

INITIAL ELECTRICAL ASSESSMENT REPORT (EAR)

Factory Name: **Delmas Apparels (Pvt) Limited**

Address: **Plot No.5, Sector - 2/A CEPZ, Chittagong Chittagong
Chittagong Bangladesh**

Assessor: **Sumerra**

Date: **12 Apr 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.



Factory Name: **Delmas Apparels (Pvt) Limited**
 Address: **Plot No.5,Sector - 2/A CEPZ, Chittagong Chittagong Chittagong Bangladesh**

Assessor: **Sumerra**
 Date: **12 Apr 2014**



ALLIANCE
 FOR BANGLADESH WORKER SAFETY

GENERAL INFORMATION

General Information	
Factory Name:	Delmas Apparels (Pvt) Limited
Address:	Plot No.5,Sector - 2/A CEPZ, Chittagong Chittagong Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong
Zip Code:	
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	May 30, 2014
Final Report Date :	August 30, 2014
Are all action items from previous assessment complete? :	N/A
Buildings in Complex :	1 Building with 5 floors
Is the building(s) owned or rented by the Factory?:	Owned
Number of Building Levels (Stories) :	5
Approximate Building Area (SF) :	64,600 SF
Date of Building Construction :	Initial construction 2010
Date of Last Building Renovation/Addition :	2013
Ancillary Structures in Complex :	None
Approximate Ancillary Structures Area (SF) :	None
Number of Occupants :	Approx. 1100

Factory Name: **Delmas Apparels (Pvt) Limited**
Address: **Plot No.5,Sector - 2/A CEPZ, Chittagong Chittagong Chittagong Bangladesh**

Assessor: **Sumerra**
Date: **12 Apr 2014**



ALLIANCE
FOR BANGLADESH WORKER SAFETY



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:	As-built electrical drawings are not available on site for review of the information of electrical systems. No electrical layout drawings or grounding layout/grounding riser drawings could be provided.
Source of Findings:	Document Review: Factory authority could not provide any kind of electrical layout or drawing.
Suggested Plan of Action:	Have a qualified electrical engineer develop as-built single line diagram detailing key components and capacity of the electrical system. Additionally, electrical/equipment layout drawings and grounding layout/grounding riser drawings should be developed and made available.
Suggested Deadline Date:	24 Nov 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:	The factory stated that they had conducted training, but had no documentation to demonstrate that training on site.
Source of Findings:	Document Review: No documented training records available., Worker Interviews: Workers did not indicate that they had received such training.
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. Keep training rosters current and keep training records for 3 years on site.
Suggested Deadline Date:	24 Nov 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:	No records concerning the testing and inspection of the electrical systems are maintained.
Source of Findings:	Document Review: The Factory management team could not show testing and inspection documents.
Suggested Plan of Action:	Develop an electrical maintenance program that includes inspections and testing of the electrical systems.
Suggested Deadline Date:	24 Nov 2014
Standard:	Alliance Standards Part 10 Section 10.13.8 Electrical Inspections
Question:	Is a periodical Insulation Resistance Measurement Program established and recorded?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	The in house electrical engineer reportedly conducted tests but was not able to provide documentation to demonstrate frequency or results.
Source of Findings:	Document Review: No documentation of Insulation Resistance Measurement was provided.
Suggested Plan of Action:	Develop an Insulation Resistance Measurement Program that ensures deterioration of insulation resistance will be identified quickly. 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:	24 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.13.4 Insulation Tests and 10.13.8 Electrical Inspections
Question:	Are thermographic scans of electrical equipment completed at least every three years?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	No thermographic scanning is conducted.



Source of Findings:	Document Review: No documents on thermographic scan to review	
Suggested Plan of Action:	Complete thermographic scans at least on a three year cycle. Records should be maintained for at least 3 years.	
Suggested Deadline Date:	24 Nov 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:	2	
Description:	The company could not provide inspection documentation from previous inspections of the electrical system. Electrical switchgear and panel boards are not inspected on an annual basis to ensure that the equipment is installed in accordance with the listed ratings.	
Source of Findings:	Document Review: There are no documented periodic safety inspections of the electrical system components available for review.	
Suggested Plan of Action:	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Electrical switchgear and panel boards should be inspected on an annual basis to ensure that the equipment is installed in accordance with the listed ratings. Maintain records concerning inspections and follow up actions.	
Suggested Deadline Date:	24 Nov 2014	
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:	3	
Description:	Factory management states that oil analysis is not routinely conducted.	
Source of Findings:	Worker Interviews: Factory management states that oil analysis is not routinely conducted.	
Suggested Plan of Action:	Complete an oil analysis on applicable transformers at appropriate intervals based on voltage and power. Keep a record of the results for at least three years.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.13.8 Electrical Inspections	



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:	Substation room is located at the Main Building ground floor (South side) of the factory. The transformer is located in the substation room and is not separated by a minimum 2 hour fire resistive rated construction.	
Source of Findings:	Photograph: Photo of transformer	
Suggested Plan of Action:	Separate oil filled transformers by a minimum 2 hour fire restrictive rated construction.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standard Part 3 Section 3.4.2.1.4	
Question:	Are all switchboards and/or distribution boards metal enclosed with a dead front construction?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	No protection observed in front of bus-bar inside MDB -1 and live/energized components of 3rd floor panel board. These boards do not have dead front construction to prevent access to live or energized parts).	
Source of Findings:	Photograph: Photo of MDB	
Suggested Plan of Action:	Install guards/dead front materials in front of bus bars and other live wiring in MDB and panel boards. All panel boards and switchboards must have dead front construction (no live or energized parts on the operating side).	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.7 Main Switch, Switchboards and Metal Clad Switchgear	



Question:	Do switchboards and/or distribution boards have clear identification markings?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	All switchboards and/or distribution boards do not have clear identification markings including circuit diagrams/panel schedules.
Source of Findings:	Photograph: Photo of typical switch board and DB
Suggested Plan of Action:	All distribution boards shall be marked "Lighting" or "Power", as the case may be, provided a unique ID number (e.g. MDB-1) 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 (panel schedule).
Suggested Deadline Date:	24 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:	2
Description:	None of the switchboards and/or distribution boards in the factory have capacity information labels
Source of Findings:	Photograph: Photo of distribution board
Suggested Plan of Action:	Label all switchboards and/or distribution boards in the factory with capacity information. The permanent label should identify the maximum voltage present in an item of equipment or within the enclosure.
Suggested Deadline Date:	24 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:	2
Description:	Wiring in panels (1st floor MDB-1, 3rd floor panel board) is not properly color coded, wires are marked by temporary color (Red, Yellow, green) tape.
Source of Findings:	Photograph: Wiring in panel
Suggested Plan of Action:	Phase, line, neutral, etc. should be easily identifiable by the use of approved color coding or cable tags and codes. Where not indicated by color, every





	cable core of a fixed wiring installation should be identifiable at its terminations and its length by appropriate labels or coding. All cables connecting switch boards and equipment must be identified (cable tags).	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Bangladesh Electricity Rules 1937 Rule 51 and 56	
Question:	Electrical connections at equipment, fixtures, etc are properly secured.	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Capacitor connections were observed on the exterior of the motor housing of at least one sewing machine in the sewing section on the first floor.	
Source of Findings:	Photograph: Capacitor connection observed outside of motor housing	
Suggested Plan of Action:	Review all sewing machine conditions. Ensure all connections are sealed inside the equipment electrical insulation unit per the equipment design.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.3.1 Electrical Connections	
Question:	Are junction boxes and other electrical devices provided with covers?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Majority of panel doors fully close and latch but some do not latch/lock (e.g.LT panel board at sub-station). 2nd floor wash room (female) switch was observed damaged. LT panel connection cable not properly covered at sub-station.	
Source of Findings:	Photograph: LT panel connection cable, Visual Assessment: LT panel board at sub-station panel door not latched/locked LT panel connection cable	
Suggested Plan of Action:	Assure all panel doors fully close and latch/lock. Repair or install latches as necessary. Repair/replace broken switch in 2nd floor washroom Cover wiring at LT panel connection.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.3.5 and 13.6.2	



Question:	Required equipment and safety signage is posted within the room.
Priority Level:	Low
Non-Compliance Level:	3
Description:	No proper electric danger / caution signage was observed in the substation room.
Source of Findings:	Photograph: Attached photo of substation room illustrates lack of signage.
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:	24 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:	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 room or substation room.
Source of Findings:	Visual Assessment: There was no instruction board for first aid and artificial respiration in the generator room or substation room.
Suggested Plan of Action:	Install instruction board for first aid and artificial respiration in the generator and substation rooms.
Suggested Deadline Date:	24 Nov 2014
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:	No signage was observed indicating the prohibition of light fixtures without protective covers installed in storage areas.	
Source of Findings:	Visual Assessment: No signage indicating the prohibition of light fixtures without protective covers observed	
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:	24 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:	Meter missing at electric boiler.	
Source of Findings:	Photograph: Photo of Electric Boiler	
Suggested Plan of Action:	Repair/reinstall missing meter on electric boiler.	
Suggested Deadline Date:	24 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:		
Description:	No phase separator between circuit breakers in ground floor LT panel / LT switchgear	
Source of Findings:	Visual Assessment: No phase separator observed in LT panel/switchgear	
Suggested Plan of	Install phase separators between terminal connections in ground floor LT	



Action:	panel/switchgear. Verify phase separators are installed at all remaining locations.
Suggested Deadline Date:	24 Nov 2014
Standard:	Alliance Standard Part 10 Section 10.3.1 Electrical Connections

Emergency Power System

Question:	Is the building provided with an emergency power generator?	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	The building does not use an emergency power generator as back up.	
Source of Findings:	Visual Assessment: No emergency power generator observed.	
Suggested Plan of Action:	The emergency power as an uninterruptible system should be installed to be able to power the elevator, fire suppression pumps, emergency lights, fire alarms and exit signs.	
Suggested Deadline Date:	24 Nov 2014	
Standard:		
Question:	Are life safety loads (fire alarm, fire pump, elevators, emergency lighting, exit signage, etc) connecting to the emergency power system?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	The fire alarm, emergency lighting and exit signage is connected to the emergency power system. The elevators are not connected at this time.	
Source of Findings:	Visual Assessment: Elevators are not connected to emergency power system.	
Suggested Plan of Action:	Connect the elevators to the emergency power system. Any fire pumps to be installed should be connected as well to the emergency power system in addition to the elements already included.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standard Part 10 Section 10.8 Standby Power	

Lightning Protection System

Question:	Is a lightning protection system installed on the building?	
Priority Level:	High	

Factory Name: **Delmas Apparels (Pvt) Limited**
 Address: **Plot No.5,Sector - 2/A CEPZ, Chittagong Chittagong Chittagong Bangladesh**

Assessor: **Sumerra**
 Date: **12 Apr 2014**



ALLIANCE
 FOR BANGLADESH WORKER SAFETY

Non-Compliance Level:	2	
Description:	No lightning protection system is installed on the building. There was no roof top lightning arresters. Risk assessment indicates it is deemed necessary.	
Source of Findings:	Uploaded Document: Lighting risk assessment	
Suggested Plan of Action:	Have a qualified electrical engineer design a lightning protection system according to the BNBC requirements. Have a licensed electrician install the designed system.	
Suggested Deadline Date:	24 Nov 2014	
Standard:	Alliance Standards Part 10 Section 10.11 Lightning Protection. Calculate Risk Index to determine if required.	