

# DIN EN 16627:2015-09 (E)

## Sustainability of construction works - Assessment of economic performance of buildings - Calculation methods

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
<b>1</b>	<b>Scope .....</b>	<b>9</b>
<b>2</b>	<b>Normative references .....</b>	<b>9</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>10</b>
<b>4</b>	<b>Abbreviations .....</b>	<b>19</b>
<b>5</b>	<b>The process for setting up the calculations required for the assessment .....</b>	<b>20</b>
<b>6</b>	<b>Purpose of the assessment .....</b>	<b>21</b>
6.1	General .....	21
6.2	Expected users .....	21
<b>7</b>	<b>Specification of the object of assessment .....</b>	<b>21</b>
7.1	General .....	21
7.2	Functional equivalent .....	22
7.3	Reference study period .....	23
7.4	System boundary .....	24
7.4.1	General .....	24
7.4.2	Boundary of the before use stage (Modules A0-A5) .....	25
7.4.3	Boundaries of the use stage (Modules B1 - B7) .....	28
7.4.4	Boundary of the end of life stage (Modules C1 - C4) .....	32
7.4.5	Boundary for the benefits and loads beyond the system boundary (Module D)) .....	34
7.5	The building model .....	34
7.5.1	Purpose and information needed .....	34
7.5.2	Description of the physical characteristics of the building .....	35
<b>8</b>	<b>Scenarios for defining the building life cycle .....</b>	<b>36</b>
8.1	General .....	36
8.2	Requirements for scenarios .....	36
8.3	Time-related characteristics and associated scenarios .....	36
8.3.1	General .....	36
8.3.2	Climate conditions .....	37
8.3.3	Other specific requirements for scenarios .....	37
8.4	Scenarios for the pre-construction stage (Module A0) .....	37
8.5	Scenarios for the product and construction process stages (Modules A1 - A5) .....	37
8.6	Scenarios for use stage (modules B1 to B7) .....	38
8.6.1	General .....	38
8.6.2	Scenario related to use stage (except energy and water) - Module B1 .....	38
8.6.3	Scenarios for maintenance, repair, replacement - Module B2, B3 and B4 .....	38
8.6.4	Scenarios for refurbishment - Module B5 .....	39
8.6.5	Scenarios for operational energy use - Module B6 .....	39
8.6.6	Scenarios for operational water use (Module B7) .....	39
8.7	Scenarios for the end of life stage (Modules C1 to C4) .....	40
8.7.1	General .....	40
8.7.2	Scenarios for deconstruction - Module C1 .....	40

8.7.3	Scenarios for transport - Module C2 .....	40
8.7.4	Scenarios for waste processing for reuse, recycling and energy recovery - Module C3 ....	40
8.7.5	Scenarios for disposal - Module C4 .....	40
8.8	Scenarios beyond the system boundary - Module D .....	40
9	Calculation of costs and income related to the building over its life cycle .....	41
9.1	General .....	41
9.2	Calculation of pre-construction costs .....	41
9.3	Calculation of construction costs .....	41
9.4	Calculation of costs of operation in use, maintenance and repair (B1-B3) .....	43
9.5	Calculating costs for replacements (B4) .....	45
9.5.1	Components that will not be replaced under defined conditions .....	45
9.5.2	Replaceable components and costs .....	45
9.5.3	Cost of replacements .....	46
9.6	Calculation of energy costs (B6) .....	46
9.7	Calculation of costs of operational water use .....	47
9.8	Calculation of additional cost and income related information (information module D) .....	47
9.9	VAT .....	47
10	Selection of economic data for economic assessment .....	47
10.1	General .....	47
10.2	Specification of the discount rate .....	47
10.3	Escalation rates .....	48
10.4	Data quality .....	48
11	Calculation of the economic indicators .....	48
11.1	Methods for assessing the economic indicators .....	48
11.2	Calculation of the discount factor .....	49
11.3	Net Present Value (NPV), Net Present Cost (NPC) .....	49
11.4	Annual Cost and Annual Equivalent Value (AC or AEV) .....	49
11.5	Other economic indicators .....	49
11.6	Costs and related indicators .....	49
11.7	Calculation methods .....	49
12	Reporting of the assessment of results .....	50
12.1	General information on the assessment .....	50
12.2	General information on the object of assessment .....	50
12.3	Statement of boundaries and scenarios used in the assessment .....	51
12.4	Data sources .....	51
12.5	Expression of results .....	51
12.6	Communication of assessment results .....	52
13	Verification of results .....	52
	Annex A (informative) Example building description .....	54
	Annex B (informative) Exported energy - Case studies .....	56
B.1	General .....	56
B.2	Case 1 .....	56
B.3	Case 2 .....	57
B.4	Case 3 .....	57
B.5	Case 4 .....	58
	Annex C (informative) Additional indicators to assess the economic performance of buildings - Rules for assessment .....	60
C.1	General .....	60
C.2	Value stability and performance .....	60
C.2.1	General .....	60
C.2.2	Value stability in a short-term perspective .....	60
C.2.3	Value stability and performance in a medium-to long-term perspective .....	60

**C.2.4 Additional economic indicators used in ISO 15686-5 .....61**  
**Bibliography .....62**