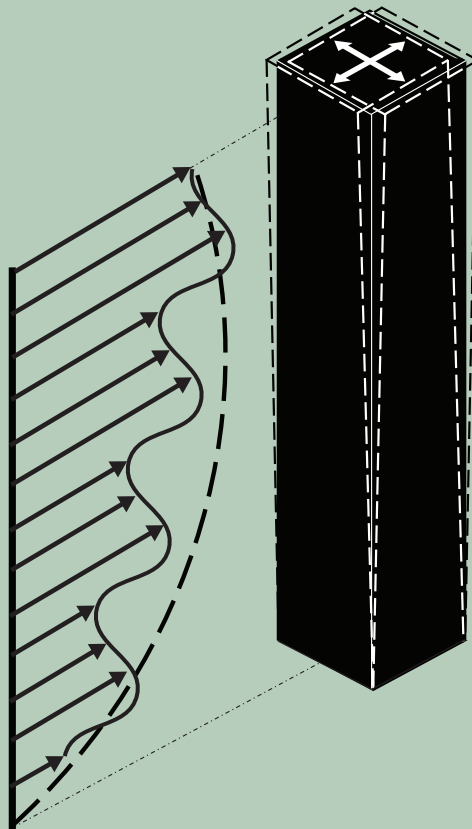


ATC Design Guide 3

Serviceability Design of Tall Buildings Under Wind Loads



ATC Applied Technology Council

Applied Technology Council

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Cover illustration: Tall building responding to wind loads.



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by
Applied Technology Council
201 Redwood Shores Parkway, Suite 240
Redwood City, California 94065

Funded by
The Applied Technology Council
Endowment Fund

Edited by
Jon A. Heintz
Christopher W. Letchford

Prepared by

Authors
Peter A. Irwin
Lawrence G. Griffis
William F. Baker

Project Review Panel
Melissa D. Burton
Leighton Cochran
Ahmad Rahimian
Donald R. Scott

Preface

This report is the third in a series of Design Guides developed by the Applied Technology Council with funding from the ATC Endowment Fund. This series is intended to provide succinct, state-of-the-art information on important design issues for practicing structural engineers. The first in the series, *ATC Design Guide 1, Minimizing Floor Vibration*, was published in 1999. The second, *ATC Design Guide 2, Basic Wind Engineering for Low-Rise Buildings*, was published in 2009.

This third Design Guide addresses serviceability limit states that should be considered in the design of tall buildings, including perception of motion, and lateral deflection (i.e., drift) under serviceability level lateral wind loading. Although much research has been conducted on human perception and sensitivity to motion, specific serviceability limit states for wind load design have not been codified in the United States, and have generally been left to the discretion of the design engineer. The purpose of this guide is to fill this gap by providing background information and recommended criteria that have been developed based on available research, engineering practice, and successful experience with tall buildings currently in service.

The project to develop this guide was initiated by the ATC Board of Directors in 2014, with the objective of utilizing the ATC Endowment Fund in service to the profession. The proceeds from the publication and sale of this guide will be invested back into the ATC Endowment Fund.

ATC is indebted to the expertise and long-term commitment of the authors and reviewers, without whom this document would not have been possible. ATC gratefully acknowledges the work of the author group, including the leadership of Peter Irwin and the contributions of Larry Griffis and Bill Baker. ATC also acknowledges the Project Review Panel, consisting of Melissa Burton, Leighton Cochran, Ahmad Rahimian, and Don Scott, for their technical review, which helped shape the final product. Finally, ATC would like to acknowledge Chris Letchford for his assistance in editing this document, and Carrie Perna for ATC report production services.

Jon A. Heintz
ATC Executive Director

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