

Project PI: Nawal Kishore Banjara

Project Title: Design and Development of Cost-Effective, Lightweight and Fire-Rated Metal Composite Doors for Building Applications

Name of Client: M/s S.K. Engineers India Pvt. Ltd., Plot No-C/21, 71/2, IID Centre, Khurda Industrial Estate, Dist-Khurda, Odisha

Objectives:

- I) Development of High-Insulating Core Materials To develop low-cost composite core materials using inorganic fire-resistant fillers in optimized compositions to achieve 120 minutes of fire resistance rating.
- II) Design, Fabrication and Performance Analysis of Metal Composite Door Systems Engineer door panels integrating selected facings with insulating cores, and assess their mechanical and thermal behavior.
- III) To Evaluate the Thermal, Integrity and Fire Resistance Properties of the Developed Door Prototypes
- IV) Thermal Performance Optimization and Validation Conduct full-scale fire resistance testing, without insulation, with insulation and integrity, stability of 120 minutes and iterative refinement to optimize door thickness, core density and material bonding.