

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Adhunik Poshak Shilpa
Address of the Factory	: Civil Engineers Tower, Industrial Plot-1, Block -E, Avenue-1, Section-11, Mirpur, Dhaka.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 31-May-14
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 26-May-14
BGMEA Membership No	: 1566

BASIC INFORMATION:

There are 3 buildings in the factory premises out of which one is main building and 2 are ancillary buildings. The buildings are named as: 1) Nineteen story main production building (with single basement), 2) Single story masonry construction with tin roof (Ancillary-01), 3) single story masonry construction utility shed with tin roof (Ancillary-02) The following general information was noted:

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|-------|---------------------------|---|
| i. | Building Usage Type | : Garment Factory. |
| ii. | Structural System | : RCC flat plate structure |
| iii. | Floor System | : RCC flat plate structure |
| iv. | Floor Area | : 155,072 sft. |
| v. | No. of Stories | : Main Building: 19 storied RCC building
Ancillary Building: 2 PEB |
| vi. | Construction Year | : 1999 |
| vii. | Foundation Type | : Mat foundation |
| viii. | Design Drawings | : Available. |
| ix. | Soil investigation Report | : Available. |
| x. | Construction Materials | : Reinforced Concrete |
| 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:

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| Immediate | : | |
| | | i. The density of operation in the storage of fabric rolls in fifth and third floors exceeds 42 psf and there is no analytical confirmation this load can be supported. Reduce the load. |
| 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. |

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

- 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 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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- ii. There is no program in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded.
- iii. The structure is a flat plate system, therefore the lateral load system is not apparent and the redundancy is unknown.
- iv. A set of design documents is available on site for review. The design report is required, as per BNBC 2006 Clause 1.9.1.1, but is unavailable.
- v. There is no clear information available on the design document to understand the consideration of storm surge and wind loading, in the design of the building.
- vi. On the 3rd, 5th, 13th, 14th and 16th floors, racks that are not braced for earthquake force are present.
- vii. Some water ponding exists on the roof top due to the lack of maintenance.
- viii. There is no designated representative (Factory Load Manager), who is onsite full time, trained regarding the structural floor capacity, and who serves as an ongoing vendor resource and monitor of operational factory floor loadings.
- ix. There is no Load Plan available to show the actual maximum operational loading that is allowed.
- x. Floor Load Plans are not posted.
- xi. There is no Load Plan. No markings on the floor designate spaces and height for storage of work materials.

Long Term (6 Months)

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- i. Obtain an occupancy certificate for each building and ancillary

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Ensure the generator room clean and free of dirt, debris, and improperly stored materials.
Short Term (3 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>Ensure signage indicating the prohibition of light fixtures without protective covers is installed at the required locations.</p> <p>Ensure cable joints through porcelain/PVC connectors with</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>PIB tape wound around joint.</p>
Mid Term (6 Weeks)	<p>Connect all metal in the building to the building earthing/grounding system, such as metal rebar in concrete, metal frame of the building, or metal water pipe.</p> <p>Provide adequate cover on cable trench.</p> <p>Ensure wiring systems are selected and erected so that no damage is caused by the ingress of water.</p> <p>Provide dedicated neutral for each circuit.</p> <p>Ensure 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.</p> <p>Lighting and socket circuits must be separated at the noted locations. Have a qualified electrician separate the lighting and sockets into separate circuits.</p> <p>Provide clearance of at least 1 m (39 in) in front of distribution boards.</p> <p>Install distribution boards in compliant locations so that operations are not hampered due to limited access.</p> <p>Ensure switchboards and panel boards are not installed above gas stoves or sinks or within 2.5m of any washing unit in washing rooms or laundries.</p> <p>Consult with a qualified electrical engineer and ensure electrical cables are sized according to the capacity of the circuit breakers.</p>
Long Term (6 Months)	<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 Systems & Rotating Equipment and NFPA 70B or a comparable standard.</p>

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	<p>Remove all combustibles stored underneath the cutting tables at the noted locations.</p>
Short Term (3 Weeks)	<p>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.</p>
Mid Term (6 Weeks)	<p>Develop an emergency evacuation plan which includes duties and responsibilities of various people, interfacing between groups and fire brigade, headcount and identification of trapped victims, physically disabled people</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>and their rescue, etc. and all components required by the Alliance Standards and communicate the plan to all employees. The evacuation plan shall include provisions to assist physically disabled persons. A list of all employees with physical disabilities shall be kept by the Fire Service Director.</p> <p>Post the occupant load for every assembly and production floor in the facility in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Apply to appropriate authority in an expeditious manner for issuance of all required licenses and permits.</p>
Long Term (6 Months)	<p>Provide 2 hr fire-resistive rated construction barriers at exit enclosures. Fit outward opening, side-swinging, self-closing and latching, non-lockable fire doors of 1.5 hr rating in all stairwell enclosures. Consult a qualified fire protection engineer to design the required rated construction barriers</p> <p>Install an automatic sprinkler system throughout the building designed by a qualified fire protection engineer. The design of the sprinkler system must be pre-approved by CoE of the Alliance. All installation and design requirements, outlined in BNBC Part 4 Chapter 4, shall be replaced by the requirements of NFPA 13. Pipe schedules shall not be used to size pipe. All systems shall be hydraulically calculated to meet the required NFPA 13 design requirements.</p> <p>Install a pump dedicated for fire fighting or fire protection following the requirements of NFPA 20. Fire pump installation is to be tested for final acceptance in the presence of the Alliance and a final inspection of the installation shall be conducted by the Alliance prior to final acceptance. Acceptance testing of the installation shall be in accordance with NFPA 20, 22, and 24 testing requirements. Documentation of all testing shall be submitted to the Alliance for review prior to final acceptance</p>