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# REPORT ON 3D REPRESENTATION IN THE LAND REGISTRY

Mohammed Kammachi  
Belgium's Elra Representative



Thanks for your  
contribution to  
the questionnaire  
about the  
concept of  
Volume  
Property and 3D  
representation

Austria  
Belgium  
Bulgaria  
Croatia  
Estonia  
Finland  
Greece  
Ireland  
Italy (Agenzia delle  
Entrate)  
Italy ( Trento)

Latvia  
Lithuania  
Luxemburg  
Malta  
The Netherlands  
Poland  
Portugal  
Romania  
Slovakia  
Spain  
Sweden



## PRESENTATION OF THE RESULTS DONE ON THE 18TH MARCH BY JAN MOERKERKE

- 15 questions / 21 questionnaire's answers
- \* Who holds the land ownership information in your country?  
SUPERVISING BODY OF THE LR
  - - Ministry of Justice: 7 countries
  - - Ministry of Finance: 2 countries
  - - mapping agency: 1 country
  - - not clear: 7 countries ( further study is required)
- \* IN MOST COUNTRIES CADASTRE AND LAND REGISTRY WORK TOGETHER OR DEPEND ON THE SAME MINISTRY/AGENCY



## THE IMPORTANCE OF ASSET'S DESCRIPTION AS A VOLUME

- \* IF THE FINAL GOAL IS WORKING WITH SMART CONTRACTS THAT ARE SELF PROCESSING, USING ELECTRONIC DATA, WE NEED TO DEFINE “**DIGITAL TWINS**” AND “**AVATARS**” FOR “**OBJECTS**” AND “**SUBJECTS**” BEFORE WE CAN DESCRIBE THEIR LEGAL RELATIONS
- *-PEOPLE NEED ELECTRONIC IDENTIFICATION AND CERTIFICATION OF THEIR IDENTITY ( ELECTRONIC SIGNATURE)*
- *-THE DIGITAL TWIN OF THE PHYSICAL ASSET NEEDS TO DESCRIBE THE BOUNDARIES BY COORDINATES IN A 3D WAY*
- *-CONTRACTUAL CLAUSES NEED TO BE STANDARDIZED AND REPRESENTED IN A DIGITAL FORM ( SEE THE IMOLA PROJECT)*



## CONCLUSIONS

- \* THE LEGAL SYSTEMS IN EUROPE ARE VERY DIFFERENT
- IT MAKES IT VERY DIFFICULT TO DRAW UP A RELEVANT QUESTIONNAIRE
  
- \* COUNTRIES WHERE CADASTER AND LAND REGISTRY ARE UNITED IN ONE BODY, OR WORK TOGETHER INTENSIVELY TEND TO HAVE MORE INTEREST IN AN ACCURATE DESCRIPTION OF THE OBJECT IN THE LR, AND BY EXTENSION FOR 3D
  
- \* VOLUME PROPERTY AND ITS 3D REPRESENTATION IS UNFORTUNATELY STILL KNOWN IN VERY FEW COUNTRIES!



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# THE CONCEPT OF VOLUME PROPERTY AND 3D REPRESENTATION IN BELGIUM

Joke De Wit  
Expert legal mutations



## AGENDA

- Cadastral documentation in Belgium
  - Different elements
  - Updating the documentation
- Volume property
  - New property law
  - Registration of volumes in the cadastral documentation
  - The cadastral volume



# CADASTRAL DOCUMENTATION

- Cadastral map
  - Graphical representation in 2D
    - cadastral plan parcels
    - administrative boundaries
    - volumes (projection)
  - Public domain not part of the cadastral documentation
  - Not a legal document
  - Graphical representation of buildings for information purposes (managed by the regions)
- Estimation documentation
  - All data for the calculation of the cadastral income (for built and unbuilt parcels)







# CADASTRAL DOCUMENTATION

- Patrimonial database
  - Link between parcels, rights and owners

- Documents:
  - Survey plans
  - Architectural plans
  - Notarial deeds
  - ...

**COMMUNE DE THORAME - 1<sup>re</sup> Division - Section A - Parcelle 549 F**

Référence plan de délimitation: 12345 ..... Page 1/3  
Échelle: 1:2000

*Boulevard Jeanne D'Arc, Gosseloux - Esquet.  
Assèment pour le travail de première balance de Bruxelles  
inscrit au tableau de Coordonnées des Cadastre-Experts, n° 0160 123400  
Situé au lieu: Rue de l'Église n° 7, 1020 Subretombé  
N° d'assèment: 000102 010 700  
Appoint à la remise des procédures de la parcelle cadastrale susmentionnée,  
à effectuer dans un délai de 1<sup>er</sup> septembre 2021.*

**Brief du plan**  
Le mensonge a été effectué dans le cadre d'une demande d'identification préalable de tous nouveaux volumes construits sur la parcelle susmentionnée.  
Le plan est composé de trois pages:  
• Page 10 : Plan de mensonge des limites de parcelles existantes, projections au sol des volumes et coupes  
• Page 20 : Projctions horizontales des volumes  
• Page 30 : Vues et coupes des volumes

**Illustration des limites**

Façade	Matières
1 - 2 + 3	Alignement conforme à l'axe de la route « Rue de l'Église » Largeur 08 mètre et talus des trottoirs à distance de 1 mètre de la route. Conformer par le mensonge des bornes de lot et d'axe de la route.
3 - 4	Murs en brique ou paroi de ciment armé Rue de l'Église - Parcelle 549 F - 100111808.

*Le tableau ci-dessous a été dressé:  
- de superficie a été jointe au plan.  
En cas d'assèment de 01/09/2021 référence: 12345-0210  
du plan d'assèment de 2020/01/10 référence: 12345-0210*

**Les tableaux de coordonnées et les tableaux de distances**  
nécessaires sont joints.  
NG  
(Coordonnées et distances)

Y	Segment	Distance
E04521.03	Par marginal	10,48
E04527.18	Par marginal	27,75
E04534.03	Par marginal	27,75
E04542.03	Borne existante	32,42
E04550.03	Borne existante	27,75
E04575.11	Par marginal	16,16
E04582.21	Par marginal	16,16
E04592.11	Par marginal	16,16

surface = 8 227 m<sup>2</sup>

Y	Segment	Distance
E04830.21	Par marginal	20,48
E04837.01	Par marginal	27,75
E04847.09	Par marginal	27,75
E04854.18	Par marginal	27,75

surface = 2 047 m<sup>2</sup>

Y	Segment	Distance
E04911.03	Par marginal	18,16
E04921.02	Par marginal	18,16
E04932.21	Par marginal	18,16
E04942.03	Par marginal	18,16

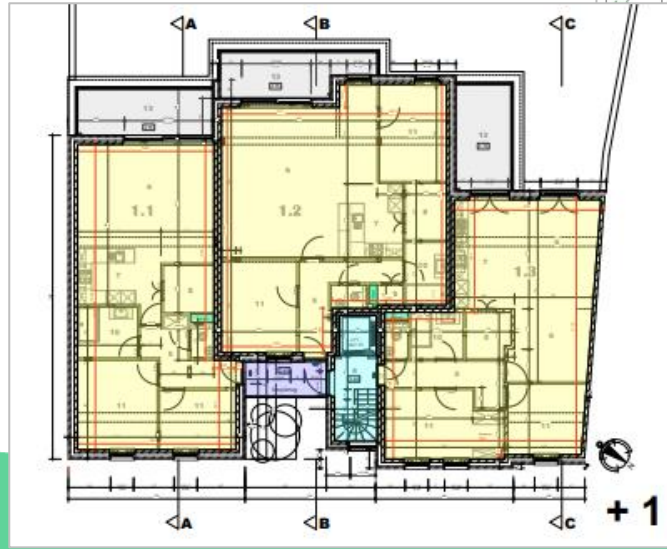
surface = 245 m<sup>2</sup>

Y	Segment	Distance
E04932.21	Par marginal	18,16
E04942.03	Par marginal	18,16
E04952.03	Par marginal	18,16

surface = 452 m<sup>2</sup>

**Légende:**  
 [ ] Bâtiment  
 [ ] Borne  
 [ ] Limite communale  
 (12) Nombre de maisons  
 [ ] Hâles enlèvement  
 [ ] Ouvre portes ronds  
 [ ] Ouvre portes  
 [ ] Mur enlèvement  
 [ ] Projctions horizontales (voir page 20)  
 X-X' Coupe (voir page 30)

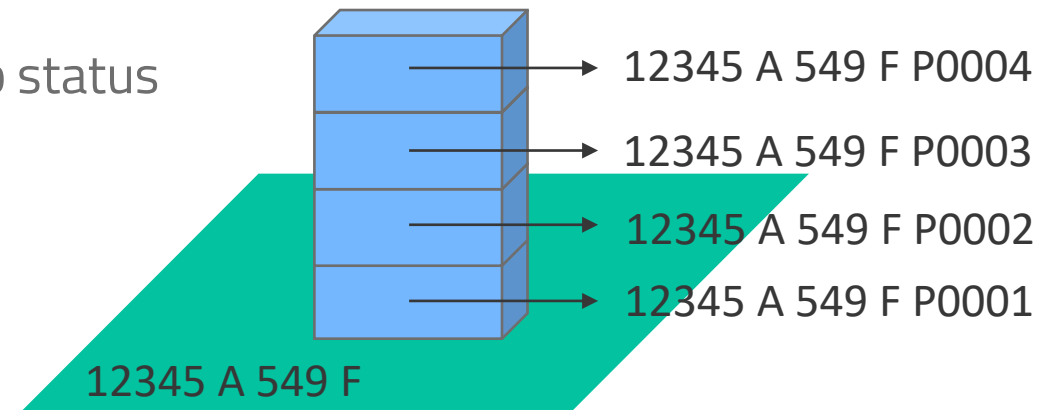
Dressé le 1<sup>er</sup> septembre 2021  
par JORF DUB  
Gosseloux-Esquet, 0160 123400





# CADASTRAL PARCELS

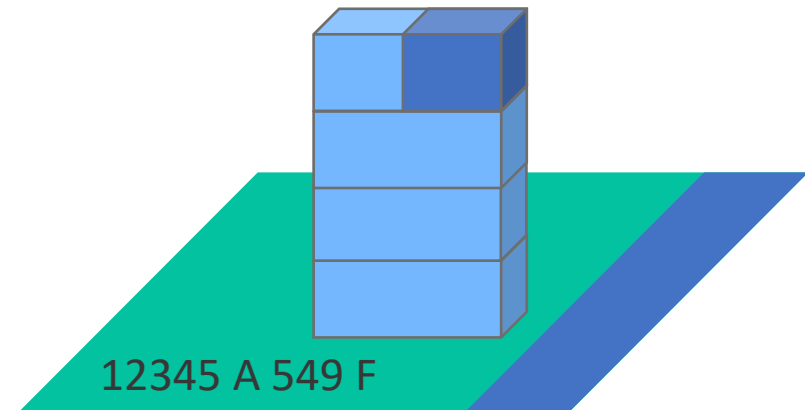
- Cadastral plan parcels
  - Ground surface area
  - Shown on the cadastral map
- Cadastral patrimonial parcels
  - Real estate with a certain ownership status
  - Not shown on the cadastral map
  - Linked to the plan parcel





## UPDATING CADASTRAL DOCUMENTATION (LEGAL MUTATIONS)

- Preliminary identification
  - When?
    - Object of the deed = part of a parcel  
→ new parcel must be created



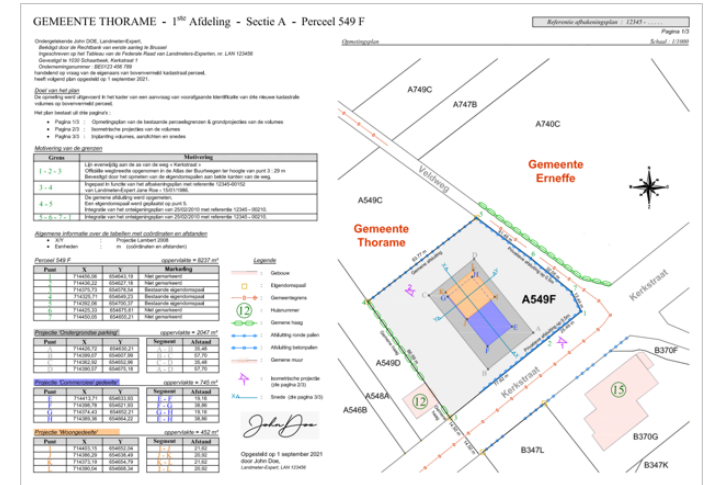


# UPDATING CADASTRAL DOCUMENTATION (LEGAL MUTATIONS)

## ■ Preliminary identification

### ■ How?

- Owner / notary / surveyor:
  - Submits plan of delimitation
  - Requests reserved parcel identification
  
- GAPD:
  - Registers plan in the database + delivers reference
  - Delivers reserved parcel identification for the part of the parcel
  
- Notary:
  - Indicates the reference of the plan in the deed
  - Indicates the reserved parcel identification in the deed



12345 A 549 G



## UPDATING CADASTRAL DOCUMENTATION (LEGAL MUTATIONS)

- Updating cadastral documentation
  - Create parcels
  - **After** the execution (and registration) of the deed
  - Based on the information on the plan of delimitation and in the deed





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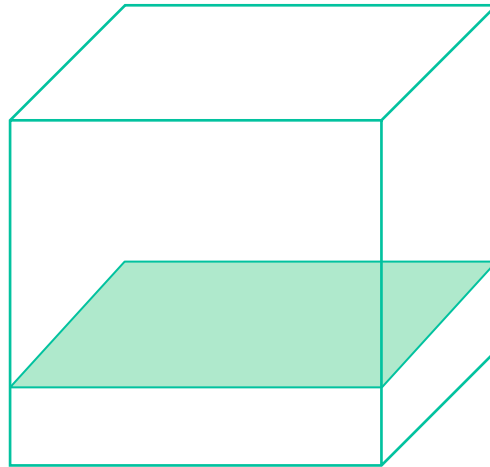


# VOLUME PROPERTY



## NEW PROPERTY LAW

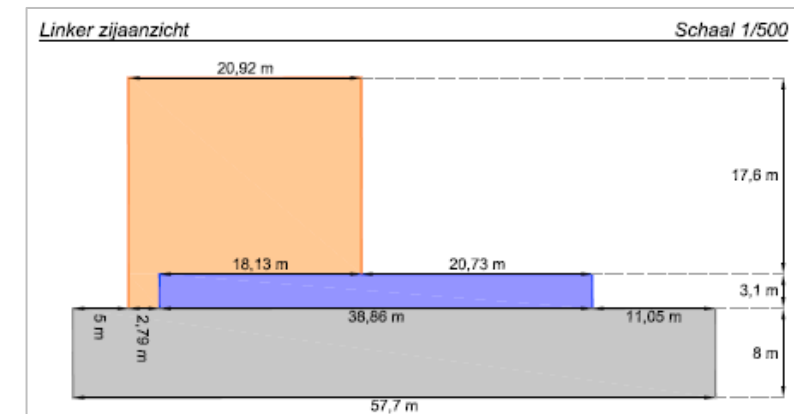
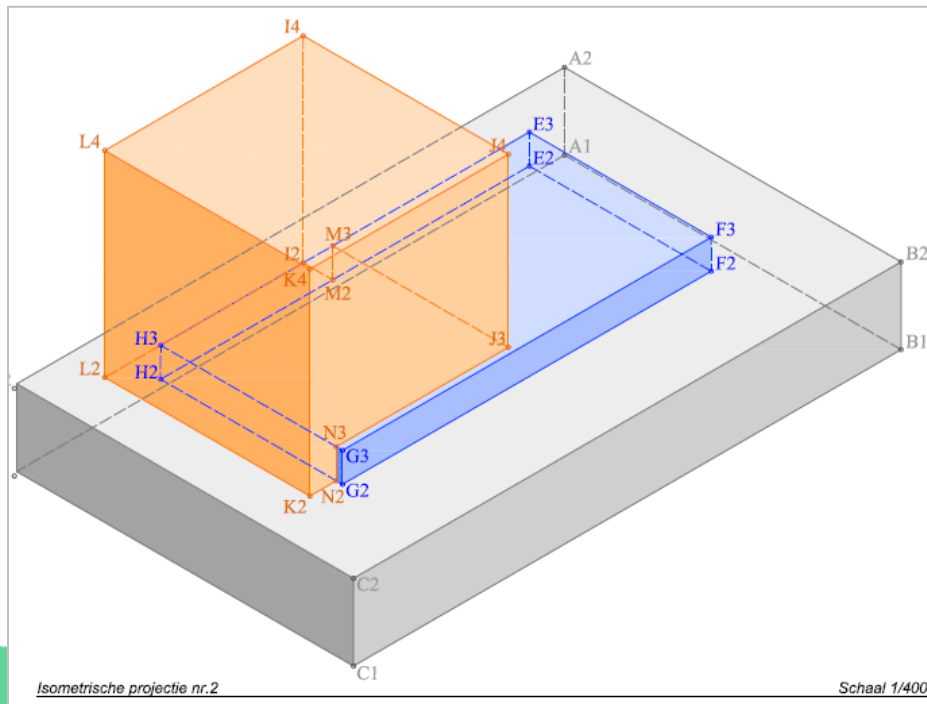
- Art. 3.47 CC: 'Immovable by nature are the land and its constituent volumes, which are determined in three dimensions.'





# NEW PROPERTY LAW

- Divide a real estate in 3D  
→ A three-dimensional part of a real estate = volume







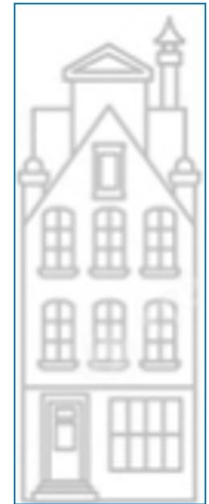
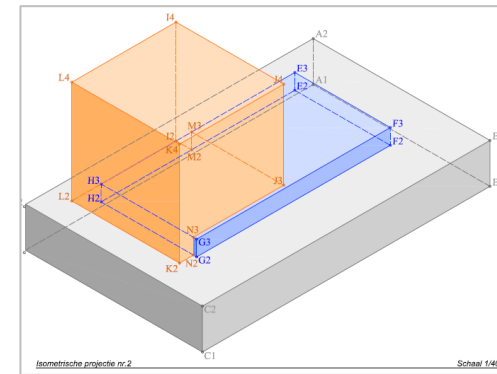
# NEW PROPERTY LAW

## ■ Volume

- ≠ building  
= 'box' in which a construction will be (or has been) built

- ≠ co-ownership

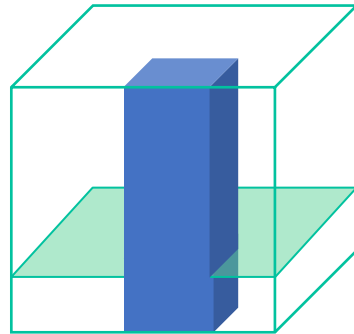
- volume = building rights  
→ volume = always linked to the ground surface



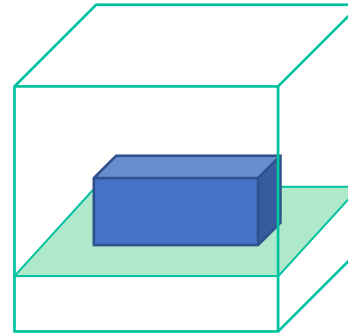


## TYPES VOLUMES

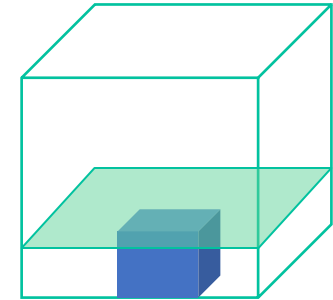
- VOLUME COMPLETE
  - volume from the useful depth to the useful height



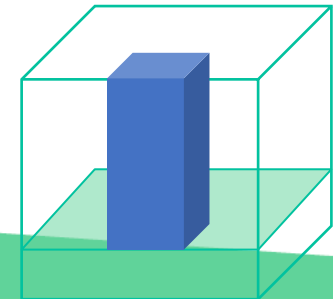
- VOLUME LIMITED
  - volume limited in height and in depth



- VOLUME PARTIALLY LIMITED
  - or, volume to the useful depth but limited in height



- of, volume to the useful height but limited in depth

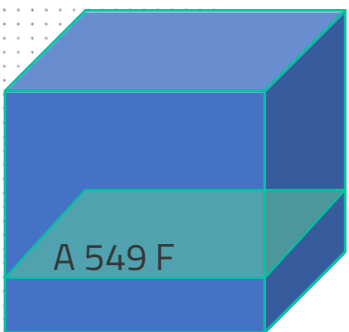


# REGISTRATION OF VOLUMES IN THE CADASTRAL DOCUMENTATION



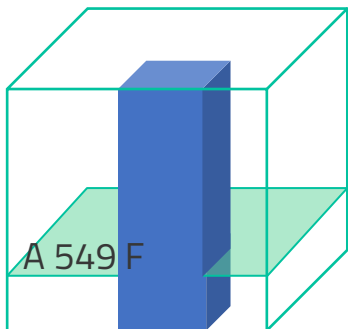
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building rights on an entire  
parcel? (plan parcel or  
patrimonial parcel)

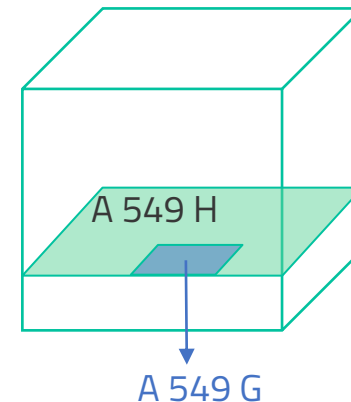


YES  
No new parcel

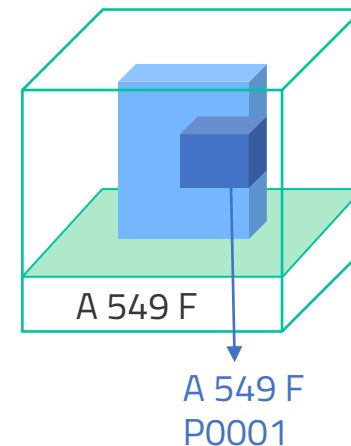
NO  
building rights on a part of a  
plan parcel from the useful  
depth to the useful height?



YES  
new plan parcel

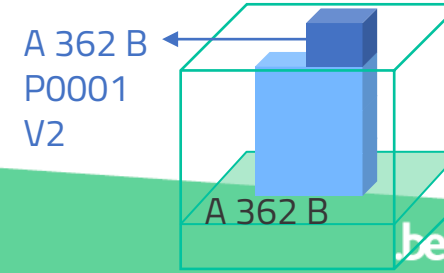
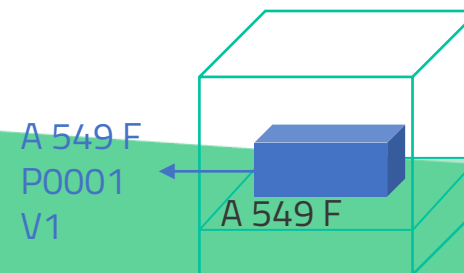


YES  
new patrimonial parcel



NO  
building rights on a part of an  
existing building?

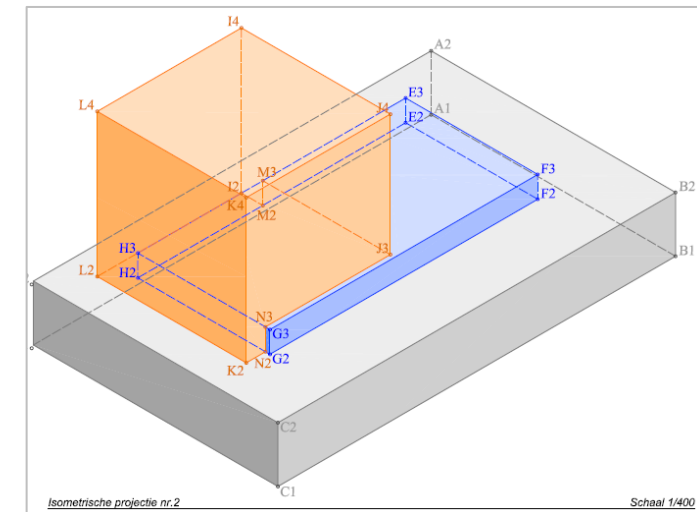
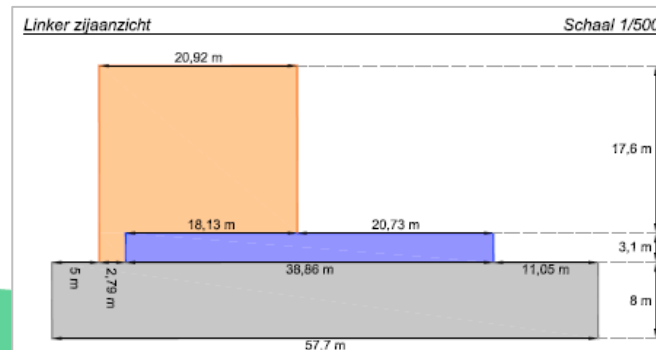
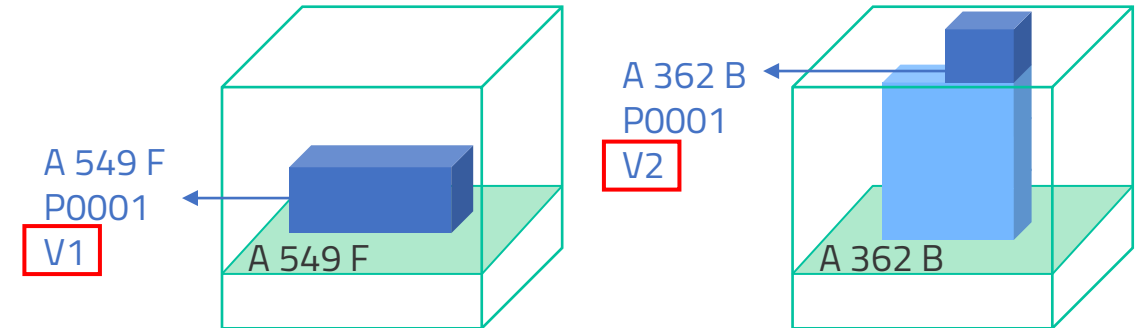
NO  
new patrimonial parcel of the  
type cadastral volume





# THE CADASTRAL VOLUME

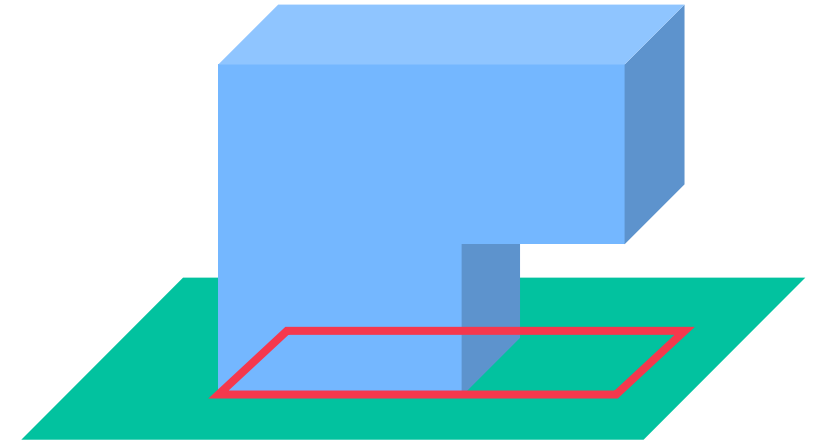
- Cadastral documentation
  - Cadastral patrimonial parcel  
→ linked to the plan parcel
  - Unique volume identification
- Survey plan
  - Cadastral volume is defined in 3D





# THE CADASTRAL VOLUME

- Cadastral map
  - Cadastral volume shown in 2D (projection)





## CONCLUSION

- The cadastral documentation remains 2D (survey plan contain information in 3D)
- Why ?
  - 2D → 3D: large impact on existing documentation
  - Existing system (patrimonial parcels) also usable for volumes
  - limited demand for a 3D representation of volumes (3D concept not yet widely used by professionals in Belgium)





## CONCLUSION

- Future:
  - 3D representation of buildings → architectural plans
    - Completed with a 3D model (building)
    - As-Built
  
  - registration in the document database of the GAPD



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# QUESTIONS



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## USEFUL DOCUMENTATION (NL / FR)

- [Civil Code - Book 3: goods](#)
- [RD preliminary identification](#) (18.11.2013)
- [MD preliminary identification](#) (18.11.2013)
- [Website FPS Finance: preliminary identification and volume](#)



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**PATRIMONIAL  
DOCUMENTATION**