

## **Summary of Preliminary Assessment on Structural, Fire and Electrical Safety**

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Name of the Factory	: Simco Fashions Ltd.
Address of the Factory	: 24/Ka, Shahid Minar Road (3rd Fl),Kallyanpur, Dhaka.
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	:
Date of Structural Inspection	:
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 12 May, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 12 May, 2015
BGMEA Membership No.	: 1158

### **BASIC INFORMATION:**

The following information was noted:

- i. Building Usage Type : Garment Factory.
- ii. Structural System :
- iii. Floor System :
- iv. Floor Area :
- v. No. of Stories :
- vi. Construction Year :
- vii. Foundation Type :
- viii. Design Drawings :
- ix. Soil Investigation Report :
- x. Construction Materials :
- xi. Generator :

### **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:

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| Short Term (Immediate) | : |
| Mid Term (6-weeks)     | : |
| Long Term (6-months)   | : |

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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>Fire drill shall be conducted quarterly (4 times a year) under the Fire Safety Plan. A record of such drills shall be kept in writing for at least 3 years for the inspection of fire brigade whenever called for.</p> <p>All the firefighting equipment's need to test with proper documents.</p> <p>Illuminated emergency light needs to be covered in floor, exits and aisles. 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.</p> <p>(a) The color and design of lettering, arrows and other symbols on exit signs shall be in high contrast with their background. (b) 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/m<sup>2</sup> respectively</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Needs to have as built drawing with floor machine layout showing means of escape with proper dimension.</p> <p>Factory need to have valid fire license covering the full area of the factory.</p> <p>Factory manager or director needs to arrange fire safety training for the workers of the factory from proper authority time to time.</p> <p>All the exit doors need to be replaced by side swinging so that unlockable fire rated doors can be opened easily in the direction of evacuation without the use of a key.</p> <p>Provide handrail on both sides of stairways of stair-1. 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</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Factory needs to have a proper pre-plan for fire service &amp; civil department.</p> <p>The escape need to provide protected paths(2 hours fire rated</p>

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	<p>construction with 1.5 hours fire rated opening) of travel from the stair entrance at each floor level(2 hours rated enclosure with 1.5 hours rated opening/doors) till to reach safe refuse area Storage area need to be protected with 2 hours rated construction &amp; 1.5 hours rated opening or doors.</p> <p>Factory need to protect the generator room from the final exit-1 of the building by 4 hours rated construction with 2 hours fire rated door/opening Also the substation room need to protect from final exit-2 by 4 hours rated construction with 2 hours fire rated door/opening The entire exits connecting to the staircases (02 number staircase) need to be protected with fire and smoke resistant enclosures and opening (2 hour rated enclosure and 1.5 hour rated door)and provide a protected route from all through the stairway to the final exits</p> <p>Ensure 2 hour fire rated walls and doors between office &amp; up-coming sewing section.</p> <p>Walls enclosing the lift core shall have a fire resistance rating of 2 hours and lift car doors shall have a fire resistance rating of at least 1 hour.</p> <p>Factory need Install fire rated enclosure and doors of appropriate dimensions at exits leading to the stairs to prevent smoke and fire propagation.</p> <p>Factory need to install centralized and automatic fire detection &amp; 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 detection and alarm system at required location.</p> <p>Factory need to install with both ways communication facilities for sending or receiving messages from both ends.</p> <p>Install proper standpipe system having at least 100 mm dia of standpipe. First aid hose system (38 mm nominal) shall be provided</p> <p>(Ref. Fire Service Standard # 9) in addition to Fire Aid Fire Fighting Appliances in existing high rise NTPA (20 m) buildings. In addition 50</p>
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	<p>mm or larger hose connection facility shall be provided.</p> <p>Factory need to install one hose system for every 1000m<sup>2</sup> area of each floors according to guideline.</p> <p>Install standard standpipe and hose system as well as fire pump system to ensure required hose pressure at the highest and most remote part of the building.</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 install dedicated fire pump with sufficient capacity and backup power.</p> <p>Factory needs to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900liter x 75min=142500 liters water storage tank.</p> <p>Factory need to installed fire command station facilities with communication to all floors</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>	<p>Find out cause of burning sign and insulation damage and take proper action including replacing cable or equipment where necessary.</p>
<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 distribution boards (including panel door) are earthed properly.</p> <p>Ensure cables are properly terminated at its point of termination using appropriate size and type of lug.</p> <p>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.</p> <p>Provide provision for inspection of all earthing system and ensure inspection is being completed and documented.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be</i></p>	<p>Install appropriate number and type of safety signage at substation and generator room. Also ensure graded rubber mats are provided in front of all distribution boards.</p>

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<p><i>carried out within a period of 6 weeks)</i></p>	<p>Provide Instruction board for first aid and artificial respiration in the substation room and generator room.</p> <p>Ensure substations room and generator room have adequate illumination level as per standard.</p> <p>Provide two separate and distinct connections of earthing for each generator.</p> <p>Ensure distribution boards have a minimum clearance of 1 m (39 in) in front.</p> <p>Provide dedicated &amp; adequate size of earthing with proper identification for each circuit.</p> <p>Rewire to ensure single cable at busbar and/or circuit breaker terminal to avoid loose connection, overloading and separate controlling of each circuit/branch circuit.</p> <p>Replace wooden boxes and panels with metal clad construction for mounting the lighting boards and switch controls.</p> <p>Ensure all electrical wiring/cables are sized according to capacity of circuit breakers.</p> <p>Avoid flexible cables for fixed wiring unless contained in an enclosure affording mechanical protection.</p> <p>Ensure cable joints are made in respect of conductivity, insulation and mechanical strength.</p> <p>Ensure overcurrent protection device (circuit breaker/fuse) for each circuit/branch circuit.</p> <p>Connect all metal in the building to the building earthing system.</p> <p>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.</p> <p>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°C-40°C)} and take proper action.</p>
<p>Long Term</p>	<p>Develop an electrical layout diagram and an as-built single line</p>

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<p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>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 substation room has minimum height &amp; area as per NTPA Table- 4.3 respectively.</p> <p>Ensure the substation room has adequate fire separation from the production area/main building.</p> <p>Provide adequate means of ventilation for the substation room. Ensure the generator room has adequate fire separation from the production area/main building.</p> <p>Provide adequate means of ventilation for the generator room. Replace distribution boards with metal enclosed body. Ensure distribution boards have no opening and all live internal components are concealed properly.</p> <p>Provide dedicated &amp; adequate size of neutral with proper identification for each circuit.</p> <p>Ensure each distribution board is provided with a circuit list and means of identification is obtained as per list.</p> <p>Provide adequate support or mechanical guards for electrical equipment and wiring where necessary.</p> <p>Use noncombustible material to make channel and provide adequate covers on cable trenches/channel.</p> <p>Ensure surface/exposed wiring are run either horizontally or vertically with proper mechanical support and avoid wiring at an angle or hanging way with improper support. Provide proper cable terminator/conductor for stranded conductors. Install separate distribution boards for lighting and power circuits.</p> <p>Install lightning protection system on the building.</p>
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