

# INITIAL ELECTRICAL ASSESSMENT REPORT (EAR)

Factory Name: **AJ Super Garments Ltd (Woven)**  
Address: **Aj Garden, Goshbagh Zirabo Zirabo, Savar Savar  
Dhaka Bangladesh**  
Assessor: **Sumerra**  
Date: **23 Mar 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](http://www.bangladeshworkersafety.org).



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**ALLIANCE**  
FOR BANGLADESH WORKER SAFETY

## GENERAL INFORMATION

### General Information

Factory Name:	AJ Super Garments Ltd (Woven)
Address:	Aj Garden, Goshbagh Zirabo Zirabo, Savar Savar Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Savar
Zip Code:	1341
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	March 23, 2014
Final Report Date :	
Are all action items from previous assessment complete? :	N/A
Buildings in Complex :	1 Building in Complex
Is the building(s) owned or rented by the Factory?:	Owned
Number of Building Levels (Stories) :	6 Stories.
Approximate Building Area (SF) :	160,800 SF Approximate.
Date of Building Construction :	Building construction started in 2004
Date of Last Building Renovation/Addition :	Building construction completed in 2007
Ancillary Structures in Complex :	1 Generator Building 1 Security Building
Approximate Ancillary Structures Area (SF) :	3604
Number of Occupants :	2,536 total number of occupants.

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## 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:	3
Description:	No electrical drawing available for information as per Alliance Standard Part 10 Section 10.3.7
Source of Findings:	Document Review: No electrical drawing available for information as per Alliance Standard Part 10 Section 10.3.7
Suggested Plan of Action:	Have a qualified electrical engineer develop an as-built single line diagram detailing key components and capacity of the electrical system.
Suggested Deadline Date:	23 Jun 2014
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:	3
Description:	Workers that operate and maintain the electrical system have not received electrical safety training in compliance with NFPA 70e or equivalent standard.
Source of Findings:	Worker Interviews: Workers did not report receiving training as noted.
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:	23 Jun 2014
Standard:	Reference NFPA 70e for example
Question:	Are records concerning the testing and inspection of the electrical systems maintained on site and up to date?
Priority Level:	Medium



Non-Compliance Level:	3
Description:	Periodic safety inspections of the electrical system components are not documented as per Alliance Standard Part 10 Building Services Section 10.13 Inspection and Testing.
Source of Findings:	Document Review: No records of periodic safety inspections of the electrical system components available
Suggested Plan of Action:	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Inspection should include general conditions and conformance to Bangladesh standards and specs, insulation resistance testing, earth resistance testing, and operational testing under load (clamp on ammeters can be used). All testing should be conducted by competent personnel. Maintain records concerning inspections and follow up actions.
Suggested Deadline Date:	23 Jun 2014
Standard:	Alliance Standards Part 10 Section 10.13.8 Electrical Inspections
Question:	Are thermographic scans of electrical equipment completed at least every three years?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	No thermographic scans of electrical equipment are completed at least every three years as per Alliance Standards Part 10 Section 10.13.8 Electrical Inspections
Source of Findings:	Document Review: No records of thermographic scans
Suggested Plan of Action:	Complete thermographic scans at least on a three year cycle. Thermographic scans should be completed in accordance with the Standard for Infrared Inspection of Electrical Systems & Rotating Equipment and NFPA70B or a comparable standard.
Suggested Deadline Date:	23 Jul 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:	Periodic safety inspections of the electrical system components are not completed and documented as per Alliance Standard Part 10 Building Services Section 10.13 Inspection and Testing.



