

## **Summary of Preliminary Assessment on Structural, Fire and Electrical Safety**

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Name of the Factory	: Trend Force Garments (Bd) Ltd.
Address of the Factory	: Plot # 491 Nawjor, Baypasmor, Pokadd Bazar, Gazipur.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 9 <sup>th</sup> July, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 9 <sup>th</sup> July, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 9 <sup>th</sup> July, 2015
BGMEA Membership No.	: 4327

### **BASIC INFORMATION:**

The assessed factory building is a 4 storied RCC building with beam column frame and beam slab floor system. The following information was noted:

- i. Building Usage Type : Garment factory.
- ii. Structural System : RCC beam column frame system.
- iii. Floor System : Two-way beam slab.
- iv. Floor Area : The typical plinth area is 14,820 sft. and total production floor is 60,531.72.
- v. No. of Stories : GF + 3 Floors (4- Storey), No Basement.
- vi. Construction Year : 2010
- vii. Foundation Type : Shallow Foundation.
- viii. Design Drawings : Available (Approval for an 8-Storey commercial building on 9th December, 2010 from Gazipur LGED).
- ix. Soil Investigation Report : Available.
- x. Construction Materials : Brick aggregate (Identified by removing Plaster).
- xi. Generator : At north-west side of ground floor of different shed.

### **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 rebar needs to be covered by lean graded concrete as per direction 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 style="text-align: center;">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"> <li>• Periodically check fire pumps. Maintain record properly.</li> </ul>
<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"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Doors in stair should be outward opening, side-swing, self-closing, non-lockable 1.5 hours fire rated doors in all stair way encloses.</li> <li>• Provide 1.5 hrs fire rated door for storage area.</li> <li>• Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at ground floor boiler area, which located at the adjacent to winding section. Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at Ancillary shed, which located at the adjacent to Jute godawan.</li> <li>• Provide adequate nos. of smoke detectors to cover the whole factory building.</li> <li>• Replace existing 1 inch hose pipe replace with 1.5 inch hose pipe to meet the requirement of RMG guideline.</li> <li>• Prepare plan and design for dedicated water storage tank for firefighting operation.</li> </ul>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6</i></p>	<ul style="list-style-type: none"> <li>• Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at ground floor boiler area, which located at the adjacent to winding section. Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at Ancillary</li> </ul>

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<i>months)</i>	<p>shed, which located at the adjacent to Jute godawan.</p> <ul style="list-style-type: none"> <li>• Prepare plan and design for dedicated water storage tank for firefighting operation.</li> </ul>
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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</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>	<p>N/A</p>
<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"> <li>• Individual Fuse protection should be provided to every 15/20 a socket.</li> <li>• Select conductors and MCCB/MCB with adequate sizing without exceeding permissible current carrying capacity for insulation.</li> <li>• 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.</li> <li>• Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for MDBs,DBs identifying end use load, voltage, number of phases.</li> <li>• Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box.</li> <li>• 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.</li> <li>• Provide adequate earthing to body and doors to MDB/DBs. Ensure that all electrical panels provided with proper and separate earth potential.</li> </ul>
<p>Long Term</p> <p><i>(The remedial works indicated must be</i></p>	<ul style="list-style-type: none"> <li>• 1. Provide updated SLD matching the existing installation at the factory.</li> </ul>

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<p><i>carried out within a period of 6 months)</i></p>	<ol style="list-style-type: none"> <li>2. SLD to indicate exact positions of all points of switch boxes and other outlets.</li> <li>3. SLD to be approved by the engineer-in-charge.</li> </ol> <ul style="list-style-type: none"> <li>• 1. Provide updated Electrical layout drawing prepared after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc.</li> <li>2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation.</li> <li>3. As built drawing to be approved by the engineer-in-charge.</li> </ul> <ul style="list-style-type: none"> <li>• Provide 4 hour fire rated walls all around the transformer / generator room on ground level.</li> <li>• Relocate generator set in substation building / adjacent to substation room.</li> </ul> <ul style="list-style-type: none"> <li>• 1. Design to have proper segregation of different end used loads.</li> <li>2. Wiring design to have separate and distinct sub-circuits for power and heating system.</li> <li>3. All DBs to be placed conveniently.</li> <li>4. Wiring to be neat, tidy and located near ceiling.</li> </ul> <ul style="list-style-type: none"> <li>• Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted).</li> <li>• Seal the cable entry-exit points of (MDB) with non-flammable materials. In addition: 1. Ensure all unused holes / openings in MDB to be blocked properly.</li> </ul> <ul style="list-style-type: none"> <li>• 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5.</li> <li>2. Ensure that connections between conductors / equipments provided to durable electrical continuity and adequate mechanical strength and protection.</li> <li>3. The continuous earth connection is provided back to the main intake supply earth.</li> </ul> <ul style="list-style-type: none"> <li>• Provide adequate protection against lightning depending on the probability of a strike and acceptable</li> </ul>
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