

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Hasib Apparels (Pvt) Ltd.
Address of the Factory	: 75 Iqbal Road, Patherghata, Chittagong.
Present status of the factory	: Not Under Operation
Structural Assessment Conducted by	: TÜV SÜD Bangladesh (Pvt.) Ltd.
Date of Structural Inspection	: 2015-12-14
Fire Assessment Conducted by	: TÜV SÜD Bangladesh (Pvt.) Ltd.
Date of Fire Inspection	: 2015-12-14
Electrical Assessment Conducted by	: TÜV SÜD Bangladesh (Pvt.) Ltd.
Date of Electrical Inspection	: 2015-12-14
BGMEA Membership No.	: 1872

BASIC INFORMATION:

After the visual observation following general information are noted:

i. Building Usage Type	: Not mentioned in the drawing
ii. Structural System	: RC beam column system.
iii. Floor System	: RC Beam slab.
iv. Floor Area	: Building-1: GF-3552 sft, Entre building-14208 sft Building-2: GF-1456 sft, Entre building-3112 sft
v. No. of Stories	: Building-1: GF+3nd floors Building-2: GF+1 floors
vi. Construction Year	: 1984
vii. Foundation Type	: Not known
viii. Design Drawings	: Not Available
ix. Soil Investigation Report	: Not Available
x. construction Materials	: Brick Aggregated Column
xi. Generator	: Generator is located ground floor the building-2 at west side.

RECOMMENDATIONS FOR CORRECTIVE ACTION: No critical or high risk observation was found in the factory which can pose hamper to the workers as well as production. During the assessment, a non- conformity was found for which mid-term corrective action has been recommended. There is no need to suspend operation in the factory.

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)	: N/A
Mid Term (6-weeks)	: 1. As built architectural and engineering drawing to be prepared for both buildings and submitted for approval by appropriate authority. As part of this process building engineer will be required to make a number of checks on the as-built construction
Long Term (6-months)	: N/A

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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>	<p>Provide aisle marking with arrow guiding and exit signage on all Evacuation pathways or provided with overhead signage fixed at ceiling level.</p> <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. -Signage should be uniform <p>Provide fire extinguisher at all floors and to keep the record for re filling & properly tagged.</p> <p>Provide additional firefighting equipment like sand & water buckets near exit or easily accessible area for first phase firefighting.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>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.</p> <p>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.</p> <p>Exit door should have minimum clear width 0.9 meter.</p> <p>Prepare proper plan & design for exit door.</p> <ul style="list-style-type: none"> - Minimum clear width should be 0.9 meter. <p>Prepare proper plan & design for staircase. - Minimum clear width should be 0.9 meter.</p> <p>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.</p> <p>Doors in stair should be outward opening, side-swing, self-closing, non-lockable 1.5 hours fire rated doors in all stair way encloses.</p>

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	<p>Provide 1 hour fire rated construction at unprotected opening window, which is adjacent to external staircase.</p> <p>Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room, which located at the adjacent to final exit.</p> <p>Provide 1.5 hrs fire rated door for storage area.</p> <p>Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at 1st floor boiler room, which located at the adjacent to finishing section.</p> <p>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.</p> <p>The stairway should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for stairway.</p> <p>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).</p> <p>Install Manual activation call point at all exit routes.</p> <p>Prepare proper design and plan for dedicated fire pump with alternate backup power supply.</p> <p>Prepare plan and design for dedicated water storage tank for firefighting operation as per RMG guideline.</p> <p>Visual alarm should be placed at the generator room.</p> <p>Obtain building approval from issuing authority.</p> <p>Implement to a single fire safety management system with approvals from all tenants in the factory building.</p>
<p>Long Term</p> <p>(The remedial works indicated must be carried out within a period of 6 months)</p>	<p>Install exit door as per plan and design.</p> <ul style="list-style-type: none"> - Minimum clear width should be 0.9 meter. <p>Install staircase as per plan and design.</p> <ul style="list-style-type: none"> - Minimum clear width should be 0.9 meter.

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	<p>Provide 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room, which located at the adjacent to final exit.</p> <p>Provide 4 hours fire rated barriers with 2 hours fire rated door at ground floor boiler room, which located at the adjacent to finishing section</p> <p>Install automatic detection system with automatic fire alarm and control panel.(Also needs to cover the floors occupied by other tenants)</p> <p>Install dedicated fire pump with alternate backup power supply.</p> <p>Provide sufficient number of hose pipe with respect to area and travel distance as per RMG guideline.</p> <p>Provide dedicated storage tank for firefighting operation.</p>
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(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>	N/A
<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>	<p>Re-locate oil / fuel tanks away from control panels in generator room.</p> <p>All strands cables at exposed ends should be properly soldered / crimped and insulated.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ol 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. <ol style="list-style-type: none"> 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. <p>Provide electrical graded rubber mats of adequate size in front of all distribution panels.</p>

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	<p>Install smoke detection and provide firefighting equipment in the substation and generator room.</p> <ol style="list-style-type: none"> Exit signs should be illuminated either by lamps external to the sign or by lamps contained within the signage. The source of illumination should be providing not less than 50 lux. <p>Individual Fuse protection should be provided to every 15/20 A socket.</p> <ol style="list-style-type: none"> Remove all the inflammable materials from surrounding of electrical circuitry at MDBs/SDBs. Ensure that all electric circuitry clean of inflammable materials. Conduct periodic maintenance and maintain the records. <p>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.</p> <p>Provide proper clearance of 0.8 - 1.0 m in front of all distribution panels/switchboards.</p> <p>Provide cable connections with properly soldered / welded lugs at (LT/MDB/DB/SDB)'s. Ensure that all the electrical connections are properly secured with lugs.</p> <p>Select conductors and MCCB/MCB with adequate sizing without exceeding permissible current carrying capacity for insulation.</p> <p>Avoid bunching of cable at MCB, use individual circuit and over current device for every incoming and outgoing circuit at the distribution boards.</p> <p>Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases.</p> <p>Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box.</p> <p>Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground.</p> <p>Provide adequate earthing to body and doors to all DBs. Ensure that all electrical panels provided with proper and separate earth potential.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Provide 4 hour fire rated walls all around the generator room on ground level.</p> <ol style="list-style-type: none"> Design to have proper segregation of different end used loads. Wiring design to have separate and distinct sub-circuits for power and heating system. All DBs to be placed conveniently. Wiring to be neat, tidy and located near ceiling.

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	<p>Review capacity of standby generator on basis of loads for essential lighting / AC / Equipment / Services. Replace generator with larger capacity or install second generator if review indicates existing unit is too small.</p> <p>Provide and maintain easy access and proper height of panel boards (< 2m from floor level).</p> <ol style="list-style-type: none">1. Wooden switchboards / panel boards should be replaced by non-flammable materials.2. Prefer switchboards made of non-flammable materials. <p>Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted).</p> <p>Seal the cable entry-exit points of (LT/MDB/DB/SDB)'s with non-flammable materials. In addition:</p> <ol style="list-style-type: none">1. Ensure that HT / LT panels / 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 are 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. <p>Provide adequate protection against lightning depending on the probability of a strike and acceptable risk levels at roof top of building.</p>
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