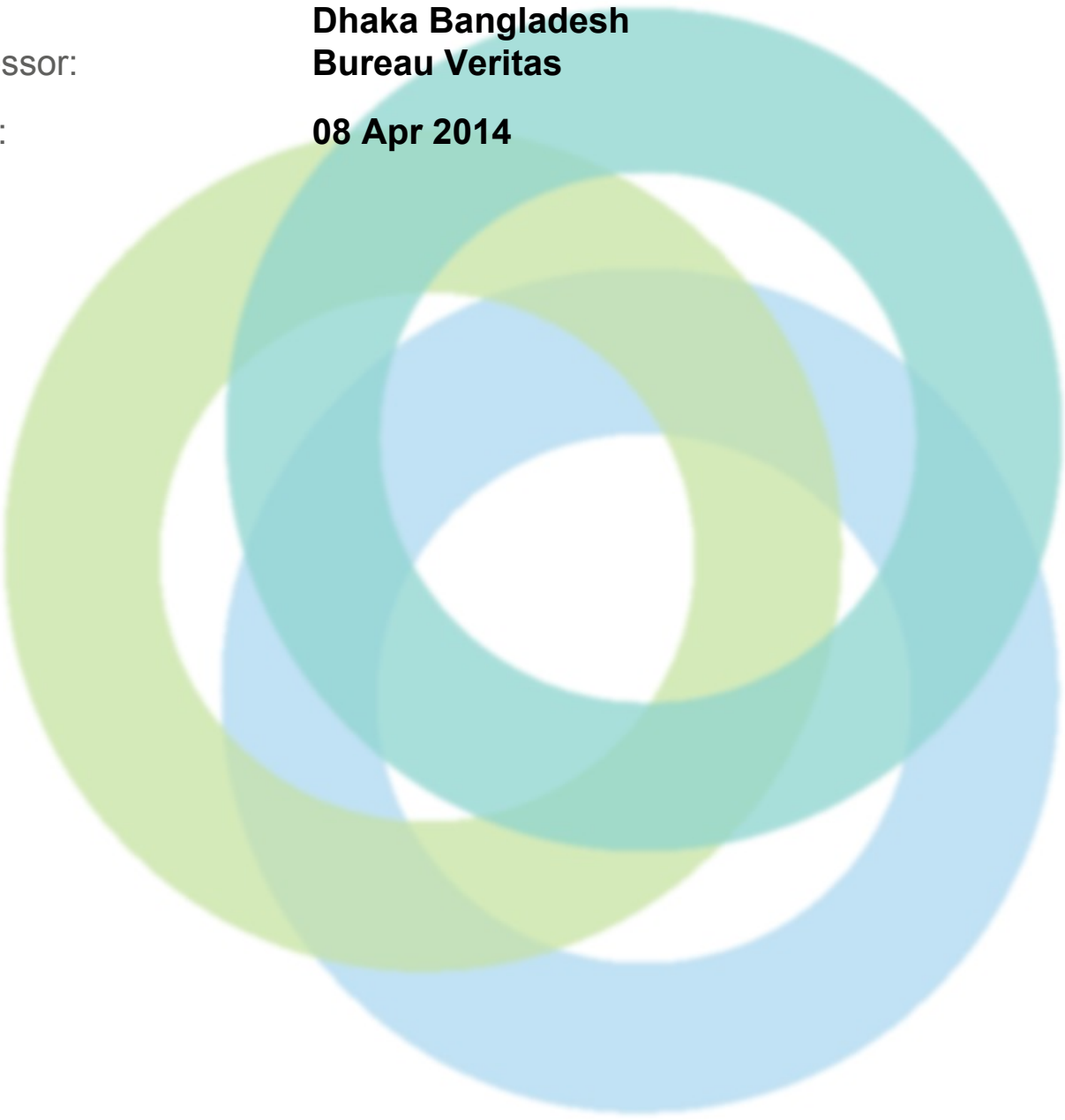


INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Voyager Apparels Ltd**
Address: **8, Malibagh chowdhury para Ramna, Dhaka Dhaka
Dhaka Bangladesh**
Assessor: **Bureau Veritas**
Date: **08 Apr 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:	Voyager Apparels Ltd
Address:	8, Malibagh chowdhury para Ramna, Dhaka Dhaka Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Dhaka
Zip Code:	1219
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	26.04.2014
Final Report Date :	26.05.2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There is one five storied building - RCC framed structure with infilled masonry.
Number of Building Levels (Stories) :	5 =(G+4)
Approximate Building Area (SF) :	54696 sft.
Date of Building Construction :	1998
Date of Last Building Renovation/Addition :	No renovation/addition has been done previously.
Is the Building mixed use?:	Yes
Ancillary Structures in Complex :	There are no ancillary structures in building premises.
Number of Ancillary Levels (Stories) :	N/A
Approximate Ancillary	N/A

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Structures Area (SF) :	
Number of Occupants :	675
Exterior Facade Description :	RCC moment resisting framed structure with infilled masonry, where the load bearing component of the structure is RCC column, beam & slab. The windows are glassed swinging type with metallic door. Facade is free from cracking.
Structural System Description :	RCC moment resisting framed structure with infilled masonry. Foundation type of the building is pile foundation.



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:	Credible design documents are not available; however Partial column layout and foundation layout are found.	
Source of Findings:	Document Review: Only foundation layout and partial column schedule are available.	
Suggested Plan of Action:	Need to prepare as built drawing including design report and submit for review. 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:	10 Jun 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:	Available structural documents are insufficient. Only foundation layout and partial column schedule are available.	
Source of Findings:	Document Review: Only foundation layout and partial column schedule are available.	
Suggested Plan of Action:	Need to submit as-built document and design report.	
Suggested Deadline Date:	14 Jul 2014	
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:	Available structural documents are insufficient. Only foundation layout and partial column schedule are available. Documentation can not 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.
Source of Findings:	Document Review: The available documents do not indicate the building is adequately strong against wind and surge loading.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading. This should be reflected in the design report.
Suggested Deadline Date:	10 Jun 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:	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:	There is no provisions been made in floor for a concentrated load (such as heavy equipment, water tank. Stored materials.)
Source of Findings:	Document Review: From the structural document it is found that the provision for concentrated load such as water tanks have not been made., Visual Assessment: There are four plastic water tanks have been found on the top of the roof.
Suggested Plan of Action:	Remove the water tanks. If the design report proves that these point loads are accommodated in the design then they can be retained.
Suggested Deadline Date:	10 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14
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:	Floor load plan is available and no design load is mentioned in structural documents. From visual observation, live load seemed to be within limit stated in floor load plan, with exception in bonded ware house of 4th floor.
Source of Findings:	Visual Assessment: From visual observation, bonded ware house in 4th floor seemed to be overloaded.
Suggested Plan of Action:	Reduce overload at the stores. Have a structural engineer confirm the floor load plan based on the strength of the structure and display it as per standard.
Suggested Deadline Date:	30 May 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 are not available.
Source of Findings:	Document Review: Occupancy certificates are not found in the submitted documents.
Suggested Plan of Action:	Organization needs to apply for occupancy certificate from approval authority
Suggested Deadline Date:	14 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

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:	Rebars of columns are open to the sky, on which corrosion has been taken place. Dampness have been found on masonry wall surface at the roof. Also there is water ponding on the roof top. There are some hair cracks have been also found in some beams.
Source of Findings:	Visual Assessment: During the visual assessment it is found that rebars of columns are open to the sky on which corrosion has been taken place. Dampness have been found on masonry wall surface at the roof. Also there is water ponding on the roof top. There are some hair cracks have also been found in some beams.





Suggested Plan of Action:	A qualified structural engineer should be involved for maintenance by correcting the identified issues.	
Suggested Deadline Date:	10 Jun 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
Question:	If yes, have the structural members constructed with MCAC been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	The structural members constructed with MCAC have not been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples.	
Source of Findings:	Visual Assessment: The structural members constructed with MCAC have not been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples.	
Suggested Plan of Action:	Have a qualified structural engineer assess the durability aspects as suggested in Alliance Standard Part 7 Section 7.2 and take appropriate remedial measures. This testing should include core testing.	
Suggested Deadline Date:	30 May 2014	
Standard:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)	
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:	Yes, roof is exposed to rainfall.	
Source of Findings:	Visual Assessment: Roof is exposed to weather.	
Suggested Plan of Action:	2% slope of roof needs to be ensured in order to prevent water ponding, otherwise, water seal to be provided.	
Suggested Deadline Date:	30 May 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:	There are some unbraced racks at the first floor, and unbraced water tanks on the roof.	
Source of Findings:	Visual Assessment: There are some unbraced racks at the first floor and unbraced water tanks on the roof. These need to be braced.	
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:	25 Jun 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 floor loads in compliance with posted plans?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Floor load plans are not posted as per requirement.	
Source of Findings:	Visual Assessment: Posted floor load plans are not found during visual inspection.	
Suggested Plan of Action:	Redistribute floor loads to comply with the Floor Loading Plans.	
Suggested Deadline Date:	30 May 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:	The live loads may comply with the floor live load from our simple calculation but roof live load and live loads in the bonded warehouse are not complied with design live load. There is no program available to manage floor and roof live loads.	
Source of Findings:	Visual Assessment: There are some plastic water tanks which are not	



	indicated in the design document. Also the live loads in the bonded warehouse are not complied with design live load.	
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 May 2014	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
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:	3	
Description:	Storage of work materials and work products are not marked to indicate the acceptable loading limit.	
Source of Findings:	Visual Assessment: Storage areas not marked to indicate acceptable loading limits.	
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 May 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	
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: Load plan is found but not posted as required.	
Suggested Plan of Action:	Load plans need to be posted as required.	
Suggested Deadline Date:	30 May 2014	
Standard:	Alliance Standard Part 8 Section 8.20.5.3	
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?	

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Priority Level:	Low
Non-Compliance Level:	2
Description:	Factory Load manager or designated representative is not available.
Source of Findings:	Document Review: The HR file of factory load manager or designated representative is not documented., Visual Assessment: Presence of factory load manager or designated representative is not evident.
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 May 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager