INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**ADURY APPARELS LTD**
Address:	**Karardi, Shibpur, Narsingdi, Narsingdi Dhaka Bangladesh**
Assessor:	**Bureau Veritas**
Date:	**10 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.

Building-01 (6-Storied RCC)

Building-02 (2-storied steel Build.)

Building-03

Building-04(5-storied RCC)

Building-05(4-storied RCC)

Building-06(3-storied RCC)

GENERAL INFORMATION

General Information	
Factory Name:	ADURY APPARELS LTD
Address:	Karardi, Shibpur, Narsingdi, Narsingdi Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Narsingdi
Zip Code:	
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	05-11-2014
Final Report Date :	10-03-2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 14 buildings in the factory premises out of which eight are main buildings and six are ancillary buildings. The buildings are named as:1) Six story RCC building, (Building 01)2) Five story RCC building, (Building 04)3) Three story RCC building, (Building 06)4) Two story Steel building-2, (Building 02)5) Single story prefab shed-1,6) Single story prefab shed-2,7) Single story prefab shed-5,8) Single story prefab shed-7.9) Two story RCC building-1,10) Two story RCC building-3,11) Four story RCC building-5,12) Single story prefab shed-3,13) Single story prefab shed-4,14) Single story prefab shed-6.
Number of Building Levels (Stories) :	1) Six story RCC building: (Above grade: 6, below grade: 0), 2) Two story RCC building-1: (Above grade: 2, below grade: 0), 3) Five story RCC building: (Above grade: 5, below grade: 0), 4) Three story RCC building: (Above grade: 3, below grade: 0), 5) Two story steel building-2: (Above grade: 1, below grade: 0), 6) Four story RCC building: (Above grade: 4, below grade: 0), 7) Two story RCC building-3: (Above grade: 2, below grade: 0), Remaining seven structures are single story shed having story above grade: 1 and below grade: 0;
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 638034 sft.(Including roof square footage). Building wise breakdown as follows: 1) Six story RCC building: 88219 sft 2) Five story RCC building: 136182 sft 3) Three story RCC building: 100680 sft 4) Two story steel building-2: 11583 sft 5) Single story prefab shed-1: 19000 sft, 6) Single story prefab shed-2: 22000 sft, 7) Single story prefab shed-5: 14930 sft, 8) Single story prefab shed-7: 4493 sft. 9) Four story RCC building: 104305 sft 10) Two story RCC building-1: 63060 sft 11) Two story RCC building-3: 18000 sft 12) Single story prefab shed-3: 23733 sft, 13) Single story prefab shed-4: 8758 sft, 14) Single story prefab shed-6: 23091 sft,
Date of Building Construction :	1) Six story RCC building: Finished in 2005, 2) Five story RCC building: Finished in 2009, 3) Four story RCC building: Finished in 2009, 4) Three story RCC building: Finished in 2009, 5) Two story RCC building-1: Finished in 2008, 6) Two story steel building-2: Finished in 2008, 7) Two story RCC building-3: Finished in

	2008, 8) Single story prefab shed-1: Finished in 2009, 9) Single story prefab shed-2: Finished in 2009, 10) Single story prefab shed-3: Finished in 2009, 11) Single story prefab shed-4: Finished in 2009, 12) Single story prefab shed-5: Finished in 2009, 13) Single story prefab shed-6: Finished in 2009, 14) Single story prefab shed-7: Finished in 2009.
Date of Last Building Renovation/Addition :	No record for date of renovation or addition was found from factory personnel.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Four story RCC building, 2) Two story RCC building, 3) Two story RCC building, 4) Single story prefab shed, 5) Single story prefab shed, 6) Single story prefab shed.
Number of Ancillary Levels (Stories) :	1) Four story RCC building: Stories above grade: 4, Stories below grade: 0, 2) Two story RCC building-1: Stories above grade: 2, Stories below grade: 0, 3) Two story RCC building-3: Stories above grade: 2, Stories below grade: 0, 4) Single story prefab shed-3: Stories above grade: 1, Stories below grade: 0, 5) Single story prefab shed-4: Stories above grade: 1, Stories below grade: 0, 6) Single story prefab shed-6: Stories above grade: 1, Stories below grade: 0.
Approximate Ancillary Structures Area (SF) :	1) Four story RCC building: 104305 sft, 2) Two story RCC building-1: 63060 sft, 3) Two story RCC building-3: 18000 sft, 4) Single story prefab shed-3: 23733 sft, 5) Single story prefab shed-4: 8758 sft, 6) Single story prefab shed-6: 23091 sft.
Number of Occupants :	Total number of occupants: 3933. 1) Six story RCC building: 1170, 2) Five story RCC building: 618, 3) Three story RCC building: 370, 4) Two story steel building-2: 26, 5) Single story prefab shed-1: 319, 6) Single story prefab shed-2: 317, 7) Single story prefab shed-5: 195, 8) Single story prefab shed-7: 18. 9) Four story RCC building: 2, 10) Two story RCC building-1: 739, 11) Two story RCC building-3: 15, 12) Single story prefab shed-3: 12, 13) Single story prefab shed-4: 2, 14) Single story prefab shed-6: 130.
Exterior Facade Description :	Six story RCC building (01), Five story RCC building (04), Three story RCC building (06): The Buildings are RCC framed structures with infilled masonry. Exterior face of the masonry wall is of plaster and paint works. The windows are sliding glass in aluminum frame and door is metallic sliding type. parapet has been used around the periphery of roof. Two story steel structure(02): The building is braced steel structure with PEB shed. Exterior face of the masonry wall is of ceramic bricks. The windows are sliding glass in aluminum frame and door is metallic swing type type. Shed 01, 02, 05, 07: The building is braced steel structure with PEB shed. Exterior face of the masonry wall is of plaster and paint works. The windows are sliding glass in aluminum frame and door is metallic swing type.
Structural System Description :	Building-01,Building-03, Building-04, Building-05, Building-06 are RCC framed structure with infilled masonry but Building-02 is steel frame structure .

ASSESSMENT FINDINGS

Structural System Design		
Question:	Are Certificates of Occupancy available for review?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	The factory has not obtained the Certificate of Occupancy from the authority.	
Source of Findings:	Document Review: Document unavailable.	
Suggested Plan of Action:	Provide Certificates of Occupancy for review.	
Suggested Deadline Date:	31 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	Structural Engineer of Record	
Priority Level:		
Non-Compliance Level:		
Description:	All buildings and sheds: Name of the Structural Engineer-Md.Ferdous Miah, IEB membership no.- M 18795, Farm-FM Engineers associates , green road, Panthopath, and Dhaka-1205.	
Source of Findings:	Document Review: document review of all buildings and sheds shows that Name of the Structural Engineer-Md.Ferdous Miah, IEB membership no.- M 18795, Farm-FM Engineers associates , green road, Panthopath, and Dhaka-1205.	
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:	1	
Description:	No Architect of Record is available.	

Source of Findings:	Document Review: Document review shows that no Architect of Record is available.	
Suggested Plan of Action:	Provide the Name and IEB number of the architect with signature in architectural drawing.	
Suggested Deadline Date:	03 Jul 2014	
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:	Building 01, 04, 06: Structural design documents are available without design report as per BNBC. Also architect of record is not available. Building 02 and shed 01, 02, 05 and 07: Steel detailing and design reports are not available in the documents.	
Source of Findings:	Document Review: Documents unavailable.	
Suggested Plan of Action:	Have a qualified structural engineer to prepare credible as-built documents based on the requirements of part 8, Section 8.19 of the alliance standard.	
Suggested Deadline Date:	31 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:		
Description:	Geotechnical report is available in the site to review with proper seal and signature of geotechnical engineer.	
Source of Findings:	Document Review: Geotechnical report is available in the site to review with proper seal and signature of geotechnical engineer.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	All buildings and sheds: There is no indication that the design accommodates the requirement of BNBC 2006 or other comparable applicable international model building code.	
Source of Findings:	Document Review: Document unavailable.	
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 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:	All buildings and sheds: There is no indication that the buildings have been design taking into consideration the seismic and wind load.	
Source of Findings:	Document Review: Document unavailable.	
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 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:	All buildings and sheds: There is no clear information available on the design document to understand the consideration of storm surge and wind loading in the design of the building.	
Source of Findings:	Document Review: Document unavailable.	

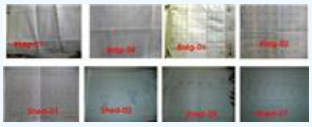
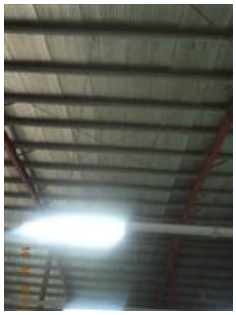
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading and storm surge.	
Suggested Deadline Date:	31 Jul 2014	
Standard:	2006 BNBC Part 6 Section 1.5. Compliance may be waived if the Factory Owner provides satisfactory 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:	There was no preliminary structural assessment done in all buildings and sheds.	
Source of Findings:	Document Review: Document unavailable.	
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:		
Description:	There is no evidence of any previous expansion of all structures.	
Source of Findings:	Document Review: Document review shows that there is no extension of all structuresbeyond the original construction., Visual Assessment: Document unavailable.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	Building 01, 04 and 06: All buildings are moment resisting RCC framed structures. Building 02: is steel structure and also moment resisting framed structure . Shed 01, 02, 05 07: All sheds structural system is tapered column and tapered rafter with purlins , wire bracing and profile roof sheeting.
Source of Findings:	Visual Assessment: Visually Confirmed
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:	All buildings and sheds: All the structures are regular in both horizontally and vertically.	
Source of Findings:	Document Review: Document review shows that all R.C.C and steel buildings and sheds are regular frame structure., Visual Assessment: Confirmed visually.	
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:		
Description:	The presence of the lateral load path and redundancy are confirmed by the observation of the multiple moment resisting frames in the RCC building. All sheds and steel building are constructed from steel frame with redundant bracing which are capable to resist lateral load.	
Source of Findings:	Document Review: Documents reviewed on site., Visual Assessment: Confirmed visually.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	FoS for the columns: Building-01 (6 Storied RCC) for Alliance standard value Central: 2.40 Corner : 3.65 Edge : 1.72 Building-04 (5 storied RCC) for Alliance standard value Central: 2.34 Corner : 2.86 Edge : 2.01 Building-05 (4 storied RCC) for Alliance standard value Central: 2.49 Corner : 4.29 Edge : 3.25 Building-06 (3 storied RCC) for Alliance standard value Central: 4.03 Corner : 5.21 Edge : 3.55
Source of Findings:	Document Review: Stress Calculation Sheet
Suggested Plan of Action:	Conduct destructive core test to validate the in-situ concrete compressive strength of the structural elements of building-01.
Suggested Deadline Date:	30 Jan 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:	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:	Result of ferro-scanning confirms that the number of rebars matches the structural design of all RCC buildings. Ferro-scanning is not required for all steel structures.	
Source of Findings:	Visual Assessment: Confirmed by on-site visual assessment and ferro-scanning.	
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:	Six story RCC building (Building 01), Five story RCC building (Building 04) and Three story RCC building (Building 06): The measure slab thickness is 6". Therefore, dead load is 75+25(FF)=100 psf. The estimated live load is about 42 psf. Two story Steel building (Building 02): The measure slab thickness is 4". Therefore, dead load is 50+25(FF)=75 psf. The estimated live load is about 42 psf. Shed 01, 02, 05, 07: Dead loads of single storied sheds are the self-weight of the structure. Live loads of single storied sheds are 12 psf.	
Source of Findings:	Visual Assessment: Slab thickness was measured during visual inspection.	
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 4 plastic water tanks on the roof of the building 01. There is no analytical information on the provision of these tanks in the design.	
Source of Findings:	Document Review: Document unavailable., Visual Assessment: Visually confirmed.	
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:	31 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/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:	There are 4 plastic water tanks on the roof of building 01, where live load exceed 42 psf. there is no analytical confirmation of strength that can support this load.	
Source of Findings:	Document Review: Document pertaining to water tank load capacity unavailable., Visual Assessment: Visually confirmed the presence of water tanks.	
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 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) Six story RCC building (Building 01): Dampness have been found on the Ground,2nd,3rd,4th and 5th floor. Water ponding has been observed on roof of the building. 2) Five story RCC building (Building 04): Water ponding has been observed on roof of the building. 3) Three story RCC building (Building 06): Standing water has been observed on roof of the building 4) Two story Steel building (Building 02) Dampness have been found on Ground and 1st floor. 5) Single story prefab shed 02: Corrosion have been found on steel column.
Source of Findings:	Visual Assessment: Confirmed visually.
Suggested Plan of Action:	Under the guidance from a qualified structural engineer, address all areas of needed maintenance by corresponding the identified issues.
Suggested Deadline Date:	31 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance







		   
Question:	The exterior façade is free of cracking.	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Cracks have been observed on outside masonry wall of shed-01.	
Source of Findings:	Visual Assessment: Confirmed visually.	
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:	31 Oct 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:		

Description:	All buildings and sheds: There is no expansion joint in all structures.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	Is expansion joint material free from cracking and other forms of deterioration?	
Priority Level:	Low	
Non-Compliance Level:		
Description:	All building and shed: There is no expansion joint in all structures.	
Source of Findings:	Visual Assessment: Confirmed visually.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:		
Description:	All buildings and sheds: There is no sign of water intrusion, ponding or dampness in all structures due to lack of performance of the facade.	
Source of Findings:	Visual Assessment: Visual inspection shows that there is no sign of water intrusion, ponding or dampness in all structures due to lack of performance of the facade.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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 of all buildings and sheds are satisfactory.	
Source of Findings:	Visual Assessment: Visual assessment shows that the performance of key structural elements of all buildings and sheds are satisfactory.	
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 systems of all buildings and sheds are free of settlement, cracking, excessive perimeter separation etc. which shows no noticeable settlement has 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 has 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:		
Description:	The structure systems of all buildings and sheds are free from deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure.	
Source of Findings:	Visual Assessment: Visual assessment shows that the structure systems of all buildings and sheds are free from deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure.	

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 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 inspection shows that there is no visible sign of distress or crack that may indicate lack of performance or over-stress of the lateral load-carrying system.	
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:	1) Six story RCC building (Building 01):Hair cracks have been noticed on Ground,2nd,3rd,and 5th floor. 2) Five story RCC building (Building 04): Masonry cracks have been noticed on 5th floor. 3) Three story RCC building (Building 06): Masonry cracks have been noticed on 1st floor. 4) Two story Steel building (Building 02): Masonry cracks have been noticed on 1st floor. 5) Single story prefab shed 01: Some masonry cracks found on external wall of the shed. 6) Single story prefab shed 07: Few masonry cracks have been found on window of the shed.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Qualified structural engineer should be provided for further testing and analysis of distress, settlement, shifting, or cracking in columns or walls.	
Suggested Deadline Date:	31 Oct 2014	

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:	No strengthening or retrofitting has been done on the structural members of the building.	

Source of Findings:	Visual Assessment: Visual inspection show that, no strengthening or retrofitting has been done on the structural members of the building.	
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:	Six story RCC building (Main building 01): The structure is of stone chips. Five story RCC building (Main building 04): The building's frame is caste of MCAC. Three story RCC building (Main building 06): The structure is of stone chips. 4 story RCC building(Building 05): The building's frame is caste of MCAC. Two story Steel building 2,(Main building 02) and all sheds : All structures are of steel.	
Source of Findings:	Visual Assessment: Confirmed visually.	
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:		

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. The column stress calculated taking into account the strength of concrete either from standard or from test result of NDT, does not show any overstress.	
Source of Findings:	Document Review: Preliminary calculation., Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	The roof of the building (01,04,05) are of MCAC aggregate but no protective sealing is available.	
Source of Findings:	Visual Assessment: Visual inspection shows that the roof of the building (01,04,05) are of MCAC aggregate but no protective sealing is available.	
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. Or provide 2% slope on the exposed surface to prevent accumulation of water.	
Suggested Deadline Date:	31 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:	Corrosion have been found on steel columns at ground floor of two storied building (building 02).	
Source of Findings:	Visual Assessment: Confirmed visually.	
Suggested Plan of	Complete further testing on areas of deterioration in order to understand the	

Action:	level of corrosion and weakening of the member and have a qualified structural engineer develop a remediation plan.	
Suggested Deadline Date:	31 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, cored holes in all buildings.	
Source of Findings:	Document Review: Document review shows that there are no post-tensioned reinforced concrete systems or elements, cored holes in all buildings., Visual Assessment: Visual assessment shows that there are no post-tensioned reinforced concrete systems or elements, cored holes in all buildings.	
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:	There is no sign of progressive distress visible in all the structures.	
Source of Findings:	Visual Assessment: Visual inspection shows that there is no sign of progressive distress visible in all the structures.	
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:	In 1st floor of six storied building (building-1) and 4th floor of five storied building (building-3), there are some racks have been found, which are not braced for earthquake force. There are 3 plastic water tanks with considerable height, which are not braced or anchored properly.
Source of Findings:	Visual Assessment: Confirmed visually.
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 Jul 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:	
Description:	All the buildings are not currently being renovated or expanded.
Source of Findings:	Visual Assessment: Visual assessment shows that all the buildings are not currently being renovated or expanded.
Suggested Plan of Action:	
Suggested Deadline Date:	
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:	3	
Description:	There is no load plan available showing the actual maximum operational loading that is allowable.	
Source of Findings:	Document Review: There is not load plan available in the documentation of the factory.	
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 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans)	
Question:	Are Floor Load Plans posted as required?	
Priority Level:	Low	
Non-Compliance Level:	3	
Description:	There is no load plan available showing the actual maximum operational loading that is allowable.	
Source of Findings:	Document Review: There is not load plan available in the documentation of the factory.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard and have it posted in all required location.	
Suggested Deadline Date:	31 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:	There is no load plan available showing the actual maximum operational loading that is allowable.	
Source of Findings:	Document Review: Documents unavailable.	
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:	3	
Description:	There is no load plan. Also, there is no marking on the floor to designate spaces and height for storage of work materials.	
Source of Findings:	Visual Assessment: Visual inspection confirms that there is no load plan and floor load marking in the factory.	
Suggested Plan of Action:	Have a qualified structural engineer prepare a load plan for each floor and have the floors marked for designating storage area as per the developed load plan.	
Suggested Deadline Date:	31 Jul 2014	
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: No evidence of the existence of any program to control the live load on the floor as per the floor load plan was found.	
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:	17 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:	3	
Description:	There is no 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.	
Source of Findings:	Document Review: There is no evidence of a designated load manager being present in the factory.	
Suggested Plan of Action:	Designate a representative as the Factory Load Manager. The Factory Owner shall ensure that at least one individual, the Factory Load Manager who is located onsite full time at the factory, is trained in calculating operational load characteristics of the specific factory. The Factory Load Manager shall serve as an ongoing resource to RMG vendors and be responsible to ensure that the factory operational loads do not at any time exceed the factory floor loading limits as described on the Floor Loading Plans.	
Suggested Deadline Date:	17 Jul 2014	
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 are no post-tensioned reinforced concrete systems or elements in all structures.	
Source of Findings:	Document Review: No post-tensioned reinforced concrete system or elements have been documented in the structural drawing., Visual Assessment: Visual assessment shows that there are no post-tensioned reinforced concrete systems or elements in all structures.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	