

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

Name of the Factory	: Dips Apparel Ltd.-Ext.
Address of the Factory	: Dowlat Plaza, 202, New Chaktai, Chittagong
Present Status of the Factory	: Under operation.
Structural Assessment Conducted by	: TUV
Date of Structural Inspection	: 28 December, 2015
Fire Assessment Conducted by	: TUV
Date of Fire Inspection	: 28 December, 2015
Electrical Assessment Conducted by	: TUV
Date of Electrical Inspection	: 28 December, 2015
BGMEA Membership No.	: 5567

BASIC INFORMATION:

The surveyed building was a 6-Storey RCC structure. The following information was noted:

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| i. Building Usage Type | : Garment Factory. |
| ii. Structural System | : RCC beam column system. |
| iii. Floor System | : RCC Beam slab. |
| iv. Floor Area | : Ground floor = 3675sft, Entire building = 26425 sft (Approx.) |
| v. No. of Stories | : 5 floors + GF (6 Storey), No Basement |
| vi. Construction Year | : 1st phase of construction started in 2010 and 2nd phase of construction started in 2014. |
| vii. Foundation Type | : Pile foundation |
| viii. Design Drawings | : Available (approval for 6 storey RCC building from CDA on 21st May, 2002 for commercial use) |
| ix. Soil Investigation Report | : Available |
| x. Construction Materials | : Brick aggregate in all columns, beams and brick aggregate in all slabs in all floors. |
| xi. Generator | : Generator is present outside 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:

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| Short Term (Immediate) | : |
| Mid Term (6-weeks) | : 1. Factory Engineer to review design, loads and columns stresses in area identified above.
2. Verify insitu concrete stresses either by 100mm dia. cores or existing cylinder strength data for the B2, C3, C4, C5, C6, C7 and C8 columns or 100mm dia. Cores from the column. |
| Long Term (6-months) | : 1. Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.
2. As built architectural and engineering drawings to be prepared |

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

for vertical extension and submitted for approval by appropriate authorities. As part of this process the building engineer will be required to make a number of checks on the as built construction.

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>None</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"> <input type="checkbox"/> The minimum clear width of the pathway should be 0.9 meter. <input type="checkbox"/> Provide additional firefighting equipment like sand & water buckets near exit or easily accessible area for first phase fire fighting.
<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"> <input type="checkbox"/> Replace all existing exit doors on evacuation routes, exit doors with side hinged type door, which swing outward and in the direction of travel. Swinging of the door should not constrict the width of the corridor / passage below 0.9 meter. <input type="checkbox"/> Remove all locking device from all egress door. All exit doors should be open-able from the side they serve without the use of a key. <input type="checkbox"/> Provide handrails on both side of each stairway with height of 0.9m measured from the nose of stair to the top of the handrail. <input type="checkbox"/> Doors in stair should be outward opening, side-swing, self closing, non-lockable 1.5 hours fire rated doors in all stair way encloses.(Also require fire rated door at the floor occupied by other tenants) <input type="checkbox"/> Provide 1.5 hrs fire rated door for bonded ware house. <input type="checkbox"/> The stairway should be illuminated with emergency lighting with power back-up supply & illumination should be a minimum of 10 lux for stairway <input type="checkbox"/> Install Manual activation call point at all exit routes <input type="checkbox"/> Provide adequate nos. of smoke detectors to cover the whole factory building. <input type="checkbox"/> Replace existing 1 inch hose pipe with 1.5 inch hose pipe to meet the requirement of RMG guideline. <input type="checkbox"/> Implement to a single fire safety management system with approvals from all tenants in the factory building. <input type="checkbox"/> Prepare proper plan and design for one more exit in a way not to exceed the maximum travel distance or If the factory design to equip with an automated fire alarm, portable fire-

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

	<p>fighting system and appropriate standpipe and hose system through the entire building the length of travel should not be exceed 60 meter.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Prepare proper plan and design for 4 hours fire rated barriers with 2 hours fire rated door at 5th floor boiler room, which located at the adjacent to operational area. <input type="checkbox"/> Produce design and plan for automatic detection system with automatic fire alarm and control panel.(Also needs to cover the floors occupied by other tenants) <input type="checkbox"/> Prepare proper design and plan for dedicated fire pump with alternate backup power supply. <input type="checkbox"/> Prepare plan and design for dedicated water storage tank for firefighting operation as per RMG guideline.
<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"> <input type="checkbox"/> Implement the plan and design for one more exit or implement with an automated fire alarm, portable fire-fighting system and appropriate standpipe and hose system through the entire building. <input type="checkbox"/> Provide 4 hours fire rated barriers with 2 hours fire rated door at 5th floor boiler room, which located at the adjacent to operational area. <input type="checkbox"/> Install automatic detection system with automatic fire alarm and control panel.(Also needs to cover the floors occupied by other tenants) <input type="checkbox"/> Install dedicated fire pump with alternate backup power supply. <input type="checkbox"/> Stand pipe supplying first aid hose should have minimum pressure of 200 KPa. <input type="checkbox"/> Provide dedicated storage tank for firefighting operation.

(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>	None
<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>	None
<p>Mid Term</p> <p><i>(The remedial works indicated must be</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Provide updated SLD matching the existing installation at the factory.

Summary of Preliminary Assessment on Structural, Fire and Electrical Safety

<p><i>carried out within a period of 6 weeks)</i></p>	<p>2. SLD to indicate exact positions of all points of switch boxes and other outlets.</p> <p>3. SLD to be approved by the engineer-in-charge.</p> <p><input type="checkbox"/> 1. Provide updated Electrical layout drawing prepared after proper locations of all outlets for lamps, fans, fixed and transportable appliances, motors etc.</p> <p>2. Drawings to indicate exact positions of all points of switch boxes and other outlets to match existing installation.</p> <p>3. As built drawing to be approved by the engineer-in-charge.</p> <p><input type="checkbox"/> Provide circuit diagram /circuit list with proper current ratings and fuse size, marking for DBs identifying end use load, voltage, number of phases.</p> <p><input type="checkbox"/> Provide proper separate earthing/grounding to generator. Ensure that generator body frame to have two separate and distinct connections to the earth / ground</p>
<p>Long Term</p> <p><i>(The remedial works indicated must be carried out within a period of 6 months)</i></p>	<p><input type="checkbox"/> Provide 4 hour fire rated door & walls all around the generator room on ground level.</p> <p><input type="checkbox"/> Modify Area of generator room to meet requirements of Table 4.4, RMG Guideline; the area should be 36m², or relocate the generator room.</p> <p><input type="checkbox"/> Provide adequate protection against lightning depending on the probability of a strike and acceptable risk levels at roof top of building.</p>