

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: CAPRI APPARELS LTD.
Address of the Factory	: B-193, BSCIC Industrial Estate, Tongi, Gazipur, Dhaka
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 25 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 27 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 and column frame with 2-way spanning solid slabs
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 7 storied
vi.	Construction Year	: 1999-2005
vii.	Foundation Type	: Pad foundation
viii.	Design Drawings	: Available (Permit drawing approved by BSCIC in 2008)
ix.	Soil investigation Report	: Available (Dated July 2000)
x.	Construction Materials	: Brick and stone aggregated
xi.	Generator	: 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 survey column locations and compare with structural drawings. Updated drawings to be prepared showing the correct as constructed layout.
2. Building Engineer to provide evidence of as constructed foundation type but digging trial pit.
3. Building Engineer to prepare calculations demonstrating the structural adequacy of the steel mezzanine structure. Additional support should be provided.
4. Building engineer to survey supports between walls /column and mezzanine steelwork and recommend upgrades to connection detail.

Long Term (Within 6 Months):

1. Prepare/update calculations showing the structural adequacy of the floor system taking into account the factory design imposed loading and the as built structure.
2. Prepare controlled loading plans for all floors designating where storage can be placed and cannot be placed.
3. Strengthening work to be complete.

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4. The steel roof over the Dining Area should be checked by the Building Engineer and, if required, upgraded to support code vertical and wind loads or the area should be vacated and removed.
5. Provide calculations showing the structural adequacy of the stair columns supporting the water tank giving due consideration to cantilever slabs and perimeter walls also supported by this column.
6. In the interim we suggest that the volume of water stored in the tank is reduced to 50% of its current capacity.
7. Provide calculations showing the structural adequacy of the floor slab in stair zone.
8. Engineer to provide evidence of structural adequacy of cantilever slab on 6th floor where brick wall above sits on edge of slab.
9. Provide safe means of access to the water tank.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove locking features from all egress doors and 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 and 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. 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.
5. Remove manual on/off switches to emergency lighting and exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. Separate the boiler rooms by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. Separate the generator room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations. Seal the existing generator room entrance and provide an exterior entrance from the adjacent alley.
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.

4. Separate the hazardous materials/flammable liquid storage room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.

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5. 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.
6. Separate the transformer and electrical access rooms from other areas by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
7. Separate the parking area from other spaces by 1—hr fire--resistive rated construction. If not possible due to egress routes, cease to utilize the area for parking of personal motor vehicles. Alternately, provide sprinkler protection on the ground floor in accordance with NFPA 13.
8. Separate the electrical access panel from the stairwell by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations. Alternately, relocate the electrical access panel to the exterior of the stairwell.
9. Provide minimum aisle widths of 36-in.
10. Provide handrails on at least one side of exit stair.
11. Remove and relocate the non-serving electric appliances to the exterior of the stairwells.
12. Relocate the fuel drum at a distance of at least 30 ft. from all exit discharge points and paths to areas of refuge. If not possible, provide a storage room separated by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
13. Modify the exit arrangement. Alternately, provide sprinkler protection on the ground floor in accordance with NFPA 13.
14. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

Mid Term (within 6 Months):

1. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas). Alternately, provide sprinkler protection for the ground floor in accordance with NFPA 13.

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. 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.
2. Install separators/barriers between phases of MCCB to avert flashover. Standard separators provided by the MCCB manufacturer must be used.
3. Remove the cables from the MCCB input pole. Existing circuits should be distributed through bus bar.

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Short Term (Within 3 Months):

1. Install a cable tray with metallic cover to support and protect the cables entering/leaving the panel.
2. Install risers on both HT and LT sides of transformer to support the cables as well as reduce strain on bushing. Contact to the supplier to identify the leakage and take necessary steps as necessary.
3. Panel top cover must be installed to prevent ingress of lint/dust into the panel. Make circular hole at the top plate of panels and provide cable 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. Provide covers (of noncombustible material) if any additional gap remains after installing cable glands.
4. MCBs (electrical devices) mounted on the wall must be installed with protective enclosures i.e. metal casing made of 20 SWG thickness metal sheets.
5. Damaged MCB must be repaired or replaced by a new one with proper rating. Protective devices should be encased in metal casing made of 20 SWG thickness metal sheets.

Mid Term (Within 6 months):

1. Rearrange the HT cable to remove bend. The HT cable termination may be lowered to a position that it will remain straight throughout its whole length and it's accessories should be aligned as per design.
2. The panel should be relocated in such a location that where the operation and maintenance of the panel should be obstructed. Keep 1 m clearance in front the panel and sufficient head room should be remained to stand in front the panel.

Long Term (More than 6 months): NA