

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: AMAZON TEX KNIT FASHION LTD
Address of the Factory	: Jobeda Plaza, 85 AC Dhar Road, Kalirbazar, Narayangonj
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 10 May, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 21 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	: RC beam slab, RC flat slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 5 storied
vi.	Construction Year	: 2002
vii.	Foundation Type	: Piled foundation with isolated pile caps
viii.	Design Drawings	: Available (Dated 2004, signed by RAJUK)
ix.	Soil investigation Report	: Available (Dated 2000)
x.	Construction Materials	: Stone Chips with small amounts of brick aggregate
xi.	Generator	: Generator room on the 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): NA

Mid Term (Within 6 Weeks):

1. Building Engineer to check shear capacity of flat slabs throughout as part of a Detailed Engineering Assessment (see scope overleaf).
2. Verify insitu concrete stresses by taking 100mm slab cores from at least 4 locations. Building engineer to define safe location for cores in middle of bay.
3. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity.
4. As part of punching shear check (Item 1) Building Engineer to review design, loads and columns stresses in edge columns.
5. Verify insitu concrete stresses either by 100mm diameter cores from 4 columns or existing cylinder strength data. Structural engineer to determine safe locations for cores to be taken.

Long Term (Within 6 Months):

1. Undertake remedial works recommended by the DEA.
2. Continue to implement loading plan.

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3. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
4. Building engineer to confirm the as-built columns are adequate in the positions in which they have been constructed.
5. Carry out remedial works if required.
6. All edges at height including stairs and suspended slab to be made safe by edge protection or restricted access.

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. 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. Provide exit signs above all exits to the exterior and all doors to the exit stairs.

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 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.
3. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
4. Separate the boiler and generator rooms by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
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):

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.

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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.
2. Provide additional notification appliances such that the fire alarm system is audible throughout the building in accordance with NFPA 72.

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. The cables must be weather resistant and supported with steel wire up to the building. Install cable ladder to support rest of the main service cables to main switch (MCCB).
2. Protective devices should be encased in metal casing made of 20 SWG thickness metal sheets. 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 non-combustible material) if any additional gap remains after installing cable glands.
3. Periodic inspection is needed to identify all the loose connection and tighten up all the connections. Use single (individual) cables from the bus bar to MCB input or use plugin bus bar for MCB input to avoid loose connection.
4. Remove the damaged earth cable from the panel. All panels must be grounded (at least at one point) and earth conductor must be sized according to the BNBC requirement (min size 14SWG, 16mm² for main conductor sizes 16-35mm² Main conductor size above 35mm² the earth conductor must be half the main conductor).
5. Proper graded (Class II) insulating-mat must be placed permanently in-front of all electrical panels.
6. Install metallic (non-combustible) cable channel over the floor and provide metallic cover on it to keep it dust and vermin proof. Establish a periodic cleaning program to keep all the duct/trays/channel dust-free.
7. Check the noted earthing cable and ensure the earth continuity is okay. Periodic earth continuity test should be performed to ensure earth continuity of the installation/equipment.
8. Keep the Batteries inside a metal casing (acid proof) and insulate its terminal by insulating material to prevent the risk of short circuit which may occur due to falling foreign material on it.
9. Fasten all the protective devices rigidly inside the panels and use industrial graded (heat resistant) pipe/steel pipe for control and power cable-carrying inside the boiler room.
10. Use industrial graded (heat resistant) pipe for control and power-wiring of boiler.
11. Install additional lights in generator room for sufficient illumination (at least 150 lux).
12. Floor of generator room must be kept free from water and oil spillage.

Short Term (Within 3 Months):

1. Enlarge the existing generator room to provide sufficient working clearance around generator as per BNBC table 8.2.9. or keep sufficient (1 meter preferably) around the generator for ease of its maintenance.

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Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA