

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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Name of the Factory	: <b>Supertex Merchandising Co., Ltd</b>
Address of the Factory	: 483 Gawire, Dhakkin Khan Road, Uttara, Dhaka
Present Status of the Factory	: <b>Under Operation</b>
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 20 May 2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 20 May 2014

### **BASIC INFORMATION:**

The present garment factory is a Garments factory building with beam-column frame system. The following general information was noted:

i.	Building Usage Type	: Garments Factory
ii.	Structural System	: RC frame Building
iii.	Floor System	: RC beam supported
iv.	Floor Area	: Building# 1: 36,690 sft Building# 2: 40,922 sft Building# 3: 3,000 sft Building# 4: 500 sft Building# 5: 100 sft
v.	No. of Stories	: Building# 1: Ground+2+Occupied Roof Building# 2:Ground+1+Occupied Roof(Ancillary building) 1(Ground)
vi.	Construction Year	: Building# 1: 2008 (first and second levels) Building# 2: 2002 (first level)
vii.	Foundation Type	: Individual Footing
viii.	Design Drawings	: Not available
ix.	Soil investigation Report	: Available
x.	Construction Materials	: Reinforced concrete (brick ships)
xi.	Generator	: Ground floor

### **RECOMMENDATIONS FOR CORRECTIVE ACTION:**

The recommendations of corrective action for both Structural, Fire and Electrical Safety comprises in Short Term, Mid Term and Long Term basis.

#### **The recommendations for Structural Safety corrective actions are:**

Immediate : NA

Short Term: (3 Weeks) : Develop a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded and appoint a factory load manager.

Mid Term (6 Weeks):

- i. Prepare load plans including the information required. Floor load plans should be visibly posted on all levels of all buildings.
- ii. Prepare credible as-built documents based on the requirements.
- iii. Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads and to

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- provide additional investigation into the areas of distress, separations, or cracking and provide a remediation plan if required.
- iv. Engage a qualified structural engineer to provide additional investigation into the areas of distress, separations, or cracking and provide a remediation plan if required.

Long Term : NA

### The recommendations for Fire Safety corrective actions are:

<p>Immediate (3 to 6 Days)</p>	<p>Remove combustible materials from the production floor.</p> <p>Provide non-combustible materials at the lighting fixture.</p> <p>Remove all combustibles materials stored underneath the cutting tables at the noted locations as per Alliance Standard Part 13 Section 13.7.2.</p>
<p>Short Term (3 Weeks)</p>	<p>Remove all temporary obstructions from all escape routes, aisles and passageways.</p> <p>Ensure minimum width of corridors, passageways and aisles.</p> <p>Ensure easy access to portable extinguishers and monitor and maintain the same at required interval as per guidelines.</p> <p>Provide proper directional sign and exit sign in Bangla and English as per guidelines</p> <p>Provide aisles marking with proper direction and with minimum 36 inch width. Keep aisles free of obstruction.</p> <p>Remove all hasps, locks, slide bolts, or other locking devices at the noted locations. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.</p>
<p>Mid Term (6 Weeks)</p>	<p>Produce proper drawing and plans to create horizontal and vertical fire-rated separation for stairways of appropriate specifications, grills, storage and assembly areas, offices, work areas. Also design to ensure proper separation of high risk areas (e.g., generator, boiler, transformer and substation rooms) as per guidelines.</p> <p>Remove all collapsible gates/roller shutters. Produce design drawings to demonstrate how stairways are to be made of adequate dimensions and appropriate specifications and to be converted into fire-rated enclosures equipped with fire-rated side swinging doors of required dimensions opening in the direction of travel at each floor.</p> <p>Develop a testing and maintenance program that ensures the operations of all exist signs are verified at least once per year. If battery-operated signs are used, these lights shall be tested on a monthly basis. Functional testing of battery powered signs shall be provided for a minimum 90 min once per year.</p>

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	<p>Training programs need to be implemented and documented in accordance with the Alliance Safety Training Curriculum.</p> <p>Install signage adjacent to each stair door indicating the stair name and the floor level at the noted locations.</p> <p>Stair designation signs are provided at each floor entrance from the stair to the floor in English and Bengali. Signs indicate the name of the stair and the floor level. Signs are posted adjacent to the door.</p> <p>Complete fire department pre-planning activities with the local Fire Service and Civil Defense</p> <p>Provide design to install proper fire detection and alarm system.</p>
Long Term (6 Months)	<p>Install horizontal and vertical fire-rated separation for stairways, grills, storage and assembly areas, offices, work areas.</p> <p>Ensure proper fire separation of high risk areas (e.g., generator, boiler, transformer and substation rooms) as per approved design.</p> <p>Install fire rated enclosure and doors at exit to the stairs to prevent smoke and fire propagation as per approved design Provide fire rated enclosure, install self closing fire rated door as per guidelines.</p> <p>Set up a Fire alarm and detection system central station monitoring service or direct connection to the Fire Service and Civil Defense. Assign a person at the facility to contact the fire department in the event of fire alarm activation.</p> <p>Provide fire-resistive rated construction barriers between hazard types. Provide 2 hr. rated fire barrier for generator room and remove all combustible material from the ceiling. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Install fire department connections where required and in compliance with the Standard. Connections shall match the Fire Service and Civil Defense hose thread standard. It will allow fire department pumper vehicles to draw water from ground -level or underground water storage tanks.</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 evenly illuminated letters having a minimum luminance of 0.2cd/m<sup>2</sup>, may also be used.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has had sufficient training to be able to carry the required duties.</p>

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	Install a fire pump system according to NFPA 20 with minimum pressure of 450 kPa (65 psi) at the hydraulically most remote hose connection.
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### The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Find out the cause of overheating and overloading and take proper action.</p> <p>Need to clean and free the generator room from dirt, debris, and improperly stored materials.</p> <p>Remove all combustible materials within the substation room.</p> <p>Remove all dirt, debris, lint, water, oil, and improperly stored materials from the substation room.</p>
Short Term (3 Weeks)	<p>Ensure cable joints through porcelain/PVC connectors with PIB tape wound around the joint.</p> <p>Indoor electrical installations that are accessible to unqualified persons shall be made with metal-enclosed equipment. Switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs.</p> <p>Ensure light fixtures without protective covers are not installed in storage areas or in any area where the Inspector of the Factories Rules (1.5.3.5) Part 53 disallows these fixtures.</p>
Mid Term (6 Weeks)	<p>Have a qualified electrical engineer; develop an as-built single line diagram detailing key components and capacity of the electrical system.</p> <p>Provide electrical insulation mats in front of distribution boards.</p>
Long Term (6 Months)	<p>Have a qualified electrical engineer; design a lightning protection system according to the BNBC requirements. Have a licensed electrician install the designed system. This is a violation of Section 2.9 of BNBC, 2006.</p> <p>Electrical wiring/cables should be sized according to capacity of circuit breakers.</p>