

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: VANGUARD DRESSES LTD.
Address of the Factory	: Plot NO. A-5, Block-B, Fouzderhat, Small Ind. Estate BSCIC, Sagarika Road, Chittagong, Bangladesh.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 05-Jun-2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 03-Jun-2014
BGMEA Membership No	:4172

BASIC INFORMATION:

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

- i. Building Usage Type : Garments Factory
- ii. Structural System : RCC moment-resisting frame
- iii. Floor System : RCC
- iv. Floor Area : 113,450 sft
- v. No. of Stories : 7 storied RCC
- vi. Construction Year : 2004-2006
- vii. Foundation Type : Isolated footings with piles underneath
- 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

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do not at any time exceed the factory floor load limits as described on the Floor Load Plans.

Mid Term (6 Weeks)

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- i. Engage a qualified structural engineer to develop the required documents including core test 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 and water tanks 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.
- ii. Provide a protective coating to MCAC exposed to rainfall or other sources of water. Have protective coating approved by the Alliance or a qualified structural engineer. Or provide 2% slope on the exposed surface to prevent accumulation of water.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Generator room should be kept clean and free from dirt , debris, inflammable materials etc.
Short Term (3 Weeks)	<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>Provide earthing of equipment at required locations and connect to required number of electrodes. Refer to the BNBG for required number of electrodes.</p>

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Mid Term (6 Weeks)	<p>Multiple connection /looping should be removed and connection should provide individually from bus bar.</p> <p>Install phase separators between terminal connections at the noted locations.</p> <p>Cables should be connected by proper size of lugs.</p> <p>Provide electrical insulation mats in front of distribution boards, Substation room and other electrical panels.</p> <p>Provide clear identification markings (MDB, All SDBs, Change Over System).</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>The size of cable should be minimum one size greater than the cable which current carrying capacity matches with the rating of the circuit breaker. Considering some factors , the cable current carrying capacity may be 1.45 times greater than the breaker's rating.</p>

The recommendations for Fire Safety corrective actions are:

Immediate	NA
Short Term (3 Weeks)	<p>Remove all combustibles stored underneath the cutting tables at the noted locations.</p>
Mid Term (6 Weeks)	<p>Prepare the hydraulic design of the existing standpipe system and get it approved by an Alliance expert.</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>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 signs must be tested on a monthly basis. Functional testing of battery powered signs must be provided for a minimum of 90 min once per year.</p> <p>Develop an emergency evacuation plan which includes duties and responsibilities of various people, interfacing between groups and fire brigade, headcount and identification of trapped victims, physically disabled people and their rescue, etc. and all components required by the Alliance Standards and communicate the plan to all employees</p> <p>Conduct fire drills on a quarterly basis as outlined in BNBC Part 4 Appendix A for all garment facilities. Fire drills shall be conducted under the direction of a Fire Safety Director. All other requirements for fire drills shall be conducted in accordance with BNBC requirements.</p> <p>Complete fire department pre-planning activities with the local Fire</p>

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	<p>Service and Civil Defense.</p> <p>Install signage adjacent to each stair door indicating the stair name and the floor level at the noted locations in both Bengali and English.</p> <p>Apply to the Bangladesh energy regulatory commission for the BERC license of required capacity.</p> <p>Apply to the BSCIC for an issuance of occupancy certificate and expedite the matter.</p>
<p>Long Term (6 Months)</p>	<p>Provide a shaft enclosure of required rating by constructing the enclosure with rated material of required thickness. Protect the openings of shaft enclosures by providing rated opening protective.</p> <p>Provide fire resistance rated opening protective at all windows, doors and other openings on all the fire rated walls across the entire premises. Close these openings if they are not required.</p> <p>Provide a 2 hour fire resistance rated exit passageway with 1.5 hour rated protective opening assemblies. Close the openings if not required.</p> <p>Have a qualified engineer review the pump capacity and ensure hydraulic calculation is done that can be supported by this pump. Also, identify all other performance data and ensure conformity to NFPA 20 requirements.</p> <p>Remove existing aisle markings and draw new markings to fulfill the minimum aisle width requirement. Relocate the machines accordingly if necessary.</p> <p>Impart training in accordance with the Alliance Safety Training Curriculum and keep records with proper documentation.</p> <p>Every door in a stair enclosure serving more than 5 stories shall be provided with re-entry unless it meets the following requirements. Stair doors may be permitted to be locked from the stair (ingress) side that prevents re-entry to the floor provided at least two floors allowing re-entry to access another exit are provided, there are not more than 4 stories intervening between re-entry floors, re-entry is allowed on the top or next to top level, reentry doors are identified as such on the stair side, and locked doors shall be identified as to the nearest re-entry floors. When the discharge floor is determined to be a required re-entry floor using the above requirements, re-entry does not have to be provided back into the building on this level.</p> <p>Provide parapets or guards for all occupied roofs of a minimum height of 1067 mm (42 in.) as per the Alliance Standard.</p> <p>Inspect, test, and maintain fire extinguishers in accordance with NFPA 10 requirements. Prepare and maintain proper documentation.</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.</p> <p>Consult a structure expert to assess the condition of the structure.</p>

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	<p>Repair the leakage of the slab following instructions of the expert.</p> <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 monitoring can be set up, arrange a monitoring system using a 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>Provide handrails on both sides of each stairway. Provide intermediate handrails when the stairs width exceeds 2.2 m (87 inches).</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.</p> <p>Provide fire-resistive rated construction barriers between hazard types following Table 4.4.1 of Alliance Standards. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Provide an emergency power source, either by battery backup or by connecting to the emergency power system, for compliantly illuminated exit signs.</p> <p>Develop a NFPA 51B compliant 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 firefighting equipment, the sounding of alarm procedure, and duration and expiry of permit and re-approval procedure, etc.</p> <p>Install the required identification signs at the noted locations. Signage must comply with NFPA 14 requirements.</p> <p>Establish an inspection, maintenance, and testing program for the standpipe and hose system. The program must comply with NFPA 25 requirements.</p> <p>Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for the 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> <p>Establish an inspection, maintenance, and testing program for the fire pump. The program must comply with NFPA 25.</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 the required duties.</p> <p>The duties of the Fire Safety Director shall include the following: Establish internal and external rally points and communicate to all employees in the building. Fire department pre-planning. Conduct safety inspections as outlined in Alliance Standard. Ensure all</p>
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