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| Name of the Factory | : | **ZOOM SWEATERS LTD.** |
| Address of the Factory | : | Paity Road, Demra, Dhaka-1362, Bangladesh |
| Dhaka Present Status of the Factory | : | **Under Operation** |
| Structural assessment conducted by | : | Accord (Full report available at bangladeshaccord.org) |
| Date of Structural Inspection | : | 11 March, 2014 |
| Fire & Electrical assessment conducted by | : | Accord (Full report available at bangladeshaccord.org) |
| Date of Fire & Electrical Inspection | : | 3 March, 2014 |

**Basic Information:** The present garment factory is a commercial building with beam-column frame system. The following general information was noted:

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| i. | Building Usage Type | : Garment factory |
| ii. | Structural System | : R.C Beam and column frame with a 1-way solid slab |
| iii. | Floor System | : Beam slab |
| iv. | Floor Area | : Unavailable |
| v. | No. of Stories | : 8 storied |
| vi. | Construction Year | : 2002 |
| vii. | Foundation Type | : Unavailable |
| viii. | Design Drawings | : Available |
| ix. | Soil investigation Report | : Available |
| x. | Construction Materials | : Stone aggregated |
| xi. | Generator | : Ground level in a separate structure |

**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. A detailed engineering assessment is to be performed upon the steel roof structure.

Mid Term (Within 6 Weeks):

1. Factory engineer to review design loads and column stresses.

Long Term (Within 6 Months):

1. Produce and actively manage a loading plan for all floors within the factory giving consideration to the floor capacity and column capacity.

**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 exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. 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.

2. Provide a minimum 2-hr fire-rated shaft to separate the utility risers from each floor level. Seal all penetrations and openings in floor/ceiling assemblies to maintain the fire separation.

3. 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. Separate the storage rooms by minimum 1-hr fire-rated construction (fire doors) and seal all penetrations from the storage rooms to the interior of the building.

5. Provide minimum aisle widths of 36-in.

6. Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 75 ft.

7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

8. 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. The existing horn units on the exterior of the north stairwell may provide adequate audibility. Test the fire alarm system on all floors from the most remote locations and if adequate audibility is not achieved, provided additional notification appliances such that the fire alarm system is audible throughout the building in accordance with NFPA 72.

2. Replace the single-station smoke alarms with automatic smoke detectors tied into the fire alarm system. Based on ceiling configuration, space the detectors in accordance with NFPA 72. 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 for discharge floor 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. Replace silica gel and must include in routine maintenance to check and maintain.
3. Clean the cable trench and cover it to prevent from falling debris.
4. Clean regularly and protect the panel from ingression of lint and dust by closing all sides and doors.
5. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
6. Generator frame must be connected to earth with proper size earth conductor. Solid copper conductor connecting to earth must be connected securely with loops.
7. Floors in generator room must be free from water and oil spillage.

Short Term (Within 3 Months):

1. HT and LV cables may be laid in different trays, in tiers and in the same trench.
2. Cables passing through permanent walls must be protected in steel pipes and remaining holes around the pipe must be sealed.
3. Cable terminating at the panel must be firmly fixed with glands and at gland plates, to reduce stress at the termination point.
4. Cables terminating at the generator panel must be firmly fixed at the panel with cable glands and supported on riser from the cable trench.
5. The transformer guard must be connected to the earth.
6. Transformer may be separated from panels by constructing barrier walls.

Mid Term (Within 6 months):

1. Cables below panels must be laid in trench and supported in cable trays.
2. Wire terminating to devices inside panel must be connected firmly and wires approaching devices must be securely fastened to avoid unintentional contact with live parts.
3. Wiring inside panel bunched with cable ties must be securely fastened to the panel using fasteners or screws.
4. Conduits not meant for electrical use must have properties equivalent to conduits with ample strength and rigidity to be able to protect and support cables drawn in it. Cables in conduits must be protected throughout its length.
5. Flexible PVC conduits on walls and column must be additionally protected and supported on trays or risers.

Long Term (More than 6 months): NA