

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

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Name of the Factory	: ARISTOCRATE FASHION (PVT.) LTD.
Address of the Factory	: Plot #155, Road #01, Block A, Section #12, Mirpur, 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	: 9 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 6 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	: Multi-purpose
ii.	Structural System	: R.C. Beam and column frame with a 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 12 storied
vi.	Construction Year	: 2003
vii.	Foundation Type	: Isolated pad foundations
viii.	Design Drawings	: Available (Permit drawing)
ix.	Soil investigation Report	: Available (Dated July, 2013)
x.	Construction Materials	: Unavailable
xi.	Generator	: Underground parking garage

**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. Maintain current use of the floors and don't change use or increase occupation, either of which could increase loading.
2. Factory Engineer to review design, loads and columns stresses in all columns. Loading to be determined from accurate survey of building (see item 3 below)
3. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from min. 4 columns. Core positions to be assessed by building engineer to ensure critical structure is not damaged
4. A Detail Engineering Assessment of Factory to be commenced, see attached Scope.
5. Detail Engineering Assessment of Factory to be commenced and in particular Stability and foundation aspects to be investigated in detail.
6. Install Safety barrier to minimum 1.1m height.

#### Mid Term (Within 6 Weeks):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Detail Engineering Assessment to be completed.

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3. Building engineer to check, collect information and produce accurate and complete as-built documentation soonest. (refer Detail Engineering Assessment item 1 above).
4. Drawings to include accurate survey of partition walls, antennae, toilet floor buildup equipment & water tanks.
5. Install Balustrade at edge of Stairs.

### Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Roof moisture protection and drainage system to be installed in area where previous roof has been removed.
3. East Stairs to be protected from water ingress.
4. Downpipes to be repaired throughout.
5. Engineer to inspect water damaged structure including the exterior and propose a suitable repair.
6. Stairs to be checked by engineer for full emergency stair loading.

### **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 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. Configure the fire alarm system to initiate automatic occupant notification on all floor levels to facilitate whole building evacuation upon any manual fire alarm station activation.

#### Short Term (Within 3 Months):

1. Separate the boiler room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. 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.
3. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
4. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
5. Modify the stairs to provide a minimum stair width of 35-in.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

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7. 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. Provide fire rated construction to separate the second and third floors from the exit stairs. Provide sprinkler protection for the first (ground) floor in accordance with NFPA 13.
2. Replace the single-station smoke alarms with automatic smoke detectors tied into the fire alarm system. Configure the fire alarm system to initiate occupant notification upon activation of any two smoke detectors in addition to the manual fire alarm stations.

### Long Term (More than 6 months):

1. Provide sprinkler protection in accordance with NFPA 13.
2. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.
3. Provide automatic sprinkler protection throughout the building in accordance with NFPA 13.

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

#### Immediate (Within 1 month):

1. Breather oil cup must be filled with transformer oil to required level as instructed by the manufacturer.
2. Remove all the combustible materials from the transformer room.
3. Transformer room must be cleaned on a regular basis.

#### Short Term (Within 3 Months):

1. Service cables passing through walls must be protected in steel conduits.
2. Overhead service cable must be firmly fixed at both ends and supported on catenary wire.
3. Cables on floor may be supported on trays installed at safe locations.
4. Cables passing through permanent walls must be protected in steel pipes and remaining holes around the pipe must be sealed.
5. Existing panels may be rearranged to provide adequate working space, especially when the panels are open.
6. Cable terminating at the panel must be firmly fixed with glands.
7. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
8. Neutral bus bar that forms a part of the three phase system within the panel must be arranged to be enclosed within the panel.
9. Generator rooms must be provided with adequate ventilations.

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Mid Term (Within 6 months):

1. MCCB (electrical devices) mounted on the wall must be installed with protective enclosures.

Long Term (More than 6 months):

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