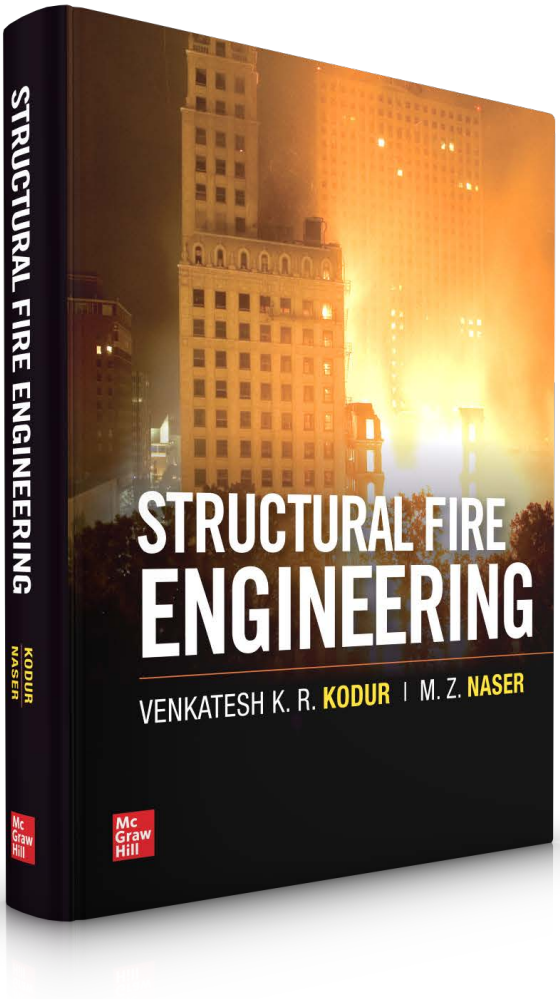
Structural Fire Engineering



Actionable strategies for the design and construction of fire-resistant structures

This hands-on guide clearly explains the complex provisions in building codes and standards that relate to fire design and presents hands-on techniques engineers can apply to prevent or mitigate the effects of fire in structures. Dedicated chapters discuss specific procedures for steel, concrete, composite, and timber buildings. You will get step-by-step guidance on how to evaluate fire resistance using both testing and calculation methods.

Structural Fire Engineering begins with an introduction to the behavioral aspects of fire and explains how structural materials react when exposed to elevated temperatures. From there, the book discusses the fire design aspects of key codes and standards, such as the International Building Code, different Euro Codes, and various International Building Codes and standards in different countries. Advanced topics are covered in complete detail, including fire resistance evaluation of FRP - strengthened concrete structures, fire design for bridges and tunnels, and residual capacity evaluation of fire damaged structures.

- Explains the fire design requirements of the IBC, IFC, the Euro Codes, National Building Code of Canada, and other building codes and standards
- Presents prescriptive and performance based rational calculation methodologies for evaluating fire resistance of structural systems
- Lays out design and practical strategies for enhancing fire resistance of steel, concrete, composite, and timber structures as well as for bridges and tunnels
- Contains numerous illustrations, practical case studies, and solved example problems, along with emerging trends and future research needs

About the Authors

Venkatesh Kodur, Ph.D., P.Eng., F.CAE, F.INAE, F.ASCE, F.ACI F.SEI, is a **University Distinguished Professor** and Director of the Center on Structural Fire Engineering and Diagnostics at Michigan State University. He is an internationally recognized expert in structural fire engineering, and was part of the FEMA/ ASCE Assessment Team that studied the collapse of the World Trade Center following 9/11 incidents. He has published over 450 peer-reviewed papers in journals and conferences, and as per Google Scholar, he has more than 11,500+ citations with an "h" index of 60.

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