

## Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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| Name of the Factory                       | : SHIN SHIN APPARELS LTD.  |
| Address of the Factory                    | : Dag # Rs 228, Jl # 73, Gorat, East Norshingapur, Zirabo, Savar |
| Dhaka Present Status of the Factory       | : <b>Under Operation</b>   |
| Structural assessment conducted by        | : Accord (Full report available at bangladeshaccord.org)         |
| Date of Structural Inspection             | : 27 May, 2014   |
| Fire & Electrical assessment conducted by | : Accord (Full report available at bangladeshaccord.org)         |
| Date of Fire & Electrical Inspection      | : 11 June, 2011  |

**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 Flat Slab and column                          |
| iii.  | Floor System              | : Beam slab   |
| iv.   | Floor Area                | : Total floor area of the factory is 74,000 sq. ft. |
| v.    | No. of Stories            | : 3 storied   |
| vi.   | Construction Year         | : 2007  |
| vii.  | Foundation Type           | : Unavailable                                       |
| viii. | Design Drawings           | : Available (Permit drawing)                        |
| ix.   | Soil investigation Report | : Unavailable                                       |
| x.    | Construction Materials    | : Unavailable                                       |
| xi.   | Generator                 | : Ground floor generator shed                       |

**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. Limit the average imposed load on the floor to a maximum of 1.5kPa (30 psf).
2. Immediately reduce stacking height of fabric bag to ensure total load does not exceed 1.5kPa (30 psf).

#### Mid Term (Within 6 Weeks):

1. Carry out intrusive testing of the structure to determine the actual concrete strength, rebar strength and rebar layout.
2. Mark the maximum allowable height of fabric stacking to ensure full compliance.
3. Building engineer to check and provide the solution for lateral resisting requirements of the structure.

#### Long Term (Within 6 Months):

1. If necessary, carry out the strengthening work to increase the punching shear capacity.
2. Carry out the strengthening work to provide the lateral load resistance system.
3. Ensure continued compliance to the loading intensity limitations on a long-term basis.

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4. The detail design for the Shed building need be carry out to have the stability structural under wind load. The bracing system need to be provided in longitudinal direction.
5. Provide a fire proofing layer according to approved specification.
6. The tanks should be put directly on the main columns, that will help the load will transfer to the column, not to the flat slab.
7. As per the results of structural analysis, the building needs to be revised to accord with BNBC building codes with regard to lateral stability.
8. Provide a proper waterproof layer on the roof Level.
9. The detail design for the Shed building need be carry out to have the stability structural under wind load. The bracing system need to be provided in longitudinal direction.

### **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.

#### Short Term (Within 3 Months):

1. 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 23m<sup>2</sup>

-If sprinkler protected: maximum height of 3.66m and maximum area of 93m<sup>2</sup>.

Separate areas of unenclosed combustible storage by a minimum clear distance of 3m.

2. 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.
3. Modify the egress door to swing in the direction of egress travel.
4. Provide minimum aisle widths of 36-in.
5. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

#### Mid Term (within 6 Months): NA

#### 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.

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### **The recommendations for Electrical Safety corrective actions are:**

#### Immediate (Within 1 month):

1. Safety clearance around 11kV Overhead line must be maintained. Cut down some branches of nearby trees.
2. Existing panel door bonding by PVC insulated wires may be replaced with bonding braid as most of them are loosen due to repeated opening and closing of door.

#### Short Term (Within 3 Months):

1. Keep the transformer clean with routine maintenance.
2. Cables terminating at the LT panel board must be supported in risers and protected throughout its length till the panel base.
3. Cables must be protected and supported in cable tray.
4. Flexible PVC conduit wiring must be additionally supported on risers. (Typical)
5. The cables terminating from the LT panel may be supported with ladder.
6. Switch for the light may be supported in the casing capping on the wall.

#### Mid Term (Within 6 months):

1. Enlarge the transformer room to maintain safe working space surrounding the existing power transformer. Transformer may be separated from panels by constructing barrier walls.
2. Existing Aluminum wiring ducts with ends open must be closed with end cover. Ends may be sealed to prevent ingress of lint and duct.

#### Long Term (More than 6 months): NA