

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: SHAMS STYLING WEARS LTD.
Address of the Factory	: Shams Tower, South Shyampur,(Bagh Bari) Hemayetpur, Savar,Dhaka,Bangladesh.
Present Status of the Factory	: Under Operation
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 29 May 2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 18 Jun 2013 & 26 Jun 2014
BGMEA Membership No	: 4279

BASIC INFORMATION:

The present garment factory is comprises of a 1 Main Building 1 Ancillary Building. The following general information was noted:

i.	Building Usage Type	: Garments Factory.
ii.	Structural System	: RCC flat slab, RCC one way slab and beams, piles
iii.	Floor System	: RCC slab
iv.	Floor Area	: 175,000 SF.
v.	No. of Stories	: 9 stories (ground level, 8 elevated levels, and roof), Single story ancillary structure
vi.	Construction Year	: 2006
vii.	Foundation Type	: Pile foundation
viii.	Design Drawings	: Not Available.
ix.	Soil investigation Report	: Available
x.	Construction Materials	: RCC (stone chips).
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) :

- i. 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.
- ii. 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 load limits as described on the Floor Load Plans.

Mid Term (6 Weeks) :

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- i. Engage a qualified structural engineer to provide additional investigation into the areas of distress, separations, or cracking and provide a remediation plan if required.
- ii. Engage a qualified structural engineer to confirm structural performance of the structure.
- iii. Engage a qualified structural engineer to confirm the causes of such distress and suggest appropriate remedial measures.
- iv. Conduct destructive core testing to validate the in-situ concrete compressive strength for structural elements throughout the building.
- 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 provide further analysis and develop a remediation plan, if required
- vii. 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
- viii. 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.
- ix. 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.
- x. Have a qualified structural engineer document compliance with the seismic and wind requirements stated in the 2006 BNBC.
- xi. Engage a qualified structural engineer to confirm satisfactory structural performance of the buildings under wind loading.
- xii. Have a qualified structural engineer prepare credible as-built documents based on the requirements of Part 8 Section 8.19 of the Alliance Standard.
- xiii. Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC and Alliance Standard.
- xiv. Implement recommendations from previous assessment
- xv. Have a qualified structural engineer develop Floor Loading Plans per the requirements of Part 8 Section 8.20.5.3
- xvi. 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 building.
- xvii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.

Long Term (6 months) :

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- i. Under guidance from a qualified structural engineer, address all areas of needed maintenance by correcting the identified issues.
- ii. Repair the exterior façade system to prevent water intrusion.
- iii. Provide Certificates of Occupancy for review.

The recommendations for Electrical Safety corrective actions are:

Immediate (3 to 6 Days)	Find out the cause of overheating and take proper action.
Short Term (3 Weeks)	<p>Ensure that wet type transformer is not leaking and have appropriate oil levels.</p> <p>Ensure proper identification of emergency power switchboards, distribution boards, and circuits.</p> <p>Ensure light fixtures without protective covers are not installed in storage areas or in any area where the Inspector of the Factories Rules disallows these fixtures.</p> <p>Develop and implement an electrical safety program. Include key topics such as lock out tag out procedures, personal protective equipment requirements, etc.</p> <p>Keep the provision for minimum 1 meter clearance in front of all the noted Main Distribution Boards (MDB) for ease of access for maintenance or operation.</p> <p>Install two distinct earth connections of minimum 35 sqmm for generator frame earthing.</p>
Mid Term (6 Weeks)	<p>Have a qualified electrical engineer develop an as-built single line diagram detailing key components and capacity of the electrical system.</p> <p>Ensure distribution boards are metal enclosed with a dead front construction.</p> <p>Install switchboards and/or distribution boards in compliant locations so that operation is not hampered due to limited access.</p> <p>Ensure over current protection device (circuit breaker) for each and every loads.</p>
Long Term (6 Months)	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:

Immediate (3 to 6 Days)	<p>Clear all aisles of stored goods and remove clutter from the packing area.</p> <p>Remove all storage and other combustibles and obstructions from</p>
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	<p>the stairs.</p> <p>Remove all storage from under cutting tables, and other similar obstructions.</p>
Short Term (3 Weeks)	Remove all existing gates, doors, tracks, locks and devices in the egress stairs. Install listed, rated, automatic-closing, side-swinging, fire rated doors in fire rated frames with latching panic hardware.
Mid Term (6 Weeks)	<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 as 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 Defense can be set up, a person shall be assigned to contact the fire department in the event of fire alarm activation. An annunciator shall be located in a constantly attended location (such as a fire control room) to alert this person.</p> <p>Post occupant load signs are required.</p> <p>Install stair designation signs at each floor landing from the stair.</p>
Long Term (6 Months)	<p>Remove all existing gates and doors in the egress stairs. Install automatic-closing, side-swinging, fire rated doors in fire rated frames with latching panic hardware. These doors should be a minimum of 39 inches wide with a total opening of at least half the width of the stair. Doors should swing in the direction of egress from the floors into the stair.</p> <p>Remove all existing gates and doors in the egress stairs. Install automatic-closing, side-swinging, fire rated doors in fire rated frames with latching panic hardware. These doors should be a minimum of 39 inches wide with a total opening of at least half the width of the stair. Doors should swing in the direction of egress from the floors into the stair.</p> <p>Install automatic fire sprinkler systems throughout the facility. System shall be designed by a qualified fire protection engineer and plans shall be submitted to Alliance for review prior to installation.</p> <p>Design and install a fire pump system that delivers the requirement of the standpipe system.</p> <p>Install a Class III standpipe system at required locations. Standpipe system must comply with NFPA 14.</p> <p>Move the new pull stations to be adjacent to each stair door. Remove the existing unlisted fire alarm 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>Install handrails on both sides of all stairs and steps.</p> <p>Provide re-entry on the 4th floor.</p> <p>Provide illumination of egress paths at all times the building is occupied. Illumination needs to be a minimum of 10 lux for all</p>

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	<p>corridors, exit doors and stairways. Illumination for aisles needs to be a minimum of 2.5 lux.</p> <p>Provide continuously illuminated exit signs at all required exits and along egress paths, especially where path has a change of direction.</p> <p>Put the housekeeping policy in writing. Remove goods from the aisles in sewing. Rearrange the packing area to create clear aisles.</p>
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