

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Young Labels Ltd..
Address of the Factory	: Sreepur, Ganakbari Ashulia, Savar
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 11-Jun-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 10-Jun-14

BASIC INFORMATION:

There are 10 buildings in the factory premises out of which two are main production buildings(jointed by beams) and eight are ancillary buildings. The following general information was noted:

- i. Building Usage Type : Garments Factory.
- ii. Structural System : RCC Moment resisting frame structure.
- iii. Floor System : Beam Supported slab.
- iv. Floor Area : 1,15,969 sft
- v. No. of Stories : Main building-1 & 2 are three storied , others are single storied
- vi. Construction Year : 2005-2014
- vii. Foundation Type : Isolated footing
- viii. Design Drawings : Available.
- ix. Soil investigation Report : Available
- x. Construction Materials : RCC Stone chips.
- 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 oversee 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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iii. Follow the construction and safety requirements of section 9.

Mid Term (6 Weeks)

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- i. Engage a qualified structural engineer to confirm the causes of such distress and suggest appropriate remedial measures.
- 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. Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with the Alliance Standard Part 8 Sections 8.19 and 8.20
- iv. Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
- v. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
- vi. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.
- vii. Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard. Floor load plans should be visibly posted on all levels of all buildings.
- viii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.
- ix. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.

Long Term (6 Months)

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- i. Provide a protective coating to all structural elements that are constructed with MCAC and exposed to rainfall or other sources of water. Have the protective coating approved by the Alliance or a qualified structural engineer. In the alternative, provide a 2% slope on the exposed surfaces to prevent accumulation of water.
- ii. Apply for issuance of the Certificates of Occupancy and pursue the matter to obtain the same.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Find out the cause of overheating and take proper action
Short Term (3 Weeks)	Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc. Reference NFPA 70e for example program requirements. 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

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	<p>actions.</p> <p>Switchboards and/or distribution boards should have capacity information labels e.g current carrying capacity of bus bar, rating of main incoming breaker , size of panel and permitted no. of CB, maximum permitted load connection capacity, etc.</p> <p>Install phase separators between terminal connections at the noted locations.</p>
Mid Term (6 Weeks)	<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> <p>Provide cable sockets for stranded conductors having a nominal cross-sectional area 6mm² or greater.</p> <p>Have a qualified electrical engineer develop an as-built single line diagram detailing key components and capacity of the electrical system.</p>
Long Term (6 Months)	<p>Have a qualified electrical engineer design a lightning protection system according to the BNBC requirements. Have a licensed electrician install the designed system.</p>

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	N/A
Short Term (3 Weeks)	<p>Remove existing gates and doors in the means of egress including all locking devices. Install doors with approved panic hardware that cannot be locked in the direction of egress under any conditions.</p>
Mid Term (6 Weeks)	<p>Arrange for direct connection of the fire alarm system to a central monitoring station or Fire Service and Civil Defense as per the Alliance Standard. Until such time as monitoring can be set up, arrange a monitoring system using the factory's own central detection system and personnel. 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>Impart training in accordance with the Alliance Safety Training Curriculum and keep records with proper documentation.</p> <p>Fire drills are to be conducted under the direction of a Fire Safety Director on a quarterly basis as per BNBC requirements.</p> <p>Develop a testing and maintenance program that ensures the emergency power for exit signs is tested at least once per</p>

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	<p>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 of 90 minutes, once per year.</p> <p>Post the occupant load for every assembly and production floor in the facility in a conspicuous space near the main exit or exit access doorway for the space as per Alliance Standards.</p> <p>Verify emergency power for egress lights at least once per year. If battery operated lights are used, test them monthly. Perform annual functional testing of battery powered lights for at least 30 minutes. Ref. 10.12.2.3.</p> <p>Install signage adjacent to each stairway door indicating the stairway name and the floor level in accordance with the Alliance Standard.</p> <p>Complete fire department pre-planning activities with the local Fire Service and Civil Defense in accordance with Alliance Standards.</p> <p>Apply to Savar Cantonment Board Authority for the issuance of an occupancy certificate and expedite the matter.</p>
Long Term (6 Months)	<p>Protect all egress stairs with a shaft enclosure including fire-rated construction. Provide 1 hour fire-resistive rated construction barriers at exit enclosures. Fit outward-opening, side-swinging, self-closing, non-lockable fire doors of a 1 hour rating in all stairwell enclosures. Consult a qualified fire protection engineer to design the required rated construction barriers.</p> <p>Provide opening protectives at all windows and other openings on all fire rated walls across the entire premises. Close these openings if they are not required.</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>Provide 1 hour fire protective opening assemblies in 1 hour rated exit enclosures.</p> <p>Provide fire-resistive rated assemblies at the required exit access corridors. The rated assembly should be approved and designed by a qualified fire protection engineer. Exit access corridors serving an occupant load exceeding 30 are to be separated by walls having a fire resistance rating of 1</p>

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	<p>hour in accordance with 4.5 unless provided with automatic sprinkler protection throughout the story or building.</p> <p>Provide fire-resistive rated construction barriers between the broad loom section and the corridor following Table 4.4.1 of the Alliance Standard. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Provide opening protectives at all windows and other openings on all fire rated walls across the entire premises as per Alliance Standards.</p> <p>Provide fire department (Siamese) inlet connections 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>Develop an emergency evacuation plan which includes the duties and responsibilities of various people/groups, interfacing between groups and the fire brigade, headcount and identification of trapped victims, physically disabled people and their rescue, etc.</p> <p>Install illuminated exit signs at entrances to exits and along the path of egress anywhere the continuation of egress is not obvious or there is a change in the direction of the path of travel as per the Alliance Standard.</p> <p>Reconstruct the ramp with a slope of 1 in 12 and provide handrails on both sides of the ramp.</p> <p>Inspect, test, and maintain fire extinguishers in accordance with NFPA requirements.</p> <p>Provide handrails on both sides of each stairway. Provide an intermediate handrail when the stair width exceeds 2.2 m (87 inches). Provide handrails of a height between the range of 865 mm (34 in.) and 965 mm (38 in.) as per the Alliance Standard.</p> <p>Install appropriate means of illumination throughout all paths of egress. The means of egress paths shall be illuminated at all times the building is occupied. Illumination shall be a minimum of 10 lux for all corridors, exit doors, and stairways. Aisles shall be provided with a minimum 2.5 lux.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has had sufficient training to be able</p>
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	<p>to carry out the required duties.</p> <p>The duties of the Fire Safety Director shall include the following:</p> <ol style="list-style-type: none">(1) Establish internal and external rally points and communicate them to all employees in the building.(2) Fire department pre-planning.(3) Conduct safety inspections as outlined in Alliance Standard.(4) Ensure all testing of fire protection equipment is conducted in accordance with Alliance Standard. <p>Develop a hot-work permit program. In general, this program should address the process of request and approval of authorities, necessary checks prior to approval, standby fire watch and fire fighting equipment, sounding of alarm procedures, duration and expiry of permit and reapproval procedures, etc.</p>
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