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OGC InfraGML 1.0: Part 7 – LandInfra Land Division - Encoding Standard

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Abstract

This OGC InfraGML Encoding Standard presents the implementation-dependent, GML encoding of concepts supporting land and civil engineering infrastructure facilities specified in the OGC Land and Infrastructure Conceptual Model Standard (LandInfra), OGC 15-111r1. Conceptual model subject areas include land features, facilities, projects, alignment, road, railway, survey (including equipment, observations, and survey results), land division, and condominiums.

InfraGML is published as a multi-part standard. This Part 7 addresses the LandDivision and Condominium Requirements Classes from LandInfra.

Keywords

The following are keywords to be used by search engines and document catalogues.

OGC document, LandInfra, InfraGML, infrastructure, land parcel, real estate, immovable property, condominium, strata title

Preface

In order to achieve consensus on the concepts supporting land and civil engineering infrastructure facilities, a UML Conceptual Model, LandInfra, was approved as an OGC standard 2nd August, 2016. This model provides a unifying basis for encodings including but not limited to InfraGML, including similar work in buildingSMART International. It can also provide a framework for discussing how other software standards relate to LandInfra.

As an OGC standard, LandInfra follows the OGC modular specification standard, OGC 08-131r3. Because of the breadth of LandInfra, its subject areas are divided into separate Requirements Classes. This InfraGML encoding similarly is divided into Requirements Classes which are then grouped into Parts. A Part may address multiple LandInfra Requirements Classes but each Requirements Class is addressed in a single part. Because Requirements Classes may depend on other Requirements Classes (see LandInfra Figure 1, “Requirements Classes as UML Packages with their dependencies”), the reader of this InfraGML Part may need to conform to Requirements Classes in other Parts as well.

Note that this InfraGML encoding standard is a target of LandInfra and therefore this standard conforms to the Requirements Classes in LandInfra. On the other hand, an application claiming conformance to this InfraGML encoding standard must conform to the Requirements Classes contained in this InfraGML standard.

There are several reasons for separating InfraGML into Parts. Because they are likely to have separate authors, the rate at which each Part is completed may vary. It would not be advisable to wait until all Parts complete before any can be released as separate OGC standards. Multiple Parts will also allow each subject to have its own standards life cycle. One Part can be updated independent of other Parts, subject to dependency constraints. And of course, it should be easier for the application software developer to only deal with Parts relevant to their application.

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Submitting organizations

The following organizations submitted this Document to the Open Geospatial Consortium (OGC):

Bentley Systems, Inc.

Aalborg University, Dept. of Development & Planning

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# Scope

InfraGML is a GML encoding standard of the LandInfra Conceptual Model standard, OGC 15-111r1. InfraGML is provided as a set of individual though inter-dependent Parts, each of which is a GML standard.

The overall scope of this InfraGML Encoding Standard is infrastructure facilities and the land on which they are constructed. Also included is the surveying necessary for the setting out and as-built recording of these facilities and interests in land. Primarily having a civil engineering point of view, InfraGML is relevant across all life cycle phases of a facility. Subject areas include land features, facilities, projects, alignment, road, railway, survey (including equipment, observations, and survey results), land division, and condominiums.

The scope of this Part 7 of InfraGML addresses the following subject area(s): land division and condominium. These subject areas are commonly termed ‘cadastral survey’, but this term is avoided here, as it includes surveying, which is addressed by Part 6 of InfraGML. Two InfraGML Requirements Classes are included: LandDivision and Condominium. An application can conform to InfraGML without supporting all other parts of InfraGML, for example the Survey Requirements Classes of Part 6. However, to claim support for LandDivision, an application must also support the InfraGML Core and to claim support for Condominium, an application must in addition support the LandDivision Requirements Class.

# Conformance

The InfraGML encoding standard defines requirements, grouped into Requirements Classes, for applications which read and write information about infrastructure facilities and the land on which they are constructed, including the surveying necessary for the setting out and as-built recording of these facilities and land interests.

The OGC modular specification (OGC 08-131r3) defines “standardization target” as the entity to which requirements of a standard apply. It further notes that the standardization target is the entity which may receive a certificate of conformance for a requirements class. The standardization target type for this standard is therefore:

* software applications which read/write data instances, i.e. XML documents that encode land, infrastructure facility, and survey data for exchange

Conformance with this standard shall be checked using all the relevant tests specified in Annex A (normative) of this document. The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site[[1]](#footnote-1).

In order to conform to this OGC encoding standard, a standardization target shall choose to implement the core conformance class and any of the other conformance classes with their dependencies. Conformance classes are based on Requirements Classes which are specified in this and possibly other Parts of the InfraGML standard.

All requirements classes and conformance classes described in this document are owned by the standard(s) identified. Note that Conformance Classes for this Part of InfraGML may require conformance with Conformance Classes from other Parts of InfraGML.

# References

The following normative documents contain provisions that, through reference in this text, constitute provisions of this Part of InfraGML. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

OGC 07-036, *OpenGIS® Geography Markup Language (GML) Encoding Standard,* v3.2.1, August 27, 2007

OGC 10-129r1, *OGC® Geography Markup Language (GML) — Extended schemas and encoding rules*, v3.3, February 7, 2012

OGC 15-111r1, *OGC Land and Infrastructure Conceptual Model Standard (LandInfra)*, v1.0, August 2nd , 2016.

OGC 16-100, *OGC InfraGML 1.0: Part 0 – LandInfra Core – Encoding Standard*, v1.0, 2017

# Terms and Definitions

This document uses the terms defined in Sub-clause 5.3 of [OGC 06-121r8], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this standard.

The LandInfra standard contains a long list of terms and definitions relevant to the scope of InfraGML. As these will not be repeated here, the reader is directed to Clause 4 of LandInfra. Only terms not already appearing there are listed below.

## Land Division Terms

cadastral survey

survey of the **boundary** of an **interest in land**

Note 1 to entry: **Cadastral survey** is performed for the initial formation of property units, as well as for re-establishment of missing boundaries and subsequent changes of the boundaries.

Note 2 to entry: Demarcation of **boundary** with **survey monument** and documentation in terms of a **statement** is covered by this standard, while adjudication (the process leading to determination of rights in land) and registration (the official recording by the pertinent agency) is out of scope.

# Conventions

## Abbreviations

In this document the following abbreviations and acronyms are used or introduced:

GML Geography Markup Language

ISO International Organization for Standardization

OGC Open Geospatial Consortium

UML Unified Modeling Language

XML eXtensible Markup Language

## UML Package and Class Diagrams

The LandInfra standard contains UML diagrams for the concepts supported by InfraGML. As these will not be repeated here, the reader is directed to Clause 7 of LandInfra. UML will only appear in InfraGML in the rare cases where LandInfra is extended by InfraGML.

## Requirements

When referred to in a Requirement or Requirements Class, the boxes contained in the LandInfra UML figures may all be called “Classes” even if they are data types, enumerations, code lists, unions etc. In most cases, these will be encoded as XML elements in InfraGML.

When an InfraGML Requirement states that “A conforming application shall support the [Requirements Class] XML elements listed in Table <n> in accordance with the GML XSD in this standard.”, the XSD was developed to support the UML for the corresponding LandInfra Requirements Class as follows:

1. all classes shown as blue boxes for the corresponding LandInfra Requirements Class UML diagrams
2. all attributes, attribute cardinalities, and attribute data types of these classes (usually shown in subsequent diagrams)
3. all associations, navigation, roles, and role cardinalities connected to the blue classes
4. all classes shown as beige boxes (another Requirements Class) in the diagrams connected to the blue box classes by association or used as attribute data types
5. all classes shown as pink boxes (another Standard) in the figure connected to the blue box classes by association or used as attribute data types

Note that, in rare cases, the OGC 15-111r1 UML may be altered. In such cases, the alterations are declared in the first subclause of each Requirements Class, entitled “Implementation decisions regarding OGC 15-111r1 UML”. Logical Model UML diagrams may be included if the implementation constraints of GML (or XML) dictate that the Conceptual Model cannot be implemented directly as shown in OGC 15-111r1.

In most cases, the InfraGML XML derived from the LandInfra UML follows the rules in OGC 07-036, GML, Annex E, UML-to-GML application schema encoding rules.

The only normative version of the GML XSD (XML schema definition) for all Parts of the InfraGML Encoding Standard is available from the official OGC XML schema repository at <http://schemas.opengis.net>. Any occurrences of all or part of this XSD contained within this document are to be considered to be informative only.

The URI base for the LandInfra Conceptual Model standard is <http://www.opengis.net/spec/landinfra/1.0>. All URIs of Requirements Classes, Requirements, and Conformance Classes contained in that standard are relative to this base.

The URI base for this InfraGML encoding standard is <http://www.opengis.net/infragml/part7/1.0>. All URIs of Requirements Classes, Requirements, and Conformance Classes contained in this standard are relative to this base.

# InfraGML Parts

The InfraGML encoding standard has been divided into Parts. These Parts enable the grouping of LandInfra subject areas (Requirements Classes) into individual OGC encoding standards. All of these InfraGML encoding standards have a similar name: “OGC 16-10n, OGC® InfraGML 1.0: Part n - <part name> Encoding Standard”, where Part numbers and names are as follows:

|  |  |
| --- | --- |
| **n** | **<part name>** |
| 0 | LandInfra Core |
| 1 | LandInfra LandFeatures |
| 2 | LandInfra Facilities and Projects |
| 3 | LandInfra Alignments |
| 4 | LandInfra Roads |
| 5 | LandInfra Railways |
| 6 | LandInfra Survey |
| 7 | LandInfra LandDivision |

Some InfraGML Parts depend upon other parts:



Figure 1. InfraGML Part Dependencies

The boxes above represent InfraGML Parts. Arrows show Part dependencies.

