

INITIAL STRUCTURAL INTEGRITY ASSESSMENT REPORT (SIAR)

Factory Name: **HKD International (CEPZ) Ltd**

Address: **Plot No. 49-55 Sector No. 8. Plot No. 1 Sector No. 4/A. Chittagong Export Processing Zone. Chittagong. Chittagong Bangladesh**

Assessor: **Bureau Veritas**

Date: **15 May 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:	HKD International (CEPZ) Ltd
Address:	Plot No. 49-55 Sector No. 8. Plot No. 1 Sector No. 4/A.Chittagong Export Processing Zone. Chittagong. Chittagong Bangladesh
Country:	Bangladesh
Province:	Chittagong
City:	Chittagong.
Zip Code:	4204
Audit Duration:	2 Days
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	05-20-2014
Final Report Date :	10-02-2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	There are 15 buildings in the factory premises out of which five are main production buildings and ten are ancillary buildings. The buildings are named as: 1) Three story main building-A, 2) Four story main building-B with occupied roof, 3) Three story main building-C, 4) Two story main building-D, 5) Four story main building-E, 6) Single story guard building-A, 7) Single story guard building-B, 8) Single story mechanical workshop shed, 9) Single story garbage shed, 10) Single story substation shed-1, 11) Single story substation building-2, 12) Single story compressor shed-1, 13) Single story compressor shed-2, 14) Single story generator shed, 15) Single story rain test shed.
Number of Building Levels (Stories) :	1) Main building-A: (Above grade: 3 (G+2), below grade: 0), 2) Main building-B with occupied roof: (Above grade: 5 (G+4), below grade: 0), 3) Main building-C: (Above grade: 3 (G+2), below grade: 0), 4) Main building-D: (Above grade: 2 (G+1), below grade: 0), 5) Main building-E: (Above grade: 4 (G+3), below grade: 0), 6) Guard building-A: (Above grade: 1, below grade: 0), 7) Guard building-B: (Above grade: 1, below grade: 0), 8) Mechanical workshop shed: (Above grade: 1, below grade: 0), 9) Garbage shed: (Above grade: 1, below grade: 0), 10) Substation shed-1: (Above grade: 1, below grade: 0), 11) Substation building-2: (Above grade: 1, below grade: 0), 12) Compressor shed-1: (Above grade: 1, below grade: 0), 13) Compressor shed-2: (Above grade: 1, below grade: 0), 14) Generator shed: (Above grade: 1, below grade: 0), 15) Rain test shed: (Above grade: 1, below grade: 0).
Approximate Building Area (SF) :	Total area of all buildings in the factory premises: 476198.00 sft.(Including roof square footage). Building wise breakdown as follows: 1) Three story main building-A: 91331 sft, 2) Four story main building-B with occupied roof: 40039 sft, 3) Three story main building-C: 120130 sft, 4) Two story main building-D: 37673 sft, 5) Four story main building-E: 183526 sft, 6) Single story guard building-A: 301 sft, 7) Single story guard building-B: 258 sft, 8) Single story mechanical workshop shed: 510 sft, 9) Single story garbage shed: 200 sft, 10) Single story substation shed-1: 510 sft, 11) Single story substation building-2: 340 sft, 12) Single story compressor

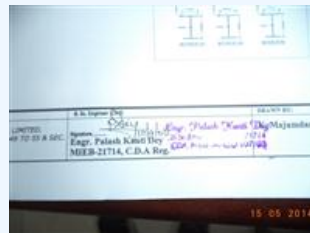


	shed-1: 70 sft, 13) Single story compressor shed-2: 408 sft, 14) Single story generator shed: 602 sft, 15) Single story rain test shed: 300 sft.
Date of Building Construction :	Factory personnel informed the date of construction as follows: 1) Three story main building-A: Finished in 2004, 2) Four story main building-B with occupied roof: Finished in 2004, 3) Three story main building-C: Finished in 2004, 4) Two story main building-D: No information of construction date, 5) Four story main building-E: Finished in 2004, For rest of the buildings no information of date of construction was found.
Date of Last Building Renovation/Addition :	Factory personnel informed the date of renovation as follows: 1) Two story main building-D: Renovation works ongoing (2013 to till now).
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Single story guard building-A, 2) Single story guard building-B, 3) Single story mechanical workshop shed, 4) Single story garbage shed, 5) Single story substation shed-1, 6) Single story substation building-2, 7) Single story compressor shed-1, 8) Single story compressor shed-2, 9) Single story generator shed, 10) Single story rain test shed.
Number of Ancillary Levels (Stories) :	1) Guard building-A: (Above grade: 1, below grade: 0), 2) Guard building-B: (Above grade: 1, below grade: 0), 3) Mechanical workshop shed: (Above grade: 1, below grade: 0), 4) Garbage shed: (Above grade: 1, below grade: 0), 5) Substation shed-1: (Above grade: 1, below grade: 0), 6) Substation building-2: (Above grade: 1, below grade: 0), 7) Compressor shed-1: (Above grade: 1, below grade: 0), 8) Compressor shed-2: (Above grade: 1, below grade: 0), 9) Generator shed: (Above grade: 1, below grade: 0), 10) Rain test shed: (Above grade: 1, below grade: 0).
Approximate Ancillary Structures Area (SF) :	1) Single story guard building-A: 301 sft, 2) Single story guard building-B: 258 sft, 3) Single story mechanical workshop shed: 510 sft, 4) Single story garbage shed: 200 sft, 5) Single story substation shed-1: 510 sft, 6) Single story substation building-2: 340 sft, 7) Single story compressor shed-1: 70 sft, 8) Single story compressor shed-2: 408 sft, 9) Single story generator shed: 602 sft, 10) Single story rain test shed: 300 sft.
Number of Occupants :	Total number of occupants: 2448. 1) Three story main building-A: 737 (Ground floor: 66, 1st floor: 338, 2nd floor: 333), 2) Four story main building-B with occupied roof: 294 (Ground floor: 129, 1st floor: 62, 2nd floor: 63, 3rd floor: 25, Occupied roof: 15), 3) Three story main building-C: 642 (Ground floor: 71, 1st floor: 222, 2nd floor: 349), 4) Two story main building-D: 20 (Ground floor: 10, 1st floor: 10), 5) Four story main building-E: 786 (Ground floor: 105, 1st floor: 350, 2nd floor: 326, 3rd floor: 5), 6) Single story guard building-A: 2, 7) Single story guard building-B: 1, 8) Single story mechanical workshop shed: 1, 9) Single story garbage shed: 0, 10) Single story substation shed-1: 1, 11) Single story substation building-2: 1, 12) Single story compressor shed-1: 1, 13) Single story compressor shed-2: 1, 14) Single story generator shed: 1, 15) Single story rain test shed: 0.
Exterior Facade Description :	The exterior facade of the buildings comprises of in-filled masonry & glass glazing at the middle portion of the face of the building. The windows are of sliding type with aluminum frame. The overall condition of the facade is without any cracks or visible defect.
Structural System Description :	Building B and E: Floor framing- RCC beam supported, Foundation system- Isolated column footing, Structural framing members-RCC beam-slab supported on column, Framing regularity- regular, Roof framing: RCC Beam slab, Building A, C and D: Floor framing- Steel deck supported RCC floor Foundation system- Isolated column footing, Structural framing members-steel structure, Framing regularity- regular, Roof framing: Corrugated steel sheet roofing. All the ancillary structures are tin shed.



ASSESSMENT FINDINGS

Structural System Design

Question:	Are Certificates of Occupancy available for review?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Certificates of occupancy are not available for review.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	Apply for issuance of Certificates of Occupancy and pursue the matter to obtain the same.	
Suggested Deadline Date:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	Structural Engineer of Record	
Priority Level:		
Non-Compliance Level:		
Description:	Name of Structural Engineer: Palash Kanti Day , MIEB-21714, Firm Name: De & S Engineering, 27, North Nalapara, Sadharghat, Chittagong.	
Source of Findings:	Document Review: The structural engineers name and firm name are found in the structural drawing.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide the name and firm of the structural engineer of record.	
Question:	Architect of Record	
Priority Level:		
Non-Compliance Level:		
Description:	Architectural drawings are available, but the name & signature of the architect are not available.	
Source of Findings:	Document Review: Documentation reviewed.	



Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide the name and firm of the architect of record.	
Question:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	As-built structural documents are available for all of the main buildings except the design report/assessment report. Ancillary structures are shown only on the approval drawing, further detailed drawings are not available. Architectural drawings are available, but the name & signature are not available.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	1) Have a qualified structural engineer prepare the design report and submit to BV for review. 2) The name, signature and IAB membership number of the architect needs to be clearly mentioned in the architectural drawings.	
Suggested Deadline Date:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.19 Required Structural Documentation for New and Existing Factories	
Question:	Is a Geotechnical Report available for review and kept on site?	
Priority Level:	Low	
Non-Compliance Level:		
Description:	Geotechnical report is available and kept on site.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	Can credible structural documentation indicating general conformance with 2006 BNBC or other comparable applicable international model building code be produced?	
Priority Level:	Medium	

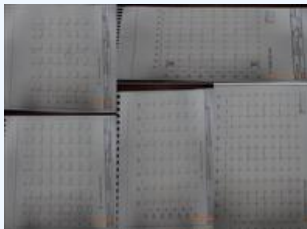


Non-Compliance Level:	1	
Description:	A design report/assessment report is not available to demonstrate the conformance with any applicable code.	
Source of Findings:	Document Review: Documentation reviewed.	
Suggested Plan of Action:	Engage a qualified structural engineer to develop the required documents 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:	12 Aug 2014	
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:		
Description:	The building was constructed before 2006.	
Source of Findings:	Document Review: Document review shows that the building was constructed before 2006.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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:	1	
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: Documentation reviewed.	
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:	12 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:	Has evidence of structural integrity been provided using a Preliminary Structural Assessment?	
Priority Level:	High	
Non-Compliance Level:		
Description:	There was no preliminary structural assessment done in this building	
Source of Findings:		
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	If the structure has been previously expanded, was the structural impact on the entire structure analytically evaluated and confirmed by a qualified structural engineer.	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	No expansion has been done to any structures in factory premises.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Section 8.1 Applicability of Building Code.	
Question:	Structural System Type as defined by 2006 BNBC Part 6 Chapter 1 Table 6.1.2.	
Priority Level:		
Non-Compliance Level:		
Description:	All the RCC buildings are moment resisting frame with beam-column system and steel buildings are braced steel structure.	
Source of Findings:	Document Review: From submitted documents, the RCC buildings are	



	moment resisting frame with beam-column system and steel buildings are braced steel structure. , Visual Assessment: Visual inspection shows that, the RCC buildings RCC frame structure with beam-column system and steel buildings are braced steel structure.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	2006 BNBC Part 6 Chapter 1 Table 6.1.2	
Question:	What is the Structural Configuration?	
Priority Level:		
Non-Compliance Level:		
Description:	The buildings are regular structure.	
Source of Findings:	Document Review: From submitted documents, the buildings are regular structure.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	2006 BNBC Part 6 Chapter 1 Section 1.3.4	
Question:	Is a clear and redundant load path to resist lateral loads provided?	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	The structural configuration is RCC frame structure and hence the lateral load path is apparent and there is redundancy due to presence of multiple frames in both directions.	
Source of Findings:	Visual Assessment: Visual inspection shows that lateral load paths are apparent in both directions.	
Suggested Plan of Action:		
Suggested Deadline Date:		
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 the available FoS for the columns adequate based on Preliminary calculation?	 



Priority Level:	High	
Non-Compliance Level:		
Description:	FoS of columns noted as below: Building B (RCC Column): Central Column: 1.91, Corner Column: 2.20, Edge Column: 3.19, Building E (RCC Column): Central Column: 2.34, Corner Column: 2.53, Edge Column: 2.49, Building A (Steel Column): Central Column: 1.72, Corner Column: 3.33, Edge Column: 1.58, Building C (Steel Column): Central Column: 1.72, Corner Column: 3.33, Edge Column: 1.58, Building D (Steel Column): Central Column: 1.99, Corner Column: 6.44, Edge Column: 2.75, For all columns except for the edge columns of buildings A and C the FoS are adequate. For the edge columns of buildings A and C the FoS are inadequate (Between 1.2 and 1.45).	
Source of Findings:	Uploaded Document: Based on calculation, the FoS for the edge columns of building A and C are not satisfactory.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide results of preliminary calculations in space provided. a) column capacity; FoS > 1.86 - Safe b) column capacity; FoS 1.5 -1.86 - Needs Evaluation c) Column capacity; FoS 1.25-1.5 - Needs Evaluation d) Column capacity; FoS <1.25 - Unsafe In case of a critically low FoS (<1.25), consider Immediate Escalation Protocol	
Question:	Results of ferro-scanning for confirmation of steel rebar in the columns of the lowest tier were satisfactory.	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	Ferro-scanning results for the confirmation of steel rebar in the columns of the lowest tier were satisfactory.	
Source of Findings:	Visual Assessment: Ferro scanning shows rebar are matching with structural design.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3 Preliminary Structural Assessment	
Question:	What are the full dead and live loads of the floor slabs and decks?	
Priority Level:		
Non-Compliance Level:		



Description:	Building B & E: The measure slab thickness is 6". Therefore, dead load is $75+25(FF)=100$ psf. The estimated live load in 3rd floor is 100 psf (only building-E) and in other floors load is about 42 psf. Building A, C & D: The measure slab thickness is 4". Therefore, dead load is $50+20(FF)= 70$ psf. The estimated live load in 1st floor is 150 psf (only building-D) and in other floors load is about 42 psf.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Provide information regarding the dead and live loads of the floor slabs and decks.	
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:	Building B: Two plastic water tanks on roof are undocumented. One tanks is supported by steel platform.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	31 Oct 2014	
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 ² (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:	1	
Description:	The density of operation in 3rd floor is 100 psf(Building-E) and 1st floor is 150 psf (Building-D), but there is no analytical confirmation of strength that can support this load.	
Source of Findings:	Document Review: Documentation reviewed., Visual Assessment: Visually	



	confirmed.	
Suggested Plan of Action:	Have a qualified structural engineer confirm that the 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:	12 Aug 2014	
Standard:	Alliance Standards Part 8 Section 8.15 Minimum Floor Design Loads	
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:	Dampness has been found on the west side wall of the staircase (Building-E) and standing water has been observed on the roof top of Building-B.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
Question:	The exterior façade is free of cracking.	
Priority Level:	Low	
Non-Compliance Level:		
Description:	The exterior facade is found to be free from cracking.	
Source of Findings:	Visual Assessment: Visual inspection shows that there is no cracking in the exterior facade.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.2	
Question:	Are expansion joints provided at appropriate intervals on the exterior façade?	
Priority Level:	Low	



Non-Compliance Level:		
Description:	There is no expansion joint in the structures.	
Source of Findings:	Document Review: Document review shows that there is no expansion joint in the structure. , Visual Assessment: There is no expansion joint in the structures.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	Is expansion joint material free from cracking and other forms of deterioration?	
Priority Level:	Low	
Non-Compliance Level:		
Description:	There is no expansion joint available in the structure.	
Source of Findings:	Document Review: Visually no expansion joint has been found., Visual Assessment: No expansion joint is documented in the structural drawing.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	
Question:	Is the building free of active signs of water intrusion or ponding due to lack of performance of the façade system?	
Priority Level:	Low	
Non-Compliance Level:	1	
Description:	Dampness has been observed on the exterior face of the building-C.	
Source of Findings:	Visual Assessment: Visual inspection showed that dampness has been observed on the exterior face of Building-C.	
Suggested Plan of Action:	Repair the exterior façade system to prevent water intrusion and provide proper slope on the roof.	
Suggested Deadline Date:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	



Question:	Are the performance of key structural elements such as columns, slender columns, flat plates and transfer structures satisfactory?	
Priority Level:	High	
Non-Compliance Level:		
Description:	The performance of the key structural elements are found to be satisfactory.	
Source of Findings:	Visual Assessment: Visual inspection shows that the performance of the key structural elements are found to be satisfactory.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Is the structural system free of settlement cracking, excessive perimeter separations, and unlevel floors attributable to foundation settlements?	
Priority Level:	High	
Non-Compliance Level:		
Description:	The structural system is free from settlement cracking, excessive perimeter separations.	
Source of Findings:	Visual Assessment: Visually the structural system is free from settlement cracking, excessive perimeter separations.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings	
Question:	Is the structural system free of deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure?	
Priority Level:	High	
Non-Compliance Level:		
Description:	The structural system is found to be free from deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements of the structure .	
Source of Findings:	Visual Assessment: The visual assessment performed does not indicate any deflections (sagging), rotations (twisting), perceivable vibrations, or other noticeable movements .	



Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 8 Structural Design Section 8.2 Structural Integrity of Existing Factory Buildings	
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:	The structural system is free of major distress that indicates lack of performance or over stress of the lateral load-carrying system. Although, some cracks have been observed on the 2nd floor ceiling of building-E.	
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:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Is the structural system free of distress, settlement, shifting, or cracking in columns or walls?	
Priority Level:	High	
Non-Compliance Level:		
Description:	There is no cracks in the columns. However, there are some masonry cracks in the walls which are not affecting the performance of the structure.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.3.3	
Question:	Have any previous repairs to correct structural deficiencies or to reinforce the existing structure been completed?	
Priority Level:		



Non-Compliance Level:	
Description:	No strengthening or retrofitting has been done on the structural members of the building.
Source of Findings:	Visual Assessment: Visual inspection shows that, no strengthening or retrofitting has been done on the structural members of the building.
Suggested Plan of Action:	
Suggested Deadline Date:	
Standard:	
Question:	Was masonry-chip aggregate concrete (MCAC) used in the construction of the building?
Priority Level:	
Non-Compliance Level:	
Description:	The masonry chip aggregate concrete(MCAC) has been used in the construction of the building.
Source of Findings:	Visual Assessment: It is noted that MCAC aggregate is used in the construction of the buildings.
Suggested Plan of Action:	
Suggested Deadline Date:	
Standard:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)
Question:	If yes, have the structural members constructed with MCAC been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples?
Priority Level:	Medium
Non-Compliance Level:	
Description:	The structural members of Building B & E constructed with MCAC have not been investigated by an appropriate program of in-situ testing and representative destructive testing or core samples.The column stress calculated taking into account the strength of concrete from standard does not show any over stress.
Source of Findings:	Visual Assessment: Visual inspection and calculation shows that the columns are not over stressed.
Suggested Plan of	





Action:		
Suggested Deadline Date:		
Standard:	Reference Alliance Standards Part 7 Building Materials Section 7.2 Masonry-chip aggregate concrete (MCAC)	
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 the Building-B is of MCAC aggregate but no protective sealing is available.	
Source of Findings:	Visual Assessment: Visually confirmed.	
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 exposed surface to prevent accumulation of water.	
Suggested Deadline Date:	12 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:	Building-A: Corrosion has been found in base plate of column of ground floor. Building-C: Corrosion has been found in column of ground floor.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Complete further testing on areas of deterioration and have a qualified structural engineer develop a remediation plan	
Suggested Deadline Date:	31 Oct 2014	
Standard:	Alliance Standard Part 8 Section 8.26	
Question:	For post-tensioned reinforced concrete systems or elements, cored holes have not compromised the post-tensioned strands.	
Priority Level:	High	



Non-Compliance Level:		
Description:	There are no post-tensioned reinforced concrete systems or elements, cored holes have been found.	
Source of Findings:	Document Review: No post-tensioned reinforced concrete systems or elements, cored holes have been documented in the structural document. , Visual Assessment: No post-tensioned reinforced concrete systems or elements, cored holes have been in visual assessment.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Not Applicable	
Question:	Is the structure free from any major/progressive distress?	
Priority Level:	High	
Non-Compliance Level:		
Description:	There is no major/progressive distress has been found.	
Source of Findings:	Visual Assessment: No major/progressive distress has been found during visual assessment.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standards Part 8 Section 8.3.3	



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:	Building A: Raw materials racks at ground floor needs anchorage and bracing. Building B: Storage racks at ground floor and third floor needs anchorage & bracing. Water tanks on roof also need bracing and anchorage. One of the water tank is supported by an steel platform. Building E: Raw materials storage at third floor needs bracing.
Source of Findings:	Visual Assessment: Visually confirmed.
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:	12 Aug 2014
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:	
Description:	The buildings are not currently being renovated or expanded.

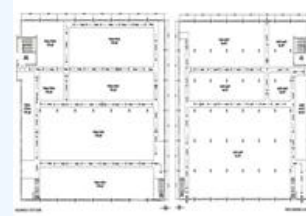




Source of Findings:	Visual Assessment: From visual inspection, no renovation work is ongoing.
Suggested Plan of Action:	
Suggested Deadline Date:	
Standard:	Alliance Standard Part 9 Construction Practices and Safety.

Structural Safety Programs

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:	
Description:	Floor Load Plans are available for all building showing the actual maximum operational loading that is allowable.
Source of Findings:	Document Review: Document review show that floor Load Plans are available for all building showing the actual maximum operational loading that is allowable.
Suggested Plan of Action:	
Suggested Deadline Date:	
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: Visually confirmed.
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard and have it posted in all required locations.
Suggested Deadline Date:	12 Aug 2014
Standard:	Alliance Standard Part 8 Section 8.20.5.3
Question:	Are floor loads in compliance with posted plans?
Priority Level:	Medium





Non-Compliance Level:	3	
Description:	There is no floor load plan available to compare with actual floor loading.	
Source of Findings:	Document Review: Documentation reviewed., Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Have a qualified structural engineer prepare load plans including the information required in Section 8.20 of the Alliance Standard and post the load plans as required.	
Suggested Deadline Date:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.10 Floor Loading Plans (Load Plans).	
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 are load plans available but there are no markings on the floor to designate spaces and height for storage of work materials.	
Source of Findings:	Visual Assessment: Visually confirmed.	
Suggested Plan of Action:	Have a qualified structural engineer prepare a load plan for each floor and have the floors marked for designating storage area as per the developed load plan.	
Suggested Deadline Date:	12 Aug 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	
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 on each floor will not be exceeded.	
Source of Findings:	Document Review: Documentation reviewed.	
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	12 Aug 2014	



Date:		
Standard:	Alliance Standard Part 13 Section 13.7 and Part 8 Section 8.9.	
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: The HR file of the factory load manager or designated representative is not documented., Visual Assessment: Documentation reviewed.	
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:	12 Aug 2014	
Standard:	Alliance Standards Part 8 Section 8.9 Factory Load Manager	
Question:	For post-tensioned reinforced concrete systems or elements, is a program in place to ensure post-tensioned strands are located before core drilling begins?	
Priority Level:	Medium	
Non-Compliance Level:		
Description:	There are no post-tensioned reinforced concrete systems or elements have been found.	
Source of Findings:	Document Review: No post-tensioned reinforced concrete system or elements have been documented in the structural drawing., Visual Assessment: No post-tensioned reinforced concrete system or elements have been found in the visual inspection.	
Suggested Plan of Action:		
Suggested Deadline Date:		
Standard:	Alliance Standard Part 8 Section 8.26 Durability and Maintenance	

Factory Name: **HKD International (CEPZ) Ltd**

Address: **Plot No. 49-55 Sector No. 8. Plot No. 1 Sector No. 4/A.Chittagong Export Processing Zone. Chittagong. Chittagong Bangladesh**

Assessor: **Bureau Veritas**

Date: **15 May 2014**



ALLIANCE
FOR BANGLADESH WORKER SAFETY