

ELECTRICAL SAFETY INSPECTION REPORT

INTERFAB SHIRT MANUFACTURING LTD (UNIT-2)

STOFFATEX FASHIONS LTD

580/1, Uttar Shalna, ward 23, Ipsha, Gazipur

GPS Coordinate: 24.047659, 90.379639



Factory List: 1. Interfab Shirt Manufacturing Ltd (Unit-2)
2. Stoffatex Fashion Ltd.

Inspected by : Jahidur Rahman
Report Generated by : Jahidur Rahman

Inspected on: July 28, 2019

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1. INTRODUCTION

The Factory was surveyed for electrical safety by Stichting Bangladesh Accord Foundation. The purpose of the survey was to identify significant electrical safety issues and to provide recommendations for remediation based on applicable standards specified by the Accord.

Electrical Safety Audit is a methodical approach to evaluate potential electrical hazards and to recommend suggestions for improvement. The scope of this initial electrical safety inspection was limited to the review and identification of major electrical safety issues. The inspection did not include identification of minor deficiencies, which would be further dealt with as part of follow-up inspections.

2. LIMITATIONS

The information in this electrical safety inspection report was obtained during a visit to the facility and during discussion with local factory management. Services performed by the auditors are conducted in a manner consistent with that level of care and skill generally exercised by members of the engineering and auditing profession. However, an effort has made to discover all meaningful areas under the stipulated time available.

In evaluating subject site, Inspector relies in good faith on information provided by factory management or employees. The Inspector assumes that the information provided is factual, accurate and accepts no responsibility for any deficiency, misstatement or inaccuracies contained in this report as a result of omission or misrepresentation of any person interviewed or contacted.

The findings and recommendations in this report are not intended to imply, guarantee, ensure or warrant compliance with any government regulations. Additionally, the results do not imply in any way that compliance with the findings or recommendations as stated in this report will eliminate all risks or exposures not referred to in this report do not exist. Compliance with the findings and recommendations stated in this report does not relieve the factory owner from obligation to comply with specific project requirements, industry standards, or the provisions of any local government regulations.

3. DEFINITION

3.1. TIME FRAME

The amount of time being allocated based on the remediation work volume of the electrical issues considering the feasibility and ideal status of materials, capital and working condition. Criticality and priority level of the issue is not taken into consideration. It is bound only for the particular finding unless mentioned 'typical', shall include the whole typical findings.



3.2. PRIORITY LEVEL

- 3.2.1 Electrical issues related to code violation and/or non-conformity with codes possessing immediate fire hazard, direct threat to human safety, shall be considered as **P1** Level of priority. The execution of remediation works shall commence immediately without compromising with any other issues and must strictly complete within the allocated remediation time frame. It shall include only the critical issues
- 3.2.2 Electrical issues related to code violation and/or non-conformity with codes, protection of electrical switchgears and equipment, spatial arrangement and location of switchgears and equipment, design and drawings, shall be considered as **P2** Level of priority. The execution of remediation work of **P2** shall commence along with or soon after the **P1** level remediation work has commenced. It shall include only the moderately-critical issues.
- 3.2.3 Electrical issues related to violation of code and/or non-conformity with codes, workmanship of operation and maintenance and obsolete technology of electrical system, shall be considered as **P3** Level of priority. The execution of remediation work of **P3** shall commence along with or soon after the **P2** level remediation work has commenced. It shall include only the non-critical issues.
- 3.2.4 It doesn't take into consideration the remediation time frame and feasibility of remediation. It doesn't take into consideration the capital, materials and working environment.

4. GENERAL BUILDING INFORMATION

- 1. **Factory Name** : **Interfab Shirt Manufacturing Ltd (Unit-2)**
Stoffatex Fashions Ltd
- 2. **Factory Address** : **580/1, Uttar Shalna, ward 23, Ipsha, Gazipur**
- 3. **Accord ID** : **23717**
- 4. **Inspection participates** : **LT. COL.M. Hafizur Rahman Retd.**
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5. BUILDING DATA

A. General

Interfab Shirt Manufacturing Ltd (Unit-2) & Stoffatex Fashions Ltd factory is established in its 6 story (G +5) industrial building with five ancillary buildings. The building is owned by the factory themselves; as reported by the Factory Management, the building was constructed in between February 2016 to December 2018 and the production began in January 2018. During the time of the Inspection, the factory accommodated a total of approx. 1700 (single shift) workers working on regular basis.

The floor wise utilization of the building is as detailed below:

Industrial Building

Ground Floor	: Cutting, Fusing
First Floor	: Sewing, Finishing
Second Floor	: Sewing, Finishing
Third Floor	: Vacant
Fourth Floor	: Office, Sewing, Finishing (shared with Stoffatex Fashion Ltd.)
Fifth Floor	: Cutting, Fusing, Sample (shared with Stoffatex Fashion Ltd.)

Childcare and Healthcare Building (proposed 3 Story, G+2)

Ground Floor	: Childcare, Medical center, HR office
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Industrial Utility Building

Ground Floor	: Generator, Substation, Boiler, Compressor
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Fire Pump Room

Basement	: Fire Pump
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Guard Room

Ground Floor	: Security room, Fire control panel
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Steel Structure Building (proposed G+4 Story)

Ground Floor	: Warehouse, Dining
First Floor	: Warehouse, Dining (Stoffatex Fashion Ltd.)

FLOOR LAYOUT INFORMATION

The six storied (G+5) i.e. factory building is 82 feet tall and has a total floor area of approx. 153,418 sqft. Figure 1 shows the first-floor layout plan of the factory:





Figure 1: Floor layout plan

ELECTRICAL SYSTEM & UTILITY INSTALLATION INFORMATION

Interfab Shirt Manufacturing Ltd (Unit-2) & Stoffatex Fashions Ltd premise is connected to grid (REB) supply, which is the main source of power supply tapped from 11kV Overhead line and delivered through High Tension cable. The 11kV supply is stepped down by 2000 kVA, 11/0.415kV, 3 phase power transformer installed in utility building. Electrical system and Utility installation information at a glance:

Query	Information	Remarks
Grid Electricity Supplier	REB	
Sanctioned Load	962 kW	
Number of Transformer	1	
Type of Transformer	Outdoor type oil cooled	
Capacity of each transformer	2000 kVA	
Transformer location in the factory	Far apart from main production building	
Transformer owned by factory	Yes, and maintained by factory	
HT switch gear	HT switchgear is located near the transformer	
Number of Generator	1	
Capacity of each Generator	900 kVA (Diesel)	
Generator location in the factory	Far apart from main production building	
Number of Compressor	2	
Capacity of each Compressor	45 kW x 2 Nos	
Number of Boiler	2	
Capacity of each Boiler	1565 kg/hour and 783 kg/hour	

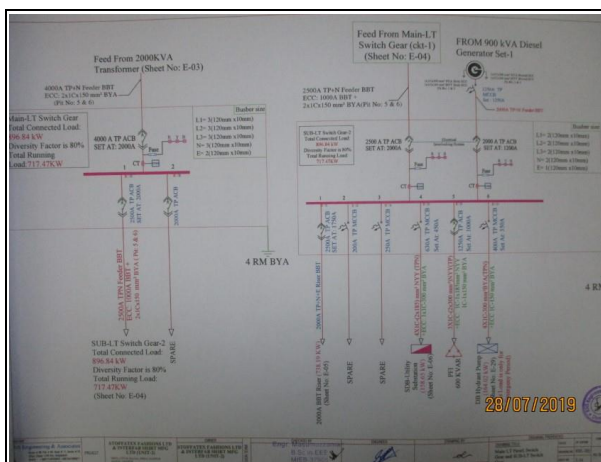


Total no. of LT panel	2	
Total no. of Distribution boards	17	
Power distribution system	All through BBT trunking with few cabling	
Number of manual changeovers	0	
Number of Automatic transfer switch	1	
Substation room location	Apart from main production building	

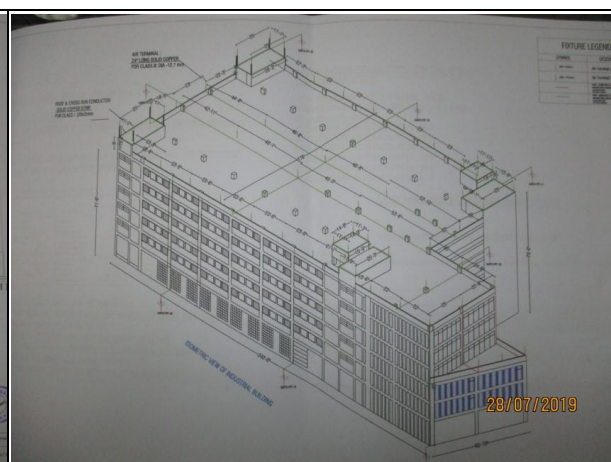
B. OPERATION AND MAINTENANCE

Maintenance and Operations is done by in-house electrical and maintenance team of the factory. However, the maintenance of major equipment like transformer, generator and boilers are sometimes outsourced to the service centers.

Inspecting teams were presented with the maintenance programs, logs and maintenance schedule of the factory's electrical facilities; however, the factory did not have a detailed maintenance schedule. Below are the few snaps on their operation and maintenance activities:



Single Line Diagram (SLD)



Lightning Protection System (LPS) Drawing

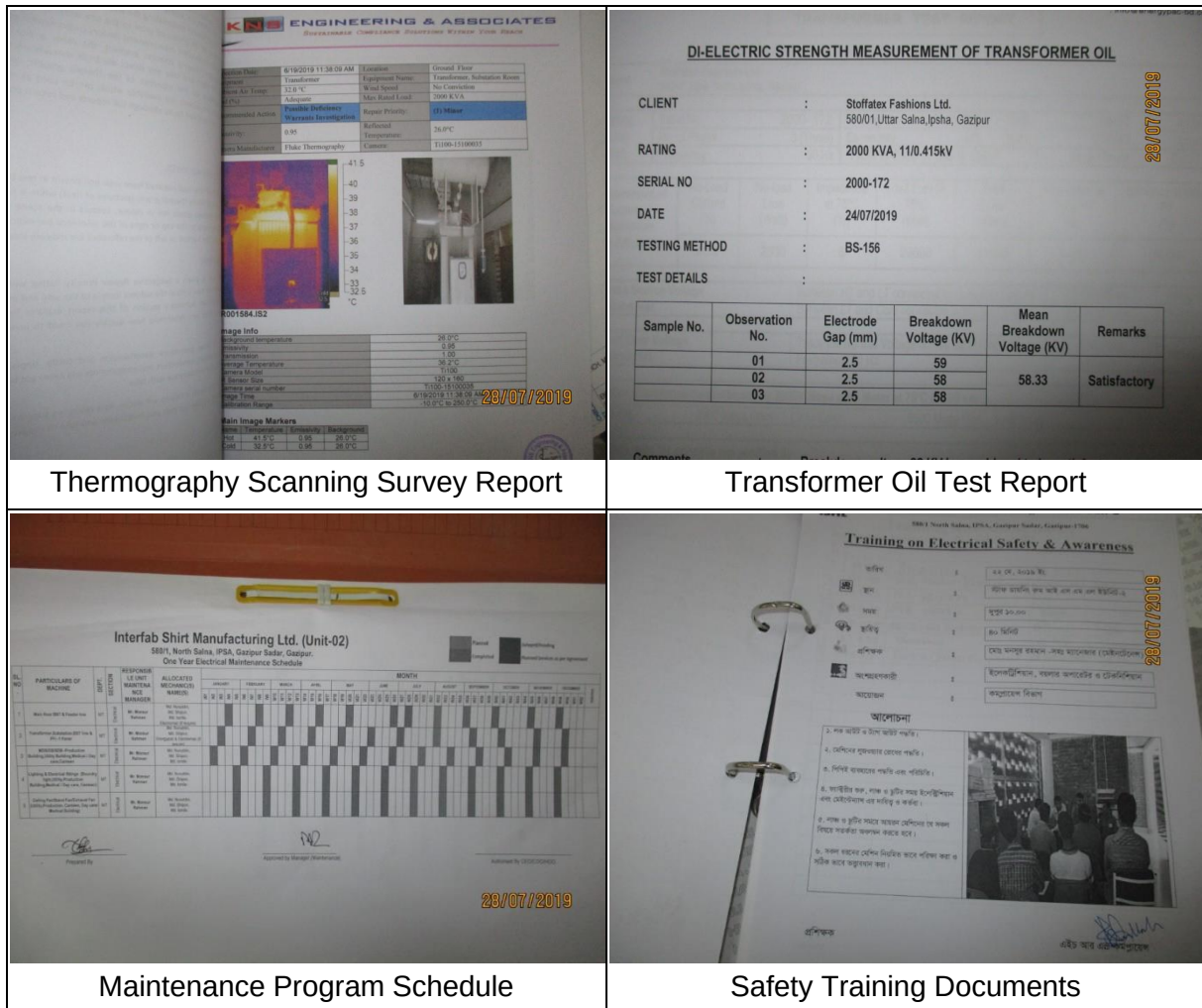


Earth Resistance Test Report



Insulation Resistance Test Report





6. LIGHTNING PROTECTION RISK ASSESSMENT

Calculation of Risk Index of 6 Story Industrial Building (BNBC)			
Index A	Use of Structure	Small and medium size factories, workshops and laboratories	6
Index B	Type of Construction	Reinforced concrete with nonmetal roof	2
Index C	Contents or Consequential Effects	Industrial and agricultural buildings with specially susceptible contents	5
Index D	Degree of Isolation	Structure located in an area with a few other structures or trees of similar height	5
Index E	Type of Terrain	Flat terrain at any level	2
Index F	Height of Structure	24 – 30 m	11
Index G	Lightning Prevalence	Over 21	21
Total Risk Index of the building			52
Requirement of installing LPS		Yes	

It is required to design and install LPS as per standard (BNBC, NFPA 780, acknowledged standards.).

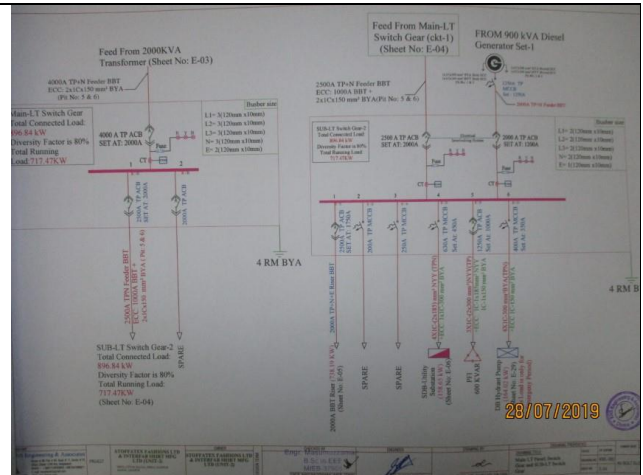


7. FINDINGS AND RECOMMENDATIONS

The table below summarizes the major electrical hazards identified during the walk-through inspection. Recommendations have been provided to each finding.

