

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: CLASSIC SHIRTS LIMITED
Address of the Factory	: Ka – 76, Joar Sahara Bazar, Vatara (Badda), Dhaka-1229
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 20 august, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 21 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 a 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The building has the gross floor area of 70000 sq.ft.
v.	No. of Stories	: 7 storied
vi.	Construction Year	: 1999
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Permitted by RAJUK in 1999)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: Ground floor

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. Remove heavy storage loading in the area identified above.
2. An Engineering Assessment is required to review the design and loads.
3. Factory Engineer to state the maximum weight that is allowed per square meter. Suggest that state the value on notice boards in these areas. (Loading Plans).

Mid Term (Within 6 Weeks):

1. Adopt some sort of signage/staff guidance to ensure that the maximum weight of storage is not exceeded. (Loading Plans).
2. The Factory Engineer to investigate the cause of cracks by appropriate methods.
3. The distress found is to be suitably rectified and then repaired.
4. Factory Engineer to survey the actual conditions and revise the drawings.
5. Any results of the Engineering Assessment which affect the structure should be taken on board.
6. The items in the area identified above should be removed.
7. Factory Engineer to review design, loads and related elements in area identified above to confirm capacity and stability for these items.

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8. An Engineering Assessment is required to review the design and loads.
9. Factory Engineer to state the maximum weight that is allowed per square meter. State the values clearly on notice boards in these areas. (Loading Plans).
10. An Engineering Assessment of the overall building to be carried out and in particular, stability and foundation aspects should be investigated in detail.

Long Term (Within 6 Months):

1. Maintain standards of quality control to ensure that storage procedures are correctly followed so that overloading problems do not arise in the future.
2. Maintain and implement Loading Plans.
3. Continue to implement load plan.
4. Maintain standards of quality control to ensure that storage procedures are correctly followed.
5. Factory Engineer to inspect water damaged structures and repair with a suitable methods.
6. Waterproofing on the roof slab is to be applied. Moreover the roof slab drainage system should be investigated and improved.
7. For both durability and serviceability, rust proof paint or any appropriate methods is recommended.
8. Fireproofing material for structural steel element is recommended as suggested in BNBC Codes.
9. Maintain standard of quality control and protection of the fire protection.

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. Keep egress paths and stairs clear of storage.
3. Remove all storage from exit stairs and egress paths.
4. Reduce occupant load to not more than available exit capacity. No more the 306 occupants on each floor.
5. Replace all gates and 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.
6. Remove manual on/off switches from emergency lighting and exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. 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.
2. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.

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3. 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.
4. Provide minimum aisle widths of 36-in.
5. Provide a minimum 2-hr fire rated exit corridor between the day-care room and exit.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
7. 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. Thermo graphic scanning of the entire electrical system must be performed on tri-annual basis and recorded.
2. Insulation resistant test of all the entire cables must be performed once every 5 year cycle and recorded.
3. Electrical safety training and awareness program for the electrical personal and workers must be initiated and recorded.
4. Fill breather with silica gel and breather oil as per manufacturer's instruction in consultation with DESCO.
5. Install phase separators between different phases of MCCB. Existing phase separators fabricated from insulating materials may not provide the required insulating properties for the type of MCCB installed.
6. Single wire with same size of lug must be terminated in single terminal in all the cables and wires termination.
7. Burnt wires termination must be removed and replace with the good wire. The possible cause of the burnt may be due to overload, loose connection and looping.
8. Load must be balance into three phases. Whatever total load must be divided into three phases equally.
9. Large exhaust fans/motors having rating more than 0.376KW must be connected through control device such that it will not restart automatically when power resumed back to the fan/motor. DOL starter may be used.

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10. Cables and wires terminating without terminal lugs must be installed with lugs of proper size and rating in the bus bar or twisted with a PVC wire connector of require size.
11. Cables terminating at MCCBs must be installed with cable lugs/terminals of required size and rating.
12. Remove the old MCB and replace with the new MCB. Whole purpose of providing the MCB protection is defeated by doing such act.

Short Term (Within 3 Months):

1. The factory must have as-built electrical SLD with electrical wiring layout designs and drawings. Any changes in load, protection system, conductors, generation and supply system must be reflected in the as-built SLD and drawings. However this factory need to relook at the present load and future increase load and redesign the total distribution system by involving experience electrical consultant and execute new electrical installation system.
2. Rearrange the panels at one side and separate the transformer from panels by constructing barrier walls of appropriate height.
3. Cables terminating at main switches, panels, DBs and COS must be supported and arranged on cable trays or ladder systematically.
4. Cables must be laid in trench or supported on trays inside trench and should be protected with covers with ample strength and rigidity.
5. Provide cable gland same as the cable size at the cable entry and exit so that the cables are not stressed on the sharp edges of the entry and exit hole of the switch boards & panels. Provide covers if any additional gap remains after cable gland is fix.
6. Cables must be protected by providing proper industrial conduits and junction boxes in crossing and fixed with saddles at uniform interval.
7. 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.
8. All BBT system of wiring must have its cover and should be mounted above the floor but underneath the table or above the work table and connect by extension of plug top to avoid workers step over it and damage physically.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA