Name of the Factory	:	**BHUYAN WARMTEX (PVT) LTD.**
Address of the Factory	:	Kadda, Nandun, Gazipur, Bangladesh
Dhaka Present Status of the Factory	:	**Under Operation**
Structural assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	:	17 June, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	20 July, 2014

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

i.	Building Usage Type	: Garment factory
ii.	Structural System	: RC beam and column frame with 2 way spanning slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The building has the floor area of 17000 sq.ft per floor
v.	No. of Stories	: 4 storied
vi.	Construction Year	: 2005
vii.	Foundation Type	: Pad foundation
viii.	Design Drawings	: Available (Stamped, signed and dated by the local Authority in November of 2003)
ix.	Soil investigation Report	: Available
x.	Construction Materials	: Brick aggregated
xi.	Generator	: Separate building

Recommendations for Corrective Action: The recommendations of corrective action for both Structural and Fire & Electrical Safety are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate (Now): NA

Mid Term (Within 6 Weeks):

1. Sections of render to be removed to investigate if cracks penetrate the building structure.
2. Handrails to be provided to roof or access to be prohibited to area.

Long Term (Within 6 Months):

1. Building Engineer to monitor location of all cracks and ensure that, where required, remedial works are carried out.
2. Building Engineer to review design, loads and column stresses.
3. Verify insitu concrete stresses either by 4 no. 100mm dia. Cores or existing cylinder strength data for the columns
4. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
5. Continue to implement load management plan.
6. Building Engineer to prepare a set of "as built" drawings.

7. Cracks to be monitored by factory engineer and repaired as required, should cracking continue building engineer to review and propose remedial works required.

8. Building engineer to check the capacity of non-engineered structures under horizontal and vertical loading and make any necessary alterations.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove locking features from all egress doors / gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.

2. Remove all storage from exit stairs and egress paths.

3. Replace all gates / sliding doors along the means of egress with side-hinged, swinging egress doors. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.

4. Provide exit signs above all exits to the exterior and all doors to the exit stairs.

Short Term (Within 3 Months):

1. Separate the boiler and generator rooms by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.

2. Separate the hazardous materials / flammable liquid storage room by a minimum 2hr fire-rated construction or Remove from the egress path.

3. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction or Remove from the egress path.

4. Provide minimum 1.5-hr fire rated doors and seal all unprotected openings to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing and positive latching and that they are provided with fire exit (panic) hardware where serving production floors. If fire doors are required to be held open for functional reasons, provide automatic closing devices tied to the fire alarm system.

5. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.

6. Provide 2-hr continuous stairwell enclosure to the ground floor from roof floor.

7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

8. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.

Mid Term (within 6 Months):

1. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas) or Provide sprinkler protection for discharge floor in accordance with NFPA 13.

2. Remove single-station smoke alarms. Provide automatic smoke detection throughout the building, tied into the fire alarm system, in accordance with NFPA 72.

Long Term (More than 6 months):

1. Replace the fire alarm system with a new, listed addressable fire alarm system in accordance with NFPA 72.

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Insulation resistant test of all the entire cables must be performed once every 5 year cycle and recorded.

2. Electrical safety training and awareness program for the electrical personal and workers must be initiated and recorded.

3. Cable drawn till the entry of the building must be supported with cable tray or clamps at regular interval throughout the length till the termination inside COS.

4. Inform the grid supplier agency and change the cable size to the higher rating.

5. Cables supported in trenches must be arranged and easily separable for maintenance, and must be tightly covered to prevent ingression of lint and dust. Clean the cable ducts before rearranging the cables and install with protective covers.

6. Wiring must be done through industrial graded PVC conduit and proper switch box must be installed to control the light point.

7. Change the rewire able fuses with molded case circuit breakers and reconnect the wire tightly after trimming the burnt portion if the wires. Overloading and loose connection may be the causes of burnt.

8. Multiple cables connecting at a MCCB terminal must be disconnected. Existing multiple circuits may be distributed through bus bars.

9. Every wire terminating must be installed using independent lug/terminal in the bus bar or must be connected using PVC connectors.

10. As per the size of wires, brass washers must be used to make proper connection in bus bar.

11. The distribution overhead ducts should be closed and protected from dusts and lint. If it is not possible to cover then clean weekly and remove all the dusts and lint. It has high risk of fire hazard.

12. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.

13. One machine can be connected through single MCB. So accordingly the DB has to be calculated and distribute the load.

Short Term (Within 3 Months):

1. All MCBs must be installed with proper enclosures manufacture by the authorized manufacturer.

2. Panel must be laid through cable alley and systematically arranged. Each panel must be installed with devices and apparatus to maintain safety clearances inside panel.

3. Wiring inside panels must be run through cable alley keeping sufficient clearance between all the switchgears. The panel door must have earth bond with the main panel frame.

4. Conduits not meant for electrical use must have properties equivalent to conduits with ample strength and rigidity to be able to protect and support cables drawn in it. Cables in conduits must be protected throughout its length.

5. Cables must be supported on cable trays and riser. Cables may be laid in cable trench with covers.

6. Every wire terminating must be installed using independent lug/terminal. Existing bus bars may be weakened when bunched wires in a terminal is separated. It is recommended to install separate panel or extend / replace the existing bus bars.

7. Wiring must be laid through safe route to avoid the possible physical damage by the moment of workers and machineries.

8. As per the lightning protection assessment risk index the value is 42. Therefore lightning protection system must be installed in accordance with the local standards.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA