Name of the Factory	:	**UNION KNITWEAR LTD.**
Address of the Factory	:	M.C Bazar, Shishu Palli Plus Road, Mulaid, Tengra, Sreepur, Gazipur
Dhaka Present Status of the Factory	:	**Under Operation**
Structural assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	:	15 March, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	3 April, 2014 & 4 April, 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	: R.C. Beam and column frame with 2-way spanning solid slabs at ground to 4thfloor level
iii.	Floor System	: Beam slab
iv.	Floor Area	: Typical ground floor area is 21000 sq. ft.
v.	No. of Stories	: 5 storied
vi.	Construction Year	: 2009
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (signed by the Local Government Engineering Division (LGED) in 2009)
ix.	Soil investigation Report	: Available (Dated 2009)
x.	Construction Materials	: Unavailable
xi.	Generator	: Ground floor in an enclosure facing exit discharge

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 verify that the columns have been adequately designed for impact loading.
2. Suitable column protection barriers to be designed and constructed if necessary to protect the columns.
3. Factory Engineer to review design, loads and columns stresses for all internal columns.
4. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns.
5. Extent of build-up loading in toilet and wash areas to be surveyed and weight of water tanks on roof to be assessed. The capacity of the supporting structure slabs and beams to be assessed to verify that the structure is capable of supporting the applied loads.
6. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity. Loading plans to be put on each factory floor.

7. Building Engineer to provide detailed calculations for the temporary roof structures and the associated light steel roof. These should confirm their ability to withstand all design wind loadings -pressure, suctions and uplift forces.

8. Excavation needs to be filled in with compacted material to match the consistency of the surrounding ground conditions. Building Engineer to confirm material and proposed method of compaction, or fill with concrete.

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. Continue to implement the loading plan.

3. If any additions to the building structure are proposed, the Building Engineer shall carry out detailed calculations verifying the structural capacity of the existing structure taking into account any increased loading, the loading plans and existing as built structure, based on insitu concrete strength verification.

4. Building engineer to check, collect information and produce accurate and fully complete as-built documentation.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove locking features from all egress doors and 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 and coiling 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.

Short Term (Within 3 Months):

1. 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.

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

3. Separate the EMR room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.

4. Separate the hazardous materials / flammable liquid storage room by a minimum 2- hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.

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

6. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. Where separate storage rooms may not be 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.

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

Mid Term (within 6 Months):

1. Replace the single-station smoke alarms with automatic smoke detectors tied into the fire alarm system. Configure the fire alarm system to initiate occupant notification upon activation of any two smoke detectors in addition to the manual fire alarm stations.

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. Transformer must be cleaned during routine maintenance.
2. Dust trap must be filled with transformer oil to required level as instructed by the manufacturer.
3. Must increase the Height of the Brick wall till it covers all the exposed parts of transformer.
4. Clean and remove all the dried leaves and combustible material from the Transformer cable trench.
5. Avoid direct tapping from the Transformer output.
6. Remove the CNG cylinders from the generator room.
7. Extend the exhaust pipe and release the exhaust outside the generator room.
8. Extend the air gap between the electrical wiring conduit and Steam pipe line.
9. Must open or close the neutral line instantaneously with the other live lines by the changeover switches.
10. Provide sufficient and approved rubber mat in front of the LT panel.
11. Must coordinate incoming and outgoing cables with the breaker size properly.
12. Must remove the live open and exposed conductors from the panel.
13. Must provide earth connection to all the machine lines.

14. Need to use permanent wiring system for permanent structures.

Short Term (Within 3 Months):

1. Must reduce the Jumpering conductor just to its required length. Unnecessary Bends, twist an turns must be avoided.
2. Use proper Clamping Tools for fastening the HT cables to the pole structure while dropping down straight.
3. Trim the binding conductors properly and leave no sharp edges.
4. Need to remove the combustible materials from the cable ducts and trenches.
5. Use appropriate clamps for fastening the cable boot to the Panel enclosure.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA