

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Hema Sweaters Fashion
Address of the Factory	: Harirampur union,Dour, Turag, Thana Road,Dhaka
Present Status of the Factory	: Shut Down
Structural Assessment Conducted by	: BUET
Date of Structural Inspection	: 2013-12-25
Fire Assessment Conducted by	: None
Date of Fire Inspection	:
Electrical Assessment Conducted by	: None
Date of Electrical Inspection	:
BGMEA Membership No.	: 5260

BASIC INFORMATION:

The following information was noted:

- i. Building Usage Type : Sweater Factory
- ii. Structural System : Both RCC and brick column.
- iii. Floor System : Flat plate.
- iv. Floor Area : 4360sft (Approx.)
- v. No. of Stories : One story
- vi. Construction Year : 2008
- vii. Foundation Type : Individual shallow
- viii. Design Drawings : Available
- ix. Soil Investigation Report : Not Available
- x. construction Materials : Brick aggregate & Reinforced concrete.
- xi. Generator : At stair case of the building.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

No critical or high risk observation was found during the day of assessment in the factory. No addressable non-conformities were found at the factory. The recommendations for **Structural Safety** corrective action are:

Short Term (Immediate) : 1. Since, there is significant distress in critical elements like load bearing brick walls and columns the building should immediately be evacuated.

Mid Term (6-weeks) : N/A

Long Term (6-months) : N/A

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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"> • Rearrange the evacuation pathway to ensure the minimum width. • Remove all temporary items from all escape routes, aisles and passageway. • Provide aisle marking with arrow guiding.
	<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 openable from the side they serve without the use of a key. • Provide handrails on both side of each stairway with height of 0.9m measured from the nose of stair to the top of the handrail. • 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 4 hours fire rated barriers with 2 hours fire rated doors where generator is located adjacent to the final evacuation route at ground floor. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at 4th floor boiler room, which located at the adjacent to finishing section. • 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

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>supply & illumination should be a minimum of 10 lux for stairway.</p> <ul style="list-style-type: none"> • Produce design and plan for automatic detection system with automatic fire alarm and control panel. (Also needs to cover the floors occupied by other tenants) • Install Manual activation call point at all exit routes • Provide adequate nos. of smoke detectors to cover the whole factory building. • Prepare proper design and plan for dedicated fire pump with alternate backup power supply. • Replace existing 1 inch hose pipe replace with 1.5 inch hose pipe 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. • Implement to a single fire safety management system with approvals from all tenants in the factory building.
<p>Long Term (The remedial works indicated must be carried out within a period of 6 months)</p>	<ul style="list-style-type: none"> • Provide 4 hours fire rated barriers with 2 hours fire rated doors where generator is located adjacent to final evacuation route at ground floor. • Provide 4 hours fire rated barriers with 2 hours fire rated door at 4th floor boiler room, which located at the adjacent to finishing section. • Install automatic detection system with automatic fire alarm and control panel. (Also needs to cover the floors occupied by other tenants) • Install dedicated fire pump with alternate backup power supply. • Provide dedicated storage tank for firefighting operation.

(B): Recommendations for Electrical Safety corrective actions:

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

<p>Immediate</p> <p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></p>	<ul style="list-style-type: none"> • Over current protection devices (Circuit breakers) should be installed at all distribution panels.
<p>Short Term <i>(Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity)</i></p>	<ul style="list-style-type: none"> • Re-locate oil / fuel tanks away from control panels in generator room. • Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground.
<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"> • 1. Provide updated SLD matching the existing 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. • 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 generator room. • 1. Remove all the inflammable materials near distribution board. 2. Ensure that all electric circuitry clean of inflammable materials. 3. Conduct periodic maintenance and maintain the records. • Provide cable connections with properly soldered / welded lugs at (MDB/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.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<ul style="list-style-type: none"> • Avoid bunch of cable at MCCB/MCB or 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 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 MDBs / DBs. Ensure that all electrical panels provided with proper and separate earth potential.
<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"> • Provide 4 hour fire rated walls all around the transformer / generator room on ground level. • <ol style="list-style-type: none"> 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. • 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 (MDB/DB/SDB)'s with non-flammable materials. In addition: <ol style="list-style-type: none"> 1. Ensure that all distribution boards / Switchgears to be vermin / damp proof. 2. Ensure all unused holes / openings in DBs to be blocked properly. • <ol style="list-style-type: none"> 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 depending on the probability of a strike and acceptable risk levels at roof top of building.