Name of the Factory	: Dah Yuan Bangladesh Ltd.
Address of the Factory	: Plot # 35, Sector # 4, Road # 4, CEPZ, Chittagong, Bangladesh,
Present Status of the Factory	: Under Operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 1st August, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 1st August, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 1st August, 2015
BGMEA Membership No.	: 1489.

BASIC INFORMATION:

The assessed factory building was a 4 Storey building which bottom two floors are RCC structure and top two floors are prefabricated steel structure. Dah Yuan Bangladesh Ltd. has occupied in this building as rental basis. The following general information were noted:

i.	Building Usage Type	: Garments Factory.
ii.	Structural System	: RCC beam column frame system for GF and 1st floor & prefabricated steel structure for 2nd & 3rd floor.
iii.	Floor System	: RCC beam slab floor system for GF and 1st floor and prefabricated shed for 2nd and 3rd floor.
iv.	Floor Area	: Total floor area is 35,447 sft. approx.
v.	No. of Stories	: 4 Storey.
vi.	Construction Year	: 1995-1996 (GF & 1st floor), 2009-2010 (2nd & 3rd floor)
vii.	Foundation Type	: Unknown.
viii.	Design Drawings	: Available (Approval document was available at the factory from BEPZA, Chittagong on 21st March, 2012 for 4 storied building.)
ix.	Soil Investigation Report	: Available.
x.	Construction Materials	: Brick aggregate.
xi.	Generator	: At ground floor.

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) : None.

Mid Term (6-weeks) : None.

Long Term (6-months) :

- As built engineering drawing to be prepared for entire building. As part of this process building engineer will be required to make a number of checks on the as-built construction.

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*):	• None.
Short Term (*Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity*	• None.
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. • Doors in stair should be outward opening, side-swing, self-closing, non-lockable 1.5 hours fire rated doors and 2 hours wall in all stairs way encloses. • Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated doors at ground floor electrical substation room, which located at the (south side) adjacent to floor exit-01 • Prepare proper plan and design for 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • 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. • 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 hose pipe with 1.5 inch 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. • Obtain fire license / permit with covered area from issuing authority.
Long Term (*The remedial works indicated must be carried out within a period of 6 months)*	• Provide 4 hours fire rated barriers with 2 hours fire rated doors at ground floor electrical substation room, which located at the (south side) adjacent to floor exit-01. • Provide 2 hrs fire rated barrier with 1.5 hrs fire rated door for storage area. • Install automatic detection system with automatic fire alarm. • Install dedicated fire pump with alternate backup power supply. • 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*	• All strands cables at exposed ends should be properly soldered / crimped and insulated.
Mid Term (*The remedial works indicated must be carried out within a period of 6 weeks)*	• Provide and maintain clear and legible identifications numbers & names on all incoming and outgoing circuits of HT / LT panels. • 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 cable connections with properly soldered / welded lugs at (LT/DB)'s. Ensure that all the electrical connections are properly secured with lugs. • Avoid Bunch of cable at MCCB/MCB and 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. • Seal the cable penetrations through walls adequately with fire resistive elements. • Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground. • 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)*	• 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. • Area of substation / transformer to meet requirements of Table 4.3 of RMG Guideline; the area should be 90 m2, or relocate the substation/ transformer room.

	• Provide 4 hour fire rated walls all around the substation room on ground level. • 1. Design to have proper segregation of different end used loads. 2. Wiring design to have separate and distinct sub-circuits for power and heating system. 3. All DBs to be placed conveniently. 4. Wiring to be neat, tidy and located near ceiling. • Each circuit should have a separate neutral (use of common neutral for more than one circuit shall not be permitted). • Seal the cable entry-exit points of (LT/MDB/DB/SDB)'s with non-flammable materials. In addition: 1. Ensure that HT / LT panels / Switchgears to be vermin / damp proof. 2. Ensure all unused holes / openings in DBs to be blocked properly. • 1. Provide the ECC to meet minimum cross-sectional area as per table 4.5. 2. Ensure that connections between conductors / equipment 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.