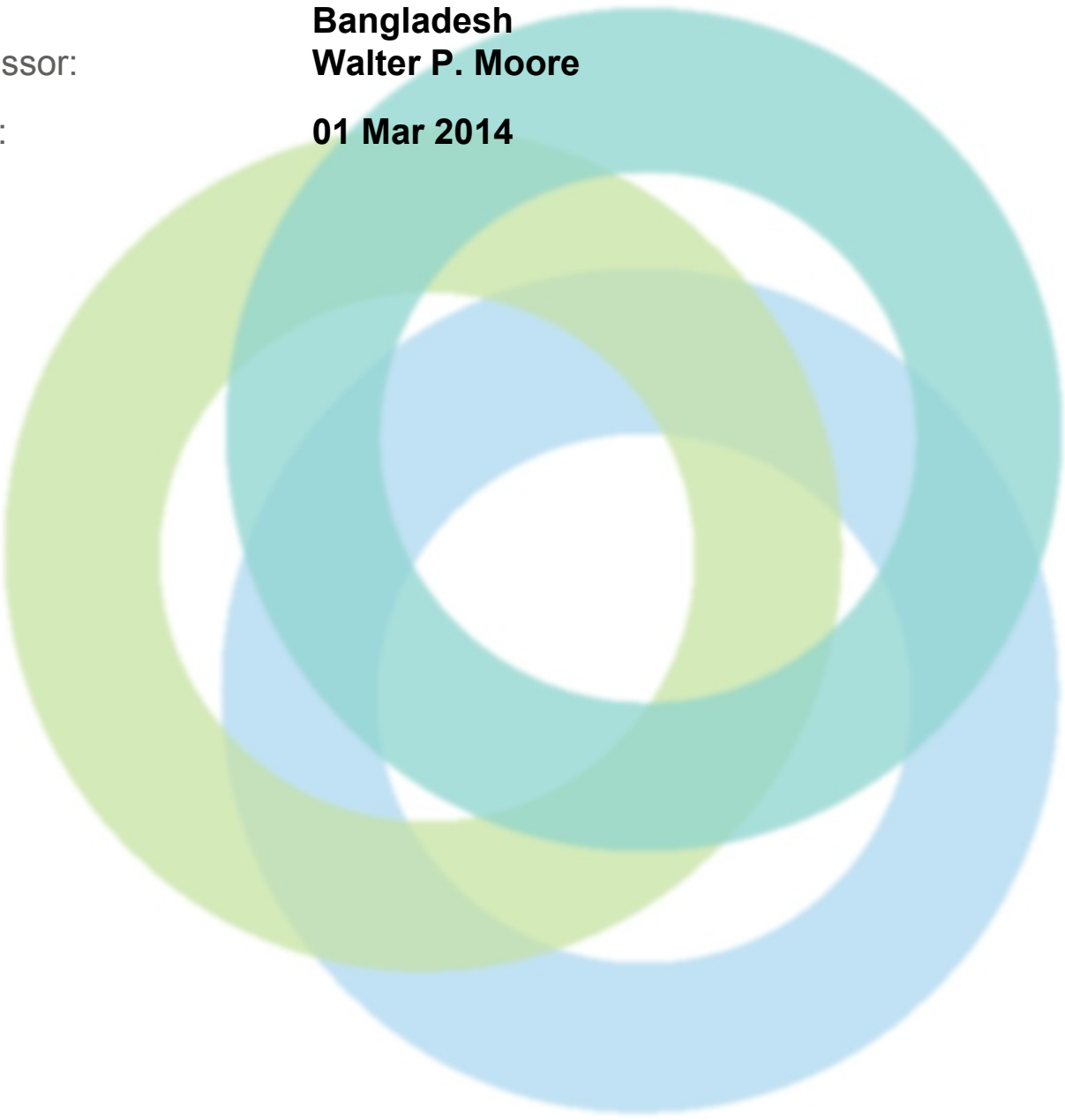


INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Cortz Apparels Ltd**
Address: **Baniarchala Bager Bazar, 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.



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GENERAL INFORMATION

General Information

Factory Name:	Cortz Apparels Ltd
Address:	Baniarchala Bager Bazar, Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1421
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	June 5 2014
Final Report Date :	October 3 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	Two factory buildings and five ancillary buildings
Number of Building Levels (Stories) :	Building 1 is a two story building with additional partial plan mezzanines at the north and south ends between the first floor and the roof. Building 2 is a single story building with a mezzanine type-level created from storage racks on the west half of the building.
Approximate Building Area (SF) :	83262 sft (all structures in complex) 5366 sq m (Building 1)
Date of Building Construction :	Factory building 1 was completed in 2006. Factory building 2 was completed in 2010
Date of Last Building Renovation/Addition :	2010
Is the Building mixed use?:	No
Ancillary Structures in Complex :	Five - Boiler Shed, Substation Shed, Dining Shed, Generator Shed, and Lab Room Shed.
Number of Ancillary Levels (Stories) :	1

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Approximate Ancillary Structures Area (SF) :	Unknown
Number of Occupants :	1314
Exterior Facade Description :	Building 1 - Masonry Infill with Plaster/Paint; Building 2 - partial masonry infill and metal sheeting panels over perimeter; Ancillary buildings - non-bearing masonry perimeter walls
Structural System Description :	For building 1, The structural floor system consists of concrete fill over metal deck in combination with composite steel beams. The lateral system appears to be beam/column moment frame “bents” in the transverse direction and tension-only steel rod or wire rope braces in the longitudinal direction. Building 2 is a similar steel framed structure. The ancillary buildings are a combination steel framing and cast-in-place reinforced concrete, with perimeter masonry infill walls.



ASSESSMENT FINDINGS

Structural System Design

Question:	If the structure has been previously expanded, was the structural impact on the entire structure analytically evaluated and confirmed by a qualified structural engineer.	 
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	The separate mezzanine floor levels observed at the north and south ends of Building 1 are neither shown on the approval drawings nor the as-built drawings. Therefore, it is not known if the floor construction is based on an engineered design or if the base building structure has been designed or verified as adequate to resist the additional loads imparted by the weight of the structure and the live loads resulting from the occupied space. On the west end of Building 1, the steel framed stair is being widened by 10" with the addition of steel plate elements at each tread. This construction appears to be undocumented, unpermitted, and constructed in the absence of an engineered design. In this case, neither the structural adequacy of the new construction nor that of the existing stair structure to carry the additional loads has been confirmed.	
Source of Findings:	Document Review: Visual observations, Visual Assessment: Visual observations	
Suggested Plan of Action:	The undocumented mezzanine levels of Building 1 should be removed unless the capacity of the base building structure to safely support the additional loads resulting from the weight of the framing and the live load of the occupied space is analytically verified. The Factory Owner should obtain from the building structural engineer of record evidence that the building as designed and constructed is adequate to resist these loads and obtain from the local jurisdiction a building permit to substantiate the mezzanine construction. The modifications (widening) to the exterior exit stair on the west side of Building 1 should be removed unless both the capacity of the base building structure to safely support the additional loads applied and the adequacy of the modified framing itself can be confirmed. The Factory Owner should obtain from the building structural engineer of record evidence that the stair as designed and constructed is adequate to resist the added loads, and obtain from the local jurisdiction a building permit to substantiate the construction.	
Suggested Deadline Date:	30 Nov 2014	
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	



Description:	Complete original structural drawings were not available for all of the buildings (including ancillary buildings) of the complex.	
Source of Findings:	Document Review: Document Review	
Suggested Plan of Action:	Structural documents, if available, should be made available for review.	
Suggested Deadline Date:	30 Nov 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:	For Building 1, the governing building code at the time of construction was the Bangladesh National Building Code (BNBC) 1993. For Building 2, the governing building code at the time of construction was the Bangladesh National Building Code (BNBC) 2006. The construction documents do not explicitly refer to the code as the basis for design, nor has it been confirmed by independent analysis. While not confirmed by documentation, based on the year of construction it is possible that the Building 1 was designed in accordance with the Bangladesh National Building Code (BNBC) 1993. Building 2 may have been designed in accordance with the 2006 version of the BNBC.	
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:	30 Nov 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:	Building 2 was completed in 2010. The construction documents do not explicitly refer to the code as the basis for design, nor has it been confirmed by independent analysis. The BNBC specifies a design criteria for seismic and wind lateral loads, including Seismic Zone 2 and a basic wind speed of 210 km	



	per hour respectively. From the limited review of the available drawings, we were not able to determine if the structural design includes special seismic detailing provisions.	
Source of Findings:	Document Review: Document Review	
Suggested Plan of Action:	For Building 2, have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.	
Suggested Deadline Date:	30 Nov 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:	Incomplete structural documentation was provided by Factory Owner. The construction documents do not explicitly refer to the code as the basis for design, nor has it been confirmed by independent analysis.	
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:	30 Nov 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:	The building lateral force resisting system for wind and seismic loads appears to be beam/column moment frame "bents" in the transverse direction and tension-only steel rod or wire rope braces in the longitudinal direction. While not confirmed by documentation, based on the year of construction it is possible that the building was designed in accordance with the Bangladesh National Building Code (BNBC) 1993.	
Source of Findings:	Document Review: Document Review, Visual observations, Visual Assessment: Document Review; Visual observations	



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:	30 Nov 2014	
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5	
Structural System Construction		
Question:	Is the structural system free of distress, separations, or cracking that indicates lack of performance or overstress of the lateral load-carrying system?	
Priority Level:	High	
Non-Compliance Level:	3	
Description:	In building 2, the tension only rod braces that are used both horizontally and vertically were observed to be in poor condition including cases where the rods were sagging, cut, removed, and/or lacking tautness. In this condition, the braces will not be effective in performing their intended function of resisting wind and seismic lateral forces.	
Source of Findings:	Visual Assessment: Visual observations	
Suggested Plan of Action:	Repair and/or replace tension only rod braces as required. Conditions where the rods are sagging, cut, removed, and/or lacking tautness shall be corrected such that the braces comply with the original construction drawings. The original engineer of record for the building should be consulted if there is any uncertainty regarding the original design and/or construction requirements.	
Suggested Deadline Date:	30 Nov 2014	
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Are structural steel members free of corrosion, physical damage or other types of deterioration?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	In Building 2, the tension-only steel braces were generally observed to be in poor condition including cases where they are sagging, cut, removed, and/or not taut. In this condition, the braces will not be effective in performing their intended function of resisting wind and seismic lateral forces.	
Source of Findings:	Visual Assessment: Visual assessment	
Suggested Plan of Action:	The tension-only rod or wire rope bracing used in both horizontal and vertical applications in Building 2 should be repaired and/or replaced as required. Conditions where the braces are sagging, cut, removed, and/or not taut should be corrected such that the braces comply with the original construction drawings. The original engineer of record for the building should be consulted	



	if there is any uncertainty regarding the original design and/or construction requirements.	
Suggested Deadline Date:	30 Nov 2014	
Standard:	Alliance Standard Part 8 Section 8.26	
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 and Other Equipment	
Source of Findings:	Visual Assessment: Visual inspection 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:	30 Nov 2014	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	

Structural Safety Programs

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:	30 Nov 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	

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