

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: VESTMENT TUNE STYLE LTD
Address of the Factory	: Haji Abdul Salam building (4th -5th Floor), Nazir Ahmed Miah Road, Dholy Pukurpar, Eidgah, Chittagong.
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 28 th June, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 28 th June, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 28 th June, 2015
BKMEA Membership No.	: 1537

BASIC INFORMATION:

The assessed factory was a six storied RCC building. The structural system of the factory building was RCC beam column frame structure. The following information was noted:

- i. Building Usage Type : Knit Garment Factory.
- ii. Structural System : R.C.C. Beam Column Frame.
- iii. Floor System : R.C.C. beam slab.
- iv. Floor Area : Plinth area 5503 sq. ft. and total 33500 sq. ft. (including all floor)
- v. No. of Stories : GF + 5 Floors (6- Storey), No Basement.
- vi. Construction Year : Unknown.
- vii. Foundation Type : Footing foundation.
- viii. Design Drawings : Available (Approval for a 6-Storey commercial building from CDA, Chittagong on the 6th of September, 2009).
- ix. Soil Investigation Report : Available.
- x. Construction Materials : Brick cheeps in RCC column. (Identified by removing Plaster)
- xi. Generator : Available at ground floor of the 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) :

- i. Proper roof drainage needs to be implemented. Proper water proofing need to be applied on roof slab to penetrate water into slab as per direction of building engineer.

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

(A): Recommendations for Fire Safety corrective actions:

<p>Immediate</p> <p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></p>	<p>N/A</p>
<p>Short Term</p> <p><i>(Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity)</i></p>	<ul style="list-style-type: none"> • Remove all temporary items from all escape routes, aisles and passageway. • Provide aisle marking with arrow guiding and exit signage on all Evacuation pathways or provided with overhead signage fixed at ceiling level. <ul style="list-style-type: none"> - Illuminated exit sign should be posted above the exit door, - It should be clearly visible at all time, - Provide directional signs wherever necessary. - All exit doors should be clearly marked for easy identification. • Factory management should be checked alarm call points, alarm & detection system periodically and maintained the record properly. • The first aid hose and standpipe performance should be checked periodically and properly tagged. • Provide additional firefighting equipment like sand & water buckets near exit or easily accessible area for first phase firefighting. • Fire drill should be conducted quarterly (4 times a year) in existing buildings as detailed under the Fire Safety Plan & should kept record properly.
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> • Replace all existing exit doors on evacuation routes, exit doors with side hinged type door, which swing outward and in the direction of travel. Swinging of the door should not constrict the width of the corridor / passage below 0.9 meter. • Remove all locking device from all egress door. All exit doors should be open-able from the side they serve without the use of a key. • Provide handrails on both side of each stairway with

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	<p>height of 0.9m measured from the nose of stair to the top of the handrail.</p> <ul style="list-style-type: none">• Doors in stair should be outward opening, side-swing, self-closing, non-lockable 1.5 hours fire rated doors in all stair way encloses. (Also require fire rated door at the floor occupied by other tenants)• Prepare proper plan and design for fire rated barrier for 2 hour fire rating separated corridor at ground floor.• Prepare proper plan and design for 2 hours fire rated doors at ground floor generator room, which located at the adjacent to stair-02 finished area.• Provide 1.5 hrs fire rated door for storage area.• The egress paths should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for all corridors & exit doors. Aisles should be provided with a minimum 2 lux.• The stairway should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for stairway.• Produce design and plan for automatic detection system with automatic fire alarm. (Also needs to cover the floors occupied by other tenants)• Install Manual activation call point at all exit routes• Automatic alarm systems must be provided throughout the factory; the alarm must be automatically triggered on detection of a fire.• Prepare proper design and plan for dedicated fire pump with alternate backup power supply.• Replace existing 1 inch hose pipe with 1.5 inch hose pipe and 2 inch standpipe to meet the requirement of RMG guideline.• Prepare plan and design for dedicated water storage tank for firefighting operation as per RMG guideline.• Visual alarm should be placed at the generator room.• Obtain the fire license with full covered area from the proper issuing authority.• Implement to a single fire safety management system
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	with approvals from all tenants in the factory building.
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • All stairway to have direct access to outside of the factory building, which requires 2 hour fire rated construction at ground floor for fire separated corridor. • Provide 2 hours fire rated doors at ground floor generator room, which located at the adjacent to stair-02 finished area. • Install automatic detection system with automatic fire alarm. (Also needs to cover the floors occupied by other tenants) • Install dedicated fire pump with alternate backup power supply. • Stand pipe supplying first aid hose should have minimum pressure of 200 KPa. • Provide dedicated storage tank for firefighting operation.

(B): Recommendations for Electrical Safety corrective actions:

<p>Immediate</p> <p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></p>	None.
<p>Short Term</p> <p><i>(Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity</i></p>	None.
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> • All unwanted materials should be removed from Generator room. • Provide rubber mats of adequate size in front of all distribution panels. • Install smoke detection and provide firefighting equipment in the generator room. • 1. Exit signs should be illuminated either by lamps external to the sign or by lamps contained within the sign. 2. The source of illumination should be providing not less than 50 lux. • 1. Remove all the inflammable materials from

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	<p>surrounding of electrical circuitry at DBs.</p> <p>2. Ensure that all electric circuitry clean of inflammable materials.</p> <p>3. Conduct periodic maintenance and maintain the records.</p> <ul style="list-style-type: none"> • The electrical panels to be of metal case and should be marked with “Danger 415 Volts” and identified with proper phase marking and danger signage. • Provide proper clearance of 0.8 - 1.0 m in front of all distribution panels/switchboards. • Provide cable connections with properly soldered / welded lugs at DB's. Ensure that all the electrical connections are properly secured with lugs. • Select conductors and MCCB/MCB with adequate sizing without exceeding permissible current carrying capacity for insulation. • Avoid bunch of cable at bus bar terminal, use individual circuit and over current device for every incoming and outgoing circuit at the distribution boards. • Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases. • Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box. • Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground. • Provide separate earthing connection to electrical equipment's. Ensure that earth potential provided for all parts of equipment / installation (other than live parts) and that continuous earth connection is provided back to the main intake supply earth. • Provide adequate earthing to body and doors to all DBs. Ensure that all electrical panels provided with proper and separate earth potential.
Long Term	<ul style="list-style-type: none"> • 1. Provide updated SLD matching the existing

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(The remedial works indicated must be carried out within a period of 6 months)

installation at the factory.

2. SLD to indicate exact positions of all points of switch boxes and other outlets.

3. SLD to be approved by the engineer-in-charge.

- 1. Provide updated Electrical layout drawing prepared after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc.

2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation.

3. As built drawing to be approved by the engineer-in-charge.

- 1. Design to have proper segregation of different end used loads.

2. Wiring design to have separate and distinct sub-circuits for power and heating system.

3. All DBs to be placed conveniently. 4. Wiring to be neat, tidy and located near ceiling.

- Provide and maintain easy access and proper height of switchboard / panel boards (< 2m from floor level).

- Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted).

- Seal the cable entry-exit points of DB's/Junction box with non-flammable materials. In addition:

1. Ensure that DBs to be vermin / damp proof.

2. Ensure all unused holes / openings in DBs to be blocked properly.

- 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5.

2. Ensure that connections between conductors / equipment's provided to durable electrical continuity and adequate mechanical strength and protection.

3. The continuous earth connection is provided back to the main intake supply earth.

- Provide adequate protection against lightning

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	depending on the probability of a strike and acceptable risk levels at roof top of building.
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