

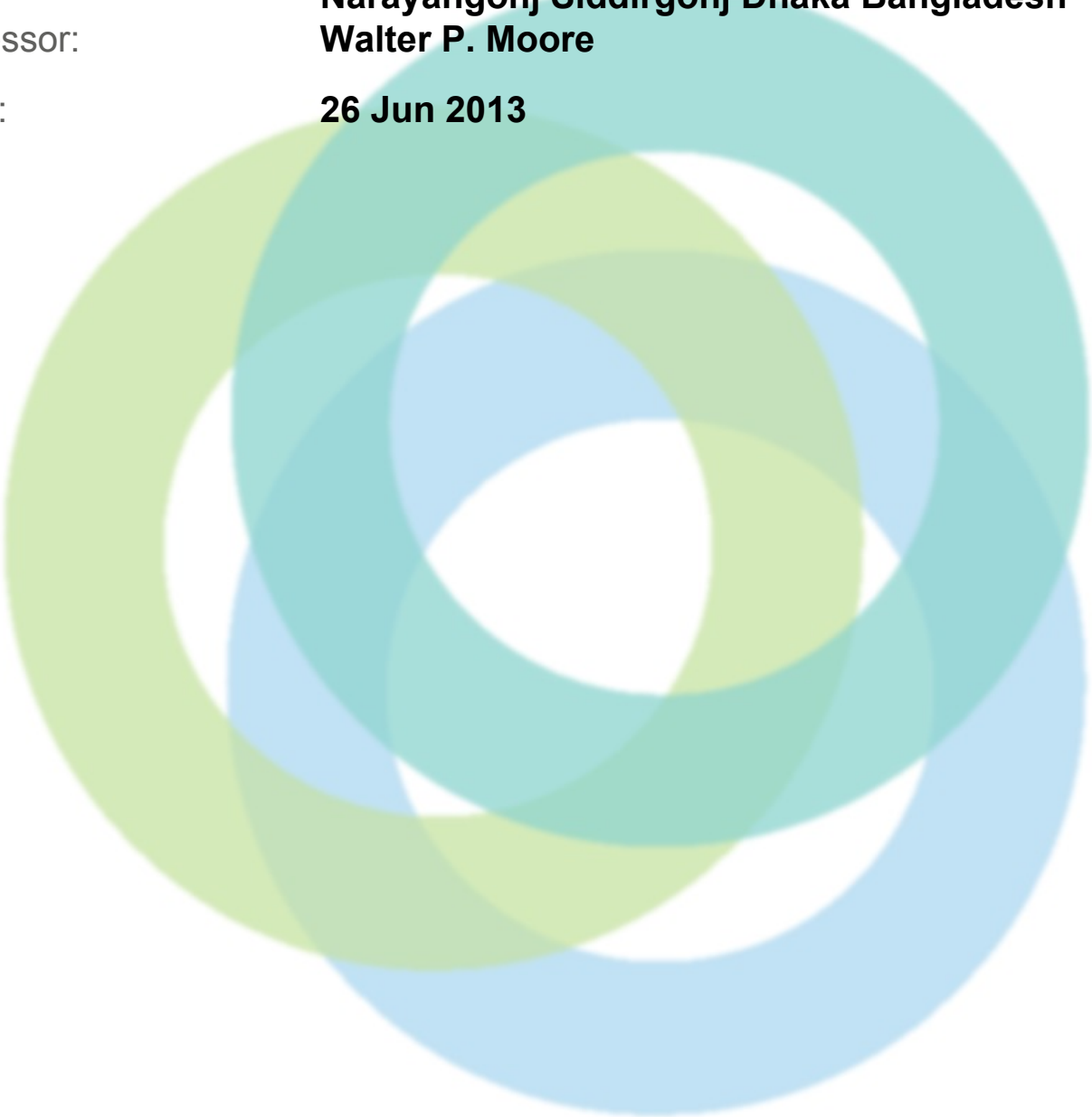
INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **DNV CLOTHING LTD**

Address: **100/101, Adamjee Nagar, Adamjee EPZ, Siddirgonj,
Narayangonj Siddirgonj Dhaka Bangladesh**

Assessor: **Walter P. Moore**

Date: **26 Jun 2013**





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:	DNV CLOTHING LTD
Address:	100/101, Adamjee Nagar, Adamjee EPZ, Siddirgonj, Narayangonj Siddirgonj Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Siddirgonj
Zip Code:	1431
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	6 June 2014
Final Report Date :	7 November 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There is 1 Main factory building in the complex.
Number of Building Levels (Stories) :	4 stories
Approximate Building Area (SF) :	Unknown.
Date of Building Construction :	2009
Date of Last Building Renovation/Addition :	N/A
Is the Building mixed use?:	No
Ancillary Structures in Complex :	There are 3 ancillary structures. A medical and childcare building and two sheds.
Number of Ancillary Levels (Stories) :	All ancillary buildings are 1 story.
Approximate Ancillary	Unknown.

Factory Name: **DNV CLOTHING LTD**
Address: **100/101, Adamjee Nagar, Adamjee EPZ, Sittirgonj, Narayanganj Sittirgonj Dhaka Bangladesh**

Assessor: **Walter P. Moore**

Date: **26 Jun 2013**



ALLIANCE
FOR BANGLADESH WORKER SAFETY

Structures Area (SF) :	
Number of Occupants :	2300 workers.
Exterior Facade Description :	The perimeter façade appears to consist of plaster finished masonry infill between the structural slab, beams, and columns.
Structural System Description :	The factory building is a structural steel frame with composite concrete and steel deck floors and roof. The building lateral force resisting system for wind and seismic loads appears to be a concentric steel braced frame system.



ASSESSMENT FINDINGS

Structural System Design

Question:	Are credible structural design documents available for review and kept on site?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	Incomplete structural documentation was provided by Factory Owner. Only steel fabricator drawings were produced. These drawings document only the structural steel framing and the building superstructure. This assessment was generally limited to the 4-story main factory building.
Source of Findings:	Document Review: Review of available documents.
Suggested Plan of Action:	Have a qualified structural engineer prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories
Question:	Can credible structural documentation indicating general conformance with 2006 BNBC or other comparable applicable international model building code be produced?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	The Zamil Steel calculations provided specify wind loading of 195 km/hr in accordance with ASCE 7-02, but seismic loads are not specified and do not appear to have been considered. It is unknown whether the seismic load requirements of the Bangladesh National Building Code (BNBC) 2006, Seismic Zone 2, would exceed the design wind loads used. In the absence of complete structural documents at this stage it could not be confirmed if the building foundation was designed for a basic wind speed of 195 km per hour and for seismic loads associated with Seismic Zone 2.
Source of Findings:	Document Review: Review of steel fabrication drawings.
Suggested Plan of Action:	Engage a qualified structural engineer to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard Part 8 Section 8.19 and 8.20
Suggested Deadline Date:	31 Dec 2014
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing



	Factory Buildings	
Question:	If built after 2006, can documented compliance with the seismic and wind requirements of the 2006 BNBC be provided?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	The Zamil Steel calculations provided specify wind loading of 195 km/hr in accordance with ASCE 7-02, but seismic loads are not specified and do not appear to have been considered. It is unknown whether the seismic load requirements of the Bangladesh National Building Code (BNBC) 2006, Seismic Zone 2, would exceed the design wind loads used. In the absence of complete structural documents at this stage it could not be confirmed if the building foundation was designed for a basic wind speed of 195 km per hour and for seismic loads associated with Seismic Zone 2.	
Source of Findings:	Document Review: Review of steel fabrication drawings.	
Suggested Plan of Action:	Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 2006 BNBC Part 6 Section 1.5	
Question:	Can documentation be provided that the building is compliant with the requirements for wind loading and storm surge loadings as detailed in BNBC Part 6 Section 1.5.3?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	The Zamil Steel calculations provided specify wind loading of 195 km/hr in accordance with ASCE 7-02, but seismic loads are not specified and do not appear to have been considered. It is unknown whether the seismic load requirements of the Bangladesh National Building Code (BNBC) 2006, Seismic Zone 2, would exceed the design wind loads used. In the absence of complete structural documents at this stage it could not be confirmed if the building foundation was designed for a basic wind speed of 195 km per hour and for seismic loads associated with Seismic Zone 2.	
Source of Findings:	Document Review: Review of all documents.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	2006 BNBC Part 6 Section 1.5. Compliance may be waived if the Factory Owner provides satisfactory evidence of a cyclone operations plan that includes full evacuation of the factory in advance of any approaching cyclone"	



Question:	Where density of operations, storage of materials, or equipment weights require live load capacity in excess of 2.0 kN/m ² (42 psf), do the design documents confirm that the required load capacity exists? Or has the load capacity been analytically confirmed and certified by an Alliance-qualified structural engineer?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	On Level 4 (third floor) of the main factory building, the storage of work materials and products creates a floor loading the almost certainly exceeds the design live load capacity of the structure. Specifically, the 10 foot tall storage racks and the 6 foot tall box stacks.	
Source of Findings:	Visual Assessment: Visual assessment of storage location.	
Suggested Plan of Action:	Have a qualified structural engineer confirm that capacity to support the load is available. Load Plans complying with Alliance Standard Part 8 Section 8.20.4.3 should also be developed.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads	
Question:	Is a clear and redundant load path to resist lateral loads provided?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	There is a clear lateral load resistance system, but it is unclear if this system has sufficient redundancy.	
Source of Findings:	Visual Assessment: Visual assessment of lateral load resistance system.	
Suggested Plan of Action:	Have a qualified structural engineer complete further analysis of the structure and develop a remediation plan if required.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5	
Question:	Is a Geotechnical Report available for review and kept on site?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	A geotechnical report was not provided to our representatives, and no geotechnical information is included on the available documents. The factory representative stated that the building foundation is a concrete pile system.	



Source of Findings:	Document Review: Review of all documents
Suggested Plan of Action:	Under guidance from a qualified structural engineer arrange geotechnical investigation at close vicinity of the structure and make the report available for review.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	1
Description:	No certificates of occupancy were available for review.
Source of Findings:	Document Review: Review of all documents.
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

Question:	Are all non-structural elements suspended from, attached to, or resting atop the structure adequately anchored and braced to resist earthquake forces?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	Various non-structural elements throughout the building were observed to not be adequately anchored and braced to resist earthquake forces. These elements include: pipes, storage racks, and equipment.
Source of Findings:	Visual Assessment: Visual assessment of non-structural elements.
Suggested Plan of Action:	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6





Question:	The exterior façade is free of cracking.	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Minor cracks in facade walls were noted at a few locations. These cracks appear to be nominal stress/ shrinkage cracking in non-structural infill wall elements of the facade. In our view, they are not indicative of structural distress and are of no structural concern.	
Source of Findings:	Visual Assessment: Visual assessment of facade.	
Suggested Plan of Action:	Have a qualified structural engineer provide further analysis of the identified cracks to determine the appropriate course of corrective action.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.2	
Structural Safety Programs		
Question:	Are floor loads in compliance with posted plans?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	There are no posted plans.	
Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Once load plans are posted, redistribute floor loads to comply with the Floor Loading Plans.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans).	
Question:	Is a program in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	There is not a program in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded.	
Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Develop a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded. The designated Load Manager shall oversee this program and ensure it is enforced.	



Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
Question:	Have Load Plans been prepared for each floor documenting the actual maximum operational loading that is intended and/or allowable on each floor.	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Load Plans have not been prepared for each floor documenting the actual maximum operational loading that is intended and/or allowable on each floor.	
Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans)	
Question:	Are Floor Load Plans posted as required?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Floor Load Plans are not posted as required.	
Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.20.5.3	
Question:	Are areas used for storage of work materials and work products, clearly marked to indicate the acceptable loading limits as described in the Load Plan for that floor?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Areas used for storage of work materials and work products, are not clearly marked to indicate the acceptable loading limits as described in the Load Plan for that floor	



Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	
Question:	Is a designated representative (Factory Load Manager), who is onsite full time, trained regarding the structural floor capacity, and serves as an ongoing vendor resource and monitor of operational factory floor loadings?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	There is not a designated representative (Factory Load Manager), who is onsite full time, trained regarding the structural floor capacity, and serves as an ongoing vendor resource and monitor of operational factory floor loadings.	
Source of Findings:	Visual Assessment:	
Suggested Plan of Action:	Designate a representative as the Factory Load Manager. The Factory Owner shall ensure that at least one individual, the Factory Load Manager who is located onsite full time at the factory, is trained in calculating operational load characteristics of the specific factory. The Factory Load Manager shall serve as an ongoing resource to RMG vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor loading limits as described on the Floor Loading Plans.	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager	