Name of the Factory	: Tex Asia Ltd
Address of the Factory	: Shibumarket, Shastapur, Fautllah,Narayangonj.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 12-Apr-15
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 12-Apr-15
BKMEA Membership No	: 616

BASIC INFORMATION:

There is one building in the factory premises. The following general information was noted:

i.	Building Usage Type	: Garments Factory.
ii.	Structural System	: RCC moment resisting frame structure with PEB at roof.
iii.	Floor System	: Flat- slab
iv.	Floor Area	: 24500 sft
v.	No. of Stories	: Seven storied
vi.	Construction Year	: 2002
vii.	Foundation Type	: Isolated Footing
viii.	Design Drawings	: Not 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. Have a qualified structural engineer provide further analysis of the identified cracks to determine the appropriate course of corrective action.

ii. 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) :

i. Under guidance from a qualified structural engineer arrange Detail Engineering Assessment of the structure. This assessment should be conducted within 6 weeks and should include semi-destructive core test to validate the in-situ concrete compressive strength of structural elements..
ii. Have a qualified structural engineer complete an analytical evaluation of the structural impact of these additions.

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

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. Also, store the materials in the racks in a proper manner instead of storing them in a scattered way.
vi. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.

Long Term (6 Months) :

i. Provide occupancy certificate for review.
ii. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.

The recommendations for Electrical Safety corrective actions are*:*

Immediate (3 to 6 Days)	Ensure the generator room is clean and free of dirt, debris and improperly stored materials. Find out the cause of overheating, overloading, or signs of burning and take proper action.
Short Term (3 Weeks)	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. 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. 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.

Mid Term (6 Weeks)	Have a qualified electrical engineer develop an as-built single line diagram detailing key components and capacity of the electrical system. Consult with a qualified Electrical Engineer and ensure electrical wiring/cables are sized according to the capacity of circuit breakers. In order to avoid the effects of heat from external sources one of the following methods should be used to protect wiring systems: (1) shielding; (2) placing 900 mm (36 in.) from the source of heat; (3) local reinforcement or substitution of insulating material. Ensure an over current protection device (circuit breaker) is installed for each and every load. 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.
Long Term (6 Months)	Consult with an expert engineer to provide a detailed design and drawings of a lightning protection system. Ensure installation of LPS on the building. 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. 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 NFPA70B or a comparable standard.

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	Keep means of egress continuously free and clear of all obstructions or impediments. Remove all combustibles stored underneath the cutting tables at the noted location.
Short Term (3 Weeks)	Remove all hasps, locks, slide bolts, or other locking devices at the noted locations.
Mid Term (6 Weeks)	Install a new automatic fire alarm and detection system. Once installed, arrange for direct connection of the fire alarm and detection system to a central station monitoring service or the Fire Service and Civil Defence per Alliance Standard Part 5 Section 5.7.5 Monitoring. Until that time that a central station monitoring service or direct connection to the Fire Service and Civil Defence can be set up, a person trained to contact the Fire Service and Civil Defence in the event of fire alarm activation

	shall be provided. An annunciator shall be located in a constantly attended location (such as a fire control room) to alert this person. Develop a testing and maintenance program that ensures the operation of all exist signs is 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. 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. Post the occupant load for every assembly and production floor throughout the facility in a conspicuous space near the main exit or exit access doorway for the space. Provide training in accordance with Alliance Safety Training Curriculu m and keep records of this training. Complete fire department pre-planning activities with the local Fire Service and Civil Defence. Apply to Fire Service and Civil Defence for issuance of occupancy certificate in an expeditious manner. Install signage adjacent to each stair door indicating the stair name and the floor level in both English and Bengali. Install required identification signs at the noted locations. Signage must comply with NFPA 14. Apply to obtain Boiler license and Electrician license.
Long Term (6 Months)	Provide 1.5 hour fire protective opening assemblies in 2 hour rated exit enclosures at the main building. Either seal the unprotected openings mentioned above or protect the unprotected openings with fire rated assemblies. Install a standpipe system at required locations designed by a qualified fire protection engineer. Provide fire-rated doors at exit enclosures. Consult a qualified fire protection engineer to design the required rated construction barriers. Install dedicated fire pump following NFPA 20 requirements. Fire pump installation is to be tested for final acceptance in presence of 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 25 testing requirements. Documentation of all testing shall be submitted to the Alliance for review prior to final acceptance. Also, install a water storage tank in accordance with NFPA 22 requirements.

	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. Replace all collapsible, sliding, roll-down gates and shutters in the means of egress with side-hinged swinging type doors of the proper width and rating. Ensure that at least 25 percent of the occupants (i.e. 81 people out of total 323 occupants) are trained and certified in fire fighting, first aid, and rescue training by the proper authority. Provide fire-resistive rated construction barriers between hazard types. Consult a qualified fire protection engineer to design the required rated construction barrier. Install fire department connections where required and in compliance with the Standard. Provide re-entry to floor levels from the stairwells in accordance with Alliance Standard Section 6.8.3. Provide handrails on both side of each stairway. Provide intermediate handrails when the stair width exceeds 2.2m (87 inch). Provide handrails of a height between the range 865 mm (34 in.) and 965 mm (38 in.). Establish an inspection, testing, and maintenance program for all fire extinguishers. Program must comply with the requirements of NFPA 10. Provide parapets or guards with a minimum height of 1067 mm (42 in.) for all occupiable roof areas. 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. Develop a hot work permit program. The program must comply with the requirements of NFPA 51B. Provide continuously illuminated exit signs at all required exits and along egress paths, especially where path has a change of direction. Exit signs may be illuminated either by lamps exterior to the sign or contained within the sign. 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 0.2 cd/m2 may also be used. Establish an inspection, maintenance, and testing program for the standpipe and hose system. Program must comply with the requirements of NFPA 25. 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.