

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: BOONON KNITTING LTD.
Address of the Factory	: Plot 381-383, Block-B, Bashundhara Project, Gazirchat, Ashulia Road, Savar, Dhaka, Bangladesh.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 12 th May, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 12 th May, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 12 th May, 2015
BKMEA Membership No.	: 1549

BASIC INFORMATION:

The assessed factory is situated in a production complex consisting of a 2-Storey RCC Building and two shed buildings where the structural system of the building was beam column frame and beam slab floor system. The factory operates in the complex on an ownership basis. The following general information was noted:

i. Building Usage Type	: Garment Factory.
ii. Structural System	: RCC beam column frame system.
iii. Floor System	: RCC beam slab floor system.
iv. Floor Area	: Plinth area of RCC building Approx. 13,650 sft and plinth area of Shed building 1 is approximately 240 sft. The total operational floor area of the factory is Approx. 27540 sft.
v. No. of Stories	: RCC Building: Ground Floor + 1-Storey Shed Building 1: Single Storey. Shed Building 2: Single Storey.
vi. Construction Year	: Construction of the production complex started in 2013.
vii. Foundation Type	: Spread Foundation.
viii. Design Drawings	: Available (4th of June, 2013 from Savar Cantonment Board)
ix. Soil Investigation Report	: Available.
x. Construction Materials	: Brick aggregate in column.
xi. Generator	: 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:

Short Term (Immediate) : None.

Mid Term (6-weeks) : None.

Long Term (6-months) :

- Exposed reinforcement need to be covered by lean graded concrete following the guidance of Building Engineer.

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

(A): Recommendations for Fire Safety corrective actions:

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<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"> • Rearrange the evacuation pathway to ensure the minimum width. • Remove all temporary items from all escape routes, aisles and passageway. • Exit sign should be posted above the exit door, <ul style="list-style-type: none"> - It should be clearly visible at all time • Factory management should check alarm call points, alarm & detection system periodically and maintained the record properly. • 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"> • 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. • Prepare proper plan & design for another staircase. - Minimum clear width should be 0.9 meter. Or rearrange the occupant load at floor wise to fulfil the requirement. • Prepare proper plan and design for fire rated barrier for 1 hour fire rating separated corridor at ground floor. • In case of openings in slab / floors, provide enclosures extending above and below such openings. Slab of such openings on both sides should have at least 2 hours fire resistance rating. • The egress paths should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for all corridors & exit doors. Aisles should be provided with a minimum 2 lux. • Produce design and plan for automatic detection system with automatic fire alarm. • 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.

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	<ul style="list-style-type: none"> • 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.
<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 another staircase as per plan and design. <ul style="list-style-type: none"> - Minimum clear width should be 0.9 meter. • All stairway to have direct access to any designated refuge area which requires 1 hour fire rated construction at ground floor for fire separated corridor. • Provide 2 hours fire rated wall with 1.5 hours fire rated doors at storage for separation for other operational area. • Provide permanent storage area with 2 hours fire rated wall and 1.5 hours self-closing doors. • Install automatic detection system with automatic fire alarm. • Install dedicated fire pump with alternate backup power supply. • Stand pipe supplying first aid hose should have minimum pressure of 200 KPa.

(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>	<ul style="list-style-type: none"> • None.
<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>	<ul style="list-style-type: none"> • 1. Disconnect the loads from cable of signs of overloading / abnormal temperature found. • 2. Make necessary repairs to avoid further accidents.
<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 rubber mats of adequate size in front of distribution panels. • 1. Overhead service connections should be covered and meet the requirements mentioned in RMG Guidelines. • 2. Provide supports for main service line complete with

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	<p>adequate insulation.</p> <ul style="list-style-type: none"> • Provide cable connections with properly soldered / welded lugs at (DB)'s. Ensure that all the electrical connections are properly secured with lugs and glands. • Select conductors and MCCB/MCB with adequate sizing without exceeding permissible current carrying capacity for insulation. • Avoid looping and bunch of cable at MCCB/MCB 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. • Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground. • Provide separate earthing connection to electrical equipment. Ensure that earth potential provided for all parts of equipment / installation (other than live parts) and that continuous earth connection is provided back to the main intake supply earth. • Provide adequate earthing to body and doors to DBs. Ensure that all electrical panels provided with proper and separate earth potential.
<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. • Energy meters should be installed at convenient height (At least 1.5 m above ground) with proper protection. • Power & telecommunication cables should be laid separately. • Each circuit should have a separate neutral (use of

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	<p>common neutral for more than one circuit shall not be permitted).</p> <ul style="list-style-type: none">• 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5.2. Ensure that connections between conductors / equipment 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.
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