

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: DESIGNTEX SWEATERS LTD.
Address of the Factory	: Plot # 255, Konabari, 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	: 23 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 30 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	: RC flat slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The floor area = (14,000 sq.ft)x 6 = 84,000 sq.ft
v.	No. of Stories	: 6 storied
vi.	Construction Year	: 2000
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Signed in 2000 by the Local Municipality)
ix.	Soil investigation Report	: Available (Dated 1999)
x.	Construction Materials	: Stone aggregated
xi.	Generator	: Ground floor adjacent 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. Ensure loading on all floors does not exceed 1.5kPa.
2. Maintain the current use of the floors and don't change use or increase occupation, either of which could increase loading.
3. Factory Engineer to review design, loads and columns stresses in all columns.
4. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from min. 4 no. columns.
5. A Detail Engineering Assessment of Factory to be commenced, see attached Scope.

Mid Term (Within 6 Weeks):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Detail Engineering Assessment to be completed.
3. Structural Checks for the floor and roof slabs to be included as part of the Detail Engineering Assessment. This should also assess the slab strength to resist punching shear.
4. Lateral Stability checks for the main building to be included as part of the Detail Engineering Assessment.

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Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity including punching shear in flat slabs and column capacity.
3. Implement any actions identified in the above noted checks.
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.
5. Building Engineer to organize exploratory opening up works to identify the cause. Remedial works to be carried out as appropriate.
6. 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 all storage from exit stairs and egress paths.
2. 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.
3. Reduce the occupant load on floors 3 and 6 to no more than the maximum exit capacity immediately. In the future, if the greater occupant load is desired, provide 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. 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.
2. Provide minimum aisle widths of 36-in.
3. Provide additional exit(s) and/or provide sprinkler protection in accordance with NFPA 13.
4. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
5. Replace back side of exit signs with entrance sign or blank.
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):

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1. Remove single-station smoke alarms. Provide automatic smoke detection throughout the building, tied into the fire alarm system, in accordance with NFPA 72.

Long Term (More than 6 months):

1. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Shut down the transformer and replace the silica gel or perform maintenance to remove moisture from it. Consult with transformer servicing company before performing the task. Establish a routine maintenance & inspection program for transformer to ensure any future repetition of the occurrence.
2. Arrange periodic inspection & thermal scan to identify the overloading, loose connection, unbalanced load which may cause the excessive heat-rise and take action accordingly.
3. Cables/wirings passing through permanent wall must be protected installing pipes and remaining gaps must be sealed with fire resistant materials. Cable tray /raceway shall be installed for the support of the cable throughout its length.
4. 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.
5. Control devices inside panel must be fixed rigidly with proper nut-bolt/screw (may be provided by manufacturer) inside panel.
6. Make circular hole at the base 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. Provide earth connection for doors of metallic distribution boards using green cables preferably braid so that the metallic door remains at zero potential all the time.
8. Cables terminating at panel must be supported and arranged on cable trays or ladder up to the base plate of the panel.

Short Term (Within 3 Months):

1. 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.
2. 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.
3. Metallic cover (checkered plate) should be provided on cable trench to prevent the damage of cable insulation or ingress of dirt/debris.

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Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA