



INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **POLO COMPOSITE KNIT INDUSTRY LTD.**
Address: **226, Singair Road, Hemayetpur, Savar Savar Dhaka
Bangladesh**
Assessor: **Bureau Veritas**
Date: **09 Jun 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.

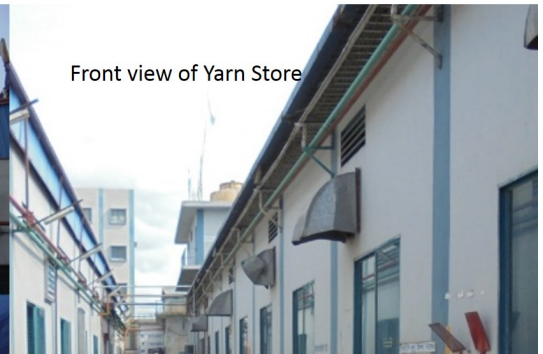
Front view building-01



Front view of Flat Bed Printing Unit



Front view of Yarn Store



Front view building-02



Front view of Dyeing Shed





GENERAL INFORMATION

General Information	
Factory Name:	POLO COMPOSITE KNIT INDUSTRY LTD.
Address:	226, Singair Road, Hemayetpur, Savar Savar Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Savar
Zip Code:	1340
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	06-10-2014
Final Report Date :	11-01-2014
Are all Action Items From Previous Assessment Completed?:	Yes
Buildings in Complex :	There are 11 buildings in the factory premises out of which six are main production buildings and five are ancillary buildings. The buildings are named as: 1) Eight story RCC main production building (Main building-1), 2) Five story RCC main production building (Main building-2), 3) Four story RCC main production building (Main building-3), 4) Two story RCC utility building, 5) Two story RCC child care building, 6) Two story RCC ETP building, 7) Single story prefab production shed (Main shed-1), 8) Single story prefab production shed (Main shed-2), 9) Single story prefab yarn storage shed (Main shed-3), 10) Single story prefab wastage storage shed, 11) Doctors room at ground floor of eight story RCC building-1 (AJI Group) which is commonly used by polo composite knitting and AJI Group.
Number of Building Levels (Stories) :	1) RCC main production building (Main building-1): (Stories Above grade: 8, below grade: 0), 2) RCC main production building (Main building-2): (Stories Above grade: 5, below grade: 0), 3) RCC main production building (Main building-3): (Stories Above grade: 4, below grade: 0), 4) RCC utility building: (Stories Above grade: 2, below grade: 0), 5) RCC child care building: (Stories Above grade: 2, below grade: 0), 6) RCC ETP building: (Stories Above grade: 2, below grade: 0), 7) Prefab production shed (Main shed-1): (Stories Above grade: 1, below grade: 0), 8) Prefab production shed (Main shed-2): (Stories Above grade: 1, below grade: 0), 9) Prefab yarn storage shed (Main shed-3): (Stories Above grade: 1, below grade: 0), 10) Prefab wastage storage shed: (Stories Above grade: 1, below grade: 0), 11) Doctors room at ground floor of eight story RCC building-1 (AJI Group): (Stories Above grade: 8, below grade: 0),
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 255727 sft. Building wise breakdown as follows: 1) Eight story RCC main production building (Main building-1): 103400.00 sft 2) Five story RCC main production building (Main building-2): 60000.00 sft 3) Four story RCC main production building (Main building-3): 20150 sft 4) Two story RCC utility building: 8200 sft 5) Two story RCC child care building: 600 sft 6) Two story RCC ETP building: 5992 sft, 7) Single story prefab production shed (Main shed-1): 22500 sft, 8) Single story prefab production shed (Main shed-2): 21499 sft, 9) Single story prefab yarn storage shed (Main shed-3): 12836 sft, 10) Single story prefab wastage storage shed: 400 sft, 11) Doctors room at ground floor of eight story RCC building-1 (AJI Group): 150 sft.
Date of Building Construction :	Factory personnel informed the date of construction as follows: Finished in 2005 (All buildings).
Date of Last Building Renovation/Addition :	There was no renovation/addition.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Two story RCC utility building, 2) Two story RCC child care building, 3) Two story RCC ETP building, 4) Single story prefab wastage storage shed, 5) Doctors room at ground floor of eight story RCC building-1 (AJI Group).
Number of Ancillary Levels (Stories) :	1) Two story RCC utility building: Stories above grade: 2, Stories below grade: 0, 2) Two story RCC child care building: Stories above grade: 2, Stories below grade: 0, 3) Two story RCC ETP building: Stories above grade: 2, Stories below grade: 0, 4) Single story prefab wastage storage shed: Stories above grade: 1, Stories below grade: 0, 5) Doctors room at ground floor of eight story RCC building-1 (AJI Group): Stories above grade: 8, Stories below grade: 0,
Approximate Ancillary	1) Two story RCC utility building: 8200 sft (Ground floor: 3000.00 sft, 1st floor: 2600.00 sft Roof: 2600 sft) 2)



