

1. Record Nr.	UNINA9910366600103321
Autore	Zhai Zhiqiang (John)
Titolo	Computational Fluid Dynamics for Built and Natural Environments / / by Zhiqiang (John) Zhai
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2020
ISBN	9789813298200 9813298200
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (IX, 263 p. 149 illus., 85 illus. in color.)
Disciplina	620.1064
Soggetti	Fluid mechanics Civil engineering Fluids Thermodynamics Heat engineering Heat - Transmission Mass transfer Pollution Engineering Fluid Dynamics Civil Engineering Fluid- and Aerodynamics Engineering Thermodynamics, Heat and Mass Transfer Pollution, general
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduce CFD -- Model Real Problems -- Select Equations to Be Solved -- Select Turbulence Modeling Method -- Select Numerical Methods -- Specify Boundary Conditions -- Generate Grid -- Solve Case -- Analyze Results -- Write CFD Report.
Sommario/riassunto	This book introduces readers to the fundamentals of simulating and analyzing built and natural environments using the Computational Fluid Dynamics (CFD) method. CFD offers a powerful tool for dealing with various scientific and engineering problems and is widely used in diverse industries. This book focuses on the most important aspects of

applying CFD to the study of urban, buildings, and indoor and outdoor environments. Following the logical procedure used to prepare a CFD simulation, the book covers e.g. the governing equations, boundary conditions, numerical methods, modeling of different fluid flows, and various turbulence models. Furthermore, it demonstrates how CFD can be applied to solve a range of engineering problems, providing detailed hands-on exercises on air and water flow, heat transfer, and pollution dispersion problems that typically arise in the study of buildings and environments. The book also includes practical guidance on analyzing and reporting CFD results, as well as writing CFD reports/papers.
