Name of the Factory	: DANIAL ENTERPRISE.
Address of the Factory	: 173, Middle Faidabad, Uttara, Dhaka-1230
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 11 July, 2015
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 11 July, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 11 July, 2015
BKMEA Membership No.	: 971

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 frame system.
iii.	Floor System	: RCC Beam slab and roof shed.
iv.	Floor Area	: 3000 sft
v.	No. of Stories	: 2 storied
vi.	Construction Year	: 2005-06 and 2013-14
vii.	Foundation Type	: Unknown
viii.	Design Drawings	: Not Available
ix.	Soil Investigation Report	: Not Available
x.	Construction Materials	: Brick aggregate.
xi.	Generator	: Separate Structure.

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. Structural engineer to prepare full set of structural drawing, as built drawing and prepare/update calculations showing the structural adequacy of the floor system taking into account the factory design imposed loading and the as built structure.
Long Term (6-months)	: 1. Develop set of as-built drawings showing structure details, loading, dimensions, levels, foundations and framing on Plan, Section and Elevation drawings.

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*	Fire drill needs to be conducted quarterly (4 times a year) under the Fire Safety Plan. A record of such drills needs to be kept in writing for at least 3 years for the inspection of fire brigade whenever called for. All the firefighting equipment's need to test with proper documents. Factory needs to have marked aisles in all working floor according to 0.9m for one side seat and 1.0m for both side seat. Combustibles are to be managed with good housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9m and when used as a storage facility there shall be a minimum clearance of one third the floor height from the ceiling to the top of the storage stack. All required means of exit or exit access in buildings or areas requiring more than one exit shall be signposted. The signs shall be clearly visible at all times, where necessary supplemented by directional signs
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	Factory Needs to have as built drawing with proper dimensions showing means of escape. Factory needs to have valid fire license covering the full occupied area. Fire manager/Director need to have safety training from proper authority & worker of the factory should as far as possible be trained for use fire extinguisher. All the exit doors need to be replaced by side swinging so that unlockable doors can be opened easily in the direction of evacuation without the use of a key. Factory needs to be installed with adequate illuminated emergency lighting in floors, exits & stairs.(Escape route).
Long Term (*The remedial works indicated must be*	Factory needs to have a proper pre-plan for fire service and civil defense.

carried out within a period of 6 months)	Final exit – 2 needs to have 2 hour fire rated construction and 1.5 hour rated opening or door from the Raw fabric store and escape route need to till reach safe refuge area. Raw fabrics store need to be protected with 2 hours rated construction and 1.5 hours rated opening or doors from the final exit-02. Factory need to install centralized and automatic fire detection & alarm system on all occupied floors, including other tenanted floors of the building as per NTPA Guideline. The factory need to install manually operated electrical fire alarm system and automatic fire alarm system with single or multiple call boxes on all occupied floors, including other tenanted floors of the building. Install automatic fire and smoke detection system throughout the building to cover every portion in that building. Factory need to Install proper standpipe system having at least 75 mm dia of standpipe. Factory need to be installed by 1 riser per 1000 sqm of floor area with at least 38 mm dia of hoses. Provide the required flow of 1900 liter/min and minimum pressure of 200 kPa for supplying first aid hose (38 mm nominal) OR Hydraulically design the standpipe and hose system to get the required pressure. Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection. Install dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory. Factory needs to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900ltr x 75min=142500 liters water storage tank.

(B): Recommendations for Electrical Safety Corrective Actions:

Immediate (*the factory should not continue to be occupied until these non-conformities have been rectified*):	Find out cause (improper cable selection, improper protective device selection, improper termination, rusted connection, heat source etc.) of burning sign/insulation damage and take proper action including replacing cable or equipment where necessary.
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity*	Ensure all switchboards are earthed properly. Ensure proper earthing connections at all electrical equipment. Install earthing pit for the factory with adequate provision for inspection of the earthing system and ensure inspection is being completed and documented.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	Install appropriate number and type of safety signage and fire-fighting equipment at substation and generator room. Also ensure graded rubber mats are provided in front of all distribution boards. Provide dedicated & adequate size of earthing with proper identification for each circuit and ensure continuous earth path is back to main building intake. Rewire to avoid the use of multiple cables from incoming and outgoing side of MCB's/MCCB's. Replace wooden boxes and panels with metal clad construction for mounting the switch controls and circuit breakers. Ensure all electrical cables are sized according to capacity of circuit breakers. Ensure cable joints are made in respect of conductivity, insulation and mechanical strength. Connect all metal in the building to the building earthing system. Ensure Lighting fixtures are supported from the structure properly.
Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system. Establish a periodical Insulation and earth resistance measurement program and record the related testing data. Inspect electrical panel boards on an annual basis. Ensure surface/exposed wiring are run either horizontally or vertically

	with proper mechanical support and avoid wiring at an angle or hanging way with improper support. Provide an emergency power generator with adequate capacity for the building. Install lightning protection system on the building.