

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Supti Sweater Ltd.
Address of the Factory	: Habirbari. Seed Staore, Bhaluka, Mymensingh, Bangladesh
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 26 July, 2015
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 26 July, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 26 July, 2015
BGMEA Membership No.	: 6054

BASIC INFORMATION:

There are three structures at the factory premises. Among them two single story PEB sheds are used as main factory building and another one is a two story RCC beam column frame structure. The following information was noted:

i. Building Usage Type	: Garment Factory.
ii. Structural System	: Shed-1: PEB Gable frame. Shed-2: PEB Gable frame. RCC office building-RCC beam column frame system..
iii. Floor System	: RCC Beam slab.
iv. Floor Area	: 56300 sft
v. No. of Stories	: Shed-1: single storied. Shed-2: single storied. RCC office building-two storied.
vi. Construction Year	: Shed-1: 2012 Shed-2: 2015 RCC office building-two storied-2015
vii. Foundation Type	: Isolated footing.
viii. Design Drawings	: Available document: Approval plan, soil test report, Architectural drawing, structural drawing, machine layout plan (without dimension) Not available: floor load plan, material test
ix. Soil Investigation Report	: Available
x. Construction Materials	: Brick aggregate.
xi. Generator	: Ground Floor.

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)	: 1. Engineer to inspect whether waterproofing material is applied or where it can be maintained. For both durability and

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serviceability, waterproofing on the roof slab is recommended. Moreover the roof slab drainage system and leakage of pipes should be investigated.

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>Factory need to have proper testing plan & record of fire safety equipment.</p> <p>Lights in storage area are needed to be installed with protective covers and conduits.</p> <p>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.</p> <p>All required means of exit or exit access in buildings or areas requiring more than one exit shall be signposted. The signs shall be clearly visible at all times, where necessary supplemented by directional signs.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Factory needs to prepare as built drawing with floor machine layout showing means of escape with proper dimension.</p> <p>Fire manager/Director need to have safety training from proper authority & worker of the factory should as far as possible be trained for use fire extinguisher.</p> <p>Factory needs to be installed with adequate illuminated emergency lighting in floors, exits & stairs.(Escape route).</p> <p>Factory needs to have emergency backup power for critical fire safety system with sufficient capacity & arrangement according to NTPA Guideline.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Fire department pre-plan needs to be developed.</p> <p>Increase an exit or keep open the existing locked exits so that maximum travel distance remains within 60 m.</p>

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	<p>Storage area need to be protected with 2 hours rated construction and 1.5 hours rated opening or doors.</p> <p>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.</p> <p>The factory need to install manually operated electrical fire alarm system and automatic fire alarm system with single or multiple call boxes on all occupied floors, including other tenanted floors of the building.</p> <p>Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline.</p> <p>Factory need to ensure the minimum pressure for standpipes supplying a 50mm or larger hose shall be at least 300 Kpa. For standpipe supplying first aid hose (38mm nominal) may have a minimum pressure of 200 Kpa.</p> <p>Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection.</p> <p>Factory needs to have dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory.</p> <p>Factory need 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</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</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>	<p>Ensure all panel door of distribution boards are earthed properly.</p> <p>Ensure inspection of all earthing system is being completed and documented.</p>
<p>Mid Term</p>	<p>Ensure appropriate number and type of safety signage, fire-</p>

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<p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>fighting equipment and graded rubber mats at required location. Provide Instruction board for first aid and artificial respiration in the substation room.</p> <p>Ensure distribution board is installed in compliant locations in terms of height.</p> <p>Provide dedicated & adequate size of earthing with proper identification for each circuit and ensure continuous earth path is back to main building intake.</p> <p>Rewire to avoid the use of multiple cables on outgoing side of MCCB's.</p> <p>Ensure all electrical cables are sized according to capacity of circuit breakers Connect all metal in the shed to the main grounding system.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system.</p> <p>Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data.</p> <p>Inspect electrical switchgear and panel boards on an annual basis.</p> <p>Ensure underground cables for electrical distribution in the premises of the factory are encased in GI or PVC pipes and laid in earth trenches of sufficient depth as per mentioned standard.</p> <p>Ensure all high tension cables are laid following standard cable laying techniques.</p> <p>Ensure distribution boards have no opening and all live internal components are concealed properly.</p> <p>Provide dedicated & adequate size of neutral with proper identification for each applicable circuit.</p> <p>Ensure each distribution board is provided with a circuit list and means of identification is provided as per list.</p> <p>Provide adequate covers on cable trenches and channel. Provide proper cable terminator/connector for stranded conductors at its point of termination.</p>

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	<p>Install separate distribution boards for lighting and power circuits.</p> <p>Provide individual fuse or miniature MCB for each 15/20A socket outlet.</p> <p>Install lightning protection system on the building.</p>
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