

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: TOP STYLE SWEATERS LTD.
Address of the Factory	: Vogra, Bashon Road, Joydevpur, Gazipur-1700
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 10 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 31 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	: 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	: Total floor area of the building is 42,000 sq-ft.
v.	No. of Stories	: 6 storied
vi.	Construction Year	: 2001
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Permit drawing)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: South side of 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. Carry out structural assessment of the load, and the capacity of the building to support it.
2. Move boiler to ground floor if structure is over-capacity.
3. Carry out full detailed structural analysis to determine slab, beam and column capacities, with respect to the current and anticipated load conditions.

Mid Term (Within 6 Weeks):

1. Develop loading plan to ensure that maximum loads are not exceeded in future.
2. Develop full loading plan, as outlined in Item 1.
3. Carry out any structural modifications deemed necessary by the detailed analysis.
4. Carry out simple repair works to ensure that waterproofing covers the whole roof level, with a suitable drainage system for water take-down.

Long Term (Within 6 Months):

1. Maintain aforementioned load plan and monitor the building to ensure that it is adhered to.
2. Adhere to the completed loading plan, as outlined in Item 1.

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3. Repair existing damp to ceiling of 5th floor level (underside of roof slab).
4. Monitor underside of slab to ensure that signs of damp do not return; if they do then further structural checks should be sought.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
2. Replace all 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 locking features from all egress doors and gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
4. Remove electrical service room in Exit Stair or provided 2hr fire rated separation.

Short Term (Within 3 Months):

1. Separate the boiler and generator, transformer and room by a minimum 2-hr fire-rated construction. Seal and/or protect 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. 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 combustible storage by a minimum clear distance of 3m.

4. Provide a minimum 2-hr fire-rated shaft to separate the utility risers from each floor level. Or Seal all penetrations and openings in floor/ceiling assemblies to maintain the fire separation.
5. Separate the hazardous materials / flammable liquid storage room by a minimum 2-hr fire-rated construction. Seal and/or protect all openings to maintain the required fire separations.
6. 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.
7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

Mid Term (within 6 Months):

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1. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.
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.
3. Regularly test the emergency lighting system on each floor and replace/repair lights as needed.

Long Term (More than 6 months): NA

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Proper connector (PVC connector) with PIB tape wound around, with junction box shall be provided for every cable joint.
2. 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.
3. Existing cables passing through collapsible gate must be removed immediately and cables must be protected and supported and installed through safe and prescribed routes.
4. Install cable tray with metallic cover to provide mechanical support to cables laid haphazardly on the floor.
5. Remove all the multiple connections made at a single point of earth bar and connect individual branch cables to individual points on earth bar using individual lug according to the respective cable size.
6. Make circular hole at the base plate/top 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 edges of the hole of panels. Provide covers (of noncombustible material) if any additional gap remains after installing cable glands.
7. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.

Short Term (Within 3 Months):

1. Install cable or ladder to support the main service cables from pole mounted distribution transformer to main switch (MCCB).
2. Top/below cables of electrical panels must be supported and latched into cable trays or ladders.
3. Assign an electrical engineer to determine the capacity of the installation and redesign the wirings of the panel. If the wirings and loads exceed the capacity of the panel, install additional panel. Establish a load management program for avoiding any installation exceeding its capacity in future. Install slotted wiring-duct inside the panel to arrange and latch the haphazard cables.
4. 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

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activities. Provide cover made of noncombustible material on the channel for preventing ingress of dust and debris in future.

5. Cables terminating in distribution boards must be supported with cable tray and protected throughout its length till the panel base plate.
6. Cables/wirings passing through permanent wall must be protected and remaining gaps must be sealed with fire resistant materials.
7. All cables must be supported placing inside covered tray/raceway.

Mid Term (Within 6 months):

1. Electrical Panels located in below stairs must be relocated to safe location. Every item of installation shall be arranged so as to facilitate its operation, inspection, maintenance & access. Keep the provision for appropriate door while constructing the wall.

Long Term (More than 6 months): NA