INITIAL ELECTRICAL ASSESSMENT REPORT (EAR)

Factory Name:	**VENTURA (BANGLADESH) LIMITED**
Address:	**Plot 65-69, Sector 02 KEPZ, North Patenga KEPZ,Chittagong Chittagong Chittagong Bangladesh**
Assessor:	**Emkay Enterprises LTD**
Date:	**17 Sep 2014**

Introduction to the Report

The following report contains a site profile and summary of non-conformities identified during an onsite assessment commissioned by the Alliance for Bangladesh Worker Safety (Alliance) and conducted by a third-party Qualified Assessment Firm (QAF). The assessment was conducted against the Alliance for Bangladesh Worker Safety Assessment Protocols (APs) and Fire Safety and Structural Integrity Standard, which is harmonized with the factory assessment guidelines developed by Bangladesh University of Engineering and Technology (BUET) for the Bangladesh National Tripartite Plan of Action (NTPA). The goal of the Alliance process is to provide clear and practical technical requirements by which Bangladeshi Ready Made Garment (RMG) Factories producing for Alliance members may be consistently and fairly evaluated for fire, structural, and electrical safety in a non-duplicative manner. Each assessment will prompt action plans that will be used by RMG factories to systematically and sustainably improve safety conditions for garment workers. Beyond tracking and reporting on action steps taken in a transparent manner, the Alliance organization and its members will seek to further support factory improvements through technical assistance, training, implementation support for functional Worker Committees, and in some cases financial assistance and wage support for workers if factories are closed for remediation.

The contents of the report do not constitute a guarantee of compliance with the applicable laws, the Alliance Standard or the absolute or continued safety against fire, electrical and/or structural integrity issues that may lead to injury or loss of life. The report is designed to provide a non-exhaustive summary of risk issues, based on a limited sampling and duration of time onsite by the named QAF. Neither the QAF nor the Alliance can certify or guarantee the quality, outcome, or effectiveness of actions taken in response to the report.

For more information and report feedback please go to: www.bangladeshworkersafety.org.

GENERAL INFORMATION

General Information	
Factory Name:	VENTURA (BANGLADESH) LIMITED
Address:	Plot 65-69, Sector 02 KEPZ, North Patenga KEPZ,Chittagong Chittagong Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong
Zip Code:	4204
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	25.09.2014
Final Report Date :	Will be issued after Alliance Review
Are all action items from previous assessment complete? :	Yes
Buildings in Complex :	There are 9 Buildings: 1. Main Building - 1 (Building A); 2. Main Building - 2 (Building B); 3. Main Building - 3 (Building C); 4. Ancillary Building -1 (Building D); 5. Ancillary Building - 2 (Garbage Store); 6. Ancillary Building - 3 (Transformer Building); 7. Ancillary Building - 4 (Fire Command Station); 8. Ancillary Building - 5 (Security Post -1); 9. Ancillary Building - 6 (Security Post -2).
Is the building(s) owned or rented by the Factory?:	Owned
Number of Building Levels (Stories) :	1. Main Building - 1 (Building A) : 6-stories; 2. Main Building - 2 (Building B) : 1-story (Proposed 10-stories building under construction); 3. Main Building - 3 (Building C) : 4-stories (Construction complete machine and device installation going on)
Approximate Building Area (SF) :	Total square footage is 284,298 SF; 1. Main Building-1 (Building A): 214,950 SF,(GF: 35,825 SF,1st Floor: 35,825 SF, 2nd Floor: 35,825 SF, 3rd Floor: 35,825 SF, 4th Floor: 35,825 SF, 5th Floor: 35,825 SF); 2. Main Building-2 (Building B): Under Construction; 3. Main Building-3 (Building C): 69,348 SF, (GF: 17,337 SF, 1st Floor: 17,337 SF, 2nd Floor: 17,337 SF, 3rd Floor: 17,337 SF).
Date of Building Construction :	1. Main Building - 1 (Building A): 2011-2013; 2. Main Building - 2 (Building B); Under construction; 3. Main Building - 3 (Building C); 2013-2014; 4. Ancillary Building - 1 (Building D): 2013- 2014; 5. Ancillary Building - 2 (Garbage Store): 2014; 6. Ancillary Building - 3 (Transformer Building) 2013; 7. Ancillary Building - 4 (Fire Command Station): 2014; 8. Ancillary Building - 5 (Security Post -1): 2013; 9. Ancillary Building - 6 (Security Post -2): 2013.
Date of Last Building	N/A

Renovation/Addition :	
Ancillary Structures in Complex :	There are 6 Ancillary Structure: 1. Ancillary Building - 1 (Building D); 2. Ancillary Building - 2 (Garbage Store); 3. Ancillary Building - 3 (Transformer Building); 4. Ancillary Building - 4 (Fire Command Station); 5. Ancillary Building - 5 (Security Post -1); 5. Ancillary Building - 6 (Security Post -2).
Approximate Ancillary Structures Area (SF) :	Total square footage is 53,479 SF; 1. Ancillary Building - 1 (Building D): 48,867 SF,(GF: 8,885 SF,1st Floor: 4,442 SF, 2nd Floor: 8,885 SF, 3rd Floor: 8,885 SF, 4th Floor: 8,885 SF, 5th Floor: 8,885 SF); 2. Ancillary Building - 2 (Garbage Store): 2,360 SF; 3. Ancillary Building - 3 (Transformer Building): 1,140 SF; 4. Ancillary Building - 4 (Fire Command Station): 322 SF; 5. Ancillary Building - 5 (Security Post -1): 395 SF; 6. Ancillary Building - 6 (Security Post -2): 395 SF.
Number of Occupants :	Total Occupant Load is 961 occupants. 1. Main Building-1 (Building A): 911 occupants,(GF: 20 occupants, 1st Floor: 0 occupants, 2nd Floor: 494 occupants, 3rd Floor: 308 occupants, 4th Floor: 79 occupants, 5th Floor: 10 occupants); 2. Main Building-2 (Building B): 0 occupant (Under Construction); 3. Main Building-3 (Building C): 0 (Construction complete machine and device installation going on) 4. Ancillary Building - 1 (Building D): 30 occupants,(GF: 30 occupants, 1st Floor: 0 occupant, 2nd Floor: 0 occupant, 3rd Floor: 0 occupant, 4th Floor: 0 occupant, 5th Floor: 0 occupant); 5. Ancillary Building - 2 (Garbage Store): 5 occupants; 6. Ancillary Building - 3 (Transformer Building): 3 occupants; 7. Ancillary Building - 4 (Fire Command Station): 2 occupants; 8. Ancillary Building - 5 (Security Post -1): 6 occupants; 9. Ancillary Building - 6 (Security Post -2): 4 occupants.
Provide brief description of the electrical system for each building.:	A transformer of 2000 kVA powers the facility of Ventura Bangladesh Ltd. HT and LT panel has been provided for the transformer. A diesel generator of 275 kVA has been provided as emergency power source. Power is distributed through 4 Main Distribution Boards. A PFI panel has been provided for improving the power factor.
Physical location of Substation? :	Substation is located outside the Main Building in a different shed.
What equipment/loads does the UPS serve? :	Emergency Lights and Exit Signage.

ASSESSMENT FINDINGS

Electrical System Maintenance	
Question:	Transformers do not contain harmful substances such as PCBs.
Priority Level:	Medium
Non-Compliance Level:	3
Description:	No evidence suggest that the transformers do not contain harmful substances such as PCBs as transformer oil analysis has not been performed previously.
Source of Findings:	Document Review: Relevant documents not found.
Suggested Plan of Action:	Analyze the transformer oil to check if there is any harmful substances such as PCBs. MSDS from the manufacturer can also be collected to gather the info.
Suggested Deadline Date:	24 Nov 2014
Standard:	Not Applicable

Electrical System Conditions	
Question:	All equipment is efficiently earthed and properly connected to the required number of earth electrodes.
Priority Level:	High
Non-Compliance Level:	3
Description:	Undersized earthing cables were found at multiple locations. For example, earthing cable in LT panel was undersized. (50 sqmm has been provided in LT panel where phase cable size is 500 sqmm)
Source of Findings:	Visual Assessment: Visual inspection during audit.
Suggested Plan of Action:	Provide earthing of equipment at required locations and connect to required number of electrodes. Refer to the BNBG for required number of electrodes.
Suggested Deadline Date:	10 Dec 2014
Standard:	Alliance Standard Part 10 Section 10.13.7.1 Inspection of Substation Installations.

Question:	Wet type transformers are not leaking and have appropriate levels.	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Oil leak was found at transformer's radiator outlet point.	
Source of Findings:	Photograph: Oil on floor near transformer.	
Suggested Plan of Action:	Contact transformer manufacturer or service provider to reinstall gasket and tighten it properly so that oil does not leak from it.	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Alliance Standards Part 10 Section 10.5 Substation	
Question:	Is electrical wiring/cables sized according to capacity of circuit breakers (No higher rated circuit breakers with lower rated wiring)?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Higher rated circuit breaker with lower rated wiring was found in FDB-4th Floor. Here, MCCB of 100 A has been provided with cables of 7 sqmm that have the maximum current carrying capacity of 45 A in free air.	
Source of Findings:	Photograph: Higher rated circuit breaker with lower rated cables in FDB-4th floor.	
Suggested Plan of Action:	Check all the cable and circuit breaker for finding the higher rated circuit breakers or lower rated cable. The rated current of a protective device (MCB, MCCB, and fuse) must not exceed the current carrying capacity of any conductor in the circuit.	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections.	
Question:	All metal in the building is connected to the building earthing/grounding system such as metal rebar in concrete, metal frame of building, or metal water pipe.	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Electrical channel/tray grounding available but other utility pipes need to be grounded.	
Source of Findings:	Visual Assessment: Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Provide earthing connection to all exposed-conductive parts(metal) related to/in close proximity to electrical equipments/installation and utility service	

	such as metallic water/gas/steam pipes etc. such that all the metals remain at a substantially same potential of building earthing system.	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.10 Earthing	
Question:	The substation room has adequate ventilation.	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	There is no means of forced ventilation and only window with louvers has been provided for ventilation of substation room. The factory has plans for installing Air Conditioning system, but it has not been installed yet.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Consult a qualified engineer to design the ventilation system for substation room based on installed equipment.	
Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.13.7.1 Inspection of Substation Installations.	
Question:	Are all switchboards and/or distribution boards properly grounded (earthed)?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Earthing connection was found loose in Fan Control Panel(3rd Floor). Also, in Lighting Panel, earthing cables of 2.5 sqmm have been used.	
Source of Findings:	Photograph: Loose earthing connection in Fan Control Panel on 3rd Floor.	
Suggested Plan of Action:	Earthing cable must be installed as per BNBC standard(Table-8.2.11) or Alliance Standard. Also, make sure all cable connections including earthing connection are tight.	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.10.2 Circuit and System Earthing	

Question:	Do switchboards and/or distribution boards have clear identification markings?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	None of the panels have been provided with permanent identification.
Source of Findings:	Photograph: Permanent identification not provided on MDB on 2nd Floor.
Suggested Plan of Action:	Provide permanent identification marking mentioning name of panels (i.e. MDB, 2nd Floor) on a durable material sheet posted on panels' door.
Suggested Deadline Date:	12 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.7 BNBC Part 8 Section 2.11.5.4

Question:	Do switchboards and/or distribution boards have capacity information labels?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	Capacity information labels have not been posted on electrical panels.
Source of Findings:	Photograph: Capacity information label not provided in Light panel box on 3rd Floor.
Suggested Plan of Action:	Provide a capacity information label which contains the current carrying capacity and size of main cable, rated capacity of circuit breaker and the busbar (with dimension). Display panel schedules posted on panels' door (inner side).
Suggested Deadline Date:	26 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.7 Main Switch, Switchboards And Metal Clad Switchgear and 10.13.7 Inspection of the Installation

Question:	Are electrical wiring/cables properly identified?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	cables in electrical panels have been provided with identification. Color code is not maintained in several locations.
Source of Findings:	Photograph: Cables without identification on FDB-4th floor.
Suggested Plan of Action:	Provide identification/tagging mentioning the equipment/machines' name (i.e. Sewing machine line-1 or Lighting line-2) and type of conductor (i.e. L1,L2,L3,N,PE)for every cable at its termination point or maintain the color-code at its termination point (providing colored cable-sleeves) for identification of conductor-type (i.e. Red/Yellow/blue for phase cable, Black for neutral

	cable, Green for earthing cable).(Labeling-cable-tie/Marker-tie can be used for cable identification).	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Bangladesh Electricity Rules 1937 Rule 51 and 56	
Question:	A wire/cable shaft is provided for the whole building. Wiring and cables are arranged in shaft for ease of inspection and maintenance.	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Riser cable penetration at ceilings have not been fire stopped.	
Source of Findings:	Photograph: Cable Shaft near MDB 3rd floor	
Suggested Plan of Action:	Seal the cable shaft penetration points with fire resistive material so that fire does not reach from one floor to another.	
Suggested Deadline Date:	07 Jan 2015	
Standard:	BNBC Part 8 Section 2.5.6.1	
Question:	Are switchboards and/or distribution boards provided with physical means to prevent the installation of more over current devices than that number for which the panel board was designed, rated, and listed.	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Capacity information labels have not been found in order to determine how many circuit breakers, the panels were designed for. Some distribution boards have space in DIN-rail channel to install additional over-current devices.	
Source of Findings:	Photograph: Space for additional circuit breakers in 4th floor Main DB.	
Suggested Plan of Action:	Calculate and display the information of the capacity & panel-schedule of the distribution boards and then provide a physical means to prevent the installation of additional circuit breakers.	
Suggested Deadline Date:	10 Dec 2014	
Standard:	Alliance Standards Part 10 Section 10.7 Main Switch, Switchboards and Metal Clad Switchgear	

Question:	Electrical wiring and conduit is properly supported.
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Cables behind electrical panels in substation room were found without proper support.
Source of Findings:	Photograph: Cables without support in substation room.
Suggested Plan of Action:	Install cable trays and ladders for mechanical support and protection of cables. Ensure all trays and ladders are covered and sealed properly to prevent the ingress of water, dust, or debris.
Suggested Deadline Date:	26 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.3.2, 10.3.4.3, and 10.3.5

Question:	Are electrical insulation mats provided in front of substation, switchboards and/or distribution boards?
Priority Level:	Low
Non-Compliance Level:	3
Description:	Pallets have been provided in front of electrical panels instead of insulation mats.
Source of Findings:	Photograph: Rubber pallet in Substation Room.
Suggested Plan of Action:	Provide electrical grade rubber mats with the specifications of 650 V-protection and required area (accommodating at least two people or depending on the panels' length).
Suggested Deadline Date:	12 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.13.7 Inspection of the Installation.

Question:	Phase separators are provided between terminals on circuit breakers.
Priority Level:	Low
Non-Compliance Level:	1
Description:	MCCB without phase separators were found in Fan Control Panel on 4th Floor.
Source of Findings:	Photograph: MCCB without phase separators in Fan Control Panel on 4th Floor.
Suggested Plan of Action:	Install phase separators between terminal connections. Verify phase separators are installed at all remaining locations.

Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections	
Emergency Power System		
Question:	Is the generator room properly illuminated?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Generator is installed in canopy and is located outdoors under a shed. Adequate illumination is not present around the generator.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Provide proper illumination under canopy for generator.	
Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.8.4 Generator Room	
Question:	Is the generator frame earthing (grounding) provided at two separate points?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Only one earthing connection of 16 sqmm has been provided for generator frame earthing.	
Source of Findings:	Photograph: Generator frame earthing connection.	
Suggested Plan of Action:	Install two distinct earth connections of minimum 35 sqmm each for generator frame earthing.	
Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standard 10.8.2.2	
Question:	Are inspection, maintenance, and testing procedures of the emergency generator being completed and documented?	
Priority Level:	Low	
Non-Compliance Level:	3	
Description:	Documents regarding inspection and testing of the emergency generator were not found.	
Source of Findings:	Document Review: Documents regarding inspection and testing of the	

	emergency generator were not found.
Suggested Plan of Action:	Establish a routine maintenance and testing program for the emergency generator. The program shall be based on all of the following: (1) Manufacturer's recommendations (2) Manufacturer's Instruction manuals (3) Requirements of NFPA 110 Chapter 8
Suggested Deadline Date:	10 Dec 2014
Standard:	NFPA 110 Chapter 8
Lightning Protection System	
Question:	Is a lightning protection system installed on the building?
Priority Level:	High
Non-Compliance Level:	1
Description:	Lightning protection system has been partially installed as the building is under construction.
Source of Findings:	Visual Assessment: Visually inspected during audit.
Suggested Plan of Action:	Have a qualified engineer design the lightning protection system for the whole building according to BNBC requirements and install the system after construction is complete.
Suggested Deadline Date:	07 Jan 2015
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection. Calculate Risk Index to determine if required.
Question:	The lightning protection ground terminals are bonded to the building or structure grounding.
Priority Level:	Medium
Non-Compliance Level:	3
Description:	Ground terminals for lightning protection system have not been bonded to structure grounding.
Source of Findings:	Visual Assessment: Visually inspected during audit.
Suggested Plan of Action:	Have a qualified engineer design the lightning protection system for the whole building according to BNBC requirements and install the system(with proper grounding arrangements) after construction is complete.
Suggested Deadline Date:	26 Nov 2014
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection

Question:	The air termination network vertical and horizontal conductors are appropriately spaced.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Lightning protection system is incomplete.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Have a qualified engineer design the lightning protection system for the whole building according to BNBC requirements and install the system after construction is complete.	
Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection	
Question:	The appropriate number of down conductors are installed based on the building size.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Down conductor is of 4 SWG which is undersized.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Have a qualified engineer design the lightning protection system for the whole building according to BNBC requirements and install the system after construction is complete.	
Suggested Deadline Date:	26 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection	