TERMS OF REFERENCE FOR R&D PROJECT

1. Title of the Project: Study of Fire initiation and spread due to defects in electrical installations.

2. Background:

Fire due to short circuit is regularly reported from all over India. According to the media, in Mumbai about 71 % fire in buildings are from electrical installations. 100's of people are getting killed due to these accidents and 1000's of crores of properties are also damaged annually across the country.

The objective of this project is to conduct extensive survey of fire accidents across the country, study on reasons for these accidents, finding the reasons for the fire accidents from electrical installation and make proposal for improvement.

3. Scope: Scope of this research project includes installations (in the buildings covered in NBC 2016) –

a. Conducting a survey (Tier 1 metro cities) to gather information on fire accidents happened during the last 3 years and collect data related to fire due to short circuit and other electrical hazards in installations .
b. Examining the probable reasons for fire and verifying the compliance of similar installations to NEC 2023.
c. Examine the compliance of the installation design as per NEC 2023.
d. Identifying the potential improvements in NEC 2023 to improve the reliability of electrical installation and electrotechnical products.

4. Expected Deliverables:

- A comprehensive report about fire accidents and fire due to short circuits and other electrical hazards in installations.
- Analysing the reason for fire due to electrical hazards.
- Verifying the compliance to NEC Standards in similar installations or installations where fire accidents are reported.
- Detailed report on current IS standards related to electrical installation and the modern standards used globally.
- Recommendations for the improvements of standards or practices.

5. Research Methodology:

The project will involve the following research methodologies:

- Contacting the fire safety departments of state governments, insurance companies , meeting them and verifying their accident investigation reports
- Site visits and discussing with affected people

- Collecting data of installation practices and product used in these locations
- Comparison of the DATA with IS standards.
- Analysing data and classifying the buildings as per fire risk.
- Recommendations for improvement.

7. Timeline and Method of Progress Review:

The duration of the project is 5 months from the date of award of the project. The proposed indicative timeline stage-wise is given below:

Sr No	**Stage**	**Time from date of award of project (cumulative)**
1	Literature review and identification of manufacturing base, testing laboratories, user/user industry, and discussion with BIS for the finalization of sampling plan	1 month
2	Visit to manufacturers, testing laboratories, users and data collection	3 months
3	Preparation and submission of first draft report to BIS	4 months
4	Submission of final project report	5 months

8. Support BIS will Provide:

- BIS will provide access to latest editions of standards, required for the project.