

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Ample Fashion Ltd.
Address of the Factory	: Plot #01(2nd floor), CDA Heavy Industrial Area, Bahir Signal, Kalurghat, Chittagong, Bangladesh.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 25 th March, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 25 th March, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 25 th March, 2015
BGMEA Membership No.	: 4941

BASIC INFORMATION:

The assessed factory building is a 3 storied RCC building. The structural system of the building is beam column frame and beam slab floor system. Ample Fashion Ltd. has occupied 2nd floor of this building as rental basis. Ground floor and 1st floor were used by U-Text design Ltd. and were not accessible. The following general information was noted:

- i. Building Usage Type : Garment Factory.
- ii. Structural System : RCC beam column frame system structure.
- iii. Floor System : RCC Beam-slab floor system.
- iv. Floor Area : 2nd floor = 1570 sft (Ample Fashion Ltd.), Entire building = 45208 sft (Approx.)
- v. No. of Stories : 3 Storey.
- vi. Construction Year : 1997.
- vii. Foundation Type : Shallow foundation.
- viii. Design Drawings : Available (approval for 3 storey RCC building from Chittagong Development Authority on 21st November 1997 for commercial use).
- ix. Soil Investigation Report : Available.
- x. Construction Materials : Brick Aggregated in columns.
- xi. Generator : In separated structure.

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) :

- Sections of plaster of the beam to be removed to investigate if cracks penetrate into the building structure. Investigation needed to determine why cracks occurring.

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

(A): Recommendations for Fire Safety corrective actions:

Immediate	• None.
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<p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></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. • Factory management should be checked 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. • Provide additional firefighting equipment like sand & water buckets near exit or easily accessible area for first phase firefighting.
<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. • 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. • Doors in stair should be outward opening, side-swing, self-closing, non-lockable 0.75 hours fire rated doors in all stair way encloses.(Also require fire rated door at the floor occupied by other tenants) • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at 2nd floor Boiler room. • 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.(Also needs to cover the floors occupied by other tenants) • Provide adequate nos. of smoke detectors to cover the

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	<p>whole factory building.</p> <ul style="list-style-type: none"> • Prepare proper design and plan for dedicated fire pump with alternate backup power supply. • Prepare plan and design for dedicated water storage tank for firefighting operation as per RMG guideline. • Implement to a single fire safety management system with approvals from all tenants in the factory building.
<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 hours fire rated barriers with 2 hours fire rated door at 2nd floor Boiler room. • 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. • Provide sufficient number of hose pipe with respect to area and travel distance as per RMG guideline. • 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"> • 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"> • All strands cables at exposed ends should be properly soldered / crimped and insulated.
<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"> • All unwanted materials should be removed from Generator room. • Provide rubber mats of adequate size in front of all distribution panels. • Provide and maintain clear and legible identifications numbers & names on all incoming and outgoing circuits

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	<p>of MDB panels.</p> <ul style="list-style-type: none">• 1. Exit signs should be illuminated either by lamps external to the sign or by lamps contained within the sign.2. The source of illumination should be providing not less than 50 lux.• Individual Fuse protection should be provided to every 15/20 A socket.• 1. Remove all the inflammable materials from surrounding of electrical circuitry at MDBs/SDBs.2. Ensure that all electric circuitry clean of inflammable materials.3. Conduct periodic maintenance and maintain the records.• The electrical panels to be of metal case and should be marked with “Danger 415 Volts” and identified with proper phase marking and danger signage.• Provide proper clearance of 0.8 - 1.0 m in front of all distribution panels/switchboards.• Provide cable connections with properly soldered / welded lugs at (MDB/SDB)'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 MDBs identifying end use load, voltage, number of phases.• Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box.• Provide separate earthing connection to electrical equipments. Ensure that earth potential provided for all
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	<p>parts of equipment / installation (other than live parts) and that continuous earth connection is provided back to the main intake supply earth.</p> <ul style="list-style-type: none"> • 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"> • 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 transformer / generator room on ground level. • Modify Area of generator room to meet requirements of Table 4.4, RMG Guideline; the area should be 30 m², or relocate the generator room. • 1. Design to have proper segregation of different end used loads. 2. Wiring design to have separate and distinct sub-circuits for power and heating system. 3. All DBs to be placed conveniently. 4. Wiring to be neat, tidy and located near ceiling. • Provide calibrated Ammeters / Voltmeters at distribution boards (LT/MDBs). • Relocate the MDBs with easy access. Ensure that all MDBs / SDBs should have easy accessibility. • Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be

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	<p>permitted).</p> <ul style="list-style-type: none">• 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 (MDB/SDB)'s with non-flammable materials. In addition:<ol style="list-style-type: none">1. Ensure all unused holes / openings in DBs to be blocked properly.• <ol 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.• 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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