



INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Mohara Asian Apparels Ltd**
Address: **472, Kalurghat Industrial Area Kalurghat Chittagong
Chittagong Bangladesh**
Assessor: **Bureau Veritas**
Date: **17 May 2014**





Introduction to the Report

The following report contains a site profile and summary of non-conformities identified during an onsite assessment commissioned by the Alliance for Bangladesh Worker Safety (Alliance) and conducted by a third-party Qualified Assessment Firm (QAF). The assessment was conducted against the Alliance for Bangladesh Worker Safety Assessment Protocols (APs) and Fire Safety and Structural Integrity Standard, which is harmonized with the factory assessment guidelines developed by Bangladesh University of Engineering and Technology (BUET) for the Bangladesh National Tripartite Plan of Action (NTPA). The goal of the Alliance process is to provide clear and practical technical requirements by which Bangladeshi Ready Made Garment (RMG) Factories producing for Alliance members may be consistently and fairly evaluated for fire, structural, and electrical safety in a non-duplicative manner. Each assessment will prompt action plans that will be used by RMG factories to systematically and sustainably improve safety conditions for garment workers. Beyond tracking and reporting on action steps taken in a transparent manner, the Alliance organization and its members will seek to further support factory improvements through technical assistance, training, implementation support for functional Worker Committees, and in some cases financial assistance and wage support for workers if factories are closed for remediation.

The contents of the report do not constitute a guarantee of compliance with the applicable laws, the Alliance Standard or the absolute or continued safety against fire, electrical and/or structural integrity issues that may lead to injury or loss of life. The report is designed to provide a non-exhaustive summary of risk issues, based on a limited sampling and duration of time onsite by the named QAF. Neither the QAF nor the Alliance can certify or guarantee the quality, outcome, or effectiveness of actions taken in response to the report.

For more information and report feedback please go to: www.bangladeshworkersafety.org.





GENERAL INFORMATION

General Information	
Factory Name:	Mohara Asian Apparels Ltd
Address:	472, Kalurghat Industrial Area Kalurghat Chittagong Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong
Zip Code:	4212
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	05-29-2014
Final Report Date :	10-12-2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 5 buildings in the premises out of which one is main production building and four are ancillary buildings. The buildings are named as: 1) Four story RCC main production building, 2) Single story HRD & childcare shed, 3) Single story Generator shed, 4) Single story RCC guard building, 5) Single story RCC Compressor building
Number of Building Levels (Stories) :	1) Four story RCC main production building: Stories above grade: 4, Stories below grade: 0, Occupied levels: 4, 2) Single story HRD & childcare shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 3) Single story Generator shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 4) Single story RCC guard building: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 5) Single story RCC Compressor building: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1.
Approximate Building Area (SF) :	Total area of buildings in the factory premises: 74866.00 sft. Building wise breakdown as follows: 1) Four story RCC main production building: 73129.00 sft (Ground floor: 18300.00 sft, 1st floor: 19075.00 sft, 2nd floor: 17877.00 sft, Roof: 17877.00 sft.), 2) Single story HRD & childcare shed: 711.00 sft, 3) Single story Generator shed: 560.00 sft, 4) Single story RCC guard building: 175.00 sft, 5) Single story RCC Compressor building: 291.00 sft.
Date of Building Construction :	Factory personnel informed the date of construction as follows: Started in 1985 and finished in 1986 (All buildings).
Date of Last Building Renovation/Addition :	Factory personnel informed the date of last building renovation as follows: 1) Four story main production building: Finished in 2013 (Horizontal extension of 1st floor).
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Single story HRD & childcare shed, 2) Single story Generator shed, 3) Single story RCC guard building, 4) Single story RCC Compressor building.
Number of Ancillary Levels (Stories) :	1) Single story HRD & childcare shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 2) Single story Generator shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 3) Single story RCC guard building: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 4) Single story RCC Compressor building: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1.
Approximate Ancillary Structures Area (SF) :	1) Single story HRD & childcare shed: 711.00 sft, 2) Single story Generator shed: 560.00 sft, 3) Single story RCC guard building: 175.00 sft, 4) Single story RCC Compressor building: 291.00 sft.

Factory
Name:

Mohara Asian Apparels Ltd

Address:

**472, Kalurghat Industrial Area Kalurghat Chittagong Chittagong
Bangladesh**

Assessor:

Bureau Veritas

Date:

17 May 2014



ALLIANCE
FOR BANGLADESH WORKER SAFETY

Number of Occupants :	Total number of occupants: 1541. 1) Four story RCC main production building: 1523 (Ground floor: 400, 1st floor: 558, 2nd floor: 550, 3rd floor: 15), 2) Single story HRD & childcare shed: 10, 3) Single story Generator shed: 2, 4) Single story RCC guard building: 4, 5) Single story RCC Compressor building: 2.
Exterior Facade Description :	RCC framed structure with infilled masonry wall. Windows are sliding and swinging type and main gate is metallic. Overall the exterior facade is free from cracking.
Structural System Description :	This building is a Moment Resisting Frame with monolithic beam slab. Foundation is isolated footing. The building is regular framing.



ASSESSMENT FINDINGS

Structural System Design

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 are not adequate based on Preliminary calculation. FoS of Columns are:(considering minimum compressive strength for MCAC) Central Column: 1.77,(Need Evaluation) Corner Column: 3.28, Edge Column: 2.28.	
Source of Findings:	Uploaded Document: FoS calculation.	
Suggested Plan of Action:	Under guidance from a qualified structural engineer arrange Detail Engineering Assessment of the structure.This assessment should include destructive core testing to validate the in-situ concrete compressive strength of structural elements.	
Suggested Deadline Date:	25 Aug 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:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Structural design documents are available for review and kept on site except design reports as per BNBC 1.9.1.1.	
Source of Findings:	Document Review: Credible structural design documents are documented except design documents.	
Suggested Plan of Action:	Have a qualified structural engineer prepare credible as-built drawings based on the requirements of Part 8 Section 8.19 of the Alliance Standard.	
Suggested Deadline Date:	30 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	
Question:	Are Certificates of Occupancy available for review?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Certificates of Occupancy are not available for review.	
Source of Findings:	Document Review: Occupancy certificates are not found in the submitted documents.	
Suggested Plan of	Provide Certificates of Occupancy for review.	



Action:		
Suggested Deadline Date:	30 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Structural System Construction		
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:	Destructive core testing has not been completed.	
Source of Findings:	Visual Assessment: No core testing conducted during visual assessment.	
Suggested Plan of Action:	As part of the detailed engineering assessment outlined elsewhere, conduct destructive core testing to validate the in-situ concrete compressive strength of structural elements.	
Suggested Deadline Date:	30 Jul 2014	
Standard:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)	
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:	1	
Description:	Standing water on roof is observed.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:	Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.	
Suggested Deadline Date:	30 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
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:	1	
Description:	The roof of the building is of MCAC aggregate but no protective sealing is available.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
Suggested Plan of Action:	Provide a protective coating on 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:	30 Jul 2014	 
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).	
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:	1	
Description:	Some storage racks resting have been found on the 1st floor which are not adequately anchored or braced to resist earthquake forces. Also, small plastic water tanks on roof should be braced.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
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:	10 Sep 2014	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	
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:	3	
Description:	There is no program that ensures that the designated load in each floor will not be exceeded.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:	Develop a program to ensure that all live loads for which a floor or roof has been designed for will not be exceeded. The designated Load Manager shall oversee this program and ensure it is enforced.	
Suggested Deadline Date:	30 Jul 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:	3	
Description:	There is no load plan available showing the actual maximum operational loading that is allowed. Only load bearing certificate is available.	
Source of Findings:	Document Review: Documents reviewed on site.	
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 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 as required.	
Source of Findings:	Visual Assessment: No load plan is found to be posted as required.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard. Floor load plans should be visibly posted on all levels of all buildings.	
Suggested Deadline Date:	30 Jul 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:	3	
Description:	Areas used for storage of work materials and work products are not clearly marked to indicate the acceptable loading limits as described in the Load Plan for that floor.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
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 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	