

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

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Name of the Factory	: EHSAN GARMENTS LIMITED
Address of the Factory	: Kuniapachar, Targach, Gazipur, 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	: 25 September, 2013
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	: R.C. Beam and column frame with a 2-way spanning solid Slab, RC flat slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 6 storied
vi.	Construction Year	: 1986
vii.	Foundation Type	: Piled and pad foundation
viii.	Design Drawings	: Available (Signed by the Factory Inspectorate and Local Municipality)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Ground floor adjacent to the east stairwell

**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. Record structural drawings to be updated to match the as-constructed structure.
2. Building Engineer to verify the adequacy of the structural changes from the original design including the flat slab floor.
3. Building Engineer to provide floor loading plans for the as-built structure.
4. Building Engineer to confirm that the foundation types used in the design and construction, including the allowable bearing pressure, are based on previous ground investigations.
5. Building Engineer to monitor movement at building movement joints within both the east and west factory and ensure that cover plates are provided on walkways crossing these joints.

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

Immediate (Within 1 month):

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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. Remove locking features from all egress doors / gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
3. Remove all storage from exit stairs and egress paths.
4. Remove the single-station smoke alarms.
5. Remove manual on/off switches from emergency lighting units to prevent them from being switched off.

### Short Term (Within 3 Months):

1. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
2. 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.
3. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. Where separate storage rooms are not 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 combustible storage by a minimum clear distance of 3m.
4. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
5. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.
6. 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.

Mid Term (within 6 Months): NA

Long Term (More than 6 months): NA

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

#### Immediate (Within 1 month):

1. Provide steel pipe for supporting and protecting the cables at least for 2m from the ground level.
2. Provide cable ladder made of noncombustible material preferably metal to support and protect the cables. Ensure the cable is firmly fixed with ladder.
3. Remove the additional cables from HT service line and never connect any additional wires as this in future. HT cable screen earth connect can be done at the entry of the transformer connection.

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4. Disconnect the panel and fixed with the floor with anchor bolt and provide necessary washers etc.
5. Switch off the supply to the panel and seal the bottom of the panel. Provide cable gland at the entry of the cables sized same as the cables.
6. Replace the PVC flexible pipe with cable tray made of noncombustible material preferably metal to support and protect the cables.
7. Existing wiring in flexible PVC conduits fixed to ceiling must be additionally supported in tray or ducts. Flexible conduit must not be used for long point wiring (except for special wirings). Provide clamps or saddle at a regular interval.
8. Fix the flexible pipes using appropriate sized saddle with the wall at regular interval. Provide cable gland at the panel entry of the cables.
9. Disconnect the electric supply to the duct and provide cover made of noncombustible material preferably metal on the duct to prevent ingress of dust and debris.
10. Provide cable ladder/tray made of noncombustible material preferably metal to support and protect the cables.
11. Disconnect the electric supply to the machine and cut the excess length of cables. Remove additional flexible pipe and provide support for rewirings.
12. Cable terminating at the panel must be firmly fixed with appropriate support to reduce stress at the termination point.
13. Disconnect the electric supply to the wooden channel and remove the wooden channel. Install cable channel made of noncombustible material preferably metal to safely support and protect the cables.

### Short Term (Within 3 Months):

1. Remove the unused MCCBs or tag as spare and keep for future use.
2. Seal the penetrations using appropriate fire rated material. Ensure the cables' insulation is not in touch of the sharp edges of the concrete.
3. Replace the flexible PVC pipe with steel pipe to route the cables. It is discouraged to route the cables using flexible.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA