

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

---

Name of the Factory	: <b>WELDONE APPAREL LTD</b>
Address of the Factory	: Baraidrchalae, Sreepur, Gazipur
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	: 12 May, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 1 June, 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	: Structural Steel Frame
iii.	Floor System	: Beam slab
iv.	Floor Area	: Total floor area is 22075 Square feet
v.	No. of Stories	: 4 storied
vi.	Construction Year	: 2009
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Permit drawing)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Outbuilding (Ground floor)

**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):

1. Carry out an immediate full Detail Engineering Assessment of the steel structure including lateral stability.
2. Complete the connections with missing bolts
3. Include roof structure in full Detailed Engineering Assessment.

Mid Term (Within 6 Weeks):

1. Prepare engineering plans of required remedial works.
2. Make sure ALL the bolts are well tightened.

Long Term (Within 6 Months):

1. Carry out all remedial works deemed necessary by DEA.
2. We recommend a Detailed Engineering Assessment of the sheds in the courtyard.

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

Immediate (Within 1 month):

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

---

1. Reduce occupant load to not more than available exit capacity of 490 on the second and third floors. In the future provide additional exits to allow for increased number of employees.
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. 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.
5. Remove manual on/off switches from exit signage units to prevent them from being switched off.

### Short Term (Within 3 Months):

1. 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.
2. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
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. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

### Mid Term (within 6 Months):

1. Remove single-station smoke alarms. Provide automatic smoke detection throughout the building in accordance with NFPA 72.

### 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. Arcing horns may be installed as per the transformer manufacturer's requirement.
2. Replace silica gel and must include in routine maintenance to check and maintain.
3. Cable riser supporting cables must be firmly fixed.
4. Install separators between different phases of MCCB. Existing phase separators fabricated from insulating materials may not provide the required insulating properties for the type of MCCB installed.

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

---

5. Cable/wiring ducts must be installed and supported through safe routes and supported independently such that the system shall not be disturbed with minor maintenance of the building.
6. Generator battery must be placed on the acid proof battery stands.
7. Conduits not meant for electrical use must have properties equivalent to conduits with ample strength and rigidity to be able to protect and support cables drawn in it. Cables in conduits must be protected throughout its length.
8. Cables supported in ducts must be arranged and easily separable for maintenance, and must be tightly covered to prevent ingress of lint and dust. Clean the cable ducts before rearranging the cables and install with protective covers.
9. Clean the ducts and cover tightly with non-combustible materials.
10. Heat resistant conduits may be used to protect wirings.
11. Cables in boiler room must be supported and protected. Cables on concrete floors near entrance may be placed such that it will not obstruct the exit/entrance.
12. Motor in boiler must be firmly grouted on the concrete floor or fixed on the foundation structures.
13. MCB, contactor and other devices used in panel must be firmly fixed and protected from touching unintentionally to other live parts.
14. Connect generator earth directly to main earth strips.
15. Extensions from wiring ducts must be protected and supported throughout its length. Wiring run on walls must be securely fixed at regular intervals.

### Short Term (Within 3 Months):

1. HT cable dropping from 11kV pole must be protected in steel pipe of required size at least 2m from the ground level to protect from physical injury by moving objects, and must be clamped to pole at regular intervals.
2. The flexible PVC conduits must be additionally supported between BBT and ceiling or other terminals.
3. Boiler or any electrical equipment must be firmly fixed to the foundations.
4. Wiring ducts must be cleaned regularly and duct covers must be tightly installed to prevent further ingress of lint and dust.
5. AVR panel must be mounted firmly with foundation bolts.
6. Transformer may be separated from panels by constructing barrier walls.
7. Cables and wires installed outside factory building must be protected and supported through safe routes. Cables may be buried under ground at safe depth or in cable trays raised at safe height. Wires in trays or trench must be additionally protected.
8. Cables supported in cable trays must be firmly fixed to the tray at regular intervals.

Mid Term (Within 6 months): NA

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

---

Long Term (More than 6 months): NA