

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: That's It Garments Ltd
Address of the Factory	: Nishat Nagor, Tongi, Gazipur, Dhaka, Bangladesh.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 7-Jun-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 7-Jun-14

BASIC INFORMATION:

The present factory comprises of 3 Main Buildings & 5 Ancillary Buildings. The following general information was noted:

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| i. | Building Usage Type | : Garments Factory. |
| ii. | Structural System | : Building 1- Steel Truss and steel column framing system with isolated column footing; Building 2- Steel Truss and steel column and RCC column framing system with isolated column footing; Building 3- RCC column and corrugated curve roof top shed with isolated column footing. |
| iii. | Floor System | : Floor on Grade. |
| iv. | Floor Area | : 66558 Sft. |
| v. | No. of Stories | : All are single storied buildings. |
| vi. | Construction Year | : Building-1(Sewing Section): 1963; Building-2(Cutting, BS, Store Section): 1963; Building-3(Bonded ware house): 2011-12. |
| vii. | Foundation Type | : Isolated Spread Footing. |
| viii. | Design Drawings | : Not Available. |
| ix. | Soil investigation Report | : Available |
| x. | Construction Materials | : Reinforced Concrete (brick 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 : NA

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 vendors and be responsible to ensure that the factory operational loads

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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. Revise the as built drawings and engage qualified engineer to perform assessment of existing conditions.
- ii. Complete further testing on areas of deterioration and have a qualified structural engineer develop a remediation plan
- iii. Have a qualified structural engineer prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard.
- iv. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3
- v. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard
- vi. Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard.
- vii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.
- viii. Provide Certificates of Occupancy for review.

Long Term (6 months)

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- i. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	Keep areas underneath cutting tables clear of combustibles at all times.
Short Term (3 Weeks)	Remove all locking devices from all egress doors and means of egress components in accordance with Alliance Standard Section 6.8. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
Mid Term (6 Weeks)	Develop a testing and maintenance program that ensures the emergency power for exit signs is tested at least once per year. If battery operated signs are used, these lights are tested on a monthly basis. Functional testing of battery powered signs is provided for a minimum 90 min once per year. Functional testing of battery powered signs is provided for a minimum 90 min once per year. Develop a testing and maintenance program that ensures the operation of all exit signs is verified at least once per year.

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	<p>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> <p>The occupant loads shall be posted for every assembly and production floor in a facility in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Centralized fire alarm, pull station, and detection system shall be installed and the control panel of this system shall be monitored by a central station monitoring service or directly connected to the Fire Service and Civil Defense. Until that time that a central station monitoring service or direct connection to the Fire Service and Civil Defense can be set up, a person shall be assigned to contact the fire department in the event of fire alarm activation. An annunciator shall be located in a constantly attended location to alert this person. Trouble or alarm notifications shall be indicated on the fire alarm control panel.</p> <p>Develop an emergency evacuation plan which includes all components required by the Alliance Standards and communicate the plan to all employees.</p> <p>Collect Occupancy certificate for each building and ancillary structure as per building use from approving authority.</p> <p>All applicable permits & license shall be up to date including BEREC waiver certificate.</p> <p>Complete fire department pre-planning activities with the local Fire Service and Civil Defense.</p>
<p>Long Term (6 Months)</p>	<p>Consult a qualified fire protection engineer to design the pull stations at egress points, centralized and addressable smoke detectors all through the building, visual and audible devices spaced appropriately based on occupancy type. Reference NFPA 72.</p> <p>Install a dedicated fire pump in accordance with NFPA 20 to supply the demands of water to the connected fire protection systems along with a stored source of water sufficient to meet the demands as per NFPA 22.</p> <p>All collapsible gates, rolling shutters, and sliding steel doors in the means of egress shall be replaced with opening in the direction of egress side-hinged swinging type doors. Doors shall be free from general locking arrangement.</p> <p>Close the opening on the separation wall between</p>

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	<p>Warehouse and B/S section with minimum 1-hour fire-resistive rated barrier. Consult a qualified fire protection engineer to design the required rated opening protection.</p> <p>Provide training for the required number of people certified in firefighting, first aid, and rescue training by the appropriate authority.</p> <p>Storage area need to be separated from the surrounding occupancy with a minimum 1-hour fire rated construction with 0.75-hour opening protection. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Install Illuminated exit signs with backup power and continuous graphics 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, testing, and maintenance program for all fire extinguishers. Program need to comply with the requirements of NFPA 10 chapter 7.</p> <p>Install Portable fire extinguishers as per potential fire class and hazards all through the building in accordance with NFPA 10 Chapter 5.</p> <p>Remove the threshold or provide a proper slope do not exceed 12.7 mm (1/2 in) on both sides of the threshold. Mark with additional signage or floor markings.</p> <p>Develop a hot work permit program. The program shall be comply with the requirements of NFPA 51B.</p> <p>Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for floor, wall, ceiling, supply and return air ventilation systems. Promptly reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling.</p> <p>As a general rule the maximum tolerable deposit thickness for loose fluffy lint is 13 mm (1/2 in.) over a maximum of 46.5 m² (500 ft²). Limit dense deposits to 6 mm (1/4 in.) and oil saturated deposits to 3.2 mm (1/8 in.).</p>
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The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Keep the generator room clean and free of unnecessary materials.</p> <p>Ensure distribution boards free of dirt.</p>
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<p>Short Term (3 Weeks)</p>	<p>All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked as a component of an emergency circuit or system. The required marking can be done 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 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>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>Mid Term (6 Weeks)</p>	<p>Cable tray (with metal cover) installed on the floor for mechanical protection of the cables. Also provide cover (concrete slab or checkered plate) on the trench of 1 Mega Watt generator room. Additionally, provide cable tray bonding to grounding system.</p> <p>Have a qualified electrical engineer create an as-built electrical equipment layout diagram detailing key components and capacity of the electrical system.</p> <p>Remove any un-terminated cables back to source or panel.</p> <p>Provide earthing connection to all exposed-conductive parts (metal) related to electrical equipment/installation and utility service such as metallic water/gas/steam pipes/building structural steel etc, such that all the metals remain at the same potential of building earthing system.</p> <p>Relocate the distribution panel to a safe place where storm water will not enter the panel.</p> <p>Survey all distribution boards to verify that all circuit breaker ratings and cables are correctly sized. The rated current of a protective device (MCB, MCCB, and Fuse) must not exceed the current carrying capacity of any conductor in the circuit. Have a qualified electrical engineer provide the appropriate rated circuit breaker, conductor and amperage of the existing circuit.</p> <p>Install phase separators between terminal connections at the noted locations. Phase barriers between different phases (above 230V) must be installed to prevent flashover.</p> <p>Ensure switchboards and/or distribution boards provided with physical means to prevent the installation of more over current devices than that number for which the panel board was designed, rated, and listed following NFPA 70 section 408.54.</p>

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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. Thermo graphic scans should be completed in accordance with the Standard for Infrared Inspection of Electrical Systems & Rotating Equipment and NFPA70B or a comparable standard.</p>
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