

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: A.T.S. APPARELS LIMITED
Address of the Factory	: 414, Kouchakuri, Telirchala, Mouchak, Kaliakoir, Gazipur-1751
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 25 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 10 April, 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 2-way spanning solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Total floor area of the factory is 1,33,741 sq ft.
v.	No. of Stories	: 6 storied
vi.	Construction Year	: 2005
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (LGED Permit drawings, signed in 2006)
ix.	Soil investigation Report	: Available (Dated 2004)
x.	Construction Materials	: Brick aggregated
xi.	Generator	: Outbuilding

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. Factory Engineer to review design, loads and columns stresses.
2. Verify in-situ concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns.

Long Term (Within 6 Months):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Locations of loading noted to be surveyed and capacity of floor structure to be assessed by the Building Engineer to confirm that the floor slab is designed to carry these loads.
3. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
4. Building Engineer to provide detailed calculations for the single storey structures and the associated light steel roofs. These should confirm their ability to withstand all wind loading pressure, suctions and uplift forces.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

5. Building Engineer to provide calculations for the design of these ladders to confirm that their load carrying capacity is adequate. Connections to the building and overall detailing also needs to be reviewed.
6. Building Engineer to review the roof drainage and implement an appropriate drainage system that will prevent water ponding on the roof.
7. If any additions to the building structure are proposed, the Building Engineer shall provide calculations showing the structural adequacy of all columns taking into account any additions to the existing structure, the loading plans and as built structure, including insitu concrete strength testing.
8. Building engineer to check, collect information and produce accurate and fully complete as-built documentation.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

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. 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.
3. Remove manual on/off switches from emergency lighting / exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. Separate the hazardous materials / flammable liquid storage room by a minimum 2- hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. Separate the generator / transformer room by a minimum 2-hr fire-rated construction. Seal and/or protected 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 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.

5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
6. Provide additional notification appliances such that the fire alarm system is audible throughout the building in accordance with NFPA 72.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

7. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.

Mid Term (within 6 Months): NA

Long Term (More than 6 months): NA

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. LT cables should be supported in such a way that there will be no strain on the termination point (LT bushing) to avoid further leakage through bushing. Leakage must be checked during maintenance and repaired as soon as possible.
2. Wooden switchboard should be replaced by proper switchboard. Protective devices should be encased in metal casing made of 20 SWG thickness metal sheets.
3. Breather oil cup must be filled with transformer oil to the required level as instructed by the manufacturer.
4. Cables must be aligned and dressed on the cable ladder. Put tags on the cables for easy identification and maintenance.
5. Clean all the cable channels and put metallic cover on it to make it dust and vermin proof. Establish a routine cleaning program to keep the cable channels neat and clean to avoid fire hazard.
6. Use rigid PVC pipe for surface and exposed wiring throughout its whole length and support them at regular intervals. Use flexible pipe at the bending point only where it is unable to bend the rigid pipe by suitable fittings.

Short Term (Within 3 Months):

1. HT cable drawn from 11kV pole must be encased in steel pipe or rigid PVC pipe of required size and height of at least 2m above from the ground level to protect the cable from physical damage by moving objects.
2. Construct a separate room for the transformer by constructing barrier (brick) walls (fire rated wall) up to the ceiling; the minimum area of the transformer room should be 10-13 sq m (according to BNBC 2006, Section-2.6.3).
3. Provide covered cable ladder or perforated cable tray to support cables terminated to/from Changeover switch and distribution panel.
4. HT cable drawn from the 11kV pole must be firmly fixed to the pole with saddle clamps.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA