



UML diagrams

Last updated on 25 June 2025







BEWARE

This document is for internal use only

A version of this document will be made available as open access publication at a later date.

The latest version of this document can be downloaded from: https://github.com/tudelft3d/DigiTwins4PEDs/tree/main/energy_ade_2

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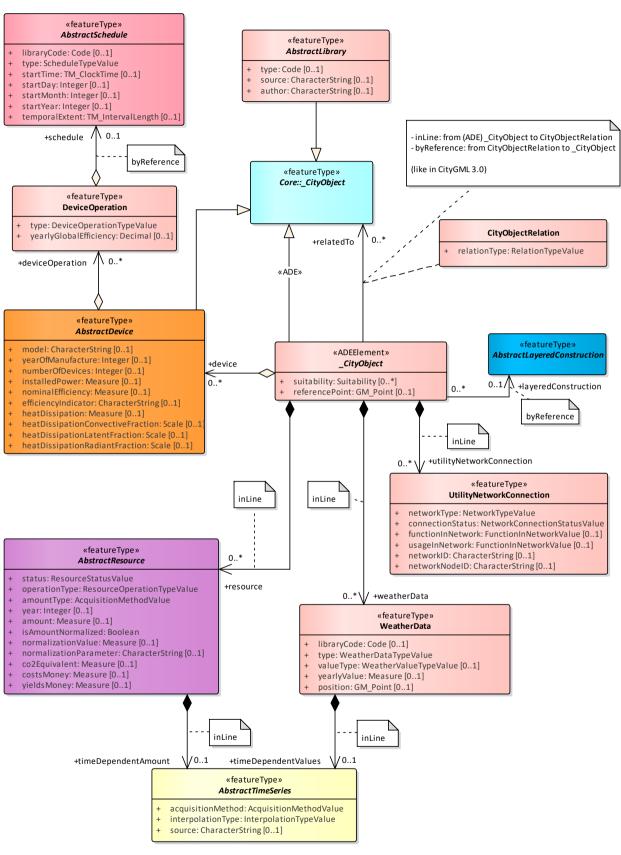
Particular gratitude is due to Daniele Gasparini for designing the Energy ADE 2.0 logo.

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Overview of the packages «applicationSchema» Core «ApplicationSchema» CityObjectGroup «applicationSchema» Building (from CityGML) (from CityGML) (from CityGML) **Urban Function Areas** Weather Station **Building Physics** «leaf» «leaf» Time Series Core **Layered Construction** «leaf» «leaf» «leaf» Occupancy Schedules Devices «leaf» Resources «leaf» «leaf» «leaf» CodeLists Enumerations DataTypes

Core module



«codeList» CodeLists:: AcquisitionMethodValue

- measurement
- simulation
- calibratedSimulation
- estimation
- unknown

«codeList» CodeLists:: DeviceOperationTypeValue

- cooking
- domesticHotWater
- electricalAppliances
- lighting
- otherOrCombination process
- shading
- spaceCooling
- spaceHeating
- ventilation
- unknown

«codeList» CodeLists:: FunctionInNetworkValue

- producing
- consuming
- storage
- other
- unknown

«codeList» CodeLists:: ScheduleTypeValue

- hour
- day
- week
- month season
- year
- typicalDay
- typicalWeek typicalMonth
- typicalSeason
- typicalYear
- monday
- tuesday
- wednesday
- thursday
- friday
- saturday
- sunday
- weekDay
- weekendDay
- beerDay holiday
- january
- february
- march
- april
- may
- june
- july
- august
- september
- october
- november
- december
- summer
- autumn
- other

«codeList» CodeLists:: NetworkTypeValue

- data
- gas
- districtHeating
- districtCooling
- wasteWater electicalGrid
- other
- unknown

«codeList» CodeLists:: RelationTypeValue

- adjacentTo
- installedOn
- sharedWith

Code Lists:: ResourceOperationTypeValue demands

«codeList»

- has
- hasBalanceOf
- produces
- stores

«codeList» CodeLists::WeatherDataTypeValue

- airTemperature
- humidity
- windSpeed
- windDirection
- cloudiness
- globalSolarIrradiance
- directSolarIrradiance
- diffuseSolarIrradiance
- terrestrialEmission
- downwardTerrestrialRadiation
- daylightIlluminance
- shadowingFactor precipitation

«codeList» CodeLists::

- WeatherValueTypeValue
- absolute maximum average maximum
- average
- average minimum
- absolute minimum unknown

spring

- winter

«enumeration» Enumerations:: InterpolationTypeValue

average In Preceding IntervalaverageInSucceedingInterval constantInPrecedingInterval constant In Succeeding Intervalcontinuous discontinuous instantaneous Totalmaximum In Preceding IntervalmaximumInSucceedingInterval minimumInPrecedingInterval minimumInSucceedingInterval precedingTotal

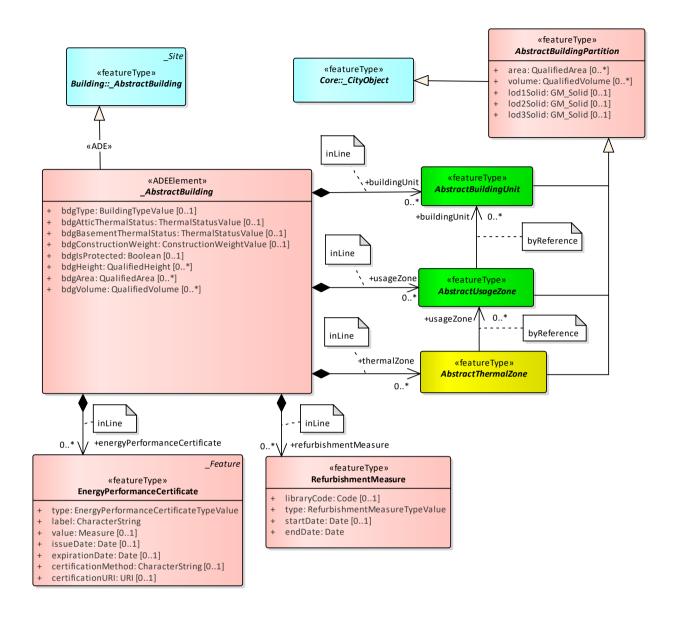
succeedingTotal

«enumeration» Enumerations:: NetworkConnectionStatusValue

disconnectedButConnectable disconnected And Not Connectable

«enumeration» Enumerations:: ResourceStatusValue

potential unknown



«codeList» CodeLists:: BuildingTypeValue

- + single-family house + terraced house
- multi-family house
- apartment block
- commercial building
- industrial building
- office building
- religious building
- hospital
- leisure activity building
- unknown

«enumeration» Enumerations:: ThermalStatusValue

is Only Heatedis Only CooledisHeatedAndCooled is Neither Heated Nor Cooledunknown

«codeList» CodeLists:: ConstructionWeightValue

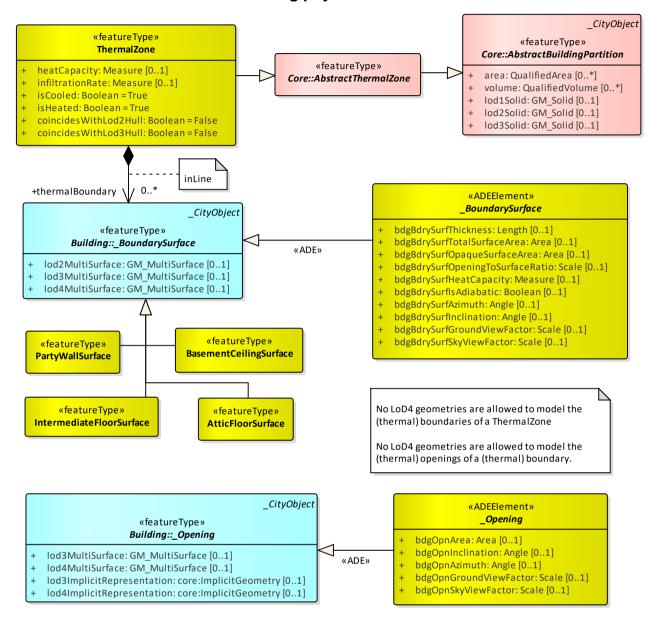
- veryLight
- light
- medium
- heavy
- unknown

«codeList» CodeLists:: EnergyPerformanceCertificateTypeValue

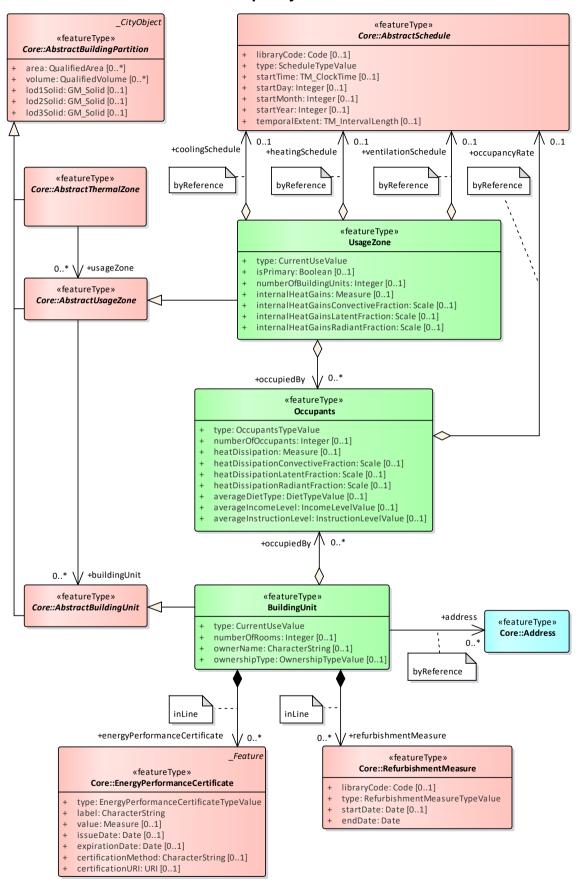
«codeList» CodeLists:: RefurbishmentMeasureTypeValue

- installedSolarPanels
- installedPVPanels
- installedHeatPump
- changedBoiler
- insulatedWholeThermalHull
- installedFloorHeating
- changedWindows
- changedDoors
- insulatedRoof
- $insulated {\tt ExteriorWalls}$
- insulated Ground Floor
- other
- unknown

Building physics module



Occupancy module



«codeList» CodeLists::CurrentUseValue

- + omnivorous
- + vegetarian
- + vegan
- + other
- + unknown

«codeList» CodeLists::IncomeLevelValue

- + very low
- + low
- + middle
- + high
- + very high
- + unknown

«codeList» CodeLists:: InstructionLevelValue

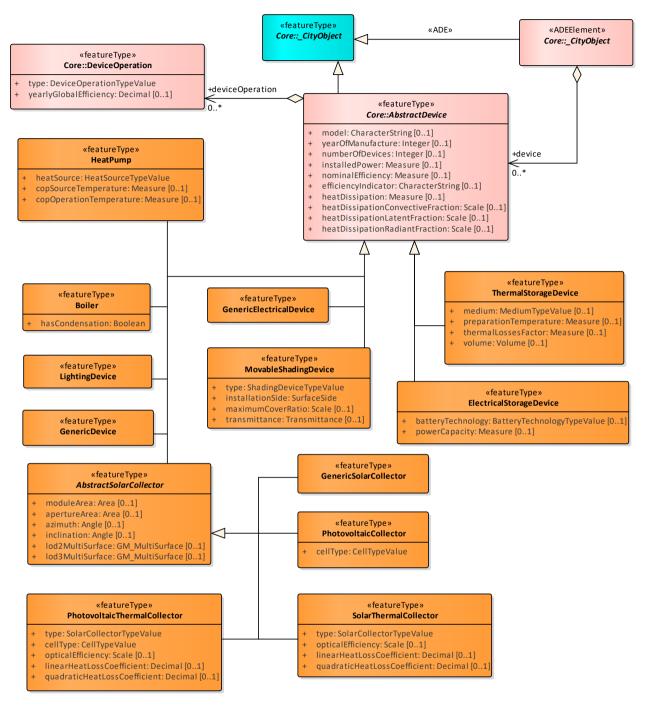
- + no formal education
- + primary school
- + secondary school
- + university
- + postGraduate
- + unknown

«codeList» CodeLists:: OccupantsTypeValue

- + patients
- + residents
- + students
- + visitors
- + workers
- + otherOrCombination
- + unknown

- + corporation
- + government
- nonOccupantPrivateOwner
- nonProfitOrganisation
- occupantPrivateOwner
- + otherOrCombination
- propertyManagementCompany
- + unknown

Devices module



«codeList» CodeLists:: BatteryTechnologyTypeValue

«codeList» CodeLists::CellTypeValue

- monocrystalline
- polycrystalline
- amorphous unknown

«codeList» CodeLists:: DeviceOperationTypeValue

- cooking
- domesticHotWater
- electricalAppliances lighting otherOrCombination

- process
- shading
- spaceCooling
- spaceHeating ventilation
- unknown

«codeList» CodeLists:: SolarCollectorTypeValue

- flatPlaneCollector
- evacuatedTubeCollector
- unknown

«codeList» CodeLists:: HeatSourceTypeValue

- ambientAir
- aquifer
- exhaustAir
- horizontalGroundCollector
- verticalGroundCollector
- unknown

«codeList» CodeLists::MediumTypeValue

- air
- steam
- water
- unknown

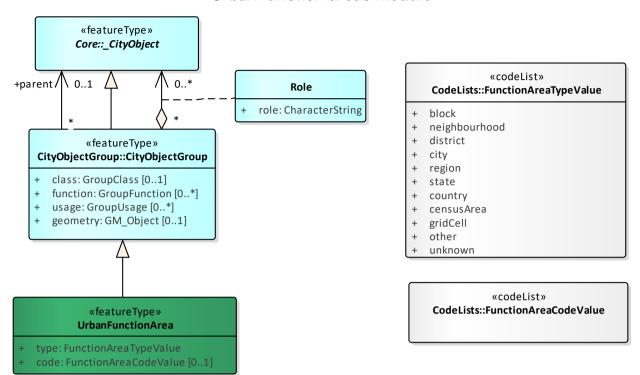
«codeList» CodeLists:: ShadingDeviceTypeValue

- curtain
- shutter
- blind
- other
- unknown

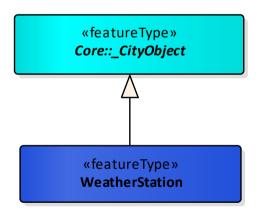
«enumeration» Enumerations:: SurfaceSide

inside outside

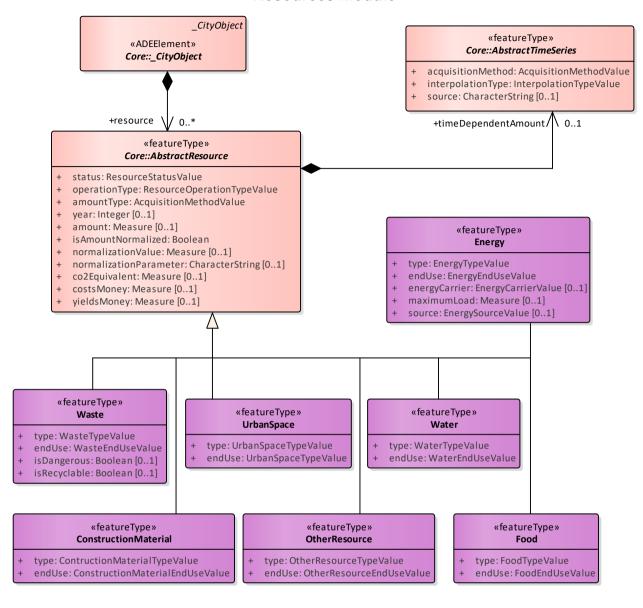
Urban function areas module



Weather station module



Resources module



«codeList» CodeLists:: ConstructionMaterialEndUseValue

- construction
- refurbishment
- otherOrCombination
- unknown

«codeList» CodeLists::

ContructionMaterialTypeValue

- wood
- tiles
- concrete
- sand
- soil
- otherOrCombination
- glass
- bricks
- unknown

«codeList» CodeLists:: EnergyCarrierValue

- electricity
- coal
- naturalGas
- chilledAir
- chilledWater
- fuelOil
- hotAir
- steam
- hotWater
- woodChips
- hydrogen
- propane woodPallets
- other unknown

«codeList» CodeLists:: EnergyEndUseValue

- cooking
- domesticHotWater
- electricalAppliances
- lighting
- other Or Combination
- spaceCooling
- spaceHeating ventilation
- process
- construction unknown

«codeList» CodeLists:: EnergyTypeValue

- actual
- net
- primary
- secondary
- final
- useful

«codeList» CodeLists::EnergySourceValue

- photovoltaicPanels
- powerGrid
- districtHeating
- solar Thermal Panels
- heatPump
- wind

«codeList» CodeLists:: FoodEndUseValue

- alimentation
- commerce

«codeList» CodeLists:: FoodTypeValue

- greeneries
- meat
- cereals
- cheese
- milk
- wine
- beer unknown

«codeList» CodeLists:: OtherResource End Use Value

«codeList» CodeLists:: OtherResourceTypeValue

«codeList» CodeLists:: **UrbanSpaceEndUseValue**

«codeList» CodeLists:: UrbanSpaceTypeValue

«codeList» CodeLists:: WaterEndUseValue

- drinking
- washing
- processing
- otherOrCombination
- unknown

«codeList» CodeLists:: WaterTypeValue

- drinkWater
- wasteWater rainWater
- otherOrCombination
- unknown

«codeList» CodeLists:: WasteEndUseValue

- incineration
- landFilling
- recycling
- other
- unknown

«codeList» CodeLists::WasteTypeValue

- organic
- plastic
- glass
- paper
- metal
- water
- otherOrCombination
- unknown

«codeList» CodeLists:: ResourceOperationTypeValue

- demands
- has
- hasBalanceOf
- produces
- stores

«codeList» CodeLists:: **AcquisitionMethodValue**

calibratedSimulation

- measurement
- simulation
- estimation unknown

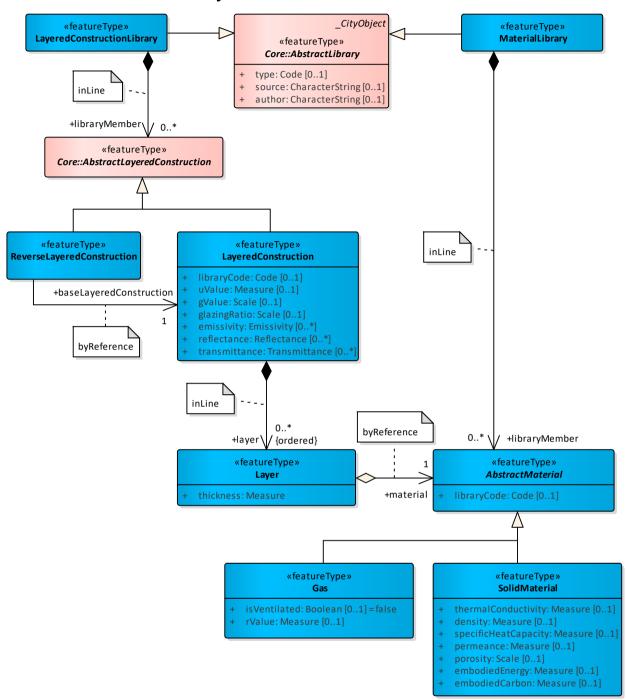
«enumeration» Enumerations:: Resource Status Value

actual potential unknown

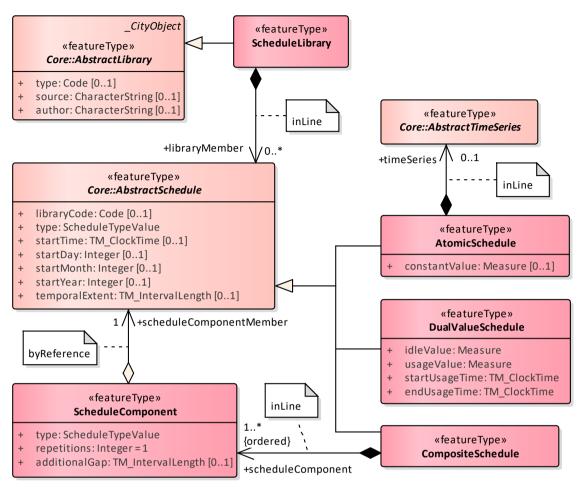
«enumeration» Enumerations:: InterpolationTypeValue

averageInPrecedingInterval averageInSucceedingInterval $constant In {\tt Preceding Interval}$ constantInSucceedingInterval continuous discontinuous instantaneousTotal maximumInPrecedingInterval maximumInSucceedingInterval minimumInPrecedingInterval minimumInSucceedingInterval preceding TotalsucceedingTotal

Layered construction module



Schedules module



Time series module

«featureType» Core::AbstractTimeSeries

- acquisitionMethod: AcquisitionMethodValue
- + interpolationType: InterpolationTypeValue
- + source: CharacterString [0..1]

«featureType» RegularTimeSeries

- + temporalExtent: TM Period
- + timeInterval: TM IntervalLength
- + valuesList: MeasureList

«featureType» TypicalValuesTimeSeries

- + startTime: TM_ClockTime [0..1]
- startDay: Integer [0..1]
- + startMonth: Integer [0..1]
- + temporalExtent: TM IntervalLength
- + timeInterval: TM IntervalLength
- + valuesList: MeasureList

«featureType» RegularTimeSeriesFile

- + uom: UnitOfMeasure
- + fileURI: URI
- + temporalExtent: TM_Period
- + timeInterval: TM IntervalLength
- + numberOfHeaderLines: Integer [0..1] = 0
- + fieldSeparator: CharacterString
- + recordSeparator: CharacterString [0..1] = \n
- + decimalSymbol: Character [0..1] = .
- + valueColumnNumber: Integer [0..1] = 1

«featureType» TypicalValuesTimeSeriesFile

- + startTime: TM_ClockTime [0..1]
- + startDay: Integer [0..1]
- + startMonth: Integer [0..1]
- + uom: UnitOfMeasure
- + fileURI: URI
- + temporalExtent: TM IntervalLength
- + timeInterval: TM IntervalLength
- + numberOfHeaderLines: Integer [0..1] = 0
- + fieldSeparator: CharacterString
- + recordSeparator: CharacterString [0..1] = \n
- + decimalSymbol: Character [0..1] = .
- + valueColumnNumber: Integer [0..1] = 1

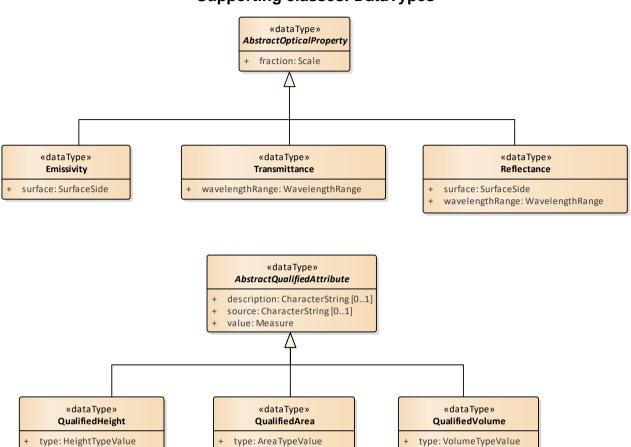
«featureType» SensorConnection

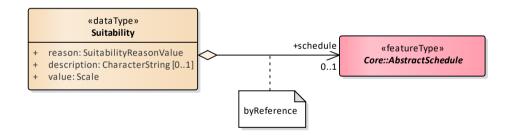
- + temporalExtent: TM_IntervalLength
- + connectionType: SensorConnectionTypeValue
- + observationProperty: CharacterString
- + uom: UnitOfMeasure [0..1]
- sensorID: CharacterString [0..1]
- + sensorName: CharacterString [0..1]
- + observationID: CharacterString [0..1]+ datastreamID: CharacterString [0..1]
- + baseURL: URI [0..1]
- + authType: AuthenticationTypeValue [0..1]
- + mqttServer: CharacterString [0..1]
- + mqttTopic: CharacterString [0..1]
- + linkToObservation: CharacterString [0..1]
- + linkToSensorDescription: CharacterString [0..1]

«codeList»
CodeLists::
SensorConnectionTypeValue

«codeList»
CodeLists::
AuthenticationTypeValue

Supporting classes: DataTypes





Supporting classes: Enumerations

«enumeration» InterpolationTypeValue

averageInPrecedingInterval averageInSucceedingInterval constantInPrecedingInterval constantInSucceedingInterval constantInSucceedingInterval continuous discontinuous instantaneousTotal maximumInPrecedingInterval maximumInSucceedingInterval minimumInPrecedingInterval minimumInSucceedingInterval precedingTotal succeedingTotal

«enumeration» NetworkConnectionStatusValue

connected disconnectedButConnectable disconnectedAndNotConnectable unknown

«enumeration» ResourceStatusValue

actual potential unknown

«enumeration» SurfaceSide

inside outside

«enumeration» ThermalStatusValue

is Only Heated is Only Cooled is Heated And Cooled is Neither Heated Nor Cooled unknown

«enumeration» WavelengthRange

solar infrared visible total

Supporting classes: Codelists

«codelist» AcquisitionMethodValue

- measurement
- simulation
- calibratedSimulation
- estimation

«codeList» AreaTypeValue

- footprintArea
- netFloorArea
- grossFloorArea
- energyReferenceArea
- heatedArea
- cooledArea
- totalRoofArea

«codeList»

DeviceOperationTypeValue

domestic Hot Water

electricalAppliances

lighting otherOrCombination

cooking

process

shading

spaceCooling

spaceHeating

ventilation

unknown

- totalWallSurfaceArea
- totalPartyWallSurfaceArea
- totalGroundSurfaceArea
- totalExteriorEnvelopeArea

AuthenticationTypeValue

«codeList» BatteryTechnologyTypeValue

«codeList» BuildingTypeValue

- single-family house
- terraced house
- multi-family house
- apartment block commercial building
- industrial building
- office building
- religious building
- hospital
- leisure activity building
- unknown

«codeList»

ConstructionWeightValue

veryLight

medium

unknown

light

heavy

«codeList»

«codeList»

CellTypeValue

monocrystalline

polycrystalline

amorphous

unknown

- wood
- tiles
- concrete
- sand
- soil
- otherOrCombination
- glass
- unknown

«codeList» EnergyPerformanceCertificateTypeValue

«codeList» ConstructionMaterialEndUseValue

- construction
- refurbishment
- otherOrCombination
- unknown

- «codeList» EnergyCarrierValue
- electricity
- coal
- naturalGas chilledAir
- chilledWater
- fuelOil
- hotAir
- steam
- hotWater woodChips
- hydrogen
- propane woodPallets
- other
- unknown

«codeList»

- cereals
- cheese
- milk
- beer

«codeList» EnergyEndUseValue

- cooking
- domestic Hot WaterelectricalAppliances
- lighting otherOrCombination
- spaceCooling
- spaceHeating
- ventilation
- process
- construction unknown

«codeList» EnergySourceValue

- photovoltaicPanels
- powerGrid
- districtHeating solarThermalPanels
- heatPump
- wind

«codeList» EnergyTypeValue

«codeList»

CurrentUseValue

«codeList»

DietTypeValue

omnivorous

vegetarian

vegan

unknown

other

- actual
- net
- primary secondary
- final useful

FoodEndUseValue

alimentation commerce

FoodTypeValue

- greeneries
- meat
- wine

«codeList» FunctionAreaCodeValue

«codeList» FunctionAreaTypeValue

- neighbourhood
- district
- city
- region state
- country
- census Area
- gridCell other
- unknown

«codeList» FunctionInNetworkValue

- producing consuming
- storage
- other unknown

«codeList» HeatSourceTypeValue

- ambientAir
- aquifer
- exhaustAir
- horizontalGroundCollector
- verticalGroundCollector
- unknown

«codeList» HeightTypeValue

- bottomOfConstruction
- entrancePoint generalEave
- generalRoof
- generalRoofEdge
- highestEave highest Point
- highestRoofEdge
- **lowestEave** IowestFloorAboveGround
- IowestRoofEdge
- topOfConstruction
- topThermalBoundary bottomThermalBoundary

«codeList» IncomeLevelValue

- very low low
- middle
- high
- very high unknown

«codeList» InstructionLevelValue

- no formal education
- primary school
- secondary school university
- postGraduate
- unknown

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«codeList» OccupantsTypeValue

- patients
- residents
- students
- visitors
- workers
- otherOrCombination
- unknown

«codeList»

- wasteWater
- other
- unknown

«codeList» OtherResourceEndUseValue

«codeList» OtherResourceTypeValue

«codeList» MediumTypeValue

- steam
- water
- unknown

NetworkTypeValue

- data
- gas
- districtHeating districtCooling
- electicalGrid

«codeList» OwnershipTypeValue

- corporation
- government
- nonOccupantPrivateOwner
- nonProfitOrganisation
- occupantPrivateOwner
- otherOrCombination
- property Management Company
- unknown

«codelist» RefurbishmentMeasureTypeValue

- installedSolarPanels
- installedPVPanels
- installedHeatPump
- changedBoiler
- insulatedWholeThermalHull
- installedFloorHeating
- changedWindows
- changed Doors
- insulatedRoof insulatedExteriorWalls
- insulated Ground Floor
- other
- unknown

«codeList» RelationTypeValue

- adjacentTo
- installedOn
- sharedWith

«codeList» ScheduleTypeValue

- hour
- dav
- week month
- season
- vear
- typicalDay
- typicalWeek
- typicalMonth
- typicalSeason
- typicalYear
- monday
- tuesday
- wednesday
- thursday
- friday saturday
- sunday
- weekDay weekendDay
- beerDay
- holiday
- january
- february
- march april
- may
- june
- july
- august september
- october
- november
- december spring
- summer autumn
- winter
- other

«codeList»

ResourceOperationTypeValue

- demands
- hasBalanceOf produces
- stores

- unknown

«codeList» SensorConnectionTypeValue

«codeList» ShadingDeviceTypeValue

- curtain
- shutter
- blind
- other unknown

«codeList» SolarCollectorTypeValue

- flatPlaneCollector
- evacuatedTubeCollector

«codeList» SuitabilityReasonValue

«codeList» UrbanSpaceEndUseValue

«codeList» UrbanSpaceTypeValue

«codeList»

VolumeTypeValue

- netVolume
- grossVolume
- energyReferenceVolume
- heatedVolume cooledVolume

«codeList» WasteTypeValue

- organic
- plastic
- glass
- paper
- metal water
- otherOrCombination unknown

«codeList» Waste End Use Value

incineration

unknown

- landFilling
- recycling other
- «codeList» WaterEndUseValue
 - drinking
 - washing
 - processing otherOrCombination
 - unknown

«codeList» WaterTypeValue

- drinkWater
- wasteWater
- rainWater otherOrCombination unknown

«codeList» WeatherDataTypeValue

- airTemperature
- humidity
- windSpeed
- windDirection
- cloudiness globalSolarIrradiance
- directSolarIrradiance
- diffuseSolarIrradiance terrestrialEmission
- downward Terrestrial RadiationdaylightIlluminance
- shadowingFactor precipitation

«codeList» WeatherValueTypeValue

- absolute maximum
- average maximum
- average average minimum
- absolute minimum unknown

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Changelog

Version 2.0 beta 7

2025-06-25

Schedules package:

- Class ScheduleLibrary
 - Changed relation type of *libraryMember* to composition

Layered Construction package:

- Class LayeredConstructionLibrary
 - Changed relation type of libraryMember to composition
- Class LayeredConstruction
 - Added property gValue
- Class MaterialLibrary
 - Changed relation type of *libraryMember* to composition

2025-05-30

Schedules package:

- Class AtomicSchedule
 - Changed multiplicity of relation *timeSeries* to [0..1]
 - Added property constantValue

2025-05-13

Building physics package:

- Class ThermalZone
 - Changed relation type of thermalBoundary to composition

2025-05-07

Core package:

- Class ADE CityObject
 - Changed relation type of *device* to aggregation
 - Changed relation type of weatherData to composition
- Class AbstractThermalZone
 - Changed relation type of usageZone to association
- Class AbstractUsageZone
 - Changed relation type of building Unit to association
- Class AbstractResource
 - Made relation to **AbstractTimeSeries** explicit and set to composition
- Class DeviceOperation
 - Made relation to **AbstractSchedule** explicit and set to aggregation
- Class WeatherData
 - Made relation to **AbstractTimeSeries** explicit and set to composition

Occupancy package:

- Class UsageZone
 - Changed relation type of occupiedBy to aggregation
 - Made all relations to **AbstractSchedule** explicit and set to aggregation
- Class BuildingUnit
 - Changed relation type of *occupiedBy* to aggregation
- Class Occupants
 - Made relation to AbstractSchedule explicit and set to aggregation

Layered Construction package:

- Class LaveredConstruction
 - Changed relation type of *layer* to composition
- Class Layer
 - Changed relation type of *material* to aggregation

Schedules package:

- Class ScheduleComponent
 - Changed relation type of *scheduleComponentMember* to aggregation

2025-05-01

Core package:

- Class ADE AbstractSchedule
 - Moved from package Schedules to Core
- Class ADE AbstractTimeSeries
 - Moved from package Time Series to Core

Occupancy package:

- Class Occupants:
 - Added property averageDietType
 - Added property averageIncomeLevel
 - Added property averageInstructionLevel

CodeLists package:

- Added class DietTypeValue
- Added class InstructionLevelValue
- Added class IncomeLevelValue

2025-04-23

CodeLists package:

- Added values to class AreaTypeValue
- Renamed class HeightReferenceValue to HeightTypeValue
- Added class SuitabilityReasonValue
- Added class UrbanSpaceTypeValue
- Added class **UrbanSpaceEndUseValue**

DataTypes package:

• Added class Suitability

Core package:

- Class ADE _CityObject
 - Added property suitability
- Class ADE _AbstractBuilding
 - Renamed property bdgFloorArea to bdgArea
 - Renamed property bdgHeightAboveGround to bdgHeight
- Class AbstractBuildingPartition
 - Renamed property floorArea to area

Resources package:

Added class UrbanSpace

2025-04-12

Core package:

• Added class AbstractLibrary

Layered Construction package:

- Added class LayeredConstructionLibrary
- Added class MaterialLibrary

Schedules package:

• Added class ScheduleLibrary

CodeLists package:

• Class FunctionInNetwork renamed to FunctionInNetworkValue

Version 2.0 beta 6

2025-02-06

DataTypes package:

- Dropped class HeatExchangeType
- Dropped class OpticalProperties

Core package:

- Class ADE _CityObject:
 - Renamed property from operationSchedule to deviceOperation
- Class AbstractDevice:
 - Changed type of property heatDissipation to gml:Measure
 - Added property heatDissipationConvectiveFraction
 - Added property heatDissipationLatentFraction
 - Added property heatDissipationRadiantFraction

Occupancy package:

- Class UsageZone:
 - Renamed property averageInternalGains to internalGains and changed type to gml:Measure
 - Added property internalGainsConvectiveFraction
 - Added property internal Gains Latent Fraction
 - Added property internal Gains Radiant Fraction
- Class Occupants:
 - Changed type of property heatDissipation to gml:Measure
 - Added property *heatDissipationConvectiveFraction*
 - Added property heatDissipationLatentFraction
 - Added property heatDissipationRadiantFraction

Layered Construction package:

- Class **LayeredConstruction**:
 - Dropped property optical Properties
 - Added property glazingRatio
 - Added property emissivity
 - Added property reflectance
 - Added property transmittance
- Class Layer:
 - Changed multiplicity of property thickness to [1]
- Class AbstractMaterial:
 - Added property libraryCode

Version 2.0 beta 5	

Resources package:

No changes since beta 4

Weather Station package:

No changes since beta 4

2025-01-30

Packages

- Created TimeSeries package and moved all related classes into it
- Created Schedule package and moved all related classes into it
- Dropped Supporting classes package

CodeLists package:

• Class CertificateTypeValue renamed to EnergyPerformanceCertificateTypeValue

2025-01-28

CodeLists package:

• Added class ScheduleTypeValue

Enumerations package:

• Dropped class DayTypeValue

Supporting classes package:

- Dropped class TimeSeriesSchedule
- Dropped class DailyPatternSchedule
- Dropped class PeriodOfYear
- Dropped class DailySchedule
- Added class AtomicSchedule
- Added class CompositeSchedule
- Added class ScheduleComponent
- Class AbstractSchedule:
 - Added properties type, startTime, startDay, startMonth, startYear, temporalExtent

2025-01-22

Devices package:

- Class AbstractSolarCollector:
 - Added properties azimuth and inclination
 - Dropped property *surfaceGeometry*
 - Added properties lod2MultiSurface and lod3MultiSurface

2025-01-13

CodeLists package:

- Dropped class ThermalBoundaryTypeValue
- Added class ShadingDeviceTypeValue
- Added class WeatherValueTypeValue

DataTypes package:

- Moved class PeriodOfYear from package DataTypes to Supporting classes
- Moved class DailySchedule from package DataTypes to Supporting classes
- Class AbstractQualifiedAttribute:
 - Added properties source and value
- Classes QualifiedHeight, QualifiedArea, QualifiedVolume:
 - Dropped property value

Supporting classes package:

Class AbstractTimeSeries:

- Moved back from package Core to Supporting classes
- Changed multiplicity of property acquisitionMethod to [1]
- Changed multiplicity of property *interpolationType* to [1]
- ClassTypicalValuesTimeSeries:
 - Added properties startTime, startDay, startMonth
- Class TypicalValuesTimeSeriesFile:
 - Added properties startTime, startDay, startMonth
- Added class DualValueSchedule:
- Class PeriodOfYear:
 - Changed stereotype from dataType to featureType
 - Added properties startDay, startMonth, endDay, endMonth
 - Dropped property period
- Class DailvSchedule:
 - Changed stereotype from dataType to featureType
 - Added property repetition
 - Renamed property from schedule to timeSeries

Layered Construction package:

- Added class ReverseLayeredConstruction
- Dropped class LayerComponent
- Class Layer:
 - Removed property layerComponent
 - Added property thickness
 - Added property material
- Class SolidMaterial:
 - Renamed property from *specificHeat* to *specificHeatCapacity*
 - (Re)added and renamed property from conductivity to thermalConductivity
 - (Re)added property *embodiedEnergy*
 - (Re)added property embodiedCarbon
 - (Re)added property porosity

Core package:

- Class **AbstractDevice**:
 - Class is renamed from **AbstractEnergySystem** to **AbstractDevice**
 - Added property heatDissipation
 - Added property operationSchedule
 - Added property efficienctIndicator
 - Added property installedPower
 - Added property *nominalEfficiency*
- Class AbstractTimeSeries:
 - Moved back from package Core to Supporting classes
- Class (ADE) _CityObject:
 - Renamed property from energySystem to device
- Class OperationSchedule:
 - Moved from package Devices to Core
- Class **WeatherData**:
 - Renamed property from timeseries to timeDependentValues
 - Renamed property from singleValue to yearlyValue
 - Renamed property from singleValueType to valueType
 - Changed type of property valueType from CharacterString to CodeList
- Added class AbstractBuildingPartition
- $\bullet \quad Classes \ \textbf{AbstractBuildingUnit}, \ \textbf{AbstractUsageZone}, \ \textbf{AbstractThermalZone}$
 - Changed parent class

Building physics package:

- Dropped class ThermalBoundary
- Dropped class ThermalOpening
- Class ThermalZone
 - Removed property floorArea (now inherited via AbstractBuildingPartition)

- Removed property volume (now inherited via AbstractBuildingPartition)
- Removed property *volumeGeometry* (now inherited via **AbstractBuildingPartition**)
- Removed property boundedBy
- Added property heatCapacity
- Added property coincidesWithLod2Hull
- Added property coincidesWithLod3Hull
- Added property *thermalBoundary*
- Added class PartyWallSurface
- Added class **BasementCeilingSurface**
- Added class IntermediateFloorSurface
- Added class AtticFloorSurface
- Class (ADE) _BoundarySurface:
 - Renamed property from bdgBdrySrfWindowToWallRatio to bdgBdrySrfOpeningToSurfaceRatio
 - Renamed property from bdgBdrySrfArea to bdgBdryTotalSurfaceArea
 - Added property bdgBdryOpaqueSurfaceArea
 - Added property bdgBdrySrfThickness
 - Added property bdgBdrySrfHeatCapacity

Occupancy package:

- Dropped class AbstractFacilities
- Dropped class **DHWFacilities**
- Dropped class LightingFacilities
- Dropped class **ElectricalAppliances**
- Dropped class GenericFacilities
- Class BuildingUnit:
 - Removed property *floorArea* (now inherited via **AbstractBuildingPartition**)
 - Removed property *volume* (now inherited via **AbstractBuildingPartition**)
 - Removed property equippedWith
- Class UsageZone:
 - Removed property *floorArea* (now inherited via **AbstractBuildingPartition**)
 - Removed property *volume* (now inherited via **AbstractBuildingPartition**)
 - Removed property *volumeGeometry* (now inherited via **AbstractBuildingPartition**)
 - Removed property equippedWith

Devices package:

The former EnergySystems package is renamed to Devices package

- Class OperationSchedule:
 - Moved from package Devices to Core
- Dropped class AbstractEnergyConversionSystem
 - Now all subclasses are derived directly from AbstractDevice
- Dropped class AbstractStorageSystem
 - Now all subclasses are derived directly from AbstractDevice
- Class **GenericDevice**:
 - Renamed from class GenericEnergyConversionSystem
- Class **ElectricalStorageDevice**:
 - Renamed from class PowerStorageSystem
- Class ThermalStorageDevice:
 - Renamed from class ThermalStorageSystem
- Class AbstractSolarCollector:
 - Renamed from class AbstractSolarEnergySystem
- Class **PhotovoltaicThermalCollector**:
 - Renamed from class PhotovoltaicThermalSystem
- Class PhotovoltaicCollector:
 - Renamed from class **PhotovoltaicSystem**
- Class SolarThermalCollector:
 - Renamed from class SolarThermalSystem
- Class GenericSolarCollector:
 - Renamed from class GenericSolarEnergySystem
- Added class LightingDevice

- Added class GenericElectricalDevice
- Added class MovableShadingDevice

Urban Function Areas package:

- Class UrbanFunctionArea:
 - Removed property rank

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2024-09-25

- Codelist ThermalBoundaryTypeValue
 - Renamed outerWall to exteriorWall
 - Renamed intermediaryFloor to intermediateFloor

2024-09-20

- Minor edits to the layout of the UML diagrams
- Polished Codelist ThermalBoundaryTypeValue

2024-08-12

- Class ADE CityObject:
 - Renamed association connectedTo to utilityNetworkConnection
 - Remodelled association class CityObjectRelation
- Class AbstractTimeSeries:
 - Moved to Core module
- Class WeatherData:
 - renamed property valuesList to timeSeries
 - made the association to **AbstractTimeSeries** explicit
- Added some values to codelist **RelationTypeValue**
- Class **TimeSeriesSchedule**:
 - Changed association to **AbstractTimeSeries** to Composition
- Class **DailySchedule**:
 - Changed association to AbstractTimeSeries to Composition
- Class SensorConnection:
 - Changed type of uom to UnitOfMeasure
 - Renamed linkTosensortDescription to linkToSensorDescription
- Class AbstractSolarEnergySystem:
 - Removed association *installedOn* (now taken over by **CityObjectRelation**)
- Class Energy:
 - Changed multiplicity of *EnergyCarrier* to [0..1]
- Class Waste:
 - Changed multiplicity of isDanegerous and isRecyclable to [0..1]

