

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Abedin Garments Ltd.
Address of the Factory	: 228/A, Tejgaon, Industrial Area, Tejgaon, Dhaka-1208, Bangladesh.
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: ACCORD
Date of Structural Inspection	: 2014-03-29
Fire Assessment Conducted by	: VERITAS Engineering & Consultant.
Date of Fire Inspection	: 2015-04-27
Electrical Assessment Conducted by	: VERITAS Engineering & Consultant.
Date of Electrical Inspection	: 2015-04-27
BGMEA Membership No.	: 34

BASIC INFORMATION: The factory building is a three storied RCC building with beam and column system and flat slab system. The following general information was noted:

- i. Building Usage Type : Garment Factory.
- ii. Structural System : RCC Flat slab system.
- iii. Floor System : Flat slab.
- iv. Floor Area : 14,891 m² (Main building) Basement floor=1085 m² and Ground floor to 8th floor=1534m² [Per floor].
- v. No. of Stories : GF + 8 Floors + Basement (10- Storied)
- vi. Construction Year : Not mentioned in report.
- vii. Foundation Type : Not mentioned in report.
- viii. Design Drawings : Not mentioned in report.
- ix. Soil Investigation Report : Not mentioned in report.
- x. construction Materials : Not mentioned in report.
- xi. Generator : Ground floor.

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. Reduce and distribute storage at ground floor level to allowable loads indicated by slab loading plan.

Mid Term (6-weeks) : 1. Demolish existing rooftop work area and remove demolition remnants from the roof.
2. Develop and implement protocols for the monitoring of slab loadings in accordance with the existing slab loading plans.
3. Factory engineer to conduct a review of design, loads and column stresses throughout the factory.
4. Factory engineer to conduct a review of structure's lateral stability system.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Long Term (6-months) : 1. Amend existing loading plan according to findings of engineering review mentioned above.

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>	N/A
<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"> • Ensure adequate exit signs in all floors so that it is visible from all positions
<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 have as built drawing with proper dimensions showing all the means of escape. • Factory need to have a valid fire license with covering full occupied area & clearly mention the coverage area in the license. • 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. • Stair needs to have provided both side handrails. • Factory need to have emergency backup power for critical fire safety system with sufficient capacity & arrangement according to NTPA Guideline.
<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"> • Factory needs to have a proper pre-plan for fire department. • Final exit route-2(stair-1) need to be protected(4 hours rated construction with 2 hours rated door) at each floor level entrance & at lift in ground floors, also need to have a 4 hours rated protected escape route till to reach safe refuse area.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<ul style="list-style-type: none">• Final exit route-4(Stair-2 route) need to be protected(4 hours rated construction with 2 hours rated door) at each floor level entrance & ground floors childcare room, also need to have a 4 hours rated protected escape route till to reach safe refuse area.• Final exit route-3(stair-3) need to be protected(4 hours rated construction with 2 hours rated door) at each floor level entrance but it is discharged direct outside of the building• Childcare room need to safe location and should have direct discharge to outside of the building.• Bonded ware house need to be separated with 2hours rated construction & 1.5 hours rated door.• Generator room need to be fire separated with 4hr fire rated enclose and 2hr rated opening having direct access from outside.• Boiler room needs to be separated with 4 hours fire rated enclosure and 2 hour rated door/opening.• All the stairs need to be protected with fire and smoke resistant enclosures & opening (4 hours rated enclosure and 2 hour rated door)and provide a protected route from all though the stairway to the final exits.• Install fire lift with backup power including have 1hr fire rated & auto closing fire door in 2hr fire rated lift core with backup power & having minimum capacity of 545 kgs.• Factory need to protect the entire stair by 4 hours fire separated & smoke proof lobby with 2 hours fire rated door/opening• Factory need to protect the basement floor by 4 hours fire separated & smoke proof lobby with 2 hours fire rated door/opening from the others floor of the building• Install proper standpipe system having at least 100 mm dia of standpipe. First aid hose system (38 mm nominal) shall be provided (Ref. Fire Service Standard # 9) in addition to Fire Aid Fire Fighting Appliances in existing high rise NTPA (20 m) buildings. In addition 50 mm or larger hose connection facility shall be provided.• 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 establish command station on the entrance lobby with suitable public address system having communication to all floors as well as facilities to receive messages from all floors.
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Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

(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"> Find out the cause (improper cable/over current selection, over loading, improper lug, improper cable joints, rusted connection, insulation damage, multiple cables at single point,) of overheating (> ambient+ 400C) and take proper action.
<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"> Ensure panel door of distribution boards are earthed properly.
<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 mats are provided in front of all sub-distribution boards. Rewire to ensure each incoming supply to an MCB has a dedicated supply from busbar. Avoid the use of multiple cables on outgoing side of MCB's. Connect all metal in the building to the building earthing system. Find out the cause (improper cable/over current selection, over loading, improper lug, improper cable joints, rusted connection, insulation damage, multiple cables at single point,) of overheating { ambient+(200C-400C)} and take proper action.
<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"> Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data. Ensure substation room has minimum height & area as per NTPA Table-4.3 respectively. Ensure the substation room has adequate fire separation from the production area.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<ul style="list-style-type: none">• Ensure distribution boards have no opening and all live internal components are concealed properly.• Ensure each distribution board is provided with a circuit list.• Provide proper cable terminator/connector for stranded conductors at its point of termination.
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