Source of Findings:	Document Review: No records of periodic safety inspections of the electrical system components
Suggested Plan of Action:	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Inspection should include general conditions and conformance to Bangladesh standards and specs, insulation resistance testing, earth resistance testing, and operational testing under load (clamp on ammeters can be used). All testing should be conducted by competent personnel. Maintain records concerning inspections and follow up actions.
Suggested Deadline Date:	23 Jun 2014
Standard:	Alliance Standard Part 10 Section 10.13 Inspection and Testing and Part 13 Section 13.6 Housekeeping
Question:	Is a periodical Insulation Resistance Measurement Program established and recorded?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	No periodical Insulation Resistance Measurement Program established and recorded as per Alliance Standard Part 10 Section 10.13.4 Insulation Tests and 10.13.8 Electrical Inspections
Source of Findings:	Document Review: No records of Insulation Resistance Measurement Program 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:	23 Jun 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:	1
Description:	No inspection in annual basis as per Alliance Standards Part 10 Section 10.13.8 Electrical Inspections
Source of Findings:	Document Review: No records of inspection 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:	23 Jun 2014
Standard:	Alliance Standards Part 10 Section 10.13.8 Electrical Inspections
<b>Electrical System Conditions</b>	
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:	Oil filled transformers (NOTE: not currently in use, factory uses generator power only) are not separated by a minimum 2 hour fire resistive rated construction.
Source of Findings:	Photograph: Transformer room
Suggested Plan of Action:	As per Alliance standard oil filled transformers for non high-rise buildings shall be separated by a minimum 2 hour fire resistive rated construction.
Suggested Deadline Date:	23 Jun 2014
Standard:	Alliance Standard Part 3 Section 3.4.2.1.4
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:	Fourth Floor(Cutting) SDB and 2nd floor North side DB, there are two cables from single circuit breakers.
Source of Findings:	Visual Assessment: Two cables from single circuit breakers observed.
Suggested Plan of Action:	There should be no multi looping of wiring/cables at circuit breakers within switchboards and/or distribution boards. Remove looping of wiring/cables in distribution boards (Fourth Floor SDB and 2nd Floor North Side DB). Affirm no other multi looping is present in other DBs.
Suggested Deadline Date:	23 Jun 2014
Standard:	Alliance Standard Part 10 Section 10.3 Electrical Wiring and Cabling






Question:	Are all switchboards and/or distribution boards properly grounded (earthed)?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	The majority of metal distribution panels (ground floor DB is exception) are not properly grounded.
Source of Findings:	Photograph: No grounding at Distribution board
Suggested Plan of Action:	All Distribution Board covers in the building should connected to the building earthing/grounding system such as metal rebar in concrete, metal frame of building, or metal water pipe in accordance with BNBC 2006 Part 8.
Suggested Deadline Date:	23 Jun 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:	Proper identification was not provided on any switchboards and/or distribution boards as per BNBC Part 8 Section 2.11.5.4
Source of Findings:	Photograph: No identification mark at DB
Suggested Plan of Action:	Switchboards and/or distribution boards should have clear and permanent unique identification markings (e.g. MDB-01) as per BNBC Part 8 Section 2.11.5.4. All distribution boards shall be marked by use (e.g. "Lighting" or "Power"), as the case may be, and also be marked with the voltage and number of phases of the supply. Each shall be provided with a circuit list giving diagram of each circuit which it controls and the current rating for the circuit and size of fuse element.
Suggested Deadline Date:	23 Apr 2014
Standard:	Alliance Standard Part 10 Section 10.7 BNBC Part 8 Section 2.11.5.4
Question:	Are electrical wiring/cables properly identified?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	No labeling found on cabling or wiring.
Source of Findings:	Photograph: Wiring /Cable not Identified.
Suggested Plan of Action:	Indelibly and clearly label all incoming and outgoing circuits of HT and LT panels. Provide circuit diagram and labeling of switches and cables in all DB.





Suggested Deadline Date:	23 Jun 2014	
Standard:	Bangladesh Electricity Rules 1937 Rule 51 and 56	
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:	Un-terminated wires are found in all of the distribution boxes. No cable lugs in Phase, Neutral and Earthing bar.	
Source of Findings:	Photograph: Photo of example DB with un-terminated wires.	
Suggested Plan of Action:	No un-terminated wires are permitted in the DB. All cables should be affixed to phase, neutral or Earthing bar with appropriate lugs/sockets. Cables shall be connected to terminals only by soldered or welded lugs, unless the terminal are of such form that it is possible to securely clamp them without cutting away the cable strands as per BNBC Part 8 2.5.5.4	
Suggested Deadline Date:	23 Jun 2014	
Standard:	Alliance Standards Part 10 Section 10.3.9.2 Wiring of Sub-distribution Boards	
Question:	Each circuit is provided with a dedicated neutral.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Third floor south side DB is not provided with a dedicated neutral as per Alliance Standards Part 10 Section 10.3 Electrical Wiring and Cabling	
Source of Findings:	Visual Assessment: No dedicated neutral observed in south side DB	
Suggested Plan of Action:	Each circuit must be provided with a dedicated neutral.	
Suggested Deadline Date:	23 Jun 2014	
Standard:	Alliance Standards Part 10 Section 10.3 Electrical Wiring and Cabling	




Question:	Electrical wiring and conduit is properly supported.
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Cabling in substation is laid on floor without protection.
Source of Findings:	Photograph: Photo of cabling in substation
Suggested Plan of Action:	Cables run on floors must be protected and supported on cable trays or in trenches as per Alliance Standard 10.13 and BNBC Part 8 2.7.4
Suggested Deadline Date:	23 Jun 2014
Standard:	Alliance Standard Part 10 Section 10.3.2, 10.3.4.3, and 10.3.5
Question:	Mechanical guards are provided for electrical equipment and wiring where necessary.
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Third Floor East side MDB was missing protection against contact with circuits.
Source of Findings:	Visual Assessment: No protection from contact with circuits provided on 3rd Floor east MDB.
Suggested Plan of Action:	Install proper protective guards to prevent contact with bus bars. Proper guards will be constructed of non-conductive material and sufficient to prevent inadvertent contact with live circuits.
Suggested Deadline Date:	23 Jun 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:	An instruction board for first aid and artificial respiration is located in the generator room and substation room.
Priority Level:	Low
Non-Compliance Level:	3
Description:	There was no instruction board for first aid and artificial respiration in the generator and substation room.
Source of Findings:	Visual Assessment: No first aid instruction board observed.
Suggested Plan of Action:	Instruction board for first aid and artificial respiration should be installed in substation and generator room.
Suggested Deadline	23 May 2014





Date:		
Standard:	A sign detailing electrical shock first aid procedures should be installed in these rooms.	
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 the prohibition of light fixtures without protective covers not installed in storage areas as per Alliance Standards Part 10 Section 10.15 Naked Lights	
Source of Findings:	Visual Assessment: No signage indicating the prohibition of light fixtures without protective covers observed.	
Suggested Plan of Action:	Install signage in all storage areas or other areas of combustibles indicating no use of light fixtures without protective covers as per Alliance Standard 10.15.2. Signs should conform to ANSI Z535 or equivalent international standard regarding safety signs.	
Suggested Deadline Date:	23 Jun 2014	
Standard:	Alliance Standards Part 10 Section 10.15 Naked Lights	
Question:	Phase separators are provided between terminals on circuit breakers.	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	On the south side of the third floor, the Distribution Board has no phase separators at MCCB.	
Source of Findings:	Visual Assessment: No phase separators observed at MCCB, south side 3rd floor.	
Suggested Plan of Action:	Install phase separators between terminal connections at south side DB of 3rd Floor. Affirm phase separators are provided on all other factory DB's.	
Suggested Deadline Date:	23 Jun 2014	
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections	
<b>Lightning Protection System</b>		



Question:	Is a lightning protection system installed on the building?	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	No lightning protection system installed on the building as per Alliance Standards Part 10 Section 10.11 Lightning Protection. Calculated Risk index of 40-50.	
Source of Findings:	Photograph: No lightning system at roof top	
Suggested Plan of Action:	Install a lightning protection system in accordance with BNBC Part 8. A qualified electrical engineer should design the lightning protection system and a licensed electrician/contractor should install the designed system.	
Suggested Deadline Date:	23 Jun 2014	
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection. Calculate Risk Index to determine if required.	