

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: STERLING CREATIONS LTD.
Address of the Factory	: Beron, Earpur Union, Ashulia, Dhaka
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 2 July, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 10 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	: R.C Beam and column frame with a 2-way beam slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total floor area of the building is 198,000sq. ft.
v.	No. of Stories	: 8 storied
vi.	Construction Year	: 2004
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available
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. Do not load the slab above 3.0kPa (60psf) in storage areas.

Mid Term (Within 6 Weeks):

1. Carry out a Detailed Engineering Assessment on the building to establish the existing floor design capacity to safely carry the existing load each floor.
2. Carry out a Detailed Engineering Assessment on the columns, taking 100mm core samples where necessary to establish the strength.
3. Establish if drawings are original design or postdated as built drawings. Survey all columns as part of the Detailed Engineering Assessment to ascertain the existing design strength of the columns.
4. Carry out a Detailed Engineering Assessment on the building to verify that the building is stable under its lateral loading.

Long Term (Within 6 Months):

1. Produce accurate loading plans for each level based on the Engineering Assessment.
2. Ensure that these plans are displayed and actively managed.
3. Carry out any recommendations highlighted in the Engineering Assessment.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

4. If drawings are as built remove any information that cannot be verified by basic survey methods.
5. Cover the concrete roof with a suitable waterproofing membrane, e.g. waterproof screed.

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 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. Provide exit signs above all exits to the exterior and all doors to the exit stairs.

Short Term (Within 3 Months):

1. Separate the generator and transformer rooms by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. Provide a minimum 2-hr fire rated shaft to separate the utility risers from each floor level.
3. 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.

4. Provide minimum aisle widths of 36-in.
5. Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.
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. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas). OR provide sprinkler protection for discharge floor in accordance with NFPA 13.
2. 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):

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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. Breather oil cup must be filled with transformer oil to required level as instructed by the manufacturer.
2. Sharp cable bends shall be avoided such that no stress is imposed on the termination of the cable or insulation of the cable. The HT cable terminated to the HT terminals must be supported in cable trays/ladder.
3. Check and redesign the requirements to control the circuits. If two phase control is not required, then replace with suitable control devices.
4. Cables must be terminated to MCCB providing lugs of required size according to the size of the respective cable.
5. Phase barriers between different phases supplied by the breaker manufacturer must be installed to avoid arc flashing.

Short Term (Within 3 Months):

1. Construct a wall up to the ceiling keeping the provisions for installing necessary ventilation fan at suitable location.
2. Metallic cover (checkered plate) should be provided on cable trench to prevent the damage of cable insulation as well as prevent the ingress of debris, dust and lint. Cable dressing is required.
3. Cables below panels must be laid in trench and then support it on cable trays to enter and exit to the changeover switch.
4. 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.
5. Clean the duct & provide cover made of noncombustible material on the duct for preventing ingress of dust and debris in future.
6. Cable must be supported on cable ladder or riser. Provide covers made of non-combustible material preferably metal to protect the cables' insulation from any physical damage. . Flexible conduit must not be used for long point wiring (except for special wirings).
7. Install base plate of the panel and make hole into it then fit cable gland (required sized) for cable entry and exit to the panel and seal all the unused openings by suitable sealant means to make free from the panel dust and vermin proof.
8. 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.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

9. Install panel gland plate and make hole into it then fit cable gland (required sized) for cable entry and exit to the panel and seal all the unused openings by suitable means to make the panel dust and vermin proof.
10. Use steel pipe/cable tray to ensure the mechanical protection of the cable laid on floor otherwise cable insulation may damage due to falling object or occupants stepping onto it.
11. The distribution board must be relocated in a safer place.
12. Remove the wooden cable and install metallic covered cable duct or tray to route and arrange cables safely.
13. 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.
14. Cables passing through floor/ceiling walls must be protected in steel/PVC pipes and remaining holes around the pipe must be sealed with fire rated material.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA