

National Test facility for Expansion Joints

Bridge expansion joints suffer from various kinds of distresses during their service life span. These distresses can be attributed to improper design, lack of rationalized acceptance criteria based on the actual testing of expansion joint assemblies and their components, improper installation and inadequate maintenance.

The Indian Road Congress (IRC) acceptance criteria can be classified as – (i) Product Specification Criterion; (ii) Performance Criterion. As per the Product Criterion, the material properties of metallic and elastomeric components of an expansion joints are evaluated as per the available standards such as IRC, ASTM, DIN, SABS, RVH, BS, etc. Experimental facilities for these requirements are available within our country at the research institutes / academic institutes / manufacturing industries. As per the Performance Criterion, the expansion joint assemblies / components are evaluated to know their fatigue resistance, braking force resistance, cyclic motion behaviour, durability performance, water tightness, etc. Various experiments are to be carried out as per the available standards at global level, such as IRC, ASTM, DIN, SABS, RVH, BS, etc. For these requirements, limited experimental facilities are available at the research institutions / universities located in Europe / USA. Test specimen are sent abroad for evaluation purposes.

In this scenario, CRRI is creating a unique National Test Facility for bridge expansion joints in its Dynamic cum Heavy Testing (DHT) laboratory located at Ghaziabad. Comprehensive experimental facilities are being created under one umbrella, which will fulfill all the experimental requirements as suggested by IRC guidelines for acceptance purposes. Creation of these experimental facilities is being financially supported by Ministry of Shipping, Road Transport and Highways (MoSRT&H). These experimental facilities are being created under the guidance of a National Level Advisory Committee consisting of well known researchers, academicians, and experts from manufacturing and user industries.

Creation of such a unique National Test Facility in our country will help to devise a rationalized acceptance criteria for expansion joints on the basis of actual testing of the joint assemblies / components before their installation in field. This will ensure better field performance of expansion joints throughout the service life. It will also encourage the manufacturers of our country to produce innovative types of expansion joints indigenously, which are imported from abroad. Further, R & D activities related to bridge expansion joints utilizing this National facility may also be undertaken.

Under the Tenth Five Year Plan Project, the existing Fatigue Testing System is upgraded with M9610 Hydrowin Controller. Up-gradation of existing 200 T Universal Testing Machine to incorporate experimental facilities for

elastomeric components is under progress. These experimental facilities are likely to be operational by the end of the Year December 2007.

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