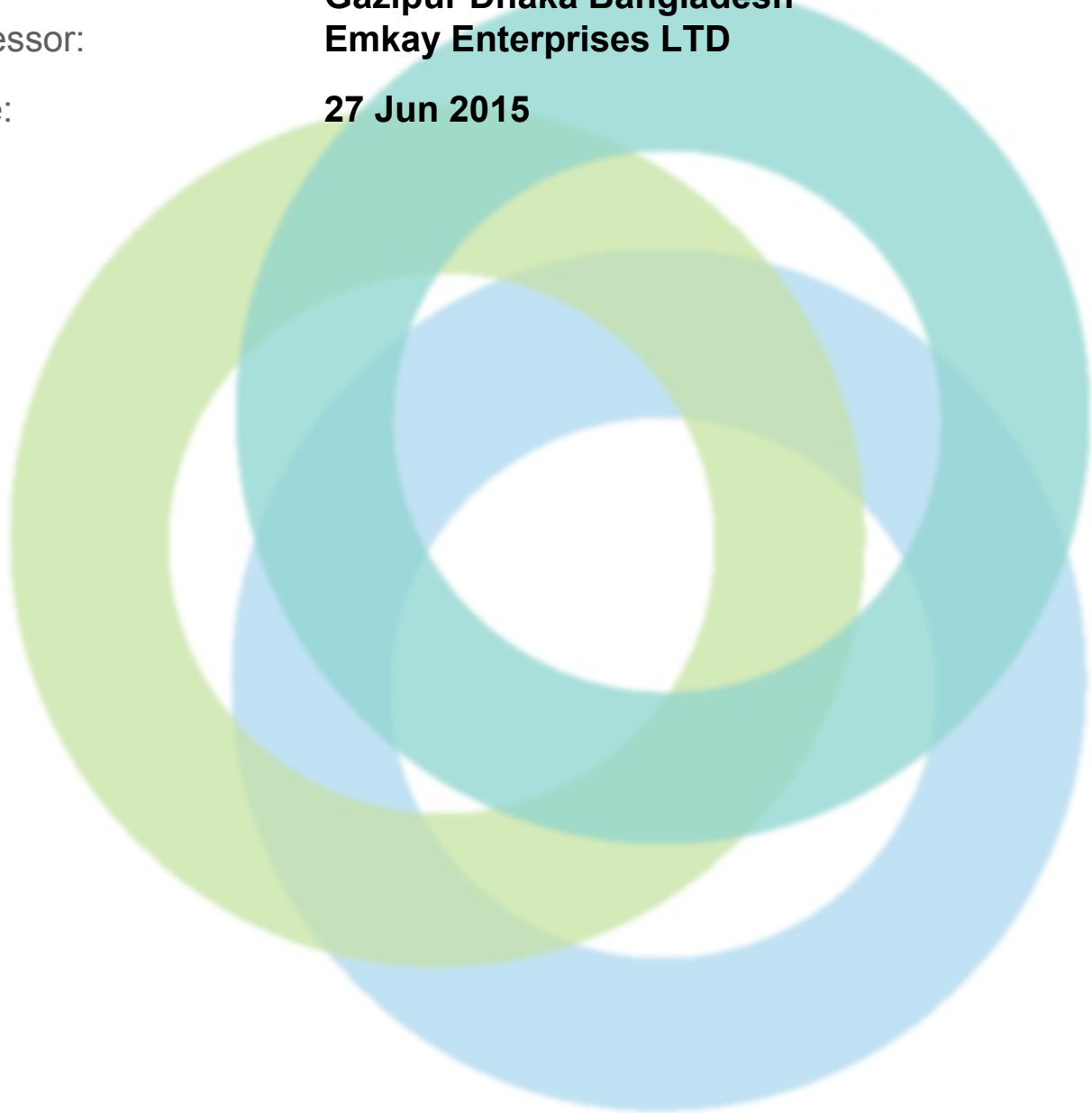


INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Silver Composite Textile Mills**
Address: **B.K. Bari, Taltoli, Moniur, Mirzaur Bazar, Gazipur
Gazipur Dhaka Bangladesh**
Assessor: **Emkay Enterprises LTD**
Date: **27 Jun 2015**





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:	Silver Composite Textile Mills
Address:	B.K. Bari, Taltoli, Moniur, Mirzaur Bazar, Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1749
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	06 July 2015
Final Report Date :	13 July 2015
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 5 buildings. A. Main building: 1; B. Ancillary building: 4.
Number of Building Levels (Stories) :	Main building: 6 stories (G.F + 5)
Approximate Building Area (SF) :	Total: 265,200 SF, (G.F: 44,200, 1st: 44,200, 2nd: 44,200, 3rd: 44,200, 4th: 44,200, 5th: 44,200)
Date of Building Construction :	Main building: 2013-2014
Date of Last Building Renovation/Addition :	None.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	There is 04 ancillary building.
Number of Ancillary Levels (Stories) :	01. Ancillary building-1 (Residence & Medical building): 4 stories (G.F + 4); 02. Ancillary building-2 (Canteen shed): Single story; 03. Ancillary building-3 (Wastage Godown shed): Single story; 04. Ancillary building-4 (Generator & pump house): Single story.

Approximate Ancillary Structures Area (SF) :	Total: 31,855 SF, (Ancillary-1: G.F: 3,335, 1st: 3,335, 2nd: 3,335, 3rd: 3,335, 4th: 3,335; Ancillary-2: 11,080; Ancillary-3: 3,000; Ancillary-4: 1,100)
Number of Occupants :	Total occupants: 633; (Main building: G.F: 51, 1st: 440, 2nd: 122, 3rd: Not in use, 4th: Not in use, 5th: 5; Ancillary-1: G.F: 08, 1st: Family quarter, 2nd: Family quarter, 3rd: Staff quarter, 4th: security quarter; Ancillary-2: 03; Ancillary-3: 02; Ancillary-4: 02).
Exterior Facade Description :	The exterior facade is infilled masonry wall with plaster finished and painted and windows are frame type.
Structural System Description :	01. Main building: Beam-column moment resisting frame system; 02. Ancillary building-1 (Residence & Medical building): Beam-column moment resisting frame system; 03. Ancillary building-2 (Canteen shed): Brick infill wall with steel pipe column and steel truss roofing; 04. Ancillary building-3 (Wastage Godown shed): Brick infill wall with steel pipe column and steel truss roofing; 05. Ancillary building-4 (Generator & pump house): Brick infill wall with steel pipe column and steel truss roofing.
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 the available FoS for the columns adequate based on Preliminary calculation?	 
Priority Level:	High	
Non-Compliance Level:	2	
Description:	<p>Main Production Building: The building was designed for 7 stories but approved and constructed up to 6 storied. FoS calculations were completed assuming an average live load of 42 psf for working area; 80psf for stair area and also considering over head water tank(OHWT) as per design for the current 6-story configuration. A concrete compressive strength of 2370 psi was assumed based on the Alliance Standard minimum for SCAC (observed on-site). A 60 ksi reinforcing steel strength was assumed according to design documents. Column FoS results, current 6-story building configuration: Central column= 2.34; Corner column at stair= 2.08; Corner column at expansion joint= 2.07; Edge column= 2.25; Edge column at expansion= 2.16; Edge column at expansion below OHWT= 1.80; Edge column at stair= 1.95; Edge column at stair below OHWT= 1.68. Residence & Medical Building: The building was designed and constructed for 5 storied. FoS calculations were completed assuming an average live load of 42 psf for working area and 80psf for stair area for the current 5-story configuration. A concrete compressive strength of 2045psi was assumed based on the Alliance Standard minimum for MCAC (observed on-site). A 60 ksi reinforcing steel strength was assumed according to design documents. Column FoS results, current 5-story building configuration: Central column= 3.15; Central column at stair= 2.36; Corner column= 3.68; Corner column at stair= 4.19; Edge column= 4.82. FoS results for the Main Production Building warrant validation of in-situ concrete compressive strength via coring.</p>	
Source of Findings:	Uploaded Document: 1. FoS calculation of Main Production Building; 2. FoS calculation of Residence & Medical Building.	
Suggested Plan of Action:	The in-situ concrete compressive strength in the Main Production Building should be verified via core testing conducted under the guidance of a qualified structural engineer.	
Suggested Deadline Date:	31 Aug 2015	
Standard:	Provide results of preliminary calculations in space provided. a) column capacity; FoS > 1.86 - Safe b) column capacity; FoS 1.5 -1.86 - Needs Evaluation c) Column capacity; FoS 1.25-1.5 - Needs Evaluation d) Column capacity; FoS <1.25 - Unsafe In case of a critically low FoS (<1.25), consider Immediate Escalation Protocol	



Question:	Are credible structural design documents available for review and kept on site?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	Structural design documents were available for review. But construction irregularity found at top most storey for some region.
Source of Findings:	Document Review: Structural design documents were available for review., Visual Assessment: Structural design documents were available for review. But construction irregularity found at top most storey for some region.
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:	31 Aug 2015
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories
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 is RCC over-head water tanks consideration over stair location in design drawing and structural documentation was available to indicate the structure can safely support these loads. But no provision was made for plastic water tanks located on the roof at three location. However the building is still under construction.
Source of Findings:	Visual Assessment: During visual inspection it was found that three water tank was at roof for water supply purpose. However the building is still under construction.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate concentrated loads (plastic water tanks). If provisions have not been made, have a qualified structural engineer develop a remediation plan.
Suggested Deadline Date:	31 Aug 2015
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	2










Description:	The factory has not obtained the certificate of occupancy from the authority.
Source of Findings:	Document Review: The document review shows that the factory has not obtained the certificate of occupancy from the authority.
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	31 Aug 2015
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

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:	Standing water was found at the roof top.
Source of Findings:	Visual Assessment: Standing water found at roof top.
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:	31 Aug 2015
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:	2
Description:	The roof slab of the Residence & Medical Building is made of MCAC exposed to rainfall.
Source of Findings:	Photograph: Unsealed MCAC rooftop.
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:	31 Aug 2015
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:	2	
Description:	Racks in the storage area and rooftop water tanks were not anchored to resist earthquake forces.	
Source of Findings:	Photograph: Unbraced storage racks and rooftop water tanks.	
Suggested Plan of Action:	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.	
Suggested Deadline Date:	31 Aug 2015	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	
Question:	Is expansion joint material free from cracking and other forms of deterioration?	  
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Crack found at expansion joint for main production building.	
Source of Findings:	Photograph: Expansion joint crack., Visual Assessment: During visual investigation, crack found at expansion joint material.	
Suggested Plan of Action:	Remove deteriorated expansion joint material and provide new approved material at the expansion joint. Engage a qualified structural engineer to design implementation of the new expansion joint material.	
Suggested Deadline Date:	31 Aug 2015	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
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:	There is no program that will ensure that the designated load in each floor will not be exceeded.
Source of Findings:	Document Review: There is no program that will ensure that the designated load in each floor will not be exceeded.
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:	31 Aug 2015
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:	There is no load plan available showing the actual maximum operational loading that is allowable.
Source of Findings:	Document Review: There is no load plan available showing the actual maximum operational loading that is allowable.
Suggested Plan of Action:	Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.
Suggested Deadline Date:	31 Aug 2015
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:	No floor load plans were present.
Source of Findings:	Document Review: No floor load plans were present., Visual Assessment: No floor load plans were present.
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:	31 Aug 2015



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:	Floor load plans were not present for review and there is no marking to indicate acceptable loading limits.
Source of Findings:	Document Review: Floor load plans were not present for review and there is no marking to indicate acceptable loading limits., Visual Assessment: Floor load plans were not present for review and there is no marking to indicate acceptable 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:	31 Aug 2015
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:	There is no designated representative (Factory Load Manager), who is onsite full time, trained regarding the structural floor capacity, and serves as an ongoing vendor resource and monitor of operational factory floor loading.
Source of Findings:	Visual Assessment: During visual inspection, No designated representative 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:	31 Aug 2015
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager

Factory Name: **Silver Composite Textile Mills**
Address: **B.K. Bari, Taltoli, Moniur, Mirzaur Bazar, Gazipur Gazipur Dhaka Bangladesh**

Assessor: **Emkay Enterprises LTD**
Date: **27 Jun 2015**



ALLIANCE
FOR BANGLADESH WORKER SAFETY