Project No: Brite Euram 4213

Condition Assessment And Maintenance Strategies For Buildings And Building Components

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Project Overview

Despite the burgeoning size of the maintenance sector of the building industries in the EEC countries, very little progress has been made in developing and adapting new technology for the work. Productivity has remained traditionally low due to a combination of technical and organizational problems. Maintenance records either do not exist or are so poorly kept that accurate information on the durability and performance in use of buildings and building components is largely unobtainable. Although research has shown that condition-based maintenance is a more cost effective method of maintaining buildings as the required maintenance action is based on actual observations of the technical state of the building, it has been difficul to implement this practice because of the conflicting subjective condition assessment by different inspectors. As such current methods of maintainng buildings remains largely cyclical or reactive (response) based. The former method leads to either over maintenance or to unexpected consequences if the component fails between cycle time whilst the latter method carries a high risk of premature damage due to undue delay in attending to the defect.

The subjectivity of building inspectors prognosis of the condition state of buildings has caused a mean difference of at least 30% in the estimation of the cost of the required maintenance action in national house condition surveys in countries such as England and Holland. An improvement in the method and reliability of condition assessment by reduction of the subjectivity element in inspection and automation of the inspection process in expected to bring about a 20% increase in productivity in the maintenance industry which is estimated to be worth 100 billion ECU annually in the EC countries.

The main objectives of the project are to increase productivity and introduce high tech into the maintenance industry. Central to the thrust of the research is the development of an objective and measurable condition assessment methodology for existing building/building components. There from will be derived:

- A more reliable and accurate method of determining the technical state of a building and the required maintenance action to enhance its durability and service life
- The possibility of evaluating the outcome of decisions relating to alternative maintenance strategies via a decision support system
- A tool to communicate unambiguously the actual and desired condition of buildings/ components, thereby providing a stuctured feedback system on building performance and related costs.
- The feasibility of automating the condition assessment process and establishment of on-site measurement techniques to develop mechanical and multi-sensory devices for dynamic condition monitoring of buildings.

Research Consortium

Project Coordinator:

Real Estate Management & Maintenance Research and Advisory Services: Damen Consultants (The Netherlands)

Partners:

IT Consultant:	Bias Buro (The Netherlands)
Architectural Practice:	Ipostudio Associated Architects (Italy)
University:	University of Reading (UK)
University Research Institute:	OTB Research Institute for Policy Sciences and Technology (The Netherlands)
National Research Institutes:	TNO-Bouw (The Netherlands)
	CSTC Centre Scientifique et Technique de la Construction (Belgium)

Project Budget

2,275,150 Euros