



ISLAM GARMENTS LTD. (UNIT-2)-Extension

ZARUN, KONABARI, GAZIPUR
(23.994929, 90.326208)

28th April 2019





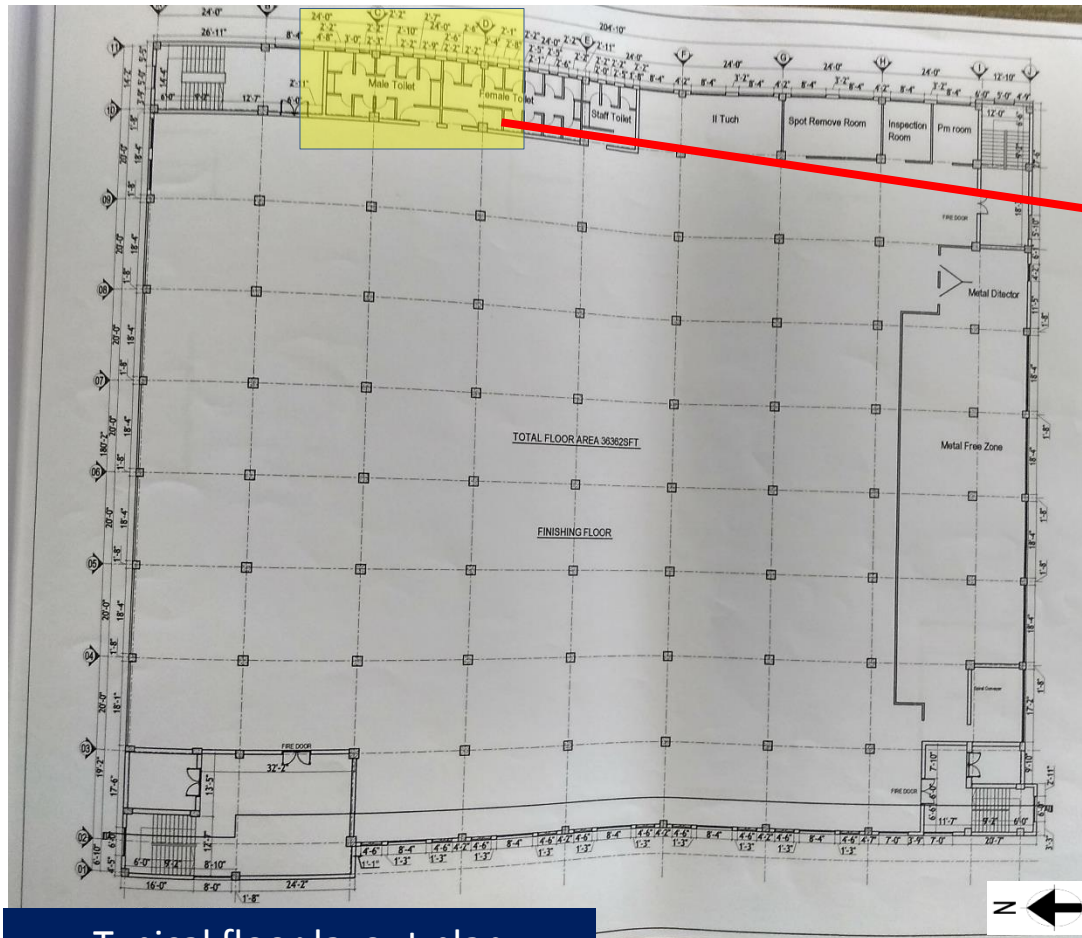
Observations



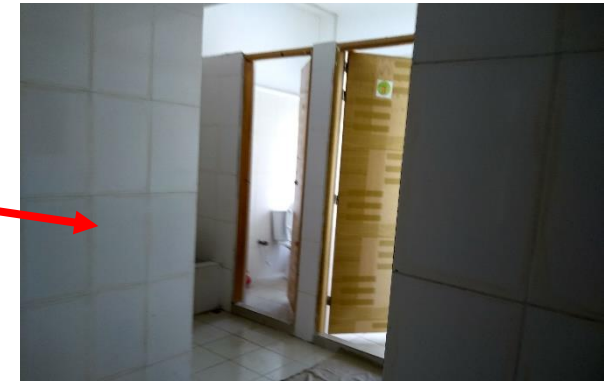
**Column stresses marginally exceeds the
normal design limit**



Cursory calculation indicates that columns appear to be stressed marginally above normal design limits considering floor built up loads (Toilet zone), 3kPa live loads on typical floor and assuming minimum concrete strength. Building Engineer to review design, loads and columns stresses.



