

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Alif Garments Ltd
Address of the Factory	: 21/22, Babar Road, Block-B, Mohammadpur
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 16-Apr-2014
Fire & Electrical assessment conducted by:	Alliance
Date of Fire & Electrical Inspection	: 10-Apr-2014

BASIC INFORMATION:

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

i.	Building Usage Type	: Factory Building.
ii.	Structural System	: Brick load bearing wall where beams and slabs are rested over brick columns and walls.
iii.	Floor System	: Beam slab.
iv.	Floor Area	: Total approximate building area=23912 sft;
v.	No. of Stories	: Six stories (G+5);
vi.	Construction Year	: Completed in 1983;
vii.	Foundation Type	: Brick foundation.
viii.	Design Drawings	: Not Available
ix.	Soil Investigation Report	: available
x.	Construction Materials	: Not Found
xi.	Generator	: Ground floor.

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 : NA

Mid Term (6 Weeks) :

- i. A Detailed Structural Assessment needs to be conducted. Under guidance from a qualified structural engineer, arrange a detailed engineering assessment of the structure.
- ii. Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
- iii. Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard Part 8, Sections 8.19 and 8.20
- iv. 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.

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- v. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
- vi. Engage a qualified structural engineer to provide additional investigation into the areas of distress, separations, or cracking and provide a remediation plan if required.

Long Term : NA

The recommendations for Fire Safety corrective actions are:

Immediate	NA
Short Term	NA
Mid Term (6 Weeks)	<p>No record of training program was available in accordance with the Alliance Safety Training Curriculum on fire safety. Implement training program with proper documentation in accordance with the Alliance Safety Training Curriculum on fire safety.</p> <p>Install signage both in English and Bengali adjacent to each stair door indicating the stair name and the floor level at the noted locations.</p> <p>Develop an emergency evacuation plan which includes all components required by the Alliance Standards and communicate the plan to all employees in accordance with Alliance Standard, Part-13, and Section-13.3.</p> <p>Occupant loads are not posted for any assembly or production floor, as demanded in Alliance Standard Part 6, Section 6.4.4. Occupant loads must be posted, as per Alliance Standards Part 6, Section 6.4.4.</p> <p>Develop a testing and maintenance program that ensures that the operation of all exit signs 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>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>Fire Department pre-planning has not been completed yet. Complete fire department pre-planning activities with the local Fire Service and Civil Defense in accordance with Alliance Standard, Part-13, Section-13.1.1(2).</p> <p>No Certificates of Occupancy were available for the main building in the factory premises. Apply to RAJUK for issuance of Certificates of Occupancy, and pursue the matter to expedite the process.</p>

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	<p>Signage for the standpipe system installed is not mentioned at required locations and on required components. Install required identification signs at the noted locations. Signage must comply with NFPA 14.</p>
<p>Long Term (6 Months)</p>	<p>Hazards are separated appropriately except where a non-conformity exists. For example, the fabric storage area beside the office room, and the childcare area on the ground floor with no fire rated door. Install 2 hour fire separation walls with 1.5 hr fire-rated doors at the ground floor fabric storage area.</p> <p>There is fabric storage beside the office room, and there is childcare on the ground floor without a fire-rated door. Install 2 hr fire separation walls with 1.5 hr fire-rated doors in the ground floor fabric storage area.</p> <p>Since there is no service available for central monitoring of the fire alarm and detection system, the factory should have an arrangement of monitoring the system with its own personnel. No such arrangement is evident.</p> <p>Arrange for direct connection of the fire alarm system, per Alliance Standard Part 5, Section 5.7.5: Monitoring. Until the time that monitoring can be set up, a person shall be assigned to contact the fire department in the event of fire alarm activation. An annunciator shall be located in a constantly attended location (such as a fire control room) to alert this person.</p> <p>Walls on the ground floor of the generator room have high windows with glass panels, and there are wooden doors in the fabric storage room on the ground floor.</p> <p>Close all non-rated high windows in the generator room with fire resistive construction, or install fire-rated mechanical opening protection. Install fire-rated doors in the fabric storage area on the ground floor.</p> <p>Install Class-I standpipe hose connections (65 mm) in stairwells on each floor level, including occupied roof, in accordance with NFPA 14. All standpipe system installations shall be submitted for review by the Alliance prior to commencement of installation, according to 5.4.3.2. Then establish an inspection, maintenance, and testing program for the standpipe and hose system.</p> <p>Install a pump dedicated for firefighting or fire protection, following the requirements of NFPA 20, as mentioned in Alliance Standard Section 5.5.1.</p> <p>According to verbal information, the factory authorities explained that the required number of people are trained and certified in firefighting, first aid, and rescue training by the appropriate authority. However, no certificates or documentation was found. Collect proper certificates for fire safety training from appropriate authority.</p> <p>A fire department (Siamese) inlet connection is not provided to allow fire department pumper equipment to</p>

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	<p>supplement the fire protection systems, as per clause 5.5.4. According to the Alliance Standard, Part-5, Section-5.5.4, fire department (Siamese) inlet connections shall be provided to allow fire department pumper equipment to supplement the fire protection systems. Fire department outlet connections shall be provided to allow fire department pumper vehicles to draw water from ground-level or underground water storage tanks. Connections shall match the Fire Service and Civil Defense hose thread standard.</p> <p>A hot-work permit program has not been established yet. According to Alliance Standard, Part-9, Section-9.1.7, develop a hot work permit program. The program must comply with the requirements of NFPA 51B. In general, this program should address the process of request and approval from authorities, necessary checks prior to approval, standby fire watch and firefighting equipment, sounding of alarm procedure, the duration and expiry of permit and re-approval procedures, etc.</p> <p>Provide handrails on both sides of each stairway. Provide an intermediate handrail when the stair width exceeds 2.2 m (87 inch). Provide handrails at a height between the range 865 mm (34 in.) and 965 mm (38 in.).</p> <p>Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for floors, walls, ceilings, and supply and return air ventilation systems. Promptly reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling that cleaning. 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)	Replace the combustibile cable channel with a non-combustibile material.
Short Term (3 Weeks)	<p>Ensure proper identification of emergency power switchboards, distribution boards, and circuits.</p> <p>Ensure signage indicating the prohibition of light fixtures without protective covers is installed at required locations.</p> <p>Establish a periodic inspection program to ensure that the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records concerning inspections and follow up actions.</p> <p>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal</p>

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	<p>protective equipment requirements, etc. Reference NFPA 70e for example program requirements and ensure proper documentation.</p>
Mid Term (6 Weeks)	<p>Provide capacity information labels (detailing maximum current rating, number of circuit breakers, etc.) for switchboards and/or distribution boards.</p> <p>Have a qualified electrical engineer develop an as-built single line diagram, detailing key components and the capacity of the electrical system.</p> <p>Ensure switchboards and/or distribution boards are provided with physical means to prevent the installation of more over current devices than that number for which the panel board was designed, rated, and listed, following NFPA 70 section 408.54.</p>
Long Term (6 Months)	<p>Inspect electrical switchgear and panel boards on an annual basis to ensure that the equipment is in good working condition.</p> <p>Ensure over current protection device (circuit breaker) for each and every load.</p>