

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: The Dacca Dyeing Garments Ltd
Address of the Factory	: 2 New Eskaton Road, Mogbazar, Dhaka, Bangladesh
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 13 May 2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 28 Jun 2014
BGMEA Membership No	: 447

BASIC INFORMATION:

The present garment factory is comprises of a 1 Main Building. The following general information was noted:

- i. Building Usage Type : Garments Factory.
- ii. Structural System : Main - Reinforced concrete columns monolithic with reinforced concrete beams and slabs; Ancillary - Steel truss supporting a tin roof on interior steel posts and exterior brick or concrete columns.
- iii. Floor System : Main - Reinforced concrete columns monolithic with reinforced concrete beams and slabs.
- iv. Floor Area : 14,400 SF.
- v. No. of Stories : G+SR.
- vi. Construction Year : 2004
- vii. Foundation Type : Isolated Spread Footing.
- viii. Design Drawings : Available.
- ix. Soil investigation Report : Available
- x. Construction Materials : RCC (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.

Mid Term (6 Weeks) :

- i. Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard Part 8 Section 8.19 and 8.20

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- ii. Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads. If provisions have not been made, have a qualified structural engineer develop a remediation plan.
- iii. 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.
- iv. Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
- v. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
- vi. Redistribute floor loads to comply with the Floor Loading Plans.
- 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. Re-print load plans to meet required size.

Long Term (6 months) :

- i. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.
- ii. Provide a protective coating at the structural elements constructed with MCAC exposed to rainfall or other sources of water. Have protective coating approved by the Alliance or a qualified structural engineer. Alternatively, a 2% roof slope can be used to drain water from the roof

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Find out the cause of overheating and take proper action.</p> <p>Remove all dirt, debris, lint, water, oil, and improperly stored materials from the substation room.</p>
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. 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>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc. Keep records of completed training available on site.</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>

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Mid Term (6 Weeks)	<p>Provide earthing connection to all exposed-conductive parts (metal) related to/in close proximity to electrical equipment/installation and utility service such as metallic water/gas/steam pipes etc. such that all the metals remain at a substantially same potential of building earthing system.</p> <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 dedicated neutral for each circuit.</p>
Long Term (6 Months)	<p>Complete thermo graphic scans at least on a three year cycle.</p> <p>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> <p>Have a qualified Electrical Engineer design a lightning protection system according to the BNBC requirements. Have a licensed electrician install the designed system.</p>

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Remove all impediments, obstructions, and stored materials from the means of egress. Keep all elements of the means of egress (exit path, aisles, stairs, corridors, etc.) continuously free and clear of all obstructions. Provide additional staff training and conduct additional rounds to ensure means of egress are kept clear.</p> <p>Remove all combustibles stored underneath the cutting tables.</p>
Short Term (3 Weeks)	<p>Remove all locking devices from all egress doors and means of egress components.</p> <p>Provide a rated enclosure to connect the Day Care to the stair enclosure or relocate the Day Care to the Ground Floor in accordance with Alliance Standard Section 3.4.2.1.1.</p>
Mid Term (6 Weeks)	<p>Post the occupant load for all assembly and production floor areas in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Install signage adjacent to each stair door indicating the stair name and the floor level in both English and Bengali.</p>

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<p>Long Term (6 Months)</p>	<p>Provide automatic sprinkler protection throughout the building. This will increase the capacity to 452. In the interim, limit the occupancy on the 8th Floor to 282.</p> <p>Provide fire rated doors for all exit enclosures and hazard separation walls.</p> <p>Replace all non-compliant doors in the means of egress with side-hinged swinging type doors.</p> <p>Provide automatic sprinkler protection throughout the Main Building Ground Floor and the Fabric Storage building to allow for an increase in the travel distance to 400 ft.</p> <p>Provide fire-resistive rated opening or penetration protection for rated walls and assemblies in accordance with Alliance Standard Sections 4.6 and 4.7. Consult a qualified fire protection engineer to design the required opening protectives or penetration systems.</p> <p>Provide automatic sprinkler protection throughout the facility. The installation of sprinkler protection should be conducted in phases. The first phase would be to protect all storage areas. Prior to installation, the system should be properly designed by a qualified fire protection engineer and plans should be submitted to the Alliance for review.</p> <p>Install standpipe system at required locations. Standpipe system must comply with NFPA 14.</p> <p>Provide fire-resistive rated construction barriers for exit enclosures in accordance with Alliance Standard Section 6.3.1.2. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Install a dedicated fire pump for the facility in accordance with NFPA 20. Also, install a water storage tank in accordance with NFPA 22.</p> <p>Install initiating devices and notification appliances as required by the Alliance Standard and NFPA 72. Devices should be part of an automatic fire alarm and detection system for the facility.</p> <p>Provide 2-hour fire resistive rating for all vertical shafts. The protection means can either be at each floor penetration or by the provision of a fire rated shaft enclosure.</p> <p>Provide a rated enclosure from the bottom of the stair to the public way. Alternately, provide automatic sprinkler protection throughout the Ground Floor in accordance with Alliance Standard Section 6.17.3.</p> <p>Provide fire-resistive rated construction barriers between hazard types in accordance with Alliance Standard Sections 3.4.2 and 4.5. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Provide local jurisdictional (RAJUK) approval for roof construction. Alternately, provide fire proofing for the roofing material or replace with a material that is consistent with the allowable building construction type.</p> <p>Provide handrails on both sides of the ramp. Mount handrails at a</p>
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	<p>height between 30 in. and 44 in. Provide steps leading to the public way on the opposite side of the current ramp to provide egress separation. Remove existing ramp.</p> <p>Provide handrails on both sides of each stairway. Intermediate handrails shall be provided when the stair width exceeds 2.2 m (87 in.). Mount handrails at a height between 30 in. and 44 in.</p> <p>Remove all gate rails and other tripping hazards from the means of egress.</p> <p>Provide warning signs and markings at this low headroom clearance location. Additionally, provide training of the workers about this obstructed.</p> <p>Provide additional emergency lighting fixtures to provide a minimum lighting level of 2.5 lux for all aisles in production and storage areas.</p> <p>Develop a hot work permit program. The program must comply with the requirements of NFPA 51B.</p>
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