Name of the Factory	: Atlantic Jeans Ltd.
Address of the Factory	: 49/B, East Nasirabad Industrial Area, BaizidBostami Road, Chittagong, Banlgadesh.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 14th June, 2015
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 14th June, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 14th June, 2015
BGMEA Membership No.	: 5863.

BASIC INFORMATION:

The assessed factory building was a 2 - Storey RCC building. The frame system of the building is RCC beam column frame and beam slab floor system. Atlantic Jeans Ltd. has occupied all floors of this building. The following general information were noted:

i.	Building Usage Type	: Garment Factory.
ii.	Structural System	: RCC beam column frame system.
iii.	Floor System	: RCC beam slab system.
iv.	Floor Area	: Total floor area is 29450 sft.
v.	No. of Stories	: 2 Storey.
vi.	Construction Year	: 1994.
vii.	Foundation Type	: Isolated footing foundation.
viii.	Design Drawings	: Available documents: Approval plan, structural design drawing, soil test, Architectural drawing, floor loading plan, and material test report have been found.
ix.	Soil Investigation Report	: Available.
x.	Construction Materials	: Brick aggregate.
xi.	Generator	: Ground floor of this building.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for both Structural and Fire & Electrical Safety comprises in Short Term, Mid Term and Long Term basis.

The recommendations for **Structural Safety** corrective action are:

Short Term (Immediate) : None.

Mid Term (6-weeks) : None.

Long Term (6-months) :

- Provide protective coating to cover the exposed rebar from corrosion. Carry out ongoing maintenance works.

The recommendations for **Fire & Electrical Safety** corrective action are:

(A): Recommendations for Fire Safety corrective actions:

Immediate (*the factory should not continue to be*	• None.

occupied until these non-conformities have been rectified):	
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity*	• Ensure adequate numbers of fire drills under the Fire Safety Plan. • All the firefighting equipment's need to test with proper documents. • Factory needs to have sufficient number & width (0.9 m) of marked aisles at ground floor. • Factory needs to have sufficient total width of marked aisles (5 mm per occupant) at ground floor. • Lights in storage area needed to be installed with protective covers and conduits. • Combustibles are to be managed with good housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9 m and when used as a storage facility there shall be a minimum clearance of one third the floor height from the ceiling to the top of the storage stack. • Factory needs to ensure adequate numbers of exit signs which need to be visible from any positions and comply with the following conditions: (a) The color and design of lettering, arrows and other symbols on exit signs needs to be in high contrast with their background; (b) Words on the signs needs to be at least 150 mm with a stroke of not less 20 mm; (c) The source of illumination, contrast, intensity and luminance needs to be at least 50 lux, 0.5, 5.0 foot-candles and 0.2 cd/m2 respectively.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	• Needs to have as built drawing with floor machine layout showing means of escape. • Factory needs to have a fire training certificate from fire service & civil defense. • All the exit doors need to be replaced by side swinging so that un-lockable doors can be opened easily in the direction of evacuation without the use of a key. • Provide continuous guards and handrails on both sides

	of the stairs. • Illuminated emergency light needs to be covered in all floors, exits, staircases and aisles of all the factory buildings or sheds. The intensity of illumination by means of escape lighting needs to be equal or more than 10 lux. • The aisles need to be illuminated with escape lighting to a level of not less than 2.5 lux at floor level. • Emergency back-up power needs to be connected for critical fire safety system and not less than 30 minutes in case of failure of power supply.
Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	• Factory needs to have a proper pre-plan for fire department. • Storage area need to be protected with 2 hours rated construction and 1.5 hours rated opening or doors. • Boiler room need to have a 2 hours fire resistance wall and entry also needs to have 1.5 hours fire rated door. • Factory need to install centralized and automatic fire detection & alarm system on all occupied floors, including other tenanted floors of the building as per NTPA Guideline. • Factory needs to install manually operated electrical fire alarm system with single or multiple call boxes as well as automatic fire alarm system for centralized automatic fire detection and alarm system. • Factory needs to install control panel for centralized automatic fire detection and alarm system. • Install proper standpipe system having at least 75 mm dia of standpipe. First aid hose system (38 mm nominal) needs to be provided (Ref. Fire Service Standard # 9) in addition to Fire Aid Fire Fighting Appliances in existing high rise • NTPA (20 m) buildings. In addition 50 mm or larger hose connection facility needs to be provided. • Factory needs to install 1 riser per 1000 m2 of floor area and 38 mm diameter of hoses with variable nozzle. • Install standard standpipe and hose system with fire pump to ensure required hose pressure at the highest

	and most remote part of the building. • Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection. • Factory needs to have dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory. • Factory needs to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900ltr x 75min=142500 liters water storage tank.

(B): Recommendations for Electrical Safety corrective actions:

Immediate (*the factory should not continue to be occupied until these non-conformities have been rectified*):	• None.
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity*	• Ensure all distribution boards (including panel door) are earthed properly. • Remove all unused cables from distribution boards and make sure all necessary cables are properly terminated at its point of termination using appropriate size and type of lug. • Ensure overcurrent protection device (circuit breaker/fuse) for each circuit/branch circuit. • Ensure proper earthing connections at all electrical equipment. • Clean interior components from dust and debris and seal all openings within the enclosure to prevent dust and debris from entering. • Provide provision for inspection of all earthing system and ensure inspection is being completed and documented.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	• Ensure graded rubber mats are provided in front of all distribution boards. • Provide dedicated & adequate size of earthing with proper identification for each circuit from the earth bus bar of distribution boards and ensure continuous earth

	path is back to main building intake. • Rewire to ensure each incoming supply to an MCB has a dedicated supply from bus bar. Avoid the use of multiple cables on outgoing side of MCB's. • Replace wooden bases with metal clad construction for mounting the circuit breakers and fuses. • Ensure all electrical cables are sized according to capacity of circuit breakers. • Provide adequate support or mechanical guards for electrical wiring where necessary. • Ensure cable joints are made in respect of conductivity, insulation and mechanical strength. • Connect all metal in the building to the building earthing system. • Ensure Lighting fixtures are supported from the structure properly and if flexible cords are used to support light fixture then make sure it has enough strength to carry the weight. • Find out the cause (improper cable/over current selection, over loading, improper lug, improper cable joints, rusted connection, insulation damage, multiple cables at single point,) of overheating { ambient+(20^0C-40^0C)} and take proper action.
Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	• Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system. • Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data. • Inspect electrical panel boards on an annual basis. • Ensure overhead service connections to the building are led via adequate size and type of service masts. • Ensure distribution board has no opening and all live internal components are concealed properly. • Provide dedicated & adequate size of neutral with proper identification for each applicable circuit. • Ensure each distribution board is provided with a circuit

	list and means of identification is provided as per list. • Provide proper cable terminator/connector for stranded conductors at its point of termination. • Provide an emergency power generator with adequate capacity for the building. • Install separate distribution boards for lighting and power circuits. • Install lightning protection system on the building.