INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**Shore To Shore Textiles Ltd.**
Address:	**Plot# 224-233, Adamjee EPZ, Shiddirgonj, Narayangonj Siddirgonj Dhaka Bangladesh**
Assessor:	**Emkay Enterprises LTD**
Date:	**03 Jun 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:	Shore To Shore Textiles Ltd.
Address:	Plot# 224-233, Adamjee EPZ, Shiddirgonj, Narayangonj Siddirgonj Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Siddirgonj
Zip Code:	1431
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	8/13/2014
Final Report Date :	10/15/2014
Are all Action Items From Previous Assessment Completed?:	No
Buildings in Complex :	2 Main Buildings 3 Ancillary Buildings
Number of Building Levels (Stories) :	Main Building 1 (Accessories Building): 3 (Grade + 2) Main Building 2 (Production Building): 2 (Grade + 1)
Approximate Building Area (SF) :	Main Building 1 (Accessories Building): 28,416 SF (Approx); Main Building-2 (Production Building): 238,633 SF (Approx).
Date of Building Construction :	2010-2013
Date of Last Building Renovation/Addition :	No renovation or addition done.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	3 Ancillary structures
Number of Ancillary Levels (Stories) :	Ancillary 1 (Canteen Building): 1 (Grade); Ancillary 2 (Generator and sub-station room): 2 (Grade + 1); Ancillary 3 (Guard room and fire station command): 1 (Grade)
Approximate Ancillary	Ancillary 1 (Canteen Building: 17,166 SF (Approx); Ancillary 2 (Generator and sub-station room): 800 SF

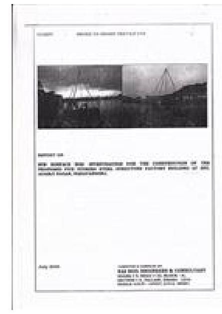
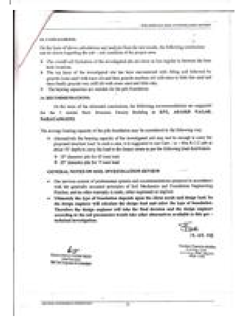
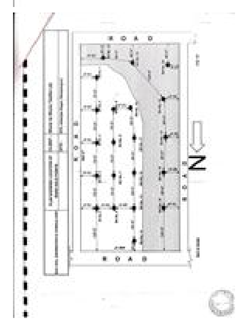
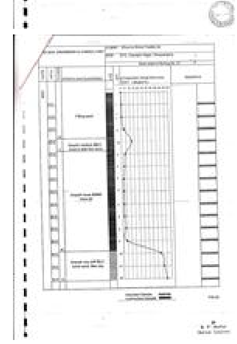
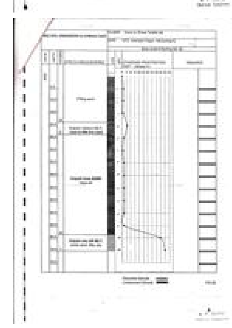
Structures Area (SF) :	(Approx); Ancillary 3 (Guard room and fire station command): 350 SF (Approx).
Number of Occupants :	2500
Exterior Facade Description :	Brick masonry wall with interior and exterior plaster finish and paint.
Structural System Description :	Main Building 1: RCC frame structure with steel shed at roof top; Main Building 2: Prefabricated steel building; Ancillary Building 1: Prefabricated steel building; Ancillary Building 2: RCC frame structure with steel shed at roof top; Ancillary Building 3: RCC frame building
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 Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	
Description:	As the factory is located in EPZ area, BEPZA has provided the approval for factory construction.
Source of Findings:	Document Review: BEPZA approval
Suggested Plan of Action:	
Suggested Deadline Date:	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment
Question:	Structural Engineer of Record
Priority Level:	
Non-Compliance Level:	
Description:	Main Building-1 (Accessories Building): Md. Abul Kalam Azad, B.Sc. Architect, Prokalpobid Design Consultant, Banani Bazar, Banani, Dhaka. Ancillary-2 (Generator and sub-station room) and Ancillary-3 (Guard Room): Md. Bacchu Mia (Civil Engineer). Main Building-2 (Production Building) and Ancillary-1 (Canteen Building): Done by Zamil Steel.
Source of Findings:	Document Review: Found from the provided documents.
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:	No record of Architect found.

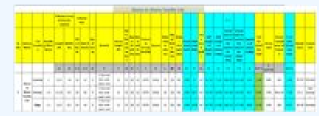
Source of Findings:	Document Review: Not found.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide the name and firm of the architect of record.	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories: Main Building-1 (Accessories Building): The provided structural documents were not credible. There were discrepancies between the provided design documents and the existing structural system. Main Building-2 (Production Building): Credible Structural design documents found.	
Source of Findings:	Document Review: Partially found.	
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:	01 Nov 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:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings: Geotechnical report is available for review and kept on site. Geotechnical report suggested to use cast-in-place RCC pile at 70 ft depth to carry the load to the deeper strata as per the following load distribution: 18 inch diameter pile for 65 tons load and 20 inch diameter pile for 75 tons load.	
Source of Findings:	Document Review: Soil test report found., Uploaded Document: Soil test report	
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:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings: For All the Buildings: The provided structural design documents don’t mention any BNBC or other code references.
Source of Findings:	Document Review: Not found.
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:	01 Nov 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:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 2006 BNBC Part 6 Section 1.5: All the Buildings were Built After 2006. Seismic and wind loads have been considered using MBMA 1996 according to the Zamil Steel Manual. However, there is no indication of compliance with the requirements of the BNBC.
Source of Findings:	Document Review: From document review, Uploaded Document: Wind load and seismic load calculation
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:	23 Oct 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:	Design documents provide wind load considerations according to MBMA 1996 but there is no indication of complaince with the BNBC.

Source of Findings:	Document Review: Design document review	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	01 Nov 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:	A previous structural assessment report indicated sagging of a structural steel beam in the ceiling of the storeroom ceiling near an opening. But during our visual assessment we didn’t observe this sagging and no actions have been taken by the factory.	
Source of Findings:	Document Review: Previous assessment report	
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:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code: No previous expansion done.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	All are Moment Resisting Frame Structures.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
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 are regular structures.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
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:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5: There is redundancy in the buildings to resist lateral loads.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
Suggested Plan of Action:	
Suggested Deadline Date:	

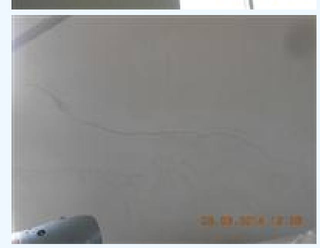
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5	
Question:	Are the available FoS for the columns adequate based on Preliminary calculation?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	The available FoS for the columns (based on live load of 42 psf, and using the Alliance Standard minimum concrete strength of 2370 psi) of Main Building-1 (Accessories Building) are not adequate based on Preliminary Calculation. FoS for Central Columns: 1.69 < 1.86, some doubts about safety. FoS for Corner Columns: 6.92 > 1.86, safe; FoS for Edge Columns: 4.25 > 1.86, safe.	
Source of Findings:	Document Review: FoS Calculation Sheet	
Suggested Plan of Action:	Under guidance from a qualified structural engineer arrange an Assessment of concrete strength by coring.	
Suggested Deadline Date:	01 Nov 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:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment: Steel rebar in the columns of the lowest tier were satisfactory.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Main Building-1 (Accessories Building): Dead load for the slab and floor finish is 125psf, and live load was found to be less than 20psf in each floor except the ground floor. Main Building-2 (Production Building): Dead load for the deck is 62.5psf, and live load was found to be less than 20psf in each floor except the ground floor.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Alliance Standard Part 8 Section 8.13 and 8.14: 6-water tanks of 10,000 litres (Gazi Tank) were found upon the roof top of Main Building 2 (Production Building). No provisional design documents were found for those water tanks. Porch shed at Main Building 2 also had no design documents.	
Source of Findings:	Document Review: Not found., Photograph: Water tanks and porch shed., Visual Assessment: Site Visit: 3rd June, 2014	
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:	01 Nov 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:		
Description:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads: Assessment teams did not observe any location, where live load can exceed 42 psf on the floor.	

Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance: Standing water was found on the roof top of Main building 2 (Production Building).	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	01 Nov 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:		
Description:	The exterior facade is free of cracking.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	No expansion joint provided.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
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:	Not Applicable.
Source of Findings:	
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:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance: Assessment teams did not observe any water intrusion or ponding due to lack of performance of the façade system.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
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:	Alliance Standard Part 8 Section 8.3.3: The performance of key structural elements were found to be satisfactory.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings: Assessment teams did not observe any signs of foundation settlement.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings: Assessment teams did not observe any noticeable movements.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Alliance Standard Part 8 Section 8.3.3: Assessment teams did not observe any noticeable signs of overstress of the lateral system.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	2	
Description:	Alliance Standard Part 8 Section 8.3.3 Some wall cracks were found at the 1st floor of the Main Building 2.	
Source of Findings:	Photograph: Crack in walls, Visual Assessment: Site Visit: 3rd June, 2014	
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:	01 Nov 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 previous repairs done.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC): For Main Building-1: Stone-chip aggregate concrete (SCAC) was used in the construction of the building.	
Source of Findings:	Document Review: Found from documents.	
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:	Not applicable.
Source of Findings:	
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:	
Description:	Main building-1 (Accessories Building): Not Applicable. Main Building-2 (Production Building): Roof deck slab was constructed with SCAC, so not applicable.
Source of Findings:	Document Review: Found from provided documents.
Suggested Plan of Action:	
Suggested Deadline Date:	
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:	
Description:	Alliance Standard Part 8 Section 8.26: Structural steel members were found free of corrosion, physical damage or other types of deterioration.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
Suggested Plan of Action:	
Suggested Deadline Date:	

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:	Not applicable.	
Source of Findings:		
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:	Alliance Standards Part 8 Section 8.3.3: Assessment teams did not find any major/progressive distress.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	3	
Description:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6: Steam pipes were found at the 1st floor of the Main Building 2 (Production Building), which had no anchorage or bracing. Storage racks were found at the ground floor of Main Building 2 (Production Building), which were not properly anchored to the ground.	
Source of Findings:	Photograph: Suspended Steam pipes and non-anchored storage materials racks. , Visual Assessment: Site Visit: 3rd June, 2014	

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:	01 Nov 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:	No current renovation or expansion is ongoing.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
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:	Assessment teams did find any Load Plan as per Alliance Standards Part 8 Structural Design Section 8.10 Floor Loading Plans (Load Plans).	
Source of Findings:	Document Review: No floor load plans found.	
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:	01 Nov 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:	2	
Description:	Floor Load Plans were not posted as per Alliance Standard Part 8 Section 8.20.5.3.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard.	
Suggested Deadline Date:	01 Nov 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:	No floor load plan was available to comply.	
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard.	
Suggested Deadline Date:		
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:	Assessment teams did not observe any Load plans posted as per Alliance Standards Part 8 Structural Design Section 8.11 Floor Load Markings.
Source of Findings:	Visual Assessment: Site Visit: 3rd June, 2014
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:	01 Nov 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:	No program is in place according to 2006 BNBC Part 6 Chapter 1 Section 1.4.6 and Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.
Source of Findings:	Document Review: Not 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:	01 Nov 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:	No designated full time representative (Factory Load Manager) was found as per Alliance Standards Part 8 Section 8.9 Factory Load Manager.
Source of Findings:	Document Review: No record of a Factory Load Manager was found.
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:	01 Nov 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:	Not Applicable.	
Source of Findings:		
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	