

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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Name of the Factory	: YOUTH FASHION LTD
Address of the Factory	: Youth Tower, 822/2 Rokeya Sharani, Mirpur, Dhaka, Bangladesh
Dhaka Present Status of the Factory	: <b>Under Operation</b>
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 22 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 23 March, 2014

**Basic Information:** The present garment factory is a commercial building with beam-column frame system. The following general information was noted:

i.	Building Usage Type	: Garment factory
ii.	Structural System	: Steel Beam and column frame with one-way slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total floor area of the building is 65,000sqft
v.	No. of Stories	: 10 storied
vi.	Construction Year	: 1995
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Approved in 30 March, 1994 by RAJUK)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Basement level

**Recommendations for Corrective Action:** The recommendations of corrective action for both Structural and Fire & Electrical Safety are as follows:

**The recommendations for Structural Safety corrective actions are:**

Immediate (Now): NA

Mid Term (Within 6 Weeks):

1. Reduce stacking height of fabric rolls to ensure total load does not exceed 3.0 kPa.
2. Adopt some sort of signage/staff guidance to ensure that the maximum weight of storage is not exceeded.
3. Detail Engineering Assessment to be carried out in particular stability and foundation aspects to be investigated in detail.

Long Term (Within 6 Months):

1. Maintain standards of quality control to ensure that storage procedures are correctly followed so that overloading problems do not arise in the future.
2. Waterproofing material to be applied including rustproof paint for the exposed reinforcement.

**The recommendations for Fire Safety corrective actions are:**

Immediate (Within 1 month):

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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1. Remove locking features from all egress doors / gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
2. Replace all gates / sliding doors along the means of egress with side-hinged, swinging egress doors. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.

### Short Term (Within 3 Months):

1. Provide a minimum 2-hr fire rated shaft to separate the utility risers from each floor level. Seal all penetrations and openings in floor/ceiling assemblies to maintain the fire separation.
2. Separate the boiler and generator room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
3. Provide minimum 1.5-hr fire rated doors and seal all unprotected openings to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing and positive latching and that they are provided with fire exit (panic) hardware where serving production floors. If fire doors are required to be held open for functional reasons, provide automatic closing devices tied to the fire alarm system.
4. Specify appropriate upgrade based on conditions:
  - Modify exit arrangement.
  - Provide additional exit.
5. Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
7. Test the emergency lighting system on each floor and provide additional emergency fixtures to provide adequate illumination along the means of egress. Provide a minimum illumination of 10 lux at the floor level within exit stairs and exit discharge paths and minimum 2.5 lux along exit access aisles.
8. Regularly test the emergency lighting system on each floor and replace/repair lights as needed.
9. Provide exit signs above all exits to the exterior and all doors to the exit stairs.

### Mid Term (within 6 Months):

1. Specify appropriate upgrade based on conditions:
  - Modify stair to discharge directly outside.
  - Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas).
2. Provide additional notification appliances such that the fire alarm system is audible throughout the building in accordance with NFPA 72.
3. Replace the single-station smoke alarms with automatic smoke detectors tied into the fire alarm system. Configure the fire alarm system to initiate occupant notification upon activation of any two smoke detectors in addition to the manual fire alarm stations.

### Long Term (More than 6 months):

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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1. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.
2. Provide automatic sprinkler protection throughout the building in accordance with NFPA 13.

### **The recommendations for Electrical Safety corrective actions are:**

#### Immediate (Within 1 month):

1. Install transformer breather i.e. Silica gel and oil cup. It must be checked and maintained periodically.
2. Missing pair of arcing horn must be installed. Make sure power is switched off before maintenance.
3. Replace the damaged PVC conduit with covered cable tray for support and protection of cables from physical damage. The tray must be properly installed with supports at regular interval. The LV cable must be drawn swiftly and fastened to the cable tray to avoid bending.
4. Use cable tray or conduit (HDPE/steel pipe) to pass cables through wall and seal the unused openings by fire rated materials.
5. BBT installed near steam lines must be protected from external heat and moisture by keeping sufficient clearance between steam pipes and raceways. Provide adequate thermal insulation on the steam pipe.
6. The cables must be properly arranged, firmly drawn and protected in covered cable tray.
7. The cable risers must be free of combustible materials. Clean the dust and lint deposits on cable and inside the riser. Suggested to include in routine cleanliness/maintenance. The cables must be drawn swiftly and clamped/fastened to the vertical cable ladder provided.
8. Provide earth connection for body and doors of metallic distribution boards using green cables preferably braid so that the metallic door remains at zero potential all the time.
9. Install separators between different phases of MCCBs. Standard separators provided by the MCCB manufacturer must be used.
10. Draw the cable through panel base. The panel doors must be closeable.
11. Cables shall be connected to terminals only by soldered/welded lugs according to the size of the respective cables. Proper crimping tools must be used to punch the cable lug.
12. Install a covered cable tray/duct to protect the cables from physical damages.
13. Wires installed near/attached to boiler must be protected from external heat and moisture by metallic heat resistant conduits.

#### Short Term (Within 3 Months):

1. Thermo graphic scanning of the entire electrical system must be performed on tri-annual basis and recorded.
2. Insulation resistant test of all the cables must be performed once every 5 year cycle and recorded.

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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3. Electrical safety training and awareness program for the electrical personal and workers must be initiated and recorded.
4. The exhaust fans may be controlled by Direct On-Line (DOL) switch.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA