

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Cortz Apparels Ltd. Unit 2**
Address: **Nawjor, Kadda Bazar, Gazipur. Bangladesh Dhaka
Bangladesh**
Assessor: **Bureau Veritas**
Date: **05 Jul 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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Type of Assessment: **Initial Structural Safety Assessment**

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GENERAL INFORMATION

General Information	
Factory Name:	Cortz Apparels Ltd. Unit 2
Address:	Nawjor, Kadda Bazar, Gazipur. Bangladesh Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	
Zip Code:	
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	July 7, 2014
Final Report Date :	August 14, 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	1 Main Building
Number of Building Levels (Stories) :	6 (Ground+5)
Approximate Building Area (SF) :	97,944 sft.
Date of Building Construction :	2008-2009
Date of Last Building Renovation/Addition :	None
Is the Building mixed use?:	No
Ancillary Structures in Complex :	4 Ancillary Buildings: 1. Generator and Sub-station Room; 2. Hydrant Room; 3. Driver and Ansar Room; and 4. Guard Room.
Number of Ancillary Levels (Stories) :	1 (Ground)
Approximate Ancillary	Approximately 1,980 sft.

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Structures Area (SF) :	
Number of Occupants :	1,350
Exterior Facade Description :	Brick masonry infill between structural elements (concrete beams, slabs and columns). Sliding glass windows with aluminum frames. Exterior face of the masonry walls is plastered and painted.
Structural System Description :	Reinforced concrete moment resisting frame with beams between columns at the Ground Level and a flat slab with edge beams at all other levels. Foundation system is isolated spread column footings.
Issues were not found during the structural integrity assessment that required the Emergency Escalation Protocol (and referral to NTC Review Panel)?:	Yes



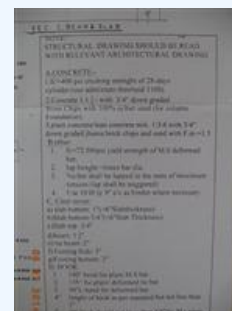
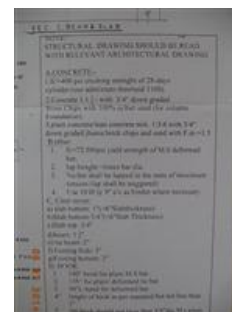
ASSESSMENT FINDINGS

Structural System Design

Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	3	
Description:	A set of structural design documents is available on site for review, but these documents do not include a design report as required per BNBC. Also, some structural details were missing from the drawings (beam/slab details) and some of the as-built structural conditions were noted to no align with the available structural documents.	
Source of Findings:	Uploaded Document: Sample of available structural drawings.	
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. This should be completed for all buildings.	
Suggested Deadline Date:	30 Sep 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 available structural documents do not indicate whether the building design was completed in general accordance with the BNBC or other comparable building code.	
Source of Findings:	Photograph: "General Notes" section of available structural drawings without information regarding design building code.	
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 Sep 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 available documents do not indicate compliance with the seismic and wind requirement of the BNBC.
Source of Findings:	Document Review: "General Notes" section of available structural drawings without lateral load design information.
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:	30 Sep 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 available structural documents do not indicate compliance with the requirements for wind loading as detailed in the BNBC.
Source of Findings:	Document Review: "General Notes" section of available structural drawings without lateral load design information.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
Suggested Deadline Date:	30 Sep 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:	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:	2
Description:	A concrete water tank structure has been added at the roof level of the main building. No evidence was available to indicate that the structural impact of this





	addition was considered.
Source of Findings:	Photograph: Concrete water tank at rooftop
Suggested Plan of Action:	Have a qualified structural engineer complete an analytical evaluation of the structural impact of the addition.
Suggested Deadline Date:	30 Sep 2014
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.
Question:	Is a clear and redundant load path to resist lateral loads provided?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	The main building is a six story building. The Ground Floor is constructed with beams and slabs forming a moment resisting frame. Levels above the Ground Floor are constructed with a flat slab with edge beams. The lateral load path at the upper levels is unclear and potentially not redundant. Further investigation is required to establish the lateral load redundancy.
Source of Findings:	Visual Assessment: Moment resisting frame at Ground Level, flat slab typical of elevated levels.
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 Sep 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:	Have provisions been made in floors or decks for a concentrated load (such as heavy equipment, water tanks, stored materials, etc) applied at a location wherever this load acting upon an otherwise unloaded floor would produce stresses greater than those caused by a uniform load?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	Two plastic water tanks (5 ton capacity each) were observed at the roof level. Only one of the tanks was in service at the time of the site visit. No evidence was available to indicate that the structural impact of these concentrated loads had been considered.
Source of Findings:	Photograph: Plastic rooftop water tanks.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate these water tanks. If provisions have not been made, have a qualified structural engineer develop a remediation plan.







Suggested Deadline Date:	30 Sep 2014
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	2
Description:	Certificates of Occupancy were not available for review.
Source of Findings:	Document Review: Documents reviewed on-site.
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	30 Sep 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment



Structural System Construction

Question:	Is the structural system free of distress, settlement, shifting, or cracking in columns or walls?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Cracking of brick masonry partition walls was observed in some locations. Although this condition likely does not indicate a structural integrity concern, it warrants additional investigation.	
Source of Findings:	Photograph: Brick masonry wall cracking.	
Suggested Plan of Action:	Have a qualified structural engineer provide further testing and analysis of cracking in walls and provide a remediation plan to correct noted issues.	
Suggested Deadline Date:	30 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Have all areas of needed maintenance, including areas with efflorescence, dampness, standing water on rooftops, and corrosion been addressed.	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Dampness was observed on the walls at Levels 2, 4 and 5. Water ponding was also noticed on the rooftop. Efflorescence was observed at the walls of the ancillary generator and sub-station room.	



Source of Findings:	Photograph: Wall dampness, water ponding at rooftop, efflorescence on walls.	
Suggested Plan of Action:	Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.	
Suggested Deadline Date:	30 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
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:	2	
Description:	The roof slab of the building is constructed with MCAC but no protective sealing has been provided.	
Source of Findings:	Photograph: Unsealed roof slab.	
Suggested Plan of Action:	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. Alternatively, provide a 2% slope on the exposed surface and drainage pipe with downspouts at low points to prevent accumulation of water.	
Suggested Deadline Date:	30 Sep 2014	
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).	
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:	The following elements were noted to contain no anchorage or bracing to resist seismic forces: -Storage racks at Levels 1, 2, 4 and 5 -Two plastic water tanks at roof level	
Source of Findings:	Photograph: Unbraced storage racks and water tanks.	
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 Sep 2014	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural	



	Elements and 2006 BNBC Part 6	
Question:	Is the building free of active signs of water intrusion or ponding due to lack of performance of the façade system?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Dampness was observed on the exterior wall at the west side of the Level 5. This dampness could potentially indicate lack of performance of the facade system in this region and warrants additional investigation.	
Source of Findings:	Photograph: Exterior facade dampness at Level 5.	
Suggested Plan of Action:	Repair the exterior façade system to prevent water intrusion.	
Suggested Deadline Date:	30 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
Structural Safety Programs		
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:	No load management plan is currently in place.	
Source of Findings:	Document Review: No load management plan documented.	
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:	30 Sep 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 been prepared for each floor. No evidence was available to indicate how these load plans were developed, and no design report was available to check that the indicated allowable loads align with the actual structural capacity of the floor systems within the building. Furthermore, these	



	load plans did not appear to fully conform to the requirements of Part 8 Section 8.20.5.3 of the Alliance Standard.
Source of Findings:	Photograph: Example floor load plan.
Suggested Plan of Action:	Have a qualified structural engineer review the prepared load plans to ensure they are accurate and also that they conform to the requirements of Part 8 Section 8.20.5.3. If they do not conform, have the structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.
Suggested Deadline Date:	30 Sep 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 posted as required but do not appear to fully conform to the requirements of Part 8 Section 8.20.5.3 of the Alliance Standard.
Source of Findings:	Photograph: Example floor load plan currently posted in factory.
Suggested Plan of Action:	Have a qualified structural engineer review the posted load plans to ensure they are accurate and also that they conform to the requirements of Part 8 Section 8.20.5.3. If they do not conform, have the structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3, and post these revised floor load plans in visible locations at each level of the building.
Suggested Deadline Date:	30 Sep 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:	Storage areas have not been marked to indicate acceptable loading limits.
Source of Findings:	Visual Assessment: No acceptable loading limit markings.
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 Sep 2014
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings



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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:	2	
Description:	There is no Factory Load Manager currently in place.	
Source of Findings:	Document Review: No evidence of a designated load manager being present in the factory.	
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:	30 Sep 2014	
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager	