

DIN EN ISO 52016-3:2024-07 (E)

Energy performance of buildings - Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads - Part 3: Calculation procedures regarding adaptive building envelope elements (ISO 52016-3:2023)

| Contents | | Page |
|--------------------------------|---|-------------|
| European foreword | | 4 |
| Foreword | | 5 |
| Introduction | | 6 |
| 1 | Scope | 9 |
| 2 | Normative references | 9 |
| 3 | Terms and definitions | 10 |
| 4 | Symbols, subscripts and abbreviated terms | 12 |
| 4.1 | Symbols | 12 |
| 4.2 | Subscripts | 13 |
| 4.3 | Abbreviated terms | 15 |
| 5 | Description of the method | 15 |
| 5.1 | Output of the method | 15 |
| 5.2 | General description of the method | 15 |
| 6 | Calculation method | 17 |
| 6.1 | Output data | 17 |
| 6.2 | Calculation time intervals | 18 |
| 6.3 | Input data | 18 |
| 6.3.1 | General | 18 |
| 6.3.2 | Input data of a simplified adaptive building envelope element | 19 |
| 6.3.3 | Input data of a detailed adaptive building envelope element | 19 |
| 6.3.4 | Control related input data | 21 |
| 6.3.5 | Climatic input data | 23 |
| 6.3.6 | Constants and physical data | 23 |
| 6.3.7 | Input data from Annex A and Annex B | 23 |
| 6.4 | Properties of the adaptive building envelope element | 23 |
| 6.4.1 | General | 23 |
| 6.4.2 | Simplified or detailed adaptive building envelope element | 24 |
| 6.4.3 | Properties of a simplified adaptive building envelope element | 25 |
| 6.4.4 | Model and properties of a detailed adaptive building envelope element | 32 |
| 6.5 | Connection of the model of the adaptive building envelope element to the model of the thermal zone of ISO 52016-1 | 33 |
| 6.5.1 | Simplified adaptive building envelope element | 33 |
| 6.5.2 | Detailed adaptive building envelope element | 33 |
| 6.6 | Selection of control type | 33 |
| 6.7 | Modelling of the control of the environmentally activated adaptive building envelope element | 34 |
| 6.8 | Modelling of the control scenario for the actively controlled adaptive building envelope element | 35 |
| 6.8.1 | General | 35 |
| 6.8.2 | Selection of conditions and events | 35 |
| 6.8.3 | Selection of sensors | 37 |
| 6.8.4 | Selection of methods to identify the conditions or events | 37 |
| 6.8.5 | Basic rules for the reference control scenario | 44 |
| 6.8.6 | Modelling of the user behaviour | 46 |
| 6.8.7 | Reference control scenarios | 47 |
| 6.9 | Hourly calculation procedures | 50 |
| 6.10 | Post-processing: performance characteristics | 50 |

7 **Quality control**..... 51

8 **Conformance check**..... 51

Annex A (normative) Input and method selection data sheet — Template53

Annex B (informative) Input and method selection data sheet — Default choices54

**Annex C (normative) Reference control scenarios for adaptive building envelope elements
with active solar shading or chromogenic glazing**.....56

Bibliography.....62