

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	:	COTTON DYEING AND FINISHING MILLS LTD.
Address of the Factory	:	10 No. Habirbari PO, Seed Store Bazaar Thana, Valuka, Mymensing, Dhaka
Dhaka Present Status of the Factory	:	Under Operation
Structural assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	:	10 May, 2014
Fire & Electrical assessment conducted by	:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	:	5 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	: R.C. Beam and 2-way spanning solid slabs in ground floor and steel structure in 1 st floor
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total floor area of main building is 144,000 sq. ft
v.	No. of Stories	: 2 storied
vi.	Construction Year	: 2003 & 2007
vii.	Foundation Type	: Pad foundation
viii.	Design Drawings	: Available (Dated September, 2012)
ix.	Soil investigation Report	: Available (Dated January, 2006)
x.	Construction Materials	: Stone Chips 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): NA

Mid Term (Within 6 Weeks):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. Building Engineer to review typical floor finish cracks at ground and 1st floors and confirm that cracking is in finishes only. Where required, remedial works to be carried out.

Long Term (Within 6 Months):

1. The design of the steel roof should be checked by the Building Engineer and, if required, upgraded to support code vertical and wind loads. Specifically the provision of roof bracing (horizontal and vertical) and compression flange restraints should be reviewed.
2. Continue to implement load management plan.
3. Building Engineer to inspect area where cracking has occurred and propose a suitable repair to ensure that rainwater does not penetrate the building fabric.
4. Building Engineer to provide a method statement for the on-going maintenance of the external facades.

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5. Building Engineer to survey as constructed building. Updated drawings to be prepared showing the correct as constructed layout including the steel frame structure.
6. Update controlled loading plans for all floors designating allowable storage density and where storage may be placed.
7. Building Engineer to inspect area where cracking has occurred and propose a suitable repair to ensure that rainwater does not penetrate the building fabric and cantilever slab.
8. Building Engineer to survey as constructed building. Updated drawings to be prepared showing the correct as constructed layout.
9. Update controlled loading plans for all floors designating allowable storage density and where storage may be placed.
10. If any additions to the building structure are proposed, the Building Engineer shall provide calculations showing the structural adequacy of all columns taking into account any additions to the existing structure, the loading plans and as built structure, including insitu concrete strength testing.

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. Remove all storage from exit stairs and egress paths.
3. 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.
4. Remove manual on/off switches from emergency lighting units to prevent them from being switched off.
5. Regularly inspect all exit signage and replace/install lights as needed to illuminate signs.

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. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction. Where separate storage rooms are not 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 93m²Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.
3. 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.
4. Immediately reduce occupant load to not more than available exit capacity (1025). If possible, provide additional exits in the future to increase exit capacity.

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5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
6. 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.
7. Separate the hazardous materials / flammable liquid storage room by a minimum 2hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.

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. All the panels must have proper handle and locking system to ensure proper safety to panel operators.
2. Panel door(s) must be connected with earth bond connecting frame and door(s).
3. Service cable dropping from transformer must be firmly fixed to the pole with supports and clamps. It must be protected in steel pipe to protect from physical injury.
4. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.

Short Term (Within 3 Months):

1. Panel base plate must be installed, all the time, and cable entering panel must be firmly fixed with cable gland.
2. Wirings passing through permanent walls must be protected with rigid conduits/pipes and remaining gaps must be sealed with fire rated materials.
3. Power cable must be supported in cable trays or laid in trenches. The cable must be protected against physical injury.
4. Panel door should be free to open and excess, relocate the PVC pipe to a suitable place.
5. Ducts should be properly covered and cables arranged inside the ducts.

Mid Term (Within 6 months):

1. Cable trays in open space must be fully covered to avoid deterioration of insulations due to sunlight and rain.

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Long Term (More than 6 months): NA