

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: CRONY TEX SWEATER LTD.
Address of the Factory	: Plot# 190-193, 206-209, Block-B, BSCIC, Industrial Estate, Fatullah, Narayanganj-1400
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 17 May, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 10 May, 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 beam and slab construction
iii.	Floor System	: Beam slab
iv.	Floor Area	: The total floor area is 152,000 sq.ft.
v.	No. of Stories	: 8 storied
vi.	Construction Year	: 2008
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Signed by Local Authorities in September, 2012)
ix.	Soil investigation Report	: Available (August, 2006)
x.	Construction Materials	: Stone 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. Factory Engineer to review design, loads and columns stresses in general.
2. Verify insitu concrete stresses either by 100mm diameter cores or existing cylinder strength data for a minimum of 4 columns.
3. A Detail Engineering Assessment of Factory to be commenced, see attached Scope.

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. Detail Engineering Assessment to be completed.
3. Construction of permitted top storey not to be undertaken pending the outcome of design review.
4. Factory Engineer to review design, loads and columns stresses for internal columns.
5. Verify insitu concrete stresses either by 100mm dia. cores from min. 4 columns or existing cylinder strength data.

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6. Building Engineer to check installed column reinforcement to ensure as-built structure is in alignment with structural design.
7. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
8. Building Engineer to check whether the perimeter columns in the ground and 1st floor provide sufficient lateral stability to the steel structure in longitudinal direction.

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. Continue to implement load plan.

The recommendations for Fire Safety corrective actions are:

Immediate (Within 1 month):

1. Remove all combustibles and storage from exit stairs and egress paths.
2. Immediately reduce occupant load to not more than available exit capacity (433). If possible provide additional exits to increase capacity in the future.
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.

Short Term (Within 3 Months):

1. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
2. Separate the boiler, generator, transformer rooms by a minimum 2-hr fire-rated construction. Seal and/or protect all openings to maintain the required fire separations.
3. 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.
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. Properly seal elevator shaft with fire rated construction until elevator is installed.
6. Provide minimum aisle widths of 36-in.
7. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

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8. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.
9. 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 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 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.
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. Conservator tank (on transformer) must be checked and required oil level must be maintained.
2. Cables passing through permanent walls must be protected in steel pipes and remaining holes around the pipe must be sealed.
3. HT cable dropping from 11kV pole must be firmly fixed to the pole with supports and clamps.
4. Existing panels may be rearranged to provide adequate working space, especially when the panels are open.
5. Wiring in PVC flexible conduit entering panels must be firmly fixed at the panel (base / Top) using socket and check nuts.
6. Panel base plates must be installed, at all time, and cable(s) entering panel must be firmly fixed with cable gland.
7. Cables inside panel must be securely fastened, through ducts or by ties, to avoid crossing live parts.
8. Cables inside panel must be securely fastened, through ducts or by ties, to avoid crossing live parts.
9. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
10. Multiple cables terminating at a terminal in bus bars must be separated. Existing bus bar modified for separate cable connections must not weaken the existing bus bars in physical strength and in current carrying capacity.
11. Panel door(s) must be connected with earth bond connecting frame and door.

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12. Wirings drawn in flexible PVC conduit must be installed on supports to prevent conductors touching hot areas/components.

Short Term (Within 3 Months):

1. Transformer may be separated from panels by constructing barrier walls.
2. Transformer room may be rearranged or some of the panels may be relocated.
3. 11kV HT cable must be supported in cable trays or laid in trenches. The cable must be protected against physical injury.
4. Cables behind panel must be supported and arranged on cable trays or ladder.
5. Cables entering base plates without glands leaving opening gaps around cables must be sealed with metal plates. Compression glands may be used to fix existing cables to the base plates.

Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA