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Onderzoekt • Ontwikkelt • Informeert

Snelle as-built-registratie en automatische werfopvolging met 360° camera's

WTCTB
Tycho de Back & Emmanuel Van Hees



Digitale 3D-meettechnieken voor een
geïndustrialiseerd bouwproces bij nieuwbouw en
renovatie



Doel presentatie



Quick-wins 360° camera's & automatische werfopvolging

360° camera's?







Test case: Democentrum Limelette



digital
wallonia
.be



BUILD4WAL
C

Test case: Democentrum Limelette





Het testcase team



Snel de hele werf documenteren

Duidelijke visualisatie van de vorderingen

Helpt bottlenecks vroegtijdig te signaleren

Veel mogelijkheden voor tijd- en kostenbesparing

Snel en gemakkelijk documenteren

Duidelijke visualisatie van de vorderingen

Knelpunten vroegtijdig signaleren

Vergelijk as-built-situatie met BIM

Maak metingen op foto's

Automatische controle afwijking tov BIM



"Google
StreetView"
op de werf

26 Av. Pierre Holoffe

Ottignies-Louvain-la-Neuve, Waals Gewest

 Google

 Street View - jul. 2019







Street View

Fotopad

360°-foto



Chem. de la Chapelle Robert

Chem. de la Chapelle Robert

Chem. du Meunier

Rue d'Ottignies

Chem. de la Hustière

Van Eecke / Marie-Claire

Campanella Associates

Bbr - Wtcb - Cstc - Wtb

KINEO

Tennis Club Kineovital

Nafisco

ROFESSART

Église Saint-Joseph de Rofoessart

Docteur Thi Tuong Oanh Le

Storck, Electricien

Av. Lambert

Fond du Try

Rue Alfred Haulotte

Douanfruits Sa

Chem. de la Hustière

Opnamedatum afbeelding: jul. 2019

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België

Voorwaarden

Privacy

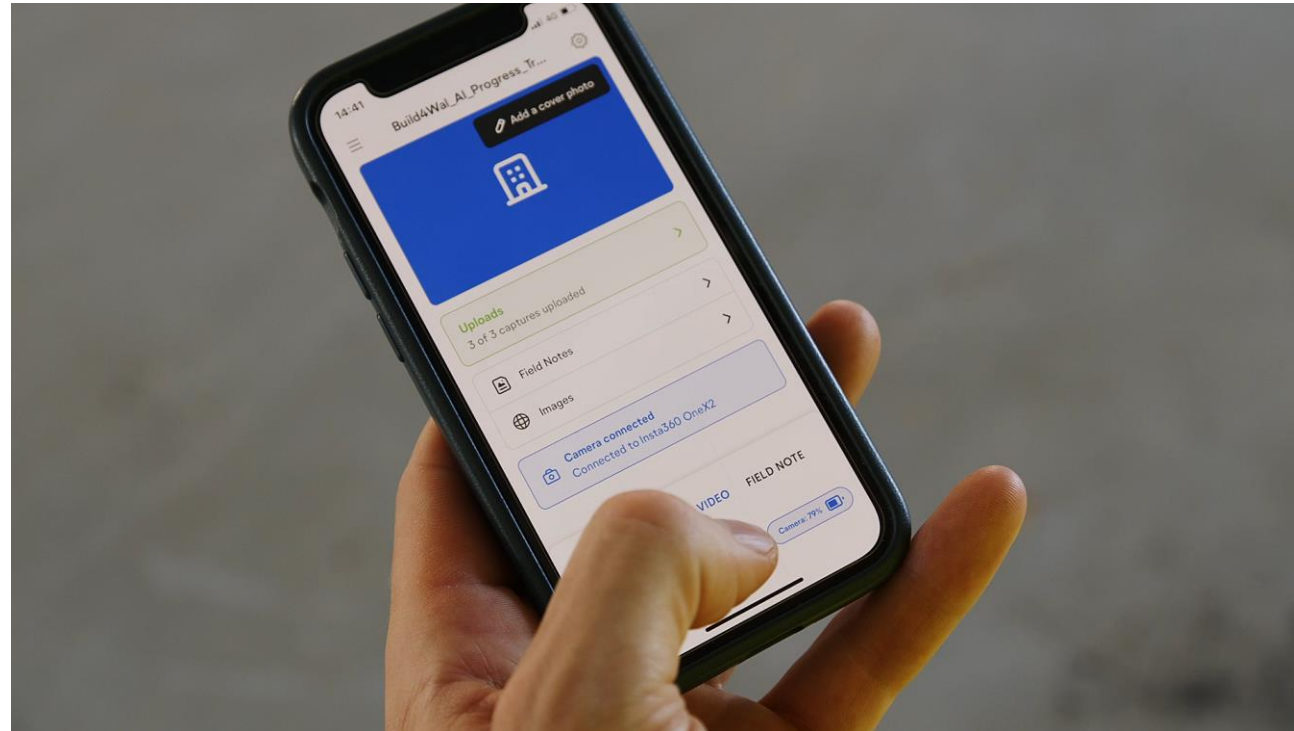
Probleem melden

Automatische werfopvolging Benodigdheden:



Smartphone
Helm + 360° camera
Online platform

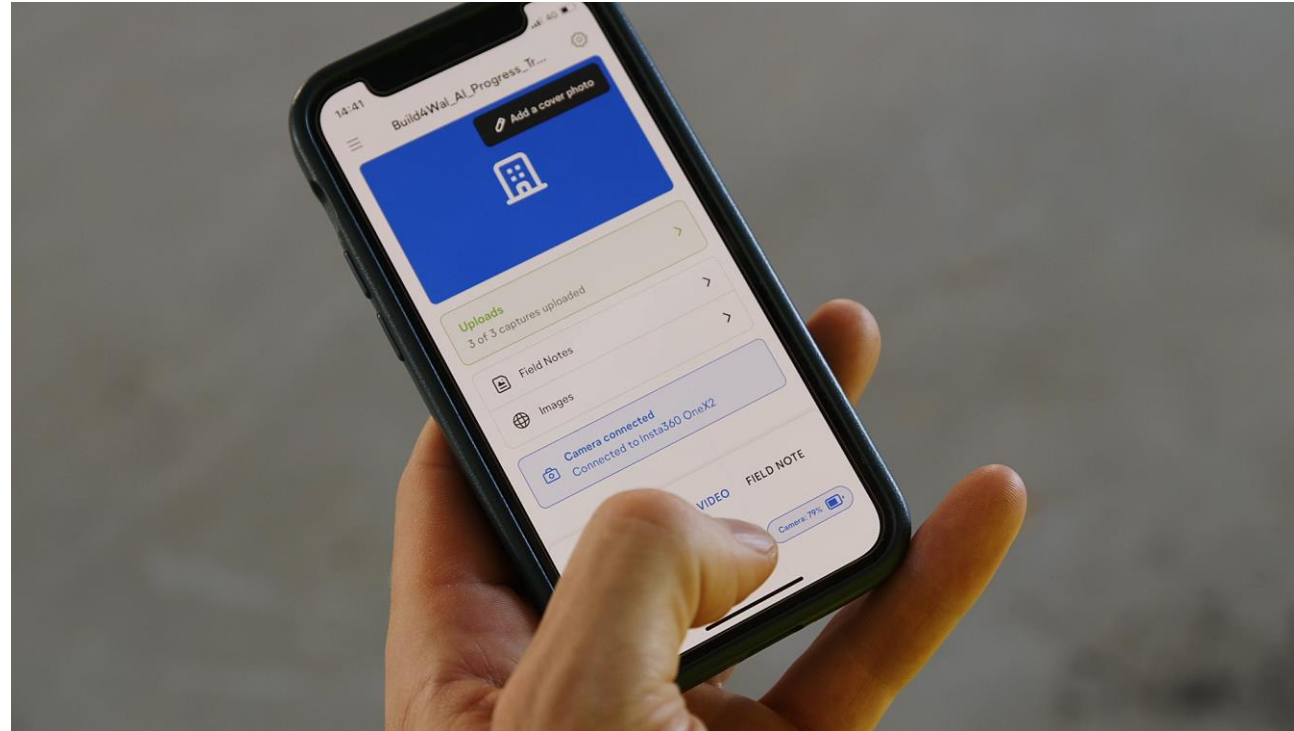
Vorbereitung



Werf gedocumenteerd in 15 min



Uploaden vanaf smartphone of PC



1 uur later

The screenshot shows the Microsoft Outlook interface. The top ribbon includes tabs for File, Home, Send / Receive, Folder, View, and Help. The Home tab is active, displaying various action buttons like New Email, New Items, Delete, Archive, Reply, Reply All, Forward, and Share to Teams. On the left, the navigation pane shows Favorites (Inbox, Sent Items, Deleted Items) and a specific email account (tycho.de.back@bbri.be). The main email list is visible, with the 'Subject' column circled in red. The first email in the list has the subject 'Your captures have been published' and a received time of 'C Mon 05/09/2022 23:18', both of which are circled in red.

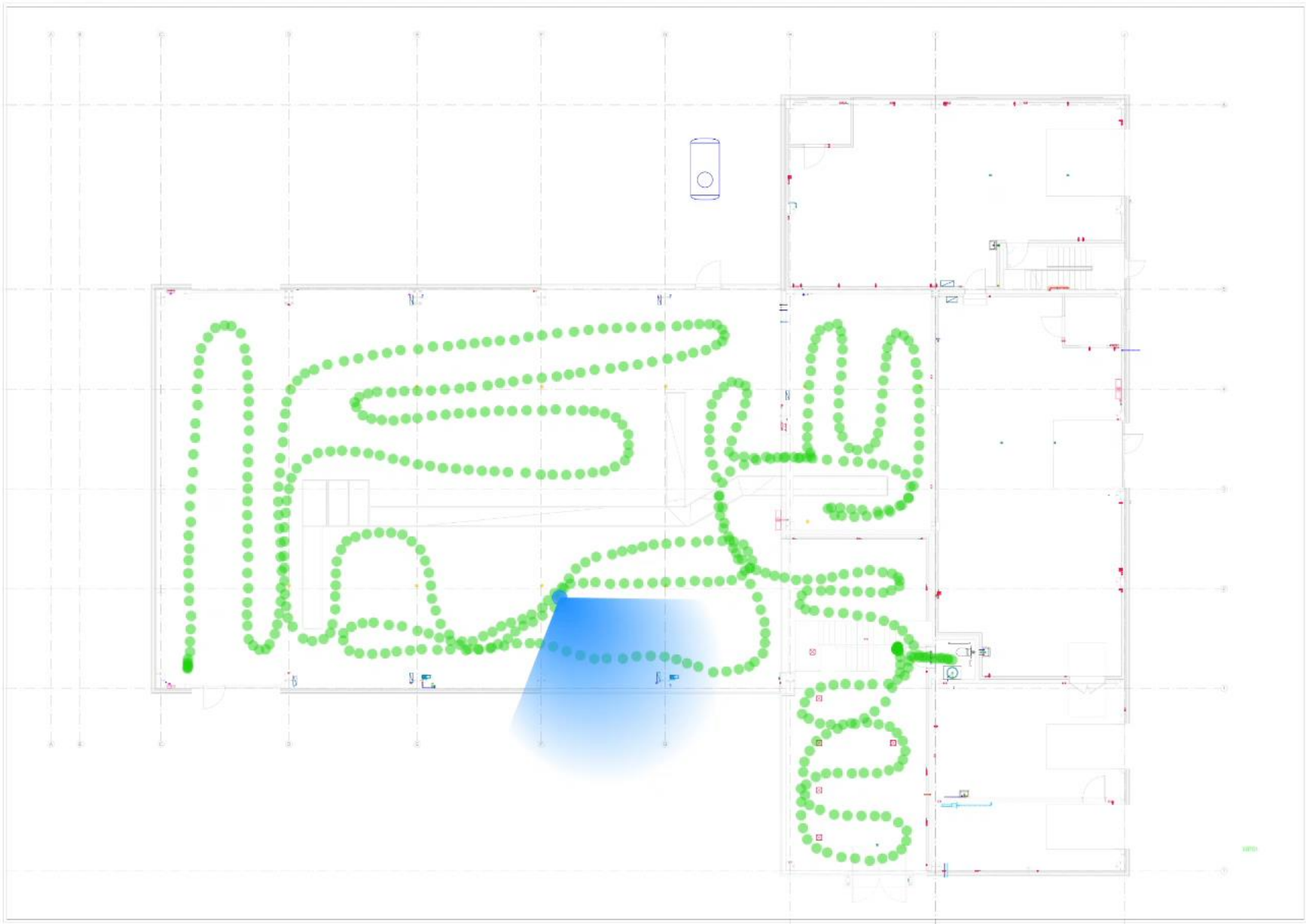
Subject	Received
Your captures have been published	C Mon 05/09/2022 23:18
Your captures have been published	C Mon 05/09/2022 23:10
A preview of your capture is available	C Mon 05/09/2022 22:39
Your captures have been uploaded	C Mon 05/09/2022 22:17
Your captures have been uploaded	C Mon 05/09/2022 22:11



View



Ground_Floor_CSTC_B4W_Rez_20220512-1-r4wn.pdf



Cancel Creation

Save



Untitled



Freehand



Arrow



Text



Circle



Rectangle



Color



Solid



4px



Undo



Redo

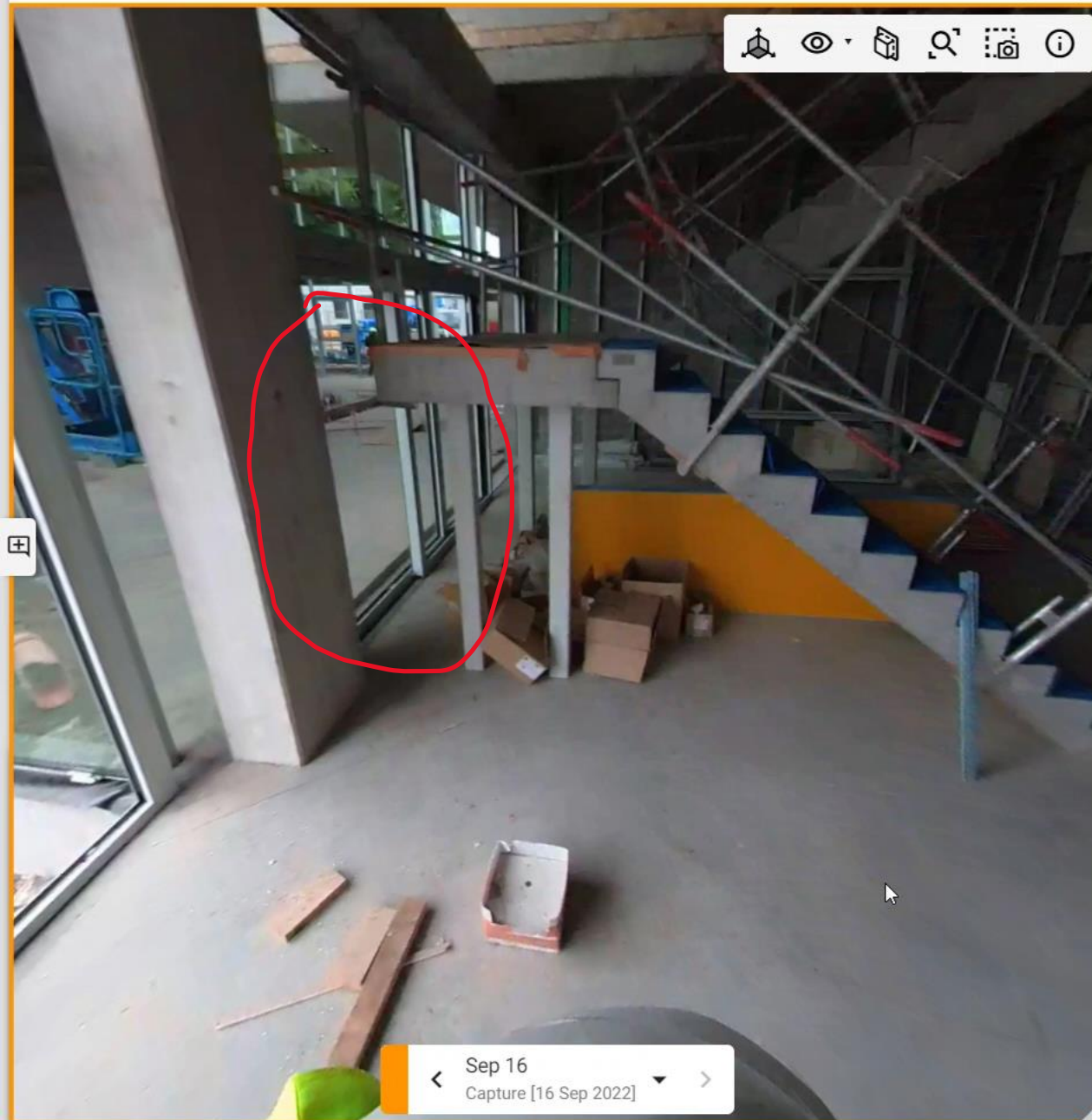


Reset View



Vergelijk met BIM

Main Capture Viewer



BIM Viewer - 1





Automatische
werfopvolging?

Next level functionaliteit: de nieuwe normaal

**Wat is het
vorderingspercentage?**

Welke knelpunten zijn er?



View



Progress as of

← Aug 23, 2022 →

Breakdown by

% Complete

Status

Report CSV

			Wall				Electrical
Floor	Last Capture	Tracking Status	Top Track	Framing	Drywall - Hung	Drywall - Taped	Box Out
Entire Project	Aug 23, 2022	Floors Complete:0 Floors In Progress:1 Floors Not Started:1	Overall: 64%	Overall: 64%	Overall: 31%	Overall: 12%	Overall: 3%
First_Floor_CSTC...	Aug 23, 2022	61	89%	88%	39%	16%	
Ground_Floor_CS...	Aug 23, 2022	7	—%	—%	—%	—%	

Skelet
structuur

Gipsplaten
- gehangen

Gipsplaten
- getaped



Skelet
structuur

Gipsplaten
-gehangen

Gipsplaten
-getaped



TDB

View



← Aug 23, 2022 →

First_Floor_CSTC_B4W_Etag... ▼

☐ Capture track

☐ Dollhouse

Wall ▼

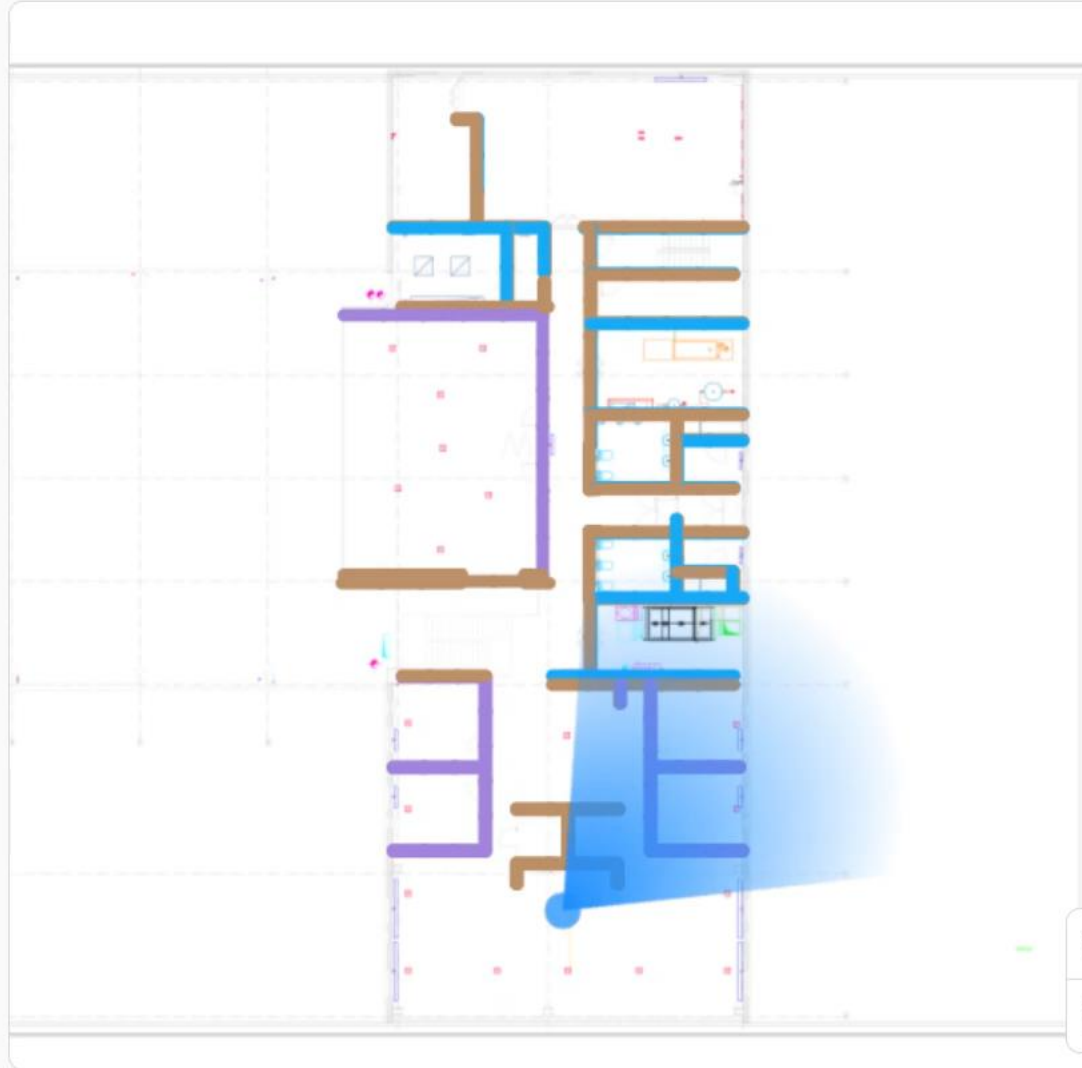
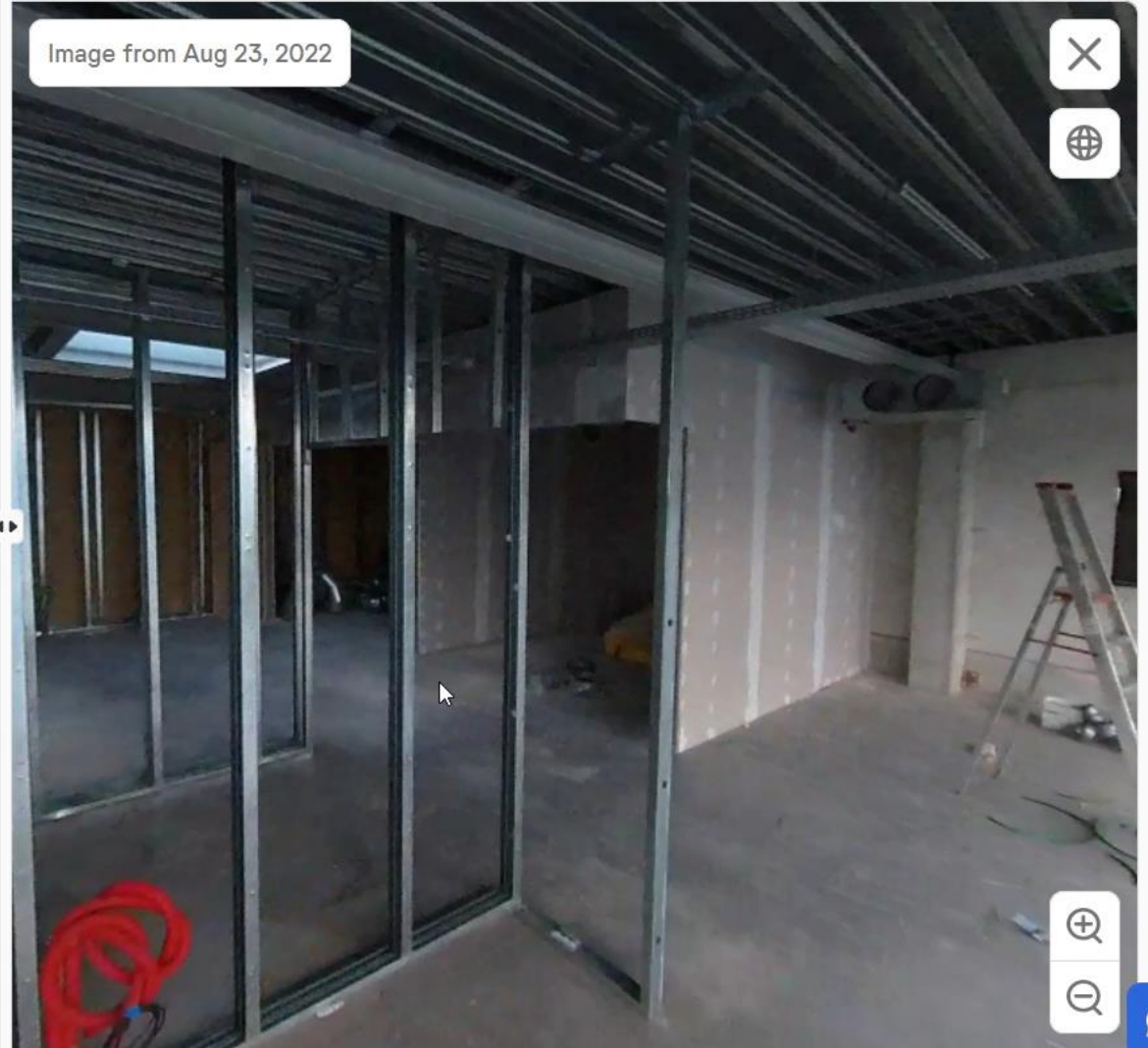
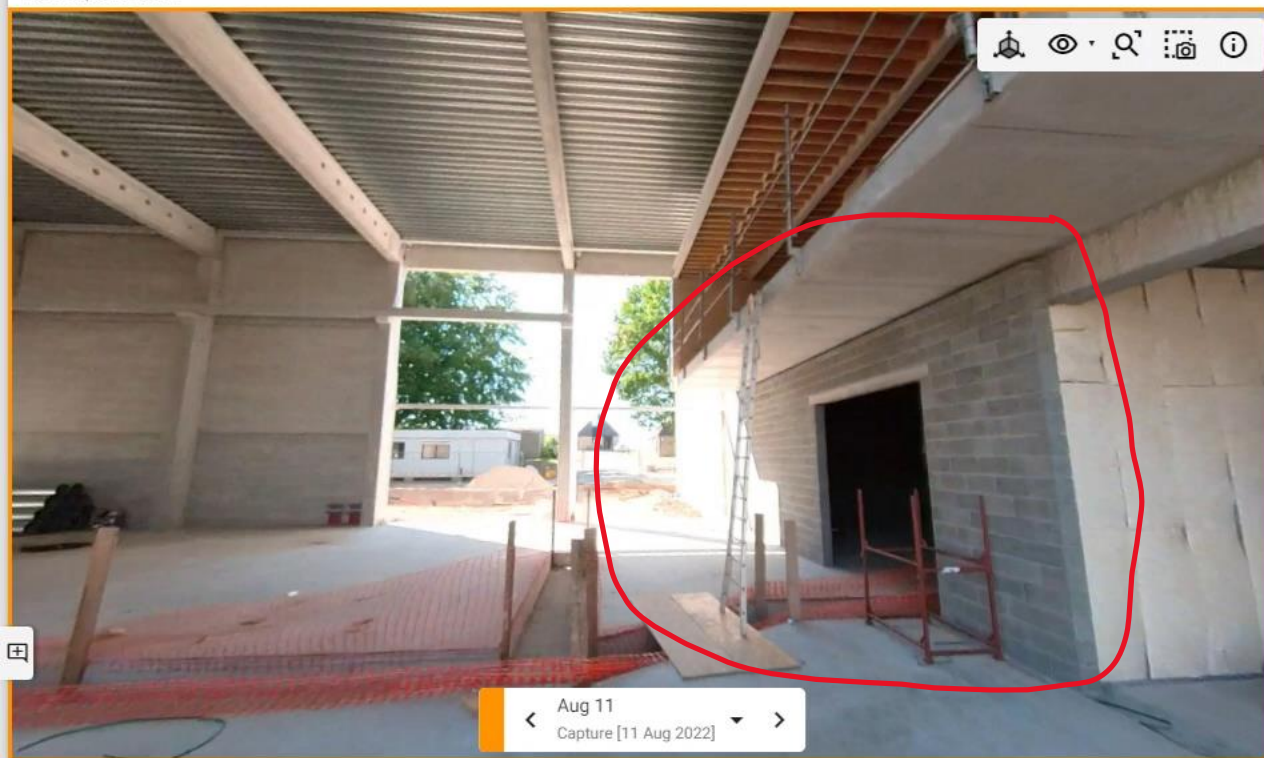


Image from Aug 23, 2022



Main Capture Viewer



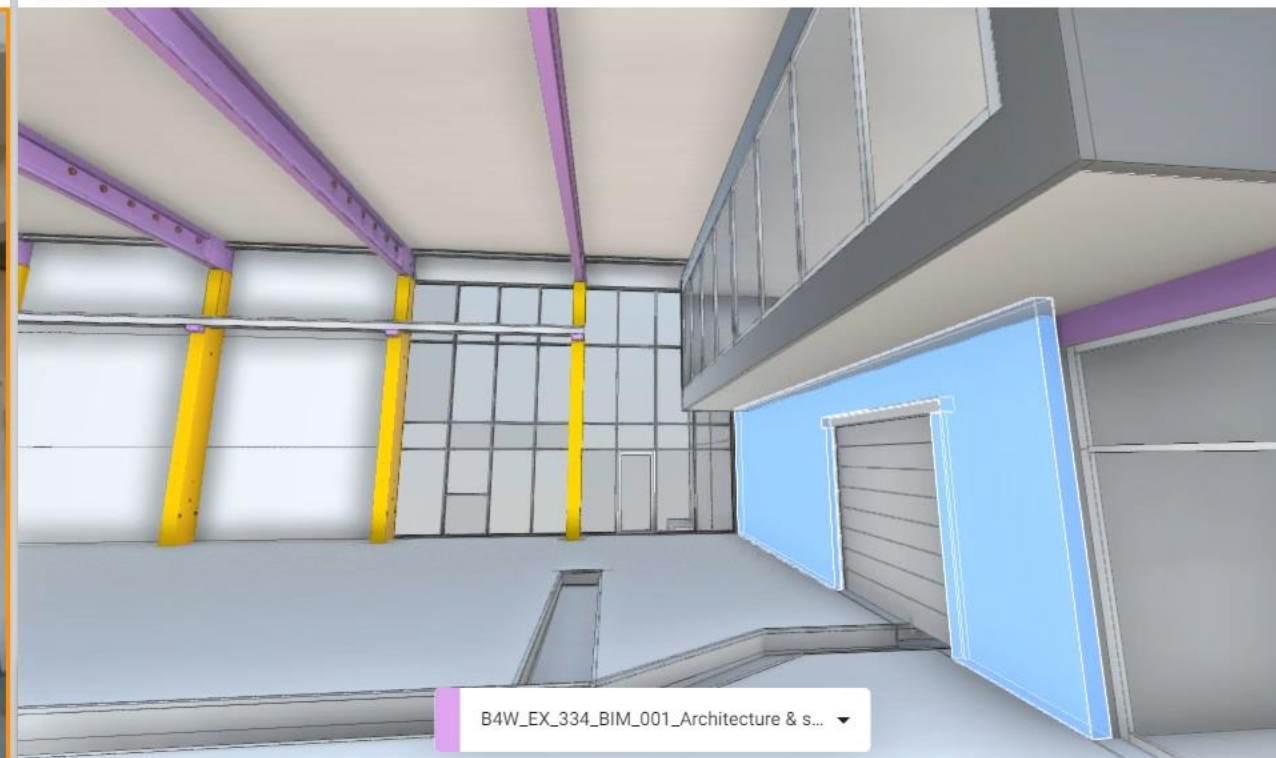
Plan Viewer



Datum plaatsing muur verifiëren

Direct duidelijk: 11 augustus

BIM Viewer - 1



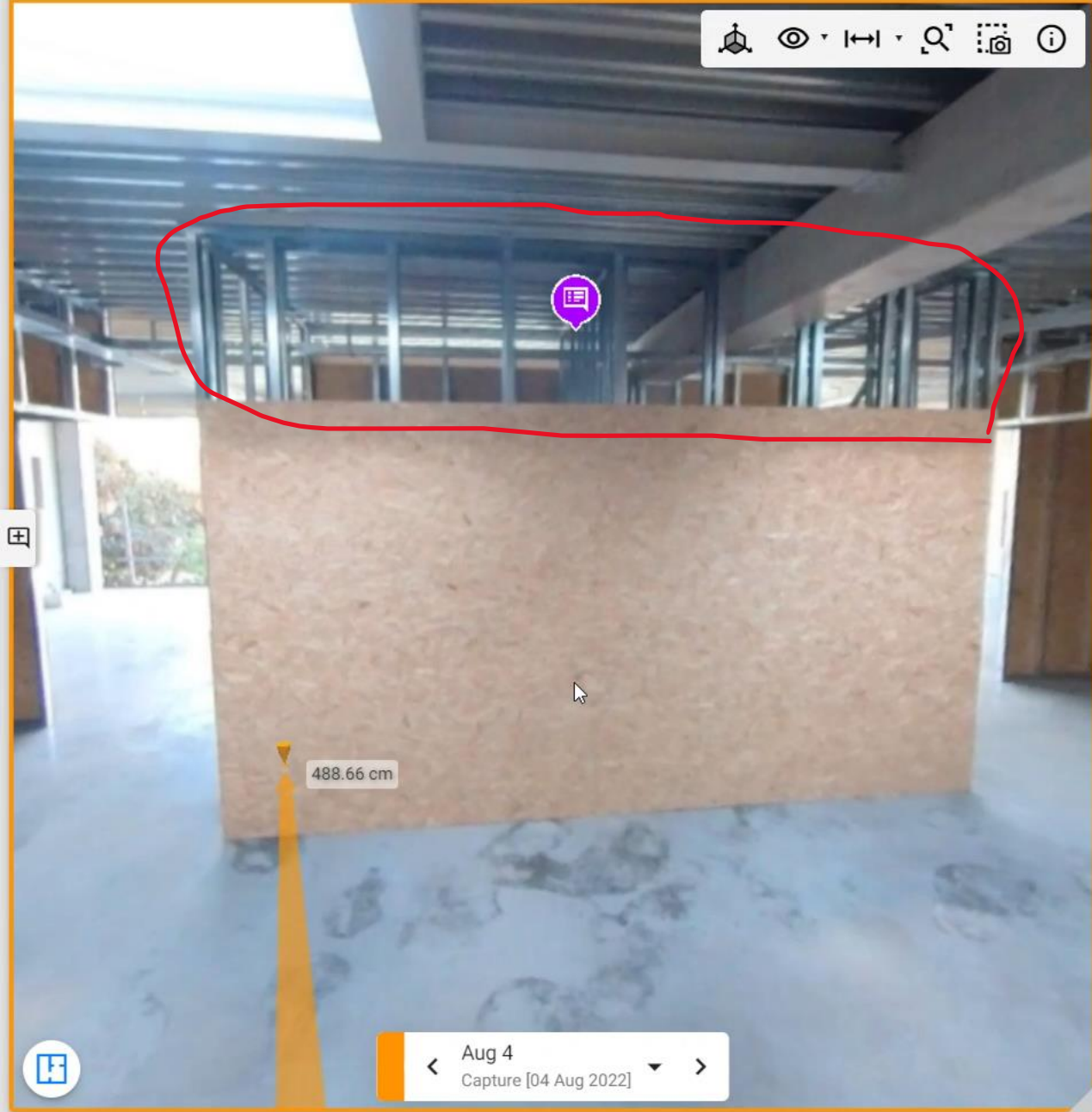
Category		Subcategory		
Group	Name	Jun 10	Aug 11 ↑	Aug 23
	Mur de base	Not Installed	Installed	Installed
	Mur de base	(unset)	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed
	Mur de base	Not Installed	Installed	Installed

Total Rows: 4,337

Filtered: 4,337 Selected: 1

Powered by Cupix

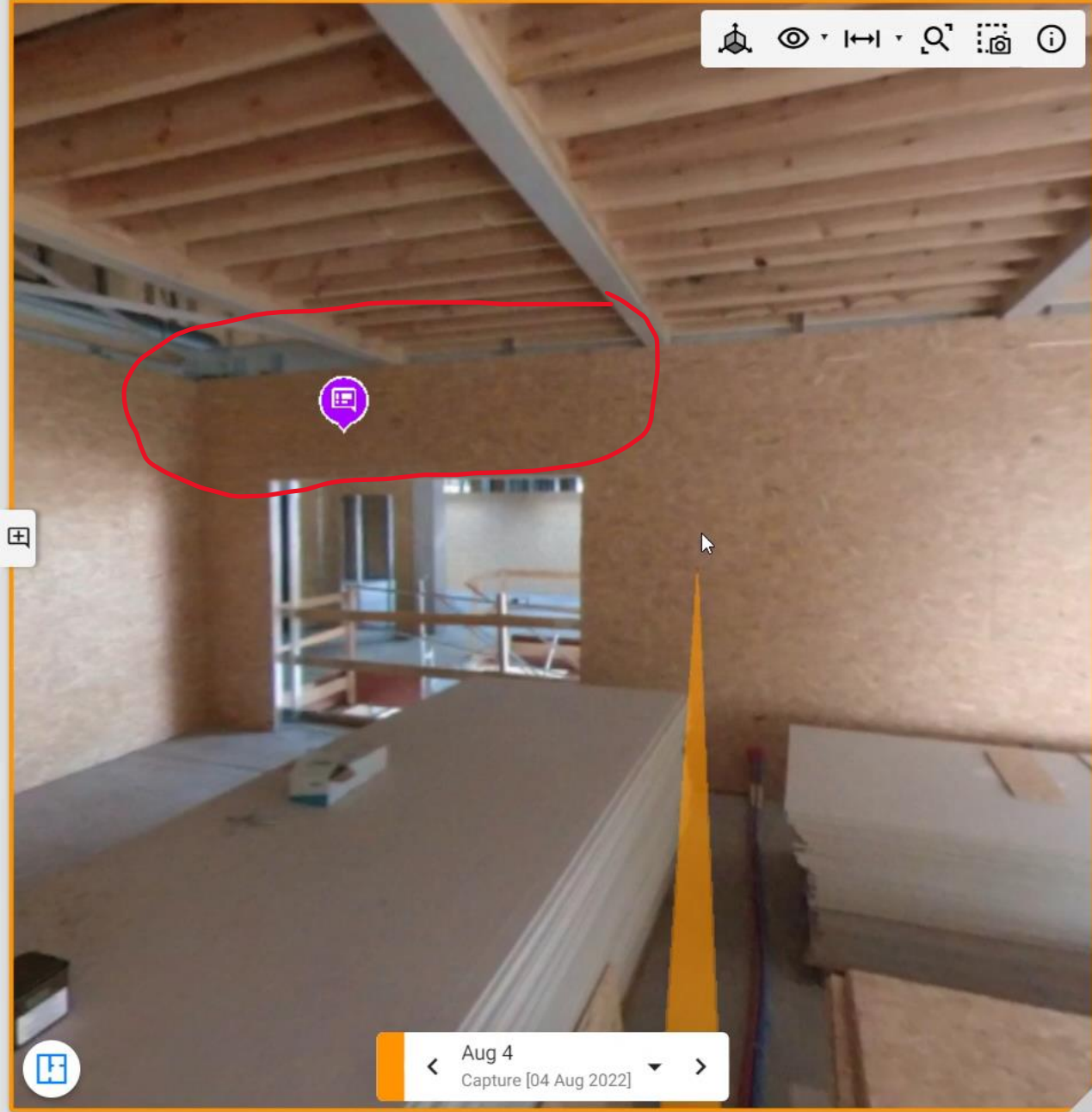
Main Capture Viewer



BIM Viewer - 1



Main Capture Viewer



BIM Viewer - 1



Main Capture Viewer



Aug 23
Capture [Aug 23, 2022]

Sitelights LABS



All Categories All Subcategories All Status Templates Weighted by

Aug 23



Category Subcategory

Name	Jun 10	Aug 11 ↑	Aug 23
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed
Meneau rectangulaire	Not Installed	Not Installed	Installed

