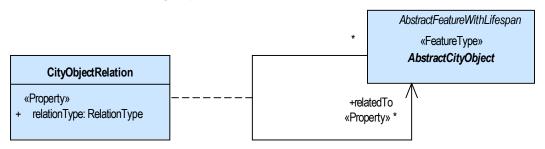
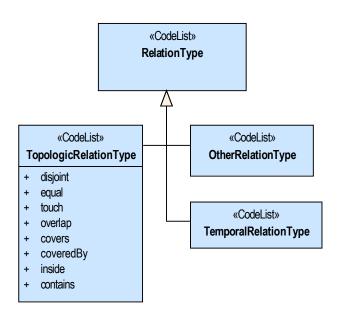
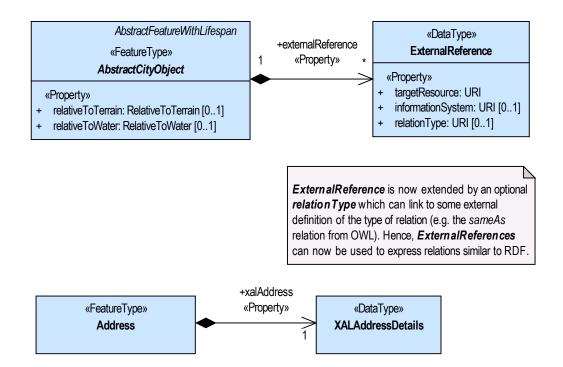


Core module - City object relations





Core module - Miscellaneous



Core module - Basic Types and Enumerations

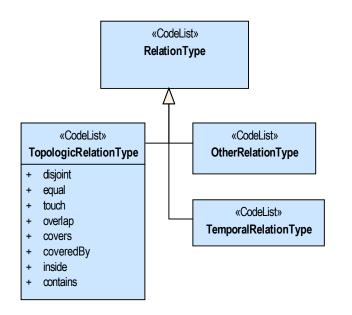
«enumeration» RelativeToTerrain

entirelyAboveTerrain substantiallyAboveTerrain substantiallyAboveAndBelowTerrain substantiallyBelowTerrain entirelyBelowTerrain

«enumeration»

RelativeToWater

entirelyAboveWaterSurface substantiallyAboveWaterSurface substantiallyAboveAndBelowWaterSurface substantiallyBelowWaterSurface entirelyBelowWaterSurface temporarilyAboveAndBelowWaterSurface



inv: IntegerBetween0and3.allInstances() \rightarrow for All(p|p>= 0 and p<= 3) /* Value has to be greater or equal than 0 and less or equal than 3 */

inv: DoubleBetween0and1.allInstances() «BasicType» \rightarrow for All(p|p>=0 and p<=1) DoubleBetween0and1 /* Value has to be greater or equal than 0 and less or equal than 1. */

«BasicType» DoubleBetween0and1List

«BasicType»

IntegerBetween0and3

list: DoubleBetween0and1 {sequence}

«CodeList» QualifiedVolumeValue

- grossVolume
- netVolume

«Codel ist»

- QualifiedAreaValue
- surfaceArea
- wallSurfaceArea
- sharedWallSurfaceArea
- roofSurfaceArea
- wallWindowArea
- roofWindowArea
- wallGlazingArea

«dataType» Occupancy

«Property»

- numberOfOccupants: Integer
- interval: IntervalValue [0..1]
- occupantType: OccupantTypeValue [0..1]

«Codel ist»

IntervalValue

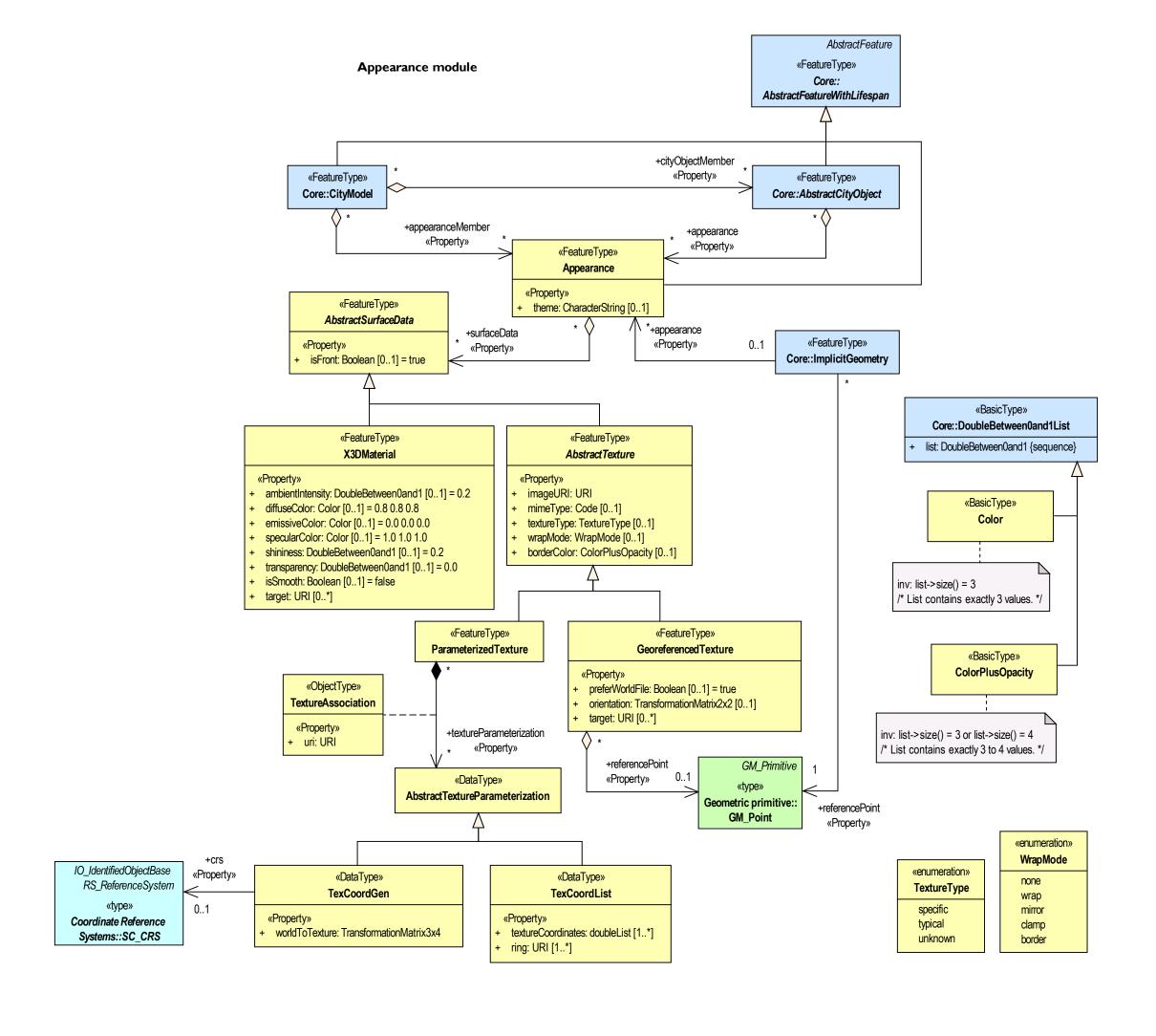
- weekday
- weekend
- weekday 9to12 weekday_12to17
- weekday_8to16
- daytime
- nighttime
- daily_9to12

«Codel ist»

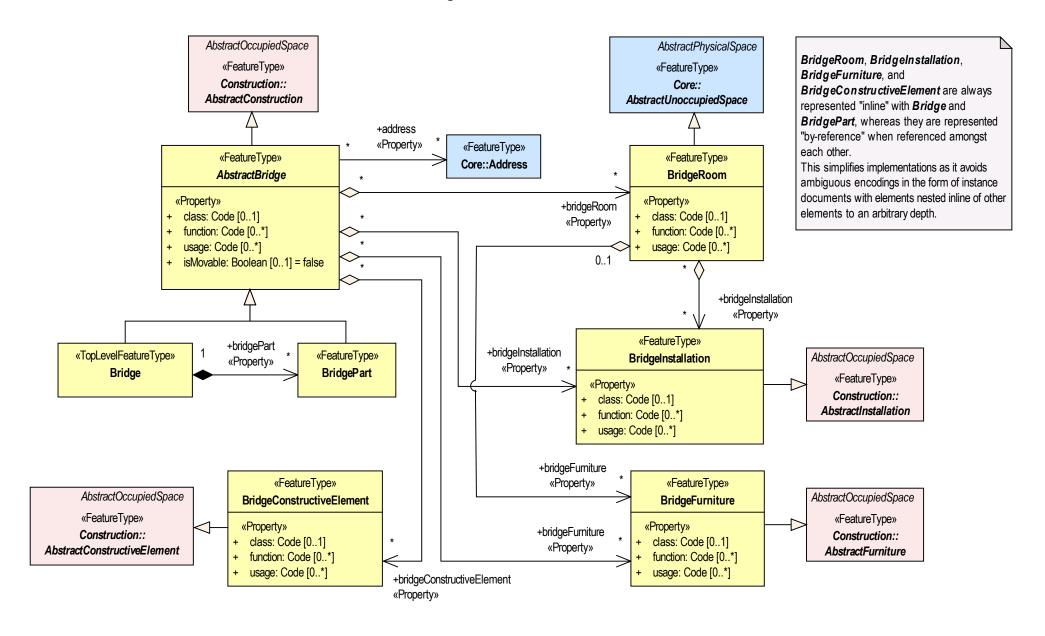
OccupantTypeValue

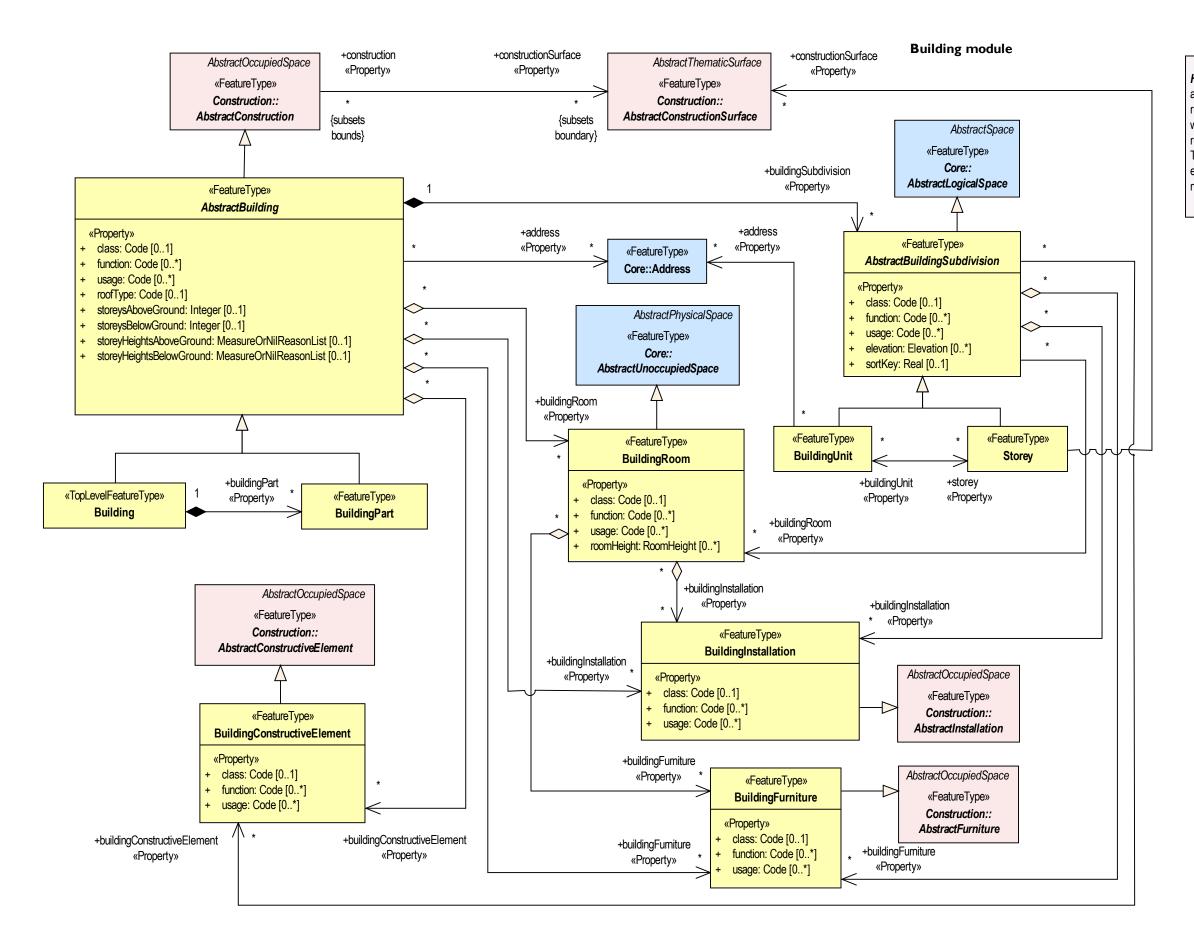
- residents
- workers
- students
- patients
- visitors
- othersOrCombination

«enumeration» SpaceType closed «type» open basicTypes::doubleList semiOpen + list: Sequence<Real> «BasicType» «BasicTvpe» «BasicType» TransformationMatrix2x2 TransformationMatrix3x4 TransformationMatrix4x4 inv: list->size() = 4 inv: list->size() = 12 inv: list->size() = 16 /* List contains exactly 4 values. */ /* List contains exactly 12 values. */ /* List contains exactly 16 values. */



Bridge module





HollowSpace, TunnelInstallation, TunnelFurniture, and TunnelConstructiveElement are always represented "inline" with Tunnel and TunnelPart, whereas they are represented "by-reference" when referenced amongst each other.

This simplifies implementations as it avoids ambiguous encodings in the form of instance documents with elements nested inline of other elements to an arbitrary depth.

«dataType» RoomHeight

«Property»

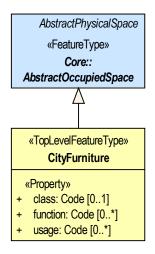
- highReference: RoomElevationReferenceValue
- + lowReference: RoomElevationReferenceValue
- + status: HeightStatusValue
- + value: Length

«enumeration»

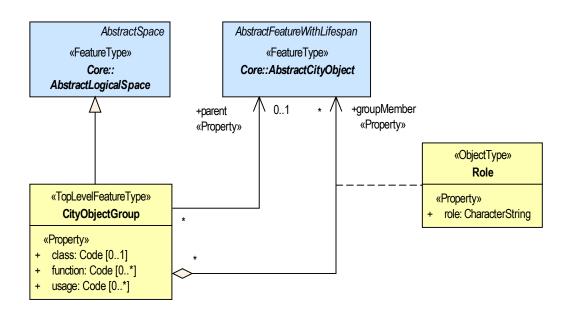
RoomElevationReferenceValue

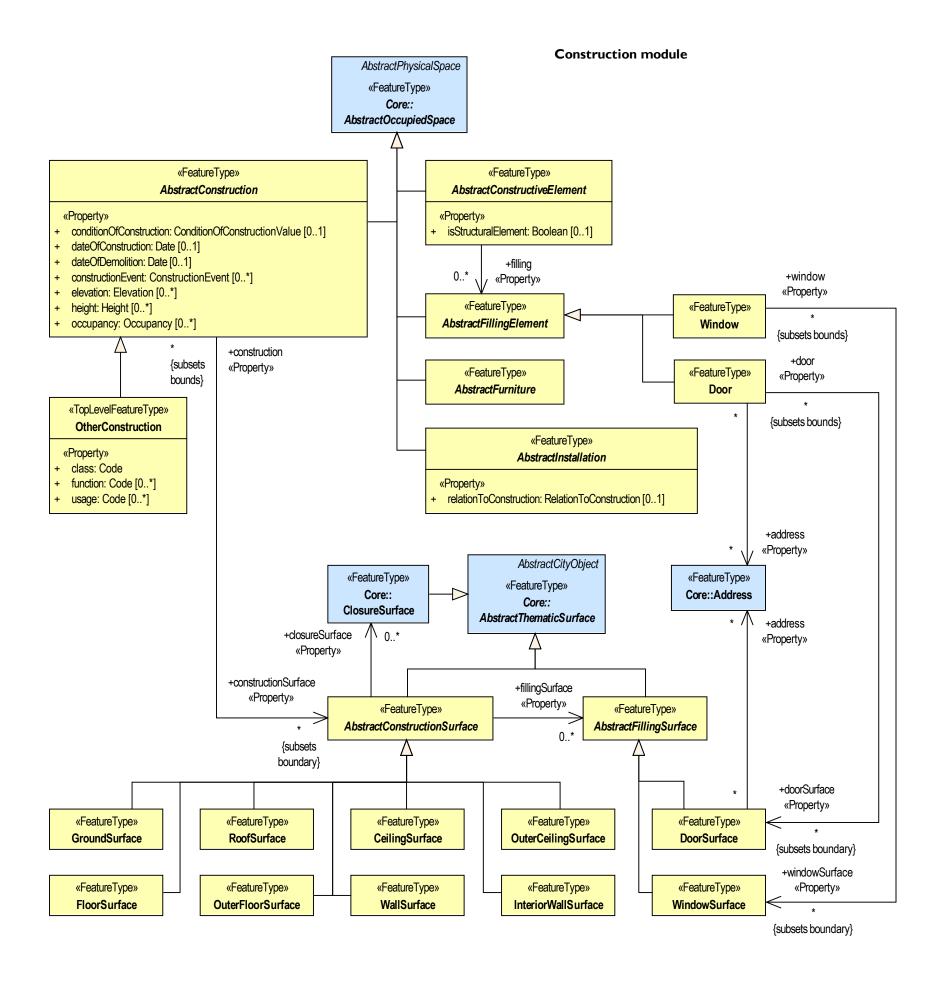
tbd

CityFurniture module



CityObjectGroup module





«enumeration»

ConditionOfConstructionValue

declined demolished functional projected ruin underConstruction

«enumeration» RelationToConstruction

inside outside bothInsideAndOutside

«DataType» Elevation

«Property»

- elevationReference: ElevationReferenceValue
- + elevationValue: DirectPosition

«DataType» **Height**

«Property»

- highReference: ElevationReferenceValue
- lowReference: ElevationReferenceValue
- status: HeightStatusValue
- + value: Length

«enumeration»

ElevationReferenceValue

aboveGroundEnvelope bottomOfConstruction entrancePoint generalEave generalGround generalRoof generalRoofEdge highestEave highestGroundPoint highestPoint highestRoofEdge lowestEave lowestFloorAboveGround lowestGroundPoint lowestRoofEdge

«enumeration» HeightStatusValue

estimated measured

Reference values for heights below ground will be added.

«DataType» ConstructionEvent

«Property»

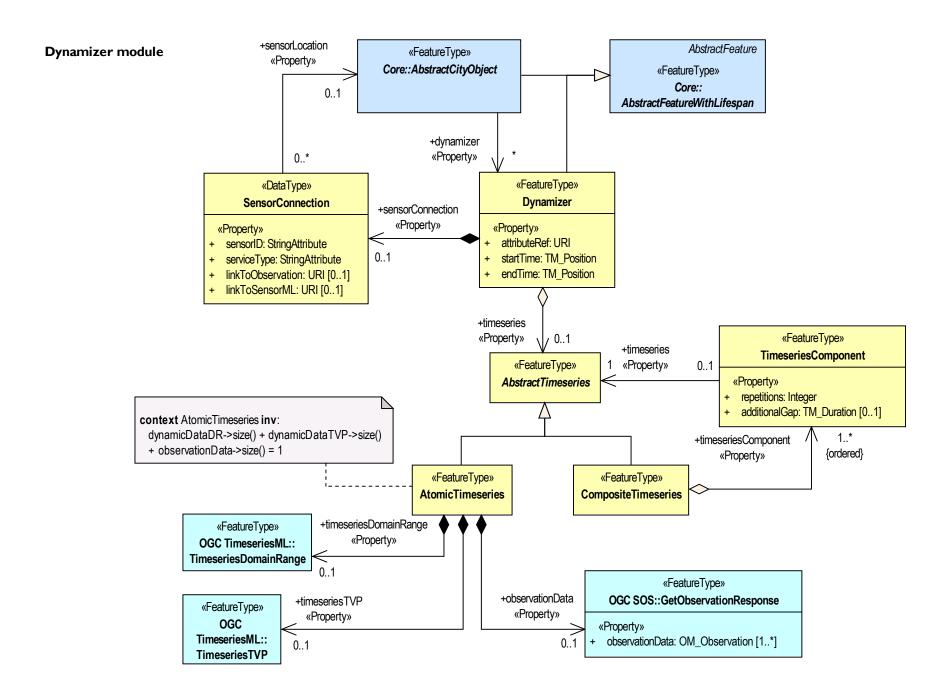
event: EventValue

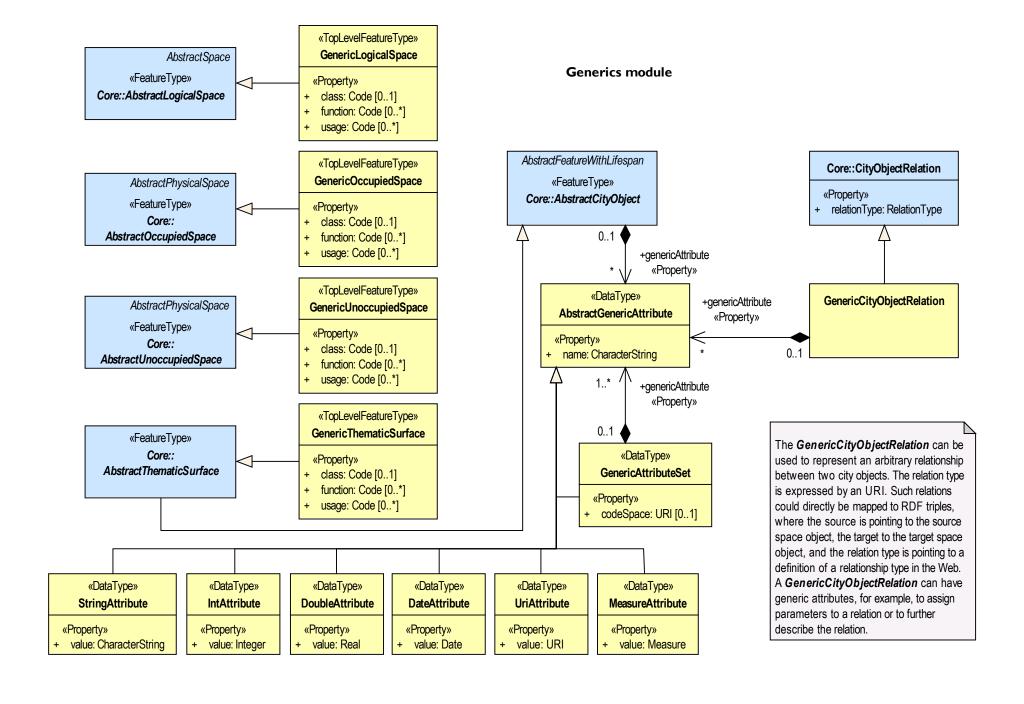
topOfConstruction

- + dateOfEvent: Date
- + description: CharacterString [0..1]

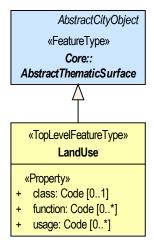
«CodeList» EventValue

- buildingPermit
- startOfRenovation
- endOfRenovation
- ...

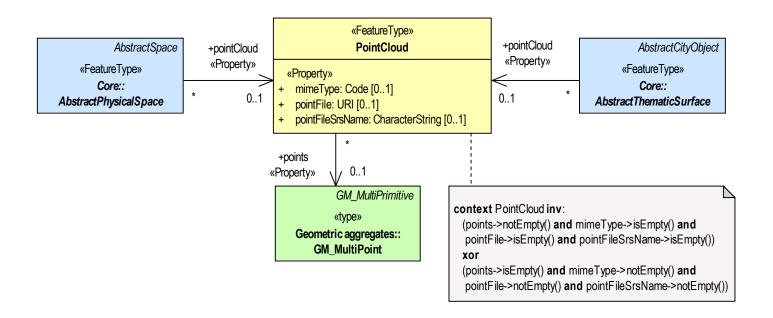


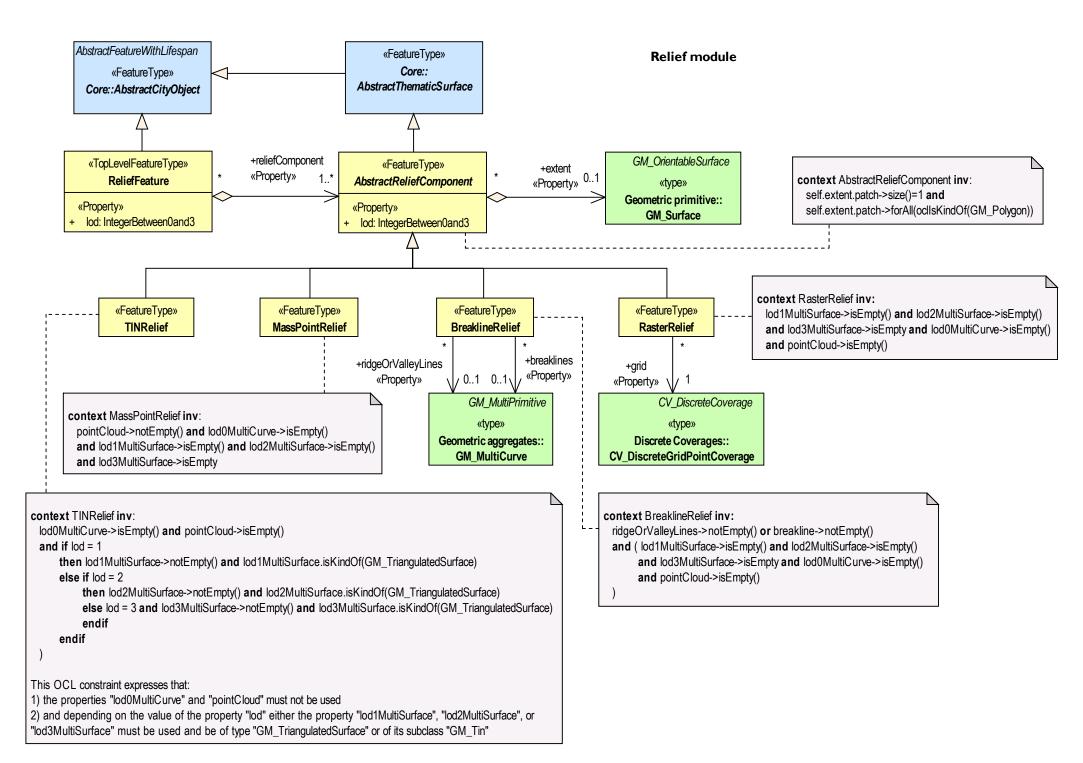


LandUse module



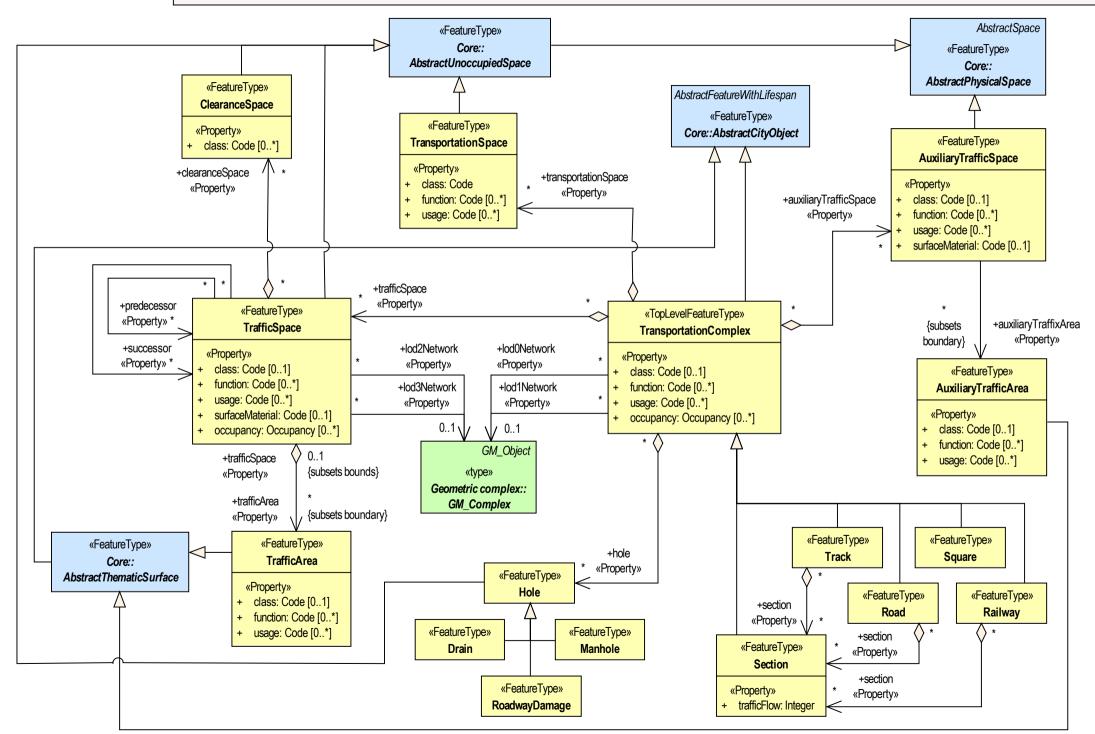
PointCloud module



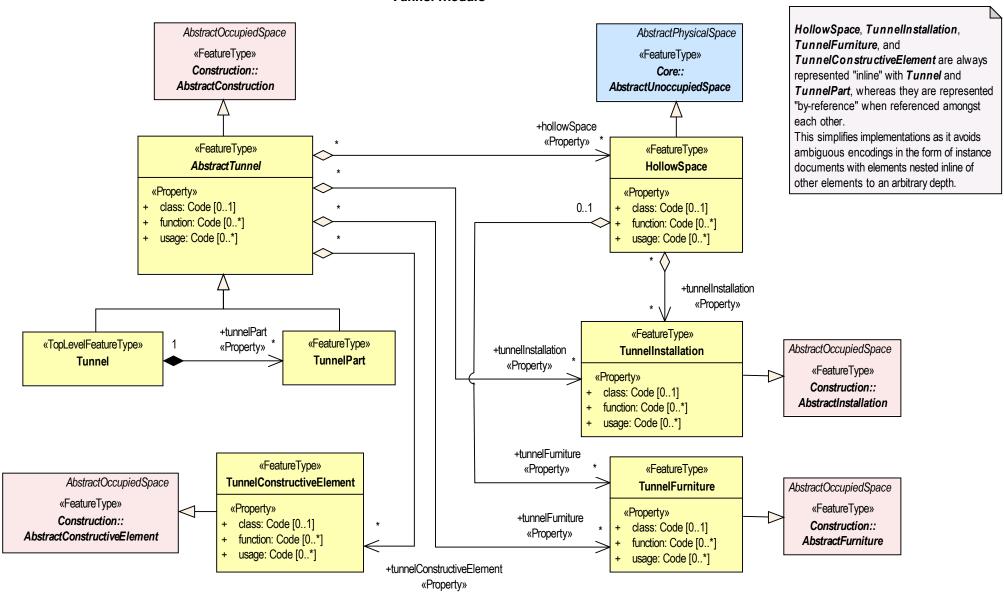


Transportation module

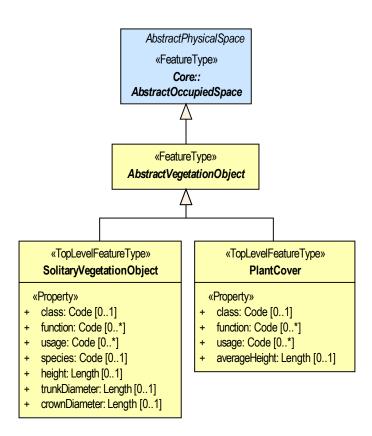
At the 3D GeoInfo conference at TU Delft early October 2018, a discussion between Anna Labetski and Thomas H. Kolbe took place regarding some refinements proposed by TU Delft in a conference paper. These refinements are going to be integrated. The current diagram only reflects the refined modelling of the TopLevelFeatureType concept.

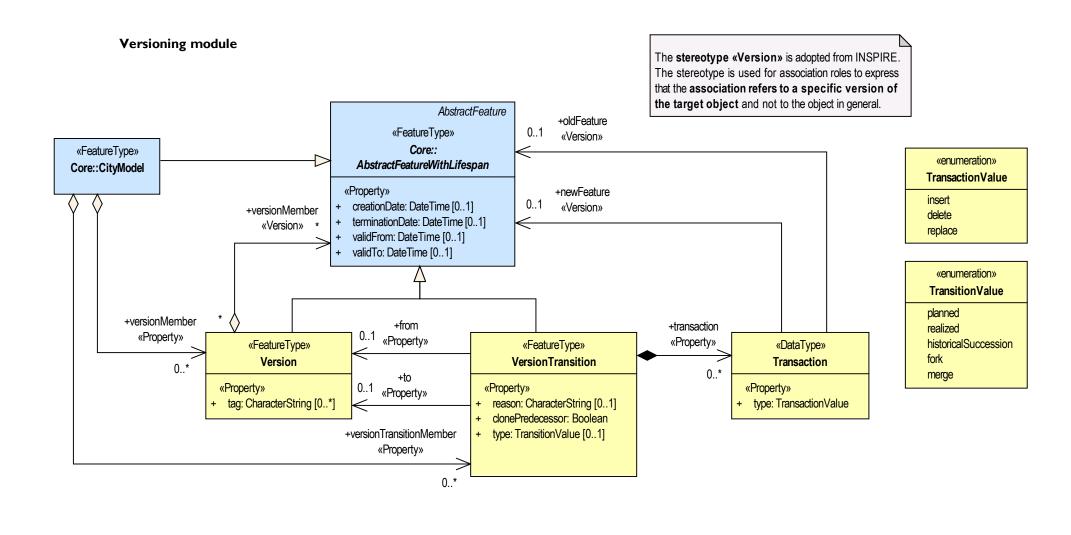


Tunnel module



Vegetation module





WaterBody module

