

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Zaber & Zubair Fabrics Ltd**
Address: **Pagar, Tongi, Gazipur Tongi, Gazipur Dhaka
Bangladesh**
Assessor: **Bureau Veritas**
Date: **31 May 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:	Zaber & Zubair Fabrics Ltd
Address:	Pagar, Tongi, Gazipur Tongi, Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Tongi, Gazipur
Zip Code:	1710
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	25 June, 2014
Final Report Date :	23 Nov, 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 20 buildings in the factory premises out of which eight are main production buildings and ten are ancillary buildings. The buildings are named as:1)RCC stitching building-1,2)RCC stitching building-2,3)NFL garments & folding building,4)Home dyeing shed-1, 5)Home dyeing shed-2,6)Home dyeing shed-3,7)Fashion dyeing shed-1,8)Fashion dyeing shed-2,9)RCC marketing building,10)RCC admin building, 11) Chemical store-1,12)Chemical store-2,13)Generator & substation shed,14)Boiler shed,15) Prefab mechanical workshop,16)RCC medical building,17)Egli ETP building,18)Panta rei ETP building,19) Simem ETP building,20)Prefab finished goods godown.
Number of Building Levels (Stories) :	1) Four story RCC marketing building: Stories above grade: 4, Stories below grade: 0, 2) Four story RCC admin building: Stories above grade: 4, Stories below grade: 0, 3) Two story RCC medical building: Stories above grade: 1, Stories below grade: 0, 4) Single story RCC egli ETP building: Stories above grade: 1, Stories below grade: 0, 5) Single story RCC panta rei ETP building: Stories above grade: 1, Stories below grade: 0, 6) Single story RCC simem ETP building: Stories above grade: 1, Stories below grade: 0, All the PEB sheds are single storied.
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 1809297 sft. Building wise breakdown as follows:1)RCC stitching building-1: 165888 sft2)RCC stitching building-2: 555432 sft3)NFL garments & folding building: 87920 sft4)Prefab home dyeing shed-1: 213325 sft,5)Prefab home dyeing shed-2: 133040 sft,6)Prefab home dyeing shed-3: 43574 sft,7)Prefab fashion dyeing shed-1: 93933 sft,8) Prefab fashion dyeing shed-2: 205022 sft, 9) RCC marketing building: 44000 sft,10)RCC admin building: 44000 sft11)Prefab chemical store-1: 9480 sft,12)Prefab chemical store-2: 31497 sft,13)Prefab generator & substation shed: 14306 sft,14)Prefab boiler shed: 9880 sft,15)Prefab mechanical workshop: 20000 sft,16)RCC medical building: 1800 sft,17)RCC egli ETP building: 40000 sft,18)RCC panta rei ETP building: 32000 sft,19)RCC simem ETP building: 57600 sft,20) Prefab finished goods godown: 6600 sft.



Date of Building Construction :	Factory personnel informed the date of construction as follows: 1) RCC stitching building-1: Finished in 1995,2) RCC stitching building-2: Finished in 2009,3) NFL garments & folding building: Finished in 2003,4) Home dyeing shed-1: Finished in 1998,5) Home dyeing shed-2: Finished in 2003,6) Home dyeing shed-3: Finished in 2000,7) Fashion dyeing shed-1: Finished in 2008,8) Prefab fashion dyeing shed-2: Finished in 2008,9) RCC marketing building: Finished in 1998,10) RCC admin building: Finished in 2000,11) Prefab chemical store-1: Finished in 2011,12) Prefab chemical store-2: Finished in 2011,13) Prefab generator & substation shed: Finished in 2008,14) Prefab boiler shed: Finished in 2003,15) Prefab mechanical workshop: Finished in 2011, 16) RCC medical building: Finished in 2011,17) Egli ETP building: Finished in 2007,18) Panta rei ETP building: Finished in 2009,19) Simem ETP building: Finished in 2012,20) P refab finished goods godown: Finished in 2008.
Date of Last Building Renovation/Addition :	Renovation of stitching building 2 is ongoing.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Four story RCC marketing building, 2) Four story RCC admin building, 3) Single story prefab chemical store-1, 4) Single story prefab chemical store-2, 5) Single story prefab generator & substation shed, 6) Single story prefab boiler shed, 7) Single story prefab mechanical workshop, 8) Two story RCC medical building, 9) Single story RCC egli ETP building, 10) Single story RCC panta rei ETP building, 11) Single story RCC simem ETP building, 12) Single story prefab finished goods godown.
Number of Ancillary Levels (Stories) :	1) Four story RCC marketing building: Stories above grade: 4,below grade: 0,2) Four story RCC admin building: Stories above grade: 4,below grade: 0,3) Single story prefab chemical store-1: Stories above grade: 1,below grade: 0,4) Single story prefab chemical store-2:Stories above grade: 1,below grade: 0,5) Single story prefab generator & substation shed:Stories above grade: 1,below grade: 0,6) Single story prefab boiler shed:Stories above grade: 1,below grade: 0,,7) Single story prefab mechanical workshop:Stories above grade: 1,below grade: 0,8) Two story RCC medical building:Stories above grade: 1,below grade: 0,9) Single story RCC egli ETP building:Stories above grade: 1,below grade: 0,10) Single story RCC panta rei ETP building:Stories above grade: 1,below grade: 0,11) Single story RCC simem ETP building:Stories above grade: 1,below grade: 0,12) Single story prefab finished goods godown: Stories above grade: 1,below grade: 0,
Approximate Ancillary Structures Area (SF) :	1) Four story RCC marketing building: 44000 sft 2) Four story RCC admin building: 44000 sft 3) Single story prefab chemical store-1: 9480 sft, 4) Single story prefab chemical store-2: 31497 sft, 5) Single story prefab generator & substation shed: 14306 sft, 6) Single story prefab boiler shed: 9880 sft, 7) Single story prefab mechanical workshop: 20000 sft, 8) Two story RCC medical building: 1800 sft 9) Single story RCC egli ETP building: 40000 sft, 10) Single story RCC panta rei ETP building: 32000 sft, 11) Single story RCC simem ETP building: 57600 sft, 12) Single story prefab finished goods godown: 6600 sft.
Number of Occupants :	Total number of occupants: 8963.1) Five story RCC stitching building-1: 10172) Seven story RCC stitching building-2: 29793) Six story NFL garments & folding building: 16804) Single story prefab home dyeing shed-1: 1082,5) Single story prefab home dyeing shed-2: 506,6) Single story prefab home dyeing shed-3: 97,7) Single story prefab fashion dyeing shed-1: 386,8) Single story prefab fashion dyeing shed-2: 756,9) Four story RCC marketing building: 22010) Four story RCC admin building: 11111) Single story prefab chemical store-1: 3,12) Single story prefab chemical store-2: 15,13) Single story prefab generator & substation shed: 13,14) Single story prefab boiler shed: 5,15) Single story prefab mechanical workshop: 47,16) Two story RCC medical building: 1517) Single story RCC egli ETP building: 6,18) Single story RCC panta rei ETP building: 6,19) Single story RCC simem ETP building: 6,20) Single story prefab finished goods godown: 3.
Exterior Facade Description :	The exterior facade of almost all the RCC structures are of infilled brick wall in RCC frame. Part of the front is clad by decorative glass. Maximum number of doors are firefighting metal and windows are of glass in aluminum frame. The overall condition of the facade is without any crack or visible defect except the admin building.All the PEB sheds are steel structures with infilled masonry. Windows are sliding and jalousie type for dyeing shed-1, swinging type for fashion dyeing-1, while for the remaining sheds windows are sliding type. Cracking has been observed at exterior facade of fashion dyeing-2.

Factory Name: **Zaber & Zubair Fabrics Ltd**

Address: **Pagar, Tongi, Gazipur Tongi, Gazipur Dhaka Bangladesh**

Assessor: **Bureau Veritas**

Date: **31 May 2014**



ALLIANCE
FOR BANGLADESH WORKER SAFETY

**Structural System
Description :**

There are 5 numbers of RCC frame structure with infilled masonry. The foundation of almost all the buildings are isolated column footing. In case of three RCC buildings the frame include slab with monolithic-ally casting beam. Floor framing:- RCC slab with beam, Foundation system:- Individual footing, Structural framing members:- Columns Framing regularity:- Regular in both direction, Roof framing:- regular. Stitching building 2 has two different structural systems: beam slab and flat plate. The structural configuration of the NFL building has a drop panel column with a flat slab system. Maximum portion is beam slab system. Other structures are PEB shed.



ASSESSMENT FINDINGS

Structural System Design

Question:	Are Certificates of Occupancy available for review?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	There is no certificate of occupancy available for review for all buildings and sheds.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:	The organization is to apply for a certificate of occupancy and obtain it as soon as possible from the concerned authority. Provide Certificates of Occupancy for review.	
Suggested Deadline Date:	28 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	Structural Engineer of Record	
Priority Level:		
Non-Compliance Level:		
Description:	Engr. Wasimur Rahman MIEB: 30478 Consultant : Uttaran Technologies 3/E Configure Sadhona(4th Floor) South Kallyanpur, Dhaka	
Source of Findings:	Document Review: Documents available.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide the name and firm of the structural engineer of record.	
Question:	Architect of Record	
Priority Level:		
Non-Compliance Level:		
Description:	Architect : Mahabub Alam IAB no: 086	
Source of Findings:	Document Review: Documents available.	



Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide the name and firm of the architect of record.	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	As built architectural and structural drawings are available of RCC buildings but structural drawings of Steel buildings are not available. Design reports are not available for both the portion.	
Source of Findings:	Document Review: Documents available.	
Suggested Plan of Action:	Have a qualified structural engineer prepare credible as-built documents (structural drawings of steel structures & a design report) based on the requirements of Part 8 Section 8.19 of the Alliance Standard.	
Suggested Deadline Date:	28 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	
Question:	Is a Geotechnical Report available for review and kept on site?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	The Geo-technical Reports are available for all the multistory RCC buildings but for the steel structures and single story RCC structures no Geo-technical report is available.	
Source of Findings:	Document Review: Documents available.	
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 for steel structural.	
Suggested Deadline Date:	04 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
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 design document does not clearly demonstrate the conformance with any applicable code.	
Source of Findings:	Document Review: Documents reviewed on site.	
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:	24 Jul 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:	Some structures were built before 2006 and some were built after 2006. However, there is no indication that the buildings have been designed taking into consideration the seismic and wind load.	
Source of Findings:	Document Review: Documents reviewed on site.	
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:	24 Jul 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:	There is no clear information on the design documents to understand the consideration of storm surge and wind loading in the design of all buildings.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading and storm surge loading.	



Suggested Deadline Date:	24 Jul 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:	Has evidence of structural integrity been provided using a Preliminary Structural Assessment?	
Priority Level:	High	
Non-Compliance Level:		
Description:	No preliminary structural assessment has been carried out in this factory to provide evidence of integrity of the building.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
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:	1	
Description:	There is a Over Head RCC Water Tank on roof level of NFL building & admin building. No provision has been made for this water tank.	
Source of Findings:	Document Review: Documents reviewed on site. , Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:	Have a qualified structural engineer complete an analytical evaluation of the structural impact of the water tank	
Suggested Deadline Date:	15 Jan 2015	
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.	
Question:	Structural System Type as defined by 2006 BNBC Part 6 Chapter 1 Table 6.1.2.	
Priority Level:		



Non-Compliance Level:		
Description:	The structural configuration of RCC structures are Moment resisting regular structure (except stitching building 2 & NFL Building) and others are pre fabricated steel structure (building frame system). Stitching building 2: The building has two different structural systems. Ground floor, 1st floor, 3rd floor, 4th floor: a portion is beam slab and another portion is flat plate, 2nd floor, 5th floor, 6th floor: beam slab. And the structural configuration of the NFL building has a drop panel column with a flat slab system. Home dyeing-1, Fashion dyeing-1 & 2 are PEB sheds with bracing. Home dyeing 2 & 3 are roof trussed structure.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	2006 BNBC Part 6 Chapter 1 Table 6.1.2	
Question:	What is the Structural Configuration?	
Priority Level:		
Non-Compliance Level:		
Description:	Among all the main structures Stitching building 1, Marketing building, NFL building, Stitching building 2 and Admin building are regular RCC structure both vertically and horizontally. Others 5 main buildings are single storied PEB shed.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	2006 BNBC Part 6 Chapter 1 Section 1.3.4	
Question:	Is a clear and redundant load path to resist lateral loads provided?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	The structural configuration of (Stitching building 1, Marketing building, 2 and Admin building) is a moment resisting regular structure and hence the lateral load path is apparent and there is redundancy due to the presence of multiple frames in both directions. And the structural configuration of the NFL building has a drop panel column with a flat slab system. Therefore the lateral load path is not clear to resist the lateral loads provided. Further information (a design report) is required to understand the lateral load path and redundancy	



	of the NFL building. Stitching building 2: The building has two different structural systems. Ground floor, 1st floor, 3rd floor, 4th floor: a portion is beam slab and another portion is flat plate, 2nd floor, 5th floor, 6th floor: beam slab. Further analysis is required to understand the redundancy of such structure. Home dyeing-1, Fashion dyeing-1 & 2 are PEB sheds with bracing. So lateral load path is redundant. Home dyeing 2 & 3 are roof trussed structure. Further analysis is required to understand redundancy.	
Source of Findings:	Visual Assessment: Visually confirmed	
Suggested Plan of Action:	Have a qualified structural engineer complete further analysis of the structure and develop a remediation plan for the required building.	
Suggested Deadline Date:	02 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:	Are the available FoS for the columns adequate based on Preliminary calculation?	 
Priority Level:	High	
Non-Compliance Level:	3	
Description:	The available FoS for the columns that has been found from preliminary calculations are given below : 1.NFL building: Central Column:Minimum Strength- 2.17, NDT-3.43 Corner Column: Minimum Strength-1.92, NDT- 2.88 Edge Column: Minimum Strength- 1.99, NDT- 3.15 2.Admin building: Corner Column: Minimum Strength-3.13, NDT- 4.13 Edge Column: Minimum Strength- 2.25, NDT- 2.81 3.Stitching building 1: Central Column:Minimum Strength- 1.34*, NDT-1.43* Corner Column: Minimum Strength- 2.78, NDT- 2.97 Edge Column: Minimum Strength- 3.30, NDT- 3.53 4.Stitching building 2: Central Column:Minimum Strength- 2.34, NDT-2.46 Corner Column: Minimum Strength-3.04, NDT- 3.21 Edge Column: Minimum Strength-2.60, NDT- 2.75 5.Marketing building: Central Column:Minimum Strength- 2.72, NDT- 2.85 Corner Column: Minimum Strength-4.30, NDT- 4.52 Edge Column: Minimum Strength- 2.83, NDT- 2.98	
Source of Findings:	Uploaded Document: Column FoS calculation spreadsheet	
Suggested Plan of Action:	Engage a qualified structural engineer and carry out structural assessment to identify what remedial action is appropriate, which may include retrofitting. Reduction of load is required before any other remedial action is undertaken based on a detailed structural assessment. This assessment should include destructive core testing to validate the in-situ concrete compressive strength of structural elements	
Suggested Deadline Date:	24 Jul 2014	
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:	Results of ferro-scanning for confirmation of steel rebar in the columns of the lowest tier were satisfactory.	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	Results of ferro-scanning for confirmation of steel rebar in the columns of the lowest tier of all the RCC Buildings were satisfactory with comparison of supplied drawings.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	What are the full dead and live loads of the floor slabs and decks?	
Priority Level:		
Non-Compliance Level:		
Description:	NFL building: As slab thickness is 7", dead load is $87.5 + 25 \text{ (FF)} = 112.5 \text{ psf}$. Live load is 42 psf except 3rd floor and 4th floor. Admin building and Stitching building 1: As slab thickness is 6", dead load is $75 + 25 \text{ (FF)} = 100 \text{ psf}$. Live load is 42 psf for admin building. Live load is 42 psf for stitching building 1 except its 1st, 2nd and 3rd floor. Stitching building 2: As slab thickness is 8", dead load is $100 + 25 \text{ (FF)} = 125 \text{ psf}$. Live load is 42 psf. Marketing building: As slab thickness is 5", dead load is $62.5 + 25 \text{ (FF)} = 87.5 \text{ psf}$. Live load is 42 psf.	
Source of Findings:	Visual Assessment: Visually confirmed	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide information regarding the dead and live loads of the floor slabs and decks.	
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	



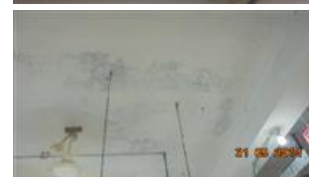
Non-Compliance Level:	2
Description:	There are 3 water tanks (each 2000 liter) on the roof of stitching building-1 and 2 water tanks on the marketing building. There is no analytical information on the provision of these tanks in the design.
Source of Findings:	Visual Assessment: Visual assessment performed.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads. If provisions have not been made, have a qualified structural engineer develop a remediation plan.
Suggested Deadline Date:	24 Jul 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/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:	3
Description:	The density of operation on the 1st, 2nd and 3rd floor of stitching building-1, the 3rd and 4th floor of the NFL building.
Source of Findings:	Visual Assessment: Visual assessment performed.
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:	19 Jul 2014
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads



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:	1) Stitching Building-1: Dampness at ceiling of 2nd floor and roof top due to water clogging 2) Admin Building: Dampness on 2nd floor ceiling (veranda) and wall of 3rd floor 3) NFL Building: Dampness at wall of 2nd and 3rd floor 4) Marketing Building: Dampness at ceiling of 3rd floor 5) Stitching Building-2: Dampness on wall of 1st, 2nd and 5th floor. Standing water has been also observed at roof top 6) Stitching Building-1: Dampness on ceiling of 2nd floor and roof top.
Source of Findings:	Document Review: Documents reviewed on site.
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:	22 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance



Factory Name: **Zaber & Zubair Fabrics Ltd**
Address: **Pagar, Tongi, Gazipur Tongi, Gazipur Dhaka Bangladesh**

Assessor: **Bureau Veritas**
Date: **31 May 2014**





Question:	The exterior façade is free of cracking.	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Cracking has been observed at exterior facade of fashion dyeing-2.	
Source of Findings:	Visual Assessment: Visual inspection performed.	
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:	30 Dec 2014	
Standard:	Alliance Standard Part 8 Section 8.2	
Question:	Are expansion joints provided at appropriate intervals on the exterior façade?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	There is an expansion joint in the stitching building-1. This been not provided at appropriate intervals on the exterior facade.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:	Have a qualified structure engineer identify the locations where an expansion joint is needed and then have a remediation plan developed.	
Suggested Deadline Date:	04 Sep 2014	
Question:	Is expansion joint material free from cracking and other forms of deterioration?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	There is an expansion joint which is filled with mortar at stitching building 1. This will make the expansion joint ineffective.	
Source of Findings:	Visual Assessment: Visual inspection performed.	
Suggested Plan of Action:	Remove deteriorated expansion joint material and provide new approved material at the expansion joint.	
Suggested Deadline Date:	04 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	

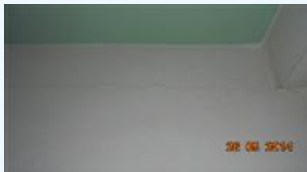


Question:	Is the building free of active signs of water intrusion or ponding due to lack of performance of the façade system?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Water intrusion is present at Home Dyeing 2 (west masonry wall), Stitching Building 1, Stitching Building 2, NFL Building, and Admin Building	
Source of Findings:	Visual Assessment: Visual inspection performed.	
Suggested Plan of Action:	Repair the exterior façade system to prevent water intrusion.	
Suggested Deadline Date:	04 Sep 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
Question:	Are the performance of key structural elements such as columns, slender columns, flat plates and transfer structures satisfactory?	
Priority Level:	High	
Non-Compliance Level:		
Description:	The performance of key structural elements are satisfactory.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Is the structural system free of settlement cracking, excessive perimeter separations, and unlevel floors attributable to foundation settlements?	
Priority Level:	High	
Non-Compliance Level:		
Description:	The structural system is free of settlement, cracking, excessive perimeter separation etc. which shows no noticeable settlement been occurred.	
Source of Findings:	Visual Assessment: Visual inspection shows that the structural system is free of settlement, cracking, excessive perimeter separation etc. which shows no noticeable settlement been occurred.	
Suggested Plan of Action:		



Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	Is the structural system free of deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure?	
Priority Level:	High	
Non-Compliance Level:	2	
Description:	Among all the RCC structures, some minor deflections are found on the beam of stitching building-1. Otherwise no deflections (sagging), rotations (twisting), perceivable vibrations or other noticeable movements of other structures were found.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:	Have a qualified structural engineer provide further analysis and investigation of the structural deficiencies. A structural engineer shall also provide remediation documents if required.	
Suggested Deadline Date:	24 Jul 2014	
Standard:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings	
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:		
Description:	There is no visible sign of distress or crack that may indicate lack of performance or over-stress of the lateral load-carrying system.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3.3	



Question:	Is the structural system free of distress, settlement, shifting, or cracking in columns or walls?	   
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Home Dyeing-1: Masonry crack has been observed. Home Dyeing-2: Hair crack on brick wall of home dyeing-2. Fashion Dyeing-2: Hair crack on masonry wall. Admin Building: Hair crack on masonry wall of 3rd floor. NFL Building: Hair crack on masonry wall of 5th floor.	
Source of Findings:	Visual Assessment: Visually confirmed	
Suggested Plan of Action:	Have a qualified structural engineer provide further testing and analysis of distress, settlement, shifting, or cracking in columns or walls and provide a remediation plan to correct noted issues.	
Suggested Deadline Date:	15 Jan 2015	
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Have any previous repairs to correct structural deficiencies or to reinforce the existing structure been completed?	
Priority Level:		
Non-Compliance Level:		
Description:	All the columns of ground floor of the stitching building-1 have been strengthened from 12"X12" size to 18"X18" size. The building is 5 storied.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:		



Question:	Was masonry-chip aggregate concrete (MCAC) used in the construction of the building?	
Priority Level:		
Non-Compliance Level:		
Description:	The frame of the Admin and marketing buildings were made of MCAC .	
Source of Findings:	Visual Assessment: Visual inspection shows that the frame of the Admin and marketing buildings were made of MCAC .	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)	
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 (Admin and Marketing building) 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:	Document Review: No in-situ testing and representative destructive testing or core sample was documented.	
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 assessment should include destructive core testing to validate the in-situ concrete compressive strength of structural elements	
Suggested Deadline Date:	04 Sep 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:	Roof of admin, marketing, Stitching-1 and 2 and NFL were constructed with	



	MCAC, which were exposed to rainfall. The roofs were not sealed with a protective coating to prevent water intrusion.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
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.	
Suggested Deadline Date:	23 Jul 2014	
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).	
Question:	Are structural steel members free of corrosion, physical damage or other types of deterioration?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	There are signs of corrosion in the steel members of the Home dyeing-1, 2 and 3 PEB sheds. There are also bolts missing in home dyeing 1, and a loose connection at joints in fashion dyeing 1.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:	Have a qualified structural engineer develop a remediation plan.	
Suggested Deadline Date:	28 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.26	
Question:	For post-tensioned reinforced concrete systems or elements, cored holes have not compromised the post-tensioned strands.	
Priority Level:	High	
Non-Compliance Level:		
Description:	There are no post-tensioned reinforced concrete systems or elements.	
Source of Findings:	Document Review: Documents reviewed on site. , Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Not Applicable	



Question:	Is the structure free from any major/progressive distress?
Priority Level:	High
Non-Compliance Level:	
Description:	All the structures of RCC and PEB shed are free from any major/progressive distress.
Source of Findings:	Visual Assessment: Visual assessment performed.
Suggested Plan of Action:	
Suggested Deadline Date:	
Standard:	Alliance Standards Part 8 Section 8.3.3
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:	Some storage racks in stitching building 1, stitching building 2, NFL buildings are not adequately anchored and braced to resist earthquake force. In addition, electrical MDB in stitching building 2 (4th floor), and a bookshelf in NFL building (3rd floor) is not anchored. There are two plastic water tanks on marketing building which needs bracing and anchorage. There are three plastic water tanks on stitching building-1 which needs bracing and anchorage. Two plastic water tanks (temporary) has been placed on roof level of stitching building-1. These tanks should be braced and anchored to resist lateral load.
Source of Findings:	Visual Assessment: Visual assessment performed.
Suggested Plan of Action:	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standards.
Suggested Deadline Date:	08 Sep 2014
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6
Question:	If the building is currently being renovated or expanded, are the Construction Practices and Safety requirements of Section 9 being followed?
Priority Level:	Medium
Non-Compliance Level:	1
Description:	Renovation of stitching building 2 is ongoing. But during the renovation Construction Practices and Safety requirements of Section 9 are not being followed. For example: 1) Workers did not wear safety equipment, 2) Did not





	use safety nets, 3) Staging of raw materials on roof.
Source of Findings:	Document Review: Documents reviewed on site, Visual Assessment: Visual assessment performed.
Suggested Plan of Action:	Follow the Construction Practices and Safety requirements of Section 9
Suggested Deadline Date:	15 Jan 2015
Standard:	Alliance Standard Part 9 Construction Practices and Safety.

Structural Safety Programs

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:	
Description:	Load plans have been prepared for showing the actual maximum operational loading that is allowable.
Source of Findings:	Document Review: Documents reviewed on site.
Suggested Plan of Action:	
Suggested Deadline Date:	
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:	3
Description:	Floor Load Plans are available but not posted as required on each floor of all the buildings.
Source of Findings:	Visual Assessment: Visual assessment performed.
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:	24 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.20.5.3





Question:	Are floor loads in compliance with posted plans?	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	The existing floor load exceeds the maximum load allowed as per the floor load plan.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:		
Description:	The areas used for storage of work materials and work products are clearly marked to indicate the acceptable loading limits as described in the Load Plan for that floor.	
Source of Findings:	Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	
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:	3	
Description:	There is no program that will ensure that the designated load in each floor will not be exceeded.	
Source of Findings:	Document Review: Documents reviewed on site.	
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:	14 Jul 2014	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
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:		
Description:	Md. Saiful Azam who is a graduate civil engineer been appointed as factory load manager.	
Source of Findings:	Document Review: Documents available. , Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager	
Question:	For post-tensioned reinforced concrete systems or elements, is a program in place to ensure post-tensioned strands are located before core drilling begins?	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	There is no post-tensioned reinforced concrete system or elements has been found.	
Source of Findings:	Document Review: Documents reviewed on site. , Visual Assessment: Visual assessment performed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	