

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **Sun Fashion Wear Ltd.**
Address: **Allai Ward No: 01 Patiya Chittagong Bangladesh**
Assessor: **EIMS**
Date: **24 Apr 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.



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GENERAL INFORMATION

General Information

Factory Name:	Sun Fashion Wear Ltd.
Address:	Allai Ward No: 01 Patiya Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Patiya
Zip Code:	PO 4370
Audit Duration:	1 Days 00 Hours
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	30.04.18
Final Report Date :	31.05.18
Buildings in Complex :	There are one main building and six ancillary buildings in complex. Main building: 1. Main Production Building. Ancillary Building: 2. Boiler, 3. Substation, 4. Fire & Security, 5. Pump House, 6. Guard Room-1 and 7. Guard Room-2. Among them, Guard Room-1 and Guard Room-2 were found under construction. So they were not assessed.
Number of Building Levels (Stories) :	Main Production Building: 3 storied; Fire & Security: 2 storied; all other buildings are single storied.
Approximate Building Area (SF) :	Main Production Building: GF & 1F: 42,000 sft, 2F: 26,000 sft, total= 110,000 sft; Boiler: 758.50 sft; Substation: 1,100 sft; Fire & Security: 3,552.50 sft; Pump House: 1,158.25 sft. Total Building area= 116,569.25 sft
Date of Building Construction :	Main Production Building: April, 2016 All ancillary building: 2017. Guard Room-1 and Guard Room-2: under construction
Date of Last Building Renovation/Addition :	N/A
Is the Building mixed use?:	No
Ancillary Structures in Complex :	There are six ancillary buildings in complex: Boiler, Substation, Fire & Security, Pump House, Guard Room-1 and Guard Room-2. Among them, Guard Room-1 and Guard Room-2 were found under construction. So they were not assessed.
Number of Ancillary Levels (Stories) :	All ancillary buildings are single storied except Fire & Security which is two storied.
Approximate Ancillary	Boiler: 758.50 sft; Substation: 1,100 sft; Fire & Security: 3,552.50 sft; Pump House: 1,158.25 sft.

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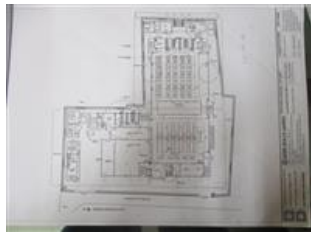
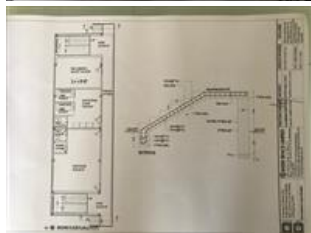
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Structures Area (SF) :	
Number of Occupants :	Total occupants= 1,646 persons: 1. 3 storied main Production Building- GF=400+1st Floor+750+2nd Floor=450. Total= 1,600 persons 2. Boiler Building= 2 persons. 3. Substation Building= 2 persons. 4. Fire and Security Building= 40 persons 5. Pump House= 2 persons
Exterior Facade Description :	10 inch brick masonry wall both side non-plastered without reinforcement in facade wall, some window and some glasses in the building.
Structural System Description :	RC frame structure (Beam-column framing)
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:	Design report was not available for Main Production Building and Fire & Security building. Provided architectural drawing of Fire & Security need to be corrected. As-built drawings were found for other ancillary buildings.	
Source of Findings:	Document Review: 1. As-built architectural drawing_Main Production Building 2. As-built structural drawing_Main Production Building 3. As-built drawing_Fire & Security 4. As-built drawing_Boiler 5. As-built drawing_Substation 6. As-built drawing_Pump House	
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:	09 Jun 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:	No approved design report was available for main Production Building and Fire & Security to confirm with 2006 BNBC or other comparable applicable international model building code.	
Source of Findings:	Document Review: Document reviewed during Site visit on 24 April, 2018	
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:	09 Jun 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:	All buildings were constructed after 2006. No approved design report was available for main Production Building and Fire & Security to confirm with the seismic and wind requirements of the 2006 BNBC.	
Source of Findings:	Document Review: Document reviewed during Site visit on 24 April, 2018	
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:	09 Jun 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:	No approved design report was available for main Production Building and Fire & Security to confirm 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: Document reviewed during Site visit on 24 April, 2018	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	09 Jun 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:	Is a clear and redundant load path to resist lateral loads provided?	



Priority Level:	Medium
Non-Compliance Level:	2
Description:	Fire & Security building appeared to be non-redundant according to ASCE-SEI 31-03.
Source of Findings:	Uploaded Document: ASCE/SEI 31-03
Suggested Plan of Action:	Have a qualified structural engineer complete further analysis of the structure and develop a remediation plan if required.
Suggested Deadline Date:	09 Jun 2018
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5
Question:	Are Certificates of Occupancy available for review?
Priority Level:	Low
Non-Compliance Level:	2
Description:	No Certificate of Occupancy was available during site visit. Factory authority applied to concerned authority for certificate of Occupancy. They did not receive the certificate yet.
Source of Findings:	Document Review: Application for Certificates of Occupancy
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	09 Jun 2018
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

ASCE/SEI 31-03

American Society of Civil Engineers
Seismic Evaluation of Existing Buildings

Seismic Force-Resisting System
SEI-10.1.1.1. The system of lateral force-resisting elements in a building structure shall be designed to resist the seismic forces in accordance with the provisions of this standard. The system shall be designed to resist the seismic forces in accordance with the provisions of this standard. The system shall be designed to resist the seismic forces in accordance with the provisions of this standard.



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:	2
Description:	Slender column was found at ground floor in Fire & Security building.
Source of Findings:	Uploaded Document: Slenderness check of column
Suggested Plan of Action:	Engage a qualified structural engineer to confirm structural performance of the structure.
Suggested Deadline	09 Jun 2018





Date:		
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:	Water ponding was found on rooftop of Fire & Security building which need to be addressed.	
Source of Findings:	Photograph: Photograph of Water ponding	
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:	09 Jun 2018	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
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:	Rooftop PVC water tank was found in Fire & Security Building which was not anchored and braced to resist earthquake forces.	
Source of Findings:	Photograph: Photograph of Rooftop PVC water tank	
Suggested Plan of Action:	Develop engineered plans to brace all nonstructural 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:	09 Jun 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:	No load management program was found during site visit.	

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Source of Findings:	Visual Assessment: Site visit on 24 April, 2018	
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:	09 Jun 2018	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	