

Bouwindustrialisatie

***Digitalisatie als mogelijk/belangrijk
fundament voor bouwlogistiek?***



Industrialisatie en andere sectoren

**Focus op proces
Werf als montagehal**

**Digitalisatie als
“enabling technology”**

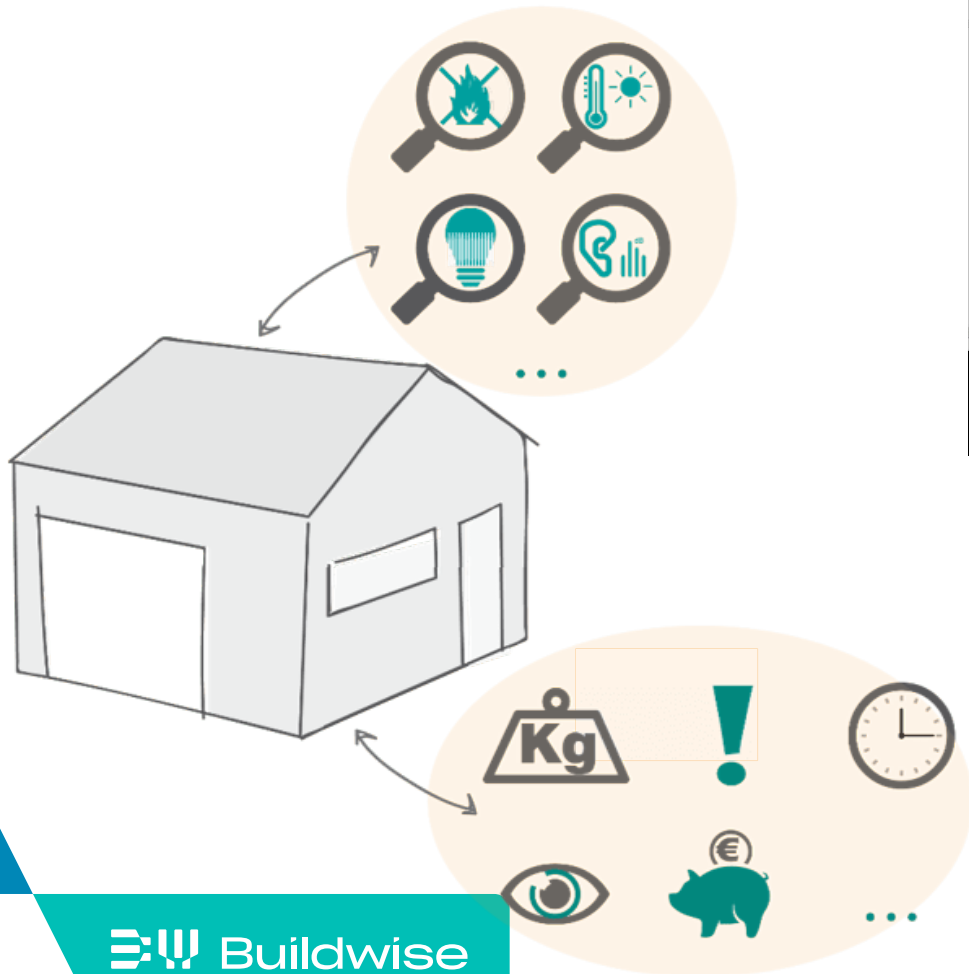
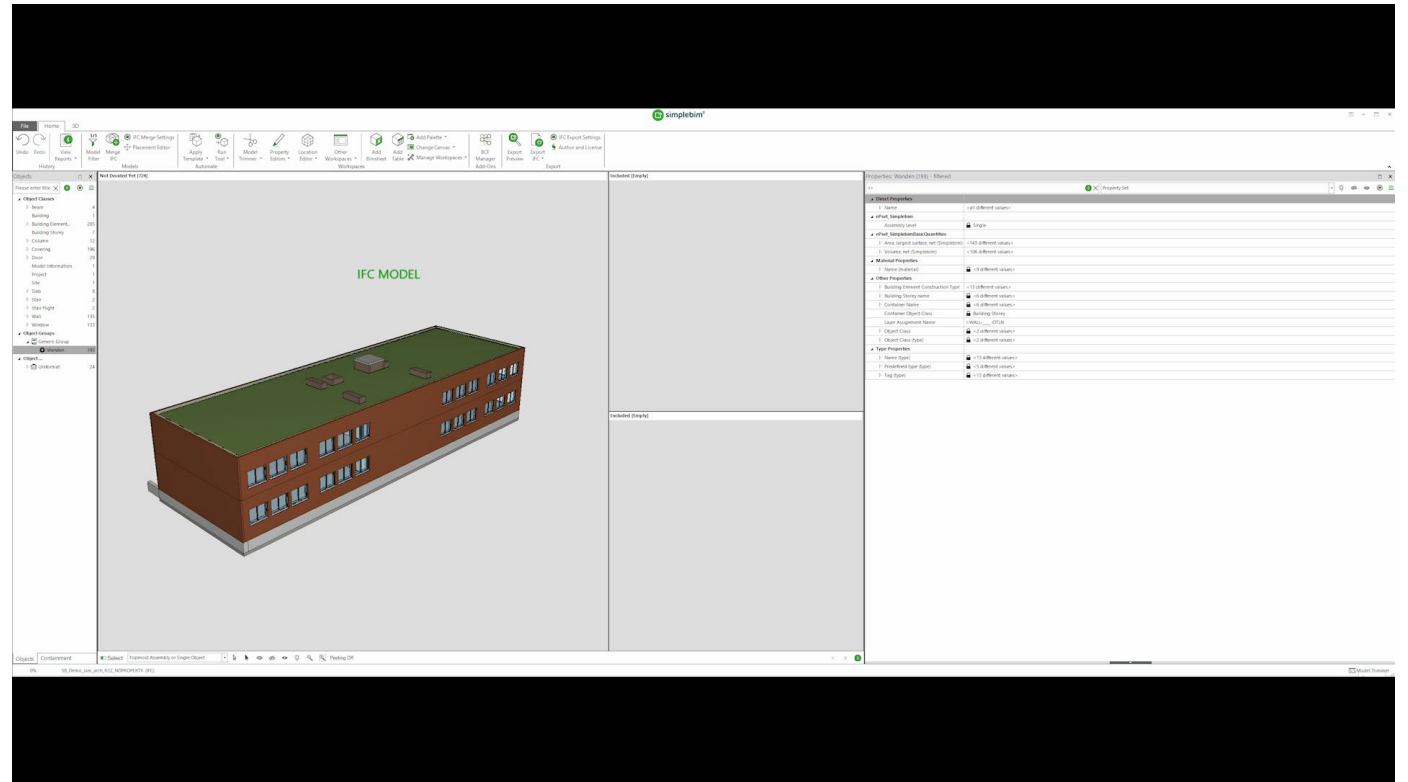
**Strategische bouwstenen
identificeren en vooruit helpen**

**Digitale omgeving om volledige
proces aan te sturen (BIM)**

The screenshot shows a web-based BIM clash detection interface. The browser address bar indicates the URL: <https://model.b360.autodesk.com/projects/554f2cd8-64f9-4271-986d-ae72bde65b7d/model-set/2247ccd-0db8-4206-b775-704a79958206/viewer/clashes>. The interface includes a sidebar on the left with the following sections:

- Clashes** (with a close button)
- Group by** (dropdown menu)
- Model** (dropdown menu showing "MC_3D_ARCHITECT_clash demo.rvt")
- Property** (dropdown menu showing "Object")
- 750 CLASHES** (summary)
- Expandable list of clash categories:
 - Assembled Stair [665557] - 3 clashes with 1 other model
 - Basic Roof [1091262] - 96 clashes with 1 other model
 - Basic Roof [724430] - 3 clashes with 1 other model
 - Basic Wall [1092332] - 5 clashes with 1 other model
 - Basic Wall [1093787] - 12 clashes with 2 other models
 - Basic Wall [1118123] - 3 clashes with 1 other model
 - Basic Wall [1180994] - 1 clash with 1 other model
 - Basic Wall [1180995] - 1 clash with 1 other model

The main 3D view shows a building model with a large red translucent area indicating a clash. A green arrow points from the right side of the interface towards the 3D model. At the bottom of the interface, there is a toolbar with icons for navigation and settings, and a floating toolbar with a pan icon and a settings gear icon.



PROCORE® | BIM

 **Buildwise**

Bim-viewer om te connecteren met de werf

VDC A-Z Example Synchro File - SYNCHRO

File Plan Assign Resources 3D 4D Review Project Controls Reports Windows Navigator

Above Outdent Link As Chain Start Project Start Calendars Cut task(s) Copy task(s) Paste task(s) Delete task(s) (Re)assign IDs Change Colors Reschedule Reschedule Selected Compute Critical Path Reschedule Report Schedule Health Check Alerts Update Progress... Baseline Baselines and Scenarios Gantt Display Options Find and Replace... Select All Up to previous selected Filters

Pour & Cure FS SW-RL 5-Day with Resource Task 5/25/2023

Appearance Profiles

3D Re...	Name	Start
	Level L2 Deck	8:00 AM 5/10/2023
(564)	Level L2 Vertical	8:00 AM 6/20/2023
(201)	Level L2 Area 1	8:00 AM 6/20/2023
(231)	Level L2 Area 2	8:00 AM 7/11/2023
(132)	Level L2 Area 3	8:00 AM 7/31/2023
(36)	L2 A3 Columns	8:00 AM 7/31/2023
(87)	L2 A3 Beams	8:00 AM 8/9/2023
(9)	L2 A3 Walls	8:00 AM 8/9/2023
(9)	Level L3 Deck	8:00 AM 7/31/2023
(564)	Level L3 Vertical	8:00 AM 9/8/2023
(1)	Roof	8:00 AM 11/8/2023

Mar 2022 Jul Oct Jan 2023 Apr Jul Oct Jan 2024

Apr wk 53 Jul wk 66 Oct wk 79 Jan wk 92 Apr wk 105 Jul wk 112 Oct wk 131 Jan wk 144 Apr wk 157 Jul wk 170 Oct wk 183

Level L2 Deck
Level L2 Vertical
Level L2 Area 1
Level L2 Area 2
Level L2 Area 3
L2 A3 Columns
L2 A3 Beams
L2 A3 Walls
Level L3 Deck
Level L3 Vertical
Roof

Support Gantt

3D Using Dates [Best] Colors [Appearance Profiles] Cutting Planes [1570x350]

Original Color
Color 00FF00
Original Transparency
Transparency 0

Original Color
Color 00FF00
Original Transparency
Start Transparency 0
Transparency Interpol.
Finish Transparency 0

RIGHT

Resour... Resour... 3D Obj... 3D Filters Appear...

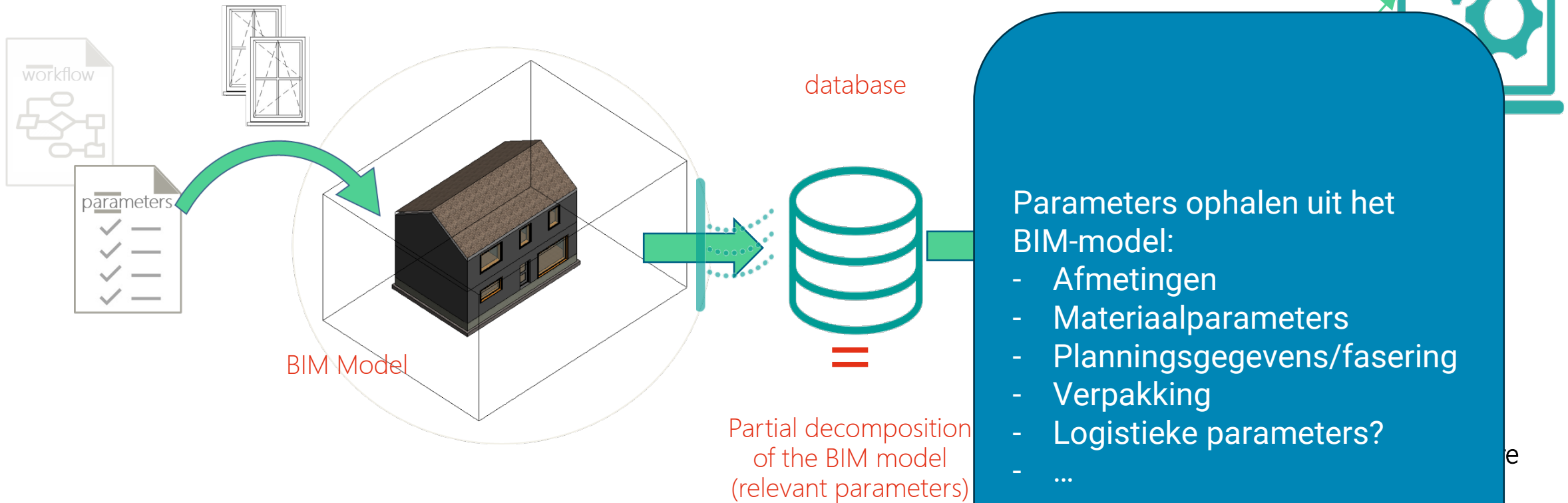
For Help, press F1

Enough memory [Filter Off] Selected [1][0][0] 12:35 PM 8/22/2023 Private Project Transactions: 1337 Administrator 100%



Case study BIM -> Database -> on site editing

Software
dedicated
subcontractor



Digitalisatie als mogelijk/belangrijk fundament voor bouwlogistiek?

- 2** *Welke rol kunnen oplossingen als BIM, standaardisatie en industrialisatie spelen bij bouwlogistiek?*
- 1** *Uit ervaring weten we dat bouwlogistiek begint bij een stabiel en betrouwbaar bouwplan en planning.*

1

Ontwerpen



... in a digital future ...

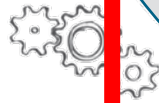
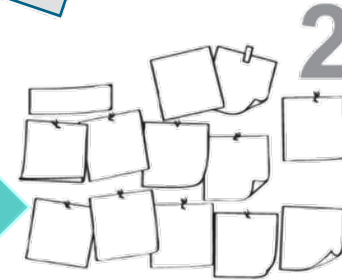


**Gebruiken/
Onderhouden**



**Digital
impact**

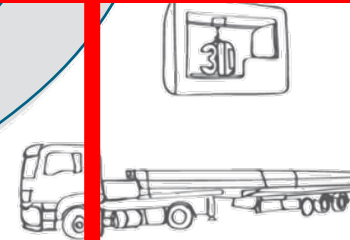
Vorbereiden

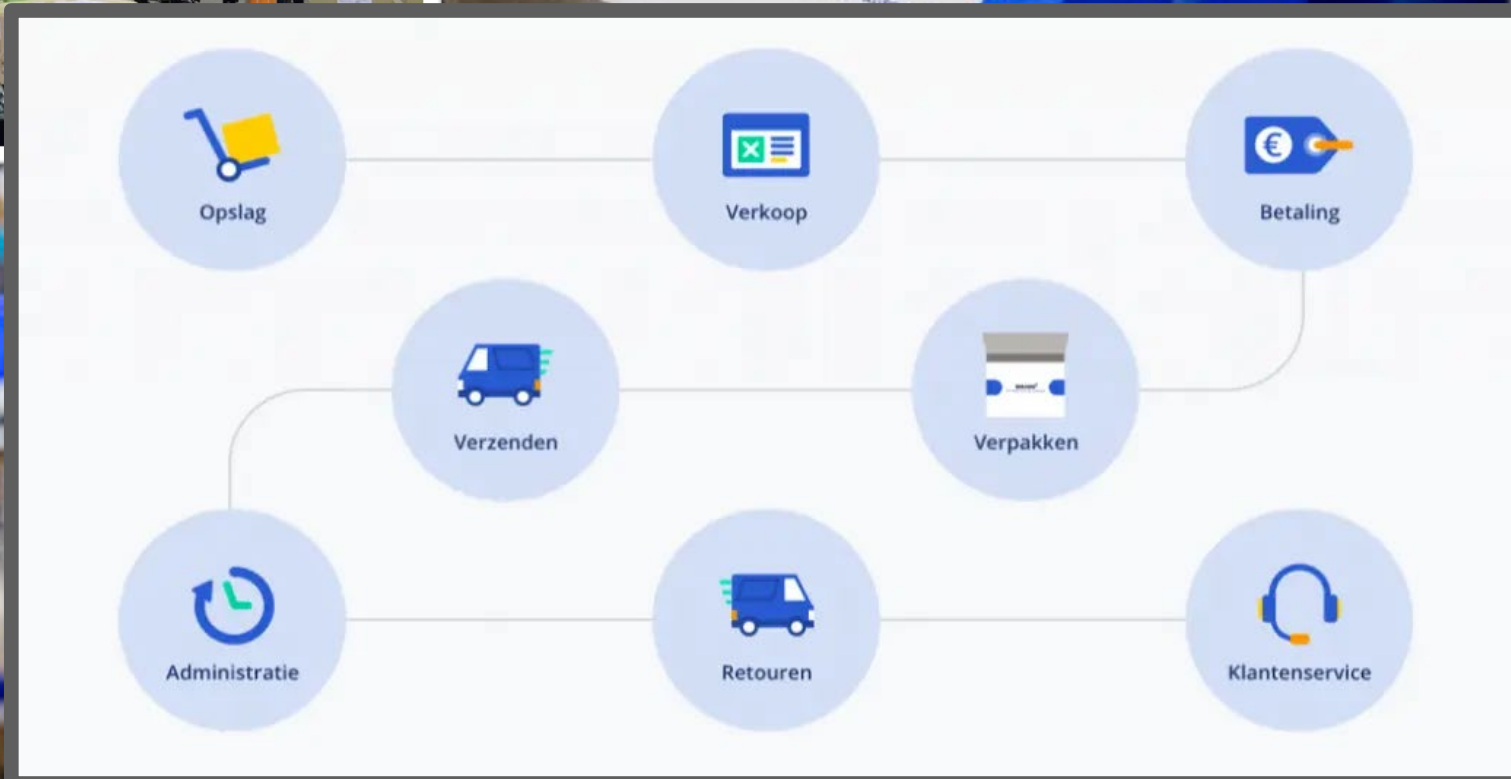


3



Bouwen







4 miljoen onderdelen per dag



Industrialisatie en andere sectoren



Focus op proces
Werf als montagehal

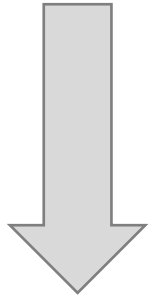
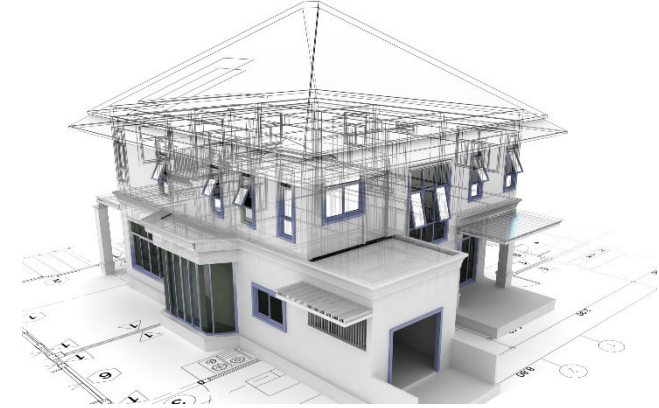
Digitalisatie als
“enabling technology”

Strategische bouwstenen
identificeren en vooruit helpen

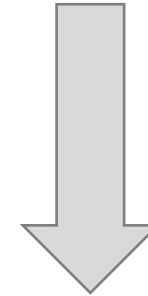
Digitale omgeving om volledige
proces aan te sturen (BIM)



“A single source of truth”



*Aansturing design,
logistiek en productie*



*Aansturing design,
logistiek en productie?*



1-op-1 omzetting
naar bouwproductie?



Werf als montagehal



LOD

100	Generic column element	
200	See B1010	
300	Element modeling to include: • Specific sizes of main vertical structural members modeled per defined structural grid with orientation Required non-graphic information associated with element includes: • Structural steel materials defined • Connection details • Finishes, i.e. painted, galvanized, etc.	
350	Element modeling to include: • Actual elevations and locations of member connections • Large elements of typical connections applied to all structural steel connections as base plates, gusset plates, anchor rods, etc. • Any miscellaneous members with correct orientation • Any steel structural element such as web stiffeners, sleeve connections, etc.	
400	Element modeling to include: • Welds • Coping of members • Cap girds • Washers, nuts, etc. • All assembly elements	

Level of Information Need:

- Why
- When
- Who
- What
- How

bim ids

23/03/23 : The BIMids platform is under construction.

Home Element list Downloads Language English

GID level (Geometry - Information - Documentation)

ELEMENT	GEOMETRY LEVEL			
	GID 1XX	GID 2XX	GID 3XX	GID 4XX
Length	X	X	X	X
Height	X	X	X	X
Thickness	X	X	X	X
Fasteners, joinery and glazing				X
Accessories and specific elements			1	1
Reservations		X	X	X

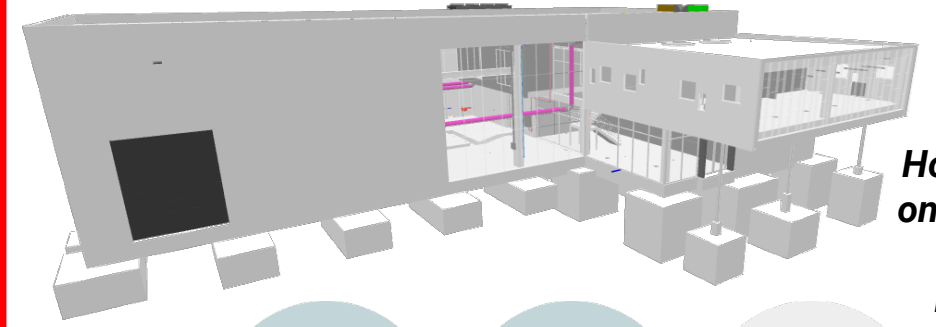
¹⁾ selon cas / demande spécifique

PROPERTY	INFORMATION LEVEL					IFC 2X3 TC1	IFC 4 ADD2
	GID X1X	GID X2X	GID X3X	GID X4X	GID X5X		
Object name	X	X	X	X	X	IfcElement.Attributes.Name	IfcElement.Attributes.Name
Numerical identifier			-	-	-	IfcElement.Attributes.Tag	IfcElement.Attributes.Tag
Type IFC		X	X	X	X	IfcElement.Attributes.ObjectType	IfcElement.Attributes.ObjectType
Type IFC userdefined		X	X	X	X		
Classification	X	X	X	X	X		

The components of an IFC window are:

- Structure (mullion)
- Glazed/opaque panel
- Opening panel: IfcWindowPanel
- Door integrated in window

Ontwerpen



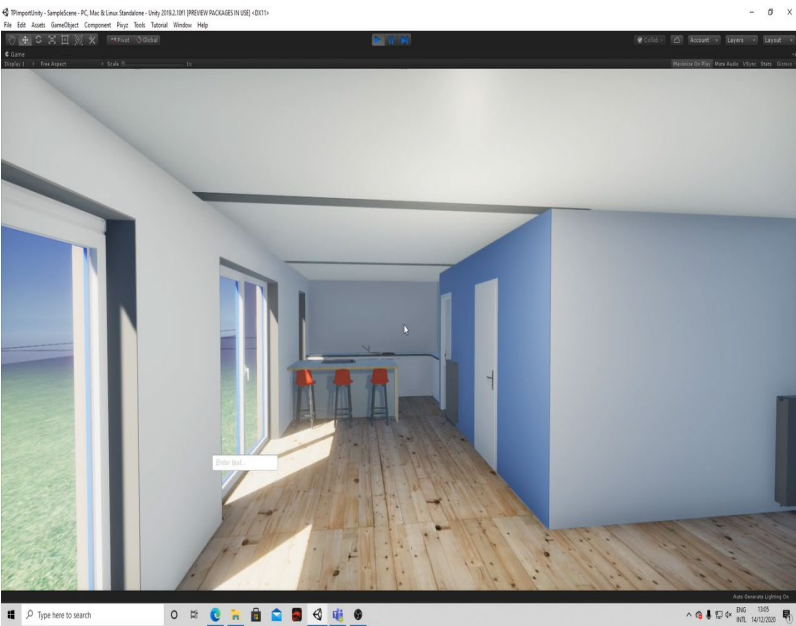
Holistisch
ontwerpen

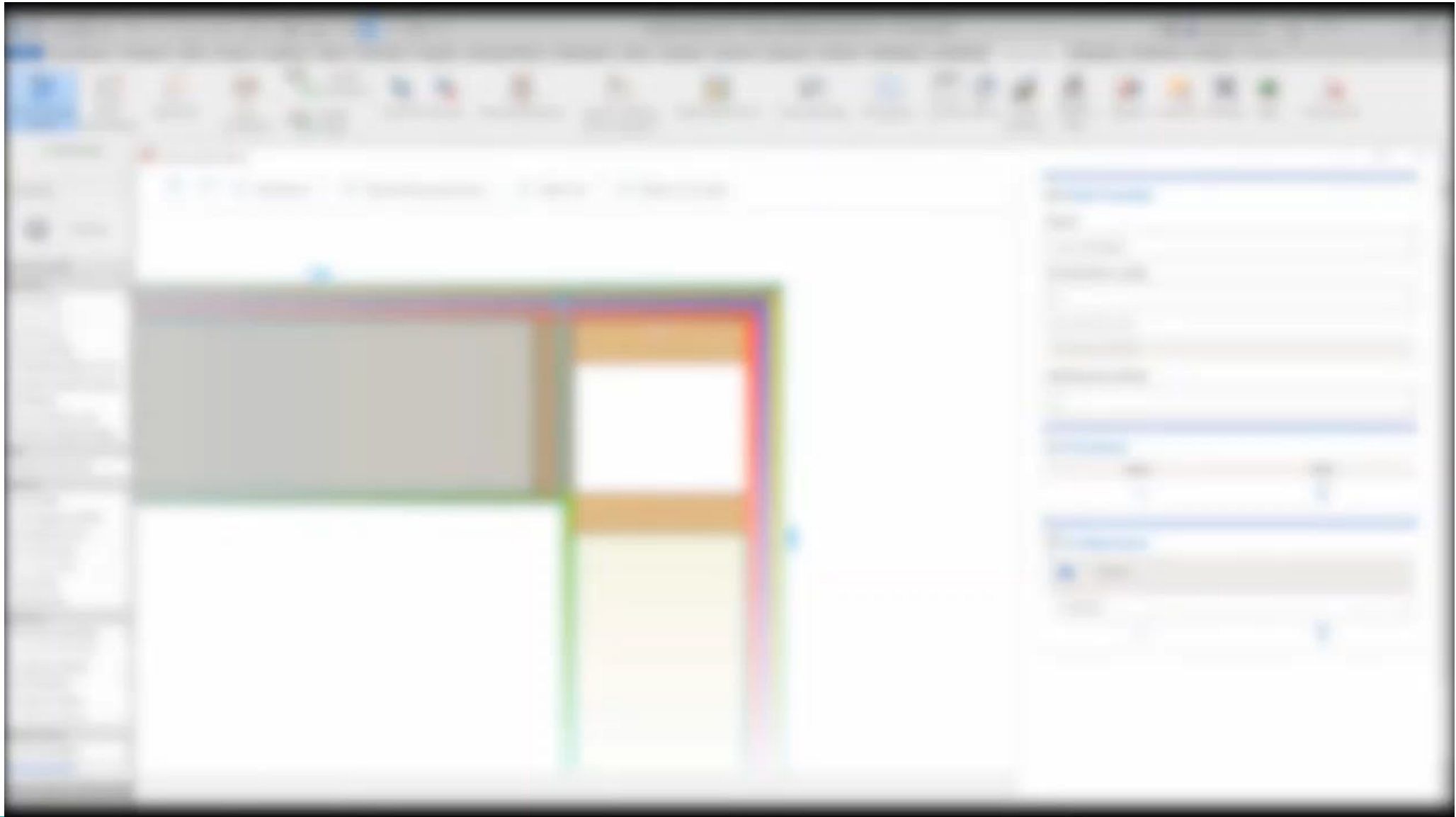
↓
DFMA



Realtime
dashboarding

Van modelleren naar configureren en sneller kiezen, plannen, bouwen, ... Productconfiguratoren





DIGITAL triggers DIGITAL

- Niki Cauberg -