

Mastrade Int'l Garments Ltd. (10040)

Plot #72, Bypass Biswa Road, Mogarkhat, Gazipur - 1701, Bangladesh

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Identified Priority 2 Concerns

1st Priority 2 Concern



This new structure has been built on the existing roof

The building was constructed in 2008, with brick aggregate, and a total of 6 storeys. There is a significant change of the original building at the roof level. It is now covered by a steel framed roof on the steel purlins and beams and supported by concrete columns. The original concrete roof floor is used to support offices, a cutting area and storage. Based on the load rundown analysis following the agreed minimum design live load assignment, the columns have been found to possess loading capacity with a reduced factor of safety.

1st Priority 2 Concern (continue)

The typical activities on the original roof



New steel roof



New office



Part of the roof used for storage



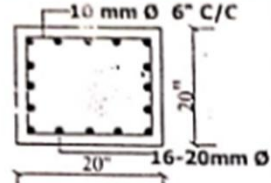
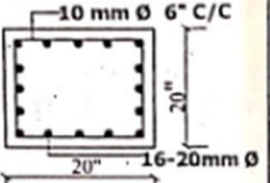
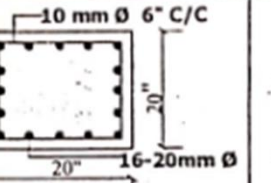
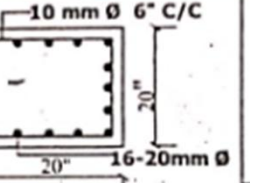
Dining hall

2nd Priority 2 Concern



The as-built columns are smaller than those specified on the design drawings (480x480 vs 510x510)

These columns are supposed to be 510x510mm as per design

COLUMN SIZE & BAR SCHEDULE					
COLUMN S.L NO	BELOW G.F	G.F & 1ST	2ND & 3RD FLOOR	4TH FLOOR	5TH FLOOR
C 1	COL . SIZE 22"X22"				

Identified Priority 3 Concerns

1st Priority 3 Concern



The slab is cantilevered out from the perimeter columns on the north and south sides. This is not documented on any structural drawing.

2nd Priority 3 Concern



There are signs of water penetration at the underside of level 5. It could be the water from toilet on level 5. The reinforcement in this area of the concrete could have already started to corrode. This could potentially lead to the failure of certain members



Overall Stability System



The building appears to lack a recognisable lateral stability system. The flat slab and concrete columns can not be considered as part of a lateral system without any strengthening column strips.

The slab shows the slab reinforcement as only (10mm and 12mm diameter bars)

We require that these items be investigated in a Detailed Engineering Assessment

Priority Actions

Problems Observed Summary

ITEM 1: (1st Priority 2) All columns have been found to possess loading capacity with reduced factor of safety due to new construction of additional steel roof and some factory activities on the original roof level.

ITEM 2: (2nd Priority 2) Most of as-built columns are smaller than those shown on the design drawings

ITEM 3: (1st Priority 3) The as-built slabs are cantilevered from the edge columns at the north and south sides.

ITEM 4: (2nd Priority 3) There are signs of water penetration at the soffit of level 5

ITEM 5: (3rd Priority 3) Lack of the lateral system to support the building under wind or earthquake seismic loads.

Items 1 & 2 and actions

The new construction of the steel roof and the additional factory activities at roof level mean the columns at ground floor level now have a very much reduced factor of safety.

Priority 1 (Immediate – Now)

- Remove all loading at roof level temporarily.

Priority 2 (within 6 – weeks)

- Carry out a full building survey using both intrusive and non-intrusive techniques
- Carry out concrete strength tests of structural elements to determine concrete strength.
- Building Engineer to fully check the loading capacity, of all components modified on site without any structural approval, to establish whether or not the as-built components are able to sustain the required loading.

Priority 3 (within 6-months)

- Depending on the result of the above; potentially demolish all new construction at roof level.
- Produce and actively manage a loading plan for all floor plates within the factory giving consideration to slab and column capacities.

Item 3 and actions

The as-built slabs do not match with the design drawings; cantilevers have been added on the north and south sides of the building.

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- Carry out all of the same steps as described in Item 1 & 2.

Priority 3 (within 6-months)

- Based on the building survey, develop full up to date structural records, and also propose strengthening works or repair works if the as-built structure appears to be inadequate in any way.

Item 4 and actions

Signs of water penetration on the soffit of level 5

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- Provide propping to the damaged concrete areas (if slab and beam and column)

Priority 3 (within 6-months)

- The building needs to be repaired to prevent any further water penetration which could lead to the corrosion of reinforcement.
- Hack away the damaged concrete and expose reinforcement to check for corrosion.
- Carry out replacement of reinforcement and proper repair of the concrete with a suitable proprietary repair mortar.

Item 5 and actions

The structure lacks a recognisable lateral support system resisting wind or earthquake loads.

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- None required

Priority 3 (within 6-months)

- A full structural analysis must be taken to check compliance with the relevant BNBC building codes with respect to lateral stability.