

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: DODY EXPORT WEAR LTD.
Address of the Factory	: Sattar Tower, Kunia (Boro Bari), Gazipur Sadar, Gazipur, Bangladesh
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 23 October, 2013
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 31 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	: R.C. Beam and column frame with a 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 10 storied
vi.	Construction Year	: 2009
vii.	Foundation Type	: Insitu piled foundation
viii.	Design Drawings	: Available (Signed in June 2008 (LGED), October 2010 (Industry Gov))
ix.	Soil investigation Report	: Available (Dated June, 2007)
x.	Construction Materials	: Unavailable
xi.	Generator	: Ground floor-utility room

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. Factory Engineer to review design, loads and columns stresses in area identified above.
2. Verify insitu concrete stresses either by cores or existing cylinder strength data for the identified columns.

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. Manage drainage from roof level and to avoid structural corrosion due to continuous weating.
3. Building engineer to confirm special design live load for this area and update structural as-built drawings.
4. Building engineer specify a treatment system for concrete repair.
5. Addition structures should be designed and upgraded to support code loads by the building Engineer, or they should be vacated and removed.

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. 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.

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. Separate the hazardous materials and general storage room by a minimum 2-hr fire rated construction. Seal and/or protected all openings to maintain the required fire separations.
3. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
4. 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.

5. Separate the boiler, generator and transformer room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
7. Should provide a listed fire pump in accordance to NFPA -20.
8. 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):

1. Provide a UL listed or approved equivalent fire door assemblies. Provide automatic door closer and hardware to allow re-entry from stair side.
2. 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.

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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.
2. Provide automatic sprinkler protection throughout the building in accordance with NFPA 13.

The recommendations for Electrical Safety corrective actions are:

Immediate (Within 1 month):

1. Any kind of combustible materials (may help spreading fire) cannot be stored inside the transformer room. Install the cables tray or duct with cover (metallic) for the protection of the HT cable laid on floor. Ensure the cables are tightly latched inside the ladder/tray and provide covers made of non-combustible material preferably metallic sheet to protect the cables' insulation from any physical damage as well as prevent the ingress of debris, dust and lint.
2. Disconnect the panel from power source and clean the interior of the panel regularly and seal the opening to protect ingress of lint and dusts. Provide covers if any additional gap remains after installing cable glands.
3. Provide phase separators between poles of MCCB made of noncombustible materials preferably use rubber having enough dielectric strength to insulate phases from each other.
4. Panel base-plate must be installed. Make circular hole at the base-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.
5. Cables terminating at distribution boards must be supported in risers/ladder and protected throughout its length till the panel base or top plate.
6. Install cable duct to protect the cables and provide covers made of non-combustible material preferably metal to protect the cables' insulation from any physical damage as well as prevent the ingress of debris, dust and lint.
7. Panel top cover must be installed to prevent ingress of lint/dust into the panel. Make circular hole at the 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.
8. Metallic cover (checkered plate) should be provided on cable trench to prevent the damage of cable insulation or falling of operator.
9. Protective devices should be encased in metal casing made of 20 SWG thickness metal sheets.
10. Heat resistant conduits may be used to protect wirings inside the boiler room to prevent the damage of cables due to external heat. Those conduits must be clamped with saddle (at safe location) at regular interval (600 mm).
11. Provide earth connection for doors of metallic distribution boards using green cables preferably braid so that the metallic door remains at zero potential all the time.
12. Cables/wirings passing through permanent wall must be protected installing pipes and remaining gaps must be sealed with fire resistant materials. Cable tray/raceway shall be installed for the support of the cable throughout its length.

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13. The exposed wiring must be covered. Flexible conduit must not be used for long point wiring (except for special wirings).
14. 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): NA

Mid Term (Within 6 months):

1. Enlarge the transformer room as per standard (BNBC table 8.2.8) or maintain sufficient working space (preferably 1 meter) around the transformer.

Long Term (More than 6 months): NA