The implementation schedule shall be developed by the factory to remediate each of the findings. The specific timing of improvements, including any requested extensions due to design / installation constraints, shall be submitted to the Accord for an approval.

FINDING NO:	E - 1
CATEGORY:	DOCUMENTATION
FINDING: SLD is not amended properly (busbar dimension, connecting busbar rating from main bus to MCCB and load details missing).	
RECOMMENDATION: Draw as built electrical SLD mentioning all required information by qualified engineer and get it reviewed by Accord. Electrical SLD must be updated properly when electrical system is modified.	
PRIORITY:	P2
REMEDIATION TIME FRAME:	3 MONTHS



FINDING NO:	E - 2
CATEGORY:	LIGHTNING PROTECTION SYSTEM
FINDING: Installed LPS needs modification. Cross run conductor is not installed as mentioned in LPS drawing.	
RECOMMENDATION: Install cross run conductor as per standard.	
PRIORITY:	P2
REMEDIATION TIME FRAME:	1 MONTH



FINDING NO:	E - 3
CATEGORY:	TESTING & PERIODIC MAINTENANCE
FINDING: Programmed schedule for periodical inspection & testing of electrical equipment is not adequate.	
RECOMMENDATION: An electrical maintenance program shall be prepared which will include inspections and testing of the electrical systems (preventive and proactive).	
PRIORITY:	P3
REMEDIATION TIME FRAME:	1 MONTH



FINDING NO:	E - 4
CATEGORY:	DISTRIBUTION BOARD/PANEL
FINDING: MCCBs are not adjusted per load demand (connecting busbar size is lower than CB rating).	
RECOMMENDATION: All the MCCBs must be adjusted per connected load current; if adjustment is not possible, replacement will be the only way.	
PRIORITY:	P2
REMEDIATION TIME FRAME:	2 MONTHS

