Name of the Factory	: Sidma Fashion (Pvt) Ltd.
Address of the Factory	: Jan Super Market (3rd floor), 524, D.T Road, Kotawali Chittagong
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 26th July, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 26th July, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 26th July, 2015
BGMEA Membership No.	: 2556

BASIC INFORMATION:

The factory building is a three storied RCC building with beam and column system and flat slab system. The following information was noted:

i.	Building Usage Type	: Garment Factory.
ii.	Structural System	: RCC Beam Slab Frame.
iii.	Floor System	: RCC Beam Slab.
iv.	Floor Area	: Ground floor = 3410 sft , Entire building = 10788 sft (Approx.)
v.	No. of Stories	: 5 floors + GF (6 Storey)
vi.	Construction Year	: Construction starting in 1995.
vii.	Foundation Type	: Unknown.
viii.	Design Drawings	: Not available.
ix.	Soil Investigation Report	: Not available.
x.	Construction Materials	: Brick aggregate in all columns, beams and slabs in all floors.
xi.	Generator	: Generator is located at the west side of the building at ground floor level.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for both Structural and Fire & Electrical Safety comprises in Short Term, Mid Term and Long Term basis.

The recommendations for **Structural Safety** corrective action are:

Short Term (Immediate)	: N/A
Mid Term (6-weeks)	: 1. As built architectural and engineering drawings to be prepared and submitted for approval by appropriate authorities. As part of this process the building engineer will be required to make a number of checks on the structural design as described in the following recommendations.
Long Term (6-months)	: 1. Sections of plaster finish to concrete slab to be removed to investigate if cracks penetrate the building structure. Investigation is needed to determine reason of cracks. Carry out any remedial actions as directed by the Building Engineer for crack on beam.

The recommendations for **Fire & Electrical Safety** corrective action are:

(A): Recommendations for Fire Safety Corrective Actions:

Immediate (*the factory should not continue to be occupied until these non-conformities have been rectified*):	N/A
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity*	• The minimum clear width of the pathway should be 0.9 meter • Remove all temporary items from all escape routes, aisles and passageway. • Provide aisle marking with arrow guiding and exit signage on all Evacuation pathways or provided with overhead signage fixed at ceiling level. - Illuminated exit sign should be posted above the exit door, - It should be clearly visible at all time, - Provide directional signs wherever necessary. - All exit doors should be clearly marked for easy identification -Signage should be uniform. • Factory management should check alarm call points & alarm periodically and maintain the record properly. • The first aid hose and standpipe performance should be checked periodically and properly tagged. • Combustible materials should keep away from electrical appliances and all the lighting in storage area must have protecting covers and wiring must be in conduits. • Fire drill should be conducted quarterly (4 times a year) in existing buildings as detailed under the Fire Safety Plan & should kept record properly.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	• Replace all existing exit doors on evacuation routes, exit doors with side hinged type door, which swing outward and in the direction of travel. Swinging of the door should not constrict the width of the corridor / passage below 0.9 meter. • Remove all locking device from all egress door. All exit doors should be open-able from the side they serve without the use of a key. • Exit door should have minimum clear width 0.9 meter. • Provide handrails on both side of each stairway with height of 0.9m measured from the nose of stair to the top of the handrail. • Doors in stair should be outward opening, side-swing, self closing, non-lockable 1.5 hours fire rated doors in all stair way to encloses.(Also require fire rated door at the floor occupied by other tenants)

	• Prepare proper plan and design for fire rated barrier for 2 hour fire rating separated corridor with 1.5 hrs fire rated door at ground floor. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors where generator is located adjacent to stair 02. • Prepare proper plan and design for 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at 2nd floor-boiler room, which is located at adjacent to finishing section. • The egress paths should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for all corridors & exit doors. Aisles should be provided with a minimum 2 lux. • The stairway should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for stairway. • Produce design and plan for automatic detection system with automatic fire alarm and control panel.(Also needs to cover the floors occupied by other tenants) • Install Manual activation call point at all exit routes • Automatic alarm systems must be provided throughout the factory; the alarm must be automatically triggered on detection of a fire. • Provide adequate nos. of smoke detectors to cover the whole factory building. • Prepare proper design and plan for dedicated fire pump with alternate backup power supply. • Replace existing 1 inch first aid hose with 1.5 inch first aid hose pipe to meet the requirement of RMG guideline. • Prepare plan and design for dedicated water storage tank for firefighting operation as per RMG guideline. • Visual alarm should be placed at the generator room. • Obtain building approval from issuing authority • Cover all units / floors in a valid fire license • Implement to a single fire safety management system with approvals from all tenants in the factory building. • Obtain the boiler license from the proper issuing authority. • Obtain the boiler operator license from the proper issuing authority.

Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	• All stairway to have direct access to outside of the factory building, which requires 2 hour fire rated construction with 1.5 hrs fire rated door at ground floor for fire separated corridor. • Provide 4 hours fire rated barriers with 2 hours fire rated doors where generator is located adjacent to stair 02. • Provide 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Provide 4 hours fire rated barriers with 2 hours fire rated door 2nd floor-boiler room, which is located at adjacent to finishing section. • Install automatic detection system with automatic fire alarm and control panel. (Also needs to cover the floors occupied by other tenants) • Install dedicated fire pump with alternate backup power supply. • Provide sufficient number of hose pipe with respect to area on each floor and travel distance as per RMG guideline. • Stand pipe supplying first aid hose should have minimum pressure of 200 KPa. • Provide dedicated storage tank for firefighting operation

(B): Recommendations for Electrical Safety Corrective Actions:

Immediate (*the factory should not continue to be occupied until these non-conformities have been rectified*):	N/A
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity*	• Re-locate oil / fuel tanks away from control panels in generator room. • All strands cables at exposed ends should be properly soldered / crimped and insulated. • Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	• 1. Provide updated SLD matching the existing installation at the factory. 2. SLD to indicate exact positions of all points of switch boxes and other outlets. 3. SLD to be approved by the engineer-in-charge. • 1. Provide updated Electrical layout drawing prepared after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc. 2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation. 3. As built drawing to be approved

	by the engineer-in-charge. • Provide adequate illumination for substation. • All unwanted materials should be removed from Generator room. • Provide rubber mats of adequate size in front of all distribution panels. • Install smoke detection and provide firefighting equipment in generator room. • 1. Exit signs should be illuminated either by lamps external to the sign or by lamps contained within the sign. 2. The source of illumination should be providing not less than 50 lux. • Individual Fuse protection should be provided to every 15/20 A socket. • 1. Remove all the inflammable materials from surrounding of electrical circuitry at DB. 2. Ensure that all electric circuitry clean of inflammable materials. 3. Conduct periodic maintenance and maintain the records. • The electrical panels to be of metal case and should be marked with “Danger 415 Volts” and identified with proper phase marking and danger signage. • Provide proper clearance of 0.8 - 1.0 m in front of all distribution panels/switchboards. • Provide cable connections with properly soldered / welded lugs at DB's. Ensure that all the electrical connections are properly secured with lugs. • Select conductors and MCCB/MCB with adequate sizing without exceeding permissible current carrying capacity for insulation. • Avoid looping and bunch of cable at MCCB/MCB or bus bar terminal, use individual circuit and over current device for every incoming and outgoing circuit at the distribution boards. • Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases. • Provide cable joints of porcelain / PVC connectors with PIB tape wound around before placing the cable in the box. • Provide separate earthing connection to electrical equipment’s. Ensure that earth potential provided for all parts of equipment / installation (other than live parts) and that continuous earth connection is provided back to the main intake supply earth. • Provide adequate earthing to body and doors to all MDBs / DBs. Ensure that all electrical panels provided with proper and separate earth potential.

Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	• Provide adequate ventilation arrangements for indoor substation. • Provide 4 hour fire rated walls all around the generator room on ground level. • Modify Area of generator room to meet requirements of Table 4.4, RMG Guideline; the area should be 30m2, or relocate the generator room. • Provide and maintain proper clearance in all sides of generator for ease of maintenance. • Relocate the MDBs with easy access. Ensure that all MDBs should have easy accessibility. • For buildings > 20m high, provide at least one vertical shaft of 200 x 400 mm for every 1500 sq.m. floor area. • Provide and maintain easy access and proper height of switchboard / panel boards (< 2m from floor level). • 1. Wooden switchboards should be replaced by non-flammable materials. 2. Prefer switchboards made of non-flammable materials. • Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted). • 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5. 2. Ensure that connections between conductors / equipment are provided to durable electrical continuity and adequate mechanical strength and protection. 3. The continuous earth connection is provided back to the main intake supply earth. • Provide adequate protection against lightning depending on the probability of a strike and acceptable risk levels at roof top of building.