Name of the Factory	: **UNIQUE WASHING & DYEING LTD**
Address of the Factory	: Kalameshar K.B. Bazar, Gulshan, Gazipur, Dhaka, Bangladesh
Present Status of the Factory	: **Under Operation**
Structural assessment conducted by	: Alliance
Date of Structural Inspection	: 29-Apr-2014
Fire & Electrical assessment conducted by	: Alliance
Date of Fire & Electrical Inspection	: 15-Apr-2014

BASIC INFORMATION:

There is one main building. The following general information was noted:

i.	Building Usage Type	: Garments Factory
ii.	Structural System	: RCC flat plate system
iii.	Floor System	: RCC flat plate with column capital
iv.	Floor Area	: 158,938 sft
v.	No. of Stories	: 5 storied RCC
vi.	Construction Year	: 2000
vii.	Foundation Type	: Pile foundation
viii.	Design Drawings	: Available
ix.	Soil investigation Report	: Available
x.	Construction Materials	: RCC
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 over see 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) :

i. Engage a qualified structural engineer to develop the required documents including core test to confirm the structural integrity of the buildings. Documents must comply with Alliance Standard Part 8 Section 8.19 and 8.2.
ii. Have a qualified structural engineer provide further testing and analysis of cracking in walls and facade.
iii. 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.
iv. Properly brace and anchor all the racks to resist earthquake forces to comply with the BNBC and Alliance Standard.
v. Have a qualified structural engineer develop Floor Loading Plans for all the three buildings as per the requirements of Part 8 Section 8.20.5.3
vi. Have a qualified structural engineer prepare load plans for all the three buildings including the information required in Section 8.20 of the Alliance Standard.
vii. Provide signage or the appropriate markings at all areas used for storage to indicate the acceptable loading limits detailed in the Load Plan.
viii. Under guidance from a qualified structural engineer, address all areas of needed maintenance including proper sloping on roof.

Long Term (6 Months) :

i. Factories should apply for Certificate of Occupancy to proper authority.

The recommendations for Electrical Safety corrective actions are*:*

Immediate (3 to 6 Days)	Find out the cause of overheating and consider replacement of conductors & equipment.
Short Term (3 Weeks)	Establish a periodic inspection program to ensure the electrical systems are free from damage, debris, dirt, lint, etc. Maintain records concerning inspections and follow up actions. Install phase separators between terminal connections at the noted locations. Light fixtures without protective covers (otherwise known as naked lights) shall not be allowed in storage areas or in any area where the Inspector of the Factories Rules (1.6.3.7) Part 53 disallows these fixtures.
Mid Term (6 Weeks)	Need to remove looping of wiring/cables at circuit breakers. Provide protective cable guards for all cable runs from MDB to LT panels. Provide means of ventilation for the substation room. Consult a qualified electrical engineer to determine the required ventilation rates based on the installed equipment.

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	NA
Short Term (3 Weeks)	Keep aisles free and unobstructed at all times. Aisles shall be provided with a minimum unobstructed clear-width of 0.9 m (36 inches). Remove all combustibles stored underneath the cutting tables at the noted locations.
	Provide fire-resistive rated construction barriers between hazard types following Table 4.4.1 of Alliance Standard. Consult a qualified fire protection engineer to design the required rated construction barrier. Keep the in-process goods on floors in a maximum area of 250 sft, height 8 ft, separation from adjacent area 10 ft. Develop a testing and maintenance program that ensures the emergency power for exit signs are to be tested at least once per year. Since a battery backup is used, these signss are required to be tested on a monthly basis. Functional testing of battery powered signs must be provided for a minimum of 90 min once per year. Develop a testing and maintenance program that ensures the operation of all 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. Complete fire department pre-planning activities with the local Fire Service and Civil Defense in accordance with Alliance Standard. Install signage adjacent to each stair door indicating the stair name and the floor level in accordance with the Alliance Standard. Re-validate the electrician license from Bangladesh Bidyut License Prodankari Board and obtain the acid license from the DC office. Apply to RAJUK for issuance of occupancy certificate and pursue expedition of the matter.
Long Term (6 Months)	Provide 1 hr fire protective opening assemblies in 1 hr rated exit enclosures. Provide 1.5 hr fire protective opening assemblies in 2 hr rated exit enclosures. Exits connecting three or fewer stories shall be enclosed with a minimum 1-hr fire-resistance rating. Exits connecting four or more stories shall be enclosed with a minimum 2-hr fire-resistance rating. Exits shall be enclosed with the same fire-resistance rating as the floor penetrated but will not need to exceed 2 hr. Replace all collapsible, sliding, roll-down gates and shutters in means of egress with side-hinged swinging type doors of proper

	width and rating in accordance with Alliance Standard. Provide rated exit passageway i.e. protected path of egress from the exit enclosure to the public way. The rating of the exit passageway is to be equal to fire rating requirement of the exit that is being served and shall not be less than 1 hr fire-resistance rated. Install a NFPA 14-compliant standpipe system at required locations designed by a qualified fire protection engineer. All standpipe system installations and hydraulic calculations shall be reviewed by the Alliance prior to commencement of installation. Provide 2 hr fire-resistive rated construction barriers at exit enclosures. Fit doors that swing in the direction of egress, side-swinging, self-closing, non-lockable fire doors of 1.5 hr rating in all stairwell enclosures. Consult a qualified fire protection engineer to design the required rated construction barriers. Upgrade current pump or install a pump dedicated for fire protection following the requirements of NFPA 20. Fire pump installation is to be tested for final acceptance in presence of Alliance and a final inspection shall be conducted by the Alliance prior to final acceptance. Acceptance testing of the installation shall be in accordance with NFPA 25 testing requirements. Documentation of all testing shall be submitted to the Alliance for review prior to final acceptance. Install fire rated doors and windows or fill in unprotected openings with fire resistive rated assemblies. Provide walls having 1-hr fire resistance rated construction for a distance of 3050 mm (10 ft) above the floor of the court. Provide fire-resistive rated assemblies at the required exit access corridors. The rated assembly should be approved and/or designed by a qualified fire protection engineer in accordance with Alliance Standards. Post the occupant load for every assembly and production floor in a facility in a conspicuous space near the main exit or exit access doorway for the space. Install handrails on both sides of the stairs in accordance with Alliance Standards. Implement training program with proper documentation in accordance with the Alliance Safety Training Curriculum on fire safety. Provide parapets or guards for all occupied roofs of a minimum height of 1067 mm (42 in.) as per the Alliance Standard. Provide 1 hr fire resistive separation to separate the atrium from the adjacent spaces where smoke control is provided based on engineering analysis. Or, Provide 2 hr fire-resistance rated construction to separate the atrium from rest of the building where egress paths do not pass through the atrium and where emergency workers are not required to access the atrium. Inspect, test and maintain fire extinguishers in accordance with requirements of NFPA 10.

	Get documents about classes of interior finishes from the manufacturer. Replace non-compliant finishes with finishes to be in accordance with Alliance standard 6.3.2. Get documents about classes of interior materials of exits. Remove non-compliant materials and replace with materials meeting the requirements of class A or class B materials. Arrange for direct connection of the fire alarm system to a central monitoring station or Fire Service and Civil Defense as per Alliance Standards. Until the time that monitoring can be set up, arrange a monitoring system using factory's own central detection system and personnel. 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. Install required identification signs at the noted locations. Signage must comply with NFPA 14 requirements. 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 delays and rescheduling. As a general rule, the maximum tolerable deposit thickness for loose fluffy lint is 13 mm (½ in.) over a maximum of 46.5 m2 (500 ft2). Limit dense deposits to 6 mm (¼ in.) and oil saturated deposits to 3.2 mm (⅛ in.). Establish an inspection, maintenance, and testing program for the fire pump. Program must comply with NFPA requirements. Develop a NFPA 51B-compliant hot-work permit program. In general, this program should address the process of request and approval of authorities, necessary checks prior to approval, standby fire watch and fire fighting equipment, sounding of alarm procedure, duration and expiry of permit, and re-approval procedure, etc.