

SEI/ASCE Technical Committee on Optimal Structural Design

2000 ANNUAL REPORT

The Optimal Structural Design (OSD) Committee has 18 members and is chaired by Don Grierson, University of Waterloo, Ontario, Canada. The secretary of the committee is Colby Swan, University of Iowa, Iowa, USA.

The OSD Committee held its Annual Meeting on May 8 at the 2000 Structures Congress in Philadelphia, at which it sponsored 3 technical sessions. Namely: *Case Studies in Optimal Design of Civil Infrastructure Systems* (Frangopol); *Recent Advances in Structural Optimization* (Burns); and *Optimal Performance-Based Design of Buildings: Practical Applications* (Grierson, Chan & Xu).

Under the editorship of Scott Burns, the OSD committee continues to work on its Report on the *State-of-the-Art of Structural Optimization*, a review of recent literature over the past ten years or so. The proposed chapters for the publication include: *Multi-Objective Optimization* (Cheng); *Bridge Optimization* (Hernandez); *Topology Optimization* (Swan); *Structural Decomposition* (Balling); *Genetic Algorithms* (Pezeshk); *Discrete Optimization* (Arora); *Combined Analysis and Design* (Burns); *Lifecycle Cost Optimization* (Frangopol); *Tall Building Optimization* (Chan); *Semi-Rigid Structures* (Xu); *Evolutionary Optimization* (Xie); and *Conceptual Design Optimization* (Grierson). The second-draft versions of the chapters were submitted to Scott Burns in late 2000, with the expectation that publication as an ASCE Report will occur late in 2001.

The OSD Committee is sponsoring one technical session at the 2001 Structures Congress in Washington. Namely *Computer-Based Conceptual Design of Structures* (Grierson/Swan).

The OSD Committee has proposed three technical sessions for the 2002 Structures Congress in Denver. Namely: *Computational Methods for Performance-Based Design* (Grierson); *Practical Design Optimization Applications Using Genetic Algorithms* (Furuta); and *Lifetime Performance Prediction of Structural Systems and Optimal Maintenance Planning* (Frangopol).

The OSD Committee is sponsoring a technical track (chaired by Shahram Pezeshk), a Workshop (chaired by Scott Burns) and a Tutorial (chaired by Don Grierson) on the theme of 'Optimal Structural Design' at the GECCO-2001 Conference on Genetic and Evolutionary Computation, San Francisco, July 7-11, 2001.

Four new members joined the OSD Committee in 2000 (Dr. Mark Voss of Marquette University, Professor Hitoshi Furuta of Kannai University, Professor Ali Memori of Penn State University, and Professor Lisa Wang of California State Polytechnic University).

The terms of nine members of the committee were extended for one year to 2001 (Chan, Frangopol, Burns, Iordanescu, Rajan, Hernandez, Swan, Xu and Truman).

Submitted by: Don Grierson, University of Waterloo, Canada
Chair, TA Committee on Optimal Structural Design