

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

Name of the Factory	: Zara Socks Industries
Address of the Factory	: 59, Malipara, Bhowal Rajbari, Sreepur, Gazipur
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: BUET
Date of Structural Inspection	: 14 <sup>th</sup> January 2014
Fire & Electrical Assessment Conducted by	: BUET
Date of Fire & Electrical Inspection	: 30 <sup>th</sup> January 2014

### **BASIC INFORMATION:**

The present building is a single storied industrial building with an extended floor (covering approx 40% of the existing roof) with C.I. sheet roof. The building has flat plate-column frame system and is constructed on individual column foundation. The individual foundation has uniform bearing areas with uniform thickness. The bottom of these foundations has been placed at a depth of 6'-6" below the existing ground level (as per structural working drawings). Plan of the building was approved by Chairman, Rajbari Union Parishad, Sreepur, Gazipur in September, 2010. As per verbal information by the Owner, it has been gathered that the construction of the building started in 2010 and was completed by the end of the same year (2010). On the basis of visual observations, study of design drawings of the building, and discussions with the personnel present during site visit, the following information was noted:

- i. Building Usage Type : Garments Industry.
- ii. Structural System : R.C. Flat Plate-Column framed structure.
- iii. Floor System : Column supported R.C. solid floor slab system with cantilever portion at the edges.
- iv. Floor Area : Approx. 4000 sft per floor.
- v. No. of Stories : At present 1 (one) with an extended portion (covering approx 40% of the existing roof) with C.I sheet roof.
- vi. Construction Year : The construction of the building started in 2010 and was completed by the end of same year 2010.
- vii. Foundation Type : Individual Footing with uniform bearing area of 4'-0"×4'-0" and uniform thickness of 12" (as per drawing).
- viii. Design Drawings : Available (one sheet).
- ix. Soil Investigation Report : Available (Prepared by Blue Bird Soil Engineering, Nur Plaza, ZIA Sharani Gas Road, Shonir Akhra, Kadamtali, Dhaka).
- x. Construction Materials : Reinforced concrete for all structural members, e.g. foundation, columns, floor beams, floor slabs, stair case etc. Stone chips were used for columns and brick chips were used for beams, stair case and floor slab (as reported during site visit).
- xi. Generator : Located 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:

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|------------------------|--|
| Short Term (Immediate) | : A load plan of the building shall be prepared and submitted for vetting. Intensity of load due to storage shall not exceed 60 psf (2.87 kN/m <sup>2</sup> ) in all floors. |
| Mid Term (6-weeks)     | : None   |

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Long Term (6-months) : None

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 (a week) and should be a regular activity</i></p>	<p>Remove all temporary obstructions from all escape routes, aisles and passageways.</p> <p>Remove all combustible materials from substation/generator room.</p> <p>Ensure minimum width of corridors, passageways and aisles.</p> <p>Ensure adequate numbers of fire drills.</p> <p>Ensure easy access to portable extinguishers and monitor and maintain the same at required interval as per guidelines.</p> <p>Provide proper directional sign and exit sign in Bangla and English as per guidelines.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Produce proper drawing and plans to create horizontal and vertical fire-rated separation for stairways of appropriate specifications, grills, storage and assembly areas, offices, work areas. Also design to ensure proper separation of high risk areas (e.g., generator, boiler, transformer and substation rooms) as per guidelines.</p> <p>Remove all sliding doors. Produce design drawings to demonstrate how stairways are to be made of adequate dimensions and appropriate specifications and to be converted into fire-rated enclosures equipped with fire-rated side swinging doors of required dimensions opening in the direction of travel at each floor.</p> <p>Provide design to install proper detection and alarm 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>Install horizontal and vertical fire-rated separation for stairways of appropriate specifications, grills, storage and assembly areas, offices, work areas.</p> <p>Ensure proper fire separation of high risk areas (e.g., generator, boiler, transformer and substation rooms) as per approved design.</p> <p>Install fire rated enclosure and doors of appropriate dimensions at exit to the stairs to prevent smoke and fire propagation as per approved design.</p> <p>Install proper detection and alarm system.</p> <p>Provide fire rated enclosure, install self closing fire rated door as per guidelines.</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>Provide instructions for first aid and artificial respiration from exposure to electrical shock.</p> <p>Provide cover on the cable trench and rubber mat in front of the panel.</p> <p>Ensure well-dressed cabling with lugs and remove loose cabling.</p> <p>Ensure earthing of panel body &amp; door with fitted condition.</p> <p>Provide distribution board as per guideline and put identification mark on distribution panel.</p> <p>Remove broken/loose MCB/MCCB box/socket.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Provide separate service ducts for electrical cables.</p> <p>Provide new Emergency Lighting system.</p> <p>Provide appropriate Lightening Protection System as per guidelines.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	N/A