Structures Area (SF) :	Two story RCC child care building: 600 sft (Ground floor: 200.00 sft, 1st floor: 200.00 sft Roof:200 sft) 3) Two story RCC ETP building: 5992 sft, 4) Single story prefab wastage storage shed: 400 sft, 5) Doctors room at ground floor of eight story RCC building-1 (AJI Group): 150 sft.
Number of Occupants :	Total number of occupants: 2554 1) Eight story RCC main production building (building-1): 1635 (Ground floor: 9, 1st floor: 352, 2nd floor: 104, 3rd floor: 68, 4th floor: 165, 5th floor: 454, 6th floor: 477, 7th floor: 6), 2) Five story RCC main production building (building-2): 206 (Ground floor: 28, 1st floor: 42, 2nd floor: 68, 3rd floor: 58, 4th floor: 10), 3) Four story RCC main production building (building-3): 52 (Ground floor: 30, 1st floor: 10, 2nd floor: 2, 3rd floor: 10), 4) Two story RCC utility building: 7 (Ground floor: 5, 1st floor: 2), 5) Two story RCC child care building: 22 (Ground floor: 12, 1st floor: 10), 6) Two story RCC ETP building: 15, 7) Single story prefab production shed (shed-1): 453, 8) Single story prefab production shed (shed-2): 151, 9) Single story prefab yarn storage shed (shed-3): 10, 10) Single story prefab wastage storage shed: 1, 11) Doctors room at ground floor of eight story RCC building-1 (AJI Group): 2.
Exterior Facade Description :	The exterior of the building is of infilled brick wall on slab of the structure. Some part of the front is clad by decorative glass. The doors are wooden and glass also windows are of glass in aluminum frame. The overall condition of the facade is good without any defect but have some plastering cracks on outside walls of dying shed.
Structural System Description :	Buildings 1 2 & 3 are Moment resisting RCC frame structures and Dying Shed (Shed-1), Yarn Store (Shed-3) and another production shed (Shed-2) are Single storied PEB steel structure.



ASSESSMENT FINDINGS




Structural System Design	
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:	There is one R.C.C water tank of 36000 liter capacity and two plastic water tanks each having capacity of 1500 liter at building-01. Two RCC water tank having capacity of 50000 liter also found in building 02. There is no analytical information on the provision of these tanks in the design.
Source of Findings:	Visual Assessment: Visual inspection conducted.
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:	06 Aug 2014
Standard:	Alliance Standard Part 8 Section 8.13 and 8.14
Question:	Are credible structural design documents available for review and kept on site?
Priority Level:	Medium
Non-Compliance Level:	2
Description:	Building 1 & 2: structural and architectural documents have been found without wind and seismic load criteria as well as without the design report. For dyeing shed, flat bed and yarn store structural design and architectural drawings have not been found (only some details on structure have been found). Design report has not been found for all buildings.
Source of Findings:	Document Review: Documents reviewed on site.
Suggested Plan of Action:	Have a qualified structural engineer prepare credible as-built documents for all the main buildings based on the requirements of Part 8 Section 8.19 of the Alliance Standard.
Suggested Deadline Date:	06 Aug 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:	The building is designed and constructed before 2006 but there is no indication that the design accommodates the requirement of any other applicable building code.
Source of Findings:	Document Review: Documents reviewed on site.
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:	06 Aug 2014
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings





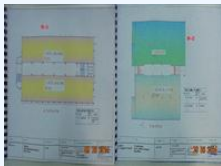


Question:	Can documentation be provided that the building is compliant with the requirements for wind loading and storm surge loadings as detailed in BNBC Part 6 Section 1.5.3?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	There is no clear information available on the design document to understand the consideration of storm surge and wind loading in the design of the building.	
Source of Findings:	Document Review: Documents reviewed on site.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading and storm surge.	
Suggested Deadline Date:	06 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:	Is a clear and redundant load path to resist lateral loads provided?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Buildings 1 2 & 3 are Moment resisting RCC moment resisting frame structures, hence lateral load path is apparent and redundant. Dyeing Shed (Shed-1), Yarn Store (Shed-3) and another production shed (Shed-2) are single storied PEB steel structure, further analysis is required to understand the redundancy for this shed.	
Source of Findings:	Document Review: Documents reviewed on site.	
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:	06 Aug 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:	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: Documents reviewed on site.	
Suggested Plan of Action:	Apply for issuance of Certificate of Occupancy and pursue the matter to obtain the same.	
Suggested Deadline Date:	06 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Structural System Construction		
Question:	Is the structural system free of distress, separations, or cracking that indicates lack of performance or overstress of the lateral load-carrying system?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	Minor plaster cracks have been found at top floor slabs and on 5th & 6th floor beams of Building 01 also Building 02-1st,3rd and 4th floor beams where maintenance is required as per qualified structural engineer's suggestion.	
Source of Findings:	Visual Assessment: Visually confirmed	




Suggested Plan of Action:	Engage a qualified structural engineer to provide additional investigation into the areas of distress, separations, or cracking and provide a remediation plan if required.	
Suggested Deadline Date:	01 Dec 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:	Dampness has been found at 4th floor of building-2 and dyeing unit. Signs of water ponding noticed on the roof top of main building 02.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
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:	06 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
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:	The roof of the building-02 & 3 is of MCAC aggregate but no protective sealing is available.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
Suggested Plan of Action:	Provide a protective coating at the structural elements constructed with MCAC exposed to rainfall or other sources of water. Have protective coating approved by the Alliance or a qualified structural engineer. Or provide 2% slope on the exposure surface to prevent accumulation of water.	
Suggested Deadline Date:	06 Aug 2014	
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).	
Question:	Are structural steel members free of corrosion, physical damage or other types of deterioration?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	Some corrosion has been noticed in structural steel member's bolt joint in dying shed.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
Suggested Plan of Action:	Complete further testing on areas of deterioration and have a qualified structural engineer develop a remediation plan.	
Suggested Deadline Date:	06 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.26	



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:	Building-01: 1) 1st floor: Racks of garments boxes, 2) 2nd floor: Racks of chemical bottles, 3) 3rd floor: Racks of yarn boxes, 4) Roof: Two overhead plastic water tanks, Building-03: 1) 1st floor: Racks of instruments, 2) 2nd floor: Racks of finished goods, All the racks and water tanks attached here needs to be braced and anchored.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
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:	17 Sep 2014	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	
Question:	The exterior façade is free of cracking.	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Dyeing unit exterior façade is not free of cracking.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
Suggested Plan of Action:	Have a qualified structural engineer provide further analysis of the identified cracks to determine the appropriate course of corrective action.	
Suggested Deadline Date:	26 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.2	
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:	3	
Description:	There is no program that will ensure that the designated load in each floor will not be exceeded.	
Source of Findings:	Document Review: Documents reviewed on site.	
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 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:	Building 1 & 2: Floor load Plans have been prepared which are not as per Alliance standard. Building 3: Floor load plans have not been prepared.	
Source of Findings:	Document Review: Documents reviewed on site.	
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:		



Suggested Deadline Date:	01 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:	3	
Description:	Building 1 & 2: Floor load Plans have been prepared which are not as per Alliance standard. Building 3: Floor load plans have not been prepared.	
Source of Findings:	Document Review: Floor load plans reviewed on-site	
Suggested Plan of Action:	Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3. Floor load plans should be visibly posted on all levels of all buildings.	
Suggested Deadline Date:	06 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 load plan as per standard. Also, there is no marking on the floor to designate spaces and height for storage of work materials.	
Source of Findings:	Visual Assessment: Visual inspection conducted.	
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:	06 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	