

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: APPAREL TODAY LTD.
Address of the Factory	: Plot no. 01, Road no. 01, Turag Housing, Gabtoli-Sadarghat Beribanbh Road, Mohammadpur, Dhaka-1207
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 21 May, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 30 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	: RC structure with beam and slab supported on columns
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total area of the building is 134,827 sq.ft.
v.	No. of Stories	: 8 storied
vi.	Construction Year	: 2006
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Signed in 2007 by RAJUK)
ix.	Soil investigation Report	: Available
x.	Construction Materials	: Brick aggregated
xi.	Generator	: 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. Provide continuous propping from ground floor to roof level to all beams loading onto the columns identified in the sheet below.
2. Loading to be reduced to 2 kPa throughout the building pending verification of column capacity by the Building Engineer.
3. Factory Engineer to review design, loads and column stresses in all areas
4. Verify in-situ concrete strength by taking a minimum of 4 No. cores from columns.
5. Verify reinforcement quantities and sizes for all columns in the ground and first floor.
6. A Detail Engineering Assessment of Main Factory Building to be commenced, see attached Scope.
7. Carry out load reductions as noted in Item 1
8. As part of Detail Engineering Assessment, Building Engineer to check capacity of slabs, beams and columns under locally highly loaded areas.
9. As part of Detail Engineering Assessment, Building Engineer to check capacity of slabs, beams and columns in the area where local fire damage has occurred.
10. As part of Detail Engineering Assessment, Building Engineer to commence re-survey of as-built structure and update drawings including a verification of the location of stairs.

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Mid Term (Within 6 Weeks):

1. Produce and actively manage a loading plan for all floor plates within the Factory Building giving consideration to floor capacity and column capacity.
2. Detail Engineering Assessment to be completed.
3. Complete as-built survey.
4. The steel roof over the Dining rooms on the 8th floor should be checked by the Building Engineer and, if required, upgraded to support vertical and wind loads in accordance with current codes of practice.

Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Building Engineer to investigate the beams to check if any reinforcement was cut during the drilling process. Building Engineer to review structural adequacy of the beams where reinforcement has been cut and to implement any upgrade works if required.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove locking features from all egress gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
2. 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.

Short Term (Within 3 Months):

1. 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 combustibile storage by a minimum clear distance of 3m.

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. Separate the boiler and generator rooms by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
4. Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

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6. 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. Provide additional exit on the north side as indicated in floor plans or provide sprinkler protection in accordance with NFPA 13.
2. Replace the single-station smoke alarms with automatic smoke detectors 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.
2. 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. Install the cable trench or tray or duct for HT Power cable and use the proper cover. Cable entry must be concealed in the Panel.
2. Install the cable tray or cable duct with cover for the power cables in the transformer room.
3. Transformer oil should be filled in the conservative tank and periodically checking is required.
4. Provide the PFI panel cover to avoid from the dust, and debris.
5. Establish a cleaning program to keep neat and clean the substation room. To clean the transformer, shut down the main line and clean the exterior of the transformer.
6. Install the panel base plate and provide the proper cable glands for cable.(Selection of glands should be suitable for the cables). Earthing and cleaning is required.
7. Cut-off the end of cable and the cable shall be reconnected terminals on MCCB. Use cable lugs to terminate cable on terminals.
8. Shut down the transformer and replace the silica gel or perform maintenance to remove moisture from it.
9. Electric cables must be supported and arranged on cable trays/duct or trench with metal covers. Provide cover made of noncombustible material on tray for preventing any physical damage & ingress of dust and debris in future.
10. Install cable trench or tray with cover for the cables in the floor. And steel conduits can use in the wall for the cables.
11. Flexible conduits should be replace by cable tray with cover and provide proper support for the cable tray.
12. Provide and repair the lagging material for silencer and exhaust line of generator.
13. Make circular hole at the base plate of panels and provide cable gland according to the respective cable size for cable entry and exit so that the cables are not stressed on the sharp

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edges of the hole of panels. Provide covers made of noncombustible material if any additional gap remains after installing cable glands.

14. Wiring should be re-arrange and proper cable dressing required.
15. A Provide earth connection for body and door of panel using green cables preferably braid so that the metallic door remains at zero potential all the time.
16. Replace the rusted bus-bar and also bolt, nuts and lugs with new one.
17. Every cables terminated to the bus must be installed using individual lug/terminal according to respective cable size to avoid loose connection and rearrange the cables.
18. Check the unbalanced loading or overloading at the phase wire. Establish a load management program for every panel board and avoiding any installation exceeding its capacity in future.

Short Term (Within 3 Months):

1. Remove all the multiple connections made at a single point of changeover switch (COS) in panel and connect individual branch cables to individual COS in panel providing individual lug according to the respective cable size. Mixing of branch circuit is not allowed. Additional panel board shall be installed at properly location considering the load.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA