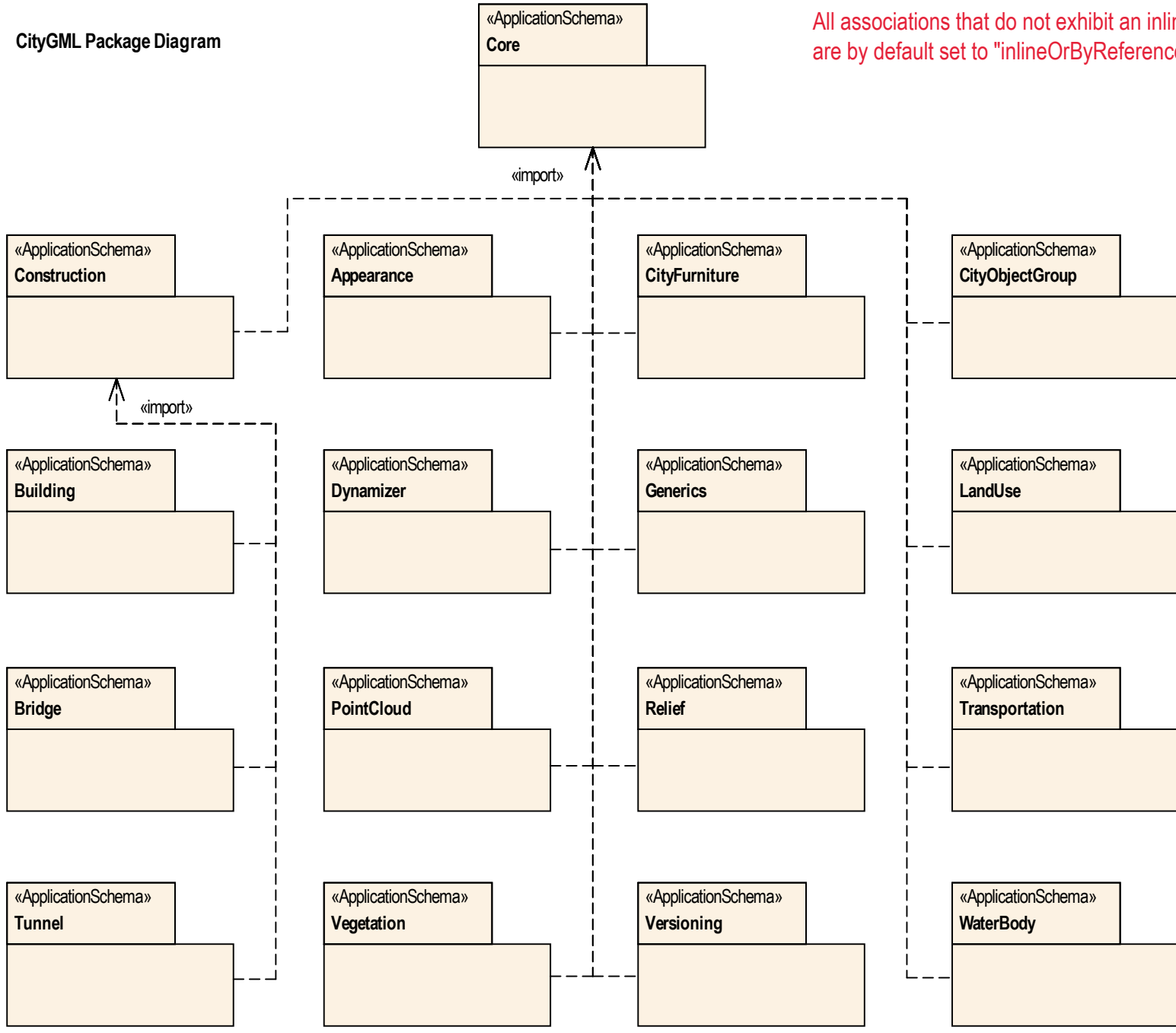
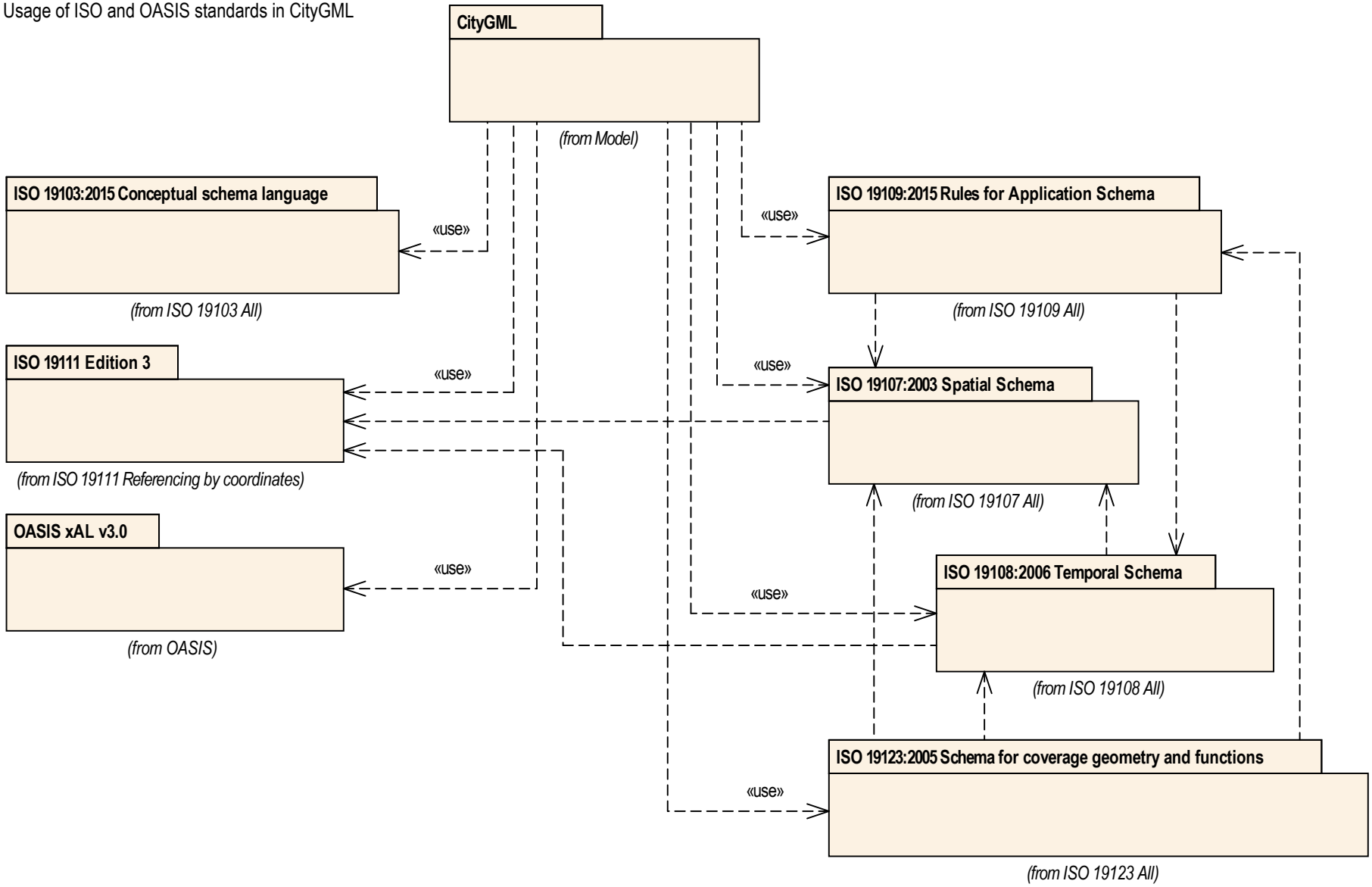
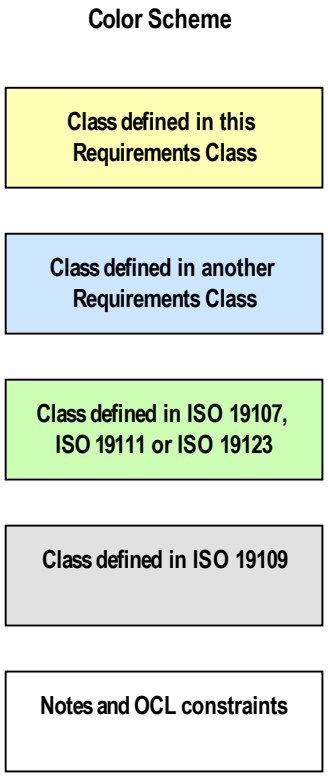
CityGML Package Diagram

All associations that do not exhibit an inline/byReference definition are by default set to "inlineOrByReference"



Usage of ISO and OASIS standards in CityGML




Color Scheme
Class defined in this Requirements Class
Class defined in another Requirements Class
Class defined in ISO 19107, ISO 19111 or ISO 19123
Class defined in ISO 19109
Notes and OCL constraints

«FeatureType»
CityModel

«Property»
+ engineeringCRS: EngineeringCRS [0..1]
+ adeOfCityModel: ADEOfCityModel [0..*]

1 — +cityModelMember «Property» — *

«Union»
CityModelMember

«Property»
+ cityObjectMember: AbstractCityObject
+ appearanceMember: AbstractAppearance
+ versionMember: AbstractVersion
+ versionTransitionMember: AbstractVersionTransition
+ featureMember: AbstractFeature

«FeatureType»
AbstractFeatureWithLifespan

«Property»
+ creationDate: DateTime [0..1]
+ terminationDate: DateTime [0..1]
+ validFrom: DateTime [0..1]
+ validTo: DateTime [0..1]
+ adeOfAbstractFeatureWithLifespan: ADEOfAbstractFeatureWithLifespan [0..*]

«FeatureType»
AbstractFeature

«Property»
+ featureID: ID
+ identifier: ScopedName [0..1]
+ name: GenericName [0..*]
+ description: CharacterString [0..1]
+ adeOfAbstractFeature: ADEOfAbstractFeature [0..*]

«FeatureType»
General Feature Model::
AnyFeature

«FeatureType»
AbstractVersion

«Property»
+ adeOfAbstractVersion: ADEOfAbstractVersion [0..*]

«FeatureType»
AbstractVersionTransition

«Property»
+ adeOfAbstractVersionTransition: ADEOfAbstractVersionTransition [0..*]

+appearance «Property» — * — «FeatureType» ***AbstractAppearance*** — * — +appearance «Property»

«Property»
+ adeOfAbstractAppearance: ADEOfAbstractAppearance [0..*]

+dynamizer «Property» — * — «FeatureType» ***AbstractDynamizer***

«Property»
+ adeOfAbstractDynamizer: ADEOfAbstractDynamizer [0..*]

«DataType»
QualifiedVolume

«Property»
+ volume: Volume
+ typeOfVolume: QualifiedVolumeTypeValue

«DataType»
QualifiedArea

«Property»
+ area: Area
+ typeOfArea: QualifiedAreaTypeValue

inline

«ObjectType»
CityObjectRelation

«Property»
+ relationType: RelationTypeValue

+relatedTo «Property» * — * — «FeatureType» ***AbstractCityObject***

«Property»
+ relativeToTerrain: RelativeToTerrain [0..1]
+ relativeToWater: RelativeToWater [0..1]
+ adeOfAbstractCityObject: ADEOfAbstractCityObject [0..*]

+generalizesTo «Property» * — * byReference

byReference

+genericAttribute «Property» — 0..1 — * — «DataType» **AbstractGenericAttribute** — * — +genericAttribute «Property» — 0..1

«DataType»
ExternalReference

«Property»
+ targetResource: URI
+ informationSystem: URI [0..1]
+ relationType: URI [0..1]

1 — +externalReference «Property» — *

-> The association class CityObjectRelation is replaced by an intermediate class in an implementation schema with two associations to support rule 4.4

GM_Primitive
«type»
Geometric primitive::
GM_Solid

+lod1Solid «Property» — * — «FeatureType» ***AbstractSpace*** — * — +boundary «Property» — * — «FeatureType» ***AbstractSpaceBoundary***

0..1 — +lod2Solid «Property» — *

+lod3Solid «Property» — *

«Property»
+ spaceType: SpaceType [0..1]
+ volume: QualifiedVolume [0..*]
+ area: QualifiedArea [0..*]
+ adeOfAbstractSpace: ADEOfAbstractSpace [0..*]

«Property»
+ adeOfAbstractSpaceBoundary: ADEOfAbstractSpaceBoundary [0..*]

«type»
Geometry root::
GM_Object

+relativeGeometry «Property» — 0..1

GM_Primitive
«type»
Geometric primitive::
GM_Point

+referencePoint «Property» — 1 — 0..1 — +lod0Point «Property»

+lod0MultiSurface «Property» — * — *GM_MultiPrimitive* «type» **Geometric aggregates::** **GM_MultiSurface** — 0..1 — +lod0MultiSurface «Property» — *

+lod1MultiSurface «Property» — *

+lod2MultiSurface «Property» — *

+lod3MultiSurface «Property» — *

«FeatureType»
AbstractThematicSurface

«Property»
+ area: QualifiedArea [0..*]
+ adeOfAbstractThematicSurface: ADEOfAbstractThematicSurface [0..*]

+lod0MultiCurve «Property» — * — *GM_MultiPrimitive* «type» **Geometric aggregates::** **GM_MultiCurve** — 0..1 — +lod0MultiCurve «Property» — *

+lod2MultiCurve «Property» — *

+lod3MultiCurve «Property» — *

«DataType»
XALAddress

+xalAddress «Property» — 1

0..1 — +lod1TerrainIntersectionCurve «Property» — *

+lod2TerrainIntersectionCurve «Property» — *

+lod3TerrainIntersectionCurve «Property» — *

«ObjectType»
ImplicitGeometry

«Property»
+ objectID: ID
+ transformationMatrix: TransformationMatrix4x4
+ mimeType: MimeTypeValue [0..1]
+ libraryObject: URI [0..1]

«FeatureType»
AbstractLogicalSpace

«Property»
+ adeOfAbstractLogicalSpace: ADEOfAbstractLogicalSpace [0..*]

«FeatureType»
AbstractPhysicalSpace

«Property»
+ adeOfAbstractPhysicalSpace: ADEOfAbstractPhysicalSpace [0..*]

«FeatureType»
ClosureSurface

«Property»
+ adeOfClosureSurface: ADEOfClosureSurface [0..*]

GM_MultiPrimitive
«type»
Geometric aggregates::
GM_MultiPoint

+pointCloud «Property» — 0..1 — +pointCloud «Property» — 0..1

+multiPoint «Property» — 0..1

+lod1ImplicitRepresentation «Property» — *

+lod2ImplicitRepresentation «Property» — *

+lod3ImplicitRepresentation «Property» — *

«FeatureType»
AbstractOccupiedSpace

«Property»
+ adeOfAbstractOccupiedSpace: ADEOfAbstractOccupiedSpace [0..*]

«FeatureType»
AbstractUnoccupiedSpace

«Property»
+ adeOfAbstractUnoccupiedSpace: ADEOfAbstractUnoccupiedSpace [0..*]

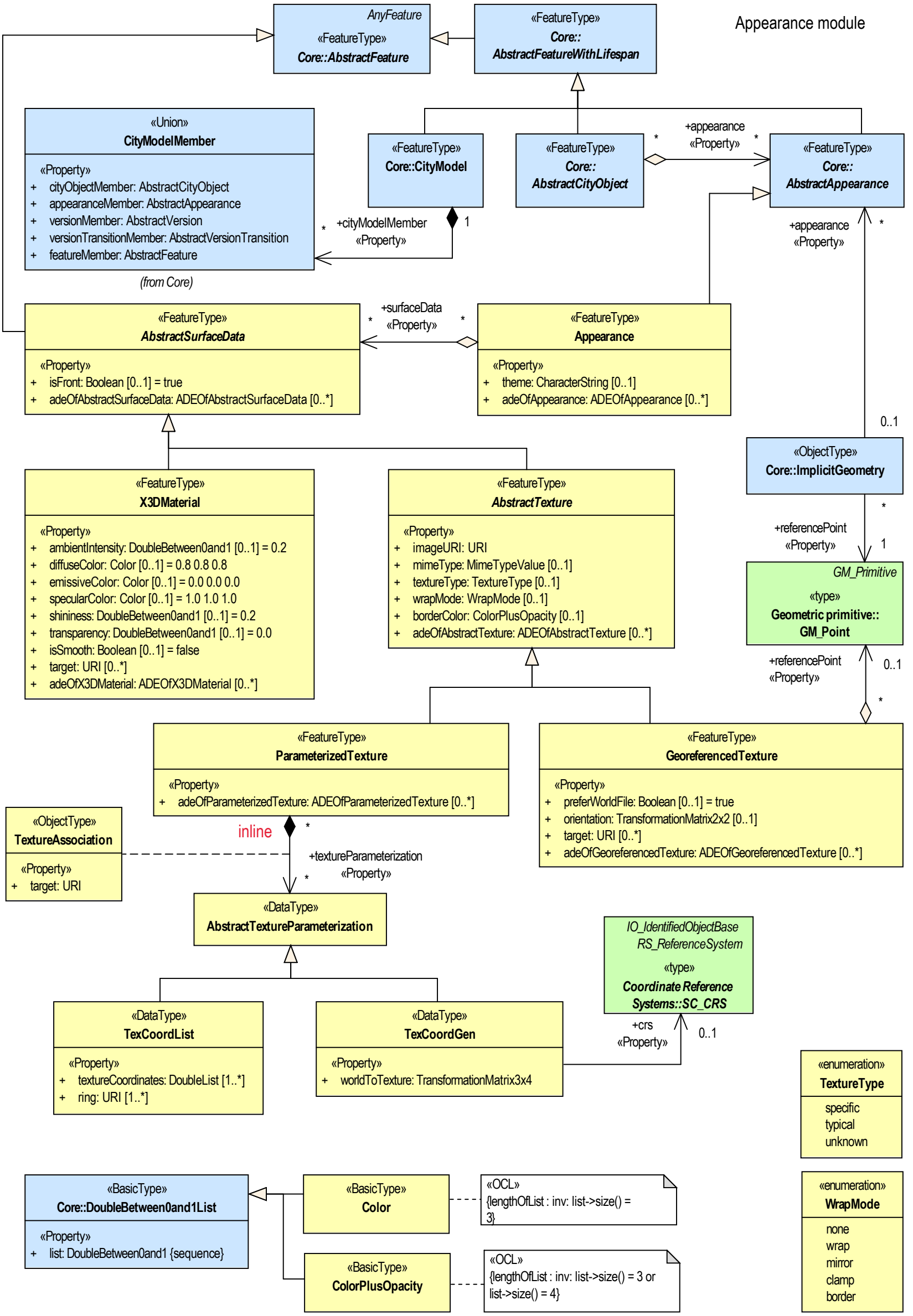
«FeatureType»
AbstractPointCloud

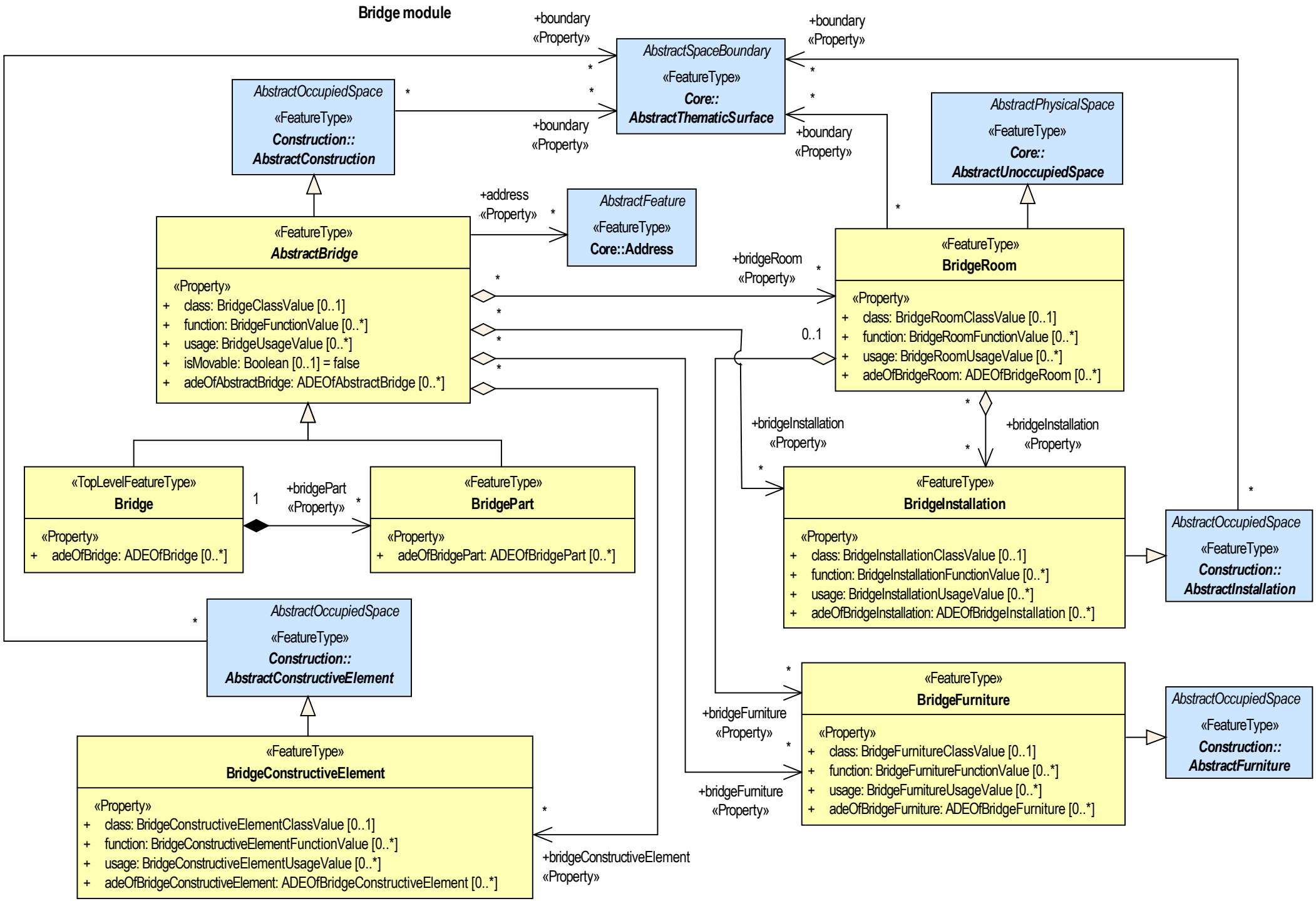
«Property»
+ adeOfAbstractPointCloud: ADEOfAbstractPointCloud [0..*]

«FeatureType»
Address

«Property»
+ adeOfAddress: ADEOfAddress [0..*]

Appearance module




Bridge module
+boundary
«Property»
*
AbstractSpaceBoundary
«FeatureType»
Core::
AbstractThematicSurface
+boundary
«Property»
*
AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractConstruction
*
+boundary
«Property»
+boundary
«Property»
*
AbstractPhysicalSpace
«FeatureType»
Core::
AbstractUnoccupiedSpace
+address
«Property»
*
AbstractFeature
«FeatureType»
Core::Address
«FeatureType»
AbstractBridge
«Property»
+ class: BridgeClassValue [0..1]
+ function: BridgeFunctionValue [0..*]
+ usage: BridgeUsageValue [0..*]
+ isMovable: Boolean [0..1] = false
+ adeOfAbstractBridge: ADEOfAbstractBridge [0..*]
+bridgeRoom
«Property»
*
«FeatureType»
BridgeRoom
«Property»
+ class: BridgeRoomClassValue [0..1]
+ function: BridgeRoomFunctionValue [0..*]
+ usage: BridgeRoomUsageValue [0..*]
+ adeOfBridgeRoom: ADEOfBridgeRoom [0..*]
0..1
«TopLevelFeatureType»
Bridge
«Property»
+ adeOfBridge: ADEOfBridge [0..*]
1
+bridgePart
«Property»
*
«FeatureType»
BridgePart
«Property»
+ adeOfBridgePart: ADEOfBridgePart [0..*]
+bridgeInstallation
«Property»
+bridgeInstallation
«Property»
«FeatureType»
BridgeInstallation
«Property»
+ class: BridgeInstallationClassValue [0..1]
+ function: BridgeInstallationFunctionValue [0..*]
+ usage: BridgeInstallationUsageValue [0..*]
+ adeOfBridgeInstallation: ADEOfBridgeInstallation [0..*]
AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractInstallation
AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractConstructiveElement
«FeatureType»
BridgeConstructiveElement
«Property»
+ class: BridgeConstructiveElementClassValue [0..1]
+ function: BridgeConstructiveElementFunctionValue [0..*]
+ usage: BridgeConstructiveElementUsageValue [0..*]
+ adeOfBridgeConstructiveElement: ADEOfBridgeConstructiveElement [0..*]
+bridgeConstructiveElement
«Property»
+bridgeFurniture
«Property»
+bridgeFurniture
«Property»
«FeatureType»
BridgeFurniture
«Property»
+ class: BridgeFurnitureClassValue [0..1]
+ function: BridgeFurnitureFunctionValue [0..*]
+ usage: BridgeFurnitureUsageValue [0..*]
+ adeOfBridgeFurniture: ADEOfBridgeFurniture [0..*]
AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractFurniture

Building module

AbstractSpaceBoundary
«FeatureType»
Core::
AbstractThematicSurface

AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractConstruction

AbstractSpace
«FeatureType»
Core::
AbstractLogicalSpace

AbstractFeature
«FeatureType»
Core::Address

AbstractPhysicalSpace
«FeatureType»
Core::
AbstractUnoccupiedSpace

AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractConstructiveElement

AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractInstallation

AbstractOccupiedSpace
«FeatureType»
Construction::
AbstractFurniture

«FeatureType»
AbstractBuilding

«Property»
+ class: BuildingClassValue [0..1]
+ function: BuildingFunctionValue [0..*]
+ usage: BuildingUsageValue [0..*]
+ roofType: RoofTypeValue [0..1]
+ storeysAboveGround: Integer [0..1]
+ storeysBelowGround: Integer [0..1]
+ storeyHeightsAboveGround: MeasureOrNilReasonList [0..1]
+ storeyHeightsBelowGround: MeasureOrNilReasonList [0..1]
+ adeOfAbstractBuilding: ADEOfAbstractBuilding [0..*]

«FeatureType»
AbstractBuildingSubdivision

«Property»
+ class: BuildingSubdivisionClassValue [0..1]
+ function: BuildingSubdivisionFunctionValue [0..*]
+ usage: BuildingSubdivisionUsageValue [0..*]
+ elevation: Elevation [0..*]
+ sortKey: Real [0..1]
+ adeOfAbstractBuildingSubdivision: ADEOfAbstractBuildingSubdivision [0..*]

«TopLevelFeatureType»
Building

«Property»
+ adeOfBuilding: ADEOfBuilding [0..*]

«FeatureType»
BuildingPart

«Property»
+ adeOfBuildingPart: ADEOfBuildingPart [0..*]

«FeatureType»
BuildingRoom

«Property»
+ class: BuildingRoomClassValue [0..1]
+ function: BuildingRoomFunctionValue [0..*]
+ usage: BuildingRoomUsageValue [0..*]
+ roomHeight: RoomHeight [0..*]
+ adeOfBuildingRoom: ADEOfBuildingRoom [0..*]

«FeatureType»
BuildingUnit

«Property»
+ adeOfBuildingUnit: ADEOfBuildingUnit [0..*]

«FeatureType»
Storey

«Property»
+ adeOfStorey: ADEOfStorey [0..*]

«FeatureType»
BuildingInstallation

«Property»
+ class: BuildingInstallationClassValue [0..1]
+ function: BuildingInstallationFunctionValue [0..*]
+ usage: BuildingInstallationUsageValue [0..*]
+ adeOfBuildingInstallation: ADEOfBuildingInstallation [0..*]

«FeatureType»
BuildingFurniture

«Property»
+ class: BuildingFurnitureClassValue [0..1]
+ function: BuildingFurnitureFunctionValue [0..*]
+ usage: BuildingFurnitureUsageValue [0..*]
+ adeOfBuildingFurniture: ADEOfBuildingFurniture [0..*]

«FeatureType»
BuildingConstructiveElement

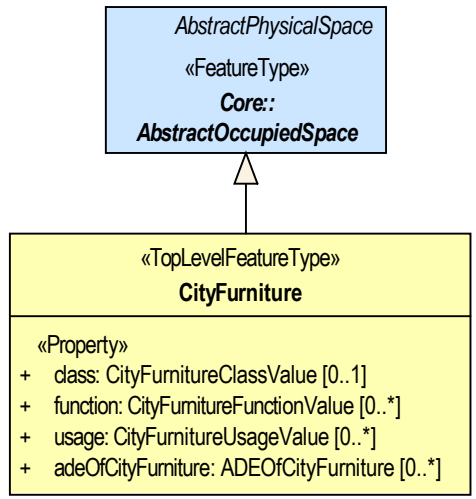
«Property»
+ class: BuildingConstructiveElementClassValue [0..1]
+ function: BuildingConstructiveElementFunctionValue [0..*]
+ usage: BuildingConstructiveElementUsageValue [0..*]
+ adeOfBuildingConstructiveElement: ADEOfBuildingConstructiveElement [0..*]

«DataType»
RoomHeight

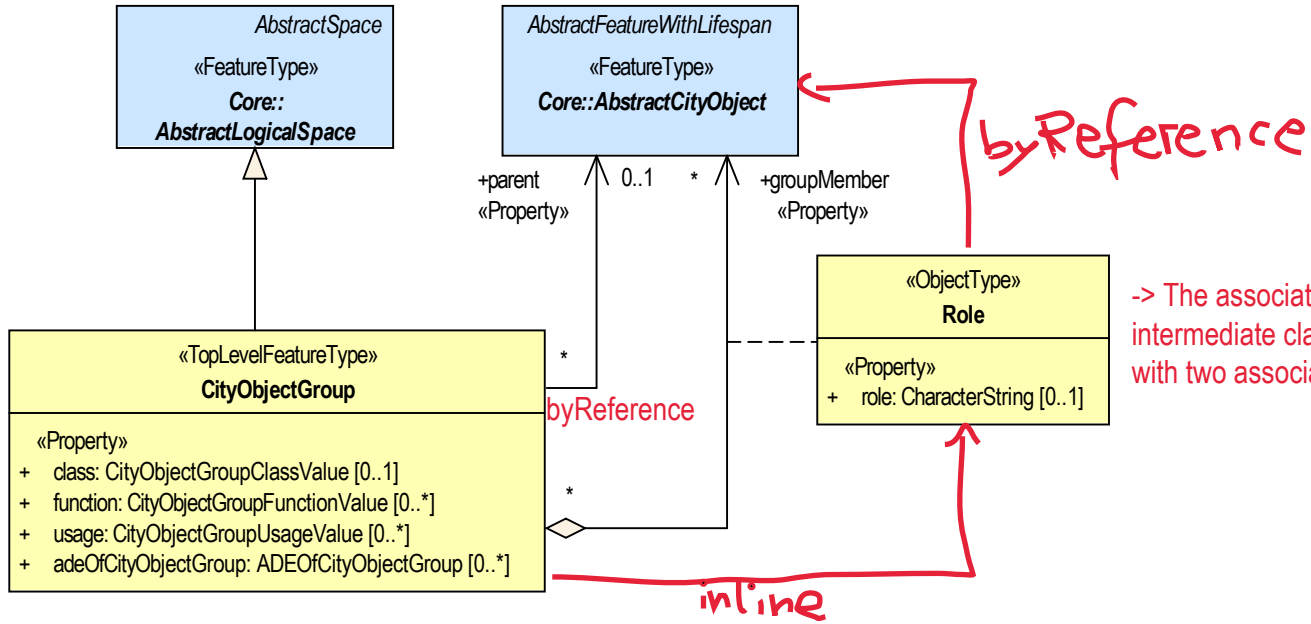
«Property»
+ highReference: RoomElevationReferenceValue
+ lowReference: RoomElevationReferenceValue
+ status: HeightStatusValue
+ value: Length

+boundary «Property»
+address «Property»
+buildingSubdivision «Property»
+buildingRoom «Property»
+buildingPart «Property»
+buildingUnit «Property»
+storey «Property»
+buildingInstallation «Property»
+buildingFurniture «Property»
+buildingConstructiveElement «Property»

CityFurniture module

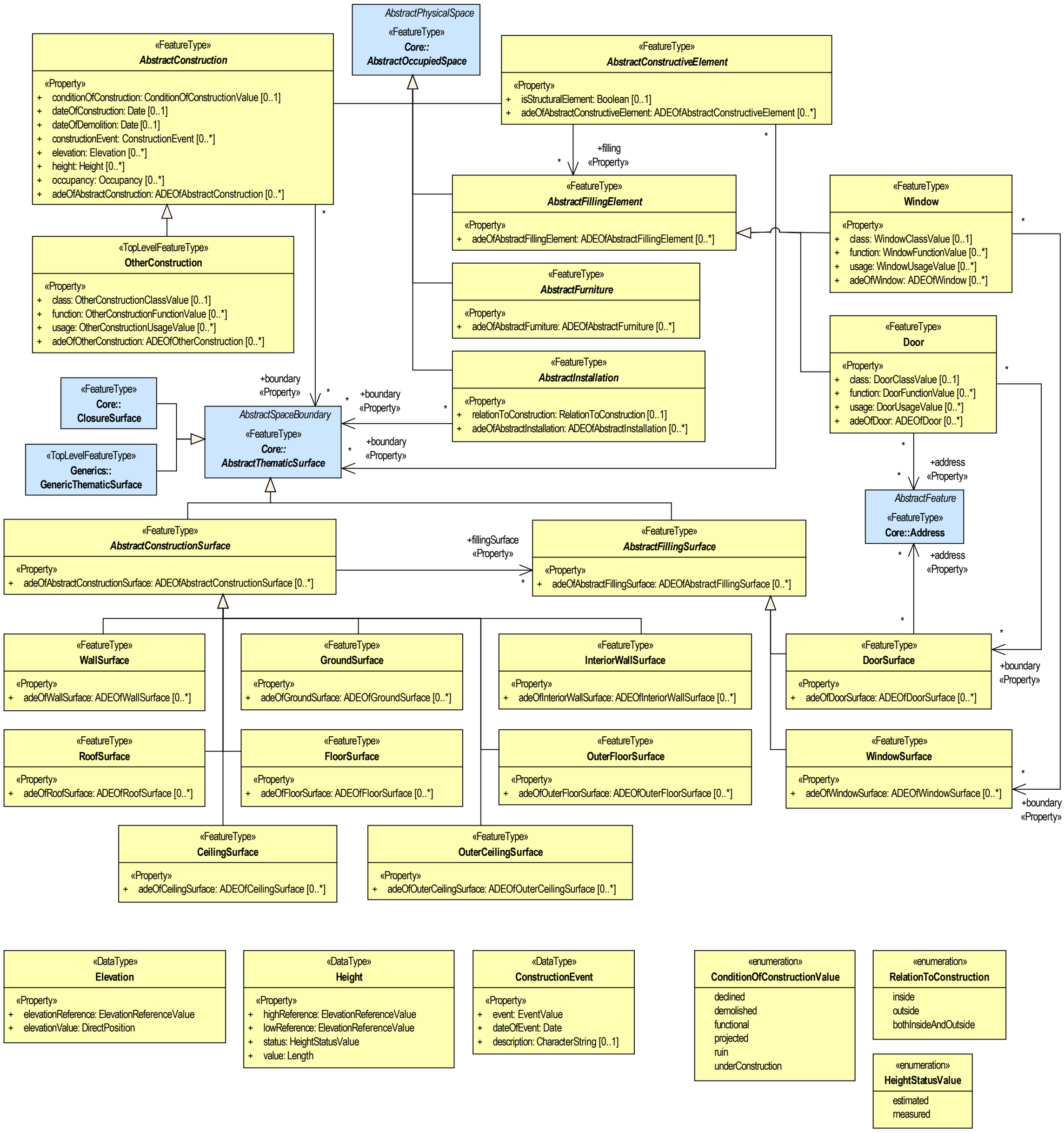


CityObjectGroup module



-> The association class Role is replaced by an intermediate class in an implementation schema with two associations to support rule 4.4

Construction module



Dynamizer module

«FeatureType»
Core::AbstractFeatureWithLifespan

AnyFeature
«FeatureType»
Core::AbstractFeature

«FeatureType»
Core::AbstractCityObject

+dynamizer
«Property»
*

«FeatureType»
Core::AbstractDynamizer

+sensorLocation
«Property»
byReference
0..1
*

«DataType»
SensorConnection
«Property»
+ connectionType: SensorConnectionTypeValue
+ observationProperty: CharacterString
+ uom: CharacterString [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]

+sensorConnection
«Property»
0..1

«FeatureType»
Dynamizer
«Property»
+ attributeRef: CharacterString
+ startTime: TM_Position [0..1]
+ endTime: TM_Position [0..1]
+ adeOfDynamizer: ADEOfDynamizer [0..*]

+dynamicData
«Property»
*
0..1

«FeatureType»
AbstractTimeseries
«Property»
+ firstTimestamp: TM_Position [0..1]
+ lastTimestamp: TM_Position [0..1]
+ adeOfAbstractTimeseries: ADEOfAbstractTimeseries [0..*]

+timeseries
«Property»
1
0..1

«DataType»
TimeseriesComponent
«Property»
+ repetitions: Integer
+ additionalGap: TM_Duration [0..1]

+component
«Property»
1..*
{ordered}

«FeatureType»
AbstractAtomicTimeseries
«Property»
+ observationProperty: CharacterString
+ uom: CharacterString [0..1]
+ adeOfAbstractAtomicTimeseries: ADEOfAbstractAtomicTimeseries [0..*]

«FeatureType»
CompositeTimeseries
«Property»
+ adeOfCompositeTimeseries: ADEOfCompositeTimeseries [0..*]

«FeatureType»
TabulatedFileTimeseries
«Property»
+ fileLocation: URI
+ fileType: TabulatedFileTypeValue
+ mimeType: MimeTypeValue [0..1]
+ valueType: TimeseriesTypeValue
+ numberOfHeaderLines: Integer [0..1]
+ fieldSeparator: CharacterString
+ decimalSymbol: Character [0..1]
+ idColumnNo: Integer [0..1]
+ idColumnName: CharacterString [0..1]
+ idValue: CharacterString [0..1]
+ timeColumnNo: Integer [0..1]
+ timeColumnName: CharacterString [0..1]
+ valueColumnNo: Integer [0..1]
+ valueColumnName: CharacterString [0..1]
+ adeOfTabulatedFileTimeseries: ADEOfTabulatedFileTimeseries [0..*]

«OCL»
{columnNumberOrColumnName : inv: (timeColumnNo->notEmpty()
or timeColumnName->notEmpty()) and (valueColumnNo->notEmpty
() or valueColumnName->notEmpty()) and (idValue->notEmpty()
implies idColumnNo->notEmpty() or idColumnName->notEmpty())}

«FeatureType»
StandardFileTimeseries
«Property»
+ fileLocation: URI
+ fileType: StandardFileTypeValue
+ mimeType: MimeTypeValue [0..1]
+ adeOfStandardFileTimeseries: ADEOfStandardFileTimeseries [0..*]

«enumeration»
TimeseriesTypeValue
int
double
string
geometry
uri
bool
implicitGeometry
appearance

«FeatureType»
GenericTimeseries
«Property»
+ valueType: TimeseriesTypeValue
+ adeOfGenericTimeseries: ADEOfGenericTimeseries [0..*]

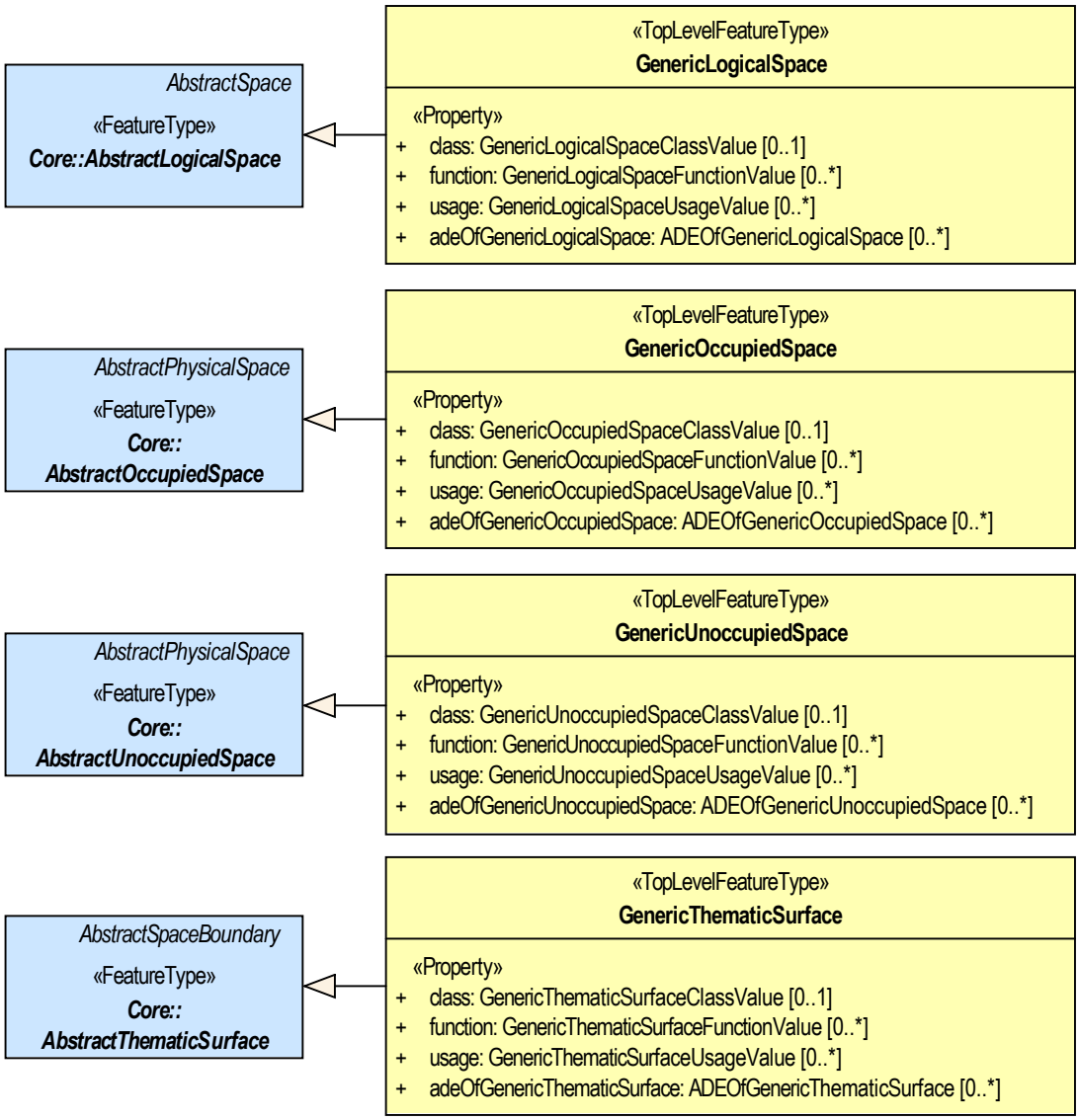
+timeValuePair
«Property»
1..*

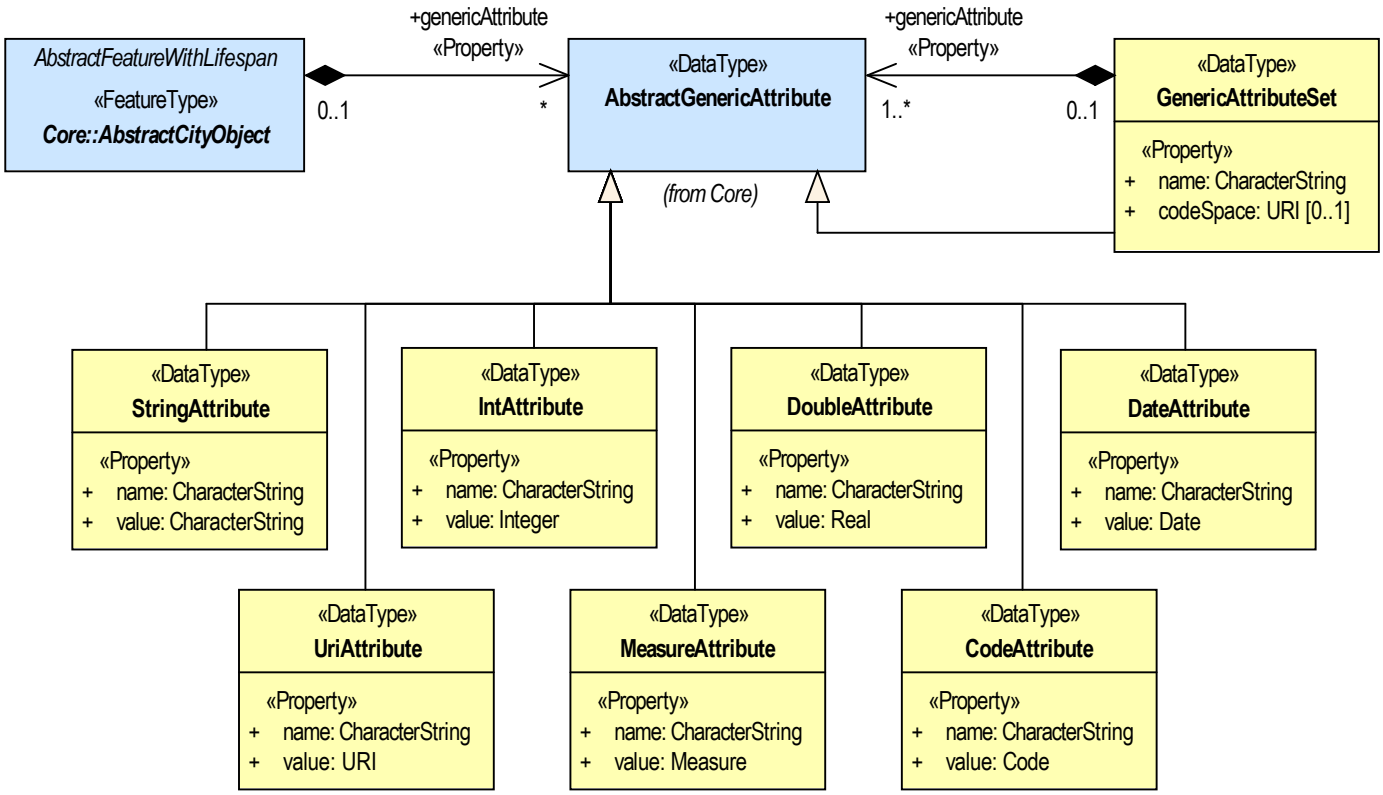
«DataType»
TimeValuePair
«Property»
+ timestamp: TM_Position
+ intValue: Integer [0..1]
+ doubleValue: Real [0..1]
+ stringValue: CharacterString [0..1]
+ geometryValue: GM_Object [0..1]
+ uriValue: URI [0..1]
+ boolValue: Boolean [0..1]
+ implicitGeometryValue: ImplicitGeometry [0..1]
+ appearanceValue: AbstractAppearance [0..1]

«OCL»
{dataTypeOfValue : inv:
if valueType = TimeseriesTypeValue::int then
TimeValuePair->forAll(c | c.intValue->size()=1)
else if valueType = TimeseriesTypeValue::double then
TimeValuePair->forAll(c | c.doubleValue->size()=1)
else if valueType = TimeseriesTypeValue::string then
TimeValuePair->forAll(c | c.stringValue->size()=1)
else if valueType = TimeseriesTypeValue::geometry then
TimeValuePair->forAll(c | c.geometryValue->size()=1)
else if valueType = TimeseriesTypeValue::uri then
TimeValuePair->forAll(c | c.uriValue->size()=1)
else if valueType = TimeseriesTypeValue::bool then
TimeValuePair->forAll(c | c.boolValue->size()=1)
else if valueType = TimeseriesTypeValue::implicitGeometry
then
TimeValuePair->forAll(c | c.implicitGeometryValue->size()=1)
else TimeValuePair->forAll(c | c.appearanceValue->size()=1)
endif endif endif endif endif endif endif}

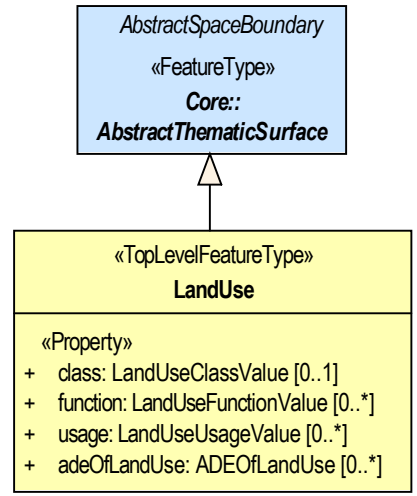
«OCL»
{singleValue : inv: intValue->size() + doubleValue->size() +
stringValue->size() + geometryValue->size() + uriValue->size()
+ boolValue->size() + implicitGeometryValue->size() +
appearanceValue->size() = 1}

Generics module

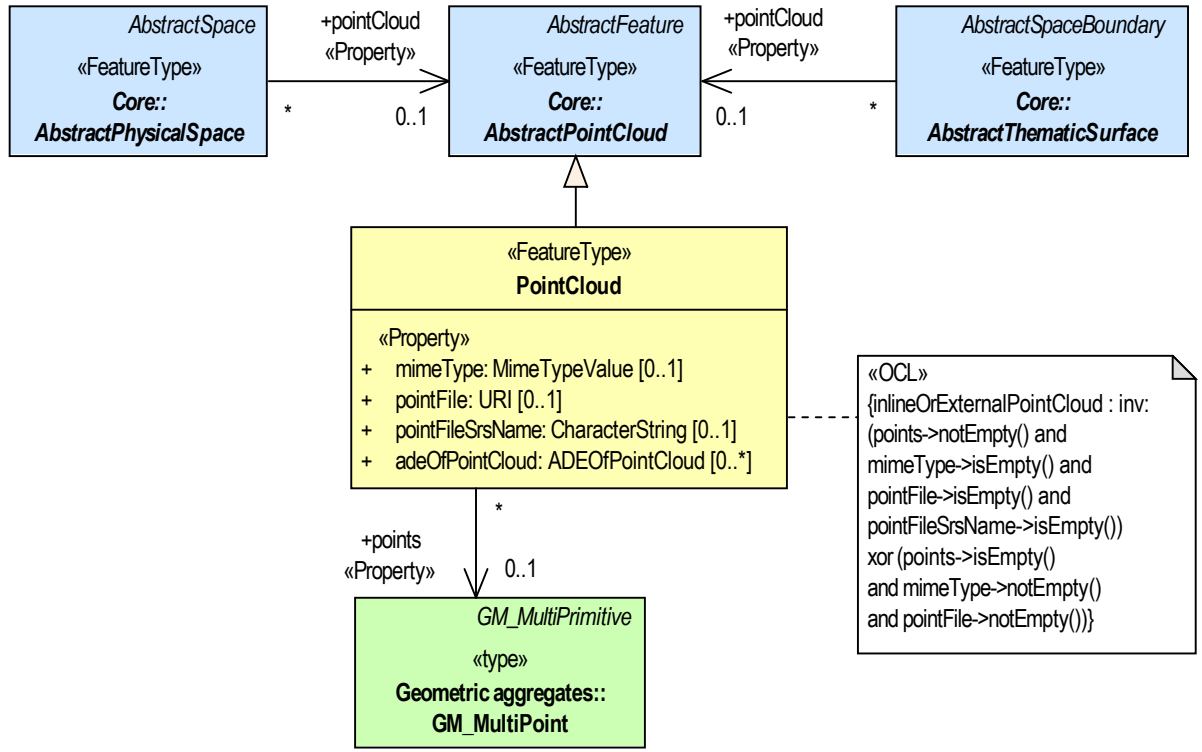




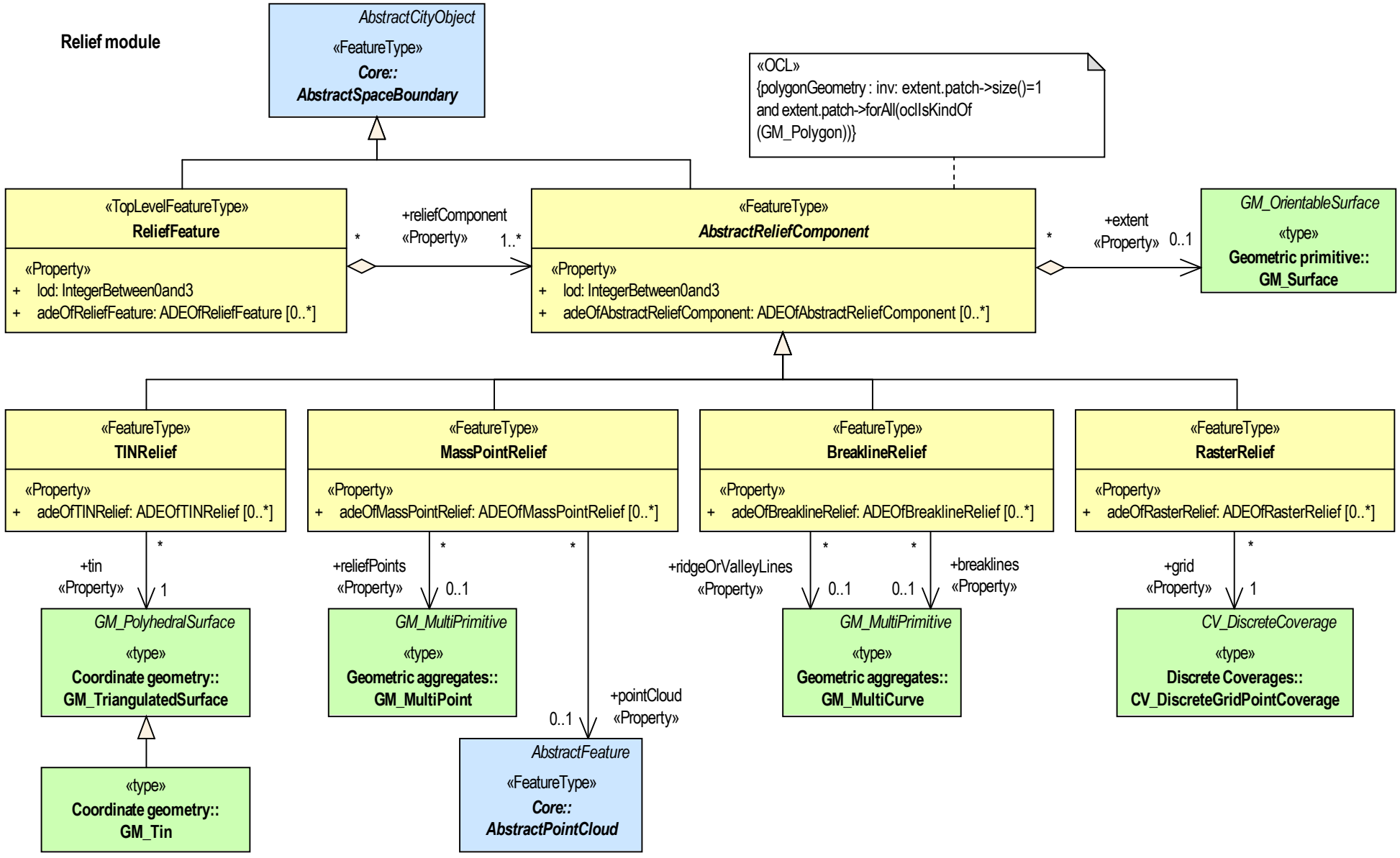
LandUse module

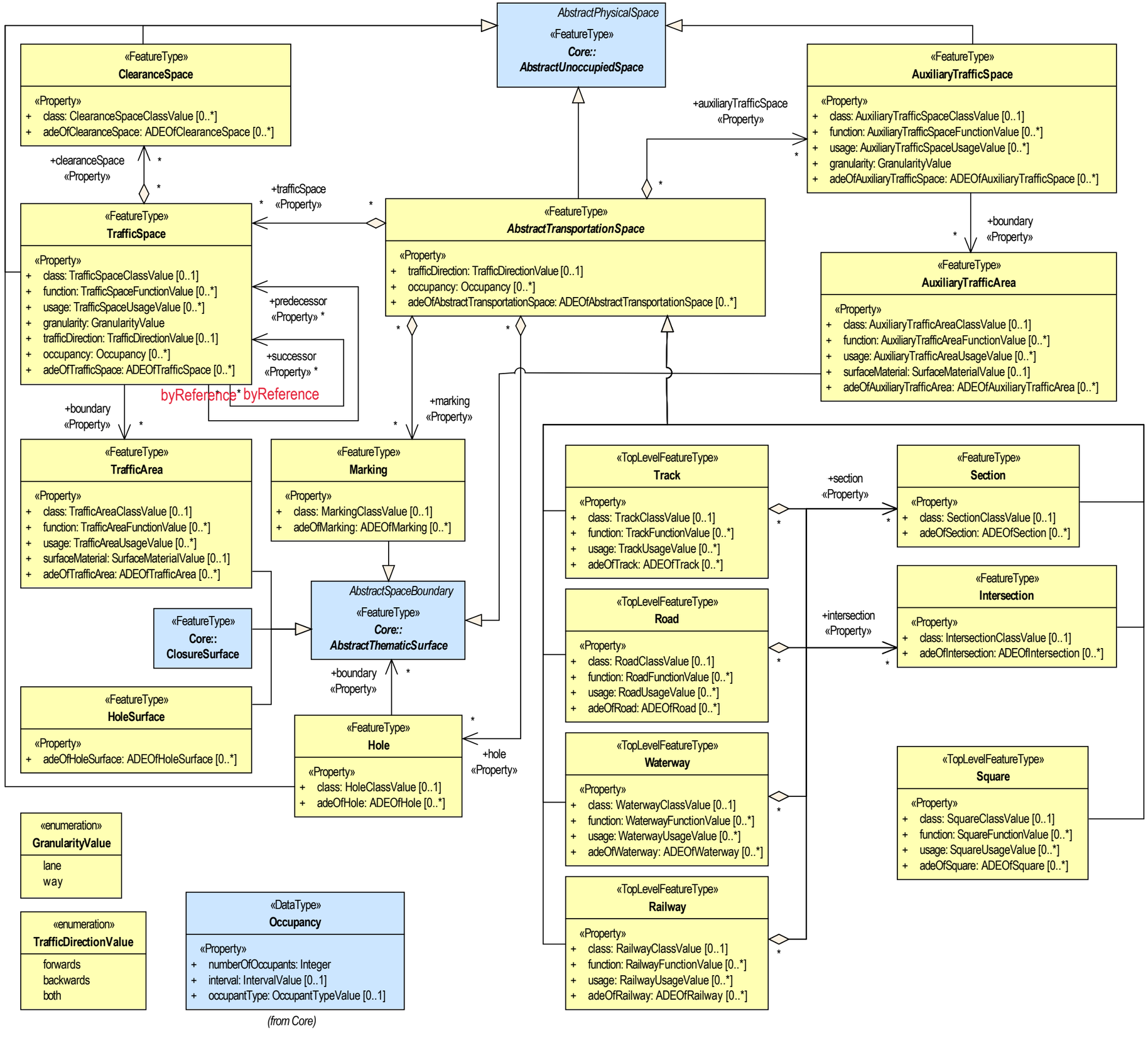


PointCloud module

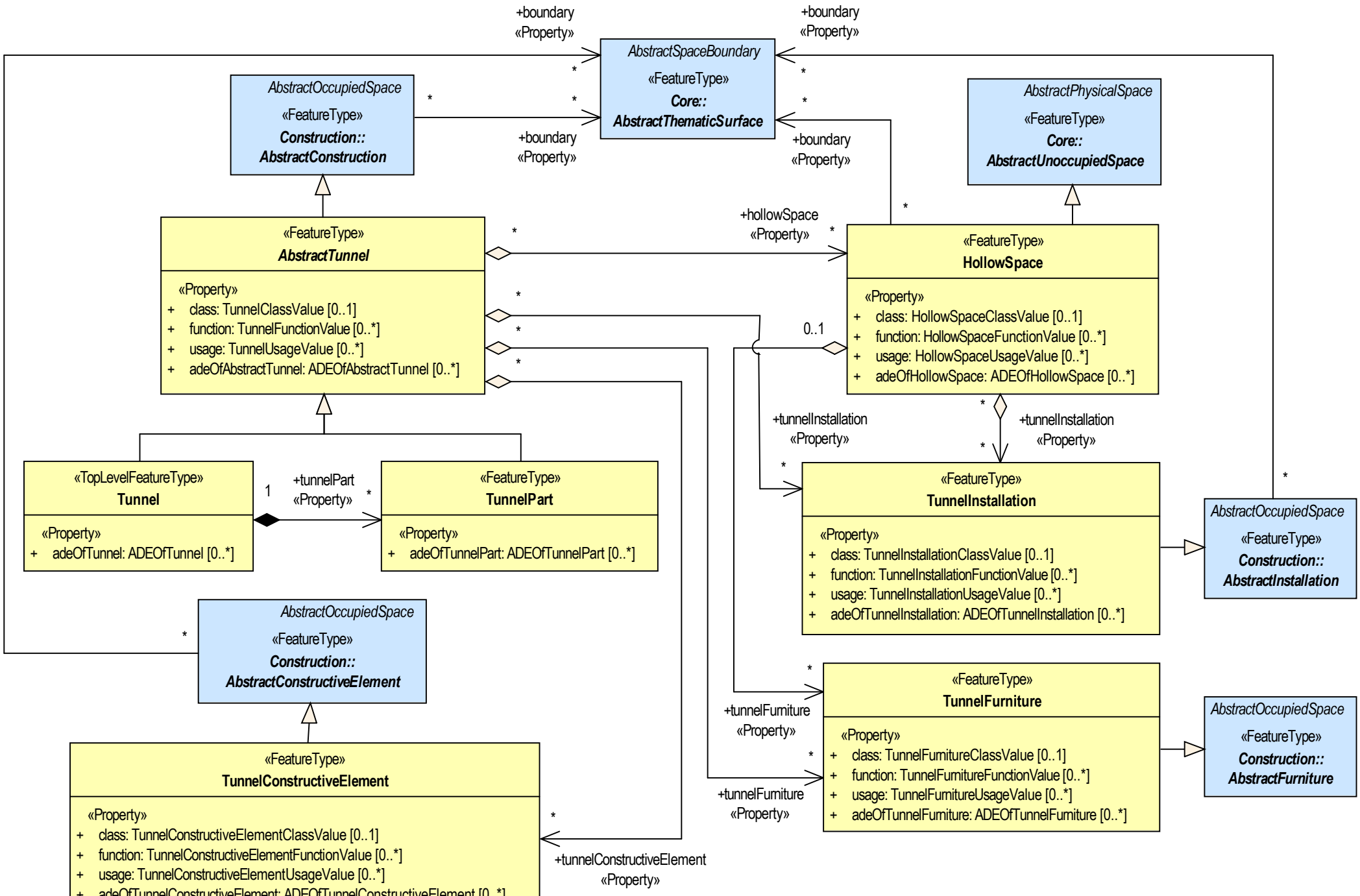


Relief module

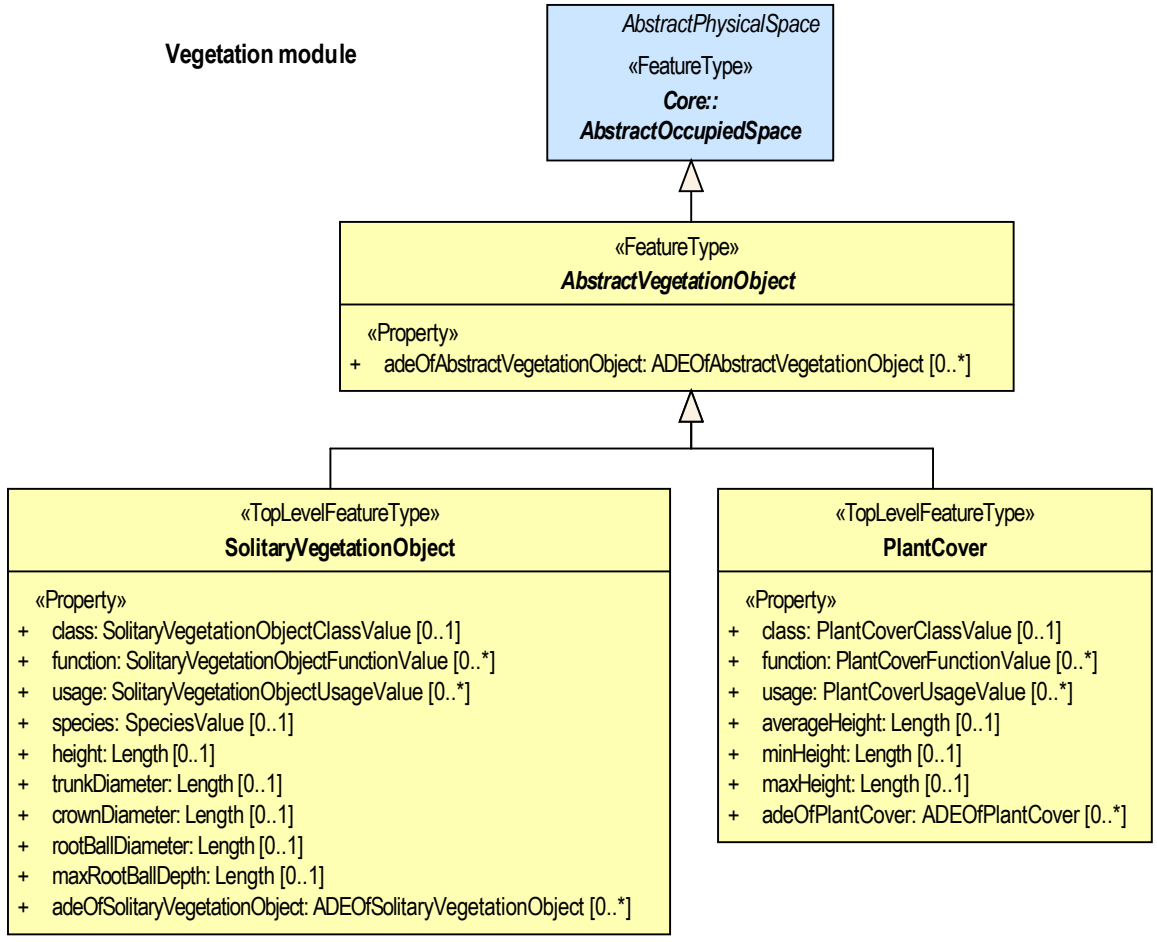


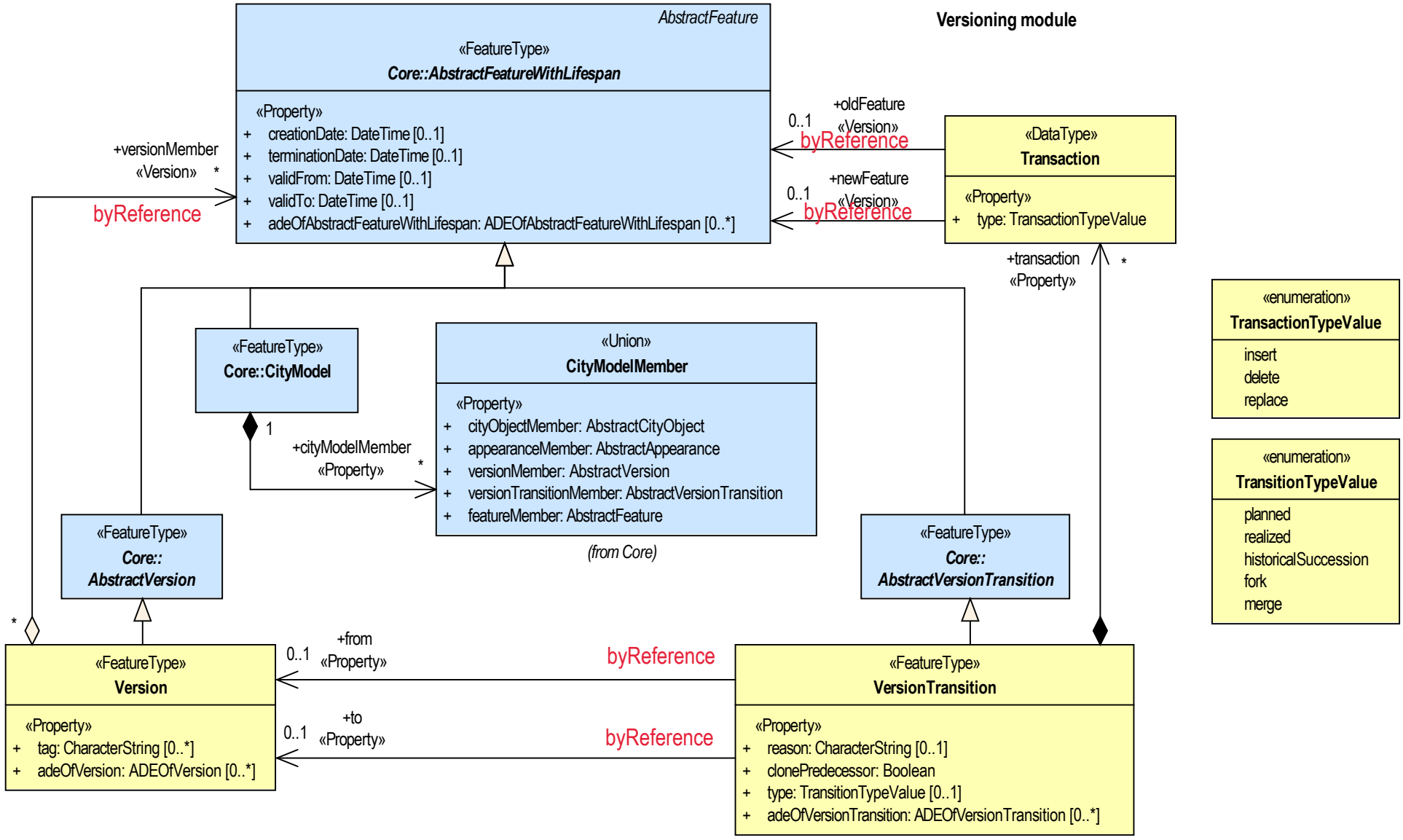
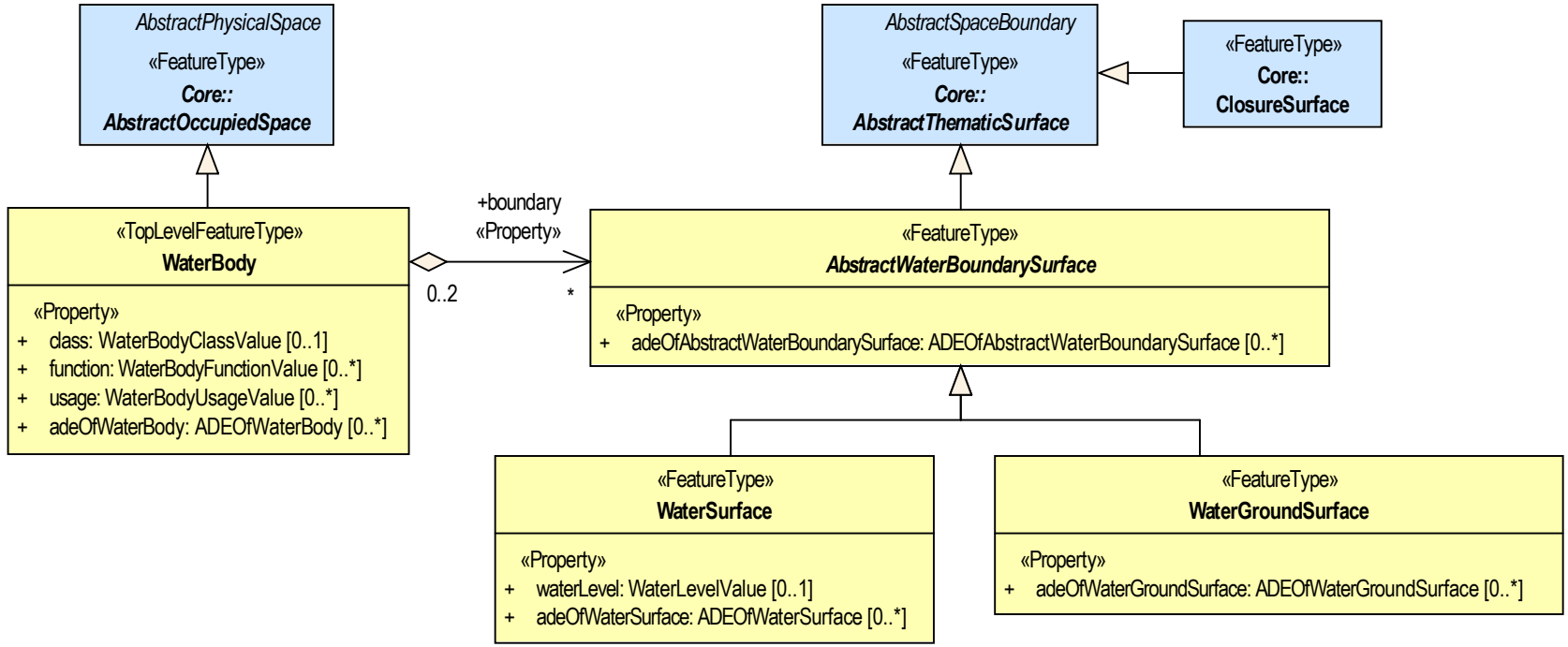

AbstractPhysicalSpace
«FeatureType»
Core::
AbstractUnoccupiedSpace
«FeatureType»
ClearanceSpace
«Property»
+ class: ClearanceSpaceClassValue [0..*]
+ adeOfClearanceSpace: ADEOfClearanceSpace [0..*]
+clearanceSpace
«Property»
«FeatureType»
AuxiliaryTrafficSpace
«Property»
+ class: AuxiliaryTrafficSpaceClassValue [0..1]
+ function: AuxiliaryTrafficSpaceFunctionValue [0..*]
+ usage: AuxiliaryTrafficSpaceUsageValue [0..*]
+ granularity: GranularityValue
+ adeOfAuxiliaryTrafficSpace: ADEOfAuxiliaryTrafficSpace [0..*]
+auxiliaryTrafficSpace
«Property»
+boundary
«Property»
«FeatureType»
TrafficSpace
«Property»
+ class: TrafficSpaceClassValue [0..1]
+ function: TrafficSpaceFunctionValue [0..*]
+ usage: TrafficSpaceUsageValue [0..*]
+ granularity: GranularityValue
+ trafficDirection: TrafficDirectionValue [0..1]
+ occupancy: Occupancy [0..*]
+ adeOfTrafficSpace: ADEOfTrafficSpace [0..*]
+trafficSpace
«Property»
«FeatureType»
AbstractTransportationSpace
«Property»
+ trafficDirection: TrafficDirectionValue [0..1]
+ occupancy: Occupancy [0..*]
+ adeOfAbstractTransportationSpace: ADEOfAbstractTransportationSpace [0..*]
+predecessor
«Property»
+successor
«Property»
byReference
byReference
«FeatureType»
AuxiliaryTrafficArea
«Property»
+ class: AuxiliaryTrafficAreaClassValue [0..1]
+ function: AuxiliaryTrafficAreaFunctionValue [0..*]
+ usage: AuxiliaryTrafficAreaUsageValue [0..*]
+ surfaceMaterial: SurfaceMaterialValue [0..1]
+ adeOfAuxiliaryTrafficArea: ADEOfAuxiliaryTrafficArea [0..*]
+boundary
«Property»
+marking
«Property»
«FeatureType»
TrafficArea
«Property»
+ class: TrafficAreaClassValue [0..1]
+ function: TrafficAreaFunctionValue [0..*]
+ usage: TrafficAreaUsageValue [0..*]
+ surfaceMaterial: SurfaceMaterialValue [0..1]
+ adeOfTrafficArea: ADEOfTrafficArea [0..*]
«FeatureType»
Marking
«Property»
+ class: MarkingClassValue [0..1]
+ adeOfMarking: ADEOfMarking [0..*]
«TopLevelFeatureType»
Track
«Property»
+ class: TrackClassValue [0..1]
+ function: TrackFunctionValue [0..*]
+ usage: TrackUsageValue [0..*]
+ adeOfTrack: ADEOfTrack [0..*]
+section
«Property»
«FeatureType»
Section
«Property»
+ class: SectionClassValue [0..1]
+ adeOfSection: ADEOfSection [0..*]
AbstractSpaceBoundary
«FeatureType»
Core::
AbstractThematicSurface
«FeatureType»
Core::
ClosureSurface
«TopLevelFeatureType»
Road
«Property»
+ class: RoadClassValue [0..1]
+ function: RoadFunctionValue [0..*]
+ usage: RoadUsageValue [0..*]
+ adeOfRoad: ADEOfRoad [0..*]
+intersection
«Property»
«FeatureType»
Intersection
«Property»
+ class: IntersectionClassValue [0..1]
+ adeOfIntersection: ADEOfIntersection [0..*]
+boundary
«Property»
«FeatureType»
HoleSurface
«Property»
+ adeOfHoleSurface: ADEOfHoleSurface [0..*]
«FeatureType»
Hole
«Property»
+ class: HoleClassValue [0..1]
+ adeOfHole: ADEOfHole [0..*]
+hole
«Property»
«TopLevelFeatureType»
Waterway
«Property»
+ class: WaterwayClassValue [0..1]
+ function: WaterwayFunctionValue [0..*]
+ usage: WaterwayUsageValue [0..*]
+ adeOfWaterway: ADEOfWaterway [0..*]
«TopLevelFeatureType»
Square
«Property»
+ class: SquareClassValue [0..1]
+ function: SquareFunctionValue [0..*]
+ usage: SquareUsageValue [0..*]
+ adeOfSquare: ADEOfSquare [0..*]
«TopLevelFeatureType»
Railway
«Property»
+ class: RailwayClassValue [0..1]
+ function: RailwayFunctionValue [0..*]
+ usage: RailwayUsageValue [0..*]
+ adeOfRailway: ADEOfRailway [0..*]
«enumeration»
GranularityValue
lane
way
«enumeration»
TrafficDirectionValue
forwards
backwards
both
«DataType»
Occupancy
«Property»
+ numberOfOccupants: Integer
+ interval: IntervalValue [0..1]
+ occupantType: OccupantTypeValue [0..1]
(from Core)

Tunnel module



Vegetation module




Versioning module
AbstractFeature
«FeatureType»
Core::AbstractFeatureWithLifespan
«Property»
+ creationDate: DateTime [0..1]
+ terminationDate: DateTime [0..1]
+ validFrom: DateTime [0..1]
+ validTo: DateTime [0..1]
+ adeOfAbstractFeatureWithLifespan: ADEOfAbstractFeatureWithLifespan [0..*]
+versionMember
«Version»
*
byReference
0..1
+oldFeature
«Version»
byReference
0..1
+newFeature
«Version»
byReference
«DataType»
Transaction
«Property»
+ type: TransactionTypeValue
+transaction
«Property»
*
«enumeration»
TransactionTypeValue
insert
delete
replace
«enumeration»
TransitionTypeValue
planned
realized
historicalSuccession
fork
merge
«FeatureType»
Core::CityModel
1
+cityModelMember
«Property»
*
«Union»
CityModelMember
«Property»
+ cityObjectMember: AbstractCityObject
+ appearanceMember: AbstractAppearance
+ versionMember: AbstractVersion
+ versionTransitionMember: AbstractVersionTransition
+ featureMember: AbstractFeature
(from Core)
«FeatureType»
Core::
AbstractVersion
«FeatureType»
Core::
AbstractVersionTransition
*
«FeatureType»
Version
«Property»
+ tag: CharacterString [0..*]
+ adeOfVersion: ADEOfVersion [0..*]
0..1
+from
«Property»
byReference
0..1
+to
«Property»
byReference
«FeatureType»
VersionTransition
«Property»
+ reason: CharacterString [0..1]
+ clonePredecessor: Boolean
+ type: TransitionTypeValue [0..1]
+ adeOfVersionTransition: ADEOfVersionTransition [0..*]

WaterBody module