

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Crystal Impression Ltd.
Address of the Factory	: South Salna, Gazipur Sadar, Gazipur, Bangladesh
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 5-Mar-2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 17-Feb-2014

BASIC INFORMATION:

The present garment factory comprises one main production building and two ancillary buildings (Office/Electrical/Generator ETP). The following general information was noted:

i.	Building Usage Type	: Garments Factory
ii.	Structural System	: Steel framed shed.
iii.	Floor System	: Steel framed shed
iv.	Floor Area	: Unknown
v.	No. of Stories	: Ground Level + Roof
vi.	Construction Year	: 2010
vii.	Foundation Type	: Unknown
viii.	Design Drawings	: Available but not fully credible.
ix.	Soil investigation Report	: Unknown.
x.	Construction Materials	: Steel member.
xi.	Generator	: Ground floor.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for Structural, Fire and Electrical Safety comprises of Short Term, Mid Term and Long Term basis are as follows:

The recommendations for Structural Safety corrective actions are:

Immediate : NA

Short Term: (3 Weeks) :

Mid Term (6 Weeks) :

- i. Have a qualified structural engineer provide further testing and analysis of distress, settlement, shifting, or cracking in columns or walls and provide a remediation plan to correct noted issues.
- ii. Have a qualified structural engineer provide further analysis and testing of the noted settlement and crack issues. If required, a remediation plan shall also be provided by the qualified structural engineer.
- iii. Prior to further vertical expansion of the office building, engage a qualified structural engineer to evaluate the structural impact of the proposed expansion.
- iv. Have a qualified structural engineer provide further analysis and investigation of the structural deficiencies. Structural

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- engineer shall also provide remediation documents if required.
- v. Have a qualified structural engineer complete further analysis of the structure and develop a remediation plan if required.
 - vi. 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.
 - vii. "Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC."

Long Term (6 Months) :

- i. Provide Certificates of Occupancy for review.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Ensure light fixtures without protective covers are not installed in storage areas or in any area where the Inspector of the Factories Rules (1.5.3.5) Part 53 disallows these fixtures.
Short Term (3 Weeks)	Provide capacity information labels (maximum current rating, no of circuit breakers etc.) for distribution boards. All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system. The required marking can be by color code, the words "emergency system," or any other method that identifies the box or enclosure as a component of the emergency system.
Mid Term (6 Weeks)	Consult with a qualified Electrical Engineer and ensure electrical wiring/cables are sized according to capacity of circuit breakers. Remove multi looping or multi looping of wiring/cables at circuit breakers within switchboards and/or distribution boards. Provide dedicated neutral for each circuit.
Long Term (6 Months)	Provide an earthing/grounding system for all metal in the building. Complete Thermographic scans at least on a three year cycle. Thermographic scans should be completed in accordance with the Standard for Infrared Inspection of Electrical Systems & Rotating Equipment and NFPA70B or a comparable standard.

The recommendations for Fire Safety corrective actions are:

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Immediate (3 to 6 Days)	N/A
Short Term (3 Weeks)	Replace the sliding doors with side hinged doors that swing in the direction of exit travel.
Mid Term (6 Weeks)	<p>Install a new automatic fire alarm and detection system in accordance with NFPA 72. Once installed, arrange for direct connection of the fire alarm and detection system to a central station monitoring service or the Fire Service and Civil Defence per Alliance Standard Part 5 Section 5.7.5 Monitoring. Until that time that a central station monitoring service or direct connection to the Fire Service and Civil Defence can be set up, a person trained to contact the Fire Service and Civil Defence in the event of fire alarm activation shall be provided. An annunciator shall be located in a constantly attended location (such as a fire control room) to alert this person.</p> <p>Training programs need to be implemented and documented in accordance with the Alliance Safety Training Curriculum.</p> <p>Post the occupant load for all assembly and production floor areas in a conspicuous space near the main exit or exit access doorway for the space.</p> <p>Create and post emergency evacuation maps at the entrance to each stair or main point of egress.</p> <p>Complete Fire Department pre-planning activities with the local Fire Service and Civil Defence in accordance with Alliance Standard Section 13.1.1(2).</p> <p>Provide documentation of all appropriate operating licenses to the Alliance for review.</p> <p>Collect the Certificates of Occupancy for each building and ancillary structure according to building use from the approving authority.</p>
Long Term (6 Months)	<p>"Replace all non-compliant doors in the means of egress with side-hinged swinging type doors."</p> <p>Install initiating devices and notification appliances as required by the Alliance Standard and NFPA 72. Devices should be part of an automatic fire alarm and detection system for the facility.</p> <p>Provide continuously illuminated exit signs per Alliance Standard Section 6.11. Signs shall be placed at all required exits and along egress paths, especially where there is a change in direction for the path of travel.</p> <p>Install emergency lighting for all paths of egress. Provide a minimum lighting level of 2.5 lux for all aisles in production and storage areas.</p> <p>Develop a hot work permit program. The program must comply with the requirements of NFPA 51B.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has sufficient training to be able to</p>

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	carry out the required duties in accordance with Alliance Standard Section 13.1.
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