

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: COTTON FIELDS LTD.
Address of the Factory	: Shima Complex, Plot No. 23, Shataish Road, Gazipura, Dhaka
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 12 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 12 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	: Each floor has the area of 16,275 sq ft.
v.	No. of Stories	: 8 storied
vi.	Construction Year	: 2004
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Signed by Local Bangladeshi Building Authorities)
ix.	Soil investigation Report	: Available (May, 2004)
x.	Construction Materials	: Brick aggregated
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. Reduce slab loading at roof level, 7th floor storage area and 1st floor storage areas specifically.

Mid Term (Within 6 Weeks):

1. Factory engineer to review design, loads and column stresses.
2. Detailed engineering assessment to be performed to determine typical floor slab adequacy under factory loading.

Long Term (Within 6 Months):

1. Produce and actively manage a loading plan for all floor plates within the structure giving consideration to floor capacity and column capacity.
2. Address all findings of the above mentioned engineering assessment and perform any recommended remedial measures.
3. Demolish columns extending above existing roof slab to a height of 1 ft above top of slab.

The recommendations for Fire Safety corrective actions are:

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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. Provide 2-hrs-rated exit passages way leading directly outside.
3. Keep egress paths and stairs clear of storage.
4. 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.
5. Regularly inspect all exit signage and replace/install lights as needed to illuminate signs.

Short Term (Within 3 Months):

1. Separate the hazardous materials / flammable liquid storage 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. 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 combustibile storage by a minimum clear distance of 3m.

3. Provide a minimum 2-hr fire-rated shaft to separate the utility risers from each floor level or seal all penetrations and openings in floor/ceiling assemblies to maintain the fire separation.
4. 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.
5. Provide rated enclosure (exterior wall and roof) rated for 2-hr.
6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

Mid Term (within 6 Months):

1. 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.

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

The recommendations for Electrical Safety corrective actions are:

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Immediate (Within 1 month):

1. Sealing cup must be filled with transformer oil as per the filling marks provided on the equipment.
2. Transformer room may be rearranged or some of the panels may be relocated. Construct a fire rated separate dedicated room for the transformers providing necessary clearance around it. Assign a qualified engineer to design a required transformer room according to BNBC 2006, Section-2.6.3.
3. Clean the cable channels and provide metallic cover on the cable channels. Establish a routine cleaning program to keep the cable channels dust and vermin proof as well as prevent spread of fire.
4. Install separators/barriers between phases of MCCB to avert flashover. Standard separators provided by the MCCB manufacturer must be used.
5. Protective devices should be encased in metal casing made of 20 SWG thickness metal sheets painted with enamel paint.
6. Use industrial graded (heat resistant) pipe for control and power wiring of boiler to prevent cables from damage due to excessive heat.
7. Panel including its door must be connected with dedicated earth connection. Practice earth continuity test to insure earth continuity to panel and loads enclosure and keep record.

Short Term (Within 3 Months):

1. The HT cable must be encased in steel pipe (conduit) when passed through the wall and seal the unused openings after the passage of conduit by fire rated materials.
2. Use steel pipe or cable tray to route cables on the floor to protect the cable's insulation from damage.
3. Extend the cable tray and arrange the cables in it. Provide cover on the cable tray throughout its whole length. Establish a routine cleaning program to keep the cable tray neat and clean.
4. Surface and exposed wiring should be encased in rigid PVC pipe throughout its length; run horizontally and vertically never at an angle and supported them at regular intervals by using saddle clamp.
5. Keep at least one meter clearance in front the distribution panel and access to the panel should be kept obstacle free.

Mid Term (Within 6 months):

1. Rearrange the HT cable to remove bend. The HT cable termination may be lowered to a position that it will remain straight throughout its whole length and its accessories should be aligned as per design.
2. Install a vertical cable ladder attached to pole to support the HT cable or use suitable saddle clamp to support the cable attached to the pole at regular intervals.
3. HT cable drawn from 11kV pole must be encased in required sized steel pipe; the cable should be encased in pipe up to 2 meter above the ground level to protect it from physical damage by moving objects.

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4. The HT cable laid on concrete floor should be routed through cable trench or covered cable tray or metallic conduit to protect it against physical damage due to falling objects and stepping of occupants.

Long Term (More than 6 months): NA