

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Tusuka Fashions Limited**

Address: **Plot #10, Block # B, Mill Gate Tongi Industrial Area,
Gazipur Tongi, Gazipur Dhaka Bangladesh**

Assessor: **Shaheedullah**

Date: **05 Dec 2013**



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:	Tusuka Fashions Limited
Address:	Plot #10, Block # B, Mill Gate Tongi Industrial Area, Gazipur Tongi, Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Tongi, Gazipur
Zip Code:	1700
Audit Duration:	3 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	January 30, 2014
Final Report Date :	December 23, 2014
Are all Action Items From Previous Assessment Completed?:	Yes
Buildings in Complex :	There are two buildings in the complex.
Number of Building Levels (Stories) :	Building 1: 2 storied Partially 4 storied RC building. Building 2: 1-storied shed. steel shed.
Approximate Building Area (SF) :	Total area of all building is 46500 SF.
Date of Building Construction :	2000
Date of Last Building Renovation/Addition :	N/A
Is the Building mixed use?:	No
Ancillary Structures in Complex :	There are no ancillary structures in the complex.
Number of Ancillary Levels (Stories) :	N/A. There are no ancillary structures in Complex.
Approximate Ancillary	N/A. There are no ancillary structures in Complex.

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ALLIANCE
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Structures Area (SF) :	
Number of Occupants :	Total occupancy are 850.
Exterior Facade Description :	5 inch brick wall with plaster in building-1, 10 inch brick wall with Roof covered CI sheet in building-2.
Structural System Description :	One RC building and one steel shed building(moment resisting frames with RC spread footings).



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 values: Interior-1 column=2.44 > 1.86, adequate Interior-2=1.68 < 1.86, inadequate Corner=4.46 > 1.86, adequate Edge=2.74. > 1.86, adequate The FoS values were calculated based on these material properties: Concrete Compressive strength=2045 psi (Alliance Standard for MCAC). Steel yield strength=40ksi (Alliance Standard for reinforcement installed before 2004).	
Source of Findings:	Document Review: Seen all documents and FOS calculation., Visual Assessment: Visual inspection.	
Suggested Plan of Action:	Obtain the concrete compressive strength via destructive core testing at representative column locations and reassess FoS calculations. Also, per section 3.D.10 of the Assessment Protocols.	
Suggested Deadline Date:	10 Jan 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:	2	
Description:	Available structural documents are incomplete and don't meet the Alliance Standard.	
Source of Findings:	Document Review: Seen all documents.	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard.	
Suggested Deadline Date:	08 Jan 2015	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	



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:	Provided structural documents are incomplete and don't meet BNBC 2006 standard or other comparable international code.
Source of Findings:	Document Review: Seen all documents.
Suggested Plan of Action:	A qualified structural engineer shall be engaged 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 Dec 2014
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings
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:	Documentation can not 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.
Source of Findings:	Document Review: Seen all documents.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading and storm surge loading. This should be reflected in the design report.
Suggested Deadline Date:	25 Dec 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:	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 water tanks on the roof in 4-storied RC building which create concentrated loads producing stresses greater than those caused by a uniform load.
Source of Findings:	Uploaded Document: Uploaded picture, Visual Assessment: Visual inspection.
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:	25 Dec 2014
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:	No certificates of occupancy available.
Source of Findings:	Document Review: Seen all documents.
Suggested Plan of Action:	Obtain an occupancy certificate for each building structures from the approving government authority.
Suggested Deadline Date:	31 Dec 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

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:	3	
Description:	Among 58 columns of 2 storied (partially 4 storied) RC building 5 Nos 10"x10"columns in 4 storied portion shown in the attached file are inadequate to bear the combinations of gravity and lateral load.	
Source of Findings:	Document Review: Seen all documents, Visual Assessment: Physical inspection	
Suggested Plan of Action:	A qualified structural engineer shall checked those 5 columns.	
Suggested Deadline Date:	10 Dec 2014	



Standard:	Alliance Standard Part 8 Section 8.3.3	
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 investigation or test has been performed.	
Source of Findings:	Document Review: Seen all documents.	
Suggested Plan of Action:	A qualified structural engineer assess the durability aspects as suggested in Alliance Standard Part 7 Section 7.2 and take appropriate remedial measures. This assessment should include destructive core sample testing of concrete compressive strength.	
Suggested Deadline Date:	25 Dec 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:	No anchoring and bracing are used in water tanks, racks to resist earthquake forces. The water tank is located at the roof and the racks are located in the 1st floor of the 4-storied RC building.	
Source of Findings:	Visual Assessment: Visual inspection	
Suggested Plan of Action:	Water tanks and racks shall be adequately anchored and braced to resist earthquake force as per BNBC and Alliance Standard.	
Suggested Deadline Date:	25 Dec 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:	2	
Description:	No load management program is currently in place.	
Source of Findings:	Document Review: Seen all documents.	
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:	23 Dec 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:	Floor Load Plans have not been prepared for each floor.	
Source of Findings:	Document Review: Seen all documents.	
Suggested Plan of Action:	A qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3.	
Suggested Deadline Date:	25 Dec 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:	Floor Load Plans have not been developed and are not posted.	
Source of Findings:	Visual Assessment: Visual Assessment:visual inspection.	
Suggested Plan of Action:	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 at each level of the building.	
Suggested Deadline Date:	24 Dec 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:	Areas used for storage of work materials and work products have not been marked indicating the acceptable loading limits.
Source of Findings:	Visual Assessment: Visual Assessment: Physical inspection.
Suggested Plan of Action:	Provide signage or the appropriate marking at all areas used for storage to indicate the acceptable loading limits detailed in the load plan.
Suggested Deadline Date:	25 Dec 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:	No floor load Manager found at site.
Source of Findings:	Visual Assessment: Visual inspection.
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 trained in calculating operational load characteristics of the specific factory. The factory load manager shall serve as an on going 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:	25 Dec 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager