MANTA APPARELS LTD (Extended Building)

DIAKHALI, YEARPUR, JAMGARA, SAVAR, DHAKA.
(23.937110N, 90.296047E)
4th March 2021

RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

1. Extended Building-1 (Part-A & Part-B)
   Part-A (G+5)
   Part-B (G+2)
2. Extended Building-1 (G+2)

Observations

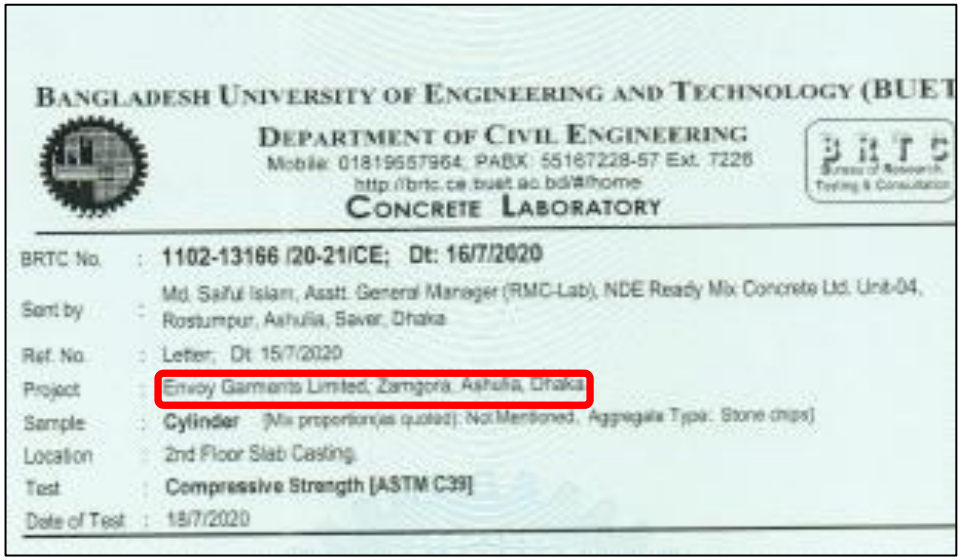
Design report needs to be revised

Observations: Extended Building-1

1. Concrete Compressive Strength Evaluation: Compressive strength of Concrete has been considered design strength 3500psi because two criteria of BNBC 2006 of considering compressive strength of concrete from cylinder are satisfied. Those are given below.

	Serial No.	Location	Floor	Concrete Strength (psi)	Average Strength (psi)	Remarks
a	1	WR Base	Base	4450	5717.333	5717.33>3500
	2	GF Slab	Ground Floor	5290		
	3	-	Level-1	7412		
	Serial No.	**Location**	**Floor**	**Concrete Strength (psi)**	**Average Strength (psi)**	
b	1	WR Base	Base	4450	No Individual Strength test is below of Considered 3500 psi	
	2	GF Slab	Ground Floor	5290		
	3	-	Level-1	7412		
	4	Slab	2nd Floor	4139		
	5	Slab	3rd Floor	5580		
	6	Pile Cap	-	6410		
	7	Slab	1st	6340		
	8	Mat	-	5910		
	9	Footing	3rd	6090		
	10	-	1st	5150		
	11	-	4th	4560		
	12	-	-	4680		
	13	-	5th	4720		

Material strength (3500 psi) considered in Design report



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DEPARTMENT OF CIVIL ENGINEERING

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http://brtc.ce.buet.ac.bd/#/home

CONCRETE LABORATORY

BRTC No. : 1102-13166 /20-21/CE; Dt: 16/7/2020

Sent by : Md. Saiful Islam, Asstt. General Manager (RMC-Lab), NDE Ready Mix Concrete Ltd. Unit-04, Rostumpur, Ashulia, Savar, Dhaka

Ref. No. : Letter; Dt: 15/7/2020

Project : Envoy Garments Limited, Zamgora, Ashulia, Dhaka

Sample : Cylinder [Mix proportion(as quoted): Not Mentioned, Aggregate Type: Stone chips]

Location : 2nd Floor Slab Casting

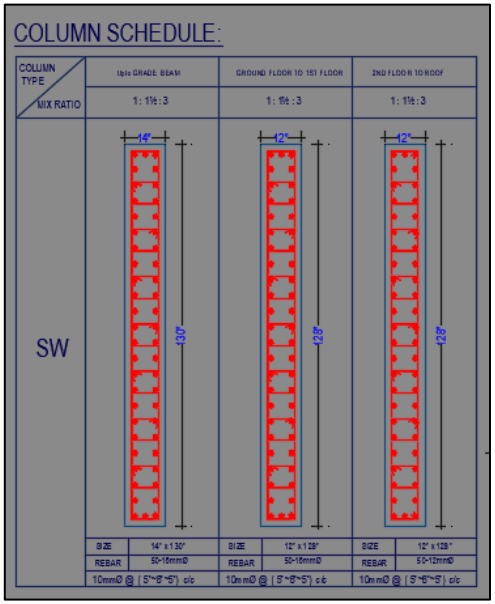
Test : Compressive Strength [ASTM C39]

Date of Test : 15/7/2020

In cylinder test report the name of the factory building has not been mentioned. So the cylinder test report do not represent the factory building.

Design strength 3500 psi is considered in design report for material specification. Eight sets of concrete cylinder test report for Extension Building-1: Two sets from foundations, five sets from slabs and one set from unknown location but no cylinder test report for column was available. Therefore, the available sets of test reports do not meet the requirement for frequency of cylinder test report for any structural member as per BNBC.

Observations: Extended Building-1



Conclusion

According to BNBC 2006 loading condition:

1. **Columns:** Demand Capacity Ratio of all columns are in allowable limit 1.0. So, columns are adequate according to BNBC 2006 load combination.
2. **Beam:** All the floor beams are adequate for flexure according to BNBC 2006 load combination.
3. **Slab:** Provided thickness and reinforcement of slab is adequate for flexure.
4. **Foundations:** Building is supported by pile foundation. All piles are adequate according to BNBC 2006 with factor of safety greater than 2.50

The structure is a combination of moment resisting frame and shear wall. But in design report no information has been provided regarding the adequacy of shear wall. Factory Engineer is required to incorporate the adequacy check in design report.

In as-built structural drawing information of the roof top water reservoir has not been provided. Factory Engineer is required to incorporate details drawing of the overhead water tank in as-built structural drawing and revise the design report accordingly.

Observations: Extended Building-1

Design report needs to be reviewed

Observations: Extended Building-2

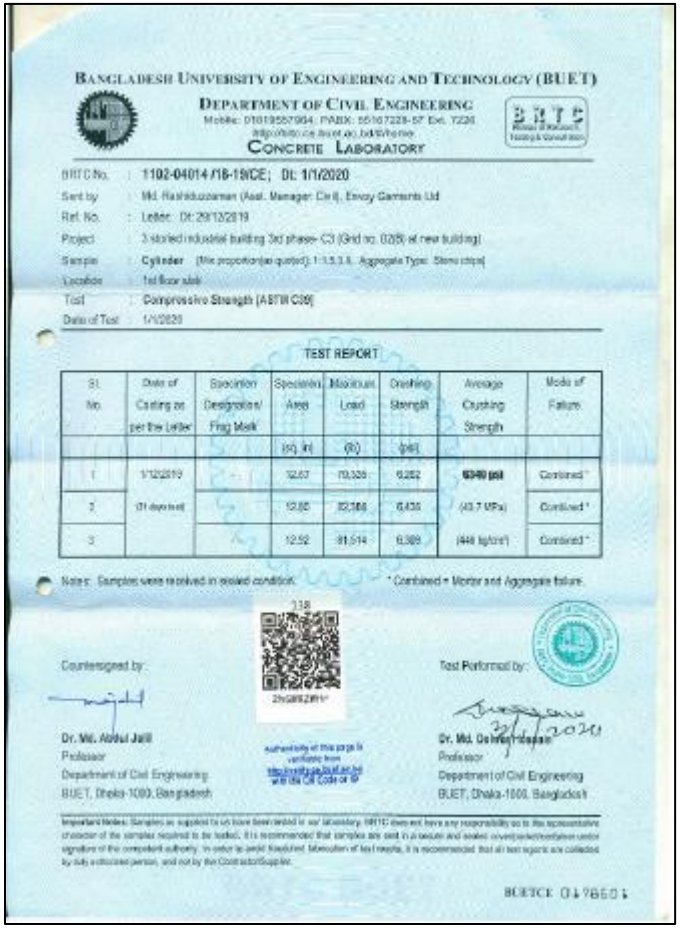
2.7.5.1 Load Combinations for Reinforced Concrete and Masonry Structures

1. $1.4D$
2. $1.4D + 1.7L$
3. $1.4D + 1.4S$
4. $0.9D + 1.3(W \text{ or } 1.1E)$
5. $0.9D + 1.7(H \text{ or } F)$
6. $1.4D + 1.7L + 1.7(H \text{ or } F)$
7. $0.75[1.4D + 1.4S + 1.7L]$
8. $0.75[1.4D + 1.4S + 1.7(W \text{ or } 1.1E)]$
9. $0.75[1.4D + 1.7L + 1.7W]$
10. $0.75[1.4D + 1.7L + 1.7(H \text{ or } F) + 1.7(W \text{ or } 1.1E)]$
11. $0.75[1.4D + 1.4S + 1.7L + 1.7(H \text{ or } F) + 1.7(W \text{ or } 1.1E)]$
12. $1.4(D+L+E)$

Analysis Input Data:

Concrete Strength, F'c	3500 Psi
Rebar Strength, Fy	60Ksi
Wind Speed	133 Mph, According to BNBC 2006
Earthquake Zone	Zone= 2, According to BNBC 2006

Design strength 3500 psi is considered in design report for material specification. Six sets of concrete cylinder test report for Extension Building - 2: One set from column, one set from foundation and four sets from slabs were available. Therefore, the available sets of test reports do not meet the requirement for frequency of cylinder test report for any structural member as per BNBC.



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DEPARTMENT OF CIVIL ENGINEERING

CONCRETE LABORATORY

BRTC No. : 1102-04014 /18-19/CE; Dt: 1/1/2020

Sent by : Md. Rashiduzzaman (Asst. Manager: Civil), Envoy Garments Ltd

Ref. No. : Letter Dt: 29/12/2019

Project : 3 storied industrial building 3rd phase- C3 (Grid no. 02B) at new building

Sample : Cylinder (Mix proportion as quoted): 1:1.5:3.0, Aggregate Type: Stone chips

Location : 1st floor slab

Test : Compressive Strength (ASTM C39)

Date of Test : 1/1/2020

TEST REPORT

Sl. No.	Date of Casting as per the Letter	Specimen Designation / Frig Mark	Specimen Area	Maximum Load	Crushing Strength	Average Crushing Strength	Mode of Failure
			(sq. in)	(lb)	(psi)		
1	1/12/2019	-	12.67	79,326	6,262	6340 psi	Combined *
2	(21 days test)	-	12.65	82,566	6,526	(43.7 MPa)	Combined *
3		-	12.52	81,514	6,509	(449 kg/cm²)	Combined *

Notes: Samples were received in sealed condition. * Combined = Mortar and Aggregate failure.

Countersigned by:

Dr. Md. Abdul Jalil
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Test Performed by:

Dr. Md. Golam Hossain
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Cylinder test report (Extended building-2)

Observations: Extended Building-2

Priority Actions

Problems Observed

Extended Building-1:

Item-01: Design report needs to be reviewed

Extended Building-2:

Item-02: Design report needs to be reviewed

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Design report needs to be revised. (Extended Building-1)	Building engineer to update the design document including a design report, and a set of structural drawings in compliance with section 1.9.1 (Part-6, BNBC-2006).	6-weeks
02	Design report needs to be revised. (Extended Building-1)	Complete implementation of any remedial works deemed necessary by the Design Report.	6-months
03	Design report needs to be revised. (Extended Building-2)	Building engineer to update the design document including a design report, and a set of structural drawings in compliance with section 1.9.1 (Part-6, BNBC-2006).	6-weeks
04	Design report needs to be revised. (Extended Building-2)	Complete implementation of any remedial works deemed necessary by the Design Report.	6-months