

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **MATRIX SWEATERS LTD.**

Address: **NATIONAL UNIVERSITY, CHOYDANA Gazipur
Gazipur Dhaka Bangladesh**

Assessor: **Bureau Veritas**

Date: **04 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:	MATRIX SWEATERS LTD.
Address:	NATIONAL UNIVERSITY, CHOYDANA Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1704
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	06-05-2014
Final Report Date :	10-27-2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 9 buildings in the factory premises out of which one is main production buildings and eight are ancillary buildings. The buildings are named as: 1) Eight story main building with occupied roof, 2) Single story washing plant, 3) Single story fire pump & generator room, 4) Single story security room, 5) Single story shed-1, 6) Single story diesel generator shed-2, 7) Single story gas generator shed-3, 8) Single story boiler shed-4, 9) Single story gas sub-station room.
Number of Building Levels (Stories) :	1) Eight story main building with occupied roof: Stories above grade: 9 (8 floors plus 1 prefabricated shed on roof), Stories below grade: 0, 2) Single story washing plant: Stories above grade: 1, Stories below grade: 0, 3) Single story fire pump & generator room: Stories above grade: 1, Stories below grade: 0, 4) Single story security room: Stories above grade: 1, Stories below grade: 0, 5) Single story shed-1: Stories above grade: 1, Stories below grade: 0, 6) Single story diesel generator shed-2: Stories above grade: 1, Stories below grade: 0, 7) Single story gas generator shed-3: Stories above grade: 1, Stories below grade: 0, 8) Single story boiler shed-4: Stories above grade: 1, Stories below grade: 0, 9) Single story gas sub-station room: Stories above grade: 1, Stories below grade: 0,
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 514240 sft + 63000 sft (Roof area) = 577240 sft. Building wise breakdown as follows: 1) Eight story main building with occupied roof: 564000 sft (Ground floor: 63000 sft, 1st floor: 60000 sft, 2nd floor: 63000 sft, 3rd floor: 63000 sft, 4th floor: 63000 sft, 5th floor: 63000 sft, 6th floor: 63000 sft, 7th floor: 63000 sft, Roof : 63000 sft). 2) Single story washing plant: 4692 sft. 3) Single story fire pump & generator room: 112 sft. 4) Single story security room: 1440 sft. 5) Single story shed-1: 1590 sft. 6) Single story diesel generator shed-2: 2970 sft. 7) Single story gas generator shed-3: 1764 sft. 8) Single story boiler shed-4: 480 sft. 9) Single story gas sub-station room: 192 sft.
Date of Building	Factory personnel informed that construction of all buildings were completed in 2008.

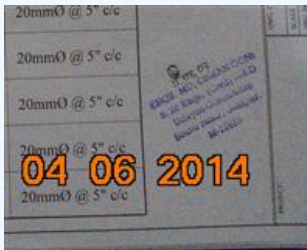


Construction :	
Date of Last Building Renovation/Addition :	Eight story main building with occupied roof: Renovation work is ongoing at ground floor, 1st floor & 6th floor.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Single story washing plant, 2) Single story fire pump & generator room, 3) Single story security room, 4) Single story shed-1, 5) Single story diesel generator shed-2, 6) Single story gas generator shed-3, 7) Single story boiler shed-4, 8) Single story gas sub-station room.
Number of Ancillary Levels (Stories) :	1) Single story washing plant: Stories above grade: 1, Stories below grade: 0, 2) Single story fire pump & generator room: Stories above grade: 1, Stories below grade: 0, 3) Single story security room: Stories above grade: 1, Stories below grade: 0, 4) Single story shed-1: Stories above grade: 1, Stories below grade: 0, 5) Single story diesel generator shed-2: Stories above grade: 1, Stories below grade: 0, 6) Single story gas generator shed-3: Stories above grade: 1, Stories below grade: 0, 7) Single story boiler shed-4: Stories above grade: 1, Stories below grade: 0, 8) Single story gas sub-station room: Stories above grade: 1, Stories below grade: 0,
Approximate Ancillary Structures Area (SF) :	1) Single story washing plant: 4692 sft. 2) Single story fire pump & generator room: 112 sft. 3) Single story security room: 1440 sft. 4) Single story shed-1: 1590 sft. 5) Single story diesel generator shed-2: 2970 sft. 6) Single story gas generator shed-3: 1764 sft. 7) Single story boiler shed-4: 480 sft. 8) Single story gas sub-station room: 192 sft.
Number of Occupants :	Total number of occupants: 5180. 1) Eight story main building with occupied roof: 5050 (Ground floor: 100, 1st floor: 100, 2nd floor: 1000, 3rd floor: 1000, 4th floor: 400, 5th floor: 1000, 6th floor: 1000, 7th floor: 0, Occupied roof: 450), 2) Single story washing plant: 15, 3) Single story fire pump & generator room: 02, 4) Single story security room: 03, 5) Single story shed-1: 100, 6) Single story diesel generator shed-2: 03, 7) Single story gas generator shed-3: 03, 8) Single story boiler shed-4: 03, 9) Single story gas sub-station room: 01.
Exterior Facade Description :	The exterior facade of the building is beautifully decorated with facing bricks and aluminum-framed, sliding/fixed glass windows.
Structural System Description :	This building is a RCC moment-resisting frame. The beams and slabs at each floor are monolithic. The foundation consists of isolated footings. The geometry of the floor plan is regular.



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: Documentation reviewed.	
Suggested Plan of Action:	Apply for the issuance of a Certificate of Occupancy and expedite the matter.	
Suggested Deadline Date:	29 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	Structural Engineer of Record	
Priority Level:		
Non-Compliance Level:		
Description:	Engineer of record for the factory is Osman Goni, B.Sc. Engineer (Civil), MIEB, M-17678, Udayan Consultants Ltd, Board Bazar, Gazipur.	
Source of Findings:	Document Review: Document review shows that engineer of record for the factory is Osman Goni, B.Sc. Engineer (Civil), MIEB, M-17678, Udayan Consultants Ltd, Board Bazar, Gazipur.	
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:	There is no Architect of record available.	
Source of Findings:	Document Review: Document review shows that there is no Architect of record 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:	Structural design documents available for review and kept on site except design report. There is no Architect of record available.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	Have a qualified structural engineer prepare credible design report.	
Suggested Deadline Date:	29 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 for review and kept on site (photocopy)	
Source of Findings:	Document Review: Documentation reviewed.	
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:	The design document does not clearly demonstrate conformance with any applicable code.	
Source of Findings:	Document Review: Documentation reviewed.	
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:	29 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:		
Description:	The building construction started before 2006 and ended after 2006.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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 available on the design document to understand the consideration of wind loading in the design of the building. (Storm surge loading is not applicable in this case)	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	29 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: Document review shows that no preliminary structural assessment has been carried out in this factory to provide evidence of integrity of the building	
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:	2	
Description:	There are horizontal and vertical expansions. There is an excess area constructed on each floor which is not shown in the structural drawings. Also, there is a PEB steel shed on the roof. Both of them are not shown in the structural documents and the load impact on the existing structure has not been assessed.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	Have a qualified structural engineer complete an analytical evaluation of the structural impact of the additions.	
Suggested Deadline Date:	29 Jul 2014	
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 building is a moment resisting frame structure.
Source of Findings:	Document Review: Document review reveals that the building is a moment resisting frame structure., Visual Assessment: Visual inspection shows that the building is a moment resisting frame structure.
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:	This is a regular structure
Source of Findings:	Document Review: Document review backed by visual assessment shows that this is a regular structure
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:	Since there are multiple moment resisting frames, the lateral load path is clear and redundancy is available.
Source of Findings:	Document Review: Document review shows that the building is of multiple moment resisting frames, the lateral load path is clear and redundancy is available. , Visual Assessment: Visual inspection shows that the building is of multiple moment resisting frames, the lateral load path is clear and redundancy is available.
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 of columns noted as below: 1) Considering the value of NDT (UPV Test-2500 psi) and $f_y = 60$ ksi: Central Column: 1.98, Corner Column: 2.21, Edge Column: 1.91, For this case the FoS values are adequate (more than 1.86). 2) Considering the minimum value (2045 psi) and $f_y = 60$ ksi: Central Column: 1.77, Corner Column: 1.93, Edge Column: 1.67, For this case the FoS values are inadequate (between 1.5 and 1.86).
Source of Findings:	Uploaded Document: Calculations uploaded.
Suggested Plan of Action:	Conduct destructive core testing to validate the in-situ concrete compressive strength of the structural elements. Compute the FoS values with the core tests results.
Suggested Deadline Date:	01 Dec 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:	Result of ferro-scanning confirms that the number of rebars are matching with the structural design.
Source of Findings:	Visual Assessment: Visual inspection shows the result of ferro-scanning confirms that the number of rebars are matching with the structural design.
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:	Slab thickness is 5.5". Therefore dead load is $68.75 + 25 (FF) = 93.75$ psf and on site evaluation of live load is about 42 psf.	
Source of Findings:		
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 13 1000-liter UPVC tanks on the stairway room on the roof and 1 5000-liter and 1 2000-liter UPVC tank on the roof that are not shown in the structural design. These tanks act as concentrated loads on the roof slab.	
Source of Findings:	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:	29 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:	2	



Description:	The estimated floor load does not exceed 42 psf except for the 7th floor storage area where loading is about 65 psf.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Have a qualified structural engineer confirm that the 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:	29 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) Dampness was observed on more or less every floor and especially on periphery brick wall and toilet zone wall. 2) Excessive standing water on rooftop was observed.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	29 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:		
Description:	The exterior façade is free of cracking	
Source of Findings:	Visual Assessment: Visual assessment shows that the exterior façade is free of cracking	
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:	There are expansion joints at appropriate intervals.
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:	Two expansion joints provided among part A,B and C and condition of joints are very good and joint materials are free from cracking and other forms of deterioration.
Source of Findings:	Visual Assessment: Visually confirmed.
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:	1
Description:	There are signs of dampness due to the lack of performance of the façade.
Source of Findings:	Visual Assessment: Visually confirmed.
Suggested Plan of Action:	Repair the exterior façade system to prevent water intrusion.
Suggested Deadline Date:	29 Jul 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 the key structural elements is satisfactory.	
Source of Findings:	Visual Assessment: Visual assessment shows that performance of the key structural elements is 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 system is free of settlement, cracking, excessive perimeter separation etc.	
Source of Findings:	Visual Assessment: Visual assessment shows that the structural system is free of settlement, cracking, excessive perimeter separation etc	
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 structural system is free of deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure	
Source of Findings:	Visual Assessment: Visible inspection shows that the structural system free of 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:		
Description:	There is no cracks in the columns. However, there are some masonry cracks in the brick walls which are not affecting the performance of the structure.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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 supported by document review shows 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:	Masonry-chip aggregate concrete (MCAC) is used in the construction of the building
Source of Findings:	Document Review: Documentation reviewed., 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:	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:	3
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 results from the FoS calculations based on a concrete compressive strength of 2045 psi and a reinforcement yield stress of 60 ksi, obtained from the Alliance Standard, indicate that the FoS of the assessed columns are below the minimum value (1.86);





Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Conduct destructive core testing to validate the in-situ concrete compressive strength of the structural elements.	
Suggested Deadline Date:	01 Dec 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 is constructed with MCAC exposed to rainfall.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	29 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:		
Description:	There is no sign of corrosion in the steel members of roof top PEB steel shed.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	No post tensioned reinforced concrete is used.	
Source of Findings:	Document Review: No post tensioned reinforced concrete is used.	
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 the structure.	
Source of Findings:	Visual Assessment: Visual inspection of the structure shows that there is no sign of progressive distress visible in the structure.	
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:	On the 6th floor, there are racks which are not braced for earthquake forces. There are some racks in the yarn store which are not braced or anchored properly. Also, there are 13 plastic water tanks on stair room of roof and 2 plastic water tanks on roof that need proper bracing and anchorage.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	29 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:	No renovation or addition is currently ongoing.	
Source of Findings:	Visual Assessment: No addition has been observed.	
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: Documentation reviewed.	
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:	29 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:	Floor Load Plans are not posted.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standards.	



Suggested Deadline Date:	29 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:	No floor load plan available	
Source of Findings:		
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 are no markings on the floor to designate spaces and height for the storage of work materials.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	29 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:	2	
Description:	There is no program that will ensure that the designated load on each floor will not be exceeded.	
Source of Findings:	Document Review: Documentation reviewed.	



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:	29 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:	Designated factory load manager is available , 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: Document review shows that designated factory load manager is available	
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:	No post-tensioned members are used.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	