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# Application of Data Mining Techniques in the Analysis of Indoor Hygrothermal Conditions

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# Preface

Over the last years, the indoor environmental quality of buildings has been extensively studied. The results obtained, by different researchers, have shown that indoor environmental conditions of buildings play an important role in terms of health and wellbeing of their occupants. The characterization of indoor hygro-thermal conditions is frequently pursued as part of the overall environmental evaluation. Different measurement techniques can be used and large amounts of data will become available after extensive in-situ campaigns. The application of adequate statistical tools and data mining techniques is therefore crucial to produce an adequate synthesis of the results to support sound conclusions.

The main benefit of the book is that it explores available methodologies for both conducting in situ measurements and adequately explore the results, based on a case study that illustrates the benefits and difficulties of concurrent methodologies.

The case study corresponds to a set of 25 similar houses where an extensive in situ measurement campaign was conducted. The dwellings are located in the same quarter, in Porto, Portugal. Measurements included indoor temperature and relative humidity, with continuous log in different rooms of each dwelling, blower-door tests, and complete outdoor conditions provided by a nearby weather station.

This book will include a variety of scientific and engineering disciplines, such as building physics, probability and statistics, and civil engineering. It is divided into several chapters that intend to be a synthesis of the current state of knowledge for the benefit of professional colleagues.

The authors acknowledge with gratitude the support received from the University of Porto—Faculty of Engineering, Portugal, namely the Laboratory of Building Physics (LFC). Finally, the authors would welcome reader comments, corrections, and suggestions with the aim of improving any future editions.

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