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Interface Influence on Moisture Transport in Building Components

The Wetting Process

 Springer

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Preface

The knowledge of moisture migration inside building materials and construction building components is decisive for the way they behave when in use. The durability, waterproofing, degrading aspect and thermal behaviour of these materials are strongly influenced by the existence of moisture within their interior, which provoke changes in their normal performance, something that is normally hard to predict. Due to the awareness of this problem, the scientific community have performed various studies about the existence of moisture inside porous materials. The complex aspects of moisture migration phenomenon tended to encompass monolithic building elements, since the existence of joints or layers contributes to the change of moisture transfer along the respective building element that contributes to the change of mass transfer law. The presentation of an experimental analysis concerning moisture transfer in the interface of material that makes up masonry is described in such a way as to evaluate the durability and/or avoid building damages.

In this work, it was analysed, during the wetting process, the influence of different types of interface, commonly observed in masonry, such as perfect contact, joints of cement mortar, lime mortar, and the air space interface. The results allow the calculation of the hygric resistance. With these results, it is possible to use any advanced hygrothermal simulation program to study the water transport in building elements, considering different interfaces and their hygric resistance.

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Contents

| | | |
|----------|---|----|
| 1 | Introduction | 1 |
| 1.1 | Motivation | 1 |
| 1.2 | Objectives and Methodology | 3 |
| | References | 3 |
| 2 | State-of-the-Art | 5 |
| 2.1 | Introduction | 5 |
| 2.2 | Moisture and Interface In Building Components | 5 |
| 2.2.1 | Moisture Transport in Buildings | 5 |
| 2.2.2 | Numerical Methods | 7 |
| 2.2.3 | Interface Influence on Moisture Transport | 10 |
| | References | 13 |
| 3 | Moisture Content Determination | 17 |
| 3.1 | Introduction | 17 |
| 3.2 | Gravimetric Method | 17 |
| 3.3 | Nuclear Magnetic Resonance (NMR) Method | 18 |
| 3.4 | X-Ray Analysis | 18 |
| 3.5 | Gamma Ray Attenuation Method | 19 |
| 3.5.1 | Measurement Principles | 20 |
| 3.5.2 | Setup | 22 |
| 3.5.3 | Difficulty and Limitations | 26 |
| 3.5.4 | Example of Moisture Content Profiles | 26 |
| | References | 28 |
| 4 | Interface Influence During the Wetting Process | 31 |
| 4.1 | Introduction | 31 |
| 4.2 | Preparation of the Specimens | 33 |

| | | |
|----------|------------------------|-----------|
| 4.3 | Results and Discussion | 37 |
| 4.3.1 | Hygic Resistance | 37 |
| 4.3.2 | Synthesis | 59 |
| | References | 59 |
| 5 | Conclusions | 61 |