# INITIAL FIRE ASSESSMENT REPORT (FAR)

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| Factory Name: | **Delmas Apparels (Pvt) Limited** |
| Address: | **Plot No.5,Sector - 2/A CEPZ, Chittagong Chittagong Chittagong Bangladesh** |
| Assessor: | **Sumerra** |
| Date: | **21 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.

# GENERAL INFORMATION

| General Information | |
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| 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: | June 3, 2014 |
| Final Report Date: | June 3, 2014 |
| Are all Action Items From Previous Assessment Completed?: | N/A |
| Buildings in Complex: | One |
| Is the building(s) owned or rented by the Factory: | Owned |
| Number of Building Levels (Stories): | 4 stories plus pre- fabricated steel structure at rooftop to create 1 additional level. |
| Approximate Building Area (SF): | 67500 |
| Date of Building Construction: | Building construction began in 2009, first four floors completed in 2010. Last floor (steel shed) added in 2013. |
| Date of Last Building Renovation/Addition: | 1 floor extension was completed in 2013. No vertical extension is present after 5th floor. |
| Ancillary Structures in Complex: | None |
| Approximate Ancillary Structures Area (SF): | NA |
| Number of Occupants: | 1100 |

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| Number of Ancillary Levels (Stories): | NA |
| Occupancy Type: | G2 |
| Construction Type: | Type 1 |
| Height of Highest Occupied Floor Level Above Grade: | The Building is 60 feet high, the highest occupied floor is the 5th floor. |

# ASSESSMENT FINDINGS

| Fire Protection Construction | | |
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| Question: | Are openings and penetrations through rated walls and/or assemblies protected? | |
| Priority Level: | High | |
| Non-Compliance Level: | 3 | |
| Description: | Floor to floor penetrations in fire rated floor assemblies were observed on each floor (e.g ceiling hole, corner of factory floor and in electrical rooms for conduit/cabling) | |
| Source of Findings: | Visual Assessment: Floor to floor penetrations in fire rated floor assemblies observed on each floor. | |
| Suggested Plan of Action: | Floor to floor penetrations shall be protected/sealed with a listed through penetration firestop system tested in accordance with ASTM E814. Confirmation should be provided that any materials used can conform to standard as per Alliance Standard Section 4.7 Penetrations | |
| Suggested Deadline Date: | 24 Nov 2014 | |
| Standard: | Includes doors, windows, ducts, piping, etc. Reference Alliance Standards Part 4 Section 4.6 Opening Protectives and Section 4.7 Penetrations | |
| Question: | Are exit enclosures provided with fire-resistive rated construction barriers? |  |
| Priority Level: | High | |
| Non-Compliance Level: | 3 | |
| Description: | Doors to exit are swinging gate style doors with no fire rating, and therefore exit enclosures are not provided with fire-resistive rated construction barriers Alliance Standards Part 4 Section 4.5 Separation. Exits are not protected by fire doors. | |
| Source of Findings: | Photograph: Photo of exit enclosure without fire rated door. | |
| Suggested Plan of Action: | Provide minimum 1.5-hr fire rated doors and seal all unprotected openings to separate the exit stairs from work areas and other building spaces on all floor levels. Ensure that the fire doors are self-closing and have positive latching and that they are provided with fire exit (panic) hardware serving production floors. Fire doors assemblies shall conform to NFPA 252, BS 476 Part 22, EN 1364-1, GB 12955-2008, or IS 3614 Part II. Retain the services of qualified fire engineer to assist in specifying and installing fire rated assemblies. | |
| Suggested Deadline Date: | 24 Nov 2014 | |

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| Standard: | Reference Alliance Standards Part 4 Section 4.5 Separation | |
| Question: | Are separations between hazards provided with fire-resistive rated construction barriers. |   |
| Priority Level: | Medium | |
| Non-Compliance Level: | 2 | |
| Description: | Boiler room is not separated as required by Alliance Standards Part 4 Section 4.5 Separation The transformers were not sufficiently segregated from other areas of substation as per Alliance Standards Part 4 Section 4.5 | |
| Source of Findings: | Photograph: Photo of 2nd Flr. Steam Boiler without fire rated wall and door Photo of transformer | |
| Suggested Plan of Action: | The boiler room shall be separated from other occupancies by a minimum 1 hour construction. Separate transformer by 2-hour fire rated construction. It is recommended to retain the services of a qualified fire engineer to design the aforementioned segregation. | |
| Suggested Deadline Date: | 26 Aug 2014 | |
| Standard: | Reference Alliance Standards Part 4 Section 4.5 Separation | |
| Question: | Certificates of Occupancy for each building have been issued and are on file. | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | No Certificate of occupancy available for review. | |
| Source of Findings: | Document Review: No Certificate of occupancy available for review. | |
| Suggested Plan of Action: | Provide Certificates of Occupancy for review. | |
| Suggested Deadline Date: | 15 Jul 2014 | |
| Standard: | Are certificates of occupancy provided for each building or ancillary structure? | |
| **Fire Protection Systems** | | |
| Question: | Does the building have a fire pump? | |
| Priority Level: | High | |
| Non-Compliance Level: | 3 | |
| Description: | They do not have automatic fire pump. They have only manual electric submersible pump for lifting and refilling overhead tank from deep tube well to provide water supply of fire hose reel system. | |

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| Source of Findings: | Visual Assessment: No rated fire pump observed. |
| Suggested Plan of Action: | Revision of existing standpipe system (mentioned elsewhere) will require the installation of rated fire pump. Install the fire pumps in accordance with NFPA 20. Consult with a qualified fire engineer to properly design and install pump system. |
| Suggested Deadline Date: | 24 Nov 2014 |
| Standard: | Alliance Standard Part 5 Fire Protection Systems |
| Question: | Does the building have a Standpipe System? |
| Priority Level: | High |
| Non-Compliance Level: | 2 |
| Description: | Factory has a hose reel system with two Class II connections on each factory floor. However, no standpipe system is installed as per Alliance Standard Part 5 Section 5.4.2 (Class III connection on every floor installed in stairs). |
| Source of Findings: | Photograph: Photo of hose reel system with Class II connections. Photo of water tanks. |
| Suggested Plan of Action: | Install a standpipe system designed by a qualified fire protection engineer. System should include rated fire pump and Class III standpipe hose connections (65 mm) in each stairwells at each floor level including occupiable roofs. |
| Suggested Deadline Date: | 27 Aug 2014 |
| Standard: | Does the building have a standpipe system installed where required. Alliance Standard Part 5 Section 5.4.2 |
| Question: | Are notification and initiation devices for the fire alarm system installed at required locations based on occupancy type? |
| Priority Level: | High |
| Non-Compliance Level: | 2 |
| Description: | As per Alliance Standard 5.7.3.6 an automatic fire alarm and detection system shall be provided; however, the factory only has a manual alarm system with single point smoke detection at this time. |
| Source of Findings: | Visual Assessment: Manual fire alarm system with single point smoke detection observed. |
| Suggested Plan of Action: | Install automatic fire alarm system with sufficient smoke/heat detectors as per NFPA 72. Automatic detectors should be tied into the fire alarm system. Alarm system should initiate occupant notification upon activation of detectors in addition to the manual fire alarm stations. All fire alarm installations shall be submitted for review by the Alliance for review prior to commencement of installation. |


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| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Pull stations at egress points, smoke detectors in air handling equipment, visual and audible devices spaced appropriately based on occupancy type. Reference NFPA 72 | |
| Question: | Are fire department connections provided and clearly identified for the Fire Protection Systems? |  |
| Priority Level: | Medium | |
| Non-Compliance Level: | 3 | |
| Description: | As noted elsewhere, factory does not have a compliant standpipe system (hose reel system only) and does not have fire department connections as required. | |
| Source of Findings: | Photograph: Picture of the fire system present on the landings., Visual Assessment: Fire department connections not observed. | |
| Suggested Plan of Action: | Upon installation of compliant standpipe system, fire department (Siamese) inlet connections should be installed to allow fire department pumper equipment to supplement the fire protection systems. Fire department outlet connections shall be provided to allow fire department pumper vehicles to draw water from ground-level or underground water storage tanks. Connections shall match the Fire Service and Civil Defense hose thread standard. Signage for standpipe system is not in compliance with NFPA 14 Chapter 6 (e.g. no sign on Fire Department connection indicating STANDPIPE in 1 in lettering) | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standard Part 5 Section 5.5.4 Fire Department Connections | |
| Question: | Is the fire alarm and detection system monitored by a central station monitoring service or directly connected to the Fire Service and Civil Defense? | |
| Priority Level: | Medium | |
| Non-Compliance Level: | 3 | |
| Description: | Factory does not have a automatic and centrally connected fire alarm system with annunciator panel and therefore, it is not possible to have the system monitored by a central station or directly connected to fire department. | |
| Source of Findings: | Worker Interviews: Management confirms no automatic alarm system and monitoring. | |
| Suggested Plan of Action: | Installation of automatic fire alarm system (as noted elsewhere) should include an fire alarm control panel/annunciator. Until that time that a central station monitoring service or direct connection to the Fire Service and Civil Defence can be set up, a person shall be assigned to contact the fire department in the event of fire alarm activation. An annunciator shall be located in a constantly attended location to alert this person. | |

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| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standard Part 5 Section 5.7.5 Monitoring | |
| Question: | Are inspection, maintenance, and testing procedures of the standpipe and hose system documented and up to date? Including inspection and testing of hoses if provided. | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | As noted elsewhere, factory does not have a standpipe system as defined by Alliance standard (only hose reel system with Class II connections and rooftop gravity tank). For existing hose reel system, no testing reports were available for review. | |
| Source of Findings: | Document Review: No documentation on installation or testing of fire hose systems available. | |
| Suggested Plan of Action: | Any newly installed standpipe system needs to be evaluated for compliance with the design pressure and flow demands of NFPA 14 or BNBC as cited in 5.4.3. Standalone standpipe systems shall be confirmed to meet the local BNBC requirements with a minimum 450 kPa (65 psi) pressure at the hydraulically most remote hose connection or NFPA 14. This testing should be documented and available for review. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Reference NFPA 25 Chapter 6 Standpipe and Hose Systems Table 6.1.1.2 | |
| Question: | Is signage for the standpipe system installed at required locations and on required components? | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | As noted elsewhere, factory does not have a standpipe system as defined by Alliance standard (only hose reel system with Class II connections and rooftop gravity tank). For existing hose reel system, the required standpipe signage was not observed. | |
| Source of Findings: | Visual Assessment: No standpipe signage observed. | |
| Suggested Plan of Action: | Upon installation of compliant standpipe system, include required identification signs at the noted locations. Signage must comply with NFPA 14. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Reference NFPA 14 Chapter 6 | |

## Means of Egress

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| Question: | All doors in a means of egress are of the side-hinged swinging type. |
| Priority Level: | High |
| Non-Compliance Level: | 3 |
| Description: | All doors to exit stairs and doors exiting the building are sliding metal or metal cage doors (these are side-hinged but are not fire rated). |
| Source of Findings: | Photograph: Photos of typical doors in factory |
| Suggested Plan of Action: | Remove all sliding or rolling doors at and within the exit stairs, at exit discharge and along all portions of the means of egress. Replace with side-hinged swinging type doors in compliance with Standard. As noted elsewhere, exit enclosures (such as exit stairs) require fire rated door assemblies (which should be side-hinged). |
| Suggested Deadline Date: | 27 Aug 2014 |
| Standard: | Alliance Standards Part 6 Section 6.8 Doors and Gates |


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| Question: | Doors are not locked in the direction of egress under any conditions. All hasps, locks, slide bolts, and other locking devices have been removed where required. |
| Priority Level: | High |
| Non-Compliance Level: | 2 |
| Description: | Although not locked during inspection, doors and shutters have locking mechanisms (all doors in factory). |
| Source of Findings: | Photograph: Photos of typical doors |
| Suggested Plan of Action: | Remove all hasps, locks, slide bolts, or other locking devices all doors to exits / means of egress. If locks are required for security reasons, utilize special door locking features complying with NFPA 101. |
| Suggested Deadline Date: | 27 Aug 2014 |
| Standard: | Alliance Standards Part 6 Section 6.8 Doors and Gates |


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| Question: | Landings are provided on both sides of doors used along the path of egress. Doors do not swing out over stairs. |
| Priority Level: | High |
| Non-Compliance Level: | 2 |
| Description: | Metal cage type doors in path of egress open out director over stairs. |
| Source of Findings: | Photograph: Photo of metal door opening out onto stairs. |
| Suggested Plan of | Revise the set up of the doors so that doors do not open directly out onto |

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| Action: | stairs. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standards Part 6 Section 6.8 Doors and Gates | |
| Question: | Exit access corridors serving an occupant load exceeding 30 are separated by walls having a fire-resistance rating of 1 hr. | |
| Priority Level: | High | |
| Non-Compliance Level: | 1 | |
| Description: | South side discharge from ground floor discharges to pathway in front of office, store, steam tap, and compliance office; however, corridor is not protected by fire rated assembly. | |
| Source of Findings: | Visual Assessment: Corridor observed. | |
| Suggested Plan of Action: | Provide fire-resistive rated assemblies at the exit pathway from south side discharge as noted. The rated assembly should be approved and/or designed by a qualified fire protection engineer. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standard Part 6 Section 6.3 and Part 4 Section 4.5. Does not apply if an automatic sprinkler system is installed throughout the building. | |
| Question: | Occupant loads are posted for every assembly and production floor in a conspicuous space near the main point of egress. | |
| Priority Level: | Medium | |
| Non-Compliance Level: | 3 | |
| Description: | Occupant loads are not posted on each floor in accordance with Alliance Standards Part 6 Section 6.4.4 Posting of Occupant Load | |
| Source of Findings: | Visual Assessment: Occupant load postings not observed. | |
| Suggested Plan of Action: | Post maximum occupant load for all areas (near exit) | |
| Suggested Deadline Date: | 30 Jun 2014 | |
| Standard: | Alliance Standards Part 6 Section 6.4.4 Posting of Occupant Load | |
| Question: | Changes in elevation of walking surfaces do not exceed 6.35 mm (1/4 in) unless provided with a beveled slope of 1 in 2 that does not exceed 12.7 mm (1/2 in). | |
| Priority Level: | Medium | |