The Part dependencies derive from the dependencies of the InfraGML Requirements Classes contained in these Parts. The reader should rely more on the InfraGML Requirements Class dependencies and only use the Part dependencies as a guide for knowing which InfraGML Part standards to consider.

InfraGML Parts include the following LandInfra 1.0 Requirements Classes (UML Packages):



Figure 2. LandInfra Requirements Classes grouped into InfraGML Parts

The boxes above and their names represent LandInfra Requirements Classes. The numbers are InfraGML Part numbers. Dependency arrows shown above are dependencies between LandInfra Requirements Classes.

# Requirements Classes for this Part

## Structural Overview of Requirements Classes

The Requirements Classes for this Part of the InfraGML encoding standard (shown in blue in Figure 3 below) are defined in this Clause 7. Requirements Classes from other Parts upon which this Part’s Requirements Classes are dependent (Core shown in beige in Figure 3 below) are listed here but defined in the documentation of their respective Parts. External OGC and ISO standards on which Requirements Classes in this Standard depend (shown in pink in Figure 3 below) are also listed. Below is a brief summary of the function of each of these Requirements Classes.

**pkg Part 7**

**GML3.3**

**GML3.2**

**Core**

**LandDivision**

**Condominium**

Figure 3. Requirements Classes for this Part and their Dependencies

### Requirement Classes Defined in This Part

**LandDivision**

Land can be divided up into LandDivisions. These can either be public (political, judicial, or executive) or private in nature. The former are AdministrativeDivisions and the latter are InterestsInLand. Both of these are specified in the LandDivision Requirements Class, though condominium interests in land are specified in a separate, Condominium Requirements Class. The geometrical shape of these spatial units is modelled independently from their administrative or legal status, (see LandInfra UML, 7.10.6 SpatialUnit).

**Condominium**

A CondominiumUnit is a concurrent ownership of real property that has been divided into private and common portions [2, 3]. The privately owned part is made up of clearly demarcated, floor related parts of a building (BuildingPart), as specified by a CondominiumScheme. CondominiumUnit owners are members of a mandatory owners’ association. Moreover, each CondominiumUnit has a share in the common parts of the property.

The Condominium Requirements Class includes information about condominium units, buildings and schemes. The Condominium Requirement Class is dependent on the LandDivision Requirement Class.

### Dependent Requirement Classes Defined in Other Parts

The Requirements Classes defined in this Part are dependent on the following Requirements Classes from other Parts.

**Part 0. LandInfra Core**

LandInfra is the core Requirements Class and is the only mandatory Requirements Class. This class contains information about the Land and Infrastructure dataset that can contain information about facilities, land features, documents, professional, survey marks, surveys, sets, and feature associations. LandInfra also contains the definition of types common across other Requirements Classes, such as the Status CodeList.

### Other Standards upon which the Requirement Classes of this Part Depend

For external OGC and ISO standards on which Requirements Classes in this Standard depend, a brief summary of the function of each of these Standards is described below.

**GML 3.2**

OGC 07-036, OpenGIS® Geography Markup Language (GML) Encoding Standard, v3.2 provides most of the geometry types (e.g., Point, LineString, Polygon) used for spatial representations in this Standard. Defines Coordinate Reference Systems. Supports the General Feature Model upon which this Standard is based.

**GML 3.3**

OGC 10-129r1, OGC® Geography Markup Language (GML) — Extended schemas and encoding rules, v3.3 defines the linear referencing concepts (e.g., linear element, distance along, Linear Referencing Methods) used for linearly referenced locations in this Standard.

## Requirements Class: LandDivision

|  |  |
| --- | --- |
| **Requirements Class** | |
| **/req/landdivision** | |
| Target type | Conforming application |
| Name | LandDivision |
| Dependency | **/req/core** (from InfraGML Part 0) |
| **Requirement** | **/req/landdivision/elements** |

### Implementation decisions regarding OGC 15-111r1 UML

The following implementationtation decisions have been made regarding the OGC 15-111r1 LandInfra Requirements Class UML:

1. GML will not allow an element to be associated with another element if it is already on the part side of a composition association. For example, if, as the 15-111r1 Figure 62 UML shows, LandParcel is a compositional part of LandPropertyUnit, then it cannot also be associated with Easement. Therefore the composition association has been replaced by a mandatory, uni-directional (1..\*) association from LandPropertyUnit to LandParcel. The LandParcel-Easement association has been simplified to become uni-directional from Easement to LandParcel.

### Specific Requirements for this Requirements Class

|  |  |
| --- | --- |
| **Requirement** | **/req/landdivision/elements**  A conforming application shall support the LandDivision XML elements listed in Table 1 below, in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/landdivision.xsd. |

An application conforming to this standard shall support the LandDivision XML elements listed below in Table 1 in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/landdivision.xsd. LandDivision XML element names are shown with a XML namespace prefix of “lild”. Corresponding LandInfra UML classes are shown with their LandInfra Requirements Class prefix of “LandDivision”.

|  |  |
| --- | --- |
| **InfraGML XML element** | **LandInfra UML Class** |
| lild:AdministrativeDivision | LandDivision::AdministrativeDivision |
| lild:BEExplicitFace | LandDivision::BEExplicitFace |
| lild:BEExtrudedFace | LandDivision::BEExtrudedFace |
| lild:BEFace | LandDivision::BEFace |
| lild:BEImplicitFace | LandDivision::BEImplicitFace |
| lild:BEPoint | LandDivision::BEPoint |
| lild:BESolid | LandDivision::BESolid |
| lild:BEString | LandDivision::BEString |
| lild:BEText | LandDivision::BEText |
| lild:BoundingElement | LandDivision::BoundingElement |
| lild:Easement | LandDivision::Easement |
| lild:ExtrusionLimit | LandDivision::ExtrusionLimit |
| lild:InterestInLand | LandDivision::InterestInLand |
| lild:LandDivision | LandDivision::LandDivision |
| lild:LandParcel | LandDivision::LandParcel |
| lild:LandPropertyUnit | LandDivision::LandPropertyUnit |
| lild:Ownership | LandDivision::Ownership |
| lild:PropertyUnit | LandDivision::PropertyUnit |
| lild:Signatory | LandDivision::Signatory |
| lild:SpatialUnit | LandDivision::SpatialUnit |
| lild:Statement | LandDivision::Statement |
| lild:SuperficieObject | LandDivision::SuperficieObject |
| lild:SurveyMonument | LandDivision::SurveyMonument |

Table 1. InfraGML LandDivision XML elements with corresponding LandInfra UML classes

## Requirements Class: Condominium

|  |  |
| --- | --- |
| **Requirements Class** | |
| **/req/condominium** | |
| Target type | Conforming application |
| Name | Condominium |
| Dependency | **/req/landdivision** |
| **Requirement** | **/req/condominium/elements** |

### Implementation decisions regarding OGC 15-111r1 UML

The following implementation decisions have been made regarding the OGC 15-111r1 Condominium Requirements Class UML:

1. LandInfra UML specifies CondominiumBuilding as subtype of Facility::Building, thereby creating a dependency on InfraGML Part 2 Facility. While this modelling is adequate, the benefit does not outweigh the cost of dependency. Waiting for linking with IFCs, CondominiumBuilding is here made subtype of LandInfra::Feature, similar to the modelling chosen for SuperficieObject (LandInfra UML 7.10.2.6)

2. GML will not allow an element to be associated with another element if it is already on the part side of a composition association. For example, if, as the 15-111r1 Figure 69 UML shows, BuildingPart is a compositional part of CondominiumBuilding, then it cannot also be associated with CondominiumUnit. Therefore the composition association has been replaced by a mandatory, uni-directional association from BuildingPart to CondominiumBuilding. The redundant CondominiumScheme-CondominiumBuilding association can now be dropped, as it is possible to determine the CondominiumBuildings participating in a CondominiumScheme by tracing from CondominiumScheme to CondominiumUnit to BuildingPart to CondominiumBuilding.

### Specific Requirements for this Requirements Class

|  |  |
| --- | --- |
| **Requirement** | **/req/condominium/elements**  A conforming application shall support the Condominium XML elements listed in Table 2 below, in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/condominium.xsd. |

An application conforming to this standard shall support the Condominium XML elements listed below in Table 2 in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/condominium.xsd. Condominium XML element names are shown with a XML namespace prefix of “lic”. Corresponding LandInfra UML classes are shown with their LandInfra Requirements Class prefix of “Condominium”.

|  |  |
| --- | --- |
| **InfraGML XML element** | **LandInfra UML Class** |
| lic:BuildingPart | Condominium::BuildingPart |
| lic:CondominiumBuilding | Condominium::CondominiumBuilding |
| lic:CondominiumScheme | Condominium::CondominiumScheme |
| lic:CondominiumUnit | Condominium::CondominiumUnit |

Table 2. InfraGML Condominium XML elements with corresponding LandInfra UML classes

# Media Types for any data encoding(s)

Data for all Parts of the InfraGML encoding standard is encoded in GML-conformant

XML documents. The standard MIME-type and sub-type for GML data should be used to

indicate the encoding in internet exchange, as specified in MIME Media Types for GML,

namely ‘application/gml+xml’.

1. Conformance Class Abstract Test Suite (Normative)

Conformance class: LandDivision

|  |  |  |
| --- | --- | --- |
| [**/conf/landdivision**](http://www.opengis.net/spec/waterml/2.0/conf/uml-timeseries-observation) | | |
| Requirements | **/req/landdivision** | |
| Dependency | **/conf/core** (from InfraGML Part 0) | |
| **Test** | **/conf/landdivision/elements** | |
| Requirement | **/req/landdivision/elements** |
| Test purpose | Verify that the conforming application supports the LandDivision XML elements listed in Table 1 in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/ landdivision.xsd. |
| Test method | Inspect the GML output to verify the above requirement. |
| Test type | Capability |

Conformance class: Condominium

|  |  |  |
| --- | --- | --- |
| [**/conf/condominium**](http://www.opengis.net/spec/waterml/2.0/conf/uml-timeseries-observation) | | |
| Requirements | **/req/condominium** | |
| Dependency | **/conf/landdivision** | |
| **Test** | **/conf/condominium/elements** | |
| Requirement | **/req/condominium/elements** |
| Test purpose | Verify that the conforming application supports the Condominium XML elements listed in Table 2 in accordance with the GML XSD specified in http://schemas.opengis.net/infragml/part7/1.0/condominium.xsd |
| Test method | Inspect the GML output to verify the above requirement. |
| Test type | Capability |

1. Sample XML (Informative)
2. CadastralAccountExample

<?xml version="1.0" encoding="UTF-8"?>

<?xml-stylesheet type="text/xsl" href="CadastralAccountExample0321.xsl"?>

<li:LandInfraDataset xmlns="http://www.opengis.net/infragml/landdivision/1.0" xmlns:li="http://www.opengis.net/infragml/core/1.0" xmlns:gml="http://www.opengis.net/gml/3.2" gml:id="ld0" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gmllr="http://www.opengis.net/gml/3.3/lr" xmlns:gmllro="http://www.opengis.net/gml/3.3/lro" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/infragml/landdivision/1.0 Part7LandDivision0321.xsd">

<li:datasetID>

<li:identifier>ld0</li:identifier>

<li:scope>OGC LandInfraSWG</li:scope>

</li:datasetID>

<li:name>Part7 Dataset</li:name>

<li:description>LandInfra dataset to test content for Part7 LandDivision</li:description>

<li:dateTime>2017-02-20T10:00:00</li:dateTime>

<li:datasetVersion>1.0</li:datasetVersion>

<li:application>manual</li:application>

<li:author>Erik Stubkjær, Aalborg University, Denmark</li:author>

<li:infraVersion>1.0</li:infraVersion>

<li:language>English</li:language>

<li:defaultCRS xlink:href="crs1"/>

<!--

The present dataset regards the content of a Statement of documentType 'Cadastral Account'

The context:

You have a number of persons who have Ownership rights into another number of LandParcels. The abstract legal boundaries of the LandParcels are depicted on a cadastral map. The LandParcels are embedded in a complete surface with no overlaps and holes (a tessellation). [The relation of these abstract boundaries to hedges, ditches, streams, etc. on the ground, and to actual use and agreements is out of scope. – A LandParcel within another LandParcel is permitted; in this sense holes are possible, but also this aspect is out of scope here]

One or more owners in common request from 'professional', i.e. LandSurveyor, a recasting of LandParcel boundaries. The LandSurveyor documents the request through the present CadastralAccount with a tabular part and a corresponding graphical part. On the latter, the requested new boundaries are drawn. The new boundaries subdivide existing LandParcels into a transitory LandParcels (or LandParcelParts if a name is needed).

The tabular part of the CadastralAccount comprises of a sequence with three parts. The opening part lists existing /current PropertyUnits, each with owner details and the LandParcels recorded as parts of the PropertyUnit by the pertinent authority. The second, intermediate part documents changes, and the closing part recapitulates the new situation in terms of both current PropertyUnits (without owner details), each with unchanged or changed LandParcels, as well as new PropertyUnits, established through the change process.

-->

<li:feature>

<LandPropertyUnit gml:id="ld1">

<documentation>

<Statement gml:id="ld2">

<li:documentID>

<li:identifier/>

<li:scope/>

</li:documentID>

<li:documentType>Cadastral Account</li:documentType>

<type/>

<draftsman gml:id="ld2a">

<li:fullName>Erik St</li:fullName>

<li:type/>

<li:company>Measurewell</li:company>

<li:registration>LicenseX\_1968-43</li:registration>

<li:licensingCountry>DK</li:licensingCountry>

</draftsman>

<caseID>

<identifier>Case2017-21</identifier>

<scope>Aalborg branch</scope>

</caseID>

<signatory gml:id="ld2ba">

<signingParty/>

<signingDate>2017-02-28</signingDate>

</signatory>

</Statement>

</documentation>

<propertyUnitID>

<identifier>123</identifier>

</propertyUnitID>

<ownership>

<Ownership gml:id="ld10">

<name>Sandy Thompson</name>

</Ownership>

</ownership>

<postAddress>Sandy Road 32, 1234 Here</postAddress>

<!-- The list of LandParcels. Here only one -->

<landParcel>

<LandParcel gml:id="ld3">

<li:property>

<!-- Demonstration of potential for recording of more area values, e.g. of areal restricted for certain purposes, e.g. road -->

<li:Property gml:id="ps10">

<li:valueType>parcelArea2</li:valueType>

<li:value>1715</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>13g</identifier>

</cadastralParcelId>

<parcelArea uom="m2">816650</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

</LandPropertyUnit>

</li:feature>

<!-- Second PropertyUnit -->

<li:feature>

<LandPropertyUnit gml:id="ld8">

<documentation xlink:href="ld2"/>

<propertyUnitID>

<identifier>891</identifier>

</propertyUnitID>

<ownership>

<Ownership gml:id="ld9">

<name>Windy Thompson</name>

</Ownership>

</ownership>

<postAddress>Next Village Road 12, 2345 There</postAddress>

<!-- This PropertyUnit comprises three LandParcels -->

<landParcel>

<LandParcel gml:id="ld4">

<li:property>

<li:Property gml:id="ps11">

<li:valueType>parcelArea2</li:valueType>

<li:value>0</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>2h</identifier>

</cadastralParcelId>

<parcelArea uom="m2">291861</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld5">

<li:property>

<li:Property gml:id="ps12">

<li:valueType>parcelArea2</li:valueType>

<li:value>16717</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>10aa</identifier>

</cadastralParcelId>

<parcelArea uom="m2">426045</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld6">

<li:property>

<li:Property gml:id="ps13">

<li:valueType>parcelArea2</li:valueType>

<li:value>5560</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>14x</identifier>

</cadastralParcelId>

<parcelArea uom="m2">235253</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

</LandPropertyUnit>

</li:feature>

<!--

End of first section: Presentation of involved PropertyUnits with all their LandParcels

Next section specifies the temporary LandParcels (or LandParcelParts) , which are exchanged between existing LandParcels or provide the basis for new LandParcels.

The LandInfra standard 15-111r1 supports the change process through the code list 'parcelState'. The code list is presented here with an alternative: The use of literals which refer to the LandParcels involved. The above introduced 'parcelArea2' is augmented with these literals.

The temporary LandParcels are specified within a dummy PropertyUnit, "ld11"

-->

<li:feature>

<LandPropertyUnit gml:id="ld11">

<documentation/>

<propertyUnitID>

<identifier>000</identifier>

</propertyUnitID>

<ownership/>

<postAddress/>

<landParcel>

<LandParcel gml:id="ld12">

<li:property>

<li:Property gml:id="ps14">

<li:valueType>parcelTransition</li:valueType>

<li:value>13g N1 0</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>T1</identifier>

</cadastralParcelId>

<parcelArea uom="m2">9</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld13">

<li:property>

<li:Property gml:id="ps15">

<li:valueType>parcelTransition</li:valueType>

<li:value>10aa N1 0</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>T2</identifier>

</cadastralParcelId>

<parcelArea uom="m2">928</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld7">

<li:property>

<li:Property gml:id="ps19">

<li:valueType>parcelTransition</li:valueType>

<li:value>10aa N2 0</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>N2</identifier>

</cadastralParcelId>

<parcelArea uom="m2">927</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld14">

<li:property>

<li:Property gml:id="ps17">

<li:valueType>parcelTransition</li:valueType>

<li:value>10aa N3 0</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>N3</identifier>

</cadastralParcelId>

<parcelArea uom="m2">958</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

<landParcel>

<LandParcel gml:id="ld15">

<!-- This instance illustrates the recording of a restriction R1 concerning a LandParcel, e.g. in situations where cadastral/ land administration recording is not strongly integrated with land registries at the courts. Being recorded, data concerning the restriction is embedded into the LandParcel dataset -->

<li:property>

<li:Property gml:id="ps18">

<li:valueType>parcelTransition</li:valueType>

<li:value>10aa 10aa 1117</li:value>

</li:Property>

</li:property>

<cadastralParcelId>

<identifier>R1</identifier>

</cadastralParcelId>

<parcelArea uom="m2">1117</parcelArea>

<shapeAndLocation/>

</LandParcel>

</landParcel>

</LandPropertyUnit>

</li:feature>

<!--

End of second section. The third, closing section summarizes for each PropertyUnit of the opening section the remaining LandParcels. The areas of these may well be changed, as accounted for in second section.

Newly established LandParcels must get PropertyUnit status. In some cases, the new PropertyUnit is composed of more parts, in the above example T1 and T2.

Restrictions, cf R1 above, has to be integrated into the pertinent dataset.

The data content of the closing section is derived from the information of the above two sections, and therefore to be derived, e.g. through a xsl transformation.

-->

<li:feature>

<SurveyMonument gml:id="ld50">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p057">

<gml:pos>397292.87 1317152.78</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld51">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p058">

<gml:pos>397335.80 1317083.48</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld55">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p059">

<gml:pos>397338.50 1317078.10</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld56">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p127">

<gml:pos>397338.83 1317083.42</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld57">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p126">

<gml:pos>397291.86 1317084.10</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld58">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p137">

<gml:pos>397291.57 1317064.10</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld59">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p138">

<gml:pos>397338.29 1317063.42</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld60">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p144">

<gml:pos>397291.50 1317044.11</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld61">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p145">

<gml:pos>397336.13 1317043.45</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld62">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p146">

<gml:pos>397337.93 1317049.88</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument></li:feature><li:feature>

<SurveyMonument gml:id="ld63">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p159">

<gml:pos>397290.98 1317023.98</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld64">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p160">

<gml:pos>397294.31 1317023.68</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld65">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p161">

<gml:pos>397308.44 1317021.09</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld67">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p162">

<gml:pos>397319.59 1317019.40</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld68">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p163">

<gml:pos>397329.01 1317017.97</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld69">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p055">

<gml:pos>397277.00 1317179.00</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld70">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p056">

<gml:pos>397285.00 1317166.00</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument></li:feature><li:feature>

<SurveyMonument gml:id="ld71">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p201">

<gml:pos>397283.00 1317047.00</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld72">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p202">

<gml:pos>397275.00 1317042.00</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

<li:feature>

<SurveyMonument gml:id="ld73">

<li:spatialRepresentation>

<li:geometry>

<gml:Point gml:id="p203">

<gml:pos>397281.00 1317036.00</gml:pos>

</gml:Point>

</li:geometry>

</li:spatialRepresentation>

<type/>

<documentation/>

</SurveyMonument>

</li:feature>

</li:LandInfraDataset>

1. Condominium example

<?xml version="1.0" encoding="UTF-8"?>

<?xml-stylesheet type="text/xsl" href="CondominiumExample0321.xsl"?>

<li:LandInfraDataset xmlns="http://www.opengis.net/infragml/condominium/1.0" xmlns:lild="http://www.opengis.net/infragml/landdivision/1.0" xmlns:li="http://www.opengis.net/infragml/core/1.0" xmlns:gml="http://www.opengis.net/gml/3.2" gml:id="c00" xmlns:gmllr="http://www.opengis.net/gml/3.3/lr" xmlns:gmllro="http://www.opengis.net/gml/3.3/lro" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/infragml/condominium/1.0 Part7Condominium0321.xsd">

<li:datasetID>

<li:identifier>c0</li:identifier>

<li:scope>OGC LandInfraSWG</li:scope>

</li:datasetID>

<li:name>Part7 Condominium Dataset</li:name>

<li:description>LandInfra dataset to test content for Part7 Condominium</li:description>

<li:dateTime>2017-03-10T21:00:00</li:dateTime>

<li:datasetVersion>1.0</li:datasetVersion>

<li:application>manual</li:application>

<li:author>Erik Stubkjær, Aalborg University, Denmark</li:author>

<li:infraVersion>1.0</li:infraVersion>

<li:language>English</li:language>

<li:defaultCRS/>

<!--

The present dataset is needed for establishment of CondominiumUnits

The context:

You have a PropertyUnit, where a CondominiumBuilding (or more) stands on the LandParcel(s) of the PropertyUnit. Generallly, the CondominiumBuilding(s) have more storages / floors.

The owner of the PropertyUnit requests from 'professional', i.e. LandSurveyor, the establishment of CondominiumUnits, which consist of one or more parts of the CondominiumBuilding(s). The CondominiumUnits are to be sold, and buyers get exclusive rights to their CondominiumUnit as well as a mandatory share in the joint elements of the PropertyUnit: Roof, outer walls, technical installations, the LandParcel(s), etc. The sale and future owners are out of scope relative to the present condominiumSchemeEstablishment.

The LandSurveyor documents the requested through the present CondominiumScheme with a tabular part and a corresponding graphical part. The latter shows the footprint of the CondominiumBuilding(s) on LandParcel(s), as well as floor-wise the identification, area-size, and boundaries of the pertinent BuildingParts within the CondominiumBuilding(s).

The tabular part of the CondominiumScheme comprises of three parts. The opening part states the existing /current PropertyUnit with owner details and the LandParcel(s) recorded as parts of the PropertyUnit by the pertinent authority. Next, the CondominiumBuilding(s) are described and their footprint recorded on respective LandParcel(s). The third, main part specifies for each CondominiumUnit its PropertyUnit identifier, postAddress, and shareInJointFacilities, as well as the BuildingPart(s), which belong to the CondominiumUnit.

-->

<li:feature>

<lild:Statement gml:id="c61">

<li:documentID>

<li:identifier>001</li:identifier>

</li:documentID>

<li:documentType>Condominium Scheme</li:documentType>

<lild:type/>

<lild:draftsman gml:id="ld2">

<li:fullName>Erik St</li:fullName>

<li:type/>

<li:company>Measurewell</li:company>

<li:registration>LicenseX\_1968-43</li:registration>

<li:licensingCountry>DK</li:licensingCountry>

</lild:draftsman>

<lild:caseID>

<lild:identifier>Case2017-C23</lild:identifier>

<lild:scope>Aalborg branch</lild:scope>

</lild:caseID>

<lild:signatory gml:id="ld3">

<lild:signingParty/>

<lild:signingDate>2017-03-04</lild:signingDate>

</lild:signatory>

</lild:Statement>

</li:feature>

<!-- -->

<li:feature>

<lild:LandPropertyUnit gml:id="c50">

<lild:documentation xlink:href="c61" />

<lild:propertyUnitID>

<lild:identifier>123</lild:identifier>

<lild:scope>Recording District</lild:scope>

</lild:propertyUnitID>

<lild:ownership>

<lild:Ownership gml:id="c51">

<lild:name>Peter</lild:name>

<lild:relativeShare>0.5</lild:relativeShare>

<lild:ownerAddress>Some other place</lild:ownerAddress>

</lild:Ownership>

</lild:ownership>

<lild:ownership>

<lild:Ownership gml:id="c51a">

<lild:name>Anna</lild:name>

<lild:relativeShare>0.5</lild:relativeShare>

<lild:ownerAddress>Same other place</lild:ownerAddress>

</lild:Ownership>

</lild:ownership>

<lild:landParcel>

<lild:LandParcel gml:id="c53">

<lild:cadastralParcelId>

<lild:identifier>17b</lild:identifier>

<lild:scope>Cadastral Township x of City y</lild:scope>

</lild:cadastralParcelId>

<lild:parcelArea uom="m2">1200</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="c53a">

<lild:spatialUnitID>

<lild:identifier/>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEString gml:id="c53b">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="c53c">

<gml:posList srsDimension="2">830 910 830 1290 930 1390 1620 1390 1620 1060 1230 990 830 910</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

</lild:LandPropertyUnit>

</li:feature>

<!-- -->

<li:feature>

<CondominiumBuilding gml:id="c14">

<li:property>

<li:Property gml:id="c54">

<li:valueType>footprint</li:valueType>

<li:value>

<gml:LineString gml:id="c56">

<gml:posList srsDimension="2">980 1150 1530 1150 1530 1290 980 1290 980 1150</gml:posList>

</gml:LineString>

</li:value>

</li:Property>

</li:property>

<buildingNumber>1234</buildingNumber>

<parcelLocation xlink:href="c53"/>

</CondominiumBuilding>

</li:feature>

<!-- -->

<li:feature>

<CondominiumScheme gml:id="c1">

<li:documentID>

<li:identifier>001a</li:identifier>

</li:documentID>

<li:documentType>Condominium Scheme</li:documentType>

<lild:type/>

<lild:draftsman gml:id="ld2a">

<li:fullName>Erik St</li:fullName>

<li:type/>

<li:company>Measurewell</li:company>

<li:registration>LicenseX\_1968-43</li:registration>

<li:licensingCountry>DK</li:licensingCountry>

</lild:draftsman>

<lild:caseID>

<lild:identifier>Case2017-C23</lild:identifier>

<lild:scope>Aalborg branch</lild:scope>

</lild:caseID>

<lild:signatory gml:id="ld3a">

<lild:signingParty/>

<lild:signingDate>2017-03-04</lild:signingDate>

</lild:signatory>

<buildingDescription/>

<unit>

<CondominiumUnit gml:id="c2">

<lild:documentation xlink:href="c61"/>

<lild:propertyUnitID>

<lild:identifier>2</lild:identifier>

<lild:scope/>

</lild:propertyUnitID>

<lild:ownership/>

<lild:postAddress>Autumn Road 1, ground floor left</lild:postAddress>

<shareInJointFacilities>10 120</shareInJointFacilities>

<condominiumUseType/>

<designUnitID/>

<mainPart>

<BuildingPart gml:id="c4">

<floorNumber>Ground floor</floorNumber>

<subSurfaceFloor>false</subSurfaceFloor>

<buildingPartType>condominiumMainPart</buildingPartType>

<shapeAndLocation>

<lild:SpatialUnit gml:id="c5">

<lild:spatialUnitID>

<lild:identifier>2m</lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:area uom="m2">78</lild:area>

<lild:boundingElement>

<lild:BEString gml:id="w7">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="w8">

<gml:posList srsDimension="2">450 1510 100 1510 100 1060 570 1060 570 1260 450 1260 450 1510</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</shapeAndLocation>

<partOf xlink:href="c14"/>

</BuildingPart>

</mainPart>

<accessoryPart>

<BuildingPart gml:id="c7">

<floorNumber>Basement</floorNumber>

<subSurfaceFloor>true</subSurfaceFloor>

<buildingPartType>condominiumAccessoryPart</buildingPartType>

<shapeAndLocation>

<lild:SpatialUnit gml:id="c8">

<lild:spatialUnitID>

<lild:identifier>2a</lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:area uom="m2">6</lild:area>

<lild:boundingElement>

<lild:BEString gml:id="w10">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="w9">

<gml:posList srsDimension="2">560 2160 560 1960 630 1960 630 2160 560 2160</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</shapeAndLocation>

<partOf xlink:href="c14"/>

</BuildingPart>

</accessoryPart>

</CondominiumUnit>

</unit>

<unit>

<CondominiumUnit gml:id="c10">

<lild:documentation xlink:href="c61">

</lild:documentation>

<lild:propertyUnitID>

<lild:identifier>9</lild:identifier>

<lild:scope/>

</lild:propertyUnitID>

<lild:ownership/>

<lild:postAddress>Autumn Road 3, 1st floor left</lild:postAddress>

<shareInJointFacilities>11 120</shareInJointFacilities>

<mainPart>

<BuildingPart gml:id="c12">

<floorNumber>1st floor</floorNumber>

<subSurfaceFloor>false</subSurfaceFloor>

<buildingPartType>condominiumMainPart</buildingPartType>

<shapeAndLocation>

<lild:SpatialUnit gml:id="c13">

<lild:spatialUnitID>

<lild:identifier>9m</lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:area uom="m2">77</lild:area>

<lild:boundingElement>

<lild:BEString gml:id="w1">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="w2">

<gml:posList srsDimension="2">790 410 1250 410 1250 610 1130 610 1130 860 790 860 790 410</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</shapeAndLocation>

<partOf xlink:href="c14"/>

</BuildingPart>

</mainPart>

<accessoryPart>

<BuildingPart gml:id="c15">

<floorNumber>Basement</floorNumber>

<subSurfaceFloor>true</subSurfaceFloor>

<buildingPartType>condominiumAccessoryPart</buildingPartType>

<shapeAndLocation>

<lild:SpatialUnit gml:id="c16">

<lild:spatialUnitID>

<lild:identifier>9a</lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:area uom="m2">5</lild:area>

<lild:boundingElement>

<lild:BEString gml:id="w3">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="w4">

<gml:posList srsDimension="2">980 2160 980 1960 1050 1960 1050 2160 980 2160</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</shapeAndLocation>

<partOf xlink:href="c14"/>

</BuildingPart>

</accessoryPart>

<accessoryPart>

<BuildingPart gml:id="c15a">

<floorNumber>Basement</floorNumber>

<subSurfaceFloor>true</subSurfaceFloor>

<buildingPartType>condominiumAccessoryPart</buildingPartType>

<shapeAndLocation>

<lild:SpatialUnit gml:id="c16a">

<lild:spatialUnitID>

<lild:identifier>9b8a</lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:area uom="m2">5</lild:area>

<lild:boundingElement>

<lild:BEString gml:id="w5">

<lild:boundingElementID/>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="w6">

<gml:posList srsDimension="2">910 2160 910 1960 980 1960 980 2160 910 2160</gml:posList>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</shapeAndLocation>

<partOf xlink:href="c14a"/>

</BuildingPart>

</accessoryPart>

</CondominiumUnit>

</unit>

</CondominiumScheme>

</li:feature>

</li:LandInfraDataset>

1. Bounding Elements example

This example demonstrates how Bounding Elements are encoded. Every type is included as if it were valid for Land Parcels, though some may be more appropriate for Condominium Building Parts. Coordinate values are chosen for clarity and may therefore not be realistic for real Land Parcels or Building Parts. See OGC 15-111r1 for a complete definition of the various types of Bounding Elements.

The first three Spatial Units demonstrate the difference in dimension only and are not complete in definition, as they lack Bounding Elements.



<?xml version="1.0" encoding="UTF-8"?>

<LandInfraDataset xmlns="http://www.opengis.net/infragml/core/1.0"

xmlns:lild="http://www.opengis.net/infragml/landdivision/1.0"

xmlns:gml="http://www.opengis.net/gml/3.2"

gml:id="BE"

xmlns:xlink="http://www.w3.org/1999/xlink"

xmlns:gmllr="http://www.opengis.net/gml/3.3/lr"

xmlns:gmllro="http://www.opengis.net/gml/3.3/lro"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.opengis.net/infragml/landdivision/1.0 Part7LandDivision0321.xsd">

<datasetID>

<identifier>BE</identifier>

</datasetID>

<dateTime>2017-03-22T10:00:00</dateTime>

<datasetVersion>1.0</datasetVersion>

<application/>

<author>Paul Scarponcini</author>

<infraVersion>1.0</infraVersion>

<language>English</language>

<defaultCRS/>

<feature>

<lild:LandPropertyUnit gml:id="lpu1">

<lild:documentation></lild:documentation>

<lild:propertyUnitID>

<lild:identifier></lild:identifier>

</lild:propertyUnitID>

<lild:ownership></lild:ownership>

<!-- -->

<!-- 2D Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement></lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- LIM Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lpLIM">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="suLIM">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>liminal</lild:dimension>

<lild:boundingElement></lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- 3D Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp3D">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="cf">1000000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su3D">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>3D</lild:dimension>

<lild:boundingElement></lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

The 2D-T Spatial Unit demonstrates the use of the BEText Bounding Element in 2D:



<!-- -->

<!-- 2D-T Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-T">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-T">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEText gml:id="text1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

"Beginning at Survey Monument SM1, thence North 50 feet, thence East 100 feet,

thence South 50 feet, thence West 100 feet to the point of beginning"

</lild:geometry>

</lild:BEText>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

The 2D-P Spatial Unit demonstrates the use of the BEPoint Bounding Element in 2D, where a single representative point within the Land Parcel is used. The 2D-R Spatial Unit demonstrate the use of the BEString ring type of Bounding Element in 2D, where the exterior boundary is specified as a closed linestring geometry. 2D-H extends the ring example to include an interior ring defining a hole boundary.



<!-- -->

<!-- 2D-P Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-P">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-P">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEPoint gml:id="point1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry gml:id="p1">

<gml:pos>50 25</gml:pos>

</lild:geometry>

</lild:BEPoint>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- 2D-R Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-R">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-R">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEString gml:id="ring1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls1">

<gml:pos>100 0</gml:pos>

<gml:pos>200 0</gml:pos>

<gml:pos>200 50</gml:pos>

<gml:pos>100 50</gml:pos>

<gml:pos>100 0</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:stringType>ring</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- 2D-H Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-H">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">4800</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-H">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEString gml:id="hole1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>true</lild:isComplete>

<lild:geometry>

<gml:MultiCurve gml:id="mc1">

<gml:curveMember>

<gml:LineString gml:id="ls2">

<gml:pos>200 0</gml:pos>

<gml:pos>300 0</gml:pos>

<gml:pos>300 50</gml:pos>

<gml:pos>200 50</gml:pos>

<gml:pos>200 0</gml:pos>

</gml:LineString>

</gml:curveMember>

<gml:curveMember>

<gml:LineString gml:id="ls3">

<gml:pos>270 30</gml:pos>

<gml:pos>270 40</gml:pos>

<gml:pos>290 40</gml:pos>

<gml:pos>290 30</gml:pos>

<gml:pos>270 30</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:MultiCurve>

</lild:geometry>

<lild:stringType>ring</lild:stringType>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

The 2D-CC Spatial Unit demonstrate the use of the other four types of BEString Bounding Elements in 2D: partial, unstructured, structured, and topological. The partial type specifies that only part of the common boundary (linestring ls4) is used by 2D-CC. The 2D-TC Spatial Unit demonstrates how a Bounding Element geometry (linestring ls7) can be shared by two Spatial Units (in opposite directions). Note that 2D-TC uses another part of the common boundary (linestring ls4)



<!-- -->

<!-- 2D-CC Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-CC">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-CC">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement>

<lild:BEString gml:id="partial1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls4">

<gml:pos>50 0</gml:pos>

<gml:pos>350 0</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:stringType>partial</lild:stringType>

</lild:BEString>

</lild:boundingElement>

<lild:boundingElement>

<lild:BEString gml:id="unstructured1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls5">

<gml:pos>100 49</gml:pos>

<gml:pos>100 0</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:stringType>unstructured</lild:stringType>

</lild:BEString>

</lild:boundingElement>

<lild:boundingElement>

<lild:BEString gml:id="structured1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls6">

<gml:pos>100 50</gml:pos>

<gml:pos>200 50</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:stringType>structured</lild:stringType>

<lild:direction>reverse</lild:direction>

</lild:BEString>

</lild:boundingElement>

<lild:boundingElement>

<lild:BEString gml:id="topo1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls7">

<gml:pos>200 50</gml:pos>

<gml:pos>200 0</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:stringType>topological</lild:stringType>

<lild:direction>reverse</lild:direction>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- 2D-TC Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp2D-TC">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="sf">5000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su2D-TC">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>2D</lild:dimension>

<lild:boundingElement xlink:href="partial1">

</lild:boundingElement>

<lild:boundingElement>

<lild:BEString gml:id="topo2">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry xlink:href="ls7"></lild:geometry>

<lild:stringType>topological</lild:stringType>

<lild:direction>forward</lild:direction>

</lild:BEString>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

The last two Spatial Units are 3D. The first, 3D-FC has a combination of the three BEFace types of Bounding Elements: extruded, explicit, and implicit. Only three sides of the Spatial Unit have been specified. The 3D-S provides a complete geometry definition, using a solid geometry type.



<!-- -->

<!-- 3D-FC Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp3D-FC">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="cf">1000000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su3D-FC">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>3D</lild:dimension>

<lild:boundingElement>

<lild:BEExtrudedFace gml:id="extruded1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>

<gml:LineString gml:id="ls8">

<gml:pos>0 0 0</gml:pos>

<gml:pos>0 50 0</gml:pos>

</gml:LineString>

</lild:geometry>

<lild:lowerLimit>

<lild:distance>0</lild:distance>

</lild:lowerLimit>

<lild:upperLimit>

<lild:distance>20</lild:distance>

</lild:upperLimit>

</lild:BEExtrudedFace>

</lild:boundingElement>

<lild:boundingElement>

<lild:BEExplicitFace gml:id="explicit1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry gml:id="surf1">

<gml:patches>

<gml:PolygonPatch>

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls9">

<gml:pos>100 0 0</gml:pos>

<gml:pos>100 50 0</gml:pos>

<gml:pos>100 50 20</gml:pos>

<gml:pos>100 0 20</gml:pos>

<gml:pos>100 0 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:PolygonPatch>

</gml:patches>

</lild:geometry>

</lild:BEExplicitFace>

</lild:boundingElement>

<lild:boundingElement>

<lild:BEImplicitFace gml:id="implicit1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>false</lild:isComplete>

<lild:geometry>top</lild:geometry>

</lild:BEImplicitFace>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

<!-- -->

<!-- 3D-S Land Parcel -->

<!-- -->

<lild:landParcel>

<lild:LandParcel gml:id="lp3D-S">

<lild:cadastralParcelId>

<lild:identifier></lild:identifier>

</lild:cadastralParcelId>

<lild:parcelArea uom="cf">1000000</lild:parcelArea>

<lild:shapeAndLocation>

<lild:SpatialUnit gml:id="su3D-S">

<lild:spatialUnitID>

<lild:identifier></lild:identifier>

</lild:spatialUnitID>

<lild:dimension>3D</lild:dimension>

<lild:boundingElement>

<lild:BESolid gml:id="solid1">

<lild:boundingElementID></lild:boundingElementID>

<lild:isComplete>true</lild:isComplete>

<lild:geometry gml:id="s1">

<gml:exterior>

<gml:Shell>

<gml:surfaceMember>

<gml:Polygon gml:id="west">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls10">

<gml:pos>100 50 0</gml:pos>

<gml:pos>100 0 0</gml:pos>

<gml:pos>100 0 20</gml:pos>

<gml:pos>100 50 20</gml:pos>

<gml:pos>100 50 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

<gml:surfaceMember>

<gml:Polygon gml:id="north">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls11">

<gml:pos>200 50 0</gml:pos>

<gml:pos>100 50 0</gml:pos>

<gml:pos>100 50 20</gml:pos>

<gml:pos>200 50 20</gml:pos>

<gml:pos>200 50 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

<gml:surfaceMember>

<gml:Polygon gml:id="east">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls12">

<gml:pos>200 0 0</gml:pos>

<gml:pos>200 50 0</gml:pos>

<gml:pos>200 50 20</gml:pos>

<gml:pos>200 0 20</gml:pos>

<gml:pos>200 0 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

<gml:surfaceMember>

<gml:Polygon gml:id="south">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls13">

<gml:pos>100 0 0</gml:pos>

<gml:pos>200 0 0</gml:pos>

<gml:pos>200 0 20</gml:pos>

<gml:pos>100 0 20</gml:pos>

<gml:pos>100 0 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

<gml:surfaceMember>

<gml:Polygon gml:id="top">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls14">

<gml:pos>100 0 20</gml:pos>

<gml:pos>200 0 20</gml:pos>

<gml:pos>200 50 20</gml:pos>

<gml:pos>100 50 20</gml:pos>

<gml:pos>100 0 20</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

<gml:surfaceMember>

<gml:Polygon gml:id="bottom">

<gml:exterior>

<gml:Ring>

<gml:curveMember>

<gml:LineString gml:id="ls15">

<gml:pos>100 50 0</gml:pos>

<gml:pos>200 50 0</gml:pos>

<gml:pos>200 0 0</gml:pos>

<gml:pos>100 0 0</gml:pos>

<gml:pos>100 50 0</gml:pos>

</gml:LineString>

</gml:curveMember>

</gml:Ring>

</gml:exterior>

</gml:Polygon>

</gml:surfaceMember>

</gml:Shell>

</gml:exterior>

</lild:geometry>

</lild:BESolid>

</lild:boundingElement>

</lild:SpatialUnit>

</lild:shapeAndLocation>

</lild:LandParcel>

</lild:landParcel>

</lild:LandPropertyUnit>

</feature>

</LandInfraDataset>

1. Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Release | Author | Paragraph modified | Description |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. Bibliography

[1] OGC 08-131r3 The Specification Model — A Standard for Modular specifications, Open Geospatial Consortium, (2009)

[2] Des Ormeaux, Anne and Jean-Marie Lessard. Legal Dictionary of Property in Canada - Dictionnaire juridique de la propriété au Canada, [online], 2009. [dualjuridik.org, 6. November 2015]

[3] UN/ECE. Guidelines on Condominium Ownership of Housing for Countries in Transition. Geneva, June 2003

1. GML XSD (informative)

Note: This Annex will not appear in the adopted standard document.

E.1 Part7LandDivision0321.xsd

<?xml version="1.0" encoding="UTF-8"?>

<!-- edited with XMLSpy v2017 sp2 (http://www.altova.com) by Erik Stubkjær (Dept. of Development and Planning, Aalborg University, Denmark) -->

<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmllr="http://www.opengis.net/gml/3.3/lr" xmlns:gmllro="http://www.opengis.net/gml/3.3/lro" xmlns:li="http://www.opengis.net/infragml/core/1.0" xmlns:lild="http://www.opengis.net/infragml/landdivision/1.0" targetNamespace="http://www.opengis.net/infragml/landdivision/1.0" elementFormDefault="qualified" version="1.0">

<import namespace="http://www.opengis.net/gml/3.2" schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>

<import namespace="http://www.opengis.net/gml/3.3/lr" schemaLocation="http://schemas.opengis.net/gml/3.3/linearRef.xsd"/>

<import namespace="http://www.opengis.net/gml/3.3/lro" schemaLocation="http://schemas.opengis.net/gml/3.3/linearRefOffset.xsd"/>

<import namespace="http://www.opengis.net/infragml/core/1.0" schemaLocation="Part0Core0321.xsd"/>

<!--XML Schema document created by ShapeChange - http://shapechange.net/-->

<!-- Modified by Erik Stubkjær (Aalborg University, Denmark) 2017-02-07 till 2017-03-21 with Altova XMLSpy v 2017 sp2

-->

<!-- -->

<!-- AdministrativeDivision -->

<!-- -->

<element name="AdministrativeDivision" type="lild:AdministrativeDivisionType" substitutionGroup="lild:LandDivision"/>

<complexType name="AdministrativeDivisionType">

<complexContent>

<extension base="lild:LandDivisionType">

<sequence>

<element name="adID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g.

For the EU EuroStat http://ec.europa.eu/eurostat/web/nuts/overview

For the US U.S. Census Bureau https://www.census.gov/geo/reference/

-->

</sequence>

</complexType>

</element>

<element name="adType" type="string"/>

<element name="isoCode" type="string" minOccurs="0"/>

<element name="shapeAndLocation" type="lild:SpatialUnitPropertyType" maxOccurs="unbounded"/>

<element name="part" type="lild:AdministrativeDivisionPropertyType" minOccurs="0" maxOccurs="unbounded">

<annotation>

<appinfo>

<reversePropertyName xmlns="http://www.opengis.net/gml/3.2">lild:ownedBy</reversePropertyName>

</appinfo>

</annotation>

</element>

<element name="ownedBy" type="lild:AdministrativeDivisionPropertyType" minOccurs="0">

<annotation>

<appinfo>

<reversePropertyName xmlns="http://www.opengis.net/gml/3.2">lild:part</reversePropertyName>

</appinfo>

</annotation>

</element>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="AdministrativeDivisionPropertyType">

<sequence minOccurs="0">

<element ref="lild:AdministrativeDivision"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEExplicitFace -->

<!-- -->

<element name="BEExplicitFace" type="lild:BEExplicitFaceType" substitutionGroup="lild:BEFace"/>

<complexType name="BEExplicitFaceType">

<complexContent>

<extension base="lild:BEFaceType">

<sequence>

<element name="geometry" type="gml:SurfaceType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BEExplicitFacePropertyType">

<sequence minOccurs="0">

<element ref="lild:BEExplicitFace"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- ExtrudedFace -->

<!-- -->

<element name="BEExtrudedFace" type="lild:BEExtrudedFaceType" substitutionGroup="lild:BEFace"/>

<complexType name="BEExtrudedFaceType">

<complexContent>

<extension base="lild:BEFaceType">

<sequence>

<element name="geometry" type="gml:GeometryPropertyType"/>

<element name="lowerLimit" type="lild:ExtrusionLimitType"/>

<element name="upperLimit" type="lild:ExtrusionLimitType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BEExtrudedFacePropertyType">

<sequence minOccurs="0">

<element ref="lild:BEExtrudedFace"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEFace -->

<!-- -->

<element name="BEFace" type="lild:BEFaceType" abstract="true" substitutionGroup="lild:BoundingElement"/>

<complexType name="BEFaceType" abstract="true">

<complexContent>

<extension base="lild:BoundingElementType">

<sequence/>

</extension>

</complexContent>

</complexType>

<complexType name="BEFacePropertyType">

<sequence minOccurs="0">

<element ref="lild:BEFace"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEImplicitFace -->

<!-- -->

<element name="BEImplicitFace" type="lild:BEImplicitFaceType" substitutionGroup="lild:BEFace"/>

<complexType name="BEImplicitFaceType">

<complexContent>

<extension base="lild:BEFaceType">

<sequence>

<element name="geometry">

<simpleType>

<restriction base="string">

<enumeration value="top"/>

<enumeration value="bottom"/>

</restriction>

</simpleType>

</element>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BEImplicitFacePropertyType">

<sequence minOccurs="0">

<element ref="lild:BEImplicitFace"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEPoint -->

<!-- -->

<element name="BEPoint" type="lild:BEPointType" substitutionGroup="lild:BoundingElement"/>

<complexType name="BEPointType">

<complexContent>

<extension base="lild:BoundingElementType">

<sequence>

<element name="geometry" type="gml:PointType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BEPointPropertyType">

<sequence minOccurs="0">

<element ref="lild:BEPoint"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BESolid -->

<!-- -->

<element name="BESolid" type="lild:BESolidType" substitutionGroup="lild:BoundingElement"/>

<complexType name="BESolidType">

<complexContent>

<extension base="lild:BoundingElementType">

<sequence>

<element name="geometry" type="gml:SolidType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BESolidPropertyType">

<sequence minOccurs="0">

<element ref="lild:BESolid"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEString -->

<!-- -->

<element name="BEString" type="lild:BEStringType" substitutionGroup="lild:BoundingElement"/>

<complexType name="BEStringType">

<complexContent>

<extension base="lild:BoundingElementType">

<sequence>

<element name="geometry" type="gml:GeometryPropertyType"/>

<element name="stringType">

<simpleType>

<restriction base="string">

<enumeration value="unstructured"/>

<enumeration value="structured"/>

<enumeration value="topological"/>

<enumeration value="partial"/>

<enumeration value="ring"/>

</restriction>

</simpleType>

</element>

<element name="direction" minOccurs="0">

<simpleType>

<restriction base="string">

<enumeration value="forward"/>

<enumeration value="reverse"/>

</restriction>

</simpleType>

</element>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BEStringPropertyType">

<sequence minOccurs="0">

<element ref="lild:BEString"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BEText -->

<!-- -->

<element name="BEText" type="lild:BETextType" substitutionGroup="lild:BoundingElement"/>

<complexType name="BETextType">

<complexContent>

<extension base="lild:BoundingElementType">

<sequence>

<element name="geometry" type="string"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BETextPropertyType">

<sequence minOccurs="0">

<element ref="lild:BEText"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- BoundingElement -->

<!-- -->

<element name="BoundingElement" type="lild:BoundingElementType" substitutionGroup="li:AbstractData"/>

<complexType name="BoundingElementType">

<complexContent>

<extension base="li:AbstractDataType">

<sequence>

<element name="boundingElementID" type="string"/>

<element name="isComplete" type="boolean"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BoundingElementPropertyType">

<sequence minOccurs="0">

<element ref="lild:BoundingElement"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- Easement -->

<!-- -->

<element name="Easement" type="lild:EasementType" substitutionGroup="lild:InterestInLand"/>

<complexType name="EasementType">

<complexContent>

<extension base="lild:InterestInLandType">

<sequence>

<element name="easementID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Court district -->

</sequence>

</complexType>

</element>

<element name="type" type="gml:ReferenceType"/>

<element name="beneficiaryParty" type="string" minOccurs="0" maxOccurs="unbounded"/>

<element name="permittedUse" type="string"/>

<element name="shapeAndLocation" type="lild:SpatialUnitPropertyType" minOccurs="0" maxOccurs="unbounded"/>

<element name="across" type="lild:LandParcelPropertyType" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="EasementPropertyType">

<sequence minOccurs="0">

<element ref="lild:Easement"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- ExtrusionLimit -->

<!-- -->

<element name="ExtrusionLimit" type="lild:ExtrusionLimitType" substitutionGroup="gml:AbstractObject"/>

<complexType name="ExtrusionLimitType">

<choice>

<element name="distance" type="double"/>

<element name="elevation" type="double"/>

<element name="text" type="string"/>

</choice>

</complexType>

<!-- -->

<!-- InterestInLand -->

<!-- -->

<element name="InterestInLand" type="lild:InterestInLandType" abstract="true" substitutionGroup="lild:LandDivision"/>

<complexType name="InterestInLandType" abstract="true">

<complexContent>

<extension base="lild:LandDivisionType">

<sequence>

<element name="documentation" type="lild:StatementPropertyType" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="InterestInLandPropertyType">

<sequence minOccurs="0">

<element ref="lild:InterestInLand"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- LandDivision -->

<!-- -->

<element name="LandDivision" type="lild:LandDivisionType" abstract="true" substitutionGroup="li:Feature"/>

<complexType name="LandDivisionType" abstract="true">

<complexContent>

<extension base="li:FeatureType">

<sequence/>

</extension>

</complexContent>

</complexType>

<complexType name="LandDivisionPropertyType">

<sequence minOccurs="0">

<element ref="lild:LandDivision"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- LandParcel -->

<!-- -->

<element name="LandParcel" type="lild:LandParcelType" substitutionGroup="li:Feature"/>

<complexType name="LandParcelType">

<complexContent>

<extension base="li:FeatureType">

<sequence>

<element name="cadastralParcelId">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Cadastral township, or the municipality -->

</sequence>

</complexType>

</element>

<element name="landRecordingDocumentId" minOccurs="0">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Court district -->

</sequence>

</complexType>

</element>

<element name="parcelArea" type="gml:AreaType"/>

<element name="currentLandUse" type="string" minOccurs="0"/>

<element name="plannedLandUse" type="string" minOccurs="0"/>

<element name="parcelState" type="lild:LandParcelStateType" minOccurs="0"/>

<element name="shapeAndLocation" type="lild:SpatialUnitPropertyType"/>

<element name="within" type="lild:AdministrativeDivisionPropertyType" minOccurs="0" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="LandParcelPropertyType">

<sequence minOccurs="0">

<element ref="lild:LandParcel"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- LandParcelStateType -->

<!-- -->

<simpleType name="LandParcelStateType">

<union memberTypes="lild:LandParcelStateEnumerationType lild:LandParcelStateOtherType"/>

</simpleType>

<simpleType name="LandParcelStateEnumerationType">

<restriction base="string">

<enumeration value="firstRegistration"/>

<enumeration value="transitory"/>

<enumeration value="current"/>

<enumeration value="carrierParcel"/>

<enumeration value="mainParcel"/>

<enumeration value="extinguished"/>

</restriction>

</simpleType>

<simpleType name="LandParcelStateOtherType">

<restriction base="string">

<pattern value="other: \w{2,}"/>

</restriction>

</simpleType>

<!-- -->

<!-- LandPropertyUnit -->

<!-- -->

<element name="LandPropertyUnit" type="lild:LandPropertyUnitType" substitutionGroup="lild:PropertyUnit"/>

<complexType name="LandPropertyUnitType">

<complexContent>

<extension base="lild:PropertyUnitType">

<sequence>

<element name="landParcel" type="lild:LandParcelPropertyType" minOccurs="1" maxOccurs="unbounded"/>

<element name="encumbrance" type="lild:SuperficieObjectPropertyType" minOccurs="0" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="LandPropertyUnitPropertyType">

<sequence minOccurs="0">

<element ref="lild:LandPropertyUnit"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- Ownership -->

<!-- -->

<element name="Ownership" type="lild:OwnershipType" substitutionGroup="li:AbstractData"/>

<complexType name="OwnershipType">

<complexContent>

<extension base="li:AbstractDataType">

<sequence>

<element name="name" type="string"/>

<element name="relativeShare" type="double" minOccurs="0"/>

<element name="ownerAddress" type="string" minOccurs="0"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="OwnershipPropertyType">

<sequence minOccurs="0">

<element ref="lild:Ownership"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- PropertyUnit -->

<!-- -->

<element name="PropertyUnit" type="lild:PropertyUnitType" substitutionGroup="lild:InterestInLand"/>

<complexType name="PropertyUnitType">

<complexContent>

<extension base="lild:InterestInLandType">

<sequence>

<element name="propertyUnitID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g.

Cadastral township, or Municipality

-->

</sequence>

</complexType>

</element>

<element name="ownership" type="lild:OwnershipPropertyType" maxOccurs="unbounded"/>

<element name="postAddress" type="string" minOccurs="0" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="PropertyUnitPropertyType">

<sequence minOccurs="0">

<element ref="lild:PropertyUnit"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- Signatory -->

<!-- -->

<element name="Signatory" type="lild:SignatoryType" substitutionGroup="li:AbstractData"/>

<complexType name="SignatoryType">

<complexContent>

<extension base="li:AbstractDataType">

<sequence>

<element name="signingParty" type="string"/>

<element name="role" type="gml:ReferenceType" minOccurs="0"/>

<element name="signingDate" type="date"/>

</sequence>

</extension>

</complexContent>

</complexType>

<!-- -->

<!-- SpatialUnit -->

<!-- -->

<element name="SpatialUnit" type="lild:SpatialUnitType" substitutionGroup="li:AbstractData"/>

<complexType name="SpatialUnitType">

<complexContent>

<extension base="li:AbstractDataType">

<sequence>

<element name="spatialUnitID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

</sequence>

</complexType>

</element>

<element name="dimension">

<simpleType>

<restriction base="string">

<enumeration value="2D"/>

<enumeration value="3D"/>

<enumeration value="liminal"/>

</restriction>

</simpleType>

</element>

<element name="area" type="gml:AreaType" minOccurs="0"/>

<element name="volume" type="gml:VolumeType" minOccurs="0"/>

<element name="height" type="gml:LengthType" minOccurs="0"/>

<element name="boundingElement" type="lild:BoundingElementPropertyType" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="SpatialUnitPropertyType">

<sequence minOccurs="0">

<element ref="lild:SpatialUnit"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- Statement -->

<!-- -->

<element name="Statement" type="lild:StatementType" substitutionGroup="li:Document"/>

<complexType name="StatementType">

<complexContent>

<extension base="li:DocumentType">

<sequence>

<element name="type" type="gml:ReferenceType"/>

<element name="draftsman" type="li:ProfessionalType"/>

<element name="caseID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Company name and branch -->

</sequence>

</complexType>

</element>

<element name="landRecordingDocumentId" minOccurs="0">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Court district -->

</sequence>

</complexType>

</element>

<element name="signatory" type="lild:SignatoryType" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="StatementPropertyType">

<sequence minOccurs="0">

<element ref="lild:Statement"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- SuperficieObject -->

<!-- -->

<element name="SuperficieObject" type="lild:SuperficieObjectType" substitutionGroup="li:Feature"/>

<complexType name="SuperficieObjectType">

<complexContent>

<extension base="li:FeatureType">

<sequence>

<element name="superficieID">

<complexType>

<sequence>

<element name="identifier" type="string" minOccurs="1"/>

<element name="scope" type="string" minOccurs="0"/>

<!-- e.g. Court district -->

</sequence>

</complexType>

</element>

<element name="type" type="string"/>

<element name="ownership" type="lild:OwnershipPropertyType" maxOccurs="unbounded"/>

<element name="encumbranceScheme" type="lild:StatementPropertyType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="SuperficieObjectPropertyType">

<sequence minOccurs="0">

<element ref="lild:SuperficieObject"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- SurveyMonument -->

<!-- -->

<element name="SurveyMonument" type="lild:SurveyMonumentType" substitutionGroup="li:SurveyMark"/>

<complexType name="SurveyMonumentType">

<complexContent>

<extension base="li:SurveyMarkType">

<sequence>

<element name="type" type="gml:ReferenceType"/>

<element name="documentation" type="lild:StatementPropertyType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="SurveyMonumentPropertyType">

<sequence minOccurs="0">

<element ref="lild:SurveyMonument"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

</schema>

E.2 Part7Condominium0321.xsd

<?xml version="1.0" encoding="UTF-8"?>

<!-- edited with XMLSpy v2017 sp2 (http://www.altova.com) by Erik Stubkjær (Dept. of Development and Planning, Aalborg University, Denmark) -->

<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:lic="http://www.opengis.net/infragml/condominium/1.0" xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:gmllr="http://www.opengis.net/gml/3.3/lr" xmlns:gmllro="http://www.opengis.net/gml/3.3/lro" xmlns:li="http://www.opengis.net/infragml/core/1.0" xmlns:lild="http://www.opengis.net/infragml/landdivision/1.0" targetNamespace="http://www.opengis.net/infragml/condominium/1.0" elementFormDefault="qualified" version="1.0">

<import namespace="http://www.opengis.net/gml/3.2" schemaLocation="http://schemas.opengis.net/gml/3.2.1/gml.xsd"/>

<import namespace="http://www.opengis.net/gml/3.3/lr" schemaLocation="http://schemas.opengis.net/gml/3.3/linearRef.xsd"/>

<import namespace="http://www.opengis.net/gml/3.3/lro" schemaLocation="http://schemas.opengis.net/gml/3.3/linearRefOffset.xsd"/>

<import namespace="http://www.opengis.net/infragml/core/1.0" schemaLocation="Part0Core0321.xsd"/>

<import namespace="http://www.opengis.net/infragml/landdivision/1.0" schemaLocation="Part7LandDivision0321.xsd"/>

<!--XML Schema document created by ShapeChange - http://shapechange.net/

Modified by Erik Stubkjær (Aalborg University, Denmark) during February 2017 with Altova XMLSpy v 2017 sp2

ESt 20170203

-->

<!-- -->

<!-- BuildingPart -->

<!-- -->

<element name="BuildingPart" type="lic:BuildingPartType" substitutionGroup="li:Feature"/>

<complexType name="BuildingPartType">

<complexContent>

<extension base="li:FeatureType">

<sequence>

<element name="floorNumber" type="string" maxOccurs="unbounded"/>

<element name="subSurfaceFloor" type="boolean"/>

<element name="floorArea" type="gml:AreaType" minOccurs="0"/>

<element name="buildingPartType">

<simpleType>

<restriction base="string">

<enumeration value="condominiumMainPart"/>

<enumeration value="condominiumAccessoryPart"/>

<enumeration value="jointAccessFacility"/>

<enumeration value="jointOtherFacility"/>

</restriction>

</simpleType>

</element>

<element name="shapeAndLocation" type="lild:SpatialUnitPropertyType"/>

<element name="partOf" type="lic:CondominiumBuildingPropertyType"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="BuildingPartPropertyType">

<sequence minOccurs="0">

<element ref="lic:BuildingPart"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- CondominiumBuilding -->

<!-- -->

<element name="CondominiumBuilding" type="lic:CondominiumBuildingType" substitutionGroup="li:Feature"/>

<complexType name="CondominiumBuildingType">

<complexContent>

<extension base="li:FeatureType">

<sequence>

<element name="buildingNumber" type="string"/>

<element name="parcelLocation" type="lild:LandParcelPropertyType" minOccurs="1" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="CondominiumBuildingPropertyType">

<sequence minOccurs="0">

<element ref="lic:CondominiumBuilding"/>

</sequence>

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<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- CondominiumScheme -->

<!-- -->

<element name="CondominiumScheme" type="lic:CondominiumSchemeType" substitutionGroup="lild:Statement"/>

<complexType name="CondominiumSchemeType">

<complexContent>

<extension base="lild:StatementType">

<sequence>

<element name="buildingDescription" type="string"/>

<element name="unit" type="lic:CondominiumUnitPropertyType" minOccurs="2" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="CondominiumSchemePropertyType">

<sequence minOccurs="0">

<element ref="lic:CondominiumScheme"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

<!-- -->

<!-- CondominiumUnit -->

<!-- -->

<element name="CondominiumUnit" type="lic:CondominiumUnitType" substitutionGroup="lild:PropertyUnit"/>

<complexType name="CondominiumUnitType">

<complexContent>

<extension base="lild:PropertyUnitType">

<sequence>

<element name="shareInJointFacilities" type="string"/>

<element name="condominiumUseType" type="gml:ReferenceType" minOccurs="0"/>

<element name="designUnitID" type="string" minOccurs="0" maxOccurs="unbounded"/>

<element name="mainPart" type="lic:BuildingPartPropertyType"/>

<element name="accessoryPart" type="lic:BuildingPartPropertyType" minOccurs="0" maxOccurs="unbounded"/>

</sequence>

</extension>

</complexContent>

</complexType>

<complexType name="CondominiumUnitPropertyType">

<sequence minOccurs="0">

<element ref="lic:CondominiumUnit"/>

</sequence>

<attributeGroup ref="gml:AssociationAttributeGroup"/>

<attributeGroup ref="gml:OwnershipAttributeGroup"/>

</complexType>

</schema>

1. [www.opengeospatial.org/cite](http://www.opengeospatial.org/cite) [↑](#footnote-ref-1)