

KM Nobely Garments Ltd.

Zorun, Konabari Gazipur-1702.

(24.000190N, 90.323820E)

21st December 2020



Buildings Information

1. Production Building (G+4)
2. Production Shed (G+1)
3. Utility Building (single storied)

Observations

**Design report not fully comply as per BNBC.
(Production Building)**

BRTC No. : 1100-82731 /14-15/CE; Dt: 28/3/2015
 Client : Managing Director, Build Raw
 Ref. No. : BUILD RAW/BUET/KM NOBELYCore Test/B01-04, Dt: 24/3/2015
 Project : 2 Storey Factory Building for KM Nobely Ltd.
 Sample : Concrete Cylindrical Core (Mix proportions quoted) Aggregate Type: (brick chips)
 Year of construction : 2005-2006 Date of Sample collection (as per letter) : 20/3/2015
 Test : Compressive Strength of Concrete Cylindrical Core [ASTM C 42/C 42M]
 Date of Test : 6/4/2015

TEST REPORT

Sl. No.	Location (as per Letter)	Sample Identification	Length of Sample	Diameter of Sample	Average Gross Sectional Area	Ultimate Load	Crushing strength	Type of Failure
			in	in	sq. in	lb		
1	Ground Floor Column	S1	5.2	2.86	5.31	15,458	2910 psi (20.1 MPa)	Combined
2	1st Floor Column	S2	5.2	2.86	5.31	12,513	2360 psi (16.3 MPa)	Combined
3	1st Floor Column	S3	5.2	2.86	5.31	13,083	2470 psi (17 MPa)	Combined
4	2nd Floor Slab	S4	4.5	2.86	5.31	13,953	2570 psi (17.7 MPa)	Combined

Note: As per standard ASTM C42, the diameter of core specimens for the determination of compressive strength shall be at least 3.70 in. or at least two times the nominal maximum size of the coarse aggregate, whichever is larger. If limited member thickness makes it impossible to obtain cores with length-diameter ratio of at least 1.0 or if clear distance between reinforcement is limited, core diameters less than 3.70 in. are not prohibited.

Note: Core Samples were supplied to BUET for testing.

Comment: Please compare the results with your corresponding design values and Consult with your design engineer.

Countersigned by:

Signature

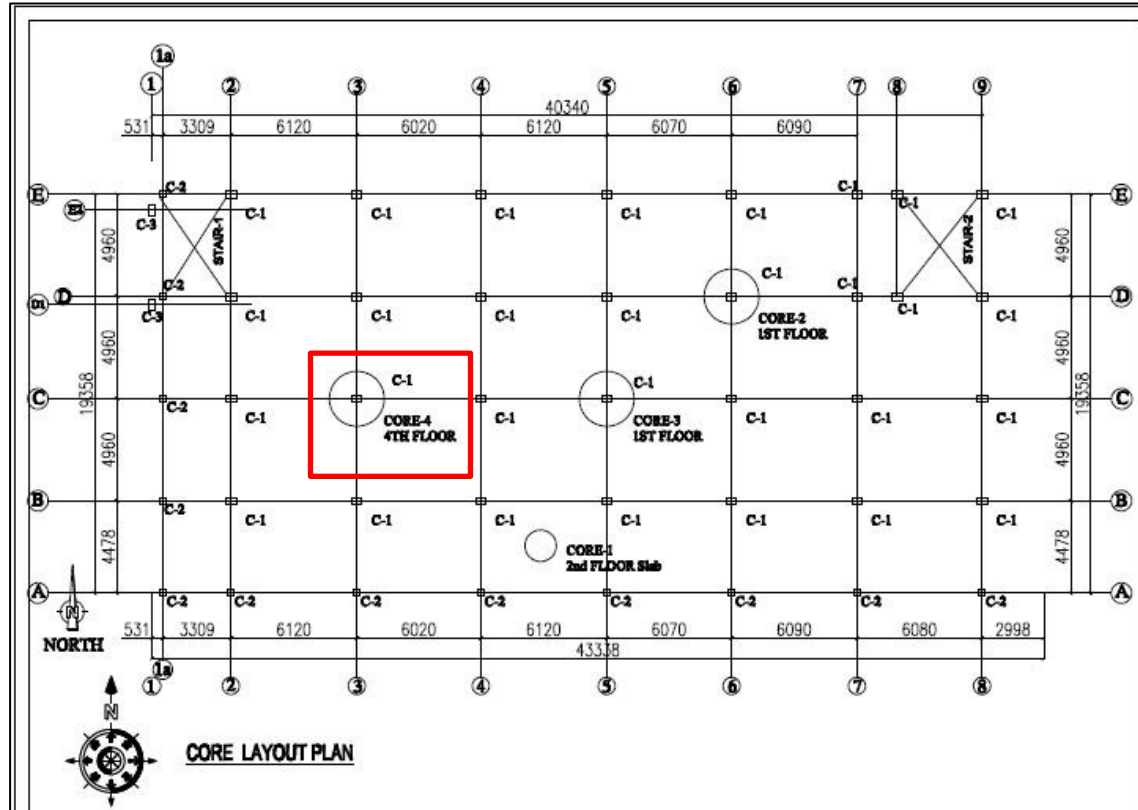


Test Performed by

Dr. Md. Mafzur Rahman
 Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh

Warning: Samples are supplied to us to 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/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 01 of 01



Core layout plan

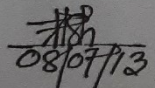
Total four number of concrete core samples are taken, three samples taken from column & one sample taken from slab. As per core layout plan one core sample was taken from the 4th floor column which is actually constructed for encasing the steel column for fire protection. Factory engineer is required to take minimum number of core samples from columns to evaluate concrete strength.

5 Observations: Production Building

9. DISCUSSION AND FINDINGS:

From the enclosed collected data and findings following conclusion may be made for the Proposed 06 (Six) Storied Industrial Building at S. A Dag No- 676, R. S Dag- 1347, S. A Khatian No- 3, 4 & 26, R. S Khatian No- 15, 16 & 12, J. I No- 50, Mouza- Mirpur, Jorun, Konabari, Gazipur,.

- 9.1. Considering attached field & laboratory data the net allowable bearing capacity of soil for square footing is 1.50 Tsf at the depth 8'-6" below the existing ground level.
- 9.2. The average bearing capacity of different diameter of Cast in Situ R.C.C pile considering embedded length 50'-0" below from EGL of each pile may be calculated as follows:
- a. 42 Ton for 18" Dia Pile
 - b. 50 Ton for 20" Dia Pile
- 9.3. i. Any other alternate type of foundation or depth may be chosen by the Design Engineer by considering the actual type & use of the proposed structure in light of provided data in this report.
- ii. Pile load test should be performed to confirm the calculated load.


08/07/13
Engr. Manoj Kumar Singh
In Charge, Geotechnical M.E.
Mouza No. 50, 1973

Foundation adequacy check-after retrofitting:

Allowable bearing capacity of soil = 11.6 ksf (FS=3)

Allowable bearing capacity (11.6 ksf) considered in the design report

Allowable bearing capacity considered in the design report does not match with the recommendation of geotechnical investigation report. No calculation is provided regarding the considered value.

Recommendation of geotechnical investigation report (Allowable bearing capacity 1.5 Tsf)



Overall stability of 3rd & 4th floor achieved by the frame action (Main beam in long direction, Sub-beam in short direction) & vertical bracings.



The connection of the frame could not be confirmed due to the RC encasement. Building engineer is required to check the connection type & requirement of any additional features. Serviceability and stability check in the design report is required to comply with BNBC.

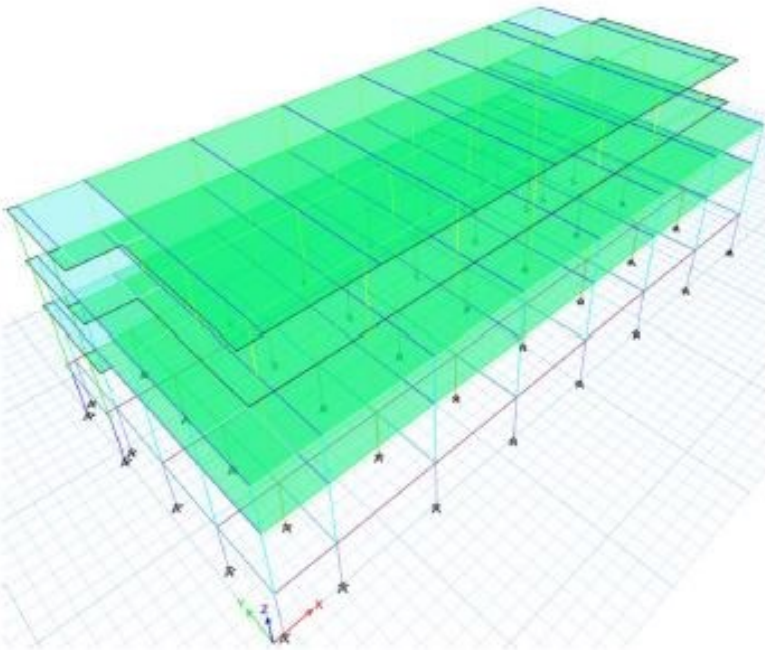
Detailed Engineering Assessment Report

FOR

EXISTING 5 (5) STORIED COMPOSITE BUILDING FOR KM
NOBELY GARMENTS LTD AT ZORUN KONA BARI, GAZIPUR

NAME OF THE CLIENT

KM NOBELY GARMENTS LTD.



PREPARED BY

Z2 CONSULTANCY SOLUTIONS
BOAD BAZAR, GAZIPUR SADAR, GAZIPUR

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 as per BNBC. During the inspection, the prepared design report has not compliance with section 1.9.1.1(part-6, BNBC) which is mentioned in previous slide.

**Apparently inadequate connection of steel cladding.
(Production Building)**



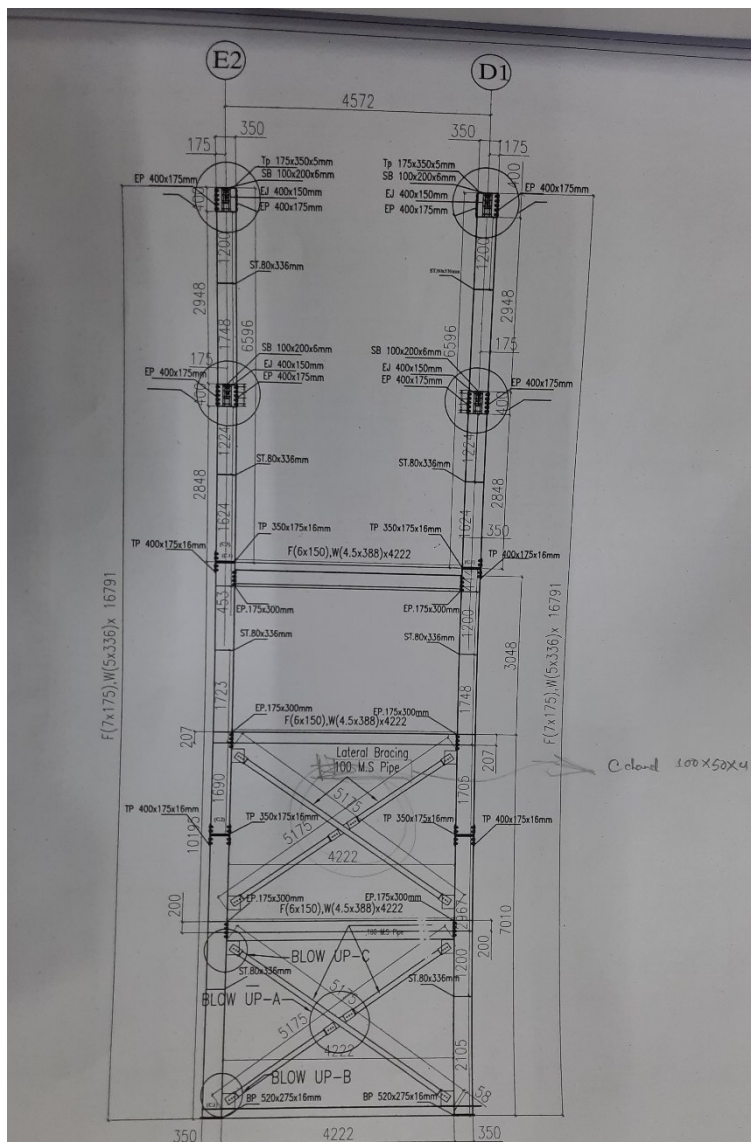
Apparently poor connection in the steel cladding system. Building engineer is required to check the connection adequacy against the wind loading.

**Apparently partial rigidity in the frame connection.
(Production Shed)**



Partially fixed connection was observed at beams and column joint connected by bolts. Apparently partial moment resisting frame action may govern that can affect the stability. Building engineer is required to review the connection adequacy and overall stability system in the design report.

**Inconsistency in the drawings.
(Production Building & Shed)**

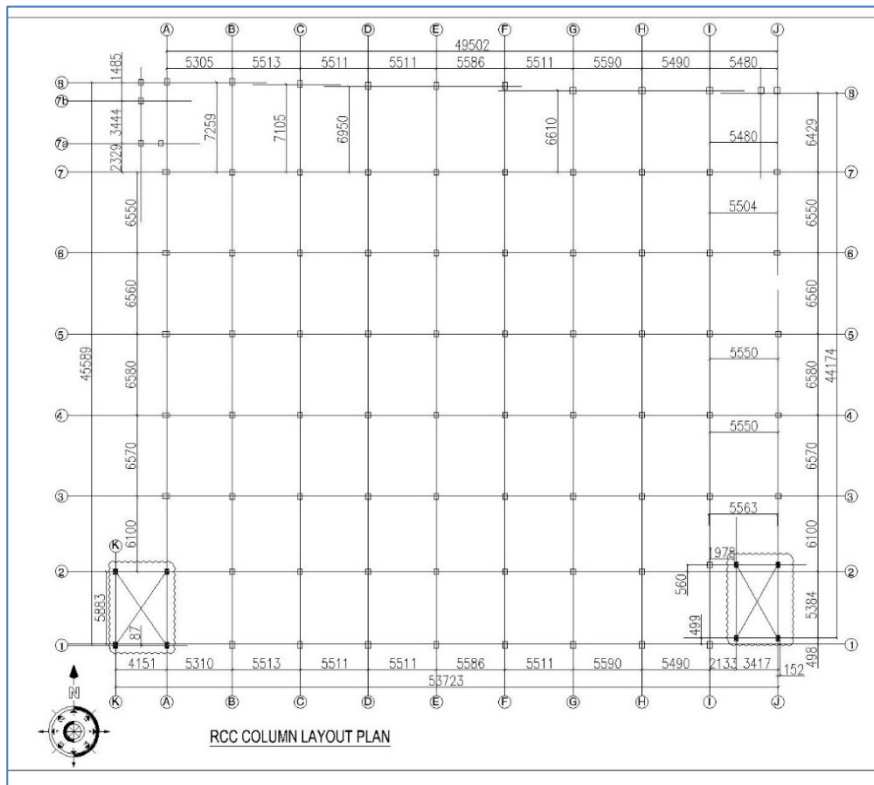


Bracing elevation on drawing



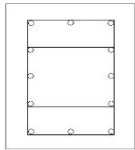
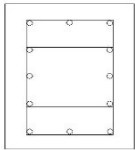
Bracing elevation on site

100 mm diameter pipe bracing shown on drawing, onsite C channel of 100 mm X 50 mm X 4 mm bracing was found.

