

Spatial Representation of Condominium / Co-ownership

-

Comparison of Quebec and French Cadastral System based on LADM Specifications

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Objectives

- Propose recommendations to progress towards a better cadastral management system that integrate the 3rd dimension
 - The target: The vertical divided co-ownership (condominium)
- How?
 - In comparing Quebec and French jurisdictions
 - Learn from each other
 - In taking advantage of LADM specifications/formalization



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Context

- Quebec and France are both:
 - Civil code foundation (Napoleonic cadastre)
 - Parcel based
 - Mainly use for fiscal purpose
 - Quebec: for registration purpose
 - Condominium has the same meaning
 - Refers to building with private and common parts, and a ground parcel attached to it



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Co-ownership definition

- As specified by the Civil Code of Quebec (C.c.Q.), condominium or co-ownership is one mode of ownership where the same property is jointly owned by several persons.
 - *Civil code of Quebec (updated to 1 August 2011)*
 - *1009. Ownership has two principal special modes, co-ownership and superficies.*
 - *Co-ownership is called undivided where the right of ownership is not accompanied with a physical division of the property.*
 - *It is called divided where the right of ownership is apportioned among the co-owners in fractions, each comprising a physically divided private portion and a share of the common portions.*

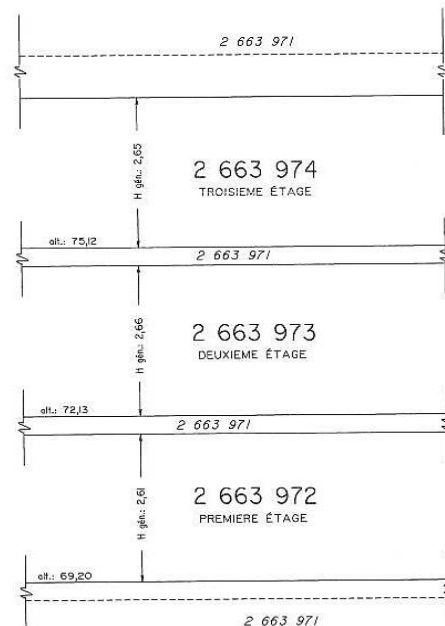


Initial comparison

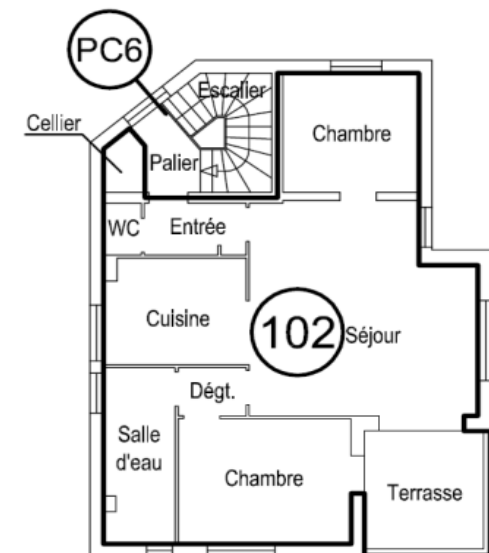
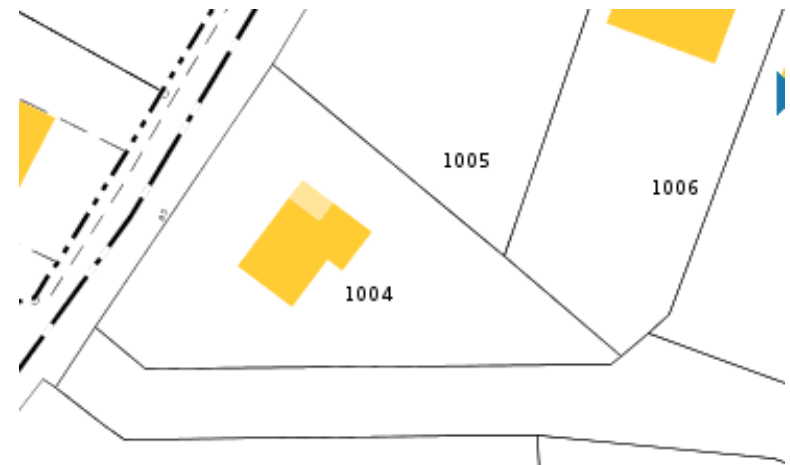
- They both propose the use of 2D cadastral plans
- When overlapping real properties exist :
 - They both recommend the production of external draws
 - These draws are managed outside the cadastral system
 - mandatory in Quebec, not in France
 - On the cadastral plan, Quebec proposes the use of a specific number (PC-number) distinct from the cadastre number which directly indicates the presence of overlapping properties.
 - In French system there is not indication

Examples of co-ownership plan

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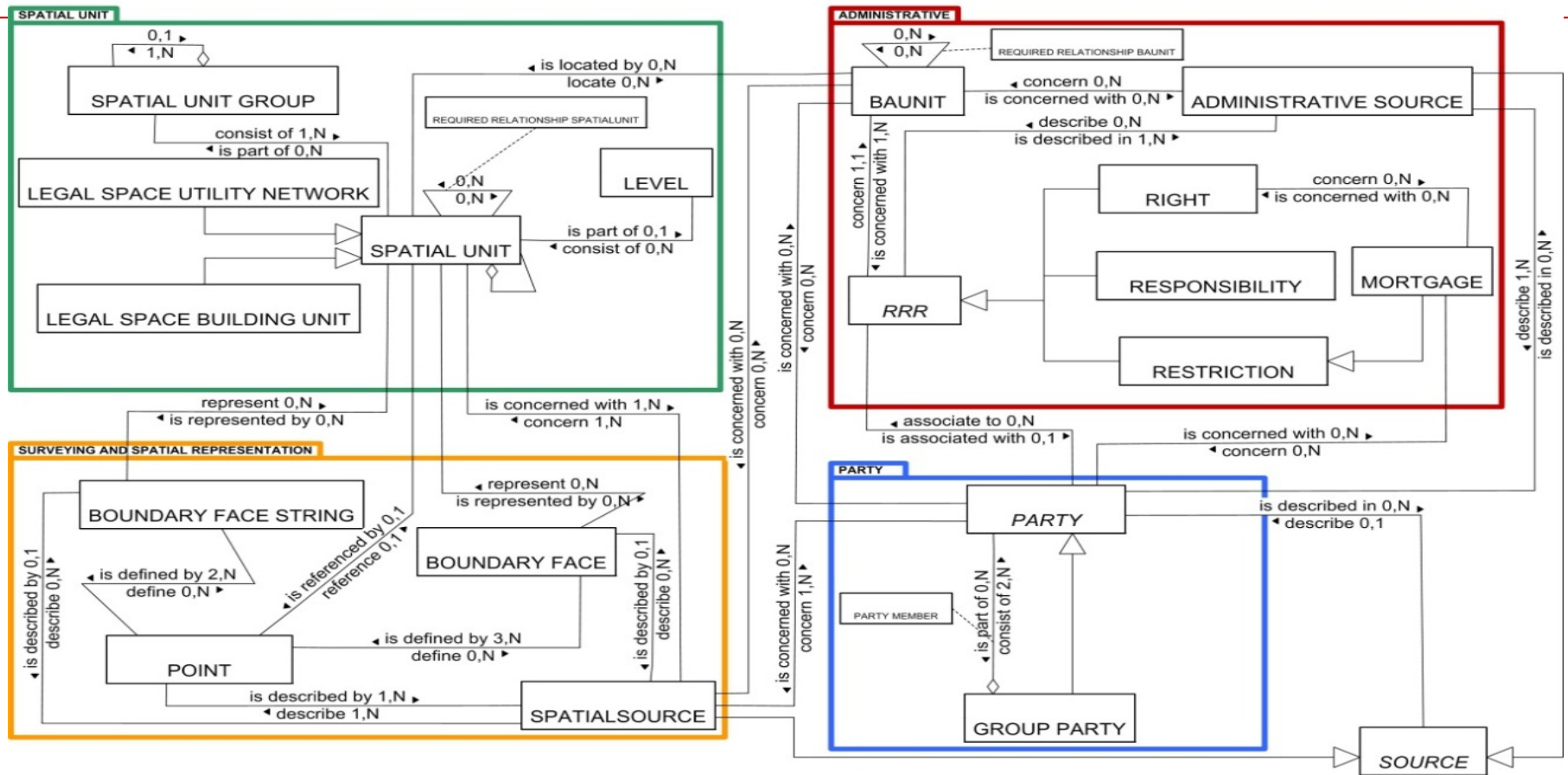


LADM SPECIFICATIONS

- Land Administration Domain Model (LADM)
 - TC-19152 (jan. 2011) a draft version, not yet accepted by ISO
- Its main purposes:
 - *Provide an extensible basis for the development and refinement of efficient and effective land administration systems, based on a Model Driven Architecture (MDA),*
 - *Enable involved parties, both within one country and between different countries, to communicate, based on the shared vocabulary (that is, an ontology), implied by the model.*



LADM SPECIFICATIONS

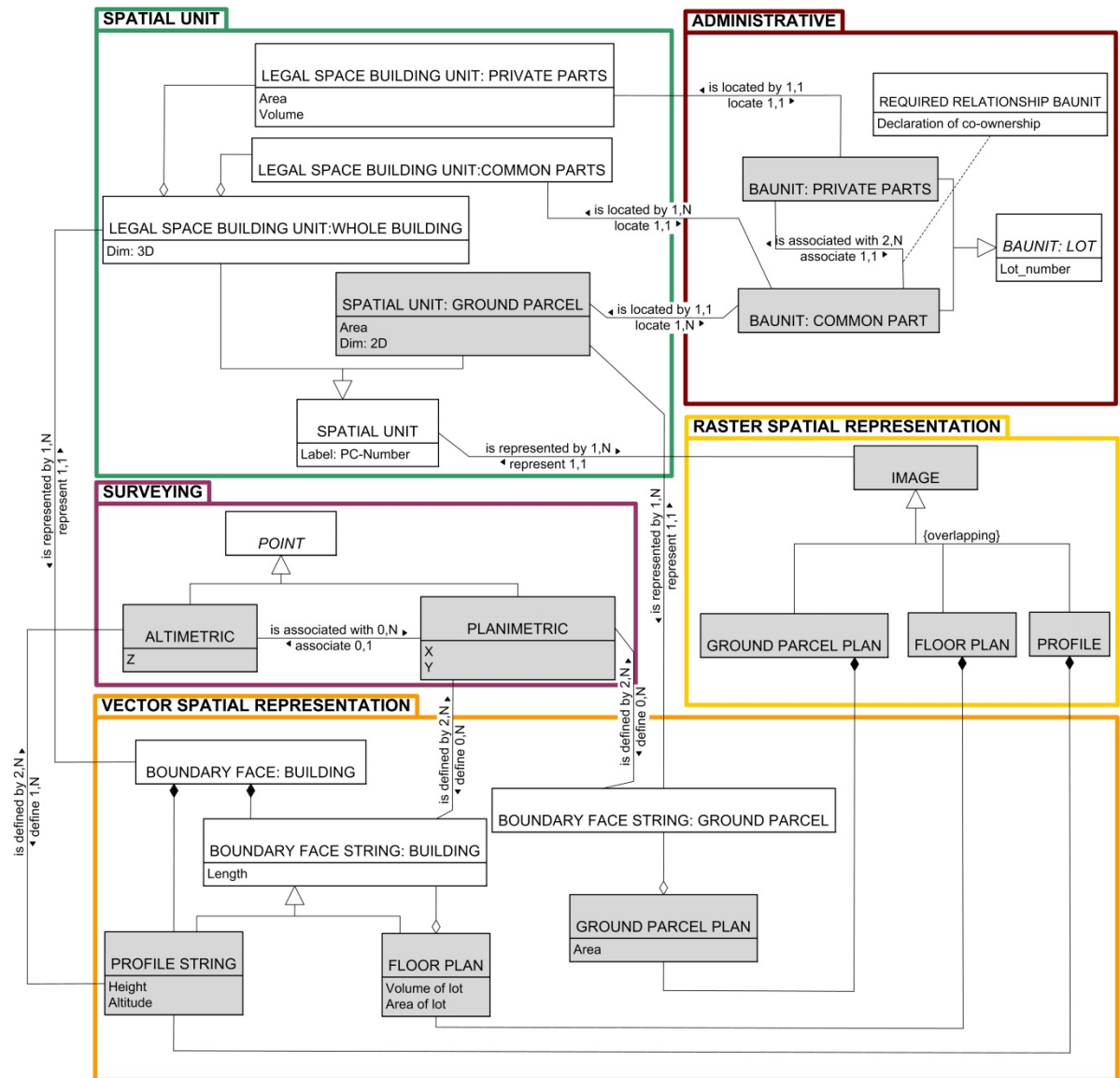


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LADM – Quebec co-ownership

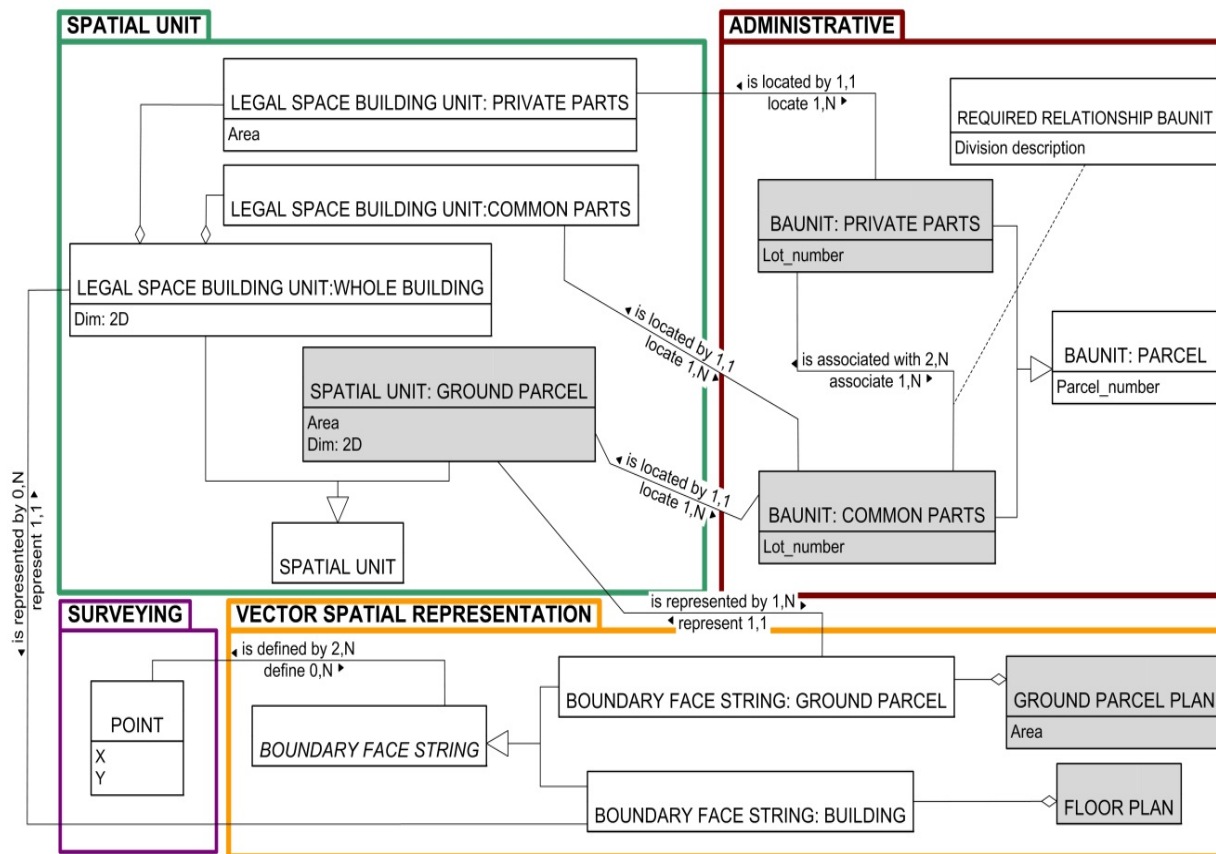
- In gray,
added classes
- Next slides
will describe
all parts



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LADM – France co-ownership



LADM Comparison between Quebec and France

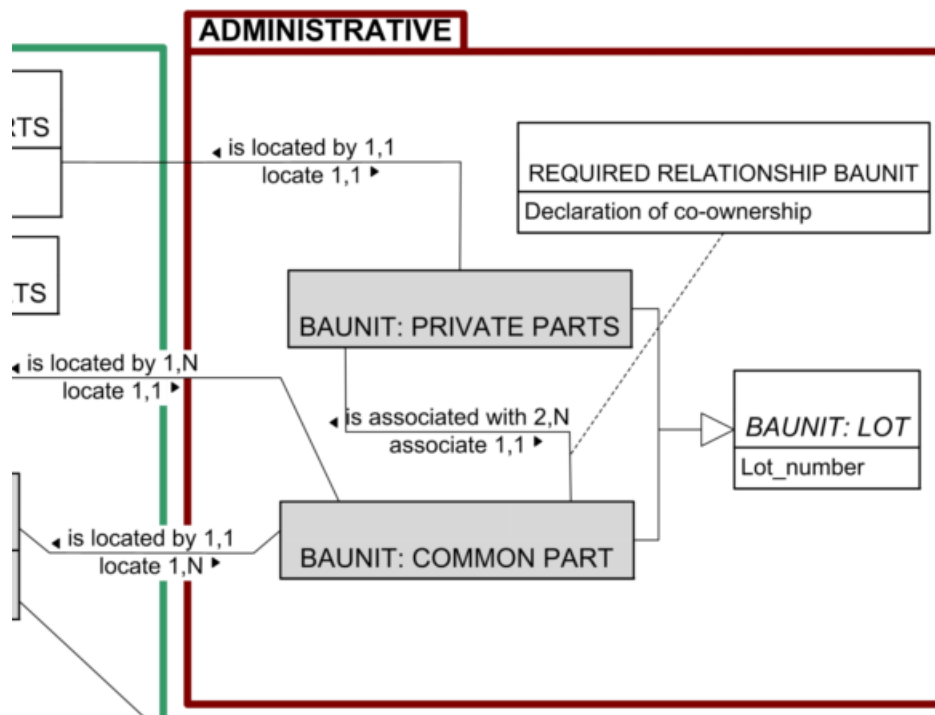


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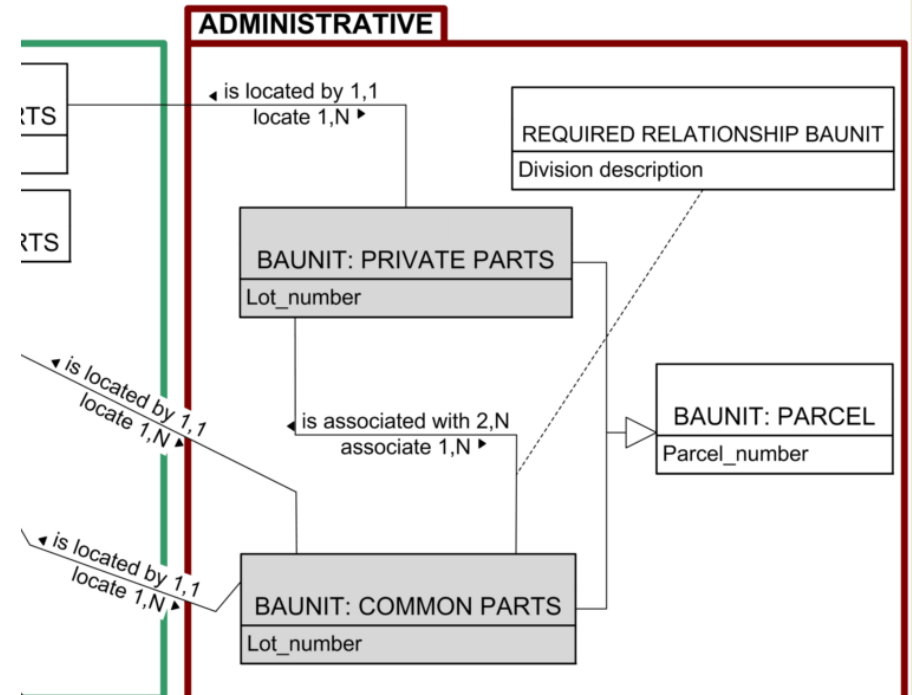
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Administrative package

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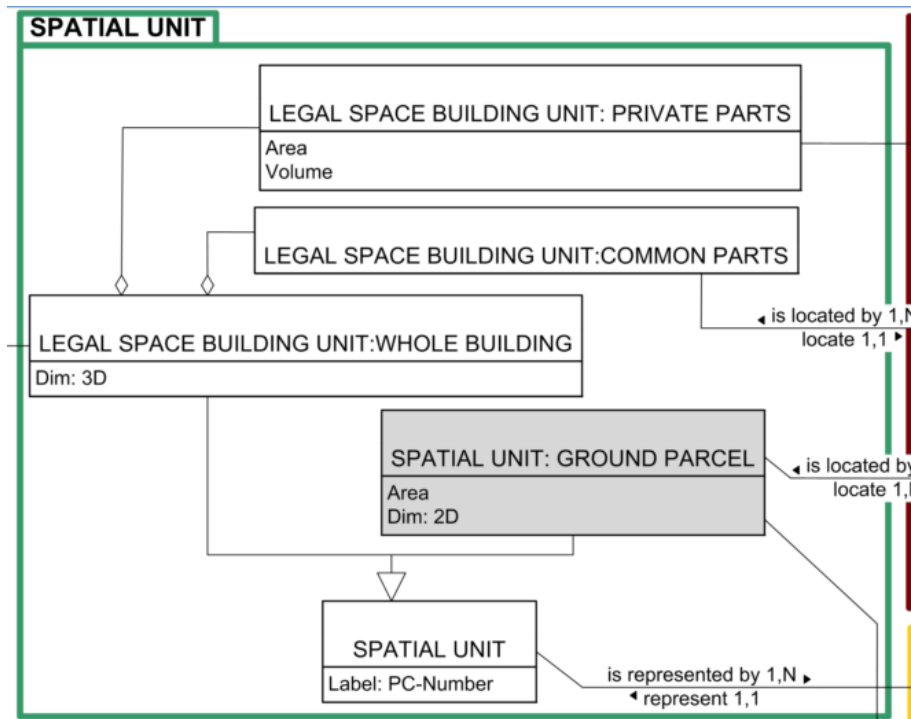


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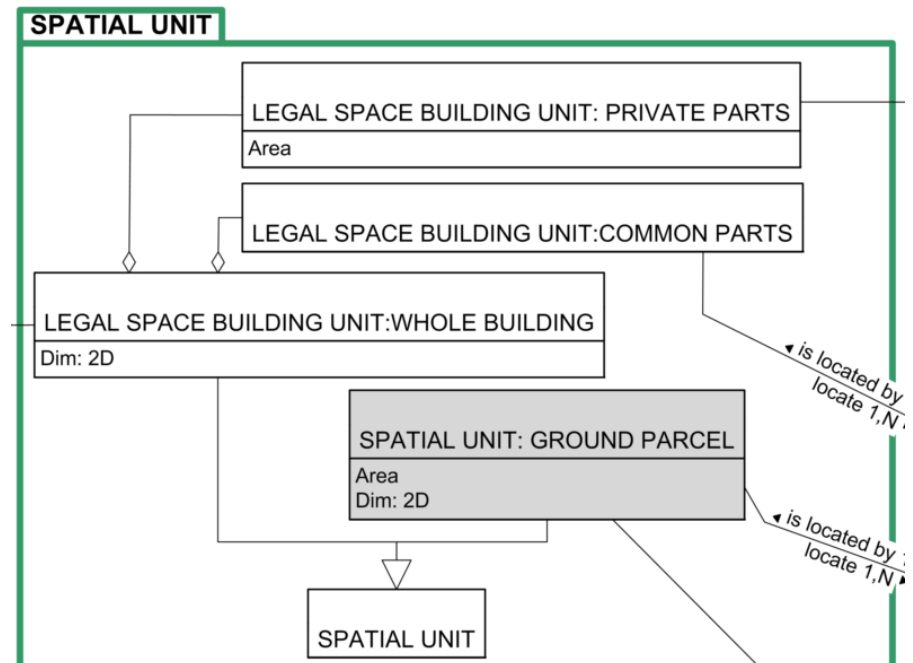
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Spatial unit package

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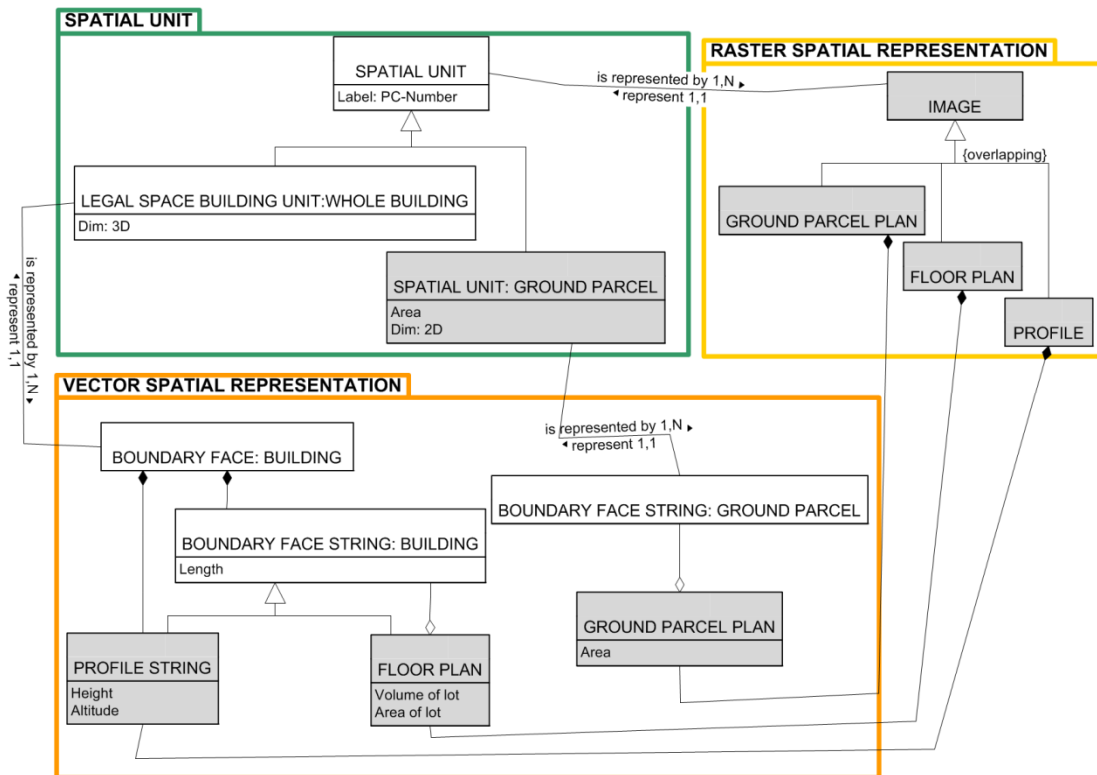


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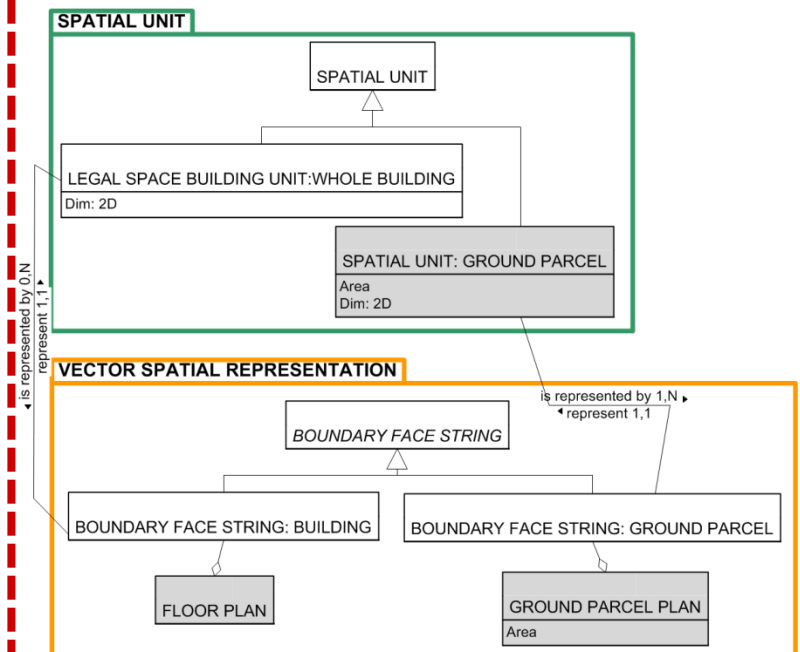
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Spatial representation package (vector / raster)

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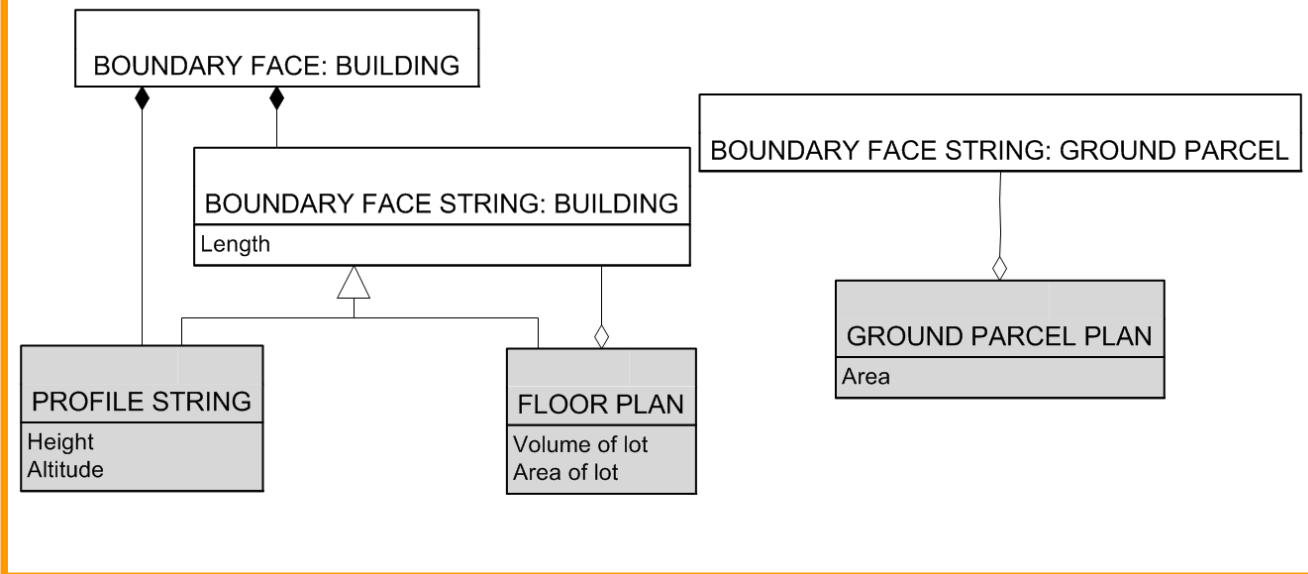
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Vector Spatial representation package

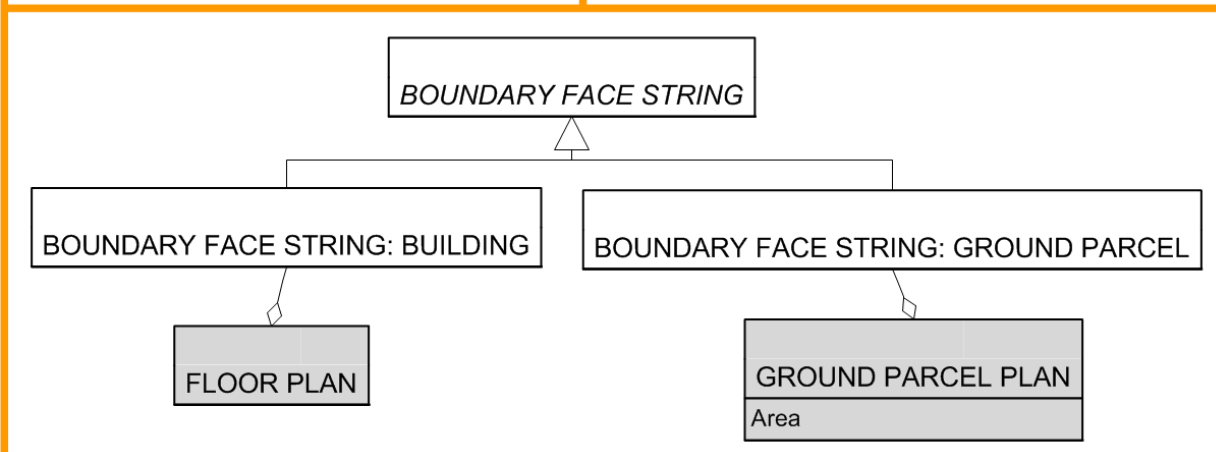
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VECTOR SPATIAL REPRESENTATION



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VECTOR SPATIAL REPRESENTATION

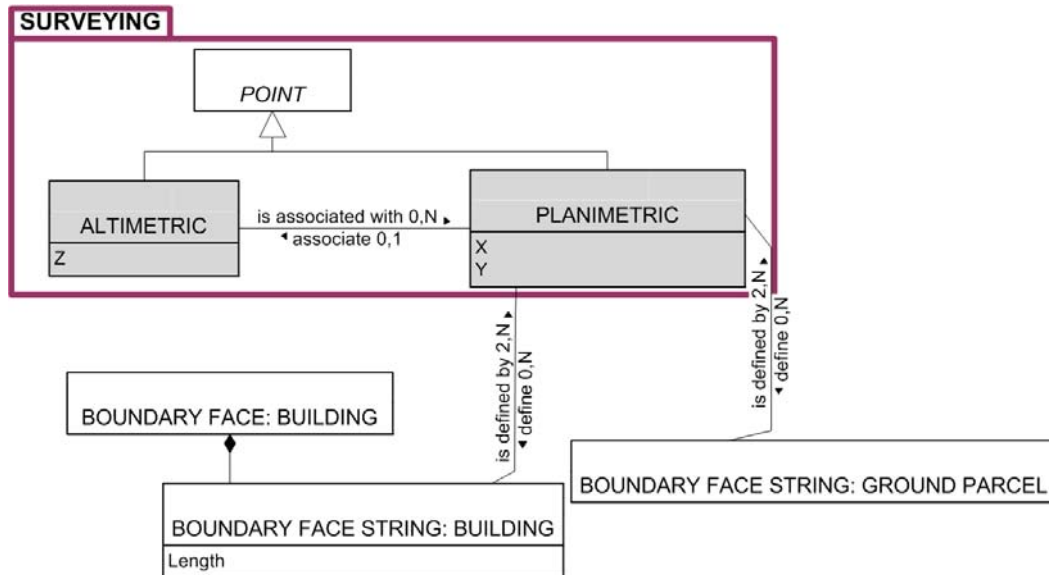


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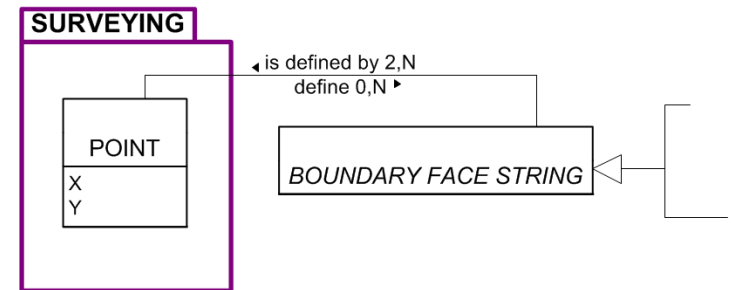
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Survey package

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Discussion about the use of LADM (1 / 4)

“Pros”

- Provides a new manner to comprehend its own system
- Forces us to revise or reread almost all documentations associated to each system
 - could be see as “cons”...
- Constrains us to use a shared vocabulary
 - Easily show possible semantic conflicts
 - The term “lot”



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Discussion about the use of LADM (2 / 4)

“Pros”

- We now have a clear, explicit and comparable view of all features and relations of each system
 - This is a strong advantage
- Was an adequate reference model that helps us to make a clearer comparison
 - we can go ahead of a general assessment
 - we can quantify and point out specific and comparable features, attributes and relationships
 - could be the foundation of potential data exchange specifications



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Discussion about the use of LADM (3 / 4)

“Cons”

- LADM terminology was not always clear
 - we were a bit confuse about the sense of some terms
 - spatial units, level, spatial unit group
- Some difficulties to integrate the Quebec PC-Number which has an arbitrary geometry (?)
 - We finally placed it as a spatial unit with an attribute label but still we are not sure about this proposal

Discussion about the use of LADM (4 / 4)

“Cons”

- The production of LADM diagrams is not trivial
- Requires few skills in data modeling
 - not obvious, not always clear, miss some relationships name, and definition/examples, E.g. :
 - why not having an explicit spatial unit ground parcel?
 - why there is no relationships between string and face?
 - why not allowing solid representation?
 - why no raster representation is allowed?



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Conclusion (1 / 2)

- Previous analysis confirmed
 - Quebec compare to France proposed a more elaborate system for 3D visualization/information of overlapping properties
- No specific recommendation to Quebec authorities
 - even though the Quebec LADM profile is now available
 - could be use to compare with others jurisdictions
- Few suggestions to the French authorities
 - The production of co-ownership plans should be mandatory
 - The *BAUnit* should keep the same ID (parcel number or lot number, not both)



Conclusion (2 / 2)

- We surly recommend other countries to do the exercise of conceptually schematize their cadastral system
- Remind. LADM is still in a validation process and it was not especially design to represent vertical cadastre
- Our investigation was limited to vertical divided co-ownership
 - Is it possible to generalize our experiment to other overlapping properties?
 - no and further investigation is required



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Acknowledges

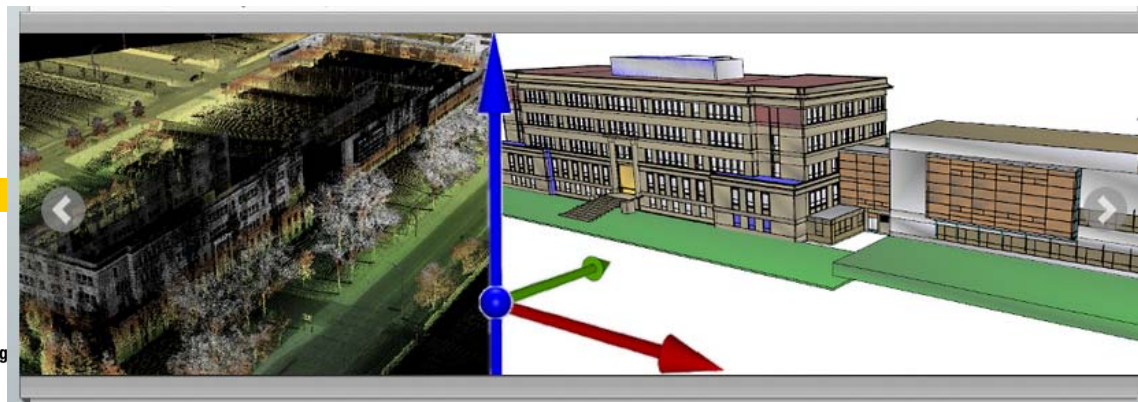
- The authors want to thank Foncier Quebec and the Cabinet Graff-Kiehl to have let us use cadastral data
- M. Gervais and A. Zamyadi for valuable comments about the paper.

See www.3dgeoinfo2012.ulaval.ca



3D GeoInfo
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Example of the French division description for one lot (Graff-Kiehl, 2010)

■ Esquisse d'étage N°4880¶

Section 43¶

Parcelle 20¶

ETAT DESCRIPTIF DE DIVISION¶

■ N° Partie Commune¶	Propriétaires¶	Situation, nature et description du local¶
■ PC1¶	L'ensemble des propriétaires de l'immeuble sis 3, boulevard de Nancy à Strasbourg, en indivision pour un total de 10000/10000èmes (lots 8 à 15, 100 et 101).¶ Tantièmes calculés conformément aux dispositions de l'article 5 de la loi du 10 juillet 1965.¶	Les parties communes générales à savoir : le sol bâti et non bâti cadastré à Strasbourg, section 43, parcelle 20, d'une surface cadastrale de 8a 96ca.¶ Un accès commun, deux espaces verts et un futur local poubelles.¶

NOTA BENE :¶

- Tantièmes calculés conformément aux instructions de juin 1998 du Conseil Supérieur de l'Ordre des Géomètres Experts.¶
- Tout changement dans la consistance d'un ou plusieurs lots devra faire l'objet d'une modification dans la répartition des tantièmes de copropriété.¶
- Les surfaces indiquées pour le lot 100 ont été relevées sur place par nos soins.¶
- Les surfaces indiquées pour le lot 101 sont issues des fichiers informatiques fournis par le donneur d'ordre.¶

¶

Coefficients de pondération utilisés :¶

- Appartement (> 1,80m) ·	→	1¶
- Loggia ·	→	0,4¶
- Parking couvert ·	→	0,3¶
- Balcon ·	→	0,2¶
- Grenier (> 1,80) ·	→	0,2¶
- Grenier (< 1,80) ·	→	0¶
- Terrasse ·	→	0,2¶
- Parking plein air ·	→	0,15¶