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| Name of the Factory | : | **DIVINE TEXTILE LTD.** |
| Address of the Factory | : | Chandra, Kaliakoir, Gazipur, Bangladesh |
| Dhaka Present Status of the Factory | : | **Under Operation** |
| Structural assessment conducted by | : | Accord (Full report available at bangladeshaccord.org) |
| Date of Structural Inspection | : | 22 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:

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| i. | Building Usage Type | : Garment factory |
| ii. | Structural System | : R.C. Beam and column frame with 2-way spanning solid slabs from basement to roof levels |
| iii. | Floor System | : Beam slab |
| iv. | Floor Area | : Building 1: 15370 sq.ft. per floor, Building 2: 3000 sq.ft. per floor, Building 3: 2000 sq.ft. per floor |
| v. | No. of Stories | : Multi storied |
| vi. | Construction Year | : 1997-2007 |
| vii. | Foundation Type | : Unavailable |
| viii. | Design Drawings | : Available |
| ix. | Soil investigation Report | : Available |
| x. | Construction Materials | : Brick and stone chips aggregated |
| xi. | Generator | : In Generator 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. Water tank on 4 storey building should be emptied and the tank structure removed.
2. Ensure existing floor loads are not increased.
3. A Detail Engineering Assessment (DEA) to be commenced for both the 4 and 6 storey buildings -see attached Scope.

Mid Term (Within 6 Weeks):

1. Detail Engineering Assessments to be completed.
2. Factory Engineer to review design, loads and columns stresses for all three buildings (four, six and eight store buildings).
3. Verify insitu concrete strengths (using min. 4 no. 100mm dia. cores) and existing reinforcement for all columns.
4. Produce and actively manage a loading plan for all floor plates within all buildings, giving consideration to floor capacity and column capacity. This should include a safe level to which water tanks can be filled.
5. Factory Engineer to review design, loads and columns stresses in 8 storey building.

6. Building Engineer to survey as-constructed buildings. Updated drawings to be prepared showing the correct as-constructed layout.

7. Building engineer to access extent and cause of water ingress and implement preventative measures to protect the structure from any further damage.

8. Sections of plaster finish to beams to be removed to investigate if cracks penetrate the building structure. Building Engineer to review further if cracks are found to penetrate into building structure.

9. Carry out repair remedial works as required.

Long Term (Within 6 Months):

1. Continue to implement load management plan.

2. Prepare/update calculations showing the structural adequacy of the building structure taking into account the factory design imposed loading and the as-built structure.

3. Prepare controlled loading plans for all floors designating where storage can / cannot be placed.

4. Continue to monitor structure for water ingress on an on-going basis.

5. Continue to monitor for cracking on an on-going basis.

**The recommendations for Fire Safety corrective actions are:**

Immediate (Within 1 month):

1. Keep egress paths and stairs clear of storage.

2. Remove all storage from exit stairs and egress paths.

3. 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.

4. Remove locking features from all egress doors / gates. 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. Where separate storage rooms are not 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 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.

5. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.

6. Provide minimum aisle widths of 36-in.

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.

9. 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):

1. 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.

**The recommendations for Electrical Safety corrective actions are:**

Immediate (Within 1 month):

1. Disconnect the power source of the panel and clean dust and debris of all interior components. Provide covers (may be metal) if any additional gap remains after installing cable glands. Establish a periodic cleaning program and maintain records of the activities.

2. Generator Battery bank should be placed inside the steel frame (battery rack).

3. Clean the dust & put metallic cover (checkered plate) on to the cable trench to prevent the further accumulation of the dust, lint.

4. Disconnect the electric supply to the duct and clean all the cables and other components of the duct. Provide cover made of non-combustible material preferably metallic sheet on the duct to prevent ingression of dust and lint.

5. Remove the drum from the panel and keep the panel from any debris.

6. Replace the broken switchboard with new switchboard.

7. Cables must be routed through a safe place. Provide cable duct to protect and support.

Short Term (Within 3 Months):

1. Wiring looped at MCCB terminals may be replaced by installing additional Bus bars to terminate cables of noted MCCBs.

2. Multiple wires connecting at a MCCB terminal must be removed. Individual circuit breaker must be used for each load according to the respective wire-size.

3. Cables entering panel must be protected in covered cable-tray/ladder up to the base-plate of the panel to prevent any physical damage.

4. Sharp cable bends shall be avoided such that no stress is imposed on the termination of the cable or insulation of the cable.

5. Install a cable tray/ladder or duct (instead of using flexible pipes) installed on floor, at safe location ranging from generator terminal (output) box to panel to support the generator output cables.

6. Metallic cover (checkered plate) should be provided on cable trench to prevent the damage of cable insulation and to avoid incident during maintenance.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA