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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- State-space modelling for air-conditioning system -- Modelling based on graph theory and structure-matrix theory -- Control design based on state-space model -- Air-conditioning load forecasting model -- Optimal operation and energy analysis modelling for air-conditioning system -- Thermal comfort of human body indoors -- Multizone network modelling of building ventilation and contaminant transport -- Computational fluid dynamics of building environment -- Coupled multizone and CFD modelling of building environment -- New trends of advanced modelling of building environment.
Sommario/riassunto	This book investigates the latest modeling and control technologies in the context of air-conditioning systems. Firstly, it introduces the state-space method for developing dynamic models of all components in a central air-conditioning system. The models are primarily nonlinear and based on the fundamental principle of energy and mass

conservation, and are transformed into state-space form through linearization. The book goes on to describe and discuss the state-space models with the help of graph theory and the structure-matrix theory. Subsequently, virtual sensor calibration and virtual sensing methods (which are very useful for real system control) are illustrated together with a case study. Model-based predictive control and state-space feedback control are applied to air-conditioning systems to yield better local control, while the air-side synergic control scheme and a global optimization strategy based on the decomposition-coordination method are developed so as to achieve energy conservation in the central air-conditioning system. Lastly, control strategies for VAV systems including total air volume control and trim & response static pressure control are investigated in practice. .
