

DESIGN AND PERFORMANCE OF **TALL BUILDINGS** FOR **WIND**

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NO. 143

EDITED BY PREETAM BISWAS
JOHN PERONTO

TASK COMMITTEE FOR THE
DESIGN AND PERFORMANCE OF
TALL BUILDINGS FOR WIND

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Edited by Preetam Biswas and John Peronto

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PREFACE

The Tall Buildings Committee of the Structural Engineering Institute of the American Society of Civil Engineers comprises senior leaders active in the field of tall buildings from both industry-leading professional consulting firms and academic institutions. The goal of this committee is to publish an industry consensus manual of practice that provides guidelines on the design and performance of tall buildings for wind effects. This publication provides recommendations and guidance on tall building design industry standard practice and approaches to complement current literature, model codes, and other standards. This publication should be used in conjunction with local building codes and considered a current consensus document developed by industry leaders for the design and performance of tall buildings for wind effects. However, it is the opinion of the committee that this consensus will evolve over time and as the industry advances.

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CHAPTER 1

INTRODUCTION

1.1 PURPOSE

This Manual of Practice is intended to provide best-practice guidelines for the design of tall buildings for wind. Current building codes and design standards focus primarily on strength design for ultimate wind loads, offering little guidance related to the evaluation and establishment of acceptance criteria for tall building performance under varying levels of wind effects. As such, current design practice varies widely across the industry. The goal of this document is to promote consistency and best practices within the industry for the design of tall buildings for wind. It is envisioned to apply to buildings with height greater than 120 m (400 ft) and/or a height to width aspect ratio greater than 5:1.

1.2 SCOPE

The design recommendations provided in this manual are primarily focused on the wind design of building structures that are especially tall, slender, and/or prone to wind-induced movement. A discussion of both static and dynamic approaches to wind design are presented in subsequent chapters. Wind design performance objectives are achieved by

- Ensuring structural integrity under ultimate loads;
- Limiting lateral deflections under service loads to prevent permanent deformations, damage to nonstructural elements, or adverse effects on the serviceability of the building's services and vertical transportation systems;