ELECTRICAL SAFETY INSPECTION REPORT

COTTON DYEING & FINISHING MILLS LTD.- CENTRAL STORE SHED

Vill: Amtoli Union, 10 No. Habirbari PO: Seed Store Bazzar Thana: Valuka, Mymenshingh

GPS Coordinates: 24.315319, 90.383828

Factory List:

Author(s) : Md Nurul Islam
Reviewed by : Md Nurul Islam
Approved by : Banna Kasemi

Inspected on: January 17, 2022

RSC RMG SUSTAINABILITY COUNCIL

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1. INTRODUCTION

The Factory was surveyed for electrical safety by RMG Sustainability Council. 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 RSC.

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	**:**	COTTON DYEING & FINISHING MILLS LTD.- CENTRAL STORE SHED
2. Factory Address	**:**	Vill: Amtoli Union, 10 No. Habirbari PO: Seed Store Bazzar Thana: Valuka, Mymenshingh
3. ID	**:**	24301
4. Inspection participates	**:**	**Md. Mushfiqur Rahman** Assistant Manager Cell: +8801755633851 Email: mushfiq@cottongroup.com.bd **Engr. Md. Hossen Khan** Senior Assistant Vice President Cell: +8801755633849 Email: hossen@cottongroup.com.bd **Md Abdur Rahman** Jr. Asst. Vice President Cell: +8801787688850 Email: maintenance@cottongroup.com.bd

5. BUILDING DATA

A. General

COTTON DYEING & FINISHING MILLS LTD.- CENTRAL STORE SHED is established in its pre-fabricated steal building. As reported by the Factory Management, steal shed was constructed in around July, 2015 and the production began in around September 2016. The administration building construction was completed in September 2016. During the time of the Inspection, the factory accommodated a total of 15 workers working in this factory.

The floor wise utilization of the buildings are as detailed below:

Central Store Shed Single Store (22000 sft):

Ground Floor : Yearn, finish goods, accessories.

FLOOR LAYOUT INFORMATION

The single storied i.e. factory building is 60 feet tall and has a total floor area of approx. 22,000 sqft. Figure 1 shows the floor layout plan of the factory:

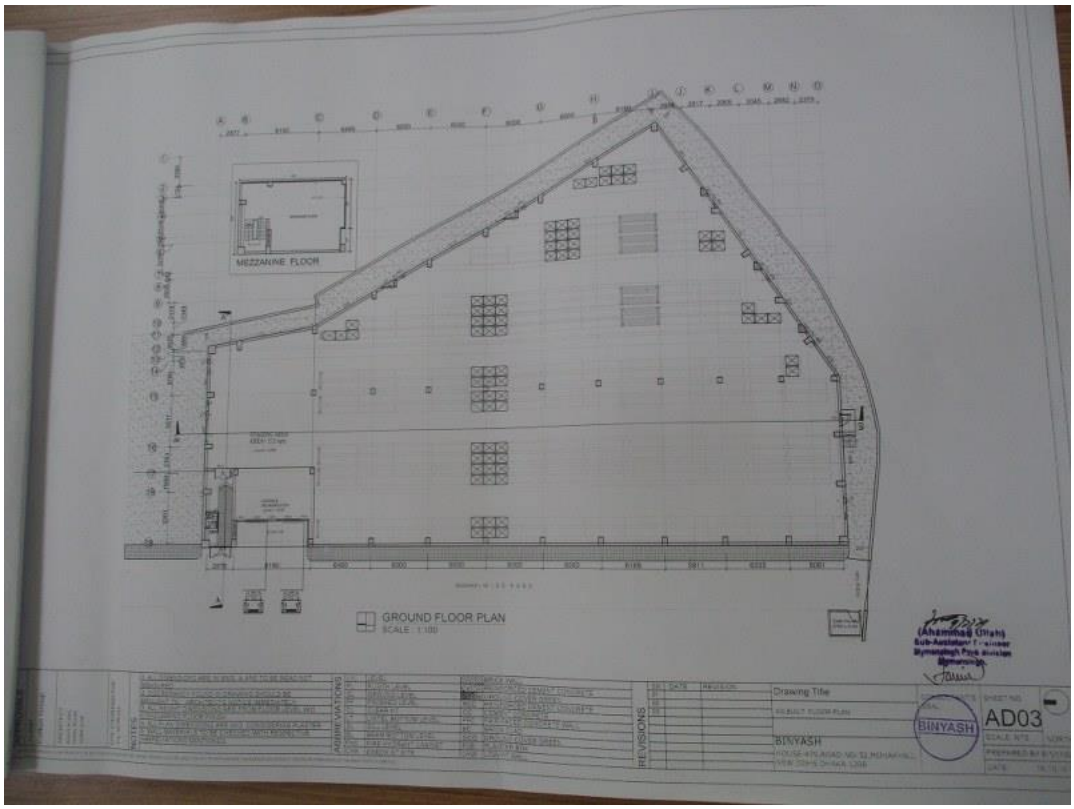


***Figure 1*:** Floor layout plan

ELECTRICAL SYSTEM & UTILITY INSTALLATION INFORMATION

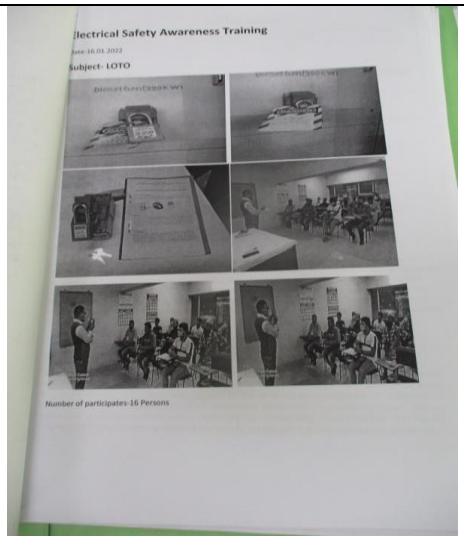
COTTON DYEING & FINISHING MILLS LTD.- CENTRAL STORE SHED premise is connected from COTTON DYEING & FINISHING MILLS LTD which is the main source of power supply. Electrical system and Utility installation information at a glance:

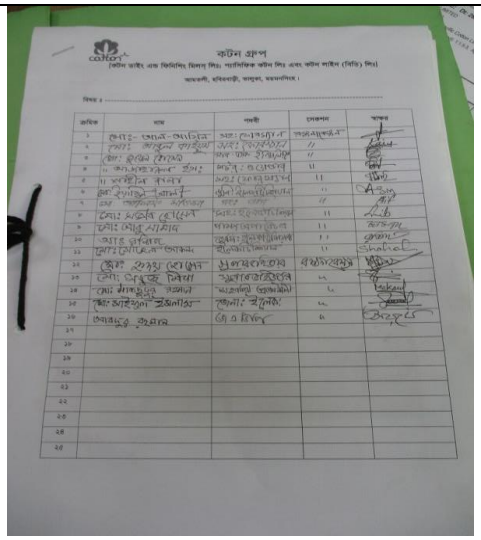
Query	Information	Remarks
Grid Electricity Supplier	REB	
Sanctioned Load	50 kW	
Number of Transformer	3x 37.5 KVA (each)	
Type of Transformer	Outdoor type oil cooled	
Capacity of each transformer	250kVA x 2 (total 500 kVA)	
Transformer location in the factory	Pole mounted Transformer owned by Grid power supplier	
Transformer owned by factory	No, Maintained by REB/DESCO/DPDC	
HT switch gear	Pole mounted transformer, only drop out fuses are there	
Number of Generator	2	
Capacity of each Generator	1030 kW X 2 Nos	
Generator location in the factory	Far apart from main production shed	
Number of Compressor	N/A	
Capacity of each Compressor		
Number of Boiler	N/A	
Capacity of each Boiler		
Total no. of LT panel	N/A	
Total no. of Distribution boards	N/A	
Power distribution system	N/A	
Number of manual changeovers	0	
Number of synchronizer	0	
Number of Automatic transfer switch		
Substation room location	Far apart from main production shed	

B. ELECTRICAL PRACTICES IN 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; Some typical practices are shown below.

<table>
<tr>
<td> 

Maintenance schedule program</td>
<td> 
Electrical Safety Training program</td>
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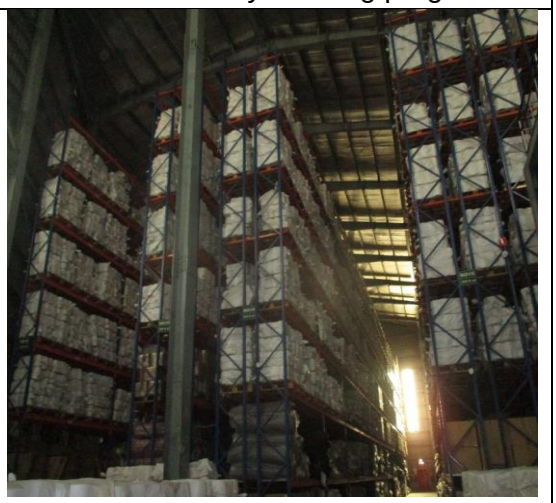
Typical electrical distribution panel.</td>
<td> 
Cable entry is done through cable gland with base plates.</td>
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6. LIGHTNING PROTECTION RISK ASSESSMENT

Calculation of Risk Index Factor (BNBC 2006) for Main Building			
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 a large area having structures or trees of similar or greater height, e.g. a large town or forest	5
Index E	**Type of Terrain**	Flat terrain at any level	2
Index F	**Height of Structure**	18 – 24 m	8
Index G	**Lightning Prevalence**	Over 21	21
	Total Risk Index of the building		49
Requirement of installing LPS		Yes	

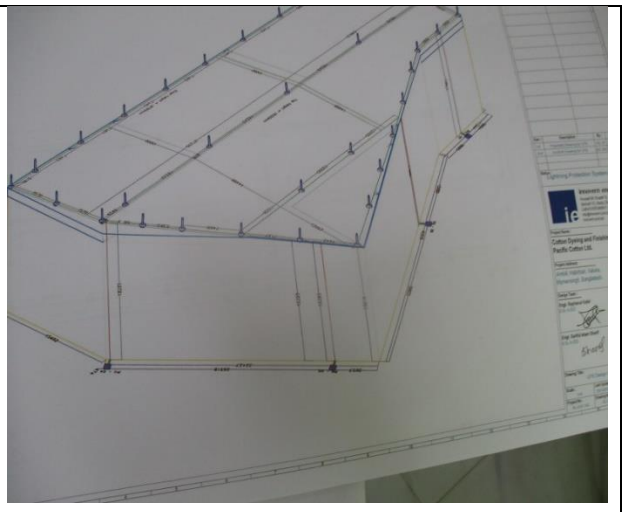
It is required to calculate risk index for all structures, design LPS as per standard and install it properly.

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 RSC for an approval.

FINDING NO:	**E - 1**
CATEGORY:	**LIGHTNING PROTECTION SYSTEM**
FINDING: Lightning Protection System (LPS) and drawing is available, but it needs some modification.	
RECOMMENDATION: Factory has to design Lightning Protection System (LPS) for the whole factory (where the Risk index is more than 40). Once a LPS is designed properly, installation must be done accordingly asap.	
PRIORITY:	**P1**
REMEDIATION TIME FRAME:	**3 MONTHS**



FINDING NO:	**E - 2**
CATEGORY:	**CABLE & CABLE SUPPORTS**
FINDING: Wiring inside the storeroom is not secured.	
RECOMMENDATION: Secure cabling shall be ensured in storeroom (use electrical connection through secure path e.g. GI steel pipe/metal flexible pipe and switches should be placed outside of the room).	
PRIORITY:	**P2**
REMEDIATION TIME FRAME:	**1 MONTH**