

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: BYZID APPARELS (PVT) LTD.
Address of the Factory	: ABM Tower, 671/1 Sholakbahar, Bahardarhut, Chittagong Bangladesh
Present Status of the Factory	: Under Operation.
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: Mar 30, 2014
Fire & Electrical assessment conducted by:	Alliance
Date of Fire & Electrical Inspection	: Mar 30, 2014

BASIC INFORMATION:

The present garment factory is a six storied building with beam-column frame system. The following general information was noted:

i.	Building Usage Type	: Garments Factory
ii.	Structural System	: RCC beam slab, RCC column (Moment resisting frame building)
iii.	Floor System	: RCC beam slab.
iv.	Floor Area	: 56,000 sft
v.	No. of Stories	: 6 stories + roof shed
vi.	Construction Year	: 1994-1995
vii.	Foundation Type	: Combined footing.
viii.	Design Drawings	: Not available.
ix.	Soil investigation Report	: Available
x.	Construction Materials	: Brick chips with 40 grade rebar.
xi.	Generator	: Ground floor inside the building.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for both Structural, Fire and Electrical Safety comprises in Short Term, Mid Term and Long Term basis.

The recommendations for Structural Safety corrective actions are:

Immediate : NA

Short term (3 Weeks) :

- i. Painting the Structural steel trusses shall be after removal of corrosion.
- ii. Appointing floor load manager.

Mid Term (6 Weeks) :

- i. Floor load Plans developing,
- ii. Bracing in storage racks at the first level.
- iii. Certificate of Occupancy.
- iv. Calculation of FoS of Internal column and Edge column by qualified structural engineer
- v. Providing of signage or the markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load plan.

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- vi. Engaging a qualified structural engineer to confirm satisfactory structural performance of the building.

Long Term (6 Months): Providing a protective coating at the structural elements constructed with MCAC exposed to rainfall or other sources of water.

The recommendations for Fire Safety corrective actions:

<p>Immediate (3 to 6 Days)</p>	<p>Remove all stored materials in the stairwells at the noted locations.</p> <p>Means of egress must be full free and clear from impediments, obstructions, and stored materials immediately.</p>
<p>Short Term (3 Weeks)</p>	<p>Remove all hasps, locks, slide bolts, or other locking devices at the noted locations.</p> <p>Remove all combustibles stored underneath the cutting tables at the noted locations.</p>
<p>Mid Term (6 Weeks)</p>	<p>Occupancy certificate (mention occupancy type) for each building.</p> <p>Make aisles marking with proper direction and provide minimum clear width of 36 inch. Keep aisles free of obstruction.</p> <p>Training programs need to be implemented and documented in accordance with the Alliance Safety Training Curriculum.</p> <p>Develop a testing and maintenance program that ensures the emergency power for exit signs is tested at least once per year. If battery operated signs are used, these lights are tested on a monthly basis. Functional testing of battery powered signs is provided for a minimum 90 min once per year.</p> <p>Develop a testing and maintenance program that ensures the operation of all exits signs is verified at least once per year. If battery-operated signs are used, these lights shall be tested on a monthly basis. Functional testing of battery powered signs shall be provided for a minimum 90 min once per year.</p> <p>Post occupant loads for every assembly and production floor in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Stair designation signs are provided at each floor entrance from the stair to the floor in English and Bengali. Signs indicate the name of the stair and the floor level. Signs are posted adjacent to the door.</p> <p>Complete and document fire department pre-planning activities with the local Fire Service and Civil Defense.</p>

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Long Term (6 Months)	<p>Provide fire-resistive rated construction barriers at exit enclosures. Exits connecting three or fewer stories shall be enclosed with a minimum 1-hr fire resistance rating.</p> <p>Install Pull stations at egress points, smoke detectors in air handling equipment, visual and audible devices spaced appropriately based on occupancy type in the factory main building and ancillary shed building. Reference NFPA 72.</p> <p>Install a standpipe system at required locations designed by a qualified fire protection engineer.</p> <p>Install fire extinguishers for the Fabric store. Also install fire extinguishers at appropriate locations and heights based on hazard type per BNBC Part 4 and NFPA 10. Extinguishers shall be placed so that maximum travel distance to the nearest unit shall not exceed 30 m (100 ft.).</p> <p>Set up a Fire alarm and detection system central station monitoring service or direct connection to the Fire Service and Civil Defense. Assign a person at the facility to contact the fire department in the event of fire alarm activation.</p> <p>Provide side-hinged swinging type doors for all means of egress.</p> <p>Provide fire-resistive rated construction barriers between hazard types. Minimum 1-hr fire-rated wall and door for boiler room and minimum 1-hr fire rated door for fabrics store room.</p> <p>Establish an inspection, testing, and maintenance program for all fire extinguishers in accordance with NFPA 10.</p> <p>Install appropriate means of illumination at the noted locations. The source of illumination shall provide not less than 50 lux at the illuminated surface with a contrast of not less than 0.5 lux. Approved self-luminous signs, which provide evenly illuminated letters having a minimum luminance of 0.2 cd/m², may also be used.</p> <p>Provide an emergency power source for illuminated exit signs, either by battery back-up or by connecting to the emergency power system.</p> <p>Install continuous illuminated exit sign at all exit points. The source of illumination shall provide not less than 50 lux at the illuminated surface with a contrast of not less than 0.5 lux. Approved self-luminous signs which provide evenly illuminated letters having a minimum luminance of 0.2 cd/sq.-m may also be used.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has had sufficient training to be able to carry out the required duties.</p> <p>Develop a hot work program according to alliance standard.</p>
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	<p>Providing handrails on the other side of each stairway.</p> <p>Separation of boiler rooms from the production floors with properly rated fire doors & protection of penetrations</p> <p>Need required number of people (trained and certified) in firefighting, first aid, and rescue training by the appropriate authority accordance with the Alliance Safety Training Curriculum.</p> <p>To increase height of parapet as per alliance standard</p> <p>Installation of an electrically driven fire pump to replace the non-compliant fire pump</p> <p>Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for floor, wall, ceiling, supply and return air ventilation systems. Promptly reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling. As a general rule the maximum tolerable deposit thickness for loose fluffy lint is 13 mm (½ in.) over a maximum of 46.5 m² (500 ft²). Limit dense deposits to 6 mm (¼ in.) and oil saturated deposits to 3.2 mm (⅛ in.).</p>
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The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Determine the cause of overheated panel board sand provide a remediation plan.</p> <p>Keep Generator room clean and free from all type of dirt, debris, and improperly stored materials.</p>
Short Term (3 Weeks)	<p>Ensure secure electrical connections for all equipment, fixtures, conduit, etc.</p>
Mid Term (6 Weeks)	<p>Provide electrical insulation mats in front of distribution boards.</p> <p>Remove all instances of multiple wire connections and looping of wiring in all distribution boards.</p> <p>All Phase conductors, Neutral and Earth should follow the color code.</p> <p>Appoint a qualified electrical engineer to develop as-built electrical drawings providing detailing key components of the electrical system.</p> <p>Ensure proper grounding (earthing) connection for all switchboards and/or distribution boards.</p> <p>Provide clear identification marking in all distribution boards, switchboards, sub main-boards and switches.</p>

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Long Term (6 Months)	<p>Identify appropriate size over current protection device based on the circuit capacity.</p> <p>Appoint a qualified electrical engineer to check and confirm the lightning protection system is designed and installed correctly according to BNBC requirements.</p> <p>Complete thermographic scans at least on a three year cycle.</p>
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