INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name:	**FRIENDS KNITTINGS LTD**
Address:	**1406/1, South Salna, Ward No-19 Gazipur Dhaka Bangladesh**
Assessor:	**Shaheedullah**
Date:	**29 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.

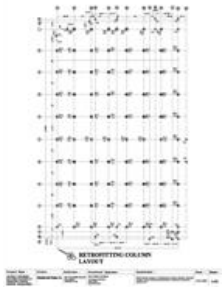
For more information and report feedback please go to: www.bangladeshworkersafety.org.

GENERAL INFORMATION

General Information	
Factory Name:	FRIENDS KNITTINGS LTD
Address:	1406/1, South Salna, Ward No-19 Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	05 August 2018
Final Report Date :	26 September 2018
Buildings in Complex :	There are 4 buildings in the factory complex. Out of 4 buildings, 1 is production building and 3 are ancillary buildings. Production building is named as: 1) 4-storied RC main production building (GF: Cutting; 1stF: Sewing remaining 2 floors are unoccupied). Ancillary buildings are named as: 1) 6-storied RC daycare building (GF: Daycare, Medical, Office; 1st F: Sample; 2nd and 3rd: Dining; 4th F: Dining and prayer 5th F: Unoccupied. 2) 1-storied RC utility building. 3) 1-storied RC Guard and waiting room.
Number of Building Levels (Stories) :	1) 4-storied RC main production building: 4 story above grade.
Approximate Building Area (SF) :	1) 4-storied RC main production building: Total area audited by us about =2x38390 sft =76,780 sft.
Date of Building Construction :	1) 4-storied RC main production building: 2015-2018. Finishing work of 2nd floor and 3rd floor is in progress. 2) 6-storied RC daycare building: 2015-2018. Finishing work of 5th floor is in progress. 3) 1-storied RC utility building: 2017-2018. 4) 1-storied RC Guard and waiting room: 2018.
Date of Last Building Renovation/Addition :	N/A.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) 6-storied RC daycare building. 2) 1-storied RC utility building. 3) 1-storied RC Guard and waiting room.
Number of Ancillary Levels (Stories) :	1) 6-storied RC daycare building: 6-story above grade. 2) 1-storied RC utility building: 1-story above grade. 3) 1-storied RC Guard and waiting room: 1-story above grade.
Approximate Ancillary	1) 6-storied RC daycare building: Total area audited by us about =5x5620 sft =28,100 sft. 2) 1-storied RC

Structures Area (SF) :	utility building: 3570 sft 3) 1-storied RC Guard and waiting room: 500 Sft. Total ancillary area audited by us: 31,175 sft.
Number of Occupants :	1. 4-storied RC main production building (ground & 1st floor audited by us. 2nd and 3rd floor are not occupied): Ground Floor: 40 Persons. 1st Floor: 250 Persons. 2. 6-storied RC day-care building (ground, 1st, 2nd, 3rd & 4th floor audited by us. 5th floor is not occupied): Ground Floor: 20 Persons. 1st Floor: 10 Persons. 2nd Floor: Dining (Capacity-200 persons) 3rd Floor: Dining arrangements are available but at present Occupancy is Nil. 4th Floor: (i) Dining arrangements are available but at present Occupancy is Nil & (ii) Prayer Room: Capacity- 50 persons. 3. 1-storied RC utility building: 3 Persons 4. 1-storied RC guard room and waiting room: 5 Persons
Exterior Facade Description :	1) 4-storied RC main production building: Rc framework infill with 5”/10” thick masonry wall, Aluminum window and Aluminum Louver. 2) 6-storied RC daycare building: Rc framework infill with 10” thick masonry wall, Aluminum window and Aluminum Louver. 3) 1-storied RC utility building: Rc framework infill with masonry wall, Aluminum door and window. 4) 1-storied RC Guard and waiting room: Rc framework infill with 5” thick masonry wall, Aluminum door and window.
Structural System Description :	1) 4-storied RC main production building: Frame work of the building is composed of Rc slab, beams and columns supported by isolated spread and combined footings. 2) 6-storied RC daycare building: Framework of the building is composed of Rc slab, beams and columns supported by isolated spread footings. 3)1-storied RC utility building: Framework of the building is composed of Rc slab, beams and columns supported by isolated spread footings 4) 1-storied RC Guard and waiting room: Framework of the building is composed of Rc slab, beams and columns supported by isolated spread footings.
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:	4-storied RC main production building: Reviewed Architectural and Structural design drawings are not match with existing site condition. Design document has not been found. 6-storied RC daycare building, 1-storied RC utility building and 1-storied RC Guard and waiting room: Drawings are available. Design document for 6-storied RC daycare building has not been found.	
Source of Findings:	Document Review: Drawings reviewed , Uploaded Document: Drawing attached	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to prepare as-built architectural, structural drawings and design documents for 4-storied RC main production building and also design documents for 6-storied RC daycare building following Alliance Standard.	
Suggested Deadline Date:	30 Oct 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 for 4-storied RC main production building, 6-storied RC daycare building.	
Source of Findings:	Document Review: Seen all documents	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to develop the required documents to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard for 4-storied RC main production building, 6-storied RC daycare building.	
Suggested Deadline Date:	30 Oct 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 compliance with the seismic and wind requirements of BNBC 2006 has not been found for 4-storied RC main production building, 6-storied RC daycare building.	
Source of Findings:	Document Review: Seen all documents	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to prepare documents compliance with the seismic and wind requirements of the 2006 BNBC for 4-storied RC main production building, 6-storied RC daycare building.	
Suggested Deadline Date:	30 Oct 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 for 4-storied RC main production building, 6-storied RC daycare building.	
Source of Findings:	Document Review: Seen all documents	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to confirm satisfactory structural performance for 4-storied RC main production building, 6-storied RC daycare building under wind loading and storm surge loadings as detailed in BNBC Part 6, section 1.5.3.	
Suggested Deadline Date:	30 Oct 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:	2-plastic water tanks of 7500 liters and 5000 liters capacity over the roof of 4-storied RC main production building and 1 plastic water tank of 5000 liters capacity over the roof of 6-storied RC daycare building have been noticed.	
Source of Findings:	Photograph: Plastic water tank, Visual Assessment: Visually inspected.	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to confirm and document that provisions have been made to accommodate concentrated loads. If provisions have not been made, have a qualified structural engineer to develop a remediation plan.	
Suggested Deadline Date:	30 Oct 2018	
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:	Certificate of Occupancy is not available.	
Source of Findings:	Document Review: Seen all documents	
Suggested Plan of Action:	Certificate of occupancy shall be obtained from appropriate authority.	
Suggested Deadline Date:	29 Nov 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:	Standing water has been noticed on roof of 4-storied RC main production building.	
Source of Findings:	Photograph: Standing water over roof, Visual Assessment: Visual inspection.	

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:	30 Oct 2018	
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:	Roof of 4-storied RC main production building, 6-storied RC daycare building, Utility building and guardroom made of MCAC have been found without protective coating to prevent water intrusion.	
Source of Findings:	Photograph: MCAC exposed to rainfall, Visual Assessment: Visually inspected	
Suggested Plan of Action:	Roof of 4-storied RC main production building, 6-storied RC daycare building, Utility building and guardroom made of MCAC shall be sealed by protective coating.	
Suggested Deadline Date:	30 Oct 2018	
Standard:	Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC).	
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:	2-plastic water tanks of 7500 liters and 5000 liters capacity over the roof and steel racks in storage area of 4-storied RC main production building have been noticed without seismic anchorage. 1 plastic water tank of 5000 liters capacity over the roof of 6-storied RC daycare building has been found properly anchored.	
Source of Findings:	Photograph: Plastic tanks picture, Visual Assessment: Visual inspection	
Suggested Plan of Action:	Plastic water tanks and racks shall be adequately anchored to resist earthquake forces.	
Suggested Deadline Date:	30 Oct 2018	
Standard:	Alliance Standards Part 8 Section 8.18 Seismic Bracing of Key Non-Structural Elements and 2006 BNBC Part 6	

Question:	If the building is currently being renovated or expanded, are the Construction Practices and Safety requirements of Section 9 being followed?	
Priority Level:	Medium	
Non-Compliance Level:	1	
Description:	Finishing works are in progress. Construction Practices and Safety requirements of Section 9 of BNBC has not been followed.	
Source of Findings:	Photograph: Unfinished floor, Visual Assessment: Visually inspected	
Suggested Plan of Action:	Construction Practices and Safety requirements of Section 9 mentioned in BNBC shall be followed.	
Suggested Deadline Date:	30 Oct 2018	
Standard:	Alliance Standard Part 9 Construction Practices and Safety.	
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 for any building.	
Source of Findings:	Document Review: Seen all documents	
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:	30 Oct 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 for any building.	
Source of Findings:	Document Review: Seen all documents	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to develop floor load plans following Alliance Standard.	

Suggested Deadline Date:	30 Oct 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 for any building.	
Source of Findings:	Document Review: Document review	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to develop floor load plan following Alliance Standard and posted accordingly.	
Suggested Deadline Date:	30 Oct 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:	1	
Description:	Permissible load limits have not been marked at any building.	
Source of Findings:	Visual Assessment: Visually inspected	
Suggested Plan of Action:	A qualified structural engineer shall be engaged to develop floor load plans. Load marking shall be confirmed after revising load plan.	
Suggested Deadline Date:	30 Oct 2018	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	