

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Creative Wash Ltd.
Address of the Factory	: Nishat Nagar, Tongi, Gazipur, Bangladesh.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 4-June-2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 1-Mar-2014

BASIC INFORMATION:

The present garment factory comprises of four main buildings and twenty ancillary buildings. The following general information was noted:

i.	Building Usage Type	: Garments Factory
ii.	Structural System	: Masonry and Steel Column supported Roof Truss.
iii.	Floor System	: Steel structure
iv.	Floor Area	: 178,764 sq. ft.
v.	No. of Stories	: Ground + Structural steel roof with intermediate mezzanine frames independent to main structure.
vi.	Construction Year	: 1963
vii.	Foundation Type	: Unknown.
viii.	Design Drawings	: Available but not fully credible.
ix.	Soil investigation Report	: Available.
x.	Construction Materials	: Steel member.
xi.	Generator	: Unknown.

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) :

- i. 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.
- ii. 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.

Mid Term (6 Weeks) :

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

- iii. An analytical verification and detailed assessment of the structure(s) should be undertaken under the guidance of a qualified structural engineer to ensure lateral stability of the structure.
- iv. 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
- v. "Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading."
- vi. Complete further testing on areas of deterioration and have a qualified structural engineer develop a remediation plan.
- vii. "Have a qualified structural engineer complete further analysis of the structure and develop a remediation plan if required."
- viii. "Have a qualified structural engineer prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard."
- ix. Implement recommendations from previous assessment
- x. Redistribute floor loads to comply with the Floor Loading Plans.
- xi. "Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard."
- xii. "Have a qualified structural engineer complete an analytical evaluation of the structural impact of the addition."
- xiii. "Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues."
- xiv. "Have a qualified structural engineer develop Floor Loading Plans for Mezzanine floors per the requirements of Part 8 Section 8.20.5.3"
- xv. "Have a qualified structural engineer prepare load plans for mezzanine floors including the information required in Section 8.20 of the Alliance Standard."

Long Term (6 Months) :

- i. "Provide Certificates of Occupancy for review."

The recommendations for Electrical Safety corrective actions are:

<p>Immediate (3 to 6 Days)</p>	<p>Remove light fixtures without protective covers from storage areas or in any area where the Inspector of the Factories Rules (1.5.3.5) Part 53 disallows these fixtures. Install compliant light fixtures with covers.</p> <p>Ensure signage indicating the prohibition of light fixtures without protective covers is installed at the required locations.</p> <p>Remove all combustible materials within the substation and Generator room.</p> <p>Investigate the cause of overheating and signs of burning and perform repairs or replacements.</p>
--------------------------------	--

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Short Term (3 Weeks)	<p>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc. Reference NFPA 70e for example program requirements.</p> <p>Provide clearance of at least 1m (39in.) in front of switchboards and distribution boards.</p>
Mid Term (6 Weeks)	<p>Consult with a qualified Electrical Engineer and ensure electrical wiring/cables are sized according to capacity of circuit breakers.</p> <p>Provide dedicated neutral for each circuit.</p> <p>Ensure switchboards and panel boards are not installed above gas stoves or sinks or within 2.5m of any washing unit in washing rooms or laundries.</p> <p>Ensure cable joints are through porcelain/PVC connectors with PIB tape wound around joint.</p>
Long Term (6 Months)	<p>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.</p> <p>Inspect electrical switchgear and panel boards on an annual basis to ensure that the equipment is in good working condition.</p>

The recommendations for Fire Safety corrective actions are:

