

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Fashion Watch Limited (Yusuf Apparel Limited)
Address of the Factory	: 1363/A, Askarabad, D.T Road, Double mooring, Chittagong.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 06 Apr 2014
Fire & Electrical assessment conducted by:	Alliance
Date of Fire & Electrical Inspection	: 10-Apr-2014

BASIC INFORMATION:

The present garment factory is a RCC Beam-column frame Garment Factory building. The following general information was noted:

i. Building Usage Type	: Garments Factory
ii. Structural System	: RC frame(Beam-column frame)
iii. Floor System	: RC Beam supported Slab
iv. Floor Area	: Approximately 74,620 square feet.
v. No. of Stories	: 7-storied.
vi. Construction Year	: 2004-2006.
vii. Foundation Type	: Individual column footing.
viii. Design Drawings	: Available
ix. Soil investigation Report	: Available
x. Construction Materials	: Reinforce Concrete.
xi. Generator	: Besides the main building in an isolated shade.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for both Structural and Fire & Electrical Safety are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate : NA

Short Term (3 weeks) :

Designate a representative as the Factory Load Manager.. 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 loading limits as described on the Floor Loading Plans.

Mid Term (6 weeks) :

- i. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.

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- ii. Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings.
- iii. Engage a qualified structural engineer to confirm structural performance of the structure.
- iv. Engage a qualified structural engineer to develop the required documents such as proper as built drawing to confirm the structural integrity of the buildings.
- v. Under guidance from a qualified structural engineer arrange additional investigation which will include destructive core testing to verify the concrete compressive strength of columns.
- vi. Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.
- vii. Have a qualified structural engineer confirm that capacity to support the load is available. Load Plans complying with Alliance Standard Part 8 Section 8.20.4.3 should also be developed.
- viii. Provide signage or appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan
- ix. Repair the exterior façade system to prevent water intrusion (at 6th floor near toilet)

Long Term (6 Months):

Roof should be sealed with protective coating under guidance of a qualified engineer.

The recommendations for Fire Safety corrective actions:

Immediate (3 to 6 Days)	<p>Remove all stored materials in the stairwells at the noted locations.</p> <p>Means of egress must be full free and clear from impediments, obstructions, and stored materials immediately.</p>
Short Term (3 Weeks)	<p>Remove all hasps, locks, slide bolts, or other locking devices at the noted locations.</p> <p>Remove all combustibles stored underneath the cutting tables at the noted locations.</p>
Mid Term (6 Weeks)	<p>Occupancy certificate (mention occupancy type) for each building.</p> <p>Make aisles marking with proper direction and provide minimum clear width of 36 inch. Keep aisles free of obstruction.</p> <p>Training programs need to be implemented and documented in accordance with the Alliance Safety Training Curriculum.</p> <p>Develop a testing and maintenance program that ensures the operation of all exits signs is verified at least once per year. If battery-operated signs are used, these lights shall be tested on a monthly basis. Functional testing of battery powered signs shall be provided for a minimum 90 min</p>

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	<p>once per year.</p> <p>Post occupant loads for every assembly and production floor in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Stair designation signs are provided at each floor entrance from the stair to the floor in English and Bengali. Signs indicate the name of the stair and the floor level. Signs are posted adjacent to the door.</p> <p>Complete and document fire department pre-planning activities with the local Fire Service and Civil Defense.</p>
Long Term (6 Months)	<p>Provide fire-resistive rated construction barriers at exit enclosures. Exits connecting three or fewer stories shall be enclosed with a minimum 2-hr fire resistance rating.</p> <p>Install Pull stations at egress points, smoke detectors in equipment, visual and audible devices spaced appropriately based on occupancy type in the factory main building and ancillary shed building. Reference NFPA 72.</p> <p>Install fire extinguishers. Also install fire extinguishers at appropriate locations and heights based on hazard type per BNBC Part 4 and NFPA 10. Extinguishers shall be placed so that maximum travel distance to the nearest unit shall not exceed 30 m (100 ft.).</p> <p>Install a standpipe system at required locations designed by a qualified fire protection engineer.</p> <p>Set up a Fire alarm and detection system central station monitoring service or direct connection to the Fire Service and Civil Defense. Assign a person at the facility to contact the fire department in the event of fire alarm activation.</p> <p>Provide side-hinged swinging type doors for all means of egress.</p> <p>Provide fire-resistive rated construction barriers between hazard types. Minimum 1-hr fire-rated wall and door for boiler room and minimum 1-hr fire rated door for fabrics store room.</p> <p>Establish an inspection, testing, and maintenance program for all fire extinguishers in accordance with NFPA 10.</p> <p>Provide an emergency power source for illuminated exit signs, either by battery back-up or by connecting to the emergency power system.</p> <p>Install continuous illuminated exit sign at all exit points. The source of illumination shall provide not less than 50 lux at the illuminated surface with a contrast of not less than 0.5 lux. Approved self-luminous signs which provide evenly illuminated letters having a minimum luminance of 0.2</p>

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	<p>cd/sq.-m may also be used.</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 out the required duties.</p> <p>Installation of an automatic sprinkler system throughout the building.</p> <p>Providing handrails on the other side of each stairway.</p> <p>Separation of boiler rooms from the production floors with properly rated fire doors & protection of penetrations</p> <p>Need required number of people (trained and certified) in firefighting, first aid, and rescue training by the appropriate authority accordance with the Alliance Safety Training Curriculum.</p> <p>Install automatic fire detection and alarm system throughout the factory. Until that time that a central station monitoring service or direct connection to the Fire Service and Civil Defense 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 to alert this person.</p> <p>Installation of an electrically driven fire pump to replace the non-compliant fire pump</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. 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	NA
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Short Term (3 Weeks)	<p>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.</p> <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>
Mid Term (6 Weeks)	<p>Ensure switchboards and/or distribution boards are metal enclosed with a dead front construction.</p> <p>Ensure clear and permanent identification marks are painted in all distribution boards, switchboards, sub main boards and switches.</p> <p>Provide covers or conceal substances to conceal all live internal components of switchboards and/or distribution boards.</p> <p>Ensure earthing connections at electrical equipment.</p> <p>Provide capacity information labels (Maximum current rating, no of circuit breakers etc.) for Switchboards and/or distribution boards.</p> <p>Provide cable sockets for stranded conductors having a nominal cross-sectional area 6mm² or greater.</p>
Long Term (6 Months)	<p>Consult with an expert electrical engineer and make sure lightning system is properly installed.</p>