

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Coast To Coast Apparels Ltd.
Address of the Factory	: Itahata, Bashon, Gazipur Sadar, Gazipur, Bangladesh.
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: ALLIANCE
Date of Structural Inspection	: 27 th February, 2014
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 1 st April, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 1 st April, 2015
BGMEA Membership No.	: 3070

BASIC INFORMATION:

The assessed factory is consists of 9 (Nine) storied with a basement reinforced concrete main production building, one 2(Two) storied reinforced concrete building where generator and boiler is located and one 1(one) storied reinforced concrete. There is a childcare available in factory premises. The structural system of the building is beam column frame and beam slab floor system. The following general information was noted:

i. Building Usage Type	: Garment Factory.
ii. Structural System	: RCC beam column frame system.
iii. Floor System	: RCC Beam slab floor system.
iv. Floor Area	: Total floor area is 26450 sft.
v. No. of Stories	: 8-Storey. (Production Building)
vi. Construction Year	: 2008-2009.
vii. Foundation Type	: Isolated column footing foundation.
viii. Design Drawings	: Available.
ix. Soil Investigation Report	: Not identified. (Not mentioned in ALLIANCEs report)
x. Construction Materials	: Unknown. (Not mentioned in ALLIANCEs report)
xi. Generator	: At an ancillary 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)	:	<ul style="list-style-type: none">• Under guidance of a qualified structural engineer conduct destructive core testing to validate the in-situ concrete compressive strength of the structural elements.•
Mid Term (6-weeks)	:	<ul style="list-style-type: none">• Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.• Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.• The authority should engage an expert structural engineer to calculate actual live load for each critical section of the floor,

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particularly storage area and sewing section. Measured live load should be verified with the designed live considering factor of safety.

- Adequately anchor and brace all non-structural elements noted to resist earthquake forces to comply with the BNBC and Alliance Standard.
- Develop a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded. The designated Load Manager shall oversee this program and ensure it is enforced.

Long Term (6-months)

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- Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.
 - Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard. Load Plans shall be prepared for each floor. These Load Plans shall document the actual maximum operational loading that is intended and/or allowable on each floor. For each section of a floor, live load should be posted in the adjacent column, particularly for the critical sections.
 - Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.
 - Designate a representative as the Factory Load Manager. The Factory Owner shall ensure that at least one individual, the Factory Load Manager who is located onsite full time at the factory, is trained in calculating operational load characteristics of the specific factory. The Factory Load Manager shall serve as an ongoing resource to RMG vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor loading limits as described on the Floor Loading Plans.

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"> • None.
<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 needs to have as built drawing with proper dimensions showing all the means of escape. • Factory needs to have a proper pre-plan for fire department. • Lights in storage area needed to be installed with protective covers and conduits. • Combustibles are to be managed with good

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	<p>housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9m and when used as a storage facility there shall be a minimum clearance of one third the floor height from the ceiling to the top of the storage stack.</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"> • Fire license need to be updated for full occupied area. • 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 need to have 2 hr. fire rated & smoke proof lobby near each exit leading to staircase for 8 storied building. • Basement need to comply with the following condition: <ul style="list-style-type: none"> (a)Basement staircase shall be encased and placed near the outer edge of the basement with materials of 2 hours fire resistance (b)Communication with the basement in case of emergency shall be maintained through a lobby provided with a fire resisting self-closing door of 1 hour fire resistance. • Ensure adequate illuminated emergency lighting in floors, exit & stair. • Install fire command station facilities with communication to all floors.
<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"> • Storages area need to be protected with 2 hours rated construction & 1.5 hours rated opening or doors. • Generator: <p>Generator room shall be situated on the periphery of the factory building and shall have a 4 hour fire resistance wall between generator room & storage area.</p> <p>Entry to generator room shall be through a 2 hours fire resistance composite door.</p> • Boiler : <p>Boiler room shall be situated on the periphery of the factory building and shall have a 4 hour fire resistance wall.</p> • Stairs need to be protected with fire and smoke resistant

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	<p>enclosures and provide a protected route from all though the stair way to the final exits.</p> <ul style="list-style-type: none"> • Factory needs to install fire lift with having minimum capacity of 545 kg & the lift core should have 2 hr rated enclosure & 1hr rated auto closing fire door. • Factory needs to install Siamese connection after installation of stand pipe system, hose system and fire pump.
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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 all unused cables from distribution board and make sure all necessary cables are properly terminated at its point of termination using appropriate size and type of lug.
<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"> • Ensure overcurrent protection device (circuit breaker/fuse) for each circuit/branch circuit.
<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 distribution boards. • Fill the transformer breather with fresh Silica gel. • 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 and ensure continuous earth path is back to main building intake. • 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. • Ensure cable joints are made in respect of conductivity, insulation and mechanical strength. • 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+(

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	20°C-40°C)} and take proper action.
Long Term <i>(The remedial works indicated must be carried out within a period of 6 months)</i>	<ul style="list-style-type: none">• Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system.• Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data.• Inspect electrical panel boards on an annual basis and maintain proper inspection documents.• Ensure distribution board has no opening and all live internal components are concealed properly.• Ensure each distribution board is provided with a circuit list and means of identification is provided as per list.• Provide proper cable terminator/connector for stranded conductors at its point of termination.• Provide readily accessible single point of disconnect for each main electrical service feed.• Install lightning protection system on the building confirming its requirements and adequacy.