

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: WINDY APPARELS LTD.
Address of the Factory	: 140, Baron, Diakhali, DEPZ Road, Ashulia, Savar, Dhaka
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 24 September, 2013
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 4 May, 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 slabs
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total floor are of the building is 8,599.88 sq.m.
v.	No. of Stories	: 7 storied
vi.	Construction Year	: 2006
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Southwest corner on the 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): NA

Mid Term (Within 6 Weeks): NA

Long Term (Within 6 Months):

1. Steel frame stability system and localized extensions to be designed by the Building Engineer to support code vertical and wind loads.
2. Roof drainage system to be installed and concrete slab to be waterproofed at locations where the slab has been damaged.
3. Building Engineer to advise allowable loading for cantilever floor slab. Controlled loading plans to be prepared for cantilever slabs and floor loads to be monitored accordingly.

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.

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3. Replace all collapsible gates 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. Separate the flammable liquid storage room by a minimum 2- hr fire-rated construction. Seal or protected all openings to maintain the required fire separations.
2. Separate the boiler, generator and transformer rooms by a minimum 2-hr fire-rated construction. Seal and protected all openings to maintain the required fire separations.
3. 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 23m²
 - If sprinkler protected: maximum height of 3.66m and maximum area of 93m².

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

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. Seal all penetrations and openings in general storage enclosure walls to maintain the fire separation.
6. Reduce occupant load to not more than available exit capacity or Provide additional exit.
7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
8. 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.
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. Replace the 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):

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1. Conservator tank (on transformer) must be checked and required oil level must be maintained.
2. Missing arcing horn must be installed and aligned.
3. Replace silica gel and must include in routine maintenance to check and maintain.
4. HT cable dropping from 11kV pole must be firmly fixed to the pole with supports and clamps.
5. Generator must be installed on raised plinth. The foundation plinth must be raised higher than the local flood level.
6. Wiring in flexible PVC conduit must be supported near panel on tray/riser to prevent stress at the entry point (socket & check nuts).
7. Panel base plates must be installed, at all time, and cable(s) entering panel must be firmly fixed with cable gland.
8. Cables inside panel must be securely fastened, through ducts or by ties, to avoid crossing live parts.
9. Wiring looped at MCB terminals may be replaced by installing additional Bus bars to distribute different circuits.
10. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
11. Multiple cable connecting at a MCCB terminal must be disconnected. Existing multiple circuits may be distributed through bus bars.
12. Every wire terminating must be installed using independent lug/terminal.
13. Panel door(s) must be connected with earth bond connecting frame and door.
14. Provide additional lighting inside transformer room.
15. Clean the transformer(s) periodically as part of routine maintenance.
16. Transformer room must be cleaned regularly.

Short Term (Within 3 Months):

1. Cables of different voltage levels must be laid in the separate trench and covered with concrete slabs or checkered plates.
2. Cables passing through permanent walls must be protected in steel pipes and remaining holes around the pipe must be sealed.
3. Rear of the panel(s), installed close to wall must be moved forward to provide minimum working space.
4. Cables behind panel must be supported and arranged on cable trays or ladder.

Mid Term (Within 6 months):

1. Cable must laid in the cable trench covered with concrete slabs or checkered plates to protect from physical injury.

Long Term (More than 6 months):

1. Transformer room may be rearranged or some of the panels may be relocated.