

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Beau Monde Garments Ltd.
Address of the Factory	: 68/X, Sagarica Road, Chittagong
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: Alliance
Date of Structural Inspection	:
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 12 August, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 12 August, 2015
BGMEA Membership No.	: 1491

BASIC INFORMATION:

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

- i. Building Usage Type : Garment Factory.
- ii. Structural System :
- iii. Floor System :
- iv. Floor Area :
- v. No. of Stories :
- vi. Construction Year :
- vii. Foundation Type :
- viii. Design Drawings :
- ix. Soil Investigation Report :
- x. Construction Materials :
- xi. Generator :

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:

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| Short Term (Immediate) | : |
| Mid Term (6-weeks) | : |
| Long Term (6-months) | : |

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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>	<p>NA</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>	<p>Fire drill shall be conducted quarterly (4 times a year) under the Fire Safety Plan. A record of such drills shall be kept in writing for at least 3 years for the inspection of fire brigade whenever called for.</p> <p>Factory need to have proper testing plan & record of fire safety equipment.</p> <p>Lights in storage area needed to be installed with protective covers and conduits.</p> <p>All required means of exit or exit access in buildings or areas requiring more than one exit shall be signposted. The signs shall be clearly visible at all times, where necessary supplemented by directional signs.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Factory needs to be prepare as built drawing with floor machine layout showing means of escape with proper dimension.</p> <p>Fire license needs to be updated for full occupied area.</p> <p>Fire manager/Director need to have safety training from proper authority & worker of the factory should as far as possible be trained for use fire extinguisher.</p> <p>Factory needs to provide handrail on both sides of the stairways.</p> <p>Factory needs to be installed adequate illuminated emergency lighting in floor.(d, Fxied & deciad.(Escape route).</p> <p>Factory needs to have emergency backup power for critical fire safety system with sufficient capacity & arrangement according to NTPA Guideline.</p> <p>Factory need to install suitable public address system having communication to all floors as well as facilities to receive messages from all floors.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be</i></p>	<p>Fire department pre-plan needs to be developed.</p> <p>Final exit route-1 and 2 (Stair-1 and 2 route) need to be protected (2 hours rated construction with 1.5 hours rated door) at each floor level entrance and need to be protected from</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

<p><i>carried out within a period of 6 months)</i></p>	<p>generator at ground floor by 4 hours rated construction with 2 hours rated door/opening, also need to have the protected escape route till to reach safe refuse area.</p> <p>Factory needs to protected the storage area (Sub-store) by 2 hours fire rated construction with 1.5 hours fire rated door/opening from the finishing section of 6th floor of the building.</p> <p>Generator: Generator room need to be protected with 4 hours rated construction & 2 hours rated opening / door from stair-1 and 2 as well as from the final exit route-1 and 2 located at ground floor.</p> <p>Boiler: Boiler room need to be protected with 4 hours rated construction & 2 hours rated opening / door from the working floor (Finishing section) of 6th floor of the building. All the exits connecting to the staircase-1, 2 need to be protected with fire and smoke resistant enclosures with 2 hours rated enclosure and 1.5 hour rated door and provide a protected route from all though the stairway to the final exits.</p> <p>Factory needs to install fire lift with backup power including hviog1 hour fire rated & auto closing fire door in 2hnuad fire rated lift core with backup power & having minimum capacity of 545kgsFactory need to install centralized and automatic fire detection & alarm system on all occupied floors, including other tenanted floors of the building as per NTPA Guideline.</p> <p>The factory need to install manually operated electrical fire alarm system and automatic fire alarm system with single or multiple call boxes on all occupied floors, including other tenanted floors of the building.</p> <p>Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline.</p> <p>Factory needs to install proper standpipe system with having at least 100mm dia of aidFa.</p> <p>ecaenap oFFs en FoduaF the minimum pressure for standpipes supplying a 50mm or larger hose shall be at least 300 Kpa. For standpipe supplying first aid hose (38mm nominal) may have a minimum pressure of 200 Kpa.</p> <p>Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection.</p>
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Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory.</p> <p>Factory need to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900 ltr/min x 75 min = 142500 liters water storage tank</p>
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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>NA</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>Provide two separate and distinct connections of earthing for the generator.</p> <p>Ensure all panel boards (including panel door) are earthed properly.</p> <p>Ensure proper earthing connections at all electrical equipment. Provide provision for inspection of all earthing system and ensure inspection is being completed and documented</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Install appropriate number and type of safety signage at generator room. Also ensure graded rubber mats are provided in front of all panel boards.</p> <p>Provide Instruction board for first aid and artificial respiration in the generator room.</p> <p>Ensure in the generator room have adequate illumination level as per standard.</p> <p>Provide dedicated & adequate size of earthing with proper identification for each circuit from the earth bus-bar of distribution boards and ensure continuous earth path is back to main building intake.</p> <p>Ensure all electrical cables are sized according to capacity of circuit breakers.</p> <p>Provide adequate support or mechanical guards for electrical equipment.</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	Connect all metal in the building to the building earthing system.
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system.</p> <p>Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data.</p> <p>Inspect electrical panel boards on an annual basis.</p> <p>Ensure overhead service connections to the building are led via adequate size and type of service masts.</p> <p>Ensure the generator room has adequate fire separation from factory building.</p> <p>Ensure panel boards have no opening and all live internal components are concealed properly.</p> <p>Provide dedicated & adequate size of neutral with proper identification for each circuit.</p> <p>Ensure each distribution board is provided with a circuit list and means of identification is provided as per list.</p> <p>Provide adequate covers on cable channels.</p> <p>Provide proper cable terminator/connector for stranded conductors at its point of termination.</p> <p>Install separate distribution boards for lighting and power circuits.</p> <p>Install lightning protection system on the building.</p>