

# Tarasima Apparels Limited (Extension)

Vill: Golora, P/O:Kaitta, Saturaia,Manikganj

(23.905917, 90.052222)

1 April 2024



## 1. Building Information:

Building-G:	Single-storied steel shed.
Building-H:	Two-storied (G+1) RC building.
Building-J:	Three-storied (G+2) RC building.
Building-K:	Single-storied steel shed.
Thermo Oil Heater Room:	Single-storied RC building.

## 2. Observations:

### Observation 1: Lack of information in design documents. (Building-G)



Design Project:	CANTEEN SHED	Doc. No.:	
Contractor:	MOHAMMAD SIDDIQI LTD	Rev.:	0.01
Title:	REPORT OF CANTEEN SHED	Date:	10/12/2018

**REPORT ON STRUCTURAL DESIGN  
OF CANTEEN SHED  
AT MANKGANJ.**

Originated by:	Reviewed by:	Approved by:
Engr. Edris Ali	Engr. Edris Ali	Engr. Nazim Islam

November, 2018

Owner: Taramita Appahs  
10/12/2018

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**Description:** A design report was available for the Building G. The adequacy of steel member connection and serviceability check was not incorporated in the design report.

The building engineer is required to incorporate an adequacy check of steel member connections and a serviceability check in the design report and submit it to the RSC for review.

### Observation 2: Inconsistencies in design report. (Building-J)

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

www.catsmist.com

**Compressive Strength of Concrete Cylinders**

General Information		Date:	08.12.2019
CATS Reference:	2376214421219		
Client:	Taramita Appahs Ltd.		
Name of the Project:	Four Storey New Chemical Store Building		
Sample Brought By:	Engr. Mohammad Masrar El Hasan		
Test Method:	ASTM C 39C-30M		
Type of Sample:	Concrete Cylinders	Date of Receiving:	28.11.19
Mixture Proportion:	1:1.5:3	Sample Condition:	Unstressed
Location of Sample:	Phase one Level 1 Column	Admixtures:	Not Mentioned
Date of Casting:	08.12.19	Design Strength:	3500 psi
Date of Crushing:	10.12.19	Type of Cement:	Not Mentioned
Age in days:	54 days	Brand of Cement:	Not Mentioned
Curing in days:	Not Mentioned	Type of Aggregate:	Stone chips

Sl. No.	Sample Mark	Length (mm)	Diameter (mm)	Crushing Load (kN)	Crushing Strength (MPa)	Average Strength (MPa)	Failure Type	Failure Type
1		203	102.0	201.7	35.7		Combined	Crack and Shear
2		200	100.0	201.9	35.7	35.7	Combined	Crack and Shear
3		202	100.0	186.9	32.4		Combined	Crack and Shear

**Remarks:**

- All information displayed above the table are provided by the client. CATS-MIST could not verify any of them.
- Samples are received in unstressed condition without signatures from the competent authority. Therefore, authenticity of these samples and their history could not be verified.
- The variation in strength of the sample-3 is found to be more than the acceptable range. As per ASTM C39, if one result within the three determinations varies by more than ± 10.2 % from the average of the three, this result has to be discarded and calculate the average of the two remaining results. So, sample-3 is discarded from average calculation.

Test Supervised By: *Jawad Hashim*  
Engr. Jawad Hashim  
Lab. In-Charge  
MIST, CATS-DHAKA

Countersigned By: *Dr. M. Javed Hossain*  
Dr. M. Javed Hossain  
Principal  
Engr. in-charge (Structuring)  
MIST, CATS-DHAKA

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 used in excess and tested separately before use under the supervision of the competent authority to make its final determination of test results. It is also recommended that all test reports are collected by fully authorized person and not by the contractor/submitter himself. This test report can be re-validated/changed only after the written permission of the client.

Tel: +88-02-8000345, Cell: 01769-023904, Web: www.mist.ac.bd, cats.mist@gmail.com

#### Material used:

Concrete: 1:1.5:3 Concrete with Stone chip.  $f_c = 3500$  psi

Steel: 60 grade steel.  $f_y = 60000$  psi

#### 5.12.2 Frequency of Testing

5.12.2.1 Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 60 m<sup>3</sup> of concrete, nor less than once for each 250 m<sup>2</sup> surface area for slabs or walls.

5.12.2.2 On a given project, if the total volume of concrete is such that frequency of testing required by Sec 5.12.2.1 above would provide less than three strength tests for a given class of concrete, tests shall be made from at least three randomly selected batches or from each batch if three or fewer batches are used.

5.12.2.3 When the total quantity of a given class of concrete is less than 20 m<sup>3</sup>, strength tests are not required when evidence of satisfactory strength is submitted to and approved by the Engineer.

5.12.2.4 A strength test shall be the average of the strengths of at least two 150 mm by 300 mm cylinders or at least three 100 mm by 200 mm cylinders made from the same sample of concrete and tested at 28 days or at test age designated for determination of  $f'_c$ .

**Description:** The number of concrete cylinder test reports didn't meet BNBC's frequency of testing requirement (section 5.12.2). The building engineer is required to verify in-situ concrete strength to confirm the design strength of 3500 psi.

**Seismic load:**

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 common 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 of geological scale. Therefore, it is necessary to prepare against any possible earthquake hazard. It should be kept in mind that the objective of earthquake resistance building design is not to make a strong building, which can resist any damage due to earthquake. Instead, earthquake resistant design aims at minimizing the possible damage and casualty to an acceptable level.

Regarding the earthquake resistant structural design, it is essential that the specific design code is followed. For the analysis and design checking of this building, Equivalent Static Force Method of BNBC 92006) has followed. The main considerations for calculation of earthquake load are given below.

Zone: 2

Zone coefficient,  $Z = 0.15$

Structural importance factor,  $I = 1.25$

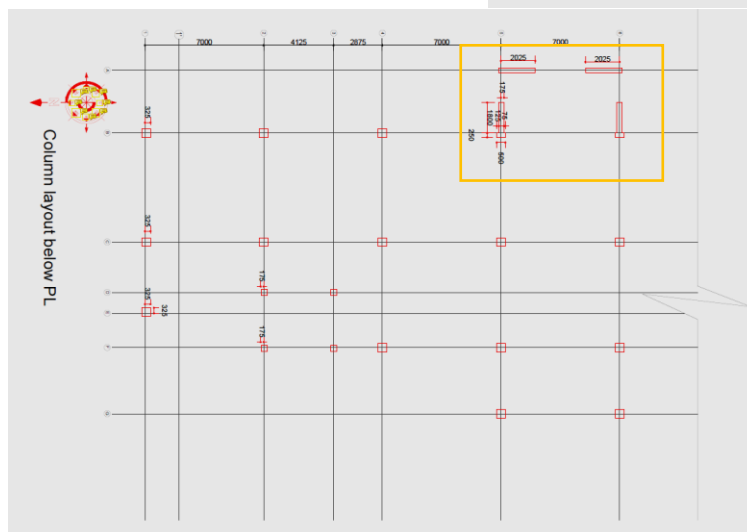
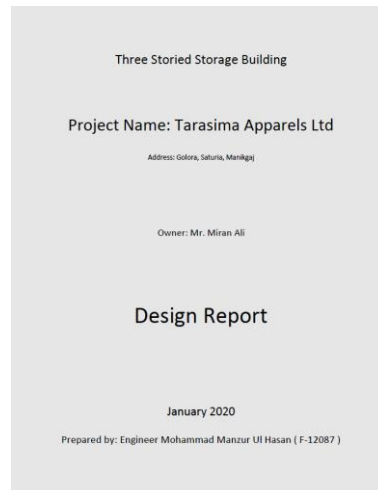
Response modification coefficient,  $R = 8$

$C_e = 0.073$ ,  $h_w = 20$  m

$C = 1.25 * S / T^{0.3}$ ,  $S = 1.5$ ,  $T = C_e(h_w)^{0.4} = 0.69$

Basic shear,  $V = ZICW/R$

**Description:** Response modification co-efficient, R-value considered as 8 for IMRF, but no calculation/justification is provided for the consideration.



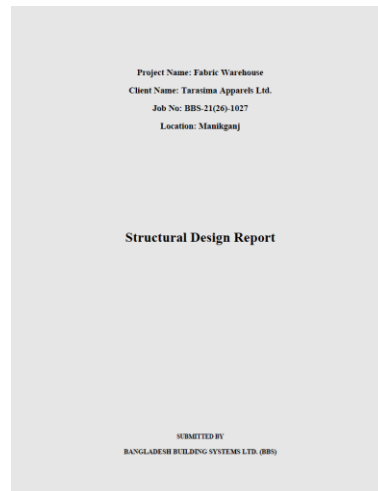
**Description:** The adequacy of the RC wall at the south stair cores was not incorporated in the provided design report. The building engineer is required to incorporate all types of adequacy checks in the design report and submit to the RSC for review.

**Observation 3:** Corrosion on exposed rebar. (Building-J)



**Description:** Corrosion was observed on the exposed rebar. The building engineer is required to remove rust and apply anti-corrosive paint on exposed rebars.

**Observation 4:** Lack of information in design documents. (Building-K)



**Description:** A design report was available for Building K. However, the report did not incorporate the adequacy of steel member connections.

The building engineer is required to incorporate an adequacy check of steel member connections into the design report and submit it to the RSC for review.

### 3. Action Plan:

Observation	Action Plan	Timeline
Lack of information in design documents. (Building-G)	Building engineer is required to incorporate an adequacy check of steel member connections and a serviceability check in the design report and submit it to the RSC for review.	within 6 weeks
	Carry out the suggested remedial works.	within 6 months
Inconsistencies in design report. (Building-J)	Verify in-situ concrete strength either by 100 mm diameter cores or existing credible cylinder test reports.	within 6 weeks
	The building engineer is required to address the inconsistencies in the design report and submit revised design documents to RSC to complete the review. Incorporate all types of adequacies checks in the design report.	within 6 weeks
	Carry out suggested remedial works if required.	within 6 months
Corrosion on exposed rebar. (Building-J)	The building engineer is required to remove rust and apply anti-corrosive paint on exposed rebars.	within 6 weeks
Lack of information in design documents. (Building-K)	Building engineer is required to incorporate an adequacy check of steel member connections into the design report and submit it to the RSC for review.	within 6 weeks
	Carry out the suggested remedial works.	within 6 months