

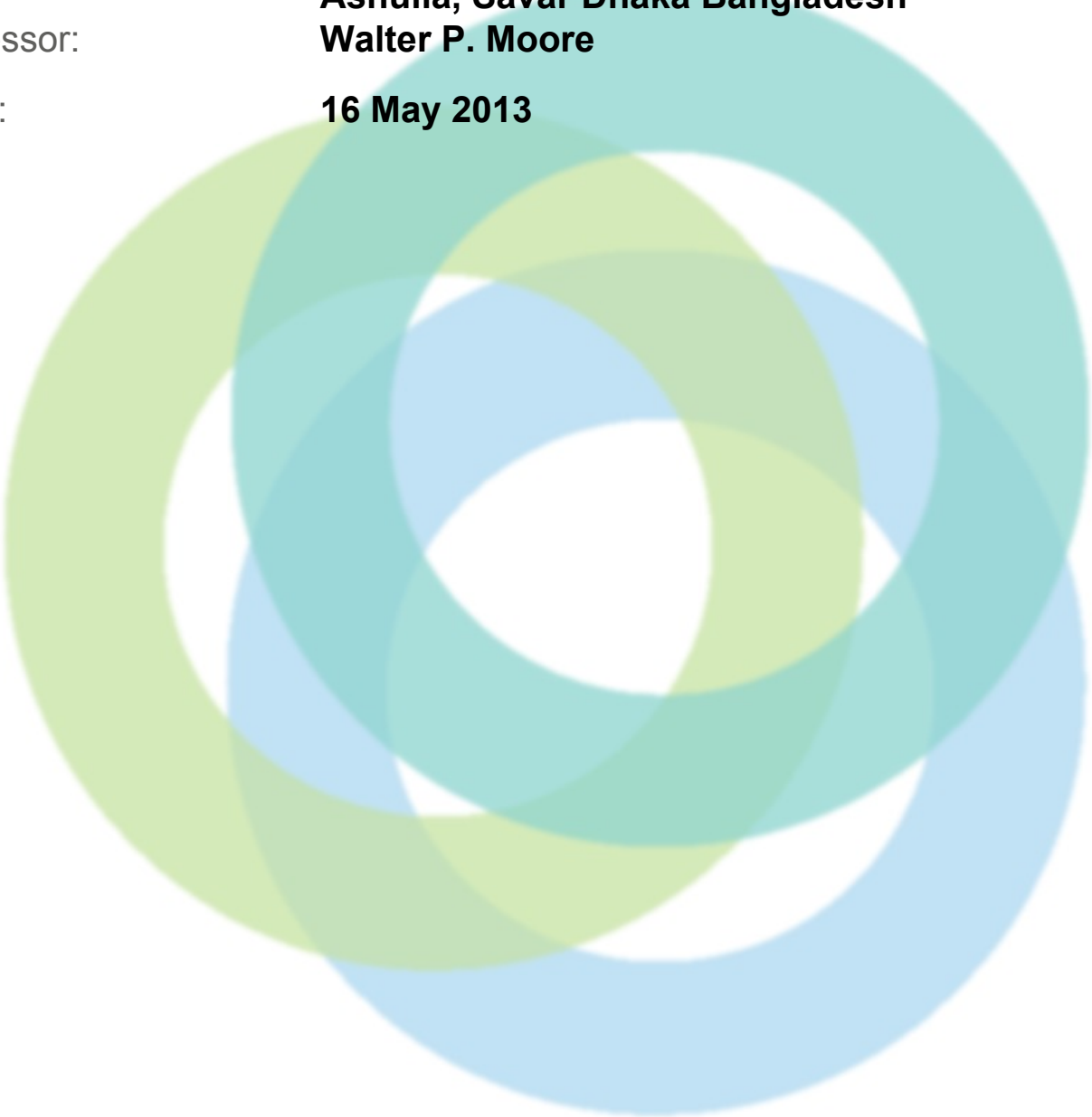
INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Next Collections Limited**

Address: **Mouza-Diakhali, 1323, 1324, 1325. Beron, Ashulia, Savar
Ashulia, Savar Dhaka Bangladesh**

Assessor: **Walter P. Moore**

Date: **16 May 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:	Next Collections Limited
Address:	Mouza-Diakhal, 1323, 1324, 1325. Beron, Ashulia, Savar Ashulia, Savar Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Ashulia, Savar
Zip Code:	
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	9 June 2014
Final Report Date :	11 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) :	5 stories
Approximate Building Area (SF) :	Unknown.
Date of Building Construction :	The first 3 levels were constructed in 2003
Date of Last Building Renovation/Addition :	2 additional floors were constructed in 2011.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	There are no ancillary structures in the complex.
Number of Ancillary Levels (Stories) :	N/A
Approximate Ancillary	N/A

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ALLIANCE
FOR BANGLADESH WORKER SAFETY

Structures Area (SF) :	
Number of Occupants :	3300 workers.
Exterior Facade Description :	The perimeter façade consists of masonry infill between the structural slab, beams, and columns. In general, the masonry infill is abutted tightly against the structural frame.
Structural System Description :	It is a cast-in-place reinforced concrete factory building with two way slabs and beams (cast integrally with the structure) and columns. It appears to be well built and in good overall structural condition.



ASSESSMENT FINDINGS

Structural System Design

Question:	Are the available FoS for the columns adequate based on Preliminary calculation?	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	Column FoS calculations were conducted by Shaheedullah following the site visit by Walter P Moore. FoS Calculations were performed assuming the Alliance Standard minimum concrete compressive strength value for stone chip aggregate concrete (2,370 psi). Reinforcement configuration was verified via ferro-scanning. The results of these calculations were determined to be unsatisfactory. FoS results are listed below. Central Column Type 1 - 2.13; Central Column Type 2 - 1.87; Corner Column - 3.42; Edge Column - 2.55; Edge Column (Only 1) - 1.67. These results warrant additional investigation for all columns.	
Source of Findings:	Uploaded Document: Uploaded FoS calculations	
Suggested Plan of Action:	Under guidance from a qualified structural engineer arrange for additional investigation via destructive core testing to validate the in-situ concrete compressive strength of structural elements.	
Suggested Deadline Date:	15 Feb 2015	
Standard:	Provide results of preliminary calculations in space provided. a) column capacity; FoS > 1.86 - Safe b) column capacity; FoS 1.5 -1.86 - Needs Evaluation c) Column capacity; FoS 1.25-1.5 - Needs Evaluation d) Column capacity; FoS <1.25 - Unsafe In case of a critically low FoS (<1.25), consider Immediate Escalation Protocol	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Only limited structural documentation was available for cursory review.	
Source of Findings:	Document Review: Review of all provided 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:	15 Feb 2015	
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:	Only limited structural documentation was available for cursory review.	
Source of Findings:	Document Review: REview of all available documents.	
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:	15 Feb 2015	
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
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:	Only limited structural documentation was available for cursory review.	
Source of Findings:	Document Review: Review of all available documents	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	15 Feb 2015	
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:	The building was designed as a six-story building. Three levels were built in 2006 and two additional levels were built in 2011. Currently, the factory	



	building is five stories tall and could expand to six in the future. Refer to photo herein. The current owner stated that when he acquired the building and expanded it from three levels to five, he commissioned a full review of the building structural design by a qualified engineer prior to the expansion. Documentation of this review was not available for review.
Source of Findings:	Photograph: Roof column stubs
Suggested Plan of Action:	Obtain and submit documentation of the previous review of the building structural design. If such documentation is not available, have a qualified structural engineer complete an analytical evaluation of the structural impact of the addition (expansion from three levels to five).
Suggested Deadline Date:	15 Feb 2015
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.
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 for review. Structural drawings contain some foundation information, but do not include a summary of recommendations from a geotechnical report.
Source of Findings:	Document Review: Review of all available 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:	15 Feb 2015
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:	15 Feb 2015



Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Structural System Construction		
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:	As part of the follow up work by Shaheedullah (detailed elsewhere via the column FoS question) conducted following the site visit by Walter P Moore, it was determined that MCAC was not used in construction of the building columns. MCAC usage was not documented for the other elements such as the roof slab.	
Source of Findings:	Visual Assessment: MCAC usage at areas exposed to moisture not documented.	
Suggested Plan of Action:	If it is determined that MCAC was used in the construction of the roof or other concrete elements exposed to moisture, 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:	15 Feb 2015	
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:	Various non-structural elements throughout the building are not adequately anchored and braced to resist earthquake forces. These elements include: storage racks, equipment and pipes.	
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:	15 Feb 2015	
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 façade walls were noted at a few locations. These cracks appear to be nominal stress / shrinkage cracking in non-structural infill wall elements of the façade. In our view, they are not indicative of structural distress and are of no structural concern.
Source of Findings:	Visual Assessment: Visual assessment of exterior 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:	15 Feb 2015
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 load plans.
Source of Findings:	Visual Assessment: General Observation
Suggested Plan of Action:	Once plans are posted, redistribute floor loads to comply with the Floor Loading Plans.
Suggested Deadline Date:	15 Feb 2015
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: General Observation
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:	15 Feb 2015	
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: General Observation	
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:	15 Feb 2015	
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans)	
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: General Observation	
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:	15 Feb 2015	
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:	2	



Description:	There is not a designated representative (Factory Load Manager), who is onsite full time, trained regarding the structural floor capacity, and serving as an ongoing vendor resource and monitor of operational factory floor loadings.
Source of Findings:	Visual Assessment: General Observation
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:	15 Feb 2015
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager
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: General Observation
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:	15 Feb 2015
Standard:	Alliance Standard Part 8 Section 8.20.5.3