

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

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Name of the Factory	: APPARELS EXPRESS LTD.
Address of the Factory	: Baranda, Kashimpur, 1346 Gazipur, 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	: 1 July, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 11 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	: R.C Beam and column frame with a 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The floor area of the building is 29,754 sq.ft. per floor
v.	No. of Stories	: 3 storied
vi.	Construction Year	: 2012
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Permit drawing)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Generator Shed Southeast of Main Building

**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. Carry out an Engineering Assessment to verify slabs capacity.
2. Factory Engineer to review the steel roof structure and connections against uplift loads as per BNBC.
3. Carry out engineering assessment on the building to verify that it is stable under lateral loading as per BNBC.

Long Term (Within 6 Months):

1. Carry out any recommendations from the Engineering Assessment.
2. Update structural drawing.
3. Implement any strengthening recommended by Factory Engineer.
4. Produce as-built drawing for auxiliary buildings.

**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. Keep egress paths and stairs clear of storage.
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. Remove manual on/off switches from emergency lighting units to prevent them from being switched off.

### Short Term (Within 3 Months):

1. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
2. Separate the boiler and generator by a minimum 2-hr fire-rated construction. Seal and/or protect 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. 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 combustible storage by a minimum clear distance of 3m.

5. Provide 2- hr continuous stairwell enclosure to exterior ground level.
6. Provide minimum aisle widths of 36-in.
7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
8. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.
9. 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):

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 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas). Or provide sprinkler protection for discharge floor in accordance with NFPA 13.

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

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3. Remove single-station smoke alarms. Provide automatic smoke detection throughout the building, tied into the fire alarm system, 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. Install a vertical cable tray (instead of using flexible pipes) for the cables kept hanging, to provide mechanical support and protection.
2. Phase barriers between different phases must be installed to avoid arc flashing.
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. Support cables in cable trays. Cable trenches (with cover) may ease the congestion of cables behind the panel(s).

Mid Term (Within 6 months):      NA

Long Term (More than 6 months): NA