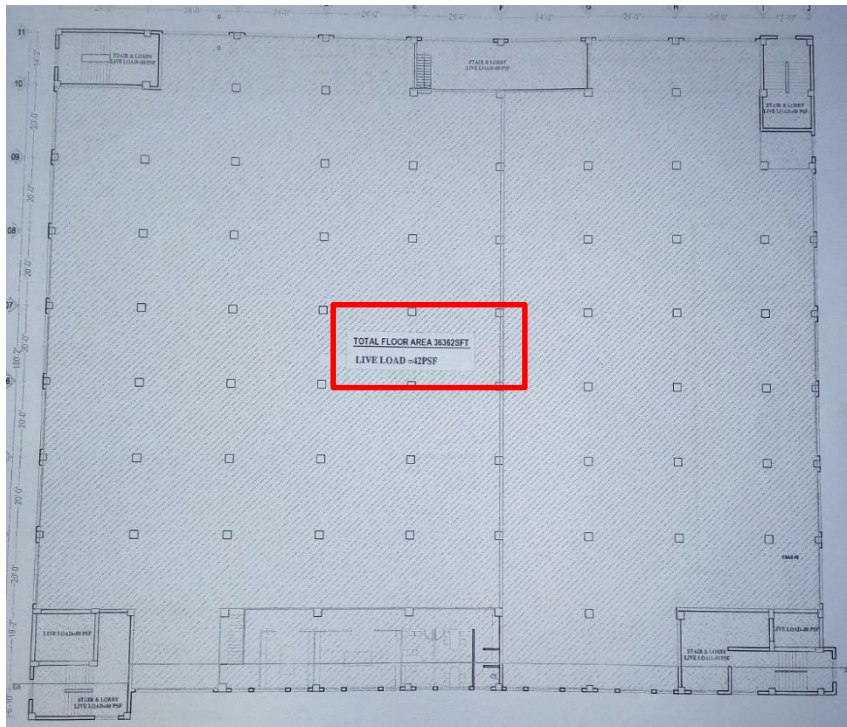
Typical floor layout plan



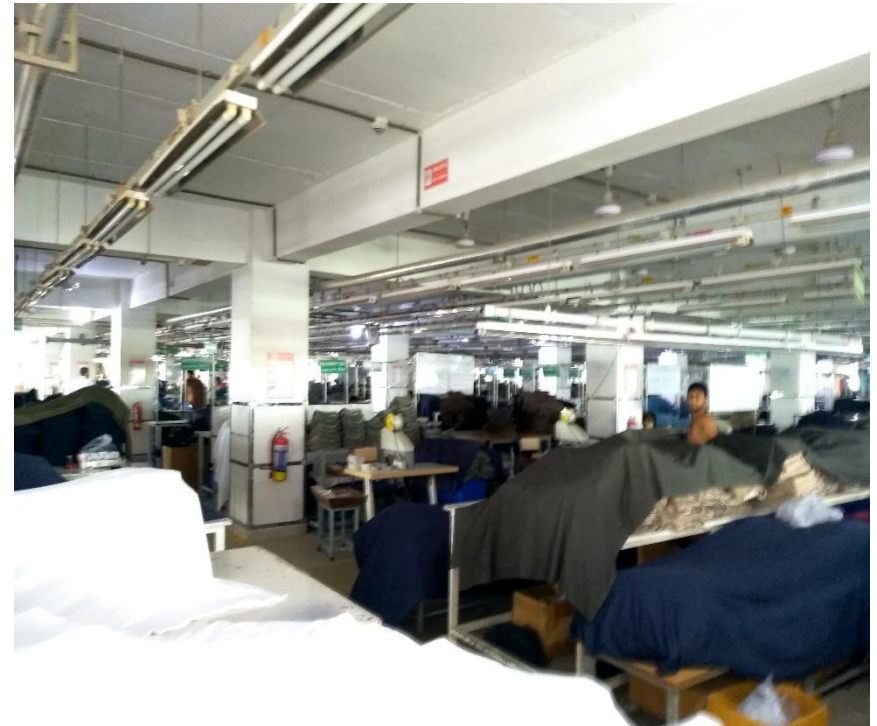
Toilet Zone



Build up (350~375 mm)



