

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: BASE FASHION LTD.
Address of the Factory	: 62, Sathaish Road, Gazipura, Tongi, Gazipur-1712, Bangladesh
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 24 October, 2013
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 25 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 Slab on RC Beams and RC Columns
iii.	Floor System	: Beam slab
iv.	Floor Area	: Each floor area is 5440 sq ft
v.	No. of Stories	: 8 storied
vi.	Construction Year	: 2006
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Dated August 2006)
ix.	Soil investigation Report	: Available (Dated May 2006)
x.	Construction Materials	: Brick chip aggregated
xi.	Generator	: On ground floor at exterior 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):

1. Reduce loading as detailed on Page 2 of executive summary.
2. Factory Engineer to review design, loads and columns stresses in area identified above.
3. Verify insitu concrete stresses either by cores or existing cylinder strength data for all columns
4. A Detailed Engineering Assessment of Factory to be commenced.
5. Brickwork above parapet to be removed or to secure by appropriate measures.
6. Limit loading in this area to a maximum permissible design load, to be advised by Factory owner engineer.
7. Remove loading until advised of acceptable load.

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. Detailed Engineering Assessment to be completed.

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Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Engineer to check the roof slab taking into account the design load. Load needs to be limited to design load by eg. Limiting stack height.
3. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
4. Limit loading in this area to maximum permissible design load.
5. Engineer to perform as built structural drawings which match the as built structure.
6. Engineer to inspect all structure including the exterior for water damage and propose a suitable repair. Roof drainage system to be installed.

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. Remove locking features from all egress doors / gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
4. 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.
5. Remove manual on/off switches from emergency lighting and exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. Separate the boiler / generator / transformer rooms by a minimum 2-hr 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 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. Provide minimum aisle widths of 36-in.
5. Relocate day-care room to ground floor with maximum travel distance of 9m (30 ft).
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

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Mid Term (within 6 Months):

1. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas).
2. Provide additional notification appliances such that the fire alarm system is audible throughout the building in accordance with NFPA 72.
3. 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. Use steel pipe (instead of flexible pipes), clamped with saddle on floor, to ensure the mechanical protection of the cable laid on floor otherwise cable insulation may damage due to falling object or stepping of occupants on it.
2. Remove the cables from the MCCB output terminal and power should be taken from the bus bar via a MCB (TP).
3. All cable channels should be sealed properly to avoid ingress of dust and lint deposit in it. Establish a routine cleaning program to keep the channels neat and clean.
4. Establish a routine cleaning program to keep the panel neat and clean.
5. Use proper sized cable lugs according to the respective cable size to be terminated.
6. Select the protective devices according to the connected cable size to be protected i.e. the rated current of protective devices (ACB, MCCB, MCB) does not exceed the current carrying capacities of the conductors.

Short Term (Within 3 Months):

1. 11kV HT cable on concrete floor must be carried in cable tray with protective cover to protect the cable against physical damage due to falling objects and stepping of occupants.
2. Make circular hole into the base plate and fit cable glands into the holes; select the glands 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 as well as reduce strain on termination point. Provide covers (of noncombustible material) if any additional gap remains after installing cable glands to make the panel dust and vermin proof.
3. Disconnect the transformer from the grid and clean the transformer room. Establish a periodic cleaning program as a part of periodic maintenance to keep the transformer room neat and clean.
4. Panels in electrical room or substation must be arranged/relocated to provide obstacle free operation and maintenance.

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5. Install separators between different phases of MCCB to avert flashover. Standard separators provided by the MCCB manufacturer must be used.
6. Install cables tray/riser with protective cover to support the entering and leaving as well as to reduce strain on the termination point. Arrange the cables on the riser or tray in good fashion by putting tags on cables for easy identification and maintenance.
7. Replace the damaged batten with a new batten or rigid PVC conduit for surface wiring.
8. Cables connecting to bus bars inside panel must be connected firmly with cable lugs. Cable terminating to the bus bars must be fixed with proper sized nut, bolt and washer. Terminate each cable individually on the bus bar. Multiple cables shall not be terminated on same point of bus bar.
9. Making joint in cable is discouraged if necessary or unavoidable joint the cables by using proper cable jointing kits or cable connector with proper tapping around it.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA