

E DIN EN 17549-2:2021-12 (E)

Erscheinungsdatum: 2021-11-05

Building information modelling - Information structure based on EN ISO 16739-1 to exchange data templates and data sheets for construction objects - Part 2: Configurable construction objects and requirements; English version prEN 17549-2:2021

Contents

Page

European foreword	5
Introduction	6
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	9
3.1 Terms and definitions	9
3.2 Abbreviated terms.....	11
4 Fundamental concepts and assumptions.....	11
4.1 General.....	11
4.2 Units.....	16
4.2.1 General.....	16
4.2.2 IfcSIUnit definition	16
4.2.3 IfcConversionBasedUnitWithOffset definition.....	17
4.2.4 UnitsInContext prohibition	18
4.2.5 Unit explicit definition	19
4.2.6 IfcDerivedUnit definition	19
4.3 Data Dictionaries	19
4.3.1 General.....	19
4.3.2 IfcLibraryReference identification	20
4.3.3 IfcLibraryReference attributes	20
4.4 Properties	21
4.4.1 General.....	21
4.4.2 IfcSimpleProperty definition	22
4.4.3 IfcSimpleProperty unique definition	22
4.4.4 IfcSimpleProperty in property set.....	23
4.4.5 IfcProperty single, reference, or complex value.....	23
4.4.6 IfcPropertySingleValue attributes.....	23
4.4.7 IfcPropertyTableValue attributes.....	24
4.5 Dynamic Properties	25
4.5.1 IfcPropertyReferenceValue usage	25
4.5.2 IfcProperty dependencies.....	26
4.6 Sets of properties	28
4.6.1 General.....	28
4.6.2 IfcPropertySet definition	29
4.6.3 IfcPropertySet unique definition	29
4.6.4 IfcPropertySet allowed elements.....	30
4.6.5 IfcPropertySet attributes	30
4.7 Objects	31
4.7.1 General.....	31
4.7.2 IfcBuildingElementProxy definition	31
4.7.3 IfcBuildingElementProxy unique definition	31
4.7.4 IfcBuildingElementProxy as property sets.....	33

4.7.5	IfcBuildingElementProxy as a system	33
4.7.6	IfcBuildingElementProxy attributes.....	34
4.8	Object types.....	35
4.8.1	General	35
4.8.2	IfcBuildingElementProxyType definition.....	36
4.8.3	IfcBuildingElementProxyType unique definition.....	37
4.8.4	IfcBuildingElementProxyType as property sets.....	38
4.8.5	IfcBuildingElementProxyType as a system.....	38
4.8.6	ApplicableOccurrence value.....	39
4.8.7	IfcBuildingElementProxyType attributes.....	39
4.9	Semantic relationships	40
4.9.1	General	40
4.9.2	IfcGroup definition.....	42
4.9.3	IfcGroup unique definition.....	42
4.9.4	IfcGroup as semantic relationship	43
4.10	Constraints.....	45
4.10.1	General	45
4.10.2	ConstraintGrade value	46
4.10.3	IfcConstraint target.....	47
4.10.4	ObjectiveQualifier value	50
4.10.5	DataValue value	51
4.10.6	IfcConstraint definition	51
4.10.7	IfcObjective attributes	52
4.10.8	IfcMetric attributes	54
4.11	Contexts.....	55
4.11.1	General	55
4.11.2	IfcProject allowed decompositions.....	55
4.11.3	IfcBuilding allowed content.....	56
4.11.4	IfcProject allowed declarations.....	57
4.11.5	IfcProjectLibrary allowed declarations.....	57
4.12	Root.....	58
4.12.1	IfcRoot attributes.....	58
5	Core data schemas.....	58
5.1	General	58
5.2	IfcKernel	59
5.2.2	Types	61
5.2.3	Entities.....	62
5.2.4	Functions	115
5.2.5	Rules.....	115
5.3	IfcControlExtension	115
5.3.1	Entities.....	115
5.4	IfcProductExtension	117
5.4.1	Entities.....	117
6	Shared element data schemas.....	137
6.1	IfcSharedBuildingElements	137
6.1.1	Types	137
6.1.2	Entities.....	137
7	Domain specific data schemas	145
8	Resource definition data schemas.....	145
8.1	General	145
8.2	IfcActorResource	145
8.2.1	Types	145

8.2.2	Entities.....	145
8.3	IfcConstraintResource	149
8.3.1	Types	150
8.3.2	Entities.....	151
8.4	IfcCostResource	160
8.4.1	General.....	160
8.4.2	Types	160
8.4.3	Entities.....	161
8.5	IfcDateTimeResource	163
8.5.1	Types	163
8.6	IfcExternalReferenceResource	163
8.6.1	Schema definition	163
8.6.2	Types	163
8.6.3	Entities.....	164
8.7	IfcMeasureResource	168
8.7.1	Types	168
8.7.2	Entities.....	175
8.7.3	Functions.....	183
8.8	IfcPropertyResource	183
8.8.1	Schema definition	183
8.8.2	Types	184
8.8.3	Entities.....	184
8.9	IfcUtilityResource	199
8.9.1	Schema definition	199
8.9.2	Types	199
8.9.3	Entities.....	200
Annex A (normative) Computer interpretable listings	206	
A.1 CODview-2 long form schema.....	Error! Bookmark not defined.	
Annex B (informative) Examples.....	207	
B.1 Preliminary examples	207	
B.1.1 Dimensions and units	207	
B.1.2 Data definition and data dictionaries: properties and data templates.....	209	
B.1.3 Dependencies between properties: IfcAppliedValue	212	
B.1.4 Dependencies between properties: JavaScript	213	
B.1.5 Constraints on values: IfcConstraint.....	215	
B.1.6 Semantic relationships: IfcGroup.....	219	
B.2 Business examples	221	
B.2.1 Using requirements	221	
B.2.2 Check of the consistency between the objects included in a project and the requirements defined in a previous phase.....	223	
B.2.3 Semantic, concurrent, and iterative definition of an object during design phases	224	
B.2.4 Product catalogue	226	
B.2.5 Search in a product catalogue	231	
B.2.6 Bills of quantities (pre-design programs, technical specifications, offers)	232	
B.2.7 Procurement and product purchase.....	233	