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CSIR-SERC Undertakes Instrumentation and Load Testing of MRTS Bridge Structures Between Velachery and St. Thomas Mount

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The CSIR-Structural Engineering Research Centre (CSIR-SERC), Chennai — a premier national laboratory under the Council of Scientific and Industrial Research (CSIR) — is a leading institution in the field of structural engineering research and development. The laboratory is dedicated to advancing indigenous technologies through cutting-edge R&D in analysis, design, and testing of structures and structural components. Over the years, CSIR-SERC has developed numerous innovations, patents, and processes that have contributed significantly to industrial growth and societal benefit across India.



As part of its continuing efforts toward ensuring the safety and performance of India's vital infrastructure, the Structural Health Monitoring (SHM) Laboratory of CSIR-SERC is carrying out several projects for the Indian Railways, focusing on the condition assessment and performance evaluation of both new and existing bridges.



One of the recent assignments is the Instrumentation and Load Testing of selected spans of the Mass Rapid Transit System (MRTS) between Velachery Railway Station and St. Thomas Mount Railway Station in Chennai. This elevated corridor, constructed by Southern Railway, Chennai, represents an important link in the city's suburban network. With construction nearing completion and the section scheduled for commissioning soon, Southern Railway has entrusted CSIR-SERC with the critical task of verifying the performance and safety of the structures under actual service conditions.

The testing is being carried out in a phased manner, adhering to the guidelines stipulated by the Research Designs and Standards Organisation (RDSO) and Indian Railways. Each selected span is instrumented with state-of-the-art sensors and high-speed data acquisition systems to accurately capture the structural response under different loading conditions. The program includes both static and dynamic load tests, using a standard test train formation comprising a locomotive and loaded wagons. The measured responses are then projected to the design loads to ensure that the bridge meets all structural integrity and safety requirements.

This scientific and rigorous testing exercise will help confirm that the MRTS bridges are performing as intended and capable of safely carrying the operational loads for years to come. Beyond providing valuable assurance to Southern Railway, the project demonstrates CSIR-SERC's vital role in supporting the nation's infrastructure through advanced engineering science and technology.

Through such collaborative efforts, CSIR-SERC continues to contribute to the development of reliable, safe, and sustainable transportation infrastructure — reinforcing its mission of science for the benefit of society.

The field tests were coordinated and conducted in the presence of Dr.Voggu Srinivas, Chief Scientist and Head, Structural Health Monitoring Laboratory, Dr. Ing Saptarshi Sasmal, Chief Scientist and Head, Special and Multi-Functional Materials Laboratory and Dr.B.Arun Sundaram, Senior Principal Scientist, Structural Health Monitoring Laboratory. The load test was witnessed by the senior officials from Southern Railway.

AD/RJ

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