Total Rows: 4,337

Filtered: 4,337 Selected: 1

Bevindingen

Snel en eenvoudig: 2 min uitleg en je bent er mee weg

Vorderingen duidelijk zonder dat je er werk aan hebt

Issues sneller duidelijk en verholpen

Zoveel of zo weinig detail als je wilt

Feedback aannemer en architect



Handig om te weten wat in rekening gebracht kan worden bij de onderaannemers



Vergemakkelijkt de discussie tussen de architect en de opdrachtgever



Spoort vertragingen op en helpt ze te verminderen



Stelt BIM-modelleur in staat om het BIM-model bij te werken zodat het overeenkomt met de realiteit

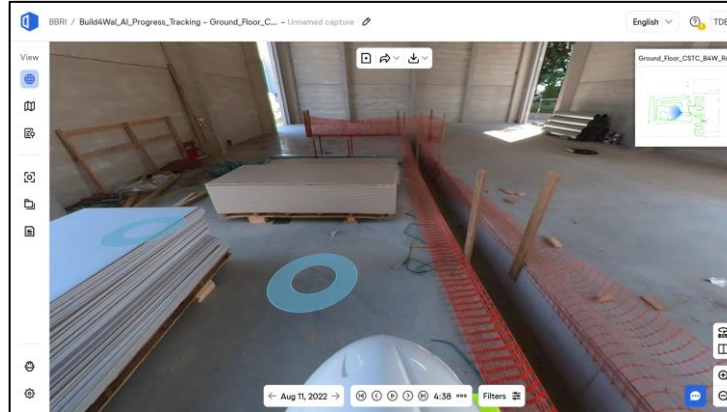
Take-home message

Automatische werfopvolging:

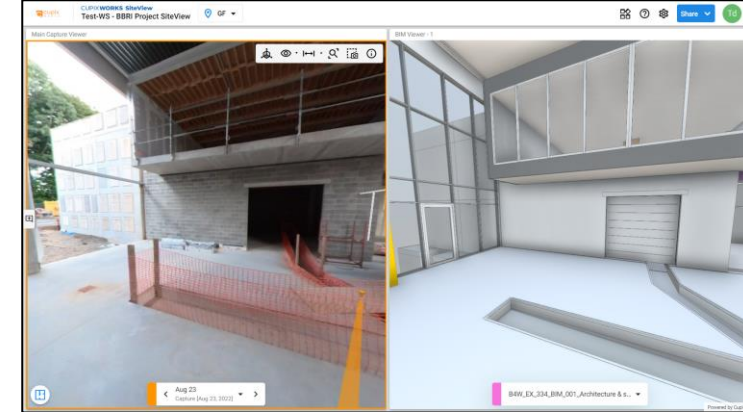
Tijd- en kostenbesparing met
minimale inspanning

Interesse?

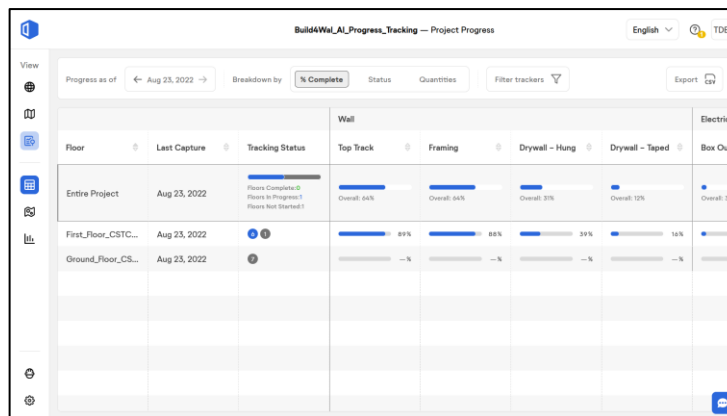
Kom naar de WTCB infostand!



Complete documentatie

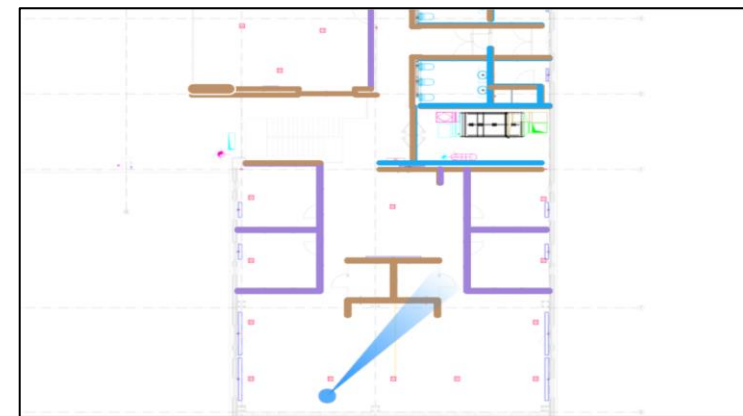


Vergelijk met BIM

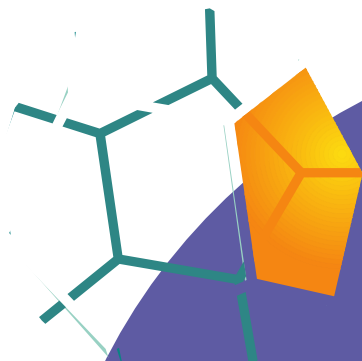


Floor	Last Capture	Tracking Status	Top Track	Framing	Drywall - Hung	Drywall - Taped	Box Out
Entire Project	Aug 23, 2022	Progress bar	Overall: 64%	Overall: 64%	Overall: 91%	Overall: 12%	Overall: 21
First_Floor_CSTC...	Aug 23, 2022	Progress bar	81%	88%	39%	14%	
Ground_Floor_CS...	Aug 23, 2022	Progress bar	— %	— %	— %	— %	

Voortgang direct duidelijk



Visualisatie knelpunten



« C-tech »

c-tech.brussels@bbri.be



UN SERVICE DU



EN COLLABORATION AVEC



AVEC LE SUPPORT DE

