INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**Jinnat Knitwears Ltd (Phase-2)**
Address:	**Dhanua, Shreepur, Gazipur Bangladesh**
Assessor:	**EIMS**
Date:	**24 Jul 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.

GENERAL INFORMATION

General Information	
Factory Name:	Jinnat Knitwears Ltd (Phase-2)
Address:	Dhanua, Shreepur, Gazipur Bangladesh
Country:	Bangladesh
Province:	
City:	
Zip Code:	
Audit Duration:	1 Days 00 Hours
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	May 20, 2018
Final Report Date :	August 05, 2018
Buildings in Complex :	There are 1 main building and 3 ancillary buildings in complex. This assessment includes 1 main building & 2 ancillary buildings. Main Building: Building-1 (Main RMG Building) & Ancillary Buildings:Building-2 (Utility Building) and Building-3 (Medical, Day care & Office Building). Building-4 (Printing Building) was under Construction.
Number of Building Levels (Stories) :	Main Building: Building-1 (Main RMG Building): Basement+Mezzanine+8 Ancillary Buildings: Building-2 (Utility Building): Basement+4 Building-3 (Medical, Day care & Office Building): 5 Building-4 (Printing Building which was Under construction): 8(proposed)
Approximate Building Area (SF) :	Building-1 (Main RMG Building) [(32071 sft.X9) +Mezzanine-5121 sft.] = (Basement 32071 sft.+ GF 32071 sft.+ Mezzanine 5121 sft.+ 1st Floor 32071 sft.+ 2nd Floor32071 sft.+ 3rd Floor 32071 sft.+4th Floor 32071 sft.+5th Floor 32071 sft.+6th Floor 32071 sft.+7th Floor 32071 sft.)= 2, 93,760 sft.
Date of Building Construction :	Building-1 (Main RMG Building)= 2016-2018. Building-2 (Utility Building)= 2017-2018, Building-3 (Medical, Day care & Office Building)= 2017-2018, Building-4 (Printing)= under Construction.
Date of Last Building Renovation/Addition :	Building-4(Printing) was under Construction during site visit.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	Ancillary Buildings: Building-2 (Utility Building) and Building-3 (Medical, Day care & Office Building).
Number of Ancillary Levels (Stories) :	Ancillary Buildings: Building-2 (Utility Building): Basement+4 Building-3 (Medical, Day care & Office Building): 5
Approximate Ancillary	Building-2 (Utility Building): = (Basement 3943.8 sft.+ GF 3943.8 sft.+ 1st Floor 3943.8 sft.+ 2nd Floor 3943.8

Structures Area (SF) :	sft.+ 3rd Floor 3943.8 sft.)= 19,719 sft. Building-3 (Medical, Day care & Office Building) Multi Storied: = (GF 5140.5 sft.+ 1st Floor 5140.5 sft.+ 2nd Floor 5140.5 sft.+ 3rd Floor 5140.5 sft.+ 4th Floor 5140.5 sft.+ 5th Floor 5140.5 sft.) = 30,843 sft.
Number of Occupants :	1. Building-1(Main RMG Building). = Basement floor-0+Ground Floor-20+Mezzanine floor-0+1st Floor-836+2nd Floor-567+3rd Floor-105+4th Floor-192+5th Floor-130+6th Floor-86+7th Floor-17. Total= 1953 persons. 2. Building-2 (Utility Building). = Basement floor-0+Ground Floor-1+1st Floor-2+2nd Floor-2+3rd Floor-1. Total= 6 persons. 3. Building-3 (Medical, Day care & Office Building). = Ground Floor-5+1st Floor-5+2nd Floor-0+3rd Floor-0+4th Floor-0+5th Floor-0. Total= 10 persons.
Exterior Facade Description :	Building-1, Building-2 & Building-3: 10 inch brick masonry wall both side plastered without reinforcement in facade wall, some window in the building.
Structural System Description :	Building-1: RCC moment resisting frame with raft foundation; Building-2: RCC moment resisting frame with Combined and Individual footing; Building-3: RCC moment resisting frame with Combined and Individual footing.
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 were available for building-1, building-2 & building-3 which required approval from Alliance. As-built architectural and structural drawings were available for all buildings.
Source of Findings:	Document Review: 1. As-built architectural drawing of Building-1, 2. As-built structural drawing of Building-1, 3. As-built architectural drawing of Building-2, 4. As-built structural drawing of Building-2, 5. As-built architectural drawing of Building-3, 6. As-built structural drawing of Building-3. 7.RMG_JKL-02_Design Report. 8.Daycare_JKL-02_Design Report. 9.UTILITY_JKL-02_Design Report.
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:	26 Aug 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:	Design report, As-built architectural & structural drawings were available for all buildings during site visit. Design reports must be approved by Alliance.	
Source of Findings:	Document Review: Design report	
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:	26 Aug 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:	Design reports must be approved by Alliance	
Source of Findings:	Document Review: Design report	
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:	26 Aug 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:	Design reports must be approved by Alliance.	
Source of Findings:	Document Review: design report	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.	
Suggested Deadline Date:	26 Aug 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:	PVC water tank was found on roof top of building-1 & building-3. Design Report of Building-1 and Building-3 must be approved by Alliance.	
Source of Findings:	Photograph: PVC Water tank on roof top.	
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:	26 Aug 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/m2 (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:	Design Report confirms that the live load capacity is 6 kN/m2 for Building-1 & building-2 and 4 kN/m2 for Building-3. Design report for all buildings must be approved by Alliance.	
Source of Findings:	Photograph: Live load	
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:	26 Aug 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:	No Certificates of Occupancy were available for review.	

Source of Findings:	Document Review: During site visit on 17 May, 2018.
Suggested Plan of Action:	Provide Certificates of Occupancy for review
Suggested Deadline Date:	26 Aug 2018
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment

Structural System Construction

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 in rooftop of Building-3.
Source of Findings:	Photograph: Water ponding on Rooftop of Building-3.
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:	26 Aug 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:	Storage racks were found anchored at ground floor of Building-1.PVC water tanks were found in rooftop of Building-1 & Building-3 which should be braced.
Source of Findings:	Photograph: Storage rack of building-1 PVC tank on rooftop Building-1 PVC tank on rooftop Building-3
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:	26 Aug 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 program was in place to ensure the allowable live loads.	
Source of Findings:	Document Review: Site visit on 17, May 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:	26 Aug 2018	
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
Question:	Are Floor Load Plans posted as required?	
Priority Level:	Low	
Non-Compliance Level:	2	
Description:	Load plan was posted at each floor in all buildings but it was not as per Alliance standard.	
Source of Findings:	Photograph: Posted Floor load plan, Visual Assessment: site visit on 17, May 2018.	
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:	26 Aug 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:	Load marking was not indicated for storage of work.	
Source of Findings:	Photograph: No load marking in storage area of Building-1., Visual Assessment: Site visit on 17, May 2018.	

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:	26 Aug 2018	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	