INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**SOUTH EAST TEXTILES (PVT.) LTD.**
Address:	**GORAI, MIRZAPUR, TANGAIL BANGLADESH Bangladesh**
Assessor:	**Sumerra**
Date:	**28 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:	SOUTH EAST TEXTILES (PVT.) LTD.
Address:	GORAI, MIRZAPUR, TANGAIL BANGLADESH Bangladesh
Country:	Bangladesh
Province:	
City:	
Zip Code:	
Audit Duration:	3 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	July 7, 2014
Final Report Date :	October 2, 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	4 Main Buildings: Building 1, Building 2, Building 3, Building 6
Number of Building Levels (Stories) :	Building 1: 7 Building 2: 3 Building 3: 2 Building 6: 3
Approximate Building Area (SF) :	Building 1: 105000 Building 2: 49800 Building 3: 29200 Building 6: 45000
Date of Building Construction :	Building 1: 2010 Building 2: 2005 Building 3: 2002 Building 6: 2013
Date of Last Building Renovation/Addition :	No renovations/additions
Is the Building mixed use?:	No
Ancillary Structures in Complex :	Building 4: 3 story - WTP, Corporate Dining, Corporate Dorm Building 5: ETP Shed 1: Fabric Shed 2: Utilities Shed 3: Wastage Godown Shed 4: Wash
Number of Ancillary Levels (Stories) :	Building 4: 3 story Building 5: 3 story Shed 1-4: 1 (Ground)
Approximate Ancillary	60930 (4 main buildings)

Structures Area (SF) :	
Number of Occupants :	3200
Exterior Facade Description :	Building 1: 5" Brick Masonry Infill Building 2: Brick masonry infill over steel frame Building 3: 5" Brick Masonry Infill Building 6: 5" Brick Masonry Infill for GF. 1st Floor panel system over steel frame.
Structural System Description :	Building 1: Concrete beam & monolithic RC slab system with beams spanning both directions between columns. Foundation & lateral load resisting system are moment resisting concrete frame. Building 2: Prefabricated Steel structure with moment resisting frame. Building 3: Building frame system. Concrete beam & slab system with beams spanning both directions between columns. Steel frame on 1st floor and RCC frame on upper floor. Building 6: Prefabricated Steel structure with moment resisting frame.
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:	1	
Description:	Building 1 (stone chip aggregate concrete): 42psf Central 1.51 Corner 2.19 Edge 1.52 20psf Central 1.72 Corner 2.35 Edge 1.67 Building 2 (Steel): 42psi Central 1.71 Corner 4.51 Edge 2.86 20psi Central 2.10 Corner 4.93 Edge 3.29 Building 3 (MCAC): 42psi Central 4.79 Corner 5.06 Edge 5.54 20psi Central 5.49 Corner 5.38 Edge 5.96 Building 6 (Steel): 42psi Central 1.93 Corner 3.20 Edge 2.38 20psi Central 2.38 Corner 3.60 Edge 2.77 FoS 1.50 to 1.86 (Building 1, 42 psf live load) indicates some doubts about safety, warranting additional investigation.	
Source of Findings:	Uploaded Document: Stress Calculations	
Suggested Plan of Action:	Building 1: Engage a qualified engineer to investigate the strength of the concrete and quantity of the steel in the columns. Concrete strength shall be assessed by taking at least 4 nos. of 4 inch diameter cores from the area of concern. If cores are to be taken from column, it is advisable to take it from an upper level where the stresses are low for practical reasons 3 inch cores may be taken from columns). In addition, UPV shall be used to have concrete strength in sufficient number of columns in the lower tiers so that a level of confidence is achieved. The calibrated results of core tests and UPV shall be used to determine a reliable value of concrete strength in columns. The size and diameter of steel rebar in most of the columns of two lowest tiers shall be authentically determined using a Ferro scanner or similar device. In order to confirm the diameter of embedded bars as obtained from Ferro scanner, the engineer may have to remove the concrete cover in one or two locations.	
Suggested Deadline Date:	30 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:	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:	1	
Description:	The following areas have not been considered for load capacity: Building 1: 3rd Floor, SW side, Fabric Offcuts stored in production area Building 6: 1st Floor, Dryer Machines	
Source of Findings:	Photograph: Dyer machines Fabric Offcuts	
Suggested Plan of Action:	Have a qualified structural engineer confirm that capacity to support the load is available. Load Plans complying with Alliance Standard Part 8 Section 8.20.4.3 should also be developed. It should be displayed in each section of the floor (particularly for the storage area it is very important).	
Suggested Deadline Date:	30 Nov 2014	
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads	
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:	3	
Description:	Building 3: No documentation of in-situ testing and representative destructive testing or core samples of MCAC was available.	
Source of Findings:	Document Review: No testing data available	
Suggested Plan of Action:	Building 3: The compressive strength of structural elements constructed using MCAC shall be investigated by an appropriate program of in-situ testing and representative destructive testing of core samples.	
Suggested Deadline Date:	30 Nov 2014	
Standard:	Reference 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:	The following structures are not properly braced/anchored: Building 1: Accessories Racks - GF, 1st Floor, 4th floor Building 2: Accessories Racks, 2nd Floor Building 3: Accessories Racks, GF
Source of Findings:	Photograph: Accessories Racks
Suggested Plan of Action:	Adequately anchor and brace all non-structural elements such as the rack systems to resist earthquake forces to comply with the BNBC and Alliance Standard.
Suggested Deadline Date:	30 Nov 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:	No program is in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded.
Source of Findings:	Document Review: No program available
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 Nov 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:	Load Plans have not been prepared for each floor documenting the actual maximum operational loading that is intended and/or allowable on each floor .	
Source of Findings:	Document Review: No load plans available for review	
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 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:	3	
Description:	No floor load plans are posted as required.	
Source of Findings:	Document Review: No load plans observed	
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 Nov 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.	
Source of Findings:	Document Review: No load plans available for review	
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 (noted elsewhere).	
Suggested Deadline Date:	30 Nov 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:	3
Description:	No factory load manager has been designated.
Source of Findings:	Worker Interviews: Management confirms no Load Manager appointed
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 Nov 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager