

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: ABIKO KNIT COMPOSITE LTD.
Address of the Factory	: Lamapara, Kutubpur, Fatullah, Narayangonj, Bangladesh.
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: VERITAS Engineering & Consultant
Date of Structural Inspection	: 2015-10-28
Fire Assessment Conducted by	: VERITAS Engineering & Consultant.
Date of Fire Inspection	: 2015-10-28
Electrical Assessment Conducted by	: VERITAS Engineering & Consultant.
Date of Electrical Inspection	: 2015-10-28
BKMEA Membership No.	: 1455

BASIC INFORMATION: The present garment factory is a four storied Industrial building with steel frame with composite floor system. The following general information was noted:

- i. Building Usage Type : Garment Factory.
- ii. Structural System : Steel frame with composite floor system.
- iii. Floor System : RCC slab on steel deck.
- iv. Floor Area : 152000 sq. ft. (Total floor)
- v. No. of Stories : 4 storied.
- vi. Construction Year : 2012 to ongoing.
- vii. Foundation Type : Isolated footing (as shown in drawing and matched with soil test Recommendation)
- viii. Design Drawings : Available documents: Approval plan, Full set of structural & architectural drawing, soil test report
Not available: As built machine layout plan, material test report and floor load plan
- ix. Soil Investigation Report : Available
- x. construction Materials : Pre-fabricated steel joist, Brick.
- xi. Generator : Not available.

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)	: None

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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"> • Factory need to have proper testing plan & record of fire safety equipment. • Factory needs to conduct fire drill quarterly (4 times a year) under the fire safety plan and needs to kept the written record of such drills for at least 3 years for the inspection of fire brigade whenever called for. • Factory needs to have marked aisles in all working floor according to 0.9m for one side seat and 1.0m for both side seat. • Potable fire extinguisher needs to be of an approved type and installed as per manufacturer's instruction and placed near the path of exit travel where easily accessible. Portable fire extinguisher needs to be installed in private and public buildings as per specification and requirements of BDS 825:1991 (BDS 825:91). • All required means of exit or exit access in buildings or areas requiring more than one exit shall be signposted. The signs shall be clearly visible at all times, where necessary supplemented by directional signs.
<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"> • Factory needs to prepare as built drawing with floor machine layout showing means of escape with proper dimension. • Fire manager/Director need to have safety training from proper authority & worker of the factory should as far as possible be trained for use fire extinguisher. • All the exit doors need to be replaced by side swinging so that un-lockable doors can be opened easily in the direction of evacuation without the use of a key. • Factory needs to provide handrail on both sides of all the stairways. • Factory needs to be installed with adequate illuminated emergency lighting in floors, exits & stairs.(Escape route) • Emergency back-up power needs to be connected for critical fire safety system and not less than 30 minutes in case of failure of power supply.
<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"> • Fire department pre-plan needs to be developed. • Final exit route-1, 2, 3 & 4 need to be protected (2 hours rated construction with 1.5 hours rated door) at each floor level entrance and need to be protected from working floor at ground floor till to reach safe refuse area. • All the stairs (stair-1, 2, 3 and 4) need to be protected with fire and

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	<p>smoke resistant enclosures and opening (2 hours rated enclosure and 1.5 hour rated door) and provide the protected route from all though the stairway to the final exits.</p> <ul style="list-style-type: none">• Factory need to install of fire lift with backup power including having 1 hour fire rated & auto closing fire door in 2 hours fire rated lift core with backup power & having minimum capacity of 545kgs.• Factory need to install centralized and automatic fire detection & alarm system on all occupied floors, including other tenanted floors of the building as per NTPA Guideline.• The factory need to install manually operated electrical fire alarm system and automatic fire alarm system with single or multiple call boxes on all occupied floors, including other tenanted floors of the building.• Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline.• Factory need to install proper standpipe system having at least 75 mm diameter of riser.• Install 1 riser per 1000 m² of floor area & Install adequate number of hose in floor area and the minimum hose diameter is 38 mm, or 1.5" preferably fabric hose with variable nozzle to be used in both of the stairways covering the floor area.• Factory need to ensure the minimum pressure for standpipes supplying a 50mm or larger hose shall be at least 300 KPa and standpipe supplying first aid hose (38mm nominal) may have a minimum pressure of 200 KPa.• Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection.• Factory need to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900 X 75 = 142500 liters water storage tank.
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(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>	<p>N/A</p>
<p>Short Term (Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity)</p>	<ul style="list-style-type: none"> • Install earthing pit for the factory with adequate provision for inspection of the earthing system and ensure inspection is being completed and documented.
<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"> • Ensure graded rubber mat is provided in front of distribution board. • Ensure distribution board has a minimum clearance of 1 m (39 in) in front. • Provide dedicated & adequate size of earthing with proper identification for each circuit from the earth busbar of distribution boards and ensure continuous earth path is back to main building intake. • Rewire to avoid the use of multiple cables from incoming and outgoing side of MCB's/MCCB's. • Ensure all electrical cables are sized according to capacity of circuit breakers. • Provide adequate support or mechanical guards for wiring where necessary. • Ensure Lighting fixtures are supported from the structure properly.
<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"> • Replace distribution board with metal enclosed body. • Provide dedicated & adequate size of neutral with proper identification for each circuit.