

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Rnp Export & Import Ltd.
Address of the Factory	: Salina Tower, Islambagh, Uttara, Dhaka
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: VEC
Date of Structural Inspection	: 22 June, 2015
Fire Assessment Conducted by	: VEC
Date of Fire Inspection	: 22 June, 2015
Electrical Assessment Conducted by	: VEC
Date of Electrical Inspection	: 22 June, 2015
BGMEA Membership No.	: 5633

BASIC INFORMATION:

The main factory building is a single storied truss corrugated iron non engineered shed supported over RCC column and brick wall. The following information was noted:

i. Building Usage Type	: Garment Factory.
ii. Structural System	: Truss corrugated iron non-engineered shed supported over RCC column and brick wall.
iii. Floor System	: N/A.
iv. Floor Area	: 6039.32 sq. ft.
v. No. of Stories	: Single storied
vi. Construction Year	: Building was built in one phase in 2013.
vii. Foundation Type	: Unknown.
viii. Design Drawings	: Not Available
ix. Soil Investigation Report	: Not Available
x. Construction Materials	: Brick aggregate.
xi. Generator	: Outside 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)	: N/A
Mid Term (6-weeks)	: 1. Design should be checked by the Building Engineer to verify the lateral stability of the shed and confirm the requirement of any bracing in the long direction.
Long Term (6-months)	: 1. Install horizontal bracing at the roof system if required. 2. Develop full set of as-built drawing showing structural details, dimensions, roof truss framing system, foundations, plane section and elevation.

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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>	<p>Factory needs to conduct fire drill quarterly (4 times a year) under the lan andfire safete p needs to tept the written record of such drills for at least 3 years for the inspection of fire brigade whenever called for.</p> <p>Factory needs to have proper testing plan & record for fire safety equipment.</p> <p>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.</p> <p>All required means of exit or exit access in buildings or areas requiring more than one exit shall be signposted. The signs shall be clearly visible at all times, where necessary supplemented by directional signs.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Factory needs to have as built drawing with floor machine layout showing means of escape with proper dimension.</p> <p>Factory needs to have valid fire license covering the full occupied area.</p> <p>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.</p> <p>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.</p> <p>Factory needs to be installed with adequate illuminated emergency lighting in floor.(s, exits & stairs.(escape route Emergency back-up power needs to be connected for critical fire safety system and not less than 30 minutes in case of failure of power supply.</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Fire department pre-plan needs to be developed.</p> <p>Final exit route-2 needs to be fire separated from generator room by 4 hours rated construction & 2 hours fire rated</p>

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	<p>doors/opening also need to have a protected escape route till to reach safe refuse area.</p> <p>Storage area need to be protected with 2 hours rated construction and 1.5 hours rated opening or doors.</p> <p>Generator room need to be protected from embroidery section with 4 hours rated construction and 2 hours rated opening or doors. Also needs to be protected from final exit route-2 (about 2.50 m narrow passage way) with 4 hours rated construction and 2 hours rated opening or doors.</p> <p>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.</p> <p>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.</p> <p>Factory needs to install control panel for centralized automatic smoke detection & fire alarm system according to NTPA Guideline.</p> <p>Factory needs to install proper standpipe system with having at least 75 mm dia of riser.</p> <p>Install 1 riser per 1000 m² of floor area & Install adequate number of hose in floor area and the minimum hose diameter is 38 mm, or 1.5" preferably fabric hose with variable nozzle to be used in both of the stairways covering the floor area.</p> <p>Factory need to ensure the minimum pressure for standpipes supplying a 50mm or larger hose shall be at least 300 Kpa.</p> <p>For standpipe supplying first aid hose (38mm nominal) may have a minimum pressure of 200 Kpa.</p> <p>Factory needs to be installed with Siamese connection for to the standpipe system located outside the building and accessible to the fire department connection.</p> <p>Factory needs to haae dedicated fire pump with backup power system & sufficient capacity for achieve required pressure in the remote place of the factory.</p> <p>Factory need to have sufficient water storage capacity to get adequate pressure to feed fire-fighting equipment and at least</p>
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	1900 × 75 = 142500 liters water storage tank.
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(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>	N/A
<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>	<p>Ensure all panel boards are earthed properly using appropriate type and size of cables and the earthing cables have continuity up to earthing pit.</p> <p>Clean interior components from dust and debris and seal all openings within the enclosure to prevent dust and debris from entering.</p> <p>Provide provision for inspection of all earthing system and ensure inspection is being completed and documented.</p>
<p>Mid Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 weeks)</i></p>	<p>Install appropriate number and type of safety signage and fire-fighting equipment at generator room. Also ensure graded rubber mats are provided in front of all panel boards.</p> <p>Provide Instruction boards for first aid and artificial respiration in the generator room.</p> <p>Ensure in the generator room has adequate illumination level as per standard.</p> <p>Provide two separate and distinct connections of earthing and adequate cable size for the generator.</p> <p>Provide proper identification of earthing cable for each circuit and ensure continuous earth path is back to main factory intake.</p> <p>Provide emergency power connection for life safety loads (fire alarm and exit signage) temporarily within 6 weeks and find out a permanent solution within 6 months.</p> <p>Connect all metal in the shed to the factory earthing system such as metal frame of shed.</p>

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<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p>Develop an electrical layout diagram and an as-built single line diagram detailing key components and capacity of the electrical system.</p> <p>Establish a periodical Insulation and earth Resistance Measurement Program and record the related testing data.</p> <p>Inspect electrical panel boards on an annual basis to ensure that the equipment is in good working condition.</p> <p>Provide adequate means of ventilation for the generator room based on the installed equipment considering fire barriers.</p> <p>Ensure panel boards have no opening and all live internal components are concealed properly.</p> <p>Provide proper identification of neutral cable for each circuit.</p> <p>Ensure each distribution board is provided with a circuit list and means of identification is provided as per list.</p> <p>Provide proper cable terminator/connector for stranded conductors at its point of termination.</p> <p>Install separate distribution boards for lighting and power circuits.</p> <p>Install lightning protection system for the factory.</p>
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