

Islam Garments Ltd. (Knitwear Division)

Block-F, Holding # 119/1, Jarun, Konabari, Gazipur-1346, Bangladesh
(23.996118N, 90.324504E)

20 June 2022



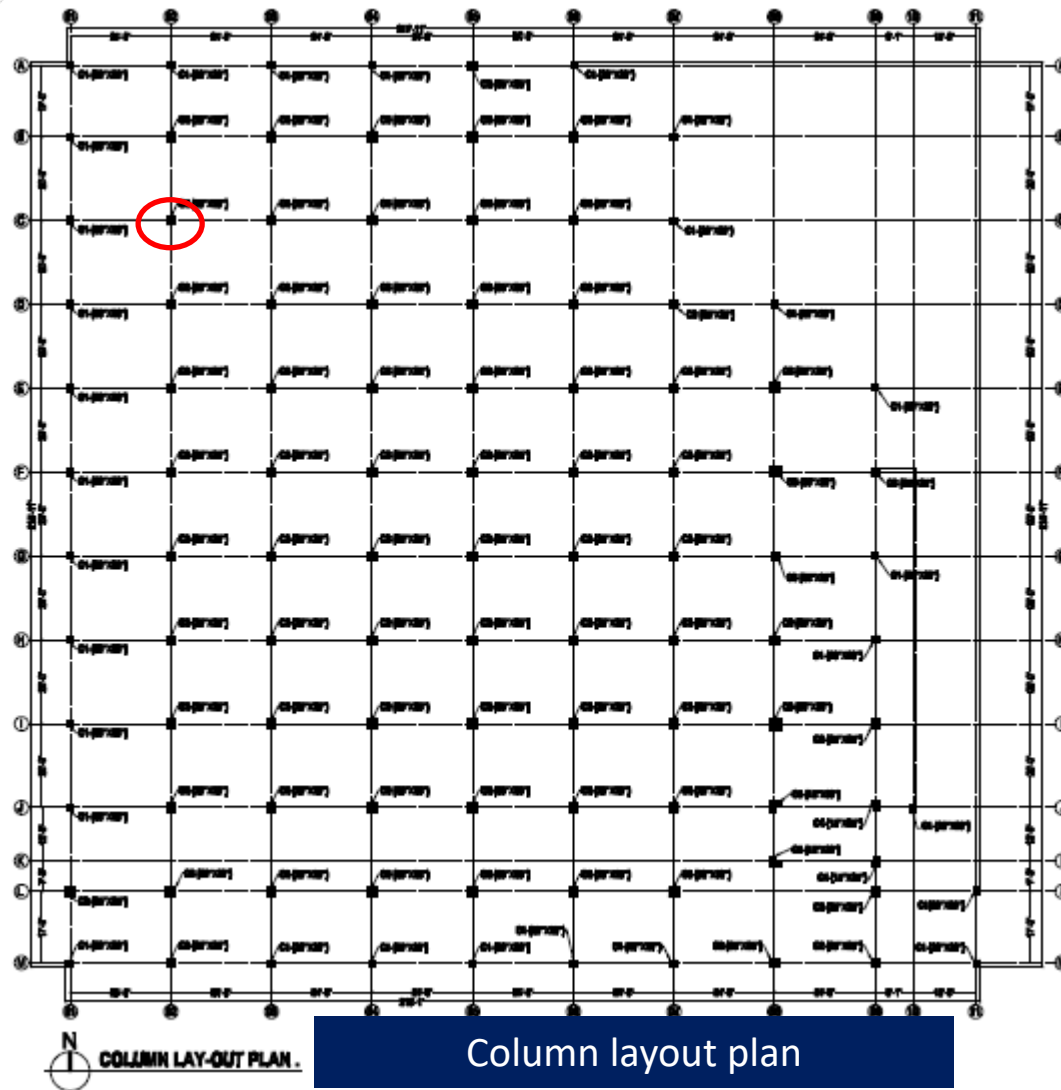
Building Information

Building-7: Partially seven storied (G+M+6) reinforced concrete (RC) building.

Observations

Column stress exceeds normal design limit

Observation: Building-7



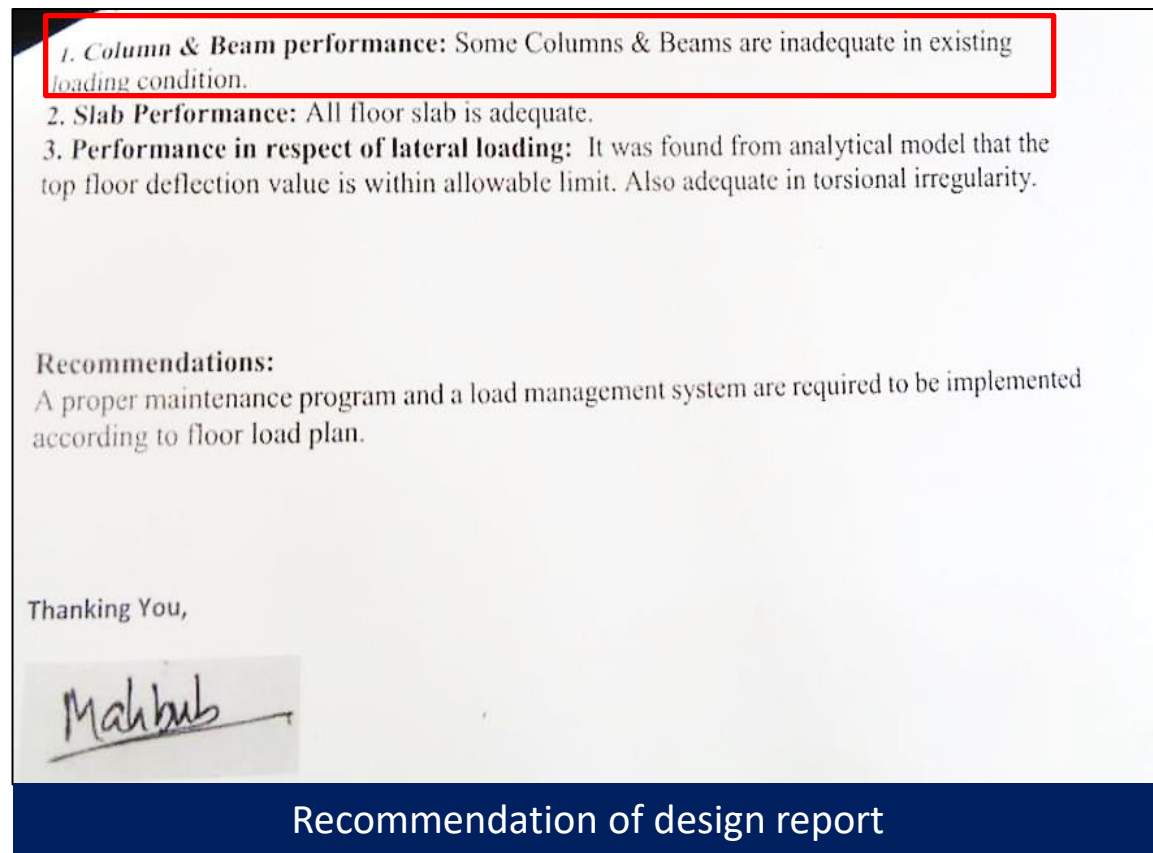
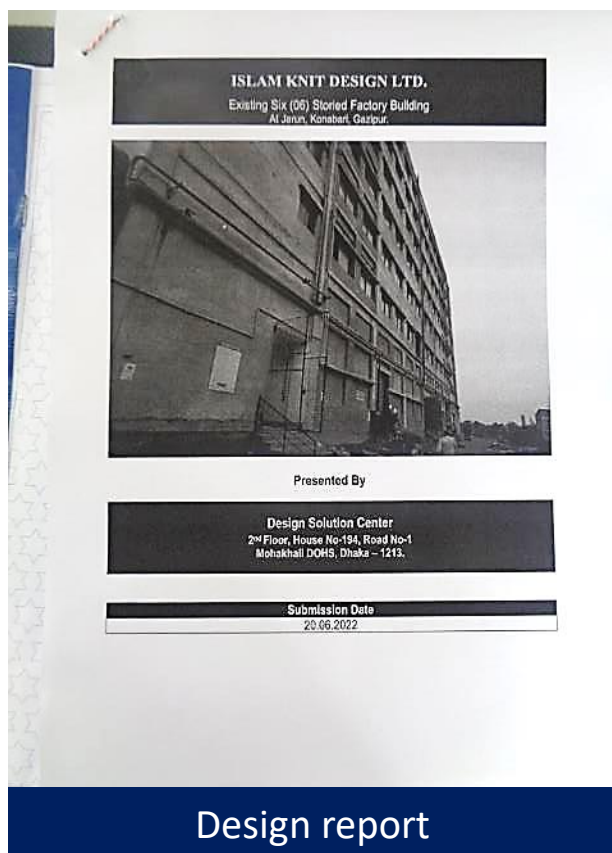
Column layout plan



Load comes from the OHWT

Cursory calculation indicates that factor of safety (FoS) of column at north-west staircase is below the allowable limit considering the floor live load 3 kPa for typical floor, 4 kPa for stair area, 1.5 kPa for roof and super imposed load from brick walls and overhead water tank. Building engineer is required to review the design, loads and column stresses and suggest a proper remediation scheme.

Observation: Building-7



A copy of design report was found on-site. According to the observation of the report, some columns and beams are inadequate for existing loading condition. Building engineer is required to carry out Engineering Assessment (EA) of the structure to verify the columns actual stresses based in-situ material strength.

Observation: Building-7

Lack of load plan for steel storage rack

Observation: Building-7



Steel storage rack and floor loading

No load plan was available for the steel racks, Building engineer is required to prepare floor loading plan for the steel racks based on its member and ground floor slab capacity.



Observation: Building-7

Lack of lateral stability of external steel stair

Observation: Building-7



External steel stair adjacent to the Building-7

The external steel stair has no lateral stability system and the member & connections are apparently inadequate. The building engineer to check the stability system of the steel stair and suggest proper remedial actions.



Poor connection of the external steel stair

Observation: Building-7

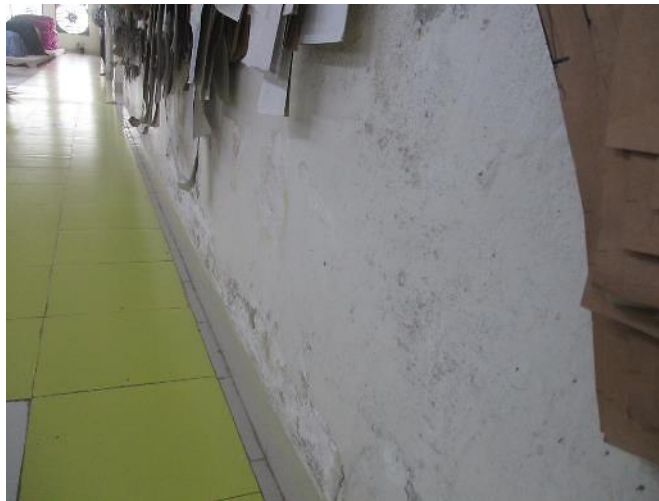
Dampness on exterior façade, toilet wall & ceiling and roof slab



Dampness on exterior façade



Dampness on soffit of toilet false slab



Dampness on wall of toilet zone



Dampness on soffit of stair roof slab

Factory is required to repair the damped area with suitable method.

Observation: Building-7

Roof drainage system to be improved

Observation: Building-7



Stagnant water on the roof

Stagnant water on the roof was observed. The factory is required to develop proper drainage system on the roof with adequate slopping.

Observation: Building-7

Crack on brick walls

Observation: Building-7



Crack on top floor brick walls of north-west stair



Crack on ground floor brick walls of north-east stair

Crack on brick walls in two locations (north-west and north-east stair) . The factory is required to repair the cracks as per the suggestion of the building engineer.

Damage of wall & column surface due to trolley impact



Damage of wall & column surface due to trolley impact

Factory is required to provide safety barrier to avoid trolley impact on the columns and walls.

Storage racks without anchorage/bracing



Storage racks on the typical floors are not adequately anchored or braced to resist earthquake forces.

Factory is required to anchored or braced properly all kinds of non-structural elements.

Steel mezzanine floor- have no obvious lateral stability system



Portal frame without lateral bracing along long direction.

Building engineer is required to check the stability system of the structure and suggest proper remedial actions accordingly.

**Steel mezzanine floor- Distorted column,
connection gap between joint plates, missing
bolts and corrosion on steel columns**



Distorted column



Connection gap



missing bolts



Corrosion on steel column

Factory is required to repair the distorted column, fill the connection gaps, install the missing bolts and apply corrosion anticorrosive coating the steel members as per the suggestion of building engineer.

Problems Observed

Building-7:

- Item 01: Column stress exceeds normal design limit
- Item 02: Lack of load plan for steel storage rack
- Item 03: Lack of lateral stability of external steel stair
- Item 04: Dampness on exterior façade, toilet wall & ceiling and roof slab
- Item 05: Roof drainage system to be improved
- Item 06: Crack on brick walls
- Item 07: Damage of wall & column surface due to trolley impact
- Item 08: Storage racks without anchorage/bracing
- Item 09: Steel mezzanine floor- have no obvious lateral stability system
- Item 10: Steel mezzanine floor- Distorted column, connection gap between joint plates, missing bolts and corrosion on steel columns

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Column stress exceeds normal design limit. (Building-7)	As part of Engineering Assessment (EA) the building engineer is required to review the design, loads and column stresses and suggest a proper remediation scheme.	6-weeks
02	Column stress exceeds normal design limit. (Building-7)	Verify in-situ material strength from column (by taking minimum 4 number of concrete cores).	6-weeks
03	Column stress exceeds normal design limit. (Building-7)	Update the floor loading plan based on floor, column and foundation capacity of the structure.	6-weeks
04	Column stress exceeds normal design limit. (Building-7)	Carry out suggested remedial actions where required.	6-months
05	Column stress exceeds normal design limit. (Building-7)	Continue to implement floor loading plan.	6-months
06	Lack of load plan for steel storage rack. (Building-7)	As part of Engineering Assessment (EA) the building engineer is required to prepare a floor loading plan based on members and foundation capacity of the steel rack.	6-weeks
07	Lack of load plan for steel storage rack. (Building-7)	Continue to implement floor loading plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
07	Lack of lateral stability of external steel stair. (Building-7)	As part of Engineering Assessment (EA) the building engineer is required to check the stability system of the structure and suggest remediation actions accordingly.	6-weeks
08	Lack of lateral stability of external steel stair. (Building-7)	Carry out suggested remedial actions.	6-months
09	Dampness on exterior façade, toilet wall & ceiling and roof slab. (Building-7)	Factory is required to repair the damped area with suitable method.	6-weeks
10	Roof drainage system to be improved. (Building-7)	The factory is required to develop proper drainage system on the roof with adequate slopping.	6-months
11	Crack on brick walls. (Building-7)	The factory is required to repair the cracks as per the suggestion of the building engineer.	6-weeks
12	Damage of wall & column surface due to trolley impact. (Building-7)	Factory is required to provide safety barrier to avoid trolley impact on the columns and walls.	6-weeks
13	Storage racks without bracing/anchored. (Building-7)	Factory engineer is required to anchored or braced properly all kinds of non-structural elements.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
14	Steel mezzanine floor- have no obvious lateral stability system. (Building-7)	As part of Engineering Assessment (EA) the building engineer is required to check the stability system of the structure and suggest remediation actions accordingly.	6-weeks
15	Steel mezzanine floor- have no obvious lateral stability system. (Building-7)	Carry out suggested remedial actions.	6-months
16	Steel mezzanine floor- Distorted column, connection gap between joint plates, missing bolts and corrosion on steel columns. (Building-7)	Repair the distorted column as per the engineer's suggestion.	6-weeks
17	Steel mezzanine floor- Distorted column, connection gap between joint plates, missing bolts and corrosion on steel columns. (Building-7)	Fill the connection gaps and install the missing bolts.	6-weeks
18	Steel mezzanine floor- Distorted column, connection gap between joint plates, missing bolts and corrosion on steel columns. (Building-7)	Remove the corrosion & apply suitable corrosion resistance coating on the steel members.	6-weeks