

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Concorde Garments Ltd
Address of the Factory	: Plot#M-3, Road#5, Section#7, Mirpur, Dhaka Bangladesh
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 29-Mar-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 29-Mar-14

BASIC INFORMATION:

The present garment factory is comprises of a 2 Main Buildings. The following general information was noted:

i.	Building Usage Type	: Garments Factory.
ii.	Structural System	: Building 1: Part A (older) - Reinforced concrete frame Monolithic RC slab with beams. Part B (addition) - Concrete slab on metal deck atop structural steel beams and prefabricated steel frame structure. Building 2: Concrete slab on metal deck atop structural steel beams. Steel prefab frame.
iii.	Floor System	: RCC Beam slab & Concrete Slab on Metal Deck.
iv.	Floor Area	: Building 1 - 49,800 sft Building 2 - 34,500 sft
v.	No. of Stories	: Building 1 - 6 Storied, Building 2 - 3 Storied.
vi.	Construction Year	: Building 1 (Part A)- Construction started in 1983 & completed in 1984 Building 1 (Part B) - 2011 Building 2 -2011.
vii.	Foundation Type	: Unknown.
viii.	Design Drawings	: Available.
ix.	Soil investigation Report	: Available
x.	Construction Materials	: RCC (Stone chips).
xi.	Generator	: Ground Floor

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for Structural, Fire and Electrical Safety comprises of Short Term, Mid Term and Long Term basis are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate : N/A

Short Term: (3 Weeks) :

- i. 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.
- ii. 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

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vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor load limits as described on the Floor Load Plans.

Mid Term (6 Weeks)

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- i. Have a qualified structural engineer confirm that capacity to support the load is available. Load Plans complying with Alliance Standard Part 8 Section 8.20.4.3 should also be developed.
- ii. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
- iii. 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.
- iv. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3
- v. Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard..

Long Term

: N/A

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	Remove all combustibles stored underneath the cutting tables at the noted locations.
Short Term (3 Weeks)	Remove all hasps, locks, slide bolts, or other locking devices at the noted locations.
Mid Term (6 Weeks)	Install signage adjacent to each stair door indicating the stair name and the floor level at the noted locations.
Long Term (6 Months)	<p>Install an automatic sprinkler system throughout the building designed by a qualified fire protection engineer.</p> <p>Reconfigure sprinkler spacing to ensure spacing and coverage is compliant.</p> <p>Provide fire-resistive rated construction barriers at exit enclosures. Consult a qualified fire protection engineer to design the required rated construction barriers.</p> <p>Provide fire-resistive rated assemblies at the required exit access corridors. The rated assembly should be approved and/or designed by a qualified fire protection engineer.</p> <p>Install appropriate means of illumination at the noted locations. The source of illumination shall provide not less than 50 lux at the illuminated surface with a contrast of not less than 0.5. Approved self-luminous signs, which provide</p>

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	<p>evenly illuminated letters having a minimum luminance of 0.2cd/m², may also be used.</p> <p>Retain service of qualified engineer to design appropriate fire rated enclosure for transformer. Oil filled transformers for non high-rise buildings shall be separated by a minimum 2 hour fire resistive rated construction.</p> <p>Provide electrically supervised devices on the valves controlling the automatic sprinkler systems. Devices are to be supervised by a listed fire alarm system control unit.</p> <p>Install fire department connections where required and in compliance with the Standard.</p> <p>Remove all stored materials from aisles.</p> <p>Install Illuminated exit signs at entrances to exits and along the path of egress anywhere the continuation of egress is not obvious or there is a change in the direction of the path of travel.</p> <p>Establish an inspection, maintenance, and testing program for the standpipe and hose system. Program must comply with the requirements of NFPA 25.</p> <p>Establish an inspection, maintenance, and testing program for the fire pump. Program must comply with NFPA 25.</p> <p>Establish maintenance program that includes the requirements established in NFPA 25.</p> <p>Install identification signage at the required locations. The five basic types of identification signs are as follows: Type A- Control Valve Sign Type B- Multi-Purpose Text Signs (See Below) Type D- Fire Alarm Sign Type E- Hydraulic Calculation Sign</p> <p>Reference NFPA 13 for signage requirements.</p> <p>Install an approved audible device connected to every automatic sprinkler system and activated by waterflow equal to the flow of one sprinkler. Where a fire alarm system is installed, activation of the waterflow shall activate the fire alarm system.</p>
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The recommendations for Electrical Safety corrective actions are:

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Immediate	N/A
Short Term (3 Weeks)	<p>All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system.</p> <p>Light fixtures without protective covers (otherwise known as naked lights) shall not be allowed in storage areas or in any area where the Inspector of the Factories Rules (1.6.3.7) Part 53 disallows these fixtures. Install signs posted in Bengali and English, indicating this prohibition at all entrances to these areas.</p> <p>Develop an electrical maintenance program that includes inspections and testing of the electrical systems. Reference NFPA 70 for example program requirements.</p>
Mid Term (6 Weeks)	<p>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc. Reference NFPA 70e for example program requirements.</p> <p>Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records concerning inspections and follow up actions.</p> <p>The required marking can be by color code, the words “emergency system,” or any other method that identifies the box or enclosure as a component of the emergency system.</p> <p>Provide means of ventilation for the substation room. Consult a qualified electrical engineer to determine the required ventilation rates based on the installed equipment.</p> <p>Install a sign that provides details on electrical shock first aid procedures. Signage should also include instructions on artificial respiration.</p> <p>Establish an inspection testing, and maintenance program for the Uninterruptable Power Supply (UPS) and associated components. The program must based on the following:</p> <ol style="list-style-type: none"> (1) Manufacturer's recommendations (2) Manufacturer's instruction manuals (3) Minimum Requirements of NFPA 111 Chapter 8 (4) Minimum Requirements of NFPA 70B Chapter 28
Long Term (6 Months)	<p>Develop an Insulation Resistance Measurement Program that ensures deterioration of insulation resistance will be identified quickly. Testing should be in compliance with International Electrical Testing Association (NETA). All transformers, switchgears etc. shall be subject to an insulation resistance measurement test to ground after installation but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches etc. and between each phase and earth.</p> <p>Complete Thermographic scans at least on a three year cycle. Thermographic scans should be completed in accordance with the Standard for Infrared Inspection of Electrical</p>

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	Systems & Rotating Equipment and NFPA70B or a comparable standard.
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