INITIAL ELECTRICAL ASSESSMENT REPORT (EAR)

Factory Name:	**SP GARMENTS LTD**
Address:	**Shirir Chala, Mahona, Babanipur, Vawalgor, Gazipur Sadar, Gazipur Gazipur Bangladesh**
Assessor:	**Uttaron Technologies**
Date:	**20 May 2017**

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ALLIANCE
FOR BANGLADESH WORKER SAFETY

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.

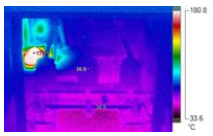
For more information and report feedback please go to: www.bangladeshworkersafety.org.

GENERAL INFORMATION

General Information	
Factory Name:	SP GARMENTS LTD
Address:	Shirir Chala, Mahona, Babanipur, Vawalgor, Gazipur Sadar, Gazipur Gazipur Bangladesh
Country:	Bangladesh
Province:	
City:	Gazipur
Zip Code:	
Audit Duration:	1 Days 0 Hours
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	May 28 2017
Final Report Date :	May 31 2017
Are all action items from previous assessment complete? :	N/A
Buildings in Complex :	There 5 buildings in the complex, 1 main and 4 ancillary buildings.
Is the building(s) owned or rented by the Factory?:	Owned
Number of Building Levels (Stories) :	Main production building: 5-stories.
Approximate Building Area (SF) :	Total area: 176,325 SF (35,265 SF per floor)
Date of Building Construction :	2013-2015
Date of Last Building Renovation/Addition :	N/A
Ancillary Structures in Complex :	There are 4 ancillary structures.
Approximate Ancillary Structures Area (SF) :	Total ancillary area: 8,714 SF. 1) Boiler & Compressor: 3,950 SF; 2) Chemical storage: 1,560 SF; 3) Child care & Medical: 936 SF; 4) Biological unit: 2,268 SF.
Number of Occupants :	1) Main production building: 600 (GF: 2, 1st: 90, 2nd: 508, 3rd & 4th FL: 0).
Provide brief description of the electrical system for each building.:	Power Source: REB, 1 Oil Type Transformer (1250 KVA). 2 Diesel Generators (900 KVA and 250 KVA). High Tension Panel (HT)- 1. Low Tension Panel (LT)- 1. PFI Panel- 1. Main Distribution Boards (MDB)- 4. Distribution Boards (DB)- 1. Sub-Distribution Boards (SDB)- 3.
Physical location of Substation? :	Separated from main building.
What equipment/loads does the UPS serve? :	N/A. IPS is used instead of UPS.

ASSESSMENT FINDINGS

Electrical System Information		
Question:	Are as-built electrical drawings indicating information such as panel and circuit locations throughout the building(s) available for review?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	The Electrical system installation works is on-going. Approval of the design has not been received from appropriate authority.	
Source of Findings:	Photograph: Proposed SLD	
Suggested Plan of Action:	Electrical drawings should be submitted to the Alliance for approval. Once installation is complete, have a qualified electrical engineer develop as-built drawings detailing key components and capacity of the electrical system in accordance with Alliance requirements.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.3.7	
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:	2	
Description:	Electrical safety training documents were not found at the site.	
Source of Findings:	Document Review: Documents were not found at the site.	
Suggested Plan of Action:	Develop and implement an electrical safety program. Include key topics such as lock-out tag-out procedures, personal protective equipment requirements, etc. Reference NFPA 70E for example program requirements.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Reference NFPA 70e for example	
Question:	Transformers do not contain harmful substances such as PCBs.	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	No documentation was provided indicating that transformers do not contain harmful substances like PCBs.	
Source of Findings:	Visual Assessment: No documentation provided.	
Suggested Plan of Action:	Conduct a complete oil analysis to determine the content of PCBs in transformer oil and consider replacing transformers found with harmful substances to reduce health hazards.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Not Applicable	
Question:	Are periodic safety inspections of the electrical system components completed and documented?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	No periodic safety inspections of the electrical system components have been completed or documented.	
Source of Findings:	Document Review: No periodic safety inspections of the electrical system have been performed.	

Suggested Plan of Action:	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records regarding the inspections and follow up actions.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.13 Inspection and Testing and Part 13 Section 13.6 Housekeeping	
Question:	A transformer oil analysis is routinely completed on main service transformers.	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Transformer oil analysis is not routinely completed.	
Source of Findings:	Visual Assessment: Transformer oil analysis is not completed.	
Suggested Plan of Action:	Perform a transformer oil analysis on applicable transformers at appropriate intervals based on voltage and power.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.13.8 Electrical Inspections	
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:	Electrical equipment is efficiently earthed and properly connected to the earth electrodes, but all electrical equipment is not provided with connection. Location: PFI,DB-01/GF/LT ROOM,SDB-04/1st FL.	
Source of Findings:	Photograph: Inadequate equipment earthing.	
Suggested Plan of Action:	Provide efficient earthing for all equipment at required locations and properly connect using the required number of earth electrodes. Refer to the BNBC for required number of electrodes.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.13.7.1 Inspection of Substation Installations.	
Question:	Indications of overheating, overloading, or signs of burning were not observed.	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Overheating was observed at HT Panel in our thermograpic scan.	
Source of Findings:	Photograph: HT Panel have Category-3	
Suggested Plan of Action:	Need to take immediate action. Consult with a qualified electrical engineer to determine the cause of overheating, overloading, or signs of burning and take proper action.	
Suggested Deadline Date:	17 Jun 2017	
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:	3	
Description:	Electrical cables are not sized according to capacity of circuit breakers. Location: MDB-02/1st FL,SDB-04/1st FL,SDB-03/1st FL.	
Source of Findings:	Photograph: Higher rated circuit breakers with lower rated wiring.	

Suggested Plan of Action:	Consult with a qualified Electrical Engineer and ensure electrical wiring/cables are sized according to capacity of circuit breakers. Provide electrical wiring/cables of proper size according to capacity of circuit breakers.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections.	
Question:	No multi looping of wiring/cables observed at circuit breakers within switchboards and/or distribution boards.	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	Multi looping cables observed at circuit breakers within distribution boards. Location: MDB-01/GF,MDB-02/1st FL,DB-01/GF	
Source of Findings:	Photograph: Multi looping cables at circuit breakers.	
Suggested Plan of Action:	Remove multi looping of wiring/cables at circuit breakers within switchboards and/or distribution boards. Make separate connection from bus bar for individual circuits.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.3 Electrical Wiring and Cabling	
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:	3	
Description:	Not all metal in the building is connected to the building earthling system. Location: Throughout the Building.	
Source of Findings:	Photograph: Not all metal in the building is connected to the building earthing.	
Suggested Plan of Action:	Connect all metal in the building to the building earthing system such as metal rebar in concrete, metal frame of building, or metal water pipe.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.10 Earthing	
Question:	Are all switchboards and/or distribution boards properly grounded (earthed)?	 
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Distribution boards are not properly grounded. Location: DB-01/GF/LT Room,PFI Panel.	
Source of Findings:	Photograph: Distribution boards are not properly grounded.	
Suggested Plan of Action:	Provide proper grounding for switchboards and distribution boards utilizing proper size of earthing cables and sufficient number of earth electrodes.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.10.2 Circuit and System Earthing	
Question:	Are electrical wiring/cables properly identified?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Electrical cables are not properly identified. Location: SDB-02/GF,SDB-04/1st FL.	
Source of Findings:	Photograph: Electrical cables are not identified.	
Suggested Plan of Action:	Provide identification of wires/cables by separate color coding, marking tape, tagging, or other approved means.	

Suggested Deadline Date:	30 Jul 2017	
Standard:	Bangladesh Electricity Rules 1937 Rule 51 and 56	
Question:	Electrical wiring and conduit is properly supported.	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	Electrical wiring and conduit is not properly supported. Location: DB-01/GF AND MDB-01/GF.	
Source of Findings:	Photograph: Electrical wiring and conduit is not properly supported.	
Suggested Plan of Action:	Survey all wiring and conduit to identify all locations where it is not properly supported and protected from physical damage. Provide adequate supports for electrical wiring and conduit. Consult a qualified electrical engineer for required remediation work and selection of appropriate materials.	
Suggested Deadline Date:	16 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.3.2, 10.3.4.3, and 10.3.5	
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:	3	
Description:	Electrical cable is not properly terminated. Location: SDB-04/1st FL.	
Source of Findings:	Photograph: Electrical cable is not properly terminated.	
Suggested Plan of Action:	Provide proper termination of all wiring in accordance with the Alliance standard. No un-terminated wires or cables are allowed.	
Suggested Deadline Date:	30 Jul 2017	
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:	3	
Description:	Mechanical guards are not provided for electrical wiring where necessary. Location: MDB-01/1st FL.	
Source of Findings:	Photograph: Mechanical guards are not provided for electrical wiring where necessary.	
Suggested Plan of Action:	Survey all locations to identify missing mechanical guards. Provide mechanical guards for electrical equipment where necessary.	
Suggested Deadline Date:	30 Jun 2017	
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:	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:	2	
Description:	Cable sockets are not provided for stranded conductors.	
Source of Findings:	Photograph: Cable sockets are not provided for stranded conductors.	
Suggested Plan of Action:	Provide proper size and type of cable socket for stranded conductors having a nominal cross-sectional area 6mm2 or greater. For conductors below 6 mm2 without cable sockets, provide soldering for all strands at the exposed ends or crimp the exposed ends using suitable sleeve or ferrules.	

Suggested Deadline Date:	20 Jul 2017	
Standard:	Alliance Standards Part 10 Section 10.3.8.3 Cable Ends	
Question:	Phase separators are provided between terminals on circuit breakers.	
Priority Level:	Low	
Non-Compliance Level:	3	
Description:	Phase separators are not provided between terminals on circuit breakers. Location: DB-01/GF, MDB-02/1st floor.	
Source of Findings:	Photograph: Phase separators are not provided	
Suggested Plan of Action:	Install phase separators between terminal connections. Verify phase separators are installed at all remaining locations.	
Suggested Deadline Date:	30 Jul 2017	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections	
Question:	Required equipment and safety signage is posted within the room.	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Required equipment and safety signage is not posted within the room.	
Source of Findings:	Visual Assessment: There is no safety signage within the room.	
Suggested Plan of Action:	Provide required safety signage in switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment. Signage shall be marked with appropriate caution signs. Entrance to room and other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.	
Suggested Deadline Date:	30 Jun 2017	
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	
Emergency Power System		
Question:	Are inspection, maintenance, and testing procedures of the emergency generator being completed and documented?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Inspection, maintenance, and testing procedures of the emergency generator have not been completed.	
Source of Findings:	Document Review: Inspection, maintenance, and testing procedures of the emergency generator have not been completed.	
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:	30 Jul 2017	
Standard:	NFPA 110 Chapter 8	
Lightning Protection System		
Question:	Is a lightning protection system installed on the building?	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	A lightning protection system is not installed on the building. Need to submit the LPS drawing to Alliance and approval from Alliance. Location: Roof top.	
Source of Findings:	Photograph: Lightning protection system are not found.	

Suggested Plan of Action:	Have a qualified electrical engineer design a lightning protection system in accordance with NFPA-780 and BNBC requirements. Have a licensed electrician install the designed system.
Suggested Deadline Date:	30 Aug 2017
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection. Calculate Risk Index to determine if required.