

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: ANANTA JEANSWEAR LTD
Address of the Factory	: 277/ 2, Kabi Jashim uddin Road, Pagar, Tongi, Gazipur, Dhaka, Bangladesh
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 31-May-2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 22-Jul-2013 & 01-Jun-2014
BGMEA Membership No	: 4149

BASIC INFORMATION:

There is 01 main building. The following general information was noted:

- i. Building Usage Type : Garments Factory
- ii. Structural System : RCC Frame system, 2nd and 3rd floor flat slab with drop panel and edge beam
- iii. Floor System : Flat slab
- iv. Floor Area : 184,000 Sft
- v. No. of Stories : 08 Storied RCC
- vi. Construction Year : 2014
- vii. Foundation Type : RC foundation
- viii. Design Drawings : Available
- ix. Soil investigation Report : Available
- x. Construction Materials : RCC
- xi. Generator : Ground Floor

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 over see this program and ensure it is enforced."
- ii. Designate a representative as the Factory Load Manager. The Factory Owner shall ensure that at least one individual, the Factory Load Manager who is located onsite full time at the factory, is trained in calculating operational load characteristics of the specific factory. The Factory Load Manager shall serve as an ongoing resource to RMG vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor load limits as described on the Floor Load Plans.

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Mid Term (6 Weeks)

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- i. Engage a qualified structural engineer to develop credible structural documents to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard Part 8 Section 8.19 and 8.2.
- ii. Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads. If provisions have not been made, have a qualified structural engineer develop a remediation plan.
- iii. Properly brace and anchor all the racks to resist earthquake forces to comply with the BNBC and Alliance Standard.
- iv. Have a qualified structural engineer develop Floor Loading Plans for all the three buildings as per the requirements of Part 8 Section 8.20.5.3
- v. Have a qualified structural engineer prepare load plans for all the three buildings including the information required in Section 8.20 of the Alliance Standard.
- vi. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.
- vii. Under guidance from a qualified structural engineer, address all areas of needed maintenance.

Long Term (6 Months)

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- i. Factories should apply for Certificate of Occupancy to proper authority.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Remove all dirt, debris, lint, water, oil, and improperly stored materials from the substation room..
Short Term (3 Weeks)	<p>Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records concerning inspections and follow up actions.</p> <p>Install phase separators between terminal connections at the noted locations.</p> <p>Light fixtures without protective covers (otherwise known as naked lights) shall not be allowed in storage areas or in any area where the Inspector of the Factories Rules (1.6.3.7) Part 53 disallows these fixtures.</p>
Mid Term (6 Weeks)	<p>Need to remove looping of wiring/cables at circuit breakers. Provide protective cable guards for all cable runs from MDB to LT panels.</p> <p>Cables trenches should be covered by nonflammable material.</p> <p>Have a qualified electrical engineer develop as-built electrical</p>

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	<p>drawings detailing key components of the electrical system.</p> <p>Provide means of ventilation for the substation room. Consult a qualified electrical engineer to determine the required ventilation rates based on the installed equipment.</p>
Long Term (6 Months)	<p>A building should have protection against lightning depending on the probability of a stroke acceptable risk levels. No part of the roof should be more than 9m from the nearest horizontal conductor. Consult a qualified electrical engineer to design the appropriate lightning protection system.</p>

The recommendations for Fire Safety corrective actions are:

Immediate	NA
Short Term (3 Weeks)	<p>Remove all stored materials for the stairwells.</p> <p>Develop an emergency evacuation plan in accordance with the Alliance Standard and communicate the plan to all employees.</p>
Mid Term (6 Weeks)	<p>Provide fire-resistive rated construction barriers for shaft enclosures in accordance with Alliance Standard. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Remove all locking devices from all egress doors and means of egress components in accordance with Alliance Standard Section 6.8.</p> <p>Install automatic fire sprinkler systems throughout the facility. System shall be designed by a qualified fire protection engineer and plans shall be submitted to Alliance for review prior to installation.</p> <p>Post the occupant load for all assembly and production floor areas in a conspicuous space near the main exit or exit access doorway for the space in accordance with Alliance Standard Section 6.4.4.</p> <p>Develop a testing and maintenance program that ensures the emergency power for all egress lighting is verified at least once per year. If battery-operated lights are used, these lights shall be tested on a monthly basis. Functional testing of battery powered lights shall be provided for a minimum 90 min once per year.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has sufficient training to be able to carry out the required duties in accordance with Alliance Standard Section 13.1.</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</p>

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	<p>reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling.</p> <p>Install signage adjacent to each stair door indicating the stair name and the floor level in both English and Bengali.</p>
<p>Long Term (6 Months)</p>	<p>Remove all impediments, obstructions, and stored materials from the means of egress. Keep all elements of the means of egress (exit path, aisles, stairs, corridors, etc.) continuously free and clear of all obstructions in accordance with Alliance Standard Section 6.3.9.</p> <p>Install additional exit stairs to increase egress capacity. Alternately, reduce the number of occupants on each floor to a maximum of 381.</p> <p>Provide listed fire-rated doors at all exit stairs.</p> <p>Replace all non-compliant doors and frames in the means of egress with doors that are listed, approved, automatic-closing, side-swinging, fire rated doors in compatible fire rated frames with latching panic hardware</p> <p>Install listed fire stop systems at every penetration through floors.</p> <p>Protect all egress stairs with a shaft enclosure including 2-hour fire-rated construction. Install fire doors. Fill in interior windows and exterior windows that create exposures with rated construction</p> <p>Install a dedicated fire pump for the facility in accordance with NFPA 20. Also, install a water storage tank in accordance with NFPA 22.</p> <p>Install listed firestop systems at every penetration through fire rated walls and assemblies. Install approved fire doors.</p> <p>Install fire alarm system per NFPA 72. Include pull stations at all entrances to exit stairs, and at ground floor exits. Install strobes and horns for complete notification on all floors. Install smoke detectors that are part of the fire alarm system in locations required by Alliance standards.</p> <p>Install a Class III standpipe system in the building with fire department valves at the floor landings in each stair. Only Class I system is needed if building is fully sprinkle red. The standpipe will be part of the combined standpipe/sprinkler system supply. Standpipe system must comply with NFPA 14.</p> <p>Need to provide training and certification for the required number of people in fire fighting, first aid, and rescue training by an appropriate authority in accordance with the Alliance Safety Training Curriculum.</p> <p>Establish an inspection, testing, and maintenance program for all fire extinguishers and prepare proper documentation. Program must comply with NFPA 10.</p> <p>Separate storage and hazardous areas from the rest of the</p>

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	<p>building with 1-hour or 2-hour (generator and transformer) fire-rated construction. Install fire doors.</p> <p>Develop a testing and maintenance program that ensures the emergency power for exit signs is verified at least once per year. If battery-operated signs are used, these signs 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>Arrange for direct connection of the fire alarm and detection system to a central station monitoring service or the Fire Service and Civil Defense. Assign a person to contact the fire department in the event of fire alarm activation until this connection is set up. Locate an annunciator to alert this person in a constantly attended location (such as a fire control room).</p> <p>Provide handrails on both sides of each stairway. Intermediate handrails shall be provided when the stair width exceeds 2.2 m (87 in.). Mount handrails at a height between 30 in. and 44 in.</p> <p>Provide continuously illuminated exit signs. Signs shall be placed at all required exits and along egress paths, especially where there is a change in direction for the path of travel.</p> <p>Remove all sliding gates, sliding doors and tracks. Remove thresholds and install compliant ramps if necessary.</p> <p>Install emergency lighting for all paths of egress. Illumination needs to be a minimum of 10 lux for all corridors, exit doors and stairways. Illumination for aisles needs to be a minimum of 2.5 lux.</p> <p>Develop a hot work permit program. The program must comply with the requirements of NFPA 51B.</p> <p>Establish an inspection, testing, and maintenance program for the standpipe system. Program must comply with NFPA 25.</p>
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