

MAMUN KNITWEAR LTD.

AMBAGH ROAD, KONABARI, NILNAGAR, GAZIPUR-1700, BANGLADESH.
(24.014711, 90.320712)

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Building information

Building 11 (Mamun Knit): is a seven storied (G+6) reinforced concrete (RC) building.

Observations

**“Detailed Engineering Assessment Report” needs to
be updated**

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No sway & drift check provided in the DEA report

Sway & drift check was not provided in "Detailed Engineering Assessment Report". Building engineer is required to revise the report for sway and drift.

EXECUTIVE SUMMARY

The factory building-11 of MAMUN KNITWEAR LTD. is a Seven-storied RCC Building located at AMBAGH ROAD, KONABARI, NILNAGAR, GAZIPUR, BANGLADSH.

The structural and architectural drawings were verified by Ferro-scanning, dimensions measurement, plaster removing, foundation explorations etc. There are few changes in as-built condition with the provided architectural drawings which has been incorporated during DEA.

For Detailed Engineering Assessment one of the key inputs is the concrete strength. Six cores from different locations of columns and pile caps (3 from columns and 3 from pile caps), eight cores from different locations of beams and slabs have been collected to test the concrete compressive strength. These cores have been sent and tested in BUET lab by UTM (universal testing machine) to find its compressive strengths. It has been found that Stone chips were used for cores of columns (upto 5th Floor) and Brick chips for beam and slabs. Equivalent concrete strength (As per ACI-562) for column (up to 5th floor) is 2473.16 psi; for beam and slab is 2405.01 psi.

Brick chips is found columns from 5th floor to above. Therefore, four more cores have been collected from different locations of the columns (above 5th floor). Equivalent concrete strength (As per ACI-562) is 2255.34 psi.

As per the rebar test report we are considering yield strength of reinforcement bar 72.5 ksi.

For truss shed on roof floor, minimum recommended yield strength of steel 36 ksi is considered as no plate test report was available.



Brick chip on 6th floor

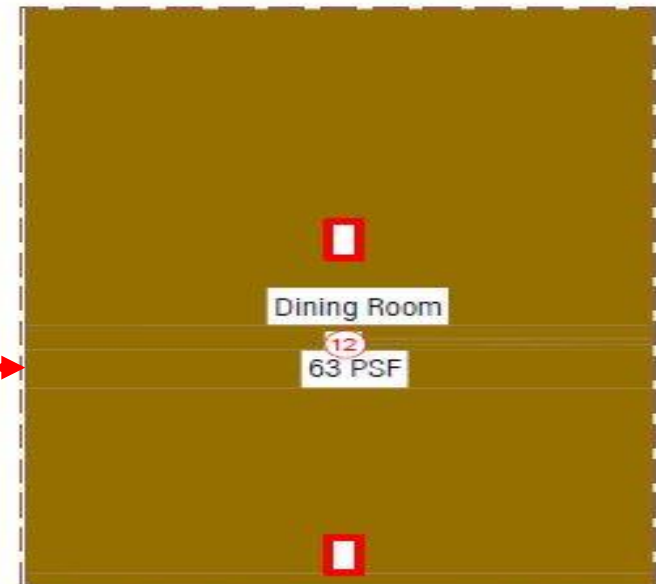
Summary of DEA report

As per “Detailed Engineering Assessment Report” four concrete cores were taken from above fifth floor and brick chip was found in column at sixth floor. During inspection, neither any core sample nor test report was available on site for those cores. Building engineer is required to investigate the issue and clarify accordingly. However, consider all test results in the DEA report.

Undesignated storage on 6th floor



Live load plan- 6th floor



Dining (Live load considered 3 kPa)



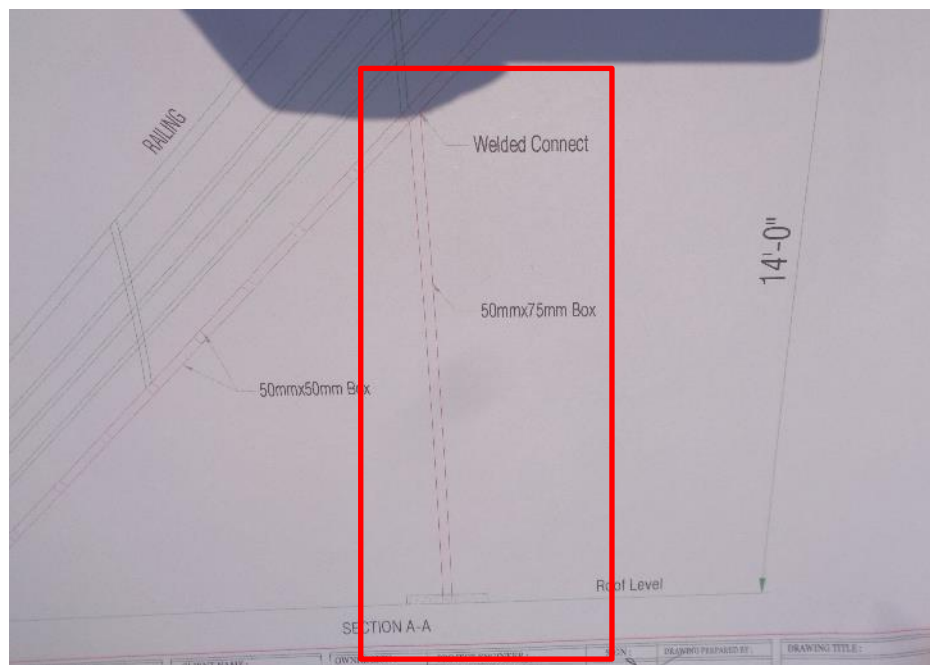
Storage on 6th floor

INDUSTRIAL, STORAGE & HAZARDOUS (Occupancy - G, H & I)			
Workshop, factory, warehouse	1 Light workroom without storage	3.0	2.7
	2 Machinery hall & circulation area	4.0	4.5
	3 Factory, workshop etc.	5.0	4.5
	4 Manufacturing : light	6.0	4.5
	heavy	12.0	9.0 ^(S)
	ice	15.0	9.0 ^(S)
	5 Printing plant :		
	Press room	7.0	11.0 ^(S)
	Composing and linotype room	5.0	9.0 ^(S)
	Paper storage room	12.0	9.0 ^(S)
	6 Motor room, fan room etc. including the weight of machinery	7.5	4.5
	7 Cold storage, grain storage	15.0	9.0 ^(S)
	8 Storage warehouses : light	6.0	4.5
	heavy	12.0	9.0
	9 Foundries	20.0	12.0

Live load table (BNBC part-6)

Storage on 6th floor was found instead of dining. As per BNBC-Part 6, live load for light storage areas is required to be considered minimum 6 kPa. However, the building engineer is required to revise the load plan as per BNBC requirement and check the design accordingly.

Discrepancy in as-built drawing



Support of ladder shown as 50mmX75mm box



Support of ladder found as 20mmX20mm box

Support of steel stair found as 20mmX20mm box instead of 50mmX75mm box. Building engineer is required to update the as-built drawing.

Cracks on roof beam



Hairline crack on beam under roof

Cracks were observed on roof beams. Building engineer is required to check the cracks and carry out suitable repair work.

Low height of parapet/wall



Low parapet height (700mm) at roof level



Low wall height (700mm) at front edge

Low parapet/wall height (700mm) was found at floor & roof level which may cause falling hazard. Factory is required to increase the parapet/wall height to prevent possible falling hazard in future.

Possible vehicle impact for column



No barrier provided for columns at ground floor

Columns at ground floor are prone to possible vehicle impact. Factory is required to provide barrier around the columns at ground floor to prevent from possible vehicle impact.

Problems Observed

Building 11:

Item 1: “Detailed Engineering Assessment Report” needs to be updated

Item 2: Undesignated storage on 6th floor

Item 3: Discrepancy in as-built drawing

Item 4: Cracks on roof beam

Item 5: Low height of parapet/wall

Item 6: Possible vehicle impact for column

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	“Detailed Engineering Assessment Report” needs to be updated (Building 11)	Building engineer is required to update the “Detailed Engineering Assessment Report” by including all irregularities/serviceability checks.	6-weeks
02	“Detailed Engineering Assessment Report” needs to be updated (Building 11)	Building engineer is required to investigate the missing 6th floor concrete cores & reports and include all the test results in the DEA report.	6-weeks
03	“Detailed Engineering Assessment Report” needs to be updated (Building 11)	Carry out the remedial works if required.	6-months
04	Undesignated storage on 6th floor (Building 11)	The building engineer is required to revise the load plan as per BNBC requirement and check the design report accordingly.	6-weeks
05	Undesignated storage on 6th floor (Building 11)	Carry out the remedial works if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Discrepancy in as-built drawing (Building 11)	Building engineer is required to update the as-built drawing.	6-weeks
07	Cracks on roof beam (Building 11)	Building engineer is required to check the cracks and carry out suitable repair works.	6-weeks
08	Low height of parapet/wall (Building 11)	Factory is required to increase the parapet/wall height to prevent possible falling hazard.	6-weeks
09	Possible vehicle impact for column (Building 11)	Factory is required to provide barrier around the columns at ground floor to prevent from possible vehicle impact.	6-weeks