

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Antim Knit Composite Ltd.
Address of the Factory	: Barpa, Rupshi, Rupgonj, Narayangonj.
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 29 March, 2014
Fire & Electrical assessment conducted by:	Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 24 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	: Garments Factory
ii.	Structural System	: RCC beam slab, Steel beam
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 8 Storey
vi.	Construction Year	: 2007
vii.	Foundation Type	: Not applicable
viii.	Design Drawings	: Available (Undated)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
xi.	Generator	: In a separate 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:

- Limit Live Load to 2.0kN/m² on all floors immediately
 - Factory Engineer to review design loads and column stresses in this zone.
 - Verify insitu concrete strength and aggregate type from min. 4 no. 100mm dia. core samples from ground floor columns.
 - A Detail Engineering Assessment of Building 2 is to be commenced immediately in accordance with attached Scope.
 - Building Engineer to survey wall to determine the line and plumb of wall. Wall foundations to be checked and reviewed. Cordon off adjacent areas if deemed necessary.
 - Building Engineer to review design for water tank support structure and add temporary propping and back-propping as necessary.
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Mid Term (Within 6 Weeks):

- Complete Detail Engineering Assessment.
- Produce and actively manage a loading plan for all floor plates within the factory, giving consideration to floor capacity and column capacity.
- Implement findings of review of wall and foundations.
- Implement action items arising from review of support structure.
- Factory Engineer to review design loads and ground floor internal column stresses.
- Verify insitu concrete strength from min. 4 no. 100mm dia. core samples from ground floor columns.
- Building engineer to review bracing requirements for steel roof.
- Roof trusses over entrance road have no diagonal members . Building Engineer to carry out detailed calculations for trusses.

Long Term (Within 6 Months):

- Continue to implement loading plan.
- Continue to monitor line and plumb of wall.
- Produce and actively manage a Loading Plan for all floor plates within the factory, giving consideration to floor capacity and column capacity.
- Implement action items arising from engineering review.
- Factory Engineer to review design, loads and column stresses for Building 3. Fire protection to steelwork to be reviewed
- Produce and actively manage a loading plan for all floor plates within the factory, giving consideration to floor capacity and column capacity.
- Carry out any remedial works arising from calculations.

The recommendations for Fire Safety corrective actions are:

Immediate:

1. Provide minimum aisle widths of 36-in.
 2. Remove locking features from all egress doors and gates. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
 3. Reconfigure the egress arrangement to reduce the maximum common path of travel to not more than 30 m.
 4. Replace all gates along the means of egress with sidehinged, swinging egress doors. If locks are required for security reasons, utilize special door locking features complying with NFPA 101.
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Short Term (Within 3 Months):

1. 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 93m²

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. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.

4. 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.

5. Reduce occupant load to not more than available exit capacity immediately. If greater occupant load is desired, provide additional exits in the future.

6. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.

7. Regularly inspect all exit signage and replace and install lights as needed to illuminate signs.

Mid Term (within 6 Months):

1. Provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas), and/ 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:

1. Provide automatic sprinkler protection throughout the building in accordance with NFPA 13.

2. 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:

1. Provide the rubber mats in front of all the panels with proper size and grade.

2. Electrical facilities in dyeing & washing sections, shall be installed at a safe height and the panels shall be IP rated to avoid damages from the ambient moisture.

3. Items and materials around/near panel(s) must be cleared.

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4. Wiring in PVC flexible conduit entering panels must be firmly fixed at the panel (base / Top) using socket and check nuts.
5. Check and tighten connections. Overloading may be one of the causes.
6. All the connection nuts, bolts and washers must not be rusted and worn out. Replace them with new rustfree nuts, bolts and washers.
7. Additional panels may be installed by redesigning the electrical distribution systems to ease crowding inside panel.
8. Wiring looped at MCB terminals may be replaced by installing additional Bus bars to distribute different circuits.
9. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
10. Install separators between different phases of MCCB. Existing phase separators fabricated from insulating materials may not provide the required insulating properties for the type of MCCB installed.
11. All the power outlet sockets must be fixed either on walls/trays/BBTs. Etc. and it shouldn't be left loose and hanging on connecting cables.
12. Stacking of goods in store/godown must be stacked maintaining sufficient gaps between hot electrical fittings.

Short Term (Within 3 Months):

1. Extend the air gap between the electrical cable raceways/trays and steam pipe line. Or, wrap the steam pipe line with proper insulation to minimize the heat dissipation into the surroundings and nearby cables.
2. Insulations in the cables must not be scratched/ removed more than it is required for the connection lugs.
3. Open ends of covered cable ducts must be covered.

Mid Term: NA

Long Term: NA
