

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: TEAM APPAREL (OCEAN APPARELS 2ND UNIT)
Address of the Factory	: Plot-2324, Sector-5, Road # 04, CEPZ, Chittagong, Bangladesh
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 22 June, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 10 June, 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 slab on RC columns
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: Single storied
vi.	Construction Year	: 2014
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Approved by BEPZA)
ix.	Soil investigation Report	: Available (Dated January, 2012)
x.	Construction Materials	: Unavailable
xi.	Generator	: There are no generators for this 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. Empty water tank immediately OR vacate area beneath water tank.
2. Building Engineer to review extent of cracking of columns, design, loads and column stresses and verify capacity of as-built structure to carry the applied loads.
3. Building Engineer to advise on possible immediate requirement for temporary propping of cantilever canopy pending a review of the column cracks.
4. Building Engineer to review extent of cracking of column, design, loads and column stresses, and to prepare a schedule of remedial works, as required.

Mid Term (Within 6 Weeks):

1. Building Engineer to implement any actions / supervise remedial works to reinstate the column as identified during the review.
2. Building Engineer to commence a review of the design of all lightweight roof structures within the compound, and confirm their ability to withstand wind loading pressure, suction and uplift forces, with special emphasis on connections and bracing.
3. Building Engineer to commence survey of all areas of the buildings, collect information and prepare a full and accurate set of "as-constructed" drawings.
4. Remove ties supporting storage loading from trusses in Shed 3.

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Long Term (Within 6 Months):

1. Building Engineer to complete review of the design of all lightweight roof structures within the compound, and confirm their ability to withstand wind loading pressure, suction and uplift forces, with special emphasis on connections and bracing.
2. Building Engineer to implement any actions / supervise any remedial works as identified during the review.
3. Building Engineer to complete survey of all areas of the buildings and complete issue of a full and accurate set of "as-constructed" drawings.
4. Factory Management to actively implement and manage loading within the factory, to ensure trusses are not adversely loaded.

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. Keep egress paths clear of storage.
3. 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.
4. Configure the fire alarm system to initiate automatic occupant notification on all parts of the building to facilitate whole-building evacuation upon any manual fire alarm station activation.
5. Provide exit signs above all exits to the exterior.

Short Term (Within 3 Months):

1. Separate the boiler and transformer room by a minimum 2-hr fire-rated construction. Seal and protect all openings to maintain the required fire separations
2. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
3. Provide defined storage areas and limit the storage arrangement as follows:
 - Maximum height of 2.4m and maximum area of 23m².
 - Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.
4. Provide minimum aisle widths of 36-in.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
6. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.
7. Test the emergency lighting system on each floor and provide additional emergency fixtures to provide adequate illumination along the means of egress. Provide a minimum illumination of 10 lux at the floor level within exit stairs and exit discharge paths and minimum 2.5 lux along exit access aisles.

Mid Term (within 6 Months):

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1. Seal all penetrations and openings to the interior of the building along the discharge path, up to a height of 10 ft., to provide a minimum 1-hr fire separation.

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. Clean the trench from debris and install trench covers to protect cables from physical damages from falling objects. Cables may require additional supports and protection.
2. The transformer guard must be connected to the earth and gate must be connected with bonding connections.
3. Cables terminating at transformer must be protected and supported on risers. Cables on floor must be laid in cable trenches.
4. Replace Silica gel in the breather and fill the oil cup as per manufacturer's instructions.
5. Cables in substation must be protected and supported. Cables on floor may be laid in cable trenches or supported in trays through safer routes.
6. Cables in flexible PVC conduits must be protected and supported in trays/ducts or ladders in complete set. Cables passing through wall must be protected.
7. Conduit wiring must be securely fixed to the column or wall at regular intervals.
8. Overheating of cables must be checked and assessed. The following may be the reasons for overheating: a) Overloading b) under sized cables d) unbalanced load in 3-ph circuits e) loose connections or f) crowded inside panel (air circulations).
9. Panels not in operation may be removed.
10. Install separators between MCCBs terminals. Standard separators provided by the MCCB manufacturer must be used.
11. MCCB (electrical devices) must be installed in protective enclosures. Remove the wooden board and install the MCCB in a standard enclosure.
12. Panel door(s) must be connected with bonding connections to the panel frame.
13. Conduit wiring in the factory must be installed with complete accessories like Tee, Junctions, Joints, sockets, etc., and must be securely fixed to the wall at regular intervals.
14. All motors (electrical equipment) must be firmly grouted to foundation or mounting structures.

Short Term (Within 3 Months):

1. HT cable must be protected in steel pipe of required size, at least 2m from the ground level, to protect the cables from physical injury by moving objects.
2. Panel base plates must be installed at all time, and cable(s) entering panel must be firmly fixed with cable gland/clamps.

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3. Cable trenches must be covered to protect cables installed in it. River sand in trenches may be removed or additionally protected by installing covers.
4. Cable trays must be installed in complete sets including dropping to panels, bends, elbow, joints etc. Existing cables dropping from trays to panels must be supported in cable trays dropping from the existing tray.
5. Cables passing through wall must be protected in rigid conduits or in steel pipes and the remaining gaps around it must be sealed with fire rated materials.
6. Neutral wires for each circuits must be connected and distributed through neutral bus. Additional neutral bus may be installed in the panel.
7. The exhaust fans in production floors must be controlled and protected by switches that disconnect the supply and does not automatically start when the supply regains. DOL starter may be used.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA