EQUIVALENT INITIAL STRUCTURAL SAFETY ASSESSMENT

Factory Name:	**Odyssey Dresses Ltd.**
Address:	**Joy Bangla Road Kunia, Barabari, Gazipur Gazipur Dhaka 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:	Odyssey Dresses Ltd.
Address:	Joy Bangla Road Kunia, Barabari, Gazipur Gazipur Dhaka Bangladesh
Country:	Bangladesh
Province:	Dhaka
City:	Gazipur
Zip Code:	1704
Audit Duration:	
Re-Audit:	Re-Audit After 0 Months
Draft Report Date :	09 June , 2014
Final Report Date :	02 October, 2014
Are all Action Items From Previous Assessment Completed?:	N/A
Buildings in Complex :	1 Main Building 6 Ancillary Buildings
Number of Building Levels (Stories) :	8 (Grade + 7)
Approximate Building Area (SF) :	124204.00 sf
Date of Building Construction :	No record of date of construction was found.
Date of Last Building Renovation/Addition :	No renovations or additions have been performed.
Is the Building mixed use?:	No
Ancillary Structures in Complex :	1) Two story RCC building-2 (Substation and Generator), 2) Two story medical and childcare shed-1, 3) Single story boiler shed-2, 4) Single story fire pump station shed-3, 5) Single story goods store shed-4, 6) Single story store shed-5.
Number of Ancillary Levels (Stories) :	1) Two story RCC building-2: 2 (Grade + 1) 2) Two story medical and childcare shed-1: 2 (Grade + 1) 3) Single story boiler shed-2: 1 (Grade) 4) Single story fire pump station shed-3: 1 (Grade) 5) Single story goods store shed-4: 1 (Grade) 6) Single story store shed-5: 1 (Grade)

Approximate Ancillary Structures Area (SF) :	1) Two story RCC building-2 (Substation and Generator): 1800.00sft 2) Two story medical and childcare shed-1: 3560.00 sft, 3) Single story boiler shed-2: 216.00 sft, 4) Single story fire pump station shed-3: 168.00 sft, 5) Single story goods store shed-4: 600.00 sft, 6) Single story store shed-5: 1500.00sft.
Number of Occupants :	2229
Exterior Facade Description :	The exterior of the building is of infilled brick walls in RCC frame. The main door is iron framed and the windows are of sliding glass in aluminum frame. The building outer wall are painted.
Structural System Description :	RCC moment resisting framed structure with monolithic slab beam. The type of foundation is shallow foundation (spread, combined & strap footing).

ASSESSMENT FINDINGS

Structural System Design		
Question:	Are the available FoS for the columns adequate based on Preliminary calculation?	
Priority Level:	High	
Non-Compliance Level:	1	
Description:	FoS of the columns of the main building (based on live load of 42 psf, based on concrete strength of 2370 psi) are adequate based on preliminary calculations, with the exception of the Central column which is below the minimum acceptable value of 1.86: Central column: 1.68 Corner column: 2.11 Edge column: 2.18 FoS of the columns of the ancillary building (based on live load of 42 psf, based on concrete strength of 2045 psi per the Alliance Standard minimum) are adequate based on preliminary calculations: Central column: 3.44 Corner column: 6.49 Edge column: 4.51	
Source of Findings:	Uploaded Document: The uploaded FoS calculation shows that the minimum FoS available for columns are above minimum value which is 1.86.	
Suggested Plan of Action:	Under guidance of a qualified structural engineer, conduct destructive sore test to validate the in-situ concrete compressive strength of the structural elements.	
Suggested Deadline Date:	23 Dec 2014	
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:	Are credible structural design documents available for review and kept on site?	
Priority Level:	Medium	
Non-Compliance Level:	2	
Description:	As built structural drawings are available for review and kept on site. However, the structural drawings do not show the overhead water tank detail. Also, the design report is not available as required per BNBC 2006 clause 1.9.1.1.	
Source of Findings:	Document Review: Document review shows that incomplete structural drawings are available, but no design report could be found.	
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:	31 Jul 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 building was constructed before 2006. No evidence of general conformance with any code is available.	
Source of Findings:	Document Review: Document review shows that the building was constructed before 2006. No evidence indicating general conformance with any code is available.	
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:	30 Jul 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:	No documentation showing the consideration of the requirement of wind loading and storm surge loading in the design of the building is available.	
Source of Findings:	Document Review: Document review shows that no documentation showing the consideration of the requirement of wind loading and storm surge loading in the design of the building is available.	
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:	30 Jul 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 is a RCC overhead water tank on the roof top of the building. There is no analytical information on the provision of this tank in the design.	
Source of Findings:	Document Review: Document review shows that, there is a RCC overhead water tank on the roof top of the building. There is no analytical information on the provision of this tank in the design.	
Suggested Plan of Action:	Engage a qualified structural engineer to confirm and document that provisions have been made to accommodate this RCC overhead water tanks. If provisions have not been made, have a qualified structural engineer develop a remediation plan.	
Suggested Deadline Date:	28 Jul 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 a Certificate of Occupancy from the authority.	
Source of Findings:	Document Review: The document review shows that the factory has not obtained a Certificate of Occupancy from the authority.	
Suggested Plan of Action:	Provide Certificates of Occupancy for review.	
Suggested Deadline Date:	31 Jul 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:	There is dampness on the stair case wall at the roof level. Standing water was also observed on the roof top of the building. There is no maintenance	

	program for all areas including areas with efflorescence, dampness, standing water on rooftops, and corrosion.	
Source of Findings:	Document Review: Document Review shows that there is no maintenance program for all areas including areas with efflorescence, dampness, standing water on rooftops, and corrosion. , Visual Assessment, Document Review: Document Review shows that there is no maintenance program for all areas including areas with efflorescence, dampness, standing water on rooftops, and corrosion. , Visual Assessment	
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:	31 Jul 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 the building is of MCAC and is exposed to rainfall, but protective sealing and proper slope are not provided.	
Source of Findings:	Visual Assessment: Visual assessment shows that the roof of the building is of MCAC and is exposed to rainfall, but protective sealing and proper slope are not provided.	
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	
Suggested Deadline Date:	28 Jul 2014	
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:	1	
Description:	There are several racks at the 1st floor, as well as a rooftop plastic water tank, which are not braced for earthquake force.	
Source of Findings:	Visual Assessment: Visual assessment shows that here are several racks at the 1st floor, as well as a rooftop plastic water tank, which are not braced for	

	earthquake force.	
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:	11 Sep 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:	2	
Description:	The live loads may comply with floor live load from our simple calculation. However, there is no program available to manage floor and roof live loads.	
Source of Findings:	Visual Assessment: Visual Assessment shows that, the live loads may comply with floor live load from our simple calculation. There is no program available to manage floor and roof live loads.	
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:	14 Jul 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:	Load Plans have been prepared for each floor documenting the actual maximum operational loading that is intended or allowable on each floor. But the floor load plan does not comply with the standard as per Alliance Part 8 Section 8.20.5.3.	
Source of Findings:	Document Review: Document Review shows that the existing Load Plans do not comply with the Alliance Standard.	
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:	28 Jul 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 posted as required, but the floor load plan is not in standard format.	
Source of Findings:	Visual Assessment: Visual inspection shows that Floor Load Plans are posted as required, but the floor load plan is not in standard format.	
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 location.	
Suggested Deadline Date:	28 Jul 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:	2	
Description:	There is no marking on the floor to designate spaces and height for storage of work materials.	
Source of Findings:	Visual Assessment: Visual inspection shows that there is no marking on the floor to designate spaces and height for storage of work materials.	
Suggested Plan of Action:	Provide signage or the appropriate markings at all floors marked for designating storage area to indicate the acceptable loading limits detailed in accordance with Load Plan.	
Suggested Deadline Date:	31 Jul 2014	
Standard:	Alliance Standard Part 8 Section 8.11 Floor Load Markings	