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| Non-Compliance Level: | 3 | |
| Description: | In all metal door entrance and exit there is a lip (door slide rail) of approximately 4 inches with out a beveled slope. | |
| Source of Findings: | Photograph: Photo attached shows lip at entry way | |
| Suggested Plan of Action: | Remove lips / slider tracks in the paths of exit/egress in all noted locations. As noted elsewhere, side swing doors are required on exits. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standard Part 6 Section 6.3.4 Walking Surfaces | |
| Question: | Handrails are provided on both sides of each stairway. Intermediate handrails are provided when the stair width exceeds 2.2 m (87 in.). Handrails are not mounted lower than 760 mm (30 in.) or higher than 1100 mm (44 in.). |   |
| Priority Level: | Medium | |
| Non-Compliance Level: | 3 | |
| Description: | The south stair has one side hand rail from ground floor to 1st floor. From the 2nd floor to the 4th floor, there is no handrail on either side. In the north stair, there is handrail in one side from Ground Floor to 4th Floor. | |
| Source of Findings: | Photograph: Photos of stairwells missing hand rails. | |
| Suggested Plan of Action: | Handrails shall be provided on both sides of each exit stairway and ramp. New handrails shall have a minimum height of 865 mm (34 in.) and a maximum height of 965 mm (38 in.) as measured from the leading edge of the tread. | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standard Part 6 Section 6.9 Stairs and 6.12 Handrails and Guards | |
| Question: | Are there additional areas of non-compliance related to the Means of Egress? | |
| Priority Level: | Medium | |
| Non-Compliance Level: | | |
| Description: | | |
| Source of Findings: | | |
| Suggested Plan of Action: | | |
| Suggested Deadline Date: | | |
| Standard: | Not Applicable | |

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| Question: | Stair designation signs are provided at each floor entrance from the stair to the floor in English and Bengali. Signs indicate the name of the stair and the floor level. Signs are posted adjacent to the door. | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | Signs are posted indicating the number of the floor, however they do not indicate the name of the stair. | |
| Source of Findings: | Visual Assessment: Stair signs indicate the name of the stair. | |
| Suggested Plan of Action: | Install signage adjacent to each stair door indicating the stair name (each stair should have unique name/id, e.g. NW Stair 1) and the floor level at the noted locations. | |
| Suggested Deadline Date: | 30 Jun 2014 | |
| Standard: | Alliance Standard Part 6 Section 6.9 Stairs | |
| **Fire Safety Programs** | | |
| Question: | Storage areas underneath the cutting tables are clear of combustibles. |  |
| Priority Level: | Medium | |
| Non-Compliance Level: | 3 | |
| Description: | Storage was observed under the cutting table on the ground level, items observed were combustible. | |
| Source of Findings: | Photograph: Cloth storage under cutting table see picture | |
| Suggested Plan of Action: | Storage underneath the cutting tables shall be kept clear of combustibles at all time as per Alliance Standard Part 17 Section 13.7.2 Cutting tables. Remove all combustibles stored underneath the cutting tables at the noted locations. | |
| Suggested Deadline Date: | 30 Jun 2014 | |
| Standard: | Alliance Standard Part 17 Section 13.7.2 Cutting tables. | |
| Question: | A written housekeeping policy is established and enforced. | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | No written housekeeping policy is established | |
| Source of Findings: | Document Review: No written housekeeping policy was available for review. | |
| Suggested Plan of Action: | Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for floor, wall, ceiling, supply and return air ventilation | |

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| | systems. Promptly reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling. As a general rule the maximum tolerable deposit thickness for loose fluffy lint is 13 mm (½ in.) over a maximum of 46.5 m2 (500 ft2). Limit dense deposits to 6 mm (¼ in.) and oil saturated deposits to 3.2 mm (⅛ in.). | |
| Suggested Deadline Date: | 26 Nov 2014 | |
| Standard: | Alliance Standards Part 13 Section 13.6 Housekeeping | |
| Question: | A hot-work permit program has been established. | |
| Priority Level: | Low | |
| Non-Compliance Level: | 3 | |
| Description: | The company does not have a hot work permitting program | |
| Source of Findings: | Worker Interviews: Management interview and lack of permitting program documentation. | |
| Suggested Plan of Action: | Develop a written hot work permit program. The program must comply with the requirements of NFPA 51B. Develop a maintenance and contractor safety policy that includes procedures for conducting hot work (e.g. welding). All hot work should be conducted with a proper permit and precautions must be available in case of fire (e.g. fire watch, fire extinguisher, etc.) | |
| Suggested Deadline Date: | 27 Aug 2014 | |
| Standard: | Alliance Standards Part 13 Section 13.4 Hot Work Permit and NFPA 51B | |