Name of the Factory	:	**Z A APPARELS LTD.**
Address of the Factory	:	39 Kuturia, Ashulia, Savar, Dhaka
Dhaka Present Status of the Factory	:	**Under Operation**
Structural assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	:	23 June, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	12 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	: Beam column frame structure
iii.	Floor System	: Beam slab
iv.	Floor Area	: Each floor area of factory building is 5600 sq.ft.
v.	No. of Stories	: 5 storied
vi.	Construction Year	: 2008
vii.	Foundation Type	: Isolated pad footings
viii.	Design Drawings	: Available (Approved by Local Authority)
ix.	Soil investigation Report	: Available (Dated June 2013)
x.	Construction Materials	: Brick aggregated
xi.	Generator	: Ground floor of utility shed

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. Building engineer to review design, loads and column stresses.
2. Verify insitu concrete stresses by 100mm dia. cores from 4 columns.
3. Ensure additional storage from Z A Sweaters is removed from upper floors of building.

Long Term (Within 6 Months):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Building engineer to review horizontal stability of stair and propose additional strengthening works.
3. Building engineer to check construction of structure for discrepancies, including misaligned columns and missing cantilever beams, between design intent and as built. Strengthening works to be proposed if required.
4. Building engineer to review stability of boiler & generator building and propose strengthening works.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove locking features from all egress 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 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.

Short Term (Within 3 Months):

1. Provide minimum .75-hr fire rated doors and seal all unprotected openings to separate the storage room from work areas and other building spaces on 4th floor. Ensure that the fire doors are self-closing and positive latching. If fire doors are required to be held open for functional reasons, provide automatic closing devices tied to the fire alarm system.

2. Provide minimum 2-hr fire rated separation enclosure. 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.

3. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. Where separate storage rooms are not feasible, provide defined storage areas and limit the storage arrangement as follows:

   -Maximum height of 2.4m and maximum area of 23m2

   -If sprinkler protected: maximum height of 3.66m and maximum area of 93m2

   Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.

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

5. 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. Replace the single-station smoke alarms with automatic smoke detectors 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. Cables passing underground or through permanent walls must be protected in steel/PVC pipes and remaining holes around the pipe must be sealed with fire rated material.

2. The cable trench must be tightly covered to avoid physical damage to the cables from falling objects. The cover must prevent the trench from falling debris, dust and lint. Use checker plate or concrete slab.

3. Cables in trench must be supported & arranged on trays inside trench.

4. Replace silica gel and must include in routine maintenance to check and maintain.

5. Breather oil cup must be filled with transformer oil to the required level as instructed by the manufacturer.

6. Arching horn on transformers HT bushing should be installed (Consult the supplier or manufacturer).

7. Establish a periodic cleaning program to keep the substation room neat and clean.

8. Panel base must be securely fixed to the foundation, with appropriate fastening devices. Panel base frame may be used on foundation to mount the panel.

9. Install base plate of the panel and make hole into it then fit cable gland (required sized) for cable entry and exit to the panel and seal all the unused openings by suitable means to make the panel dust and vermin proof.

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

11. Wires terminating to devices inside panel must be connected firmly and wires approaching devices must be securely fastened to avoid unintentional contact with live parts. Install slotted wiring duct to latch the cable inside the duct.

12. Disconnect the panel form power source and clean the interior of the panel regularly and seal the opening to protect ingress of lint and dusts. Provide covers (may be metal) if any additional gap remains after installing cable glands.

13. Cables entering panel must be supported by cable tray or ladder.

14. Install metallic enclosure for the MCCB and provide cable ladder/tray made of noncombustible material preferably metal to support and protect the cables.

15. Generator and boiler room must be kept dry and free from water.

16. Existing panel installed above readily reachable height should be provided with operating platform of required height and size or relocated to reachable height.

17. Disconnect the electric supply of the cable duct and clean all the duct and cables. Provide cover made of noncombustible material to avoid ingress of dust in future. Establish a routine cleaning program for all the electrical channels and ducts.

18. Compressor machine mounted on wheel must be anchored or the wheels must be locked to prevent from trolling.

19. Single line diagram (according to the existing electrical connection) should be displayed on panel and all distribution board.

Short Term (Within 3 Months):

1. The transformer must be installed with barrier walls (instead of grill) between transformer and other panels. The walls must be fire resistant and should have height up to the ceiling or

Assign a qualified engineer to design a required transformer room according to BNBC, Section2.6.3.

2. Transformer must be installed on raised foundation plinth. The plinth level must be raised higher than the minimum local flood level.

3. Cables must be protected from possible damage by panel edges or sharp objects.

4. Panel door(s) must be connected with earth bond connecting frame and door.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA