

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Ahsan Knitting Ltd.
Address of the Factory	: M.S. Tower-2, Siddirgonj bus stand, Narayanganj
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 11 March, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 20 May, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 20 May, 2015
BGMEA & BKMEA Membership No.	: 2814 & 87

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	: Garment Factory.
ii. Structural System	: RCC Beam Column Frame.
iii. Floor System	: Beam Column Slab.
iv. Floor Area	: Typical Plinth area of 12005 sft & total area of 60025 sft
v. No. of Stories	: 5 storey
vi. Construction Year	: 2013 (Verbally)
vii. Foundation Type	: Shallow Foundation
viii. Design Drawings	: Available (approval from Siddirgonj Pourashova on 13th June, 2011)
ix. Soil Investigation Report	: Available
x. Construction Materials	: Brick aggregate.
xi. Generator	: Situated at the North south of the factory building in a separate shed area consisting 489.5 sft.

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. Sections of plaster finish of wall to be removed to investigate if cracks penetrate the building wall. 2. Sections of plaster finish to brick wall & column need to be removed to investigate if dampness penetrates into the building wall. Investigation needed to determine the source of the damp and way to prevent it re-occurring

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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 • Provide fire extinguisher at All floor and to keep the record for re filling & properly tagged. • 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. • Prepare proper plan & design for exit door. <ul style="list-style-type: none"> - Minimum clear width should be 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. • Provide stair ways so that – <ul style="list-style-type: none"> - stair treads should be of nominal uniformity, - The difference between the largest and the smallest riser should not exceed 25mm. • Doors in stair should be outward opening, side-swing, self closing, non-lockable 1.5 hours fire rated doors in all stair way encloses. (Also require fire rated door at the floor occupied by other tenants) • Provide 2 hour fire rated construction at unprotected opening window, which is adjacent to external staircase. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room, which located at the adjacent to final exit. • 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. (Also needs to cover the floors occupied by other tenants)

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	<ul style="list-style-type: none"> • 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 replace 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. • Visual alarm should be placed at the generator room.
<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"> • Install exit door as per plan and design. - Minimum clear width should be 0.9 meter. • Provide 4 hours fire rated barriers with 2 hours fire rated doors at ground floor generator room, which located at the adjacent to final exit. • Provide 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Install automatic detection system with automatic fire alarm. (Also needs to cover the floors occupied by other tenants) • Install dedicated fire pump with alternate backup power supply. • 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"> • Individual Fuse protection should be provided to every 15/20 A socket. • 1. Remove all the inflammable materials from surrounding of electrical circuitry at DBs. 2. Ensure that all electric circuitry

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	<p>clean of inflammable materials. 3. Conduct periodic maintenance and maintain the records.</p> <ul style="list-style-type: none"> • Provide suitable & non-flammable protected supports and shades for hanged light fittings. • Provide proper clearance of 0.8 - 1.0 m in front of distribution panel. • Provide cable connections with properly soldered / welded lugs at DB. Ensure that all the electrical connections are properly secured with lugs. • Avoid bunch of cable at MCCB or bus bar terminal, use individual circuit and over current device for every incoming and outgoing circuit at the distribution boards. • Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases.. • Seal the cable penetrations through walls adequately with fire resistive elements.
<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"> • 1. Provide updated SLD matching the existing installation at the factory. 2. SLD to indicate exact positions of all points of switch boxes and other outlets. 3. SLD to be approved by the engineer-in-charge • 1. Provide updated Electrical layout drawing prepared after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc. 2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation. 3. As built drawing to be approved by the engineer-in-charge. • Provide 4 hour fire rated walls all around the generator room on ground level. • Relocate the generator room. • Modify Area of generator room to meet requirements of Table 4.4, RMG Guideline; the area should be 30m², or relocate the generator room. • Provide and maintain easy access to the panel boards. • Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted). • Seal the cable entry-exit points of DB's with non-flammable materials. In addition: 1. Ensure that panels / Switchgears to be vermin / damp proof. 2. Ensure all unused holes / openings in DBs to be blocked properly. . • 1. Provide the ECC to meet minimum cross-sectional area as

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	<p>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.</p> <ul style="list-style-type: none">• Provide adequate protection against lightning depending on the probability of a strike and acceptable risk levels at roof top of building.
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