

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory : **Chancellor Garments Ltd**
Address of the Factory : Plot No. 38, Road 4, ShikderRealstreet
Present Status of the Factory : **Under Operation**

Structural assessment conducted by : Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection : 08 March 2014

Fire & Electrical assessment conducted by: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection : 23rd April, 2014

Basic Information:The present garment factory is a commercial building with beam-column frame system.The following general information were noted:

- i. Building Usage Type : Garments Factory
- ii. Structural System : RCC beam slab
- iii. Floor System : Beam Slab
- iv. Floor Area : Not Available
- v. No. of Stories : 5
- vi. Construction Year : 1994
- vii. Foundation Type : Not Available
- viii. Design Drawings : Rajuk, 1994
- ix. Soil investigation Report : Not available
- x. Construction Materials : Unavailable
- xi. Generator : A single diesel generator is provided on the ground floor in a separate building 40 feet from the factory building.

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):

- Detail Engineering Assessment of as built structure to be commenced as per attached scope. Verify in-situ concrete strengths (using min. 4 no. 100mm dia. Cores) and existing reinforcement for all columns
- As part of Detail Engineering Assessment, Building Engineer to commence re-survey of as-built structure and update drawings including a verification of the location of columns and floor beams.

Mid Term (Within 6 Weeks):

- Detail Engineering Assessment to be completed
- Produce and actively manage a loading plan for all floors within the building giving consideration to floor capacity and column capacity.
- Complete as-built survey and Detail Engineering Assessment
- Produce and actively manage a loading plan for all floors within the Factory giving consideration to floor capacity and column capacity.(Refer to Item 1)

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- Steel roofs to lean-to entrance structure and steel stairs - design should be checked by the Building Engineer to confirm that it includes the provision of a horizontal stability system and, if required, upgraded to support code vertical and wind loads.
- Sections of plaster finish to columns and slabs to be removed to investigate if cracks penetrate the building structure.
- Building Engineer to carry out design check on columns and slabs to confirm that these cracks are non-structural.
- Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity. (Refer to Item 1)
- Sections of plaster finish to beams to be removed to investigate if cracks penetrate the building structure.
- Extent of build-up loading within toilet areas to be surveyed and capacity of floor slab to be assessed to confirm that the floor slab is designed to carry these loads.
- Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity including floor slab and column capacity.
- Building Engineer to confirm that brick columns are nonstructural and that they may be removed to avoid providing an alternative support point to the beam above which will not have been allowed for by the building designer.

Long Term (Within 6 Months):

- Continue to implement load plan
- Continue to implement load plan
- Completeness of steelwork connections should be checked on site.
- Building Engineer to prepare Allowable Floor Loading Plans.
- Continue to implement load management plan
- Building Engineer to carry out design check on beams to confirm that these cracks are non-structural.
- Building Engineer to prepare Allowable Floor Loading Plans.
- Continue to implement load plan.
- Following confirmation by the Building Engineer, two plastered brick columns to be removed.

The recommendations for Fire Safety corrective actions are:

Immediate (With in 1 month):

1. Reduce the occupant load on 1st and 3rd floor immediately. In the future, provide adequate egress width by either:
 - Providing an enclosed passageway from the west end of the central stair to an

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exterior door. Providing an additional stair for egress.

2. Remove locking features from all egress doors / gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.

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 & exit signage units to prevent them from being switched off.

Short Term (Within 3 Months):

1. Separate the boiler room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
2. Separate the transformer room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
3. Provide dedicated storage rooms separated by minimum 1-hr fire-rated construction.
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. Remove all storage from exit stairs and egress paths.
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. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas).

Long Term (More than 6 months):

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 (With in 1 month):

1. Replace silica gel or perform the maintenance to remove the moisture from the gel.
2. Transformer must be cleaned regularly and prepare a routine for proper maintenance. Before cleaning make sure that the system is properly disconnected from the main source. Clean the exterior of the transformer properly.
3. Provide phase separators between terminals of MCCB made of noncombustible insulating material preferably the separator provided by manufacturer.
4. Disconnect the panel from power source and clean the interior of the panel. Seal all unused opening of the panel using steel top/base- plate and proper sized cable gland.

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5. Provide earth connection for body and doors of metallic distribution boards using green cables
6. Preferably braid so that the metallic door remains at zero potential all the time.

Short Term (Within 3 Months):

1. Excess length of existing LT cable near the transformer must be cut off or supported & latched providing cable duct installed on the floor.
2. Excess of HT cable must be supported providing a covered cable tray installed on the floor for ensuring the mechanical protection of the cable.
3. 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.
4. Clean the dust inside the cable-duct and provide cover (made of non-combustible material) for the cable-duct to prevent the further accumulation of dust inside the duct. Make sure power source of the cables are disconnected before cleaning.
5. Clean the dust inside the cable-duct and provide cover (made of non-combustible material) for the cable-duct to prevent the further accumulation of dust/lint inside the duct. Make sure power source of the cables are disconnected before cleaning.
6. 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.
7. Multiple cables connecting to MCCB terminal must be avoided. Individual protective device must be provided for the protection of each circuit/load.
8. 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.

Mid Term (with in 6 months):

1. Construct a wall up to the ceiling on required side keeping the provision of ventilation and appropriate door.

Long Term: NA