INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**MAX SWEATER (BD) LTD**
Address:	**24,26 DIGHI BORABO,TARABO, Rupgonj, Narayangonj Narayangonj Dhaka Bangladesh**
Assessor:	**Emkay Enterprises LTD**
Date:	**03 Apr 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:	MAX SWEATER (BD) LTD
Address:	24,26 DIGHI BORABO,TARABO, Rupgonj, Narayangonj Narayangonj Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Narayangonj
Zip Code:	1460
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	1/5/2014
Final Report Date :	Will be filled up by Alliance QA Representative
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	5 (five) main factory in the complex and 2 ancillary structures.
Number of Building Levels (Stories) :	Building #1 - 3 story Building #2 - 3 story Shed Building #1 - single story Shed Building #2 - single story Shed Building #3 - single story
Approximate Building Area (SF) :	The approximate total building area found 149662 sft RCC building-1 is 27750sft (approx.) RCC building-2 is 74496sft (approx.) Steel shed-1 is 9400sft (approx.) Steel shed-2 is 12672sft (approx.) Steel shed-3 is 25344sft (approx.)
Date of Building Construction :	Approximately 2000-2001
Date of Last Building Renovation/Addition :	Not done
Is the Building mixed use?:	No
Ancillary Structures in Complex :	2 Ancillary Structures
Number of Ancillary Levels (Stories) :	Ancillary structure #1 - single story Ancillary structure #2 - single story

Approximate Ancillary Structures Area (SF) :	Approximately 4,000 sft
Number of Occupants :	Approximately 2862 persons.
Exterior Facade Description :	Brick masonry infill between columns with interior plaster finish and paint
Structural System Description :	RCC buildings are RCC Beam-Column framed structures and 3 are steel shed with truss.

ASSESSMENT FINDINGS

Structural System Design		
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories: As built drawings of RCC building 1 and Approval drawings of RCC building 2 is kept on site. Structural drawings of other 3 steel sheds are available. There are discrepancies between drawings and As-built configuration of RCC Building 1. For this building the east side stair is not shown in the drawing.	
Source of Findings:	Photograph: Photograph of the stair at the east side of RCC building-1	
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:	30 Jun 2014	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	
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:	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": In the drawings there is no general notes that can mention the wind velocity or other wind related factors indication.	
Source of Findings:	Document Review: Structural documents provided by factory	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	25 Jun 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:	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:	"Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code. Include vertical extensions, addition of water tanks, etc)": No vertical extension found. But for the RCC building 2 cracks in the wall found in the extension part of the east portion. The brick wall found inclined and cracked. Horizontal extension of RCC buildings 2 is not available in the provided drawings.
Source of Findings:	Photograph: Photographs of cracked walls in the extension part., Visual Assessment: During Visual Assessment
Suggested Plan of Action:	Have a qualified structural engineer complete an analytical evaluation of the structural impact of the addition.
Suggested Deadline Date:	30 Jun 2014
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.

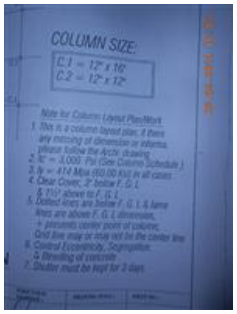





Question:	Have provisions been made in floors or decks for a concentrated load (such as heavy equipment, water tanks, stored materials, etc) applied at a location wherever this load acting upon an otherwise unloaded floor would produce stresses greater than those caused by a uniform load?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	The load of water tank are not indicated in the drawings of RCC Building-1 and Building-2. There is an horizontal extension adjacent to RCC Building-2 found.
Source of Findings:	Photograph: Water tank of RCC Building-1 and Building-2 Horizontal Extension
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:	30 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14




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:	1
Description:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings: In the drawings there is note in the corner of the drawing page but no general note found that can indicate general conformance with 2006 BNBC or other comparable applicable international model building code.But the reinforcement detailing shows code indicated detailing.
Source of Findings:	Document Review: Structural Drawings
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:	30 Jun 2014
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings



Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	1
Description:	No certificates of Occupancy Available.
Source of Findings:	Document Review: No occupancy certificates found.
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	30 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

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": Crack in the backside wall of RCC Building 2 near the boiler room cantilever part found in all levels.
Source of Findings:	Photograph: Crack in the Exterior wall of RCC Building 2
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:	19 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.3.3

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" : Corrosion in the columns of steel shed-2
Source of Findings:	Photograph: Corrosion in the column of shed 2
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:	30 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance



Question:	If yes, have the structural members constructed with MCAC been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	No in-situ testing done according to Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)
Source of Findings:	Document Review: No in-situ test results found.
Suggested Plan of Action:	Have a qualified structural engineer assess the durability aspects as suggested in Alliance Standard Part 7 Section 7.2 and take appropriate remedial measures.
Suggested Deadline Date:	30 Jun 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:	The roof slab is made of MCAC and has not been provided with protective water sealing or drainage slope based on Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).
Source of Findings:	Photograph: Exposed roof slab.
Suggested Plan of Action:	Provide a protective coating at the structural elements constructed with MCAC exposed to rainfall or other sources of water. Have protective coating approved by the Alliance or a qualified structural engineer.
Suggested Deadline Date:	30 Jun 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:	"Alliance Standard Part 8 Section 8.26": The column of stehe shed-2 is corroded, the base plate of the truss of the extension portion of the building-2 is not properly connected with the RCC column.
Source of Findings:	Photograph: Photographs of steel column and disconnected truss with column
Suggested Plan of Action:	Complete further testing on areas of deterioration and have a qualified structural engineer develop a remediation plan.
Suggested Deadline Date:	30 Jun 2014
Standard:	Alliance Standard Part 8 Section 8.26

Question:	The exterior façade is free of cracking.	 
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Crack in the backside wall of RCC Building 2 near the boiler room cantilever part found in all levels.	
Source of Findings:	Photograph: Crack in the Exterior wall of RCC Building 2 , Visual Assessment: During Visual Assessment	
Suggested Plan of Action:	Have a qualified structural engineer provide further analysis of the identified cracks to determine the appropriate course of corrective action.	
Suggested Deadline Date:	30 Jun 2014	
Standard:	Alliance Standard Part 8 Section 8.2	
Structural Safety Programs		
Question:	Is a program in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	"2006 BNBC Part 6 Chapter 1 Section 1.4.6 and Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9": There is no designed live load mentioned in the drawings, No program in place not to exceed designed live load.	
Source of Findings:	Document Review: No program found for live load management.	
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:	30 Jun 2014	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
Question:	Have Load Plans been prepared for each floor documenting the actual maximum operational loading that is intended and/or allowable on each floor.	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	"Reference Alliance Standards Part 8 Structural Design Section 8.10 Floor Loading Plans (Load Plans)": There is no load plan found in the factory.	
Source of Findings:	Document Review: No load plan 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:	30 Jun 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:	"Alliance Standard Part 8 Section 8.20.5.3": No floor load plans found in the factory.	
Source of Findings:	Visual Assessment: Posted floor load plans not found.	
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:	30 Jun 2014	
Standard:	Alliance Standard Part 8 Section 8.20.5.3	
Question:	Are areas used for storage of work materials and work products, clearly marked to indicate the acceptable loading limits as described in the Load Plan for that floor?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	"Reference Alliance Standards Part 8 Structural Design Section 8.11 Floor Load Markings": No acceptable loading plan in the factory.	
Source of Findings:	Visual Assessment: Storage area are not marked for loading limits.	
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:	30 Jun 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	
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:	2	

Description:	"Alliance Standards Part 8 Section 8.9 Factory Load Manager": There is no designated Factory Load Manager.
Source of Findings:	Visual Assessment: No designated Factory Load Manager found during assessment.
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:	30 Jun 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager