

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Concordia Pacific Garments Ltd.
Address of the Factory	: Jazor, National University, Gazipur Sadar, Gazipur
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 24 March, 2015
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 24 March, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 24 March, 2015
BGMEA Membership No.	: 5793

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	: RC beam column frame structure.
iii. Floor System	: Beam slab.
iv. Floor Area	: 30,200 sft
v. No. of Stories	: Basement +3 storied but proposed 6 storied
vi. Construction Year	: Year of Construction of building is 2011-2012
vii. Foundation Type	: Isolated column footing foundation
viii. Design Drawings	: Available: Approval Drawing Not Available-Structural design drawing, Architectural drawing, Floor load plan.
ix. Soil Investigation Report	: Not Available
x. Construction Materials	: Brick aggregate.
xi. Generator	: Separate 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)	: N/A
Mid Term (6-weeks)	: N/A
Long Term (6-months)	: 1. Engage a qualified structural engineer to prepare structural drawing, as built drawing and conduct soil test. 2. Prepare controlled loading plans for all the floors designating where storage can be placed and cannot be placed.

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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"> • 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"> • 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. • Factory need to have proper testing plan & record for fire safety equipment. • Factory needs to have marked aisles in all working floor according to 0.9m for one side seat and 1.0m for both side seat. • Combustibles are to be managed with good housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9 m 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. • Propagation of fire, smoke, gas or fume through the opening of fire resistive floors and walls need to be restricted by sealing such opening with an approved material which needs to have a minimum 2 hours fire resistance rating of the walls. • Ensure the visibility of exit sign at every exit & in floors 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 prepare as built drawing (Including machine layout) with proper dimensions showing means of escape. • 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. • 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. • All the stairways need to have handrail on both sides. • 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</i></p>	<ul style="list-style-type: none"> • Fire department pre-plan needs to be developed.

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<p><i>carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • Childcare needs to be separated from other occupancies (dining and finishing section) with 3 hours rated construction and 2 hours rated opening or door. • Storage area need to be protected with 2 hours rated construction & 1.5 hours rated opening or doors with the cutting section of ground floor. • Boiler room need to be protected with 4 hours rated construction & 2 hours rated opening / door from the working floor of the building. • All the stairs need to be protected with fire and smoke resistant enclosures & opening (2 hours rated enclosure and 1.5 hour rated door) and provide a protected route from all though the stairway to the final exits. • Factory need to have 4 hours rating for walls (enclosure) and 2 hours for door openings fire separated & smoke proof in the basement area with lobby. • Factory needs to be active with control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline. • Factory need to install proper standpipe system having at least 75 mm diameter of riser • Install 1 riser per 1000 m² of floor area & 38 mm dia of hoses with variable nozzle. 1 • Factory need to ensure 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. • 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 needs to have dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory. • Factory need to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least $1900 \times 75 = 142500$ liters water storage tank.
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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"> • N/A
<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 panel door of distribution boards are earthed properly. • Provide provision for inspection of all earthing system and ensure inspection is being completed and documented
<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"> • Install appropriate number and type of fire-fighting equipment at generator room. • Also ensure graded rubber mats are provided in front of all distribution boards. • Provide Instruction board for first aid and artificial respiration in the generator room. • Provide two separate and distinct connections of earthing for each generator. • Provide dedicated & adequate size of earthing with proper identification for each circuit from the earth busbar of distribution boards and ensure continuous earth path is back to main building intake. • Rewire to avoid the use of multiple cables from incoming and outgoing side of MCB's/MCCB's. • 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>	<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. • Ensure overhead service connections to the building are led via adequate size and type of service masts. • Ensure appropriate generator room size in order to properly access the generator to perform routine maintenance activities. • Ensure distribution board has no opening and all live internal components are concealed properly. • Provide dedicated & adequate size of neutral with proper identification for each circuit.

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	<ul style="list-style-type: none">• Install lightning protection system on the building
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