

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: ABABIL KNIT COMPOSITE LTD.
Address of the Factory	: A/6, BSCIC, Shasongaon, Futallah, Narayangonj.
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 8 March, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 16 March, 2014 & 8 April, 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 column frame with a 2-way solid slab
iii.	Floor System	: Beam slab
iv.	Floor Area	: Floor area is 3500 sq.ft. / floor
v.	No. of Stories	: 5 storied
vi.	Construction Year	: 2002
vii.	Foundation Type	: Piled foundation
viii.	Design Drawings	: Available (Signed in August, 2006)
ix.	Soil investigation Report	: Unavailable
x.	Construction Materials	: Unavailable
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): NA

Long Term (Within 6 Months): NA

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. Keep egress paths and stairs clear of storage.
3. Remove all storage from exit stairs and egress paths.
4. Provided emergency evacuation plan and conduct fire drill exercise with proper documentation.
5. 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.

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6. Configure the fire alarm system to initiate automatic occupant notification on all floor levels to facilitate whole building evacuation upon any manual fire alarm station activation.
7. Provide exit signs above all exits to the exterior and all doors to the exit stairs.
8. Provide an automatic means of emergency power for emergency lights.

Short Term (Within 3 Months):

1. Separate the boiler and generator room by a minimum 2-hr fire-rated construction. Seal and/or protected all openings to maintain the required fire separations.
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. 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.
4. Seal all penetrations and openings in exit stair enclosure walls to maintain the fire separation.
5. Provide illuminated exit signs above all exits to the exterior and all doors to the exit stairs.

Mid Term (within 6 Months):

1. Modify stair to discharge directly outside or provide 2-hr fire-rated exit passageway leading directly outside (vestibules to separate any storage areas).

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. Remove all combustible material from electrical room and maintain routine inspection for no further storing of combustible materials. Generator room must be free from materials that are not required for regular operations for the generator.
2. Provide earth bus bar for making any earth junction point. Ensure the bus bar is made of copper and cables being used for earth connection are green.
3. Disconnect the panel and clean all the interior component of the panel. Cables must be firmly fixed and terminated using cable glands and enter through base/gland plates. The panels must be protected from intrusion of large insects and animals (mice, lizards, snakes).

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4. Provide PVC pipe to support and protect the cables throughout its length. Wiring exposed between different wiring systems may be prevented by selecting appropriate adapter to connect two wiring system.
5. Provide identification and warning notice in front every electrical panel. Include voltage level on the notice and any precautions if required for special case.
6. All panels must be connected to earth at least at two points for guaranteed earth connection. All metal parts of electrical appliances and devices must be connected to earth. Panel doors and other metal parts used must be connected with earth bond.
7. Phase barriers made of noncombustible insulating material preferably rubber between different phases (above 230V) must be installed to prevent flashover.
8. Provide cable socket/lugs for terminating cables. Ensure the lug size is same as the respective cable. Properly fix lugs with proper size nuts, bolts and washers.
9. Disconnect the panel from electric supply and remove all the dust and combustible materials from inside the panel Establish a routine maintenance program to clean all the electrical panels.
10. Disconnect the electric supply to the duct and clean all the cables and other components of the duct. Provide cover made of noncombustible material preferably metallic sheet on the duct to prevent ingress of dust and lint.

Short Term (Within 3 Months):

1. The cables must be weather resistant and supported with steel wire. It is recommended that the cables be drawn underground from pole to the factory building. Install cable ladder if necessary.
2. The cables must be weather resistant and supported with steel wire. It is recommended that the cables be drawn underground from pole to the factory building.
3. Provide steel pipe for routing the cables inside the boiler room. Ensure the pipe is placed at a distance from the steam pipe and boiler so that heat does not get transferred to the wiring steel pipe.
4. Cables must be firmly fixed and terminated using cable glands and enter through base/gland plates. The panels must be protected from intrusion of large insects and animals (mice, lizards, snakes).
5. Provide fire rated material to block the penetrations of the cable. Ensure the cables are not touched to the sharp edges of the concrete that could damage the insulation of the cable.
6. Provide cable tray made of noncombustible material preferably steel or PVC pipe to support the cables. Ensure the cables are not stressed during tray installation.
7. Disconnect the electric supply to the duct and clean all the cables and other components of the duct. Provide cover made of noncombustible material preferably metallic sheet on the duct to prevent ingress of dust and lint.
8. Disconnect the panel from electrical system and rearrange all the wirings inside the panel. While rewiring ensure the cables are not touched to the bus bar organized inside duct if required.
9. Remove multiple cables terminating at a terminal in bus bars and terminate single cable at a single point of bus bar. Use pin type bus bar for connecting multiple circuit breaker if the

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main bus bar does not have enough space. Confirm the capacity of the bus bar does not get overloaded.

Mid Term (Within 6 months):

1. Relocate the panels and meters to a place where a technical person can work smoothly without any obstacles. While relocating remove the wood with metal and put the MCCB inside a metallic or PVC enclosure.

Long Term (More than 6 months): NA