Immediate (3 to 6 Days)	N/A
Short Term (3 Weeks)	<p>Remove all hasps, locks, slide bolts, or other locking devices at the noted locations. Doors may be locked where the latch and lock are disengaged with one motion where the occupant load does not exceed 49 persons. Turning a door handle and disengaging a lock is considered two motions. Doors may be provided with locking hardware from the ingress side provided that a panic bar is installed on any door with an occupant load exceeding 49 persons. Re-entry provisions must be met.</p>
Mid Term (6 Weeks)	<p>Develop a testing and maintenance program that ensures the emergency power for all egress lighting is verified at least once per year. If battery-operated lights are used, these lights shall be tested on a monthly basis. Functional testing of battery powered lights shall be provided for a minimum 90 min once per year.</p> <p>Develop an emergency evacuation plan in accordance with the Alliance Standard and communicate the plan to all employees.</p> <p>Create and post emergency evacuation maps at each point</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>of egress.</p> <p>Develop a testing and maintenance program that ensures the emergency power for exit signs is verified at least once per year. If battery-operated signs are used, these signs shall be tested on a monthly basis. Functional testing of battery powered signs shall be provided for a minimum 90 min once per year.</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 in accordance with Alliance Standard Section 6.4.4.</p> <p>Training programs need to be implemented and documented in accordance with the Alliance Safety Training Curriculum.</p> <p>Arrange for direct connection of the fire alarm and detection system to a central station monitoring service or the Fire Service and Civil Defense. Assign a person to contact the fire department in the event of fire alarm activation until this connection is set up. Locate an annunciator to alert this person in a constantly attended location (such as a fire control room).</p> <p>Complete Fire Department pre-planning activities with the local Fire Service and Civil Defense in accordance with Alliance Standard Section 13.1.1(2).</p>
<p>Long Term (6 Months)</p>	<p>Create an alternate route that provides the required width and that is protected from hazardous occupancies.</p> <p>Remove all existing gates and doors in fire rated walls and assemblies. Install fire doors in these that are listed, approved, swinging, automatic-closing, in compatible fire rated frames with latching panic hardware.</p> <p>Remove all existing doors and gates in the means of egress. Install side-hinged doors with approved hardware that swing in the direction of egress.</p> <p>Provide an automatic fire sprinkler system and/or central fire alarm and detection system throughout the sheds to increase the allowed travel distances. Provide heat detectors instead of smoke detectors since this is a laundry facility.</p> <p>Provide training and certification for the required number of people in fire fighting, first aid, and rescue training by an appropriate authority in accordance with the Alliance Safety Training Curriculum.</p> <p>Install listed firestop systems at every penetration through fire rated walls and assemblies.</p> <p>Install fire alarm system per NFPA 72. Include pull stations at all entrances to exit stairs, and at ground floor exits. Install strobes and horns for complete notification on all floors. Install heat detectors instead of smoke detectors. Heat detectors shall be installed in locations required by Alliance standards and shall be part of the fire alarm</p>

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>system.</p> <p>Provide fire-resistive rated construction barriers between hazard types in accordance with Alliance Standard Sections 3.4.2 and 4.5. Consult a qualified fire protection engineer to design the required rated construction barrier.</p> <p>Provide continuously illuminated exit signs. 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>Provide an emergency power source (battery back-up or connection to emergency power system) for illuminated exit signs. Replace non-illuminated exit signs with illuminated signs.</p> <p>Regrade walking surfaces to create a smooth and level egress path.</p> <p>Correct the running slope of the ramps to be less than 1 in 8 and provide handrails on both sides of the ramp.</p> <p>Install emergency lighting for all paths of egress. Illumination needs to be a minimum of 10 lux for all corridors, exit doors and stairways. Illumination for aisles needs to be a minimum of 2.5 lux.</p> <p>Create a Fire Safety Director position and fill the position with an individual that has sufficient training to be able to carry out the required duties in accordance with Alliance Standard Section 13.1.</p> <p>Develop a hot work permit program. The program must comply with the requirements of NFPA 51B.</p> <p>Establish written corporate and plant policies on housekeeping to ensure scheduled cleaning for floor, wall, ceiling, supply and return air ventilation systems. Promptly reschedule skipped cleanings. Provide a documented line of authority for authorizing a cleaning delay and rescheduling.</p>
--	--