

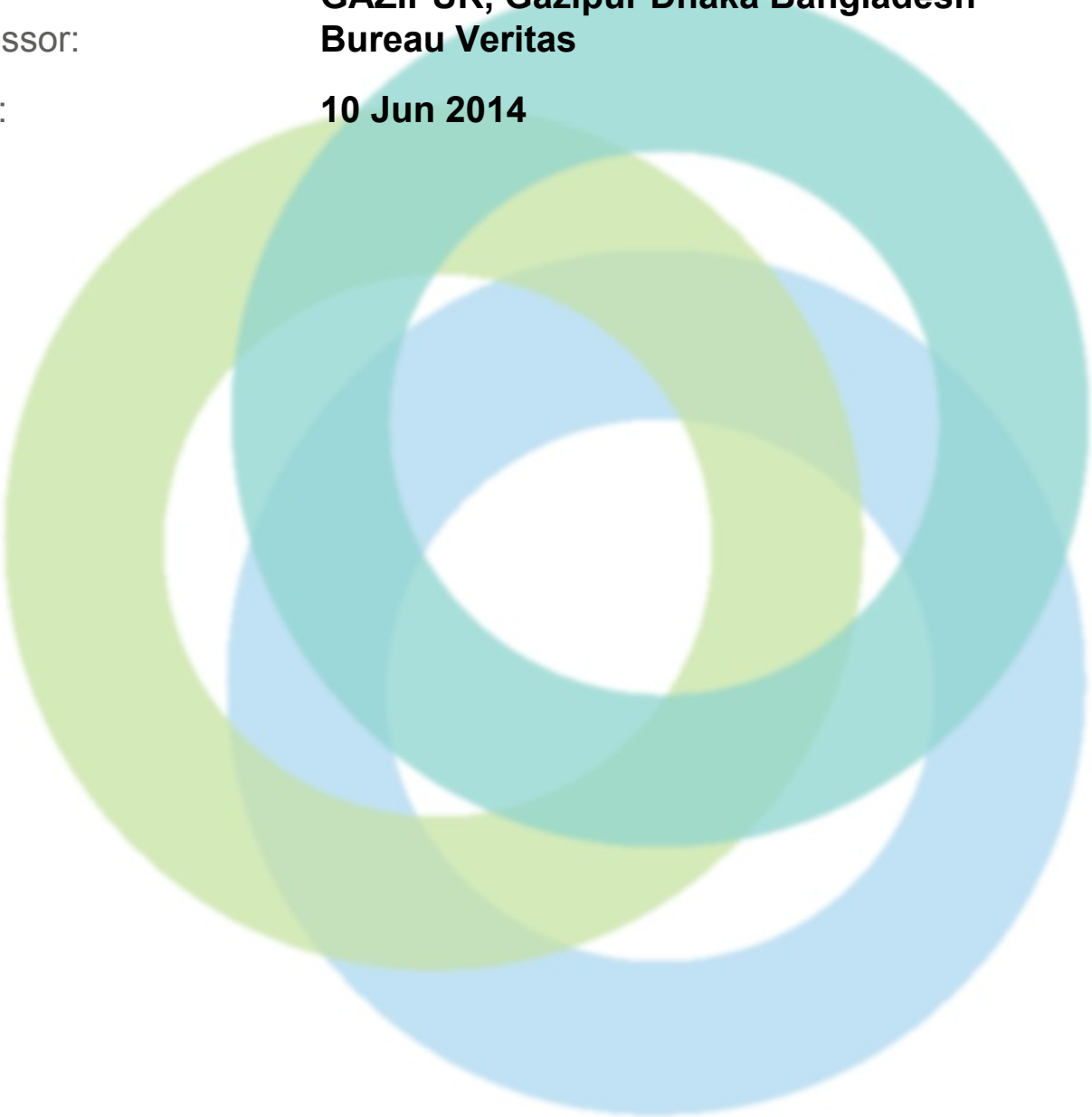
INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **MOHAMMADI KNIT STAR LIMITED**

Address: **NO 1 MIRZAPUR, BHABANIPUR, GAZIPUR SADAR,
GAZIPUR, Gazipur Dhaka Bangladesh**

Assessor: **Bureau Veritas**

Date: **10 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.





GENERAL INFORMATION

General Information

Factory Name:	MOHAMMADI KNIT STAR LIMITED
Address:	NO 1 MIRZAPUR, BHABANIPUR, GAZIPUR SADAR, GAZIPUR, Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1703
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	06-06-2014
Final Report Date :	11-7-2014
Are all Action Items From Previous Assessment Completed?:	No
Buildings in Complex :	There are 8 buildings in the factory premises out of which two are main production buildings and six are ancillary buildings. The buildings are named as: 1) Four story RCC main production building, 2) Two story RCC winding building, 3) Three story RCC house building, 4) Single story RCC generator & boiler room, 5) Single story RCC pump & wastage store room, 6) Single story RCC guard room, 7) Single story dining & residence shed, 8) Single story prayer room shed.
Number of Building Levels (Stories) :	1) Four story RCC main production building: Stories above grade: 4, Stories below grade: 0, Occupied levels: 4, 2) Two story RCC winding building: Stories above grade: 2, Stories below grade: 0, Occupied levels: 2, 3) Three story RCC house building: Stories above grade: 3, Stories below grade: 0, Occupied levels: 3, 4) Single story RCC generator & boiler room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 5) Single story RCC pump & wastage store room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 6) Single story RCC guard room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 7) Single story dining & residence shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 8) Single story prayer room shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1.
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 182869 sft. Building wise breakdown as follows: 1) Four story RCC main production building: 137930.00 sft (Ground floor: 27586.00 sft, 1st floor: 27586.00 sft, 2nd floor: 27586.00 sft, 3rd floor: 27586.00 sft, Roof: 27586.00 sft), 2) Two story RCC winding building: 14976.00 sft (Ground floor: 4992.00 sft, 1st floor: 4992.00 sft, Roof: 4992.00 sft), 3) Three story RCC house building: 13812.00 sft (Ground floor: 3453.00 sft, 1st floor: 3453.00 sft, 2nd floor: 3453.00 sft, Roof: 3453.00 sft), 4) Single story RCC generator & boiler room: 3492.00 sft, 5) Single story RCC pump & wastage store room: 1375 sft, 6) Single story RCC guard room: 150 sft, 7) Single story dining & residence shed: 8634 sft, 8) Single story prayer room shed: 2500 sft.



Date of Building Construction :	1) Four story RCC main production building: Started in May-2005 and finished in June-2013, 2) Two story RCC winding building: Started and finished in May-2005, 3) Three story RCC house building: Started and finished in May-2005, 4) Single story RCC generator & boiler room: Started and finished in May-2005, 5) Single story RCC pump & wastage store room: No information of construction date was found, 6) Single story RCC guard room: Started and finished in May-2005, 7) Single story dining & residence shed: Started and finished in May-2005, 8) Single story prayer room shed: No information of construction date was found.
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) Three story RCC house building, 2) Single story RCC generator & boiler room, 3) Single story RCC pump & wastage store room, 4) Single story RCC guard room, 5) Single story dining & residence shed, 6) Single story prayer room shed.
Number of Ancillary Levels (Stories) :	1) Three story RCC house building: Stories above grade: 3, Stories below grade: 0, Occupied levels: 3, 2) Single story RCC generator & boiler room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 3) Single story RCC pump & wastage store room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 4) Single story RCC for guard room: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 5) Single story prefab for dining & residence shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1, 6) Single story prefab for prayer room shed: Stories above grade: 1, Stories below grade: 0, Occupied levels: 1.
Approximate Ancillary Structures Area (SF) :	1) Three story RCC house building: 13812.00 sft (Ground floor: 3453.00 sft, 1st floor: 3453.00 sft, 2nd floor: 3453.00 sft, Roof: 3453.00 sft), 2) Single story RCC generator & boiler room: 3492.00 sft, 3) Single story RCC pump & wastage store room: 1375 sft, 4) Single story RCC guard room: 150 sft, 5) Single story dining & residence shed: 8,634 sft, 6) Single story prayer room shed: 2500 sft.
Number of Occupants :	Total number of occupants: 1606. 1) Four story RCC main production building: 1564 (Ground floor: 347, 1st floor: 594, 2nd floor: 488, 3rd floor: 135), 2) Two story RCC winding building: 16 (Ground floor: 4, 1st floor: 12), 3) Three story RCC house building: 4 (Ground floor: 4, 1st floor: 0, 2nd floor: 0), 4) Single story RCC generator & boiler room: 6, 5) Single story RCC pump & wastage store room: 0, 6) Single story RCC guard room: 3, 7) Single story dining & residence shed: 13, 8) Single story prayer room shed: 0.
Exterior Facade Description :	The both main buildings are RCC frame structure with infilled masonry wall. Exterior face of the masonry wall is of plaster and paint works. The main doors of these main buildings are collapsible sliding type doors and the windows are sliding glass type. The exterior facades of both buildings are free of cracking.
Structural System Description :	For building-1: Ground floor and 1st. Floor are RCC Moment Resisting Frame structures, but 2nd.and 3rd. Floor are constructed as steel braced frame structure. The foundation type of this building is isolated column footing. For building-2: The building is a RCC Moment Resisting Frame structure. But no structural drawing of footing is available.



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:	Building 01: An incomplete set of as-built structural design document is available onsite. Steel structure portion is not shown in drawings with detail sections of structural members. Design report is not available which is required as per BNBC 2006 clause 1.9.1.1. Building 02: No credible structural documents are available for review. For other ancillary buildings: No credible structural documents are available.	
Source of Findings:	Document Review: Document pertaining to the relevant information unavailable.	
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:	15 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 design document does not clearly demonstrate the conformance with any applicable code.	
Source of Findings:	Document Review: Confirmed by reviewing documents.	
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:	15 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 these building.
Source of Findings:	Document Review: Confirmed by reviewing documents.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
Suggested Deadline Date:	15 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:	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:	There are fourteen water tanks on the roof of main production building, each with the capacity of 3000 liters. There is no analytical information on the provision of these tanks in the design.
Source of Findings:	Visual Assessment: Confirmed visually.
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:	15 Aug 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: Document unavailable.





Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	15 Aug 2014
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:	1
Description:	Water ponding has been found on the rooftop of building-01 and dampness at wall of stair roof (1st floor to roof) has been found in building-02.
Source of Findings:	Visual Assessment: Confirmed visually.
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:	15 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:	1
Description:	The roof of building-2 & house building are made of MCAC aggregate but no protective sealing is available.
Source of Findings:	Visual Assessment: Confirmed visually.
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. Otherwise, provide 2% slope on the exposed surface to prevent accumulation of water.
Suggested Deadline Date:	15 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:	1
Description:	There are signs of corrosion in the steel members on the third floor of Building-1.
Source of Findings:	Visual Assessment: Confirmed visually.
Suggested Plan of Action:	Complete further testing on areas of deterioration in order to understand the level of corrosion and weakening of the member and have a qualified structural engineer develop a remediation plan.
Suggested Deadline Date:	15 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:	1
Description:	There are some racks in the storage room of the ancillary building which are not braced for earthquake force. There are 14 plastic water tanks on the rooftop, which are not braced or anchored properly.
Source of Findings:	Visual Assessment: Confirmed visually.
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:	15 Aug 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:	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: Document unavailable.	
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:	15 Aug 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:	There is no load plan available showing the actual maximum operational loading that is allowable.	
Source of Findings:	Document Review: Document unavailable.	
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:	15 Aug 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 not posted.	
Source of Findings:	Visual Assessment: Confirmed visually.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard. Floor load plans should be visibly posted on all levels of all buildings.	
Suggested Deadline Date:	15 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. Also, there is no marking on the floor to designate spaces and height for storage of work materials.
Source of Findings:	Visual Assessment: Confirmed visually.
Suggested Plan of Action:	Have a qualified structural engineer prepare a load plan for each floor. 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:	15 Aug 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: Document unavailable.
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:	15 Aug 2014
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager