Engineer is required to prepare necessary test reports and revise EA documents accordingly.	6-weeks
03	Material Test report not available (Bonded Warehouse)	Carry out suggested remedial works if required.	6-months
04	Foundation Adequacy not shown in design report (mezzanine portion-Printing Production Shed)	Building engineer is required to revise the as-built drawing and other documents as per the actual site condition.	6-weeks
05	Foundation Adequacy not shown in design report (mezzanine portion-Printing Production Shed)	Incorporate foundation adequacy in the design report.	6-weeks
06	Apparently non-engineered steel stair (Printing Production Shed)	The building engineer is required to suggest proper alternatives to make the structure adequate and prepare necessary design documents accordingly.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Load plan not posted in Mezzanine Floor (Printing Production Shed)	Produce and actively manage a set of floor live load plan for all floors based on column and foundation capacity.	6-weeks
08	Load plan not posted in Mezzanine Floor (Printing Production Shed)	Post load plan to all required locations.	6-months
09	Bracing missing in Mezzanine Floor (Printing Production Shed)	The Building Engineer is required to revise the as-built drawing as per actual on-site condition and check the stability.	6-weeks
10	Bracing missing in Mezzanine Floor (Printing Production Shed)	Carry out suggested remedial works if required.	6-months
11	Corrosion on steel member (Diesel Station)	Building engineer is required to identify all corroded member, remove the corrosion and apply suitable anti-corrosive coating to the affected steel members.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
12	Significant Vibration (3-Storied fiber & yarn dyeing building)	The building engineer is required to suggest the installation of proper damper elements.	6-weeks
13	RCC Column suspectable for trolley Impact (3-Storied fiber & yarn dyeing building)	Building engineer required to provide barrier around the RC column to protect from possible trolley impact.	6-weeks
14	Water ponding on the roof (3-Storied fiber & yarn dyeing building)	The building engineer is required to develop proper drainage system with adequate sloping on roof.	6-weeks
15	Additional Crane Loading (3-Storied fiber & yarn dyeing building)	The building engineer is required to check the structural adequacy due to additional crane loading.	6-weeks
16	Additional Crane Loading (3-Storied fiber & yarn dyeing building)	Carry out suggested remedial works if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
17	Inconsistencies in Design Report (3-Storied fiber & yarn dyeing building)	Building engineer is required to revised the design report and submit to RSC for review.	6-weeks
18	Inconsistencies in Design Report (3-Storied fiber & yarn dyeing building)	Carry out suggested remedial works if required.	6-months
19	Significant Crack on Brick wall (Fiber & yarn dyeing sub-station)	Building engineer is required to repair the crack using suitable methodology.	6-weeks
20	Long column check need to address (Fiber & yarn dyeing sub-station)	Building engineer is required to check the slenderness adequacy of the column and suggest proper remedial actions accordingly.	6-weeks
21	Long column check need to address (Fiber & yarn dyeing sub-station)	Carry out suggested remedial works if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
22	Long column check need to address (2-Storied utility building)	Building engineer is required to check the slenderness adequacy of the column and suggest proper remedial actions accordingly.	6-weeks
23	Long column check need to address (2-Storied utility building)	Carry out suggested remedial works if required.	6-months
24	Water ponding on the roof (2-Storied utility building)	The building engineer is required to develop proper drainage system with adequate sloping on roof.	6-weeks
25	Lack of anchorage of storage rack (6-Storied printing building)	Building engineer is required to brace/anchor all the non-structural elements.	6-weeks
26	Water ponding on the roof (6-Storied printing building)	The building engineer is required to develop proper drainage system with adequate sloping on roof.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
27	Lack of posting load plan (6-Storied printing building)	Produce and actively manage a set of floor live load plan for all floors based on column and foundation capacity.	6-weeks
28	Lack of posting load plan (6-Storied printing building)	Post load plan to all the required locations.	6-months
29	Lateral stability need to check in details (6-Storied printing building)	The building engineer is required to check the lateral stability of the structure as per BNBC in details and suggest proper remedial actions if required.	6-weeks
30	Lateral stability need to check in details (6-Storied printing building)	Carry out suggested remedial works if required.	6-months
31	Inconsistencies in Design Report (Printing fabric store)	Building engineer is required to revised the design report as per actual condition and submit to RSC for review.	6-weeks
32	Inconsistencies in Design Report (Printing fabric store)	Carry out suggested remedial works if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
33	Tested area not filled with specification (Printing fabric store)	Building engineer is required to fill all the tested area immediately by suitable method.	6-weeks
34	Apparently non-engineered structure (Sludge Storage & Screen Washing Shed)	The building engineer is required to suggest proper alternatives to make the structure adequate and prepare necessary design documents accordingly.	6-weeks
35	Apparently non-engineered structure (Sludge Storage & Screen Washing Shed)	Otherwise, remove the non-engineered structure.	6-months
36	Lack of lateral stability System (Maintenance workshop)	Building engineer is required to check the lateral stability of the structure.	6-weeks
37	Lack of lateral stability System (Maintenance workshop)	Carry out suggested remedial works if required.	6-months
38	Water ponding on the slab (ETP)	The building engineer is required to develop proper drainage system with adequate sloping on the slab.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
39	Dampness on exterior walls (ETP)	The building engineer is required to seal the source of water and repair the damped area with suitable method.	6-weeks
40	Poor connection against uplift pressure (Market & fire control room)	The building engineer to check the connection adequacy of the lightweight roof against the uplift pressure of wind.	6-weeks
41	Poor connection against uplift pressure (Market & fire control room)	Carry out suggested remedial works if required.	6-months
42	Marginally stressed beam (3-Storied car parking & dining)	The building engineer is required to check the beam adequacy and revise the report as well as take necessary measures accordingly.	6-weeks
43	Marginally stressed beam (3-Storied car parking & dining)	Carry out suggested remedial works if required.	6-months
44	Lack of connection adequacy and lateral stability System (Garments printing sub-station)	Building engineer is required to check the connection adequacy and lateral stability system of the structure.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
45	Lack of connection adequacy and lateral stability System (Garments printing sub-station)	Carry out suggested remedial works if required.	6-months
46	Lack of lateral stability system (2-Storied garments printing production shed)	Building engineer is required to revise the drawing, design report, check the connection adequacy and lateral stability of the structure.	6-weeks
47	Lack of lateral stability system (2-Storied garments printing production shed)	Carry out suggested remedial works if required.	6-months
48	Bolt missing & connection gap (2-Storied garments printing production shed)	Building engineer is required to identify all the locations and install missing bolts & resolve connection gaps accordingly.	6-weeks