

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **TAMISHNA FASHION WEAR LTD.**

Address: **PLOT 247, BHADAM, P.O-NISHATNAGAR Tongi,
Gazipur Gazipur Dhaka Bangladesh**

Assessor: **EIMS**

Date: **24 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:	TAMISHNA FASHION WEAR LTD.
Address:	PLOT 247, BHADAM, P.O-NISHATNAGAR Tongi, Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1711
Audit Duration:	12 Hours
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	May 31, 2014
Final Report Date :	July 7, 2014
Are all Action Items From Previous Assessment Completed?:	Yes
Buildings in Complex :	5(Five)
Number of Building Levels (Stories) :	Building#1: seven stories. Building#2: four stories. Building#3: five stories. Building#4:seven stories.
Approximate Building Area (SF) :	Building#1= 107, 870 sft. Building#2 = 24,800 sft. Building#3= 24,530 sft. Building#4(Building#5 on permit drawing)= 49,315 sft. Ancillary building= 2,000 sft.
Date of Building Construction :	Bldg#1:2002-2005 Bldg#2:2005-2006 Bldg#3:2006-2008 Bldg#4:2011-2012
Date of Last Building Renovation/Addition :	No Renovation/ addition beyond the approval.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	01(One)
Number of Ancillary Levels (Stories) :	01(One)
Approximate Ancillary	Area of ancillary building is 2000 sft

Factory Name: **TAMISHNA FASHION WEAR LTD.**
Address: **PLOT 247, BHADAM, P.O-NISHATNAGAR Tongi, Gazipur Gazipur Dhaka Bangladesh**

Assessor: **EIMS**
Date: **24 May 2014**



ALLIANCE
FOR BANGLADESH WORKER SAFETY

Structures Area (SF) :	
Number of Occupants :	Total number of occupants 2000 in the Tanishma fashion wear Limited
Exterior Facade Description :	Unreinforced brick masonry infill with glass window has been used as exterior wall in all of the factory buildings.
Structural System Description :	Bldg#1 & #4: RCC beam-column frame with flat plate system at level 1. Bldg#2 & #3: RCC beam-column frame system.



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:	For building#1: FoS at Interior column=2.18 FoS at corner column=1.96 FoS at corner column=1.54 For building#2: FoS at Interior column=3.76 FoS at corner column=2.64 FoS at corner column=3.37 For building#3: FoS at Interior column=2.27 FoS at corner column=1.46 FoS at corner column=1.94 For building#4: FoS at Interior column=2.48 FoS at corner column=2.90 FoS at corner column=2.05 So for building#1 there is some doubts about safety & for building#3 inadequate safety margin exist.	
Source of Findings:	Uploaded Document: Column capacity calculation sheet	
Suggested Plan of Action:	Under guidance from a qualified structural engineer arrange Detail Engineering Assessment of the structure.	
Suggested Deadline Date:	31 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:	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:	3	
Description:	*Softener machine (water softener) was found in building#1 at 6th floor which is acting as a point load at this floor. *Hydro machine found in building#2 at first floor which is producing vibration.	
Source of Findings:	Visual Assessment: Photograph of softener machine in building#1 at 6th floor and Photograph of hydro machine in building#2 at 1st floor	
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:	31 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14	
Question:	Where density of operations, storage of materials, or equipment weights require live load capacity in excess of 2.0 kN/m ² (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:	3	
Description:	We found more than 42 psf(average 100psf)live load at 4th floor in building#3 which is known as store building. Factory representative told us verbally that the building was designed for storage but they have no evidence report.	
Source of Findings:	Visual Assessment: Photograph of storage material at 4th floor in building#3	
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.	
Suggested Deadline Date:	31 Aug 2014	
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads	
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:	Supplied drawing did not indicate which code they followed.	
Source of Findings:	Document Review: Structural drawing of building#1, #2, #3 & #4	
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:	31 Aug 2014	
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	If built after 2006, can documented compliance with the seismic and wind requirements of the 2006 BNBC be provided?	
Priority Level:	Medium	



Non-Compliance Level:	2
Description:	Building#1 & #2 were constructed before 2006. So for building#1 & #2, this question is not applicable. Construction work of building#3 was started in 2006 and construction work of building#4(building#5 on permit drawing)was started in 2010. But there is no information about seismic load and wind load in structural drawings for both of the buildings.
Source of Findings:	Document Review: Structural drawings of all factory buildings.
Suggested Plan of Action:	Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.
Suggested Deadline Date:	31 Aug 2014
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 2006 BNBC Part 6 Section 1.5
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:	Wind loading and storm surge loading as detailed in BNBC Part 6 Section 1.5.3 criteria are not shown on the design drawing
Source of Findings:	Document Review: Structural drawing of building#1, #2, #3 & #4
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the building under wind loading.
Suggested Deadline Date:	31 Aug 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:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	2
Description:	No certificates of occupancy were available.
Source of Findings:	Document Review: Alliance Pre Assessment Communication),
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline	31 Aug 2014





Date:		
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:	Column: Column are satisfactory in all the buildings except corner column in building#3.(We found avg. live load in this building almost 100 psf) Slender Column: Slender column was found in only building#2 with ground floor height almost 14.5 ft and its slenderness ratio is greater than 36, which is not satisfactory. Flat Plate: Flat plate was found in building#1 & #4 at level-1 which is satisfactory. Floors: Floors are satisfactory for all of the factory buildings, because no large opening or diaphragm discontinuity or large cantilever was found. Cantilevers: Small cantilever were found in all around the buildings which are satisfactory. Transfer Girder: We didn't find any transfer girder in all the factory buildings during our inspection.	
Source of Findings:	Uploaded Document: FoS calculation in building#3, Visual Assessment: Site visit on May 24, 2014	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm structural performance of the structure.	
Suggested Deadline Date:	31 Aug 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:	Standing water on roof top, dampness and corrosion were not noted during the site visit. However, there were exposed reinforcing bars noted at the front side of Building 4 (Building 5 on permit drawings).	
Source of Findings:	Visual Assessment: Site visit on May 24, 2014	
Suggested Plan of Action:	Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues. Protect exposed bars of Building 4 from moisture to prevent deterioration.	
Suggested Deadline Date:	31 Aug 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:	For building#1, #2 & #4, the question is not applicable as stone chips were used in major load carrying member. But for building#3 brick chips were used in all members and no destructive test was performed.	
Source of Findings:	Visual Assessment: Site visit on May 24, 2014	
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:	31 Aug 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:	we found roof slab constructed with MCAC exposed to rainfall in building#3 only.	
Source of Findings:	Visual Assessment: Photograph of exposed roof constructed with MCAC in building#3	
Suggested Plan of Action:	To prevent water intrusion, use protective coating by consulting with a qualified structural engineer.	
Suggested Deadline Date:	31 Aug 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:	2
Description:	Storage racks were found at 4th floor in building#4 without bracing or attachment.
Source of Findings:	Visual Assessment: Photograph of storage rack at 4th floor in building#4(building#5 on permit drawing)
Suggested Plan of Action:	Develop engineered plans to brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard. Install anchor and braces as shown on approved plans.
Suggested Deadline Date:	31 Aug 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:	There was no program in place to ensure the live loads for which a floor or roof has been designed. So it is required and it should be marked in all floors including roof.
Source of Findings:	Visual Assessment: Site visit on May 24, 2014
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 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:	For all the factory buildings load plans are not available.



Source of Findings:	Visual Assessment: Site visit on May 24, 2014	
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 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 plan was posted on the floors of all the buildings.	
Source of Findings:	Visual Assessment: Site visit on May 24, 2014	
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 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:	Storage areas are required to be marked to indicate acceptable loading limits per the load plans.	
Source of Findings:	Visual Assessment: Site visit on May 24, 2014	
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 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	

Factory Name: **TAMISHNA FASHION WEAR LTD.**
 Address: **PLOT 247, BHADAM, P.O-NISHATNAGAR Tongi, Gazipur Gazipur Dhaka Bangladesh**

Assessor: **EIMS**
 Date: **24 May 2014**



ALLIANCE
 FOR BANGLADESH WORKER SAFETY

Description:	No factory load manager was onsite full time. So, a factory load manager is required to check whether the loads exceed or not as per floor load.
Source of Findings:	Worker Interviews: Factory workers told us verbally that they have no load manager, Visual Assessment: Site visit on May 24, 2014
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 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager