Category
Yellow

Muazuddin Textile Ltd. (Sheds)

235/236, EAST CHANDURA, SHOFIPUR, KALIAKOR, GAZIPUR.
(24.033294N, 90.271834E)
16 November 2021

RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

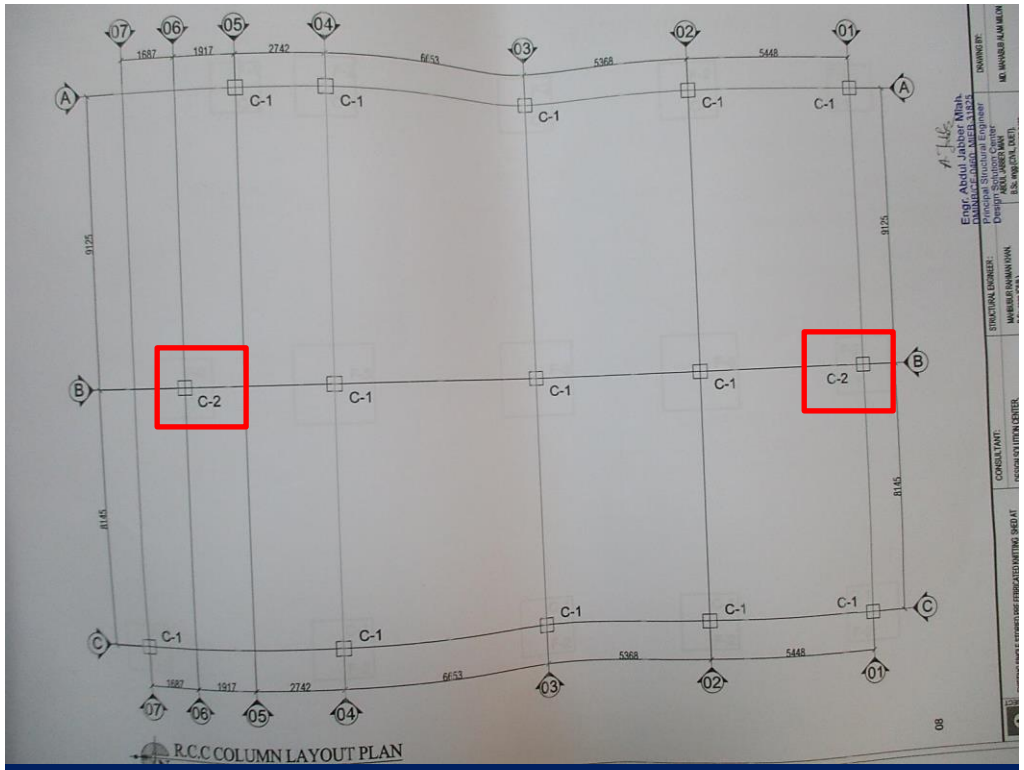
New Knitting Shed (Shed-9): Single storied prefabricated steel shed.

Tamble Shed: Single storied lightweight steel shed.

Observations

Discrepancy in as-built drawings

Observation: New Knitting Shed (Shed-9)



RC Column layout plan

RCC COLUMN SCHEDULE

	SIZE(mm)(WXH)	DETAILS (UP TO PL)
C-1	450X 450	10-16 mm Ø
C-2	450X 450	14-16 mm Ø

Column schedule

RC slab extension for roof drainage

C2 type columns are shown in RC column layout plan and in the column schedule. During inspection, all columns were found C1 type. Though all columns are shown as C1 in construction drawing. And RC slab extension was observed at the eave of the shed which was not mentioned in the drawing.
Building engineer to survey the structure and prepare accurate as-built drawings accordingly.

Observation: New Knitting Shed (Shed-9)

Lack of lateral stability system

Observation: New Knitting Shed (Shed-9)

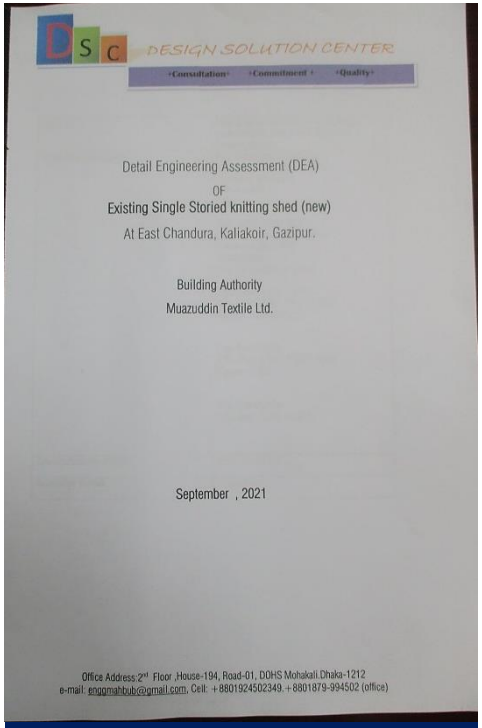
Absence of roof bracing & lateral load transfer media along ridge

Lack of lateral stability system observed at the roof of the shed. Building engineer is required to check the lateral stability of the structure and suggest proper remedial actions accordingly.

Observation: New Knitting Shed (Shed-9)

DEA report needs to be reviewed

Observation: New Knitting Shed (Shed-9)


DESIGN SOLUTION CENTER

Detail Engineering Assessment (DEA)
OF
Existing Single Storied knitting shed (new)
At East Chandura, Kaliakoir, Gazipur.

Building Authority
Muazuddin Textile Ltd.

September , 2021

Office Address:2nd Floor ,House-194, Road-01, DOHS Mohakali,Dhaka-1212
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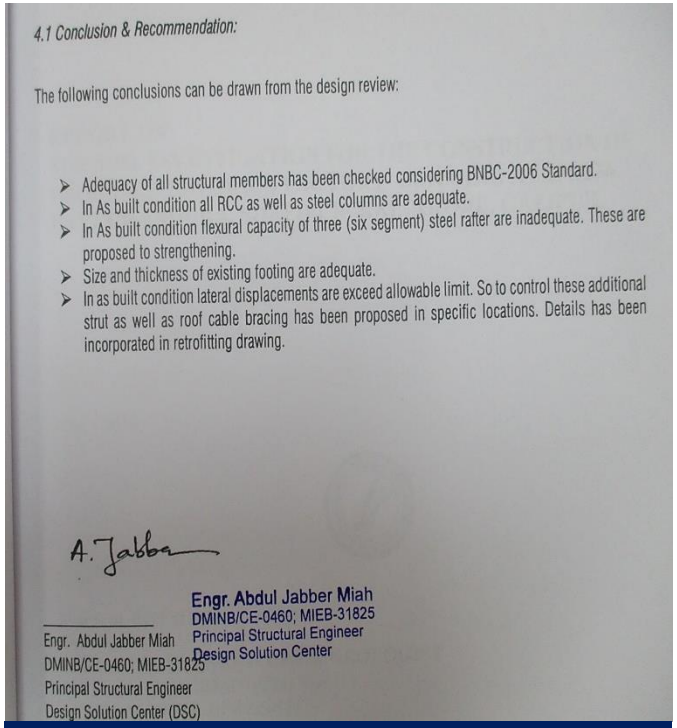
DEA report


4.1 Conclusion & Recommendation:

The following conclusions can be drawn from the design review:

- Adequacy of all structural members has been checked considering BNBC-2006 Standard.
- In As built condition all RCC as well as steel columns are adequate.
- In As built condition flexural capacity of three (six segment) steel rafter are inadequate. These are proposed to strengthening.
- Size and thickness of existing footing are adequate.
- In as built condition lateral displacements are exceed allowable limit. So to control these additional strut as well as roof cable bracing has been proposed in specific locations. Details has been incorporated in retrofitting drawing.

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DEA recommendations

Table 2.1: Strengths of concrete and steel reinforcement

Material property	Value (psi)
Average concrete compressive strength for column, beam and footing	3000
Yield strength of steel reinforcements, f_y	60,000
Yield strength of steel plate, f_y	36,000

Concrete strength, f'c=3000 psi (20.7 MPa) in DEA report

Design Base Shear, V=ZICW/R (Ref. S

Where,

Z (Seismic Zone coefficient factor)=0.15
I (Importance factor)=1.0
C=Numerical Co-efficient,
R (Response Modification factor fo)=6

R=6 considered, where the structure has RC beam-column frame below steel portal roof.

20.7 MPa concrete strength considered in the Detail Engineering Assessment (DEA) without any test report. Seismic design parameter (R) for RC frame not considered in the DEA & uplift check for steel base plate connection not incorporated in the report. Also, there are some discrepancies in the as-built drawings. However, the building engineer is required to revise the DEA report & retrofitting scheme based on as-built drawings, in-situ material strength and current building code.

2.3 Code and Standard

- Bangladesh National Building Code (BNBC), 2006
- Building Code Requirements for Reinforced Concrete (ACI 318-99)
- American Society for Testing & Materials (ASTM)

Building code: BNBC 2006

Observation: New Knitting Shed (Shed-9)

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Apparently non-engineered structure

Observation: Tumble Shed

Poor and non-engineered connection

Multiple roof systems

Poor connections, inadequate members and multiple & irregular roof framing systems were observed on-site. Therefore, the roof system seems to be non-engineered.

Inadequate members

Observation: Tumble Shed

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Problems Observed

New Knitting Shed (Shed-9):

Item-01: Discrepancy in as-built drawings.

Item-02: Lack of lateral stability system.

Item-03: DEA report needs to be reviewed.

Tumble Shed:

Item-04: Apparently non-engineered structure.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Discrepancy in as-built drawings. (New Knitting Shed, Shed-9)	The building engineer is required to survey the structural components and produce accurate as-built structural details.	6-weeks
02	Lack of lateral stability system. (New Knitting Shed, Shed-9)	Building engineer is required to check the lateral stability of the structure and suggest proper remedial actions accordingly	6-weeks
03	Lack of lateral stability system. (New Knitting Shed, Shed-9)	Carry out remedial works suggested by the engineer.	6-months
04	DEA report needs to be reviewed. (New Knitting Shed, Shed-9)	Building engineer is required to revise the DEA report & retrofitting scheme based on accurate as-built drawings, in-situ material strength and applicable building code.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Discrepancy in as-built drawings. (New Knitting Shed, Shed-9)	Carry out remedial works suggested by the engineer.	6-weeks
06	Apparently non-engineered structure. (Tumble Shed)	Building engineer to survey the structure, check the roof system, connections, member adequacy and suggest required actions.	6-weeks
07	Apparently non-engineered structure. (Tumble Shed)	Implement the actions suggested by the engineer.	6-months