

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: ADHUNIK POSHAK SHILPA LIMITED
Address of the Factory	: Avenue-1, Industrial plot-1, Block-E, Section-11, Mirpur, Dhaka
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 25 June, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 10 July, 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	: Flat slab column frame structure
iii.	Floor System	: Beam slab
iv.	Floor Area	: The factory has total floor area of 19,984 sq. m
v.	No. of Stories	: 20 storied
vi.	Construction Year	: 1997
vii.	Foundation Type	: Mat/Raft footings indicated on structural drawings
viii.	Design Drawings	: Available (Approved by RAJUK in October, 1997)
ix.	Soil investigation Report	: Available (Dated May-June 2013)
x.	Construction Materials	: Unavailable
xi.	Generator	: Service Room 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):

1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor slab and column capacity.
2. Building engineer to review design, load and column stresses in the area identified above.
3. Verify insitu concrete stresses by existing cylinder strength for the identified columns above or 100mm dia. cores from 4 columns.
4. Building engineer to check, collect information and produce accurate and complete as-built documentation

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.

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2. 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.
3. Regularly inspect all exit signage and replace/install lights as needed to illuminate signs.
4. Remove manual on/off switches from emergency lighting units to prevent them from being switched off.

Short Term (Within 3 Months):

1. 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.
2. Separate the boiler, generator, and 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. 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. 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. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
6. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.

Mid Term (within 6 Months): NA

Long Term (More than 6 months):

1. 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. HT cables entering the ceiling/wall left. Must protect with mechanical structure around the cables to prevent it from physical damaging.
2. Multiple cable/wires terminating at a terminal in single point must be avoided to prevent heat generation at terminal.

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3. Multiple cables connecting to MCCB terminal must be avoided. Individual protective device must be provided for the protection of each circuit/load. Cables shall be connected to terminals only by soldered/welded lugs according to cable size.
4. Provide earth connection for body and doors of metallic distribution boards using green cables preferably braid so that the metallic door remains at zero potential all the time.
5. Multiple cables shall not be connected to a single terminal to avert loose connection that may induce unexpected heat and it may be replaced with single core cable with bigger size of current carrying capacity or separate bus bar for multiple cable termination.
6. Wires terminating to devices inside panel must be connected firmly and wires approaching devices must be securely fastened to avoid unintentional contact with live parts. Install PVC slotted wiring duct to latch the excessive cable inside the duct.
7. Sharp cable bends shall be avoided such that no stress is imposed on the termination of the cable or insulation of the cable. Cables terminating in the panel must not contact/touch the bare bus bar. Install slotted wiring-duct inside the panel to arrange and latch the haphazard cables.

Short Term (Within 3 Months):

1. Construct a cable trench to route the HT cable safely inside the substation room or install cable tray or duct to provide mechanical protection to the cable to prevent any physical damage to cable.
2. Cables must be protected from possible damage of cable-insulation due to panel edges or sharp objects and Install a cable ladder to terminate the excessive cables and fasten the cables with the ladder so that the cables get fixed with the ladder firmly. Ensure the cables are free from dust and debris.
3. The PVC/rigid pipe used for surface wiring must be continuous through-out its length and properly supported (clamped with saddle, at regular interval of 600 mm).The conduit shall not be open at any instant and it should be fully protected through its length to prevent ingress of dust inside.
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. 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 (Within 6 months): NA

Long Term (More than 6 months): NA