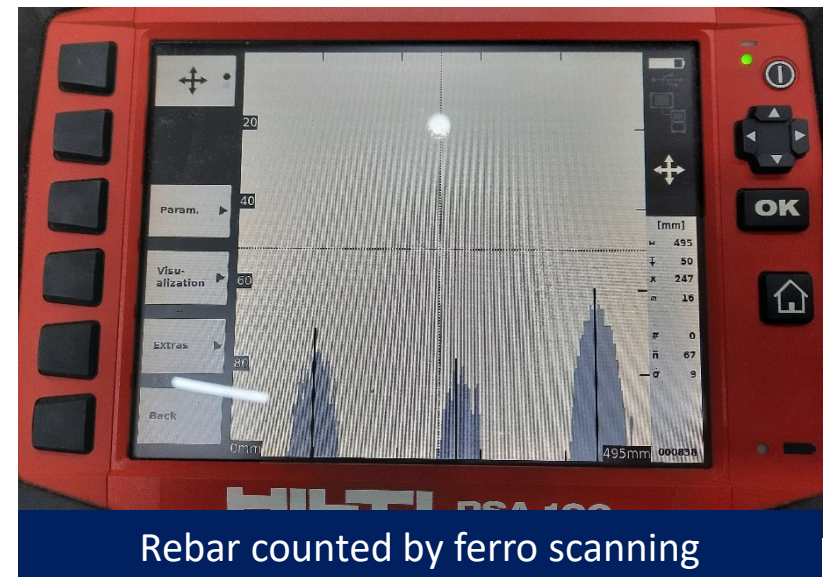


RC column layout plan

As-built drawing shows 12 number of rebars in the C5 column. But on site 8 number of rebars were counted by ferro scanning.

	Bellow Gr. Floor	Gr.Floor
C-5	 380x530 8-20 mm dia rod 4-16 mm dia rod	 304x457 8-20 mm dia rod 4-16 mm dia rod

RC column Schedule



Priority Actions

Problems Observed

- 1: Design report not fully comply as per BNBC. (Production Building)
- 2: Apparently inadequate connection of steel cladding. (Production Building)
- 3: Apparently partial rigidity in the frame connection . (Production Shed)
- 4: Inconsistency in the drawings. (Production Building & Shed)

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Design report not fully comply as per BNBC. (Production Building)	Building Engineer to prepare design report as per BNBC (part-6; Article 1.9.1) by reviewing design, loads and capacity of structural members.	6-weeks
02	Design report not fully comply as per BNBC. (Production Building)	Verify in situ concrete strength by taken 100 mm diameter cores (minimum 4 nos.) from lower tier columns.	6-weeks
03	Design report not fully comply as per BNBC. (Production Building)	Building engineer is required to check the connection type & requirement of any additional features.	6-weeks
04	Design report not fully comply as per BNBC. (Production Building)	Complete implementation of any remedial works deemed necessary by the Design Report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Design report not fully comply as per BNBC. (Production Building)	Continue to implement floor loading plan.	6-months
06	Apparently inadequate connection of steel cladding. (Production Building)	Building engineer is required to check the connection adequacy against the wind loading.	6-weeks
07	Apparently inadequate connection of steel cladding. (Production Building)	Complete implementation of any remedial works where necessary.	6-months
08	Apparently partial rigidity in the frame connection. (Production Shed)	Building engineer is required to review the connection adequacy and overall stability system in the design report.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Apparently partial rigidity in the frame connection. (Production Shed)	Building Engineer to prepare design report as per BNBC (part-6; Article 1.9.1) by reviewing design, loads and capacity of structural members.	6-weeks
10	Apparently partial rigidity in the frame connection. (Production Shed)	Carryout remedial works where necessary.	6-months
11	Inconsistency in the drawings. (Production Building & Shed)	Building engineer is required to survey the both structures and prepared as constructed drawings.	6-weeks