

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Anowara Knitting Ltd.
Address of the Factory	: Address- 33/2-A, Isha Khan Road, Narayanganj
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 13 July, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 13 July, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 13 July, 2015
BGMEA Membership No.	: 3077

BASIC INFORMATION:

The factory building is a three storied RCC building with beam and column system and flat slab system. The following information was noted:

i. Building Usage Type	: Knit Garments Factory.
ii. Structural System	: Building 1: Beam column frame structure Building 2: Beam column frame structure.
iii. Floor System	: Building 1: 2-way beam-slab system Building 2: 2-way beam-slab system.
iv. Floor Area	: Building 1: Plinth area 2,553 sft, total area 16,247 sft. Building 2: Plinth area 1,302 sft, total area 3,908 sft.
v. No. of Stories	: Building 1: 6-Storey Building 2: 3-Storey
vi. Construction Year	: Building 1: Construction started in 1998 Building 2: Construction started in 2008
vii. Foundation Type	: Building 1: Cast-in-situ pile system Building 2: Spread foundation system
viii. Design Drawings	: Available (Approved by Narayanganj Municipal Authority on the 12th of July, 2006 and on the 11th of July, 2007)
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)	: N/A
Mid Term (6-weeks)	: N/A
Long Term (6-months)	: 1. As-built structural and architectural drawings of horizontally & vertically extended part to be prepared and submitted for approval by appropriate authority. As part of this process the building engineer will be required to make a number of checks on the structural design.

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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>	<ul style="list-style-type: none"> • The minimum clear width of the pathway should be 0.9 meter • The first aid hose and standpipe performance should be checked periodically and properly tagged
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> • 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. • 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. • Exit door should have minimum clear width 0.9 meter. • 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. • Doors in stair should be outward opening, side-swing, self closing, non-lockable 1.5 hours fire rated doors in all stair way encloses. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room & boiler area, which located at the adjacent to final evacuation route of stair-1(south-west corner). • Prepare proper plan and design for 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Produce design and plan for automatic detection system with automatic fire alarm. • Install Manual activation call point at all exit routes • Provide adequate nos. of smoke detectors to cover the whole factory building. • Prepare proper design and plan for dedicated fire pump with alternate backup power supply. • Replace existing 1 inch hose pipe with 1.5 inch hose pipe to meet the requirement of RMG guideline. • Prepare plan and design for dedicated water storage tank for firefighting operation. • Obtain fire license with full area coverage from issuing

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	authority
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • Provide 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room & boiler area, which located at the adjacent to final evacuation route of stair-1 (south-west corner). • Provide 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Install automatic detection system with automatic fire alarm. • Install dedicated fire pump with alternate backup power supply. • Provide sufficient number of hose pipe with respect to area and travel distance as per RMG guideline. • Stand pipe supplying first aid hose should have minimum pressure of 200 KPa. • Provide dedicated storage tank for firefighting operation

(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>	N/A
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> • Provide electrical graded rubber mats of adequate size in front of all distribution panels. • Install smoke detection and provide firefighting equipment in the substation and generator room. • Provide and maintain clear and legible identifications numbers & names on all incoming and outgoing circuits of HT / LT panels. • Avoid looping of cable at MCB, use individual circuit and over current device for every incoming and outgoing circuit at the distribution boards. • Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box. • Seal the cable penetrations through walls adequately with fire

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	<p>resistive elements.</p> <ul style="list-style-type: none"> • Provide adequate earthing to body and doors to all DBs. Ensure that all electrical panels provided with proper and separate earth potential. • Provide separate earthing system for lightening protector. Ensure that this earthing should be separate from other earthing system.
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • Area of substation / transformer to meet requirements of Table 4.3 of RMG Guideline; the area should be 45 m², or relocate the substation/ transformer room • Maintain the minimum height of 3.6 m for the substation room. Increase the height or relocate it. • Provide adequate ventilation arrangements for indoor substation. • Provide 4 hour fire rated walls and doors all around the generator room on ground level. • Provide standby power for lifts by a self contained generator set to be operated automatically. • Provide and maintain easy access and proper height of panel boards (< 2m from floor level). • Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted). • 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5. 2. Ensure that connections between conductors / equipments 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.