Floor load plan



Floor loading condition (Within 3 kPa)

The construction of the building was completed in December 2018. Therefore, as per BNBC standard load plan of the building is required to be considered minimum 3 kPa. But the load plan provided by the factory considers 2 kPa. Factory is required to revise the load plan considering BNBC standard and implement the load plan accordingly.

Observations



Mezzanine steel beam connection with RC column.

Observations



Steel plate with inadequate anchorage



Steel plate without anchorage

Mezzanine floors are supported by steel box surrounded with RC column. Apparently inadequate connection was observed between steel box and RC column. Factory engineer is required to check the adequacy of the connection against vertical loading.



Mezzanine Steel frame connected with RC column of factory building



Heavy water tank on roof

Observations



Existing roof Layout



Three nos. of over head plastic water tank (10000 liters capacity) were found at existing roof. Factory engineer is required to check the adequacy of slab and beam .



Insufficient drainage system on existing roof



Lack of water proofing layer



Sign of water clogging

Sign of water Clogging was observed on roof. Besides no water proofing layer was found during inspection. Also, proper drainage system was not installed.



Improper roof drainage system



Corroded and exposed rebar at roof.



Corrosion was observed on all exposed reinforcement on roof top columns, beams and slabs. Factory must provide adequate protection to the structural elements from corrosion.



Exposed rebar at Beam & Slab



Exposed rebar at Column



Possible vertical and horizontal extension

Observations



Column & Slab reinforcements are exposed on roof and South side of structures. Extension work may be carried out in the existing structure. Factory engineer is required to carry out a Detail Engineering Assessment considering BNBC provision prior to any further extension work.



Expose rebar at roof



Expose rebar at South



Problems Observed

Factory Building:

- Item-01: Column stresses marginally exceeds the normal design limit.
- Item-02: Mezzanine steel beam connection with RC columns.
- Item-03: Heavy water tank on roof.
- Item-04: Insufficient drainage system on existing roof.
- Item-05: Corroded and exposed rebar at roof.
- Item-06: Possible vertical and horizontal extension.



Priority Actions



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Column stresses marginally exceeds the normal design limit	Factory Engineer to review design, loads and column stresses.	6-weeks
2	Column stresses marginally exceeds the normal design limit	Verify in-situ concrete strength by taken min. 4 nos. 100mm dia. core samples from lower tier or credible cylinder test data.	6-weeks
3	Column stresses marginally exceeds the normal design limit	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity.	6-months
4	Column stresses marginally exceeds the normal design limit	Carry out remedial works where necessary.	6-months
5	Mezzanine steel beam connection with RC column	Factory engineer is required to check the adequacy of the connection against vertical loading.	6-weeks
6	Mezzanine steel beam connection with RC column	Prepare as-built documentation for both mezzanine.	6-weeks
7	Mezzanine steel beam connection with RC column	Implement remediation work if required.	6-months



Item No.	Observation	Recommended Action Plan	Recommended Timeline
8	Heavy water tank on roof	Building engineer is required to check for the adequacy of slab.	6-weeks
9	Heavy water tank on roof	Verify that supporting structures have adequate capacity to support heavy loading such as plastic water tank.	6-weeks
10	Heavy water tank on roof	Remedial works/replacement to be carried out if required.	6-months
11	Insufficient drainage system on existing roof	Factory is required to improve the water drainage system to avoid water clogging in future.	6-weeks
12	Corroded and exposed rebar at roof	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks
13	Possible vertical and horizontal extension	Any extensions or modifications of the existing building, a Detail Engineering Assessment by a structural Engineer needs to be carryout in compliance with the BNBC provision.	6-months
14	Possible vertical and horizontal extension	Carry out remedial works from outcome of Detail Engineering Assessment where necessary before further construction.	6-months