

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Babylon Casualwear Ltd.
Address of the Factory	: Plot NO 23-24, Union NO. Tetulzhora, Hemayetpur, Savar, Bangladesh
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 30-May-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 14-Dec-13
BGMEA Membership No	: 4245

BASIC INFORMATION:

There are five buildings in the factory. The following general information was noted:

i. Building Usage Type	: Garments Factory
ii. Structural System	: Framing system is monolithic RC slab with beams.
iii. Floor System	: Beam column floor
iv. Floor Area	: 44000 sft
v. No. of Stories	: Main building 3 storied and others are single storied
vi. Construction Year	: 2006
vii. Foundation Type	: Isolated footing
viii. Design Drawings	: Available.
ix. Soil investigation Report	: Available.
x. Construction Materials	: Reinforced Concrete
xi. Generator	: Ground Level

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for Structural, Fire and Electrical Safety comprises of Short Term, Mid Term and Long Term basis are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate : NA

Short Term: (3 Weeks) :

- i. Develop a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded. The designated Load Manager shall oversee this program and ensure it is enforced.

Mid Term (6 Weeks) :

- i. Have Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard
- ii. Engage a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded. The designated Load Manager shall oversee this program and ensure it is enforced.
- iii. "A qualified structural engineer shall be engaged to prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard."

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- iv. Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
- v. A qualified structural engineer shall be engaged to develop Floor Loading Plans as per alliance standard Part 8 Section 8.10
- vi. Load plans must be prepared by a qualified engineer and posted clearly on each floor and as necessary to distribute floor loads to comply with the floor loading plans as per Alliance Standard Part 8 Section 8.20.5.3
- vii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan

Long Term (6 Months) :

- i. Provide Certificates of Occupancy for review.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Ensure light fixtures without protective covers are not installed in storage areas or in any area where the Inspector of the Factories Rules (1.5.3.5) Part 53 disallows these fixtures.
Short Term (3 Weeks)	
Mid Term (6 Weeks)	<p>Permanently mark all boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits, so they will be readily identified as a component of an emergency circuit or system. The required marking can be by color code, the words “emergency system,” or any other method that identifies the box or enclosure as a component of the emergency system.</p> <p>Need to provide insulation for the cables and wiring where needed.</p> <p>In order to avoid the effects of heat from external sources one of the following methods shall be used to protect wiring systems: (1) shielding; (2) placing 900mm (36 in.) from the source of heat; (3) selecting a system with due regard for the additional temperature rise which may occur; (4) local reinforcement or substitution of insulating material.</p> <p>Ensure all electrical wiring/cable properly terminated at its point of termination.</p> <p>Develop an Insulation Resistance Measurement Program that ensures deterioration of insulation resistance will be identified quickly. Testing should be in compliance with InterNational Electrical Testing Association (NETA). All transformers, switchgears etc. shall be subject to an insulation resistance measurement test to ground after installation but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches etc. and between each phase and earth.</p>

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<p>Long Term (6 Months)</p>	<p>Consult with a qualified Electrical Engineer and ensure electrical cables are sized according to capacity of circuit breakers.</p> <p>Provide earthing/grounding system for all metal in the building.</p> <p>Separate the multiple and looping cables either using proper size of circuit breakers or connecting separately on bus bars as per requirements.</p> <p>Provide protective devices (circuit breakers) with identification of their ratings.</p> <p>Provide emergency power for life safety loads.</p> <p>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc. Provide documentation of completed training on site.</p> <p>Provide earthing of equipment at required locations and connect to required number of electrodes. Refer to the BNBG for required number of electrodes.</p> <p>Provide dedicated neutral for every circuit.</p> <p>Provide grounding (earthing) for distribution boards as per BNBC section 2.8.1</p> <p>Need to maintain color code for all cables. For phase conductors use red, yellow and blue, for neutral conductors use black and for grounding cables use green dotted yellow.</p> <p>Provide mechanical guards for electrical equipment and wiring where necessary.</p>
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The recommendations for Fire Safety corrective actions are:

<p>Immediate (3 to 6 Days)</p>	
<p>Short Term (3 Weeks)</p>	<p>Locking arrangement at the doors should be removed as per Alliance Standard.</p>
<p>Mid Term (6 Weeks)</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.</p> <p>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.). Maintain electrical</p>

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	<p>systems in good working order and keep free of lint buildup to reduce the potential for ignition. This includes cleaning inside junction boxes, buses, trays, tunnels, etc.</p>
Long Term (6 Months)	<p>Install 1.5 hr fire rated doors in 2 hr fire rated assemblies. Doors should swing in the direction of egress and have panic hardware with self-latching hardware.</p> <p>Install initiating devices and notification appliances as required by the Alliance Standard and NFPA 72. Devices should be part of an automatic fire alarm and detection system for the facility. All fire alarm installations shall be submitted for review by the Alliance prior to commencement of installation</p>