

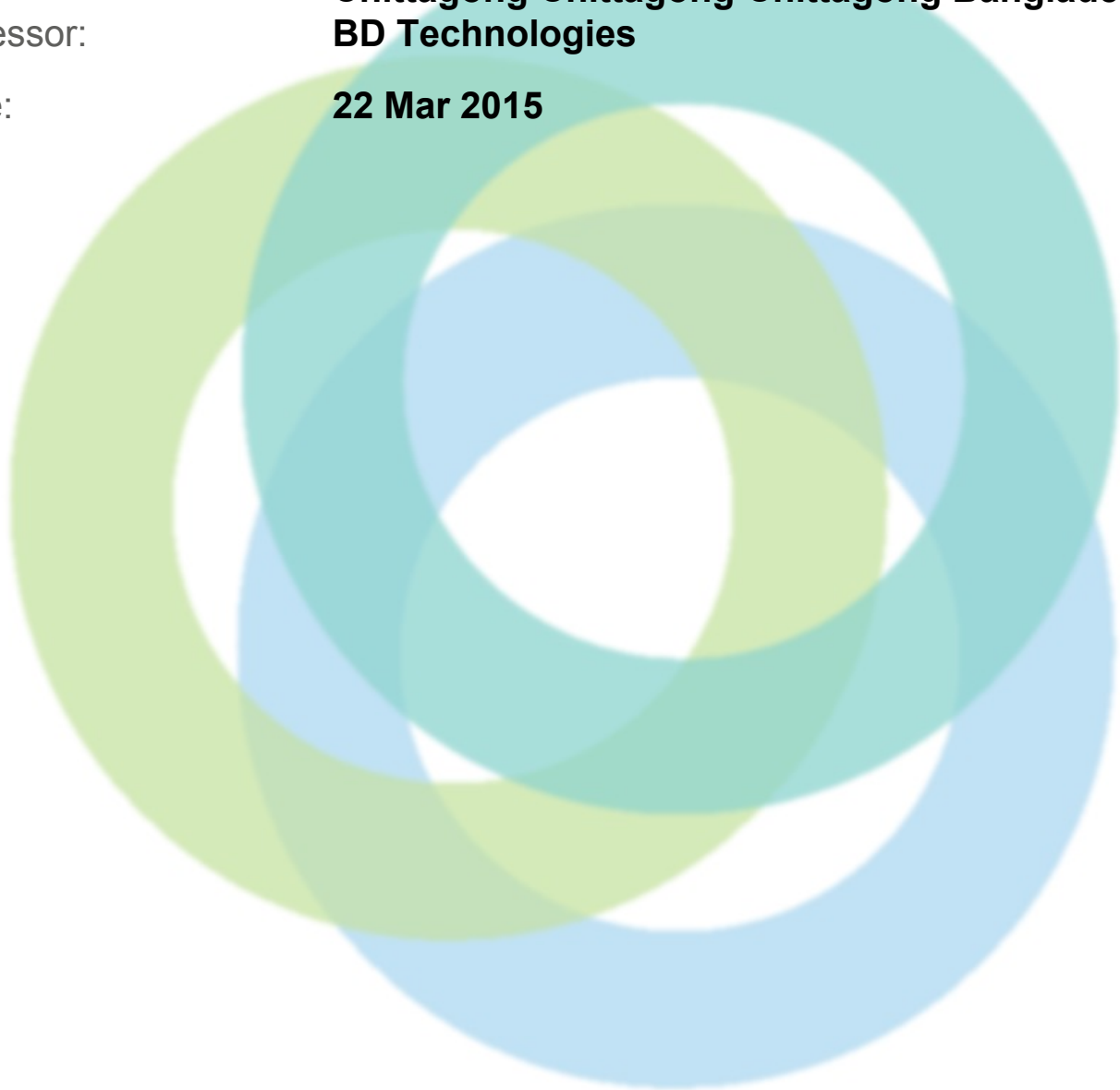
# INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **CHITTAGONG KNITWEARS (PVT) LTD**

Address: **Plot 17-18, Sector 4(Full Finishing unit) and Plot No. 7, 8 & 9, Sector- 1/A (Pre-finishing unit). CEPZ, Chittagong Chittagong Chittagong Bangladesh**

Assessor: **BD Technologies**

Date: **22 Mar 2015**





## 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](http://www.bangladeshworkersafety.org).





## GENERAL INFORMATION

General Information	
Factory Name:	CHITTAGONG KNITWEARS (PVT) LTD
Address:	Plot 17-18, Sector 4(Full Finishing unit) and Plot No. 7, 8 & 9, Sector- 1/A (Pre-finishing unit). CEPZ, Chittagong Chittagong Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong
Zip Code:	4223
Audit Duration:	1 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	March 31, 2015
Final Report Date :	May 26, 2015
Are all Action Items From Previous Assessment Completed?:	No
Buildings in Complex :	There are two premises of this factory called premises-1 (Plot: 17-18, sector-4, CEPZ) and premises-2 (Plot: 7-9, sector-4, CEPZ).
Number of Building Levels (Stories) :	Premises-1: Main-prefabricatedsingle storied steel shed with two storied Mezzanine floor. Premises-2: Main-prefabricatedsingle storied steel shed.
Approximate Building Area (SF) :	Approximate Building Area (SF) both main and ancillary: Premises-1=44,072 sft and Premises-2=1,10,228 sft. Grand total=1,54,300 sft.
Date of Building Construction :	Date of Building Construction: Premises-1: 1995-1996 and Date of Building Construction: Premises-2: 1999-2000.
Date of Last Building Renovation/Addition :	Building Renovation/Addition is not done.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	Premises-1: Ancillary Structure: 1. Generator and Substation shed, 2. Maintenance shed, 3. Childcare shed, 4. Security Room and 5. Wastage ware house shed. All the sheds are single storied. Premises-2: Ancillary Structure: 1. Generator and compressor shed, 2.Substation building, 3. Security and Childcare room, and 5. Wastage ware house shed. All the sheds are single storied.



Number of Ancillary Levels (Stories) :	All the buildings are single storied.
Approximate Ancillary Structures Area (SF) :	Approximate Building Area (SF) both main and ancillary: Premises-1=44,072 sft and Premises-2=1,10,228 sft. Grand total=1,54,300 sft.
Number of Occupants :	Premises-1: Main building Ground Floor=446, Mezzanine Floor=37; Generator and Substation shed=2; Maintenance shed=2; Childcare shed=1; Security Room=5 and Wastage ware house shed=0. Total= 493. Premises-2: Main building Ground Floor=867; Generator and Compressor=1; Substation room=1; Maintenance room=2; Security and Childcare Room=5 and Wastage ware house shed=0. Total= 876.
Exterior Facade Description :	Masonry clay brick and steel sheeting.
Structural System Description :	Main factory building is Structural steel framing with steel shed. The lateral load resisting systems are also steel main beam and sub beam. Mezzanine floor are RC decking slab structure. The foundation system for both main building are Isolated 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:	3
Description:	A few structural documents for both the main factory building are available for review and kept on site but they are not credible as per Alliance Standard.
Source of Findings:	Document Review: Document reviewed during visit 22nd March 2015. , Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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. These documents should be prepared for all the buildings in the complex.
Suggested Deadline Date:	15 Jul 2015
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:	3
Description:	Credible structural documentation indicating general conformance with 2006 BNBC or other comparable applicable international model building code could not be produced.
Source of Findings:	Document Review: Document reviewed during visit 22nd March 2015. , Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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 Jul 2015
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:	3
Description:	No credible documentation are available to indicate the buildings are compliant with the requirements for wind loading and storm surge loadings as detailed in BNBC Part 6 Section 1.5.3.
Source of Findings:	Document Review: Document reviewed during visit 22nd March 2015. , Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
Suggested Plan of Action:	Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
Suggested Deadline Date:	15 Jul 2015
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:	3
Description:	The following concentrated load conditions were noted during the visual review: Accessories storage at mezzanine floor, Water tanks on mezzanine floor roof. No evidence was available to indicate that the structural impact of these concentrated loads were considered.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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 Jul 2015
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/m <sup>2</sup> (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:	Original design documents were not available and the design live loads was not mentioned in the available as-built structural drawings. The accessories store area at mezzanine floor of the main building, were evaluated and determined to create loading conditions in excess of 2.0 kN/m2 (42 psf).
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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:	15 Jul 2015
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 are available for review.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
Suggested Plan of Action:	Provide Certificates of Occupancy for review.
Suggested Deadline Date:	15 Jul 2015
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:	3
Description:	The following areas of needed maintenance are not addressed: Dampness in ground floor brick wall Corrosion in Steel shed
Source of Findings:	Photograph: Wall dampness, steel shed corrosion.
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 Jul 2015





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:	Roof top water tanks (atop mezzanine level's roof) and storage racks without seismic bracing were observed at the Mezzanine floor of the main factory building.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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 Jul 2015
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:	There is no program in place to ensure that the live loads for which a floor or roof is or has been designed will not be exceeded.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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 Jul 2015
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:	Floor Load Plans are not posted as required.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.



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 Jul 2015
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:	Areas used for storage of work materials and work products are not clearly marked to indicate a acceptable loading limits.
Source of Findings:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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:	15 Jul 2015
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:	2
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:	Visual Assessment: Visual Assessment on Site visit 22nd March 2015.
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 Jul 2015
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager

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**ALLIANCE**  
FOR BANGLADESH WORKER SAFETY