

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Unity Fabric Inds. Ltd.
Address of the Factory	: Bahadurpur, Mirzapur Bazar, Gazipur
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: BUET
Date of Structural Inspection	: 14 January, 2014
Fire Assessment Conducted by	: BUET
Date of Fire Inspection	: 12 February, 2014
Electrical Assessment Conducted by	: BUET
Date of Electrical Inspection	: 12 February, 2014
BGMEA Membership No.	: 3518

BASIC INFORMATION:

The factory building is a 4 storied RCC building and two pre-engineered steel sheds within the factory compound. The following information was noted:

i. Building Usage Type	: Garment Factory.
ii. Structural System	: One RC Frame Building, One steel roof on concrete column and brick wall and one Gable frame.
iii. Floor System	: RCC Beam supported slab and in some portion flat slab.
iv. Floor Area	: According to the drawing 5058 sq.ft per floor in the Rc building approximately 24,000 sft in the dying floor and about 14,400 sft in the sewing floor.
v. No. of Stories	: 4- storied RCC building, 1- storied Dying floor, and 1-storied plus mezzanine in the sewing floor.
vi. Construction Year	: 1998-2009
vii. Foundation Type	: Isolated column footing (As per drawing)
viii. Design Drawings	: Available
ix. Soil Investigation Report	: Available
x. Construction Materials	: Brick aggregate.
xi. Generator	: Outside 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)	: 1. Due to high stress in some columns, a Detailed Engineering Assessment (DEA) is required to be commenced immediately and completed within 6 weeks from issue this report.. 2. Coring with 4 nos. 4 in. cores (3 in. when taken from column) for the building and scanning of rebar's in the GF. 3. The consultants strongly recommend storing any type of cartoon boxes, finished products and fabrics in such a manner so that intensity of loading should not exceed 40 psf (2.0 kN/m ²) 4. No horizontal or vertical extension of the building shall be made without detail engineering assessment.
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Mid Term (6-weeks) : N/A

Long Term (6-months) : N/A

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"> • Keep corridors and passageways on escape routes free of any obstructions to ensure unobstructed path of travel along the aisles, corridors, and passageways to the exits. • Relocate work benches, temporary storage in such a way that corridors, passageways and aisles are at least 1.0m wide on all escape routes • Seal the shafts/ducts in the floors when it is not needed. • Seal the shafts/ducts with non-combustible materials at each floor • Remove obstructions from stairways • Rearrange storage items to ensure proper clearance from ceiling. • Ensure adequate number of Fire Drills as per the Guidelines • Include Fire Drill and Training of the Trainers in Fire Safety Management Plan • Ensure regular monitoring and maintenance of extinguishers, including inspection and expiry/re-service labels. • Ensure easy accessibility to fire extinguishers. • Provide instructions for first aid and artificial respiration from exposure to electrical shock. • Provide cover on the cable trench and sufficient rubber mat in front of the panel
<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>	<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"> • Provide design drawings to demonstrate how designated storage areas, assembly areas, offices and work areas should be separated with fire-rated walls and doors according to the Guideline occupancy separation will be achieved.

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	<ul style="list-style-type: none"> • Retrofitting of internal layout needed with appropriate drawings following guidelines. • Retrofitting drawing of internal layout needed as per guidelines. • Provide drawings to arrange adequate number of doorways at each floor as per the Guidelines and produce the plan for construction of these doorways. • Produce design drawings to demonstrate how stairways are to be made of adequate dimensions and appropriate specifications and to be converted into smoke-proof enclosures equipped with Fire-rated side swinging doors opening in the direction of travel at each floor • Provide easily identifiable escape routes, clear and free of obstruction. • Provide clearly visible illuminated exit sign to indicate exit from storage area. • Provide cover on naked light. • Provide adequate number and type of illuminated exit signs so that exits can be seen from all corridors and evacuation paths. • Remove and replace incorrect directional signs. • Provide English and Bangla Exit instructions where necessary. • Provide fire extinguishers that meet the requirements of the Guidelines • Provide adequate number of additional fire-fighting equipment to meet the Factory Rules • Provide clear identification mark on distribution panel and relevant SLD • Ensure earthing for all required electrical points
<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"> • Mixed use buildings and Buildings housing RMGs, use some floors that fall under “Mixed Occupancy” (e.g. Storage, Office, Work areas, etc.). The designated storage areas, assembly areas, offices and work areas should be separated with fire rated walls and doors according to the Guidelines. • Different occupancy in different floors should be separated with fire-rated construction according to the Guidelines. • Provide fire-rated separation to prevent smoke and fire

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	<p>propagation through staircases and grills on the interior walls</p> <ul style="list-style-type: none">• Doors on all escape routes to open in the direction of travel• Ensure adequate number of doorways in each floor according to the occupant load as per the Guidelines.• Internal retrofitting needed to create safe passage, corridors and exits as per the guidelines• Provide service duct for electrical cables• Ensure prevention of fire and smoke propagation through vertical shafts by providing fire rated enclosures around the openings along with seals and fire dampers in shafts and ducts at floor separations.• Convert all interior stairways into smoke proof enclosures equipped with Fire-rated side swinging doors opening in the direction of travel at each floor.• The ground floor exits should be enclosed so as to ensure safe pathway for escape from the premises.• Provide continuous smoke-proof fire protected pathway along all the stairways from roof to the final exit.• Provide stairways of adequate dimensions and of appropriate specifications according to the Guidelines as required for the occupancy load.• Remove all collapsible security gates and roller shutters from all exit stairway access doors.• Remove Sliding doors from all Final Exits. Where sliding doors are provided at final exits, these shall not be relied on for means of exit.• Provide fire doors as approved by the Guidelines• Provide fire-rated solid walls from floor to ceiling to ensure fire separation of the storage area from others or maintaining proper storage size and distance between stored items as per the Guideline• Provide smoke and heat vents as required (e.g. Storage, etc.)• Provide new Emergency Lighting system that meets the specified emergency lighting requirements of the Guidelines.• Install or replace panel doors
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	<ul style="list-style-type: none"> • Remove all temporary connections • Install appropriate detectors.
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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>	<ul style="list-style-type: none"> • Remove obstruction to ensure access to MDB/DB/SDB/MCB/MCCB/SB • Ensure all connection with lugs and proper cable dressing • Cover the exposed live parts.
<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>	N/A
<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 clear identification mark on MDB/DB/SDB and provide SLD • Install MDB/DB/SDB/SB/MCCB on nonflammable board. • Provide earthing to door of MDB/DB/SDB. • Provide earth bar in MDB/DB/SDB • Provide earthing to motor body. • Repair broken/loose socket • Provide duplicate earth leads for MDB. • Replace loose and undressed messy wiring/cables • Provide design drawings for the fire detection and alarm system in accordance with the Guideline requirements and hazard situation, (with appropriate specifications and drawings) showing how they will be implemented along with implementation plan.
<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"> • Provide appropriate earthing and lightning protection system as per guidelines. • Install the fire detection and alarm systems

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months)

in accordance with the Guideline requirements and hazard situation (based on appropriate specifications and drawings).