

BIM, GEWOON DOEN!

DUURZAAM GEBOUWD DUIVEN, 5 juli 2016

Ronald de Graan



@kubusbv

@de_graan

KUBUS

INHOUD

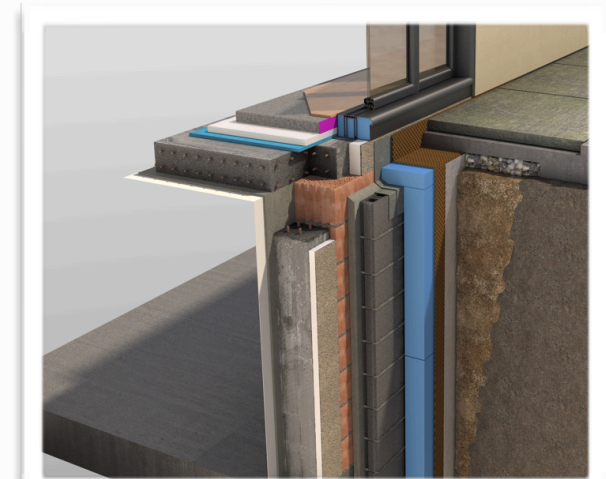
INTRODUCTIE



DE BOUW



VERANDERING



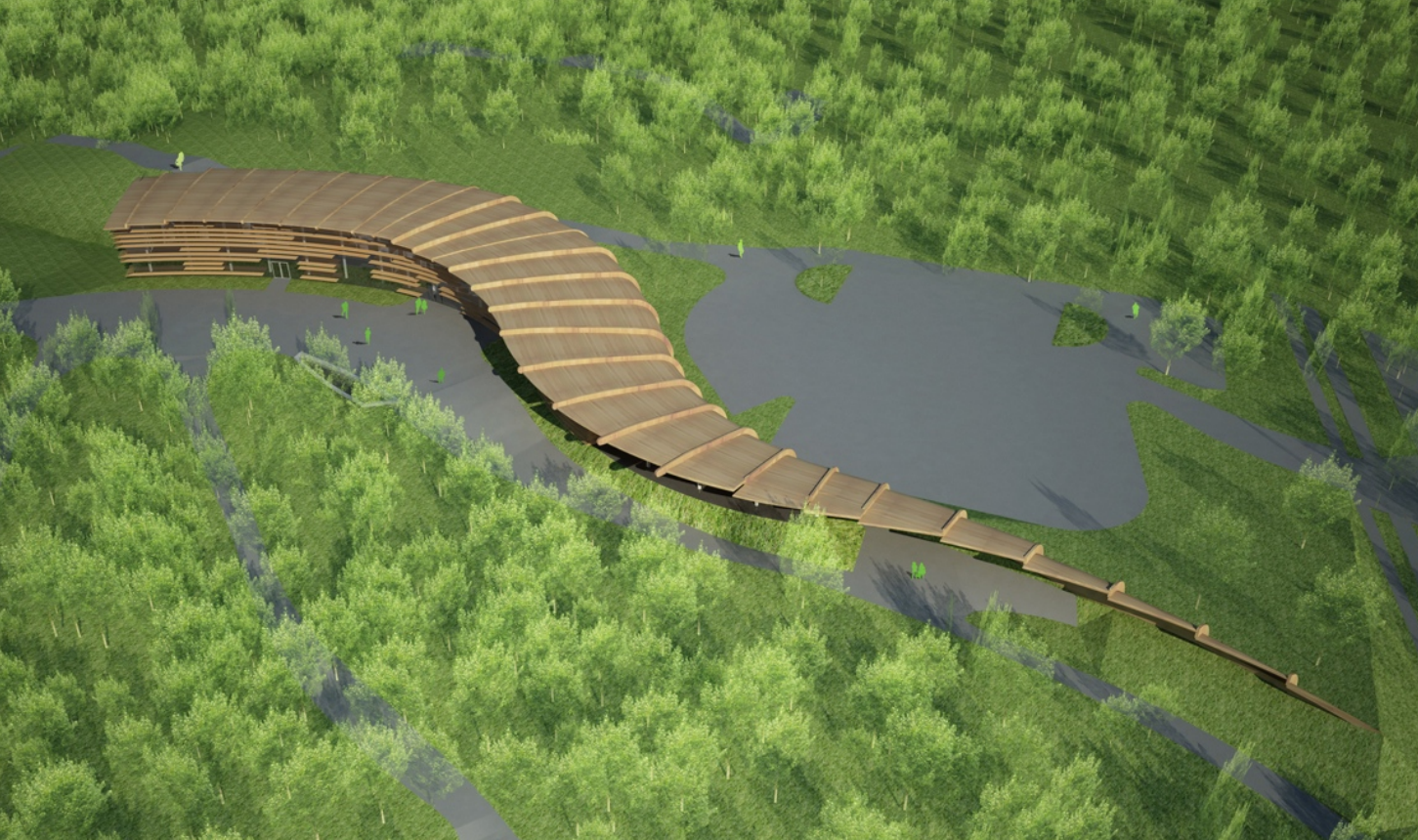
TOEKOMST

VRAGEN



RMU

KUBUS



“Nothing is as dangerous in architecture as dealing with separated problems. If we split life into separated problems, we split the possibilities to make good building art.”

- Alvar Aalto -



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BIM software en diensten voor:

architectenbureaus

bouwbedrijven

bouwmanagement bureaus

overheid

woningcorporaties



GRAPHISOFT.
ARCHICAD



DE BOUW

KUBUS

BOUW INDUSTRIE

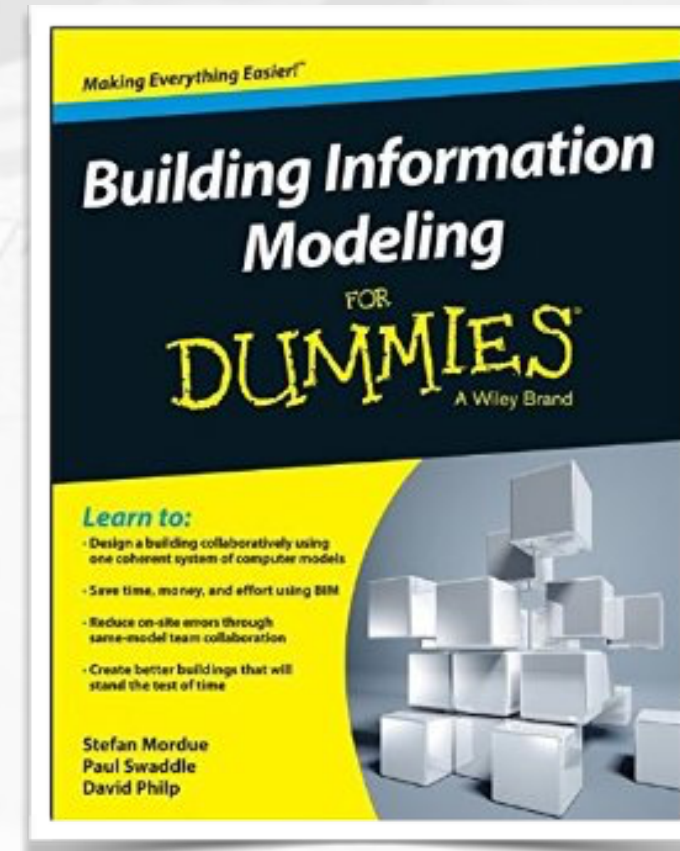
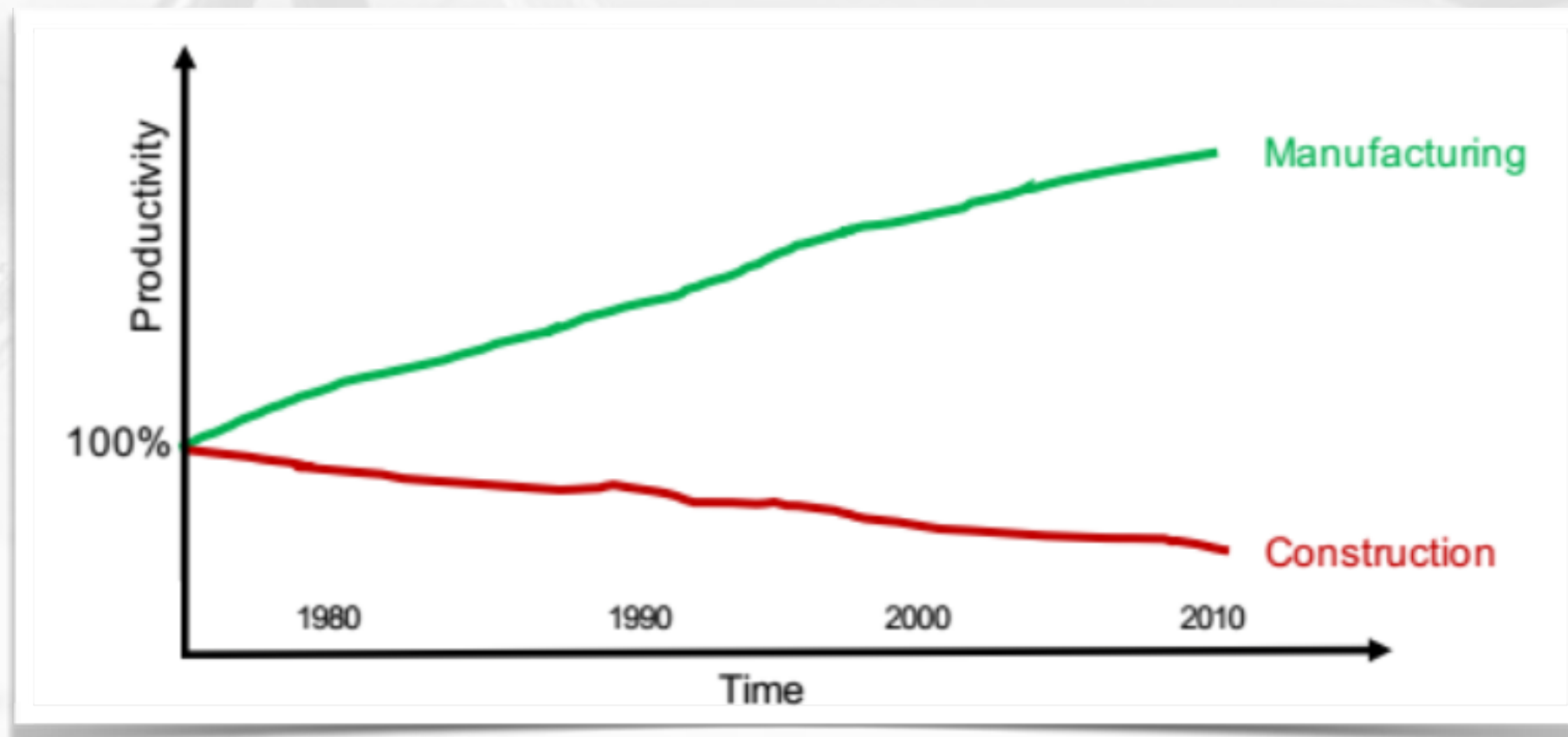
Kenmerken

- qua omvang gelijk aan maakindustrie
- 50% NL kapitaal in onroerend goed

BOUW INDUSTRIE

Issues

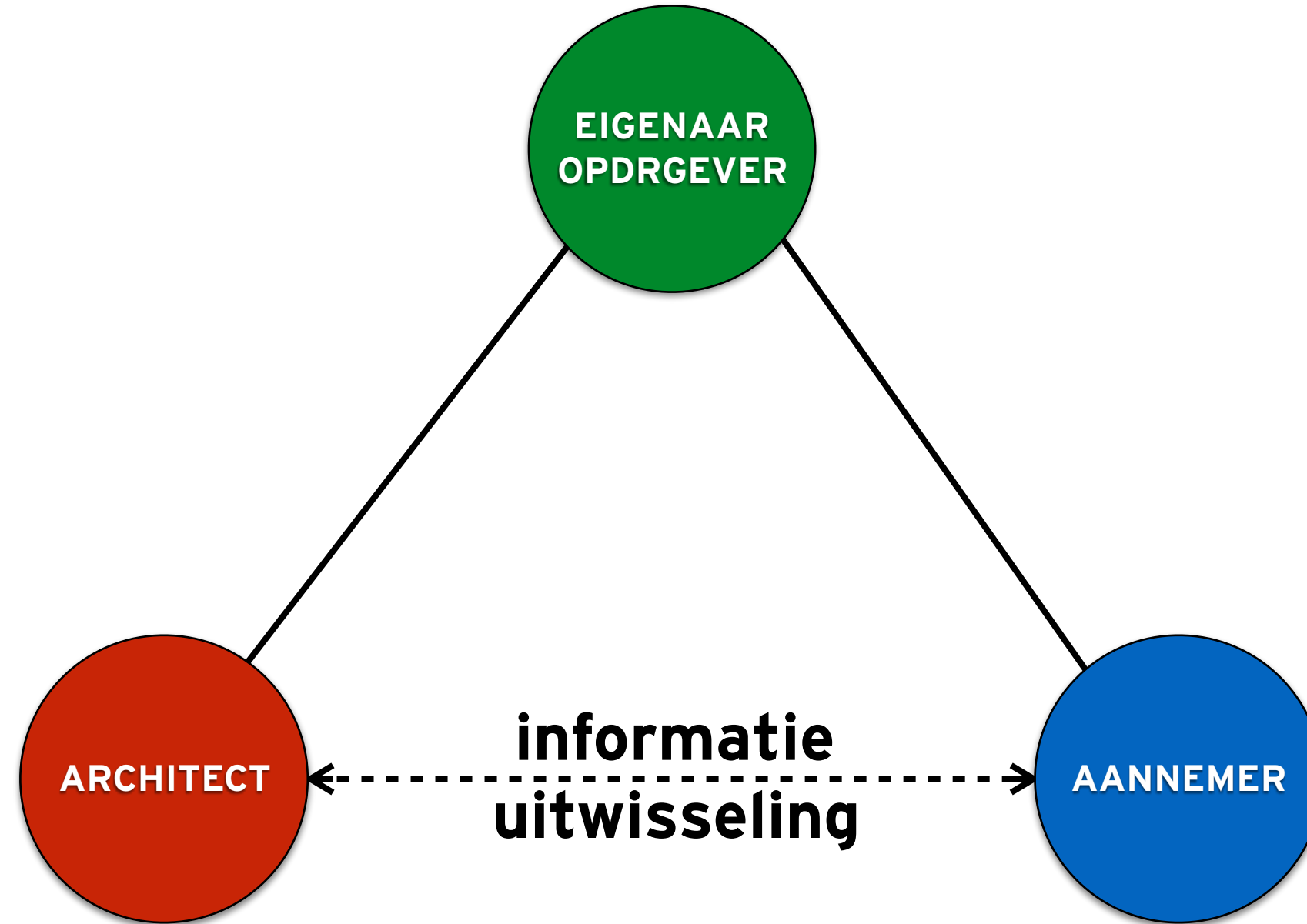
- 40% van de totale Energie Consumptie
- 40% van de vaste afvalstoffen
- traag in adoptie IT
- gebrek aan efficiëntie



VERANDERING

PRINCIPE 1.

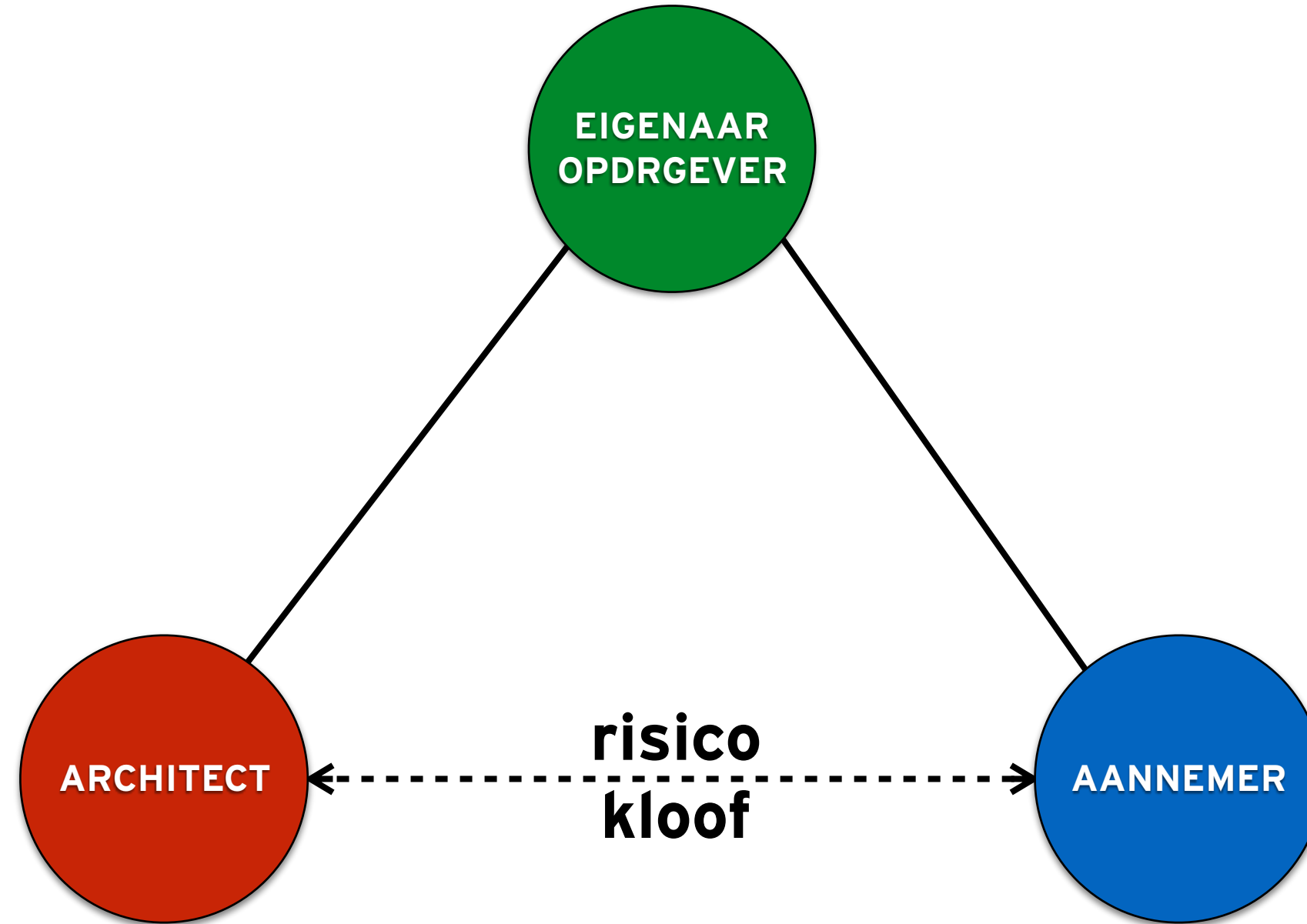
TEAMWORK



VERANDERING

PRINCIPE 1.

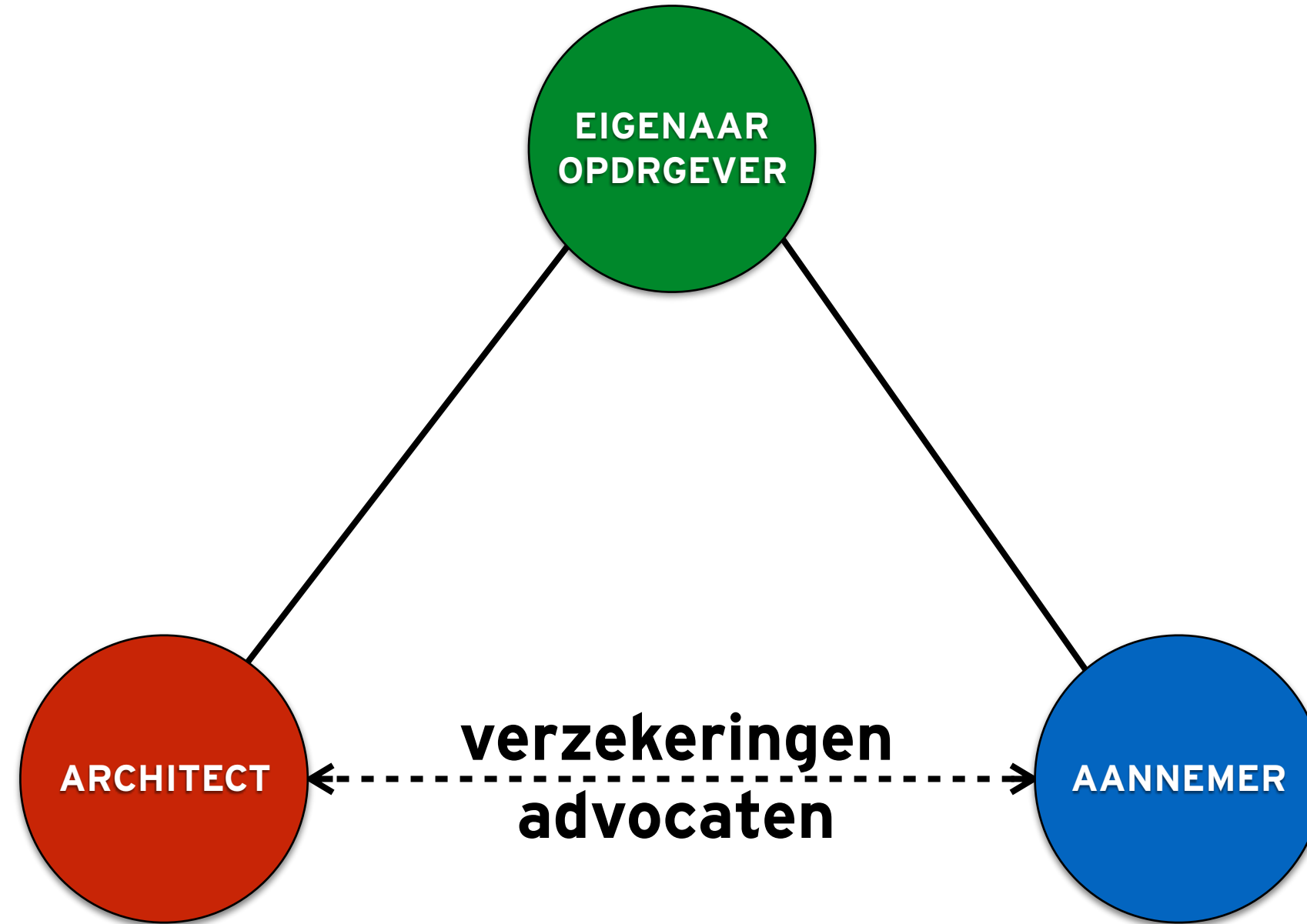
TEAMWORK



VERANDERING

PRINCIPE 1.

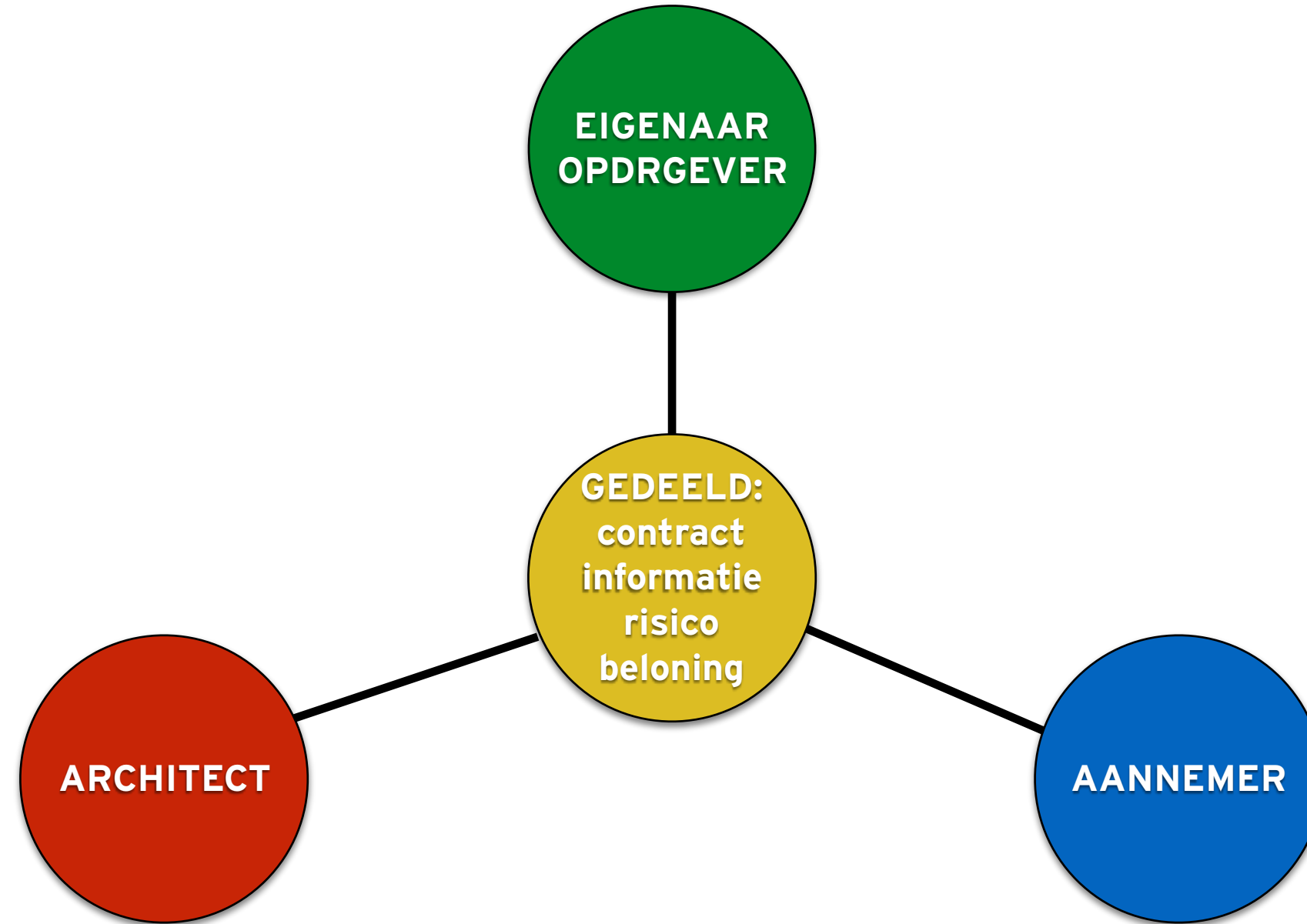
TEAMWORK



VERANDERING

PRINCIPE 1.

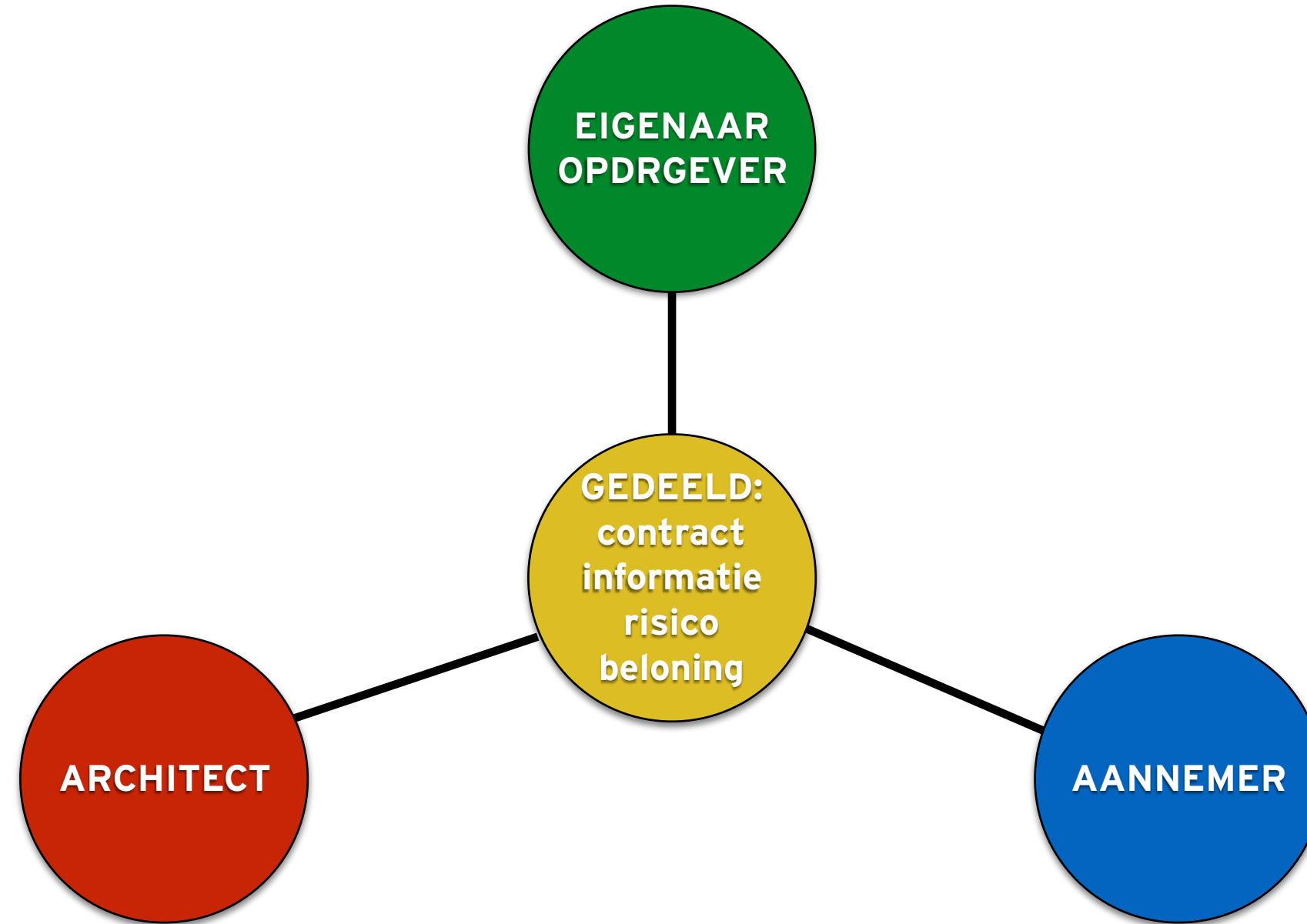
INTEGRAAL



VERANDERING

PRINCIPE 1.

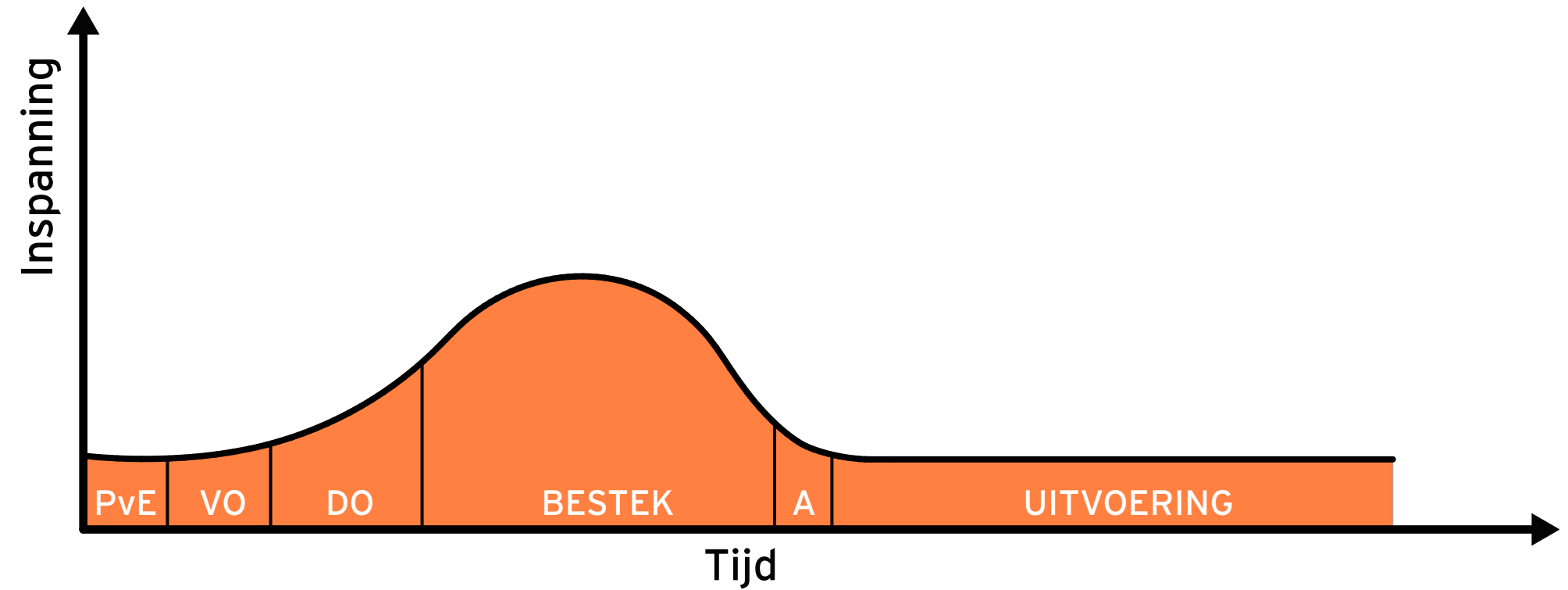
INTEGRAAL



VERANDERING

PRINCIPE 2.

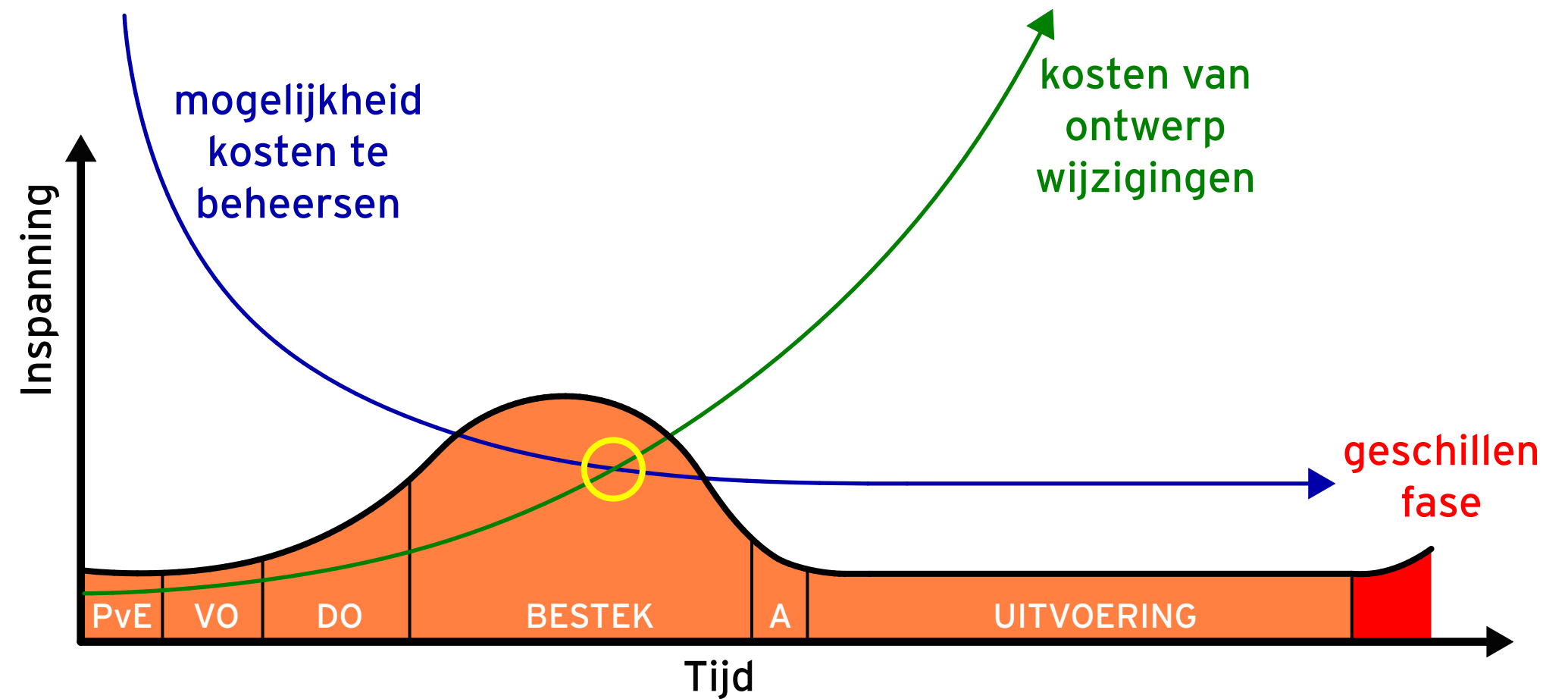
VERSCHUIVING



VERANDERING

PRINCIPE 2.

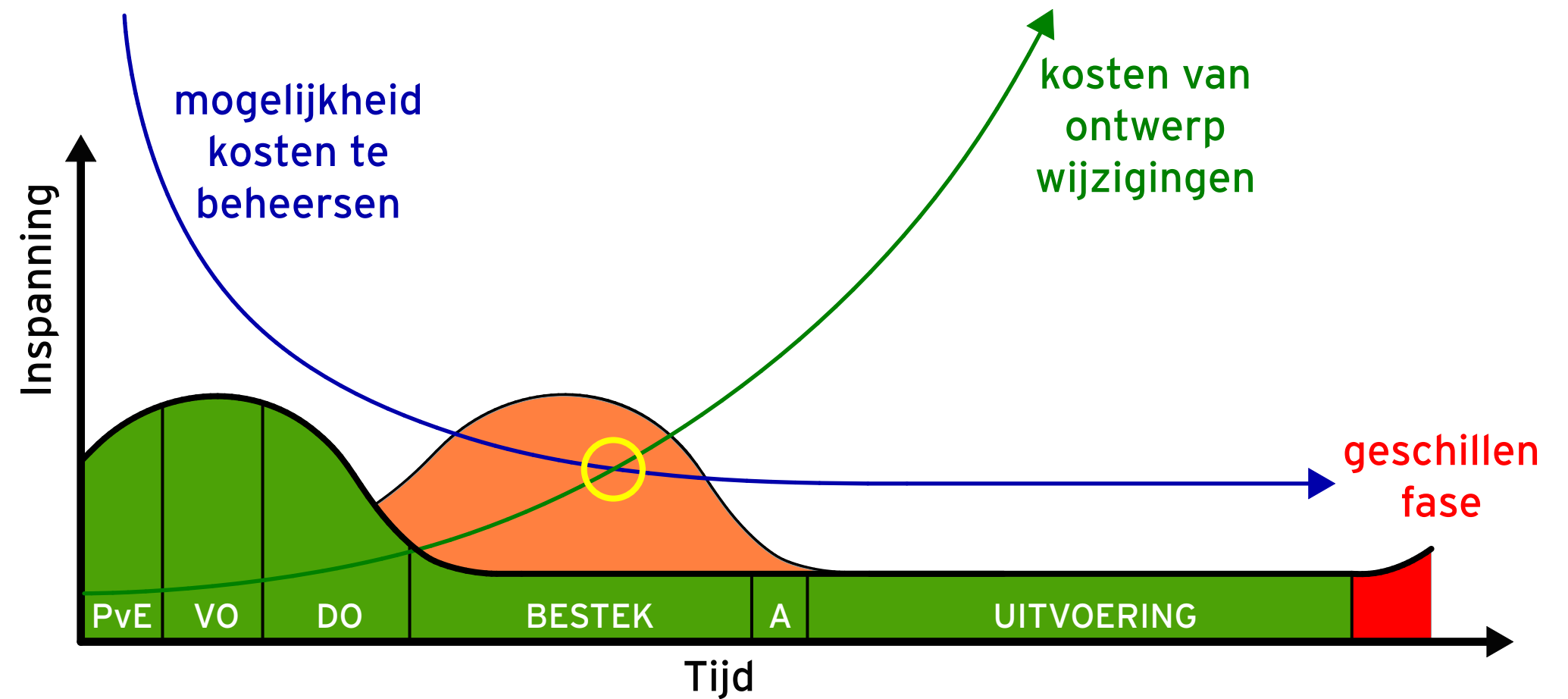
VERSCHUIVING



VERANDERING

PRINCIPE 2.

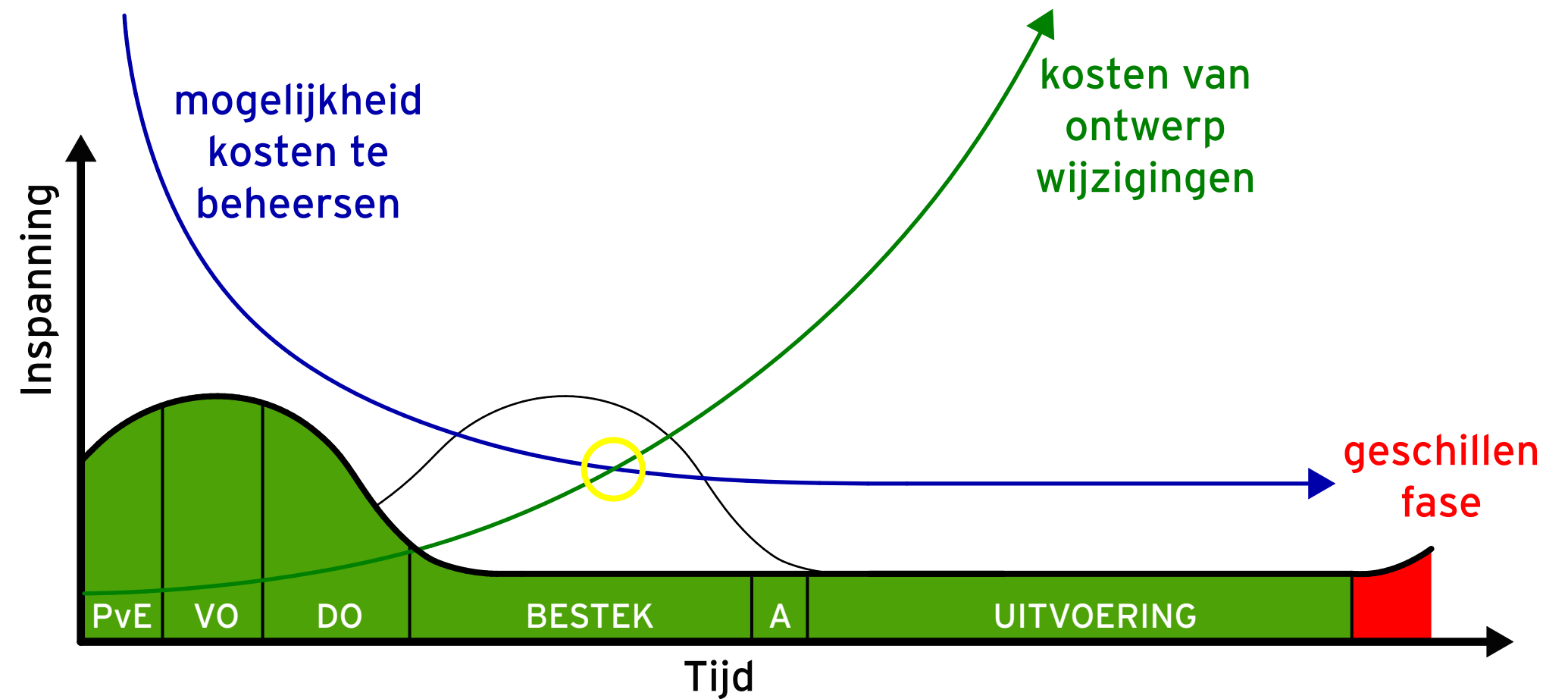
VERSCHUIVING

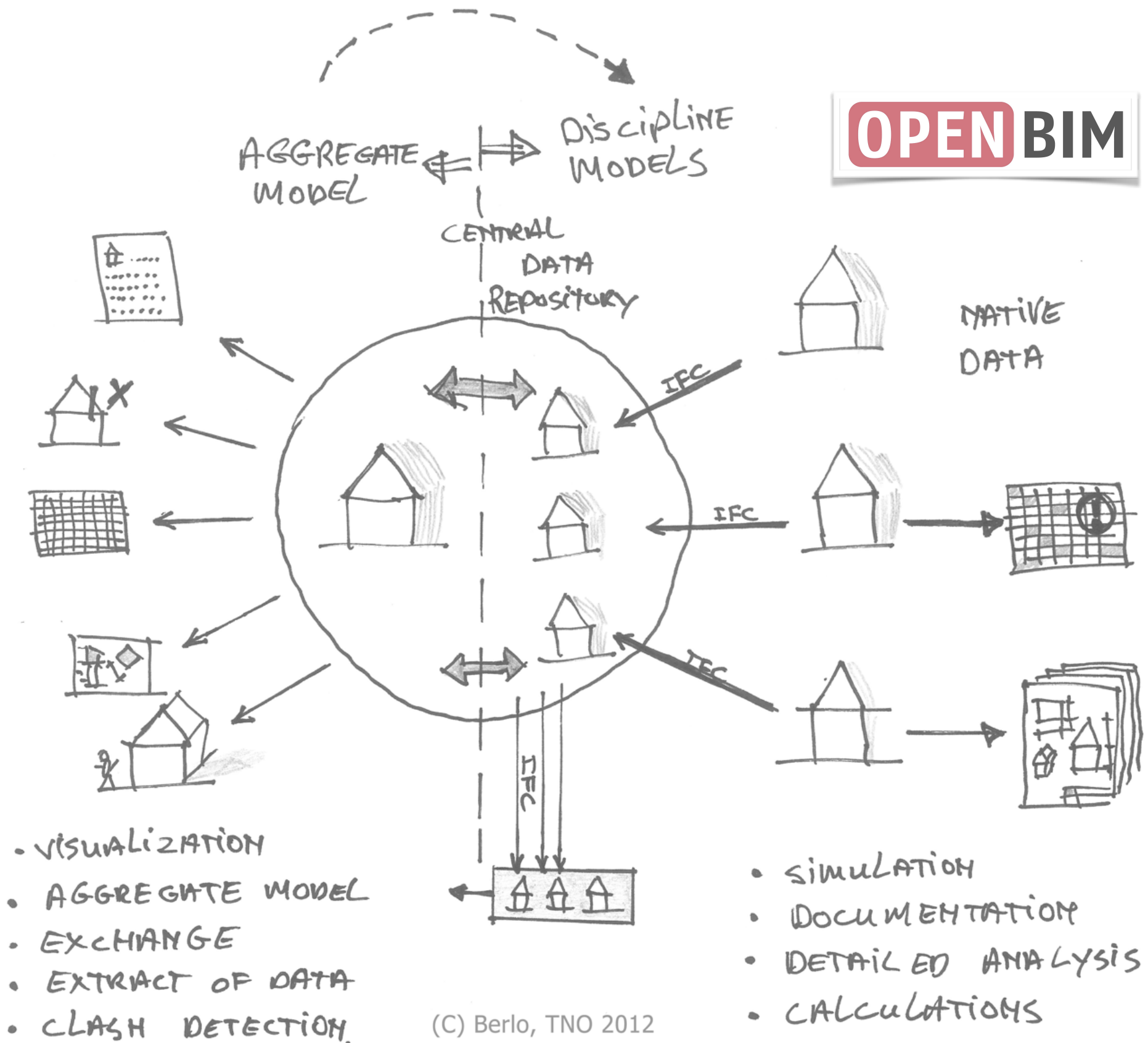


VERANDERING

PRINCIPE 2.

VERSCHUIVING





GRAPHISOFT
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VERANDERING

PRINCIPE 3.

SAMENSTELLEN IPV BOUWEN



VERANDERING

PRINCIPE 3.

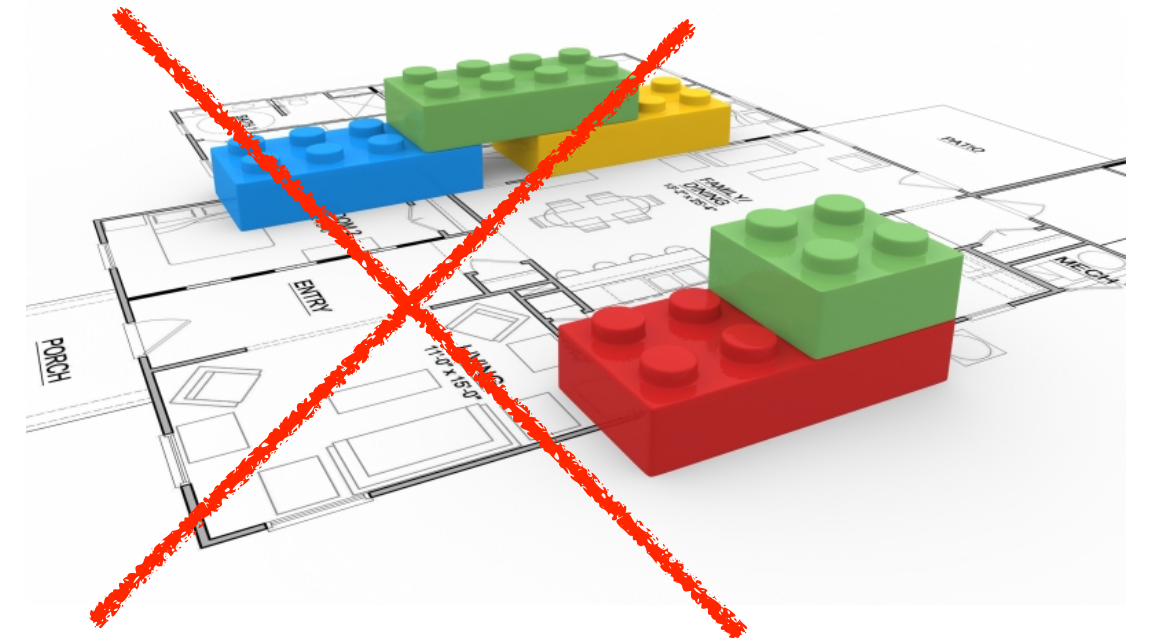
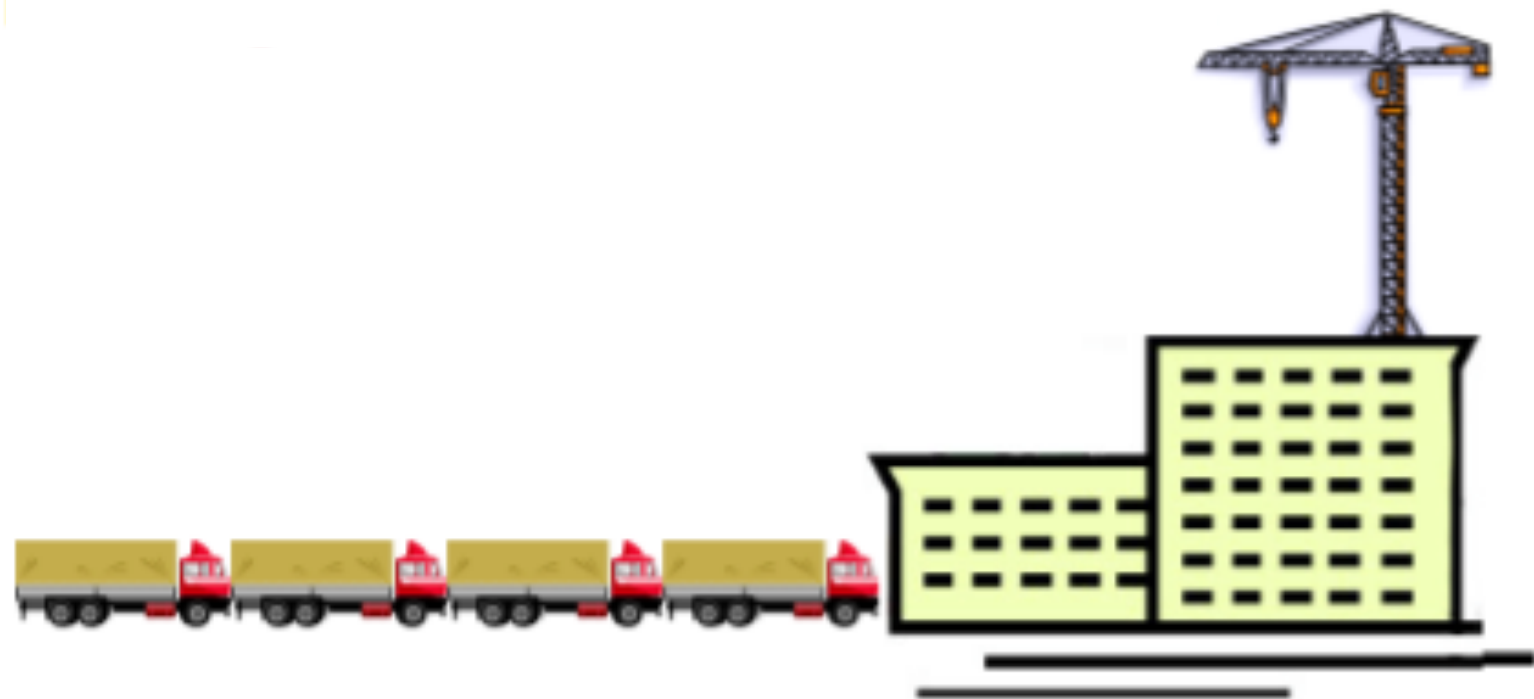
SAMENSTELLEN IPV BOUWEN



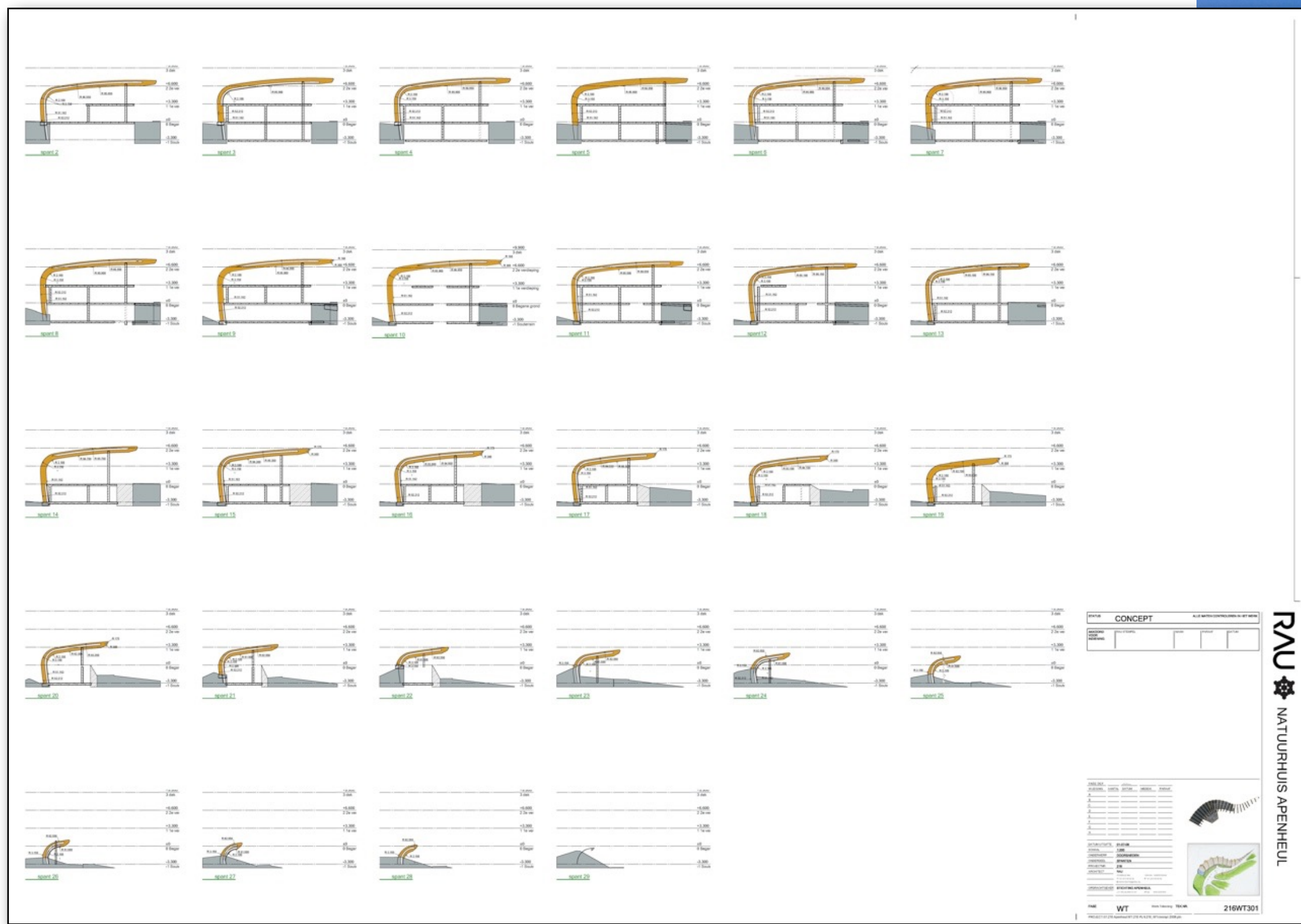
VERANDERING

PRINCIPE 3.

SAMENSTELLEN IPV BOUWEN







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Reinholdsgesellschaft
Drümlingstr. 12
A-1040 Wien

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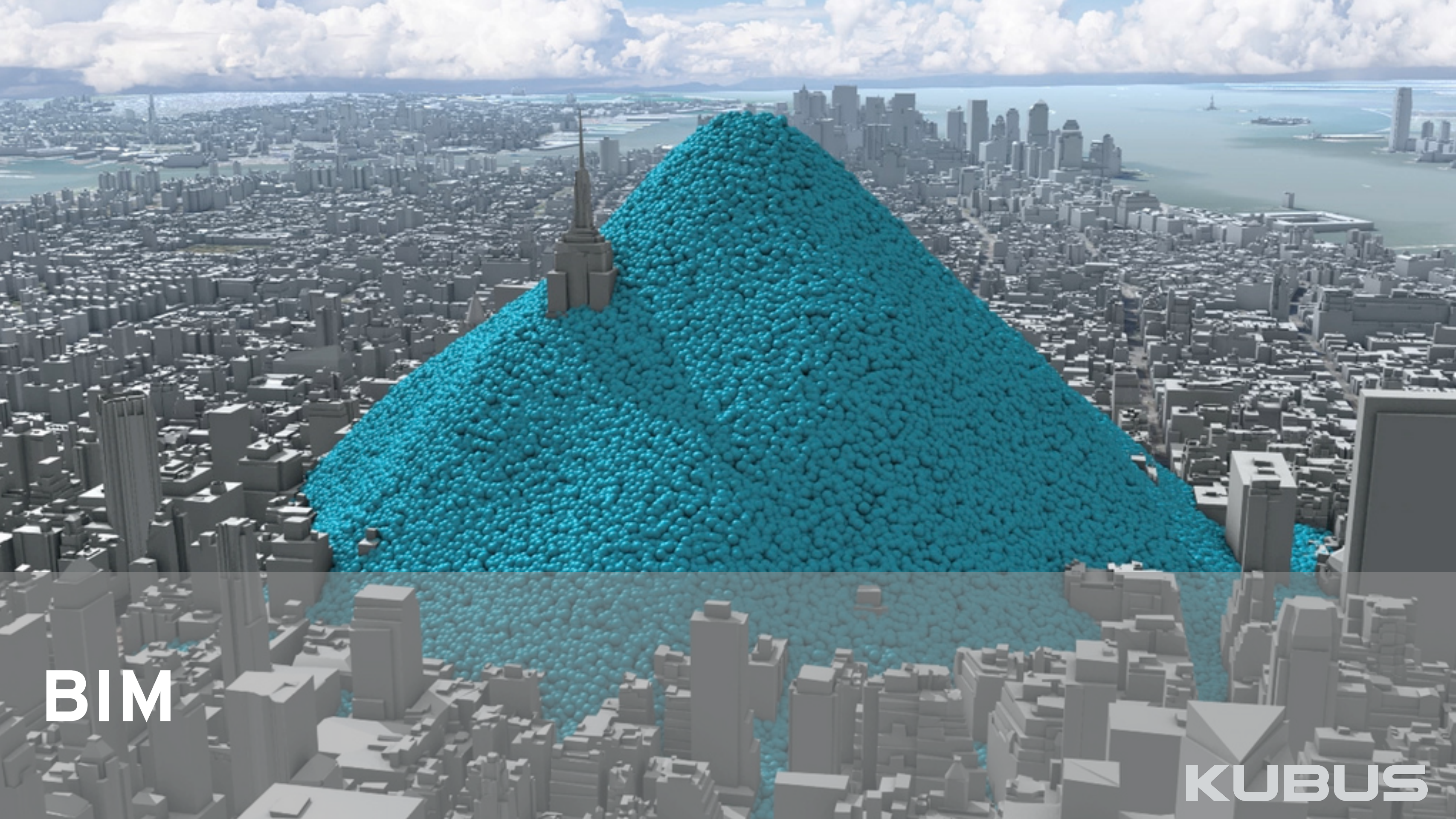


RMU

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BIM

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BIM

DATA

Building

Information

Model

BIM

DATA

Building

Information

Model

BIM

DATA

Building

Model



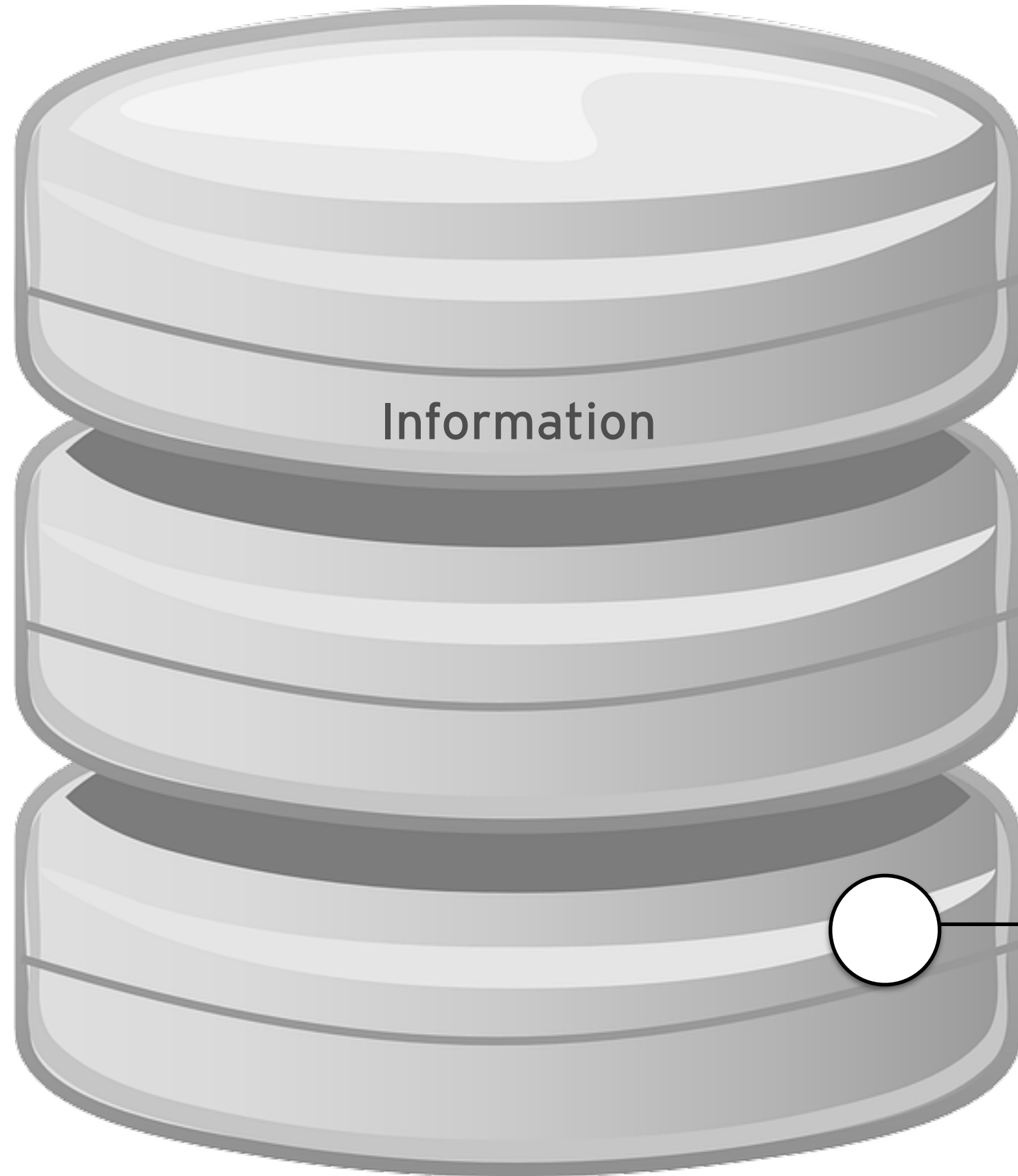
BIM

DATA

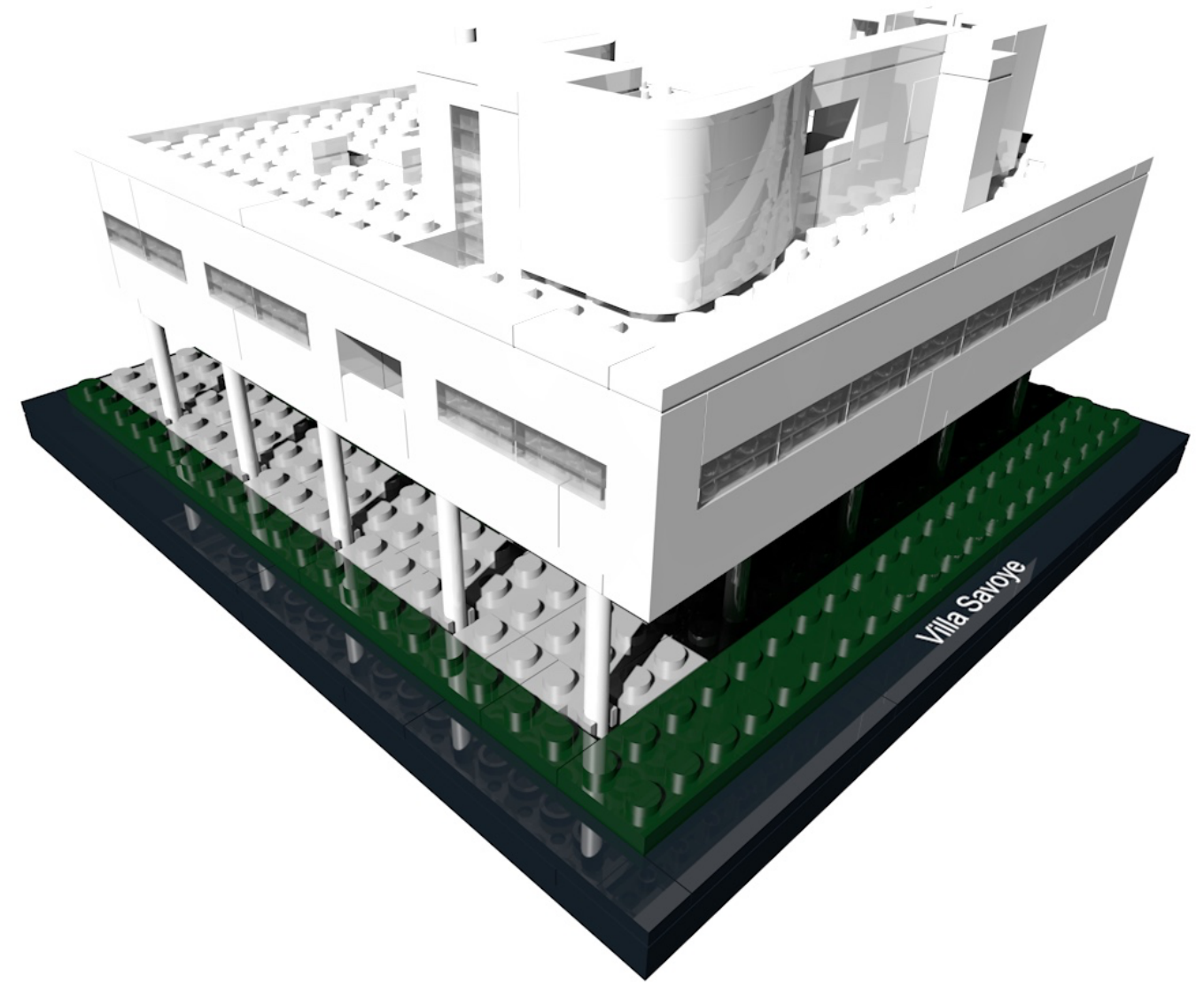
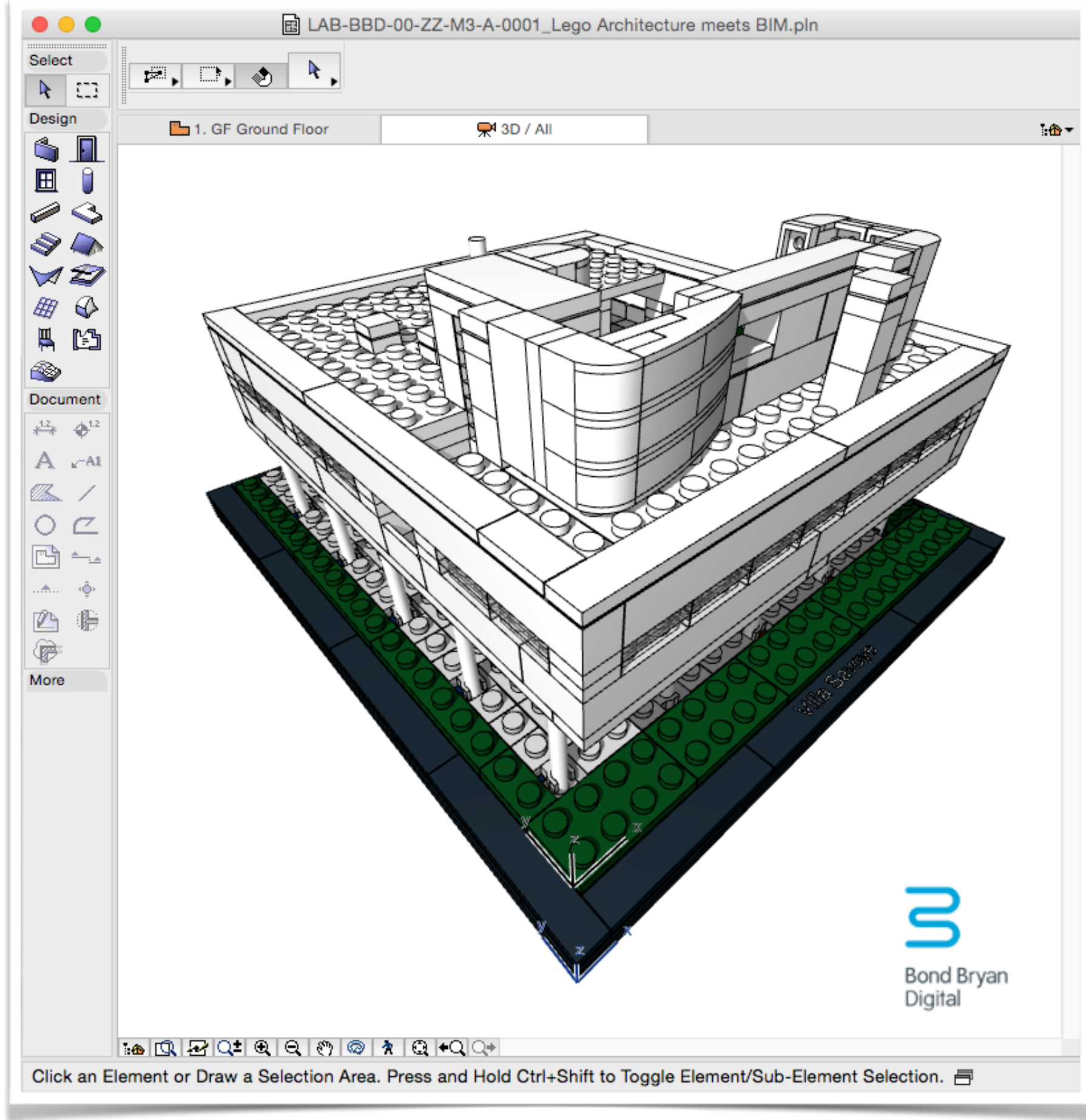
Building

Information

Model



Model View



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Data Display - 3D View

project originator volume level type role number status revision

LAB - BBD - 00 - ZZ - DR - A - 0006 S2 P01

Dimensions Dimension Label 20

Dimensions 1580 mm x 780 mm x 320 mm

ID & Name Identification and Property Label 20

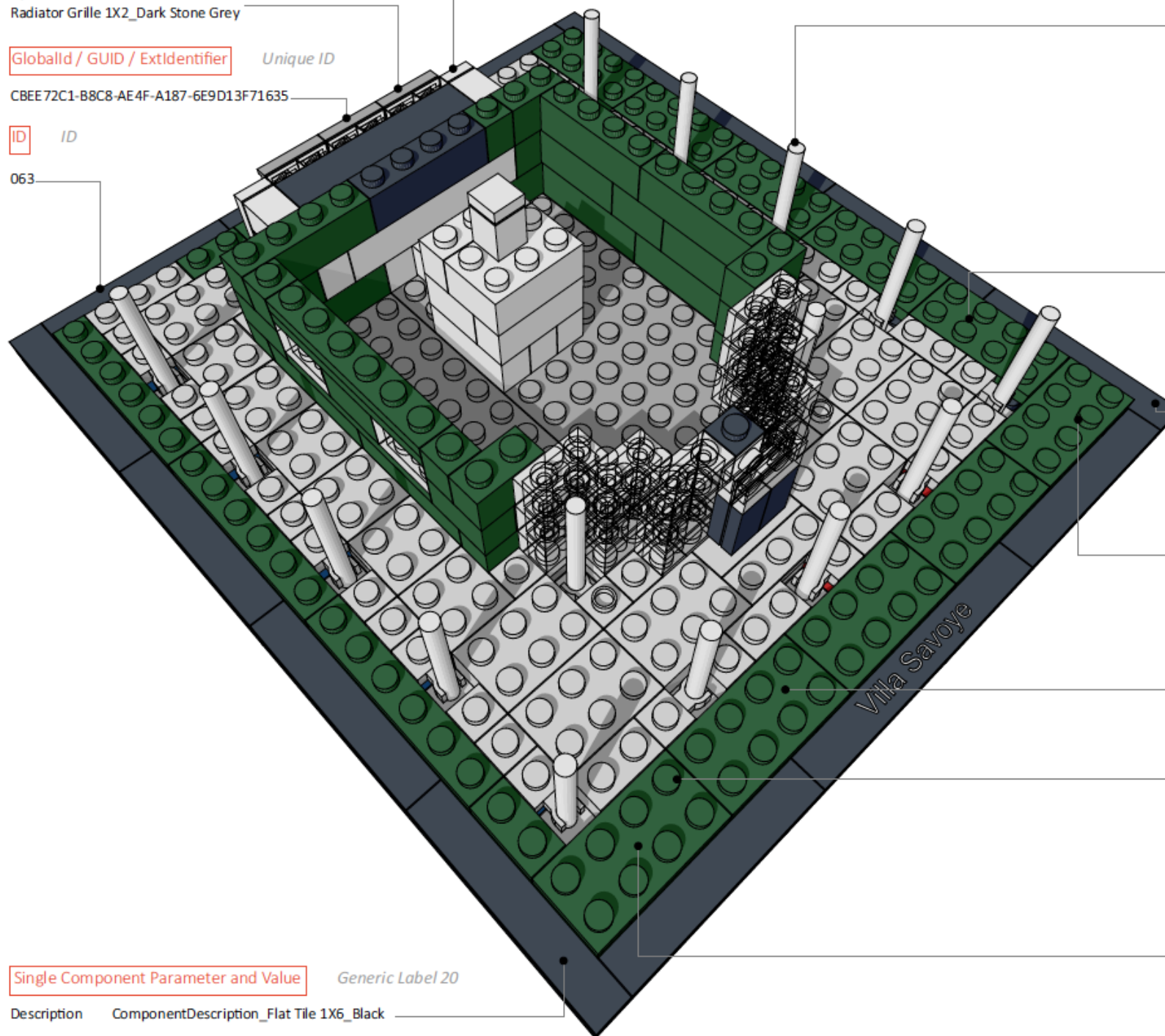
284
Radiator Grille 1X2_Dark Stone Grey

GlobalId / GUID / ExtIdentifier Unique ID

CBEE72C1-B8C8-AE4F-A187-6E9D13F71635

ID ID

063



Additional Pset_Lego (ARCHICAD Property Manager Data) Generic Label 20

| | |
|----------------------|---|
| AppearsIn | 74 Sets |
| BrickName | Light Sword - Blade |
| Category | SYSTEM: SIGNS, FLAGS AND POLES |
| ColourFamily | White |
| ColourType | Solid |
| DesignID | 30374 |
| ElementID | 4129836 |
| ExactColour | WHITE |
| InstructionPage | 76 |
| IntroducedIn | 2000 |
| OrderReplacementPart | http://brickset.com/parts/4219836 |
| Phase | Phase 057 |
| RGB | #F4F4F4 |

Core ARCHICAD Tags & Categories Data Generic Label 20

| | |
|---------------------------|--------------------------|
| ID | 097 |
| Structural Function | Non-Load-Bearing Element |
| Position | Undefined |
| Element Classification | Building Element Proxy |
| Renovation Status | New |
| Show On Renovation Filter | All Relevant Filters |

Other COBie fields Generic Label 20

| | |
|-------------|---------|
| AssetType | Movable |
| AssetStatus | n/a |

Core IFC Data with Property Set, Name and Value Generic Label 20 and Categories and Properties Label 20

| | |
|-----------------------------|--|
| IFC Type | IfcBuildingElementProxy |
| GlobalId (Attributes) | 3AwPBBCT6JvgtVWUGBxi0 |
| Name (Attributes) | ComponentName:098 |
| Description (Attributes) | ComponentDescription_Plate 2X4_Earth Green |
| ObjectType (Attributes) | BuildingElementProxy |
| Tag (Attributes) | CAE992CB-31D1-AF4F-9AB7-7E07902FBB00 |
| LayerName (Pset_Draughting) | A-0123-M_Step23 |

Single Value Generic Label 20

042DCDC1-9A38-244B-86B3-CDDEB993B211

2 Component Values Generic Label 20

| |
|--|
| ComponentName:197 |
| ComponentDescription_Plate 2X4_Earth Green |

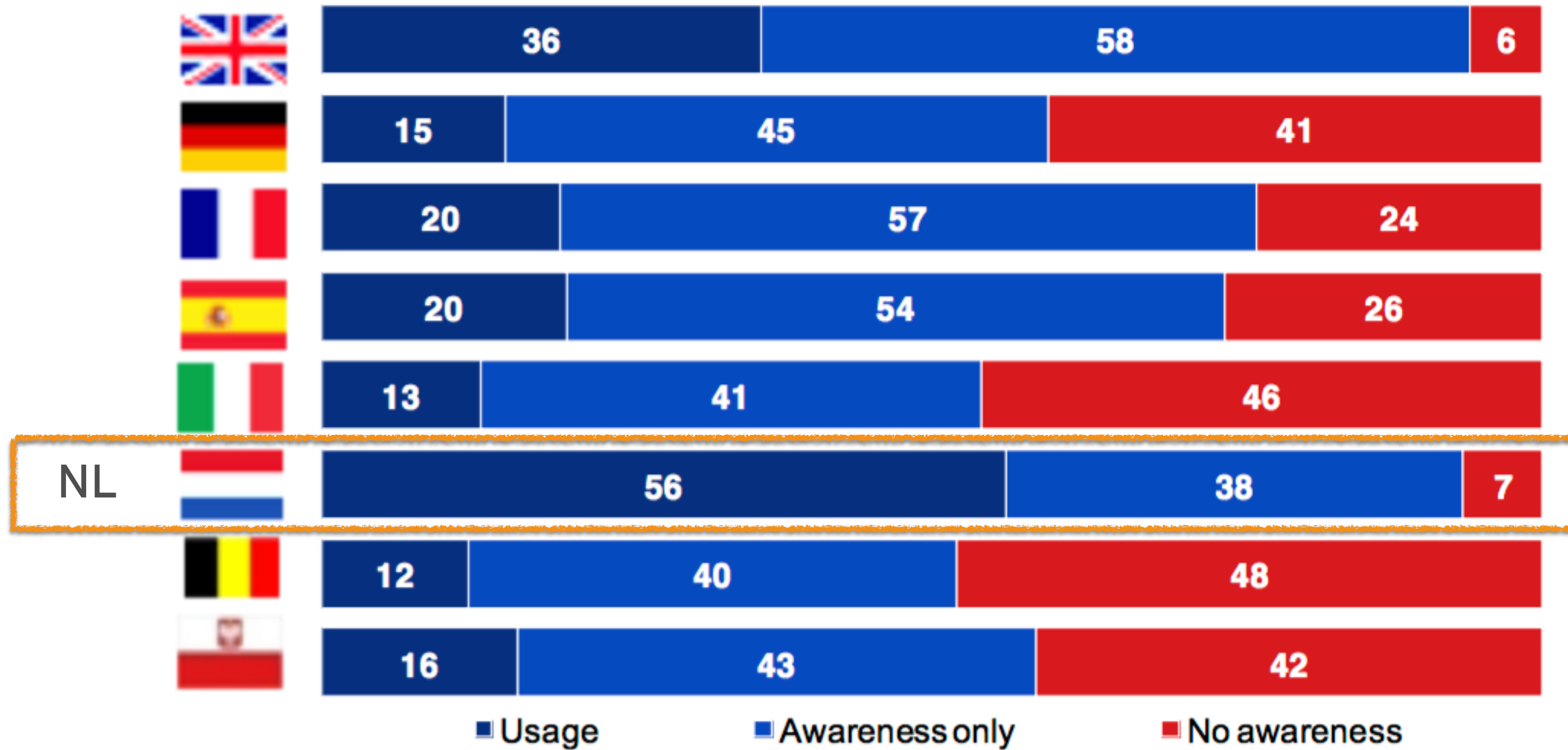
COBie Component Data Generic Label 20

| | |
|-------------------|--|
| Name | ComponentName:197 |
| Description | ComponentDescription_Plate 2X4_Earth Green |
| ObjectType | BuildingElementProxy |
| ExtIdentifier | 3Gf4orC9vFifzriagMaOu1 |
| SerialNumber | n/a |
| InstallationDate | 1900-12-31T23:59:59 |
| WarrantyStartDate | 1900-12-31T23:59:59 |
| TagNumber | n/a |
| BarCode | n/a |

Single Component Parameter and Value Generic Label 20

| | |
|-------------|--|
| Description | ComponentDescription_Flat Tile 1X6_Black |
|-------------|--|

BIM IN EUROPE 2016



20 GB / uur



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ONTWERP



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DUURZAAMHEID

ENERGIE

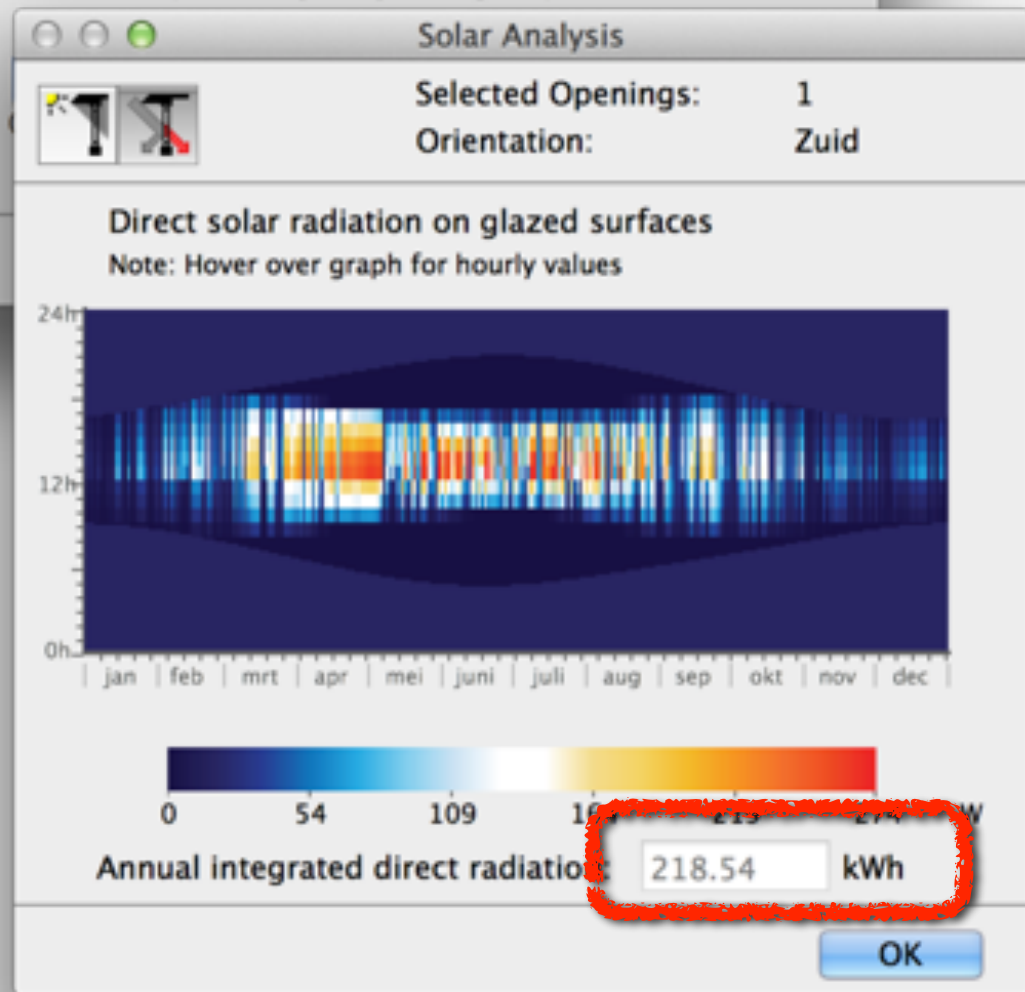
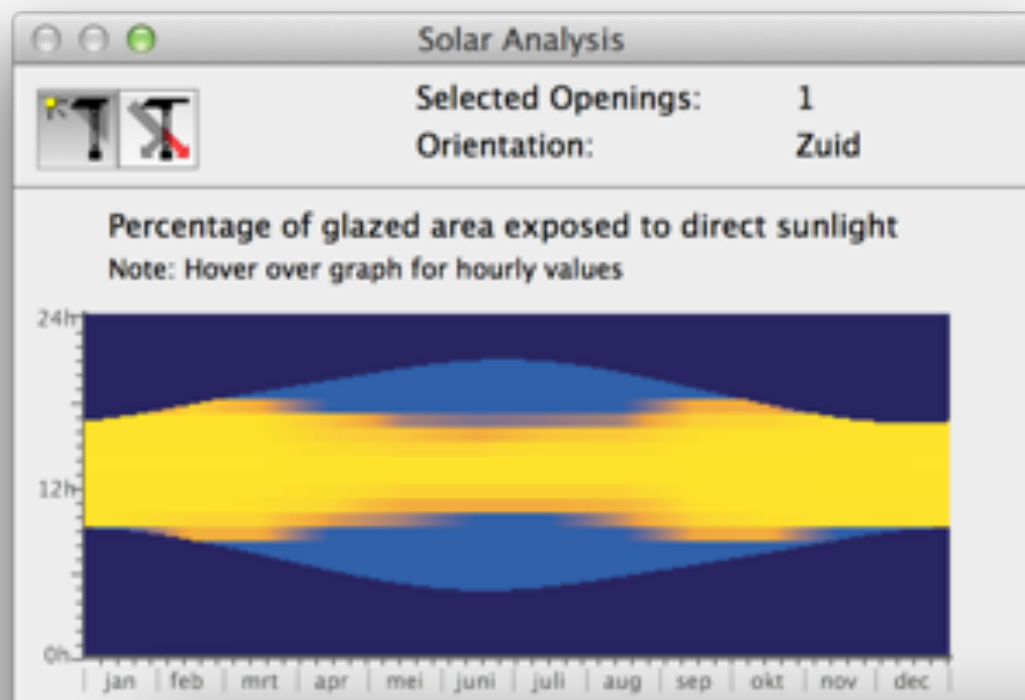
KUBUS

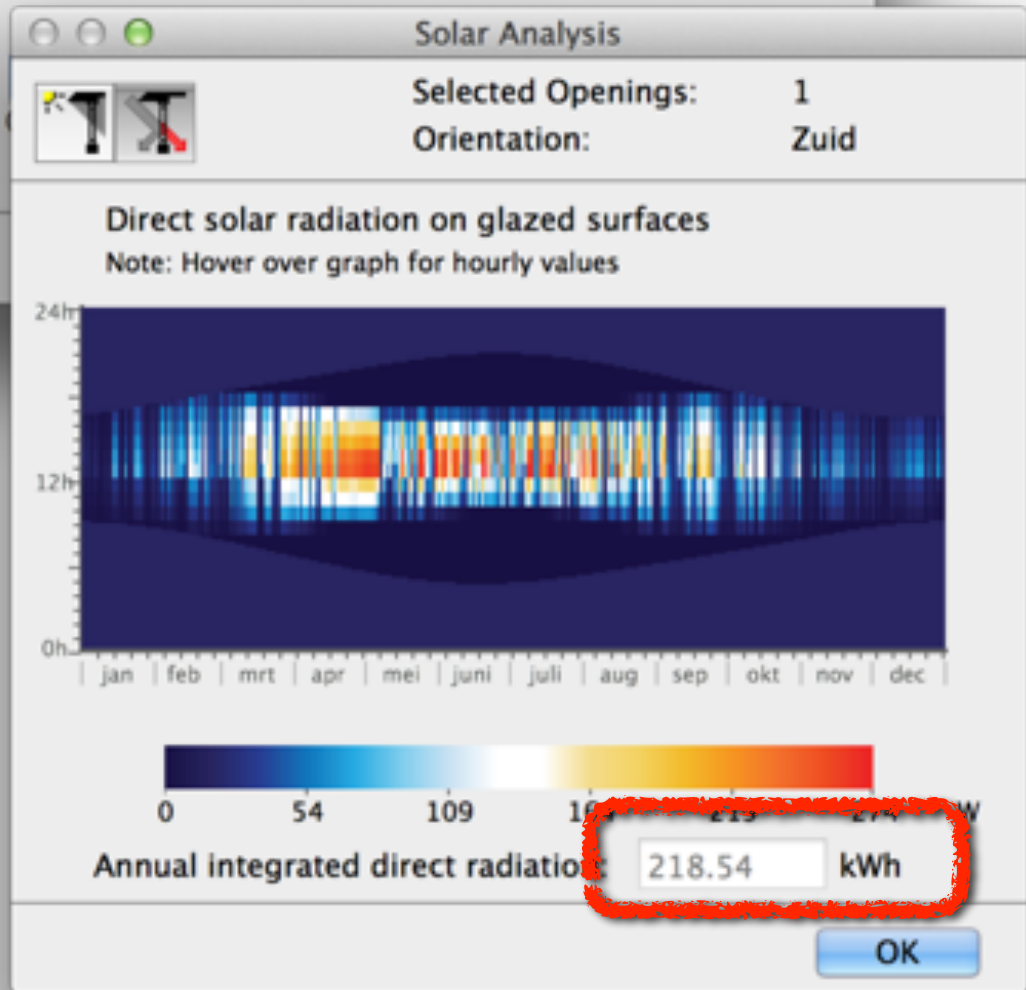
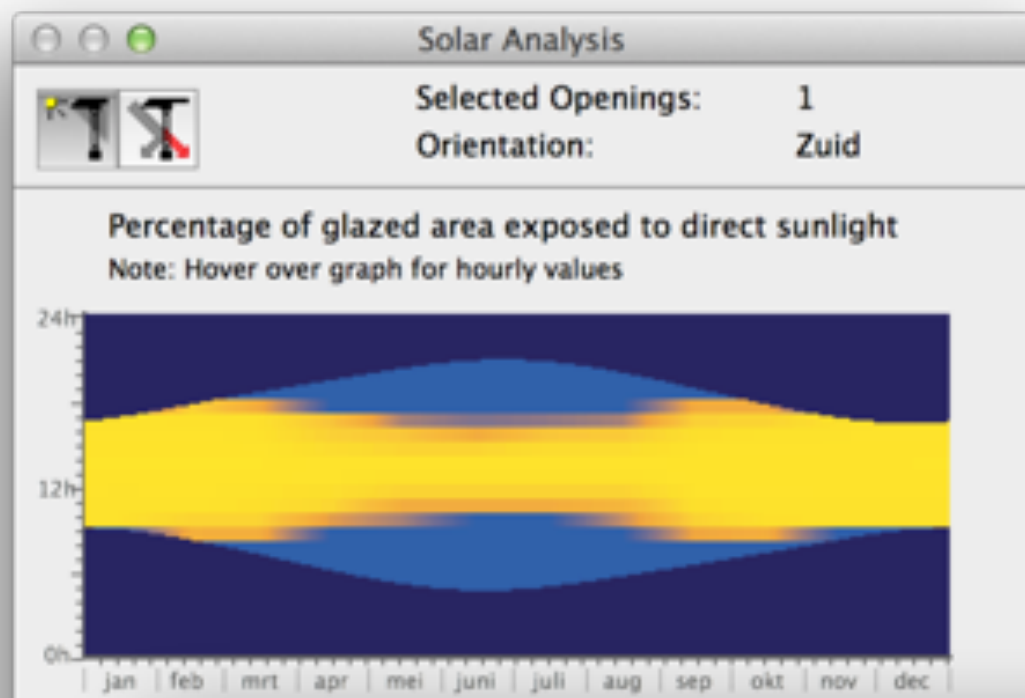
Solar Irradiation

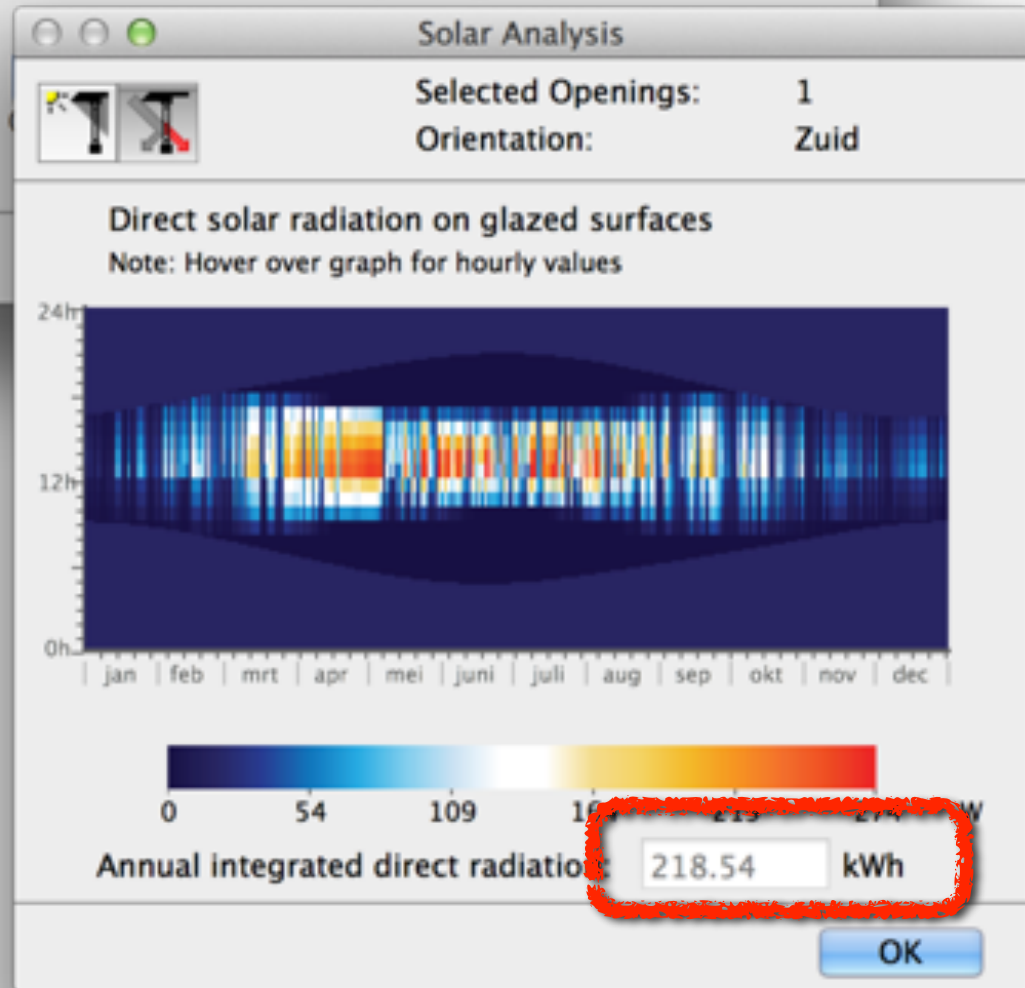
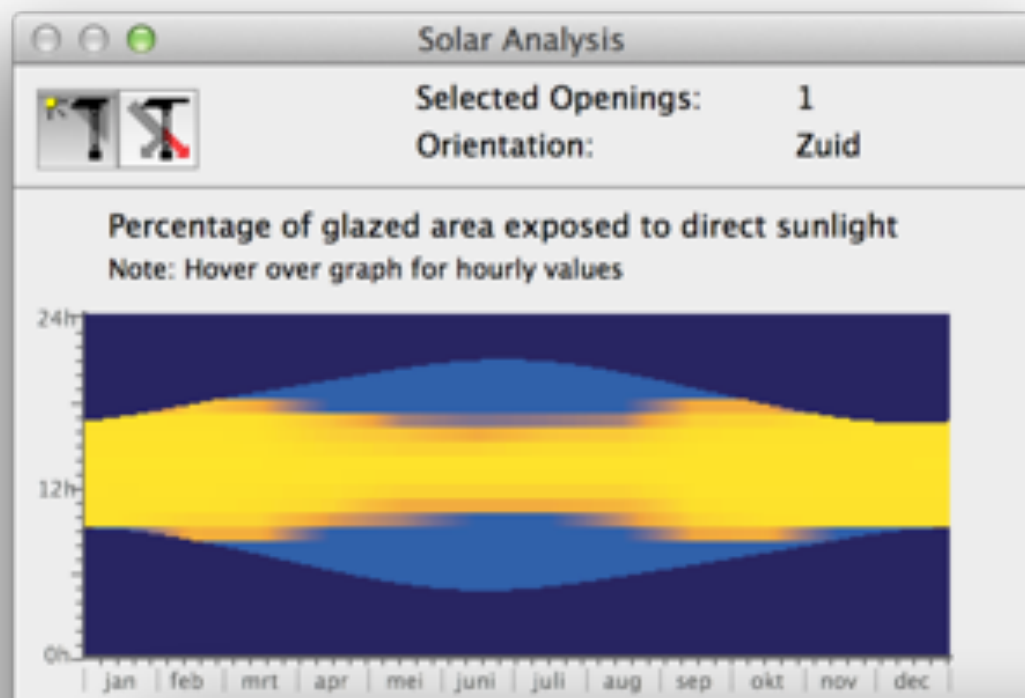


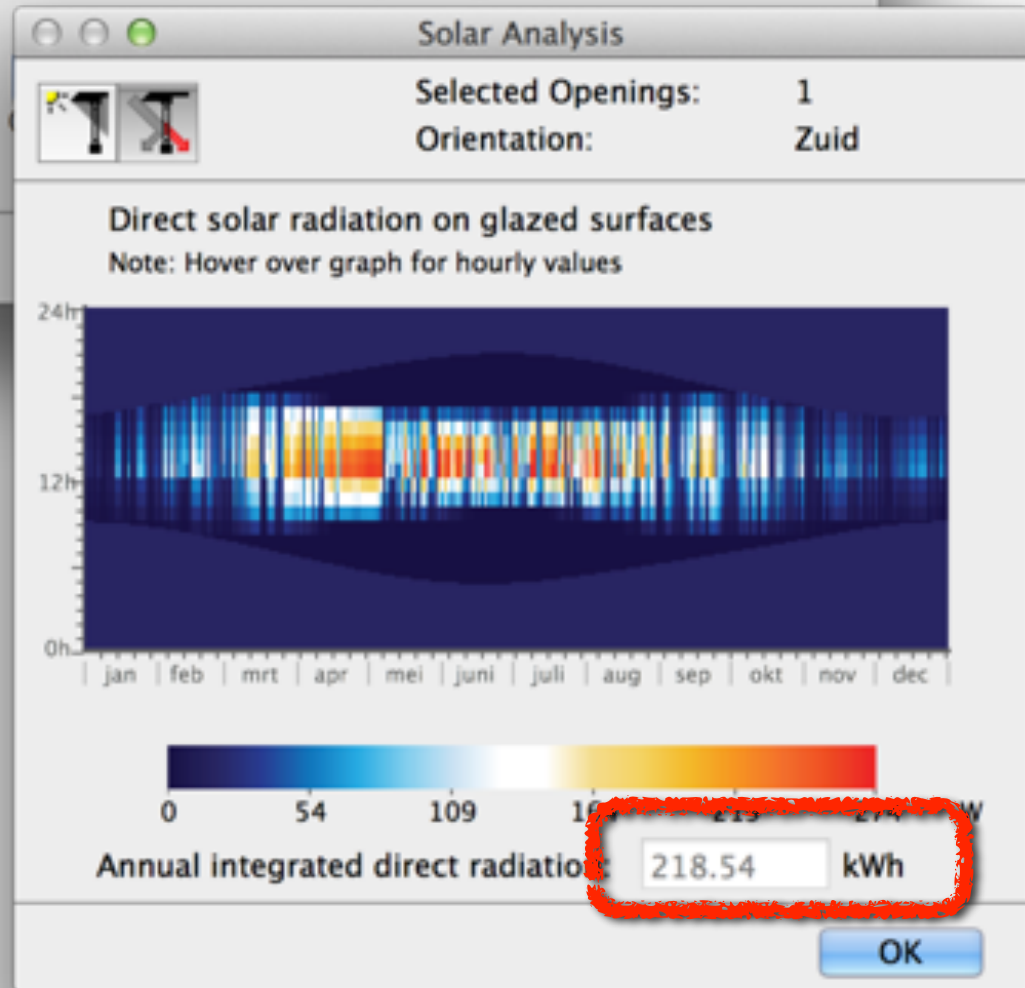
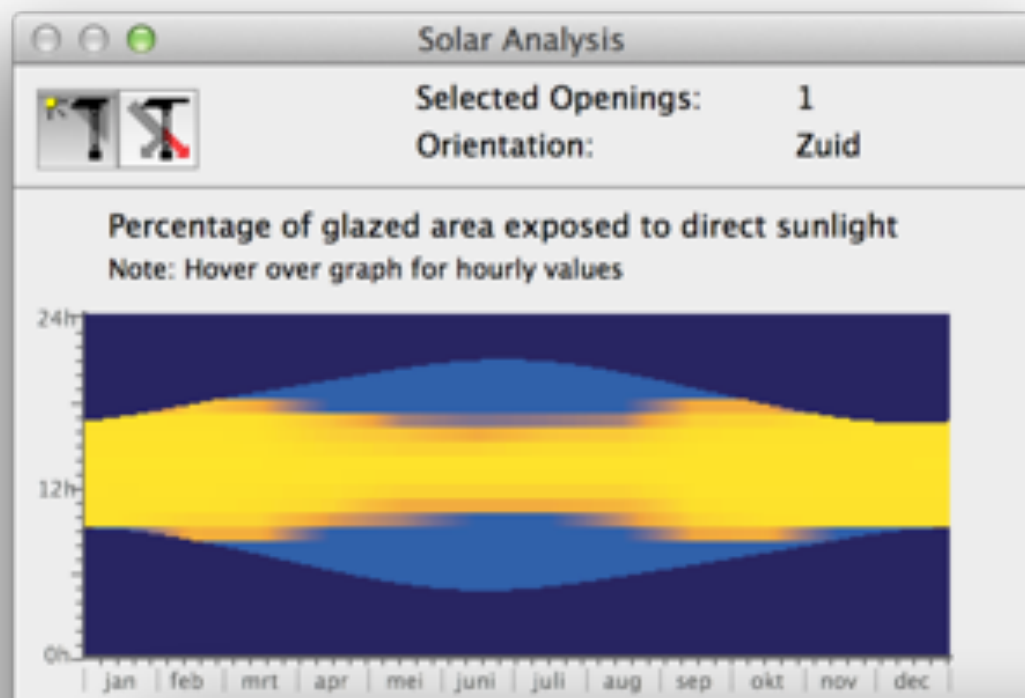
235,07 kWh

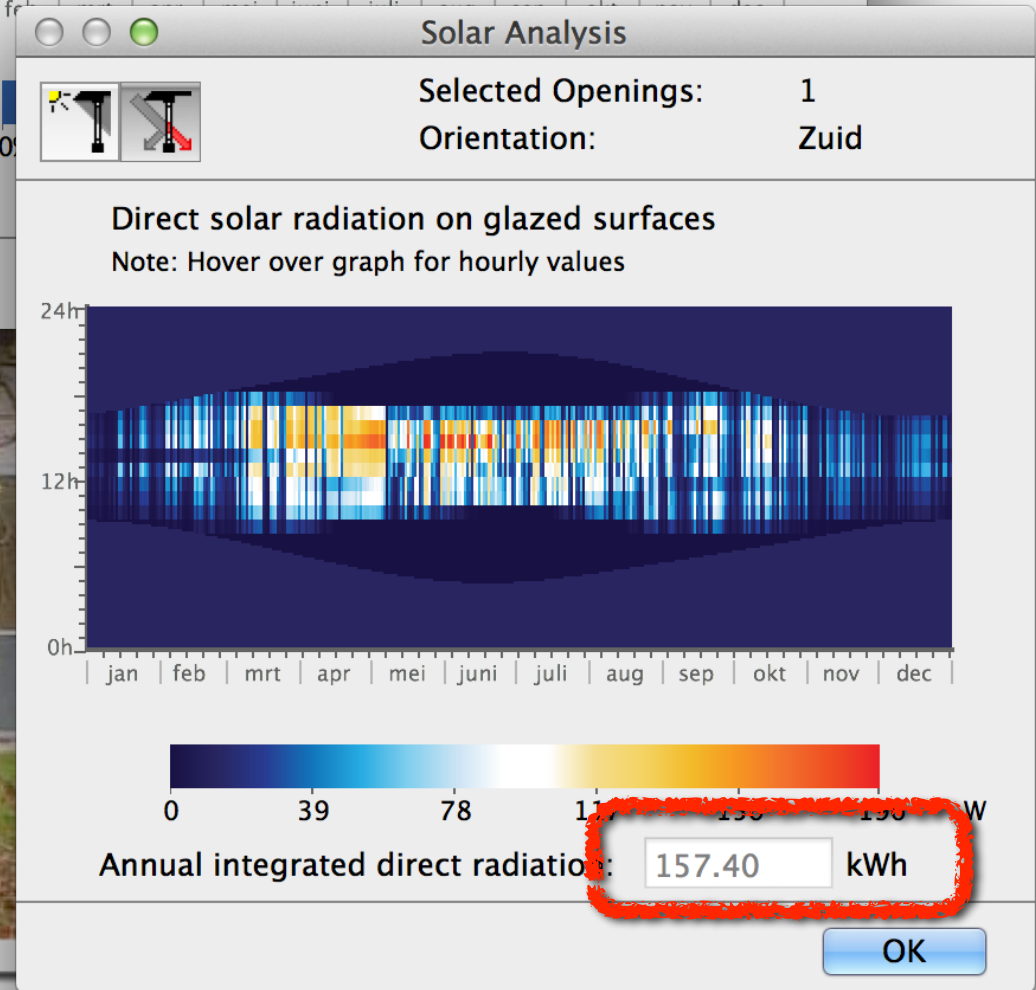
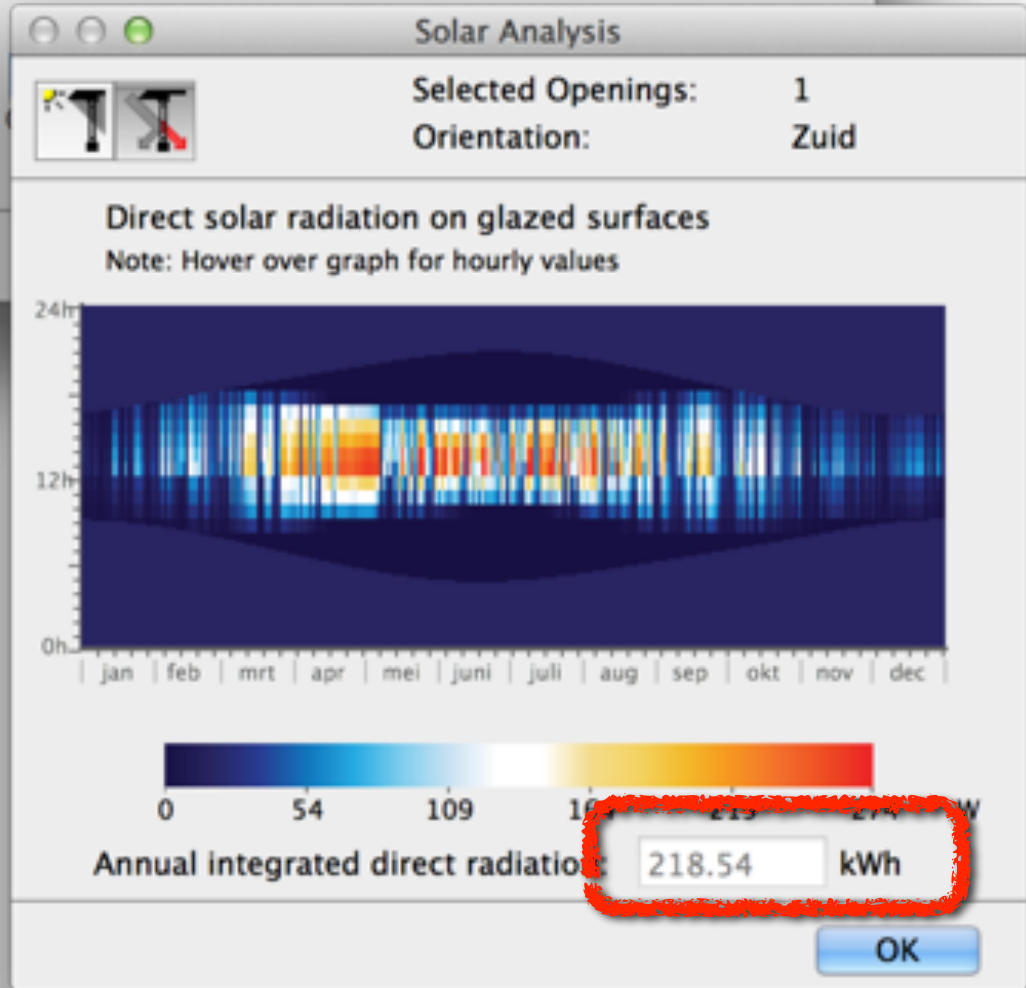
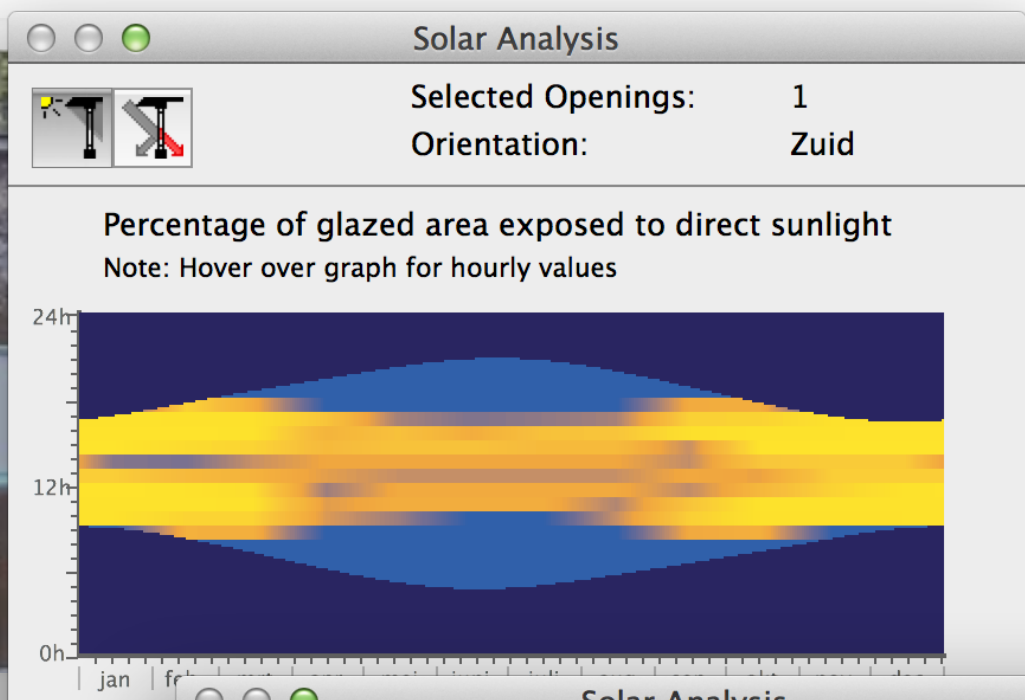
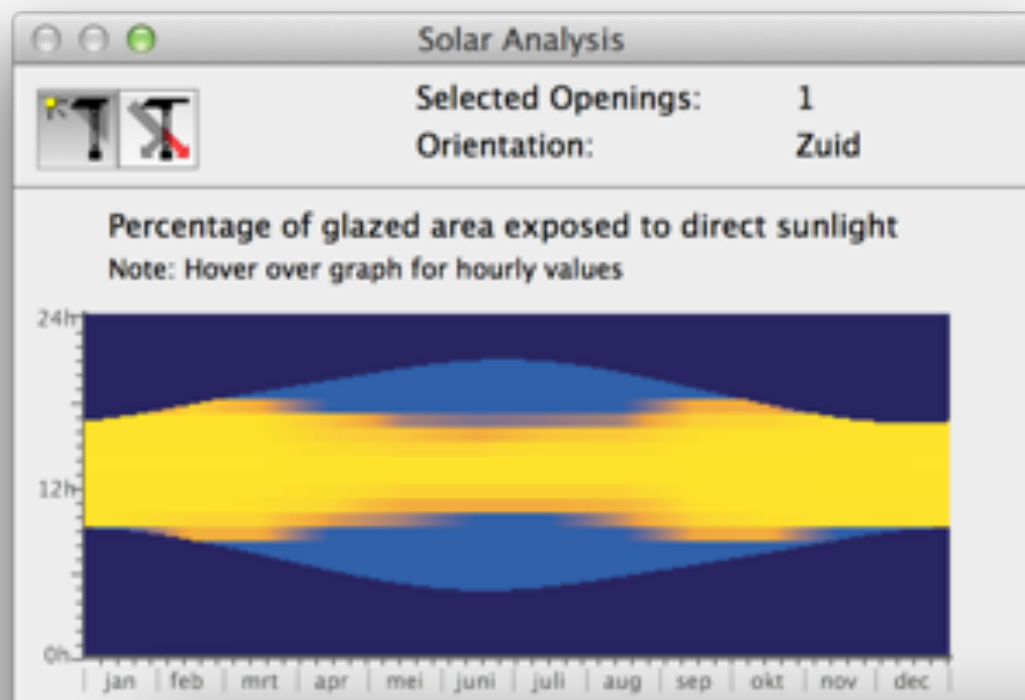
323,93 kWh



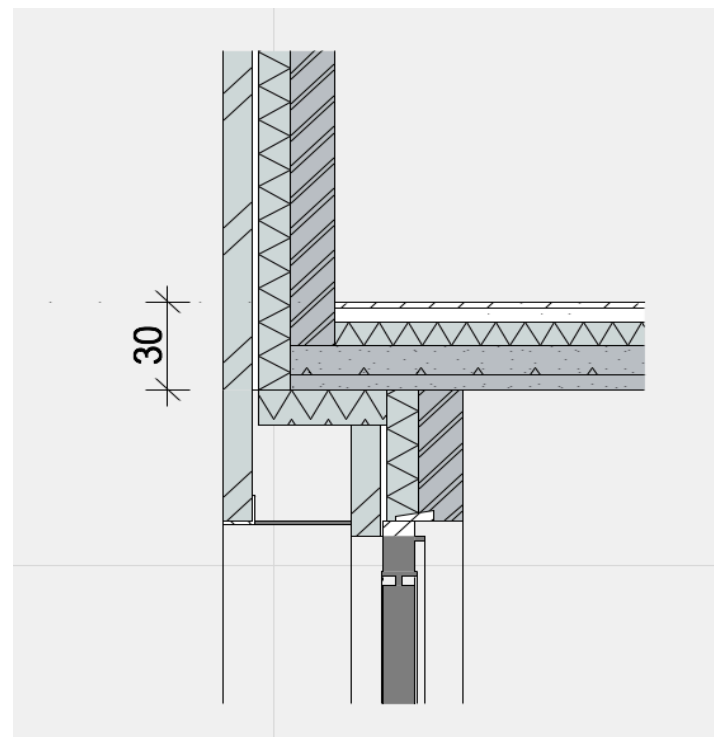
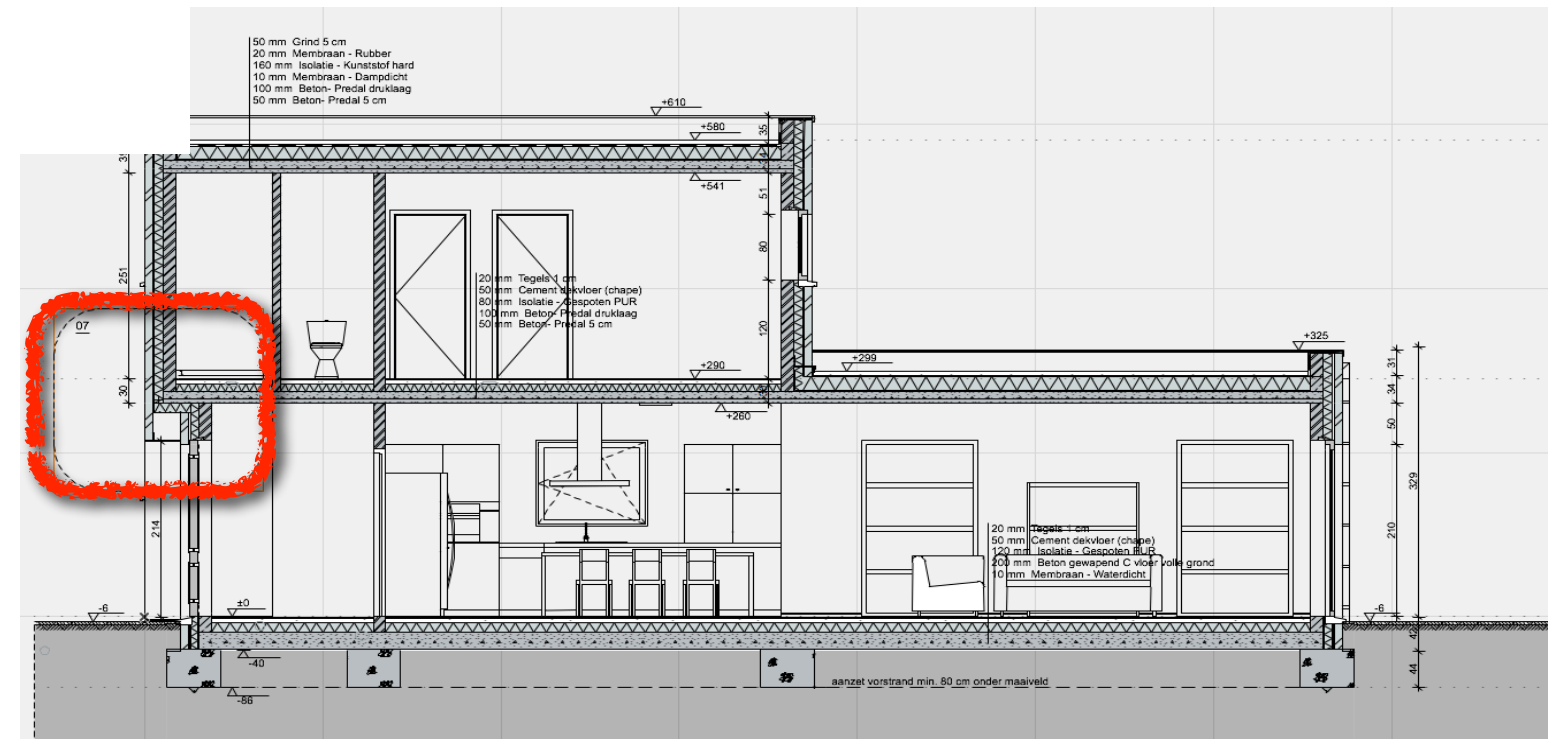
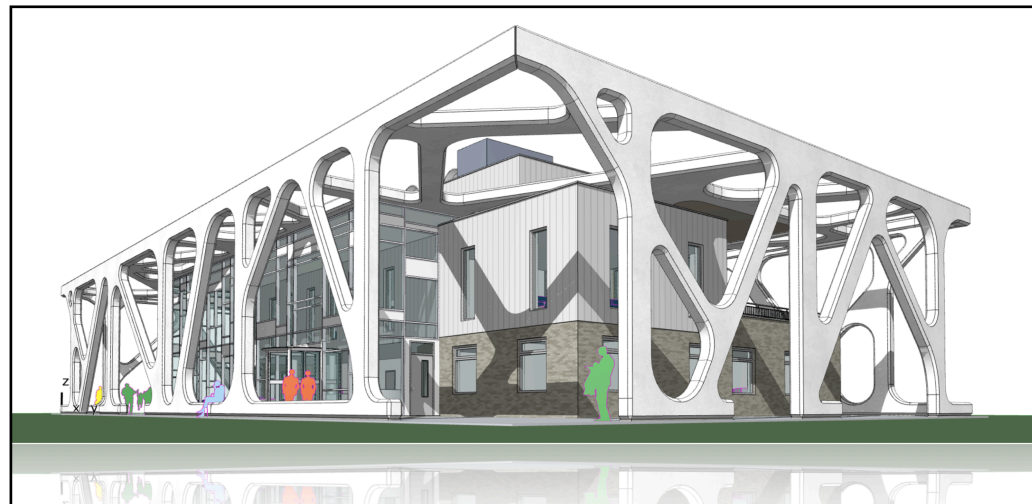








totale warmteverlies door koudebruggen 10% tot 40%

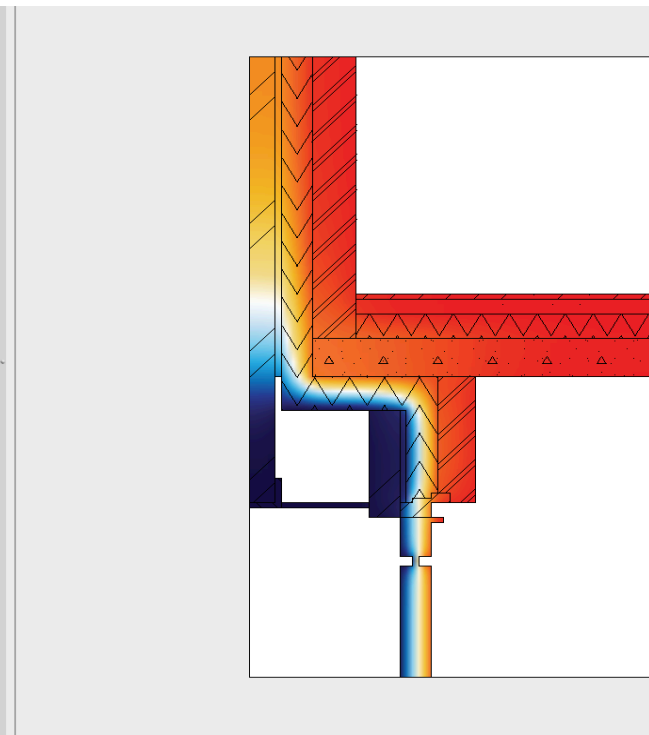


Show Results for:

- Temperatuur [°C]
- Energy flow [W/m²K]

Color scale: -10, -4, 2, 8, 14, 20

| | |
|-----------------------|------------|
| Psi-value: | 1,06 W/mK |
| Number of iterations: | 506 |
| Relative unbalance: | 0,000010 % |
| Asymmetry index: | 4,540675 % |

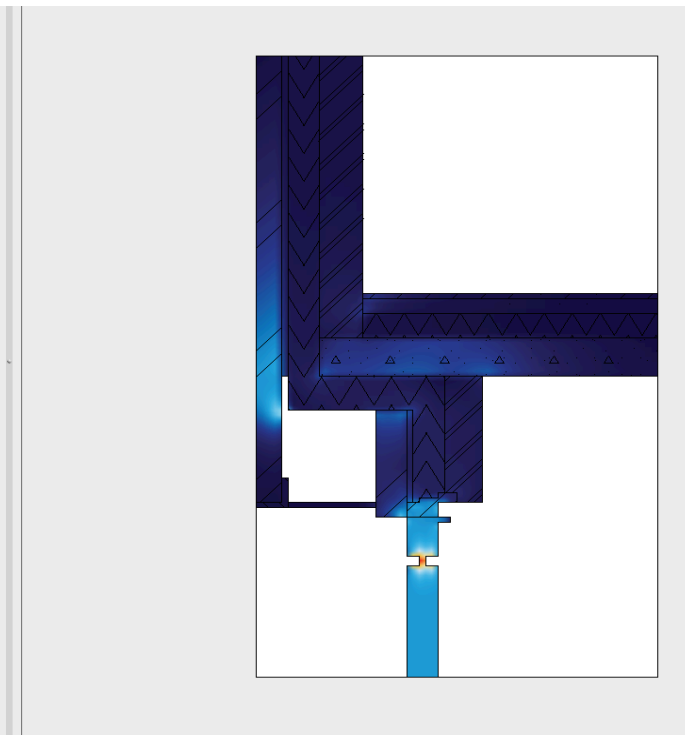


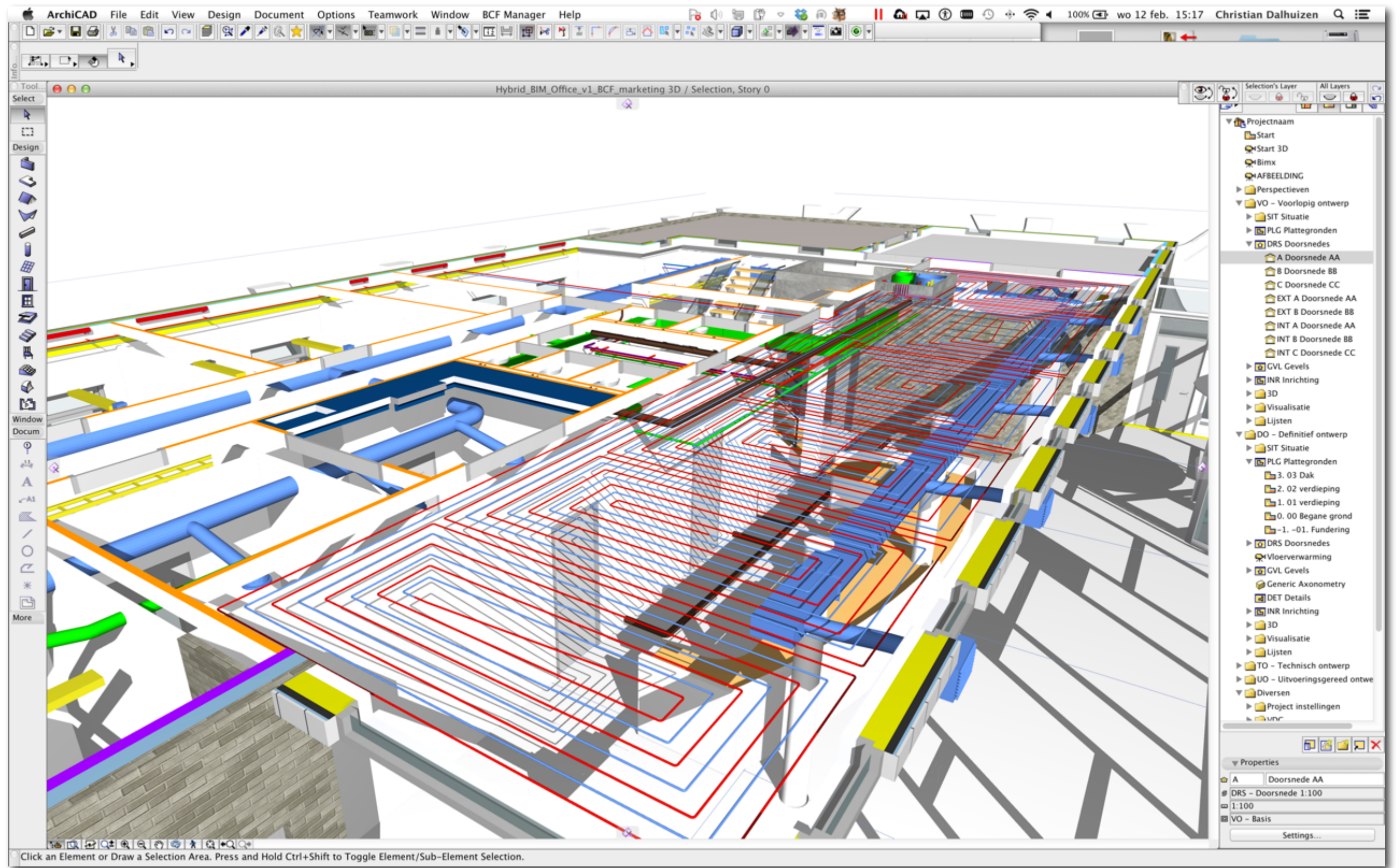
Show Results for:

- Temperatuur [°C]
- Energy flow [W/m²K]

Color scale: 0,00, 0,83, 1,65, 2,48, 3,30, 4,13

| | |
|-----------------------|------------|
| Psi-value: | 1,06 W/mK |
| Number of iterations: | 506 |
| Relative unbalance: | 0,000010 % |
| Asymmetry index: | 4,540675 % |





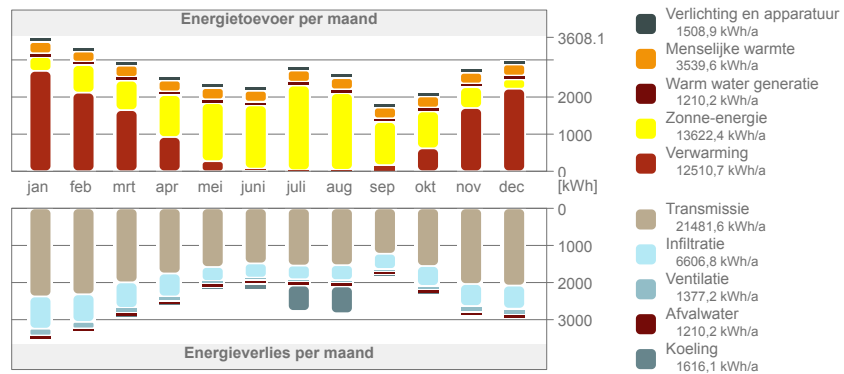
GRAPHISOFT.
ARCHICAD

KUBUS

Projectgegevens

| Algemene projectinformatie | | Warmteovergangswaarden U waarde [W/m²K] | |
|-----------------------------|-----------------------------|---|---------------|
| Projectnaam: | Bouw kangoeroewoning | Gebouwschil (gemiddeld): | 0,59 |
| Locatie: | Brecht | Vloeren: | 0,25 - 0,25 |
| Bron klimaatgegevens: | BEL_Brussels...510_IWEC.epw | Uitwendig: | 0,19 - 1,69 |
| Datum raming: | 1-apr.-2014 08:17:19 | Ondergrond: | - |
| | | Openingen: | 1,94 - 3,29 |
| Gebouweometrie | | Netto energie verarming: 51,45 kWh/m² | |
| Bruto vloeroppervlak: | 272,85 m² | Netto energie koeling: | 6,65 kWh/m² |
| Vloeropp. (geklimateerd): | 243,18 m² | Totaal netto energie: | 58,09 kWh/m² |
| Uitwendig transmissie opp.: | 402,30 m² | Energieverbruik: | 71,68 kWh/m² |
| Inhoud (geventileerd): | 633,47 m³ | Brandstofverbruik: | 20,89 kWh/m² |
| Glaspercentage: | 9 % | Energie Primair: | 118,03 kWh/m² |
| | | Kosten brandstof: | 1,46 EUR/m² |
| | | CO ₂ emissie: | 2,48 kg/m² |
| Gebouwschilprestaties | | | |
| Infiltratie bij 50Pa: | 2,40 VV/h | | |
| Warmtecapaciteit: | 485,36 J/m²K | | |

Energiebalans



Klimaatzones

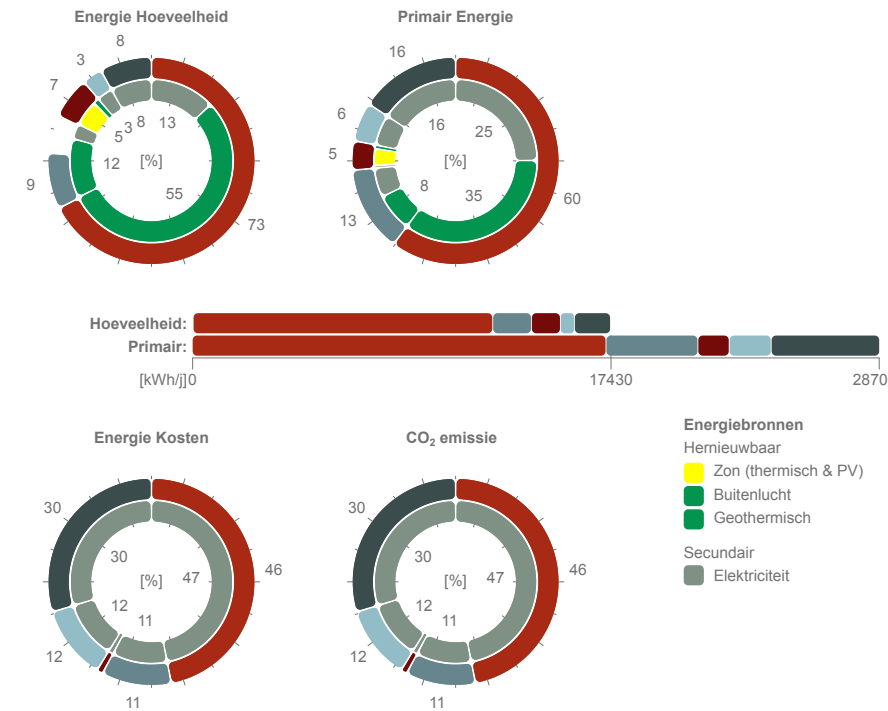
| Klimaatzone | Aantal ruimten | Functie | Bruto opp. m² | Volume m³ |
|------------------------|----------------|---------|---------------|---------------|
| 001 woonkamer-eetkamer | 4 | Woning | 78,74 | 188,88 |
| 003 Badkamers/Keuken | 5 | Woning | 47,63 | 106,77 |
| 004 circulatieruimte | 5 | Woning | 31,24 | 81,58 |
| 005 onverwarme ruimtes | 5 | Woning | 19,37 | 46,15 |
| 006 wasruimte | 3 | Woning | 21,01 | 46,68 |
| 002 slaapkamers | 4 | Woning | 68,65 | 150,48 |
| 010 Toiletten | 3 | Woning | 6,20 | 12,92 |
| Totaal: | 29 | | 272,85 | 633,47 |

Invloed op het milieu

| Type energiebron | Energiebron | Energie Primair kWh/j | CO ₂ emissie kg/j |
|------------------|----------------------|-----------------------|------------------------------|
| Hernieuwbaar | Zon (thermisch & PV) | 954 | 0 |
| | Buitenlucht | 2171 | 0 |
| | Geothermisch | 10334 | 0 |
| Secundair | Elektriciteit | 15243 | 603 |
| Totaal: | | 28703 | 603 |

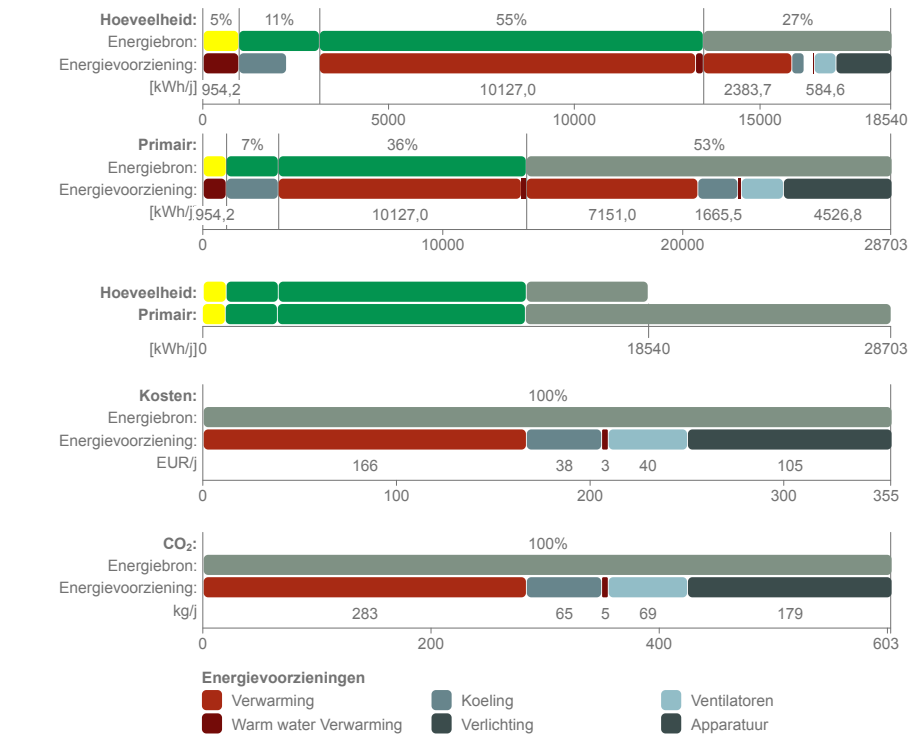
Energieverbruik per voorziening

| Voorziening | Energie Hoeveelheid kWh/j | Primair kWh/j | Kosten EUR/j | CO ₂ emissie kg/j |
|--------------------------|---------------------------|---------------|--------------|------------------------------|
| Verwarming | 12510 | 17278 | 166 | 283 |
| Koeling | 1616 | 3836 | 38 | 65 |
| Warm water | 1210 | 1307 | 3 | 5 |
| Ventilatoren | 584 | 1753 | 40 | 69 |
| Verlichting & apparatuur | 1508 | 4526 | 105 | 179 |
| Totaal: | 17430 | 28703 | 355 | 603 |



Energieverbruik per bron

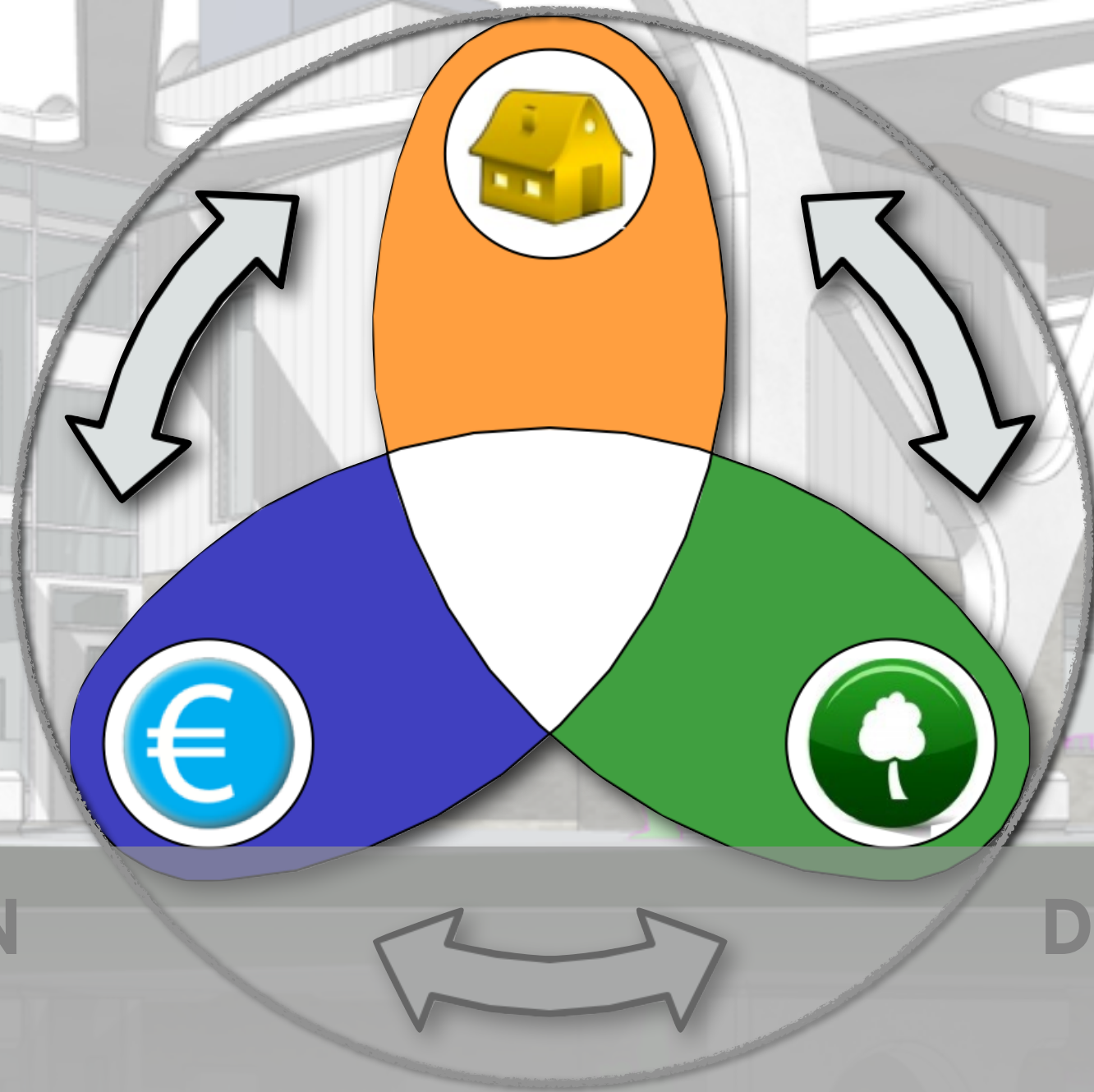
| Type energiebron | Energiebron | Energie Hoeveelheid kWh/j | Primair kWh/j | Kosten EUR/j | CO ₂ emissie kg/j |
|------------------|----------------------|---------------------------|---------------|--------------|------------------------------|
| Hernieuwbaar | Zon (thermisch & PV) | 954 | 954 | | 0 |
| | Buitenlucht | 2171 | 2171 | n.v.t. | 0 |
| | Geothermisch | 10334 | 10334 | | 0 |
| Secundair | Elektriciteit | 5081 | 15243 | 355 | 603 |
| Totaal: | | 18540 | 28703 | 355 | 603 |



Export to gbXML...
 Export to PHPP...
 Export to SBEM...
 Export to VIP-Energy...
 Save as Baseline Building...



ONTWERP

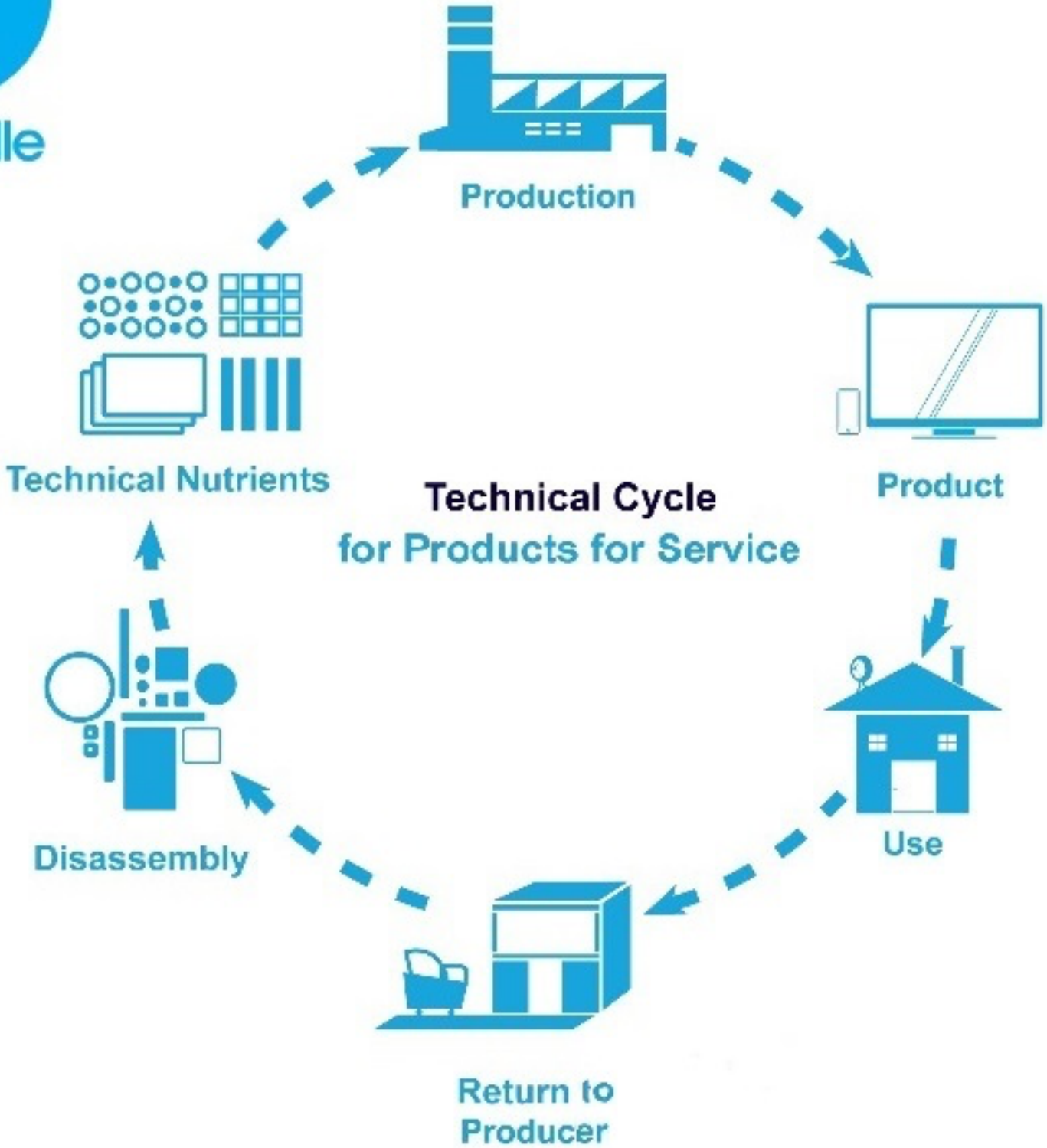
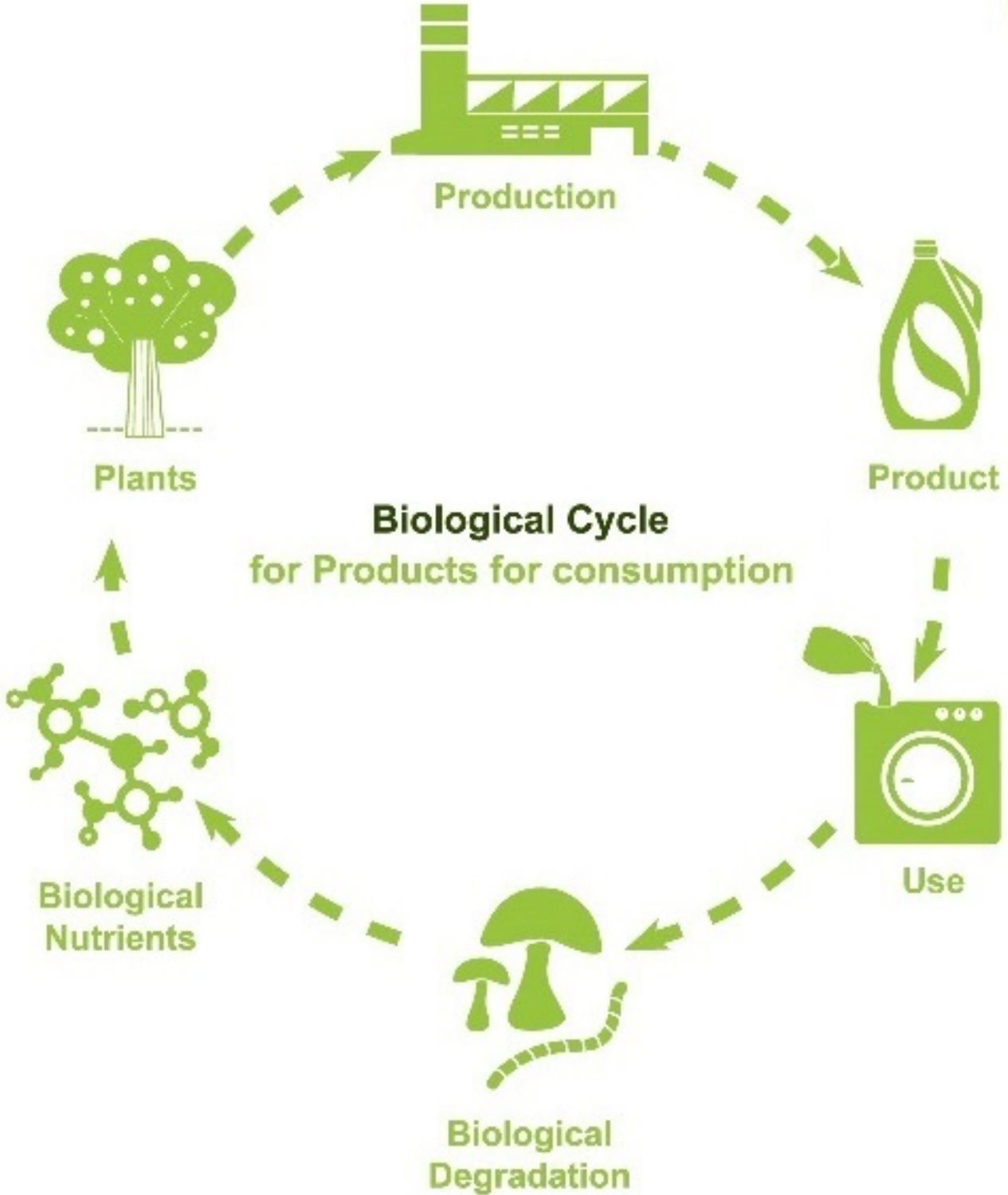


KOSTEN

DUURZAAMHEID

MATERIALEN

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BUILDINGS AS MATERIAL BANKS

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An architectural rendering of a building featuring a traditional white facade with a gabled roof and a modern glass extension. The building is set in a lush green environment with trees and a paved walkway. A person in a suit is visible in the foreground on the left, and a street with cars is visible in the background on the right.

**winnaar award
duurzame architectuur 2013**

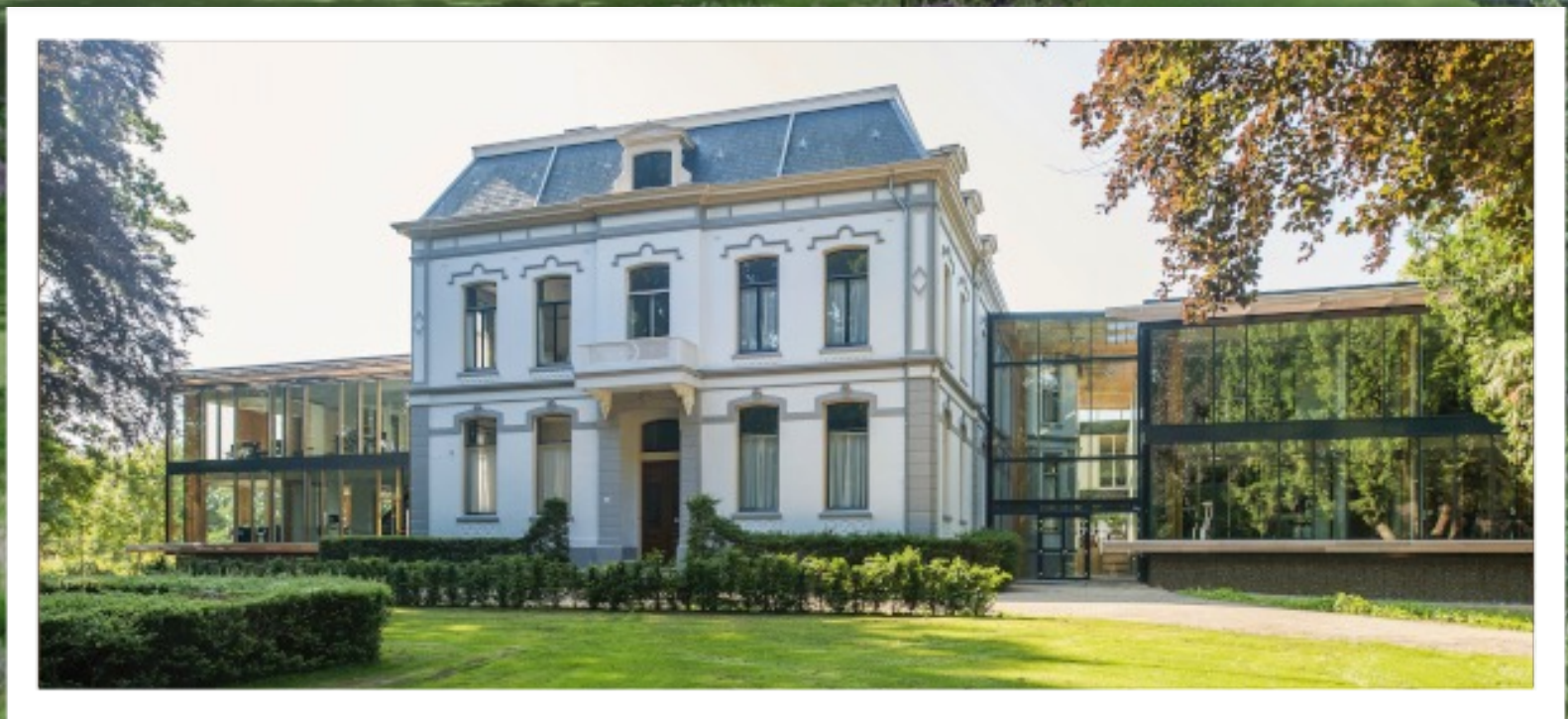
KUBUS

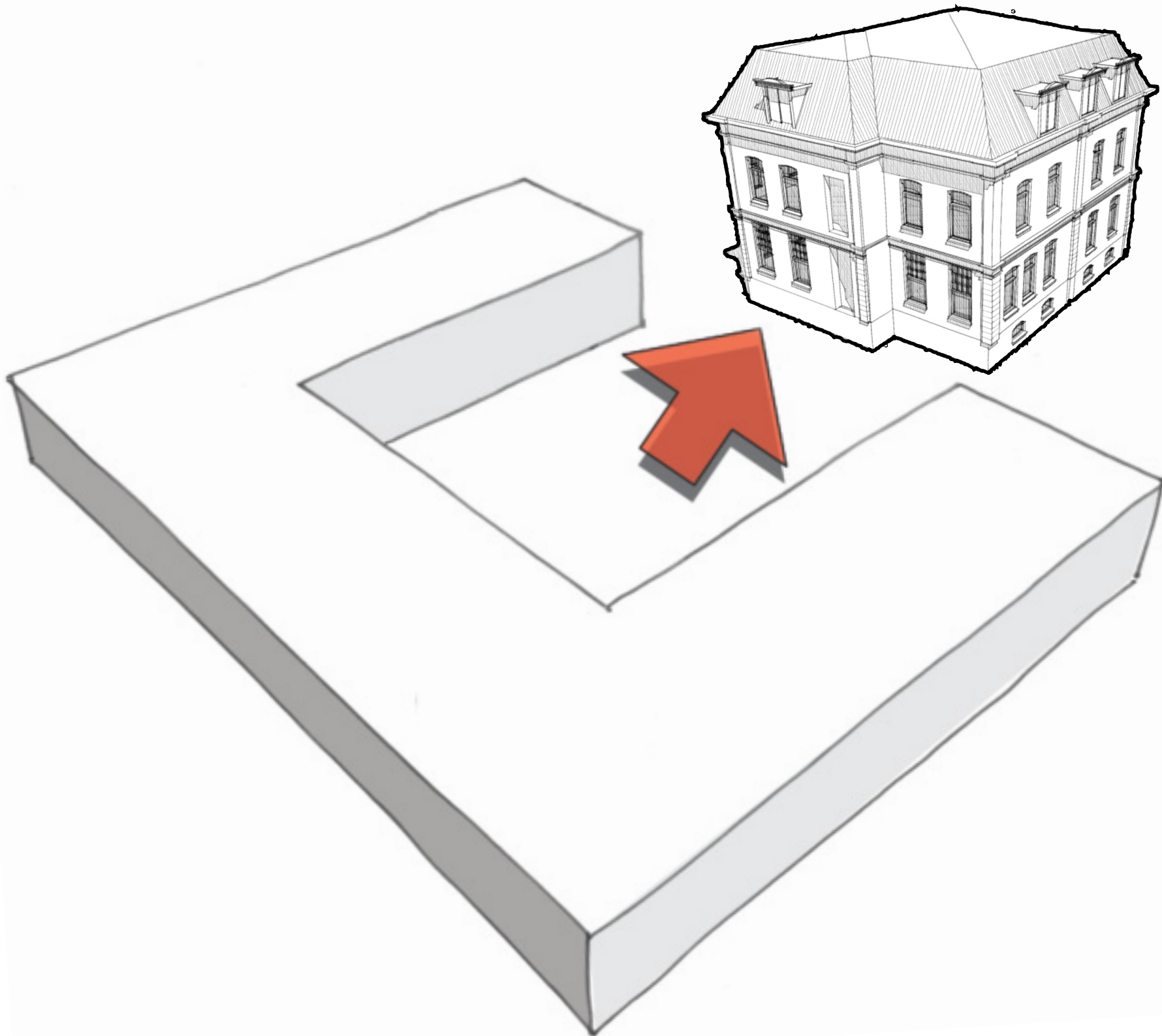


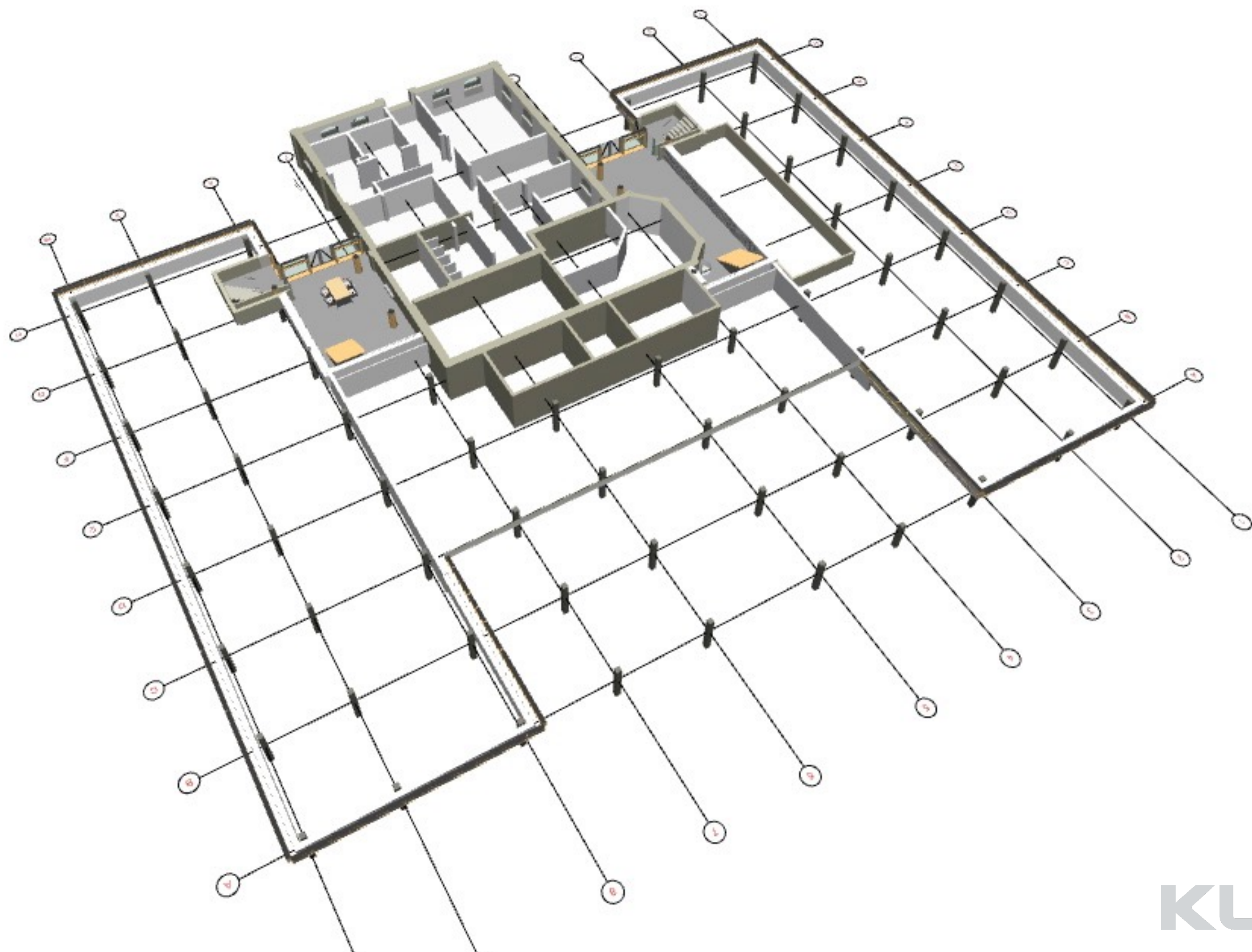
**winnaar award
duurzame architectuur 2013**

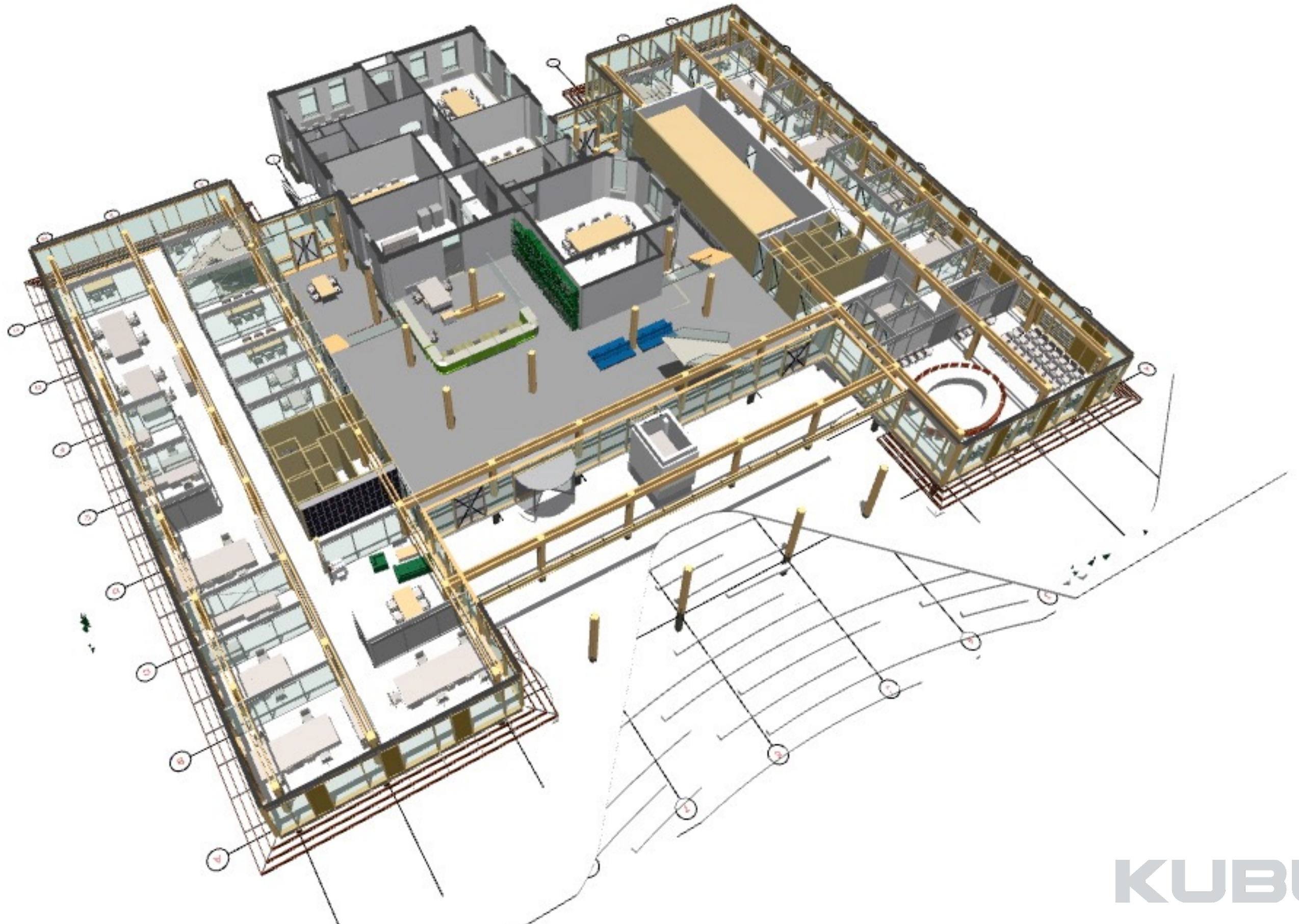


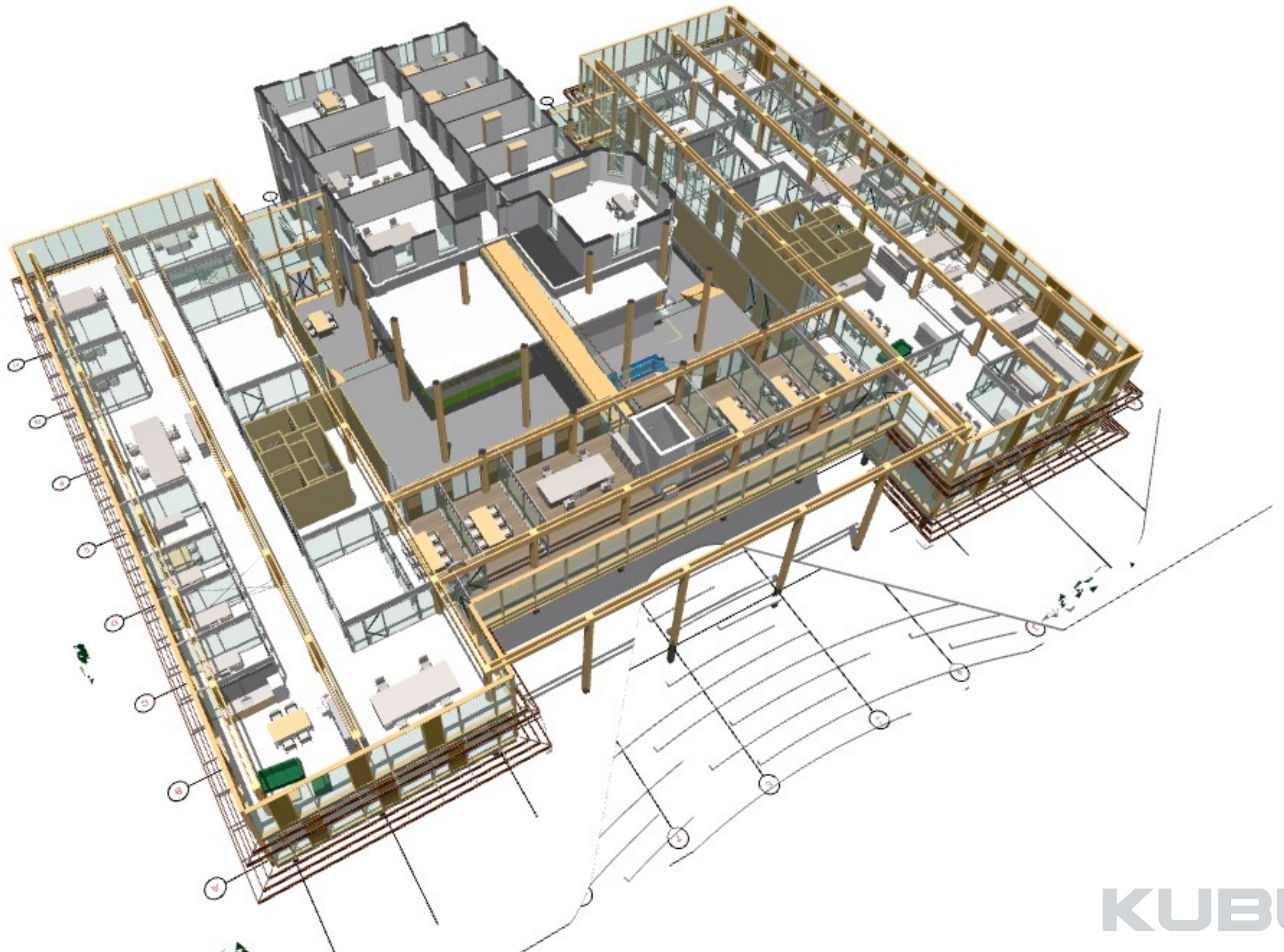
**winnaar award
duurzame architectuur 2013**

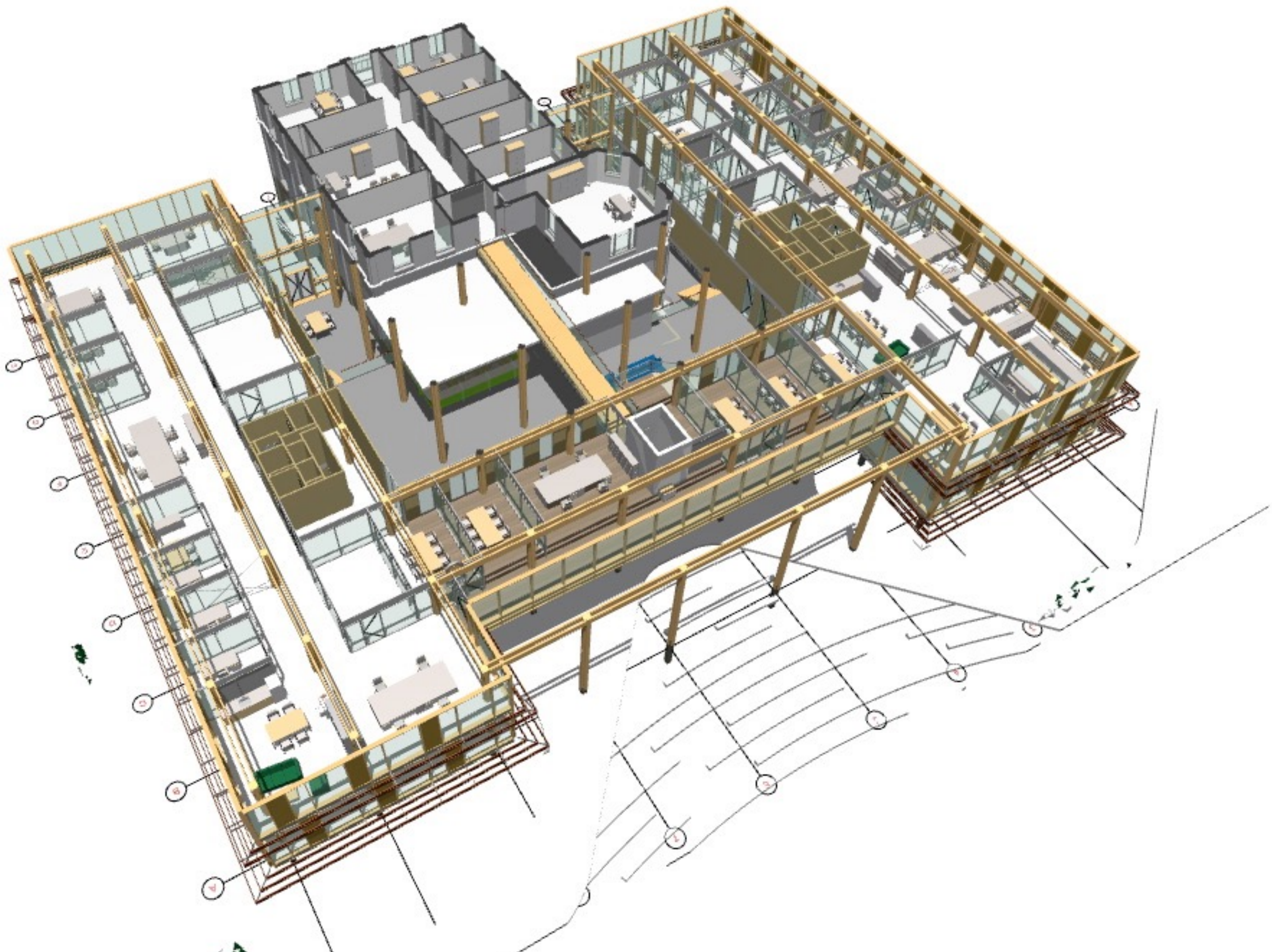


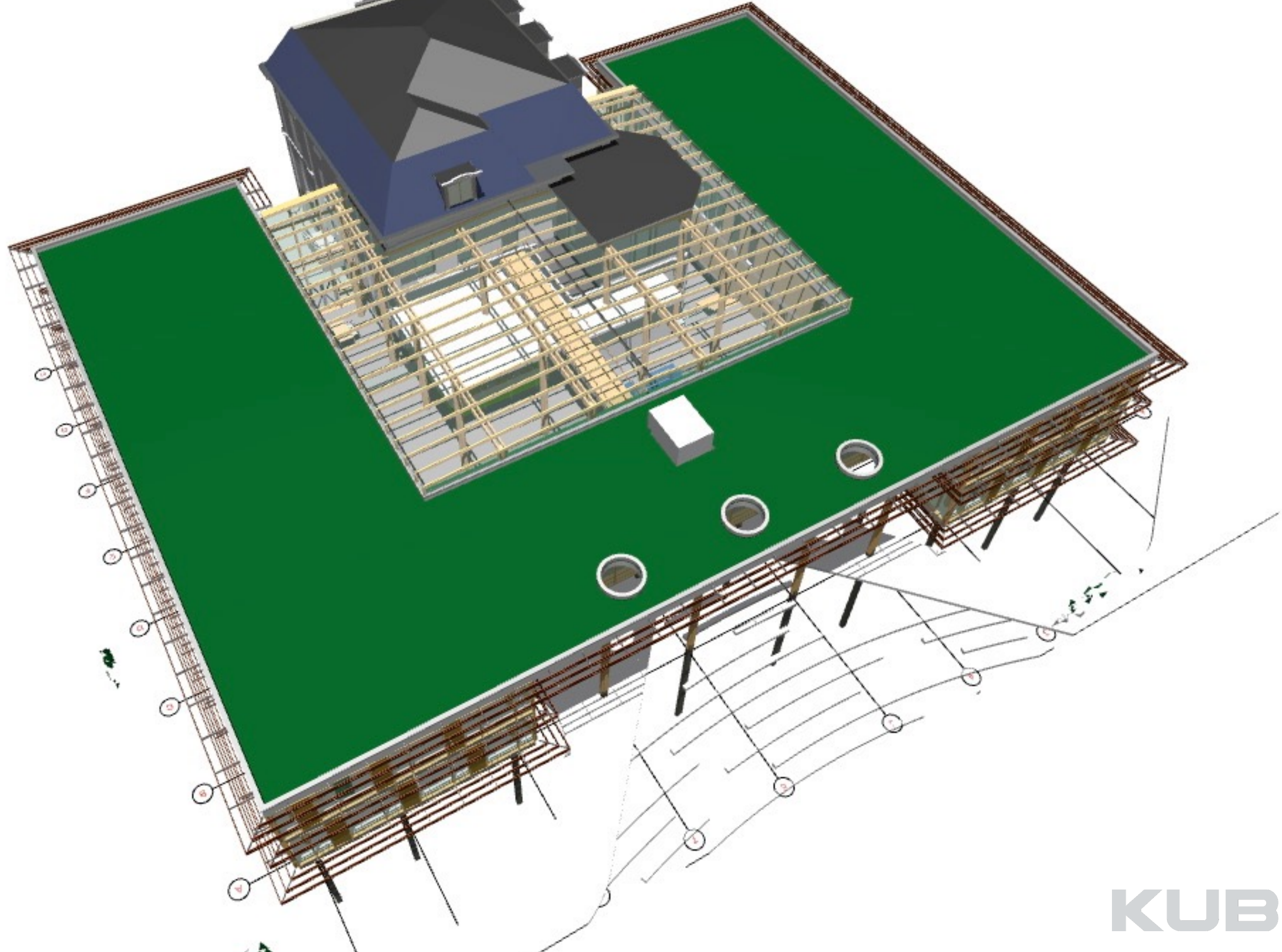














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glaskap - Brakel Atmos

groendak - Mostert de Winter

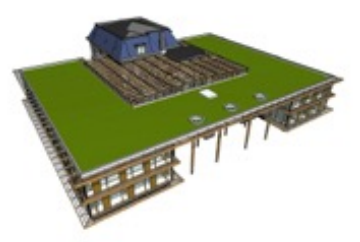
inbouw - Van Brakel Interieur

houtconstructie - GLC

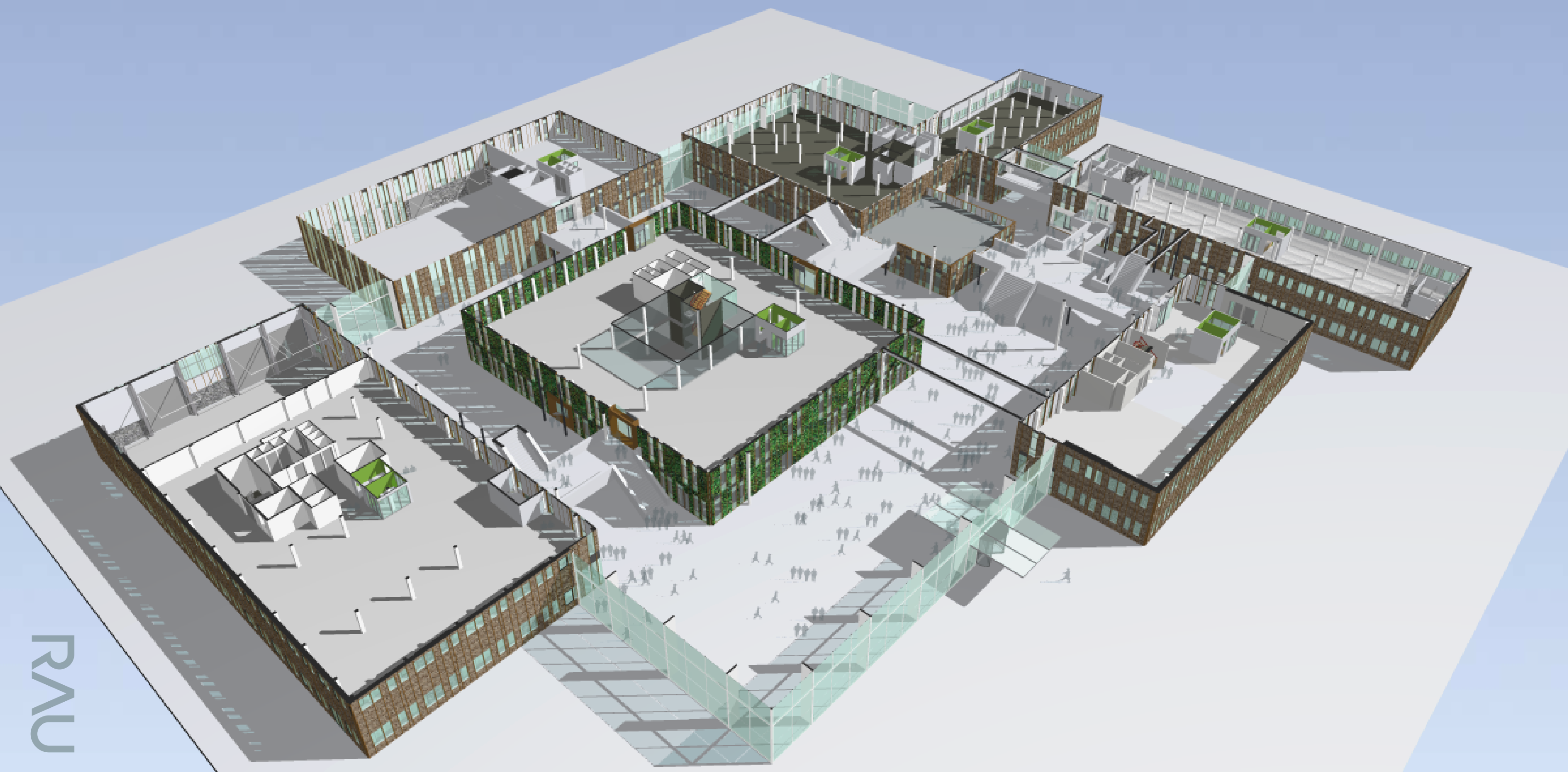
gevel - Oskomera

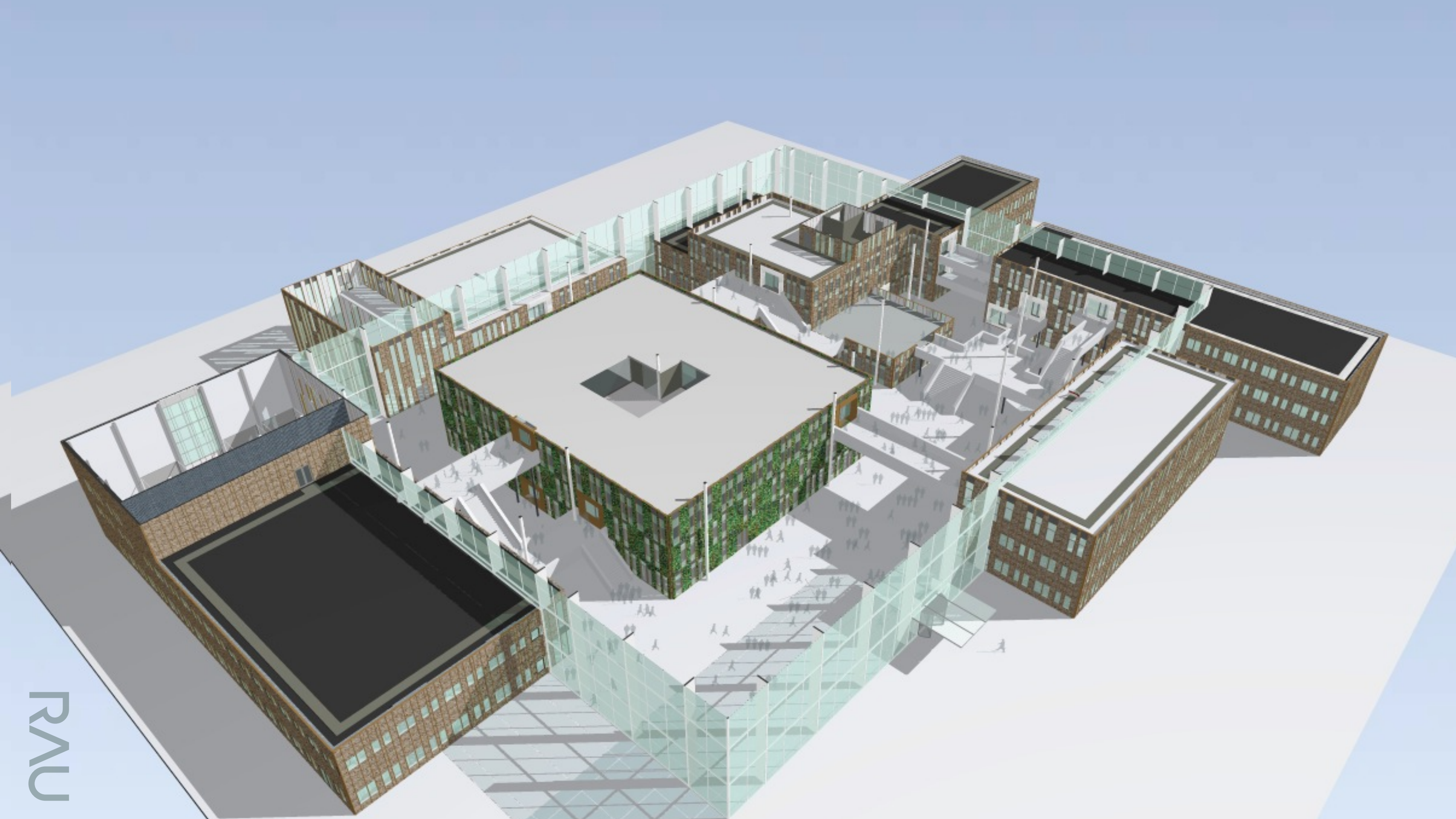
installaties - BAM Techniek

creating circular buildings
with ARCHICAD



FIRST CIRCULAR BUILDING







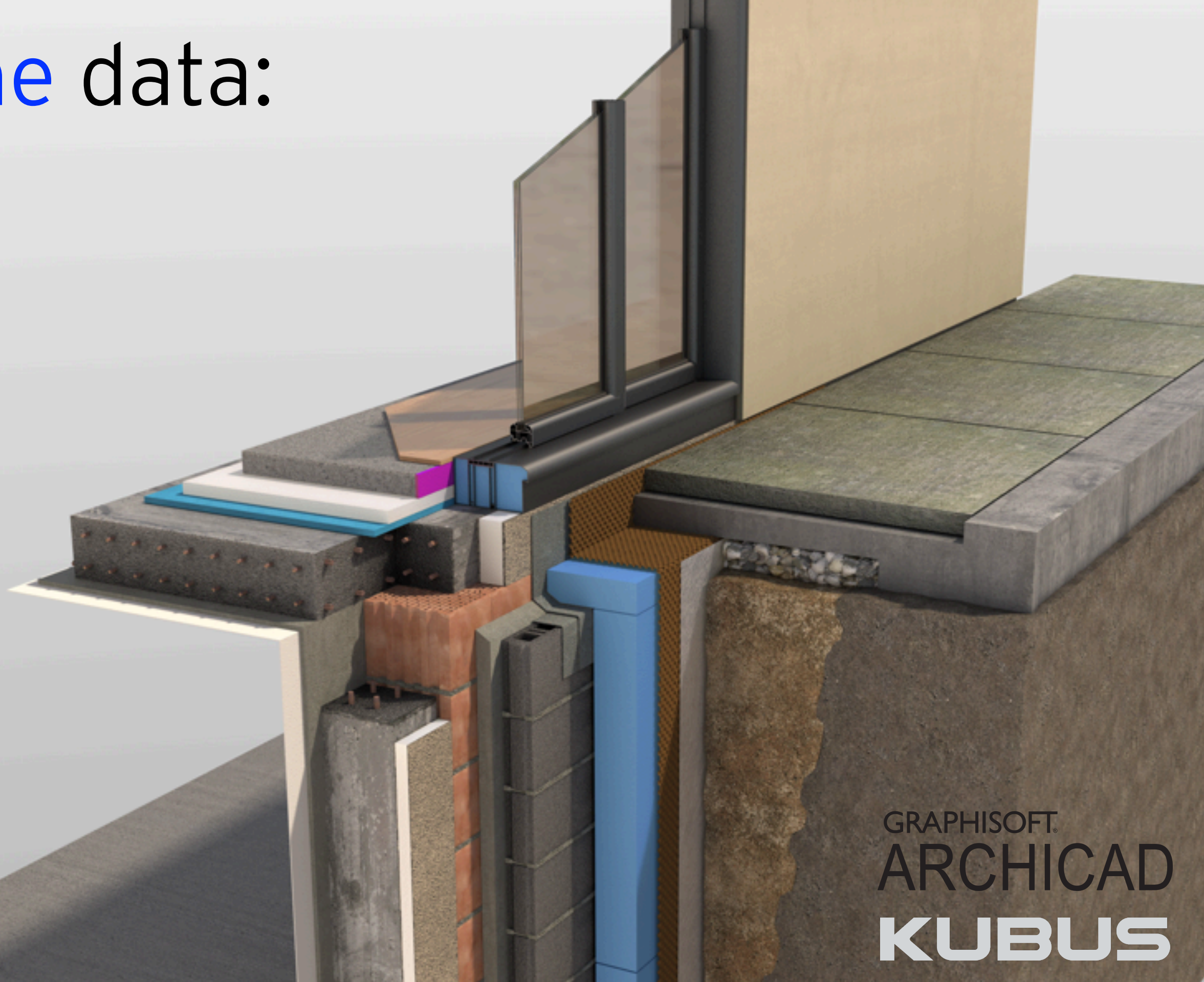






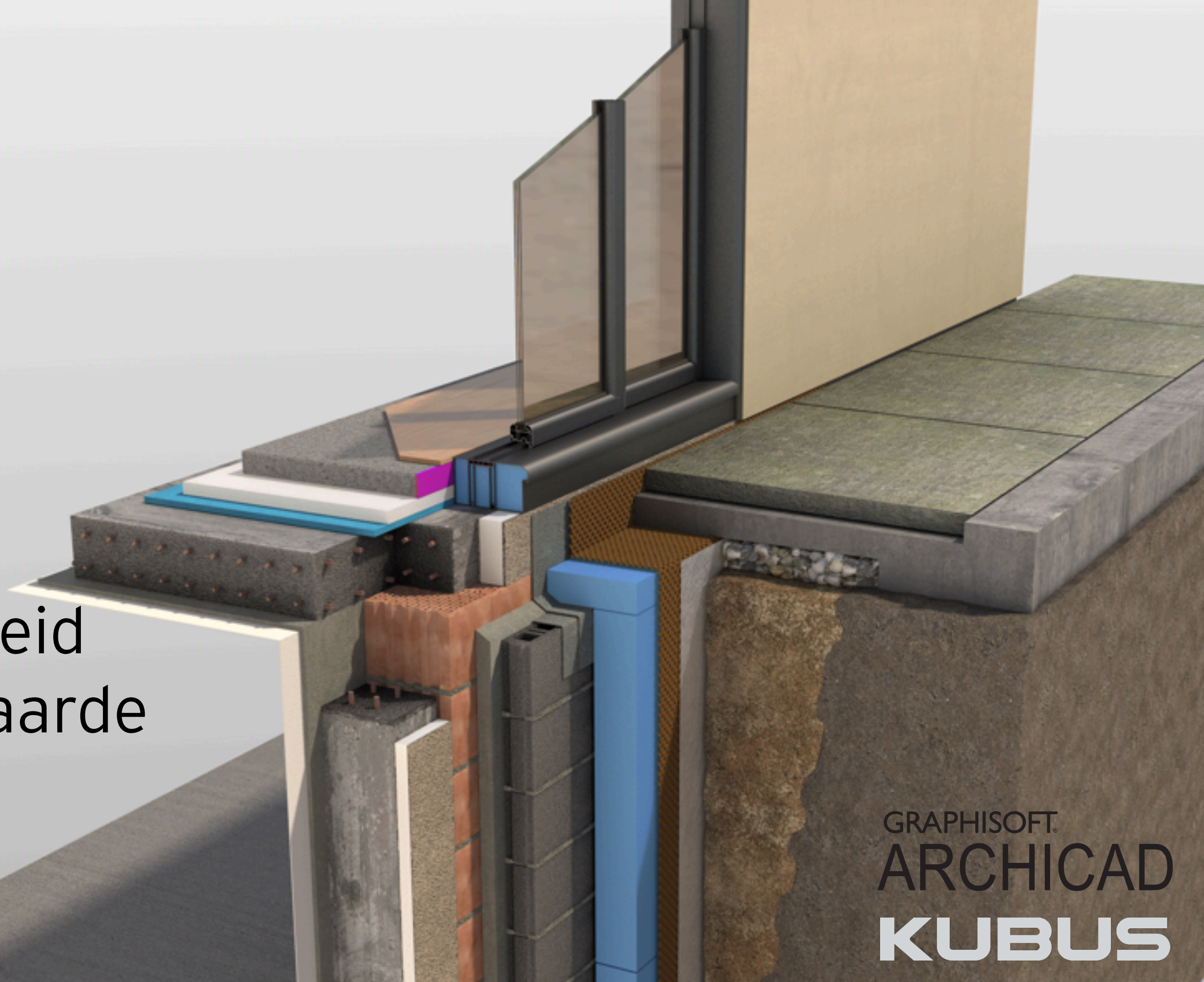
Geometrische data:

- afmetingen
- volume
- massa
- oppervlakte
- positie
- oriëntatie
- materiaal
- etc. etc.



Meta data:

- kosten
- fabrikant
- productcode
- www
- u-waarde
- brandwerendheid
- akoestische waarde
- garantie
- etc. etc.





VRAGEN

KUBUS

BIM, GEWOON DOEN!

DUURZAAM GEBOUWD DUIVEN, 5 juli 2016

Ronald de Graan



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