

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: MASHATA SWEATERS LTD
Address of the Factory	: South Panishail, BKSP, Kashimpur
Dhaka Present Status of the Factory	: Not in Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 9 April, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 7 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 a 2-way solid slab
iii. Floor System	: Beam slab
iv. Floor Area	: Unavailable
v. No. of Stories	: 6 storied
vi. Construction Year	: 2002
vii. Foundation Type	: Unavailable
viii. Design Drawings	: Available (Permit drawings)
ix. Soil investigation Report	: Unavailable
x. Construction Materials	: Brick stone chip
xi. Generator	: Ground floor in a separate shed 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):

1. The first floor & two others need to be closed down, another floor's load needs to be reduced to just below 2.0kPa and the 5th floor needs to be restricted to no more than 2.0kPa.
2. Verify in-situ stress and material properties by testing 100mm dia. Concrete cores of 4 columns.
3. Stabilize new staircase during construction.

Mid Term (Within 6 Weeks):

1. Commence Detailed Engineering Assessment.
2. Create and actively manage loading plan for all floors.
3. Carry out a detailed engineering assessment of steel staircases evaluating capacity to gravity and lateral loads.
4. Carry out detailed engineering assessment of steel work for sheds including lateral stability of trusses and tie down details for uplift forces.

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Long Term (Within 6 Months):

1. Consider applying a new waterproofing membrane.

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. Reduce the number of occupants on the 5th floor to no more than the capacity of the current available exits immediately. In the future, if greater occupant load is desired, add additional exits.
4. Replace all gates and 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.

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 dedicated storage rooms separated by minimum 1-hr fire-rated construction on the ground floor including fire rated doors and a corridor at the exit access. On the second floor 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.

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 documentation that fire doors are tested and certified in accordance with BNBC and NFPA 101.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
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): NA

Long Term (More than 6 months): NA

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Disconnect the power source of the cable laid into channel and clean dust and debris of all interior components. Establish a periodic cleaning program and maintain records of the activities. Provide cover made of noncombustible material on the channel for preventing ingress of dust and debris in future.
2. Clean the transformer(s) periodically as part of routine maintenance.
3. Transformer must be regularly cleaned and maintained as part of the routine maintenance. Care must be taken to completely disconnect the transformer from the electrical system.

Short Term (Within 3 Months):

1. Remove all the multiple connections made at a single point of bus bar and connect individual branch cables to individual points on bus bar using individual lug according to the respective cable size.
2. Cables in boiler room must be supported and protected. Cables on concrete floors near entrance may be placed such that it will not obstruct the exit/entrance.
3. Power cables terminating at control panel and entering ceiling must be protected and supported. The cables must be supported through the ceiling in rigid conduit/pipe or in covered trays.
4. HT cables must be laid in cable trench and supported on cable trays. Existing cable may be protected and supported in cable trays through safe route raised at safe height.

Mid Term (Within 6 months):

1. Maintain sufficient working space (1 meter preferably) around the power transformer.
2. Cables must be protected from external damages and must be laid/supported on cable trays. It is recommended to lay cable in covered trenches, under floor level or covered cable-ducts installed on floor.
3. Remove all the multiple connections made at a single point of bus bar and connect individual branch cables to individual points on bus bar using individual lug according to the respective cable size.
4. Use rigid PVC pipe for surface and exposed wiring through-out its length and supported properly (clamped with saddle, at regular interval of 600 mm).The conduit shall run vertically or horizontally, shall never at angle.. Flexible conduit must not be used for long point wiring (except for special wirings).
5. Existing wooden ducts supporting wiring may be replaced with non-combustible ducts, with ample strength and rigidity, supported at regular intervals.
6. Cables/wirings passing through permanent wall must be protected and remaining gaps must be sealed with fire resistant materials.

Long Term (More than 6 months): NA