

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

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Name of the Factory	:	<b>BARNALI TEXTILE &amp; PRINTING (PVT.) LTD.</b>
Address of the Factory	:	285, Hazaribagh, Godnail, Chairmanbari, Narayanganj, 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	:	18 March, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	7 April, 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	:	RC flat slab
iii.	Floor System	:	Beam slab
iv.	Floor Area	:	Unavailable
v.	No. of Stories	:	7 storied
vi.	Construction Year	:	1996-2008
vii.	Foundation Type	:	Piled foundation
viii.	Design Drawings	:	Available
ix.	Soil investigation Report	:	Unavailable
x.	Construction Materials	:	Brick aggregated
xi.	Generator	:	Ground Floor / Building 2

**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): NA

Long Term (Within 6 Months):

1. Building engineer to check the structures and propose additional strengthening and bracing as required.
2. Monitor cracks on beams. Engage an engineer to investigate if cracks are only in the plastering.
3. Engage an engineer to advise on load reduction and repair and strengthening of the beams if required.
4. Building engineer to check the external wall elements and propose additional lateral restraints if required.
5. Building engineer to check the structural capacity of the stanchion and make proposals for its realignment if required.
6. Building engineer to check the structures and propose additional strengthening and bracing as required.

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## The recommendations for Fire Safety corrective actions are:

### Immediate (Within 1 month):

1. Remove locking features from all egress doors and gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
2. Remove all storage from exit stairs and egress paths.
3. 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.
4. Keep egress paths and stairs clear of storage.
5. Insert accurate evacuation plans on each floor plate entrance.

### Short Term (Within 3 Months):

1. Separate the hazardous materials / flammable liquid storage room by a minimum 2- hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. Separate the boiler, generator and transformer room by a minimum 2-hr fire-rated construction. Seal all unprotected openings to maintain the required fire separations.
3. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
4. 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.
5. Modify the egress door to swing in the direction of egress travel.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
7. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. Where separate storage rooms may not be feasible, provide defined storage areas and limit the storage arrangement as follows:

-Maximum height of 2.4m and maximum area of 23m<sup>2</sup>

-If sprinkler protected: maximum height of 3.66m and maximum area of 93m<sup>2</sup>.

Separate areas of unenclosed combustibile storage by a minimum clear distance of 3m.

8. Provide minimum aisle widths of 36-in.
9. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.

### Mid Term (within 6 Months):

1. Seal all penetrations and openings to the interior of the building along the discharge path, up to a height of 10 ft., to provide a minimum 1-hr fire separation. Alternatively, provide a second remote discharge path to the public way (only include this if feasible).
2. Provide automatic smoke detection throughout the building in accordance with NFPA 72.

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Long Term (More than 6 months):

1. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.

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

Immediate (Within 1 month):

1. Metallic cover (checkered plate) should be provided on cable trench to prevent the damage of cable insulation/falling of operator into the trench.
2. Remove all the combustible materials kept in close proximity to electrical equipment. Generator Battery must be placed on the battery stand made of noncombustible material (steel fabricated).
3. 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.

Short Term (Within 3 Months):

1. Transformer placed on temporary blocks (wooden / bricks) must be installed on concrete foundation plinth of sufficient height (raised above minimum local flood level).
2. Install cable tray with metallic cover to provide mechanical support to cables laid haphazardly on the floor to protect the cable from any physical damage due to the stepping of occupant onto these cables.
3. Panel supported on inflammable items (may help spreading fire) must be removed. The panel must be installed on wall with proper nut-bolts, at reachable height.
4. Cables/wirings passing through permanent wall must be protected installing rigid pipes and remaining gaps must be sealed with fire resistant materials.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA