

Cosmopolitan Industries PVT Ltd (Epic) (Extension)

Khejurbagan, Baro Ashulia, Ashulia.
(23.891528, 90.323389)
03 September 2023



Building Information

1. **ETP Expansion:** A two storied (B+G+M+1) RC building with two mezzanine floor & underground tank.
2. **Security Post-1:** This structure is a single storied reinforced concrete (RC) building.
3. **Car Parking Shed-1:** A single storied shed is being used for car parking.
4. **Car Parking Shed-2:** A single storied shed is being used for car parking.
5. **Bi-Cycle Parking Shed:** A single storied shed is being used for bi-cycle parking.
6. **Reception Porch:** A single storied shed is being used for reception porch.
7. **Empty Drum Shed and Sludge Bed:** A single storied shed is being used for empty drum store and sludge bed.
8. **ETP Wastage Shed:** A single storied shed is being used for ETP wastage store.
9. **ETP:** A two storied (G+1) RC building is being used for ETP.
10. **Utility Storage:** A two storied (B+G+1) RC building with a basement which is being used for utility.
11. **Battery Charging Station:** A single storied RC building is being used for forklift battery charging station.

Observations

Design report required to be revised

2.4 Material strength to be used:

Reinforced Concrete:

	<i>Concrete Strength, f'_c</i>	<i>Rebar Strength, f_y</i>	<i>Mix Ratio</i>
<i>Foundation</i>	4000 psi (28MPa)	60 000 psi	1:1.25:2.5
<i>Beams</i>	3500 psi (24MPa)	60 000 psi	1:1.5:3.0
<i>Column</i>	4000 psi (28MPa)	60 000 psi	1:1.25:2.5
<i>Slab</i>	5500 psi (24MPa)	60 000 psi	1:1.5:3.0

Provided design report

In the provided design report concrete compression strength considered 28 MPa (4000 psi) for column & foundation. The factory has provided only one cylinder test report with average value in this regards, which is not meet the frequency of testing of BNBC. The building engineer is required to revise the concrete strength in the design report by performing core test.

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)
DEPARTMENT OF CIVIL ENGINEERING
 Mobile: 01819557964; PABX: 55187100 Ext. 7226
<http://brc.ce.buet.ac.bd/#home>
CONCRETE LABORATORY



BRTC No. : 1102-37769 /20-21/CE; Dt: 20/6/2021
 Sent by : Engr. Moin Ahmed
 Shelltech Engineering Ltd.
 Ref. No. : Cylinder Test; Dt: 14/8/2021
 Project : C.I.P.L Project (ETP Building), Ashulia, Savar
 Sample : Concrete Cylinder (Mix proportion (as quoted): RMC, Aggregate Type: Stone chips)
 Location : ETP Building, 2nd floor slab (Admixture Added (as per letter): Not mentioned)
 Test : Compressive Strength Test of Concrete Cylinder (ASTM C39)
 Date of Test : 21/6/2021

TEST REPORT

SL. No.	Date of Casting as per the letter	Specimen Designation/ Frog Mark	Specimen Area (sq. in)	Maximum Load (lb)	Crushing Strength (psi)	Average Crushing Strength	Mode of Failure
1	15/3/2021	15/3/2021	12.67	77,099	6,085	6700 psi	Combined *
2	(14 days test)	15/3/2021	12.67	74,177	5,855	(42.5 MPa)	Combined *
3		15/3/2021	12.92	84,741	6,559	(434 kg/cm ²)	Combined *

* Combined = Mortar and Aggregate failure.

Note: Samples were received in UNSEALED condition.
 Design Strength: 4000 psi.

Countersigned by:



Dr. A. B. M. Badruzzaman
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh



64
ZtjCtGdF2

Test Performed by:



23/6/2021
Dr. S M Faisal Mahmood
Assistant Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Important Notes: Samples as supplied to us have been tested in our laboratory. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples are sent in a secure and sealed cover/pack/container under signature of the competent authority. In order 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.

Page 3 of 3



BUETCE D 28 1 7 38

Test report

Crane at the beam



Overhang crane suspended from beam

Crane beam suspended from beam at 2nd floor level. Missing bot was observed in the connection. Building engineer is required to calculate the imposed loading and check the adequacy of floor/column/foundation and connection of the crane support. Also, install the missing bolt.



Bolt missing at connection

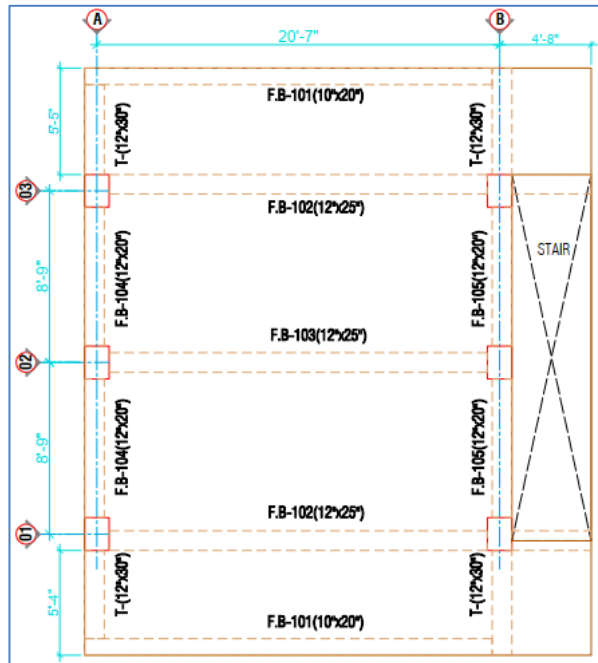
Mismatch in Design Report

1.2 Basic Information

Building Usage Type	:	Utility Building
Structural System	:	RC beam and column with 2-way slab (Intermediate Moment Resisting Frame)
Floor System	:	Column and beam supported Slabs
Floor Area	:	Basement: 652 sq. ft. Ground Floor: 773 sq. ft. 1 st Floor: 773 sq. ft.

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

2-way slab consideration in Design Report



Beam Layout in as-built drawing



One way slab was found on-site

Damages in roof beam



Damaged Roof beam at north side



Damaged beam

Building Engineer is required to repair the damage area with a suitable method.

Problems Observed

ETP Expansion:

Item 01: Design report required to be revised.

Item 02: Crane at the beam.

Utility Storage:

Item 03: Mismatch in Design Report.

Item 04: Damages in roof beam.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Design report required to be revised. (ETP Expansion)	Verify in-situ concrete strength taking 100 mm diameter minimum 4 cores from lower tier column.	6-weeks
02	Design report required to be revised. (ETP Expansion)	Building engineer to update the design documents based on in-situ concrete strength in compliance with BNBC-2006.	6-weeks
03	Design report required to be revised. (ETP Expansion)	Carry out remedial works if required.	6-months
04	Crane at the beam. (ETP Expansion)	Building engineer is required to calculate the imposed loading and check the adequacy of floor/column/foundation and connection of the crane support.	6-weeks
05	Crane at the beam. (ETP Expansion)	Install the missing bolt.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Crane at the beam. (ETP Expansion)	Carry out strengthening work if required.	6-months
07	Crane at the beam. (ETP Expansion)	Limit crane safe working load as required.	6-months
08	Mismatch in Design Report. (Utility Storage)	Building engineer is required revise the design report as-built beam & column layout of the structure.	6-weeks
09	Mismatch in Design Report. (Utility Storage)	Carry out remedial works if required.	6-months
10	Damages in roof beam. (Utility Storage)	Building engineer is required to repair the damage beam with a suitable method.	6-months