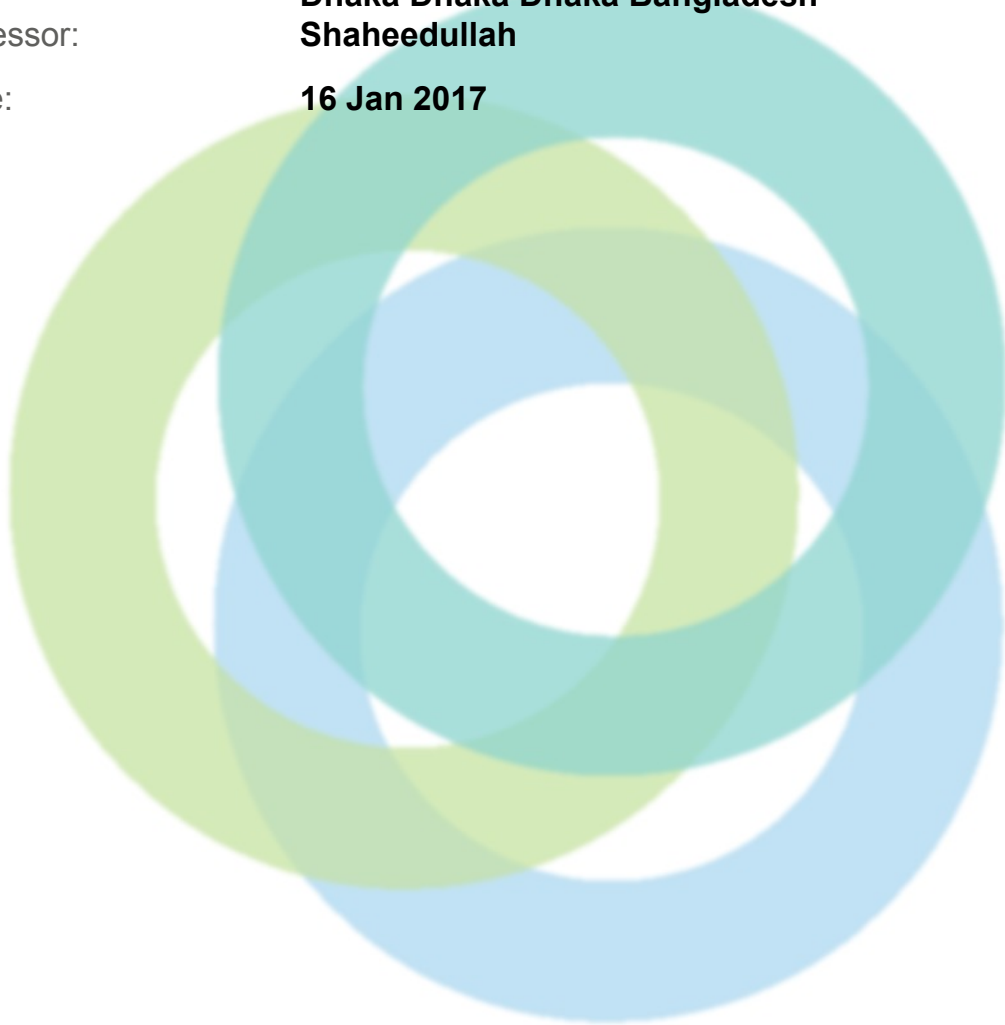




INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **NAFA APPARELS LTD**
Address: **Village: Joypura, Union: Shombag Upazila: Dhamrai
Dhaka Dhaka Dhaka Bangladesh**
Assessor: **Shaheedullah**
Date: **16 Jan 2017**



Factory Name: **NAFA APPARELS LTD**

Address: **Village: Joypura, Union: Shombag Upazila: Dhamrai Dhaka Dhaka Dhaka Bangladesh**

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ALLIANCE
FOR BANGLADESH WORKER SAFETY

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:	NAFA APPARELS LTD
Address:	Village: Joypura, Union: Shombag Upazila: Dhamrai Dhaka Dhaka Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Dhaka
Zip Code:	
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	21/01/2017
Final Report Date :	06/02/2017
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 9 buildings / sheds in the complex. Out of 9 buildings/sheds 3 are production sheds and 6 are ancillary buildings/sheds. Name of production sheds are: 1) 2-Storeied RMG steel production shed. 2) 1-storied steel knitting sheds 2 nos.
Number of Building Levels (Stories) :	1) 2-Storeied RMG steel production shed: story above grade. 2) 1-storied knitting sheds 2 nos: story above grade.
Approximate Building Area (SF) :	1) 2-Storeied RMG steel production shed: story above grade: about 69,370 sft. 2) 1-storied knitting sheds 2 nos: story above grade: about 55,100 sft.
Date of Building Construction :	1) 2-Storeied RMG steel production shed: 2008 2) 1-storied knitting sheds 2 nos: 2008
Date of Last Building Renovation/Addition :	No sign of renovation or addition has been noticed.
Is the Building mixed use?:	Yes
Ancillary Structures in Complex :	1) 3-storied RC Admin building. 2) 2-storied RC daycare centre. 3) 2-storied store steel building. 4) 1-storied Generator steel shed. 5) 1-storied RC Compressor room. 6) 1-storied RC RMS room.
Number of Ancillary Levels (Stories) :	1) 3-storied RC Admin building: story above grade. 2) 2-storied RC daycare centre: story above grade. 3) 2-storied store steel building: story above grade. 4) 1-storied Generator steel shed: story above grade. 5) 1-storied RC Compressor room: story above grade. 6) 1-storied RC RMS room: story above grade.
Approximate Ancillary Structures Area (SF) :	1) 3-storied RC Admin building about 29,000 sft. 2) 2-storied RC daycare centre about 5,200 sft. 3) 2-storied store steel building about 37,600 sft. 4) 1-storied Generator steel shed about 1200 sft. 5) 1-storied RC Compressor room about 490 sft. 6) 1-storied RC RMS room about 265 sft.
Number of Occupants :	Total = 1027 Persons. 1) 2-Storeied RMG steel production shed: 823. 2) 1-storied steel knitting sheds 2 nos: 171. 3) 3-storied RC Admin building: 5. 4) 2-storied RC daycare centre: 18. 5) 2-storied store steel building: 7. 6) 1-storied Generator steel shed: 2. 7) 1-storied RC Compressor room: 1. 8) 1-storied RC RMS room: Nil.
Exterior Facade Description :	1) 2-Storeied RMG steel production shed: Metal sheet walling over masonry wall. 2) 1-storied steel knitting sheds 2 nos: Metal sheet walling over masonry wall. 3) 3-storied RC Admin building: R.C. framework in filled



	with 10/5 inch thick masonry wall with aluminum framed glass window. 4) 2-storied RC daycare centre: R.C. framework in filled with 10/5 inch thick masonry wall with aluminum framed glass window. 5) 2-storied store steel building: R.C. framework in filled with 10/5 inch thick masonry wall with aluminum framed glass window. 6) 1-storied Generator steel shed: 10" thick masonry wall. 7) 1-storied RC Compressor room: R.C. framework in filled with 10 inch thick masonry wall with aluminum framed glass window. 8) 1-storied RC RMS room: Masonry wall.
Structural System Description :	1) 2-Storied RMG steel production shed: Two way sloped metallic roof over purlins, girder, steel columns supported by isolated spread footings. 1st floor of the two storied production building is supported by separate set of structural steel beams and columns and may be treated as one storied building. Roof and facades of the building are supported by another set of latticed columns of double height. 2) 1-storied steel knitting sheds 2 nos: Two way sloped metallic roof over purlins, girder, steel columns supported by isolated spread footings.. 3) 3-storied RC Admin building: Rc slab, beams, columns supported by isolated spread footings. 4) 2-storied RC daycare centre: Rc slab, beams, columns supported by isolated spread footings. 5) 2-storied store steel building: Steel deck slab, structural steel beams and structural steel columns supported by isolated spread footings. 6) 1-storied Generator steel shed: Steel deck slab, structural steel beams supported by structural steel columns, Rc pedestal and spread footing. 7) 1-storied RC Compressor room: Rc slab, beams, columns supported by isolated spread footings. 8) 1-storied RC RMS room: Rc slab, beams, columns supported by isolated spread 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:	2
Description:	Structural drawings have been found. Some drawings do not match with existing layout.
Source of Findings:	Document Review: Seen all documents, Visual Assessment: Visually inspected
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:	31 Mar 2017
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:	Credible structural design documents indicating general conformance with 2006 BNBC or other comparable international building codes are not found.
Source of Findings:	Document Review: Seen all 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:	31 Mar 2017
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:	Structural design documents compliance with the seismic and wind requirements of the 2006 BNBC are not found.
Source of Findings:	Document Review: Seen all documents
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:	31 Mar 2017



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:	Structural design documents compliance with the requirements for wind loading and storm sure loading as detailed in BNBC are not found.
Source of Findings:	Document Review: Seen all documents
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
Suggested Deadline Date:	31 Mar 2017
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:	Where density of operations, storage of materials, or equipment weights require live load capacity in excess of 2.0 kN/m ² (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:	During initial assessment live loads in 1st floor level of 2-storied store building have been found in excess of 2.0 kN/m ² (42 psf).
Source of Findings:	Visual Assessment: Visually inspected
Suggested Plan of Action:	Have a qualified structural engineer confirm that capacity to support the load is available. Load Plans complying with Alliance Standard Part 8 Section 8.20.4.3 should also be developed.
Suggested Deadline Date:	31 Mar 2017
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:	2
Description:	Certificate of Occupancy are not available.
Source of Findings:	Document Review: Seen all documents
Suggested Plan of Action:	Certificate of occupancy shall be obtained from appropriate authority.
Suggested Deadline Date:	31 Mar 2017
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment



Structural System Construction		
Question:	Are structural steel members free of corrosion, physical damage or other types of deterioration?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Structural steel members of production sheds have been found corroded.	
Source of Findings:	Photograph: Structural element corrosion.	
Suggested Plan of Action:	Engage a qualified structural engineer to provide additional investigation into the sheds and provide a remediation plan if required.	
Suggested Deadline Date:	31 Mar 2017	
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:	Racks have been found without adequate seismic anchorage.	
Source of Findings:	Photograph: Unbraced storage rack.	
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 Mar 2017	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	
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:	There is no such program in place (floor and roof) ensuring that the live loads for which a floor or roof is or has been designed will not be exceeded.	
Source of Findings:	Document Review: No documented floor load management plan.	
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 Mar 2017	
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:	Floor load plans indicating the actual maximum operational loads have not been prepared for production building.	
Source of Findings:	Document Review: No documented floor load plans.	
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 Mar 2017	
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 have not been prepared or posted.	
Source of Findings:	Visual Assessment: No posted load plans.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard. Floor load plans should be visibly posted on all levels of all buildings.	
Suggested Deadline Date:	31 Mar 2017	
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:	There is no such program in place (floor and roof) ensuring that the live loads for which a floor or roof is or has been designed will not be exceeded.	
Source of Findings:	Visual Assessment: No load 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:	31 Mar 2017	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	