

ATC-53

Assessment of the NIST 12-Million-Pound (53 MN) Large-Scale Testing Facility

by

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Preface

In early 2000 the National Institute of Standards and Technology (NIST) provided funding to the Applied Technology Council (ATC) to assess the viability of NIST's 30-year-old 12-million pound (53 MN) Universal Testing Machine located at NIST headquarters in Gaithersburg, Maryland. The facility had been constructed originally for the purpose of calibrating large-force-measuring devices and for compression or tension-based research on large structural members. In recent years, the high cost of repair and maintenance has required that NIST assess the feasibility and desirability of its continued operation.

The assessment was to be conducted in a workshop setting (at the testing facility) by an independent panel of experts representing industry, government, and the research community. NIST selected ATC to conduct the study (ATC-53 Project) because of ATC's unique ability to develop broadly based consensus opinions on important structural engineering issues and ATC's widely recognized reputation for producing objective, high-quality technical reports.

ATC assembled a Technical Panel comprising experts in the area of large-scale experimental testing, internationally recognized

practicing structural engineers, and government agency engineers and officials, to provide guidance for ATC and NIST regarding the viability of the facility. The results of their efforts are documented in this report.

The ATC-53 Technical Panel consisted of Ian G. Buckle, Michael Engelhardt, Finley Charney, David P. Kihl, Roberto Leon, Le-Wu Lu, Tom Post, Charles Thornton, and William Wright. Their deliberations and decisions were documented by Ian M. Friedland, who served as Project Manager and is the principal author of this report. A. Gerald Brady served as copy editor, and Peter N. Mork and Michelle Schwartzbach provided report production services. The affiliations of all individuals are provided in the list of Project Participants.

In addition to the above-cited project participants, ATC gratefully acknowledges the input and support of John L. Gross and others at NIST who facilitated the conduct of this assessment, including Shyam Sunder and Michael Riley.

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