

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: World Face International Ltd.
Address of the Factory	: Shikder Bari, Sector # 08, Holding # 177, Abdullahpur, Uttara, Dhaka.
Present Status of the Factory	: Under Operation
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 7 th April, 2015.
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 7 th April, 2015.
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 7 th April, 2015.
BGMEA Membership No.	: 5826

BASIC INFORMATION:

The assessed factory is a 1-storey Shed factory building and the structural system of the factory building is roof truss Corrugated Iron (CI) shed over Brick wall. The following information was noted: The following information was noted:

- i. Building Usage Type : Garment Factory.
- ii. Structural System : Steel truss supported by brick wall
- iii. Floor System : Shed on truss supported by brick wall.
- iv. Floor Area : Plinth level area 7522.96 sq.ft.
- v. No. of Stories : 1 Storey (No Basement.)
 - i. Construction Year : 2012-2013.
 - ii. Foundation Type : Unknown
 - iii. Design Drawings : Available
 - iv. Soil Investigation Report : Available but not match with factory area and name.
 - v. Construction Materials : Brick Aggregate. (Identified by removing Plaster)
- i. Generator : At ground floor of the building.

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) :

- i. Building engineers should prepare all sets of as-built drawing.
- ii. Building Engineer to review further if cracks are found to penetrate into building structure.

Long Term (6-months) :

- i. Continue to monitor for cracking on an on-going basis.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

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

(A): Recommendations for Fire Safety Corrective Actions:

<p>Immediate</p> <p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></p>	<p>N/A</p>
<p>Short Term</p> <p><i>(Actions that must be incorporated into a Fire Safety Management Plan immediately (1 ~ 2 weeks) and should be a regular activity</i></p>	<ul style="list-style-type: none"> • Fire drill shall be conducted quarterly (4 times a year) under the Fire Safety Plan. A record of such drills shall be kept in writing for at least 3 years for the inspection of fire brigade whenever called for. • 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. • Factory needs to have proper testing plan & record for fire safety equipment. • Factory needs to have sufficient number and width (0.9 m) of marked aisles in the factory. • Factory needs to have minimum width of 0.9 m marked aisles (5 mm per occupant) for one side seat and 1.0m for both side seat in all working floor(Only markup)[if refurbishments are required then the timeline will be C-3(mid-term action-6 weeks)] • Factory needs to remove all the temporary obstruction from aisles for easy movement and safe discharge. • Lights in storage area needed to be installed with protective covers and conduits. • Combustibles are to be managed with good housekeeping. Storage facilities with no air-conditioning duct shall be minimum 2.9m 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. • Ensure the visibility of exit sign at every exit & in floors from all positions.
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> • Needs to have as built drawing with proper dimensions showing means of escape. • All the lockable exit doors need to be replaced by fire

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>rated opening system so that the doors can be opened easily in the direction of evacuation.</p> <ul style="list-style-type: none"> • Factory needs to be installed with adequate illuminated emergency light in floors, exits & stairs.(Escape route).
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • Factory needs to have a proper pre-plan for fire department. • The (west side final exit -3) escape route need to be fire protected(2 hours fire rated construction and 1.5 hours fire rated door/opening) with the storage area and have a fire protected route till to reach safe refuse area • The (North West corner side final exit-1) escape route need to be fire protected (4 hours rated enclosure and 2hours rated door) route with generator room and have a fire protected till to reach safe refuse area. • Storage areas need to be protected with 2 hours rated construction & 1.5 hours rated opening or doors. • Generator room needs to be fire separated with 4hours fire rated enclosure and 2 hours rated opening having direct access from outside. • Boiler room needs to be separated with 4 hours fire rated enclosure and 2 hours rated door/opening. • 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 • 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 • Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline • Install proper standpipe system having at least 75 mm dia of standpipe. • Install standard standpipe, hose and fire pump system to ensure required hose pressure • Ensure Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection • Factory needs to install dedicated fire pump with sufficient capacity & backup power. • Factory need to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least 1900 ltr x 75 min=142500 liters water

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	storage tank.
--	---------------

(B): Recommendations for Electrical Safety Corrective Actions:

<p>Immediate</p> <p><i>(the factory should not continue to be occupied until these non-conformities have been rectified):</i></p>	<ul style="list-style-type: none"> Find out the cause (improper cable/over current selection, over loading, improper lug, improper cable joints, rusted connection, insulation damage, multiple cables at single point,) of overheating (> ambient+400C) and take proper action.
<p>Short Term</p> <p><i>(Actions that must be incorporated into a Fire Safety Management Plan immediately (a week) and should be a regular activity</i></p>	<ul style="list-style-type: none"> Discharge the generator exhaust to the exterior of the building in a safe location. Also ensure exhaust has been taken out through any other side except south. Provide two separate and distinct connections of earthing for each generator. Ensure all distribution boards (including panel door) are earthed properly using appropriate type and size of cables and the earthing cables have continuity up to main earth /earthing pit. Replace wooden boxes and panels with metal clad or dead front construction for mounting the lighting boards and switch controls. Provide additional insulation for wiring exposed to external heat sources to protect cable/conduit. Ensure proper earthing connections at all electrical equipment. Isolate the panel from the electrical service and clean interior components from dust and debris. Seal all openings within the enclosure to prevent dust and debris from entering. Provide provision for inspection of all earthing system and ensure inspection is being completed and documented.
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<ul style="list-style-type: none"> Install appropriate number and type of safety signage and fire-fighting equipment at substation and generator room. Also ensure graded rubber mats are provided in front of all distribution boards. Provide Instruction board for first aid and artificial respiration in the generator room. Provide dedicated & adequate size of earthing with

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>proper identification for each circuit.</p> <ul style="list-style-type: none"> • Rewire to ensure single cable at busbar and/or circuit breaker terminal to avoid loose connection, overloading and separate controlling of each circuit/branch circuit. • Consult with a qualified electrical engineer and ensure all electrical wiring/cables are sized according to capacity of circuit breakers. • Use noncombustible material to make channel and/ or cable trench and provide adequate covers on cable trenches/channel. • Ensure cable joints are made through porcelain/PVC connectors with PIB tape wound around joint in respect of conductivity, insulation and mechanical strength. • Ensure all electrical wiring/cable properly terminated at its point of termination using appropriate size and type of lug where necessary. • Ensure overcurrent protection device (circuit breaker/fuse) for each circuit/branch circuit. • Connect all metal in the building to the building earthing/grounding system such as metal rebar in concrete, metal frame of building, or metal water pipe etc. • Ensure Lighting fixtures are supported from the structure properly and if flexible cords are used to support light fixture then make sure it has enough strength to carry the weight. • Find out the cause (improper cable/over current selection, over loading, improper lug, improper cable joints, rusted connection, insulation damage, multiple cables at single point,) of overheating { ambient+(200C-400C)} and take proper action.
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<ul style="list-style-type: none"> • Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system. • Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data. • Inspect electrical switchgear and panel boards on an annual basis to ensure that the equipment is in good

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>working condition.</p> <ul style="list-style-type: none">• Ensure the generator room is separated from the remainder of the building by 4 hours fire rated wall all around.• Provide adequate means of ventilation for the generator room based on the installed equipment and ensure that ventilation does not impact on fire barriers, e.g. fire dampers.• Ensure appropriate generator room size in order to properly access the generator to perform routine maintenance activities.• Ensure distribution boards have no opening and all live internal components are concealed properly.• Provide dedicated & adequate size of neutral with proper identification for each circuit.• Ensure each distribution board is provided with a circuit list and means of identification is obtained as per list.• Provide adequate support or mechanical guards for electrical equipment and wiring where necessary.• Provide cable sockets for stranded conductors.• Install separate distribution boards for lighting and power circuits.• Install Lightning protection system on the building.
--	--