

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: BANDHAN KNIT FASHIONS LTD.
Address of the Factory	: A-16/17, BSCIC Hoisery Industrial Area, Shashongaon, Enayetnagar ,Fatullah, Narayangnaj, Bangladesh
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 5 April, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 29 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	: R.C. beam & column frame with 2-way spanning solid slabs from 1stfloor to roof level
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 6 storied building
vi.	Construction Year	: 2011
vii.	Foundation Type	: Pad/piled foundations indicated on drawings
viii.	Design Drawings	: Available
ix.	Soil investigation Report	: Available
x.	Construction Materials	: Unavailable
xi.	Generator	: In 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):

1. Maintain current use of the floors and don't change use or increase occupation, either of which could increase loading.
2. Produce 'as-built' general arrangement structural drawings.
3. For all columns in building engage a structural engineer to review loads, design, and concrete stress.
4. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for 4 columns.
5. A Detailed 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 column capacity.
2. Detailed Engineering Assessment to be completed.
3. As part of the Detailed Engineering Assessment engage a structural engineer to ascertain the load-carrying capacity of the slabs and beams within the building and make proposals for remediation measures (such as load reduction), if required.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

4. Produce and actively manage a loading plan for all floor plates within the factory, giving consideration to floor capacity and column capacity.
5. To brickwork above large opening in masonry panel at Ground Level either engage an engineer to design and specify permanent support to brickwork, or remove remainder of masonry up to underside of beam above opening.

Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Significant vibrating mechanical equipment such as generators to be set on isolation pads.
3. Engage an Engineer to monitor the cracking in masonry panels to the façade and at Level 1. Engage an engineer to specify repairs/strengthening and masonry tying if necessary.

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 combustible materials from exit stair landings.

Short Term (Within 3 Months):

1. Seal all penetrations and openings in floor/ceiling assemblies to maintain the fire separation.
2. Separate the boiler room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
3. 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 93m²Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.
4. Separate the generator room 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. 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.
7. Provide exit signs above all exits to the exterior and all doors to the exit stairs.

Mid Term (within 6 Months):

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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.

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. Cables must be terminated to MCCB providing lugs of required size according to the size of the respective cable.
2. Tighten all the loose connection and cables must be terminated to MCCB providing lugs of required size according to the size of the respective cable. Use heat shrinkable PVC cable sleeve after PIB tape used wound around the lug.
3. Use steel pipe installed on floor, clamped at necessary interval (preferably 600 mm), at safe location for laying the cable to ensure the protection of the cable.

Short Term (Within 3 Months):

1. Install cable or ladder to support the main service cables from pole mounted distribution transformer to main switch (MCCB).
2. Wires terminating to devices inside panel must be connected firmly and wires approaching devices must be securely fastened to avoid unintentional contact with live parts. Install slotted wiring duct to latch the cable inside the duct.
3. Use PVC slotted duct inside the panel to support and latch the cables. Use cable tray/ladder to support the cable outside the panel. Use industrial graded flexible pipes instead of using normal flexible pipes if required.
4. Install metallic (non-combustible) cable duct 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.
5. Use cable tray/ladder with cover (metal) to support the cable (laid vertical and horizontal) outside the panel. Use industrial graded flexible pipes instead of using normal flexible pipes (if required).
6. Replace re-wireable fuses (cut-out fuse) with MCCB for protection of the circuits. Select the MCCB according to the cable size such as the rating of the MCCB does not exceed the current carrying capacity of the cable.

Mid Term (Within 6 months):

1. Existing wooden ducts supporting wiring must be replaced with non-combustible ducts made of metal sheets.

Long Term (More than 6 months): NA