

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: BAY CREATION LTD
Address of the Factory	: Gafur Super Complex, Horihorpara, Enayetnagar, Fattullah, Narayangonj
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 16 March, 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	: Multi-purpose
ii.	Structural System	: R.C. Beam and Column frame with a 1-way solid slab for 2 nd to 5 th floors. Flat slab for Ground and 1 st Floor
iii.	Floor System	: Beam slab
iv.	Floor Area	: The area of 4th floor is 9876sq.ft and 5th floor is 6500sq.ft.
v.	No. of Stories	: 6 storied
vi.	Construction Year	: 2003
vii.	Foundation Type	: Piled foundation
viii.	Design Drawings	: Available (Signed in August, 2008 by RAJUK)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: South end of the 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. Maintain current use of the floors and don't change use or increase occupation, either of which could increase loading.
2. Building Engineer to verify whether the perimeter columns are free standing or merge with structural retaining walls at basement level. Floors to be cleared in the vicinity of the external columns.
3. Excess material from roof to be removed.
4. A Building Engineer should check the new stability system for the building as it does not match the permit drawings.
5. Building engineer to check, collect information and produce accurate and complete as-built documentation.

Mid Term (Within 6 Weeks):

1. Produce and actively manage loading plans for all floors within the factory giving consideration to floor capacity and column capacity.
2. Verify in-situ concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns.

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3. A Building Engineer to complete the assessment of the stability system and make recommendations based on his findings.
4. Provide a copy of new drawings to Building Owner to keep as records.
5. Sections of plaster finish to beams to be removed to investigate if cracks penetrate the building structure.
6. Manage drainage from above levels and water tanks to downpipes to avoid structural corrosion due to continuous moisture. Vegetation to be removed.
7. Building Engineer to inspect and make recommendations on steel truss supports to resist high wind loading.

Long Term (Within 6 Months):

1. Continue to implement load plan.
2. Building Engineer to carry out design check on beams to confirm that these cracks are non-structural.
3. Building Engineer to prepare Allowable Floor Loading Plans.
4. Continue to check for water damage and vegetation growth.
5. Implement Building Engineer's recommendations.

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.

Short Term (Within 3 Months):

1. Separate the boiler room 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 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.

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4. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
5. Regularly inspect all exit signage and replace/install lights as needed to illuminate signs.
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. 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. Provide automatic smoke detection throughout the building 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. Generator body must have two separate and distinct earth connections with 35 sq.mm conductor.
2. Provide earth connection for body and doors of metallic distribution boards using green cables preferably braid so that the metallic door remains at zero potential all the time.
3. Remove all rusty nut bolts and connect the cables to terminals by using copper lugs according to the size of the respective cables. Proper crimping tools must be used to punch the socket.
4. Provide phase separators between poles of MCCB made of noncombustible materials preferably use rubber having enough dielectric strength to insulate phases from each other.
5. Arrange periodic inspection & thermal scan to identify the overloading, loose connection, unbalanced load which may cause the excessive heat-rise and take action accordingly.
6. Any rotating or moving electrical devices must be controlled by starters to prevent automatic start when electric supply is re-established.
7. Three pin sockets must be connected to earthing with proper size green cable (minimum cable size 14 SWG).

Short Term (Within 3 Months):

1. Cable must be supported on riser/tray and protected. Install cable tray to protect the cables and provide covers made of non-combustible material preferably metal to protect the cables' insulation from any physical damage.
2. Install change over switch or interlock system to operate generator safely and ease operation.

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3. Electrical protective device must be removed from wooden board/plank. Electrical devices must be protected and installed in metal casing enclosure made of 20 SWG thickness metal sheets. Re wire able must be replaced with MCB.
4. Panel(s) installed in production or work areas must not obstruct the egress and should be placed at safe distance from the exits such as emergency exit is not obstructed by the panel.
5. Instead of rewire-able fuse, use MCCB for protection of electrical system.
6. Cables behind panel must be supported and latched into cable trays or ladders. Provide cover made of non-combustible material preferably metallic sheet to protect the cables' insulation from physical damage as well as prevent the ingress of debris, dust and lint.
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8. 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.
9. Panel must be firmly fixed with concrete floor using suitable nut bolts.
10. Assign an electrical engineer to determine the capacity of the installation and redesign the wirings of the panel. If the wirings and loads exceed the capacity of the panel, install additional panel. Establish a load management program for avoiding any installation exceeding its capacity in future. Install slotted wiring-duct inside the panel to arrange and latch the haphazard cables.

Mid Term (Within 6 months):

1. Existing panels may be rearranged to provide adequate working space, keep sufficient (1 meter preferably) area around the panels for ease of its maintenance and operation.

Long Term (More than 6 months): NA