

ABLOOM DESIGN LIMITED (Extension)

37, South Shastapur, Upazila Road, Fatullah, Narayanganj
(23.637976, 90.491952)
26 December 2022



Building Information

Building-03 (Production Building, Fire Hydrant, Accessories Store) is a 6 storied (B+G+5) reinforced concrete (RC) building with a partial basement.

Building-04 (Generator, Meeting Room, Office) is a 3 storied (G+2) reinforced concrete (RC) building.

Observations

Lack of design report


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

Compressive Strength of Concrete Drilled Cores

CATS Reference	: 2476/Con/32053-056/12/2022	Date	: 06.12.2022
Client	: Abloom Design Ltd		
Project Name & Address	: Abloom Design Ltd (Garment's Factory Building-3) at 37, South, Upapila Road, Fatullah, Narayanganj, Bangladesh		
Sample Brought By	: Script House Ltd	Date of Receiving	: 29.11.2022
Test Method	: ASTM C 42/C 42-M	Date of Test	: 04.12.2022
Type of Sample	: Drilled Core	Sample Condition	: Unsealed
Location of Sample	: Column, Grid: B-5, B-3, A-1 & E-3		
Construction Year	: Not Mentioned	Quantity of Sample	: 04 nos
No of Story	: 06-Storey	Type of Aggregate	: Stone Chips

Sl No.	Sample Identification Mark	Original Length mm	Sawed Length mm	Diameter mm	Crushing Load kN	Crushing Strength MPa	Crushing Strength psi	Failure Type	Fracture Type
1	Core-1, Ground Floor	160.0	136.0	68.0	80.7	22.2	3220	Combined	Shear
2	Core-2, 1st Floor	205.0	136.0	68.0	59.8	16.4	2380	Combined	Shear
3	Core-3, 2nd Floor	240.0	132.0	68.0	110.8	30.5	4420	Combined	Cone and Shear
4	Core-4, 4th Floor	150.0	133.0	68.0	62.6	17.2	2490	Combined	Shear

REMARKS:

- All information displayed above other than the test results are provided by the client.
- Please compare the results with your corresponding design values and consult with your design engineer.

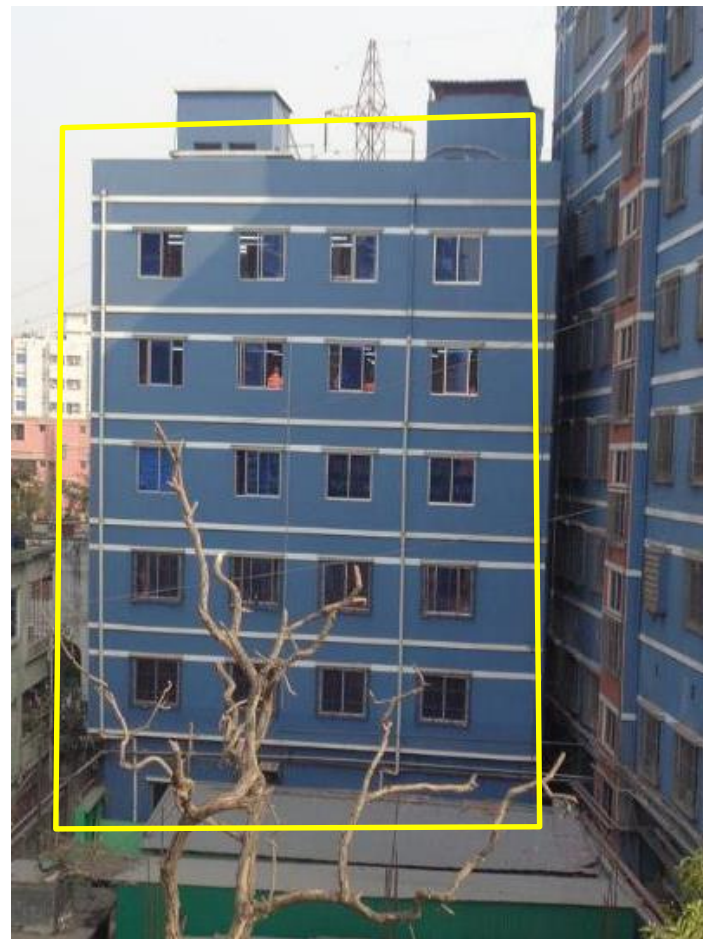
Test Supervised By: 
G. M. R. R. R. R.
Lecturer in Charge
Associate Professor (Instructor Class-A)
Department of Civil Engineering
MIST, Mirpur Cantonment

Countersigned By: 
Khondaker Saji 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/packs/container under the signature of the competent authority in order to avoid any adulteration/fabrication of test results. It is also recommended that all test reports are to be collected by duly authorized personnel of 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

Core test report



Building-3

Concrete core test reports were available on factory site but design report was not prepared yet. The building engineer is required to produce design report based on equivalent material strength of concrete cores following BNBC.



Column layout plan



Steel I-section inside RC column

Steel I-section observed inside the RC columns of stair zone. The building engineer is required to incorporate those composite column effect in the design report.

Discontinuity of RC column in stair zone

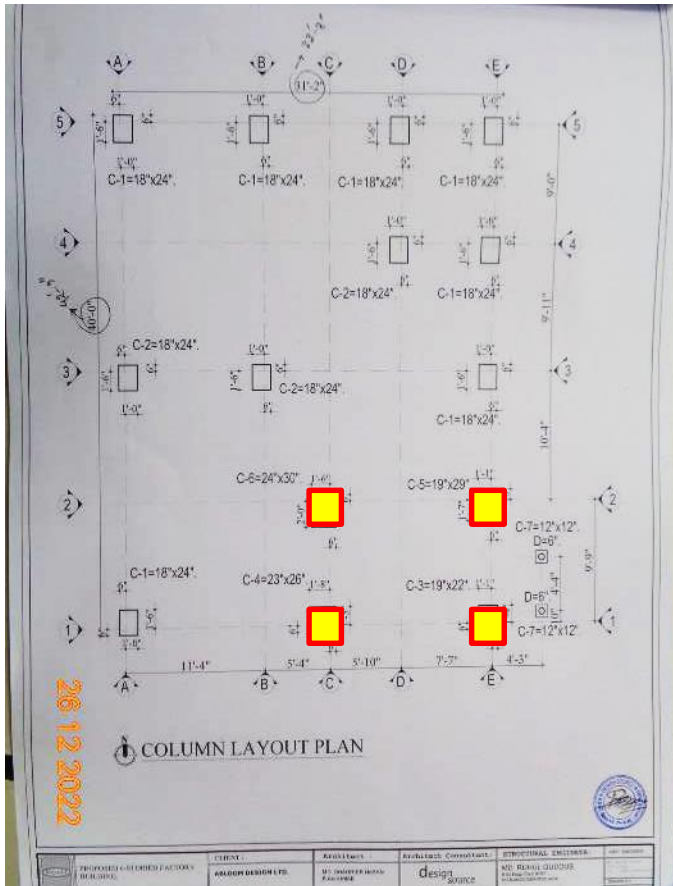


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Discontinuity of RC column at stair landing portion

The factory constructed 4 RC columns around the existing steel stair columns. But in the joint of stair landing beam and column, RC casting has not done which makes the column discontinue and non-uniform through its length. The building engineer is required to investigate the beam-column joint and suggest necessary remedial actions.

Discrepancy in structural drawings



Marks composite columns were not shown in the structural drawings



Roof layout and detail of OHWT was missing in the drawing.



I-section inside the RC column.



Connection details of steel section was missing in the drawing.

The building engineer is required to survey the structure and prepare accurate as-built drawings with structural details.

Electrical cables cut into and pass through main structural beams



Electrical Cables have been cut into and pass through beams.

Electrical Cables have been cut into and pass through main structural beams throughout various floor levels of the factory. Structural Engineer to Investigate and report on this matter to verify the Structural Integrity of the beams are not compromised.

Corrosion in steel beam



Corrosion in the steel beams

Building engineer is required to remove the corrosion from the steel members and apply suitable corrosion resistance coating.

Lack of anchorage/lateral bracing of storage rack



Lack of anchorage/lateral bracing for the storage racks

Building engineer is required to provide adequate anchorage or lateral bracing to the storage racks.

Lack of design report



Building-3



Concrete core taken from column



Large offset of beam from column line

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 of BNBC (part-6). During inspection, design report was not found which is required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

However, concrete cores have taken from several column locations. Also, there was a large offset of beam from column. The building engineer is required to incorporate in-situ material strength and actual framing system in the design report.

Lack of anchorage of stair roof for uplift forces



Tin roofing above the staircase



Lack of anchorage between roof and columns

The building engineer is required to check the connections for the uplift forces and suggest proper guideline accordingly.

Problems Observed

Building-3:

Item 1: Lack of design report.

Item 2: Discontinuity of RC column in stair zone.

Item 3: Discrepancy in structural drawings.

Item 4: Electrical cables cut into and pass through main structural beams.

Item 5: Corrosion in steel beam.

Item 6: Lack of anchorage/lateral bracing of storage rack.

Building-4:

Item 7: Lack of design report.

Item 8: Lack of anchorage of stair roof for uplift forces.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lack of design report (Building-3)	The building engineer is required to prepare design report of the building in compliance with section 1.9.1 of BNBC (part-6).	6-weeks
02	Lack of design report (Building-3)	Produce and active manage floor loading plan based on floor and column capacity of the building.	6-weeks
03	Lack of design report (Building-3)	Suggest remedial actions and prepare retrofitting scheme if required.	6-weeks
04	Lack of design report (Building-3)	Carry out suggested remedial works.	6-months
05	Lack of design report (Building-3)	Continue to implement allowable floor loading plan (posting load plan, providing signage and maintain floor loading).	6-months
06	Discontinuity of RC column in stair zone (Building-3)	The building engineer is required to survey the structure and prepare accurate as-built drawings with structural details.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Discontinuity of RC column in stair zone (Building-3)	Carry out suggested remedial works.	6-months
08	Discrepancy in structural drawings (Building-3)	The building engineer is required to survey the structure and prepare accurate as-built drawings with structural details.	6-weeks
09	Electrical cables cut into and pass through main structural beams.(Building-3)	Building Engineer to Investigate and report on this matter to verify the Structural Integrity of the beams are not compromised.	6-weeks
10	Electrical cables cut into and pass through main structural beams.(Building-3)	Carry out suggested remedial works	6-months
11	Corrosion in steel beam (Building-3)	Building engineer is required to remove corrosion and provide rust proof coating on exposed steel members to protect from corrosion	6-weeks
12	Lack of anchorage/lateral bracing of storage racks (Building-3)	Building engineer is required to provide adequate anchorage or lateral bracing for the storage racks.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Lack of design report (Building-4)	The building engineer is required to produce design report based on equivalent material strength of concrete cores following BNBC and suggest proper remedial actions.	6-weeks
14	Lack of design report (Building-4)	Produce and actively manage a floor loading plan-based floor and column capacity of the structures	6-weeks
15	Lack of design report (Building-4)	Carry out suggested remedial works.	6-months
16	Lack of design report (Building-4)	Continue to implement floor loading plan.	6-months
17	Lack of anchorage of stair roof for uplift forces (Building-4)	The building engineer is required to check the connections for the uplift forces and suggest proper remedial measures accordingly	6-weeks
18	Lack of anchorage of stair roof for uplift forces (Building-4)	Carry out suggested remedial works if required.	6-months