

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

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Name of the Factory	: Angora Sweaters Ltd.
Address of the Factory	: 79/B, Malibagh Chowdhury Para, Dhaka
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: BUET
Date of Structural Inspection	: 11 <sup>th</sup> September 2014

### **BASIC INFORMATION:**

Two Garments Factories, namely, Angora Sweaters Ltd. (1<sup>st</sup> to 4<sup>th</sup> Floor) and Texas Dresses Ltd. (5<sup>th</sup> to 7<sup>th</sup> floor) housed in the building was inspected. The following information was noted:

- i. Building Usage Type : Garments Factory Building (converted from residential building).
- ii. Structural System : R.C. Beam-Column framed structure.
- iii. Floor System : Edge supported R.C. solid floor slab system.
- iv. Floor Area : Approx. 4780 sft per floor.
- v. No. of Stories : At present 8 (G+7) plus one basement.
- vi. Construction Year : 1993 to 1994 and 1998 to 2001.
- vii. Foundation Type : Individual spread footing with mat interconnections (thickness of mat is 33" as per drawing) in between is shown in the structural drawing provided.
- viii. Design Drawings : Available.
- ix. Soil Investigation Report : Available (Prepared by Delta Soil Engineers, 27 North Road, Dhanmondi, Dhaka-1205 in November, 1991).
- x. Construction Materials : Reinforced concrete for all structural members, e.g. foundation, columns, floor beams, floor slabs, stair case etc. The type of aggregate is stone chips for columns (checked during site visit) and brick chips for beams and slabs as reported.
- xi. Generator : There are two generators. One is located at basement floor and the other is located in 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:

Short Term (Immediate) : Cracked and partially damaged neat cement finished topping in floors and stair cases of the building shall be repaired as soon as possible by adopting appropriate method for both aesthetic and serviceability requirements. The roof top shall be kept open. The small store room used for waste fabric shall be removed from the roof top as soon possible to satisfy the requirements of RAJUK approved plan. The roof top should be kept clean and tidy. Other than the basement floor, the intensity of loading due to storage of finished goods in carton boxes, finishing material, fabrics and accessories shall not exceed 60 psf (2.87 kN/m<sup>2</sup>) with ample working aisle in between store areas. A load plan of the building shall be prepared and submitted by the two garments factories (Angora Sweaters Ltd. and Texas Dresses Ltd.) for vetting as soon as possible.

Mid Term (6-weeks) : None

Long Term (6-months) : None

The recommendations for **Fire & Electrical Safety** corrective action are:

Name of the Factory	: Angora Sweaters Ltd.
Fire & Electrical assessment conducted by	: BUET
Date of Fire & Electrical Inspection	: 20 <sup>th</sup> September 2014

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### (A): Recommendations for Fire Safety corrective actions:

<b>Fire Safety Issues</b>	
<p>Immediate <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>Remove all temporary obstructions from all escape routes, aisles and passageways.</p> <p>Remove all combustible materials from transformer/ substation/ boiler/ 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 <i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Remove temporary structure from roof top.</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, basement, offices, work areas. Also design to ensure proper separation of high risk areas (e.g., generator, transformer and substation rooms) as per guidelines.</p> <p>Remove all collapsible gates/roller shutters/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>Produce design to install standard fire pump system.</p> <p>Provide design to install proper detection and alarm system.</p> <p>Install command station as per guidelines.</p>
<p>Long Term <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, basement, lift lobby, offices and work areas.</p> <p>Ensure proper fire separation of high risk areas (e.g., generator, 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 standard standpipe, hose and fire pump system.</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:

Electrical Safety Issues	
Immediate <i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i>	N/A
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>Provide instructions for first aid and artificial respiration from exposure to electrical shock.</p> <p>Provide cable trench with cover and sufficient 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. Provide distribution board as per guideline and put identification mark on distribution panel.</p> <p>Remove burn/broken/loose MCB/MCCB box/socket.</p>
Mid Term <i>(The remedial works indicated must be carried out within a period of 6 weeks)</i>	<p>Provide separate service ducts for electrical cables.</p> <p>Provide new Emergency Lighting system.</p> <p>Provide appropriate Lightning Protection System as per guidelines.</p>
Long Term <i>(The remedial works indicated must be carried out within a period of 6 months)</i>	N/A