

S M Knitwears Limited (Extension)

Shirirchala, Bhabanipur, Gazipur

(24.176837, 90.424893)

21 January 2024



1. Building Information

Building-4: This structure is a six-storied (B+G+5) RC building with Basement.

Building-5: This structure is a six-storied (G+5) RC building.

Building-6: This structure is a two-storied (G+M+1) steel building with a mezzanine.

Building-8 (Pump Room): This structure is a single-storied RC building.

Building-9 (Utility Office): This structure is a single-storied RC building.

Shed-1 (Security Office): This structure is a single-storied shed.

Shed-6 (Fire Pump Room): This structure is a single-storied shed with basement.

Shed-7 (Workshop): This structure is a single-storied shed with steel roof truss.

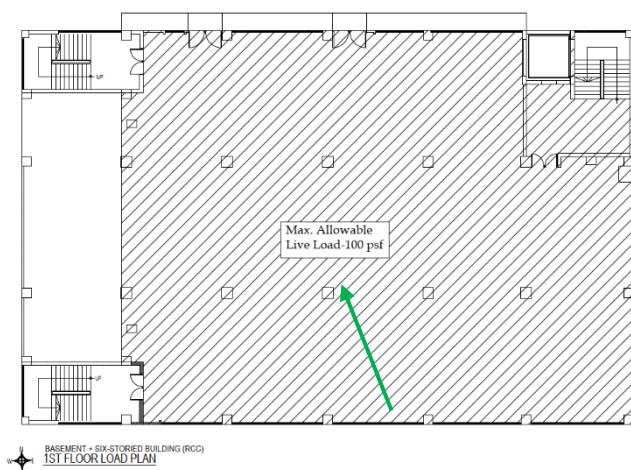
Shed-13 (Diesel Generator): This structure is a single-storied shed.

Shed-14 (RMS Room): This structure is a single-storied shed.

Shed-15 (Container): This structure is a two-storied structure made by four containers.

2. Observations:

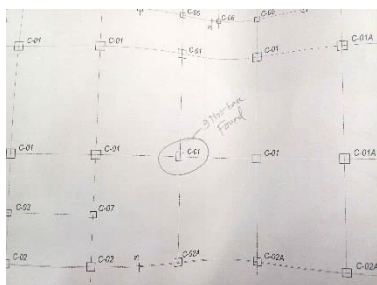
Observation-1: Storage live load limit doesn't satisfy the building code requirement (Building 4)



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 ⁽⁵⁾
	heavy	12.0	9.0 ⁽⁵⁾
	ice	15.0	9.0
5	Printing plant :		
	Press room	7.0	11.0
	Composing and linotype room	5.0	9.0 ⁽⁵⁾
	Paper storage room	12.0	9.0 ⁽⁵⁾
6	Motor room, fan room etc. including the weight of machinery	7.5	4.5
7	Cold storage, grain storage	15.0	9.0 ⁽⁵⁾
8	Storage warehouses : light	6.0	4.5 ⁽⁵⁾
	heavy	12.0	9.0
9	Foundries	20.0	12.0

Description: As per BNBC, the minimum live load for storage in industrial building is 6 kPa, where 4.8 kPa has been considered in design report and load plan. The building engineer is required to revise the floor live load, design report and submit the design documents to RSC for review.

Observation 2: Mismatch in as-built drawings. (Building 4)



COLUMN SCHEDULE

COLUMN NO.	BASEMENT FLOOR	GROUND & 1ST FLOOR	2ND, 3RD & 4TH FLOOR	5TH FLOOR TO ROOF
C-01	750 x 750 38-125	750 x 750 38-125	750 x 750 20-125 + 16-120	750 x 750 20-125 + 16-120
C-01A	750 x 750 38-125	750 x 750 38-125	750 x 750 20-125 + 16-120	750 x 750 12-125 + 24-120
C-02	650 x 650 28-125	650 x 650 28-125	650 x 650 16-125 + 12-120	650 x 650 16-125 + 12-120



Rebar mismatch in as-built drawing



Built-up in toilet zone was not shown in as-built drawing

Description: Mismatch was found in as-built drawing of Column and toilet zone. During inspection, rebar of C-01 column was found 9-nos in one side instead of 10-nos and built-up (8") in toilet zone was not shown in drawing. The building engineer is required to revise the as-built drawing as per actual site condition.

Observation 3: Inadequate number of material test report (Building 4)

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)
DEPARTMENT OF CIVIL ENGINEERING
CONCRETE LABORATORY

BTTC No: 1181-38177/H-17ICE; Dt: 26/2/2017
Sent by: ABC Building Products Ltd.
Ref No: 16458/BUET/H-17ICE; Dt: 22/2/2017
Project: S.M. Ashraf Khan Ltd., 5th Floor, Dhaka, Bangladesh, New, Ganga
Sample: Cylinder (No. 1000/1000) Not Monitored, Aggregate Type: Stone chip
Location: 5th Floor Slab
Test: Compressive Strength (ASTM C39)
Date of Test: 26/2/2017

TEST REPORT

Sr. No.	Date of Casting as per the Letter	Specimen Designation	Specimen Area	Specimen Load	Crushing Strength	Average Crushing Strength	Mode of Failure
1	20/1/2017	300 Group	12.42	77,354	6,228	8880 psi	Compressed
2	20/1/2017	300 Group	12.42	75,450	6,075	(42 MPa)	Compressed
3	20/1/2017	300 Group	12.42	77,764	6,198	(430 kg/cm ²)	Compressed

Notes: Samples were received in sealed condition. * Combined = Elastic and Aggregate Failure.

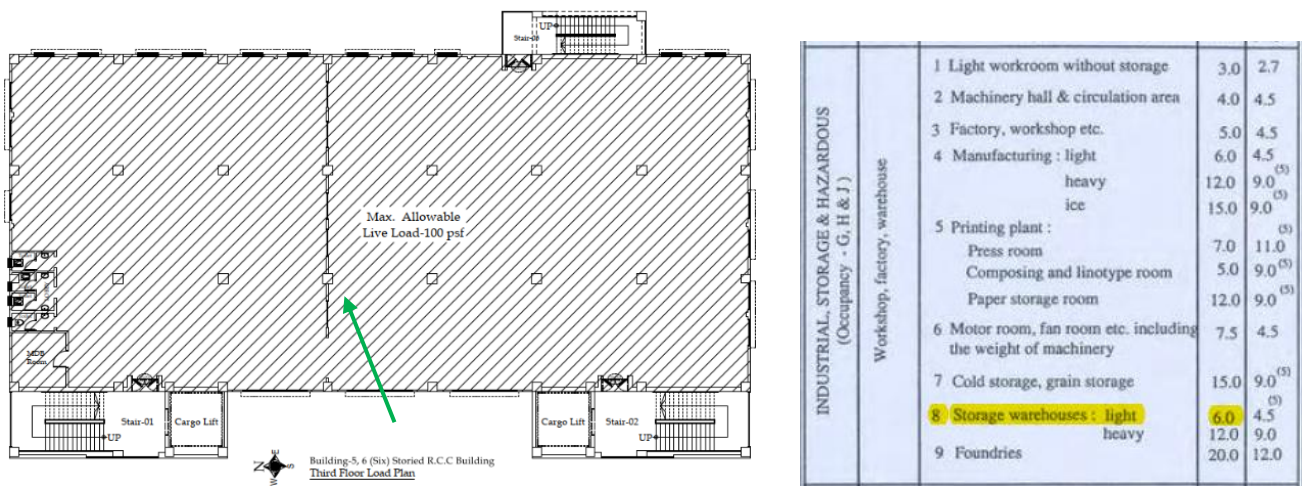
Countersigned by: Dr. Abu Siddique, Professor, Department of Civil Engineering, BUET, Dhaka-1000, Bangladesh.

Test Performed by: A. Shahid, Lecturer, Department of Civil Engineering, BUET, Dhaka-1000, Bangladesh.

Important Note: Samples are supplied to various tests in your laboratory. BUET does not have any responsibility for the representation of the samples reported by the field. It is recommended that samples are sealed in a secure and sealed container under supervision of the competent authority. In order to avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by the authorized person, and sent to the Competent Engineer.

Description: As per BNBC 5.12.2 (frequency of testing) requirement, an adequate number of concrete cylinder test reports were not available onsite to meet the design strength. The building engineer is required to verify in-situ material strength by taking a minimum four number of concrete cores from the lower tier of the existing building column.

Observation-4: Storage live load limit doesn't satisfy the building code requirement (Building 5)



Description: As per BNBC, minimum live load for storage in industrial buildings is 6 kPa, where 4.8 kPa was considered in design report and load plan. The building engineer is required to revise the floor live load plan, design report and submit the design documents to the RSC for review.

Observation 5: Inadequate number of material test report (Building 5)



Description: As per BNBC 5.12.2 (frequency of testing) requirement, an adequate number of concrete cylinder test reports were not available onsite to meet the design strength. The building engineer is required to verify in-situ material strength by taking a minimum four number of concrete cores from the lower tier of the existing building column.

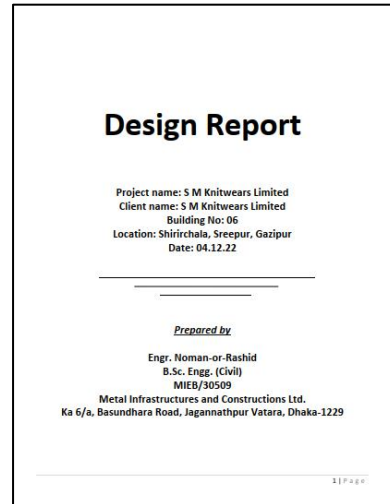
Observation 6: Unbraced storage racks (Building 5)



Unbraced storage racks

Description: Storage racks at several locations were found unbraced. The building engineer is required to brace/anchor all the non-structural elements including the storage racks.

Observation-7: Design check against lateral loading needs to be reviewed in-depth (Building-6).



Description: Design check against lateral loading needs to be reviewed in-depth by RSC. The building engineer is required to submit Design documents to RSC for review.

Observation-8: Bolt missing in several locations (Building-6).



Bolt missing found in several locations

Description: During inspection, bolts were found missing in some places. The building engineer is required to install the missing bolts without further delay.

Observation-9: Absence of design report. (Building 8)



Description: 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, a set of as-built drawings and load plans which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC.

Observation-10: Absence of as-built documents. (Building 9)



Description: As-built documents were not available for the structure.

Observation-11: Absence of as-built drawing. (Shed 1)



Description: 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 set of as-built drawings which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC.

The building engineer is required to prepare as-built drawings and submit the documents to RSC.

Observation-12: Lack of lateral stability. (Shed 6)



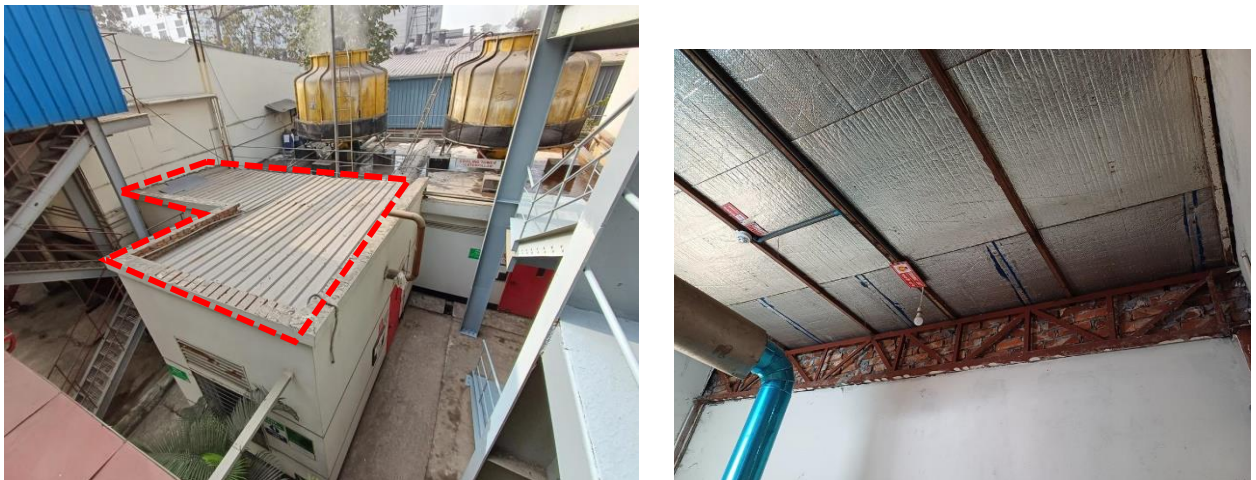
Description: Lack of lateral stability system and inadequate member sizes were observed in the structure. The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.

Observation-13: Lack of lateral stability. (Shed 7)



Description: Lack of lateral stability system and inadequate member sizes were observed in the structure. The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.

Observation-14: Lack of lateral stability. (Shed 13)



Description: Lack of lateral stability system and inadequate member sizes were observed in the structure. The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.

Observation-15: Absence of as-built drawing. (Shed 14)



Description: 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 set of as-built drawings which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC.

The building engineer is required to prepare as-built drawings and submit the documents to RSC.

Observation-16: Lack of lateral stability. (Shed 15)



Description: Lack of lateral stability system and inadequate member sizes were observed in the structure. The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.

3. Action Plan:

Observation	Action Plan	Timeline
Storage live load limit doesn't comply BNBC requirement (Building 4)	The building engineer is required to revise the floor live load plan, design report and submit the design documents to the RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Mismatch in as-built drawings. (Building 4)	The building engineer is required to revise the as-built drawing as per actual site condition.	within 6 weeks
Inadequate number of material test report (Building 4)	The building engineer is required to verify in-situ material strength by taking a minimum four number of concrete cores from the lower tier of the existing building column.	within 6 weeks
Storage live load limit doesn't comply BNBC requirement (Building 5)	The building engineer is required to revise the floor live load plan, design report and submit the design documents to the RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Inadequate number of material test report (Building 5)	The building engineer is required to verify in-situ material strength by taking a minimum four number of concrete cores from the lower tier of the existing building column.	within 6 weeks
Unbraced storage racks (Building 5)	The building engineer is required to brace/anchor all the non-structural elements.	within 6 months
Design check against lateral loading needs to be reviewed in-depth (Building-6).	The building engineer is required to submit Design documents to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Bolt missing in several locations (Building-6).	The building engineer is required to install the missing bolts without further delay.	within 6 weeks
Absence of design report. (Building 8)	The building engineer is required to prepare design documents and submit to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months

Absence of as-built documents. (Building 9)	The building engineer is required to prepare as-built drawing and submit to RSC for review.	within 6 weeks
Absence of as-built drawing. (Shed 1)	The building engineer is required to prepare as-built drawings and submit the documents to RSC.	within 6 weeks
Lack of lateral stability. (Shed 6)	The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Lack of lateral stability. (Shed 7)	The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Lack of lateral stability. (Shed 13)	The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months
Absence of as-built drawing. (Shed 14)	The building engineer is required to prepare as-built drawings and submit the documents to RSC.	within 6 weeks
Lack of lateral stability. (Shed 15)	The building engineer is required to carry out Engineering Assessment (EA) to check the stability of the structure and suggest proper remedial actions accordingly. Submit the EA documents to RSC for review.	within 6 weeks
	Carry out remedial work where required.	within 6 months