

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: DENIM EXPERT LTD.
Address of the Factory	: Plot #96-100, Sector #3, Kepz, North Patenga, Chittagong
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 20 May, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 11 May, 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	: Beam slab frame
iii. Floor System	: Beam slab
iv. Floor Area	: The typical plinth area is 64000 sq. ft and total production area is 145,000,00.00 sq. ft.
v. No. of Stories	: 3 storied
vi. Construction Year	: 2007
vii. Foundation Type	: Unavailable
viii. Design Drawings	: Available (signed by the BEPZA on the 11.06.07)
ix. Soil investigation Report	: Unavailable
x. Construction Materials	: Stone aggregated
xi. Generator	: Adjacent to North facing wall

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): NA

Mid Term (Within 6 Weeks): NA

Long Term (Within 6 Months):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity. This should include a safe level to which any water tanks can be filled.
2. Continue to implement load management plan.
3. Building engineer to check the capacity of non-engineered lightweight roofs under horizontal and vertical loading and make any necessary alterations.
4. Building engineer to prepare a set of "as built" drawings for all structures linked to the factory's activities. Permit documentation and drawings also to be updated.
5. Capacity calculations were completed on the columns for the vertical expansion of the building and showed that the column stresses are in excess of the calculated capacity should the building be extended above 5th floor.
6. Detailed engineering calculations and confirmatory testing of the concrete strength is to be completed to verify future expansion above 5th floor.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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.

Short Term (Within 3 Months):

1. Separate the hazardous materials / flammable liquid storage room by a minimum 2hr fire-rated construction. Seal and/or protected 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 a minimum 2-hr fire rated shaft to separate the utility risers from each floor level.
4. Separate the transformer and generator room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
5. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
6. Relocate day-care room to ground floor with maximum travel distance of 9m (30 ft).
7. Provide handrails on at least one side of exit stair.
8. Provide minimum aisle widths of 36-in.
9. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
10. 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. Alter the conventional fire alarm system to meet the requirements in accordance with NFPA 72.

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
2. All panel door in the factory must be connected to earth, if not specifically designed for unearthed system.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

3. Wooden planks or boards used for mounting electrical panels or apparatus must be removed and if necessary, must be of non-combustible materials.
4. Check and tighten connections. If the connections are burnt remove the socket and replace by new one.
5. MCCB (electrical devices) mounted on the wall must be installed with protective enclosures.
6. Floors in generator room must be free from water and oil spillage. Maintain proper drainage around electrical facilities.
7. LPG cylinders must be immediately removed and no flammable materials must be placed near to the generator exhaust.
8. Combustible materials used on BBT must be removed.
9. Bucholtz relay trip and alarm switch must be incorporated in the transformer protection systems.
10. Breather oil cup must be filled with transformer oil to required level as instructed by the manufacturer.
11. Replace silica gel and must include in routine maintenance to check and maintain.

Short Term (Within 3 Months):

1. Panel base plates must be installed, at all time, and cable(s) entering panel must be firmly fixed with cable gland.
2. Electrical facilities in dyeing & washing sections, may be installed at safe height and the panels may be IP rated to avoid damages due to moisture ingress.
3. MCCBs controlling circuits connected through smaller size cables must be checked and coordinated as per the connected load.
4. Panel must be connected with dedicated earth and connection of earth strip to the panel frame does not substitute the requirement of earth connection.
5. Panel base must be securely fixed to the foundation, with appropriate fastening devices. Panel base frame may be used on foundation to mount the panel.
6. Extend the air gap between the electrical cable raceways/trays and steam pipe line.
7. Cables must be supported on tray or riser.
8. Overhead cables must be firmly fastened at both ends.
9. Barrier wall has to be constructed around the generator to protect against rain or the roof overhung must be increased to avoid rain entering into generator.
10. The holes/punctures in roof must be sealed to avoid water ingress in the generator.
11. Any form of wood materials in cable ducts must be avoided, non-combustible/non-flammable materials can be used.
12. Existing transformer may be relocated.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

13. Instrument transformers (PT & CT) must not be laid directly on floor without proper enclosure. It must be protected and supported.

Mid Term (Within 6 months):

1. Transformer may be separated from panels by constructing barrier walls.

Long Term (More than 6 months): NA