

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **EVERBRIGHT SWEATER LTD**
Address: **Kathgora Bazar, Zirabo, Savar Savar Dhaka
Bangladesh**
Assessor: **Bureau Veritas**
Date: **04 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.



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ALLIANCE
FOR BANGLADESH WORKER SAFETY

GENERAL INFORMATION

General Information

Factory Name:	EVERBRIGHT SWEATER LTD
Address:	Kathgora Bazar, Zirabo, Savar Savar Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Savar
Zip Code:	1341
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	05-14-2014
Final Report Date :	10-20-2014
Are all Action Items From Previous Assessment Completed?:	Yes
Buildings in Complex :	There are twelve buildings in the factory premises out of which two are main production buildings and ten are ancillary buildings. The buildings are named as: 1) Six story main production building, 2) Three story winding building, 3) Four story office building, 4) Two story Generator and sub-station room, 5) Single story Childcare and Doctors building, 6) Single story Pump room, 7) Single story Fire hydrant and Generator room, 8) Single story Wastage Fabric room, 9) Single story Caretaker room, 10) Single story Idle Machine and wastage room, 11) Single story Time Section and gas riser room, 12) Single story Guard room.
Number of Building Levels (Stories) :	1)Six story main production building: Stories above grade: 6,below grade: 0,2) Three story winding building:Stories above grade: 3,below grade: 0,3) Four story office building:Stories above grade: 4,below grade: 0,4) Two story Generator and sub-station room:Stories above grade: 2,below grade: 0,5) Single story Childcare and Doctors building:Stories above grade: 1,below grade: 0,6) Single story Pump room:Stories above grade: 1,below grade: 0,7) Single story Fire hydrant and Generator room:Stories above grade: 1,below grade: 0,8) Single story Wastage Fabric room: Stories above grade: 1,below grade: 0,9) Single story Caretaker room:Stories above grade: 1,below grade: 0,10) Single story Idle Machine and wastage room:Stories above grade: 1,below grade: 0,11) Single story Time Section and gas riser room:Stories above grade: 1,below grade: 0,12) Single story Guard room:Stories above grade: 1, below grade: 0,
Approximate Building Area (SF) :	Total area of buildings in the factory premises: 131911.00 sft.(Including roof square footage). Building wise breakdown as follows:1) Six story main production building: 105000.00 sft,2) Three story winding building: 10600.00 sft,3) Four story office building: 6160.00 sft,4) Two story Generator and sub-station room: 6390.00 sft,5) Single story Childcare and Doctors building: 545.00 sft,6) Single story Pump room: 60.00 sft,7) Single story Fire hydrant and Generator room: 169.00 sft,8) Single story Wastage Fabric room: 567.00 sft,9) Single story Caretaker room: 163.00 sft,10) Single story Idle Machine and wastage room: 1423.00 sft,11) Single story Time Section and gas riser room: 600.00 sft,12) Single story Guard room: 234.00 sft.



Date of Building Construction :	Factory personnel informed the date of construction as follows: Finished in 2006 (All buildings).
Date of Last Building Renovation/Addition :	No record for date of renovation or addition was found from factory personnel.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Four story office building, 2) Two story Generator and sub-station room, 3) Single story Childcare and Doctors building, 4) Single story Pump room, 5) Single story Fire hydrant and Generator room, 6) Single story Wastage Fabric room, 7) Single story Caretaker room, 8) Single story Idle Machine and wastage room, 9) Single story Time Section and gas riser room, 10) Single story Guard room.
Number of Ancillary Levels (Stories) :	1) Four story office building: Stories above grade: 4, Stories below grade: 0, 2) Two story Generator and sub-station room: Stories above grade: 2, Stories below grade: 0, 3) Single story Childcare and Doctors building: Stories above grade: 1, Stories below grade: 0, 4) Single story Pump room: Stories above grade: 1, Stories below grade: 0, 5) Single story Fire hydrant and Generator room: Stories above grade: 1, Stories below grade: 0, 6) Single story Wastage Fabric room: Stories above grade: 1, Stories below grade: 0, 7) Single story Caretaker room: Stories above grade: 1, Stories below grade: 0, 8) Single story Idle Machine and wastage room: Stories above grade: 1, Stories below grade: 0, 9) Single story Time Section and gas riser room: Stories above grade: 1, Stories below grade: 0, 10) Single story Guard room: Stories above grade: 1, Stories below grade: 0,
Approximate Ancillary Structures Area (SF) :	1) Four story office building: 6160.00 sft, 2) Two story Generator and sub-station room: 6390.00 sft, 3) Single story Childcare and Doctors building: 545.00 sft, 4) Single story Pump room: 60.00 sft, 5) Single story Fire hydrant and Generator room: 169.00 sft, 6) Single story Wastage Fabric room: 567.00 sft, 7) Single story Caretaker room: 163.00 sft, 8) Single story Idle Machine and wastage room: 1423.00 sft, 9) Single story Time Section and gas riser room: 600.00 sft, 10) Single story Guard room: 234.00 sft.
Number of Occupants :	Total number of occupants: 639. 1) Six story main production building: 609 (Ground floor: 87, 1st floor: 10, 2nd floor: 115, 3rd floor: 130, 4th floor: 233, 5th floor: 34), 2) Three story winding building: 11, (Ground floor: 9, 1st floor: 1, 2nd floor: 1), 3) Four story office building: 5 (Ground floor: 2, 1st floor: 1, 2nd floor: 1, 3rd floor: 1), 4) Two story Generator and sub-station room: 4 (Ground floor: 2, 1st floor: 2), 5) Single story Childcare and Doctors building: 3, 6) Single story Pump room: 1, 7) Single story Fire hydrant and Generator room: 1, 8) Single story Wastage Fabric room: 1, 9) Single story Caretaker room: 1, 10) Single story Idle Machine and wastage room: 1, 11) Single story Time Section and gas riser room: 1, 12) Single story Guard room: 1.
Exterior Facade Description :	Building-01: The assessed building is a RCC moment resisting frame structure with in filled masonry. RCC water tank on top of stair & lift core of the building. Windows are glassed sliding type. Main door is metallic sliding type. There is metallic framed parapet around the periphery of the building. The building is aesthetically pleasing and free from cracking. Building-02: The assessed building is a RCC moment resisting frame structure with in filled masonry with facing brick. RCC water tank on top of stair case of the building. Windows are glassed sliding type. Main door is metallic swinging type. There is brick masonry parapet around the periphery of the building. Visually, the building is free from cracking.
Structural System Description :	Building-1 : The building is moment resisting frame structure with isolated footing foundation. Framing system is regular. Building-2 : This building is moment resisting frame structure with isolated footing foundation. Framing system is regular.



ASSESSMENT FINDINGS

Structural System Design

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:	The density of operation does not exceed 42 psf for Building-1, but the density of operation exceed 42 psf for Building-2 and it is about 80 psf as per on site calculation.	
Source of Findings:	Visual Assessment: Visual assessment shows that, the density of operation does not exceed 42 psf for Building-1, but the density of operation exceed 42 psf for Building-2 and it is about 80 psf as per on site calculation.	
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 Jul 2014	
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	A set of structural design documents for both the buildings are available on site for review. However, the design reports are not available which are required as per BNBC 2006 clause 1.9.1.1.	
Source of Findings:	Document Review: Document review shows that, a set of structural design documents for both the buildings are available on site for review. However, the design reports are not available which are required as per BNBC 2006 clause 1.9.1.1.	
Suggested Plan of Action:	Have a qualified Structural Engineer prepare the design report and submit to Alliance for review.	
Suggested Deadline Date:	31 Jul 2014	
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:	Building-1 : There is no indication that the design accommodates the requirement of BNBC 2006 or other model building code. Building-2 : There is no indication that the design accommodates the requirement of BNBC 2006 or other model building code.	
Source of Findings:	Document Review: Document review shows as follows: Building-1 : There is no indication that the design accommodates the requirement of BNBC 2006 or other model building code. Building-2 : There is no indication that the design accommodates the requirement of BNBC 2006 or other model building code.	
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:	19 Aug 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:	There is no clear information available on the design document to understand the consideration of storm surge and wind loading in the design of the buildings.	
Source of Findings:	Document Review: Design review indicates that no credible information is available for understanding resistance to wind loading.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	31 Jul 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:	Is a clear and redundant load path to resist lateral loads provided?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	Since there are multiple moment resisting frames, the lateral load path is clear and redundancy is available for building-1. In case of building 2 (Winding section) beams of the 2nd floor are stronger than column. This needs to be examined by qualified engineer.
Source of Findings:	Visual Assessment: Visual assessment conducted
Suggested Plan of Action:	In case of building 2 (Winding section) beams of the 2nd floor are stronger than column. This needs to be examined by qualified engineer.
Suggested Deadline Date:	01 Dec 2014
Standard:	Alliance Standards Part 8 Section 8.17 Design for Lateral Loads and 8.3.3. 2006 BNBC Part 6 Section 1.5
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:	1
Description:	There is a water tank 2000 Ltr capacity on the roof of building-01 which is not shown in structural design. These tanks act as concentrated load on the roof slab.
Source of Findings:	Visual Assessment: Visual inspection shows that there is a water tank 2000 Ltr capacity on the roof of building-01 which is not shown in structural design. These tanks act as concentrated load on the roof slab.
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:	27 Jul 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:	1
Description:	The factory has not obtained the Certificate of Occupancy from the authority.





Source of Findings:	Document Review: The document review shows that the factory has not obtained the Certificate of Occupancy from the authority.
Suggested Plan of Action:	Apply for issuance of Certificate of Occupancy and pursue the matter to obtain the same.
Suggested Deadline Date:	27 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

Question:	Is the structural system free of distress, settlement, shifting, or cracking in columns or walls?
Priority Level:	High
Non-Compliance Level:	1
Description:	There is no cracks in the columns. However, there are some masonry cracks in the walls which are not affecting the performance of the structure.
Source of Findings:	Visual Assessment: Visual inspection conducted
Suggested Plan of Action:	Have a qualified structural engineer provide further testing and analysis of cracking in walls and provide a remediation plan to correct noted issues.
Suggested Deadline Date:	01 Dec 2014
Standard:	Alliance Standard Part 8 Section 8.3.3
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:	1
Description:	In the store room at ground floor & 2nd floor of building-1, there are racks which are not braced for earthquake force. There is a plastic water tank at roof top of building-1, which is not braced or anchored properly.
Source of Findings:	Visual Assessment: Visual assessment shows that, in the store room at ground floor & 2nd floor of building-1, there are racks which are not braced for earthquake force. There is a plastic water tank at roof top of building-1, which is not braced or anchored properly.
Suggested Plan of Action:	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
Suggested Deadline Date:	05 Sep 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:	Are floor loads in compliance with posted plans?
Priority Level:	Medium
Non-Compliance Level:	3
Description:	Floor load plans are posted as required. But due to unavailability of structural design report, load plans couldn't be accepted to comply with the existing operational floor load.
Source of Findings:	Visual Assessment: Visual inspection shows that floor load plans are posted as required. But due to unavailability of structural design report, load plans couldn't be accepted to comply with the existing operational floor load.
Suggested Plan of Action:	Provide supporting credible document to establish the load bearing capacity as mentioned in submitted load plans and have the load plans posted in all required locations.
Suggested Deadline Date:	31 Jul 2014
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans).
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:	There are no program for both buildings that will ensure that the designated load in each floor will not be exceeded.
Source of Findings:	Document Review: There are no program for both buildings that will ensure that the designated load in each floor will not be exceeded.
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 Jul 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 been prepared for each floor but due to unavailability of structural design report, load plans couldn't be accepted.
Source of Findings:	Document Review: Document review shows that, load plans have been prepared for each floor but due to unavailability of structural design report, load plans couldn't be accepted.
Suggested Plan of Action:	Provide supporting credible document to establish the load bearing capacity as mentioned in submitted load plans.
Suggested Deadline Date:	31 Jul 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:	Floor load plans are posted as required. But due to unavailability of structural design report, load plans couldn't be accepted.
Source of Findings:	Visual Assessment: Visual inspection supported by document review shows that Load plans are found and posted as required. But due to unavailability of structural design report, load plans couldn't be accepted.
Suggested Plan of Action:	Provide supporting credible document to establish the load bearing capacity as mentioned in submitted load plans and have it posted in all required location.
Suggested Deadline Date:	19 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:	There is no marking on the floor to designate spaces and height for storage of work materials.
Source of Findings:	Visual Assessment: Visual inspection shows that there is no marking on the floor to designate spaces and height for storage of work materials.





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 Jul 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:	There is no 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.	
Source of Findings:	Document Review: There is no evidence of a designated load manager being present in the factory.	
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:	05 Aug 2014	
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager	