Name of the Factory	:	**BABYLON CASUALWEAR LTD. & ABONI FASHION LTD.**
Address of the Factory	:	Plot-23,24, Tetulzhora, Hemayetpur, 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	:	29 March, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	29 March, 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 slab, Column frame with 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Total floor area of the factory premises is 1,92,690 sq.ft.
v.	No. of Stories	: 3 & 7 Storied
vi.	Construction Year	: 2002 & 2006
vii.	Foundation Type	: Pad foundation
viii.	Design Drawings	: Available (LGED, 2002 & 2006)
ix.	Soil investigation Report	: Available (2000)
x.	Construction Materials	: Unavailable
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):

1. Maintain current use of the floors and do not change use or increase occupation, either of which could increase loading.
2. Factory Engineer to review design, loads and columns stresses in all columns.
3. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for cores from min. 4 columns.
4. A Detail Engineering Assessment of Unit 1 to be commenced, see attached Scope.

Mid Term (Within 6 Weeks):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Detail Engineering Assessment to be completed.
3. The Building Engineer to check the load plans and confirm whether the main building structure is capable of safely supporting the additional loading on the structure from the floor extension.

4. Extent of loading to be assessed on the brick columns and review of the current vertical cracking. The capacity of columns to be assessed to confirm that the structure is designed to carry these loads.

5. Column and slab capacity to be assessed for existing loadings as part of Detail Engineering Assessment (see Item 1).

6. Building Engineer to assess whether the building structure can carry the additional point load and submit relevant design document.

7. Building Engineer to assess whether building has an appropriate lateral stability system and submit relevant design document

Long Term (Within 6 Months):

1. Continue to implement load plan.

2. Building Engineer to provide detailed calculations for the Unit 2/3 structures and the associated light steel roof. These should confirm their ability to withstand all wind loading pressure, suctions and uplift forces.

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

4. Produce detailed engineering drawings and calculations for the Unit 2/3 structures ensuring design meets the anticipated loadings.

5. Provide accurate as-built documentation as part of Detail Engineering Assessment.

6. Building engineer to assess the crack in the beam.

7. Carry out remedial work if required.

8. Carry out remedial work if required.

9. Building engineer to assess single storey utility building and confirm its ability to withstand all wind loading pressure, suctions and uplift forces.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. 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.

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

3. Reduce occupant load to not more than available exit capacity immediately. In the future, if a greater occupant load is desired, provide additional exits.

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

Short Term (Within 3 Months):

1. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction on the ground floor including fire rated doors and a corridor at the exit access. On the second floor

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.

2. 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.
3. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
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. 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. Breather oil cup must be filled with transformer oil to required level as instructed by the manufacturer.
2. Disconnect the power source of the cable laid into PFI Panel and clean debris of all interior components. Establish a periodic cleaning program and maintain records of the activities.
3. Remove the burnt cables and perform thermal scanning and find the out the exact reason of burning. Assign a engineer to take necessary action depending on the problem.
4. Clean the concrete and keep the bus bar and wires higher place in the panel.
5. Disconnect the power source of the cable laid into channel and clean dust and debris of all interior components. Establish a periodic cleaning program and maintain records of the activities. Provide cover made of noncombustible material on the channel for preventing ingress of dust and debris in future.

Short Term (Within 3 Months):

1. HT cable dropping from 11kV pole must be protected in steel pipe of required size at least 2m from the ground level to protect from physical injury by moving objects.

2. Terminate the HT cable and LT cables separately on a cable tray/ladder and provide covers made of non-combustible material preferably metal to protect the cables' insulation from physical damage as well as prevent entering debris, dust and lint.

3. Construct cable trench to protect the cables to ensure the mechanical protection of the cable laid on floor otherwise cable insulation may damage due to falling object or stepping of occupants onto it.

4. Establish a routine cleaning program to keep neat and clean the HT Panel. Shut the power of the HT Panel and clean the interior of the HT Panel at scheduled period. Base plate of the panel must be installed with proper gland fixation to prevent the ingress of dust lint in future.

5. Sharp cable bends shall be avoided such that no stress is imposed on the termination of the cable or insulation of the cable.

6. Install an appropriate sized MCCB such as the rating of the MCCB does not exceed the current carrying capacity of the cable.

7. 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.

8. Earth bus bar should be installed inside all panels with earthing connection as per BNBC (min size 14SWG, 16mm2 for main conductor sizes 16-35mm2 Main conductor size above 35mm2,the earth conductor must be half the main conductor).

9. Provide panel base plate. Make circular hole at the base plate/top plate of panels and provide cable gland according to the respective cable size for cable entry and exit so that the cables are not stressed on the sharp edges of the hole of panels. Provide covers (of noncombustible material) if any additional gap remains after installing cable glands.

10. Seal all the penetrations using non appropriate fire rated material and ensure the cable insulation does not get damaged during sealing work.

11. Install a vertical cable tray (instead of using flexible pipes) or duct ranging from generator terminal (output) box to cable trench to support the generator output cables.

12. Two separate and distinct earth connection (2 SWG) must be provided over 256kVA generator. Generator body must have earth connection with 35sq.mm. conductor.

13. Provide fire rated material to block the penetrations of the cable. Ensure the cables are not touched to the sharp edges of the concrete that could damage the insulation of the cable.

14. Use rigid PVC pipe for surface and exposed wiring through-out its length and supported properly (clamped with saddle, at regular interval of 600 mm).The conduit shall run vertically or horizontally, shall never at angle.. Flexible conduit must not be used for long point wiring (except for special wirings).

15. Keep the motor on a dry place and make a safe route to connect the power cable with the motor.

16. Cable passing through the floor is not supported and the hole is sealed by concrete which create extra pressure on the cable that can damage the cable insulation.

17. Provide an enclosure to protect the earth bus bar from dust and any physical damage.

18. Wire joints in panels must be tightly connected using terminals or sockets crimped and insulated. PIB tape and heat-shrink tubes may be used for insulation.

Mid Term (Within 6 months):

1. Cables connecting to transformer must be supported on cable-tray. Install cable tray or ladder or metallic conduit to support and protect the main service cables horizontally.

2. Keep 30% clearance inside all cable trays/ channels /ducts for further extension and better heat dissipation. Install another cable duct if required. All the cable trays/channels/ducts should be covered to make it dust and vermin proof. A periodic cleaning program should be established to keep all the trays/channels/ducts/panels neat and clean.

3. Install the cable tray/ladder/ duct up to the cable entry of the panel in order to support the cables. Ensure the cables are tightly latched with the ladder and provide covers made of non-combustible material preferably metallic sheet to protect the cables' insulation from any physical damage as well as prevent ingress of debris, dust and lint.

4. Disconnect (switch off) the panel from electrical supply and clean all the dust, debris & lint of all the internal components. Establish a routine cleaning program to keep all the panels free from dust.

Long Term (More than 6 months):

1. Transformer room may be rearranged or some of the panels may be relocated to increase the room size of the transformer. The room area for the transformer should be 13 sq m according to BNBC 2006, Section-2.6.3. Make sure that the transformer room should be fire rated and separated from other occupancy. Assign an electrical engineer to rearrange the room.