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| Name of the Factory | : | A One Dress Makers Ltd. |
| Address of the Factory | : | 1703, Rayerbag, Donia, Shampur, Dhaka-1236, Bangladesh |
| Present Status of the Factory | : | Under Operation. |
| Structural Assessment Conducted by | : | VEC |
| Date of Structural Inspection | : | 8th February, 2015 |
| Fire Assessment Conducted by | : | VEC |
| Date of Fire Inspection | : | 8th February, 2015 |
| Electrical Assessment Conducted by | : | VEC |
| Date of Electrical Inspection | : | 8th February, 2015 |
| BGMEA Membership No. | : | 4179. |

## BASIC INFORMATION:

The assessed factory building was a 4 -Storey RCC building. The structural system of the building is RCC beam column frame and beam slab floor system in all floors except 2nd floor slab which structural system was RCC flat plate system. 2nd floor and 3rd floor of the building was occupied by the assessed factory. The following information was noted:

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| i. | Building Usage Type | : | Garment Factory. |
| ii. | Structural System | : | RCC beam column frame system but roof of 2nd floor is flat plate. |
| iii. | Floor System | : | RCC beam slab system except 2nd floor slab which is flat slab. |
| iv. | Floor Area | : | Total floor area is 16,628 sft. |
| v. | No. of Stories | : | 4 Storey. |
| vi. | Construction Year | : | Building was built in two phases. (1998 & 2003). |
| vii. | Foundation Type | : | Isolated footing foundation. |
| viii. | Design Drawings | : | Structural drawing was available without signature of authorized structural engineer. Architectural drawing and floor load plan are not available. |
| ix. | Soil Investigation Report | : | Available. |
| x. | Construction Materials | : | Brick aggregate. (Identified by removing plaster) |
| xi. | Generator | : | At Ground floor. |

## RECOMMENDATIONS FOR CORRECTIVE ACTION:

The recommendations of corrective action for both Structural and Fire & Electrical Safety comprises in Short Term, Mid Term and Long Term basis.

The recommendations for **Structural Safety** corrective action are:

Short Term (Immediate) : None.

Mid Term (6-weeks) :

- Factory Engineer to review design, loads and columns stresses in the area identified above.

Long Term (6-months) :

- Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.

- Building engineer to verify design strength and stiffness of stability system.

The recommendations for **Fire & Electrical Safety** corrective action are:

***(A): Recommendations for Fire Safety corrective actions:***

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| Immediate<br><br>(*the factory should not continue to be occupied until these non-conformities have been rectified*): | N/A |
| Short Term<br><br>(*Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity* | • Fire drill needs to be conducted quarterly (4 times a year) under the Fire Safety Plan. A record of such drills needs to be kept in writing for at least 3 years for the inspection of fire brigade whenever called for.<br><br>• Factory need to have proper testing plan & record of fire safety equipment.<br><br>• Factory needs to have marked aisles in all working floor according to 0.9m for one side seat and 1.0m for both side seat.<br><br>• Lights in storage area needed to be installed with protective covers and conduits.<br><br>• Combustibles are to be managed with good housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9 m and when used as a storage facility there shall be a minimum clearance of one third the floor height from the ceiling to the top of the storage stack. |
| Mid Term<br><br>(*The remedial works indicated must be carried out within a period of 6 weeks)* | • Factory needs to prepare as built drawing with floor machine layout showing means of escape with proper dimension.<br><br>• Factory needs to have valid fire license covering the full occupied area.<br><br>• Fire manager/Director need to have safety training from proper authority & worker of the factory should as far as possible be trained for use fire extinguisher.<br><br>• All the exit doors need to be replaced by side swinging so that un-lockable doors can be opened easily in the direction of evacuation without the use of a key.<br><br>• Factory needs to provide handrail on both sides of all the stairways. |

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| | • Factory needs to be installed with adequate illuminated emergency lighting in floors, exits & stairs. (Escape route).<br>• Factory needs to have emergency backup power for critical fire safety system with sufficient capacity & arrangement according to NTPA Guideline. |
| Long Term<br>(*The remedial works indicated must be carried out within a period of 6 months)* | • Fire department pre-plan needs to be developed.<br>• Both of the final escape route (Final exit-1 & 2) needs to provide protected by 2 hour fire rated enclose construction and 1.5 hour fire rated opening or door at ground floor level entrance and any opening, also need to have this protected route till to reach safe refuse area or outside of the building.<br>• Childcare need to be fire separated from the sewing floor with 3 hours rated wall/enclose with 3 hour rated door.<br>• Storage area need to be protected with 2 hours rated construction and 1.5 hours rated opening or doors from the others occupancy.<br>• Boiler:<br>Boiler room need to be protected with 4 hours rated construction and 2 hours rated opening / door from the working floor sewing section of 2nd floor of the building.<br>• All the stairs need to be protected with fire and smoke resistant enclosures and opening (2 hours rated enclosure and 1.5 hour rated door)and provide a protected route from all though the stairway to the final exits.<br>• Factory need to install centralized and automatic fire detection & alarm system on all occupied floors, including other tenanted floors of the building as per NTPA Guideline.<br>• The factory need to install manually operated electrical fire alarm system and automatic fire alarm system with single or multiple call boxes on all occupied floors, including other tenanted floors of the building.<br>• Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline.<br>• Factory needs to install proper standpipe system with having at least 75 mm dia of riser.<br>• Factory need to be installed by 1 riser per 1000 sqm of floor area with at least 38 mm dia of hoses.<br>• Ensure the minimum pressure for standpipes supplying |

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| | a 50 mm or larger hose shall be at least 300 Kpa. For standpipe supplying first aid hose (38mm nominal) may have a minimum pressure of 200 Kpa.<br>• Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection.<br>• Factory needs to have dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory.<br>• Factory needs to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900ltr x 75min=142500 liters water storage tank. |

***(B): Recommendations for Electrical Safety corrective actions:***

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| Immediate<br><br>(*the factory should not continue to be occupied until these non-conformities have been rectified*): | • Find out cause (improper cable selection, improper protective device selection, improper termination, rusted connection, heat source etc.) of burning sign and take proper action including replacing cable or equipment where necessary. |
| Short Term<br><br>(*Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity* | • Ensure all distribution boards (including panel door) are earthed properly.<br>• Remove all unused cables from distribution boards and make sure all necessary cables are properly terminated at its point of termination using appropriate size and type of lug.<br>• Ensure overcurrent protection device (circuit breaker/fuse) for each circuit/branch circuit.<br>• Use nonflammable shades for light fittings. Avoid using Celluloid shade under any circumstance.<br>• Clean interior components from dust and debris and seal all openings within the enclosure to prevent dust and debris from entering.<br>• Provide provision for inspection of all earthing system and ensure inspection is being completed and documented. |
| Mid Term<br><br>(*The remedial works indicated must be carried out within a period of 6 weeks)* | • Provide dedicated & adequate size of earthing with proper identification for each circuit from the earth bus bar of distribution boards and ensure continuous earth path is back to main building intake.<br>• Rewire to ensure each incoming supply to an MCB has |

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| | a dedicated supply from bus bar. Avoid the use of multiple cables on outgoing side of MCB's and bus bar.<br>• Replace wooden panels and bases with metal clad construction for the mounting circuit breakers and panel boards.<br>• Ensure all electrical cables are sized according to capacity of circuit breakers.<br>• Provide adequate support or mechanical guards for electrical equipment and wiring where necessary.<br>• Ensure cable joints are made in respect of conductivity, insulation and mechanical strength.<br>• Seal the openings remaining after wiring system passes through the elements of building construction according to the degree of fire resistance.<br>• Provide emergency power connection for life safety loads (fire alarm, fire pump, emergency lighting, exit signage, etc.) temporarily within 6 weeks and find out a permanent solution within 6 months<br>• Connect all metal in the building to the building earthing system. |
| Long Term<br>(*The remedial works indicated must be carried out within a period of 6 months)* | • Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system.<br>• Ensure the generator room has adequate fire separation from the production area/main building.<br>• Ensure distribution boards have no opening and all live internal components are concealed properly.<br>• Provide dedicated & adequate size of neutral with proper identification for each applicable circuit.<br>• Ensure each distribution board is provided with a circuit list and means of identification is provided as per list.<br>• Use non-combustible material to make channel and provide adequate covers on cable channel.<br>• Ensure surface/exposed wiring are run either horizontally or vertically with proper mechanical support and avoid wiring at an angle or hanging way with improper support. |

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| | • Provide proper cable terminator/connector for stranded conductors at its point of termination.<br>• Provide readily accessible single point of disconnect for each main electrical service feed.<br>• Install separate distribution boards for lighting and power circuits.<br>• Install lightning protection system on the building. |