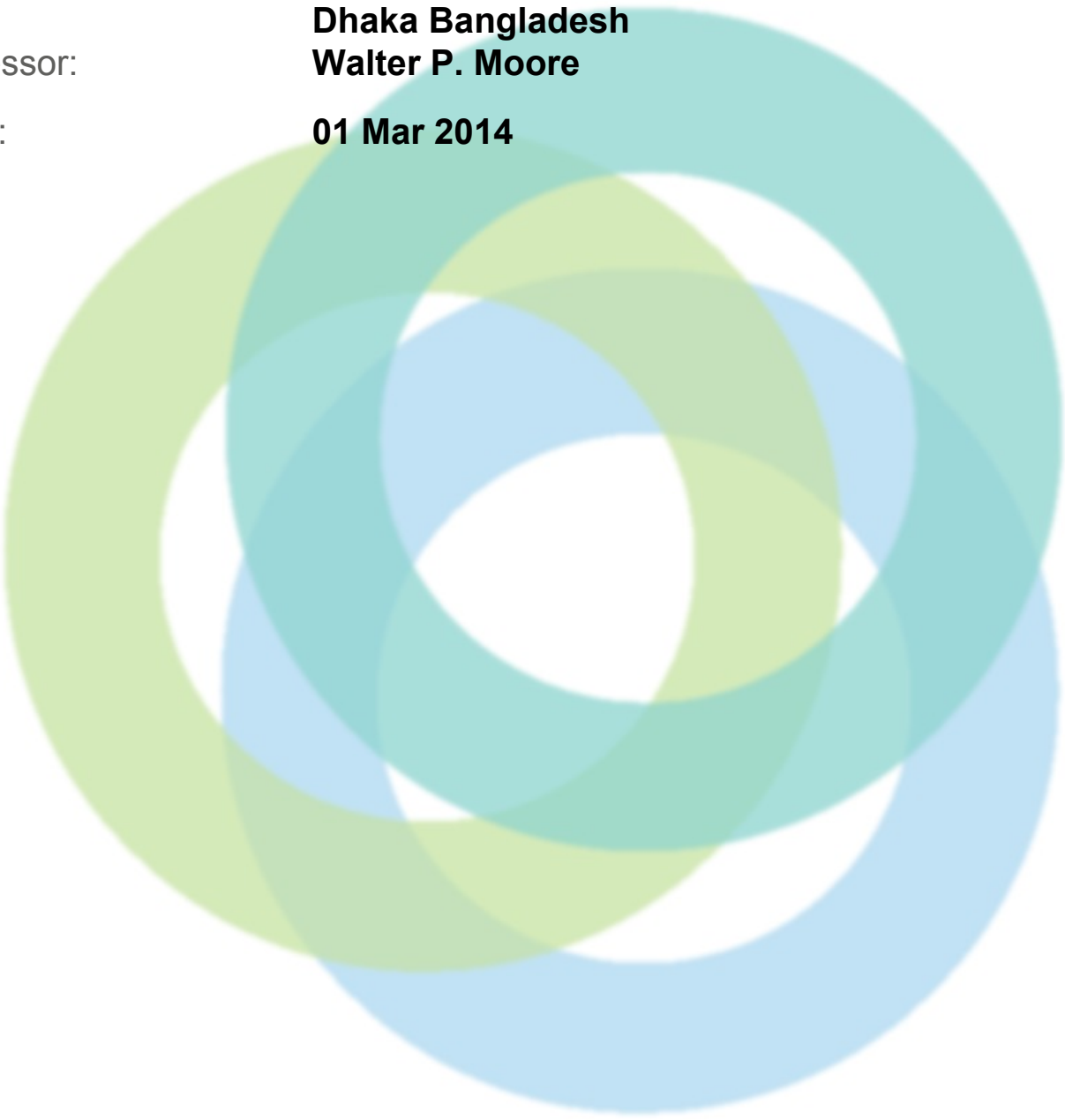


INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Columbia Garments Ltd**
Address: **Vogra, Chandana, Gazipur Sadar, Gazipur Gazipur
Dhaka Bangladesh**
Assessor: **Walter P. Moore**
Date: **01 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.





GENERAL INFORMATION

General Information	
Factory Name:	Columbia Garments Ltd
Address:	Vogra, Chandana, Gazipur Sadar, Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1704
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	June 4, 2014
Final Report Date :	November 6, 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	2-story factory building, a one story Generator Shed, a one story Effluent Treatment Plant, and a 2-story Utility Building
Number of Building Levels (Stories) :	Factory building is 2 stories tall.
Approximate Building Area (SF) :	Unknown
Date of Building Construction :	2001
Date of Last Building Renovation/Addition :	N/A
Is the Building mixed use?:	No
Ancillary Structures in Complex :	A one story Generator Shed, a one story Effluent Treatment Plant, and a 2-story Utility Building
Number of Ancillary Levels (Stories) :	Varies 1-2 Stories

Factory Name: **Columbia Garments Ltd**
Address: **Vogra, Chandana, Gazipur Sadar, Gazipur Gazipur Dhaka Bangladesh**

Assessor: **Walter P. Moore**

Date: **01 Mar 2014**



ALLIANCE
FOR BANGLADESH WORKER SAFETY

Approximate Ancillary Structures Area (SF) :	Unknown
Number of Occupants :	1970
Exterior Facade Description :	Masonry Infill with Plaster/Paint.
Structural System Description :	The 2-story factory building is a steel framed structure with composite concrete and steel framed floor. The lateral force resisting system appears to be a beam-column moment frame. The Generator Shed building is a single story steel framed structure. The lateral force resisting system also appears to be a steel beam-column moment frame. The Effluent Treatment building is a cast-in-place concrete structure with a mild reinforced waffle slab roof. The lateral force resisting system appears to be a concrete beam-column moment frame system. The Utility building is a 2-story cast-in-place concrete structure with mild reinforced slab-beam floor system, and a steel framed roof.



ASSESSMENT FINDINGS

Structural System Design

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:	3	
Description:	It is not validated that the buildings were designed in accordance with the 1993 Bangladesh National Building Code which specifies seismic and wind lateral loads. In the absence of complete structural design documents it could not be confirmed if the building was designed for a basic wind speed of 210 km per hour and for seismic loads associated with Seismic Zone 2.	
Source of Findings:	Document Review: Document Review	
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:	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.	
Source of Findings:	Document Review: Document Review	
Suggested Plan of Action:	Structural documents, if available, should be made available for review	
Suggested Deadline Date:	31 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	
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:	Incomplete structural documentation was provided by Factory Owner.
Source of Findings:	Document Review: Document Review
Suggested Plan of Action:	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"
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:	Is a clear and redundant load path to resist lateral loads provided?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	It is not validated that the buildings were designed in accordance with the 1993 Bangladesh National Building Code which specifies seismic and wind lateral loads. In the absence of complete structural design documents it could not be confirmed if the building was designed for a basic wind speed of 210 km per hour and for seismic loads associated with Seismic Zone 2.
Source of Findings:	Document Review: Document Review
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:	Where density of operations, storage of materials, or equipment weights require live load capacity in excess of 2.0 kN/m2 (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:	At Level 1, we observed 8 feet tall rack storage of various materials which could potentially overload the floor structure. No signs of structural distress were observed in the steel and concrete floor framing.





Source of Findings:	Visual Assessment: Visual observations
Suggested Plan of Action:	The capacity of the Level 1 floor structure in the main factory building to safely accommodate the racked material storage must be confirmed. The factory owner should obtain evidence from the building structural engineer of record that the floor was designed to safely accommodate these storage loads. Alternatively, the storage must be reduced to limit floor loads to the design capacity of the floors.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	1
Description:	Certificates of occupancy were not available for review
Source of Findings:	Document Review: Document Review
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 are not adequately anchored and braced to resist earthquake forces. These include the following: Steam pipes, Storage Racks, Water Tanks and Other Equipment
Source of Findings:	Visual Assessment: Visual assessment of 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:	Are any structural elements constructed with MCAC exposed to rainfall or other sources of water sealed with a protective coating to prevent water intrusion?
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Since this investigation was conducted prior to the creation of the alliance and the standard protocol, the use of MCAC was not documented.
Source of Findings:	Visual Assessment: Visual assessment
Suggested Plan of Action:	If it is determined that MCAC was used, provide a protective coating at the structural elements constructed with MCAC exposed to rainfall or other sources of water. Have protective coating approved by the Alliance or a qualified structural engineer.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).

Structural Safety Programs

Question:	Are floor loads in compliance with posted plans?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	There are no posted plans.
Source of Findings:	Visual Assessment: Visual Assessment
Suggested Plan of Action:	Once floor loads 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:	2
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: 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: 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:	2	
Description:	Floor Load Plans are not posted as required.	
Source of Findings:	Visual Assessment: 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:	2	



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: 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: 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