

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Cherry Knit Wear Ltd.
Address of the Factory	: Sharabo, Kashimpur, Gazipur Sadar, Gazipur, Dhaka, Bangladesh.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 20 th April, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 20 th April, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 20 th April, 2015
BGMEA Membership No.	: 4756
BKMEA Membership No.	: 1083

BASIC INFORMATION:

The assessed factory is situated in a production complex, which contains a multiple span Single-Storey shed building, a 3-Storey RCC building and a reservoir tower. The shed building is a 5-span trussed shed with RCC columns. The 3-Storey building is an RCC beam column frame system with an extension shed at the rooftop, which has an angled roofing system. The factory operates in the complex on a rental basis. The following general information was noted:

i. Building Usage Type	: Garment factory.
ii. Structural System	: RCC Beam-Column Frame for Building-2 and Truss roofed shed building for Building-1.
iii. Floor System	: RCC beam slab floor system for Building-2 and shed roof for Building-1.
iv. Floor Area	: Building 1: Total area is 25,000 sft (Approx). Building 2: Total area is 2640 sft (Approx).
v. No. of Stories	: Building 1: Single storey shed Building 2: 3-Storey RCC building.
vi. Construction Year	: 2006-2007.
vii. Foundation Type	: Unknown.
viii. Design Drawings	: Available (Approved on 5th January, 2009 from the Kashimpur Union Parisad)
ix. Soil Investigation Report	: Unavailable.
x. Construction Materials	: Brick aggregate. (Identified by removing plaster)
xi. Generator	: Ground floor of 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)	: <ul style="list-style-type: none">• As-built architectural and structural drawings of the building to be prepared and submitted for approval by appropriate authority.

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As part of this process the building engineer will be required to make a number of checks on the inconsistencies between the structural design and the as-built construction.

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>	<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 (1 ~ 2 weeks) and should be a regular activity</i></p>	<ul style="list-style-type: none"> • None.
<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. • 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 evacuation route. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors at ground floor boiler, which located at the adjacent to ironing section • Produce design and plan for automatic detection system with automatic fire alarm. • 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. • Obtain the fire license with covered area from the proper issuing authority.

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	<ul style="list-style-type: none"> Obtain the update boiler license from the proper issuing 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 hour's fire rated barriers with 2 hours fire rated doors at ground floor generator room, which located at the adjacent to final evacuation route. Provide 4 hours fire rated barriers with 2 hours fire rated doors at ground floor boiler, which located at the adjacent to ironing section 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. 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>	<ul style="list-style-type: none"> Over current protection devices (Circuit breakers) should to be installed at distribution panel.
<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"> Re-locate oil tanks away from control panels in generator room. All strands cables at exposed ends should be properly soldered / crimped and insulated. Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground.
<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"> 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

	<p>after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc.</p> <p>2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation.</p> <p>3. As built drawing to be approved by the engineer-in-charge.</p> <ul style="list-style-type: none">• All unwanted materials should be removed from Generator room.• Provide rubber mats of adequate size in front of all distribution panels.• <ol style="list-style-type: none">1. Rating of change over switch should be 1.25 times rating of main incoming circuit breaker2. Select appropriate type of change over switch as per RMG Guidelines.• Provide and maintain clear and legible identifications numbers & names on all incoming and outgoing circuits of HT / LT panels.• <ol style="list-style-type: none">1. All stranded conductors > 6mm² to be provided with cable sockets.2. All stranded conductors < 6 mm², at exposed end should be soldered / crimped.• Provide suitable & non-flammable protected supports and shades for hanged light fittings/fixtures.• <ol style="list-style-type: none">1. Overhead service connections should be covered and meet the requirements mentioned in RMG Guidelines.2. Provide supports for main service line complete with adequate insulation.• Provide cable connections with properly soldered / welded lugs at (LT/MDB/DB/SDB)'s. Ensure that all the electrical connections are properly secured with lugs.• 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
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	<p>device for every incoming and outgoing circuit at the distribution boards.</p> <ul style="list-style-type: none"> • Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases. • 1. Provide sufficient and separate earthing for LT panels in substation/transformer room 2. Provide adequate number of earth electrodes. • Provide separate earthing connection to electrical equipments. 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 all MDBs / 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"> • Provide 4 hour fire rated walls all around the generator room on ground level. • Modify Area of generator room to meet requirements of Table 4.4, RMG Guideline; the area should be 84m², or relocate the generator room. • Provide and maintain proper clearance in all sides of generator for ease of maintenance. • Provide and maintain easy access and proper height of switchboard / 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). • Provide the wiring in PVC conduits or in metallic GI pipes. Ensure that all electrical wiring should be covered in proper conduit pipes. • Seal the cable entry-exit points of (LT/MDB/DB/SDB)'s with non-flammable materials. In addition: <ol style="list-style-type: none"> 1. Ensure that LT panels / Switchgears to be vermin / damp proof. 2. Ensure all unused holes / openings in DBs to be

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	<p>blocked properly.</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 / 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.
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