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Van BIM of EPB naar BIM en EPB

Pistes en opportunititeiten
Louis Casteleyn

BIM als proces

BIM als database

BIM en EPB



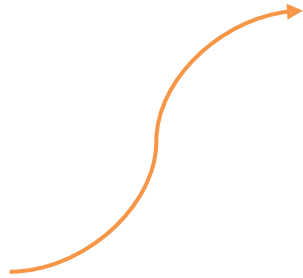


NBN EN ISO 19650-1
Part 1: Concepts and principles

NBN EN ISO 19650-2
Part 2: Delivery phase of the assets

NBN EN ISO 19650-3
Part 3: Operational phase of the assets

NBN EN ISO 19650-5
Part 5: Security-minded approach to
information management



Belgian Standard

ISO 19650-1:2018

☐ NBN

EN ISO 19650-1:2018

NBN EN ISO 19650-1:2019

☐ ☐

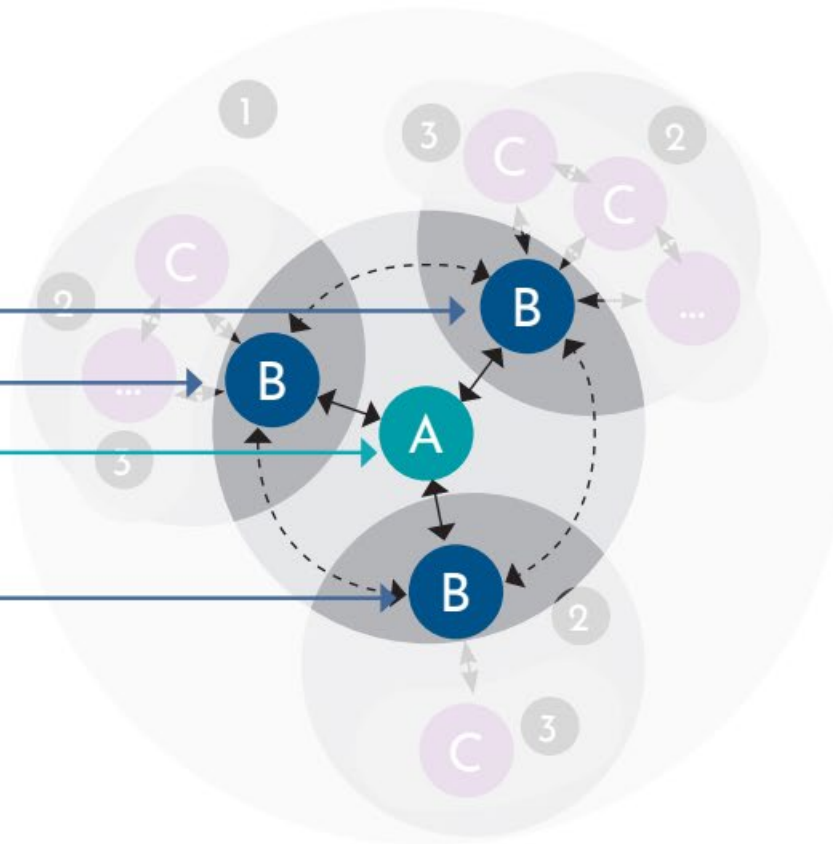
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 1: Concepts and principles (ISO 19650-1:2018)

Main Contractor

Architect

Client

Client's project manager



Key:

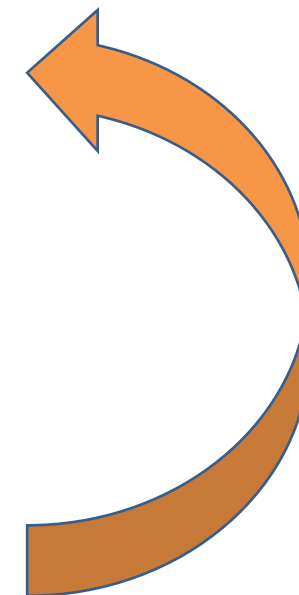
- A** Appointing Party
- B** Lead Appointed Party
- C** Appointed Party
- 1** Project Team
- 2** Delivery Team
- 3** Task Team(s)

Figure 3: Interfaces between parties and teams

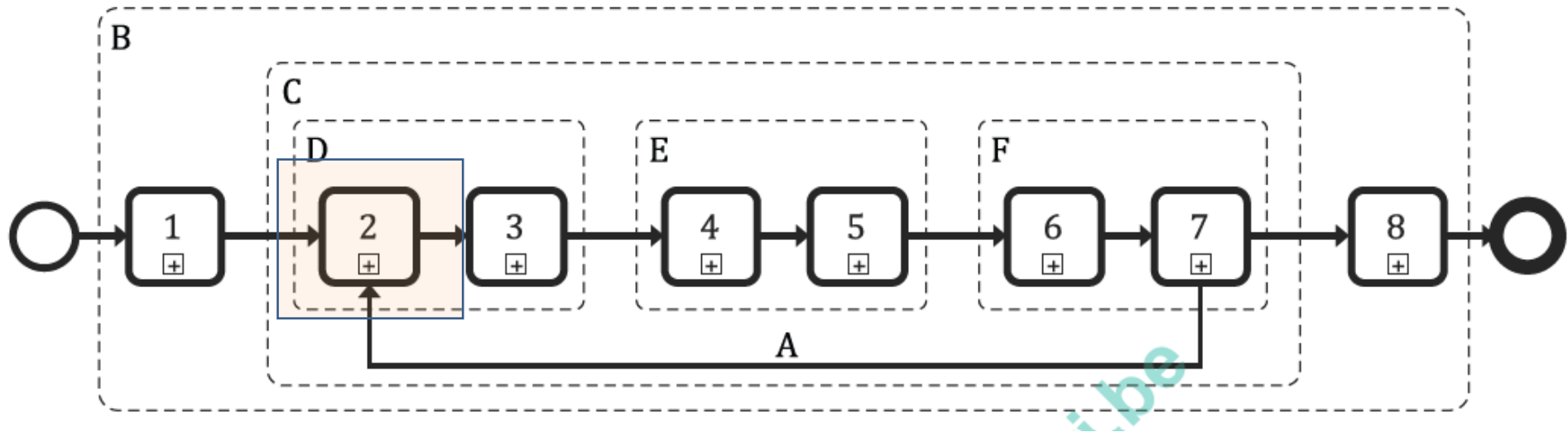
Bron:



Bouwfase	Af te leveren documenten	Verplicht voor EPB?	Wie?
<u>voorbereiding</u>	contracten	aanrader	aangifteplichtige
<u>van ontwerp tot vergunningsaanvraag</u>	vergunningsaanvraag of melding	verplicht voor stedenbouw	architect namens de bouwheer
	(+ een <u>haalbaarheidsstudie</u> voor gebouwen groter dan 1000 m ²)	verplicht voor EPB	<u>EPB-verslaggever</u> namens de aangifteplichtige
<u>aanbesteding</u>	checklist voor stavingsstukken	aanrader	aangifteplichtige
<u>start van de werken</u>	startverklaring met ventilatievoorontwerp	verplicht	EPB-verslaggever namens de aangifteplichtige
<u>uitvoering</u>	verzamenen van stavingsstukken	verplicht	aangifteplichtige
	voorlopige EPB-aangifte	aanrader	EPB-verslaggever
<u>ingebruikname of einde van de werken</u> (of uiterlijk 5 jaar na het verlenen van de vergunning)	aanleveren van stavingsstukken	verplicht	aangifteplichtige
	EPB-aangifte met het ventilatieprestatieverslag	verplicht	EPB-verslaggever namens de aangifteplichtige



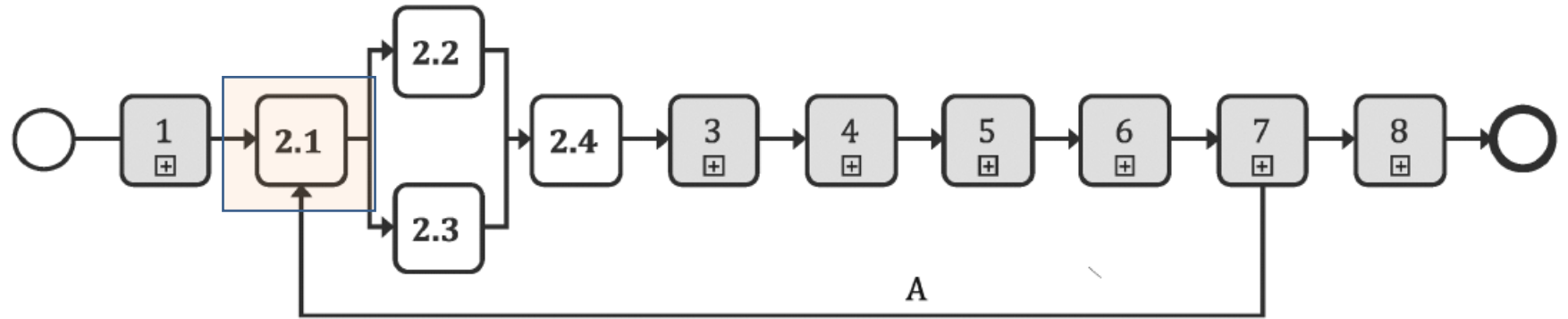
Bron: VEKA



Activities

- 1 assessment and need
- 2 invitation to tender
- 3 tender response
- 4 appointment
- 5 mobilization
- 6 collaborative production of information
- 7 information model delivery
- 8 project close-out (end of delivery phase)

Bron: ISO 19650-2



Key

2.1	establish the appointing party's exchange information requirements
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BIM als proces

BIM als database

BIM en EPB

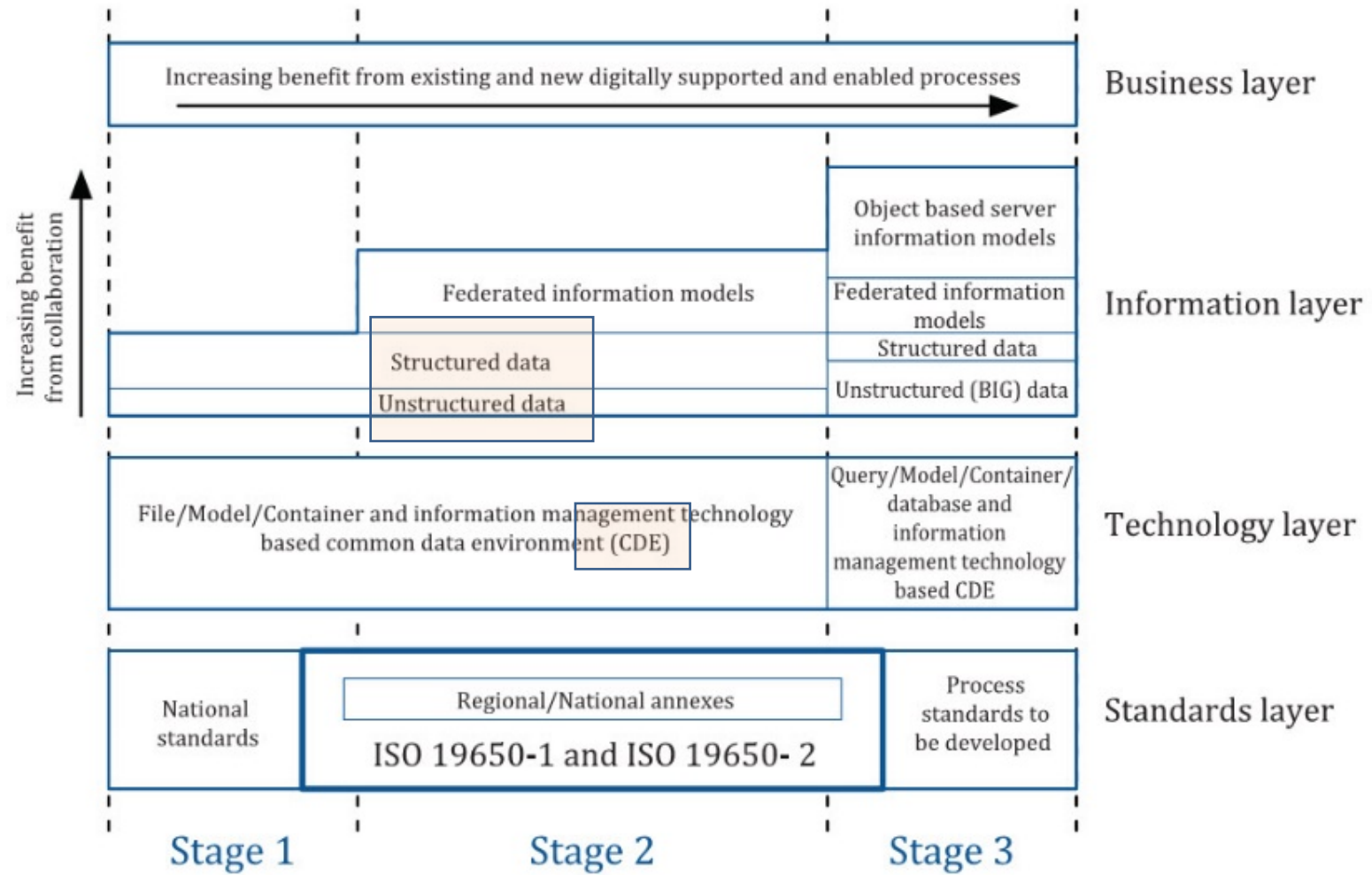


B AUTODESK®
BIM 360™ DOCS

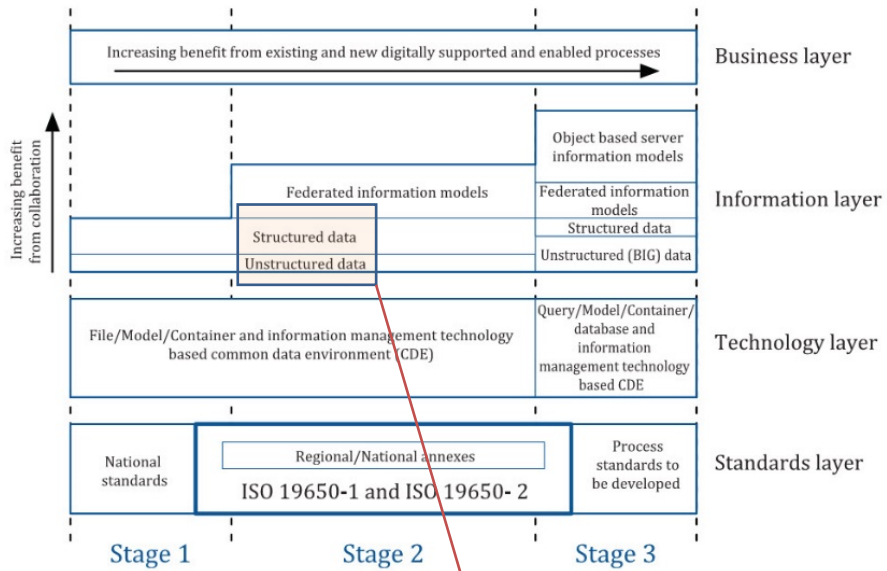


 **Trimble Connect**

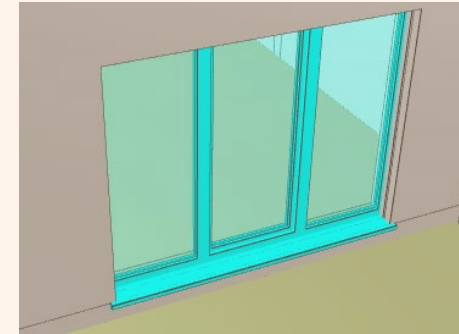




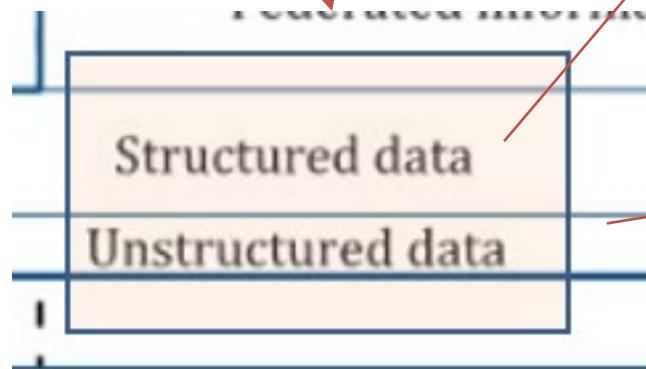
Bron: ISO 19650-1



Structured (vb. IFC)



Summary	Location	Material
Property		
Area		6.90 m ²
Height		2,300 mm
Width		3,000 mm



Unstructured (vb. PDF)

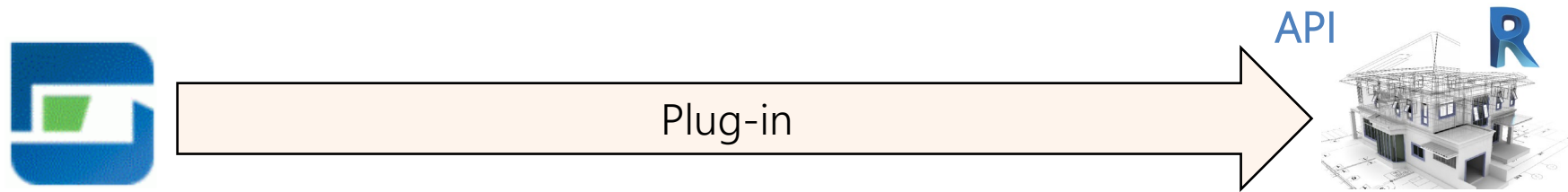


BIM als proces

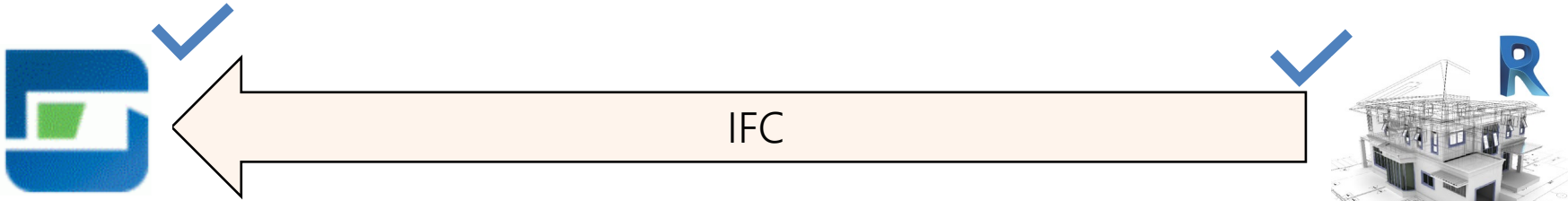
BIM als database

BIM en EPB

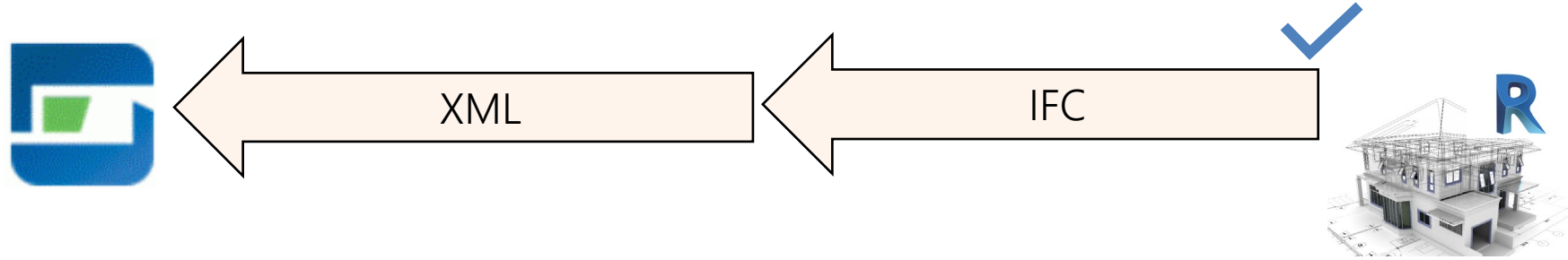
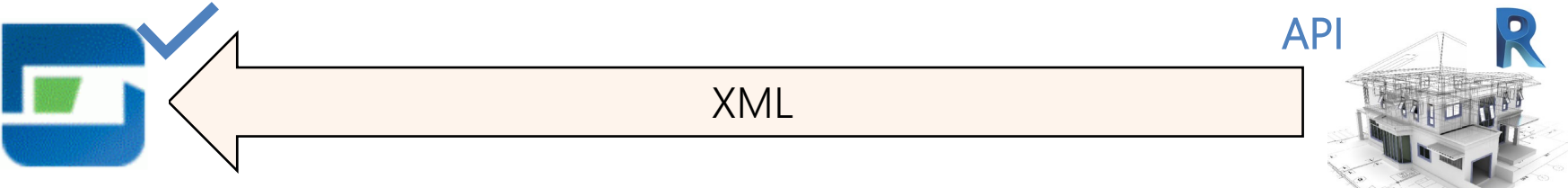




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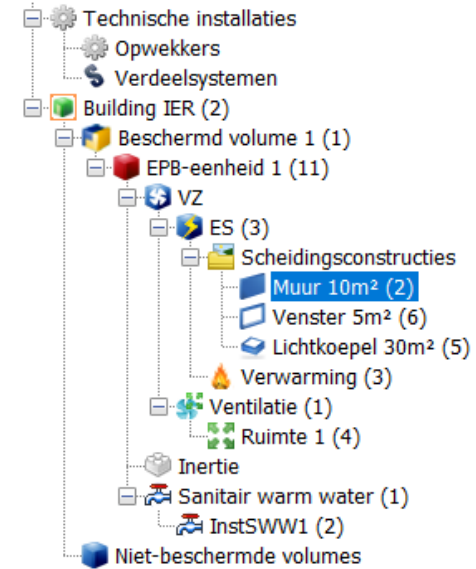


Vlaanderen
is energie

```
<urn:Project xmlns:urn="urn:peb:bim" name="testProject" Version="1.0.0">
  <urn:ProjectInformation xml-creation-date="2020-12-20">
    <urn:region>Flanders</urn:region>
    <urn:permit-request-date>2020-09-19</urn:permit-request-date>
    <!--xsd-version 1.0.0 is the only one allowed for now:-->
    <urn:xsd-version>1.0.0</urn:xsd-version>
  </urn:ProjectInformation>
  <urn:Building name="Building IER" id="CBTK-D">
    <!--big-renovation = IER:-->
    <urn:building-type>big-renovation</urn:building-type>
    <!--no precision needed in IER:-->
    <urn:ProtectedVolume name="Beschermd volume 1" id="jx1JNM">
      <urn:EpbUnit name="EPB-eenheid 1" id="irVzk2">
        <!-- unit-type only needed in RBC -->
        <!-- total-surface is used in residential-->
        <urn:total-surface>5000</urn:total-surface>
        <urn:VentilationZone name="VZ" id="j4ZK3">
          <urn:EnergeticSector name="ES" id="cjSRxF">
            <urn:volume>20.00</urn:volume>
            <!-- EnergeticSectorContent so we have a residential unit-->
            <urn:EnergeticSectorContent>
              <urn:Space name="Ruimte 1" id="Uzn_bI">
                <urn:usage-surface>30.00</urn:usage-surface>
              </urn:Space>
              <urn:Construction name="Muur 10m²" id="U4zfVY">
                <urn:environmentType>outside</urn:environmentType>
                <urn:constructionType>wall</urn:constructionType>
                <urn:surface>10.00</urn:surface>
                <!--Optional and only used if u-direct:-->
                <urn:u-value>0.60</urn:u-value>
              </urn:Construction>
              <urn:Construction name="Venster 5m²" id="oTcZlg">
                <urn:environmentType>outside</urn:environmentType>
                <urn:constructionType>window</urn:constructionType>
                <urn:surface>5.00</urn:surface>
                <urn:slope>90</urn:slope>
                <urn:orientation>120</urn:orientation>
              </urn:Construction>
              <urn:Construction name="Lichtkoepel 30m²" id="tQs7e8">
                <urn:environmentType>outside</urn:environmentType>
                <urn:constructionType>dome-light</urn:constructionType>
                <urn:surface>30.00</urn:surface>
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            </urn:EnergeticSectorContent>
          </urn:EnergeticSector>
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      </urn:EpbUnit>
    </urn:ProtectedVolume>
  </urn:Building>
</urn:Project>
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              </urn:Construction>
              <urn:Construction name="Lichtkoepel 30m²" id="tQs7e8">
                <urn:environmentType>outside</urn:environmentType>
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            </urn:EnergeticSectorContent>
          </urn:EnergeticSector>
        </urn:VentilationZone>
      </urn:EpbUnit>
    </urn:ProtectedVolume>
  </urn:Building>
</urn:Project>
```



Scheidingsconstructies 'Muur 10m²'

Naam : Muur 10m²

Type : Muur

Oppervlakte : 10,00 m²

Bestaande scheidingsconstructies Ja Neen

Nieuwe of vernieuwde constructie : Ja Neen

Begrenzing : Buitenomgeving

Directe invoer U-waarde : Ja Neen

U-waarde : 0,60 W/m²K

staving : U-waarde

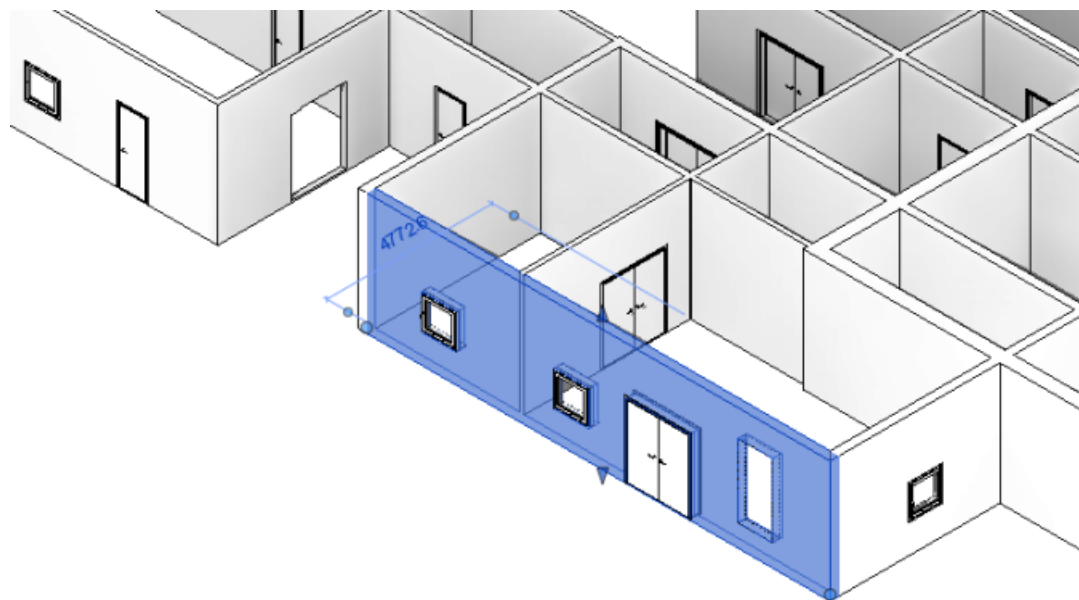
Stavingsstuk : ?

Aanpassen Nieuw

Etiket

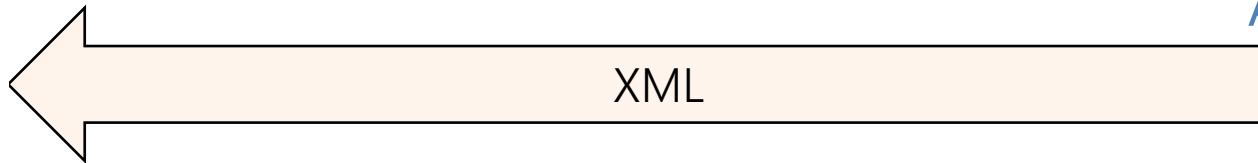
1. Wat is tijdrovend om in te geven
2. Wat is eerder gemakkelijk om uit een model te halen
3. Wat is wellicht beschikbaar in een model

BIM object: Muur





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API



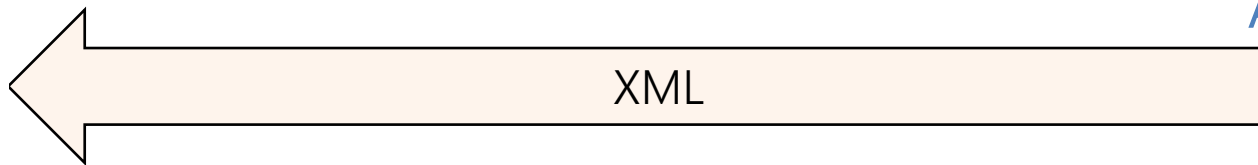
Analytical Properties	
Analytic Construction	Double glazing - 1/4 in thick - bluegreen/low-E (e = 0.05) glass
Define Thermal Properties by	Schematic Type
Visual Light Transmittance	0.450000
Solar Heat Gain Coefficient	0.270000
Thermal Resistance (R)	0.5032 (m ² ·K)/W
Heat Transfer Coefficient (U)	1.9873



→ U-waarde totaal?
U-waarde beglazing?
U-waarde profiel?



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API



Analytical Properties

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U-waarde totaal?
U-waarde beglazing?
U-waarde profiel?

Directe invoer U-waarde : Ja Neen

Venster **Luik** Opendgaande oppervlakte Zonneweringen Beschaduwung

U-waarde (profielen + beglazing) : 1.987 W/m²K

U-waarde beglazing : 1,10 W/m²K

g-waarde (zonnetoetredingsfactor) : 0,65

Transparante oppervlakte : m²

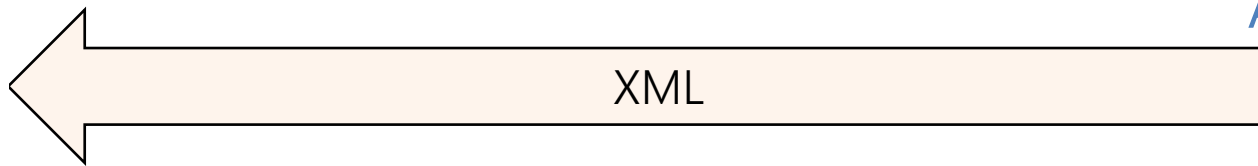
staving : g-waarde (zonnetoetredingsfactor), U-waarde beglazing, U-waarde

Stavingsstuk : ?

Etiket



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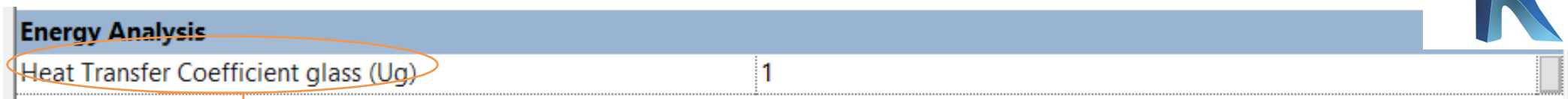


API



Voorstel: Custom parameter in Revit

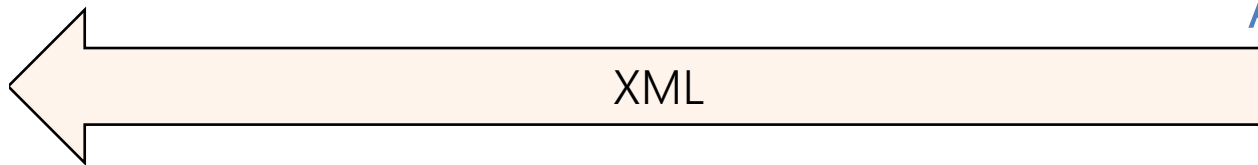
→ Conventies nodig



U-waarde beglazing



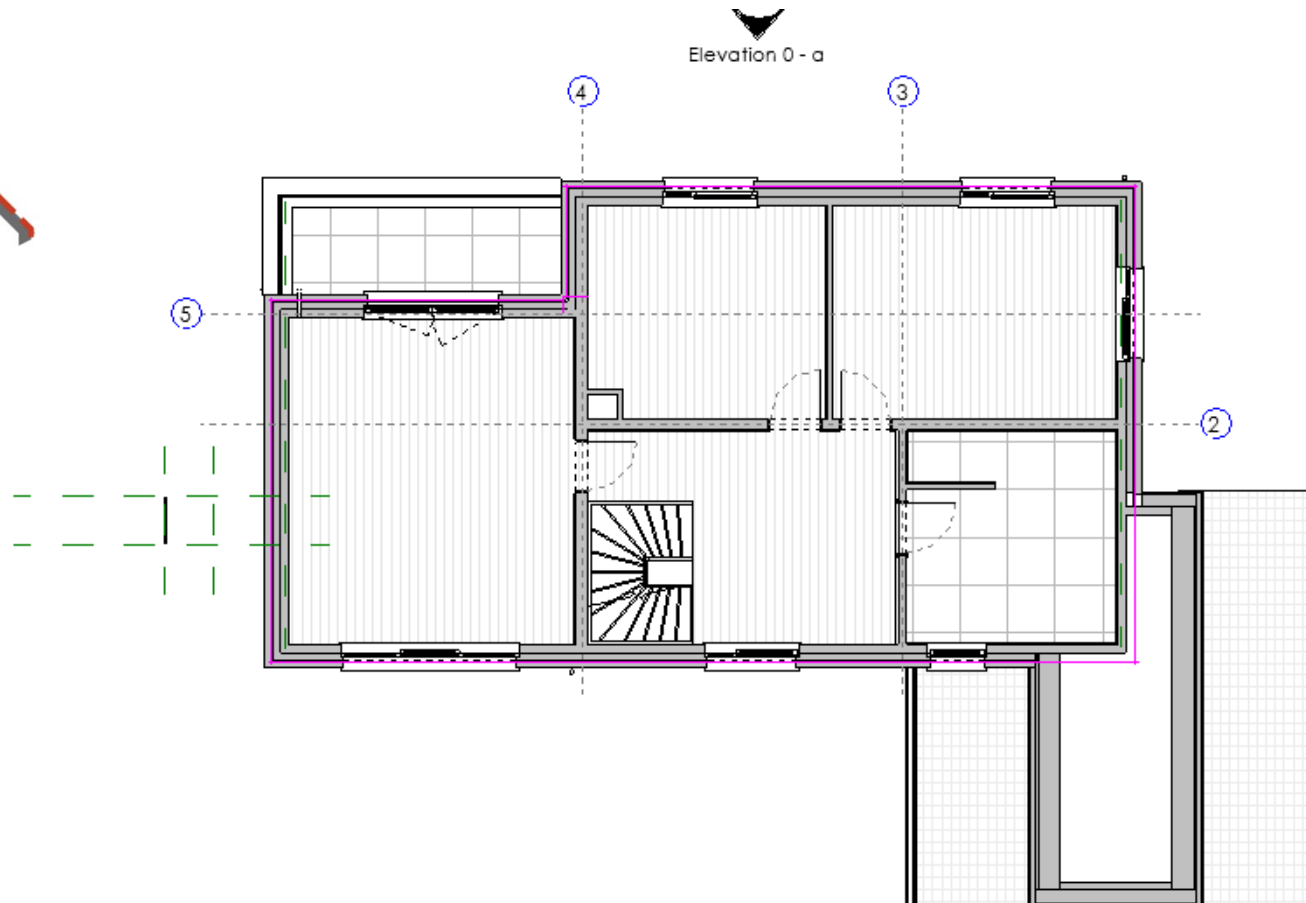
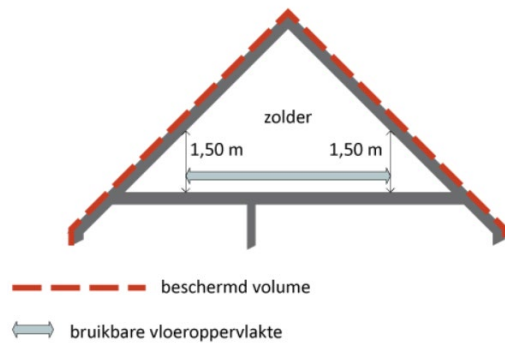
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EPB-parameter: bruikbare vloeroppervlakte





BIDS =
Belgian
Information
Delivery
Specifications



BIM-MODELLEERRICHTLIJNEN

Voor overdracht van ontwerpplieg naar uitvoeringsplieg
(bij traditionele contractvorm)

BINNENVLOER
massief: beton

Volgende alfanumerieke informatie (gegroepeerd per thema) dient aanwezig te zijn in het BIM-model bij dit element:

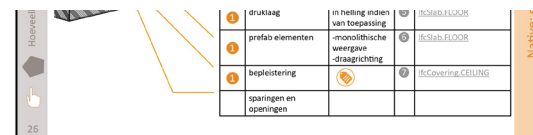
- identificatie
- in-/uwendig



Gebaseerd op IFC 4

Oppervlaktekenmerken geprefabriceerde elementen

informatie	uitleg	opmerkingen	IFC
oppervlaktebewerking	Eventuele oppervlaktebewerkingen zoals bijvoorbeeld polijsten of uitwassen.	indien van toepassing	CPset_***.ExternalSurfaceTreatment (P) datatype: string (IfcLabel)
oppervlaktekenmerken	Eisen of beschrijvingen van de oppervlaktekenmerken conform NBN EN 13369 en/of de desbetreffende productnorm.	indien van toepassing	CPset_***.SurfaceCharacteristics (P) datatype: string (IfcLabel)



Interactieve PDF

Bedankt
louis.casteleyn@bbri.be