

# INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Unicorn Sweaters Ltd**  
Address: **Gorat, Navana Village, Ashulia, Savar, Dhaka-1341  
Savar Bangladesh**  
Assessor: **Shaheedullah**  
Date: **10 Jan 2018**





## 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](http://www.bangladeshworkersafety.org).





## GENERAL INFORMATION

### General Information

Factory Name:	Unicorn Sweaters Ltd
Address:	Gorat, Navana Village, Ashulia, Savar, Dhaka-1341 Savar Bangladesh
Country:	Bangladesh
Province:	
City:	Savar
Zip Code:	1340
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	15/01/2018
Final Report Date :	24/01/2018
Buildings in Complex :	There are 4 buildings/sheds in the factory complex. Out of 4 buildings/sheds, 2 are production buildings and 2 are ancillary sheds. Ancillary sheds are temporarily used for workers and staff dining's. Area of each ancillary shed is less than 5000 sft. Since the area of each ancillary shed is less than 5000 sft and are used temporarily for dining, sheds have not been included in our audit. Production buildings are named as: 1.6-storied RC production building#2(B+G+4) 2. 4-storied RC production building#3 (G+3)
Number of Building Levels (Stories) :	1) 6-storied RC production building#2 (B+G+4): 1 story below grade and 5 storied above grade. 2) 4-storied RC production building#3 (G+3): 4- story above grade.
Approximate Building Area (SF) :	1)6-storied RC production building#2 (B+G+4): Area 61127 sft. 2)4-storied RC production building#3 (G+3): Area 15291 sft. Total area=76418 sft.
Date of Building Construction :	1)6-storied RC production building#2 (B+G+4) 2015-2017. 2) 4-storied RC production building#3 (G+3):2016-2017.
Date of Last Building Renovation/Addition :	N/A.
Is the Building mixed use?:	Yes
Ancillary Structures in Complex :	N/A
Number of Ancillary Levels (Stories) :	N/A
Approximate Ancillary Structures Area (SF) :	N/A



Number of Occupants :	Total = 619 Persons.
Exterior Facade Description :	1)6-storied RC production building#2 (B+G+4): RC frame work infill with 5"/10" thick masonry wall, Aluminum window and Aluminum Louver. 2) 4-storied RC production building#3 (G+3): Rc frame work infill with 10" thick masonry wall, Aluminum window and Aluminum Louver.
Structural System Description :	1) 6-storied RC production building#2 (B+G+4): Frame work of the building is composed of Rc slab, beams and columns supported by isolated spread footings. 2) 4-storied RC production building#3(G+3): Frame work of the building is composed of Rc slab, beams and columns supported by Mat foundations.
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 credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Architectural and Structural design drawings are not available.	
Source of Findings:	Document Review: Document review.	
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:	15 Mar 2018	
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:	Credible structural documentation indicating general conformance with BNBC 2006 has not been found.	
Source of Findings:	Document Review: Document review.	
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:	15 Mar 2018	
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:	Documentation of compliance with the seismic and wind requirements of BNBC 2006 has not been found.
Source of Findings:	Document Review: Document review.
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:	15 Mar 2018
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:	Documentation compliance with the requirements for wind loading and storm surge loadings as detailed in BNBC part6, section 1.5.3 has not been found.
Source of Findings:	Document Review: Document review
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
Suggested Deadline Date:	15 Mar 2018
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:	8-plastic water tanks of 2000 liter and 1 of 5000 liter capacity have been noticed over the roof of building#2 and 1 plastic water tank of 2000 liter capacity has been noticed over the roof of building#3.
Source of Findings:	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:	15 Mar 2018
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 <sup>2</sup> (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:	2
Description:	Overloading in excess of 42 psf has been noticed in 4th floor of building#2.
Source of Findings:	Visual Assessment: Visual inspection.
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:	15 Mar 2018
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	2
Description:	Certificate of Occupancy is not available.
Source of Findings:	Document Review: Document review.
Suggested Plan of Action:	Certificate of occupancy shall be obtained from appropriate authority.
Suggested Deadline Date:	15 Mar 2018
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment



**Structural System Construction**



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:	8-plastic water tanks of 2000 liter capacity each and 1 of 5000 liter capacity have been noticed over the roof of building#2 and 1 plastic water tank of 2000 liter capacity has been noticed over the roof of building#3 without seismic anchorage. Steel racks without seismic anchorage have been noticed in 1st floor of building#3.
Source of Findings:	Visual Assessment: Visual inspection.
Suggested Plan of Action:	Plastic water tanks, and steel racks shall be adequately anchored to resist earthquake forces.
Suggested Deadline Date:	15 Mar 2018
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:	Floor load program for occupied floors ensuring the allowable live loads for which a floor has been designed is not found.
Source of Findings:	Document Review: Document review.
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:	15 Mar 2018
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.	
Source of Findings:	Document Review: Document 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:	15 Mar 2018	
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 prepared.	
Source of Findings:	Document Review: Document review.	
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:	15 Mar 2018	
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:	Permissible load limits have not been marked.	
Source of Findings:	Visual Assessment: Visual inspection.	
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:	15 Mar 2018	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	

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**ALLIANCE**  
FOR BANGLADESH WORKER SAFETY