ALLIANCE
FOR BANGLADESH WORKER SAFETY

INITIAL ELECTRICAL ASSESSMENT REPORT (EAR)

Factory Name:	**Kenpark Bangladesh Apparel (Pvt) limited (K-4)**
Address:	**SFB # 03, Sector #2, Karnaphuli Export Processing Zone KEPZ, Chittagong Chittagong Chittagong Bangladesh**
Assessor:	**Emkay Enterprises LTD**
Date:	**15 Jul 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:	Kenpark Bangladesh Apparel (Pvt) limited (K-4)
Address:	SFB # 03, Sector #2, Karnaphuli Export Processing Zone KEPZ, Chittagong Chittagong Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong
Zip Code:	
Audit Duration:	3 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? :	No
Buildings in Complex :	1 Main building and 2 Utility building
Is the building(s) owned or rented by the Factory?:	Rented
Number of Building Levels (Stories) :	Main building: 4 Story RCC Building with steel truss roof deck, Ancillary building-1: 2 Story RCC building, Ancillary building-2: single storied shed.
Approximate Building Area (SF) :	1,22,593 SFT
Date of Building Construction :	2008
Date of Last Building Renovation/Addition :	2011
Ancillary Structures in Complex :	2
Approximate Ancillary Structures Area (SF) :	5975 SFT

Number of Occupants :	1073
Provide brief description of the electrical system for each building.:	Four transformers from BEPZA power the main facility of Kenpark Unit-4. A separate transformer has been provided for powering the Chiller unit. Transformer for the Chiller unit has been provided with a HT and a LT panel inside the facility. Two diesel generators of 1000 kVA and 500 kVA have been provided as standby power sources. Power for the main facility is distributed through 4 ATS panels, 8 Main Distribution Boards and 11 Distribution Boards. Four PFI panels of 150 kvar and a PFI panel of 375 kvar have been provided for improving the power factor.
Physical location of Substation? :	Substation is located on ground floor of Utility Building-1.
What equipment/loads does the UPS serve? :	Fire Alarm.

ASSESSMENT FINDINGS

Electrical System Maintenance		
Question:	Have workers that operate and maintain the electrical system received electrical safety training? Is training documentation on site?	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Documents regarding electrical safety training of workers were not found.	
Source of Findings:	Document Review: Documents not available.	
Suggested Plan of Action:	Develop and implement an electrical safety training program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Reference NFPA 70e for example	
Question:	Is a periodical Insulation Resistance Measurement Program established and recorded?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Documents regarding periodical insulation resistance measurement were not found.	
Source of Findings:	Document Review: Documents not available.	
Suggested Plan of Action:	Develop an Insulation Resistance Measurement Program that ensures deterioration of insulation resistance will be identified quickly. Testing should be in compliance with InterNational Electrical Testing Association (NETA). All transformers, switchgears etc. shall be subject to an insulation resistance measurement test to ground after installation but before any wiring is connected. Insulation tests shall be made between open contacts of circuit breakers, switches etc. and between each phase and earth.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.13.4 Insulation Tests and 10.13.8 Electrical Inspections	
Question:	Is the electrical switchgear and panel boards inspected on an annual basis to ensure that the equipment is installed in accordance with the listed ratings?	

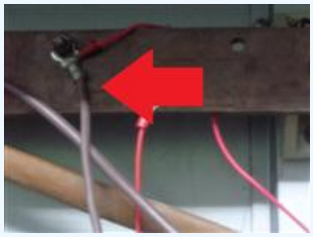
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Records of annual inspection of electrical switchgear and panels boards were not available.	
Source of Findings:	Document Review: Documents not available.	
Suggested Plan of Action:	Inspect electrical switchgear and panel boards on an annual basis to ensure that the equipment is in good working condition.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standards Part 10 Section 10.13.8 Electrical Inspections	
Question:	Are periodic safety inspections of the electrical system components completed and documented?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Documents concerning periodic safety inspection were not found.	
Source of Findings:	Document Review: Documents not available.	
Suggested Plan of Action:	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records concerning inspections and follow up actions.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.13 Inspection and Testing and Part 13 Section 13.6 Housekeeping	
Question:	Have items identified in previous thermographic inspection reports been addressed?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Several problems have not been rectified yet.	
Source of Findings:	Visual Assessment: Inspected with thermal imager.	
Suggested Plan of Action:	Complete action items identified from previous thermographic inspection report.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Not Applicable	

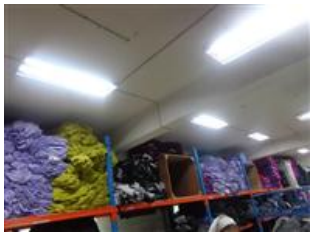
Electrical System Conditions		
Question:	The substation room has the required fire rating/protection and is physically separated from the remainder of the building.	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Transformer is located in the substation room beside panels, separated only by a fence.	
Source of Findings:	Photograph: Transformer Room in Utility Building-2.	
Suggested Plan of Action:	Separate the transformer from the panels by constructing a wall around it up to the ceiling, providing 2 hour fire rated separation. Make sure there is a minimum of 1.07 meter clearance around the transformer for ease of maintenance work.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 3 Section 3.4.2.1.4	
Question:	Combustible materials are not stored within the substation room.	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Wooden cover for cable trench was found near transformer.	
Source of Findings:	Photograph: Wooden cable trench cover in Transformer Room in Utility Building 2.	
Suggested Plan of Action:	Provide covers, made of non combustible material (preferably checkered metal plate) on all cable trenches	
Suggested Deadline Date:	21 Oct 2014	
Standard:	Not Applicable	
Question:	All equipment is efficiently earthed and properly connected to the required number of earth electrodes.	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	Earthing cable was undersized in some of the distribution boards. For Example, in DB-25, for phase cables of 150 sqmm, main earthing cable was 16 sqmm.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	

Suggested Plan of Action:	Provide earthing of equipment at required locations and connect to required number of electrodes. Refer to the BNBC for required number of electrodes.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.13.7.1 Inspection of Substation Installations.	
Question:	No multi looping of wiring/cables observed at circuit breakers within switchboards and/or distribution boards.	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	Multi looping of cables was found in circuit breakers inside some distribution boards. For example, DB-14 on 2nd Floor had multi looping of cables.	
Source of Findings:	Photograph: Multi looping found in DB-14 on 2nd Floor of Main Building.	
Suggested Plan of Action:	Provide individual connection to circuit breakers from bus bar using cables of appropriate size.	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.3 Electrical Wiring and Cabling	
Question:	Do switchboards and/or distribution boards have a minimum clearance of 1 m (39 in) in front?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Necessary clearance has not been provided behind panels in Main Panel Board Room.	
Source of Findings:	Photograph: Panel boards without adequate clearance on rear side in Main Panel Board Room in Utility Building-2.	
Suggested Plan of Action:	Provide at least 1 meter clearance around main electric panels for ease of maintenance work and inspection.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.7 Main Switch, Switchboards and Metal Clad Switchgear	

Question:	No circuits are drawn for loads without the incorporation of a overcurrent protection device (circuit breaker).
Priority Level:	High
Non-Compliance Level:	1
Description:	Circuits are drawn for loads without protective device in DB-10 on 1st Floor of Main Building.
Source of Findings:	Photograph: Cable drawn without circuit breaker on DB-10, 1st Floor, Main Building.
Suggested Plan of Action:	Provide protective device for every circuit drawn from a panel such as the rating of the device does not exceed the capacity of any conductor in the circuit.
Suggested Deadline Date:	25 Nov 2014
Standard:	Alliance Standards Part 10 Section 10.9 Protection of Circuits

Question:	Indications of overheating, overloading, or signs of burning were not observed.
Priority Level:	High
Non-Compliance Level:	1
Description:	Burning sign was observed in cable in DB-10 on 1st Floor of Main Building. Also, during thermographic scan, some hotspots were observed at multiple locations. Refer to Thermographic Survey Report for detailed information.
Source of Findings:	Photograph: Cable with burning sign in DB-10 on 1st Floor of Main Building.
Suggested Plan of Action:	Replace the cable with burning sign or use the cable after cutting off burned part of cable. Terminate the cable with cable sockets of appropriate size and use proper crimping tool for connecting the socket with cable. Verify existing individual loads do not exceed the cable and/or breaker rating. Verify total existing loads do not exceed the panel rating. Also, suggested plans for specific issues found in thermographic scan have been incorporated in the Thermographic Survey Report.
Suggested Deadline Date:	14 Oct 2014
Standard:	Alliance Standard Part 10 Section 10.3.5



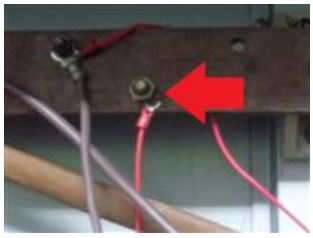
Question:	Is electrical wiring/cables sized according to capacity of circuit breakers (No higher rated circuit breakers with lower rated wiring)?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Higher rated circuit breaker with lower rated wiring was found in some distribution boards. For example, in DB-14 on 2nd Floor of Main Building, MCCB of 63A has been provided with cable of 10 sqmm, that has the maximum current carrying capacity of 55 A in free air. Similar issue persists in DB-13, DB-16, DB-18 and DB-20.	
Source of Findings:	Photograph: Higher rated circuit breaker with lower rated cables DB-14 on 2nd Floor.	
Suggested Plan of Action:	Check all the cable and circuit breaker for sorting out the higher rated circuit breakers. The rated current of a protective device (MCB, MCCB, Fuse) must not exceed the current carrying capacity of any conductor in the circuit. Verify existing individual loads do not exceed the cable and/or breaker rating. Verify total existing loads do not exceed the panel rating.	
Suggested Deadline Date:	09 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:	All metal have not been connected to building grounding system.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	Provide eathing 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:	09 Dec 2014	
Standard:	Alliance Standard Part 10 Section 10.10 Earthing	
Question:	Light fixtures without protective covers are not installed in storage areas or in any area where the Inspector of the Factories Rules (1.5.3.5) Part 53 disallows these fixtures.	
Priority Level:	High	
Non-Compliance Level:	1	

Description:	Naked lights were found in storage area on Ground Floor of Main Building.	
Source of Findings:	Photograph: Naked lights in Ground Floor Storage Area of Main Building.	
Suggested Plan of Action:	Provide protective covers (transparent) for every naked light installed inside storage areas.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.15 Naked Lights	
Question:	Wiring systems are selected and erected so that no damage is caused by the ingress of water.	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Distribution board DB-13 was found near window which may cause storm water to enter into the panel.	
Source of Findings:	Photograph: DB-13 near window on 2nd Floor of Main Building.	
Suggested Plan of Action:	Seal the window or relocate the distribution board to a safe place where it would not be in risk of ingress of water.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.3.4.3 Presence of Water	
Question:	Are all switchboards and/or distribution boards properly grounded (earthed)?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Door earthing was not provided in some panel boards, such as DB-25(compressor room), DB-31, 32(chiller room), LT, PFI (Transformer room).	
Source of Findings:	Photograph: Door earthing not provided in DB-25 in Compressor Room on Utility Building-2.	
Suggested Plan of Action:	Provide earthing connection to the panel enclosure as per BNBC Table 8.2.11. Provide earthing connection to doors of metallic distribution boards using green cables(preferably braid) so that the metallic door remains at zero potential all the time.	
Suggested Deadline Date:	09 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:	HT, LT, PFI panels have not been marked specifically.	
Source of Findings:	Photograph: HT Panel marked as DB-35 in Transformer Room in Utility Building-1.	
Suggested Plan of Action:	Provide permanent identification marking mentioning name of panels (i.e. HT, LT, PFI panel) on a durable material sheet posted on panels' door.	
Suggested Deadline Date:	11 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:	None of the distribution boards have been provided with capacity information labels.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
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:	25 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:	No identification for cables and wirings were found in any distribution board. Color code was also not maintained in some distribution boards.	
Source of Findings:	Photograph: Cables without identification in DB-01, Ground Floor, Main Building.	
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:	09 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:	Cable shaft has been provided but there is no provision for inspection of cables inside cable shaft. Also, the openings between cable shaft and rooms housing the panel boards have not been fire stopped.	
Source of Findings:	Photograph: Hole for cable entry in DB-15 Room wall on 2nd Floor of Main Building.	
Suggested Plan of Action:	Provide vertical cable shaft/ladder for supporting the main cables. Cables shall be passed through cable tray (with metal cover) or rigid conduit with proper support. The gap remaining after the passage of the shaft must be blocked with appropriate fire rated materials.	
Suggested Deadline Date:	06 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 of the distribution boards have space in DIN-rail channel to install additional over-current devices.	
Source of Findings:	Photograph: Space on DIN rail channel in DB-20 on 3rd Floor of Main Building.	
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:	09 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:	2	
Description:	Cables inside panel boards have not been provided with proper support. For example, cables inside DB-38 on Ground Floor were kept haphazardly.	
Source of Findings:	Photograph: Cables without proper arrangement inside DB-38 on Ground Floor of Main Building.	
Suggested Plan of Action:	Arrange the cables inside all panels properly installing PVC wiring-duct(slotted) so that the cables can be supported and latched inside the duct.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.2, 10.3.4.3, and 10.3.5	
Question:	Are all internal components of switchboards and/or distribution boards properly concealed (No missing circuit breaker or knockout covers)?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Panel boards have not been provided with base plates in Transformer Room in Utility Building-1. Also most of the Main Distribution Boards have cable entry holes open.	
Source of Findings:	Photograph: Cable entry hole open in LT Panel(DB-02) in Transformer Room of Utility Building-1.	
Suggested Plan of Action:	Make circular hole at the base 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.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.9 Sub-Distribution Boards	
Question:	Are switchboards and/or distribution boards free of dust and debris?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Dust was found inside some distribution boards. For example, dust was found inside DB-18 on 3rd Floor of Main Building.	

Source of Findings:	Photograph: Dust inside DB-18 on 3rd Floor of Main Building.	
Suggested Plan of Action:	Disconnect the panel from the electrical service and clean interior components of all dust and debris. Seal all openings within the enclosure to prevent dust and debris from entering.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.9.1 Enclosures	
Question:	Stranded conductors having a nominal cross-sectional area 6mm2 or greater are provided with cable sockets. Conductors below 6 mm2 without cable sockets, all strands at the exposed ends are soldered together or are crimped using suitable sleeve or ferrules.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Cables without lugs were found in some Distribution Boards. Such as DB-15 in 2nd Floor of Main Building.	
Source of Findings:	Photograph: Cables without lugs in DB-15 in 2nd Floor of Main Building.	
Suggested Plan of Action:	Terminate cables/conductors using cable sockets of appropriate size. Use appropriate crimping tool or lug puncher(hydraulic preferably) for punching the lugs/cable sockets.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.3.8.3 Cable Ends	
Question:	Electrical connections at equipment, fixtures, etc are properly secured.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Cable without proper connection was found in DB-10 on 1st Floor of Main Building.	
Source of Findings:	Photograph: Cable without proper connection in DB-10 on 1st Floor of Main Building.	
Suggested Plan of Action:	Make sure all the connections are tight for averting loose connection. Provide properly secure electrical connections for items in description.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.3.1 Electrical Connections	

Question:	Is all electrical wiring/cable properly terminated at its point of termination (No un-terminated wires, lugs are provided at terminals, etc)?
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Un-terminated cables were found inside DB-22 on 3rd Floor.
Source of Findings:	Photograph: Un-terminated cables in DB-22 on 3rd Floor of Main Building.
Suggested Plan of Action:	Remove the un-terminated cables from distribution board or terminate the cables inside circuit breakers for future use. Remove un-terminated wiring cable back to source.
Suggested Deadline Date:	09 Dec 2014
Standard:	Alliance Standards Part 10 Section 10.3.9.2 Wiring of Sub-distribution Boards

Question:	Mechanical guards are provided for electrical equipment and wiring where necessary.
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Socket was found mounted on top of panel without proper support.
Source of Findings:	Photograph: Socket mounted on top of panel in Ground Floor of Main Building.
Suggested Plan of Action:	Fix the socket on wall using proper support at a reachable height.
Suggested Deadline Date:	25 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.3 Electrical Wiring and Cabling, 10.6.5 Cables, and 10.7 Main Switch, Switchboards And Metal Clad Switchgear

Question:	Required equipment and safety signage is posted within the room.
Priority Level:	Low
Non-Compliance Level:	3
Description:	Required equipment and safety signage has not been provided in the room.
Source of Findings:	Visual Assessment: Visually inspected during audit.
Suggested Plan of Action:	Indoor electrical installations that are accessible to unqualified persons shall be made with metal-enclosed equipment. Switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs. Entrances to rooms and other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

	Caution, warning, danger signs or labels should meet the following requirements: (1) The marking shall adequately warn of the hazard using effective words and/or colors and/or symbols. American National Standards Institute ANSI Z535.4-2011, Product Safety Signs and Labels, provides guidelines for suitable font sizes, words, colors, symbols, and location requirements for labels. (2) Shall be permanently affixed to the equipment or wiring method and shall not be hand written. Exception, portions of labels or markings that are variable, or that could be subject to changes, shall be permitted to be hand written and shall be legible. (3) The label shall be of sufficient durability to withstand the environment involved. ANSI Z535.4-2011, Product Safety Signs and Labels, provides guidelines for the design and durability of safety signs and labels for application to electrical equipment	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.7, Section 10.7.3, and 10.13.7, NFPA 70 Chapter 1 Article 110.21, and Bangladesh Electricity Rules of 1937 Rule 46	
Question:	Signage indicating the prohibition of light fixtures without protective covers is installed at required locations.	
Priority Level:	Low	
Non-Compliance Level:	3	
Description:	Signage indicating prohibition of installing light fixtures without protective covers was not provided at storage areas.	
Source of Findings:	Photograph: Visually inspected during audit.	
Suggested Plan of Action:	Light fixtures without protective covers (otherwise known as naked lights) shall not be allowed in storage areas or in any area where the Inspector of the Factories Rules (1.6.3.7) Part 53 disallows these fixtures. Install signs posted in Bengali and English, indicating this prohibition at all entrances to these areas.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.15 Naked Lights	
Question:	Are meters and other electrical devices (Ammeter, Voltmeter, PFI Auto Controller, etc) installed on the main electrical equipment operational?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Meters on some electrical panels were not working properly.	
Source of Findings:	Photograph: Ammeter and Indicator lamps not working in DB-02 on Ground Floor of Main Building.	
Suggested Plan of Action:	Replace/repair faulty lamps and meters where necessary and provide connection to indicator lamps through protective device (fuse box).	

Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standard 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:	MCCBs without phase separators were found in some distribution boards. Such as, MCCB without phase separator was found in DB-05 on Ground Floor of Main Building.	
Source of Findings:	Photograph: MCCB without phase separators in DB-05 on Ground Floor of Main Building.	
Suggested Plan of Action:	Install phase separators between terminal connections. Verify phase separators are installed at all remaining locations.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections	
Emergency Power System		
Question:	Are emergency power switchboards, distribution boards, and circuits properly identified?	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	No identification has been provided for the emergency power system.	
Source of Findings:	Visual Assessment: Visually inspected during audit.	
Suggested Plan of Action:	All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system. The required marking can be done by color code, the words “emergency system,” or any other method that identifies the box or enclosure as a component of the emergency system.	
Suggested Deadline Date:	11 Nov 2014	
Standard:	NFPA 70 Chapter 7 Article 700.10 Wiring, Emergency System	

Question:	Is the generator exhaust discharged to the exterior of the building in a safe location	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Exhaust pipe for Generator-2 was discharged just outside the room at street level which may cause detrimental health hazard to people passing by.	
Source of Findings:	Photograph: Exhaust pipes outside Utility Building-2.	
Suggested Plan of Action:	Make sure the exhaust gas is not discharged in front of the facility. Arrangements shall be made such that the exhaust is discharged at a higher altitude for ensuring the health-safety of people/worker gathering in front of facility.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standards Part 3 Section 3.4.2.1.3 Generators	
Question:	Is the generator room properly ventilated	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Generator Room- 2 does not have exhaust fan. Only windows without louvers have been provided for natural ventilation.	
Source of Findings:	Photograph: Windows in Generator room -2.	
Suggested Plan of Action:	Consult a qualified engineer to design ventilation system for the room based on installed equipment.	
Suggested Deadline Date:	25 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.8.4 Generator Room	
Question:	Are cable trenches properly covered?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Cable trench was found partially covered (not covered below the change- over panel) in Generator Room-2.	
Source of Findings:	Photograph: Cable trench partially uncovered Generator Room-2 in Utility Building-2.	
Suggested Plan of Action:	Provide proper cover for entire cable trench for the mechanical protection of cables.	

Suggested Deadline Date:	11 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.13.7 Inspection of the Installation	
Question:	Are inspection, maintenance, and testing procedures of the UPS being completed and documented?	
Priority Level:	Low	
Non-Compliance Level:	3	
Description:	Records regarding inspection, maintenance or testing of UPS were not provided.	
Source of Findings:	Document Review: Documents not available.	
Suggested Plan of Action:	Establish an inspection testing, and maintenance program for the Uninterruptable Power Supply (UPS) and associated components. The program must based on the following: (1) Manufacturer's recommendations (2) Manufacturer's instruction manuals (3) Minimum Requirements of NFPA 111 Chapter 8 (4) Minimum Requirements of NFPA 70B Chapter 28	
Suggested Deadline Date:	09 Dec 2014	
Standard:	Alliance Standard Part 13 Section 13.11 NFPA 111 Chapter 8 NFPA 70B Chapter 28	
Lightning Protection System		
Question:	The lightning protection ground terminals are bonded to the building or structure grounding.	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Lightning protection ground terminals 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 according to BNBC requirements.	
Suggested Deadline Date:	25 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:	2
Description:	Only one air terminal has been installed on the rooftop. Also, there was no design for the existing lightning protection system.
Source of Findings:	Photograph: Air termination spike on Rooftop of Main Building.
Suggested Plan of Action:	Consult a qualified engineer to design the lightning protection system according to BNBC requirements.
Suggested Deadline Date:	25 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:	2
Description:	The down conductors are not appropriately designed as per the BNBC.
Source of Findings:	Visual Assessment: Visually inspected during audit.
Suggested Plan of Action:	Consult a qualified engineer to design the lightning protection system according to BNBC requirements.
Suggested Deadline Date:	25 Nov 2014
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection