

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: SUFI APPARELS LTD.
Address of the Factory	: Holding #75, Plot #2, D.T Road, CDA Market Pahartoli, Chittagong.
Dhaka Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Structural Inspection	: 7 June, 2014
Fire & Electrical assessment conducted by	: Accord (Full report available at bangladeshaccord.org)
Date of Fire & Electrical Inspection	: 8 June, 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	: Beam column frame structure
iii.	Floor System	: Beam slab
iv.	Floor Area	: Unavailable
v.	No. of Stories	: 3 storied
vi.	Construction Year	: 1995-2012
vii.	Foundation Type	: Unavailable
viii.	Design Drawings	: Available (Stamped and dated by the Local Authority in 1995)
ix.	Soil investigation Report	: Available (Dated January, 2014)
x.	Construction Materials	: Brick aggregated
xi.	Generator	: 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 (Now): NA

Mid Term (Within 6 Weeks):

1. Factory Engineer to review design, loads and cantilever stresses in areas identified.
2. Verify insitu concrete stresses either by cores or existing cylinder strength data for cantilevers.
3. Factory Engineer to review the design in the areas identified and modify the structure as required.

Long Term (Within 6 Months):

1. Continue to implement load management plan.
2. Building Engineer to survey as constructed building and prepare a set of as-built drawings.
3. Building engineer to record all cracking throughout building and monitor on an on-going basis.
4. If further cracking occurs Building Engineer to investigate and remediate as appropriate.

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5. Prior to the addition of any additional floors a detailed engineering assessment of the existing structure should be completed to verify the structural capacity.
6. The building engineer shall verify insitu concrete strengths (using 100mm dia. Cores) and existing reinforcement for all columns.

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. Replace all gates and 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.
5. Remove manual on/off switches from emergency lighting 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. 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. Inspect, test and maintain the fire alarm system, and keep written records on-site, in accordance with NFPA 72.
5. Inspect, test and maintain the emergency lighting system in accordance with The ACCORD standard. Keep written records on-site.
6. Test the emergency lighting system on each floor and provide additional emergency fixtures to provide adequate illumination along the means of egress. Provide a minimum illumination of 10 lux at the floor level within exit stairs and exit discharge paths and minimum 2.5 lux along exit access aisles.

Mid Term (within 6 Months):

1. Remove single station smoke alarms. Provide automatic smoke detection throughout the building in Accordance with NFPA 72.

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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. Seal the unused 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.
2. Install separators between different phases of MCCB. Standard separators provided by the MCCB manufacturer must be used.
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. 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. Cables must be connected to terminals by soldered/welded lugs according to the size of the respective cables. Proper crimping tools must be used to punch the socket.
6. Assign a qualified engineer to develop an as-built drawing according to the actual installation.

Short Term (Within 3 Months):

1. Service cables/lines from the transformer till it enters the building must be protected in rigid conduit or laid in covered trays. Install cable or ladder to support the main service cables from pole mounted distribution transformer to main switchgear panel.
2. Cables passing through permanent walls must be protected in steel pipes. Seal all the penetrations using non appropriate fire rated material and ensure the cable insulation does not get damaged during sealing work.
3. Install the cable tray/ladder/ duct up to the cable entry of the panel in order to support the cables. Ensure the cables are tightly latched with the ladder and provide covers made of non-combustible material preferably metallic sheet to protect the cables' insulation from any physical damage as well as prevent ingress of debris, dust and lint. Provide cable gland for every cable entry and exit hole.
4. Provide rigid conduit with clamping at regular interval or provide cable raceways to support and protect the cable in full length.
5. Disconnect the power source of the cable laid into control panel and clean dust and debris of all interior components. Establish a periodic cleaning program and maintain records of the activities. Provide cover made of noncombustible material for the base to prevent ingress of dust and debris in future.
6. The neutral busbar must be installed inside panel and must be used to terminate and distribute neutral wires of the circuits.

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Mid Term (Within 6 months): NA

Long Term (More than 6 months): NA